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Billie H. Hix
BILLIE H. HIX

Chief, Technical Systems Branch
The Albert F. Simpson Historical
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AF/IGSPE Ltr., 13 Dec 1973
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Date:

7 DEC 1974



-Semi-Annual-
**HISTORICAL
REPORT**

NUMBER
FOUR

SUPPORTING DOCUMENTS
Volume I

December 1952
Documents Nos. 1-16

PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
COMMAND ADJUTANT

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SECRET SECURITY INFORMATION

HEADQUARTERS
AIR DEFENSE COMMAND

SEMI-ANNUAL HISTORICAL REPORT
1 July - 31 December 1952

SUPPORTING DOCUMENTS
Volume I

Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT

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HEADQUARTERS 28TH AIR DIVISION (DEFENSE)
Hamilton Air Force Base
Hamilton, California

1

CG 413.44

23 Aug 1952

SUBJECT: Request for Additional Radar Site

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 248

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1. It is recommended that immediate action be initiated to establish an additional radarsite in the 28th Air Division (Def):

- a. To prevent air penetration of the San Francisco Bay Area from seaward.
- b. To provide adequate air surveillance over the San Francisco Bay Area for ground controlled intercepts.
- c. To insure accomplishment of the assigned air defense mission.

2. Study of calibration reports and results of special flight checks indicates conclusively that the mission of the 28th Air Division (Defense) is jeopardized by the lack of radar coverage at 5000 feet MSL or less in a large area extending seaward from Monterey, California. This area, without coverage, centering on Monterey, California, and extending seaward in an opening triangle, affords an unobstructed approach path into the heart of the 28th Air Division (Defense), the San Francisco Bay Area.

3. Past calibrations of existing sites clearly indicate this area of probable penetration, reference Inclosure 1. A system flight check ordered by Headquarters Western Air Defense Force for 11 July 1952, employing a single B-29 aircraft flying at 23,000 feet MSL was tracked as follows:

- a. Continuously, from Point KM 5450 to MG 1433, with contact lost at MG 1433. Contact was re-established at Point NF 1043 and maintained continuously until the target progressed to point A D 2738.

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Hq 28AD (Def) CG, Subj: Request for Additional Radar Site

4. A system penetration flight requested by this Air Division was made on 24 July 1952. This penetration was attempted by a single B-29 aircraft flying at 5000 feet MSL from a point at sea (LG 0036) direct to Monterey, California. This penetration was accomplished without detection of the penetration aircraft.

5. It is further recommended that the requested additional radar site be established at Loma Prieta, California (PH 1007), (see Inclosure 2), and that radar sets AN/FPS-3 and AN/FPS-6 be the primary equipments. Loma Prieta has a gravel road to the summit (elevation 3798 feet), has a negative masking except for the sector 020 to 040 degrees magnetic, has line of sight to San Francisco and line of sight coverage seaward as indicated in Inclosure 2.

2 Incls:

1. 5000-Ft Radar Coverage
2. 5000-Ft Anticipated Coverage

s/t/ JAMES W. ANDREW
Colonel USAF
Commanding

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Hqs 28th Air Div (Def) CG 413.44 Subj: Request for Additional Radar Site
(23 Aug 52)

WDCVC 413.44

1st Ind

17 Sep 1952

HQS WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

1. This Headquarters concurs in the requirement indicated in basic communication and recommends that M-95 be relocated ~~to~~ fill this gap.
2. It is further recommended that Site No. 2, as shown in the Second Phase, Mobile Program Mid-Term Requirements Plan, be relocated to Las Cruces, New Mexico.
3. Although the relocation of M-95 would preclude air surveillance of southern approaches to the 34th Air Division (Defense) area prior to the implementation of the Mid-Term Requirements Plan, it is considered more important to close the gap depicted in the basic correspondence.

2 Incls:
n/c

s/t/ HUGH A. PARKER
Brigadier General, USAF
Vice Commander

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HEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

2

WDOCE-2 413.44

7 Nov 1952

SUBJECT: (UNCLASSIFIED) Request for Interim Gap Filler Radar Site

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

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1. Approval is herewith requested to move TPS-1C, Serial No. 20, from Mather Air Force Base to Fort Ord, California.
2. If approval is granted, an interim radar station will be established at approximately 36 degrees, 38 minutes latitude, 121 degrees 50 minutes longitude, to close the gap existing in the Monterey Bay area previously referred to in 1st indorsement by this headquarters to 28th Air Division letter, file CG 413.44, Subject: Request for Additional Radar Site, classified Secret, dated 28 August 1952. Reference Air Defense Command message ADOPR 2074, same subject. Navy installations have been investigated. It is the opinion of this headquarters that the requirement cannot adequately be met with by any Navy installation in the Monterey area.
3. Further request approval to execute joint operating agreement with appropriate Army Commander for procurement of rations and quarters, and necessary incidentals to establish the radar station. This headquarters has received tentative Army approval from Colonel Miller, Chief of Staff of the 6th Infantry Division, Fort Ord, during preliminary visit by representatives of this headquarters.
4. Also request authority to install the following communications facilities:
 - a. One air surveillance telling line.
 - b. One command and status line; a and b to terminate at R-38, (Mt. Tamalpais) California.
 - c. One administrative teletype circuit, terminating at R-48.

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WDOCE-2 413.44 Subject: (Unclassified) Request for Interim Gap Filler Radar Site

5. Preliminary tests indicate satisfactory coverage at selected location.

6. Manpower requirements of 2 Officers and 20 Airmen will be supplied from personnel assigned 28th Air Division, until such time as an N-site with its normal complement of personnel to effect the necessary radar coverage is accomplished.

FOR THE COMMANDING GENERAL:

JACK J. JONES
1st Lt., USAF
Asst Adj Gen

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Subject: Request for Interim Gap Filler Radar Site

ADOCE-E 413.44 (7 Nov 52) 1st Ind 20 Nov 1952

~~NO~~ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton Air Force
Base, California

1. Concur in proposal as set forth in basic.
2. The AN/TPS-1D which has been shipped to Davis-Monthan AFB should be utilized as primary search for this station, with TPS-1C No. 20 used for backup search if desired. ADC has been requested to ship the TPS-1D from Davis-Monthan to SMAMA; additional instructions will be forwarded to make the set available for subject installation.

BY COMMAND OF GENERAL CHIDLAW:

THOMAS C. SAVAGE
Major, USAF
Asst Adj Gen

s/t/ Lt Col WALafrenz/hb

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HQ ADC ENT AFB
COLORADO SPRINGS, COLO

DIR OF COMM
HQ USAF
WASH DC

ROUTINE

FILE NUMBER 203 ✓

23 Dec 1952

ADOC-E 2608. Req Grd be issued to cover mv of AN/TPS-10 -N
322 fr SHAMA to Fort Ord Calif. Equip is to be opr as an Interim Gap
Filler radar closing gap in radar coverage existing in the Monterey Bay
Calif area. This interim site w/b repl by a second ph mob site, (J -155)-
AN/FPS-1D is programmed as prim search radar for JH-155.

MESSAGE TRANSMITTED
WITH FOLLOWING DATE TIME GROUP

232145Z

s/t/ BTVasko/eh

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OPERATION SIGN POST

24-28 JULY 1952

Final Report

*Info sent to
Perm file
for War and
4/c, USAF*

12 SEPT.
1952

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Headquarters ★ ★ ★ ★ ★
AIR DEFENSE COMMAND
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BY AUTH: CG ADC

SHR
12 Sep 1952

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PREFACE

The opportunity to participate in an exercise of this scope and size was eagerly welcomed by the Air Defense Command. In fact, we had been working for a year or more to get a maneuver of this magnitude as an exercise of our nation-wide system.

Our objectives were these:

One -- To give our radar-fighter team a chance to try out its muscles against the largest simulated strike yet available.

Two -- To test the functioning of our augmentation plans which involve the use of fighter aircraft of other commands. This was of great interest to us, both in the direct operational phase and in the proving out of previously laid plans for movement of these forces to their deployment bases, and the handling of the necessary support functions. Collaterally tested was the use of the Navy augmentation forces then in place on the East and West Coasts.

Three -- To test our procedures for passing of information within the air defense system under conditions of heavy strike activity.

Four -- To exercise our coordination with the Air Defence Command, Royal Canadian Air Force.

We attained all of the objectives we had set and garnered a great deal of extremely useful information and guidance for future planning and training purposes. I think, however, I should say that we must be extremely cautious in using the results of this -- or similar exercises -- as empirical yardsticks to measure either our current or projected effectiveness.

There were certain conditions which pertained to this exercise that might or might not have their counterpart in the real thing. For example:

One -- We were -- from an ADC point of view -- quite fortunate in weather conditions. Very favorable weather from the defensive standpoint prevailed with the exception of some portions of New England and of the extreme northwest corner of the United States.

Two -- The strike activity was largely under daylight conditions with the exception of the West Coast. Even on the West Coast daylight conditions prevailed at altitude during the time of strike.

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Three -- We had warned the Commanding Generals of the Defense Forces of the general time period of the strike and we had used a synthetic intelligence scenario to build alertness up to a peak during the critical period. This obviously resulted in all of our elements being keyed up and fully manned around the clock even though they had not been informed of actual strike times, routes or targets.

Four -- In order to be sure that our augmentation forces got into the act, we timed their call up so as to insure their being in place prior to the heavy strike activity. As will be pointed out in our conclusions, the effectiveness of our augmentation forces as a function of the degree of forewarning received is a worrisome problem.

Conversely, I think we should also recognize that certain conditions which did prevail tended in some measure to limit the effectiveness of my command more severely than would be expected under actual operations. For example:

One -- We took special and somewhat limiting safety measures to reduce the possibility of accidents. These measures apparently paid off well as we had no major accidents in spite of the large numbers of aircraft involved, the concentration of those aircraft, and the simulated combat maneuvers.

Two -- In some instances, we did not scramble fighters during night and certain weather conditions which would have been disregarded during the real thing. This limitation applied particularly to our augmentation forces.

Three -- We were somewhat impeded throughout the strike period by the requirement to analyze and deal with the normal country-wide intensity of air traffic. By way of example, during the approximate seven-hour period covering the main strike activity, we scrambled 186 fighters against 72 of 167 separate unknown tracks which were not part of the strike forces. Obviously, the invoking of security control of air traffic during a real emergency would sharply diminish the dimensions of this particular problem.

B. W. Chidlaw
B. W. CHIDLAW
General, USAF
COMMANDING.

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SUMMARY

Exercise SIGN POST enabled the Air Defense Command to pit its facilities and techniques against the largest and most widespread series of faker strikes it had ever encountered. During the three strike days of the five-day exercise period the principal components of the Air Defense Command were thoroughly exercised. SIGN POST was not, however, an overall test of the air defense system. As an exercise originally planned to be a partial test of SAC tactics, it did not always provide ADC with situations believed by ADC Intelligence personnel to be the most realistic.

On the first scheduled day of the exercise a sharp rise occurred in the number of non-strike aircraft designated as unknown and in the number of these unknowns reported to the COC at Hq ADC. The number rose from an average of 55 per day for the month preceding the exercise to an average of 273 per day for the five-day exercise period. Even on the two days of the exercise when no strikes were made the numbers were 270 and 166. The large number of unknowns stemmed mainly from on-the-spot changes in interpretation of identification criteria rather than from the influx of strike aircraft. The presence of these "unknowns" caused a serious dissipation of fighter forces, as indicated by the fact that a total of 186 interceptors were directed against these aircraft in the seven-hour period from 1000Z - 1700Z on E Day + 3.

On E Day + 3, the day of the main attack, all 19 strikes were detected, all were identified as unknown and scrambled on, and 18 were pounced at least once before bomb release line (BRL). The overall pounce success rate, or the proportion of scramble attempts which were

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successful in making pounce without respect to BRL, was 75%. During E Day + 3, 50% of the intercept attempts resulted in pounce before BRL, 25% after BRL, and 25% failed. A total of 253 fighters made pounce on 139 bombers; 164 made pounce before BRL and 69 after BRL.

Several features distinguished Exercise SIGN POST from previous air defense exercises. One of the most important of these was the extensive use of augmentation forces. While in the past Air National Guard and Navy forces had been used widely, this was the first time Tactical Air Command and the Training Command forces were extensively involved. With the degree of forewarning provided in this exercise, their contribution became a major one.

The use of an Intelligence scenario was an innovation, and the extent and quality of SAC ECM were unprecedented in the air defense exercises.

Taken as a whole, Exercise SIGN POST produced the clearest information yet available on the performance of the major components of the air defense system under conditions resembling those of an unequivocally forewarned medium and high altitude attack.

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CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations presented in this report are based on data from observer teams, from the Deputies for Operations of the air divisions, and from a study of the standard record forms produced by the air defense operating units. They represent lessons learned from Exercise SIGN POST - a medium and high altitude strike - one which, while it thoroughly exercised, did not fully test the air defense system. Penetrations at altitudes low enough to minimize radar detection were few in number. GOC, now under Operation SKY WATCH, was not tested although it participated in the exercise.

Appropriate action is being initiated or stimulated by this headquarters as warranted by the conclusions and recommendations.

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CONCLUSIONS1. AC&W.

a. Under the conditions of forewarning existing in this exercise the heavy radars demonstrated very high detection probability and detection ranges which on the average approached line-of-sight. The characteristics of the SAC strikes on E Day + 3 - massed or streams of bombers mostly at medium to high altitudes - favored long detection ranges. Detection ranges on high-flying B-45s were markedly lower than on the B-36 type aircraft. In addition, detection ranges on B-36 aircraft flying at 40,000 ft. were less than those obtained on the same aircraft flying at 30,000 ft.

b. Blind areas at low, and in some places, medium altitude, exist in our radar coverage and enabled several successful SAC penetrations to be made. The use of river valleys, such as the St. Lawrence and Hudson, by moderately low-flying faker aircraft made radar tracking exceedingly difficult.

c. Radar operators tended either not to assess or to under-assess the faker strength when bomber groups were in close formation.

2. Identification.

a. During the time covered by the exercise, the designation of friendly non-strike aircraft as unknown increased by a factor of five (5). Necessary action against this increased number of unknowns expended our forces needlessly and imposed a severe strain on our telling and plotting lines. Resulting delays in the transmission of faker data in many cases prevented timely command decision.

b. The fact that traffic could not be grounded in this and similar exercises, upon recognition of the raid, complicated internal identification unrealistically for both the AA and ADC forces. (The SCAT plan for grounding of IFR traffic was tested synthetically by CAA during the exercise, according to CAA reports. Fifteen minutes were required to ground the bulk of the country's IFR traffic.)

3. Countermeasures.

a. Chaff, when extensively used, tended to confuse the air situation. In some cases chaff caused scramble action to be taken on

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false faker tracks; in others, it caused the faker track to be lost.

b. The technique of jamming all VHF channels was strikingly effective in breaking GCI control of fighters and in preventing fighters from passing vital intelligence on faker action back into the AC&W net.

c. Electronic jamming of the heavy radars was substantially ineffective. In several instances such jamming attempts were initially effective but anti-jamming measures were correctly used and the ECM produced negative results.

4. Interceptors.

a. Inadequate or late commitment of the forces available for scrambling against known faker tracks was evident during SIGN POST. A contributing factor to this inadequacy was the tendency of the radar operators to underestimate the size of the bomber attack forces.

b. Redeployment of fighters within the defense forces in some instances failed to satisfy the requirements for defense of an assigned area. In one case excessive redeployment resulted in assigned forces being out of position to defend their area against a faker strike.

c. The ATRC-TAC augmentation effort is considered to have been highly successful with the degree of forewarning provided in this maneuver. In the case of the raid against Chicago, the 30th Air Division felt that these forces turned the tide of the battle. However, numerous minor difficulties were encountered - and a shorter period of warning may seriously limit their usefulness. The Navy augmentation forces were successfully used in EADF but weather precluded full utilization in WADF.

5. Antiaircraft.

a. The usual position of AA gun-laying radars inside the ground clutter of the ADC radars results in fading of track from ADC scopes prior to its being acquired by the AA radar. When this condition occurs, engagement is either seriously limited or precluded entirely.

b. Instruction from this headquarters that the condition of air defense warning would not be simulated, resulted in the omission of actions which would normally be taken by AAA upon receipt

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of warning of attack - such as manning of guns and warming up of radars.

6. Data Transmission.

a. Field forces' reports have indicated that during the exercise and, in fact, also during other near saturation periods operational performance has been seriously degraded due to the requirements of higher echelons for current and detailed air situation data.

b. Length and variability of time delays and the inaccuracy and incompleteness of voice telling and manual plotting would have generally precluded timely recognition at ADC level of an actual unforewarned raid by means of the numerical raid recognition technique.

7. General.

a. Very high altitude strikes by aggressor forces accentuated system weaknesses. This conclusion applies specifically to radar detection (on fast jet types), tracking, fighter capabilities and antiaircraft effectiveness.

b. The large variety of intelligence publications and messages distributed prior to, and during, the exercise caused confusion. Procedures used by Intelligence for reporting and disseminating information were crude and improvisation had to be practiced.

c. The air defense system, although designed for 24-hour operation, tended to exhaust key personnel under the sustained intensive operation which prevailed during the exercise.

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RECOMMENDATIONS1. AC&W.

a. All ADC radars on permanent sites should be calibrated using both jet and propeller type aircraft at altitudes above 40,000 ft. It is anticipated that research and development effort will be required to improve the high altitude coverage of the present radars.

b. Gap fillers, mobile or fixed, should be deployed to areas revealed by the exercise as providing low detection probability against penetrating faker aircraft.

c. Training of operators in assessment of force strength should be emphasized. The technique of using expanded scope presentations, particularly "A" type, should be practiced.

2. Identification.

a. The system of identification now functioning in the San Francisco area should be extended without delay to encompass the perimeter of the United States. In addition, a tight, consistent identification system should be evolved and instituted internally as expeditiously as possible.

b. Every effort should be made to firm up SCAT and similar plans for control of essential civilian and military aircraft during periods of alert or actual combat. A series of synthetic tests should be instituted to verify or correct the grounding time figures obtained by CAA during this exercise.

3. Countermeasures.

a. More intensive training in recognition of the various types of radar jamming is imperative for scope operators. They must be taught anti-jamming procedures and techniques and receive extensive drill in applying these techniques to the specific types of jamming encountered. It is obviously too expensive to fly a sufficient number of aircraft dropping chaff and using other ECM at each AC&W squadron, but extensive use can be made of synthetic training devices, film strips and travelling ECM indoctrination teams.

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b. Procedures should be devised to provide efficient operation during periods of communication jamming. On an interim basis, tests should be conducted to determine the relative merit of the various proposals aimed toward the solution of the VHF jamming problem. A suitable backup system utilizing modified broadcast control with one-way transmission should be instituted at each AC&W site and ample drill in its use required. Every effort should be exerted to expedite the installation of UHF communication equipment and high-powered UHF transmitters.

4. Interceptors.

a. The Air Defense Command should provide additional doctrine for operational units concerning commitment of fighter forces, timing in scramble action and responsibilities in areas of overlapping jurisdiction.

b. Defense forces should make a study of tactical deployment of fighter forces within the area of their jurisdiction and submit it to the Air Defense Command. The Air Defense Command would then compare the redeployment plans of the three defense forces and base approval upon the overall strategic requirements for protection of vital areas within the United States.

5. Antiaircraft.

a. The program for utilizing TPS-1D radars to acquire track before fade should be speeded up, and these radars must be integrated with the ADC net. Furthermore, they should be located, where possible, to provide gap filling for the ADC radar system.

b. Simulated warnings should be used during the conduct of future exercises. The results should be closely monitored to determine the validity of a requirement for nomenclature different from that used for the condition of real alert.

6. General.

An intensive study should be instituted immediately to determine the type of high-level decision which it is imperative that the various headquarters make before and during the air battle; of the kind and quantity of information required from the system for these decisions; and of the best immediate means, and then of the best interim mechanisms for transmitting and displaying this information.

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1. INTRODUCTION:

a. Background. Exercise SIGN POST was conceived as a joint SAC-ADC exercise consisting of three days of strike activity as follows:

Pre-strike Reconnaissance	E Day	24 Jul 52
Main Strike	E Day + 3	27 Jul 52
Bomb Damage Assessment (BDA)	E Day + 4	28 Jul 52

The original plan called for two separate exercises to be run jointly by SAC and ADC. The first of these, to be known as CHECKOUT, was to have been held in the early part of May; the second was to be the regularly scheduled full-scale July exercise.

Exercise CHECKOUT was planned to be the first exercise ever conducted with complete surprise to all the forces and air divisions of the Air Defense Command. Mission profiles were arranged to test SAC's participation in the implementation of USAF's "Emergency War Plan." Specific SAC tactics were to be tested and evaluated against ADC's defenses when that command reacted to an exercise projected with absolute "No Warning" conditions. Lack of gasoline caused by the recent petroleum strike necessitated indefinite postponement. Later it was decided to combine CHECKOUT and the regular July exercise into a single maneuver to be designated as SIGN POST.

Exercise SIGN POST abandoned many of the original concepts of CHECKOUT, including the elements of complete surprise and compact strike planning. The Forces were notified that a maneuver would be held within the specific period of 24-28 July 1952. Augmentation forces were deployed to back up and strengthen regular ADC facilities. More missions and more extensive strikes, including penetration of the Canadian ADC, were added. The AAA Command was alerted and the U.S. Navy, U.S. Marine Corps and the ANG were instructed to provide services on call.

b. Evaluation.(1) Technique.

Exercise SIGN POST may be regarded as a maneuver conducted under conditions of indefinite to nearly definite warning with only a moderate semblance of strategic and tactical realism. For these and other reasons as outlined in the PREFACE by General Chidlaw, results must be interpreted with due caution.

Two separate methods of evaluation were established for the exercise. One, based upon an analysis of the

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reports of field observers, was incorporated in a preliminary summary. The second was based upon an analysis of records regularly maintained by the AG&W and fighter squadrons supplemented by data from SAC and from verbal interrogation. The results of the second method of analysis form the basis of the final report on Exercise SIGN POST.

(2) Data Sources.

The data for the preliminary report came from the field observers' written and oral resumes. Copies of the observers' report forms are included in the Appendices. There were in all twenty field observers, the pattern being two observers to each of the Defense Force COCs and principal Air Division ADCCs. Two special observers visited O'Hare and Oscoda, respectively, to study the deployment plan effectiveness in that area. About half a dozen special observers studied the ECM and GOC effectiveness on a limited scale. A similar number of special observers were stationed at ADC's COC during the strike period. In addition, SAC had independent observers assigned to ADDCs and a few of the posts also covered by ADC observers.

The data for the final report came from the records regularly maintained by the radar stations, fighter bases, and control centers. SAC bomber strike overlays were matched with these, and, where pertinent, observers' reports were used. In addition, a meeting was held with the Deputies for Operations from all the air divisions and further information on the action during the air battle was solicited from them. The following records, samples of which are included in the Appendices, are among those which were used: Recorder's Log, Identification Record, Interception Action Record, Intelligence-Operations Interception Interrogation Report.

(3) Responsibility.

ADCOA was assigned the primary responsibility for the evaluation, to be assisted by personnel from O&I, DC&E, OCD, and other directorates of DCS/O. In addition, valuable assistance was rendered by Management Analysis/Comptroller, and by the drafting section of DCS/I.

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O&T was assigned the responsibility for critiques for each of the two reports. The first, which pertained to the brush summary, was presented for the Deputy Chief of Staff for Operations on 8 Aug 52 at Hq ADC. The second critique was a joint one presented on 26 Aug 52 for SAC and ADC. A presentation before the Air Council was made on 4 Sep 52.

2. ORDER OF BATTLE:a. Aggressor.

- (1) Regular combat units of the Air Force Strategic Air Command comprised the so-called Aggressor Forces. Task organizations assigned were as follows:

Second Air Force	Maj. Gen. Atkinson
Eighth Air Force	Maj. Gen. Anderson
Fifteenth Air Force	Maj. Gen. O'Donnell
3904th Composite Wing	Col. Kingsbury

- (2) Targets, routes, timing and other information directive in nature were given to these forces in SAC Operations Order No. 27-52 dated 9 July 1952, with subsequent revisions. Principal strike routes for E Day, E Day + 3, and E Day + 4 may be seen in Charts 1 to 9, appended to this report. Aircraft types, numbers, targets, and time over targets, for each of the 3 strike days are indicated on the same Charts but are also given along with altitude over targets and withdrawal bases in Tables I through VIII.

b. Defense.

- (1) Units of the Air Defense Command and Antiaircraft Commands made up the Friendly Forces for the exercise. Task organizations assigned were as follows:

ARRACOM	Lt. Gen. Lewis
EADF	Maj. Gen. Nelson
CADF	Maj. Gen. Acheson
WADF	Maj. Gen. Todd

In addition, elements of the U.S. Navy, U.S. Marine Corps, and Air National Guard were made available and participated in the exercise. Augmentation forces of TAC and ATRC were deployed as part of the defense arm.

- (2) This force disposition and other material directive in nature may be found in ADC Operations Order No. 14-52 dated 7 July 1952, appended to this report.

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1. DISCUSSION:

a. General. The SAC effort against the defense forces of the United States encompassed 3 days. The first day, designated as E Day, was devoted to reconnaissance, both aerial and electromagnetic. This consisted of a relatively small number of high altitude bombers flying over basic targets in the United States. The main effort was delivered 3 days later, on E Day + 3. Thirteen targets, over half concentrated in the eastern United States, bore the brunt of this attack. The last day, E Day + 4, was devoted to Bomb Damage Assessment reconnaissance and used a limited number of high altitude bomber type aircraft against 31 targets widely dispersed throughout the United States.

All told, 187 SAC aircraft were flown against 54 targets during the period of Exercise SIGN POST. These were committed by days as follows:

Day	Bombers Committed	No. of Targets	No. of Strikes
E	17	10	16
E + 3	139	13	19
E + 4	31	31	31
Total	187	54	66

Defense forces and weapons available during the 3 days of strike activity are given in detail as follows:

- (1) ADC System: Approximately 32,500 ADC personnel were manning assigned positions in the air defense system. More were to be called in as the action developed.
- (2) GOC: Approximately 150,000 civilians manned volunteer positions in the Ground Observer Corps. However, since most of the strikes were flown at high level, the part played by GOC in the overall activity was minor and cannot be considered a test of effectiveness.
- (3) AC&W: Sixty-eight heavy radars at sites around the country were turning continuously. Two Navy picket ships were performing early warning functions off the East Coast. These were deployed at Stations Nos. 1 and 2, but their effectiveness was not adequately determined because of: (1) a condition of temperature inversion during most of the exercise

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which gave shore radars abnormally long ranges; (2) communications difficulties; and (3) limited strike activity in the vicinity. Two Navy aircraft also were available off the East Coast to provide some airborne early warning. One of these worked with the picket vessel at Station No. 2 on the night of 24 July.

- (h) Fighter: At the height of the strike activity on E Day + 3 the 10 ADC interceptor squadrons were backed up by 10 Tactical Air Command detachments deployed and in place in accordance with the augmentation plan. On the night of 26 July a total of 592 interceptors were on alert, including 157 from augmentation forces. Two hours before sunrise on 27 July a total of 759 interceptors were on alert, including 261 from TAC and ATRC and 51 from the Navy. The total included 104 jet aircraft, of which 111 had airborne intercept equipment, and 355 conventional aircraft of the F-51 and F-47 types.
- (5) AA: A total of 127 antiaircraft batteries of Army Antiaircraft Command were in tactical position at 15 possible targets.

In analyzing Exercise SIGN POST, major emphasis has been put on E Day + 3 because of the concentration of strike activity on that day. A complete numerical summary of E Day + 3 is given in par 3c, and all statistical results of the exercise are based on that day's activity. A Radar and Intercept Action Summary for E Day + 3 is given in Appendix III. Since E Day and E Day + 1 were devoted to reconnaissance, both of a pre-strike and post-strike assessment nature, they are treated only in general narrative form and are not included in the quantitative results of the exercise. Special treatment of various phases of participation in the exercise and factors affecting the general outcome is given under Special Topics (par 3d).

Essential reference information is provided in the Appendices. Besides the Radar and Intercept Action Table for E Day + 3, mentioned above, the Appendices include: Strike Summation Tables giving all pertinent details of strikes such as mission number, number and type of aircraft, target, time and altitude over target, etc. (Appendix I); Charts giving strike routes and details, interception action, etc. (Appendix II); general operational instructions as incorporated in ADC Operations Order No. 14-52 (Appendix IV); the forms used by observers in preparing reports for the exercise analysis (Appendix V); and the standard ADC recording and reporting forms used at radar and fighter squadron level (Appendix VI).

- b. Narrative of Strikes: A narrative of strike activity by air force for the 3 days of the exercise follows:

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- (1) E Day: On E Day, 24 July 1952, SAC committed 17 bombers against 10 targets for a total of 16 strikes. Thirty-five fighters made intercept before BRL. There were 15 successful interception attempts before BRL (68%), 3 successful interception attempts after BRL (14%), and 8 unsuccessful interception attempts (18%). This activity was limited to EADF and WADF, no strikes having been scheduled for CADF. The breakdown for the day for the two air forces actively engaged follows:

(a) EADF

1. Description of Attack. Eight bombers were committed against 6 targets in EADF for a total of 8 strikes. (Chart 1 and Strike Summation Table I give pertinent strike data. Actual target time is given in the Table.)

Four high altitude strikes of 1 RB-45 each were directed against New York, Philadelphia, Washington and Pittsburgh, classified as coastal targets. These bombers penetrated from the northwest over Lake Ontario. They were picked up by P-21, Shawnee, N.Y., in an orbiting maneuver approximately 100 mi² north of Buffalo. The formation was evaluated as 3 airplanes which, from altitude and speed information, were called B-45 type aircraft. At a point in central New York the formation fanned out into separate tracks and the individual strike aircraft proceeded to their targets. The New York and Washington strikes were tracked successfully; those against Pittsburgh and Philadelphia were not tracked after initial detection of the combined force.

A total of 4 strikes also were flown against Chicago and Detroit, classified as inland targets. A formation of 2 RB-50s from the east split into separate strikes against these 2 targets. Both were detected by the 32d Air Division and passed to the 30th Air Division. Two RB-45s penetrating from the north also split into separate strikes against Chicago and Detroit. That against Chicago was not detected; that against Detroit was detected by the 32d Air Division and passed to the 30th Air Division. The original penetration direction of this strike did not indicate Detroit as a target, but shortly thereafter the bomber changed course from a southeasterly

*All references to miles in this text apply to nautical miles.

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to an easterly direction, clearly indicating its objective.

In all instances where separate strikes were picked up and tracked the first assessment by the detecting radar was correct. Radar pickups by specific missions were reported as follows:

Coastal

OOA Mission No.	Target	Strike A/C	Radar Sta.	Range (mi.)
3	New York	1 RB-45	P-21	112
4	Phila.	1 RB-45	-	-
5	Wash.D.C.	1 RB-45	P-21	162
6	Pitts.	1 RB-45	-	-

Inland

OOA Mission No.	Target	Strike A/C	Radar Sta.	Range (mi.)
1	Chicago	1 RB-45	-	-
2	Detroit	1 RB-45	P-21	105
7	Chicago	1 RB-50	P-61	143
8	Detroit	1 RB-50	P-21	105

2. Outcome of Attack. A summary of the forces making interception by area, tactic, and target is presented in Table I.

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TABLE I

Interception Forces
E Day - EADF

Tactic	Target	No. of Bombers	No. of fighters making interception	
			Before BRL	After BRL
Inland	Chicago	1 RB-45	Strike not det.	Strike not det.
	Chicago	1 RB-50	2	0
	Detroit	1 RB-45	2	0
	Detroit	1 RB-50	4	0
Total		4	8	0
Coastal	New York	1 RB-45	0	4
	Phila.	1 RB-45	0	0
	Wash.D.C.	1 RB-45	2	2
	Pitts.	1 RB-45	2	2
Total		4	4	8
Grand Total		8	12	8

Twelve fighters made intercepts before BRL and 8 after BRL against the 8 fakers. Of these, 8 were against strike aircraft attacking the inland targets, and 4 were against bombers attacking the coastal targets. Of the total of 8 faker aircraft, 5 were intercepted.

Four F-47s were scrambled from Niagara Falls against the formation of 4 fakers penetrating from the northwest but failed to make contact. The Washington RB-45 track was intercepted at 1525Z just south of Lake Ontario by 4 F-86s (75th FIS deployed from Presque Isle) out of Griffiss.

Unsuccessful intercept attempts were made after target time on the same track by 2 F-94s from Newcastle and 2 F-4Us from Oceana. The New York RB-45 strike faded intermittently after penetration but was observed visually heading down the Hudson River. Four F-51s were scrambled from Burlington at 1440Z and 4 F-86s from Griffiss at 1500Z, all with negative results. Two F-86s scrambled out of Westover made tally-ho at 1602Z but this resulted in a tail chase past the target at New York. Two F-94s from Newcastle and 2 F-94s from McGuire made tally-ho after target; the McGuire fighters also claimed a pounce after target. While not identified as a strike, 1 RB-45 was intercepted about 30 mi. southwest of Pittsburgh by 2 F-86s from Greater Pittsburgh and may have been the intruder attacking this target.

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Two F-86s on CAP from Oscoda were vectored at 1414Z and made a successful intercept at 1450Z against the RB-50 strike on Chicago from the east. Two F-94s scrambled from Selfridge at 1526Z made a successful intercept at 1543Z against the other RB-50 strike from the east against Detroit.

Interception was 100 mi. northeast of the target. A second flight of 2 F-94s from Selfridge, sent up on CAP as an extra precaution, was diverted at 1517Z and made a successful intercept 60 mi. northeast of Detroit. The RB-45 strike from the north against Detroit was successfully intercepted after tally-ho at 1552Z by 2 F-94s vectored from CAP.

The Intercept Success Rate is shown in Table II.

TABLE II

Intercept Success Rate
E Day - EADF

Tactic	Intercept Attempts					
	Successful				Unsuccessful	
	BBRL		ABRL			
	No.	%	No.	%	No.	%
Inland targets	4	100	0	0	0	0
Coastal targets	1	9	3	27	7	64
Total	5	33	3	20	7	47

The low success rate was partly attributable to late scrambling against RB-45 intruders and partly to confusion over control between ADDC and ADCC. Against the New York RB-45 strike the controlling station disregarded instruction from ADCC and scrambled direct to bomber.

3. AA Results. In the coastal action there was no engagement of strike aircraft. The New York RB-45 strike was passed to the AAOC when 86 mi. from target but was not identified as faker until 5 mi. before BRL, allowing insufficient time for manning of equipment. The Pittsburgh RB-45 strike was

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passed to the Pittsburgh AAOC when 195 mi. from target but it faded prior to entering AA radar coverage. The Philadelphia RB-45 strike faded long before entering the area and was not told to the AAOC. Delay in telling prevented acquisition or engagement of the Washington RB-45 strike. The track was not passed to the Washington AAOC until 10 mi. from target and was not identified as faker until 2 mi. from BRL.

One aircraft was engaged in the strike activity against inland targets. This was the Detroit RB-50 strike, passed to the AAOC at 1515Z when 220 mi. from target and identified as faker at 1510Z. The track was acquired by 3 batteries, one of which engaged. The Chicago RB-45 strike was not detected and the RB-50 strike against the same target faded before approaching the Chicago area. The Detroit RB-45 strike was passed to the AAOC when 75 mi. from target but faded when 60 mi. from BRL and could not be correlated by DR procedure.

4. General. No jamming or other factors detrimental to performance of the defense mission were reported either by observers or through regular recording and reporting channels.

(b) WADF

1. Description of Attack. SAC committed 9 bombers in aerial reconnaissance over the area of WADF surveillance on E Day. These bombers were directed against 4 targets in 8 separate strikes. (Strike data are given in Chart 2 and Strike Summation Table II). Since the SAC pattern for the day was divided into what amounted to 3 separate attacks against the 3 air divisions on the West Coast, the narrative is given by division.

- a. 25th Air Division. OOA Missions Nos. 9, 10, 13 and 15 were flown against this division. Two were directed against Spokane and 2 against

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Seattle, and 1 each of these was a high and 1 a medium altitude attack.

The first strike on Seattle was by 1 RB-36 which was over target at 1808Z at 10,000 ft. It was picked up at 1704Z by P-6, Mt. Bonaparte, Washington, 175 mi. from radar and 235 mi. from target. Two F-9hs scrambled by P-40 from Larson were airborne at 1714Z and pounced 1 RB-36 at 1815Z, altitude 10,000 ft., 35 mi. before BRL. Two additional F-9hs were scrambled from Larson and intercepted the RB-36 at the same time. One F-9h was scrambled by P-1 from McChord at 1719Z but did not intercept because 4 fighters were already making passes on the bomber.

This strike was initially passed to the Seattle AAOC at 1707Z when 186 mi. from target. Although never designated as faker, "Guns Free" was ordered and 8 batteries acquired the target, of which 2 engaged.

P-46, Birch Bay, Washington, detected a second bogie at 1706Z estimated to be flying at an altitude of 25,000 ft. and a speed of 220 knots. It was picked up 200 mi. from Seattle and 125 mi. from radar. Two F-9hs were scrambled by P-40 from Larson at 1724Z. They pounced 1 RB-29, altitude 28,000 ft., at 1747Z, 75 mi. before target.

This track was passed to the Seattle AAOC at 1710Z when the bogie was 265 mi. from target. It was identified to AAOC as unknown but "Guns Free" was ordered. The strike was acquired by 1 battery but engagement was range limited. The other batteries were preoccupied with locally arranged strikes, the other faker mission, and other unknowns in the vicinity.

The first reconnaissance strike against Spokane was by an RB-36 detected orbiting far to the north. It was picked up by P-6 at 1534Z, 160 mi. from radar and 250 mi. from target. Observers

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reported early unsuccessful scrambles on this "withdrawal" but the first scramble recorded was at 1617Z by 2 F-9hs from Larson, ordered by P-140. Pounce was made on 1 RB-36 at 30,000 ft. at 1739Z, 108 mi. before target.

The second strike against Spokane was picked up at 1817Z by P-60, Colville, Washington, 120 mi. from radar and 125 mi. from target. Two F-9hs scrambled from Larson by P-140 pounced 1 RB-29 at 25,000 ft. at 1846Z, about 55 mi. before ERL. No AA is stationed along the route of these 2 strikes.

- b. 27th Air Division. In this division 2 strikes were flown against Los Angeles. One, OOA Mission No. 11, was by 1 RB-36 over target at 1800Z at 40,000 ft. The other, OOA Mission No. 11h, was by 1 RB-29 over target at 1830Z at 25,000 ft.

The B-29 was detected first at 1713Z by P-15, Santa Rosa Island, 160 mi. from radar and 230 mi. from target. Two F-51s from Long Beach were scrambled at 1718Z and 4 more from the same base at 1719Z. Intercept was made by the 4 F-51s at 1810Z at 24,000 ft., about 10 mi. before target.

The B-36 was detected by Santa Rosa at 1714Z, 182 mi. from radar and 270 mi. from target. One F-86 from Victorville was scrambled at 1721Z and made intercept at 1748Z at 39,000 ft., 50 mi. before target.

Chaff was effective in confusing the air situation. There was no radar nor VHF jamming. No radars were inoperative during the strike. Weather was clear.

- c. 28th Air Division. San Francisco was the target for 2 coordinated strikes in this division. OOA Mission No. 12 consisted of 1 RB-36 which was over target at 1811Z at 40,000 ft. OOA Mission No. 16 was flown by 1 RB-29 which was over target at 1800Z at 25,000 ft.

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Initial detection was made at 1645Z by P-37, Point Arena, Calif., 210 mi. from radar and 280 mi. from target. Two F-86s were scrambled by P-38 from Hamilton at 1708Z. The scramble was deferred because of distance from target and no intercept was made. The transponder-interrogator portion of the Mark X IFF system was inoperative.

A second detection was made at 1658Z by P-37 at a range of 185 mi. Two F-86s were ordered scrambled by P-38 from Hamilton and were airborne at 1722Z. One aborted at 1727Z and a replacement was airborne at 1727Z. At 1749Z pounce was made on 1 B-29, about 50 mi. from target.

A third detection was made by P-37 at 1746Z, 180 mi. from radar and 240 mi. from target. Two F-86s were scrambled from Hamilton at 1810Z by P-38. One B-36 was intercepted at 38,000 ft. at 1826Z, 80 mi. from target.

The first RB-36 of this strike was passed to the San Francisco AAOC at 1721Z when 185 mi. from target. This aircraft was never identified to the AAOC as faker; therefore, although acquired by 2 batteries, it could not be engaged.

The second RB-36 was initially passed to the AAOC at 1755Z when 205 mi. from target. This track was identified as faker at 1828Z. It was acquired by 4 batteries, of which 2 were within range and engaged. The B-29 was initially passed to the San Francisco AAOC at 1722Z when 185 mi. from target. The track was identified as faker at 1800Z and was acquired by 3 AA batteries, of which 1 engaged.

2. Outcome of Attack. A summary of the forces making interception by Air Division and target in WADF on E Day is presented in Table III.

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TABLE III
Interception Forces
E Day - WADF

Division	Target	No. of bombers	No. of fighters making intcp	
			BBRL	ABRL
25th	Seattle	1	2	0
	Spokane	1	2	0
	Seattle	1	4	0
	Spokane	1	2	0
Total		4	10	0
27th	LosAng	1	1	0
	LosAng	1	4	0
Total		2	5	0
28th	SanFran	2	2	0
	SanFran	1	2	0
Total		3	4	0
Grand Total		9	19	0

For WADF as a whole, a total of 19 fighters made successful intercept before BRL against the 9 fakers. There were no intercepts after BRL, and of a total of 26 fighters scrambled against all tracks only 7 failed to make successful interception.

The Intercept Success Rate is indicated in Table IV.

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TABLE IV
Intercept Success Rate
E Day - WADF

Division	Intercept Attempts					
	Successful				Unsuccessful	
	BBRL		ABRL			
	No.	%	No.	%	No.	%
25th	5	83	0	0	1	17
27th	2	50	0	0	2	50
28th	2	67	0	0	1	33
Total	9	69	0	0	4	31

The low success rate of the 28th Air Division was attributable to the inability of the radar to track the target in one case, and to malfunctioning of the IFF receiver at the ADCG in the rest. Fighters could not be seen on the radar scopes at any time during the action.

In the 25th Air Division 4 fighters, 2 from McChord to intercept the Spokane RB-36 and 2 from Larson to intercept the Seattle RB-36, were scrambled early. The raid had arrived in radar cover early and subsequently withdrawn to orbit after the fighters were scrambled. Consequently, the 2 interception attempts were unsuccessful.

3. General. No jamming was experienced by the VHF communications link or by the detecting radars. Some chaff was dropped in the 25th and 28th Air Divisions but was ineffectual. It was, however, used effectively in the 27th Air Division.

- (2) E Day + 3: On 27 July 1952, SAC committed its aircraft in the major strike effort. A total of 139 bombers were deployed against 13 targets in 19 separate strikes. The targets were major population and industrial complexes, over half of which were in EADF. Strikes were made over-water and overland against coastal cities, and overland against inland targets such as Detroit and Chicago. During

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the strikes 253 fighters made intercepts - 184 before BRL. There were 55 successful attempts before BRL (50%), 29 successful attempts after BRL (25%), and 29 unsuccessful attempts (25%). (A tabulation of intercepts by mission is given in the Radar and Intercept Action Summary for E Day + 3. Intercept figures and success rates for each air defense force are not given in the narrative below but are presented in tabular form in par 3c, dealing entirely with the quantitative aspects of E Day + 3.) All three air defense forces were engaged in the strike exercise on E Day + 3. A breakdown of their activity follows:

- (a) EADF. With 10 separate strikes directed against 7 key targets at both extremes of its area of responsibility, EADF on E Day + 3 was confronted with a tactical problem which required many important decisions. SAC not only struck at both high and medium altitudes but delivered a complex series of attacks which shifted from overland to overwater and back again, and from coastal to inland targets. The entire period of strikes, during which SAC committed 83 bombers, was a test of deployment and defensive strategy which found EADF amply forewarned but hard pressed to meet fighter demands. On the basis of time sequence, development of this offensive is best reflected in separate treatment of 3 separate categories of strikes: overland against coastal targets; overwater against coastal targets; and overland against inland targets. (Strike data are given in Charts 3 and 4 and Strike Summation Table III.)

1. Overland Strikes against Coastal Targets. The first action was on the East Coast against a force observed proceeding from the east to the area of Saguenay Beacon on the St. Lawrence River. This force was detected and scrambled against by Canadian forces using F-86s and Vampires out of Bagotville. Information on the separate strikes to be flown against New York, Philadelphia, Washington and Pittsburgh was then passed to P-80, Caswell, Maine, which painted all of these tracks approximately 100 mi. north of the station. Estimates of altitude at that time varied from 7,000 to 10,000 ft.

The raid formed and started its penetration down the Gaspé Peninsula in 4 separate strike groups. These followed a common path through the 32d Air

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Division to the vicinity of Utica, N. Y. By this time they had passed within the radius of action of 96 interceptors on 7 bases. Thirty-eight of these interceptors from 4 bases--Presque Isle, Dow, Burlington and Griffiss--were scrambled against them.

At this point the raid path split into 4 distinct patterns of attack against New York, Philadelphia, Washington and Pittsburgh. Simultaneously, 4 separate attacks were observed approaching the Atlantic Coast overwater from the east. This 4-pronged attack split the interceptor forces on the bases remaining along the approach route of the raid making penetration from the north. In the action that followed, 36 more interceptors were scrambled from 4 bases against the overland strike.

Overall results indicated that the Washington strike was pounced by 6 interceptors before BRL and 5 after BRL. The New York strike was pounced by 8 before BRL and 10 after BRL, with 8 more fighters listed as unsuccessful. Against the Philadelphia strike 14 fighters pounced before BRL and 6 were unsuccessful. The Pittsburgh strike was pounced by 4. Action by separate missions follows:

- a. OOA Mission No. 19, consisting of 6 B-50s which were over target (New York) at 1226-1237Z after climbing to 30,000 ft. After initial detection at 0838Z by Canadian radar over the Gaspé Peninsula this strike was established as a separate track by the U.S. radar net at a point on the St. Lawrence River 40 mi. from the U.S.-Canadian border. Detection was by P-80, Caswell, Me., at a range of 100 mi., giving forewarning before target of about 500 mi.

First scramble was at 0932Z by 2 F-86s of the 75th FIS from Presque Isle. A successful intercept was made at 1005Z, at a point 20 mi. inside the Canadian border, 80 mi. from the fighter base, and about 450 mi. from target. This was 2 hrs, 19 min. before BRL. Four passes were made against the strike force of 6 B-50s flying at 10,000 ft.

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A second scramble at 0947Z by 2 F-86s of the same squadron from Presque Isle was unsuccessful because of target fade and loss of VHF contact. At 1000Z, 4 F-80s were scrambled from Dow by P-65. This attempt also was unsuccessful because of target fade, even though an effort was made to dead reckon the track.

A fourth attempt by 4 F-80s on CAP from Dow was successful. Vectored by P-14 at 1050Z, this flight pounced the 6 B-50s flying at 10,000 ft. at 1101Z, before BRL. One other successful intercept before BRL was made by 2 F-86s of the 27th FIS, scrambled from Griffiss at 1140Z. They made 4 passes at 1200Z.

Activity continued after target as the strike track passed through the areas of P-30, P-9, P-54 and P-56. A scramble of 2 F-94s from McGuire at 1213Z resulted in a successful intercept at 1240Z, after BRL. Two other F-94s scrambled from McGuire at 1214Z were unsuccessful because of loss of VHF contact. Next, fighter action passed to Newcastle from where 2 F-94s, scrambled at 1226Z by P-9, made intercept at 1240Z, after BRL.

Navy fighter action concluded the effort against this strike. One F-2H scrambled from Atlantic City at 1256Z by P-54 made a successful intercept at 1305Z, after BRL. This was followed by 2 intercepts after BRL by 2 flights of 2 F-9Fs each from Navy's VF-61 Squadron, scrambled from Oceana by P-56. The first was at 1310Z against 3 B-50s flying at 3,700 ft., and the second was at 1328Z against 6 B-50s at 17,000 ft. Observers reported a scramble of 2 F-9Fs from Quonset which failed, but no substantiating fighter forms were available.

AA Results: This strike was initially passed to the New York AAOC at 1140Z when 210 mi. from target. It was identified as faker at 1230Z when entering AA gun range. The track was acquired by 4 batteries but was not engaged successfully, since the batteries closest to the

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route were either tracking other unknowns or were out of action. Two batteries of the 4 carrying the strike lost the target and the remaining 2 were not within effective range. One battery reported effective ECM (chaff) which prevented the battery from acquiring the strike.

- b. OOA Mission No. 20, consisting of 5 B-50s and 1 ferret RB-50 which were over target (Philadelphia) at 1227Z at 30,000 ft. First pickup on the track established for this strike was at 0835Z by P-80, Caswell, Me., at a range of 85 mi. to the northeast. The strike was first assessed as 1 aircraft flying at a speed of 200 knots at 10,000 ft. First fighter action occurred at 0842Z when 2 F-86s of the 75th FIS were scrambled from Presque Isle. They made intercept at 0912Z at a point in Canada which was 3 hrs. and 15 min. before BRL. The strike force was identified at that time as 6 B-50s flying at 7,000 ft.

A second intercept attempt was made at 0955Z by 4 F-80s on CAP from Dow. The scramble was ordered by P-65 but was unsuccessful, even though the radar station dead reckoned the track through its area.

A+ 1000Z, 4 F-80s from the 132d FIS were scrambled from Dow. They made intercept at 1100Z, before BRL, with 4 passes on the 6 B-50s which by then had climbed to 10,000 ft. Three later attempts also resulted in intercepts before BRL. Four F-86s scrambled at 1100Z from Griffiss made intercept at 1110Z with 4 passes. Another flight of 2 F-86s scrambled from Griffiss at 1123Z pounced the strike formation at 1157Z with 4 passes. The third of these intercepts was made at 1221Z at 25,000 ft. by 2 F-9hs scrambled from McGuire at 1202Z by P-9.

A final scramble at 1220Z of 2 F-9hs from Newcastle, also ordered by P-9, was unsuccessful because of loss of VHF contact and tail chase.

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AA Results: This strike was initially passed to the Philadelphia AAOC at 1216Z when 45 mi. from target. The track faded after 3 plots, not allowing sufficient time for AA acquisition or correlation by dead reckoning with observed aircraft in the area.

- c. OOA Mission No. 21, consisting of 4 B-29s and 1 RB-50 ferret aircraft which were over target (Washington) from 1210Z to 1212Z at 30,000 ft. The strike was picked up early by Canadian stations and at 0919Z was established as a separate track by P-80, Caswell, Me., at a range of 130 mi. This was at a point 60 mi. northwest of the nearest point on the U.S.-Canadian border and about 630 mi. from target.

First scramble was at 1118Z of 2 F-9hs from McGuire by P-30. A successful intercept was made at 1200Z, 90 mi. before target. The formation was identified as 6 B-29s.

At 1147Z, 4 F-9hs of the 142d FIS were scrambled from Newcastle by P-9. Intercept with 16 passes was made near Baltimore, before BRL. Two more F-9hs scrambled from Newcastle at 1148Z intercepted at 1212Z, before BRL. The strike formation by this time had been correctly identified as 5 aircraft. A third intercept from Newcastle was made at 1222Z by 1 F-9h vectored from CAP at 1213Z. It pounced 1 B-29 after BRL.

The last scramble was at 1303Z by 2 F-9hs from Dover. Intercept was made at 1404Z against the 5 B-29s flying at 20,000 ft.

AA Results: This strike was initially passed to the Washington AAOC at 1141Z when 80 mi. from target but was not identified as unknown until 1211Z, after BRL. Consequently, it was not engaged, although acquired by 7 batteries. ECM (chaff) was reported by AA radars but did not interfere with their operation.

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- d. OOA Mission No. 22, consisting of 5 B-29s which were over target (Pittsburgh) from 1206Z to 1217Z at 15,000 ft. This strike was the first of the h penetrating down the Gaspé Peninsula to be established as a separate track. First pickup was by Canadian radar and the track was passed to P-80, Caswell, Me., at 0700Z at a range of 110 mi. The track at this time was assessed as 2 aircraft flying at a speed of 130 knots at 10,000 ft. At 0855Z the track faded but it was dead reckoned, and 4 F-51s scrambled from Burlington made tally-ho at 0910Z. They identified the strike formation of 5 B-29s.

At 0951Z, 4 F-96s from Griffiss were scrambled by P-49. A successful intercept was made at 1010Z, 330 mi. northeast of the target. The 5 B-29s at that time were flying at 12,000 ft.

Final action was an intercept attempt by 4 F-9hs scrambled from McGuire at 1022Z by P-9. It was unsuccessful because of target fade.

Scrambles also were reported by observers from Lockbourne. Four F-8hs were scrambled but failed due to target fade, and 4 F-9hs pounced after BRL. Fighter forms, however, did not show these attempts.

AA Results: This strike was initially passed to the Pittsburgh AAOC at 1118Z when 150 mi. from target and identified as faker at that time. At 1200Z, 5 batteries of the Pittsburgh defense acquired 1 aircraft entering the AA defended area but were prevented from engaging by effective ECM (chaff).

2. Overwater Strikes against Coastal Targets. The h-pronged attack from overwater against East Coast targets was picked up at phenomenal ranges by U.S. radars, due largely to a temperature inversion existing at that time. The average pickup distance was 200 mi. Altitude of the strikes varied from 13,000 ft. to 21,000 ft. and averaged 17,500 ft.

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These strikes, directed against Washington, New York, Philadelphia and Boston, came within range of 91 interceptors on 10 bases. Thirty-eight of this total had been committed previously against the overland strike described above. Forty-four interceptors were scrambled from 8 bases against the 4 overwater strikes. Of these, 10 had been recovered, turned around and rescrambled after action against other fakers.

Overall results showed successful intercepts by number of aircraft against the 4 strikes as follows: Boston, 7 before turn point and 4 after; New York, 8 before turn point; Philadelphia, 12 before turn point and 2 after; and Washington 4 before turn point and 4 after. For computation of intercept success rate BRL for these diversions was computed on the basis of time required to reach target in the event that they had continued on a bombing course. Separate action on these strikes is narrated below:

- a. OOA Mission No. 24, consisting of 3 B-29s which were over the Boston area at 1130Z after a crash descent from 20,000 to 3,000 ft. Unlike the other overwater strikes, which turned south while still offshore, the Boston strike made a target run over Squantum, Mass. It was first picked up by P-45 Montauk, N.Y., at a range of 160 mi. to the southeast. This was at a point at sea 200 mi. from the New Jersey shore and 230 mi. from target. The track was identified merely as unknown.

First scramble was at 1025Z by 4 F-47s of the 118th FIS, scrambled from Suffolk by P-45. One fighter aborted because of engine failure, but the other 3 made intercept at 1108Z at a point 95 mi. southeast of the target. Twelve passes were made before BRL. Radar jamming caused 4 F-94s scrambled from Otis at 1048Z to fail. AI equipment in all 4 aircraft was affected. At 1052Z, 2 more F-94s were scrambled from the 59th FIS at Otis. They made intercept at 1135Z with 14 passes before BRL against the 3 B-29s, flying at 21,000 ft. Another scramble of 2 F-94s from Otis at 1108Z resulted in a successful intercept with

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5 passes before BRL. Both of these scrambles were ordered by P-10.

Two more scrambles were made after the strike had made its turn at target and moved southward along the coast. Two F-2Hs scrambled by P-54 from Atlantic City made intercept at 1335Z, and 2 F-9Hs scrambled by P-56 from Oceana at 1319Z made 4 passes at 1412Z on 1 B-29 flying at 9,000 ft.

AA Results: This strike was passed to the Boston AACC at 1041Z when 180 mi. from target. It was identified as faker at 1104Z when 80 mi. from target and was acquired at 1110Z by 4 batteries, 3 of which engaged.

- b. OOA Mission No. 25, the diversionary strike on Philadelphia, consisting of 8 B-29s which were over their turn point at 1145Z after a crash descent from 20,000 to 3,000 ft. This strike was the spearhead of the 3 main diversionary overwater strikes. Initial pickup was made at 1048Z by P-9, Havesink, N.J., at a range of 230 mi. This was 218 mi. from the nearest point on the New Jersey coast and 260 mi. from target.

The first scramble was at 1107Z by 2 F-2Hs of Navy's VX-5 Squadron on CAP from Atlantic City. Successful intercept was made at 1115Z at a point 125 mi. off the coast and approximately 177 mi. from target. Eight passes were made on the formation correctly identified as 8 B-29s flying at 10,000 ft.

At 1113Z, 4 F-9Hs of the 121st FIS were scrambled from Newcastle by P-9. Intercept was made at 1141Z, before BRL, with 24 passes. The strikers had climbed to 25,000 ft. before beginning their descent tactic

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Navy fighters again entered the action sequence at 1132Z when 2 F-2Hs of the VX-3 Squadron were scrambled from Atlantic City. Interception was made at 1134Z, before BRL, with 4 passes.

Another intercept before BRL was made by 4 F-9hs from the 121st FIS scrambled from Newcastle at 1150Z. Twelve passes against 3 B-29s were made at 1204Z, after BRL. Another flight of 2 F-9hs scrambled from Dover at 1204Z by P-54 was told to break off its attack before it could pounce. The final scramble was by 2 F-9Fs of Navy's VF-61 Squadron scrambled from Oceana at 1229Z by P-56. Intercept was made at 1246Z, after BRL, with 12 passes against 7 B-29s.

AA Results: The initial pickup on this strike at a point 260 mi. from target was passed to the Philadelphia AAOC. However, the track did not enter AA radar range and was not acquired.

- c. OOA Mission No. 26, the diversionary strike on Washington, consisting of 6 B-29s which reached their turn point at 1120Z after the crash descent which was a tactic for all the overwater strikes. Initial pickup was made at 1028Z by P-54, Palermo, N.J., at a range of 230 mi. This was at a point 200 mi. off the Delaware coast and about 310 mi. from target. The strike was first assessed as 1 aircraft flying at a speed of 120 knots at 5,000 ft.

First scramble was ordered at 1031Z from Dover by P-54. Two F-9hs of the 148th FIS made intercept at 1102Z at a point about 45 mi. off the coast. The flight claimed 8 passes against 6 B-29s flying at 10,000 ft.

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A second scramble of 2 F-9hs from Dover at 1048Z resulted in a successful intercept at 1118Z, with 4 passes before BRL. Both of these scrambles were by the 148th FIS.

Two final attempts resulted in intercepts after BRL. Two F-9Fs scrambled from Oceana by P-56 at 1102Z claimed 4 passes at 1132Z against the 6 B-29s, now flying at 3,000 ft., and 2 F-9hs scrambled from Dover at 1104Z made 4 passes at 1140Z.

AA Results: This strike was initially passed to the Washington AAOC at 1030Z when 310 mi. from the defense. The track, however, was not acquired since it did not enter radar range.

- d. OOA Mission No. 27, the diversionary strike on New York, consisting of 6 B-29s which were at their turn point at 1202Z after descending to 3,000 ft. Initial pickup was made at 1048Z by P-9, Navesink, N.J., at a point 230 mi. off the New Jersey coast and 250 mi. from target. At 1112Z, as the formation of 6 B-29s approached over the sea from a southeasterly direction, P-9 ordered the first scramble of 4 F-9hs from McGuire. A successful intercept was made at 1134Z at a point at sea about 70 mi. from target. Another flight of 2 F-9hs scrambled from McGuire at 1125Z intercepted at 1147Z, also before BRL. At 1130Z the strike had passed into the area of P-45, which scrambled 2 F-86s from Westover. Intercept was made at 1150Z, before BRL, with 8 passes against 2 B-29s flying at 20,000 ft.

AA Results: This strike was initially passed to the New York AAOC at 1048Z when 250 mi. from target. It was identified as faker at 1147Z when 69 mi. from target. The track

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was acquired by 5 batteries of the New York defense, but was not engaged because it did not enter AA gun range.

3. Overland Strikes Against Inland Targets. It was this part of the day's strike pattern which put the greatest stress on units of EADF. Forewarned by intelligence of F-8h escort fighters moving northward and by an early intercept by the 30th Air Division of tankers also on a northbound heading, the 32d Air Division found itself caught between two concerns as mass raids against Chicago and Detroit began forming in Canada. One was the strikes then in progress against coastal targets; the other was the threat of further attack on the coastal complex developing out of the new activity in Canada.

At about 1200Z, after the escort fighters had been observed moving westward through Canada, the 32d Air Division scrambled 2 F-9hs from Otis, 1 F-5ls from Burlington, and 2 F-9hs diverted from Otis to Griffiss to meet the developments in Canada. When threatening tracks in the area above Lake Ontario faded these fighters were recalled. More than 2 hours later, at 1427Z, P-49, Watertown, N. Y., detected an orbiting formation about 190 mi. northeast of Buffalo and assessed it as a mass raid 15 mi. wide and 20 mi. long. A second pickup of a mass formation followed and the situation was correctly assessed by the 32d Air Division as bomber forces being joined by fighter escort. Information was passed on to the 30th and 26th Air Divisions, either of which could have been the direction of attack.

When a merged track was plotted on a westerly heading it became apparent that the strike was moving into the 30th Air Division. At the same time, however, a force of aircraft,

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later identified as tankers, was detected heading back toward Montreal, and the 32d Air Division held its fighters for a further possible threat against New York. Except for an early commitment of fighters from Niagara Falls, this left both the Detroit strike and the Chicago strike, of which the 32d Air Division had no knowledge at the time, to the 30th Air Division.

How these strikes were countered is described below:

- a. OOA Mission Nos. 17 and 17a. This strike, with Detroit as its target, consisted of 19 B-36s with fighter escort of 18 F-84s. The main body of 17 bombers made its target run at 1543Z at 40,000 ft. Two stragglers at 25,000 and 30,000 ft. did not complete their target runs until 1643Z. They have been dealt with as a separate strike (Mission No. 17a). Both groups of this strike came within range of 97 fighters based at Oscoda, Niagara Falls, Wright-Patterson, Lockbourne and Selfridge.

First fighter action was by 8 F-47s scrambled from Niagara Falls at 1430Z by P-21. Limited altitude capabilities handicapped these conventional type interceptors. With the main bomber force at 42,000 ft., 4 of the F-47s made tally-ho at 1510Z but were unable to make pounce because of the height and tail chase. They were able, however, to assess the formation as 16 B-36s with from 15 to 20 F-84 escorts flying at 35,000 ft. The other 4, scrambled on the second of 2 converging tracks, intercepted 1 B-36 at a point 60 mi. inside Canada and 230 mi. from target.

At 1433Z, 8 more F-47s were scrambled from Niagara Falls by P-21 but 6 of them, directed against the main bomber force,

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were able only to make tally-ho at 1450Z. Two others scrambled on the second track intercepted a single B-36 at 1515Z, 50 mi. inside Canada. With control passing into the 30th Air Division, fighters were scrambled in rapid sequence. At 1502Z, 10 F-9hs were scrambled from Selfridge and all made successful intercepts before BRL. The first intercept by 2 F-9hs was at 1512Z, with 10 passes against 5 B-36s. The second was at 1520Z by 3 F-9hs which made 16 passes against 5 B-36s, and this action was followed by intercepts at 1522Z and 1525Z, with 6 passes against 3 B-36s claimed by 1 F-9h and 7 passes against 5 B-36s claimed by another flight of 2 F-9hs. All of these scrambles were by the 61st FIS. None of these flights reported the presence of escort fighters. Nor was there any further mention of the intruder F-8hs during the rest of the strike activity.

The 61st FIS scrambled a single F-9h from Selfridge at 1505Z, claiming an intercept at 1550Z. Six passes were made against 4 B-36s, but this action was after BRL. Two flights of 4 F-9hs were scrambled from Oscoda by P-61 at 1516Z. One made intercept at 1531Z, before BRL, but reported some difficulty because of VHF jamming. The second flight from the 3625th Fighter Training Group made intercept at 1542Z, after BRL, claiming 3 passes against 8 B-36s.

At 1520Z another F-9h from the 61st FIS was scrambled from Selfridge. It made 1 pass against 1 B-36 after BRL. Later scrambles included 4 F-86s from Wright-Patterson at 1547Z and 3 F-8hs from Lockbourne at 1609Z. Both flights made intercepts on the main group of B-36s, but well past target.

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In addition to this major sequence of fighter action, several intercepts were made on that part of the strike designated as Mission No. 17a. The 2 earlier successes by F-47s out of Niagara Falls were against aircraft in this group of 2 stragglers. Other action was as follows:

Eight F-51s from the 172d FIS scrambled from Selfridge at 1542Z claimed 21 passes at 1610Z against 2 B-36s flying at 25,000 and 30,000 ft. It was assumed that these were aircraft which had dropped out of the main formation because of failure to maintain height. A flight of 4 F-51s from Selfridge already airborne was diverted against a straggler at 1615Z. It made tally-ho at 1619Z and pounce at 1621Z, long after the main strike force had passed the target.

Of 11 F-80s from the 166th FIS scrambled from Lockbourne at 1533Z, 2 aborted but 9 made intercept at 1615Z against 1 B-36 flying at 28,000 ft. Thirty-seven passes were claimed. Two F-86s from the 63d FIS scrambled from Oscoda at 1540Z were unsuccessful because of chaff and jamming.

Another intercept was made on a single B-36 flying at 25,000 ft. by 2 F-90s scrambled from Selfridge at 1605Z. Six attack passes were made.

All of these successful attempts were before BRL, computed on the basis of the later target runs made by the 2 strike aircraft.

The absence of escort fighters during that part of the mission which was flown inside the 30th Air Division's area was indicated by the division's tactical recapitulation for the day. This listed 17 B-36s only.

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The division generally regarded the entire strike force as intercepted before BRL, but it should be noted that the major part of the fighter force was committed against the stragglers. The total effort for the entire strike period was indicated by the following figures of numbers and types of aircraft scrambled: 26 F-86s, 26 F-94s, 22 F-84s, 8 F-51s and 4 F-47s (exclusive of the 16 F-47s scrambled from Niagara Falls). A recapitulation of intercept action shows 43 aircraft making intercept before BRL, 13 after, and 14 unsuccessful.

AA Results: This strike was initially passed to the Detroit AAOC at 1455Z when 230 mi. from target. Identified as faker at 1544Z when 22 mi. from target, it was acquired by 2 batteries and engaged by 1, the other being out of range. Late identification of this strike as faker did not allow effective engagement prior to BRL.

- b. OOA Mission No. 18. This strike, directed against Chicago, consisted of 19 B-36s escorted by 35 F-84s. Penetration was from the north through the Sault Ste Marie area and the bombers made their target runs at 1548Z at 10,000 ft. The formation came within normal combat range of 113 fighters based at Oscoda, Grayling, Truax and O'Hare.

Initial pickup was by P-66, Sault Ste Marie, at a point 75 mi. northeast of the station and about 385 mi. from target. The track was first assessed as 3 aircraft but soon after as a mass raid of from 16 to 26 aircraft flying at 25,000 ft. The bombers during this phase were reported to be forming with their fighter escort.

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First scramble was at 1417Z by 2 F-51s from Grayling. These fighters, from a National Guard squadron in summer encampment, made tally-ho at 1435Z and reported the formation as 20 B-36s, 20 F-84s, and 1 B-45. The B-45, not scheduled on the strike, stayed with the formation throughout its run and was repeatedly identified.

At 1420Z, 4 F-94s from Detachment A, 3625th Fighter Training Group, were scrambled from Oscoda. They made a successful intercept at 1442Z just south of the Soo locks, claiming 3 passes.

A second scramble from Oscoda at 1421Z of 4 F-86s was unsuccessful because P-61, the controlling radar, lost the track. These fighters were from the 63d FIS. The same squadron made 2 successful intercepts with 2 flights of 4 F-86s each scrambled from Oscoda at 1424Z. One pounced at 1505Z and made 6 passes and the other claimed 10 passes at 1535Z. Another flight of 4 F-94s from Detachment A, 3625th Fighter Training Group, was scrambled at 1435Z but made intercept at 1500Z--before the preceding fighters. All 3 intercepts were well before BRL.

Six F-47s scrambled from Oscoda at 1435Z were unsuccessful, but 2 more intercepts before BRL resulted from later scrambles. Two F-86s from the 63d FIS scrambled from Oscoda at 1439Z made intercept at 1457Z, claiming 4 passes. A single F-86 from the same squadron scrambled at the same time made 1 pass at 1525Z.

With fighter action shifting to O'Hare, 1 F-94 from the 3626th Fighter Training Group made a successful intercept at 1538Z, before BRL, after being scrambled at 1512Z. It claimed 5 passes on 5 B-36s, making a

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surprise attack from high after climbing to an altitude well above the 40,000 ft. of the strike formation. The pilot reported that the escorting F-8s tried to reach him but failed to make the altitude. This action was singled out for comment because of difficulties during the day in making altitude in time for effective passes. Several F-86s reported that they were unable to reach the bombers before target because of excessive loading of external fuel.

Two F-9hs from the same group scrambled from O'Hare at 1505Z made intercept at 1638Z with 6 passes after BRL. The 3626th unit also sent up 2 single F-9hs at 1507Z. One made intercept at 1515Z with 2 passes after BRL and the other failed when its after-burner blew out at 35,000 ft.

At 1508Z, 2 F-51s of the 120th Fighter Bomber Wing were scrambled from O'Hare but were unsuccessful because the strike formation was too high. Four F-86s scrambled from O'Hare at 1510Z aborted because of radio failure.

Four F-86s of the 62d FIS were scrambled from O'Hare at 1511Z and made intercept at 1550Z with 16 passes after BRL. Two more flights of 2 F-86s each were scrambled from O'Hare at 1515Z. One was recalled by the controller just as it was ready to pounce; the other made intercept at 1518Z with 2 passes after BRL. Most of these F-86s reported that they were unable to make bomber altitude in time because of heavy external fuel loading.

Six F-51s of the 120th Fighter Bomber Wing scrambled from O'Hare at 1516Z were unsuccessful because of altitude limitations, but 3 F-9hs of the 3626th Fighter Training

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Group scrambled 4 minutes later made intercept at 1556Z, after BRL. Four F-86s scrambled at 1518Z claimed pounce at 1530Z, before BRL, but no record was available to substantiate this for the statistical summaries of the exercise.

In a later action from Truax, 4 F-86s of the 126th FIS were scrambled at 1525Z and made intercept with 10 passes against the strike formation after BRL. The final scramble on the track was by 4 F-86s of the 63rd FIS at 1543Z from Oscoda. They claimed 20 passes after pounce at 1643Z, after BRL.

A recapitulation of all intercept action on the Chicago strike shows 24 aircraft making intercept before BRL, 20 after, and 27 unsuccessful. It is noteworthy that only 5 of the 27 jet fighters scrambled from O'Hare made pounce before BRL, despite the long period the track had been carried.

AA Results: This strike was initially passed to the Chicago AAOC at 1440Z when 200 mi. from target. It was not identified as faker to the AAOC until 1536Z when only 35 mi. from target. The track was acquired by 8 batteries, of which 3 engaged.

- (b) CADF. Action in CADF on E Day + 3, consisting of 12 bombers making 2 strikes against 2 targets, was limited as compared to EADF and WADF, but it was sufficient to reveal another major tactical problem. With all available fighters from Sioux City deployed to Fargo, N.D., the 31st Air Division found itself well protected against strikes coming down the polar route from the north but vulnerable to strikes making oblique penetrations from the west or east. This was revealed by the strike against Omaha which, because of fighter deployment northward, found no opposition after passing the first defenses and penetrating into the interior. Omaha was one of the 2 targets in the 31st Air Division's area. The second strike was directed against Kansas City. (Strike data are given in Chart 5 and Strike Summation Table V. Intercept action is shown in the

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Radar and Intercept Action Summary for E Day + 3
and in par 3c.) The narrative by strikes follows:

1. OOA Mission No. 38. This mission, with Kansas City as its target, made penetration from an assembly point about 300 mi. due north of the U.S.-Canadian border. It consisted of 6 B-50 type aircraft flying at 10,500 ft. Enroute to target this strike passed within range of 40 fighters based at Minot, Fargo and Rapid City.

First detection was made at 0945Z by P-69, Finland, Minn., at a range of 118 mi. P-69 was using a lashup radar set at the time of the pickup. Scramble was ordered by this station at 0947Z and 4 F-51s from the Duluth augmentation forces made pounce at 1010Z. Two of these fighters aborted.

The bogies passed into the area of P-35, Oshkosh, Wis., and a second scramble was made on this mission by 4 F-51s from Wold-Chamberlain (109th Fighter Interceptor Squadron). Successful intercept was made at 1035Z with 16 passes on all 6 aircraft. A third scramble of 4 F-51s from the 109th FIS was ordered by P-35 at 1010Z. Two fighters made intercept at 1035Z on 1 B-50, completing 5 passes. Intercept was made 50 mi. north of Minneapolis, 450 mi. from target. P-35 ordered a fourth scramble consisting of 4 F-51s, also from the 109th FIS at Wold-Chamberlain, at 1023Z. These planes made intercept at 1052Z and made 3 passes before being called off by the controller. As the mission passed Minneapolis, P-35 scrambled 4 F-86s from Truax (126th FIS) and passed control to P-81. P-81 failed to paint the target and the F-86s were unsuccessful because of this and lack of gasline.

The strike arrived over target at 1232Z, flying at 16,000 ft. No AA was deployed along the route of this mission.

Action was vigorous in the early phase of interception. A total of 16 F-51s were scrambled

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with all fakers adequately engaged before they reached Minneapolis. Four unsuccessful attempts at intercept were recorded by the 4 F-86s from Truax.

2. OOA Mission No. 39. This strike was directed against Omaha, Nebr., and consisted of 1 flight of 5 B-50s. They made penetration from a point 300 mi. north of the United States border at 10,500 ft. They passed within range of 46 fighters based at Bemidji, Duluth, Wold-Chamberlain and Truax.

First detection was made at 0903Z by P-28, Minot, N.D., at a range of 154 mi. Rapid City ordered scramble from P-28. Four F-51s from the forces deployed by Rapid City to Minot were airborne but due to low visibility and lack of altitude information no tally-ho was made. The strike proceeded past Rapid City where contact was made at about 150 mi. range and 4 F-86s were scrambled at 1040Z from CAP. These planes had fuel difficulties, but tally-ho was called at 1105Z, 375 mi. from target. No pounce was made due to cloudy conditions which restricted visibility. No further action or detection was experienced by the flight as it proceeded to target, making its run at 1202Z at 30,000 ft. No AA batteries were deployed along the course of this mission.

- (c) WADF. As on E Day, SAC delivered 3 separate attacks against the 3 air divisions of WADF on E Day + 3. A total of 45 bombers were committed against 4 targets in 7 strikes. (Strike data are given in Chart 6 and Strike Summation Table IV. Intercept action is shown in the Radar and Fighter Action Summary for E Day + 3 and in par 3c.) Because of the geographical separation of the strikes, the narrative of strike activity is again given by division.

1. 25th Air Division: OOA Mission No. 33 against Seattle and OOA Mission No. 34 against Spokane comprised the strike activity in this division. The 2 missions had initial points about 250 mi. north of Cut Bank, Mont. The Seattle strike

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consisted of 6 B-50 type aircraft which were over target at 1214-1242Z at 30,000 ft. The Spokane strike of 5 B-50s was over target at 1225-1230Z at the same altitude.

To reach target, the Seattle strike was to come within range of 103 interceptors at Geiger, Larson, Paine, and McChord. The Spokane strike was to pass within range of Geiger and Larson, with 60 fighters.

Initial contact was made on Mission 33 by P-11, Yaak, Mont., at 1035Z at an altitude estimated to be 16,000 ft. Pickup was 132 mi. from radar and 355 mi. from target. The force composition was first estimated as 1 aircraft, then 4 and finally 6. Four F-94s were scrambled by P-40 from Larson and were airborne at 1052Z. Two B-50s were intercepted at 19,000 ft. at 1121Z, 184 mi. from target. Four additional F-94s were scrambled against this strike at 1052Z by P-40 from Larson. They intercepted the same 2 B-50s at 1124Z, 180 mi. from target. P-1 ordered scramble of 2 F-94s from McChord at 1145Z and 3 B-50s were pounced at 1215Z.

P-46 ordered the scramble of 2 groups of 2 F-94s from McChord at 1213Z, but communications difficulties prevented the fighters from taking off. P-1 scrambled 2 F-94s from McChord which were airborne at 1220Z. Successful intercept was made at 1250Z on 1 B-50, after BRL. Two more F-94s were scrambled by P-1 from McChord and were airborne at 1228Z. They made successful interception at 1238Z on 1 B-50, probably just after BRL.

The bombers proceeded with no further interceptions. In summary, 2 B-50s were pounced by the 8 F-94s from Larson, 3 B-50s were pounced by 2 F-94s from McChord, and later 2 groups of 2 F-94s intercepted 1 B-50 each.

First detection on Mission 34 was made at 1126Z by P-11, Yaak, Mont., at a point 140 mi. from the radar and 233 mi. from Spokane. The strike

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was assessed as 5 aircraft flying at a speed of 240 knots at 16,000 ft. Two F-94s were scrambled by P-40 from Larson and were airborne at 1142Z.

Pounce was made on 1 B-50 at 18,000 ft. at 1219Z, about 65 mi. from target. P-24 reported an initial contact, probably on some of the 5 B-50s in this strike, at 1126Z. The detection occurred 100 mi. from radar and 204 mi. from target. P-40 scrambled 3 F-94s from Larson which were airborne at 1143Z. Pounce was made on 4 B-50s at 16,000 ft. at 1204Z.

Two F-94s scrambled from Larson by P-40 at 1142Z pounced 1 B-50 at an altitude of 26,500 ft. at 1208Z. The bogie was about 80 mi. from Spokane. In addition, 4 F-80s were scrambled from Larson by P-40 at 1205Z and made interception on 2 B-50s at 20,000 ft. at 1231Z, about 40 mi. after BRL.

In this strike, a total of 7 F-94s successfully intercepted 3 groups of B-50s, 1 of 4 bombers and the other 2 of 1 each. Four F-80s successfully intercepted 2 additional B-50s but after BRL.

A diversionary strike against Seattle (OOA Mission No. 37) consisted of 7 B-29 type aircraft. It was picked up at 1107Z by P-44, Bohokus Peak, Wash., 178 mi. from radar and 250 mi. from Seattle at 20,000 ft. One F-94 was scrambled by P-1 from McChord at 1150Z but the scramble was diverted when the bogie turned away from Seattle. At 1118Z, P-44 picked up another target at 20,000 ft., 250 knots estimated speed, 170 mi. from radar and 255 mi. from Seattle. One F-94 was scrambled by P-1 from McChord at 1150Z. Pounce was made on 1 B-29 at 16,000 ft. at 1208Z about 115 mi. from Seattle. Of the 7 aircraft in the diversionary strike, which turned away from probable target Seattle at a point 40 mi. off the coast, only 2 were detected.

AA Results: The Seattle strike was initially passed to the Seattle AAOC at 1055Z when 350

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mi. from target. The strike was passed as 3 separate tracks. One was identified as faker at 1155Z but faded from the ADDC scope at 1202Z. This track was acquired and engaged by 1 battery. One of the other 2 tracks was carried through the defense as an unknown and was not engaged since "Guns Tight" was ordered. The third track followed the other 2 by about 21 minutes and was engaged by 1 battery, although identified as unknown. The diversionary strike on Seattle was passed to the AAOC but was not acquired by AA radars since it did not enter AA radar range.

2. 27th Air Division: OOA Missions Nos. 31 and 35, both with Los Angeles as target, were flown against this division. These missions comprised 1 major strike of 2 streams: one a diversion consisting of 9 B-29s, the other the main attack force of 3 B-50s. The 2 streams merged as they approached Los Angeles from the west and were over target from 1215 to 1235Z. Scheduled altitude was 20,000 ft. for the diversion and 35,000 ft. for the main strike. The attack was to come within range of 77 available interceptors based at George, Long Beach, El Toro, and Miramar.

Initial detection was made on the northerly or diversionary stream at 1113Z by P-15, Santa Rosa Island, 170 mi. west of the site and 260 mi. from Los Angeles. This stream, represented by 6 tracks, was assessed as 2 aircraft. All bombers appeared at approximately the same point with a 2 minute separation. The first of 9 F-86s from George was scrambled at 1121Z in darkness and pounced the lead aircraft over Santa Barbara at 1202Z, 70 mi. from the target, at 22,500 ft. Scramble was delayed because of rules on scramble at night.

The southerly stream representing the main strike was first detected by P-15 at 1124Z, 160 mi. west of radar and 250 mi. due west of Los Angeles. This stream appeared as 4 tracks with 2 minute separation and was incorrectly assessed as 9 bombers. Four F-86s from George

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scrambled at 1133Z pounced the lead aircraft over Santa Cruz at 1158Z, 70 mi. from Los Angeles, and identified it as a B-50 at 25,000 ft.

A total of 27 fighters were committed to the 2 streams, 21 of which made interceptions before target. The scrambles were as follows:

From: George	9 F-86s at 1121Z
Long Beach	4 F-86s at 1133Z
George	12 F-51s at 1128Z
Long Beach	2 F-51s at 1131Z

Because of broadcast control and because P-15 was inoperative, the intercepts could not be associated with individual tracks and the times of pounce definitely established. Serial numbers were reported for 12 intruder aircraft. Radar estimates of the number of bombers in the 2 streams were high by 5 aircraft.

Window jamming was encountered at 1121Z, 1147Z and 1153Z but was not effective. Radar jamming, also ineffective, was picked up by P-39, San Clemente Island, at 1205Z, 1223Z and 1226Z. VHF jamming garbled communications but did not cut them out; it reduced effectiveness.

AA Results: No antiaircraft units were deployed along the route of this strike.

2. 28th Air Division: Strike activity in this division consisted of OOA Missions Nos. 32 and 36, merging in a joint attack on San Francisco. OOA Mission No. 32, the main strike, consisted of 6 B-29s, and OOA Mission No. 36, the diversion, was flown by 9 B-29s. One aircraft in the latter group aborted but was replaced by a spare. The 2 forces approached San Francisco from a westerly direction, the main force, at an altitude of 20,000 ft., flying directly below the diversionary group at 30,000 ft. The joint strike was to come within the range of Hamilton, Travis, Alameda, Castle, and Moffett, with a total available force of 79 fighters. Time over target was 1216Z.

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Initial detection of the strike was made at 1127Z by P-37, Point Arena, Calif., at a distance of 163 mi. from radar and 183 mi. from target. Scramble of 2 F-94s from Hamilton was ordered by P-38 at 1153Z. They made intercept at 1218Z, attacking 1 bomber 78 mi. from the target. Intelligence from the interceptor as to raid size was precluded due to extensive VHF jamming.

A second target, one of the diversion aircraft, was detected at 1144Z by P-37 at a distance of 140 mi. from San Francisco and 150 mi. from radar. One F-4U, on CAP from Moffett, was vectored by P-38 at 1152Z but made no intercept because of VHF jamming.

At 1147Z detection also was made by P-37 on a target 165 mi. from San Francisco and 180 mi. from radar. Two F-86s scrambled from Hamilton were airborne at 1210Z. They reported 6 aircraft and made 4 passes against 1 B-29 pounced at 30,000 ft. at 1226Z, before BRL.

One additional F-94 scrambled by P-38 from Hamilton at 1158Z made 3 passes at 1210Z, 1 on each of 3 bombers assumed to be B-29s of the main strike. Two of the bombers were flying at 16,000 ft. and the third at 14,500 ft. An F-86 was scrambled at 1208Z from Hamilton on a target detected by P-37 at 1157Z, altitude 22,000 ft. VHF jamming prevented intercept. Two more F-86s were scrambled by P-38 from Hamilton at 1212Z on a track detected by P-37 at 1144Z at a distance of 159 mi. from San Francisco and 145 mi. from radar. Failure to intercept was attributed to VHF jamming.

At 1207Z, P-38, Mt. Tamalpais, Calif., detected a target 125 mi. from radar and 118 mi. from San Francisco. This target, flying a southeasterly course, was passed to the 27th Air Division. It was believed to be the B-29 which aborted from the diversionary strike and was returning to base.

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Several more scrambles were made but they appeared to be against tracks attributable to chaff. At least 2 flights of 4 F-86s each were scrambled against such tracks. Intruder use of chaff and VHF jamming confused the air situation.

AA Results: The main strike was initially passed to the San Francisco AAOC at 1203Z when 100 mi. from target. It was identified as faker at 1236Z but faded from the ADDC scope prior to entering AA range. Antiaircraft units at San Francisco picked up a flight, but the ADDC could not correlate this track with the position of the previously reported faker. AA units were on "Guns Tight" at the time and could not engage aircraft identified only as unknown.

The diversionary strike was initially passed to the San Francisco AAOC at 1203Z when approximately 90 mi. out. It was passed as a series of tracks of 1 aircraft each. These tracks faded prior to entering AA radar range, however, and the presence of numerous fighters in the area prevented positive correlation by the ADDC or AAOC by DR procedure. Antiaircraft radars reported possible acquisition of the strike but did not engage since their sightings could not be identified as faker.

- (3) E Day + 4. On 28 July 1952, SAC dispatched 31 bombers on 31 separate reconnaissance and BDA assignments over 31 targets. Deployment was arranged with take-off bases in the United Kingdom, Lajes Field (Azores), and Lockbourne and Travis AFBs. Penetrations of the ZI were accomplished overland and overwater at very low and very high altitudes, with RB-36s and RB-45s as the strike aircraft. Because of the diverse and widely dispersed nature of this pattern of small reconnaissance strikes, no effort has been made to deal quantitatively with the day's activity. For purposes of analysis, the exercise on E Day + 4 was a post-strike effort which had no effect upon the computation of intercept success against the main SAC offensive, delivered on E Day + 3. Consequently, only a narrative breakdown by air defense force is given as follows:

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(a) EADF

1. Description of Attack. On E Day + 4 a total of 26 bombers were committed by SAC in 21 strikes against the same number of targets in EADF. OOA Missions Nos. 40 through 51 included activity covering the entire area of EADF. (Strike data are given in Chart 7 and Strike Summation Table VI.)

Two distinct patterns of attack were followed. The first, with target runs from 0620Z to 0639Z, consisted of 2 strikes of 1 RB-45 each on coastal cities and 4 strikes of 1 RB-45 each on inland targets. The second, with target times varying from 1136Z to 1341Z, included 3 strikes of 2 RB-36s each on coastal targets, and 5 strikes of 2 RB-36s each and 1 of 3 RB-36s on inland targets. Four of the strikes in the second group had more than 1 target as they moved progressively westward into the surveillance area of the 31st and 33rd Air Divisions in CADP.

Early pickups were made on the RB-45s flying against the East Coast. The Boston strike approached its target from the direction of Cape Cod. The RB-45 strike on Baltimore was detected by P-45, Montauk, N.Y., at 0515Z, approximately 250 mi. off the New Jersey coast. Two RB-45 strikes, one against Milwaukee and the other against Cleveland, were detected by P-66, Sault Ste Marie, at a range of 55 mi. to the northeast. The RB-45 scheduled against Toledo was not detected or tracked at any time. The RB-45 flown against the Soo locks on a low level photo reconnaissance mission was tracked briefly as it turned into a northwesterly heading and started to let down for its photo strikes. No action was taken against this aircraft until it had departed the target area and started to return to its base at Lockbourne. Generally, as compared to good, sequential tracking of B-36 type aircraft at high altitude, the B-45s painted sporadically. This was attributed to high speed and jet-type propulsion as well as high altitude.

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The RB-36 strikes followed a highly diverse pattern. Those against inland targets were picked up originally by Canadian radar. They proceeded in a southwesterly direction along the St. Lawrence River, but, because of the low altitude of the aircraft at this point, tracking was poor and the air situation was maintained by continued dead reckoning. However, 3 RB-36s were tally-ho'd in this general area: 1 about 31 mi. southwest of Toronto, 1 on the border south of Ottawa, and 1 on the eastern edge of Lake Erie. Target for the latter was assumed to be Pittsburgh. Others presumably were bound for St. Louis, Peoria, Sioux City, and other inland targets. The Chicago strike of 2 RB-36s was detected by P-66, Sault Ste Marie, at a range of 100 mi. to the northeast. The Detroit strike of 2 RB-36s was detected at about the same place.

Meanwhile, the 3 RB-36 strikes against New York, Philadelphia, and Washington had developed a 3-pronged overwater attack. Initial pickups on these strikes were at ranges averaging about 180 mi. P-13, Brunswick, Me., made the first detection at 0919Z, and subsequent pickups were made on all 3 tracks by P-10, North Truro, Mass., and P-45, Montauk, N.Y.

2. Outcome of Attack. A slight delay in intercept action against the RB-45 strike against Boston was caused by a temporary fade after 2 F-94s had been scrambled from Westover. P-10 assumed that this track had changed direction for a possible attack on New York, and, consequently, the fighters were vectored on a DR course for cut off. However, this conclusion was found to be in error and 2 F-94s on CAP from McGuire were vectored on a corrected course, but without success. Additional but unsuccessful attempts were made against the bomber as it left the target area for its return to Lockbourne. These were by 2 flights of 2 F-94s scrambled out of McGuire to the Wilkes Barre area. The RB-45 strike against Baltimore was tally-ho'd by 2 F-94s out of McGuire approximately 80 mi. from Cape May.

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The 2 RB-45s detected near Sault Ste Marie were scrambled on at 0600Z and 0603Z by 2 flights of 2 F-94s from Selfridge. Both were unsuccessful. One of the 2 flights, scrambled on what was probably the Milwaukee strike, reported that the bogie outran the F-94s. The low-level photo reconnaissance mission against the Soo locks was scrambled on as it left the target area. Two F-94s from Selfridge were vectored northward at 0654Z but target fade prevented intercept.

Despite poor tracking of low-flying RB-36 strike aircraft in the St. Lawrence Valley, 1 F-94 of the 58th FIS from Griffiss was able to tally-ho 1 bomber in the area of Watertown. Two more F-94s of the 58th FIS at Griffiss were scrambled and vectored westward, making a tally-ho 35 mi. southwest of Toronto. Two other tally-ho's against RB-36s in this area were made by 2 flights of 2 F-86s from Griffiss. One of these bombers was south of Ottawa and was assumed to be the strike against Burlington, Iowa. The other, tally-ho'd at the eastern edge of Lake Erie, was assumed to be the Pittsburgh strike.

The Chicago strike of 2 RB-36s was attacked first at 1015Z by 2 F-86s scrambled from Oscoda. The first RB-36 was tally-ho'd by these fighters at 1030Z but no pounce was made. Two additional F-86s from Oscoda pounced the second RB-36 at 1100Z, and subsequently there were successful intercepts against these strike aircraft by 2 more flights of 2 F-86s out of O'Hare. The Detroit strike was scrambled on by 4 F-86s of the 97th Squadron which had been deployed from Wright-Patterson to Selfridge. This effort was unsuccessful because of instrument malfunction. The next action was by 2 F-86s scrambled at 1140Z from Oscoda. One of these aborted but the second made a successful intercept against 1 RB-36. Four F-94s were scrambled from Selfridge at 1144Z and pounced 2 B-36s at 1201Z. An additional F-94 scrambled at 1244Z was unsuccessful.

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Meanwhile, the 3 overwater RB-36 strikes against coastal targets had been intercepted by 3 flights of 2 F-94s each out of Otis. An additional intercept was made against the New York strike by 2 F-94s scrambled from Andrews which claimed pounce on 1 B-36 at 1133Z. Additional attempts also were made against the Washington strike as it approached target. Two flights of 2 F-94s each vectored from CAP out of Andrews were unsuccessful, but another flight of 2 F-94s scrambled from McGuire made tally-ho without pounce on 1 B-36 at 1025Z. Two F-94s scrambled from Andrews against the Philadelphia strike were unsuccessful because of target fade.

AA Results: Engagement of only 1 target by AA radars was reported during the series of strikes detailed above. This was the RB-36 strike against New York, which was initially passed to the AAOC at 1117Z when 105 mi. from target. The track was identified as faker at 1137Z when 50 mi. from target and was acquired by 12 batteries, of which 2 engaged the bogie. The remaining batteries were not in range of the strike.

The first aircraft of the RB-36 strike on Chicago was initially passed to the Chicago AAOC at 1145Z when 65 mi. from target. However, the strike was not identified as faker until 1210Z when it was over target. The track faded at 1212Z. Six batteries acquired the track but the late identification precluded engagement. The second aircraft was initially passed to the Chicago AAOC at 1212Z when 65 mi. from target. The strike was not identified as faker until over the target area; it was acquired by 3 batteries but could not be engaged.

The first RB-36 of the Detroit strike was initially passed to the Detroit AAOC at 1125Z, when 245 mi. from target. The track was identified as faker at 1208Z but faded when 40 mi. from target and could not be correlated by DR procedure. The second RB-36 was initially passed to the AAOC at 1217Z when 225 mi. from target. The track was carried as unknown

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through the target area and, while acquired by 1 AA radar, could not be engaged.

One aircraft of the Pittsburgh RB-36 strike was initially passed to the Pittsburgh AAOC at 1325Z when 20 mi. from target, but was never identified as faker. Six batteries made acquisition but the aircraft was not engaged since it was identified merely as unknown. The other aircraft was not passed to the AAOC.

The first RB-36 of the Philadelphia strike was initially passed to the AAOC at 1125Z when 144 mi. from target. It faded after 3 plots, prior to entering AA radar range. The other aircraft of this strike were not passed to the Philadelphia AAOC.

The B-36 strike on Washington was not told to or acquired by the AA defenses of that city.

Only 1 of the RB-45 strikes in the coastal area was acquired. This was the Baltimore strike, initially passed to the AAOC at 0527Z when 138 mi. from target. It was acquired by 4 batteries after being identified as a faker at a distance of 50 mi., but delayed alerting from the AAOC prevented engagement. The strike was also acquired by 4 batteries of the Washington AAOC but did not come within gun range. The Boston RB-45 strike was passed to the AAOC at 0529Z when 250 mi. from target but the track did not come within radar range.

(U) GADF

1. Description of Attack. High altitude reconnaissance and BDA strikes from 3 separate forces were flown against 9 targets in GADF's area of responsibility on E Day + 4. The total attack consisted of 7 RB-36s staged from the United Kingdom and directed against the following targets: 2 against Peoria, Des Moines and Sioux Falls; 3 against St. Louis, Kansas City and Grand Island; and 2 against Burlington, Sioux City and Bismark.

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All flights were to be over target at 40,000 ft. Penetration routes took them down the St. Lawrence Valley, north of Lakes Erie and Ontario and south of Detroit and Chicago, thence directly to the various targets. (Strike data are given in Chart 9 and Strike Summation Table VIII.)

In addition to these forces there were 6 other RB-36 penetrations flown into the 31st area from primary targets in EADF's region of responsibility. It was intended that some of these later penetrations would be carried as friendly by the time they arrived in CADF's area. However, communications delay in passing friendly flight plans on these strikes caused EADF to pass all of these tracks to CADF as fakers. As the aggressor forces approached CADF's area, the picture as presented by EADF appeared to be excellent. The air situation as passed to CADF indicated that there were 5 tracks south of Chicago moving into CADF on a westerly reading. As soon as the boundary was crossed, however, the air situation disintegrated. P-35, Hanna City, Ill., although reported operational, was unable to continue tracking these forces successfully. At this time the bomber forces were carried at an altitude of 40,000 ft.

2. Outcome of Attack. The number of SAC aircraft in the air and the number of scrambles made against bombers merely returning to base obscured results of fighter action against the major strike pattern. Of many intercept attempts against the B-36 type aircraft, a scramble on the strike against St. Louis and subsidiary targets was the only clearly distinguishable action against the intruders from the United Kingdom. Two F-51s scrambled from Scott at 1141Z made 1 pass against 1 B-36 at 1225Z, after BRL for St. Louis.

A faker track believed to be the strike hitting Minneapolis after attacking Chicago was scrambled on by several flights of F-51s from Wold-Chamberlain. These fighters identified 1 B-36 visually but found the bogie too high and too fast. However, a lone T-33 scrambled from Wold-Chamberlain

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at 1200Z made a successful intercept with 4 passes against 1 B-36 flying at 40,000 ft. at 1334Z. This was after BRL for the Minneapolis strike. At 1430Z, the same T-33 intercepted another single B-36 flying at 40,000 ft. and made 1 pass.

Many other intercepts were claimed by fighters but these were against SAC aircraft already past final target or out of the time sequence for strikes.

2. General. The general observation was that there was saturation at the ADCC and at COC, CADF. The air situation on the plotting board remained unchanged for periods as long as 1 hour. The COC had status on tracks that were not being posted on the board and plots on the board that were not on the height-tote panel. In addition, the Vu-Graph used for air situation presentation was not effective due to excessive natural lighting.

The lack of a clear air situation display in CADF was aggravated by the fact that the penetration route of the aggressor force lay along the southern boundaries of the Minneapolis ADIZ. The nearness of the SAC penetrations to the heavily travelled airway and the ADIZ border made it practically impossible for the system to correlate and identify the multitude of tracks on its scopes. When it was evident that the system had become so reduced in capacity that the 31st Air Division was unable to control the forces, it was decided to go to island type defense around critical targets.

(c) WADF

1. Description of Attack. Five strikes were directed against WADF on E Day + 4. They were executed by 5 bombers against 4 targets. (Strike data are given in Chart 8 and Strike Summation Table VII.) A narrative by air division follows:

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- a. 25th Air Division: Two separate strikes of 1 RB-36 each were flown against this division. OOA Mission No. 55 was against Seattle, and OOA Mission No. 56 had Spokane as its target. Both penetrated from the north and were over target at 1700Z.

The Spokane strike was picked up at 1517Z by P-6, Mt. Bonaparte, Wash., when 170 mi. from radar and 258 mi. from target. Two F-9hs were scrambled from Larson and were airborne at 1626Z. They intercepted 1 B-36 at 40,000 ft. at 1700Z, about 30 mi. after BRL.

The strike on Seattle was initially detected at 1558Z by P-6, 248 mi. from Seattle and about 175 mi. from radar. Two F-5ls were vectored by P-6 from a Larson CAP at 1617Z but they failed to reach the target due to lack of fuel. One F-9h was scrambled from Larson at 1620Z but the controller lost radio contact and the fighter was turned over to P-46. Four F-9hs were scrambled from McChord at 1632Z. Three of the 4 intercepted 1 B-36 at 30,000 ft. at 1644Z, about 60 mi. before BRL. Two additional F-9hs were scrambled by P-1 from McChord at 1629Z but were recalled because other fighters were engaging the bogie.

The Seattle strike was passed to the Seattle AAOC at 1619Z when 162 mi. from target. However, it was not identified as a faker until the track was entering the AA defended area. The strike was acquired by 10 batteries, of which 1 engaged. ECM was reported but was only effective against 1 battery.

- b. 27th Air Division: In this division, 1 RB-36 was flown against Los Angeles from the sea (OOA Mission No. 57) and arrived over target at 1700Z. It was detected at 1641Z by P-15, Santa Rosa Island, when 65 mi. from radar and 90 mi. from target. It was at an altitude of 8,000 ft. when detected, 35,000 ft. at 1615Z, and 40,000 ft. at 1658Z. At 1641Z, 2 F-5ls from Long Beach

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were vectored from CAP by P-15. These fighters could not reach the altitude of the strike. Immediately after this vector, 2 F-86s with tip tanks were ordered scrambled from Victorville but they were not airborne until 1653Z. A single F-86 without tip tanks was scrambled from the same base at 1720Z. The 2 with tip tanks made contact with the B-36 at 1700Z at 42,000 ft. but could not make passes because of the tanks. The lone F-86 made intercept with 1 pass at 1730Z, 60 mi. after BRL.

Two F-9Fs from Miramar were vectored from CAP against the strike but 1 developed engine trouble and was escorted home by the other.

There was no jamming nor chaff during the mission. The weather was clear.

- c. 28th Air Division: OOA Mission No. 58 was flown against this division. It consisted of 2 RB-36s making a high level strike on San Francisco from the sea. Target time was 1730Z.

The strike was initially detected at 1613Z by P-37, Pt. Arena, Calif., 145 mi. from radar and 210 mi. from target. Altitude was reported as 38,000 ft. and speed 210 knots. Two F-4Us from Alameda were scrambled by P-38 at 1629Z. They were unable to reach the altitude so they flew below the bogie and tracked it. Two F-51s were scrambled from Hamilton at 1635Z but also failed to reach the altitude. At 1641Z, 2 F-86s were scrambled by P-38 from Hamilton. Pounce was made on 1 RB-36 at 40,000 ft. at 1645Z, 50 mi. before BRL. Ten passes were claimed.

A second RB-36 was detected at 1623Z by P-37, 238 mi. from San Francisco and 160 mi. from radar. Altitude was 40,000 ft. and speed was estimated at 200 knots. Two F-51s scrambled from CAP at 1636Z failed to reach altitude.

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Two F-86s were scrambled by P-38 from Hamilton at 1653Z. They made pounce on 1 RB-36 at 1708Z and made 5 passes, all about 70 mi. before target. P-38 then scrambled 2 F-86s from Hamilton at 1658Z. They were sent to 20,000 ft. and lost target. At the same time another flight of 2 F-86s was scrambled from Hamilton (1658Z). They pounced 1 RB-36 at 41,000 ft. at 1724Z and made 1 pass, 10 mi. before target. Two F-86s scrambled by P-38 at 1655Z against a Beechcraft at 4,000 ft. were vectored at 1712Z against the bogie and made pounce at 40,000 ft. at 1724Z, 10 mi. before BRL. They completed 9 passes.

This strike was passed to the San Francisco AAOC as 2 separate tracks at 1627Z when 150 mi. from target. The first was identified as a faker at 1652Z and the second at 1709Z. However, both tracks faded approximately 60 mi. before target. Friendly fighter tracks and other aircraft over the target area prevented accurate correlation of the track's DR positions with observed aircraft in the area. Five batteries reported acquisition of the second faker; 1 was within range and engaged the track.

c. Quantitative Results of Exercise on E Day + 3: Quantitative results of the analysis of the strikes flown on E Day + 3 will be discussed under headings which are in accord with the steps in the air defense process.

- (1) Detection: All the faker strikes on E Day + 3 were detected by one or more radars. The size of the strike aircraft, B-29s, 50s, and 36s, the number of aircraft in each raid, usually 5 or more, and the altitudes at which they flew, usually 10,000 ft., all contributed to making the strikes easy to detect. The strikes, including diversions, using overwater approaches were detected on the average 55 minutes before BRL. The overland strikes were detected on the average 136 minutes before BRL.
- (2) Identification: All faker tracks were identified as unknown. Here, again, the size of aircraft and the tactics used virtually eliminated any possibility of the raid being mistakenly identified as friendly. Also contributing to the correct recognition of the raids as unknown was the

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fact that normal identification procedures appear to have broken down, with the result that large numbers of tracks which normally would have been identified as friendly were called unknown.

This breakdown of the identification system was perhaps one of the most widespread and important deficiencies brought to light by the exercise. The situation is clearly demonstrated by Table V, which shows that during the period of normal operation preceding the exercise an average of 55 unknown tracks per day was reported to the CCC at ADC.

TABLE V

AVERAGE NUMBER OF UNKNOWN TRACKS PER DAY (as reported to COC at ADC)				
Period	Total	EADF	CADF	WADF
Prior to exercise 2-23 July	55	17	17	21
During exercise 24-28 July	273	93	60	120
Following exercise 29 July-4 August	62	17	20	25

During the period scheduled for the exercise, 24-28 July, the average increased to 273 per day. The difference between this and the figure for normal periods is far greater than the number of faked tracks. Furthermore, this high average was applicable to those days (the 25th and 26th) when there was no strike activity. Field units, of course, did not know on which of the days during the exercise period there would be faked strikes. After the last announced day of the exercise, the number of unknowns dropped to its normal level.

The established criteria for identification were not officially changed in any way during the exercise. Therefore, it appears that the increase in unknowns must have been due to a change in the interpretation and application of the identification criteria. Certain of the criteria, such as the free space concept, are liable to

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a considerable degree of personal judgment. During normal times the effort to keep the number of unknowns at a reasonably low figure probably influences the identification officer to lean in the direction of calling as many tracks as possible friendly. On the other hand, during an exercise there is a strong motive for calling every doubtful track unknown in order that a faker strike may not be mistakenly identified as friendly. The remedy for this situation lies in establishing identification methods and criteria which can be rigidly and objectively applied during normal periods without resulting in an unmanageable number of unknowns, and which, when applied with the same rigidity and objectivity during an exercise, will give a faker strike only a very small chance of being mistaken for a friendly.

- (3) Scramble Action: All faker tracks were scrambled against at least once. Thus some effort was made to combat every one of the strikes. However, against most tracks the number of aircraft scrambled was inadequate to deal with the bomber force. Several reasons could be advanced to explain this: Among the most likely are:

- (a) Too much fighter effort was being expended on friendly unknowns;
- (b) Insufficient fighters on short alert status;
- (c) Overcaution in command decision to commit fighters;
- (d) Too few all-weather fighters in some areas.

The analysis of the data thus far does not permit any quantitative statement as to even the relative importance of these causes.

The total number of fighters engaging each of the faker strikes both before and after BRL is shown in Table VI.

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TABLE VI
COMBAT FORCES

Target	Tactic	Number of Bombers Over Target	Total No. of Fighters making intep (Pounce)	
			Before BRL	After BRL
Detroit	High Alt.	17	14	13
Detroit	Low Alt.	2	29	0
Chicago		20	24	20
New York	Overland	6	8	9
Phila.	Overland	6	14	0
Wash.	Overland	4	6	5
Pitts.	Overland	5	4	0
Boston	Overwater	3	7	4
Phila.	Overwater	8	8	6
Wash.	Overwater	6	4	4
New York	Overwater	6	8	0
Kans. City		6	14	0
Omaha		5	0	0
San Fran.	Low Alt.	6	3	0
San Fran.	High Alt.	9	2	0
Seattle	Overland	5	10	4
Seattle	Overwater	7	1	0
Spokane	Overland	6	7	4
Los Ang.		12	21	0
U.S. TOTAL		139	184	69

It should be noted that the number of fighters shown did not all attack simultaneously. Rather, the number is the total of individual successful intercept attempts.

- (4) Intercept Success: During the activity on E Day + 3 against faker aircraft 113 separate fighter elements (excluding an unknown number of elements scrambled against the Los Angeles raids) attempted to make interception. Fifty percent of these were successful before the bombers reached BRL; 25 percent were successful after BRL; and 25 percent failed completely. Thus the success rate without respect to BRL was 75%. Of 19 strike tracks, 18 were intercepted at least once before BRL. Details of the intercept success rate are shown in Table VII.

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TABLE VII

INTERCEPT (POUNCE) SUCCESS RATES*

Target	Intercept Attempts which were		
	Successful		Unsuccessful
	Before BRL	After BRL	
Detroit	11	5	4
Chicago	8	7	7
Total	19 or 45%	12 or 29%	11 or 26%
New York	3	5	3
Philadelphia	5	0	2
Washington	2	3	0
Pittsburgh	1	0	1
Boston	3	2	1
Total	14 or 45%	10 or 32%	7 or 23%
Philadelphia	3	2	1
Washington	2	2	0
New York	3	0	0
Total	8 or 62%	4 or 31%	1 or 7%
Kansas City	4	0	2
Omaha	0	0	1
Total	4 or 50%	0	3 or 43%
San Francisco (Low)	2	0	0
San Francisco (High)	1	0	6
Total	3 or 33%	0	6 or 67%
Spokane	3	1	0
Seattle	3	2	0
Seattle	1	0	1
Total	7 or 64%	3 or 27%	1 or 9%
U.S. TOTAL	55 or 50%	29 or 25%	29 or 25%

(Los Angeles mass scrambles not applicable)

*Interception was defined as successful only if the fighter reached the pounce position.

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- (5) Fighter Identification of Fakers: Since most of the interceptions occurred during hours of daylight, there was no problem in properly recognizing the faker aircraft as such. However, there were many errors in reporting the number of fakers in the attack. Often these errors were sizeable. Fighter estimates of raid size generally understated the number of bombers.
- (6) Time Requirements: An analysis has been made of the times required to perform certain of the steps in the air defense process. Because the data was rather fragmentary, detailed breakdown of the times is not meaningful. The data shown in Table VIII are averages for the country as a whole, using all reported cases.

TABLE VIII
TIME REQUIREMENTS

Time	Average Time in minutes
from scramble order to airborne	4.1
from airborne to tally-ho	18.5
from tally-ho to pounce	3.2
turn around time	27.0

- (7) Activity Against Other Unknowns: In addition to the activity directed against the faker aircraft, a considerable effort was expended against other unknown tracks. This effort is expressed quantitatively in Table IX which indicates that during the seven-hour period 1000Z - 1700Z, which included all the strike effort, a total of 186 fighters were scrambled against non-faker unknowns.

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TABLE IX

ACTIVITY AGAINST UNKNOWN TRACKS OTHER THAN FAKERS
During the Period 1000-1700Z, 27 July

Defense Force	No. of unk. tracks	No. of scrambles attempted	No. of Successful intercepts	Total No. of fighters scrambled
EADF	115	46	22	134
CADF	24	15	6	32
WADF*	28	11	6	20
U.S. TOTAL	167	72	34	186

* Excluding 27th ADiv

This should not be interpreted to mean that all these fighters could have been committed against the fakers if they had not been directed against the other unknowns. In many cases they were committed at moments when no fakers were in range of the particular fighters scrambled. The figures do indicate that there was a very considerable additional load imposed on the air defense system at a time when every capability was needed against the faker strikes. An adequate identification system would do much to alleviate the problem. Also, in actual combat, the grounding of all non-essential traffic will be a great help.

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d. Special Topics.

- (1) Antiaircraft Artillery. Exercise SIGN POST was the first air defense exercise in which the effects of both fighter interceptors and antiaircraft artillery on bomber penetrations have been included in the analysis. Although elements of the Army Antiaircraft Command participated in previous exercises, their contributions were not included in the overall evaluation of the air defense system.
- (a) Antiaircraft Participation. Elements of the Army Antiaircraft Command participated in this exercise to the maximum extent possible. The only units which did not participate were those engaged in target practice, support of civilian component training, or conduct of special training programs following National Guard phase-out. All antiaircraft defenses to which units have been assigned were active except those for Niagara and March Air Force Base. Units assigned to the Niagara defense participated in a simulated defense established near Camp Edwards, Mass. The battalion assigned to the defense of March Air Force Base was participating in scheduled target practice during the exercise. An average of 187 firing batteries were in tactical positions each day, with an average of 138 operational. Total ARAACOM participation in the exercise is shown in Table X. (See chart also.)
- (b) Results of AA Action. Detailed results of AA action are given in Table XI. Of the 64 exercise strikes flown by SAC from E Day through E Day + 4, 5 were successfully engaged by antiaircraft units. Of the remaining strikes, 33 did not enter AA defended areas, 7 did but were not passed to AAOC, and 6 faded prior to entering AA radar range. Chief factors influencing unsuccessful engagement were late or no identification, extreme altitudes, saturated or nearly saturated defenses due to unknowns, ECM (chaff) and faulty AAOC procedures. A summation of these results follows:

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No. of Strikes	No. of Aircraft	Primary Factor
33	77	Did not enter defended areas
9	37	Late or no identification
6	7	Not passed to AAOC
7	27	Faded prior to AA radar range
5	11	Successfully engaged
1	20	Extreme altitude
1	5	ECM (chaff)
1	2	Saturated defense
1	1	Faulty AAOC procedures

- (c) Discussion. As already indicated, the most serious obstacle to the effective utilization of AA is in the field of identification and early warning. So long as antiaircraft defenses are restricted to "Guns Tight," targets must be identified as "hostile" (faker) before AA can engage. Furthermore, identification must be sufficiently early to permit proper acquisition and effective engagement before BRL. This problem is further aggravated during an exercise like SIGNPOST by considerable numbers of "unknowns" which are continuously present in the large metropolitan areas. Acquisition of designated "faker" tracks by AA radars is rendered increasingly difficult when civil and commercial air traffic is heavy.

The next most serious problem is the large number of track "fades" prior to entering maximum AA radar range. Again, this is most important when AAA is placed on "Guns Tight" and must positively correlate observed aircraft positions with the track previously designated as "hostile" (faker). Dead reckoning tracks from the point of "lost contact" into AA radar range is not sufficiently reliable to distinguish designated aircraft from other aircraft in the immediate vicinity. No positive assurance exists as

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to whether the track acquired by AA radars is the same track as that originally designated as "hostile" (faker).

It is also noted that on several occasions during SIGN POST the number of tracks being carried and plotted at the AAOC exceeded the optimum capability of the system. These tracks included a large number of "unknowns" common to areas of heavy traffic, fighter aircraft, and "unknowns" which were eventually identified as "fakers." Unacceptable delays and confusion in telling, control, and acquisition of targets were the result. In several cases, major portions of the defense were dissipated on a multiple of "unknown" tracks, leaving a small proportionate share of available fire power for the single "unknown" that proved to be a strike aircraft.

The altitude at which many of these strikes were flown exceeded or closely approached the altitude capabilities of antiaircraft weapons. These extreme altitudes either prevented engagement or severely limited the effectiveness of engagement by antiaircraft defense units.

Excessive equipment failures occurred throughout the exercise. Of an average of 187 firing batteries in tactical positions, an average of 138 were continuously operational. This is an average reduction in unit fire power of 26%.

Although the tactical wire communications within each defended area appear to be adequate, there was an indication during the exercise that the two lines between the ADIC and AAOC can be saturated during periods of heavy traffic. It was shown that use of one of these lines for telling operations and one for command and liaison purposes generates too great an interval between successive plots on each track.

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TABLE X

ARAACOM PARTICIPATION
OPERATION SIGNPOST

Defended Area	No. of Btries Asgd	Average Participating On-Site		Not Participating	
		No. of Btries OPNL	Not OPNL	No. of Btries	Reason
EASTARAACOM					
Wash. D C	24	16	8		
Baltimore	12	8	3	1	Civ comp tng
New York	40	25	9	6	Firing range
Phila.	16	7	9		
Pittsburgh	12	10	2		
Boston	12	10	1	1	Site not accessible
Cp. Edwards	12	4		8	Firing range
Chicago	20	13	4	3	Phase-out tng
Detroit	16	4	6	6	Civ comp tng & range
SS Marie	4	2		2	Civ comp tng
Limestone	4			4	Prep o/s duty
EASTARAACOM TOTAL....	172	99	42	31	
WESTARAACOM					
Seattle	12	10	2		
Hanford	16	9	5	2	Firing range
Larson AFB	4	4			
San Fran	12	8		4	Civ comp tng
Travis	4	4			
Castle	4	4			
March	4			4	Firing range
WESTARAACOM TOTAL....	56	39	7	10	
TOTAL ARAACOM	228	138	49	41	

No. of btries, by weapon caliber on site: Of the average of 187 batteries on-site during the exercise, this total may be divided into weapons type as follows:

Caliber	No. of Btries On-Site	% of Total Btries On-Site
40 mm	74	7
90 mm	125	57
120 mm	48	26

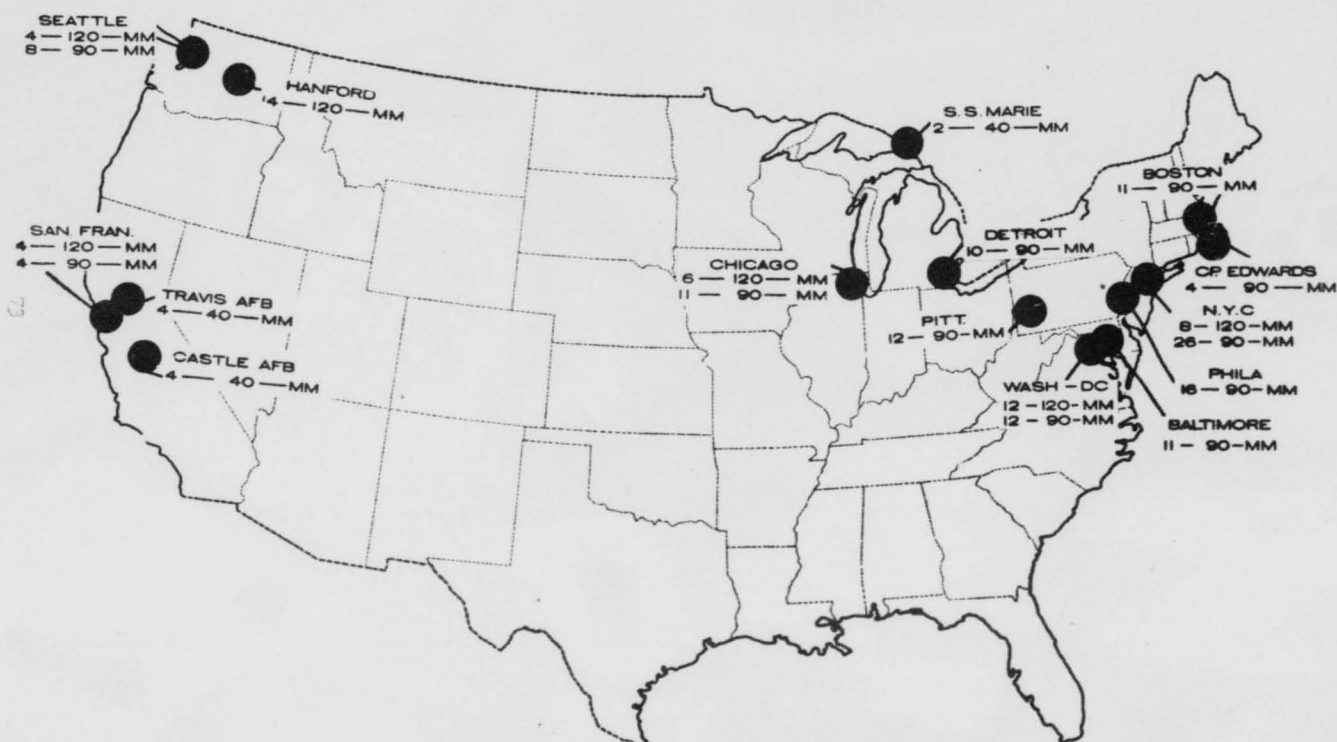
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TABLE XI
 ANTI-AIRCRAFT ENGAGEMENT RESULTS
 E DAY

Mission No.	Target	Bombers Committed	No. of Batteries Acquiring	No. of Batteries Engaging	Remarks
1	Chicago	1	-	-	Not told
2	Detroit	1	-	-	Fade
3	NewYork	1	-	-	Late iden.
4	Phila.	1	-	-	Not told
5	Wash.	1	-	-	Late iden.
6	Pitts.	1	-	-	Fade
7	Chicago	1	-	-	Not told
8	Detroit	1	3	1	
9	Seattle	1	1	1	Saturation and extreme alt.
12	SanFran.	2	4	2	2 tracks; 1 not iden.-extreme alt.
13	Seattle	1	8	2	
16	SanFran.	1	3	1	
Total E Day		13			
E DAY + 3					
17	Detroit	19	2	1	Late iden. - extreme alt.
18	Chicago	20	8	3	Extreme alt.
19	NewYork	6	4	2	Late iden. & saturation
20	Phila.	6	-	-	Fade
21	Wash.	4	7	0	Late iden.
22	Pitts.	5	5	0	ECM (chaff)
23	Cancelled				
24	Boston	3	4	3	
25	Phila.	8	-	-	Diversiónary. Out of range.
26	Wash.	6	-	-	" " "
27	NewYork	6	5	-	" " "
32	SanFran.	6	-	-	Fade
33	Seattle	5	6	2	3 tracks; 1 not iden.- saturation, extreme alt.
36	SanFran	9	-	-	Fade
37	Seattle	7	-	-	Diversiónary. Out of range.
Total E Day + 3		110			

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TABLE XI (continued)

E Day + 4

Mission No.	Target	Bombers Committed	No. of Batteries Acquiring	No. of Batteries Engaging	Remarks
43	Chicago	2	9	0	Late identification
44	Detroit	2	1	0	1 faded; 1 no identification
45	Pitts	2	6	0	1 not told; 1 no identification
49	Balto	1	4	0	AAOC procedure; extreme alt.
50	Boston	1	-	-	Out of range
52	New York	1	12	2	
53	Phila	3	-	-	2 not told; 1 fade
54	Wash	1	-	-	Not told
55	Seattle	1	10	1	Late identification; extreme alt.
58	S Fran	2	5	1	Fade; extreme alt.
TOTAL E DAY + 4		16			
TOTAL FOR EXERCISE		139			

(d) Remedial Actions. Results of SIGN POST pointed up the following remedial steps to improve AAA performance:

1. It is anticipated that the current program for the integration of the AAA AN/TPS-ID into the AC&W system will, for a large part, alleviate the problem of tracks fading prior to entering AA radar range. This equipment integration will mean that tracks can be acquired prior to fade and passed to gun-laying radar, even though such tracks are not being carried by AC&W sets at the time of engagement.
2. The proposed plan for the security control of air traffic (SCAT) and implementation

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of GDA's in an emergency would greatly reduce air traffic over AA defended areas and simultaneously increase the effectiveness of defending AA units.

3. The final development and adoption of automatic data transmission systems will provide more accurate and timely intelligence to the firing batteries, increasing their combat potential.
4. The current program for the development of increased effectiveness of the antiaircraft weapons family, particularly the guided missiles, will provide weapons capable of combating increased bomber speed and altitude capabilities.
5. Development of new and refined tactical fire control procedures will bring about a closer integration of AAA into the air defense team.

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(2) Weather.

Collection and Dissemination of Information. The following summary of problems incident to providing weather information for Exercise SIGN POST was compiled from comments submitted by the weather detachment commanders at air base, air division and defense force levels. Several factors influenced markedly the collection and dissemination of weather information during Operation SIGN POST. With present methods these factors will always adversely affect the flow of weather information during exercise periods or any periods of accelerated activity. One of these factors is the delay in getting weather information to those needing it. A second is the tendency toward breakdown in certain aspects of the weather collecting procedure. A third is the greatly increased requirement for weather information during accelerated operational conditions.

During the exercise, as the operational traffic increased, more numerous delays in weather transmissions were encountered over ADC shared circuits. The relay weather communications system from the air division to the AC&W units, normally cumbersome and inadequate, became more inadequate during periods of dense traffic. Causes for these delays included a lack of sufficient personnel within the communications sections to handle the heavy traffic, and the increase in higher priority traffic above the weather traffic (normally classified Operational Priority). Hourly weather observations were received at AC&W location an average of 50 minutes after the observation time. A portion of this delay is attributed to the delay on the national weather teletype net and a larger portion to the delay in the tactical net.

In spite of the generally good weather which prevailed during the exercise, the number of pilot weather reports increased slightly over the normal number received from fighter-interceptor pilots.

A check of the radar weather reports from AC&W sites was made but it could not be determined if the traffic had increased or not. With the generally fair weather, there were few radar weather targets in the maneuver areas. Additionally, it is believed that any increase in radar weather reports would not have allowed the weather officers to obtain full value from such reports because the means of collecting and further disseminating them

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would be partially denied during periods of accelerated operations. The loop teletype circuit from the AC&W units to the air division is the normal line of communications over which the radar weather reports must be handled--and that loop was heavily taxed.

Fortunately, there is one alternate means of handling these radar weather reports and the hourly and special weather sequences. They can be transmitted over the direct telephone line from the AC&W unit to the nearest Air Force base weather station. During SIGN POST attempts at relaying weather over the telephone line were not always successful because AC&W personnel were sometimes too busy to copy the weather relayed by this voice method.

There was a general increase in the activities of weather personnel in base weather stations. Again, in spite of the favorable weather that prevailed, the number of weather briefings to units and to alert crews more than doubled during this period. Weather service to these organizations was considered adequate in all cases. At Selfridge, where SAC based two medium bomb wings and one fighter escort wing, the briefings required were detailed, complicated and numerous.

The advisory activities of the forecasters on duty in the Air Division weather stations and the EADF COC increased tremendously during this period. Recommendations received from field units indicated that they would require double the number of persons presently authorized if they were to maintain the increased pace of activities at the air division weather stations.

Action is being taken by ADOWX to correct deficiencies noted in the weather service support to various ADC units.

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- (3) Ground Observer Corps Participation: A thorough analysis of Ground Observer Corps participation in Operation SIGN POST was not made due to the fact that the majority of the penetrations were at medium or high altitudes. It was felt that although ground observers could track these medium or high altitude flights, their contribution to the overall defense effort against the SAC strikes would be small due to the fact that radar would be painting the strike aircraft at the same time, or before, the Ground Observer Corps.

Accurate checks of Ground Observer Corps participation were made in only two instances. Both of these flights were above 25,000 ft. Both were picked up and tracked by the GOC with little difficulty for distances of 180 and 240 nautical miles, respectively. Post-exercise analysis and investigation indicate that the Ground Observer Corps did contribute information in several instances which was not correlated with radar. It must be noted that GOC tracks, upon correlation with known flight plan data or radar information, lose their identity and are not maintained as GOC tracks other than in the ground observer system.

During the exercise observers at ADCCs received very little information on GOC contribution, since only those GOC tracks which were adequately established and were not correlated with radar or flight plan information appeared on ADCC plotting boards. Plans for any future exercises designed to give a broader test of GOC participation should include more observers and more detailed reports at Filter Centers and the ADCCs with which they are associated.

It is recommended that, where possible, in future exercises ADC participate in the planning to the extent that more low level penetrations of the air defense system be included. It is only through tests of this nature that the contribution to the air defense system by the Ground Observer Corps can be properly analyzed.

- (h) Radar Effectiveness: As indicated elsewhere, radar ranges were exceptionally good during Exercise SIGN POST, in many instances either approaching line-of-sight or comparing favorably with calibrated coverage. However, several deficiencies were revealed which detracted from the continuity of performance essential for tracking penetrating aircraft into and through the system. One of these was the intermittent failure of radar in continuous tracking functions. The 30th Air Division noted improvement in tracking

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continuity, due largely to the phasing in of permanent radars, but the 32d Air Division termed continuous tracking efficiency unsatisfactory.

This division was particularly concerned about the poor painting of jet-type fighter aircraft. It commented on this and other aspects of the tracking problem as follows:

"Continuous tracking of fighter aircraft was poor except in instances where IFF was available. The continuous tracking efficiency in many instances reflected the inability of radar to pick up targets in certain areas. In addition, the improper use of dead-reckoning techniques made it difficult to provide continuity until the targets appeared again on the radar. Radar stations were reluctant to coordinate their activities completely with each other."

As in other areas of responsibility, the 32d Air Division found a further indication of deficiency in tracking functions in the poor performance of radars against E-15 type aircraft. High-speed jet propulsion rather than high altitude was considered the major factor in this, inasmuch as the tracking of B-36 and B-29 (50) type aircraft was exceptionally good. Tracking of B-36 and B-29 (50) type aircraft generally showed good sequence while that of E-15 type aircraft was sporadic.

Even against conventional type SAC aircraft, however, the 32d Air Division noted blind spots in radar coverage. Capabilities over the St. Lawrence River area were noted as good, although SAC aircraft flying at medium altitudes in this region during the exercise painted poorly at times, requiring dead reckoning to maintain the air situation. Coverage in the Lake Champlain area and to the south was noted as poor at the operational altitudes of the strike aircraft. Generally, the division summed up these observations as follows: "The location and distance between certain adjacent sites do not provide coverage at all altitudes." It recommended that ADC's gap filler program be expedited.

Inadequate range of present height-finding equipment, scarcity of parts required to maintain a peaked radar condition, and an inadequate standard of training for maintenance personnel were mentioned by the 32d Air Division as other deficiencies. As a means of improving procedures

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in the AC&W net, it was recommended that the method of displaying track information at ADCCs using vertical plotting boards be reviewed toward the end of speeding up the system.

WADF, in a summary of observations during SIGN POST, also recommended that steps be taken to improve display methods in the AC&W system. It urged that the use of projection equipment, such as the Vu-Graph, in ADCCs be considered with a view toward eliminating plotters and the delay inherent in telling from scope to plotter. WADF also recommended that additional scopes be provided at ~~radar~~ sites to enable the system to meet such suddenly accelerated operational conditions as those prevalent during exercises.

High altitude pickups in WADF, as in the other areas, were good. Several instances, however, were recorded of very short detection ranges on high-flying B-36 aircraft when a sharp temperature inversion existed a short distance above the antennas. The relationship between the position of the gradients and the radar antenna needs evaluation.

- (5) Augmentation Forces: The fighter forces of the Air Defense Command were augmented during Exercise SIGN POST by fighter forces from the Tactical Air Command, the Air Training Command, the Air National Guard, and the U. S. Navy. Arrangements for utilization of Navy forces were made by EADF and WADF directly with the Eastern and Western Sea Frontiers, respectively. The Air National Guard utilization was also locally arranged. No special support was required for these two groups and they operated from bases under their own control.

Headquarters ADC made basic arrangements for the augmentation forces from ATRC and TAC. The plan included deploying these forces from their present bases to locations considered to be more strategically situated with respect to the potential faker strike. Airlift support had to be prearranged and minimal support was to be provided by the deployed units such as one set of hand tools for each plane and two APU's per squadron. Refueling bases were scheduled for those aircraft which were to be deployed at such distances from their base as to warrant it.

The magnitude of the deployment is indicated by the figures included in Table XII. (See Chart also. SAC deployment was not used.) A total of 324 aircraft were on station at

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TABLE XII

BASE		No. of Aircraft	Type	Sortie No.
From	To			
Clovis	O'Hare	16	F-51	23
Tyndall (B)	O'Hare	12	F-94	25
Moody	Shaw	4	T-33	Photo Recon
Godman	Oscoda	16	F-47	18
Tyndall (A)	Oscoda	13	F-94	12
Godman	Griffiss	10	F-47	1
	Niagara			1
Nellis (L)	Rapid City	12	F-86	10
Clovis	Duluth	15	F-51	22
Clovis	Larson	14	F-51	40
Nellis (E)	Larson	12	F-80	16
George	McChord	16	F-51	24
Nellis (G)	McChord	12	F-80	4
Nellis (F)	Paine	12	F-80	15
George	Geiger	20	F-51	62
Nellis (C)	George	12	F-80)	56
Nellis (D)	George	12	F-86)	
George	Hamilton	20	F-51	35
Nellis (K)	Hamilton	12	F-86	48
Luke (H)	Castle	16	F-84	27
Luke (I)	Travis	16	F-84	38
George	Grt Falls	16	F-51	40
Luke (J)	Kirtland	16	F-51)	95
(M)		20	F-80)	

TABLE XIII

SUMMARIES FOR TAC AND ARTC AUGMENTATION FORCE

Total Aircraft		324 *
TAC	147	
ARTC	177	
Time required for deployment		11-12 hrs
Time required before augmentation forces were available for scramble		Av 2 hrs after arrival
Number of sorties flown		631
TAC	268	
ARTC	365	
Greatest No. of sorties/aircraft		4

* Several late arrivals increased this total.

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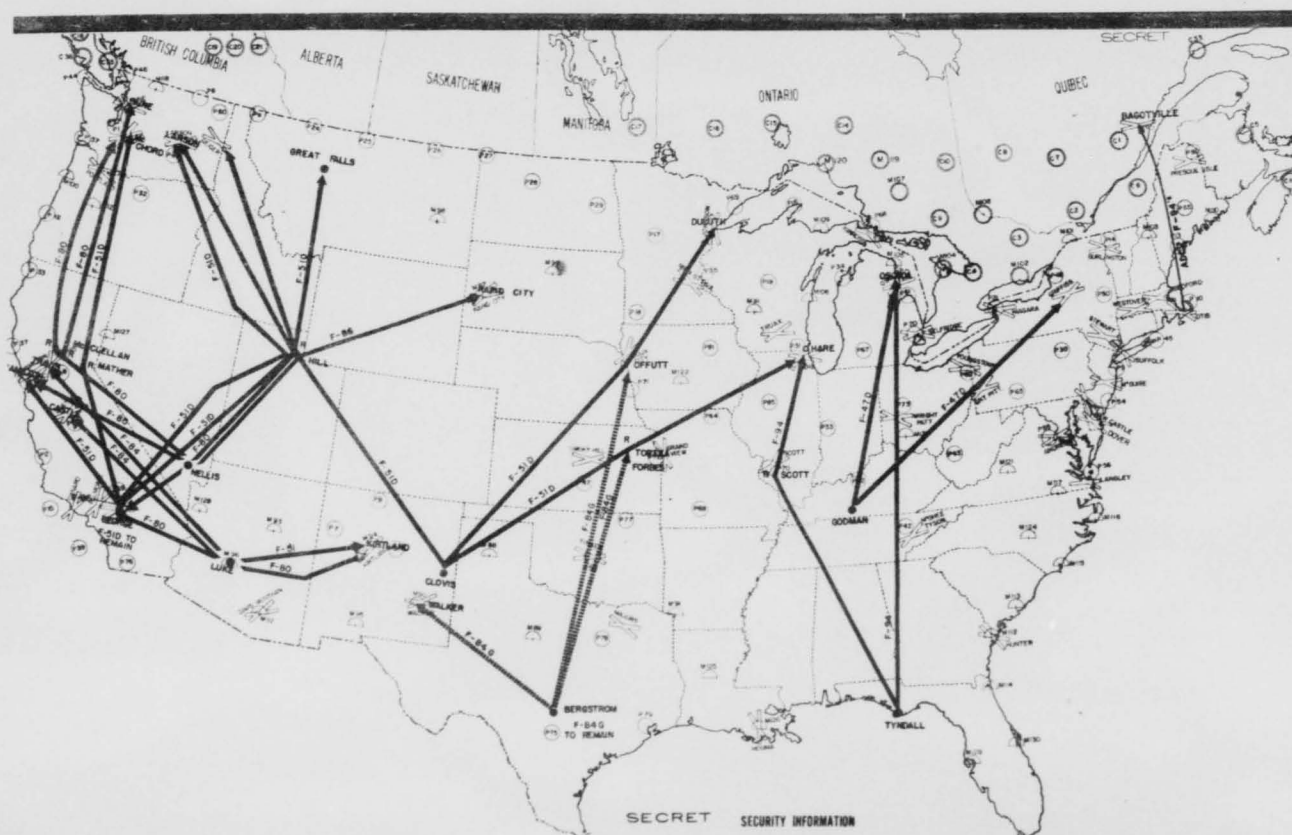
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AUGMENTATION DEPLOYMENT FROM ATRC-
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2100Z, 26 July, in response to the request for deployment dispatched from Hq ADC at 1100Z, 26 July 1952. More were to arrive before the main strike hit on 27 July. It is considered that these aircraft played an important part in the activities of E Day + 3. In at least one case their effective utilization was considered to be a vital factor in a critical air battle.

The problems involved were considerable. A total of over 330 planes with supporting crews were to be deployed to bases ~~at~~ which they were usually unfamiliar; refueling and maintenance in many cases had to be provided enroute; the bases to which they were to be deployed had to be alerted and provision made for servicing and utilizing an increased number of aircraft, often of a different type from those on the base; indoctrination as to ADC scramble techniques and procedures had to be accomplished; intelligence briefing had to be conducted; and airlift support had to be provided and coordinated.

Three hundred and twenty-four of these augmentation forces were deployed in about 12 hours' time. (See Table XIII). They required an average time after arrival of 2 hours before they were ready to scramble, many requiring up to 6 hours. A maximum of 30 hours was required to get satisfactory airlift support to the forces deployed in WADF. One or two sorties at the most could have been made before airlift support arrived.

The effective use of the augmentation forces from TAC and ATAC therefore requires considerable warning time if they are to be deployed away from their own bases. Careful planning might accomplish a reduction of warning time required for effective deployment to about 8 hours for the utilization of a major portion of the augmentation forces. To accomplish this reduction the bases to which these forces are to be deployed must be stockpiled with the spares required by the specific type aircraft; an increase in the technical base manpower must be provided; continuous indoctrination of deployed personnel in ADC regulations and procedures must be accomplished and the bases to which they are to be deployed have adequate facilities for refueling. In addition, there must be provided adequate special fuel supply and sufficient communications, housing and messing accommodations.

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Several suggestions were made by TAC-ATRC deployed personnel which can make their role more effective. A selected list follows:

- () Bases need at least four refueling trucks to reduce turn around time when scrambles involve 4 aircraft at a time.
- () Each squadron should have 2 reserve pilots and 4 reserve airmen.
- () Each squadron should have at least 4 APU's.
- (1) Clerical personnel should be made available for whatever reports are required.
- () An ADC liaison officer should be attached to each deployed unit and remain with that unit for the duration of the deployment. ADC liaison personnel should also be available at each refueling base.
- () More frequent and more adequate briefings should be held between deployed squadrons and the bases to which they are to be deployed.

As a result of the exercise this headquarters has already taken action on the following items:

- (1) Measures are being taken to decrease the time element between the arrival of fighters and support aircraft.
- (1) The Defense Forces are being instructed to re-indoctrinate all deployment units.
- () Each major command has been encouraged to take maximum advantage of the program for training their forces at the base to which they will be deployed, and to participate to the fullest extent in air defense exercises.
- (6) Intelligence.
 - (a) Intelligence Participation - General. Exercise SIGW POST represented a significant departure from previous exercises in that it provided the first opportunity for large-scale intelligence participation. The

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Deputy for Intelligence, ADC, prepared in advance a fabricated intelligence situation which was followed as realistically as possible throughout the period. This included a synthesized scenario and an intelligence build-up which created an atmosphere in consonance with the simulated condition of attack.

SIGN POST was found to be unrealistic from an ADC intelligence point of view. The SAC pattern of attack included pre-strike and post-strike reconnaissance which, according to intelligence evaluation, would be unlikely today under world conditions. Also, the main strike originated in the United States, hit targets in the United States and withdrew to United States bases. However, despite these unrealistic factors, a post-exercise appraisal indicated that SIGN POST afforded ample opportunity for ironing out flaws in the vital chain of intelligence procedures linking those commands which would actually be concerned in a real attack.

Regarding intelligence aspects of the exercise planning, the ADC critique found that late dissemination of the intelligence plan and excessive and faulty distribution of varied intelligence publications retarded coordination and understanding in DCS/I and defense forces. It also found that the DCS/I organization for planning failed in complete integration of all directorates to the extent that "there was a lack of understanding of separate and joint responsibilities of individuals and Directorates".

(b) Deficiencies in Functioning.

1. Hq ADC. From the viewpoint of functioning at ADC level, the critique found that deficiencies in execution resulted mostly from space limitations in the COC, an erroneous concept of the functioning of the Intelligence COC teams, duplication of statistical work, insufficient development of combat intelligence for evaluation purposes, insufficient exchange of combat intelligence between defense forces through the COC, and lack of specific training on the part of intelligence personnel. Adequate bomb damage assessment was hampered by lack of pre-strike photography and target data which proper strike analysis could be made, failure to make reconnaissance requests specific

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enough, limited ability to deal directly with Tactical Air Command on reconnaissance requirements, lack of an established courier system for delivery of photographs resulting in a time lag ranging from 12 to 20 hours from the request for reconnaissance until the photographs arrived at Peterson Field, and failure to have Domestic Vulnerability personnel familiar with photo interpretation and bomb damage assessment on duty or available at all times.

2. Field Units. More detailed critiques of the functioning of intelligence collection and dissemination in the field were provided by the three defense forces, the 4602d Air Intelligence Service Squadron, ARAACOM and the Air Defense Command of the Royal Canadian Air Force. The deficiencies noted by these commands were summarized as follows:
 - a. Reporting. Slowness of transmission, repetition and duplication of information, and a rigid schedule for reporting were the principal deficiencies. Form MB, Interception Interrogation Report, was too detailed and transmission to Hq ADC too cumbersome. The Two-Hour Tactical Situation Summary requires the transmission of too much unnecessary operational data.
 - b. Communications. The value of engineered intelligence voice circuits between Hq ADC and the defense forces, and between the defense forces and air divisions, was proved. Air divisions experienced difficulties in exchanging information with the ADDCs, due to an overload on present communications.
 - c. Personnel. Personnel shortages were most acute at division and squadron, both fighter and AC&W (ADDC). In many cases, personnel performed intelligence work as an additional duty, which handicapped the injection of real combat intelligence into the exercise.

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d. Miscellaneous Deficiencies. Simulated strategic intelligence injected into the exercise by Hq ADC was not effective. The scenario was off in its timing and occasionally inconsistent. There was too much emphasis on strategic estimates and not enough on operational factors. Lack of standard terminology and ground rules caused confusion, otherwise avoidable. Definitions are needed for intercepts and kills. Rules are needed for targets bombed and the effect of sabotage. There was ~~some~~ a need for uniformity in the security classification on messages.

(c) Value of the Exercise. Value of the exercise to the intelligence organization was summarized in a critique by DCS/I, ADC, as follows: "In many instances, participating personnel were quick to discern deficiencies as they developed and made timely spot corrections to the maximum possible extent. The DCS/I effort displayed during the exercise demonstrated ability to operate effectively during actual hostilities." In discussing the value of the exercise, the consolidated defense force critique found that SIGN POST accomplished the following major ends: provided an opportunity for testing and improving procedures; showed the value of engineered intelligence voice circuits; and provided valuable experience for personnel. The success of the CADF cross-training program, which exceeded expectations, was singled out for comment.

(d) Recommendations.

1. Hq ADC. DCS/I, ADC, believes that intelligence should be represented in the operational planning of exercises. A realistic exercise permitting maximum benefits for both Operations and intelligence should be planned. Intelligence planning for exercises should be done by a committee with members from each Directorate. It should start functioning well in advance of exercises in order that a scenario may be worked out in detail and adequate plans made. These should be coordinated both within DCS/I, ADC, and with the defense forces. Assessment of simulated bomb damage could be improved by establishment of a Standing

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Operating Procedure with Tactical Air Command providing for direct submission of reconnaissance requests to TAC and direct delivery of finished prints to Headquarters ADC, and establishment of provisions for immediate assessment at this headquarters by Domestic Vulnerability personnel.

2. Defense Forces. Overall recommendations from the defense forces follow:

a. Reporting.

- (a) Revise reporting regulations and forms.
- (b) Reports should contain more intelligence information and less operational data.
- (c) Use "hot line" for running narrative summary and eliminate the Two-Hour Tactical Situation Summary.
- (d) Generally establish two categories of intelligence information: vital and secondary. Transmit vital reports by "hot lines", and secondary information by TWX or mail.
- (e) Intelligence information should be disseminated laterally between defense forces with copies to Hq ADC.

b. Communications.

- (a) Division headquarters should have intelligence voice circuits to ADDCs.
- (b) Defense force headquarters should have intelligence engineered voice circuits to lateral headquarters.
- (c) Engineered intelligence teletype loop circuits should be established between fighter squadrons and ADDCs, with facilities in the ADCC for hard copy and tape, the latter to be immediately retransmitted to the defense force.

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c. Personnel.

- (a) Eliminate intelligence personnel at defense wing level and move them to operational intelligence spots in the air division (defense).
- (b) Program intensified training for squadron intelligence officers.
- (c) Cross-training should be instituted whenever a shortage of intelligence personnel occurs.

d. Miscellaneous.

- (a) Make the intelligence plan parallel the operations plan more closely and develop it in greater detail, with timely dissemination.
- (b) Establish a set of rules governing simulated bomb damage and simulated sabotage activities.
- (c) Establish standard terminology for "penetrations", "Tally-Ho", etc.
- (d) Standardize security classifications of exercise material.
- (e) Standardize a short prefix and suffix to identify exercise messages.

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APPENDIX I

OPERATION SIGN POST

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SECRET SECURITY INFORMATION

APPENDIX ITABLE IAPPENDIX I

E - Day

EADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. BASE	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
1	1 RB-45	Lockbourne	40,000	Chicago	1640Z	Lockbourne
2	1 RB-45	Lockbourne	40,000	Detroit	1602Z	Lockbourne
3	1 RB-45	Lockbourne	40,000	New York	1601Z	Lockbourne
4	1 RB-45	Lockbourne	40,000	Philadelphia	1600Z	Lockbourne
5	1 RB-45	Lockbourne	40,000	Wash, D.C.	1621Z	Lockbourne
6	1 RB-45	Lockbourne	40,000	Pittsburgh	1607Z	Lockbourne
7	1 RB-50G	Hunter	30,000	Chicago	1600Z	Hunter
8	1 RB-50G	Hunter	30,000	Detroit	1600Z	Hunter

TABLE II

E-Day

WADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. BASE	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
9	1 RB-36	Travis	40,000	Seattle	1808Z	Travis
10	1 RB-36	Travis	40,000	Spokane	1800Z	Travis
11	1 RB-36	Travis	40,000	Los Angeles	1812Z	Travis
12	2 RB-36	Travis	40,000	San Francisco	1811Z	Travis
13	1 RB-29	Fairchild	25,000	Seattle	1804Z	Fairchild
14	1 RB-29	Fairchild	25,000	Los Angeles	1822Z	Fairchild
15	1 RB-29	Fairchild	25,000	Spokane	1304Z	Fairchild
16	1 RB-29	Fairchild	25,000	San Francisco	1800Z	Fairchild

* Represents scheduled rather than exact altitude flown.

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TABLE III

E + 3 Day

EADF

STRIKE SUMMATION

OCA Mission No.	Type & No. A/U	T.O. BASE	Alt. over Target *	Target	Actual Target Time	Withdrawal Base
17	9 B-36 10)	Carswell	40,000	Detroit	15:3Z	Carswell
18	10 B-36 10)	Carswell	40,000	Chicago	1548Z	Carswell
19	6 B-50	Hunter	30,000	New York	1215Z	Hunter
20	6 B-50	Hunter	30,000	Phila.	1215Z	Hunter
21	1) RB-50G 5) B-29	Hunter	25,000	Wash.	1212Z	Barksdale
22	1) RB-50G 5 B-29	Hunter	25,000	Pitts.	1206Z) 1217Z)	Barksdale
24	3 B-29	Kindley	25,000	Boston	1130Z	Lake Charles
25	9 B-29	Kindley	25,000	Phila.	1140Z	Walker
26	6 B-29	Kindley	25,000	Wash.	1242Z	Barksdale
27	6 B-29	Kindley	25,000	New York	1202Z	Lake Charles
28	24 F-84	Dow	40,000	Detroit	1543Z	Lockbourne
29	48 F-84G	Lockbourne	40,000	Chicago	1548Z	Selfridge
30	14 KB-29P	Lockbourne	25,000	Refuel F-2	1515Z	Lockbourne

*Represents scheduled rather than exact altitude flown.

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TABLE IV

E + 3 Day

WADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. BASE	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
31	6 B-50G	Davis-Monthan	35,000	Los Angeles	1215Z	Davis-Monthan
32	6 B-29	Travis	25,000	San Fran.	1216Z	Travis
33	5 B-50	Castle	35,000	Seattle	1214Z) 1243Z)	Castle
34	6 B-50	Castle	35,000	Spokane	1225Z)	Castle
35	9 B-29	March	20,000	Los Angeles	1220Z) 1233Z)	March
36	9 B-29	March	25,000	San Fran.	1215Z) 1221Z)	March
37	7 B-29	March	20,000	Seattle	1155Z)	March

TABLE V

E + 3 Day

CADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. BASE	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
38	6 B-50	Davis-Monthan	30,000	Kansas City	1215Z	Davis-Monthan
39	6 B-50	Davis-Monthan	30,000	Omaha	1215Z	Davis-Monthan

*Represents scheduled rather than exact altitude flown.

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TABLE VI

E+4 Day

EADF

STRIKE SUMMATION

OOA Mission No.	Type & No. a/c	T.O. Base	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
40	2 RB-36	United Kingdom	40,000	Peoria	(1341Z (1241Z (1335Z (1434Z (1434Z	Rapid City
				Des Moines	(1547Z	
				Sioux Falls	(1155Z (1156Z (1223Z (1246Z (1252½Z (1323Z (1230Z (1350Z (1356Z	
				St. Louis	(1136Z (1316Z	
41	3 RB-36	United Kingdom	40,000	Kansas City	1415Z	Rapid City
				Grand Island	1503Z	
42	2 RB-36	United Kingdom	40,000	Burlington	(1202Z (1222Z	Rapid City
				Sioux City	1333Z	
43	2 RB-36H	Lajes Fld	40,000	Bismark	(1220Z (1303Z (1303Z	Rapid City
				Chicago	1249½Z	
44	2 RB-36H	Lajes Fld	40,000	Minneapolis	(1326Z	Rapid City
				Detroit	0639Z	
45	2 RB-36	Lajes Fld	40,000	Pittsburgh	0630Z	Rapid City
					0628½Z	
46	1 RB-45	Lockbourne	40,000	Cleveland	0620Z	Rapid City
47	1 RB-45	Lockbourne	40,000	Baltimore	0630Z	
48	1 RB-45	Lockbourne	40,000	Boston		Rapid City
49	1 RB-45	Lockbourne	40,000	Sault Ste Marie		
50	1 RB-45	Lockbourne	40,000	New York	(1300Z (1330Z	Rapid City
51	1 RB-45	Lockbourne	2,000	Philadelphia	(1300Z	
52	2 RB-36	Lajes Fld	40,000	Washington	(1330Z	Rapid City
53	2 RB-36	Lajes Fld	40,000			
54	2 RB-36	Lajes Fld	40,000			

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TABLE VII

E+4 Day

WADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. Base	Alt. Over Target*	Target	Actual Target Time	Withdrawal Base
55	1 RB-36	Travis	40,000	Seattle	1700Z	Travis
56	1 RB-36	Travis	40,000	Spokane	1700Z	Travis
57	1 RB-36	Travis	40,000	Los Angeles	1700Z	Travis
58	2 RB-36	Travis	40,000	San Francisco	1730Z	Travis

TABLE VIII

E+4 Day

WADF

STRIKE SUMMATION

OOA Mission No.	Type & No. A/C	T.O. Base	Alt. Over Target *	Target	Actual Target Time	Withdrawal Base
63	2 RB-36	United Kingdom	40,000	Peoria	1341Z	Rapid City
				Des Moines	1241Z	
				Sioux Falls	1335Z	
					1434Z	
64	3 RB-36	United Kingdom	40,000	St. Louis	1434Z	Rapid City
					1547Z	
				Kansas City	1155Z	
					1156Z	
65	2 RB-36	United Kingdom	40,000	Burlington	1223Z	Rapid City
					1246Z	
				Grand Island	1252 1/2Z	
					1323Z	
				Sioux City	1230Z	Rapid City
				Bismark	1350Z	
					1356Z	
					1136Z	

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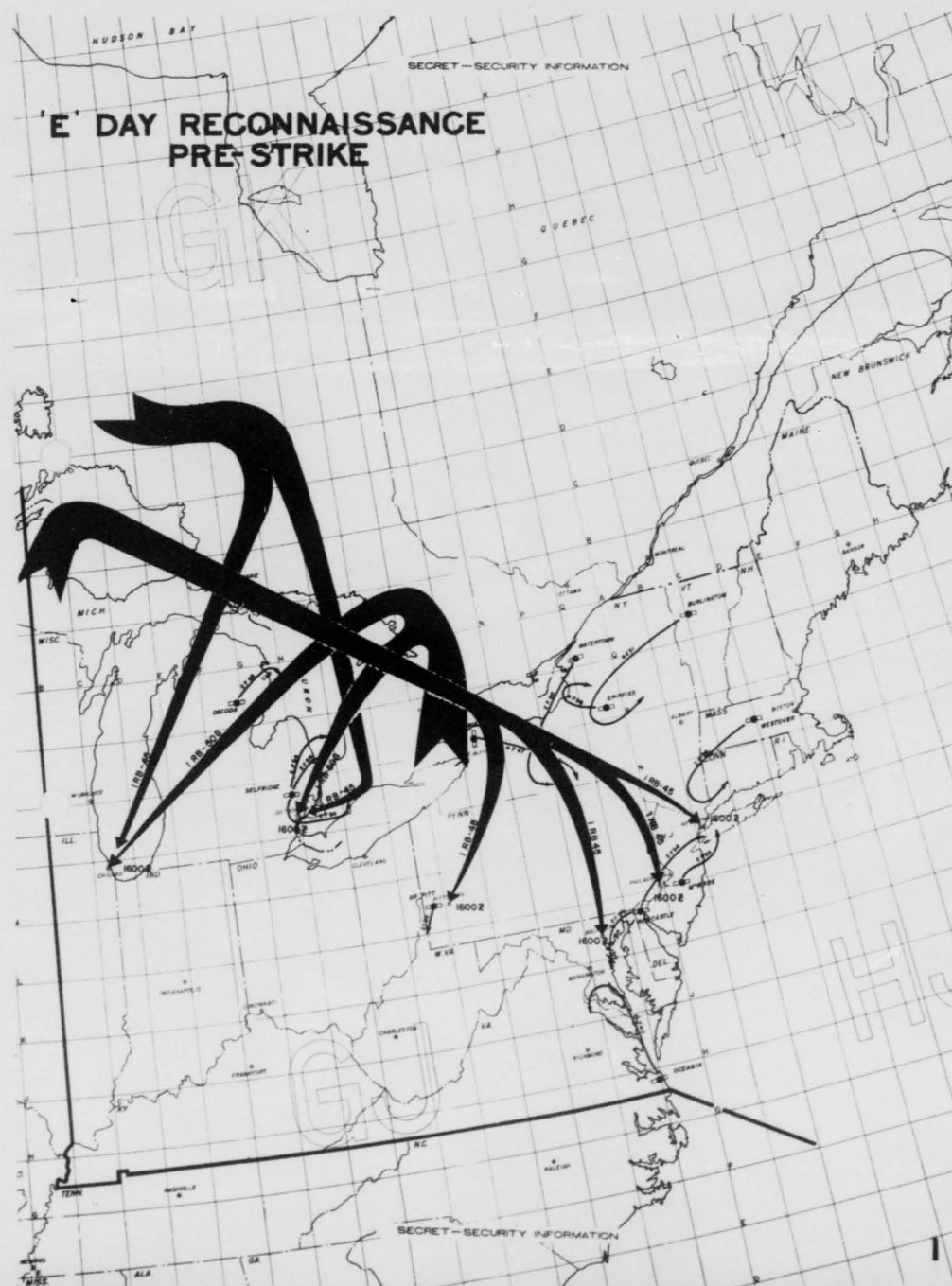
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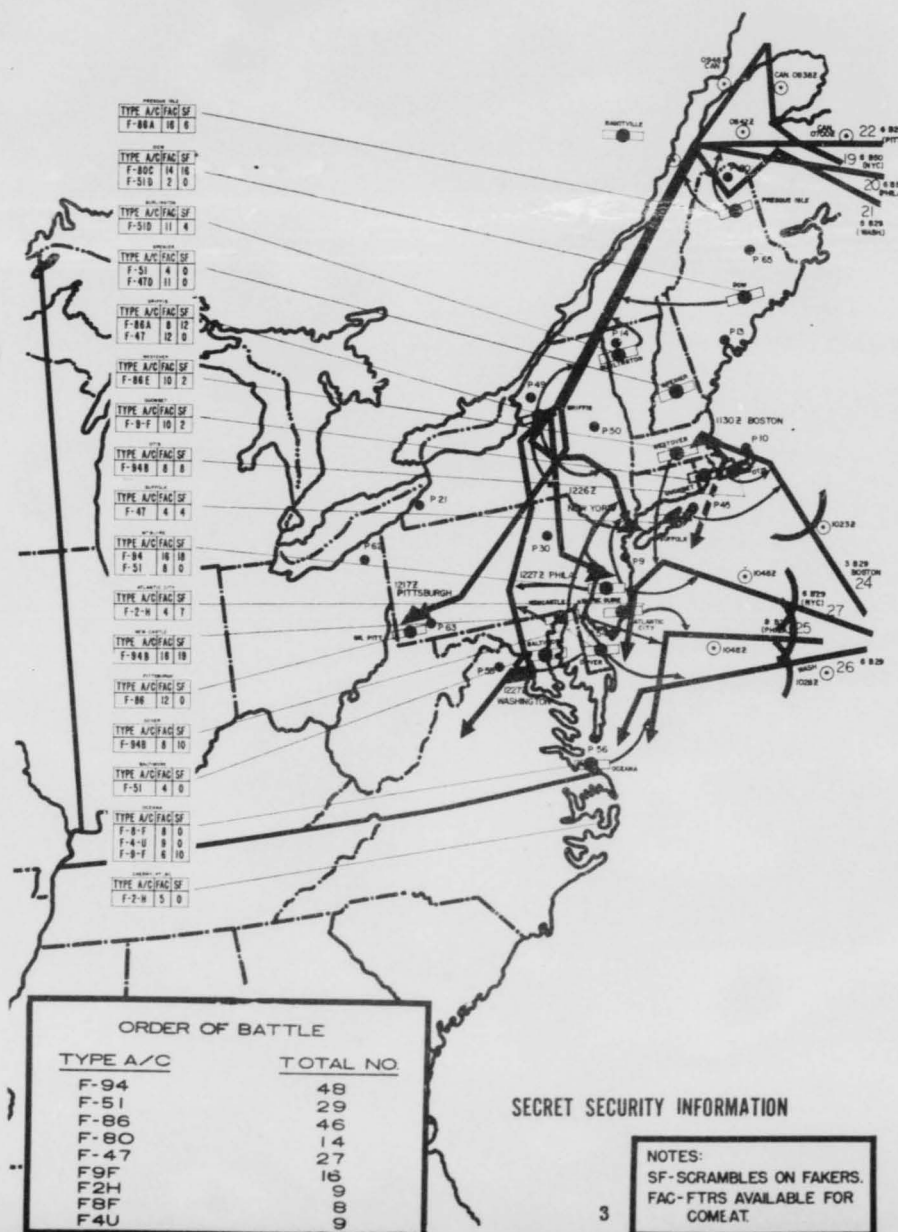
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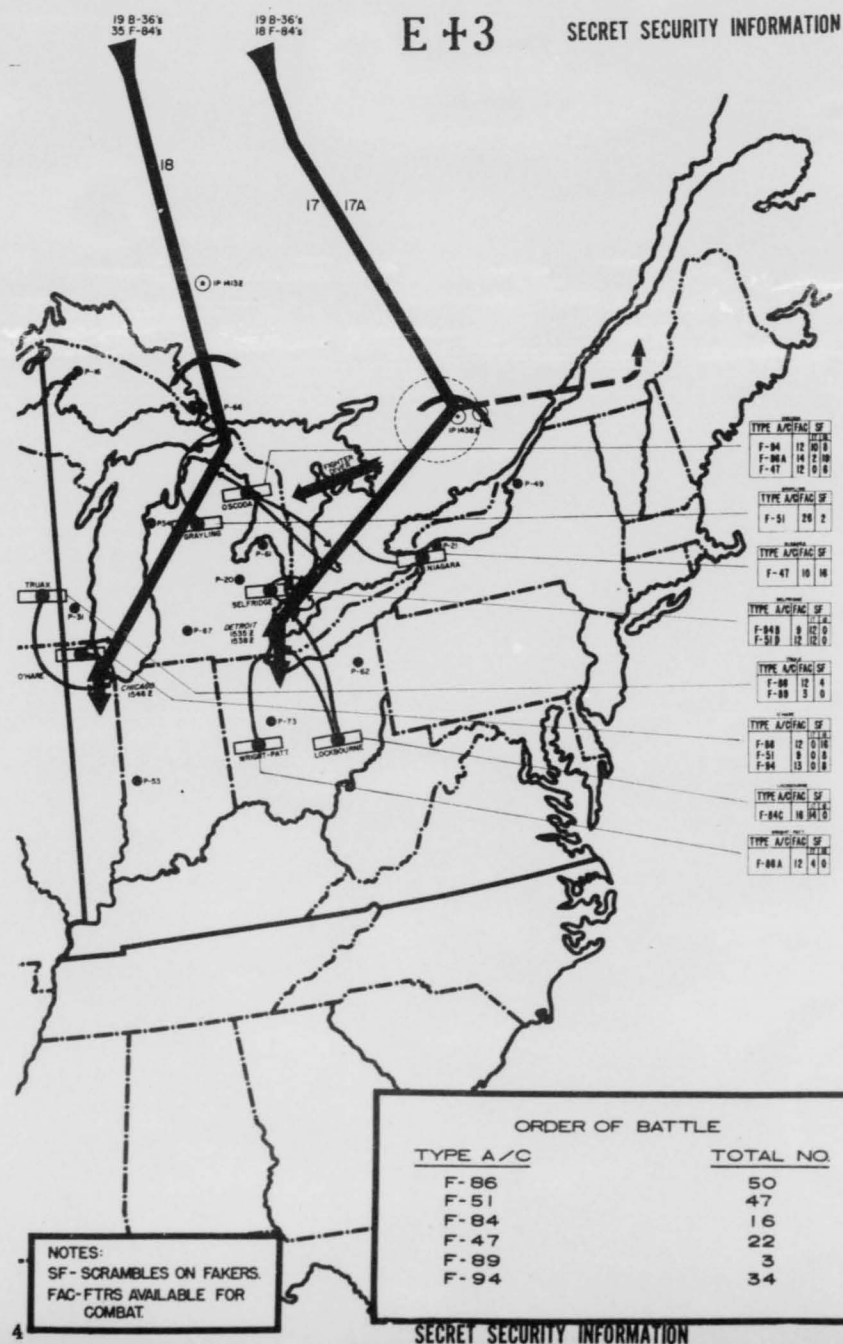
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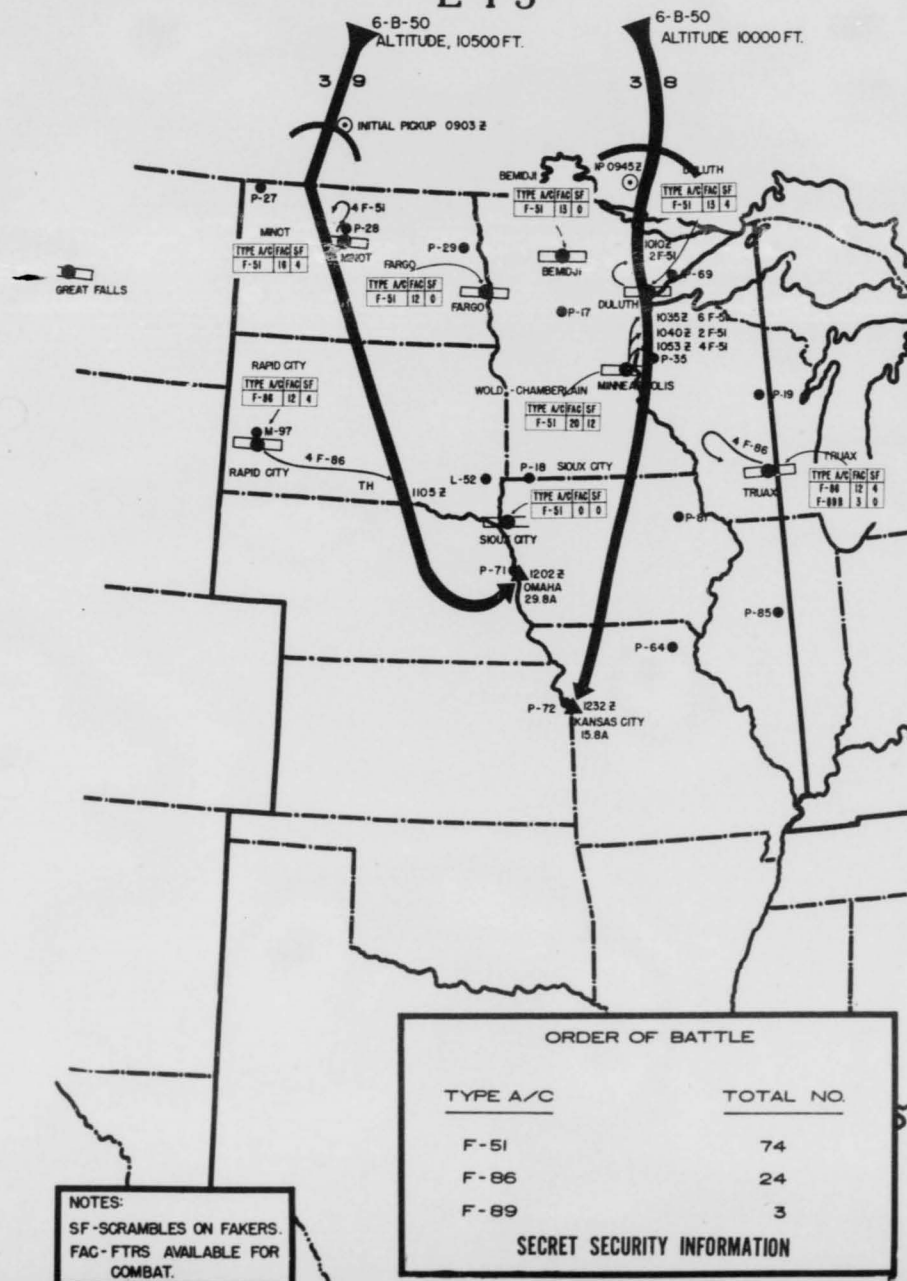
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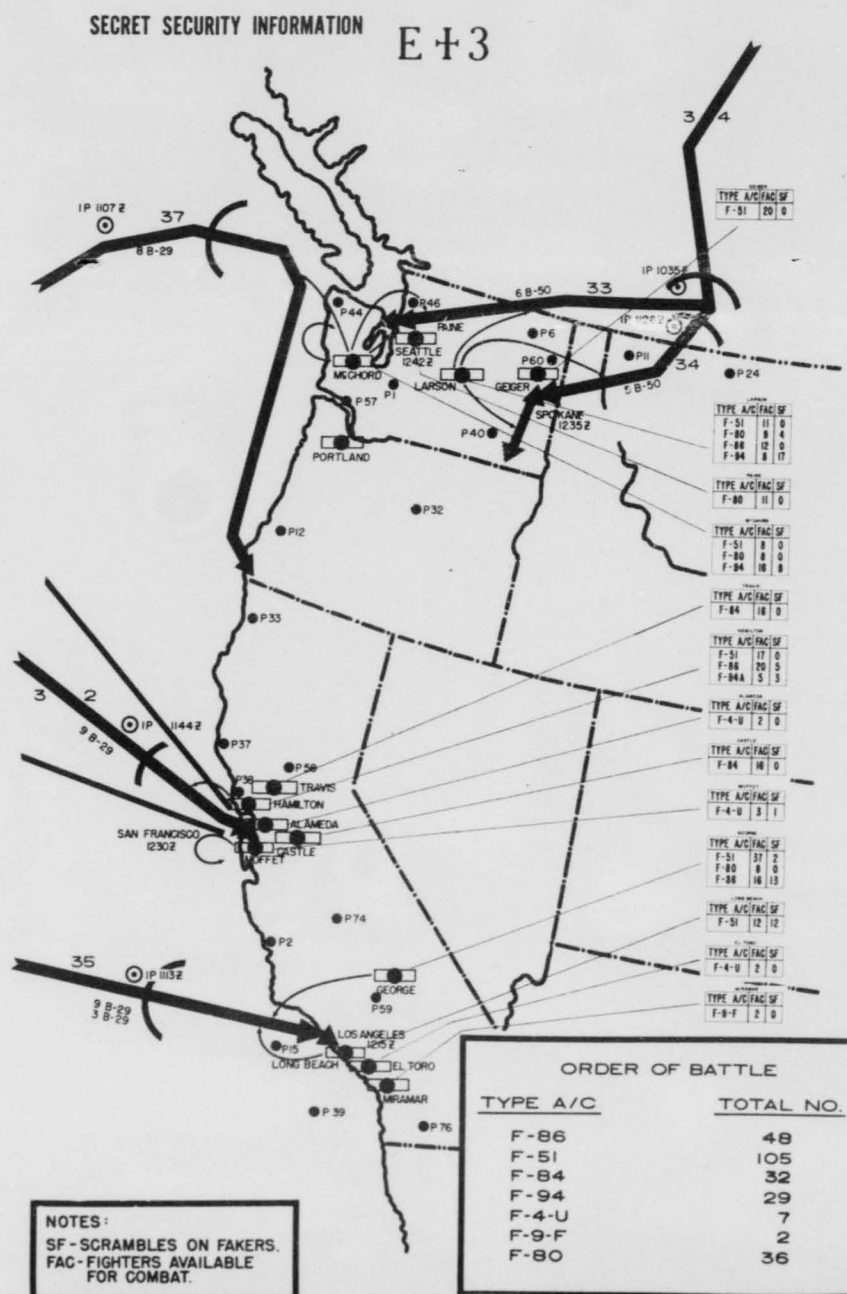
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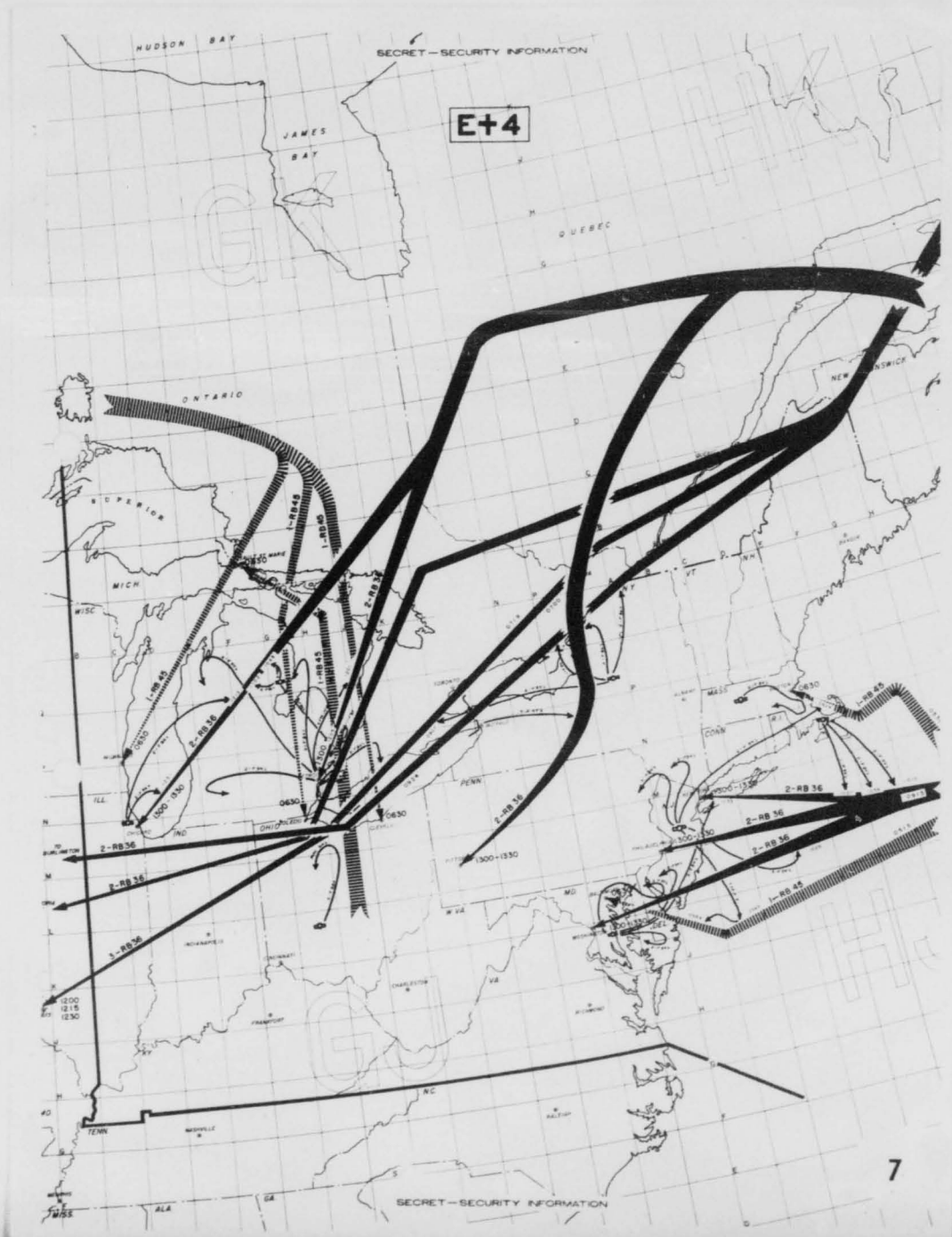
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APPENDIX III

OPERATION SIGN POST

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RADAR AND FIGHTER ACTION SUMMARY

E Day + 3

OOA Mission No.	Target	No.& Type Aircraft	Time over Target (Z)	Alt. over Target (1000')	RADAR			Assess- ment of strike	Intercept Action*		
					Station	Type	I.P.Range (n.mi.)		Successful		Unsuccessful
									BBRL	ABRL	
17	Detroit	17 B-36	1543	40	P-49	FPS-3	90	mass raid	14	13	10
17a	Detroit	2 B-36	1643	28	P-49	FPS-3	90	mass raid	29	0	2
18	Chicago	20 B-36	1548	40	P-66	FPS-3	75	3a/c;later as 16 to 26 a/c	24	20	21
19	NewYork	6 B-50	1226-1237	30	P-80	FPS-10	100	5 a/c	8	9	8
20	Phila.	5 B-50 1 RB-50	1227	30	P-80	FPS-10	85	1 a/c	14	0	6
21	Wash.	4 B-29	1212	30	P-80	FPS-10	130	unk.	6	5	0
22	Pitts.	5 B-29	1206-1217	15	P-80	FPS-10	140	2 a/c	4	0	4
24	Boston	3 B-29	1130	**20/3	P-45	FPS-3	160	unk.	7	4	4
25	Phila.	8 B-29	1145	**20/3	P-9	CPS-6B	230	unk.	8	6	2
26	Wash.	6 B-29	1120	**20/3	P-54	FPS-3	230	1 a/c	4	4	0
27	NewYork	6 B-29	1202	**20/3	P-9	CPS-6B	230	unk.	8	0	0

* number of sorties

** indicates tactical crash descent

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RADAR AND FIGHTER ACTION SUMMARY (cont)

E Day + 3

OOA Mission No.	Target	No. & Type Aircraft	Time over Target (Z)	Alt. over Target (1000')	RADAR				Intercept Action		
					Station	Type	I.P. Range (n.mi.)	Assess- ment of Strike	Successful BBRL	ABRL	Unsuccessful
38	Kansas City	6 B-50	1232	15.8	P-69	FPS-3	118	6 a/c	14	0	4
39	Omaha	5 B-50	1211½	29.8	P-28	FPS-3	154	unk.	0	0	4
32	SanFran	6 B-29	1216	16	P-37	FPS-3	163	unk.	3	0	0
36	SanFran	9 B-29	1230-1235	30	P-37	FPS-3	165	unk.	2	0	14
33	Seattle	5 B-50	1214-1242	30	P-11	FPS-3	132	3 a/c	10	4	0
37	Seattle	7 B-29	1155	20	P-44	FPS-3	165	unk.	1	0	1
34	Spokane	6 B-50	1225	30	P-11	FPS-3	140	3 a/c	7	4	0
31	LosAng	3 B-50	1215-1235	30	P-15	FPS-10	170	unk.	21	0	0
35	LosAng	9 B-29		20			160	unk.			
									184	69	80

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APPENDIX IV

OPERATION SIGN POST

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OPERATIONS ORDERSERIAL NO. 14-52

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HQ ADC
OPR O 14-52
7 July 52

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HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colorado
7 July 1952

OPERATIONS ORDERSerial No. 14-52

This Operations Order pertains to Operation "SIGN POST".

CHART OR MAP REFERENCES: As requiredTASK ORGANIZATION:

- a. ARRACOM - Lieutenant General J. T. Lewis
- b. EADF - Major General M. R. Nelson
- c. CADF - Major General G. R. Acheson
- d. WADF - Major General W. E. Todd

1. GENERAL SITUATION: Units of the Air Defense Command and Army Antiaircraft Commands, with the mission of air defense of the United States, are deployed and prepared to counter air attack. In addition, elements of the United States Navy, United States Marine Corps and the Air National Guard are available, on request, to support the air defense mission. These forces may be employed in a realistic exercise against simulated aggressor (Faker) forces of the Strategic Air Command. Coordinated air defense activity will be carried out in conjunction with defense forces of the Canadian Air Defence Command.

a. Aggressor Forces: See Annex "B", Intelligence.

b. Friendly Forces:

(1) Surface:

- (a) Normal sea-lane shipping is expected in all water areas.
- (b) Civil Aeronautics Administration and Military Flight Service will provide information to radar sites on flights other than exercise strike flights. Strike aircraft information will not be disseminated to the air defense system.
- (c) Naval units will provide antiaircraft artillery support as allocated by appropriate Sea Frontiers.

(2) Air:

- (a) Military Air Transport Service will provide Air Rescue Service, as required, within its capability.

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- (b) Commercial aircraft: Normal commercial air activity may be expected.
- (c) Private aircraft: Normal private aircraft activity is expected. However, it is not contemplated that they will fly at sufficient altitude to interfere with defense operations.
- (d) Tactical Air Command and Air Training Command have been requested to allocate fighter capability for augmentation as outlined in current Air Defense Command Operations Order 12-52. See Annex "E".

2. MISSION: This command will conduct air defense operations against faker attacks on the continental United States. The primary objective of these operations is to evaluate the defense capabilities of the air defense system, under conditions of simulated warfare. A secondary objective is to provide maximum training in the employment of our air defense facilities against realistic techniques of attack.

3. TASKS FOR PARTICIPATING AND SUBORDINATE UNITS:

a. Strategic Air Command Forces:

- (1) Navigation lights will be "on" at all altitudes. Bombers will acknowledge completed intercept by blinking running lights as interceptor blinks its lights. Discovery of an interceptor in an attack position will be indicated in like manner. In addition, identification procedures contained in JANAP 158 will be implemented by use of Aldis Lamp.
- (2) Maximum electronic counter measures, with the exception of spurious transmissions, will be employed at the discretion of Strategic Air Command. If electronic counter measure jamming is capable of completely nullifying air defense control capabilities, thus eliminating training value of the exercise, strike aircraft will cease this activity. Current "Big Photo" procedures will be used for such notification.
- (3) Strike routes and necessary details will be in the possession of official Air Defense Command observers at air defense force and air division level.
- (4) Gun camera film will be exposed during daylight intercepts.
- (5) Strike aircraft will be identified on flight plans and in position reports by the words "Exercise strike, do not pass to radar."

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- (6) Radar scope photos will be processed by Strategic Reconnaissance Technical Squadrons, as specified by Strategic Air Command.
- (7) Copies of radar scope photos will be selected by Strategic Air Command for distribution. Distribution will include five copies of each selected photo to Headquarters Air Defense Command and fifteen copies of each selected photo to the air defense force concerned.
- (8) Strategic Air Command will provide a liaison officer on duty throughout the exercise at air division air defense control center and the air defense force and Air Defense Command combat operations centers, to check plots against Strategic Air Command planned strike routes.

b. AIR DEFENSE FORCES WILL:

- (1) Coordinate with appropriate military and civilian agencies to insure maximum employment of available air defense capability.
- (2) Exercise operational control over participating friendly military and civilian agencies by detailed operations orders and other directives as necessary.
- (3) Assume responsibility for collection, assembly, and submission of data and reports required for analysis of the exercise.
 - (a) Reports will include Air Defense Command Forms 4A, 18 (if maintained), 85, 86, and 87.
 - (b) Required forms will be collected, assembled, and forwarded direct to this headquarters by air divisions, to arrive not later than 6 August 1952.
 - (c) Original copies of the ~~above~~ forms will be submitted. Copies need not be made since originals will be returned upon completion of analysis by this headquarters. Date of critique at this headquarters will be announced.
- (4) Be responsible that only qualified all-weather crews participate in night and weather intercepts.
- (5) Observe ground rules outlined in Annex "A", Air Operations. However, overly aggressive, close range attacks by interceptors against strike aircraft will be de-emphasized. Attacks will not be pressed closer than 900 feet. Numbers of interceptors involved and varying degrees of experience possessed by augmentation pilots necessitates this action.

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- (6) Accomplish maximum expenditure of gun camera film.
- (7) Deliver radar scope photo film to Strategic Air Command liaison officers at radar sites. If a Strategic Air Command liaison officer is not assigned to a site, deliver film, within twenty-four hours after the exercise, to the appropriate Strategic Reconnaissance Technical Squadron for processing. Negatives and prints will be classified SECRET.
- (8) Take action in accordance with ADC Operations Order 12-52, 1 July 1952, to receive fighter units from TAC and ATRC deployed during this exercise. It is anticipated that full deployment from these commands as indicated in Appendix 1 of ADC Operations Order 12-52 will be undertaken. Maximum possible intercept practice will be given these forces. Advance notice of possible deployment will not be given to either augmentation units or ADC units below Defense Force level.

c. EASTERN AIR DEFENSE FORCE WILL:

- (1) Dispatch 6 F-94 aircraft and aircrews from Otis AFB, to operational control by the Canadian Air Defence Command during the period 23 through 27 July 1952:
 - (a) 3 F-94s to St. Hubert (RCAF Station)
 - (b) 3 F-94s to Bagotville (RCAF Station)

d. ARMY ANTIAIRCRAFT COMMAND:

- (1) See Annex "C", Army Antiaircraft Command.

e. GROUND OBSERVERS CORPS:

- (1) Ground Observer Corps participation will be normal twenty-four hour operation in accordance with Air Defense Command Operations Order 13-52, 27 June 1952.
- (2) See Annex "D", Joint Public Information.

x. GENERAL INSTRUCTIONS:

- (1) Exercise will commence 1600Z 19 July 1952.
- (2) Time references will be made in Zebra time throughout pre-planning, actual conduct of the exercise, submission of

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ANNEX: A. Air Operations
 B. Intelligence
 C. Antiaircraft Command
 D. Joint Public Information
 E. Augmentation Deployment

DISTRIBUTION:

USAF	- 2
ADC	- 25
EADF	- 15
CADF	- 10
WADF	- 15
ARAACOM	- 3
EASTARAACOM	- 10
CENARAACOM	- 2
WESTARAACOM	- 5
SAC	- 5
TAC	- 5
ATRC	- 5
ADC (RCAF)	- 5
AU	- 2
ARDC	- 2
APG	- 2
AMC	- 2
MATS	- 2
CAA	- 2
AAC	- 2
NEAC	- 2

OFFICIAL:

/s/ Kenneth P. Bergquist
 /t/ KENNETH P. BERGQUIST
 Brigadier General, USAF
 Deputy Chief of Staff, Operations*

HQ ADC
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reports and data, and the subsequent evaluation of the exercise.

- (3) Public information releases will be made under Air Defense Command Regulation 190-4. See Annex "D", Joint Public Information.
- (4) Dissemination of information concerning details of faker strikes to echelons of command below Headquarters Air Defense Command and Headquarters Army Antiaircraft Command is not authorized.
- (5) The exercise, including faker strikes, will be terminated upon receipt of notification of an actual emergency. Termination will be accomplished in accordance with paragraph 5.a. (Communications) of this order.

4. ADMINISTRATIVE AND LOGISTICAL MATTERS:

a. Administration:

Administration of units will be accomplished through normal administrative channels.

b. Logistics:

- (1) Logistical support of units operating from assigned stations while participating in this exercise will be accomplished through normal supply channels.
- (2) Logistical support of units deployed to operating stations while participating in this exercise will be accomplished through supply channels established by their appropriate higher commands.

c. Budget:

- (1) Costs incurred in connection with participation in this maneuver by personnel assigned to Headquarters Air Defense Command are properly chargeable to 5733400 379-4001 P-458-02, 03, 07, S05-603.
- (2) Cost incurred in connection with participation in this maneuver by Air Defense Command units other than Headquarters Air Defense Command are properly chargeable to Fiscal Year 1953 Appropriation M&O, P-458, funds which have been made available to them. Sufficient funds for this purpose have been included in annual budget authorization and first quarter allocation of funds made available to Air Defense Forces.

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- (3) Examples of cost which may be incurred are as follows:
- (a) Temporary Duty for preplanning meetings, planning conferences, observation of exercise and attendance at critiques.
 - (b) Air Defense Command deployment of combat elements of air defense forces and units of other commands for exercise participation.
 - (c) Temporary Duty funds for crews of cargo type aircraft to support deployment in item (b) above.
 - (d) Supplies and material, such as charts, plotting boards, and other trial equipment designed to improve the effectiveness of the air defense system.

5. COMMAND AND SIGNAL MATTERS:

- a. (1) Normal communications and electronic facilities will be utilized and augmented by leased commercial facilities as required to effectively conduct the exercise. Standard procedures and operating instructions will be as contained in current communications operating instructions.
- (2) Faker aircraft markings, emergency word for recall of Strategic Air Command strike aircraft, and the authentication word are as announced in classified message, ADOOT-F 1344, 23 June 1952. Use of these recall words is intended when hostile aircraft are in the system, or when an emergency is declared. Upon receipt of emergency word Strategic Air Command strike aircraft will ask for authentication. On receipt of appropriate authentication aircraft will abandon direction of flight path by executing a ninety degree turn away from critical areas and proceed to home station in accordance with instructions issued through Civil Aeronautics Administration's air traffic control stations. Aborting strike aircraft, when in, or required to penetrate an Air Defense Identification Zone, will request their position and flight plan be passed to radar.
- b. Command organization for all units will be normal.

CHIDLAW
GENERALHQ ADC
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7 July 52

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OPERATIONS ORDER

SERIAL NO. 14-52

LIST OF ANNEXES

- Annex A - Air Operations
- B - Intelligence
- C - Army Antiaircraft Command
- Appendix 1 - Signal
- D - Joint Public Information
- E - Augmentation Deployment

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ANNEX ATOOPERATIONS ORDER

14-52

AIR OPERATIONS

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
7 July 1952

1. DEFINITIONS:

- a. Faker Aircraft: Strike aircraft supplied by units designated to participate as aggressors against specific targets, and concerning which air divisions will not normally be supplied flight plan information.
- b. High Level Strike: A faker aircraft performing a strike mission above 15,000 feet altitude.
- c. Low Level Strike: A faker aircraft performing a mission below 15,000 feet altitude.
- d. Target Complex: A geographically integrated series of targets or a target concentration.
- e. Minimum Line of Interception: A line drawn around the target or target complex which is that distance from the target which will permit a minimum of ten minutes combat time prior to aggressor aircraft reaching the bomb release line. For the purpose of standardization, this distance is established as sixty-five miles from the circumference of the target or target complex. This computation is based on the cruising speed of B-50 at an altitude of 30,000 feet. It includes the estimated distance from bomb release line to the target.
- f. Bomb Release Line: The line drawn around a target or target complex which is four miles from the circumference of the target perimeter, at which distance bombs away is expected. This is based on a B-50 ground speed of three hundred fifty (350) miles per hour at 30,000 feet.
- g. Scramble: Expeditionary take-off from the ground by fighter aircraft ordered airborne to attempt the intercept of a specific unknown or enemy airborne weapon.

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7 July 52

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h. Combat Air Patrol: Aircraft airborne for the purpose of patrolling a specific area to provide defense against possible penetration of that area by enemy airborne weapons. It includes aircraft airborne specifically for patrol purposes and aircraft scrambled for a previous track and then converted to a patrol status.

2. GENERAL GROUND RULES:a. Interception:

- (1) General: Visual or Radar interception accomplished prior to the minimum line of interception indicates a possibility that the mission should be successful in destroying the strike aircraft before the bomb release line is reached. However, should the controller find that he cannot place enough aircraft on the bogey to insure destruction prior to the bomb release line with the number of interceptors he has airborne, he should realize he must scramble additional aircraft to help repulse the attack before bombs are released. Destruction prior to bomb release line constitutes a successful mission.
- (2) Day Operations: A minimum of two interceptors, whether day fighters or airborne intercept equipped fighters, will be scrambled against a daylight penetration. To simulate destruction, both fighters must simulate firing passes against the strike aircraft. Simulated firing passes require that the fighter aircraft approach within effective gun-firing range against the strike aircraft. A combined total of four simulated firing passes by a minimum of two fighter aircraft must be made to simulate destruction of any one strike aircraft. This could be done by two passes by each of the aircraft or three passes by one and a single pass by the other. Each interceptor will be presumed to have expended his ammunition after four firing passes. Upon destruction of the strike aircraft, the fighters will obtain the identification number of the aircraft to assist in correlation during analysis of the exercise. Trigger checks need not be accomplished between the fighter and the strike aircraft prior to the attack. However, this check will be made between the fighter aircraft before making the first simulated firing pass.
- (3) Night or Weather Operations: Airborne intercept equipped interceptors may operate individually. One completed interception closing to a range of three hundred yards after lock-on, or under manual scanning, will constitute destruction of the strike aircraft. A radar lock-on should not be made until target is defined as single aircraft or until other aircraft in target

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7 July 52

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formation are positively located by means of radar operator hand control. Extreme caution must be used after lock-on in attacking a formation. One all-weather fighter has the assumed capability of destroying only one strike aircraft per night or weather sortie. Navigation lights will be flashed off and on when the interception is completed or when the bomber discovers the interceptor on his tail. The other aircraft will reply in a like manner. Identification will be further confirmed in accordance with JANAP 158 by means of Aldis Lamps.

CHIDLAW
GENERAL

OFFICIAL:

/s/ Kenneth P. Bergquist
/t/ KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy Chief of Staff, Operations

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ANNEX A
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ANNEX B
TO
OPERATIONS ORDER
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INTELLIGENCE

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HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

19 July 1952

"This item pertains to the Continental Air Defense exercise scheduled for 19-28 July and should not be confused with Intelligence or instructions on the current actual world situation or current mission of the US-Canadian Air Defense Systems."

Amendment to Annex B,
Operations Order 14-52, 7 July 1952

To paragraph 3a(1) add: "All reports and activities will be submitted or conducted in accordance with (1) ADC Mission Intelligence, Issue No 5, page 3, and (2) ADC DCS/Intelligence Plan, Operation Signpost, and (3) this Operations Order."

To paragraph 3e add: "Summaries will be made by Air Defense Forces only and will contain only significant items of immediate value. Complete 4b's will be forwarded to Hq ADC during lulls in activity."

Add paragraph 3i, "Implement ADC Regulation 200-2, 14 April 52, for Operation Signpost. ADC Headquarters will advise cancellation of this implementation."

/s/ W. M. Burgess
/t/ W. M. BURGESS
Colonel, USAF
Deputy Chief of Staff, Intelligence

Distribution:

By TWX 19 July to each ADF for retransmission to each Air Div (Def)

Hq ADC -- CG (1)	APM (3)	Weather Central (2)
VC (1)	D/R&E (5)	OSI (1)
CofS (1)	D/S&E (5)	4600 AISS (2)
DCS/O (3)	D/C&D (5)	
DCS/I (3)	D/O&T (3)	JADB (3)
DCS/M (3)	D/PPM (3)	ADC, RCAF (5)
DCS/C (3)	Ops Anal (4)	ArAACom (6)

"This item pertains to the Continental Air Defense exercise scheduled for 19-28 July and should not be confused with Intelligence or instructions on the current actual situation or current mission of the US-Canadian Air Defense Systems."

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"This item pertains to the Continental Air Defense exercise scheduled for 19-28 July and should not be confused with Intelligence or instructions on the current actual world situation or current mission of the US-Canadian Air Defense Systems."

ANNEX BTOOPERATIONS ORDERINTELLIGENCE

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
7 July 1952

REF: ADC EXERCISE SIGNPOST INTELLIGENCE ESTIMATE, July 1952
ADC MISSION INTELLIGENCE, Issue #5
ADC INTELLIGENCE PLAN OPERATION SIGNPOST

MAPS: As desired by the Air Defense Forces and the Air Divisions
(Defense) to cover specified areas in which the exercise will be
conducted.

1. INTELLIGENCE SUMMARY

a. Aggressor Forces. For the purposes of this exercise, the primary adversary of the Air Defense Command is the Strategic Air Command Aggressor Forces (Faker).

(1) Surface. Not applicable.

(2) Air.

(a) The Aggressor Forces (Faker) consist of medium and heavy bomb units, providing penetration of defended areas and simulated bombing of targets within the continental United States.

1. Capabilities

a. Faker forces have sufficient range to reach any target within the defended areas.

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- b. Penetrations can be made by single aircraft or formations, in day, night, and weather.
- c. Saturation attacks.
- d. Bombing can be either visual or radar.
- e. Use of electronic counter measures.
- f. Target areas can be approached from any direction at any altitude.
- g. All Faker aircraft have the simulated capability of delivering atomic or conventional bombs.

- 2. Faker forces do not have the capability for the use of air transport or naval support.

2. INTELLIGENCE REQUIREMENTS

- a. The exact number of Faker aircraft penetrating the Defense Forces and Tally-Hoed.
- b. The number of Faker aircraft intercepted (Pounced).
- c. The number of Faker aircraft crippled and destroyed (Splashed).
- d. The escape routes and/or crash sites of Faker aircraft.
- e. Targets attacked overtly, including type of weapons employed.
- f. Targets attacked covertly, including type of weapons employed.
- g. Overt action of Faker's agents. (Simulate reports)
- h. Operational factors:
 - (1) Tactics
 - (2) Aircraft operating characteristics
 - (3) Effect of weather
 - (4) Use and effectiveness of electronic countermeasures
 - (5) Use of evasive action and operational deception

ANNEX B
OPR 0 14-52
7 July 52

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- (6) Bomber armament
- (7) Bomber markings and identification

3. INTELLIGENCE ACTIVITIESa. Reports and Distribution

- (1) Reports forwarded to Headquarters Air Defense Command will be narrative in form covering the requirements outlined in paragraph 2, especially emphasizing part h, plus any other information of an intelligence nature pertinent to the tactical situation.

b. Deputy Chief of Staff, Intelligence, Headquarters Air Defense Command, will use DO Form 18 and 18a (short form) as basic reference to any air battle. If the Form 18 is inaccurate or incomplete, Air Defense Forces will supply the missing data or explanation by TWX.

c. Deputy Chief of Staff, Intelligence, Headquarters Air Defense Command, requires the following be reported by hot lines and confirmed by TWX:

- (1) Targets attacked
- (2) Location of downed Faker aircraft

d. The Two Hour Tactical Situation Summary is to be submitted to Commanding General, Headquarters Air Defense Command, Attention: Deputy Chief of Staff, Intelligence, every two hours on the even hours Zebra Time, beginning when the first attacking aircraft enters the Air Defense Force area. The Two Hour Tactical Situation Summary will be an evaluated Intelligence Report, narrative in form, covering paragraph 2.

e. Section II, Form 4b, of the Intelligence-Operations Interception Interrogation Report will be consolidated by Air Defense Forces and submitted as required in ADC Regulation 200-2, 14 April 1952. It is desired that these consolidations be submitted in the above manner in order to not overload tactical teletype circuits.

f. All messages and reports will include the following item as a foreword and closure:

"This item pertains to the Continental Air Defense exercise scheduled for 19-28 July only and should not be confused with Intelligence or instructions on the current actual world situation or current mission of the US-Canadian Air Defense Systems."

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OPR O 14-52
7 July 52

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- (6) Bomber armament
- (7) Bomber markings and identification

3. INTELLIGENCE ACTIVITIESa. Reports and Distribution

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b. Deputy Chief of Staff, Intelligence, Headquarters Air Defense Command, will use DO Form 18 and 18a (short form) as basic reference to any air battle. If the Form 18 is inaccurate or incomplete, Air Defense Forces will supply the missing data or explanation by TWX.

c. Deputy Chief of Staff, Intelligence, Headquarters Air Defense Command, requires the following be reported by hot lines and confirmed by TWX:

- (1) Targets attacked
- (2) Location of downed F-4 aircraft

d. The Two Hour Tactical Situation Summary is to be submitted to Commanding General, Headquarters Air Defense Command, Attention: Deputy Chief of Staff, Intelligence, every two hours on the even hours Zebra Time, beginning when the first attacking aircraft enters the Air Defense Force area. The Two Hour Tactical Situation Summary will be an evaluated Intelligence Report, narrative in form, covering paragraph 2.

e. Section II, Form 4b, of the Intelligence-Operations Interception Interrogation Report will be consolidated by Air Defense Forces and submitted as required in ADC Regulation 200-2, 14 April 1952. It is desired that these consolidations be submitted in the above manner in order to not overload tactical teletype circuits.

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g. Reconnaissance, both visual and photo, for the purpose of bomb damage assessment within the Zone of Interior is the responsibility of the Tactical Air Command.

h. Captured Faker personnel, materiel and documents is the responsibility of the 4602d Air Intelligence Service Squadron.

CHIDLAW
General

OFFICIAL:

/s/ Burgess
/t/ W. M. BURGESS
Colonel, USAF
Deputy Chief of Staff, Intelligence

"This item pertains to the Continental Air Defense exercise scheduled for 19-28 July only and should not be confused with Intelligence or instructions on the current actual world situation or current mission of the US-Canadian Air Defense systems."

ANNEX B
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7 July 52

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ANNEX C

TO

OPERATIONS ORDER

14-52

ARMY ANTI-AIRCRAFT COMMAND

ARMY ANTI-AIRCRAFT COMMAND
Colorado Springs, Colorado
7 July 1952

Maps: As required.

TASK ORGANIZATION

- a. Eastern Army Antiaircraft Command - Brigadier General William M. Hamilton.
- b. Central Army Antiaircraft Command - Colonel Donald J. Bailey.
- c. Western Army Antiaircraft Command - Brigadier General Robert W. Berry.

1. GENERAL SITUATION - See paragraph 1, Operations Order 14-52.

2. MISSION

a. The Army Antiaircraft Command will provide antiaircraft defense during the exercise period, 19 - 27 July 1952, for those vital areas designated in message No. 327 ADOAA-30P.

b. Objectives of antiaircraft artillery participation in this exercise are:

- (1) To evaluate defense capability of the antiaircraft artillery elements of the air defense system.
- (2) To provide a maximum degree of training in the employment of antiaircraft artillery units against realistic techniques of attack.
- (3) To provide a test for standard operating procedures for the employment and control of antiaircraft weapons in the air defense of the United States.

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- (4) To provide a means for evaluating the adequacy and efficiency of signal communications and signal facilities at each echelon of the command, including each anti-aircraft defended area.
- (5) To emphasize to officers and men the importance of the anti-aircraft mission.
- (6) To demonstrate to the civilian population the importance of the anti-aircraft mission.

3. TASKS FOR SUBORDINATE UNITSa. Eastern Army Antiaircraft Command will:

- (1) Provide anti-aircraft defense for those vital areas indicated in message No. 327 ADOAA-30P, utilizing all assigned forces except those conducting scheduled service practice and those rendered non-operational due to civilian component training support or phase-out of National Guard units. Units assigned to other areas will participate to maximum extent practicable by occupying positions in active defenses or by establishing simulated defenses.
- (2) Provide anti-aircraft representation in the Eastern Air Defense Force Combat Operations Center.
- (3) Coordinate with Eastern Sea Frontier for employment of available Naval (including Marine Corps) anti-aircraft weapons in the air defense of appropriate vital areas.

b. Central Army Antiaircraft Command will: Provide anti-aircraft staff representation in Central Air Defense Force Combat Operations Center.

c. Western Army Antiaircraft Command will:

- (1) Provide anti-aircraft defense for those vital areas indicated in message No. 327 ADOAA-30P, utilizing all assigned forces except those conducting scheduled service practice and those rendered non-operational due to civilian component training support or phase-out of National Guard units. Units assigned to other areas will participate to maximum extent practicable by occupying positions in active defenses or by establishing simulated defenses.
- (2) Provide anti-aircraft representation in the Western Air Defense Force Combat Operations Center.

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- (3) Coordinate with Western Sea Frontier for employment of available Naval (including Marine Corps) antiaircraft weapons in the air defense of appropriate vital areas.
- x. (1) Provide antiaircraft staff representation at appropriate air divisions (defense) to assist in the testing and preparation of standing operating procedures on the integration of antiaircraft units in the air defense system.
- (2) Test the detailed plans for the antiaircraft defense of the vital areas being defended during the exercise period.
- (3) Test command, intelligence and operational control procedures and functioning of antiaircraft units operating as part of an integrated air defense system.
- (4) Provide training, where appropriate, for antiaircraft units in reconnaissance, occupation and preparation of tactical position.
- (5) Test the performance of radar equipment and its effectiveness against electronic counter measures.
- (6) Test the tactical communications of each designated vital area to include emergency use of organic radio for the intelligence net.
- (7) Test operation of the Army Antiaircraft Command Tactical Teletype Network.
- (8) In coordination with and pursuant to arrangements made by the appropriate continental Army commander, invite civilian component units not in the active army to participate and/or to furnish observers.
- (9) Test detailed plans for local security against aggressor ground attacks and/or sabotage and support of continental Armies in an emergency or disaster.
- (10) Coordinate with respective air defense force for detailed procedures terminating this exercise in the event of actual alert.
- (11) Operational reports will be submitted in accordance with Circular No. 5, Headquarters, Army Antiaircraft Command, 8 April 1952.

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- (12) Upon completion of the exercise, a report will be submitted in accordance with Circular No. 6, Headquarters Army Antiaircraft Command, 14 April 1952.

4. ADMINISTRATIVE AND LOGISTICAL MATTERS - In accordance with local agreements with continental Armies and Air Force agencies.

5. COMMAND AND SIGNAL MATTERS

a. Signal - Appendix 1.

b. Command Posts:

- (1) Army Antiaircraft Command - Ent Air Force Base, Colorado Springs, Colorado.
- (2) Eastern Army Antiaircraft Command - Stewart Air Force Base, New York.
- (3) Central Army Antiaircraft Command - 25 East 12th Street, Kansas City, Missouri.
- (4) Western Army Antiaircraft Command - Hamilton Air Force Base, California.

c. Z time.

Appendix 1 - Signal

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ANNEX C
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7 July 52

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APPENDIX 1TOANNEX COPERATIONS ORDER14-52SIGNAL

1. a. Jamming of radio circuits and radars and transmission of false messages may be encountered.
- b. (1) For information relative to friendly communication facilities, see Annex G, AA-OP-US-1-51, and Naval and Air Force (ADC) instructions and plans.
- (2) The Army Antiaircraft Command tactical teletype network will be activated on order Commanding General, Army Antiaircraft Command.
2. To utilize the commercial communication facilities provided in the local defense areas, and the tactical teletype network, in the handling of all tactical communications. To provide radio intelligence networks in each local defended area.
3. x. (1) Install by use of organizational equipment, radio intelligence net at all defended areas.
- (2) Establish scheduled messenger service in local defense areas to insure adequate messenger service between teletype signal center and message centers of subordinate units.
- (3) During first four days of exercise, refrain from using wire intelligence network and rely on radio intelligence network for sufficient periods during activities as to prove reliability or non-reliability of radio network.
4. a. Signal maintenance will be in accordance with current continental Army Logistic and Administrative Plans for Defense Areas.
- b. Maintenance of commercial telephone service, Antiaircraft Operations Center terminal equipment, commercial wire nets and associated commercial equipment including tactical teletype network will be in accordance with instructions of local telephone company.

APP 1, ANNEX C
OPR O 14-52
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5. a. An analysis will be made of all messages, radio logs, signal message center logs and delivery lists, to insure that communication facilities are adequate and efficiently operated so as to fulfill the requirements for tactical communications.
- b. Include in addition to reports called for in Circular Number 6, (15 April 52) a report of violations of communication procedures and corrective action taken.

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7 July 52

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ANNEX DTOOPERATIONS ORDER14-52JOINT PUBLIC INFORMATION

1. MISSION:

a. To develop the public's understanding of and interest in the capabilities of the Air Defense Command - Army Antiaircraft Command Team to the degree that the public will have confidence in the Air Defense Command - Army Antiaircraft Team and all military services. Such public confidence must be so firmly established it will remain undisturbed even after an attack upon this country takes place.

b. To stress the unique function of the Air Defense Command - Army Antiaircraft Command team, as related to other military services, by showing that it alone will operate in combat in and among the people of the United States and that it alone, of all the military services, depends upon active participation of the civilian population in its operations.

c. To impress upon the civilian population its need and importance to the Air Defense Command - Army Antiaircraft Command team in the capacity of the civilian volunteer Ground Observer Corps, and to remove any feeling of false security that may develop in the mind of the civilian population.

2. GENERAL

a. Maximum information concerning the activities of this Air Defense Command - Army Antiaircraft team will be made available to the public through the commonly accepted media, with due regard for security restrictions. Commanders at all levels are urged to review security and classification procedures with a view to improving actual security and eliminating needless over-classification.

b. Released information should emphasize, when practicable, that attainment of the best possible defense is no guarantee of impregnability and that the air defense system is not yet complete. However, the exact stage of completion of the air defense system will not be released.

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c. Whenever and wherever possible, released information on the mission and activities of the Air Defense Command - Army Antiaircraft Command team will stress the need and importance of the Ground Observer Corps in air defense and the fact that the Ground Observer Corps is an integral part of the air defense team.

d. Commanders of Air Defense Command and Army Antiaircraft Command at all levels are encouraged (ADCR 190-9, 9 June 1952) to arrange for full and complete exchange of releasable information. Fullest efficiency suggests automatic exchange and not on request basis.

e. Base Commanders are authorized to release any general information regarding antiaircraft units actually on-site, and may announce that these batteries are stationed there for air defense purposes, if applicable. Information regarding total number of batteries or antiaircraft equipment, or their disposition, is not releasable.

f. Information regarding future or proposed movements of antiaircraft troops to air bases will not be released, unless the Army Antiaircraft Command has cleared the release. Information on actual movement of troops will be released in accordance with classification of such movements, either specifically or generally, by the Department of Defense or Department of Army. In general, reference "Movement of Units," as outlined in ADCR 190-4, 16 May 1952, will apply to antiaircraft units.

g. The exercise will be referred to as a "Controlled Training Exercise," and particular emphasis will be placed upon the fact that such exercises are conducted periodically as a part of normal routine training of units of the air defense system. It is in no way a "test" of that system.

h. Conclusions reached as a result of the exercise will not be released. Participation by other services or major air commands (those commands directly under United States Air Force in the chain of Command) may be mentioned but answers to requests for specific information concerning that participation will be cleared by the service or major air command prior to the exercise or will be referred to the service or major air command concerned.

i. In general, statistical information may be released during this exercise to show the amount of training accomplished, provided those statistics are shown as pertaining to the exercise only and in no way reflect the operational capability of this command. Such statements will be confined to the amount of training received by Air Defense Command units only.

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j. Conclusions regarding the amount of training received by other major commands participating will not be released without the approval of the major command concerned.

k. Specifically, the following is releasable:

- (1) Number of "unknown" aircraft picked up by radar in an area no smaller than an air defense region during a portion of the exercise and/or the entire exercise, provided no disclosure is made of the strength of attacking military forces. It will be made clear that this type of statistic represents civilian as well as military type aircraft. No information will be released regarding the number of interceptions made in comparison with the number of unknown aircraft picked up by radar.
- (2) Number of sorties made by "friendly" interceptor aircraft during a portion of the exercise and/or the entire exercise, provided no disclosure is made of the total friendly force available or the total number of successful interceptions. Figures used will be shown as controlled training maneuver statistics, and it will be made clear that this number has no connection with the total number of aircraft available to the Air Defense Command.
- (3) The total number of aircraft involved in the over-all maneuver.

l. Information regarding the intended targets of the aggressive forces will not be revealed. Information concerning Ground Observer Corps activity in this exercise may be released without restriction other than those imposed by existing security and public information directives.

m. Copies of all news releases and information regarding replies to news media queries will be forwarded to the air defense force headquarters, attention: Public Information Officer, following the exercise.

CHIDLAW
GENERAL

OFFICIAL:

for /s/ George F. Hennrikus, Jr., Capt, USAF
/t/ WILLIAM E. PERSONS, JR.
Colonel, USAF
Public Information Officer

ANNEX D
OPR O 14-52
7 July 52

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ANNEX ETOOPERATIONS ORDER14-52AUGMENTATION DEPLOYMENT

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
7 July 1952

MAPS: As required

TASK ORGANIZATION:

- a. TAC - General J. K. Cannon
- b. ATRC - Lieutenant General R. W. Harper

1. GENERAL SITUATION:

a. Units of TAC and ATRC are available for air defense operations under the operational control of ADC. These units must be deployed to locations where their capabilities can most effectively supplement the forces assigned to ADC.

2. MISSION: See paragraph 2, Operations Order 14-52.3. TASKS FOR PARTICIPATING UNITS:

a. TAC will:

- (1) Provide augmentation fighters, with aircrews and maintenance personnel as agreed for exercise participation.
- (2) Deploy fighter aircraft in accordance with ADC Operations Order 12-52, 1 July 1952.
- (3) Provide airlift for TAC fighter units to include maintenance personnel and 5 day supply level.
- (4) Provide support airlift for ATRC units to simulate unit support aircraft, to be in place at time deployment is ordered.

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b. ATRC will:

- (1) Provide augmentation fighters, with aircrews and maintenance personnel as agreed for exercise participation.
- (2) Deploy fighter aircraft in accordance with ADC Operations Order 12-52, 1 July 1952.
- (3) Provide 2 APUs per deployment unit for airlift by TAC Troop Carrier aircraft.

x. GENERAL INSTRUCTIONS:

- (1) Deployment requirements during this exercise will be based on a hypothetical situation. Notification for deployment of fighters and support aircraft will be sent direct to the major commands concerned. Units will not be notified directly by this headquarters.
- (2) Fighter aircraft will depart home stations with combat load of ammunition. Guns will NOT be CHARGED.
- (3) Fighter aircraft will prefix callsigns on flight plans and position reports with the word "SIGN POST".
- (4) Flight plans will include under remarks, "Exercise SIGN POST, pass to air defense radar."

4. ADMINISTRATIVE AND LOGISTICAL MATTERS:

a. Administration

Administration of units will be accomplished through normal administrative channels.

b. Logistics:

- (1) TAC units will airlift maintenance personnel and 5 day supply level in accordance with ADC Operations Order 12-52, 1 July 1952.
- (2) ATRC units will airlift two APUs per deployment unit and one crew chief per aircraft deployed.

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- (3) Cost incurred in connection with participation in this exercise by units of other major commands will be chargeable to 5733400 379-4001 P-458-02, 03, 07, 505-603. Funds will be furnished by means of an obligation authority issued from the Commanding Officer, 4600th Air Base Group, Ent Air Force Base, Colorado Springs, Colorado.

5. COMMAND AND SIGNAL MATTERS:

- a. Command organization for all units will be normal.
- b. Operational control will be assumed by ADC during the exercise period.
- c. Communications and crystallization will be as specified in this order and ADC Operations Order 12-52, 1 July 1952.

CHIDLAW
GENERAL

OFFICIAL:

/s/ Kenneth P. Bergquist
/t/ KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy Chief of Staff/Operations

ANNEX E
OPR O 14-52
7 July 52

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APPENDIX V

OPERATION SIGN POST

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DATE _____

CHECK SHEET FOR EACH FAKER TRACK

Detection:

Assessed as SAC Mission No. _____

Track number assigned by ADCC _____

Number of aircraft _____

Altitude _____

Time (Z) and Position (Georef) _____

Did track split or merge? Yes___ No___ If yes, refer to track
numbers: _____

Identification:

Declared by system: Unknown () Hostile () Faker () Friendly ()

Actions Taken:

Passed to Defense Force: No___ Yes___ Time(Z) _____

Passed to Adjacent Div.: No___ Yes___ Time(Z) _____

Type of Simulated Warning Disseminated. (Initial Faker Track
Detection Only) _____

Was AAA alerted? Yes___ No___ Time(Z) _____

Scramble:

Ordered Airplane

1. Uni ____: No. of A/C ____ Site Controlling ____ Time: ____/____ (Z)

2. ____: ____ ____ ____/____ (Z)

3. ____: ____ ____ ____/____ (Z)

4. ____: ____ ____ ____/____ (Z)

Reasons for no scramble: _____

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CHECK SHEET FOR EACH FAKER TRACK

Interception: ("POUNCE")

1. Successful: Yes___ No___ No. of Interceptors and unit_____
 No. & Type of bombers____Serial No. or Markings_____
 Point of Interception (Georef)_____
 Time of Interception(Z)_____
 Altitude of bombers_____
 2. Reasons for unsuccessful intercepts (ECM, etc.) _____

Interception: ("POUNCE")

1. Successful: Yes___ No___ No. of Interceptors and unit_____
 No. & Type of bombers____Serial No. or Markings_____
 Point of Interception (Georef)_____
 Time of Interception(Z)_____
 Altitude of bombers_____
 2. Reasons for unsuccessful intercepts (ECM, etc.) _____

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CHECK SHEET FOR RADAR STATUS

*DATE _____

Inoperational Radar Before Strike:

<u>Site No.</u>	<u>Operational Status</u>	<u>Remarks</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Changes in Status During Strike:

<u>Site No.</u>	<u>Operational Status</u>	<u>Remarks and Time</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
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*Note: One of these forms will be used for each scheduled day of activity.

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CHECK SHEET FOR FIGHTER STATUS

*DATE _____

**Total Fighter Alert Status Before Strike:

Airborne

Unit	5	15	30	1 hr	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Totals	_____	_____	_____	_____	_____

**Total Interception Capability 30 Minutes After Initial Radar Detection
of Strike:

Airborne

Unit	5	15	30	1 hr	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
Totals	_____	_____	_____	_____	_____

*Note: One of these forms will be used for each day of scheduled activity.

** Include any augmentation forces.

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APPENDIX VI

OPERATION SIGN POST

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RECORDER'S LOG
(SECRET WHEN FILLED IN)

Date (Z) _____

Page No. _____

Station No. _____

[illegible]

Teller _____ Recorder _____

* Put check mark (✓) in margin opposite first plot of each penetrating track.

** Enter identity only at time and position of Identification.

ADC Form 85
10 Dec 51

(SECRET WHEN FILLED IN)

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IDENTIFICATION RECORD

Radar Station

Date _____

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10 Dec 51

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SECRET SECURITY INFORMATION

INTERCEPTION ACTION RECORD
(SECRET WHEN FILLED IN)

MISSION NO. _____ RADAR STATION _____
 FIGHTER CALL SIGN _____
 TRACK NO. _____ DATE (Z) _____
 CONTROLLER'S NAME _____

1 IF NO SCRAMBLE REASON: OR VECTOR FROM CAP	
2 SCRAMBLE OR VECTOR (CAP)	a. Time (Z) scramble ordered..... b. Time (Z) first fighter airborne..... c. Time (Z) first vector given if on CAP..... d. Altitude of bogie at time of action ordered..... e. Number & type of fighters..... f. Take-off base of fighters..... g. Fighter's call sign.....
3 CONTROL	a. Control received from Station Number..... b. Control passed to Station Number.....
4 DETECTION (Tally-ho or Joy)	a. Successful: (1) Grid position of bogie at tally-ho.... (2) Time (Z)..... b. Unsuccessful: Reason.....
5 INTERCEPTION (Pounce)	a. Successful: (1) Grid position of bogie at pounce..... (2) Time (Z)..... (3) Altitude of bogie reported by Ftr Pilot..... b. Unsuccessful: Reason.....
6 RECOGNITION OF BOGIE	a. Ownership of bogie..... b. Number & type of bogie..... c. Serial numbers and markings of bogie.....
7 CONTRIBUTING FACTORS	a. ECM - Equipment affected..... b. Fighters Transponder Beacon Showing on Scope:(Yes)(No)

ADC Form 87
10 Dec 51

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INTELLIGENCE - OPERATIONS
INTERCEPTION INTERROGATION REPORT
(SECRET when filled in)

Date(s) _____

Squadron _____ Take-off Base _____ Ftrs Call Sign _____

Track No. (1st) _____ (2d) _____ (3d) _____

SECTION I - GENERAL INTERROGATION

1. ALERT	a. State of alert at start of this mission: (1) CAP.....() (h) 15 min alert.....() (2) 2 min alert.....() (5) 30 min alert.....() (3) 5 min alert.....() (6) min alert.....()
2. START OF MISSION	a. Weather at take-off (ceiling & visibility) _____ b. Time (Z) scramble order recd..... _____ c. Time (Z) first fighter airborne..... _____ d. Time (Z) vector order (if on CAP or diverted) recd _____ 1st track 2d track 3d track e. No. & type of ftr: on mission _____ f. No. of ftrs aborting before intercept..... _____ *g. Reasons for aborts..... _____
3. DETECTION (Tally-ho)	a. Initial detection: (1) Daylight.....() () () (2) Darkness.....() () () (3) Made visually.....() () () (h) Made by use of AI radar() () ()
4. INTERCEPTION (Pounce)	a. Successful.....() () () (1) Accomplished visually..() () () (2) Accomplished by use of AI radar.....() () () (3) Time(Z) of interception.. _____ (h) Altitude..... _____ (5) Weather at intep(ceil & v's) / / / (6) Type acft intercepted... _____ (7) No. of acft intercepted _____ (8) Serial Nos..... _____ (9) Markings..... _____ (10) No. of attack passes made _____ (11) ECM jamming detected.... _____ (12) Ftr transponder beacon on _____ (13) Radio frequencies used... _____ b. Unsuccessful.....() () () Reason: (1st track) _____ (2d track) _____ (3d track) _____

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INTELLIGENCE - OPERATIONS
INTERCEPTION INTERROGATION REPORT
(SECRET when filled in)

Continued from previous page

5. RETURN TO BASE	a. Difficulties Returning to Base due to:
	(1) GCI..... () Describe _____
	(2) GCA..... () Describe _____
	(3) Other..... () Describe _____
	b. Landing:
	(1) Time (Z) first ftr landed _____
	(2) Gals of fuel remaining (lowest a/c) _____
	c. Turn-around:
	(1) No. of acft in flt immediately turned around _____
	(2) Time (Z) last acft ready for next mission _____
	d. Weather at landing (ceil & vis) _____ / _____
*6. COMMENTS ON INTERCEPTION AND SUGGESTIONS FOR IMPROVING EQUIPMENT AND TECHNIQUES:	
*Use other side of sheet if necessary.	

ADC Form 1A (Sec. 1)
15 Mar 52 (Revised)

Name and Grade of Intelligence Off. Reporting

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SECRET SECURITY INFORMATION

DISTRIBUTION LISTFORFINAL REPORT EXERCISE SIGN POST

HQ ADC		40
CG	1	
VC	1	
C/S	1	
DCS/O	1	
P&R	3	
O&T	3	
COC	1	
OGD	2	
C&E	2	
DCS/I	2	
DCS/M	2	
DCS/P	2	
AAG	15	
Hist	1	
Ops Analysis	3	
CG EADF		4
26th AD (Def)		1
30th AD (Def)		1
32d AD (Def)		1
CG WADF		4
25th AD (Def)		1
27th AD (Def)		1
28th AD (Def)		1
29th AD (Def)		1
34th AD (Def)		1
CG CADF		4
31st AD (Def)		1
33rd AD (Def)		1
35th AD (Def)		1
HQ USAF		4
HQ USAF, Dir of Ops, Ops Analysis		30
DCS/D, Attn: Dr. C. M. Motley		2
CG Strategic Air Command		2
Ops Anal, SAC		10
CG Tactical Air Command		2
Ops Anal, TAC		2
CG Air Proving Ground		2
Ops Anal, APG		2
CG Alaskan Air Command		2
Ops Anal, AAC		2

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CG Far East Air Force	2
Ops Anal, FEAF	2
CG United States Air Force in Europe	2
Ops Anal, USAFE	2
CG Special Weapons Command	2
Ops Anal, SMC	2
CG North East Air Command	2
CG Air Research and Development Command	6
CG Air Force Cambridge Research Center	4
CG Rome Air Development Center	4
Weapons Systems Evaluation Group, Office Secy of Defense	2
Air University	2
Joint Air Defense Board	4
Willow Run Research Center	2
Rand Corporation	4
Air Weapons Research Center	2
Project Lincoln	4
CADS, Stewart AFB, Attn: Capt Robert E. Fairchild	10
Chief of Staff, U.S. Army	10
Chief of Naval Operations, U.S. Navy	10
CG, AAA, Antlers Hotel, Colorado Springs, Colo.	20
Air Officer Commanding ADG, RCAF, St. Hubert, Canada	10

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HEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

5

WDOCR-2 311.23

16 July 1952

SUBJECT: Preliminary Radar Siting

TO: Captain Henry Pike
C/o Commanding General
34th Air Division (Defense)
Kirtland Air Force Base,
New Mexico

FILE NUMBER 248

1. It is desired that two tentative sites be located within fifty (50) miles, of La Junta, Colorado and Delta, Colorado, which can be used to extend the line of detection for the 34th Air Division to the northwest, north, and northeast.

2. In order to avoid generalities and make this report useful, it is deemed advisable that the following data be collected:

- a. Map showing site, (pinpoint for future siting).
- b. Discussion as to why this particular spot was chosen:
 - (1) Coverage.
 - (2) Accessibility.
 - (3) Ease of construction.
 - (4) Availability of utilities.
- c. Horizontal profile data.
- d. General remarks.
- e. No detailed costs are needed at this time. A general statement based on a comparison between this site and others sited should be included.

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Hq WADF, WDOCE-2 311.23, Subject: Preliminary Radar Siting

3. The following itinerary is suggested: report to Col. Mathony and thoroughly discuss the background and need for these two sites. Then proceed to the two locations and check for feasibility and suitability. Proceed, then, to Western Air Defense Force Headquarters and make your report. This report will be used as an inclosure to a letter to Air Defense Command, requesting approval for above two sites.

4. Enclosed is the map that was discussed in telephone conversation between yourself and Lt. Col. Sjorgren.

BY COMMAND OF MAJOR GENERAL TODD:

2 Incls:

1. Coverage Chart
2. Coverage Chart for P-8

RALE T. WILSON
Captain, USMF
Asst Adj Gen

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Hq WADF, WDOCE-2 311.23, Subj: Preliminary Radar Siting

WDOCE-2 311.23 1st Ind

OFFICER IN CHARGE, WESTERN AIR DEFENSE FORCE SITING TEAM, Hamilton
Air Force Base, Hamilton, California

TO: Commanding General, 34th Air Division (Defense), Kirtland Air
Force Base, New Mexico

1. Instructions contained in paragraph 2, basic letter, have
been complied with and the information required is contained in
inclosures #1 and #2.

2. It is requested that inclosure #1 and #2 be reviewed by your
headquarters and forwarded to Commanding General, Western Air Defense
Force, ATTN: DOCE, Hamilton Air Force Base, Hamilton, California.

2 Incls

1. Preliminary radar
siting data for La
Junta, Colorado w/atchmts
2. Preliminary radar
siting data for Delta,
Colorado w/atchmts

HENRY W. PIKE
Captain, USAF
OIC WADF Siting Team

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Hq WADF, WDOCE-2 311.23, Subj: Preliminary Radar Siting

OCG 311.23

2d Ind

6 Aug 1952

HEADQUARTERS 34TH AIR DIVISION (DEFENSE), Kirtland Air Force Base, New Mexico

TO: Commanding General, Western Air Defense Force, Hamilton Air Force Base, Hamilton, California

1. The compiled data for the proposed radar sites at La Junta, Colorado and Grand Junction, Colorado has been thoroughly reviewed and the following recommendations are submitted:

a. Proposed Site at La Junta, Colorado

- (1) This headquarters concurs in the findings and recommends that the site be established in the La Junta Housing Village.
- (2) It is believed that a further saving could be affected by remodeling the housing area Administration Building into an operations building and locating the radar equipment on a tower of either metal or wood construction adjacent to this structure. This would overcome the slight screening angle developed from the small knoll northwest of the housing project, which is the proposed location of the radar equipment. The entire site would then be contained within one area which would be advantageous from a security standpoint, and would do away with the requirement for an access road from the living area to the operations area.
- (3) It is further recommended that immediate action be initiated to procure this area as it is understood the city of La Junta is negotiating for its lease to a private concern for housing itinerant workers. The early manning of this site with an interim or final type radar would secure this obviously choice location at a minimum of expense to the Government. If this early manning is favorably considered it is suggested that the CPS-5 radar which is now being used for back-up equipment at this Division's site R-51 be diverted for this purpose.

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Hq WADF, WDOCE-2 311.23, Subj: Preliminary Radar Siting

b. Proposed Site at Grand Junction, Colorado

- (1) This headquarters concurs in the findings and recommends that the site be established on Black Ridge which is five (5) miles from the Glade Park Post Office adjacent to the Colorado National Monument.
- (2) This is rugged country and the finding of a really good radar site is impossible. When the factors of screening, accessibility, availability of power, water and communications, etc., are all considered it is very unlikely that any other site in this area will offer as many advantages as Black Ridge.

FOR THE COMMANDING GENERAL:

2 Incls
n/c

SAM ODENSKY
2d Lt., USAF
Asst. Adj. Gen.

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Hq WADF WDOCE-2 311.23, Subj: Preliminary Radar Siting (16 Jul 52)

WDOPR-5 311.23 3d Ind 19 Aug 1952

Hq WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. The attached preliminary siting reports were made to determine the most suitable location for additional radar needed to extend the radar coverage to the northwest, north and northeast of the Los Alamos and Sandia targets. As was pointed out in the Air Defense System Plan, WADF Region, which was submitted to your Headquarters on 15 July 1952, the radar coverage from present and programmed radar sites will not reach the minimum line of detection in this area. The two proposed sites will correct this deficiency.

2. This Headquarters concurs in the recommendations of the 34th Air Division contained in preceding indorsement. Early approval of those proposed sites is urgently requested so that action can be initiated for the acquisition and/or lease of the La Junta Housing Village. The site at La Junta could become operational in the very near future with very little rehabilitation and remodeling.

3. It is further recommended that the 146th AC&N Squadron at Geiger Air Force Base, and an AN/CPS-5 radar be earmarked for the site at La Junta.

FOR THE COMMANDING GENERAL:

2 Incls
n/cRALF T. WILSON
Captain, USAF
Asst Adj GenT
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JSPC-2

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RESTRICTED SECURITY INFORMATION

HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

GENERAL ORDERS
NUMBER 8

30 January 1953

REASSIGNMENT OF THE 59TH FIGHTER-INTERCEPTOR SQUADRON


1. Effective 1 February 1953, the 59th Fighter-Interceptor Squadron is relieved from attachment to Northeast Air Command, assignment to Air Defense Command and Eastern Air Defense Force and is assigned to Northeast Air Command without change in strength or station.

2. Authority: Headquarters USAF Message AFOOP-OC-C 54993, 1 August 1952, as amended, and Headquarters USAF Message AFOOP-OC-C 57369, 27 January 1953.

BY COMMAND OF MAJOR GENERAL TODD:

OFFICIAL:

JARRED V. CRABE
Major General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Adjutant General

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

GENERAL ORDERS
NUMBER 45

1 October 1952

RELIEF FROM ACTIVE MILITARY SERVICE OF AIR
NATIONAL GUARD UNITS

1. The following Air National Guard Units, Fighter-Interceptor Squadrons are relieved from active military service in the United States Air Force, less personnel and equipment, and will revert to the control of the State indicated effective 1 November 1952:

<u>UNIT</u>	<u>CONTROL OF</u>
113th Fighter-Interceptor Squadron	State of Indiana
118th Fighter-Interceptor Squadron	State of Connecticut
121st Fighter-Interceptor Squadron	District of Columbia
123d Fighter-Interceptor Squadron	State of Oregon
132d Fighter-Interceptor Squadron	State of Maine
133d Fighter-Interceptor Squadron	State of New Hampshire
134th Fighter-Interceptor Squadron	State of Vermont
142d Fighter-Interceptor Squadron	State of Delaware
148th Fighter-Interceptor Squadron	State of Pennsylvania
163d Fighter-Interceptor Squadron	State of Indiana
166th Fighter-Interceptor Squadron	State of Ohio
172d Fighter-Interceptor Squadron	State of Michigan
176th Fighter-Interceptor Squadron	State of Wisconsin
188th Fighter-Interceptor Squadron	State of New Mexico

2. Personnel will be absorbed in other units of this command without loss in grade.

3. All equipment on hand on date of relief from active military service will be turned in to the appropriate Air Force supply officer for further disposition.

4. Records will be transferred in accordance with Air Force Manual 181-5, Air Force Regulation 31-9, and Air Force Regulation 31-10.

5. Nonappropriated funds will be governed by Air Force Regulation 176-1, and Air Force Regulation 176-2.

6. Appropriate allotments will be obligated to the extent necessary in accordance with Air Force Manual 172-1.

7. Action directed herein will be accomplished in accordance with the applicable provisions of Air Force Regulation 35-13, and Air Force Manual 181-5.

8. The pertinent provisions of Air Force Manual 171-6, as amended, are applicable.

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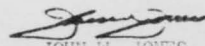
GENERAL ORDERS NUMBER 45 (CONT'D)

9. Authority: Department of the Air Force Letter 322 (AFOMO 13h) subject: "(Unclassified) Relief of the 113th Fighter-Interceptor Squadron and Certain Other Units of the Air National Guard of the United States from Active Military Service," 11 September 1952.

• BY COMMAND OF GENERAL CHIDLAW:

OFFICIAL:

JARRED V. CRABB
Brigadier General, USAF
Chief of Staff


JOHN W. JONES
Lt Colonel, USAF
Asst Adj Gen

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

GENERAL ORDERS
NUMBER 49

28 October 1952

RELIEF FROM ACTIVE MILITARY SERVICE OF AIR
NATIONAL GUARD UNITS

1. The following Air National Guard Units, Fighter-Interceptor Squadrons are relieved from active military service in the United States Air Force, less personnel and equipment, and will revert to the control of the State indicated effective 1 December 1952:

<u>UNIT</u>	<u>CONTROL OF</u>
105th Fighter-Interceptor Squadron	State of Tennessee
109th Fighter-Interceptor Squadron	State of Minnesota
126th Fighter-Interceptor Squadron	State of Wisconsin
136th Fighter-Interceptor Squadron	State of New York
175th Fighter-Interceptor Squadron	State of South Dakota
179th Fighter-Interceptor Squadron	State of Minnesota

2. Personnel will be absorbed in other units of this command without loss in grade.

3. Unit Property Record Equipment Authorization List and all equipment on hand will be transferred to the Regular Air Force replacement units, or turned in to the appropriate Air Force supply officer for further disposition.

4. Records will be transferred in accordance with AFM 181-5, AFR 31-9, and AFR 31-10.

5. Nonappropriated funds will be governed by AFR 176-1, and AFR 176-2.

6. Appropriate allotments will be obligated to the extent necessary in accordance with AFM 172-1.

7. Action directed herein will be accomplished in accordance with applicable provisions of AFR 35-13, and AFM 181-5.

8. The pertinent provisions of AFM 171-6, as amended, are applicable.

9. Authority: Department of the Air Force Letter 322 (AFOMO 74h)
subject: "(Unclassified) Relief of the 105th Fighter-Interceptor Squadron

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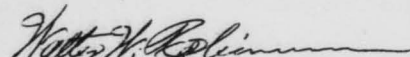
GENERAL ORDERS NUMBER 49 (CONT'D)

and Certain Other Units of the Air National Guard of the United States from Active Military Service," 15 October 1952.

BY COMMAND OF GENERAL CHIDLAR:

OFFICIAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Adjutant General

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HQS EADF

BY AUTHORITY OF: CG

Date 13 May 1952

Initials

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HEADQUARTERS
EASTERN AIR DEFENSE FORCE
Stewart Air Force Base, Newburgh, N.Y.

EAMP 400

14 May 1952

SUBJECT: Movement of 75th Fighter-Interceptor Squadron

TO: Commanding General
4709th Defense Wing
McGuire Air Force Base
Trenton, New Jersey

FILE NUMBER

312

J.P.

1. The 75th Fighter-Interceptor Squadron was programmed originally for movement to Suffolk County AFB during the latter part of fourth quarter FY 53.

2. This squadron will convert from F-86A to F-86D aircraft on or about 1 October 1952. It is anticipated that the conversion period will extend through December 1952.

3. This headquarters is contemplating advancing the original movement date to 1 October 1952 to coincide with the conversion program.

4. Considerations affecting this new movement date are as follows:

a. More effective utilization of aircraft during the winter months because of favorable weather conditions at Suffolk as compared to Presque Isle.

b. The movement would be concurrent with the scheduled aircraft conversion program. Aircraft would be moved to Suffolk as they are received. Inasmuch as not all aircraft will be available on schedule due to slippage in the aircraft production schedule, it is felt that this would allow for a steady, gradual buildup at Suffolk.

c. Table II, spares for the new aircraft, could be shipped direct to Suffolk precluding an additional shipment at a later date from Presque Isle.

5. It would appear that the only limiting factor would be the inadequacy of existing maintenance facilities at Suffolk. A review of the new construction program indicates the new maintenance hangar is scheduled for completion about 15 December 1952. It is conceivable that this scheduled completion date could be retarded due to unforeseen circumstances.

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EAMMP 400 Subject: Movement of 75th Fighter-Interceptor Squadron

6. In considering all factors it would appear that the defense capability of this command could best be served by an early move of the 75th Fighter-Interceptor Squadron to Suffolk. Desire your comments as to conditions which might sustain or adversely affect this change in the program schedule.

BY COMMAND OF BRIGADIER GENERAL MINTY:

Info cys to:
CG 4711th Def Wg
CO 77th AB Sq

ROBERT J. ORTELT
Capt., USAF
Asst. Air Adj. Gen.

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Hqs EADF, EAMMP 400, Subject: Movement of 75th Fighter-Interceptor Squadron

WGDM 400 (14 May 52) 1st Ind 27 May 1952

HEADQUARTERS, 4709TH DEFENSE WING, McGuire Air Force Base, Trenton, New Jersey

TO: Commanding General, Eastern Air Defense Force, Stewart Air Force Base, Newburgh, New York

1. After thorough investigation of all factors involved, it is the opinion of this Headquarters that sufficient facilities will exist to accommodate both tactical organizations. These facilities will, however, meet only minimum requirements and close coordination will be required to obtain maximum effectiveness from existing facilities.

2. Since both organizations will operate similar type aircraft and with the proposed incorporation of a minor engine overhaul program, it is felt that supply requirements will be held to a minimum.

3. It is anticipated that in the immediate future, portable type alert hangars will be constructed at Suffolk County Air Force Base, which could be utilized to furnish minimum maintenance facilities for on-the-line maintenance for both tactical organizations until the new maintenance hangar is completed.

4. This Headquarters does not anticipate any adverse difficulty in the conversion of both organizations, providing sufficient allowances are made in alert commitments to afford sufficient time for pilots of both organizations to become familiar with and qualified in newly assigned aircraft.

FOR THE COMMANDING OFFICER:

BOYCE J. SMITH
Major USAF
Air Adjutant General

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RECEIVED ON 27 MAY 1952

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Hq EADP EAMP 400 Subject: Movement of 75th Fighter-Interceptor Squadron

EACPR 400 (14 May 52)

2d Ind

14 Jun 1952

HQ EASTERN AIR DEFENSE FORCE, Stewart Air Force Base, Newburgh, N. Y.

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. This headquarters is desirous of having all-weather fighter-interceptor capability at Suffolk County AFB for the protection of the New York City area as soon as possible.
2. Conversion of the 75th Fighter-Interceptor Squadron at Suffolk instead of at Presque Isle precludes the additional shipment of Table II parts from Presque Isle to Suffolk. In addition, probable early authorization for a J-47 minor engine overhaul activity at Suffolk indicates that engine supply for the 75th Squadron could be better sustained if the request for early movement is approved.
3. The 4709th Defense Wing has indicated in the 1st Indorsement the adequacy of facilities at Suffolk to accommodate both the 118th and 75th Fighter-Interceptor Squadrons in the 2d quarter of FY 53. Later information in this headquarters is that Suffolk has already received two portable alert type shelters for immediate erection with two more scheduled for delivery this month. Each shelter provides approximately 4200 sq ft and the combined space should be entirely adequate until permanent hangar space can be completed.
4. Request, therefore, that the move of the 75th Fighter-Interceptor Squadron from Presque Isle to Suffolk be reprogrammed from the 4th quarter FY 53 to the 2d quarter FY 53.

FOR THE COMMANDING GENERAL:

ROBERT J. ORTELT
Capt, USAF
Asst. Air Adj. Gen.

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Hq EADF EAMP 400 Subject: Movement of 75th Fighter-Interceptor Squadron

ADOPT 400 (14 May 52)

3d Ind

27 Jun 1952

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Eastern Air Defense Force, Stewart Air Force Base, Newburgh, New York

1. This headquarters concurs in your proposal to move the 75th Fighter Interceptor Squadron to Suffolk in October 1952.
2. Air Defense Command programming documents for July will reflect this change.

BY COMMAND OF GENERAL CHIDLAW:

THOMAS C. SAVAGE
Major USAF
Asst. Adj. Gen

Lt Col Hamilton

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DCS/M HQ USAF ATTN: AFMME/1R CONNORS/ WASH 25 DC		<input type="checkbox"/> BOOK MESSAGE		<input type="checkbox"/> ORIGINAL MESSAGE	
CG AIR MATERIAL COMMAND ATTN: MCMAD-41 AND RC SO4 WRIGHT PATTERSON AFB O		<input checked="" type="checkbox"/> MULTIPLE ADDRESS		CRYPTOPRECAUTION <input type="checkbox"/> YES <input type="checkbox"/> NO	
INFO:		IDENTIFICATION		CLASSIFICATION	
CG EASTERN ADF STEWART AFB NEWBURGH NY					
CG WESTERN ADF HAMILTON AFB HAMILTON CALIF					
CG CENTRAL ADF 1209 WALNUT ST KANSAS CITY MO					
23 Sep 52					
ADMAC-1C 2007. Pass to AFODC and AFOP-AL for info. IAW AMC Instr to be incorporated in TO 01-15FDC-2A, this hq has grd all F-89C type acft except in casses of natl emerg. Cited TO pertains to recent failure of F-89C wg during flt. In view of foregoing, strongly recn that acceptances of new acft fr pdn be disc pdng incorporation of a satisfactory fix to the wg. Further req that all possible action be taken to determine corrective action nec to trn these 89C acft to a safe opnl status. FYIG, all F-89B/C acft asg this comd and equip w/J-35A-21B ang have also been restricted fr further flt pdng retrofit w/J-35A-41 or staisfactory med J-35A-21B eng. In this connection, attn invited to NYMSG ADMAC 53610, 20 Sep 52.					
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> FILE NUMBER 352 X 301 JHB </div>					
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				THOMAS C. SAVAGE Major USAF OFFICIAL TYPED	

DD FORM 173

REPLACES WD AGO FORM 11-100, 15 JUN 1945, AND WD AGO FORM 11-100, 1 APR 1946, WHICH MAY BE USED.

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SECRETARY OF DEFENSE
COMMITTEE

10

FILE NUMBER
K301.1
2 PP 12 OCT 1962

Modification of F-89 Type Aircraft

Commanding General
Air Materiel Command
Randolph Air Force Base
Texas

COMEBACK COPY

Not requested, not furnished

DM furnished

At the present time, there are three (3) major and two (2) minor modifications pending on the F-89 type aircraft. The major modifications must be accomplished before the affected aircraft can be returned to full and unrestricted operation. The minor ones are being accomplished or will be accomplished as they arise to minimize certain unsafe conditions. These modifications are listed below in the order of their importance:

1. Incorporate and incorporate necessary wing fix on all F-89A/C aircraft. These are in production. These aircraft are currently being produced with T.O. 01-15FBC-2.

2. Repair all F-89A/C aircraft having J-35A-218 engines. This includes a number of 90 series engines. These engines are being repaired at the factory in storage status and are being returned to the fleet on Project ABC2F-450.

3. Repair all F-89A/C aircraft serially numbered through 1000. These aircraft are being repaired at the factory in storage status and are being returned to the fleet on Project ABC2F-450.

4. Repair the engine nacelles on all F-89A/C aircraft to eliminate the unsafe conditions that now exist.

5. Repair the jet wake fairing on all F-89A/C aircraft.

6. Concurrent with the above modifications, all outstanding technical orders should be complied with and other maintenance deficiencies corrected.

2. The urgent necessity for completing the above described work and returning the F-89 aircraft to a safe operational status at the

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ADD, ADELX 492.1, Subject: (Unclassified) Modification of F-89 Type Aircraft

earliest possible moment is obvious. This necessity becomes even more pressing when such factors as the current grounding of the F-86A aircraft, the limitations and conditions of the conventional type fighters, and the existing shortage of our remaining jet aircraft are considered. It is with this sense of urgency and the realization that there must be no undue delay in regaining the F-89 defense potential that the following recommendations are made:

a. That all five (5) of these modifications be accomplished at a central location on a production line basis and in the following sequence:

- (1) Accomplish the work described in paragraph 1a, d, and e, above, on all F-89C aircraft having serial numbers 51-5804 and subsequent first. These aircraft have a satisfactory engine installed (J-35A-33A) and were, or will be, completely winterized during production. Priority consideration on these aircraft, therefore, will serve to insure an early return of some F-89 defense capability to this command.
- (2) F-89C aircraft having serial numbers 51-5757 through 51-5803 should be the next ones to undergo the modifications described in paragraphs 1a, d, and e, above. These aircraft have a satisfactory engine installed (J-35A-33) but require winterization in accordance with the bulletins cited in paragraph 1a, above. We can be assured of a more rapid build-up in our defense capability if these modifications are scheduled in this sequence.
- (3) All other F-89C/C aircraft assigned this command, including the 50 series F-89C aircraft in storage status at the factory, require the five (5) modifications listed above and should be the last ones scheduled.

b. That this centrally located or "package plant" modification line be established at Northrop Aircraft Inc., on a contractual basis for the following reasons:

- (1) The depots do not possess sufficient equipment, personnel, F-89 engineering knowledge, space and other facilities that will be required to accomplish these modifications in the proportion and at the rate we will require.

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Type Aircraft

- (2) Northrop has indicated that they are willing and that they have the capacity to do this work. The eagerness stems from their desire to return the aircraft to a completely serviceable condition with the least practicable delay.
- (3) Such a contract will not only serve to expedite the repair and return of these aircraft but will result in a monetary savings to the Air Force as well.
- (4) Northrop possesses the engineering skill and has the majority of the required parts, materials and equipment on hand that will be required to do an efficient and thorough job.

c. In the event that it is not feasible to negotiate the above proposed contract with Northrop, it is then recommended that the prime depot, OQAMA, be designated as the central modification point and that such assistance as may be required be obtained from both Northrop and MOAMA.

3. We believe that the J-35A-21B engine is not structurally capable of producing the thrust required for safe and sustained F-89 operation irrespective of any modification or fix that may be developed and incorporated. This engine was originally developed as the J-35A-17 for installation in the F-84 fighter-type aircraft but was redesignated as the J-35A-21 when the after-burner was incorporated and made to fit the requirements of the F-89 type aircraft. By removing the after-burner, it can be returned to its original designation and made available to support the F-84 aircraft without serious monetary loss to the Air Force. The fact that our pilots and maintenance personnel have lost confidence in this engine is of prime importance and should not be overlooked or regarded lightly. It is urged, therefore, that further expenditures of effort and money in an attempt to develop a satisfactory modification for this engine be abandoned and that a program be authorized and instituted to retrofit the aircraft cited in paragraph 1b, above, with the J-35A-41 or comparable engine.

4. The above recommendations, including the J-35A-41 retrofit, are considered to be in the best interest of this command and the Air Force. If adopted and implemented in the near future, we can be assured

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Hq ADC, ADMEM 452.1, Subject: (Unclassified) Modification of F-87
Type Aircraft

that the serious gap in our defense system can be expeditiously closed
once the wing fix has been determined. It is urged that these proposals
be approved and this headquarters be advised of action taken as soon
as possible.

FOR THE COMMANDING GENERAL:

WALTER W. ROBINSON
Colonel, USAF
Adjutant General

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Monthly Combat Readiness Commentary
 O&F-Mgt Anal 17 July 1952
 Maj. B.E. McKenzie/390/bjd
 1

Part VIII, Special Commentaries

AUGMENTATION FORCES

The following listing of aircraft, by command, indicates the assigned potential and the combat ready aircraft and aircrews made available by other USAF commands and the Department of the Navy for support of the air defense mission in emergency as of the 15th of June 1952:

a. Strategic Air Command

Assigned	Type	Available
130	F-84G	84

NOTE: Reduction in SAC forces is due overseas move of 31st Fighter Escort Wing.

b. Tactical Air Command

Assigned	Type	Available
258	F-51	132
76	F-47	40
334 TOTAL		172

TAC will provide supplementary airlift in support of fighter deployment; however, no status of their aircraft is received in this headquarters. Available airlift will depend on other commitments in conflict with this mission.

c. Air Training Command

Assigned	Type	Available
62	F-51	16
169	F-80	68
211	F-84	32
95	F-86	36
22	F-89	0
58	F-94	26
617 TOTAL		178

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Monthly Combat Readiness Commentary
Mgt Anal17 July 1952
Maj. B.E. McKensie/390/bjd
1 (Contd)

d. Air National Guard

16 ANG fighter units are programmed for emergency air defense. These units would be called into active military service by the defense forces and pass to their operational control.

*e. Eastern Sea Frontier

1. To augment EADF capability - 240 aircraft
2. To augment CADF capability - 194 aircraft

*f. Western Sea Frontier

1. To augment WADF capability - 253 aircraft

CANADIAN AIRCRAFT

Aircraft available during July are:

Number	Type
96	F-86
20	Vampire
**24	Vampire
**32	F-51
**216	F-51
188	TOTAL

*The figures listed comprise day and all-weather aircraft and do not indicate full availability for air defense.

**Available on 12 hour notice.

***Available on 48 hour notice.

GEORGE I. RUDDELL
Lt. Colonel, USAF
Chf, Interceptor Div.
Ext 313/862

J. C. MEYER
Colonel, USAF
Director, Ops & Tag
Ext 212/213

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Hq USAF AFOP-OP-D 381 Subject: Chief of Naval Operations Function
Letter (OPNAV Instruction 003320.3)

12

20 Nov 52

660

ADOPR 381 (29 Oct 52)

1st Ind

243654

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Hq AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colo.

TO: Director of Operations, Headquarters USAF, Washington 25, D.C.

1. Reference par 3b, OPNAV Instruction, 23 September 1952, this headquarters does not concur with the statement that "the Air Force area of responsibility is considered to extend to the seaward limits of the effective coverage of the Air Force shore-based radar." Upon the implementation of current ADC plans for the employment of radar picket vessels and airborne early warning and control aircraft in the continental air defense system, air defense operations will be extended appreciably beyond the seaward limits of the shore-based radar. The seaward limitation of the continental air defense system will further continue to diminish as the range of manned and unmanned interceptors increases. Therefore it is the position of this Command that the seaward limitation of Air Force responsibility at any given time is determined by the operational limitations of the weapons employed.

2. Par 3a cites, as a primary function of the Navy, the "sea-based air defense . . . against air attack." This headquarters has been unable to ascertain how the Navy proposes to fulfill this responsibility. Information of this nature is vital to the accomplishment of the ADC mission.

3. Paragraphs 1a, 1d, and he emphasizes the temporary nature of the participation of Naval units (which are shore-based or temporarily in port) in the air defense of the United States to the extent the primary missions of these units will permit. While this statement conforms with current Department of Defense Policy, it guarantees nothing in air defense augmentation. Therefore, it is not practicable to consider the Navy's capability (except incidentally) in the development of current and future air defense plans. It is earnestly recommended that action be taken to secure a JCS policy statement which will insure the uninterrupted employment of available Naval forces; at least during the initial attack phases.

FOR THE COMMANDING GENERAL:

1 Incl
n/e

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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Monthly Combat Readiness Commentary

O&T-F

Mgt Anal

16 December 1952
M/Sgt G.H.Green/311/bjy
1

Part VIII, Special Commentaries

I. AUGMENTATION FORCES

The following listing of aircraft, by command, indicates the assigned potential and the combat ready aircraft and aircrews made available by other USAF commands as of the 15th of December 1952 for support of the air defense mission in the event of hostilities.

a. Strategic Air Command

<u>Assigned</u>	<u>Type</u>	<u>Available</u>
129	F-84G	6

The return of the 31st Fighter Escort Wing to Turner AFB is responsible for the increase in F-84G's assigned and available.

b. Tactical Air Command

<u>Assigned</u>	<u>Type</u>	<u>Available</u>
241	F-51	133
42	F-47	24
290 TOTAL		157

TAC will provide airlift in support of fighter deployment.

c. Air Training Command

<u>Assigned</u>	<u>Type</u>	<u>Available</u>
69	F-51	13
99	F-80	24
209	F-84	57
134	F-86	60
37	F-94	7
508		161

d. Air National Guard

The following sixteen ANG fighter units, each with a capability of 12 combat ready F-51H's, are programmed for air defense. These units may be called into active military service by the air defense forces and pass to their operational control. Estimated readiness time for these units is 4 - 8 hours:

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Monthly Combat Readiness Commentary

O&T-F

Mgt Anal

16 December 1952
M/Sgt G.H. Green/311/bjy
1 (Contd)UNITSTATION

101st Ftr Sq, SE
119th Ftr Sq, SE
131st Ftr Sq, SE
152nd Ftr Sq, SE
137th Ftr Sq, SE
138th Ftr Sq, SE
139th Ftr Sq, SE
140th Ftr Sq, SE
146th Ftr Sq, SE
147th Ftr Sq, SE
162nd Ftr Sq, SE
164th Ftr Sq, SE
194th Ftr Sq, SE
195th Ftr Sq, SE
169th Ftr Sq, SE
181st Ftr Sq, Jet

Logan Intl Apt, East Boston, Mass.
Mun Apt, Newark, New Jersey
Barnes Apt, Westfield, Mass.
Theodore F. Greene Apt, Hillsgrove, R. I.
Westchester Co. Apt, White Plains, N. Y.
Mancock Fld, Syracuse, N. Y.
Schenectady Co Apt, Schenectady, N. Y.
Harbor Fld, Baltimore, Md.
Otr Pittsburgh Apt, Corapolis, Pa.
Otr Pittsburgh Apt, Corapolis, Pa.
Dayton Mun Apt, Vandalia, Ohio
Mun Apt, Mansfield, Ohio
Mun Apt, Hayward, Calif.
Metropolitan Apt, Van Nuys, Calif.
Mun Apt, Peoria, Ill.
Hensley Fld, Dallas, Tex.

II. OTHER FORCES MADE AVAILABLE FOR AIR DEFENSE

a. Eastern Sea Frontier

The regular and reserve navy aircraft within the EADF area are as indicated below.
Availability of these aircraft may be limited by the primary naval mission:

<u>Location</u>	<u>No. aircraft</u>	<u>Est time airborne</u>	<u>Type Aircraft</u>
Oceans, Va.	45	Unknown	F4F-2
	31	Unknown	F4U-2
	54	Unknown	F3F-2
Atlantic City	9	Unknown	F2H-2
	6	Unknown	F3D-2
	22	Unknown	F4U-5N AI
Akron, Ohio	16	Unknown	F6F-1
Anna Costie, D.C.	34	Unknown	F6F-4
Columbus, Ohio	27	Unknown	F6F-5
Glenview, Ill.	11	Unknown	F2H-1
	17	Unknown	F6F-1
Grosseille, Mich.	7	Unknown	FH-1
New York, N. Y.	34	Unknown	F6F-5
Niagara Falls	17	Unknown	F6F-2
Norfolk, Va.	18	Unknown	F6F-2
Squamtown, Mass.	14	Unknown	F6F-5
Willow Grove, Pa.	30	Unknown	F6F-5

TOTAL 392 of which only 22 are AI Fighters

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Mgt Anal

16 December 1942

W/Sgt C.H. Green/TLL/bjy
1 (Contd)

Increase is due to receipt of the first comprehensive report of facilities received to date.

Naval Air Reserve aircraft within the CADF area are as indicated. Availability of these aircraft may be limited by the primary naval mission:

Location	No. aircraft	Est time airborne	Type aircraft
Minneapolis	23	23 A/C - 12 hrs.	F6F-5, Non AI
Indianapolis (NAS)	2	2 A/C - 30 min.	F6F, Non AI
	2	2 A/C - 2 hrs.	F6F, Non AI
Dallas (NAS)	32	10 A/C - 3 hrs.	F6F, Non AI
		23 A/C - 12 hrs.	F6F, Non AI
		32 A/C - 24 hrs.	F6F, Non AI
St. Louis, Mo. (NAS)	16	4 A/C - 12 hrs.	F6F, Non AI
		16 A/C - 24 hrs.	F6F, Non AI
Glathe, Kans. (NAS)	8	2 A/C - 2 hrs.	F6F, Non AI
		8 A/C - 72 hrs.	F6F, Non AI
	2	2 A/C - 2 hrs.	F6F, Non AI
New Orleans (NAS)	12	6 A/C - 4 hrs.	F6F, Non AI
		12 A/C - 24 hrs.	F6F, Non AI
Miami (USMC)	16	16 A/C - 10 hrs.	F6F, Non AI
Chamblee, Ga. (NARTU)	10	5 A/C - 12 hrs.	F6F, Non AI
		10 A/C - 24 hrs.	F6F, Non AI
Birmingham, Ala. (NAS)	8	4 A/C - 2 hrs.	F6F, Non AI
		8 A/C - 24 hrs.	F6F, Non AI
Jacksonville, Fla. (NARTU)	8	4 A/C - 40 min.	F6F, Non AI
		8 A/C - 2 hrs.	F6F, Non AI
Memphis, Tenn. (NAS)	10	6 A/C - 12 hrs.	F6F, Non AI
		10 A/C - 24 hrs.	F6F, Non AI
	4	4 A/C - 12 hrs.	F6F, Non AI

Total aircraft within 4 hours - 40; Total aircraft within 12 hours - 107;
Total aircraft within 24 hours - 153.

b. Western Sea Frontier

The naval and marine regular and reserve aircraft within the WADF area are as indicated below. Availability of the aircraft may be limited by the primary naval mission:

Location	No. aircraft	Est time airborne	Type aircraft
San Diego	13	4 hrs.	F9F-5, Non AI F6F
Alameda	44	4 hrs.	F9F-5, Non AI F6F

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16 December 1952
M/Sgt Green/III/sgt
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Location	No. aircraft	Est time airborne	Type aircraft
El Toro	20	4 hrs.	F4U-4, Non AI Ftr
	17	4 hrs.	F4U-5, Non AI Ftr
	8	4 hrs.	F6F-5H, AI Ftr
	34	4 hrs.	F9F-2, Non AI Ftr
	11	4 hrs.	F7F-3H, AI Ftr
	12	4 hrs.	F3D2, Non AI Ftr
Los Alamitos	14	4 hrs.	F6F, Non AI Ftr
	4	4 hrs.	F6F-5, Non AI Ftr
	4	4 hrs.	F2H, Non AI Ftr
Alameda	45	4 hrs.	F9F-5, Non AI Ftr
	3	4 hrs.	F9F-2, Non AI Ftr
	18	4 hrs.	F8LD, Non AI Ftr
	4	4 hrs.	F4U-4, Non AI Ftr
Moffett	16	4 hrs.	F4U-5H, AI Ftr
	9	4 hrs.	F2H-8, Non AI Ftr
Denver	14	4 hrs.	F8F-2, Non AI Ftr
Oakland	32	4 hrs.	F6F, Non AI Ftr
	2	4 hrs.	F6F-5, Non AI Ftr
Seattle	33	4 hrs.	F8F-1, Non AI Ftr
Spokane	10	4 hrs.	F8F-2, Non AI Ftr

Total within 4 hrs: 330 Non AI
 35 AI
 TOTAL — 365

c. Royal Canadian Air Force

Aircraft available during December are:

No. aircraft	Est time airborne	Type aircraft
104	Unknown	F-86
30	12 hrs.	Vampire
24	12 hrs.	F-51
16	48 hrs.	F-51
174 — TOTAL		

Shore-based naval aircraft will be made available on an opportunity basis by the responsible naval commander to ADC (RCAF) for air defense operations.

III. SPECIAL ALERT COMMITMENTS

The following ADC alert commitments will be met at each base insofar as the number of combat ready aircraft permit:

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M/Egt G.H.Green/311/tjy
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Period	Non-AI Interceptors	AI Interceptors
1 hr before sunrise until 1 hr after sunset	2 A/C - "Readiness" 2 A/C - "Back-up"	2 A/C - "Readiness" 2 A/C - "Back-up"
1 hr after sunset until 1 hr before sunrise	2 A/C - "At Ease"	2 A/C - "Readiness" 2 A/C - "Back-up"

These figures will be changed as the international situation dictates.

During day operations, VFR or Weather, aircraft on "Back-up" may be flown as an element on local training flights provided pilots of these aircraft maintain radio contact with the ground controller at all times.

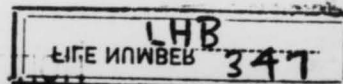
Night intercept training missions will be conducted by non-AI interceptors in order to provide a night intercept capability considered adequate for operation during the above periods.

WALTER I. OLSON
Lt. Colonel, USAF
Chief, Ftr-Intop Div.
Ext 313/662

JOHN C. MEYER
Colonel, USAF
Director, O&T
Ext 212/213

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AFDOP OP R

6 Oct 1952

SUBJECT: (Uncl) Mission of ANG Fighter Units

FILE NUMBER 214 TH8

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. In order to clarify the mission assignment and responsibility relative to the 15-day annual field training period of Air National Guard fighter units, all previous instructions in conflict with the following are hereby rescinded and the following instructions will apply.
2. The six (6) Fighter-Bomber Wings are assigned a fighter-bomber mission with mobilization assignment to Tactical Air Command, who will assume the responsibilities relative to the 15-day annual field training period.
3. Of the seventeen (17) Fighter-Intercept Wings, six (6) are assigned a fighter-intercept mission with mobilization assignment to Air Defense Command, who will assume the responsibilities relative to the 15-day annual field training period.
4. Eleven (11) of the seventeen (17) Fighter-Intercept Wings are assigned an initial mission of fighter-intercept (considered their primary mission) with mobilization assignment to Air Defense Command. After the initial phase of war (estimated D plus 3 months) these eleven (11) wings will change to fighter-bomber mission (considered their secondary mission) with assignment to Tactical Air Command. These eleven (11) Fighter-Intercept Wings will continue to be organized, manned, and equipped as Fighter-Bomber units throughout their dual mission assignment. Air Defense Command will assume the responsibilities relative to the 15-day annual field training period.

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Ltr to ADC, subj: "(Uncl) Mission of ANG Fighter Units"

5. The National Guard Bureau will communicate directly with Air Defense Command to determine which six (6) of the seventeen (17) Fighter-Intercept Wings will be required after the D plus 3 months period and, after approval by this Headquarters, the interested commands will be notified.

6. The mission of the three (3) squadrons located outside the ZI are shown below with annual 15-day field training responsibility as indicated.

<u>Unit</u>	<u>Mission</u>	<u>Command Responsible for Field Training *</u>
Alaska	Fighter-Bomber	AAC
Hawaii	Fighter-Intercept	MATS
Puerto Rico	Fighter-Intercept	CONAC

* None: These Commands are responsible for the supervision of all training of these units including field training.

7. Continental Air Command is responsible for all training of units listed in paragraph 2, 3, and 4 except those responsibilities relating to the annual 15-day field training period.

8. This communication is being dispatched to CONAC, TAC, AAC, MATS and the National Guard Bureau.

BY COMMAND OF THE CHIEF OF STAFF:

JOHN K. GERHART
Brigadier General, USAF
Deputy Director of Operations
Deputy Chief of Staff, Operations

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HQ USAF APOOF OP R Subj: (Uncl) Mission of ANG Fighter Units

ADOFR 325 (6 Oct 52)

1st Ind

25 Oct 1952

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Operations, Headquarters USAF, Washington 25, D. C.

1. Reference paragraph 5, basic letter, as the result of discussions with representatives of the National Guard Bureau, the following Fighter Interceptor Wings are recommended for retention by this Command after D plus 3 months:

101 Ftr Int Wing	Bangor, Maine
132 Ftr Int Sqdn	" "
134 Ftr IntSqdn	Brulington, Vt.
133 Ftr Int Sqdn	Manchester, N. H.
102 Ftr Int Wing	Boston, Mass.
101 Ftr Int Sqdn	" "
131 Ftr Int Sqdn	Westfield, Mass.
107 Ftr IntWing	Niagara Falls, N. Y.
136 Ftr Int Sqdn	" " "
137 Ftr Int Sqdn	White Plains, N. Y.
138 Ftr Int Sqdn	Syracuse, N. Y.
139 Ftr Int Sqdn	Schenectage, N. Y.
128 Ftr Int Wing	Milwaukee, Wisc.
126 Ftr Int Sqdn	" "
176 Ftr Int Sqdn	Madison, Wisc.
133 Ftr Int Wing	St. Paul, Minn.
109 Ftr Int Sqdn	" "
175 Ftr Int Sqdn	Sioux Falls, S. D.
178 Ftr Int Sqdn	Fargo, N. D.
179 Ftr Int Sqdn	Duluth, Minn.
142 Ftr Int Wing	Spokane, Wash.
116 Ftr Int Sqdn	" "
123 Ftr Int Sqdn	Portland, Ore.
186 Ftr Int Sqdn	Great Falls, Mont.
190 Ftr IntSqdn	Boise, Idaho

2. If this recommendation is approved, it is requested that the current National Guard Fighter Interceptor Program be modified to

Lt Col Theisen/mv

34/345

24 Oct 52

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HQ USAF AFOOP OP R Subj: (Uncl) Mission of ANG Fighter Units

provide these units, as a matter of first priority, with the latest types and models of jet interceptor equipment.

FOR THE COMMANDING GENERAL:

THOMAS C. SAVAGE
Major, USAF
Asst. Adj. Gen.

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HEADQUARTERS AIR FORCE COMMAND		ROUTING AND RECORD SHEET	
TO	SUBJECT: Progress Report on Use of Inactive ANG Units for Air Defense		
FROM	DCS/O	C/S VE BG	15 15 November 1952 Capt. V.A. Winders/11/bjd 1
<p>1. On 28 October 1952, at Headquarters ConAl, we presented ADC's proposals for the use of inactive ANG units for air defense to the Air Staff Committee on National Guard and Reserve Policies. These proposals are:</p> <ul style="list-style-type: none"> a. Active duty for a limited number of ANG pilots to man ANG aircraft in unit on inactive status. b. Make available to ADC for operational control, a limited number of ANG fighters during scheduled ANG training periods of inactive ANG fighter squadrons. <p>2. The subject of using ANG aircraft and pilots came up during our recent visit to Headquarters USAF. The Guard Bureau favors active duty for a limited number of crews. Because of manpower space allocations, we are standing by proposal 1. (Paragraph 1.1. above.)</p> <p>3. After a conference with representatives of the National Guard Bureau, we designated to Headquarters USAF the six (6) ANG Wings we wanted for permanent retention in ADC after mobilization. Headquarters USAF, in a letter dated 4 November 1952, approved our recommendation and assigned these six (6) ANG fighter-interceptor Wings to us for permanent retention. They also recalled the eleven (11) ANG fighter wings assigned to us for D plus three (3) months with subsequent reassignment to Tactical Air Command.</p>			
<p>KENNETH L. HERGENROTTER Brigadier General, USAF DCS Operations Ext. 221/222</p>			

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FILE NUMBER

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16

HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

HEADQUARTERS
ARMY ANTI-AIRCRAFT COMMAND
Ent Air Force Base
Colorado Springs, Colorado

15 July 1952

MUTUAL AGREEMENT FOR THE AIR DEFENSE OF THE UNITED STATES*

1. PURPOSE:

The purpose of this mutual agreement between the signatories is to:

- a. Insure the most effective use of Air Force and Army air defense capabilities for the defense of the United States against air attack.
- b. Delineate the basic air defense responsibilities of the signatories and establish general procedures for coordination in accordance with current directives, policies and agreements.
- c. Define responsibilities of subordinate commanders with respect to major functions involved in the operation of an integrated air defense system and establish procedures for the discharge of these responsibilities.

2. DEFINITIONS:

a. Operational Control of an antiaircraft unit by an Air Force commander comprises only the following functions of command:

- (1) Announcing the rules of engagement.
- (2) Specifying the condition of air defense warning.
- (3) Directing the engagement or disengagement of anti-aircraft fire.

b. Gun Defended Area is a defined surface area defended by antiaircraft weapons above which the air space is denied to all aircraft except under conditions specified by air division (defense) commanders.

* This supersedes ADC-ARAACOM Mutual Agreement for the Air Defense of the United States, 10 April 1952.

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c. Air Defense includes all measures designed to nullify or reduce the effectiveness of the attack by hostile aircraft or guided missiles after they are airborne.

3. OPERATIONAL CONCEPTS:

a. At each echelon of the Air Defense Command, which will exercise operational control over Army elements, an Army officer with an Army Staff section of appropriate size will serve as the antiaircraft element on the staff of the respective air defense commander. The Army officer will, in addition, serve as the principal antiaircraft advisor to the air defense commander concerned.

b. Army antiaircraft units will pass to the operational control of the Air Defense Command upon deployment to tactical air defense positions.

c. Operational control by air division (defense) commanders over antiaircraft units will be exercised through antiaircraft defense commanders.

d. Areas in the United States to be afforded antiaircraft defense will be determined by mutual agreement between the Department of the Air Force and the Department of the Army. The Department of the Navy will be consulted concerning those areas vital to the Navy.

e. Procedures will be established in advance to permit full and immediate use of available forces and resources having an air defense capability to include those:

- (1) Assigned the mission of air defense.
- (2) Physically present in the United States and not assigned another mission, including civilian component units not in the active military service.
- (3) Assigned another mission, but present and capable of being employed in the air defense of the United States, without compromising the primary mission and upon the concurrence of commanders concerned.

4. RESPONSIBILITIES - AIR DEFENSE COMMAND:

Responsibilities of the Air Defense Command include the following:

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- a. Defend the United States against air attack.
- b. Provide the Air Force units, facilities and equipment for the air defense of the United States.
- c. Indicate in detail to services assigned collateral air defense responsibilities, the nature and extent of the support required, and to provide such information as is necessary for complete coordination.
- d. Integrate supporting forces into a single air defense system.
- e. Conduct air defense training and air defense exercises and maneuvers, utilizing units of other components of the Department of Defense that may be available.
- f. Designate areas as Gun Defended Areas. Areas to be designated Gun Defended Areas will be prescribed as soon as practicable.
- g. Provide identification of aircraft.
- h. Control measures to deceive, confuse or deny aid to the enemy.
- i. Prescribe the condition of air defense warning for the air defense system.
- j. Establish, in coordination with the Army Antiaircraft Command, basic rules of engagement for antiaircraft fire units, designed to afford maximum combined effectiveness of available air defense forces.
- k. Promulgate rules of flight which prescribe course and conduct of flight for friendly aircraft approaching or penetrating designated restricted areas in accordance with the agreed policies between appropriate agencies.
- l. Designate forces (including antiaircraft units in assigned tactical positions), agencies, and facilities to appropriate air division (defense) commanders for operational control.
- m. Provide necessary wire circuits between Antiaircraft Operation Centers and appropriate Air Defense Command agencies and

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supply the radio back-up equipment at the Air Force end of the circuit as well as the necessary operating frequency.

- n. Provide space for use by antiaircraft representatives furnished in accordance with paragraph 3a.
- o. Direct and control the integrated air defense system through appropriate air defense commanders.
- p. Determine and furnish to the responsible civil authority the condition of air defense warning to be issued to civil air raid warning key points.
- q. Issue the condition of air defense warning to major military commands and major military and atomic energy commission installations.

5. RESPONSIBILITIES - ARMY ANTIAIRCRAFT COMMAND:

The responsibilities of the Army Antiaircraft Command include the following:

- a. Ascertain the requirements of the Air Defense Command for Army participation in air defense and take appropriate action to fulfill these requirements.
- b. Prepare detailed plans for the antiaircraft defense of designated critical areas in coordination with appropriate Air Force and Navy commands.
- c. Support the Air Defense Command on the basis of joint agreements between the Department of the Army and the Department of the Air Force pertaining to the air defense of the continental United States.
- d. Coordinate with the appropriate Navy command on matters pertaining to the artillery support of harbor defenses by fire from antiaircraft units located in tactical antiaircraft positions, when such support will not interfere with the air defense mission.
- e. Coordinate with the appropriate Navy command regarding the utilization of Navy antiaircraft weapons available to supplement Army antiaircraft defenses.
- f. Develop detailed plans for the tactical deployment of antiaircraft units allocated for the air defense of the United States

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and make recommendation to the Department of the Army for any desirable changes in the overall employment of such units.

g. Provide antiaircraft advisors at appropriate echelons of the Air Defense Command.

h. Make available to the Air Defense Command, for operational control, all antiaircraft units in tactical positions.

i. Direct action to insure compliance with procedures prescribed by Air Defense Command for the control of electronic emissions, fires, lights, and lighting, as pertains to elements of the Army Antiaircraft Command.

j. Based on the hostile threat and the air defense warning prescribed by the air division (defense) commander, prescribe the appropriate condition of readiness for each antiaircraft defended area.

k. Provide antiaircraft units for participation in air defense training exercises and maneuvers.

l. Provide necessary equipment at each Antiaircraft Operations Center to complete the radio back-up nets between Antiaircraft Operations Centers and appropriate Air Defense Command agencies, and furnish the teller personnel necessary to operate the terminals of these nets at both the Air Defense Command agencies and the Antiaircraft Operations Centers.

m. Present to the Department of the Army requirements from the Air Defense Command for support which cannot be met from resources available to the Army Antiaircraft Command.

6. RESPONSIBILITIES - GENERAL:

a. The Air Defense Command and the Army Antiaircraft Command are each responsible for exchanging with the other, at all echelons of command, intelligence data pertinent to the common mission. Intelligence estimates, plans, and annexes, prepared at any echelon of the Air Defense Command will be distributed to the appropriate echelon of Army Antiaircraft Command and serve as information thereto in the execution of the Air Defense Command and Army Antiaircraft Command missions.

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b. Administrative and logistical support for each element of the Army Antiaircraft Command will be provided by the appropriate continental Army commander. Antiaircraft units defending Air Force bases may be supported in accordance with cross-servicing agreements between appropriate Army and Air Force agencies.

7. AUTHORITY:

This agreement in no way abrogates or limits the authority or responsibility of either signatory in cases where such authority has been delegated, or responsibility fixed, by competent authority.

s/ B. W. Chidlaw
B. W. CHIDLAW
General, USAF
Air Defense Command

s/ John T. Lewis
JOHN T. LEWIS
Lieutenant General, USA
Army Antiaircraft Command

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HEADQUARTERS



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JK 410.01-3
vol. 3
July-Dec 1952

-Semi-Annual-
**HISTORICAL
REPORT**

N U M B E R
F O U R

SUPPORTING DOCUMENTS
Volume II

December 1952

Documents Nos. 17-80

**PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
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**HEADQUARTERS
AIR DEFENSE COMMAND**

**SEMI-ANNUAL HISTORICAL REPORT
1 July - 31 December 1952**

SUPPORTING DOCUMENTS

Volume II

**Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT**

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COMMAND REPORT

1952

(Reports Control Symbol CSGPO-28)

ARMY ANTIAIRCRAFT COMMAND

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CHAPTER I

INTRODUCTION

General

The 1952 Command Report of the Army Antiaircraft Command describes in considerable detail the progress made by the command in the various fields of activity during the year, the problems encountered and the solutions to these problems. It is believed that the most significant advances were achieved in the field of operational effectiveness. There were, for example, 188 more batteries on-site and ready for immediate action at the end of the year than there were at the beginning. In addition, much more effective liaison was established with the Air Defense Command, particularly in the coordination of air defense matters. The command participated in numerous air defense and command post exercises during the year, not only with the Air Defense Command, but with the Tactical and Strategic Air Command, the Navy and certain Canadian agencies. The command continued to give all possible support to the civilian component training program. During the year 45 National Guard units (battalions, groups, brigades and operations detachments) were phased out and regular army units activated in place of each. Unit training was hampered by a lack of sufficient firing ranges, and by a shortage of 120mm gun tubes and certain types of ammunition and fuzes. The most serious obstacle to the on-site deployment program was the resistance of labor organizations in certain areas. At the end of the year the conversion to fire control system M33 was 74% complete. At the end of the year plans were continuing for the most effective possible integration of the newer weapons, including the acquisition of necessary real estate in as economical a manner as possible. It is anticipated that 1953 will witness even further progress in the operational effectiveness of the command, particularly in the acquisition, correlation and assignment of hostile targets.

Organization of the Report

The narrative portion of this command report consists of twelve chapters as indicated in the preceding index and is a history of the activity during 1952 of the command and each of its principal staff sections. Where desirable for purposes of explanation or amplification, charts and graphs have been included with the narrative portion.

Attached as annexes to the report are the journals of the staff sections of this headquarters. These annexes contain details, in chronological sequence, of the day-to-day activities of each of the staff sections, throughout the year.

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CHAPTER II

ORGANIZATION

General

In the interest of efficiency and economy of operation, certain changes were effected, during 1952, in both the command structure and the tables of organization of the command. Coincident with these changes, certain units from the command were being deployed overseas and other units were being assigned the command from training centers. Although the command was larger at the end of the year than at the beginning, it was also more efficient, more compact, and more capable of effective operations.

Geographical Areas

The Army Antiaircraft Command is subdivided into three major field commands to coincide with the command structure and geographical divisions of the three Air Defense Commands. The Army Antiaircraft Command is collocated with the Air Defense Command at Colorado Springs, Colorado, and likewise Eastern, Central and Western Army Antiaircraft Commands are collocated with their respective counterparts in the Air Defense Command. At the close of the period regional boundary changes were under consideration by the Air Defense Command and this headquarters.

Reorganization of Headquarters, Army Antiaircraft Command

In an effort to obtain closer relationship with Headquarters Air Defense Command, the Commanding General, Army Antiaircraft Command proposed to the Air Defense Command that the separate AA staff section be replaced by AA officers integrated into the various Air Defense Command directorates. This proposal was accepted by the Commanding General, Air Defense Command and three officers and one warrant officer from this headquarters were integrated into Headquarters Air Defense Command: one with the Deputy for Operations, Plans and Requirements, one with the Deputy for Intelligence, one with the Deputy for Operations, Operations and Training, and one warrant officer with the Air Adjutant General. Concurrently with this change the concept was established that Headquarters, Army Antiaircraft Command would be considered as the AA staff section of the Air Defense Command. Functionally, the various staff sections of each headquarters coordinate matters at the working level with their respective counterparts. The three major field commands of the Army Antiaircraft Command have established similar staff relationships at appropriate echelons within their respective regions of responsibility. Under these concepts the separate Army Antiaircraft Command staff sections at the various echelons of the Air Defense Command were abolished on 2 June 1952.

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Chapter II (Continued)

Command Structure

The proposed command structure for this headquarters was submitted to Department of the Army in October 1952 and approved in December 1952. This approved plan deleted three groups assigned to this command and deleted three other groups and one AAA operations detachment which were programmed. Part of the revision of the command structure was started immediately in December 1952 and the resultant chain of command will be (based on programmed sixty-six battalions):

a. Eastern Army Antiaircraft Command

- (1) 5 Brigades
- (2) 10 Groups
- (3) 12 AAAODs
- (4) 2 Skysweeper Battalions
- (5) 8 120mm Battalions
- (6) 37 90mm Battalions

b. Central Army Antiaircraft Command

- (1) 2 Skysweeper Battalions

c. Western Army Antiaircraft Command

- (1) 2 Brigades
- (2) 3 Groups
- (3) 4 AAODs
- (4) 4 Skysweeper Battalions
- (5) 6 120mm Battalions
- (6) 7 90mm Battalions

In view of the large geographical area of the Eastern Army Antiaircraft Command which includes units in three continental army areas and the Military District of Washington, and in order to facilitate dealing with the continental armies on logistical and administrative support matters, these functions were delegated by Headquarters, Eastern Army Antiaircraft Command to three brigade commanders located adjacent to the head-

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Chapter II (Continued)

quarters of the First, Second and Fifth Armies. In the western area, Headquarters, Western Army Antiaircraft Command acts as the coordinating agency with Sixth Army.

Tables of Organization and Equipment

With the changes in command structure and efforts to effect a simple efficient command structure a parallel study was undertaken to tailor units of this command to the increased responsibilities to be imposed upon them but at the same time to effect the utmost savings in manpower and equipment. The study was completed and proposed T/O&Es were submitted to Army Field Forces in October 1952. T/O&Es of AAA Brigades, Groups, Operations Detachments, 120mm battalions and 90mm battalions were reviewed and personnel and materiel were reduced consistent with deployment of these units in static type, Zone of Interior defense. Approval of these T/O&Es had not been received at the end of the year, but indications were that they would be approved early in 1953. Further studies on T/O&Es of Sky-sweeper and NIKE battalions are being continued as experience with these new units is gained.

Unit Buildup

The "Operation Plan for the Antiaircraft Defense of the United States" (AA-OP-US-1-51), provides for sixty-six (66) AAA battalions for the defense of fifteen (15) gun defended areas and automatic weapons defense of Sault Ste Marie and seven (7) Strategic Air Command bases. In December 1951, there were forty-five (45) assigned battalions in this command. At the end of 1952 there were fifty-five (55) battalions assigned to the command—a net increase of ten (10) battalions during the year. Subsequent to the additions of 4 AAA Groups in January, the supervisory and control echelons of the command remained constant with 7 AAA Brigades, 16 AAA Groups and 16 AAA Operations Detachments. At the close of the year 3 AAA Group Headquarters and Headquarters Batteries were being considered for deactivation in the interests of economy in manpower.

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CHAPTER III

COMMAND RELATIONSHIPS

The Army Antiaircraft Command, including its subordinate commands and assigned Army units, is a Class II activity within the Chief of Staff Area (Field), Department of the Army Administrative Area. Direct coordination is authorized with the Department of the Army; Chief, Army Field Forces; the Commanding Generals, Continental Armies; and appropriate agencies of the United States Navy and Air Force in accomplishing responsibilities of the command.

Army forces allocated to air defense of the United States are commanded by the Commanding General, Army Antiaircraft Command. The command supports the Air Force in air defense of the United States; assists Continental Army commanders and commanders of Air Force Bases on which AA units are tenants in ground defense, domestic emergencies and disasters when such action does not compromise the accomplishment of the primary antiaircraft defense mission; and assists Naval commands from tactical antiaircraft positions in the performance of the harbor defense mission. Operational control of the engagement of hostile aircraft and missiles is exercised by elements of the Air Defense Command. Administrative and logistical support is provided by the Continental Armies.

Experience during the past two years has indicated that the command's missions can be successfully accomplished under existing command relationships. Improvements in organization and procedures are being implemented progressively with the objective of increasing efficiency and economy in operations.

During 1952, the relationship between the Army and Air Force components of the air defense system continued on a highly satisfactory plane. Through reorganization in the higher headquarters cooperation was made even more effective than during the preceding year and greater integration was achieved.

At the beginning of the year, Headquarters, Army Antiaircraft Command included a staff section located in the headquarters of the Air Defense Command. This staff section was dissolved as a separate section in June 1952. The functions of the staff section were assumed directly by appropriate section chiefs in this headquarters, each coordinating joint matters and matters in which the Army has an interest with corresponding staff sections in Headquarters, Air Defense Command. Continuous contact is maintained by the integration of three officers of the Army Antiaircraft Command into the staff of the Air Defense Command. A similar integration of Air Force officers from the headquarters of the Air Defense Command into the Army staff provides for the efficient exchange of information and thinking on air defense matters between the two services.

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Chapter III (Continued)

A similar change has been accomplished in the headquarters of the major field commands of the Army Antiaircraft Command in coordination with the respective Air Defense Force headquarters. These changes have permitted the antiaircraft commander to fulfill more effectively his responsibilities as principal advisor on antiaircraft matters to the Air Force commander he supports. In performing this responsibility, he can now use his entire headquarters as a staff section to assist him. The integration of officers into the other services' staffs insures timely initiation of staff studies on matters on which decisions must be made.

There has been no change in the manner in which Army and Air Force matters are coordinated at the Air Division (defense) - Antiaircraft Brigade and Air Defense Direction Center - Antiaircraft Operations Center levels. Coordination at these echelons is essentially operational. Closer integration during 1952 was unnecessary and in view of the programmed reorganization of the air defense system would have been premature.

During 1952, the status of Army Antiaircraft Command units in supporting the Continental Army commanders in ground defense and domestic emergency missions was clarified by Change 4 to SR 10-500-1. Previously, inconsistency existed between instructions contained in the special regulation and in DA-OP-US-1-50. Allocation of available troops to assist Continental Army commanders in these missions in accordance with mutually agreed upon plans and with additional troops when authorized by the Department of the Army had been satisfactorily coordinated with all commanders concerned. The special regulation authorized Continental Army commanders to automatically assume control of all troops in Class II activities during imminent emergencies. Under this authority, the capability of Army Antiaircraft Command units to perform their primary mission could be seriously jeopardized at a critical time. Change 4 to SR 10-500-1 permits use of antiaircraft units of this command under control of Continental Army commanders only when such employment will not compromise the primary mission of antiaircraft defense.

The present organization, responsibilities and functions of the Army Antiaircraft Command and its relationships with the other services and other Army commands is sound and workable. Organization and functions as developed now should be formalized in a basic Department of the Army publication.

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CHAPTER IV

OPERATIONS

1951 Program

The primary objective of this command has always been to place the maximum number of AAA units on-site (at tactical positions), consistent with real property acquisition and budgetary limitations. In 1951 it was determined that available funds were not sufficient to initiate a full-scale on-site program so it was necessary to compromise this objective by adapting a six-hour twenty-five percent rotation plan. This plan required that AAA units be stationed where possible at military installations within six hours travel time of on-site positions, thus utilizing existing barracks and other facilities at such installations. Where military installations were not available under this requirement and distances to existing installations too great to be acceptable, base camps were to be constructed that would be within the six-hour travel time of tactical positions. Secondly, the plan required that 25% of the tactical positions in each defense be continuously occupied through rotating those units stationed within the six-hour travel distance.

The major operational effort made in 1951 to increase the operational readiness of the command over the established six-hour 25% rotation program was an extended unilateral on-site exercise conducted during the period 28 August - 18 October 1951. This exercise differed from the periodic air defense exercises conducted jointly with the Air Defense Command primarily for testing and training purposes in that it was based upon operational requirements. These requirements were based upon favorable flying weather during that period and relatively favorable conditions for a hostile air attack. Provision was made for carrying out the 25% rotation plan into the winter by constructing winterized tent camps at 25% of the battery on-site positions at each active AA defense.

1952 Program

The operational readiness of this command that resulted from the six-hour 25% rotation program was increased three-fold in 1952. In fact, 1952 may be designated as the period during which the Army Antiaircraft Command truly became an operational command with the major part of its forces deployed and ready to meet a hostile air attack at any hour of the day or night. This significant change is best illustrated by Inclosure #1 to this chapter which graphically shows the operational status of firing batteries (other than those assigned to Strategic Air Command bases) during the year. As can be seen by Inclosure #1 the number of batteries operational on-site at tactical positions increased from 26% of assigned batteries at the beginning of the year to 89% of assigned batteries at the end of the year. The latter figure has been generally steady through the last two and a half (2½) months of the year.

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Chapter IV (Continued)

It is believed that the abandoning of the old interim station - rotation program and substituting therefore an intensive permanent on-site program marked the most significant improvement in the operational status of the command during 1952. It was recognized at the time of the change in command in April that the existing program would not be acceptable in view of prevailing conditions. It was determined that the operational readiness of the command must be increased as much as possible consistent with the capability of funds allocated to the command. A detailed study indicated that with only a small proportionate increase in expenditures all AAA units (except those allotted for the defense of Strategic Air Command bases) could be deployed permanently on site. The 100% permanent on-site program was submitted to the Department of the Army for approval.

After approval by Department of the Army of the program, provisions were made to house troops on-site in Jamesway huts where prefabricated buildings were not expected to be ready by the beginning of winter weather. Requirements for Jamesway huts had to be expanded from time to time as the construction program failed to meet expected schedules. Major delay in schedules was caused by union resistance in certain areas to erection of prefabricated buildings by troop labor. At the close of the year, construction was not complete at any of the AA defenses, but it is estimated that all contract work will be completed early in 1953 and that erection of prefabricated shelters by troop labor will be completed soon thereafter.

General Operations

With the advent of favorable flying weather and in conjunction with an increase in aircraft alert established by the Air Defense Command, a command-wide unilateral exercise was initiated 25 April for an indefinite period. All AAA units except those engaged in essential training, undergoing phase-out as National Guard units or supporting civilian component training are ordered on-site under field conditions.

Previous to the initiation of this extended on-site exercise and during the time that various methods of increasing the operational readiness of the command were being considered, the command was alerted for actual operations when the Air Defense Command (on 17 April) declared a command-wide "Air Defense Readiness," for the purpose of immediately preparing all elements of the Air Defense Command and the Army Antiaircraft Command for possible emergency deployment. It was required that maximum immediate operational readiness be attained. (A complete explanation of "Air Defense Readiness" as well as "red and yellow defense warnings" may be found in Air Defense Command Regulation 55-39, 55-40 and 55-41.) This alert was prompted by certain intelligence available to the Air Defense Command which indicated that additional precautionary measures should be taken. A listing of the major sequence of events is attached hereto as Inclosure #2 to this chapter. Upon receipt of the Air Defense Readiness by this

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Chapter IV (Continued)

headquarters, all AAA units were alerted for possible emergency movement to tactical positions and those that were deployed on-site were alerted for maximum operational readiness. A study was made concerning the actions taken by the various echelons of the command following the declaration of this Air Defense Readiness. Conclusions reached revealed that a definite need existed for more efficient emergency procedures. As a result, the alert plan for this headquarters was rewritten to make necessary allowance for any possible contingency, and plans of the major field commands were, where necessary, similarly revised.

Primarily because of strikes in the petroleum industry with attendant reduction in allowances of petroleum products to the Air Force and the Army, the command-wide unilateral exercise was terminated 8 May and the old 25% rotation policy was modified to require 50% of the firing batteries to be on-site and capable of immediate action. As previously pointed out, beginning 12 June 1952, the maximum possible number of firing batteries were required to be on-site under field conditions. Inclosure #3 to this chapter indicates the deployment of firing batteries at the end of 1952. For purposes of comparison, Inclosure #4 indicates the deployment of firing batteries at the end of 1951.

Defense of SAC Bases

The Army Antiaircraft Command is charged with providing the AA defense of seven of the Strategic Air Command bases. These bases are Limestone, Carswell, Rapid City, March, Travis, Castle and Fairchild. At the end of 1952 four (4) automatic weapons battalions were assigned to the command for this purpose and one each was designated for the defense of March, Travis, Castle and Fairchild. These battalions together with the three to be assigned will be converted to light AAA gun battalions and armed with the 75mm gun commonly referred to as the "Skysweeper."

The Air Force is charged with responsibility for providing housing and other facilities for AAA battalions assigned to Strategic Air Command bases. Since the Air Force had not completed the construction of these facilities at any of the four bases (March, Travis, Castle and Fairchild), none of the four automatic weapons battalions concerned had been permanently deployed to on-site positions at the end of the year. All of these units were required, however, to conduct a one-week on-site exercise at tactical positions at least once each quarter. Alert plans provided for rapid deployment from interim stations to on-site positions in event of emergency. Inclosure #3 indicates the interim station for each of these units. It is believed that the Air Force will complete construction of facilities for these units on the bases by early fall of 1953, and the units will then be deployed permanently on-site.

It has been anticipated that the automatic weapons battalions defending Strategic Air Command bases would be converted to Skysweepers during

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Chapter IV (Continued)

1952. Production delays, however, delayed this conversion to the extent that none of the battalions were converted during 1952, and it is now estimated that the first battalion will complete conversion by the end of June, 1953.

Exercises

Joint air defense exercises were conducted periodically with the Air Defense Command during 1952. The primary purpose of these exercises was to evaluate the defense capabilities of the air defense system and to provide maximum training of participating units against realistic techniques of air attack. These exercises usually consisted of an air defense region or air division (defense) sector with corresponding AAA units participating in the various phases of the exercise. The major exercise, "Exercise Signpost," however, held 24-28 July, was conducted on a command-wide basis. A report prepared by this headquarters on Exercise Signpost is attached hereto as Inclosure #5. Conclusions listed in this report are believed typical of all air defense exercises held during 1952. In addition to the analyses and studies made by this headquarters on air defense exercises, the Air Defense Command has published a number of reports which included sections devoted to AAA participation, and which generally substantiated the conclusions outlined.

In addition to the air defense exercises conducted jointly with the Air Defense Command, special exercises were conducted by certain elements of this command with the Tactical Air Command, the Navy and the Canadian AA Command. A complete list of the air defense exercises (and other exercises) conducted during the year is attached as Inclosure #6.

In order to test the capability of the ANAACOM tactical teletype network and in order to emphasize the importance of training in the operation of this network, two command-wide and one regional command post exercise were conducted by this headquarters during the year. In addition, major field commanders have conducted command post exercises of this nature from time to time. As a result of these exercises, the average message transmission time from AA defenses to this headquarters was reduced from approximately 20 minutes to approximately 10 minutes. This means that spot intelligence reports and fragmentary operational reports and orders may be transmitted over this network between this headquarters and each AA gun defense in a matter of minutes.

Phase-Out of National Guard Units

The phase-out of National Guard units in federal service began in April, 1952 and will continue within this command through May, 1953. At the end of 1952 27 battalions, 3 brigades, 7 groups and 8 operations detachments had been phased out with Regular Army units activated in their stead in each case. One AAA group and 6 AAA battalions remain to be phased out during 1953.

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Chapter IV (Continued)

In preparation for this phase-out program this headquarters recommended that the AAA battalions scheduled for phase-out be authorized a personnel overstrength six (6) months prior to the phase-out date in order to provide a continuously effective operational unit. This policy was approved by the Department of the Army and an overstrength of 150 was authorized each AAA battalion to be phased out. In addition, personnel in these units were stabilized to the greatest possible extent, intensified on-the-job training conducted and special school quotas were established. This headquarters prepared and the Department of the Army published a special training program, ATP 44-331, which provided for a special three-week training period for the newly activated Regular Army replacement battalions. This program included one service practice and, in addition, this headquarters required one week on-site training upon completion of the program.

In order to insure continuity of operational preparedness, this headquarters also recommended to the Department of the Army that Regular Army units be activated concurrently with the reassignment of National Guard units to the Continental Armies. This was approved and previous instructions providing for the activation of the Regular Army units concurrently or within 10 days prior to the departure of the National Guard unit for home stations was amended accordingly. Continental Armies cooperated by making National Guard units available for use by this command after reverting to Continental Army control. (The overlap in service between the phased-out National Guard unit and the newly activated Regular Army unit was also increasing materially in many cases when the Department of the Army permitted activation of the new unit as much as 30 days before release of the National Guard Unit.)

AAA Ammunition and Fuzes

The batteries of this command are required to maintain one basic load of ammunition on-site and two basic loads at nearby resupply points. It was desired that resupply points be within four hours round trip travel time from on-site positions. The Department of the Army, however, has modified this requirement to permit a greater distance when Continental Armies are unable to provide such points without construction of special facilities. Detailed ammunition requirements are contained in the Ammunition Supply Plan, Appendix 2, Annex A, AA-OP-US-1-51.

AAA fuze proportions specified initially and currently prescribed are in accordance with JB 38-4 WD and are as follows:

<u>Caliber</u>	<u>Fuze VT</u>	<u>Fuze MT</u>
120mm	65%	65%
90mm	40%	100%

Fuze proportions for 75mm ammunition have been prescribed as 55% VT and 55% PDSD.

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Chapter IV (Continued)

Although it was realized that MT fuzes were no longer considered by many as meeting AAA operational requirements, the availability of AAA fuzes was the prime consideration in the establishment of the levels listed above. Certain studies by the staff of this headquarters are continuing and it is believed that results will indicate that PD and VT fuzes are superior to MT fuzes and that PD fuzes are superior to VT fuzes against high altitude heavy bombers.

In April 1952 it was recommended to the Department of the Army that basic loads be modified as follows:

<u>Caliber</u>		<u>Fuze Proportions</u>
120mm	Now	65% VT 65% MT (no change)
	When PDSF fuze is available	40% VT 100% PDSF
90mm	Now	40% VT 100% MTSQ
	When PDSF Fuze is available	40% VT 100% PDSF

Simultaneously, and in order to provide 90mm batteries with the best available operational fuze, 90mm battalions were directed to procure MTSQ fuzes (M502) in lieu of MT fuzes (M43) authorized in basic loads. No fuze of this type is available for the 120mm gun.

In July this headquarters concurred with an OCAFF proposal that the 120mm proportions be changed to 40% VT and 10% MT to agree with the 90mm proportion and that an additional 5% of either MT or MTSQ fuzes be added for the period after PDSF fuzes became available for velocity test firings. In November, the Department of the Army prepared a draft policy letter on the subject which reduced overall percentage of fuzes in each basic load to 110% but maintained the proportions recommended by this headquarters. This headquarters concurred in the proposed policy, but recommended that each 120mm gun be authorized a special issue of 20 MT fuzes in order to increase the amount of immediately available ammunition. Reduction in the overall percentages by the Department of the Army and the requirement that 90mm guns have only 6 VT fuzed rounds in the ready ammunition reduces the firing time possible from ready ammunition to about 2 minutes. Although this would not be serious with 100% gun crews available at all times, it might result in reduced firing ability under reduced strength. No firm Department of the Army policy on fuze proportions in basic loads had been announced to this command at the end of the year.

In consideration of the tendency of VT fuzes to deteriorate when removed from the containers, this headquarters recommended to the Department of the Army in August that 120mm batteries be authorized to fuze 6

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Chapter IV (Continued)

rounds with VT fuzes as part of the ready ammunition and that 6 additional rounds be so fuzed in event of a Red or Yellow Air Defense Warning, and recommended further that as such fuzes deteriorate as a result of being removed from containers they be expended in periodic service practices, whether or not the number to be so expended exceeded service practice allowances. The Department of the Army approved this plan in September and specified that VT fuzes be expended within 6 months after removal from containers. This is the maximum time that currently issued VT fuzes may be considered satisfactory after removal from containers.

Communications

As explained in the 1951 Command Report of this command, standard commercial wire communications for gun defenses were prescribed in 1951. Details of the communications system are contained in the Communications Plan, Annex G, AA-OP-US-1-51. At the end of the year these prescribed commercial wire communications lines were installed and operational in 14 active gun defenses. The 15th active gun defense, Hanford, has Army-owned and -installed wire communications similar to the standard commercial plan. The Saulte Saint Marie defense, although defended by an automatic weapons battalion, has been authorized the commercial communications system prescribed of the battalion to Skysweepers, with an attendant change in communications requirements.

Commercial wire communications have not been authorized automatic weapons battalions assigned to the defense of Strategic Air Command Bases. A study made by the Office of the Chief Signal Officer following a conference held at The Pentagon in December 1951 recommended that, following the conversion of these battalions to Skysweepers, commercial VHF radio be adopted as the primary means of tactical communications of the Strategic Air Command base defenses. This recommendation was concurred in by this headquarters and approved by the Department of the Army early in 1952. In late April this headquarters again reviewed the tactical communications requirements for Strategic Air Command base defenses, and made investigation of the capabilities of the organic communications equipment of the Skysweeper battalions. It had been recognized, of course, that the communications problems existing in the gun defenses would not exist at the Strategic Air Command bases. Accordingly, this headquarters suspended implementation of the commercial radio back-up plan for Strategic Air Command bases pending tests of Skysweeper T/O&E communications. As a first step in determining the adequacy of T/O&E equipment, the Office of the Chief Signal Officer was requested to furnish one complete set of radios for shipment to one of the automatic weapons battalions. It is expected that this equipment will be tested at a typical Strategic Air Command base early in 1953.

The original tactical communications plan adopted in 1951 provided for the commercial wire nets in gun defenses to be backed up with T/O&E

SECRET SECURITY INFORMATION

Chapter IV (Continued)

radio equipment supplemented by fixed station type equipment at the AAOC's. The later equipment was to be provided by the Continental Armies on an individual project basis. These installations made during 1951 generally proved unsatisfactory and a special radio conference was held in the Pentagon to discuss the problem. It was determined at this conference that satisfactory radio back-up of tactical wire nets could be provided only with VHF equipment and a committee was appointed to determine the most economical plan for this command. The assistant Signal Officer of this headquarters was a member of this committee. As a result of the committee's work, the Office of the Chief Signal Officer recommended that commercial radio VHF equipment be provided and this recommendation was approved by the Department of the Army for back-up of the radar reporting and intelligence nets. Commercial radio back-up of the operational control net was disapproved because of the expense involved. Although the primary reason for failure of the original T/O&E and fixed station radio plan was in relation to the operational control net, this headquarters accepted the Department of the Army approved plan.

Detailed requirements for commercial VHF radio backup of the intelligence and radar reporting nets for all gun defenses were submitted to the Office, Chief Signal Officer by this headquarters, and a model installation was tested in the Philadelphia defense in October. (Schematic diagram is attached hereto as Inclosure #7.) This installation was approved by this headquarters subject to minor required modifications. At the end of the year engineering and installation of equipment was progressing in all gun defenses except at Los Angeles and Norfolk. The first battalions for the latter two defenses were scheduled for assignment to the command in January 1953, with the remainder scheduled to be assigned several months later.

Commercial wire communications installed in AA gun defenses have proven satisfactory. However, the installations now in use are based upon centralized control and fire direction at the AAOC with battalions or subordinate AAOC's acting as "information AAOC's only." At the end of the year an extensive study was being conducted as to the ~~validity~~ ^{effectiveness} of the centralized control and fire direction concept and to determine whether or not provisions should be made for sector control and fire direction. Should the requirement for active sector AAOC's be established, present commercial communications would have to be alerted.

The ARAACOM Tactical Teletype Network established in 1951 from this headquarters to the headquarters of the major field commands and thence to the brigades and defenses has been exercised and tested frequently. The network has proved satisfactory and is considered adequate. This network was originally established on an engineered basis to be activated for tactical traffic only in the event of an emergency. Since July, in order to maintain training of operating personnel and at the same time provide during a portion of each day a readily available means of communications in the event of emergency, the network has been activated for eight hours per night five nights each week.

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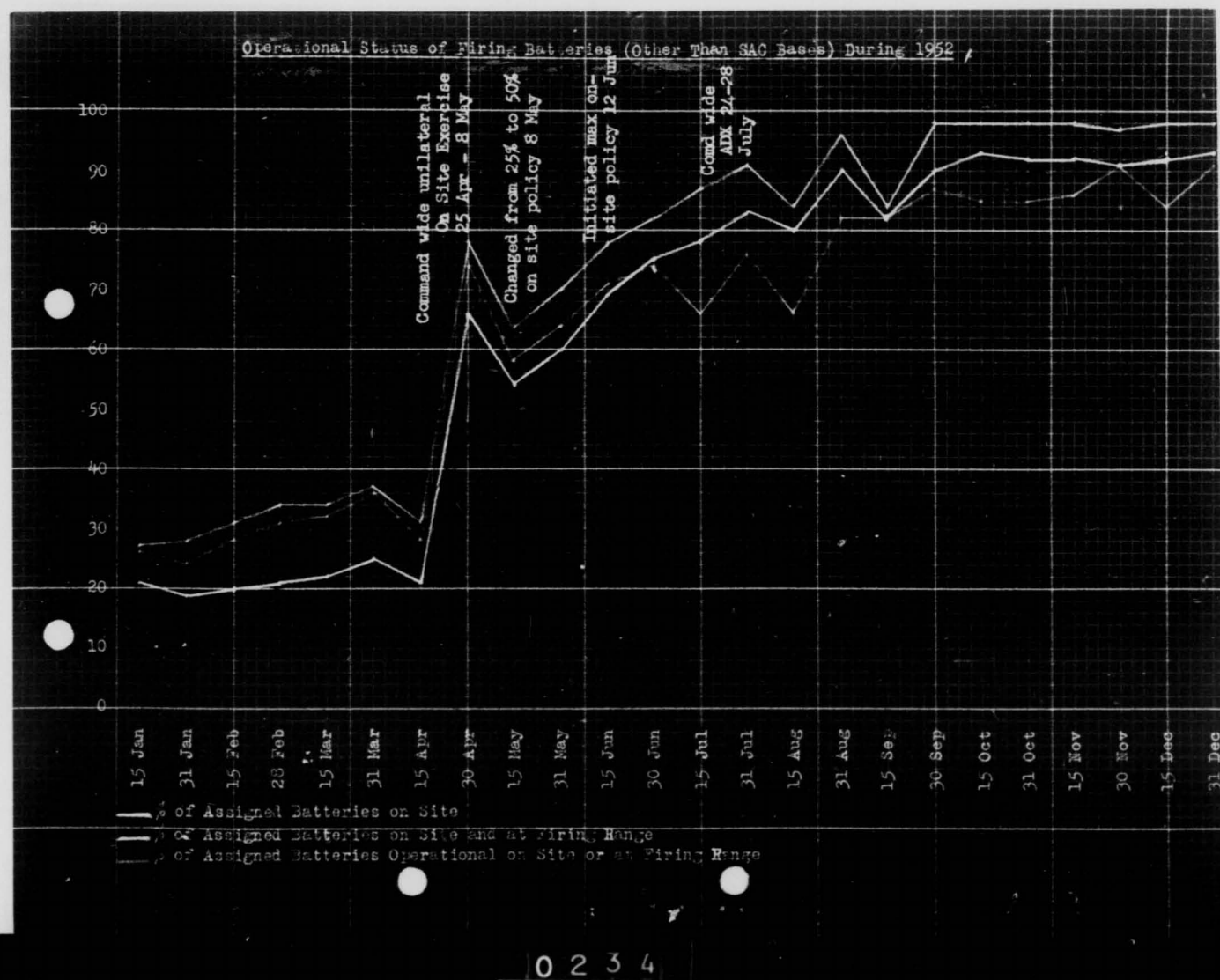
As an economy measure original plans to extend the tactical teletype net to Strategic Air Command bases have been abandoned. It is planned to obtain reduced tactical information from these defenses through ADC channels and the daily operational status of units over the Army Command and Administrative Net.

This headquarters concurred in modification of the T/M-33 van for termination of tactical commercial communications nets as tested at the New York conference on 8 May. Installations are to be made by local Ordnance field maintenance personnel as follows:

- a. Two terminations of the intelligence net.
 - (1) Early warning plotting board.
 - (2) Number 1 position at the tactical control console.
- b. Three terminations of the operational control net.
 - (1) Left front of the tactical control console.
 - (2) Extension of above to right front of the tactical control console.
 - (3) Number 3 position at the tracking console.

Field Fortifications

Field fortifications from locally improvised materials is encouraged by this command, and provision for field fortifications is made in all training schedules. Sufficient materials are authorized for training purposes and for the safeguarding of ammunition. It is believed that necessary revetments can be constructed at all positions even though no funds are allocated for this purpose. These revetments will give troops a sense of security in battle, even though it is not considered likely that any of our AAA battery sites will be the object of enemy action. Current plans envision the storage of ammunition in MA-2 type magazines at tactical sites and it is believed that allowances provided by TA 5-101 are adequate for this purpose.



SECRET SECURITY INFORMATION

Sequence of Major Events

Air Defense Readiness -17 April 1952

- a. 170558Z April 1952 - Vapor trails sighted over Nunivak Island, Alaska, by ground observer.
- b. 170725Z April 1952 - Headquarters, Air Defense Command notified by phone of above vapor trails.
- c. 170800Z April 1952 - Message confirming vapor trail report received by Headquarters, Air Defense Command.
- d. 170937Z April 1952 - Unknown aircraft sighted near Presque Isle, Maine.
170940Z April 1952
170958Z April 1952
- e. 171012Z April 1952 - Eastern Air Defense Force declared Air Defense Readiness.
- f. 171013Z April 1952 - Air Defense Command declared Air Defense Readiness.
- g. 171041Z April 1952 - Air Defense Command notified Headquarters, Army Antiaircraft Command of the Air Defense Readiness.
- h. 171116Z April 1952 - Message ADOAA-C 721 dispatched.
- i. 171240Z April 1952 - Air Defense Command terminated Air Defense Readiness except in Eastern Air Defense Force
- j. 171315Z April 1952 - Eastern Air Defense Force terminated Air Defense Readiness.
- k. 171348Z April 1952 - Message 230 ADOAA-30P dispatched.

Inclosure #2

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SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Deployment of Firing Batteries Assigned ARAACOM
31 December 1952

<u>Defended Area</u>	<u>No. Btrys Assigned</u>	<u>No. Stationed On-Site</u>	<u>No. Stationed at Interim Sta</u>	<u>Interim Station</u>
New York	40	38	2	Camp Edwards (Scheduled to move 10 Jan)
Boston	12	12		
Niagara	8	6	2	Camp Edwards (Sites not ready)
Washington	24	24		
Philadelphia	16	16		
Pittsburgh	12	12		
Baltimore	12	12		
Chicago	20	20		
Detroit	16	16		
*Sault Ste Marie	4	4		
San Francisco	12	12		
Seattle	12	12		
Hanford	16	16		
*March AFB	4		4	Camp Hahn
*Castle AFB	4		4	Camp Roberts
*Travis AFB	4		4	Ft Cronkhite
*Fairchild AFB	4		4	Geiger AFB
TOTALS	220	200	20	

* AW Battalions. All others are 90mm and 120mm gun battalions.

INCLOSURE #3

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

Deployment of Firing Batteries Assigned ARAACOM
31 December 1951

<u>Defended Area</u>	<u>No. Btrys Assigned</u>	<u>No. Stationed On-Site</u>	<u>No. Stationed at Interim Sta</u>	<u>Interim Station</u>
New York	32	2	30	Hancock, Tilden and Totten
Niagara	8		8	Edwards
Boston	12	1	11	Edwards, Banks & Devens
Washington	24		24	Meade, Myer & Belvoir
Philadelphia	4		4	Dix
Pittsburgh	4		4	IGMR
Chicago	16		16	Custer, Sheridan & McCoy
Detroit	12		12	Custer
*Sault Ste Marie	4		4	Lucas
San Francisco	8	1	7	Scott, Oakland & Cronkhite
Seattle	8		8	Lewis
Hanford	16	8	8	Camp Hanford
Sandia-Kirtland AFB	8		8	Eliss & Sandia
Los Alamos	4		4	Eliss
*Limestone AFB	4		4	Edwards
*Radip City AFB	4		4	McCoy
*Fairchild AFB	4		4	Lewis
*Travis AFB	4		4	Cronkhite
*Castle AFB	4		4	Roberts
TOTALS	180	**12	168	

* AW Battalions

** In addition to those batteries permanently on-site, 25% of those batteries stationed within 6 hours required to be maintained on-site on a rotational basis. Also, equipment was maintained on-site at Hanford & San Francisco.

Inclosure #4

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

ARMY ANTIAIRCRAFT COMMAND PARTICIPATION

IN EXERCISE "SIGNPOST"

1. This is an analysis and summation of antiaircraft artillery participation in the Air Defense Exercise "Signpost." An overall analysis of the entire air defense system based on this exercise is contained in a report prepared by the Air Defense Command.

2. Exercise "Signpost" was a nation-wide joint Strategic Air Command-Air Defense Command exercise covering the period 19-28 July 1952. Strategic Air Command participation consisted of three (3) days of strike activity as follows:

Prestrike reconnaissance	E-day	24 July 52
Main strike	E-3 days	27 July 52
Bomb damage assessment	E-4 days	28 July 52

3. Elements of the Army Antiaircraft Command participated in this exercise as the Army component of the air defense system. Observers were sent from this headquarters, augmented by observers detailed from the major field commands. Antiaircraft defended areas covered by these special observers were Boston, New York, Chicago, Detroit, Pittsburgh, Baltimore, Washington, Philadelphia, Seattle and San Francisco. The information contained herein on these areas has been obtained from the special observer reports and from reports submitted by the major field commands. The information contained in this report on the other antiaircraft defended areas has been obtained from the reports submitted by major field commands.

4. Antiaircraft units participated in this exercise to the maximum extent possible. Those units engaged in target practice, supporting civilian component training, or conducting special training programs following National Guard phase-out were the only units that did not participate. All antiaircraft defenses to which units have been assigned were active except for Niagara and March Air Force Base. Units assigned to the Niagara defense participated in a simulated defense established near Camp Edwards, Massachusetts. The 466th Battalion, assigned to the defense of March Air Force Base, was participating in scheduled range firing during the exercise. An average of 187 firing batteries were in tactical positions each day, with an average of 138 operational. See Annex 1.

5. The Strategic Air Command made sixty-four (64) exercises strikes within the air defense system from E-day through E-4 days. Twenty-five (25) of these strikes penetrated antiaircraft defended areas and were passed to Antiaircraft Operations Centers, five (5) of which were successfully engaged by antiaircraft units. Of the twenty (20) strikes unsuccessfully engaged, the chief factors influencing the engagement, in order of importance, were: late or no identification; extreme altitudes; saturated, or nearly saturated, defenses; electronic counter measures (Chaff); and faulty Antiaircraft Operations Center procedures. Antiaircraft action for

SECRET SECURITY INFORMATION

Army Antiaircraft Command Participation in Exercise "Signpost".

the entire period resulted in a computed 6.14 aircraft theoretically destroyed. Of the remaining thirty-nine (39) exercise strikes, thirty-three (33) did not enter antiaircraft defended areas and six (6) were not passed to Antiaircraft Operations Centers. For detailed results see Annex 2. Resume is as follows:

<u>No. of Strikes</u>	<u>No. of Aircraft</u>	
39	84	Did not enter AA defended areas or were not passed to AAOC
9	37	Late or no identification
7	27	Faded prior to AA radar range
5	11	Successfully engaged
1	20	Extreme altitude
1	5	ECM (Chaff)
1	2	Saturated defense
1	1	Faulty AAOC procedures
<u>64</u>	<u>187</u>	

6. Determination of antiaircraft "kills" has been made in accordance with Circular Number 6, this headquarters, 14 April 1952. This method is based on the accumulative probability of the individual weapon using actual fuze ranged computed by the director and number of rounds of simulated fire during each engagement. It is realized that this system provides only an approximately appraisal of effectiveness, but since the system is reasonably accurate and provides a relatively simple method of calculation, it is considered to be the most practicable system of evaluation available.

7. As indicated in paragraph 5 above, the most serious obstacle to effective utilization of antiaircraft artillery is in the field of identification and early warning. So long as antiaircraft defenses are restricted to "Guns Tight," targets must be identified "Hostile" (FAKER) before antiaircraft artillery may engage. Also, identification must be sufficiently early to permit proper acquisition and effective engagement before bomb release line. This problem is further aggravated during an exercise of this type when considerable numbers of "Unknowns" are continuously present in the large metropolitan areas. Acquisition of designated FAKER tracks by antiaircraft radars is rendered increasingly difficult when this extraneous traffic is heavy.

8. The next most serious problem to consider is the great number of track "fades" before entering maximum antiaircraft radar range. Again, this is most important when antiaircraft artillery is under "Guns Tight" and must positively correlate the plot being tracked with the one (1) identified as "Hostile" (FAKER). Dead reckoning tracks from the point of "lost contact" into antiaircraft radar range is not sufficiently reliable

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Army Antiaircraft Command Participation in Exercise "Signpost"

to distinguish designated aircraft from other aircraft in the immediate vicinity. No positive assurance exists as to whether the track acquired by antiaircraft radars is the same track as that originally designated as "Hostile" (FAKER).

9. It is also noted that on several occasions the number of tracks being carried and plotted at the Antiaircraft Operations Center approached, or exceeded, the optimum capability of the system. These tracks included a great number of "Unknowns" common to areas of heavy traffic, fighter aircraft, and "Unknowns" which were eventually identified as "FAKER". Unacceptable delays and confusion in telling, control and acquisition of targets were the result. In several cases, major portions of the defense were dissipated on a multiplicity of "Unknown" tracks, leaving a small proportionate share of available fire units for the single "Unknown" track that proved to be a strike aircraft.

10. The altitude at which many of these strikes were flown exceeded, or closely approached, the altitude capabilities of antiaircraft weapons. These extreme altitudes either prevented engagement or severely limited the effectiveness of antiaircraft artillery batteries.

11. Excessive equipment failures occurred throughout the exercise. Of an average number of 187 firing batteries on-site, 138 were continuously operational. This is an average reduction in unit fire power of 26 per cent and appears to be unacceptable.

12. Although the tactical wire communications within each defended area appear to be adequate, there is an indication that the two (2) lines between the Air Defense Direction Centers and Antiaircraft Operations Centers can be saturated during periods of heavy traffic. Using one of these lines for telling operations and one for command and liaison results in too great an interval between successive plots on each track.

13. Conclusions:

- a. The effectiveness obtained by antiaircraft artillery in exercise "Signpost" is unacceptable and must be materially improved.
- b. Early warning, identification and track fades prior to entering antiaircraft radar range are the most important problems to be resolved.
- c. Equipment failures are excessive.
- d. With the possible exception of telling circuits between the Air Defense Direction Centers and the Antiaircraft Operations Centers, tactical wire communications within antiaircraft defended areas appear to be adequate.

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Army Antiaircraft Command Participation in Exercise "Signpost"

e. Integration of antiaircraft artillery into the air defense system is not complete in that coordinated action between Air Defense Direction Centers and Antiaircraft Operations Centers has not been fully developed.

f. Miscellaneous air traffic over antiaircraft defended areas is usually excessive and results in unrealistic conditions during an air defense exercise.

14. Current Remedial Actions:

a. The current program for the integration of the AN/TPS-1D radar into the aircraft control warning system will, for a large part, alleviate the problem of tracks fading prior to entering antiaircraft radar range and should contribute to early warning capabilities of the air defense system.

b. The proposed Air Defense Command plan for the security control of air traffic (SCAT) and the designation of antiaircraft defended areas as Inner Air Defense Identification Zones will greatly reduce air traffic over antiaircraft defended areas and materially increase the effectiveness of antiaircraft artillery.

c. The final development and adoption of automatic data transmission systems and of target evaluation and assignment systems will provide more accurate and timely intelligence to the firing batteries and more efficient control of fire units.

d. The current program for the development of increased effectiveness of the antiaircraft weapons family, particularly of guided missiles, will provide weapons capable of combating increased bomber speed and altitude capabilities.

15. Recommendations:

a. Procedures must be developed and policies adopted on the integration of the AN/TPS-1D radar set into the aircraft control and warning system and utilization of their surveillance and increased acquisition range capabilities, not only to perform their antiaircraft mission, but also to serve as gap fillers where required, and to carry targets which have faded from adjoining aircraft control and warning radars.

b. Plans for the establishment of Inner Air Defense Identification Zones must be completed, including provisions for implementation concurrent with Air Defense Command plans for security control of air traffic (SCAT) in the event of an emergency.

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Army Antiaircraft Command Participation in Exercise "Signpost"

c. Saturation point of communication facilities between Air Defense Direction Centers and Antiaircraft Operations Centers must be determined and, where required, additional facilities provided. In addition, a more effective and accurate method of intelligence transmission must be developed to replace the limited manual voice system now used.

d. Continued effort must be made on development and determination of the most effective tactical fire control procedures. Consideration should be given to decentralizing tactical fire control to the battalion level.

e. Serious consideration should be given to establishing authorization for liaison detachments at Air Defense Direction Centers. Proper authorization of these detachments and permanent assignment of personnel thereto will increase their status of training and will eliminate the present rotation system generally used. At the same time, units already operating under reduced T/O&E will be relieved of this burden.

FOR THE COMMANDING GENERAL:

/s/ John T. Snodgrass
/t/ JOHN T. SNODGRASS
Colonel GS
Chief of Staff

DISTRIBUTION: D & F

SECRET SECURITY INFORMATION

SECRET - SECURITY INFORMATION

ARAACOM PARTICIPATION
OPERATION "SIGNPOST"

Defended Area	No. of Btrys Asgd	Average Participating		Not Participating	
		No. of Btrys Opnl	Not Opnl	No. of Btrys	Reason
EASTARAACOM					
Wash, DC	24	16	8		
Baltimore	12	8	3	1	Civ. Comp. Tng.
New York	40	25	9	6	Firing Range
Phila.	16	7	9		
Pittsburgh	12	10	2		
Boston	12	10	1	1	Site not accessible
Cp Edwards	12	4		8	Firing Range
Chicago	20	13	4	3	Phase-out Tng.
Detroit	16	4	6	6	Civ. Comp. Tng. & Range
SS Marie	4	2		2	Civ. Comp. Tng.
Limestone	4			4	Prep o/s duty
EASTARAACOM					
TOTAL...	172	99	42	31	
WESTARAACOM					
Seattle	12	10	2		
Handord	16	9	5	2	Firing Range
Larson AFB	4	4			
San Fran	12	8		4	Civ. Comp. Tng.
Travis AFB	4	4			
Castle AFB	4	4			
March AFB	4			4	Firing Range
WESTARAACOM					
TOTAL...	56	39	7	10	

TOTAL ARAACOM 228 138 49 41
 No. of btrys, by weapon caliber, on-site: Of the average of 187 batteries on-site during the exercise, this total may be divided into weapons type as follows:

Caliber	No. of Btrys on-site	% of Total Btrys on-site
40mm	14	7
90mm	125	67
120mm	48	26

Annex 1

SECRET SECURITY INFORMATION

ANTI-AIRCRAFT ENGAGEMENT RESULTS

E-Day

Mission No.	Target	Bombers Committed	No. of Batteries Acquiring	No. of Batteries Engaging	Kill	Remarks
1.	Chicago	1	-	-	-	Not told
2.	Detroit	1	-	-	-	Fade
3.	New York	1	-	-	-	Late identification
4.	Phila	1	-	-	-	Not told
5.	Wash	1	-	-	-	Late identification
6.	Pitts	1	-	-	-	Fade
7.	Chicago	1	-	-	-	Not told
8.	Detroit	1	3	1	0.48	
9.	Seattle	1	1	1	0.10	Saturation and extreme alt
12.	SFran	2	4	2	0.20	2 tracks; 1 not identified - extreme altitude
13.	Seattle	1	8	2	1.00	
16.	SFran	1	3	1	0.87	
Total E-Day		13			2.65	

Annex 2

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ANTI-AIRCRAFT ENGAGEMENT RESULTS

E / 3

Mission M No.	Target	Bombers Committed	No. of Batteries Acquiring	No. of Batteries Engaging	Kill	Remarks
17.	Detroit	19	2	1	0.08	Late identification extreme altitude
18.	Chicago	20	8	3	1.23	Extreme altitude
19.	New York	6	4	2	0	Late identification and saturation
20.	Phila	6	-	-	-	Fade
21.	Wash	4	7	0	-	Late identification
22.	Pitts	5	5	0	-	ECM (Chaff)
23.	Cancelled					
24.	Boston	3	4	3	.48	
25.	Phila	8	-	-	-	Diversiory. Out of range.
26.	Wash	6	-	-	-	Diversiory. Out of range.
27.	New York	6	5	-	-	Diversiory. Out of range.
32.	S Fran	6	-	-	-	Fade
33.	Seattle	5	6	2	.50	3 tracks; 1 not identified - satur- ation, extreme altitude
36.	S Fran	9	-	-	-	Fade
37.	Seattle	7	-	-	-	Diversiory. Out of range.
Total E / 3		110			2.29	

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ANTI-AIRCRAFT ENGAGEMENT RESULTS

E / 4

Mission No.	Target	Bombers Committed	No. of Batteries Acquiring	No. of Batteries Engaging	Kill	Remarks
43.	Chicago	2	9	0	-	Late identification
44.	Detroit	2	1	0	-	1 - faded; 1 - no identification
45.	Pitts	2	6	0	-	1 - not told; 1 - no identification
49.	Baltimore	1	4	0	-	AAOC procedure; extreme altitude
50.	Boston	1	-	-	-	Out of range
52.	New York	1	12	2	1.0	
53.	Phila	3	-	-	-	2 - not told; 1 - fade
54.	Wash	1	-	-	-	Not told
55.	Seattle	1	10	1	0.1	Late identification - extreme altitude
58.	SFran	2	5	1	0.1	Fade; extreme altitude
Total E / 4		16			1.20	
Grand Total for Exercise		139			6.14	

SECRET SECURITY INFORMATION

<u>Period</u>	<u>Designation</u>	<u>Participants</u>	<u>Number of AA Units Participating</u>
8-10 Jan 52	Bluebird	WESTARAACOM and WADF	8 Gun Bns 3 AW Bns 3 gun defenses 3 simulated SAC basis
29-30 Jan 52	Greenhorn	EASTARAACOM and EADF	24 Gun Bns 1 AW Bn 8 Gun defenses 1 AW defense
19 Feb-21 Mar	TAC Tng Ex	TAC & EASTARAACOM	12 gun Bns 3 Gun defenses
25 Apr - 8 May	Command Uni- lateral Ex	All of ARAACOM	Avg 31 Gun Bns 6 AW Bns 11 gun defenses 6 AW defenses
24-28 July	Signpost	ADC & AR- AACOM	Avg of 43 Gun Bns 4 AW Bns at 12 Gun defense 4 AW defenses
6-8 Aug	26 Air Div ADX	26 AirDiv & NY and Phila	
10 Aug - 21 Sep	Mallard Duck	Soo defense & Canadian AA Command	1 AW Bn 1 Composite AA Canadian Btry
27 Oct - 1 Nov	Navy ADX	EADF - Navy	23 Bns 5 defenses
10 -- Dec	Turkey Run	EADF - EASTARAACOM	29 Bns (gun) at 7 def areas 26th & 32d Air Div

INCLOSURE #6

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CHAPTER V

TRAINING

General Training

The most significant change in the specific training mission of this command during 1952 was the modification of the training mission insofar as qualification of units for combat service overseas with field armies is concerned. During the latter part of 1952, on the recommendations of this headquarters, certain units were designated as "Special category AAA Units." (Actually the final action was not completed until 5 January 1953, but the matter is believed properly discussed herein.) Subsequent to this designation only certain specified units will be required to undergo training for combat service overseas. The reason for this modification in the training mission is primarily the non-availability of adequate maneuver areas and ground firing ranges in close proximity to established defenses. Also a valid consideration is the fact that these organizations cannot be spared from their defense missions for this type of off-site training. It is anticipated that sufficient time would be available after M-Day to conduct refresher training in event that additional units were required for overseas service. The special category units designated within this Command:

19th AAA Group
 30th AAA Group
 12th AAA Gun Battalion
 16th AAA Gun Battalion
 20th AAA Gun Battalion
 70th AAA Gun Battalion
 10th AW Battalion
 466th AW Battalion

The remaining objectives of our training mission remain the same:

- a. To develop and maintain units capable of operating effectively from on-site positions.
- b. To maintain firing effectiveness through the conduct of frequent service practices.
- c. To constantly improve tactical procedures.

Several changes have similarly taken place in the training conducted by units in training centers and the post-cycle training conducted under Army Training Program was the adoption of a concentrated four-week unit training program designed to facilitate assignment of units to this command at an earlier date than was in practice previously. Army Training Programs earlier date than was in practice previously. Army Training Programs 44-312 and 44-313 reflect these concentrated unit training programs for,

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Chapter V (Continued)

respectively, gun and automatic weapons units. Under these programs, units will be assigned to the Army Antiaircraft Command after (20) weeks of training in antiaircraft artillery training centers as follows: Eight (8) weeks of basic combat training; eight (8) weeks of advanced individual training; and four (4) weeks of concentrated unit training. Subsequent to assignment to the Army Antiaircraft Command, but prior to commencement of post-cycle training, the remainder of ATPs 44-310 and 44-302, for, respectively, gun and automatic weapons units, will be accomplished at on-site positions.

An Army training program, designated as Army Training Program 44-311, is designated as a refresher training course for units activated in the field to replace phased-out National Guard units when personnel losses, as a result of the phase-out, are sufficiently large to preclude the continuation of post-cycle training from the point achieved by the predecessor unit.

The post-cycle training program is designed to enable units that have completed Army training programs to attain and maintain a high-level of training. The subjects, policies and minimum requirements have been established by the Chief, Army Field Forces.

Although no actual conversions were made during 1952, plans were made for the conversion training of certain gun units to guided missile battalions and automatic weapons battalions to Skysweepers. Plans were similarly made for the troop testing of Skysweeper equipment by one battalion of this command. The conversion, issuance of equipment, and training of this one test battalion will be accomplished during calendar year 1953.

One means of maintaining the capability of units to operate effectively from their on-site position is the conduct of unilateral air defense training exercises and participation in joint air defense exercises. The participation of this command in exercises of this nature is discussed, in considerable detail, in the preceding chapter.

In order to insure accomplishment of the training objective of maintaining and improving the firing efficiency of units through frequent target practices each battalion is required to conduct three (3) antiaircraft service practices annually. Since service practices are relatively accurate tests of a unit's ability to perform its mission, the conduct of service practices is believed to be one of the most important phases of training. The command did not have sufficient firing ranges available at the end of the year for this important training. Efforts were being made to increase the number of firing ranges available to the Eastern Army Antiaircraft Command units from six (6) to eleven (11). Although the ranges in the Western Army Antiaircraft Command area are not at suitable distances from certain established defenses, the capacity of these ranges is adequate to the needs of the command. Attached Inclosure #1 to this chapter shows how this command met the requirements of three (3) record service practices per year during 1952.

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In order to fully utilize the ranges presently available, this headquarters has taken the following action:

- a. Directed year-round use of available ranges to include winter service practices for as many units as possible.
- b. Initiated action to secure certain major items of common equipment (e.g., 90mm and 120mm guns, fire direction equipment) to be permanently stationed at those firing ranges where the firing is heaviest. Approval of this course of action has been obtained, and efforts are now being made to obtain the necessary equipment. This action will reduce the total target practice time for each unit, eliminate many highway movement problems, reduce the inherent wear and tear on equipment, and effect a major savings in heavy equipment rail movement costs. For example, to move a 120mm battalion from Seattle, Washington, to the Yakima firing range and return, a round-trip distance of approximately 286 miles, currently costs approximately \$20,000. On the other hand, to move battalion personnel and light equipment only the same distance by organic transportation costs approximately \$3,000. Acquisition of adequate firing ranges does continue to be a problem, in spite of the assistance rendered by Department of the Army, and the Office, Chief of Army Field Forces. Inclosure #2 shows the status of actual and proposed ranges as of 31 December 1952.

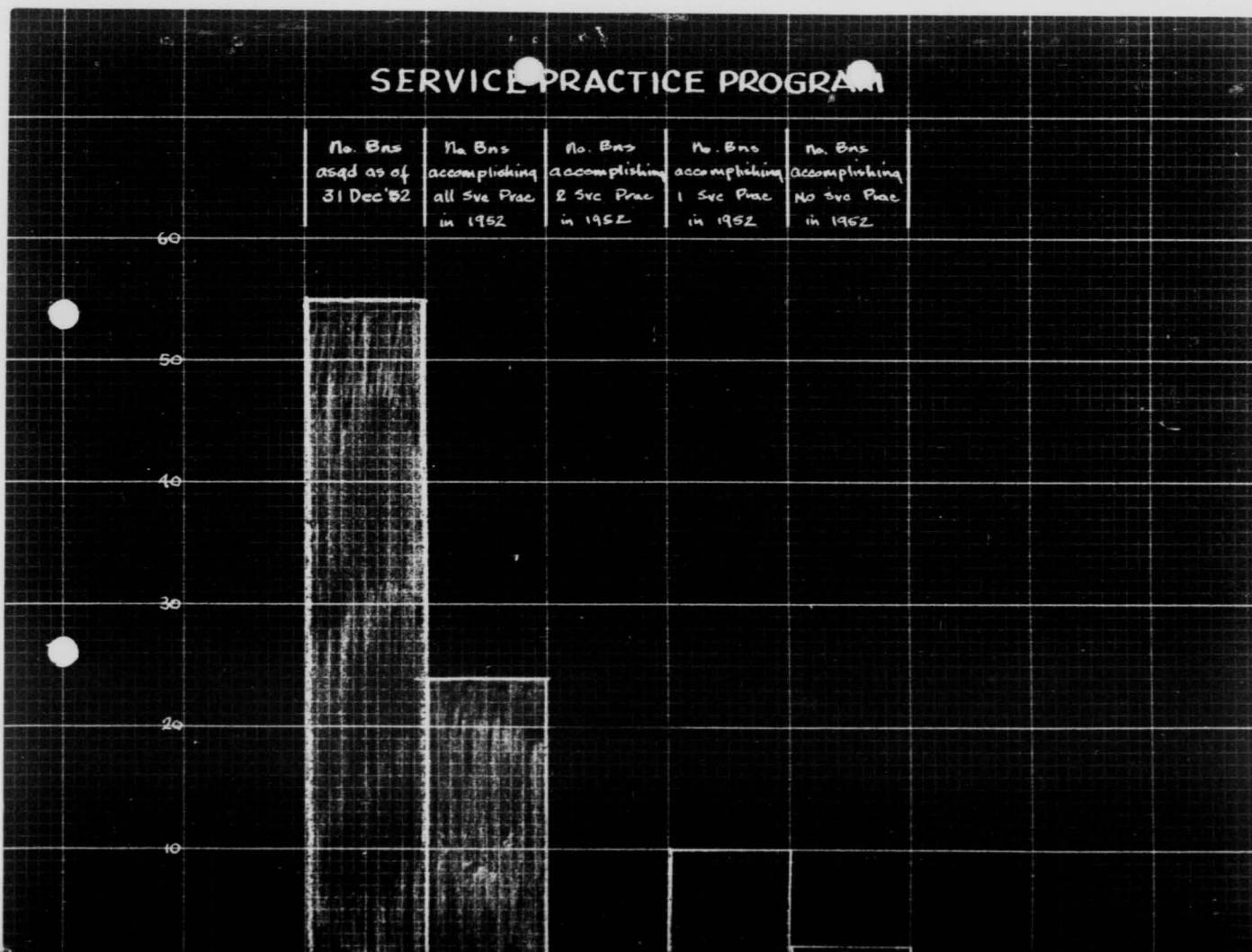
Due to the continued shortage of 120mm gun tubes, the command adopted an arrangement known as "staggered" firing in order to accomplish the requisite training and still fulfill the assigned mission of the 120mm battalions.

A number of significant changes took place in the towing and tracking training accomplished by elements of the command during the year. Tow target squadrons assigned to the Tactical Air Command and supporting units of this command are presently equipped with aircraft capable of flying high altitude (over 18,000 feet) missions. This increased capability added materially to the realism of training. Significant progress was made in the training on electronic countermeasures. Also adding to the value and realism in training was the acquisition of the OQ-19B drone aircraft with automatic pilot. Although the command has not yet had sufficient time to accurately assay the performance it appears that it will be a valuable adjunct to our training program.

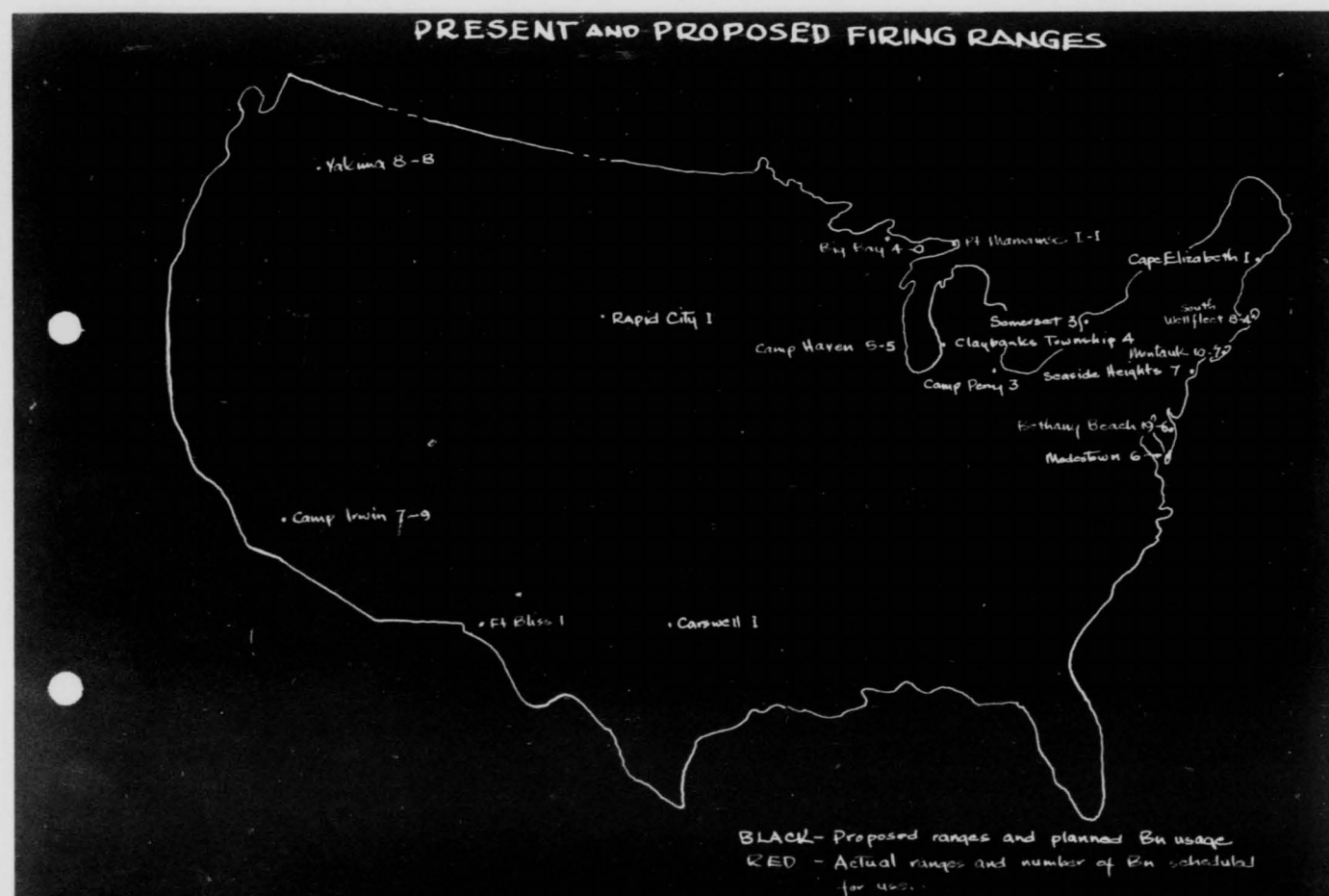
Our third objective of improving tactical procedures is being accomplished from a training standpoint primarily through tactical exercises and air defense exercises, discussed in detail elsewhere in this report. In all such exercises, perfection of procedures is emphasized, and improvements are continually being made, particularly in joint procedures and operational techniques used in the ADECs and AAOCs. This is especially important in the mutual transfer of early warning information and tracking plots by antiaircraft and Air Force agencies.

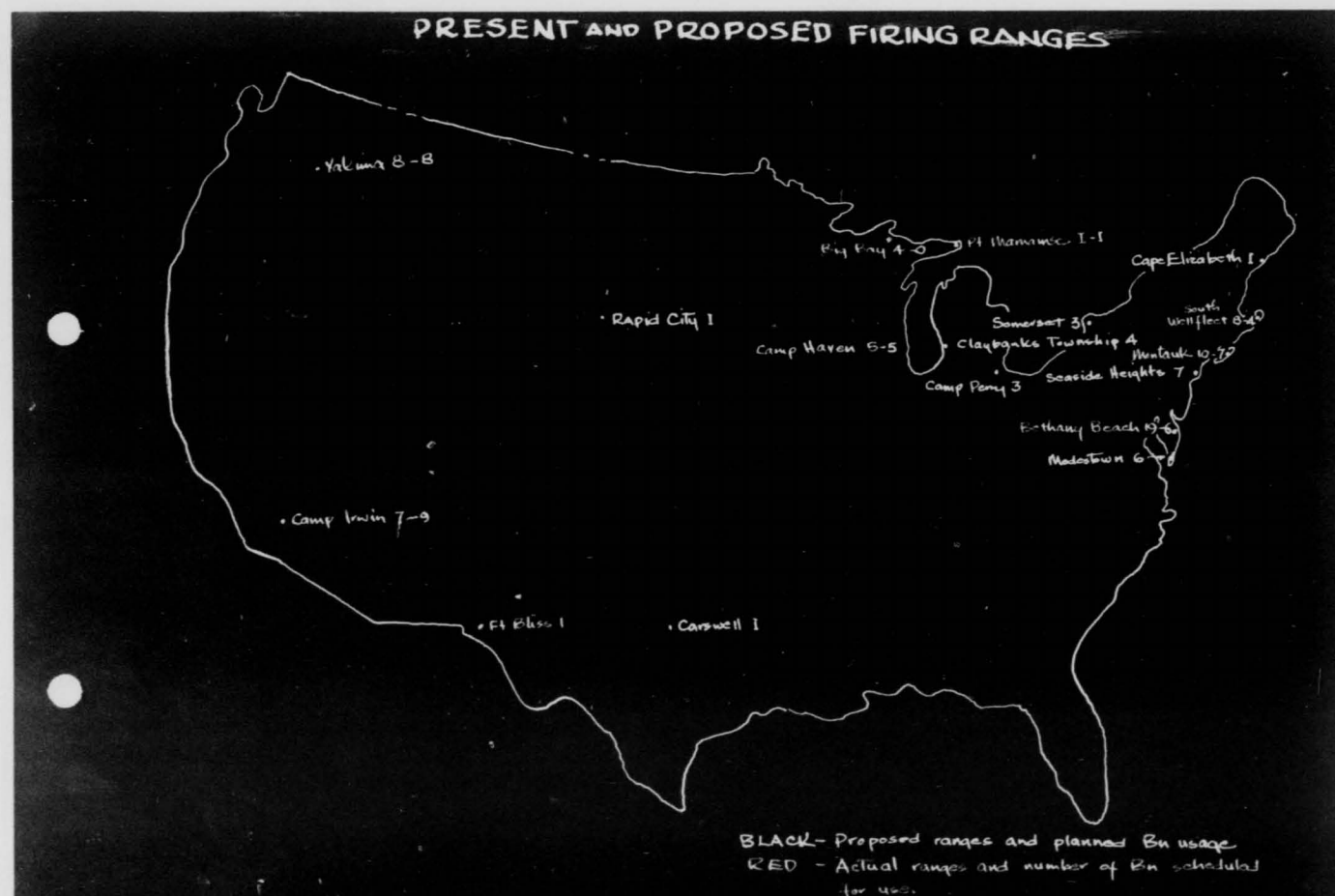
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Maximum possible support was given the civilian component summer training program by units of this command. Generally this support consisted of the following: a. The provision of instruction teams and certain materiel for off-site instruction; b. Support of firing activities at range facilities used by this command; c. The provision of support for civilian component operations detachments, groups and brigades on a host-guest basis alongside defense supervisory units of this command.

Special Training

This command participated to the maximum possible extent in the service school program. The participation of this command is similar to that of any other major field command with the exception that prior to 1 July 1952 funds were procured through the Continental Armies as a matter of administrative support. After 1 July 1952, funds were allocated directly to this command. Quota requests are received from the major field commands and after approval by this headquarters, are consolidated and forwarded for action to the Office, Chief of Army Field Forces. The approved quotas from Army Field Forces are, in turn, sent back through channels to the requesting unit. Certain controlled quotas for courses not originating as a result of requests from subordinate commands are similarly forwarded through command channels to the field commands.

One of the major training problems encountered during 1952 was the excessive loss of school trained personnel in all specialties through normal attrition. This problem has been partially countered by diverting qualified personnel from Continental Army pipeline sources to appropriate specialist schools. In the case of specialized training for NIKE conversion, the source of students has been almost exclusively from such pipeline sources; this command has, however, provided students for certain short-term courses.

By the end of 1952, the scheduled phase-out of National Guard units was 76% completed and it was anticipated that the program would be completed by mid 1953. Close training supervision was maintained to insure that adequate numbers of school trained specialists were available for the activation of Regular Army units.

As a supplement to the Army school program, Army Antiaircraft Command units have established unit schools for the training of enlisted specialists in radion, radar (SCR 584), directors (M9 and M10), and AAA FCS M33. (Firing battery range officers also attend certain schools.) Preliminary arrangements were also made for the early training of organic instruction teams to augment instruction in gunnery and materiel at firing ranges and on-site positions. In addition, a program of instruction for the cross-training with appropriate Air Force agencies has been in effect throughout the year. This program involves the indoctrination of Air Force personnel in antiaircraft procedures and vice versa. Similarly, cross training has been effected with appropriate Naval agencies.

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The conversion to M/T33 fire control systems was 74% complete by the end of 1952. The research missions undertaken by a test battery on the east coast and one on the west coast were completed during the year. Much valuable information was obtained as a result of the work done by these test batteries. Results of all tests were forwarded to appropriate sections of the Department of the Army; Office, Chief of Army Field Forces; and the AAA and the GM Center, Fort Bliss, Texas. Subsequent analysis of test reports will result in numerous changes in procedures and techniques.

The requirement that Army training tests be administered annually to units undergoing post-cycle training remained in effect throughout the year, with certain modifications approved by the Office, Chief of Army Field Forces. The most significant modification was the elimination of the requirement for the administration of the tactical phase of Army training tests to those units not designated as special category AAA units. As a result, only the portion of the tests which can be accomplished on-site will be administered to the bulk of the Army Antiaircraft Command units. Army Training Test 44-5, for antiaircraft artillery groups and brigades is currently undergoing revision at this headquarters to adapt the tests to units engaged in the active air defense of the continental United States. Publication of this revision, applicable to Army Antiaircraft Command groups and brigades only, will be accomplished early in 1953.

As a result of advanced developments in the field of electronic countermeasures, emphasis was placed on this phase of training. In addition to flying ECM and chaff missions, Air Force personnel conducted ground instructions for units of this command. Plans were made during the latter part of 1952 for the implementation of a considerably amplified ECM program during the calendar year 1953. To provide greater realism in training, this headquarters requested that action be taken to provide high-speed, jet-powered aircraft for certain towing and tracking missions. It was subsequently determined that each Tow Target Squadron supporting this command was being equipped with four (4) B-45 jet bombers for this purpose.

As directed by the Department of the Army and the Office, Chief of Army Field Forces, additional emphasis was placed on training in small unit tactics and the triangular concept; mine warfare training; chemical, biological and radiological warfare, and physical conditioning. In accordance with Department of the Army policy, continued emphasis was placed on supply economy and on troop information and education.

Inspections

A complete revision in the inspection procedures of this headquarters resulted in the modification of formal command inspections as previously conducted. The tendency in the revised system was toward frequent, informal

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inspections by the Commanding General, Army Antiaircraft Command and members of his staff. Toward this end, inspections were designed to:

- a. Determine the degree at which standards are attained in the fields of personnel and administration, training and operational readiness, security and intelligence, and logistics in order that the effectiveness of units can be constantly evaluated.
- b. Correct, by on-the-spot instruction, improper procedures detected.
- c. Insure that policies and directives from this and higher echelons of command are being executed.
- d. Ascertain the existence of problems that are beyond the capabilities of the local commanders to resolve.

To further enhance the value of the inspection system, a follow-up system was established. Its purpose is to establish, under centralized control, a means for more effective utilization of information contained in the inspection reports. The establishment of similar follow-up systems was prescribed for subordinate headquarters.

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CHAPTER VI

PLANNING

General

Planning activities of Headquarters, Army Antiaircraft Command are based on the assigned missions of the command. To insure that all missions receive timely and adequate action, a planning program was established in January containing a subprogram for each major activity of the headquarters. The purpose and scope of each planning activity is defined and actions to be taken are programmed to establish progressive objectives. The program is monitored by the Assistant Chief of Staff, G3, with the appropriate staff section of the headquarters being responsible for planning activities within respective fields of interest. The planning committee, consisting of the Chief of Staff and the four Assistant Chiefs of Staff, meets monthly or on call of G3 to review and evaluate the actions taken, prescribe future actions and provide planning guidance under command policies for courses of action to be followed. Planning activities fall generally into six categories:

- (1) Analysis of directives by higher authority including the Joint Chiefs of Staff, and Departments of the Army, Air Force and Navy pertaining to Air Defense.
- (2) Publication of the Antiaircraft Operation Plan for Defense of United States with changes to keep it current and preparation of other directives to subordinate echelons for development of detailed tactical and operation plans.
- (3) Advise and coordinate with the Air Defense Command on anti-aircraft planning matters.
- (4) Coordinate with the Continental Armies, Department of the Navy and Defense agencies other than the Air Force.
- (5) Utilization of present means for antiaircraft defense and plan for employment of new weapons.
- (6) Prepare estimates of future requirements based on intelligence surveys, production programs and resources of manpower and economy.

Under the foregoing concepts major planning programs during 1952 were concerned with employment of new weapons, (NIKE I and Skysweeper), utilization of National Guard AAA units, Canadian border defenses and requirements for antiaircraft defense.

Surface-To-Air Missiles

The surface-to-air missile planning by the Army Antiaircraft Command during 1952 was principally directed toward determining the requirements

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which must be met in emplacing surface-to-air missile battalions and integrating them into the air defense system of the Continental United States. In February, the Army Antiaircraft Command's recommendation for the initial deployment of surface-to-air missiles was resubmitted to the Department of the Army. Pending Department of the Army approval of this plan, a conference with representatives of the major field commands was held to discuss the available information on surface-to-air missiles and to initiate preliminary planning for missile utilization by the major field commands.

Because of the differences of opinion as to the concepts, or lack of concepts, on the use of guided missiles by the Department of the Army, Army Field Forces, Antiaircraft and Guided Missile Center, the contractor and this command, particularly with respect to areas required for missile sites, safety factors and range requirements, we recommended to the Department of the Army that conference be held at which representatives of the interested agencies could resolve the problems so that plans could be finalized. As a result, an Ad Hoc committee on surface-to-air missile real estate requirements met at Army Field Forces on 7-10 April 1952, with representatives from Army Field Forces; G3 and G4, Department of the Army; Army Antiaircraft Command; Antiaircraft and Guided Missile Center; Office, Chief of Ordnance; Office, Chief Chemical Officer; Office, Chief Signal Officer; and Office, Chief of Engineers. Recommendations concerning minimum distances between various facilities within battery control areas, battery launching areas and battalion missile assembly areas, as well as safety distances to civilian installations, were formulated. These recommendations resulted in area requirements of 8 acres per battery control area, 119 acres for battery launching area and 200 acres for battalion missile assembly area.

In April, the Department of the Army approved, with some modification, the recommendations made by the Army Antiaircraft Command in February concerning allocation of surface-to-air missile battalions to defended areas. As a result, the Army Antiaircraft Command is planning for the utilization of 32 NINE surface-to-air missile battalions in the defense of the 14 areas in the United States. The TERRIER surface-to-air missile which had previously been scheduled for use by this command was dropped from the Army program for tactical reasons.

On 3 July 1952, the Department of the Army approved the recommendations of the Ad Hoc committee on surface-to-air missile real estate requirements. As a result, a preliminary site survey was conducted in the Washington-Baltimore area during the last week of July and the first week of August by representatives of this headquarters, Eastern Army Antiaircraft Command and the Antiaircraft and Guided Missile Center, with part-time assistance from contractor representatives and the Washington district engineers. It was found that it would be possible to locate sites adequate for the missile batteries, but that many of these

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would be very costly, many would be difficult to obtain and that condemnation would probably have to be employed in many instances. Because of the expense, public relations aspect and the time element involved in obtaining these sites, the overall problems were presented to representatives of the Department of the Army on 18 September, with the recommendations that the Department of the Army (1) establish an overall and comprehensive public information program as to the need for surface-to-air missile sites in the designated areas, (2) endeavor to reduce the area requirements for NIKE sites, and (3) establish procedures whereby site acquisition could be materially accelerated. As a result of this meeting, the Chief of Staff, United States Army, made G3, Department of the Army, responsible for overall coordination of the NIKE program, with preliminary emphasis on resolution of the problems presented by the Army Antiaircraft Command. Meetings were held in October, November and December to attempt to arrive at a solution to these problems. As of the end of 1952, proposals were being formulated to insure that every NIKE battery goes on-site, to attempt to reduce the area requirements by the use of underground launching systems, and/or a reduction in the number of launchers required per battery. Representatives of this headquarters have been members of the Ad Hoc committees formed by G3, Department of the Army, and have participated in field trips which were made to inspect NIKE equipment and its installation requirements and to discuss with the contractors the modifications which might be required by use of underground launching systems.

At the present time, the Army Antiaircraft Command cannot do more than conduct preliminary site reconnaissances which do not involve contact with other than military agencies. The site areas required are indeterminate, ranging from a possible 23 to 119 acres for battery launching areas and from 139 to 220 acres for battalion missile assembly areas. In addition, the schedule of conversion of gun battalions to NIKE battalions is uncertain due to the fluctuations of the equipment production schedules. It is expected that the Department of the Army will make the decisions as to site sizes, public information and relations programs, and production schedules early in 1953. When these decisions have been made, the Army Antiaircraft Command will be able to proceed with final site selection, acquisition and conversion programs.

National Guard

During the January-March period, planning for the utilization of National Guard antiaircraft units not in the active Federal service approached finalization. On 23-25 January 1952, Colonel W. F. Ellis and Lt Colonel A. S. Hirsch attended a conference at the Department of the Army to discuss the initial proposals and utilization of National Guard units which were submitted by this headquarters on 30 November 1951. Details of the Department of the Army staff comments were resolved during this conference. On 4 February 1952, the Department of the Army approved the general concept of National Guard planning. The only initial change

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in the plan, as approved by the Department of the Army was the designation of 10 areas for AA defense for which the National Guard would provide the total defense force, including Los Alamos which had previously been allocated one active Army battalion. An additional change was that Los Angeles was added for defense with three active Army battalions allocated.

On 26 February the plan for integration of National Guard antiaircraft battalions into the AA defense system was resubmitted to the Department of the Army in consonance with the comments and directives contained in Department of the Army 4 February letter. On the same date, the initial proposals of this headquarters for utilization of National Guard antiaircraft supervisory and maintenance units was submitted. At the end of the period formal replies to these two letters had not been received but informal information indicated that approval was expected with only minor changes.

On 28 December 1951, it was recommended by this headquarters that 15 National Guard antiaircraft battalions be given first priority under the preferential treatment program, and further recommended that one battalion each in Eastern and Western areas be used as experimental vehicles for the implementation of the program. These proposals were approved without change on 26 February 1952 by the Department of the Army. On 27 March instructions were issued to the major field commands to proceed immediately with detailed planning for 13 of the 15 battalions previously selected for highest priority.

Minimum personnel and equipment requirements for National Guard antiaircraft units to participate in air defense were studied at this headquarters throughout the period and on 26 March recommendations concerning personnel and equipment requirements were submitted to the Department of the Army. These proposals established phasing of personnel requirements in three categories:

- a. Minimum personnel to accept an emergency mission.
- b. Minimum personnel to accept an emergency mission and sustain continuous operations.
- c. Minimum personnel to attain the peacetime goal generally in consonance with National Guard reduction tables.

With respect to equipment, it was recommended that major items (guns and associated fire control equipment) be made available to the National Guard units included in the air defense mission generally in keeping with reduction table figures.

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Major training responsibility for National Guard antiaircraft units under the preferential treatment program remains with Office, Chief of Army Field Forces. Active Army antiaircraft units assigned to the air defense will assist the National Guard training program to the maximum extent of Army Antiaircraft Command capabilities. The Army Antiaircraft Command participation in this program is being coordinated with Office, Chief of Army Field Forces, and one 19 March formal request was made to Office, Chief of Army Field Forces for their comment and recommendations in this respect.

On 17 Mar 1952, the following National Guard officers were appointed by this headquarters as a board to study the problems in connection with utilization of National Guard:

Brigadier General Joseph B. Braser
Colonel Eugene J. Welte
Colonel Harry A. Markle, Jr.

This board will review all the actions that have been taken by this headquarters, Department of the Army, National Guard Bureau and other defense agencies concerned and make recommendations to this headquarters for the purpose of assisting in the establishment of policies which will utilize best the effectiveness of the National Guard.

Department of the Army final approval of the basic concepts for integration of National Guard AAA units into the air defense system was received in April 1952. Based on these concepts the National Guard Operation Plan (Annex D, AA-OP-US-1-51) was submitted to the Department of the Army on 19 May 1952. The Department of the Army accepted the plan and directed that it be presented to the State adjutants General and Continental Armies at a series of three regional meetings. Since the Air Force had called the Air National Guard to a meeting in Washington in September at which all the Adjutants General would be present, presentation of the plan was included in the agenda for the conference called by the Air Force. Presentations by the Army Antiaircraft Command, the National Guard Bureau, Army Field Forces, G3 and G4 Department of the Army were coordinated in detail in August and the program was presented to the States and the Continental Armies on 19 September 1952 at the Pentagon.

By November detailed operation plans pertaining to National Guard units for the Thirty-three defended areas had been submitted to Headquarters, Army Antiaircraft Command, in draft form. Since the immediate concerns of National Guard AAA units were recruiting, organization and equipping, distribution of tactical plans was not an immediate necessity. Each plan was reviewed by this headquarters and detailed comment returned to the preparing echelons. Distribution was deferred pending publication of an overall planning directive to be published early in 1953.

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During the last quarter, training responsibilities, matters pertaining to distribution of classified material to members of the National Guard and requirements for equipment and personnel were resolved between Office of the Chief of Army Field Forces, the Continental Armies, The National Guard Bureau and the Army Antiaircraft Command. At the end of the year it had been established that Army Field Forces and the Continental Armies were the responsible training agencies for the National Guard and that support by elements of the Army Antiaircraft Command of necessity would be limited to on-site exercises at established active Army positions and summer field training. Also by the year end enthusiasm for the program had benighted at all levels in the National Guard organization and the manner of acceptance by all the States concerned indicated that effective augmentation of active Army forces by National Guard AAA units could be a reality. The four major requirements in the program are: (1) Distribution of Equipment; (2) Provision of adequate training support; (3) Development of a suitable and adequate supporting Public Information Program; and (4) Provision of necessary funds through normal National Guard channels.

Skyscraper

At the close of 1951 eight (8) automatic weapons battalions assigned or designated for assignment to the Army Antiaircraft Command were programmed for conversion to AAA Battalions (Light 75mm). These units were allocated to the defenses of seven (7) Strategic Air Command bases and the Locks at Sault Ste Marie, one (1) battalion to each defense.

In January this headquarters requested the Chief of Army Field Forces to furnish approved tactical doctrine for employment of the new weapon, emphasizing the need for early guidance in this matter due to the lead time required for site procurement and development including tactical communications. The request included proposals of this command based on local study of the known capabilities of the weapon. Coordination with the AA&GN Branch, TAS, Fort Bliss, Texas, revealed that no conclusions had been reached on tactical doctrines to be employed. However, study of the problem was being expedited and it was anticipated that tentative concepts would be published by the end of the first quarter. Meanwhile, the Air Force was continuing with construction of accommodations for one battalion at each Strategic Air Command installation designated for defense. In May the progress of this construction was reviewed and it was determined that construction should not be sustained because of the lack of knowledge concerning deployment of the weapons. Preliminary tactical plans were developed for all areas based on concepts generated at this headquarters. On 29 May the first publication by the AA&GN Branch, TAS, "Tentative Tactical Principles for Employment of Light Antiaircraft Artillery (75mm) Guns in Air Defense of the Continental United States" was distributed to the subordinate echelons of this command with instructions to use this publication as guidance in planning activities. Meanwhile the doctrine as published by the school was reviewed by this headquarters and comments

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recommending minor changes in tactical deployment were furnished both the school and Office, Chief of Army Field Forces. In July subordinate echelons were furnished with sketches indicating approved layout for tactical sites for Skysweeper. Cost estimates based on these approved layouts were included in the Fiscal Year 1954 budget submitted to the Department of the Army. In July the Department of the Army requested this headquarters to review "Tentative Tactical Principles for Employment of Light Antiaircraft Artillery (75mm) Guns in Air Defense of the Continental United States" in light of comments contained in Weapons System Evaluation Group Study No. 9, "The Continental Air Defense System Estimated capabilities of Planned Army Antiaircraft Defense for the Continental United States as of Mid-1954". Comments of this command based on this directive included the recommendation that Skysweeper units be deployed 1,000-3,000 yards further outward from the vulnerable area than had been recommended by the school and further recommended that the policy of this command would be to select 15 sites per battalion, 3 of which would be sufficiently large enough to accommodate an additional fire unit, thus providing for the employment of 18 weapons per battalion in the event that full T/O&E equipment should become available instead of Reduction Tables. In November representatives of this headquarters met with representatives of the Deputy Inspector General for Security, Strategic Air Command, to resolve problems concerning security clearances for members of AAA units which would be stationed on Strategic Air Command bases for AA defense. In December 63, Department of the Army directed Army Field Forces Board No. 4 (thru Office, Chief of Army Field Forces) to prepare a program for troop tests of Skysweeper materiel. This headquarters had requested that such a test be made by a using unit prior to implementation of the conversion program. It was agreed that this command would furnish a battalion at an appropriate testing ground at such time as sufficient Skysweeper materiel would become available for equipping a battalion. Production programs indicated that this test by using troops could be commenced in March 1953. At the close of the year the 52 AAA AW Battalion had been designated for the troop test and conferences tentatively arranged for January or February at the Department of the Army to finalize arrangements for such a test. Also in December the 459 AAA AW Battalion had been designated as the troop unit to test radio equipment being considered for issue to Skysweeper units.

United States-Canada Border AA Defenses

Under the provisions of the Joint Chiefs of Staff Directive, "Joint Canada-United States Plans for Defense of Border Installations," detailed operation plans were developed for the AA defenses of Sault Ste Marie, Detroit and Niagara Falls. Planning authority and representation was delegated to the Commanding General, Eastern Army Antiaircraft Command for purposes of coordinating plans and operations with Canadian authorities. Since all of the areas of concern are located in the Eastern Army Antiaircraft region this delegation of authority served to expedite planning activities. The Memorandum of Agreement, "Joint Defense of United States-

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Canada Border Installations," which had been submitted to the Canadian government by the Commanding General, Air Defense Command in November 1951, was approved by the Canadian Parliament and signed by the Commanding General, Air Defense Command (USAF) and the Air Vice Marshal Commanding, Air Defense Command (RCAF). During 16-18 April 1952 representatives of Anti-aircraft Command (Canada) attended a conference at Eastern Army Anti-aircraft Command to resolve operational procedures for AA defenses which would employ both United States and Canadian forces. Tentative agreements were made regarding tactical regulations, AA defenses in the vicinity of Niagara Falls, New York, and Welland Canal, Ontario, terms and definitions, and joint training exercises. At this time the only border defenses at which both Canadian and United States troops will be present is Soo Locks. Under the terms of the joint agreement, reconnaissance parties crossed the border as required for site selection and finalization of plans. In addition to site requirements at Soo Locks the specifications for site development at Niagara Falls and Detroit to be occupied by American troops was furnished to the Canadian Army Engineers. At the close of the period the terms of the joint agreement appeared to be adequate to the needs of establishing border defenses.

Requirements

Throughout the year requirements for Army units in air defense was under constant review and study. In coordination with the Command Analysis Branch and the Plans and Requirements Branch of the Air Defense Command numerous theoretical attacks on the United States were analyzed to determine future requirements for air defense. The "theoretical attacks" were developed by the Intelligence Division of the Air Defense Command based on estimates of enemy capabilities. Indications of requirements based on these studies were matters of local concern and as of the end of the year formal commitments had not been made to higher authority except that certain estimated costs of air defense had been submitted to USAF by the Air Defense Command, however, it was apparent that the forces presently available armed with conventional weapons were inadequate to meet the growing magnitude of enemy capabilities and that it would be necessary during the coming year to establish increasing requirements for employed weapons on the order of NIKE I and Skysweeper to provide continuing build-up of anti-aircraft defense capabilities for each Fiscal Year through 1960.

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CHAPTER VII

INTELLIGENCE

General

The intelligence section of the Command, as the intelligence section of any headquarters, has been responsible for keeping the commander, his staff, and all interested agencies fully informed of the enemy situation and capabilities pertinent to the Army component of the Air Defense system. To fulfill this responsibility, the intelligence section has established liaison with other intelligence agencies, made analyses and studies of intelligence data and disseminated them to interested parties, reviewed and summarized various intelligence publications and consolidated the material into a Staff-Weekly Intell-Digest for local consumption. In addition to the fore-going measures, the section had initiated and maintained incident charts and graphs of incidents occurring in or near field units of the command.

The implementation, supervision and training of personnel in security and security practices is another responsibility of the intelligence section. Training in the safeguarding and control of classified security information has been repeatedly emphasized through security lectures by GIC personnel, requiring all personnel to sign certificates that they have read and understand AR 380-5 and by periodic security checks by personnel of the intelligence section to insure that security directives are being followed. Another method of safeguarding classified security information has been the issuance of a Status of Security Clearance by the Intelligence section, showing all persons cleared for access to classified material and the degree of their clearance.

The practices and methods used by the intelligence section to achieve maximum results in fulfilling its responsibility to the commander will be covered in the succeeding paragraphs.

Liaison

Consistent with the policy of economy of personnel and a maximum utilization of the resources of established intelligence agencies rather than a duplication of these agencies, the section was purposely kept small. This has necessitated close liaison, at all echelons of the command, with intelligence such as the Air Defense Command's Deputy for Intelligence, Continental Army G2 Sections and the Department of the Army G2 Section. Unit intelligence officers and their sections in the field have been instructed to set up liaison with their counterpart in these agencies and further to establish liaison with all other existing intelligence agencies in their immediate locality to include civil law enforcement bodies such as city police and county sheriffs' offices. The deployment of Army Antiaircraft units over the entire United States affords very wide coverage of intelligence matters. Continuous supervision of the liaison between field units of the command and field units of the above intelligence agencies has resulted in an intelligence network with a high potential.

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At this headquarters members of the various staff sections have available the tremendous wealth of intelligence material situated in the Intelligence Library at Air Defense Command. To facilitate access to this material, an agreement was made whereby this headquarters would receive a copy of the Air Defense Command Intelligence Library's "Accession List" which was then condensed into a "latest arrivals" for the use of personnel of this headquarters. Publications, studies, or analyses desired were obtained from the library and returned by members of the intelligence section. This agreement was designed as a substitute for an intelligence library here at this headquarters. "Latest arrivals" contained a list of material pertaining to items of interest to members of this headquarters. "Latest arrivals" is covered more fully under the section of this chapter dealing with special projects. Simultaneously with the dissolving of the Antiaircraft Staff Section of this headquarters, an officer was placed within the Deputy Chief of Staff for Intelligence section of the Air Defense Command for liaison and coordination purposes. This officer provides for more extensive and continuous coordination of the various intelligence and security problems of the air defense system. On 5 August 1952, the Assistant Chief of Staff, G-2 was appointed as a member of the Air Defense Command Final Evaluation Group whose mission is to insure, through planning and review, the maximum effectiveness of DCS/I, ADC publications and special papers. All of the above-mentioned measures tended to overcome obstacles of the intelligence section in fulfilling its responsibilities to the commander and provided for mutual understanding of Air Defense Command and Army Antiaircraft Command intelligence problems. Similar arrangements exist in Eastern, Western and Central Army Antiaircraft Command headquarters.

CIC Liaison

The location of Army Antiaircraft Command in the Zone of Interior makes combat intelligence secondary to domestic intelligence. Hence, close liaison with agencies of the Counterintelligence Corps have proven vital and profitable. This headquarters does not have CIC personnel attached to it; however, the Counterintelligence Corps Detachments assigned to the Continental Armies are available to the units of the command. Liaison has been established with resident agents of the Continental Army Detachments. They have been instructed to maintain this liaison and to refer all incidents of suspected sabotage, espionage, and subversion to these CIC resident agents. The CIC resident agents are also requested to provide security surveys, checks and lectures for units and personnel of the Command. In addition, they perform as aggressors in exercises initiated by units in the field. The Inspector General recommended more emphasis on this aspect of intelligence and this section produced and disseminated Memorandum Number 2 to carry out this recommendation.

Close liaison has been established at this headquarters with the local resident CIC agent. On the average, one to five visits a week are made by the resident agent to this office, and all matters of CIC interest

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are called to his attention. On 15 October 1952 the Agent in Charge and Executive Officer of the Denver Regional Office made an official liaison visit to this office. Current problems and interests of CIC nature were discussed, and future plans for overcoming problems were formulated.

Security

The intelligence section processes all requests for security clearances and the G2, as the representative of the commander, signs all clearance certificates. Requests for clearances are initiated by the Section C chiefs and forwarded to G2 on ARAACOM Form 49. Upon approval by G2 the necessary data is forwarded to the Assistant Chief of Staff, G2, Fifth Army and an investigation is conducted. This, of course, is unnecessary if personnel have previous clearances which are usually accepted. A Status of Security Clearances is published by the section periodically to promote the safeguarding of security information. The status of Security Clearances shows the personnel cleared and degree of clearance. Persons not listed are not to have access to classified security information. Staff Memorandum Number 30, 23 November 1951, pertaining to the above is still in effect.

Active supervision has been followed by personnel of this section to insure that proper security measures are being followed. Periodic security checks have been initiated to check safes and areas used to store classified material. Periodic checks are also made to see that safe combinations are changed as required by AR 380-5. Specific instructions have been incorporated into the Staff Duty Officer's Book for checking and reporting all security violations discovered during non-duty hours.

A file of all security violations occurring in the headquarters is maintained in the intelligence section. A file is also maintained of all security violations committed by units of the command in the transmission of classified security information to this headquarters. These files will be used to analyze security violations and to determine ways and means of preventing similar occurrences.

Special Projects

This section deals with special projects initiated by this section to aid in fulfilling its responsibilities to the commander. Some are still in the process of being completed; some have been completed; some have been discontinued for reasons of economy or expediency.

A research project on Red AA in Korea was initiated and completed by 30 January 1952. Its purpose was to show the amount and capabilities of Red AA in Korea, dealing chiefly with the amount and caliber of AA weapons. Improvements over World War II methods of deployment and fire power were underlined. The information was forwarded to the three major field commands 6 February 1952.

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The Personality and Organization Index Files initiated in the last quarter of 1951 were maintained throughout 1952. The files will be maintained permanently to afford a handy check list of subversive personalities and organizations. The purpose of the files is to have information readily available for use of the commander, if desired.

"Latest Arrivals," a publication issued by this section to aid in the dissemination and use of available intelligence publications located in the Air Defense Command Intelligence Library, was designed as a substitute for an intelligence library at this headquarters. The accessibility of the intelligence library at Air Defense Command discouraged duplication at this headquarters for both security and economy reasons. Publication of "Latest Arrivals" was discontinued on or about 28 August for reasons of economy. The same data is at hand in Adjutant General Central Files in the form of the Air Defense Command Accession Lists.

Two Battalion Commander Letters have been produced and disseminated throughout the command. These letters contained factual intelligence briefing data but were written in a personal manner. The purpose of the letters was to stress security consciousness, and messages were personalized to the greatest possible extent. Similar letters will be prepared when the intelligence situation is believed to warrant.

A request from the Chief of Research and Evaluation, Deputy Chief of Staff for Intelligence Section, Air Defense Command, was received at this office for all available information on the progress and potentialities of the Soviet Union and Satellites for Biological Warfare and Chemical Warfare. The project was initiated, completed and forwarded 3 June 1952. This project is considered closed unless a subsequent request is received.

To facilitate closer analysis and operations against suspected sabotage, espionage and subversion committed against members or units of this command, this section initiated an incident report chart. Incidents are plotted according to date, type and unit. Trends will be studied and called to the attention of the Chief of Staff for appropriate action. The incident charts are also submitted to the Adjutant General for incorporation in the Command Statistical Data Book, published by this headquarters. Charts will be continued in 1953.

An incident graph derived from incident reports has been initiated to depict the incidents involving losses or theft of small arms and ammunition. The graph is designed to show what small arms and ammunition are being lost or stolen and where this action occurs. Incident graphs will be continued in 1953.

A project for the preparation of a publication "Guide for Unit Intelligence and Security Officers," was initiated in April 1952. The "Guide" is designed especially to aid those officers who are assigned intelligence duties without having prior experience or training in this

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field. It also serves as a ready reference for pertinent regulations, reports, and channels of communication of importance to all intelligence personnel. This command will continue to use the guide in 1953.

Security Surveys

The plans have been formulated for an annual security survey of this headquarters. A security survey was conducted during the period 1 April-30 June 1952 by CIC personnel from the Denver Regional Office. Steps are being taken to have another security survey performed during the spring of 1953.

Conclusion

It is believed that the stationing of units at on-site positions has created new intelligence and security problems. Many of the densely populated areas are infested with card-carrying Communists and fellow travelers. Increasing numbers of attempts to secure information, penetration of units by known Communists, and other evidences of clandestine interest indicate that antiaircraft positions, units and personnel are targets for potential saboteurs. Positive action has been taken to counter such activity, to emphasize and raise security standards, and to train personnel in the command to combat such activities.

It is further believed that, by taking maximum advantage of facilities and publications available from outside intelligence sources, especially those of the Air Defense Command, and making them available to our subordinate units and by giving close supervision to intelligence training and indoctrination the intelligence mission of the command can be accomplished with a minimum expenditure of funds and personnel.

The security of the command, including counterintelligence training and indoctrination, will continue to be strongly and aggressively emphasized with accurate reporting, recording and interpretation of incidents involving possible sabotage, espionage or subversion receiving particular emphasis.

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CHAPTER VIII

COMMUNICATIONS

Personnel

At the beginning of the year there were four (4) officers, seven (7) enlisted men, and two (2) civilians assigned to the signal section (including the communications center.) The personnel peak was reached in July when the enlisted strength was twenty seven (27). By the end of 1952, enlisted personnel strength had fallen to fifteen (15). The T/D in effect at the beginning of the year had spaces for four (4) officers, fourteen (14) enlisted and two (2) civilians. The T/D which became effective 15 July 1952 changed the officer and enlisted spaces to three (3) and eighteen (18) respectively. Many of the enlisted personnel arriving to fill space vacancies were not qualified in the occupational specialty, did not have the requisite security clearance, or were due for discharge relatively soon.

At a January conference the Chief Signal Officer proposed assignment of a signal corps officer instead of an artillery officer as communications officer in the brigades. The main reason for the recommendation was the difference in communications equipment between a defense in the field and a static urban defense in the Zone of Interior. This headquarters, after a study of the problem, concurred, and the proposal was also subsequently approved by the Chief, Army Field Forces and by the Department of the Army, and the first signal officers were assigned to the command late in the fall.

Continued emphasis was placed on security training of personnel, especially communications center personnel. Incidents occurring from time to time that showed a lack of security consciousness on the part of an individual were quickly investigated, corrective action was taken as necessary, and all personnel were again oriented to appreciate the strategic importance of this headquarters and particularly its communications center.

During the summer personnel assigned to the communications center were given necessary familiarization firing and training on the sub-machine gun and the pistol; all had previously fired the carbine for record. Additional security for personnel of the communications center was provided by the installation of several strategically placed buttons connected to a loud buzzer at the duty officer's post.

Some difficulty was experienced in obtaining necessary security clearances for personnel of the communications section; in every case however, the Assistant Chief of Staff G2 informed the section as soon as favorable information was received.

During 1952 the communications center had four formal security inspections and received an excellent rating in each. These inspections were conducted by the command crypto-inspection officer, the Inspector General Department of the Army, the ASA liaison officer of Fifth Army and the ASA inspection team of the Department of the Army.

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Operations

The primary objective of the communications section during 1952 was the insuring of operational readiness of all communications lines and every effort was made to complete installation of communications authorized in Annex G to AA-OP-US-1-51, including installation by the Air Defense Command of the engineered AAOC to ADDC circuit.

At the beginning of the year eight defended areas had AAOC terminating equipment, intelligence wire nets backed up by T/O&E radio nets, and operational control wire nets backed up by T/O&E radio nets. At the end of the year thirteen (13) occupied gun defended areas had AAOC terminating equipment, intelligence, operational control, and radar reporting wire nets, each wire net backed up by a radio net. One AN defended area, Sault Ste Marie, had all authorized communications but they were not installed on a permanent basis. One unoccupied gun defended area (Los Angeles) which received its first troops in December, had no communications installed as all sites had not been selected. Eight (8) automatic weapons defended areas did not have installed communications because the troops were not yet on-site. (The matter of automatic weapons battalions occupying positions on Strategic Air Command. Bases is discussed in considerable detail earlier in this report.)

By the end of the year all but four gun defended areas had VHF radio circuits installed or engineered. The plan for radio back-up between the ADDCs and the AAOCs was sent to the Chief Signal Officer for approval; the plan calls for Army and Air Force radio sets AN/TRC-1 operating on Air Force frequencies. Frequencies and call signs authorized by the Chief Signal Officer were assigned to units and defended areas.

At the beginning of the year there were engineered teletype circuits between this headquarters and (1) EAAC and (2) WAAC; between EAAC and (1) Washington, (2) Philadelphia, (3) New York, and (4) Chicago; between Chicago and SS Marie; between WAAC and the 31st AAA Brigade; between the 31st AAA Brigade and (1) Seattle and (2) Hanford-White Bluffs. During the year engineered circuits were installed between EAAC and the 56th AAA Brigade; between the 56th Brigade and Boston; between Boston and Niagara; between Washington and (1) Baltimore and (2) Norfolk; between Philadelphia and Pittsburgh; between Chicago and Detroit. Teletype operating instructions were published in the command SSI.

During exercises conducted early in the year, an average of 20 minutes transmission time was required for flash messages from some of the more distant defenses. From an operational standpoint it was desirable that not more than 10 minutes be required for the transmission of any flash message from a defense to the combat operations center of this headquarters. Reasons for the delay included the following: time consumed in re-transmitting the message at each relay station, lack of trained teletype operators, and lack of familiarity with the standard operating procedure for receiving, logging and re-sending messages.

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After study of these problems it was determined that a means of sending a message through a relay station, while at the same time giving that relay station a copy of the message, would be the best way to cut total transmission time. Disadvantage of such an arrangement is that messages could not be transmitted in cipher. Teletype switching keys, having "local" and "Through" positions, were experimentally installed at Philadelphia and the 31st AAA Brigade (Fort Lewis), and detailed instructions for the use of these switches were published. By using these switches, carefully training teletype operators, and improving station standard operating procedures, total transmission time was cut to an average of ten minutes near the end of the year.

Effective 15 July 1952 the engineered circuits were activated eight hours per night five nights per week. Authority was received from the Chief Signal Officer to transmit restricted traffic in the clear. A plan was approved whereby each regional headquarters, through its signal officer, could order activation of circuits subordinate to its headquarters in case of emergencies, but this headquarters could still order activation of the entire network.

In October the section submitted to the Chief Signal Officer the general communication requirements for NINE guided missile battalions. The requirements were established after careful study of the equipment organic to the battalions, and the modifications necessary for a static urban defense in the Zone of Interior. An ad-hoc committee, of which the signal officer of this command was a member, studied and approved the requirements and forwarded them to the Department of the Army. Still under consideration by this committee are the type of cables to be used over various terrain features, the intra-battery radio equipment, and a few minor details on the intra-battery tactical circuits.

During the year this section submitted recommendations for changes six through thirteen to Annex G of Antiaircraft Operations, US, 1951 (AA-OP-US-1-51).

In January the signal officer attended a conference at Washington where a decision was reached that there would be no wire facilities to alternate AAOCs except for an engineered Air Force telling-liaison circuit to the ADEC.

At a March conference at the Bell Telephone Laboratories it was determined that AA FCS T/M-33 vans would not accept commercial communication termination and it was recommended to Department of the Army that the Chief of Ordnance be authorized to make necessary modifications. The Chief of Ordnance subsequently published modification drawings.

Throughout the year an intensive on-the-job training program was conducted for cryptographic and teletype operators assigned to the communications center of this headquarters; because of the rapid turnover of

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personnel this training had to be repeated at intervals throughout the year. Selected civilian typists of the headquarters were also instructed in tactical teletype operations. All enlisted personnel of this headquarters were instructed in switchboard operations.

Maintenance and Equipment

As mentioned briefly previously, it was found that T/O&S high frequency radios were unsatisfactory for urban operations because of their low power and high noise level. Present indications are that commercial VHF radios will be completely satisfactory in these respects. A lack of teletype and associated cryptographic equipment early in the year forced postponement of phase II teletype installations from February to late April. Teletype switches, of a commercial design, were readily available when required in October.

During staff visits to various units in the field, it was determined that the AN/TPS-1D radar was not giving satisfactory results. It was apparent that the underlying cause of the poor performance was the lack of trained operating and maintenance personnel. The Chief Signal Officer was requested to furnish a team of instructors for the purpose of conducting schools on acquisition radars at brigade level. Instructors were also furnished on the AN/GMD-1 meteorological equipment and the first brigade school was begun on 6 November.

In addition to the radar sets AN/TPS-1D, fire control systems M/T 33 were distributed to the gun batteries during the year, and Ravin sets AN/GMD-1 were distributed to groups and brigades. During the spring and summer there was considerable pressure exerted by the Office of the Chief Signal Officer for the turn in of the SCR 584. Since these radars were used for tracking, surveillance and the gathering of meteorological data, there was understandable reluctance on the part of commanders to turn in the 584s until the new equipment had been thoroughly tested. Most of the SCR 584s had been turned in to signal depots by the end of the year.

On the recommendation of the office, Chief Signal Officer, this office directed the redistribution, within the command, of radiosonde receptors AN/FMQ-2. This command simultaneously recommended to the Office, Chief Signal Officer, initial distribution priorities of the radiosonde recorder AN/TMQ-5. Units were instructed to requisition radiosonde AN/AMT-4, since this expendable item is not issued automatically, but is available for issue on a basis of three hundred (300) per month per meteorological section.

During the latter part of the year this section participated in the command Preventive Maintenance Inspection-Instruction Team Program and inspected signal equipment at units in each of the defended areas. As a result of these inspections, and under the provisions of Circular 54, Department of the Army, units were authorized to turn in many signal items in excess of their needs.

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CHAPTER IX

LOGISTICS

General

Many of the serious problems in logistics facing the Army Antiaircraft Command at the close of calendar year 1951 have been resolved or otherwise brought into closer perspective due to the better understanding and cooperation on the part of the Continental Armies and strong support from Department of the Army. The 45 battalions assigned at the close of 1951 have now expanded to 55 battalions assigned in the active defenses at the close of 1952. A brief review follows in discussion of the progress in logistical accomplishments, current problems and existing responsibilities.

Status of Equipment

Shortages of major items of operational equipment were reduced to negligible quantities during 1952. Of major assistance in the accomplishment was a amendment in the March issue of Department of the Army Supply Supplement which directed 100% issued of equipment to Antiaircraft Units in training prior to their assignment to the Army Antiaircraft Command.

During the year, this command was assigned proponent responsibility for the preparation of Tables of Allowances pertaining to special equipment requirements for Antiaircraft Units employed in the Air Defense of the United States. Carefully coordinated requirements for each defense area were prepared and forwarded to the Department of the Army for approval. Although many items included in the Tables have been procured under special issue authorizations for use by units of the command, final approval of the Tables of Allowances has not been received from Department of the Army at the close of the year.

Another important action in the supply field was accomplished by the compilation of new T/OEs which substantially reduced equipment authorizations and requirements for static Zone of Interior defense units without reducing their operational efficiency. These proposed T/OEs were forwarded through the Chief of Army Field Forces to the Department of the Army for approval. At the end of the year, final approval had not been received. However, the most important savings and reductions in equipment as proposed in these T/OEs were generally accomplished under the provisions of Department of the Army Circular #54, dated 26 June 1952. Equipment excess to the needs of Antiaircraft Units has been returned to the supply system. It is estimated that the equipment turned in by units of this command had an initial cost value of approximately \$40,000,000.

Toward the close of the year, it became apparent that savings in transportation costs and training time could be accomplished through the provision of antiaircraft guns to be located permanently at the various

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firing ranges. Initial exploration of this problem was discouraging in that units of the command were equipped with both the SCR 584 and the fire control system T/M33 radar equipment which could not be used interchangeably with any one set of guns. However, later in the year after the program of conversion to fire control systems T/M33 was well under way, a formal recommendation was submitted to Chief of Army Field Forces specifying exact types and amounts of equipment necessary for each range and the priority for issue of said equipment. Although final approval of this recommendation has not been obtained, it is expected in the early part of 1953. By the time that this specified equipment is made available at the various firing ranges, it is anticipated that all units of the command will be equipped with the M33 fire control system.

Early in 1952, it was anticipated that conversion of 40mm Automatic Weapons Battalions to the newly developed 75mm Skysweeper Battalions would be started during the year. Delays in production and delays in proofing have resulted in no units being converted or engaged in conversion at the close of the year. The forecast at this time indicates that at least 6 months will elapse before the first units will undergo conversion.

Maintenance

Tremendous improvements were accomplished in maintenance of anti-aircraft materiel during the year. Early in the year the scope of maintenance requirements was somewhat beyond the Continental Armies capabilities. Rapid strides were made, however, in establishing adequate shop space and in obtaining maintenance teams competent to support fire control systems and guns. The experience gained by these teams and the manner in which they operated in the field was largely responsible for the vast improvements achieved in the lower deadline rate of fire control systems. Improvement in the serious fire control deadline rate, running as high as 30% in the early part of the year, has now been reduced toward a more acceptable level of below 10%. No one item received so much attention as the T/M33 fire control system. Practically the entire resources of the Ordnance Corps, Western Electric Company and technicians of this command were mobilized to improve the maintenance of this new fire control system. The result achieved justified the effort expended.

Realizing the serious implications of any letdown in organizational preventive maintenance, the Army Anti-aircraft Command developed and implemented a vigorous preventive maintenance program applicable to every unit. A very comprehensive SOP for preventive maintenance was prepared and disseminated to all units for accomplishment. This SOP required every operator of a piece of equipment to be schooled and licensed in the care and maintenance of his materiel. Additionally, inspection - instruction teams composed of technicians from this and regional headquarters visited every battalion in the field during the year. These inspector - instructors examined the level of maintenance, stock control, supply discipline and supply economy in each of the units visited. Where lack of knowledge or

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noncompliance with the aforementioned SOP were ascertained, it became the business of the team to make on the spot corrections.

Ammunition

Mechanical time fused 120mm ammunition for training remained in short supply throughout the year. In order to obtain the maximum training possible, one resupply load of the two held by Continental Armies was authorized to be expended for training. This calculated risk was taken so that the 120mm battalions would not be completely idle through the year and lose their "shooting edge." At the close of the year, indications were that 120mm ammunition would become available early in 1953.

Substantial progress was accomplished during the year in finalizing with the Continental Armies, plans for resupply of ammunition which might be required by units on site. Reviews were made at various times by this headquarters to determine the adequacy of resupply stocks. Other studies were made concerning the matter of fuze proportions in the basic and resupply loads and recommendations in this regard were forwarded to Department of the Army for approval. These recommendations when adopted will provide fuze proportions which will conform to more realistic requirements as gained from experience.

Spare Parts

The lack of experience in scheduling spare parts for the new T/M33 fire control systems resulted in serious shortages of higher mortality parts during most of the year. At the request of this command, the Chief of Ordnance set up a streamlined telephonic system for requisitioning parts required for replacements in deadline T/M33 systems. This action reduced to a minimum the time that deadline sets were inoperational. Spare parts difficulties also were experienced in connection with the 400 cycle generators furnished with the T/M33 fire control systems. Expedited systems of parts supply accomplished during the year by the Chief of Engineers greatly improved the situation. Replacement tubes for 120mm guns were required in most of the units of that type. Delays in production of replacement tubes and higher priority demands did not permit supply of any of these component parts during the year. It is anticipated, however, that replacement tubes will be available during early 1953.

Cross Servicing

In implementation of the scheduled defense of Strategic Air Command Bases by Antiaircraft Units and the program of consolidating Antiaircraft regional commands and AAOCs with parallel Air Force activities, cross servicing agreements were developed by both the Strategic Air Command and the Air Defense Command. These agreements provided a basis for the most economical support of Antiaircraft Units stationed on air installations.

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Cost Consciousness

A continuing campaign stressing cost consciousness was carried out during the year. This was achieved through the medium of periodic letters to the field, staff visits inquiring into such matters, and the accelerated program under Department of the Army Circular 54 concerning the turn-in of equipment not required in the static Antiaircraft mission.

Budget and Fiscal

Headquarters Army Antiaircraft Command continued during the year its direct responsibility for budgeting and controlling funds in connection with special field exercises, school temporary duty and normal temporary duty. During the year it became apparent, with the approval by Department of the Army of the 100% on site program, that the previous method of financing on site expenditures from FE funds was not proper. It was recommended to Department of the Army that Continental Armies assume the responsibility for funding costs of normal on site operations from their operating funds rather than Antiaircraft Command Special Field Exercise Funds. This recommendation was approved. As a result, Special Field Exercise Fund requirements were greatly reduced and were made available for return to Department of the Army. A continuing program was followed in analyzing funding costs throughout the command so that any overages could be reported to Department of the Army for recovery.

Construction

Construction planning at the advent of 1952 contemplated that only 25% of the gun units would be deployed on site on a rotational basis. This 25% would be provided winterized tentage and the balance of the sites would only be developed to the extent of minimum essential facilities. A 5-point program covering these minimum essential facilities was developed at an estimated cost of approximately \$8,000,000 out of the \$25,000,000 then available from Department of the Army construction appropriations for the Antiaircraft. In conjunction with this program, a 6-hour interim station program was visualized wherein all units assigned to defenses would be prepared to move on-site within 6 hours. This, in some cases, necessitated the proposed construction of cantonment areas where interim stations were further away than 6 hours travel time. Upon the assumption of command of the Army Antiaircraft Command by Lt. General Lewis on 1 May 1952, the above construction plans were revised to provide for 100% on-site occupancy in all antiaircraft defended areas. This action became necessary due to the critical international situation and the necessity for all Antiaircraft Units to be on site ready to fire from their tactical positions. The revised 100% on-site construction plan was presented to Department of the Army on 22 May 1952. The plan proposed full utilization of prefabricated buildings to be erected by troops. Department of the Army approval on 3 July 1952 resulted in a modified plan whereby District Engineers would accomplish all site preparation, installation of utilities, construction of mess halls, latrines and such

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support items as battalion type gasoline stations. Prefabricated huts required for accommodation of the firing batteries and all necessary administration were procured for troop erection under a central procurement by Office, Chief of Engineers. It was anticipated that the entire 100% construction program would be completed by the end of the year. Numerous delays ensued, however, which made it evident that the prefabricated housing for the troops would not be available prior to the advent of cold weather. As a result, Jamesway shelters were made available on loan by Department of the Army for all of the defended areas with the exception of New York, Philadelphia, Pittsburgh, Baltimore, Norfolk, Los Angeles and Washington. The latter 7 areas were not scheduled for Jamesways since it was anticipated that the prefabricated hut procurement could supply their needs from first priority production. Upon receipt of the first prefabricated hut shipments to New York, difficulties arose with the labor unions in that area over the troop erection of such buildings. It became apparent, as a result of negotiations there, that it would be necessary to achieve a firm agreement with each local union prior to any troop erection of prefabricated buildings. Such agreements were reached in Philadelphia, Pittsburgh, Baltimore, Washington, Los Angeles and Norfolk. No agreements were possible in New York, so it became necessary to ship Jamesway huts to the New York area. All erection of prefabricated huts was then delayed throughout the country until such time as either an agreement with the unions was reached or the contract construction was completed on each site. At the close of the year, no defended area had completed the contract construction. However, progress had been made to the point where it was estimated that all contract construction would be finished early in 1953. Accomplishment of the 100% construction program was estimated to require approximately \$32,000,000. Funds for this purpose were made available from MCA appropriations for the Antiaircraft Command for Fiscal Years 51, 52 and 53.

Plans were developed during the year for necessary construction to accommodate SAM units scheduled for the Antiaircraft Command and the conversion of Automatic Weapons Battalions to Skysweeper. At the close of the year, firm tactical doctrine had not been developed by Department of the Army for either type weapon. However, money was made available in Fiscal Year 1953 appropriations for construction required for scheduled deployment in that fiscal year of 4 SAM Battalions and 8 Skysweeper Battalions.

Canadian Sites

To complete the defenses of Detroit and Niagara, a total of 10 tactical sites are required in Canada. During the year, personnel of this command made a survey in Canada and these 10 sites were selected and radar tested. A project was then prepared by this headquarters setting forth the land areas required, the construction required and the communications required. This project was forwarded through the Air Defense Command to the Department of the Air Force (in accordance with the Joint

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Chiefs of Staff Directives) requesting that necessary negotiations be concluded with the Canadian Government and that this command be authorized to proceed with the deployment of two gun battalions plus two batteries on the Canadian side. At the close of the year, no final approval had been received from either Department of the Army or Department of the Air Force.

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CHAPTER I

PERSONNEL AND ADMINISTRATION

General

In support of the mission of the Army Antiaircraft Command, GI has been primarily concerned with those Department of the Army policies, implemented by Continental Armies, which effect the operational efficiency of units assigned to this command.

Surveillance of personnel to insure equal distribution of numbers and talent has been necessary. With the overall personnel situation as it was, such problems did not lend themselves to easy solutions.

The following personnel facts will indicate a shortage of personnel, a large turnover in personnel, a lowering of experience of assigned officers and an unbalancing of grades and strengths in some army areas, which when taken together affect the operational capabilities of antiaircraft units.

Command Strength

On 1 January, the authorized strength of the command was 1381 officers, 424 warrant officers and 25,857 enlisted men. With the assignment and release of units to and from the command, the authorized strength rose to its peak in March when the authorized strength was 1835 officers, 561 warrant officers and 38,762 enlisted men. From March, due to reorganization of units, phaseout of National Guard units, and loss of certain units to overseas theaters, the command strength decreased to an authorized strength of 1679 officers, 535 warrant officers and 35,438 enlisted men on 31 December.

Effective Strength

Being an operational command and having had an alert status imposed upon tactical units, personnel present for duty has been a most vital commodity.

Enlisted Men

Present for duty in enlisted personnel has fluctuated and in some areas dropped to the point that this headquarters made flexible the manning requirements of tactical units in order to insure sufficient passes and leaves for operational strength. Under this policy, units at reduced strength, operationally deployed, have had some flexibility in the utilization of enlisted men present for duty, and have been able to fill most school quotas and support normal absences such as leave, pass, sick, etc. Throughout the year, the command has been able to average approximately 88% of assigned personnel present for duty. However, an average of only 84% of authorized reduced strength was present for duty. It is pointed out that the 84% is an average percentage and does not mean that 84% of

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authorized personnel were present for duty at all times. This average prevailed during the first eight months of the year and in September started to decline and at the end of December only 60% of authorized enlisted personnel were present for duty.

Because the personnel control of this command has been broken primarily into 4 parts, representing 4 Continental Armies, assigned strength has been studied in the light of each control area. Inclosure 1 to this chapter reflects the authorized, assigned and present for duty enlisted strength by Continental Army. It should be noted that the percentage assigned of authorized varied in the several army areas.

Commanders of senior tactical units representing this command with the Continental Armies have requisitioned shortages in accordance with the policies of the respective Army and have followed up on the requisitions. Non-availability of personnel to the Armies appears to have been the reason units of this command have reached the low assigned enlisted strength.

This situation needs attention. One approach to a solution of these shortages is for Continental Armies to be instructed to indicate by requisition the units which cannot be brought up to strength from their resources. Requisitions could be filled on a priority basis by the Department of the Army from the Replacement Training Center of the Antiaircraft and Guided Missile Center at Fort Bliss. Once all units are brought to the proposed minimum strength, it is estimated that about 300 enlisted men each month from training activities, in addition to the replacements received from Continental Armies, would do much to keep Antiaircraft Command units up to the proposed authorized strength.

Warrant Officers

The warrant officer situation has been satisfactory. However, for the first half of the year, only approximately 68% of the authorized numbers was present for duty. (Inclosure 2). This situation improved during the last half of the year when the average present for duty was 85% of authorized. This made the average for the year approximately 77%. The greatest shortage existed and continues to exist in Unit Administrators, MOS 2123. Although as of 31 December the assigned strength of warrant officers was 102% of authorized, the shortage of Unit Administrators still exists and the appointment of this particular MOS has been suspended by the Department of the Army. As will be outlined below, the relative inexperience and instability of officer personnel require that qualified warrant officer personnel be assigned to all Unit Administrator positions. This is particularly true in the case of firing batteries, many of which are commanded by recently commissioned and inexperienced second lieutenants.

SECRET SECURITY INFORMATION

Chapter X (Continued)

Officers

By close coordination with, and cooperation of, the Artillery Branch, Career Management Division, the command maintained an average of 116% of authorized officers assigned. (Inclosure 3). Although the command enjoyed an average of 16% overstrength in officers, of those officers assigned only an average of 74% was present for duty. The command endeavored, throughout the year, to maintain at least two officers per firing battery. However, to support the Army Education program in authorizing officers to attend school to support the mission of the command, to authorize normal leave, to support normal absences due to illness and to carry, as assigned, those officers enroute to or from other assignments, this problem was difficult. Throughout the year, approximately 16% of assigned officers was at service schools; 5% was on leave; 1% was sick; and 6% was in transit. In order to fulfill the operational mission of the command and allow the normal absent experience, it is necessary that the overstrength in assigned officers be maintained indefinitely. In addition to the command endeavor to maintain a minimum number of officers in firing batteries, an attempt has been made to have at least two of the three authorized field grade officers assigned to each battalion of the command. Although the assignment of field grade officers has been a matter of constant concern and available information has been continually scrutinized, this problem has been difficult to resolve due to the unequitable distribution of officer grade throughout the command. Throughout the year there existed an average of 93% lieutenant colonels, 68% majors and 69% captains of authorized numbers assigned. The command has been authorized an average of 31% of lieutenants; however, assigned lieutenants averaged 60% of authorized officers. Second lieutenants represented an average of 40% of authorized officers of all grades.

Indications are that this trend will continue. Continuing action is taken to conduct unit schools and more details and closer supervision will flow from this headquarters down, to offset the loss and lack of experience in the field.

Turnover of Personnel

In accordance with Department of the Army instructions, units of this command are organized under reduced table strengths, in addition to a self-imposed reduction to 86% of reduced strength, and, being deployed in the continental United States, they have been subjected to the usual personnel conditions of units in the General Reserve such as instability, shortages of specialists, grade spread of enlisted men below authorized, and replacements primarily overseas returnees with a relatively short period of service remaining.

Instability of all personnel has been a matter of constant concern to this headquarters. It has been such that this headquarters requested and received approval for the stabilization of tactical battery commanders

SECRET SECURITY INFORMATION

Chapter X (Continued)

for a minimum period of six months, as well as the stabilization of enlisted men for the six months prior to phaseout of National Guard units in order to organize and train the replacement units. Also, a request was submitted to the Department of the Army for the stabilization of Fire Control System Specialists, M-33 and F-38, MOS 1775, and Guided Missiles Specialists. This request was favorably considered and has enabled the command to maintain an acceptable level of these key specialists. Stabilization, however, does not keep the short-timers, and the rapid termination of service keeps turnover of personnel of this command high. During the year the command suffered an approximate 100% turnover of all personnel. The most serious and lasting effect of such losses has been the reduction, almost elimination, of personnel with the necessary aptitude and length of service to be selected for long term school training in the Guided Missile and Fire Control System fields. As an example, with maximum effort applied over a year, this command was never able to eliminate serious shortages in radar mechanics. Finally, it was necessary to request pipeline output of radar mechanics from Fort Bliss, which having been approved, has greatly improved the situation. By receiving in all antiaircraft units monthly, personnel from the Replacement Training Center, Fort Bliss, or other training activities, whenever resources available to the particular Army are not sufficient, this command would be provided with some personnel with sufficient service remaining and possibly with the acceptable aptitude. Assignment of these personnel is particularly important now during the period of preparation for conversion to Guided Missiles.

Training of personnel for guided missiles is now underway in accordance with a plan prepared by Department of the Army. A close study of the conversion program discloses no provision for an output of personnel to replace normal attritional losses. Therefore, this headquarters has prepared a supplemental plan to place in schools a minimum number of personnel equal to experiences in attritional losses. This plan requires each brigade to send to school about 8 enlisted men per month on a mandatory basis. Finding this number of qualified personnel in addition to the proportionate share provided for by the Department of the Army plan will not be easy. Specialists for the Fire Control System Course must have 20 months' service remaining after 14 months' study. Guidance Specialists must have 15 months' service after a 7 months' course.

The only resources available to the command to provide personnel to these courses are those Regular Army enlisted men who have the aptitude and remaining service for assignment to such schools. We cannot use the approximate 70% of assigned enlisted men, whose service terminates within the current calendar year.

Specialists

The heavy turnover of enlisted personnel has also reduced the availability of key specialists. Some of the more critical specialists are listed below to show the general trend:

SECRET SECURITY INFORMATION

Chapter I (Continued)

SPECIALISTS (MOS)

SHORTAGES
% of Auth

	1 Jan	31 Mar	30 Jun	31 Oct	31 Dec
Radar Operator 1514	50	40	54	44	49
AAA Arty Chief 1602 1603	28	40	28	23	85
AAA Fire Control Chief 1725	34	25	44	43	46
Radar Mechanic 1775	38	4	0	0	0
Metro Chief 1784	57	44	62	67	27
Hvy AAA FC Mech 2634	27	43	58	65	30
AAA Gun Mech 4834 - 33 (4802)	41	36	37	32	68

It is pointed out that the percentages shown for 31 October and 31 December reflect the situation as affected by Department of the Army Circular 72, 1952.

Non-Commissioned Officers

In addition to other adverse effects upon the operational effectiveness of the command, the heavy turnover of enlisted personnel has reduced the number of assigned non-commissioned officers and has varied the distribution of the top grades throughout the command. The drop in graded personnel has been continuous since April when promotions were temporarily stopped. Shown below are the shortages of non-commissioned officers for the year:

	SHORTAGES % of Auth				
GRADE	1 Jan	31 Mar	30 Jun	31 Oct	31 Dec
E-7	24	26	34	45	49
E-6	26	29	41	58	62
E-5	27	30	36	59	65
E-4	5	5	11	35	47

SECRET SECURITY INFORMATION

Chapter I (Continued)

As indicated, the trend has been a definite decrease of available non-commissioned officers. It is pointed out that the greatest drop was during the period 30 June through 31 October. However, there is still a gradual decrease in the number of authorized non-commissioned officers assigned. It should be noted that units of this command are well below authorized grades by an unacceptable percentage as indicated above. Organization and efficient operation most certainly have been affected by this shortage of non-commissioned officers. Budget restrictions caused the top 3 grades to average about 8% of the spaces authorized by Department of the Army on 30 June 1952. Establishing a control for promotions based on a percentage of authorized would be advantageous to the organization of this command. The Commanding General would then have control essential to the improvement of the situation now existing. This headquarters strongly recommended to the Department of the Army on 4 August 1952 that control of enlisted grades on a basis of percent of authorized be established or that the Commanding General, Army Airfieldcraft Command, be provided a promotion quota for the units assigned to this command to provide a means to improve the unrealistic conditions that existed. This request was not favorably considered inasmuch as units of this command remain within the responsibility of the respective army commands for logistical and administrative support, and it was not considered expedient to isolate the one administrative function of enlisted promotions from the other administrative functions charged to the Army commanders.

However, the Department of the Army stated that, if through experience it was indicated that the eligibility criteria prescribed by Department of the Army Circular 73, 1952 would provide sufficient control and all commands became relatively proportionate in their grade structure, it may become appropriate to adopt a system of percentage authorizations.

A comparison of Continental United States averages with Army Airfieldcraft Command averages revealed that during the period May through October, of the total enlisted personnel assigned to Continental United States units, an average of 3.45 were master sergeants, 5.66 were sergeants first class, 11.25 were sergeants, and 19.36 were corporals, and, for the same period, the ABACOM averages for the same grades were 2.15, 4.56, 10.26 and 26, respectively. It is further pointed out that during the year the average authorized percentage of these four grades within ABACOM were 3.3% master sergeants, 9% sergeants first class, 17.5% sergeants and 32.6% corporals. However, on 31 December the assigned enlisted strength of the command consisted of only 1.9% master sergeants, 4.3% sergeants first class, 7.6% sergeants and 21.8% corporals.

These comparative figures indicate an apparent disproportionate distribution of grades within the Continental United States.

Non-commissioned officer shortages and the lack of adequate promotions have had an impact on the re-enlistment rate of the command. Of

SECRET SECURITY INFORMATION

Chapter I (Continued)

Personnel of the command released from the service, an approximate 5% has been re-enlisted. Under the intensified recruiting campaign of interest to this command, each enlisted man was interviewed and the majority who did not re-enlist stated that they felt that the restricted promotion policy had limited their opportunities for advancement. Also, enlisted personnel who had completed long and technical school courses have been required to perform duties of grades two or three steps higher than their present grade. This has been particularly true in the electronics maintenance field. Industry consistently has offered these personnel a more attractive salary than the income of their Army grade. They usually did not re-enlist. Of note was a prevalent comment of Korean returnees as well as other members of the command who did not re-enlist. They have not accepted living field conditions and the close operational control of the personnel of anti-aircraft units. Because most Korean returnees are relatively short-stature and generally did not wish to accept austere conditions of "con-ette" living after their tour in Korea, the usefulness of these personnel was extremely limited.

Integration

To implement the Department of the Army policy on the utilization of Negro manpower in the Army and to insure equality in treatment and opportunity for all persons in the command without regard to race or color this command has acted to have removed all signs and symbols denoting racial composition of units and to integrate all units of the command. At the close of the year, no segregation existed in the Army Anti-aircraft Command. On 31 July, the command has six battalions assigned which were specifically designated as Negro units. Upon request, the Department of the Army acted to remove the racial designating symbols and through transfer and normal attrition the majority of units of the command have been assigned Negro personnel approximately equal to the Negro percentage of the command. Although the percentage of Negro personnel varies in the several Army areas in which troops of this command are stationed, in view of economy, it has been decided to accomplish redistribution of this defense areas and allow normal attritional losses, leaves, etc., to balance the desired portion of Negro personnel. Army garrisons have been made with integrated Continental Armies to lay the high Negro population units and to assign Negro personnel, when necessary, to the units of the low Negro population. Information available has indicated that the enlisted strength of the Continental United States is approximately 14% Negro. On 31 August, the Negro enlisted strength of this command was approximately 15% of assigned; on 31 December Negro enlisted men represented approximately 21% of assigned. This, as well as grade distribution, indicates a disproportionate distribution of the Negro manpower of the Army.

In addition to insuring equality of treatment and opportunity for all personnel of the command, the integration program has improved, to some degree, the operational effectiveness and efficiency of the command.

SECRET SECURITY INFORMATION

Chapter I (Continued)

National Guard Phase-Out

At the end of the year, the command had 13 National Guard battalions and one National Guard Group headquarters assigned to the command. These units will be phased out by May 1953. In general, the National Guard phase-out program was accomplished with a minimum of difficulty. The cooperation of Continental Armies was responsible for a large part of the efficiency with which these phase-outs were accomplished. In several cases, however, regular army units activated to replace the National Guard units were extremely short of personnel. These units were activated in the last quarter of the year when personnel resources were extremely limited.

Morale, Welfare and Religious Activities

The morale of the command throughout the year was generally excellent; however, there were many factors which collectively had an adverse effect. Living conditions at gun sites, heavy demands made on personnel, lack of normal off-duty time and limited promotions are but a few of the factors considered.

Living conditions at gun sites during the majority of the year paralleled field conditions; however, at the end of the year, the majority of personnel was housed in Jamesway huts.

The shortage of personnel coupled with operational requirements caused assigned personnel to have a limited number of leaves and passes. This created a morale problem inasmuch as the rest of the XI Army appeared to exist under normal conditions.

Limited promotions throughout the year created a morale problem when many soldiers who had conscientiously worked for advancement found that opportunities for promotion were few.

Chaplain coverage and pastoral support has been satisfactory throughout the year. In January, only 13% of authorized Chaplains were assigned. Upon request of this headquarters, the Chief of Chaplains has acted to assign more Chaplains to this command. At the end of the year, 67% of the authorized Chaplains was assigned. Inasmuch as the majority of troops of this command are stationed away from Army installations, it is essential that all authorized Chaplains be assigned at all times. Support from the nearest Army installations and civilian religious activities was excellent. Red Cross and Army Emergency Relief were readily available to all personnel.

ENLISTED MEN AS OF LAST DAY OF MONTH
1952

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>
FIRST						
Auth	10992	13392	12041	13159	13418	13238
Asgd	10742	12767	11509	12779	12741	12654
Pres For Duty	9339	11423	10318	11302	11294	11003
SECOND						
Auth	7083	7806	7097	7714	7689	7519
Asgd	6515	7552	7016	7598	7602	8040
Pres For Duty	5926	6666	6221	6741	6744	7074
FOURTH						
Auth	1930	1371	1313	604	604	559
Asgd	1811	1266	1525	654	633	504
Pres For Duty	1636	1150	1421	600	563	433
FIFTH						
Auth	6994	6865	6156	6006	6395	6342
Asgd	6312	6415	6646	6784	7332	6911
Pres For Duty	5505	5507	5809	5844	6311	6038
SIXTH						
Auth	9246	9243	9300	8591	9000	8830
Asgd	8829	9025	9468	8518	8953	8181
Pres For Duty	7973	8037	8484	7472	7788	6971

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

ENLISTED MEN AS OF LAST OF MONTH

	JUL 52	AUG 52	SEP 52	OCT 52	NOV 52	DEC 52	Average for year 1952
FIRST ARMY							
Auth	13210	11644	11986	12286	9792	9642	12067
Asgd	12778	11378	11042	10812	8425	7809	11286
Pres For Duty	11626	10243	10076	9934	7666	5779	10000
SECOND ARMY							
Auth	7367	7644	7752	7752	10396	10121	7995
Asgd	8458	8183	7251	6996	8535	7887	7836
Pres For Duty	7450	7064	6617	6168	7493	6019	6682
FIFTH ARMY							
Auth	6187	6179	6179	6179	6337	6337	6346
Asgd	7088	6025	5573	5547	5237	5365	6270
Pres For Duty	5951	5206	5000	4802	4669	3839	5373
SIXTH ARMY							
Auth	8645	8457	9145	9145	9145	9187	8995
Asgd	8211	7871	8172	7749	7442	6542	8247
Pres For Duty	7280	5206	7295	6901	6728	5517	7138

SECRET SECURITY INFORMATION

WARRANT OFFICERS

	<u>Auth</u>	<u>Asst</u>	<u>Pres For Duty</u>
December	415	312	254
January	486	379	327
February	544	441	368
March	551	483	382
April	556	479	376
May	566	475	377
June	557	452	366
July	549	461	406
August	528	471	390
September	535	511	444
October	535	537	481
November	535	544	512
December	535	547	458

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

OFFICERS

	<u>Auth</u>	<u>Asgd</u>	<u>Pres For Duty</u>
December	1344	1662	1228
January	1590	1898	1459
February	1771	2125	1576
March	1804	2127	1492
April	1805	2000	1402
May	1697	2016	1371
June	1815	1977	1337
July	1752	2093	1508
August	1648	1917	1491
September	1675	1988	1523
October	1675	1994	1545
November	1676	1951	1606
December	1679	1970	1448

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

STATION LIST OF AAA UNITS
AS OF
19 JANUARY 1953

HEADQUARTERS, ARMY ANTIAIRCRAFT COMMAND
Ent Air Force Base
Colorado Springs, Colorado

HEADQUARTERS, EASTERN ARMY ANTIAIRCRAFT COMMAND
Stewart Air Force Base
New York

HEADQUARTERS, WESTERN ARMY ANTIAIRCRAFT COMMAND
Hamilton Air Force Base
Hamilton, California

HEADQUARTERS, CENTRAL ARMY ANTIAIRCRAFT COMMAND
P.O. Box 2775
Kansas City 42, Missouri

NEW UNIT
DESIGNATION

FORT WADSWORTH, N. Y.

52d AAA Brigade
511th AAA Opr Det
Btry C, 66th AAA Gun Battalion (120mm)

NEW YORK, N. Y.

69th AAA Gun Battalion (90mm)
12th AAA Gun Battalion (90mm)
98th AAA Gun Battalion (90mm)
737th - - - 380th AAA Gun Battalion (90mm)
301st Sig Radar Maint Unit
749th - - - 712th AAA Gun Battalion (90mm)
526th AAA Gun Battalion (120mm)
Btrys A, B & C, 505th AAA Gun Battalion (120mm)
Btrys A & D, 66th AAA Gun Battalion (120mm)
Btrys A, B, C & D, 41st AAA Gun Battalion (90mm)
Btrys A, C & D, 34th AAA Gun Battalion (90mm)

FORT TOTTEN, N. Y.

80th AAA Group
326th AAA Opr Det
15th Sig Radar Maint Unit
34th AAA Gun Battalion (90mm) (Less Btrys A, C & D)
41st AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)

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SECRET SECURITY INFORMATION

Station List of AAA Units

19 January 1953

FORT TILDEN, N. Y.

11th AAA Group
 23d Sig Radar Maint Unit
 505th AAA Gun Battalion (120mm) (Less Btrys A, B & C)

NEW UNIT
DESIGNATION

FORT HANCOCK, N. J.

16th AAA Group
 354th Sig Radar Maint Unit (PCS, o/a 16 Feb 53, New York)
 338th Sig Radar Maint Unit (PCS, o/a 16 Feb 53, New York)

FORT HAMILTON, N. Y.

66th AAA Gun Battalion (120mm) (Less Btrys A, C & D)

FORT DEVENS, MASS.

56th AAA Brigade (PCS, o/a 25 Jan 53, Ft Totten N. Y.)
 514th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
 400th Sig Radar Maint Unit (PCS, o/a 16 Feb 53, Ft Banks)

FORT BANKS, MASS.

15th AAA Group
 515th AAA Gr Det
 16th AAA Gun Battalion (90mm) (Less Btrys, A, B, C & D)
 358th Sig Radar Maint Unit
 704th AAA Gun Battalion (90mm) (Less Btrys A, B, C, & D)

BOSTON, MASS.

Btrys A, B, C & D, 514th AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 16th AAA Gun Battalion (90mm)
 Btrys B & D, 704th AAA Gun Battalion (90mm)

EAST POINT NAHANT, MASS.

Btry A, 704th AAA Gun Battalion (90mm)

FORT DAWES, MASS.

Btry C, 704th AAA Gun Battalion (90mm)

SECRET SECURITY INFORMATION

19 January 1953

2d AAA Group
56th AAA Cnr Det
606th - - - 336th AAA Gun Battalion (90mm) (Less Btrys, A, B, C & D)
395th Sig Radar Maint Unit
44th AAA Gun Battalion (90mm) (Less Btrys A & D)
385th Sig Radar Maint Unit

NIAGARA FALLS, N. Y.

Btrys A, B, C, & D, 336th AAA Gun Battalion (90mm)
Btrys A & D, 44th AAA Gun Battalion (90mm)

53d AAA Brigade
24th AAA Group
513th AAA Opr Det
387th Sig Radar Maint Unit

738th - - - 51st AAA Gun Battalion (90mm)
150th AAA Gun Battalion (90mm)
506th AAA Gun Battalion (90mm)
19th AAA Gun Battalion (90mm)

361st Sig Radar Maint Unit (PCS o/a 25 Jan 53, Pittsburgh)

74th AAA Gun Battalion (90mm)
509th AAA Gun Battalion (90mm)
373d Sig Radar Maint Unit
Btrys A, B, C, & D, 708th AAA Gun Battalion (90mm)

18th AAA Group
517th AAA Opr Det
701st - - - 708th AAA Gun Battalion (90mm) (Less Btrys A, B, C, & D)
(Rel to 2d Army, o/a 16)

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Station List of AAA Units

19 January 1953

FORT GEORGE G. MEADE. MD.

35th AAA Brigade

19th AAA Group (CS, o/a 25 Jan 53, Washington, DC)
 89th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
 35th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
 36th AAA Gun Battalion (120mm) (Less Btrys A, B, C & D)
 101st Sig Radar Maint Unit
 70th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
 601st AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)

BALTIMORE. MD.

Btrys A, B, C & D, 89th AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 35th AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 602d AAA Gun Battalion (90mm)

NEW UNIT

DESIGNATION

CATONSVILLE. MD.

17th - - - 208th AAA Group
 286th AAA Otr Det

ARMY CHEM. CEN. MD.

602d AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
 356th Sig Radar Maint Unit

WASHINGTON, D. C.

503d AAA Otr Det
 Btrys A, B, C & D, 14th AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 36th AAA Gun Battalion (120mm)
 Btrys A, B, C & D, 70th AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 75th AAA Gun Battalion (120mm)
 Btrys A, B, C & D, 601st AAA Gun Battalion (90mm)
 Btrys A, B, C & D, 71st AAA Gun Battalion (120mm)

ANDREWS AFB. MD.

75th AAA Gun Battalion (120mm) (Less Btrys A, B & C)
 8th Sig Radar Maint Unit

FORT MYER. VA.

14th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

Station List of AAA Units

19 January 1953

FORT BELVOIR, VA.

71st AAA Gun Battalion (120mm) (Less Btrys A, B, C & D)
7th Sig Radar Maint Unit

NORFOLK, VA.

3d AAA Group
179th AAA Opr Det
*56th AAA Gun Battalion (90mm)

CHICAGO, ILL.

45th AAA Brigade
514th AAA Opr Det
13th AAA Gun Battalion (90mm)
49th AAA Gun Battalion (90mm)
79th AAA Gun Battalion (120mm) (Less Btry A)
86th AAA Gun Battalion (120mm) (Less Btry D)
734 - - - 768th AAA Gun Battalion (90mm)
382d Sig Radar Maint Unit

NEW UNIT
DESIGNATIONNAVY PIER, CHICAGO, ILL.

Btry A, 79th AAA Gun Battalion (120mm)
Btry D, 86th AAA Gun Battalion (120mm)

FORT SHERIDAN, ILL.

22d AAA Group
383d Sig Radar Maint Unit
23d AAA Group
372d Sig Radar Maint Unit

SELFRIDGE AFB, MICH.

28th AAA Group
502d AAA Opr Det

DETROIT, MICH.

304th Sig Radar Maint Unit
504th AAA Gun Battalion (90mm)
18th AAA Gun Battalion (90mm)
516th AAA Gun Battalion (90mm)
420th Sig Radar Maint Unit
99th AAA Gun Battalion (90mm)

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

Station List of AAA Units

19 January 1953

CAMP LUCAS, MICH.

8th AAA AW Battalion (SMBL)
181st AAA Opr Det

FORT LEWIS, WASH.

31st AAA Brigade (PCS, o/a 1 Feb 53, McChord AFB, WASH.)
3931 Sig Radar Maint Unit (PCS, o/a 24 Jan 53, Seattle, Wash.)

FORT LAWTON, WASH.

26th AAA Group
512th AAA Opr Det

SEATTLE, WASH.

28th AAA Gun Battalion (120mm)
20th AAA Gun Battalion (90mm)
513th AAA Gun Battalion (90mm)
302d Sig Radar Maint Unit

NEW UNIT
DESIGNATION

CAMP HANFORD, WASH.

5th AAA Group
501st AAA Opr Det
501st AAA Gun Battalion (120mm)
518th AAA Gun Battalion (120mm)
519th AAA Gun Battalion (120mm)
13th Sig Radar Maint Unit
83d AAA Gun Battalion (120mm)
421st Sig Radar Maint Unit

GEIGER AFB, SPOKANE, WASH.

10th AAA AW Battalion (SMBL)

SAN FRANCISCO, CALIF.

Btrys A, B, & D, 9th AAA Gun Battalion (120mm)
Btrys A, B & D, 728th AAA Gun Battalion (90mm)
Btrys B & D, 718th AAA Gun Battalion (90mm)

PRESIDIO OF SAN FRANCISCO, CALIF.FORT BAKER (SUB-POST)

740th - - - 718th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

Station List of AAA Units

19 January 1953

FORT WINFIELD SCOTT (SUB-POST)

9th AAA Gun Battalion (120mm) (Less Btrys A, B, C & D)
300th Sig Radar Maint Unit

FORT BARRY (SUB-POST)

30th AAA Group
518th AAA Ovr Det
Btry A, 718th AAA Gun Battalion (90mm)
Btry B, 459th AAA AW Battalion (SMBL)

FORT CROWHITE (SUB-POST)

459th AAA AW Battalion (SMBL) (Less Btry B)
Btry C, 9th AAA Gun Battalion (120mm)

OAKLAND ARMY BASE, OAKLAND, CALIF.

728th AAA Gun Battalion (90mm) (Less Btrys A, B, C & D)
425th Sig Radar Maint Unit

NEW UNIT
DESIGNATION

GOVERNMENT ISLAND, CALIF

Btry C, 728th AAA Gun Battalion (90mm)

FORT FUNSTON, CALIF.

Btry C, 718th AAA Gun Battalion (90mm)

FORT MacARTHUR, CALIF.

47th AAA Brigade
35th AAA Ovr Det
*77th AAA Gun Battalion (90mm)

CAMP ROBERTS, CALIF.

52d AAA AW Battalion (SMBL)

MARCH AFB, CALIF.

466th AAA AW Battalion (SMBL)

*Negroid Units

SECRET SECURITY INFORMATION

SECRET
SECURITY INFORMATION

STATION LIST OF AAA UNITS

EASTERN ARMY ANTIAIRCRAFT COMMAND
Stewart Air Force Base
New York

19 January 1953

52d AAA Brigade

511 AAA Opr Det

11th AAA Group (To be inactivated)

66th AAA Gun Bn (120mm) (Less Btry A, C & D)

Btry A & D, 66th AAA Gun Bn (120mm)

Btry C, 66th AAA Gun Bn (120mm)

505th AAA Gun Bn (120mm) (Less Btry A, B & C)

Btry A, B & C, 505th AAA Gun Bn (120mm)

69th AAA Gun Bn (90mm)

23d Sig Radar Maint Unit

16th AAA Group (To be inactivated)

12th AAA Gun Bn (90mm)

394th Sig Radar Maint Unit

41st AAA Gun Bn (90mm) (Less Btry A, B, C&D)

338th Sig Radar Maint Unit

Btry A, B, C&D, 41st AAA Gun Bn (90mm)

98th AAA Gun Bn (90mm)

712th AAA Gun Bn (90mm)

80th AAA Group

326th AAA Opr Det

34th AAA Gun Bn (90mm) (Less Btry A, C & D)

Btry A, C & D, 34th AAA Gun Bn (90mm)

526th AAA Gun Bn (120mm)

15th Sig Radar Maint Unit

380th AAA Gun Bn (90mm)

301st Sig Radar Maint Unit

56th AAA Brigade

2d AAA Group

56th AAA Opr Det

44th AAA Gun Bn (90mm) (Less Btry A&D)

Btry A & D, 44th AAA Gun Bn (90mm)

395th Sig Radar Maint Unit

336th AAA Gun Bn (90mm) (Less Btry A, B, C&D)

Btry A, B, C&D, 336th AAA Gun Bn (90mm)

385th Sig Radar Maint Unit

15th AAA Group

515th AAA Opr Det

16th AAA Gun Bn (90mm) (Less Btry A, B, C&D)

Btry A, B, C&D, 16th AAA Gun Bn (90mm)

358th Sig Radar Maint Unit

514th AAA Gun Bn (90mm) (Less Btry A, B, C&D)

Btry A, B, C&D, 514th AAA Gun Bn (90mm)

400th Sig Radar Maint Unit

Ft Wadsworth, N. Y.

Ft Wadsworth, N. Y.

Ft Tilden, N. Y.

Ft Hamilton, N. Y.

New York, N. Y.

Ft Wadsworth, N. Y.

Ft Tilden, N. Y.

New York, N. Y.

New York, N. Y.

Ft Tilden, N. Y.

Ft Hancock, N. J.

New York, N. Y.

Ft Hancock, N. J.

Ft Totten, N. Y.

Ft Hancock, N. J.

New York, N. Y.

New York, N. Y.

New York, N. Y.

Ft Totten, N. Y.

Ft Totten, N. Y.

Ft Totten, N. Y.

New York, N. Y.

New York, N. Y.

Ft Totten, N. Y.

New York, N. Y.

New York, N. Y.

Ft Devens, Mass.

Ft Niagara, N. Y.

Ft Niagara, N. Y.

Ft Niagara, N. Y.

Niagara Falls, N. Y.

Ft Niagara, N. Y.

Ft Niagara, N. Y.

Niagara Falls, N. Y.

Ft Niagara, N. Y.

Ft Niagara, N. Y.

Ft Banks, Mass.

Ft Banks, Mass.

Ft Banks, Mass.

Boston, Mass.

Ft Banks, Mass.

Ft Devens, Mass.

Boston, MASS.

Ft Devens, Mass.

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Station List of AAA Units

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704th AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry B&D, 704th AAA Gun Bn (90mm)
Btry A, 704th AAA Gun Bn (90mm)
Btry C, 704th AAA Gun Bn (90mm)

Ft Banks, Mass.
Boston, Mass.
East Point Nahant, Mass.
Fort Davis, Mass.

52d AAA Brigade

18th AAA Group

517th AAA Opr Det
74th AAA Gun Bn (90mm)
361st Sig Radar Maint Unit
509th AAA Gun Bn (90mm)
373d Sig Radar Maint Unit
708th AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 708th AAA Gun Bn (90mm)

Swarthmore, Pa.
South Park, Broughton, Pa.
South Park, Broughton, Pa.
Pittsburgh, Pa.
Indiantown Gap, Pa.
Pittsburgh, Pa.
Pittsburgh, Pa.
South Park, Broughton, Pa.
Pittsburgh, Pa.
Swarthmore, Pa.
Swarthmore, Pa.
Philadelphia, Pa.
Philadelphia, Pa.
Swarthmore, Pa.
Philadelphia, Pa.
Philadelphia, Pa.

24th AAA Group

513th AAA Opr Det
19th AAA Gun Bn (90mm)
51st AAA Gun Bn (90mm)
387th Sig Radar Maint Unit
150th AAA Gun Bn (90mm)
506th AAA Gun Bn (90mm)

35th AAA Brigade

179th AAA Opr Det

503d AAA Opr Det

3d AAA Group

*56th AAA Gun Bn (90mm)
14th AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 14th AAA Gun Bn (90mm)
36th AAA Gun Bn (120mm) (Less Btry A, B, C&D)
Btry A, B, C & D, 36th AAA Gun Bn (120mm)
101st Sig Radar Maint Unit
71st AAA Gun Bn (120mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 71st AAA Gun Bn (120mm)
7th Sig Radar Maint Unit

Ft George G. Meade, Md.
Norfolk, Va.
Washington, D. C.
Norfolk, Va.
Norfolk, Va.
Fort Myer, Va.
Washington, D. C.
Ft George G. Meade, Md.
Washington, D. C.
Ft George G. Meade, Md.
Ft Belvoir, Va.
Washington, D. C.
Ft Belvoir, Va.
Ft George G. Meade, Md.
Ft George G. Meade, Md.
Washington, D. C.
Ft George G. Meade, Md.
Washington, D. C.
Andrews AFB, Md.
Washington, D. C.
Andrews AFB, Md.
Catonsville, Md.
Catonsville, Md.
Ft George G. Meade, Md.
Baltimore, Md.
Army Chem. Cen., Md.
Baltimore, Md.
Army Chem Cen, Md.

19th AAA Group

70th AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C & D, 70th AAA Gun Bn (90mm)
601st AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 601st AAA Gun Bn (90mm)
75th AAA Gun Bn (120mm) (Less Btry A, B&C)
Btry A, B&C, 75th AAA Gun Bn (120mm)
8th Sig Radar Maint Unit

208th Group

286th AAA Opr Det
35th AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 35th AAA Gun Bn (90mm)
602d AAA Gun Bn (90mm) (Less Btry A, B, C&D)
Btry A, B, C&D, 602d AAA Gun Bn (90mm)
356th Sig Radar Maint Unit

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Station List of AAA Units

19 January 1953

89th AAA Gun Bn (90mm) (Less Btrys A, B, C&D)
Btrys A, B, C&D, 89th AAA Gun Bn (90mm)

Ft George G. Meade, Md.
Baltimore, Md.

45th AAA Brigade

514th AAA Opr Det
8th AAA AV Bn (SMEL)
181st AAA Opr Det
23d AAA Group (To be inactivated)

Chicago, Ill.
Chicago, Ill.
Cp Lucas, Mich.
Cp Lucas, Mich.
Ft Sheridan, Ill.
Ft Sheridan, Ill.
Chicago, Ill.
Ft Sheridan, Ill.
Chicago, Ill.
Chicago, Ill.
Navy Pier, Chicago, Ill.
Chicago, Ill.
Ft Sheridan, Ill.
Navy Pier, Chicago, Ill.
Chicago, Ill.
Chicago, Ill.
Selfridge AFB, Mich.
Selfridge AFB, Mich.
Detroit, Mich.
Detroit, Mich.
Detroit, Mich.
Detroit, Mich.
Detroit, Mich.
Detroit, Mich.

22d AAA Group

49th AAA Gun Bn (90mm)
383d Sig Radar Maint Unit
13th AAA Gun Bn (90mm)
79th AAA Gun Bn (120mm) (Less Btry A)
Btry A, 79th AAA Gun Bn (120mm)
86th AAA Gun Bn (120mm) (Less Btry D)
372d Sig Radar Maint Unit
Btry D, 86th AAA Gun Bn (120mm)
768th AAA Gun Bn (90mm)
382d Sig Radar Maint Unit

28th AAA Group

502d AAA Opr Det
304th Sig Radar Maint Unit
18th AAA Gun Bn (90mm)
504th AAA Gun Bn (90mm)
516th AAA Gun Bn (90mm)
420th Sig Radar Maint Unit
99th AAA Gun Bn (90mm)

CENTRAL ARMY ANTIAIRCRAFT COMMAND
P.O. Box 2775
Kansas City 42, Missouri

WESTERN ARMY ANTIAIRCRAFT COMMAND
Hamilton Air Force Base
Hamilton, California

459th AAA AV Bn (SMEL) (Less Btry B)
52d AAA AV Bn (MEL)
Btry B, 459th AAA AV Bn (SMEL)

Ft Grenkhite, Calif.
Cp Roberts, Calif.
Ft Barry, Calif.

31st AAA Brigade

5th AAA Group
501st AAA Opr Det
10th AAA AV Bn (SMEL)
501st AAA Gun Bn (120mm)
518th AAA Gun Bn (120mm)
519th AAA Gun Bn (120mm)
13th Sig Radar Maint Unit
83d AAA Gun Bn (120mm)
421st Sig Radar Maint Unit

Ft Lewis, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.
Geiger AFB, Spokane, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.
Cp Hanford, Wash.

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Station List of AAA Units

19 January 1953

31st AAA Brigade (Cont)

26th AAA Group

512th AAA Opr Det
20th AAA Gun Bn (90mm)
393d Sig Radar Maint Unit
28th AAA Gun Bn (120mm)
513th AAA Gun Bn (90mm)
302d Sig Radar Maint Unit

30th AAA Group

518th AAA Opr Det
718th AAA Gun Bn (90mm) (Less Btrys A,B,C&D)
Btry A, 718th AAA Gun Bn (90mm)
Btry B&D, 718th AAA Gun Bn (90mm)
Btry C, 718th AAA Gun Bn (90mm)
9th AAA Gun Bn (120mm) (Less Btrys A,B,C&D)
Btrys A, B & D, 9th AAA Gun Bn (120mm)
Btry C, 9th AAA Gun Bn (120mm)
300th Sig Radar Maint Unit
728th AAA Gun Bn (90mm) (Less Btrys A,B,C&D)
425th Sig Radar Maint Unit
Btrys A, B & D, 728th AAA Gun Bn (90mm)
Btry C, 728th AAA Gun Bn (90mm)

42th AAA Brigade

35th AAA Opr Det
466th AAA AV BN (SMBL)
*77th AAA Gun Bn (90mm)

Ft Lawton, Wash.
Ft Lawton, Wash.
Seattle, Wash.
Ft Lewis, Wash.
Seattle, Wash.
Seattle, Wash.
Seattle, Wash.
Ft Barry, Calif.
Ft Barry, Calif.
Ft Baker, Calif.
Ft Barry, Calif.
San Francisco, Calif.
Ft Funston, Calif.
Ft Winfield Scott, Calif.
San Francisco, Calif.
Ft Cronkhite, Calif.
Ft Winfield Scott, Calif.
Oakland Army Base, Calif.
Oakland Army Base, Calif.
San Francisco, Calif.
Government Island, Calif.

Ft MacArthur, Calif.
Ft MacArthur, Calif.
March AFB, Calif.
Ft MacArthur, Calif.

All errors, omissions and changes of any nature noted should be promptly reported to this headquarters.

* NEGROID UNITS

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CHAPTER XI

PUBLIC INFORMATION

Using a comprehensive public information and public relations plan aimed at building public understanding, confidence and good will, during the course of the year covered by this report the Army Antiaircraft Command developed a smoothly-functioning organization which kept the American people informed of the mission and activities of this command in carrying out its role in the defense of the United States.

The movement of our units from their interim stations to on-site positions and thus bringing the bulk of the personnel of the entire command literally to the doorsteps of civilian residents in many of our larger metropolitan areas has resulted in an increased need for creating and maintaining cordial community relations. We have become "backyard campers" in many of our major cities, and it has become essential for us to tell our neighbors why we are there and what our problems are.

That our public information and public relations policies are sound is borne out by the increasingly friendly expression of public sentiment through such media as the press, radio, television and public gatherings.

While there have been a few newspaper stories or comments of an adverse nature, the number has tended to decrease as communities in which our units are located have come to understand why our defenses are placed in their areas. And where a good community relations program has been developed, it is noted that earlier expressions of antagonism toward our personnel and installations have turned into friendly attitude and even enthusiastic approval of our presence in the community initially hostile or skeptic. The effectiveness of our policies in the field of public information and public relations requires constant awareness on the part of all members of the command, from the commander down to the newest recruit, that every individual is actually a public information officer. There has been a growing acceptance of this fact throughout the command during the year.

An outstanding example of the fruits of a sound public relations plan that has been carried out consistently is to be found in the public reaction to the stand taken in late November by union labor in the metropolitan New York area against the use of soldier labor in the erection of prefabricated huts at our on-site positions. From the New York Times on down to a number of the small community newspapers published in the area a generous amount of space was devoted to the controversy, with the Army position not only presented fairly but warmly approved.

In one of its editorials on the subject the New York Daily News, which has the largest daily newspaper circulation in the United States, had this to say: "These facts, we think, speak pretty much for themselves. Antiaircraft batteries are essential to U. S. metropolitan areas in these

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Chapter XI (Continued)

times. High morale is essential to those batteries' proper maintenance. Bad or mediocre housing is tough on the morale of soldiers manning stationary posts. This newspaper in its time has sympathized with many a union having a legitimate cause or grievance. In the antiaircraft battery dispute, however, we think the AFL unions involved are being less than smart, less than public spirited, and less than considerate for the safety of everybody in this area, including building union men."

And in the New York World-Telegram and the Sun, a Scripps-Howard newspaper, appeared an editorial captioned "How Mean Can You Get?" and saying in part: "We think the soldiers on antiaircraft duty around New York are getting a pretty shabby deal. Due to a petty union squabble with the military, these GIs face the prospect of spending the winter in tents even though warm, prefabricated huts are available. The Army has done its part in trying to assure the comfort of its troops with the highly practical order that the men should erect them because no money was available for outside labor. Then the AFL building trades council quered the project....This is a matter of adequate shelter for troops protecting all of us, union leaders included, against the danger of a sneak air raid...."

Public information activities of the Antiaircraft Command are tied in closely with those of the Air Defense Command. A close working arrangement is maintained by the public information agencies of the two commands at all echelons of command and a common policy on the release of information affecting the two commands, stressing that the two operate as a team in providing the air defense of the United States, is followed. Even in brief stories released by the two commands every effort is made to emphasize that air defense is a matter of teamwork by the Army Antiaircraft Command and the Air Defense Command.

The midsummer exercise "Signpost" provided the first real opportunity to inform the American people what was being done to provide this country with protection against hostile planes. The public information phases of the exercises were worked out jointly by ARAACOM and ADC. While it became necessary to limit some of the public information phases planned for the exercise, this command was able to accomplish much in telling its story through the medium of the home town news release. Newspapers in all parts of the country published thousands of stories about the individual soldiers participating in exercise "Signpost." The use of the Army Home Town News Center for the dissemination of these stories was encouraged by and commented on favorably by the Office of Chief of Information, Department of the Army.

While special emphasis on use of the home town news story to inform the public about this command and its mission was employed for the midsummer exercise, this means of expression is followed throughout the year with success.

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Chapter XII (Continued)

Open houses at on-site positions have been employed extensively as a means of getting the people of the community acquainted with our units and personnel. This command has recognized the right of the American people to know about the military establishment. And again, it pays dividends to our units when they make the effort to foster cordial relations with the residents of the nearby communities. In most instances the communities have taken an active interest in the welfare of the men on duty in the area and have contributed to their comfort and entertainment in a generous manner.

Relations between the Antiaircraft Command and National Guard units have been publicized to a degree that all concerned have received mutual benefit. This phase of the program is carried out in coordination with the National Guard Bureau.

Increased use of television as a news and information medium is being used as this comparatively new means of communication takes on added importance in American life. While some network time has been given to this command, major attention comes from the local stations where we have troops and where the fostering of good relations is most essential.

Public information offices of the continental Armies and of the Air Defense Command at all command echelons have provided much assistance to our own public information personnel.

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CHAPTER XII

SUMMARY AND RECOMMENDATIONS

Summary

The following are believed to be the most significant achievements of the Army Antiaircraft Command during 1952 and are described in detail in the foregoing chapters:

1. 188 more batteries were on site at the end of the year than at the beginning.
2. The National Guard phase-out program was completed except for seven battalions and one group headquarters. Forty-five National Guard organizations were phased out during the year and a regular army unit activated in place of each.
3. Conversion to M33 fire control system was 74% complete.
4. An increase was effected of from 45 to 55 in the number of battalions assigned and trained in spite of the fact that the command lost three trained battalions to the Far East Command during the year.
5. The command structure was reorganized and streamlined to obtain more efficient and economical supervision of the antiaircraft defense areas and the units assigned thereto.
6. Officers of the command were integrated in the staff of the Air Defense Command and the former AA staff section was eliminated, thus effecting a much better system of coordination with the Air Defense Command.
7. A comprehensive system of inspection and follow-up was implemented, which resulted in an appreciable raising of the standards of maintenance throughout the command.
8. In spite of a shortage of ammunition, gun tubes and necessary firing ranges, twenty-four percent (24%) of all batteries assigned completed the three prescribed target practices and another nineteen percent (19%) completed two practices.
9. More than \$40,000,000 worth of equipment in excess of needs of units in static defense positions was turned in to supply agencies.
10. Recommended T/O&Es designed to more nearly represent the requirements of static Zone of Interior organizations and to affect a substantial saving in manpower were prepared and submitted to the Department of the Army.

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Chapter XII (Continued)

11. Racial designation symbols were removed from six negro battalions of the command and the negro personnel integrated throughout the command. At the end of the year negro enlisted personnel represented approximately 21% of the assigned enlisted strength of the command.

Recommendations

1. That promotion quotas not be allotted this command by continental army commands but be furnished this command directly and be based on a proportion of promotion vacancies.
2. That battery commanders continue to be stabilized for a period of at least six months.
3. That continental armies continue to maintain units of this command at personnel strengths equal to the levels of the proposed static defense T/O&Es, and that this command be furnished a minimum of 300 basically trained personnel per month who are qualified for technical school training.
4. That this command be provided an adequate supply of 120mm gun tubes, ammunition and fuzes at the earliest practicable date. Particular reference is made to PSD fuzes for skysweepers, 90mm and 120mm guns, and VT fuzes for skysweepers.
5. That key specialists peculiar to antiaircraft artillery who require long periods of schooling be trained in sufficient numbers to meet minimum requirements and be assigned to AA units from pipeline sources in order that the units may obtain maximum benefit from these specialists prior to expiration of their term of service.
6. That Department of the Army furnish all possible assistance in the procurement of needed additional ranges and of the necessary items of common equipment for the economical operation of these ranges.

JOHN T. LEWIS
Lieutenant General USA
Commanding

(Date) (Unit) 18

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24 August 1952

Dr. William F. Barvath
c/o Dr. A. G. Mill
Massachusetts Institute of Technology
P.O. Box 300
Cambridge 39, Mass.

Dear Bessie,

In answer to your telephone request from the Lincoln Summer Air Defense Study Group for information on increase in number of fighters that can be brought into the air battle as a function of warning, we have rounded up the following material.

As for ADC fighters, those actually belonging to the Command, our best single piece of evidence, is the record of the 17 April 1952 incident, a real one, in which ADC as a whole was called to "Air Defense Readiness". In the first two hours, the number of fighter aircraft on 5-minute alert increased from 28 to 249.

As for augmentation forces that ADC can expect from USAF commands, Air National Guard and Navy, the following comments apply.

Operation SIGR POST has yielded some information. A total of 324 augmentation aircraft from other major USAF commands were available to deployed posts 12 hours after deployment was requested from HQ AFPC. Two units reached their deployed posts in less than 10 hours; all others required 10 to 12 hours. In addition, an average of 2 hours was required after they reached their deployed bases before these units were available for scramble, the delay varying from 1 to 6 hours.

There is question which augmentation forces should be deployed to other bases and which should be used where they are. This question is being settled gradually but is not yet firm. While a majority of Navy forces can be used in place, only a few USAF units other than ADC can profitably be used at their present bases.

Addressee is authorized to receive the information
contained in this communication.

14 Feb 53
FM Varney / en
742
Aug 52

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The actual availability of Navy augmentation forces as distinguished from inventory is also subject to question. It depends on the Navy's commitments for meeting its primary mission. Plans for Navy contribution are being arranged as rapidly and firmly as possible, week by week.

There also arises the problem of support for the augmentation forces. Their capability is limited until their support forces are operating. Air lift for their support must now be supplied from forces in the southeast. For augmentation forces deployed in the west, the support may be delayed as much as 30 hours. We consider it likely that the augmentation forces could now make a minimum of 1 sortie per plane before their support forces came into position but not much more.

A reasonable estimate of possible augmentation forces is as follows:

Combat Ready Aircraft

Other Major USAF Commands	520
Air National Guard	192
Navy	300

The best estimate available is that a small fraction of these augmentation forces could be ready to scramble now under ADC control in less than 2 hours, though a few Navy units are actually on alert at certain periods now. The bulk should be ready in 12 to 20 hours. We believe that the bulk can be ready in 8 hours if the bases to which the aircraft are deployed are stockpiled and furnished with technical base manpower.

Sincerely,

F. M. VANEY
Chief, Ops Anal Office

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Augmentation Forces During SIGN POST

OST-F

Management Analysis

4 August 1952
Maj. B.E. McKenna/X13/bjd
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1. The following information concerning augmentation deployment during exercise SIGN POST is compiled from reports submitted by the air defense forces and observers from this headquarters.

2. STATISTICS FOR AUGMENTATION FORCES (Does not include Navy)

Total augmentation aircraft involved 324 TAC 147
Time required for deployment 11 - 12 hours
Time required before augmentation forces
were available for scramble 2 hrs after arrival
Number of sorties flown 631 TAC 268
Greatest number of sorties per aircraft . . . 4 TAC 3 /
(by the George
F-51s at Osiger)

3. Request for deployment of augmentation forces from ATRC and TAC was dispatched from this headquarters at 1100Z, 26 July 1952. At 2400Z, 26 July, there were 324 augmentation fighters in place.

4. During the course of the exercise, augmentation fighters flew 631 sorties.

5. Reported scramble times ranged from 3.3 minutes to 15 minutes. Reported turnaround times ranged from 20 minutes to 30.5 minutes. Times for all units are not available.

6. 30th Air Division: 57 Aircraft - 78 Sorties

a. 16 F-51s from Clovis AFB (TAC) and 12 F-94s from Tyndall AFB (ATRC) arrived at O'Hare Airport between 2030Z and 2315Z, 26 July. These aircraft were placed on alert at 0500Z, 27 July.

	SCRAMBLES	SORTIES	AVERAGE SCRAMBLE TIME	AVERAGE TURNAROUND TIME
F-94s	10	25	3.3 min.	26.6 min.
F-51s	8	23	3.7 min.	30.5 min.

Support aircraft from Tyndall arrived 2445Z, 26 July. Support aircraft from Clovis AFB arrived 0345Z and 0830Z, 27 July. Both units required support prior to arrival of airlift. Re-crystallization of F-51 SCR 922 radios (2)

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Augmentation Forces During SITH HOST (Cont'd)

027-7

Management Analysis

4 August 1952
Maj. D. J. McKenna/213/bjd
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caused considerable delay in availability for alert. The unit from Tyndall failed to bring high-low pressure altimeters, which had to be obtained from Glenview NAS and Wright-Patterson prior to servicing F-94s. F-94s indicated that the runway length (3800 feet) and the landing system were inadequate for weather operations. Neither unit had been indoctrinated in air defense procedures or rules of engagement, and a lengthy detailed briefing was required prior to being placed on alert. Just prior to the exercise, ATRC reported that Scott AFB was unable to support deployment as a refueling base, and Howard AFB was substituted. Scott AFB received no warning of the deployment and was not prepared for rapid servicing. Refueling time for the F-94s was 3 hours. No ADC Liaison officer was present. The F-94s arrived at Forbes AFB to meet a similar situation. Refueling time was 2 hours. Again no Liaison officer was present. One F-94, making a dashback landing, received major damage when the nosegear collapsed. There was no crew injury.

b. 16 F-47s from Goddard AFB (TAC) and 13 F-94s from Tyndall AFB (ATRC) were in place at Osceola AFB at 2130Z, 26 July.

SCRAWELS	SCRIES	AVERAGE SCRAWELS TIME	AVERAGE SCRIES TIME	
F-94s	Unit	12	4 min.	20 min.
F-47s	Unit	16	6 min.	20 min.

F-47s were used primarily for combat air patrol. No support or operational difficulties were encountered.

7. 32nd Air Division: 10 Aircraft - 4 Scowles

a. 10 F-47s from Goddard AFB (TAC) arrived at Griffiss AFB 1730Z, 26 July. Due to weather conditions at Griffiss AFB, these aircraft were redeployed to Niagara Falls Airport. The unit performed one scramble at each base, with a scramble time of 10 to 15 minutes. Intercepts were also borne were satisfactory. The unit was reluctant to assume alert conditions as directed by the air division and delayed take-off on redeployment to Niagara approximately one hour after the move was ordered. Refueling at Griffiss AFB was delayed because of lack of authorization for overline for civilian refueling employees.

8. 1st Air Division: 27 Aircraft - 32 Scowles

a. 12 F-46 (Doc L) from Wallis AFB (ATRC) arrived Rapid City AFB between 1605Z and 1630Z, 26 July.

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ONE-F

Augmentation Forces During SIGN POST (Contd)

Management Analysis

4 August 1952

Maj. E.E. McKenna/313/bjd

1 (contd)

SCRAMBLES	SORTIES	AVERAGE SCRAMBLE TIME	AVERAGE TURNAROUND TIME
4	10	Unk	Unk

Fuel problem at Rapid City AFB restricted use of F-84s during exercise.

b. 15 F-51s from Clovis AFB (TAC) arrived at Duluth between 1736Z and 1920Z, 26 July.

SCRAMBLES	SORTIES	AVERAGE SCRAMBLE TIME	AVERAGE TURNAROUND TIME
10	22	Unk	Unk

9. 29th Air Division: 86 Aircraft - 161 Sorties

a. 14 F-51s from Clovis AFB (TAC) arrived Larson AFB at 2400Z, 26 July, and were placed on alert at 0105Z, 27 July; 40 sorties.

b. 12 F-80s from Nellis AFB (ATNG) arrived Larson AFB at 2140Z, 26 July, and were placed on alert at 2240Z, 26 July; 16 sorties.

c. 16 F-51s from George AFB (TAC) arrived McChord AFB 2130Z, 26 July, and were placed on alert 0100Z, 27 July; 24 sorties.

d. 12 F-80s from Nellis AFB (ATNG) arrived McChord AFB at 2125Z, 26 July, and were placed on alert at 2300Z, 26 July; 4 sorties.

e. 12 F-80s from Nellis AFB (ATNG) arrived Paine Field at 1644Z, 26 July, and were placed on alert at 1744Z, 26 July; 15 sorties. (These times are questionable).

f. 20 F-51s from George AFB (TAC) arrived Geiger AFB 2045Z, 26 July, and were placed on alert at 0100Z, 27 July; 62 sorties.

10. 27th Air Division: 28 Aircraft - 70 sorties.

a. 4 F-51s remained at George AFB (TAC) with no activity.

b. 12 F-84s and 12 F-80s from Nellis AFB (ATNG) arrived George AFB 1430Z to 1600Z, 26 July, and were placed on alert 2045Z, 26 July; 70 sorties.

11. 28th Air Division: 64 Aircraft - 148 Sorties

a. 20 F-51s from George AFB (TAC) arrived Hamilton AFB 1706Z, 26 July. Time placed on alert is unknown; 35 sorties.

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Augmentation Forces During SIGN POST (Contd)

OAT-F

Management Analysis

4 August 1952
Maj. B. E. McKenzie/XI3/bjd
1 (Contd)

b. 12 F-86s from Bellis AFB (ATRC) arrived Hamilton AFB at 1352Z, 26 July, and were placed on alert at 1752Z, 26 July; 48 sorties.

c. 16 F-84s from Luke AFB (ATRC) arrived Castle AFB at 1633Z, 26 July, and were placed on alert at 2105Z, 26 July; 27 sorties.

d. 16 F-84s from Luke AFB (ATRC) arrived Travis AFB at 1715Z, 26 July, and were placed on alert at 2115Z, 26 July; 38 sorties.

12. 29th Air Division: 16 Aircraft - 40 Sorties.

a. 16 F-51s from George AFB (TAC) arrived Great Falls AFB between 2030Z, 26 July, and 0117Z, 27 July. 9 Aircraft were placed on alert at 0215Z, 27 July; 40 sorties.

13. 34th Air Division: 36 Aircraft - 95 Sorties

a. 16 F-51s and 20 F-80s from Luke AFB (ATRC) arrived Kirtland AFB between 1800Z and 1830Z, 26 July, and were placed on alert at 2100Z, 26 July; 98 sorties.

14. Both Training Command and Tactical Air Command units had been alerted for deployment prior to the exercise although exact times were unknown. It is probable that deployment in the event of hostilities would be less rapid than indicated during SIGN POST.

15. Delay in placing augmentation units on alert varied from one to six hours after arrival of last aircraft. Detailed reasons for time spread have not been received in preliminary reports.

16. The capability of the augmentation forces to bolster ABC air defense potential is indicated by the activity of ATRC and TAC fighters during exercise SIGN POST. Further exercise is required in order to develop capability to the fullest extent.

17. Various minor difficulties were encountered. These included such matters as lack of high-low pressure adapters for oxygen systems; requirement for local drivers licenses at Griffiss AFB; local maintenance and radio personnel unfamiliar with deployed equipment; deployed crews unfamiliar with local landmarks; pilot fatigue resulting from extended deployment flight and immediate alert commitments.

18. Several major deficiencies were apparent, both in the plan and in its implementation.

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Augmentation Forces During HIGH POST (Cont'd)

OCT-7

Management Analysis

4 August 1992
Maj. D. E. McNamee/213/994
1 (Cont'd)

a. The requirement for early arrival of support aircraft is of primary concern. For instance, at Offutt, 8 of 16 F-4Us and 5 of 12 F-84s were out of commission upon arrival. Repair parts were not available locally. It was necessary to obtain parts from other bases or wait until support aircraft arrived. The ability of local personnel to maintain deployed fighters pending arrival of parts and qualified maintenance personnel is limited. Unless authority can be obtained to stockpile supplies at the deployment bases, it appears evident that request for deployment must be made at the earliest possible time, even though occasional false alarms may result.

b. Indoctrination and detailed coordination between augmentation units and the receiving organization in several instances has been entirely inadequate. At Offutt it was necessary to spend more than two hours in briefing pilots before they could be used on alert. Lack of coordination with refueling bases was apparent in that refueling stops were as long as 3 hours. This time is considered excessive. Few crews arrived for operations in the Great Lakes area with no operator equipment.

19. This headquarters is taking action to:

a. Dispatch the time element between the arrival of fighters and support aircraft.

b. Instruct the air defense forces to re-indoctrinate all deployment units. Indoctrination teams should include a competent representative from the ADC fighter unit (if present on deployment base), the base support organization, and the OGI or ADC a wing control or the deployed unit.

c. Encourage major commands to take maximum advantage of the program for training their forces at the base to which they will be deployed, and to participate to the fullest extent in air defense exercises.

THOMAS D. DeFARRETT
Colonel, USAF
Chf, Interceptor Div.
Ext 213/662

J. O. MERRIN
Colonel, USAF
Director, Ops & Trng
Ext 212/213

SECURITY INFORMATION

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FILE NUMBER 347

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SECURITY INFORMATION 20

Intelligence Information Needed to Plan Aircraft Utilization

DCS/O

DCS/I

22 August 1952

Lt. Col. W.I. Olson/313/bjy

1

1. Due to the shortage of aircraft in this command, it is imperative that correct aircraft allocations be made to training and alert at all times based on the gravity of the international situation. Based on intelligence information, the Director of Operations and Training specifies the number of Fighter-Interceptor aircraft which will be sent to gunnery bases and the number which will stand alert. Further breakdown of these alert aircraft is then made as to the states of alert for each.

2. This office relies on the opinions of your personnel to indicate any changes in the seriousness of the world situation so that proper utilization of our aircraft can be planned. It can readily be seen that over-allocations of alert aircraft reduces the number of much needed training aircraft while under allocation of alert aircraft might provide inadequate air defense in event of an attack. A calculated risk must be taken at best; however, since the probability of hostilities is determined to a large degree by seasons and international incidents, the risk can be reasonably estimated during these periods.

3. ADC Operations Order 16-52, 1 Aug 52, specifies that the following alert requirements will be met at each base insofar as the number of assigned and combat ready aircraft permits:

<u>Period</u>	<u>Non-AI Interceptors</u>	<u>AI Interceptors</u>
2 hrs before sunrise	4 A/C - "Readiness"	4 A/C - "Readiness"
until 1 hr after sunset	4 A/C - "Back-up"	4 A/C - "Back-up"
1 hr after sunset until	2 A/C - "Available"	2 A/C - "Readiness"
2 hrs before sunrise	6 A/C - "Back-up"	2 A/C - "At Ease"
		4 A/C - "Back-up"

This figure represents the maximum number of fighter-interceptors that will be placed on alert until declaration of an emergency.

4. During the period 1 December 51 through 31 March 52, this command specified that the following minimums would be met per base:

<u>Period</u>	<u>Non-AI Interceptors</u>	<u>AI Interceptors</u>
1 hr before sunrise	2 A/C	
until 30 minutes after sunset		
During daylight, 1 hr conditions and 30 minutes after sunset until 1 hr before sunrise		2 A/C

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SUBSTITUTE
22 August 1952

SECURITY INFORMATION

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22 August 1952

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The number of aircraft committed to defense during this period was far less than the number committed at the present time.

5. The present alert schedule plus a minimum number of aircraft at gunnery bases leaves few if any planes available for training at home stations. A lessening of the chances of hostilities would immediately permit an appropriate reduction in alert commitments and increased utilization of our training facilities.

6. With these considerations in mind, it is requested that your office furnish an estimate of the possibility of hostilities in the near future. This estimate should contain information upon which alert requirements can be established for the forthcoming period.

J. C. MEYER
Colonel, USAF
Chf, Interceptor Div.
Ext 313/662

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations
Ext 221-222

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Monthly Combat Readiness Commentary

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O&T-P

Hgt Anal

19 Sept 52

P/Sgt C.B. Green/D11/dcv

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SPECIAL ALERT COMMITMENTS

Present alert commitments being met at each base are as follows:

Period	Non-AI Interceptors	AI Interceptors
2 hrs. before sunrise until 1 hr after sunset	4 A/C - "Readiness" (5 Min) 4 A/C - "Back-up" (1 Hr)	4 A/C - "Readiness" (5 min) 4 A/C - "Back-up" (1 hr)
1 hr after sunset until 2 hrs before sunrise	2 A/C - "Available" (15 min) 6 A/C - "Back-up" (1 hr)	2 A/C - "Readiness" (5 min) 2 A/C - "At base" (30 min) 4 A/C - "Back-up" (1 hr)

Air defense alert requirements per base will be reduced on 1 October 1952 to the following:

Period	Non-AI Interceptors	AI Interceptors
1 hr before sunrise until 1 hr after sunset	2 A/C - "Readiness" 2 A/C - "Back-up"	2 A/C - "Readiness" 2 A/C - "Back-up"
1 hr after sunset until 1 hr before sunrise	2 A/C - "At base"	2 A/C - "Readiness" 2 A/C - "Back-up"

The above alert requirements will meet the air defense day-to-day mission of identifying unknowns. The average number of unknowns have fallen off from 120 to 80 per day. With conversion problems and the high ratio of assigned aircrews due to the shortage of US aircraft, our fighter-interceptor units have found it is becoming more difficult to accomplish the diversified training requirements.

Although the final analysis of alert aircraft requirements is based on a calculation of relative risks, there is no available intelligence which in itself dictates the necessity for maintaining on alert at this time more interceptor aircraft than are required for the interception and identification of anticipated unknowns.

WALTER I. OLSON
Lt Colonel, USAF
Acting Chief, Ftr-Intep Div
Ext 313-662

THOMAS D. DeJARMETTE
Colonel, USAF
Acting Director of O&T
Ext 212-213

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EIFE NUMBER 319

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Security Information

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085-7

085-4
Attn: Col Meyer

17 Nov 52
Maj. V. E. Chandler/727/113
1

1. Reference copy of memo to RAB attached to this RAB, there will be in the very near future 83 sets of rocket pods for F-94B's available for delivery to this command. The A-6 gunights which will incorporate a rocket firing feature will not be available until approximately 10 months after the rocket pods.

2. The question has arisen as to whether we should request that these pods be delivered to us now or wait for the availability of the sight. The sight is actually an A1-C modified for air-to-air rocket firing.

3. We suggest that the pods be delivered as soon as possible for the following reasons:

a. The pods will be a great addition to the fire-power of the 94B's.

b. The A1-C sight, as is, will give us a reference point for line astern firing of these rockets. Since the range of the rockets is greater than the .50 cal. and 20 Mm, this type of an attack would be feasible against an enemy which would be using these guns. The fixed feature of the sight could be used to fire the rockets if nothing else. Using this feature, the pilot could be instructed as to how many miles (high or low) he would have to hold the pipper of the fixed sight at given range (e.g. 3,000 yards) in order to compensate for the ballistics of the rockets. Again, this would be a dead astern pass.

4. Even though this rig would be sadly lacking in kill probability, it does give us a little better chance of knocking an enemy down. In the case of the F-94B, we believe that we need to take every chance we can get.

5. We have been informed by the Lockheed Technical Representative in this headquarters that this pod will only decrease the cruising speed of the aircraft by 3 to 5 knots. Since the afterburner can kick the F-94 up to its mach at any altitude, this 3 to 5 knots decrease should not be considered as a problem.

6. Another question connected with these pods has also been posed -- into what units are we going to put them? Since they will go on only the F-94B, it narrows the field down a little. We believe that the rocket pods should be disseminated to the Defense Force commanders in order that they can further place them in strategic spots and numbers within their commands.

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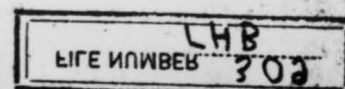
Attn: 17 Nov 52

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5. If you concur, request that the attached R&R be forwarded to P&R.

WALTER I. OLSON
Lt Colonel, USAF
Actg Chf, Ftr-Intep Div
Ext 313/662



SECRETHEADQUARTERS
EASTERN AIR DEFENSE FORCE
STEWART AIR FORCE BASE, NEWBURGH, N. Y.CLASSIFIED BY
HQS EAD
BY AUTHORITY OF
DATE 1 JAN 1951

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FILE NUMBER

14 AUG 1951

O&T 360.2

SUBJECT: Fighter Tactics, F-86 Versus B-36

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado1. Reference is made to message, your headquarters, ADOOT-B
18861, 18 June 1951.2. For your information, a narrative report is attached hereto,
as Inclosure #1, covering all aspects of subject test. This headquarters
considers this report particularly informative, however, feels that
additional tests must be conducted before the value of the head-on attack
in comparison to other types, can be determined conclusively.3. In view of current emphasis on attacks from the rear hemi-
sphere, the tests should be conducted in the very near future in order that
units can immediately begin to concentrate on the attack insuring the
greatest probability of kill.

FOR THE COMMANDING GENERAL:

*C. J. Dillon*C. J. DILLON
Capt. USAF
ASST. AIR ADJ. GEN.1 Incl
Ltr Hq 33d Ftr-Intep Wg,
OO 360.2, subj as above,
26 Jul 51, w/1 Inclosure

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373.5 aerial ops

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from file, or destroying it,
mark cross references accord-
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SECRET60TH FIGHTER-INTERCEPTOR SQUADRON
AND FIGHTER-INTERCEPTOR GROUP
Westover Air Force Base, Massachusetts

Classification SECRET

AUTH: CG SAC

Date: 14 Jul 51

23 July 1951

FIGHTER TACTICS F-86 VS B-36I. INTRODUCTION

Recently Strategic Air Command and Air Defense Command coordinated a series of missions using four F-86 aircraft to intercept and make passes on B-36's escorted by F-84's. The purpose of these missions was to gain information as to what could be expected from the Soviet Mig-15 type fighter because of its close similarity to the F-86. Upon the completion of these tests a critique was held and was attended by representatives of Strategic Air Command, Eighth Air Force and the flight leader of the F-86's. The discussion occupied approximately three hours covering various subjects, however this brief contains only the summary of the fighter attacks on B-36 Bombers.

II. F-86 FIGHTER ATTACKS ON B-36 BOMBERS

All types of attacks were attempted to find a method of attacking the B-36 from a completely invulnerable angle from the fighters point of view, or at any rate, from a position which would give the B-36 gunners a very difficult shot. Missions were flown between 15,000 and 41,500 feet. Every type of attack could be made with tactical continuity up to 35,000 feet.

It is a formidable proposition to attack a single B-36 at any altitude up to 40,000 feet if the attacks are coordinated. A formation of them at 40,000 feet and above would present such a problem that there would be extremely heavy fighter losses. The effect of altitude is the dictating factor as to the types of attacks that can be made with any degree of success.

Escorting F-84's were hardly a contending factor for the defense of the B-36 because their Mach of .82 made it very difficult for them to maneuver into a firing position.

1. Frontal Quarter Attack

This type of attack was executed with elements of two's positioned so that upon the completion of the turn in to the target the attack

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closes from eleven and two o'clock with one element slightly ahead of the other. If the target is a formation the attack should be flat to enjoy immunity of return fire from all but the lead or flank bomber. Wingmen are positioned approximately 2,000 feet to the rear and slightly to the side to give maximum fire power. Tracking should begin immediately (this is true for every type of attack), fire being opened at 10 o'clock at 700 yards. The breakaway should be at the last possible moment to avoid collision going slightly over the top of the target and to the opposite side so that the two elements will scissor to reposition for another attack. A half split-S breakaway can be used when the target is a single bomber or very close formations of two and three. This attack is very difficult to execute properly above 35,000 feet because the fighter does not perform favorably. Considerable time must be spent in practicing this attack to achieve maximum coordination of fire power.

2. Attack from Astern and Below

The F-86 is very capable in this type of attack owing to good rate of climb and zoom. However, the fighter is extremely vulnerable on the breakaway having lost its speed in a half split-S position, and will present a plan view target to the B-36 gunners. This attack is not recommended unless it can be coordinated with rear quartering attacks to divert return fire from the bomber.

3. Over-head Verticle Attack

It is very desirable to use this attack when altitude permits. If executed properly every factor, except repositioning for another attack is in favor of the fighter. The rate of closure provides a minimum amount of time for tracking and firing for the B-36 gunners. The breakaway is a split-S going down and away to either side. This proved to be difficult for the B-36 gunners to track. Two attacks of this type were attempted from 45,000 feet. Neither one was successful because of poor elevator and aileron control when exceeding Mach limitations. The F-86 is extremely more desirable for the overhead attack because of its reversible elevator control and aileron boost configuration which affords very good directional control even when exceeding Mach limitations.

4. Head-On Attacks

Upon making the initial interception the first attack should always be head-on whenever possible. In the critique it was brought out that this attack was always successful. It achieves extremely good tactical surprise. B-36 crews rarely saw the attacking F-86 until well within range. The head-on attack can be made at any altitude. The F-86 presents a difficult target for the B-36 because of high closing speed and restricted visibility. It tends to break up large formations and destroy the leaders. It provides an excellent shot because of the minimum of deflection. The breakaway is merely a continuation of the sighting run: just enough back stick pressure to miss the B-36. This also enables the fighter to

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reduce closing range and increase the firing time. Using this method to breakaway makes it practically impossible for the nose gunners to sight and fire because of the small frontal area of the fighter exposed to the bomber's nose gunner and the extremely high rate of closure.

This initial head-on attack, or all such attacks, is ideal in flights of fours. The turn in is made in close line astern making it possible to line up on the B-36's. The leader informs his flight immediately which bomber he is attacking which would usually be the extreme left or right hand bomber making it possible for the remainder of the flight to line up on either the left or right side in echelon. The formation should be spaced to allow changes of course up to a point, approximately 2,500 yards. From here on in the leader will have to keep steady to allow the other pilots to concentrate on sighting. On the breakaway the fighters continue their sighting direction passing just above the target formation turning to the left or right for repositioning after having passed the whole formation. The head-on attack, other than the initial attack, is not recommended at 40,000 feet because of the length of time it takes to reposition. This defeats continuity of attack which is highly desirable.

5. Rear-Quarter Attacks

Attacking the B-36 from the rear quarters faces the fighter with enormous return fire power. This is especially true at altitudes above 30,000 feet where the rate of closure is not great enough to give the fighter a reasonable degree of safety. With the B-36 at 40,000 feet practically every attack will end up in a rear quarter chase unless the head-on attack is employed.

Attacks should be made against the extreme flanks of B-36 formations to eliminate return fire from all but the extreme flank bomber. The breakaway should be made at some stage before reaching the dead astern position breaking diagonally across and just below the bomber formation which presents a difficult deflection shot. This attack should be modified according to the type of formation flown by the bombers. Attacking a stepped down echelon the fighter could attack from the low quarter to gain immunity from the guns of the inside bombers. Coordinated attacks should be attempted at all times to further dissipate the return fire from the bombers.

III. CONCLUSIONS

1. Effect of Altitude

a. Altitude is the greatest single factor confronting the F-86 with respect to maneuverability. However, much improvement was noticed when external tanks were not used at 40,000 feet.

b. Intercepting F-86's should be scrambled in time so that the initial attack can be made from an altitude and speed advantage. It was found impossible to intercept a B-36 at 35,000 feet and complete attacks

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while the bomber continues to climb. All attacks end up in a tail chase with negligible rate of closure. As a result under actual conditions it would be extremely important for the GCI controller to position the intercepting fighters so that the initial attack would be head-on and that the run in is commenced at the greatest possible range to give the flight leader enough time to line up, and his formation to settle down for the attack.

c. It would be practically impossible for the F-86, even without external tanks, to make attacks other than the initial head-on at 45,000 feet. This situation under actual conditions would have to result in fighters attacking head-on in waves. Only one pass could be completed by each wave.

2. Head-On Attacks

a. It cannot be emphasized too much the importance of this type of attack and also be used whenever possible including coordinating with other types of attacks.

b. In the case of attacking a narrow bomber front the flights of fighters should be in line astern spaced so that each individual fighter can attack independently.

3. Positioning for attacks

a. This takes considerable judgement and technique but improved greatly with practice as missions were flown.

b. It must be remembered that once the fighter is committed to an attack at the higher altitudes, he must continue with the attack regardless of its resultant effectiveness, or break off the attack completely. For this reason Fighter Interceptor Units should receive adequate training and practice against bomber formations above 35,000 feet.

4. Rate of Closure

a. All attacks should be made on or near the Mach to gain the greatest possible rate of closure. At 41,500 feet the rate of closure of the F-86, at break-off point, proved to be approximately 130 knots over the speed of the B-36. This was an indicated 500 knots.

5. Armament

a. The armament and gunsight on the F-86 is not considered adequate in view of the greatly increased cannon type fire-power of the B-36. This results in the F-86 being very vulnerable to the B-36 even before it can close into the maximum effective range of the calibre .50

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machining gun which the F-86 is equipped.

IV. RECOMMENDATIONS

1. It is recommended that all Fighter-Interceptor Units receive maximum practice interception missions against B-36 or B-29 type aircraft at altitudes of 30/40,000 feet.
2. Forthcoming fighter interceptor aircraft should be equipped with at least four 20mm cannon and a radar tracking gunsight. Also that these aircraft have a configuration of the F-86E elevator and aileron.
3. GCI controllers should become familiar with the problems of the fighter-interceptor especially with regard to positioning for the initial attack. The flight leader should be informed if possible, by the controller, the approximate frontal area covered by the bomber formation so the flight leader can plan the type of attack.
4. An extensive aerial gunnery program should be conducted at all times with emphasis on altitudes of 30,000 feet and above.

/s/t/CONRAD E MATTSON
Captain, USAF
60th Ftr-Intop Sq

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THE PERFORMANCE OF F-51H and F-47N
AIRCRAFT AT ALTITUDE AND THEIR EFFEC-
TIVENESS AGAINST THE B-50 BOMBER

10327

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SECRET:
 Auth: 2BW,CG
 Initials: CP(S)
 Date: 17 Mar 51

Introduction:

Performance tests were made on F-51H and F-47^N aircraft to obtain the following data:

1. Time of climb to 30,000 and 35,000 feet.
2. The maneuverability of the above aircraft at 30,000 feet and 35,000 feet.
3. The ability of these aircraft to attack B-50 bombers at these altitudes.
4. Speed differential between B-50 and above fighter aircraft at normal cruise, top cruise, and maximum speed at 30,000 and 35,000 feet.

Summary:

Two F-51s and two F-47s made various types of attacks on B-50 at 30,000 feet and 33,500 feet. The F-51 attacks seem to be very effective at this altitude as a new attack (high side on over head) could be initiated every two minutes.

One of the F-47 aircraft failed to obtain this altitude and the other was able to attack the B-50 by making low angle deflection shots of 5 degrees to 10 degrees angle off.

A 35 degree deflection shot is approximately the maximum that an F-51 can obtain at that altitude.

Brief performance information is tabulated as follows:

Average time to climb

F-47N	30,000 - 23 Min	F-51H	12.5 min
	35,000 - 27 "		16 "
	40,000		22.5 "

F-47					F-51			
Altitude	Cruise		Max		Cruise		Max	
	IAS	TAS	IAS	TAS	IAS	TAS	IAS	TAS
30,000	220	360	230	375	237	385	262	425
35,000	210	343	225	390	212	330	220	393
40,000							150	298

Maneuverability is indicated as a function of "G's" and airspeed at given altitudes.

Method and Discussion of results:

The fighters climbed to altitude using maximum continuous power and maximum take off power while holding a designated IAS. Speed differentials between fighters and bombers are based on actual indicated airspeeds and contain temperature corrections only. Compressibility, position, and instrument errors are assumed to be small and are neglected in presentation of results.

Various types of attacks were used by the fighters. Of these, the overhead and high side approaches are best. Next in line are the flat side, low side and the worst attack is the frontal.

An overhead or high side attack could be made every two minutes by the F-51s at 31,000 feet. Other attacks took slightly longer. The frontal (or head on) attack required excessive time for the fighters to initiate the attack and regain position while giving a very hard deflection shot for a short period of time.

The F-47N can make successful attacks at 31,000 feet; however not as often as the F-51H type aircraft.

Pilots of the F-47s stated that the aircraft felt "mushy" or "heavy" at altitude and care had to be taken to avoid stalling in maneuvers. The F-51Hs felt "light" and seemed to have adequate maneuverability at altitude.

Both fighter types are limited to short periods of operation above 35,000 feet due to the lack of an adequate oxygen system. They are equipped with a demand system.

All fighters carried a full military load during these missions. Gun camera film was used on all missions by both fighters and bombers. Considerable trouble was experienced in obtaining good film by the fighters, and approximately 30 feet was obtained. The chief cause is believed to be freezing of the cameras and film at altitude.

At the present time the film taken by the bombers is undeveloped. It is believed that this film will be better and that the effectiveness of the fighter attacks can be ascertained more completely.

The F-47s experienced difficulty at altitude because of the engines cutting out. The exact cause is undetermined, however, the supercharger boost control was defective on one aircraft, slight difficulty was also caused by high cylinder head temperatures.

The B-50s were unable to reach 35,000 feet due to restricted engines. One B-50 did reach 33,500 feet and another was able to attain 31,000 feet.

Conclusions and Recommendations:

1. That the fighters could make an effective attack on the B-50 type aircraft if effective armament range of the bomber is less than that of the fighter.
2. An F-51 could make successive attacks at three minute intervals using high side or overhead attacks and tactical breakaway.
3. It is recommended that some type of heater be developed for warming gun cameras at high altitudes. A standard gun heater modified to attach to the camera might be successful.

F-51H PERFORMANCE DATA

Time to climb from standing take off (Minutes)

Altitude	Maximum Cont Power	Maximum Power
S.L	0	0
5,000	2.5	2.0
10,000	5.0	4.0
15,000	7.8	5.5
20,000	10.5	7.5
25,000	14.0	10.0
30,000	18.5	12.5
35,000	24.0	15.8
40,000	-	22.3

Maneuverability of F-51H in "g's" of acceleration at various IAS and altitudes.

Altitude	IAS				
	140	170	200	230	260
30,000	-	2.2	2.9	3.1	-
35,000	1.7	-	2.8	-	4.0
40,000	1.4	-	-	-	-

Speed of F-51H at altitude (MPH)

Altitude	Cruise	Cruise	Max	Max
	IAS	TAS	IAS	TAS
30,000	237	385	262	425
35,000	212	380	220	395
40,000	140	285	150	296

F-51H and B-50 speed differential at altitude (MPH)

Altitude	Cruise	Cruise	Max Cruise	Max Cruise	Max	Max
	IAS	TAS	IAS	TAS	IAS	TAS
30,000	45	72	40	65	47	75
33,000	40	66	30	48	29	51

F-47N Performance Data

Time to climb from a standing take off (Minutes)

Altitude	Time
S.L	0
5,000	3.5
10,000	6.3
15,000	9.3
20,000	12.3
25,000	15.7
30,000	19.0
35,000	24.6

Maneuverability of F-47N at altitude (in G's)

Altitude	IAS				
	160'	180	200	220	240
30,000	1.8	2.0	2.7	3.5	3.8
35,000	1.8	1.9	2.2	3.1	3.2

Speed of F-47N at altitude

Altitude	Cruise IAS	Cruise TAS	Max Cont IAS	Max Cont TAS	Max IAS	Max TAS
30,000	200	325	220	358	232	376
35,000	200	354	215	380	230	408

F-47N and B-50 speed differential at altitude

Altitude	Cruise IAS	Cruise TAS	Max Cont IAS	Max Cont TAS	Max IAS	Max TAS
30,000	08	15	23	38	17	26
35,000	15	22	20	34	25	40

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(UNCL) Summary of Inspections of 2d, 121st and 142d Fighter-
Interceptor Squadrons
DCS/O IG (Insp Svs) 12 Aug 52
Maj. V.E. Chandler/727/bj: 25
2

1. Reference paragraph 2.b.(1). This has been the case in many of the AI equipped fighter-interceptor squadrons in the past. Many difficulties such as lack of test equipment, lack of suitable targets, lack of trained personnel, lack of knowledge of the system, and known deficiencies in the system have precluded use of the complete system. In order to qualify crews in gunnery, many units have been using the fixed range feature in the system. While this definitely is not the desired method for qualification, it has given the crews experience in the basic elements of gunnery while the difficulties cited above are being "ironed out". As these difficulties are surmounted, full use of the system will be stressed more and more.

2. Even now the problems are being solved, as can be evidenced by the results of the 317 Fighter-Interceptor Squadron's activities at Yuma, in which the scores obtained while using radar ranging are higher on the average than when using fixed range. It is expected that the ADC Weapons Training Center at Yuma will further aid all units in alleviating these problems.

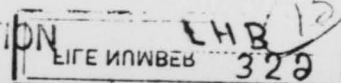
3. Future plans call for revision of the ADC gunnery qualification regulation to state that qualification in AI equipped aircraft will be accepted only if the full system is used.

J. C. MEYER
Colonel, USAF
Director, Cprs & Ing
Ext 212 213

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/O
Ext 221/222

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LHBEASY READING COPY OF INCOMING CLASSIFIED MESSAGE

REFERENCE NO: RANCM-01823

PARAPHRASE IS NOT REQUIRED

FROM: EADF

SEE CRYPTO SECTION BEFORE

26

TO: ADC

DECLASSIFYING

INFO: 4711th Def Wg

PRECEDENCE: PRIORITY

Ref interim T,O, 01-15 PIC-24, 22 Sep 52. This Hqs has been unofficially advised by Northrop Representatives that the 5 point test program currently being conducted on F-89C acft will probably not be completed for at least 4 months. Maint of F-89C acft and crews in a constant operable status without benefit of periodic flying or tag will be of questionable value after elapse of 30-F-86A reasgmt within the Comd to provide combat potential for 2 affected ftr sqs is currently planned aspec expedient. Plan will be put into effect immed after undergrounding of F-86A. Due to add work-load imposed upon subj units in maint on F-86A combat potential as well as F-89C acft in operable status and further concerning the gradual decrease in effectiveness of F-89C acft and crew proficiency as a result of prolonged grounding. The folg is recommended: interim T,O, 01-15 PIC-24 revised to permit indef storage of F-89C acft iaw T, Os, 01-7 (with supplementary instructions) and 02 B-1-1 when planned rebalancing of forces within EADF is complete.

DATE TIME GROUP 021830ZACTION TO DMDATE REC'D FROM CODE ROOM 2 Oct. 52INFO TO CG, VC, C/S, IGAG CLASSIFIED REG # C-42780INFO CY PREP'D BY pf-6SUSPENDED TO 7 Oct 52

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P1181-4

P1181-4

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ROUTING AND RECORD SHEET

27

11 August 1952
Maj. Dickson/rm
COMMENT NO. 1

1. It is believed that in order to completely utilize the capabilities of AAA and surface-to-air missiles in the air defense of the United States, gun defended areas (GDA) as defined in Air Defense Command Regulation 55-1 should be established. The existence of effective air defense identification zones (ADIZ) will not eliminate the requirement for GDA.

2. GDA may be broken into 2 different types. These are: (1) Those bordering on or adjacent to an ADIZ, and (2) Those well within the ADIZ. Attached hereto are Inclosures 1 and 2 that represent each of the 2 types.

3. Inclosure 1 represents the ARAACOM concept of a GDA for the Boston AA defense. This GDA is adjacent to the ADIZ off the eastern coast. In the case of this defense, it is true that the necessity for a GDA is minimized in the case of an aircraft approaching the defended area directly through the ADIZ, since such an aircraft will likely be carried and properly identified through the ADIZ and into the defended area (example - Course Number 1 - Inclosure 1). On the other hand, the provisions for a GDA are important, when considering that an aircraft may pass through the ADIZ at a point not adjacent to the defended area, follow a course to a point somewhere to the west of the defended area, and then proceed toward the defended area (example - Course Number 2 - Inclosure 1). In the latter case, the aircraft may well be lost and its course not continuously plotted after leaving the ADIZ. In this case, should the aircraft be hostile, probability of engagement by AAA in the Boston defense will be considerably increased by utilizing an established GDA. For example, should the Boston defense be within a GDA as represented on Inclosure 1, friendly aircraft could be cleared from the area, permitting AAA to fire on unidentified targets entering the GDA.

4. Inclosure 2 represents typical GDA well within a perimeter formed by an ADIZ. In this case, the requirement for a GDA is obvious, since unidentified targets may be picked up at any point outside the GDA when it is known or suspected that hostile targets are in the area. In this case, complete utilization of AAA at the time an unidentified target enters the immediate vicinity of the defended area can be obtained only if a GDA is provided for.

5. Size of a typical GDA in both examples attached (Inclosures 1 & 2) has been established as a radius of 46 miles. This represents the point at which the decision must be made to fire surface-to-air missiles (NIKE) in order to launch 3 missiles at the target and obtain effective engagement before bomb release line (BRL). The target in each case has been assumed to be 450 knots at 40,000 feet altitude.

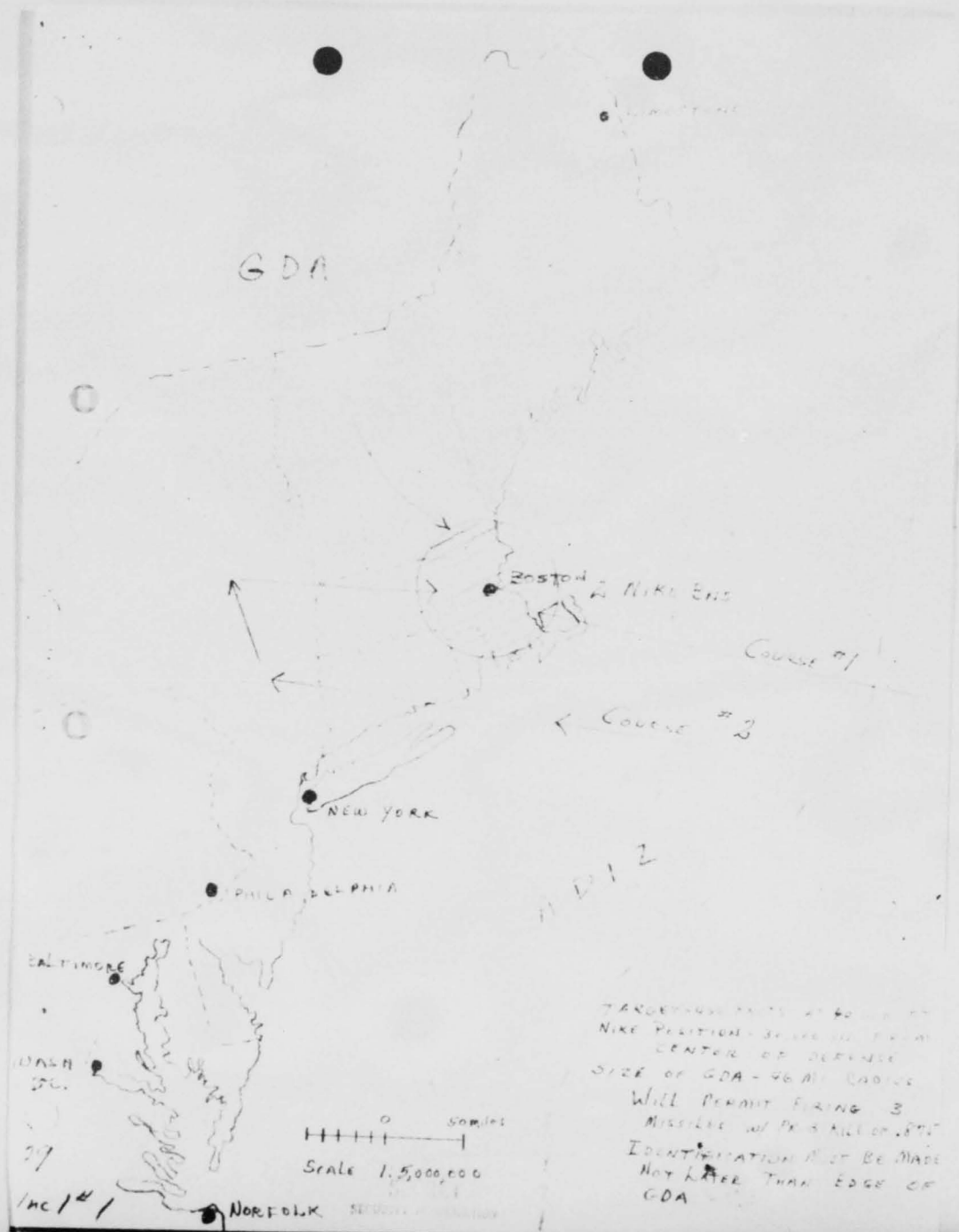
6. Recommend that GDAs be established at all AA defenses, based upon the principles stated in paragraphs 1 through 5 above. The exact shape and size to be determined individually for each GDA in order that boundaries be well defined and in order that such boundaries are not placed over air fields or other undesirable points.

JOHN T. SHEDDEN
Colonel, GS
Chief of Staff

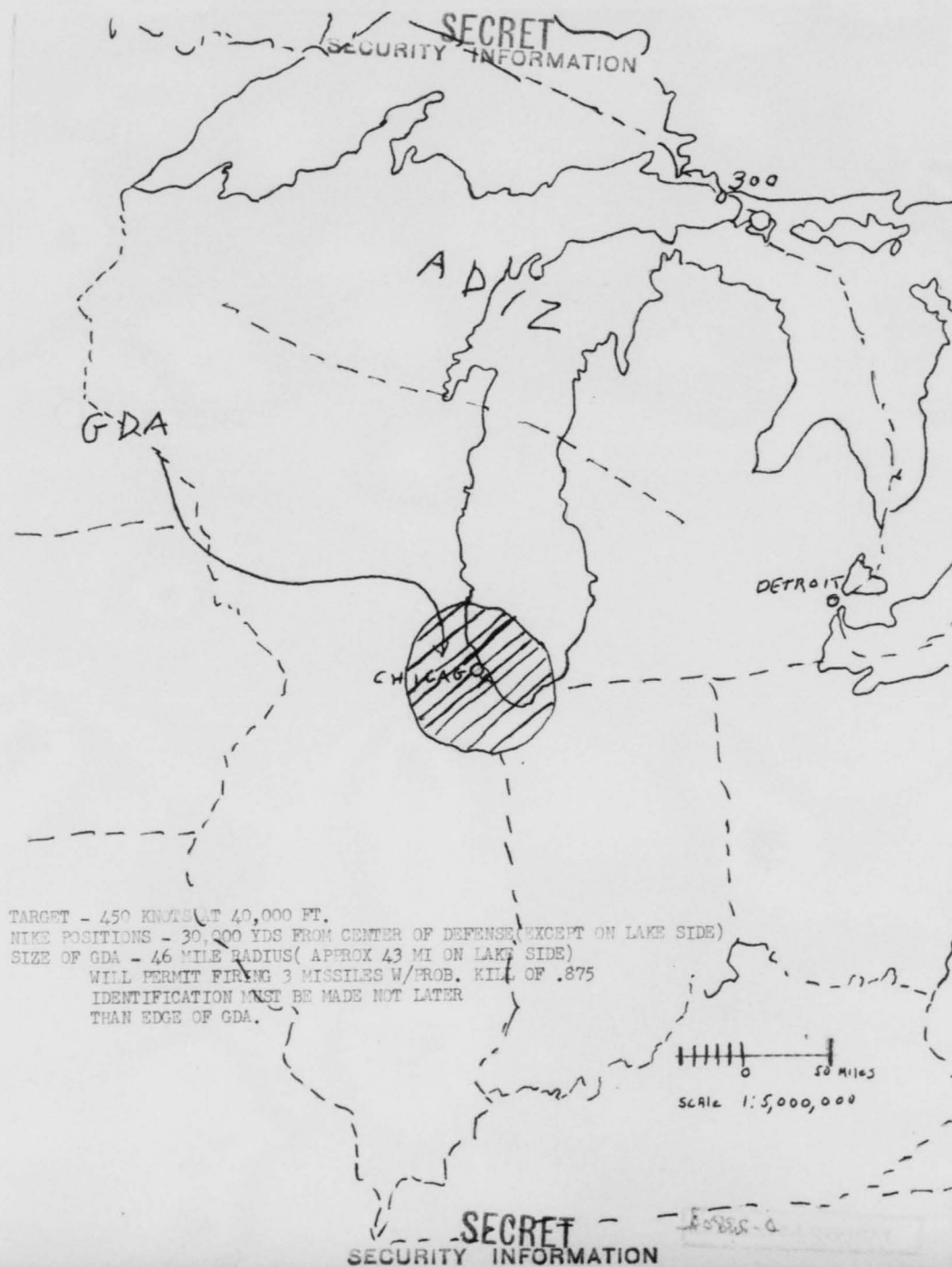
WALTER F. ELLIS, Col, GS, 3792

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SECRET SECURITY INFORMATION

16 September 1952

Major General Herbert B. Thatcher
 Director of Plans
 Headquarters USAF
 Washington 25, D. C.

X106

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Dear Herb:

I have read your letter of 2 September, which comments on our "inner ADIZ" concept, with great interest. I would like to further clarify our need for some sort of inner defense areas.

We concur with your statements that any unidentified aircraft penetrating an ADIZ after implementation of the plan for Security Control of Air Traffic should be considered as hostile and engaged by all available defense weapons.

However, many of our critical target areas, particularly in the northeast part of the United States, are not within the boundaries of an ADIZ. When considering the probability that many hostile aircraft may penetrate the Coastal or International Boundary ADIZ undetected, or be lost from surveillance after an effective penetration, the basis on which to determine hostility becomes less positive even though security control of air traffic may have been imposed to the extent possible.

I am sure a misconception as to the establishment of Gun Defended Areas was viewed by the Army authorities with whom you discussed this matter. As yet, no such areas have been formally established or announced by this headquarters.

Under these circumstances, it is essential that an inner identification process be performed. For the proper employment of ground-to-air weapons, this process must be positive in nature.

Our proposed solution to this problem is the designation of inner defense areas around critical target areas within which any aircraft will automatically be considered as hostile and attacked by all available weapons unless specifically cleared to enter the area by the responsible air defense commander.

I agree that the term "inner ADIZ" is not adequately descriptive of these areas. Nor do I believe that the term "Gun Defended Area" is appropriate since guns may or may not be the defending weapon. It is possible that such areas may be designated to restrict aerial traffic even

Major B.E. McKenna/bjd
 313/662

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Major General Herbert B. Thatcher
Page 2

though no ground based weapon is located within the area. We have not yet arrived at an acceptable terminology for this area which will be fully indicative of its nature.

Our concept is essentially that originally considered in the provision for Gun Defended Areas. However, it has further ramifications concerning evidence of hostile intent. The rules of engagement for antiaircraft weapons may readily be revised within the purview of the Collins-Vandenberg Agreement to meet the requirements imposed by the adoption of this concept. Until such time as a condition of Air Defense Warning Red is announced, or a hostile act has been committed, the normal status of antiaircraft weapons in an inner defense area will be "Guns Tight." Upon announcement of an Air Defense Warning Red or commission of a hostile act, the normal status will become "Guns Free."

We concur in your belief that only the acquisition radar of the Army Antiaircraft Command will be concerned in identification through correlation with tracks furnished by the Air Force AC&W system, and that they have no intention of going into the early warning business.

The study of this problem is being continued to formulate a detailed plan that will satisfy the requirements of the Army Antiaircraft Command as well as increasing the effective defense potential of this command.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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HEADQUARTERS AIR DEFENSE COMMAND																																			
ROUTING AND RECORD SHEET																																			
FILE	SUBJECT	Number and date each comment. Show actual signer with telephone extension. Use full width of use mainly within this h ADCOM 10-2).																																	
	Inner ADIZ's	29																																	
FROM	TO	DATE	COMMENT																																
P&R	DCS/O (Info) <i>Rel B</i> O&T	19 August 1952 Capt <i>L. G. Hill</i> /re/ <i>W</i>	1 <i>Rel B</i>																																
<p>1. The Vice Commander has approved a concept of "inner ADIZ's". (See Incl #1). The proposal of inner ADIZ's grew out of comments in WSEG Staff Study No. 9 concerning rules of engagement for AA. WSEG's approach pointed out that the full potential of AA could not be realized because of restrictive rules of engagement, and recommended that the rules be changed. It is the opinion of P&R that the problem is really one of identification and that the only solution will be improvement of procedures to obtain positive identification.</p> <p>2. This directorate believes that the initial selection of inner ADIZ's should be limited to those critical areas that will have active AA gun defenses by the end of 1952. Hq USAF and the Department of the Army selected these areas jointly; therefore these areas will serve, to a great extent, as top priority targets. Recommend that inner ADIZ's be established for the following areas with the size as indicated:</p> <table border="1"> <thead> <tr> <th>Area</th> <th>Approx. Radius (stat. miles)</th> </tr> </thead> <tbody> <tr><td>Baltimore</td><td>35</td></tr> <tr><td>Boston</td><td>40</td></tr> <tr><td>Chicago-Gary</td><td>40</td></tr> <tr><td>Detroit</td><td>40</td></tr> <tr><td>Norfolk</td><td>40</td></tr> <tr><td>Philadelphia</td><td>40</td></tr> <tr><td>Pittsburgh</td><td>40</td></tr> <tr><td>San Francisco</td><td>40</td></tr> <tr><td>Hanford</td><td>40</td></tr> <tr><td>Sault Ste Marie Area</td><td>10</td></tr> <tr><td>Los Angeles</td><td>40</td></tr> <tr><td>New York-Brooklyn</td><td>50</td></tr> <tr><td>Niagara Falls</td><td>35</td></tr> <tr><td>Seattle</td><td>40</td></tr> <tr><td>Washington</td><td>40</td></tr> </tbody> </table> <p>The radii were approximated from the size of the critical areas, the type of AA weapons programmed for each area, and the range capabilities of the weapons. These proposed inner ADIZ's are plotted on the attached map, Incl #2.</p> <p>3. A joint study should be made of each proposed inner ADIZ by the Air Defense Force and the regional AA Command concerned to determine its exact shape and size. The exact shape and size could be affected by ADC fighter bases, location of NIKE launching sites, etc. See Incl #3 for a hypothetical example. When inner ADIZ's are finally designated and approved, they must be included in all publications pertaining to air navigation.</p>				Area	Approx. Radius (stat. miles)	Baltimore	35	Boston	40	Chicago-Gary	40	Detroit	40	Norfolk	40	Philadelphia	40	Pittsburgh	40	San Francisco	40	Hanford	40	Sault Ste Marie Area	10	Los Angeles	40	New York-Brooklyn	50	Niagara Falls	35	Seattle	40	Washington	40
Area	Approx. Radius (stat. miles)																																		
Baltimore	35																																		
Boston	40																																		
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Detroit	40																																		
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Philadelphia	40																																		
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New York-Brooklyn	50																																		
Niagara Falls	35																																		
Seattle	40																																		
Washington	40																																		

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ADC HQ FORM 5 - 15 AUG 51

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HEADQUARTERS AIR DEFENSE SECRET			
ROUTING AND RECORD SHEET			
FILE	SUBJECT	DATE	
	Inner ADIZ's		
FROM	PER	TO	
COMMENT NO. 1 (Contd)			
<p>4. The primary purpose that will be served by officially designating inner ADIZ's is to provide a means whereby all air traffic will be cognizant of areas that should not be entered during warning Red. As far as AA is concerned, the desired result can be obtained by amending ADCR 55-1 so as to place AA in the status of "Guns Free" during warning Red. In revising ADCR 55-1, all references to GDA's should be deleted.</p> <p>5. Request that you accept responsibility for this project. The following actions are indicated:</p> <ul style="list-style-type: none"> a. Review of the above proposed list of inner ADIZ's in conjunction with the AA Command. b. Direct and monitor a field study to determine the exact shape and size of each inner ADIZ. c. Revise ADCR 55-1. d. Secure USAF approval and take action to insure that approved inner ADIZ's are included in all publications pertaining to air navigation. 			
<p><i>E. J. Heisen</i> E. J. HEISEN Lt Colonel, USAF Chief, Plans Div Ext 341/345</p>		<p><i>EAH</i> E. A. HERMES Colonel, USAF Director, P&R</p>	
<p>3 Incls: 1. Cy of ltr to Maj Gen Thatcher 2. Map, proposed ADIZ's 3. Example</p> <p>Cy (less Incls 2 & 3) furnished: G3, ARAACOM</p>			
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ADDOT-F

13 Oct 1952

30

SUBJECT: (Unclassified) Coordination with Antiaircraft Command

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 611
308 *AP*

1. The effectiveness of the antiaircraft component of the air defense team was severely limited during Exercise SIGNPOST. Of the twenty-five strikes penetrating antiaircraft defenses, only five may be considered to have been effectively engaged by antiaircraft artillery.

2. The failure to engage the majority of these strikes resulted from the failure of the AC&W system to designate such strikes as faker aircraft and the difficulties encountered by AA radar in correlating acquired targets with faker tracks either plotted or "dead reckoned" by AC&W units.

3. Prior to penetration, by nearly all of these strikes, it was known that faker aircraft were approaching the antiaircraft protected areas. However, antiaircraft weapons were not placed in a "Guns Free" status, nor were any provisions made for these weapons to engage through visual identification.

4. This headquarters is considering a proposal to establish areas, protected by antiaircraft weapons, within which the normal status during a condition of Air Defense Warning Red will be "Guns Free." You will be advised of pertinent developments along these lines.

5. It is desired:

a. That every means be employed to improve techniques for the correlation of faker tracks carried by AC&W or computed by dead reckoning with tracks acquired by AA radar.

b. That operational command procedures be reviewed to insure that team work between the antiaircraft commander and the director at the ADC is effective.

Maj. B.E. McKenzie/bjy
313/662

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ADDOOT-F Subject: (Unclassified) Coordination with Antiaircraft
Command

c. That the situations in which a "Guns Free" condition of control is warranted by recognized and procedures for ordering this condition be firmly established.

d. That a more comprehensive exchange of intelligence information between the Air Defense Direction Center and the antiaircraft defense commander be encouraged.

6 The Army Antiaircraft Command has dispatched a similar action letter to field commanders of subordinate units.

BY COMMAND OF GENERAL CHIDLAW:

FREDERICK SMITH JR
Major General, USAF
Vice Commander

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SECURITY INFORMATION

FILE NUMBER 123
X502 X601 X620

HQ ADC ENT AFB COLO SPRINGS COLO

DIR OF PLANS HQ USAF WASH D C

PRIORITY **31**

5 Dec 52

X

ADOPR 2494. PART I. AS per tp conversation req listed below are ideal (ast) forces required to be asgn for def of the U.S. against air atk in 1955 and 1960. These est are based upon best experienced judgement of this comd and are not ltd by budgetary factors as were previous est. Air def studies by this hq and by Rand Corp which have been underway for several mo will not be compl until end Jan 53. Only then can firm rqmts be made for future force size, type wpns and deployments. PART II, Pol est rqmts based upon the task of assuring at least 80 per cent kill of hostile A-bomb carr in the 1955-1956 pd increasing to aprx 95 per cent by 1960: (a) Inteps, 151 sq by early 1956 and same no in 1960: (b) IR meals, accelerated dev to ins pdn of tac meals by 1955 and aprx 3000 msls by 1960: (c) Local wpns, 160 bns of guns and msls by 1956 and 160 hrs of homing all the way msls by 1960; (d) In add to above, specific commitments must be obtained from all comds and services to assure off D-day utilization of all forces in the U.S. having an air def capability; (e) It must also be

1 2

Colonel E. A. Herbes/mv

PER

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ADOFR _____.

realized that the most eff use of all wpns wal can be accomplished only with great improvements in warning, surveillance and con fac in consonance with increased nes of wpns. These related rqmts are covered partially in fol docus: Band Rept R-227, WSEG Rept 67, Project Charles Rept, Project East River Preliminary Rept, ADC's Air Def Plan for Contl U.S., Part I & II, AF Rept on Contl Def Sys, dtd 21 Oct 52, etc. PART III. The threat of IR battistic type msls was not made a consideration in above rqmts. PART IV. Recm data contained herein be utilized for study and planning purposes only, because of insufficient factual data upon which to base adequate justification.

CO ADC

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RECEIVED NOV 1952

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AD0AA-3PL

Augmentation to Proposed 1957 Defense Problem

32

G3 ARAACOM

Management Analysis
ATTN: Lt Col Shane

19 Dec 52
1

1. Reference R&R, same routing as above, subject, "Computed AA Defense Effectiveness on 30 June 1957", dated 3 November 1952.

2. Information as to National Guard augmentation to deployment as shown in reference, above, is listed below:

Defense	No. Bns	Eff Bns	Non-Eff Bns	Defense	No. Bns	Eff Bns	Non-Eff Bns
Birmingham	3	3		Savannah River	4	4	
Baltimore	2	1	1	Oak Ridge	3		3
New York	4	4		Sandia-Kirtland	2		2
Chicago-Gary	5	2	3	Los Alamos	2	1	1
Philadelphia	3	3		Indianapolis	4		4
Detroit	3	1	2	Buffalo	4	4	
Boston	3	2	1	St Louis	4	4	
Niagara	2	2		SS Marie	2*	1**	1
Norfolk	2	2		Limestone	2*	2	
Pittsburgh	3	3		Barksdale	2*	2	
Hanford	2		2	Rapid City	2*	1***	1
Seattle	2	2		Carswell	2*		2
Los Angeles	3	2	1	Fairchild	2*		2
San Francisco	3	3		Travis	2*	1**	1
Cleveland	4	2	2	March	2*		2
Hartford	3	2	1	Castle	2*	1**	1
Waltham	2	2					
				TOTAL	90	57	33

* - Includes 1 AW Bn and 1 Gun Bn

** - Gun Battalion

*** - AW Battalion

3. Terms used in chart above are defined below:

a. No. Bns - Those units as planned in AA-OP-US-1-51 (TS) for National Guard augmentation on M-Day.

b. Eff. Bns - Those NG units which would be deployed on-site per warning times received from your office.

c. Non-Eff Bns. - Those NG units which would not be ready for proposed attack as based on warning times received from your office.

/s/ Perry H. Eubank
/t/ PERRY H. EUBANK
Colonel GS
Acting G3

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REFERENCE NO: FTDFC-6-54-E

FROM: AFTTC Edwards AFB, Calif

TO: APGC, ARDC

INFO: ADC

FILE NUMBER *306.2*
*J.P.**23 June 52*

As directed by Hq USAF. A joint ARDC-APGC flt test evaluation of the F-94C flight characteristics was conducted at the Air Force Flight Test center, Edwards AFB, Calif. 2 prod acft were utilized, Ser Nos 50-958, APGC, and 50-960, AFTTC. Testing was acc by flight crew from APGC, ADC, and AFTTC. 50 (Fifty) flights totaling 46 hours and 30 mins completed the prog between 3 June 1952 and 16 June 1952. Radar was operated on 30% of the flts. No test instrumentation was installed other than a mach meter. Improper rocket door installation on the 2 acft flown prevented rocket firing. The airplan exhibits good take-off performance and the time to climb to an alt of 45,000 feet is cons excellent. Above 35,000 feet alt, high tail pipe temp necessitate RPM reduction during most climbs. The afterburner oper is also occasionally erratic above this alt; and the airplanes were, during the latter part of prog, limited to 40,000 feet. On 1 airplane 2 successive flame-outs occurred while attempting afterburner starts at 43,000 feet. The high tail pipe temp necessitated an RPM red at 25,000 feet dur 1 climb. It is believed this situation could have been improved because the other airplane strained at alt of 39,000 feet before encountering excessive tail pipe temp after an adjustment was made on the fuel metering sys. At 35,000 feet alt the airplane exhibits a 1 G buffet and nose-under tendency comm at .82 mach number ind. The maximum indicated mach number for level flight with tip tanks is appr .85 at 35,000 feet. Although the 1 G buffet and nose-under trim change are undesirable, successful collision course radar attacks can be accomplished at the max level flt speed of the airplane at the alt tested, which were between 25,000 and 40,000 feet. Small lateral oscillations exist at alt and cannot be prev either by corrective control action or "hands off" flying; however, these oscillations do not interfere with radar tracking. The controls are somewhat "sloppy" at high alt, but as the buffet is encountered, the controls tighten up and longitudinal stability improves. Although rolls at 35,000 feet are accompanied by aileron buffet, it is believed the rate of roll is satisfactory for collision course type of attack, utilizing the E-5 fire con sys under inst conditions. Dives were entered from high level flt speeds. A sudden nose-down pitching movement occurred at an indicated mach number of about .85, and a left rudder position shift occurred at about .87 mach number indicated. Either the left or right wing dropped at about .88 mach number; but as the speed increased, the wing drop disappeared. Control forces during rec are satisfactory. If the range of speed where trim changes occur is passed through rapidly, the wing

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drop does not prevent successful tracking. Oscillations induced by releasing the controls when the airplane is in a side-slip do not damp out effectively. However, large oscillations can be effectively damped by control app, but a small undamped lateral oscillation persists at high altitude in the clean configuration. The clean configuration stall is considered satisfactory, with a warning occurring appr. 15 knots above the stall. In the landing configuration the small spread between the stall warning and the stall is accompanied by a loss of aileron effectiveness. This makes it advisable to maintain 140 knots (over the fence) on the landing approach. During landing configuration stalls, a definite rudder control is necessary to prevent wing drop before the stall occurs. The stall is normal, and the recovery can be effected by normal application of the controls. As the stall occurs, rudder must be used to prevent rapid roll-off as aileron control alone will not prevent wing drop. The max G attainable at 35,000 feet is appr 2.25 Gs. For maneuvering other than collision course attacks, this is considered marginal. The speed brake exhibits a moderate amount of drag, but causes an undesirable pitch-up when operated at high indicated speeds. The drag chute is very effective as a braking device during landing. The airplane did not exhibit any unsatisfactory flying characteristics at alts of 25,000 to 40,000 feet with the CG at the aft position of 33% mach the elevator stick forces were very light at alt and during take-off and landing, but they are considered acceptable. With the CG at the mid position the stick forces required to increase and decrease speed from a given trim speed are light and do reverse at a mach nbr of approx. 82 mach. But the stick reversal can be controlled by the pilot. Conclusions:

1. The acft exhibits excellent takeoff and climb performance and can perform successful collision course attacks at it's maximum level flt speed of approx .85 mach nbr indicated.
2. The acft exhibits flying characteristics which necessitate more than normal degree of caution when checking out inexperienced pilots.
3. The high speeds required for the landing pattern and the "sloppy" control experienced during landing are undesirable.
4. The lack of lateral stability is undesirable.
5. An undesirable 1 "G" buffet exists at max level flt speeds at all altitudes, but does not interfere with radar tracking. Buffet effect on firing accuracy could not be determined.
7. Improper rocket door operation on the 2 acft flown prevented rocket firing.
8. Within the scope of this test the acft was considered safe to fly with the CG at the aft pos of 33% mac. However it is believed that there is a possibility that unsafe conditions may exist at low altitudes. High speeds, and in turbulent weather. It is recommended that:

1. Firing accuracy at max speed be investigated during phase VII testing at Eglin AFB.
2. The present aileron control system be modified so as to provide a more realistic "feel" at low speeds.
3. Close supervision be maintained during training programs.
4. Lateral stability be improved.
5. Study be made to eliminate the 1 "G" Buffet.
6. Pitch-up encountered when speed brakes are opened be eliminated.
7. Variable speed brakes be installed.
8. That portion of the Phase IV stability program concerning investigation of stability and control in the acft CG position be expedited.

NO CLASSIFICATION

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REFERENCE NO: DO OTD ADR 5005

FROM: APOG

TO: USAF Attn: Dir of Rqmts

INFO: CG, ADC Attn: Plans & Rqmts, ADDC, ATRC, PRECEDENCE: PRIORITY
 BABO Attn: Armt Lab, Acft Radiation Lab,
 Power Plant Lab, CG AMC Attn: Proc Div &
 Maint Div

34

FILE NUMBER

LHB

Experience indicates the Maint Rqmts to opr the -1 series of the F-36D acft to be unset. The folg is based on 5 acft for the period of 1 May 52 and continuing thru Aug 52 and involves 330 Flts totalling 267 fly hrs. With compl staff of very experienced and well tnd amn, a compl net of sp tools, ORD handling equip, SP test equip, and very talented staff of fld representatives, it was possible to maintain only 20% of the assigned acft in com. 40 man hrs of maint is required for ea hr of fly time. These 2 items are definitely below std and would become more pronounced in fld units net as adequately sptd. Of the 330 total flts during this period, aprx 55 Flt 5% PTRRD with flt write aps that required maint to be performed prior to another flt. 30% of those write aps pertained to the eng, the vase majority of which specifically dealt with eng con, 24% of the write aps were for fire con sys malfunctions, 10% were for comm malfunctions, 8% were for auto FLT sys malfunction, and 13% were for acft elec sys malfunctions. Both the eng alert con malfunctions and the fire con sys malfunctions require test equip to be connected for trouble shooting. The test plts and connections for this test equip are not easily accessible and this alone greatly increases the time causing aircraft of the eng elect con, are of poor design and are not up to the std for trouble free performance. Reem a study of the accessibility of units in this acft and improvement of the pres gyss be initiated. Further, room presently known MODS that are mandatory on Gurr models of the acft be incorporated in all pdn acft prior to their dlvr to AF units.

DATE TIME GROUP 031530Z

ACTION TO PER

DATE REC'D FROM CODE ROOM 3 Sep 52

INFO TOCG, VC, C/S, IG, DM

AG CLASSIFIED REG # C-39212

INFO CY PREP'D BY mc

SUSPENDED TO none

CONFIDENTIAL
SECURITY INFORMATION

0349

SECURITY INFORMATION
SECRET

CLASSIFIED SOURCE
AUTH: CH. ADD
35
24 October 1958
(Date) (Initial)

FILED 300 *adm*

24 October 1958

Mr. Gordon Dewey
Systems Evaluation Group
Office of Joint Chiefs of Staff
Washington 25, D. C.

COMEBACK COPY

Not requested, not furnished
24 Oct 58
(Date) (Initial)

24 Oct 58

In response to your telephone request of the 21st of October for
copies of the charts showing the estimated percentage of bombers destroyed
as a function of the fighter/bomber ratio, I am attaching herewith the
charts we are now using.

For your information I will review very briefly the way in which the
figures for the 1955-1957 combat studies were computed. From Rand
Report RM 577, Table 1a, page 12b, the following probabilities of kill
corresponding to various numbers of interceptors were taken. These were the
probabilities applicable to the variable time of flight encounter (fighter 2-1)
for an altitude of 35,000 ft. and a bomber speed of 600 ft/second, inter-
ceptor speed 690 ft/second. The same numbers are also applicable to a
bomber speed of 900 ft/second and interceptor speed of 977 ft/second.

Number of Interceptors	Probability of Kill
24	40
54	60
108	80

rounded

From Rand report RM 577, Figures 1a and 1b on pages 34 and 35, for a
bomber speed of 355 knots and a combat speed ratio of 1.5, the probability
of detection by the interceptor and conversion to a firing pass was taken
to be .15. The assumption was then made that the probability of inter-
ception from airborne to a point shortly before tail-chase could be .15.
This is somewhat higher than our estimated 1955 probability of interception
with un-armed fighters which is about .75. The reason for this is that
the .75 probability covers the action from airborne to point where the
action is from airborne to a point a little before tail-chase.

The next assumption was that the ability to make interception from
airborne to the point just before tail-chase is perfectly proportional to
the number of interceptors in a single element. Next the assumption was made that the
probability of an interceptor to detect and convert to a firing pass was
completely independent for all aircraft in a single element.

SECRET

Inclosure not essential to
Addressee is auth to receive info contained herein.

NOTE: THE HANDLING OF CLASSIFIED
DOCUMENTS IN THE HEADQUARTERS
IS GOVERNED BY AECM 11-6 AND
AFM 24-2.

SECURITY INFORMATION

0350

[illegible]

<u>Aircraft</u>	<u>Number of Rockets</u>	<u>Probability of Destruction, Conversion, and Kill</u>
B-29	24	13
B-50	48	26
B-52	108	36

These probabilities of kill by individual fighters were then compared to the probability theory on the assumption that there would be no friendly attacks and the probability of kill by each fighter was equal. The results are plotted on the chart.

The 2-500 and the 200, each armed with 6 Pelicans, to test a
variety of .500 for the one-to-one case and developed the 200
and 500 in the same manner as above.

...are presently using for on-board fighters in all
...are getting out to move as fast
...fighter commitment policy.

The reliability of these estimates leaves much to be desired. It is clear that they are the best available, but they are not perfect. It is possible that the estimates are biased, either upwards or downwards. It is also possible that the estimates are not representative of the entire population. However, the estimates are the best available, and they are used to provide a general idea of the situation.

Discussion

1990

1990

Record Evaluation _____
Permanent _____
Temporary _____
Until _____
All Be Confirmed _____
Std Publication _____
Form Under par 3 _____
Form 5-3 _____
Prepared by _____
Telephone _____
Date _____

SECURITY

SECRET SECURITY INFORMATION

36

ADOPR 471.6

13 Aug 1952

SUBJECT: (SECRET) Development of a "Quick Fix" Large Unguided Air-to-Air Rocket (Terror)

TO : Director of Requirements
Headquarters USAF
Washington 25, D. C.

X305 4/12 306

1. In accordance with AF Regulation 57-3, the following requirement is submitted.

2. The cost of placing a fighter in a position to fire on a target is great. It is essential to provide the fighter with sufficient fire power at that critical moment to destroy that particular target.

a. Preliminary analysis of the Mike and Terrier projects by the Rand Corporation indicated that a large fragmentation rocket will provide the fighter with this type of fire power (Ref ADC letter, subj: ADC Comments on the Specific Recommendation of Project Rand "Air Defense Study", dtd 7 April 1952).

b. Attention is invited to Air Defense Command letter, subject: "(Unclassified) Armament for F-89D Aircraft", dtd 27 June 1952, and Hq USAF indorsement, same subject, dtd 23 July 1952, in which some aspects of the present large rocket program are discussed.

3. Objectives:

a. To develop, on a crash basis, a large rocket capable of a high kill probability, as a "quick fix" improved armament, for gun equipped interceptors and to supplement the interceptor armament program which now consists of 2.75" rockets and the F-98 Falcon missile.

b. To equip all gun firing air defense interceptor squadrons (F-47, F-51, F-80, F-86, F-89 and F-94) with this armament.

4. Description:

a. Nomenclature: Unguided Rocket (Terror), gives weight approximately 300 pounds, warhead approximately 175 pounds, fragmentation (506 N.H.)

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

SUBJ: (SECRET) Development of a "Quick Fix" Large Unguided Air-to-Air Rocket (Terror) (Cont'd)

b. Purpose:

- (1) To increase the effectiveness of the air defense interceptors through 1956.
- (2) To increase the low altitude defense capability of air defense munitions.

c. Performance:

- (1) Kill probability of .75 for a salvo of two (2) missiles per pass. This high probability of kill is primarily the result of the dynamic response of the target aircraft to proximity blast.
- (2) Time of flight 1.5 seconds to 2.0 seconds.
- (3) Speed of 1500 to 2000 feet per second.

d. Design Features: An air-to-air unguided rocket with a large high velocity fragmenting warhead with the following characteristics:

- (1) Gross weight approximately 300 pounds.
- (2) Configuration, total length approximately 9 feet, total diameter approximately 1 foot.
- (3) Fragmenting warhead, weight approximately 175 pounds (approximately 50% R.R.)
- (4) Warhead burst pattern to be sideward from the rocket's longitudinal axis.
- (5) Fixed angle VT fuse, a proximity device sensitive in a narrow cone projecting from and centering on the rocket axis. The fusing to incorporate a time delay or be non-sensitive to the target extremities.
- (6) Arming time delay of 1/5 second in VT fuse for safety factor.
- (7) Self detonating mechanism in the event of a target miss.
- (8) Operationally reliable when fired at 1000 yards range.

SECRET SECURITY INFORMATION

SUBJ: (SECRET) Development of a "Quick Fix" Large Unguided Air-to-Air Rocket (Terror) (Cont'd)

e. Special Features:

- (1) A retrofit kit (including aircraft and fire control parts) will be provided so that a retrofit program can be accomplished within Air Defense Command.
- (2) The retrofit kit will be provided for all air defense interceptors (F-47, F-51, F-80, F-86, F-89 and F-94) equipped with the K-14, Al, and E-1 Fire Control Systems.

f. Proposed Basis of Issue: To all air defense interceptor squadrons equipped with K-14, Al, and E-1 Fire Control Systems as TE equipment.

g. Method of Meeting the Requirement: It is considered feasible to modify and assemble existing missile components, such as:

- (1) The Motor: The Sparrow missile motor (Aerojet Corporation) with modified tail fins.
- (2) The warhead and VT fuse: The terrier missile warhead and fuse (Lots 4 or 6).
- (3) The launching rack: The rack type, similar to the modified Sparrow missile launcher (Douglas Aircraft Company).
- (4) The fuse power supply: Similar or identical with the power unit for the Sidewinder missile (50 watt output power is required).

5. The ADC concept of operation for the large rocket is compatible with the air defense system concept in the time era, 1953-1957. Small capacity interceptors will be armed with two (2) large rockets and larger capacity interceptors with (4) four large rockets. The large rockets will be fired in salvos of two (2) at approximately 1000 yards range.

6. The large rocket (Terror) will provide Air Defense Command interceptors with a supplemental armament capable of a high kill probability in the time period 1953-1957. Request that the present "crash" program referred to in paragraph 2 above be vigorously pursued to make the large rocket available for tactical use early in 1954.

Info to:
CG, ANEC
CG, AMC

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

Lt Col J R Thornton/nc
441/443

3
SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Basic Ltr fr Air Defense Command, subject: Development of a "Quick Fix"
Large Unguided Air-to-Air Rocket (Terror), dtd 13 August 1952

AFTRQ-AD

1st Ind

18 Sep 1952

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D.C.,

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Tentative requirements for a rocket as outlined in your letter have been established by this headquarters. Cognizant agencies are proceeding on a crash basis in their developmental efforts. A "quick fix" presently proposed is the marriage of components of two missiles, the TERRIER warhead and the SPARROW motor. The new rocket is to be known as the TERROW.

2. It should be pointed out that this rocket can not be available for tactical use by early 1954. As pointed out in letter from this headquarters to your command, dtd 23 July 1952, subj: "Armament for F-89D Aircraft", approximately eighteen months (under the most favorable conditions) will be required before first firings of the prototype rocket can be conducted. Should the tests prove that such a rocket is a desirable weapon, it is estimated that production TERROWS will be available to tactical organizations in mid 1955.

3. Data becoming available as the development and test progresses will be furnished your command.

BY COMMAND OF THE CHIEF OF STAFF:

s/t
C.P. LESSIG
Colonel, USAF
Deputy Dir of Requirements

SECRET SECURITY INFORMATION

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SECRET

ADOPR 471.6

4 Dec 1952

37

SUBJECT: (SECRET) Program for the "Quick Fix" Large Unguided Air-to-Air Rocket (Terror)

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

FILE NUMBER	306
X346	LHB

1. Reference is made to Air Defense Command letter, ADOPR 471.6, subject: (Secret) Development of a "Quick Fix" Large Unguided Air-to-Air Rocket (Terror)", dated 13 August 1952 and AFDRQ-AD 1st Indorsement, dated 18 September 1952.

2. Since submitting this requirement, greater importance, in the form of armament for Air Defense Command's augmentation forces, has been attached to the development of the large rocket. The extent of this importance can be clearly envisioned from the number of aircraft of the ANG, ATRC, TAC and SAC. Estimated combat ready augmentation from these sources, exclusive of the programmed Air Defense and Canadian interceptors, are as follows:

- a. 1955. ANG - 1129 (based on the 70 squadron program).
- b. 1957. ANG - 1129
ATRC - 496
TAC - 528
SAC - 460

3. Pre-stockage, tentatively calculated to be a one weeks' combat supply level of 325 large rockets per squadron, will be at the several, yet undetermined, ADC and SAC bases. Training rockets will be required by the command to which the augmentation force is assigned.

4. The above data is furnished for your information as additional justification for the requirement of the large rocket in the air defense system.

FOR THE COMMANDING GENERAL:

ROBERT M. WYNENS
Capt, USAF
Asst. Adj Gen

LtCol JRTORNTON/mch
441/443
2 Dec 52

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10356

logged

[illegible]

Lt Col Thornton, Jr/ new
441/443
28 Nov 52

NOTE - THE MAN WHO WAS GOVERNED BY HIS OWN MIND WAS THE

SECURITY

Mr. Adjutant General's Central File Card

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C O P Y

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SECURITY INFORMATION

Basic Ltr frm AWC, Subject: Development of a "Quick Fix" large Rocket, dtd
29 November 1952

AFDRQ-AD

1st Lnd

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C., 13 Dec 1952

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

1. It appears that the RAND studies have considerably over simplified the problems connected with the Development and production of the TERROR rocket. The time required to develop, test and produce this rocket precludes its use on many of the aircraft now contemplated by your command.

2. The latest studies completed by RAND have determined:

- a. Development of a TERROR type rocket is feasible.
- b. Equipment can be ready for test within two years from the date of initiation of a firm program.
- c. A rocket load of four TERRORs to replace the present load of 2.75" FFARs in the F-86D would increase the weight of the armament of that aircraft by 800 pounds.
- d. The TERRORs would be carried externally.
- e. Twelve drones will be required for proper evaluation of the rockets.

f. Following costs are estimated for the TERROR program:

Design, produce and ground test 200 rockets	-----\$1,200,000
Provide and install control equipment for 12 drone aircraft	1,200,000
Provide launches, modifications to aircraft and to fire control system for three aircraft	200,000
AFAC conducted arial test program with contractor assistants	300,000
TOTAL COST	\$2,900,000

3. Projecting this rocket program into the future, the following time table is estimated:

- a. From R&D Study - Equipment ready for test -- 2 years
- b. Testing (to include engineering and operational suitability) 1 year

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1st Ind to ADC, subject: Development of a "Quick Fix" Large Rocket, continued

c. Production lead time 2 years

TOTAL TIME 5 years

From the above it is readily apparent that TERROW capability cannot be achieved in operational units before 1958. Assuming that production go-ahead was initiated before testing is completed, it may be possible to have the rockets in operational units by 1957. This is the earliest possible date.

4. The Westinghouse proposal included the following on the degradation of the performance of an F-94C aircraft carrying four TERROW rockets.

- a. Rate of Climb - lose 1500 F/M
- b. Range - reduce from 320 to 251 radius
- c. Maximum Speed - reduce 25 knots
- d. Ceiling - reduce from 52,000 to 49,000 feet

It was stated that as a rule a general loss of 10 per cent in performance could be expected when the TERROW rocket is added to an interceptor.

5. From the information presented above it is obvious that this rocket will not be available time wise for F-47, F-51, F-80 and F-86 aircraft now in your command. In view of the fact that your initial requirement was based for the most part on the premise that a "quick-fix" rocket could be made available for utilization with the above aircraft, I is requested that the requirement for the RAND rocket be re-examined and this headquarters informed if a requirement still exists.

6. It is requested that your answer be expedited since further action will be held in abeyance until your reply is received.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ & /t/ James R. Gunn, Jr.
JAMES R. GUNN, JR.
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements

SECRET
SECURITY INFORMATION

SECURITY INFORMATION

4/1 HQ AFB, Subject: (Secret) Development of a Rocket Motor

ADONIS 32124 (20 Nov 52) Sub: 1st

TO: AFB MEMPHIS, 1st Air Force, 1st Air Division, 1st Air Group

TO: Director of Research, Headquarters USAF, Washington, D.C.

1. This document requests confirmation, through the testing, of the requirement referred to in the last letter.

2. Reasons for requesting confirmation of this requirement are that this weapon provides:

a. Assurance of a high kill probability versus the Air Defense System in the event Air-to-Air guided missiles fail to meet expected reliability.

b. A vehicle for carrying Atomic Weapons in its payload.

3. Primarily, the large Rocket will be used as a means for air defense interceptors. In addition it will be used as a means for Air Defense augmentation forces.

FREDERICK SMITH Jr.
Major General, USAF
Vice Commander

COMEBACK COPY

Not requested, not furnished
FRA 10-2-53

AD



NOTE: THE HANDLING OF CLASSIFIED DOCUMENTS IN THIS HEADQUARTERS IS GOVERNED BY AEC STAFF MEMO 11-9 AND APR 208-12

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SECURITY INFORMATION

Basic Ltr fm ADC, Subject: Development of a "Quick Fix" Large Rocket, Dated
29 November 1952

AFDRQ-AD

Ord Ind

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D.C., 28 MAR 1953

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

Project No. R-555-854 has been established by research and development
agencies to develop a large fragmenting air-to-air rocket, code name "BIRD DOG".
Your Command will be informed as the development progresses.

BY COMMAND OF THE CHIEF OF STAFF:

James M. Gurne, Jr.
JAMES M. GURNE, JR.
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements

NAR
16-1-1
Officer
1000, USAF

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ADOPR 381

27 Aug 1951

39

SUBJECT: Requirement for Increasing Interceptor Capability

TO: Director of Requirements
Headquarters USAF
Washington 25, D.C.

FILE NUMBER 305
448

1. Air Defense Command aircraft programmed for the immediate future, i.e., F-86D, F-89 and F-94C, are capable of speeds in the .80 to .93 Mach region. Future requirements and planning have provided for an interceptor, i.e., "1954 interceptor," to begin its life span in 1956, with performance to combat a bomber having a speed of Mach 1.3.

2. Based on the above and present intelligence estimates, it is apparent that there is going to be a gap in our interceptor program beginning the latter part of 1953. Target speeds from late 1953 to 1956 will be approximately .83 Mach. This gives the best of our presently programmed fighters less than 10% performance advantage. To be effective against bombers of this speed, our interceptors must have a 25% performance advantage.

3. The ability of the Air Defense Command to successfully accomplish its defense mission between 1953 and 1956, depends upon the superiority of its weapons. This command requires interceptors with higher performance than is presently programmed for 1953 - 56 to effectively combat the threat of USSR.

CHARLES T. MYERS
Major General, United States Air Force
Commanding

Maj Rodewald/jk
Ext 441/443
24 Aug 51

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SECURITY INFORMATION

B/Ltr from Air Defense Command dated 24 August 1951, subject: Requirement for Increasing Interceptor Capability.

AFDRQ-AD

1st Ind

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

Dec 29 1951

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters concurs that a deficiency exists in the Interceptor program beginning in the latter part of 1953 and continuing until the MX-1554 Interceptor is operational in numbers. To meet the Mach .83 bomber threat, the Air Force Council and the Aircraft and Weapons Board have decided to procure an interim version of the Convair proposal for the MX-1554 Interceptor and the Northrop Advanced F-89. Both of these aircraft have the capability to combat the above bomber threat. Production of the Convair (F-102) is scheduled to start in early 1954 with production during the first year being limited to those aircraft required for test purposes. Production of the advanced F-89 is scheduled to start in mid-1954 and will have a relatively slow buildup.

2. It is not anticipated that either of these aircraft will be available in operational quantities prior to 1955. This will leave approximately two years in which our interceptor performance against a Mach. .83 bomber will be marginal.

BY COMMAND OF THE CHIEF OF STAFF:

s/t/ C.F. Lessig
Colonel, USAF
Deputy Director of Requirements

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SECURITY INFORMATION

Hq ADC, ADOPR 381, Subject: Requirement for Increasing Interceptor Capability

ADOPR 381 (24 Aug 51) 2d Ind.

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colo.

TO: Director of Requirements, Headquarters USAF, Washington 25, D. C.

1. The two years during which Air Defense Command interceptor performance will be marginal against a possible enemy bomber speed of Mach .83, are extremely critical years in the estimation of this Command. This period is of such a serious nature, it is recommended every possible means to improve the performance of our interceptors be exploited.

2. Present aircraft programmed for Air Defense Command, such as the F-86D and F-89D, are capable of diving through Mach 1's without airframe restriction. The limitation on level flight speeds is due to the low thrust from presently available jet engines. For example, if the F-89's were powered with two 7740 lb. thrust J-47 engines, the 1280 lb. thrust increase would materially improve the performance and level flight speed. If J-57 engines were installed, the performance gains would be materially more. It is recommended that the possibility of installing these larger engines in presently programmed aircraft be examined on a high priority.

3. It is quite apparent to this Command that the airframe manufacturing industry is years ahead of the engine manufacturing industry. In an effort to overcome the interceptor deficiencies of this Command during the period 1953 to 1955, it is urgently recommended that the development and production of high performance jet engines be expedited.

FOR THE COMMANDING GENERAL:

KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy for Operations

Lt Col V M Mahr/rg
587
22 Jan 52

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SECURITY INFORMATION

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SECURITY INFORMATION

AFDRQ-AD

20 Dec 1951

40

SUBJECT: Convair Interceptor (F-102)

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER 201.6

HAB

1. This headquarters has approved the procurement of an early version of Convair's proposal for the MX-1554 interceptor. Proven and in production items will be substituted for the engine (J-67) and Fire Control System (MX-1179) which were originally proposed. These equipments will be phased into later production aircraft as a routine model change. The early version will be capable of supersonic speeds in level flight. It will be able to carry seventy 2.75" FMRs internally in event the FAICON missile is not operational by the time of production. It is considered that the F-102 will, for several years, constitute the primary weapons system of Air Defense Forces.

2. In an effort to provide combat units with operational aircraft with minimum delay, the following procurement policy has been established:

a. Contract initially for the tooling required to permit full scale production.

b. Limit the production during the initial period (perhaps one year) to the number of aircraft required for comprehensive test.

c. Build up to peak production as rapidly as possible after it has been determined through tests that the aircraft will be "combat ready".

3. In the interest of expediting the tests, it may be desirable to increase the production rate so as to allocate a number of aircraft to your command during this initial period. This would permit accumulation of comprehensive test and operational data, expedite delivery of the required test aircraft and provide a better base for increased production. These aircraft could conceivably increase the combat potential of the recipient units. It is pointed out however that this potential would be directly proportionate to the initial success of the contractor in achieving a combat ready aircraft. A modification program may be required to make them fully operational.

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Ltr to ADC, subject: Convair Interceptor (F-102), Cont'd.

4. In order to accomplish realistic planning with regard to FY 1953 Budget and initial production rate, your comments are requested concerning:

a. The desirability of assigning a number of these aircraft to your command during the first year of production which is tentatively scheduled for calendar year 1954.

b. The total number of these aircraft which you would be willing to accept for operational evaluation.

5. For your information, considerable data will be accumulated on the delta-wing configuration prior to first F-102 production. Stability and control data from the Navy's F-4D program will be available through the transonic speed range. Convair's Y2-2 project should provide supersonic delta data which will have direct application to the F-102.

BY COMMAND OF THE CHIEF OF STAFF

C.P. Lessig
Colonel, USAF
Deputy Director of Requirements

2

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SECURITY INFORMATION

Hq USAF, AFDRQ-AD Subject: Convair Interceptor (F-102)

ADDER 452.1 (20 Dec 51) 1st Ind

HQ AIR DEFENSE COMMAND, ENT AFB, Colorado Springs, Colorado

TO: Director of Requirements, Headquarters U.S. Air Force, Washington
25, D. C.

1. Reference paragraph 4, basic letter, it is requested that fifty (50) F-102 aircraft be assigned to the Air Defense Command during the first year of production for operational evaluation.

2. With the success this Command has had in receiving the F-94A and F-89 aircraft before testing was completed and with the data gained from test, pointed out in paragraph 5, basic letter, this Command feels that valuable time, maintenance, and operational data will be gained.

3. The assignment of the F-102 to this Command in 1954 will partially alleviate the interceptor deficiencies pointed out in your 1st Indorsement to letter this headquarters, 29 December 1951, AFDRQ-AD, Subject: Requirements for Increasing Interceptor Capabilities.

FOR THE COMMANDING GENERAL:

ROBERT M. WYNNIS
Capt, USAF
Ass't. Air Adj. Gen.

Lt Col Halley/ed
22 Jan 52
587

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SECURITY INFORMATION

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SECURITY INFORMATION HEADQUARTERS AIR/DEFENSE COMMAND		ROUTING AND RECORD SHEET	
FILE	SUBJECT Convair Interceptor (F-102)		
FROM P&R	TO O&T-F	DATE 5 Jan 52	Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this hq (See ADCSN 10-2).
		Lt Col CLPraul/sc/441	
		COMMENT NO. 1	
Request your comments and recommendations regarding the information requested in Paragraph 4 of the attached letter.			
Incl	OSCAR T. HALLEY, JR.	EDWARD A. HERBES	
Subj ltr dtd	Lt Colonel, USAF	Colonel, USAF	
20 Dec 51	Chief Reqmts Div	Dir., P&R	
	Ext 441/443	Ext 216/217	
FROM: O&T-F	To: P&R	Date: 9 Jan 52	
		MajGWEngel/311/jfs	
		Comment No. 2	
<p>1. It is believed that it would be decidedly to ADC's advantage to accept F-102 aircraft from the first years production. In effect we have accomplished a similar project by accepting the F-89 which is still far from a "combat ready" aircraft. In agreeing to this proposal it is strongly recommended that we stipulate that adequate ground handling, mock-up and test equipment be delivered before hand in sufficient quantities to support the aircraft.</p> <p>2. It the Air Force is set up to buy these aircraft why not take all they make excepting test articles during the first year. We get them anyways eventually.</p>			
GEORGE I. RUDELL		C. W. McCOLPIN	
Lt Col, USAF		Colonel, USAF	
Chief, Ftr-Intep Div		Dir of Oprs & Tng	

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SECURITY INFORMATION

APC HQ FORM 3 - 15 AUG 51

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SECURITY INFORMATION

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EASY READING COPY OF INCOMING CLASSIFIED MESSAGE

REFERENCE TO: AFHQ-AD 54434

PARAPHRASE IS NOT REQUIRED 41

FROM: USAF

SEE CRYPTO SECTION BEFORE

TO: ADC

DECLASSIFYING

INFO:

PRECEDENCE: PRIORITY

On 18 June 1952 the Secretary of the Air Force approved the following FY 53 aircraft procurement program:

- A. By end of FY 1955/The approximate end of FY 53 procurement/ procure sufficient interceptors to equip 54 squadrons F-86D, 15 squadrons F-94C, and 15 squadrons F-89D. There will still be 3 squadrons of F-94B remaining in the first line inventory. This program will result in the Air Defense Command having 40 F-86D squadrons, 2 F-94C squadrons and 15 F-89D squadrons.
- B. Phase current interceptors/F-94C and F-86D/ out of production during FY 1955.
- C. Initiate F-102 and F-89D production programs so as to permit production build-up during 1955.
- D. Provide pre-production funds for the F-89F.
- E. Defer production funds on the F-89F until FY 1954 program.
- F. Procure sufficient AEW aircraft to equip 5 AEW squadrons. Request your concurrence or comments on the FY 1954 procurement program tentatively recommended by the aircraft & Weapons board and the Air Force Council as follows:
 - A. Replacement of attrition and obsolescence losses with the F-89F and the F-102 for the 29 wings to the extent production capability of these 2 aircraft permits. This should result in the following squadrons in ADC; 23 F-86D, 9 F-89F, 5 F-89D and 9 F-102 by end of FY 1956.
 - B. Procurement of attrition aircraft for the 5 AEW squadrons /RC-121DS/.
 - C. Programming of Elcon for F-89D, F-89F and F-102 aircraft only. The question of retrofitting the first 193 F-89Ds is still not determined.
 - D. Initiate procurement of the FY-99/Bomarc/ in test quantities against the requirement for 2 squadrons by end FY 1956.
 - E. Provisions of 1 assault transport per AEW squadron. The Air Staff has been directed to evaluate the requirement for first line assault transport aircraft as tactical unit support. Development of F-103 will be continued in the R&D program. Request your comments and/or concurrence by 5 August 1952. If any difference of opinion cannot be resolved prior to that time, request conference at this hq with command representation from your hq prior to 8 Aug 52. Should budgetary limitations require a substantial reduction in the 1954 aircraft program, your recommendations are requested as to how the reduction should be applied insofar as it pertains to your command.

DATE TIME GROUP 251812Z

ACTION TO P&R

DATE REC'D FROM CODE ROOM 25 Jul 52

INFO TO CG, VC, C/S, IG

AG CLASSIFIED REG # 33432

INFO CY PREP'D BY ar

SUSPENDED TO 29 Jul 52

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Not requested, not furnished
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 APDRQ-AD 54334 **SECRET**

FILE NUMBER 308
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ALOPR 1670. Wrong AFDRQ-AD 54334. 1. This hq concurs in the FY 53 acft proc program prov: a. required times are made on 7-94C acft so as to make them acceptable to this com. b. AFM 1620, 25 Jul 52. c. Delay of pdn funds on F-89F acft until the Y 54 program will not result in delay of F-89F acft avail to A. c. Sufficient haw acft are proc to prov a total of 60 AC-121 acft for two AAWC gp of three sq ea. 2. Del of 54 proc program this hq recom: a. proc of attrition acft for six AAWC sq (60 AC-121 acft). b. Cont study of the feasibility of retrofitting F-86D and the 1st 193 F-89D's for Falcon. c. Acft for acw sq of F-55 (AWAC) by end FY 56 be in add to total F13's programmed for A. c. Leading in bal of FY 54 acft proc program. 3. In the event budgetary act require a substantial rdn in the 1954 acft program req this com be given an opportunity to participate in reprogramming acft proc for the pd concerned.

FILED 4521 *Genl*

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Before r. moving this document
 from **SECRET** to **CONFIDENTIAL** or **UNCLASSIFIED** in this heading
 1. ADVANCE TO STAFF MEMO 11-8 AND APR 205
 2. ADVANCE TO STAFF MEMO 11-8 AND APR 205
 3. ADVANCE TO STAFF MEMO 11-8 AND APR 205

CG AIG
Capl, USAF
Asst. Ad. Com

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SECRET
SECURITY INFORMATION

43

B/Ltr fm Air Defense Command, subject: Air Defense Weapons System, dated
13 August 1952

AFDRQ-AD

1st Ind.

FILE NUMBER 306
SAB 1918

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D.C., Sep 23 1952

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

1. It is considered in this headquarters that during the period 1946 through 1960 the Soviets will have available in the medium and heavy bomber field only a subsonic capability for use against the United States. However, it is possible that light bombers with appropriate refueling and/or other means of obtaining the necessary one way range could have speeds up to Mach 1.2. It is considered unlikely that such aircraft would be used to any appreciable extent, due to inefficiency, control problems, and availability of more effective weapons, such as ballistic missiles.

2. The Soviets are developing a 100 to 120 metric ton thrust rocket motor. Use of this motor in an appropriate rocket airframe could result in a single stage rocket capable by late 1954 of a range of approximately 970 N.Mi. carrying a warhead of approximately 2,000 lbs. By late 1955 this range could be extended to 1,270 N.Mi. by use of a twin-motored single stage vehicle. If the 100 to 120 ton thrust motor is used in a two stage missile, the Soviets would by late 1956 have a missile capable of approximately 2,160 N.Mi. range carrying a 2,000 lb. warhead. A glide version of this later missile could have a 4,400 N.Mi. range by 1957. It is estimated that at the burn out point these missiles will have speeds of approximately Mach 10.

3. The above constitutes the threats upon which this headquarters has based the future weapons system. A bomber or missile threat of Mach 2.0 has never been dealt with specifically with the exception that BOMARC II was established to cope with SMARK type missiles with speeds up to Mach 2.7. Consequently, the program outlined below was established without regard for a specific Mach 2.0 threat but to include the entire speed range up to Mach 2.7.

4. Based on present procurement and development programs, in the 1956-1958 period, the weapons system will be composed of 29 groups of manned interceptors consisting mainly of F-102s and F-86Ds, 3 squadrons of BOMARC missiles. In addition, a study has been initiated on a low altitude surface-to-air missile and if feasible a hardware development will follow. The goal of this program is to have an operational weapon in 1956. It should be noted that a "local homing all-the-way" missile is not in the present Air Force program. Use of the weapons discussed above most nearly approximates paragraph 3c of basic letter.

5. In the above program it is felt that the BOMARC I and the F-102 can adequately cope with the Mach 1.2 bomber threat mentioned in paragraph 1.

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SECURITY INFORMATION

1st Ind to Air Defense Command, Subject: Air Defense Weapons System (Cont'd)

Normal growth of these weapons plus the F-103, should provide a capability against increases in the threat up to Mach 2.0. However, there has not been a weapon system developed to combat the ballistic missile threat above Mach 2.0 to include speeds up to Mach 10. As a result of the above, this headquarters, in addition to developing weapons for threat increases above Mach 1.2, has initiated studies (WIZARD) directed towards combating the ballistic missile threat.

6. Project WIZARD is a study program covering system analysis of a surface-to-air missile for defense against ballistic surface-to-surface missiles. Although the contractor does not consider entering into a full scale hardware program to be practical yet, were on a semi-active seeker missile. system has shown considerable promise and the WIZARD effort is directed toward a continuing study of this type weapon with emphasis placed on initiation of a hardware program at the earliest possible date.

7. Any comments your command may have concerning this problem would be available to this headquarters.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl:
w/d

/s/ C. P. Lessig
/t/ C.P. LESSIG
Colonel, USAF
Deputy Director of Requirements

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APR 1953

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JHB

F-99 (BOMARC)

1. The F-99 (Bomarc), one of the several types of Guided Missiles, 44
is the first and only unmanned interceptor programmed for the Air Defense
Command. Two other types of guided missiles, programmed for the Air
Defense System, are:

a. The GAR-1 (Falcon) and the AeroWolf (Infrared), both air-
to-air guided rockets, will be employed by the air defense interceptors
in the same way as 2.75 inch FFAR rockets and other conventional
interceptor armament is used, and

b. The A.A.A. guided missiles such as NIKE and TALOS, which
will be employed as local defense weapons to extend the range and
increase the accuracy of anti-aircraft weapons.

2. F-99 (Bomarc) is a surface-to-air guided missile, weighing
approximately 11,000 pounds and carries a warhead approximately 300
pounds. It is launched vertically by a Liquid Rocket motor (acid-
petroleum) producing 35,000 thrust. It is propelled during mid course
by two (2) 28" Ram Jets. The guidance is conducted in three (3)
stages: (a) initial, Preset Command, (b) Mid-course, Command and
(c) Terminal, Active-pulse-radar-target Seeker. The terminal guidance
will be developed in three stages: (a) Active-pulse-radar-target Seeker,
(b) Continuous Wave (CW) and (c) Pulse-Doppler.

3. The F-99 (Bomarc), since it is a long range interceptor type,
will be employed in the air defense system in much the same way as the
manned interceptor. We do not foresee using the manned interceptor and
the unmanned interceptor in the same area at the same time. In some

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areas the F-99 (Bomarc) with it's fast take-off and cruise capability, will be utilized as the initial attack interceptor and the manned interceptor will be used as back-up while in other areas the manned interceptor will be utilized as the initial attack interceptor and Bomarc will be used as the "depth" interceptor.

4. Official publications on the Bomarc have referred to both the Bomarc I and Bomarc II. These references have created a false assumption that there are two distinct systems. There is only one (1) Bomarc system and the Project Personnel throughout the Air Force are referring to the program as "Bomarc" or F-99. There will be improvements in the system and these improvements will most likely have a letter designation just as an aircraft program, example: F-89A, B, C or D. There will be many limitations in the original F-99 (Bomarc) such as short range, low altitude limitations, etc. However, ADC has required that the early production of Bomarc be capable of retrofit to the advance models. All series of Bomarc will fit into the same ground environmental system.

5. The Ground Environmental System is assumed to be the Automatic or Semi-Automatic System such as the Lincoln or the University of Michigan systems under development at the present time. Fitted into the system will be the so-called Bomarc "Front-end" which consists of the Bomarc direction or control equipment, with the necessary personnel to direct the Bomarc during its flight. This personnel will monitor the tracks of both the target and the Bomarc and will give corrected track information to the Bomarc until the terminal guidance, contained in the missile itself, takes over to make the "kill".

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The Bomarc "Front-end" equipment can handle 24 missiles simultaneously and additional units of this equipment can be added to any direction center to handle up to several hundred Bomarc, simultaneously.

6. In addition to the facilities described, above, there will be several Bomarc squadrons in an area which will provide missiles for any direction center. These squadrons will be composed of up to four (4) launching sites. The Launching Site will consist of thirty (30) Bomarc missiles in the launching revetments. The Bomarc, in the launching revetment, is in a ready condition but will have no parts moving. Upon receipt of an alert the Bomarc can be erected from its horizontal storage condition into the vertical launching position, serviced, started and launched within two minutes. The maximum flight time for two-hundred and fifty (250) miles is approximately twelve minutes. Therefore, the Bomarc can produce a "kill" two-hundred and fifty miles from its squadron approximately fifteen (15) minutes from the time the decision is made to employ Bomarc. ADC is planning to have approximately 10% of the F-99 missiles equipped with atomic warheads. In the event of atomic employment an additional alert time, approximately fifteen (15) minutes of intelligence information, is required.

7. A typical operation employing the F-99 (Bomarc) might develop when one of the early warning lines have been penetrated. This might occur several hours before a track can be made. The stand-by alert will be given. Atomic warheads will be readied. When the attack has proceeded to a range where a track can be established the Air Defense Combat Center (ADCC) will alert the F-99 squadron or squadrons and the Air Defense Direction Center (ADDC). The order to the F-99

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squadron will contain the number of Bomarc to be launched, the time, the azimuth and the frequency to which the missile will be crystallized. At the same time the order to the ADC will consist of the time, the azimuth and the location in space of the Bomarc and enemy track information. At the designated time the F-99 squadron will launch the Bomarc and the ADC will capture and direct the Bomarc into close proximity of the target. The terminal guidance which has been searching for its target during mid-course guidance, will lock on its target at approximately 15 miles range. The terminal guidance will then track the target for a direct hit, however, the warhead is fused with a side mounted proximity fuze and will detonate at the closest point as the missile track passes the target track.

8. ADC is conducting a study at the present time to determine what weapons are needed for Air Defense. 1960 is the date we have picked to develop toward. From our gaming so far, it appears that the best deployment for the Bomarc we can have at that time, is along the coastal areas where we can make the best use of the shorter tracking ranges (250) miles provided by land based radar. The land based radar, with AEW flying just inside the land based coverage, will provide complete coverage out to approximately 250 miles. With this Radar system and Bomarc with the Pulse Doppler system the F-99 should be effective down to surface. The 1960 plan for deployment of F-99 (Bomarc) provides for 30 squadrons, consisting of 110 sites and 3,000 Bomarc missiles in place and ready for launch upon a two minute alert. The first squadron will be formed in 1957.

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SECRET SECURITY INFORMATION

18 Apr 1951

45

SUBJECT: (Secret) Atomic Warhead for Use Against Airborne Aircraft

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER 305
448

1. This headquarters is investigating the advisability of incorporating an atomic warhead with the BOMARC surface-to-air missile for the purpose of destroying airborne aircraft attacking the United States. Theoretical studies of the vulnerability of airborne aircraft to atomic explosions are expected to be completed soon by operations analysts at this headquarters. This study is the first step in the operational evaluation being made prior to planning and conducting experimental tests, analysis of results and the establishment of a requirement.

2. Many factors are involved other than vulnerability of aircraft to atomic explosions such as geographical areas over which it cannot be used because of its adverse effects on industry, agriculture, inhabitants and military operations. If this evaluation proves favorable, it may be incorporated in the BOMARC I Missile (1954). This appears most probable that it could be incorporated in the BOMARC II Missile (1956). It is also being considered for use in drone aircraft or large air-to-air rockets.

3. It is requested that you submit any comments or suggestions which your command may have relative to the above subject. These should be sent to this headquarters, Attention: AFDRQ-AD.

BY COMMAND OF THE CHIEF OF STAFF:

E.F. RECTOR
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Hq USAF, No File Subject: (Secret) Atomic Warhead for Use Against Airborne Aircraft

ADOPR 452.1 (18 Apr 51) 1st Ind

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Requirements, Headquarters USAF, Washington 25, D.C.

1. This headquarters considers that the general subject of the use of atomic weapons against airborne targets should be exhaustively studied.
2. Obviously, the use of costly fissionable material requires a most careful consideration of the principle of Economy of Force. It is conceivable that the use of an atomic weapon against an enemy airborne carrier known to have an atomic bomb aboard or against a relatively large formation of enemy bombers with insurance of destruction of the major portion of the formation, could be considered economical.
3. It is believed that the full development of Airborne Early Warning and Airborne Intercept Control would be a prerequisite to the use of subject weapons in order to insure use over "safe" geographical areas.
4. Until receipt and study of the theoretical studies mentioned in paragraph 1, basic communication, plus studies concerning paragraph 2, above, this headquarters does not feel qualified to make any further comments or suggestions.

FOR THE COMMANDING GENERAL:

JAMES I. CLARK
Major, USAF
Asst Air Adj Gen

SECRET SECURITY INFORMATION

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HEADQUARTERS AIR/DEFENSE COMMAND		ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this hq (See ADCSN 10-2).
FILE	SUBJECT Atomic Warhead for Use Against Airborne Acft			
FROM	P&R	TO	C&E DO O&T VC DM AAG-C	DATE May 51 COMMENT NO.
<p>1. This directorate believes that the use of atomic warheads in guided missiles against airborne aircraft should be developed as a fairly high priority project. The following is offered in support of this opinion:</p> <p>Whether Soviet bombers attack in single or in multiple aircraft formations, we can be assured that at least one A-bomb will be present within the striking force. The employment of one atomic warhead against an attacking formation of one aircraft or a dozen would net a trade of at least one-for-one in A-bombs (or equivalent), and would result in an acceptable attrition factor for atomic weapons, even though a one-for-one plus factor would be better.</p> <p>b. The intercept line (or point) must be as near as possible to the maximum distance of EW radar detection. The intercept line can be removed further from the defended area to a position of remoteness limited only by the capability of our EW radar with limited Ground or Airborne Control Intercept. Thus, in the application of the Canada-U. S. Radar Extension Plan and our concept of AEW&C to a Guided Missiles system, for detection and guidance, we can position the intercept line (s) over geography which does not contain industry, inhabitants and/or military operations, and possibly agriculture.</p> <p>c. Any airborne GM, during its terminal trajectory especially, develops natural lateral and vertical accelerative characteristics which detrimentally effect GM accuracy. Predictions for BOMARC I and II are that 200 feet is as near to a target that these missiles can be self-guided, or externally-control-guided, short of direct random hits. In the case of M¹.0 plus, GM's operating at high (60-90,000 feet) altitudes with the intercept line objectives 200-400 miles from the defended area, and the enemy target operating at M¹.7 to M¹.0 plus, it is readily apparent that the GM warhead must contain extremely powerful explosive and fragmentation characteristics. This is in order that the shock wave and/or fragments are not wasted because of unfavorable relative positions of GM and bogey immediately after detonation of warhead. The kill must be made at the intercept line, else the bogey could recover its course before reaching its IP, in which case a second interception must be attempted.</p> <p>d. Atomic bombs of the Hiroshima-Nagasaki type have dimensional characteristics suitable for incorporation in BOMARC I and II frames. Efficiency of these types has been improved in accordance with specifications furnished by the Navy. Even the Hiroshima bomb had a lethal fire and blast radius of 2-4000 feet. The incendiary effect within a sphere having such a radius would destroy bandit which would have passed beyond the normal spherical error of the BOMARC I and BOMARC II.</p> <p>2. Recommend approval of attached indorsement to Hq USAF.</p> <p>s/t ROY W. DART Colonel, USAF Asst Director P&R - 216/217</p>				

CONFIDENTIAL

DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
UNITED STATES AIR FORCE
WASHINGTON, D.C.

46

22 June 1951

MEMORANDUM FOR DEPUTY CHIEF OF STAFF

SUBJECT: Proper Utilization of Resources

FILE NUMBER 785
X771 X 793 246 TH3

1. The Military establishments are now engaged in an expansion program of great magnitude, involving billions of dollars and the drafting of substantial numbers of individuals from civilian life. The program will involve the further expenditure of added billions and the diversion of more civilian personnel into the Armed Forces or into industries manufacturing arms and equipment. This expansion program already has had a severe impact upon our civilian economy and upon the lives of many of our citizens. The continued expansions will have an even greater effect.

2. This present expansion program may well continue for many years. The Armed Services have a problem not only of providing a given number of troops with a quantity of weapons and ground support but, in addition, of maintaining the basic productive capacity for whatever military operations may develop. There is a requirement for sustaining readiness over a period of unknown, and perhaps unknowable, duration. The Armed Forces are faced with the task of achieving this sustained preparations and at the same time preserving the economic health of the country. The Government as a whole must provide for the needs of the Military establishment and it must protect civilian morale and worker efficiency by maintaining an adequate flow and capacity to produce civilian goods and services. These combined demands of the military and the civilian economy place a great strain on the national resources of men, materiel, and money. Since these resources are definitely limited, it is imperative that the military plan and time-phase its demands upon the total economy so as not to weaken the civilian economy on which the Services depend for continued development.

3. Every Command in the Air Force and every Staff Agency in Headquarters can help build a strong Air Force by accepting full and personal responsibility for the proper utilization of our manpower, materiel, and money. It is my desire that all our people, both military and civilian, at all operating levels assist in the program to conserve resources so that serious adverse effects on inflation and needless impact of military demand on the civilian economy can be avoided. We must have a strong Air Force and we must achieve it without waste and inefficiency.

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4. There are many ways in which the proper utilization of resources can be effected. The following list is suggestive and not all-inclusive.

a. The Air Force should have the required modernization of weapons and equipment as an objective. This does not require the Air Force, however, to adopt every conceivable improvement which can be invented or to run a technological race with itself. Equipment should be designed to do the functional job required of it and should not be more complicated or costly than needed to accomplish its functional purpose.

b. Change for change's sake should be avoided. Unnecessary changes in equipment only requires replacement at high cost to the Air Force. The cost of making changes should be carefully assessed against their value from a military and functional standpoint. Judgements of such matters should be wisely made in the interest of reducing claims on the Nation's resources. We must avoid plush habits and plush requirements.

c. Tables of Equipment and Tables of Allowances should be reviewed and recommendations made to this Headquarters to eliminate items not actually utilized.

d. Every effort to use personnel effectively should be made. Methods of organizing work to increase efficiency should be studied, and appropriate action taken. Over-organization, resulting in waste of personnel, should be avoided.

5. I cannot over-emphasize the responsibility of each of us at all echelons to be alert to every wasteful or thoughtless practice and to take immediate steps for their elimination. I therefore desire that you widely circulate the contents of this message within your Command and your Staff agency.

s/t/ HOYT S. VANDENBERG
Chief of Staff, USAF

SECRET SECURITY INFORMATION

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

47

AFOMO-A

23 MAY 1952

SUBJECT: (Unclassified) Civilian Personnel Requirement Department
of the Air Force Fiscal Year 1954 Budget Estimates

TO: Commanding General, Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. The official position of the United States Air Force with respect to the manpower program was stated in the "Report of Manpower Requirements for Expanded Air Force Structure (126 Combat Wings)", forwarded to you on 25 March 1952.

2. It is mandatory that the Air Force operate within the ceiling established by this report. Therefore, your civilian personnel estimate for FY 1954 must be within the ceiling for your command established in BPT-54-1 May 1952. This ceiling is for regular Air Force activities only and does not include civilian personnel paid from MDAP, Reimbursement, Industrial, Management, or working funds. It may be that your command will consider this ceiling below minimal requirements. If such is the case, you may request civilian personnel in excess of this ceiling. However, such requests must be substantiated to the maximum extent possible as any increase granted one command must necessarily be at the expense of another command as the total ceiling cannot be exceeded.

3. In addition to the information required on Form "D" of the Fiscal Year 1954 Budget Estimates, it is necessary that you supply the following additional information to the Directorate of Manpower and Organization this Headquarters.

a. A narrative justification by installation on all installations in your command. This justification will include requirements in terms of measurable workloads, and such other factors as will clearly and conclusively demonstrate the validity of the estimates. Phrases such as "increased workload" or "additional requirements" are not acceptable. The increased workload or additional requirements must be clearly described and conclusively substantiated. This justification must include both FY 1953 and FY 1954. If no increases are requested over FY 1952, a statement must be included to the effect that the FY 1952 authorization is the minimal requirement for that installation.

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b. A narrative description of the effects of the imbalance of your civilian manpower program, caused by the imposed graded ceiling, and the steps you have taken to live within this ceiling. This information is required in order that the Department of the Air Force may substantiate to higher authority an increase in graded ceiling.

c. Specific examples of manyear savings resulting from management improvement techniques, surveys, etc.

4. The Directorate of Manpower and Organization will conduct a review of the manpower requirements of your command at this Headquarters with manpower representatives of your Headquarters.

5. Upon completion of Form "D's" and the information required by paragraph 3, all ZI commands will notify this Headquarters by TWX. Subsequently each ZI command will be advised on what date their manpower representatives are to appear at this Headquarters for review of the civilian personnel requirements of the FY 1954 budget estimates. These representatives will hand carry two copies of the Form D's in booklet form by installation and seven copies of the information required by paragraph 3. These representatives must be prepared to explain and defend the civilian personnel requirements.

6. Manpower representatives of overseas commands will hand carry the same information to this Headquarters when complete and will notify this Headquarters by TWX of their arrival date.

7. This information is required in this Headquarters as soon as possible after completion but in any event no later than the submission date of your FY 1954 budget estimates. This is necessary as the time available to conduct this review is limited.

8. The necessity for requesting such detail is outlined in paragraph 1, page 5, Section II, Forms (with instruction), Department of the Air Force Fiscal Year 1954 Budget Estimates dated 30 April 1952. This emphasis on detail is required as part justification of civilian personnel requirements in budget estimates has been of such nature as to make evaluation of the request difficult and adequate justification to higher review authority in the detail required impossible.

9. This program must have the fullest cooperation of all concerned at all echelons of command if the Air Force is to acquire the personnel necessary to carry out its program.

BY COMMAND OF THE CHIEF OF STAFF:

JOHN F. WADMAN
Colonel USAF
Executive
Directorate of Manpower and Organization, DCS/O

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SECRET SECURITY INFORMATION

ADOMO 320.3

18 JUL 1952

48

SUBJECT: (Unclassified) Civilian Personnel Requirement Department
of the Air Force Fiscal Year 1954 Budget Estimates

TO: Director of Manpower & Organization
Headquarters, United States Air Force
Washington 25, D.C.

FILE NUMBER 782

1. Reference is made to letter your headquarters AFOMO-A "Civilian Personnel Requirement Department of the Air Force Fiscal Year 1954 Budget Estimates," 23 May 1952.

2. This command considers the civilian personnel ceiling established in BPT-54-1 to be inadequate since it does not make any provision for civilian allocation for the operation of the AC&W program.

3. ADC programming for FY 53 is based on the following assumptions:

a. That the civilian spaces now shown in BPT 54-1, May 1952, are fully justified as indicated in June 1952 T/D's and T/DA's, furnished under separate cover.

b. That approximately 490 of the 890 Korean spaces now allotted will be converted to regular authorizations for FY 1953.

4. The increase of 1069 civilian spaces as shown on Form D's represent T/DA's for the AC&W Squadrons to man and operate equipment as shown on Incl #1. This represents a total of 1387 spaces being utilized for AC&W R&U, the difference having been allotted prior to July 1952.

5. The following requirement for civilian spaces will be generated during FY 53 and FY 54 by activation of these units:

	<u>FY 1953</u>	<u>FY 1954</u>
Oxnard	100	100
Kinross	74	100
Palmdale		97
Venice		100

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ADOMO 320.3 Subj: (Unclassified) Civilian Personnel Requirement Department
of the Air Force Fiscal Year 1954 Budget Estimates

	<u>FY 1953</u> (Cont'd)	<u>FY 1954</u> (Cont'd)
MAJORS		
Houma		100
		100
TOTAL	174	597

Typical workload justifying spaces required for Kinross, Oxnard and Majors, Houma, Venice, and Palmdale is shown as Inclosure #2.

6. The decrease in requirement shown in FY 1954 is due to the transfer of McGuire and Sioux City and termination of Korean hostilities. (McGuire 458, Sioux City 142, Korean Spaces 400, total 1000). Part of this decrease is absorbed by the requirement named in paragraph 5.

7. This represents a total increase of 1834 civilian spaces for FY 53 and an increase of 1559 spaces for FY 54 over the ceilings reflected in BPT 54-1, May 1952.

8. The totals in the Form "D's" include spaces for AC&W support for some on-base AC&W squadrons that will be made available for transfer to the Command owning the parent installation. They also include 230 additional spaces for 4th Quarter FY 53 for McGuire AFB for MATS, pending transfer of this installation.

9. Up to the present time, the graded ceiling previously imposed has offered no serious difficulties.

FOR THE COMMANDING GENERAL:

- 2 Incls
1. Statement of R&U Personnel Requirements
 2. Part I T/D-A 74 AB Sq
 3. Form "D's"

SECRET SECURITY INFORMATION

0 3 8 5

21 January 1952

Major General Frederic H. Smith, Jr.
 Commanding General
 Eastern Air Defense Force
 Stewart Air Force Base
 Newburgh, New York

49

FILE NUMBER 782

Dear Fred:

1. The attached letter from General Vandenberg pertaining to "Economy in the Operations of the Air Force" states the problem in clear and concise terms.
2. It will be noted that the Chief stresses one very important point in stating that " * * * In the final analysis it is the commander of each echelon who has the means at his disposal to effect real economy of operation * * * ". This philosophy must be disseminated throughout all echelons of our Command.
3. MANAGEMENT, like LEADERSHIP, is a broad term. Within my experience, in judging an officer or airman upon the qualities of management displayed, it is not alone sufficient to gauge these qualities by the end results achieved. It is frequently necessary to go behind those and results and examine the means and methods by which those results were arrived at. Other factors being relatively equal, the leader who achieves the desired results with the minimum expenditures of his dollar, personnel, or materiel resources is the man to tie to from a management point of view.
4. Recently, while on a visit of inspection to one of our northern bases, in order to get from the main barracks area over to the central mess, it was necessary to sash along in mud and water up to our ankles. As a result, during periods of inclement weather, the clearing of the mess hall entrance and floor, as well as the barracks, became quite a sizeable and necessary operation after each meal period. A study of the management angle in this case would certainly have indicated that the expenditure of a few hundred dollars on the installation of hard-surface walkways between the buildings would more than pay for themselves in a very short time, in terms of time and manpower necessarily expended in the repeated clearing operations. The effect on the spirit and morale of the airmen should likewise figure in such management considerations.

Major General Frederic H. Smith, Jr
- page 2 -

5. Conversely, any over-plushing of our facilities and installations is definitely to be avoided if the Air Force is to escape criticism of our utilization of the funds and resources at our disposal.

6. I realize that it is sometimes difficult for the young commander to know just how far he can go toward improving his installation, even though he possibly has the resources within his organization to accomplish the desired improvement. This again is a matter of judgment and discretion. A storm door or a snow fence at a installation might be a must —at another installations merely a useless expense.

7. Our younger commanders should be encouraged to think at all times of the improvement of the physical layout of their plant. They should be helped and guided in their thinking by your staff people during their visits.

8. A recent report (34th Report of the Preparedness Subcommittee of the Committee on Armed Services, U.S. Senate) covers conditions found by the Subcommittee at six major Air Force Bases. The report is openly and frankly critical of many of our Air Force management practices. While none of the particular bases inspected happened to be under ADC jurisdiction, nevertheless we need not labor under the delusion that the same or similar type conditions do not prevail to a greater or lesser degree within our own Command - and we must take steps to see that the type of practices cited are maintained or eliminated at our own installations. Additional copies of this report are being obtained and will be forwarded to you for study by you and your staff.

9. Somewhere I once read a phrase that has long stuck in my memory. The phrase - Management is more the development of people rather than the direction of things. It is therefore up to us to condition the thinking of our younger commanders that economical use of our limited resources and good sound management practices parallel in their consciousness the same high degree of individual training and operational readiness we are seeking to achieve.

Major General Frederic H. Smith, Jr
- page 3 -

10. No one has a monopoly on brains. The Air Defense Command is, relatively, a new command and constantly facing new problems. We do not presume that we know all the answers here at Headquarters. No doubt you have tried out many new wrinkles in your own show. Some may have panned out well - others not. If you or your people have developed any management practices which look as though they are paying good dividends, let us know about them here at Headquarters. We can analyze them here and perhaps may be able to apply them to advantage throughout the rest of the Command.

11. I intend to discuss this subject of Management at some length in our next Commanders Conference in March - so you and your folks should be giving it considerable thought.

1 Incl
cy ltr fr Gen Vandenberg

Sincerely,

B.W. CHIDLAW
General, USAF
Commanding

COPY

DEPARTMENT OF THE AIR FORCE
Office of the Chief of Staff
United States Air Force
Washington, D. C.

5 Jan 1952

SUBJECT: Economy in the Operation of the Air Force

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. The Air Force during 1951 made commendable progress overall. While a great deal was accomplished in the field of management to include both personnel and materiel resources, I am not satisfied that we have done everything in our power to achieve maximum economy and efficiency in our operations.

2. It is of little benefit for this Headquarters to issue policy directives in the field of management unless these directives are clearly understood and implemented throughout the chain of command. In the final analysis, it is the commander in each echelon who has the means at his disposal to effect real economy of operations.

3. I desire that you give this subject your continuing personal attention and that you impress upon all your commander the absolute necessity of eliminating anything which might be termed waste or lack of economy in the utilization of personnel and resources.

4. Along with this, you must insist upon the highest ethical standards, both personal and official, from all personnel in your command. The Congress and the people of the United States have approved tremendous expenditures in the national defense, and they rightfully expect the integrity of members of the Armed Forces to be beyond reproach. I feel confident that the Air Force can fulfill this expectancies.

/s/ HOYT S. VANDENBERG
/t/ HOYT S. VANDENBERG
Chief of Staff, United States Air Force

Incl #1

0-389

SECRET SECURITY INFORMATION

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

50

AFOMO-O

24 Jul 1952

SUBJECT: (Uncl) Comprehensive Manpower Management Studies

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colo.

FILE NUMBER 788

20

1. Since writing to you on this subject 27 June 1952, Congressional pressure on the Services to improve manpower utilization has increased.

2. This Headquarters is now preparing a reply to the Fortieth Report of the Preparedness Investigating Subcommittee, Committee on Armed Services, United States Senate, entitled: "Report on the Utilization of Manpower by the Armed Services." A copy of this report, which was published 7 July 1952, is attached.

3. Section II of this report deals with the Air Force; it is contended that we have "subdivided a number of relatively simple jobs into subspecialties." Career guidance, education, personal affairs, welfare and recreation specialists are singled out for particular criticism. The number of people engaged in clerical, surface transportation and administrative functions is considered excessive.

4. In Section V of the report, the Subcommittee presents its Summary and Conclusions. It cannot be denied that many of these conclusions are based on fact and that prompt corrective action should be taken. In Section VI, the Subcommittee urges the Secretary of Defense to appoint a group, composed principally of eminent and qualified civilians, to make a thorough study of the utilization of manpower by the Armed Services. This recommendation resulted in the insertion of the following provision in the Department of Defense Budget for Fiscal Year 1953, which was approved by Congress 5 July 1952:

"Section 640. The Secretary of Defense is hereby directed to submit revised tables of organization and tables of equipment of the Army, Navy, Air Force and Marine Corps to the Congress, together with recommendations for decreasing the number of personnel positions, clerical positions, supply positions and other administrative positions so that the combat effectiveness of our Armed Forces may be improved".

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5. Long recognizing the urgent need for effecting the most economical utilization of the manpower resources of the Air Force, this Headquarters has already taken action to place Air Force manning on an austers basis. The steps taken are described in the attached copy of our "Quarterly Progress Report— Manpower and Personnel Controls" submitted to the Department of Defense for the quarter which ended 30 June 1952. Your particular attention is invited to Section III of this quarterly report, page 7, Item: "Manpower Requirements for Expanded Air Force Structure"; page 10, Item: "Air Force Program for the Review of Manpower Utilization"; and to Section V, "Plans for the Quarter 1 July - 30 September 1952." Further details of the specific spaces to be eliminated from manning documents as summarized in Section III of the report will be forwarded to the major commands concerned in the near future..

6. The inclosures will serve to keep you currently informed on the comments of the Preparedness Investigating Subcommittee and the various Air Force programs for the improvement of manpower utilization.

BY COMMAND OF THE CHIEF OF STAFF:

- 2 Incls
 1. 40th Rpt
 2. Progress Rpt

/s/ Roger J. Browne
 /t/ ROGER J. BROWNE
 Major General, USAF
 Director of Manpower and Organization, DCS/O

SECRET SECURITY INFORMATION

10391

AFMO-0

5 September 1952

51

SUBJECT: The Citizens Advisory Committee to Review Tables of
Organization and Tables of Equipment in the Armed Services

TO: Commanding General
Air Defense Command
Ent Air Force Base, Colorado

FILE NUMBER	782
40	200

1. Department of Defense Directive Number 5120.7, 15 August 1952 (inclosed) established in the Office of the Secretary of Defense a Citizens Advisory Committee to review Tables of Organization and Tables of Equipment in the Armed Services.

2. In addition to the objective of conducting a thorough examination of these tables (or their equivalents) the Committee is charged with considering existing legislation that affects manpower requirements and with recommending changes or new legislation considered essential.

3. In achieving these objectives the Committee is authorized to review and examine all functions of the Services deemed necessary. It further has authority to visit all installations and establishments except sensitive areas requiring special clearances. (In this respect the Committee will be cleared for Top Secret)

4. While the Citizens Advisory Committee will operate as an agency of the Department of Defense, many areas it will cover have probably been explored by various independent congressional investigations. Therefore, the possibility exists of conflict between the findings and recommendations of the Committee and those of the congressional groups. Because of this it is of utmost importance that each member of the Committee be assured in his own mind that the evidence he is given is 100% valid. Hence, you are enjoined to take the necessary steps to insure that, in all contacts by members of your command with any member of the Committee or its representatives, full cooperation will be given and that all data furnished be capable of complete substantiation.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl
as ntd par 1.

WILLIAM F. McKEE
Major General, U. S. Air Force
Assistant Vice Chief of Staff

15 August 1952
NUMBER 5120.7

DEPARTMENT OF DEFENSE DIRECTIVE

SUBJECT: Citizens Advisory Committee to Review Tables of
Organization and Tables of Equipment in the Armed Services

There is hereby established in the Office of the Secretary of Defense a Citizens Advisory Committee to Review Tables of Organization and Tables of Equipment in the Armed Services

I. MEMBERSHIP

A. The Chairman and members of the Committee shall be appointed by and serve at the pleasure of the Secretary of Defense.

B. The Committee will be composed of not more than eleven eminent citizens, the majority of whom shall be civilians, and will include a retired general or flag officer from each of the four Armed Services: Army, Navy, Air Force and Marine Corps.

II. PURPOSE

It is the purpose of the Committee to submit recommendations designed to accomplish the most economical and effective use of manpower and equipment in the Armed Services.

III. OBJECTIVES

A. The Committee will conduct a thorough examination of the authorities, responsibilities, criteria and standards within each Service involved in the development, authorizations and audit of Tables of Organization, Tables of Distribution, and Tables of Equipment or their equivalents, and submit recommendations designed to accomplish the most economical and effective use of manpower with no diminution of the Services' required combat capabilities.

B. The Committee will consider existing legislation that affects manpower requirements in the Services and recommend needed changes or new legislation considered essential.

IV. AUTHORITY

A. The Committee will have authority to review and examine all functions of the Armed Services necessary to achieve its objectives.

B. The Committee will have authority to visit all installations and establishments of the Army, Navy, Air Force and Marine Corps, except sensitive areas requiring special clearances.

V.. ADMINISTRATION

A. The Committee will report through the Chairman to the Assistant Secretary of Defense (Manpower and Personnel).

B. A Director of the Technical Staff and an Executive Secretary will be furnished by the Assistant Secretary of Defense (Manpower and Personnel).

C. The Committee will be furnished such supporting technical and clerical assistance as may be required.

D. The Secretary of each Department will appoint his fully authorized, full-time representative for each Service who will be responsible for directing, coordinating and supervising the implementation of necessary actions on the part of each Service. The character and size of the support within each Service shall be adequate to the Committee's needs.

s/ ROBERT A. LOVETT
Secretary of Defense

Hq DAF AFOMO-0 Subject: The Citizens Advisory Committee to Review Tables
of Organization and Tables of Equipment in the Armed Services

ADOMO 320.3 (5 Sep 52)

1st Ind

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Eastern Air Defense Force, Stewart Air Force
Base, Newburgh, N.Y.

It is my desire that the Citizens Advisory Committee be given the
utmost cooperation. All commanders will be advised of the importance of
insuring that the information given to committee members be sound and
capable of justification. The spirit and intent of the basic letter will
be carried out to the fullest extent.

1 Incl

n/c IDENTICAL INDORSEMENTS TO CG WADF AND CADF / 11 Sep 52.
and CG 4600th ABGp

B.W. CHIDLAW
General, USAF
Commanding

Maj R E Gotchey/bl
750/751
11 Sep 52

SECURITY INFORMATION
SECRETFILE NUMBER 782
LOGGEDDEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

AFOMO

2 Jul 1952 52

SUBJECT: Manpower Requirements for Expanded Air Force Structure

TO: Commanding General
Air Defense Command
Ent Air Force Base, Colorado

1. A copy of the report, "Manpower Requirements for Expanded Air Force Structure," (19 March 1952) was forwarded to all Major Air Commanders. Throughout its context, this report places emphasis upon the necessity for austerity in Air Force Manning. The Chief of Staff has unequivocally directed that the recommendations contained in this report be placed in operative practice.

2. The implementation of these recommendations will require a positive program, designed to produce tangible results. A pattern for austerity must be established. This pattern must be founded upon an equitable basis; each Major Air Command contributing its proportionate share to the over-all program.

3. The report makes several specific references to specialized functions. A Pattern for austerity in the manning of specialized functions and indirect support functions has been established by this Headquarters. This pattern will be applied to all Air Force Manning Documents. There is inclosed a report of the initial application covering the Air Base Group activities. This results in a net reduction of 42 officer spaces to your command.

4. In arriving at this reduction utilization was made of the T/D's and T/DA's which reflect the authorization for 31 May 1952. The reduction in officer spaces, as shown on the inclosure, should be reflected in the Tables of Distribution submitted 31 July 1952. This Headquarters will take action to reduce your Personnel Allocation Voucher in order to compensate for the changes you will make in the Tables of Distribution.

5. In making reduction of officer spaces cognizance has been taken of the fact that these officers may have been given their prime assignment because of directives promulgated by this headquarters. As an example, the thirty-four (34) series of Air Force Regulations establishes

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AFOMO

Subject: Manpower Requirements for Expanded Air Force Structure (cont'd)

by implication the need for full-time Special Service Officers. Personal Affairs Officers, Physical Fitness Officers and I and E Officers. Such regulations are interpreted to mean that their provisions will be fulfilled by assigning officers to these specialized functions as an additional duty.

6. Those functional areas which are affected by this reduction in officer spaces should be examined for further reduction or adjustment of airmen and/or civilian authorizations. Such an examination should lead to standardization in manning of indirect support areas. This should be accomplished in the Tables of Distribution submitted 31 July 1952.

7. A definite trend toward austerity must be established within the Air Force. The Headquarters USAF pattern is being applied to other functional areas. You will be advised of the results.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl:
Reduction in
Non T/O Officer
Spaces

s/t/ KENNETH B. HOBSON
Brigadier General, USAF
Deputy Director of Manpower & Organi-
zation, DCS/O

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Hq D&F AFPMO Subject: Manpower Requirements for Expanded Air Force Structure

ADONG 200 (2 Jul 52) 1st Ind

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Manpower and Organization, Headquarters United States Air Force, Washington 25, D.C.

1. Officer reduction directed will be reflected on T/D's and T/D-A's currently being prepared except as indicated below:

a. No 1952 T/D-A for the 568th Air Base Group on record at this headquarters reflects a Lieutenant 2110, Assistant Adjutant.

b. 80th Air Base Squadron and 569th Air Base Group are no longer units of this command. They were transferred to MATS and SAC, respectively, in April 1952.

c. With the reorganization of the 4750th Air Base Squadron to the 4750th Air Base Group in June, the Lieutenant 2200, Military Personnel Officer can no longer be identified.

2. Confirming verbal information furnished Lieut Colonel Moore, your office, request the next PAV for this command reflect a reduction of 36, rather than 42, officer spaces.

3. With the exception of the PIO office of the 4700th Air Base Group, the actions indicated in paragraph 6 of the basic letter will be delayed 30 days in order to avoid delay in submission of adjusted tables by 31 July 1952.

FOR THE COMMANDING GENERAL:

1 Incl
1 cy w/d

WALTER W. ROBINSON
Colonel, USAF
Air Adjutant General

2
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HEADQUARTERS AIR DEFENSE COMMAND ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this headquarters. (See ADCSM 10-2).	
FILE	SUBJECT		
FROM M & O	TO DCS/O (Col Breitweiser)	DATE 10 July 52	COMMENT NO. 1
<p>Attached is the correspondence I discussed with you two days ago and the first indorsement back to Washington. It seems to have cleared itself now to the degree that rather than our losing 42 officers spaces will now lose only 36. If there are any further changes in this matter I will notify you.</p> <p>s/t WESTER E. COLE Colonel, USAF Asst Dir of M&O Ext 237/238</p> <p>FILE NUMBER.....</p>			

ADC HQ FORM 3 - 15 Sep 52

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SECURITY INFORMATION

RESTRICTEDFILE NUMBER 782

53

AFOMO-D

SUBJECT: Manpower Requirements For Expanded Air Force Structure

*31 July 1952*TO: Commanding General
Air Defense Command
Ent Air Force Base, ColoradoFILED 320.3 TAFE
* X 312 VC
*
*Before removing this document
from file, or destroying it,
mark cross references accordingly.

1. The Headquarters USAF pattern for austerity in the manning of specialized functions and indirect support functions has been expanded so as to cover Wing Headquarters activities. The inclosed pattern has been applied to T/D's and T/D-A's which reflect the 31 May 1952 authorization and has resulted in a reduction of 136 officers to your command.
2. There is inclosed a list which shows the reductions by organizational element. These decreases should be reflected in Tables of Distribution submitted 30 September 1952. Action will be taken by this Headquarters to reduce your personnel allocation voucher in accordance with these deletions.
3. In establishing patterns for austere manning, full weight was given to the statement contained in Paragraph 61 of subject report; "That some functional responsibilities of certain echelons should be assigned to Non-Commissioned Officers--would save officer spaces without necessarily increasing NCO spaces already there to support officer positions. At some echelons the specialist responsibilities might better be performed as additional duties and, in some cases, they could be deleted without harm."
4. The functional areas which are affected by deletion of officer spaces should be subjected to analysis to determine further reductions or adjustments of airmen and/or civilian authorizations. Such changes should be reflected in Tables of Distribution submitted 30 September 1952.

BY COMMAND OF THE CHIEF OF STAFF:

2 Incls:

1. Reduction in Non T/O
Officer Spaces
2. Officer Authorization
Standard

ROGER J. BROWNE
Major General, USAF
Director of Manpower and Organization. DCS/O**RESTRICTED**

SECURITY INFORMATION

0400

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HQ USAF AFOMO-D Subject: Manpower Requirements for Expanded Air Force Structure

ADOMO 320.3 (31 Jul 52) 1st Ind 30 AUG 1952

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Manpower and Organization, Headquarters United States Air Force, Washington 25, D. C.

1. Application of the USAF austerity program to Air Defense Wings as stated in the basic letter will adversely affect the operation and efficiency of our wings since they are presently manned under an austere program. Although action directed in basic communication is being accomplished, this headquarters requests reconsideration of subject action.

2. It appears that the reductions were patterned after the standard authorizations as set down in Incl 2 to the basic letter. This standard does not apply to a Defense Wing. A Defense Wing is an area command and does not actively administer one air base but administers all bases and units in its area. The standard appears to have been designed for a wing organized under AFR 20-15 which runs one air base.

3. This command was reorganized on 8 February 1952 and T/D's and T/D-A's submitted on 5 March 1952. Due to the AFSC conversion program and per instructions contained in your message AFOMO 37302, no complete T/D and T/DA's were submitted by us to your headquarters until 24 June 1952. Therefore, the report (31 May 1952) used as a basis for the actions directed in the basic letter was obsolete. We believe current reports (June 1952) were on file in your headquarters prior to dispatch of the letter. Some of the spaces deleted by you were spaces in wings that did not exist. They had been discontinued as noted in paragraph 4 below.

4. During the period between February and July, we, acting under the spirit of General Vandenberg's announced policy, readjusted some of our manpower spaces within Air Defense Wings. This action is reflected on the T/D's for our wings attached as Incls 1 through 8. To meet high priority needs for spaces within the command, and to accomplish our defense mission within our current resources, two wings were discontinued in March 1952 and the spaces diverted to other priority functions. (See Incls 9 and 10.)

5. Due to the actions mentioned above, we are unable to identify 46 of the 136 spaces referred to in the basic letter; and if these spaces must be withdrawn, other activities of this command must of necessity be cut. The remaining ninety (90) spaces (8 lieutenant

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HQ USAF AFOMO-D Subject: Manpower Requirements for Expanded Air Force Structure. 1st Ind (Contd)

colonels, 29 majors, 27 captains, 20 lieutenants, and 6 warrant officers) have been deleted from the November manning documents as directed; however, it is our opinion that this action violates the spirit of General Vandenberg's manpower policy announced in his talk to the commanders on 30 November 1951.

6. Request waiver of the deletion of these 136 spaces from our non-T/O authorization. We intend to utilize or redistribute these spaces in the following manner:

- a. Leave the 46 officer spaces that do not appear on current documents in the units to which they are allotted.
- b. Allot 7 officer spaces to 35th Air Division to replace 7 spaces that were lost from GADF's resources per the previous austerity letter of 2 July 1952. These spaces were in the Air Base Squadrons temporarily, pending the build-up of the 35th Air Division.
- c. Allot 5 officer spaces to 90th Air Base Squadron at Oxnard.
- d. Allot 39 officer spaces to the 4750th Air Base Group (Weapons Training) at Yuma.
- e. Allot 6 officer spaces to UK Air Base Squadron at Kinross, Michigan.
- f. Allot 5 officer spaces to 86th Air Base Squadron at Faine Field, Washington.
- g. Allot 14 officer spaces to the REP (two for each Canadian AC&W Squadron and 2 for the supply account at Ottawa, Canada).
- h. Allot 2 officer spaces for liaison with the REP program in Ottawa.
- i. Allot 12 officer spaces to UK Air Base Group at Grandview, Missouri.

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HQ USAF AFOMO-D Subject: Manpower Requirements for Expanded Air Force Structure, 1st Ind (Contd)

j. Seperate correspondence is being forwarded regarding our needs in the Ground Observer program and at Yuma County Airport.

FOR THE COMMANDING GENERAL:

12 Incls

Added - 10 Incls

3-10 Non-T/O Pers Auth Tables

11. ADC Ltr, dtd 18 Mar 52 -
Subj: Discontinuance of
the 4705th Def Wg; Designation
& Orgn of the 4734th
& 4735th AB Sqs.

FREDERIC H. SMITH JR.

Major General, USAF

Vice Commander

4

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20 Aug 1952 54

ADOMO 320.3

SUBJECT: Military Manpower Requirements for the Ground Observer Corps

TO: Director of Manpower and Organization
Headquarters, United States Air Force
Washington 25, D. C.

FILE NUMBER 452

4P WRA

1. Request approval of a revised Table of Distribution for a Filter Center Detachment, Ground Observer Squadron, as proposed in inclosure one.
2. A survey of the operation of the Ground Observer Corps during the first four weeks of "Operation Skywatch" has clearly revealed the inadequacy of the Table of Distribution authorization for the present filter center detachment. The requirement for five officers and ten airmen per filter center detachment as authorized in USAF's Fiscal Year 1952 program was based on a standby training operation status. Twenty-four hour operation alters the duty requirement of the military personnel within the filter center to the extent that field training has been drastically reduced, and, in some cases, stopped completely.
3. The backbone of the Ground Observer System is the Observation Post. Accordingly the Filter Center Table of Distribution was designed to provide training teams to help recruit and to train the observation post volunteers and to help sustain the observer post program in general. The success to date of the ground observer program has been due largely to the activity of those teams. Not only must their activity continue during "Operation Skywatch", but it must continue at an increased rate.
4. A major inadequacy of the present Table of Distribution is that the Table of Distribution is fixed and provides no variation for changes in workload. The observation post training load varies directly with the number of observation posts and the geographic extent of the filter center area. At the present time the number of required observation posts varies between certain filter center areas from a low of 36 to a high of 898. The difference in the amount of effort required to effect the training program in these cited areas is obvious. The authorization must be one which takes into full accord the workload to be carried.

Col J.F. Fletcher

ADOMO 320.3 Subject: Military Manpower Requirements for the Ground Observer Corps

5. The manning proposed is compatible with the provisions outlined in AFM 150-1, dated September 1951. The basis upon which the proposed Table of Distribution for filter centers was developed, is the workload during standby operation, during continuous operation, and workload required with varying observation post requirements. The manning was designed to permit the following concept of operation:

a. A basic component of officers and airmen required to operate the filter center on a standby and training basis. The number of volunteers required within the filter center was not a factor of consideration.

b. An additional component of officers and airmen to operate the filter center that is on twenty-four hour operation.

c. A basic component of officers and airmen for observation post training personnel based upon a basic unit of observation posts per filter center.

d. An additional component of officers and airmen based upon increases by increment of observation posts in the filter center area. The number of posts is not static and is expected to increase as the organization develops.

6. With the criteria as developed in paragraph five above as a guide the Ground Observer system as presently employed, including state coordinators, Squadron headquarters and Filter Center Detachments, requires a minimum of 369 officers and 642 airmen. This represents an increase of 61 officers and 116 airmen, systemwide, over that presently carried in Air Defense Command programs. Further, this represents an increase of 119 officers and 223 airmen over the Ground Observer Authorization in the USAF Planning and Budgeting program for the first quarter fiscal year 1953. A breakdown of the manning requirements by filter centers, including Squadron Headquarters, but excluding State Coordinators, is attached as inclosure two. As previously referred to, inclosure one is a two column Table of Distribution of a basic filter center with up to 150 observation posts assigned. Job descriptions for each of the assigned positions are contained in inclosure three.

7. "Operation Skywatch" has placed a substantial additional workload on this Command. General Vandenburg's statement to the Commanders on 30 August 1951 indicated that additional manpower spaces would be furnished where additional workloads are added. The Ground Observer program is an integral and necessary part of the air surveillance system. The success of the program is contingent upon complete Air Force acceptance of the

ADOMO 320.3 Subject: Military Manpower Requirements for the Ground Observer Corps (Contd)

responsibility for operation of the Aircraft Observer system as established under Department of Defense Directive No. 200.04-1, dated 24 January 1952. The manpower requirements as presented are considered to be the absolute minimum consistent with effective operation of the Ground Observer segment of the Air Defense System.

FOR THE COMMANDING GENERAL:

3 Incls

1. Proposed revised
T/D for Fil Gen Detach.
2. Breakdown of manning
rqmt
3. Job descriptions of
asg positions

KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy Chief of Staff, Operations

GROUND OBSERVER DETACHMENTS

1. Mission: The mission of a Ground Observer Squadron is to achieve and maintain the level of operational effectiveness which will enable the unit to perform efficiently the following functions for the air division (Defense) under whose control the unit operates:

- a. To observe and report the presence of movement of specified types of aircraft.
- b. To receive and display all reports from observers of the Ground Observer Corps.
- c. To collate reports received from ground observers and resolve such reports into workable tracks.
- d. To pass all collated information to the radar network.
- e. To train Observation Post Supervisors, and where practicable, the individual observers of the Ground Observer Corps to a high degree of efficiency, in detection and reporting of aircraft.
- f. To train filter center operators to a high degree of efficiency in receiving, collating, and passing reports of aircraft.
- g. To equip, administer, and prepare for wartime operation the Ground Observer Corps in accordance with the policies and directives of higher headquarters.
- h. To participate in exercises and maneuvers as required by the Commanding General, Air Defense Command.

2. Assignment: Normal assignment of a Ground Observer detachment is to Ground Observer Squadron.

3. Capabilities: The cellular, or expanding structure of the organization permits the addition of personnel for observation post training functions as the number of observation posts within a detachment's area of responsibility increases. This Table of Distribution is based on a standard component for the filter center training and operations section, and a sliding Table of Distribution for the observation post training section based on the training load. The observation post training section Table of Distribution is based on a requirement for one training airman for each sixty observation posts, or major portion thereof, and one officer for each 120 observation posts, or major portion thereof. In addition one additional senior clerk is required for those filter centers with over 300 observation posts under their operational control. A minimum of one officer and two airmen is required for the observation post training section irrespective of the number of observation posts assigned.

COPY
320.3

Basic ltr fr ADC, Subject: "Military Manpower Requirements for the Ground Observer Corps", dtd 20 Aug 52

AFQMO-A

1st Ind

15 Sept 52

Department of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. Your need for strengthening the Ground Observer Corps is well known. The greatly increased workload resulting from 24-hour a day operations (SKYWATCH) is appreciated, and the necessity for continuing the Ground Observer Corps is certainly beyond question.

2. The Secretary of the Air Force, through the Chief of Staff, United States Air Force, has directed a continuing buildup to 143 wings with a manpower ceiling lower than that previously considered austere. The Operating Program, OPT-53-1, to be issued this month will reflect a reduction of two hundred and thirty-six (236) officer troop spaces at end FY 53 from the strength currently programmed for your command. As a consequence of this curtailment in manpower, it will become more imperative for your command to critically evaluate manpower requirements to insure sagacious allocation of Non-T/O troop spaces to the highest priority functions.

3. Under the mandatory ceilings now binding on the Air Force, there are no officer troop spaces available to accommodate the request contained in basic letter. However, airmen spaces are available, and will be authorized for this function. As agreed by a representative of Directorate of Civil Defense, your headquarters with a representative of Directorate of Manpower and Organization, this headquarters, airmen of the first three grades will be authorized in lieu of the sixty-one (61) officers requested, with the remaining one hundred and sixteen (116) airmen being spread, grade-wise, in consonance with existing policy. This authorization will be included in the next PAV, to be issued in the immediate future.

BY COMMAND OF THE CHIEF OF STAFF:

3 Incls
n/c

/s/t ROGER J. BROWNE
Major General, USAF
Director of Manpower and
Organization, DCS/O

FILE NUMBER

452

17

WRH

0408

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D.C.

AFOMC-D

13 AUG 1952

55

SUBJECT: Manpower Requirements for Expanded Air Force Structure

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER	782
30	2074

1. In our endeavor to place the over-all Air Force Manning Structure in balance with the concepts contained in the Learned Report, you were advised on 31 July 1952 of necessary reductions on Non-T/O officer spaces in the Wing Headquarters.

2. There is inclosed a manning standard which is applicable to the Inspector General's functional area at Wing Headquarters. The Inspector General has approved this standard which sets his over-all requirement for Wing Headquarters at two officers, one airman and one airman or civilian. The standard should be applied to your current Tables of Distribution and appropriate changes reflected in your 30 September 1952 Manning Documents.

3. The savings in airmen and civilian spaces which accrue through application of this standard should be reported to this Headquarters no later than 22 August 1952 in order that appropriate deletion can be made in your Personnel Allotment Voucher.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl
Basic Manning Standard

/s/ Kenneth B. Hobson
/t/ KENNETH B. HOBSON
Brigadier General, USAF
Deputy Dir of Manpower and Organization

0409

HQ USAF, AFOMD-D Subject: Manpower Requirements for Expanded Air Force Structure

ADOMO 320.3 (13 Aug 52)

1st Ind

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Manpower and Organization, Headquarters United States Air Force, Washington 25, D.C.

1.. The figures for the airmen spaces referred to in par 3 of the basic letter are: 50 master sergeants, 12 Technical sergeants, 18 staff sergeants, 6 airmen second class; total: 86.

2. Pursuant to verbal information furnished this headquarters by General Browne at conference 12 August, request that these spaces not be withdrawn from this command but rather be made available for other projects, primarily the Canadian AC&W Squadrons and Yuma gunnery base. Further, due to the planned over-all reorganization of ADC, more manpower spaces will be needed and will be requested from your headquarters at a later date.

3. In accordance with the standard attached as inclosure 1 to the basic letter, request that eight (8) officer spaces in the grade of major be returned to this command since only one officer space remains in each ADC wing inspection system per your letter, subject as above, dated 31 July 1952.

FOR THE COMMANDING GENERAL:

1 Incl:
w/d

/s/ Frederic H. Smith Jr.
/t/ FREDERIC H. SMITH JR.
Major General, USAF
Vice Commander

HQ USAF, AFOMO-D Subject: Manpower Requirements for Expanded Air Force Structure

AFOMO-D (13 Aug 52)

2d Ind

Dept of the Air Force, Hq USAF, Washington 25, D.C.

TO: Commanding General, ADC, Ent AFB, Colorado Springs, Colorado

1. It is planned to review the over-all ADC Manning structure and requirements during November 1952. Representatives of Air Defense Command will be requested to participate in this review.

2. Eight (8) major spaces will be reallocated to your command for use in Wing Inspection Section. This action is resultant of a revision of the original Wing Inspection Manning Standards, which failer to include a Flying Safety Officer.

3. No action will be taken relative to the reduction of the 86 airmen spaces because of the planned review of your manning structure.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ Weldon T. Ellis, Jr.
/t/ WELDON T. ELLIS, JR.
Civilian Deputy Director
Manpower and Organization, DCS/O

SECURITY INFORMATION
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320.3

EASY READING COPY OF INCOMING CLASSIFIED MESSAGE

56

REFERENCE NO. AFOMO-A 57352

9 Sep 52

FROM: USAF

TO: ADC

FILE NUMBER... 782

W.H.

Further reduction in Air Force manning standards must be made in order for the Air Force to accomplish phased growths to the 143-wing position under revised military ceiling restrictions of 1,019,000 in FY 53, 1,087,000 in FY 54 and 1,155,000 in FY 55. In making the reductions in the manpower standards, congressional and other allegations of excessive manpower in indirect support and overhead must be kept in mind. Combat or primary mission capability must remain unimpaired. There is no intention for functions and missions directed by this headquarters to be deleted. However, many functions formerly requiring primary assignment of officers must now be accomplished as additional duties by officers and or airmen available under the new ceilings. It will be necessary for each major Air Commander as well as commanders of every lower echelon, to immediately analyze missions and functions to determine their relative priority, and to make necessary plans and accelerate the cross training of specialists as it will be necessary to reduce the number of officers in FY 53. For planning purposes, and in order that all Major Commands may be forewarned of the impact on future operations and the necessity of better utilization of manpower available for allocation; the following ceilings both military and civilian is announced for Air Defense Command:

Military			
(Includes O/S)			
Off	Amn	AGG	
9240	57623	66863	1953
10215	62617	72832	1954
10462	63626	74088	1955

Civilian	
(Regular Air Force) Total	
8512	1953
8237	1954
8237	1955

Complete guidance on activations and Command detailed troop programming will be contained (within this ceiling) in the operating troop program which will be published the latter part of September. As the Air Force operates through FY 53, it may be necessary from time to time to readjust these ceilings to accomplish transfers to missions, reassignments of bases, new functions, ETC.

48222

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26 Sep 1952

ADOMO 320.3

57

SUBJECT: Manning Standards in Indirect Support Functional Areas

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

FILE NUMBER 782

1. The following message from Headquarters USAF is quoted for your information:

"Reference is made to recent actions taken by this headquarters to reduce manpower authorizations. The assistant secretary of defense (M&P) has expressed interest in these actions, and decisions made at the recent review of the Fiscal Year 1954 budget estimates will require further actions of this type. Therefore, in order that there will be nonmisunderstanding with respect to the past and future application of austere manning standards in indirect support functional areas, it is emphasized that the reductions are not to be interpreted as eliminating functions. Unless specific instructions are issued to the contrary, no functions will be eliminated. Subject reductions are possible through the use of minimum personnel within functions, the assignment of additional duties to officers and the delegation of greater responsibilities to non-commissioned officers. It is desired that the content of this message be transmitted to all subordinate commanders, including commanders at base level."

2. This command will continue the policy of diverting all available spaces from indirect support functions into more essential activities. The success of this program depends upon the use of minimum personnel staffs within functions and the delegation of greater responsibilities to non-commissioned officers. This may cause limited curtailment or de-emphasis of certain less essential activities.

LtCol J.H.SNYDER

0 4 1 3

Hq ADC, ADO40 320.3 Subj: Manning Standards in Indirect Support
Functional Areas

3. Request the contents of the above quoted message be transmitted to all subordinate commanders, including commanders at base level.

BY COMMAND OF GENERAL CHIDLAW:

JOHN J. HAYES
Captain USAF
Asst Adj Gen

DE JEPHQ 246A
R 142100Z ZEX
FM HQ USAF WASHDC
TO ALMAACOM

FROM CLN AFOMO-D ALMAJCOM 370/52. IT APPEARS THAT THERE HAS BEEN SOME MISUNDERSTANDING OF MANPOWER AND ORGANIZATION DIRECTIVES AND YARDSTICKS WITH REFERENCE TO THE GROUND SAFETY PROGRAM. IN THE PROCESS OF IMPLEMENTING THE LEARNED REPORT THE DIRECTORATE OF MANPOWER AND ORGANIZATION HAS NEVER ANTICIPATED THE ELIMINATION OF THE FUNCTION OF GROUND SAFETY. IN FACT CMA THIS HEADQUARTERS WOULD NOT CONDONE THE ELIMINATION OF PERSONNEL FROM THIS FUNCTION TO THE EXTENT THAT CURRENT STANDARDS OF SAFETY ARE IMPAIRED. THE NEW MANNING YARDSTICK BASED ON THE LEARNED REPORT CONCEPTS HAS ELIMINATED THE OFFICER AUTHORIZATION FOR GROUND SAFETY AT WING OR BASE LEVEL. THERE HAS BEEN NO CHANGE MADE IN THE AIRMAN OR CIVILIAN GROUND SAFETY AUTHORIZATIONS BY THIS HEADQUARTERS. COMMAND

FILE NUMBER 782
1P 2004
14 Oct 1952

58

PAGE TWO JEPHQ 246A

ADJUSTMENT IN THIS FUNCTIONAL AREA MUST CONSIDER THE MAINTENANCE OF AN ADEQUATE GROUND SAFETY PROGRAM. IT IS HOPED THAT THIS STATEMENT WILL CLARIFY ANY MISUNDERSTANDING WHICH MIGHT HAVE EXISTED WITHIN YOUR COMMAND
14/2142Z OCT JEPHQ

SECURITY INFORMATION
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FILE NUMBER 782

WH

ADOMO 320.3

13 Aug 52

SUBJECT: (Unclassified) Equipping Documents Survey Function

59

TO: Director of Manpower and Organization
 Headquarters United States Air Force
 Washington 25, D. C.

1. Request that 39 additional officer spaces be allocated to this command to perform the additional workload generated by AFR 150-8.

2. These spaces will be utilized to form survey teams of the following skills:

- a. Aircraft Team (3 required)
 - 1 Aircraft Maintenance Officer, AFSC 4316 or 4344
 - 1 Armament Systems Officer, AFSC 3234
 - 1 Air Electronics Officer, AFSC 3054
 - 1 Supply Officer, AFSC 6424
 - 1 Ground Equipment Maintenance Officer, AFSC 4334
 - 1 Surface Transportation Officer, AFSC 6034
- b. AC&W Team (7 required)
 - 1 Ground Electronics Officer, AFSC 3044
 - 1 Supply Officer, AFSC 6424
 - 1 Ground Equipment Maintenance Officer, AFSC 4364

3. This request is based upon the comment made by General Vandenberg in his talk to the commanders on 30 August 1951, as follows, "I am instructing my staff to give you a decent break. When they add to your workload, they should either delete some other requirement so that you can absorb the load, or they should furnish extra manpower spaces," and comments by Dr. Learned in his report, "Manpower Requirements for Expanded Air Force Structure."

4. Air Defense Command considers this a new workload imposed by a higher staff. We are unable to divert any officer spaces within our resources to this additional workload without seriously hampering our primary mission.

48223

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ADOMO 320.3 Subject: (Unclassified) Equipping Documents Survey Function
(Contd)

5. If officer spaces cannot be made available, request that paragraph 3b(3) of AFR 150-8, dated 12 May 1952, be waived.

FOR THE COMMANDING GENERAL:

s/t/ JARRED V. CRABB
Brigadier General, USAF
Chief of Staff

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SECURITY INFORMATION

ADOMO 320.3

27 SEP 1952

SUBJECT: Implementation of Provisions of AFR 150-8

TO: Commanding General
 Eastern Air Defense Force
 Stewart Air Force Base
 Newburgh, New York

FILE NUMBER 172 60
 1782 20 WRA

1. In the last session of Congress, bills were introduced in both houses which, in effect, would have authorized the General Services Administration to assume control of all non-T/O equipment in the Zone of Interior. After learning of this proposed action, the Secretary of Defense took steps to strengthen the position of the armed services with regard to better utilization of equipment. This was, in part, the basis of publication of AFR 150-8, Equipping Documents Survey Function and Survey Teams.

2. In view of the fact that AFR 150-8 engendered additional workloads for the command, this headquarters requested additional personnel authorizations from Headquarters USAF in order to meet requirements and, if such authorizations could not be made available, that paragraph 3b (3) of AFR 150-8, concerning the conduct of on-the-spot surveys of each unit in the command, be waived. The reply disapproved the above request, together with a statement to the effect that the function can be properly performed by using resources of the various command staff agencies, subordinate commands, and bases.

3. A proposed ADC Regulation formally implementing the Equipment Utilization Directives is now being coordinated at this headquarters. A copy of this proposed regulation is inclosed for your information. A Headquarters USAF request for a progress report on implementation of AFR 150-8 makes it imperative that steps be taken immediately. Therefore, it is requested that:

a. A permanent Equipping Documents Survey Team be established in your command.

b. A list of members appointed to the survey team be furnished this headquarters.

LT COL J.H. SNYDER/lp
 Ext 752
 27 Sept 52

Identical ltrs sent to CADF & WADF.

Hq ADC, ADOMO 320.3 Subj: Implementation of Provisions of AFR 150-8

c. A schedule of surveys on motor vehicle equipment utilization at each installation of your command be furnished this headquarters by 8 October 1952.

4. Authorization is granted to establish additional survey teams operating out of subordinate headquarters in order to expedite the equipment utilization program.

BY COMMAND OF GENERAL CHIDLAW:

1 Incl
Proposed ADC regulation, subj:
Equipping Documents Survey
Function and Survey Teams.

JOHN J. HAYES
Captain USAF
Asst. Adj. Gen.

SECRET SECURITY INFORMATION

61

ADOMO 320.3

SUBJECT: Progress on Implementation of Provisions of AFR 150-8

TO: Director Manpower & Organization
Headquarters United States Air Force
Washington 25, D.C.

17 Oct 1952
FILE NUMBER 796
200 WCH

1. Reference is made to Headquarters USAF letter, dated 10 September 1952, subject: "Progress on Implementation of Provisions of AFR 150-8." Action to implement the above regulation and subsequent directives concerning the Motor Vehicle Requirements and Utilization Survey referred to in the above cited letter was deferred pending reply to this request from this headquarters for additional spaces to perform the function or waiver of the survey requirement. Upon receipt of Headquarters USAF's first indorsement disapproving both the request for additional spaces and the waiver, section was initiated to implement the program. Attached as inclosures are:

- a. Proposed ADC Regulation to implement the Equipping Document Survey Function.
- b. Implementing letter directives to the three Air Defense Forces.
- c. A list of staff sections represented on the permanent ADC equipping documents survey board.

2. Motor vehicle surveys of bases in Central Air Defense Force have been completed. A full report on findings and results to dates is now being prepared and will be forwarded to this headquarters for review under the provisions of AFR 150-8.

3. Tentative motor vehicle survey schedule of Western Air Defense Force bases is as follows:

a. Yuma County Airport	17 Nov through 24 Nov 52
b. Paine Air Force Base	8 Dec " 15 Dec 52
c. Portland International Airport	5 Jan " 13 Jan 53
d. Conard Air Force Base	5 Feb " 13 Feb 53
e. Hamilton Air Force Base	23 Feb " 3 Mar 53

Col J. H. Snyder/bt
317-318
14 Oct 52

SECRET SECURITY INFORMATION

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Hq Hq ADC, ADOMO 320.3 Subj: Progress on Implementation of Provisions of
AFR 150-8

f. Geiger Field 16 Mar through 23 Mar 53
g. McChord Air Force Base (Recheck) 6 Apr " 10 Apr 53

4. Tentative motor vehicle survey schedule of Eastern Air Defense
Force bases is as follows:

a. O'Hare Int'l Airport	5 Jan through 15 Jan
b. Selfridge AFB	20 Jan , " 5 Feb
c. McGuire AFB	10 Feb " 20 Feb
d. Stewart AFB	20 Feb " 28 Feb
e. Presque Isle AFB	1 Mar " 10 Mar
f. Burlington Municipal Airport	10 Mar " 20 Mar
g. New Castle AFB	20 Mar " 30 Mar
h. Suffolk County Airport	1 Apr " 10 Apr
i. Greater Pittsburgh Airport	10 Apr " 20 Apr
j. Youngstown Municipal Airport	20 Apr " 30 Apr
k. Niagara Falls Mun. Airport	1 May " 10 May
l. Oscoia AFB	10 May " 20 May
m. Kinross AFB	20 May " 30 May
n. Eglin Field	2 Jun " 7 Jun
o. 26th Air Division	8 Jun " 15 Jun
p. 30th Air Division	16 Jun " 24 Jun
q. 32nd Air Division	25 Jun " 30 Jun

5. Motor vehicle surveys of all ADC units will be completed by 1 July 1953. Interim reports on progress of the motor vehicle surveys, as well as on the overall equipment utilization program, will be forwarded to Headquarters USAF.

6. This one-time report has been assigned Report Control Symbol AF-E25 (OT).

FOR THE COMMANDING GENERAL:

3 Incls

1. Proposed ADCR
2. Letter Directive to Air Defense Forces
3. List of staff sections represented on permanent ADC survey board.

JOHN J. HAYES
Captain USAF
Asst Adj Gen

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

21 Jun 1952 62

ADPIM-A 220

SUBJECT: (Unclassified) Request for Increased Authorization and
Manning in Critical AFSC's

TO: Chief of Staff, USAF
Headquarters, USAF
Washington 25, D.C.

FILE NUMBER 782
Y303Y209X314
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1. A matter of grave concern to this command is the heavy loss of operational effectiveness facing us as the result of release from active duty of the 10,099 Air National Guardsman presently assigned. We face other losses through expiration of enlistments of regular airmen. On 1 May 1952, 17,375 airmen of this command whose enlistments expire before 30 April 1954 were asked their reenlistment intentions. Their answers are tabulated as follows:

Category	Number of Airmen Queried	Will not reenlist	Undecided
Air Nat'l Guard	9,058	7,898 (82.5%)	1,136 (12%)
Enlisted Reserve	1,085	528 (49%)	316 (29%)
Regular Air Force	<u>7,232</u>	<u>3,341</u> (46%)	<u>2,159</u> (30%)
Total	17,375	11,767 (66%)	3,611 (20%)

2. It is planned that this command will have an authorized airmen strength of 55,755 by the end of the 4th Quarter, Fiscal Year 1953. This represents an increase of 4,958 over our present authorized airmen strength of 50,797. This increase is caused by commitments of this command to activate new fighter-interceptor squadrons for eventual deployment overseas, and aircraft control and warning squadrons to fill the gap in our radar net. It does not take into account the activation of our airborne early warning groups, involving between six and eight thousand airmen, for which the programming is being advanced by approximately one year.

3. I discussed the above problem with General McCormick and General Browne when I visited Headquarters USAF on 6 May 1952. Pursuant to our conversation at that time, it is requested that for a period of six months this command be granted a 20% increase over present airmen authorizations. This represents approximately 10,000 airmen. It is further requested that this command be assigned airmen to fill the increased authorizations.

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

ADPIM-A 220 Subject: (Unclassified) Request for Increased Authorization and Manning in Critical AFSC's

according to the AFSC grouping listed in Inclosure 1. It is essential that these additional airmen be technical school graduates or overseas returnees of at least apprentice level, with as many supervisors, technicians and senior level airmen among them as possible. This command needs the killed airmen in the aircraft maintenance fields immediately. The airmen in the aircraft control and warning fields need not be procured until the latter part of the six months period. The AFSC groupings attached are proportionate to the authorizations of such airmen in this command as of the end of Fiscal Year 1953.

1 Incl
List of AFSC's (dup)

FREDERICH SMITH JR
Major General, USAF
Vice Commander

SECRET SECURITY INFORMATION

SECRET SECURITY INFORMATION

Basic Ltr fr Hq, ADC, 21 Jun 52, "Request for Increased Authorization
and Manning in Critical AFSC's." (Incl)

AFPMF-11

1st Ind

Dept of the Air Force, Hq USAF, Washington 25, D.C.

TO: Commanding General, Air Defense Command, Ent AFB, Colorado Springs,
Colorado

The ceilings imposed upon the Air Force will not permit over
authorizations even though of a temporary nature as requested in
paragraph 3 of basic communication. Currently your command is assigned
an overstrength of approximately 6000 airmen. The recent visit to your
command by representatives of this headquarters indicates that this
overstrength, along with the proposed assignment of additional airmen
to your command, will provide an adequate number of replacements.
Manning actions will be aimed toward providing the needed load time.
Every effort will be made to continue to supply a maximum number of re-
placements to the Air Defense Command within the limits of available
resources and the Priorities and Precedence List.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl
w/d

/s/John H. McCormick
/t/JOHN H. MCCORMICK
Major General USAF
Director of Military Personnel

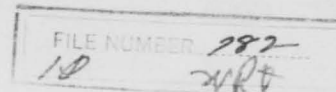
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SECRET SECURITY INFORMATION

21 June 1952

63

Major General John H. McCormick
Director of Military Personnel
Headquarters USAF
Washington 25, D.C.



Dear Jack:

Attached is a copy of a letter I have just sent to the Chief of Staff requesting a temporary increase in airmen authorizations for this command, and asking that the airmen to fill the authorizations be provided as soon as possible.

I am mailing a copy of the same letter to Roger Browne. I would appreciate it if you would get together with him and do what you can for us.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

1 Incl
Ltr to C/S

30 Sep 52
Lt Col C C Smith/PPM
531
20 Jun 52

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SECURITY INFORMATION
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COPY
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CLASSIFIED SECRET
AUTH: CG, ADC
20 Jun 52
(Date) (Initial)

Major General Roger J. Browne
Director of Manpower and Organization
Headquarters USAF
Washington 25, D. C.

21 June 1952

Dear Roger:

The attached letter to the Chief of Staff is the outcome of the discussion I had with you and Jack McCormick on 6 May. We need these temporary overmanning authorizations as quickly as we can get them in order to take up the shock of our impending Air National Guard losses. We feel sure that by the end of the six month period this command will have absorbed the extra personnel and that we can safely revert to our current programmed authorizations.

I have sent a copy of the same letter to Jack McCormick and have asked him to get together with you on this matter.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

Lt Col C. C. Smith

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SECURITY INFORMATION

RESTRICTED
SECURITY INFORMATION

Enc Ltr fm Air Defense Command, Ent AFB, Colorado Springs, Colo., dated
12 Aug 52, Subj: (Uncl) Reorganization of the 566th Food Service Squadron

AFOMO-A

1st Ind

3 SEP 1952

Department of the Air Force, Hq USAF, Washington 25, D. C.

64

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters is continuing its efforts to bring the Troop Program into balance with ceilings imposed by the Department of Defense. To accomplish this, a concerted effort has been made to reduce troop space authorizations, both T/O and non-T/O in support elements. The Secretary of the Air Force has stated that the Air Force will increase the number of combat units by 50% with only a 14% increase in manpower. The execution of this task will most certainly necessitate further reduction of manpower in support units.

2. In view of the urgent need for troop spaces for the buildup of combat units in the immediate future, no additional troop spaces can be made available for the 566th Food Service Squadron.

BY COMMAND OF THE CHIEF OF STAFF:

JOHN F. WADMAN
Colonel, USAF
Executive
Directorate of Manpower and Organization
DCS/O

FILE NUMBER.....732.....

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RESTRICTED

SECURITY INFORMATION

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HQ ADC ENT AFB COLORADO SPRINGS COLO

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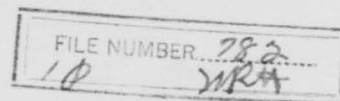
ROUTINE

CG CENTRAL ADF PO BOX 528 KANSAS CITY MO

30 SEP 1952

AFOAI 57684 12/1840z SECRET

ADMIS 2053. Folg USAF msg quoted for your info: Quote: Fm AFOAI 57684 REUR ADMIS 51394. Amn str of 3025 quoted your msg for Grandview cannot be cfmd in this hqs. Computations here based on end FY1955 str of 2793 producing total rqmt of 1955. Programmed spaces of 1980 considered sufficient, W/regard to 70 per cent factor, this hqs is committed to use this factor in SI and exception cannot rpt cannot be made in this instance. Unquote. Rev of programmed deployment for and of FY1955 indicates that according to USAF grd rules 1980 amn spaces w/b sufficient.



MAJ.C.M. PRATON/mvl/526/26 Sep 52

ADMIS

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

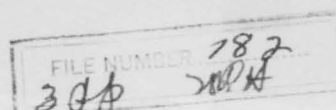
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ADOMO 320.3

19 Nov 1952

SUBJECT: Increased Personnel Authorizations

TO: Director of Manpower and Organization
Headquarters United States Air Force
Washington 25, D.C.



1. The programming function has become a major activity in this headquarters. In the past programming has been accomplished by individual staff agencies, i.e., troop program by M&O, installations program by Directorate of Installations and personnel requirements by PPM. Increased emphasis on accurate programming and its relationship to construction, procurement, production, and allocation of manpower capability require a central control within this headquarters. It is no longer profitable to permit individual programming by staff agencies but is mandatory that the development and correlation of a single program for this command be accomplished by a trained and experienced group of personnel working under a single supervisor. These factors have led to the establishment of the Office of Assistant for Programming, under the Deputy Chief of Staff, Operations.

2. The Assistant for Programming within ADC will correlate and evaluate USAF programs and program guidance for effect upon this command; develop and provide program guidance to agencies of this headquarters; and will monitor the preparation of the ADC program. It is envisioned that this office will act as a sole liaison agency between this headquarters and Headquarters USAF in all matters pertaining to the USAF and Air Defense Command programs.

3. A study conducted within this headquarters has resulted in the establishment of a requirement for five (5) officers, two (2) airmen and two (2) civilians for this function. This headquarters has reviewed organizations of this command in an effort to provide these spaces from within the present command authorizations. Increased operational and support requirements, continued austerity manning and the approval reorganization of Air Defense Command have negated the possibility of further reductions within the command to meet this requirement from our own resources other than the two airman spaces.

0 4 2 9

ADOMO 320.3 Subject: Increased Personnel Authorization (cont'd)

4. In view of the above it is requested that the next PAV for this command be increased by five (5) officer and two (2) P-481 graded civilian spaces to meet this requirement.

FOR THE COMMANDING GENERAL:

s/t/ LEWIS E. SMITH
Captain, USAF
Ass't Adj Gen

RESTRICTED
SECURITY INFORMATION

Bsc Ltr frm ADC, Ent AFB, Colo Springs, Colo., dtd 19 Nov 52, Subject:
Increased Personnel Authorizations

AFOMO-A

1st Ind

Department of the Air Force, Hqs USAF, Washington 25, D.C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters concurs in the establishment of an Office of Assistant for Programming to function as described in basic letter. Air Defense Command, however, presently is authorized more officer troop spaces than are programmed, and all civilian positions authorized your command have been allocated. Your request for an additional authorization of five (5) officer and two (2) graded civilian spaces, therefore, cannot be favorably considered.

2. It is recommended that the personnel spaces required for the establishment of an Office of Assistant for Programming be provided from within the resources of your command.

BY COMMAND OF THE CHIEF OF STAFF:

s/t/ JAMES P. ANGLUM
Maj. USAF
Assistant Executive
Dir. of Manpower & Organization

RESTRICTED
SECURITY INFORMATION

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320.3

31 May 52

67

ADOMO 320.3

SUBJECT: Airborne Early Warning Proposed T/O's

FILE NUMBER... 242

X782 24 WCH

TO: Director of Manpower and Organization
Headquarters United States Air Force
Washington 25, D.C.

1. The attached are T/O's for our proposed airborne early warning organizations. The tentative AEW structure consists of a group headquarters, three (3) tactical squadrons, one (1) electronic maintenance squadron, and one (1) periodic maintenance squadron. There will be no maintenance personnel in the tactical squadrons since organizational maintenance for all three tactical squadrons will be performed by the periodic maintenance squadron. Both organizational and field maintenance of the radar and radio equipment will be performed by the electronic maintenance squadron. Field maintenance of the RCL2L C and D aircraft will be performed by the base maintenance squadron. It is believed that the present base maintenance squadron T/O is inadequate for this job, and a new one has been constructed.

2. Each of the tactical squadrons will be equipped with ten (10) RCL3L C or D aircraft. We believe that it will be necessary to have a twenty-four (24) hour maintenance schedule in order to attain an average monthly flying rate of one hundred and seventy (170) hours per aircraft and to keep one aircraft on stand-by status at all times. Crew strength was figured on the basis of three (3) controllers and one (1) electronics countermeasures officer per crew. It is anticipated that all crews will fly eighty-five (85) hours per month.

3. Two officers from this headquarters are presently assigned to the AEW project as overages. Additional officers and airmen will be assigned to this project in the near future. It is requested that six

Major Gotchey

0 4 3 2

Hq ADC, ADOMO 320.3, Subject: Airborne Early Warning Proposed T/O's
(Contd)

(6) officer spaces, one (1) Lt Colonel and five (5) Majors, be allotted this command on our next Personnel Allotment Voucher for use by the Airborne Early Warning project.

4. The attached AEW T/O's are transmitted for your consideration and evaluation.

FOR THE COMMANDING GENERAL:

1 Incl:
T/O, Hq AEW Gp
(dup)

KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy for Operations

68

FILE NUMBER	782
	782

ADC B003
ENB001
JE/HQ F056
RR JEDEN
DE JE/HQ 247A
R 972034Z ZNJ
FM HQ USAF WASHDC

7 JUL 1952

TO CGAIPDEFCOM ENT AFB COLO
/R E S T R I C T E D/ FROM AFOMD-A 53168, REURMSG ADOMD 1282 CMA
DTD 18 JUNE 52. CHANGES REQUESTED THAT PERTAIN TO THE
DISTRIBUTION OF T/D AUTHORIZATIONS ARE APPROVED AND WILL BE SO
REFLECTED IN THE NEXT B T OR OPT PUBLISHED BY THIS HEADQUARTERS.
REALLOCATION OF T/D SPACES WILL PERTAIN TO ENTRIES COMMON TO THE B T
AND YOUR ADC FIGHTER-ACEM PROGRAM INSOFAR AS THE T/D CEILINGS
CONTAINED IN THE BPT WILL ALLOW. CHANGES REQUESTED PERTAINING TO AEW
CMA GUNNERY RANGES AND UE OF F/IS REQUIRE ANALYSIS BY THE DIR OF
OPERATIONS CMA THIS HEADQUARTERS. RESULTS WILL BE FORWARDED AS
SOON AS PRACTICABLE.
01/2229Z JUL JE/HQ

0 4 3 4

COPI
320.3

69

Hq WADF WDOFR-3 320.4 Subject: Tables of Distribution-Augmentation Change Requests

ADOMO 320.3 (28 Apr 52)

1st Ind

6 May 1952

Hq AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton Air Force Base, Hamilton, California

1. This headquarters concurs in this requirement. However, it is the opinion of this headquarters that these spaces can be made available within current resources allocated to your command.

2. In an effort to cover new requirements that arise in your command, it is recommended that consideration be given to the consolidation of the Food Service, Motor Vehicle, Air Police and Flight Sections of Divisions with your own base organizations. Extenuating circumstances, especially when Air Divisions are tenants on bases of other commands, may make this action undesirable. However, the possibility of this type operation should be explored.

3. It is also recommended that airmen authorizations to The Combat Operations Centers of Air Divisions be studied. It is the opinion of this headquarters that identical airmen authorizations to all Divisions in this activity are not justified. In all probability the present authorizations are based on the authorizations previously carried on the TO&E. The primary reason for placing Air Divisions on Tables of Distribution was to allow flexibility in manning based on variations in requirement.

4. The manpower resources of the Air Defense Command are not unlimited. It is not anticipated that any great degree of relief can be expected from Headquarters USAF. In order for the Air Defense Command to operate under the ceilings imposed it is necessary that methods of operation be reviewed as well as all spaces allocated to all activities. TO&E organizations are not immune to this review. If spaces are currently authorized on TO&E's that are not adequately justified it is recommended that the appropriate TO&E change requests be submitted to this headquarters. The success of this entire program depends upon the effort expended and the amount of cooperation received.

BY COMMAND OF GENERAL CHIDLAW:

FILE NUMBER	782
LOGGED	W.H.

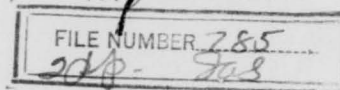
s/w/ LEWIS E. SMITH
Captain, USAF
Ass't Adj Gen

0 4 3 5

70

ADOMO 320.3

SUBJECT: Manpower Utilization



TO: Commanding General
Central Air Defense Force
P.O. Box 528
Kansas City, Missouri

1. Some time ago modifications were made in officer authorizations to ADCC's of Air Divisions. No action was taken at that time to adjust airmen authorizations to that activity. At the present time these authorizations vary from 81 to 112, with the majority of air divisions being authorized approximately 82 airmen.
2. It is the opinion of this headquarters that considerable modification in these authorizations may be desirable. It is reasonable to assume that an Air Division having only two plotter teller lines coming into the ADCC with one plotter teller line going out has a much different problem than the one having six incoming and one out-going circuit.
3. In an effort to make a more equitable distribution of airmen personnel, this headquarters recommends that consideration be given to effect this change on the T/D changes to be submitted during the month of July. As a starting point the formula, $Y \div 5 \times 35$ (where Y = airmen required and X as number of incoming plus outgoing plotter teller lines) is suggested for determining airmen personnel requirements for ADCC's. (Examples: An ADCC has three incoming plotter teller lines and one going to the DF. The number of men required in the ADCC should be $5 \times 4 \div 35$, or a total of 55). Tests of this formula indicate it is feasible.
4. At the present time the 25th and 32nd Air Divisions are performing tests on "Air Movements Identification Section" (AMIS). AMIS in other areas should go into effect in the near future. At that time it may be possible to save manpower in the ADCC and ADCC's. All spaces saved can be used for any high priority requirement. (However, this headquarters is in dire need of spaces. Wherever and whenever possible, spaces should be returned to us).
5. There are many other areas in authorizations to units of your commands where considerable manpower savings can be effected. Likewise, there appear to be areas where authorizations may be inadequate. These

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ADOMO 320.3 Subject: Manpower Utilization (Cont'd)

changes cannot be effected without considerable review and analysis and the complete cooperation of all those having a responsibility for the manpower activity.

6. Analysis of manning documents is extremely difficult unless specific workload data is available. The present manning documents contain much more data than those previously submitted. However, it will be necessary from time to time to review this data with the idea in mind of eliminating that data which proves extraneous to this analysis problem. Continuous probing for the right combination is essential if this program is to be successful. On the present documents there is much data that does not appear to be accurate. This information must be accurate or proper allocation of personnel is impossible.

7. There is no indication from Hq USAF that any appreciable relief can be expected from current manpower ceilings. Neither are there indications that missions or workloads will be decreased. In view of these facts it is mandatory that emphasis be placed on proper utilization of those spaces available in order to accomplish the Air Defense Mission.

BY COMMAND OF GENERAL CHIDLAW:

JOSEPH D. HORNSBY
LtCol, USAF
Asst Adj Gen

SECRET SECURITY INFORMATION

71

HEADQUARTERS WESTERN AIR DEFENSE FORCE
HAMILTON AIR FORCE BASE
HAMILTON, CALIFORNIA

AUG 19 1952

WDOFR-3 320.3

SUBJECT: Manpower Utilization

FILE NUMBER 422
x782 2p WRH

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Reference is made to letter your Headquarters, ADOMO 320.3, subject as above, 12 July 1952.

2. This headquarters has studied the feasibility of applying the formula $Y = 5x \div 35$ to the ADCC's of this Command. It is felt that the formula would more nearly fit an ADCC operation if the constant thirty-five (35) was changed to forty-five (45). This figure was determined by fixing the personnel required at any ADCC as nine (9) and multiplying by five (5). The required personnel are as follows:

- 2 - Status Clerks
- 2 - Raid Clerks
- 2 - Recorders
- 2 - Control Technicians
- 1 - Air Surveillance Supervisor

9

The formula establishing thirty-five (35) as the constant was apparently obtained by establishing seven (7) as the personnel required to perform the above functions. This is based on the assumption that COC or administrative personnel are over and above the formula. Reducing the number of any of the above personnel would greatly impair the operation of an ADCC. Five (5) times the variable x is considered adequate for minimum manning of the plotter - teller lines. Therefore, the recommended formula becomes $Y = 5x \div 45$.

3. Introduction of electrical recording equipment would allow a further reduction in the ADCC requirements. However, there is no indication as to when such equipment will become available.

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Hq WADF WDOPR -3 320.3 Subj: Manpower Utilization (Cont'd)

4. Inclosed for your information are copies of answers received from the Air Divisions regarding the use of the formula. The reply from the 34th Air Division (Defense) is not included because it is classified SECRET and does not materially differ from the rest of the comments.

FOR THE COMMANDING GENERAL:

- 4 Incls:
1. Ltr fr 25 ADiv
2. Ltr fr 27 ADiv
3. Ltr fr 28 ADiv
4. Msg fr 29 ADiv

s/t/ JACK J. JONES
1st Lt. USAF
Asst Adj Gen

SECRET SECURITY INFORMATION

0 4 3 9

ADOMO 320.3

18 Jul 1952

72

SUBJECT: Reorganization Under T/O 1-8029T

TO: Director of Manpower and Organization
Headquarters, United States Air Force
Washington 25, D.C.

FILE NUMBER 785

1. The Learned Report states that each command will continually review its functional requirements in order to eliminate any that are less essential than some new requirement. In accordance with these instructions we have determined certain functional areas to be of low priority to the needs of this command. Among these is the base inspection system. It was our intention to eliminate inspectors at the base level and use the spaces involved in that work to satisfy an urgent need for personnel at Yuma Air Force Base.

2. At the present time, we have seventeen (17) bases organized under T/O 1-8029T, Air Base Squadron. Prior to your reorganization of our units under the T/O-MEAL system, these bases were authorized an inspection section of two (2) officers and four (4) airmen. This inspection section was deleted in the new edition of the above T/O.

3. Recent correspondences from your headquarters has established your policy that our T/D spaces will be decreased concurrently with any T/O increase we might receive. It is assumed that any decrease in our T/O spaces must also be accompanied by an increase in our T/D allotment. It is requested that our most personnel allotment voucher be increased by thirty-four (34) officers and sixty-eight (68) airmen to compensate for our loss of inspection personnel in each of our air bases. Reference classified letter, this Headquarters, ADQOT-A686, Subject: "Yuma County Airport," 7 February 1952. We have an immediate requirement for additional spaces to expand Yuma as outlined in the above letter. It is our intention to use the spaces deleted from T/O 1-8029T for the Training Center (Weapons) at Yuma County Airport, Yuma, Arizona.

FOR THE COMMANDING GENERAL:

Maj R.E. Gotchey/bt
750-751
14 July 1952

CARL M. PRY
CWO USAF
Asst Adj Gen

0 4 4 0

ADOMO 320.3

21 OCT 1952

73

SUBJECT: Elimination of Wing Intelligence Officer

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

FILE NUMBER 782

WEN

1. The Air Force policy of austere manning involves continuing efforts to reduce personnel authorizations in all fields of Air Defense Command activity. The objective is to eliminate spaces where functions can be combined or otherwise streamlined without material effect on performance of the combat mission. A survey of intelligence positions has indicated the feasibility under austerity requirements of eliminating the intelligence officer at Wing level (Major, AFSC 2016). Accordingly, this authorization will be deleted from your January 1953 manning documents and applied against the planned decrease in officer authorizations Air Defense Command wide.

2. The above action will place on the affected Air Divisions (Defense) the direct responsibility for pre-hostilities supervision of intelligence activities in the Fighter-Interceptor Squadrons, but at the same time will establish in this period the direct contacts on intelligence matters that will necessarily prevail during hostilities.

3. There is no change in the authorization for the Wing intelligence N.C.O. (M/Sgt AFSC 20470) whose functions include receipt and internal dissemination of intelligence documents and support to the operations officer who is assigned intelligence training responsibilities within the Wing Headquarters.

BY COMMAND OF GENERAL CHIDLAW:

JOHN J. HAYES
Captain, USAF
Asst. Adj. Gen.

0 4 4 1

ADOMO 320.3

29 OCT 1952

SUBJECT: Reduction in Personnel Authorizations in DCS/M at Air Division Level 74

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

FILE NUMBER 282
1P

1. The Air Force policy of austere manning involves continuous efforts to reduce personnel authorizations in all fields of Air Defense Command activities. The objective is to eliminate spaces where functions can be combined or other wise streamlined without material affect on the performance of the combat mission. A survey of DCS/M positions has indicated the feasibility under austerity recommendations of eliminating a number of personnel spaces within DCS/M at Air Division Headquarters. Accordingly, these authorizations will be deleted from your January 1953 manning documents and applied against the planned decrease in personnel authorizations Air Defense Command wide.

2. The above action will reduce the DCS/M responsibilities at Air Division Headquarters level to coordination between Air Defense Wings, Groups, or support bases and the squadrons concerned, and to render assistance as necessary to the squadrons in order to expedite action by supporting units or higher headquarters.

3. The reduced authorization to a total of three (3) officers, ten (10) airmen, and two (2) civilians, as indicated on the attached Inclosure #1, will be reflected in the January 1953 manning document.

BY COMMAND OF GENERAL CHIDLAW:

1 Incl
T/D

JOHN J. HAYES
Captain USAF
Asst Adj Gen.

Maj G.E. Hoffman/bld (ADMDM)
242, 243
23 Oct 52

0 4 4 2

SECRET SECURITY INFORMATION

ADOMO 320.3

8 May 1952

75

SUBJECT: (Unclassified) Civilian Employment

TO: Commanding General
Central Air Defense Force
P.O. Box 528
Kansas City, Mo.

FILE NUMBER 782
vRH

1. The following policy is furnished for your guidance with reference to graded civilian employment.

a. If it becomes necessary to obtain graded spaces for re-allocation purposes reduction in force should not be used except as a last resort.

b. If reduction in force is considered essential:

- (1) It should not be on any basis which arbitrarily assesses certain number of authorizations or percentages of authorizations across the board to bases under a given command.
- (2) Priority of all functions performed should be examined and those of lower priority should be eliminated entirely and reduction in force applied to the functions eliminated.
- (3) Civilian employees will not be released from continuing positions if these positions are to be filled by military personnel. This does not preclude assigning military to civilian positions that become vacant by attrition, when graded ceiling leaves no alternative.

2. It is desired that no reduction in force notices be issued to graded civilians in your command for the purpose of remaining within command ceilings without the prior notification of this headquarters.

BY COMMAND OF GENERAL CHIDLAW:

CWO Burke/vm
752
22 Apr 52

JARRED V. CRABB
Brigadier General, USAF
Chief of Staff

SECRET SECURITY INFORMATION

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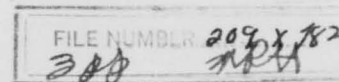
EAOFR 320.2

10 May 1952

76

SUBJECT: Personnel Authorization for Combat Operations

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado



1. An operational requirement exists in Headquarters EADF, Combat Operations, for seven (7) officers and forty-five (45) airmen. This increase of one (1) officer and sixteen (16) airmen over the current authorization of six (6) officers and twenty-nine (29) airmen stems from the following:

a. In order to efficiently supervise the Air Defense System in operation, requirements placed on combat operations have grown to such a degree that the present personnel authorization is entirely inadequate. To satisfy these requirements new procedures have been adopted with new and additional equipment being installed, such as, air defense evaluation and a telephone switchboard, respectively.

- (1) The magnetic arrow type plotting board with side, chalk type, height-tote boards for displaying track information was determined inadequate for the need and has been replaced by a larger vertical, lucite type, plotting board. Although it will require another plotter, this board will eliminate the need for a height-tote recorder in that it may be used to display all of the information received.
- (2) Menu type fighter and radar status boards have been replaced by lucite wing boards to the main plotting board, thereby, placing all information needed to properly evaluate the situation within easy reference to each other.

EAOPR 320.2 Subject: Personnel Authorization for Combat Operations

- (3) A sixty (60) line, two (2) position switchboard has been made an integral part of the center in order to more efficiently utilize the tactical voice circuits available on a day to day basis.
- (4) The function of air defense evaluation is a requirement imposed on combat operations in order that increased efficiency may be achieved.

b. Bearing in mind that twenty-four (24) hour a day, seven (7) days a week operation is essential for the conduct of Air Defense Operations, the attached chart (Inclosure #1) depicts combat operations in daily operation. Based on past exercises, preparedness tests and Air Defense Readiness Warnings, the requested manning is considered minimum essential for an initial impact. Nine standby alert teams consisting of nine (9) airmen on each team have been organized to satisfactorily man the Combat Operations Center for maximum sustained operation.

2. Changes in the operational requirements dictate the submission of T/D Change Request (Inclosure #2) at this time.

3. Headquarters EADF contemplates manning combat operations in accordance with Inclosure #2 so as to provide an efficient organization for the functioning of the new center which will become operational on or about 1 June 1952. Therefore, it is requested that expeditious action be taken to approve this T/D change Request.

FOR THE COMMANDING GENERAL:

2 Incls

- 1. Pers Rqmts w/14 Atchmts(dup)
- 2. ADC Form 3, T/D C, Hq EADF(dup)

C.J. DILLON
Capt., USAF
Asst. Air Adj. Gen.

Hq EADF EACPR 320.2 Subject: Personnel Authorization for Combat Operations

ADOMO 320.3 (10 May 1952) 1st Ind

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Headquarters Eastern Air Defense Force, Stewart Air Force Base, Newburgh, N.Y.

1. This headquarters has no unallotted spaces with which to cover the requested increase of one officer and sixteen airmen. No objections are imposed to manning the Combat Operations Center as proposed in Inclosure 1 from resources available within your command. Reduction of other functions to increase the Combat Operations Center will be confirmed on the next manning document published after the changes are received.

2. The June Table of Distribution will reflect an authorization of six (6) officers and twenty-six airmen per your previous ADC Form #3 (Request for T/D-A Change).

BY COMMAND OF GENERAL CHIDLAW:

2 Incls
w/d 1 cy ea

LEWIS E. SMITH
Captain, USAF
Ass't Adj Gen

Maj A.H. Hutchinson, Jr/bl
752
13 May 52

HEADQUARTERS AIR DEFENSE COMMAND ROUTING AND RECORD SHEET		SECRET SECURITY INFORMATION	Number and date each comment. Show actual date with telephone extension. Use full width of page. For use mainly within this headquarters. (See ADCSM 10-2).
FILE	SUBJECT		
FROM VC	TO CG	DATE 4 Aug 52	77
			COMMENT NO. 1
<p>1. The attached correspondence is forwarded for your information. I am sure you will find the 1st Indorsement to our basic letter as unsatisfactory as I do, but I am afraid nothing is to be gained by adding a 2nd Indorsement at this time, in view of the excellent arguments which we made in our basic letter.</p> <p>2. We must be prepared soon to go to Washington for a showdown fight on our troop basis. We have so far been unable to get our story across to M&O on our requirements at Yuma; our requirements for AEW units; and appropriate grade authorizations in our division control centers. We are told informally that the Directorate of M&O in Washington is contemplating a troop basis cut for ADC approaching 10% of our current authorized strength. I suggest that we take up the question of precedence at the time we fight for an adequate troop basis, for the two are closely related.</p> <p>3. Please forward this correspondence to P&R when you have finished with it.</p> <p>1 Incl Basic ltr & 1st Ind</p> <p>s/t/ FREDERIC H. SMITH JR. Major General, USAF Vice Commander</p> <p>FILE NUMBER 762 10 MBH</p>			

ADC HQ FORM 3 - 15 Sep 52

SECRET
SECURITY INFORMATION

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SECRET SECURITY INFORMATION

Bsc Ltr fr ADC, Subj: Table of Organization Change, dated 14 Aug 52 78

AFOMO-A

1st Ind

17 Oct 1952

Department of the Air Force, Hqs USAF, Washington 25, D.C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. The need for additional personnel to man alert centers in fighter-interceptor squadrons is appreciated, and troop spaces will be provided for that function. These spaces will be incorporated in the T/O's applicable to your fighter-squadrons in the near future.

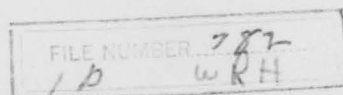
2. Due to the very limited number of airmen troop spaces available, only four (4) airmen can be allocated for each Fighter Squadron Alert Center. These spaces are allocated to your Command as Non-T/O spaces and will be withdrawn from your Non-T/O allocation when the required Tables are revised and applied to your Command.

3. The next Personnel Allotment Voucher for your Command will reflect an increase of one hundred eighty-eight (188) airmen troop spaces for Fighter Squadron Alert Center Operations, effective for December 1952.

BY COMMAND OF THE CHIEF OF STAFF:

10 Incls
w/d

s/t/ JOHN F. WADMAN
Colonel, USAF
Executive
Directorate of Manpower and Organi-
zation, DCS/O



SECRET SECURITY INFORMATION

0 4 4 8

79

ADOMO 320.3

27 Feb 1952

SUBJECT: Organizational Test, 31st Air Division

TO: Commanding General
Central Air Defense Force
P. O. Box 528
Kansas City, Mo.

FILE NUMBER 156

1. Reference is made to paragraph 8 of classified Headquarters United States Air Force letter, subject: "Reorganization of Air Defense Command", which was transmitted as an inclosure to Headquarters Air Defense Command letter, subject: "Reorganization of Air Defense Command," 18 January 1952.
2. The controlled test period for the 31st Air Division will terminate 1 June 1952. This termination date will permit preparation and submission of final reports to Headquarters USAF on 1 July 1952. Extension of the test period will be requested only in the event time limitations preclude a fair evaluation of the organizational concept.
3. Your headquarters will be the responsible agency for determination of special reporting requirements, restrictive measures or other actions that may be necessary to insure proper evaluation. For informational purposes, pertinent actions in this regard will be made known to this headquarters. Further, it is desired that copies of periodic or progress reports that you may require be forwarded to this headquarters.
4. Upon termination of the test period your headquarters will submit a comprehensive report covering the test, including conclusions and recommendations. For your guidance, the purpose of the test and specific problem areas are restated below:
 - a. The organization of the Air Defense Command below air defense force level has evolved to a selection of one of two organizational concepts:
 - (1) Separation of operational and administrative responsibilities on the basis that the commander charged with air defense of a given area should be burdened with as few administrative responsibilities as possible. This concept has limited the air division

0 4 4 9

Hq ADC, ADOMO 320.3 subject: Orgn Test, 31st Air Division

commander to operational control of fighter aircraft and operational and administrative control of AC&W squadrons.

- (2) Placement of all forces required for air defense in a given area under the operational and command control of a single commander.

The purpose of the test, therefore, is to determine the feasibility and desirability of organization under the second of the aforementioned concepts.

b. Span of control limitations is one of the outstanding arguments against the assignment of fighter and AC&W units directly to an air division headquarters. Military practice has placed a maximum limit of about seven units so assigned. Theoretically a much higher number of units can be directly assigned if the cross relationship between such units is minimized. The desirability and feasibility of assigning all units within the 31st Air Division area to the Air Division Headquarters should therefore be thoroughly examined. Particular emphasis should be placed on the following questions:

- (1) Is adequate supervision given each subordinate unit?
- (2) Does the additional administrative burden imposed on the 31st Air Division commander and staff reduce or affect the capability of the Air Division to perform the air defense mission?
- (3) Is there a requirement that an intermediate echelon be established between squadron and air division headquarters level?
- (4) Is there a requirement that a portion of the units assigned, such as air base squadrons, be assigned to other than the air division headquarters?

c. It has been stated that it is desirable that the air division commander be given command as well as operational jurisdiction over all components required to perform his defense mission. In relation to this, answers to the following questions should be ascertained:

- (1) Is it, in actuality, desirable that AC&W and fighter squadrons be placed under the command as well as operational control of a single commander?

Hq ADC, ADOMO 320.3 subject: Orgn Test, 31st Air Division

(2) Are training and operational matters simplified?

(3) Are logistical problems reduced or increased and in what way?

d. Factors that may limit the validity of the test should be thoroughly analyzed and reported. Such factors may include shortage of qualified personnel, overassignment of personnel, logistical shortages, etc.

5. In order to minimize staff visits to the 31st Air Division area during the test period it is recommended that such visits be controlled. This headquarters will obtain your concurrence prior to visitation during the test period.

6. It is contemplated that a committee will be established to make an on-the-spot analysis of this organizational concept. Representation and other matters pertaining to this committee will be given at a later date and are subject to your recommendations.

BY COMMAND OF GENERAL CHIDLAW:

LEWIS E. SMITH
Captain, USAF
Asst Air Adj Gen

SECURITY INFORMATION

SECRET

80

HEADQUARTERS
31ST AIR DIVISION
FORT SNELLING, MINNESOTA

K-320.3

12 June 1952

SUBJECT: Organizational Test 31st Air Division

TO: Commanding General
Central Air Defense Force
Post Office Box 528
Kansas City, Missouri

FILE NUMBER 136-156

1. The attached report is submitted pursuant to instructions contained in 1st Indorsement, your headquarters, dated 24 April 1952, on basic letter, Headquarters ADC, dated 18 April 1952, subject as above.

2. In the preparation of this report, particular effort has been made to avoid any tangential deviations from the basic problem of organization. It should be apparent, however, that the practical testing of a somewhat revolutionary idea cannot be treated in the absolute. The test is bound to be influenced by many associated factors of varying significance. When allusion is made to these extraneous matters in the report, it is requested that their mention be regarded only as essential to clarity and not with the intent of focusing attention on any non-organizational defects.

1 Incl
Organ. Test Report
(4 cys)

THOMAS C. DARCY
Brigadier General, USAF
Commanding

RECEIVED NO. 1

SECRET

SECURITY INFORMATION

0 4 5 2

SECURITY INFORMATION

SECRET

Hq 31st Air Div K-320.3 Subject: Organizational Test 31st Air Division

PO&R 320.3 (12 June 52) 1st Ind

HQ CENTRAL AIR DEFENSE COMMAND, P. O. Box 528, Kansas City, Missouri

TO: Commanding General, Air Defense Command, Ent AFB, Colorado Springs, Colorado

1. Your letter ADOMO 320.3, subject: Organizational Test, 31st Air Division, 27 February 1952, placed particular emphasis on sever (7) questions when evaluating the organizational structure of the 31st Air Division. My evaluation of the question posed is as follows:

a. The present organization has provided adequate supervision of each subordinate unit of the 31st Air Division.

b. The additional administrative responsibility imposed upon the Division commander has not reduced or affected the Air Division in the execution of its air defense mission.

c. I find a requirement does exist for an intermediate echelon between the Fighter Squadron-Air Base Squadron structure and the Division headquarters, this requirement being for the purpose of providing one (1) commander to command the Fighter Squadron and Support Squadron on an air base. There is no requirement for an intermediate headquarters between the AC&W Squadrons and the Division headquarters.

d. The Air Division is capable of exercising complete command responsibility of the AC&W organizations, Fighter Squadrons and Air Base Squadrons. There is no requirement to assign the responsibility of the air defense mission to any other unit than the Division headquarters in its sector of responsibility.

e. It is desirable that the Division commander have complete command responsibility over all elements of the air defense mission in his sector of responsibility.

f. I find that this organizational structure has simplified training and operational matters, especially so in the case of the fighter organizations.

g. Logistical problems have not increased due to the present organization and such problems that are encountered would occur regardless of the type of organization employed. Under the present structure logistical problems are resolved much quicker due to direct channels between the Division headquarters and the operating elements.

SECRET

SECURITY INFORMATION

SECURITY INFORMATION
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Hq 31st Air Div K-320.3 Subject: Organizational Test 31st Air Division

2. I concur with the test organization and the recommended in-activation of the Air Base Squadrons. Generally and in principle I agree with the organization of Air Base Groups to replace the Air Base Squadrons. Further, I concur with the recommendations for organization of a Communications Squadron as set forth in Tab M of this report.

3. Your letter ADOMO 320.3, subject: Proposed Air Base Group T/O&E's, 29 February 1952, contains partially the structure I desire. I have directed my staff to incorporate my desires in a proposed structure to pattern the attached organization chart and prepare a manning document for an Air Defense Wing and Air Base Group. This manning document along with a functional explanation will be submitted to your headquarters by 23 June 1952. My proposal will be within the strength allocation of the Air Base Group referred in letter above.

4. The following comments are submitted regarding my proposal:

a. I believe an Air Base Group should be established for the sole purpose of operating an air base to support units assigned or attached to the base. Conventionally, an Air Base Group does not have command jurisdiction over tactical organizations. In the comments made by present Air Base Squadron commanders it is definitely indicated, and I know it to be so, that while the tactical organizations accept the seniority of the Air Base commander as such, they do have the feeling that he does not have the prerogative of what might be called prying into the internal affairs of the tactical organization. Under these circumstances, since the Air Base Group commander does not have command of the tactical units, he cannot determine through his staff or in his own mind the full picture as to his problem incident to the support of the fighter squadron. Therefore, to resolve the above situation, and in the interest of sound management and coordination of effort of the units assigned to the base, I recommend that an air defense wing commander be appointed (without staff) to effect the proper command of the units concerned.

b. The Air Base Group is directed by regulation and directive in the execution of its mission. The individual fighter squadron, by regulation and directive, has the capability of performing its mission if properly supported. Considering regulations, directives and the implementation thereof, it is not necessary that the wing commander have a personal staff since his sole responsibility is to see that directives issued by higher headquarters are properly implemented. From the advisory point of view, there is available to him the specialists of the Air Base Group staff as well as the experience and training of the individual fighter squadron commanders. The Wing

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Hq 31st Air Div K-320.3 Subject: Organizational Test 31st Air Division

commander's task is the problem of supervision and command incident to failures mostly as they pertain to omission. The correction of errors of commission is the responsibility of the Wing commander's immediate subordinate commanders, under his guidance. It may be noted that the functional organization of this proposed Air Base Group corresponds to present day convention, with the exception that the Wing commander does not have a personal staff but he does have a staff available to him in the Air Base Group, and he has identical responsibilities compared to that of a Wing commander of present USAF Wing organization.

c. Over-all, I believe that this solution to the problem will present an opportunity for the development of commanders, both rated and unrated.

5. Reference Tab L, "Justification of T/DA Changes, 31st Air Division Headquarters":

a. I recommend that the Table of Distribution as recommended be approved and substituted for the one currently in effect.

b. Reference the establishment of Civil Defense Section, I do not concur since it is considered that the commanding officer of the Ground Observer Corps Squadron can act in all matters pertaining to Civil Defense. Personnel in the field are operating directly under this commander, and to set up a separate section would require other channels of coordination. In addition, the State Liaison Officers, representatives of the Commanding General of the Division, deal directly with the commander of the division who in turn can refer Civil Defense matters to the commanding officer of the Ground Observer Corps Squadron for recommendation and resolution.

6. Reference Tab O, "Tables of Distribution - Augmentation Change, AC&W Units":

a. I recommend that AC&W Squadrons be manned on a Requirements Tables basis, using the present cellular structure by reducing or increasing the cell as the situation demands. Further, I concur in the maximum utilization of civilians at AC&W sites.

b. I concur in assignment of a veterinary technician at each site.

c. As an augmentation to team AC, I recommend that one (1) Personnel Specialist, AFSC 73250, grade of airman first class: and

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one (1) Apprentice Clerk, AFSC 70230, in the grade of airman second class, be added to each AG&W Squadron pending the study of actual requirements for individual sites in accordance with establishment of requirements tables.

d. I do not concur with an airman first class to be added to each AG&W Squadron for the purpose of operating a post exchange. It is recognized that this recommendation was submitted in order to comply with provisions of paragraph 17, AFR 147-7, 12 May 1950; and ADC letter ADMS 331.3, 20 June 1951, subject: Use of Airmen in Post Exchanges. I, therefore, recommend that requirements for a full-time individual as post exchange operator be eliminated from AFR 147-7.

7. The requirements for personnel other than those referred to above will be made a matter of study by my Director of PO&R and such changes that are justified will be submitted at a later date.

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2. Chart

GEORGE R. ACHESON
Major General, United States Air Force
Commanding

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K-320.3 Subject: Organizational Test 31st Air Division

ADOMO 400.112 (12 June 1952) 2nd.Ind 27 June 1952

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colo.

TO: Commanding General, Central Air Defense Force, P. O. Box 528,
Kansas City, Missouri

1. Your information contained in report on Organizational Test of 31st Air Division, together with attached letter and 1st Indorsement, is extremely informative and valuable, and is assisting greatly in our over-all organizational study. This headquarters is presently making a study of your report plus all other available information. You will be informed of the final results.

2. This headquarters has recently received a 60-day extension on ADC required 31st Air Division Reorganization Report to USAF. Therefore, should any further important information become available please forward to this headquarters immediately.

BY COMMAND OF GENERAL CHIDLAW:

2 Incls
w/d

JARRED V. GRABB
Brigadier General, USAF
Chief of Staff

Col N.E. Cole

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-Semi-Annual-
**HISTORICAL
REPORT**

NUMBER
FOUR

SUPPORTING DOCUMENTS
Volume III

December 1952

PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
COMMAND ADJUTANT

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HEADQUARTERS
AIR DEFENSE COMMAND

SEMI-ANNUAL HISTORICAL REPORT
1 July - 31 December 1952

SUPPORTING DOCUMENTS
Volume III

Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT

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HEADQUARTERS
31st AIR DIVISION

81

Fort Snelling, Minnesota

N 322

3 May 1952

SUBJECT: Organization Progress Report

TO: Commanding General
Central Air Defense Force
P. O. Box 528
Kansas City, Missouri

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NRH

1. Reference is made to instructions contained in your letter "Organization Test, 31st Air Division," (PO&M 320.3), 20 March 1952, which required submission of a progress report on the organization test of the 31st Air Division. The limited test period authorized is considered insufficient to allow a proper "shakedown" period for a major reorganization and the smoothing over of rough edges prior to the beginning of a test period. In spite of the limited period of testing, it is felt that sufficient factual data can be gathered on which to base a sound decision. Initial indications are that the new organization is a decided improvement over the old. The comments below are of a general nature indicating trends primarily. Complete, substantiated data will be presented in the 15 June 1952 report.

2. The outstanding fallacy of the previous organization was the divided responsibility for operational command and for administrative and logistical command. The headquarters exercising operational command (the Air Division) exercised no control of those administrative and logistical elements that were vital to the effectiveness of the tactical units. This abnormal and unhealthy situation has been eliminated by the reorganization with a resultant increase in overall effectiveness in operational, administrative and logistical matters and in a considerable savings of personnel. The most apparent cost of this increased effectiveness is the unusually large span of control. However, it is of interest to note that the intimate knowledge of the Division with regard to the individual problems of the operating squadrons has increased to such extent that it may well offset the disadvantage of the "paper mill" required to maintain this intimate knowledge.

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N 322 Subject: Organization Progress Report

3. A detailed overall manpower survey will be required to determine if the personnel space allocations are properly balanced between the several units and to determine if there was not possibly an attempt to over-economize on personnel as a result of the reorganization. The quality of personnel assigned to the Division is not outstanding, but is probably no worse or no better than that assigned to other units of the Air Force. Assuming the caliber of presently assigned personnel to be average, the balance of the following formula must be worked out: Quality (individual capability) times Quantity (Personnel authorized) equals Desired Results (productive output). The Division has been in existence sufficiently long to establish workload trends. Based on these trends and the time allowable for processing the workload and considering the average capability of an individual, it is possible to determine the personnel required to discharge the various responsibilities. This headquarters is currently conducting a manpower survey of 31st Air Division Headquarters, which will be incorporated in the final organizational test report. Concurrently studies are being made of manpower requirements of all units based on staff visits and information available in this headquarters to determine their manpower requirements. These studies will also be incorporated in the final report.

4. In some instances the delegation of greater authority to the Air Division Headquarters would result in increased effectiveness throughout the command. One example is authorization of civilian personnel. Basically, the authorizations for positions for civilian personnel have been generally in consonance with requirements. However, internal adjustment of spaces require an excessive period of time. In actual practice it requires more time and effort to analyze requirements of subordinate units, recommend authorization to higher headquarters and process the answers than it does to analyze the requirements and to approve or disapprove them. Authority at Division level to adjust civilian personnel authorizations within the overall division ceiling would result in a more effective utilization of civilian spaces and in a higher employment level.

5. Establishing spaces after authorizations have been received would be materially expedited by the establishment of a Central Civilian Personnel Office in the Division Headquarters to serve all units of the Air Division. Sufficient spaces for this office can be generated within the current authorizations of the Air Division. Maximum effectiveness can be obtained in the allocation and utilization of civilian personnel if authority is granted the Division to allocate spaces within strength ceilings, if a Central Civilian Personnel Office is established in the Division Headquarters, and if all funds for civilian personnel are concentrated in the 72d Air Base Squadron.

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6. Another example where greater authority can be exercised by the Division is in the allocation of funds. In the redistribution of funds after their initial allocation, it is again less work to analyze requirements and authorize transfer of funds than it is to analyze requirements, recommend to higher headquarters, and process the resultant reply.

7. Initial studies have indicated a shortage of an adequate number of spaces in the Statistical Control Section. The number presently authorized is adequate to keep track of reports due but is inadequate to analyze statistical data and provide appropriate statistical summaries to individual staff sections.

8. The original table of distribution for the Headquarters 31st Air Division authorized food service and motor transportation personnel. Increased efficiency has been realized by the transfer of these spaces to the 72nd Air Base Squadron and the consolidation of those activities under one commander.

9. There are indications that the WAF Squadron serves little purpose as a separate entity. The authorized personnel of one officer and three airmen are required only by self-generated work, or by work associated with the fact that the squadron is an entity. Inasmuch as all WAF personnel with the exception of squadron overhead work in the Air Division Headquarters, it appears that the squadron overhead personnel can be more effectively utilized if they were absorbed into the Headquarters Squadron Section. This would not preclude the administration of Article 15 on the part of the senior WAF officer assigned to the Headquarters Squadron Section. It would eliminate one squadron from the large span of control and would increase the effectiveness of the Headquarters Squadron Section by strengthening their personnel section.

10. An item clouding the issue on manpower requirements is the surplus personnel assigned to certain units of the Division. Existence of surplus personnel may conceal areas of critical manpower shortage. In one specific example, an Accounting and Disbursing Office has been authorized the 79th Air Base Squadron without appropriate space authorization but with authorization to man with surplus personnel. The most critical areas of personnel shortage will in some cases not come to the surface until the Air Division is reduced to authorized personnel.

11. It is the opinion of this headquarters that a squadron commander normally cannot maintain personal touch and intimate knowledge of all activities in a squadron if his authorized and/or assigned personnel exceeds 350 to 400 individuals. It has been obvious in the case of the 72nd and 78th Air Base Squadrons that an Air Base Group would be more effective than an Air Base Squadron. That is also probably the case with the 79th Air Base Squadron. However, it is possible that the 73rd Air Base Squadron may effectively continue as a squadron.

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12. Considering that fighter aircraft and communications and electronics equipment are the primary equipments of the Division, and in view of extensive nature of the communications and electronics system, this headquarters is considering the feasibility of dissolving the communications and electronics staff section and disposing of the personnel in the appropriate staff sections. Communications and electronics maintenance and supplies are at present the responsibility of the Deputy for Materiel; funding of all types, of the Comptroller; personnel, of the Deputy for Personnel; and organization and requirements, of the P&ER Section. At the same time, there is a requirement for an ACD officer in the Combat Operations Center and for an Operations Analysis Section that can maintain current status on communications and electronics systems. It appears that the authorization of appropriately skilled personnel in the several staff sections can discharge all functions pertaining to communications and electronics in a more efficient and economical manner. The elimination of duplication in responsibility for communication and electronics matters will possibly result in a personnel savings as well as greater effectiveness. The assignment of a TO&E communications squadron with a mission of providing communications for Air Force elements in the Minneapolis-St Paul area will further reduce the requirement for a communications and electronics staff section.

13. The operation of a single communications center serving all Air Force elements in the Minneapolis area has expedited the handling of electrical messages and as a result has been a savings in personnel. This savings is indicated by the fact that with a decrease of one space presently authorized that a TO&E squadron could be activated and the space required for squadron overhead administration and supply absorbed within the current authorization.

14. The large number of units and the correspondingly large increase in volume of correspondence and electrical messages has occasioned a considerable increase in the size of the Adjutant Section and has imposed a requirement for rigid control of communications. Prior to reorganization, an average of 4,200 pieces of correspondence and electrical messages were handled per month. During the month of February there were a total of 10,503 pieces and in March, 13,195 pieces. The volume of communications has not yet reached a leveling point and continues to increase. This is an unusually large volume of correspondence for a headquarters of this size, particularly in view of the fact that a large portion of the headquarters are involved in the Air Defense Control Center and in the Communications Center, neither of which generate an appreciable volume of communications. It is the opinion of this headquarters that the rigid control exercised on communications on the part of the Adjutant results in a savings of administrative personnel in other sections and in an expeditious handling of correspondence.

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15. There has been a decided increase in workload in publications. Prior to the reorganization approximately 10,000 items of publications were processed. During February, the month of reorganization, 195,567 pieces were processed. In March, 128,814 pieces were processed. It appears that the workload will level at approximately 130,000 pieces per month.

16. The primary problem encountered in personnel matters to date has been the lack of accurate information concerning personnel assigned to the various units. This has occasioned frequent queries of units to collect information that normally would be on hand in this headquarters. Although the volume of work remains high, the research required to process personnel matters has been materially reduced by the completion of collection of accurate data concerning officers and airmen assigned to the Division. The maintenance of these data will not be difficult. Having collected the essential basic data for processing personnel matters, the span of control imposes no particular personnel problems on this headquarters. In fact this headquarters is in closer touch with the detailed personnel situation throughout the command as a result of the present organization than it would be if there were an intermediate headquarters.

17. The number of units and the remoteness of daily relationship imposes considerable burden on the Commanding General in making a comprehensive evaluation of unit commanders, particularly in periodic effectiveness reports. This may result in an injustice to the individual or to the service depending on the individual's ability to make a favorable or unfavorable impression during limited periods of personal dealings.

18. The Air Division is presently authorized six chaplains. Based on the normal distribution of one chaplain per 750 officers and airmen, the Division would be normally authorized 8 or 9 chaplains, or 10 considering the assigned strength. The air-base squadrons have been given the responsibility for the spiritual welfare of the units they support. They are required to visit each site and installation each month for a period of 1 to 3 days as required. With the current authorization, this has been accomplished only with great difficulty.

19. The problems generated by an unusually large span of control are somewhat simplified by the similarity of the majority of units. Letters providing or requesting information can often be sent to all squadrons or to all squadrons of a similar type. A large administrative burden is occasioned by the follow-up action required on delinquent reports or reports containing inaccurate data. An improvement has been noted in the preparation of questions for a report and in the compilation of data on the part of the unit requested to provide information. Additional training in this regard will lessen the follow-up action currently required.

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20. Many reports were formerly prepared by group or wing headquarters for their subordinate squadrons. The elimination of intermediate headquarters has imposed considerable administrative burden on the individual squadrons with no appropriate increase in space authorizations. Specifically, an AC&W squadron operating within a group is normally authorized Team AC for administrative purposes. This team consists of 6 officers and 17 airmen. However, in all cases within the Division, the personnel authorized for Team AC have been reduced by a P&EML. Furthermore, it is normal that a squadron operating separately from a group would be authorized Team AB consisting of 12 officers and 25 airmen. The current administrative authorization appears to be unrealistic. A study is being made to determine the exact administrative manpower requirements of AC&W squadrons. Similar comments may be made concerning the fighter squadrons inasmuch as the administrative authorization presupposes a group headquarters.

21. The large volume of reports required each month from each organization indicates a requirement for further study to determine the essential information to be gathered and the possibility of combining as many similar reports as possible. It is felt that excessive reporting particularly of items that are of only occasional or casual interest on the part of higher headquarters may reduce administrative effectiveness by causing the reporting personnel to fight deadlines rather than to concentrate on accuracy of data presented.

22. Upon the original reorganization of the Air Division the Inspector was required to make quarterly inspections. Quarterly inspections would only be possible if the Inspector Section were at least doubled in size, or if those assigned to that section worked twice the normal amount. The change to semi-annual requirements has improved the quality and the thoroughness of the inspections and has not visibly decreased the effectiveness of the Division. There are elements in staff sections other than the inspector's that are required by regulation to make periodic inspections. An example of one of these is the Food Service Officer for the Division Headquarters who is required to make quarterly inspection of each mess operated within the Division. It appears that this inspection and others of a similar nature should also be placed on a semi-annual basis or that an appropriate increase in personnel be effected.

23. In summary, the new organization is a decided improvement over the old. The simplification of organization and the placement of all forces required for air defense of an area under one commander has not only increased effectiveness but also resulted in a savings of personnel and equipment. There are still internal adjustments to be made, rough edges to be smoothed out and education of personnel to be improved before

Subject: Organization Progress Report

This command will reach its maximum effectiveness under the new organization. The comments above are of a general nature and indicate some of the problems that have been encountered. The final report will be in more detail and will include our recommendations for the adjustments required to perfect the organization.

Thomas C. Darcy
THOMAS C. DARCY
Brigadier General, USAF
Commanding

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Hq 31st Air Div H322 Subject: Organization Progress Report

CG 322 x 320.3 (3 May 52)

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HQ CENTRAL AIR DEFENSE FORCE, P. O. Box 526, Kansas City, Missouri

22 MAY 1952

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Basic letter is an interim progress report pertaining to the Organizational Test - 31st Air Division (Def). It is forwarded to your Headquarters in compliance with paragraph 3, your letter, ADOMO 320.3, dated 27 February 1952, with appropriate comments by this Headquarters.

2. Since reorganization, no insurmountable problems have arisen that would warrant discontinuance of the present type of organization. The final report will answer in detail, the specific questions posed by the above mentioned letter. Final report will also include recommendations for necessary adjustments to perfect the organization.

3. Reference paragraph 2: Span of control is simplified as there are three main types of units assigned to the 31st Air Division and each unit has a common function. Therefore, the problem that applies to a unit of one type may apply to all units of this type, or it may apply to all types. The major accomplishment of the reorganization is that the Division Commander now has complete command of all units assigned for the air defense of his sector.

4. Reference paragraph 3: Concur with the comments expressed. A Manpower Survey conducted at this time may not necessarily indicate the exact personnel requirements until after a reasonable "shake-down" period. The success of the organization, coupled with the fact that there are no intermediate headquarters between squadrons and Air Division Headquarters, may very well influence the results of this Manpower Survey. The Manpower and Management Team of this Headquarters will survey the personnel requirements of the 31st Air Division Headquarters after sufficient time has elapsed to permit a leveling off of the workload. Surveys of Air Bases of the 31st Air Division are scheduled for completion this year.

5. Reference paragraph 4: The delegation of the authority to the Division Commander is consistent with his responsibility. Authority to distribute civilian personnel cannot be delegated by this Headquarters as paragraph 4, AFR 20-52 places the responsibility for the distribution of civilian personnel at major command levels and prohibits further delegation. Civilian authorizations must, of necessity, agree with approved manning documents issued by your Headquarters. This Headquarters has advised the Division Commander that recommendations for changes to civilian authorizations may be made at any time, provided he remains within his current authorizations. In anticipation of approval by your Headquarters of changes to

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Hq CANF CG 322 x 320.3 Subject: Organization Progress Report

civilian authorizations, this Headquarters authorizes the Division Commander to effect employment in accordance with his recommendations. The only problem now existing in connection with this matter is that the T/D's and T/D-A's do not always agree with employment authorizations.

6. Reference paragraph 5: Your Headquarters has directed the establishment of a Civilian Personnel Office for the 72nd Air Base Squadron which will service all civilian personnel in the greater Minneapolis-St. Paul area. The Commanding General, 31st Air Division has advised this Headquarters by separate correspondence, that necessary coordination is being accomplished between his Headquarters and the Civilian Personnel Officer at O'Hare International Airport in an effort to expedite the establishment of this Civilian Personnel Office. This Headquarters concurs that funding for, and administration of, civilian personnel will be improved immeasurably by the establishment of a CCPO in this area.

7. Reference paragraph 6: It is felt that the present system of funding allocation provides sufficient flexibility to the Division Commander and at the same time does not curb the responsibility for funding administration delegated to this Headquarters. If this Headquarters were to sub-allocate funds direct to the 31st Air Division Headquarters, additional personnel would be required to maintain formal fiscal records at that Headquarters. Under the present system, funds are distributed directly to the authorized fiscal stations of the Division, which in this instance are Air Base Squadrons. No delay in processing correspondence concerning distribution of funds has as yet been experienced.

8. Reference paragraph 7: It is probable that the workload imposed upon the Division Statistical Control Section is far in excess of that planned when the personnel authorizations were made for this activity. A Management study should indicate corrective action required. The 31st Air Division will make necessary adjustment in troop spaces.

9. Reference paragraph 8: Action has been completed to adjust troop spaces and functions as indicated in this paragraph.

10. Reference paragraph 9: This Headquarters agrees that WAF Squadrons serve little purpose as a separate entity. It is believed that the functions presently performed by the personnel assigned to the WAF Squadron could be relegated as additional duties to responsible WAF personnel who are presently assigned to the Headquarters Squadron Section. The imposition of punishment in Article 15, would be the responsibility of the Commanding Officer of the Headquarters Squadron Section.

11. Reference paragraph 10: The surplus personnel presently assigned to the 31st Air Division will gradually diminish by attrition. It is expected that the 31st Air Division will be below authorized strength the latter part of this year. It is agreed that surplus personnel at this time may conceal areas of critical manpower shortages. However, on the

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Hq CADP CG 322 x 320.3 Subject: Organization Progress Report

other hand, this coverage is creating an increase in workload which influences personnel authorizations at this time. In reference to the Accounting and Disbursing Office authorized the 79th Air Base Squadron, it is believed that the 30 June T/D-A for that organization will satisfy some of the personnel requirements. If not, the Base Commander will recommend necessary adjustment of authorizations.

12. Reference paragraph 11: This Headquarters agrees that the Air Base Squadrons, as presently organized, deprive the Squadron Commanders of the intimate touch so necessary in the proper administration of a squadron. A method by which this situation can be resolved is to reorganize the present Air Base Squadrons as Air Base Groups, recently proposed by your Headquarters. As an interim measure however, the Squadron Commanders could organize their Squadrons by flights to correspond with the functional departments.

13. Reference paragraph 12: This Headquarters believes that the Division Commander should retain a Communications & Electronics staff to accomplish his C&E function. There should be at least a small group of C&E experts available to the command who are not part of other activities, in view of the technical aspects of the C&E field.

14. Reference paragraph 13: A study has been completed concerning the desirability of organizing a T/O Communications Squadron for the 31st Air Division. However, as this command must give up an equal number of non T/O troop spaces for T/O troop spaces, this plan has been temporarily postponed. The organization of a T/O Communications Squadron for the 31st Air Division would cost this command five (5) non T/O Officer spaces which cannot be afforded at this time. This Headquarters agrees on the consolidation of all Communications activities in the Minneapolis-St. Paul-Ft. Snelling area and necessary adjustment of troop spaces has been made.

15. Reference paragraph 14: The figures indicated in this paragraph appear quite high. However, as is usually the case in a major reorganization of this type, particularly when a tactical Headquarters becomes an administrative Headquarters, and intermediate Headquarters are eliminated, the volume of correspondence is bound to be high. It is believed that as the organization settles down, channels of communications clearly established, authority is consistent with responsibility, and staff personnel become more and more familiar with the organization, correspondence will gradually diminish and level off at a much lower figure. Staff visits by personnel of this Headquarters indicate that the correspondence in the 31st Air Division Headquarters may be over-controlled. Over-control of correspondence always requires a greater number of people to process it.

16. Reference paragraph 15: The figures indicated therein are not alarming in view of the comments contained in the paragraph above. As the organization settles down, there will be reduction and leveling off of the amount of reproductions.

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Hq ACW 322 x 320.3 Subject: "rganisation Progress Report

17. Reference paragraph 16: After the initial "shake-down" period, personnel problems will undoubtedly be reduced. In an organization of this type, it can always be expected that the personnel division will have by far the greatest workload in the Headquarters.

18. Reference paragraph 17: This is true, but under the circumstances the Division Commander must rely a great deal upon official reports concerning the subordinate Commanders and their activities.

19. Reference paragraph 18: Informal information has been received from your Headquarters that two (2) additional Chaplains will be authorized to the 31st Air Division. This will alleviate this problem somewhat.

20. Reference paragraph 19: As the organization settles down and personnel become better trained, administrative problems will gradually diminish.

21. Reference paragraph 20: The manpower problem pertaining to ACW organizations is known to this Headquarters and your Headquarters. It is believed that the action directed by letter, your Headquarters, ADCW 320.3, dated 7 May 52, subject: (Unclassified) ACW Manning and Organization, will alleviate many of the inadequacies presently found in ACW organizations.

22. Reference paragraph 21: This Headquarters is zealous in its effort to combine and/or eliminate reports on data of casual interest. This Headquarters requires only thirteen (13) recurring reports of which three (3) are "as required" reports. This Headquarters has maintained a policy of relieving the field of any reporting responsibility that can possibly be handled at this level. No action can be taken at this level to change reporting deadlines. Under no circumstances should any reporting activity sacrifice accuracy for expediency.

23. Reference paragraph 22: The recommendation was made to your Headquarters to change the requirement for Food Service technical visits from quarterly to a semi-annual basis. Your Headquarters disapproved this request and the 31st Air Division has been advised. Food Service technical visits will be made quarterly as required.

George W. Anderson
GEORGE W. ANDERSON
Major General, United States Air Force
Commanding

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16 July 1952

MEMORANDUM TO VICE COMMANDER

SUBJECT: 31st Air Division Test Organization



1. The most apparent weakness of the Air Division Test Organization in carrying out its assigned mission from an Operations & Training viewpoint lies in the large span of control. The composition of forces of this division consists of six (6) Fighter-Interceptor Squadrons, eleven (11) AC&W Squadrons, four (4) Air Base Squadrons and one (1) Ground Observer Squadron. The magnitude and complexity of the overall operations responsibilities to carry out coordination of augmentation forces, Civil Air Defense functions, coordination with civilian agencies, monitoring and analyzing Air Defense exercises, correlation of Air Defense operations matters with adjacent Air Divisions, conducting tests and directing day-to-day air defense operations are such that close supervision formerly exercised by Group Commanders through the medium of daily staff visits and the conduct of weekly staff meetings with Squadron Commanders has been impossible for the Air Division Commander to perform. The 31st Air Division has attempted to substitute for this type of essential supervision by greater volume of written communications but in examination of this system, it appears to fail. The absence of personal contact supervision by the Air Division Commander and Operations staff has resulted in a lack of analytical comparison of actual operations versus planned action from the division or higher echelon of command. This is substantiated by the finding of several important directives emanating from this headquarters being either misinterpreted or not complied with.

2. It is recommended that there be an intermediate Air Defense Group Headquarters directly responsible to Air Divisions for the conduct of close supervision over Fighter-Interceptor and AC&W Squadrons in a designated geographical area. The number of intermediate headquarters should be based on one for each ADGC. In the 31st Air Division there would be five group headquarters.

Thomas D. DeJarnette
THOMAS D. DeJARNETTE
Colonel, USAF
DGS/Operations Representative

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HEADQUARTERS AIR DEFENSE COMMAND		Number and date each actual signer with title. Use full width use mainly within the ADCOM 10-2).		83
ROUTING AND RECORD SHEET				
FILE	SUBJECT Visit to 31st Air Division, 10 July 1952, by M&O Personnel			
FROM M & O	TO V. C.	DATE 16 July 1952		
	Thru: DO	COMMENT NO. 1		
<p>1. Persons making visit: Lt Col Armit W. Lewis, Non-T/O Division Maj Robert E. Gotchey, T/O Division</p> <p>2. Persons contacted: Lt Col S. R. Opleby, OPNS Section, 31 AD, and various members of 31st Division staff</p> <p>3. General Comments:</p> <p>From discussions with 31st personnel, the feeling was gathered that they were well pleased with the operation of the 31st AD test organization. The placing of the support units directly under the defense force was not deemed necessary by them and they desired the continuation of the present assignment. The large span of control did not seem to be a major drawback and does not appear to be adversely affecting the operation of the lower units at this time.</p> <p>Attention was called to the fact that many of their units are and have been kept over strength due to the fact that early release of these surplus people made their reassignment undesirable. It was agreed that the loss of these surplus personnel would affect operations to some degree.</p> <p>A short visit was also paid to the 175th Fighter Interceptor Squadron, Rapid City AFB. Personnel contacted there expressed a liking for the organization due to their ability to "get answers quickly from division without having to go through group and wing."</p> <p>No major discrepancy was noted; if the division can continue to operate as well as it has in the past, it would seem that adoption of this type of organization would be desirable with the exception of the assignment of the air base squadrons. Recommend that consideration be given to assigning these units directly to defense force, thereby eliminating the requirement for establishing a large installations staff at division level.</p>				
 ARMIT W. LEWIS Lt Col USAF Non-T/O Division Ext 750-751		 OLIVER G. CELLINI Colonel USAF Director, M & O Ext 237-238		

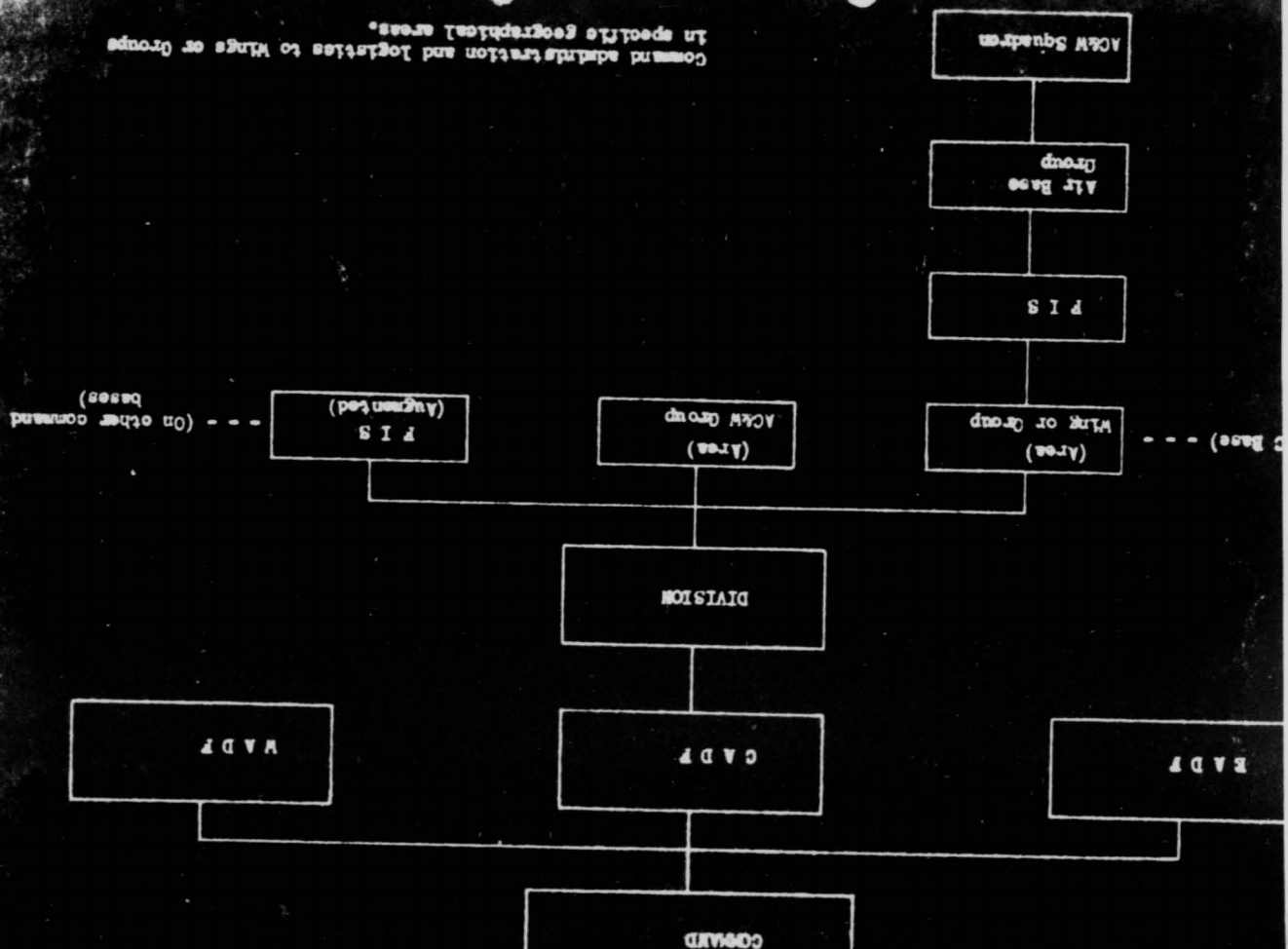
ADC HQ FORM 3 15 AUG 51

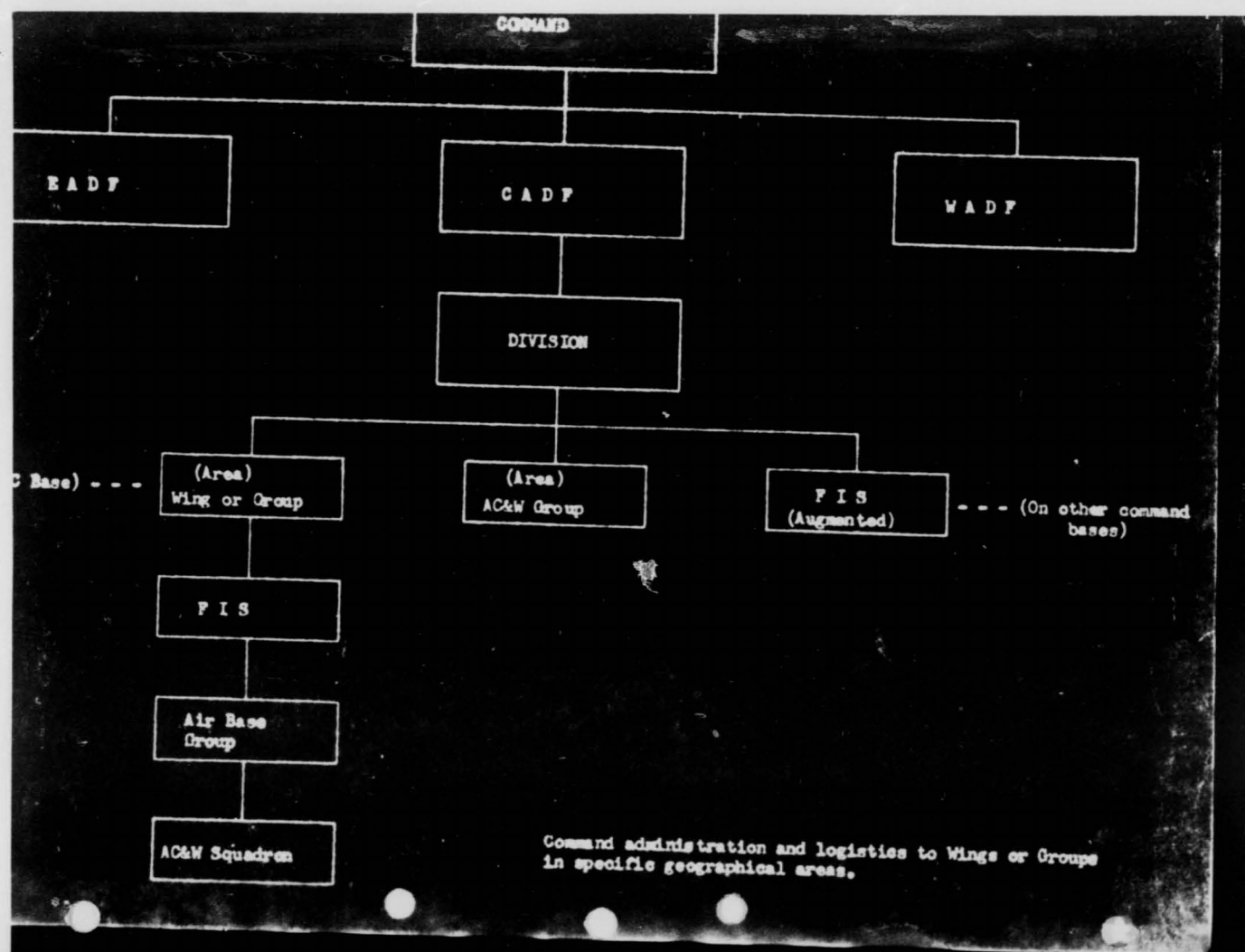
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HEADQUARTERS AIR/DEFENSE COMMAND		Number and date each comment. Show actual signer with telephone extension. Use full width of space. For use mainly within this ADCSM 10-2).	
ROUTING AND RECORD SHEET		84	
SUBJECT: Service Test of 31st Air Division Organization			
TO: VC		DATE: 15 July 1952	
THRU: DCS/M		COMMENT NO. 1	
<p>1. Logistically, units of the 31st Air Division have shown continuous improvement during the six months test period. This improvement can be attributed in part to the direct channels of support utilized by the 31st Air Division since 1 February 1952, and in part by the increase in available equipment, firm supply procedures and additional experience.</p> <p>2. Supervision of the Supply and Maintenance activities of the 31st Air Division has not been completely satisfactory. The Deputy for Materiel, 31st Air Division, totalling 18 officers and 30 airmen, was unable to provide the required supervision. There was no mention in the "Organization Test Report" from the 31st Air Division of this limitation. However, the Director of Supply and the Director of Maintenance were both of the opinion that there should be an intermediate headquarters to absorb a portion of this workload. These officers stated that they were continually "needled" by the 31st Air Division Inspector General for their inability to provide this supervision.</p> <p>3. The Deputy for Materiel found it difficult to operate both as a planning and supervisory headquarters and an operating unit coordinating and consolidating information from some 23 units.</p> <p>4. Recommended organization attached.</p>			
<p><i>William D. Harris</i> WILLIAM D. HARRIS Lt Colonel, USAF Dir of Acft, S&M Ext 406, 407</p>			

ADC HQ FORM 3 - 15 AUG 51

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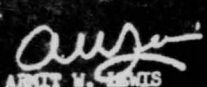



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HEADQUARTERS AIR DEFENSE COMMAND		Number and date each document. <small>Actual aligner with telegrams and airmail. Use full width of page. Use only within this box (See ARJCS 10-2).</small>	
ROUTING AND RECORD SHEET			
FILE	SUBJECT		
FROM	TO	DATE	
DCS/M	Service Test of 31st Air Division Organization	17 July 1952	
		COMMENT NO. 2	
<p>1. Concur, in general. I do not believe that the test conducted by the 31st Air Division was a strictly legitimate one, since certain procedures were devised to obviate difficulties encountered in the very broad span of control.</p> <p>2. I believe, very strongly, that an interim headquarters between squadron and air division is required, and recommend consideration be given to the wing and/or air defense group concept. I have discussed this at some length with General Bergquist and his M20 people.</p> <p>3. The box shown on attached chart as (area) AC&W Group is not warranted in. If wings and/or air defense groups are formed, there will be no need for an AC&W Group Headquarters.</p>			
<p><i>Clinton D. Vincent</i> CLINTON D. VINCENT Brigadier General, USAF Deputy Chief of Staff, Materiel Act 242, 243</p>			
<p>MANPOWER & ORGANIZATION Number <u>145</u></p>			

HEADQUARTERS AIR/ARMED COMMAND		ROUTING AND RECORD SHEET	
SUBJECT: Organization of the 31st Air Division		85	
TO: M & O		DATE: 16 Jul 52	
FROM: DCS/P		COMMIT NO. 1	
<p>1. In accordance with the verbal instructions of the Vice Commander on this subject, our conclusions and recommendations relative to the organization of the 31st Air Division are submitted.</p> <p>2. The undersigned visited the 31st Air Division on 9 and 10 July, spending a few hours with the units based at Trux Field, Madison, Wisconsin, and the balance of the time with the Division Headquarters at Minneapolis. Col Robert Clark, my Director of Military Personnel, accompanied me during the visit to 31st Air Division Headquarters. He also visited the 31st Air Division units at Rapid City Air Force Base on 10 and 11 July. There he had discussions with the Personnel Officer and Operation's Officer of the 175th Fighter Squadron and the Commanding Officer of the 138th AG&W Squadron. It is on this limited observation and a study of Gen Darcy's report that our conclusions are based.</p> <p>3. <u>Conclusions:</u></p> <p>a. The office of the D/P, Headquarters 31st Air Division, appeared to be well organized and efficient. Effective personnel utilization and administration is now being accomplished.</p> <p>b. This type of organization cuts down the time for administration of intermediate channels between squadrons and Air Division Headquarters.</p> <p>c. More efficiency is attained through the direct contact between squadron CO's and Division Headquarters. The members of the division staff are usually better qualified, have more comprehensive knowledge and can more readily give correct answers than could those on a group or wing staff. The space authorizations provide for a more highly qualified staff.</p> <p>d. This type of organization saves people by eliminating overhead, a step in the right direction toward enabling the Air Force to increase its combat units by 50% with less than a 20% increase in personnel, the goal prescribed by Gen Vandenberg.</p> <p>e. This type organization, to be successful, requires a forceful, energetic Division Commander and strong, resourceful unit commanders, with quick and efficient means of communication.</p> <p>f. From a management standpoint, the span of control is greater than normally considered proper, so that squadron commanders have to be depended upon to carry out their mission with a minimum of personal supervision by the Division Commander. While this feature is highly favored by the squadron commander and provides an incentive for him to live up to the responsibility and confidence placed in him, it is a point of weakness in the system.</p> <p>g. Where two or more squadrons are located at a base, the lack of a single command at that location is felt to be another weakness. It places</p>			

HEADQUARTERS AIR/DEFENSE COMMAND		ROUTING AND RECORD SHEET	
SUBJECT		DATE	
FROM DCS/P		16 Jul 52	
TO M & O		COMBAT NO. 1 (Contd)	
<p>reliance on cooperation and good will rather than on command control.</p> <p>h. The Air Base Squadrons at bases such as Trux and Minneapolis are too large to be appropriately designated as squadrons. The title of "squadron commander" is also not appropriate for the senior officers holding the jobs. It is bad for morale and provides an obstacle to our getting the proper type of mature, experienced officer to fill these jobs.</p> <p>i. The gap between squadron to division results in a lack of intermediate command positions in the grade of colonel for which squadron commanders could compete as they go up the career ladder.</p> <p>h. <u>Recommendations.</u></p> <p>a. It is felt that there are certain features of the 31st Air Division type of organization which could be used to advantage throughout AEC. It is recommended that we try to retain the advantages indicated in par 3a, b, c and d above, but that modifications in the division organization be made so as to eliminate or minimize the weaknesses noted in par 3f, g, h, and i. To this end it is suggested that:</p> <ol style="list-style-type: none"> (1) The Air Division Commander be authorized two deputy commanders in the grade of colonel, one an expert in fighter operations and the other an expert on IOW problems. These would serve as alter egos of the Division Commander and by spending much of their time in the field with squadron commanders, provide the supervision, counsel and assistance needed. This would serve to overcome the objections to the present organization with respect to span of control. (2) That at the larger bases such as Trux and Minneapolis, an appropriately staffed group headquarters be established with complete authority over all AEC squadrons on the station. The group commander would be the station commander and take over responsibility for logistical support of such other AEC units as are now supported by the station. 			
<p><i>John C. Horton</i> JOHN C. HORTON Colonel, USAF ICS/Personnel Ext 248/249</p>			

HEADQUARTERS AIR DEFENSE COMMAND		ROUTING AND RECORD SHEET	
FILE	SUBJECT	Number and date each comment. This actual aligns with telephone number side, the full width of page. For use solely within this area (See AECM 19-2).	
FROM H & O	TO V/C Thru: DO	DATE 16 July 52	86
		COMMENT NO. 1	
<p>Attached hereto are reports of visit to 31st Air Division from O&T, IP and M&O sections.</p>			
 ARMIT W. LEWIS Lt Col, USAF Chief, Man-T/O Div Ext 750/751		 OLIVER G. CHELLINI Colonel, USAF Director of M&O Ext 237/238	
<p>MANPOWER & ORGANIZATION Number 221</p>			

DCS/O	To: VC	18 July 1952.	Aug
		Comment no. 2	
<p>1. I understand that IM and the Controller have submitted their comments directly to you.</p> <p>2. The attached comments represent a considerable divergence of views. I suppose this is inevitable, much like the fable of the blind man trying to describe the elephant. My own views are these:</p> <p>a. The real effectiveness of the organization can only be gauged by seeing how well subordinate units stack up in performance. I think Colonel DeJarnet's comments are the only ones which hit around this point. A head- quarters may give a superficial appearance of great efficiency, but the real test lies in the operating effectiveness of the A&W and Fighter Squadrons; I feel that we have no true indication that these units in the 31st have benefited from the organizational experiment.</p> <p>b. The views of subordinate unit commanders toward that organiza- tional set up are useless as an analytical yardstick. They are bound to be biased in favor of the organization because there is less top-side pressure on them.</p>			

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HEADQUARTERS AIR/DEFENSE COMMAND		ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this hq (See ADCOM 10-2).
FROM	SUBJECT	TO	DATE	
DCS/D		VC	18 Jul 52	
			COMMENT NO.	2 (cont'd)
<p>c. This organization or virtually any other organization will work well if we have top notch commanders in all units. This, of course, was Gen Darcy's point. Even without all commanders being top-notch, this organization can be made to work if we are forced into it by too stringent manpower limitations.</p> <p>d. More efficiency through better supervision, and adequate career development, demand the intermediate Wing or Group organization. The evolution to the ATDC concept also calls for an intermediate headquarters. This we should fight for.</p>				
<p>KENNETH P. BERGQUIST Brigadier General, USAF DCS/Operations - 222</p>				
<p>to: DC Held THS</p> <p>21 July 52</p> <p>153</p>				

ADC HQ FORM 3 - 15 AUG 51

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11ST AIR DIVISION ORGANIZATION TEST

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- I -- PURPOSE
- II -- FACTORS CONCERNING TEST
- III -- DISCUSSION
- IV -- CONCLUSIONS
- V -- ACTION BEING TAKEN BY THIS HEADQUARTERS

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I - PURPOSE

Purpose of the test was to determine:

1. Whether or not the division commander should command all Air Defense Command units located within his sector of responsibility.
2. If a span of control of twenty-four units was too large for a commander to supervise adequately.
3. The advisability of having a tactical unit commander and a support (base) commander on an equal status on the same base, both reporting direct to division.
4. If this type of organization could be applied effectively to the entire Air Defense Command.
5. Personnel requirements for this type of organization.

II - FACTORS CONCERNING TEST

1. During the period of this test there were twenty-four units reporting direct to the air division as follows: (See Tab "A")

11 AGCW Squadrons
6 Fighter Squadrons
1 Ground Observer Squadron
4 Air Base Squadrons
1 WAF Squadron
1 Band

2. The test was conducted during the period of instability typical of these days of military expansion. Examples:

- a. There was a fairly rapid turnover of personnel -- the military due primarily to overseas quotas, the civilian arising from losses of highly trained personnel.

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- b. The closing and opening of installations, which generally cause organizational dislocations.
- c. There was inadequate space for the division headquarters - during part of test the headquarters was split in two sections, the sections being separated by a considerable distance.

III - DISCUSSION

1. Fighter squadron commanders were strongly in favor of this type of organization while most of the air base squadron commanders stated a dislike for it. This is logical in that the fighter commander could go directly to division without going through the fighter group and wing which were formerly injected into the chain of command. This allowed the fighter commander a greater freedom of action; however, it permitted only a minimum of supervision of his activities by higher headquarters. Air base squadron commanders felt that they should have control of the fighter squadron in order to properly discharge their responsibility as base commanders.

2. Items concerning operation and functions of command are as follows:

a. COMPTROLLER -- The problem of span of control was practically non-existent in the Comptroller section, particularly with respect to funding, disbursement, and pay voucher handling. The funding was administered direct to the air base squadron from defense force with information copies for analysis and control going to division headquarters. No allotments were made available to any of the

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fighter squadrons, following the procedure established by this headquarters whereby the funds always follow the support organization. In the cases where AEC units were located on bases of other commands funds were made available directly to the support bases which served the units, information copies going to 11st Air Division headquarters. The above method only insured the expeditious flow of funds to the units using them, but facilitated prompt reporting to USAF. This arrangement of funding direct to air base squadrons enabled the division headquarters budget officer, with his skeleton staff of two persons, to devote all his time to the analysis of fiscal reports each month and to determine if the funds were obligated at a satisfactory rate in accordance with the established program. While the division headquarters did not have complete control of funds which were issued to the air bases, the defense force headquarters allowed some degree of flexibility in requesting the amount of funds to be issued for the division.

Since the maintenance of allotments and fiscal ledgers resided in each of the air base squadrons, this command's headquarters budget function was able to operate with a small staff, primary function of which was to analyze and determine requirements and rate of obligation of funds issued to the division's air base squadrons.

Under the principle of sound management no organization can operate efficiently unless it operates under a sound administration. It appears that the administration of the division could have been improved and the vertical control would have shown its effectiveness. However, under the administration of the division as it existed, the span of control was too large and should be modified for full

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effectiveness.

b. MATERIAL -- Supervision of the supply and maintenance activities of the 31st Air Division were not completely satisfactory as the Deputy for Material staff of the division, totaling 18 officers and 30 airmen, was unable to provide the desired supervision of subordinate units. The division Deputy for Material found it difficult to operate both as a planning and supervisory headquarters and operating unit, coordinating and consolidating information from some 24 units. It appears that an interim headquarters between squadron and division along the lines of an air defense group should be organized in order that proper supervision of material activities may be accomplished.

c. PERSONNEL -- The Personnel function operated in a satisfactory manner under this type of organization with the administrative delays normally encountered in personnel actions being held to a minimum by the lack of a group and wing headquarters in the chain of command between squadron and division.

d. OPERATIONS -- The most apparent weakness of the test organization in carrying out its assigned missions from an operations and training viewpoint lay in the large span of control. The magnitude and complexity of the overall operations responsibilities in the carrying out of the coordination of augmentation forces, civilian air defense functions, coordination with civilian agencies, the monitoring and analyzing of air defense exercises, correlation of air defense operations matters with adjacent air divisions, the conducting of tests, and direction of day-to-day air defense operations were such

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that the close supervision formerly exercised by group commanders through the medium of daily staff visits and the conduct of weekly staff meetings with squadron commanders was impossible for the air division commander to perform. The 31st Air Division attempted to substitute for this type of essential supervision by a greater volume of written communications but examination of this system indicated that it was not satisfactory. Absence of personal contact supervision by the air division commanders and operations staff resulted in a lack of analytical comparison of actual operations versus planned action from the division or higher echelon of command. This was substantiated by the finding that several important directives which emanated from this headquarters were either misinterpreted or not complied with.

IV - CONCLUSIONS

1. COMMAND

a. There should be one commander on each ADC station responsible for the ADC activities located thereon in that the presence of two commanders on a station in an equal status tended to create some friction and lack of proper administration of base responsibilities as it placed reliance on cooperation and good will rather than on command control.

b. The number of commanders reporting direct to the division commander was too large to permit adequate personal supervision of their activities and intimate knowledge of their capabilities.

c. The results of this test point up the desirability of having all Air Defense Command units located in divisions under the

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control of the division commander.

4. It was found that the air base squadron of from 500 to 750 people was too large to be adequately administered and supervised by one commander who also had the responsibilities of a base commander.

2. MANAGEMENT -- Adequate supervision was given to the operating units by the division staff because of the large span of control. An intermediate headquarters is deemed necessary in an organization as large as this if proper supervision of material functions is to occur.

3. COMPTROLLER -- The Comptroller function in this type organization operated in a satisfactory manner.

4. PERSONNEL -- Personnel actions in this type organization are considered to have been conducted in a satisfactory manner.

5. OPERATIONS -- The large number of units reporting to the division precluded good command control and supervision of activities within the operations field and it is felt that the lack of this supervision detracted from the air defense potential.

V - ACTION BEING TAKEN BY THIS HEADQUARTERS

1. This headquarters is presently in the process of completing an organizational study for the entire Air Defense Command which has taken into account the lessons learned in the 31st Air Division -- W.G., a defense group is being placed upon each Air Defense Command base. This unit will command all Air Defense Command units thereon. (See Tab "D").

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2. It is being proposed to your headquarters at this time by separate correspondence that a re-alignment of certain divisions and defense force boundaries take place effective 1 January 1953. The re-alignment will cut down on the large number of units reporting to any one headquarters as was the case in the 31st Air Division. Wings are injected in those divisions where it appears that the span of control from division to operating unit level is too great. (See Boundary Map, Tab "C").

3. The defense group being recommended for the operation of ADG bases will alleviate the unsatisfactory condition of having the base commander also responsible for the supervision and administration of from 500 to 750 people.

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

ADOMO 320.3

29 Feb 1952

SUBJECT: Proposed Air Base Group T/O&E's

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

1. Two type of air base structures were developed as a result of this command's reorganization. The first of these is the eight-squadron group that is used to operate large bases such as Hamilton, Selfridge and Otis. The second is the air base squadron that is used to operate small bases at locations such as Duluth, Madison and Pittsburgh.

2. It has become apparent that neither of the above base structures is the proper housekeeping organization for a base of about one thousand population. The job is too large for an air base squadron and too small for an air base group. A definite need exists for a third type of air base group to operate bases such as O'Hare, Holman and others.

3. The attached are proposed T/O&E's for an air base group headquarters and two support squadrons designed to operate a medium sized base. It is requested that you review these tables and return them with your comments and suggestions to this headquarters before 25 March 1952. In reviewing these tables, keep in mind that no attempt was made to include all the authorizations necessary for complete operation of a medium sized base. It was intended that these T/O&E's be augmented wherever necessary for those functions not common to all bases of this size. Remember also that these units, like our other air base organizations, are designed for 2I operation only and will not be required to be mobile.

BY COMMAND OF GENERAL CHIDLAW:

3 Incls:

1. Service Sq (Def) (5 cys)
2. Materiel Sq (Def) (5 cys)
3. Hq AB Gp (5 cys)

s/t/ LEWIS E. SMITH
Captain, USAF
Ass't Air Adj Gen

0 4 9 3

HQ ADC ADOMO 320.3 Subject: Proposed Air Base Group T/O&E's

EAOPR 320.3 (29 Feb 52)

1st Ind

25 Mar 1952

HQ EASTERN AIR DEFENSE FORCE, Stewart Air Force Base, Newburgh, N. Y.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. In compliance with basic communication, the inclosed T/O&E's for an air base group headquarters and two support squadrons were reviewed at this headquarters. The following comments and recommendations are forwarded:

a. This headquarters is in agreement with the concept of a new air base group headquarters and two support squadrons, however, it is strongly recommended that proposed T/O&E's be reduced so that they may be applicable to all units of this command presently authorized an air base squadron as organized under T/O&E 1-8027T.

- (1) The present organization does not provide the base commander enough latitude in operational concept so that he can devote his efforts toward the operation of the installation. He is too involved in administrative details and must spend a greater portion of his time in this phase of work. An example of this is that the squadron commander is the only one authorized to administer disciplinary action, as provided by Article of War #15, Manual for Courts-Martial 1951, to personnel within the squadron. Only one squadron punishment book is authorized. This authority cannot be delegated.
- (2) The two squadron group will release the present base commander of the two-fold duty of base commander and squadron commander and will allow the base commander to supervise and command assigned units and exercise such control of attached units as may be prescribed and to assume responsibility for all base activities and functions.
- (3) By reducing the proposed air base group and support squadrons to a degree, they could be utilized at any base. In larger bases the proposed T/O&E's could be augmented to a greater extent than a smaller base. In this manner, the number of support spaces would not increase materially.

HQ ADG ADOMO 320.3
Subject: Proposed Air Base Group T/O&E's

EAOPR 320.3 (29 Feb 52) 1st Ind (Cont'd)

2. Inclosed are proposed T/O&E's prepared by this headquarters which would apply to all bases of this command now authorized a new air base squadron. It is intended that these T/O&E's be augmented wherever necessary in those functions not common to all bases. These tables portray a capacity to provide proper housekeeping duties on bases within this command. The base and transient aircraft flight has been incorporated in the maintenance flight of the Materiel Squadron. The joining of these functions has been tested by this command and has been found to be the most effective and efficient means of operation.

FOR THE COMMANDING GENERAL:

6 Incls
w/d 1 cy, Incls 1, 2 & 3
Added - 3 Incls
4. Proposed T/O&E Service Sq
(Def) (dup)
5. Proposed T/O&E Materiel Sq
(Def) (dup)
6. Proposed T/O&E Hq AB Gp (dup)

s/t/ C. J. DILLON
Capt., USAF
Asst. Air Adj. Gen.

COE 89

Hq ADC ADOMO 320.3 Subject: Proposed Air Base Group T/O&E's (29 Feb 1952)

WDOPR-3 320.3

1st Ind

Mar 24, 1952

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, Calif.

TO: Commanding General, Air Defense Command, Ent AFB, Colorado Springs, Colorado

1. The attached proposals have been reviewed and are believed to be satisfactory for the intended purpose.

2. This command has only one (1) base; namely, Yuma County Airport, Yuma, Arizona, where such an organization would be appropriate. However, it is urgently requested that reorganization of Yuma not be delayed pending publication of a new T/O&E. Since an increase in spaces is required to conduct desired gunnery operations, it is requested that a T/O&E Air Base Squadron, augmented by either the T/DCA proposed by this Headquarters or the T/D-A proposed by your Headquarters, be authorized immediately; and further reorganization be accomplished at a later date.

FOR THE COMMANDING GENERAL:

Incls w/d

s/t/ WILFRED B. NEWMAN
Colonel, USAF
Air Adjutant General

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HEADQUARTERS
CENTRAL AIR DEFENSE FORCE
1209 Walnut Street
Kansas City, Missouri

PO&R 320.3

26 Mar 1952

SUBJECT: Proposed Air Base Group T/O&E's

90

TO: Commanding General
31st Air Division (Defense)
Fort Snelling, Minnesota

1. The recent reorganization of the Air Defense Command resulted in the development of two types of air base organizations for large and small air bases for the purpose of performing housekeeping duties. Since the reorganization, it has become apparent that neither of these two support organizations has the necessary composition to adequately provide support for a medium sized base (approximately 1,000 to 1,200 population).
2. As a result of this apparent deficiency, for bases falling within the medium sized group, Headquarters Air Defense Command has compiled an organization consisting of an Air Base Group Headquarters, a Materiel Squadron and a Service Squadron that could operate an air base of moderate size.
3. The attached proposed T/O&E's were provided this headquarters for review and recommendations as to composition and feasibility of the proposed organization. The tables have been coordinated throughout the headquarters staff agencies and the recommendations submitted to ADC are inclosed.
4. Due to the early suspense imposed by Headquarters ADC for this information, it was not possible to provide your headquarters with the proposed tables and solicit your recommendations prior to this time. Upon receipt of your recommendations, they will be forwarded to Headquarters ADC.
5. It is requested that you review the attached proposed tables and this headquarters recommended changes and submit your comments and recommendations as to feasibility and adequacy of this type of organization, not later than 9 April 1952. It is intended that the T/O&E's will be augmented wherever necessary for those functions not common to all bases of this size. Also, that an organization of this nature, like other air

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Hq CADF PO&R 320.3 Subject: Proposed Air Base Group T/O&E's

base units, is designed for some of interior operation only and will not be required to be mobile.

BY COMMAND OF MAJOR GENERAL ACHESON:

s/t/ QUENTIN RAND
1st Lt, USAF
Asst Air Adj Gen.

N 320.3 (26 Mar 52)

1st Ind

8 Apr 1952

HEADQUARTERS, 31ST AIR DIVISION, Fort Snelling, Minnesota

TO: Commanding General, Central Air Defense Force, P. O. Box 528,
Kansas City, Missouri

1. In studying the proposed T/O&E for an air base group, this headquarters made the basic assumption that the T/O&E authorizes the minimum military spaces normally required by all units of similar size and mission to operate a base and to provide support to two fighter squadrons or equivalent and to one or two radar stations. With this assumption, and after comparison and analysis of the proposed T/O&E for an air base group (medium) with the T/O&E for an air base squadron, this headquarters concurs with the views expressed in basic communication and in the changes proposed in the T/O&E.

2. One of the weaknesses observed thus far in the air base squadrons is the size of the unit. It is our opinion that squadrons should not be of military strength of over approximately 400 personnel. In larger organizations, the squadron commander loses the personal touch and the complete familiarity with all aspects of each activity which is so essential to efficient squadron operation. The authorization of a group headquarters and two squadrons will materially improve the effectiveness of the support organization. However, it is pointed out that the increase from one squadron to a group headquarters and two squadrons will increase the administrative personnel requirements.

3. A complete manpower survey of each air base organization will

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Hq GADF PO&R 320.3 Subject: Proposed Air Base Group T/O&E's

be required to determine the exact augmentation, military and civilian, that will be required. As an initial estimate, an air base squadron appropriately augmented will be the organization required at Duluth, Minnesota. The air base group with civilian augmentation and possibly some small military augmentation will be required at Sioux City, Iowa. An air base group will be required at Minneapolis, Minnesota and Madison, Wisconsin. Both locations will require additional civilian and military authorizations. The largest requirement will be Minneapolis, because of its extensive support responsibilities and because of the number of aircraft that will be required for proficiency flying.

4. This headquarters is prepared to undertake a study separate from or jointly with your headquarters to determine exact manpower requirements of the several air base organizations.

FOR THE COMMANDING GENERAL:

s/t/ HALBERT B. HEWITT
Major, USAF
Assistant Adjutant

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ADOMO 322

16 Aug 1952

SUBJECT: (Unclassified) Air Defense Command Organization

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 156

1. Attached is the proposed interim Air Defense Command Organization to be effective from 1 January 53 until conversion to the ACDS system tentatively scheduled for July 1954.
2. This is the type of organization presented during the commanders' conference on 5 - 6 August except that the air bases have been placed in the division chain of command as desired by the defense force commanders. Each ADC base has one man responsible for all ADC units located thereon (except AC&W units). All AC&W squadrons and those fighter squadrons which are tenants of other commands are assigned direct to wings or divisions.
3. The 29th and 34th Air Divisions are shown as being assigned to CADF as it is being proposed that the eastern boundary of WADF be realigned as of 1 January 1953. These proposed boundary changes are being sent to you in separate correspondence.
4. Indicated upon the chart are our proposals for the placement of fighter and AC&W squadrons within the various wings as programmed for end FY 54. This tentative assignment may not fit your operational boundaries within the divisions, therefore, request you make such changes as desired and notify us in return correspondence.
5. Request you furnish proposed T/D's for each defense group, wing, and division as well as any changes within your headquarters which will be required by this organization. The limited manpower we have available dictates that prime consideration be given to economy of personnel, as no increase in present and projected manpower ceilings may be anticipated.

Lt Col A. W. Lewis

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ADOMO 322 Subject: (Unclassified) Air Defense Command Organization
(cont'd)

6. Desire your answer be received in this headquarters not later than 5 September 1952.

7. This letter may be downgraded to "unclassified" upon withdrawal of inclosure.

BY COMMAND OF GENERAL CHIDLAW:

1 Incl
Proposed ADC Orgn (quad)

s/t/ ROBERT M. WYNERS
Capt, USAF
Ass't. Adj. Gen.

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HEADQUARTERS
AIR DEFENSE COMMAND
BENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

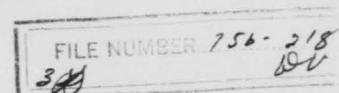
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ADOPR 381

11 Jun 1952

SUBJECT: (Unclassified) Air Defense Systems Plan

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base, New York



1. This headquarters has under study the organization, functions and responsibilities of the various components of the continental air defense system.
2. It is the objective of this study to finalize an Air Defense Systems Plan to provide the most effective use of forces available and programmed. Organizational requirements will then be tailored to fit the system.
3. The original concept of the control of forces which was developed in planning the permanent radar called for all GCI and EW stations to report to a control center which would allocate the combat forces to fit the air situation in its area of responsibility.
4. As the air defense system has developed, operational necessity has dictated a partial departure from this concept. The designation of Air Defense Direction Centers, which in some cases control slave GCI and EW stations, is a notable example.
5. The required systems plan will in general be based upon the provisions of ADC Manual 50-3. However, as the plan is developed it may become necessary to modify or revise certain provisions of ADC Manual 50-3.
6. The proposed plan must assume successful completion of the current ADC Program and be of such a nature that it will also be capable of adjustment through the various stages of development leading to the completion of that program.
7. It is recognized that an appropriate solution for any one geographical area, either sector or subsector, may not be the solution for another area. The factors and limitations (discussed in more detail below) that need to be considered in deciding on what system of control,

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ADDIR 381 Subject: (Unclassified) Air Defense Systems Plan (Contd)

on what responsibility and where, and on what organization is needed, must be applied against various sized geographical areas in order to arrive at a compatible continental system.

8. In order to insure development of the best possible plan, it is desired that you submit to this headquarters a systems plan for the Eastern Air Defense Force area. This plan should be phased indicating the desired system and control arrangements for the end position of the present ADC Program and what interim measures are necessary in growing into that end position. It should include a statement of the concept of operations, designations of the various operational levels of command and their geographical areas of responsibility, designation of each type of radar station, and description of the functions and procedures for coordination of the surveillance picture between subsectors and sectors. It must also include scramble assignments and be supported by a communications plan. The systems plan should be based upon the factors and limitations as established in this letter and not necessarily upon systems presently in operation.

9. A diverse number of factors must be considered in the preparation of a systems plan. The major factors are:

- a. Targets, target complexes and target areas.
- b. Existing and programmed radar and the surveillance coverage obtained or anticipated at low and high altitudes.
- c. Existing and programmed interceptor deployment and range capabilities
- d. Minimum lines of detection identification and interception.
- e. Air Traffic density.

10. Additional factors to be considered are:

- a. Possible use of radar belonging to Army, Navy or another Air Force Command.
- b. The augmentation of interceptor forces with fighters from the Navy or another Air Force Command.
- c. Identification requirements.
- d. Enemy capabilities.
- e. Existing and programmed antiaircraft artillery deployment.

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ADOFR 381 Subject: (Unclassified) Air Defense Systems Plan (Contd)

11. It is not intended that the systems plan will necessitate major redeployment of forces. It must be assumed that the programmed location of radars and fighters will not materially change.
12. A new plan for revised identifications procedures, using multiple corridors in connection with entry into the double perimeter areas and across the eastern, northern and western borders, is now being prepared in this headquarters. The identification under this plan will be accomplished at the perimeter.
13. The systems plan devised must recognize the following:
 - a. The physical limitations imposed by the size of the operations building at ACGW sites and the expense of modifications thereto.
 - b. The fact that, as indicated in par 3 above, radar installations were not originally conceived or designed to be a filtering agency and the consequent limitations on the number of subordinate installations which can be handled. In general, the expected air traffic volume will be the governing factor in determining this number. In this decision, great care must be exercised to assure no station is overloaded in its filter function.
 - c. The saturation point of Air Defense Control Centers plus the factor of span of control for this agency. In general, an ADCC should receive and display information from not less than four nor more than eight radar installations.
14. It is possible that the number of Direction Centers will largely be determined by the number and location of the interceptor squadrons.
15. It is desired that you submit your systems plan at the earliest possible date and not later than 15 July 1952. It will therefore be necessary to give this project the highest priority. The necessity of early determination of our final communications requirements creates this urgency.
16. Within a few days after receipt of the three plans from the Air Defense Forces, a conference will be held at this headquarters for integration and modification of the separate plans into a continental system.

BY COMMAND OF GENERAL CHIDLAW:

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/s/ Kenneth P. Bergquist
/t/ KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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FILE NUMBER 406

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ADCOOT-D 319.1

25 Jan 1952

SUBJECT: (Restricted) Fighter Status Reporting Delays

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

1. During the last Air Defense Exercise in your area, the Fighter Status Reports required by ADC Regulation 55-20 were particularly slow in reflecting changes in availability and states of alert. Age of this information varied anywhere from one to five hours with an average delay of nearly three hours. If the delay in such information arriving at this Headquarters is indicative of conditions that exist at lower levels, a more workable system must be developed. Division Commanders should receive information of fighter status in from three to five minutes and a subsequent time lapse of ten to fifteen minutes to Defense Force is considered the maximum permissible.

2. This problem has in all likelihood come to your attention already, however it is wished to emphasize that the procedures for transmitting fighter status must be adjusted to provide to the higher echelons of command timely information on available forces. The processing of this information must be given a higher priority and the methods of transmission must be streamlined in such a way that these long delays are significantly reduced.

BY COMMAND OF GENERAL CHIDLAW:

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Hq ADC, ADOOT-D 319.1, Subject: (Restricted) Fighter
Status Reporting Delays (25 Jan 52)

WDOCE 319.1

1st Ind

25 Feb 1952

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent AFB, Colorado Springs,
Colorado

1. The delays experienced in the Fighter Status Reports during the last exercise were also unacceptable by this headquarters. Investigation disclosed discrepancies in administrative practices, communications procedures, personnel indoctrination and supervision.

2. In order to meet the desired time requirements, the following action will be taken:

a. The reports will be transmitted by the Air Divisions, addressed to COG, Headquarters WADF, and to the COG, Headquarters, ADC. The messages will be given an Operational Immediate precedence and classified SECRET. On-line SIGTOT will be used for transmission.

b. Reports will be sent for each squadron or separate detachment individually as the information is posted in the ADCC. Delays encountered to consolidate reports will be eliminated.

c. Your report will be separated from the WADF Aircraft Status Report to facilitate rapid transmission. The WADF report will not duplicate your report but will give more detailed information on a daily basis;

d. WADF COG ~~perspame; wo;; ,pmotpr~~ these reports and take corrective action when excessive time delays are encountered. This subject will also become a matter for inspection by the Inspector General.

3. Your policy letter ADOOT-C 381, subject: (Restricted) Classification of Fighter and Radar Status Reports, 2 Feb 1952, states that subject report will be classified SECRET when consolidation occurs. Your COG personnel state that when reports from separate squadrons are transmitted over the same line consolidation is effected. Therefore, each separate report must be sent by secret means even though it contains only restricted information in accordance with paragraph 23b (1) AFR 205-1. The interpretation of paragraph 21b (17) AFR 205-1, to mean that these reports must be classified SECRET and transmitted in the manner because unauthorized personnel might monitor that wire and obtain consolidated information, is not concurred in by this headquarters. Considerable time could be saved if these reports were classified restricted and transmitted through channels to your headquarters by tactical telephone.

FOR THE COMMANDING GENERAL:

RECEIVED ON 25 FEB 1952

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Centralized Control of Air Defense Weapons 4 January 1952

FILE NUMBER 413
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1. Reference is made to paragraph 4a of the attached Staff Visit Report (Inclosure 3). Inclosure 1 hereto is a paper reviewing the present system of decentralized control and making certain recommendations proposing a test of a centralized system.

2. Your comments are requested on the feasibility of implementing the system outlined in Inclosure 1. Some of the factors to be considered in your comments are:

a. Where an installation is utilizing "B" scans for handling radar data, the number of communications circuits involved.

b. The number of plotters required around the ADCC board (1 per scope) and the consequent difficulty in seeing the air intelligence display.

c. The noise level in the ADCC.

d. Technical difficulties in as many as five (5) plotters using one range and azimuth ring at the ADCC (4 "B" scan plotters and 1 long range plotter).

e. The saturation point of the decentralized as compared to the centralized control system.

3. It is felt that the many advantages inherent to a system of centralized control are well presented in Inclosure 1. A further discussion of these advantages is invited.

C. W. McCOLPIN
Colonel USAF
Dir of O&T

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CONFIDENTIALDISCUSSION REGARDING PROPOSAL TO CENTRALIZE CONTROL OF THE
AIR DEFENSE SYSTEM AT AIR DIVISIONIntroduction

1. Reference para 4a, last sentence, of staff visit report attached, in which the 31st Air Div recommended that the ADCC be responsible for the identification and scrambling of aircraft, Project CHARLES commented on the need for centralized control, thus . . . "it seems to be agreed that a more complete control of the air battle by the Air Division commander would be desirable".
2. In principle, there can be no doubt that centralized control at Division level is not only desirable, but imperative, if large scale air battles are to be fought. This, in order that the Division commander may be in a position to insure flexibility, concentration of force and economy of effort, in accordance with the fundamental principles of war.
3. Although the above statement would not be challenged as an aim to be achieved when technological advances warrant, nevertheless, it was considered in the past, following an appreciation of the then enemy threat, that the adoption of centralized control would result in a time delay unacceptable to the accomplishment of the Command's mission. It is the object of this paper to investigate whether, with the increase in experience and with the growth of the numerical potential of the enemy, it is now possible and practicable to adopt a system of centralized control, which would further the security of the United States without involving an additional unacceptable time delay.

Organization Required to Operate Centralized Control.

4. The control of the Air Defense System from ADCC requires the following basic organization:
 - a. Provision of a direct line from the scope teller at the ADCC to the ADCC plotter.
 - b. Provision of a direct line from ARTCC/MFSC to the ADCC.
 - c. Establishment of a full Movement Identification Section at the ADCC.
 - d. Direct lines from ADCC to Fighter squadron.
 - e. The arrangement of sectors to correspond directly to the operational requirement.

The laying of a line direct from the scope teller to the ADCC plotter insures that plots will appear on the ADCC Board at the same instant as they are marked on the ADCC Board, thereby insuring that information at the ADCC is as up-to-date as that at the ADCC. With the provision of the direct line from ARTCC/MFSC to the ADCC and the establishment of adequate Movement Identification Sections at ADCC, the identification problem should be capable, with the adoption of appropriate procedures, of more accurate solution in at least equal time as at present, in that all available data will be presented in a logical manner in the one centralized position, with the

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important proviso that saturation does not occur.

5. The provision of direct lines from the ADCC to the Fighter Squadron (or additionally to aircraft at readiness at the end of the runway) insures that not only has the Division commander direct operational contact with his squadrons, but also that the scramble orders for immediate take-off can be issued without delay - the ADCC controller meanwhile being instructed to carry out the appropriate interceptions.

COMPARISON OF THE ADVANTAGES AND DISADVANTAGES
OF CENTRALIZED CONTROL

6. Advantages. The advantages of the system of centralized control as outlined are:

- a. The ADCC commander is given a comprehensive up-to-date picture of the overall tactical situation in his area, as early as practicable, thereby providing him with an opportunity, in the face of massive air attack, to direct his Fighter Squadrons and his Defense system, to the best advantage.
- b. Should permit the scramble of fighter aircraft against minor raids in as short a time as that achieved under the present decentralized system and at a faster rate against saturation raids.
- c. Allows flexibility, concentration of force and economy of effort to be achieved.
- d. Should provide for greater efficiency and speed in the aircraft identification.
- e. Will relieve the present load on the ADCC and enable it to concentrate entirely on its fundamental responsibility of controlling interceptions.
- f. Gives the Air Division commander proper control of his organization commensurate with his responsibility.
- g. Will reduce the noise level and confusion in the ADCC.
- h. Should result in a decrease of personnel requirements as Movement Identification Section will be removed from the many ADCCs to the few ADCCs.
- i. Communications requirements from the ARTCCs and MFSCs would be reduced.
- j. Provide constant training for the staff at ADCC in assessing and taking appropriate action against an enemy threat.

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7. Disadvantages.

- a. The concentration of control at the ADCC increases the risk to the system from enemy action.
- b. A technical difficulty will be encountered in transferring plots direct from the scope to a horizontal board.
- c. The influx of tracks (Particularly in peace time) might overwhelm the capability of the ADCC as at present constituted, to plot and identify them.
- d. The reorganization and consequently additional initial expense involved in a change of systems.

DISCUSSION OF ADVANTAGES AND DISADVANTAGES OF THE
PROPOSED SYSTEM

8. Disadvantages.

Risk from Enemy Action. Concentration of control will certainly increase the risk from enemy action. Nevertheless, it is quite practicable to make adequate alternative arrangements, provided the advantages of the centralized system are considered to warrant the additional organization.

Transference of Plots. A difficulty will be encountered in the transference of plots from the scope with polar coordinates to a horizontal board presently marked to receive grid references.

10. Identification at the ADCC. The problem of properly identifying the large number of tracks, which would be fed into the ADCC in a busy area in peace time, undoubtedly offers the main and most considerable obstacle to the adoption of the centralized system. The ability of the ADCC to assimilate the tracks passed to it can however only be judged by experiment, and is not necessarily considered an insurmountable problem for a basic requirement of the system as noted in para 4(a) is that the sectors should be geared directly to the operational requirement. For centralized control this may be said to consist of:

- (a) an assessment of the vital targets in the area and consequently the 'raid risk'
- (b) an assessment of the traffic through the area
- (c) following on the above, an assessment of the saturation point of the ADCC and the ADCC.

It may thus be found that in certain vulnerable and congested areas the present sectors would have to be decreased in size in order to operate a centralized control system. In considering the fundamental problem however, which is after all the security of the United States, this factor should not be allowed to overweight the argument.

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11. Undoubtedly, a change of system would involve additional expense. It is, however, definitely considered that this is not a factor of the primary importance. The fundamental question is, is the present system adequate to defend the United States under all anticipated conditions: if not, is there a better system available? If so, then secondly is the risk and economy involved in not introducing the system commensurate with the additional damage to the war effort, property and life which might result.

Advantages

12. On the other hand, however, under heavy numerical attack, it is feared that the present system of decentralized control, adequate for combating lone or sporadic raids, would be unable to supply expeditiously the overall control and flexibility, concentration of force and economy of effort required to:

- (a) gauge the extent and provable targets of the threat
- (b) direct a suitable concentration of fighter force to favorable tactical positions to insure advantageous engagement of a saturation raid
- (c) redirect airborne fighters, should the air situation require
- (d) control the various passive defense and allied defense measures as described in para 15.

It is firmly considered that to meet this complex situation, control must be exercised from one source only in each tactical area; indeed, the absence of the ability to expeditiously exercise such control against powerful and numerous raids might well result in what Project CHARLES terms "the situation to be feared more than any other in air defense, i.e., the loss of knowledge and control of events in the air."

13. In reply, it may well be argued that control is at present exercised from one source only in each tactical area; that if the ADC is faced with a more powerful raid than it can deal with, it reports the situation to the ADC and receives reinforcements according to the overall battle situation. In theory, this appears sound; in practice, it will most certainly entail a quite considerable relative delay. In the centralized organization, the Divisional Commander has the battle situation report placed before him as early as anyone in his sector; he is therefore able to watch the battle build up and get the feel of the situation before he has to make a perhaps momentous decision, these moments of grace are of vital importance to a Divisional Commander. In the decentralized organization, he receives plots which may already be two minutes old or more from the time they first appeared on the scope. Then there will be a further minor delay while the ADC is informed of the aircraft to be placed under their control and the ADC scrambles the aircraft. There is, thus a definite time delay involved in calling up additional aircraft under the decentralized system, apart from the additional stress which it placed on the Divisional Commander.

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Moreover, this delay will affect the air battle throughout for should the Divisional Commander decide to switch his squadrons in the air to meet a vital threat, he will again be short of those by now extremely precious seconds which at this stage, with the speed of modern aircraft, can easily make a difference between the interception of a bomber raid and a city in ruins. It is thus considered that it is essential for the controller of the air battle, i.e. the Divisional Commander, be provided with the earliest comprehensive picture of the air situation. Indeed, it is considered of greater importance for Divisional Commander, fighting a large scale battle where his decisions are vital, to receive this information earliest, than it is for aircraft to be scrambled without delay, for a wrong and hasty decision can easily lose a battle before it has begun.

14. Furthermore, to quote Project CHARLES, "it is clear that at present and in the past it has not been possible for the air situation picture at the ADCC to be sufficiently accurate and prompt to permit planning such detailed command at the ADCC". However, to combat extensive saturation raids, it is essential that this planning, or rather direction, should emanate from the ADCC. Thus, if the ADCC is not competent now to deal with raids of small magnitude, how in times of extreme crisis is it going to meet the situation adequately? It would logically seem that another system should be tried.

15. The Divisional Commander is moreover responsible for minute to minute operational control, which may be said to consist of:

- (a) the general supervision of the air defense battle as it develops
- (b) the passing of warnings as a result of which all the active and passive defense measures are alerted or brought into action in the area of the defense in question.
- (c) the disposition of fighter aircraft, their allocation to tactical controlling authorities and any subsequent reallocation and reinforcement.
- (d) the allocation of suitable control orders to AA gun defenses
- (e) the supervision of the operation of all the defenses in combination in such a way that both fighter aircraft and AA guns can make a maximum contribution to the defense.
- (f) the elimination of undesirable risks to friendly aircraft in the areas protected, by positive orders to the weapons of the defense from time to time.
- (g) the supervision of such training or civilian flying as may have to be carried out in the area with the minimum interference either to it or the operational efficiency of the defenses.

For these reasons also he should be provided with the earliest possible information: he is the focus of the whole defense system, which should be geared

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FORM NO. 10

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to supply him with a comprehensive picture of the air situation at the earliest possible moment, in order that he may take swift, correct and effective action.

16. It is thus considered that the decentralized system cannot provide the required overall control, flexibility, concentration of force or economy of effort to such a high degree as can be obtained by the system of centralized control.

Conclusions

17. To sum up, therefore, it is concluded that:

(a) the system of decentralized control does not meet the full requirements of an effective air defense organization

(b) providing the problem of identification at the ADCC can be overcome, the adoption of the centralized system would insure not only a more efficient working of the defense organization as witnessed in the advantages listed in para 6 above, but also will provide the means for an overall faster rate of scramble than can be achieved under the decentralized system.

Recommendations

18. It is recommended that:

(a) An experiment in centralized control be carried out, initially at an ADGC, which has moved into its new premises and which carries relatively little air traffic.

(b) That, if the initial experiment is successful, the experiment be expanded to determine the saturation point of the ADCC, in order to discover the practicability of applying the system to a sector of high traffic density.

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ADOMO 320.3 Subject: (Unclassified) Personnel and Equipment Modification List 1-2129R-1

ADOMO 320.3 (28 April 1952) 2nd Ind

3 Jun 1952

HQ AIR DEFENSE COMMAND, Fort Air Force Base, Colorado Springs, Colo.

TO: Director of Manpower and Organization, Headquarters United States Air Force, Washington 25, D. C.

1. The advantages to the USAF of raising the grade level for commanding officers in AC&W stations have been stated in detail several times in the past. Briefly the justification is:

a. The two types of stations involved in this discussion are the GCI and Direction Centers. The capital investment of the stations are \$4,700,000 for the GCI and \$5,000,000 for the Direction Center. The annual operating costs equal \$2,100,000 and \$2,500,000, respectively. A comparison of only the investment and operating costs considered with a civilian enterprise reveals:

Kelley Island Line and Transport Co. - listed on Midwest Exchange - investment and operating costs approximately equal to the Direction Center - annual salary of president-- \$20,000, plus sundry expense allowances;

An automobile dealer agency of Denver, Colo., with similar investment and annual sales of about 2,000 cars - dealer or president, if incorporated, approximate annual salary -- \$15,000;

At present, our USAF counter-part, the AC&W commanding officer, is authorized the grade of Major - salary approximately \$6,000.

b. Each of the GCI and Air Defense Direction Centers hold positions in the air defense system critical to the protection of vital targets in the United States. As an example, the Direction Center at Havesink, N. J.;

- (1) Controls the warning and fighting effort for metropolitan New York.
- (2) If this unit fails to function as a smooth team and loses as little as 3 - 5 minutes in the air defense procedure: (For details of procedure see Inclosure 2)

"The first three bombs dropped will make 2,200,000 people homeless.

"The next three bombs will add 1,300,000 homeless to the first.

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ADOMO 320.3 Subject: (Unclassified) Personnel and Equipment
 Modification List 1-2129P-1

ADOMO 320.3 (28 April 1952) 2nd Ind (cont'd)

"The next three will add 600,000." (Source: Rand
 Air Defense Study R-227, 15 Oct 51)

Another example in which the data would be approximately the same is the Chicago, Illinois area. This area depends upon the unit (ADDC) at Elkhorn, Wisconsin for warning, interception and destruction of the enemy.

c. Obviously, the GCI station which extends the detection and control coverage of the ADCC is of critical importance to the Direction Center and success of the defense effort. It must also function smoothly and with split-second timing.

d. Each Direction Center is responsible for five complete steps in the air defense of a target out of a total of seven. Each step must be performed with exact timing and minute accuracy to assure a favorable degree of kill effectiveness. Six of the steps are shown in the attached chart; the seventh is the fire order to anti-aircraft batteries. In the case of Navesink, N. J. for example,

- (1) AA requires 30 minutes notice before the first round can be fired.
- (2) If the Navesink unit fails to function properly and uses more than 5 minutes to properly identify, track, select target from division effort, and give the fire order to AA, the city of New York could be bombed without 40 batteries of anti-aircraft guns having fired a single round.

e. The ADDC commits and controls, and the GCI controls on each mission over \$2,000,000 worth of aircraft and personnel.

f. Reference to the attached chart (Inclosure 2), which portrays the stages of an air defense mission, will reveal the ADDC and GCI perform the substantial portion of the actions.

g. Each station is for all practical purposes a separate Air Force installation and almost always the only military activity in the area, thus successful community relations are essential to satisfactory functioning of the unit and the USAF. The term "Colonel" produces far better relations, on the average, than "Major".

2. It is evident that the ADDC and GCI team is the nerve center of the air defense system - alerting the civilian and military populace,

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ADOMO 320.3 Subject: (Unclassified) Personnel and Equipment
Modification List 1-2129P-1

ADOMO 320.3 (28 April 1952) 2nd Ind (cont'd)

detecting the enemy and directing his destruction. The man responsible for managing the enterprise upon which so much depends is now authorized an annual salary of approximately \$6,000; is expected to have accrued sufficient experience in 7 - 12 years in the military service to have the wide background necessary to organize a smoothly functioning team required to operate with complete accuracy and split-second timing; is responsible in effect for the value of a population and vital industries of New York, Chicago-Gary, Seattle-Tacoma, Los Angeles, Washington-Baltimore, etc. Based on the above we feel the grade of Lieutenant Colonel as AC&W Squadron Commander for each GCI and ADDC is the minimum grade and salary level acceptable. The list of units in which the change is recommended and desired is attached as Inclosure 3.

FOR THE COMMANDING GENERAL:

- 2 Incls
w/d 1 Incl - 1
Added - 2 Incls
2. Chart-Enemy Engaged Based
on Time (trip)
3. List of AC&W Squadrons
(trip)

s/t/ KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy for Operations

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SECRET SECURITY INFORMATION

HEADQUARTERS
CONTINENTAL AIR COMMAND
MITCHEL AIR FORCE BASE, NEW YORK

FILE NUMBER 406

COMM 381

22 July 1950

96

SUBJECT: Improvement of Means for Handling AC&W Information

TO: Director of Requirements, Headquarters USAF, Washington 25,
D. C.

1. Methods now employed in transmission and display of information in our Aircraft Control and Warning nets are inadequate to use the full capabilities of our defensive radar and aircraft. The manual observing, telling, and plotting procedures in current use introduce errors, omissions, and delays into the operation of our AC&W net which seriously degrade the effectiveness of our defense system. A requirement exists, therefore, to improve the handling of information in the AC&W net.

2. Efforts to improve the above situation through changes in procedures, intensification of training, and other operational means, have resulted in some improvement but it is believed that further substantial improvement will be accomplished only through design and application of equipment which will comprise a partially automatic information handling system. The functions and characteristics of such a system are described below:

3. Equipment desired to permit partially automatic handling of AC&W information should perform the following functions:

- a. Receive information from the GCI or early warning radar equipment.
- b. Provide convenient means for filtering such raw data, at the earliest feasible point in the system.
- c. Permit addition of other information into the system (e.g., height, identification, etc.).
- d. Transmission of filtered data, together with the added information to Control Centers, overlap GCI stations, or other required places.
- e. Provide means for combining information from two or more different GCI or other sources of information.

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SECRET SECURITY INFORMATION

COMM 381, Improvement of Means for Handling AC&W Information (Cont'd)

f. Display the filtered information in appropriate form for use of the Fighter Controller, for the Duty Controller (for assignment for forces) and for the Air Defense Commander.

4. The general characteristics of the desired system are described below, together with the values believed to be possible of attainment at present or in the immediate future.

a. The new system should not require major changes in present doctrine or practices of the AC&W.

b. The system should be as automatic as possible, with due regard to the fact that some functions can be performed more easily and expeditiously manually. It is believed that almost all of the functions of receiving, transmission, filtering, combining and displaying the information can be performed automatically with the exception of filtering.

c. The equipment should be as reliable as possible. This means no erroneous information should be propagated along the system, and that the system should have a high degree of continuity of operation. It is believed that the present state of the art permits substantially correct information to be displayed during continuous operation.

d. The system should be as fast as possible in operation, i.e., the minimum time should be required between the reception of information from the radar system and the display of such information on the various display boards. It is believed that present time can be of the order of 10 seconds or less.

e. The highest resolution possible, consistent with other requirements, is desired. It is believed that the present art permits a resolution of the ADCC display of 2 miles, with resolution on all other displays progressively better as the radar received is approached.

f. Accuracy of the information in the system should not be degraded beyond the limits of resolution established. This should be possible with present knowledge.

g. Combination of information from various sources should be automatic and should provide automatic means for computing most probable position of the plot when two or more observation of one plot are received.

h. The band width required for transmission of information between radar stations and between the radar stations and ADCC should be as narrow as possible and certainly should not require more than a standard telephone voice channel.

SECRET SECURITY INFORMATION

COMM 381, Improvement of Means of Handling AC&W Information (cont'd)

1. The system should be designed and put into operation as soon as possible. This means crash programs with intensive applications and production programs. I consider this project to be exceedingly urgent and therefore I hope that an experimental model of this complete system can be demonstrated in the shortest possible time, but not later than 15 September 1950, and that Continental Air Command can be completely equipped not later than 15 September 1951.

5. It is requested that immediate action be taken to meet the above requirements by directing the appropriate development agency of the USAF to initiate immediately a crash program of development of a system which will meet the above requirements. This command will be glad to furnish assistance and coordination in this program, especially by providing operational information to the cognizant agency on request.

for and in the
absence of:

Ennis C. Whitehead
Lieutenant General, USAF
Command.

s/t/ CHARLES T. MYERS
Major General, U.S. Air Force
Vice Commander

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SECURITY INFORMATION

13 Oct 1952

97

General Hoyt S. Vandenberg
Chief of Staff
Headquarters USAF
Washington 25, D.C.

FILE NUMBER 104-100
28

Dear Van:

During your recent visit to Colorado Springs I had an opportunity to present to you my concept of Air Defense Command's objectives through 1955 and to some extent beyond. Considerable emphasis was placed on the ground environment phase necessary for the control of weapons against the evaluated threat of this era.

As you know there are at present several proposals under development which are aimed at improving our ability to do air defense. Mainly they are the Lincoln "Quick Fix", the Lincoln "Whirlwind" system and the integrated electronic environment built around the Americanized Version of the British Comprehensive Display System as proposed by Willow Run Research Center of the University of Michigan.

My staff has recently been exposed to a demonstration of the Lincoln Laboratories "Quick Fix" system at North Truro, Massachusetts. As demonstrated, this proposal does not meet my requirements for an improved semi-automatic air defense system which must permit threat evaluation and weapon assignment at the combat center level (air division) nor is it apparent that this system could be used effectively in the employment of such weapons as the BOMARC missile.

It does however offer some potential in improving our present manual system and if proved could foreseeably be utilized in the low priority target areas. In conjunction with Headquarters AFPC and Lincoln Laboratories my command is providing the necessary air defense doctrine, operational guidance and qualified personnel to determine the degree of improvement achievable with such a system.

The Lincoln "Whirlwind" proposal is supported to meet all of our requirements with a high degree of automaticity, somewhere in the 1956-1960 time era. The information as to the ultimate potential of this system is rather nebulous

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SECRET NO. 104-100

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General Hoyt S. Vandenberg

Page 2

and quite controversial. It appears that this is a long term development and as such should be directed towards future threats such as the inter-continental missile and not towards solving the present manned aircraft threat.

The Michigan air defense system designed around the Americanized Version of the British Comprehensive Display System also purports to meet all of our requirements for the 1955 system. It appears to be well thought out using known techniques and provides a high degree of flexibility with optimum application of human judgement in concert with maximum automaticity. It also appears to be acceptable with other services systems now being developed and can readily integrate missile weapons.

The systems proposed by the University of Michigan represents one of the means whereby I can achieve the objectives I have set forth for Air Defense Command in 1955. In view of this I strongly recommend that the necessary impetus be placed on this program to overcome any obstacles that might delay it.

Sincerely,

B. W. CHIDLAH
General, USAF
Commanding

LtCol O T Hailey, Jr/c
441/443
10 Oct 52

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SECURITY INFORMATION

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D. C.

98

AFDRQ-AD/C

18 April 1952

SUBJECT: Comparative Operational Suitability Test of Photographic
Projection Systems

TO: Commanding General
Air Proving Ground Command
Eglin Air Force Base, Florida

FILE NUMBER 416
DV

1. This headquarters has under consideration two photographic projection systems; the Land Process and the Kenyon TPI, as "quick-fix" programs for improvement of data processing at Early Warning and GCI stations. The Kenyon TPI is being developed by the Rome Air Development Center and the Land Process under the cognizance of Project "Lincoln".

2. These photographic systems provide a means whereby targets detected by a radar can be projected on a plotting screen where track number, identity, position, etc. are indicated. This data is then photographed and the results projected on a large screen in the operations room. Plots are obtained directly from the radar scope without intermediate human linkages and the final display has none of the distracting and non-essential details associated with the radar display such as fixed and cloud echoes, azimuth and range marks, interference, IFF responses, etc. Among the advantages of photographic projection as compared to present methods of radar processing and display are the following:

- a. Greater clarity of display.
- b. Better working arrangements for plotters.
- c. Elimination of "writing backwards" procedure.
- d. Elimination of "B" scan reporting.

these systems appear duplicative, however, there are significant differences both technically and operationally to justify both developments.

3. It is desired that your command initiate a project to evaluate both systems operationally and recommend a course of action to this headquarters. A group of operational and technical personnel will be made available if desired to assist in the evaluation. Installation of the Kenyon TPI at RADC and the Land Process at Project Lincoln will be completed in July or August of this year. Evaluations by your command will be conducted at these installations.

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4. A conference will be scheduled at this headquarters in the near future to discuss this project and to provide additional details not currently available for inclusion in this test directive. Your command will be requested to provide a representative.

5. A USAF priority of L-B, ARDC relative priority of 24a is assigned this project. It is requested that every effort be made by your command to complete this project and submit a letter report to this headquarters within 60 days after the equipment is made available for evaluation.

BY COMMAND OF THE CHIEF OF STAFF:

cc: ARDC
ADC

s/t/ JAMES O. GUTHRIE
Colonel, USAF
Deputy Director of Requirements

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

99

AFDRQ-AD/C

11 Sep 1951

SUBJECT: (Restricted) Evaluation of the Comprehensive Display System

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER 406

1. Inclosed is a copy of letter to the Air Proving Ground which establishes the requirement for testing the philosophy of the British Comprehensive Display System from a static air defense standpoint.

2. It is requested that close liaison be maintained with APG on this project. Particular emphasis should be placed on the problems to be used during the test to insure availability of data required to evaluate the system.

BY COMMAND OF THE CHIEF OF STAFF:

/s/H. A. Hanes
/t/ H. A. HANES
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements,
DCS/D

1 Incl
Cy ltr to CG, APG,
subj as abv.

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AFTRQ-AD/C

11 Sep 1951

SUBJECT: Operational Evaluation of the Comprehensive Display System
(Restricted)

TO: Commanding General
Air Proving Ground
Eglin Air Force Base, Florida

1. Reference is made to letter from this headquarters, dated 20 April 1951, subj: (Restricted) "Operational Evaluation of the Comprehensive Display System", and to test s for Project OP/S224/J15, proposed by Commander, Operational Development Force, U. S. Navy.

2. The tests as proposed by OPDEVFOR have been reviewed by this headquarters and are considered to be generally acceptable in those phases which have been planned. There is, however, a definite requirement for testing the philosophy of the Comprehensive Display System from an overall static air defense standpoint.

3. An engineering study of the British Comprehensive Display System is being conducted by the Laboratory for Electronics and will be completed by 15 November 1951. In order to fully evaluate their report, it is essential that data from operational tests of the overall system also be available. To accomplish this, OPDEVFOR has been requested to make available to your command the Comprehensive Display System being installed at the Chesapeake Bay Annex for a period of approximately one week beginning 15 October 1951. To further expedite test results and eliminate the need for training Air Force personnel, the Navy has been requested to operate and maintain the equipment for the required period.

4. It is desired that Project APQ/ADE/36-7, established in accordance with par 3 of letter referenced in par 1 above, be altered to include testing the overall operational suitability of the Comprehensive Display System to cope with actual tactical situation which may confront the air defense elements of the Air Force. In determining test procedures and the scope of problems to be used, consideration must be given to the capabilities and limitations of the X-2 model of the CDS installation at the Chesapeake Bay Annex. It is suggested that five types of air defense problems, essentially as follows, be used in these tests:

- I. Test the capacity of CDS to discriminate between and assign fighters to distinguishable elements of an area raid of approximately 20 targets. An area raid is defined as rather loosely formed groups of

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AFDRQ-AD/C, Ltr to CG, APG Cont'd., subj: "Evaluation of the Comprehensive Display System"

attackers approaching from a limited direction wherein it is not difficult to differentiate between targets on the radar scope, but present plotting techniques become saturated. The carrying out of assignment instructions are not essential in view of the limited number of control scopes available in the Chesapeake Bay Annex system.

- II. Test the capacity of CDS to present and cope with an optimum raid directed at a target complex. This test would demonstrate the capacity of CDS in terms of controlled assignments over a greater area than in Problem I.
- III. Test the efficiency of CDS to process approximately 12 tracks. This number of tracks is considered to be an average maximum capacity of the present system.
- IV. Test the capacity and efficiency of CDS to cope with current air defense problems wherein numerous types of "tracks" are scattered over the area and intruders are capable of making a penetration. Use of a few actual fighters and target aircraft desirable.
- V. Any other problems deemed essential to measure the adequacy of the CDS with respect to current methods.

To add realism to the problems, it is suggested that actual geographical areas within the U. S. be simulated.

5. It is requested that you submit to this headquarters, prior to 1 October 1951, a detailed plan for testing the operational suitability of the Comprehensive Display System. This plan should be coordinated with the Air Defense Command prior to submission.

6. Direct communication with ADC is authorized to obtain assistance in conducting this test.

7. A report on this portion of Project APG/ADE/36-A will be submitted to this headquarters not later than 15 November 1951.

BY COMMAND OF THE CHIEF OF STAFF:

M. R. NELSON
Major General, USAF
Director of Requirements

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Hq USAF AFDRQ-AD/C Subject: (Restricted Evaluation of the Comprehensive Display System)

ADOPR 413.44 (11 Sep 51)

1st Ind

27 Sep 1951

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colo.

TO: Director of Requirements, Headquarters USAF, Washington 25, D. C.

1. Reference Par. 2, subject letter. This Headquarters has selected Major Lewis F. Janek, 12872A, 503rd AC&W Group, to proceed to test site on extended TDY. This office will provide continuous liaison between AFG and this command during the period of subject tests and monitor the operational evaluation of the equipment conducted by U. S. Navy OPSDEVFOR.

2. Major Kenneth W. Gordon, AO904277, this Headquarters will continue to provide operational guidance to Laboratory for Electronics for Phase I and Phase II as outlined in classified letter, AFDRQ-AD, subject, "Development Program for Air Defense Data Processing Equipment", dated 19 Feb 51, and will supervise officer assigned on TDY to insure the availability of data, required to evaluate the system and to provide pertinent data to LFE for engineering design improvements.

FOR THE COMMANDING GENERAL:

1 Incl
n/c

JAMES I. CLARK
Major, USAF
Asst Air Adj Gen

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

100

AFDRQ-AD/C

Jun 12, 1952

SUBJECT: Employment of an Americanized Version of the Comprehensive
Display System (ACDS)

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER

406

DV

1. Reference is made to the inclosed Air Proving Ground Command Interim Report, Project No. AFG/ADB/36-A, subj: "Operational Evaluation of the Comprehensive Display System," and the Laboratory for Electronics, Inc., Final Report AF-30 (120) 441, subj: "Final Engineering Report on Comprehensive Display System." Copies of the latter report have been furnished your headquarters by the Air Research and Development Command.

2. Analyzing the various projects now under development for the improvement of data processing in air defense operations it becomes evident that the only procureable system which will give a significant capability beyond that now in existence, is an Americanized version of the British Comprehensive Display System. Provided production of an ACDS is undertaken in the near future, systems could be made available to your command in limited quantities by 1955 with all major radar stations in high traffic density areas equipped in 1956. The only other equipment which can be made available in the near future and which will partially solve the data processing problem is the Land Camera and/or the Target Position Indicator. These two systems will be available for operational evaluation by the Air Proving Command in July or August of this year. After a decision is made to produce these systems, it is estimated that about 20 months will elapse prior to introduction into field sites.

3. Based on the above, this headquarters is contemplating the procurement of a limited quantity of ACDS for areas having a high air traffic density. Procurement of the Land Camera and/or the Target Position Indicator, for areas where installation of ACDS appears to be unnecessary, will be predicated on the results of the operational evaluation to be conducted by AFGC. Assuming that the Air Force will initiate procurement for a number of ACDS as outlined in the Laboratory for Electronic engineering report, reference in par 1 above it is requested

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AFDRQ-AD/C, Ltr to CG, ADC, subj: "Employment of an Americanized Version of the Comprehensive Display System (ACDS)."

that your command submit to this headquarters a plan for employment of these systems. In the selection of sites for installation of ACDS, it is requested that consideration be given to the solution of the data processing within a GCI station as well as the integration of a number of ACDS into a system complex. The desirability of an integrated system is recognized; however, solution to the problems of data transmission and integration is not clearly indicated at this time. It is the feeling of this headquarters that a production program should not be delayed until all the problems of an integrated system are in hand.

4. The Laboratory for Electronics report is the result of an effort to produce, at the earliest possible date, a system incorporating electrical techniques based upon the current concept of processing air defense data. In effect, this proposal is the Americanized version of the British Comprehensive Display System. It is conceivable that the system as proposed will not meet the operational requirements of your command in the detail which you would desire. This headquarters is therefore undertaking the establishment of a steering committee responsible for:

a. Determining the suitability of, and the changes necessary in the Laboratory for Electronics proposal to meet the Air Force requirements.

b. Considering problems created as a result of implementing ACDS into the AC&W system.

c. Making other recommendations concerning the AC&W system as may occur to the steering committee as a result of the study of the ACDS problem.

The committee will also consider the incorporation of the latest British developments into ACDS which includes:

- a. Rate aided sequential tracking.
- b. Condenser storage.
- c. High persistence magnesium fluoride display tubes.
- d. New remote code setting techniques.
- e. Replacement of the monoscope with electronic writing techniques.
- f. Automatic balancing of tracking load.
- g. Electronic Tote.

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CLASSIFIED SECRET

AUTH: CG, ADC

21 July 52

(Date) (Initials)

ADOPR 319.1

21 Jul 1952

101

SUBJECT: (SECRET) Plan for Employment of the Americanized Version
of the Comprehensive Display System

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

FILE NUMBER 406
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1. Reference letter Hq, USAF, AFDRQ-AD/C, subject: "Employment
of an Americanized Version of the Comprehensive Display System",
12 June 1952.

2. This Command agrees that an Americanized Version of the
British Comprehensive Display System is the only procurable system
which will give a significant capability beyond that now in existence.
It is imperative that decisions to undertake production of this
equipment be made now, in order to have an operational system in the
field no later than 1955-1956.

3. This Command also agrees that the two photographic TPI
systems (Land and Kenyon cameras) may partially solve the data
processing problems for radar stations where the installation of
ACDS appears unnecessary. That decisions to produce either of these
systems will be predicated on the results of operational evaluation
has the concurrence of this Command.

4. The proposed deployment of these improved systems within
Air Defense Command is as follows:

a. Attached as inclosure 1 is a map of the United States
containing new geographical subdivisions for Air Defense Command.
The cross-hatched areas of the northeast and west are to be completely
equipped with ACDS units. Each primary radar (either permanent or
mobile) within these areas will be equipped with an ACDS unit having
a 100 track storage capacity. Each of the subdivisions within these
two areas will contain an integrated semiautomatic electronic display
system at the air defense control center. Fourteen (14) control
centers are required, of which seven (7) already are in place. Those
required are indicated by circled triangles. One hundred and four
(104) ACDS unit will be required, which includes twenty-one (21)
units for stations in Canada. The average number of ACDS units in-
tegrated into a centralized ADCC is eight (8).

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ADOPR 319.1

Subj: (SECRET) Plan for Employment of the Americanized Version of the Comprehensive Display System (contd)

b. The geographical area of the mid-west and southern United States will have control centers manually operated. It is in this area that Air Defense Command proposes to utilize the photographic TPI system, provided it proves satisfactory after operational evaluation.

5. Air Defense Command's concept for the operation of an integrated ACDS system is as follows:

a. The organizational structure of the Command will generally be as indicated on Incl 2.

b. The combat center as indicated by the heart shape on Incl 2 is the heart of this system. It is at this point that threat evaluation and assignment of weapons for conduct of the air battle will occur. The commander of this combat center has under his direct command local and area weapons, surveillance and control facilities, which are adequate to conduct active air defense on an area basis.

c. The Air Defense Force headquarters coordinates the activities of the combat commanders. The Air Defense Command in turn coordinates the activities of the air defense forces.

d. Contained in this concept is the recognition that air defense air surveillance information will be on an instantaneous basis and will be displayed at the combat center. Operational intelligence estimates by the various command echelons will be displayed at all higher levels.

e. In the area of manual systems (mid-west and southern United States) the density of enemy air traffic is expected to be low enough for present concepts to continue to function.

6. The desired deployment and employment of the ACDS as contained in paragraphs 4 and 5 above, are based upon the unanimous desirability of an integrated air defense system. Based upon the best technical advice of the ARDC, it is the considered opinion of this Command that such an integrated system can be achieved in 1955 by:

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ADOPR 319.1

Subj: (SECRET) Plan for Employment of the Americanized Version of
the Comprehensive Display System (contd)

a. Immediately establishing a development contract with
system design responsibility for integrating and displaying the
electronic air surveillance information from a number of ACDS stations
into a centralized ADCC.

b. Immediately contract for prototype design of a high
capacity point-to-point electronic data link similar to that of the
TSA-8, under development by the Bell Telephone Laboratory for the
Signal Corps.

7. During the 8th, 9th and 10th of July, representatives of
this Command attended an Air Defense Symposium at the Willow Run
Research Center, under the sponsorship of the Rome Air Development
Center. At this meeting the need for immediate and decisive action
to achieve an integrated ACDS system by 1955 was emphatically pointed
out.

8. It is urgently recommended that the proposed use of an
integrated ACDS system, as described in this letter, be presented to
the Aircraft and Weapons Board within the next thirty days.

2 Incl

1. 1 cy Map of U.S.
2. 1 cy Chart - Chain
of Command

FREDERICK SMITH JR.
Major General, USAF
Vice Commander

Info cy to:
CG, ARDC

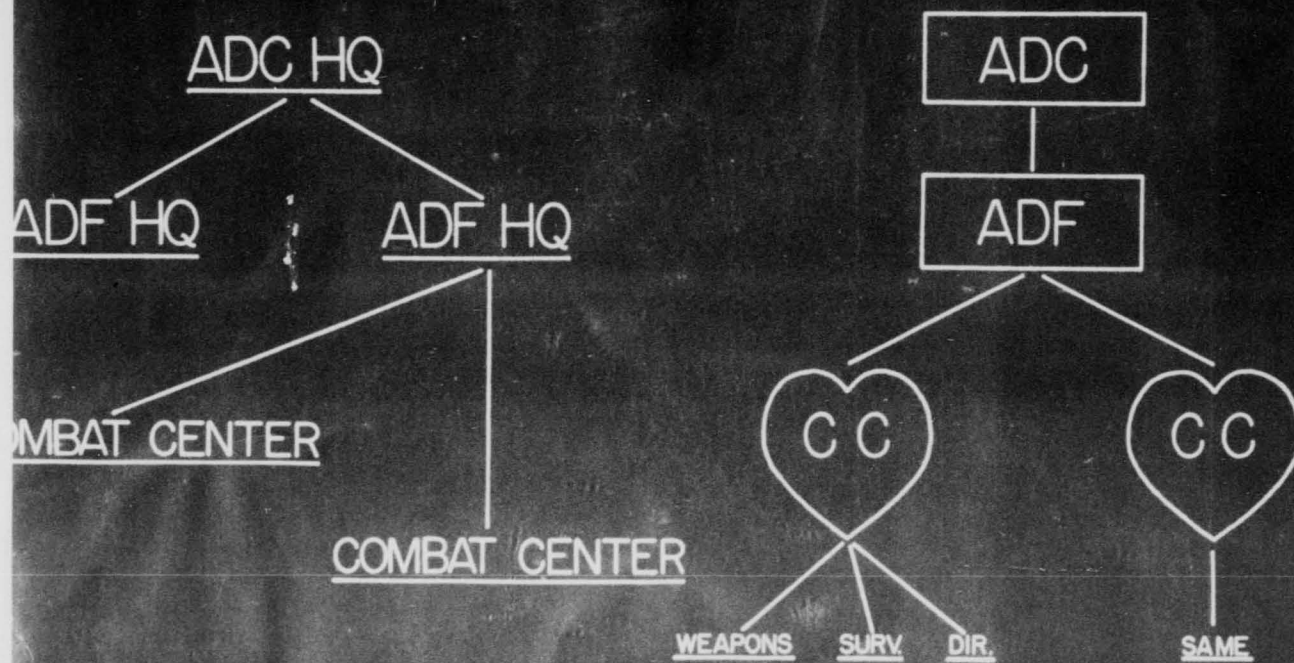
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CHAIN OF COMMAND



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Basic 1st Hq ADC, 21 Jul 1952, subj: (Secret) "Plan for Employment of the Americanized Version of the Comprehensive Display System"

ATDRC-AD/C

1st Ind.

22 AUG 1952

DEPARTMENT OF THE AIR FORCE, HQ USAF, WASHINGTON 25, D. C.

FILE NUMBER 406

TO: Commanding General, Air Defense Command, Fort Air Force Base, Colorado Springs, Colorado.

1. This headquarters concurs in the requirement and general concept of interpreting the ACDS equipments as proposed in basic correspondence. This proposal will be endorsed to the Air Research and Development Command so that the Ground Reporting System development program can be oriented along the lines of your operational concept.

2. For Planning purposes there is concurrence also in your proposed plan of operational organization and your plan of deployment of the ACDS equipments for control centers and certain critical BW sites. However, in regards to your total requirement of 104 ACDS systems, it appears that a less detailed (although digital) report of target information from most early warning sites should be satisfactory. This headquarters will initiate action to develop this less expensive equipment.

3. The urgency expressed for this integrated system in 1945 is acknowledged and will be appended to the Ground Reporting System program. Considerable doubt exists as to attaining the fully integrated system in 1955. Air Research and Development Command has not informed this headquarters of the reliability of the University of Michigan's proposal to integrate ACDS equipments. In addition, the problem of automatic filtering has not been demonstrated in either Great Britain, where CDS was invented, or the United States. The lead time for developing, testing, contracting, procuring and installing such a complex system is immense, therefore should any major problem arise in any of these areas, it is extremely doubtful that the 1955 target date can be achieved.

4. Reference is made to par 6 of basic correspondence:

a. The University of Michigan has been assigned the task of studying the problem and developing equipment required to integrate and display electronic air surveillance information from a number of ACDS stations into a centralized ADC.

b. A high capacity point-to-point electronic data link similar to the AR/TS-1 is being developed by the Bell Telephone Laboratories for the Air Force. This data link will have a hundred track

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ADFRQ-AD/C, 1st Ind to CG, ADG Cont'd subj: "Plan for Employment of the Americanized Version of the Comprehensive Display System"

capacity with the capability of sending up to seventy bits of information on each target. It is estimated that a development model of this data link will be available in 1953. FY 53 funds have been allocated for the procurement of two Air Force versions of the AN/TSA-8.

5. Until this program is nearer the hardware stage, it should not be presented to the Aircraft and Weapons Board. Your presentation to the senior members of the Air Staff on 19 August 1952 should insure general understanding of your desires and plans and insure proper Air Staff support.

BY COMMAND OF THE CHIEF OF STAFF:

w/d Incls 1&2.

C. P. LESSIG
Colonel, USAF
Deputy Director of Requirements

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ADPR 381

22 Aug 1952

SUBJECT: (SECRET) Meeting to Discuss Plan for the Employment of the Americanized Version of the Comprehensive Display System (ACDS)

102

TO: Air Officer Commanding
Air Defense Command
St. Hubert, Quebec, Canada

1. The purpose of this letter is to give you the latest Headquarters USAF and Headquarters Air Defense Command thinking with regards to improvements in data processing techniques in Air Defense operations. This thinking has been going on for some time, but has just come to a head during the last 60 days. Unfortunately, we have not had an opportunity to discuss this with you during this period. Since the RCAF and the USAF Air Defense Systems work so closely together, we feel that it is advisable that we meet on the subject at the earliest opportunity.

2. Two letters are attached for your information. The first is from Headquarters USAF and points out that the Americanized Version of the British Comprehensive Display System is the only development time-wise that can appreciably improve the data handling techniques in air defense.

3. The second letter is Air Defense Command answer to Headquarters USAF letter, which specifically recommends areas where ACDS equipments are desired. In addition, Air Defense Command requests that these ACDS equipped radar stations be tied into an integrated Combat Center to provide evaluation at this point. From a study of this plan it is immediately apparent to this Headquarters that extremely close coordination must be accomplished in the sectors bordering the U.S. and Canada.

4. Also attached for your information, is a paper describing the electronic equipment for the 1955 Combat Center.

5. The importance of meeting together on our objectives for 1955 is quite urgent. By separate correspondence, General Chidlaw is proposing a meeting to discuss various mutual problems, including this subject. However, I think it would be beneficial to have a

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ADOPR 381 Subj: (SECRET) Meeting to Discuss Plan for the Employment of the Americanized Version of the Comprehensive Display System (ACDS)

working level conference on the attached subject matter prior to the meeting to be proposed by General Chidlaw. We will be happy to send our representatives to your Headquarters at your earliest convenience, and suggest that such a meeting be held early in September.

3 Incls:

FREDERIC H. SMITH, Jr.
Major General, USAF
Vice Commander

1. Cy ltr fr Hq USAF,
dtd 12 Jun 52, (Secret).
2. Cy ltr Hq ADC to Hq USAF,
dtd 21 Jul 52, w/INCLS.
(Secret).
3. Description of Electronic
Equip for '55 Combat Ctr,
(Secret).

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FILE NUMBER 436

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HQ ADC
ENT AFB, COLO SPRINGS COLO

PRIORITY

103

COLONEL JOE MCNEY
DEPUTY CHIEF OF STAFF, OPERATIONS
HEADQUARTERS USAF
WASHINGTON, D. C.X
8 Oct 1952

ADOPR 2099. This wire is in reply to your req to Gen Bergquist for verbal description of 1955 opal concept. This wire in three parts.

Part 1. Ref chart of US w/pvnt div bdrys w/o overlay "Indicated on this chart are the present ADA and bdrys. Wide gray lines indicate the ADF bdys between Eastern, Central and Western ADF's. The narrow gray lines indicate the bdrys between the eleven air def div areas of resp". Part 2. Ref chart of US w/overlay of 1955 bdrys: "Shown on the overlay are the bdrys and areas of resp that we feel are essential to fit the 1955 concept of opr. These should be in eff by 1 Jan 1955. The red lines define the Def Force bdrys and the black lines indicate the ADiv areas of resp. It may be noted that the EADF area has increased in size while the WADF area has decreased. The ADiv have increased in no from 11 to 18. In brief, the planning criteria which dictated the Def Force areas of resp are as follows:

1. As you will recall from our critical area chart, a majority of cat "A" tgts and critical industrial areas now fall w/i the areas of resp of EADF and WADF. Although many important tgts lie w/i the CADF area, these tgts

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are widely dispersed and they must of nec be assigned a lower def priority.

2. the double peris as estb around the NE and Pacific Coast industrial tgts, now lie compl w/i the respective areas of EADF and WADF, placing the resp for the def of these critical areas under one Hq. 3. the type equip to be used in the Elect Environment during this pd will, as a result of the conc of critical areas w/i EADF and WADF, require a semi-auto display handling and transmission equip for the asgmt of wpns and the conduct of air battle. the cen and Southern part on the US containing tgts of lower priority will funct on with an improved manually operated sys. The further sub-div of the def force areas into sectors or divs was predicated on the no and character of tgts, the def forces avail, and the anticipated any traf. The areas are of such size as to preclude the probability of more than 100 simultaneous any radar tracks in any one sector." Part 3. Ref Comd and Opnl charts: "It may be helpful at this pt to discuss what the orgn of the ADC might look like in terms of comd and oprs of the various levels in 1955. This chart shows the ADC Hq, a typical Air Def Force, the Combt cent at div level, and tac units. The cmbt cen is the highest ech in con of the air battle and is the "heart" of this sys. The comdr here has under his direct comd all the surveillance and con fac to eff empl his asgd wpns on an area basis. The function of the Def Comd Hq is comd, future planning and programming, supv, testing the sys, and providing timely intel to the Def Force comdrs. During an air battle, the function will be to keep the sit continually eval in order to shift forces at apropr times. The function of the Def Force Hq is similar to that of the Comd Hq but in far more detail, with sp emphasis on the Conds peculiar to ea

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area of resp. The use of forces of other comds is planned in great detail at this level. The function of the Cmbt Comdr is to prov def for tgts in his area w/i the capability of his fam of wpns. In discussing the flow of info, I will begin with the Cmbt Cen. Here, surveillance info is presented to the cmbt comdr directly fr dir and surveillance sta. This data is transmitted, processed and displayed on a near instantaneous basis. Info concerning wpm asgmt and use flows downward fr the cmbt cen. Moving to the next higher level of comd, the flow of info upward fr the cmbt cen to the def force is in the form of a comdr's evaluated est. The flow of info fr def forces to the def comd hq is also a comdr's evaluated est. The downward flow of opnl gdnce during an air battle may be quite limited. Between air battles, however, there may be a considerable readjustment of forces between the lower echs."

CG, ADC

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SECRET SECURITY INFORMATION

ADOPR 381

5 NOV 1952 104

SUBJECT: (Unclassified) Air Defense Boundaries

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D. C.

FILE NUMBER 486 X 157 504 WPH

1. References:

a. Letter this headquarters, 21 Jul 52, subject: (Secret) Plan for Employment of the Americanized Version of the Comprehensive Display System, w/1st Ind.

b. Letter, 25 Jul 52, from General Chidlaw to General Vandenberg (Secret).

2. The requirements for an air defense system to be established by 1955 have been forwarded by references a and b and have been concurred in by your headquarters. The purpose of this letter is to secure your approval of the initial change (early 1953) in geographic alignment of air defense areas to facilitate the transition from the existing system to the 1955 system (see Incl 1).

3. The 1955 air defense system is based upon the employment of the Americanized Version of the British Comprehensive Display System in the northeastern and western double perimeter areas and an improved manually operated system (possibly photographic) in central and southern United States.

4. The Air Defense Command's concept for the operation of this system is as follows:

a. The organizational structure of the command will generally be as indicated on Incl 2.

b. The combat center is the heart of this system. It is at this point that threat evaluation and assignment of weapons for conduct of the air battle will occur. The commander of this combat center has under his direct command local and area weapons, surveillance and control facilities, which are adequate to conduct active air defense on an area basis.

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ADOFR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

c. The Air Defense Force headquarters coordinates the Activities of the combat commanders. The Air Defense Command in turn coordinates the activities of the Air Defense Forces.

d. Contained in this concept is the recognition that air defense air surveillance and control information will be displayed on a near instantaneous basis at direction centers and at the combat center. Evaluated intelligence estimates by the various command echelons will be displayed at all higher levels.

e. In the area of manual systems (central and southern United States) the density of enemy air traffic is expected to be low enough for present concepts to continue to function.

5. The establishment of this system in 1955 dictates certain geographic changes which are depicted in Incl 3. The air defense regions and sectors indicated were based upon the following criteria:

a. Regions.

- (1) Concentration of critical air defense areas.
- (2) The double perimeter concept for air defense of the most critical areas.
- (3) Probable enemy approach routes and his increasing capability of attacking from any direction.
- (4) The amount of hostile traffic to be expected in these areas.
- (5) The requirement for rapid and complete identification around the perimeter of the U. S. and internally, around critical areas.
- (6) The type of equipment to be used in the ground environment during this time period.

b. Sectors.

- (1) Size of area.
- (2) Type of terrain.
- (3) The number and character of targets within the area.

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ADOPR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

- (4) Availability of weapon bases.
- (5) Range of weapons.
- (6) Available communications nets.
- (7) Available facilities.
- (8) The number of probable air battles that will occur.
(This figure was accepted to be one that would impose a load no greater than a total of 100 simultaneous radar tracks in any one sector.)

6. It is believed that the interim boundary changes proposed for 1953 will facilitate the attainment of the 1955 position by providing gradual organizational adjustment without a loss of air defense effectiveness. These changes, which are depicted in Incl 1, are as follows:

a. WADF - CADF: Beginning at a point on the U. S. - Canadian border at 115° W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada; thence south along the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian; thence south along the 113th meridian to the U.S. - Mexico border.

b. EADF - CADF: Beginning at a point on the U. S. - Canadian border at 90° W; thence southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the northern border of Illinois, thence to a point 89° W - 41° 45' N; thence along the 89th meridian to the northern border on Kentucky; thence along the western border of Kentucky to the northern border of Tennessee. The southern boundary remains unchanged.

c. The air division sector boundaries in the EADF and WADF regions remain unchanged except as modified by the air defense force regional boundaries. Air division sector boundaries in the CADF region are changed as follows:

(1) 29th Air Division: The western boundary coincides with the WADF-CADF boundary to the northern border of UTAH; thence south and east along the western and southern borders of Wyoming and the southernmost border of Nebraska to the 96th meridian; thence north along the 96th meridian to the western border

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ADOPR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

of Iowa; thence along the western borders of Iowa and Minnesota to the U. S. - Canada border. The northern boundary coincides with the U. S. - Canada border.

- (2) 34th Air Division: The western boundary coincides with the WADF-CADF boundary to the U. S. - Mexico border to the 103d meridian; thence north along the 103d meridian to the southern border of Colorado; thence along the southern; eastern and northern borders of Colorado to the Colorado-Utah-Wyoming intersection; west and north along the Utah-Wyoming border to the southern border of Idaho.
- (3) 33d Air Division: The western boundary coincides with the eastern boundary of the 34th Air Division; thence east along the U. S.-Mexico border and the Gulf of Mexico to the western border of the Mississippi; thence north along the western border of Mississippi, Tennessee and Kentucky to the 89th meridian; thence along the 89th meridian to the 39th parallel; thence west along the 39th parallel to the eastern border of Missouri; thence north and west along the Missouri-Illinois and the Missouri-Iowa border to the 96th meridian; thence south along the 96th meridian to the northern border of Kansas; thence west along the northern border of Kansas to the western border of Colorado.
- (4) 31st Air Division: The western boundary coincides with the eastern boundary of the 29th Air Division. The eastern boundary coincides with the EADF-CADF boundary. The northern boundary coincides with the U. S.-Canada boarder. The southern boundary begins at a point 89° W - 39° N; thence west along the 39th parallel to the eastern border of Missouri, thence north and west along the Missouri-Illinois and the Missouri-Iowa border to the 96th meridian.

7. Although the foregoing boundary descriptions terminate at the Canada border, operational considerations indicate the expediency of extending these boundaries across the U. S.-Canada border. Military and political negotiations with Canada will be required to determine the northern termini of the continental air defense boundaries.

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ADOPR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

8. Request your approval of the interim boundary changes described above. Also request that air divisions be designated, by number, for each of the new air defense sectors created by the geographic alignment of the 1955 air defense system.

FOR THE COMMANDING GENERAL:

3 Incls

1. Proposed Air Defense Boundaries, Jan 1953 (dup)
2. 1955 Comd and Opr (dup)
3. Proposed Air Defense Boundaries, 1955 (dup)

ROBERT M. WYENS
Capt, USAF
Ass't Adj. Gen.

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

AFOOP-OP 322

30 OCT 1952

105

SUBJECT: (U) Approval of Seven Air Divisions and Thirty-Five
Mobile Stations

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER	156
X/14	X 228 18 wgt

1. This Headquarters approves your requirements for thirty-five (35) additional mobile radar stations and seven (7) additional Air Divisions.
2. Construction funds for these additional requirements have been replaced in the FY 54 Public Works Program.
3. The additional personnel required for the seven air divisions will be provided, as concurred in by ADC from present ADC manpower allocations.
4. Initially, personnel required for the 35 mobile radar stations will be made available from presently programmed ADC personnel resources. The Director of Manpower and Organization is investigating the possibility of reprogramming personnel for this program in FY 55.
5. Communications and electronics equipment required for the 35 additional stations will be furnished from resources presently available or allocated to your Command.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ J. C. Jensen
/t/ J. C. JENSEN
Colonel, USAF
Chief, Operational Plans Div.
Directorate of Operations

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D. C.

106

13 November 1952

General B. W. Chidlaw
Commanding General
Air Defense Command
Ent Air Force Base, Colorado

FILE NUMBER 406

20

PV

Dear Ben:

Implementation of the best possible ground environment to fit the needs of your planned 1955 air defense system, as expressed in your letter of 13 October, is most assuredly a matter of importance second to none in the Air Force development program.

As members of your Command and immediate Staff are aware, a concerted attempt has recently been made to perform a sufficiently thorough comparative evaluation of known and proposed developmental techniques to define this "best system". While your views are principally shared that the Michigan system appears to show most promise, such view must be qualified by lack of conclusive demonstration to date.

It is now fairly evident that no presently postulated complete air defense environmental system can be realized by 1955. It appears at this point that the essence of The Michigan System, UMM 100, could approximate fulfillment of our requirements, and that it could be implemented operationally by 1955, but it can do so only if it is developed in an evolutionary manner wherein certain of its functional components are fulfilled initially with hardware which can now or in the near future be acquired "off the shelf". Further, a field testing program of contending and controversial system elements is required for final programming decision.

To accomplish this we need your immediate additional help. More detail is necessary on your 1955 plan of centralized control, and I would like to ask that your planners get in touch with Bill Craigie's air defense people as soon as possible and work this out.

Your view that The Lincoln - Whirlwind system effort should be realigned toward an intercontinental ballistic missile threat is not shared by my staff. It is felt that the transition of the enemy threat from manned bombers and air-breathing missiles to ballistic or glide missiles will not be a sudden one, and that it will not have been completed by 1960. Our air defense development program should be accordingly shaped to meet the widely differing requirements of these threats throughout the period of their probable coexistence. At each potential target, point defense systems of the

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order of WIZARD appear to be required for defense against the ballistic missile; a decentralized surveillance system with centralized control of our area defense weapons is the goal for air-breathing targets. The Lincoln - Whirlwind is considered to offer the greatest potential for fulfilling this latter requirement as a successor to your 1955 system.

I feel confident that your environmental problems are fully understood by both the development and operations staff. I am also sure you appreciate that a quick decision has not been possible in translating the requirements for your new operational concept into a well thought out development program. On the other hand, I am assured that this matter can be resolved, with your continued help, within a very short time in such manner that the Air Defense Command has a system capable of rapid evolutionary improvement by 1955.

Sincerely,

s/t/ N.F. TWINING
General, United States Air Force
Vice Chief of Staff

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SECURITY INFORMATION

1 DEC 1952 107

ADOPR 319.1

SUBJECT: (UNCL) Air Defense Integrated System for Surveillance
and Weapon Control (ADIS) Test Sector

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

FILE NUMBER *HQ*
28 *WB*

1. Reference our TWX ADOPR 57747 dated 12 November 1952 and TWX ADOPR 58377 dated 19 November 1952. This letter is a review of the meeting held at Willow Run Research Center, 15 November 1952. Details pertaining to installing and testing ADIS equipment in the 30th Air Division Sector were discussed. Names of representatives attending subject meeting are attached. (Incl 1)

2. The stated purpose of the meeting was to initiate planning between Headquarters ADC, Headquarters EADP, Hq 30th Air Division and Willow Run Research Center for the installation and testing of equipment now being developed for the Air Defense Integrated System for Surveillance and Weapon Control.

3. Background information on the progress of the program was made available to those attending, by the agencies concerned. In summary, the background information included the initial studies of the philosophy of the ACDS, decision of ARDC to develop a system using equipment requiring a minimum of development effort including ACDS components, status of the system development program, need for test sector in vicinity of Willow Run Research Center and the review of the development-production program.

4. Representatives concurred in the following decisions, subject to review of the headquarters concerned:

a. The installation and testing program for ADIS is not to interfere with the assigned air defense mission of the 30th Air Division.

b. Requirements for personnel, equipment and facilities to be used in the testing program will be determined by WRRC acting for Headquarters ARDC.

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ADOHR 319.1 Subj: (Uncl) Air Defense Integrated System for Surveillance
and Weapon Control (ADIS) Test Sector (Cont'd)

c. Air Defense Command will provide right of entry at P-62
for WRRC to erect suitable building to house an experimental ADIS
control room.

d. Access to radar information will be provided to WRRC
experimental sites as required. No modification of ADC radar equip-
ment will be permitted without prior approval of all headquarters
concerned.

e. All operational guidance necessary for system design or
development will be provided by Headquarters Air Defense Command.
Requests for such information from any source will be referred to
Directorate of Plans and Requirements, Headquarters ADC.

f. Headquarters, 30th Air Division is authorized direct
communication with WRRC personnel who are designated as being related
to the ADIS Test Program. Evidence of security clearance will be
established between WRRC and the 30th Air Division.

5. It is requested that all headquarters, units and personnel
be advised of the necessity for providing maximum cooperation with
WRRC personnel. Priority action for all requests pertaining to this
program is requested.

BY COMMAND OF GENERAL CHIDLAW:

1 Incl
List of Repr
at WRRC Meeting

FREDERIC H. SMITH JR.
Major General, USAF
Vice Commander

Info Cy to:
CG, ARDC
CG, RADG
CG, CADF
CG, WADF
WRRC

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FILE NUMBER 228

Set of Ground Rules in Selecting Sites
For Revised Mobile Radar Program

n. d.

108

1. Basically the mobile sites may be divided into two categories:

- a. Those that are part of the double perimeter system.
- b. Those that are not.

2. In general the same criteria that were used in selecting sites under the permanent program may be used in selecting mobile sites in category 1b above. The aim in establishing these sites is to extend the high altitude coverage of the permanent system into target areas not now provided coverage.

3. For those sites that form part of the double perimeter system only a small amount of latitude may be used in selecting a site that is more than 15 or 20 miles from the designated coordinates. Excellent judgment will have to be exercised by the siting teams in each instance. It is the aim of this part of the program to obtain good coverage at all altitudes down to 4-5000' in the double perimeter areas which is 250 miles wide. It is more important that the siting teams have a good understanding of the objectives of this program than it is to establish an inflexible criteria governing the selection of sites.

4. Since funds for accomplishment of this program are limited some operational limitations are acceptable if substantial savings can be effected in selecting the sites provided the objectives of the program are not seriously compromised. For example, it is highly desirable to locate the mobile radars on existing government installations where possible.

5. It is suggested that the siting team select the best site available and then one or two alternate sites that offer the best opportunity for construction and logistical savings, comparing the difference in coverage that can be expected. Decisions can then be made to reconcile the operational requirements against the practical considerations.

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ADOPR

P&R

C&S

FILE NUMBER 228

4 March 1952

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Maj Crispan/ed/341/345

1. In the interest of economy and construction time, a policy decision has been made at this headquarters to locate as many mobile radar sites as possible on established federal installations.
2. A preliminary study by this directorate has determined that approximately 19 of the 44 mobile site locations could be established at Air Force, Army, or Navy facilities. The radar coverage provided by these 19 sites should not be materially effected. For the most part these sites are in support of SAC bases and not a part of the double perimeter system.
3. Substantial saving should be realized in construction of access roads, communications, utilities systems, and general support if existing facilities are used.
4. The attached list indicates the 19 installations that should be surveyed for mobile radar sites as compared to the locations listed in the published mobile program.
5. The siting teams should be advised of this development. The technical experience in these siting teams will be of great value in determining the adequacy of using these established facilities instead of building complete new sites.
6. This change in location of 19 mobile radar sites will be reflected in the Mobile Radar and Radar Extension Program Chart published monthly by this directorate.

CHARLES W. KING
Colonel, USAF
Chief, Plans Division
Ext. 341/345

EDWARD A. HERBES
Colonel, USAF
Director, P&R

1 Incl
New Mobile Program

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SECRET SECURITY INFORMATION

NEW LOCATIONS FOR 19 MOBILE RADAR SITES

1. Request appropriate substitutions be made for the following sites:

<u>SITE NO.</u>	<u>NEW LOCATION</u>	<u>OLD LOCATION</u>
M-88	Amarillo AFB, Texas	Amarillo, Texas
M-89	Abilene Mun. Apt(Army, Texas	Stanford, Texas
M-90	Walker AFB, N. M.	Walker AFB, N. M.
M-92	Davis-Monthan AFB, Ariz.	Davis Monthan, Ariz.
M-94	Kirtland AFB, N.M.	Kirtland N. M.
M-96	Luke AFB, Ariz.	Gila Bend, Ariz.
M-97	Rapid City AFB, S.D.	Rapid City, S.D.
M-110	Dow AFB, Mo.	Corree, Mo.
M-111	Camp Williams, Wisc.	Sparta, Wisc.
M-112	Hunter AFB, Ga.	Savannah Beach, Ga.
M-113	Charleston Naval Ship Yard, S.C.	Bull Island, S.C.
M-122	Des Moines Man (N.O.), Iowa	Des Moines, Iowa
M-124	Pope AFB, N.C.	Lemon Springs, N.C.
M-125	Alexandria Man (AF)	Jena, La.
M-126	Houma Naval Air Station, La	Pilstown, La.
M-128	Kingman AFB (Inactive)	Kingman, Ariz.
M-129	MacDill AFB, Fla.	MacDill AFB, Fla.
M-130	Patrick AFB, Fla.	Cansveral, Fla.
M-131	Clinton Co AFB, Ohio	Cherry Park, Ohio

2. It will be noted that several of these sites have had siting reports submitted. In those instances where the site chosen was in the vicinity of the base, and not on the base, the siting team should make a determined efforts to relocate the site on the base or adjacent thereto in order to effect a substantial saving from construction costs.

Incl #1

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D/CSE

PER

6 March 1952
W/C RHTrepanier/hb/ext 410
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1. Adequate instructions will be incorporated in our directives to the Air Defense Forces on the siting of the nineteen (19) mobile sites referred to in Comment No. 1.

2. Reference Par 2 of inclosure. This should be referred to ADMIS, inasmuch as that directorate has already requested Air Defense Forces to prepare appropriate real estate planning reports on those sites which have already been approved by this headquarters.

R.H. TREPANIER
W/C, RCAP
Chief, Elect Sys Div
Ext 410 - 411

HASSELL E. NEAL
Colonel, USAF
Dir of Comm and Elect
Ext 228 - 229

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ADOPR 381

110

SUBJECT: (Restricted) Mobile Radar Program (1st Phase,

11 Sep 1952

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D.C.

FILE NUMBER 228

1. First Indorsement, ADOPR-2 381, Hq USAF, 21 Mar 52, to letter ADOPR 381, this headquarters, 16 Jan 52, subject: Mobile Radar Programs approved the current mobile plan whereby the 44 sites were relocated to counter the capability of the enemy to penetrate and Attack the United States at low altitude. This repositioning was based on existing radar coverage reports and the most recent Rand and Weapon System Evaluation Group studies that recommended the double perimeter concept of air defense.

2. Further study of this concept and the development of the Multiple Corridor Identification system dictates the relocation of three of these mobile sites as follows:

Site No.	Old Location	New Location	
M-130	Patrick AFB, Fla.	Elkin, N. C.	36°12'N 80°50'W
M-101	Massena, N.Y.	Rochester, Wisc.	44°04'N 92°33'W
M-131	Clinton County AFB, Ohio	Salt Lick, Ohio	38°05'N 83°35'N

3. Arrangements will be made with the Air Force Missile Test Center to utilize their radar at Patrick Air Force Base, which will obviate the requirement for an Air Defense Command station in that vicinity. These new locations will provide increased coverage in the double perimeter area and will be consistent with the Multiple Corridor Identification system when approved.

4. Your concurrence is urgently requested so siting surveys may be initiated at an early date.

FOR THE COMMANDING GENERAL:

Maj M F Crispin/rg
341/345
Sep 52

THOMAS G. SAVAGE
Major USAF
Asst Adj Gen

110

SECRET - SECURITY INFORMATION

0556

ADOPR 381

19
10 DEC 1952

SUBJECT: (Unclassified) New Locations for Eight AC&W Installations

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

III

1. Reference letter this headquarters, ADOOT-C 676.3, subject, (Unclassified) Functions of AC&W system, 1 December 1952.

2. Due to the results of the site survey reports of the First Phase Mobile Radar Program, the requirement for radar coverage in the vicinity of the H-Bomb installation in South Carolina, and the reprogramming of fighters into Great Falls Air Force Base, Montana, the following changes in AC&W locations and functions are forwarded for your information and consideration.

M-100. New location, Mt Hebo, Oregon; function, surveillance and limited low level control between P-12 and P-57 and in valley behind coastal range. Cross-tell to P-12. P-57 and P-32, report to Control Center. Programmed TPS-1D, TPS-10D with back-up TPS-1D. Air/Ground communication required. Personnel approximately 11 Officers and 92 Airmen.

M-118. New location, Hampton, Oregon (old SM-148). Information pertaining to old SM-148 will apply except station will cross-tell to P-32, M-123, SM-149.

M-123. New location Ft. Bidwell, California (old SM-159). Information pertaining to old SM-159 will apply to this site except cross-tell to P-33, M-118 and M-127.

SM-147. New location Great Falls, Montana, identification now, not later, scramble fighters at Great Falls when operational, surveillance and limited control and in Great Falls area. Cross-tell to P-24, P-25, M-98 and Helena Filter Center. Reports to combat center. Programmed equipment MPS-11, MPS-8 primary with TPS-1D and MPS-8 back-up Air/Ground communication required, no passive detection. Personnel approximately 12 officers and 109 airmen.

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0557

ADOPT 381 Subject: (Unclassified) New locations for Eight AC&W Installations

SM-148. New location Valdosta, Georgia, identification later, not now, no scramble, surveillance on southern approaches to H-Bomb installation. Cross-tell to M-114 and SM-166 and M-129. Report to combat center. Programmed equipment TFS-1D with TFS-1D back-up. Personnel approximately 6 officers and 76 airmen.

SM-159. New location, Augusta, Georgia, identification later, not now. Scrambles augmentation fighters at Shaw Air Force Base. Surveillance and control over critical target area. Cross-tell to M-112, M-113, M-115, M-130, SM-165, SM-166 and Charlotte filter center. Reports to combat center. Programmed equipment MPS-7, MPS-14, back-up TFS-1D, MPS-8. Air/Ground communication required, no passive detection. Approximate personnel 12 officers and 109 airmen.

SM-165. New location Atlanta, Georgia, identification later, not now. Surveillance and limited control on western approach to critical target area. Cross-tell to P-42, SM-159, SM-166 and Atlanta filter center. Reports to combat center. Programmed equipment MPS-11, MPS-8, TFS-1D, MPS-8. Air/Ground communication required. Approximate personnel 12 officers 109 airmen.

SM-166. New location Oglethorpe, Georgia, identification later, not now, scrambles augmentation fighters at Turner AFB. Surveillance and limited control on western approaches to critical area. Cross-tell to SM-165, SM-148, SM-159. Reports to combat center. Programmed equipment MPS-11, MPS-8, TFS-1D, MPS-8. Air/Ground communication required. Approximate personnel 12 officers and 109 airmen.

3. These relocations will also cause certain circuitry changes affecting adjacent installations and should be considered during your review of the study.

BY COMMAND OF GENERAL CHIDLAW:

THOMAS C. SAVAGE
Major, USAF
Asst. Adj Gen.

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ADOCE-E 676.3

9 Dec 1952

SUBJECT: (Secret) Siting Surveys for Radar Sites, First Phase
Mobile Program

112

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 228

1. Reference: ADC Letter ADOCE-E 676.3, 28 March 1952, subject: (Restricted) Site Survey, Revised Mobile Radar Plan.
2. Locations for First Phase Mobile Radar Sites M-118 and M-123 have been finalized. It is requested that action be expedited to obtain necessary information and forward siting reports in six (6) copies on these two locations.
3. Locations and functions are as follows:
 - a. M-118--Hampton, Oregon, 43°34' N, 120°03' W. This station will be an outer perimeter direction center providing control and surveillance on southern approaches to Seattle target areas. Low-flying aircraft are of concern. Coverage of 360° is desired, with primary area of interest to the southeast. Equipment tentatively programmed are radar sets AN/FPS-3, AN/MPS-14 with AN/TPS-1D and AN/MPS-8 as back-up. Complement of personnel is approximately six (6) officers and seventy-six (76) airmen.
 - b. M-123--Ft. Bidwell, California, 41°51' N, 120°13' W. This station is a direction center providing control and surveillance on eastern approaches to West Coast target areas. Low-flying aircraft are of concern. This site lies between the northwest double perimeter and the San Francisco double perimeter and will become an outer perimeter station when the West Coast double perimeters are connected. Coverage of 360° is desired, with primary area of interest to the east. The following equipment is planned: AN/MPS-11, AN/MPS-8, AN/TPS-1D, and MPS-8. The complement of personnel is six (6) officers and seventy-six (76) airmen.

BY COMMAND OF GENERAL CHIDLAW:

LtColELBurge/fo
411
8 Dec 52

ROBERT M WYNENS
Capt USAF
Asst Adj. Gen.

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HQ ADC ENT AFB COLORADO SPRINGS COLO
DIE OF OPP HQ USAF WASHINGTON

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1 DEC 1952 AFOOP-OP 52447 SECRET

ADOFR 2461. Urmag AFOOP-OP 52447 and conf uour Hq 19 Nov
Maj Flaherty, Hq USAF, and Maj Crispen, Hq ADC. Site M-118 will not be
constructed. This Hq will take the calculated risk of low level
penetration thro this area until auto type radar vecome aval. A new loc
for this instl is under study by this Hq and when firm w/b fwd to you for
appr. This Hq is inves the possibility of Exch of radars w/ATRC to
obtain FFS-3 for M-127. Site surv rept for this sta is firm except for
type radar. As agreed during the conf the same type opr bldgs as were
programmed should Be constructed at those sites where light equip was
subt for hv equip. This Hq will fwd definitive dwg for "Small" opr
bldgs for sites where no contonment area is programmed as soon as USAF
policy in this regard is obtained.

CG ADC

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ADOPR 381

20 SEP 1952

SUBJECT: (Restricted) Mobile Radar Program (1st Phase)

TO: Director of Operations
Headquarters USAF
ATTN: Commitments Branch
Washington 25, D. C.

114 28 ✓

1. The following programming information concerning the 44 sites in the (1st Phase) Mobile Radar Program is forwarded as requested by Colonel Chitty, your headquarters. This information is based on the siting survey reports that have been received and the estimated time necessary to construct the sites.

AC&W SQ	When & Where Activated	When Moved	Move To
134	Now - Geiger AFB, Wash.	Mar 53	M-88 Amarillo, Tex
144	Now - Geiger AFB, Wash.	Mar 53	M-89 Abilene Apt, Tex.
120	Now - Walker AFB, N. M.	On sta	M-90 On sta
119	Now - Otis AFB, Mass.	Apr 53	M-91 Texarkana, Ark.
145	Now - Geiger AFB, Wash.	Mar 53	M-92 Davis-Monthan AFB, Ariz
904	Mar 53 - Geiger AFB, Wash.	Apr 53	M-93 Winslow, Ariz.
135	Now - Kirtland AFB, N. M.	On sta	M-94 on Sta
146	Now - Geiger AFB, Wash.	Mar 53	Las Cruces, N. M.
115	Now - Geiger AFB, Wash.	Mar 53	M-96 Luke AFB, N. M.
138	Now - Rapid City AFB, S. D.	On sta	M-97 On sta
902	May 53 - Geiger AFB, WASH.	Jun 53	M-98 Miles City, Mont.
903	May 53 - Geiger AFB, Wash.	Jun 53	M-99 Gettysburg, S. D.
136	Now - Portland Int., Ore	Jun 53	M-100 Neotsa, Ore.
808	May 53 - Grenier AFB, N. H.	Jun 53	M-101 Rochester, Minn.
672	Jun 53 - Grenier AFB, N. H. Undetermined	Undetermined	M-102 Tronton, Ont., Canada
911	May 53 - Grenier AFB, N. H.	Jan 53	M-103 Berlin, N. H.
909	June 53 - Grenier AFB N. H. Undetermined	Undetermined	M-104 Warton, Ont., Canada
127	Now - Ft. Williams, Me.	May 53	M-105 Alpena, Mich.
115	Now - Grenier AFB, N. H.	Apr 53	M-106 Manitowoc, Wisc.
910	Jun 53 - Grenier AFB, N. H. Undetermined	Undetermined	M-107 Suttan, Ont., Canada
905	Jun 53 - Grenier AFB, N. H. Undetermined	Undetermined	M-108 Mattawa, Ont., Canada
906	Jun 53 - Grenier AFB, N. H.	Jul 53	M-109 Mansing, Mich.

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ADOPR 381 Subject: (Restricted) Mobile Radar Program (1st Phase)

AC&W SQ	When & Where Activated	When Moved	Moved To
907	May 53 - Grenier AFB, N. H.	Jun 53	M-110 Corea, Maine
904	Apr 53 - Grenier AFB, N. H.	May 53	M-111 Camp Williams, Wisc.
112	Now - Grenier AFB, N. H.	Feb 53	M-112 Savannah, Ga.
125	Now - Ft Ethan Allen, Vt.	Apr 53	M-113 Charleston, S. C.
128	Now - Dow AFB, Maine	Feb 53	M-114 Mayport, Fla.
111	Now - Grenier AFB, N. H.	Apr 53	M-115 Carolina Beach, N. C.
614	Now - Grenier AFB, N. H.	May 53	M-116 Gullrock, N. C.
632	Apr 53 - Grenier AFB, N. H.	May 53	M-117 Roanoke Rapids, N. C.
634	Jun 53 - Geiger AFB, Wash.	Undetermined	M-118 Diablo, Wash.
639	Jun 53 - Grenier AFB, N. H.	Undetermined	M-119 Fire River, Ont., Canada
645	Jun 53 - Grenier AFB, N. H.	Undetermined	M-120 Peninsula, Ont., Canada
649	May 53 - Grenier AFB, N. H.	Jun 53	M-121 Sedalia, Va.
650	Apr 53 - Grenier AFB, N. H.	May 53	M-122 Des Moines Mun, Ia.
651	May 53 - Geiger AFB, WASH.	Jun 53	M-123 Vida, Ore.
652	Apr 53 - Grenier AFB, N. H.	May 53	M-124 Pope AFB, N. C.
653	Apr 53 - Grenier AFB, N. H.	May 53	M-125 Alexandria AFB, Ia.
657	Apr 53 - Grenier AFB, N. H.	May 53	M-126 Bowers Naval Air Sta., Ia.
658	Jun 53 - Geiger AFB, Wash.	Aug 53	M-127 Flanigan, Nev.
659	May - Geiger AFB, Wash.	Jul 53	M-128 Kingman, Ariz.
660	Mar - Grenier AFB, N. H.	Apr 53	M-129 MacDill AFB, Fla.
810	Jun 53 - Grenier AFB, N. H.	Jul 53	M-130 Elkin, N. C.
809	Jun 53 - Grenier AFB, N. H.	Jul 53	M-131 Salt Lick, Ky.

2. At the present time, it is impossible to estimate the beneficial occupancy dates for the six Canadian sites in this program, however, the units should be activated during FY 1953 as indicated in Para 1 above.

3. The siting survey report for M-118 at Diablo, Wash., has been reviewed by this headquarters and was disapproved due to excessive cost of the proposed installation. This report is being returned to WADF for further action.

FOR THE COMMANDING GENERAL:

THOMAS C. SAVAGE
Major, USAF
Asst Adj Gen.

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HQ ADC ENT AFB COLORADO SPRINGS COLORADO

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PRIORITY

DIR OF COM: HQ USAF WASHINGTON 25 DC

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MAY 21 1952
XCG WESTERN ADF HAMILTON AFB HAMILTON CALIF
CG EASTERN ADF STEWART AFB NEW YORK
CG CENTRAL ADF 1209 WALNUT ST KANSAS CITY MO

FILE NUMBER 228

ADOCE-C 1404. Ref ltr from Chief of Engineers to Southwest
Div Engineer, Dallas, Texas (probably sent all other Div Engineers also),
subject: Requirement for Procurement of Pre Fab Structures for Semi
Fixed Mobile Sites ZI dated 8 April 52. Cited ltr states conference held
with Hq USAF 20 March deletes requirement for remote ltr and rcvr
buildings for Mobile Radar Plan. Req confirmation and if correct, req
info as to what provisions have been made to house VHF and UHF nets (4
each at EW, 8 each at GCI and 12 each at Direction Center), multi channel
microwave for primary point-to-point comm and probably high freq rcv
sets for point-to-point backup. Original mobile plan provided for Pre
Fab xctr and rcvr buildings, hence, Chief Engineer ltr causing confusion
between ADC, AXC and Engineer pers presently conducting site surveys.
Progress on surveys being delayed pending clarification this situation.
Req expeditious reply.

CG ADC

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COPY

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D. C.

116

AFOAL-CQ/S

23 Sep 1952

SUBJECT: Procurement of Prefabs for Mobile Radar Sites

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

FILE NUMBER

228

1. Construction funds in the amount of \$2,702,000 for subject requirement are programmed to Air Material Command in accordance with Inclosure #1.
2. The following facilities have been requested to be procured by Air Material Command with above funds:

<u>20' x 48' Prefab Structures, complete with flooring and wiring kits</u>	1040 Units @ \$2,000	\$2,080,000
<u>40' x 100' Prefab Structures, complete with wiring kits only</u>	132 Units @ \$4,000	528,000
<u>75,000 BTU-Oil Unit Heaters</u>	1040 Units @ \$75	78,000
<u>100,000 BTU-Oil Unit Heaters</u>	132 Units @ \$100	13,200
		<hr/> \$2,699,200

3. The type of prefab structures requested have been specified to be in accordance with the latest Air Force standard specifications for straight side wall type prefab structures.
4. The type of unit heaters requested have been specified to be the free standing oil heater recently standardized for Air Force use.

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0 5 6 4

SUBJECT: Procurement of Prefabs for Mobile Radar Sites

5. It is anticipated that at least three (3) months will elapse before first shipment of prefab structures and unit heaters will be made. In order to facilitate such shipments, it is requested that a list of railheads by priority be forwarded to this headquarters as soon as the locations of the mobile sites are fixed by current siting action.

BY COMMAND OF THE CHIEF OF STAFF:

1 Encl
Cty ltr to AMC fr
Hq USAF, 28 Aug 52

/Signed/
WILLIAM E. LEONARD
Colonel, USAF
Chief, Constr. Division
Directorate of Installations, DGS/O

Hq USAF, AFQAL-CG/S, Subject: Procurement of Prefabs for Mobile Radar Sites

ADMS 132.2 (23 Sep 52)

1st Incl

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Installations, Headquarters USAF, Washington 25, D. C.

1. The site survey reports submitted to your headquarters for 22 mobile radar sites contain the exact location where the sites will be constructed and also the location of the nearest city or town and railhead.
2. It is not believed advisable for this headquarters to establish a priority for shipment of prefabricated units and space heaters since OCE has estimated 90 days for designing and lease planning and three to five months for construction. It is, therefore, requested that OCE establish through the District Engineers the railhead priority for delivery of prefab units and space heaters. Procedure for this arrangement can be issued to OCE concurrently with instructions issued for the development of site plans, design and lease planning. This will result in completing M-sites at the earliest possible date and leave OCE enough latitude to regulate their work loads, as fast as site locations become firm and approved by your headquarters.
3. Survey reports for the remaining M-sites will be submitted as expeditiously as possible. It is requested that the procedure specified in paragraph 2 above for establishing railhead priorities be followed as these site reports are approved by your headquarters.

FOR THE COMMANDING GENERAL:

1 Incl:

w/d Incl 1 to Incl 1

18 June 1952

MEMORANDUM TO: Colonel H. E. Neal

SUBJECT: Revised "M" Plan

117 228

1. References:

- a. Letter Hq USAF to Chief of Engineers, 12 Mar 52, file AFOAI-CO/S, subject: "Movable Radar 'M' Sites in the ZI (Unclassified).
- b. Letter Hq ADC to USAF, 18 Jan 52, file ADOFR 381, subject: "Mobile Radar Program", and 1st and 2d Inds. thereto, 21 March 52 and 29 April 52, respectively.
- c. Letter Hq ADC to all three Air Defense Forces, 25 Mar 52, file ADOCE-E 676.3, subject: (Restricted) Site Surveys, Revised Mobile Radar Plan.
- d. Letter Hq ADC to all three Air Defense Forces, 7 May 52, file ADOCE-E 676.3, subject: "(Restricted) Site Surveys, Revised Mobile Radar Plan".
- e. Letter Hq ADC to USAF, 7 May 52, file ADOCE-E 413.44, subject: "(Restricted) Radar Equipment, Revised 'M' Program".
- f. Letter Hq USAF to Chief of Engineers, file AFOAI-CO/S 11 Apr 52, subject: "(Unclassified) Mobile Radar ('M') Program in ZI".

2. Information provided by USAF on the communications and electronics aspects of the "M" program is not considered detailed and accurate enough to permit this headquarters to carry out its planning. In some cases, the information provided by AFROP is in direct conflict with correspondence emanating from AFOAI to the Chief of Engineers.

3. As an example of the above, paragraph 11 of reference 1.a indicates that radar and height-finding towers which entail tower foundations are to be provided for as an interim measure. This is also confirmed in paragraphs 7 and 8 of the 1st Ind to basic letter under reference b. Based on this information, the Air Defense Forces were advised through the medium of references c and d to consider requirements for radar towers at each site; additionally, our 3d Ind to basic letter to USAF, at reference b, outlines our tentative requirements for radar towers.

4. On the other hand, paragraph 2.b of reference f, addressed to Chief of Engineers, advises that no radar or height finder tower foundations are required, since radar equipment will be mounted on semi-trailers

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Memo to Col Neal, 18 Jun 52 (Contd)

and that wood cribbings are to be erected as an interim measure.

5. In addition to the above, the following points require to be clarified:

a. What type of radar equipment is being programmed for the "M" Plan; complete details necessary in order to finalize operations building layout. This was requested from USAF under reference e, with no reply received to date.

b. Are Jamesway huts to be provided in lieu of Tx Rx buildings for the TFS-1D sites?

c. Paragraph 2.h of reference "f" mentions microwave and its locations in operations building. Is it USAF's policy to provide microwave for each site? If so, details on equipment and availability date required for location in operations buildings is strongly questioned in view of the proximity of radar equipment; or is communication to be provided by the most economical means based on actual surveys?

d. Type of VHF/UHF A/GIA needs to be outlined.

e. Type of stations in "M" plan require to be defined (P&R).

f. Is HF back a requirement? (O&T)

g. Communications requirements for each site must be finalized as soon as possible (O&T).

6. It can be seen from the above that a considerable amount of work requires to be done in order to get this plan in the implementation stage. In this connection, the following course of action is recommended:

a. Letter should be sent to USAF pointing out existing discrepancies and requesting detailed information on all aspects of this program. The need for coordination on all matters pertaining to this program should also be emphasized.

b. P&R to publish planning directive to cover such matters as objectives of plan and responsibilities of each directorate in connection with the implementation of this plan, etc.

c. Appointment of project coordinator through which all matters pertaining to "M" plan could be cleared.

7. Request guidance on the above.

R. H. TREPANIER
W/C, RCAF
Chief, Elect Sys Div

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DC&E-E

Mobile Radar Program

P&R
Installations
Log Plans3 July 1952
LtCol Lafrenz/hb/410
1

1. In an attempt to resolve the numerous conflicting facts on the Mobile Radar Program which have been received in various letters from Headquarters USAF, a representative of this Directorate recently visited that Headquarters. The data obtained during this visit is submitted for your information and guidance.

2. The equipment to be provided for this Program and the estimated dates of availability are indicated in Inclosure 1.

3. MPS-7s, MPS-8s and MPS-14s will be delivered with antenna trailers; TPS-1Ds and TPS-10Ds with tripod mounts. Antenna trailers will be available when the radar is available. No towers or trucks will be provided for the radar equipment for "M" sites.

4. Radomes will not be provided at this time. When suitable "ground-mounted radomes are available (not before 1956 at earliest), they will be provided.

5. Each MPS-7 will include 2 Jamesways (24' x 32'). USAF wants these used for TX and RX buildings. ADC can have the Jamesways before the MPS-7 equipment is available. USAF will procure 20' x 48' pre-fabs and the OCE will procure 40' x 10' pre-fabs. USAF has some 20' x 48' on hand now that probably will be made available to ADC.

6. USAF is not planning to provide any VHF air/ground equipment for "M" site. UHF equipment has been programmed for "M" sites as follows:

	<u>EW</u>	<u>GGI</u>	<u>ADDC</u>
GRC-32	5	8	8
MRC-21	5	8	8
MRT-()	1	1	1

A request for change in the above program has been forwarded to USAF.

	<u>EW</u>	<u>GGI</u>	<u>ADDC</u>
GRC-27	3	6	9
GRR-7	2	4	6
GRT-3	2	4	6

7. Microwave equipment, where used, does not have to be placed in the Ops building. No decision has been made yet as to the type of equipment to be procured. The earliest that it is estimated that microwave equipment could be procured is some eighteen (18) months from the time a contract is let.

R.H. TREPANIER
W/C, RCAF
Chief, Elect Sys Div
Ext 410 - 411

HASKELL E. NEAL
Colonel, USAF
Dir of Comm and Elect
Ext. 228 -229

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TYPE V STATION (18)

<u>FUNCTION</u>	<u>TYPE EQUIPMENT</u>	<u>ESTIMATED DATE OF AVAILABILITY</u>	<u>INDICATORS</u>
Primary Search	AN/MPS-11	2d Quarter FY-54	5 12-inch PPI
Standby Search	AN/TPS-1D	2d Quarter FY-53	1 7-inch and 1 12-inch PPI
*Primary Height	AN/MPS-8	4th Quarter FY-53	1 RHI
Standby Height	AN/TPS-10D*	2d Quarter FY-54	1 RHI
Changed to TPS-10D			
*See incl to R&R dtd 21 Apr 52			

TYPE VI AND VII STATIONS (26)

<u>FUNCTION</u>	<u>TYPE EQUIPMENT</u>	<u>ESTIMATED DATE OF AVAILABILITY</u>	<u>INDICATORS</u>
Primary Search	AN/MPS-7	3d Quarter FY-53	7 12-inch PPI
Standby Search	AN/TPS-1D	2d Quarter FY-54	1 7-inch and 1 12-inch PPI
Primary Height	AN/MPS-14*	3d Quarter FY-53	1 RHI
Standby Height	AN/MPS-8**	4th Quarter FY-53	1 RHI

* Equipment programmed but not yet allocated.

** AN/TPS-10D allocated for present

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FILE NUMBER 228

119

MEMORANDUM TO: File

SUBJECT: RESULTS OF TDY TO WASHINGTON

30 June 1952

1. The following information was obtained during a trip to Headquarters USAF on 24-26 June 1952:

a. Air Training Command had been told that ADC officers going to the "ECM short course" would be returned to ADC. (Incl 1)

- (1) Form 126s for all ADC officers going to this course are marked to indicate that they should be returned to ADC.
- (2) TWX was sent to Air Training Command instructing them to assign Captain Clancy to EADF (Incl 2)

b. The following equipment has been programmed for the "M" Program:

Type V Stations (18) - Primary Search MPS-11
Back-up Search TPS-1D
Primary Height MPS-8
Back-up Height TPS-10D*

Type VI and VII Stations (26) - Primary Search MPS-7
Back-up Search TPS-1D
Primary Height MPS-14*
Back-up Height MPS-8**

*Equipment not yet allocated.

**TPS-10Ds allocated for present. Probably will not be replaced by MPS-8s.

- (1) Availability dates for TPS-1Ds will be two months behind dates indicated by USAF in their indorsement to our 7 May letter.
- (2) Estimated date of availability for MPS-8 is 4th Quarter of FY-53.
- (3) MPS-7s, MPS-8s and MPS-14s will be delivered with antenna trailers; TPS-1Ds and TPS-10Ds with tripod mounts. Antenna trailers will be available when radar is available.
- (4) Radomes will not be provided. At such time as suitable "ground-mounted" radomes are available (not before 1956 at earliest) they will be provided.
- (5) Each MPS-7 will include 2 Jamesways (24' x 32'). USAF wants these used for TX and RX buildings. ADC can have the Jamesways before the MPS-7 equipment is available.

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- (6) USAF will procure 20' x 48' pre-fabs and the OCE will procure 40' x 100' pre-fabs. USAF has some 20' x 48' on hand now that can probably be made available to ADC.
- (7) GTA-6s will not be provided with TPS-1D. 44 GTA-6s air on procurement for mobile stations. If GTA-6s are not ready in time, there are enough AN/TTQ on hand for initial requirements.

c. UHF equipment is programed for ADC as follows:

	<u>AC&W Sqn (Mobile) - 44</u>		
	<u>GCI</u>	<u>EW</u>	<u>ADCC</u>
GRC-32	8	5	8
MRC-21	8	5	8
(TRC-32)			
MRT- ()	1	1	1

	<u>AC&W Sqn (Fixed) - 75</u>			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
GRT-3	2	4	6	15
GFR-7	2	4	6	15
GRC-27	3	6	9	**

d. USAF had no info on VHF for "M" stations. They indicated that it was unlikely that any equipment could be made available to ADC.

e. USAF has agreement with Bell that ADC can tie-in microwave equipment where "truly" mobile installations are made. Otherwise Bell wants to put in the facilities. (My impression is that USAF will lean over backwards to keep Bell happy in this respect.)

- (1) Microwave equipment does not have to be placed in Ops building. No one seems to know where this idea started.
- (2) Where microwave is used, USAF will be responsible for maintenance of both ends. Bell will just provide the terminal.
- (3) No decision has been made yet as to type of equipment to be procured. AFOAC wants us to review the PCA proposal for microwave equipment for this purpose and give them our comments ASAP (Incl 3). This equipment can supposedly be procured in some 18 months.
- (4) Comm. Division people in USAF suggested that primary consideration be given to microwave in cases where cost for entrance facilities is high.

f. "M" site projects will eventually be picked up under 100-46. In the meantime, they should be processed without regard to project procedures.

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g. Contract was let in February 1952 for scopes for the FPS-10. Delivery is expected to start about December 1952.

h. Present planning is that contract will be let in July for additional scopes for the FPS-3. These will be the AN/UPA-35. Expected lead-time is about 21 months.

i. 101 UFX-4s are being procured and evaluation of this set is now underway. ADC will probably get all 101 sets.

j. Letter from USAF is in process of being cleared now approving the microwave augmentation for North Truro. Letter may come to ADC thru AMC.

k. REP financing and arrangements for circuit ordering are covered in USAF letter, subject "Land Line Responsibilities in support of 'Operation Pinetree'", dated 19 June 1952. The Division of costs has been agreed upon, and USAF now has to re-program to make the necessary money available.

WILLIAM A LAFFENZ
Lt Col, USAF

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ADOCE-E 676.3

10 Jul 1952

SUBJECT: (Restricted) Site Surveys, Revised Mobile Radar Program

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 120

1. References:

- a. Letter this Headquarters, file ADOCE-E 676.3, subject: "(Restricted) Site Surveys, Revised Mobile Radar Plan," 28 March 1952.
- b. Letter this Headquarters, file ADOCE-E 676.3, subject: "(Restricted) Site Surveys, Revised Mobile Radar Plan," 7 May 1952
- c. Letter this Headquarters, file ADMIS 600.1, subject: "(unclassified) Mobile Radar ('M') Program in ZI," 27 June 1952.

2. The following modifying information of the Mobile Radar Program is forwarded for your information and guidance:

- a. The equipment to be provided for this Program and the estimated dates of availability are indicated in Inclosure 1.
- b. MPS-7s, MPS-8s, and MPS-14s will be delivered with antenna trailers; TPS-1Ds and TPS-1ODs with tripod mounts. Antenna trailers are expected to be available at the same time as the basic radar equipment. No towers or trucks will be provided for the radar equipment for "M" sites.
- c. Radomes will not be provided at this time. When suitable "ground-mounted" radomes are available (not before 1956 at earliest), they will be provided.
- d. Microwave equipment, where used, does not have to be placed in the Operations building, as stipulated in correspondence referenced in paragraph 1c above. Policy concerning use of government-owned microwave has not been resolved to date.
- e. Two (2) Jamesways (24' x 32') will be provided with each MPS-7. These Jamesways are to be used for transmitter and receiver buildings at Types VI and VII stations.

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Ltr Hq WADF, ADOCE-E 676.3 Subject: (Restricted) Site Surveys, Revised Mobile Radar Program (Contd)

3. The information contained in Inclosure 8 to the letter referenced in paragraph 1a above and in Inclosure 1 to the letter referenced in paragraph 1c above, as modified by the information in the preceding paragraph, should be taken into consideration in the preparation of all siting reports submitted for "M" sites.

a. The following changes should be made in the Radar Siting Report:

- (1) Paragraphs IVA1b and IVA2c to read, "Height mound required _____ ft."
- (2) Omit paragraph IVA1c.

b. Site layouts should indicate the location of primary and standby search and height-finding equipment. Special care should be taken to assure that sufficient area is provided to accommodate the earth mounds necessary to attain the required elevation for the radar antennas.

c. Site layouts should also indicate all proposed building locations.

4. Siting reports for M-95 and 96 are being retrained for correction in accordance with the information contained in the preceding paragraphs. The resubmission of these reports should be expedited so that the implementation of the "M" Program can be started as soon as possible.

a. Necessary adjustments in the cost estimates should be made wherever necessary to reflect the costs of providing earth mounds, additions or deletions of structures, relocation of latrine facilities, and other construction costs relating to changed requirements contained in correspondence cited above.

b. Site plans should be revised where necessary to reflect space requirements for construction of earth mounds, without interference with nearby structures.

c. Theoretical coverage at 5000 feet should be indicated on all reports.

5. It is desired that complete siting reports be submitted on all of the Mobile Program sites as listed in the inclosure to our letter of 7 May 1952, subject: "(Restricted) Site Surveys, Revised Mobile Radar Plan." In cases where your command does not consider that the selected site will be feasible or provide the desired coverage, an additional

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Ltr Hq WADF, ADOCE-E 676.3 Subject: (Restricted) Site Surveys, Revised Mobile Radar Program (Contd)

siting report for an alternate site should be submitted. This Headquarters will then make the final determination of the site locations to be recommended to USAF, based on such factors as resultant coverage, cost of installation, construction time, and correlation with related plans under consideration at the time.

BY COMMAND OF GENERAL CHIDLAW:

2 Incls

1. "M" Plan Radar Equipment List (dup)
2. Siting Reports for M-95 (5 cys) and M-96 (6 cys)

THOMAS C. SAVAGE
Major USAF
Asst. Adj. Gen.

IDENTICAL LETTERS TO CG's EADF & CADF - with the exception of the M-site numbers listed in paragraph 4 and in Inclosure 2

EADF - M-101, 105 and 109
CADF - M-86, 89, 91, 97, and 98) 6 cys of each siting report

Inclosures not reqd for AG file

W. A. LAFRENZ
Lt Col, USAF

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SECRET SECURITY INFORMATION

ADMIS 676.3

24 Jul 1952

SUBJECT: (Unclassified) ADC Implementation of Mobile Radar Program.

TO: Director of Installations
 Headquarters United States Air Force
 ATTN: Lt Col Swanks
 Washington 25, D.C.

FILE 121 228

1. Reference is made to verbal request Lt Col Swanks-Col W.K. Kelley, for information regarding implementation of the Installations phase of the Mobile Radar Program of this command. In response to cited request, there are inclosed copies of the following correspondence from this Headquarters:

a. Incl 1, Letter ADOCE-E 676.3, 28 March 52, (Restricted) Site Surveys, Revised Mobile Radar Plan", with Incl 2, 4 and 5 thereto.

b. Incl 2, Classified List of 26 March 52, showing priority, site number, and location of the Mobile Radar Sites. Attention is invited to the notation thereon that site locations are tentative until approval of Site Survey Reports. This list was disseminated to the Air Defense Forces of this Command as Incl 1 to letter referred to in sub paragraph e below.

c. Incl 3, Letter ADOCE-E 676.3, 7 May 52, "(Restricted) Site Surveys, Revised Mobile Radar Plan".

d. Incl 4, Letter ADMIS 600.1, 27 June 52, "(Unclassified) Mobile Radar (WM) Program in Z.I.".

e. Incl 5, Letter ADOCE-E 676.3 10 July 52, "(Restricted) Site Surveys, Revised Mobile Radar Program", with Incl 1 thereto.

f. Incl 6, Letter ADMIS 600.1, 17 July 52, "(Unclassified) Revisions to Layout Plan, Mobile Radar Sites", (Information copy furnished your headquarters previously).

g. Incl 7, Radar Siting Report form (See paragraph 7 of correspondence cited in paragraph 1 a, above.)

2. In the absence of any specific knowledge as to details and type of communications equipment to be used, method of mounting, type of fixed housing therefor such as van or trailer, and other pertinent elements this Command directed Air Defense Forces, for estimating purposes only to assume that preliminary site selection and layout, and cost estimates, were

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HQ ADC, ADMIS 676.3, S: (Unclassified) ADC Implementation of Mobile Radar Program (Cont'd)

on assumption that earth mounds would be used. Costs and Layout will be subject to revision at such future time as the question of the supporting media for antenna is resolved, based on a determination of the specific facility to be supported.

3. Reference is made to correspondence cited in paragraph 1 f. Reproducible copies of typical layout for site types V, VI, and VII are furnished in duplicate as Incl 1, 2 and 3 thereto, for your information and dissemination to CCE, if required. Attention is invited to the criteria regarding earth mounds, as indicated in the cited correspondence and the inclosure.

4. For your information, surveys have been completed on approximately 75% of the 44 sites, and reports are presently either being written, or being revised in accordance with directive contained in correspondence referred to in paragraph 1 e above, for submission to, and review and approval at this Headquarters.

FOR THE COMMANDING GENERAL:

7 Incls:
As Listed (One cy ea)

THOMAS C. SAVAGE
Major USAF
Asst Adj Gen.

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C&E-E 676.3

122

SUBJECT: Mobile Radar Siting Surveys

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

15 SEP 52
FILE NUMBER 228

1. a. In accordance with your classified electrical message ADOCE 53031, enclosed are copies 1 through 6 of reports for the following M-sites:

Number	Name	Mailing Address
M-88	Amarillo, Tex.	Amarillo, Tex.
M-89	Abilene Municipal Airport	Abilene, Tex.
M-91	Texarkana, Ark.	Texarkana, Ark.
M-97	Rapid City AFB, S. D.	Rapid City AFB, S. D.
M-98	Miles City, Mont.	Miles City, Mont.
M-99	Gettysburg, D. D.	Gettysburg, S. D.
M-111	Camp Williams, Wisc.	Tomah, Wisc.
M-112	Hunter AFB, Ga.	Hunter AFB, Ga.
M-113	Charleston Navy Yards, S C	Charleston, S. C.
M-114	Mayport, Fla.	Fernandina, Fla.
M-115	Carolina Beach, N. C.	Carolina Beach, N. C.
M-116	Gulrock, N. C.	Englehard, N. C.
M-122	Des Moines Municipal Apt.	Dallas Center, Ia.
M-124	Pope AFB, N. C.	Aberdeen, N. C.
M-130	Patrick AFB, Fla.	Melbourne, Fla.

b. The final report for Roanoke Rapids, N.C., and an amended report for Mac Dill AFB, Fla., will be forthcoming immediately.

c. Field surveys and siting reports for Houma Naval Air Station and Alexandria Municipal Airport, La., will be completed as soon as possible.

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Hq CADF C&E-E 676.3 Subj: Mobile Radar Siting Surveys

2. Attention is invited to this headquarters' electrical messages C&E-E 1077, DTG 082119Z, August, and C&E-G 2115, DTG 051910Z, September, which advised sitings and reports should be held in abeyance until such time as full separation criteria was available.

3. a. Radar equipment locations indicated in these reports are subject to change as additional criteria becomes available.

b. Radar equipment locations in these reports are predicated on the assumption that surrounding buildings will be of wooden, not metal, construction. If metal construction is used, the configuration of radar equipments will have to be amended to preclude undesirable reflections, etc.

4. This headquarters believes the use of earth mounds, with or without, ramps is not the direct answer to the height problem. The cost of building an earth mound of compacted, select aggregate, sufficient to withstand a hard stand, erosion, and wind load of antenna masts is prohibitive. Maintenance costs for continual upkeep of sodding in extremely wet conditions will further add to over-all costs. In coastal areas the supply of suitable earth is unlikely. Further in these areas consideration of piling must be given. Within arid, rocky regions, obtaining earth for this project may prove near impossible. The borrow pits would have to be carefully graded in order to eliminate a drainage problem, which could produce a mosquito breeding ground.

5. This headquarters is most reluctant to rush headlong into these surveys with insufficient criteria and planning data available. Reasonable caution is urged lest costly errors, such as those which occurred in the permanent radar program, are repeated.

FOR THE COMMANDING GENERAL:

15 INCLS
as stated
in para 1

W.L. MOONEY
CWO, USAF
Asst Adj Gen

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Hq CADF C&E-E 676.3 Subject: Mobile Radar Siting Surveys

ADCE-E 676.3 (15 Sep 52) 1st Ind

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Central Air Defense Force, Post Office Box 528,
Kansas City, Missouri

1. The following site surveys have been approved, with major exceptions as indicated, and forwarded to Headquarters USAF through Air Installations channels. The local AFIR and District Engineer will each be provided with a copy of approved site surveys by Headquarters USAF.

M-91, Texarkana, Arkansas

This site will be a Direction Center; no backup search or height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109.

M-97, Rapid City AFB, South Dakota

This site will be a Direction Center; backup search and height-finding equipment will be provided. Personnel requirements will be approximately 16 and 179.

M-98, Miles City, Montana

This site will be a Direction Center; no backup search or height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109.

M-99, Gettysburg, South Dakota

This site will be a Direction Center; no backup search or height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109.

M-111, Camp Williams, Wisconsin

This site will be a surveillance station; no backup search, primary height or backup height equipment will be provided. Personnel requirements will be approximately 5 and 76. The cantonment area for this site should be located on Camp Williams, Wisconsin.

M-112, Hunter AFB, Georgia

This site will be a Direction Center; no backup search or height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109.

1 Apr 53
Lt Col Lafrenz/hb
716
1 Oct 52

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Hq CADP C&E-E 676.3 Subject: Mobile Radar Siting Surveys

ADOCE-E 676.3 (15 Sep 52) 1st Ind (Contd)

M-113, Charleston, South Carolina

This site will be a Direction Center; backup search and height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109.

M-114, Fernandina, Florida

This site will be a surveillance station; no backup search, primary height or backup height equipment will be provided. Personnel requirements will be approximately 5 and 76.

M-115, Carolina Beach, North Carolina

This site will be a Direction Center; backup search and height-finding equipment will be provided. Personnel requirements will be approximately 16 and 179.

M-116, Gulrock, North Carolina

This site will be a Direction Center; backup search and height-finding equipment will be provided. Personnel requirements will be approximately 12 and 109. If feasible, radar equipment to be located to the east of the cantonment area, since primary requirement for coverage from this station is seaward.

M-117, Roanoke Rapids, North Carolina

This site will be a Direction Center; backup search and height-finding equipment will be provided. TPS-1D and TPS-10D type equipment will be provided. Personnel requirements will be approximately 5 and 76.

M-122, Des Moines, Iowa

This site will be a Direction Center, backup search and height-finding equipment will be provided. Personnel requirements will be approximately 5 and 76.

M-124, Pope AFB, North Carolina

This site will be a Direction Center; no backup search or height-finding equipment will be provided. Personnel requirements will be approximately 5 and 76.

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Hq CADP C&E-E 676.3 Subject: Mobile Radar Siting Surveys

ADOC-E 676.3 (15 Sep 52) 1st Ind (Contd)

2. Wherever possible, full utilization of existing facilities will be made to assure every possible reduction in cost for these installations. The use of either wooden cribbing or earth mounds to support the radar equipment required for these installations should be dependent upon the cost of the respective installation.

3. The requirement for sites M-88 and M-89 is presently being reviewed. Further action on the site surveys is being withheld awaiting results of the review.

4. Reference paragraph 3a of basic, the only information available to this headquarters on the criteria for the separation of radar equipment was forwarded to your headquarters by letter, subject, "(Unclassified) Separation of Radar Equipment," dated 1 October 1952. Additional data will be provided your headquarters as it becomes available.

5. Reference paragraph 3b of basic, the 24' x 48' prefab buildings being procured for the mobile stations will be of metal construction; however, consideration is being given to procurement of 40' x 100' pre-fabs of wooden construction. The decision as to the type of construction for the 40' x 100' pre-fabs will be dependent upon cost and procurement lead time.

BY COMMAND OF GENERAL CHIDLAW:

w/d 15 Incls

ROBERT M. WYIENS
Capt, USAF
Ass't Adj. Gen.

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SECURITY INFORMATION

FILE NUMBER 218

123

EASY READING COPY OF INCOMING CLASSIFIED MESSAGE

REFERENCE NO: MRSCB 32-12-61-E

PARAPHRASE IS Not REQUIRED
SEE CRYPTO SECTION BEFORE
DECLASSIFYING

FROM: Rome Air Force Depot

15 Dec 52

TO: ADC

INFO:

26 on AN/TPS-10D radar nets have been alloc your Comd as fols. ADC 134
AC&W Sq Amarillo AFB Texas. 136, Abilene Muni Aprt, Texas. 120, Walker AFB,
NM. 119, Texarkana, Ark. 145 Davis Monthan AFB, Ariz. 904, Winslow, Ariz.
135, Kirtland AFB NM. 146, Las Cruces, NM. 115, Luke AFB, Ariz. 138, Rapid
City AFB SDak. 902, Miles City, Mont. 903 Gettysburg SDak. 144 Neotaa, Oreg.
128 Berlin, NH. 909, Hunter AFB, Ga. 809, Carolina Beach, NC. 634, Diablo,
Wash. 639, Fire River, Ont. 649, Sedalia, Va. 651, Vida, Oreg. 653 Alexandri-
anni Aprt, La. 657 Houma Nav Air Sta, La. 658, Flanigan, Nev. 659, Kingman
AFB, Wis. 667, Patrick AFB, Fla and 660, McDill AFB Fla. Req above Dest Dover
and this scy, Attn: MRSCB-32 be advised immed if these sets should be shipped
as shown above or if stor point will be desg by your comd.

DATE TIME GROUP 121300ZACTION TO DMDATE REC'D FROM CODE ROOM 15 Dec 52INFO TO CG, VC, C/S, IGAG CLASSIFIED REG # C-51584INFO CY PREP'D BY mcSUSPENDED TO 18 Dec 52

Hq ADC Form 38

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SECURITY INFORMATION

ADCR 381

5 Dec 1952

SUBJECT: (Restricted) Mobile Radar Program (Second Phase)

TO: Air Officer Commanding
Air Defense Command
RCAF Station
St. Hubert, P. Q., Canada

124

1. The USAF-ADC in conjunction with RCAF-ADC is developing a system of air defense in support of the Canada-U. S. Emergency Defense Plan, as approved by the Canadian Chiefs of Staff Committee and the U. S. Joint Chiefs of Staff.

2. As you know, this system is based on the double perimeter concept of air defense and is designed to provide for the air defense of the war-making capacity of Canada and the United States insofar as air defense means will permit. The primary effort will be directed toward the protection of the more critical areas, including the Montreal-Boston-Norfolk-Chicago-Ottawa area and the Vancouver-Spokane-Portland area.

3. In order to complete the prime radar installations required for the double perimeters, this headquarters has determined that approximately 35 additional stations will be required, three of which should be in Canada. Accordingly, this requirement (Incl 1) was forwarded to headquarters USAF for approval. Headquarters USAF concurred with our requirement and approved the Mobile Radar Program Second Phase subject to the concurrence of the Canadian Government for the three sites in Canada.

4. The three radar sites in question will complete the outer perimeter of the double perimeter system being constructed around the Vancouver-Spokane-Portland area. Stations in these approximate locations are necessary to insure sufficient detection time to allow fighter forces to be brought to bear against hostile aircraft approaching from a northerly direction. It is considered desirable that these three sites be manned by trained Canadian personnel; however, should this be impractical it is believed that a suitable agreement can be reached whereby all or part of the personnel will be provided by the USAF.

Maj M F Crispen/rg
341/345
3 Dec 52

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SECURITY INFORMATION

ADOFR 381 Subject: (Restricted) Mobile Radar Program (Second Phase)
(Contd)

5. In view of the urgency for improving the air defense system, construction funds for the Second Phase Mobile Radar Program have been included in the USAF FY 1954 Public Works Program.

6. Therefore, in order to expedite the implementation of this program, it is requested that your Command concur with our proposal to locate three of these sites in Canada.

FOR THE COMMANDING GENERAL:

1 Incl
Cy ltr Hq ADC, ADOFR 381,
subject: Mobile Radar Program
(Second Phase), 10 Sep 52,
w/1 Incl

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SECURITY INFORMATION

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SECRET SECURITY INFORMATION

9 Dec 1952

ADOFR 381

SUBJECT: (Unclassified) Canadian Approval for Three Mobile Radar Sites

TO: Director of Operations
Headquarters USAF
Washington 25, D.C.FILE NUMBER
709 125

1. Reference your letter AFPOOR-OP-D, subject: Canadian Approval for Three Mobile Radar Sites, 5 November 1952.

2. During the discussion attended by Colonel Herbes of this headquarters, RCAF-ADC personnel tentatively concurred in our proposal to establish three additional radar stations in Canada. These three sites are in addition to the six sites in southeastern Canada proposed in the first phase mobile program. Presently this command is attempting to obtain the RCAF-ADC official position in this regard. The questions posed in paragraphs 2b, c, d, f, and g of your letter referenced above were discussed in letter this headquarters, ADOFR 381, subject: Mobile Radar Program, Second Phase, 10 September 1952 (Incl 1).

3. It is considered desirable that these sites be manned by trained Canadian personnel. Should this be impractical, it is believed that a suitable agreement can be reached whereby all or part of the personnel will be provided by the USAF.

4. In consonance with the principle of fostering Canadian industry, it is considered highly desirable that the equipment to establish these additional sites be procured from Canadian resources to the greatest extent possible. It is anticipated that programming for this equipment will be accomplished in much the same manner as programming for the present Canadian system. In keeping with the present program for equipping, manning and operating Canadian radar sites, the United States will no doubt be required to fund for a major portion of the cost and operation of these sites.

5. The purpose of the three radar sites in question is to act as the outer perimeter of the double perimeter system being constructed around the northwestern portion of the United States. It is necessary that these be located in Canada to insure sufficient detection there to allow fighter forces to be brought to bear against hostile aircraft approaching from a northerly direction. Vital Canada targets in the Vancouver area would receive the same protection as provided targets in the Seattle area.

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ADOER 381 Subject: (Unclassified) Canadian Approval for Three Mobile Radar Sites (Contd)

6. Without radar stations located in the general vicinity as indicated in our letter to you of 10 September 1952, the double perimeter concept of defense for the northwestern portion of the United States could not be effected. It is urgently requested that every possible effort be made to expedite early approval at governmental level for the construction of these stations.

FOR THE COMMANDING GENERAL:

1 Incl
Cy ltr Hq ADC ADOER 381
subj, Mobile Radar Program
(Second Phase, 10 Sep 52
w/1 Incl

THOMAS C. SAVAGE
Major USAF
Asst Adj. Gen.

SECRET

14 AUG 1952

ADOPR 381

SUBJECT: (Secret) Mobile Radar Sites in Canada

TO: Director of Operations
Headquarters USAF
Washington 25, D.C.

FILE NO.	28
7709	126 ✓

1. References:

- a. Message, Hq USAF, AFOOP-OP-D 53520, dated 11 July 1952.
- b. Message, Hq USAF, AFOOP 54066, dated 21 July 1952, and inclosure, copy of letter from the Chairman, Canadian Section, PJED, dated 3 July 1952.
- c. Message, Hq USAF, AFOOP 55264, dated 7 August 1952.
- d. WSEG Staff Study No. 7, "The Continental Air Defense System," dated 20 December 1951.

2. The permanent radar network, as originally programmed for the air defense of the United States and Canada, consisted of 75 sites in the United States augmented by 33 sites in Canada. This system represented the maximum radar surveillance obtainable consistent with budgetary limitations. While not completely adequate, this network was satisfactory for the defense of the United States and Canadian industrial-population complexes against medium and high altitude attacks as envisaged four years ago (Incl 1). On 10 July 1951, the USAF approved a Mobile Radar Program of 44 additional radar sites. This program was designed to provide radar surveillance for AEC installations, SAC bases, and to fill the larger gaps in the permanent system within the United States (Incl 2).

3. Subsequent to the approval of the permanent and mobile networks, intelligence sources pointed out the increasing capabilities of the enemy to penetrate and attack the United States and Canada at low altitude employing revised tactics and technological improvements. In consideration of this new threat, an evaluation of the present and programmed radar coverage indicated an urgent requirement for reprogramming the 44 mobile sites. Numerous gaps existed in the radar net along the U. S. - Canadian border, particularly on the approaches to the northeastern

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ADOPR 381 Subject: (Secret) Mobile Radar Sites in Canada

United States, southeastern Canada industrial area. These gaps were of such size and frequency as to preclude the required identification of large numbers of aircraft penetrating the defense network. In effect, a requirement existed for plugging the low altitude gaps in a system designed for high altitude surveillance.

4. Reprogramming of the mobile net was accomplished in accordance with the double perimeter concept presented in WSEG Staff Study No. 7. This concept, in addition to permitting substantial savings in manpower, material and equipment, establishes a strong identification zone around vital target complexes. Based on the principle that the initial detection of an enemy for the purpose of interception must be accomplished at least 250 miles from the target area, a double perimeter of surveillance radars was required. By spacing radar sites no more than 120 miles apart in the double perimeter and programming the mobile sites with TPS-1D and MPS-7 type equipment having a 60 mile detection capability at 2,000 to 5,000 ft., a tight area of surveillance would be provided for comparatively low attack altitudes. A concentration of identification facilities within this area would insure adequate identification. The low altitude coverage provided by reprogramming the mobile radar in accordance with this double perimeter concept is shown in Incls 3 and 4. The heavy lines indicate the double perimeters. The broken land lines indicate required surveillance which is planned in the second phase mobile program. In order to adequately defend the eastern United States - Canadian industrial population complex, these perimeters must completely inclose the area. The location of the perimeters around this area requires the siting of six radar stations in Canada: M-102 at Trenton, Ont.; M-104 at Wiarton, Ont.; M-107 at Sultan, Ont.; M-108 at Mattawa, Ont.; M-119 at Fire River, Ont.; and M-120 at Peninsula, Ont. The function of these sites will in general be medium and low altitude surveillance, requiring that they be equipped with TPS-1D or a comparable type equipment. The one possible exception to this type equipment will be M-119 which is planned to function as a direction center and will be equipped with FPS-3 type equipment.

5. The double perimeter concept is also planned for the western industrial-population centers of the United States and Canada. In order to develop the double perimeter in this area, it will be necessary to locate three additional sites in the Province of British Columbia in the proposed second phase mobile radar program.

6. It is essential that the entire radar net operate on a continuous 24 hour a day schedule. This is believed desirable rather than accept the calculated risk involved in intermittent operation, or depend upon the guarantee that intelligence activities can provide adequate

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ADOFR 381 Subject: (Secret) Mobile Radar Sites in Canada

warning. Since the mobile system is an integral part of the permanent and extension network, it will be necessary to operate continuously also. It is considered desirable that these sites be manned by trained Canadian personnel. Should this be impractical, it is believed that a suitable agreement can be reached whereby all or part of the personnel will be provided by the USAF.

7. In consonance with the principle of fostering Canadian industry, it is considered highly desirable that the equipment to establish these additional mobile sites be procured from Canadian resources to the greatest possible extent. It is anticipated that programming for this equipment will be accomplished in much the same manner as programming for the present Canadian radar system. In keeping with the present program for equipping, manning and operating Canadian radar sites, the United States will no doubt be required to fund for a major portion of the cost and operation of these sites.

8. It is fully realized that the present mobile radar program which is designed to provide coverage down to comparatively low altitudes is by no means the ultimate. Future planning calls for the development and installation of a suitable small gap filler automatic type radar. These unmanned radars will be located between permanent and mobile radars to provide additional coverage below that coverage provided by the permanent and mobile systems. These sites are particularly desirable in that personnel will not be required for other than periodical maintenance. Further studies and site surveys may disclose areas in which this automatic gap filler radar may replace mobile radar equipment, thereby reducing personnel requirements throughout the entire system.

FOR THE COMMANDING GENERAL:

4 Incls

1. Chart - High Alt
Coverage, Perm Sys
2. Chart - low Alt
Coverage, Old Mobile
& Perm Sys
3. Chart - low Alt
Coverage, Present
Mobile & Perm Sys
4. Chart, Low Alt
Coverage of Mobile
Sites in Canada

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

Col Baldwin/mv
216/217
11 Aug 52

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0591

SECRET SECURITY INFORMATION

ADOHR 381

SUBJECT: (Restricted) Mobile Radar Program (Second Phase) 10 Sep 52

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D.C.

FILE

127

228

1. References:

- a. Letter this Headquarters ADOHR 381, 5 July 1952, subject: Mobile Radar Program (Second Phase).
- b. Mid-term Requirements Plan (MTRF 1-54), Top Secret, this headquarters, 15 May 1952.
- c. Message from Headquarters USAF, AFOPD 56354, 22 August 1952.

2. To complete the double perimeter concept for the three primary areas of the United States, the Northeast, the Northwest and the San Francisco-San Diego area, 35 additional radar installations will be necessary in the Mobile Radar Program (Second Phase). The proposed locations of these sites together with the type of station for each sites, are listed in Inclosure 1. You will note that some of these sites have been relocated to obtain a greater capability in support of the Air Defense Command mission. It is still necessary that three sites be located in Canada to complete the double perimeter in the Northwest area.

3. The manpower requirements by type site are also indicated in Inclosure 1. As automatic remoting equipment becomes available, some of the Type V sites will be remoted to adjoining permanent sites which will reduce personnel requirements. This same policy will apply to the Mobile Radar Program (First Phase) resulting in further personnel savings. At the present time the exact number of sites to be remoted is not known, however, the matter is under study.

4. Prime radar equipments will be the same as that programmed for the first phase Mobile Program - TPS-1D radars for Type V sites and MPS-7 radars for Type VI sites. The requirement for height finder

Maj M F Crispin/rg
341 345
3 Sep 52

SECRET SECURITY INFORMATION

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SECRET - SECURITY INFORMATION

ADOPR 381 Subject: (Restricted) Mobile Radar Program (Second Phase)
(Contd)

and backup equipments is now under study and will be furnished at a later date.

5. Specifically, the justification for these sites is as follows:

a. Sites 1 through 3. Provide radar coverage and control capabilities at coastal locations on possible approach routes into the three vital areas. These locations were recommended by the Joint Air Defense Board, and because of their importance, were given top priority.

b. Site 4. Provides coverage in depth, and control capability in the double perimeter area protecting the Northwestern United States.

c. Sites 5 through 9. Establishes coverage in double perimeter area providing protection for the Northwestern United States.

d. Site 10. A perimeter site providing coverage of backdoor approach routes to the West Coast target areas.

e. Sites 11 through 13. Double perimeter sites located in Canada providing protection for vital Canadian and U.S. targets in the Northwest.

f. Sites 14 through 18. Outer perimeter sites guarding possible western approach routes to the Northeastern target area. Provide reporting stations and a radar barrier in accordance with proposed Multiple Corridor Identification System.

g. Sites 19 through 21. Outer perimeter sites guarding possible southern approach routes to the Northeastern target areas. Provide reporting stations and a radar barrier upon implementation of the Multiple Corridor Identification System.

h. Site 22. Provides "coverage in depth" and limited control capabilities on western approach routes to the Chicago area.

i. Sites 23 and 24. Provide double perimeter coverages guarding southern approach routes to the Northeastern target area.

j. Sites 25 through 27. Provide "coverage in depth" and limited control capabilities in the Northeastern area.

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ADOPR 381 Subject: (Restricted) Mobile Radar Program (Second Phase)
(Contd)

k. Sites 28 and 29. Provide coverage in outer perimeter guarding northern approach routes to San Francisco area.

l. Site 30. Provides coverage in outer perimeter guarding "backdoor" approach to West Coast area. Will become reporting station for Multiple Corridor Identification System when approved.

m. Sites 31 through 33. Outer perimeter sites of West Coast complex and are consistent with requirements of Multiple Corridor Identification System.

n. Sites 34 and 35. Provide "coverage in depth" and control capabilities in vicinity of Los Angeles.

6. It is requested that the Mobile Radar Program (Second Phase) of 35 sites be approved. The locations indicated in Inclosure 1 are not to be considered exact; therefore, to provide a reasonable degree of latitude in determining final location, the budget provisions for the second phase should be similar to those for the first phase.

FOR THE COMMANDING GENERAL:

1 Incl
Revised Log of Mob Radar
Sites (2d Phase) (dup)

THOMAS C. SAVAGE
Major USAF
Asst Adj. Gen.

SECRET : SECURITY INFORMATION

REVISED LOCATION OF MOBILE RADAR SITES (SECOND PHASE)

	<u>Location</u>	<u>Type Station</u>	<u>Coordinates</u>	
1.	Taholah, Wash.	VI	47°20'N	124°15'W
2.	Monterey, Calif	VI	36°35'N	121°57'W
3.	Snow Hill, Md.	VI	38°12'N	75°24'W
4.	Chelan, Wash.	VI	47°50'N	119°54'W
5.	Fort Klamath, Ore.	V	42°39'N	122°10'W
6.	Hampton, Ore.	V	43°34'N	120°03'W
7.	Ironsides, Ore.	VI	44°27'N	117°55'W
8.	Winchester, Idaho	V	46°15'N	116°35'W
9.	Geiger AFB	VI	47°39'N	117°30'W
10.	Fort Bidwell, Calif.	V	41°51'N	120°13'W
11.	Nakusp, B. C.	V	49°55'N	118°18'W
12.	Kamloops, B. C.	V	50°38'N	120°14'W
13.	Birken, B. C.	V	50°31'N	122°38'W
14.	Swan River, Minn.	V	47°05'N	93°14'W
15.	Benson, Minn	V	45°16'N	95°33'W
16.	Sioux City, Iowa	V	42°38'N	96°19'W
17.	Falls City, Neb.	V	40°09'N	95°36'W
18.	Eldorado Springs, Mo.	V	37°51'N	94°02'W
19.	Berry Fld, Tenn.	VI	36°07'N	86°42'W
20.	Martin, Tenn.	V	36°23'N	88°53'W
21.	Pocahontas, Ark.	VI	36°18'N	90°59'W
22.	Delmar, Ill.	V	41°55'N	90°38'W
23.	Bowling Green, Mo.	V	39°22'N	91°10'W
24.	Grayville, Ill.	V	38°13'N	88°02'W
25.	Grenier AFB, N. H.	V	42°56'N	71°26'W
26.	Stewart AFB, N. Y.	V	41°30'N	74°04'W
27.	York, Penn.	V	39°57'N	76°45'W
28.	Petrolia, Calif.	V	40°15'N	124°15'W
29.	Red Bluff, Calif.	V	40°10'N	122°15'W
30.	Fallon, Nev.	VI	39°24'N	118°43'W
31.	Tonopah, Nev.	V	38°03'N	117°04'W
32.	Indian Springs, Nev.	V	36°35'N	115°42'W
33.	Yuma, Ariz.	VI	32°40'N	114°34'W
34.	Schafer, Calif.	V	35°31'N	119°14'W
35.	Amboy, Calif.	VI	34°14'N	115°40'W

The strength, function and number of sites by type.

<u>Type</u>	<u>Officers</u>	<u>Airmen</u>	<u>Function</u>	<u>No. of Sites</u>
V	6	76	EW	24
VI	12	108	EW-GCI	11

Incl #1

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FILE NUMBER 228
X709

17 January 1953

MEMORANDUM FOR COLONEL HERBES;

SUBJECT: Conference, Hq USAF, 13 and 14 January 1953, Regarding Mobile Sites in Canada and Lash-Up Operation for 8 REP Sites

1. The following officers attended subject conference:

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Col R. C. Banbury, Hq USAF - Chairman
 Lt Col J. R. Barton, Hq USAF
 Maj D. F. Flaherty, Hq USAF
 Lt Col Walter Olsen, Hq ADC
 Maj M. F. Crispen, Hq ADC
 W/C Williams, Hq RCAF
 W/C Virr, Hq RCAF
 W/C Manning, Hq ADC RCAF

2. 6 1st Phase Mobile Radar Sites in Canada.

Wing Commanders Williams and Virr, representing Hq RCAF, were completely unfamiliar with the double perimeter concept of air defense. W/C Williams presented the strongest objection for locating these six additional sites in Canada based completely on his lack of knowledge as to what function these sites would perform. At the beginning of the meeting, W/C Williams stated that even though RCAF Headquarters had now approved the USAF request for these sites, he was still opposing their establishment. With this in mind, I presented a brief outline of the double perimeter concept of air defense in order that he and W/C Virr would have an overall picture of the system before we started detailed discussion of the six sites in question. At the conclusion of this briefing, approximately 20 minutes, both representatives of Hq RCAF had dropped their objection to the six sites and could understand the need for our additional requirement and indicated they would concur officially upon their return to their headquarters. Air Marshall W. A. Curtis, Chief of the Air Staff, Hq RCAF, has forwarded to the Air Ministry the RCAF official position in regard to this requirement for the six mobile sites in Canada and recommends approval (attached). Hq USAF representatives will resubmit the requirement for these six sites to the PJED with the recommendation that immediate action be taken so that our State Department personnel will be familiar with the program when approval is received from the Air Ministry in Canada. The Military Coordination Committee was furnished an information copy of the official Hq RCAF position in this matter by Canada.

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3. 3 Second Phase Mobile Sites in Canada.

In view of the double perimeter concept, the RCAF members of this committee had no objection to these three additional sites. The recommended that a requirement for survey for these installations be submitted to the MCC rather than the PJBD in the belief that such action would expedite Canadian approval. This was concurred in by USAF and A. C. personnel.

4. Lash-Up Operation for 8 REP Sites in Canada.

Hq RCAF personnel concurred with our requirement to establish lash-up operation at these eight sites. They further recommended that the request for lash-up operation should be forwarded to Hq RCAF through Project Pinetree Office in Ottawa, bypassing both the PJBD and the MCC. It is their opinion, upon receipt of the letter requesting permission to establish lash-up gear at these eight sites, Hq RCAF would concur and recommend details for transporting equipment across the border, i.e., customs procedures would be a matter that Project Pinetree Office could solve with very little difficulty.

5. Action on all reconvenations mentioned above has been taken by Hq USAF and based on the opinions and comments of the RCAF members attending this committee there should be very little difficulty in the future with any of these three items. Hq USAF will keep this command advised as to the progress being made.

6. It was the unanimous opinion of the members of this committee that such a meeting should be held approximately every month to discuss matters of a like nature and to insure closer coordination in the future between our respective commands.

MARSHALL F. CRISPEN
Major, USAF

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SECURITY INFORMATION

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AFOOP-OP-D

5 NOV 1952

SUBJECT: (U) Canadian Approval for Three Mobile Radar Sites

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

7709

129 ✓

1. Reference letter this Headquarters to Air Defense Command, dated 30 October 1952, subject: "(U) Approval of Seven Air Divisions and Thirty-Five Mobile Radar Stations."

2. Before any action can be taken to locate the three mobile sites in Canada, official Canadian approval of the installations will have to be obtained. In order to obtain this approval, it is desired that your command furnish the following information to this Headquarters:

- a. Canadian reaction to the proposal at the time it was discussed by General Chidlaw and Colonel Herbes.
- b. In what area are these stations to be located?
- c. Would any or all of these stations provide any significant protection to possible targets in Canada? If so, how and where.
- d. Would it be possible for any or all of these stations to be located in the United States?
- e. Would it be possible to man these stations by Canadians?
- f. Furnish details regarding the construction required, equipment to be used, and number of personnel required for each site.
- g. Discuss the purpose of and the need for these additional stations and their role in the Air Defense system.

3. This information is desired in this Headquarters by 1 December 1952.

BY COMMAND OF THE CHIEF OF STAFF:

THOMAS R. FORD
Colonel, USAF
Asst Chief, Operational Plans Div.
Directorate of Operations

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SECURITY INFORMATION

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25 Jul 1952

SUBJECT: (Restricted) Mobile Radar Program (Second Phase)

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

130

1. Reference is made to letter Headquarters ADC, Subject: (Restricted) Mobile Radar Program (Second Phase), dated 5 July 1952, wherein a request was made that 35 new mobile radar stations be included in the USAF FY 1954 budget.

2. Prior to considering this program for final approval, it is desired that further information be furnished by your Headquarters. Listed below are some of the questions that must be answered:

a. Are 35 stations of the type requested the most economical method of obtaining the desired coverage?

b. How will this plan fit with plans for future low altitude coverage as proposed by the University of Michigan or RAND?

c. What is the ultimate number of radar stations to be located in Canada?

3. It is suggested that the best method of answering these and other questions would be through the medium of a conference. The location and time of this conference to be arranged by Headquarters Air Defense Command by 5 August 1952.

BY COMMAND OF THE CHIEF OF STAFF:

EDGAR G. CAMPBELL, JR.
Lt Col. USAF
Ass't Executive
Directorate of Plans

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SECURITY INFORMATION

FILE NUMBER 228

22 Oct 1952

131

JUSTIFICATION FOR SIX MOBILE RADAR SITES IN CANADA

1. The permanent radar network as originally programmed for the air defense of the United States and Canada consisted of 75 radar sites in the U. S. augmented by 33 sites in Canada. This system represented the maximum radar surveillance obtainable consistent with budgetary limitations at that time. While not completely adequate, this network would provide satisfactory coverage for defense of U. S. and Canadian industrial complexes against medium and high altitude attacks as envisioned four years ago. On 10 July 1951 Headquarters USAF approved a mobile radar program of 44 sites to provide radar surveillance for ABC installations, SAC bases, and to fill the larger gaps in the permanent system.
2. Subsequent to the approval of the mobile network intelligence sources pointed out the increasing capability of an enemy to penetrate and attack the U. S. and Canada at low altitudes. In consideration of this new threat an evaluation of the present and programmed radar coverage indicated an urgent requirement for reprogramming the 44 mobile sites.
3. Reprogramming of the mobile sites was accomplished in accordance with double perimeter concept presented in WSAC Staff Study No. 7. This concept establishes a strong identification zone around vital target complexes. Based on the principle that the initial detection of an enemy for the purpose of interception must be accomplished at least 250 miles from the target area, a double perimeter of surveillance radars was required. By spacing radar sites no more than 120 miles apart in the double perimeter, a tight area of surveillance would be provided for comparatively low altitude attacks. In order to adequately defend the eastern U. S.-Canadian industrial population complex, these perimeters must completely inclose the area, and the outer perimeter be approximately 250 miles from the target areas. To complete the perimeters around this area six radar stations are required in Canada: M-102 at Trenton, Ontario; M-119 at Fire River, Ontario; and M-107 at Sultan, Ontario; M-108 at Mattawa, Ontario; M-119 at Fire River, Ontario; and M-120 at Peninsula, Ontario. These sites will, in general, provide medium and low altitude surveillance information. The one possible exception will be M-119, which is planned to function as a direction center to provide control capability for fighters based at Kinross Air Force Base.

Attachment 1

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4. The double perimeter concept is also planned for the western industrial population centers of the United States and Canada. In order to develop the perimeter in this area it will be necessary to locate three additional sites in the Province of British Columbia in the proposed Second Phase Mobile Radar Program.

5. It is considered desirable that the equipment to establish these radar sites in Canada be procured from Canadian resources to the greatest possible extent. It is desirable that these sites be manned by trained Canadian personnel; however, should this be impractical, it is believed a suitable agreement can be reached whereby all or part of the personnel will be provided by USAF. In keeping with the present program for equipping, manning, and operating Canadian radar sites, the United States will no doubt be required to fund for a major portion of the cost and operation of these sites.

6. Future planning calls for the development and installation of a suitable small gap filler automatic type radar. These unmanned radars will be located between permanent and mobile sites to provide coverage down to approximately 500 feet above the terrain. Present planning indicates that approximately 25 of these small radars will be located in Canada. This matter is still under study at the present time.

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AFOOP-OPD 53520

HQ USAF

CG ADC

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X109
PRIORITY

12 July 52

From AFOOP-OPD 53520 Canadian Government expressing concern over request for 6 additional AC&W Site locations in Ontario for mobile program. Request comments on fol questions submitted by Canadians be forwarded to this Hq asap. A. What is ultimate objective,; are additional, similar requests to follow? B. Information is required on technical performance of set in connection with /1/ possibility of using Canadian equipment in consonance with principle of fortifying Canadian industry, /2/ possibility of manning and operation with Canadians and costs paid by U.S.G. Request information as to relationship to present system, particularly communication and operational tie-in. USAF member, PJED, indicates briefing for Canadians might aid in obtaining favorable consideration. DeSire qualified Officer from ADC bedesignated for this purpose. Your Command will be advised as to date and location of briefing. Above information needed for interim report. Information will be required at a later date to provide specific detailed data for Canadian Consideration.

112002Z

12 Jul 52

G-31219

15 Jul 52

D O

CG, VC, C/S, IG

pf-6

HQ ADC ENT AFB COLO SPRINGS COLO

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DIRECTOR OF OPERATIONS HQ USAF
WASH DC

PRIORITY

18 Jul 52

AFOOP-OP-D 53520 SECRET

ADOPR 1540. Ur AFOOP-OP-D 53520. Gen justification for M-sites in Canada is contained in the ADC Mid-Term Rqmts Plan dtd 16 May 1952 clas Top Secret. Serious gaps exist in the perm radar net and the REP net at low alt. These gaps must be closed around and in the critical southeast Canada and northeast U. S. industrial area as well as the Vancouver - Spokane - Portland area and the San Francisco - Los Angeles and San Diego areas. Closing these gaps can be accomplished eff only by use of manned radars at the pres time. a. Ultimate objective to have surveillance at all alt around all critical areas. This means radars at the six M-sites in question plus three add radars in British Columbia req in the second ph U. S. Mobile Radar Program. Later, small, unmanned remoted radars should be added for closing gaps below 5000 ft. b. Equip st sites in question can be YPS-1D type or equivalent Canadian equip. Recm Canadian instl, equipping and manning with U. S. paying costs if nec.

Col E A Hebers

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ADOPR 216/217

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SECURITY INFORMATION

ADOPR 1540.

c. Sites are to be tied into pres sys to nearest apropr con cen either Canadian, U. S. or both. Oppl con same as for REP sites. New Subj: briefing being prop as suggested.

CG ADC

Col Herbes/mv
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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON 25, D.C.

134

18 Oct 1952

SUBJECT: (Restricted) Mobile Radar Program (Second Phase)

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Reference is made to letters to the Deputy Chief of Staff, Operations, subject as above, dated 5 July and 10 September 1952, wherein you requested that provision for thirty-five (35) additional radar stations be made in the FY 1954 budget.

2. The Mobile Radar Program (Second Phase) is approved for implementation in FY 1954 subject to your capability to provide the necessary personnel and equipment from resources programmed for the Air Defense Command. Public Works funds have been included in the Air Force FY 1954 budget for this program.

3. This headquarters is now investigating the possibility of re-programming personnel in FY 1955 to meet the needs of this program. You will be advised of the completed action in this matter.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ Edgar G. Gammon, Jr.
/t/ EDGAR G. GAMMON, JR.
Lt Col., USAF
Acting Executive
Directorate of Plans

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SECURITY INFORMATION

Mobile Radar Program (Second Phase) 135 5 Nov 52

MEMO

PPM
O&T (In Turn)

2

FILE NUMBER 228

1. The problem of squeezing spaces for 35 additional radar stations from our existing FY-54 resources is almost an impossible task, especially in view of the fact that we are continuously increasing our operational and support requirements. Although my feelings are pessimistic, we will do everything possible to trim down the spaces presently in the AC&W system to meet all or as much of the new requirements as we can.

2. The study presently being conducted may produce startling manpower savings (a half dozen will be startling).

/s/ Robert E. Gotchey

/s/ Oliver G. Cellini

/t/ ROBERT E. GOTCHEY
Major, USAF
Chief, T/O Div
Ext 750/751

/t/ OLIVER G. CELLINI
Colonel, USAF
Director, M&O
Ext 237/238

1 Incl
Ltr Dtd 18 Oct 52
fr USAF

From: PPM

To: O&T
P&R

Date: 12 Nov 52

Comment No. 3

Noted; no comment.

/s/ W. F. Haning, Jr.

/t/ WILLIAM F. HANING, JR.
Lt Colonel, USAF
Acting Director, PPM
Ext 531

1 Incl
n/c

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Mobile Radar Program (Second Phase)
DCS/0

P&R

1 NOV 52

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1. A requirement for a Second Phase Mobile Radar Program was first indicated to Hq. USAF in ADC Mid-Term Requirements Plan (MTRP 1-54) Top Secret, 16 May 52.
2. Further study and development indicated approximately 35 stations would be required for this program. In an attempt to get the program to USAF for approval in time for inclusion in the Fiscal 54 budget, Ltr ADOFR 381, 5 July 52, Subject: Mobile Radar Program (Second Phase) copy inclosed, was forwarded to Hq. USAF outlining the general requirement for the sites and the approximate locations. In reply, ltr Hq USAF, no file number, 25 July 52, Subject: Mobile Radar Program (Second Phase) copy inclosed, was received requesting further information and recommending a conference to discuss the matter. A subsequent wire from USAF suggested a letter in place of a conference and that justification for the 6 First Phase and 3 Second Phase Mobile sites in Canada be included. This information was forwarded, ltr this Hq. ADOFR 381, 13 Aug 52, Subject: (Secret) Mobile Radar sites in Canada, copy inclosed.
3. Following the correspondence a message from Hq USAF, AFOPD 56354, 22 Aug 52 was received requesting justification by site for the second Phase Mobile Program. This information was forwarded by ltr. this Hq., ADOFR 381, 10 Sep 52, Subject: (Restricted) Mobile Radar Program (Second Phase) copy inclosed.
4. No further comments were received from Hq USAF regarding the Second Phase Mobile program until their letter, no file number, 18 Oct 52, Subject: (Restricted) Mobile Radar Program (Second Phase) copy inclosed, was received approving the Second Phase Mobile Radar Program for implementation in FY 54 subject to ADC Capability to provide necessary personnel and equipment from resources programmed for the Air Defense Command.

E. J. THEISEN
Lt. Col., USAF
Ch. Plans Div.
341/345

E. A. HERDES
Col., USAF
Dir. P&R
216/217

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SECURITY INFORMATION

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HQ ADC INT AFB COLORADO SPRINGS COLO

PRIORITY
14 Oct 52

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DIR OF INSTLS, HQ USAF WASHINGTON 25 D C
DCS/OPERATIONS

228

ADMIS 2118. Personal from Chidlaw by Crabb to White. Air
council Approved our concept for 35 add M-sites in AC&W net. We have
programmed base min fac for each site in FY 54 Const Program. Am
advised AD HOC Committee, your hq,
rev this program does not favorably consider our reqts since there is
possibility facs may exist at some sites which we could use. Final
selection of sites dependent on thorough elect surv which cannot be
compl for several mos. Hence impossible to plan on utilization of any
existing fac at this time. In order to carry out concept apprd by Air
Council it is mandatory these min fac be programmed at each site. We
will make every effort to site where we can utilize existing facs but
our first consideration must be the elect cover. Req your assistance
in obtaining these facs.

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ADOPR 381

3 JUN 1952

SUBJECT: (Secret) Selection of AEW&C Bases

TO: Deputy Chief of Staff, Operations
 Headquarters United States Air Force
 Washington 25 D. C.

1. Reference is made to the operational plan proposed by the Air Defense Command for the employment of AEW&C aircraft, 7 February 1952.

2. Planning previous to the above referenced plan indicated a requirement for five installations from which to operate AEW&C aircraft. The above plan reduced this requirement to one base on each coast, indicating Hamilton Air Force Base and Mitchel Air Force Base as being the most desirable locations. It has been determined that runways at both of these bases cannot be expanded to meet the requirements of AFR 86-5 for operation of RC 121 type aircraft. Further the above referenced plan has been changed to include a requirement for organizational and field maintenance of aircraft by the United States Air Force. This change dictates that each AEW&C location must provide for accommodating 2500 additional personnel.

3. It is proposed that Otis Air Force Base, Massachusetts be expanded to accommodate AEW&C employment on the EAST Coast with consideration being given to Suffolk County Air Force Base, New York as the best alternate location, if for any reason Otis is considered to be unacceptable. Consideration was given to other locations presently programmed for USAF use and were eliminated due to geographical location, climatic conditions, runway strength and length, air traffic congestion or programmed use.

4. Interim B-29 AEW type aircraft are scheduled to become available to this command in January 1953 with a total of twenty to be in our possession by July 1953. Allowing a ninety day lead for activation and receipt of supplies the East Coast base should be made available for initial occupancy 1 October 1953.

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ADOPR 381 Subject: (Secret) Selection of AEW&C Bases (Contd)

5. Suitable locations for AEW&C employment on the West Coast are, in order of preference, Mather Air Force Base and Castle Air Force Base. Based on programmed delivery of RC 121 type aircraft and plans for employment of B-29 AEW aircraft thus made available for operation on the West Coast, a requirement for initial occupancy of this base would be 1 February 1954.

6. Request necessary action be taken to permit change in the master planning of Otis Air Force Base for expansion to accommodate AEW&C operations. Further request that necessary action be taken to enable this command to obtain joint use of one of the West Coast locations as indicated above.

FOR THE COMMANDING GENERAL:

KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy for Operations

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SECURITY INFORMATION

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Basic Ltr fr Hq ADC, Subj: (Secret) Selection of AEW&C Bases

AFOOP-AB

1st Ind

14 Jul 1952

Department of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Headquarters Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. With reference to air base requirements of proposed operational plan for AEW&C units referred to in basic letter, no action can be taken to name base locations for two squadrons until your plan has been approved. This plan is presently under study by the Air Staff, and as yet no decision has been reached.

2. Reference your message ADOFR 1354, 24 June 1952, in order to develop the air base portion of your proposed AEW&C operational plan, it is requested that the following action be taken:

a. Cost data be prepared for five (5) squadron plan utilizing Presque Isle, Otis, Newcastle, McClellan, and Larson, showing total ultimate cost by fiscal years including FY '53.

b. Cost data be prepared for the two (2) squadron plan showing total ultimate cost by fiscal years utilizing:

- (1) Otis and Hamilton
- (2) Otis and McClellan
- (3) Otis and Mather

c. Under the two (2) squadron plan what FY '53 programmed construction items could be reduced or eliminated.

3. Assurance was given Congress by the Air Force during hearings on the FY '53 Budget that there would be no re-programming of items requested; that each line item would be constructed as defined in defense of the Public Works Bill, and at the base indicated. Any changes to the FY '53 Budget items will result in elimination of those items from the present Bill and will require submittal of new items in subsequent legislation.

4. No action should be taken to alter master plans until a decision has been made on the organizational plan for the AEW&C units. From a

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1st Ind cont'd

limited review of Mather AFB master plans it appears that ADC facilities could be accommodated on the opposite sides of the runway system from ATRC's flight line and cantonment development area. However, by end FY '54 Air Training Command will be operating over 200 aircraft at Mather; therefore, careful consideration should be given to a possible loss of effectiveness to both the ADC and ATRC operations by the addition of 30 aircraft with a high operational priority. Air Materiel Command was instructed to take cognizance in the master plan for McClellan of the 12 aircraft and 500 personnel presently programmed, and the area provided could possibly be expanded to accommodate the larger squadron.

5. It is requested that careful consideration be given to the location of your proposed West Coast squadron at Hamilton. The present programmed tactical utilization of this base does not project a full usage of its operational capability, and every effort must be made to fully utilize every Air Force Base if we are to attain the present program.

6. Direct communication with ATRC and AMC is authorized for the purpose of compiling cost data and tentative discussion of possible site locations.

7. It is requested that the cost studies (Paragraph 2) be forwarded this Headquarters on or before 25 July 1952.

BY COMMAND OF THE CHIEF OF STAFF

/s/ R. M. RAMEY
Major General, U.S. Air Force
Director of Operations, Office of
Deputy Chief of Staff, Operations

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Hq ADC ADOFR 381 Subject: (Secret) Selection of AEW&C Bases

ADOFR 381 (3 Jun 52)

2d Ind

22 Aug 1952

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colo.

TO: Deputy Chief of Staff, Operations, Headquarters USAF, Washington
25, D. C.

1. Reference our message ADOFR 1626, 25 July 1952. The delay in completing the comparative cost study was caused by the urgency of completing the FY 54 budget planning now in progress at this Headquarters.

2. The AEW&C program is one of our most critical requirements for improved air defense. This program, along with the closely related picket vessel requirement, is extremely costly in money, men, and resources, but there is no other way to provide defense for coastal targets - if there was, we would certainly reconsider this program. This Command feels, in spite of the cost, we must implement the AEW&C aircraft program properly at the earliest possible date. Without picket vessels on station, and the AEW&C aircraft operating 24 hours per day, we stand an excellent chance of losing a war. To operate four AEW stations off each coast on a continual basis requires each of the assigned aircraft to fly approximately 172 hours per month. These aircraft, which are in essence flying electronic nightmares, cannot be maintained for this flying rate without adequate support facilities and replacement parts. While the monthly rate of 172 hours per assigned aircraft appears high, it is attainable; and is much less expensive than to operate at a rate of 100 hours and buy additional aircraft.

3. The comparative cost study for operating AEW&C units from five versus two bases is based on facility requirements, personnel strength, and maintenance support. The facility requirements and personnel strength figures were derived from studies conducted by Headquarters USAF and this Command.

4. The minimum facility requirement cost to operate the AEW&C units of 12 aircraft each from five bases is listed below: (See Incl #1 for detail)

	<u>FY 53</u>	<u>FY 54</u>	<u>Total</u>
Otis	\$306,000	\$5,411,000	\$5,717,000
Newcastle		5,449,000	5,449,000
Presque Isle	2,026,000*	7,088,000	9,114,000
McClellan		5,249,000	5,245,000
Larson (see Par 7a & Incl #1)		6,328,000	6,328,000
		Total	\$31,853,000

* First supplement

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SECURITY INFORMATION

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SECRET

Hq ADC ADOFR 381 Subject: (Secret) Selection of AEW&C Bases

ADOFR 381 (3 Jun 52) 2d Ind (Contd)

5. The minimum facility requirement cost to operate the AEW&C units of 30 aircraft each from two bases (Incl #2) is listed below:

	<u>FY 53</u>	<u>FY 54</u>	<u>Total</u>
Otis	\$306,000	\$12,744,000	\$13,050,000
McClellan		12,091,000	12,091,000
Mather		18,481,000	18,481,000
Hamilton		25,291,000	25,291,000

Otis and McClellan Total \$25,141,000

6. The personnel required to operate the AEW&C units from five versus two bases (Incl #3) is listed below:

	<u>Officers</u>	<u>Airman</u>	<u>Total</u>
Five bases	1,170	4,395	5,565
Two bases	1,156	3,426	4,582

7. Under the two base deployment concept, the following FY 53 programmed construction items should be deleted, if not required by TAC.

a. Larson Air Force Base

- (1) Parking apron, 52,000 sq yd @ \$12
- (2) AV Gas, proportionate share
- (3) Housing, proportionate share
- (4) Hospital, proportionate share
- (5) Two maintenance hangars are programmed, one in the basic and one in the first supplement; however, one of the hangars will be for maintenance of C-124's, also programmed at Larson.

b. Presque Isle Air Force Base. The first supplement to the FY 53 construction program proposes one base maintenance hangar for AEW&C operations at Presque Isle. This item should also be deleted.

8. Additional dollar savings will be realized in the maintenance support and from the annual operating cost of the two base plan versus

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Hq ADG ADOPR 381 Subject: (Secret) Selection of AEW&C Bases

ADOPR 381 (3 Jun 52) 2d Ind (Contd)

The five base plan. The Air Force, along with industry, has long recognized that the least costly and more efficient maintenance is accomplished when the workload is concentrated on the least number of bases commensurate with the mission. This is supported by the following factors and estimated annual operating cost analysis:

a. Factors affecting maintenance support.

- (1) The cost of procuring test sets, ground handling equipment, special tools and spare parts for two bases will be less than that necessary to provision five bases because the required complement of the above items cannot always be equally divided into five groups.
- (2) Fewer maintenance support personnel will be necessary.
- (3) Higher utilization of maintenance support personnel will be realized.
- (4) An indirect saving of training and supporting fewer personnel will be realized.

b. The estimated annual operating cost to operate the AEW&C units from five versus two bases (see Incl #4 for details) is as follows:

Five Base Plan (Per Annum)	\$45,439,500
Two Base Plan (Per Annum)	38,901,000
Excess of cost, 5 base plan over 2 base plan	\$ 6,538,500

9. In view of the manpower and monetary savings and increased operational efficiency to operate the AEW&C units from two bases, it is recommended that Otis and McClellan Air Force Bases be designated as the bases to accommodate the AEW&C units. Furthermore, request that Headquarters USAF take the following action:

a. Delete the new construction items in the FY 53 budget for AEW&C operations at Larson Air Force Base.

b. Delete the first supplement of FY 53 budget the AEW&C item at Presque Isle.

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Hq ADC-ADOFR 381 Subject: (Secret) Selection of AEW&C Bases

ADOFR 381 (3 Jun 52)

2d Ind (Contd)

c. Recise the FY 54 new construction program at McClellan Air Force Base to include the facilities recommended in Inclosure #2 to accommodate the AEW&C Group.

d. Approve the items of new construction at Otis Air Force Base for operation of an AEW&C Group contained in the Air Defense Command's basic FY 54 budget.

e. Delete from the Air Defense Command's alternate FY 54 new construction program the new construction items for an AEW&C Group at Hamilton and a separate AEW&C Squadron at Otis Air Force Base.

10. Although approval of these recommendations will get the AEW&C program well on its way, one immediate problem remains. The first RC-121C is scheduled for delivery to this Command in April 1953 with a total of ten by October 1953. Because of the extremely critical requirement for defense of eastern coastal targets, these aircraft should be assigned to the first AEW&C squadron at Otis Air Force Base. This means that maintenance facilities for this unit must be completed by the end of the 1953 construction season - that is, by November 1953. It is therefore recommended that at least minimum hangar space, aprons, etc., be funded for in the first supplement to the FY 53 budget; or by special Congressional authorization; or by other means provided the Secretary of Defense. Early funding action is necessary if the required facilities are to be constructed prior to the 1953-1954 winter weather. If it is impossible to accomplish the funding and construction in time, the first unit could operate initially at McClellan Air Force Base on a "lash-up" basis. This would, of course, be at the expense of providing defense for the more critical eastern coastal areas.

4 Incls

1. Cost to Operate AEW&C Units from 5 Bases (dup)
2. Cost to Operate AEW&C Units from 2 Bases (dup)
3. Manpower to Operate AEW&C Program from 2 or 5 Bases (dup)
4. Comparative analysis of Yearly Costs-AEW&C Units (dup)

FREDERIC H. SMITH JR.
Major General USAF
Vice Commander

8

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SECURITY INFORMATION

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HQ ADC, ENT AFB COLO SPRINGS COLO

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139

DCS/OPERATIONS, HQ USAF WASH D C

25 JUL 52

FILE NUMBER	242
24	P.V.

ADCPR 1626. CHIDLAW TO WHITE. Ref 1st Ind AFOGP, dtd 14 Jul 52, to ADCPR 381, subj (Secret) Selection of AEW&C B, dtd 3 Jun 52. Due to urgency of FY 54 budget planning now in progress in this hq, a detailed Comparative cost study for deployment of AEW&C units cannot be compl by 25 Jul 52. In any case, I feel detailed cost study would only further substantiate info contained here and in ltr, this hq, ADCPR 381, subj Plan for the Empl of AEW&C, dtd 9 Feb 52. a. of 5 B initially tentatively selected for this program, Presque Isle, Newcastle and Hamilton should be elim due to questionable rwy str. Cost of rebuilding these rwy can hardly be justified when other B with better rwy are aval. b. Reprogramming AF FY 53 const funds is not required in this case. The hangar auth at Presque Isle and at Larson AFB fr FY 53 funds will be delt. C. The AF has long recog that least costly and most efficient maint is accomplished when acft of same type are opr from one B. The opnl rqmt of 172 hr per asg acft per mo dictates that these acft must rec highest type of maint.

page 1 of 2 pages

Colonel E. A. Herbes

ADCPR

216/217

JOSEPH D. HORNSEY
Lt Col. USAF
Asst Adj Gen.

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ADCPR _____.

This cannot be accomplished if we scatter critical tech pers, spare parts, test equip, etc.; over 5 or 6 B. d. Studies by Lockheed Acft Corp also show that most efficient and least costly opn can be accomplished if these acft are B centrally on ea coast. e. To maintain 24 hr surveillance on 4 AEW&C sts offshore on ea coast requires 60 acft asg. If scattered at 3 B on ea coast, at least 300 more pers would be required than if concentrated at one B on ea Coast. In add, preliminary studies indicate that const cost for hangers, more docks, etc.; would undoubtedly total more at indiv sq B than if concentrated at 2 B. f. This essential program is extremely costly in pers, equip, and money. Unless max opnl capability is cent guaranteed, we may find it is not a "dollar well spent." This obviously is not acceptable. I feel that a decn on this program cannot be delayed any longer. The need for radar surveillance seaward is urgent. We must decide now or face unacceptable delays in facility const. I recm that a decn be made to opr one AEW&C gp from Otis and the other gp from a B in Calif to be selected. Because of urgency of sit, I must include req for const of the required fac at Otis in the 1st Suppl FY 53 FWP in order to be able to opr when first acft are rec in mid-calendar 53. The remaining fac required will be req in the FY 54 FWP.

CG ADC

Col E. A. Herbes/mv

216/217

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SECURITY INFORMATION

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P&R

AEW&C Program

26 Nov 52

Lt Col Glenn/rg/341

1

DCS/M

DCS/P

O&T

M&O

C&E

140

Ops Analysis

DCS/C

Air Surgeon

1. The Air Force Council on 16 Sep 52 approved the ADC's two-base concept (McClellan & Otis) for the deployment of AEW&C units.
2. In order to comply with the decision of the Air Council, the following action is being taken by the Air Staff in Hq USAF:
 - a. Deleting from the FY 53 construction program the \$3.3 Million allocated for the construction of facilities for AEW&C operation at Larson AFB.
 - b. Programming construction for the additional facilities at Otis and McClellan Air Force Bases in FY 54 as required by the two-base concept for the operation of AEW&C units.
 - c. Including in the FY 54 Public Works budget the required construction funds for these installations.
 - d. Programming in FY 55 an additional 2057 troop spaces for the AEW&C program (note - original 5-base plan had a total of 2525 troop space authorized).
 - e. Providing operating funds in the FY 54 budget for the program consistent with the program phasing and the operating capabilities of the equipment.
3. The AEW&C program is to be allocated manpower spaces during FY 54 and FY 55 to conform with the aircraft delivery schedule and a reduced operational requirement until October 1954. The reduced operational requirement is based on three factors, namely: (a) crew of 12 members; (b) 1.2 crews per assigned aircraft; and (c) 100 hours per month per assigned aircraft. Beginning in October 1954 the operational requirement will change to the ADC's desired operational plan, namely: (a) 18 crew members; (b) 2.5 crews per assigned aircraft; and 900 172 hours per month per aircraft.
4. The aircraft delivery schedule and personnel to be authorized is listed below. It is to be noted that a total of 57 aircraft appears in the aircraft total, however, Hq USAF has advised that six additional aircraft will be procured for attrition and to meet the ADC requirement for 60 aircraft for the two bases. Furthermore, the personnel at each date is total officer and airmen.

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AFDRQ-AD/C, Ltr to CG, ADC, subj: "Employment of an Americanized Version of the Comprehensive Display System (ACDS)"

Members of this committee should be empowered to act for or represent the command or headquarters concerned on all operational, technical and logistical problems involved in the introduction of ACDS.

5. To insure that due consideration is given to your operational requirements, it is necessary that your headquarters be represented at all discussions concerning ACDS. The ARDC who will chairman this committee will advise you concerning its composition, dates and places of meetings.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl
APGC Report, Project
No. APG/ADB/36-A

LEWIS L. MUNDELL
Colonel, USAF
Deputy Dir of Rqmts

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SECURITY INFORMATION

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SECURITY INFORMATION

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AEW&C Program

1 (contd)

<u>Date</u> <u>(calendar yr)</u>	<u>No. of Aircraft</u> <u>Scheduled</u>	<u>Personnel</u> <u>to be Authorized</u>
April 1953	1	
June 1953	3	
July 1953	2	505 (1st Qtr 54)
August 1953	2	
September 1953	2	
October 1953	1	
Jan-Mar 1954	6	505
Apr-Jun 1954	8	
Jul-Sep 1954	6	1010
Oct-Dec 1954	6	518
Jan-Mar 1955	6	1282
Apr-Jun 1955	6	762
Jul-Sep 1955	6	
Oct-Dec 1955	<u>2</u>	
Total	<u>57</u>	<u>4582</u>

5. Hq USAF is to develop a Table of Distribution for activation of the first AEW&C units based on the operational requirement in paragraph 3 and the bases to which the units are to be assigned. The personnel strength at the end position in June 1955 is attached as Inclosure No. 1. This Table indicates the organization of the AEW&C units and denotes the number of officers and airmen in each.

6. For planning purposes the initial crew composition for AEW&C aircraft and planned build-up is inclosed as Inclosure No. 2.

7. The minimum additional facilities required for the AEW&C groups at Otis and McClellan AFB have been incorporated in the proposed FY 54 new construction program at Hq USAF. This action does not mean that all the line items required will be included in the final draft of the FY 54 budget at Hq USAF as the review committees will in all probability delete many items.

8. The present ADC plan for employing the AEW&C aircraft calls for the first squadron to be activated at McClellan Air Force Base and then move to Otis Air Force Base when that base is capable of providing the required support. The second and third squadron and the 1st Group will be activated at Otis Air Force Base. The 2d Group will be activated at McClellan Air Force Base with the 4th Squadron being activated there prior to the activation of the 2d Squadron at Otis Air Force Base.

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AEW&C Program

1 (Contd)

AIRBORNE EARLY WARNING AND CONTROL PROGRAM

(A) 1st AEW&C Sq	McClellan	July 53
(M) 1st AEW&C Sq	Otis	April 54
10 RC 121C	July-March 1954	
(A) 4th AEW&C Sq	McClellan	January 54
10 RC 121 D	March 54-July 54	
(A) 2d AEW&C Sq	Otis	July 54
10 RC 121D	July-September 1954	
(A) 3d AEW&C Sq	Otis	October 54
10 RC 121D	October-February 1955	
(A) 1st AEW&C Gp	Otis	July 54
(A) 5th AEW&C Sq	McClellan	March 55
10 RC 121D	March-July 1955	
(A) 2d AEW&C Gp	McClellan	March 55
(A) 6th AEW&C Sq	McClellan	August 55
10 RC 121D	August-December 1955	

9. The above is a summary of the status of the AEW&C project for your information.

F. A. CAMPBELL
Lt Colonel, USAF
Chief, Plans Div
Ext 341/345

E. A. HERBES
Colonel, USAF
Director, P&R

2 Incls

1. AEW&C Unit Orgn
2. Crew Composition for AEW&C Acft

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SECURITY INFORMATION

SECRETAEW&C UNIT ORGANIZATION

<u>Activity (one base)</u>	<u>* Strength</u>	
	<u>Officers</u>	<u>Airmen</u>
Group Headquarters	12	30
AEW&C Tactical Sq	180	288
AEW&C Tactical Sq	180	288
AEW&C Tactical Sq	180	288
Periodic Maintenance Sq	6	247
Electronic Maintenance Sq	<u>7</u>	<u>102</u>
	565	1243
Support Augmentation T/DA (estimated as tenant unit & includes 8 officers and 241 airmen required in Field Maintenance Sq.	<u>13</u>	<u>470</u>
	578	1713

Total military aggregate for one base 2291

Total military aggregates for two bases 4582

* Planned end position in June 1955

Incl #1

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SECRETCREW COMPOSITION FOR AEW&C AIRCRAFT

<u>Crew</u> <u>(Initial Operation)</u>	<u>AFSC</u>	<u>Crew (ADC)</u>	<u>AFSC</u>
1. Pilot	1044B	1. Pilot	1044B
2. Co-pilot	1044B	2. Co-pilot	1044B
3. Navigator	1534A	3. Navigator	1534A
4. Flt Engineer	43271C	4. Flt Engineer	43271C
5. Radio Operator	29350	5. Radio Operator	29350
6. Radar Operator	27350	6. Radar Operator	27350
7. Teller	27350	7. Radar Operator	27350
8. Plotter	27350	8. Radar Operator	27350
9. Controller	1635	9. Controller	1635
10. Radio & ECM Tech	29373	10. Controller	1635
11. Radar Maint. Tech	30271	11. Controller	1635
12. Radar Maint. Tech	30271	12. ECM Operator	3024
		13. ECM Maint Tech	29373
		14. Radar Tech	30271
		15. Radar Tech	30271
		16. Radar Tech	30271
		17. Height Finder Operat	27350
		18. Height Finder Operat	27350

Incl #2

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SECURITY INFORMATION

0624

ROUTING		JOINT MESSAGEFORM		COMMUNICATIONS CENTER NO.	
		CONFIDENTIAL		141	
SPACE ABOVE FOR COMMUNICATIONS CENTER ONLY					
FROM: (Originator)		DATE-TIME GROUP		SECURITY CLASSIFICATION	
CG, AMC		181600Z Dec 51		CONFIDENTIAL	
TO:		PRECEDENCE FOR:		ACTION INFORMATION	
CG, ADC, Ent AFB Colorado Springs, Colo. /Airmail/		<input type="checkbox"/> BOOK MESSAGE		<input checked="" type="checkbox"/> ORIGINAL MESSAGE	
		<input type="checkbox"/> MULTIPLE ADDRESS		CRYPTOPRECAUTION <input type="checkbox"/> YES <input type="checkbox"/> NO	
FO:		REFERS TO MESSAGE:			
		IDENTIFICATION		CLASSIFICATION	
<p align="center">SECURITY INFORMATION</p> <p>MCMSX04-12-292-M.....</p> <p>Ref telecon 12 Dec 51 between CWO Dalton and Mr. Kile this Hqs. Ten (10) each RC-121C Aegt w/b delvd to USAF beginning Jun 52. Upon completion of retrofit aegt w/b made aval to ADC as fols: one (1) in Mar 53, one (1) in Apr, 2 in May, two (2) in June, two (2) in July and two (2) in Aug 53. A follow-on contr of fiftyfour (54) aegt is planned. In order that this Comd may provision the initial ten (10) aegt, req this Hq be advised planned datr of these aegt within your Comd. Hqs. USAF in telecon this dt has confirmed that present plans provide for asgmt of these initial aegt to your comd.</p> <p>Signed, Supply Division</p>					
		CONFIDENTIAL		PAGE 1 OF 1 PAGES	
DRAFTER'S NAME (and signature, when required)		RELEASING OFFICER'S SIGNATURE			
V. R. Kile		E. C. KLEIN, Colonel, USAF			
SYMBOL MCMSX04		TELEPHONE 6-0324		OFFICIAL TITLE	
				Deputy for Distribution Supply Division	

DD FORM 173 MAY 49 REPLACES WD AGO FORM 11-102, 15 JUN 1945, AND WD AGO FORM 889, 1 APR 1946, WHICH MAY BE USED.

0625

SECURITY INFORMATION

SECRET

ADOPR 381

142

1 Dec 1952

SUBJECT: (Unclassified) Airborne Early Warning and Control

TO: Commanding Officer
Navy Special Devices Center
Sands Point, Port Washington
Long Island, New York

242
D4

1. The Air Defense Command is presently sponsoring the Air Force Airborne Early Warning and Control Project. In this regard Lt Colonel Glenn, the project officer, visited your Command to observe the program being made by Doctor Veniar's group on the same problem. This headquarters is very much impressed with your Airborne Early Warning and Control Project and has determined that it apparently would be feasible to furnish a few Air Force personnel to assist Doctor Veniar's group and to thus gain knowledge which will be of great benefit in the accomplishment of the Air Defense Command mission.

2. It is desired to send two officer controllers and two airmen radar technicians on TDY to assist in your future experiments. Should this proposal receive your favorable consideration it is believed that many mutual benefits will accrue. This Command would carefully select personnel considered to be highly qualified to participate in this study and could make them available to you on or about 5 January 1953.

3. Request your approval of the above proposal.

FOR THE COMMANDING GENERAL:

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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SECRET SECURITY INFORMATION

143

12 Sep 52

AIR 22/12
AFK DE AIR
PP JEDEN
DE JEPHQ 92C
P 121339Z
FM HQ USAF WASH DC

654

TO: JEDEN/CGAIRDEFCOM BNT AFB COLO
/T O R S E C R E T / FROM AFOPD 57653 IN ORDER TO DEVELOP
TECHNIQUES AND PROCEDURES FOR THE EMPLOYMENT OF NAVAL PICKET VESSEL
THE CNO HAS DIRECTED THAT CINCLANT ESTABLISH AND MAN CONTINUOUSLY
ONE RADAR PICKET STATION OFF THE ATLANTIC COAST AND ESTABLISH AND
MAN A SECOND STATION ON AN INTERMITTANT BASIS. THE DER'S ASSIGNED
TO THIS DUTY WILL BE UNDER THE OPERATIONAL CONTROL OF THE COMMANDER
EASTERN SEA FRONTIER WHO IS AUTHORIZED TO DEAL DIRECTLY WITH CG
EADP IN DETERMINING LOCATIONS TECHNIQUES AND PROCEDURES TO BE USED.
THIS HEADQUARTERS WILL CONTINUE ITS EFFORTS TO OBTAIN THE CONTINUOUS
MANNING OF (10) PICKET STATIONS.
12/1343Z SEP JEPHQ

Top Secret
4 SEP 53
SECRET from
[Signature]
[Signature]

(2nd) USAF msg 58588
25 Sep 52

SECRET SECURITY INFORMATION

0627

SECRET SECURITY INFORMATION

EASY READING COPY OF INCOMING CLASSIFIED MESSAGE

FROM: EADF

PRECEDENCE: Priority 19 DEC 52

TO: USAF

144

REFERENCE NO: EACOT-P2254

INFO: ADC

Radnote to Col Thorne from Major Wilson. This msg result of instructions to EADF from ADC. Direct communication USAF authorized. Subject is "Use of Picket Ships for Air Defense and associated problems." Msg in three Parts.

Part 1: One picket ship has been assigned for Air Defense purposes in the EADF region by CNO, supplied and manned by Do/and under operational control Eastern Sea Frontier. Assigned mission is to test and evaluate method of communications between picket ships and land based radar. Six priority stations have been assigned with one picket ship alternating between the six stations. Each priority station is located in sub sector of responsibility of a shore based on EADF AC&W Site.

Part 2: Communications frequencies are presently being furnished by CNO from existing frequencies assigned to navy. No frequencies have been assigned Navy or ADC for picket ship reporting control to land based radars for air defense purposes. Air defense msgs are transmitted on priority bases because operational immediate transmissions are not authorized for air defense purposes on present frequencies. Test indicate average daily all msg picket ship to ACW sites is 20 minutes for proper communications the following requirements are considered necessary by EADF: Two day frequencies and 2 night frequencies for each picket ship to land bases AC&W. This means 24 frequency allocations for 6 picket ships. Such frequencies should be in 2 to 10 mcgacycle range. Navy has attempted to solve the problem through 6 or 7 tests involving various methods of communication but to date no method has measured up to air defense requirements.

Part 3: Overall value seaward extension of ACW is a critical requirement. Employment of picket ship is most available means of attaining additional seaward early warning and control. Exact values to date have not been determined due to primarily to unsolved communications problems. Limiting factors are short range coverage. Limitations imposed by sea state and limited number of ships available for this mission.

DATE TIME GROUP 190420Z

ACTION TO OBT

INFO CY PREP'D BY 11r

INFO TO CG, VC, C/S, IG, Com

SUSPENDED TO None

AG/C FANFOLD NUMBER C-52527

SECRET SECURITY INFORMATION

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SECRET SECURITY INFORMATION

24 Sep 1952

145

ADOFR 381

SUBJECT: (CONFIDENTIAL) Extension of Radar Coverage in the Northeast Coastal Area

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D. C.

248

1. This Command has continually placed maximum emphasis on the requirement for improved radar surveillance and fighter control seaward from the Coasts of the United States.
2. To date no satisfactory program toward eliminating the existing deficiency has been established. The Lincoln Laboratory has suggested off-shore towers to provide the seaward extension of radar coverage of the Northeast coastal area (reference Inclosure 1). This suggestion has considerable merit and proposes to be an economical partial solution towards meeting picket vessel requirements of this Command.
3. It will be noted that the attached report proposes that off-shore stations be placed on Cashes Ledge, Nantucket Shoal (Asia Rip), Georges Shoal and a shoal 80 miles southeast of New York City, which approximately coincide with four of the five Atlantic radar picket stations proposed by this Headquarters.
4. It is recommended that these off-shore stations be considered along with picket vessels as a means of fulfilling the urgent requirement for the seaward extension of radar coverage in the area represented in the report.

FOR THE COMMANDING GENERAL:

1 Incl
Rept on Subn of Off-Shore
Towers for Picket Vessels
in Contl AirDef Sys

KENNETH P. BERGQUIST
Brigadier General, USAF
Deputy for Operations

SECRET SECURITY INFORMATION

10629

HEADQUARTERS AIR DEFENSE COMMAND ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this headquarters. (See ADCSM 10-2).	
FILE	SUBJECT OPNAV NOTICE 003320		
FROM	P&R	TO	DCS/O
		DATE	19 Nov 52
		COMMENT NO.	1
<p>1. The attached OPNAV NOTICE 003320 on picket vessels was obtained from the Joint Air Defense Board.</p> <p>2. I feel it is a step in the right direction.</p> <p>3. O&T has a copy.</p>			
		<p>146</p> <p>s/t/ E. A. HERBES Colonel, USAF Director, P&R</p>	
DCS/O		TO: V/C C/S	Date: 25 Nov 52 Comment No. 2
<p>1. This is indeed a step in the right direction. For some time I have expected the Navy to take this approach and am surprised at their delay. Note particularly the implication that they will take over the AEW.</p> <p>2. As stated in par 2d, the Navy has the mission of defense against attacks that may develop through the Atlantic and Pacific. As far as I know, this is the first announced idea as to how they could carry out the air defense portion of that mission. The establishment of separate "Picket Forces" to conduct both the air defense and AEW mission is, to me, a logical solution. Our planned AEW&C units should be an integral part of the "Picket Forces".</p> <p>3. This concept will work <u>provided</u> JCS directives establish the "picket forces" with A-1 priority given to the continental U. S. air defense mission. The Air Force could and should withhold offer of transfer of our AEW equipment until such directives are assured.</p> <p>4. I recommend that we submit to Hq USAF and ADC position on this matter even though this should, and probably will, be acted upon by the JADE.</p>			
		<p>KENNETH P. BERGQUIST Brigadier General, USAF DCS/Operations - 222</p>	

ADC HQ FORM 3 - 15 Sep 52

SECRET
SECURITY INFORMATION

0 6 3 0

HEADQUARTERS AIR DEFENSE COMMAND ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this headquarters. (See ADCSM 10-2).	
FILE	SUBJECT		
	OPNAV NOTICE 003320		
FROM	C/S	TO	VC
		DATE	28 November 1952
		COMMENT NO.	3
<p>I feel as though we should keep the AEW as part of our own defense system. It gives us a flexibility which I believe we will want under some conditions. We will particularly need this flexibility in case certain of our radars are out of commission. Unless the AEW is directly under our control, I am afraid that valuable time would be lost in making any redispotion arrangements. Also, I think that this is a function which most nearly fits into the Air Force mission.</p>			
<p>JARRED V. CRABB Major General, USAF Chief of Staff</p>			
VC	D/O	Date:	1 Dec 52
		Comment No.	4
<p>1. The basic correspondence represents a sound approach to the problem of off-shore air and anti-submarine defense. I do not believe that we could have any valid objection to the concept expressed in Admiral Fechteler's notice. The key lies in the method of operation, the relative priorities established in the mission directives which would be given to the picket forces, and the relationship established between the Commanding General, Air Defense Command, and the picket force commanders, in so far as the over-all air defense mission is concerned.</p>			
<p>2. As stated in comment 2, a recommendation on this concept is clearly a function of the Joint Air Defense Board. This headquarters should attempt to reach agreement with the Joint Air Defense Board on its initial recommendations on this subject. I feel we should recognize that both CINCLANT and CINCPAC have requirements for the types of combat intelligence which the picket force could develop, and that provision should be made for supplying that information. As you know, the Continental Air Defense System now furnishes combat or operational intelligence to both Fleet Commanders through respective Sea Frontiers. The addition of the picket force is an extension of the present intelligence-gathering organization. There are two fundamental points which</p>			

ADC HQ FORM 3 - 15 Sep 52

SECURITY INFORMATION

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HEADQUARTERS AIR DEFENSE COMMAND ROUTING AND RECORD SHEET		Number and date each comment. Show actual signer with telephone extension. Use full width of page. For use mainly within this headquarters. (See ADCSM 10-2).
FILE	SUBJECT	
	OPNAV NOTICE 003320	
FROM	TO	DATE
VC	D/O	1 Dec 52
		COMMENT NO.
<p><u>Comment No. 4 - Cont'd</u></p> <p>must be settled: first, that the forces provided under mutual agreement must be maintained unless changed again by mutual agreement; and second, that operational procedures that are set up shall guarantee the most rapid possible transmittal of air surveillance information into the Continental Air Defense System.</p> <p>3. In so far as the proposed parallel, in the basic correspondence, to our air divisions is concerned, it must be made clear in the proposed set-up that the over-all control of forces specifically allocated for the air defense of the United States must remain with the Commanding General, Air Defense Command. If fighter forces are placed under the operational control of picket force commanders, they should still be subject to diversion and redeployment by the Air Defense Command, with the delegation of authority to make identification subject to the Commanding General's decision. In other words, picket forces should be integrated into the over-all defense system under the Commanding General, Air Defense Command, and should not operate as completely independent elements with purely an information-furnishing requirement placed upon them. They need not be assigned to the Air Defense Command, as appropriate operational procedures could insure the degree of control necessary to insure over-all integration of effort.</p> <p>FREDERIC H. SMITH, JR. Major General, USAF Vice Commander</p>		

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ADC HQ FORM 3 - 15 Sep 52

SECURITY INFORMATION

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DEPARTMENT OF THE NAVY
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D. C.

23 Sep 1952

OPNAV NOTICE 003320

From: Chief of Naval Operations
TO: Distribution List

Subj: Naval Picket Forces, Atlantic and Pacific

Encl: (1) Chart depicting certain offshore areas in the Atlantic and Pacific Oceans

1. Purpose. The purpose of this Notice is:

a. To request comments from appropriate naval commanders relative to the desirability of establishing, within the operating forces, two additional commands, one in the Atlantic and one in the Pacific, to perform continuous picket functions in support of all military commanders whose primary missions require surveillance and/or other supporting action in the Atlantic and Pacific Oceans.

b. To suggest, for the consideration of the Fleet Commanders, a general concept under which such additional naval forces as may be authorized and assigned to the commanders of the above commands, if established, might be employed when operating at sea in fulfillment of their assigned tasks.

2. Discussion.

a. In the past, various naval surface units have operated at sea. at the request of the U. S. Air Force, for the purpose of providing radar information to the Air Force shore installations on aircraft approaching the shores of the United States. These operations have been confined to tests and exercises conducted to develop the ability of the U. S. Air Force to fulfill its responsibility for the air defense of the United States. The requirement, as stated by the Air Force, for utilizing naval radar picket vessels for these purposes stems from the inability of the shore-based radars of the Air Force Aircraft and Warning System to provide seaward coverage to the extent deemed necessary by the Air Force Chief of Staff for proper air defense

OPNAVNOTE 003320
(9-23-52)

of the continental United States.

b. In recent correspondence, the Chief of Staff, U. S. Air Force has advised the Chief of Naval Operations that a requirement still exists for a seaward extension of the land based radar system and has delineated specific sea areas in the Atlantic and Pacific in which the Chief of Staff considers constant surveillance necessary in the interests of air defense of the United States. These areas are depicted in enclosure (1) which, in addition, delimits the capabilities of the Air Force's shore-based radar as stated by the Chief of Staff. It appears that meeting this requirement would involve considerably greater forces than heretofore envisaged and would necessitate a revision upward of current Navy force levels.

c. The Chief of Naval Operations, nevertheless, concurs in the desirability of defining specific critical sea areas wherein continuous surveillance may be required, and it is his intention to support fully the air defense efforts of the Chief of Staff, U. S. Air Force in such areas insofar as present naval force levels and the proper discharge of other primary functions of the Navy permit.

d. The Chief of Naval Operations recognizes, however, that there are other military commanders who have a direct and vital interest in the results achieved by whatever naval picket forces may be operating at sea. The Commanders in Chief, Atlantic and Pacific, in their unified command positions, are responsible for defense against attacks on the United States which may develop through the Atlantic and Pacific Oceans, respectively. They are vitally interested, therefore, in the operations of assigned picket forces. The Atlantic and Pacific Fleet Commanders are responsible for the conduct of anti-submarine warfare. Since the possibility of hostile submarine mining activities as well as submarine launched missile attacks against the continental United States are very real threats, it is clear the Fleet Commanders will derive important benefits from these forces. The Sea Frontier Commanders are responsible, among other associated tasks, for convoy routing and shipping control and will apply picket force information to the discharge of their duties.

e. The foregoing considerations clearly indicate that naval picket forces in the Atlantic and Pacific, if established, will be comprised

SECRET SECURITY INFORMATION

SECRET
SECURITY INFORMATIONOPNAVNOTE 003320
(9-23-52)

of various types of naval units, such as surface units, AEW and ASW aircraft, integrated in accordance with established naval doctrines and procedures and positioned in the Atlantic and Pacific Oceans so as to support all interested commands with maximum effectiveness and a minimum of duplication of effort. In the interests of the latter points, the general location of picket forces in the Atlantic and Pacific would have to be determined on the basis of a careful evaluation of the requirements of all interested commanders. The ultimate location, therefore, may or may not be within the seaward areas delineated in enclosure (1).

f. In the past exercises wherein naval surface units have participated in air defense exercises, the total combatant capabilities of the types employed have not been exploited. Fully effective support of all military commanders is to be rendered by the picket forces envisioned herein, and if maximum force economy is to be realized, full advantage must be taken of the proven capabilities of the radar picket destroyer escort type ship. These capabilities are considered to include abilities to:

- (1) Collect combat information
- (2) Evaluate collected combat information
- (3) Disseminate evaluated combat information
- (4) Operate in conjunction with AEW aircraft
- (5) Control air interceptions
- (6) Participate in ASW operations
- (7) Engage aircraft with AA weapons
- (8) Assist in SAR operations
- (9) Monitor air traffic in Air Identification Zones
- (10) Engage in limited surface action

Toward accomplishment of this end, and particularly in regard to that portion of the responsibilities of the picket forces which may relate to air defense of the continental United States, in support of the

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SECURITY INFORMATION

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(9-23-52)

Air Force, the Chief of Naval Operations feels that the picket forces, if established, might properly be assigned the same order of responsibility as that with which an Air Division (Defense) Commander is now charged within the Air Defense Command. Providing it should be determined that the proper stations for naval picket forces are actually within the seaward areas shown in enclosure (1), the prerogatives of the picket force commanders should include authority for requesting immediate shore-based fighter aircraft support, in order to insure the earliest possible interception and neutralization of hostile aircraft approaching the United States. Under this kind of concept, the picket force commanders would employ their naval forces in accordance with established naval methods, doctrines and procedures and would be responsible for proper relay of evaluated combat information derived from individual units to appropriate echelons of the Air Defense Forces. Conversely, the picket forces would cooperate closely, insofar as air defense operational procedures are concerned, with the Commanding Generals of the several Air Defense Forces.

g. In the employment of such picket forces as may be established, the fullest possible use should be made of the Naval Communication System.

3. Action required. The following action is required by commands indicated:

The Commanders in Chief, U. S. Atlantic and Pacific Fleets:

(1) In coordination with the appropriate Sea Frontier Commanders, recommend missions which should be assigned to the respective picket forces, if established, to insure that the requirements of the Commanders in Chief, Atlantic and Pacific, the Fleet Commanders, and the Sea Frontier Commanders are fulfilled simultaneously with the support which will be rendered to the U. S. Air Force.

(2) Furnish the Chief of Naval Operations with comments and/or recommendations relative to the suitability of the limits of the areas to the seaward of the effective shore-based radar coverage, shown in enclosure (1), when viewed in the light of the requirements of CINCLANT, CINCPAC, CINCLANTFLT and CINCPACFLT in support of their primary responsibilities.

(3) Recommend to the Chief of Naval Operations the force requirements, surface and air, considered necessary to provide

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OPNAVNOTE 003320
(9-23-52)

continental air, surface and sub-surface surveillance in the delineated areas shown in enclosure (1), to the seaward of the effective coverage or such other areas as may be recommended.

(4) In coordination with the appropriate Sea Frontier Commanders, recommend to the Chief of Naval Operations the composition of the staffs which will be required by the respective picket forces, as well as a proposed position in the Fleet structures.

4. Cancellation. This notice is cancelled when action has been taken as required in the foregoing.

W. M. FECHTSLER

DISTRIBUTION:
21, A6, G3A, G4
COMWESTSEAFRON
COMSEASTSEAFRON

Authenticated by:

/s/ G. W. Murphy
G. W. MURPHY
Secretary (Administration) to CNO

secret

5
SECRET SECURITY INFORMATION

0 6 3 7

12 July 52

FROM: HQ AIR DEFENSE COMMAND, ENT AFB,
COLORADO SPRINGS, COLORADO

TO: EASTERN ADF, STEWART AFB, NEWBURGH, N Y

CENTRAL ADF, 1209 WALNUT, KANSAS CITY, MO

WESTERN ADF, HAMILTON AFB, CALIF

147

234

3

FILE NUMBER 455

34

WRH

INFO:

RADNOTE: FROM: Col William E. Persons TO: Major Charles A. Harris

The folg text of press rels re-"Opr Skywatch" relsd in Washington Saturday, 12 July at 1900 hrs, is quoted for your info: "More than 150,000 civs -- all of them members of the vol Grd Ober Corps -- will bolster the nation's air defs on a full time basis this Monday, July 14, when they start around-the-clock opns at more than 6,000 observation posts and 32 filter cns through-out 27 states and the District of Columbia. Initiation of the Grd Ober Corps on 24-hr alert dy marks the first time since the conclusion of WWII that civs have been placed on continual opr as part of the acft detection sys which is employed to alert intcps and destroy possible enemy bombs. 'Opr Skywatch' was decided upon after considerable study by USAF and Fed Civ Def Adm ofls. Gen Benjamin W. Chidlaw, cmr of the ADC which is resp for the def of the nation against enemy air atks, stated: 'We need every ounce of detection possible to avert what could be the most costly sneak air atk in the history of the world'. Gen Chidlaw explained that radar, because it does not prov adequate surveill-
ance at low levels, 'cannot be depended upon to warn of such an attack.'

/s/t GEORGE F. HENNRICKUS, JR., Capt.

Page 1 of 3 Pages

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'Because of this radar inadequacy,' he continued, 'we must depend upon civ vols to be the human -- rather than the electronic -- eyes and ears of the detection sys to warn the nation of an impending low level sneak attack.' Radar, like television, operates on a line-of-sight principle and creates areas where there are no detection capabilities because of the curvature of the earth. Further, its electronic beams do not have the power of piercing terrain obstacles and resultant 'blind spots' are established behind such obstacles. Through these two areas, unless there is an adequate corps of civ watchers on the grd, acft can fly undetected. The chief of the nation's air def also pointed out that 'for the first time, a potential enemy has the two weapons nec to launch a devastating atk on the U.S.: long range bombers such as the Russian TU-4 and atomic bombs to carry in those bombers.' Para. Vols in the folg states, which form a protective cloak around the west, north, and east approaches of our nation, will participate in 'Opr Skywatch'. The 27 states affected by Opr Skywatch are: Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, North Dakota, South Dakota, Montana, Idaho, Washington, Oregon, and California. Key cities in this opr w/b the folg where USAF filter cns are located:

Oakland, California
 Pasadena, California
 Santa Ana, California
 Sacramento, California
 Portland, Oregon
 Seattle, Washington
 Spokane, Washington
 Helena, Montana
 Billings, Montana
 Bismarck, North Dakota
 Fargo, North Dakota
 Rapid City, South Dakota
 Minneapolis, Minnesota
 Green Bay, Wisconsin
 Chicago, Illinois
 South Bend, Indiana

Grand Rapids, Michigan
 Columbus, Ohio
 Canton, Ohio
 Pittsburgh, Pennsylvania
 Harrisburg, Pennsylvania
 Baltimore, Maryland
 Richmond, Virginia
 Trenton, New Jersey
 Buffalo, New York
 Syracuse, New York
 Albany, New York
 White Plains, New York
 New Haven, Connecticut
 Manchester, New Hampshire
 Bangor, Maine

Filter Cons, manned by civ vols, are collecting stas for info recd fr the observati n posts. Here, info is evaluated and passed along to the at rep radar site and correlated w/what data may be aval fr electronic detection. Gen Chidlaw pointed out that a min of 500,000 civ vols are needed in the nation-wide COC. He emphasized the importance of 'def in depth' and said that, for example, 'a vol obsr at a post in northern Montana or Maine might well prov the vital advance info that would save a target city a thousand miles distant fr being hit.' 'We must have the earliest possible warning of an atk in order to get our intcps off the grd to counter-attack the enemy. The interval of a few minutes, or even seconds, might mean saving a key target from atomic destruction. To assist in this detection 250,000 add grd obsrs are badly needed at once.'"

FILE NUMBER

459

31 October 1952

STATUS REPORT ON THE GROUND OBSERVER CORPS CAMPAIGN 148

Following is a report, by media, on the Ground Observer Corps campaign to date:

RADIO:

The radio fact sheet was prepared and distributed in August and the first messages were carried on cooperative programs during the week of August 25-31. In September there was one week of national allocations and one week of regional spot announcements. There was another week of network allocations in September. The Air Force also distributed personalized platters to disc jockeys of 1,500 local stations and CBS began the first of a series of special late half-hour shows devoted entirely to the GOC campaign. November Reporter will carry a message on some 50 local stations in the Skywatch area. There will be network and coop support again in December and January. Meanwhile, the Air Force, probably in cooperation with NAB, will mail a variety of mimeographed announcements to local stations to be followed as soon as possible by a more elaborate radio kit.

TELEVISION:

Even before the Council campaign began, Ed Murrow, in cooperation with the Air Force, devoted a major part of one of his "See It Now" shows to an effective Skywatch documentary and again just recently had General Vandenberg on his program with a strong GOC message. Murrow has given the Air Force permission to distribute the documentary to local TV stations (It runs about 22 minutes with a hole at the end for live interviews on the local GOC needs and also for use by Air Force and Civil Defense speakers before meetings of local organizations. At the same time a kit will soon be ready for distribution to local TV stations which will include balloons, flip-cards, slides, a 20-second movie and a 1-minute movie.

NEWSPAPERS:

The newspaper kit was mailed in October to dailies, weekly, foreign language, labor and farm newspapers in the Skywatch area. Despite the formidable competition of the "Get-out-the-vote" campaign plus political advertising, orders had been received for more than 3,000 mats at the end of the month and tear sheets were trickling in. The reaction to the kit seems favorable. One advertising manager wrote "Good Copy" on his order for mats, which happens rarely. Both AF and CD field officers are requesting additional kits, usually with compliments on the job. So far not one beef. We won't be able to tell much about support for the campaign in newspapers until elections are over and then we have to buck Christmas advertising. Obviously, the campaign needs all the push we can give it from the top, and AF-CD push locally. We plan another newspaper mailing, with some old and some new ads, when such a mailing seems desirable.

NEWSPAPER COOPERATION PLAN:

The GOC campaign will have the newspaper cooperation allocation in January—in the Skywatch area. In this plan the Council provides the leading dailies with short editorial-type copy for use on page one, the split page or other preferred space. Since previous allocations have proved to be effective in the Student Nurse recruitment campaign, the plan should be expected to help pull recruits for the GOC.

GRAPHICS:

The four-color car card is now in production for January posting in transportation vehicles in 36 states. We are planning on at least 50,000 spaces and the number may go to 70,000.

A four-color adaptation of the car card will also be available for onesheet posting. The Air Force and Civil Defense will each get 25,000, some treated for outside use.

In addition to the color posters, the AF and CD will also have for local use 50,000 proofs of two, 1000-line newspaper ads. They will probably be ready for distribution right after election day.

HOUSE MAGAZINES:

A special GOC mailing, containing two large and five small ads, is about ready for distribution to some 4,000 house magazines of leading companies, with an appropriate covering letter from Secretary Finletter.

NATIONAL & PLANT CITY ADVERTISING:

It is generally agreed that the Air Force is in the Strongest position to approach defense-related industries seeking support for the campaign in national magazines and plant-city newspapers. An initial list of potential customers has been prepared for the benefit of the AF. Lockheed has provided us with a good example by the full-page GOC ad which has just appeared in Life, Time and probably other magazines on their list.

NRDGA:

The National Retail Dry Goods Association has indicated an interest in the campaign and a willingness to cooperate. Buchanan is now working on retail tie-in possibilities.

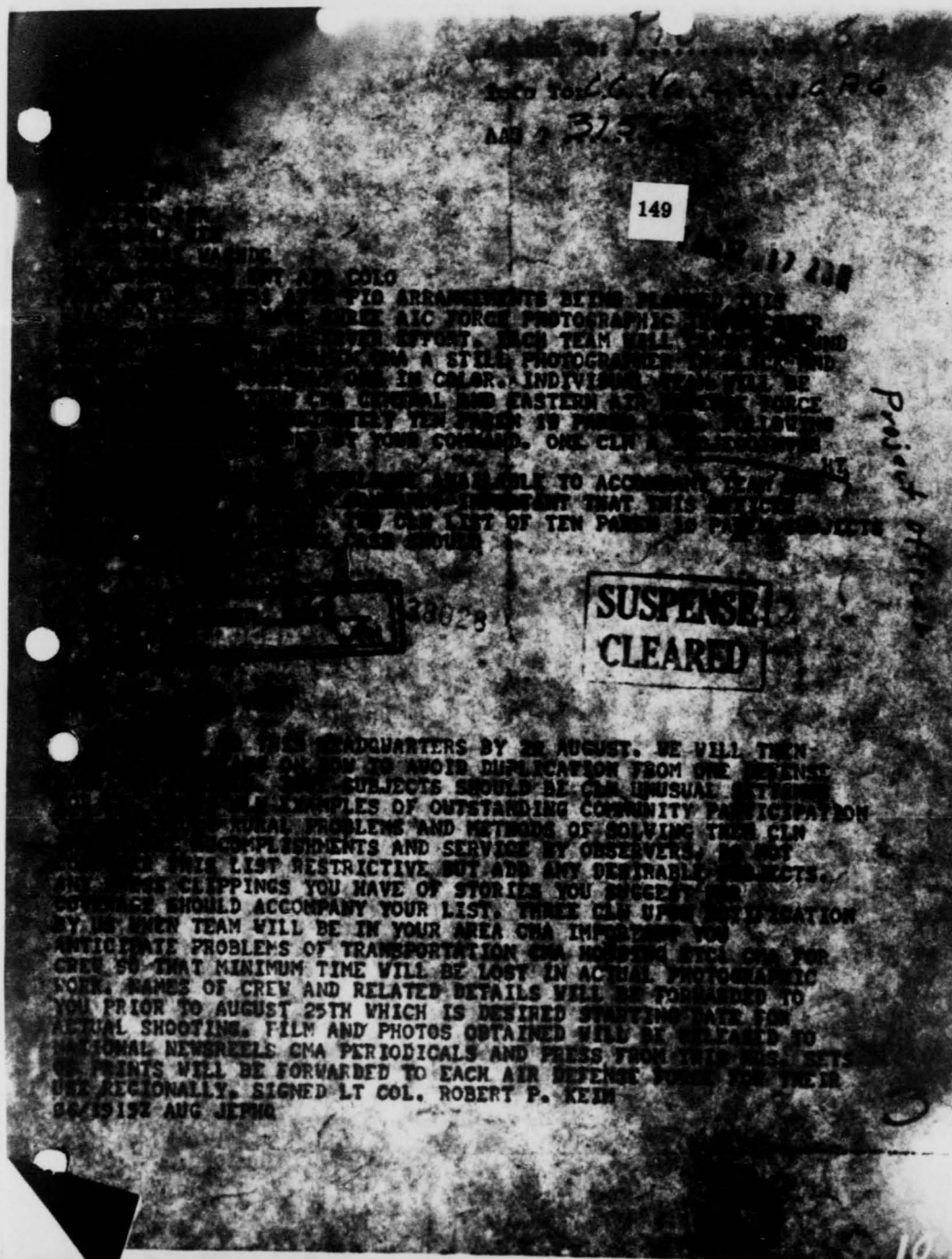
SUMMARY:

Although the campaign broke at an extremely tough season what with election, Thanksgiving and Christmas as competitive attractions, it is already clear that some local Air Force and Civil Defense units have been heartened by the professional advertising tools they now have to work with,

Thanks to Paul Gaynor and Buchanan. The filter center at Seattle, for instance, ordered mats for 30 newspapers in the Northwest which apparently are contemplating a continuing recruitment program. On the other hand, we have a report that a radio listener in Detroit called his CD office and was told they had never heard of the GOC. Obviously it will take some time to get the campaign working properly but apparently some of the local organizations are already on the job.

It is hoped the whole operation will be tightened up and given new life following the proposed top-level meeting in late November or early December, probably at Colorado Springs.

Hector Perrier



HAROLD SHEFFIELD
Attorney and Counsellor at Law
Milwaukee 2, Wisconsin

150

Sep. 3, 1952

A GROUND OBSERVER'S OBSERVATIONS OF THE GROUND OBSERVERS CORPS

Fred Catel, Supervisor,
2771 N. Palmer St.,
Milwaukee, Wisconsin.

FILE NUMBER 461

Dear Fred:

I am writing a few words about the above in the hope it will reach the right ears and help you in your efforts; please be sure nothing I say reflects on you -- quite the contrary. I wish to add you have done a wonderful job under circumstances.

As you know I have been active with the corps since its start, and believe with others that its existence and operation are vital and necessary to the welfare of our country and locale. But from the conduct and attention to it by the government etc. one would think it was quite the contrary.

Of course I am only familiar with our post on top of the Nash Auto Plant on Capitol Drive, where conditions are most inadequate. After arriving at the plant entrance, one must walk 3 blocks thru the plant, and most of the time walk up 12 flights of stairs of about 12 steps each--no small task--then stand watch on an exposed roof subject to wind, dirt, heat, cold and rain, etc. To expect anyone to stand outside like that for any length of time is absurd, what more 4 hours. (add traveling time) The penhouse enclosure of the elevator machinery at the top of the shaft offers protection, but one cannot see outside from the inside. No rain or storm coats, goggles or any such necessities are there.

From the start I have heard this was only temporary, which no one believes. With all the corruption, waste, graft and mismanagement in our government today, it is no wonder the corps is neglected. An American from many generations back, and veteran of two wars, I am trying to do my bit, but the present policy is exasperating. Members of our corps have even offered their services free to build a good watch tower if furnished material, but no result.

I regret to write this, and further to say that for physical reasons I will not be able to risk standing a watch until conditions are changed at the post; I would therefore like leave from duty till such event takes place.

Very truly yours,

HAROLD SHEFFIELD

HS#3
Copy to Senator Wiley
" " Milwaukee Journal

0645

ADOCB 381

3 Nov 1952

151

Major General Walter E. Todd
 Commanding General
 Western Air Defense Force
 Hamilton Air Force Base
 Hamilton, California

Identical Ltr - General Nelson, EADF
 General D'Arcy, CADF

FILE NUMBER	455
50	2/1/53

Dear "Wee",

After returning from the meeting in New Orleans at which I addressed the National Association of State Civil Defense Directors, I briefed my top staff on my personal feelings on the G. O. C. problem. They have been instructed to impart to each member of their offices the urgency of the program. This condition of urgency must be transmitted to every level of the command; everyone has got to pitch in on the task of keeping the G. O. C. on a real paying basis.

I realize that posts will drop out, volunteers quit and there will be a lessening of operational efficiency as we get along into winter. It is going to take a lot of effort to even hold together what we have, much less improve it, during the next few months, but it is a job that's going to be done.

Every man in the command must be made to feel the importance of the G. O. C. Whether he is only remotely, or not at all, connected with its operation, he must at every opportunity assist either by enjoining participation or by actual assistance to those directly engaged in the program.

The necessity for the program must be emphasized in every command activity. Its urgency must be driven home at every opportunity by those to whom the people look for leadership and guidance.

A few specific points which I feel warrant continuing attention are:

a. Lack of thorough understanding by all ADC installation commanders of the joint Air Force - Civilian responsibilities upon which the G. O. C. operates. Instances have occurred in which ADC installation commanders have taken a negative attitude when approached by state or local civil authorities for assistance in some phase of the G.O.C. effort. Everyone must realize that we - the Air Force and the civilians - are doing this job together, and that full consideration and backing must be given to the civilian effort.

b. The necessity for command-wide use of officers and airmen with low retainability has resulted in an unduly high personnel turnover rate. This condition has an extremely adverse affect on the G.O.C. program, not only from lack of productivity from the Air Force personnel, but more so from the continuing readjustment of the volunteers to a new face and a new personality. The many letters I'm getting from civilian sources continue to point to the rapid turnover in our G.O.C. personnel as a real bone of contention. As we accomplish the build-up to the strength authorized under the new G.O.C. T/D, we must be absolutely sure that we do so with officers and airmen that will remain with the system for a maximum length of time. This policy must also obtain in replacing those who are leaving the system. Every effort must be made to gain maximum stabilization of these personnel.

c. Subordinate levels must be made to realize the necessity for continued evaluation of the G.O.C. system. The weaknesses must be singled out and corrected. This can best be done by those working in, or with, the system each day. Their findings and recommendations are a material factor in making the G.O.C. the effective system we are working for.

I realize that you have a long list of "personal attention" items and I don't propose to add these to it. I just want you to know that a lot of effort is going into the G.O.C. program at top level, both Air Force and Civilian, and we've got to be sure that their effort isn't negated by the ball being dropped somewhere along our line.

Sincerely,

B. W. CHIDLAW
General, USAF
Commanding

COPY
014.13

152

ADOCB 014.13

2 Oct 1952

SUBJECT: USAF Airplane Rides for Ground Observer Corps Volunteers

FILE NUMBER 459

W.H.

TO: Director of Operations
Headquarters United States Air Force
Washington 25, D. C.

1. Reference is made to letter, Headquarters 4672d Ground Observer Squadron, GOSOT 381 x 200.6, subject as above, 5 August 1952, and indorsements thereto (copy attached).

2. The authority granted for transporting civilian volunteers of the Ground Observer Corps in connection with official activities will be meticulously administered by this command. It is felt, however, that local flights in USAF aircraft, awarded to volunteers on an individual merit basis, would present an excellent means for stimulation of interest in the Ground Observer Corps program. There appears to be no violation of Air Force policy in such a program as the precedent has already been established by the program for similar flights for the Explorer Scouts.

3. It is requested that the decision as outlined in the fourth indorsement of the attached correspondence be reconsidered in the interest of promoting an effective Ground Observer Corps. It is believed that this reconsideration is especially essential at this time in view of the action of several of the states in withdrawing their financial support of the Ground Observer Corps program. A system of meritorious awards is vitally necessary to maintain the interest and enthusiasm of conscientious volunteers who are contributing effort wholeheartedly to the furtherance of a mission of the Air Force even under the handicap of lessening support from their own state organizations.

FOR THE COMMANDING GENERAL:

1 Incl
Cy ltr fr 4672d Grd Obsr
Sq, GOSOT 381 x 200.6,
Subj: as above, 5 Aug 52,
w/4 lnds

s/t/ JARRED V. CRAIG
Brigadier General, USAF
Chief of Staff

maj RWGERTON

0648

COPY
014.13

ADOCG 014.13

2 Oct 1952

SUBJECT: USAF Airplane Rides for Ground Observer Corps Volunteers

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

1. This Command requested authority from Headquarters USAF to approve on an individual merit basis the transporting of civilian volunteers of the Ground Observer Corps in USAF aircraft. The following reply from Headquarters USAF is quoted for your information and guidance.

"1. You are authorized to provide air transportation for civilian volunteers of the Ground Observer Corps, provided the transportation is in connection with official activities. Recommend that transportation be confined to that considered necessary or advisable for briefings, indoctrination or training of individuals concerned.

"2. The establishment of a system to provide airlift for personnel under the proposed merit and award basis is not favorably considered. Existing Joint Regulations governing the use of military aircraft require that transportation of this nature be of primary or official interest to the Armed Forces. Therefore, it is considered that any attempt to determine primary or official interest by means of a degree of effort expended, by individuals concerned, would be difficult to administer".

2. The above reply does not reflect a direct answer to the spirit of the request for meritorious award of an airplane ride to deserving civilian volunteers of the Ground Observer Corps in USAF aircraft. Further representation will be made by this command to Headquarters USAF for a more considered opinion on this matter.

BY COMMAND OF GENERAL CHIDLAW:

s/t/ JOHN J. HAYES
Captain USAF
Asst, Adj. Gen.

Maj R.W. Gorton

0 6 4 9

State of Connecticut

OFFICE OF CIVIL DEFENSE
92 Farmington Avenue
Tel. 2-2163
Hartford 15, Connecticut
October 31, 1952

153

General Benjamin H. Childlaw
Air Defense Command
Colorado Springs, Colorado

Dear General Childlaw:

I am enclosing herewith a copy of a memorandum which I sent to the Governor today.

I do not foresee any reason why the Connecticut Legislature will not amend the Civil Defense Act to include the Ground Observer Corps in the Civil Defense Corps, but the Legislature does not meet until January 1953 and speedy action may not be possible.

Can you (or your legal staff) suggest a way out by rewriting the paragraph in the Air Force Manual 50-12, quoted in my letter to the Governor so that the Ground Observer Corps is defined as the primary responsibility of the State Civil Defense? That its principle duty is to gather the information necessary to alert the Civil Defense Forces under a warning Yellow and the General public under a warning Red. That since the information which they obtain is also of value to the Air Defense Command in alerting the military forces to repel an attack the Air Force agrees to assist the communications necessary for this purpose and will assist the Civil Defense Directors in the training of this personnel when called upon to do so.

The Federal Civil Defense Administration introduced legislation in the past Congress to cover compensation of Civil Defense Forces for death, injury or disability during training or while on duty in an emergency, but it died without action. This would have eliminated this dispute.

In the meantime I shall endeavor to keep the G.O.C. going without the merit of the Compensation Act.

Sincerely yours,

/s/ William Heeketh
William Heeketh
Director

b1.

b

Mail Address
P.O. Box 528
Kansas City, Mo

30 JUL 1952

49 1946

1. Reference is made to First Indorsement, your Headquarters, Athens, Ga., of July 1952 to letter APOG-49 095, Headquarters USAF, 10 July 1953, subject: Relinquishment of Railroad Maintenance Section Crows in National Defense.

The suggestion put forth by Mr. John L. Taylor for the employment of section crews as credited observers has already been initiated by the Chicago and North Western Railroad Co. The first known instance of this is at the Chicago, Burlington and Quincy yard in the North Platte, Neb. telephone communication center. In this case the railroad section crews

3. Information, when is available at this writing to determine the effectiveness of the railroad crews, however this system of reporting will be passed adequately and appropriate reports forwarded.

6. The significance of all railroads contacted in the GALT area has been comparatively small and helpful in the extreme. For instance, Mr. Taylor's investigation was also put forward by Mr. O. R. Tuckey, then Operating Vice-President of the Rock Island, Topeka and Santa Fe system when he was contacted in early headquarters in Chicago on 15 April 1952. It developed that this railroad had no useful trainings in the GALT area and the contact was referred to the BART 000 Coordinator in the GALT area and the contact was re-initiated. The Operating Vice President of the Milwaukee Road and the Chicago, Burlington and Quincy Railroad also made this suggestion. It is then to place calls in the short time interval required. It is believed that some railroads do work in this manner. Development Commanders and Command Observer Corps should be alerted. Development Commanders and their assistants, if they are of equipment are known to exist within

MAJOR G. GORTON, Major USAF, CA 000 DIV 020

Please Address Your Reply to the COMMANDING OFFICER, ATTENTION: CIVIL AIR DEFENSE

CAD 361 Subject: Utilization of Railroad Crews in National Defense

would enable the section crews to report along existing railroad telephone lines without the necessity of splicing in, and it is suggested that investigation be made to determine if and under what conditions such equipment could be made available by the Air Force to railroad section crews.

5. Correspondence referenced in paragraph 1, above, has been forwarded to Air Divisions for information and guidance.

FOR THE COMMANDING GENERAL:

W. L. Mooney
W. L. MOONEY
CWO, USAF
Asst Adj Gen

ADOC 361 (30 Jul 1952)

1st Lnd

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colo.

TO: Commanding General, Central Air Defense Force, ATTENTION: Director of Civil Air Defense, P. O. Box 528, Kansas City, Missouri

1. Request that further reports containing answers to the following specific questions be forwarded so as to reach this headquarters not later than 30 September 1952:

a. Are the railroads willing to permit section crews to participate in reporting aircraft movement?

b. Are section crews available 24-hours a day?

c. What communication facilities and circuits are available over which to report?

d. What types of telephone instruments are available for use by section crews?

e. Can reporting by section crews effectively increase visual and aural coverage?

01290

HQ CADL
1952 AUG 10 11:00 AM

RECEIVED

0652

Hq CATT CAD 381 Subject: Utilization of Railroad Crews in National
Defense

ADOCB 381 (30 Jul 1952) 1st Ind (Contd)

f. What authority is necessary to establish section crew re-
porting.

DISCUSSANT OF GENERAL CHIEFLIN:

Carl H. King

27044

155

1 Aug 1952

ADCD 381

SUBJECT: Participation of Air Defense Command Installations in Ground Observer Corps System

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Westbury, New York

FILE NUMBER

461

WCF

1. The civilian volunteers participating in the present Ground Observer Corps program rightfully expect the military to join in this effort. All Air Defense Command installations in the Ground Observer Corps area of operation will give direct support to this program.

2. Air Defense Command installations have certain units engaged in 24-hour watch activities, such as security forces or Air Police, whose normal method of operation fits them rather ideally for participation without adversely affecting their primary duty.

3. It is desired that observation posts be established at each Air Defense Command installation, consistent with present criteria for post requirements, within the present area of Ground Observer Corps operation, and that the installations within the "Skywatch" area place these posts in continuous operation. Details of post operation and reporting to be resolved at local level.

4. Attached for your information is a copy of correspondence to Headquarters USAF, reference participation by other services in Ground Observer Corps operation.

BY COMMAND OF GENERAL CHIDLAN:

1 Incl
Ltr Hq AD, ADCD 381,
sub: Participation of
Mil Instls in the Grd
Obr Corps

CARL M. FRY
CWO, USA
Asst Adj Gen

Col JEFFLETCHER

10 6 5 5

8

HEADQUARTERS
ARMY ANTIAIRCRAFT COMMAND
Ent Air Force Base
Colorado Springs, Colorado

156

ADQAA-3 O&T 322

7 Oct 52

Col Babark/mcs

SUBJECT: Participation of Army Antiaircraft Command Units in the Ground Observer Corps

TO: Commanding General, Eastern Army Antiaircraft Command, Stewart Air Force Base, New York
Commanding General, Western Army Antiaircraft Command, Hamilton Air Force Base, California
Commanding Officer, Central Army Antiaircraft Command, Post Office Box 2775, Kansas City 44, Missouri

1. The Air Defense Command has recently directed its installations, within the present area of Ground Observer Corps operation, to establish observation posts and place them in continuous operation. Participation by units of this command to the extent practicable has also been solicited. In addition, through headquarters United States Air Force all branches of the service are being requested to support "Operation Skywatch" by establishment of observation posts.

2. As you may know, working agreements for support of this program have already been established with the Department of Agriculture for use of United States Forestry Service towers and personnel; with the Department of the Interior for use of National Parks and Monument personnel; and with the Treasury Department for use of Coast Guard stations and personnel to augment the civilian volunteer organization.

3. The necessity for reliance on the Ground Observer Corps for information to supplement present radar coverage has been demonstrated. Support of "Operation Skywatch" by units of this command to the fullest extent consistent with its primary mission is desirable as a manifestation to the general public of the importance accorded the program by the military services and of the willingness of the military services themselves to perform the function wherever it has suitably located personnel available.

4. Headquarters, Air Defense Command, has been requested to direct Air Defense Force commanders to determine sites at which troops of this command are regularly stationed at which establishment of an observation post would contribute to the effectiveness of the ground observation net.

0 6 5 6

ADQAA-3 O&T 322
Subject: Participation of Army Antiaircraft Command Units in the Ground
Observer Corps

It is desired that coordination be effected with local commanders, including development of details for operation and reporting.

5. In most instances, it is believed possible to combine observer duties with other duties that are prescribed presently at positions which require presence of personnel on a 24-hour basis. Posts as required will be established and operations initiated wherever this action can be accomplished without jeopardizing successful performance of your primary mission.

BY COMMAND OF LIEUTENANT GENERAL LEWIS:

Copy furnished:
Air Defense
Command

ADAAA-3 O&T 322

Subject: Participation of Army Antiaircraft Command Units in the Ground
Observer Corps

It is desired that coordination be effected with local commanders, including development of details for operation and reporting.

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BY COMMAND OF LIEUTENANT GENERAL LEWIS:

Copy furnished:
Air Defense
Command

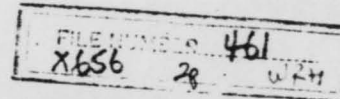
State of New York
EXECUTIVE DEPARTMENT
New York State Civil Defense Commission
124 East 25th Street, New York 16, N.Y.

157

Mr. Gen. CR. MUEHNER
Director

December 9, 1952

Brigadier General Russell J. Minty
Headquarters, 26th Air Division
Beech Air Force Base
Beech, New York



Dear General Minty:

As of 1900 this date, I have ordered the Observation Post at Fort Washington, EL 15 Green, closed as a result of a lack of cooperation between the U. S. Navy and the Civil Defense Forces working with the Air Force.

I refuse to allow my people to brave the elements without proper shelter, which the Navy forbids the local Director of Civil Defense to put on this property.

This is the only location available in the area from the standpoint of visibility and transportation.

This office will notify the White Plains Filter Center of closing down this Post.

Sincerely,

/s/t/C. R. MUEHNER
Director

CRH/k
cc: Secretary of Air
Secretary of the Navy
Director of Civil Defense, Nassau County

Hq. 24th Air Div (Def) 26AD000 381, Subj: Sands Point Observation Post
W. 10 Green

(K 100 52)

2d Ind

24th Air Div, Fort Air Force Base, Colorado Springs, Colorado

~~Area of Public Information, Hq. 24th Air Div, Fort Air Force Base, Colorado Springs, Colorado~~
Attn: GOC Project
Office: Washington 25,

1. The subject of the letter from General Macomber to the Commanding
Officer, 24th Air Div, appears to indicate action on the part of the
24th Air Div which is in variance with the policy directed in
the letter from the Secretary of Air Force and SACMAV
dated 10 November 1952, copy attached.

2. The Commanding Officer concurs in the action taken by General Macomber.
It is suggested that this matter be brought to the attention of the
24th Air Div through official channels, with an official
statement of the proper operation of the
24th Air Div, or that not being permissible
in official channels, it be correspondence above

24th Air Div, Fort Air Force Base

2d Ind

31 Oct 1952

Subj: Navy Participation in

SECRET SECURITY INFORMATION

ADCOT-C

27 OCT 1952 158

SUBJECT: (Unclassified) Early Warning by Visual Observation

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

FILE NUMBER 461
200 724

1. This Command desires to utilize every possible source available for the purpose of detecting and reporting aircraft approaching the Continental U.S. Personnel occupying the eight (8) ADC-manned REP sites on a caretaker basis can provide some early warning information in the way of visual or aural observations.

2. Observations will be reported as "Aircraft Flash Reports" and will be sent by the most expeditious means available (administrative radio circuit or by long distance telephones). REP stations will report to ADC facilities as indicated:

- a. Sites C-19, 20 and 21 will report to McChord ADCC.
- b. Sites C-17 and 18 will report to Fort Snelling ADCC.
- c. Sites C-14, 15 and 10 will report to Willow Run ADCC.

3. Aircraft flash reports will be made in the following sequences:

- a. Code name of reporting station.
- b. Aircraft flash.
- c. Number of aircraft - actual number (if determined) or unknown.
- d. Type of aircraft - report only multi-engine (4 or more engines), multi-jet formations, unknown (aural reports) and unusual occurrences (ADCR 55-31).
- e. Altitude - estimated in thousands of feet (unknown on aural).

(Identical letters to CGs, CADF and WADF.)

SECRET SECURITY INFORMATION

0661

SECRET SECURITY INFORMATION

ADDOOT-C Subject: (Unclassified) Early Warning by Visual Observation

f. Direction of flight - southeast, south, southwest.

g. Time of observation.

4. It is desired that you issue necessary instructions to the appropriate Air Division (Def) and Squadron Commanders to insure that all aircraft indicated in paragraph 3d on a southerly heading are reported to the appropriate ADCC. This procedure will continue until such time as lash-up or permanent radar is installed.

BY COMMAND OF GENERAL CHIDLAW:

LEWIS E. SMITH
Captain, USAF
Ass't Adj Gen

SECRET SECURITY INFORMATION

0662

SUBJECT NAME rd		None		J 864098	
SUSPENSE DATE		DATE		NUMBER	
2 Sep 53		2 Sep 53		D-24008	
FILE DESIGNATION		SECRET		SECRET	
SUMMARY					
B/L fr ADC to EADP dtd 27 Oct 52, Subj: (Uncl) Early Warning by Visual Observation (2 yrs)					
DO NOT REMOVE THIS COPY					
DATE	TO	TO	TO	TO	TO
1st Sep					
2nd Sep					
3rd Sep					
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FANFOLD NO. D-24012

SECRET SECURITY INFORMATION

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SECURITY INFORMATION

SECRET

COPY

322

CLASSIFIED SECRET

AUTH: CG, ADC

7 Oct 52

(Date) (Initial)

159

ADDCD 676.1

22 Oct 1952

SUBJECT: (UNCLASSIFIED) Canadian Ground Observer Corps Organization

TO: Air Officer Commanding
Air Defense Command (RCAP)
ATTN: Wing Commander J. A. Wiseman
Staff GObC Officer
St. Hubert, Province of Quebec, Canada

FILE NUMBER 467

WH

1. Reference your letter S2-1-O (SOGOEC), Subj: Canadian Ground Observer Corps Organization, 25 June 52, action has been taken by this headquarters to engineer the United States portion of the cross border telling circuits as outlined in paragraph 2 of your letter. A review of the circuit requirements, however, has not firmly established a requirement for two voice circuits between Grand Rapids, Michigan, and London, Ontario, and between Seattle, Washington, and Vancouver, British Columbia. The experience to date in "Operation Skywatch" indicates a full communication capability employing a single overlap circuit as a plotter-teller combination circuit. It is requested that you review the requirement between these stations with a view to eliminating one of the requested circuits. In the meantime the dual circuits will be engineered from this side.

2. The drastic reduction in the planned implementation of the Canadian Ground Observer Corps is viewed with concern by this headquarters. Although the elimination of the proposed Ground Observer Corps in New Brunswick, Prince Edward Island, and the Southeastern portion of Ontario can be reconciled with full implementation of the Canadian radar network, the lack of coverage in Southeastern British Columbia, Alberta, Saskatchewan, Manitoba, and Western Ontario presents a serious mutual threat with neither the Canadian Ground Observer Corps nor the Canadian radar network planned for extension into these areas. A probable avenue of approach to the most vital Canadian and United States industrial targets is left virtually open. Increasing emphasis is being placed by this headquarters on the maximum organization of the United States Ground Observer Corps in the border states of Montana, North Dakota, Minnesota, and upper Michigan in an effort to provide detection capability along this avenue of

aj RWGORTON

SECRET
SECURITY INFORMATION

0664

SECURITY INFORMATION

SECRET

ADOC 676.1 Subj: (UNCLASSIFIED) Canadian Ground Observer Corps
Organization (Contd)

possible approach. It is requested that effort be continued to obtain approval for the expansion of the Canadian Ground Observer Corps across the mid-western section.

FOR THE COMMANDING GENERAL:

LEWIS E. SMITH
Captain, USAF
Ass't Adj Gen

SECRET

SECURITY INFORMATION

0665

FILE NUMBER

470

10

WPH

Hq CAirC ODC 381 Subject: Establishment of Ground Observer Corps

160

ADOC 381 (2 June 52)

1st Ind

16 Aug 1952

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colo.

TO: Commanding General, Caribbean Air Command, Albrook Air Force Base,
Canal Zone

1. There is no single document which includes the technical requirements for the layout of a Ground Observer Corps. The Ground Observer Corps as employed by Air Defense Command grew from scratch with the aid of experience gained from similar systems activated during World War II.

2. Basically, the system is designed by breaking up into reporting areas those areas which are communication cells. The boundaries of the cells are determined by landline communication facilities and the "flow" of normal telephone routing. At the focal point of the cell is located the filter center for the area. General procedures include telephoned reports from observation posts to the filter center where the reports are plotted, filtered, and passed to the Air Defense Direction Center for that particular area.

3. Although it is indicated in the basic letter that publications of a general nature are available to your command, attached are copies of the AFM 50-12, AFM 50-13, ADC Unit Proficiency Directive 10-3, ADC Training Standard 10-8, equipment authorizations (except operations room equipment) and copies of pertinent regulations and blank forms used in the United States Ground Observer Corps.

4. This command can assist in laying out a proposed net if a landline communication diagram of the Canal Zone similar to an American Telephone & Telegraph Company toll routing diagram can be furnished to this headquarters. Any assistance this command can render in the establishment of a ground observer reporting system will be readily available upon request.

FOR THE COMMANDING GENERAL:

LEWIS E. SMITH
Captain, USAF
Asst Adj Gen

ADCR 55-15
1-5

ADC REGULATION)
55-15)

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
8 August 1952

OPERATIONS

161

Operation of Ground Observer Corps Private Line Networks

1. Purpose. This regulation establishes standard equipment requirements and operating practices to be used with a private line reporting network from observation posts.

2. Scope. This regulation applies to detachments of ground observer squadrons whose filter centers are connected, either wholly or partially, directly to associated observation posts by private full-period circuits.

3. General. The cluster system of observation posts provides for closer tracking surveillance and, in addition, for the progressive alerting of observation posts to the approach of flights in which a particular interest is evidenced. Full-period multi-point circuits may be installed between groups of observation posts and filter centers where any or all of the following conditions exist:

a. Where instantaneous contact with the filter center is necessary.

b. Where, due to high traffic density, it is more economical to install a multi-point full-period circuit than to receive reports via the toll message system.

4. Responsibility. a. It is the responsibility of the ground observer squadron commander to insure compliance with the practices outlined in this regulation by detachments equipped with private line observation post circuits.

b. It is the responsibility of the detachment commander of the ground observer squadron to train civilian volunteers and insure operation in accordance with this regulation.

5. Equipment. The following equipment requirements are mandatory:

a. Filter Centers:

- (1) Observation posts connected to a common multi-point circuit will be designated on the filter map table in a common color. (For example: All observation posts on a single circuit will be marked yellow.) Adjacent groups of observation posts will not be marked with the same color.
- (2) A fine black line will be drawn on the filter map table between the observation posts on a common circuit to the primary key termination at the plotter's position.
- (3) Colored buttons corresponding to the color of groups of observation posts will be provided on multiple terminating keys.

ADCR 55-15

5-6

- (4) Each multi-point circuit will be numbered consecutively, beginning with the number one, in a counter-clockwise direction starting at the northwest corner of the filter map table. Where more than one filter map table is involved, the numbering of the circuits will begin on the west table and progress consecutively from the west table to the east table.
- (5) Each observation post will be marked with its circuit number and an alphabetical suffix beginning with the letter "A" for each circuit.
- (6) Plotters' positions will normally be equipped with a 6021K (6-button) key, associated line lamps, ringing key, jack, and a 52 or 53 type headset with a switch-to-talk key in the cord. The extreme left button on the 6021K key is a restoral key used to disconnect from any line terminating at the plotter's position. The primary circuit for any plotter's position will terminate on the button immediately adjacent to the restoral key. Multiple appearances of adjacent circuits appear on the balance of the keys.
- (7) Where additional plotters' positions have been added to a normal filter center because of the additional circuits required, plotters' position will be equipped with a 4A-Key containing the jack and double-throw switch, ringing key, and 52 or 53 type headset with switch-to-talk key in the cord. Circuits terminating in 4A-Keys will also be multiplied into adjacent plotters positions equipped with 6021K keys.

b. Observation Posts:

- (1) A combination telephone installation consisting of a 52 or 53 type headset with long retractable cord permanently connected to a unit containing a non-locking switch-to-talk key and hand generator will be the standard telephone equipment.
- (2) Observation posts will be coded with their circuit number and alphabetical suffix.

6. Procedures. The following procedures will govern the operation of multi-point private line circuits:

a. Observation Posts:

- (1) Where two observers are on duty, one observer will wear the headset and continuously monitor the circuit.
- (2) Where only a single observer is on duty, the observer will wear the headset at all times.
- (3) The observer monitoring the circuit will answer roll call, acknowledge alerts, and make required verbal reports to the filter center plotter.

ADCR 55-15

6

- (4) Aircraft movement reports will be rendered to the filter center under AFM 50-12 using ADC Form 6-3 but substituting circuit number and alphabetical suffix for code name and number and omitting time delay.
- (5) Observers monitoring the circuit can receive warning of the approach of a flight of aircraft by listening to reports of other observation posts on the same circuit. Additional alerts will be passed from the filter center.
- (6) When an observer is ready to report an aircraft flash message, the observer will operate the push-to-talk key to the "talk" position and say, "(CODE OF OBSERVATION POST)." For example, "13 Bravo." The plotter will say, "Go ahead, 13 Bravo," using proper code of observation post reporting. The observer will then continue with the normal aircraft flash message. At conclusion of the message plotter will say, "Check," if the message is understood, or ask for repeat of items missed. It is not necessary to operate the push-to-talk key to monitor the circuit.
- (7) During periods of light air traffic, the plotter at the filter center may be monitoring more than one circuit. If no answer is received upon giving the code of the observation post on the line, repeat the code once. If no answer is received after the second transmission of the code, turn the hand generator to attract the attention of the plotter. When the plotter answers, continue the aircraft flash message in the normal manner.
- (8) Whenever possible, observers will report positive recognition information to the plotter. Observation posts located in or along regularly scheduled air routes should become familiar with the types of aircraft, commercial and military markings, and insignia of country of origin of these regularly scheduled flights. Knowledge of approximate time of passage of each scheduled flight will aid in recognition. Positive recognition information will be reported under Item 9 (Special Remarks) in the aircraft flash message and will contain enough information to assure the filter center that the recognition is positive. For example, say under Item 9, "This is an American Airlines DC-6" or "This is a TWA Constellation."

b. Filter Centers:

- (1) Plotters will monitor their primary lines continuously during normal operating periods. This is done by having the headset plugged in and the primary line button depressed on 602LK keys. To monitor a circuit terminating in a 4A-Key, the plotter must have the headset plugged in and the double-throw switch thrown to the talking position. When a plotter is required to talk on the circuit, the switch-to-talk key in the cord must be operated to the "talk" position. The switch-to-talk key must be operated

ADCR 55-15

6

- to the "monitor" position when conversation is furnished to prevent extraneous noises from being transmitted over the line.
- (2) Plotters will receive aircraft flash messages from observation posts and plot the information by AFM 50-13.
 - (3) Plotters will act as net control operators on multi-point circuits. They will take corrective action to maintain line discipline; they will assign priority to aircraft flash messages when two or more observation posts are trying to report simultaneously; they will call roll periodically of observation posts on their circuits to insure manning of the observation posts; they will alert observation posts on their circuits to the approach of flights of aircraft as determined by the filterers.
 - (4) During periods of decreased air activity (late at night, bad weather, etc.) plotters may be assigned to monitor a number of circuits. In this case, the plotter need not monitor any particular circuit continuously but may wait for a line signal before connecting to a particular circuit. During these periods, a periodic roll call of observation posts on all circuits being monitored by the plotter will be made to insure operation of the observation post. Roll call will be made on each circuit being monitored at least once an hour when no reports have been received during that period.
 - (5) Filterers will determine whether a group of observation posts apparently in the path of a flight should be alerted to the approach of the flight. When it is determined that a group, or groups, should be alerted, the filterer will instruct the plotter to alert a particular circuit, or circuits. A circuit is alerted by depressing the line key associated with that circuit and then pressing the ringing button to signal. The plotter will call roll of all observation posts on the circuit when passing alert information. In addition, the plotter will alert the observation post, or posts, nearest to the approach of the flight, giving as much detailed information as possible concerning the flight.
 - (6) Plotters receiving positive recognition information will record this information on an "Action Indicator" form, place the form alongside the pip, and inform the filterer of such reports. Filterers will place "No-Tell" bars on the raid stands describing such flights if sufficient information has been received to positively identify the flight as friendly.

ADCR 55-15
6

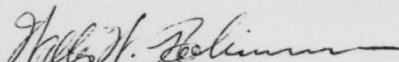
- (7) Plotters and observers will be instructed that extraneous and irrelevant conversation is to be avoided on multi-point circuits.

(ADOCB)

BY COMMAND OF GENERAL CHIDLAW:

OFFICIAL:

JARRED V. CRABB
Brigadier General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Adjutant General

DISTRIBUTION:

B, plus Air Divs (Def);
AC&W Units; GOC Sqs & Dets

(AF-ADC, Colorado Springs, Colo.)

5

0671

ADOC D 381

162

20 OCT 1952

Mr. Leonard Dreyfuss
 Director of Civil Defense
 State House, Room 1A
 Trenton, New Jersey

Dear Mr. Dreyfuss,

In a recent meeting at this headquarters between representatives of the office of the Military Communications Manager, AT&T, and the Directorate of Civil Air Defense, Headquarters Air Defense Command, the status of the Ground Observer Corps private line reporting system for the White Plains Filter Center was discussed. I felt that you would be interested in this matter as White Plains is the pilot model for test of this type of communication prior to possible adoption throughout a major portion of the Ground Observer Corps system. Inclosure one is an extract from a memorandum prepared by AT&T, showing present status of installation.

This test installation is not being accomplished as quickly as we had originally anticipated. Delays have been occasioned by a number of causes, the most of which have been cleared, but two factors have as yet not been cleared. One is the availability of certain telephone equipment, which the telephone people indicate will be cleared up, as far as the New Jersey area is concerned by 1 January. The second factor still causing delay is the lack of a firm location for a number of Observation Posts. The posts in question are listed in inclosure two. It would certainly be beneficial to White Plains in particular, and the system as a whole, if there could be a concentration of effort on these particular posts in order that the test installation could be made operational at the earliest possible date.

In inclosure one you will note that the same difficulties are being encountered in the State of New York. I am sending a letter, similar in vein to this one, to General Huebner.

Sincerely,

JOHN F. FLETCHER
 Colonel, USAF
 Director, Civil Air Defense

2 Incls

1. Extract from AT&T Memorandum
2. List of OPs

Incl 1 in AG Files

0672

PROPOSED FIRE LINE SYSTEM - WHITE PLAINS FIRE CENTER

<u>Location</u>	<u>Tel #</u> <u>Present of</u>	<u>Grid</u> <u>Coord</u>	<u>Status 9/15/52</u>
Hackettstown NJ		AL 15 R	Location not firm
Washington, N. J.		AL 04 R	Location not firm
Califon, N. J.		AL 04 G	No shelter
Whitehouse, N. J.	Cal 106 (CC)	AL 14 Rlk	Location not firm
Layton, N. J. (Branchville)	(cc)	AM 11 Rlk	Location not firm
Calasville, N. J. (Sassoon)	Rra 2873 (CC)	AM 21 Rlk	Location not firm
Ramsey, N. J.	Sas 7-3041 (CC)	AM 50 Rlk	Location not firm
Vernon, N. J.		AM 31 Rlk	Location not firm
Ogdensbourg, N.J. (Franklin Boro)	Ver 55-5600 (CC)	AM 20 Rlk	Location not firm
Butler, N. J.	Fra 6-3511	AM 30 R	Location not firm
Montclair, N. J.	But 9-0394	AL 44 R	Shelter ?
Rockaway, N. J.	Mont 2-1290	AL 35 Rlk	Location not firm
Newton, N. J.	Roe 9-0322	AL 35 R	Location not firm
Whippany, N. J.	Roe 8-2855	AL 34 Rlk	No shelter
Bernardsville, N. J.	Whi 8-0012	AL 24 R	Location not firm (10/1/52)
Howark, N. J.	Rig 8-0559	AL 44 G	No shelter
Elizabeth, N.J.	Eli 3-6579	AL 44 Rlk	No shelter
Carteret, N. J.	Car 1-7100	AL 43 Rlk	No shelter - Location ?
New Brunswick, N. J.	Kil 5-5760	AL 33 Rlk	No shelter
South Amboy, N. J.	Sou 1-1011	AL 42 Rlk	No shelter - Location ?
Old Bridge, N. J. (South River)	Sou 6-0820	AL 32 R	No shelter
Mt. Vernon, N. J.	Mat 1-1000	AL 42 R	Location not firm
Plankton, N.J. (Summersville)	Sum 8-9751	AL 23 Rlk	No shelter
Round Brook, N.J.	Rou 9-0304	AL 23 R	Location not firm
Northvale, N. J.	Roe 4-5781	AL 12 R	No shelter
Patterson, N. J. (Clinton)	Cl 277-111 (CC)	QL 536	No shelter
Pittsford, N.J. (Clinton)	Cl 2403 (CC)	AL 03 Rlk	May move to Cherryville
Flemington, N. J.	Fle 812 (CC)	AL 03 R	Location not firm
Ringwood, N.J. (Flemington)	Fle 91785 (CC)	AL 02 R	No shelter

COPY

HEADQUARTERS
 AIR FORCE
 1st Air Force Base
 Colorado Springs, Colorado

163

ARDCD 676.1

SUBJECT: Implementation of Private Line Networks for Observation Posts

TO: All Commanding Generals, Air Defense Forces

1. Telephone bills processed since the beginning of Operation Skywatch indicate that the average expense for Aircraft Flight Messages per observation post is approximately \$1200 per year. This figure is an average for all participating observation posts whether on full all-hour operation or operation on a part time basis.

2. Preliminary cost estimates received for the multi-point private line system for clusters of observation posts indicate an average installation cost of \$200 to include an existing observation post in a cluster. The average annual rental for each post included is \$1,525.

3. A comparison of toll charges incurred by active observation posts, particularly in areas of relatively high air traffic density, reveals that cost of communications for these active observation posts under the toll system is in excess of that required for connection and operation in a private line circuit. A considerable communications cost saving can be effected by including those exceptionally active observation posts on private line circuits.

4. It is desired that a survey be conducted within the present Sky area to determine which groups of exceptionally active observation posts the same geographic area should be formed into multi-point circuits. The following points must be considered in the survey:

a. Initially, consideration will be given to observation posts having a toll rate of \$1500, or higher, per year, based on performance during Operation Skywatch.

b. All observation posts in a specific geographic area must be considered in establishing a cluster. Observation posts not active should be considered for inclusion at a later date. As a guide in establishing cluster sizes, the installation in the White plains area includes clusters containing from four to nine observation posts.

c. The rate of flash calls from all posts within a single cluster must not exceed the capability of a single plotting position to accept and display the information.

0674

ABOCD 676.1 Subj: Implementation of Private Line Networks for Observation
Posts (Contd)

5. It is desired that the survey be divided into the following phases:
 - a. Phase A - observation posts to be included in private line networks at earliest possible date.
 - b. Phase B - observation posts to be included in private line networks at a later date.
6. Submit orders for all Phase A posts upon completion of survey and designation of clusters and posts for immediate installation. Accomplish an ADC Form 13h for each observation post included and mark plainly "FULL PERIOD CIRCUIT." ADC Regulation 55-15, 8 August 1952, governs coding and operation of observation posts on private line networks.
7. It is further desired that plans for the full implementation of both Phase A and Phase B for each filter center area be developed and forwarded to this headquarters not later than 1 March 1953.

BY COMMAND OF GENERAL CHIDLAW:

Info copy to
CG, ADiv (Def)
CG, Grd Obsr Sq
CG, Det, Grd Obsr Sq
Mr. H. J. Schroll,
American Tp & Telegraph Co,
New York
State Grd Obsr Corps Coord

s/t/ JOHN J. HAYES
Captain, USAF
Ass't Adj Gen

Hq Eastern ADF, EAOCD 381, Subj: Defects in Ground Air Observation

ADOC 381 (12 Nov 52)

1st Ind

164

24 Nov 52

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Eastern Air Defense Force, Stewart Air Force Base, Newburgh, New York

1. A conference, attended by representatives of the HCAF Ground Observer Corps and Civil Air Defense Directorate, this headquarters, was held in Chicago, Illinois, 17 and 18 November. The purpose of the conference was to discuss changes in the Ground Observer Corps plotting equipment. It was agreed that the following changes should be investigated:

a. Redesign of the plotting pip to include:

- (1) Redefinition of the number of aircraft to be reported, (1, 2, 3, 4, many, unknown).
- (2) Reclassification of types to include subdivisions of the present identity categories (bi-transport, multi-bomber, multi-transport).
- (3) Display of the actual time of observation in minutes.

b. Redesign and reprint of ADC Form 6-3 to conform with the changes in the plotting pip.

2. Consideration will be given to the recommendations outlined in paragraph 3. a. c. and d. basic letter in the redesign of ADC Form 6-3. You will be requested to comment on the recommended changes at such time as they are finalized by this headquarters.

BY COMMAND OF GENERAL CHIDLAW:

CARL M. FRY
CWO, USAF
Asst. Adj Gen.

Lt Col. L.R. Larson/bg
307
24 Nov 52

0676

Hq ADC ADOC 381 Subject: Ground Observer Corps Reporting

WB 381 (17 Oct 52)

4th Ind

24 Nov 1952

HEADQUARTERS 31ST AIR DIVISION, Fort Snelling, Minnesota

165

TO: Commanding General, Central Air Defense Force, P. O. Box 528,
Kansas City, Missouri

1. This headquarters concurs with the recommendations of the 4672d Ground Observer Squadron. Present plotting equipment need not be revised if these recommendations are approved.

2. This headquarters would like to call attention to the connotations of the word "identification." For Air Defense purposes, the sole meaning is reserved for the friendly or hostile nature of aircraft. The broader, general meaning includes aircraft type (such as B-29), special markings, number of vertical stabilizers, and other such information. The GOC may be able to provide some information of the latter type to assist the ADC in the actual air defense identification. Recommend that requests for such information from the GOC be minimized and that such information be used with great discretion to prevent its misuse. Careful screening must be made to preclude erroneous conclusions from this information.

3. Further recommend that aircraft recognition by specific type be excluded from the GOC program. Such recognition is difficult, even for highly-trained military personnel, let alone only partially-trained civilian volunteers.

FOR THE COMMANDING GENERAL:

ROBERT L BOWMAN
Captain USAF
Assistant Adjutant

Hq ADC ADOCD 381 Subject: Ground Observer Corps Reporting

CAD 381 (17 October 1952)

5th Ind 166

28 Nov 1952

Hq CENTRAL AIR DEFENSE FORCE, P. O. Box 528, Kansas City, Missouri

TO: Commanding General, Air Defense Command, Nat Air Force Base, Colorado Springs, Colorado.

1. Concur in principle with the recommendation of the 4672nd Ground Observer Squadron.

2. Reference paragraph 1, a, (3), 3rd Indorsement, it is felt that a color other than red might be more appropriate for the purpose to be accomplished here. This would reserve red for more demanding purposes, which might arise later.

3. It is realized that basic does not refer to the question of aircraft recognition, however, since this subject is raised in the 4th indorsement, an added comment is felt appropriate. It is not felt that sufficient data exists to determine the practicability of teaching aircraft recognition to Ground Observers. Training aids pointed to this specific application have not been constructed, and prior Air Force experience is not similar in vital respects. Eye witness information would be of inestimable value to the Air Defense system, provided it can be made reliable. An aircraft recognition program might well provide sustaining interest for Ground Observers. If British experience on this subject is available, it is felt it should be closely studied so as to assess factors contributing to its success or failure. If British experience proves inadequate for reliable judgement, it might be desirable to designate a small portion of the Skywatch area as a testing ground for an aircraft recognition program.

FOR THE COMMANDING GENERAL:

QUENTIN RAND
Capt. USAF
Asst Adjutant General

PLAN FOR CLOSER INTEGRATION OF THE GOC WITH THE AC&W SYSTEM

167

1. Purpose. The purpose of this plan is to outline in broad and general terms a method of more closely integrating the GOC into the operation of the AC&W system. This is a suggested plan designed to stimulate serious thinking concerning the employment of data generated by the GOC in the AC&W system.

2. General. Past experience of criticism of the GOC generated little confidence in the GOC by the AC&W System because of the tremendous volume of data generated. A valid criticism--that the tracks generated by the GOC were neither continuous nor reliable--was advanced. This was due largely to the lack of an effective observation post organization and no general practice of dead reckoning. In the main, however, the paramount reason for lack of a closer integration of the facilities of the GOC with those of the AC&W system was the tremendous volume of reports from the GOC to the AC&W system. This volume of data developed tremendous proportions, particularly during exercises, when all available aircraft of any type were employed to furnish observing material to the GOC. It was this large volume of data that the AC&W could not physically handle and, in the great majority of instances, chose to ignore. Moreover, unless the ADIZ command was within an ADIZ, little or no concern of overlaid traffic was evidenced.

The realization has come, however, that low-altitude constant surveillance is a necessity to a successful air defense system. It is for this reason that exploration of ways and means to integrate these two systems into a unified, workable mechanism must be undertaken.

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- e. GCS will track, but not identify, aircraft flying within the filter area and not in the surveillance area of flights outbound.
- f. GCS will institute and maintain procedures for as temporary compensation for lack of established observation points.
- g. ABSCs will plot GCS tracks on the same plotting board as tracks detected electronically are plotted.
- h. ABSCs will scramble on unidentified tracks generated by GCS.

168

Hq ADC ADOCD 361 Subject: Integration of GOC with AC&W Systems (27 Aug 1952)

WDGCD 361

1st Ind

OCT 1 1952

HQ WESTERN AIR DEFENSE FORCE, Hamilton Air Force Base, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. The following comments and recommendations regarding the feasibility of the proposed plan for integration of GOC with the AC&W system are submitted:

a. Establish penetration zones, two (2) to four (4) observer posts in depth, adjacent to all ADIZ boundaries and exert every effort to insure that these posts are situated and manned to effect complete air surveillance 24 hours per day. It is not considered advantageous to establish similar penetration zones around vital target complexes since it would be generally impossible to provide adequate warning information to permit interception prior to reaching the bomb release line.

b. Indicate on each filter center board the penetration zones within its area. This could be accomplished by lightly shading the penetration zone area, or in some other similar manner to minimize the cluttering of the filter center board.

c. Establish a track at the filter center on the first observation in all cases where the information is considered reliable. A visual sighting by a ground observer gives positive information concerning the presence of an aircraft. Consideration should be given to establishing a procedure for the ground observer to include, in item 9 of his report, information as to the reliability or accuracy of all aerial observations. Distance and direction of flight can quite accurately be determined on low flying aircraft passing directly overhead even though conditions prevent visual observation. However on high flying aircraft it is difficult to determine much more than that there is an aircraft in the vicinity.

d. Concur, no comment.

e. Concur, no comment.

f. It is believed that dead reckoning procedures should be used in the filter center only as a means for correlation of subsequent plots. Dead reckoning should not be used for advancing a track for radar tracking. In order to instill confidence in the ADC personnel in the reliability of GOC information, only factual data should be passed to them.

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0682

Subject: Integration of GOC with AC&W Systems (27 Aug 52)

1st Ind (Cont'd)

1. All tracks must be plotted on the same board that radar tracks are plotted. A few stations may temporarily experience some difficulty in this regard due to the limited size of the plotting boards presently in use.

2. The rules for ordering a scramble on unidentified tracks are the same for GOC tracks as that in force for electronically identified tracks.

COMMANDING GENERAL:

James I. Fike
JAMES I. FIKE
2nd Lt. USAF
Asst Adj. General



Hq ADC ADOC 381 Subject: Integration of GOC with AC&W Systems

CAD 381 (27 Aug 1952)

1st Ind

169

Hq CENTRAL AIR DEFENSE FORCE, P. O. Box 528, Kansas City, Missouri

30 SEP 1952

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. In compliance with paragraph 2, basic correspondence, the following are the composite comments of this Command, concerning the proposals set forth in Inclosure #1.

a. Suggest penetration zones be enlarged to a minimum of six Observation Posts in depth in order that more definite track information may be obtained.

b. The actual physical marking of the filter map tables with its segment of the penetration zone presents no particular problem; however, in the past it has been the practice to minimize the amount of information carried on the plotting table in the interests of simplicity, due to the rapid turnover of volunteer operating personnel. This must be considered in preparing SOP's on operating a Filter Center under such conditions.

c. Concur.

d. Concur.

e. Concur.

f. Filter Center dead reckoning procedures will require considerable additional training of civilian volunteers. If such a practice is instituted, recommend provision of appropriate computers, etc., as well as necessary training aids and simplified instructional materials. Dead reckoning would be entirely dependent upon the accuracy of the reports made by Observation Posts. Reporting of direction is presently confined to cardinal points of the compass. No data exists to show the percentage of accuracy now achieved. Before such a system is considered, it is suggested that tests be conducted in areas of varying Observation Post density in order to determine if observer reports are sufficiently accurate in direction of flight to provide worthwhile dead reckoning returns.

g. Concur; this proposal is a definite step toward closer coordination between Filter Centers and AC&W stations.

h. Concur.

FOR THE COMMANDING GENERAL

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Asst Adjutant General

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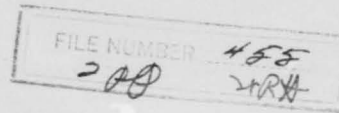
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COLORADO SPRINGS, COLORADO

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HAMILTON AIR FORCE BASE
CALIFORNIA

CG, EASTERN AIR DEFENSE FORCE
STEWART AIR FORCE BASE
NEWBURGH, NEW YORK



CENTRAL AIR DEFENSE FORCE
1209 WALNUT STREET
KANSAS CITY, MISSOURI

170

ADHPI 25428. The fol rels for Sun A. M. Editions is fwded for yr info and use: "GOC acft repting and tracking actys during its first wk of 24-hr duty have proven of value to the Nation's air def sys, ADC declared at this Hq today. Para. Hundreds of tracks repting low-flying acft and not previously picked up on ADC's radar net, have been fed into the air detection sys from Fil Cens. These tracks were based on repts from the indiv obsr posts in the field. Para. Although opns reports at weekend showed the GOC operating with only 50 percent of the required number of obsr posts, and not all these posts sufficiently manned to permit continuous 24-hr opn, repting and tracking actys were said to be faster and more efficient than at any previous time. Para. Correlation between tracks reptd by the GOC and tracks reptd by ADC's radar network indicated a high degree of accuracy in the GOC-reptd tracks. Para. As of late Saturday night, civ air def offs here ested there were between 70,000 and 80,000 civ vols active in indiv posts and fil cens in the 27-state area of opn "Skywatch, which runs along both coasts and the Canadian border. Thousands of addl vols are needed to strengthen the sys, it was stated. Para. Response to the call for 24-hour duty, issued by Gen Benjamin W. Chidlaw, ADC CG, at 8:00 A. M., EDST., Mon was regarded as encouraging at this hq in view of the increasing number of posts entering the sys as the opn progresses. Para. The GOC which has been in orgn and training for over two years, is based on a similar sys established by the British Royal Observer Corps during World War II and is designed to suppl the functions of the radar net by prov for detection of low-altitude flights freq missed by radar. Para. Although working as in integral part of the ADC's air detection sys, the GOC has been orgn on a completely vol basis by the civ def orgns of indiv. states. Para. In recent months, GOC orgn and training have been accelerated sharply in light of the USSR's growing strength in long-range acft and atomic weapons. According to ADC's CG, the Russians

Page 1 of 2 pages

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could at any time they choose, send over a force of at least 400 heavy bombers and strike at important mil and civ instls in this country. To assure max early warning against such a possibility the GOC was called into 24-hr duty." Para. Simultaneous release will be made by this Hq and Hq, USAF.

CG, ADC

Page 2 of 2 Pages

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-Semi-Annual-
**HISTORICAL
REPORT**
NUMBER FIVE
NARRATIVE
JUNE, 1953

PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
COMMAND ADJUTANT

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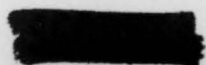

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HEADQUARTERS
AIR DEFENSE COMMAND

SEMI-ANNUAL HISTORICAL REPORT
1 January - 30 June 1953

NARRATIVE

Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT

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SECRETPREFACE

This is the fifth Semi-Annual Historical Report prepared by the Headquarters, Air Defense Command Historical Office. It was written in compliance with the very general instructions contained in Air Force Regulation 210-3.

The present volume is a history of the Command for the first six months of 1953 only in the sense that it purports to treat in some degree and fashion each event of major importance which took place during that period. For detailed information on particular units, equipments, and problems, the reader will be obliged to supplement his explorations in this work with research in the histories of the Air Defense Forces, Air Divisions, Defense Wings, and separate units for the same period. Copies of these studies are on file in the USAF Historical Division at Maxwell Air Force Base and in the Headquarters, Air Defense Command Historical Office.

In this work, Mr. Denys Volan wrote the chapters on Aircraft Control and Warning, the Mobile Radar Program, and the Radar Extension Program. Mr. Lydus H. Buss prepared the Emergency Interceptor Forces and Weapons Programming chapters. Dr. Robert L. Kelley wrote the Manpower and Training chapters. The undersigned prepared the chapters on Organization and the Interceptor Force. Mrs. Betty Terry typed the manuscript. Technical Sergeant William M. Draper, A/IC Robert Rusnock, and A/IC Richard Carnes took charge of the security and reproduction details incident to the preparation of the volumes of supporting documents.

Colorado Springs
24 February 1954

Thomas A. Sturm
Director of Historical Services

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REFERENCE NOTE

Footnotes are numbered consecutively within each chapter. Supporting Documents are numbered consecutively throughout the volume.

The following abbreviations have been used in the footnotes. ADCHR #1, #2, #3, and #4 refer to Headquarters, Air Defense Command semi-annual historical reports for the periods ending June 1951, December 1951, June 1952, and December 1952, respectively. Copies of these reports are on file at the USAF Historical Division and at Headquarters Air Defense Command. The abbreviation HRF indicates that the document is in the Historical Reference Files at Headquarters, Air Defense Command.

The following important documents to which reference is made in the history were too bulky for inclusion in the supporting documents and were forwarded separately to the USAF Historical Division: Hq ADC, Radar Evaluation Report, 1 May 1953 (2 Vols); Hq ADC, Command Data Book, July 1953; and Hq ADC, ADC Program, 1 October 1953.

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PART I

OPERATIONAL DEVELOPMENTS

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SECRETCHAPTER ONE
ORGANIZATION

I

As forecast in the previous volume of the history, the Air Defense Command was reorganized early in 1953.¹ In the reorganization, which became effective on 16 February, the Defense Wings were placed under the Air Divisions, a new type of air defense organization designated an Air Defense Group was activated on each air base assigned the Air Defense Command, and the alignment of Division sector and Defense Force region boundaries underwent considerable revision. The changes were made to meet the requirements for an efficient chain of command and span of control in an expanding air defense system.

The assignment of the Defense Wings to the Air Divisions placed the interceptor squadrons, for the first time in the history of post World War II continental air defense, under the administrative as well as the operational control of the Air Division commanders. The feasibility of this action had been tested in the organizational experiment conducted in 1952 in the 31st Air Division sector.² The replacement

1. For additional background information on the reasons for the 1953 reorganization, see ADCR #4, Part II.

2. The complete report on the purposes for and results of the 31st Air Division organizational experiment are contained in document #87 to ADCR #4.

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of the Air Base Squadrons with Air Defense Groups on the air bases assigned to the Command and the assignment of the interceptor squadrons to the Air Defense Groups established a single officer in charge at each air defense installation. Prior to the reorganization, neither the interceptor squadron commander nor the base unit commander on these bases had had authority over the actions of the other, a situation which had "tended to create some friction in lack of proper administration of base responsibilities as it placed reliance on cooperation and good will, rather than on command control."³ The general feeling in the operating units at the end of June 1953 seemed to be that the more clearly defined chain of command resultant from these changes was a decided improvement.⁴ The chart on the following page depicts the structure of the Command as it appeared following the reorganization.⁵

The need for retaining the Defense Wing headquarters in the air defense organizational structure was shown in the 31st Air Division organizational test. During that test, it will be recalled, twenty-four units, all the forces for air defense in the 31st Air Division sector of responsibility, were assigned directly to the Air Division Headquarters. The conclusion which was finally drawn was that while

3. From report of 31st Air Division organizational test, as in fn 2.

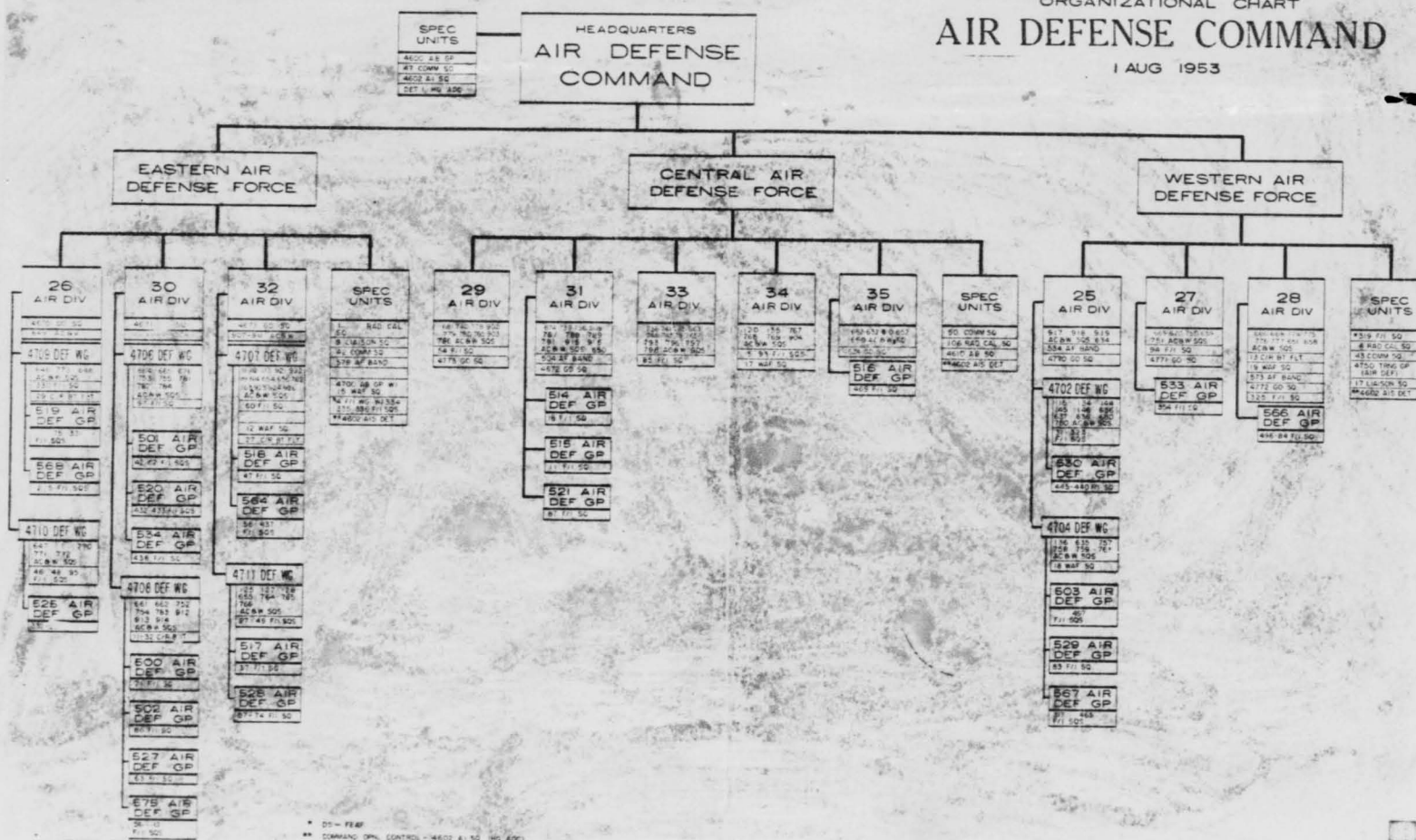
4. See sections devoted to the February 1953 reorganization in the histories of the Air Defense Forces, Air Divisions, and Defense Wings for January-June 1953.

5. See also: ADC Station List, 1 June 1953 (Doc 1).

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the investment of full control over all units in the Air Division sectors in the Air Division commanders was desirable and should be implemented, intermediary headquarters in the sectors where a large number of units were concentrated had to be retained if an adequate span of control was to be maintained.⁶ In all the Air Division sectors where a large number of units were sited, except in the 31st's sector, Defense Wing headquarters were in existence. This meant that the only change which would be required to establish a suitable span of control would be either to activate Defense Wing headquarters in the 31st Air Division sector or to reassign some of the units assigned to the 31st to other Divisions by altering the sector boundaries.

In the midst of these deliberations, consideration was injected for the organization which would be required after the additional resources programmed for the system in the immediate future were assigned. By mid-1955, the stations of the Mobile Radar and Radar Extension Programs and the other programmed aircraft control and warning facilities would be in place and the system functioning under the double perimeter concept of operations.⁷ By that time too, as it was planned in late 1952, an electronic system for displaying operational data in the direction centers and possibly for transmitting information from the direction centers to the Air Division control centers would be

6. As in fn 2.

7. The double perimeter concept of deployment of forces was first proposed in early 1952. For background information on this subject, see ADCHR #3, pp. 31-36.

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installed and operational in the areas defended by the double perimeters.⁸

In view of these plans, Air Defense Command Headquarters asked itself how it could best settle its immediate span of control problem in the 31st Air Division and, at the same time, provide for the orderly integration of the programmed facilities into the system as they were constructed.

The plan formulated by the Command, and forwarded to higher headquarters in late 1952 for concurrence, was to realign the region boundaries in 1953 to conform as closely as possible to the organization which would be required to permit efficient operation of the 1955 system.⁹ It was proposed that the region boundaries be changed to correspond to the double perimeter concept of operations. This meant extending Eastern Air Defense Force's boundary westward to encompass territory and units formerly assigned Central Air Defense Force. It also meant moving Central's western boundary farther west by reassigning the 29th and 34th Air Divisions, whose areas of coverage were outside the Northwest and California double perimeters, from Western Air Defense Force to Central. These regional boundary changes would leave an adequate span of control in each Air Division sector during the remainder of the period before the new radar facilities and the electronic data

8. For an explanation of the terms "direction center" and "control center", and for a descriptive account of how operations were conducted by these organizations, see ADCER #4, Chapter 5, pp. 111-126.

9. ADC to DCS/O USAF, "Air Defense Boundaries," 5 Nov 1952, with 1 Ind, USAF to ADC, 20 Dec 1952 (Doc 2).

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display and transmission system came into being except in the case of the 31st Air Division. To resolve the immediate span of control problem in the 31st, the 29th Air Division, which could accommodate additional units without any difficulty, would have its boundary extended eastward to encompass some of the 31st's units, thus obviating the expense of activating additional intermediary headquarters.

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USAF Headquarters approved these plans in late 1952 and, as was related earlier, the region and sector boundaries were altered in February 1953 at the same time the Defense Wings were placed under the Air Divisions and the Air Defense Groups activated. Jurisdiction over the 34th and 29th Air Division sectors was transferred from Western to Central Air Defense Force. With the exception of the radar station at Yaak, Montana, which was reassigned from the 29th to the 25th Air Division to furnish early warning data to the northwest defense complex, the units formerly assigned to the 29th and 34th Divisions remained with those organizations in the reorganization. At the same time, the 29th Air Division Headquarters was assigned three radar stations and one fighter squadron which formerly were part of the 31st Air Division. 11
The slight extension of Eastern Air Defense Force's boundary to the west encompassed the two interceptor squadrons on Truax Field at Madison, Wisconsin and the radar station at Antigo,

10. As in fn 9.

11. ADC GO #14, 10 Feb 1953 (Doc 3).

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Wisconsin, which had been a part of the 31st Air Division.¹² These units were reassigned to the 30th Air Division. The map on the following page reveals the sector and region organization as it looked¹³ at the end of June 1953.

II

At the end of 1952, the Air Defense Command was counting on the University of Michigan's Willow Run Research Center (WRRC) to provide it with an electronic data display and transmission system. Since early 1952, the WRRC had been at work, with USAF's support, on the development of the Americanized Version of the Comprehensive Display System (ACDS). This device had as its essential ingredient an electronic "store" into which information on aircraft tracks could be inserted electronically, retained, and displayed as needed in the direction centers. Late in 1952, a project was initiated to extend the ACDS operation to include transmission of information to Air Division control centers simultaneous to its storage in the direction centers. The name given to this expanded system was the Air Defense Integrated System (ADIS). As was related previously in the chapter, the ADIS was to be installed in the northeast, northwest and California double perimeter areas. The Air Division sector defenses within these areas

12. As in fn 11.

13. For a precise delineation of region and sector boundaries following the reorganization, see ADC GO #10 (Doc 4). See also: ADC Regulation 55-4, 18 Feb 1953 (Doc 5).

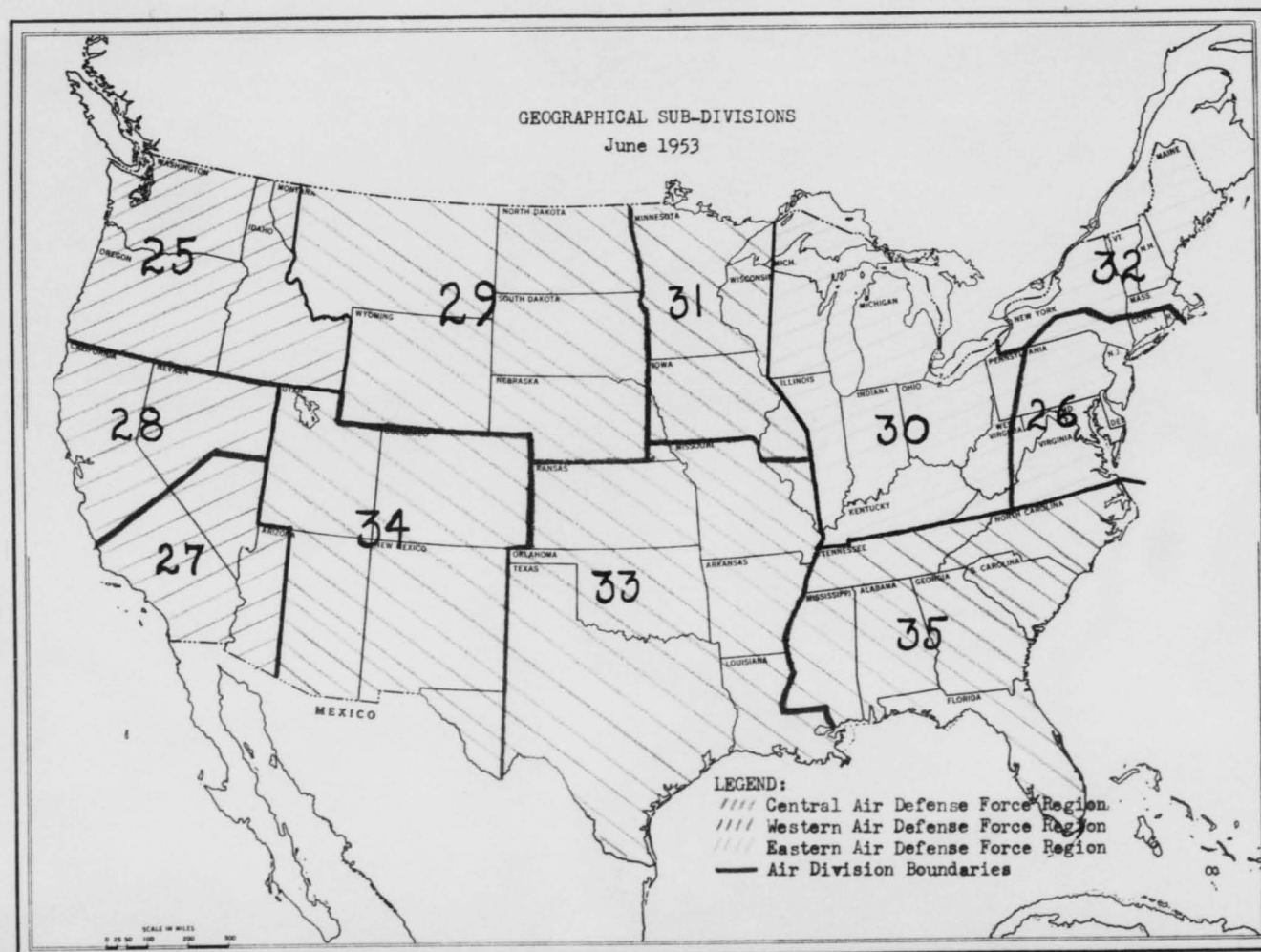
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would then be arranged in such a fashion that the combat center in each Air Division headquarters would not receive more than 100 simultaneous tracks from its direction centers, the maximum load which the ADIS was expected to be able to bear.¹⁴

Air Defense Command Headquarters figured that an adequate span of control over all the units to be assigned under the 1955 organization could be maintained and the 100 track limitations of the ADIS observed if seven additional Air Divisions were activated. At the same time, the Defense Wing headquarters could be inactivated and the personnel assigned those organizations used to form the new Air Divisions. In Western Air Defense Force, the 25th Air Division sector would be subdivided into the 8th and 9th Air Division sectors, with headquarters for the new Air Divisions to be constructed at Paine and Geiger Air Force Bases, respectively. Central Air Defense Force -- which was not scheduled to receive the electronic data display and transmission system but which would receive a good many new units -- would be provided one additional Air Division sector, the 20th, whose headquarters would be built at Grandview Air Force Base, Kansas City, Missouri. The remaining four Air Divisions would be established in the Eastern Air Defense Force region. The 37th Air Division headquarters would be built at Truax Field, Madison, Wisconsin, and the 45th's at Presque Isle Air Force Base, Maine. Wright-Patterson Air

¹⁴. A complete account of the research program underway on the ADIS and a description of the equipment is given in ADCHR #4, Chapter 5.

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Force Base in Ohio and Andrews Air Force Base, Washington, D. C. were selected as the sites for the 58th and 85th Air Division Headquarters, respectively. The plan to activate these new Air Divisions was approved by USAF Headquarters in late 1952 along with the rest of the Air Defense Command's 1953 and 1955 organization plans.¹⁵

At the same time that these plans were made, research and development on another electronic data display and transmission system was taking place at the Massachusetts Institute of Technology. This system was designated the Lincoln Transition System and was described as an equipment which would perform "all the functions of data processing, threat evaluation, weapon assignment and weapon control centralized at the Air Defense Control Center ¹⁶ [in Air Division headquarters]". Through 1952, there was little information available on the status of this project and the Air Defense Command had presumed that its completion was a much longer way off than was that of the ADIS.

Early in 1953, General Partridge, Commander of the Air Research and Development Command, informed General Chidlaw that USAF Headquarters, in order to "produce in the shortest possible time the most effective Air Defense Electronic Environment," was going to support fully the projects underway in both the University of Michigan and the Massachusetts Institute of Technology.¹⁷ The Air Defense Command was requested, in the light of this policy, to extend "similar support . . .

15. As in fn 9.

16. Lt Gen E. E. Partridge, CG ARDC, to Dr. James R. Killian, President, Massachusetts Institute of Technology, 28 Jan 1953 (Doc 6).

17. Partridge to Chidlaw, 11 Feb 1953 (Doc 7).

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to the development of the Transition system that you accorded the
¹⁸ADIS program." General Smith, Vice Commander of Headquarters Air
 Defense Command, acting for General Chidlaw in the latter's absence,
 promised this support. At the same time, he expressed the hope that
 a decision would be made soon as to which of the two systems was the
 best and that that system alone be supported. Otherwise, the division
 of funds and skills might result in delay in completion of an electronic
 system which concentration of resources might avoid.¹⁹

USAF's decision as to which of the two research programs was
 to be supported was made sooner than was expected. On 6 May 1953,
²⁰General Partridge informed General Chidlaw:

. . . for reasons which will not be enumerated here, the
 Air Force has found it necessary to . . . initiate a unilateral
 approach to the solution of its research and development prob-
 lems in the field of Air Defense Electronic Environments.
 This single approach will be oriented toward the Lincoln Lab-
 oratory Transition Air Defense System, and the ADIS program
 at RADC will be phased out completely

Research and development on the Lincoln System, General Partridge ex-
²¹plained, would proceed as follows:

. . . the Air Force Cambridge Research Center will be the
 responsible agency in carrying out major obligations of

18. As in fn 17.

19. Maj Gen F. H. Smith, Jr., VC ADC, to Partridge, 24 Feb
 1953 (Doc 8).

20. Partridge to Chidlaw, 6 May 1953 (Doc 9).

21. As in fn 20.

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The Air Research and Development Command relative to Air Defense Command Ground Electronic Environment Systems. The Rome Air Development Center will continue to perform some research and development on components (e.g. radars, communication equipment, etc.) for air defense usage but will not be responsible for system engineering and integration activities in this area. An initial development contract now exists between AFMPC and IBM, and it is expected that AMC will negotiate a production contract early in FY 1954 to continue this effort at IBM without interruption.

III

At the end of June 1953, there was no indication that the switch from the planned employment of the ADIS to the Lincoln Transition System would alter ADC's plans for activating additional Air Divisions and inactivating the Defense Wings in the 1955 organization. The Lincoln Transmission System would not be available by the time the additional aircraft control and warning facilities programmed for 1955 were in place, that was a certainty. However, the activa-

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22. Various equipments and procedures were undergoing experimentation, both within and outside ADC for speeding up the data display and transmission process pending completion and assignment of the Lincoln System. In the same correspondence which announced USAF's decision to develop the Lincoln System in preference to the ADIS, ADC was informed that a comprehensive survey would be made of all "components, equipments and techniques" which might reduce the time element in at least the display of information portion of operations in the direction centers. Whether or not this survey was completed was unknown at the close of the period. ADC did know that higher headquarters had discontinued research and development of the Land Target Indicator (LTI) and was concentrating solely on the development of the Kenyon TFI. The reason for this change was given in MeG, USAF to ADC, 9 Apr 1953 (Doc 10). The only development which seemed to offer the possibility of an immediate increase in the speed of transmission of data through the system was the installation of teletype machines in each of the Air Division control centers in early June 1953. Data collected in the control centers from the direction centers would be transmitted simultaneously over this teletype network to Air Defense Force and Command headquarters. The results of preliminary tests of this teletype system were favorable, and it was to be given its first major work-out in a command-wide operational exercise scheduled for July 1953.

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tion of additional Air Division sectors would still be required under manual performance of data display and transmission operations in order to insure an adequate span of control both inside and outside the double perimeter defenses.

By the end of June, the number of Air Divisions regarded as necessary in the 1955 organization had been reduced from eighteen to seventeen. The 8th Air Division, whose headquarters was to be built at Paine Field, Washington, was eliminated. Establishment of an Air Division sector in that area was not considered necessary in view of the fact that the Canadians had an active control center in Vancouver.²³ As of that time there was no definite information as to when construction would commence on the headquarters of the six remaining new Air Divisions. It was Air Defense Command Headquarters' hope that they would be operational in time to take control of the new radar stations as they were built. Otherwise, the new stations would either have to sit idle or be temporarily wired at considerable expense into one of the presently operational Air Division headquarters. In the case of two of the new Air Divisions, there was an indication at the end of June that they might be activated on a "lashup" basis, pending completion of their permanent quarters. These were the 9th Air Division at Geiger Air Force Base, Washington and the 37th at Trux Field, Madison, Wisconsin. The reason for this proposed action, in the case of the 9th Air Division, and how the new installation would be manned

23. Briefing, Maj P. W. Brownfield, Hqs ADC O&T, 28 Jun 1953.

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was explained as follows by General Bergquist, Deputy for Operations
²⁴
 for Headquarters, Air Defense Command:

It is simply a matter of dollars and cents. . . . There are several additional radars going into the 25th Air Division area in the next several months, the communications circuitry involved runs into a good deal of money and . . . the telephone companies require 10-year arrangement. This means that if we change the termination in less than 10 years we still pay the full 10-year fee. Since we know in a couple of years or so certain of these sites will be reporting into Geiger it is more economical to route them in that direction at the offset and accept the temporary dilution of control that will result.

As to the spaces involved it has been our plan all along to man the new division from the spaces in the 4702d Wing, plus a few that Western can pick up due to some reduction in workload on both the 25th Air Division headquarters and the wing at McChord. That's a problem we have to wrestle with whether we make the change next year or three years hence, because it is all too evident that USAF has completely scraped the bottom of the barrel and can't help us out.

24. Brig Gen K. P. Bergquist, DCS/O Hqs ADC, to Brig Gen T. A. Bennett, CG 25th Air Division, 31 Jul 1953 (Doc 11). See also: Msg, ADC to WADF, 15 May 1953 (Doc 12).

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CHAPTER TWO

AIRCRAFT CONTROL AND WARNING

I

During the first six months of 1953, the last touches were applied to the installation of primary search radar equipment for the Permanent Radar System. With the announcement in April that the FPS-3 radar at Keewenaw, Michigan, was "on the air," the Permanent network¹ was deemed "fully operational."

In addition to twenty-six AN/CPS-6B radars, which combined² search and height-finding functions in the same set, forty-nine AN/FPS-3 and five Lashup-type search radars were also continuously³ engaged in searching the skies twenty-four hours daily. Sixty-seven of these search radars had associated with them height-finders of

1. ADC Diary #71, 13 Apr 1953 (in HRF 900). "Fully Operational" was defined as: "The site was integrated into the air defense system; complete coverage of the site was known....either by calibration or operational experience; sufficient equipment was on hand to allow continuous operation; adequate trained personnel were on hand to maintain the equipment; adequate trained personnel were on hand to operate the site under SOP's." ADCR 55-46, "AC&W Status Report," 29 Dec 1952 (in HRF 206).

2. There were thirteen AN/CPS-6B's and thirteen AN/FPS-10's in the system. The latter equipment was to all intents identical with the former, with the exception of the number of scopes available. Action was under way, however, to provide the AN/FPS-10's with additional scopes.

3. Lashup-type radars of the AN/CPS-5 and AN/TPS-1B varieties were operating at M-97, Rapid City, S. D.; M-90, Walker AFB, N. M.; M-94, Kirtland AFB, N. M.; Fort Ord, Calif.; and Portland, Ore.

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the AN/CPS-6B, AN/FPS-5, AN/FPS-4 and AN/CPS-4 types.⁴ This number of height-finders represented a considerable increase in altitude-finding potential over the situation existing at the beginning of the year, when a total of fifty-five height-finders had been operating in the air defense system. Such an increase in height-finding potential, though not especially significant in enhancing detection capability, was of much importance in furthering the success of ground-controlled interception, and in the passing of valuable information to adjoining stations.⁵ The new height-finding radars added to the net were "permanent"-type AN/FPS-4's destined for use as either primary or backup equipment at sites employing AN/FPS-3 search equipment.⁶

Of particular value in increasing the detection capability of the Command during the first half of 1953 was the temporary installation of AN/TPS-1D search radars on each of the eight sites of the Canadian Radar Extension network which were to be manned and operated by ADC. This project, conceived late in 1952 and successfully completed in

4. Sixty-two of the height-finders were "permanent" equipment, and the remaining five of the Lashup-variety. For an illustration of the deployment of stations and equipment installed in the Permanent Radar Net see the map following this page. See also: Appendix I, p. 185, "Permanent Radar Program (Primary Equipment): June 1954."

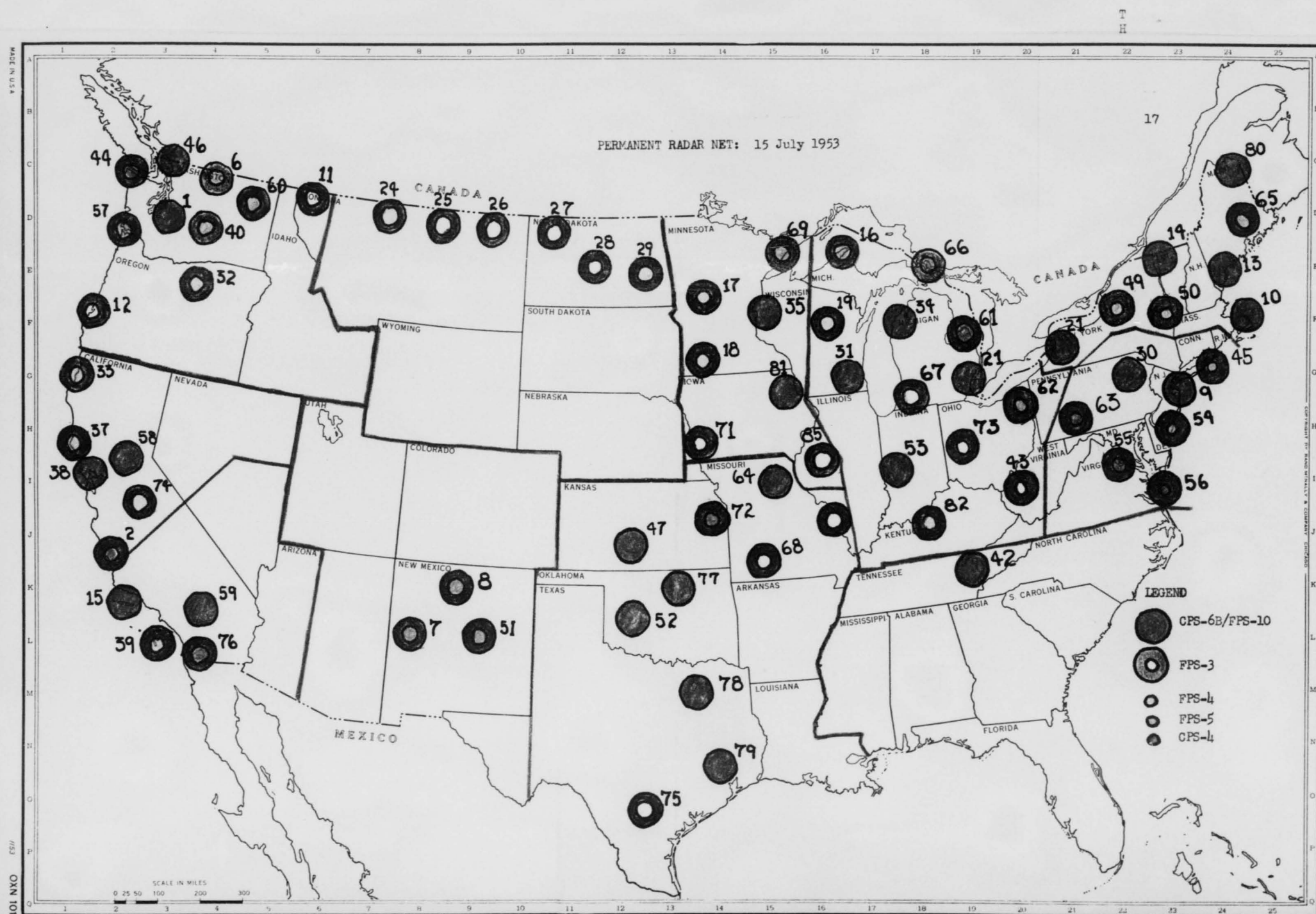
5. An interesting experiment to test the search potential of the AN/FPS-4 height-finder took place at the 774th AC&W Squadron at Madera, California, in January 1953. Average detection distances were found to be sixty-five miles, and tracking was deemed to be poor. 774th AC&W Sq. to 26th A.D., "Search Capability of AN/FPS-4," 26 Jan 1953 (Doc 13).

6. A more detailed accounting of the installation of the FPS-4s is given below, p. 17.

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May 1953, extended radar coverage northward into Canadian territory, thereby adding a measure of early warning for the critical target areas of the American Pacific Northwest and the Great Lakes region.⁷

Though some important additions had been made to ADC's radar coverage by June 1953, the Command's surveillance capability at that time was not appreciably different from that which it had possessed at the beginning of the year. The United States was still vulnerable to attacks at altitudes below 5,000 feet throughout most of the air defense system. In the coastal areas, the lack of coverage to seaward would have made it almost impossible to detect a hostile aircraft in sufficient time to throw up enough fighters to intercept and destroy the enemy before the bomb release line was reached over such cities as Seattle, San Francisco, Los Angeles, New York, Boston and Washington.

Though the advances in providing height-finding radars and in extending coverage to the north were quantitatively small, large strides were taken during the first half of 1953 in planning for a number of programs designed to improve the existing coverage. ADC's Project Group for Airborne Early Warning and Control, having completed its basic planning and coordination at Headquarters ADC, was transferred as a body to McClellan AFB, California, to await the arrival of the first RC-121C aircraft.⁸ Other staff sections at ADC Headquarters

7. For a detailed discussion of the Canadian Lashup operation, see below, Chapter Five.

8. For an account of the AEW&C program to the end of 1952, see ADCSR #4, pp. 143-155.

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were occupied with the many problems attendant upon the Mobile radar program.⁹ Experiments in the use of passive detection devices continued in the nine stations which employed them, though ADC had little faith in the ability of the equipment it possessed to perform an adequate air defense function. The Air Research and Development Command, however, was hard at work to improve the performance of the passive detection equipment. ADC had hopes that ARDC would succeed in the near future in coming up with a modification of the equipment which would permit a string of PD stations to take their place beside the ground radars along the perimeter of the nation.¹⁰ Other programs designed to increase ADC's surveillance capability were the picket vessel plan, the low-altitude radar plan, the use of "Texas Towers," and the program to extend radar coverage to the far north, included under the code name COUNTERCHANGE.¹¹ Though none of the supplemental projects just mentioned had reached the stage of concrete implementation, their promise was great. ADC looked forward optimistically to

9. For a detailed account of the Mobile program in the first half of 1953, see below, Chapter Four.

10. For a discussion of ADC's experience with passive detection equipment, see ADCHR #2, pp. 19-21; and ADCHR #3, pp. 55-58.

11. On the picket vessel plan, see ADCHR #2, pp. 40-43; ADCHR #3, pp. 47-50; ADCHR #4, pp. 155-157. On picket vessels, the histories of the Eastern Air Defense Force and the 26th Air Division contain much pertinent information. On the low-altitude radar program, see below, pp. 41-44. With respect to Project COUNTERCHANGE, the classification of the subject prevents treatment in the present history.

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filling in the gaps in its radar coverage and extending its surveillance potential outward from the borders of the country.

II

The impending implementation of the programs mentioned above was a cause of grave concern to Headquarters ADC, in spite of the eagerness with which these new resources were awaited.

In the past, the Air Defense Forces, with only the most general guidance by ADC Headquarters, had determined unilaterally the functions of the radar stations in their areas of jurisdiction. However, with the approaching addition to the surveillance net of more than one hundred radars in the three phases of the Mobile program, and the tie-in of more than a dozen radars in Canadian territory, ADC Headquarters decided that there was need for a thorough realignment of the functions to be performed by the radar stations. Therefore, it prepared a detailed operational blueprint for the future. The objective of this effort was to integrate the entire radar net, both present and future, into a master plan, awarding each station specific functions and responsibilities.

The fruit of these preparations was embodied in an ADC Headquarters "Functions Study." Activity on this project which had begun in October 1952, continued throughout the period under consideration in this history. In May 1953, the conclusions reached by the ADC Functions Committee were embodied in a detailed analysis of the role that each of the stations in the total AC&W program was to play in the

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air defense system. The functions study was then presented to Headquarters USAF for approval.¹²

The underlying assumption of the study was that each station in the system should have an assigned role commensurate with its position in relation to the double perimeters.¹³ This assumption resulted, in some instances, in a different role for the station in question than that which had been envisaged in earlier planning for the Permanent system.¹⁴ If a station was not geographically located in a position where it would be called upon to identify aircraft, for example, then its identification responsibilities would be withdrawn, regardless of the fact that the station had been earlier designated a Direction Center. Similarly, it would lose its authority to scramble aircraft if such conflicted with the authority of an adjoining station to scramble the same aircraft. The specific responsibilities to be given the various types of stations, officially designated as either Direction Centers or Surveillance Stations, are best described in the words of the Function Study itself:¹⁵

12. ADC to USAF, "Study of AC&W Functions," 22 May 1953 (Doc 14). The study itself contains a detailed breakdown of radar stations arranged according to air divisions. In the supporting documents cited above, only the basic letter to USAF and an explanatory introduction are included.

13. On the double perimeter concept, see ADCHR #3, pp. 31-36.

14. On early planning for the Permanent system, see ADCHR #1, Chapter Five.

15. As in fn 12.

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DIRECTION CENTER. The Direction Center is a radar-equipped station, which, in addition to its surveillance functions, has the capability of directing air defense weapons. Other functions, such as identification, operational control of AMOC's, and force commitment, may be assigned to a Direction Center. However, these additional functions serve only to increase the capability of the station and do not justify the use of different or modifying nomenclatures. Only one Direction Center is to have scramble authority over any interceptor squadron. Direction Centers which do not have interceptors assigned for scramble will either have them scrambled by adjacent Direction Centers or by the Control Center, or be passed interceptors from adjacent Direction Centers for control. In addition to ADC-assigned interceptors, Direction Centers will also have operational control of augmentation interceptor forces from SAC, TAC, ATAC, and the Navy when these are allocated for air defense. Operational control of AMOC's is delegated to only one Direction Center, in order to avoid conflicting orders to MA units.

Normally the flow of operational data is from Surveillance Station to Direction Center to Control Center. In the present study an exception to this rule was made whereby two Direction Centers were assigned as satellites to another Direction Center. This was considered necessary since the three Direction Centers only provided radar coverage normally provided by one Direction Center. This exception is listed for information purposes in the study, and is not to be construed as an acceptable operational practice by this command. PPI scopes are allocated to the Direction Centers according to the number of control positions, based on the number of interceptors available and the expected raid density within a given subsector. Recovery scopes are provided those Direction Centers which have scramble and/or recovery responsibilities. Direction Centers with the function of operational control of AMOC's are providing an additional surveillance scope so that direct reporting of tracks to AMOC's may be employed and with greater accuracy. Direction Centers are provided air-ground communications equipment on the basis of one tactical channel per control position and three common channels per station.

SURVEILLANCE STATION. The Surveillance Station is a radar-equipped installation which performs the function of surveillance and detection. It is designed to supplement the detection capability of a Direction Center, either for increase of early warning ranges, or for low-altitude gap-filling purposes. The functions of this type of station will determine the equipment to be allocated to it. Plotting boards will not be normally required; the radar operator reporting data directly from his scope to the

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Direction Center. Video mapping will be used in order to accomplish direct reporting. No air-ground radio will be provided for Surveillance Stations; thus, no weapon direction function can be assigned. Some Surveillance Stations may be provided with plotting boards and air-ground communications because of their peculiar locations, and additional assigned responsibilities. These stations will normally be located to provide high-altitude detection for SAC bases and cannot be placed realistically under the control of a Direction Center due to the distances involved. In these cases, the Surveillance Stations will report directly to a Control Center. Surveillance scopes for both Direction Centers and Surveillance Stations have been allocated in accordance with the differing degree of surveillance responsibilities. Most of the stations on the outer perimeters will be required to sector-scan only in areas where aircraft are likely to penetrate; thus, the requirement for 360° coverage is reduced in a majority of the radar stations. Those Surveillance Stations which are assigned air-ground communications equipment are allocated two channels per station: one for emergency and the other for GCI common. This limited air-ground communication capability was given to those Surveillance Stations which had little or no overlap coverage with adjacent stations, in order to aid aircraft in distress, and not with the view of sanctioning control functions.

One of the significant contributions of the Functions Study was the fact that it led to a more effective distribution of radar equipment, especially those radars which were programmed for use as emergency or backup equipment. Before the Functions Study was undertaken, it had been presumed that each of the stations of the Permanent and Mobile systems would receive emergency equipment in addition to primary search and height-finding radars. With the realignment of AC&W functions, however, it was noted that a backup height-finding capability would be unnecessary for some stations. The new requirements for emergency search and height-finding equipment were based on the following criteria: a) all outer perimeter stations, to include coastal stations acting as outer perimeter stations, pending the ex-

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tension of radar coverage to seaward, and all stations having fighters to scramble and recover, would be provided with emergency height equipment, with the exception that stations which functioned as low-level gap-fillers would not be so equipped; b) all outer perimeter and alerting-line stations, and all stations having fighters to scramble and recover, would be provided with backup search equipment. In general, height equipment was programmed only for those stations which required control capability.

Before the functions study was concluded, ADC was notified that a quantity of AN/FPS-4 height-finders and AN/TPS-1D search radars was ready for delivery to the Command. Without precise knowledge of the future roles of the Permanent and Mobile stations, and the proper separation distances between the new equipment and those currently operating, deliveries had to be postponed. As the study progressed, however, the pattern emerged sufficiently to enable deliveries to begin. ADC's priorities for the installation of the FPS-4's were as

16. The "alerting lines" were single lines of radars outside of the double perimeter areas, i.e., generally along the borders of the country. Pending the implementation of the Mobile program, the only alerting line was that along the northern border between the northwestern and northeastern target complexes. Eventually, alerting lines were to be added along the southern and southeastern borders.

17. ADC to USAF, "ADC Radar Equipment Requirements," 25 Mar 1953 (Doc 15).

18. Msg, ADC to RAFD, 20 Jan 1953 (Doc 16). Separation distances for the FPS-4 and the FPS-3 were provided by ARDC.

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follows: a) the first priority was for those stations containing FPS-3 search radars where there was no operational height-finder at all, and where, in addition, the FPS-4 had been already programmed as primary or emergency equipment; b) second priority was for those CPS-6B stations which were listed as requiring emergency height-finding equipment; and c) the third priority was for those FPS-3 stations which already possessed the FPS-4 as primary equipment.¹⁹

The functions study not only resulted in a precise distribution of the equipment which had been previously authorized but as yet uninstalled, but it also produced the realization that more radar equipment and personnel would be needed than had been allocated to ADC by Headquarters USAF.²⁰ Nothing daunted, ADC requested the additional men and equipment it needed. By June 1953, however, USAF's answer to the requirements inherent in the functions study had not reached ADC. Needless to say, the Command awaited the outcome most anxiously.

19. ADC to RAFFD, "Installation of AN/FPS-4 Height Finders," 24 Mar 1953 (Doc 17). The priorities established differed from those agreed upon in August 1952. /See ADC to USAF, "Allocation of FPS-4 Radars," 6 Aug 1952 in HRF 207.3/

20. The total quantity of equipment required by ADC as a result of its study of functions was as follows:

CPS-6B	13	TPS-1D	44
FPS-3	49	FPS-4	51
FPS-8	42	FPS-5	16
FPS-10	13	FPS-6	25
MPS-7	26	MPS-14	26
MPS-11	18	MPS-8/TPS-10D	44

/R&R, DC&E-E to-PTF, "ADC Radar Equipment Requirements," 10 Mar 1953, (Doc 18) For the specific allocation of these various types of radar by station in the "P" system, see ADC, "ADC Radar Equipment Requirements, Permanent Program," 5 Mar 1953 (Doc 19).

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The functions study also had a significant affect upon another aspect of AC&W operations. The changes in the concept of operations of the stations of the Permanent system meant that some changes would be necessary in communications facilities. ADC determined that fifty-nine of the seventy-five radar stations of the Permanent system had insufficient communications facilities to provide for their future needs. In consequence, a wire augmentation plan was proposed to Headquarters USAF. ADC was content to let the specific means of implementing the additional circuitry be determined by the telephone companies. These firms stated that in a few cases microwave channels would be used, and that in the large majority of cases, augmentation would be accomplished by wire. An estimated construction charge of \$696,226 was to be paid to the telephone companies for the augmentation with service costs to be covered by termination charge contracts,²¹ mostly of ten years duration. The new wire lines would follow closely the standard wiring diagrams in effect within ADC. The wiring policy was based on the principle that maximum communications would be provided between the outer and inner perimeter stations, with reduced requirements for stations within the double perimeters, as²² well as for some stations located outside the double perimeters.

The functions study also proposed that a new system be adopted

21. ADC to USAF, "Augmentation of Wire Facilities at P AC&W Sites," 14 Apr 1953 (Doc 20).

22. As in fn 12.

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for manning the AC&W squadrons. The principle upon which manning was based remained the same, i.e., that AC&W stations should be capable of maximum operations for critical eight-hour periods, with reduced manning during normal hours of operation. Therefore, all positions within an AC&W station need not be manned twenty-four hours daily. But most AC&W manning, it was asserted, should be based upon flexible Tables of Distribution, rather than wholly upon one inflexible USAF-promulgated Table of Organization applicable to all units regardless of their local situation or function in the system. Minimum T/O's were proposed for Direction Centers located on Air Force bases, for Direction Centers located off-base, and for Surveillance Stations in both categories. These minimum T/O's were then to be augmented by T/D's to meet local requirements. The principle advocated in this portion of the study was that manning should be based upon the functions assigned and local needs, rather than upon the equipment possessed. This policy was a reiteration of one which had been advocated unsuccessfully by ADC for several years.

III

The AN/CPS-6B continued, during 1952 and 1953, to present ADC with its thorniest equipment problem. It has been mentioned in preceding histories that this radar evoked conflicting opinions among

23. See ADCHR #3, pp. 194-201. For further discussion of the manning problem, see the following: Gen M. R. Nelson to CG, 26th A. D., "Improvements Under Advisement in Certain Critical Areas of Importance," 28 Nov 1952 (Doc 21); and Gen F. H. Smith, Jr. to Gen M. R. Nelson, 2 Feb 1953 (Doc 22).

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operating personnel, many of the reactions being unfavorable, and that the Air Proving Ground Report castigated the radar as difficult to operate and maintain.²⁴

Increasing familiarity with the AN/CPS-6B and its twin, the AN/FPS-10, tempered somewhat such harsh judgments.²⁵ In spite of the growing moderation in the opinions of operating personnel, however, the evidence was strong that the AN/CPS-6B was, and would continue for some time to be, a major operational problem in air defense.

Much of the difficulty which ADC experienced in the operation of the CPS-6B lay in the fact that the equipment was relatively complicated, both from an operational and a maintenance point of view. The main source of trouble was the operation of the Moving Target Indicator

24. See ADCHR #3, Chapter One.

25. The history of this equipment is revealing as to the manner in which development of important military equipment often takes place. During the latter part of World War II, the AN/CPS-6 radar was developed, featuring a height-finder integrated with search components. The CPS-6B, which was an outgrowth of the earlier CPS-6 was a similar equipment, but incorporated many new features, especially the "V-beam" height-finding principle. The steering committee which guided the development of the CPS-6B included representatives from a large number of agencies interested in the outcome of the development effort. It was inevitable, as a result, that the military characteristics of the radar should include numerous features which had little relevancy to the use of this equipment for air defense purposes. The result was the creation of an extremely complicated piece of equipment, designed to be air transportable, with its components made out of aluminum alloy, down to the very towers. The set was ready for production when the Korean war broke out, and before it could be shaken-down sufficiently, the first model was installed in the air defense system. Field difficulties were immediately experienced with the set, aggravated by shortages of spare parts, test equipment, and skilled maintenance personnel. Twenty-six of the radars were delivered to ADC before the operating characteristics of the set were sufficiently known, and before the Air Training Command had been provided with any for training purposes. Interview, Historian with Mr. L. K. Davis, General Electric Field Service Engineer with Hq ADC, 24 Apr 1953.

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(MTI). The heart of the MTI system in the radar was the Stable Local Oscillator (Stalo), an intricate component whose function was to differentiate moving targets from permanent or fixed echoes. The erratic behavior of the Stalo at radar sites which were plagued by numerous fixed echoes detracted considerably from the ability of the set to perform its early warning functions. Continued difficulties led to a request in July 1952 that Rome Air Development Center develop a new Stalo for the CPS-6B.²⁶ ADC was notified that funds for this development would be programmed for Fiscal Year 1954.²⁷

It was mentioned in preceding histories that another perplexing problem affecting the operation of the CPS-6B was the difficulty of conducting OCI operations simultaneously with early warning search operations without detracting from the efficiency of the latter.²⁸ Development efforts to rectify this annoyance were begun as early as 1950 and the General Electric Company was commissioned to develop a modification "kit" consisting of an entirely separate and independent

26. ADC Diary #188, 6 Oct 1952; also ADC to ARDC, "Project for Suitable Replacement Stalo for AN/CPS-6B," 14 Jul 1952 (in AGC 413.44).

27. As in fn 26 (2d citation). Another contributing cause to erratic operation of the MTI was the frequent failure of modulator tubes, an item of chronically short supply. In an effort to simplify and make the frequency modulator more effective, a requirement for the development of a single-tube modulator, instead of the two-tube modulator in existence, was presented to Hq USAF. General Electric, the equipment manufacturer, had already begun work in this respect. Interview, Historian with Mr. L. K. Davis, G. E. Field Service Engineer, 24 Apr 1953.

28. ADCER #1, Chapter Five; ADCER #3, Chapter One.

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early warning reflector with its own transmitter, receiver, and power supply. The basic design of this equipment had been derived from the APS-20B radar used for airborne early warning aircraft by the Navy. Manufacturer's estimates envisaged the kits as increasing the early warning ranges of the radars by as much as 65%. By December 1952, production had reached a point where installation of the first kits at CPS-6B sites was programmed for the first half of 1953. However, an unforeseen problem arose early in 1953 concerning the installation of the kits.

Although the kit was originally planned for installation in all the radars of the CPS-6B type possessed by the Air Defense Command -- twenty-six in all -- as time went by, new ideas on this subject were born, especially as a result of the study of AC&W functions mentioned in the preceding section of this chapter. In the earliest planning the increments to the radar network in the form of the Mobile program, the REP and seaward extension were still fond wishes on the part of both ADC and its predecessor, the Continental Air Command. By 1953, however, these programs were fast approaching realization. In consequence of this fact, and especially as a result of the new principle of strategic deployment of air defense weapons embodied in the double perimeter concept, ADC began to study the necessity of modification of all the CPS-6B type radars. In a letter dated 16 January 1953,²⁹ ADC made its opinions known to USAF:

29. ADC to USAF, "Installation of Early Warning Modification Kits," 16 Jan 1953 (Doc 23).

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A study of the coverage provided by present radars and theoretical coverage of programmed radars indicates that fifteen early warning modification kits, OA-347, planned for installation in the immediate future on AN/CPS-6B and AN/FPS-10 radars are no longer required. An urgent requirement existed for installation of these kits prior to the First and Second Phase Mobile Programs, the Double Perimeter Concept, and the Gap-Filler radar concept. However, due to overlap in coverage provided by facilities now installed, pending installation, and programmed, the increased range of detection of high-flying aircraft provided through installation of kits on all AN/CPS-6B and AN/FPS-10 radars is no longer a requirement. Installation of modification kits not required will not only result in an increased expense of operation but also in added maintenance and supply difficulties.

ADC's justification for the elimination of fifteen of the already-procured kits was based on the fact that the requirement for the kits did not exist where the additional coverage to be furnished was already provided by two or more radars, presently installed, or pending installation.³⁰

USAF did not concur with ADC's proposal, suggesting that ADC study the matter further with the possibility of eliminating a number of first or second phase Mobile stations as a result of the additional coverage to be provided by the search kits.³¹ ADC was quick to point out to USAF that the increase of coverage provided by the kits was in high altitudes, and that the Mobile stations were designed to cover low-altitude gaps, reiterating its suggestion that fifteen of the kits be eliminated.³²

30. As in fn 29.

31. As in fn 29, 1st Ind, 9 Feb 1953 (Doc 23).

32. As in fn 29, 2d Ind, 16 Feb 1953 (Doc 23).

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Discussion between the two headquarters in April 1953 resulted in a compromise solution to the problem. Installation of the kits was to proceed at the stations where ADC had a definite requirements, but the remaining fifteen kits would be deferred pending "future evaluation and calibration of radar coverage in the areas concerned."³³ Subsequently, ADC reduced the number of kits to be eliminated to fourteen.

By April 1953, ADC had collected sufficient data to reaffirm its request that the installation of fourteen kits be eliminated.³⁴ Installation of the first kit was scheduled for mid-July 1953, with the first three being installed under the supervision of the General Electric Company. The remainder of the installations would be made by teams from the Rome Air Force Depot and the Sacramento Air Materiel Area. Following the physical installation, a General Electric Company specialized team would "peak" the equipment.³⁵

The remaining fourteen kits were not to be a total loss, however. Those CPS-6B radars which were not to be modified were to receive those portions of the modification kits necessary to "allow individual beam selection and gating of the normal and MTI video."³⁶

33. As in fn 29, 3d Ind, 7 Mar 1953 (Doc 23). Priority of installation was determined and RAFFD was directed to proceed with the installation of 12 kits. ADC to RAFFD, "Priorities for Installation of OA/347 Search Kit Modifications," 20 Mar 1953 (Doc 24).

34. As in fn 29, 6th Ind, 20 Apr 1953 (Doc 23).

35. ADC to EADF, "Installation of OA-347/CPS-6B Equipment," 21 Jul 1953 (Doc 25).

36. As in fn 35.

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Several other welcome developments which might result in improved performance of the CPS-6B were made known to ADC. Among these was the production of a low-noise receiver by the General Electric Company, with inherent capacity to reject "two-carrier jamming."³⁷ Also, the CPS-6B magnetrons were not capable of handling the rated power and this resulted in a requirement that existing magnetrons be replaced by new equipment provided by the manufacturer, Raytheon Corporation. An original feature of the CPS-6B was the requirement of spinning the antenna at any speed up to 15 revolutions per minute. This resulted in an instability of the azimuth drive, especially in conditions of high wind and ice load. Both General Electric Company and the Rome Air Development Center were involved in a project to in-³⁸crease the reliability of the drive motor.

Although the capability of the CPS-6B received intensive study

37. WADF to ADC, "Improved Receiver, CPS-6B/FPS-10 Radar Set," 13 Oct 1952 and 3 Inds (Doc 26). The new low-noise receiver was incorporated in the OA-347 search modification kits and as basic equipment in the AN/FPS-6 height-finder. The receiver, as a modification kit, would also enable retrofit of existing beams in the CPS-6B radars. For details of this equipment, see ADC Communications and Electronics Digest, Apr 1953, pp. 25-26 (in HRF 900).

38. Information supplied by Mr. L. K. Davis, Hq ADC. Another feature of the AN/CPS-6B which caused concern, was the limited height-finding capability of the set. WADF, for example, recommended that instead of an AN/FPS-4 height-finder as backup for CPS-6B-equipped sites an AN/FPS-6 high-powered height finder be installed thereon, to operate continuously in addition to the height-beam of the CPS-6B. ADC did not concur in this suggestion, preferring to withhold action until the capability of the CPS-6B radars "had been fully explored." WADF to ADC, Backup Height Finding Radars at AN/CPS-6B and AN/FPS-10 Sites," 7 Oct 1952 and Ind (Doc 27).

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by the Air Proving Ground Command in 1951, and a lengthy report on
 the subject was published, ADC's own opinions on the subject are
 interesting to note. In January 1953, the Strategic Air Command
 queried ADC on the latter's "actual operational experience" with
 the radar. ADC's answer to SAC is an excellent recapitulation of
 its experiences, and the answer is worthy of verbatim presentation
 in this narrative.

- a. If properly maintained and operated, the height-finding facilities of the AN/CPS-6B yield height within the limits given in TO 16-30CPS6-23 (\pm 1000 ft. absolute) out to a range of 120 miles for bombers and up to slant angles of 24° .
- b. Information as to the number of specific types of aircraft which can be detected and handled by the AN/CPS-6B is not available. In general, it is estimated that four (4) aircraft may be detected and plotted per minute by each scope-to-plotter combination in use.
- c. The CPS-6B is neither more nor less vulnerable to chaff than other standard search radars (i.e., CPS-1, CPS-5, FPS-3, etc.) It is considered that the effects of chaff against any search radar are limited due to the large area that must be covered for effective screening. The chief value of chaff is confusion, and sound operator training can minimize this.
- d. The CPS-6B, despite its anti-clutter circuits, is vulnerable to electronic jamming. By jamming only the vertical lower beam, the range of the CPS-6B can be drastically reduced. It is possible for all five (5) beams to be jammed by an aircraft equipped with 5 jammers. When the stalos have been developed to the point where frequency shifting can be accomplished, the CPS-6B should prove extremely difficult to jam electronically.

39. APGC, Final Report, "Suitability Test of the AN/CPS-6B," 18 Sep 1951 (in ADC Tech. Library). See also ADCHR #3, pp. 19-22.

40. SAC to ADC, "Request for Information on CPS-6B Radars," 7 Jan 1953, 1st Ind and Incl (Doc 28).

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e. Range resolution is approximately 0.4 nautical miles and azimuth resolution 1.3 degrees.

f. Coverage is obtained up to approximately 45,000 feet depending on effective target area, tilt angles, etc. Spotty results are obtained at short ranges or with small aircraft or fast, jet-propelled aircraft.

g. As the AN/CPS-6B is an extremely complex and massive piece of equipment using over 1500 electron tubes in normal operation, lack of qualified personnel to perform maintenance work has been a problem and extensive training programs have been necessary.

(1) Local oscillators and associated stalos are critical and require careful adjustment to prevent running away and to permit MTI operation. It has been found desirable in most cases to operate magnetrons at reduced anode current to improve stability and MTI performance. As only a single magnetron current control is provided for the 5 transmitters, the power output of each is limited by the stable operating point of the poorest magnetron in use.

(2) Present modulator units (new type replacement units being procured) have proved unsatisfactory as thyatron tubes had to be matched, thus requiring tube selection.

(3) Range coverage with fighter aircraft is inadequate unless beacon equipment or a similar system is used.

(4) Considerable trouble has been experienced with the azimuth rotation system of this set, which is quite complex both electrically and mechanically.

The problem which arose over the modification kits for the CPS-6B highlighted another area of controversy. The earlier emphasis on greater ranges for the ground radars was shifting towards a more realistic appreciation of the "state of the art," so far as the capability of present-day radar equipment was concerned. Though increased ranges were a distinct requirement, there were equally as serious deficiencies in other areas of radar performance which also required immediate attention. On these subjects, the remarks of Lieutenant

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Colonel Oscar T. Halley Jr. of the Directorate of Plans and Requirements, ADC, are pertinent.⁴¹

Additional range would be nice, particularly if coupled with higher altitude capabilities and a higher degree of reliability, i.e., more hits per scan. When the range is too short, the problem of large number of radars develops. It is my opinion that present ranges are about optimum as a balance. The real deficiency now is both MTI and AMTI and high altitude reliability against very small targets roughly the size of a jet interceptor.

IV

Although the limited operational suitability test of the CPS-6B had been completed by September 1951, it was not until May 1953 that the Air Defense Command received a formal evaluation report on the other primary search radar in the air defense system --
⁴² FPS-3. Generally, the report was favorable to the equipment. In a characteristically cautious comment, the APGC said that the "basic FPS-3 radar system is suitable for operational use in the USAF AC&W System."
⁴³

APGC took care to point out, however, that there were a number of deficiencies in the equipment. Though, for the most part, these deficiencies were well-known, both to the original designers

⁴¹. Lt Col O. T. Halley, Jr. to Col J. F. Taylor, 25 Oct 1952 (Doc 29).

⁴². APGC, "Limited Operational Suitability Test of Radar Set AN/FPS-3," 19 May 1953 (in HRF B207.6)

⁴³. As in fn 42, p. 1.

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of the radar, and to ADC, the report did serve to reiterate and emphasize certain important problems:

The operational effectiveness will be limited temporarily by deficiencies in various component parts of the system, particularly the MTI and AGC portions. These deficiencies are correctible through the use of field modification kits.

The report also highlighted the already-known deficiencies of ADC's radars against high-flying jet-type bombers:

The operational performance of the set in its present form is adequate to cope with any near future threat by propeller-driven medium or heavy bombardment aircraft, but would be marginal at best against high-flying medium jet bombers. This is the most serious limitation of the present equipment when the future threat is considered, and is being investigated further under another APGC project investigating B-47 attrition factors.

In spite of the notice taken of the deficiencies in the radar, APGC introduced the optimistic note that,

It has been established however that the basic radar is designed to accommodate future technical improvements, (higher power transmitters, more sensitive receivers, etc) and provide increased operational performance of the presently available radars instead of fabricating a completely new item.

The specific capabilities of the radar were outlined by APGC as follows:

The radar will provide substantially solid coverage on B-29 size aircraft at 30,000 feet, from an initial pickup range of 185 to 200 nautical miles....Coverage on single jet interceptors is adequate to 50-60 miles at 30,000 feet but a beacon system will be required to achieve close control at longer ranges and higher altitudes. Facilities for the efficient integration of the FPS-3 into the existing AC&W system are adequate and the radar is superior in performance to the radars it will replace, i.e., CPS-1's, CPS-5's and FPS-1B's.

Lastly, and perhaps featuring the quality of the equipment which endeared it most to ADC was the observation that,

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The FPS-3 can be maintained adequately with personnel of average skill, with the exception of the MTI system and related components.

Although ADC was generally well-satisfied with the performance of the AN/FPS-3, the APGC report did serve to remind ADC of the "Achilles heel" of the equipment, namely, the MTI deficiency. This problem lay in the fact that the video from only one radar beam could be presented when the target was inside the MTI range. Normally the fighter aircraft were at low altitude immediately after take-off and the plane to be intercepted was at high altitude. Therefore, in order to run an interception, the controller was required to switch from MTI and "mixed-normal" to the upper beam in order to see the enemy and then back to MTI and "mixed normal" to see the fighter. Reactions from the operating units had indicated that the incorporation of the MTI on the upper beam would greatly facilitate close-in fighter control. Anticipating the APGC report, ADC had requested USAF late in 1952 to develop and procure upper beam MTI equipment for the FPS-3 radars. Pending the availability of the upper-beam MTI, it was requested of USAF that additional video mixers be provided to permit a composite display of

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upper and lower beam video.

44. 5th Ind, ADC to WADF, 12 Nov 1952, "Operational Deficiencies of Radar Equipment," (in HRF 200). ADC indicated a requirement for only twenty-five upper beam MTI kits for the FPS-3, although it possessed forty-nine FPS-3 radars. Nevertheless, USAF was asked to modify all FPS-3 and MPS-7 radars so that the upper beam could be installed if they were called for as a result of operational assignment changes and calibration information on the MPS-7 radars. (The MPS-7 was the mobile version of the FPS-3 destined for use in the mobile sites.) ADC to USAF, "Requirement for Upper Beam MTI for AN/FPS-3 Radars," 12 Nov 1952 (in HRF 200). The Bendix Corporation, manufacturers of the AN/FPS-3, were

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IV

In the earlier years of the operation of the air defense radar network, the chief preoccupation of the Command was the capability of the radars to pick up aircraft at low and medium altitudes up to 30,000 feet, basing its concern on the fact that the Russian strategic offensive was limited in the period up to 1955 to an attack at those altitudes. With the passing of time, however, it was to be expected that the Russian Air Force would increase its potential to fly higher and at faster speeds. Consequently, ADC began more and more to give attention to the problem of very high altitude coverage by its radars.

A difficulty in the way of assessing the performance of its radars at high altitudes beset the Air Defense Command in the fact that the capability of the radars at these altitudes had never been adequately measured. Although all of the Permanent AC&W sites had been calibrated by B-29 calibration aircraft from ADC's own Radar Calibration Squadrons, the highest calibration altitudes flown were⁴⁵ as follows: (1) 20% of the stations were calibrated at 20,000 feet;

44. (Continued) engaged in developing an improved version of that set. The following remarks from the transcript of the Rome Air Development Center's Air Defense Conference held 8-10 July 1952 are revealing: "The FPS-3 is unquestionably the major surveillance set in the AC&W net. At the present time the set has two chief defects. It has poor vertical coverage, with a maximum of 15°, and it has an alarming gap at a very dangerous spot due to the use of two transmitters at different frequencies with essentially two widely separated vertical lobes. These difficulties are being overcome by the use of a completely new antenna. It is expected that as a result, the vertical coverage will be increased to 60° and that the gap in the coverage will disappear completely." RADC, "Air Defense Conference," 8-10 July 1952, p. 15 (in ADC AG Files).

45. R&R, DCS/O to C/S, "High Altitude Capability of Radar," 5 Aug 1953 (Doc 30).

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(2) 40% of the stations at 25,000 feet, and (3) 40% of the stations at 30,000 feet. Because of the inherent inability of the B-29's to fly consistently higher than 30,000 feet, calibrated performance at higher altitudes was impossible for ADC to ascertain by this method. An attempt to induce the SAC to fly calibration flights at very high altitudes was unsuccessful. It was hoped, however that the calibration of the FPS-8 radars, which were to be installed at 60 sites of the P-system in the near future, would provide high altitude calibration for the CPS-6B and FPS-3 radars as well. The FPS-8 had a designed potential of reaching 60,000 feet altitudes.

Though information about radar capabilities at very high altitudes via calibration was not forthcoming to ADC, nevertheless some information on radar performance at these levels was available through other means. The Radar Evaluation Working Group, conducting experiments at four CPS-6B and FPS-3 sites in 1952-3, came up with important information. High-flying SAC bombers during exercise SIGN POST also provided some valuable information. Coverage of the CPS-6B was termed⁴⁶ "substantially solid" on B-29 and B-50 aircraft as follows:

145 miles at 30,000 feet
165 miles at 35,000 feet
180 miles at 38,500 feet
170 miles at 42,500 feet

The FPS-3 was "substantially solid" on B-29's to 160 miles at 30,000 feet. Good early warning pickup was obtained at ranges up to 200 miles, but coverage between 160 and 200 miles was not considered "solid".

46. As in fn 45.

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The aforementioned information dealt only with propeller-driven bombers. With jets, the problem was considerably aggravated. ADC's Deputy Chief of Staff for Operations reported that "from high altitude coverage data on jet fighters, it was concluded that coverage is not considered reliable enough for continuous tracking without the aid of beacons."⁴⁷ A ray of hope in this respect was offered, however, by the Bendix Corporations researches on a new FPS-3 radar, potentially capable of detecting and tracking one square meter targets at speeds approaching Mach 1 at 60,000 feet. Production of the set, however,⁴⁸ was not scheduled until sometime in 1955.

V

For several years, both the Air Defense Command and Headquarters USAF had been aware of the inherent shortcomings of ground radars where low-altitude coverage was concerned. However, the development of a radar which would perform both high and low altitude coverage at the required ranges, did not permit optimism. Plans for the provision of low altitude coverage, i.e., from ground level to approximately 5,000 feet, took the form of programs designed to supplement the existing radar network: 1) the Ground Observer Corps, and 2) a network of small radars, preferably unmanned and remoting their electronic observations to the display boards of master stations.

⁴⁷. As in fn 45.

⁴⁸. As in fn 45. For additional information on the new Bendix FPS-3, see fn 44.

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Although the Air Defense Command had pushed the implementation of the GOC program through its accelerated phase of 24-hour manning and operation in critical areas (SKYWATCH), the results of this action did not satisfy ADC that the GOC alone was capable of meeting the pressing low-altitude coverage requirement.⁴⁹ What was sorely needed was a foolproof electronic coverage, where the human element and its inconsistencies could be completely eliminated from the function of surveillance. Plans for such an electronic supplement to the ground radar network had been considered from the inception of an air defense in being, but it was not until 1952 that concrete action was undertaken to create it. In January 1952, the Air Defense Command, in announcing the double perimeter plan, had called the attention of Headquarters USAF to the need for several hundred small, unmanned radars to provide very low altitude coverage along the outer walls of the double perimeter areas. During 1952, tests of several existing types of commercial were made, but the results of these trials were generally unsatisfactory to ADC. Furthermore, ADC during 1952 was busily engaged in tying together the loose threads of its many separate surveillance programs into a well-knit surveillance plan for the future. Not until such a plan was made, and the specific functions of each of the components determined, could ADC spell out in detail its specific requirements for a supplementary low-altitude network.

On 31 January 1953, ADC was ready with its demands, and a

49. See ADCRR #4, pp. 160-188.

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requirement was consequently established with Headquarters USAF.

The equipment which ADC envisaged was a radar which would provide a range of fifty miles with a 50% probability of detection on B-29 type aircraft, and incorporating a reliable MTI system. The altitude required was up to 5,000 feet at the maximum range. In addition to the requirement for the radar equipment, ADC requested development of a method for transmitting video information from the small radar to a prime radar, and for a device which would integrate the video input from several small radars with the locally generated video of the parent radar.

Deployment of the initial phase of the supplemental low-altitude coverage system was to take place in the double perimeter areas, and across the north central United States. This first phase alone would require approximately 125 small radars. The ultimate deployment for complete low-altitude surveillance as envisaged by ADC would require up to 320 such small radars. ADC observed significantly that "when this requirement is fulfilled, no foreseeable necessity for the Ground Observer Corps as a source of surveillance information will exist."⁵¹ The defrayed cost of supporting the GOC would more than supply the necessary funds for the additional low-altitude data gathering system.

50. ADC to USAF, "Low Altitude Radar Coverage," 31 Jan 1953 (Doc 31).

51. As in fn 50.

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USAF's reaction was favorable to ADC's request. Both the equipment requirement and the initial deployment concept were approved in principle by the higher headquarters, and the information was added that a 1-A priority had been established at the Air Research and Development Command for the project. However, USAF asked ADC to provide a detailed operational plan of deployment to include an estimate of communications facilities required, as well as overall cost estimates, noting that "the establishment of a firm program of implementation of such a system is contingent upon completion of development and the availability of funds for the procurement of equipment and installation in the air defense system."⁵² Meanwhile, ADC could rest assured that the developmental effort was in good hands.

VI

Ever since the establishment of the Command there had been a growing dissatisfaction with radar calibration techniques. The prevailing technique was that of flying a long-range bomber at various altitudes on a radial course over the radar station and recording the range and azimuth at which the aircraft was seen on the radar. Unfortunately, this technique had to contend with transient propagation anomalies existing at each station so that it was difficult to determine the performance of the radars under differing weather conditions. Repeated calibrations of the same station generally lead to confusion rather than to additional information. When successive

52. 1st Ind to citation in fn 50, 17 Mar 1953 (Doc 31).

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calibrations were compared, it was usually the propagation anomalies which were being compared rather than the coverage of the radar.

Furthermore, the process was a costly one; it was estimated that the annual cost exceeded two million dollars.⁵³

In the spring of 1952, ADC determined to reexamine its calibration procedures. A Radar Evaluation Working Group was created, and assigned the mission of studying the calibration program and developing a more realistic and more economical technique. The Working Group chose to conduct exhaustive tests at two FPS-3 and two CPS-6B stations, examining the differences in performance at both low and high sited stations which used the same type of equipment. The report of the Group was published in May 1953, and concluded that "current calibration activities are wasteful in manpower and operating costs."⁵⁴

The researches of the Working Group discovered that radars of the same type located at high sites did not differ materially in effective coverage over those located at lower levels, other than the expected line-of-site differences. In view of these discoveries, the Working Group concluded that the extensive flying requirements in use in the prevalent calibration procedures be drastically reduced, and that a "field method" of evaluation be employed, using techniques recommended in the report.

The Group also recommended that the existing radar calibration

53. ADC Communications and Electronics Digest, May 1953 (in HRF 900).

54. ADC, Radar Evaluation Program, 2 vols, 1 May 1953 (Doc 32, submitted by separate mail to the USAF Historical Division).

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squadrons be replaced with Radar Systems Evaluation Units which would be held to relatively small flying requirements and be "tailor-made" in organization. In addition to the assessment of the operation capabilities of the radars, the new unit would also perform an ECM training function, employing the same aircraft for the latter purpose.

Meanwhile, while the evaluation study was being prepared for publication, Headquarters USAF gave ADC notice that it intended to eliminate the Radar Calibration squadrons completely.⁵⁵ Although the Working Group report had reached the same conclusions, these conclusions had not been completely digested by ADC Headquarters at this time and an alternative unit had not been decided upon. ADC believed that action to eliminate the calibration squadrons prior to a decision as to the type of unit which would replace them, was premature, and consequently it recommended that deactivation action be withheld. Realizing that USAF was determined to eliminate the radar calibration squadrons as soon as possible, ADC set to work present USAF with an alternative organization, to embody the evaluation techniques recommended by the Working Group.

VII

ADC's long-standing requirement for radar-equipped picket vessels took a slightly different direction in the fall of 1952. During the preceding summer, a study by the Lincoln Laboratory had recommended that off-shore towers, similar to those used by commercial

55. Msg, ADC to USAF, 29 Jun 1953 (Doc 33).

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oil companies in the Gulf of Mexico, be used for seaward extension of radar coverage. Lincoln specifically recommended that four shoals off the northeastern seacoast be used for sites. ADC received this suggestion hospitably, and indicated that it "had considerable merit and proposes to be an economical partial solution towards meeting the picket vessel requirements of this Command."⁵⁶ ADC did not, however, deem the proposal to use these "Texas Towers" as an alternative one to the use of picket vessels, recommending to USAF that the off-shore stations be considered "along with picket vessels as a means of fulfilling the urgent requirement for the seawards extension of radar coverage."⁵⁷ USAF's answer was that it was considering the possibility of the combination of Texas Towers and picket vessels.⁵⁸

A study of the problem by Headquarters USAF during the winter months resulted in the determination that the type of construction indicated was feasible and that it could be made suitable for mounting heavy radar equipment. On 23 March 1953, USAF queried ADC for its opinions on related aspects of operation, equipping and manning of the Texas Towers.⁵⁹ ADC answered by expressing the opinion that

56. ADC to USAF, "Extension of Radar Coverage in the Northeast Coastal Area," 24 Sep 1952 (Doc 34).

57. As in fn 56.

58. ADC to EADP, "Substitution of Off-shore Towers for Picket Vessels," 5 Nov 1952 (in HRF 654).

59. USAF to ADC, "Seaward Extension of Radar Coverage," 23 Mar 1953 (Doc 35).

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oil companies in the Gulf of Mexico, be used for seaward extension of radar coverage. Lincoln specifically recommended that four shoals off the northeastern seacoast be used for sites. ADC received this suggestion hospitably, and indicated that it "had considerable merit and proposes to be an economical partial solution towards meeting the picket vessel requirements of this Command."⁵⁶ ADC did not, however, deem the proposal to use these "Texas Towers" as an alternative one to the use of picket vessels, recommending to USAF that the off-shore stations be considered "along with picket vessels as a means of fulfilling the urgent requirement for the seawards extension of radar coverage."⁵⁷ USAF's answer was that it was considering the possibility of the combination of Texas Towers and picket vessels.⁵⁸

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59. USAF to ADC, "Seaward Extension of Radar Coverage," 23 Mar 1953 (Doc 35).

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"because of the possibility of the early fulfillment [of Texas Towers] ...operation of these equipments should be accomplished with minimum required personnel. We are sure that the best method of accomplishing this is to automatize and remote all operations insofar as possible."⁶⁰

Though ADC was willing to pare the manpower needed for the Texas Towers to a minimum in order to achieve early implementation, the Command adamantly rejected the possibility of unmanned operation of these stations, offering a minimum manning standard. As to equipment, the best was none too good for such important facilities to our radar coverage. The V-beam FPS-3 would be best, but, if it was not available, the FPS-3 with the FPS-6 as its companion height finder, were recommended, with the necessary display and data transmission⁶¹ devices and communications links.

60. As in fn 59, 1st Ind, 29 Apr 1953 (Doc 35).

61. On more mature reflection, however, ADC noted that because of the limited space on the towers, interference between the FPS-3 and the FPS-6 could likely result. In this case, ADC suggested as a possibility, that two FPS-6 height-finders be installed, one facing seaward and the other facing landward, so as to minimize interference. Not too sure of its ground on these matters, however, ADC recommended a study be made of the problem by USAF. See ADC to USAF, "Texas Towers," 24 Aug 1953 (Doc 36).

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CHAPTER THREE

THE INTERCEPTOR FORCE

With the ADC charged with the responsibility of providing maximum air defense within its capability, it is mandatory that our combat potential be composed entirely of AI interceptors, i.e., aircraft designed to provide that protection required under all conditions.¹

I

Never in previous periods did the expansion of the interceptor force toward its programmed goal of fifty-seven all-weather equipped squadrons on fifty-two bases generate quite so many problems as during the first half of 1953. The initial assignment of the long-awaited F-86D and F-94C interceptors and the return from the Northrup factory of the modified F-89Cs took place during the period. Equipped with radar for all-weather operations and armed with 2.75 inch rockets, the F-86D and F-94C were vastly superior to any interceptors heretofore possessed by the squadrons. By the same token, the complexity of the

1. Gen B. W. Chidlaw, CG ADC, to Maj Gen W. E. Todd, CG WADF, 20 Apr 1953 (Doc 37). This statement was made in answer to a recommendation by General Todd that the ADC interceptor force be composed of both all-weather and day jet fighters. While the recommendation was considered to have definite merit, from the standpoints of economy and identification, it was rejected by General Chidlaw on the grounds that if the Soviets attacked at night or during periods when operation of day jets was impossible, as could be expected, the reduction in all-weather aircraft assignment which General Todd proposed would result in a serious sacrifice in capability. For a more detailed account of General Todd's recommendation, see History of Western Air Defense Force, Jan-Jun 1953, p. 95.

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new aircraft, particularly their fire control systems,² imposed a severe maintenance and transition training workload on the squadrons. The fact that the alert requirement had to be doubled just about the time the new interceptors commenced to arrive in the squadrons complicated the task of placing the new interceptors in operation.³

Activation of new interceptor squadrons, and overseas deployment of squadrons which had attained honorable reputations under ADC and whose loss sorely reduced the combat potential of the system were unusually high during the period. The requirement to man the departing units to full strength⁴ and the new units to cadre strength with experienced personnel, both aircrew and maintenance, from the remaining squadrons, resulted in a general lowering of skill experience in all the squadrons. This, coupled with an inadequate assignment of key specialists and a continued high turnover of personnel, created a completely unsatisfactory manning situation in the squadrons.

The historian of the 4711th Defense Wing might have spoken for almost all of the squadrons in his description of conditions in his

2. For a complete description of the fire control systems employed in the new interceptors, see Appendix II, p. 191.

3. Commencing in April each year and lasting through September, weather conditions favored a Soviet air attack, ADC believed. Consequently, ADC has always increased its alert during this period over that maintained in the other months.

4. For a more detailed account of ADC's responsibility for manning the squadrons transferred to overseas forces, see Chapter Eight.

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organization during the period:

If . . . operations . . . in the first six months of 1953 were to be characterized in two words, those words might be transition and preparation. Air defense operations, of course, continued, but the major problems revolved about 'shaking down' the new administrative organization and preparing to resume full-scale operation with new all-weather type aircraft while fulfilling air defense commitments with other types temporarily assigned. To many of the personnel at Wing and lower echelons, it seems that no sooner do they become accustomed to one form of organization, get one crew thoroughly trained on one type of aircraft, than the organization is modified, key men are reassigned, a new type aircraft appears and the whole job begins again.

II

Fourteen new fighter interceptor squadrons were activated by ADC during the first half of 1953 -- nine in February and March and the remainder in April. During the same period, six of ADC's old squadrons were deployed overseas. This was all part of the long range program to build ADC's interceptor force to programmed strength and, at the same time, activate, man, and equip interceptor squadrons for operations in other critical areas of the world.

One of the newly activated squadrons was positioned at Portland International Airport in Oregon to fill the vacuum created by the departure of the 357th Squadron for overseas duty. Eight of the new units

5. History of 4711th Defense Wing, Jan-Jun 1953.

6. See Appendix III, p.194. Interceptor Squadron Changes: Jan-Jun 1953.

7. As in fn 6. The 61st FIS at Selfridge AFB did not actually depart for overseas assignment until 10 July.

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were activated at bases at which an already operational interceptor squadron was stationed. The remaining five units were activated on four new bases -- one squadron each on Kinross Air Force Base, Michigan; Davis-Monthan Air Force Base, New Mexico; Travis Air Force Base, California; and two squadrons on Geiger Air Force Base in Washington. The only additional squadron-base change of note was the abandonment of Grenier Air Force Base with the movement of the 48th Fighter Interceptor Squadron from there to Langley Air Force Base in Virginia.

The result of these changes was an increase in the number of squadrons assigned ADC from forty-three in January to fifty-two in June, and the occupation of four new bases, bringing that total to thirty-nine. ADC's actual interceptor force potential consisted of but forty-eight squadrons on thirty-eight bases, however, because four of the newly activated squadrons, including the one at Kinross, were not manned nor equipped at the end of June.

III

During the period, many of the squadrons commenced conversion to the aircraft they were scheduled to receive under the 1956 program -- the F-86Ds, F-94Cs, and F-89s. An additional large number abandoned

8. The purpose of this move, as recorded in the History of Eastern Air Defense Force for Jan-Jun 1953 (p.232) was: "... to provide fighter coverage for the vital Norfolk complex with its concentration of naval vessels, harbor installations and ship-building facilities, and to ring a target area that General Minty, former Commander of the 26th Air Division, had long pointed out was extremely vulnerable to an air attack.

9. The F-89C presently assigned the command employed the E-1 Fire Control System and was armed with 20mm cannons. The F-89D, the model assigned the command under the 1956 program, will be equipped with the E-6 FCS and will be armed with 2.75 inch rockets.

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their conventional type aircraft, which were totally valueless for air defense under the assumed conditions of attack, for day jets (F-84s and F-86s) and the night-fighter F-94As and Bs.

The most impressive aircraft development was the assignment of 143 F-86Ds to the interceptor force. While the January programming document called for the equipping of sixteen squadrons with twenty-five each of these aircraft by the end of June 1953, actual assignment saw twelve squadrons receive them in numbers of twelve to fourteen. The reason for this was the usual one: Aircraft production did not keep pace with expectations. This aircraft was a single presentation interceptor, that is to say, the pilot performed the duties of radar observer as well as flew the plane. As will be related, operational techniques for handling this aircraft were in an embryonic state at the close of

10. The F-94A and B, for lack of adequate de-icing equipment, was never regarded as an all-weather interceptor in the full meaning of the term. While, during 1952, these aircraft were modified with de-icing equipment, the equipment proved defective. In October 1953, AMC directed that it be wired in the "off" position and no longer used at all. [Interview, Mr. D. J. Schmittner, Lockheed Aircraft Representative with Hqs ADC, 13 Nov 1953.]

11. ADC Program, 1 Jan 1953, p. 1 (HRF 931). See also: ADC to USAF, "Changes to the ADC Fighter-Interceptor Program," 7 Mar 1953 (Doc 38).

12. See Appendix IV, p. 195. ADC Interceptor Force: June 1953. This document lists each squadron by base assigned the command at the end of the period and records the type aircraft it was equipped with at the beginning and the end of the period.

13. See Appendix V, p. 200. Here is included a detailed account of the F-86D as it appeared in the July 1951 Hqs ADC Communications and Electronics Digest.

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the period and much remained to be done to train pilots in its employment.

The delivery of F-94Cs from production held more closely to January programming. At the end of June, six squadrons were equipped with from eight to thirteen of them. The total possessed by the command was seventy-two. While this aircraft was totally different from the F-94B, like the F-94B it employed both a pilot and a radar operator in its operation.¹⁴

The grounded F-89Bs and Cs were sent to the Ogden Air Materiel Depot and the Northrup plant in California for necessary engine and wing modifications commencing in January 1953. At ADC's request, only modified F-89Cs were returned to the interceptor force. The J-35A-21B engine on the F-89Bs had been the cause of several accidents in the squadrons, some of which had been fatal to the crews, while the J-35A-33 engine with which the F-89Cs were equipped had proved reliable.¹⁵ By the end of June, all of the grounded F-89s had been shipped from the command for modification and thirty-six F-89Cs had been returned. These were assigned to the two squadrons at Presque Isle Air Force Base in Maine

14. The F-94C was originally designated the F-97. To overcome procurement difficulties, USAF redesignated it the F-94C, but it was not a modification of the F-94B. Everything on it was new from the engine to the tail assembly. The only interchangeable part was the canopy. [Interview, Mr. D. J. Schmittner, 13 Nov 1953]

15. When ADC refused the F-89Bs, they were then programmed for Alaska, but that command also rejected them. As a result, the F-89Bs were still sitting at the Northrup plant at the end of the period. [Interview, CWO R. W. Dalton, Hqs ADC Directorate of Aircraft, Supply and Maintenance, 29 Oct 1953.] See histories of the Command and Defense Forces for June-December 1952 for further information on the grounding of the F-89s.

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and the 433d Squadron at Truax Air Force Base, Madison, Wisconsin.

Aircraft changes in the fighter squadrons that moved from one interim interceptor to a better, yet still interim, interceptor are given in the Appendix.¹⁶ Generally, what transpired was the transfer of the aircraft formerly possessed by the squadrons which converted to the new all-weather interceptors to squadrons flying conventional or less-effective jet aircraft.¹⁷ This was in line with the interceptor distribution policy that the Air Defense Command has pursued in the past. When aircraft better suited for air defense were made available, they were assigned to the squadrons on bases from which defense of the most critical target areas could be provided. The former aircraft of these squadrons were then distributed amongst the squadrons on bases in less strategic areas. This attempt to guess beforehand the enemy's choice of attack routes and targets has been a precarious business at best, but just one of the many calculated risks ADC has been forced to take during the build-up of the continental defenses.

The map which follows reveals squadron deployment at the end of June and the type (and types) of aircraft each unit possessed. Squadrons which did not possess aircraft are not depicted. The inner

16. See Appendix IV, p. 195.

17. When the 94th FIS at George received F-86Ds, for example, six of the F-86As with which it had been flying previously were reassigned to the 75th FIS at Suffolk Co. Airport on Long Island. Eight were assigned to the 27th FIS at Griffiss Air Force Base in New York State. The 94th retained six to stand alert with until its full complement of F-86Ds were received. ADC Diary, 23 Mar 1953 (in HRF 900).

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color, where two colors are indicated, stands for the type of aircraft authorized the unit at the end of the period. The outer color depicts the type aircraft the unit employed for alert.

The command had 174 more interceptors in June than it had in December 1952.¹⁸ This increase was mostly in all-weather aircraft, specifically in F-86Ds and F-94Cs. There were less F-89s, of course, but those that were on hand could be flown. There was also a considerable increase in day jets due to the additional assignment of F-84s and F-86As and Es.¹⁹ Finally, there was some decrease in conventional aircraft on hand. A considerable number of squadrons converted from their conventional aircraft to newer types during the period, but the necessity to retain conventional aircraft to permit those squadrons to continue to stand alert while converting to the new types prevented much decrease in the numbers of these aircraft in the system.²⁰

In summary, a total of twenty-six of the forty-eight manned and equipped squadrons possessed all-weather type aircraft as unit equipment at the end of June. Twelve had F-86Ds, six F-94Cs, five F-94As and Es, and three F-89Cs. Seventeen squadrons had day jets as unit equipment.

18. ADC Command Data Book, July 1953 (in HRF 900).

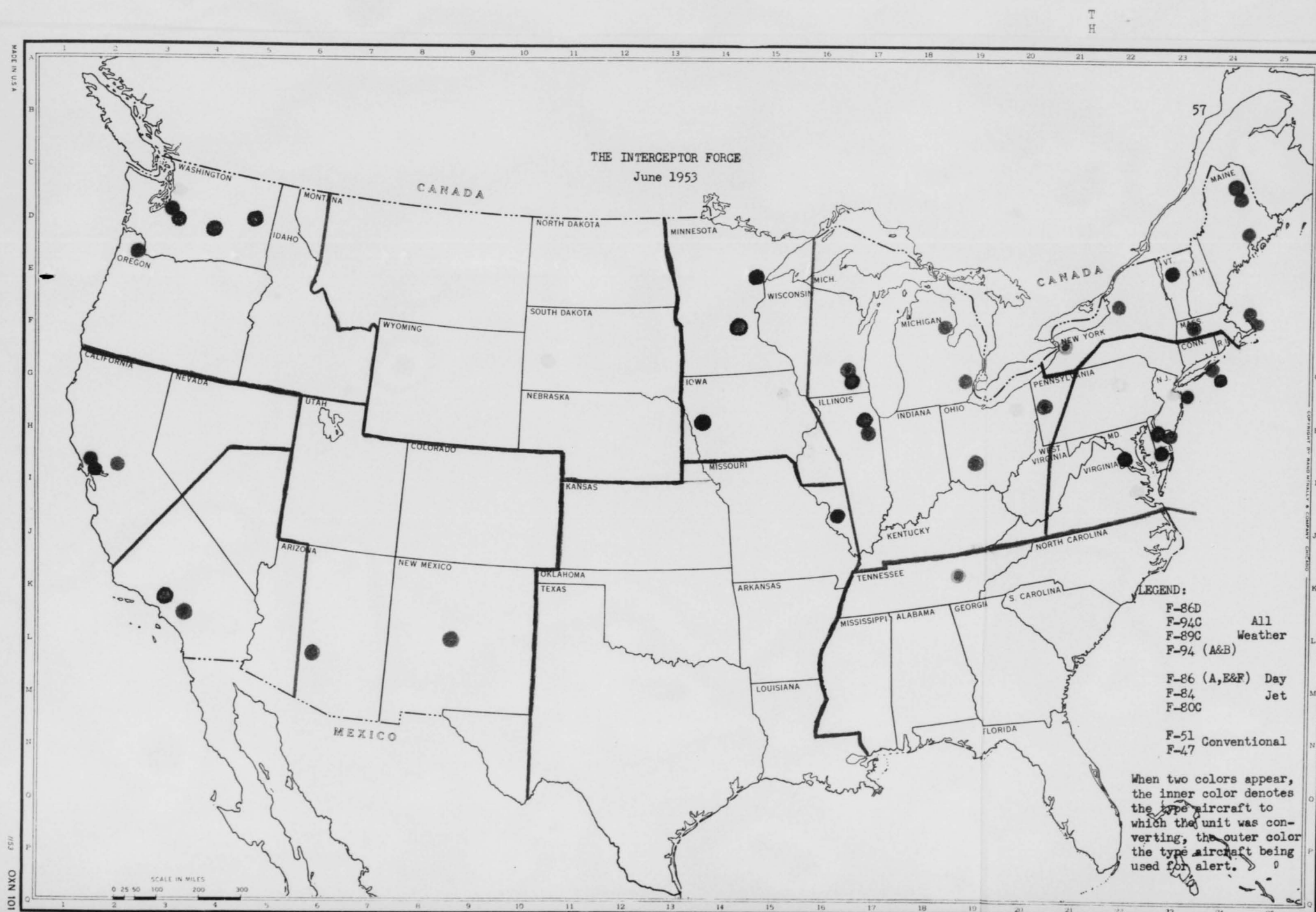
19. Late in 1952, a considerable number of F-84s were diverted to ADC from the Mutual Defense Assistance Program to bolster ADC's interceptor capability during the period of conversion to the new all-weather aircraft. See: ADCER #4, p. 35.

20. For a breakdown of the aircraft assigned ADC at the end of June 1953 by type see Appendix VI, p. 206.

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The remaining five still were equipped with the piston-engine F-51s.

IV

In early July, the aircrew to aircraft ration was about 1.5 to 1 -- one and one-half crews assigned for every one aircraft assigned.²¹ Only about two-thirds of the crews assigned were actually on duty in the squadrons at any one time, however, throughout the first half of the year.²² Temporary duty requirements, leaves, illnesses and other drains on crew strength were so severe at times that the squadrons were frequently hard pressed to keep one crew on hand for each operable aircraft.²³ This shortage of aircrews on the line, -- which resulted in eighty and ninety-hour work weeks for squadron personnel who were on duty -- had several causes: the general shortage of interceptor pilots throughout the Air Force, the loss of pilots from ADC to higher priority overseas service, the difficulty of gearing aircrew assignment to aircraft assignment in the face of fluctuating aircraft production and

21. ADC, Statement of Effectiveness, July 1953, p. 13 (in HRF 900).

22. Total aircrews assigned in June 1953, and reasons for absences of crews are given in Appendix VII, p. 207.

23. The situation became so bad in April that ADC Headquarters instructed the Defense Forces to closely control temporary duty to insure that one pilot was on hand for each aircraft in-commission. It was noted that the requirement justified temporary duty of pilots from other units to fill empty cockpits. ADC Headquarter's levies which reduced a unit to below manning standards were not to be filled without objection. Finally, it was noted that pilots serving in non-rated positions might have to be used so as not to go below the standard set in the policy. Mag, ADC to DFs, 6 Apr 1953 (Doc 39).

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allocation programming, and the necessity of relieving pilots from duty while they learned to operate the new and exceedingly complex all-weather interceptors.

Shortages in skilled maintenance personnel and high rotation of personnel, problems that have been with the Air Defense Command since its activation, became even more severe with the assignment of the new, all-weather interceptors.²⁵ This was not a problem peculiar to ADC, nor one which could be quickly remedied. General Smith, Vice Commander of Headquarters ADC, summed up the situation as follows in a letter²⁶ to General Todd of Western Air Defense Force:

The gap between available [skilled aircraft maintenance personnel] and projected requirements which exists in this command exists also in the other major commands. We are just being given greater responsibilities than we can handle with optimum effectiveness at the present time. It might be of interest to you to know that ADC has fourth priority in manning, with FEAF, SAC and USAFE taking precedence.

USAF Headquarters' prognosis of the aircrew and skilled maintenance personnel situation in the forthcoming months was optimistic. USAF felt that the peak of the critical period was passed, that Air Training Command's facilities were developed to the point where it

24. Correspondence illustrative of the difficulty of harmonizing aircraft and aircrew assignment is included in the supporting documents. See Msg, ADC to USAF, 21 Mar 1953 (Doc 40), and Msg, USAF to ADC, 25 Mar 1953 (Doc 41).

25. USAF Headquarters' appraisal of the overall aircrew problem in ADC, for the present and immediate future, was given in: USAF to ADC, "Projected Fighter Pilot Manning Position," 4 May 1953 (Doc 42). 1st Ind to this correspondence, dated 12 Jun 1953, attested to ADC's program to assign fighter pilots to the squadrons and not to administrative jobs.

26. Smith to Todd, 28 Nov 1952 (Doc 119).

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could commence to meet USAF-wide requirements for highly skilled crews and technicians. For the remainder of 1953 and into 1954, ADC could not hope to receive two crews for every aircraft assigned -- its authorized manning -- but it did appear that a qualified crew would be made available for every new fighter assigned. USAF did promise that ADC would be assigned every available pilot possible.²⁷ The only active step ADC could take to keep its aircraft manned was to keep pilot temporary duty at a minimum. During the period, it had protested several quotas imposed by USAF for pilot temporary duty outside the command. All such requirements, one ADC publication promised, would continue to be protested in the future.²⁸

V

On 1 April, Command headquarters ordered the usual Spring increase in squadron alert.²⁹ The directive -- which reached the units just at the time most of them were commencing to receive and convert to new types of aircraft -- ordered each squadron, no matter if it was alone on a base or shared the base with another interceptor squadron,

27. Report of Interceptor Training Conference, 27 May 1953 (in HRF 304).

28. ADC, Statement of Effectiveness, July 1953 (in HRF 900).

29. Msg, ADC to DFs, 31 Mar 1953 (Doc 43). In this initial instruction, the squadrons were required to keep four aircraft on five minute alert at night. In Msg, ADC to DFs, 8 May 1953 (Doc 44), this requirement was reduced to two aircraft on five minute and two aircraft on fifteen minute alert at night. This action relieved the pressure somewhat from the squadrons.

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to keep a total of fifty percent of its "possessed" aircraft on alert.³⁰
 Of this percentage, two aircraft in each squadron were to be kept on five minute alert (Readiness) and the remainder on one hour alert (Backup) during the day. At night, two aircraft were to be kept on five minute alert, ³¹two on fifteen minute alert (Available), and the remainder on one hour alert. This alert requirement remained in force throughout the remaining months of the period. In effect, it placed about ten percent of the total interceptor force on five-minute alert during the day and more than twenty percent on five and fifteen minute alert during the ³²night.

To enable the squadrons which converted to the new all-weather interceptors to stand alert, Command headquarters established a "composite squadron" policy: The old squadrons were permitted to retain enough of their former aircraft to stand the high states of alert (five and fifteen minute) or they, along with the newly activated squadrons, were

30. What ADC Headquarters meant by "possessed" aircraft was explained in Mag, ADC to DFs, 11 Apr 1953 (Doc 45).

31. Backup aircraft were flown on local training flights by the squadrons. Alert requirements for non-radar equipped interceptors were not met if the Air Division commander believed that weather or night conditions were such as to make such operations dangerous. When fifty percent of the possessed aircraft could not be kept on alert for manpower or maintenance reasons, then the squadron went immediately on non-duty hour alert status, i.e., placed two additional interceptors on high alert. Instructions on these matters were forwarded the squadrons in Hqs ADC, Operations Order 3-53, 1 Apr 1953 (in HRF 914.1).

32. For definitions of the various states of interceptor alert, see ADC Regulation 55-5, "States of Alert for Interceptor Aircraft," 26 Mar 1953 (Doc 46).

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assigned F-51s for this purpose. These older types of aircraft, with few exceptions, bore the brunt of the alert requirement during the period. Except in critical areas where all-weather capability was particularly deficient, the squadrons were not permitted to use the new, all-weather interceptors for alert, in spite of the fact that by the end of the period many of the squadrons possessing these aircraft had pilots qualified to stand alert in them. In this wise, alert capability was in certain respects sacrificed for training. The more of the new interceptors placed on alert, of course, the less there would have been available for training purposes.

The work cut out for the squadrons during the period, then, was to qualify the aircrews in the employment of the new aircraft as rapidly as possible, and, at the same time, meet the high alert requirement imposed on them by ADC Headquarters. This was not an easy task, and as mentioned previously, the members of all the squadrons -- whether converting to new aircraft or merely changing from old to better, yet still interim, interceptors -- were forced to work long, dangerous hours in attempting to meet this goal. As one unit historian reported:

Off-duty time was curtailed sharply for all personnel. It became impossible to allow crews more than 24-hours /leave/ and the one hour restriction made it necessary for recreational excursions to be kept within close limit and where telephone facilities were available.

33. History of 46th FIS, Jan-Jun 1953, which is appended to the History of the 4710th Defense Wing for the same period.

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VI

Preparations for the receipt of the new, all-weather aircraft commenced long before they were actually received in the units. As General Smith commented to a worried General Todd sometime before the new interceptors commenced to arrive in the units, Command headquarters was arranging to have "engine, airframe, and fire control spares for both the F-86D and the F-94C ... in sufficient supply to meet [squadron] requirements. In addition, all possible action is being taken to provide a maximum number of skilled trained air and ground crews in an effort to realize an early capability for these aircraft."³⁴

The sequence of events in the squadrons which converted to the F-86Ds was about as follows. Early in the period, their table of organization and equipment were replaced with the one for F-86D squadrons -- T/O&E 1-1257. The new manning table called for 251 officers and sixty airmen. In most cases, this was less officers and more airmen than the squadrons formerly were authorized, since the new aircraft employed no radar observers but did require additional maintenance personnel. Shortly thereafter, airman manning usually went past the number authorized, but with the transfer of specialists no longer needed, airman assignment

³⁴. Smith to Todd, 19 Jan 1953 (Doc 47). This was in reply to a letter from General Todd on 26 Dec 1952 (Doc 48) expressing concern over the possible over-investment in the relatively unproved F-86D and F-94C. WADF was afraid that once it was equipped with the new aircraft, and completely reliant on them for combat purposes, they would break down, as had happened to the F-89s. ADC's view, as expressed in General Smith's letter was that the "increased capability of the new AI interceptors over our present day aircraft" forced ADC to take the calculated risk that the new aircraft would not prove unreliable.

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approached the authorized figure. As flying officers were transferred out of the squadrons, pilots who had graduated from the Air Training Command F-86D school and had received their basic instruction in all-weather operations were assigned as replacements, whenever possible. These newly arrived officers required, and at once entered into, concentrated transition training in air defense tactics and procedures.³⁵

"Airmen training [as one unit historian described it] proceeded in fits and starts as more quotas became available from Air Training Command for various phases of maintenance on the F-86D."³⁶ The lack of training aids and the dire shortage of trained supervisory personnel which prevailed prevented much advance training on the fire control system of the F-86D. Sometime before the new aircraft arrived, F-51s were given the units to permit them to stand alert or they were permitted to retain enough of their former aircraft to perform this requirement.

F-86D deliveries, in volume, started in April. The manufacturer, Hughes Aircraft, went briefing teams along to familiarize the squadron with the new aircraft. By the end of June, pilots were well along the way to acquiring the necessary number of flying hours for qualification in the new aircraft.

In the conversion program, the major deterrents to placing both the F-86Ds and F-94Cs in combat operational order were a lack of test equipment for the complex fire control systems and the shortage of elec-

35. History of 4709th Defense Wing, Jan-Jun 1953, p. 15.

36. History of 4702d Defense Wing, Jan-Jun 1953, Ch. III, p. 3.

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tronic maintenance technicians. One F-86D squadron, for example, after reporting that "[routine] maintenance problems affecting the aircraft have been overcome by a strenuous training program within the squadron and the assignment of a few trained mechanics," stated:

Many of the problems concerning the maintenance of the fire control system have not been overcome, although a vigorous training program has been conducted and two civilian technical instructors have been assigned to assist the squadron. The non-availability of airmen with a basic training in electronics plus the complexity of the fire control system have retarded the training program.

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On the same subjects, an F-94C squadron historian said:

The main difficulty during the conversion was the inability to maintain the fire control system . . . the difficulty was caused by lack of spare parts and trained personnel as well as the non-availability of test equipment.

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The test equipment items in short supply were mock-ups, range calibrators (UFM-11), reliable tube testers, and boresight test sets.

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At the close of the period, each of these items was on requisition and the overall project was being closely monitored by Headquarters ADC.

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To train the required number of electronic specialists to service the fire control systems, the squadrons were sending their men to the elec-

37. History of 4707th Defense Wing, Jan-Jun 1953, p. 29.

38. As in fn 37, p. 38.

39. Interview, Maj F. F. Hooker, Hqs ADC Directorate of Aircraft, Supply and Maintenance, 12 Nov 1953.

40. As in fn 39.

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tronic school at Lowry Air Force Base and to the Hughes Aircraft factory. Command headquarters prepared an on-the-job training lesson to supplement the courses being given in the above schools. Like the parts project, this training program was under close surveillance at the end of the period.⁴¹

By the end of June, as near as could be estimated, forty of the 143 F-86Ds in the command had met the conditions set down by Command regulation for "combat ready" aircraft -- that is to say, had their rocket pods boresighted and fire control system harmonized, their gun-sight operative, their radio equipment installed and the rest of that gear in order as decreed by the regulation.⁴² Twenty-one of the seventy-two F-94Cs in the command were "combat ready" and twenty of the thirty-one F-89Cs.⁴³ The goal for the ensuing six months was to resolve the parts and maintenance personnel shortages and have all the new aircraft ready for action.

VII

Conversion to new aircraft and the high alert requirement resulted in a drastic reduction in the amount of time the squadrons could give to

41. As in fn 39.

42. ADC Command Data Book, July 1953 (in HRF 900).

43. ADC Regulation 55-2, "Criteria for Determining Combat Ready Aircraft, Combat Ready Aircrews, and Combat Alert Aircrews," 24 Jul 1953 (Doc 49).

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training in ground-controlled interception and aerial gunnery operations.⁴⁴
 The statistics here indicate that because of the inability of squadrons employing interceptors armed with 50 caliber and 20mm cannon to deploy to the ranges and the absence of appropriate targets and methods for analyzing firing of the rocket-armed interceptors, the marksmanship ability of the pilots was relatively unknown.⁴⁵ The entire operation of the air defense system up to the time the interceptor was placed on the track of the enemy bomber by the controller would be negated if the pilot failed to destroy the bomber. To insure that there would be no breakdown in this final and all-important phase of the air defense operation, ADC Headquarters was at work to provide pilots greater opportunity to fire their weapons under conditions as closely approximating the assumed conditions of attack as possible.⁴⁶

By June, a fair number of F-86D and F-94C pilots were deemed "combat alert qualified," that is to say, were sufficiently proficient in use of these aircraft to take them up on identification missions,

⁴⁴. See the following Hqs ADC publications for information on the type of crew training required for proficiency in air defense operations: Unit Proficiency Directive 10-1, "Fighter Interceptor Unit: AI Equipped," 1 Jan 1953 (Doc 50); and Unit Proficiency Directive 10-2, "Fighter Interceptor Unit: Non-AI Equipped," 1 Jan 1953 (Doc 51).

⁴⁵. See ADC Command Data Book, July 1953 (HRF 900).

⁴⁶. At the close of the period, there was insufficient data available on the characteristics of the new aircraft to permit pilots to practice their employment in the lead-collision course under the assumed conditions of combat. Steps to secure additional data were underway at the end of June, and action was being taken to establish realistic training programs. This story will be told in detail in the subsequent volume of the history.

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and many had earned the title of "combat ready". This meant that they had flown a certain number of hours in the new aircraft (fewer for "combat alert qualified" than for "combat ready"), engaged in a certain number of night sorties and ground-controlled interceptions, and demonstrated proficiency in search, lock-on, and tracking (under certain safety restrictions).⁴⁷ To achieve these standings, however, the pilots were not required to participate in rocketry. As was mentioned, the facilities and procedures for this type of training, and for driving home an attack under night and weather conditions as it would probably be conducted under actual conditions of attack, did not exist at the close of the period. In the event of an emergency, these "combat ready" crews would have been sent aloft. Perhaps they might have performed their mission and returned safely; perhaps they might have fired their rockets and through miscalculation derived from inadequate training, failed to clear the bomber and gone down in flames with the enemy. At the close of the period it appeared that assignment of all-weather interceptors to the command was only the initial step down the long road to the shining goal of an all-weather interceptor force.

VIII

The Air Defense Command's immediate plans at the close of June

47. As in fn 43. Mag, ADC to DFs, 25 May 1953 (Doc 52). For an accounting of the safety restrictions imposed on F-86D and F-94C crews, see Mag, ADC to DFs, 27 May 1953 (Doc 53), Mag, ADC to USAF, 29 Apr 1953 (Doc 54), Mag, ADC to DFs, 25 Jun 1953 (Doc 55).

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1953 were to place primary reliance on the F-86D for its interceptor force. By September 1954, if these ambitions were realized, ADC would have its programmed fifty-seven squadrons on fifty-two bases. Forty-four of the squadrons would be equipped with F-86Ds, three with F-89Ds, and nine with F-94Cs. Ultimate programming, through June 1956, that is, was thirty-eight F-86D, eleven F-89D, four F-94C, and four F-102 squadrons. The aircrew to aircraft ratio in all cases was two to one -- two crews to each aircraft.⁴⁸

During the six months immediately following June 1953, ADC was not to receive any additional squadrons. However, it did plan to phase out the conventional aircraft from the force. By December 1953, if all went as scheduled, ADC would have five squadrons of day jet fighters (F-86A and E) and two squadrons of F-94As and Bs. Forty-one squadrons would be equipped with the new, rocket-firing all-weather interceptors -- thirty-two with F-86Ds, nine with F-94Cs. The remaining three squadrons would be equipped with F-89Cs.⁴⁹ As mentioned previously, whether or not ADC would get sufficient crews, skilled maintenance personnel and rocket firing facilities to permit the derivation of full use from this planned force remained to be seen.

48. ADC Program, 1 Oct 1953 (in HRF 931).

49. As in fn 48.

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PART II

PLANS AND PROGRAMS

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CHAPTER FOUR

THE MOBILE RADAR PROGRAM

I

The Mobile Radar Program was the most ambitious project undertaken by ADC in its effort to extend the coverage of the radar net in the Zone of the Interior. ¹ Implementation of the first phase of this program, after an earlier false start, was begun in the spring of 1952. ² Although the work was industriously pursued at Headquarters ADC during 1952, little in the way of tangible progress could be shown at the end of the first year toward actual implementation. Disappointing delays, primarily due to a lack of planning coordination among the agencies involved in the program, forced a revision of completion date

1. For previous discussions of the Mobile Radar Program in the histories of the Air Defense Command, see: ADCHR #2, pp. 16-19; ADCHR #3, pp. 36-43; ADCHR #4, ch. iv. At the end of 1952, plans called for the Mobile Program to be implemented in two phases: the first phase consisting of 44 stations, and the second phase comprising 35 additional stations. Early in 1953 ADC began planning for a third phase extension to consist of 25 additional stations, but by June 1953, the plan had not matured enough to warrant formal submission to Headquarters USAF. For a map of the proposed locations of the first and second phase Mobile stations, see ADCHR #4, p. 131.

2. In July 1951 ADC was directed to begin the implementation of the first phase of the Mobile Program, and siting was begun. Late in 1951, however, the development of a new concept of radar deployment, known as the double perimeter plan, necessitated a change in the planned locations of the Mobile radars, with the result that a new list of sites was submitted to Hq USAF in January 1952, and approved by the latter in March of the same year. [See ADCHR #3, pp. 16-19]

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estimates ever backwards so that instead of the year 1953 witnessing birth of the new radar stations as originally planned, conservative estimates favored 1954 as a more realistic date.

Among the difficulties encountered in the implementation of the Mobile Program during 1952 were: lack of firm construction criteria; uncertainty as to the allocation of radar equipment among the stations; failure to arrive at a decision as to the specific operational role of the "M" stations in the air defense system; indecision as to whether there was a requirement of mobility for those "M" stations located outside of the double perimeter areas; difficulty in determining the nature of the communications linkage between the "M" stations and the Permanent network; lack of information as to the optimum distances between the radars to be located upon the chosen sites; and delay by the Canadian Government in granting permission to ADC for site surveys in Canadian territory.³ By the end of 1952, 33 of the site surveys performed had been approved by Headquarters USAF. Of the remaining five stations in the Zone of the Interior, two had been sited, though not approved, and three locations had not been finally chosen by ADC. The six sites programmed for Canadian territory had not been surveyed

3. In the first phase of the Mobile Program, ADC planned for the establishment of six sites in Canada. In the second phase, three more were to be added. ADC's justification for this unusual step was that the stations in Canada were required to realize the double perimeter objectives around the northeastern and northwestern target complexes. The Canadians had some difficulty in understanding ADC's requirements, and pending Canadian deliberation over this matter, siting for both first and second phases on Canadian territory, was, of necessity, delayed. [See ADCR #4, pp. 140-141]

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at all.

During the first six months of 1953, many of the uncertainties which had hindered planning in 1952 were dispelled. Though this, in itself, was a major accomplishment, ADC had been forced to devote most of its efforts solely to the solution of these problems, with the result that little could be done in the direction of actual implementation of the plan. In June of 1953, the status of the Mobile Program could show little tangible improvement over the situation prevailing at the beginning of the year.

II

One of the most annoying obstacles to ADC during 1952 had been the lack of firm construction criteria for the station facilities.⁴ Among the factors which delayed construction of the "M" sites, were the following: changes in the locations of the operations or cantonment areas after the approval of the original site plans; changes in the number and type of equipment to be used at each site; lack of technical information on the weight and size of equipment which required towers, mounds or platforms for support; lack of information on the location, spacing and height of the powers required; lack of firm lists of personnel required at each site in order to design quarters and messing accommodations; lack of information as to the type of prefabricated buildings to be supplied through central procurement.⁵ By February 1953, only two

4. R&R, DC&E-E to DCS/O, "First Phase 'M' Program," 6 Jan 1953 (Doc 56).

5. R&R, Dir Inst to P&R, "Completion Dates for M Sites," 4 Feb 1953 (Doc 57).

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directives had been issued for the acquisition of real estate, and only one joint-use agreement for on-base sites had been approved. Under these conditions, firm data could not be furnished to the Corps of Engineers for design purposes, and consequently, completion dates for each site were quite nebulous.

Early in 1953, a series of conferences were held, in which representatives from Headquarters USAF, ADC, AMC, and the Corps of Engineers participated, which were successful in drawing up revised criteria for facilities construction. By April 1953, as a result of the provision of these new and firm standards, the Corps of Engineers was enabled to proceed with the construction phase of the program. Similarly, as a result of criteria established during these meetings, the Air Materiel Command was provided with new and firm criteria for the installation of the communications and electronics equipment. Some problem areas remained, but there were reasonable assurances that the major bottlenecks in construction and installation planning had been broken. A particularly exasperating problem which was resolved by this action was the matter of the type of mounting for the radar equipment. Earlier, because of information that towers would not be available for an indefinite period to come, ADC was obliged to consider seriously the use of earth mounds to elevate its Mobile radars; assurance

6. USAF to OCE, "Construction Requirements for 'M' Sites in Zone of the Interior," 27 Mar 1953 (Doc 58); ADC to Air Defense Forces, "Revised Mobile Radar Construction and Siting Criteria," 2 Apr 1953 (Doc 59); ADC to Air Defense Forces, "Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites," 2 Apr 1953 (Doc 60); ADC Diary #43, 4 Mar 1953 (in HRF #900).

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was now offered that either metal or wooden towers would be provided in sufficient time, depending on the requirements of the individual sites.⁷

During 1953, some measure of success was also achieved in resolving the problem of equipment allocation among the various sites of the Mobile Program. In 1952, after a period of much uncertainty, ADC was informed of the total number of radars it could expect to deploy in the Mobile Program.⁸ It was ADC's problem to distribute this equipment among the sites in the most effective manner. In order to do this, however, it was necessary to know the ultimate operational function of the new stations, i.e., whether a station was to be operated as a surveillance station or as a direction center. Since October 1952, Headquarters ADC had been at work on this latter problem, studying the eventual functions not only of the Mobile radars, but of the Permanent radars and the Radar Extension Plan radars as well, in an effort to develop an operational master-plan for the integrated operation of the entire present and proposed radar network. By mid-1953, the study

7. Interview, Historian with Lt Col W. L. Worden, ADC DC&E, 13 Nov 1953.

8. ADCHR #3, p. 40. The radars to be used in the Mobile Program were the following: AN/MPS-7 (primary search); AN/MPS-14 (primary height); AN/MPS-11 (primary search); AN/MPS-8 (primary height); AN/TPS-1D (backup search); AN/TPS-10D (backup height). Of this equipment, all except the AN/TPS-1D's were still in production. Beginning late in 1952 some AN/TPS-1D's were available for delivery to ADC, but there was no site to receive them. Eight of these radars were programmed as interim radars for the REP USAF-manned stations, pending the installation of permanent-type equipment at those sites. See below, Chapter Five.

Chapter Five

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had been completed by ADC, but approval had not been received as yet from Headquarters USAF. Nevertheless, the study in its current state provided sufficient information upon which to plan the allocation of the equipment which was programmed for the Mobile Program, and accordingly, this was done.⁹

A problem related to those of construction criteria and equipment allocations arose over the question of whether radars sited at the same station would mutually interfere with each other in their operation. In the latter half of 1952, the Air Research and Development Command was requested to provide the separation criteria necessary to accomplish the proper siting of the radars.¹⁰ Pending ARDC's investigation of the problem, some delay had ensued in the submission of siting reports from the field, but in September 1952, Headquarters USAF permitted ADC to waive the separation criteria and to expedite the submission of site survey reports. During 1953, ARDC's researches provided ADC with the necessary information in sufficient time to be incorporated in the revised construction and equipment installation criteria mentioned above.

From the earliest date in the planning for the Mobile Program,

9. For a list of radar equipment allocations for the Mobile Radar Program see ADC, ADC Program, 1 Oct 1953, pp. 44-46 (in HRF #931).

10. Interview, Historian with Lt Col W. L. Worden, ADC DC&E, 13 Nov 1953; see also RADC to ADC, "Evaluation of the Radar Mutual Interference Problem," 4 Feb 1953 (Doc 61); ADC to RADC, "Evaluation of Radar Mutual Interference Problem," 22 May 1953 (Doc 62); ADC to EADF, "Separation Criteria for AN/MP8-7 and AN/MP8-14 Radars," 15 Jul 1953 (Doc 63); RADC to ADC, "Separation of Radar Equipment," 14 Aug 1953 (Doc 64).

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the question of whether the proposed stations would be mobile or not had vexed Headquarters ADC.¹¹ It had been ADC's understanding that the word "mobile" had been employed to indicate that the stations would not be permanent-type installations requiring public works construction funds to the same degree as those in the Permanent Program. An additional requirement emphasized by Headquarters USAF was that of redeploying the radar equipment quickly in the event of a need for the equipment overseas. ADC had accepted this requirement for mobility with some reluctance. In the spring of 1952, when the revised Mobile program was the subject of much correspondence with Headquarters USAF, ADC had noted that plans called for those "M" stations which were to be located in the double perimeter areas to be permanently fixed installations. As for those stations which were to be deployed outside of the double perimeter areas, i.e., for the protection of SAC installations, ADC was willing to agree on the mobility requirement, foreseeing the possibility of the movement of SAC forces which would thereby render the radars unnecessary. Late in 1952, ADC directed its Air Defense Forces to provide for minimum permanent-type improvements in the operations areas of the following sites: M-88 (Amarillo AFB, Texas); M-89 (Abilene, Texas); M-90 (Walker AFB, New Mexico); M-92 (Davis-Monthan AFB, Arizona); and M-96 (Luke AFB, Arizona).¹²

11. ADCHR #1, pp. 113-115; ADCHR #4, pp. 138-139.

12. R&R, DC&E-E to P&R, "Modifications of Site Survey Reports for 'M' Program," 16 Jan 1953 (Doc 65); ADC to CADF, "Mobile Radar Program," 22 Jan 1953 (Doc 66).

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the question of whether the proposed stations would be mobile or not had vexed Headquarters ADC.¹¹ It had been ADC's understanding that the word "mobile" had been employed to indicate that the stations would not be permanent-type installations requiring public works construction funds to the same degree as those in the Permanent Program. An additional requirement emphasized by Headquarters USAF was that of redeploying the radar equipment quickly in the event of a need for the equipment overseas. ADC had accepted this requirement for mobility with some reluctance. In the spring of 1952, when the revised Mobile program was the subject of much correspondence with Headquarters USAF, ADC had noted that plans called for those "M" stations which were to be located in the double perimeter areas to be permanently fixed installations. As for those stations which were to be deployed outside of the double perimeter areas, i.e., for the protection of SAC installations, ADC was willing to agree on the mobility requirement, foreseeing the possibility of the movement of SAC forces which would thereby render the radars unnecessary. Late in 1952, ADC directed its Air Defense Forces to provide for minimum permanent-type improvements in the operations areas of the following sites: M-88 (Amarillo AFB, Texas); M-89 (Abilene, Texas); M-90 (Walker AFB, New Mexico); M-92 (Davis-Monthan AFB, Arizona); and M-96 (Luke AFB, Arizona).¹²

11. ADCHR #1, pp. 113-115; ADCHR #4, pp. 138-139.

12. P&R, DC&E-E to P&R, "Modifications of Site Survey Reports for 'M' Program," 16 Jan 1953 (Doc 65); ADC to CADF, "Mobile Radar Program," 22 Jan 1953 (Doc 66).

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Early in 1953, however, ADC was forced to reconsider this action. The sites mentioned above were all located in an area of the United States for which an extension of the radar network was foreseen, though not as yet programmed. Late in 1952, such an extension of the radar coverage had been embodied in a third phase plan for the Mobile Program, to consist of 25 additional stations, designed to protect the weak "underbelly" of the United States from California to Florida. By the beginning of 1953, the "third phase" plan had matured sufficiently to warrant a reconsideration of the mobility requirement for the stations of the first phase mentioned above.

In January 1953, informal reports reached Headquarters ADC that USAF had abandoned its mobility requirement for the Mobile radars.¹³ A request for official clarification of this question brought back the answer from USAF that "the equipment was not considered fixed" even though vehicular mounts had been deleted from the program.¹⁴ Further inquiry brought ADC the information that the mobility commitment could be met by having the equipment removed from the antenna trailers and installed on suitable supports.¹⁵ Interpreting this information to its own satisfaction, ADC proceeded to delete the special provisions for mobility and minimum permanent-type improvements in the operations

13. Msg, ADC to USAF, 9 Jan 1953 (Doc 67).

14. Msg, USAF to ADC, 13 Jan 1953 (Doc 68).

15. ADC Diary #14, 21 Jan 1953 (in HRF #900).

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areas of the sites mentioned above. It was believed by many persons at Headquarters ADC that the cause of air defense would be served better if the fiction of mobility was completely abandoned.

Another vexing problem inherited by ADC in the first half of 1953 involved the nature of the communications links between the "M" stations and the "P" network. ADC's first views on the subject favored government-owned microwave facilities, but as 1953 progressed, it became apparent that Headquarters USAF favored the leasing of commercially-owned circuits.¹⁶ On 2 April 1953, ADC notified its Air Defense Forces of the decision to establish the latter-type circuits. Arrangements were made, however, for the telephone companies to terminate their circuits at the site "main frame" located in the operations buildings, instead of at the site boundary as was the case with the "P" sites. Intra-base cable and telephone systems, other than those mentioned, would be government-owned. However, where telephone land lines were, in the estimation of the telephone companies, impractical, then commercially-owned microwave would be employed.¹⁷

16. ADCHR #3, pp. 42-43.

17. ADC to EADF, "Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites," 12 Apr 1953 (Doc 69).

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III

On 2 April 1953, the Canadian Government informed the United States that permission had been granted to conduct the necessary site surveys in Canada for those stations in the first and second phases of the Mobile Program which were to be located on Canadian territory.¹⁸ By August 1953, site survey teams specially designated for the purpose had been assembled and were ready to take to the field.

The matter of Canadian site surveys was a particularly annoying one. ADC would have preferred outright approval by the Canadian Government for the actual installation of the Mobile radars on Canadian territory, instead of only approval for the site surveys. In ADC's view, realistic estimates of the completion of construction of the six Canadian sites could not be made "since no forecast can be made as to the time required to obtain final approval to proceed with the installation of these sites."¹⁹ Furthermore, ADC noted that "construction time will also be dependent upon the selection of the ultimate construction agency....In view of this we are presently estimating a beneficial occupancy date sometime during the summer of calendar year 1955."²⁰ In a memorandum to the Permanent Joint Board on Defense, ADC

18. Department of External Affairs, Canada, to U.S. Charge d'Affaires, 2 Apr 1953 (Doc 70); USAF to ADC, "Approval by the Canadian Government of Site Surveys for Nine Additional Radar Stations," 5 May 1953 (Doc 71).

19. Memo, Col H. E. Neal to Maj Gen R. M. Webster, PJBD, 13 Aug 1953 (Doc 72).

20. As in fn 19.

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noted that if (1) approval for the installation of the Canadian sites were granted immediately, (2) approval as to the construction agency were made, and (3) agreement as to the provisions for funding, equipment and manning were reached, then the estimated beneficial occupancy dates could be improved possibly by as much as one year.²¹ Suffice it to say that ADC waited anxiously for a speedy solution to this international problem.

In January 1953, of the 44 proposed locations in the first phase of the Mobile Program, eleven sites had not been determined, including the six first phase sites in Canada. Six months later, the same number of stations were still being held in abeyance. In June 1953, the five sites in the Zone of the Interior which were still not sited were:

- M-123, Fort Bidwell, California
- M-111, Pembina, North Dakota
- M-118, Burns, Oregon
- M-127, Winnemucca, Nevada
- M-103, Groveton, New Hampshire

The first four of the sites listed were held up because radar calibration reports indicated that there was no pressing need for long-range equipment at these sites. ADC decided to take a calculated risk in its proposed radar coverage by removing the planned radars from the proposed locations and siting them elsewhere, even though there was a requirement at the sites for low-altitude coverage. It was planned that, eventually, small automatic radars would provide the necessary surveil-

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lance capability threat. Site M-103, though deemed necessary in its proposed location, was considered too costly because of the expensive access road which was required.²²

A change in the proposed location of one of the six Canadian sites of the first phase of the program occurred in May 1953. Station M-102, programmed for the vicinity of Trenton, Ontario, was relocated to Cape Sable Island, Nova Scotia. ADC determined that there was no need for the site in the Trenton area because the small automatic radars planned for the future obviated the need for the more expensive long-range equipment of the Mobile Program.²³ The justification for the new location at Cape Sable Island was to create a surveillance station outside of the northeastern double perimeter area which would serve as a northern anchor for the proposed Airborne Early Warning and Control chain along the north Atlantic seaboard.²⁴

IV

The delay in the firming of construction and installation criteria, as well as the uncertainty in the ultimate location of some of the "M" sites, played havoc with estimated completion dates for the

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22. Msg, ADC to USAF, 1 Dec 1952 (Doc 73); ADC to USAF, "Relocation of M-123 and SM-135," 10 Sep 1953 (Doc 74); Msg, ADC to USAF, 25 May 1953 (Doc 75); ADC Diary #61, 30 Mar 1953 (in HRF #900); ADC Diary #37, 24 Feb 1953 (in HRF #900); ADC Diary #54, 19 Mar 1953 (in HRF #900); ADC Diary #22, 2 Feb 1953 (in HRF #900).

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23. Msg, ADC to RCAF, 25 May 1953 (Doc 76).

24. Msg, ADC to RCAF, 24 Jun 1953 (Doc 77).

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program. It was estimated in June 1953 that the majority of the first phase "M" sites would have their construction designs finished by the following month, and be under contract by August 1953. Engineering estimates envisaged the completion of construction about four to five months from the date of the award of contract. On this basis, beneficial occupancy by ADC personnel would take place in December 1953 or January 1954 for most of the "M" sites. It was realized that there would be exceptions to the dates because of climatic conditions, the shortness of the construction season in the late fall months, and the difficulty of accessibility.²⁵ In addition certain other problems would have to be resolved, such as the construction of radar towers, procurement of prefabricated buildings, and receipt of mess equipment and generators, before firm beneficial occupancy dates could be forecast.

The slippage in the beneficial occupancy dates also played havoc, in turn, with plans for the activation of AC&W units programmed for the "M" stations. In December 1952, a conference at Headquarters USAF had determined that 21 AC&W squadrons would be activated by June 1953.²⁶ Of these units, thirteen were scheduled to move immediately to their new sites, with two more following in November 1953. In view of the slippage in dates, ADC advised USAF to delay the activation

25. R&R, Const Div to Col Kelley, "Status of 1st Phase Mobile Radar Program," 26 Jun 1953 (Doc 78); Memo, "Beneficial Occupancy Dates for Mobile Radar Program Phase I," 11 Mar 1953 (Doc 79); Msg, ADC to USAF, 31 Jul 1953 (Doc 80).

26. ADC to USAF, "Revision of First Phase Mobile Radar Program," 17 Mar 1953 (Doc 81).

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and movement of the units to conform to more realistic beneficial occupancy dates.²⁷ Headquarters USAF concurred in ADC's proposal to delay the movement of the units but maintained that "personnel and supply actions that have already ensued in conjunction with these activations make it infeasible to delay."²⁸ The decision was consequently made to activate the units as scheduled earlier, at the Air Division Headquarters during the fourth quarter of Fiscal Year 1954. By activating at this date, USAF noted, the personnel could be used by ADC at nearby stations, affording valuable individual training. When the sites were ready for occupancy, then the units were to be reassembled and moved to site.

V

The second phase of the Mobile Program was approved by USAF late in 1952.²⁹ The 35 additional stations were to be located along the walls of the double perimeters in order to realize that concept of radar deployment. After the approval of the second phase of the program by USAF, the same siting teams which were engaged in siting the first phase sites were directed to include the second phase sites on their itineraries. It was inevitable, however, that some relocations would take place as a result of developing deployment plans.

27. As in fn 26.

28. ADCHR #4, p. 141.

29. As in fn 28.

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A number of relocations were made in the southeastern United States, where the new AEC installation at Savannah, Georgia, made some changes³⁰ necessary.

A veritable bombshell was thrown into ADC's plans for the second phase of the Mobile Program in June 1953, when it was learned that Headquarters USAF had completely omitted the "M" sites from the Fiscal Year 1954³¹ public works program. This, in ADC's view, was bad enough, but in addition, USAF failed to provide funds for the construction of the additional division headquarters programmed for the 1955 reorganization of the command -- installations into which the Mobile radars of both phases of the program would be linked by wire communications. A message from General Chidlaw to General Twining remonstrated strongly at this action, noting that "the required coverage of the radar surveillance system, which as you know, presently is not satisfactory, cannot be finally realized prior to Fiscal Year 1956."³² General Chidlaw also noted that "communications lines presently being installed for the first phase Mobile sites... must be materially altered to tie into the present divisional headquarters, with subsequent costly changes when the new air divisions are ultimately built."³³ Finally, the ADC

30. ADC to CADF, "Relocation of Second Phase Mobile Radar Sites," 12 Feb 1953 (Doc 82).

31. Msg, Chidlaw to Twining, 10 Jun 1953 (Doc 83).

32. As in fn 31.

33. As in fn 31.

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Commander observed that:

Omission of these items appears incompatible with the 1955 Air Defense Objectives Plan recently approved by your Air Council, and completely disregards certain specific operational necessities for air defense operations, failing to provide a maximum air defense with the resources available.

34. As in fn 31.

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CHAPTER FIVE

CHAPTER FIVE

THE RADAR EXTENSION PLAN: THE LASHUP PHASE

In the late months of 1952, the Air Defense Command looked forward uneasily to the prospects of the following spring. The period from April to September 1953 was regarded as being especially critical because of the favorable conditions which would be offered to a potential enemy for staging an air offensive against the United States. ADC's attention was directed, consequently, towards insuring that all surveillance resources would be used to the maximum during this period.

In view of ADC's assumption that the enemy would strike via the Arctic region, a re-examination of the capability which would be offered in the following spring by the Radar Extension Plan (REP) was in order. The REP, which was originated in 1950, was designed to provide an extension of the continental American radar network into Canadian territory. Thirty-five AC&W installations were to be built and operated by personnel from three agencies: the RCAF was to be responsible for operation of seventeen stations; the Northeast Air Command was to

1. Interview, Historian with Maj C. M. Ratliff, ADC O&T, 9 Dec 1953. Favorable weather conditions for long flight over the Arctic and Pacific areas and better support for Russia's advanced Siberian bases in the spring and summer months undoubtedly contributed to ADC's concern. This concern was not unique to the period under discussion, but was a recurring preoccupation with the approach of each spring.

2. See ADCR #1, pp. 343-345, for background information on the REP.

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operate ten stations; and the Air Defense Command was to operate
³ eight stations. The radars which were to be installed at the Canadian
 sites were to be the same as those used in the American radar net, i.e.,
 the AN/CPS-6B and the AN/FPS-3.

ADC's re-examination of the progress of the REP program re-
 sulted in some disquieting revelations. It was apparent that none of
 the eight stations which were to be operated by ADC would be completed
 in the following spring. Optimistic estimates envisioned the late
 summer of 1953 as the earliest time in which an operational capability
 would exist, and that a limited one. Reasons for the delay were attri-
 buted to the lag in production of electronic equipment, and in the
 difficulties attendant upon joint international planning for logistic
 support of the stations.

In view of the disappointing prospects, ADC began to give
 thought in the late summer months of 1952 to the possibility of pro-
 viding an operational capability for its eight Canadian sites through
 the drastic means of installing Lashup-type radar equipment at the
 partly-completed stations. Queries addressed to the Project Pinetree
 Office in Ottawa confirmed suspicions that delays in the installation
 of the permanent-type radars would afford a period of approximately
 six months during which the Lashup equipment could be put to good use.
⁴

3. See map following this page.

4. Msg, ADC to PPO, 29 Aug 1952 (in O&T File 37-4); Msg, PPO
 to ADC, 5 Sep 1952 (in O&T File 37-4). Lashup-type radars were World
 War II equipment used in the Z.I. radar system as an interim measure
 pending the completion of the Permanent system with its modern post-
 war radar.

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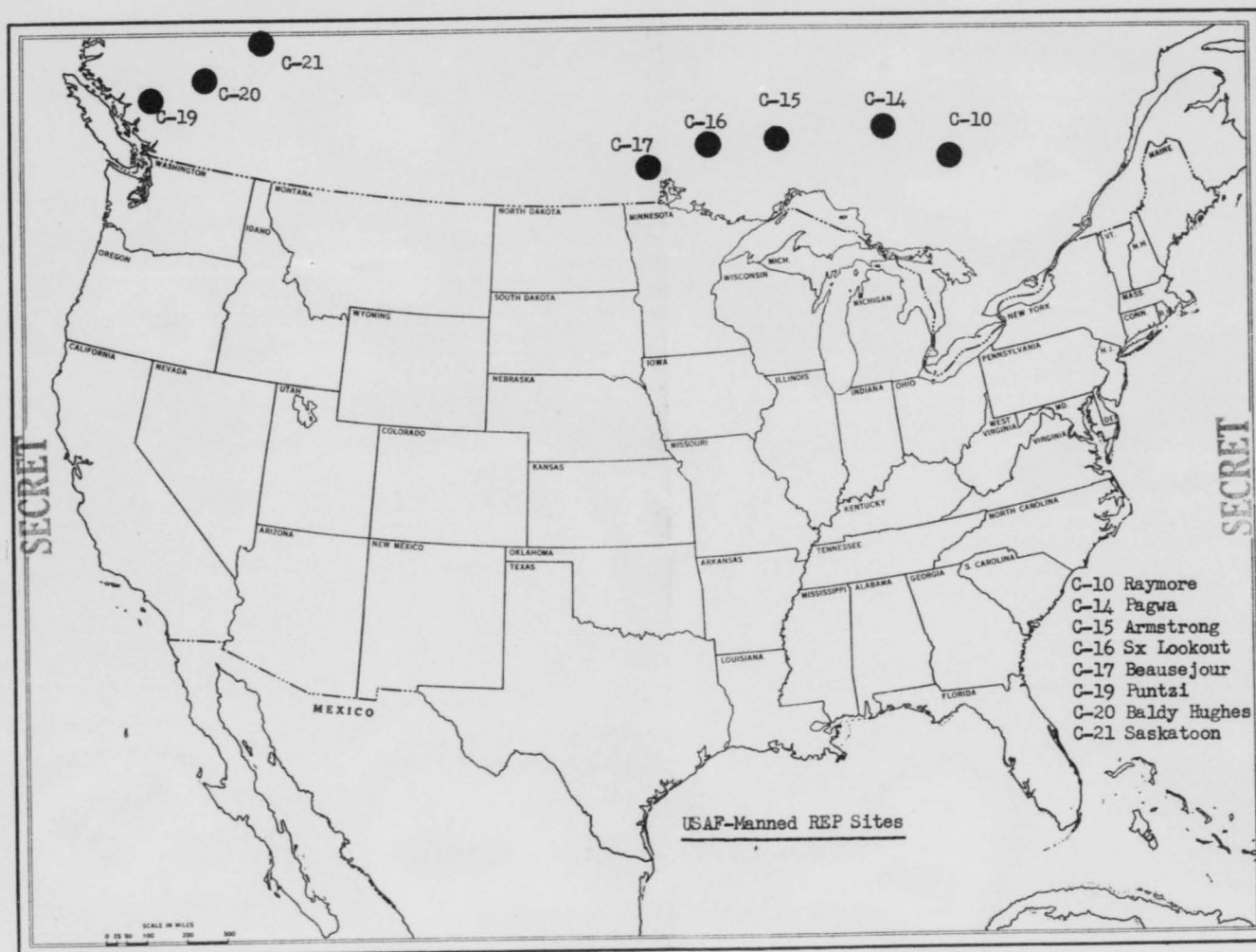
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A staff study prepared by ADC's Directorate of Operations and Training in September 1952 discussed carefully the problem of Lashup operations.⁵ It concluded with a recommendation favoring the use of Lashup radars at the REP sites, but pointed out that the value of such use would depend upon the provision of adequate supplies of spare parts and upon the installation of adequate communications to tie the REP sites to the continental network. Circulation of the study among interested staff sections at Headquarters ADC resulted in a number of strong objections to the proposal. The objections were based on the ground that it would take an excessive amount of time to overhaul and install the TPS-1B and CPS-5 radars which were to be used, and that adequate communications would not be available in time to permit effective integration of the Canadian stations into the American defense system.⁶

An important part of these objections was answered by the decision to substitute for the originally proposed Lashup radars, a quantity of AN/TPS-1D radars which had just become available to ADC. This latter equipment had been programmed for the stations of the Mobile Program, but delay in the construction of the Mobile sites resulted in the freeing of the new radars for a period of at least a half-year. The AN/TPS-1D's were new equipment, still in their original factory cartons, and had an adequate supply of spare parts to back-up

5. Memo, "Use of Lashup Radar Equipment for the 8 ADC-Manned REP Sites," by Maj Charles M. Ratliff, 18 Sep 1952 (in O&T File 37-4).

6. R&R, O&T to P&R, 26 Sep 1952 (in O&T File 37-4).

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operations for at least six months. On the strength of the availability of this equipment, a command decision was made to proceed with the implementation of the Lashup plan.⁷

On 14 November 1952, the Air Defense Command notified Headquarters USAF of its plans.⁸ It was pointed out that the latest Pinetree program reports indicated that the eight REP sites would not reach the status of limited operations until June 1953, "a date which is far from being realistic since the major items of radar equipment for those sites may not be delivered until late spring 1953."

The lack of early warning facilities north of the 25th, 29th and 31st Air Divisions [the letter went on to assert] particularly during the critical period April to September 1953, is a cause of great concern to this headquarters. In view of the urgency for some early warning capabilities during that critical period, this headquarters is considering the activation of these sites by 1 April 1953 using as an interim measure....radar equipment held in reserve by this command to meet such contingencies.

Communications facilities required for implementation of the program were to consist of landlines which were scheduled to be in place by 1 April, and augmented by high frequency radio. The personnel who would operate and maintain the equipment were to be those men al-

7. R&R, Col R. Breitweiser to O&T, 6 Oct 1952 (in O&T File 37-4).

8. ADC to USAF, "Installation of Lashup Radar Gear at REP Sites," 14 Nov 1952 (Doc 84).

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ready sent to the sites for purposes of "beneficial occupancy".⁹

At an early date in the evolution of the REP Lashup plan, the Canadian authorities were notified and their opinions solicited. Canadian reactions were uniformly enthusiastic. A tender by ADC of additional Lashup radars to Canada, with which the Canadians might equip their own REP sites, was rejected because they lacked trained personnel, but they placed no obstacles in ADC's path.¹⁰ A meeting at Headquarters USAF, attended by Canadian personnel, held on 13-14 January 1953, resulted in the "immediate concurrence" of the Canadian representatives to the ADC plan.¹¹ A month later, after ADC had presented Canada with a detailed plan for implementation of the Lashup program, the Canadian Air Defense Command wired ADC that they concurred¹² "arrangements for Lashup operations in their entirety." Canada also volunteered the welcome information that the ADCC at Vancouver

9. Occupancy of the eight REP sites was scheduled in four phases, consonant with site inspections, arrival of TO/E equipment and deliveries of radar equipment. The beneficial occupancy parties were to consist of four officers and 46 airmen. /See R&R, PPO to DCS/M, 18 Dec 1952 (Doc 85 7). By the end of January 1953 all of the sites except Baldy Hughes and Saskatoon had been occupied. PPO Weekly Activities Report, 24 Jan 1953 (in AGC 319.1).

10. ADC to USAF, "Installation of Lashup Radar Gear at REP Sites," 14 Nov 1952 (Doc 84); Msg, CANAIRDEF to ADC, 19 Dec 1952 (Doc 86).

11. R&R, Col E. Herbes to O&T, 30 Jan 1953 (in O&T File 37-4).

12. Msg, CANAIRDEF to ADC, 12 Feb 1953 (in O&T File 37-4).

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and the GCI station at Falconbridge would be capable of operating on a 24-hour basis by 1 April 1953, making a total of eleven operational Canadian-operated stations by that date.¹³ Air Vice Marshal James, chief of the Canadian ADC, urged General Chidlaw on 13 February 1953 to proceed to put the plan into operation "as if this policy had received formal approval from you and me."¹⁴

Operational details were arranged with Canada whereby four of the Lashup stations (C-14 at Pawa, C-15 at Armstrong, C-16 at Sioux Lookout, and C-17 at Beausejour) would be operated as an integral part of the Air Divisions of the American Air Defense Command which were contiguous to the Canadian border. The remaining four stations (C-10 at Raymore, C-19 at Puntzi, C-20 at Baldy Hughes, and C-21 at Saskatoon) were to be operated as an integral part of the Canadian air defense system. Information on the operational status of both radar and fighters, as well as flashes, warnings, and cross-telling of unknowns and hostiles, would be exchanged between the two countries. Administrative and logistic matters would be in accordance with "approved RCAF-USAF agreements."¹⁵

13. Canada operated seven interim stations and two permanent stations at the beginning of 1953. The former were located at Bagotville, St. Hubert, Uplands, Trenton, Chatham, North Bay and Dartmouth. The latter were located at Mont Apica (C-1) and Lac St. Denis (C-2). [See ADC, ADC Program, Jan 1953, p. 8].

14. Air Vice Marshal A. L. James to ADC, "Agreement on USAF-Manned Radar Stations in Canada," 13 Feb 1953 (Doc 87).

15. ADC to RCAF-ADC, "Recommendations of the USAF-RCAF ADC's Conference, 2-5 December 1952," 7 Jan 1953 (Doc 88). The minutes of the conference are inclosed in the cited document.

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It is to be noted that ADC lost no time while waiting for approval of its plan by Headquarters USAF. Indeed, time was of the essence if the eight stations in Canada were to be "on the air" by 1 April 1953. Final approval was obtained from higher headquarters on 7 February 1953.¹⁶ By this time ADC was well-gearred for immediate action. Canada had given its unqualified concurrence to the plan; the radar equipment was in storage, complete with spares and ready to be airlifted on moment's notice; and the necessary logistics problems had been well thought out. On 13 February 1953, ADC issued its operational orders to its Air Defense Forces, who were to supervise the implementation.¹⁷

In its instructions, Headquarters ADC established the target date of 1 April 1953 for only six of the eight stations in Canada. These stations and the AC&W units which were to operate them were as follows:

C-10, Raymore.912 AC&W Sq.
C-14, Pagma.913 AC&W Sq.
C-15, Armstrong.914 AC&W Sq.
C-16, Sioux Lookout.915 AC&W Sq.
C-17, Beausejour.916 AC&W Sq.
C-19, Puntzi.917 AC&W Sq.

The remaining two sites, i.e., those at Baldy Hughes (C-20) and Saskatoon (C-21), were to be operational "as soon as conditions permit." The mission of the eight sites was "to maintain and operate

16. Msg, USAF to ADC, 7 Feb 1953 (in O&T File 37-4).

17. ADC, "Plan for Lash-up Operation of the ADC-Manned Project Pinetree Sites," 13 Feb 1953 (Doc 89).

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an early warning facility for the purpose of providing United States and Canadian Air Defense Systems with early warning of air activity in their respective sub-sectors."

With respect to communications and electronics, the instructions stated that one TPS-1D radar, complete with two 7.5 KW 400-cycle power units, spares and test equipment would be supplied to each site. When the permanent radars became operational the Lashup radars and their allied equipment would be returned to the United States for disposition by ADC. No ground-to-air communications or IFF capability would be required during the Lashup operational phase.

Each site was to be provided with a minimum of one wire circuit with Z.I. stations for the duration of the Lashup period. Until these circuits were available, however, high-frequency radio, using voice or telegraphic emission, and operating on assigned frequencies would be employed. Radio equipment was to be shipped to each site for this purpose.

The eight TPS-1D radars, with their allied power units, were located at Sacramento Air Materiel Depot. The necessary test equipment was located at Wright-Patterson AFB at Dayton, Ohio. The radars and allied equipment were to be airlifted to the Canadian sites so as to arrive by the 10th of March 1953. Accountability for this equipment was to be transferred upon shipment to the ADC Property Accountability Office in Ottawa.

The men already at the sites were to install the equipment.

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They were to take especial care, however, that their work did not interfere with the activities of the contractors still engaged in construction and installation for the permanent stations.

Logistic support for the equipment which was to be moved to the Canadian sites was to be the responsibility of the Air Defense Force concerned.¹⁸

The policy prevailing on this matter was that initially supplied equipment from USAF sources would be supported by USAF.

Electronic support bases for the program were designated as McChord AFB, Truax AFB, and Selfridge AFB for those sites in the jurisdiction of WADF, CADF, and EADF respectively.

In early thinking on the subject of Lashup operations for the eight REF sites, ADC planners had been over-optimistic in their opinion that resident caretaker personnel already at the sites could operate and maintain the radar equipment. ADC was soon disabused of this belief, and arranged to send one officer and seventeen airmen to each site in addition to the caretaker personnel. Moreover, the influx of this additional body of personnel promised to tax severely the resources of the meager number of caretaker personnel for messing and administrative purposes. It was apparent that additional "housekeeping" personnel would have to be provided at a later date.

The movement of personnel and equipment was accomplished with a minimum of difficulty. Not only were the six radars "on the air" by

18. EADF was to be responsible for the operation of the following stations: C-10, C-14 and C-15. C-16 and C-17 were to be operated by CADF; and C-19, C-20 and C-21 by WADF.

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1 April 1953, but they were joined also by C-21 at Saskatoon. ¹⁹ The
remaining station at Baldy Hughes reported into the active radar net
on 27 May 1953. ²⁰ The Pinetree Lashup operation was over. It had been
achieved with singular success, which was the direct result of the
meticulous planning and cooperation afforded to the project.

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19. FPO, Weekly Activities Report, 21 Mar 1953 (in HRF #709)
 20. ADC Diary #102, 27 May 1953 (in HRF #900).

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CHAPTER SIX

EMERGENCY INTERCEPTOR FORCES

I

During the first half of 1953, ADC concluded new agreements with the Tactical Air Command, the Strategic Air Command, the Air Training Command, and the Air Proving Ground Command. These accords granted as definite a commitment of fighters to air defense from these commands in an emergency as their primary missions permitted. These negotiations gave ADC absolute assurance of fighter augmentation from ATRC and APGC -- for the primary mission of these commands did not require any overseas movement of their forces. ADC could be almost as certain of the support of TAC, for fighters from this command would be forthcoming except for the remote possibility of USAF requiring all of TAC's forces to move overseas immediately after declaration of an emergency. Only of the availability of the fighters of SAC, whose plans called for early deployment of fighters to forward bases in an emergency, did ADC have serious doubts.

Previous to these agreements, there had not been any such degree of assurance of support. In fact, the preceding accords guaranteed nothing in air defense augmentation from any command. This was due to the reservation written into each that availability of fighter forces "shall be in consonance with the requirements and commitments

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for the execution of their assigned primary missions." ¹ This seemed to ADC to be a loophole which any of the commands could use when called upon to consign their forces. ADC wanted concrete pledges upon which to build its plans.

Early in January 1953, Major General Jarred Crabb, ADC's Chief of Staff, made strong representations to Air Force Headquarters on this matter. ADC could not be certain of any support from these commands, he declared, and it was the opinion of ADC Headquarters that all available augmentation fighters would be needed to counter an initial attack. ² USAF Headquarters should direct all major commands in the United States to make an unqualified commitment of forces for emergency employment.

General Crabb outlined a plan for dividing the defense of the nation geographically with ADC's interceptors defending the northern and coastal critical target areas and the fighters of other commands providing the defense for the southern part of the nation. For several years to come, over half of all Air Force fighter aircraft in the nation would be in other commands, and the greatest portion of these would be based in the south. If a definite commitment could be gained from these commands, General Crabb explained, ADC would not have to locate its own

1. ADC-TAC Mutual Agreement, 21 Apr 1951, Sec VII (in HRF 580); SAC Agreement, 23 May 1951, Sec VII (in HRF 581); ATAC Agreement, 9 Aug 1951, Sec VII (in HRF 582); APQC Agreement, 23 Aug 1951, Sec VII (in HRF 583).

2. ADC to USAF, "Commitment of Augmentation Forces," 2 Jan 1953 (Doc 90).

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fighters in this area in the future, but could mass them all in areas³ having more profitable targets. Furthermore, ADC's interceptors currently located in the south could be redeployed, in an emergency,⁴ to defend northern and coastal targets.

General Crabb's argument was well received in Washington. ADC was informed at the beginning of March that General Twining, Air Force Vice Chief of Staff, had requested all of the commands having fighter forces, to commit them to emergency air defense on a definite⁵ basis.⁶ General Twining told each of the commanders:

I feel the Air Force's position will be untenable if an attack occurs without our having planned for employment of every available and potentially available means to counteract it.

To this end, it is my desire that a definite and continuing commitment of increasing proportions of any air defense means available to you be made to the Air Defense System. Such commitment should provide for the necessary training and I envision that forces in your command should start standing regular alert as soon as their training status permits, as agreed between you and Ben Chidlaw.

With this blessing from Air Force Headquarters, ADC renegotiated all of its augmentation agreements.

3. As in fn 2.

4. Interview, Lt Col F. A. Campbell Jr., ADC P&R, 12 Jan 1954.

5. Vandenberg to Chidlaw, 3 Mar 1953, and 1 Incl (Doc 91).

6. As in fn 5, Incl, Twining to LeMay, 3 Mar 1953.

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From ATRC, APGC, and TAC, Headquarters ADC received unqualified pledges that their forces would be allocated to emergency air defense.⁷ The only reservation in any of the three agreements was in regard to the length of time that their units could remain with ADC. Each command stipulated that the duration would be the "shortest time consistent with air defense requirements and the primary mission of...⁸ [the command]."

ADC established the responsibility of these commands for training their forces in air defense operations more clearly and definitely in these agreements than in the first ones. In 1951, ATRC and APGC agreed only to the vague provision that they would "prepare operation orders and plans in order to insure adequate unit training and adherence to air defense policies and procedures...."⁹ TAC would not agree to this, but only to the statement that it was essential that their forces be trained for employment in air defense. In the new atmosphere which followed General Twining's March message, each of these commands agreed, in 1953, to train their forces in the air defense mission.

SAC proved to be a reluctant member of the augmentation

7. APGC-ADC Mutual Agreement, 3 Apr 1953, Sec III, IV (Doc 92); ATRC-ADC Agreement, 25 Apr 1953, Sec III, IV (Doc 93); Incl, "Rpt of TAC-ADC Aug Conf," to ADC to TAC, "Air Defense Augmentation From TAC," 27 Jun 1953 (Doc 94).

8. As in fn 7, APGC Agreement, Sec VI; ATRC Agreement, Sec VI; TAC Agreement Report, Par 2.

9. As in fn 9, TAC Agreement, Sec III; SAC Agreement, Sec V; ATRC Agreement, Sec V; APGC Agreement, Sec V.

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quartet. This command would agree to no statement of allocation, but only that "fighter units of SAC, by virtue of their organization and equipment, possess a capability in air defense."¹⁰ Hedging against its overseas requirements, SAC agreed only to maintain, on a continuing basis, a list of units which were available for emergency air defense. Further, SAC injected the same overriding reservation in this agreement as in the first one -- that availability depended upon the requirements of the primary mission. Finally, SAC pledged to give its units training in air defense, but with the understanding that its own training requirements would come first.

None of the commands would assent to the proposal that their aircraft be placed on a regular alert schedule, with the exception of the APGC, and this command's aircraft were located at a base where alert would be of little value. No commitment was asked from APGC for ADC felt that the former's research work, upon which alert would have been¹¹ a drain, was more important. TAC indicated that it could not place aircraft on alert at that time because it was converting from conventional¹² to jet fighters. SAC and ATRC also felt that it was too great a burden upon them.

10. SAC-ADC Mutual Agreement, 4 Apr 1953, Sec III (Doc 95).

11. Interview, Historian with Maj B. E. McKenzie, ADCOMT-F, 7 Oct 1953.

12. As in fn 11; TAC to ADC, "ADC Augmentation Forces," 17 Feb 1953 (Doc 96).

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ADC did not attempt, either in its first agreements or in those negotiated in 1953, to specify precisely the size of the force to be consigned to emergency air defense from each command. Dealing in anything more than general terms, would have sacrificed the flexibility necessary if the accords were to be applicable for any length of time. ADC's main concern in the agreements was to establish the authority for use of the forces.¹³ In broad terms, however, the agreements signified that only those fighter forces which were incapable of performing the air defense mission for one reason or another would be excluded from allocation to air defense in an emergency.

At mid-1953 the aircraft made available for emergency air defense from other major commands totaled 339 out of a possible 1016 assigned to these four commands at that time.¹⁴ There were a number of reasons why the balance of these aircraft were not allocated to air defense. Some of the fighters were not equipped for combat, or there were not enough pilots for the aircraft who were capable of performing the air defense mission; the latter reason was especially true of ATRC and APOC.¹⁵ Some of SAC's aircraft were in units preparing for overseas movement, as were some of TAC's. The latter command was able to consign only a small portion of its total aircraft to emergency

13. As in fn 11.

14. ADC, Statement of Effectiveness, Jun 1953, p. 24 (in AGC files).

15. As in fn 11.

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air defense because of the conversion from conventional to jet fighters
¹⁶
 underway in its squadrons.

The ADC plan in effect at mid-year for the use of these fighters from other commands called for the deployment in an emergency of 18 detachments (averaging about 18 aircraft each) to 16 bases, and for the use of three detachments at their home bases.¹⁷ As shown on the map which follows, the Northwest, California, and various point targets were to receive the bulk of the augmentation aircraft. The defense of the Northeast was to be augmented very little. This deployment pattern was due to a number of reasons. TAC had not made fighters available at many bases from which emergency deployment into the Northeast had been scheduled in earlier ADC plans. To move ATTC aircraft from Nellis AFB, Nevada or Luke AFB, Arizona to the Northeast would have been impracticable from the standpoint of time. SAC fighters were in many cases located in proximity to the Northeast, but these aircraft were to be used for the defense of SAC bases as far as possible.

II

Fighter aircraft of the regular and reserve Navy units based
¹⁸
 in the United States totaled 1145 at mid-year. Most of these could

16. As in fn 12.

17. ADC, Operations Plan 4-53, 1 Jan 1953 as amended; Interview, Historian with Maj B. E. McKenzie, 8 Jul 1953. See Appendix VIII, p. 208 for the deployment plan, by type and number of aircraft.

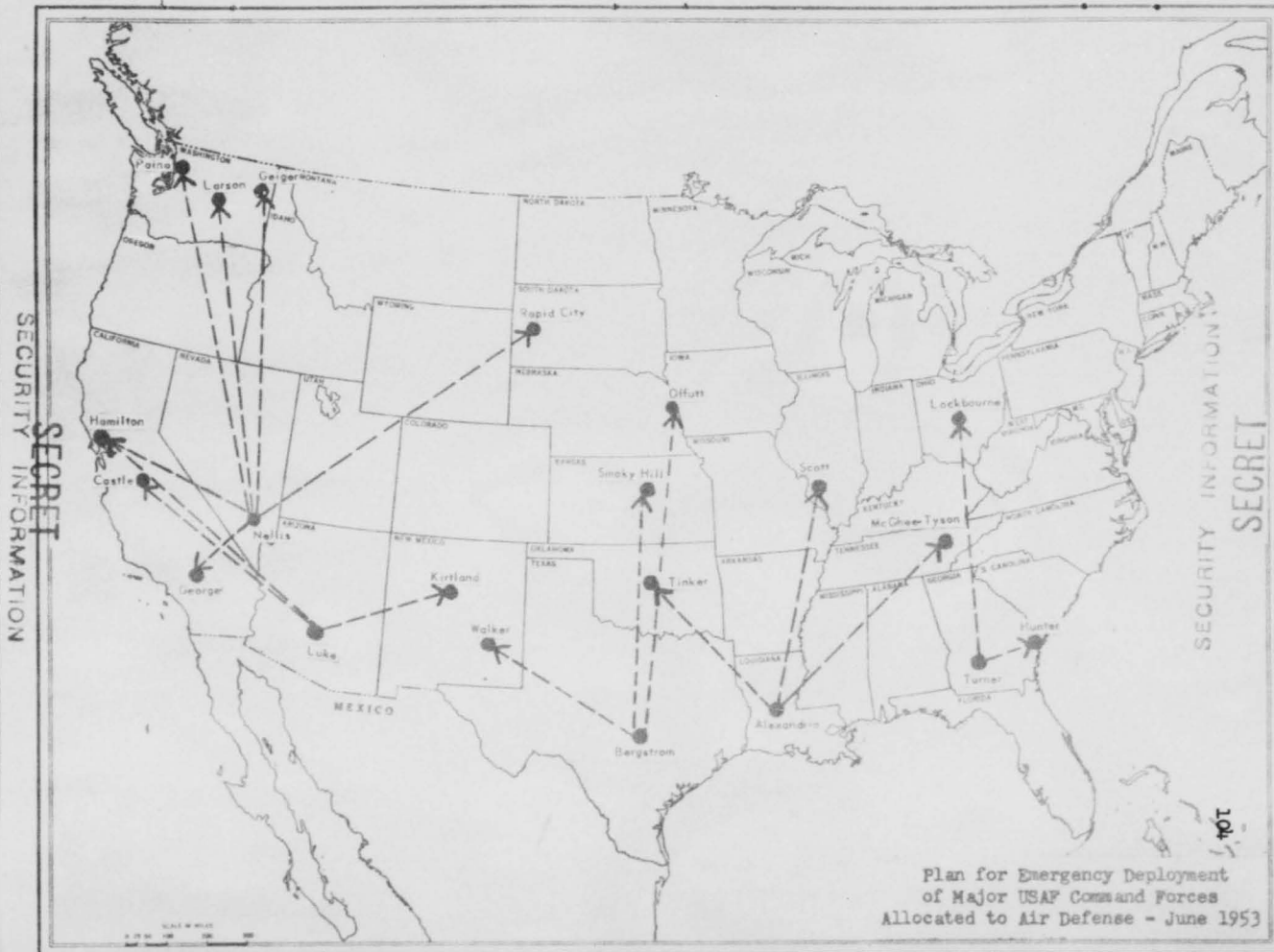
18. As in fn 14, pp. 25-26. See Appendix IX, p. 209 for the location of Navy aircraft.

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have been made available for air defense in an emergency within 12 hours. That any of them would be made available, remained an uncertainty. Late in 1952 the Chief of Naval Operations, Admiral William Fechteler, issued¹⁹ a directive on this subject in which he stated:

In an emergency, units of the Operating Forces which may be in port or temporarily based ashore, units of the Reserve Fleets, and Facilities (including aircraft) of the Naval Shore Establishment not regularly allocated to continental air defense, but having air defense capabilities, shall provide practicable assistance, consistent with primary missions, to appropriate Air Force agencies.

This was not to be construed, he went on, to mean that a routine and continuing commitment of naval forces to continental air defense was to be made. Only the Joint Chiefs of Staff could allocate Navy forces to air defense, and there had been no specific allocation²⁰ by these officers. In commenting to USAF on Admiral Fechteler's statements, ADC pointed out that in its opinion, nothing was guaranteed in air defense augmentation and therefore it was of little use to plan²¹ for Navy participation. Higher headquarters was requested to seek a JCS dispensation.

In the request to Washington for a firm commitment of force

19. CNO to Distribution, "Responsibilities and functions of naval commanders with regard to air defense of the United States under emergency conditions," (OPNAV Instruction 003320.3), 23 Sep 1953, (in HRF 660).

20. As in fn 19.

21. 1st Ind, ADC to USAF, 20 Nov 1952 to USAF to ADC, "CNO Function Letter (OPNAV Instruction 003320.3)," 29 Oct 1952 (in HRF 660).

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from other Air Force commands made in January 1953, ADC again asked that something be done about the problem of acquiring naval forces for air defense. General Vandenberg's reply carried little promise of an immediate change in the status of Navy air defense augmentation. Said he, "We here will attempt to secure a commitment of Naval force²² at every opportunity which offers." There the general situation stood at the end of June 1953.

An incident of potentially great importance in future Navy assistance in air defense occurred early in 1953. The commander of a reserve squadron based at the Denver Naval Air Station requested Western Sea Frontier Headquarters to allow his unit to engage more actively²³ in air defense operations. The latter headquarters approved, and the Denver unit suggested to Western Air Defense Force Headquarters that the Navy squadron could be of greater value in an emergency if deployed to a base in a more vital area. Informal plans were made for the movement of this squadron in the event of hostilities to Great Falls AFB, Montana. ADC was advised of these plans. Shortly thereafter, a reorganization of the ADC placed Colorado within the area of the Central Air Defense Force. Not wishing this overture of cooperation from a Navy squadron to go begging, Headquarters ADC informed CADF of the plans made and at the same time arranged a conference at Denver which included representatives from CADF and the 29th Air Division

22. As in fn 5.

23. As in fn 11.

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(in which Great Falls AFB was located). The conferees tentatively chose Great Falls AFB as the deployment base, and agreed that initial deployment orders were to come from the 29th Air Division Headquarters. Communication facilities were to be established between the latter and Denver.

This Navy squadron had ²⁴ F8F fighters. ²⁵ Of these, 20 could be made available within ²⁶ 24 hours. The commander of this squadron made it clear that availability of his squadron was subject to requirements imposed by higher Navy authority, and that his squadron could serve as an augmenting force at most for only a few days. Regardless, ADC was grateful, and considered this a significant offer of assistance. It was the first such action of its kind by a Navy unit. There was the possibility that this would serve as an inducement to other Navy squadrons to volunteer to deploy to bases from which they could serve most effectively.

Following the conference at Denver, ADC told CADF to do everything possible to make the plan a success.

24. R&R, O&T-F to DCS/O, "Use of Naval Forces at Denver for Air Defense," 15 Apr 1953 (Doc 97).

25. The F8F was a propellor-driven fighter slightly superior to the Air Force's F-51.

26. CO NAS Denver to Comdr WSE, "Employment of Naval Air Reserve Forces at U. S. Naval Air Station, Denver, Colorado," 19 Apr 1953 (in HRF 651).

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For the first time, a Naval unit has considered automatic deployment for emergency air defense purposes. The continuation and expansion of this plan to include Naval units from other ZI bases may well depend upon the adequacy of our support at the deployment base.²⁷

From this point, relations with the Denver squadron were left in the hands of CADF.²⁸ Before the close of Fiscal Year 1953, one training trip had been made to Great Falls AFB by the Navy organization.

III

During the first half of 1953, fifty-five ANG squadrons would have been available. They were no more than a skeleton force, however, since most of these squadrons had recently returned from active duty without aircraft and were just in the process of being reequipped. The fighter aircraft (F-51s) of the sixteen ANG squadrons which had not been federalized were being distributed among all the squadrons, and fighters were also being received from regular National Guard channels. By the end of June, each squadron had from five to six F-51s.²⁹

Of the fifty-five squadrons, 32 were based in the Eastern Air

27. ADC to CADF, "Deployment of Naval Reserve Unit at Denver," 15 Apr 1953 (Doc 98).

28. For information on subsequent activity occurring prior to 30 June 1953, see History of CADF, 1 Jan-30 Jun 1953, p. 547ff.

29. R&R, O&T-F to DCS/O, "ANG Augmentation Plan," 16 Jun 1953 (Doc 99). The 52 ANG squadrons with a mobilization assignment to ADC were to be partially jet equipped by the end of Fiscal Year 1954, and to be almost completely jet equipped by the end of Fiscal Year 1956. The jet aircraft were to be both all-weather (F-94Bs) and day (F-86Fs) types.

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Defense Force area, fifteen in the Central Air Defense Force area,³⁰ and eight in the Western Air Defense Force area. From the first of March to the end of June, two ANG aircraft were on five-minute alert during the daylight hours at Syracuse, New York and Hayward, California;³¹ otherwise, the time required for the aircraft in the ANG squadrons to be made ready for employment in air defense was uncertain.

The two squadrons standing a two-ship alert were testing the feasibility of placing a number of ANG squadrons on alert all over the nation. Headquarters USAF and the National Guard Bureau had agreed to ADC's proposal to test such a plan late in 1952. For the test, five pilots were placed on active duty at each squadron. The test was tentatively set to terminate on 30 June 1953. At the time of approval, Air Force Headquarters had told ADC that if it was shown that these squadrons could meet the standards required, the necessary personnel would be authorized for placing two aircraft on alert at fifteen ANG bases in Fiscal year 1954 and at thirty bases in Fiscal Year 1955.³²

The ANG alert plan was proved feasible. The performance of the ANG squadrons was very close to that achieved by the regular squadrons assigned to air defense.³³ Elated with the prospects of

30. ADC, Operations Plan 5-53, 1 Jan 1953, as amended (in HRF 900). See Appendix X, p. 211 for the ANG squadrons and their mobilization assignment.

31. TTX, ADC to EADF, WADF, 27 Feb 1953 (Doc 100).

32. ADC, DCS/O Projects Reports, Jan 1953 (in HRF 900).

33. As in fn 32, Aug 1953.

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increasing its alert forces, ADC asked permission of the National Guard Bureau early in June to place fighters on alert at fifteen locations (thirteen plus Hayward and Syracuse) across the nation. The Air Defense Command was disappointed, however; the National Guard Bureau unexpectedly postponed extension of this plan and, at the same time, directed termination of the alert test on the thirtieth of June. The shortage of aircraft was given as the reason. Not until the ANG had increased its strength sufficiently could this plan be considered, the Guard Bureau advised. No estimate of this date was given.

Even if the National Guard Bureau had not decided to postpone the ANG alert augmentation, ADC could not have expanded the scheme. Headquarters USAF would not give the manpower spaces required. ADC was advised that during Fiscal Year 1954, there would be a slight reduction in Air Force troop spaces with the requirement at the same time to increase the number of combat units. For this reason, USAF informed, ADC would not be given the additional spaces, but would have to use

34. ADC to NGB, "ANG Air Defense Augmentation," 9 Jun 1953, with 2 Inds (Doc 101); ADC to NGB, "ANG Air Defense Augmentation," 18 May 1953 (Doc 102). The 15 locations are given in the 18 May 1953 letter.

35. ADC, Diary #119, 22 Jun 1953 (in HRF 900).

36. The squadrons with a mobilization assignment to ADC were scheduled to have 16 aircraft each by the end of Fiscal Year 1954 and about 19 each by the end of Fiscal Year 1955. As in fn 29.

37. As in fn 34, 1st Ind, USAF to ADC, 16 Jul 1953 to ADC to NGB, "ANG Air Defense Augmentation," 9 Jun 1953.

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spaces already authorized by diverting them from less essential functions. ADC replied that this was impossible.³⁸ No spaces could be made available. It was pointed out to Washington that the test was started because of USAF's proposal to grant additional officer spaces. In the face of having neither officers nor aircraft available, ADC had to conclude that it was "advisable to hold the implementation of the plan in abeyance."³⁹

In addition to this discouragement, ADC Headquarters lost the authority given it in January 1951 to federalize all of the inactive ANG squadrons. There were 70 ANG squadrons in the United States in 1953, of which 52 had an initial mobilization assignment to ADC and eighteen had an initial mobilization assignment to TAC. Of the 52 squadrons assigned to ADC, thirteen had not been recalled to federal service during the Korean emergency. Also, three of the eighteen squadrons assigned to TAC had not been federalized. Early in 1953, in response to a query from ADC, Air Force Headquarters informed that these sixteen squadrons not before recalled were the only ones subject to mobilization by military officials.⁴⁰ Furthermore, this

38. As in fn 34, 2nd Ind, ADC to USAF, 27 Aug 1953 to ADC to NGB, "ANG Air Defense Augmentation," 9 Jun 1953.

39. As in fn 38.

40. R&R, DCS/O to CofS, "Authority to Order ANG to Active Military Service," 23 Jan 1953 (Doc 103); ADC to USAF, "Authority to Order ANG Units Into Active Military Service," 19 Dec 1952 (Doc 104). The remaining 39 squadrons with a mobilization assignment to ADC could be called only by the President of the United States.

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authority would expire on 30 June 1953 unless Congress extended it.

Due to fact that sixteen ANG squadrons were the only ones subject to recall by the military, USAF gave ADC authority to use all of these in an emergency pending enactment of new legislation even though three had an initial mobilization assignment to TAC.⁴¹ The result of USAF's dispensation was to make three more squadrons temporarily available for air defense, or a total of 55.

The legislation providing for delegation of authority to ADC to federalize the ANG expired on 1 July, and USAF advised that enactment of new legislation during the current session of Congress was unlikely.⁴² After this date, the National Guard could be mobilized by Presidential order, provided Congress first declared a national emergency, or provided Congress authorized the President to order the Guard into military service.⁴³ The fastest means, however, was through an act of 1903 which provided for a "call" of the National Guard by the President through the governors of the states concerned.⁴⁴ Under

41. R&R, O&T-F to O&T-D, "Comments on ADC Briefing," 10 Apr 1953 (Doc 105).

42. 1st Ind, ADC to EADF, 30 Jul 1953 to EADF to ADC, "Ordering ANG Units Into Active Military Service Under Emergency Conditions," 16 Jul 1953 (Doc 106).

43. ADC, Program, 1 Oct 1953, p. 198 (in HRF 900).

44. As in fn 42, Incl, CofS to the Gov., N.Y. State to EADF, "Ordering ANG Units Into Active Mil. Service Under Emergency Conditions," 15 Jun 1953.

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this act, the National Guard would be mobilized in a militia status, without prior authorization by Congress.

ADC was concerned over the loss of authority to mobilize the ANG because of the important element of time in air defense. It was estimated that the ANG was capable of making the bulk of its strength available in about six hours.⁴⁵ If the ANG could be ordered to active duty at a moment's notice, as had been possible when the mobilization authority resided in ADC, this force could possibly be used in meeting an initial attack. Presidential mobilization, however, might have entailed much loss of valuable time.

During the first six months of 1953, the ANG had so few air-⁴⁶craft that any delay in their mobilization would have mattered little. Within a year, however, the ANG would be an important force. As indicated earlier, by the end of Fiscal Year 1954, each squadron was scheduled to have 16 aircraft. By this date, ADC wanted to be able to order the Guard to active duty immediately after receipt of warning of an attack. "Full benefits from the increase in ANG capability can be realized only if this command is given authority to direct immediate use of that capability," declared ADC to Air Force Headquarters.⁴⁷

45. R&R, O&T-F to Mgt Anal, "Monthly Combat Readiness Commentary," 16 Dec 1952 (in HRF 314); Interview, Historian with Maj B. E. McKenzie, ADC O&T-F, 12 Jan 1954.

46. As in fn 40, R&R, DCS/O to CofS.

47. TWX, ADC to USAF, 23 Jul 1953 (Doc 107).

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SECRETCHAPTER SEVEN
WEAPONS PROGRAMMING

I

According to ADC's Deputy Chief of Staff for Intelligence, in 1953 the Soviet TU-4 long range medium bomber continued to be the only intercontinental weapon possessed by the USSR "effective¹ for an attack against the United States." The ADC Headquarters staff was not so optimistic as to think that the TU-4 was the ultimate Soviet weapon, however; successors to this aircraft would emerge eventually.

A number of weapons to meet this future threat had been programmed for air defense for some time. These included the F-102 manned interceptor, the BOMARC long range surface-to-air guided missile, and the NIKE short range surface-to-air guided missile. As programmed in the fall of 1953, ADC was to receive the 1100-knot F-102 delta-wing interceptor beginning in early 1956 and to have four of its 57 squadrons equipped with this aircraft by June of that² year. The remainder of ADC's force at the end of June 1956 was to consist of thirty-eight squadrons of F-86Ds, eleven squadrons of

1. ADC, Operations Order 3-53, 1 Apr 1953, Ann. A; and 1 Dec 1953, Ann. A., (in HRF 900).

2. ADC, Program, 1 Oct 1953 (in HRF 900).

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F-89Ds, and four squadrons of F-94Cs. No other type of manned interceptor was programmed beyond the F-102. In the latter half of 1957, the first BOMARC missiles, designed to have a speed of Mach 2.5, were to become available. The ultimate BOMARC, designed for a speed of Mach 2.7, was to be in operation by late 1958. By 1954, the Army Antiaircraft Command was scheduled to have twenty-eight of its sixty-six battalions equipped with NIKE, which had a speed of approximately Mach 1.2, and to have the remainder equipped with the 75mm, the 90mm, or the 120mm gun.³

Was this enough? What should the overall weapons system be? The Vice Commander of ADC, Major General Smith, indicated ADC's concern with these questions when he stated in February 1953 that research was continually being conducted on air defense and that requirements were always changing.⁴

Right now, however, the best solution we can see for air defense against all probable types and numbers of delivery vehicles (not including the ballistic missile) appears to be a family of weapons, one supplementing the other, against all the various strategies, tactics, and countermeasures that can be used against us. This family is:

- a. Manned Interceptors. These interceptors should have a 15-25% speed advantage over attackers, radius of action 300-500 miles, deadly armament and rapid turn-around.
- b. Unmanned Interceptors. Supersonic speed, range 150-250 miles -- high kill, and rapid rate of launching.
- c. Local Missiles. Homing-all-the-way, a very high rate of fire.

...Flexibility in this system will be essential as long as the initiative rests with the attacker.

3. ADC, Briefing, Apr 1953, p. 40 (in AG Library).

4. Maj Gen F. H. Smith, Jr., ADC VC, to Maj Gen R. C. Wilson, CO AWC, 12 Feb 1953 (Doc 108).

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ADC formally communicated to USAF on 18 February 1953 its conclusions on the weapons required to counter the enemy threat during the period 1953 through 1960.⁵ A family of weapons was suggested, which included weapons for both ADC and the Army Anti-aircraft Command. The requirements for each weapon for which ADC was concerned had been submitted to USAF previously or were to be submitted in the near future. The recommended family of weapons included manned interceptors, long range guided missiles, short range guided missiles, homing-all-the-way missiles, and an anti-ballistic missile air defense system. High speed manned interceptors such as the F-101, the F-102, and the F-103 would be needed, it was stated, as long as the possibility of enemy manned aircraft existed. Development of an interceptor rammer appeared attractive also, ADC continued, in view of its high kill probability and relatively low cost. A requirement had been submitted for a weapon of this type on 15 July 1952.

ADC recommended that the armament for its future interceptors be selected from among such types as: the 2.75" folding fin air rocket, which was currently being used to arm the F-86D and the F-94C; the GAR-1 (Falcon) guided air-to-air rocket, which was to be used with the F-89D and the F-102; the AEROWOLF infrared guided air-to-air

5. ADC to USAF, "Air Defense Weapons System," 18 Feb 1953 (Doc 109). The conclusions held by ADC as to the weapons required during the years 1953 to 1960 were based upon ADC Intelligence estimates of Russian weapons development during this period. These estimates are classified top secret, and, therefore, are not used in this study.

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rocket, a requirement for which was submitted on 29 January 1953; and the TERROW large unguided air-to-air rocket for which a requirement had been sent to USAF on 13 August 1952.⁶

The interim long range surface-to-air missile, BOMARC I, was expected to become available in late 1957, and the ultimate missile of this type, BOMARC II, to be in operation in late 1958.⁷ ADC recommended the acceleration of the development, testing, and production of these missiles so that they could be introduced into the system at an earlier date. In regard to local defense missiles to be employed by the Army Antiaircraft Command, ADC felt that there could be a progression from the NIKE to the larger and faster TALOS to the homing-all-the-way missiles.⁸ ADC expressed the opinion that the NIKE, which was scheduled to enter the system during Fiscal Year 1954, should be supplanted by the TALOS in 1956, and that the latter should be replaced by 1958 with homing-all-the-way missiles. Finally, the recommendation was made that a certain percentage of weapons which were so suited, such as BOMARC, TERROW, and TALOS, be armed with atomic warheads.

6. Additional information on all of the rocket types listed, with the exception of the AEROWOLF, may be found in ADCSR #4, pp. 71-73.

7. BOMARC I was being designed to have a maximum range of 125 nautical miles, an altitude ceiling of 60,000 feet, and a speed of Mach 2.5. The ultimate BOMARC was expected to have a zero to 80,000 feet capability, a maximum range of 250 nautical miles, and a speed of Mach 2.7. WADC, Standard Aircraft Characteristics, Vol. 1, "Green Book," 24 Aug 1953.

8. NIKE had a speed of approximately Mach 1.2, an altitude ceiling of 60,000, and a range of 25 miles. TALOS was expected to have approximately twice the range and speed. Interview, Capt J. P. Acre, ADC P&R, 11 Dec 1953.

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As for the size of the force needed, ADC stated that while no definite figures had been determined, some preliminary estimates had been made. To achieve the necessary destruction of atomic bomb carriers by 1960, ADC estimated that there would be a need for at least 151 interceptor squadrons, 3000 surface-to-air missiles of the BOMARC type, and 160 battalions of homing-all-the-way missiles.⁹

The development of an anti-ballistic missile defense system, which ADC listed with the family of weapons outlined above, was made the subject of special correspondence with higher headquarters. In a letter dated 20 February 1953, ADC pointed out that there had been considerable discussion of an intercontinental ballistic missile threat,¹⁰ but very little definite information on it. The best information

9. TWX, ADC to USAF, 5 Dec 1952 (in HRF 103).

10. ADC to USAF, "Defense Against Threat of Ballistic Missiles," 20 Feb 1953 (Doc 110). As used here, an intercontinental ballistic missile meant a vehicle which traveled during part of its flight outside the earth's atmosphere and which followed a predetermined trajectory initiated during the launching phase. A ballistic missile did not employ aerodynamic forces for either lift or control. In regard to knowledge of Soviet missile development, it was concluded in an article published by the office of ADC's Deputy Chief of Staff for Intelligence on 26 June 1953 that "It appears entirely possible that the Soviets may have within a few years an operational pilotless spacecraft. The direct evidence pointing to this conclusion is nebulous. It is no more nebulous, however, than evidence pointing to development of any sort of intercontinental bomber." ADC, Mission Intelligence, #14, 26 Jun 1953, "TU-4 Successors," p. 9, in ADC Intelligence Files. The United States was expected to have a weapon of this type by 1961. This weapon, designated the "Atlas," was being designed to have the capability of carrying a 3000 pound warhead 5500 nautical miles and of having a speed of Mach 23 when it reentered the atmosphere, decreasing to 6700 feet per second at the point of impact. WADC, Standard Aircraft Characteristics, Vol. 1, "Green Book," 20 Aug 1953.

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available, ADC stated, was that by 1958 to 1959, Russia could have an intercontinental missile in numbers of "devastating proportions." ADC expressed the feeling that while these conclusions were highly conjectural, the seriousness of the threat was so great that all responsible agencies should be made aware of it and should direct their efforts toward finding a means of countering it.

Headquarters USAF agreed with this view, stating that the USAF Director of Intelligence considered the threat serious enough to warrant development of appropriate countermeasures, although no detailed information on Soviet ballistic missile development was available.¹¹ As for weapons to counter the threat, USAF informed ADC that one research group, Project "WIZARD" at the University of Michigan, had been studying defensive measures for some time and had come up with the alarming conclusion that "it is very doubtful that a feasible system can be proposed to defend against... (ballistic threat)."¹² However, USAF went on to conclude, the Project "LINCOLN" research group at the Massachusetts Institute of Technology and the Rand Corporation, another research group, were being asked to investigate the ballistic missile problem.

ADC replied that it did not agree with the "defeatist initial conclusion of the University of Michigan...."¹³ It was ADC's opinion

11. As in fn 10, inclosure.

12. As in fn 11.

13. As in fn 10, 2d Ind, ADC to USAF, 25 Jun 1953.

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that sufficient emphasis had not been placed on finding a defense against this weapon. The "LINCOLN" and Rand groups should be authorized to conduct high priority studies, and "all action agencies should again be made aware of the urgency of the time factor since the overall importance of the problem cannot be overemphasized."¹⁴

In early April, USAF replied to ADC's recommendations on the future weapons system, giving concurrence to the weapons family proposal, but with-holding commitment on a few specific weapon types.¹⁵ Primarily, USAF's reservations concerned weapons which were in very early stages of development or which had been rejected previously. Final decisions on these weapon types would have to be made at a later date (the status of each of these weapons as well as the USAF position is shown below in the replies to ADC requirements).

II

During the first half of 1953, ADC submitted requirements for those members of the family of weapons not already programmed for ADC. One of the first of these was for an infrared guided air-to-air rocket. On 29 January 1953, ADC wrote to USAF that a rocket of this type was required to provide ADC interceptors and augmentation force fighters, which were not capable of carrying other air-to-air guided rockets, with a rocket of high kill probability; to provide additional

14. As in fn 13.

15. As in fn 5, 1st Ind, USAF to ADC, 2 Apr 1953.

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armament for ADC interceptors currently capable of carrying other air-to-air rockets; and to provide additional armament with high kill probability at low altitudes.¹⁶ Among the required characteristics listed by ADC were: that the missile employ a seeker system using infrared for night operation and ultraviolet for day operation, that it have a minimum missile range of 4,000 yards, and that it be carried externally and be launched from a rocket rail. It was requested that the infrared rocket be made available by January 1955. The requirement could be met, ADC suggested, with the AEROWOLF, a rocket being developed by the Aerojet Corporation of Azusa, California.

USAF replied in March that a tentative requirement had been established for such a rocket and that ARDC had been directed to determine the feasibility of developing this weapon.¹⁷ USAF expressed the opinion that expectation on ADC's part of having this rocket available for tactical use in two years was optimistic.

As noted earlier, the F-102 delta-wing interceptor was the last manned interceptor currently programmed. During the first months of 1953, ADC sent requirements to USAF for both a higher speed manned interceptor and for a longer range manned interceptor than the F-102. On 7 January 1953, a requirement was submitted for a manned interceptor capable of high-climb, high-level flight, and

16. ADC to USAF, "Requirement for an Infrared Guided Air-to-Air Rocket," 29 Jan 1953 (Doc 111).

17. As in fn 16, 1st Ind, USAF to ADC, 4 Mar 1953.

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high-descent speeds, plus fast reservice time.¹⁸ ADC told USAF that such an interceptor was required because it was anticipated that starting in 1958, "enemy penetrations will consist of large formations of high speed bombers using 'punch-through' tactics."¹⁹ It was ADC's view that to counter such a threat, a very high performance interceptor was needed which could take advantage of the increased radar range to be available at that time. The plan of operation was to use this interceptor to hit a bomber formation far out from the target area, return it to base for servicing, and then to use it to intercept the formation again at closer range.

The interceptor suggested by ADC to meet these requirements was the F-103, an experimental all-weather interceptor under development by Republic Aircraft Corporation. It was being designed for a speed of around 1800 knots, a range of about 400 nautical miles, and a ceiling of 60,000 feet.²⁰ A novel feature of the F-103, resulting from the exceedingly high speed, was the use of a periscope for the pilot rather than a canopy.

A requirement for a manned interceptor would exist, ADC told USAF, as long as there was a manned aircraft threat against the

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18. ADC to USAF, "High Speed, High Performance Interceptor," 7 Jan 1953 (Doc 112).

19. As in fn 18.

20. ADC, Briefing, Apr 1953.

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United States. The reason for this was the need to have a manned interceptor which could be shifted from area to area in accordance with the nature of the threat. Also, it was felt that interceptors currently programmed could not effectively copy with the threat starting in 1958.

USAF agreed with the need for a higher performance manned interceptor than the F-102 and stated that a requirement was being established for such. It was pointed out, however, that the Air Council, with the approval of the Chief of Staff, had stipulated that a new interceptor should not be phased into the system prior to October 1959. For this reason there was no current plan to use the F-103 in air defense, but that this did not preclude consideration of it in the future, in competition with some other type.

A requirement for a very long range manned interceptor was forwarded to USAF in a letter dated 7 April 1953. A long range, high performance manned interceptor was required, ADC advised, for use in the period from 1956 to 1960 on the perimeter of the United States and in areas where ground radar was limited.²² Through the use of broadcast control emanating from early warning aircraft or ground radar sites, ADC stated, extensive coverage outward and over the west-central portion of the United States could be provided

21. As in fn 18.

22. ADC to USAF, "Requirement for Long Range Interceptor," 7 Apr 1953 (Doc 113).

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with such an interceptor. In addition, its use was foreseen to extend the warning area of AEW&C aircraft during periods of air defense readiness and to provide early warning information over areas in Canada and the west-central portion of the United States.

To meet this requirement, ADC recommended two possible aircraft: the F-89 Perimeter Defense Fighter, and a two-place version of the McDonnell Aircraft Corporation F-101. The F-89 Perimeter Defense Fighter was a long range version of the F-89 "Scorpion" proposed by the manufacturer, Northrop. The F-101, currently under development, was a single-place, swept-back wing fighter-type aircraft being designed for a combat speed of 900 knots and a combat radius of from 800 to 1000 miles.²³ A two-place version of this aircraft had been proposed by the manufacturer.

USAF replied on 17 April 1953 that a requirement for a long range manned interceptor was being coordinated and that the two aircraft suggested by ADC would be considered in meeting the requirement.²⁴

In its weapons-family proposal, ADC had mentioned the interceptor-rammer as being attractive in view of its high kill probability and relatively low cost. When ADC submitted the requirement on 15 July 1952, it was for the purpose of obtaining a high kill probability

23. WADC, Standard Aircraft Characteristics, Vol. I, "Green Book," 22 Oct 1952.

24. As in fn 22, 1st Ind, USAF to ADC, 17 Apr 1953.

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²⁵ weapon relatively soon. At that time, it was thought that a rammer aircraft could be put into operation sometime prior to 1956. In this period, ADC expected Russia to have bombers with only subsonic ²⁶ speeds. The rammer was wanted to meet this threat.

During the year following the submission of the requirement, however, development of this weapon hardly progressed beyond the feasibility-study stage. By July 1953, it was apparent that a rammer interceptor could not be developed for some time, possibly not until the time when the USSR had supersonic bombers. Therefore, on 9 July 1953, ADC withdrew its requirement for this weapon. ²⁷ Because of the great delay in development, ADC felt that the rammer would be in competition with such weapons as guided missiles and the F-102.

Atomic armament requirements, a subject to which ADC had long given its attention, were formalized during the first half of 1953. In March, ADC sent to higher headquarters a requirement for develop-²⁸ ment of light-weight atomic warheads with yields of from 1 to 20 KT. The purpose was to provide warheads for use with the TERRROW air-to-air rockets, BOMARC long range surface-to-air missiles, and TALOS short

25. ADC to USAF, "Fighter Interceptor, Rammer," 15 Jul 1952 (in HRF 305).

26. As in fn 25, 2d Ind, ADC to USAF, 3 Dec 1952 (Doc 114).

27. ADC, DCS/O, Projects Reports, 1 Aug 1953, p. 12 (in HRF 900).

28. ADC to USAF, "Requirement for the Development of Atomic Warheads for Air Defense," 23 Mar 1953 (Doc 115).

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range surface-to-air missiles. ADC foresaw the need for equipping about ten percent of these weapons with atomic warheads.

USAF replied to ADC's requirement letter on 22 May 1953 (although the same information was given to ADC on 2 April 1953, as was indicated previously), that development of an atomic warhead capability for the surface-to-air missiles BOMARC and TALOS had been approved by the Joint Chiefs of Staff and that research and development was in progress.²⁹ The suggested air-to-air rocket TERRON, USAF advised, was not large enough to be used with an implosion type atomic warhead, but it was possible that the BOAR rocket under development at the Naval Ordnance Test Station, Inyokern, California, could be used for air defense. The feasibility of using the latter rocket with the F-89 and the F-102 was being investigated, ADC was informed.

With the general requirement for development of atomic warheads established, ADC submitted a requirement for the TALOS missile and for the F-89D interceptor, modified for air-to-air application of the atomic bomb.³⁰ ADC's objective was to obtain both local defense and area defense weapons with atomic capability in the period prior to the advent of long range missiles in air defense. ADC desired that approximately 200 atomic warhead equipped TALOS and 200 to 400

29. As in fn 28, 1st Ind, USAF to ADC, 22 May 1953.

30. ADC to USAF, "Requirement for Weapons with Atomic Capability," 6 May 1953 (Doc 116).

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interceptors, modified for atomic air-to-air bombing, be made available by December 1955.

In justification of the requirement, ADC explained its concept for employment of these weapons. The manned interceptors, carrying atomic bombs, were to be deployed at the outer limits of a combat zone, as area defense weapons. The TALOS missiles, armed with nuclear warheads, were to be employed as local defense weapons near the target area as "high kill insurance" against those bombers which had penetrated the area defense. The latter, ADC explained, would be deployed outside the NIKE and other ARAACOM defenses.

ADC was somewhat discouraged in its plan for air-to-air bombing by an Air Force Special Weapons Center (AFSWC) report, published 8 June 1953.³¹ This agency found air-to-air bombing with current interceptors, especially under all-weather conditions, to be not feasible. Its objections were based upon the deficiencies of current fire control equipment, and the extreme difficulty of affecting a hit by "free fall" methods against a maneuvering target.

Regardless of the conclusions reached by the AFSWC, ADC decided to investigate the matter further. It was felt that air-to-air bombing had value against large enemy formations performing only limited maneuvers and in optimum sighting conditions.

Investigation of "free fall" bombing became one the projects of a developmental program decided upon at a conference held 30 June

31. AFSWC, Technical Report 53-9, 8 June 1953, "Feasibility of Nuclear Weapons for Air Defense," ADC OOA Files.

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1953 between representatives of USAF, ARDC, and ADC.³² The conferees also recommended development of either or both the F-89/E-6A fire control system and the F-102/E-9 fire control system with the BOAR rocket and an atomic warhead; a study of the SHRIKE guided air-to-air rocket as an interim atomic weapon; and the development of a low-yield, small warhead for guided air-to-air rockets of 12 to 15 inches in diameter. These recommendations were sent to USAF with the request that a project to investigate "free fall" bombing be approved and be given a high priority.

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32. ADC to USAF, "Requirement for a Study of Air-to-Air Guided Rocket With Atomic Warhead in the Air Defense System," 13 Jul 1953 (Doc 117).

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PART III

STUDIES IN MANAGEMENT

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CHAPTER EIGHT

MANPOWER

I

During the first half of 1953, personnel problems grew so serious that the Command's ability to operate its fighter and radar units was significantly reduced. These units and their supporting organizations lost men to the point where many of them were badly understrength. Great numbers of their skilled men were lost to them, either through transfer or discharge, while concurrently their unskilled ranks swelled disproportionately. Finally, men were so frequently moved that each of the Command's officers, on an average, moved to a different organization twice during the period July 1952 through June 1953.¹ These three difficulties -- not enough men, not enough skill, and instability -- combined to create a critical problem for the Command.

The effect of these problems on the operation of units in the field may be illustrated by the experience during the spring of 1953 of the commander of the Air Division charged with defending the states

1. ADC Command Data Book, July 1953 (in HRF 900) hereafter cited as ADC CDB, reveals an officer turnover during Fiscal Year 1953 of 194%, and an airman turnover of 160%. Turnover was computed from discharges, permanent changes of station, and permanent changes of assignment. This latter group was usually a relatively small proportion of the total in each one-month period. In any case, an officer or airman moved to a different unit, and in most cases he moved to an entirely different location.

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of Washington, Oregon, and Idaho. His Division was so short of radar operators in the AC&W sites that he had to put them on a three-shift basis and accept the danger that his over-worked men might go to sleep² at their scopes. He had so few controllers that he had to take all but one or two from the radar units at Yaak, Reedsport, Mount Bonaparte, and Condon -- the outer rim of stations guarding the eastern and southern approaches to the Northwest -- and transfer them to more important stations.³ Furthermore, such important radar sites as those guarding the mouth of the Columbia and the entrance to the Strait of Juan de Fuca, both of which provide easy access to the interior for low-flying aircraft, were so drained of skilled men that by July of 1953 only a third of their operational positions were filled by men⁴ trained for their jobs. His fighter units, moreover, had less than

2. 25th Air Division to WADF, "Combat Readiness," 5 May 1953, bound as Document 19 to History of 25th Air Division, Jan-Jun 1953. Five shifts was the ideal and four shifts provided the minimum of time-off. Shift lengths varied, but on the basis of eight hours per shift a three-shift schedule required each man to work eight hours a day seven days a week. When extra-long shifts were adopted to give more consecutive time off, productivity during the latter hours of the shift tended to decline precipitously. The work of a radar operator was tedious and very tiring, and after relatively few months a large percentage of radar operators desired a change in duty assignment. Unusually heavy workloads increased this factor.

3. History of WADF, Jan-Jun 1953, pp. 188-189. This action left these units with emergency control capability, and EW capability at all other times.

4. "Effective Manning Statistics," WADF Mission Progress Review, bound as Document 1 to History of WADF, Jan-Jun 1953.

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one pilot per aircraft, a number so low that maintaining normal training activities and alert commitments was exceedingly difficult.⁵ The effect of these problems, plus a lack of combat-ready aircraft, upon the combat ability of this Air Division were considered so serious⁶ that this commander wired his superior in early May 1953:

The overall operational capability of the 25th Air Division is extremely critical and its seriousness can not be over-emphasized. I cannot guarantee identification of even a reasonable percentage of unknowns during the period 1 May to at least 1 July 1953 for early warning purposes alone and would hesitate to estimate the destruction percentages for the period considering the overall situation.

Before examining ADC's particular personnel problems in further detail, it would be instructive to scan the whole picture of personnel in the Air Force.

II

Prior to the new Administration's decision to reduce the size of the military establishment, the Air Force had planned to build to a strength of a little over a million men by July of 1953 -- not including over 300,000 civilians. Of these, a little more than half were to be stationed within the United States. Of this continental strength the Air Defense Command was to receive eleven percent of the men, or about 62,000, while the Strategic Air Command and the

5. Mag, 25th Air Division to WADF, 25ADCG-C 5-137, 2 May 1953, bound as Document 20 to History of 25th Air Division, Jan-Jun 1953.

6. As in fn 5.

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Tactical Air Command were to have, respectively, twenty-six and eight percent.⁷

In the reduction, announced in the spring of 1953, the Air Force was reduced from an over-all combat strength goal of 143 wings to 120 wings. Although other combat commands suffered large cut-backs, ADC's program was reduced only to the extent that some future units would be equipped with cheaper aircraft. Tactical Air Command's program was cut by fifteen wings, five were taken from that of the Strategic Air Command, and three from the future strength of the Military Air Transport Service. The net result was to leave the Air Defense Command with a larger proportion of the future personnel pool. While the total Air Force strength for the end of June 1953 was reduced by 80,000 men, ADC suffered no reduction, ending the period with about 62,500 men, a figure higher by more than two hundred men than that programmed for the Command in the fall of 1952.⁸

Apart from numbers of men, the most important consideration for the Air Force was the skills possessed by these men. The complexities of current equipment required highly skilled men for its operation and

7. USAF Operating Program: Organization and Personnel, 53-1, September 1952 (in AGC Library).

8. The programmed strength for the USAF at the end of Fiscal Year 1953 was 980,170, and actual Air Force strength in June 1953 was 977,593 military personnel. There had been 973,474 people in July 1952. During the year 196,000 men left the service, and 200,000 joined it. The change in program resulted in a change in UE aircraft for 13 ADC squadrons. There was a reduction of F-102 and F86D squadrons and a like increase in F-89D and F94C units. USAF Summary Control Statement: Fiscal Year 1953 (in AGC Library) hereafter cited as USAF ECS: FY53.

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maintenance; this was especially true in the Air Defense Command, where the functions performed depended largely upon complicated electronic gear. From the standpoint of skill, the Air Force as a whole experienced improvement during this period. There were still many thousands of men possessing skills no longer needed in such numbers, but there were fewer of them than in previous years. Furthermore, more men than before were assigned to the types of jobs for which they were trained. A special training control procedure, termed Project Guidance, had been put in operation during the fall of 1952 to prevent units from training more men into surplus fields, and by the end of June 1953 it was no longer necessary to restrict training⁹ in eight of the thirty-nine fields originally placed under the ban.

Despite this generally favorable situation, there remained critical shortages in skills vital to the missions of the combat commands. Tactical Air Command, for example, did not have enough radar operators to man its intricate net of forward combat control, nor did it have enough men to operate its communications system. Strategic Air Command's supply organization was handicapped by not having enough people, and the Air Defense Command was seriously hampered in its operations and planned expansion by an insufficient number of skilled and advanced jet maintenance men, among other fields. Throughout the Air Force, moreover, there were not enough officers trained in communications and electronics maintenance, nor were there

9. In July of 1952, 77,000 men were excess to total skill requirements; in June of 1953 this had dropped to 67,000. Some 55,000 spaces in required skill areas were not filled. As in fn 8.

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enough aircraft observers to perform the various specialized tasks
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in aircrews.

The aircraft maintenance problem was one with which all commands were struggling. For example, in the fall of 1952 the Air Force as a whole had more than twice as many apprentice maintenance men than it needed, but only half of the required number of skilled men to train the apprentices and maintain the aircraft. By May of 1953 the picture was somewhat improved, for there were almost two-thirds of the skilled
11
men needed; the apprentice proportion, however, remained the same.

Though the Air Force had plenty of men, enough to meet its needs, it did not have them in the right places nor skilled in the proper tasks. This was largely an unavoidable situation. Changes in equipment, slippages in production, and the rapid increase in the quantity of complicated equipment were some of the factors plaguing personnel planners. Training programs required many months to set in motion, and once started it was difficult to change their direction to keep up with the rapidly changing technological environment. There was also the problem of manning hundreds of new units. Finally, and

10. As in fn 8. Skill level was indicated by the suffix to each man's AFSC: 10, 30, 50, or 70. For example, skill progression in the radar operator field was 29010, 27330, 27350, and 27370. Depending upon the skill field, terms for these skill levels varied. In this chapter, helper will indicate 10 level, apprentice the 30 level, skilled the 50 level, and advanced the 70 level. Helper and apprentice levels will be indicated when the general term unskilled is used, and skilled and advanced levels will be encompassed within the general term skilled.

11. As in fn 8.

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probably most important, skilled men for one reason or another were leaving the service. During 1951 and 1952 the Air Force had been forced to call to active duty large numbers of Reserve and Air National Guard airmen and officers. These men, representing quite often the skilled cream of the crop after they had been on duty for a year or so, had families and careers waiting for them and gladly left the service at the completion of their tours. In the regular ranks, moreover, many men were disgruntled over the more onerous features of service, and chose the earliest opportunity to separate. Thus, almost 200,000 men left the Air Force during fiscal 1953, and the 200,000 men enlisted to replace them swelled the unskilled pool at the same time that the skilled men who could train them were taking off their uniforms. The following year, USAF believed, would see a large decrease in overall turnover and a material improvement in the unskilled-skilled ratio.¹²

III

It was within this framework that the Air Defense Command operated. The first problem that it encountered was an insufficient number of men. Considering the immensity of its task, a relatively low number of people were assigned to the Command. Though its proportion of the contingent in the Zone of the Interior, as earlier

12. During Fiscal Year 1954 the number of separations would drop, as would also the number of enlistments. This greater stability would allow more airmen to become skilled, changing the unskilled-skilled ratio in favor of the latter. As in fn 8.

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noted, run somewhere around ten percent, over the last three years the Command had received less than five percent of all the materiel appropriated to the Air Force, and around six percent of the Air Force's total strength, both in the United States and Abroad. Even if the materiel and men given to service commands to provide support for ADC were added to its own total, the figures would only rise to perhaps seven percent of the materiel and less than nine percent of the people.¹³ From the outset, the Air Defense Command had to perform its huge mission with a relatively few number of people.

In addition to the unfavorably low authorization given the Command, the number of people it actually had during this period steadily dwindled, continuing a trend in evidence for a considerable period. In the early summer of 1952, ADC had some 68,000 men, approximately ten thousand more than it was authorized.¹⁴ Throughout the summer the Command steadily lost airmen, and in the fall of 1952 the same began to be true with officers. From a high of 120 percent of

^{13.} Presentation by General Benjamin W. Childs, Commander of ADC, to the Air War College, draft dated 19 December 1952 (in HRF 106). He went on to point out that the anti-aircraft system, with a strength of approximately 45,000 men, was worth around a billion dollars. When the two -- ADC and AAA -- were added together, the nation had invested only three billion dollars and approximately 121,000 men to provide air defense. When compared with the total national military establishment's manpower and appropriations for the last three fiscal years, the entire air defense system amounted to only three percent of the people and less than three percent of the money. General Childs contended that this was a woefully inadequate force to meet the challenge.

^{14.} This was almost wholly an airman overage. Officer strength was at 98 percent of authorized, or 8,313. Airman strength was at 120 percent, or 59,394. ADC CDB, January 1953 (in HRF 900).

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authorization in July of 1952, the Command lost airmen until by May of 1953 it was down to ninety-six percent of authorization, or about 55,000 airmen, at which point the situation stabilized. The drop in the number of officers within ADC did not stop until April of 1953, when there were left only four-fifths of the Command's authorized number, or about 7,500 officers.¹⁵

Many of the men the Command lost during this period were men who completed their enlistments and did not re-enlist.¹⁶ Many more, however, were being sent overseas by USAF to meet its foreign commitments.¹⁷ For several years, in fact, the Command had been serving as a training and replacement depot for overseas units. A glance at the figures on overseas movements, Air Force-wide, reveals the situation most clearly. During fiscal 1951 the Air Force sent over 70,000 men to overseas stations, while some 15,000 returned. During fiscal 1952 approximately 160,000 men were sent abroad, and half that number returned to the United States. During fiscal 1953 the ratio improved

15. ADC CDB, July 1953 (in HRF 900).

16. The re-enlistment rate in EADF for the six months previous to April 1953 was only fourteen percent. USAF IG, Survey of ADC, April-May 1953, Vol II, EADF (in AGC Library). This rate was similar to that in the other Forces.

17. Beside Korean requirements, and those of normal overseas units, the Air Force was also engaged in building a world-wide AC&W system which had to draw largely upon the stateside system for personnel. 46 were programmed for overseas, 12 permanent sites for Alaska, and 17 USAF-manned sites in Canada. Altogether, the total AC&W system, stateside and overseas, was to consist of 256 sites. By the end of June 1953 a little more than half of this goal had been attained. USAF SCS: FY53 (in AGC Library)

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somewhat for stateside units, but at that only 130,000 men returned¹⁸ to replace the almost 170,000 that went overseas. The net loss over the three-year period to commands in the continental area was almost 170,000 men. The overall effect of this and other losses upon one organization was aptly described by its personnel officer, who remarked to his commander: "For the past year, our losses have been running¹⁹ 3 to 1 over our gains."

Moreover, the Command was also manning and equipping whole units destined for overseas commands. WADF, for example, had three such squadrons to man during the first half of 1953. The loss of these men was a serious problem, for they had to be taken from WADF's already strained²⁰ resources.

Furthermore, the Command was required by USAF to give many of its vitally necessary people to other commands in the United States. This was a cause for bitter complaint, for it revealed on USAF's part an apparent blindness to the fact that ADC was part of the "survival force" with SAC, and had a crucially important D-Day mission to perform if war were to come. Major General Frederick H. Smith, Jr., ADC's Vice Commander, objected to USAF that the situation stemmed "largely from a reluctance of the other commands to accept normal personnel

18. As in fn 17.

19. History of 25th Air Division, Jan-Jun 1953, Appendix IV.

20. There was also a very serious skill problem here, which will be discussed later in the chapter. WADF to ADC, "Fighter Unit Manning," 13 Mar 1953, w/2 indorsements (in HRF 782).

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assignment policies, or their failure to train and upgrade their own airmen." ADC had rarely received people from the other commands, he went on to comment, but it had sent them many of its own men. For example, eighty-nine men, most of them in the critical fields of aircraft maintenance, personnel and supply, went to ConAC in July of 1952. In August of that year, 100 jet maintenance men at the skilled and advanced levels went to ATRC. In the next two months, 122 airmen, almost half of them in aircraft maintenance and supply, went to AMC. As he was writing his letter the Command was faced with losing well over a hundred trained radar maintenance and supply men destined for AMC for training and then for overseas assignments. "I do not understand," General Smith concluded, "why such men cannot be secured from ATRC schools directly."²¹

At the same time that the Command lost more and more of its trained men, it was faced with a very large program of expansion. As has been told, from fifty-one fighter squadrons ADC was to build to at least fifty-seven; in addition to the seventy-five permanent radar sites there were also to be seventy-nine Mobile sites, and six large Airborne Early Warning and Control squadrons flying the Super Constellation.²² These units would require great numbers of people, and yet the pipeline to ADC, which was supposed to provide the requisite

21. Smith to Lt General L. S. Kuter, DCS/Personnel, USAF, 6 Feb 1953 (Doc 118).

22. ADC Program Guidance, EPG 55-1, February 1953 (in AGC Library).

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trained airmen, was empty. There were simply not enough trained people to go around. ADC's Vice Commander commented to the commander of WADF that USAF was sympathetic to ADC's problem,²³

but that is about as far as it goes. The gap between available trained personnel and project requirements which exists in this command exists also in the other major commands. We are just being given greater responsibilities than we can handle with optimum effectiveness at the present time.

IV

This second major personnel problem -- not enough trained men to replace the trained men taken out of the Command -- directly affected ADC's effective manning.²⁴ The Command's fighter units became depleted to the point where less than two-thirds of their positions were manned by people trained or partially trained for their jobs.²⁵ At the same time, the radar units, which in January had performed their mission with only three-fourths of their requirement for trained men, found themselves in June with just a little

23. General Smith found that ADC was fourth in manning priority, following FEAF, SAC, and USAF. Smith to Maj General W. E. Todd, Commander of WADF, 28 Nov 1952 (Doc 119).

24. Computed by dividing total authorization by the number of men assigned to their jobs by skill (AFSC), together with half of those learning their jobs by OJT.

25. Effective manning of the fighter units was at sixty-two percent in April, dropped slightly in May, then rose to sixty-six percent in June. ADC CDB, July 1953 (in HRF 900).

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over two-thirds of the trained men they needed.²⁶

Various causes were operating to produce this situation. For one thing, skill is the product of several years of service, and as noted earlier most men were leaving the service at the end of their enlistments. Furthermore, the Air Force as a whole did not have skilled men to give to the Command. About all that USAF could do in reply to ADC's repeated protestations that it needed more skilled men was to speed up ADC's flow of basic -- that is, untrained -- airmen.²⁷

Another difficulty, for a time, was USAF's insistence that the units ADC was manning for overseas areas be manned to 100 percent of skill level. Inasmuch as none of ADC's fighter units had enough skilled and advanced men, manning the deploying units with every skilled and advanced airman that their manning documents called for resulted in a serious situation. ADC units had an immediate D-Day mission of repelling air attack, and their operations were already hampered by an insufficiency of skilled men; yet they were faced with losing even more of them to units going to quiet sectors of the world. WADF, for example, had its skilled resources so drained after manning one fighter squadron for overseas that its commander warned ADC Headquarters in early March that if the same policy had to be adhered to for the two additional squadrons his command was readying for deployment, "this

26. Radar units effective manning was at seventy-five percent in January, sixty-seven percent in April, and sixty-nine percent in June. As in fn 25.

27. Smith to Todd, 28 Nov 1952 (Doc 119).

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command will immediately be unable to perform [its] air defense mission²⁸
at even 50% of requirement without assistance from outside sources."

This brought up the sore point of priority of mission. The Air Defense Command strongly felt that overseas units which were not in a combat theatre should have no more manning priority than did ADC, and insisted to USAF that there was no reason why ADC should be required to do any more than man deploying units in proportion to other like units in ADC. Major General Jarred V. Crabb, ADC Chief of Staff, objected to USAF that overseas commands should be required to utilize their own training resources to upgrade airmen and officers received²⁹ from this Command.

In fact [General Crabb wrote], the squadron commander's task in this regard should be less difficult because of the greater stability of his personnel resulting from a specified length of tour.

The upshot of the matter was a qualified victory for ADC. USAF modified its directive to allow ADC to man the deploying units in proportion to other like ADC units, with the provision that each skill-ladder had to be manned to 100 percent of requirement in numbers, and that each unit was to have at least 98 percent of its total strength authorization. If this were impossible, USAF would render³⁰ a decision as to what course of action to take. With this policy,

28. As in fn 20.

29. As in fn 20, 1st Ind., 20 Mar 1953.

30. As in fn 20, 2nd Ind., 21 Apr 1953.

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ADC had to be content.

In addition to these pressures producing a loss in skill level, there were also the other factors earlier described: the expansion in the number of units, calling in each case for a cadre of skilled men; reassignments of skilled men to other ZI commands; and heavy levies for the transfer of individuals overseas, which rarely called for untrained men.

The overall effect of the operation of these forces was an abnormal swelling of the lower skill levels, with an abnormally heavy work and training load on the relatively few skilled men left to the Command.

V

The third major factor in the personnel situation, together with how many people the Command had and how skilled they were, was how long they could remain in one place. This was a very vital problem. Stability affected the man and the Command in several important ways. The man's morale, particularly if he had a family, was directly affected by his stability of assignment. Children needed to be able to spend a relatively long amount of time at their schools. Repeated moves not only forced upon each child the necessity of re-knitting his whole social framework, he also had to adjust repeatedly to new methods of instruction, different text-books, and all the other things which were important to him. The family as a whole had to adjust to a new climate, furniture had to be moved - and damaged in

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the process - housing had to be found, and on through the range of human considerations each of which had to be solved by the officer or airman each time he moved.

Moreover his professional advancement depended upon stability. It is fixed maxim in military organizations that no man is promoted until he has proved himself. Frequent moves delayed promotions unjustly, and fairly soon they resulted in a disgruntled airman eager for separation and return to civilian life, where he would be given a fair chance to prove himself.

From the unit's standpoint, each new man, no matter how well trained, had to go through a relatively unproductive period. Standardization of procedures was never complete, different leaders and supervisors produced different personality situations, each unit had its equipment differently placed, and its equipment displayed particular peculiarities. Military organizations were no longer relatively simple bodies where a man and his gun might easily fit into routine patterns of behavior. Each military unit -- particularly the complicated organizations in ADC -- was composed of diverse and highly specialized activities, each of them varying to greater or less degree from organization to organization, and it was no easy matter for a new man to enter an organization.

From many standpoints, then, stability was vitally necessary. Instability cost money and time, morale was adversely affected, productivity was reduced, and the training problem was greatly increased.

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Unfortunately, relative stability was not to be found in the Air Defense Command, nor, for that matter, in the Air Force as a whole. For one thing the Air Force's requirements were constantly changing. Training programs placed in motion many months ago on the basis of a predicted need quite often ended by producing hundreds of men who became surplus. Overseas needs, moreover, were crucial, and stateside commands were forced to release thousands of their trained men. Increasing requirements, and the buildup in the number of wings, clashed sharply with the low re-enlistment rate and the shortage of people, making it necessary to shift people from job to job. For example, ³¹ the following was said of WADF's stability problem:

The inability of the command to foresee the changes far enough in advance to procure and train the personnel to meet new requirements had been the main difficulty. This naturally resulted in units being activated and new equipment being received with inadequate and unskilled personnel to maintain the equipment. When changes could be foreseen far enough in advance to allow for requisitioning of officers and pipeline time for airmen, the command had no assurance of receiving them. It was therefore necessary for the command to transfer personnel within the command excessively to at least partially meet requirements.

The general situation, however, was improving. During fiscal 1952 the Air Force as a whole suffered a 100 percent turnover, which meant that there was an average of one move per individual. This rate dropped considerably during fiscal 1953, so that where an average of ten out of every ten men moved at least once during fiscal 1952, only eight

31. As in fn 16, WADF.

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out of that hypothetical group moved during 1953.³²

It would be pleasant to relate that the same trend showed itself in ADC, but such was not the case. The Command's turnover rate had always been abnormally high, and 1953 saw it increase. During fiscal 1952 both officers and airmen had to put up with a turnover rate of almost 160 percent, which meant that out of each hypothetical group of ten people not only did each man move at least once, but six of them moved twice during that year. Considering travel time, leave and adjustment periods, this meant that ADC's units could only expect to retain each officer for six months for a specific job, and each airman³³ for approximately seven and one-half months.

During fiscal 1953, the situation worsened. Airmen continued their turnover rate of 160 percent, while officer turnover mounted to a cumulative rate of over 194 percent. During 1953 almost every officer,³⁴ on the average, moved to two different organizations.

The effects of such instability upon Command operations can be easily imagined. As the USAF inspectors commented of CADF in the spring of 1953, CADF was more a training than an operational command.

32. During Fiscal Year 1952 there were 23,000 people on the move at all times in the Air Force. This figure dropped to 21,000 during Fiscal Year 1953, when turnover was only eighty-two percent. USAF SCS:FY53 (in AOC Library).

33. ADC Comptroller Bulletin, October 1952 (in HRF 900).

34. ADC CDB, July 1953 (in HRF 900).

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As soon as a man was trained, he would move out.³⁵ This was a particularly irritating aspect of the instability problem. The only way the Command could work itself out of the hole on the skill situation was to conduct an intensive training program. Yet instability robbed the Command of the fruits of its effort, and also made that effort extremely difficult. Men were constantly on the move. Instructors and students both were coming and going, and maintaining a training program upon such shifting ground was almost a losing proposition. In April, after months of conducting an intensive training program, WADF resignedly commented that in spite of "additional and accelerated training, the overall skill level of airmen has not increased appreciably."³⁶

It was, in addition, an expensive business. Just to pay for moving men from one unit to another within the Command -- a small percentage of total movements -- cost ADC \$2,100,000 a year.³⁷

There was little that ADC could do about this problem. Most of the men were moving on USAF orders. Of the 160 percent turnover for airmen during fiscal 1953, for example, only twenty-three percent of that arose because of ADC's own decisions. In other words, ADC was only moving two out of each ten men once a year; the rest of the

35. As in fn 16, CADF.

36. WADF to ADC, "Personnel Status, Western Air Defense Force," 2 Apr 1953 (Doc 120).

37. As in fn 33.

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moving was because of general USAF requirements.³⁸

Close monitoring of movements to insure that no one was being unfairly moved could help to a certain degree. EADF by such means had increased the average stay of its men within the command from eight and one-half months in January of 1951 to sixteen months by April of 1953.³⁹ But how many men like to make a career of an occupation which gives them less than a year and a half at any one spot? Other palliatives, such as the freezing of a small number of highly-trained airmen in critical specialties to their organizations for particular periods, could help the situation very little. In the first place, only a few men were involved, and secondly, this was only protection against intra-ADC moves, and most of the moves were out of the Command.

The only comfort that ADC could find was in taking a very long view. Expansion would some day cease, and it was hoped that Air Force requirements would some day reach a fair measure of stability. But in the meantime the comments of one division commander were very apt:⁴⁰

Many excellent men are reenlisting in other commands in their attempt to get some stability in their assignments. ... Regardless of any possible action by this command, the overall morale of the command will not reach the desired goal until a satisfactory state of personnel stability and retainability is reached within all elements of the command.

38. ADC CDB, Jul 1953 (in HRF 900).

39. As in fn 16, EADF.

40. 25th Air Division to WADF, "Combat Readiness," 8 Apr 1953, bound as Document 18 in History of 25th Air Division, Jan-Jun 1953.

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VI

Of the roughly 65,000 men in the Command in January of 1953, almost half were in the Eastern Air Defense Force. About a third of them were in Western, and about a fifth in Central. The number required by Air Defense Command headquarters was less than one-twentieth of the total. These proportions were changed somewhat by the reorganization which took place in February of 1953, but there was little overall change. At the end of June, Eastern and Central each had a slightly higher proportion of the men in the Command, and Western had dropped⁴¹ to a little more than a quarter.

The personnel trends in WADF were generally typical of those in the other Defense Forces, with variations only in detail. In January WADF had some 2,600 men in its fighter units, or about 100 percent of its authorization. So many of these men were untrained, however, that only seven of every ten positions were manned by trained airmen. The fighter units, moreover, suffered heavy losses during the period, ending up in June with less than ninety percent of their authorization, and⁴² only six of each ten positions occupied by trained men.

The radar units demonstrated an equally serious drop in their manpower. In January WADF had about 4,000 men in its radar units -

41. Headquarters ADC had about $4\frac{1}{2}$ percent in June 1953, Eastern about $43\frac{1}{2}$ percent, Central 20 percent, and Western 27 percent of the Command's strength. As in fn 38. For discussion of preparation and reasons for Command reorganization in February 1953, see ADCHR #4, Chapter 4.

42. As in fn 38.

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only four percent below the authorized number - and three quarters of their positions were occupied by trained men. At the end of the period, however, they were seriously undermanned. The radar net had only four-fifths of the men it needed, and less than two-thirds of the jobs within the units were filled by trained men. When the consideration is narrowed to the operational teams, the men who performed the actual mission of these units, ⁴³WADF in June of 1953 was attempting to maintain radar surveillance of its area with just 1,500 men; only two-thirds of the operational team positions were filled with men ⁴⁴skilled or even partially skilled in their jobs. ⁴⁵As the WADF history for the period commented:

Given a personnel structure which bulged at the bottom, the AC&W squadrons were forced to conduct extensive OJT programs in order to make airmen received from ATRC effective from an operational point of view. But unhappily, as soon as the airmen were trained, they were all too often sent overseas and replaced with personnel as unskilled as they themselves had been. ... The AC&W squadrons were on a treadmill from which there was no easy escape.

VII

There were a series of problem areas which by themselves imposed several limitations upon command operations. Most of these

43. The radar operational team consisted of each unit's controllers, air traffic service officers, radar maintenance officers, ECM officers, radar operators, radio operators, and radio and radar maintenance men. As in fn 38.

44. As in fn 38.

45. History of WADF, Jan-Jun 1953, pp. 193-194.

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were directly in the operations area, while others were in support.

In the operational area, the supply of controllers dropped to a seriously low point. As earlier described, the 25th Air Division was at one time forty percent understrength, and had to cut four of its perimeter stations to early warning capability and re-distribute its controllers to more important posts.⁴⁶ By June of 1953, there was relief in sight. The conversion to the single-place F-86D, had rendered a hundred radar-observers surplus. These officers were sent to controller schools in the spring of 1953, and would eventually swell the ranks of ground controllers. In the fall of the year, moreover, some thirty ROTC officers were to come to the command trained as controllers. These measures would not solve the problem, however, and as the period ended the controller problem was still critically limiting the Command's ability to perform its mission.⁴⁷

The Command was critically short of jet fighter pilots. By the end of the period, General Crabb, ADC's Chief of Staff, wired the Chief of Staff at Headquarters, USAF, that the Air Defense Command was so short of fighter pilots that it had less than one available pilot per aircraft. Of these, he went on to comment, less than half⁴⁸ were combat ready.

46. As in fn 45.

47. ADC Statement of Effectiveness, June 1953 (in AGC Library).

48. Mag, ADC to USAF, ADMP-O 1633, 21 Jul 1953 (Doc 121).

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As with other problems, this lack of tactical aircrews reflected a general Air Force-wide shortage. For various reasons, the Air Force had concluded fiscal 1953 some 1,200 aircrews short of its goal of about 8,900. The following fiscal year, the Pentagon felt, would see a major improvement in the situation. There would still not be enough all-weather interceptor crews, but the Training Command would increase the output of these crews to the point where about 1,900 new⁴⁹ crews would be trained as against some 600 trained in fiscal 1953. ADC, therefore, could be encouraged with the knowledge that it was probably at the lowest point of shortage.

Not only were there insufficient men to fly the aircraft, there were also not enough men to maintain them. This was, as discussed earlier, a general Air Force problem. All commands had far more apprentices than they needed, and not nearly enough skilled men to train the apprentices and maintain the aircraft. A typical situation was that in WADP, which in November of 1952 had critical difficulties in maintaining its own aircraft at the same time that it was faced with activating and manning, from its own resources, eight additional fighter squadrons by the end of February 1953. Five of these units would have F-86D aircraft, which required a great deal of maintenance, and two of its existing units were also to convert to this extremely complex machine. Additionally, twelve more jets were to be based at the Yuma training base, further intensifying the problem. Altogether, there was to develop a requirement for a 100 percent increase in aircraft

49. USAF SCS:FY53.

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maintenance personnel.

On a numbers basis, as General Todd commented to ADC's Vice Commander, WADF would only be able to provide half of the men needed in its fighter system. During the months just prior to this, however, WADF had received several thousand untrained airmen, many of whom, on the basis of need, had been placed in the aircraft maintenance field. Its skilled men, therefore, were even fewer, and when they were redistributed among the units there would only be twenty to twenty-five percent of the skilled men needed in each fighter squadron.

Furthermore, WADF's commander could see no men coming to WADF through the normal personnel pipeline channels. From August through October WADF had had to send over 750 maintenance men to other commands, while receiving less than 250 men as replacements for those lost. As of November the pipeline flow had dwindled to a mere trickle. From all sources, WADF was only going to receive sixty men, while it needed 1,200 more than it had. Furthermore, projected losses to overseas numbered 230 men.

50. Todd to Smith, 7 Nov 1952 (Doc 122). The thinking in this headquarters was that General Todd was overly pessimistic. For one thing, CADF had been given preference both on pipeline receipts and levies during a three-month period just ending in order to make up for a heavy loss of ANG personnel. WADF and EADF at this time were to be placed back on an equal status with CADF. Also, the units to be activated would not get their aircraft until spring, so that the maintenance people already on hand could remain with their old organizations and be further trained and upgraded. R&R, "Air Defense Command Program," DCS/Personnel to WC, 10 Nov 1952, appended to above document.

51. As in fn 50.

52. As in fn 50.

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These people alone [General Todd pointed out] would provide the skilled requirement for three fighter squadrons and the net loss suffered by this command in the past four months would have gone a long way towards providing the minimum skilled requirement for this entire program.

As it developed, the aircraft maintenance problem was to improve rapidly, but there were times - such as during the fall and winter in WADF - when the problem appeared to be insoluble. As General Smith⁵³ commented to USAF in early February:

Unless those aircraft maintenance personnel in the higher skill levels are allowed to remain with us, and are augmented by overseas returnees, we will be required to man these new units with an unacceptably high percentage of apprentice level airmen.

Aircraft maintenance men came to ADC by the hundreds during⁵⁴ the spring of 1953, so that by the end of June the Command was less than a hundred short of its needs. Again, however, these men were largely unskilled. Of the roughly 7,900 mechanics in ADC's units at the end of June, about 3,700 were apprentices, or more than twice as many as were needed, some 2,500 were skilled men, or two-thirds as many as the Command needed, and approximately 1,800 were advanced⁵⁵ mechanics, again about two-thirds of the Command's requirements.

53. As in fn 21.

54. 319 mechanics were received in April, 363 in May, and 1,219 in June. Losses during the same period totaled 560. Interview, historian with Major W. W. Ellis, PPM, ADC, 12 Nov 1953.

55. 7,935 were authorized at the end of June 1953, broken down as follows: 1,551 apprentices, 3,739 seniors, and 2,645 advanced. ADC actually had 7,898, with 3,674 at apprentice level, 2,459 at senior, and 1,765 at advanced. It is interesting to note that during the three months April through June 1953, 98 re-enlisted, while 84 were lost to separation. This is a far higher ratio than in other fields. As in fn 54.

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Most of these men were simply not able to pull their weight. If they were apprentices, they were not at all skilled enough to maintain the aircraft. If they were skilled or advanced men, much of their time was taken up with training their apprentices. Altogether, the aircraft maintenance personnel problem was still an acute one at the end of this period, though there was every reason to believe that the situation would improve with time.

Other areas of difficulty were in the radar operator and radar maintenance officer fields. In January of 1953 the Command had some 5,400 radar operators of the approximately 6,600 it was authorized to operate the radar system.⁵⁶ By the following June -- it was in the spring that the 25th Air Division had had to put its operators on a three-shift basis⁵⁷ -- the situation was even worse. Over 7,000 radar operators were authorized, yet only 4,900 were in the system⁵⁸ -- a drop in radar operators at the same time that requirements increased.

The radar maintenance officer situation showed the same development. Some 280 were authorized in January, yet only about 150 were

56. Figures on the numbers authorized the Command in particular skill fields for particular periods were drawn from the 5APP2 reports submitted by ADC to USAF. Information on the men actually in the Command for these periods was drawn from the 6APP2 reports submitted by ADC to USAF (in DCS/Comptroller files).

57. As in fn 2.

58. As in fn 56.

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59 available. Six months later the requirement had risen to over 310,⁶⁰ yet just 109 officers were in the Command -- almost a third of the requirement. These two difficulties could not help but have an immediate and direct affect upon the operation of the radar system. It was because of these shortages that the radar station at the mouth of the Columbia, for example, had only one-third of its positions⁶¹ manned by trained men in June of 1953.

Throughout the period other miscellaneous personnel problems kept turning up. In most cases, there had developed a need for more people in particular areas, yet USAF was unable to give the Command the necessary authorized spaces. Some of these were: a request for executive officers for the fighter squadrons, inasmuch as the administrative workload on their commanders was abnormally heavy;⁶² fifty-one officers and 329 airmen to build the training center at Yuma;⁶³ and seventy-five officer spaces to provide an extremely valuable augmentation

59. As in fn 56.

60. As in fn 56.

61. As in fn 4.

62. ADC to USAF, "Fighter Squadron Executive Officers," 9 Jan 1953, with 1 indorsement (in AG files).

63. Msg, ADC to USAF, ADOMD 11404, 9 Apr 1953, and Msg, USAF to ADC, AFOMD 54058 (in AG files). USAF instructed ADC to find the people from within its own resources.

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potential in the Air National Guard.⁶⁴ Since additional officer spaces were not available, the Command had to take thirteen materiel officers from EADF and eight from WADF in order to help CADF solve a serious shortage of such officers in three of its Divisions.⁶⁵

Moreover, during this period the administration directed the services to reduce the number of civilians they employed, with the result that ADC had to eliminate 20% civilian spaces in administrative, headquarters and indirect support areas.⁶⁶

The cumulative personnel picture in the Command during this period was of shortages so serious that the ability of the Command to operate its vast establishment and its air defense weapons was significantly reduced.

64. ADC to Chief, National Guard Bureau, "Air National Guard Defense Augmentation," 9 Jun 1953 with two indorsements (in HRF 314).

65. ADC to CADF, "Manpower Authorizations," 12 Feb 1953 (in HRF 774).

66. Msg, ADC to Director of M&O, USAF, ADOMO 17978, 10 Jun 1953 (in HRF 790).

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CHAPTER NINE

1
TRAINING

I

The Command's skill shortage problem, described in the previous chapter, was made more serious by a grave breakdown in the normal training procedure. As originally devised, the training of each airman was supposed to take place in three phases. He was to attend a basic Training Command school to become an apprentice in a particular field, and then go to an operating unit and advance to the skilled level through on-the-job training. After this, he would return to an advanced Training Command school to learn the skills required of a supervisor or technician.² This system, when working smoothly, would insure the commands a steady stream of apprentices already basically qualified in their crafts, and also the highly

1. This chapter concerns itself solely with airman training. For a discussion of pilot training, see History of WADF, Jan-Jun 1953, Chapter Seven. For a discussion of controller training, see History of EADF, Jan-Jun 1953, pp. 111-113.

2. Airmen were divided into four skill levels. When untrained, they were designated helper or basic airmen, with the suffix 10 to their Air Force Specialty Code. The next step was to the apprentice, or 30 level. From here the airmen progressed to the skilled, or 50 level, and then to the advanced, or 70, level. Thus, in theory all apprentices were graduates of formal Training Command schooling, all skilled airmen had moved to that level from the apprentice grade by on-the-job training, and all advanced airmen were products of an advanced school. In practice, as will be related, this did not always prove to be the case.

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 skilled men who could train these airmen.³

For several reasons, this system could not keep up with the needs of the commands. The Training Command was unable to turn out enough apprentices or advanced men, and those that were turned out were in several important instances not properly trained. In addition, using the Training Command's facilities was in some cases inappropriate, conflicting with operational needs.

As a result, ADC had to take over much of the two phases of training that were supposed to be performed by the Training Command. In doing this, ADC assumed a major new function which the Command was not manned or properly organized to perform. The very large formal on-the-job training program that the Command had to set in motion was

3. In addition to Training Command schools, there were factory, Navy, Army, and other specialized schools. Factory training was used when the Training Command did not have a school of its own, as in the case of the Hughes Aircraft school which trained apprentice airmen in the maintenance of the fire control systems. Or, factory schools were used when a new item was phased into the system, as, for example, when Mark X IFF equipment was put into the system and airmen and officers were sent to the Hazeltine Corporation school. Other examples, to be described, were radar maintenance schools conducted by General Electric and Bendix. In addition, Mobile Training units were used to train airmen at their bases in the various aircraft maintenance skills. Interview, Mr. M. H. Walker, in Directorate of Training, DCS/Personnel, Hqs ADC, 29 Jan 1954. Altogether, the Air Force used 152 formal training facilities, divided as follows: 12 contract schools; 82 factory courses; 11 Air Force-operated training installations (which trained 150,000 of the 172,000 students turned out in Fiscal Year 1953); 27 Army schools; and 20 Navy schools. USAF Summary Control Statement: Fiscal Year 1953 (in AGC Library).

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from the beginning an inherently inefficient method of training.
Furthermore, it sapped the operational resources of a Command already seriously debilitated for want of men. The training problem as a whole resulted in a significant drop in the performance of ADC's equipment. As a group of scientists observed in May of 1953, the fact that ADC's radar maintenance men were not properly trained had "resulted in a definite lowering of radar set performance and a consequent degradation in radar net efficiency."⁵

II

The resources of the Air Training Command were inadequate in several ways; moreover, in some respects their use was inappropriate.

Much of the difficulty arose from the fact that the Air Force had galvanized all of its elements into expansion at the same time.

4. Formal OJT as defined in AFR 50-23, 14 January 1953, was that type of systematic skill training carried on at the unit level designed to take the place of Training Command courses which turned out apprentice and advanced airmen. Proficiency training was defined as strictly on-the-job training designed to raise the apprentice to the skilled level by experience under competent workmen. These terms were regarded as artificial and unrealistic by Hqs ADC training people, who pointed out that the same methods -- experience alone, or experience plus classroom instruction -- were used to train airmen at all levels. Their operating principle was that OJT for different levels and skills could not be arbitrarily defined, but procedures for each had to be decided in each case. As will be described later, radar maintenance "proficiency" training from the apprentice to the skilled level could not be carried on by experience alone, but had to be supplemented by regular classroom instruction at the unit level.

5. Radar Evaluation Program Report, DCS/O, Hqs ADC, 1 May 1953, Vol. II, p. 520 (Copy forwarded separately to USAF Historical Files. Copy retained in HRF 200).

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This situation affected operations in several ways. The men first received by the commands were in many cases untrained. Furthermore, the equipment they were given to operate and maintain was not the equipment they were permanently to use. ADC's initial radar net was constructed of World War II radars, and men who got their radar training on this equipment were not ready to move immediately into the newer and more complex pieces of equipment that eventually were produced.

The Training Command was afflicted with the same difficulty. When it got its radar maintenance program in motion, it had to use the same World War II equipment. The operational need for new equipment was felt to be so pressing that ATRC did not receive any of the new equipment on which to train its students until much of it was already in the field. Siting ATRC's new equipment also proved to be difficult, and legal action to gain necessary rights-of-way had to be instituted. As late as early 1953 the Training Command still did not have an operational CPS-6B or FPS-3.

Even when the Training Command was able to provide ADC with properly trained apprentice airmen in a particular specialty, it was

6. Brief of Training Discussion Between ATRC and ADC, 21 May 1952, bound as Document 139 to ADCER #3, and Memorandum, "Aircraft Control and Warning Training," 19 Nov 1952 (Doc 123). (Author unknown, taken from G&T files, Hqs ADC) ATRC, however, was still turning out radar maintenance apprentices during this period, training in basic electronics and upon older types of equipment. The units had to adopt re-training programs to acquaint these men with new equipment, but could not look to ATRC for aid in devising manuals, lesson plans, or training materials. Interview, Mr. M. H. Walker, Directorate of Training, DCS/Personnel, Hqs ADC, 18 Jan 1954.

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found that these men were not prepared to embark upon immediate proficiency training toward the skilled level. They lacked basic information concerning, for example, technical orders, the use of hand tools, communications circuits, and the practical aspects of operations in the field. Their units, therefore, had to start special training courses to provide these men with the knowledge they lacked.⁷ A comprehensive survey of ATRC graduates in Western Air Defense Force revealed that these men were usually well-grounded in theory, but that they had been inadequately prepared for actually operating or maintaining their equipment.⁸

ADC's units frequently complained that ATRC's instructors had very little practical experience. This was natural enough, when it was considered that the training and operating systems were built at the same time, but it was unwise to allow the situation to continue in existence. In May of 1952, during a conference with ATRC representatives, ADC brought up this point, and it was agreed that a system whereby ATRC's instructors would spend a certain amount of time on temporary duty at ADC stations would prove sufficient to alleviate the difficulty. By the middle of July 1952, a number of ATRC instructors

⁷ See comments in USAF IG, Survey of ADC, Apr-May 1953, Vol. II, WADF (in AGC Library).

⁸ The units repeatedly commented that ATRC graduates sometimes lacked even the knowledge that there were publications governing their work (technical orders, regulations), were poorly trained in the use of hand tools and test equipment, and revealed serious ignorance of operating conditions. WADF to ADC, "Proficiency Level of Technically Trained Personnel," 27 Apr 1953 (Doc 124).

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from Francis E. Warren AFB, Lowry AFB, and Keesler AFB were placed on temporary duty with ADC units for periods of from sixty to ninety days. ⁹ This system proved so satisfactory that it was placed on a ¹⁰ permanent basis.

From the standpoint of unit commanders, as well as from that of the whole Command, there were several reasons why using the Training Command's facilities produced more problems than it solved. For one thing, unit commanders could not be sure, when they were required to send a man off to a school, that he would be coming back to them. USAF's policy was that all airmen going to a basic school, one that was designed to turn out apprentice airmen, would do so on a permanent-change-of-station basis. The sending command, moreover, could not include a statement in the orders dispatching such a man to school that ¹¹ his unit desired him back after his training was completed.

ADC protested this policy, pointing out that the entire training process would be more efficient if the man were returned to his unit and trained rapidly to the skilled level on the equipment with which he had become familiar before going to school. From a practical standpoint, moreover, the Command warned USAF that adoption of the policy would result in unit commanders "dumping" their unwanted and

9. Training Discussion, as in fn 2.

10. 3450th Technical Training Wing, Francis E. Warren AFB, to ADC, "Field Experience for ATTC Instructors," 6 May 1953, with 1 Ind (Doc 125).

11. ADC to ATTC, "Assignment to Technical Schools," 19 Jan 1953, with 3 Inds (Doc 126).

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substandard men on the schools while keeping the men they most highly regarded. These protestations came to naught. The Pentagon replied that the long-range objective was to send every new man to a basic school immediately after his initial "boot camp" training and before his assignment to a particular unit. In this way the commands would never again have to absorb thousands of untrained men as had the Air Defense Command in 1952.¹² In the meantime, this policy meant that unit commanders would put off as long as possible sending their better airmen -- who had been trained to apprentice level by intensive OJT within the unit -- to the basic schools which they had missed attending. Furthermore, each levy upon a unit for students to attend a basic school would result more often than not in a net loss to the ability of the unit to carry out its mission.

Unit commanders, in some instances, also found difficulties in utilizing the advanced formal courses provided by ATRC to aid airmen in making the transition from the skilled to the advanced level, or to train them in new types of equipment.¹³ ADC's units often received new equipment earlier than did the Training Command, and had trained their men in the equipment by the time they were instructed to send airmen to a formal ATRC course. Despite their protestations that it was needless and uneconomical to comply with

12. As in fn 8, 2d Ind, 18 February, and 3d Ind, 13 Mar 1953.

13. There were not enough of these courses to satisfy needs, as will be related later.

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these instructions, they were still required to do so. ADC Headquarters was convinced that from a managerial standpoint it was imperative that men be sent to formal courses whenever the Training Command offered ADC spaces.¹⁴ If the potentially excellent facilities of the Training Command were not fully utilized, continuing courses could never be set in motion and ADC would always have to rely upon its own resources to train men to the advanced level, or upon new equipment.

Aside from these difficulties, there was the basic fact that the Training Command was not able to turn out enough trained men. During fiscal 1953 its eleven military schools -- not including factory or other specialized schools -- were instructed to turn out some 170,000 trained men, but they fell short of this goal by a little over 20,000 men. About 5,000 of the men that ATRC was not able to train would have gone into the general field of maintenance, where critical shortages developed within the Air Defense Command.¹⁵

For these various reasons, ADC found it difficult or impossible to depend wholly upon the Air Training Command to provide the trained men needed to man its fighter squadrons, radar units, and support elements. On the other hand, the Air Defense Command shared the Pentagon's view that these difficulties should not be allowed to obscure the ultimate goal, which was that ADC and the other commands

14. See 566th Field Maintenance Squadron to ADC, "Restrictive and Uneconomical Practices," 23 Mar 1953, with 4 Inds (Doc 127).

15. USAF Summary Control Statement: Fiscal Year 1953 (in AGC Library).

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should be burdened only with providing proficiency training for their men, leaving to the Training Command both basic and advanced formal training.

III

For a long time, the Air Defense Command had been endeavoring to meet one of the serious problems produced by the Training Command's difficulties: the training of radar maintenance men. When the Command began building its Lashup radar net, as was earlier related, it found itself faced with training its own radar maintenance men. Later, the Command converted to modern radars and had to retrain its own men and also the graduates of Training Command schools who were received later. This latter group had no opportunity to begin familiarization with modern equipment until they reached their operating organizations.

There was another factor involved in this situation. Electronics maintenance was such a difficult field to master that experience alone did not prove to be an economical method of instruction. New apprentices had to work on the equipment for many months before they achieved even a low level of skill. This was not only hard on the man's morale, for he could not be promoted until he became fully skilled, it was also uneconomical. ADC could not afford to wait many months while the maintenance proficiency in its radar net slowly lifted. Its maintenance men in many cases would have very little of their enlistment left by the time they became completely competent. Moreover, turnover rates were so high that such a prospect practically guaranteed

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that ADC would never have a corps of skilled radar maintenance men.

As early as March of 1948 it was found necessary to turn to the civilian populace to secure trained electronics men. Civilians were employed as technical instructors from major electronics firms -- Philco and RCA -- to instruct ADC's relatively untrained airmen in radar and radio maintenance.¹⁶ When the time came to convert to modern equipment, the retraining problem was so severe that ADC set in motion an accelerated on-the-job training program for apprentice radio and radar mechanics. Originally scheduled to last for six months -- until ATRC received modern equipment and began turning out properly trained men -- this program utilized actual classroom instruction by the technical instructors.¹⁷ This approach to the problem, it was felt, would enable an apprentice maintenance man received from ATRC to advance more rapidly to the skilled level.

This system, however, depended upon the excellence or weakness of the technical instructors at each site. Without centrally designed course outlines, manuals, and training materials, the widest variance in training standards resulted. It was decided, therefore, to train a group of nine highly competent radar maintenance officers in a special course at the General Electric factory, and utilize these officers to standardize the CPS-6B OJT program. While at General

16. See ADCHR #1, pp. 85-87.

17. See ADC to DPs, "Radio and Radar OJT Program," 10 Feb 1953 (Doc 128) and interview, Mr. Glenn Miller, 759th AC&W Sqdn Philco technical instructor, Nov 1951.

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Electric during the late winter and early spring of 1952, these officers, working with General Electric people, devised manuals, course outlines, and training materials. Following completion of their course, they were assigned to each of the Air Divisions to serve as OJT monitoring officers within their Divisions. Their function was to insure that the program was properly operated; the actual instruction at each site continued to be given by the technical¹⁸ instructors.

In the late spring and early summer of 1952, the comprehensive CPS-6B OJT program got underway -- many months after ADC had begun¹⁹ to operate its modern radars. The program was an improvement over the previous system. Apprentice radar maintenance men were relieved from their regular crew activities, and placed in classroom instruction for half of their shift. Standard tests in each Division were given to insure that units maintained pace with one another. In time, units reported that the skill of their maintenance men rose at a²⁰ more rapid rate than had theretofore been the case.

The FPS-3 entered the net at a later date, so that the training problem was not so acute as with the CPS-6B.²¹ The Command had

18. ADCHR #3, pp. 207-209.

19. 668th AC&W Squadron to ADC, "AN/CPS-6B OJT Program," 21 Jul 1952 (Doc 129).

20. As in fn 15, and Memo, "Aircraft Control and Warning Training," 19 Nov 1952 (Doc 123), and History of WADF, Jan-Jun 1953, pp. 195-196.

21. See ADCHR #3, p. 203.

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time to have men trained at the Bendix factory -- the producer of this equipment -- and when the equipment went into operation there were enough trained people to man each FPS-3 site with two officers²² and three airmen. These men provided a bare cadre who, together with the civilian technical representatives, could begin training the rest of the crews assigned to each unit. Factory training was continued through 1952, the last class entering in November for the eight weeks course. By this means, a total of almost 400 men, or²³ about eight per site, were trained.

The same difficulties as those encountered with the CPS-6B, however, still afflicted the Command. There was, for example, ATRC's inability to get its FPS-3 equipment operational, so that ADC still was in the position of receiving radar maintenance apprentices who had never seen the FPS-3. There was, moreover, the overall problem of stability. The initial cadre of trained men was not permanently assigned to ADC, but was rapidly drained off to overseas commands. Finally, since each unit had to carry on a large OJT program on its own to train its apprentices, wide variations in training programs resulted.

Through the first half of 1953, therefore, ADC built an OJT program for the FPS-3 units which was identical to that designed for

22. "Training Directorate Manuscript for the AC&W Commander's Conference," January 1952, bound as Document 147 to ADCSR #3.

23. Memorandum, as in fn 16. ATRC training on the FPS-3 was at this time scheduled to begin in early 1953.

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the squadrons operating the CPS-6B. The OJT supervisory officers in each Division who were conducting the CPS-6B program were given authority also over FPS-3 training, and manuals and course outlines were drawn up. In the middle of July 1953 the Command issued a directive setting the program in motion.

A clear statement of the seriousness of the problem was made by the scientists who had conducted exhaustive tests of radar efficiency at four selected radar sites in late 1952. They pointed out that enormous sums had been spent in research and development to increase the performance of ADC's radar equipment, but that these technical improvements were usually nullified by the inability of radar maintenance men to maintain the equipment.

Observations made by the radar evaluation group during this Program indicated that the majority of maintenance technicians are not capable of obtaining optimum performance from the radar. It was visualized that if a small portion of the amount expended on research, development and cost of radars was expended on acquisition, training and holding radar technicians that overall performance of the ADC radar net could be increased by several times.

24. ADC to ATRC, "Training of Officer Personnel on AN/FPS-3 Radar," 7 Feb 1953, with 1 Ind (Doc 130).

25. ADC to DFBs, "AN/FPS-3 On-the-Job Training Program," 23 Mar 1953 (Doc 131).

26. ADC Regulation 50-19, "AN/FPS-3 Radar System OJT Program," 16 Jul 1953 (Doc 132).

27. As in fn 5, Vol. I, pp. 300-302.

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They went on to comment that the Training Command's schools did not adequately train maintenance men either in electronics fundamentals or in the specific equipment that they would have to maintain. As a result, ADC had to hire civilians to further train these men in the OJT programs previously described. "By the time the technician is declared skilled in the radar maintenance field," they commented, "his enlistment period has almost expired, and in the majority of cases, he does not re-enlist." Not only was service life itself not pleasant, but the man could usually secure a good salary in civilian industry.²⁸ The solution to this problem was clearly not in ADC's hands.

Another major area where experience alone proved to be an uneconomical method of training was the maintenance of complex fire control systems. Hughes Aircraft maintained a school which turned out apprentices in this field, but it was found that the progression to the fully skilled level was so difficult that formalized instruction in the unit had to be utilized. A comprehensive OJT program similar to that organized in the radar maintenance field was set in motion, designed to make skilled maintenance men out of the Command's apprentices after six months of training. Units were furnished with course outlines, reference materials, and training aids, and instructed to employ formal classroom instruction two hours a day, for five days a week. The rest of each man's work shift was to be spent in actual

28. As in fn 27.

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work on the job.

IV

The training of men to maintain complex electronic equipment, however, was not the whole training problem within the Command. Skilled men of all types flowed in and out of ADC, and every unit found itself constantly training new men in every specialty. Mechanics, clerks, supply men, and radar operators, to mention a few, were rarely as trained as their units desired them to be. Furthermore, since an airman could not be promoted until he progressed to the next higher skill, every man in ADC was busily training to increase his proficiency.

This problem was complicated by the Training Command difficulties described earlier. Relatively few men could go to a formal ATRC school, and each unit oftentimes had to train men from the helper level up to the advanced. It is impossible to state exact proportions, but informed individuals in ADC Headquarters estimated that some forty percent of the apprentices in ADC had been trained to that level wholly through OJT. All of these apprentices had to train to the skilled level through unit OJT, and when they became skilled airmen approximately eighty percent of them would have to continue their upward progression to the advanced level solely by training within their organizations. Most of the Command's advanced airmen had not been to a school since they left the Training Command

29. ADC to DFs, "On-the-Job Training for Airmen Possessing AFSC 32230D," 23 Apr 1953 (Doc 133).

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as apprentices.

For better or for worse, then, most skill training took place within ADC's own units. Furthermore, the problem threatened to worsen. Immediately following the outbreak of the Korean war some 145,000 men enlisted in the Air Force for a period of four years. This group of men, most of them not desirous of a career in the service, would begin leaving the service after July of 1954, and would complete their exodus sometime before June of 1955. Their leaving would constitute a serious loss of skill to the Air Force, and the first break in the period of relative stability which would begin in July of 1953.

If the Training Command was not able to provide the normal needs of the Air Force, it would not at all be able to meet the severe problem posed by this mass exodus of trained men. Recognizing this, together with the already existing severe shortage of skilled and advanced men, USAF in early March informed the major commands that they would have to train thousands of men to prepare for the impending loss. This training, it went on to comment, would not be confined, as was theoretically the case in the past, to simply proficiency training, but would encompass apprentice and advanced training. ADC

30. Interview, Mr. M. H. Walker, Directorate of Training, DCS/Personnel, Hqs ADC, 18 Jan 1954. An important qualification to these estimates was that all complicated training -- such as radar, radio, and aircraft maintenance -- to the apprentice and advanced levels was with few exceptions provided by Training Command schools.

31. USAF Summary Control Statement: Fiscal Year 1953 (in AGC Library).

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was instructed to train 25,000 apprentices to the skilled level, and approximately 4,600 skilled to advanced. The number of helpers that ADC would have to train to the apprentice level was to be furnished after the Training Command completed a current study of the situation. Most of this training, as might be expected, was to be in the operations, communications, and various skilled maintenance fields.³²

V

On-the-job training, however, could not take the place of the Training Command's schools as the source of ADC's skill requirements. Except for proficiency training in relatively uncomplicated fields, OJT was at best a pale substitute for formalized instruction. Four problems combined to make the training provided by OJT inadequate: an insufficient number of competent teachers; inadequate facilities and training aids; an understaffed and ill-trained supervisory system; and pressing operational requirements.

The first of these problems -- lack of competent teachers -- was the most serious. Skilled individuals, as earlier described, were taken from the Command in large numbers. Those still in the Command had to spend most of their time in carrying on normal operations, and could find little time to instruct their subordinates in anything other than a haphazard manner. McChord Air Force Base in the spring of 1953, for example, had only a fourth of the skilled

32. USAF to ADC, "On-the-Job Training," 3 Mar 1953 (Doc 134), and DCS/Personnel, USAF, to ADC, "On-the-Job Training," 5 Mar 1953 (Doc 135). ADC answer embodied in Crabb to Kuter, 16 Mar 1953 (Doc 136).

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aircraft maintenance men that it was authorized. The training program at this base, in consequence, was seriously debilitated.³³

Moreover, a skilled man may not necessarily be a good teacher. Young men placed under an inarticulate supervisor learn very little, as do those placed under a man jealous of his knowledge. Recognizing this fact, the Air Defense Command in 1951 had set in motion a training program designed to acquaint its skilled men with instructional techniques and the human relations factors involved in the teaching situation.³⁴ At best, however, such a program was only a palliative, and ADC had to be content with the fact that many of its senior airmen were not good instructors.

Furthermore, there was no way to pick out those men who were good instructors and keep them within ADC. This Headquarters recommended such a system to USAF, receiving in return the information that though a plan was to be adopted which would identify men with instructor ability by adding a special suffix to their AFSC, it was impossible in light of the generally serious personnel problem to freeze them.³⁵

As of 31 March 1953, USAF overseas units had an authorization for 251,693 airmen. Of the 590,087 airmen assigned to the ZI units, less than 189,549 were considered as available for overseas assignments. In this available figure are included many overages within career fields, skills that are not usable overseas and also personnel with temporary deferments.

33. USAF IG, Survey of ADC, Apr-May 1953, WADF (in AGC Library).

34. ADCHR #3, pp. 205-206.

35. USAF to ADC, "On-the-Job Training," 14 Apr 1953 (Doc 137) and C/S, ADC, to DCS/Personnel, USAF, "On-the-Job Training," 11 May 1953, with 1 Ind (Doc 138).

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The instability problem affected students as well as teachers. Though proportionately more skilled men were shifted about than were unskilled individuals, the latter also moved from unit to unit and to overseas commands. In such a situation, training programs often resulted in more lost motion and expense than they did in concrete gain.

The instructor problem in the complicated skill areas was best approached in the technical instructor program. As earlier described, highly trained civilians at each radar site and in each fighter squadron provided the stable and competent instructor corps without which training would have been impossible. One Division commander, keenly appreciative of their value, commented that they were "the backbone of our present system ... both as an instructor and as a solid, always available skilled craftsman."³⁶ Indeed, they were so skilled that desperate commanders more often than not turned to them for aid in keeping the equipment running. When airmen were so short that operating a class was futile, these people worked as resident engineers. When the pipeline eventually filled maintenance sections with apprentices, they organized classes, adopted a curriculum, and began organized instruction. There is no doubt that without them the Command would not only have been practically unable to carry on any training at all,

36. Comment of Brigadier General T. Alan Bennett, Commander of the 25th Air Division, quoted in History of WADF, Jan-Jun 1953, pp. 196-197.

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it would have been practically unable to operate.³⁷

The use of these people, however, was limited by Air Force Regulation 66-18 to a period of two years after receipt of the first production article from the contractor who made the equipment.³⁸ The principle behind this limitation was that the using commands should be able to train sufficient of their military people within a two year period to take over all maintenance and instruction. Subsequent events made this approach no longer practical. Expansion of the radar and fighter systems, personnel instability, and the demands from overseas made it impossible for ADC to build up a corps of trained people.

In January of 1953, therefore, when USAF formally warned ADC that it could no longer expect to have technical representatives after the end of the following June, General Chidlaw immediately dispatched a strong protest to General Kuter, Deputy for Personnel at USAF. "I feel," he asserted, "that any discussion at this time relative to elimination of contractor technicians is unrealistic. No one knows better than you how our skilled military people are being drained off to satisfy overseas requirements." He went on to point out that ADC's

37. The size of the technical instructor problem may be seen by the fact that there were three instructors at each permanent radar site, three programmed for each Mobile site, and two assigned to each fighter squadron. The numbers assigned to other types of units (Division and Defense Force headquarters, etc.) varied. The total number of technical instructors (Philco and RCA) was 564. Interview, Mr. W. H. Michaels, Special Actions, DCS/Personnel, Hqs ADC, 25 Jan 1954.

38. Air Force Regulation 66-18, 16 May 1951.

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system was rapidly expanding, that its equipment was becoming increasingly complex, and that its D-day mission required continuing competence.³⁹

Even if we keep the contractor technicians now assigned to us, we are going to have difficulty in solving our problems. If we lose them, the situation which will result is rather apparent. The skills we have will, in great measure, be diverted from "doing" to teaching, and our turnover rate will guarantee a lack of any continuity in training.

It was later learned that Far East Air Forces had secured a waiver allowing it to continue the employment of technical instructors,⁴⁰ and a renewed request for a waiver for ADC met with success. In May, however, the economy wave which struck all elements of the military forced a reconsideration of the technical instructor requirement.⁴¹ As a result, well over a third of the technical instructors had to be released, beginning in July of 1953.⁴² This made the training difficulties of hard-pressed commanders throughout ADC a good deal more perplexing. The problem of where the Command could get instructors to carry on its mammoth OJT program was if anything more insoluble at the end of the period that it was at its outset.

39. Chidlaw to Kuter, 23 Jan 1953 (Doc 139).

40. Interview, Mr. E. Kelly, Special Actions, DCS/Personnel, 25 Jan 1954.

41. ADC Diary, 20 May 1953 (in AGC Library).

42. As in fn 31. 106 Philco and 106 RCA instructors were released, beginning 1 July 1953. This cut the instructor force to two instructors per P-site, one per M-site, and one per fighter squadron.

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In any event, the technical instructor program could only remedy the instructor-deficiency problem in the complicated skill fields such as radar and radio maintenance. There still remained the wide range of skills in other areas -- by far the majority of ADC's strength -- where lack of qualified instructors seriously restricted training.

In addition to an insufficiency of instructors, ADC also found itself with relatively few training materials. USAF, in its original directive outlining the ambitious new OJT requirement, had commented that training materials -- course outlines, manuals, mock-ups, etc. -- would be provided to the Commands by ATRC upon request.⁴³ In practice, however, this did not turn out to be the case. For example, in May of 1953 a group in Michigan asked ATRC for packaged training materials covering about forty skill areas, to include program outlines, examinations, and other instructional material. ATRC could only reply lamely that one packaged course -- Air Operations Specialist, 72150, an obsolete specialty so far as ADC was concerned -- was all that was completed. In the meantime, ATRC commented that all it could provide ADC would be the literature it used in its formal classroom courses.⁴⁴ This material would hardly prove appropriate for unit OJT.

Left with few instructors and very little training materials,

43. As in fn 26.

44. 575th Air Defense Group to 4708th Defense Wing, "Request for On-the-Job Training Program Advisory Service, Class Type 'C'," 11 May 1953, with 4 Inds (Doc 140).

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the Air Defense Command also had an inadequate supervisory structure. At the time that the Air Force placed the huge training requirement upon ADC, it did not even in its own headquarters have an adequately staffed OJT office. Such OJT courses as had been devised were drawn up by the staff section concerned. There was no coordination within the headquarters to insure that the vast OJT program was carried on efficiently, records maintained, course outlines properly prepared, and the myriad other activities connected with a comprehensive training program supervised.⁴⁵

The same inadequacy existed on down through command channels. Through insufficient staffing or unsatisfactory training of supervisory people in Defense Force and lower headquarters, training activities at the unit level were not properly supervised. The unit commander, already overworked, had to prepare his own training materials, course outlines, and lesson plans. Records at all levels were fragmentary and did not reveal sufficient information. Training directives issued by Divisions and Wings were more or less adequate, but in most instances they were not followed up by frequent supervisory visits. Indifference at all levels characterized the program. In the last analysis, the entire OJT program rested or fell upon the aggressive-

⁴⁵. Interview, Mr. M. H. Walker, Directorate of Training, DCS/Personnel, 18 Jan 1954.

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ness or lack of aggressiveness of each individual commander.

The result was not only spotty performance, but wide variation in standards. A clerk-typist considered skilled in one organization might hardly be considered an apprentice in another organization. An advanced supply specialist, just given his AFSC in a prior outfit, might often prove a disappointment to his new commander. On the other hand, a highly competent individual might spend much of his enlistment classified as an apprentice, and therefore ineligible for promotion, because of inadequate records maintenance. Or he might find friends rapidly up-graded and promoted in a nearby unit while his careful supervisor refused to do the same for him. This type of personnel problem was not only hard on the unit, it was hard on each man's morale.

Oftentimes there was little that the unit commander could do about the situation. In addition to lack of instructors, training materials, and supervision, there were inherent obstacles which faced every commander who attempted to meet his training requirement at the same time that he labored to perform his primary mission. In the first place, he usually had barely enough men to carry on normal operations. The experience of one commander in his efforts to carry on the comprehensive CPS-6B OJT program described earlier are

46. See USAF IG, Survey of ADC, Apr-May 1953, for all Defense Forces. In WADF, for example, the inspectors commented:

Course outlines were available in most cases but they were not standardized or supported with detailed lesson plans. The courses were not sufficient for rounded career field progression. Material covered in the courses depended upon the knowledge and qualifications of the instructor. The qualifications of the students varied according to the local proficiency standards.

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instructive:

Considering the number of men to be placed in a class for ... training an allowance has to be made for a sufficient number of men to make up four (4) maintenance crews. In making up the Maintenance Crews a certain number of men from the Radar Maintenance Section will have to be considered for leaves, TDY, sickness or absence for other reasons. Since the Radar is rather complex, it is considered essential that men should not work on the radar equipment alone, and that certain number of mechanics assigned are in the apprentice level. Thus, at least three (3) men should be assigned to each shift. Of all the seventeen (17) mechanics authorized, assigned and present for duty, and one (1) airman assigned as Section Chief, there are four (4) men available for full time ... training. However, due to the above mentioned factors, it is most practical to assign two (2) or three (3) men to the training. At times, section strength dropped below authorized level and as most frequently required by squadron operations commitments, the students had to supplement the regular maintenance crews.

These men were at least basically trained, however, and received regular classroom instruction at the unit. The case of men coming to the organization untrained in any skill was even more serious. These men were forced to spend months learning their specialties. In some highly technical fields it took over a year to train a man to the apprentice level. No man doomed to being an airman third class for over a year, and equally slow promotion to the next higher grades, could find it easy to remain dedicated in his work, especially when his friends in easier skills were shooting up through the ranks.

47. 2d Ind, 27th Air Division to WADF, 5 May 1953, to ADC to WADF, "AN/CP8-6B OJT Program," 8 Apr 1953, with 3 Inds (Doc 141). See also 27th Air Division to ADC, "Report of AN/FPS-10 OJT Training from 1 January to 31 March 1953," 14 Apr 1953 (Doc 142).

48. ADC to Dir of Training, USAF, "Comparative Formal School and OJT Training Lengths," 3 Mar 1953 (Doc 143).

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Furthermore, helpers and apprentices were a dead weight to the units, and could give the Air Force a relatively short period of their enlistment at full competence.

Many sections in a small unit, furthermore, had only very few men in them to perform heavy workloads. The time that could be given to instruction had to be cut to a bare minimum. As Air Force inspectors found, few men could be trained in all the aspects of their skill listed in their AFSC description. There wasn't time enough, their supervisors weren't skilled enough, or there wasn't the opportunity.⁴⁹ Over-specialization often resulted from unit training. A clerk-typist, whose AFSC stated that he was skilled in a wide variety of clerical activities, might be trained only in maintaining the morning report, or in the maintenance of service records. A man trained in the maintenance of a particular type of radar equipment could never gain proficiency on any other than the equipment possessed by his unit. Listed on Command records as a skilled radar maintenance specialist, he would very often be transferred to an overseas unit using a completely different type of equipment.

The Command was also faced with the increasing problem of untrainables. The Air Force was forced to enlist more and more men of such low mentality that they could not qualify for Training Command schools. Approximately one-third of Air Force enlistees

49. As in fn 40.

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would eventually be in this bracket.⁵⁰ These men required proportionately more of their supervisors' time, and would be unable to pass their skill on to successors.

From many standpoints, then, OJT in an operating command could never fill the gap left by Training Command's inability to meet the Air Force's requirements. There were not enough competent instructors, standardised training materials were not available, supervision was inadequate, and at the operating level -- where the training had to be carried on -- there were so many other demands upon the commander's time and that of his men that they could give but little of their time to training.

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50. DCS/Personnel, USAF, to ADC, "On-the-Job Training," 5 Mar 1953 (Doc 135), as in fn 26.

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APPENDICES

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PERMANENT RADAR PROGRAM: 15 July 1953
(Primary Equipment)

EASTERN AIR DEFENSE FORCE

Air Division	Squadron	Site Number	Site	Search Radar* Installed	Height Finder* Installed	Height Finder** Programmed
32d		5	Syracuse, New York	(Headquarters, 32d Air Division)		
	762	10	North Truro, Mass.	CPS-6B	CPS-6B	CPS-6B
	654	13	Brunswick NAS, Maine	CPS-6B	CPS-6B	CPS-6B
	764	14	Bellevue Hill, Vt.	CPS-6B	CPS-6B	CPS-6B
	763	21	Shawnee, New York	CPS-6B	CPS-6B	CPS-6B
	655	49	Watertown, New York	FPS-3	FPS-5	FPS-4
	656	50	Schuylerville, New York	FPS-3	FPS-5	FPS-6
	765	65	Charleston, Maine	FPS-3	FPS-5	FPS-6
	766	80	Caswell, Maine	FPS-10	FPS-10	FPS-10
26th		3	Roslyn, New York	(Headquarters, 26th Air Division)		
	646	9	Navesink, New Jersey	CPS-6B	CPS-6B	CPS-6B
	648	30	Ricketts Glen Springs, Pa.	CPS-6B	CPS-6B	CPS-6B
	773	45	Camp Hero, New York	FPS-3	FPS-5	FPS-6

*Source: ADC Command Data Book, July 1953, pp. 1.7-1.8 (in HRF 905)
 **Source: ADC Program, 1 Oct 1953, pp. 41-43 (in HRF 931).

Appendix I

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Air Division	Squadron	Site Number	Site	Search Radar Installed	Height Finder Installed	Height Finder Programmed
26th	770	54	Palermo, New Jersey	FPS-3	FPS-4	FPS-6
	647	55	Manassas, Virginia	FPS-3	CPS-4	FPS-6
	771	56	Ft. Custis, Virginia	FPS-3	CPS-4	FPS-6
	772	63	Blue Knob, Pennsylvania	FPS-3	CPS-4	FPS-6
30th		23	Willow Run, Michigan	(Headquarters, 30th Air Division)		
	665	16	Keweenaw, Michigan	FPS-3	FPS-5	FPS-6
	676	19	Antigo, Wisconsin	FPS-3	FPS-4	FPS-4
	661	20	Selfridge AFB, Michigan	CPS-6B	CPS-6B	CPS-6B
		31	Elkhorn, Wisconsin	CPS-6B	CPS-6B	CPS-6B
	752	34	Empire, Michigan	CPS-6B	CPS-6B	CPS-6B
	783	43	Guthrie, West Virginia	FPS-3	FPS-4	FPS-4
	782	53	Rockville, Indiana	FPS-10	FPS-10	FPS-10
	754	61	Port Austin, Michigan	FPS-3	CPS-4	FPS-6
	662	62	Brookfield, Ohio	FPS-3	FPS-5	FPS-6
	753	66	Sault Ste Marie, Michigan	FPS-3	FPS-5	FPS-6
	781	67	Ft. Custer, Michigan	FPS-3	—	FPS-6
	664	73	Bellefontaine, Ohio	FPS-3	—	FPS-6
	784	82	Goodman AFB, Kentucky	FPS-3	FPS-4	FPS-4

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CENTRAL AIR DEFENSE FORCE

Air Division	Squadron	Site Number	Site	Search Radar Installed	Height Finder Installed	Height Finder Programmed
29th		83	Great Falls, Montana	(Headquarters, 29th Air Division)		
	681	24	Cutbank, Montana	FPS-3	FPS-4	FPS-4
	778	25	Simpson, Montana	FPS-3	—	FPS-4
	779	26	Opheim, Montana	FPS-3	—	FPS-4
	780	27	Fortuna, North Dakota	FPS-3	—	FPS-4
	786	28	Velva, North Dakota	FPS-3	—	FPS-4
	785	29	Finley, North Dakota	FPS-3	FPS-4	FPS-4
31st		36	Fort Snelling, Minnesota	(Headquarters, 31st Air Division)		
	739	17	Leaf River, Minnesota	FPS-3	FPS-4	FPS-6
	787	18	Moulton, Minnesota	FPS-3	FPS-4	FPS-4
	674	35	Osceola, Wisconsin	CPS-6B	CPS-6B	CPS-6B
	756	69	Finland, Minnesota	FPS-3	FPS-5	FPS-6
	789	71	Omaha, Nebraska	FPS-3	—	FPS-6
	788	81	Waverly, Iowa	FPS-10	FPS-10	FPS-10
	791	85	Hanna City, Illinois	FPS-3	—	FPS-4

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Air Division	Squadron	Site Number	Site	Search Radar Installed	Height Finder Installed	Height Finder Programmed
33d		86	Tinker AFB, Oklahoma	(Headquarters, 33d Air Division)		
	793	47	Hutchinson NAS, Kansas	FPS-10	FPS-10	FPS-10
	746	52	Tinker AFB, Oklahoma	FPS-10	FPS-10	FPS-10
	790	64	Kirksville, Missouri	FPS-10	FPS-10	FPS-10
	797	68	Fordland, Missouri	FPS-3		FPS-4
	798	70	Belleville, Illinois	FPS-3		FPS-4
	738	72	Olathe NAS, Kansas	FPS-3	CPS-4	FPS-4
	741	75	Lackland AFB, Texas	FPS-3		FPS-4
	796	77	Bartlesville, Oklahoma	FPS-10	FPS-10	FPS-10
	747	79	Ellington AFB, Texas	FPS-10	FPS-10	FPS-10
	745	78	Duncanville, Texas	FPS-10	FPS-10	FPS-10
34th		41	Kirtland AFB, New Mexico	(Headquarters, 34th Air Division)		
	769	7	Gonzales, New Mexico	FPS-3	FPS-5	FPS-5
	767	8	El Vado, New Mexico	FPS-3	FPS-5	FPS-6
	768	51	Moriarty, New Mexico	FPS-3	FPS-5	FPS-5
35th			Dobbins AFB, Georgia	(Headquarters, 35th Air Division)		
	663	42	Cross Mt, Tennessee	FPS-10	FPS-10	FPS-10

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WESTERN AIR DEFENSE FORCE

Air Division	Squadron	Site Number	Site	Search Radar Installed	Height Finder Installed	Height Finder Programmed
25th		4	McChord AFB, Washington	(Headquarters, 25th Air Division)		
	635	1	McChord AFB, Washington	CPS-6B	CPS-6B	CPS-6B
	638	6	Mt. Bonaparte, Washington	FPS-3	FPS-5	FPS-5
	680	11	Yaak, Montana	FPS-3		FPS-4
	761	12	Reedsport, Oregon	FPS-3		FPS-4
	636	32	Condon, Oregon	FPS-3	FPS-4	FPS-4
	637	40	Saddle Mt., Washington	FPS-3	FPS-5	FPS-6
	758	44	Bohokus Peak, Washington	FPS-3	CPS-4	FPS-6
	757	46	Birch Bay, Washington	FPS-10	FPS-10	FPS-10
	759	57	Naselle, Washington	FPS-3	FPS-5	FPS-6
	760	60	Colville, Washington	FPS-3	FPS-5	FPS-6
27th		84	Norton AFB, California	(Headquarters, 27th Air Division)		
	669	15	Santa Rosa Isle, California	FPS-10	FPS-10	FPS-10
	670	39	San Clemente Isle, California	FPS-3	FPS-4	FPS-6
	750	59	Atolia, California	FPS-10	FPS-10	FPS-10
	751	76	Mt. Laguna, California	FPS-3	CPS-4	FPS-6

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Air Division	Squadron	Site Number	Site	Search Radar Installed	Height Finder Installed	Height Finder Programmed
28th		48	Hamilton AFB, California	(Headquarters, 28th Air Division)		
	775	2	Cambria, California	FPS-3	CPS-4	FPS-6
	777	33	Klamath, California	FPS-3	FPS-4	FPS-4
	776	37	Point Arena, California	FPS-3	FPS-4	FPS-6
	666	38	Mt. Tamalpais, California	CPS-6B	CPS-6B	CPS-6B
	668	58	Mather AFB, California	CPS-6B	CPS-6B	CPS-6B
	774	74	Madera, California	FPS-3	FPS-4	FPS-4

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SECRETAppendix II**FIRE CONTROL SYSTEMS***

The Fire Control System E-1 is an interim fixed-gun fire control system for two place F-39A interceptor aircraft. It consists of Gun-Bomb-Rocket-Sight A-1B or A-1C, Radar Set AN/APG-33, and the complete nose section of the aircraft. It is designed for all-weather air-to-air combat, but can also be used for air-to-ground operations.

The operation of Fire Control System E-1 requires a radar operator and a pilot. Two modes of operation are possible; one uses optical tracking, and the other radar tracking. Figure 1 is a simplified control data flow diagram of the system showing the essential data inputs and generated data.

Under conditions of good visibility, the target acquisition and tracking is performed by the pilot, using optics. After selection of a target, the pilot flies the aircraft so as to maintain the optical tracking index in coincidence with the target. When stable flight has been established for a few seconds, the guns can be fired as soon as the target is within range. With optical tracking the sight may employ either automatic radar ranging or manual stadiametric ranging.

Under conditions of poor visibility, radar tracking is used with Fire Control System E-1. Both the pilot and the radar operator are provided with radar displays. The radar operator performs the function of target selection and acquisition. During radar search the pilot's indicator presents an artificial horizon. Following target acquisition the pilot's indicator displays an artificial horizon, a tracking index in the form of a circle and a dot, and a range circle of variable diameter. Closing rate is displayed by the position of a break in this range circle. The pilot flies the aircraft so as to maintain the tracking index centered on the tube. When closing with the target, the diameter of the range circle begins to decrease at the open-fire range of 2000 yards. When the range has decreased to 200 yards the range circle shrinks to the size of the tracking index circle. This is the signal to break off the attack.

The system is limited by the fact that no provision is made for beacon navigation. Range is limited by the low-power magnetron. Gun-Bomb-Rocket-Sight A-1 permits attack on lead-pursuit only. Radar ground clutter precludes blind firing on low-level attacks.

The Fire Control System E-3 is an interim air-to-air rocket fire control system employing a lead-collision course attack for the F-86D aircraft. Its major components include Straight-Line-Approach Computer AN/APA-84 () and Radar Set AN/APG-36 (ZA-1). It requires only the pilot for operation. Figure 2 is a simplified control data

*Source: ADC Communications and Electronics Digest, Apr 1951 (in HRF 911)

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flow diagram showing the essential data inputs and generated data.

The attack course followed, using Fire Control System E-3 is the lead-collision type. It differs from the lead-pursuit attack courses is that the interceptor aircraft flies a straight-line-attack course, approaching the target from the side. For this type of attack firing is confined to a very short time interval. Since the computer can make no corrections for changes in angle of elevation, the pitch angle of the interceptor aircraft must be controlled accurately to score a hit.

It is planned to vector interceptor aircraft into the best position to begin a collision course attack by means of a ground-controlled-interception station. When in position, the interceptor aircraft locates the target with its search radar.

Following target acquisition, the radar set automatically tracks the target and supplies data to the computer. The computer supplies steering information to the pilot in the form of a tracking index dot and a reference circle superimposed on the Radar B scope presentation. The radar display also includes a time-to-go circle, closing rate data, an artificial horizon, and a ball-bank indication.

At 20 seconds to go the time-to-go circle begins to decrease in size. At 15 seconds to go the reference circle diminishes from its original size to a small circle approximately $\frac{1}{4}$ inch in diameter. The pilot steers the interceptor aircraft to maintain the tracking index dot within the reference circle at all times. At six seconds to go the reference circle flattens out and becomes a horizontal line. The pilot maintains the tracking index dot on this line to effect precise steering in elevation, and holds his wings as level as possible, using the artificial horizon. The rocket pod is automatically lowered and the rockets fired in spaced salvos. A signal informs the pilot when firing has been completed, and he executes a maximum acceleration pull-out to pass astern of the target.

If the target takes evasive action so as to place the interceptor on nose or tail attack, the reference circle does not collapse into a straight line. The attack is made, keeping the tracking index dot in the reference circle. The rockets are fired automatically at a range preset into the computer.

The Fire Control System E-3 is limited also by having no provision for beacon navigation. Range is limited by low-power magnetron. Radar ground clutter precludes low-level attacks. There is no provision made for optical tracking.

The Fire Control System E-4 is being developed to replace the E-3 System. The major components of this equipment include Straight-Line-Approach Computer AN/APA-84 () and Radar Set AN/APG-37 (XA-1).

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The substitution of the AN/APG-37 (XA-1) for the AN/APG-36 (XA-1) is the only difference between the E-3 and E-4 system. The improvements include: increased radar range; anti-jamming circuits, beacon navigation; high intensity radar presentation for daylight viewing, and stabilized search pattern. The only limitation is that radar ground clutter precludes low-level attacks. Figure 3 is a simplified control data flow diagram of Fire Control System E-4 showing the essential data inputs and generated data.

In order to provide an air-to-air rocket fire control system for the two place interceptor aircraft F-94C, the E-5 Fire Control System is being developed. This system employs a lead-collision course attack. The major components include a Straight-Line-Approach Computer and Radar Set AN/APG-40 (). Figure 4 is a simplified control data flow diagram of the E-5 System showing the essential data inputs and generated data.

It is essentially the same system as the E-3 and E-4 Systems except that it is adapted for two man operation by means of the Radar Set AN/APG-40 (). It also requires a modified computer for closed-tube rocket firing. It is necessary also to vectro the interceptor aircraft into the best position for a lead-collision course attack by means of ground controlled interception stations. Radar search and target acquisition are performed by the radar operator.

The action during attack is the same as for the E-3 and the E-4 System. It offers the advantage of allowing the pilot to devote his attention to the altitude of the plane without having to search for the target. Its only limitation like that of the E-4 System is that ground clutter precludes low-level attacks.

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SECRETAppendix IIIUNIT CHANGES: INTERCEPTOR FORCE
January - June 1953

UNITS MOVED OVERSEAS DURING PERIOD:

<u>Squadron</u>	<u>Base</u>	<u>Type A/C</u>	<u>Date of Movement</u>
45th Sq	Suffolk	F-86F	25 May 1953
431st Sq	Selfridge	F-86F	22 Jun 1953
82nd Sq	Larson	F-94B	Mar 1953
357th Sq	Portland	F-86F	25 May 1953
318th Sq	McChord	F-94A	20 Jun 1953
61st Sq	Selfridge	F-94B	10 Jul 1953

UNITS ACTIVATED AND ASSIGNED DURING PERIOD:

<u>Squadron</u>	<u>Base</u>	<u>Date of Activation</u>
42nd Sq	O'Hare	18 Feb 1953*
438th Sq	Kinross	20 Apr 1953
13th Sq	Selfridge	27 Apr 1953
331st Sq	Suffolk	18 Feb 1953
332nd Sq	New Castle	27 Mar 1953
57th Sq	Presque Isle	27 Mar 1953
15th Sq	Davis-Monthan	18 Apr 1953
496th Sq	Hamilton	20 Mar 1953
325th Sq	Travis	20 Apr 1953
31st Sq	Larson	20 Apr 1953
440th Sq	Geiger	18 Feb 1953
445th Sq	Geiger	20 Mar 1953
465th Sq	McChord	18 Feb 1953
497th Sq	Portland	18 Feb 1953

* DAF 322 (AFOMO 377h), DAF to ADC, "Reconstitution and/or Redesignation and Activation of the 331st Fighter Squadron, TE, and Certain Other USAF Units," 5 Mar 1953 (in AGF (u) 322)

** DAF 322 (AFOMO 335h), DAF to ADC, "Reconstitution and Activation of the 13th Fighter Squadron; Reconstitution, Redesignation, Activation, and Reorganization of Certain Other USAF Units," 11 Feb 1953 (in AGF (u) 322)

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ADC FIGHTER INTERCEPTOR FORCE: June 1953EASTERN AIR DEFENSE FORCE

<u>Air Division</u>	<u>Sqdn</u>	<u>Base</u>	<u>Base Assignment</u>	<u>Type of A/C Possessed in January 1953</u>	<u>Aircraft Possessed June 1953*</u>		
					<u>Type</u>	<u>O/R</u>	<u>C/R</u>
32d	60th	Westover AFB, Mass.	MATS	F-86E	F-86E	6	6
					F-86D	12	0
	47th	Niagara Falls Municipal Arpt, N. Y.	ADC	F-47	F-47	7	6
					F-86F	24	12
	58th	Otis AFB, Mass.	ADC	F-94B	F-94B	1	0
					F-94C	13	7
	437th	Otis AFB, Mass.	ADC	F-94C	F-94C	12	5
	27th	Griffiss AFB, N. Y.	ARDC	F-86A	F-86A	20	19
	49th	Dow AFB, Me.	SAC	F-80C	F-86F	17	14
37th		Burlington Municipal Arpt, Vt.	ADC	F-51D	F-51	24	16
					F-86A	2	2
	74th	Presque Isle AFB, Me.	ADC	F-94B	F-94B	6	3
57th					F-89C	13	9
		Presque Isle AFB, Me.	ADC	(A)	F-89C	6	5

*Source: Aircraft and Crew Status in Tactical Units and Armament Report -- RCS: 2-AF-D4 (ADC-1), as of 29 June 1953.

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Appendix IV

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Air Division	Sgdn	Base	Base Assignment	Type of A/C Possessed in January 1953	Aircraft Possessed June 1953*		
					Type	O/H	C/R
26th	330th	Stewart AFB, N.Y.	ADC	F-80C	F-80C	15	8
	75th	Suffolk Co. AFB, N.Y.	ADC	F-86A	F-86A	26	20
	331st	Suffolk Co. AFB, N.Y.	ADC	(A)	F-51D	5	4
					F-86D	10	4
	2d	McGuire AFB, N. J.	ADC	F-94A	F-84G	18	8
	5th	McGuire AFB, N. J.	ADC	F-94A	F-94A	12	10
	46th	Dover AFB, Del.	MATS	F-94B	F-94B	6	4
					F-94C	13	1
	48th	Langley AFB, Va.	TAC	F-47	F-84G	25	15
	95th	Andrews AFB, Md.	MATS	F-94B	F-51	6	5
30th					F-86D	13	3
	96th	New Castle Co. Arpt, Del.	ADC	F-94B	F-94B	13	10
					F-94C	8	8
	332d	New Castle Co. Arpt, Del.	ADC	(A)	F-94C	13	0
	97th	Wright-Patterson AFB, Ohio	AMC	F-86E	F-86E	10	5
					F-86D	13	3
					F-86F	2	1

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<u>Air Division</u>	<u>Sqdn</u>	<u>Base</u>	<u>Base Assignment</u>	<u>Type of A/C Possessed in January 1953</u>	<u>Aircraft Possessed June 1953*</u>		
					<u>Type</u>	<u>O/H</u>	<u>C/R</u>
30th (Contd)	42d	O'Hare Intl Arpt, Ill.	ADC	(A)	F-51	6	2
					F-86D	14	0
	62d	O'Hare Intl Arpt, Ill.	ADC	F-86A	F-86A	10	4
					F-86D	12	0
	432d	Truax Fld, Wisc.	ADC	F-86F	F-86F	14	10
					F-86D	12	8
	433d	Truax AFB, Wisc.	ADC	F-94B	F-94B	5	4
					F-89C	12	6
	438th	Kinross AFB, Mich.	ADC	(A)	—	—	—
	71st	Greater Pittsburgh Arpt, Penn.	ADC	F-86A	F-86A	11	8
					F-86D	13	6
	86th	Youngstown Municipal Arpt, Ohio	ADC	F-84C	F-84G	18	17
					F-84B	1	1
	63d	Wurtsmith AFB, Mich.	ADC	F-86F	F-86F	23	17
	56th	Selfridge AFB, Mich.	ADC	F-86F	F-86F	18	14
	13th	Selfridge AFB, Mich.	ADC	(A)	—	—	—

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CENTRAL AIR DEFENSE FORCE

Air Division	Squadron	Base	Base Assignment	Type of A/C Possessed in January 1953	Aircraft Possessed June 1953*		
					Type	O/H	C/R
29th	54th	Rapid City AFB, S. D.	SAC	F-51D	F-84G	12	9
					F-84D	3	3
31st	18th	Minn-St Paul Intl Arpt, Minn.	ADC	F-51D	F-51	25	23
					F-86F	4	3
	11th	Duluth Municipal Arpt, Minn.	ADC	F-51D	F-51	23	20
	87th	Sioux City Municipal Arpt, Iowa	ADC	F-51D	F-51	28	25
33d	85th	Scott AFB, Ill.	ARTC	F-51D	F-51	27	19
34th	93d	Kirtland AFB, N.M.	ARDC	F-86A	F-86A	17	12
	15th	Davis-Monthan AFB, N.M.	SAC	(A)	F-86A	3	2
35th	469th	McGhee-Tyson Arpt, Tenn.	ADC	F-47	F-47	10	7
					F-86A	15	0

WESTERN AIR DEFENSE FORCE

25th	31st	Larson AFB, Wash.	TAC	(A)			
	323d	Larson AFB, Wash.	TAC	F-86D	F-51	6	5
					F-86D	14	2

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Air Division	Sqdn	Base	Base Assignment	Type of A/C Possessed in January 1953	Aircraft Possessed June 1953*		
					Type	O/H	C/R
25th (Contd)	440th	Geiger Fld, Wash.	ADC	(A)	F-51	4	0
					F-86D	3	0
	445th	Geiger Fld, Wash.	ADC	(A)	—	—	—
	497th	Portland Intl Arpt, Ore.	ADC	(A)	F-94B	7	5
	83d	Paine AFB, Wash.	ADC	F-84G	F-84G	24	20
	317th	McChord AFB, Wash.	ADC	F-94A	F-94A	9	8
27th	465th	McChord AFB, Wash.	ADC	(A)	F-51	2	0
					F-86D	13	11
	94th	George AFB, Calif.	TAC	F-86A	F-86A	6	5
					F-86D	14	3
	354th	Oxnard AFB, Calif.	ADC	F-51	F-51	11	6
					F-94C	13	0
28th	84th	Hamilton AFB, Calif.	ADC	F-86F	F-86F	1	0
					F-89B	1	0
					F-94B	12	5
	496th	Hamilton AFB, Calif.	ADC	(A)	F-51	6	4
	325th	Travis AFB, Calif.	SAC	(A)	F-86E	15	10

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SECRETAppendix V**THE F-86D***

In previous articles on new Air Defense interceptors we have been describing a two man (Pilot and Radar Observer) jet aircraft capable of operating around the clock. We now have a "new breed of cat", as it were, entering the field of interceptor work. The F-86D is a single man (Pilot) interceptor equipped to do air defense around the clock, regardless of weather conditions. This has been and will continue to be a highly controversial weapon throughout Air Force circles until such time as it has been in service and has proven itself. Many of the people with previous "night fighter" experience maintain that a pilot is unable to do the job of radar search, lock-on and tracking in addition to his normal flying of the aircraft. The people on the other side of the argument voice a consensus that with suitable equipment to relieve the pilot of primary flying such as a good auto-pilot, the pilot then can revert to the status of a radar observer for the search phase. In addition, automatic tracking after lock-on allows the pilot to fly the final attack portion of his mission to successfully obtain a "kill". This controversial question will be decided only after extensive testing and field application.

The F-86D is a low wing, 35° swept wing aircraft very similar in configuration to the present F-86A Sabre with one exception. The nose of the aircraft is a streamlined radome, 30 inches in diameter where it connects to the fuselage. Below the radome and slightly aft is the large intake duct for the engine. This makes the nose look very similar to the World War II P-40.

The aircraft has a wing span of slightly over 37 feet, a length of 41 feet and the take-off weight for the air defense mission is slightly in excess of 16,000 pounds.

Power for the F-86D is a General Electric J-47-17 axial flow turbo-jet engine incorporating an afterburner for augmented thrust during take-off, climb, and combat. Thrust with afterburner is 7630 pounds, without afterburner 5670 pounds. To alleviate engine icing the nose section of the engine is heated and the screens are retractable after take-off. The engine is mounted in the aft section of the fuselage and access for major maintenance is accomplished by removing the fuselage aft of the trailing edge of the wing. A new electronic power control is used to keep the engine and afterburner operating at optimum efficiency.

Two speed brakes are hinged one on each side of the fuselage just forward of the tail and open outward into the slipstream similar to the F-86A, affording good speed control.

* Written by Maj Rodewald, Requirements Division, ADC, and included in ADC Communications and Electronics Digest, July 1951 (in HRF 911)

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Anti-icing is accomplished by bleeding hot air from one of the engine compressor stages, passing it through a regulator and then through ducting to the wings, tail and engine intake duct lips on the nose. During extreme icing conditions, when the maximum is required from the anti-icing system, this will sap a small amount of power from the engine, however, the regulator is so designed that no more bleed air than is necessary will be taken from the engine compressor, thereby eliminating unnecessary power loss. An additional problem is presented in the fact that the wing leading edges are equipped with slats. These are anti-iced by passing the air through holes in the leading edge of the wing. During the short time that the slats are extended, however, they will not be de-iced. This is such a short part of the flight, i.e., take-off and final approach, that it is not considered necessary to have them hot, as the slats will anti-ice as soon as they start to retract.

To allow the pilot extra freedom from normal flying a Lear F-5 automatic pilot has been installed in the F-86D. In addition to straight and level flight by auto-pilot, the human pilot can fly the aircraft through normal mission maneuvers by using the auto-pilot control. Later models of the F-86Ds will incorporate an automatic approach coupler which will enable the pilot to make fully automatic approach for landing.

Controls on the F-86D are all powered and irreversible to give more capability of control in the transonic speed range. The control for pitch, previously referred to on aircraft as an elevator, is now combined with the horizontal stabilizer, and the whole horizontal tail surface moves as one piece when the control in the cockpit is moved by the pilot. Artificial "feel" is incorporated to give the human pilot the proper sensing for flight.

A zero reader is used for more accurate manual blind flight as is the addition of a new attitude gyro, known as the Lear VGI or B-1 Indicator. This instrument has a presentation more easily ready because it is a five inch instrument. It is a remoted instrument, and has turn error eliminated which has in the past been a bad moral factor of the old attitude gyros.

The pilot is housed under a power operated canopy and has an ejection seat to aid him in escaping from the aircraft if he should have trouble or battle damage beyond safe flight.

Communications equipment at present consists of the AN/ARC-3 for VHF command communications. This is to be replaced by UHF equipment as it becomes available. Due to the Air Training Command receiving the initial quota of F-86Ds, it is quite possible that all Air Defense Command aircraft will be received with UHF equipment already installed. Standard Mark X equipment will be installed in all aircraft and ILS receivers will be installed for the purpose of receiving signals for the Zero Reader and the Automatic Pilot.

The F-86D will add another new phase to the air defense picture

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in that it will be the first interceptor totally dependent upon air-to-air rockets for armament. It will carry 24, 2.75 inch Folding Fin Aircraft Rockets in a retractable pod in the belly of the fuselage directly below the cockpit. The rockets are arranged in two rows of 12. The pod is hydraulically operated, electrically actuated by the fire control system and the complete cycle, i.e., extend, fire and retract takes one to two seconds, depending upon the selection of the number of rockets to be fired. The pilot can choose to fire six, twelve, eighteen, or twenty-four rockets. The rocket pod is quickly detachable for maintenance and re-arming. Re-arming can be accomplished by sliding the rockets into the launching pod while on the aircraft, or a spare loaded pod can be used to replace the empty pod in a few seconds.

This seems to be a good time in our series of articles to digress a moment and briefly explain the rocket. Subsequent articles will cover aircraft which will also depend on the 2.75" FFAR for armament lethality. The subject rocket has a diameter of 2.75"; an over-all length of 48.3 inches, and a total weight of 18.5 pounds. The rocket consists of three main components: war-head, motor, and tail. The war-head weighs 15.5 pounds, contains 1.4 pounds of explosive charge, and has a point detonating fuse. The motor is a light weight cylindrical case containing the solid propellant in a cylindrical form. The propellant has a hole through the center the entire length of the motor where burning begins. This burning from the center allows the propellant mass to absorb some of the gas pressures; thereby allowing a much lighter case than the old World War II rockets. The tail consists of four fins which are extended into the slipstream after being launched. The fins are forced open by a piston which insures opening and subsequent accurate flight. The rocket has a velocity at the end of burning of 2500 feet per second, as compared to World War II rockets of 1600-1700 feet per second. Flight test data shows the rocket to have very good mil error.

The first 37 F-86Ds will have AN/APG 36 airborne intercept radar and the E-3 fire control system. Subsequent F-86Ds will have the AN/APG 37 radar and the E-4 fire control system. Both radars and fire control systems are built by Hughes Aircraft, Inc., Culver City, California.

As the Air Training Command is receiving the initial quota of F-86Ds, it is not felt necessary to go into the AN/APG-36 radar and the E-3 fire Control System in this article.

The AN/APG-37 radar has a peak output of 250 KW, which is expected to give a search range of 55,000 yards. The pilot may select azimuth search as follows: plus or minus 70 degrees, plus or minus 40 degrees, plus 70 degrees minus 10 degrees and minus 70 degrees plus 10 degrees.

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In elevation the pilot may select plus or minus 12.5 degrees coverage; about either 12 degrees up, 12 degrees down or zero. The radar will incorporate a tunable magnetron.

The F-86D, being a single-man interceptor, must have a scope incorporating different types of display. The scope size is 5" in diameter, thereby allowing the pilot better resolution for his job. On search, antenna scan is automatic. Potential targets appear on the scope as bright spots. On the search phase, each spot on the scope shows the azimuth and the range of the corresponding targets. When the pilot decides which target he will attack, he turns the aircraft in that direction and begins manual control of the radar antenna. The pilot presses the action switch on the hand control of the radar, which will be just aft of the throttle in the F-86D, at which time the radar stops automatic scanning. Using the manual control, the pilot moves the antenna to the selected target. The range in-out control is actuated to bring the range gate within the proximity of the target pip. When this is completed, the action switch is released and the radar continues to track the selected target automatically.

* * *

Upon completion of the lock-on, the attack display appears on the scope and the attack phase is begun. During lock-on, all radar information is fully automatic, and the pilot can therefore devote his full attention to flying the airplane and accurately tracking the target.

* * *

The pilot has, on the attack presentation, a time circle, a range gate indication, a steering dot, a range closure rate in knots, a reference circle, and an artificial horizon, which permits him to fly instruments without taking his eyes off the scope. It will be noted that during Phase 1 of the attack phase, the time circle remains constant. In Phase 2 of the attack phase, the time circle begins to shrink in size, indicating the time left to impact. Also, in Phase 2, the reference circle shrinks to a smaller size, thereby requiring the pilot to track the target more accurately than he did in Phase 1. During Phase 3, where the time to impact is less than $4\frac{1}{2}$ seconds, the reference circle flattens to a short straight line, which means that the pilot has only to worry about elevation tracking for accuracy. This does not mean that the pilot can be sloppy in tracking; however, the time is so short and with the computer figuring firing time, slight azimuth variations are accounted for by the computed firing time. This is not true of vertical error, as the pilot must continue to track correctly in elevation. Just prior to the firing time, as computed by the computer, the rocket pod is extended ready for firing. At this point in the game, a little gremlin enters the picture. Most of you have heard of gremlins as being obnoxious people, however, this one happens to be on the pilot's team. At such time as the rocket package is extended into the slip stream, the gremlin makes a slight correction in the controls to offset the change of flight characteristics of the aircraft so that the pilot

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does not have to retrim the aircraft on his attack phase. At such time as the computer has figured it's time to fire the rockets (number depending upon pilot's selection), they are fired automatically by the fire control system. The only thing that the pilot must do is to hold down the master firing switch, which does not fire the rockets, but completes the circuit so that the fire control system is capable of firing them. After the rockets are fired, a light appears on the pilot's panel indicating that it's time for the pilot to change his flight path to keep from ramming the enemy bomber or debris.

* * *

Performance:

Start and Taxi	2.0 min
Take-off and accelerate to best climb speed	1.5 min
Sea level to 45,000 feet	5.6 min
Scramble to 45,000 feet	9.1 min

Distance traveled in climb with afterburner and no external fuel:

Take-off and accelerate	8 miles
10,000 feet	14 miles
20,000 feet	21 miles
30,000 feet	30 miles
40,000 feet	45 miles
45,000 feet	59 miles

Combat radius using 5 minute combat time:

10,000 feet	110 Nautical Miles
20,000 feet	160 Nautical Miles
30,000 feet	220 Nautical Miles
40,000 feet	290 Nautical Miles
45,000 feet	320 Nautical Miles

Conditions for above radius figures:**SECRET**

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1560 lb. external fuel

2 min Start and Taxi

Take-off and climb to combat altitude with afterburner

Fly out at combat altitude without afterburner

Combat with afterburner

Reserve, 10% of total fuel load

All above specific fuel consumptions increased by 5%

Ferry range:

798 Nautical Miles - External Tanks Required

926 Nautical Miles - External Tanks Dropped

Limit Load Factor:

5.87 G's up to 12,000 feet altitude

Under close control with afterburner take-off, climb, and 5-min. combat, the F-86D can then loiter for endurance for 62 minutes.

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SECRETAppendix VI

FIGHTER INTERCEPTOR AIRCRAFT SUMMARY*
29 June 1953

	Type	On Hand	Combat Ready
ALL WEATHER	F-86D	143	40
	F-94C	72	21
	F-89C	31	20
	F-89D	1	0
	F-94A	21	18
	F-94B	50	31
TOTAL ALL-WEATHER:			<u>318</u> O/H; <u>130</u> C/R
DAY JET	F-86F	103	71
	F-86E	31	21
	F-86A	110	72
	F-84G	97	69
	F-84D	3	3
	F-84B	1	1
	F-80C	15	8
TOTAL DAY-JET:			<u>360</u> O/H; <u>245</u> C/R
CONVENTIONAL	F-51	173	129
	F-47	17	13
TOTAL CONVENTIONAL:			<u>190</u> O/H; <u>142</u> C/R
TOTAL FIGHTER INTERCEPTORS:			<u><u>868</u></u> O/H; <u><u>517</u></u> C/R

* Source: Aircraft and Crew Status in Tactical Units and Armament Report, RCS: 2-AF-D4 (ADC-1), as of 29 June 1953

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SECRETAppendix VII**AIRCREWS***Assigned and On Hand
June 1953

Total Primary Mission Aircrews Assigned	1333
Total Primary Mission Aircrews On Hand	778**
Total Assigned Aircrews Not On Hand	555

Reasons for Absences of Crews

Leave	49
Sick	20
TDY Cross Country or Ferry	69
Gunnery School	37
Other AF Schools	169
Other Service Schools	13
In Transition Status	130
In Other Status	68

* Source: Air Defense Command, Command Data Book, July 1953, p. 3.11, copies of which are available in both the USAF Historical Division and Headquarters, ADC Directorate of Historical Services.

** There were 22 aircrews attached, which bolstered the On Hand at the end of June 1953 aircrew figure to 800.

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SECRETAppendix VIII

ADC's PLAN FOR EMERGENCY DEPLOYMENT
OF MAJOR USAF COMMAND FORCES
ALLOCATED TO AIR DEFENSE - JULY 1953

	<u>No. & Type A/C</u>	<u>Home Base</u>	<u>Deployment Base</u>
<u>SAC</u>	12 F-84G	Bergstrom AFB, Texas	Bergstrom AFB
	12 F-84G	Bergstrom AFB	Offutt AFB, Neb.
	12 F-84G	Bergstrom AFB	Smoky Hill AFB, Kan.
	16 F-84G	Bergstrom AFB	Walker AFB, New Mex.
	16 F-84G	Turner AFB, Ga.	Lockbourne AFB, Ohio
	12 F-84G	Turner AFB	Hunter AFB, Ga.
	12 F-84G	Turner AFB	Turner AFB
<u>ATRC</u>	12 F-86	Nellis AFB, Nev.	George AFB, Calif.
	16 F-86	Nellis AFB	George AFB
	12 F-80	Nellis AFB	Larson AFB, Wash.
	12 F-80	Nellis AFB	Paine AFB, Wash.
	16 F-86	Nellis AFB	Geiger AFB, Wash.
	16 F-86	Nellis AFB	Hamilton AFB, Calif.
	12 F-86	Nellis AFB	Rapid City AFB, S. Dak.
	16 F-84	Luke AFB, Ariz.	Castle AFB, Calif.
	16 F-84	Luke AFB	Hamilton AFB
	16 F-84	Luke AFB	Kirtland AFB, New Mex.
<u>TAC</u>	20 F-86F	George AFB	George AFB
	12 F-86F	Alexandria AFB, La.	McGhee-Tyson AFB, Tenn.
	12 F-86F	Alexandria AFB	Tinker AFB, Okla.
	12 F-86F	Alexandria AFB	Scott AFB, Ill.

Source: Plan for deployment of SAC and ATRC aircraft from ADC
Operations Plan 4-53, 1 Jan 1953, Annex A, as amended.
TAC deployment plan furnished by Maj B. E. McKenzie,
ADC O&T-F, 8 Jul 1953.

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SECRETAppendix IX**REGULAR AND RESERVE NAVY AIRCRAFT - LOCATION
AND STATE OF READINESS****EASTERN SEA FRONTIER**

<u>Location</u>	<u>No. Aircraft</u>	<u>Estimated Time Airborne</u>	<u>Type Aircraft</u>
Quonset Point	5	Unknown	F9F-5
	10	Unknown	F2H-3
	16	Unknown	F4U-4
Oceana, Va.	33	Unknown	F9F-5
Atlantic City	40	Unknown	F2H-2,3
	10	Unknown	F9F-5,6
	7	Unknown	F3D-2 AI
	21	Unknown	F4U-5N AI
Akron, Ohio	18	Unknown	F6F-1
Anna Costia, D. C.	33	Unknown	F6F-1
Columbus, Ohio	33	Unknown	FG-1D
	8	Unknown	FH-1
Glenview, Ill.	12	Unknown	F2H-1
	20	Unknown	F6F-1
Grosseille, Mich.	41	Unknown	FG-1D
New York, N. Y.	34	Unknown	F6F-5
	33	Unknown	FG-1D
Niagara Falls	18	Unknown	F6F-2
Norfolk, Va.	18	Unknown	F9F-2
Squantum, Mass.	31	Unknown	FG-1D
Willow Grove, Pa.	40	Unknown	FG-1D

TOTAL 481 of which only 28 are AI Fighters.

NAVAL AIRCRAFT CADF AREA

<u>Location</u>	<u>No. Aircraft</u>	<u>Estimated Time Airborne</u>	<u>Type Aircraft</u>
Minneapolis (NAS)	36	36 A/C - 12 hrs.	FG1D, non AI
Lincoln (NAS)	12	2 A/C - 30 min.	F6F-2, non AI
		4 A/C - 2 hrs.	
		12 A/C - 12 hrs.	
Dallas (NAS)	42	12 A/C - 3 hrs.	FG1D, non AI
		42 A/C - 24 hrs.	
St. Louis, Mo. (NAS)	16	4 A/C - 12 hrs.	F6F-1, non AI
		16 A/C - 24 hrs.	
Olathe, Kans. (NAS)	10	4 A/C - 2 hrs.	F6F-1, non AI
		10 A/C - 24 hrs.	
	2	2 A/C - 2 hrs.	FJ, non AI

Source: ADC, Statement of Effectiveness, Jun 1953, pp. 25-26.**SECRET**

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<u>Location</u>	<u>No. Aircraft</u>	<u>Estimated Time Airborne</u>	<u>Type Aircraft</u>
New Orleans (NAS)	12	6 A/C - 4 hrs.	FGLD, non AI
		12 A/C - 24 hrs.	
Miami (NARTU)	16	16 A/C - 10 hrs.	FGLD, non AI
Chamblee Ga. (NARTU)	10	5 A/C - 12 hrs.	FGLD, non AI
		10 A/C - 24 hrs.	
Birmingham, Ala. (NAS)	8	4 A/C - 2 hrs.	F8F2, non AI
		8 A/C - 24 hrs.	
Jacksonville, Fla. (NARTU)	8	4 A/C - 40 min.	F8F9, non AI
		8 A/C - 2 hrs.	
Memphis, Tenn. (NAS)	16	4 A/C - 3 hrs.	F8F2, non AI
		8 A/C - 12 hrs.	
		16 A/C - 24 hrs.	
Cherry Point (MCAS)	12	Unknown	F3D, AI
	24	Unknown	F7F, AI
	12	Unknown	F6F, (F4U-5N), AI
	48	Unknown	F9F, non AI
	48	Unknown	F2H, non AI

Total aircraft within 4 hours - 49; Total aircraft within 12 hours - 118; Total aircraft within 24 hours - 332, of which only 48 are AI Fighters.

WESTERN SEA FRONTIER

<u>Location</u>	<u>No. Aircraft</u>	<u>Estimated Time Airborne</u>	<u>Type Aircraft</u>
Miramar	17	4 hrs.	F9F-2, non AI
	51	4 hrs.	F9F-5, non AI
	30	4 hrs.	F9F-2, non AI
	20	4 hrs.	F3D-2, AI
Los Alamitos	9	12 hrs.	F6F, non AI
	6	12 hrs.	F2H, non AI
Alameda	28	4 hrs.	F9F-5, non AI
	12	4 hrs.	F9F-6, non AI
	7	4 hrs.	F9F-2, non AI
Moffett	21	4 hrs.	F4U-5N, AI
	20	4 hrs.	F2H3, non AI
	2	4 hrs.	F6F5N, AI
	5	4 hrs.	F9F6, non AI
	10	4 hrs.	F9F2, non AI
	16	4 hrs.	F9F5, non AI
	2	4 hrs.	F4U, non AI
	21	4 hrs.	F2H3, non AI
San Diego	1	4 hrs.	F3D, AI
Oakland	6	12 hrs.	F6F, non AI
Seattle	38	12 hrs.	F8F-1, non AI
Spokane	10	12 hrs.	F8F-2, non AI
Total within 4 hrs:	219 Non AI	Total within 12 hrs:	288 Non AI
	44 AI		44 AI
TOTAL	263	TOTAL	332

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SECRETAppendix X

AIR NATIONAL GUARD UNITS - LOCATION
AND MOBILIZATION ASSIGNMENT
As of 30 June 1953

I. ADC Mobilization - Assigned Squadrons:

A. EASTERN AIR DEFENSE FORCE:

1. Fighter-Interceptor:

101st Fighter-Interceptor Wing	Bangor, Maine
132nd Fighter-Interceptor Squadron	Bangor, Maine
133rd Fighter-Interceptor Squadron	Manchester, N.H.
134th Fighter-Interceptor Squadron	Burlington, Vt.
102nd Fighter-Interceptor Wing	Boston, Mass.
101st Fighter-Interceptor Squadron	Boston, Mass.
131st Fighter-Interceptor Squadron	Westfield, Mass.
107th Fighter-Interceptor Wing	Niagara Falls, N.Y.
136th Fighter-Interceptor Squadron	Niagara Falls, N.Y.
137th Fighter-Interceptor Squadron	White Plains, N.Y.
138th Fighter-Interceptor Squadron	Syracuse, N.Y.
139th Fighter-Interceptor Squadron	Schenectady, N.Y.
128th Fighter-Interceptor Wing	Milwaukee, Wisc.
126th Fighter-Interceptor Squadron	Milwaukee, Wisc.
176th Fighter-Interceptor Squadron	Madison, Wisc.

2. Fighter (Dual Mission - Bomber-Interceptor):

103rd Fighter Wing	Windsor Locks, Conn.
118th Fighter Squadron	Windsor Locks, Conn.
152nd Fighter Squadron	Providence, R.I.
108th Fighter Wing	Newark, N.J.
119th Fighter Squadron	Newark, N.J.
141st Fighter Squadron	Ft. Dix, N.J.
111th Fighter Wing	Philadelphia, Pa.
103rd Fighter Squadron	Philadelphia, Pa.
117th Fighter Squadron	Philadelphia, Pa.
142nd Fighter Squadron	Wilmington, Del.

Source: ADC, Operations Plan 5-53, 1 Jan 1953, Annex B, as amended.**SECRET**

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112th Fighter Wing	Coraopolis, Pa.
146th Fighter Squadron	Coraopolis, Pa.
147th Fighter Squadron	Coraopolis, Pa.
148th Fighter Squadron	Reading, Pa.
113th Fighter Wing	Andrews AFB, Md.
121st Fighter Squadron	Andrews AFB, Md.
104th Fighter Squadron	Baltimore, Md.
123rd Fighter Wing	Louisville, Ky.
165th Fighter Squadron	Louisville, Ky.
167th Fighter Squadron	Charleston, W. Va.
126th Fighter Wing	Chicago, Ill.
108th Fighter Squadron	Chicago, Ill.
168th Fighter Squadron	Chicago, Ill.
127th Fighter Wing	Detroit, Mich.
107th Fighter Squadron	Detroit, Mich.
171st Fighter Squadron	Detroit, Mich.
172nd Fighter Squadron	Battle Creek, Mich.

B. CENTRAL AIR DEFENSE FORCE:**1. Fighter-Interceptor:**

133rd Fighter-Interceptor Wing	St. Paul, Minn.
109th Fighter-Interceptor Squadron	St. Paul, Minn.
175th Fighter-Interceptor Squadron	Sioux Falls, S.D.
178th Fighter-Interceptor Squadron	Fargo, N.D.
179th Fighter-Interceptor Squadron	Duluth, Minn.
186th Fighter-Interceptor Squadron	Great Falls, Mont.

2. Fighter (Dual Mission - Bomber-Interceptor):

116th Fighter Wing	Marietta, Ga.
128th Fighter Squadron	Marietta, Ga.
157th Fighter Squadron	Eastover, S.C.
158th Fighter Squadron	Savannah, Ga.
159th Fighter Squadron	Jacksonville, Fla.
156th Fighter Squadron	Charlotte, N.C.
169th Fighter Squadron	Peoria, Ill.

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170th Fighter Squadron
 191st Fighter Squadron
 197th Fighter Squadron

Springfield, Ill.
 Salt Lake City, Utah
 Phoenix, Ariz.

C. WESTERN AIR DEFENSE FORCE:

1. Fighter-Interceptor:

142nd Fighter-Interceptor Wing

Spokane, Wash.

116th Fighter-Interceptor Squadron

Spokane, Wash.

123rd Fighter-Interceptor Squadron

Portland, Ore.

190th Fighter-Interceptor Squadron

Boise, Idaho

2. Fighter (Dual Mission - Bomber-Interceptor):

144th Fighter Wing

Hayward, Calif.

192nd Fighter Squadron

Reno, Nevada

194th Fighter Squadron

Hayward, Calif.

146th Fighter Wing

Van Nuys, Calif.

115th Fighter Squadron

Van Nuys, Calif.

195th Fighter Squadron

Van Nuys, Calif.

196th Fighter Squadron

Ontario, Calif.

II. Tactical Air Command Mobilization-Assigned Squadrons Made Temporarily Available to ADC.

A. EASTERN AIR DEFENSE FORCE:

162nd Fighter Squadron

Dayton, Ohio

164th Fighter Squadron

Mansfield, Ohio

B. CENTRAL AIR DEFENSE FORCE:

181st Fighter Squadron

Dallas, Texas

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<u>Doc.</u>	<u>Class.</u>	<u>Title</u>	<u>No. of Pages</u>
1	C	Air Defense Command Station List, 1 Jun 53	17
2	S	ADC to USAF, "Air Defense Boundaries," 5 Nov 52, with 1 Ind	6
3	R	ADC GO #14, 10 Feb 53	2
4	R	ADC GO #10, 9 Feb 53	5
5	U	ADCR 55-4, 18 Feb 53	2
6	S	Ltr, Maj Gen E.E. Partridge, CG ARDC, to Dr. J.R. Killian, President, MIT, 28 Jan 53	4
7	S	Ltr, Partridge to Gen Chidlaw, CG ADC, 11 Feb 53	2
8	C	Ltr, Maj Gen F.H. Smith, VC ADC, to Partridge, 24 Feb 53	1
9	S	Ltr, Partridge to Chidlaw, 6 May 53	2
10	S	Msg, USAF to ADC, 9 Apr 53	1
11	C	Ltr, Brig Gen K.P. Bergquist, DCS/O ADC, to Brig Gen T.A. Bennett, CG 25th Air Div, 31 Jul 53	2
12	S	Msg, ADOOT-C 1148, ADC to WADP, 15 May 53	1
13	S	Ltr, 774th AG&W Sq to 28th Air Div, "Search Capability of AN/FPS-4, 26 Jan 53, with 3 Ind	4
14	S	Ltr, Smith to C/S USAF, "Study of AG&W Functions," 22 May 53, with 1 Incl	7
15	S	Ltr, ADC to USAF, "ADC Radar Equipment Requirements," 25 Mar 53	2
16	S	Msg ADOCE-E 112, ADC to RAFFD, 20 Jan 53	1
17	S	Ltr, ADC to RAFFD, "Installation of AN/FPS-4 Height Finders," 24 Mar 53, with 2 Ind	3
18	S	R&R, DCS-E to PTR, "ADC Radar Equipment Requirements," 10 Mar 53	

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19	S	Listing: ADC Radar Equipment Requirements, Permanent Program, 5 Mar 53	4
20	S	Ltr, ADC to USAF, "Augmentation of Wire Facilities at PAC&W Sites," 14 Apr 53	3
21	S	Ltr, EADF to 26th Air Div, "Improvements Under Advisement in Certain Critical Areas of Importance," 28 Nov 52	2
22	S	Ltr, Smith to Maj Gen M.R. Nelson, CG EADF, 2 Feb 53	3
23	S	Ltr, ADC to USAF, "Installation of Early Warning Modification Kits," 16 Jan 53, with 6 Ind	8
24	S	Ltr, ADC to RAFA, "Priorities for Installation of OA/347 Search Kit Modifications," 20 Mar 53	2
25	S	Ltr, ADC to EADF, "Installation of OA-347/CPS-6B Equipment," 21 Jul 53	1
26	S	Ltr, WADF to ADC, "Improved Receiver, CPS-6B/FPS-10 Radar Set," 13 Oct 52, with 3 Ind	5
27	S	Ltr, WADF to ADC, "Back-up Height Finder Radars at AN/CPS-6B and AN/FPS-10 Sites," 7 Oct 52, with 1 Ind	2
28	S	Ltr, SAC to ADC, "Request for Information on CPS-6 Radars," 7 Jan 53, with 1 Ind and Incl	4
29	S	Ltr, Lt Col O.T. Halley, Jr., ADC PER, to Col J.F. Taylor, Air War College, 25 Oct 52	1
30	S	R&R, DCS/O to C/S, "High Altitude Capability of Radar, 5 Aug 53	2
31	S	Ltr, ADC to USAF, "Low Altitude Radar Coverage," 31 Jan 53, with 1 Ind	4
32	S	Study: Radar Evaluation Program -- Two Volumes; forwarded to the USAF Historical Division by separate correspondence.	
33	S	Msg ADOAP, ADC to USAF, 29 Jun 53	1

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<u>Doc.</u>	<u>Class.</u>	<u>Title</u>	<u>No. of Pages</u>
34	S	Ltr, ADC to USAF, "Extension of Radar Coverage in the Northeast Coastal Areas, 24 Sep 52	1
35	S	Ltr, USAF to ADC, "Seaward Extension of Radar Coverage," 23 Mar 53, with 1 Ind	4
36	S	Ltr, ADC to USAF, "Texas Towers," 24 Aug 53	1
37	S	Ltr, Chidlaw to Maj Gen W.E. Todd, CG WADF, 20 Apr 53	2
38	S	Ltr, ADC to USAF, "Changes to the ADC Fighter-Interceptor Program," 7 Mar 53	2
39	C	Msg ADPFM-A 798, ADC to DFs, 6 Apr 53	2
40	S	Msg ADPMP-O 621, ADC to USAF, 21 Mar 53	2
41	S	Msg, USAF to ADC, 25 Mar 53	1
42	S	Ltr, USAF to ADC, "Projected Fighter Pilot Manning position," 4 May 53, with 1 Ind	4
43	S	Msg ADOOT-F 784, ADC to DFs, 31 Mar 53	1
44	S	Msg ADOOT-F 1090, ADC to DFs, 8 May 53	1
45	S	Msg ADOOT-F 859, ADC to DFs, 11 Apr 53	1
46	R	ADCR 55-5, 26 Mar 53	2
47	S	Ltr, Smith to Todd, 19 Jan 53	2
48	S	Ltr, Todd to Smith, 26 Dec 52	2
49	U	ADCR 55-2, 24 Jul 53	5
50	R	ADC Unit Proficiency Directive 10-1, 1 Jan 53	29
51	R	ADC Unit Proficiency Directive 10-2, 1 Jan 53	23
52	U	Msg ADOOT-F 15536, ADC to DFs, 25 May 53	2
53	S	Msg ADOOT-F 1256, ADC to DFs, 27 May 53	1
54	S	Msg ADOOT-F 1013, ADC to USAF, 29 Apr 53	3

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55	S	Msg ADOOT-F 1465, ADC to DFs, 25 Jun 53	1
56	S	R&R, DC&E-E to DCS/O, "First Phase "M" Program," 6 Jan 53, with 1 Incl	5
57	S	R&R, Dir Instls to R&R, "Completion Dates for "M" Sites," 4 Feb 53	1
58	S	Ltr, USAF to Chief of Engineers, USA, "Construction Requirements for "M" Sites in Zone of Interior," 27 Mar 53, with 2 Incl	10
59	S	Ltr, ADC to EADF, "Revised Mobile Radar Construction and Siting Criteria," 2 Apr 53	2
60	S	Ltr, ADC to DFs, "Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites," 2 Apr 53	7
61	S	Ltr, RADC to ADC, "Evaluation of the Radar Mutual Interference Problem," 4 Feb 53	2
62	S	Ltr, ADC to RADC, "Evaluation of Radar Mutual Interference Problem," 22 May 53, with 1 Incl	2
63	S	Ltr, ADC to EADF, "Separation Criteria for AN/MPS-7 and AN/MPS-14 Radars," 15 Jul 53	2
64	S	Ltr, RADC to ADC, "Separation of Radar Equipment," 14 Aug 53	2
65	S	R&R, DC&E-E to R&R, "Modification of Site Survey Reports for "M" Program Instl," 16 Jan 53	1
66	S	Ltr, ADC to CADF, "Mobile Radar Program," 22 Jan 53	1
67	S	Msg ADOCE-E 45, ADC to USAF, 9 Jan 53	1
68	S	Msg AFPCOAC 43385, USAF to ADC, 13 Jan 53	1
69	S	Ltr, ADC to EADF, "Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites," 12 Apr 53	7
70	S	Ltr, Department of External Affairs, Canada, to U.S. Charge e'Affaires, 2 Apr 53	1

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71	S	Ltr, USAF to ADC, "Approval by the Canadian Government of Site Surveys for Nine Additional Radar Stations," 5 May 53	2
72	S	Memo, Col H.E. Neal, Dir of C&E, to Maj Gen R.M. Webster, PJED, 13 Aug 53	2
73	S	Msg ADOPR, ADC to USAF, 1 Dec 52	1
74	S	Ltr, ADC to USAF, "Relocation of M-123 and SM-135," 10 Sep 53	2
75	S	Msg ADOPR 1232, ADC to USAF, 25 May 53	1
76	S	Msg ADOPR 1237, ADC to RCAF ADC, 25 May 53	1
77	S	Msg ADOPR 1451, ADC to RCAF ADC, 24 Jun 53	1
78	S	R&R, Const Div to Col Kelley, "Status of 1st Phase Mobile Radar Program, Total 44 Sites," 26 Jun 53	2
79	S	Memo, "Beneficial Occupancy Dates for Mobile Program, Phase 1," 11 Mar 53	2
80	S	Msg ADOAP 1691, ADC to C/S USAF, 31 Jul 53	3
81	S	Ltr, ADC to USAF, "Revision of First Phase Mobile Radar Program," 17 Mar 53, with 1 Incl	5
82	S	Ltr, ADC to CADF, "Relocation of Second Phase Mobile Radar Sites," 12 Feb 53	2
83	S	Msg ADHCC 1362, ADC to C/S USAF, 10 Jun 53	2
84	S	Ltr, ADC to USAF, "Installation of Lashup Radar Gear at REP Sites," 14 Nov 52	2
85	S	R&R, Pinetree Project Office to DCS/H, 18 Dec 52	3
86	S	Msg, Canadian Air Defense to ADC, 19 Dec 52	1
87	S	Ltr, RCAF to ADC, "Agreement on USAF-Manned Radar Stations in Canada," 13 Feb 53	1
88	S	Ltr, ADC to RCAF ADC, "Recommendations of the RCAF-USAF ADC's Conference 2-5 Dec 52, with 1 Incl and appended R&R	

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89	S	ADC, "Plan for Lash-up Operation of the ADC-Manned Project Pinetree Sites," 13 Feb 53	5
90	S	Ltr, ADC to USAF, "Commitment of Augmentation Forces," 2 Jan 53	2
91	S	Ltr, Gen Vandenberg to Gen Chidlaw, 3 Mar 53, with 1 Incl	3
92	S	Mutual Agreement, ARGC-ADC, 3 Apr 53	3
93	S	Mutual Agreement, ATRC-ADC, 25 Apr 53	3
94	S	Ltr, ADC to TAC, "Air Defense Augmentation from Tactical Air Command," 27 Jun 53, with 1 Ind, 1 Incl, and R&R	6
95	S	Mutual Agreement, SAC-ADC, 4 Apr 53	3
96	S	Ltr, TAC to ADC, "ADC Augmentation Forces," 17 Feb 53	1
97	S	R&R, O&T-F to DCS/O, "Use of Naval Forces at Denver for Air Defense," 15 Apr 53	2
98	S	Ltr, ADC to CADF, "Deployment of Naval Reserve Unit at Denver," 15 Apr 53	1
99	S	R&R, O&T-F to DCS/O, "ANG Augmentation Plan," 16 Jun 53	1
100	S	Msg ADOOT-F 06839, ADC to DFs, 27 Feb 53	1
101	S	Ltr, ADC to Chief National Guard Bureau, "Air National Guard Defense Augmentation," 9 Jun 53, with 2 Ind	4
102	S	Ltr, ADC to Chief National Guard Bureau, "Air National Guard Defense Augmentation," 18 May 53	1
103	S	R&R, DCS/O to C/S, VC, "Authority to Order ANG to Active Military Service," 23 Jan 53	1
104	S	Ltr, ADC to USAF, "Authority to Order ANG Units Into Active Military Service," 19 Dec 52	1
105	S	R&R, O&T-F to O&T-D, "Comments on ADC Briefing," 10 Apr 53	2

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106	S	1st Ind, ADC to EADF, 30 Jul 53, to Ltr, EADF to ADC, "Ordering ANG Units Into Active Military Service Under Emergency Conditions," 16 Jul 53, with 1 Incl	3
107	S	Msg ADOYT-B 21833, ADC to USAF, 23 Jul 53	1
108	S	Ltr, Maj Gen Smith to Maj Gen R. C. Wilson, Commandant Air War College, 12 Feb 53	3
109	S	Ltr, ADC to USAF, "Air Defense Weapons System," 18 Feb 53, with 1 Ind and 1 Incl	6
110	S	Ltr, ADC to USAF, "Defense Against Threat of Ballistic Missiles," 20 Feb 53, with 2 Ind and 1 Memo for Record	5
111	S	Ltr, ADC to USAF, "Requirement for an Infrared Guided Air-to-Air Rocket," 29 Jan 53, with 2 Ind	6
112	S	Ltr, ADC to USAF, "High Speed, High Performance Interceptor," 7 Jan 53, with 1 Ind	4
113	S	Ltr, ADC to USAF, "Requirement for Long Range Interceptor," 7 Apr 53, with 1 Ind	4
114	S	2d Ind, ADC to USAF, 3 Dec 52, to Ltr, USAF to ADC, "Fighter Interceptor, Rammer," 15 Jul 52	2
115	S	Ltr, ADC to USAF, "Requirement for the Development of Atomic Warheads for Air Defense Weapons," 23 Mar 53, with 1 Ind	4
116	S	Ltr, ADC to USAF, "Requirement for Weapons with Atomic Capability in the Air Defense System," 6 May 53	7
117	S	Ltr, ADC to USAF, "Requirement for a Study of Air-to-Air Guided Rocket with Atomic Warhead in the Air Defense System," 13 Jul 53	2
118	S	Ltr, Maj Gen Smith to Lt Gen L.S. Kuter, DCS/P USAF, 6 Feb 53	4
119	S	Ltr, Smith to Todd, 28 Nov 52	2

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-Semi-Annual-
**HISTORICAL
REPORT**

**NUMBER FIVE
SUPPORTING DOCUMENTS
VOLUME I
DOCUMENTS NOS. 1-70
JUNE, 1953**

**PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
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HEADQUARTERS
AIR DEFENSE COMMAND

SEMI-ANNUAL HISTORICAL REPORT
1 JANUARY-30 JUNE 1953

SUPPORTING DOCUMENTS

Volume I

Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT

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AIR DEFENSE COMMAND
STATION LIST

1 JUN 1953

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RESTRICTED-SECURITY INFORMATION

FORWARD

Explanation of the "KEY" shown at the top of each of the alphabetical station directory:

KEY:	1 COMMAND JURISDICTION	2 ADC UNITS	3 UNITS OF OTHER COMMANDS
	4 MAILING ADDRESS	5 STATION NUMBER	6 SUPPLY ACCOUNT NUMBER

Station or location in CAPITAL LETTERS (Example: "BURLINGTON MUN AIRPORT, Burlington, Vermont") is the station or location TITLE and NOT the official mailing address of the units listed thereunder.

1. COMMAND JURISDICTION - indicates Major Command having jurisdiction over the station.
2. ADC UNITS - indicates units assigned to ADC located at the station.
3. UNITS OF OTHER COMMANDS - indicates units of other commands, if any, located at the station. (This is only on stations under the jurisdiction of ADC)
4. MAILING ADDRESS - indicates the mailing address of ADC units located at the station and, in some cases, is the same as the STATION or LOCATION; but in every case, item 4 should be used as the MAILING ADDRESS for ADC units at the station or location. (Example: "Commanding Officer, 75th Air Base Sq, Ethan Allen AFB, Winooski, Vermont" as in item 4 under BURLINGTON MUN AIRPORT, Burlington, Vermont.)
5. STATION NUMBER - indicates the official USAF Station Number for the Station.
6. SUPPLY ACCOUNT NUMBER - indicates the Supply Account Number for the station, if any.

Report all errors or omissions to CG, ADC, Attn: Director of MEO

AC&W Squadrons located in Canada (REP SITES) are listed on page 17

DISTRIBUTION:

Hq USAF - 10
 Hq ADC - 50
 Hq Ee Maj Comd - 20
 Hq AMC (MCCSHS- 2) (MCSQXF - 1)
 Hq Ea ADF - 30
 Div - 10
 Wing - 10
 Group - 10
 AC&W Sq - 1
 F/I Sq - 1
 AB Sq - 1
 GROS - 1
 Radar Calib Sq - 1
 CO 1726th Support Sq, (MATS) McChord AFB, Wash. - 1
 CO 2225th Pers Proc Gp, Camp Kilmer, New Jersey - 5
 CO 2349th Pers Proc Gp, Camp Stoneman, Calif. - 5
 Auditor Gen, USAF Southwestern District Resident Office, Ent AFB, Colorado Springs, Colo. - 8
 CO Rome Air Force Depot, Griffiss AFB, Rome, N.Y. Attn: MRMTO - 2
 CO Cheli Air Force Special Depot Attn: Class 30A, PO Box 310, Maywood, Calif. - 2
 CO Wilkins Air Force Special Depot Attn: MBEER 22 Shelby, Ohio - 2
 Bulk distribution is being made to each Air Defense Force, redistribution to assigned units will be made as indicated above.

- DO - NOT - RETURN-

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FOLLOWING IS A SUMMARY OF ORGANIZATIONS ASSIGNED TO AIR DEFENSE COMMAND BY TYPE AND NUMBER ASSIGNED:

<u>ORGANIZATION</u>	<u>NO. ASSIGNED ADC</u>
Air Defense Groups, Headquarters	24
Air Base Groups, Headquarters	2
Air Base Groups, Headquarters & Headquarters Sq (4th F/I Wg - TDY)	1
Air Base Squadrons	21
Aircraft Control and Warning Squadrons	126
Air Defense Forces, Headquarters	3
Air Divisions, Headquarters	11
Air Force Bands	4
Air Intelligence Service Squadron	1
Air Intelligence Service Squadrons, Detachments	3
Air Intelligence Service Squadron, Flight	17
Air Police Squadrons (1-4th F/I Wg - TDY)	6
Base Service Squadron	3
Communications Squadron (4th F/I Wg - TDY)	1
Communications Squadron, Air Force	2
Communications Squadron, Command	2
Crash-Rescue Boat Flights	5
Defense Wings	8
Field Maintenance Squadrons	5
Fighter-Interceptor Group, Headquarters (4th F/I Wg - TDY)	1
Fighter-Interceptor Wing, Headquarters & Headquarters Sq (4th F/I Wg)	1
Fighter-Interceptor Squadrons (3-4th F/I Wg - TDY) 1 - FEAF - TDY)	61
Food Service Squadrons (1-4th F/I Wg - TDY)	6
Ground Observer Squadrons, Headquarters	9
Ground Observer Squadrons, Detachments	49
Installations Squadron (1-4th F/I Wg - TDY)	6
Liaison Squadrons	2
Liaison Squadrons, Detachments	8
Maintenance Squadron (4th F/I Wg - TDY)	1
Maintenance & Supply Group, Headquarters (4th F/I Wg - TDY)	1
Maintenance and Supply Squadrons	1
Matériel Squadrons	21
Medical Group (4th F/I Wg - TDY)	1
Medical Squadrons	6
Motor Vehicle Squadrons (1-4th F/I Wg - TDY)	6
Operations Squadrons	5
Radar Calibrations Squadrons	4
Supply Squadrons (1-4th F/I Wg - TDY)	6
Training Group (Air Defense)	1
Training Squadron (Weapons)	1
USAF Infirmary	19
WAF Squadrons	5

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Det 1, Hq ADC Ottawa Ontario, Canada --	14	9th Liaison Sq Det 4, (EADF) Minn-St Paul Intl Aprt., Minnesota -----	12	29th Crash-Res Bt Flt (4709 DW) Suffolk Co Aprt, N.Y. --	16
CADF, Hq (ADC) Kansas City, Mo. -----	11	11th Crash-Res Bt Flt (4708th Def Wg) Wurtsmith AFB, Mich.16		29th Air Div (Def) Hq (CADF) Great Falls AFB, Mont. --	10
EADF, Hq (ADC) Stewart AFB, N.Y. -----	15	11th F/I Sq (515th Air Def Gp) Duluth Mun Aprt, Minn. --	9	30th Air Div (Def) Hq (EADF) Willow Run, Mich. -----	16
WADF, Hq (ADC) Hamilton AFB, Calif. ----	11	12th WAF Sq (4707th Def Wg) Otis AFB, Falmouth Mass. -13		31st F/I Sq (4702d Def Wg) Larson AFB, Wash. -----	12
1st Radar Calib Sq (EADF) Griffiss AFB, N.Y. -----	11	13th Crash-Res Bt Flt (28th Air Div) Hamilton AFB, California -----	11	31st Air Div (Def) Hq (CADF) Ft. Snelling, Minn.-----	10
2d F/I Sq (568th Air Def Gp) McGuire AFB, N.J. -----	12	13th F/I Sq (575th Air Def Gp) Selfridge AFB, Mich. ----	15	32d Air Div (Def) Hq (EADF) Hancock Fld. N.Y. -----	11
4th Radar Calib Sq (WADF) Hamilton AFB, Calif. ----	11	15th WAF Sq (4700th AB Gp) Stewart AFB, N.Y. -----	15	32d Crash-Res Bt Flt (4708 DW) Selfridge AFB, Mich. -----	15
4th F/I Wg, Hq & Hq Sq (EADF) TDY - FEAF		15th F/I Sq (34th Air Div) Davis-Monthan AFB, Ariz.-	9	33d Air Div (Def) Hq (CADF) Tinker AFB, Okla. -----	16
4th F/I Gp, Hq (EADF) TDY - FEAF		17th Liaison Sq (WADF) McChord AFB, Wash. -----	12	34th Air Div (Def) Hq (CADF) Kirtland AFB, N.M. -----	11
4th M&S Gp, Hq (EADF) TDY - FEAF		17th Liaison Sq Det 1, (WADF) Geiger Fld, Wash. -----	10	35th Air Div (Def) Hq (CADF) Dobbins AFB, Ga. -----	9
4th Maint Sq (EADF) TDY - FEAF		17th Liaison Sq Det 2, (WADF) Norton AFB, Calif. -----	13	37th F/I Sq (517th Air Def Gp) Ethan Allen AFB Vt. -----	10
4th Supply Sq (EADF) TDY - FEAF		17th Liaison Sq Det 3, (WADF) Great Falls AFB, Mont. --	10	42d Comm Sq, AF (EADF) Stewart AFB, N.Y. -----	15
4th Mtr Veh Sq (EADF) TDY - FEAF		17th Liaison Sq Det 4, (WADF) Kirtland AFB, N.M. -----	11	42d F/I Sq (501st Air Def Gp) O'Hare Intl Aprt, Ill. ---	13
4th AB Gp, Hq & Hq Sq (EADF) TDY - FEAF		17th WAF Sq (34th Air Div) Kirtland AFB, N.M. -----	11	43d Comm Sq Comd (WADF) Hamilton AFB, Calif. -----	11
4th Comm Sq (EADF) TDY - FEAF		18th F/I Sq (514th Air Def Gp) Minn-St Paul Intl Aprt, Minn. -----	12	45th F/I Sq (519th Air Def Gp) Suffolk Co AFB, N.Y. ----	16
4th Instl Sq (EADF) TDY - FEAF		18th WAF Sq (4704th Def Wg) McChord AFB, Wash. -----	12	46th F/I Sq (4710th Def Wg) Doyers AFB, Del. -----	9
4th AP Sq (EADF) TDY - FEAF		19th WAF Sq (28th Air Div) Hamilton AFB, Calif. ----	11	47th Comm Sq, Comd (ADC) Ent AFB, Colo. -----	10
4th Fd Sv Sq (EADF) TDY - FEAF		25th Air Div (Def) Hq (WADF) McChord AFB, Wash. -----	12	47th F/I Sq (518th Air Def Gp) Niagara Falls Mun Aprt, N.Y. -----	13
4th Med Gp (EADF) TDY - FEAF		26th Air Div (Def) Hq (EADF) Roslyn N.Y. -----	14	48th F/I Sq (4710th Def Wg) Langley AFB, Va. -----	12
5th F/I Sq (568th Air Def Gp) McGuire AFB, N.J. -----	12	27th Crash-Res Bt Flt (4707 DW) Otis AFB, Mass. -----	13	49th F/I Sq (4711th Def Wg) Dow AFB, Me. -----	9
9th Liaison Sq (EADF) Stewart AFB, N.Y. -----	15	27th Air Div (Def) Hq (WADF) Norton AFB, Calif. -----	13	50th Comm Sq AF (CADF) Kansas City, Mo. -----	11
9th Liaison Sq Det 1, (EADF) Burlington Mun Aprt, Vt.-	8	27th F/I Sq (4711th Def Wg) Griffiss AFB, N.Y. -----	11	54th F/I Sq (29th Air Div) Rapid City AFB, S.D. ----	14
9th Liaison Sq Det 2, (EADF) Selfridge AFB, Mich. ----	15			56th F/I Sq (575th Air Def Gp) Selfridge AFB, Mich. ----	15

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58th F/I Sq (564th Air Def Gp) Otis AFB, Mass. ----- 13		119th AC&W Sq (4707th Def Wg) Otis AFB, Mass. ----- 13		431st F/I Sq (575th Air Def Gp) Selfridge AFB, Mich. ----- 15	
60th F/I Sq (4707th Def Wg) Westover AFB, Mass. ---- 16		120th AC&W Sq (34th Air Div) Walker AFB, N.M. ----- 16		432d F/I Sq (520th Air Def Gp) Truax Fld, Wisc. ----- 16	
61st F/I Sq (575th Air Def Gp) Selfridge AFB, Mich. --- 15		125th AC&W Sq (4711th Def Wg) Ethan Allen AFB, Vt. --- 10		433d F/I Sq (520th Air Def Gp) Truax Fld, Wisc. ----- 16	
62d F/I Sq (501st Air Def Gp) O'Hare Intl Apt. Ill. - 13		127th AC&W Sq (4711th Def Wg) Ft. Williams Me. ----- 10		437th F/I Sq (564th Air Def Gp) Otis AFB, Mass. ----- 13	
63d F/I Sq (527th Air Def Gp) Wurtsmith AFB, Mich. --- 16		128th AC&W Sq (4711th Def Wg) Dow AFB, Me. ----- 9		438th F/I Sq (538th Air Def Gp) Kinross AFB, Mich. ----- 11	
71st F/I Sq (500th Air Def Gp) Greater Pitt Apt. Pa. - 10		134th AC&W Sq (4702d Def Wg) Geiger Fld, Wash. ----- 10		440th F/I Sq (530th Air Def Gp) Geiger Fld, Wash. ----- 10	
74th F/I Sq (526th Air Def Gp) Presque Isle AFB, Me. -- 14		135th AC&W Sq (34th Air Div) Kirtland AFB, N.M. ----- 11		445th F/I Sq (530th Air Def Gp) Geiger Fld, Wash. ----- 10	
75th F/I Sq (519th Air Def Gp) Suffolk Co AFB, N.Y. --- 16		136th AC&W Sq (4704th Def Wg) Portland Intl Apt. Ore.- 14		465th F/I Sq (567th Air Def Gp) McChord AFB, Wash. ----- 12	
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97th F/I Sq (4706th Def Wg) Wright-Patterson AFB O. - 16		331st F/I Sq (519th Air Def Gp) Suffolk Co AFB, N.Y. ---- 16		501st Material Sq O'Hare Intl Apt, Ill. - 13	
102d Radar Calib Sq (EADF) Griffiss AFB, N.Y. ----- 11		332d F/I Sq (525th Air Def Gp) New Castle Co Apt Del. - 13		501st USAF Infirmary O'Hare Intl Apt, Ill. - 13	
106th Radar Calib Sq (CADF) Sioux City Mun Apt, Ia.- 15		334th F/I Sq (EADF) TDY - FEAF		502d Air Def Gp Hq (4708 DW) Youngstown Mun Apt, O. -16	
111th AC&W Sq (4707th Def Wg) Grenier AFB, N.H. ----- 11		335th F/I Sq (EADF) TDY - FEAF		502d Air Base Sq Youngstown Mun Apt, O.- 16	
112th AC&W Sq (4707th Def Wg) Grenier AFB, N.H. ----- 11		336th F/I Sq (EADF) TDY - FEAF		502d Material Sq Youngstown Mun Apt, O.- 16	
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518th Air Def Gp Hq (4707 DW) Niagara Falls Aprt N.Y. - 13				527th USAF Infirmary Wurtsmith AFB, Mich. ----- 16				564th Food Service Sq Otis AFB, Mass. ----- 13			
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	ALBANY, New York	BELLEFONTAINE, Ohio	BOISE, Idaho		
1	ADC - EADF	1 ADC - EADF	1 ADC - WADF		
2	Det 3, 4673d GROS	2 664th AC&W Sq	2 Det 4, 4770th GROS		
3	None	3 None	3 None		
4	PO Box 6072, 268 Central Ave., Albany, New York	4 Bellefontaine, Ohio	4 100 S. 6 St. Boise, Idaho		
5	2302	5 5308	5 9209		
6	None	6 None	6 None		
	ANDREWS AFB, Camp Springs, Md.	BELLEVILLE, Illinois	BROOKFIELD, Ohio		
1	MATS	1 ADC - CADF	1 ADC - EADF		
2	95th F/I Sq (EADF)	2 798th AC&W Sq	2 662d AC&W Sq		
3	Flt 3-1, 4602d AIS Sq (ADC)	3 None	3 None		
4	None	4 Belleville, Illinois	4 Brookfield, Ohio		
5	Andrews AFB, Wash. 25 D.C.	5 6106	5 5302		
6	3121	6 None	6 None		
	AF 503 SO	BELLEVUE HILL, Vermont	BRUNSWICK NAS, BRUNSWICK, Me.		
	ANTIGO, Wisconsin	1 ADC - EADF	1 Navy		
1	ADC - EADF	2 764th AC&W Sq	2 654th AC&W Sq (EADF)		
2	676th AC&W Sq	3 None	3 None		
3	None	4 St. Albans, Vermont	4 Brunswick NAS, Brunswick, Maine		
4	Antigo, Wisc.	5 1601	5 1210		
5	6306	6 None	6 None		
6	None	BILLINGS, Montana	BUFFALO, New York		
	ATLANTA, Georgia	1 ADC - CADF	1 ADC - EADF		
1	ADC - CADF	2 Det 2, 4773d GROS	2 Det 1, 4673d GROS		
2	Det 6, 4674th GROS	3 None	3 None		
3	None	4 303 N. 27th St. Billings, Montana	4 2500 Main St. Buffalo, NY		
4	2939 Peachtree Road Atlanta, Georgia	5 9306	5 2309		
5	4306	6 None	6 None		
6	None	BIRCH BAY, Washington	BURLINGTON MUN. AIRPORT, Burlington, Vermont		
	ATOLIA, California	1 ADC - WADF	1 ADC - EADF		
1	ADC - WADF	2 757th AC&W Sq	2 Det 1, 9th Liaison Sq		
2	750th AC&W Sq	3 None	3 Det 1, 12 Wea Sq (MATS)		
3	None	4 Blaine, Wash. PO Box 548	Det 5, 1917th AACs Sq (MATS)		
4	Boron, California	5 9715	4 Ethan Allen AFB, Winooski, Vermont		
5	9381	6 None	5 1619		
6	None	BISMARCK, North Dakota	6 AF 670 SO		
	BALTIMORE, Maryland	1 ADC - CADF	CAMBRIA, California		
1	ADC - EADF	2 Det 5, 4673d GROS	1 ADC - WADF		
2	Det 6, 4670th GROS	3 None	2 775th AC&W Sq		
3	None	4 225 1/2 West Broadway, Bismark, North Dakota	3 None		
4	Pythian Bldg, Charles and Preston Sts. Baltimore, Md.	5 7705	4 Cambria, California		
5	3110	6 None	5 9399		
6	None	BLUE KNOB, Pennsylvania	6 None		
	BANGOR, Maine	1 ADC - EADF	CAMP HERO, New York		
1	ADC - EADF	2 772d AC&W Sq	1 ADC - EADF		
2	Det 5, 4673d GROS	3 None	2 773d AC&W Sq		
3	None	4 Claysburgh, Pennsylvania	3 None		
4	Pine Street School, Corner State & Pine Sts. Bangor, Maine	5 3226	4 Montauk, Long Island, N.Y.		
5	1207	6 None	5 2400		
6	None	BOHOKUS PEAK, Washington	6 None		
	BARTLESVILLE, Oklahoma	1 ADC - WADF			
1	ADC - CADF	2 758th AC&W Sq			
2	796th AC&W Sq	3 None			
3	None	4 Neah Bay, Washington			
4	Bartlesville, Okla.	5 9711			
5	8492	6 None			
6	None				

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CANTON, Ohio	1 ADC - EADF 2 Det 6, 4671st GROS 3 None 4 American Legion Home, 1439 Cleveland Ave., NW Canton, 3, Ohio 5 5318 6 None	CONDON, Oregon 1 ADC - WADF 2 636th AC&W Sq 3 None 4 PO Box 353, Condon, Ore. 5 9514 6 None	DULUTH MUN APRT. Duluth, Minn. 1 ADC - CADF 2 11th F/I Sq 3 515th Air Def Gp, Hq 4 515th Air Base Squadron 5 515th Material Squadron 6 515th USAF Infirmary
CASPER, Wyoming	1 ADC - CADF 2 Det 4, 4773d GROS 3 None 4 1006 N. Lincoln St., Casper, Wyoming 5 7912 6 None	CROSS MOUNTAIN, Tennessee 1 ADC - CADF 2 663d AC&W Sq 3 None 4 Lake City, Tennessee 5 4801 6 None	Det 4, 19th Wea Sq (MATS) Det 2, 1985th AACs Sq (MATS) Duluth Mun Appt, Duluth, Minnesota 5 7486 6 AF 2354 SO
CASWELL, Maine	1 ADC - EADF 2 766th AC&W Sq 3 None 4 Limestone, Maine 5 1271 6 None	DAVIS-MONTHAN AFB, Tucson, Ariz 1 SAC 2 15th F/I Sq (CADF) 3 None 4 Davis-Monthon AFB, Tucson Arizona 5 9854 6 AF 308 SO	DUNCANVILLE, Texas 1 ADC - CADF 2 745th AC&W Sq 3 None 4 C/O PM, Dallas, Texas 5 8603 6 None
CHARLESTON, Maine	1 ADC - EADF 2 765th AC&W Sq 3 None 4 Charleston, Maine 5 1212 6 None	DEL BONITA, Montana 1 ADC - CADF 2 681st AC&W Sq 3 None 4 Cut Bank, Montana 5 9372 6 None	DURHAM, North Carolina 1 ADC - CADF 2 Det 3, 4674th GROS 3 None 4 USO Bldg, Morris St., Durham, North Carolina 5 4618 6 None
CHARLOTTE, North Carolina	1 ADC - CADF 2 Det 4, 4674th GROS 3 None 4 Coddington Bldg Rooms 6--8, 101 N. Graham St., Charlotte, North Carolina 5 4613 6 None	DES MOINES, Iowa 1 ADC - CADF 2 Det 8, 4672d GROS 3 None 4 Argonne Armory Bldg, 603 E. 1st St. Des Moines, Ia. 5 7229 6 None	EAST FARMINGTON, Wisconsin 1 ADC - CADF 2 674th AC&W Sq 3 None 4 Osceola, Wisconsin 5 6322 6 None
CHICAGO, Illinois	1 ADC - EADF 2 Det 2, 4671st GROS 3 None 4 57th St. & S. Lake Shore Drive, Chicago, Illinois 5 6120 6 None	DOBBINS AFB, Marietta, Ga. 1 ConAC 2 35th Air Div (Def) (CADF) 3 632d AC&W Sq (CADF) 4 652d AC&W Sq (CADF) 5 660th AC&W Sq (CADF) 6 810th AC&W Sq (CADF) 7 4674th GROS Hq (CADF) 8 Flt 2-c, 4602d AIS Sq (ADC) 3 None 4 Dobbins AFB, Georgia 5 4369 6 AF 177 SO	ELKHORN, Wisconsin 1 ADC - EADF 2 755th AC&W Sq 3 None 4 Williams Bay, Wisconsin 5 6325 6 None
COLUMBUS, Ohio	1 ADC - EADF 2 Det 5, 4671st GROS 3 None 4 33d West Gay St., Columbus, Ohio 5 5325 6 None	DOW AFB, Bangor, Maine 1 SAC 2 49th F/I Sq (EADF) 3 128th AC&W Sq (EADF) 4 None 5 Dow AFB, Bangor, Maine 6 1208 7 AF 332 SO	ELLINGTON AFB, Houston, Texas 1 ATRC 2 747th AC&W Sq (CADF) 3 None 4 Ellington AFB, Texas 5 8543 6 AF 28 SO
COLVILLE, Washington	1 ADC - WADF 2 760th AC&W Sq 3 None 4 Colville, Wash. (Gen Del) 5 9709 6 None	DOVER AFB, Dover, Delaware 1 MATS 2 46th F/I Sq (EADF) 3 None 4 Dover AFB, Delaware 5 2121 6 AF 497 SO	EL VADA, New Mexico 1 ADC - CADF 2 767th AC&W Sq 3 None 4 Tierra Amarilla, N.M. 5 8312 6 None
			EMPIRE, Michigan 1 ADC - EADF 2 752d AC&W Sq 3 None 4 Empire, Michigan 5 6222 6 None

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KEY: ① COMMAND JURISDICTION		② ADC UNITS	③ UNITS OF OTHER COMMANDS		
④ MAILING ADDRESS		⑤ STATION NUMBER	⑥ SUPPLY ACCOUNT NUMBER		
ENT AFB, Colorado Springs Colo.		FORT CUSTER, Michigan		GEIGER FIELD, Spokane, Washington (Cont'd)	
1 ADC		1 ARMY		4 Geiger Fld, Spokane, Wash.	
2 Hq ADC		2 781st AC&W Sq (EADF)		5 9783	
47th Comm Sq (Comd)		3 None		6 AF 797 SO	
4600th Air Base Gp		4 Fort Custer, Michigan		GEORGE AFB, Victorville, Calif.	
4600th M&S Sq		5 6220		1 TAC	
4600th Base Sv Sq		6 None		2 94th F/I Sq (WADF)	
3 3d Wea Gp Hq (MATS)		FORT CUSTIS, Virginia		3 None	
Det 1, 3d Air Wea Gp (MATS)		1 ARMY		4 George AFB, California	
Det 2, 3d Air Wea Gp (MATS)		2 771st AC&W Sq (EADF)		5 9061	
4 Ent AFB, Col Springs, Colo		3 None		6 AF 312 SO	
5 7037		4 Fort John Custis, Cape Charles, Virginia		GONZALES, New Mexico	
6 AF 350 SO		5 3355		1 ADC - CADF	
ETHAN ALLEN AFB, Winooski, Vt.		6 None		2 769th AC&W Sq	
1 ADC - EADF		FORT KNOX, Kentucky		3 None	
2 37th F/I Sq		1 Dept Army		4 Continental Divide, N.M.	
125th AC&W Sq		2 784th AC&W Sq (EADF)		5 8311	
517th Air Def Gp Hq		3 None		6 None	
517th Air Base Squadron		4 Fort Knox, Kentucky		GRAND RAPIDS, Michigan	
517th Material Squadron		5 5234		1 ADC - EADF	
517th USAF Infirmary		6 AF 412 SO		2 Det 4, 4671st GROS	
Flt 3-E, 4602d AIS Sq (ADC)		FORT SNELLING, Minnesota		3 None	
3 None		1 VA		4 216 Ionia Ave., N.W., Grand Rapids, Michigan	
4 Ethan Allen AFB, Winooski, Vermont		2 31st Air Div (Def) (CADF)		5 6246	
5 1628		504th AF Band (CADF)		6 None	
6 AF 2325 SO		650th AC&W Sq (CADF)		GREATER PITTSBURGH AIRPORT, Coraopolis, Pennsylvania	
FAIRFAX FIELD, Kansas City, Kansas		808th AC&W Sq (CADF)		1 ADC - EADF	
1 ADC - CADF		4672d GROS Hq (CADF)		2 71st F/I Sq	
2 4610th Air Base Sq		3 Det 5, 19th Wea Sq (MATS)		500th Air Def Gp, Hq	
3 Det 8, 19th Wea Sq (MATS)		4 Saint Paul 11, Minnesota		500th Air Base Squadron	
4 Fairfax Field, Kansas City, Kansas		5 7435		500th Material Squadron	
5 7374		6 AF 138 SO		500th USAF Infirmary	
6 AF 2352 SO		FORTUNA, North Dakota		Flt 3-F, 4602d AIS Sq (ADC)	
FARGO, North Dakota		1 ADC - CADF		3 Det 3, 12th Wea Sq (MATS)	
1 ADC - CADF		2 780th AC&W Sq		Det 6, 1914th AACs Sq (MATS)	
2 Det 6, 4673d GROS		3 None		2253 AFCTRC (ConAC)	
3 None		4 Fortuna, North Dakota		Greater Pittsburgh Appt. Coraopolis, Pennsylvania	
4 1040 10St. (Roosevelt School, 1st Floor), Fargo, North Dakota		5 7739		5 3941	
5 7740		6 None		6 AF 149 SO	
6 None		FORT WILLIAMS, Maine		GREAT FALLS AFB, Montana	
FINLAND, Minnesota		1 ARMY		1 MATS	
1 ADC - CADF		2 127th AC&W Sq (EADF)		2 29th Air Div (Def) (CADF)	
2 756th AC&W Sq		3 None		902d AC&W Sq (CADF)	
3 None		4 Fort Williams, Maine		903d AC&W Sq (CADF)	
4 Finland, Minnesota		5 1260		4773d GROS Hq (CADF)	
5 7431		6 None		Flt 1-B, 4602d AIS Sq (ADC)	
6 None		GEIGER FIELD, Spokane, Wash.		Det 3, 17th Liaison Sq (WADF)	
FINLEY, North Dakota		1 ADC - WADF		3 None	
1 ADC - CADF		2 Det 1, 17th Liaison Sq		4 Great Falls AFB, Great Falls, Montana	
2 785th AC&W Sq		115th AC&W Sq		5 9339	
3 None		134th AC&W Sq		6 AF 372 SO	
4 Finley, North Dakota		144th AC&W Sq		GREEN BAY, Wisconsin	
5 7761		145th AC&W Sq		1 ADC - EADF	
6 None		146th AC&W Sq		2 Det 9, 4671st GROS	
FORDLAND, Missouri		634th AC&W Sq		3 None	
1 ADC - CADF		651st AC&W Sq		4 1120 N. Irwin Ave, Green Bay, Wisconsin	
2 797th AC&W Sq		440th F/I Sq		5 6339	
3 None		445th F/I Sq		6 None	
4 Fordland, Missouri		530th Air Def Gp Hq			
5 7564		530th Air Base Squadron			
6 None		530th Material Squadron			
		530th USAF Infirmary			
		4702d Def Wg			
		3 Det 1, 4th Wea Sq (MATS)			

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KEY:		1	2	3	4
		COMMAND JURISDICTION	ADC UNITS	UNITS OF OTHER COMMANDS	
		MAILING ADDRESS	STATION NUMBER	SUPPLY ACCOUNT NUMBER	
<p>GRENIER AFB, Manchester, N.H.</p> <p>1 ADC - EADF</p> <p>2 111th AC&W Sq</p> <p>112th AC&W Sq</p> <p>113th AC&W Sq</p> <p>614th AC&W Sq</p> <p>921st AC&W Sq</p> <p>922d AC&W Sq</p> <p>923d AC&W Sq</p> <p>924th AC&W Sq</p> <p>926th AC&W Sq</p> <p>4681st Air Base Sq</p> <p>3 Det 7, 12 Wea Sq (MATS)</p> <p>Det 1, 1917th AACs Sq (MATS)</p> <p>4 Grenier AFB, Manchester NH</p> <p>5 1481</p> <p>6 AF 333 SO</p> <p>GRIFFISS AFB, Rome, New York</p> <p>1 ARDC</p> <p>2 27th F/I Sq (EADF)</p> <p>1st Rad Calib Sq (EADF)</p> <p>102d Rad Calib Sq (EADF)</p> <p>3 None</p> <p>4 Griffiss AFB, Rome, N.Y.</p> <p>5 2411</p> <p>6 AF 466 SO</p> <p>GUTHRIE, West Virginia</p> <p>1 ADC - EADF</p> <p>2 783d AC&W Sq</p> <p>3 None</p> <p>4 Charleston, West Virginia</p> <p>5 5467</p> <p>6 None</p> <p>HAMILTON AFB, San Rafael, California</p> <p>1 ADC - WADF</p> <p>2 Hq WADF</p> <p>Det 1, 4602d AIS Sq</p> <p>4th Rad Calib Sq</p> <p>13th Crash-Res Boat Flt</p> <p>19th WAF Sq</p> <p>28th Air Div, Hq (Def)</p> <p>43d Comm Sq (Comd)</p> <p>84th F/I Sq</p> <p>496th F/I Sq</p> <p>658th AC&W Sq</p> <p>566th Air Def Gp, Hq</p> <p>566th Air Police Sq</p> <p>566th Food Service Sq</p> <p>566th Motor Vehicle Sq</p> <p>566th Field Maint Sq</p> <p>566th Supply Sq</p> <p>566th Installations Sq</p> <p>566th Operations Sq</p> <p>566th Medical Sq</p> <p>573d Air Force Band</p> <p>4773d GROS Hq</p> <p>3 1117th SAM Sq (Hq Comd)</p> <p>1801st AACs Gp Hq (MATS)</p> <p>Det 4, 1901st AACs Sq (MATS)</p> <p>4th Air Res Gp Hq (MATS)</p> <p>41st Air Res Sq (MATS)</p> <p>Det 7, FI Sv (MATS)</p> <p>4th Wea Sq Hq (MATS)</p> <p>Det 1, 1st AACs I&M Sq (MATS)</p> <p>Flt "A", 1856th AACs Sq (MATS)</p> <p>4th Air Force Hq (ConAC)</p> <p>HAMILTON AFB, San Rafael, California (Cont'd)</p> <p>3 2218th Pers Proc Sq (ConAC)</p> <p>2346th AFRTC (ConAC)</p> <p>2317th Air Trans Sq (ConAC)</p> <p>Hq Western AAAC (AAAC)</p> <p>Co "A" 1905th Eng Aviation Battalion (ConAC)</p> <p>35th Comm Sq (Comd) (ConAC)</p> <p>4 Hamilton AFB, Hamilton California</p> <p>5 9134</p> <p>6 AF 41 SO</p> <p>HANCOCK FIELD, Syracuse, N.Y.</p> <p>1 ADC - EADF</p> <p>2 32d Air Div (Def)</p> <p>907th AC&W Sq</p> <p>911th AC&W Sq</p> <p>4673d GROS Hq</p> <p>Flt 3-D, 4602d AIS Sq (ADC)</p> <p>3 Det 6, 12th Wea Sq (MATS)</p> <p>4 Hancock Field, Eastwood Station 6, Syracuse, N.Y.</p> <p>5 2332</p> <p>6 AF 468 MEO</p> <p>HANNA CITY, Illinois</p> <p>1 ADC - CADF</p> <p>2 791st AC&W Sq</p> <p>3 None</p> <p>4 Hanna City, Illinois</p> <p>5 6150</p> <p>6 None</p> <p>HARRISBURG, Pennsylvania</p> <p>1 ADC - EADF</p> <p>2 Det 4, 4670th GROS</p> <p>3 None</p> <p>4 100 N. Cameron Street, Harrisburg, Pa.</p> <p>5 3252</p> <p>6 None</p> <p>HELENA, Montana</p> <p>1 ADC - CADF</p> <p>2 Det 1, 4773d GROS</p> <p>3 None</p> <p>4 Box 522, Helena, Montana</p> <p>5 9345</p> <p>6 None</p> <p>HUTCHINSON NAS, Kansas</p> <p>1 Navy</p> <p>2 793d AC&W Sq (CADF)</p> <p>3 None</p> <p>4 Hutchinson NAS, Hutchinson, Kansas</p> <p>5 7347</p> <p>6 None</p> <p>JACKSONVILLE, Florida</p> <p>1 ADC - CADF</p> <p>2 Det 7, 4674th GROS</p> <p>3 None</p> <p>4 575th Riverside Ave., Jacksonville, Florida</p> <p>5 4251</p> <p>6 None</p> <p>KANSAS CITY, Missouri</p> <p>1 ADC - CADF</p> <p>2 Hq CADF</p> <p>50th Comm Sq, AF</p> <p>Det 2, 4602d AIS Sq</p> <p>3 19th Wea Sq (MATS)</p> <p>4 PO Box 528 Kansas City, Mo. (TWX Address: 1209 Walnut St., Kansas City, Mo.)</p> <p>5 7548</p> <p>6 AF 2352 SO</p> <p>KEEWEENAW, Michigan</p> <p>1 ADC - EADF</p> <p>2 665th AC&W Sq</p> <p>3 None</p> <p>4 Calumet, Michigan</p> <p>5 6221</p> <p>6 None</p> <p>KINROSS AFB, Michigan</p> <p>1 ADC - EADF</p> <p>2 438th F/I Sq</p> <p>534th Air Def Gp, Hq</p> <p>534th Air Base Squadron</p> <p>534th Material Squadron</p> <p>534th USAF Infirmary</p> <p>3 Det 1, 1985th AACs Sq (MATS)</p> <p>Det 19, 12 Wea Sq (MATS)</p> <p>4 Kinross AFB, Kinross, Mich.</p> <p>5 6257</p> <p>6 None</p> <p>KIRTLAND AFB, Albuquerque, NM</p> <p>1 ARDC</p> <p>2 34th Air Div (Def) (CADF)</p> <p>135th AC&W Sq (CADF)</p> <p>904th AC&W Sq (CADF)</p> <p>93d F/I Sq (CADF)</p> <p>17th WAF Sq (CADF)</p> <p>Flt 1-d, 4602d AIS Sq (ADC)</p> <p>Det 4, 17 Liaison Sq (WADF)</p> <p>3 None</p> <p>4 Kirtland AFB, N.M.</p> <p>5 8304</p> <p>6 AF 3 SO</p> <p>KLAMATH, California</p> <p>1 ADC - WADF</p> <p>2 777th AC&W Sq</p> <p>3 None</p> <p>4 Klamath, California</p> <p>5 9103</p> <p>6 None</p> <p>KNOXVILLE, Tennessee</p> <p>1 ADC - CADF</p> <p>2 Det 2, 4674th GROS</p> <p>3 None</p> <p>4 307 Commerce Ave., 2d Floor, Knoxville, Tenn.</p> <p>5 4859</p> <p>6 None</p>					
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KEY: 1 COMMAND JURISDICTION		2 ADC UNITS	3 UNITS OF OTHER COMMANDS		
4 MAILING ADDRESS		5 STATION NUMBER	6 SUPPLY ACCOUNT NUMBER		
LACKLAND AFB, San Antonio, Tex.		MATHER AFB, Sacramento, Calif.	MCGUIRE AFB, Wrightstown, N.J.		
1 ATRC		1 ATRC	(Cont'd)		
2 741st AC&W Sq (CADF)		2 668th AC&W Sq (WADF)	2 568th Supply Sq		
3 None		3 None	568th Installations Sq		
4 Lackland AFB, San Antonio, Texas		4 Mather AFB, California	568th Operations Sq		
5 8632		5 9104	568th Medical Sq		
6 AF 247 SO		6 AF 67 SO	Flt 3-H, 4602d AIS Sq		
LANGLEY AFB, Hampton, Va.		MCHORD AFB, Tacoma, Was.	3 Det 4, 12th Wea Sq (MATS)		
1 TAC		1 ADC - WADF	Det 1, 1916 AACs Sq (MATS)		
2 48th F/I Sq (EADF)		2 Flt 1-A, 4602d AIS Sq	4 McGuire AFB, Trenton, N.J.		
3 None		17th Liaison Sq	5 2230		
4 Langley AFB, Hampton, Va.		18th WAF Sq	6 AF 184 SO		
5 3368		25th Air Div, Hq (Def)	MIAMI, Florida		
6 AF 51 SO		317th F/I Sq	1 ADC - CADF		
LARSON AFB, Moses Lake, Wash.		318th F/I Sq	2 Det 8, 4674th GROS		
1 TAC		465th F/I Sq	3 None		
2 31st F/I Sq (WADF)		534th Air Force Band	4 3632-36-40 NW, 25th Ave.,		
3 323d F/I Sq (WADF)		567th Air Def Gp, Hq	Miami, Florida		
4 None		567th Air Police Sq	5 4261		
5 Larson AFB, Washington		567th Food Service Sq	6 None		
6 AF 429 SO		567th Motor Vehicle Sq	MINNEAPOLIS, Minnesota		
LEAF RIVER, Minnesota		567th Field Maint Sq	1 ADC - CADF		
1 ADC - CADF		567th Supply Sq	2 Det 7, 4672d GROS		
2 739th AC&W Sq		567th Installations Sq	3 None		
3 None		567th Operations Sq	4 Buzzards Bldg, Rm. 427, 1006-		
4 Wadena, Minn. (PO Box 317)		567th Medical Sq	1008 W. Lake St. Minne-		
5 7442		635th AC&W Sq	apolis, Minnesota		
6 None		4704th Def Wing, Hq	5 7449		
LEXINGTON, Kentucky		4770th GROS Hq	6 None		
1 ADC - EADF		3 20th Dist OSI (Hq Comd)	MINNEAPOLIS-6T PAUL INTERNAT-		
2 Det 8, 4671st GROS		1705th Air Trans Gp Hq	IONAL AIRPORT, Minnesota		
3 None		1705th Air Traffic Sq (MATS)	1 ADC - CADF		
4 218 Church St. Lexington, Kentucky		32d Air Trans Sq (MATS)	2 18th F/I Sq		
5 5258		33d Air Trans Sq (MATS)	514th Air Def Gp, Hq		
6 None		34th Air Trans Sq (MATS)	514th Air Base Squadron		
LOUISVILLE, Kentucky		77th Air Trans Sq (MATS)	514th Material Squadron		
1 ADC - EADF		1726th Support Sq (MATS)	514th USAF Infirmary		
2 Det 7, 4671st GROS		43d Air Res Sq (MATS)	Flt 2-A, 4602d AIS Sq		
3 None		Det 4, 4th Wea Sq (MATS)	Det 4, 9th Liaison Sq (EADF)		
4 5th Floor, Hoffman Bldg. Louisville, Kentucky		Det 8, Flt Sv (MATS)	2465th AFRTC (ConAC)		
5 5260		1905th AACs Sq (MATS)	Det 2, 19 Wea Sq (MATS)		
6 None		4 McChord AFB, Washington	24 Dist OSI (Hq Comd)		
MADERA, California		5 9762	4 Minneapolis-St. Paul Inter-		
1 ADC - WADF		6 AF 69 SO	national Apt, St Paul 11,		
2 774th AC&W Sq		MCGHEE-TYSON MUN APRT,	Minnesota		
3 None		Knoxville, Tennessee	5 7491		
4 Madera, California		1 ADC - CADF	6 AF 138 SO		
5 9386		2 516th Air Def Gp, Hq	MORIARTY, New Mexico		
6 None		516th Air Base Squadron	1 ADC - CADF		
MANCHESTER, New Hampshire		516th Material Squadron	2 768th AC&W Sq		
1 ADC - EADF		516th USAF Infirmary	3 None		
2 Det 4, 4673d GROS		469th F/I Sq	4 Moriarty, New Mexico		
3 None		Flt 2-B, 4602d AIS Sq	5 8310		
4 1257 Elm St., Manchester, New Hampshire		3 Det 11, 19th Wea Sq (MATS)	6 None		
5 1480		Det 1, 1924th AACs Sq (MATS)	MOULTON, Minnesota		
6 None		4 McGhee-Tyson Mun. Apt. Alcoa, Tennessee	1 ADC - CADF		
MCGUIRE AFB, Wrightstown, N.J.		5 4400	2 787th AC&W Sq		
1 ADC - EADF		6 AF 295 SO	3 None		
2 4709th Def Wg, Hq		MCGUIRE AFB, Wrightstown, N.J.	4 Chandler, Minnesota		
2d F/I Sq		1 ADC - EADF	5 7455		
5th F/I Sq		2 4709th Def Wg, Hq	6 None		
568th Air Def Gp, Hq		2d F/I Sq			
568th Air Police Sq		5th F/I Sq			
568th Food Service Sq		568th Air Def Gp, Hq			
568th Motor Vehicle Sq		568th Air Police Sq			
568th Field Maint Sq		568th Food Service Sq			
		568th Motor Vehicle Sq			
		568th Field Maint Sq			

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④ MAILING ADDRESS ⑤ STATION NUMBER ⑥ SUPPLY ACCOUNT NUMBER					
MT BONAPARTE, Washington	NEW HAVEN, Connecticut	O'HARE INTERNATIONAL AIRPORT,			
1 ADC - WADF	1 ADC - EADF	Chicago, Illinois (Cont'd)			
2 638th AC&W Sq	2 Det 1, 4670th GROS	2 501st Material Squadron			
3 None	3 None	501st USAF Infirmary			
4 Curlew, Washington	4 54th Wall St New Haven,	Flt 3-A, 4602d AIS Sq			
5 9763	Connecticut	3 2471st AFRTC (ConAC)			
6 None	5 1163	2314th Air Trans Sq (ConAC)			
MT LAGUNA, California	6 None	1985th AACs Sq (MATS)			
1 ADC - WADF	NIAGARA FALLS MUNICIPAL APRT.	Det 18th, 12 Wea Sq (MATS)			
2 751st AC&W Sq	New York	4 O'Hare Intl Aprt, Park			
3 None	1 ADC - EADF	Ridge, Illinois			
4 Mt Laguna, California	2 47th F/I Sq	5 6181			
5 9491	518th Air Def Gp, Hq	6 AF 1718 SO			
6 None	518th Air Base Squadron	OLATHE NAS, Kansas			
MT TAMALPAIS, California	518th Material Squadron	1 Navy			
1 ADC - WADF	518th USAF Infirmary	2 738th AC&W Sq (CADF)			
2 666th AC&W Sq	3 Det 5, 12 Wea Sq (MATS)	3 None			
3 None	Det 1, 1914 AACs Sq (MATS)	4 Olathe NAS, Olathe, Kan.			
4 Mill Valley, California, PO	2256th AFRTC (ConAC)	5 7365			
Box 546	4 Niagara Falls Mun Airport,	6 AF 979 SO			
5 9194	Niagara Falls, New York	OMAHA, Nebraska			
6 None	5 2366	1 ADC - CADF			
NASELLE, Washington	6 AF 2377 SO	2 789th AC&W Sq			
1 ADC - WADF	NORTH PLATTE, Nebraska	Det 6, 4672d GROS			
2 759th AC&W Sq	1 ADC - CADF	3 None			
3 None	2 Det 9, 4673d GROS	4 (A) 789th AC&W Sq, Omaha,			
4 Naselle, Wash. (Gen Del)	3 None	Nebraska			
5 9712	4 L.E. Goodsell Bldg, 110 N.	(B) Det 6, 4672d GROS,			
6 None	Jefferson, N. Platte, Nebr.	American Legion Post No. 1,			
NASHVILLE, Tennessee	5 7679	2027 Dodge St., Omaha Nebr.			
1 ADC - CADF	6 None	5 7681			
2 Det 1, 4674th GROS	NORTH TRURO, Massachusetts	6 None			
3 None	1 ADC - EADF	OPHEIM, Montana			
4 YMCA Bldg, 226th 7th Ave.,	2 762d AC&W Sq	1 ADC - CADF			
North Nashville, Tenn.	3 None	2 779th AC&W Sq			
5 4877	4 North Truro, Mass.	3 None			
6 None	5 1343	4 Opheim, Montana			
NAVSINK, New Jersey	6 None	5 9374			
1 ADC - EADF	NORTON AFB, San Bernardino,	6 None			
2 646th AC&W Sq	California	OTIS AFB, Falmouth, Mass.			
3 None	1 AMC	1 ADC - EADF			
4 Highlands, New Jersey	2 27th Air Div (Def) (WADF)	2 4707th Def Wg, Hq			
5 2251	659th AC&W Sq (WADF)	27th Crash-Res Boat Flt			
6 None	4771st GROS Hq (WADF)	58th F/I Sq			
NEW CASTLE CO AIRPORT,	Flt 1-C, 4602d AIS Sq (ADC)	437th F/I Sq			
Wilmington, Delaware	Det 2, 17th Liaison Sq	119th AC&W Sq			
1 ADC - EADF	3 None	12th WAF Sq			
2 4710th Air Def Wg Hq	4 Norton AFB, California	564th Air Def Gp, Hq			
96th F/I Sq	5 9480	564th Air Police Sq			
332d F/I Sq	6 AF 911 CSD	564th Food Service Sq			
525th Air Def Gp, Hq	OAKLAND, California	564th Motor Vehicle Sq			
525th Air Base Squadron	1 ADC - WADF	564th Field Maint Sq			
525th Material Squadron	2 Det 1, 4772d GROS	564th Supply Sq			
525th USAF Infirmary	3 None	564th Installations Sq			
2d Tow Target Sq, (TAC)	4 Pacific Bldg, Rm 423, 610	564th Operations Sq			
2237th AFRTC (ConAC)	16th St., Oakland, Calif.	564th Medical Sq			
Det 13, 12 Wea Sq (MATS)	5 9157	3 Det 12, 12 Wea Sq (MATS)			
Det 7, 1912 AACs Sq (MATS)	6 None	Det 2, 1917th AACs Sq (MATS)			
New Castle County Airport,	O'HARE INTERNATIONAL AIRPORT,	151st TAC Con Gp Hq (TAC)			
Wilmington, Delaware	Chicago, Illinois	101st TAC Con Sq (TAC)			
5 2175	1 ADC - EADF	103d AC&W Sq (TAC)			
6 AF 1549 SO	2 4706th Def Wg (Hq)	104th AC&W Sq (TAC)			
	42 F/I Sq	110th AC&W Sq (TAC)			
	62 F/I Sq	4 Otis AFB, Falmouth, Mass.			
	501st Air Def Gp, Hq	5 1371			
	501st Air Base Squadron	6 AF 2025 SO			

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KEY:	1 COMMAND JURISDICTION	2 ADC UNITS
	3 MAILING ADDRESS	4 STATION NUMBER
		5 UNITS OF OTHER COMMANDS
		6 SUPPLY ACCOUNT NUMBER
OTTAWA, Ontario, Canada	POINT ARENA, California	RAPID CITY, South Dakota
1 ADC	1 ADC - WADF	1 ADC - CADF
2 Det 1, Hq ADC	2 776th AC&W Sq	2 Det 7, 4673d GROS
3 None	3 None	3 None
4 ADC Property Accountability Officer, Metcalf Bldg, 88 Metcalf St. Ottawa, Ontario Canada	4 Point Arena, California	4 Bellamy Bldg, Rooms 114-115, 414 7th Ave. Rapid City, South Dakota
5 None	5 9102	5 7870
6 AF 490 SO	6 None	6 None
OXNARD AFB, Oxnard, Calif.	PORT AUSTIN, Michigan	RAPID CITY AFB, Rapid City, SD
1 ADC - WADF	1 ADC - EADF	1 SAC
2 354th F/I Sq	2 754th AC&W Sq	2 54th F/I Sq (CADF)
533d Air Def Gp, Hq	3 None	740th AC&W Sq (CADF)
533d Air Base Squadron	4 Port Austin, Michigan	3 None
533d Material Squadron	5 6275	4 Rapid City AFB, Weaver, South Dakota
533d USAF Infirmary	6 None	5 7871
3 Det 9 4th Wea Sq (MATS)	PORTLAND, Oregon	6 AF 90 SO
Det 5, 1987 AACs Sq (MATS)	1 ADC - WADF	REEDS PORT, Oregon
4 Oxnard AFB, California	2 Det 3, 4770th GROS	1 ADC - WADF
5 9398	3 None	2 761st AC&W Sq
6 AF 762 SO	4 921 SW Madison Street. Portland, Oregon	3 None
PAINÉ AFB, Everett, Wash.	5 9580	4 North Bend, Oregon
1 ADC - WADF	6 None	5 9542
2 83d F/I Sq	PORTLAND INTERNATIONAL APRT.	6 None
529th Air Def Gp, Hq	Portland, Oregon	RICHMOND, Virginia
529th Air Base Squadron	1 ADC - WADF	1 ADC - EADF
529th Material Squadron	2 357th F/I Sq	2 Det 7, 4670th GROS
529th USAF Infirmary	497th F/I Sq	3 None
3 Det 10, 4 Wea Sq (MATS)	136th AC&W Sq	4 Broad St Station, Richmond, Virginia
4 Paine AFB, Everett, Wash.	503d Air Def Gp, Hq	5 3386
5 7365	503d Air Base Squadron	6 None
6 AF 979 SO	503d Material Squadron	RICKETTS GLEN STATE PARK, Pa.
PALERMO, New Jersey	503d USAF Infirmary	1 ADC - EADF
1 ADC - EADF	3 Det 11, 4th Wea Sq (MATS)	2 648th AC&W Sq
2 770th AC&W Sq	2343d AFRTC (ConAC)	3 None
3 None	4 Portland International Appt, Portland, Oregon	4 Benton, Pennsylvania
4 Palermo, New Jersey	5 9581	5 3250
5 2254	6 AF 2181 SO	6 None
6 None	PRESQUE ISLE AFB, Presque Isle, Maine	ROANOKE, Virginia
PASADENA, California	1 ADC - EADF	1 ADC - EADF
1 ADC - WADF	2 4711th Def Wg	2 Det 8, 4670th GROS
2 Det 2, 4771st GROS	57th F/I Sq	3 None
3 None	74th F/I Sq	4 Coulter Bldg., 609 South Jefferson St. Roanoke, Va.
4 171 South Grand Ave., Pasadena, California	528th Air Def Gp, Hq	5 2387
5 9162	528th Air Base Squadron	6 None
6 None	528th Material Squadron	ROCKVILLE, Indiana
PETERSON FIELD, Colorado Springs, Colorado	528th USAF Infirmary	1 ADC - EADF
1 ADC	Flt 3-G, 4602d AIS Sq	2 782d AC&W Sq
2 4602d Air Intel Sv Sq, Hq	3 Det 17, 12 Wea Sq (MATS)	3 None
3 Hq 3d Air Wea Gp (MATS)	Det 1, 1974th AACs Sq (MATS)	4 Rockville, Indiana
4 Peterson Field, Colorado Springs, Colorado	4 Presque Isle AFB Presque Isle, Maine	5 5141
5 7037	5 1279	6 None
6 AF 350 SO	6 AF 335 SO	ROSLYN, New York
PITTSBURGH, Pennsylvania	QUANTICO, Virginia	1 ADC - EADF
1 ADC - EADF	1 ADC - EADF	2 26th Air Div (Def)
2 Det 5, 4670th GROS	2 647th AC&W Sq	649th AC&W Sq
3 None	3 None	4670th GROS Hq
4 Room 203, Dalzell Bldg. 923 Penn. Ave., Pittsburgh, Pennsylvania	4 Manassas, Virginia	3 Det 10, 12 Wea Sq (MATS)
5 3294	5 3398	4 Roslyn, New York
6 None	6 None	5 2436
		6 AF 75 SO

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KEY: 1 COMMAND JURISDICTION		2 ADC UNITS	3 UNITS OF OTHER COMMANDS		
4 MAILING ADDRESS		5 STATION NUMBER	6 SUPPLY ACCOUNT NUMBER		
SACRAMENTO, California		SCOTT AFB, Belleville, Ill.		SIOUX CITY MUN APRT, Iowa (Cont'd)	
1 ADC - WADF		1 ATRC		2 521st USAF Infirmary	
2 Det 2, 4772d GROS		2 85th F/I Sq (CADF)		3 Det 12, 19 Wea Sq (MATS)	
3 None		3 None		Det 6, 1912 AACS Sq (MATS)	
4 Municipal Auditorium 15th & J Sts., Sacramento, California		4 Scott AFB, Illinois		4 Sioux City Mun Appt, Sioux City, Iowa	
5 9466		5 6180		5 7199	
6 None		6 AF 94 SO		6 AF 2358 SO	
SADDLE MOUNTAIN, Washington		SEATTLE, Washington		SIOUX FALLS, South Dakota	
1 ADC - WADF		1 ADC - WADF		1 ADC - CADF	
2 637th AC&W Sq		2 Det 1, 4770th GROS		2 Det 8, 4773d GROS	
3 None		3 None		3 None	
4 Othello, Wash. (PO Box 2)		4 Rm 210, 2d & Cherry Sts., Seattle, Washington		4 American Legion Bldg., 1300 W. 9th St., Sioux Falls, South Dakota	
5 9719		5 9778		5 7875	
6 None		6 None		6 None	
SAN CLEMENTE ISLE, California		SELFRIDGE AFB, Mt Clemens, Michigan		SOUTH BEND, Indiana	
1 ADC - WADF		1 ADC - EADF		1 ADC - EADF	
2 670th AC&W Sq		2 4708th Def Wg, Hq		2 Det 3, 4671st GROS	
3 None		13th F/I Sq		3 None	
4 San Pedro, California		61st F/I Sq		4 103 W. La Salle St. South Bend, Indiana	
5 9490		431st F/I Sq		5 5176	
6 None		56th F/I Sq		6 None	
SANTA ANA, California		575th Air Def Gp, Hq		SPOKANE, Washington	
1 ADC - WADF		575th Air Police Sq		1 ADC - WADF	
2 Det 1, 4771st GROS		575th Food Service Sq		2 Det 2, 4770th GROS	
3 None		575th Motor Vehicle Sq		3 None	
4 1012 N. Main St., Santa Ana, California		575th Field Maint Sq		4 610 W. Sprague Ave., Spokane, Washington	
5 9184		575th Installations Sq		5 9782	
6 None		575th Supply Sq		6 None	
SANTA ROSA ISLAND, California		575th Operations Sq		SPRINGFIELD, Illinois	
1 ADC - WADF		575th Medical Sq		1 ADC - EADF	
2 669th AC&W Sq		661st AC&W Sq		2 Det 1, 4671st GROS	
3 None		32d Crash-Res Boat Flt		3 None	
4 US Naval Advance Base Depot Port Hueneme, Calif.		Flt 3-C, 4602d AIS Sq		4 217th South 7th St., Springfield, Illinois	
5 9030		Det 2, 9th Liaison Sq		5 6182	
6 None		10th Air Force Hq (ConAC)		6 None	
SAULTE STE MARIE, Michigan		36th Comm Sq (ConAC)		STEWART AFB, Newburgh, N.Y.	
1 ADC - EADF		691st AF Band (ConAC)		1 ADC - EADF	
2 753d AC&W Sq		2475th WAF Sq (ConAC)		2 Hq EADF	
3 None		Det 14, 12 Wea Sq (MATS)		9th Liaison Sq	
4 Saulte Ste Marie, Mich.		Det 3, 1914th AACS Sq (MATS)		42d Comm Sq, AF	
5 6282		49th Air Res Sq (MATS)		330th F/I Sq	
6 None		2242d AFRTC (ConAC)		15th WAF Sq	
SAVANNAH, Georgia		4 Selfridge AFB, Michigan		579th Air Force Band	
1 ADC - CADF		5 6285		4700th Air Base Gp	
2 Det 5, 4674th GROS		6 AF 96 SO		4700th Material Sq	
3 None		SHAWNEE, New York		4700th Medical Sq	
4 9 E. Bay St. Savannah, Ga.		1 ADC - EADF		4700th Base Service Sq	
5 4379		2 763d AC&W Sq		Det 3, 4602d AIS Sq	
6 None		3 None		3 Det 5, 1912 AACS Sq (MATS)	
SCHUYLERVILLE, New York		4 Lockport, New York		12th Wea Sq (MATS)	
1 ADC - EADF		5 2379		4 Stewart AFB, Newburgh, N.Y.	
2 656th AC&W Sq		6 None		5 2311	
3 None		SIMPSON, Montana		6 AF 301 SO	
4 Saratoga Springs, N.Y.		1 ADC - CADF		SUBLETTE, Missouri	
5 2422		2 778th AC&W Sq		1 ADC - CADF	
6 None		3 None		2 790th AC&W Sq	
		4 Havre, Montana		3 None	
		5 9373		4 Kirksville, Missouri	
		6 None		5 7565	
		SIOUX CITY MUN APRT, Iowa		6 None	
		1 ADC - CADF			
		2 87th F/I Sq			
		106th Radar Calib Sq			
		521st Air Def Gp, Hq			
		521st Air Base Squadron			
		521st Material Squadron			

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KEY: ① COMMAND JURISDICTION		② ADC UNITS	③ UNITS OF OTHER COMMANDS		
④ MAILING ADDRESS		⑤ STATION NUMBER	⑥ SUPPLY ACCOUNT NUMBER		
SUFFOLK COUNTY, AFB West Hampton, Long Island, N.Y.		VELVA, North Dakota	WURTSMITH AFB, Oscoda, Mich.		
1 ADC - EADF		1 ADC - CADF	1 ADC - EADF		
2 27th Crash-Res Boat Flt		2 786th AC&W Sq	2 63d F/I Sq		
75th F/I Sq		3 None	11th Crash-Res Boat Flt		
45th F/I Sq		4 Minot, North Dakota	527th Air Def Gp, Hq		
331st F/I Sq		5 7771	527th Air Base Squadron		
519th Air Def Gp, Hq		6 None	527th Material Squadron		
519th Air Base Squadron		WALKER AFB, New Mexico	527th USAF Infirmary		
519th Material Squadron		1 SAC	3 Det 8, 12 Wea Sq (MATS)		
519th USAF Infirmary		2 120th AC&W Sq (CADF)	Det 8, 1914 AACs Sq (MATS)		
3 Det 6, 1912 AACs Sq (MATS)		3 None	4 Wurtsmith AFB, Oscoda, Mich		
Det 9, 12 Wea Sq (MATS)		4 Walker AFB, Roswell, N.M.	5 6269		
4 Suffolk Co AFB, West		5 8360	6 AF 2385 SO		
Hampton, Long Island, N.Y.		6 AF 91 SO	YAAK, Montana		
5 2409		WATERTOWN, New York	1 ADC - WADF		
6 AF 2370		1 ADC - EADF	2 680th AC&W Sq		
SYRACUSE, New York		2 655th AC&W Sq	3 None		
1 ADC - EADF		3 None	4 Bonners Ferry, Idaho		
2 Det 2, 4673d GROS		4 Watertown, New York	5 9371		
3 None		5 2392	6 None		
4 3d Floor, 624 N. State St.		6 None	YOUNGSTOWN MUNICIPAL AIRPORT,		
Syracuse, New York		WAVERLY, Iowa	Youngstown, Ohio		
5 2386		1 ADC - CADF	1 ADC - EADF		
6 None		2 788th AC&W Sq	2 86th F/I Sq		
TINKER AFB, Oklahoma		3 None	502d Air Def Gp, Hq		
1 AMC		4 Waverly, Iowa	502d Air Base Squadron		
2 33d Air Div (Def) (CADF)		5 7288	502d Material Squadron		
653d AC&W Sq (CADF)		6 None	502d USAF Infirmary		
657th AC&W Sq (CADF)		WESTOVER AFB, Chicopee Falls,	3 Det 22, 12 Wea Sq (MATS)		
746th AC&W Sq (CADF)		Massachusetts	Det 5, 1914 AACs Sq (MATS)		
Flt 2-D, 4602d AIS Sq (ADC)		1 MATS	4 Youngstown Mun. Airport,		
Det 3, 9th Liaison Sq (EADF)		2 60th F/I Sq (EADF)	Youngstown, Ohio		
3 None		3 None	5 5394		
4 Tinker AFB, Oklahoma City,		4 Westover AFB, Mass.	6 AF 756 SO		
Oklahoma		5 1388	YUMA COUNTY AIRPORT, Yuma,		
5 8461		6 AF 3.9 SO	Arizona		
6 AF 904 CSD		WHITE PLAINS, New York	1 ADC - WADF		
TRAVIS AFB, Fairfield, Calif.		1 ADC - EADF	2 4750th Training Gp (Air Def		
1 SAC		2 Det 2, 4670th GROS	4750th Base Service Sq		
2 325th F/I Sq (WADF)		3 None	4750th Material Sq		
3 None		4 21 Court St., White Plains,	4750th Training Sq		
4 Travis AFB, Fairfield,		New York	(Weapons)		
California		5 2397	3 Det 3 4th Wea Sq (MATS)		
5 9465		6 None	Det 4, 1903 AACs Sq (MATS)		
6 AF 427 SO		WILLOW RUN, Michigan	4 Yuma County Apt, Ariz.		
TRENTON, New Jersey		1 ADC - EADF	5 9896		
1 ADC - EADF		2 30th Air Div (Def)	6 AF 2466 SO		
2 Det 3, 4670th GROS		809th AC&W Sq			
3 None		906th AC&W Sq			
4 Room 213, PO Bldg, 402 E.		908th AC&W Sq			
State St. Trenton, N.J.		4671st GROS Hq			
5 2280		3 Det 20, 12 Wea Sq (MATS)			
6 None		4 Willow Run Apt, Belleville			
TRUAX FIELD, Madison, Wisc.		Michigan			
1 ADC - EADF		5 6211			
2 432d F/I Sq		6 None			
433d F/I Sq		WRIGHT-PATTERSON AFB			
520th Air Def Gp, Hq		Dayton, Ohio			
520th Air Base Squadron		1 AMC			
520th Material Squadron		2 97th F/I Sq (EADF)			
520th USAF Infirmary		Flt 3-B, 4602d AIS Sq (ADC)			
3 Det 6, 12 Wea Sq (MATS)		3 None			
Det 3, 1985 AACs Sq (MATS)		4 Wright-Patterson AFB, Ohio			
4 Truax Fld, Madison, Wisc.		5 5392			
5 6330		6 AF 909 SO			
6 AF 63 SO					

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RESTRICTED SECURITY INFORMATION			
KEY:	1 COMMAND JURISDICTION	2 ADC UNITS	3 UNITS OF OTHER COMMANDS
	4 MAILING ADDRESS	5 STATION NUMBER	6 SUPPLY ACCOUNT NUMBER
ARMSTRONG, Ontario, Canada			
1	ADC - EADF		
2	914th AC&W Sq		
3	None		
4	Armstrong, Ontario, Canada		
5			
6	None		
BALDY HUGHES, British, Columbia, Canada			
1	ADC - WADF		
2	918th AC&W Sq		
3	None		
4	PO Prince George, British, Columbia, Canada		
5			
6	None		
BEAUSEJOUR, Manitoba, Canada			
1	ADC - CADF		
2	916th AC&W Sq		
3	None		
4	Milner Ridge, Manitoba, Canada		
5			
6	None		
PAGWA, Ontario, Canada			
1	ADC - EADF		
2	913th AC&W Sq		
3	None		
4	Pagwa, Ontario, Canada		
5			
6	None		
PUNTZI MT. British Columbia, Canada			
1	ADC - WADF		
2	917th AC&W Sq		
3	None		
4	Williams Lake, British Columbia, Canada		
5			
6	None		
RAMORE, Ontario, Canada			
1	ADC - EADF		
2	912th AC&W Sq		
3	None		
4	Ramore, Ontario, Canada		
5			
6	None		
SASKATOON MT. Alberta, Canada			
1	ADC - WADF		
2	919th AC&W Sq		
3	None		
4	PO Beaver Lodge Alberta, Canada		
5			
6	None		
SIOUX LOOKOUT, Ontario, Canada			
1	ADC - CADF		
2	915th AC&W Sq		
3	None		
4	Stevenson Fld, Winnipeg, Manitoba, Canada		
5			
6	None		

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

ADOPR 381

5 Nov 1952

SUBJECT: (Unclassified) Air Defense Boundaries

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D. C.

1. References:

a. Letter this headquarters, 21 Jul 52, subject: (SECRET)
Plan for Employment of the Americanized Version of the Comprehensive
Display System, w/1st Ind.

b. Letter, 25 Jul 52, from General Chidlaw to General
Vandenberg (SECRET).

2. The requirements for an air defense system to be established
by 1955 have been forwarded by references a and b and have been con-
curred in by your headquarters. The purpose of this letter is to
secure your approval of the initial change (early 1953) in geographic
alignment of air defense areas to facilitate the transition from the
existing system to the 1955 system (see Incl 1).

3. The 1955 air defense system is based upon the employment of
the Americanized Version of the British Comprehensive Display System
in the northeastern and western double perimeter areas and an improved
manually operated system (possibly photographic) in central and southern
United States.

4. The Air Defense Command's concept for the operation of this
system is as follows:

a. The organizational structure of the command will generally
be as indicated on Incl 2.

b. The combat center is the heart of this system. It is at
this point that threat evaluation and assignment of weapons for conduct
of the air battle will occur. The commander of this combat center has
under his direct command local and area weapons, surveillance and con-
trol facilities, which are adequate to conduct active air defense on
an area basis.

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ADOPR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

c. The Air Defense Force headquarters coordinates the activities of the combat commanders. The Air Defense Command in turn coordinates the activities of the Air Defense Forces.

d. Contained in this concept is the recognition that air defense air surveillance and control information will be displayed on a near instantaneous basis at direction centers and at the combat center. Evaluated intelligence estimates by the various command echelons will be displayed at all higher levels.

e. In the area of manual systems (central and southern United States) the density of enemy air traffic is expected to be low enough for present concepts to continue to function.

5. The establishment of this system in 1955 dictates certain geographic changes which are depicted in Incl 3. The air defense regions and sectors indicated were based upon the following criteria:

a. Regions.

- (1) Concentration of critical air defense areas.
- (2) The double perimeter concept for air defense of the most critical areas.
- (3) Probable enemy approach routes and his increasing capability of attacking from any direction.
- (4) The amount of hostile traffic to be expected in these areas.
- (5) The requirement for rapid and complete identification around the perimeter of the U. S. and internally around critical areas.
- (6) The type of equipment to be used in the ground environment during this time period.

b. Sectors.

- (1) Size of area.
- (2) Type of terrain.
- (3) The number and character of targets within the area.

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- (4) Availability of weapon bases.
- (5) Range of weapons.
- (6) Available communication nets.
- (7) Available facilities.
- (8) The number of probable air battles that will occur.
(This figure was accepted to be one that would impose a load no greater than a total of 100 simultaneous radar tracks in any one sector.)

6. It is believed that the interim boundary changes proposed for 1953 will facilitate the attainment of the 1955 position by providing gradual organizational adjustment without a loss of air defense effectiveness. These changes, which are depicted in Incl 1, are as follows:

a. WADF - CADF: Beginning at a point on the U. S.-Canadian border at 115° W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada; thence south along the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian to the U. S.-Mexico border.

b. EADF - CADF: Beginning at a point on the U. S.-Canadian border at 90° W; thence southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the northern border of Illinois; thence to a point 89° W - 41° 45' N; thence along the 89th meridian to the northern border of Kentucky; thence along the western border of Kentucky to the northern border of Tennessee. The southern boundary remains unchanged.

c. The air division sector boundaries in the EADF and WADF regions remain unchanged except as modified by the air defense force regional boundaries. Air division sector boundaries in the CADF region are changed as follows:

- (1) 29th Air Division: The western boundary coincides with the WADF-CADF boundary to the northern border of Utah; thence south and east along the western and southern borders of Wyoming and the southernmost borders of Nebraska to the 96th meridian; thence north along the 96th meridian to the western border

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of Iowa; thence along the western borders of Iowa and Minnesota to the U. S.-Canada border. The northern boundary coincides with the U. S.-Canada border.

- (2) 34th Air Division: The western boundary coincides with the WADF-CADF boundary to the U. S.-Mexico border; thence east along the U. S.-Mexico border to the 103d meridian; thence north along the 103d meridian to the southern border of Colorado; thence along the southern, eastern and northern borders of Colorado to the Colorado-Utah-Wyoming intersection; thence west and north along the Utah-Wyoming border to the southern border of Idaho.
- (3) 33d Air Division: The western boundary coincides with the eastern boundary of the 34th Air Division; thence east along the U. S.-Mexico border and the Gulf of Mexico to the western border of Mississippi; thence north along the western borders of Mississippi, Tennessee and Kentucky to the 89th meridian; thence along the 89th meridian to the 39th parallel; thence west along the 39th parallel to the eastern border of Missouri; thence north and west along the Missouri-Illinois and the Missouri-Iowa border to the 96th meridian; thence south along the 96th meridian to the northern border of Kansas; thence west along the northern border of Kansas to the western border of Colorado.
- (4) 31st Air Division: The western boundary coincides with the eastern boundary of the 29th Air Division. The eastern boundary coincides with the EADF-CADF boundary. The northern boundary coincides with the U. S.-Canada border. The southern boundary begins at a point $89^{\circ} \text{W} - 39^{\circ} \text{N}$; thence west along the 39th parallel to the eastern border of Missouri; thence north and west along the Missouri-Illinois and the Missouri-Iowa border to the 96th meridian.

7. Although the foregoing boundary descriptions terminate at the Canadian border, operational considerations indicate the expediency of extending these boundaries across the U. S.-Canada border. Military and political negotiation with Canada will be required to determine the northern termini of the continental air defense boundaries.

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ADOPR 381 Subject: (Unclassified) Air Defense Boundaries (contd)

8. Request your approval of the interim boundary changes described above. Also request that air divisions be designated, by number, for each of the new air defense sectors created by the geographic alignment of the 1955 air defense system.

FOR THE COMMANDING GENERAL:

/s/ ROBERT M. WYNENS
Capt., USAF
Asst. Adj. Gen.

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B/L fr ADC, ADOFR 381, dtd 5 Nov 52, Subj: (Uncl) Air Defense Boundaries

AFOOP-OP-D

1st Ind

2 Dec 1952

Department of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. The interim boundary changes outlined in the basic correspondence and inclosures are approved.

2. Designations for the Air Divisions for each new air defense sector created by the geographic alignment of the 1955 air defense system are indicated below:

<u>Designation</u>	<u>Location</u>	<u>Air Defense Sector</u>
8th Air Div (Defense)	Paine Air Force Base	Vancouver
9th Air Div (Defense)	Geiger Air Force Base	Spokane
20th Air Div (Defense)	Grandview Air Force Base	Kansas City
37th Air Div (Defense)	Truax Field, Wisconsin (Madison Municipal)	Madison
45th Air Div (Defense)	Presque Isle	Presque Isle
58th Air Div (Defense)	(Under study)	Dayton
85th Air Div (Defense)	(Under study)	Washington

3. Reference paragraph 7, basic letter. This Headquarters is taking action to consolidate all USAF Air Defense requirements in Canada into one package for presentation to the Canadians for their approval. Your Headquarters will be requested in separate correspondence to submit any additional ADC Air Defense requirements in Canada to be included in this consolidation.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ R. E. KOON
Colonel, USAF
Executive
Directorate of Operations

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RESTRICTED SECURITY INFORMATION
 HEADQUARTERS
 AIR DEFENSE COMMAND
 CENTRAL AIR FORCE BASE
 COLORADO SPRINGS, COLORADO

GENERAL ORDERS
 NUMBER 14

10 February 1953

REASSIGNMENT OF 29TH AIR DIVISION (DEFENSE) SECTION I
 REASSIGNMENT OF AIRCRAFT CONTROL AND WARNING SQUADRONS. . . SECTION II
 REASSIGNMENT OF FIGHTER-INTERCEPTOR SQUADRONS SECTION III
 REASSIGNMENT OF 34TH AIR DIVISION (DEFENSE) SECTION IV
 REASSIGNMENT OF INSTALLATION SECTION V

SECTION I

1. Effective 16 February 1953 the Headquarters 29th Air Division (Defense) is relieved from assignment to Western Air Defense Force and is reassigned to Central Air Defense Force.

2. Concurrent with the above action the 680th Aircraft Control and Warning Squadron is relieved from assignment to the Headquarters 29th Air Division (Defense) and reassigned to the 25th Air Division (Defense) with further assignment to the 4702d Defense Wing.

3. Authority: Air Force Regulation 20-62, 27 July 1949.

SECTION II

1. Effective 16 February 1953 the following Aircraft Control and Warning Squadrons are relieved from assignment to Western Air Defense Force and reassigned to Central Air Defense Force with further assignment to the 29th Air Division (Defense).

681st Aircraft Control and Warning Squadron
 778th Aircraft Control and Warning Squadron
 779th Aircraft Control and Warning Squadron
 780th Aircraft Control and Warning Squadron

2. Effective 16 February 1953 the 676th Aircraft Control and Warning Squadron is relieved from assignment to Central Air Defense Force and reassigned to Eastern Air Defense Force with further assignment to the 4706th Defense Wing.

3. Authority: Air Force Regulation 20-62, 27 July 1949.

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GENERAL ORDERS (CONT'D)
NUMBER 14

SECTION III

1. Effective 16 February 1953 the 433d and 432d Fighter-Interceptor Squadrons are relieved from assignment to Central Air Defense Force and are reassigned to Eastern Air Defense Force with further assignment to 520th Air Defense Group.
2. Authority: Air Force Regulation 20-62, 27 July 1949.

SECTION IV

1. Effective 16 February 1953 the Headquarters 34th Air Division (Defense) is relieved from assignment to Western Air Defense Force and is reassigned to Central Air Defense Force.
2. Concurrent with the above action the following T/O Units are relieved from assignment to Western Air Defense Force and are reassigned to Central Air Defense Force, further assignment to the 34th Air Division (Defense) remains unchanged:

17th WAF Squadron
93rd Fighter-Interceptor Squadron
120th Aircraft Control and Warning Squadron
135th Aircraft Control and Warning Squadron
767th Aircraft Control and Warning Squadron
768th Aircraft Control and Warning Squadron
769th Aircraft Control and Warning Squadron

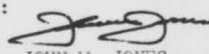
3. Authority: Air Force Regulation 20-62, 27 July 1949.

SECTION V

Effective 16 February 1953, Truax Field, Madison, Wisconsin is relieved from assignment to Central Air Defense Force and is assigned to Eastern Air Defense Force.

BY COMMAND OF MAJOR GENERAL TODD:

OFFICIAL:


JOHN W. JONES
Lt Colonel, USAF
Asst Adj Gen

JARRED V. CRABB
Major General, USAF
Chief of Staff

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HEADQUARTERS
AIR DEFENSE COMMAND
ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

GENERAL ORDERS
NUMBER 10

9 February 1953

ANNOUNCEMENT OF AIR DEFENSE FORCE REGIONS AND
AIR DIVISION (DEFENSE) SECTORS

1. Effective 0001Z, 16 February 1953, Air Defense Force regions and Air Division (Defense) sectors are assigned as follows:

a. Air Defense Force Regions:

- (1) Western Air Defense Force Region: That area of the Continental United States west of a line beginning at a point on the U.S.-Canada international boundary at 115°00'W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada; thence south along the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian; thence south along the 113th meridian to the U.S.-Mexico international boundary; and including the area westward to the limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Western Sea-board of the Continental United States.
- (2) Eastern Air Defense Force Region: That area of the Continental United States east and north of a line beginning at a point on the U.S.-Canada international boundary at 90°00'W; thence south-southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the intersection with the northern border of Illinois; thence to 41°45'N-89°00'W; thence along the 89th meridian to the border of Kentucky; thence along the western border of Kentucky to the northern border of Tennessee; thence east along the northern borders of Tennessee and North Carolina to the Atlantic Ocean; thence continuing on an azimuth of 122° to the limit of radar surveillance and controlled fighter-interceptor capability; and including the area eastward to the

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GENERAL ORDERS NUMBER 10 (Cont'd)

limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Eastern Seaboard of the Continental United States north of the above described line.

(3) Central Air Defense Force Region:

That area of the Continental United States east of a line beginning at a point on the U.S.-Canada international boundary at 115°00'W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian to the U.S.-Mexico international boundary; to a line beginning at a point on the U.S.-Canada international boundary at 90°00'W; thence south-southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the intersection with the northern border of Illinois; thence to 41°45'N-89°00'W; thence along the 89th meridian to the border of Kentucky; thence along the western border of Kentucky to the northern border of Tennessee; thence east along the northern borders of Tennessee and North Carolina to the Atlantic Ocean; thence continuing on an azimuth of 122° to the limit of radar surveillance and controlled fighter-interceptor capability; and including the area eastward and southward to the limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Eastern Seaboard and the coast of the Gulf of Mexico of the Continental United States east and south of the above described lines.

b. Air Division (Defense) Sectors:(1) Western Air Defense Force:(a) 25th Air Division (Defense) Sector:

That area of the Western Air Defense Force Region north of a line extending westward

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GENERAL ORDERS NUMBER 10 (Cont'd)

from 42°00'N-111°00'W along the northern borders of Nevada and California to the Pacific Ocean.

- (b) 27th Air Division (Defense) Sector:
That area of the Western Air Defense Force Region south of a line extending westward from 39°00'N-114°00'W to 39°00'N-116°00'W; thence southwest through 35°18'N-120°53'W to the Pacific Ocean.
- (c) 28th Air Division (Defense) Sector:
That area of the Western Air Defense Force Region not contained in the 25th and 27th Air Division (Defense) Sectors.

(2) Eastern Air Defense Force:

- (a) 30th Air Division (Defense) Sector:
That area of the Eastern Air Defense Force Region south and west of a line beginning on the U.S.-Canada international boundary at 42°18'N-80°30'W; thence east to 42°15'N-79°45'W; thence south and east along the New York border to 42°00'N-78°28'W; thence southwest to 39°35'N-80°20'W; thence south to the intersection with the northern border of North Carolina at 80°20'W.
- (b) 32d Air Division (Defense) Sector:
That area of the Eastern Air Defense Force Region north of a line beginning on the U.S.-Canada international boundary at 42°18'N-80°30'W; thence east to 42°15'N-79°45'W; thence south and east along the New York border to 42°00'N-78°28'W; thence northeast to 42°36'N-76°55'W; thence to 42°25'N-75°25'W; thence to 42°00'N-74°28'W;

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GENERAL ORDERS NUMBER 10 (Cont'd)

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thence to 42°00'N-73°35'W; thence to 42°03'N-73°30'W; thence east along the southern border of Massachusetts to the Atlantic Ocean.

(c) 26th Air Division (Defense) Sector:

That area of the Eastern Air Defense Force Region not contained in the 30th and 32d Air Division (Defense) Sectors.

(3) Central Air Defense Force:(a) 29th Air Division (Defense) Sector:

That area of the Central Air Defense Force Region delineated by a line beginning at a point on the U.S.-Canada international boundary at 115°00'W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho and the western border of Wyoming to the northern border of Utah at 41°00'N-111°00'W; thence along the southern borders of Wyoming and Nebraska to the 96th meridian; thence north along the 96th meridian to the western border of Iowa; thence north along the western borders of Iowa and Minnesota to the U.S.-Canada international boundary.

(b) 21st Air Division (Defense) Sector:

That area of the Central Air Defense Force Region delineated by a line beginning at a point on the U.S.-Canada international boundary at 90°00'W; thence southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the intersection with the northern border of Illinois; thence to 41°45'N-89°00'W; thence south along the 89th meridian to 39°00'N-89°00'W; thence west along the 39th parallel to the intersection with the eastern border of Missouri; thence along the eastern and northern borders of Missouri with the line extended westward to the 96th meridian; thence north along the 96th meridian to the western border of Iowa;

BY COMMAND OF

OFFICIAL:

JOHN W. JO
Lt Colonel
Asst Adj G

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GENERAL ORDERS NUMBER 10 (Cont'd)

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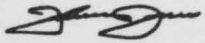
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Iowa and Minnesota to the U.S.-Canada
international boundary.

- (c) 34th Air Division (Defense) Sector:
That area of the Central Air Defense Force
Region delineated by a line beginning at a
point on the U.S.-Mexico international
boundary at 113°00'W; thence north along
the 113th meridian to the intersection with
the northern border of Arizona; thence west,
north, east, south and east along the Utah
border; thence east, south and west along
the Colorado border to 37°00'N-103°00'W;
thence south along the 103d meridian to the
U.S.-Mexico international boundary.
- (d) 33d Air Division (Defense) Sector:
That area of the Central Air Defense Force
Region delineated by a line beginning at a
point on the U.S.-Mexico international
boundary at 103°00'W; thence north along
the eastern boundary of the 34th Air
Division (Defense) Sector to the southern
boundary of the 29th Air Division (Defense)
Sector; thence east along the southern
boundaries of the 29th and 31st Air
Division (Defense) Sectors to the 89th
meridian; thence south along the 89th
meridian to the Kentucky border; thence
south along the western borders of Ken-
tucky, Tennessee and Mississippi to the
Gulf of Mexico.
- (e) 35th Air Division (Defense) Sector:
That area of the Central Air Defense Force
Region not contained in the 29th, 31st,
33d and 34th Air Division (Defense) Sectors.

BY COMMAND OF MAJOR GENERAL TODD:

OFFICIAL:


JOHN W. JONES
Lt Colonel, USAF
Asst Adj Gen

JARRED V. CRABB
Major General, USAF
Chief of Staff

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ADC REGULATION)
55-4)

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
18 February 1953

OPERATIONS

Air Defense Geographical Subdivisions
(Effective 16 February 1953)

1. Purpose. This regulation defines air defense geographical subdivisions, designates certain of these subdivisions, and establishes command responsibilities for designation of others.
2. Definitions.
 - a. Air Defense Area - A general term describing a geographical area within which air defense activity is conducted.
 - b. Air Defense Identification Zone - An air space above a specified geographic area established for identification of aircraft.
 - c. Air Defense Region - A major geographical subdivision of the Continental United States which delineates the area of air defense responsibility of an air defense force commander.
 - d. Air Defense Sector - The geographical subdivision of an air defense region which constitutes the area of air defense responsibility of an air division (defense) commander.
 - e. Air Defense Sub-Sector - A subdivision of an air defense sector within which a designated subordinate commander discharges responsibilities as assigned.
3. Responsibilities.
 - a. Administrator, Civil Aeronautics Administration, in conjunction with the Chief of Staff, USAF, is responsible for the designation of Air Defense Identification Zones based on military requirements submitted by the Commanding General, Air Defense Command.
 - b. Commanding General, Air Defense Command, is responsible for the designation of air defense regions subject to prior approval of the Chief of Staff, USAF.
 - c. Air defense force commanders are responsible for the designation of air defense sectors subject to prior approval of the Commanding General, Air Defense Command.
 - d. Air defense force commanders are responsible for the designation of air defense sub-sectors, and for advising the Commanding General, Air Defense Command, when changes are made in the sub-sector area of responsibility.
4. Designation of Air Defense Force Regions.
 - a. Eastern Air Defense Force Region. That area of the Continental United States east and north of a

*This supersedes ADCR 55-4, 26 February 1952.

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ADCR 55-4

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line beginning at a point on the U.S.-Canada international boundary at 90°00'W; thence south-southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the intersection with the northern border of Illinois; thence to 41°45'N-89°00'W; thence along the 89th meridian to the border of Kentucky; thence along the western border of Kentucky to the northern border of Tennessee; thence east along the northern borders of Tennessee and North Carolina to the Atlantic Ocean; thence continuing on an azimuth of 122° to the limit of radar surveillance and controlled fighter-interceptor capability; and including the area eastward to the limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Eastern Seaboard of the Continental United States north of the above described line.

b. Central Air Defense Force Region. That area of the Continental United States east of a line beginning at a point on the U.S.-Canada international boundary at 115°00'W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian to the U.S.-Mexico international boundary; to a line beginning at a point on the U.S.-Canada international boundary at 90°00'W; thence south-southwest to the Minnesota-Wisconsin-Iowa intersection; thence along the western border of Wisconsin to the intersection with the northern border of Illinois; thence to 41°45'N-89°00'W; thence along the 89th meridian to the border of Kentucky; thence along the western border of Kentucky to the northern border of Tennessee; thence east along the northern borders of Tennessee and North Carolina to the Atlantic Ocean; thence continuing on an azimuth of 122° to the limit of radar surveillance and controlled fighter-interceptor capability; and including the area eastward and southward to the limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Eastern Seaboard and the coast of the Gulf of Mexico of the Continental United States east and south of the above described lines.

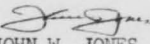
c. Western Air Defense Force Region. That area of the Continental United States west of a line beginning at a point on the U.S.-Canada international boundary at 115°00'W; thence south along the 115th meridian to the Idaho-Montana border; thence along the eastern border of Idaho to the northern border of Utah; thence west along the Utah-Idaho border to the eastern border of Nevada; thence south along the eastern border of Nevada to the northern border of Arizona; thence east along the northern border of Arizona to the 113th meridian; thence south along the 113th meridian to the U.S.-Mexico international boundary; and including the area westward to the limit of radar surveillance and controlled fighter-interceptor capability adjacent to the Western Seaboard of the Continental United States.

(ADCOOT)

BY COMMAND OF MAJOR GENERAL TODD:

JARRED V. CRABB
Major General, USAF
Chief of Staff

OFFICIAL:


JOHN W. JONES
Lt Colonel, USAF
Asst Adj Gen

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28 January 1953

Dr. James R. Killian
President, Massachusetts Institute of Technology
Cambridge 39, Massachusetts

Dear Dr. Killian:

Present international tensions and intelligence estimates of the growing potential air threat to this country, dictate a greatly expanded effort of all organizations engaged in improvement of the Air Defense of the United States. The U. S. Air Force has an urgent requirement for a greatly improved Air Defense Electronic Environment (ADEE) to be operational in calendar year 1955 or as quickly thereafter as is possible. The Lincoln Laboratory, operated by the Massachusetts Institute of Technology, is involved to a major extent in technical activities directly related to this problem and has been a vital part of the Air Force effort to develop an improved ADEE for air defense.

A fundamental goal of our program is to provide as early as possible the ADEE which can offer the best improved capability within the time era stated. It is the purpose of this letter to solicit your fullest cooperation in this expanded effort and to state the Air Force policy and program with respect to activities aimed at meeting this goal.

Two ADEE systems based on vastly different design and operating philosophies have been proposed for production and installation. Although most techniques and many components of both systems have been tested and proven feasible, neither proposal has had its prototype components integrated into a system and subjected to development testing or engineering field trials.

On the basis of this present meager knowledge, the Air Force is unwilling to commit itself to a large scale production program on either system to the complete exclusion of the other. However, it is mandatory that every action be taken to shorten the development-production cycle to the maximum extent possible. Accordingly, early support of production phases of both systems will be provided consistent with the state of development of each and the availability of procurement data. Decisions to proceed with successive production phases will be made on the basis of demonstrated achievement and availability as related to operational requirements.

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The system proposed by the Rome Air Development Center and Willow Run Research Center (WRRRC) has been designated as the ADIS System (Air Defense Integrated System for Surveillance and Weapon Control). Its basic design philosophy is that of a system having decentralized data processing and weapon control at the Air Defense Direction Center (ADDC) Defense Control Center (ADCC). At present a contract is being established by the Air Materiel Command to procure limited production quantities of all components of the system through a single prime contract. This contract is to be let with a competent manufacturing concern in the electronics industry. The Rome Air Development Center will be responsible for the engineering functions of this Command in connection with this procurement and will employ the WRRRC as its system engineering group charged with providing technical direction for this program. It is the intent of the Air Force to proceed with this program at the maximum rate consistent with test results and to start at once with production planning, preliminary production tooling and to deliver the equipments of the initial limited production for development testing or engineering field trials. Assuming that this system then demonstrates that it, in fact, is the earliest system to meet the requirements, it will be recommended for quantity production for use by the Air Defense Command until more advanced systems become available to meet increasing requirements.

The other ADEE system proposed by the Lincoln Laboratory, operated by the Massachusetts Institute of Technology under its general contract with the Army, Navy and Air Force has been designated the Lincoln Transition System. Its basic design philosophy is that of a system having all the functions of data processing, threat evaluation, weapon assignment and weapon control centralized at the Air Defense Control Center (ADCC).

The International Business Machine Company as the possible production source, has been engaged by the Lincoln Laboratory for doing preliminary prototype engineering work on this system. The Air Force Cambridge Research Center will be responsible for the engineering functions of this Command as soon as development-production implementation of this system takes place. The AFRCRC is to negotiate a prime contract with IBM in the very near future to further support the engineering of this system with available funds of this Command.

It is expected that production funds will be available this next Fiscal Year to effect production planning, production tooling and limited production of all components of the Lincoln Transition System for development testing or engineering field trials. In the event that test results and evaluation determine that this system is the earliest to meet the requirements, it will be recommended for quantity production for installation and use by the Air Defense Command.

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As mentioned before, a decision to accept one system to the complete exclusion of the other cannot be made at this time because of the limited available facts concerning the operational and technical capabilities, state of development, cost, etc., of either system. It is expected that much factual information will become available within the next few months which will enable the Air Force to engaged in the most desirable program. Such information will derive from engineering and production planning by a reliable manufacturer, from results of the Cape Cod test facility for the Lincoln Transition System, and from the engineering test facilities to be provided for ADIS in the vicinity of the WRRC. In attempting to meet time and capability objectives, it is conceivable that decisions may have to be made which will result in the installation of both systems in a compatible arrangement within the ADC. All Air Force activities must plan accordingly with regard to logistic support, training, and other factors if such an eventuality should arise.

In order to provide for the orderly integration of existing and projected weapons with the ADEE system, the following ground rules will apply:

a. Both ADEE systems must be capable of employing the F-102 with MS-1179, together with other manned interceptors which will still be in operational use at the time the new ADEE becomes operational. Specifically, these interceptors are foreseen to be the F-94B and C, the F-89B, C, D and G, and the F-86D. These interceptors will have characteristics compatible with the ADIS environment, although new airborne equipments may be required to enable these interceptors to operate efficiently with ADIS. The Transition System must be capable of operation with interceptors carrying the same equipment, without additions, as that required to operate with the ADIS system.

b. The Bomarc Weapon System will be developed with the assumption that it will be employed with ADIS. The objective of the Transition System should be to provide direct employment of this weapon without the use of presently planned weapon control equipment necessary for its employment in conjunction with ADIS. If this objective cannot be met, the Transition System must then be compatible with the Bomarc Weapon Control System and be capable of efficiently employing this weapon.

c. Problems of compatibility which arise in integrating the above stated weapon systems and ADIS will be resolved by mutual agreement between the development agencies concerned. In case agreement cannot be reached, the matter will be referred to Headquarters ARCC for resolution. To facilitate the development of the Transition System so that is compatible with all other present and projected air defense weapons, agencies charged with the development of airborne weapon systems will make available upon request by the Lincoln Laboratory, all information regarding characteristics, control requirements, and established concepts of employment of these weapons. Further, at any time that pertinent characteristics of a particular weapon are altered in order to reach compatibility with ADIS, such changes will be brought to the attention of the Lincoln Laboratory.

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Due to the budget cycle, it is urgent that sufficient progress be made during the next nine months for the Air Force to make further decisions on the production and quantities of either or both systems. For both systems it is imperative that decisions for succeeding steps of the development-production cycle be made at the earliest dates that good judgment dictates the risks are commensurate with the urgency of the situation even though prior stages of testing are not entirely completed.

To carry out the above program in the shortest possible time, the maximum of cooperation and coordination between all agencies concerned will be required. This coordination is particularly true between the WRRC and the Lincoln Laboratory where there are many common technical problems for which one or the other may have a solution. The maximum interchange of such information is desired provided the basic design philosophy of each is retained to insure both approaches to the solution of the ADEE problem.

A similar letter, copy attached, is being sent to the University of Michigan, to insure complete understanding of this complex problem. If additional clarification is required, representatives of this Headquarters will be pleased to meet with you for further discussions.

Sincerely yours,

E. E. PARTRIDGE
Lieutenant General, USAF
Commanding

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11 February 1953

General Benjamin W. Chidlaw
Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

Dear Ben,

As you are doubtless aware, there is a pressing need for a statement of policy on our activities in the general area of an improved Air Defense Electronic Environment for use by your Command. We have been working on such a statement for quite some time attempting to reconcile the many views and facets on this problem. This effort has finally resulted in the attached letter, which was sent out this past week to M.I.T., with a similar letter being sent to the University of Michigan.

Your Command has worked very closely to date with the University of Michigan group in evolving sound integrated requirements, organization and doctrines. This has been of invaluable assistance in getting the ADIS program properly directed. It is obvious from the attached letter that the continuance of this relationship is essential to proper conduct of the ADIS program in the future. I appreciate the extensive ADC planning activities which have taken place in relation to the ADIS system. The \$15 million of production money recently made available in FY-53 will insure that efforts on this system continue at a peak rate.

You will agree, I think, that the development of the Transition system demands enthusiastic support by the Air Force at least until the Air Force can be certain that the best attainable system is in your hands. It is with this objective in mind that I now am requesting similar support of you and your staff towards the development of the Transition system that you accorded the ADIS program. The Transition system is only now getting into definite form, and early and sustained cooperation by your staff would assist greatly in assuring the best possible system configuration for the Transition system. Members of my staff are desirous of contacting your headquarters in the immediate future to work out some details in connection with the Transition system.

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This practice of ADC working with both of these universities on two related systems, I am afraid, is going to complicate your future planning to a considerable degree inasmuch as we cannot say with certainty what system configuration you will have for organizational equipment a few years hence. Nevertheless, the principal object of the policy we have adopted is to produce in the shortest possible time the most effective Air Defense Electronic Environment of greatly increased capability over the present system.

In formulating the attached policy we have worked closely with the Headquarters USAF agencies involved and the final statement was concurred in by them as representing the U. S. Air Force's policy on this entire program. I should be happy to receive any suggestions or comments from you at any time on means of further expediting our actions towards this objective.

Sincerely,

E. E. PARTRIDGE
Lieutenant General, USAF
Commanding

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24 February 1953

Lt General E. E. Partridge
Commanding General
Air Research and Development Command
Baltimore 1, Maryland

Dear Pat,

In General Chidlaw's absence, I am taking the liberty of thanking you for your letter of 11 February 1953, and offering our comments which are also the thinking of General Chidlaw.

We readily appreciate the many problem areas that confronted you in arriving at a difficult decision in order to provide ADC with the best possible solution for an improved Integrated Ground Environment System. We feel sure that your decision is the best possible answer at this time to a very complex situation. Our one concern is the built-in time lag that is inevitable as a result of having to support two programs until near completion before being able to make a choice.

You may rest assured that the entire ADC staff will support to the utmost both universities equally and the programs they have undertaken at your request. Five members of the staff departed on 23 February for Lincoln Laboratories for a period of one week to lay the necessary ground work for a common understanding and continued liaison with this headquarters.

I sincerely hope that sufficient progress will be made during this year to enable us to see our way clear in making a selection of one or the other systems.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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HEADQUARTERS
AIR RESEARCH AND DEVELOPMENT COMMAND
Baltimore 1, Maryland

Office of
The Commanding General

6 May 1953

General Benjamin Chidlaw
Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

Dear Ben:

Reference is made to my previous letter of 11 February 1953 pertaining to a dual-approach policy on the development of an Air Defense Ground Electronic Environment. As the two programs discussed, ADIS and Lincoln Transition, were in initial stages, it was mandatory that a policy be established relative to the two so that the developing agencies and others concerned would have a basis upon which to plan future activities. There were conflicting estimates as to the state of development of each system and as to the date of availability of each. In order not to make a serious mistake, it was necessary for the Air Force to permit both programs to continue for, at least, a period of time sufficient to obtain more realistic time and cost figures, assuming successful development of each system. It was deemed desirable also in this very important effort to provide for a measure of insurance through a competitive development program so long as such a competition appeared to be advantageous to the Air Force and could be supported reasonably within resources.

This Command has adhered to the established policy over the past several months with full support accorded both systems in line with funds and other resources made available, however, for reasons which will not be enumerated here, the Air Force has found it necessary to revise the aforementioned policy, as outlined in my letter of 11 February 1953, and to initiate a unilateral approach to the solution of its research and development problems in the field of Air Defense Electronic Environments. This single approach will be oriented toward the Lincoln Laboratory Transition Air Defense System, and the ADIS program at RADC will be phased out completely as expeditiously as possible. Further, this Headquarters will henceforth depend on the Air Force Cambridge Research Center as the responsible agency in carrying out major obligations of this Command relative to Air Defense Ground Electronic Environment Systems. The Rome Air

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Hq ARDC ltr to General Chidlaw, CG ADC, Ent Air Force Base

Development Center will continue to perform some research and development on components (e.g. radars, communication equipment, etc.) for air defense usage but will not be responsible for system engineering and integration activities in this area. An initial development contract now exists between AFCRC and IBM, and it is expected that AMC will negotiate a production contract early in FY 1954 to continue this effort at IBM without interruption.

There will obviously be a period between now and the time when the Lincoln Transition System becomes available for operational use. There are, however, certain equipments which might be produced and employed during this period to increase the operational capability of ADC. Any new equipments to be introduced in service during this period must essentially be through development and ready for production now. Plans are being made for a comprehensive survey of all such components, equipments, and techniques which might fall in this category with the purpose in mind of recommending for production those items which appear most promising.

The excellent cooperation which you have given us in this matter is deeply appreciated. I am confident that the effective relationship which has existed between our commands will continue in the future, as indeed it must if we are to be successful in carrying out this tremendous task.

Sincerely,

E. E. PARTRIDGE
Lieutenant General, USAf
Commanding

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From: Hq USAF

9 Apr 1953

To: CG ADC

REURAD ADOPR 116 dated 20 Jan 1953. APGC has been requested to expedite TPI/land camera OST report. Same will be forwarded your headquarters upon receipt. Following is APGC flash report quoted for your information: "The final report of APG/ADA/53-A is in preparation. Tentative conclusions and recommendations are forwarded as verbally requested. As the result of compiled data rendered it is concluded that BOTHVE Lincoln system and the RADC system do not possess a range coverage compatible with the effective radar range. Except for this discrepancy the RADC system has demonstrated no operational limits. The Lincoln system in addition to the range limit does not provide adequate track list, is extremely susceptible to electronic jamming, is slower in processing information, and makes it impractical to control antenna rotational speed for close control. It is therefore recommended that the RADC system be employed and that development of the LINCOLN photo projection system discontinued."

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31 July 1953

Brigadier General T. Alan Bennett
 Commander
 25th Air Division (Defense)
 McChord Air Force Base
 Tacoma, Washington

Dear Al:

Sorry to be a little late in replying to your letter of 6 July. We have been in the throes of preparing for a visit by the Joint Chiefs, which has just ended --- glory be...

There was a lot of meat in your letter and I will try to discuss each topic in order.

We are very encouraged to find that you are making progress with your 86-Ds and that you feel you will soon be over the initial hump of the learning curve. We sure agree with your separation of 86-D landings by a minimum of thirty minutes to permit adequate cooling. Improper tire inflation may be a contributing factor in this case. At present, we are mighty short of tire pressure gauges and maintenance personnel sometimes have no accurate means of determining exact tire pressure. Casey's shop is working to relieve this shortage as soon as possible.

I am going to try to outline clearly the reasons for our proposal to activate the 9th Division on a lashup basis because I know you feel strongly on the matter. You certainly deserve a thorough reply to your own well-stated objections to the plan. First off, let me say that you are quite right in your position that for the next year or so the resources in the Northwest will not be so great that they could not all be controlled from your Headquarters. By 1955 or 1956, however, you will have such a large number of prime radars, fighter squadrons, and antiaircraft defenses in the Northwest that your span of control, coupled with the probable density of enemy attacks, would bring you a grave risk of complete saturation in the air battle. So it is in orientation toward the 1955 period and beyond, that we initially proposed the establishment of another Air Division in the Northwest.

This brings us to the very legitimate question of why we propose to accelerate on a lashup basis the activation of the 9th Division. It is simply a matter of dollars and cents, Al. There are several additional radars going into your area in the next several months, the communications circuitry involved runs into a good deal of money and

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as you know, the telephone companies require 10-year arrangement. This means that if we change the termination in less than 10 years we still pay the full 10-year fee. Since we know in a couple of years or so certain of these sites will be reporting into Geiger it is more economical to route them in that direction at the offset and accept the temporary dilution of control that will result.

As to the spaces involved it has been our plan all along to man the new division from the spaces in the 4702nd Wing, plus a few that Western can pick up due to some reduction in workload on both your Division Headquarters and the Wing at McChord. That's a problem we have to wrestle with whether we make the change next year or three years hence, because it is all too evident that USAF has completely scraped the bottom of the barrel and can't help us out. A team from WADF came in fairly recently to discuss the idea with us and they indicated WADF concurrence in the plan. We are therefore moving ahead on it, and will have specifics put to you fairly soon.

As to Exercise TAILWIND, you are of course familiar with the surprise aspects. All of the reports are not in yet, so I can't give a thorough reading on how it went except to say that very evidently the second day ran much more smoothly than the first, and that I think we gave a fairly good account of ourselves overall. We think your use of video mapping units for direct reporting is a smart move. I am sure that it reduced your filtering problem at direction center level during the exercise. We realize, too, you still have communications needs to be filled before your filtering problem can be entirely solved. Will be interested in learning how it went during TAILWIND.

Many thanks for your letter and the interesting material in it. You are quite right in thinking that Casey is very elated over his new job. We will leave shortly for Hamilton. Come to see us here at Colorado Springs. It's been quite a while since you paid us a visit.

All the best to you and Ellie,

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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From: Hq ADC, Ent AFB, Colo. Springs, Colo.

15 May 1953

To: CG WADF, Hamilton AFB, Calif.

ADOOT-C 1148. Request your Hq investigate feasibility of activating 9th Air Division (Def) at Geiger AFB no later than May 54 on lashup basis. This is necessary in order that wire communication augmentation for P and M sites can be routed to Air Division which will ultimately have operational control, thus alleviating excessive cost and time delay which would result from later rerouting. In determining feasibility of type lashup operation envisaged by this hq for this installation, consideration must be given to follows: (1) Internal command facilities will be made available; (2) Existing buildings must be used; (3) Expenditures for plotting board, status boards, plotting equipment, dais and building modifications be kept to absolute minimum; (4) Man power will be made available by inactivating 4702d and 4704th Defense Wings and by decrease in spaces allocated 25th Division Headquarters. Spaces available for 25th and 9th Division by this program are 59 officers and 259 airmen each. Computation based on USAF EPT 55-1, 1 Jan 53 (Trp Program). Request comments and recommendations for implementing action required be forwarded this headquarters as soon as possible and no later than 1 Jun 1953.

CG, ADC

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SECRET774th AIRCRAFT CONTROL AND WARNING SQUADRON
Madera, CaliforniaCOPY

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OPS 413.44

26 Jan 1953

SUBJECT: (Restricted) Search Capability of AN/FPS-4

TO: Commanding General
28th Air Division (Defense)
Hamilton Air Force Base
Hamilton, California

1. In accordance with your request of 15 December 1952 a test was conducted for a thirty-day period to determine the feasibility of using the AN/FPS-4 for search.

2. The results of this test, described in the following paragraphs, were fairly good providing only a small area was searched. It must be remembered that this equipment is not designed for long range operation and the average detection distance was 65 miles; however, in a few instances aircraft were picked up at a distance of 105 miles. Although aircraft are detected easily the tracking of these aircraft is another story. Any specific target such as UNKNOWN aircraft or FIGHTERS can be tracked; however, when more than two difference tracks are carried most of the other traffic within detection range has to be ignored. The longest track carried during this survey was 78 miles. All tracking was accomplished on "Manual" position.

3. The following breakdown of operation is submitted:

a. Automatic: Very poor. Saturation is achieved easily during periods of heavy traffic and coorelation between observed blips on the HRL indicator and azimuth dial is difficult due to the small dial indication. During periods of heavy traffic especially the correlation between HRL and plotting board becomes extremely difficult.

b. Sector Scan: Provided the sector being scanned is fairly small, i.e; less than 90 degrees, some tracks can be carried with a fair degree of success however a great deal of concentration and adeptness on the part of the operator is required.

c. Manual: This is the most satisfactory operation of all. Spacing and traffic are the two main elements here. When traffic is heavy the tracking process becomes very difficult. This also ties in very closely with spacing since it is easy to confuse one track with another when the spacing between them is very close and errors easily occur. On the other hand if the spacing is too great, especially in azimuth the problem then is the time lag in swinging from one track to the other.

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Ltr Hq 774th AC&W Sqdn, Madera, Calif, OPS 413.44 Subj: (Restricted)
Search Capability of AN/FPS-4

For example, if two aircraft are tracked on opposite side of our station (such as an "Unknown" in one area and friendly fighters in the other) the azimuthal separation could be from 135 to 190 degrees. A controllers efforts to track both these flights would be difficult however if he totally disregarded all other traffic he could, with the aid of the graphic presentation upon the plotting board, accomplish an interception successfully. The opportunity to test this theory was not available however in the event sufficient aircraft could be spared for this purpose the personnel of this station would be willing to conduct the tests.

4. In conclusion, the tests conducted during the past month proved that as a search radar the AN/FPS-4 is limited to small areas especially in locations where air traffic is abundant. The greatest asset provided by this radar is the assurance that should the primary radar breakdown during any period wherein an unknown or hostile aircraft was being tracked or intercepted the height finder could take over and either complete the interception or carry the questionable track until some other radar could pick it up.

FOR THE COMMANDING OFFICER:

1 Incl
B/L WDOCE-2 413.44,
w/1st Ind

/s/ BROSSY DELUCA
Capt, USAF
Opr Off

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774th AC&W Sq, OPS 413.44, Subj: (Restricted) Search Capability of AN/FPS-4

OCE-3 413.44 (26 Jan 53) 1st Ind 5 Feb 1953

HEADQUARTERS 28TH AIR DIVISION (DEFENSE), Hamilton Air Force Base, Hamilton, California

TO: Commanding General, Western Air Defense Force, Hamilton Air Force Base, Hamilton, California

Forwarded for your information in compliance with WADF letter WDOCE-2 413.44, subject as above, dated 4 December 1952.

FOR THE COMMANDING GENERAL:

1 Incl:
n/c

JAMES M. UPTAIN
1st Lt, USAF
Adjutant General

WDOCE-2 413.44 (26 Jan 53) 2nd Ind 18 Feb 1953

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. Forwarded for your information. It is requested that consideration be given to using a separate maintenance schedule for primary search equipment and height finder equipment. This would facilitate the use of the height finder for search during the time primary search equipment is off the air for maintenance and would allow for the training of personnel in the use of the AN/FPS-4 for search.

2. This report has been made an item of separate issue and forwarded to the ADC C&E Digest Editor.

FOR THE COMMANDING GENERAL:

1 Incl:
n/c

JACK J. JONES
1st Lt, USAF
Asst Adj Gen

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774th AC&W Sq OPS 413.44 Subj: (Restricted) Search Capability of
AN/FPS-4

ADOOT-C 413 (25 Jan 53) 3rd Ind 5 Mar 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton Air Force
Base, Hamilton, California

1. This command interposes no objection to separating the maintenance schedule of the primary search equipment from the height finder equipment.

2. It is believed that the very limited capability of the FPS-4 height finder as search gear will not prove practical. Your comments are requested concerning the feasibility of such a plan after the system has been in operation for three months.

BY COMMAND OF GENERAL CHIDLAW:

1 Incl
n/c

/s/ THOMAS C. SAVAGE
Major USAF
Asst Adj Gen

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22 May 1953

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ADDOOT-C 676.3

SUBJECT: (Unclassified) Study of AC&W Functions

TO: Chief of Staff
Headquarters USAF
Washington 25, D. C.

1. Early in calendar year 1952, this command proposed a concept of air defense operation identified as the "double perimeter concept". Basically, this concept provided for the encirclement of the most vital target areas of the United States with surveillance and interceptor capability so oriented as to insure a more positive defense for these areas from air attack. The fundamental premises upon which this concept was based have since been approved by your headquarters including the basic identification system, the First and Second Phase Mobile Radar program, the seaward extension of surveillance and control capability, and the organization of additional Air Divisions (Defense).

2. As a result, this command has directed all operational planning activities toward early implementation of this concept. It offers a more effective air defense capability for the AC&W system using manual reporting and display techniques and provides a firm and readily adaptable basis for phasing into future electronic systems presently being developed. Such a transition, under this program should require no major reorganization or realignment of components of the AC&W system.

3. Inclosed is a detailed study which specifies the various requirements of this command to support the "double perimeter concept". The requirements for personnel and facilities were developed only after a most comprehensive analysis of the functions and responsibilities of individual segments of the AC&W system. In order that positive implementing action may be initiated, further consideration and approval by your headquarters is believed necessary. Your consideration is required first of the program as an integrated whole; and secondly, of the related requirements for the phasing of personnel and facilities. We request your approval of the overall program as presented in the study with specific approval of the requirements for manning and equipment to support and implement the program.

Maj Brownfield/O'S
722 Incls not nec for AG Files.
21 May 53

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4. We realize that this study is presented in great detail and that clarification of certain portions may be necessary after a preliminary review by interested staff agencies of your headquarters. Accordingly, we are prepared to brief your staff on the inclosed study at their convenience.

3 Incls

1. AC&W Functions Study
2. Chart - Personnel Requirements
3. Chart - Radar Equipment Requirements

(signed)

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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AC&W FUNCTIONS STUDY

1. The growth of the air defense system has reached the point where a statement of the operational functions and responsibilities of the stations of the AC&W system has become an urgent requirement. In the five years in which an air defense system has been in existence, AC&W station responsibilities have been determined on the basis of local operational policies and needs. The phase-in of the Permanent Radar System and the impending implementation of the Mobile and REP programs have made it necessary that a command wide policy be established as to the role each AC&W station will play in air defense operations. This policy will also serve the purpose of creating an operational framework upon which future allocations of personnel and equipment will be determined.

2. The determination of operational functions and responsibilities made in this study has been based on the following factors:

a. The plan has been drawn up in consonance with the "double perimeter concept". According to this concept, certain air defense areas, encompassing complexes of vital targets, will be encircled by two lines of radar, with the inner perimeter line located approximately 70 miles from the edge of the target area, and the outer line extended approximately 120 miles beyond. Interceptors are to be located within these perimeter lines to enable detection and destruction of enemy aircraft before the bomb release line is reached. Additional interceptors and radar are to be provided throughout the defended area to insure defense in depth. Certain vital targets outside of the double perimeter areas, such as SAC bases and AEC installations, will also be defended by an "island type" defense.

b. The double perimeter concept is being realized by the implementation of the Mobile Radar Program, the Radar Extension Plan, and by plans for the provision of seaward extension of radar coverage. The Mobile Radar Program is being implemented in two phases: the First Phase, which has been approved by Headquarters USAF, will result in the establishment of 45 AC&W stations; the Second Phase, which has been approved in principle by Headquarters USAF, will result in the addition of 35 AC&W stations. Some of the stations in the First Phase Program, and most of the stations of the Second Phase Program, will be so located as to complete double perimeter defenses around the Northeast, Northwest and Southwest defense areas. Certain stations of the REP will also be active and integrated components of the double perimeter of radars. Extension seaward of the double perimeters will be accomplished when required facilities are available.

c. The impending addition of the Mobile stations will necessitate a reorganization calling for six additional air divisions (defense) to be activated in FY 1955. This reorganization is required to insure proper spans of operational control.

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d. An identification system has been established which will be used in conjunction with the double perimeter concept of defense. Defense areas encircled by double perimeters will be closed to all penetrating air traffic except through designated corridors along which will be located compulsory reporting points. AC&W stations with radar coverage over these corridors will be assigned the function of identification. Coastal stations acting as outer perimeters will perform identification until adequate facilities are available to extend the functions of detection and identification seaward. In addition to stations within the double perimeter lines, single lines of radar called "alerting lines" are established in other key areas, through which will be designated corridors and compulsory reporting points. Down-to-the-ground coverage is essential in order to insure that all aircraft penetrating the outer perimeters are detected and identified. In view of the fact that the coverage of the Mobile Program in both its phases will not provide this type of coverage, small radars with automatic reporting facilities will be employed. Pending the implementation of the small radar program, however, the Permanent and Mobile systems will have a detection capability along the outer perimeters at approximately 1,000 feet above the terrain, a capability which is sufficient to place the foregoing identification system into operation.

e. The Ground Observer Corps has been realigned to conform to the double perimeter lines and alerting lines. Filter centers and GOC posts within the defense areas, except along the outer perimeters, are placed on a standby status. The major effort of the GOC will be directed towards supplementing the perimeter radar defenses. Filter centers located along the double perimeter defenses will display on their plotting boards those AC&W stations requiring GOC information. In some instances, these filter centers will report to several Direction Centers.

3. The AC&W system will consist of three types of stations, to be known as Control Centers, Direction Centers and Surveillance Stations. Each of these stations will have specific operational functions and responsibilities and will possess the capability and resources and enable it to carry out its assigned mission.

a. The Control Center is an AC&W installation, and its operational functions and responsibilities will remain the same as those of the present ADCCs. It will retain supervisory operational authority over all AC&W in-stallations in its assigned sector of responsibility and will have the capability to assume, in large-scale operations, the functions of threat evaluation and weapons allocation based upon data processed and forwarded by the Direction Centers.

b. The Direction Center is a radar-equipped station which, in addition to its surveillance functions, has the capability of directing air defense weapons. Other functions, such as identification, operational control of AAOCs, and force commitment, may be assigned to a Direction Center. However, these additional functions serve only to increase the

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capability of the station and do not justify the use of different or modifying nomenclatures. Only one Direction Center is to have scramble authority over any interceptor squadron. Direction Centers which do not have interceptors assigned for scramble, will either have them scrambled by adjacent Direction Centers or by the Control Center, or be passed interceptors from adjacent Direction Centers for control. In addition to ADC-assigned interceptors, Direction Centers will also have operational control of augmentation interceptor forces from SAC, TAC, ATAC, ANG and the Navy when these are allocated for air defense. Operational control of AAOCs is delegated to only one Direction Center, in order to avoid conflicting orders to AA units.

Normally the flow of operational data is from Surveillance Station to Direction Center to Control Center. In the present study an exception to this rule was made whereby two Direction Centers were assigned as satellites to another Direction Center. This was considered necessary since the three Direction Centers only provided radar coverage normally provided by one Direction Center. This exception is listed for information purposes in the study, and is not to be construed as an acceptable operational practice by this command. PPI scopes are allocated to the Direction Centers according to the number of control positions, based on the number of interceptors available and the expected raid density within a given subsector. Recovery scopes are provided those Direction Centers which have scramble and/or recovery responsibilities. Direction Centers with the function of operational control of AAOCs are provided an additional surveillance scope so that direct reporting of tracks to AAOCs may be employed and with greater accuracy. Direction Centers are provided air-ground communications equipment on the basis of one tactical channel per control position and three common channels per station.

c. The Surveillance Station is a radar-equipped installation which performs the function of surveillance and detection. It is designed to supplement the detection capability of a Direction Center, either for increase of early warning ranges, or for low-altitude gap-filling purposes. The functions of this type of station will determine the equipment to be allocated to it. Plotting boards will not be normally required; the radar operator reporting data directly from his scope to the Direction Center. Video mapping will be used in order to accomplish direct reporting. No air-ground radio will be provided for Surveillance Stations; thus, no weapon direction function can be assigned. Some Surveillance Stations may be provided with plotting boards and air-ground communications because of their peculiar locations, and additional assigned responsibilities. These stations will normally be located to provide high-altitude detection for SAC bases and cannot be placed realistically under the control of a Direction Center due to the distances involved. In these cases, the Surveillance Stations will report directly to a Control Center. Surveillance scopes for both Direction Centers and Surveillance Stations have been allocated in accordance with the differing degrees of sur-

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veillance responsibilities. Most of the stations on the outer perimeters will be required to sector-scan only in areas where aircraft are likely to penetrate; thus, the requirement for 360° coverage is reduced in a majority of the radar stations. Those Surveillance Stations which are assigned air-ground communications equipment are allocated two channels per station: one for emergency and the other for GCI common. This limited air-ground communication capability was given to those Surveillance Stations which had little or no overlap coverage with adjacent stations, in order to aid aircraft in distress, and not with the view of sanctioning control functions.

4. The allocation of emergency, or backup equipment, is predicated on backup search radar and height-finder support of all stations on the outer perimeters and coasts, and only backup search support for those stations along the "alerting lines". Those stations which are responsible for scrambling and/or recovery interceptors and which have not been allocated complete search and height-finding backup equipment will be provided with emergency equipment under a secondary priority. Sufficient equipment is available to ADC, or has been programmed, to meet the primary radar requirements for all stations.

5. Passive Detection Stations have been programmed along the east and west coasts, and along the Canadian border in order to extent detection capability. A firm operational plan for these stations has not yet been determined, but communications have been programmed for these stations and the system will be capable of utilizing passive detection capabilities when these stations become operational.

6. Wire line communications between adjacent stations closely follow the standard wiring diagrams presently in effect within ADC, except that a reduction of requirements was possible for some stations located in the area encircled by the double perimeters. The policy was based on the principle that maximum communications would be provided between the outer and inner perimeter stations with reduced requirements for stations within double perimeters, as well as for some stations located outside the double perimeters.

7. Manning of the AC&W system follows USAF policy which states that AC&W facilities should be capable of maximum operations for critical eight-hour periods with reduced manning during normal hours of operation. On this basis, all positions within an AC&W facility need not be manned 24-hours per day. Minimum T/Os with TDAs are provided for a Direction Center on base, a Direction Center off base, a Surveillance Station on base, and a Surveillance Station off base. The minimum T/Os were designed to take care of the smallest type station that existed in the system. TDAs will provide the additional personnel required according to the

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functions assigned. It will thus be seen that the manning of AC&W facilities was accomplished according to the functions assigned rather than to the equipment possessed. Varying personnel requirements for the different types of equipment and functions are provided for in the ground rules of the TDAs.

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ADOCE-E 413.44

25 Mar 1953

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SUBJECT: (Unclassified) ADC Radar Equipment Requirements

TO: Director of Communications
 Headquarters USAF
 Washington 25, D. C.

FILE NUMBER 207
 LOGGED ✓

1. Reference is made to the following:
 - a. Letter from your headquarters, file AFOOP-OP-D 413.44, subject: "(Unclassified) Policy for Provision of Standby Radar Equipment," dated 5 November 1952.
 - b. Headquarters ADC letter, file ADOCE-E 676, subject: "(Unclassified) USAF Operating Program OFC-53-1," 13 December 1952.
2. Current ADC radar equipment requirements for Permanent, First Phase Mobile and Second Phase Mobile Programs are inclosed for your information. These requirements, which were based on the recently completed review of AC&W functions conducted by this headquarters, will be reflected in the ADC revisions to OFC-54.
3. The requirement for emergency search and height equipment was based on the following criteria:
 - a. All outer perimeter and alerting line stations (see Inclosure 4), to include coastal stations acting as outer perimeter stations, and all stations having fighters to scramble and/or recover will be provided with emergency search equipment.
 - b. All outer perimeter stations, to include coastal stations acting as outer perimeter stations and all stations having fighters to scramble and/or recover, will be provided with emergency height equipment except that stations functioning as low level gap fillers will not be provided with height equipment.
4. The above-mentioned requirement for emergency equipment is based upon the present double perimeter concept of operation wherein solid coverage must be maintained on a 24-hour basis along the outer perimeter to assure detection and identification of all aircraft penetrating the critical target areas. In addition, to assure maximum utilization of limited weapons capability, the requirement is established for emergency

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Ltr Hq USAF, ADOCE-E 413.44, Subj: (Uncl) ADC Radar Equipment Requirements
(Contd)

equipment for all stations scrambling and/or recovering fighters. In general, height equipment has only been programmed for stations requiring control capability. In view of the above, it is requested that the policy for provision of standby radar equipment referenced in paragraph 1a above as it applies to Air Defense Command be revised.

FOR THE COMMANDING GENERAL:

4 Incls

1. Permanent Program (4 cys)
2. First Phase Mobile Program (4 cys)
3. Second Phase Mobile Program (4 cys)
4. Map (4 cys)

JOSEPH D. HORNBY
Lt Col USAF
Ass't Adj Gen

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From: Hq Air Defense Command
Ent Air Force Base
Colorado Springs, Colo.

20 Jan 1953

To: CO, Rome Air Force Depot
Griffiss AFB, Rome N.Y.

ADOCE-E 112 . Your message MRMT-1-9-M dated 8 Jan 1953.

Electronic equipment referred to include all search radar, height-finding radar and PPI consoles presently programmed for installation at ADC facilities other than specific exceptions indicated in our message ADOCE-E 2646. In view of review of functions referred to in our message, considered desirable to hold in abeyance all planned installation of such equipment unless physical installation of equipment has been started. Data resulting from subject review of functions will be provided your headquarters as soon as possible and will include specific requirement for type of radar equipment, number of control positions and no of air-ground channels required for each ADC AC&W facility. Exceptions to hold-in-abeyance order should be removal of CPS-4 at P-67 and P-73 (GRD's 2318 and 2319), FPS-3 installation at P-16, FPS-4 installation at P-39, CPS-4, CPS-5 and CPX-13 installation at Yuma AFB, and CPS installation at Walker AFB.

CG, ADC

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24 March 1953

ADOCE-E 413.44

SUBJECT: (Unclassified) Installation of AN/FPS-4 Height Finders

TO: Commanding Officer
Rome Air Force Depot
ATTN: MRM
Griffiss Air Force Base
Rome, New York

1. Reference is made to classified message from this headquarters ADOCE-E 2646, 31 December 1952.

2. This headquarters has completed study on functions of all ADC AC&W facilities. Attached Inclosure 1 lists radar types programmed for all permanent sites.

3. Request action be taken to resume installation of AN/FPS-4 height finders at permanent sites as indicated on Inclosure 1. Installation priority should be as follows:

a. First Priority. Install one FPS-4 at each FPS type site where there is no operational height finder and where FPS-4 height finders are programmed either as primary and/or emergency equipment.

b. Second Priority. CPS-6B and FPS-10 sites listed as requiring FPS-4 height finders for emergency backup.

c. Third Priority. Install second FPS-4 where indicated at FPS-3 type sites.

FPS-4 installation planning should be discontinued for all sites where this equipment was previously programmed but not indicated as required on attached Inclosure 1.

4. In compliance with the provisions of paragraph 25e of AFR 205-1A, this correspondence may be downgraded to RESTRICTED when the inclosure is withdrawn.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSEY
Lt Col, USAF
Asst Adj Gen

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Hq ADC, ADOCE-E 413.44, Subj: (Unclassified) Installation of AN/FPS-4
Height Finders

MRMT (24 Mar 53)

1st Ind

15 Apr 1953

HQ ROME AIR FORCE DEPOT, Griffiss Air Force Base, Rome, New York

TO: Commanding General, Air Defense Command, ATTN: ADOCE-E, Ent
Air Force Base, Colorado Springs, Colorado

1. Action taken for 40 installations, per request in basic letter,
is indicated on inclosed copy of letter to Middletown Air Force Depot
(similar letter to all concerned Air Materiel Areas), subject as above,
this date, (Inclosure #2).

2. This Headquarters is presently investigating the discrepancies
indicated in inclosure #3, and will further advise.

FOR THE COMMANDING OFFICER:

THURMAN R. MATTHEWS
Major, USAF
Deputy, Plans and Operations
Communications Technical Division

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Hq ADC ADOCE-E 413.44, Subject: (Uncl) Installation of AN/FPS-4 Height Finders

ADOCE-E 413.44 (24 Mar 53) 2d Ind 1 May 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding Officer, Rome Air Force Depot, Griffiss AFB, Rome, N. Y.

1. A review of your shipping list (Inclosure 3) discloses discrepancies as compared with our Requirements Program (Inclosure 1). Since the initiation of the basic letter, the BPC 55-1, dated January 1953, has become effective. It is desired that the AN/FPS-4 radars be installed in accordance with BPC 55-1 and the priorities shown in basic letter, with the exceptions as listed in "a" below. These exceptions are apparent discrepancies or errors in the BPC and are presently being resolved between this headquarters and Headquarters USAF.

a. Exceptions:

<u>Site No.</u>	<u>BPC Authorized</u>	<u>ADC Required</u>
P-2	2	1
P-11	2	1
P-24	2	1
P-27	2	1
P-28	2	1
P-29	2	1
P-62	1	0
P-67	1	0
P-74	2	1
P-85	2	1

2. It is further desired that no action be taken to install AN/FPS-4 radars as emergency equipment at the following sites: P-14, P-35, P-47, P-52, P-58, P-61, P-70, P-73 and P-78. These installations are not programmed as yet and are so indicated by an asterisk on our Requirements Program (Inclosure 1).

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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Subject: ADC Radar Equipment Requirements
 From: DC&E-E To: PTR

10 March 1953
 Comment #1

1. Inclosed lists showing ADC radar equipment requirements for the Permanent, First Phase Mobile and Second Phase Mobile Programs are forwarded for your information and file. These equipment requirements are based on the recently approved review of AC&W functions conducted by this headquarters and may be considered firm.

2. Listed below are totals of radar equipment allocations to ADC.

CPS-6B	13	TPS-1D	44
FPS-3	49	FPS-4	51
FPS-8	42*	FPS-5	16
FPS-10	13	FPS-6	25
MPS-7	26	MPS-14	26
MPS-11	18	MPS-8)	
		TPS-10D)	44

*In FY 54 budget

WILLIAM A. LAFRENZ
 Lt Col, USAF
 Chief, Elect Sys Div
 Ext 410 - 411

EDWARD L. BURGE
 Lt Col, USAF
 Acting Dir, Comm & Elect
 Ext 228 - 229

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Mark
Date

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Item	Priority	Classification	Exemption	Exemption
P-1	SECRET	SECRET	SECRET	SECRET
P-2	SECRET	SECRET	SECRET	SECRET
P-3	SECRET	SECRET	SECRET	SECRET
P-4	SECRET	SECRET	SECRET	SECRET
P-5	SECRET	SECRET	SECRET	SECRET
P-6	SECRET	SECRET	SECRET	SECRET
P-7	SECRET	SECRET	SECRET	SECRET
P-8	SECRET	SECRET	SECRET	SECRET
P-9	SECRET	SECRET	SECRET	SECRET
P-10	SECRET	SECRET	SECRET	SECRET
P-11	SECRET	SECRET	SECRET	SECRET
P-12	SECRET	SECRET	SECRET	SECRET
P-13	SECRET	SECRET	SECRET	SECRET
P-14	SECRET	SECRET	SECRET	SECRET
P-15	SECRET	SECRET	SECRET	SECRET
P-16	SECRET	SECRET	SECRET	SECRET
P-17	SECRET	SECRET	SECRET	SECRET
P-18	SECRET	SECRET	SECRET	SECRET
P-19	SECRET	SECRET	SECRET	SECRET
P-20	SECRET	SECRET	SECRET	SECRET
P-21	SECRET	SECRET	SECRET	SECRET
P-22	SECRET	SECRET	SECRET	SECRET
P-23	SECRET	SECRET	SECRET	SECRET
P-24	SECRET	SECRET	SECRET	SECRET
P-25	SECRET	SECRET	SECRET	SECRET

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1-6	1-6	1-6	1-6	1-6
1-7	1-7	1-7	1-7	1-7
1-8	1-8	1-8	1-8	1-8
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1-97	1-97	1-97	1-97	1-97
1-98	1-98	1-98	1-98	1-98
1-99	1-99	1-99	1-99	1-99
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ADDITIONAL INFORMATION

Site	Reference Number	Reference Number	Reference Number	Reference Number
P-51	PTS-1	PTS-4	PTS-8	PTS-5
P-52	PTS-1	PTS-4	PTS-8*	PTS-4*
P-53	PTS-1	PTS-4	PTS-8	PTS-5
P-54	PTS-1	PTS-4	PTS-8	PTS-5
P-55	PTS-1	PTS-4	PTS-8	PTS-5
P-56	PTS-1	PTS-4	PTS-8	PTS-5
P-57	PTS-1	PTS-4	PTS-8	PTS-5
P-58	PTS-1	PTS-4	PTS-8	PTS-5
P-59	PTS-1	PTS-4	PTS-8	PTS-5
P-60	PTS-1	PTS-4	PTS-8	PTS-5
P-61	PTS-1	PTS-4	PTS-8	PTS-5
P-62	PTS-1	PTS-4	PTS-8	PTS-5
P-63	PTS-1	PTS-4	PTS-8	PTS-5
P-64	PTS-1	PTS-4	PTS-8	PTS-5
P-65	PTS-1	PTS-4	PTS-8	PTS-5
P-66	PTS-1	PTS-4	PTS-8	PTS-5
P-67	PTS-1	PTS-4	PTS-8	PTS-5
P-68	PTS-1	PTS-4	PTS-8	PTS-5
P-69	PTS-1	PTS-4	PTS-8	PTS-5
P-70	PTS-1	PTS-4	PTS-8	PTS-5
P-71	PTS-1	PTS-4	PTS-8	PTS-5
P-72	PTS-1	PTS-4	PTS-8	PTS-5

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ADOCE-C 676

14 Apr 1953

SUBJECT: (Unclassified) Augmentation of Wire Facilities at P AC&W Sites

TO: Director of Communications
Headquarters USAF
Washington 25, D. C.

1. The leased wire communication facilities serving 59 of the Permanent ZI AC&W sites are inadequate to meet current and projected operational requirements. The present facilities were installed by the telephone companies to meet the requirements of the original AC&W plan which provided for 75 radar stations and 10 control centers. Subsequent to that time, the plan has been expanded to include the following:

- a. Changes in concept of operation to promote effectiveness.
- b. Change in the mission of some P-sites from Early Warning stations to Direction Centers.
- c. Seven (7) additional control centers.
- d. Seventy-nine (79) radar stations under the 1st and 2nd Phase Mobile Programs.
- e. Integration of certain REP Canadian AC&W sites into the system.
- f. Picket vessel and AEW&C programs.

2. The revised circuit requirements to meet the present and projected requirements of the above programs are shown on the attached charts (Incl #1). The same information, but including specific usage of each circuit, is contained on inclosure #2.

3. Attached as inclosure #3 are telephone company proposals containing construction and cost data associated with providing the additional circuits required at the P-sites. The cost data from these proposals has been consolidated on inclosure #4 for ease of reference. In this respect, the telephone company proposals are based on requirements as of April 1952 which have been superseded by the current requirements shown on inclosure #1. In some cases the requirements for each site has decreased as a result of a more thorough study of the mission and function of the site;

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Hq ADC, ADOCE-C 676, Subj: (Uncl) Augmentation of Wire Facilities at
P AC&W Sites (Contd)

however, in other cases the requirements have increased due to changes in the mission plus connection of additional M-sites into the complex. The overall increase in circuits, however, is slight; and therefore the cost data for the overall program is considered adequate for obligation purposes. In this respect, the telephone company cost data is based on conservative estimates and the actual cost paid by the Air Force will be determined on the basis of actual construction cost to the telephone company.

4. In line with your letter, subject: "High Frequency AC&W Radio Backup System," file AFOAC-S/O dated 2 April 53 the telephone company proposals were developed under two plans (see Incl #3). Plan 1 contains data relative to providing the additional circuits by wire or carrier over the existing pole line or cable route. Plan 2 provides for the installation of microwave radio between the site and telephone company central office; thus making available two routes of communication into the site. Contrary to previous expectations, the telephone companies cannot provide microwave channels to the majority of the sites at the same rates as for renting wire circuits. If the Air Force specifies microwave channels for installation at sites where the telephone company prefers to install wire, an additional charge of from \$8,000 to \$20,000 per site per year over and above the cost of renting circuits must be paid during the entire period of the contract - normally 10 years. It is therefore believed that the cost involved is not commensurate with the advantages gained. Consequently, it is recommended that the additional channels be provided by the method selected by the telephone company. In a few cases they have selected microwave while in all others augmentation will be accomplished by wire.

5. All P-sites are certified locations and the intra site cable is government owned and connects to the telephone company cable at the site boundary. Therefore, it will be necessary for AMC to install additional cable from the main frame to the site boundary at 26 sites (see incl #5). Informal information from Rome AF Depot indicates that AMC can make these installations.

6. An estimated construction charge of \$686,266.00 must be paid to the telephone companies for this augmentation and the remainder of the cost will be reflected by termination charges can be made available from the current (FY 53) 482.6 funds allocated to this Command.

7. It is requested that authority be granted this headquarters and AMC (Rome AF Depot):

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Hq ADC, ADOCE-C 676, Subj: (Uncl) Augmentation of Wire Facilities at
P AC&W Sites (Contd)

a. To contract with the telephone companies concerned for installation of the additional facilities required to alleviate the shortage of communications at the P AC&W sites.

b. For installation by AMC of the intra site cable facilities required for this program.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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HEADQUARTERS
EASTERN AIR DEFENSE FORCE
Stewart Air Force Base, Newburgh, N. Y.

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EAOOT-A 381

28 Nov 1952

SUBJECT: (Unclassified) Improvements Under Advisement in Certain Critical Areas of Importance

TO: Commanding General
26th Air Division (Defense)
Roslyn, New York

1. Reference is made to your letter of 8 November 1952, subject: "How Are We Doing." Your timely review of air defense problems and division of air defense planning and operations into three phases is deemed most appropriate.

2. I agree in principle with the recommendation you have outlined in paragraph 6 of your letter. As you know, ADC and USAF are in the process of finalizing action on the "Multiple Corridor" system of identification. Preparation of these procedures and final approval by all agencies concerned is time consuming. When the multiple corridor system is in operation, more positive identification of aircraft will be possible. Also, ADC has requested all agencies, military and civilian, to file flight plans for multi-engine aircraft on flights north of the 37th parallel. Admittedly, neither of the above can solve the entire identification problem nor are they a complete answer to your recommendation. However, in paragraph 4 below, I indicate further action I intend to take on your recommendation.

3. Reference paragraph 7 of your letter pertaining to the present manning of the Air Defense Command Aircraft Control and Warning System, the policy established by Headquarters USAF is as follows:

"The policy of this headquarters with regard to operation of the U.S. AC&W System envisions a full time duty assignment for each officer and airman. It is not contemplated that all radar operating positions will be fully manned at all times to meet maximum enemy air attack. Instead, it is intended that the AC&W System be manned on a 24-hour daily alert status with personnel in reserve at each installation to fully man the station for an 8-hour emergency period. It is recognized that in event of emergency, it will be possible to increase the work week from 40 hours to 56, and possibly 70 hours for short periods. The manning of the U.S. AC&W System is therefore based upon:

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EAOOT-A 381 Subject: (Unclassified) Improvements Under Advisement is
Certain Critical Areas of Importance (Contd)

- a. 24-Hour Daily Radar Surveillance. (Stations not provided with standby radar equipment will be authorized a maximum of 1 hour off-the-air daily for routine maintenance.)
- b. Performance of Identification Functions 24-Hours Daily.
- c. Performance of operational functions limited to the requirement for normal peacetime air traffic with capability for 8-hour emergency period as outlined."

EADF does not agree with USAF manning policy as stated above. The disagreement is based on two factors: present policy prohibits us from operating in a manner that we feel is essential; present manning does not afford flexibility in strength authorization to care for variance in assigned missions. We requested a T/D authorization or authority to re-allocate authorized T/O strength within the command. This request was disapproved by ADC. At the present time, USAF, with ADC assistance, is formulating a new T/O authorization policy for AC&W units which is more realistic in its approach to individual assigned operational functions, administrative problems and support situations. We believe that the new authorization policy will place us in a better position to accomplish the operational requirements which are similar to those you have outlined for Phases I and II.

4. In order to obtain further action on appropriate items in your letter, I am forwarding a copy to General B. W. Chidlaw indicating my concurrence with the ideas and recommendations you have expressed.

M. R. NELSON
Major General, USAF
Commanding

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2 February 1953

22

Major General Morris R. Nelson
Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

Dear Nellie:

Reference is made to your letter EAOOT-A 381, subject: "(Restricted) Operational Deficiencies," 3 December 1952 which inclosed a letter from Russ Minty on the subject of "How are We Doing?" and your interim reply to him.

The problems he presented are also problems which have been of concern to this Headquarters for considerable time. Although the solutions are not simple by any means, certain projects have been initiated which should tend to alleviate the conditions which he discussed. The following is a brief progress report on projects which are related to these problems:

1. In May 1952 we submitted a plan to Headquarters USAF which would give us the authority to divert, force to land and impound if necessary, any aircraft considered to be operating in a suspicious or potentially hostile manner. This plan was submitted for your comments and recommendations by our letter ADOOT-B 381, subject: "Proposed Plan for Impounding and Investigating Aircraft Suspected of Being Hostile," 30 November 1951. To date we have received no firm reply from Headquarters USAF although we have been advised that the plan has been disseminated among interested Air Staff agencies for consideration.

2. On 16 August 1952 we submitted a plan to Headquarters USAF which would give me the capability to corridor air traffic across the Canada-U.S. International Boundary and in certain coastal areas. The details of this plan are contained in our letter to your Headquarters ADOOT-C 452.5, subject: "(Unclassified) Requirements for Corridor Identification Procedures Along Perimeters of Continental United States (Phase II)", dated 3 September 1952. We have recently obtained authority to implement the "multiple corridor" phase on a test and voluntary basis. Details concerning the implementation of multiple corridors at Nantucket and Atlantic City are presently being finalized. The latter may be delayed, however, pending assignment of a frequency for a high powered beacon.

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That phase of the plan concerning corridors across the Canada-U.S. International Boundary has been approved in principle by Headquarters USAF and informal concurrence has been indicated by the RCAF ADC. However, before this phase can be implemented, it will be necessary that we do considerably more work with the Canadians and obtain formal concurrence of the governments concerned.

3. In an effort to improve the effectiveness of the anti-aircraft component of the air defense team, we are investigating the advisability of establishing "Inner Defense Areas" around certain critical target areas where ground-to-air weapons are located. Our proposals in this regard are contained in our letter to your Headquarters ADOOT-C 381, subject: "(Restricted) Designation of Inner Defense Areas," 6 November 1952. We are presently attempting to finalize operating rules and procedures which will be standard in all "Inner Defense Areas" to be designated in the Continental U. S. When we have agreed on a firm position, it is intended that these operating rules as pertain to friendly aircraft activities and the delineations of the areas be forwarded to Headquarters USAF for approval and coordination with other governmental agencies.

4. In an effort to improve our early warning capability, we are presently considering an amendment to JANAP 146B so that pertinent operational data contained in CIRVIS reports can be sent to our operational echelons in a more timely manner. Similarly, we have been advised that a new JANAP, Number 186, is presently under consideration by the Joint Communications Electronics Committee of the JCS. This JANAP will establish procedures for the submission of early warning reports from ships at sea, including merchant and naval vessels and fishing fleets.

5. The problem of adequately manning our system is one which we have had to contend with in the past and no doubt will have to face in the future. Admittedly, additional personnel might solve our manning problems. The prospects of increased manning, however, are not encouraging. In view of this, it will be necessary that we make the most of what we have. Our approach to this problem was presented in our letter to your Headquarters ADOOT-C 676.3, subject: "(Unclassified) Functions of AC&W System," 1 December 1952, in which we propose that a detailed study be made to determine specific functions, communications and personnel requirements for each AC&W station. This study envisions the use of minimum AC&W T/Os and T/D augmentation as required to assign personnel commensurate with the workloads of individual AC&W stations. Representatives of your Headquarters met with a committee from this Headquarters during the week 5 to 11 January 1953 to finalize the portion of the study pertaining to your Command. With specific reference to paragraph 4 of your reply to Russ' letter, we initially concurred in the proposal to change our AC&W manning to T/Ds but this was not favorably considered by Headquarters USAF. In our last request to higher headquarters, we proposed that we be allowed to convert to a combination of minimum T/Os and T/D-As so as to achieve the manning flexibility we desire. We anticipate approval of our proposal and have begun work on minimum T/Os for our AC&W squadrons

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based on information obtained thus far in our functions study. Under a manning program of this type, we should obtain the flexibility we need to insure maximum use of our available personnel resources.

To forecast final solution of these problems within the immediate future would be unduly optimistic. Nevertheless, it is our intention to continue to press for the authority and tools required to effectively accomplish our mission.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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ADOCE-E 413.44

16 Jan 1953

SUBJECT: (Restricted) Installation of Early Warning Modification Kits

TO: Director of Communications
 Headquarters USAF
 Washington 25, D. C.

1. A study of coverage provided by present radars and theoretical coverage of programmed radars indicates that fifteen early warning modification kits OA-347 planned for installation in the immediate future on AN/CPS-6B and AN/FPS-10 radars are no longer required. An urgent requirement existed for installation of these kits prior to the First and Second Phase Mobile Programs, the Double Perimeter Concept and the Gap-Filler Radar Concept. However, due to overlap in coverage provided by facilities now installed, pending installation and programmed, the increased range of detection of high-flying aircraft provided through installation of kits on all AN/CPS-6B and AN/FPS-10 radar is no longer a requirement. Installation of modification kits not required will not only result in an increased expense of operation but also in added maintenance and supply difficulties.

2. The study resulting in this modification of requirements was based on the following factors:

a. The requirement for a search kit does not exist when the additional coverage furnished is already provided by two or more radars, now installed or pending installation.

b. The requirement for a search kit does exist on radars with area of search not overlapped by facilities, now installed or pending installation, but to be overlapped solely by other than ground-mounted equipment. Such radars generally have area of search out to sea.

c. The requirement for a search kit does exist on radars with area of search out from an outer perimeter and into areas not overlapped by facilities, presently installed or pending installation. Such radars generally have areas of search over the Great Plains and Rocky Mountain Areas.

3. Based on the above factors, early warning modification kits are required at installations listed below.

P-9	Highlands, N. J.
P-10	North Truro, Mass.
P-13	Brunswick NAS, Me.
P-15	Santa Rosa Isle, Calif.

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Ltr Hq USAF, Subject: (Restricted) Installation of Early Warning Modification Kits (Contd)

P-38	Mt. Tamalpais, Calif.
P-42	Cross Mt., Tenn.
P-46	Birch Bay, Wash.
P-47	Hutchinson NAS, Kans.
P-59	Atolia, Calif.
P-79	Ellington AFB, Tex.
P-80	Caswell, Maine

4. It is recommended that installation of early warning modification kits not be accomplished at installations listed below.

P-1	McChord AFB, Wash.
P-14	Bellevue Hill, Vt.
P-20	Selfridge AFB, Mich.
P-21	Shawnee, N. Y.
P-30	Ricketts Glen St. Park, Pa.
P-31	Elkhorn, Wis.
P-34	Empire, Mich.
P-35	E. Farmington, Wis.
P-52	Tinker AFB, Okla.
P-53	Rockville, Ind.
P-58	Mather AFB, Calif.
P-64	Sublette, Mo.
P-77	Bartlesville, Okla.
P-78	Duncanville, Tex.
P-81	Waverly, Iowa

5. Since early warning modification kits are scheduled for installation in the immediate future, it is recommended that action be expedited to stop installation action at locations listed in paragraph 4.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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B/Ltr fr CG ADC to Dir of Comms, subj: "Installation of Early Warning
Modification Kits," dtd 16 Jan 53

AFOAC-E/A

1st Ind

9 Feb 1953

Dept of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters does not concur with the intent of the basic letter, paragraph 1, that fifteen (15) early warning modification kits (OA-347) to be installed on AN/CPS-6B and AN/FPS-10 radars, are no longer required.

2. It is also the opinion of this headquarters that if further study is made of the additional radar coverage that will be obtained from the installation of the early warning modification kits, a number of gap filler stations may be deleted from the first and second phase mobile programs.

3. In view of the above, it is strongly recommended that further study and evaluation be made, after the installation of four (4) or five (5) modification kits has been accomplished.

BY COMMAND OF THE CHIEF OF STAFF:

HOWARD S. GEE
Lt Colonel, USAF
Executive
Director of Communications

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Hq ADC, Subject: (Restricted) Installation of Early Warning Modification Kits

ADOCE-E 413.44 (16 Jan 53) 2d Ind
HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado 16 Feb 1953

TO: Director of Communications, Headquarters USAF, Washington 25, D. C.

1. Based on data resulting from the radar evaluation study presently under way at this headquarters and data collected during field tests of FPS-3 and CPS-6B equipment, it is the opinion of this headquarters that the AN/CPS-6B and AN/FPS-10 are capable of fully exploiting line-of-sight ranges at low altitudes up to at least 140 nautical miles. Since a study of the 15 sites at which this command recommended deletion of the requirement for modification kits indicates that the maximum negative screening angle for any subject sites is -0.5° , it would appear that no significant increase in the detection range at low altitudes could be realized by the use of the early warning modification kit. All of the First and Second Phase Mobile Radar Stations planned as low-altitude gap fillers in the vicinity of the 15 subject sites are presently filling gaps beyond line-of-sight limitations of the CPS-6B's and FPS-10's.

2. If any data is available on the coverage pattern to be expected from the early warning modification kits which would indicate an appreciable deviation from normal line-of-sight characteristics, it is requested that this headquarters be provided with such data. If such data is not available, it is requested that this headquarters' recommendation for the deletion of the requirement for the 15 subject modification kits be reconsidered.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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B/Ltr fr CG ADC to Dir of Comms, subj: "(Restricted) Installation of Early Warning Modification Kits," dtd 16 Jan 53

AFOAC-E/A

3rd Ind

7 Mar 1953

Dept of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. In accordance with recent discussions between representatives of your headquarters and personnel of this headquarters, the following was resolved relative to the installation of early warning modification kits:

a. The installation of the subject equipment would proceed without delay at those locations listed in paragraph 3, basic correspondence.

b. The installation of early warning modification kits be deferred at those installations listed in paragraph 4, basic correspondence, pending future evaluation and calibration of radar coverage in the areas concerned.

2. Action is being taken under separate correspondence to advise Air Materiel Command of the information contained in paragraph 1b, above.

BY COMMAND OF THE CHIEF OF STAFF:

GEORGE M. ADAMS
Major, USAF
Executive, Electronics Systems Division
Director of Communications

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Hq ADC, Subject: (Restr) Installation of Early Warning Modification Kits

ADOCE-E 413.44 (16 Jan 53) 4th Ind 20 Mar 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Communications, Headquarters USAF, Washington 25, D. C.

In addition to sites listed in paragraph 3, basic correspondence, it is planned to install the first available OA/347 modification kit at P-21, Shawnee, New York. Canadian First Phase Mobile sites north of Shawnee, New York, are not expected to be operational before July 1954. The proximity of this site to the General Electric Company plant will facilitate development of installation and operational procedures.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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B/Ltr fr CG ADC to Dir of Comms, subj: "Installation of Early Warning
Modification Kits," dtd 16 Jan 53

AFOAC-E/A

5th Ind

1 Apr 1953

Dept of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Correspondence is returned in accordance with telephone conversation between Lt. Colonel William LaFrenz of your headquarters and Lt. Colonel Ralph S. LaMontagne, AFOAC.

2. It is requested that copies of the radar coverage diagrams used to arrive at the conclusions mentioned in basic correspondence be forwarded to this headquarters for information.

BY COMMAND OF THE CHIEF OF STAFF:

GEORGE M. ADAMS
Major, USAF
Executive, Electronics System Division
Director of Communications

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Hq ADC, Subject: (Restricted) Installation of Early Warning Modification Kits

ADOCE-E 413.44 (16 Jan 53)

6th Ind

20 Apr 1953

Hq AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Director of Communications, Headquarters USAF, Washington 25, D. C.

1. The attached radar coverage chart shows the search coverage of CPS-6B and FPS-10 radars of the ADC permanent radar net at 5,000 feet and 10,000 feet above mean sea level.

2. Radar calibration reports, and data collected during CPS-6B evaluation tests, indicate that the CPS-6B and FPS-10, operating with MTT, are capable of exploiting radar-line-of-sight ranges up to at least 135 nautical miles. Additionally, it has been observed from calibration reports that these equipments realize very nearly radar-line-of-sight ranges against aircraft up to 10,000 feet of altitude. It is therefore the opinion of this headquarters that the early warning modification kit will not significantly increase the ranges of detection of low-flying aircraft, and that the main benefit to be derived from the early warning kit will be an increase of the range of detection of high-flying aircraft.

3. It was therefore recommended that early warning modification kits be installed only at those CPS-6B or FPS-10 radar sites where the increased high altitude coverage would not be overlapped by facilities now installed or pending installation. Furthermore, this headquarters is of the opinion that the installation of the early warning modification kits will not delete the requirement for any of the planned low-level gap fillers if coverage is to be provided down to 2,000 feet as required by this Command.

FOR THE COMMANDING GENERAL:

JOHN W. JONES
Lt Col, USAF
Asst Adj Gen

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ADOCE-E 413.44

20 Mar 1953

SUBJECT: (Unclassified) Priorities for Installation of OA/347 Search
Kit ModificationsTO: Commanding Officer
Rome Air Force Depot
Attn: MRMCR
Griffiss Air Force Base
Rome, New York

1. Reference is made to correspondence from this headquarters, file and subject as above, 19 June 1952, and letter from WADF, WDOCE-2 413.44, subject, "Priorities for OA/347 Modification Kit," 2 October 1952, and 1st Indorsement by this headquarters, 8 October 1952.

2. In view of results of recent radar calibrations and programmed additions to the AC&W system, it is requested that installation priorities for the first twelve (12) modification kits be revised to conform to the following:

<u>Priority</u>	<u>Site No.</u>	<u>Location</u>
1	21	Shawnee, N. Y.
2	38	Mt. Tamalpais, Calif.
3	42	Cross Mountain, Tenn.
4	10	North Truro, Mass.
5	59	Atolia, Calif.
6	46	Birch Bay, Wash.
7	9	Navesink, N. J.
8	15	Santa Rosa Isle, Calif.
9	79	Ellington AFB, Tex.
10	13	Brunswick NAS, Me.
11	80	Caswell, Maine
12	47	Hutchinson NAS, Kan.

3. This headquarters has initiated correspondence to Hq, USAF requesting that installation of subject modification kits not be accomplished at the following sites:

<u>Site No.</u>	<u>Location</u>
20	Selfridge AFB, Mich.
14	Bellevue Hill, Vt.
81	Waverly, Iowa
35	E. Farmington, Wis.

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ADOCE-E 413.44 Subject: (Unclassified) Priorities for Installation of
OA/347 Search Kit Modifications

<u>Site No.</u>	<u>Location (Contd)</u>
77	Bartlesville, Okla.
1	McChord AFB, Wash.
34	Empire, Mich.
58	Mather AFB, Calif.
78	Duncanville, Tex.
52	Tinker AFB, Okla.
64	Sublette, Mo.
30	Ricketts Glen State Park, Pa.
31	Elkhorn, Wis.
53	Rockville, Ind.

Request installation of modification kits at these sites be held in abeyance pending decision of Headquarters, USAF and that equipment be stored in appropriate depots. In the event USAF decision is made to install modification kits at these sites, priority will be as listed after installation has been made at all sites listed in paragraph 2 above.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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ADMEL-2 413.44

21 Jul 1953

SUBJECT: (Unclassified) Installation of OA-347/CPS-6B Equipment

TO: Commander (Identical ltrs to:
Eastern Air Defense Force Comdrs, WADF, CADF)
Stewart Air Force Base
Newburgh, New York

1. Information received from Rome Air Force Depot indicates that the first installation of the OA-347/CPS-6B equipment will begin on or about 20 July 1953. Other installations will follow shortly. Sites which will receive the complete equipments, listed in order of priority, are: P-21, 38, 42, 10, 59, 46, 9, 15, 79, 13, 80, and 47.

2. It is anticipated that the rest of the AN/CPS-6B and AN/FPS-10 sites will receive the portions of the modification kit necessary to allow individual beam selection and gating of the normal and MTI video.

3. The first three equipments will be installed under the supervision of the General Electric Co. The remainder of the installations will be made by teams from Rome Air Force Depot and Sacramento Air Materiel area. Following the physical installation, a General Electric Co. specialized team will peak the equipment.

4. Request this information be disseminated to interested organizations of your command.

BY ORDER OF THE COMMANDER:

THOMAS C. SAVAGE
Major, USAF
Asst Command Adj

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SECURITY INFORMATION

HEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

WDOCE-2 413.44

13 Oct 1952

SUBJECT: (Restricted) Improved Receiver, CPS-6B/FPS-10 Radar Set

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

207.7 ✓
sp

1. This headquarters has recently received information from representatives of General Electric regarding a new improved receiver unit which is adaptable to the CPS-6B/FPS-10 radar set. This receiver is currently being produced for the APS-20 search kit and the FPS-6 height finder.

2. Use of this receiver with CPS-6/FPS-10 equipment will provide a three-decibel improvement in system performance, which is equivalent to doubling the transmitter power and should provide a ten percent increase in maximum detection range.

3. It is realized that the search kit will reduce the need for extending the range of the present search beams, but improved coverage is needed at the higher elevations and on the slant height finding beams.

4. An additional capability which this receiver may possess is the ability to reject multi-carrier jamming. At present a CPS-6B is completely vulnerable to jamming by the S-band transmitters separated by the I.F. frequency; CPS-6B transmitter/receiver tuning will not eliminate this jamming, nor will the duplexer reject it, due to broad-band characteristics. It is felt that the balanced mixer incorporated within this receiver kit will eliminate this condition.

5. The cost of this receiver (estimated to be \$15,000 per site) could be amortized at many stations through savings of transmitter tubes, and the figures listed in inclosure #1 substantiate this fact. It has been found that reducing magnetron current provides reliable MTI operation and greatly

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Hq WADF, WDOCE-2 413.44, Subject: (Restricted) Improved Receiver, CPS-6B/
FPS-10 Radar Set

increases the life of magnetrons, T/R tubes, thyratons and high voltage rectifiers. The main problem is unstable and undependable operation of magnetrons (FM'ing etc.) and 5C22 tubes at rated power (37 ma. mag. current on 600 PRF). Site P-1 has definitely established that operation at reduced power (30 ma) results in better overall set performance and dependability while reducing the range slightly. This reduction in power can be more than compensated for, through use of this improved receiver. The P-1 site by virtue of its location has less need for long range than the other squadrons listed in inclosure #1. Therefore, reduced power will not be suitable at other stations unless these new receivers are installed.

6. It is recommended and requested that tests be conducted by ARDC or AFG on the capabilities of this receiver as outlined in paragraphs 3 and 4, and that procurement be effected if results prove satisfactory.

FOR THE COMMANDING GENERAL:

1 Incl:
Consumption
Data (635th Vs 750th
and 666th)

JACK J. JONES
1st Lt., USAF
Asst Adj Gen

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SECURITY INFORMATION

Hq WADF WDOCE-2 413.44 Subject: (Restricted) Improved Receiver, CPS-6B/
FPS-10 Radar Set

ADOCE-E 413.44 (13 Oct 52)

1st Ind

6 Nov 1952

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Air Research and Development Command, Post Office
Box 1395, Baltimore 3, Maryland

1. The low-noise receiver designed by General Electric and incorporated in the APS-20B long-range search and FPS-6 height finder is considered to have some desirable features. However, it is considered that this receiver should be fully evaluated before action is taken by this headquarters to raise a requirement on Headquarters USAF for this equipment.

2. In connection with the above, it is requested that AGP or RADC be given the project of evaluating this equipment. In view of the urgency to improve the over-all performance of the 6B/FPS-10 radars, which have not, as yet, performed to design specifications, it is requested that this project be carried out at P-21, Shawnee, New York, at the earliest possible date and this headquarters advised of your findings.

FOR THE COMMANDING GENERAL:

ROBERT S. WYNENS
Capt, USAF
Asst. Adj Gen.

s/t/
RHTrepanier/hb

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Bec ltr fr Hq Western Air Defense Force subject: (Restricted)
Improved Receiver, CPS-6B/FPS-10 Radar Set

RDDE-4 100-24 (13 Oct 52) 2d Ind 11 Dec 1952

HQ AIR RESEARCH AND DEVELOPMENT COMMAND, P.O. Box 1395, Baltimore 3, Md.

TO: Director of Research and Development, Headquarters USAF
Washington 25, D. C.

1. Reference is made to letter from this Command to your Headquarters, subject: "Procurement of Low Noise Receiver Modification Kit for Radar Set AN/CPS-6B," dated 17 November 1952. This letter recommended procurement of the referenced receiver modification kit. As indicated in the referenced letter, further tests on the modification are not considered necessary.

2. It is suggested that Air Defense Command be informed of the results of these tests and interrogated on current requirements for the modification kit.

FOR THE COMMANDING GENERAL:

1 Incl
n/c

R. M. OSGOOD
Colonel, USAF
Director of Electronics
Office, Deputy for Development

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Bec Ltr fr Hq., Western Air Defense Force, Subj: "Improved Receiver,
CPS-6B/FPS-10 Radar Set"

AFDRD-AD

3rd Ind

31 Dec 1952

Department of the Air Force, Hq., USAF, Washington 25, D. C.

To: Headquarters, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

1. Attached for your information is a copy of a letter from ARDC, subject: "Procurement of Low Noise Receiver Modification Kit for Radar Set AN/CPS-6B", dated 17 November 1952.
2. As indicated in paragraph 3 of the attached letter the evaluation tests for this modification kit have been completed and favorable results were obtained.
3. Favorable action for the procurement of these kits is anticipated by this Headquarters. As soon as definite action is taken toward the procurement of these kits your Headquarters will be notified.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl.
n/c

Added:

Cy Ltr fr ARDC to
Hq, USAF, dtd
11/17/52

s/t/

B. E. HOLLOWAY

Colonel, U.S.A.F.

Chief, Air Defense Group

Directorate of Research and Development

Office, D/Chief of Staff, Development

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SECURITY INFORMATION

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HEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

FILE NUMBER 207.3
245 ✓

WDOCE-2 311.23

7 Oct 1952

SUBJECT: Back-up Height Finder Radars at AN/CPS-6B and AN/FPS-10 Sites

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Request that consideration be given by your headquarters to program AN/FPS-6 back-up height finder radars instead of AN/FPS-4 height finders for all AN/CPS-6B type radars of this command. The first priority to be given to perimeter sites and then to internal sites.

2. This requirement exists at all AN/CPS-6B and AN/FPS-10 radar sites because sufficient range and accuracy is not available, nor will it be available with AN/FPS-4 height finders at perimeter sites; also, height information for inland AN/CPS-6B type sites from adjacent radar units is not adequate. Further, since these radar sets are to be equipped with AN/APS-20 long range search sets (QA-347/CPS-6B Modification Kit) greater range and accuracy of height information will be required, if positive interceptions are to be accomplished at ranges in excess of 80 miles.

3. The present height finding feature of AN/CPS-6B is to be used within its capabilities and the AN/FPS-6 height finder to be used when greater accuracy and range are required. The AN/FPS-6 height finder will be operated continuously for maximum height information.

4. It is the opinion of this headquarters that this change at all AN/CPS-6B type radars will increase the operational effectiveness of the Air Defense System.

FOR THE COMMANDING GENERAL:

JACK J. JONES
1st Lt., USAF
Asst Air Adj Gen

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Hq WADF WDOCE-2 311.23, Subject: Back-up Height Finder Radars at
AN/CPS-6B and AN/FPS-10 Sites

ADOCE-E 413.44 (7 Oct 52) 1st Ind 29 Oct 1952

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton Air Force
Base, California

1. Your request for programming FPS-6 height finders at CPS-6B and FPS-10 sites cannot be favorably considered until the capability of the 6B and FPS-10 radars has been fully explored.
2. It is recognized that the present range and accuracy of the height-finding function of this equipment are far from meeting your operational requirements; however, it must be realized that the equipment has not been performing to design specifications.
3. In order to improve the over-all performance of the 6B and FPS-10, the following steps have been taken or are being considered by this headquarters:
 - a. Installation of the APS-20 long-range search equipment.
 - b. Development and procurement of a new stalo.
 - c. Procurement of the new low-noise receiver designed by General Electric.
4. It is considered that the improvement in range and accuracy to be gained by the above will meet the operational requirements discussed in general terms in paragraphs 2 and 3 of basic.
5. Further details on the steps outlined in paragraph 3 above are contained in this headquarters' indorsement to your letter WDOCE-2 413.44, subject: "Operational Deficiencies of Radar Equipment," dated 24 September 1952.

BY COMMAND OF GENERAL CHIDLAW:

THOMAS C. SAVAGE
MAJOR USAF
Asst Adj Gen

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HEADQUARTERS STRATEGIC AIR COMMAND
Offutt Air Force Base
Omaha, Nebraska

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DINC

7 Jan 1953

SUBJECT: (Unclassified) Request for Information on CPS-6 Radars

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Request this headquarters be furnished the following information, as available, based on actual operational experience with CPS-6 radars:

- a. The height finding accuracy at given altitudes and ranges.
- b. The number of B-29, B-36, F-84 or other specific type aircraft which each CPS-6 beam can detect and handle.
- c. The effect of chaff.
- d. The effect of jamming with various frequencies and band widths.
- e. The degree of resolution of the CPS-6.
- f. The maximum altitude at which the CPS-6 is capable of detecting targets.
- g. What "bugs" were encountered in production of the CPS-6 and how were these resolved?
- h. What "bugs" are encountered in operation of the CPS-6 and how are these resolved?

2. Request reference to SAC D/I Control No. 271 in reply.

FOR THE COMMANDING GENERAL:

VICTOR E. BERTEL
Capt, USAF
Asst Adj Gen

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Hq SAC DINC 311, Subject: (Unclassified) Request for Information on
CPS-6 Radars

ADOCE-E 413.44 (7 Jan 53) 1st Ind 20 Jan 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Strategic Air Command, Offutt Air Force Base,
Nebraska

1. Reference SAC D/I Control No. 271.
2. Attached as Inclosure #1 is a brief resume of information requested in basic letter. It is suggested that, for more detailed information, your office consult the APG report entitled "Limited Operational Suitability Test of the AN/CPS-6B," dated 18 September 1951, copies of which were distributed to your headquarters.
3. Due to the addition of a SECRET inclosure, the classification of this correspondence is automatically upgraded to SECRET.

FOR THE COMMANDING GENERAL:

1 Incl
Resume -
AN/CPS-6B Radars

JOHN W. JONES
Lt Col, USAF
Asst Adj Gen

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SECRETCOPYAN/CPS-6B RADARS

1. The following comments are submitted on paragraph 1 of the attached letter.

a. If properly maintained and operated, the height-finding facilities of the AN/CPS-6B yield heights within the limits given in T.O. 16-30CPS6-23 (-1000 ft. absolute) out to a range of 120 miles for bombers and up to slant angles of 24° .

b. Information as to the number of specific types of aircraft which can be detected and handled by the AN/CPS-6B is not available. In general, it is estimated that four (4) aircraft may be detected and plotted per minute by each scope-to-plotter combination in use.

c. The CPS-6B is neither more nor less vulnerable to chaff than other standard search radars (i.e., CPS-1, CPS-5, FPS-3, etc.). It is considered that the effects of chaff against any search radar are limited due to the large area that must be covered for effective screening. The chief value of chaff is confusion, and sound operator training can minimize this.

d. The CPS-6B, despite its anti-clutter circuits, is vulnerable to electronic jamming. By jamming only the vertical lower beam, the range of the CPS-6B can be drastically reduced. It is possible for all five (5) beams to be jammed by an aircraft equipped with five (5) jammers. When the stalos have been developed to the point where frequency shifting can be accomplished, the CPS-6B should prove extremely difficult to jam electronically.

e. Range resolution is approximately 0.4 nautical miles and azimuth resolution 1.3 degrees.

f. Coverage is obtained up to approximately 45,000 feet depending on effective target area, tilt angle, etc. Spotty results are obtained at short ranges or with small aircraft or fast, jet-propelled aircraft.

g. Information on production difficulties is not available in this office but could probably be obtained either from General Electric Company or Air Materiel Command.

h. As the AN/CPS-6B is an extremely complex and massive piece of equipment using over 1500 electron tubes in normal operation, lack of qualified personnel to perform maintenance work has been a problem and extensive training programs have been necessary.

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AN/CPS-6B Radars (Contd)

- (1) Local oscillators and associated stalos are critical and require careful adjustment to prevent running away and to permit MTI operation. It has been found desirable in most cases to operate magnetrons at reduced anode current to improve stability and MTI performance. As only a single magnetron current control is provided for the five (5) transmitters, the power output of each is limited by the stable operating point of the poorest magnetron in use.
- (2) Present modulator units (new type replacement units being procured) have proved unsatisfactory as thyra-trons had to be matched, thus requiring tube selection.
- (3) Range coverage with fighter aircraft is inadequate unless beacon equipment or a similar system is used.
- (4) Considerable trouble has been experienced with the azimuth rotation system of this set, which is quite complex both electrically and mechanically.

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Office of Chief of Requirements
Division

25 Oct 1952

Colonel J. F. Taylor
Headquarters, Air War College
Maxwell Air Force Base
Montgomery, Alabama

Dear Jack:

I have gathered together most of the things that you want and I am sending copies to you. The ones I have sent I feel will be the most helpful.

As you know, there are other developments that pertain to the subject of aircraft detection. These are electrostatic volt meters, acoustic detectors, infrared detectors plus other simplified gadgets that work on doppler radar principles. I have not included any papers on these subjects since their range is extremely short and the favorable conditions under which they are reliable are quite restrictive. Generally speaking, they may offer possibilities of passive backup to a more positive primary system.

On the subject of need for longer range, I feel I should say a few words. Additional range would be nice, particularly if coupled with higher altitude capabilities and a higher degree of reliability, i.e., were hits per scan. When the range is too long, a low altitude gap problem develops. When the range is too short, the problem of large numbers of radar develops. It is my opinion that present ranges are about optimum as a balance. The real deficiency now is both MTI and AMTI and high altitude reliability against very small targets roughly the size of a jet interceptor.

In connection with your present conclusion on detection of carriers other than aircraft, I suggest you get hold of the project "Wizard" study. This paper has looked fairly close at missile detection.

Sorry for the delay, Jack, and I hope this reaches you in time to be of use in preparing your thesis.

Best regards,

Oscar T. Halley, Jr.
Lt Colonel, USAF**SECRET**

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Subject: High Altitude Capability of Radar
From: DCS/O To: C/S

Date: 5 Aug 53
Comment No. 1

1. With reference to your request for information on the testing of the capability of our radar to pick up high altitude targets, the following is submitted:

a. All permanent AC&W sites have been calibrated. Highest calibration altitudes as follows:

- (1) Approximately 20% at 20,000 feet.
- (2) Approximately 40% at 25,000 feet.
- (3) Approximately 40% at 30,000 feet.

There is no present program for conducting further high altitude calibrations on primary search radar at existing sites. However, high altitude coverage data will be verified and/or expanded concurrently with planned calibration of FPS-8 emergency radar, programmed for installation at 60 permanent sites.

b. It was concluded from radar evaluation reports on B-36s and from limited operational suitability test of the AN/CPS-6B and FPS-3 radar (using B-29s and B-50s), that high altitude coverage from this type of radar, on propeller driven bombers, is reliable. Coverage from CPS-6B radar was substantially solid on B-29 and B-50 aircraft as follows:

- (1) 145 miles at 30,000 feet.
- (2) 165 miles at 35,000 feet.
- (3) 180 miles at 38,500 feet.
- (4) 170 miles at 42,500 feet.

Coverage from FPS-3 radar was substantially solid on B-29 aircraft to 160 miles at 30,000 feet. Good EW pickup was obtained at ranges up to 200 miles, but coverage between 160 and 200 miles was not solid.

APG will cooperate with this command in conducting operational suitability tests after suitable new radar installations have been made.

c. From high altitude coverage data on jet fighters, it was concluded that coverage is not considered reliable enough for continuous tracking without the aid of beacons.

d. Data has been collected on high altitude detection ranges on B-47 aircraft during exercise "SKY TRY" and from "Fast Freight" missions. Altitudes flown were generally 40,000 to 45,000 feet.

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Subject: High Altitude Capability of Radar
 From: DCS/O To: C/S

Date: 5 Aug 1953
 Comment No. 1 (Contd)

	<u>CPS-5</u>	<u>CPS-6B</u>	<u>FPS-3</u>	<u>FPS-10</u>
(1) Aver Detection Range	157	111	128	142
(2) No. Observations	11	38	63	21

Results from "Fast Freight" missions have been meager due to the limited number of missions flown. It doesn't look very good so far.

e. S-Band auxiliary search modification kit for the CPS-6B and FPS-10 radar is in production at General Electric Co. with initial delivery in progress. This kit will vastly improve long range high altitude coverage for these sets. (Estimates, based on some flight testing, indicate ranges in excess of 200 miles on a 4-engine bomber at 60,000 feet with a probable 80-mile gap mid-way in cover at that altitude.

The high-power radar set AN/FPS-3 is a development program with prototype delivery approximately 8 months away. We are requesting Hq USAF to program for 49 U.S. P-sites; 8 Canadian REP sites; 8 Canadian REP sites; and 24 AN/FPS-7 first and second phase mobile sites. Production is expected in 1955. This radar will be capable of detecting and tracking one square meter targets at speeds approaching Mach 1 at 60,000 feet.

f. Lincoln Laboratory is charged with the responsibility of developing radar that will answer the high altitude requirement for the time period 1958 and beyond. We are in close touch.

KENNETH P. BERGQUIST
 Brigadier General, USAF
 DCS/Operations - 222

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ADOPR 413.44

31 Jan 1953

SUBJECT: (Uncl) Low Altitude Radar Coverage

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. The present air defense radar network is inherently weak in providing surveillance below 5,000 feet. Developments currently in progress are directed toward providing the existing radars with even greater altitude surveillance capability but will not increase the low altitude detection probability. To preclude undetected penetration by an enemy air attack, the AC&W system must rely on a supplemental means for obtaining this information. To some extent the Ground Observer Corps can provide information as to low flying air vehicles but is inadequate for rapid detection, threat evaluation, weapon assignment and employment.

2. A requirement, therefore, exists for a supplemental system of small radars deployed within the coverage of those permanent and/or mobile radars, to supply the missing low altitude data where this deficiency exists. In addition, to effectively utilize data gathered by such a supplemental system, it is essential that an automatic method of transmitting this data be provided. It is further necessary to combine the inputs from several such small radars into a single source at the prime radar for integration with the local video and presentation on a single indicator.

3. Description of Equipment.

a. Radar

- (1) The radar should provide a range of fifty miles with a 50 percent probability of detection on a B-29 type aircraft.
- (2) Range resolution should be on the order of 0.2 NMI and a range accuracy of ± 0.2 NMI on all range scales.
- (3) Azimuth resolution on the order of 0.1° at the horizon with azimuth accuracy of ± 0.1 .

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Subject: (Unc1) Low Altitude Radar Coverage

- (4) Antenna characteristics should permit surveillance from ground level to 5,000 feet in altitude at maximum range.
- (5) Provide reliable MTT with a linear logarithmic receiver and highest possible sub-clutter visibility.

b. Transmission System

- (1) Provide a method for transmitting video information from the small radar to a prime radar. Both narrow band (compressed video) and broad band (micro-wave) type transmission should be investigated. (Bandwidth compression for narrow band transmission via leased telephone company circuits should not exceed the rental cost for ordinary grade voice telephone circuits.)
- (2) Transmission signal loss not to exceed 3 db over a 100 mile circuit.
- (3) Permit transmission of a north mark for continuous observation of the small radar antenna orientation.
- (4) Provide a resolution factor of one mile or less.
- (5) Be capable of restoring the information at the receiving end to a usable form and mixed with the local video with no resolution degradation.
- (6) Integrate the video input from several small radars for presentation with the locally generated video of the parent radar.
- (7) Be engineered for reliability and simplicity of operation and maintenance.

4. The low altitude radar and transmission system recently demonstrated by the RAND Corporation led to the following conclusions and recommendations.

a. The Haller-Raymond Brown, Video Bandwidth Compressor (Rayfax-Scanner) appears ideally suited for bandwidth compression and narrow band transmission.

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Subj: (Uncl) Low Altitude Radar Coverage

b. The Vidicon (commercial television camera) combining technique, as demonstrated, does not meet the requirement of integrating the output of more than one small radar without signal and resolution degradation. The Vidicon appears to have considerable promise but requires further development.

c. It is recommended that the combining development be continued at an accelerated rate.

5. Implementation and deployment of the initial phase of such a supplemental system would be in the double perimeter areas and across the north central United States. This would require about 125 small radars. The ultimate deployment for complete low altitude surveillance may require up to 320 of this type radar.

6. When this requirement is fulfilled no foreseeable necessity for the Ground Observer Corps as a source of surveillance information will exist. The defrayed cost of supporting the G.O.C. as presently constituted will more than supply the necessary funds for the additional low altitude data gathering system.

7. It is recommended that this requirement be approved and that such action as is necessary be initiated.

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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Basic ltr Hq ADC, 31 Jan 1953, subj: "Low Altitude Radar Coverage"

AFDRQ-AD/C

1st Ind

17 Mar 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent AFB, Colorado Springs,
Colorado

1. The requirement for a low altitude radar coverage system, and the initial deployment concept, outlined in par 5 of the basic letter, is approved in principle. A requirement for development of equipment to fill this need has been previously stated by this headquarters. This development has been assigned a 1-A priority at the development agency.
2. This headquarters concurs with the conclusions and recommendations contained in par 4 of the basic communication. Several radars have been produced which will meet the operating characteristics expressed in par 3(a) with the exception of that part of 3a(4) which specified coverage down to ground level at maximum range.
3. The establishment of a firm program of implementation of such a system is contingent upon completion of development and the availability of funds for the procurement of equipment and installation in the air defense system. To facilitate establishment of this program and to assure that the G.O.C. program is not prematurely de-emphasized, a detailed operational plan of deployment within the air defense system, to include an estimated of communications facilities, etc. which will be required, as well as overall cost estimates should be developed and submitted to this headquarters.
4. Air Research and Development Command has been directed to submit to this headquarters their recommendations for development and procurement programs for the low altitude radar and data transmission-integration system. ARDC action to accomplish this directive is reflected by the attached correspondence. Your headquarters will be advised of future development.

BY COMMAND OF THE CHIEF OF STAFF:

George E. Price
Brigadier General, U.S.A.F.
Deputy Director of Requirements

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HISTORICAL OFFICE
Cross Reference Sheet

DATE: 1 May 1953

FROM: Headquarters, Air Defense Command

TO:

SUBJECT: Radar Evaluation Program -- A Two Volume Report

CLASSIFICATION: SECRET

NO. OF PAGES:

FANFOLD NO.

HISTORIAN:

REMARKS: This document was forwarded separately to the USAF Historical Division. A copy is filed in the Directorate of Historical Services, Headquarters, Air Defense Command under HRF 208.

HIST SV. FORM 3
19 May 1952

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From: Hq ADC Ent AFB, Colorado Springs, Colo. 29 Jun 1953
To: Hq USAF, Washington D. C.
Attn: Director of Operations

ADOAP_____. URMSG AFOOP-OC-F 58977. This headquarters favors the eventual elimination of radar calibration units as such. However, as discussed with Chief, Programs Div, AFODP, your headquarters, a continuous requirement exists for a system of evaluating radar performance. This headquarters is preparing a study to be presented to your headquarters prior to the July reprogramming conference, which proves for an evaluation system of measuring effectiveness of radar system. This concept calls for combination radar evaluation and ECM training within a single unit which will result in a calibrated system and a more economical use of personnel and aircraft. It is intended that personnel not required to perform this function will be utilized to man the AEW&C units. Recommend that action to inactivate radar calibration units be held in abeyance until the evaluation study is presented to your headquarters.

COMDR ADC

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ADOFR 381

24 Sep 1952

SUBJECT: (CONFIDENTIAL) Extension of Radar Coverage in the Northeast Coastal Area

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 15, D. C.

1. This Command has continually placed maximum emphasis on the requirement for improved radar surveillance and fighter control seaward from the Coasts of the United States.

2. To date no satisfactory program toward eliminating the existing deficiency has been established. The Lincoln Laboratory has suggested off-shore towers to provide the seaward extension of radar coverage of the Northeast coastal area (reference Inclosre 1). This suggestion has considerable merit and proposes to be an economical partial solution towards meeting picket vessel requirements of this Command.

3. It will be noted that the attached report proposes that off-shore stations be placed on Gashes Ledge, Nantucket Shoal (Asia Rip), Georges Shoal and a shoal 80 miles southeast of New York City, which approximately coincide with four of the five Atlantic radar picket stations proposed by this Headquarters.

4. It is recommended that these off-shore stations be considered along with picket vessels as a means of fulfilling the urgent requirement for the seaward extension of radar coverage in the area represented in the report.

FOR THE COMMANDING GENERAL:

Copy from original in Col. Cheever's
AEW F-7 file.

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AFOOP-OP-D 413.44

23 March 1953

SUBJECT: (Restricted) Seaward Extension of Radar Coverage

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. The utilization of "Texas Towers," platforms built on shoals in the sea for the mounting of radar equipments, is being considered by this Headquarters as a possible means of extending radar coverage seaward.
2. Both Project Charles and the Lincoln Laboratories have recommended the "Texas Towers" as a possible means of fulfilling the Air Defense Command's requirements for greater early warning over the sea approaches.
3. It has been determined that this type of construction is feasible and could be made suitable for mounting heavy radar equipment.
4. Further, it has been recommended that a cost study be made to determine the economic practicability of such an installation.
5. To assist in initiating such a study as soon as possible, it is desired that your Command furnish this Headquarters your estimates of the facility requirements at such an installation.
6. In developing your requirements, your consideration of the following is desired:
 - a. The feasibility and advisability of unattended operation.
 - b. Is height finding capability required?
 - c. What type equipments would be required?
 - d. Number of personnel and facilities for their welfare that would be required for remote and for station operation.
 - e. Consideration as to what, if any, local defense should be provided such an installation.

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B/L to CG, ADC, Subject: (Restricted) Seaward Extension of Radar Coverage (Contd)

7. As the size and cost of the "Texas Towers" would be predicated upon the extent of the facilities needed to take care of the operating personnel and perform the operating functions of the radar situation, it is emphasized that the minimum of facilities be carefully considered.

BY COMMAND OF THE CHIEF OF STAFF:

J. C. JENSEN
Colonel, USAF
Chief, Operational Plans Div.
Directorate of Operations

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Basic Ltr Hq USAF, AFOOP-OP-D 413.44, Subj: (Restricted) Seaward
Extension of Radar Coverage

ADOFR 413.44 (23 Mar 53)

1st Ind

29 Apr 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Operations, Headquarters USAF, Washington 25, D. C.

1. This headquarters feels that considerable effort should be exerted in the early fulfillment of our requirement for seaward extension of radar cover. Because of the possibility of the early fulfillment of this requirement by "Texas Towers", in lieu of Picket Vessels in certain areas, we concur that operation of these equipments should be accomplished with minimum required personnel. We are sure that the best method of accomplishing this is to automatize and remote all operations insofar as possible.

2. To assist your headquarters in developing requirements for this type installation, answers to the specifics listed in paragraph 6 of basic letter are as follows:

a. We do not believe that it is either feasible or advisable to consider unattended operations of radar and communications equipment located on "Texas Towers".

b. Height Finding capability of each installation is a definite requirement since data gathered from these sources will be used in the direction of both manned and unmanned interceptors.

c. The FPS-3 search radar with V-Beam antenna is highly desired; however, if the V-Beam antenna will not be available the FPS-6 or similar type height finder equipment is required. Manual or automatic SIF interrogation equipment, sufficient primary and secondary power supply and UHF relay transceiver equipments are also required. The UHF relay transmitters and receivers should consist of 2 multiple (10 pretuned) channels and 3 single channel equipments. HF transmitting and receiving equipment is required as back-up for operational circuits. Passive Detection equipment at some of these stations will also be required. Additional equipment, such as air-to-ground data link and a method of automatically transmitting radar data to shore based installations must be programmed for a later time period. Submarine cable is recommended as the primary means of communications between the shore and "Texas Towers". Other types of equipment, such as micro wave or HF communications would require additional maintenance personnel.

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Basic Ltr Hq USAF, AFOOP-OP-D 413.44, Subj: (Restricted) Seaward
Extension of Radar Coverage (Contd)

d. Personnel requirements are divided into two (2) time periods; the time period during which the manual system is in use and a later time period when the air defense system will employ an automatic system. During the first period we estimate that 7 electronic communication maintenance personnel, 2 diesel maintenance personnel, 9 scope operators, 3 Passive Detection operators, 2 cooks and 2 helpers, 1 medical corpsman and 1 supervisor will be required at each installation. For the later time period personnel requirements will be considerably less and should be on the order of 7 electronic maintenance personnel, 2 diesel maintenance personnel, 4 Passive Detection operators, 2 cooks, 1 medical corpsman and 1 supervisor. As indicated, no controller personnel will be required at these installations since all data will be either manually or automatically transmitted to a parent radar or computer center. It will, however, be necessary to increase controller personnel at the parent radar, or computer center, for both time periods. Recreation facilities, commensurate with the location of the installation and similar to those now provided outlying AC&W squadrons must also be provided. It is recommended that helicopter and boat facilities be considered to furnish the means whereby medical treatment, rotation of personnel and re-supplying of the stations needs will be accomplished.

e. Local defense of these installations is not considered necessary other than their capability to defend against sabotage.

3. Personnel requirements and equipments listed above are considered to be minimum operational requirements for these installations. Additional personnel requirements for rotation of crews, leaves, sick, etc., and personnel manifestly required to perform periodic air installation type maintenance on the towers would be at a land installation that serves as a support base.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Adj Gen

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ADOPR 413.44

24 Aug 1953

SUBJECT: (Uncl) Texas Towers

TO: Director of Operations
Headquarters USAF
ATTN: Colonel Lindstrand
Washington 25, D. C.

1. Inclosed is a list of major equipment considered necessary to operate radar installations on towers constructed on shoal areas off the East coast. This list is not complete in all component details but is believed to be sufficiently complete to determine cost and required room sizes. Also included is installation layout.

2. You will notice that two (2) AN/FPS-6 height finders are listed. Information received from Rome Air Development Center indicated that a minimum of 150 feet separation between the AN/FPS-3 and the AN/FPS-6 is required. We therefore propose the use of two (2) height finders, one looking seaward and the other looking landward. The probability of interference when operated in this manner is expected to be extremely low. An interference blanker may, however, be required to insure complete interference-free operation. We strongly urge that additional testing be accomplished to definitely determine the exact number of height finders required.

3. With the addition of the second FPS-6 additional maintenance personnel will be required. Accordingly, we now figure total personnel requirements to be 25. We strongly urge that determination be made as to the adaptability and availability of the V-Beam antenna now under development at AFRC to the high power version of the FPS-3.

4. Our 1st Indorsement, ADOPR 413.44 to basic letter your headquarters, AFOOP-OP-D 413.44, subject: (Restricted) Seaward Extension of Radar Coverage, envisioned two (2) time periods of operation. Our thinking now is that there will be only the latter time period since automatic means of transmitting radar data should be available in the time Texas Towers can be constructed.

FOR THE COMMANDER:

JOSEPH D. HORNSBY
Lt Col, USAF
Asst Command Adj

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20 April 1953

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Major General Walter E. Todd
 Commanding General
 Western Air Defense Force
 Hamilton Air Force Base
 Hamilton, California

Dear Wee:

Your letter of 20 March 1953 with the accompanying staff study on "Composite AI and Non-AI Fighter-Interceptor Squadrons" has been widely discussed in this Headquarters. Your study in many aspects possesses merit, but does not follow the ADC concept of providing an air defense force capable of defending the United States against an enemy attacking under weather or night conditions.

It is agreed that a composite squadron would result in a saving from a monetary standpoint, as stated in paragraph 4 of your study, but is it a saving from a defensive capability viewpoint? The savings, with the 57 squadrons programmed for the ADC, amounts to \$128,250,000. With the present program our squadrons will be equipped with 1425 AI aircraft capable of operating 24 hours a day under all conditions. Under your composite concept these squadrons would then be equipped with 1026 AI interceptors and 684 non-AI fighters, a more formidable force at first glance, but one that decreases our capability 28% if the enemy launches an attack at night or under weather conditions.

The \$128,250,000 is a staggering figure, I agree, but a price that must be paid if we are to have a maximum all-weather defense capability. In reality, this sum provides us with 28% of our defensive strength. By forming additional composite squadrons with the money saved under your plan, this command could equip 8 more units. The 3 squadrons formed, however, would only possess 144 AI aircraft which still leaves us a shortage of 257 AI Interceptors from our present program. The destructive ability of the weapons possessed by the enemy precludes accepting a "calculated risk" that the offensive strike will be made during daylight VFR conditions.

Other commands, TAC, SAC, ATRC and the Air National Guard, will be comprised primarily of non-AI fighters. These aircraft offer a formidable force for augmenting our AI Interceptors and will provide the support needed under daylight attacks but, once again, offer little or no capability during night or weather conditions. We are presently firming up agreements with these commands, with a view toward securing a definite commitment of force in an emergency. Once again, these fighters will provide us with little or no capability during night or weather conditions. We must, therefore, attain such capability with our own resources.

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I fully realize that the problem of identification is still a major one, and one that cannot be readily solved. However, the corridor system, together with perimeter radar coverage as planned, should materially reduce the number of intercepts that will have to be made for identification purposes. In addition, it must be borne in mind that although aircraft identification is of major importance during peacetime operation, the ability to destroy the enemy under all conditions is the primary factor upon which we must base our requirements.

With the ADC charged with the responsibility of providing maximum air defense within its capability, it is mandatory that our combat potential be composed entirely of AI interceptors, i.e., aircraft designed to provide the protection required under all conditions. Keeping this always uppermost in my mind, I cannot approve your concept for a composite AI and Non-AI Fighter-Interceptor Squadron.

Sincerely,

1 Incl.
1 copy

/s/ B. W. CHIDLAW
General, USAF
Commanding

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7 March 1953

ADOAP 401

SUBJECT: (Unclassified) Changes to the ADC Fighter-Interceptor Program

TO: Director of Operations
Headquarters USAF
Washington 25, D. C.

1. Due to slippage in the production of F-86D aircraft, the following changes have been made to the Air Defense Fighter-Interceptor Program as contained in the Air Defense Command Program dated January 1953.

a. The 469th Fighter-Interceptor Squadron will be equipped with F-86A aircraft in the first quarter of FY 1954.

b. The 31st Fighter-Interceptor Squadron will be equipped with nineteen (19) F-86D aircraft in the first quarter FY 1954. Date of activation remains as programmed.

c. Fighter-Interceptor Squadrons, with the exception of the 31st, will convert to F-86Ds as programmed, but at reduced UE (14 aircraft). Priority for conversion remains unchanged. These units will be built to 25 UE during first and second quarters FY 1954.

d. The 94th, 62nd, and 71st Fighter-Interceptor Squadrons will each retain six (6) F-86A's through the first quarter FY 1954.

e. The 60th and 97th Fighter-Interceptor Squadrons will each retain six (6) F-86E's through first quarter FY 1954.

f. The 432nd Fighter-Interceptor Squadron will retain six (6) F-86F's through first quarter FY 1954.

g. The 95th, 323rd, 42nd, 465th, 331st, 445th, 440th, 496th, 13th, and 31st will be assigned six (6) F-51D's through first quarter FY 1954.

h. The 58th, 437th, 46th, 332nd, and 354th will be equipped with F-94C's as programmed, but at reduced UE (14 aircraft).

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Hq ADC, ADOAP 401, Subj: (Uncl) Changes to the ADC F-I Program

2. The above changes will be reflected in the ADC Program dated April 1953.

FOR THE COMMANDING GENERAL:

Info Cy: CG, EADF
CG, CADF
CG, WADF

/s/ JOHN W. JONES
Lt Col, USAF
Ass't Adj Gen

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From: HQ ADC
Ent AFB
Colorado Springs, Colo.

6 April 1953

To: CG EADF
Stewart AFB, New York

CG CADE
1209 Walnut Street
Kansas City, Missouri

CG WADF
Hamilton AFB, California

ADPPM-A 798. This msg in five parts supplies this headquarters message ADPPM-A 10433, 30 Mar 53. Part one. Request action be taken to insure that all FIS have a minimum of one pilot on hand or available to fly each in-commission aircraft on hand. Weekly D-4 reports indicate that some FIS do not always have a pilot available to fly in-commission fighter aircraft on hand. Pilot distribution will be most important during the coming critical period. Part two. This hq is aware that TDY is responsible for absence of assigned pilots. It is imperative that TDY schedule quotas, ferry pilot day and other miscellaneous TDY be distributed so as not to reduce any unit below one pilot on hand for each in-commission fighter aircraft on hand. In the foreseeable future it may become necessary to use other than squadron pilots to achieve this manning ratio and also supply all-weather school pipeline. Any base, group, wing, division, and ADF pilots who can be qualified and used for standby may be used regularly to achieve these minimums. Part three. The ADC mission requires that every effective fighter

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aircraft be manned to meet any abnormal threat. This excepts F-39 aircraft awaiting modification. This requirement overrides all other contingencies and justifies TDY of pilots from other units to fill empty cockpits. When levies for particular pilot types are made by this headquarters that will cause below minimum manning in certain units, objections will be forwarded to this headquarters before action is taken to remove pilots. Part four. When other than squadron fighter pilots are used to prove minimum manning, it will be noted in "Remarks" sec of D-4 rpt with the no of such pilots. Part five. When total pilot resources will not permit compliance with this message without prohibitive TDY and PCS, this hq will be notified for relief.

CG ADC

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21 March 1953

From: Headquarters, Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

To: Dir of Military Personnel
Headquarters USAF
Washington 25, D. C.

ADPMP-O 621. A recent study of effective manning indicates that as of 30 Jun 53, this command will have 552 pilots less than that actually required to man aircraft assigned. On 30 October 1952, we recommend that requirements for JP's for assignment to units of EADF be cancelled in view of slippage in jet aircraft delivery. Since that date a decision was reached to retain certain conventional fighters which continued our requirement for 1124E's and in addition we gained 100 F-84G's and 50 F-94B's. Approximately 134 pilots were lost to overseas assignment with an additional 315 to be lost through 30 Jun 1953. This situation is aggravated by pipeline to support all-weather and other assorted schools. F-86D and F-94C aircraft deliveries have increased beyond all estimates requiring considerably more pilots than previous planning figures indicated. Most accurate figures available indicate that as of 30 June 1953 this command will be required to man 986 aircraft with no more than 888 pilots. Your Weekly Record of Officers assigned dated 24 Feb 1953 indicated some 159 pilots reporting during the month of July. Since this command will continue to receive aircraft at an increasing rate, it will still be necessary that special attention be given to out pilot manning until such time as assigned strength is raised to that number required, with due regard to those

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SECRET MSG TO HQ USAF _____.

performing training and not available for duty with this command.

Urgently request that our outstanding requirements for pilots be filled at the EPD, using overseas returns where possible to increase skill level of assigned pilots. New related subject: In view of the above, urgently request that levy for 2 Lt Cols and 5 majors for assignment to MATS contained in your message AFPMP-1-50447, 6 Mar 1953, be cancelled. Further request release for time being from levy for 44 all-weather jet pilots to ATRC IAW your AFPMP-1-42400. This levy to be discussed with ATRC. In any event, 1 April reporting date for first increment cannot be met. End

CG ADC

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25 March 1953

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From: Hq USAF

To: CG ADC

Your message ADPMP-O 621 dated 21 March 1953. Your summary of fighter pilots for end FY 53 is being studied by this headquarters. Assignment to your outstanding requisition will be made from available resources from overseas returnees and recent graduates from pilot training as these personnel become available. With regard to the Levy for 2 Lt Cols and 4 Majors for assignment to MATS, this requirement is considered to be of the highest operational priority and pilots assigned to this duty must possess the qualifications stipulated in order to safely and successfully conduct operation High Flight. The importance of this project precludes consideration of release from this Levy. Request officers report to MATS units as instructed in message this headquarters AFFMP-50447 dated 6 March 1953. Temporary delay in the reassignment of 44 all-weather fighter pilots to ATRC is granted pending your meeting w/ATRCM.

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AFPMF-1-L-1-b

4 May 1953

SUBJECT: (Unclassified) Projected Fighter Pilot Manning Position

TO: Commanding General
Air Defense Command
Ent Air Force Base, Colorado

1. This Headquarters has carefully reviewed the information presented by representatives from your command regarding your present and future fighter pilot manning position. This information has been compared with the information available in this Headquarters to determine the future course of action necessary to insure that sufficient fighter crews are available to man the aircraft tactically available in your command.

2. The number of fighter pilots assigned to your command as of 28 February 1953 was taken from the Officers' Manning Report. To this figure was added or subtracted all known or anticipated gains and losses. In computing gains from new pilot graduates, it was assumed these officers would be available in your units approximately thirty days after they graduated from the Advanced Flying Schools. Gains from other sources were computed from past input and a monthly average established. Losses were computed from known or anticipated levies, deployment, separations and one per cent attrition per month. Levies for other than fighter pilots, such as B-26 and B-29 levies, were not taken into consideration in that pilots other than fighter pilots should be utilized to meet these requirements.

3. A comparison of the aircrew requirements presented by your command and the number you anticipate will be available, with the number this Headquarters anticipates will be available, is indicated below:

30 June 1953

	Acft Proj Asgd	Plts ADC Proj Asgd	Plts Hq USAF Proj Asgd	Plts Proj Req	AFSC
F-89	202	338	214	404	1124B
F-94					
F-86D	176	176	11*	176	1124C

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Ltr to ADC, Subj: (Uncld) Projected Ftr Plt Manning Position

F-86					
F-84					
F-80	386	426	591*	579	1124A
F-51					
F-47	<u>184</u>	<u>240*</u>	<u>283</u>	<u>276</u>	1124E
TOTALS	948	1180	1099	1435	
		Less <u>295</u>	for overseas losses		
		<u>885</u>			

30 September 1953

	Acft Proj Asgd	Plts ADC Proj Asgd	Plts Hq USAF Proj Asgd	Plts Proj Req	AFSC
F-89 F-94	270	258	234	540	1124B
F-86D	513	513	44*	513	1124C
F-86 F-84					
F-80	340	212	785*	510	1124A
F-51 F-47	<u>60</u>	<u>154</u>	<u>267</u>	<u>90</u>	1124E
TOTALS	1183	1137	1330	1653	

*You will enter sufficient pilots, AFSC 1124A, in F-86D training to man your command at one F-86D crew, AFSC 1124C, per tactically available F-86D aircraft.

4. It was agreed at the F-86D scheduling conference at Randolph Air Force Base on 24 and 25 March 1953 that aircraft are to be considered tactically available thirty days after delivery to an Air Defense Command base. In computing your 30 September 1953 requirements the number of aircraft estimated to be on hand 31 August 1953 should be used. This will further improve your actual manning position.

5. Your command has a total of 3214 pilots of which 1791 or 56% are occupying rated positions and 44% are MPR. The Air Force wide percentage of MPR pilots is 46%; however, approximately 13% of this 46% are assigned to Headquarters USAF, Headquarters Command USAF, Air Materiel Command, Air University, Special Weapons Center, and Headquarters Air Research and Development Command. Therefore, the average percentage of MPR pilots in the tactical commands is only 33% of the pilots in those commands. In this connection, it is noted that 769 pilots in your command who are serving in other than fighter interceptor squadrons carry the primary AFSC of fighter pilot.

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Ltr to ADC, Subj: (Uncld) Projected Ftr Plt Manning Position

6. In view of the inability of this Headquarters to make available to your command more pilots than indicated above, it will be necessary for you to withdraw sufficient pilots from your MPR resource to satisfy the requirement for fighter aircrews. Based on the figures for 30 September 1953, this will require that you withdraw 323 pilots, which is only 42% of the 769 fighter pilots in this category. In addition, levies placed on your command in support of the Conventional Multi Engine Advanced Flying Schools have taken into consideration your total pilot manning position. The levy for the period July thru December 1953 will be for 35 pilots which is significantly low.

BY COMMAND OF THE CHIEF OF STAFF:

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Hq USAF AITMP-1-L-1-b Subject: (UNCLASSIFIED) Projected Fighter Pilot Manning Position

ADPIM 210 (4 May 53)

1st Ind

12 Jun 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Military Personnel, Headquarters USAF, Washington 25, D. C.

1. With reference to paragraphs 5 and 6, basic, this headquarters has taken and is continuing to take action to reassign MPR pilots to fighter pilot duties. Examples of such actions are furnished as Inclosures 2 and 3.

2. In addition, rosters of all MPR pilots have been prepared by our Air Defense Forces. As non-pilots become available and are assigned to the positions, the MPR pilots will be reassigned to fighter pilot duties. In this connection, your headquarters has granted authority for officers to replace MPR pilots. It is understood that first priority will be given such requisitions.

3. This command also has taken action to cross-train 100 radar observers into the aircraft controller field. These officers, upon completion of their training, will be utilized to fill existing controller shortages as well as replace pilots who are assigned to controller duties. This is a temporary utilization of radar observers pending activation of the Airborne Early Warning and Control Program.

4. In addition, this command anticipates the assignment of approximately 250 radar observers from FEAF. These observers will be assigned to our fighter squadrons to replace other observers who are desirous of becoming aircraft controllers temporarily. This, in turn, will release more pilots to the fighter squadrons.

5. Also, it is understood that your headquarters may be capable of furnishing more pilots to this command than anticipated. This should further alleviate the pilot shortage.

6. In view of the above, the exact number of MPR pilots, who can be reassigned to fighter pilot duties, cannot be determined at this time. However, the Air Defense Force commanders are aware of the fact that, insofar as practicable, MPR pilots will be so reassigned and vigorous action is being taken to effect the program.

FOR THE COMMANDING GENERAL:

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From: Hq ADC
Ent Air Force Base
Colorado Springs, Colo.

31 March 1953

TO: CG, Eastern ADF Stewart AFB Newburgh, N. Y.
CG, Central ADF Kansas City, Mo.
CG, Western ADF Hamilton AFB Hamilton, Calif.

ADOOT-F 734. Effective 1 April 1953, 50% of unit possessed fighter-interceptor aircraft will be maintained on alert as follows:
During day hours - 2 aircraft on Readiness and the balance of the 50% on Back-Up; During non-day hours - 4 aircraft on Readiness and the balance of the 50% on Back-up. At 2 squadron bases only, the B day hour requirement will be 4 aircraft on Readiness and the bal of the 50% (of B total) on Back-Up; the B non-day hour requirement will be 4 aircraft on Readiness, 4 aircraft on Availability and the balance of the 50% (of B total) on Back-Up. Non-day hour repts will apply during any period when air and ground crews are not available to man and support 50% of possessed aircraft.

CG, ADC

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SECRET SECURITY INFORMATION

HQ ADC ENT AFB COLO SPRGS COLO

CG, EASTERN ADF, STEWART AFB, NEWBURGH,
NEW YORKCG, WESTERN ADF, HAMILTON AFB, HAMILTON,
CALIFORNIA

CG, CENTRAL ADF, KANSAS CITY, MISSOURI

ROUTINE

8 May 53

ADDOOT-F 1090. Eff emmed non-dy hr alert rqmts stated in ADC
 Opr 0 3-53, 1 Apr 53, are reduced as fols: C par 3.b.(2)(a)2 to
 read: "At single sq B during non-dy hrs: 2 acft on "Readiness",
 2 acft on "Aval" and the bal of the 50% on "Back-up".

CG, ADC

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From: Hq ADC Ent AFB, Colorado Springs, Colo.

11 April 1953

To: CG, Eastern ADF, Stewart AFB, Newburgh, N. Y.
 CG, Western ADF, Hamilton AFB, Hamilton, Calif.
 CG, Central ADF, Kansas City, Missouri

ADCOOT-F 859. My msg ADCOOT-F 784, 31 March 1953. Following policies relative to the scheduling and utilization of ADC fighter interceptors are forwarded herewith for guidance of air defense commanders concerned: (a) When F-89 aircraft tail fix has been compiled, F-89 aircraft will be considered as possessed aircraft for purposes of computing alert. (b) When aircraft are deployed to another B for alert purposes, it is generally conceived that only sufficient aircraft will be deployed to meet the "Readiness" alert requirement. In this case, the deployed aircraft will be subtracted from the number of aircraft considered as possessed by the home station of the unit deployed. It is not considered necessary to deploy aircraft to act as "Back-Up." (c) F-86D aircraft for which rockets and alert qualified pilots are available will be considered as possessed aircraft. (d) During conversion to F-86D or F-94C aircraft, the 6 aircraft assigned to a unit or retained by a unit for alert purposes will be given alert preference. All of these 6 aircraft which are in-commission will be on alert. Only when weather commands require will the F-94C and F-86D aircraft be placed on "Readiness". (e) An aircraft need not be combat ready in accordance with ADC Reg 55-2, Subj: Awarding of Combat Crew SSNs and Determining Combat Readiness of Crews and Aircraft, 21 Feb 1952 as amended, in order to be considered as a possessed aircraft. (f) When computing alert requirements, aircraft will not be considered as possessed when they are in departments or B shops. Aircraft undergoing maintenance in the fighter squadron will be considered as a possessed aircraft.

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CG, ADC

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RESTRICTED SECURITY INFORMATION

*ADCR 55-5

ADC REGULATION)
55-5)HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
26 March 1953

OPERATIONS

(Unclassified) States of Alert for Interceptor Aircraft

1. Purpose. This regulation defines the various states of alert for interceptor aircraft employed in the air defense of the continental United States.

2. Scope. These states of alert apply to fighter units engaged in air defense training or active air defense operations under control of components of this command.

3. States of Alert. Aircraft committed to states of alert "a" through "d" below will be ready for combat. Fuel cells will be filled providing the safe center of gravity limits of the aircraft will not be exceeded. All interceptor aircraft capable of combat will operate with hot guns when on alert or performing local training missions; unless guns can be charged inflight, or aircraft are being used for transition. As a general rule, units "at ease," "available," and "backup" will be ordered to a higher state of alert before a scramble order is given.

a. "Runway Alert." Aircraft with combat crews in cockpits and engines running will be in position at end of runway for immediate take-off. Pilots will be listening on the local tower frequency for scramble instructions. When the scramble order is received, they will take-off immediately.

b. "Standby." Aircraft with combat crews in cockpits will be positioned adjacent to the downwind end of the active runway with starting power units connected, ready for starting and with starting crews immediately available. Upon receipt of scramble order, crews will become airborne within two minutes.

c. "Readiness." Aircraft and combat crews situated so as to provide a capability of becoming airborne within not more than five minutes after receipt of scramble order. Aircraft will have power units connected ready for starting.

d. "Available." Aircraft and combat crews in deferred states of preparedness with the capability of becoming airborne within fifteen minutes after notification.

e. "At Ease." Aircraft and combat crews in deferred states of preparedness with the capability of becoming airborne within not more than thirty minutes after notification. Maintenance work may be done if aircraft can be prepared for take-off within the prescribed time.

*This supersedes ADCR 55-5, 23 December 1952.

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ADCR 55-5

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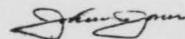
f. "Back-Up." Aircraft and combat crews in deferred states of preparedness with the capability of becoming airborne within one hour after notification. These aircraft may be used on local training flights or receive maintenance if they can meet the prescribed alert take-off time. Aircraft on local training flights will maintain communications contact with the appropriate ground facility so they may be recalled at any time.

g. "Reserve." Aircraft and combat crews in deferred states of preparedness with the capability of becoming airborne within three hours after notification. These aircraft may be used for training or receive maintenance if they can meet the prescribed alert take-off time.

h. "Released." Aircraft and combat crews released from defense commitment. When so released, the time at which a unit may expect to be ordered to a higher state of alert will be specified by the air defense force commander.
(ADOC)

BY COMMAND OF GENERAL CHIDLAW:

OFFICIAL:


JOHN W. JONES
Lt Colonel, USAF
Asst Adj Gen

JARRED V. CRABB
Major General, USAF
Chief of Staff

DISTRIBUTION:

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St. Huberts, Canada

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19 January 1953

Major General Walter E. Todd
 Commanding General
 Western Air Defense Force
 Hamilton Air Force Base
 Hamilton, California

Dear Wee:

I received your letter of 26 December 1952 and fully agree that the combat effectiveness of this command will drop to a critical point during the conversion of our units to F-86Ds and F-94Cs. We are doing everything within our resources to alleviate this situation. DM of this headquarters has assured me that engine, airframe and fire control spares for both the F-86D and F-94C will be in sufficient supply to meet our requirements. In addition, all possible action is being taken to provide a maximum number of skilled trained air and ground crews in an effort to realize an early capability from these aircraft.

We are presently considering the revision of ADCR 55-2, Subject: "Awarding of Combat Crew SSN's and Determining Combat Readiness of Crews and Aircraft", 21 February 1952, by reducing the combat alert requirement presently in effect. This will permit you to bring your crews to a combat alert status in a shorter period of time, thereby decreasing your stand-down period.

A requirement for two additional T-33s per F-86D and F-94C squadrons has been submitted to Headquarters USAF. These aircraft would be equipped with radar reflectors, which recent tests indicate will provide a realistic scope picture for intercept training at high altitude and high speed. Assignment of T-33s for this purpose would decrease the flying time on UE aircraft, thereby reducing the critical maintenance problem on these new aircraft.

The in-commission rate of 20% on the F-86D and F-94C compiled by AFGC is, in my opinion, very misleading. This low in-commission rate was made during accelerated service tests, which require frequent engine changes and numerous engine and airframe inspections not normally associated with routine maintenance. Information received from ATRC indicates that the F-94Cs, prior to being grounded for turbine trouble, were being operated with an in-commission rate of 60%. This seems to be a more realistic figure.

Your recommendation on limiting F-86D and F-94C squadrons to 18 aircraft with an augmentation of 10 F-86A/F, F-84G and F-94Bs, has been widely discussed in this headquarters. Although this plan has merit, we foresee the following problems:

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Major General Walter E. Todd
Page 2

a. Aircraft being replaced by F-86Ds and F-94Cs are programmed for newly activated squadrons and units presently low in UE aircraft throughout the Air Defense Command. Since we would not implement your proposed program ADC wide, your non-AI aircraft would have to meet the transfer dates under the present program, resulting in a lowering of your total UE.

b. Additional spares, ground handling equipment and special tools already in short supply, would, in some cases, be more widely dispersed.

c. Pilots required to maintain proficiency in three types of fighters contribute a potential flying safety hazard. This is particularly true when considering the complexity of today's AI aircraft.

d. Squadrons with a proven aircraft as backup would be prone to rely on these aircraft rather than concentrating on the F-86D and F-94C, delaying the development of the capability of the new aircraft. I don't think we can emphasize this point too strongly. The increased capability of the new AI interceptors over our present day aircraft, warrants an all out effort to bring these units up to a combat ready status at the earliest possible date. With this in mind, we are prepared to accept a calculated risk during this critical period.

In light of the action taken by this headquarters, I suggest you re-evaluate your requirement for proven type aircraft in F-86D and F-94C squadrons. I fully appreciate your views in this matter and would welcome any further comments or recommendations you may have.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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SECRETHEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

COPY

26 December 1952

Major General Frederic H. Smith, Jr.
Vice Commander
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

Dear Freddy:

As you know, during 1953 all but one of the fighter squadrons in Western Air Defense Force will convert to the new type all-weather interceptors. Present programming indicates that during the remainder of Fiscal Year 1953, we will activate nine new squadrons and will lose three through overseas deployment. As a result, by first quarter fiscal year 1954, the command will be comprised of fifteen fighter interceptor squadrons, only three of which will be equipped with aircraft which have proven dependable in field operations.

The remaining twelve squadrons, representing the greater portion of Western Air Defense Force, will be equipped with F-89, F-94C and F-86D aircraft. The present unreliability of the F-89 is well known. Although a satisfactory wing fix has been developed, the best information available to this headquarters indicates that the first modified F-89 will not be delivered before April 1953. And even after the wing fix has been accomplished, the reliability of the 21B engine in its present configuration remains problematical. Air Proving Ground Command, meanwhile, has been reporting an in-commission rate for the F-94C and F-86D of about 20%. This figure comes from Eglin Air Force Base, where maintenance of the aircraft is being performed under very nearly ideal conditions from a personnel and equipment standpoint, and it seems unduly optimistic to expect tactical squadrons in the field who are short of equipment and competent personnel to improve on, or even equal, this record in the early months of integrating these aircraft into the air defense system. (In this connection, it is appropriate to recall that not until its twelfth month of field operation did the in-commission rate of the F-89 exceed 50%, and during four months of the first twelve, it fell below 40%).

Assuming an in-commission rate of 20% on the basis of the foregoing, we find each squadron with an average of about five aircraft in commission after conversion. It is apparent that to expect a squadron in this condition to field a defense force, and at the same time to transition their authorized fifty pilots, is unrealistic. This is particularly true in view of the Air Defense Command decision

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Major General Frederic H. Smith, Jr.

to impose the requirements of ADCR 55-2, i.e., forty hours in the aircraft, etc., on pilots of F-86Ds. Even if the squadron were to be manned to only 50% of authorized pilot strength, and relieved of alert commitments, it is estimated that it will require about four months to bring those pilots to a "combat alert qualified" status.

To alleviate the condition I have described, and to salvage a reasonable air defense capability during 1953, there is a positive requirement to provide each converting squadron with a number of aircraft which have already proven dependable. It is therefore recommended that the assignment of F-86D and F-94C aircraft be limited to eighteen (18) per squadron and a minimum of ten (10) of one of the following models: F-86-A-F, F-87-G, or F-94 A's or B's be assigned or retained, as the case may be, until such time as we are sure that the new aircraft are ready to assume their part in performing our mission.

WALTER E. TODD
Major General, USAF
Commanding

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ADC REGULATION)
55-2)

HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
24 July 1953

*ADCR 55-2

OPERATIONS

Criteria for Determining Combat Ready Aircraft,
Combat Ready Aircrews, and Combat Alert Aircrews

1. Purpose. This regulation will be used by commanders to determine combat ready aircrews and aircraft, and aircrews qualified to stand alert.
2. Scope. The following criteria apply to all aircrews, whether or not assigned to a tactical unit, and fighter-interceptor aircraft available for air defense.

3. Combat Ready Aircrews.a. In Fighter-Interceptor Aircraft, (Non-AI Equipped):

- (1) Pilot has accomplished the following in unit equipped aircraft or in aircraft of similar series:
 - (a) Flown a total of forty hours.
 - (b) Flown three night sorties.
 - (c) Led three successful ground-controlled interceptions.
 - (d) Demonstrated the ability to fly instruments to include GCA's, radio range orientation, ADF's and ILAS if aircraft are so equipped.
 - (e) Possess a current instrument card (see paragraph 6, ADCR 51-1, subject: "Transition Check-Out and Recheck in Aircraft," for jet-equipped units).
 - (f) Qualified in aerial gunnery under procedures outlined in ADCR 51-5, subject: "Interceptor Pilot Weapons Qualification," in the preceding twelve-month period. (The fire control system must have been the same series as those in unit-equipped aircraft to credit qualification made in similar aircraft.)

- (2) Has been certified combat ready by the squadron commander.

b. In Fighter-Interceptor Aircraft (AI Equipped):

- (1) (Aircraft equipped with the E-1 fire control system.) Pilot has met the requirements established in paragraph 3a above and completed ten night interceptions in UE aircraft using airborne intercept radar equipment. Five

*This supersedes ADCR 55-2, 21 February 1952, as amended, and ADC message ADOOT-F 15536, 25 May 1953.

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ADCR 55-2

night interceptions will be made on a target aircraft which has navigation lights "on" and five on a blacked-out target aircraft.

- (2) (Aircraft equipped with the E-4, E-5 or E-6 fire control system.) Pilot has met the requirements established in paragraph 3a(1)(a) through (e), and,
- (a) Demonstrated proficiency in search, lock-on, and Phase II and III tracking through breakaway signal.
 - (b) Completed a minimum of ten intercept missions and a total of thirty successful attacks as follows:
 - 1. Ten attacks in a cone of 20 degrees on either side of the stern of the target aircraft, maximum overtake speed of 100 knots.
 - 2. Ten attacks in a cone of 20 degrees to 70 degrees from the stern of the target aircraft.
 - 3. Ten attacks in a cone 70 degrees to 90 degrees from the stern of the target aircraft. (Attack angles greater than 90 degrees from the stern of the target aircraft are prohibited.)
 - (c) Has demonstrated knowledge of the use of the N-3-C or N-9 standby gunsight, whichever is appropriate.
 - (d) Has been certified combat ready by the squadron commander.
- (3) Radar observer will be considered combat ready when he has completed a course of instruction at the USAF Interceptor School or has demonstrated the ability comparable to that of a graduate of that school and has accomplished the following in the E-1, E-5 or E-6 fire control system equipped aircraft: Controlled 20 completed intercepts and attacks, utilizing on equal numbers of missions the automatic lock-on and hand control features of the fire control system and has been certified combat ready by the squadron commander.
4. Combat Alert Aircrews. a. Prior to being scheduled for combat alert duty in fighter-interceptor aircraft (non-AI equipped), pilots will have completed the training outlined in paragraph 3a(1) with the exception that qualification in aerial gunnery is not necessary.
- b. Prior to being scheduled for combat alert duty in fighter-interceptor aircraft (AI equipped):

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ADCR 55-2

- (1) (Aircraft equipped with the E-1 fire control system.) Pilot will have completed the requirements of paragraph 3b(1), with the exception that qualification in aerial gunnery under procedures outlined in ADCR 51-5, subject: "Interceptor Pilot Weapons Qualification," is not necessary.
- (2) (Aircraft equipped with the E-4, E-5 or E-6 fire control system.) Pilot will have completed the requirements of paragraph 3b(2) except that portion requiring that he be certified combat ready does not apply.
- (3) Radar observers will have completed the requirements of paragraph 3b(3), above.

c. At the discretion of the squadron commander, the forty-hour requirement (see paragraph 4a(1)) may be reduced as indicated below for pilots and radar observers previously alert qualified when converting between the following types of aircraft:

- (1) Thirty hours is required when transitioning from F-86A, E, and F to F-86D aircraft. Of this thirty hours, a maximum of ten hours simulator time may be substituted for aircraft time.
- (2) Twenty hours is required when transitioning from:
 - (a) F-94A or B to F-94C aircraft.
 - (b) F-89B or C to F-89D aircraft.
- (3) Ten hours is required when transitioning:
 - (a) Between F-84C, D, E, or F-84G aircraft.
 - (b) From F-86A to F-86E or F-86F aircraft.
- (4) Only check-out is required when transitioning from:
 - (a) F-86E to F-86F.
 - (b) F-89B to F-89C.
 - (c) F-94A to F-94B.

d. Air defense force commanders are authorized to grant waivers of the forty-hour requirement outlined herein where deemed advisable for accomplishment of the mission.

e. The provisions of paragraph 4 are waived in the event of hostilities.

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ADCR 55-2

5. Awarding of Fully Qualified Combat Aircrew AFSC's. a. AFSC 1124 with appropriate suffixes may be awarded to a fighter-interceptor pilot upon completion of requirements of paragraph 3a or 3b, whichever is appropriate.

b. AFSC 1564 may be awarded to a radar observer upon completion of the requirements of paragraph 3b(3).

c. Pilots assigned to the Air Defense Command from other commands and possessing a fully qualified AFSC in like type aircraft will be allowed to retain their AFSC for one year or until they have demonstrated inability to meet combat readiness requirements of this command, whichever occurs earlier.

6. Combat Ready Fighter-Interceptor Aircraft. a. A fighter-interceptor aircraft (non-AI equipped) will be reported combat ready when:

- (1) The aircraft is in-commission, and
- (2) Has the following equipment installed and operational:
 - (a) All guns and/or rocket pods (bore sighted and system harmonized).
 - (b) Gunsight (computing feature operational, where applicable).
 - (c) Oxygen system.
 - (d) VHF (UHF) transmitter and receiver.
 - (e) Radio compass (where so equipped).
 - (f) All primary flight instruments.
 - (g) All engine instruments.
 - (h) Pressurization system.

b. A fighter-interceptor aircraft (AI equipped) will be reported combat ready when, in addition to the items listed in paragraph 6a, the aircraft has the following equipment installed and operational:

- (1) Airborne intercept radar feature fully operational.
- (2) Interphone system (where equipped for more than one aircrew).
- (3) Afterburner (where so equipped).

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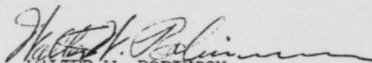
ADCR 55-2

7. Reports. These criteria apply to reports required by this headquarters.
(ADCOOT)

BY ORDER OF THE COMMANDER:

OFFICIAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Command Adjutant

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FIGHTER INTERCEPTOR UNIT

AI EQUIPPED

1 JANUARY 1953

RESTRICTED
SECURITY
INFORMATION

50

UNIT PROFICIENCY
DIRECTIVE 10-1



AIR DEFENSE COMMAND
ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

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RESTRICTED SECURITY INFORMATION

*ADCUPL 10-1
1-5ADC UNIT PROFICIENCY DIRECTIVE)
10-1)HEADQUARTERS AIR DEFENSE COMMAND
Ent AFB, Colorado Springs, Colo.
1 January 1953Fighter-Interceptor Unit
(Airborne Intercept Equipped)

1. Purpose. This directive establishes a standardized program for training and maintenance of proficiency for fighter-interceptor units within this command. The specific standards of proficiency that must be attained are prescribed in the appropriate ADC Training Standards for the type aircraft assigned.

2. Unit Mission. The primary mission of a fighter-interceptor unit (AI equipped) is to achieve and maintain a level of operational effectiveness which will enable the unit to destroy enemy airborne weapons under all conditions of weather during periods of daylight and darkness.

3. Scope. The provisions of this directive will be mandatory for all assigned T/O&E combat crews who have completed the unit transition program regardless of AFSC, and such other crews as designated by the unit commander.

4. Responsibility. It is the responsibility of commanders of intermediate headquarters to support the execution of this directive and to impose no additional requirements which will interfere with the accomplishment of the training prescribed herein.

5. Training.

a. The training outlined in this directive is considered the minimum amount of diversified yearly training necessary to insure that the crew obtain and maintain the proficiency required by the appropriate ADC Training Standard.

b. Two hundred forty (240) actual flying hours is considered the minimum flying time required to be flown by fighter-interceptor crews each year. The provisions of this directive may be waived by air defense force commanders under unusual conditions such as aircraft hour limitations, shortages of aircraft, or overages of authorized combat crew personnel. Headquarters Air Defense Command will be notified of all waivers granted. Nothing in this directive will be interpreted as limiting fighter-interceptor crews to a maximum of 240 flying hours each year. Unit commanders are encouraged to provide each crew with as many flying hours over and above this figure as is available within his resources and as will provide a maximum state of unit proficiency.

*This supersedes ADCUPD 10-1, 18 June 1952, as amended, and classified message ADOOT-F 2466, 1 December 1952.

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ADGUPD 10-1
5-6

c. Dual logging will not be used in the accomplishment of this training program. Credit will be taken for only one type of training during any one portion of a training flight.

6. Implementation.

a. The training will be a continuous yearly program, starting 1 July of each year and terminating on the 30th of June of the following year.


b. Crews entering under the provisions of this directive after 1 July will complete a proportional share of this program. This provision may apply to crews on continuous periods of TDY for more than thirty days.

c. Reporting procedures for the crew training phases are outlined in ADC Manual 55-6.
(ADOOT)

BY COMMAND OF GENERAL CHIDLAW:

OFFICIAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Adjutant General

1 Attachment:
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RESTRICTED SECURITY INFORMATION

TRAINING PROGRAM

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Part 2	-	Flying Training
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PART 1

GENERAL

1. General. The training to be administered combat crews is divided into two parts: Flying Training and Ground Training. Both parts contain briefing notes which clearly outline the mission to be accomplished or instruction to be presented during the allotted time.

2. Purpose. The purpose of the combat crew training program is to attain and maintain the proficiency of the assigned crews which will insure their capability of executing their assigned duties in an efficient manner, either as individuals or as part of a unit endeavor. Training requirements specified in this directive are considered as a minimum, and it is the prerogative of unit commanders to provide any additional training deemed necessary to maintain the desired state of proficiency. Where applicable, the pilot-radar operator will train as a crew insofar as possible, and every effort will be made to maintain crew integrity.

3. Conduct of Training.

a. Unit commanders need not adhere to the sequence of subjects as indicated by this directive, but should schedule the required training so that maximum utilization of manpower and available equipment is obtained.

b. As an aid in efficiently conducting the flying training program, as outlined in this directive, it is suggested that units break down each of the required flying phases into specific missions.

c. In conducting the ground school portion of this directive, the deliverance of lectures by direct reading will be avoided. The lecturer should prepare his subject in advance, present it in an interesting manner, encourage class participation, and be prepared to answer intelligently any questions which may be introduced during the course of instruction.

4. Flying Training.

a. Flying will be conducted in U/E aircraft except that 25% of aerial gunnery, 50% of instrument training, and 50% of navigational requirements may be flown in T-33 aircraft. Radar operators may fly 25% of the scheduled airborne tracking and intercept time in the B-25K.

b. No transition training is outlined in this directive as it will be the responsibility of the unit commander to insure that each individual pilot is thoroughly transitioned in the aircraft prior to his participation

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in the yearly proficiency program. Individuals not possessing AFSC 1124B or 1564 assigned to a tactical unit will be trained according to existing directives. Time flown in AFSC training will be credited to the accomplishment of this directive as applicable.

c. Consistent with pilot capabilities and safety considerations, the instrument missions will be conducted to the greatest possible extent under actual weather conditions.

d. For the purpose of this directive, a successful interception is defined as action in which the fighter, having made tally-ho, succeeds in reaching a position from which successful attack would be expected. (Pounce)

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PART 2

FLYING TRAINING

SUMMARY

PILOTS & RADAR OBSERVERS

<u>MISSION</u>	<u>TRAINING REQUIREMENTS</u>			
	<u>Day</u>	<u>Night</u>	<u>Hours</u> <u>Instr</u>	<u>Total</u>
Formation	8	2		10
Acrobatics	2			2
Instruments (Precision)			54	54
Navigation	6	8	10	24
Airborne Tracking & Intep	<u>6</u> 22	<u>39</u> 49	<u>39</u> 103	<u>84</u> 174

*SORTIES

	<u>Day</u>	<u>Night</u>	<u>Total</u>
Simulated Flameout Landings	24		24
Weapons Training	40	1 (See par 6, Briefing Notes)	41
Camera Exercises	<u>20</u> 84	<u>1</u>	<u>20</u> 85

* A weapons training mission will be logged in its entirety as a weapons training sortie by each crew participating in weapons training passes. Camera exercise missions may be logged in conjunction with missions other than weapons training, i.e., acrobatics, simulated combat.

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BRIEFING NOTES

1. Formation. At least 50% of the programmed formation time will be flown above 35,000'.

a. Elements in close formation flight to maintain proficiency in holding proper position during flight maneuvers.

b. Formations will be practiced in maintaining position while looking around to afford mutual cover. Tactical formations will be flown, emphasizing mutual support.

c. Practice loose line astern formation to acquire proficiency in following targets through maneuvers, both visually and radar tracking, with rapid rejoining in basic formation upon completion.

d. Maintain proficiency in the tactics and techniques of a coordinated attack on hostile airborne targets, both visually and by radar.

e. Formations of four or more aircraft are encouraged.

2. Acrobatics.

a. Solo acrobatics: To acquire knowledge of the capabilities and limitations of the aircraft through precision performance of all allowable acrobatic maneuvers. Care will be taken to insure that the design limits of both equipment and aircraft are not exceeded.

b. Formation acrobatics: To maintain proficiency in maintaining the integrity of a formation through unusual positions and maximum performance. Types of formation to be flown will be limited to finger-tip and trail (snake). Maneuvers to be performed will be limited to chandelles, lazy eights, loops, immelmans, slow rolls, and the split S.

3. Precision Instruments. Close coordination between pilot and RO should be stressed, utilizing all navigational aids. RO's will only be required to complete 50% of this phase of training. At least 25% will be flown above 35,000'. This requirement may be waived by air defense force commanders for specific units when aircraft age or inherent capability preclude safe and reasonable accomplishment.

a. Basic instruments and radio range:

(1) Should be practiced under actual weather conditions at the discretion of unit commanders, after proficiency has been demonstrated under the hood.

(2) Basic instrument patterns and radio range procedures to be practiced as outlined in AFM's 51-36 and 51-37, "Instrument Flying - Techniques and Procedures."

b. Radio compass exercises: Radio compass exercises to be practiced will include both ADF and aural-mull procedures for orientation, homing, tracking, determining time and/or distance from station, and let-down, as outlined in AFM's 51-36 and 51-37, "Instrument Flying - Techniques and Procedures."

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c. Ascents and descents through overcasts:

- (1) Climbs and descents through overcasts should be practiced individually, and in formation, both with and without the aid of GCI and/or AI.
- (2) Squadrons should be able to ascend and descend through an overcast in such a manner as to be able to rendezvous above or below the overcast immediately upon breaking out. This technique is to be developed within the unit, taking into consideration the type of aircraft and local conditions such as radio facilities and terrain features.

d. Low approaches: A minimum of 36 simulated or actual GCA approaches will be accomplished each year. When equipment and facilities are available, 36 IIS approaches will be made annually. At least 1/3 of each type of approach will be flown at night.

4. Navigation. Navigation training will stress the necessity for pre-flight planning by crews to include preparation of charts, selection of check points, planning ETA's over these points, preparation of cruise control data, study of the weather enroute, and location of alternate fields and radio aids that may be available along the route. IFR clearance will be filed for navigation flights when practicable. Proficiency in all phases of navigation will be maintained including pilotage, dead reckoning and radio aids. At least 25% will be flown above 35,000'.

5. Airborne Tracking and Interceptions.

a. Day.

- (1) To be practiced at 5,000', 25,000', and 35,000', individually, by elements and by flights from both ground and airborne alert.
- (2) Training will be conducted to insure that all crews are thoroughly familiar with the capabilities and limitations of the AC&W system and are proficient in interpreting and following instructions accurately since responsibility for proper interception and positioning rests with the ground controller.
- (3) Missions, if possible, will be planned and coordinated with bombardment units with interceptions made from ground alert status under ADDC control.

b. Night. A minimum of 60 directed interceptions will be conducted at night. The target ship will have navigation lights on for thirty of these and off for thirty. Prior to "lights off" missions, coordination with CAA will be effected in accord with CAR 60-23.

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c. Instruments. A minimum of 60 directed interceptions will be accomplished under actual or simulated instrument conditions. These missions will be designed to develop a high degree of proficiency and teamwork between the pilot, radar observer, and ground controller.

d. ECM. Twenty-four ECM interceptions will be flown under actual conditions of ECM, including electronic and window jamming of airborne radars and the jamming of communications channels insofar as practicable. At least 50% of the missions will be flown at night.

e. Radar Snake formation. At least 24 radar snake formation sorties will be accomplished with at least 50% of the missions flown at night. These may be accomplished in conjunction with other missions. This requirement will include take-off, climb, and maneuver by 2, 3, and 4 aircraft flights.

6. Simulated Flameout Landings. A minimum of 2 simulated flameout landings will be practiced each month in order to familiarize pilots with the flying characteristics of their aircraft under actual flameout conditions. The August 1951 issue of Flying Safety Magazine titled "Project Flameout" or pilot's operating handbook should be used as a guide.

7. Weapons Training. Each assigned crew member will be required to accomplish a minimum of 40 scored air-to-air firing sorties per year. At least 20 sorties will be fired above 20,000'. Aircraft employing the E-4, -5 and -6 fire control systems will fire 8 rockets on each mission. Methods to fire and score are under development and will be outlined in ADCR 51-5 when completed. All other types of systems will fire in accordance with ADCR 51-5 except that 2 missions will be fired utilizing all guns. Those pilots who fail to qualify in the air-to-air event, as outlined in ADCR 51-5, will be required to fire until qualified. Camera film will be loaded on all firing missions and will be assessed and evaluated as soon as possible after each sortie. Training and record firing will be conducted under the provisions of ADCR 51-5. Radar observers will be proficient in tracking and "locking on" to a radar reflector during firing passes in order to furnish radar ranging to the E-1 fire control system. In addition, RO's should be able to furnish the pilot accurate range and closing speed information. One firing sortie will be fired at night for familiarization, without target, and with all guns or rockets loaded.

8. Camera Exercises. Each assigned crew member will be required to accomplish a minimum of 20 assessed camera gunnery or scope camera sorties per year, whichever is applicable. At least 50% of the missions will be flown above 25,000'. Crews utilizing the E-1 fire control system will perform the following exercises, first visually then utilizing the pilot scope. The only exception to this will be the overhead pass. RO's will inform the pilot at the ranges he is to open fire. These exercises will be satisfactorily completed before flying the last 8 missions which will stress visual simulated combat of fighter against fighter. Prompt assessing is essential for proper evaluation of the mission.

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EXERCISE NUMBER ONE

ASTERIX PASS

REVISED 15 JULY 1952

CONDITIONS

1. 85 KTS OR 100 MPH OVERTAKE SPEED USING BUSTER POWER
2. NO EVASIVE ACTION
3. 0 TO 10 DEGREES ANGLE OFF SAME LEVEL
4. CAMERA BURSTS AT 600, 400, 300 & 200 YDS RANGE
5. NO FILM OVERRUN
6. EIGHT PASSES EACH MISSION

200 YDS

300 YDS

400 YDS

600 YDS



600 YDS	690 TO	510 YDS
400 YDS	460 TO	340 YDS
300 YDS	345 TO	255 YDS
200 YDS	230 TO	170 YDS

QUALIFYING PERFORMANCE

MINIMUM OF TWO PASSES SHOWING

1. STEADY TRACKING AT 0 TO 10 DEGREES ANGLE OFF
2. OPENING RANGE ACCURACY WITHIN PLUS OR MINUS 15 PERCENT

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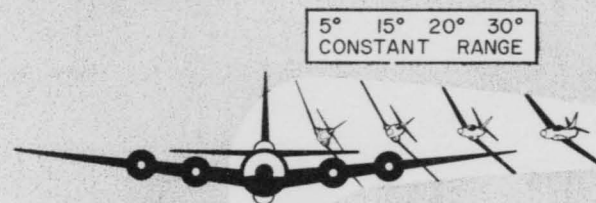
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EXERCISE NUMBER TWO

**FLAT SIDE PASS
CONSTANT RANGE**

REVISED 15 JULY 1952



CONDITIONS

1. NO EVASIVE ACTION
2. CONSTANT RANGE 300YDS
3. CAMERA BURST AT 30, 20, 15 & 5 DEGREES ANGLE OFF
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT HAND PASSES EACH MISSION

**QUALIFYING
PERFORMANCE**

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS OR MINUS 15 PERCENT

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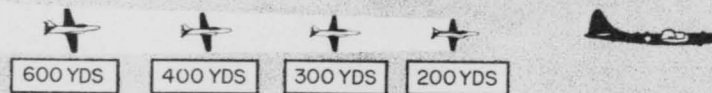
EXERCISE NUMBER THREE

FLAT SIDE PASS

REVISED 15 JULY 1952

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURST AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR
LEFT HAND PASSES EACH
MISSION



QUALIFYING
PERFORMANCE

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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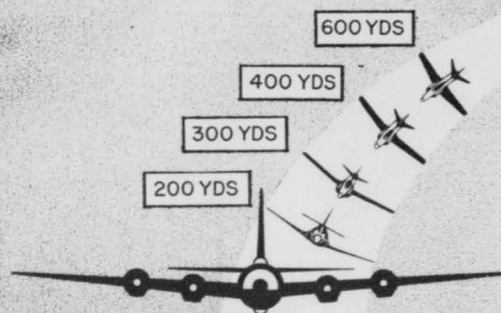
EXERCISE NUMBER FOUR

HIGH SIDE PASS

REVISED 15 JULY 1952

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURSTS AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT
HAND PASSES EACH MISSION



QUALIFYING
PERFORMANCE

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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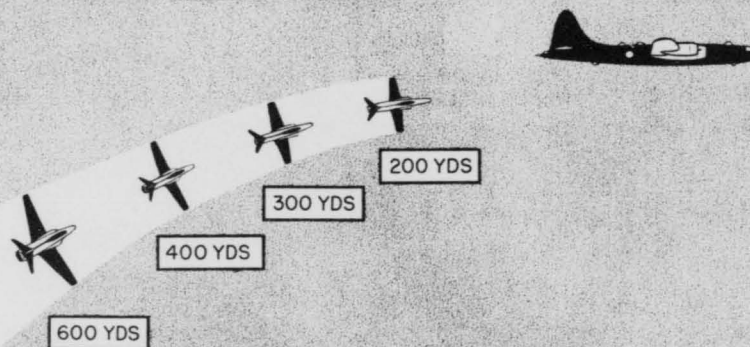
EXERCISE NUMBER FIVE

REVISED 15 JULY 1952

LOW SIDE PASS

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURST AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT
HAND PASSES EACH MISSION



QUALIFYING PERFORMANCE

MINIMUM OF ONE PASS FROM EACH
SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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EXERCISE NUMBER SIX

REVISED 15 JULY 1952

OVERHEAD PASS

CONDITIONS

1. TARGET SPEED 275 MPH
TAS INTERCEPTOR 10 PERCENT
UNDER MACH.
2. NO EVASIVE ACTION
3. 30° MINIMUM ANGLE OFF
4. CAMERA BURST AT 600, 400,
300 & 200 YDS RANGE
5. NO FILM OVERRUN
6. EIGHT PASSES EACH MISSION

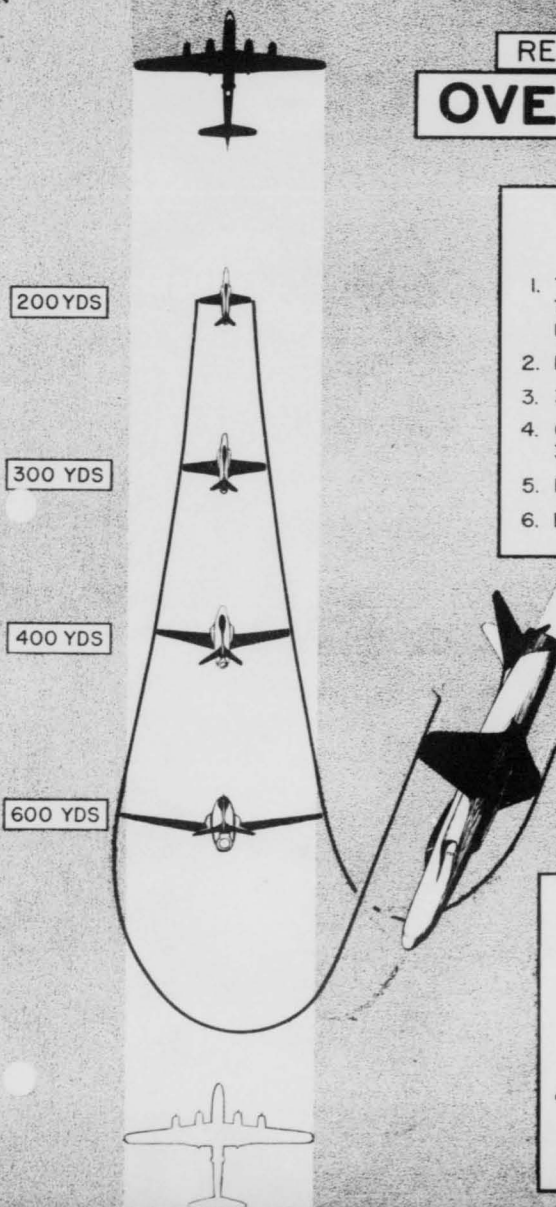
QUALIFYING PERFORMANCE

MINIMUM OF TWO PASSES
SHOWING

1. STEADY, ACCURATE TRACKING
2. RANGE ACCURACY WITHIN
PLUS OR MINUS 15 PERCENT

NEVER LOSE SIGHT
OF THE TARGET

ALWAYS RECOVER BY DIVING
BEHIND THE TARGET



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PART 3

GROUND TRAINING

	<u>Pilot</u>	<u>Hours</u>
1. Yearly Requirements.		<u>40</u>
a. Aircraft Accident Study Classes	26	26
b. Operations	36	36
(1) Aircraft Operation:		
(2) Weather Techniques		
(3) Tactics		
(4) Ground Support		
c. Maintenance	24	24
d. Communications	14	14
(1) Techniques and Equipment		
(2) Procedures		
(3) Morse Code		
e. Instruments	36	
(1) Techniques		
(2) Instrument Trainers		
f. Electronics		36
(1) Theory		
(2) Maintenance		
g. Meteorology	8	8
h. Intelligence	36	36
i. Personal Equipment	8	8
j. Physiology of Flight	6	6
k. Air Force Regulations and Forms	4	4
l. Navigation	12	12
m. Armament		
	<u>40</u>	<u>40</u>
	250	250

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2. Details of Training.

a. Aircraft Accident Study Classes: The objective of these classes will be to eliminate avoidable aircraft accidents within the Air Force. This may be accomplished by reviewing the cause of each accident and discussing the possible corrective action which might have been employed to eliminate each accident. These discussions and reviews will be conducted bi-weekly by the Flight Safety Officer and attendance for all air crews will be mandatory. During these classes, a review of the fighter aircraft accidents that have occurred within the USAF will be conducted. Special study will be given to accidents that have occurred within the unit and to accidents involving like aircraft assigned to other units.

b. Aircraft Operations: The objective of these classes will be to acquaint the assigned combat crew with the characteristics and capabilities of assigned aircraft and operational techniques and tactics. These instructions will cover:

- (1) The operation of the electrical, hydraulic, and fuel systems of the assigned aircraft. Combat crews will be instructed in the approved cruise control technique to be employed when flying the aircraft. They must possess a comprehensive knowledge of the weight and balance data associated with the aircraft. All emergency procedures and techniques to be employed when flying the aircraft will be stressed.
- (2) The techniques to be followed when encountering thunderstorms, ice, hail, or other hazards to flying.
- (3) Squadron SOP's regarding combat tactics and techniques, along with a study of the air defense system as in use within the United States; how an AC&W unit operates; how GCI is carried out. Actual visits to an AC&W operation room should be made by all crews.
- (4) Rotation of fighter pilots requires individual knowledge of all phases of fighter operations, including support to the ground forces. Five basic factors of ground support will be discussed; target evaluation, cover utilization, direction of attack, delivery of effective firepower and flak evasion. High, medium, and low angle approaches will be covered along with best types of attacks on enemy troop positions, trains, troop or armored columns and airfields.

c. Maintenance: The objective of these lectures and demonstrations is to acquaint the combat crews with the proper method of servicing, pre-flight, and performing a daily inspection on the aircraft, and each crew will be required to perform these operations at least twice a month. They should be instructed in the performance of minor maintenance which may be required of them at fields with limited facilities. Periodic inspection requirements, and the methods of accomplishment, will be included in these instructions.

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d. Communications and Electronics: The objective of this training is to keep air crews abreast of current and projected technical developments in the electronics field. These will include the proper use, operation, and capabilities of all the installed electronic equipment. Combat personnel also will be indoctrinated in the principles of radio and radar jamming, how it is effected, and the counter-measures that may be employed. Combat crews will become familiar with all appropriate ACP's and JANAP's. Proper R/T procedures will be taught, to include proper procedures for position reporting under IFR conditions, changes in flight plans, emergency procedures, etc. Also, periods will be allotted for proficiency checks in meeting the requirements of AFR 50-16.

e. Instruments (Pilot):

- (1) The objective of this instruction is to cover all subjects pertinent to instrument flying and will include a study of all installed flight instruments in the aircraft. The discussions should include all pertinent information on the techniques to be used on let-down, GCA approaches, and homing procedures. Pilots will receive instruction on aural-null procedures, tracking and ADF let-down.
- (2) Instrument Trainer: A minimum of two (2) hours each month will be devoted to Instrument Trainer flying by all pilots. If flight simulators or C-11 trainers are not available, aircraft instrument time may be substituted. This instruction should aim toward improving techniques employed in instrument flying, i.e., tracking, ADF let-down, aural-null, ILS approaches, utilization of VAR ranges, etc.

f. Electronics (Rc): The objective of this instruction is to further acquaint the radar observers with the theory, function, and maintenance of airborne electronics equipment. Lectures and demonstrations will cover in-flight malfunctions and methods for localizing causes of malfunctions. Emphasis will be placed on the importance of accurate and objective reporting on the unit's equipment mission report.

g. Meteorology: The objective of this instruction is to insure that pilots are capable of reading weather sequence reports, forecasts, weather maps and adiabatic charts. They will receive the latest information as to the structure of cold, warm, and occluded fronts, and the weather associated with all air masses.

h. Intelligence:

- (1) At least once each week the Unit Intelligence Officer will instruct in some phase of intelligence. These instruction

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periods will always include a briefing on the current world situation. Other phases which will be covered include aircraft recognition; enemy capability for air attack on the United States; and security, interceptor control, and combat crew debriefing.

- (2) Current Intelligence instruction will be designed to keep the squadron personnel aware of the world situation and ADC's relation therewith. Classified, as well as unclassified, material is available for such purposes.
- (3) Aircraft Recognition instruction will consist of a description of the recognition features pertinent to all US aircraft and that of foreign countries. Data on performance characteristics will be presented so that the pilot may have a basis for comparison with US aircraft.
- (4) The Intelligence aspects of security will be constantly reviewed. All personnel will be made aware of the potential value to an enemy of information compromised through poor security both on the ground and in the air.
- (5) Instructions on enemy capabilities for air attack on the United States will cover the possible utilization of known types of enemy long range bomber aircraft, guided missiles, special weapons such as BW, CW, and RW, electronic equipment for navigation and jamming, and known long range bombing tactics and techniques.
- (6) Instruction in intelligence participation in interceptor control will be designed to let the pilots know the part intelligence plays at the ADDC in providing knowledge of target systems, target vulnerability, and characteristics of enemy aircraft. It will also cover the part played by GCI in handling Flash Intelligence reports.
- (7) Instructions on debriefing will acquaint the aircrews with required intelligence interceptor mission reports, the types of intelligence observations desired, and the use and importance of information obtained by such observations and reporting.

1. Personal Equipment: Lectures will be presented to all assigned pilots on correct procedures for survival in the arctic, desert, jungle, and on water. Use and operation of available survival kits will be discussed during a demonstration of the equipment. Use and proper care of existing personal equipment will be discussed sufficiently to insure correct utilization, storage, and maintenance with a view to increasing the useful life of all personal equipment items.

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j. Physiology of Flight: These lectures will include a description of sensory vestibular illusions, anoxia, decompression phenomena, "G" Forces, and proper use of oxygen. The lecture also should include first aid procedures for such things as frostbite, wounds, hemorrhages, application of tourniquets, etc. Refresher training required by regulations may be credited toward this training.

k. Air Force Regulations and Forms: The objective of these lectures will be to acquaint all assigned pilots thoroughly with the provisions of all local, ADC, and USAF flying regulations. Particular emphasis will be placed on the provisions of AFR 60-16 and pertinent CAA regulations. A complete explanation of the hurricane evacuation plan for the base and ferrying procedures will be given as well as instruction on all pertinent AF forms such as 1, AF Form 15, etc.

l. Navigation: The objective of this training is to maintain navigational proficiency so that crew members will be able to navigate aircraft to assigned destination, utilizing visual, radio, and radar aids. These instructions should deal with keeping crew members proficient in the operation and use of all current types of navigation instruments in assigned aircraft, and operation and use of all current types of computers. Instructions should keep crew members abreast of the purpose and use of electronic aids to navigation.

m. Armament: The objective of this training is to acquaint crews with the function of the fire control and associated systems. The lectures and demonstrations will cover operation of the gunsight, loading and arming the weapons, changing film magazines, film assessing, boresighting, and the theory and tactics of gunnery.

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PART 4

RECOMMENDED STANDARD COMMENTARY FOR ADC UNITS

1. Purpose. The following commentary is published as a guide in an effort to standardize crew procedures for relaying instructions and information during an airborne radar interception.

2. Requirements. There are two (2) types of pilot-radar observer commentaries, Directive and Descriptive. Directive commentary takes precedence over Descriptive commentary. Radar observers will not hesitate to break off descriptive to give directive commentary. The pilot is responsible for the execution of directive commentary within the safe limits of the aircraft.

a. Directive Commentary

- (1) Directive commentary is used when the situation calls for a change of the aircraft direction, speed, or altitude.
- (2) When giving a directive commentary, the radar observer will modulate his voice to make the directive commentary distinctive from the descriptive commentary.
- (3) The pilot will, when possible, repeat or acknowledge all directive commentary to assure understanding.
- (4) The pilot will execute the commands as quickly as possible.
- (5) The pilot will immediately advise the radar observer when speed and altitude changes have been accomplished, i.e., "Speed Set" and "Altitude Set." Radar observer will give the pilot "Roger" acknowledgment on speed or altitude set.
- (6) The following directive commentary vocabulary will be used by combat crews assigned this command.

Port - Left
Starboard - Right

b. Descriptive Commentary

- (1) Descriptive commentary is used to inform the pilot of the position of the target in relation to the interceptor and to provide a description of the target's movements.
 - (a) Descriptive commentary used to inform the pilot of the position of the target will be given in the following sequence:

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- 1 Azimuth
- 2 Range
- 3 Elevation
- 4 Overtake (when locked on)

Example: Target 20° Port. 10,000 yards
10° above, 80 overtake

- (2) Descriptive commentary used to inform the pilot of the target's movements will be of a general nature.

Example: "This is a beam approach," "Target is crossing from starboard to port," "Target is climbing," "Target is approximately 1000 feet above us," etc.

3. Elevation Differential. Pilots and radar observers can use the following method to calculate altitude differential (AD) for any range.

Target 5° above - $1/4 \times$ Target range in yds AD in feet
 Target 10° above - $1/2 \times$ Target range in yds AD in feet
 Target 15° above - $3/4 \times$ Target range in yds AD in feet
 Target 20° above - Target range in yds AD in feet

Example: Target 4000 yards range 10° above $1/2 \times 4000$ yards
2000 feet above.

4. Standard Directive Commentary Terms.

TURN COMMANDS

Gentle (Port or Starboard)	"1" needle width turn
Hard (Port or Starboard)	"2" needle width turn
Harder	Increase turn "1" needle width
Hard as possible (Port or Starboard)	Maximum turn
Ease Off	Decrease bank until Radar Obs commands "hold turn" or a steady is completed
Steady	Fly straight ahead
Hold turn	Hold turn as is

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ELEVATION COMMANDS

Climb	Climb at 500 FPM maintaining airspeed
Climb more	Increase rate of climb 500 FPM maintaining airspeed
Nose up	Maximum climb maintaining airspeed
Go down	Descend 500 FPM maintaining airspeed
Down more	Increase descent 500 FPM maintaining airspeed
Dive	Lose altitude rapidly, allowing airspeed to increase
Up or Down _____ Feet	Go up or down number of feet indicated at 500 FPM
Level off a little	Decrease rate of climb or descent 500 FPM
Level off	Come back to level flight
Hold climb	Maintain ascent or descent

COMMANDS FOR SPEED CONTROL

Buster	Fly at normal 100% speed (w/o afterburner)
Gate	Fly at maximum 100% speed (w afterburner)
Hold speed	Maintain indicated airspeed
Throttle back (knots desired)	Decrease speed number of knots desired using dive flaps. Use throttle only if necessary. (Applicable to F89)
Throttle right back	Decrease speed to minimum quickly as possible using dive flaps and throttle
Increase speed (knots desired)	Increase speed number of knots desired using 100%
Dive flaps	Extend full dive flaps and leave throttle as is

NOTE: The pilot will notify the RO when the limitations of the aircraft are reached or when making any changes in the flight altitude not directed by the RO.

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Overshoot Port (or Starboard)

Make a two (2) needle width turn of 70° in direction indicated and then start a "1" needle width turn back in direction of target.

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PART V
TRAINING CHARTS

The attached charts are reproduced with instructions to insure standardized posting throughout this command. Charts will be covered by a 3' x 4' sheet of plexiglass. The required columns will be posted in black grease pencil and the accomplished columns in red until requirements have been fulfilled. Completed requirements will be posted in black.

When posting the squadron percent accomplished, individual figures in excess of 100% will be rounded off to 100%.

Forms may be requisitioned in accordance with ADOR 5-3 or constructed locally to conform with the format of the attached charts.

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PILOTS UPD 10-1 TRAINING STANDARD STATUS CHART

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RADAR UPD 10-1 TRAINING STANDARD STATUS CHART

POSTED AS OF _____

DATE _____

NAME _____

FORMATION		ACRO-BATICS		MISSION		AIRBORNE TRACKING		SUCCESSFUL INTERCEPTS		INSTRUMENT APPROACHES		RADAR SNAKE CLIMBS		ECM		NAVIGATION		AERIAL GUNNERY		CAMERA GUNNERY		FLAMEOUT		OVER-ALL PROGRAMMED HOURS	
DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
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**FIGHTER
INTERCEPTOR
UNIT**

NON-AI EQUIPPED

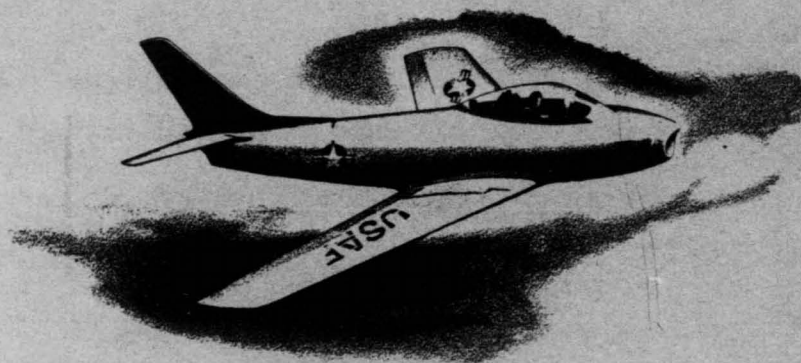
1 JANUARY 1953

RESTRICTED

SECURITY
INFORMATION

51

UNIT PROFICIENCY
DIRECTIVE 10-2



AIR DEFENSE COMMAND

ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

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RESTRICTED SECURITY INFORMATION

*ADCUPD 10-2
1-5ADC UNIT PROFICIENCY DIRECTIVE)
10-2)HEADQUARTERS AIR DEFENSE COMMAND
Ent AFB, Colorado Springs, Colo.
1 January 1953Fighter-Interceptor Unit
(Non Airborne Intercept Equipped)

1. Purpose. This Directive establishes a standardized program for training and maintenance of proficiency for fighter-interceptor units within this command. The specific standards of proficiency that must be attained are prescribed in the appropriate ADC Training Standards for the type aircraft assigned.

2. Unit Mission. The primary mission of a fighter-interceptor unit (non AI equipped) is to achieve and maintain a level of operational effectiveness which will enable the unit to destroy enemy airborne weapons.

3. Scope. The provisions of this directive will be mandatory for all assigned T/O&E combat crews who have completed the unit transition program regardless of AFSC, and such other crews as designated by the unit commander.

4. Responsibility. It is the responsibility of commanders of intermediate headquarters to support the execution of this Directive and to impose no additional requirements which will interfere with the accomplishment of the training prescribed herein.

5. Training.

a. The training outlined in this Directive is considered the minimum amount of diversified yearly training necessary to insure that the crew obtain and maintain the proficiency required by the appropriate ADC Training Standard.

b. Two hundred forty (240) actual flying hours is considered the minimum flying time required to be flown by fighter-interceptor crews each year. The provisions of this directive may be waived by air defense force commanders under unusual conditions such as aircraft hour limitations, shortages of aircraft, or overages of authorized combat crew personnel. Headquarters Air Defense Command will be notified of all waivers granted. Nothing in this Directive will be interpreted as limiting fighter-interceptor crews to a maximum of 240 flying hours each year. Unit Commanders

*This supersedes ADCUPD 10-2, 18 June 1952, as amended.

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ADGUPD 10-2
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are encouraged to provide each crew with as many flying hours over and above this figure as is available within his resources and as will provide a maximum state of unit proficiency.

c. Dual logging will not be used in the accomplishment of this training program. Credit will be taken for only one type of training during any one portion of a training flight.

6. Implementation.

a. The training will be a continuous yearly program, starting 1 July of each year and terminating on the 30th of June of the following year.

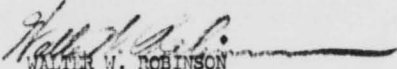
b. Crews entering under the provisions of this directive after 1 July will complete a proportional share of this program. This provision may apply to crews on continuous periods of TDY for more than thirty days.

c. Reporting procedures for the crew training phases are outlined in ADC Manual 55-6. (ADCOOT)

BY COMMAND OF GENERAL CHIDLAW:

OFFICIAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff


WALTER W. ROBINSON
Colonel, USAF
Adjutant General

1 Attachment:
Trg Prog

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RESTRICTED SECURITY INFORMATION

TRAINING PROGRAM

Table of Contents

Part 1	-	General
Part 2	-	Flying Training
Part 3	-	Ground Training
Part 4	-	Training Charts

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Attachment 1, ADCUPD 10-2

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PART 1

GENERAL

1. General. The training to be administered combat crews is divided into two parts: Flying Training and Ground Training. Both parts contain briefing notes which clearly outline the mission to be accomplished or instruction to be presented during the allotted time.

2. Purpose. The purpose of the combat crew training program is to attain and maintain the proficiency of the assigned crews which will insure their capability of executing their assigned duties in an efficient manner, either as individuals or as part of a unit endeavor. Training requirements specified in this directive are considered as a minimum, and it is the prerogative of unit commanders to provide any additional training deemed necessary to maintain the desired state of proficiency.

3. Conduct of Training.

a. Unit commanders need not adhere to the sequence of subjects as indicated by this directive, but should schedule the required training so that maximum utilization of manpower and available equipment is obtained.

b. As an aid in efficiently conducting the flying training program, as outlined by this directive, it is suggested that units break down each of the required flying phases into specific missions.

c. In conducting the ground school portion of this directive, the deliverance of lectures by direct reading will be avoided. The lecturer should prepare his subject in advance, present it in an interesting manner, encourage class participation, and be prepared to answer intelligently any questions which may be introduced during the course of instruction.

4. Flying Training.

a. Flying will be conducted in U/E aircraft except that 25% of aerial gunnery, 50% of instrument training, and 50% of navigational requirements may be flown in T-33 aircraft.

b. No transition training is outlined in this directive as it will be the responsibility of the unit commander to insure that each individual pilot is thoroughly transitioned in the aircraft prior to his participation in the yearly proficiency program. Individuals not possessing AFSC 1124A in jet fighter-interceptor units or AFSC 1124E in conventional fighter-interceptor units will be trained according to existing directives. Time flown in AFSC training will be credited to the accomplishment of this directive as applicable.

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c. Consistent with pilot capabilities and safety considerations, the instrument missions will be conducted to the greatest possible extent under actual weather conditions.

d. For the purpose of this directive, a successful interception is defined as action in which the fighter, having made tally-ho, succeeds in reaching a position from which successful attack would be expected. (Pounce)

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PART 2
FLYING TRAINING

SUMMARY

<u>MISSION</u>	<u>TRAINING REQUIREMENTS</u>			
	<u>Day</u>	<u>Night</u>	<u>Hours</u> <u>Instr</u>	<u>Total</u>
Simulated Combat	20			20
Acrobatics	8			8
Precision Instruments			36	36
Navigation	<u>20</u> 48	<u>24</u> 24	<u>36</u>	<u>44</u> 108

*SORTIES

	<u>Day</u>	<u>Night</u>	<u>Total</u>
Practice Interceptions	48	12	60
Simulated Flameout Landings	24		24
Gunnery			
Air to Air (scored)	40		40
Air to Ground (scored)			
Gunnery	4		4
Bombing	4		4
Rocketry	4		4
Camera Gunnery	<u>20</u> 144	<u>12</u>	<u>20</u> 156

* A gunnery mission will be logged in its entirety as a gunnery sortie by each crew participating in gunnery passes. Camera gunnery missions may be logged in conjunction with missions other than gunnery, i.e., acrobatics, simulated combat.

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BRIEFING NOTES

1. Simulated Combat. Will include the tactics and techniques of individual and coordinated attacks against all types of airborne targets. Emphasis will be placed on maximum performance at very high altitude. Methods of affording mutual support will be taught. Camera film will be exposed on all missions. Prompt assessing is essential for proper evaluation of the mission.

2. Acrobatics.

a. Solo acrobatics: To acquire knowledge of the capabilities and limitations of the aircraft through precision performance of all allowable acrobatic maneuvers.

b. Formation acrobatics: To maintain proficiency in maintaining the integrity of a formation through unusual positions and maximum performance. Types of formation to be flown will be limited to finger-tip and trail (snake). Maneuvers to be performed will be limited to chandelles, lazy eights, loops, immelmans, slow rolls, and the split S.

3. Precision Instruments.

a. Basic instruments and radio range:

(1) Should be practiced under actual weather conditions, at the discretion of unit commanders, after proficiency has been demonstrated under the hood. At least 25% will be flown above 30,000' by conventional aircraft and 40,000' by jet aircraft. This requirement may be waived by air defense force commanders for specific units when aircraft age or inherent capability preclude safe and reasonable accomplishment.

(2) Basic instrument patterns and radio range procedures to be practiced as outlined in AFM's 51-36 and 51-37, "Instrument Flying - Techniques and Procedures."

b. Radio compass exercises: Radio compass exercises to be practiced will include both ADF and aural-null procedures for orientation, homing, tracking, determining time and/or distance from station, and let-down, as outlined in AFM's 51-36 and 51-37, "Instrument Flying - Techniques and Procedures."

c. Ascents and descents through overcasts:

(1) Climbs and descents through overcasts should be practiced individually, and in formation, both with and without the aid of the ADDC.

(2) Squadrons should be able to ascend and descend through an overcast in such a manner as to be able to rendezvous above or below the overcast immediately upon breaking out. This

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technique is to be developed within the unit, taking into consideration the type of aircraft and local conditions such as radio facilities and terrain features.

d. GCA: A minimum of 24 simulated or actual approaches will be accomplished each year. When possible, GCA will be accomplished in conjunction with ADDC recovery systems.

4. Navigation. Navigation training will stress the necessity for pre-flight planning to include preparation of charts, selection of check points, planning ETA's over these points, preparation of fuel control data, study of the weather en route, and location of alternate fields and radio aids that may be available along the route. IFR clearance will be filed for all navigation flights when practicable. Proficiency in all phases of navigation will be maintained including pilotage, dead reckoning and radio aids. Navigation flights will be conducted in formations of two or more aircraft whenever possible. At least 25% will be flown above 30,000' by conventional aircraft and 40,000' by jet aircraft.

5. Practice Interceptions.

a. To be practiced at 10,000', 20,000' and 40,000', individually, by elements, and by flights from both ground and airborne alert.

b. Training will be conducted to insure that all pilots are thoroughly familiar with the capabilities and limitations of the GCI system and are proficient in interpreting and following instructions accurately since responsibility for proper interception and positioning rests with the ground controller.

c. Missions, if possible, will be planned and coordinated with bombardment units, with interceptions made from ground alert status under GCI control.

d. 60 successful interceptions will be completed per year, of which 12 will be at night.

6. Simulated Flameout Landings. A minimum of two simulated flameout landings will be practiced each month in order to familiarize pilots with the flying characteristics of their aircraft under actual flameout conditions. The August 1951 issue of Flying Safety Magazine title "Project Flameout" or pilot's operating handbook should be used as a guide.

7. Gunnery. Each assigned pilot will be required to accomplish a minimum of 40 scored air-to-air gunnery sorties per year. At least 20 sorties will be fired above 20,000'. Two of these missions will utilize all guns. Those pilots who fail to qualify in the air-to-air event, as outlined in ADC

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Reg 51-5, will be required to fire until qualified. No qualification is required in air-to-ground events. Camera film will be loaded on all gunnery missions and will be assessed and evaluated as soon as possible after each sortie. Training and record firing will be conducted under the provisions of ADC Reg 51-5.

a. b. c. Strafing, bombing, and rocketry.

- (1) Will be scored as outlined in AFM 335-25. Qualification in these events is not required.
- (2) To be fired in accordance with the rules for ground attack practice firing outlined in AFM 335-25.

Camera Gunnery. At least 50% will be accomplished at 40,000'.

a. Exercises one through six will be successfully completed at both 25,000' and 40,000'. The overhead pass may be dropped to a lower altitude where aircraft performance prohibits its accomplishment at 40,000'.

b. Gun camera film will be assessed accurately and promptly after each mission.

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EXERCISE NUMBER ONE

ASTERN PASS

REVISED 15 JULY 1952

CONDITIONS

1. 85 KTS OR 100 MPH OVERTAKE SPEED USING BUSTER POWER
2. NO EVASIVE ACTION
3. 0 TO 10 DEGREES ANGLE OFF SAME LEVEL
4. CAMERA BURSTS AT 600, 400, 300 & 200 YDS RANGE
5. NO FILM OVERRUN
6. EIGHT PASSES EACH MISSION



200 YDS

300 YDS

400 YDS

600 YDS



600 YDS	690 TO 510 YDS
400 YDS	460 TO 340 YDS
300 YDS	345 TO 255 YDS
200 YDS	230 TO 170 YDS

QUALIFYING PERFORMANCE

MINIMUM OF TWO PASSES SHOWING

1. STEADY TRACKING AT 0 TO 10 DEGREES ANGLE OFF
2. OPENING RANGE ACCURACY WITHIN PLUS OR MINUS 15 PERCENT

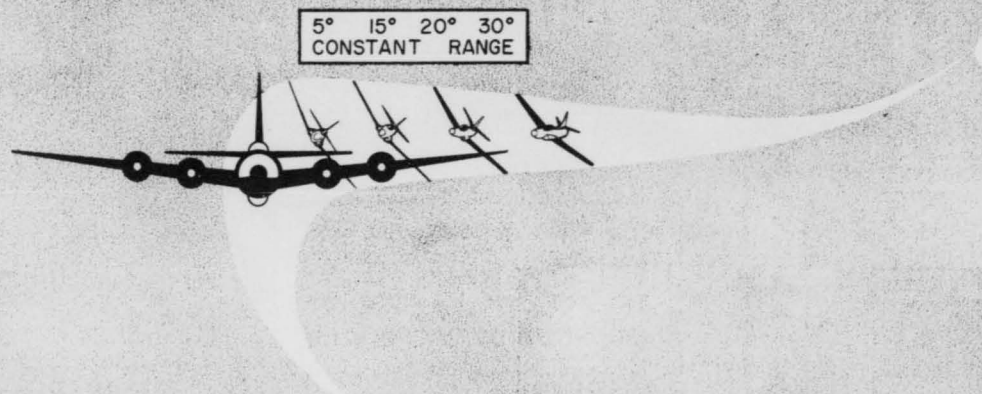
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EXERCISE NUMBER TWO

**FLAT SIDE PASS
CONSTANT RANGE**

REVISED 15 JULY 1952



CONDITIONS

1. NO EVASIVE ACTION
2. CONSTANT RANGE 300YDS
3. CAMERA BURST AT 30, 20, 15 & 5 DEGREES ANGLE OFF
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT HAND PASSES EACH MISSION

**QUALIFYING
PERFORMANCE**

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS OR MINUS 15 PERCENT

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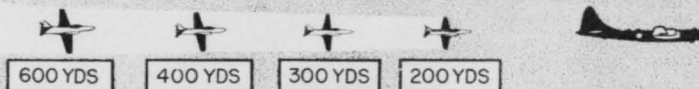
EXERCISE NUMBER THREE

FLAT SIDE PASS

REVISED 15 JULY 1952

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURST AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR
LEFT HAND PASSES EACH
MISSION



QUALIFYING
PERFORMANCE

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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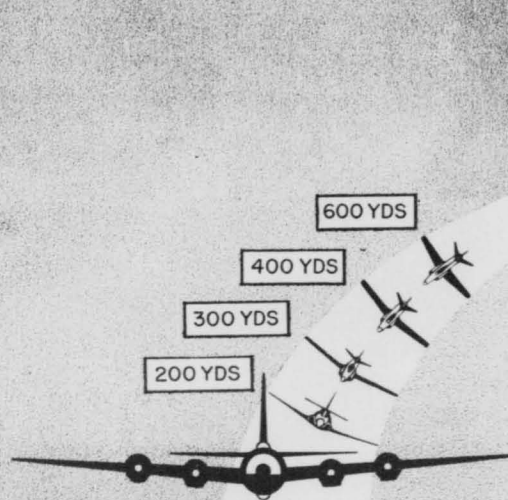
EXERCISE NUMBER FOUR

HIGH SIDE PASS

REVISED 15 JULY 1952

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURSTS AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT
HAND PASSES EACH MISSION



QUALIFYING
PERFORMANCE

MINIMUM OF ONE PASS FROM
EACH SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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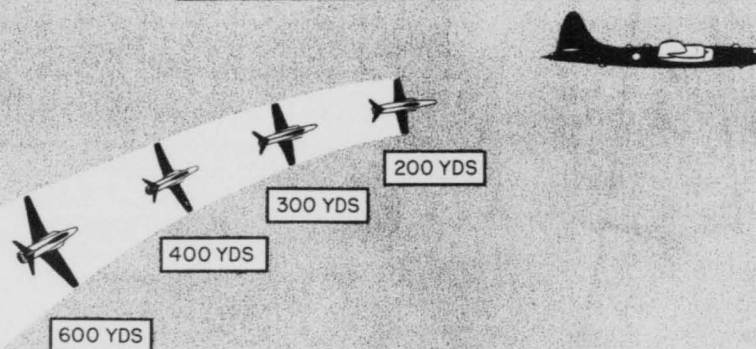
EXERCISE NUMBER FIVE

REVISED 15 JULY 1952

LOW SIDE PASS

CONDITIONS

1. TARGET SPEED 275MPH TAS
INTERCEPTOR AT BUSTER POWER
2. NO EVASIVE ACTION
3. CAMERA BURST AT 600, 400,
300 & 200 YARDS
4. NO FILM OVERRUN
5. FOUR RIGHT HAND & FOUR LEFT
HAND PASSES EACH MISSION



QUALIFYING
PERFORMANCE

MINIMUM OF ONE PASS FROM EACH
SIDE SHOWING

1. STEADY ACCURATE TRACKING
2. OPENING RANGE WITHIN PLUS
OR MINUS 15 PERCENT

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EXERCISE NUMBER SIX

REVISED 15 JULY 1952

OVERHEAD PASS

CONDITIONS

1. TARGET SPEED 275 MPH
TAS INTERCEPTOR 10 PERCENT UNDER MACH.
2. NO EVASIVE ACTION
3. 30° MINIMUM ANGLE OFF
4. CAMERA BURST AT 600, 400, 300 & 200 YDS RANGE
5. NO FILM OVERRUN
6. EIGHT PASSES EACH MISSION

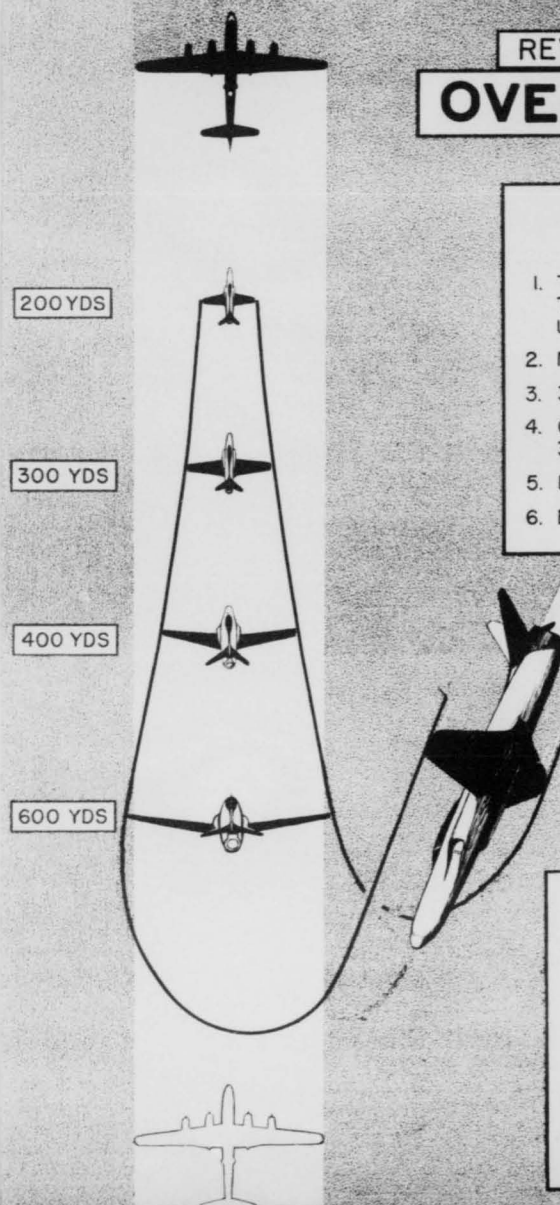
QUALIFYING PERFORMANCE

MINIMUM OF TWO PASSES SHOWING

1. STEADY, ACCURATE TRACKING
2. RANGE ACCURACY WITHIN PLUS OR MINUS 15 PERCENT

NEVER LOSE SIGHT OF THE TARGET

ALWAYS RECOVER BY DIVING BEHIND THE TARGET



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PART 3
GROUND TRAINING

1. <u>Yearly Requirements.</u>	<u>Hours</u>
a. Aircraft accident study classes	26
b. Operations	36
(1) Aircraft operation	
(2) Weather technique	
(3) Tactics	
(4) Ground support	
c. Maintenance	24
d. Communications and electronics	14
(1) Techniques and equipment	
(2) Procedures	
(3) Morse Code	
e. Instruments	36
(1) Techniques	
(2) Instrument trainers	
f. Meteorology	8
g. Intelligence	36
h. Personal Equipment	8
i. Physiology	6
j. Air Force Regulations and Forms	4
k. Navigation	12
l. Armament	40
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TOTAL	252

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2. Details of Training.

a. Aircraft Accident Study Classes: The objective of these classes will be to eliminate avoidable aircraft accidents within the Air Force. This may be accomplished by reviewing the cause of each accident and discussing the possible corrective action which might have been employed to eliminate each accident. These discussions and reviews will be conducted bi-weekly by the Flight Safety Officer and attendance for all air crews will be mandatory. During these classes a review of the fighter aircraft accidents that have occurred within the USAF will be conducted. Special study will be given to accidents that have occurred within the unit and to accidents involving like aircraft assigned to other units.

b. Aircraft Operations: The objective of these classes will be to acquaint the assigned combat crew with the characteristics and capabilities of assigned aircraft and operational techniques and tactics. These instructions will cover:

- (1) The operation of the electrical, hydraulic, and fuel systems of the assigned aircraft. Combat crews will be instructed in the approved cruise control technique to be employed when flying the aircraft. They must possess a comprehensive knowledge of the weight and balance data associated with the aircraft. All emergency procedures and techniques to be employed when flying the aircraft will be stressed.
- (2) The techniques to be followed when encountering thunderstorms, ice, hail, or other hazards to flying.
- (3) Squadron SOP's regarding combat tactics and techniques, along with a study of the air defense system as in use within the United States; how an AC&W Unit operates; how GCI is carried out. Actual visits to an AC&W operation room should be made by all pilots.
- (4) Rotation of fighter pilots requires individual knowledge of all phases of fighter operations, including support to the ground forces. Five basic factors of ground support will be discussed: target evaluation, cover utilization, direction of attack, delivery of effective firepower, and flak evasion. High, medium, and low angle approaches will be covered along with the best types of attacks on enemy troop positions, trains, troop or armored columns and airfields.

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c. Maintenance: The objective of these lectures and demonstrations is to acquaint the combat crews with the proper method of servicing, pre-flight, and performing a daily inspection of the aircraft, and each pilot should be instructed in the performance of minor maintenance which may be required of them at fields with limited facilities. Periodic inspection requirements, and the method of accomplishment, will be included in these instructions.

d. Communications and Electronics: The objective of this training is to keep pilots abreast of current and projected technical developments in the electronics field. These will include the proper use, operation, and capabilities of all the installed electronic equipment. Pilots will also be indoctrinated in the principles of communications jamming, how it is effected, and the countermeasures that may be employed. Pilots will become familiar with all appropriate ACP's and JANAP's. Proper R/T procedures will be taught to include proper procedures for position reporting under IFR conditions, changes in flight plans, emergency procedures, etc. Also periods will be allotted for proficiency checks in meeting the requirements of AFR 50-16.

e. Instruments:

- (1) The objective of this instruction is to cover all subjects pertinent to instrument flying and will include a study of all installed flight instruments in the aircraft. The discussions should include all pertinent information on the techniques to be used on let-down, GCA approaches, and homing procedures. Pilots will receive instruction on aural-null procedures, tracking, and ADF let-down.
- (2) Instrument Trainer: A minimum of two (2) hours each month will be devoted to instrument trainer flying by all pilots; if flight simulators or C-11 trainers are not available, aircraft instrument time may be substituted. This instruction should aim toward improving techniques employed in instrument flying; such as tracking, ADC let-down, aural-null, etc.

f. Meteorology: The objective of these instructions is to insure pilots are capable of reading weather sequence reports, forecasts, weather maps, and adiabatic charts. They will receive the latest information as to the structure of cold, warm, and occluded fronts, and the weather associated with all air masses.

g. Intelligence:

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- (1) At least once each week, the Unit Intelligence Officer will instruct in some phase of intelligence. These instruction periods will always include a briefing on the current world situation. Other phases which will be covered include aircraft recognition; enemy capability for air attack on the United States; and security, interceptor control, and combat crew debriefing.
- (2) Current Intelligence instruction will be designed to keep the squadron personnel aware of the world situation and ADC's relation therewith. Classified as well as unclassified material is available for such purposes.
- (3) Aircraft Recognition instruction will consist of a description of the recognition features pertinent to all U. S. aircraft and that of foreign countries. Data on performance characteristics will be presented so that the pilot may have a basis for comparison with U. S. aircraft.
- (4) The Intelligence aspects of security will be constantly reviewed. All personnel will be made aware of the potential value to an enemy of information compromised through poor security both on the ground and in the air.
- (5) Instructions on enemy capabilities for air attack on the United States will cover the possible utilization of known types of enemy long range bomber aircraft, guided missiles, special weapons such as BW, CW and RW, electronic equipment for navigation and jamming, and known long range bombing tactics and techniques.
- (6) Instruction in intelligence participation in interceptor control will be designed to let the pilots know the part intelligence plays at the ADCC in providing knowledge of target systems, target vulnerability, and characteristics of enemy aircraft. It will also cover the part played by GCI in handling Flash Intelligence reports.
- (7) Instructions on debriefing will acquaint the aircrews with required intelligence interceptor mission reports, the types of intelligence observations desired, and the use and importance of information obtained by such observations and reporting.

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h. Personal Equipment: Lectures will be presented to all assigned pilots on correct procedures for survival in the arctic, desert, jungle and on water. Use and operation of available survival kits will be discussed during a demonstration of the equipment. Use and proper care of existing personal equipment will be discussed sufficiently to insure correct utilization, storage, and maintenance with a view to increasing the useful life of all personal equipment items.

i. Physiology of Flight: These lectures will include a description of sensory vestibular illusions, anoxia, decompression phenomena, "G" Forces, and proper use of oxygen. The lecture should also include first aid procedures for such things as frostbite, wounds, hemorrhages, application of tourniquets, etc. Refresher training required by Regulations may be credited toward this training.

j. Air Force Regulations and Forms: The objective of these lectures will be to acquaint all assigned pilots thoroughly with the provisions of all local, ADC and USAF flying regulations. Particular emphasis will be placed on the provisions of AFR 60-16 and pertinent CAA regulations. A complete explanation of the hurricane evacuation plan for the base and ferrying procedures will be given as well as instruction on all pertinent AF Forms such as 1, AF Form 15, etc.

k. Navigation: The objective of this training is to maintain navigational proficiency so that pilots will be able to navigate aircraft to assigned destination, utilizing visual and radio aids. These instructions should deal with keeping crew members proficient in the operation and use of all current types of navigation instruments in assigned aircraft and operation and use of all current types of computers. Instructions should keep pilots abreast of the purpose and use of electronic aids to navigation.

l. Armament: The objective of this training is to acquaint pilots with the function of the gunnery and associated systems. The lectures and demonstrations will cover operation of the gunsight, loading and arming the weapons, changing film magazines, film assessing, bore-sighting, and the theory and tactics of gunnery.

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PART IV
TRAINING CHARTS

The attached charts are reproduced with instructions to insure standardized posting throughout this command. Charts will be covered by a 3' x 4' sheet of plexiglass. The required columns will be posted in black grease pencil and the accomplished columns in red until requirements have been fulfilled. Completed requirements will be posted in black.

when posting the squadron percent accomplished, individual figures in excess of 100% will be rounded off to 100%.

Forms may be requisitioned in accordance with ADCR 5-3 or constructed locally to conform with the formats of the attached charts.

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CG Central ADF Kansas City Mo
CG Western ADF Hamilton AFB Hamilton Calif

ADOOT-F 15536. This message in 4 parts. Pending revision of ADC Reg 55-2, Awarding of Combat Crew SSN's and Determining Combat Readiness of Crews and Aircraft, 21 Feb 1952, as ammended, the following will be the criteria for determining combat readiness of crews fly E-4, E-5 and E-6 F.C.S. equipped aircraft: Part I. Pilot may be considered combat ready when he has accomplished the following in U/E aircraft: (a) Flown a total of 40 hrs. (b) Flown 3 night sorties. (c) Led 3 successful ground controlled interceptors. (d) Demonstrated proficiency in search, look-on, and ph II and III tracking through breakaway signal in accord with existing capabilities and restrictions. (e) Completed a minimum of 10 successful interceptor missions and a total of 30 attacks as follows: (1) 10 attacks in a cone of 20 degrees on either side of stern, maximum overtake 100 knots. (2) 10 attacks in a cone 20 to 70 degrees from stern. (3) 10 attacks in a cone 70 to 90 degrees from stern. (Attack angles greater than 90 degrees from the stern are prohibited). (f) Demonstrated the ability to fly instruments to include GCA's, radio range orientation, ADF's, and ILAS. (g) Possesses a current instrument card. (h) Has demonstrated knowledge of the use of the N-9 standby sight. (i) Has been certified combat ready by the Squadron Commander as outlined in Part 2, AFM 36-1. AFSC 1124 with

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appropriate suffixes may be awarded to a fighter-interceptor pilot upon completion of foregoing requirements. Radar observer will be considered combat ready and AFSC 1564 may be awarded when he has completed a course of instruction at the USAF Interceptor School or has demonstrated ability comparable to that of a graduate of that school and has accomplished the following in E-5 or E-6 F.C.S. equipped aircraft: (a) Controlled 20 completed interceptors and attacks, utilizing on equal numbers of missions the automatic lock-on and hand controlled features of the airborne interceptor radar. Part II. Prior to being scheduled for combat alert duty in E-4, E-5 and E-6 F.C.S. equipped aircraft, pilots will have accomplished the following: (a) For pilots transferring from F-86A, E, or F aircraft to F-86D aircraft the requirement in Part I(a) above is reduced to 30 hrs, of which a maximum of 10 hours simulator time may be submitted for aircraft time. (b) For E-5 F.C.S. equipped aircraft. The requirement contained in Part I(a) for 40 hours fly time is reduced to 20 hours when transferring between F-94A or B aircraft to F-94C aircraft. (c) For E-6 F.C.S. equipped aircraft. The requirement contained in Part I(a) for 40 hours fly time is reduced to 20 hours when transferring between F-89B or C aircraft to F-89D aircraft. Part III. Pilots possessing fully qualified AFSC and transferring into ADC from other commands will be allowed to retain AFSC for 1 year or until they demonstrate inability to meet combat readiness requirements of this command. Part IV. For CG, EADF: This answers your message EAOOT-FT 16967.

CG ADC

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SECRET SECURITY INFORMATION

FILE NUMBER

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HQ ADC ENT AFB COLO SPRINGS COLO

ROUTINE

53

CG EASTERN ADF STEWART AFB NEWBURGH NY

CG CENTRAL ADF KANSAS CITY MO

CG WESTERN ADF HAMILTON AFB HAMILTON
CALIF

X

27 May 53

X

ADDOOT-F 983

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ADDOOT-F 1256. MMSG ADDOOT-F 983, dtd 25 Apr 53. Practice
inteps for identification purposes only can be both day and night provid
they are fr stern and rear beam pms and that visibility at opr alt of
intep is no less than 5 miles. These identification inteps w/b made w/
a max overtake speed of 100 knots. All atks w/b broken off at 1500 yds
or 10 seconds-to-go if vis contact has not been made. Req your comment
on any pros which can be used to enhance identification possibilities w/
E-4 and E-5 equip.

CG, ADC

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HQ ADC ENT AFB COLO SPRINGS COLO
DIR OF OPRS, HQ USAF, WASHDC

PRIORITY

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27 APR 52

ADOOT-F 1013. The fol msg has been fwd to all ADC units and is quoted for your info: "This msg in 4 parts. Part I. Until more compl and accurate data on the E-4 and E-5 fire con sys is aval and until aircrew and maint pers proficiency reaches a higher level, the folg restrictions w/apply: 1. Practice lead collision crse intcps w/b conducted only during pds of daylight when visibility at opr alt of intop is 10 miles or more. 2. Continuous visual checks w/the tgt acft w/b maintained by the intcp plt during atk phases II and III to ins knowledge of the relative pens of the two acft. 3. Initial tag intcps w/b made fr stern and rear beam pens at a slow closing rt w/atks progressing to higher angles-off as proficiency of aircrews improves. 4. Radio contact, either dir or through the GCI controller, w/b maintained w/the tgt acft at all times during the practice intcps. 5. All lead collision crse practice intcps w/b under GCI control. 6. USAF imposed restrictions on head-on passes fwd to you in ADC ltrs ADOOT-F 360.1, Subj: (Uncl) Restriction on Head-On Passes, dtd 18 Oct and 1 Nov 52, are intpr by this hq as not restricting lead collision crse passes in F-86D and F-94C acft so long as the flt path of the ftr during Phase II is no greater than 90 degrees fr the flt path of the tgt acft considering the stern

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AD00T-F 1013

of the tgt acft as zero degrees. Your attn is invited to the correlation of the expected flt paths of the tgt and ftr acft as differentiated fr the relative pns of the two acft inasmuch as the relative psn of the ftr may be fwd of a line perpendicular to the tgt yet his Phase II flt path w/b less than 90 degrees to the expected flt path of the tgt acft. Part II. Actual inteps for identification purposes w/alert acft under night and IFR conds w/b made fr astern and rear beam pns. Those atks of less than 30 degrees w/b made w/a max overtake speed of 100 knots. All atks w/b broken off at 1500 yards or 10 seconds-to-go if vis contact has not been made. Part III. Provs of ADC UPD 10-1 as require night sta tracking and intep mans, night ECM inteps and radar snke take-offs are waived for F-86D and F-94C units until further notice. This msg is not to be construed as prohibiting intep tng. Max nos of tng inteps are encouraged w/1 the above opnl lmts. Part IV. Above listed restrictions not appl to 4750th Wpns Tng Gp. Sp instrus in consonance w/4750th msn directive w/fol. The above restrictions on practice lead collision crse atks w/1 ADC units are considered to be interim pro only and have been imposed due to the lmted and inconsistent data as to the safety w/which atks of this nature can be conducted. Pers of this comd, APGC, and ATRC, who have flown the F-86D and F-94C have verbally exp much concern over the possibility of collision in conducting these atks utilizing the fire con sys as they were designed to be used. These restrictions are not consistent w/either the ADC msn or the desired ADC quals for plt combt readiness. Req your comment on the tng restrictions as quoted above. Further req your appro

page 2 of 3 pages.

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ADDOOT-F 1013.

of our intpr of your definition of head-on passes as quoted in URMSG
AFOOP-OC-F 51445, dtd 29 Oct 52.

CG ADC

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HQ ADC ENT AFB COLO SPRINGS COLO
COMDR CENTRAL ADF KANSAS CITY MO
COMDR EASTERN ADF STEWART AFB
NEWBURGH NY
COMDR WESTERN ADF HAMILTON AFB
HAMILTON CALIF

ROUTINE

ADOOT-F 983

CONFIDENTIAL

ADOOT-F 1465-25 June . MMSG ADOOT-F 983 dtd 25 Apr 53. Part I, par 1,
is amnd to read: "Practice lead collision crse intcps w/b conducted only
during the pds of daylight when visibility at oprg alt of intcp is five (5)
miles or more."

CG, ADC

MEMO FOR RECORD:

Referenced message stated visibility would be no less than 10 miles.
Visibility being reduced to 5 miles or more to coincide with other
correspondence on this subject.

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Subject: First Phase "M" Program
 From: DC&E-E To: DCS/O

Date: 6 Jan 1953
 W/C Trepanier
 1 continued

1. As requested, herewith in chronological order an outline of some of the major actions relating to the first phase of the "M" Program.

a. 10 July 1951. First Phase Mobile Program approved by Headquarters USAF and referred to this headquarters for implementation as part of our responsibilities with respect to the USAF world-wide radar program.

Reference: Headquarters USAF letter to ADC, AFOOP-ZI, dated 10 July 1951, subject: "Air Defense Command Responsibilities with Respect to the USAF World-Wide Radar Program."

b. 29 August 1951. Based on instructions issued by P&R to DC&E and after review and approval of definitive drawings and site layouts directive issued by this headquarters to the three Air Defense Forces to implement the siting survey phase of this program.

Reference: ADC letter to the three Air Defense Forces, dated 29 August 1951, ADOCE 676.3, subject: "Site Surveys for Additional AC&W Stations."

c. 18 January 1952. Letter sent three Air Defense Forces advising implementation of the current Mobile Radar Program was suspended pending approval by Headquarters USAF of revised "M" Plan. Action on site survey reports already completed frozen pending further instructions.

Reference: ADC letter to three Air Defense Forces dated 18 January 1952, ADOPR 381, subject: "Mobile Radar Program."

d. 18 January 1952. USAF requested to approve reprogramming of 44 mobile sites due to current evaluation of existing and programmed Air Defense System.

Reference: ADC letter to Headquarters USAF dated 18 January 1952, ADOPR 381, subject: "Mobile Radar Program."

e. 29 February 1952. Anticipating early approval of the revised "M" Program, meeting held this headquarters with representatives of three Air Defense Forces to review concepts of new program, siting criteria, survey report format and for discussion of various technical problems concerning surveys.

f. 4 March 1952. Revised site locations based on the decision to locate as many mobile radar sites as possible on established Federal installations submitted to DC&E by P&R for inclusion in siting directive to Air Defense Forces.

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Reference: R&R to DC&E, dated 4 March 1952.

g. 21 March 1952. Approval of revised "M" Program subject to certain recommended personnel changes granted by USAF. Changes subsequently incorporated in ADC's 3d Indorsement to USAF dated 29 April 1952.

Reference: Headquarters USAF's 1st Indorsement to our basic letter, dated 21 March 1952, AFOOP-ZI 381 (basic letter reference "d" above).

h. 28 March 1952. Directive issued to three Air Defense Forces on implementation of siting survey, revised "M" Program.

Reference: ADC letter to three Air Defense Forces dated 28 March 1952, ADOCE 676.3 subject: "Site Surveys, Revised Mobile Radar Plan."

i. 4 April 1952. Instructions issued to DC&E by P&R outlining certain changes in site locations.

Reference: P&R from P&R to DC&E, dated 4 April 1952.

j. 7 May 1952. Directive on site surveys amending our directive listed at "h" above issued to three Air Defense Forces. Changes in site locations, equipment and other technical data included.

Reference: ADC letter to three Air Defense Forces dated 7 May 1952, ADOCE 676.3, subject: "Site Surveys, Revised 'M' Radar Plan."

k. 7 May 1952. Headquarters USAF requested to confirm types of equipment allocated to "M" Program, since info contained in their letter AFMSS-CE-1, dated 13 March, letter AFOAI-CO.S, dated 12 March, and their 1st Indorsement to our basic letter dated 18 January 1952 was at variance with each other.

Reference: ADC letter to Headquarters USAF, dated 7 May 1952, ADOCE 413.44, subject: "Radar Equipment, Revised 'M' Program.

l. 10 June 1952. List of equipment programmed for "M" Plan received from Headquarters USAF.

Reference: 1st Indorsement to basic letter referenced to "k" above, dated 10 June 1952.

m. 30 June 1952. In view of the conflicting information between directives issued by AFOAI to Chief of Engineer and AFOOP to this headquarters, a visit was made to USAF to attempt to clear inconsistencies on electronics and construction aspects of this program.

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Subject: First Phase "M" Program (Contd)
 From: DC&E-E To: DCS/O

Date: 6 Jan 1953
 1 continued

Reference: Trip Report from Lt Col Lafrenz, dated 30 June, and DC&E P&R to P&R, Installations, and Log Plans, dated 3 July 1952.

n. 10 July 1952. Revised siting criteria based on report referred to at "m" above forwarded to three Air Defense Forces.

Reference: ADC letter to three Air Defense Forces, dated 10 July 1952, ADOCE 676.3, subject: "Site Surveys, Revised 'M' Radar Program."

o. 17 July 1952. Based on final equipment list provided through reference "m" above, ARDC requested to provide separation criteria to enable siting survey teams to proceed with their survey work. Submission of requested information expedited on 28 August 1952 and 6 November 1952.

Reference: ADC letter to ARDC dated 17 July 1952, ADOCE 413.44, subject: "Separation of Radar Equipment."

p. 15 August 1952. As the result of queries from the Air Defense Forces, verbal instructions issued to hold submission of siting survey reports until criteria mentioned at reference "o" above received, but to proceed with siting surveys as previously directed.

q. 11 September 1952. USAF requested to approve relocation of M-130, M-101 and M-131. This was subsequently approved by USAF on 16 September 1952, and three Air Defense Forces advised to carry out survey on 17 September 1952.

Reference: ADC letter to Headquarters USAF dated 11 September 1952, ADOPR 381, subject: "Mobile Radar Program."

r. 13 September 1952. Based on instructions received from Headquarters USAF, three Air Defense Forces advised to waive separation criteria and expedite completion and submission of siting survey reports by most expeditious means possible.

Reference: ADC message to three Air Defense Forces dated 13 September 1952, ADOCE 53031.

s. 6 January 1953. Progress report showing dates survey reports passed to Installations and to USAF attached as Inclosure No. 1.

2. It can be seen from the above that delays in the implementation of the construction phase of this program were occasioned mainly by:

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- a. Changes in plans and concepts (reference a, c, d, f, i and q above).
 - b. Lack of coordination at Headquarters USAF level (reference m).
 - c. Lack of adequate information on equipment and criteria (reference k, l, m, and o).
 - d. Lack of adequate planning directive at this headquarters.
3. Further delays will be encountered before the construction phase of this program can be implemented in view of the lack of information on separation criteria and other details on equipment and construction aspects which are not, as yet, available to this headquarters. This directorate is continuing to follow-up on all "loose ends" to eliminate as much delay as possible.

HASKELL E. NEAL
Colonel, USAF
Dir of Command Elect
Ext 228-229

1 Incl
Progress Report

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PROGRESS REPORT

FIRST PHASE "M" PROGRAM

	<u>To Instl</u>	<u>To USAF</u>
M-88	21 Oct 52	21 Oct 52
M-89	21 Oct 52	21 Oct 52
M-90	23 Sep 52	30 Sep 52
M-91	19 Sep 52	20 Sep 52
M-92	23 Sep 52	30 Sep 52
M-93	21 Oct 52	21 Oct 52
M-94	23 Sep 52	29 Sep 52
M-95	19 Sep 52	20 Sep 52
M-96	21 Oct 52	21 Oct 52
M-97	19 Sep 52	20 Sep 52
M-98	19 Sep 52	20 Sep 52
M-99	19 Sep 52	20 Sep 52
M-100	5 Dec 52	10 Dec 52
M-101	12 Nov 52	17 Nov 52
M-102	Canadian	---
M-103	29 Aug 52	26 Sep 52
M-104	Canadian	---
M-105	5 Sep 52	26 Sep 52
M-106	21 Oct 52	21 Oct 52
M-107	Canadian	---
M-108	Canadian	---
M-109	13 Oct 52	17 Oct 52
M-110	5 Sep 52	26 Sep 52
M-111	19 Sep 52	20 Sep 52
M-112	19 Sep 52	20 Sep 52
M-113	19 Sep 52	20 Sep 52
M-114	19 Sep 52	20 Sep 52
M-115	19 Sep 52	20 Sep 52
M-116	19 Sep 52	20 Sep 52
M-117	23 Sep 52	29 Sep 52
M-118	Being surveyed	
M-119	Canadian	---
M-120	Canadian	---
M-121	23 Sep 52	29 Sep 52
M-122	19 Sep 52	20 Sep 52
M-123	Being surveyed	---
M-124	19 Sep 52	20 Sep 52
M-125	5 Nov 52	10 Nov 52
M-126	5 Nov 52	10 Nov 52
M-127	21 Oct 52	21 Oct 52
M-128	25 Sep 52	30 Sep 52
M-129	Being reviewed	---
M-130	4 Dec 52	5 Dec 52
M-131	7 Oct 52	14 Oct 52

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Subject: Completion Dates for "M" Sites
 From: Dir Instls To: P&R
 C&E
 O&T

Date: 4 Feb 1953

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1. Public Law 547 - 82nd Congress-Section 802 provides that "None of the funds appropriated in this title shall be expended for additional cost involved in expediting construction".
2. The establishment of realistic completion dates, at this time, is not practicable due to the following factors which are delaying construction of the "M" site program:
 - a. Changes in location of operations or cantonment site of the approval of the original site plan.
 - b. Changes in the number and type of equipment to be used at each site.
 - c. Lack of technical information on the weight and size of equipment requiring a tower, mound, or platform for support.
 - d. Lack of information on the location, spacing and height of tower, mound or platform required at each site.
 - e. Lack of firm list of personnel strength required at each site in order to design quarters and messing accommodations.
 - f. Type of 20' x 40' prefabricated building to be supplied through central procurement.
 - g. Only two directives have been issued to date for acquisition of real estate or right of entry required for off-base sites. Only one joint use agreement for on-base sites has been approved.
3. When the above factors have been resolved and firm data can be furnished to the Corps of Engineers for design purposes then a reasonable completion data can be established for each site, taking into consideration the type and location of the project, climatic and seasonal conditions affecting construction application of economical construction practices and availability of radar equipment.
4. In view of the above, it is doubtful that few, if any, of the sites will be available for occupancy by the desired date of June 1953. Recommend the attached message be sent in reply to EAMIS 2094.

JOHN C. MEADOWS
 Lt Col., USAF
 Chief, Const. Div.
 526

HAROLD K. KELLEY
 Colonel, USAF
 Director of Installations

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D. C.

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27 March 1953

AFOAI-CS

SUBJECT: (Uncl) Construction Requirements for "M" Sites in Zone of Interior

TO: Chief of Engineers
Department of the Army
Washington 25, D. C.

1. Reference is made to the following classified correspondence:

a. Letter, this headquarters, subject: (Uncl) Mobile Radar "M" Program in ZI, 11 August 1952.

b. Letter, this headquarters, subject: (Uncl) Preliminary Site Survey Reports on thirteen (13) Mobile Radar Stations, 17 October 1952.

2. As result of recent conference held in this headquarters (19-20 February 1953) on captioned subject, in which representatives from your office were present, the following revised design and construction criteria is submitted for your action.

a. Remote Transmitter and Receiver areas will not be required at any of the "M" sites. It has been found that radio communication equipment can be located on or adjacent to the site.

b. The Jamesway Shelters will not be used to house radio equipment. One 20'x48' prefabricated building will be required for this purpose on all type VI and VII stations and on four (4) specified type V sites. (See note "A" - Incl #2)

c. PX and motor maintenance buildings are no longer required.

d. The Operations building has been reduced to provide for use of a 20'x48' prefabricated building at nine (9) sites. (See note "B" - Incl #2)

e. The 40'x100' Operations building layout has been revised.

f. The BOQ and Airmen Barracks have been revised.

g. The General Supply Building has been reduced to a 20'x48' prefabricated building on all sites.

h. The Recreation and Training building, including a small

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Subject: (Uncl) Construction Requirements for "M" Sites in Zone of Interior (Contd)

dispensary, has been combined into one 20'x96' building.

1. Typical site layouts for Type V, VI and VII stations have also been revised.

All of the above changes are indicated in a set of fourteen (14) original definitive drawings per Inclosure 1. A tabulation of prefabricated building requirements, station personnel strengths and MO-Gas Storage requirements for each site is also attached as Inclosure 2.

3. It should be noted that a typical layout for the power plant has not been included in the drawings submitted since this will vary with the individual sites and types of equipment to be used. A standard 20'x48' prefabricated building will be required to house the TO&E generators that will be furnished with the radar equipment, and also those generators determined as necessary by your office for camp power needs.

4. The two bus system should be used for separating camp and technical power loads; however, switch arrangements should be provided to permit all generators to furnish power for either camp or technical needs. The Transmitter and Receiver Building will be connected to the technical power load.

5. The TO&E generators furnished with the radar equipment will be as follows:

- 2 - 100 KW Stewart-Stevenson with each MPS-7 radar set
- 2 - 60 KW Stewart-Stevenson with each MPS-11 or FPS-8 radar set
- 2 - 30 KW and 2 7½ KW (400 cycle) generators will be furnished where TPS 1D and TPS-10D radar and height finder sets are to be used
- 2 - 7½ KW (400 cycle) generators will be furnished where a TPS-1D radar set only will be used

6. On split sites, Technical supply, Transmitter and Receiver Buildings will be located in the vicinity of the Operations area. Also, on split sites it may be necessary to provide separate power plants for the operations and cantonment area.

7. Certain features of the 32 preliminary site survey reports forwarded to your office to date are now obsolete due to changes in allocation of type radar equipment to the individual sites and reduction of land requirements. The site survey reports for five (5) additional installations,

M-93	M-118
M-106	M-123
M-127	

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Subject: (Uncl) Construction Requirements for "M" Sites in Zone of Interior (Contd')

will be furnished your office in the near future by separate correspondence. The type stations to be constructed at each site is indicated in Inclosure #2.

8. Detailed information on type of radar equipment approved for installation at each individual site, including tower requirements, will be furnished by separate correspondence. The construction of radar and height finder towers or other supporting media should be undertaken at each site when adequate technical details are furnished to enable the design of these structures.

9. Seven (7) of the 44 "M" sites are not to be considered for construction by your office under this directive. Site M-126, located at Houma NAS, will be constructed by the Department of the Navy. The six (6) sites located in Canada, M-102, M-104, M-107, M-108, M-119 and M-120 will not be considered for construction at this time.

10. Where the erection of the 20'x144' BOQ or Airmen Dormitories is not considered economical due to terrain conditions, it may be designed as a smaller unit or with a number of wings with central latrine facilities.

11. The 20'x48' prefabricated building requirements for the SAD, SWD, ORD and NAD should be filled from "Steelcraft" stock supply presently available at Memphis AF Depot. Your office will advise this headquarters of the desired delivery schedules in above areas in order to arrange for the release of these prefabricated buildings.

12. Inclosure #3 contains certain design criteria not covered in "Basic Engineering Data for Semi-fixed but Movable "N" Sites" which should be incorporated therein.

13. It is requested that your office proceed with the design and construction of the "M" sites exclusive of radar and height finder towers.

14. Procedure for allotting of construction funds by your office to the field will be as follows:

a. The approved site development plan and work estimate for each "M" site will be submitted to this headquarters by the USAF Installations Representative concerned. This headquarters will then authorize your office to release construction funds for these "M" sites as submitted.

15. This design directive supersedes all previous design and/or

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construction criteria for the "M" site program that may be conflicting as well as temporary stop order to your office per our classified message AFOAI #59634, dated 25 February 1953.

FOR THE CHIEF OF STAFF:

/s/ WILLIAM E. LEONHARD
Colonel, USAF
Chief, Constr. Division
Directorate of Installations, DCS/O

3 Incls

1. 14 Orig Dwgs (Und Sep Cov)
 - ME-600-02-1 Opr Bldg. 24 Feb 53
 - ME-600-02-1A Small Opr Bldg, 21 Mar 53
 - ME-600-02-3 BOQ Types V & VII 26 Feb 53
 - ME-600-02-3A BOQ Type VI 27 Feb 53
 - ME-600-02-4 Barracks 2 Mar 53
 - ME-600-02-5 Rec. Trng & Disp. 25 Feb 53
 - ME-600-02-6 Admin 2 Mar 53
 - ME-600-02-7 Tech Supply 3 Mar 53
 - ME-600-02-8 Gen Supply 21 Mar 53
 - ME-600-02-9 Mess 13 Aug 51
 - ME-600-02-10 Tr & Rec Bldg 21 Mar 53
 - ME-600-02-11 Typ Site Layout Typ V 22 Mar 53
 - ME-600-02-12 Typ Site Layout Typ VI 22 Mar 53
 - ME-600-02-13 Typ Site Layout Typ VII 22 Mar 53
2. Bldg Requirements for "M" Sites
3. Add "M" Site Design Criteria

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AIR FORCE COMMAND
MT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

24 March 1953

MILITARY REQUIREMENTS FOR THE SITES					
STA. NO.	LOCATION	TYPE SITE (REV Feb 53)	NUMBER 20'x48' BEDS REQUIRED	NUMBER 40'x100' BEDS REQUIRED	NO-GAS STORAGE & PUMP REQUIRED
<u>NORTH PACIFIC DIVISION</u>					
98	Miles City, Montana	VI	23	2	Yes
100	Mt Echo, Oregon	VI	23	2	Yes
	Hampton, Oregon	V	19 (A)	2	Yes
	TOTAL		65	6	
<u>MISSOURI RIVER DIVISION</u>					
97	Rapid City AFB, S. D.	VI	1	0	---
99	Gettysburg, S. D.	VI	23	2	Yes
101	Rochester, Minn.	V	19 (B)	1	Yes
122	Gallatin Center, Iowa	VI	23	2	Yes
	TOTAL		66	5	
<u>SOUTHWESTERN DIVISION</u>					
88	Amarillo AFB, Texas	V	4 (A)	1	---
89	Abilene, Texas	V	19 (A)	2	Yes
90	Walker AFB, N. Mex.	VI	23	2	---
91	Toxarkana, Ark.	VI	23	2	Yes
94	Kirtland AFB, N. Mex.	VI	23	2	---
	Las Cruces, N. Mex.	VII	30	2	Yes
	Alexandria, La.	VI	23	2	Yes
126	Houma NAS, La.	VI	4	1	---
	TOTAL		149	14	
<u>SOUTH ATLANTIC DIVISION</u>					
87	Dobbins AFB, Ga.	IV	---	---	---
112	Savannah, Ga.	VI	15	2	---
113	Charleston AFB, S. C.	VI	1	1	---
114	Fort Meade, Fla.	V	10	2	Yes
115	Ft. Fisher, N. C.	VII	1	1	Yes
116	Englehart, N. C.	VII	30	2	Yes
117	Beaufort, N. C.	VI	23	2	Yes

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AIR DEFENSE COMMAND WEST AIR FORCE BASE COLORADO SPRINGS, COLORADO					
BUILDING REQUIREMENTS FOR "M" SITES (CONTD)					
STA. NO.	LOCATION	TYPE SITE (REV FEB 53)	NUMBER 20'X48' BLDGs REQUIRED	NUMBER 40'X100' BLDGs REQUIRED	MO-GAS STORAGE & PUMP REQUIRED
<u>SOUTH ATLANTIC DIV (CONTD)</u>					
124	Aberdeen, N.C.	VI	23	2	---
129	McDill AFB, Fla.	VI	4	1	---
130	Winston Salem, N.C.	VI	23	2	Yes
TOTAL			130	15	
<u>SOUTH PACIFIC DIVISION</u>					
92	Davis-Monthan AFB, Ariz.	VI	2	1	---
93	Winslow, Ariz.	V	18	2	Yes
96	Luke AFB, Ariz.	VI	2	1	---
123	Ft. Bidwell, Calif.	V	18	2	Yes
127	Susannahville, Calif.	V	19 (A)	2	Yes
128	Kingman, Ariz.	VI	1	1	---
TOTAL			60	9	
<u>GREAT LAKES DIVISION</u>					
102	Trenton, Ontario	V	19 (B)	2	Yes
104	Warton, Ontario	V	19 (B)	2	Yes
105	Alpena, Michigan	V	5 (B)	0	Yes
106	Two Creeks, Wisc.	V	19 (B)	1	Yes
107	Sultan, Ontario	VII	30	3	Yes
108	Mattawa, Ontario	VII	30	3	Yes
109	Grand Marais, Mich.	V	19 (B)	1	Yes
111	Camp Williams, Wisc.	V	19 (B)	1	Yes
119	Fire River, Ontario	VII	30	3	Yes
120	Peninsula, Ontario	VII	30	3	Yes
TOTAL			220 *	17 **	
<u>NEW ENGLAND DIVISION</u>					
103	Groveton, N. H.	VI	23	2	Yes
130	Cornet, Maine	V	12 (B)	1	Yes
TOTAL			35	3	

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BUILDING REQUIREMENTS FOR "M" SITES (CONTD)

STA. NO.	LOCATION	TYPE SITE (REV FEB 53)	NUMBER 20'x48' BLDGs REQUIRED	NUMBER 40'x100' BLDGs REQUIRED	NO-GAS STORAGE & PUMP REQUIRED
<u>NORTH ATLANTIC DIV</u>					
121	Bedford, Va.	VI	23	2	Yes
	TOTAL		23	2	
<u>OHIO RIVER DIVISION</u>					
131	Owingsville, Ky.	V	19 (A)	2	Yes
	TOTAL		19	2	
	GRAND TOTAL		77* *	75 **	

(A) Includes 20'x48' Trans & Rec Bldg

(B) " 20'x48' Operations Bldg.

* Includes 158 units for Canadian Sites - Total required for U.S. = 616 units. PX eliminated on all sites.

** Includes 16 units for Canadian Sites - Total required for U. S. = 59 units

REVISED SCHEDULE OF PREFABRICATED BUILDINGS REQUIRED FOR
SITES LOCATED IN U.S.

STRUCTURE	TYPE V		TYPE VI		TYPE VII		STRENGTHS		
	20'x48'	40'x100'	20'x48'	40'x100'	20'x48'	40'x100'	Type	Officers	Airmen
1. Operations Bldg.	1	1	1	1	1	1	V	6	77
2. Power Bldg	1		1		1		VI	12	109
3. BOQ	2a		3b		4c		VII	16	179
4. Bks	9d		12e		18f				
5. Rec & Ing & Disp Bldg	2a		2a		2a				
6. Admin Bldg	1		1		1				
7. Tech Supply Bldg	2a		2a		2a				
8. Gen Sup Bldg	1		1		1				
9. Trans & Rec Bldg	0		1		1				
10. Mess Bldg		1		1		1			
TOTAL	18	2	21	2	30	2			
a. 2 Bldgs 20'x48' contained into bldg (1) 20'x48' b. 12 Bldgs 20'x48' contained into 4 Bldgs 20'x104' c. 3 Bldgs 20'x48' " 1 Bldg 20'x104' d. 18 Bldgs 20'x48' " 6 Bldgs 20'x104' e. 4 Bldgs 20'x48' " 2 Bldgs 20'x104' f. 9 Bldgs 20'x48' " 3 Bldgs 20'x104'									

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26 March 1953

ADDITIONAL "M" SITE DESIGN CRITERIA

1. "Basic Engineering Data for Semi-fixed but Movable 'M' Sites" as prepared by Chief of Engineers, 21 August 1952, should be revised to incorporate the following:

a. General - Paragraph 1-a- The acreage for the camp and operations area should be approximately as indicated on drawings ME-600-02-11, 12 and 13 dated 22 March 1953, actual size for the individual sites will depend on terrain, technical and real estate considerations.

b. Structure - Change paragraphs 2b and c to read "There are presently available through Air Force supply channels 321 Steelcraft 20'x48' prefabricated buildings. These buildings will be allocated to the SWD, SAD, ORD and NAD for construction of all sites in their respective areas. Design data on additional 20'x48' prefabricated buildings required for completion of the "M" site program will be furnished upon accomplishment of procurement action presently underway. All 40'x100' prefabricated buildings furnished in connection with this program will be C-1, Butler, Rigid Frame.

c. Site Layouts - Paragraph 3a - Revise in accordance with drawings ME-600-02-11, 12 and 13 typical site layouts for types V, VI and VII, dated 22 March 1953.

d. Schedule of Prefabricated Structures - Paragraph 4a to n - Revise in accordance with fourteen (14) drawings listed as Inclosure 1. Delete note at end of sub-paragraph 4n.

e. Dust and Erosion Control - Paragraph 6 - Add: Restrict the removal of trees and natural vegetation to those areas that are affected by the construction of buildings, roads, parking areas, antenna farms, and other structures, and in instances where vegetation will interfere with the operation of electronic equipment.

Carefully preserve the topsoil where excavation and grading is required.

All disturbed or denuded areas shall be planted, sprigged or sodded with adaptable grasses or other approved vegetative cover.

Drainage structures such as berms, diversion ditches, lined downslope flumes, baffles, stilling basins and other type structures should be installed to protect erodible slopes.

Grade road shoulders, backslopes and ditch banks to a minimum gradient of 3 to 1 where the soil structure will permit.

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ADDITIONAL "M" SITE DESIGN CRITERIA (Contd)

Make provision for retaining walls or other approved structures where bank erosion cannot be controlled vegetatively or when it is determined that stability is essential for the protection of Government property.

f. Major Outside Utilities and Service Connections - Paragraph 10b (2) (b) - Add: Hose racks will be installed in BOQ's, Airmen's Dormitories and Mess Buildings.

Paragraph 10b (4) - Change first sentence to read "Gasoline Storage and Dispensing system will be provided for specific sites". (See Inclosure 2 for list of sites where required)

Paragraph 10b (5)(a) - Change first sentence to read "With the exception of the Operations and Mess, all other buildings will be designed and so insulated that they can be satisfactorily heated by oil fired space heaters".

Paragraph 10b (5)(c) - Revise entire paragraph to read "The Operations Building will be centrally heated and air conditioned to maintain a temperature of 80° F.D.B. with 50% R.H. for summer operations and 70° F.D.B. with 50% R.H. for winter operations".

Paragraph 10b (5)(d) - Revise entire paragraph to read "Mess Halls will be centrally heated and cooking equipment will be provided with steam at a pressure of 40 pounds per square inch. Kitchen will be mechanically ventilated through hoods over the cooking equipment and dish washer. The fuel for cooking will be oil, gas or electricity, depending on which is available and most economical".

Paragraph 6b (5)(e) - Boiler plants for the Operations and Mess Hall Buildings will be completely packaged units, either steam or hot water with all controls installed, prefabricated fire boxes and burners complete with controls. Water softeners to be included in contract where necessary. Insure adequate ventilation for boiler or heater rooms.

g. Electrical - Paragraph 10b (6)(a) - Change fourth sentence to read "One duplex receptacle will be provided for each two (2) beds in the Airmen's Barracks and one (1) for each bed in the BOQs". Add - Lighting fixtures for the technical supply building will be in accordance with requirements outlined on DWG ME-600-02-7, 3 March 1953.

Paragraph 10b (6)(b) - Insert after first sentence "In areas subject to high wind velocities and heavy icing conditions Class "B" (medium and/or heavy loading) type pole lines will be utilized. In this type area economy and safety will be particularly considered in selecting interlocking high voltage transfer switches. In order to decrease switching time this switch will be located as near as practicable to the power building".

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ADDITIONAL "M" SITE DESIGN CRITERIA (Contd)

Delete sentences 4 and 5 and add "The two bus system will be used for separating the technical and camp power loads. Necessary switch gear will be included in the construction contract to permit all generators to furnish power for either of these separate loads. Items necessary to facilitate the installation of TO&E generators and the technical power distribution system will be included in the construction contract".

Paragraph 10b (6)(c) - Delete last two sentences of this paragraph.

Paragraph 10b (6)(d) and (e) - Delete and insert "The TO&E generators furnished with the radar equipment will be as follows:

- 2 - 100 KW Stewart-Stevenson with each MPS-7 radar set
- 2 - 60 KW Stewart - Stevenson with each MPS-11 or FPS-8 radar set
- 2 - 30 KW and 2 $7\frac{1}{2}$ KW (400 cycle) generators will be furnished where TPS-1D and TPS-1OD radar and height finder sets are to be used
- 2 - $7\frac{1}{2}$ KW (400 cycle) generators will be furnished where a TPS-1D radar set only will be used.

Paragraph 10b (6)(g) - Delete

h. Summary - Delete - See Inclosure 2.

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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ADMIS-2 600.1

2 April 1953

SUBJECT: (Uncl) Revised Mobile Radar Construction and Siting Criteria

TO: Commanding General (Identical Ltr sent to all ADFs)
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

1. Reference is made to letter ADMIS 600.1, this headquarters to Headquarters USAF, 11 March 1953, subject as above, copy of which, with Inclosure 1 thereto, was furnished to your headquarters. This correspondence was supplemented by a further letter of 21 March to Headquarters USAF, file and subject as above. As a result of additional analysis by this headquarters and Headquarters USAF, the plans, engineering criteria and prefabricated structure requirements have been revised, finalized, and dispatched to OCE for the necessary implementing actions. Copies of the classified implementing correspondence from Headquarters USAF to OCE, letter AFOAI-CS, 27 March 1953, "(Uncl) Construction Requirements for 'M' Sites in Zone of Interior", with classified Inclosure 2 and restricted Inclosure 3 thereto, are furnished as Inclosure 1 hereto, for your information and guidance. Inclosure 1 to referenced correspondence, comprising sepia reproductions of 14 drawings, is being forwarded under separate cover.

2. Headquarters USAF advised that copies of the classified correspondence of 27 March (except Inclosure 1 thereto) would be furnished by that headquarters to each AFIR. The plans comprising Inclosure 1 thereto will be furnished to each AFIR by the pertinent Division Engineer; however, if the AFIR experiences delay in obtaining the plans from the Division Engineer, you are authorized to furnish a set of prints to the AFIR, on request.

3. By separate classified correspondence ADOCE-E 676.3, this headquarters, (now being prepared), "Criteria for Installation of Communications - Electronics Equipment for First Phase Mobile Sites", criteria governing the siting of towers, antennae, and operations facilities are outlined. Attention is also directed to the criteria outlined on the revised typical site layouts for Types V, VI, and VII sites. These criteria, in deleting the necessity for separate transmitter and receiver sites, indicate now that the combined radio receiver and transmitter facilities are to be accommodated on-site, or immediately adjacent thereto on a small cleared plot of ground, as opposed to the original requirement for large separate areas for transmitter and receiver facilities. In view of this, and other changes in siting criteria and layout, it is desired that your headquarters initiate the following actions at the earliest possible date:

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ADMIS-2 600.1, Subject: (Uncl) Revised Mobile Radar Construction and Siting Criteria (Cont'd)

a. Analyze each approved construction site layout which, to date, has been approved by your headquarters and the AFIR, and determine whether any changes are necessary therein as a result either of the inclosures furnished herewith, or the data contained in the correspondence from the Directorate of Communications, this headquarters, cited above. This headquarters and the AFIR will then be immediately advised regarding those approved plans which require revision, and will be furnished copies of the revised approved plans.

b. Concurrently, this headquarters and the AFIRs will also be advised as to the extent to which any revisions are required in Real Estate Planning Reports for Mobile Radar Sites, which are either in process of preparation or which have been forwarded for initiation of acquisition action.

c. Reference is made to procedures outlined in paragraph 14, Inclosure 1. It is desired that your headquarters assure prompt receipt by this headquarters of copies of approved construction site plans and related control estimates which are forwarded to Headquarters USAF by the AFIRs.

4. There is also furnished for your information, guidance and compliance, in revising unresolved siting actions or in the preparation of Mobile Radar Siting Reports yet to be submitted, a copy of letter AFOAI-CS, Headquarters USAF, 23 March 1953, "Land Requirements for the Mobile AC&W Program" (Inclosure 2). The principles outlined therein will be carefully considered in all matters involving the selection of sites and the acquisition of land.

5. Attention is invited to the information contained in paragraph 11 of Inclosure 1, which indicates that the Steelcraft prefabricated units now in Memphis depot stocks will be allocated for use for those sites in the South Atlantic Division, Southwestern Division, Ohio River Division and North Atlantic Division areas.

6. Inasmuch as the Mobile Radar Program as outlined to OCE in the inclosed correspondence represents the result of a complete re-evaluation of all phases of the First Phase Mobile Radar Program of this command, and since it is imperative that these facilities be constructed and equipped at the earliest possible date, it is desired that you maintain close and effective liaison with the respective AFIRs and AMAs in discharging your assigned responsibilities for new construction.

7. When Inclosure 1 and Inclosures 2 and 3 thereto are withdrawn or are not attached, the classification of this correspondence is cancelled, in accordance with the provisions of AFR 205-1.

BY COMMAND OF GENERAL CHIDLAW:

ROBERT E. L. KNAFF
Colonel, USAF
Deputy, Director of Installations

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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ADOCE-E 413.44

2 April 1953

SUBJECT: (Unclassified) Criteria for Installation of Communications-
Electronics Equipment for First Phase Mobile Sites

TO: Commanding General
Air Defense Force
Attn: Director of Communications-Electronics

1. References:

a. Letter this headquarters, file ADOCE-E 676.3, subject:
"(Restricted) Site Surveys, Revised Mobile Radar Plan," dated 28 March
1952.

b. Letter this headquarters, file ADMIS 600.1, subject:
"(Unclassified) Mobile Radar ('M') Program in ZI," dated 27 June 1952.

c. Letter this headquarters, file ADOCE-E 676.3, subject:
"(Restricted) Site Surveys, Revised Mobile Radar Program," dated 10
July 1952.

d. Letter this headquarters, ADMIS 600.1, subject: "Unclassi-
fied) Revisions to Layout Plan, Mobile Radar Sites," dated 17 July 1952.

2. Conferences with several agencies concerned with the installa-
tion of First Phase Mobile AC&W stations and the completion of the study
conducted by this headquarters on the functions of AC&W facilities have
resulted in several changes in the criteria for the installation of
communications-electronics equipment for First Phase Mobile sites.
Therefore, criteria outlined in correspondence referenced in paragraph 1
above will be revised to reflect the information contained in this letter.
By separate correspondence now being prepared (ADMIS 2-600.1, "Revised
Mobile Radar Construction and Siting Criteria"), the air defense forces
will be given a complete set of definitive mobile radar drawings as sent
by Headquarters USAF to OCE and a copy of the pertinent engineering and
construction criteria. This correspondence will also direct the air
defense forces to analyze construction site plans prepared and submitted
to date and to initiate appropriate revisions thereto in consonance with
the revised construction and siting criteria.

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Hq ADC, ADOCE-E 413.44, Subject: (Unclassified) Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites (Contd)

3. A chart giving general information on First Phase Mobile stations is inclosed for your information (Inclosure 1). The geographic locations indicated on this chart for individual stations will be reflected in all future correspondence concerning the First Phase Mobile Program.

4. Revised typical layout drawings for Type V, VI and VII stations, for large and small operations buildings, and the transmitter-receiver building are also inclosed for your information (Inclosures 2 through 7). These are duplicates of similar drawings inclosed with correspondence cited in paragraph 2 above. The 40' x 100' operations building will be used at all Direction Centers and at all Surveillance Stations except those which perform a gap-filling function and are equipped with AN/TPS-1D equipments. Surveillance Stations which perform only a gap-filling function and are equipped with AN/TPS-1D equipments will be provided with the 20' x 48' operations building. These stations (M-101, 102, 104, 105, 106, 109, 110, 111 and 131) will utilize direct reporting to adjacent Direction Centers, and no display of data will be required at the station.

5. Radar equipment planned for the First Phase Mobile stations is indicated in Inclosure 8. Plans will be made to accommodate all of the equipment indicated, although equipment marked by an asterisk is not currently programmed for this command.

a. Data on the AN/TPS-1D is contained in Bureau of Ships publication, "Preliminary Instruction Book for Radar Set AN/TPS-1D," NAVSHIPS 91579. Twelve-inch PPI consoles will be provided with AN/TPS-1D equipment in the numbers indicated in Inclosure 1 as they become available. All components will be installed in the maintenance room with the exception of the 12-inch PPI's and the antenna and antenna base, AB-221, which will be mounted on a wooden tower located as indicated in paragraph 6b below.

b. Data on the AN/TPS-10D is contained in TO 16-30 TPG10-10, "Radar Set AN/TPS-10D, AN/FPS-4 and AN/MPS-8." All components will be mounted on the pedestal or the "equipment elevation" with the exception of the control indicator, C-840, the interference blanker, MX-1166, and the indicator group, OA-268; these units can be located in the operations building. A mounting ring, Pedestal Mounting, MT-981, will be provided with each AN/TPS-10D (or AN/MPS-8 when provided in place of the AN/TPS-10D). This ring will permit the mounting of the antenna pedestal on a tower when a tower is necessary to obtain the necessary clearance

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over surrounding buildings. Details of the mounting ring (Inclosure 9) and engineering information on the AN/MPS-8, including a drawing of the AN/MPS-8 trailer, are attached for your information (Inclosure 10).

c. No publications are currently available on the AN/MPS-7, the AN/MPS-14, or the AN/FPS-8 and AN/MPS-11.

- (1) With the exception of the mounting, the AN/MPS-7 will be essentially the same as the AN/FPS-3. Engineering information and drawings of the antenna assembly, pedestal and the antenna trailer for the AN/MPS-7 are inclosed (Inclosures 11 through 21). A mounting ring will be provided with each AN/MPS-7 which will permit the mounting of the antenna pedestal on a tower when a tower is necessary to obtain the necessary clearance over surrounding buildings.
- (2) Engineering information on the AN/MPS-11 and drawings of the AN/FPS-8 pedestal assembly are inclosed (Inclosures 22 through 25).
- (3) Engineering information on the AN/MPS-14 and drawings of the antenna and pedestal assembly are inclosed (Inclosures 26 through 32).

6. Design and construction directives and criteria to be issued by Headquarters USAF to OCE will direct that, where required, an equipment elevation will be provided by the most economical method, consonant with operational requirements, at each site; trailer mounting, earth mound, wooden cribbing, towers, or any other suitable method of elevating the equipment to the necessary height may be utilized. Equipment elevation will be limited to that necessary to provide 5' vertical clearance between the bottom of the antenna reflector and the top of the operations building and/or other buildings in the immediate vicinity and to overcome mutual interference and interaction between search and height equipment. Both primary and emergency equipment will be elevated as required.

a. This headquarters is investigating the possibility of the Corps of Engineers providing the standard 25' steel towers being procured for the AN/FPS-3 and AN/FPS-6 for use with the AN/MPS-7 and AN/MPS-14 equipments. It should be noted that a 25' tower will be provided with the AN/MPS-11 (See Inclosure 22).

b. The location of equipment and amount of elevation required for each site will be determined by the ADF and the AMA involved. The tower for the AN/TPS-1D equipment will be located immediately adjacent

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to the operations building so that the cable lengths required from the antenna base, AB-221, to the AN/TPS-1D components in the maintenance room will be less than 90'. Other equipment elevations will be located so as to provide the necessary separation between radar sets as indicated in paragraph 7 below; however, if possible, all equipment elevations will be located so that cable lengths from the tower to the equipment in the maintenance room and/or operations room will not exceed the following:

AN/MPS-7	240'	AN/MPS-14	350'
AN/FPS-8)	300'	AN/MPS-8)	350'
AN/MPS-11)		AN/TPS-10D)	

7. Complete information on the necessary minimum and maximum separation between radar equipment to be utilized for the First Phase Mobile Program has not been received to date from Rome Air Development Center. Information presently available is inclosed (Inclosures 33 and 34). It is recommended that, if possible, AN/TPS-1D and AN/TPS-10D equipment be separated by at least 100' and that the AN/MPS-7 and the AN/TPS-10D be separated by at least 150'. No data is available regarding the separation between AN/MPS-14 or AN/FPS-8 and AN/MPS-11 equipment and the remaining radar equipment.

8. All UHF/VHF transmitters and receivers will normally be installed in the same building (20' x 48' transmitter-receiver building), thereby eliminating the requirement for separate transmitter and receiver buildings. This building will be located on the main site and sited in accordance with the criteria contained in paragraph 11, and as indicated on Typical Layout Plans of Type V, VI and VII Sites, inclosed herewith. In special cases, where an M-site is to be located on an Air Base, it may be more economical to use existing buildings for a separate receiver and transmitter site. If authorization from the command concerned can be secured, complete details indicating facilities that are available such as power, cable pairs, buildings, land, etc., will be forwarded to this headquarters. In most cases of this nature, separate antennas, cable, etc., will have to be procured from Headquarters USAF.

a. All ground/air equipment (UHF/VHF) will be installed in the transmitter-receiver building.

b. AN/GRC-26 HF point-to-point radio equipment has been programmed for each site. Equipment will remain in the shelter in which it comes installed. The shelter will be mounted on a concrete slab located in the HF antenna farm, as indicated on typical layout plans. Although AN/GRC-26 equipment has been programmed for each M-site, AN/TRC equipment will be acceptable if the present policy regarding

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utilization of this equipment is adhered to.

c. A 1 KW amplifier (OA-105/GR) will be installed in the transmitter-receiver building. The spare GRC-27 will be used to drive this amplifier.

9. Four of the First Phase Mobile surveillance stations (M-88, 89, 118 and 127) will be provided with sufficient ground/air equipment to operate two UHF channels (GCI common and emergency) and two VHF channels (GCI common and emergency). No other Surveillance Station will have ground/air capability. Surveillance Stations which do not have air/ground capability will not require the transmitter-receiver building.

10. At Direction Centers, tactical ground/air channels will be provided based upon the number of control positions. Equipment will be allocated on a basis of one multi-channel set per control position plus 25% spares. Equipment allocation for common channel frequencies will be three single channel sets for each Direction Center plus one spare. Equipment to be installed at each site is shown on Inclosure 35.

11. The following criteria, which amplify and supplement the criteria for structural locations indicated on typical site layouts, have been established for the location of all radio facilities:

a. No radar tower and/or operations building will be located less than 300' from the radio antennas and/or transmitter-receiver building.

b. No structure housing brush-type electric motors will be located less than 150' from the receiver antennas and/or the transmitter-receiver building.

c. All UHF/VHF antenna masts will be a minimum of 15' from all sides of the transmitter-receiver building. The building will be located in a manner so as to allow a minimum of 90' separation between receiver antennas and transmitter antennas in the event that it becomes necessary to mount the receiver antennas apart from the transmitter antennas. Rome Air Force Depot is planning to mount these antennas (receiver and transmitter) on one mast by using the two cross-arms. Vertical separation of approximately 10' is to be provided, which, according to RAFFD, will be adequate and will allow a minimum of interference. However, as stated, sufficient space around the transmitter-receiver building will be allowed in case it becomes necessary to provide additional spacing.

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d. The UHF/VHF antennas will be sited so as to provide line-of-sight coverage comparable to the radar.

e. A cleared area not less than 200' x 200' with perimeter a minimum of 150' from the UHF/VHF antennas and/or ground/air communications building will be provided for HF antenna installations. The concrete slab on which the shelter containing the HF equipment will be placed, will be located approximately in the center of the HF antenna farm.

12. The following information is furnished relative to wire communications:

a. Government-owned internal telephone equipment type GTA-6 will be installed at all Direction Centers and those Surveillance Stations (M-88, 89, 93, 114, 118, 123 and 127) having a plotting capability. Those Surveillance Stations employing direct scope telling will be equipped with either hang-up hand sets or 101A type sets for terminating hot lines.

b. Communications circuits will be leased from telephone companies. In this respect, it has been recommended to Rome Air Force Depot that arrangements be made for the telephone companies to terminate their circuits at the site main frame (located in Operations Buildings) instead of at the site boundary as is the case in the "P" Program. All circuitry will be considered tactical.

c. Intra-base cable and telephone systems, other than cited in b above, will be government owned. An exception to this rule will be in those cases where the site is located on an air base which leases the base telephone system from the telephone company.

d. At those Surveillance Centers where GTA-6 equipment will not be installed, intra-site telephone service will be supplied by the installation of a small switch board similar to type 506B or an inter-communication system.

e. The site switchboard will be installed in the teletype room (Operations Building) so that, during slack periods, one man can operate both the teletype and switchboard.

13. Power equipment to be provided for the technical load (communications and electronics) will be as indicated in Inclosure 36. In the majority of cases, power for the entire technical load will be available from one of the two power units provided with the primary search radar. Normal operation will be to utilize commercial power when available and when the regulation is satisfactory. The power

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units provided with the basic search radar equipment will therefore normally be used as backup.

a. Power equipment to be provided with radar equipment will be as follows:

AN/MPS-7	Two 100 KW units
AN/FPS-8) AN/MPS-11)	Two 60 KW units
AN/TPS-1D	Two PU-254 units (7.5 KW) and one converter (60 cycle to 400 cycle)
AN/MPS-14	Unknown
AN/TPS-10D	One converter (60 cycle to 400 cycle)
AN/TPS-1D) and) AN/TPS-10D)	Two 30 KW units and two converters

b. Technical power and camp power will be fed to separate bases, with provisions for switching between these bus bars.

c. At least one 100 KW unit will be provided to each site to provide for camp power.

14. Rome Air Force Depot will design standard layouts for the communications and electronics installations at the various type sites in the First Phase Mobile Program. This information will be available through appropriate AMA's as soon as it is finalized.

BY COMMAND OF GENERAL CHIDLAW:

36 Incls
As Listed on
Attached Sheet

/s/ THOMAS C. SAVAGE
Major, USAF
Ass't Adj Gen

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HEADQUARTERS
ROME AIR DEVELOPMENT CENTER
Griffiss Air Force Base
Rome, New York

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4 Feb 1953

SUBJECT: (UNCLASSIFIED) Evaluation of the Radar Mutual Interference Problem

TO: Commanding General
Air Defense Command
ATTN: ADOCE
Ent Air Force Base
Colorado Springs, Colorado

1. Reference is made to the following:

a. Your teletype ADOCE-E-59849 requesting the status of the subject evaluation.

b. A telephone conversation between Col. Burge, of your Command and Mr. A. J. Frohlich, of this Center on 20 January 1953.

2. The following minimum separations are recommended based on the test data achieved to date:

a. AN/TPS-1D and AN/FPS-4 (AN/MPS-8, AN/TPS-10D) - 50 feet. As indicated in our letter to your Command, dated 22 September 1952, subject: (Unclassified) Separation of Radar Equipment, this Center does not have an AN/TPS-10D available for test. This equipment is expected to be received at this Center by 1 March 1953. In all of our tests, we have utilized an AN/TPS-10A radar. This radar has the same antenna as the AN/TPS-10D, however, the RF system provides 40 KW peak power as compared with 250 KW peak on the AN/TPS-10D. Our test results indicate that AN/TPS-1D antenna acts as a "sieve" in the presence of "X" band radiation from the AN/TPS-10A. That is the radiated power of the AN/TPS-10A goes through the AN/TPS-1D antenna.

b. AN/FPS-3 (AN/MPS-7) and AN/FPS-4 (AN/MPS-8, AN/TPS-10D) - 75 feet. Actual tests on these two systems have not as yet been performed. The 75 foot minimum separation recommended, is based on the data detailed in paragraph 2a above and the similarities in the antenna mesh of the AN/TPS-1D and AN/FPS-3. It would be preferable to wait until the actual tests against the two systems are made. The 75 foot minimum separation figure is submitted in view of your urgent requirement for information and must be considered as an engineering estimate only.

3. The data achieved to date indicates that the AN/FPS-3 and AN/FPS-6 combination will apparently present a serious problem. In our test setup, the two radars are separated 150 feet. We have found, for example, that serious crystal deterioration occurs to the AN/FPS-3 when

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Hq RADC RCRDELA 161-17 Subj: (Uncl) Eval of the Radar Mutual Inter Prob

the AN/FPS-6 is fired directly at the former radar. This has been true even in cases where the power output of the AN/FPS-6 is at a comparatively low level (approximately 2.5 megawatts) and the time of incidence of the two radars is in the order of seconds. Tests are still in progress.

4. No information can be forwarded regarding combinations using the AN/FPS-8. Work still remains to be done on this antenna.

5. Reference our letter to your Command dated 22 September 1952, subject: (Unclassified) Separation of Radar Equipment. Paragraph 7 of this letter recommended that a production requirement be established immediately for special "MTI Interference Blankers" for use on the AN/TPS-1B, AN/GPS-6B and AN/MPS-10. No such requirement has as yet reached this Center.

6. The following is a summary of data received from the Bureau of Ships and the RCAF concerning the siting of radars and is forwarded for your information. Basically, the interference problem of these activities are solved by "stacking" the radars in elevation.

a. The Navy stacks the shipborne radars on the masts of the ships. The antennae are so spaced in elevation that one never looks directly at another. The deck mounted fire-control radars are so located with respect to the antennae mounted on the masts that the angle of radiation incidence is extremely acute. Bureau of Ships personnel have no record of mutual interference between radars.

b. The RCAF siting problems are similar to our own. Their approach to the interference problem is similar to that of the Navy in that the stacking principle is used. All towers are to be of equal height, however, the terrain is utilized to achieve differences in elevation. The primary search set is to be sited at the highest elevation and is thus guaranteed complete, unobstructed, 360 degree coverage. The three other radars are to be sited at various lower elevations such that no one antenna looks directly at another. All adjacent towers are considered as opaque objects through which no radiation is possible. Other sites are planned to cover the blind spots thus hypothetically created.

FOR THE COMMANDING GENERAL:

/s/ W. S. HEAVNER
Colonel, USAF
Deputy for R&D

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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ADOCE-E 676.3

22 May 1953

SUBJECT: (Unclassified) Evaluation of Radar Mutual Interference Problem

TO: Commanding General
Rome Air Development Center
Griffiss Air Force Base
Rome, New York

1. Reference is made to your letter, File RCRDELA 156-17, subject as above dated 1 April 1953.
2. Request this headquarters be advised as to expected completion date of the final test phase mentioned in Paragraph 3 of above referenced correspondence.

FOR THE COMMANDING GENERAL:

/s/ RECTOR C. DACUS
Captain, USAF
Asst Adj Gen

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Hq ADC ADOCE-E Subject: Evaluation of Radar Mutual Interference Problem

RCRDELA (22 May 53)

1st Ind

6 July 1953

Hq ROME AIR DEVELOPMENT CENTER, Griffiss Air Force Base, Rome, New York

TO: Commander, Air Defense Command, Ent Air Force Base, Colorado Springs,
Colorado

1. Tests recently completed verify the data previously forwarded to your Command in the letter referenced in paragraph 1 of the basic letter.

2. This Center recommends that separation between the AN/FPS-6 and AN/FPS-3 be limited to not less than 150 feet. No difficulty will be experienced by either radar provided:

a. The two radars are synchronized. As previously indicated, both systems have the facilities to permit synchronization.

b. Duplexer CU-315/FPS-3 is used in the AN/FPS-3. This duplexer is available in all late model AN/FPS-3 radars (approximately the last 40 off the production line) which are equipped with transmitter Groups OA-393/FPS-3. Retrofit kits for the remaining radars should be coming off the production line in the near future.

c. Interference blankers are employed. All sets (both AN/FPS-6 and AN/FPS-3) are equipped with interference blankers.

3. It will be noted that the use of a septum in the AN/FPS-3 waveguide had originally been considered. The test data subsequently achieved indicates that this will not be required. This Center, however, plans to complete the design work on the septum for emergency situations.

FOR THE COMMANDER:

/s/ W. S. HEAVNER
Colonel, USAF
Deputy for R&D

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ADOCE-E 413.44

15 Jul 1953

SUBJECT: (Unclassified) Separation Criteria for AN/MPS-7 and AN/MPS-14 Radars

TO: Commander
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

1. Reference: paragraph 7, letter this headquarters, file ADOCE-E 413.44, subject: "(Unclassified) Criteria for Installation of Communications-Electronics Equipment for 1st Phase Mobile Sites," dated 2 April 1953.

2. The following radar separation information has been developed by the Rome Air Development Center for AN/MPS-7 (AN/FPS-3) and AN/MPS-14 (AN/FPS-6) radar equipments:

a. The RADC recommends that separation between the AN/MPS-7 and AN/MPS-14 be limited to not less than 150 feet. No difficulty will be experienced provided that:

- (1) The two radars are synchronized. Both radars have the facilities to permit this synchronization.
- (2) Duplexer CU-315/FPS-3 is used in the AN/MPS-7. This duplexer is available in all the later models of AN/FPS-3 radars (approximately the last 40 off the production line) which are equipped with transmitter groups OA-398/FPS-3. Retrofit kits for the remaining radars will be produced in the near future.
- (3) Interference blankers are employed. Both AN/MPS-7 (AN/FPS-3) and AN/MPS-14 (AN/FPS-6) radars are equipped with interference blankers.

3. The use of a septum in the AN/FPS-3 waveguide has been considered by RADC; however, the test data revealed that this modification was not necessary. RADC plans to complete the design work on the septum for emergency situations.

IDENTICAL LETTERS TO COMR, MADE, AND COMR, CADE

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Hq ADC ADOCE-E 413.44, Subject: (Uncl) Separation Criteria for AN/MPS-7 and AN/MPS-14 Radars (Contd)

4. Results of RADC tests on separation criteria for AN/MPS-11 and combinations with AN/MPS-14, AN/TPS-1D and AN/TPS-10D will be forwarded when received.

BY ORDER OF THE COMMANDER:

THOMAS C. SAVAGE
Major, USAF
Asst Command Adj

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SECRETHEADQUARTERS
ROME AIR DEVELOPMENT CENTER
Griffiss Air Force Base
Rome, New York

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14 Aug 1953

SUBJECT: (UNCLASSIFIED) Separation of Radar Equipment

TO: Commander
Air Defense Command
ATTN: ADOCE
Ent Air Force Base
Colorado Springs, Colorado

1. Reference is made to the following:

- a. A teletype ADOCE-E-14553 from your Headquarters to this Center.
- b. A teletype ADOCE-E-18673 from your Headquarters to this Center.

2. In response to references 1a and 1b above, this Center has recently concluded tests between Radar Sets AN/CPS-6B and Radar Sets AN/FPS-4. The results are as follows:

- a. The two equipments may be separated by a minimum of 140 feet without suffering any crystal deterioration.
- b. The tests were conducted using an AN/CPS-6B equipped with a radome, since information available at this Center indicates that all of these radars have radomes.
- c. Laboratory data achieved prior to the field tests indicated that a possibility of trouble existed when the AN/FPS-4 and AN/CPS-6B were sited with relatively close separations (within approximately 250 ft.). The field test results (see par. 2a above) seemed to indicate that the radome is instrumental in reducing the amount of received "X" band power at the AN/CPS-6B. This will be discussed below.

3. Tests have been conducted at this Center within the last several weeks, in connection with another program, to determine the amount of absorption of vertically polarized "X" band radiation by radome material. These tests are as yet incomplete; however, preliminary data indicates the following:

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Hq RADC RCRDELA 166-17 Subj: (Uncl) Separation of Radar Equipment

- a. Approximately 10% of the total radiated "X" energy is attenuated by a single thickness of dry radome material.
- b. The percentage of absorption is expected to increase with increasing moisture content of the radome material.
- c. The percentage of absorption is also expected to increase with the addition of protective radome paint.
4. The above data indicates that, with the AN/FPS-4 sited 150 feet from an AN/CPS-6B, the AN/CPS-6B radome will shield the height finder as follows:
 - a. In azimuth - approximately 19° .
 - b. In elevation - approximately 13.5° .
5. The same situation will exist when an AN/FPS-4 is sited near an AN/FPS-3 equipped with a radome.
6. Shielding angles may easily be calculated using the following information:
 - a. The distance between the two radars.
 - b. The diameter of the radome - 50 feet.
 - c. The height of the radome - 36.5 feet. For the purpose of this calculation, the radome must be considered as an opaque object.
7. In view of the above, it is recommended that, where an AN/FPS-4 is used in association with a radome equipped radar, the maximum possible separation be used unless shielding angles as described above can be tolerated.
8. Reproduction and numbered distribution in local series are authorized when total addition distribution list is furnished the office of origin.

FOR THE COMMANDER:

/s/ W. S. HEAVNER
Colonel, USAF
DCS/R&D

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Subject: Modification of Site Survey Reports for "M" Program Instl
 From: DC&E-E To: P&R Date: 16 Jan 53

1. Reference is made to the following:

- a. R&R from this Directorate, subject: "Approval of Site Survey Report for M-88, Amarillo AFB, Texas," dated 21 Oct 52.
- b. R&R from this Directorate, subject: "Approval of Site Survey Report for M-89, Abilene, Texas," dated 21 Oct 52.
- c. R&R from this Directorate, subject: "Approval of Site Survey Report for M-90, Walker AFB, N. M.," dated 23 Sep 52.
- d. R&R from this Directorate, subject: "Approval of Site Survey Report for M-92, Davis-Monthan AFB, Ariz.," dated 23 Sep 52.
- e. R&R from this Directorate, subject: "Approval of Site Survey Report for M-93, Winslow, Ariz.," dated 21 Oct 52.
- f. R&R from this Directorate, subject: "Approval of Site Survey Report for M-96, Luke AFB, Ariz.," dated 21 Oct 52.

2. In view of the contemplated extension of the Double Perimeter System as presently being planned in the Third Phase Mobile Program, the previous policy on mobility of "M" sites protecting SAC bases is no longer valid. It will therefore be necessary to amend the approval for the site survey reports for the "M" sites listed below to delete the special provisions for mobility and minimum permanent improvements in the operations area.

M-88	Amarillo AFB, Texas
M-89	Abilene, Texas
M-90	Walker AFB, New Mexico
M-92	Davis-Monthan AFB, Arizona
M-93	Winslow, Arizona
M-96	Luke AFB, Arizona

3. It is requested that necessary action be taken to advise appropriate air installations and Corps of Engineers agencies of these changes. WADF, in whose areas all of subject sites are to be constructed, has been advised of these changes.

EDWARD L. BURGE
 Lt Col, USAF
 Chief, Elect Sys Div
 Ext 410 - 411

GEORGE E. HUNSUCKER
 Colonel, USAF
 Acting Dir of Comm & Elect
 Ext 228 - 229

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ADOCE-E 676.3

22 Jan 1953

SUBJECT: (Unclassified) Mobile Radar Program

TO: Commanding General
Central Air Defense Force
1209 Walnut Street
Kansas City, Missouri

1. Reference is made to our letter, file ADOCE-E 676.3, Subject as above, dated 1 November 1952.

2. In view of the contemplated extension of the Double Perimeter System as presently being planned in the Third Phase Mobile Program, the previous policy on mobility of "M" sites protecting SAC bases is no longer valid. It has thus been necessary to amend the approval for site survey reports for M-88, Amarillo AFB, Texas, and M-89, Abilene, Texas, to delete the special provisions for mobility and minimum permanent improvements in the operations area. Therefore, the instructions contained in paragraph 3 of the above-referenced correspondence are rescinded.

BY COMMAND OF GENERAL CHIDLAW:

/s/ THOMAS C. SAVAGE
Major USAF
Asst Adj Gen

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From: Hq Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

9 January 1953

To: Dir of Communications
Hq USAF
Washington, D. C.

ADOC-E 45. Informal info personnel your hq indicates that requirement for mobilization of radar equipment installation 1st and 2d phase mobilization programs no longer exists. Information is requested if equipment installation these programs can be considered as fixed equipment. Information urgently required development of installation plans these programs.

CG, ADC

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From: Hq USAF WASH DC

13 January 1953

To: CG ADC ENT AFB COLO

From AFPOAC 43385 your message ADOCE-E 45, 9 January 1953. These programs have not changed. Equipment is not considered fixed although trucks 2 1/2 - ton 6 x 6 have been deleted from requirements.

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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ADOCE-E 413.44

12 April 1953

SUBJECT: (Unclassified) Criteria for Installation of Communications-
Electronics Equipment for First Phase Mobile Sites

TO: Commanding General
Eastern Air Defense Force
Attn: Director of Communications-Electronics
Stewart Air Force Base
Newburgh, New York

1. References:

- a. Letter this headquarters, file ADOCE-E 676.3, subject:
"(Restricted) Site Surveys, Revised Mobile Radar Plan," dated 28 March 1952.
- b. Letter this headquarters, file ADMIS 600.1 subject:
"(Unclassified) Mobile Radar ('M') Program in ZI," dated 27 June 1952.
- c. Letter this headquarters, file ADOCE-E 676.3, subject:
"(Restricted) Site Surveys, Revised Mobile Radar Program," dated 10 July 1952.
- d. Letter this headquarters, ADMIS 600.1, subject: "(Unclassified) Revisions to Layout Plan, Mobile Radar Sites," dated 17 July 1952.

2. Conferences with several agencies concerned with the installation of First Phase Mobile AC&W stations and the completion of the study conducted by this headquarters on the functions of AC&W facilities have resulted in several changes in the criteria for the installation of communications-electronics equipment for First Phase Mobile sites. Therefore, criteria outlined in correspondence referenced in paragraph 1 above will be revised to reflect the information contained in this letter. By separate correspondence now being prepared (ADMIS 2-600.1, "Revised Mobile Radar Construction and Siting Criteria"), the air defense forces will be given a complete set of definitive mobile radar drawings as sent by Headquarters USAF to OCE and a copy of the pertinent engineering and construction criteria. This correspondence will also direct the air defense forces to analyze construction site plans prepared and submitted to date and to initiate appropriate revisions thereto in consonance with the revised construction and siting criteria.

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3. A chart giving general information on First Phase Mobile stations is inclosed for your information (Inclosure 1). The geographic locations indicated on this chart for individual stations will be reflected in all future correspondence concerning the First Phase Mobile Program.

4. Revised typical layout drawings for Type V, VI and VII stations, for large and small operations buildings, and the transmitter-receiver building are also inclosed for your information (Inclosures 2 through 7). These are duplicates of similar drawings inclosed with correspondence cited in paragraph 2 above. The 40' x 100' operations building will be used at all Direction Centers and at all Surveillance Stations except those which perform a gap-filling function and are equipped with AN/TPS-1D equipments. Surveillance Stations which perform only a gap-filling function and are equipped with AN/TPS-1D equipments will be provided with the 20' x 48' operations building. These stations (N-101, 102, 104, 105, 106, 109, 110, 111 and 131) will utilize direct reporting to adjacent Direction Centers, and no display of data will be required at the station.

5. Radar equipment planned for the First Phase Mobile stations is indicated in Inclosure 8. Plans will be made to accommodate all of the equipment indicated, although equipment marked by an asterisk is not currently programmed for this command.

a. Data on the AN/TPS-1D is contained in Bureau of Ships publication, "Preliminary Instruction Book for Radar Set AN/TPS-1D," NAVSHIPS 91579. Twelve-inch PPI consoles will be provided with AN/TPS-1D equipment in the numbers indicated in Inclosure 1 as they become available. All components will be installed in the maintenance room with the exception of the 12-inch PPI's and the antenna and antenna base, AB-221, which will be mounted on a wooden tower located as indicated in paragraph 6b below.

b. Data on the AN/TPS-10D is contained in TO 16-30 TFS10-10, "Radar Set AN/TPS-10D, AN/TPS-4 and AN/TPS-8." All components will be mounted on the pedestal or the "equipment elevation" with the exception of the control indicator, C-340, the interference blanker, MX-1166, and the indicator group, OA-268; these units can be located in the operations building. A mounting ring, Pedestal Mounting, MT-981, will be provided with each AN/TPS-10D (or AN/TPS-8 when provided in place of the AN/TPS-10D). This ring will permit the mounting of the antenna pedestal on a tower when a tower is necessary to obtain the necessary clearance over surrounding buildings. Details of the mounting ring (Inclosure 9) and engineering information on the AN/TPS-8, including a drawing of the AN/TPS-8 trailer, are attached for your information (Inclosure 10).

c. No publications are currently available on the AN/TPS-7, the AN/TPS-14, or the AN/TPS-8 and AN/TPS-11.

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- (1) With the exception of the mounting, the AN/MPS-7 will be essentially the same as the AN/IPS-3. Engineering information and drawings of the antenna assembly, pedestal and the antenna trailer for the AN/MPS-7 are inclosed (Inclosures 11 through 21). A mounting ring will be provided with each AN/MPS-7 which will permit the mounting of the antenna pedestal on a tower when a tower is necessary to obtain the necessary clearance over surrounding buildings.
- (2) Engineering information on the AN/MPS-11 and drawings of the AN/IPS-3 pedestal assembly are inclosed (Inclosures 22 through 25).
- (3) Engineering information on the AN/MPS-14 and drawings of the antenna and pedestal assembly are inclosed (Inclosures 26 through 32).

6. Design and construction directives and criteria to be issued by Headquarters USAF to OCE will direct that, where required, an equipment elevation will be provided by the most economical method, consonant with operational requirements, at each site; trailer mounting, earth mound, wooden cribbing, towers, or any other suitable method of elevating the equipment to the necessary height may be utilized. Equipment elevation will be limited to that necessary to provide 5' vertical clearance between the bottom of the antenna reflector and the top of the operations building and/or other buildings in the immediate vicinity and to overcome mutual interference and interaction between search and height equipment. Both primary and emergency equipment will be elevated as required.

a. This headquarters is investigating the possibility of the Corps of Engineers providing the standard 25' steel towers being procured for the AN/IPS-3 and AN/IPS-6 for use with the AN/MPS-7 and AN/MPS-14 equipments. It should be noted that a 25' tower will be provided with the AN/MPS-11 (see Inclosure 22).

b. The location of equipment and amount of elevation required for each site will be determined by the ADF and the AMA involved. The tower for the AN/IPS-1D equipment will be located immediately adjacent to the operations building so that the cable lengths required from the antenna base, AB-221, to the AN/IPS-1D components in the maintenance room will be less than 90'. Other equipment elevations will be located so as to provide the necessary separation between radar sets as indicated in paragraph 7 below; however, if possible, all equipment elevations will be located so that cable lengths from the tower to the equipment in the maintenance room and/or operations room will not exceed the following:

AN/MPS-7	240'	AN/MPS-14	350'
AN/IPS-3)		AN/MPS-8)	
AN/MPS-11)	300'	AN/IPS-10D)	350'

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Hq ADC ADOCE-E 413.44, Subject: (Unclassified) Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites (Contd)

7. Complete information on the necessary minimum and maximum separation between radar equipment to be utilized for the First Phase Mobile Program has not been received to date from Rome Air Development Center. Information presently available is inclosed (Inclosures 33 and 34). It is recommended that, if possible, AN/TPS-1D and AN/TPS-10D equipment be separated by at least 100' and that the AN/TPS-7 and the AN/TPS-10D be separated by at least 150'. No data is available regarding the separation between AN/TPS-14 or AN/TPS-8 and AN/TPS-11 equipment and the remaining radar equipment.

8. All UHF/VHF transmitters and receivers will normally be installed in the same building (20' x 40' transmitter-receiver building), thereby eliminating the requirement for separate transmitter and receiver buildings. This building will be located on the main site and sited in accordance with the criteria contained in paragraph 11, and as indicated on Typical Layout Plans of Type V, VI and VII Sites, inclosed herewith. In special cases, where an M-site is to be located on an Air Base, it may be more economical to use existing buildings for a separate receiver and transmitter site. If authorization from the command concerned can be secured, complete details indicating facilities that are available such as power, cable pairs, buildings, land, etc., will be forwarded to this headquarters. In most cases of this nature, separate antennas, cable, etc., will have to be procured from Headquarters USAF.

a. All ground/air equipment (UHF/VHF) will be installed in the transmitter-receiver building.

b. AN/GRC-26 HF point-to-point radio equipment has been programmed for each site. Equipment will remain in the shelter in which it comes installed. The shelter will be mounted on a concrete slab located in the HF antenna farm, as indicated on typical layout plans. Although AN/GRC-26 equipment has been programmed for each M-site, AN/TRC equipment will be acceptable if the present policy regarding utilization of this equipment is adhered to.

c. A 1 KW amplifier (OA-105/GR) will be installed in the transmitter-receiver building. The spare GRC-27 will be used to drive this amplifier.

9. Four of the First Phase Mobile surveillance stations (M-88, 89, 118 and 127) will be provided with sufficient ground/air equipment to operate two UHF channels (GCI common and emergency) and two VHF channels (GCI common and emergency). No other Surveillance Station will have ground/air capability. Surveillance Stations which do not have air/ground capability will not require the transmitter-receiver building.

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10. At Direction Centers, tactical ground/air channels will be provided based upon the number of control positions. Equipment will be allocated on a basis of one multi-channel set per control position plus 25% spares. Equipment allocation for common channel frequencies will be three single channel sets for each Direction Center plus one spare. Equipment to be installed at each site is shown on Inclosure 35.

11. The following criteria, which amplify and supplement the criteria for structural locations indicated on typical site layouts, have been established for the location of all radio facilities:

a. No radar tower and/or operations building will be located less than 300' from the radio antennas and/or transmitter-receiver building.

b. No structure housing brush-type electric motors will be located less than 150' from the receiver antennas and/or the transmitter-receiver building.

c. All UHF/VHF antenna masts will be a minimum of 15' from all sides of the transmitter-receiver building. The building will be located in a manner so as to allow a minimum of 90' separation between receiver antennas and transmitter antennas in the event that it becomes necessary to mount the receiver antennas apart from the transmitter antennas. Rome Air Force Depot is planning to mount these antennas (receiver and transmitter) on one mast by using two cross-arms. Vertical separation of approximately 10' is to be provided, which, according to RAED, will be adequate and will allow a minimum of interference. However, as stated, sufficient space around the transmitter-receiver building will be allowed in case it becomes necessary to provide additional spacing.

d. The UHF/VHF antennas will be sited so as to provide line-of-sight coverage comparable to the radar.

e. A cleared area not less than 200' x 200' with perimeter a minimum of 150' from the UHF/VHF antennas and/or ground/air communications building will be provided for HF antenna installations. The concrete slab on which the shelter containing the HF equipment will be placed, will be located approximately in the center of the HF antenna farm.

12. The following information is furnished relative to wire communications:

a. Government-owned internal telephone equipment type GTA-6 will be installed at all Direction Centers and those Surveillance Stations (M-88, 89, 93, 114, 118, 123 and 127) having a plotting capability. Those Surveillance Stations employing direct scope telling will be equipped with either hang-up hand sets or LOLA type sets for terminating hot lines.

b. Communications circuits will be leased from telephone companies. In this respect, it has been recommended to Rome Air Force Depot that arrangements be made for the telephone companies to terminate their

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circuits at the site main frame (located in Operations Building) instead of at the site boundary as is the case in the "P" Program. All circuitry will be considered tactical.

c. Intra-base cable and telephone systems, other than cited in b above, will be government owned. An exception to this rule will be in those cases where the site is located on an air base which leases the base telephone system from the telephone company.

d. At those Surveillance Centers where GEA-6 equipment will not be installed, intra-site telephone service will be supplied by the installation of a small switch board similar to type 506B or an inter-communication system.

e. The site switchboard will be installed in the teletype room (Operations Building) so that, during slack periods, one man can operate both the teletype and switchboard.

13. Power equipment to be provided for the technical load (communications and electronics) will be as indicated in Inclosure 36. In the majority of cases, power for the entire technical load will be available from one of the two power units provided with the primary search radar. Normal operation will be to utilize commercial power when available and when the regulation is satisfactory. The power units provided with the basic search radar equipment will therefore normally be used as backup.

a. Power equipment to be provided with radar equipment will be as follows:

AN/TPS-7	Two 100 KW units
AN/TPS-3) AN/TPS-11)	Two 60 KW units
AN/TPS-1D	Two FU-25A units (7.5 KW) and one converter (60 cycle to 400 cycle)
AN/TPS-1A	Unknown
AN/TPS-10D	One converter (60 cycle to 400 cycle)
AN/TPS-1D) and) AN/TPS-10D)	Two 30 KW units and two converters

b. Technical power and camp power will be fed to separate buses, with provisions for switching between these bus bars.

c. At least one 100 KW unit will be provided to each site to provide for camp power.

14. Rome Air Force Depot will design standard layouts for the communications and electronics installations at the various type sites in the First Phase Mobile Program. This information will be available

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Hq ADC, ADOCE-E 413.44, Subject: (Unclassified) Criteria for Installation of Communications-Electronics Equipment for First Phase Mobile Sites (Contd)

through appropriate AMA's as soon as it is finalized.

BY COMMAND OF GENERAL CHIDLAW:

/s/ THOMAS C. SAVAGE
Major, USAF
Asst Adj Gen

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AF/IGSPB Ltr., 13 Dec 1973

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HEADQUARTERS

ADC

VOL. I SUPPORTING Doc # 70

JUNE 1953

RETURN TO
Historical Research Division
ASI/HQA
Maxwell AFB, AL 36112

K410.01-4
Vol. 2, Pt. 2
JAN-JUN 53

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AF/IGSPB Ltr., 13 Dec 1973

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Department of

(Crest)

No. D-85

External Affairs
Canada

Ottawa, April 2, 1953

Sir,

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AM 10000 13 Dec 1973

AF CAT: A-
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I have the honour to refer to discussions which have taken place at recent meetings of the Permanent Joint Board on Defense with respect to United States proposals concerning the carrying out of site surveys with a view to the subsequent installation of six temporary radar stations in Ontario (to be located at Trenton, Sultan, Warton, Peninsula, Fire River and Mattawa), and three mobile radar stations in British Columbia (to be located at Birken, Kamloops and Nakusp).

The Canadian Government is pleased to inform the United States Government that permission is granted for the latter to make these site surveys, it being understood that the arrangements for the entry of the survey parties and their equipment into Canada and the carrying out of the surveys will be made through United States Air Force - Royal Canadian Air Force channels, under the same conditions as prevailed in the case of the site surveys for radar installations which are a part of the Pinetree Project. It is further understood that copies of all information obtained in connection with these surveys will be supplied to the appropriate Canadian authorities.

Accept, Sir, the renewed assurances of my highest consideration.

(Signed) R.A. MacKay

for the Secretary of State
for External Affairs

Don C. Bliss, Esquire,
Charge d'Affaires and interim of the
United States of America.

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AF/IGSPB Ltr., 13 Dec 1973

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HISTORICAL	AF/IGSPB Ltr., 13 Dec 1973	AF CAT: A- CAN
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-Semi-Annual-
**HISTORICAL
REPORT**

**NUMBER FIVE
SUPPORTING DOCUMENTS
VOLUME 2
DOCUMENTS NOS. 71-143
JUNE, 1953**

**PREPARED BY
THE DIRECTORATE OF
HISTORICAL SERVICES
OFFICE OF THE
COMMAND ADJUTANT**

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AF/IGSPB Ltr., 13 Dec 1973

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RSI Cont No
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AF - ADC - COLO. SPRINGS, COLO.

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This Document Contains Information
Affecting the National Defense of the United
States Within the Meaning of the Espionage
Laws, Title 18 U.S.C., Section 793 and 794.
Its Transmission or the Revelation of Its
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HEADQUARTERS
AIR DEFENSE COMMAND

SEMI-ANNUAL HISTORICAL REPORT
1 JANUARY-30 JUNE 1953

SUPPORTING DOCUMENTS

Volume II

Prepared by
THE DIRECTORATE OF HISTORICAL SERVICES
OFFICE OF THE COMMAND ADJUTANT

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DEPARTMENT OF THE AIR FORCE
Headquarters United States Air Force
Washington 25, D. C.

AFOOP-OP-D

5 May 1953

SUBJECT: (Unclassified) Approval by the Canadian Government of
Site Surveys for Nine Additional Radar Stations

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. References:

- a. Paragraph 10, Secret letter, your Headquarters, dated 18 January 1952, subject: "Mobile Radar Program."
- b. Secret letter, your Headquarters, dated 9 December 1952, subject: "(Unclassified) Canadian Approval for Three Mobile Radar Sites."
- c. Canadian Department of External Affairs, Secret Note No. D-85, dated 2 April 1953 (Inclosure #1).
- d. U.S. Embassy, Ottawa, Canada, Secret dispatch No. 1010, dated 2 April 1953 (Inclosure #2).
- e. Secret Memorandum from Mr. Wight, Secretary, U.S. Section, PJBD, dated 7 April 1953 (Inclosure #3).
- f. Top Secret Journal of PJBD Meeting April 13 - 17, 1953. (Copy being supplied your Headquarters under separate cover by PJBD).
- g. Unclassified letter, this Headquarters, dated 23 March 1953, subject: "Land Requirements for the Mobile AC&W Program."
- h. Classified letter, this Headquarters, to Chief of Engineers, Department of the Army, dated 27 March 1953, subject: "(Unclassified) Construction Requirements for 'M' Sites in Zone of Interior." (Copy supplied your Headquarters under separate cover).

2. Reference 1c above, grants the USAF permission to conduct the necessary site surveys in Canada with a view toward subsequent installation of radar stations in Ontario and British Columbia. It is desired that your Command perform the required site surveys under the following conditions:

- a. The RCAF will be invited by your Headquarters, through established channels, to participate in subject surveys. Providing such participation is agreed upon by the RCAF, utilization will be made of RCAF participants in obtaining rights of entry through Provincial officials to insure compliance with Canadian laws.

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Ltr to CG, ADC, Subject: "(Unclassified) Approval by the Canadian Government of Site Surveys for Nine Additional Radar Stations."

b. Arrangements for the entry of the survey parties and their equipment will be made by your Headquarters through established USAF-RCAF channels.

c. Copies of all information obtained in connection with these surveys will be supplied to the appropriate Canadian authorities.

d. All USAF members of the survey teams, as well as other members of your Command engaged in this project, must be indoctrinated in the thought that the sole purpose of these surveys is to determine possible site locations for radars in furtherance of the defense of the North American Continent. Discussions with the Canadians will be limited to those items necessary to complete the site surveys. In no way will members of your Command become involved in discussions relating to source of electronics equipment to be employed, agency that will perform site construction, or which service will operate the stations. Resolution of these matters will be conducted at governmental level.

e. Determination of land requirements will be consonance with the desires of this Headquarters, as outlined in reference 1g above.

f. Criteria to be used in determining building requirements and subsequent site developments contained in reference 1h above.

3. The Directorate of Operations has been designated as staff office of primary interest in this Headquarters for this project.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ R. E. KOON
Colonel, USAF
Deputy Director of Operations
Deputy Chief of Staff, Operations

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MEMORANDUM TO: Major General R. M. Webster 13 Aug 1953
 Permanent Joint Board on Defense, Canada-U.S.
 Room 2A882
 Washington 25, D. C.

1. Following comments reference the installation of the six First Phase and three Second Phase Mobile Radar Stations in Canada are submitted per your request:

a. The eastern site survey team, composed of EADF and RCAF members, is scheduled to arrive at Peninsula, Ont. (M-120) on 4 August. The western site survey team is to gather at Headquarters, 12th Group, Vancouver, by 17 August. It is expected that the field surveys will be completed by the end of September.

b. Compilation of field data and preparation of site surveys, to include reproduction of maps, photos, etc., will probably take from three to four weeks.

c. Present plans are to submit the completed site survey reports simultaneously to Headquarters ADC (USAF) and Headquarters ADC (RCAF) for approval. They will then be submitted to Headquarters USAF and Headquarters RCAF. Information is not available as to the procedure to be followed for submission of the approved site survey reports by those respective headquarters to PJDB for joint U.S.-Canadian approval.

e. Realistic estimates of completion of construction cannot be made at this time since no forecast can be made as to the time required to obtain final approval to proceed with installation of these sites. Furthermore, construction time will also be dependent upon the selection of the ultimate construction agency, which is also undetermined at this time. Construction at most of these sites will only be possible during late spring through early fall. In view of this, we are presently estimating a BO date sometime during the summer of calendar year 1955.

f. This date can be improved considerably, possibly by as much as a year, if specific points can be settled in the immediate future. These include:

1. Approval for the installation of 9 "semi-mobile" radar sites in Canada. If this general approval can be obtained without having the results of site survey reports available, necessary planning for the actual installation of these sites can proceed while site surveys are being completed.

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2. Agreement as to the construction agency. Considerable detail planning, approval of design directives and detailed site layout planning are required before actual construction can be started. This work must be started this fall to permit an early start on the actual construction of these sites next Spring.
3. Agreement as to provisions for funding, equipment and manning. Settlement of these points will considerably expedite the actual installation of these stations since necessary procurement action can be started in sufficient time to obtain equipment and personnel by the time the sites are ready to accept them.

HASKELL E. NEAL
Colonel, USAF
Director of Communications &
Electronics

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From: HQ ADC ENT AFB
COLORADO SPRINGS COLO.

1 December 1952

To: DIR OF OPR HQ USAF WASH.

ADOPR _____ . Urmsg AF00P-0P 52447 and conf your Hq 19 Nov
Maj Flaherty, Hq USAF, and Maj Crispen, Hq ADC. Site M-118 will not be
constructed. This Hq will take the calculated risk of low level
penetration thru this area until auto type radar become avail. A new
location for this installation is under study by this Hq and when firm
will be forwarded to you for approval. This Hq is investigating the
possibility of exchange of radars with ATRC to obtain FPS-3 for M-127.
Site survey report for this station is firm except for type radar. As
agreed during the conference the same type operation buildings as were
programmed should be constructed at those sites where light equipment
was substituted for heavy equipment. This Hq will forward definitive
drawing for "small" operation buildings for sites where no cantonment
area is programmed as soon as USAF policy in this regard is obtained.

CG ADC

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ADOPR 413.44

10 September 1953

SUBJECT: (Uncl) Relocation of M-123 and SM-135

TO: Director of Operations
Headquarters USAF
Washington 25, D. C.

1. Recent radar coverage reports indicate no need for prime radar sites at proposed locations for M-123 and SM-135. Investigation indicates necessary coverage can be provided in these areas by small gap-filler radar during approximately the same time period. In view of the above, the decision has been made to relocate these two facilities to the North Central section of the United States. The approximate locations will be as follows:

M-123	-	Winnett, Montana	47°03'N	108°26'W
SM-135	-	Hettinger, N. D.	46°10'N	102°30'W

2. Even though this move is of considerable magnitude and the new locations would not categorically fulfill the requirements that justified the radars in the original programs, these locations will fulfill a requirement for air defense that has since been approved by Headquarters USAF (Ref. AF Plan for Defense of the Continental United States, 31 December 1955). Further, these new locations are consistent with the double perimeter concept of air defense and would provide for a combat capability in depth through an area that has been designated as a logical approach route for attack on the United States.

3. Station operation at the new locations will be considerably different from that indicated in the ADC AC&W Function Study, 20 May 1953. A comparison between the old and new location in regard to station function and radar equipment is indicated below.

	Old Location		New Location	
	Function	Equipment	Function	Equipment
M-123	Sur. Sta	MFS-11, TFS-1D	Direction Center	MFS-11, TFS-10D
SM-135	Sur. Sta	TFS-1D	Direction Center	MFS-11, TFS-10D

The complete details for operation of these stations will be included in the revised AC&W Function Study now being developed.

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ADCFR 413.44 Subj: (Uncl) Relocation of M-123 and SM-135

4. In order to expedite new site surveys and effect the necessary programming changes, urgently request these new locations be approved with the least possible delay.

FOR THE COMMANDER:

/s/ JOSEPH D. HORNSEY
Lt Col, USAF
Asst Command Adj

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From: HQ ADC ENT AFB
COLORADO SPRINGS COLO

25 May 1953

To: DIR OF OPR HQ USAF
WASHINGTON DC

ADOPR 1232. Radar calibration report indicate no need for manned radar installation to provide coverage at proposed location for M-102 and M-111. Investigation indicates necessary coverage can be provided by small gap-filler radar during approximately the same time period. In view of above, decision has been made to relocate subject radar installation to new location that will support the perimeter identification concept as follows: M-102 Cape Sable, Nova Scotia, 43°27'N 65°38'W; M-111 Pombina, NDak, 48°57'N 97°15'W. No C in equip, function or manning contemplated. This hq will advise RCAF ADC of new proposed loc for M-102. To exped site survey for new location and to advise Corps of Engineer of C in program, urgently request these new locations be approximately soonest.

CG ADC

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From: HQ ADC ENT AFB
COLORADO SPRINGS COLO.

25 May 1953

To: AOC ADC (RCAF) RCAF STATION
ST HUBERT PQ CANADA

ADOFR 1237. Calibration reports indicate no need for the manned radar installation M-102 to be located in the vicinity of Trenton Ont. Investigation indicates the coverage if needed can be obtained by small automatic report radars when available. In order to obtain radar coverage further north and to build toward the perimeter identification concept this hq recommended to USAF that M-102 be relocated in vicinity of Cape Sable Nova Scotia. No change in programmed equipment, function or manning is contemplated because of the new location. As entry rights to survey for nine radar stations in Canada have been received, request your early concurrence or comments in order to advise siting teams accordingly. CANUSECURITY.

CHIDLAW GENERAL USAF COMMANDING

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From: HQ ADC ENT AFB
COLORADO SPRINGS COLO.

24 June 1953

To: AOC, CANAIRDEF
RCAF STA. ST HUBERT PQ CANADA

ADOPR 1451. Urmsg APL34. In this area contiguous radar cover for North American continent during 1955-56 planned to extend out to F-80, C-5 and C-11. Small automatic radars will be deployed between prime radars to bring coverage down to approximately 500 ft above terrain along this outer perimeter. Extending this line from C-11 to Sable Island not compatible because of inability to obtain very low coverage over the open water. Further, this Hq does not believe the additional coverage in relation to cost of installation is sufficient to justify a radar on Sable Island. Cape Sable site will provide overlap coverage with C-11 and M-110, and will permit contiguous high and low coverage with northern most AEW&C aircraft. See "Op Concept, Seaward Extension of Radar", 1 Feb 53, copy on file your Hq. The USAF proposed AC&W System for the time period 1955-56 will be forwarded in the near future for your comments and/or concurrence.

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Subject: Status of 1st Phase Mobile Radar Program, Total 44 Sites
 From: Const Div To: Colonel Kelley Date: 26 June 1953
 Comment No. 1

1. Site Surveys:

- | | |
|------------------------------------------------------------|----|
| a. Forwarded and approved by USAF | 36 |
| b. Not completed (Canada) | 6 |
| c. Not completed (US) | 2 |
| d. To be resited after USAF approval
(103, 111 and 127) | 3 |

2. Construction Plans:

- a. Detail layout plans approved on 12 sites.

3. Real Estate:

a. Funds for purchase of real estate were not included in estimates and allocations for the first phase M-Site program. Land will be leased with option to purchase. Funds for purchase were included in the 1954 program.

b. Real estate action is completed for one M-Site (M-105). Right-of-Entry obtained 5 May 1953.

c. Real estate action has been taken to acquire the land and or facilities for four M-Sites (M-109, 112, 113 and 114).

d. The Major Air Command on whose base we require facilities have been notified of our requirements for the following M-Sites:

M-38	Amarillo AFB, Texas	(ATRC)
M-96	Luke AFB, Arizona	(ATRC)
M-92	Davis Monthan AFB, N.M.	(SAC)
M-129	MacDill AFB, Fla.	(SAC)
M-113	Charleston AFB, S.C.	(TAC)
M-94	Kirtland AFB, N. M.	(SWC)

4. Time Phasing for Beneficial Occupancy Dates: From Installations standpoint the majority of the M-Sites will have the design completed by July 1953 and under contract by August 1953. The best engineering estimate for construction completion will be from 4 to 5 months from date of contract award. Therefore, the majority of the sites will be completed in December 1953 or January 1954. There will be exceptions to the dates because of climatic conditions, shortness of construction season and accessibility. Taking into consideration the following factors, the above beneficial occupancy dates are believed to be realistic from an Installations viewpoint:

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Subject: Status of 1st Phase Mobile Radar Program, Total 44 Sites (Contd)
From: Const Div To: Colonel Kelley 26 June 1953
1 (Contd)

- a. That beneficial occupancy dates are for structures and utilities only and are not related to construction of radar towers and other supporting media.
- b. That unforeseen delays do not enter into the problem of procurement of prefab buildings.
- c. That government furnished equipment (mess equipment, generators) is furnished in time to permit incorporation in construction to meet cited dates.
- 5. The average estimated construction cost for the 1st Phase Mobile Radar Program is \$500,000 per site.

JOHN G. MEADOWS
Lt Col, USAF
Chief Const Div
Ext 526-565

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11 March 1953

BENEFICIAL OCCUPANCY DATES FOR
MOBILE RADAR PROGRAM PHASE 1

1. From Installations standpoint the majority of the M-Sites will have the design criteria completed by May 1953 and under contract by June 1953. The best engineering estimate for construction will be from four to five months from date of contract award. Therefore, most sites will be completed in October or November 1953. There will be exceptions to the dates because of climatic conditions, shortness of construction season and accessibility.

2. Taking into consideration the following assumptions, estimated beneficial occupancy dates are given for the M-Sites 1st Phase Mobile Radar Program. These dates are believed to be realistic from an Installation viewpoint:

a. That site survey reports as submitted are firm and that USAF will issue directive to OCE in March 1953.

b. Assume OSD freeze is lifted in order to permit advertising bids on or before 15 May 1953.

c. That beneficial occupancy dates are for structures and utilities only and not related to construction of towers and other supporting media.

d. That unforeseen delays do not enter the problem of procurement of prefab buildings.

e. That government furnished equipment (mess equipment, generators) is furnished in time to permit incorporation in construction to meet cited dates.

3. Beneficial Occupancy Dates:

<u>M-Site</u>	<u>Estimated</u> <u>Beneficial Occupancy Date</u>
M-88	October 1953
M-89	October 1953
M-90	October 1953
M-91	October 1953
M-92	October 1953
M-93	*October 1953
M-94	October 1953
M-95	October 1953
M-96	*October 1953
M-97	October 1953
M-98	October 1953
M-99	October 1953
M-100	August 1954

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<u>M-Site</u>	<u>Estimated Beneficial Occupancy Date</u>
M-101	November 1953
M-102	No date
M-103	October 1954
M-104	No date
M-105	October 1953
M-106	*November 1953
M-107	No date
M-108	No date
M-109	November 1953
M-110	November 1953
M-111	November 1953
M-112	October 1953
M-113	October 1953
M-114	October 1953
M-115	October 1953
M-116	October 1953
M-117	October 1953
M-118	April 54
M-119	No date
M-120	No date
M-121	October 1953
M-122	November 1953
M-123	October 1954
M-124	October 1953
M-125	October 1953
M-126	*March 1954
M-127	October 1954
M-128	October 1953
M-129	October 1953
M-130	October 1953
M-131	October 1953

*Question firmness of site survey.

/s/ J. JOHNSON
Major, USAF
Installations

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From: AIR DEF COMD
 ENT AFB
 COLORADO SPRINGS COLO

31 July 1953

To: CofS, HQ USAF, WASH, D.C.
 Attn: Dir of Opns

ADOAP 1691 . URMSG AFOOP-OC-F 50521 and MYMSG ADOAP 1612.

Fol are revised beneficial occupancy dates for 1st Phase Mobile radar
 program:

<u>M-Site No.</u>	<u>Squadron</u>	<u>Estimated B/O dt</u>
88	134	Feb 54
89	144	Nov 54
90	686	Jun 54
91	119	Nov 54
92	145	Jul 54
93	904	Oct 54
94	135	Aug 54
95	146	Jun 54
96	115	Jul 54
97	740	Aug 54
98	902	Oct 54
99	903	Aug 54
100	136	Sep 54
101	808	Aug 54
102	672	Sep 54

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PAGE TWO

ADOAP 1691.

<u>M-Site No.</u>	<u>Squadron</u>	<u>Estimated B/O at</u>
103	911	Nov 54
104	909	Sep 54
105	677	Oct 54
106	113	Oct 54
107	910	Sep 54
108	905	Sep 54
109	906	Oct 54
110	907	Jul 54
111	908	unknown
112	112	Mar 54
113	125	Apr 54
114	128	Apr 54
115	111	May 54
116	614	May 54
117	632	May 54
118	634	Jun 54
119	639	Sep 54
120	645	Sep 54
121	649	May 54
122	650	Aug 54
123	651	unknown
124	652	May 54

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PAGE THREE

ADOAP 1691 .

<u>M-Site No.</u>	<u>Squadron</u>	<u>Estimated B/O dt</u>
125	653	Nov 54
126	657	Oct 54
127	658	Nov 54
128	659	Jul 54
129	660	Mar 54
130	810	Jun 54
131	809	Apr 54

Above dates based on same general assumptions as those contained in par 4, ltr this hq ADOAP 676.3, 17 Mar 53, Subj (U) Revision of 1st Phase Mobile Radar Program. These dates must be considered tentative and subject to further adjustment.

COMDR ADC

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ADOAP 676.3

17 March 1953

SUBJECT: (Unclassified) Revision of First Phase Mobile Radar Program

TO: Director of Operations
Headquarters USAF
Washington 25, D. C.

1. Reference:

a. Letter, DAF, 322 (AFOMO 368h), 20 February 1953, Subject: "(Unclassified) Activation of the 660th AC&W Squadron."

b. Letter, DAF, 322 (AFOMO 341h), 20 February 1953, Subject: "(Unclassified) Constitution and Activation of the 904th and 908th AC&W Squadrons; Activation of the 652nd, 653rd and 657th AC&W Squadrons."

c. Letter, DAF, AFOOP, 17 February 1953, Subject: "(Unclassified) Schedule of Organization Changes."

d. Letter, DAF, 323 (AFOMO 357h), 5 March 1953, Subject: "(Unclassified) Constitution, Redesignation and/or Activation of the 902nd AC&W Squadron and Certain Other USAF Units."

e. OPU 53-8, February 1953.

2. Current USAF programming documents reflect activation of twenty-one (21) AC&W Squadrons (19 squadrons on site) by June of 1953 (see Incl #1). In addition, thirteen (13) squadrons are programmed to move to M-sites by June of 1953 and two (2) are to move by November 1953 (see Incl #1).

3. Programming of these units as agreed upon at 12 December 1952 conference at your headquarters was based on best available information and was so stated in the ADC Program. The following factors have contributed to slippages in Beneficial Occupancy dates:

a. Lack of authority to enter Canada to survey the following sites:

- (1) Trenton, Ontario (M-102)
- (2) Wiarton, Ontario (M-104)
- (3) Sultan, Ontario (M-107)
- (4) Mattawa, Ontario (M-108)
- (5) Fire River, Ontario (M-119)
- (6) Peninsula, Ontario (M-120)

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Hq ADC, ADOAP 676.3, Subj: (Uncl) Revision of 1st Phase Mobile Radar Program (Contd)

- b. Following site survey delayed:
 - (1) Fort Bidwell, California (M-123) siting delayed due to weather, resume 1 April 1953.
- c. Surveys not approved by USAF:
 - (1) Winslow, Arizona (M-93)
 - (2) Susanville, California (M-127)
 - (3) Two Creeks, Wisconsin (M-106)
- d. Few site plans have been approved by USAF Installation representative.
- e. Directives for acquisitions of real estate or right of entry for off-base sites have not been finalized or issued except for the following sites:
 - (1) Abilene, Texas (M-99)
 - (2) Las Cruces, New Mexico (M-95)
- f. Construction directives have not been issued by OCE for any sites.
- g. Bids have not been opened for any site.
- 4. Beneficial Occupancy has been recomputed as shown in Inclosure #1 for all sites, based on following assumptions:
 - a. That site survey reports as submitted are firm and that USAF will issue directive to OCE in March 1953.
 - b. Assume OSD freeze is lifted in order to permit advertising bids on or before 15 May 1953.
 - c. That beneficial occupancy dates are for structures and utilities only and not related to construction of towers and other supporting media.
 - d. That unforeseen delays do not enter the problem of procurement of prefab buildings.
 - e. That government furnished equipment (mess equipment, generators) is furnished in time to permit incorporation in construction to meet cited dates.

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Hq ADC, ADOAP 676.3, Subj: (Uncl) Revision of 1st Phase Mobile Radar Program (Contd)

5. The dates listed in Incl 1 should still be considered as tentative and will be subject to further adjustment until construction has begun. At such time, firm dates will be established.

6. This headquarters recommends delay of activation and/or move of units until dates shown in Inclosure #1. If this is not feasible, recommend the following alternate courses of action be considered:

a. Constitute units but allow ADC to withhold activation and/or move until dates shown in Inclosure #1.

b. Activate units with manning of one officer and one airman until sixty (60) days prior to beneficial occupancy date. Units to be activated at the Division Headquarters under which their M-site will operate (Inclosure #1).

FOR THE COMMANDING GENERAL:

1 Incl
AC&W Program (Mobile)

JOHN W. JONES
Lt Col, USAF
Ass't Adj Gen

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Site No.	Unit	Station	OPU Act or Mvmt Dt	Proposed Act of Mvmt Date	Ben. Occupancy Date	Alternate Station if Act by OPU Schedule	Remarks
88	134	Amarillo, Texas	M - March 53	M - Oct 53	Oct 1953	See Remarks	Currently at Geiger Fld
89	144	Abilene, Texas	M - Jun 53	M - Oct 53	Oct 1953	See Remarks	Currently at Geiger Fld
90	120	Walker AFB, N. M.	---	---	Oct 1953	See Remarks	On site in Lash-up Status
91	119	Texarkana, Ark.	M - Jun 53	M - Oct 53	Oct 1953	See Remarks	Currently at Otis AFB
92	145	Davis-Monthan AFB, Ariz	M - May 53	M - Oct 53	Oct 1953	See Remarks	Currently at Geiger Fld
93	904	Winslow, Arizona	A - Apr 53	A - Oct 53	Oct 1953	Kirtland AFB, N. M.	
94	135	Kirtland AFB, N. M.	---	---	Oct 1953	See Remarks	On site in Lash-up Status
95	146	Las Cruces, N. M.	M - May 53	M - Oct 53	Oct 1953	See Remarks	Currently at Geiger
96	115	Luke AFB, Arizona	M - Mar 53	M - Oct 53	Oct 1953	See Remarks	Currently at Geiger
97	138	Rapid City, S. D.	---	---	Oct 1953	See Remarks	On site in Lash-up Status
98	902	Miles City, Montana	A - May 53	A - Oct 53	Oct 1953	Great Falls AFB, Mont.	
99	903	Gettysburg, S. D.	A - May 53	A - Oct 53	Oct 1953	Great Falls AFB, Mont.	
100	136	Mt. Hebo, Oregon	M - Nov 53	M - Aug 54	Aug 1954	See Remarks	Currently at Portland Mur
101	808	Rochester, Minn.	A - Jun 53	A - Nov 53	Nov 1953	Minn-St Paul, Minn.	
102	672	Trenton, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
103	911	Goveton, N. H.	A - May 53	A - Oct 54	Oct 1954	Hancock Fld, N. Y.	
104	909	Warton, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
105	127	Alpena, Mich	M - May 53	M - Oct 53	Oct 1953	See Remarks	Currently at Ft. William
106	113	Two Creeks, Wisc.	M - Apr 53	M - Nov 53	Nov 1953	See Remarks	Currently at Grenier AFB
107	910	Sultan, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
108	905	Mattawa, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
109	906	Grand Marais, Mich.	A - May 53	A - Nov 53	Nov 1953	Willow Run, Mich.	
110	907	Cores, Me.	A - May 53	A - Nov 53	Nov 1953	Hancock Fld, N. Y.	
111	908	Camp Williams, Wisc.	A - Apr 53	A - Nov 53	Nov 1953	Willow Run, Mich.	
112	112	Savannah, Ga.	M - Apr 53	M - Oct 53	Oct 1953	See Remarks	Currently at Grenier AFB
113	125	Charleston AFB, S. C.	M - Jun 53	M - Oct 53	Oct 1953	See Remarks	Currently at Ethan Allen
114	128	Fernandina Beach, Fla.	M - Mar 53	M - Oct 53	Oct 1953	See Remarks	Currently at Dow AFB
115	111	Fort Fisher, N. C.	M - Apr 53	M - Oct 53	Oct 1953	See Remarks	Currently at Grenier AFB
116	614	Englehard, N. C.	M - Jun 53	M - Oct 53	Oct 1953	See Remarks	Currently at Grenier AFB
117	632	Roanoke Rapids, N. C.	A - May 53	A - Oct 53	Oct 1953	Dobbins AFB, Ga.	
118	634	Burns, Ore.	A - Jun 53	A - Mar 54	Apr 1954	See Remarks	Activate at Geiger, Mv Ap
119	639	Fire River, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
120	645	Peninsula, Ont.	A - Jan 54	A - Jun 54	Unknown	See Remarks	Activate at Ethan Allen
121	649	Bedford, Va.	A - May 53	A - Oct 53	Oct 1953	Roslyn N. Y.	
122	650	Dallas Center, Ia.	A - May 53	A - Nov 53	Nov 1953	Minn-St Paul, Minn.	
123	651	Pt. Bidwell, Calif	A - Jun 53	A - Sep 54	Oct 1954	See Remarks	Activate at Geiger, Mv Oc not yet sited
124	652	Aberdeen, N. C.	A - Apr 53	A - Oct 53	Oct 1953	Dobbins AFB, Calif	
125	653	Alexandria, La.	A - Apr 53	A - Oct 53	Oct 1953	Tinker AFB, Okla	

<u>Site</u> <u>No.</u>	<u>Unit</u>	<u>Station</u>	<u>OPU Act</u> <u>or Mgmt Dt</u>	<u>Proposed Act</u> <u>or Mgmt Date</u>	<u>Ben. Occupancy</u> <u>any Date</u>	<u>Alternate Station if</u> <u>Act by OPU Schedule</u>
126	650	Houma NAS, La.	A - Apr 53	A - Mar 54	Mar 1954	Tinker AFB, Okla
127	650	Susanville, Calif.	A - Jun 53	A - Oct 54	Oct 1954	Hamilton AFB, Calif.
128	650	Kingman, Arizona	A - Jun 53	A - Oct 53	Oct 1953	Norton AFB, Calif.
129	660	MacDill AFB, Fla.	A - Apr 53	A - Oct 53	Oct 1953	Dobbins AFB, Ga.
130	610	Winston Salem, N. C.	A - Jun 53	A - Oct 53	Oct 1953	Dobbins AFB, Ga.
131	800	Owingsville, Ky.	A - Jun 53	A - Oct 53	Oct 1953	Willow Run, Mich.

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ADOCE-E 676.3

12 February 1953

SUBJECT: (Restricted) Relocation of Second Phase Mobile Radar Sites

TO: Commanding General
Central Air Defense Force
Post Office Box 528
Kansas City, Missouri

1. Reference is made to letter from this headquarters, file ADOCE-E 676.3, subject: "(Restricted) Site Surveys, Second Phase Mobile Radar Program," dated 17 December 1952.

2. As a result of a conference with representatives from your headquarters on a review of functions of AC&W facilities, the following changes have been made in the location and function of Second Phase Mobile Radar Sites in your area:

a. SM-148, Dublin, Ga. - 32°25'N, 83°03'W

Direction Center to provide control on southern approaches to Savannah AEC installation. Overlap desired with M-112 and SM-166.

Primary Search	TPS-1D
Primary Height	TPS-10D
Secondary Search	TPS-1D
Secondary Height	TPS-10D

b. SM-159, Trenton, S. C. - 33°45'N, 81°51'W

Direction Center to provide control over Savannah AEC installation.

Primary Search	MPS-7
Primary Height	MPS-14
Secondary Search	TPS-1D
Secondary Height	TPS-10D

c. SM-165, Rising Fawn, Ga. - 34°44'N, 85°27'W

Direction Center to provide control on western approaches to Savannah AEC installation. Overlap desired with P-42, SM-145 and SM-166.

Primary Search	MPS-11
Primary Height	TPS-10D
Secondary Search	TPS-1D
Secondary Height	TPS-10D

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Ltr Hq CADF, ADOCE-E 676.3, Subj: (Restricted) Relocation of Second
Phase Mobile Radar Sites (Contd)

d. SM-166, Atlanta, Ga. - 33°30'N, 84°22'W

Direction Center to provide control on western approaches
to Savannah AEC installation. Overlap desired with SM-148 and SM-165.

Primary Search	MPS-11
Primary Height	TPS-10D
Secondary Search	TPS-1D
Secondary Height	TPS-10D

BY COMMAND OF MAJOR GENERAL TODD:

THOMAS C. SAVAGE
Major, USAF
Asst. Adj. Gen.

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10 June 1953

From: CG AIR DEFENSE COMMAND ENT AFB COLORADO
To: CHIEF OF STAFF, HQ USAF, WASH 25, D. C.

ADHCG 1362 Pers Chidlaw to Twining. We were invited but not required to have one representative of this command present for an Installation Board Meeting, your headquarters, 9 June 1953, when AF request for FY-54 authority for Public Works were to be present. Having had no prior information on the proposed Base Utilization Plan or the FY-54 Public Works Program to be present, I considered it advisable to have representative at this meeting. My representative has advised me of the following major deficiencies in the ADC Program as present: (1) Only one of six requested additional Air Division Headquarters was included in the program and (2) second phase mobile AC&W sites were completely omitted. The effects of those omissions will be: (a) Required coverage of the radar surveillance system which, as you know, presently is not satisfactory, cannot be finally realized prior to FY-56. (b) Commercial lines being installed for the first phase mobile sites now under construction must be materially altered to tie into present Division Headquarters with subsequent costly change when the new Air Division Headquarters are ultimately built. Omission of these items appears incompatible with the 1955 Air Defense Objectives Plan recently approved by the Air Council and completely disregards certain specific operational necessary for Air Defense operation, failing to provide maximum Air Defense with

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resources available. Several of the proposals regarding base utilization for this Command upon which the FY-54 Public Works authority request is based are unsatisfactory in that tactical utilization concepts are unsound. The urgent request for these operational items and for a tactically sound base utilization plan indicates emergency action necessary to have ADC recommendations included in this program.

CG ADC

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ADOCE-E 413.44

14 November 1952

SUBJECT: (Restricted) Installation of Lashup Radar Gear at REP Sites

TO: Director of Communications
Headquarters USAF
Washington 25, D. C.

1. Information contained in the last Pinetree Program Report indicates that the eight REP sites to be manned by this command will not reach the status of limited operation until June 1953, a date which is far from being realistic since the major items of radar equipment for those sites may not be delivered until late spring 1953.

2. The lack of early warning facilities north of the 25th, 29th and 31st Air Divisions, particularly during the critical period April to September 1953, is a cause of great concern to this headquarters. In view of the urgency for some early warning capabilities during that critical period, this headquarters is considering the activation of these sites by 1 April 1953 using as an interim measure the following radar equipment held in reserve by this command to meet such contingencies.

- a. Baldy-Hughes Mountain. CPS-5, Ser. No. 237, now undergoing overhaul at Rome.
- b. Puntzi Mountain. CPS-5, Ser. No. 705, undergoing overhaul at Rome.
- c. Saskatoon. CPS-5, Ser. No. 74, undergoing overhaul at SMAMA.
- d. Sioux-Lookout, Raymore, Beausejour, Armstrong and Pagwa. TPS-1D's now held at Rome for use in First Phase Mobile Program. Serial numbers unknown at this date.

NOTE: Equipment listed above to be returned to the ZI for redeployment upon activation of permanent equipment at REP sites.

3. Communication facilities required for the implementation of the above will consist of existing landline facilities already in place, augmented by high frequency radio system, details of which will be forwarded to your headquarters at a later date.

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Ltr Hq USAF ADOCE-E 413.44, Subject: (Restricted) Installation of Lashup Gear at REP Sites (Contd)

4. Personnel required to carry out the installation, operation and maintenance of this equipment will be those personnel already deployed at the site for beneficial occupancy.

5. Headquarters RCAF has indicated, through the Pinetree Project Office, that it had no objection to the implementation of this plan, provided such implementation did not interfere with construction, installation of primary radar and communication equipment, as well as ancillary services programmed for this system. It was further indicated that U.S. State Department and Canadian External Affairs Department clearance was considered necessary prior to activation.

6. On the second point, it is the considered opinion of RCAF ADCHQ and this headquarters that no diplomatic clearance is necessary, inasmuch as the over-all program has already been cleared for action by the departments concerned. It was recognized, however, that necessary Customs clearance for any equipment involved in this plan would have to be obtained prior to activation.

7. The above plan has the full concurrence of RCAF Air Defense Command, who are initiating action through their higher headquarters for activation of their own sites using lashup equipment.

8. In view of the limited time available for the implementation of this program and the urgent need for early warning above the 49th parallel, it is requested that immediate action be taken to clear this matter through diplomatic channels, if necessary, and to obtain necessary Customs clearance for the equipment listed in paragraph 2 above.

FOR THE COMMANDING GENERAL:

/s/ THOMAS C. SAVAGE
Major, USAF
Asst Adj Gen.

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From: Pinetree Project Office To: DCS/M

Date: 18 December 1952

Comment No. 1

1. The following is a summary concerning the status of our ADC sites in Canada. The first portion of this summary deals with the occupancy status and the second portion deals with estimates concerning radar availability.

a. Phasing of Site Activations: The activations of our sites in Canada will take place in four (4) phases. These four (4) phases are in consonance with site inspections, arrival of T/O&E and T/A equipment, and deliveries of radar communications equipment. Specifically, the four (4) phases are:

- (1) Phase I - Phase I is put into effect when AIO's are posted at each site. These AIO's will advise the Pinetree Project Office in Ottawa of the dates that the sites will be ready for acceptance inspections.
- (2) Phase II - This phase is put into effect when the Advance Parties (1 supply officer and 14 airmen) activate the sites, receive initial shipments of T/O&E and T/A equipment, and prepare the site for Beneficial Occupancy. This Advance Party move is made after the RCAF advises the Pinetree Project Office of the dates which will mark the arrival of initial supplies and equipment.
- (3) Phase III - This phase is put into effect when the Advance Party has the site prepared for Beneficial Occupancy. Two (2) officers and thirty-two (32) airmen (including the Site Commander) will then arrive to complete Beneficial Occupancy. The Beneficial Occupancy parties consist of four (4) officers and forty-six (46) airmen. The mission of the Beneficial Occupancy party is to prepare the site for operation and the arrival of remaining crews and operational equipment.
- (4) Phase IV - Phase IV is put into effect when radar equipment deliveries are scheduled for the sites. The arrival of the Phase IV personnel will complete the movement of personnel to the sites. Thus, the AC&W squadron will be in place at the site after the Phase IV personnel have arrived. The arrival of Phase IV personnel will be timed approximately one (1) week ahead of the scheduled deliveries of radar equipment. This will allow these persons to ready the site for the installation of radar gear.

b. Current Manning Status of Sites: All dates prior to 10 December 1952 have been met. Dates from 10 December 1952 to 31 December 1952 will be met on or about the dates listed. The dates given for the period 1 January 1953 to 31 March 1953 are estimated dates.

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From: Pinetree Project Office To: DCS/M

Date: 18 December 1952
Comment No. 1 (Contd)

C-No.	Location	Squadron No.	Control	Tenta- Admin tive Opnl Control	Phase I	Phase II	Phase III
C-10	Ramore	912th AC&W Sq	EADF	RCAF	Sep 52	8 Dec 52	21 Dec 52
C-14	Pagwa	913th AC&W Sq	EADF	EADF	Sep 52	17 Nov 52	20 Dec 52
C-15	Armstrong	914th AC&W Sq	EADF	EADF	Sep 52	1 Dec 52	22 Dec 52
C-16	Sioux Lookout	915th AC&W Sq	CADF	CADF	Sep 52	28 Oct 52	5 Dec 52
C-17	Beausejour	916th AC&W Sq	CADF	CADF	Sep 52	24 Oct 52	21 Nov 52
C-19	Puntzi	917th AC&W Sq	WADF	RCAF	Sep 52	10 Sep 52	5 Nov 52
C-20	Baldy Hughes	918th AC&W Sq	WADF	RCAF	Sep 52	31 Mar 53	*Unscheduled
C-21	Saskatoon	919th AC&W Sq	WADF	RCAF	Sep 52	2 Feb 53	*Unscheduled

*A safe estimate for B.O. at these sites is three (3) weeks after Advance Party Occupancy.

2. The following is a summary concerning the status of the radar equipment to be used at the sites.

a. Lash-Up Gear.

- (1) Of the three (3) CPS-5's scheduled for tentative use at the sites, two (2) are presently in Rome and one (1) is at Sacramento. All three (3) sets are to undergo complete overhaul. The date of completion is unknown at this time. The Pinetree Project Office in Headquarters ADC has been advised by both DC&E and Communications and Electronics (M&S) that TPS-1D equipment is now under consideration because of the indefinite status of the CPS-5's.
- (2) Concerning the TPS-1D's, there will be five (5) sets available at Rome and nine (9) sets available at Sacramento on or about 1 January 1953. This is all new equipment that has been delivered from the factory to these depots. Spares are included with this equipment and will be delivered concurrently with the equipment. These sets come in kit form with all cables, wires, etc., pre-cut and ready for installation. Hence, this equipment must be mounted on top of, or adjacent to, the operations building. The set weighs 2700 pounds complete without the power equipment. Further, it is believed that personnel in the squadrons concerned can make installation and preclude the need of AMC technical installation teams to install this equipment. Communications and Electronics (M&S) has estimated that the sets can be operational within two (2) weeks after delivery to the sites.

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From: Pinetree Project Office To: DCS/M

Date: 13 December 1952
Comment No. 1 (Contd)

b. Primary Radar Gear. A telephone call, this date, has been made to Ottawa to determine the status of the scheduled delivery dates. Major Burton of the Communications Group, Pinetree Project Office, Ottawa, has stated that the September scheduled has been superseded as of this date. However, due to the classification of this information, it could not be obtained over the telephone. Any changes in the September schedule will be slippages in delivery dates. The September schedule is quoted below:

<u>Site Location</u>	<u>Site No.</u>	<u>Major Radar</u>	<u>Equipment Deliveries</u>	<u>*Installation Time</u>	<u>Limited Operation on or about</u>
Remore	C-10	FPS-3	1 Jan 53	150 days	1 Jun 53
Pagwa	C-14	FPS-3	15 Jan 53	150 "	15 Jun 53
Armstrong	C-15	FPS-3	20 Mar 53	115 "	15 Jul 53
Sioux Lookout	C-16	FPS-3	1 Mar 53	135 "	15 Jul 53
Beausejour	C-17	FPS-3	15 Feb 53	135 "	1 Jul 53
Puntzi	C-19	FPS-3	15 Feb 53	135 "	1 Jul 53
Baldy Hughes	C-20	FPS-3	15 Apr 53	105 "	1 Aug 53
Saskatoon	C-21	FPS-3	15 Apr 53	105 "	1 Aug 53

*Installation Time includes the delivery time, physical installation, tuning and the initial turning. This estimate given is high.

It is believed that the TPS-1D equipment should be retained after primary radar equipment is delivered, in order to be available for back-up when the prime equipment is undergoing maintenance.

/s/ THOMAS M. LOVE
Major, USAF
Ch. Pinetree Project
Ext 559

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19 December 1952

From: Canadian Air Defense

To: CG, ADC

NOTE: THIS MSG RECD AG CLASD DIV 26 DECEMBER 1952

Reference your ADOCE E 2314 dated 6 November 52 and our A 254D/10 November 52. Survey on use of TPS-1D for lashup installations has now been completed. This survey has shown the lack of trained personnel will delay activation of sites to an extent which does not warrant borrowing interim gear prior to permanent equipment becoming available. Consequently there is no requirement for loan of interim gear. Your cooperation much appreciated.

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DEPARTMENT OF NATIONAL DEFENSE
Royal Canadian Air Force
St Hubert, Que.

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13 February 1953

Commanding General,
USAF Air Defense Command,
Eastern Air Force Base,
Colorado Springs,
Colorado, U.S.A.

Plans - Policy
Agreement on USAF-Manned Radar Stations in Canada

1 Reference is made to the minutes of a conference held at your Headquarters on 2 - 5 Dec 52 which report discussions on eight USAF-manned radars in Canada which took place between members of your Staff and mine.

2 I agree entirely with the conclusion arrived at by these officers and I propose that during the lash up period we should proceed as if this policy had received formal approval from you and me. I am not signing the proposed formal agreement concerning this matter at this time because it seems to me unwise to do so until the new Command Appendix "F" of MCC 300/3 receives formal approval.

(A. L. James) A/V/M
AOC ADC

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ADOOT-C 337

7 January 1953

SUBJECT: (Unclassified) Recommendations of the RCAF-USAF ADC's
Conference 2-5 Dec 52

TO: Air Officer Commanding
Air Defense Command (RCAF)
RCAF Station, St Hubert
PQ, Canada

1. Attached are minutes of the conference held at this headquarters during the period 2-5 December 1952 concerning the operational relationship of the eight (8) USAF-manned radar stations in Canada and other operational matters of mutual interest.

2. The views and concepts expressed in the minutes of this conference have been carefully reviewed and are approved. It is believed that their development into operational agreements will further enhance our coordinated efforts to provide a workable air defense for our respective countries.

3. Your comments, recommendations, and/or concurrence are requested. Provided you concur, I suggest we draw up a formal agreement concerning the operation of the eight (8) USAF-manned radar stations in Canada and our assumption of certain responsibilities in Canadian territory. The other agreements reached by the conferees can be implemented by your concurrence with the minutes of the conference.

/s/ FREDERIC H. SMITH, JR.
Maj Gen, USAF
Vice Commander

The extension of Sectors into Canada
is consistent with boundary changes
to be effective on 16 Feb 53.

J. T. ROBBINS
Lt Col, USAF

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MINUTES OF A CONFERENCE
TO DETERMINE REQUIREMENTS FOR
THE OPERATION OF
THE EIGHT USAF-MANNED RADAR STATIONS
IN CANADA AND FOR THE COORDINATED PROCEDURES
BETWEEN CANADIAN AND U.S. AC&W SYSTEMS
2 thru 5 Dec 52

PRESENT

<u>NAME</u>	<u>ORGANIZATION</u>
Lt Col Jay T. Robbins (Chairman)	Hq ADC, O&T
Maj. P. W. Brownfield (Secretary)	" " O&T
W/C M. S. Strange	" " RCAF
Mr. D. W. Mitchell	DOT, Canada
S/L G. F. Ookenden	Hq ADC, RCAF
F/L L. J. Lomas	" " "
F/L G. Inglis	" " "
Mr. J. V. Tighe	CAA
Dr. K. W. Jordan	Hq ADC, OOA
Lt Col F. C. Malone	Hq ADC, O&T
Lt Col J. F. Wimsatt	" " O&T
Maj T. M. Love	" " DM
Maj K. W. Gordon	" " P&R
Maj M. E. Crispen	" " P&R
Capt E. Kronberg	" " DC&E
Maj L. F. Brady	Hq EADF, O&T
Capt F. Winter	" " "

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Minutes of RCAF-USAF ADC's Conference 2-5 Dec 52

SUBJECT: Sector and sub-sector boundaries and clarification of the manner in which the eight (8) USAF-manned radar sites in Canada will operate.

DISCUSSION: Due to the scope of the subject, the discussion was broken down into three (3) items:

- a. Sub-sector Boundaries.
- b. Sector Boundaries.
- c. Operation of the eight (8) USAF manned sites in Canada.

ITEM 1: In discussing the operation of radar stations along and adjacent to the U.S.-Canada border, conferees agreed that the border should be used as the northern limit of sub-sector of USAF radar stations where practicable. However, when radar coverage, geographic disposition and other operational factors dictated otherwise, sub-sectors of USAF radar stations should be extended into Canadian territory. The responsibilities of these stations in Canadian territory would be limited to surveillance and identification. Interception and rules of engagement applicable to these areas in Canada would be consistent with approved procedures concerning this subject. Incl 1 illustrates the sub-sectors boundaries proposed by the conferees. Final delineations of sub-sector boundaries will be a responsibility of USAF Air Defense Force Hq after detailed coordination with RCAF ADC Hq or its representatives. However, the sub-sectors delineated in Incl 1 should be followed as closely as possible since they are based to some extent on the sector boundaries discussed under Item 3.

ITEM 2: In discussing sector boundaries, primary consideration was given to the proposed reorganization of the USAF-ADC and the realignment of Air Defense Force and Air Division areas of responsibility which is scheduled to take place in early 1953. It was agreed that Region and Sector boundaries within the Continental U.S. should be delineated as proposed by the USAF ADC and as approved by USAF Hq. It was further agreed that certain Sectors should extend into Canadian territory and that USAF Air Divisions should assume certain responsibilities for air defense functions in these areas of Canada. Incl 1 illustrates the Region and Sector boundaries proposed by the conferees. It should be noted that northern limits have been indicated. Specifically, it was agreed that the 30th Air Division should assume the responsibility

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Minutes of RCAF-USAF ADC's Conference 2-5 Dec 52

for the implementation of SCAT and CONELRAD and the announcement of civil air defense warnings for those areas of Canada in its assigned Sector. Such implementation and announcement will be accomplished by notifying key points in Canada which will be determined locally. The 31st, 29th, and 25th Air Divisions will assume similar responsibilities for those areas of Canada which are included in assigned Sectors. The USAF ADC or its subordinate commands cannot assume the responsibility for the defense of Canadian targets within these areas but will perform normal air defense functions to the extent possible with available facilities. Interception procedures and rules of engagement in these areas will be in accordance with approved Canadian-U.S. agreements.

ITEM 3:

In discussing the operational relationship of the eight (8) USAF-manned stations in Canada, conferees agreed that these stations should be considered in two broad categories. Stations C-14 (Pagwa), C-15 (Armstrong), C-16 (Sioux Lookout), and C-17 (Beausejour) should operate as integral parts of the 30th and 31st Air Divisions. These four stations should function essentially the same as similar type stations in the U.S. They will report to U.S. ADCC's or ADCC's, cross tell to adjacent U.S. and Canadian stations, utilize U.S. operational SOP's and directives and perform routine maintenance in accordance with U.S. schedules (to be coordinated with Canada).

The other four (4) USAF-manned stations in Canada C-10 (Ramore), C-19 (Puntzi Mt), C-20 (Baldy Hughes Mt), and C-21 (Saskatoon) should operate as an integral part of the Canadian air defense system in accordance with Canadian operational procedures. They will report to Canadian ADCC's or ADCC's, cross tell to adjacent U.S. and Canadian stations, utilize Canadian operational SOP's and directives and perform routine maintenance in accordance with Canadian schedules (to be coordinated with U.S.).

The operation of these eight (8) stations as proposed will be consistent with and require no changes in the approved Radar Extension Program, although certain communications could be deleted without materially affecting the operation of the systems. Detailed administrative and logistical instructions for these stations should be in accordance with approved RCAF-USAF agreements.

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Minutes of RCAF-USAF ADC's Conference 2-5 Dec 52

RECOMMENDATIONS: It is recommended that:

- a. Proposed region and sector boundaries be approved and published.
- b. The eight (8) USAF-manned radar stations be operated in accordance with the concept expressed above.
- c. The USAF ADC assumes certain responsibilities in Canada as proposed above.

SUBJECT: The form, level of transfer and type of fighter and radar status information required between Canadian and U.S. installations.

DISCUSSION: It is essential for the various echelons to have knowledge of the capabilities of the air defense system of both Canada and the U.S. The information forwarded will vary in degree with the requirement of each echelon. It was agreed that USAF ADCR 55-22 and 55-20 could be used by both countries for the forwarding of status. The regulation must be amended to include Canadian stations and to illustrate the manner in which the status will flow between all echelons.

RECOMMENDATION: a. That ADCR 55-20 and 55-22 be amended to reflect the following:

- (1) Each station will report status of radar and fighters to its parent ADCC and all adjacent stations.
- (2) ADCC's will report to adjacent ADCC's.
- (3) USAF ADCC's will forward status to their ADF, COC.
- (4) In the case of a Canadian unit, the Canadian ADCC will report to an adjacent USAF ADCC who will in turn relay the data to their ADF, COC.
- (5) ADF, COC's will forward status to USAF, ADC, COC, to interested ADCC's under their control and/or adjacent ADF's.
- (6) The RCAF, COC, St Huberts will forward data from the NEAC sector direct to USAF, COC, Colorado Springs, who will in turn relay the information to the ADF concerned.

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Minutes of RCAF-USAF ADC's Conference 2-5 Dec 52

SUBJECT: a. Level of overlap, type of unknown and hostile flashes required.

 b. Chain to be followed for telling of long and short range warnings from RCAF units and NEAC to USAF echelons.

 c. Mission action and results level and form of report.

DISCUSSION: The above subjects were discussed jointly as they had a common solution. It was agreed among the conferees that USAF ADCR 55-29 could be used for reporting all types of warnings, flashes, and cross telling that were necessary to accomplish. Each echelon requires various degrees of information on hostiles and unknowns.

RECOMMENDATION: a. That the following system for reporting be adopted for use between Canada and the U.S.

- (1) Radar stations overlap tell all unknown or hostile tracks to all adjacent radar stations of Canada and the U.S.
- (2) ADCC's will forward warning tell information to adjacent ADCC's as the tactical situation requires.
- (3) The first USAF ADCC to receive warning information from RCAF or NEAC will pass the data to the appropriate ADF, COC. The ADF will then disseminate to other sectors and USAF, ADC, COC.
- (4) Warning information from NEAC or Canadian sectors will also be told from RCAF, COC, at St Huberts direct to USAF, ADC, COC, as the tactical situation requires.
- (5) All data forwarded as listed above will include action taken and results when available.

SUBJECT: RCAF PIZ and its relation to USAF ADIZ and EADF PIZ.

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Minutes of RCAF-USAF ADC's Conference 2-5 Dec 52

DISCUSSION: A Perimeter Identification Zone is a requirement of EADF and not USAF, ADC. The PIZ was considered a local arrangement between RCAF and EADF, therefore, no agreement was established at the conference.

SUBJECT: Application of ADCR 55-29 (rewrite) to RCAF surveillance and plotting procedures.

DISCUSSION: The draft copy of the rewrite of USAF ADCR 55-29 was reviewed by the RCAF representatives. No changes were required and Canada will utilize the Regulation to the extent possible.

SUBJECT: Canadian - U.S. cross border corridor identification system.

DISCUSSION: USAF, ADC's proposed plan for the cross border corridor system of identification was discussed with the RCAF representatives. No agreements were reached as the RCAF believed that the system must be regulatory by law in order to work and that the identification line must be extended farther north. USAF, ADC is in agreement with these recommendations but believes that they are applicable to a future, long-range plan rather than a plan that can be placed into effect immediately. It was agreed that a conference should be held in January to determine requirements for an interim plan and a long-range plan. RCAF-ADC, DOT-Canada, USAF-ADC, and CAA should be represented at the conference.

RECOMMENDATION: That the proposed conference be held in January to determine requirements for a cross border corridor system of identification.

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Subject: Recommendations of the RCAF-USAF ADC's Conference 2-5 Dec 52

From: DCS/O

To: CS
VC

Date: 22 Dec 52
Comment No. 1

1. The attached letter with the inclosure on Minutes of the Canadian-USAF Conference held at this headquarters 2 through 5 Dec is forwarded for your approval and signature.
2. It is intended that the actions recommended in the conference will be implemented upon joint approval of RCAF and this headquarters.
3. Basically, the agreements reached in the conference were:
 - a. Some Air Divisions of this command should extend their sectors of responsibility into Canada for surveillance, identification, implementation of SCAT and EMR and announcements of Air Defense Warnings. No responsibility would be assumed for the defense of Canadian targets within these areas, but normal air defense functions will be performed to the extent possible with facilities available.
 - b. Of the eight (8) USAF-manned stations in Canada, four (4) (C-14 Pagawa, C-15 Armstrong, C-16 Sioux Lookout, and C-17 Beausejour) would be operated as an integral part of the USAF Air Divisions and four (4) (C-10 Ramore, C-19 Puntzi Mt, C-20 Baldy Hughes Mt, and C-21 Saskatoon) would operate as an integral part of the Canadian air defense system. This integration would include using the SOP's and directives of the country to which assigned. Administrative and logistic matters would be in accordance with approved RCAF-USAF agreements.
 - c. Status information of both radar and fighters will be exchanged between the two countries and the form used to accomplish the exchange will be in accordance with our regulations.
 - d. Flashes, warnings, and cross telling of unknowns and hostiles will be exchanged and the form used to accomplish the exchange will be in accordance with our regulations.
 - e. No agreements were reached on the cross border corridor system of identification. A conference will be held in January to resolve the problem. RCAF, Canadian DOT, CAA, and this headquarters will be represented.

KENNETH P. BERGQUIST
Brig General, USAF
DCS/Operations

1 Incl
Ltr fr this Hq to RCAF,
same subj, w/1 Incl

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13 February 1953

Plan for Lash-up Operation of ADC Manned Project
Pinetree Sites

1. General Situation. The USAF/ADC will man and operate eight (8) Early Warning AC&W sites in Canada under the U.S. - Canada Radar Extension Plan agreement. Due to slippage in production of radar equipment and the construction of wire facilities, these sites will not be operational under the permanent plan prior to the latter part of 1953. Therefore, as a means of providing a maximum defense effort at the earliest possible date, it is planned to establish early warning stations at the ADC Project Pinetree sites using lash-up equipment for operation on a limited scale.

a. Command Operational Control

- (1) USAF/ADC will exercise command-administrative control over the eight (8) sites.
- (2) USAF/ADC will exercise operational control over the following sites:

<u>C No.</u>	<u>Squadron No.</u>	<u>Location</u>
C-14	913th AC&W Sq	Pagwa
C-15	914th AC&W Sq	Armstrong
C-16	915th AC&W Sq	Sioux Lookout
C-17	916th AC&W Sq	Beausejours

- (3) RCAF/ADC will exercise operational control over the following sites:

<u>C No.</u>	<u>Squadron No.</u>	<u>Location</u>
C-10	912th AC&W Sq	Ramore
C-19	917th AC&W Sq	Puntzi
C-20	918th AC&W Sq	Baldy Hughes
C-21	919th AC&W Sq	Saskatoon

b. Operational Dates

The Commanding General, ADC, has established 1 April 1953 as the operational date for the following sites:

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Plan for Lash-up Operation of ADC Manned Project Pinetree Sites (Cont'd)

<u>C-No.</u>	<u>Squadron No.</u>	<u>Location</u>
C-10	912th AC&W Sq.	Ramore
C-14	913th AC&W Sq.	Pagwa
C-15	914th AC&W Sq.	Armstrong
C-16	915th AC&W Sq.	Sioux Lookout
C-17	916th AC&W Sq.	Beausejours
C-19	917th AC&W Sq.	Puntzi

The 918th AC&W Squadron at Baldy Hughes (C-20) and the 919th AC&W Squadron at Saskatoon (C-21) will be operational as soon as conditions permit.

2. Mission

a. The mission of the eight (8) stations under the lash-up program is to maintain and operate an early warning facility for the purpose of providing United States and Canadian Air Defense Systems with early warning of air activity in their respective sub-sectors.

b. Function of each site:

- (1) Install, maintain and operate all equipment and facilities required for the accomplishment of the assigned mission. Lash-up equipment will be installed and operated in such a manner as to preclude interference with the contractor and installation of the permanent equipment.
- (2) Maintain continuous radar surveillance throughout the sub-sector.
- (3) Record and tell air surveillance information to U.S. and Canadian facilities as required. Identification functions are not required.
- (4) Operate the station in accordance with appropriate U.S. or Canadian schedules, procedures and directives.
- (5) Establish and maintain security and police measures in accordance with appropriate directives.
- (6) Maintain the highest possible state of combat effectiveness through the conduct of a continuous individual and unit training program.

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Plan for Lash-up Operation of ADC Manned Project Fintree Sites (Cont'd)

- (7) Submit reports as required by higher headquarters.
- (8) Establish and maintain necessary administrative, supply and transportation procedure for efficient operation of the station.

3. Communications - Electronics

a. One TPS-1D radar, complete with two (2) 7.5 KW, 400 cycle power units, spares, and test equipment will be supplied each site for lash-up operation. When permanent radar equipment is operational the TPS-1D's and allied equipment will be returned to the U.S. for disposition by USAF/ADC.

b. Ground/Air (VHF/UHF) communications and IFF capability will not be required during the lash-up operational phase.

c. Each site will be provided with a minimum of one circuit, as indicated below, for the lash-up operation period. Until wire circuits become available, HF radio using voice or CW emission and operating on frequencies indicated will be employed. Radio equipment is being shipped to each site for this purpose.

- (1) Ramore to Falconbridge using frequencies 2703 kcs and 8055 kcs.
- (2) Pagwa and Armstrong to Sault Ste Marie (P-66) on frequencies 2849 kcs and 6435 kcs.
- (3) Sioux Lookout and Dease-Jour to Finland (P-69) on frequencies 2526 kcs and 6870 kcs.
- (4) Puntzi Mt., Baldy Hughes and Saskatoon Mt. to the ADCC at Vancouver (C-37) on frequencies 2835 kcs and 8135 kcs.

d. Where feasible, the radio equipment will be installed and operated in the same room with the radar scopes; thus permitting the radio operator to serve also as the radar teller.

4. Logistics

a. Eight (8) TP51-D radars (complete with spares) are at SMAMA Depot. Two (2) power units per TP51-D are also at this depot. The

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Plan for Lash-up Operation of ADC Manned Project Pinetree Sites (Cont'd)

test equipment is located at Wright-Patterson Air Force Base. Accountability for this equipment will be transferred, upon shipment, to the ADC Property Accountability Office, Ottawa, Ontario, Canada, AF 494 SO.

b. This headquarters is making plans for airlift of TFS-1D equipment, spares, and power units to the WADF sites. The radar equipment for the 917th AC&W Squadron at Puntzi will be air delivered to that site. The radar equipment for the sites at Saskatoon and Baldy Hughes will be air delivered to the Grand Prairie Airport, Alberta, Canada for transshipment to the Saskatoon site. The Baldy Hughes equipment will be stored at the Saskatoon site and moved to Baldy Hughes when that site is ready to receive and install the equipment. Headquarters ADC will be responsible for this airlift to Puntzi and Saskatoon.

c. The radar equipment for the CADF and EADF sites will be airlifted to Winnipeg, Manitoba, Canada. It will be off-loaded at Winnipeg and transferred to the Canadian National Railroad for delivery to the sites. Headquarters ADC will be responsible for this airlift and rail shipment.

d. The test equipment will be delivered from Wright-Patterson Air Force Base to the sites by the most convenient means in keeping with the time allowed. Headquarters ADC will be responsible for this shipment.

e. The target date for equipment and personnel to arrive at the sites (Baldy Hughes and Saskatoon expected) is March 10, 1953.

f. Site personnel will install the equipment. The installation and operation of this equipment will be such that it will not interfere with the contractor's work at the sites. Further, it will not interfere with the construction or installation of primary radar equipment or communications facilities. Existing buildings will be used.

g. The logistic support of the TFS-1D equipment, power units, spares, and test equipment will be the responsibility of the Air Defense Force concerned. The lash-up logistic support policy is this: That equipment which is initially supplied from USAF sources will be supported from USAF sources.

h. The electronics support bases for this program are:

McChord Air Force Base	-	WADF
Trux Air Force Base	-	CADF
Selfridge Air Force Base	-	EADF

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Plan for Lash-up Operation of ADC Manned Project Pinetree Sites (Cont'd)

The sites will use the same requisitioning procedures for electronic support as are established for ZI operation; i.e., requisitions for parts will be made directly to the electronic support base concerned. An information copy will be sent to the ADC Property Accountability Office in Ottawa, so that accurate records of equipment on hand may be maintained. The accountability for non-expendable electronic support items will be transferred to AF 494 SO; i.e., the ADC Property Accountability Office in Ottawa, Canada.

i. The Pinetree Project Office in Ottawa has taken action to ship RCAF type AT-3 radio set, complete with antenna kit to each site. Replacement parts will be requisitioned on the RCAF depots concerned. An information copy of requisitions will be forwarded to the ADC Property Accountability Office in Ottawa, the office of record for all equipments at the sites.

j. Customs procedures for the Lash-up personnel moving into Canada remain the same as prescribed in Chapter XI, Section II, page 110, of ADCM 11-2. It will be the responsibility of the Air Defense Forces to brief personnel in accordance with customs information cited in ADCM 11-2. The Pinetree Project Office in Ottawa, Canada, will be advised of personnel movements by number, mode of travel, and dates of passage through specified ports. This will be done in accordance with instructions previously issued for Beneficial Occupancy personnel.

k. Personnel selected to implement the lash-up program will meet the same POM requirements as established for personnel who are now at the sites. It will be the responsibility of the Air Defense Forces to provide personnel with proper (Zone VII, Arctic) clothing and equipment prior to their departures from the ZI.

5. Personnel. The following personnel will be assigned for operation and maintenance of lash-up equipment.

<u>Quantity</u>	<u>Job</u>
1	Radar Maintenance Officer
5	Radar Mechanics
2 (Presently Assigned)	Radio Mechanics
5 (2 Presently Assigned)	Radio Operators
5	Radar Operators
Total - 1 Officer 17 Airmen	

The Deputy for Personnel has forwarded a recommended list of additional housekeeping personnel to support the lash-up operation.

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2 Jan 1953

SUBJECT: (Unclassified) Commitment of Augmentation Forces

TO: Deputy Chief of Staff, Operations
Headquarters USAF
Washington 25, D. C.

1. Air Defense Command has been assigned the responsibility for conducting the air defense of the Continental United States. To carry out this responsibility an air defense system has been developed with the primary purpose of protecting the total warmaking capability of this nation so that a future war can be successfully concluded.

2. The basic combat weapon available within the system to conduct the air defense of the United States is the fighter force. Considering the areas to be defended and the outer limit of the aircraft control and warning system; the fighter forces assigned to Air Defense Command are deployed to locations which will provide the maximum coverage in the defense of critical areas. When additional fighter forces become available to Air Defense Command they will be deployed in a similar manner.

3. Paragraph 3t(7), AFEWP 1-53-1, states that consistent with the accomplishment of assigned missions all ZI commanders will make available to Air Defense Command, for incorporation in the air defense system, any forces which may have inherent air defense capabilities. Existing mutual agreements between Headquarters Air Defense Command and the major commands concerned are in consonance with this task.

4. Under the provisions of existing agreements the availability of forces and facilities of other major commands will be in consonance with the requirements and commitments for execution of their primary missions. In view of these provisions there is no assurance that augmentation forces will be provided to Air Defense Command in the event of an emergency.

5. The present and future plans for the deployment of Air Defense Command fighter forces indicate that this command will be deploying fighter forces into areas wherein the inherent air defense capabilities of other commands located in these areas will far exceed those of Air Defense Command. Inclosures 1, 2, and 3 emphasize this point by indicating the availability of fighter forces by type, location, and major command assigned for the years 1953, 1955, and 1957.

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381 Subject: (Unclassified) Commitment of Augmentation Forces (Contd)

6. In addition, these inclosures reveal that by 1 January 1953 approximately 54% of the total USAF fighter forces available in Continental United States will be assigned to other major commands and will be deployed generally in the southern United States. By 1957 this percentage will increase to approximately 63% and the forces will be deployed generally in the same area.

7. It is proposed that the following actions be taken by Headquarters USAF in order to alleviate the uncertainty of the availability of augmentation forces.

a. Direct that all major ZI commands provide Air Defense Command with a firm commitment of forces possessing air defense capabilities for utilization in the event of an emergency.

b. Direct that the forces committed be trained for the secondary mission of air defense and be immediately available for all-out emergency operations.

8. The above actions, if approved, will permit this command, in an emergency, to redeploy the fighter forces programmed to be located in the southern United States to more critical defense areas. In addition, it will permit this command to prepare with considerably more accuracy plans for present and future air defense operations.

9. It is recognized that the primary mission of Strategic Air Command may preclude the establishment of a firm commitment of the fighter forces assigned. However, if the United States Air Force is to exploit to the maximum the air defense capabilities of the forces available in the Continental United States it is mandatory that, insofar as possible, all available augmentation forces be utilized. Upon the conclusion of the initial air attack and depending upon the situation as evaluated by the Joint Chiefs of Staff, augmentation forces could be released for other operations as appropriate.

10. It is to be pointed out that this commitment concerns only USAF forces in the Continental United States. The forces of the U. S. Navy, located in the United States and possessing an air defense capability, if committed, would further increase the capability of the air defense system to counter the initial attack. However, the problem of committing Naval forces to the air defense mission will require additional study and, of necessity, will have to be resolved at the JCS level.

11. It is the opinion of this command that the use of all available augmentation forces by Air Defense Command will be mandatory in

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381 Subject: (Unclassified) Commitment of Augmentation Forces (Contd)

order to successfully counter an initial air attack upon the Continental United States. It is therefore urgently requested that the actions proposed in paragraph 7 be approved.

FOR THE COMMANDING GENERAL:

3 Incls:

1. Fighter Forces Available
1953 (dup)
2. Fighter Forces Available
1955 (dup)
3. Fighter Forces Available
1957 (dup)

JARRED V. CRABB
Major General, USAF
Chief of Staff

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DEPARTMENT OF THE AIR FORCE
OFFICE OF THE CHIEF OF STAFF
United States Air Force
Washington, D. C.

3 March 1953

General Benjamin W. Chidlaw
Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

Dear Ben:

I am inclosing some self-explanatory correspondence with other major commanders which was forwarded as a result of general Crabb's letter of 2 January 1953 on augmenting your forces.

Please advise me of the arrangements you make for this augmentation. We here will attempt to secure a commitment of Naval force at every opportunity which offers.

Sincerely,

s/t Van

HOYT S. VANDENBERG
Chief of Staff, United States Air Force

1 Incl
Cy Ltrs to SAC
TAC, ATRC, and APG

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3 March 1953

General Curtis E. LeMay
Commanding General
Strategic Air Command
Offutt Air Force Base
Omaha, Nebraska

(Ltrs also sent to: TAC,
ATRC, & AFGC)

Dear Curt:

In reviewing our plans for air defense, it occurs to me that we have failed to take complete advantage of all potentially available combat forces which we can be reasonably sure will be present in the U. S. for the next several years.

This matter has been emphasized in a recent letter from General Chidlaw in which he recommends in part that:

It is proposed that the following actions be taken by Headquarters USAF in order to alleviate the uncertainty of augmentation forces.

- (a) Direct that all major 4I commands provide Air Defense Command with a firm commitment of forces possessing air defense capabilities for utilization in the event of an emergency.
- (b) Direct that the forces committed be trained for the secondary mission of air defense and be immediately available for all out emergency operations.

I feel the Air Force's position will be untenable if an attack occurs without our having planned for employment of every available and potentially available means to counteract it.

To this end, it is my desire that a definite and continuing commitment of increasing proportions of any air defense means available to you be made to the Air Defense System. Such commitment should provide for the necessary training and I envision that forces in your command should commence standing regular alert as soon as their training status permits as agreed between you and Ben Chidlaw.

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I am furnishing Ben Chidlaw copies of this letter with instructions that he contact you for the purpose of formulating the necessary plans. It is not my intention that your primary missions be compromised. I feel that these instructions can be complied with without such compromise.

Sincerely,

s/t/ NATHAN F. TWINING
General, USAF
Vice Chief of Staff

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AIR PROVING GROUND COMMAND
EGLIN AIR FORCE BASE
FLORIDA

HEADQUARTERS AIR DEFENSE COMMAND
ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

3 April 1953

MUTUAL AGREEMENT
FOR THE AIR DEFENSE OF THE CONTINENTAL UNITED STATES

I.

PURPOSE

The purpose of this mutual agreement between the signatories is to:

- a. Establish general procedures for the integration and use, during the initial period of hostilities, of all available Air Proving Ground Command forces in support of the air defense of the continental United States.
- b. Define the air defense responsibilities of the signatories.

II.

DEFINITIONS

AIR DEFENSE - The term "air defense" includes all measures (combative, denial and deception, and precautionary and remedial) designed to nullify or to reduce the effectiveness of the attack of hostile aircraft or guided missiles after they are airborne.

OPERATIONAL CONTROL - The term "operational control" comprises those authoritative functions involving the assignment of tasks, the designation of objectives, and the direction necessary to accomplish the assigned missions. It does not include such matters as administration, logistic support, and individual training.

EMERGENCY - The term "emergency," for the purpose of this agreement, is considered to exist: (1) upon declaration by the Commanding General, Air Defense Command, of a Military Emergency or Air Defense Readiness; (2) upon notification that a condition of Air Defense Warning Yellow or Red is in effect; (3) as directed by the Joint Chiefs of Staff or other competent authority; (4) in event of an enemy attack upon the continental United States.

III.

CONCEPT

Forces and facilities of the Air Proving Ground Command will be specifically allocated for the air defense of the continental United States. It is essential that procedures and policies be established, by mutual agreement, which will insure the effective utilization of

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these forces and facilities. Such forces will be trained for the mission of air defense and will be immediately available for emergency employment under the operational control of the Air Defense Command.

IV. RESPONSIBILITIES

a. The responsibilities of the Air Defense Command are:

- (1) To provide for the air defense of the continental United States.
- (2) To coordinate with and prepare plans for the operational control of the Air Proving Ground Command units committed to emergency air defense operations.
- (3) To coordinate with Air Proving Ground Command, operations orders and plans, to insure adequate unit training and adherence to air defense policies and procedures by Air Proving Ground Command forces and facilities committed to air defense operations.
- (4) To provide communications and AC&W facilities for the scramble and close control of fighter aircraft engaged in air defense tasks.

b. Responsibilities of Air Proving Ground Command:

- (1) To provide a definite and continuing commitment of those forces and facilities possessing air defense capability, and physically present within the continental United States for use in emergency air defense under the operational control of the appropriate Air Defense Command commander.
- (2) To provide Air Defense Command with current data on location, composition and capabilities of Air Proving Ground Command units and facilities committed for emergency employment in air defense operations.
- (3) To issue instructions which will expedite employment of Air Proving Ground Command units which are committed to emergency air defense operations.
- (4) To insure that the forces committed are trained for the mission of air defense and that they be immediately available for emergency air defense operations.

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- (5) To coordinate plans with Air Defense Command for participation of available Air Proving Ground Command units in air defense maneuvers so as to familiarize units with air defense procedures.
- (6) To maintain an adequate level of combat ammunition and the minimum reserve of fuel as determined by the Commanding General, Air Defense Command.
- (7) To provide trained forces to stand alert during periods and at locations to be determined jointly by the signatories.

V.

PROCEDURES

a. Determination of the requirement for the employment of committed Air Proving Ground Command forces and facilities shall be made by the Commanding General, Air Defense Command or his designated representative.

b. In event of emergency, as defined, the Commanding General, Air Defense Command will notify the Commanding General, Air Proving Ground Command, by the most expeditious means, to make available to the operational control of Air Defense Command those forces and facilities which have been committed for air defense of the continental United States.

c. Upon receipt of notification from the Commanding General, Air Defense Command, the Commanding General, Air Proving Ground Command will direct subordinate units to comply with implementing operations orders or plans issued to supplement this mutual agreement.

d. For air defense exercises and maneuvers, the Commanding General, Air Proving Ground Command will initiate action upon request of the Commanding General, Air Defense Command to secure or direct participation of such committed Air Proving Ground Command forces and facilities as may be available.

VI.

RESERVATIONS

a. The duration of employment of committed forces and facilities will be the shortest period consistent with air defense requirements and the primary mission of Air Proving Ground Command.

PATRICK W. TIMBERLAKE
Major General, USAF
Commanding, AFGC

B. W. CHIDLAW
General, USAF
Commanding, ADC

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HEADQUARTERS AIR TRAINING COMMAND
SCOTT AIR FORCE BASE
ILLINOIS

HEADQUARTERS AIR DEFENSE COMMAND
ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

25 April 1953

MUTUAL AGREEMENT
FOR THE AIR DEFENSE OF THE CONTINENTAL UNITED STATES

I.

PURPOSE

The purpose of this mutual agreement between the signatories is to:

- a. Establish general procedures for the integration and use, during the initial period of hostilities, of all available Air Training Command forces in support of the air defense of the continental United States.
- b. Define the air defense responsibilities of the signatories.

II.

DEFINITIONS

AIR DEFENSE - The term "air defense" includes all measures (combative, denial and deception, and precautionary and remedial) designed to nullify or to reduce the effectiveness of the attack of hostile aircraft or guided missiles after they are airborne.

OPERATIONAL CONTROL - The term "operational control" comprises those authoritative functions involving the assignment of tasks, the designation of objectives, and the direction necessary to accomplish the assigned missions. It does not include such matters as administration, logistic support, and individual training.

EMERGENCY - The term "emergency", for the purpose of this agreement, is considered to exist: (1) upon declaration by the Commanding General, Air Defense Command, of a Military Emergency or Air Defense Readiness; (2) upon notification that a condition of Air Defense Warning Yellow or Red is in effect; (3) as directed by the Joint Chiefs of Staff or other competent authority; (4) in event of an enemy attack upon the continental United States.

III.

CONCEPT

Forces and facilities of the Air Training Command will be specifically allocated for the air defense of the continental United States. It is essential that procedures and policies be established, by mutual agreement, which will insure the effective utilization of these forces and facilities. These forces will be trained for the mission of air defense to such level as primary mission training commitments of the Air Training Command permit and will be passed immediately to the operational control of the Air Defense Command, for emergency air defense

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employment, under the conditions constituting an emergency as defined in Section II of this agreement.

IV.
RESPONSIBILITIES

a. The responsibilities of the Air Defense Command are:

- (1) To provide for the air defense of the continental United States.
- (2) To coordinate with and prepare plans for the operational control of the Air Training Command units committed to emergency air defense operations.
- (3) To coordinate with Air Training Command, operations orders and plans, to insure adherence to air defense policies and procedures by Air Training Command forces and facilities committed to air defense operations.
- (4) To provide communications and AC&W facilities for the scramble and close control of fighter aircraft engaged in air defense tasks.

b. Responsibilities of Air Training Command:

- (1) To provide a definite and continuing commitment of those forces and facilities possessing air defense capability, and physically present within the continental United States for use in emergency air defense under the operational control of the appropriate Air Defense Command commander.
- (2) To provide Air Defense Command with current data on location, composition and capabilities of Air Training Command units and facilities committed for emergency employment in air defense operations.
- (3) To issue instructions which will expedite employment of Air Training Command units which are committed to emergency air defense operations.
- (4) To insure that the forces committed are trained for the mission of air defense to the extent the primary mission of Air Training Command will permit and that they be made immediately available to the operational control of Air Defense Command when required for emergency air defense operations.
- (5) To coordinate plans with Air Defense Command for participation of available Air Training Command units in air defense

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maneuvers so as to familiarize units with air defense procedures. The degree of participation in each maneuver will be arranged jointly during the planning stages.

- (6) To advise Air Defense Command of the minimum levels of combat ammunition and fuel established for the Air Training Command bases concerned and to keep Air Defense Command informed when reserves fall below such minimums.

V.

PROCEDURES

a. Determination of the requirement for the employment of committed Air Training Command forces and facilities for emergency air defense operations shall be made by the Commanding General, Air Defense Command, or his designated representative.

b. In event of emergency, as defined, the Commanding General, Air Defense Command will notify the Commanding General, Air Training Command, by the most expeditious means, to make available to the operational control of Air Defense Command those forces and facilities which have been committed for air defense of the continental United States.

c. Upon receipt of notification from the Commanding General, Air Defense Command, the Commanding General, Air Training Command, will direct subordinate units to comply with implementing operations orders or plans issued to supplement this mutual agreement.

d. For air defense exercises and maneuvers, the Commanding General, Air Training Command will initiate action upon request of the Commanding General, Air Defense Command, to secure or direct participation of such committed Air Training Command forces and facilities as may be available for training.

VI.

RESERVATIONS

a. The duration of employment of committed forces and facilities will be the shortest period consistent with air defense requirements and the primary mission of Air Training Command.

ROBERT W. HARPER
Lt General, USAF
Commanding, ATRC

B. W. CHIDLAW
General, USAF
Commanding, ADC

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

94

ADOOT-F 381

27 June 1953

SUBJECT: (Secret) Air Defense Augmentation From Tactical Air Command

TO: Commanding General
Tactical Air Command
Langley Air Force Base
Virginia

1. The attached report outlines those concepts and procedures agreed upon by members of our staffs during the conference held here on 3 and 4 June 1953. I understand there were no major points of disagreement.

2. I would appreciate your comments on the report to serve as the authority under which our implementing plans are established.

1 Attachment (dup)
Rept of TAC - ADC
Augm Conf

/s/ B. W. CHIDLAW
General, USAF
Commanding

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Hq ADC ADOOT-F 381 Subject: (Secret) Air Defense Augmentation From
Tactical Air Command

TCHCS 381 (27 Jun 53)

1st Ind

10 Jul 1953

Hq Tactical Air Command, Langley Air Force Base, Virginia

TO: Commander, Air Defense Command, Ent Air Force Base, Colorado
Springs, Colorado

1. Reference paragraph 2 of the inclosed report. Further consideration of the operational control of troop carrier aircraft reveals that more effective utilization of airlift aircraft can be obtained if operational control of those aircraft is retained within Tactical Air Command; therefore, operational control of troop carrier aircraft will remain within Tactical Air Command. Concur in Air Defense Command having operational control of all fighter units and units possessing a GCI capability.

2. Reference paragraph 4 of the inclosure as reads "Tactical Air Command interposes no objection to direct notification from Headquarters Air Defense Command to Tactical Air Command participating units, with information to Tactical Air Command Headquarters," request the airlift portion of your Operations Plan 4-53 be implemented direct from your headquarters to the Commander, Eighteenth Air Force, with information to this headquarters. Concur in your direct notification of all other participating Tactical Air Command units with information to the Commander, Ninth Air Force, and to this headquarters.

3. Concur in all other agreements reached at the augmentation conference.

FOR THE COMMANDER:

1 Incl
Dup cy w/d

ALONZO M. DRAKE
Brigadier General, USAF
Chief of Staff

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REPORT OF TACTICAL AIR COMMAND - AIR DEFENSE COMMAND
AUGMENTATION CONFERENCE

1. This report outlines concepts and responsibilities agreed upon during the Tactical Air Command - Air Defense Command Augmentation Conference held at Headquarters Air Defense Command on 3 and 4 June 1953.

2. Appropriate forces and facilities of the Tactical Air Command available within the continental United States will be specifically designated for use in the air defense of the continental United States. It is essential that procedures and policies be established to insure effective utilization of these forces and facilities. Such forces will be trained for the mission of air defense and will be available for emergency employment under the operational control of the Air Defense Command. The term "operational control" comprises those authoritative functions involving the assignment of tasks, the designation of objectives, and the direction necessary to accomplish the assigned mission. It does not include such matters as administration and individual training. The duration of employment of Tactical Air Command forces and facilities will be the shortest period consistent with air defense requirements and the primary mission of Tactical Air Command.

3. Responsibilities.

a. The Air Defense Command will:

- (1) Prepare and coordinate plans for the operational control of those Tactical Air Command units which will be employed in emergency air defense operations.
- (2) Coordinate with Tactical Air Command to insure adequate unit training in air defense policies and procedures by Tactical Air Command forces and facilities employed in air defense operations. Participation in air defense exercises and maneuvers for training will be requested in advance.
- (3) Provide communications and AC&W facilities for the scramble and close control of fighter aircraft engaged in air defense tasks.
- (4) Provide logistic support for participating units at Air Defense Command deployment bases and arrange for logistic support at other than Air Defense Command and Tactical Air Command bases to which units will deploy. Logistic support is construed to mean support required in addition to the spare parts, air transportable ground handling equipment, and support personnel furnished by the participating units.

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Report of Tactical Air Command - Air Defense Command Augmentation
Conference (Contd)

- (5) Notify the Commanding General, Tactical Air Command, by the most expeditious means, when those forces and facilities which are designated for employment in air defense of the continental United States are required. This notification may occur under any of the following circumstances:
 - (a) Upon declaration by the Commanding General, Air Defense Command, of a Military Emergency or Air Defense Readiness.
 - (b) Upon notification that a condition of Air Defense Warning Yellow or Red is in effect.
 - (c) As directed by the Joint Chiefs of Staff or other competent authority.
 - (d) In event of an enemy air attack upon the continental United States.

b. Tactical Air Command will:

- (1) Provide Air Defense Command with data on location, composition, and capabilities of Tactical Air Command units designated for the air defense mission.
- (2) Provide airlift in support of Tactical Air Command, Strategic Air Command and Air Training Command fighter deployment.
- (3) Issue instructions which will expedite the employment of Tactical Air Command forces and facilities for air defense upon notification from the Commanding General, Air Defense Command, as outlined in paragraph 3.a.(5) above.
- (4) Provide a five day level of spare parts, air transportable ground handling equipment and support personnel to support five days combat operations.
- (5) Provide logistic support for participating units at Tactical Air Command deployment bases.

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Report of Tactical Air Command - Air Defense Command Augmentation
Conference (Contd)

- (6) Insure that all the forces possessing an air defense potential are trained for the mission of air defense.
- (7) Direct participation in air defense exercises or maneuvers of such Tactical Air Command forces and facilities as may be available for such training. Participation will be as prearranged between Tactical Air Command and Air Defense Command prior to each exercise.

4. Tactical Air Command interposes no objection to direct notification from Headquarters Air Defense Command to Tactical Air Command participating units, with information to Tactical Air Command Headquarters. It is understood that the Commanding General, Tactical Air Command, reserves the right to countermand any deployment requests issued to Tactical Air Command units during air defense exercises. Headquarters Air Defense Command will revise any portions of the existing augmentation plan as required to conform with procedures outlined herein.

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Subject: Air Defense Augmentation from TAC
From: DCS/O To: C/S

Date: 18 Jul 1953
Comment No. 2

1. Arrangements were completed with Tactical Air Command prior to exercise TAIL WIND that airlift implementation of ADC Opr Plan 4-53 would be direct from this headquarters to Hq 18th Troop Carrier with information to Hq TAC and Hq 9th Air Force.

2. In order to retain our "agreement" correspondence in this headquarters, we are confirming, by message, the exceptions noted by TAC.

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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HEADQUARTERS STRATEGIC AIR COMMAND
OFFUTT AIR FORCE BASE
NEBRASKA
4 April 1953

HEADQUARTERS AIR DEFENSE COMMAND
ENT AIR FORCE BASE
COLORADO SPRINGS, COLORADO

March 1953

MUTUAL AGREEMENT
FOR THE AIR DEFENSE OF THE CONTINENTAL UNITED STATES

I.

PURPOSE

The purpose of this mutual agreement between the signatories is to:

- a. Establish general procedures for the integration and use, during the initial period of hostilities, of Strategic Air Command Fighter Units in support of the air defense of the continental United States.
- b. Define the air defense responsibilities of the signatories.

II.

DEFINITIONS

AIR DEFENSE - The term "air defense" includes all measures (combative, denial and deception, and precautionary and remedial) designed to nullify or to reduce the effectiveness of the attack of hostile aircraft or guided missiles after they are airborne.

OPERATIONAL CONTROL - The term "operational control" comprises those authoritative functions involving the assignment of tasks, the designation of objectives, and the direction necessary to accomplish the assigned missions. It does not include such matters as administration, logistic support, and individual training.

EMERGENCY - The term "emergency," for the purpose of this agreement, is considered to exist: (1) upon declaration by the Commanding General, Air Defense Command, of a Military Emergency or Air Defense Readiness; (2) upon notification that a condition of Air Defense Warning Yellow or Red is in effect; (3) as directed by the Joint Chiefs of Staff or other competent authority; (4) in event of an enemy attack upon the continental United States.

III.

CONCEPT

Fighter units of Strategic Air Command, by virtue of their organi-

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zation and equipment, possess a capability in air defense. It is therefore essential that policies and procedures be established which will insure their effective utilization in the air defense mission of the continental United States in the event of national emergency. Policies and procedures established under this concept and requirement will be designed to provide the most effective utilization in air defense of Strategic Air Command fighter units consistent with the missions and emergency war plans of Strategic Air Command and the Air Defense Command.

IV.

RESPONSIBILITIES

a. The responsibilities of the Air Defense Command are:

- (1) To provide for the air defense of the continental United States.
- (2) To coordinate with and prepare plans for the operational control of Strategic Air Command Fighter Units available for emergency air defense operations.
- (3) To coordinate with Strategic Air Command, operations orders and plans, to insure adequate unit training and adherence to air defense policies and procedures by Strategic Air Command Fighter Units.
- (4) To provide communications and AC&W facilities for the scramble and close control of fighter aircraft engaged in air defense tasks.

b. Responsibilities of Strategic Air Command:

- (1) To maintain and inform Air Defense Command on a continuing basis, a list of "designated" units, which have an air defense capability, and which are available for participation in the Air Defense mission in accordance with the terms of this mutual agreement. It is understood and agreed that only those fighter units in early stages of organization, in process of movement overseas or undergoing preparation for immediate movement will be exempted from the designated list.
- (2) To issue instructions which will expedite the employment of designated fighter units of Strategic Air Command in air defense operations.
- (3) To insure that all Strategic Air Command Fighter Units are trained for the mission of air defense with the understanding that training for the primary mission of Strategic Air Command will, of necessity, take precedence over air defense training.

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- (4) To provide Air Defense Command with current data on location, composition, and capabilities of Strategic Air Command designated fighter units.
- (5) To coordinate plans with Air Defense Command for participation of Strategic Air Command Fighter Units in air defense maneuvers for familiarization in air defense procedures.
- (6) To maintain an adequate level of combat ammunition and minimum reserve of fuel as determined by the Commanding General, Air Defense Command.

V.

PROCEDURES

- a. Determination of the requirement for the employment of available Strategic Air Command Fighter Units shall be made by the Commanding General, Air Defense Command or his designated representative.
- b. In event of emergency, as defined, the Commanding General, Strategic Air Command, will make available to Commanding General, Air Defense Command, the fighter units on the current designated list as described above.
- c. The Commanding General, Strategic Air Command will direct those subordinate units so designated for air defense to comply with implementing operations orders of Commanding General, Air Defense Command. Commanding General, Strategic Air Command will notify the Commanding General, Air Defense Command, of the date and time that such units and facilities will be withdrawn from the "designated" list.

VI.

RESERVATIONS

- a. The duration of employment of available forces and facilities, when not previously withdrawn by Commanding General, Strategic Air Command, will be the shortest period consistent with air defense requirements and the primary mission of Strategic Air Command.
- b. Inasmuch as Strategic Air Command emergency plans call for early deployment of fighter units to forward bases, it is recognized that availability of such units shall be in consonance with the requirements and commitments for execution of their assigned primary missions.

CURTIS E. LeMAY
General, USAF
Commanding, SAC

B. W. CHIDLAW
General, USAF
Commanding, ADC

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HEADQUARTERS TACTICAL AIR COMMAND
Langley Air Force Base
Virginia

TCEWP 370.5

17 Feb 1953

SUBJECT: (Unclassified) ADC Augmentation Forces

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Tactical Air Command capabilities for providing Air Defense Augmentation Forces are forecast to drop considerably during the next five (5) months due to aircraft conversion schedules and unit deployment. These changes will be reflected in ADC-VIO reports; however, the following information is provided for advance planning purposes.

a. 405th Fighter Bomber Wing, Godman Air Force Base, will receive F-84F aircraft between April and June 1953. Unit will move to Langley Air Force Base approximately 15 March. Transfer of F-47 aircraft and training in F-84F aircraft will limit capabilities.

b. 50th Fighter Bomber Wing, Clovis Air Force Base, will receive F-86F aircraft between February and April. Transfer of F-51 aircraft and training in F-86F aircraft will limit air defense capabilities. Programmed to deploy overseas in June 1953.

c. 21st Fighter Bomber Wing, George Air Force Base, will receive F-86F aircraft between March and May 1953. Unit will deploy in September 1953.

d. 479th Fighter Bomber Wing, George Air Force Base, will receive F-86F aircraft between March, April, and May 1953. Unit will deploy in January 1954.

e. 366th Fighter Bomber Wing, Alexandria Air Force Base, will receive F-86F aircraft between April, May, and June 1953. Unit will deploy in February 1954.

FOR THE COMMANDING GENERAL:

ERLATH W. ZUEHL
Colonel, USAF
Air Adj General

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FILE NUMBER

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Use of Naval Forces at Denver for Air Defense
DCS/O

O&T-F

15 April 1953

Maj B.E. McKenzie/313/bjd

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1. On 3 April 1953 representatives from the Fighter-Interceptor Division attended a conference at the Naval Air Station, Denver, Colorado. The purpose of this conference was to lay the ground work for a Naval Operations Plan that would deploy Naval forces to Great Falls Air Force Base, Montana in the event of an aerial attack against the continental United States. Representatives of the 29th Air Division (Defense) and Great Falls Air Force Base were present. Key Naval personnel at the conference were Captain H.K. Edwards, Commanding Officer, NAS, Denver; Commander L. T. Woodward, Executive Officer; Commander D. J. Polle, Training Officer; and Lt. Commander C. Golson, Senior Intelligence Officer.
2. The current capability at Denver is twenty (20) F8F aircraft with Banshee type aircraft programmed in the immediate future (one has already arrived). In addition, the unit possesses sufficient support aircraft to handle the initial move as well as re-supply activities. This latter factor is most important when considering the usual delay in arrival of support airlift.
3. Captain Edwards proposes to set up a mobile task force to be deployed to an operating location of our choice in the event of emergency. Considerable embarrassment resulted when, contrary to agreements previously reached between the Naval unit at Denver and this headquarters, the 29th Air Division proposed, at CADF's request, that the unit be deployed to Port O'Minot, North Dakota instead of to Great Falls, Montana. Statements at that time by the representative from Great Falls Air Force Base were the first intimation to this headquarters that Great Falls would be unable to support this deployment following the activation of the two new fighter-interceptor squadrons at that base. The primary drawbacks appear to be lack of adequate fuel storage and hangar space. At our request and to provide a basis for planning, the conference was continued on the assumption that deployment would be to Great Falls and that alternate deployment bases would be investigated further. Both Port O'Minot, North Dakota and Glasgow, Montana offer certain advantages operationally as we have no fighter coverage in those areas. However, there are no Air Force personnel at either of these locations, and support difficulties may preclude such deployment. It is doubtful that CADF had considered the adequacy of continuous logistic support since they have only deployed four aircraft at a time to Port O'Minot for one day periods. CADF has been directed to study these problems and propose a suitable deployment base other than Great Falls. Their recommendations will include logistic plans if other than Air Force Bases are contemplated.
4. Communications were discussed in detail. It was agreed that the first notification concerning deployment would be given by the 29th Air Division through Plan 62 facilities. At that time, an engineered circuit between the 29th Air Division and the Naval Air Station at Denver

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ADDOOT-F 381

15 Apr 1953

SUBJECT: (Restricted) Deployment of Naval Reserve Unit at Denver

TO: Commanding General
Central Air Defense Force
P. O. Box 528
Kansas City, Missouri

FILE NUMBER 651
JWB

1. Reference is made to message ADDOOT-F 644, dated 24 March 1953 and conference at the Denver Naval Air Station 3 April 1953, attended by representatives of this headquarters, 29th Air Division and Great Falls Air Force Base.
2. The Air Defense Command was placed in a very unfavorable position through lack of coordination and determination of a suitable substitute deployment base for the Naval unit prior to the conference. Discussion at the conference was the first intimation that Great Falls Air Force Base would be unable to support this deployment. The 29th Air Division representatives proposed Fort O'Minot as the deployment base as suggested in your message Opas C 0301, dated 1 April 1953. A second alternative proposed was Glasgow, Montana. Although it was recognized that either of these bases would afford coverage of an area that does not, at present, have any fighters, support problems will have to be solved prior to establishing a firm deployment plan.
3. With regard to the proper selection of a deployment base for the unit at Denver, this headquarters is quite concerned that the best plan possible be developed for support of the unit when deployed. For the first time, a Naval unit has considered automatic deployment for emergency air defense purposes. The continuation and expansion of this plan to include Naval units from other XI bases may well depend upon the adequacy of our support at the deployment base. It will be necessary that we exhaust every possibility to make this operation a success.
4. Desire your headquarters take immediate action to investigate potential deployment bases and forward recommendations to this headquarters. If other than military bases are contemplated, details of logistical support will accompany the recommendation.

BY COMMAND OF GENERAL CHIDLAW:

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O&T-F

ANG Augmentation Plan
DCS/O

16 Jun 1953

Maj V.A. Winders/311/avd
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1. Our letter requesting implementation of the ANG augmentation plan at fifteen locations as soon as possible was forwarded through the DCS/O USAF to the National Guard Bureau on 9 June 1953. The attached 8 Jun 53 letter from Major General Ricks, Acting Chief of the National Guard Bureau, seems to kill any chance of implementing the plan in the immediate future. The ANG aircraft allocation program available in this headquarters reflects end fiscal year standings only. The allocations for our 52 M-day squadrons are as follows:

	<u>F-51H</u>	<u>F-51D</u>	<u>F-94B</u>	<u>F-86F</u>	<u>Total</u>
End FY 53	208	90			298
End FY 54	208	320	94	208	830
End FY 55	115	80	234	540	969
End FY 56	16	80	221	528	845

2. This program will mean 5-6 aircraft per squadron at end FY 53, 16 aircraft per squadron at end FY 54, 18-19 aircraft per squadron at end FY 55, and 16 aircraft per squadron at end FY 56.

3. It is recommended that we await the answer to our 9 Jun 53 letter, (paragraph 1), and if no estimate of an implementation date is made by the National Guard Bureau, a query requesting such an estimate will be forwarded. Also recommend the attached messages be forwarded to inform the Air Defense Forces.

BRUCE H. HINTON
Colonel, USAF
Chf, Ftr-Intep Div
Ext. 313-662

JOHN C. MEYER
Colonel, USAF
Dir of Oprs & Tng
Ext. 212-213

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SECURITY INFORMATION

HQ ADC ENT AFB COLO SPRINGS COLO

ROUTINE

CG Eastern ADF Stewart AFB Newburgh NY

CG Western ADF Hamilton AFB Hamilton
Calif

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X

CG Central ADF Kansas City Mo

ADDOOT-F 205

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ADDOOT-F 06839-27Feb. MYCLASDLTR ADDOOT-F 325, Subj: (Uncld) Use of
Inact ANG Units for Air Def, dtd 15 Jan 53 and ADC msg ADDOOT-F 205, dtd
30 Jan 53. The test proper of the use of the ANG in air def w/b implemented
one hr before local sunrise on 1 Mar 53. To prov for the evaluation of test
results, a four-time monthly rept rqmt is being prep'd by this hq. The "as of"
date of the 1st rept w/b 2400L, 31 Mar 53. For your adv info, it is
contemplated that the folg subjs w/b covered in the rept: A. Pers admin
problems. B. Oprns - Detailed scramble data. C. Mat - Pds during which
required acft alert commitments are not met. D. Summary.

CG, ADC

OFFICIAL BUSINESS

SECURITY INFORMATION

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Capt. V.A. Winders/vjy
311/390
ADDOOT-F

FILE NUMBER

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ADDOOT-F 381

9 Jun 1953

SUBJECT: (Uncl) Air National Guard Air Defense Augmentation

THRU: Director of Operations
Headquarters USAF
Washington 25, D. C.TO: Chief
National Guard Bureau
Washington 25, D. C.

1. Reports on the operations of the Air National Guard air defense augmentation test units at Hayward, California and Syracuse, New York have been favorable. The plan, with the modifications outlined below, presents a feasible and economical method for increasing the air defense capabilities of this command.

2. Colonel Hughes, Chief O&T Branch of the Air Force Division, your headquarters, revealed, during his recent visit that objections to the administration of test personnel by this command have been registered within Air National Guard echelons. Concurrence is hereby noted with Colonel Hughes' informal recommendation that the National Guard Bureau be delegated the mission of providing Air National Guard forces for air defense as agreed between the National Guard Bureau and this headquarters. It is understood that, in conjunction with this recommendation, responsibility for the processing and administration of the Air National Guard personnel used in augmenting air defense will be assumed within the Air National Guard echelon of command. This procedure will allow frequent rotation of aircrews within Air National Guard squadrons participation. Rotation will insure training for additional squadron aircrews and thus increase the air defense capability in the event of mobilization.

3. This headquarters recommends adoption of the plan, as modified in paragraph 2 above, at the fifteen locations listed in our classified letter, dated 18 May 1953, Copy inclosed, as soon as possible, commensurate with the problem of the shortage of UE aircraft for Air National Guard summer training. This problem was outlined by Colonel Hughes during his visit. Alert requirements, augmentation personnel qualifications, and aircraft combat ready criteria are to be the same at each location where the plan is implemented as those presently in effect at each of the test sites.

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ADDOOT-F 381, Subject: (Uncl) Air National Guard Air Defense Augmentation (Contd)

4. Inasmuch as the recommendation by Colonel Hughes will leave augmentation personnel under the administrative control of your headquarters, it is recommended that Headquarters USAF be requested to authorize the National Guard Bureau the personnel spaces mentioned in paragraph 8 of Headquarters USAF letter, AFOOP-OP, dated 4 December 1952, Subject: "(Uncl) Use of Inactive ANG Units for Air Defense".

5. It is requested that a minimum advance notice of fifteen days be given this headquarters on the availability of personnel and aircraft at the augmentation sites. Upon such notice this headquarters will initiate the following action:

a. Installation of communications facilities required for the operational control of Air National Guard air defense augmentation units.

b. Forwarding to Air National Guard augmentation units all operational directives and regulations required in the performance of the air defense mission.

c. Detailing of liaison officers to Air National Guard Augmentation units to indoctrinate personnel and assist in the establishment of operational procedures required.

d. Assumption of operational control of the Air National Guard air defense augmentation units.

6. If the classified inclosure is withdrawn, the classification of this correspondence will be downgraded to RESTRICTED in accordance with paragraph 25c, AFR 205-1.

FOR THE COMMANDING GENERAL:

1 Incl
Cy ltr, ADDOOT-F 381
Subj: (U) ANG Air Def
Augm, dtd 18 May 53

JARFED V. CRABB
Major General, USAF
Chief of Staff

MEMO FOR RECORD:

Info Cy to: CG, EADF
CG, WADF
CG, CADF

Paragraph 8 of the USAF letter referred to in paragraph 4 above states that if the test (at Hayward and Syracuse) proves the plan satisfactory, this command will be authorized 75 additional officer personnel spaces for FY 54 and 150 spaces for FY 55 to implement the plan.

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B/L fr Hq ADC, File ADOOT-F 381, Subj: "(Uncl) Air National Guard Air Defense Augmentation", dated 9 June 1953

AFOOP OP D

1st Ind

16 Jul 1953

Department of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commander, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. Basic correspondence is returned for re-evaluation as a consequence of reduced manpower resources available to the Air Force during FY 1954. Action of the Bureau of the Budget has resulted in a tentative troop ceiling of 960,000 by End FY 1954, which necessitates a slight reduction in total troop spaces from the current authorization, and the actual on-board troop strength at End FY 1953. This reduction in manpower resources is to be carried out while concurrently increasing the number of combat units in the Air Force.

2. In view of troop space reductions to be imposed on all Major Commands during FY 1954, this function can be accomplished only by making available, through improved management practices, diversion from lower priority functions, or any other source, troop spaces presently authorized your Command.

3. It is strongly urged that every effort be made to implement the Air National Guard Air Defense Augmentation plan, as it is the firm conviction of this Headquarters that it will afford a tremendous amount of air defense for the manpower and dollar invested, and since your Headquarters is currently authorized a crew manning ratio of two crews per aircraft, it is felt that the augmentation can be accomplished without adversely affecting regular ADC units.

BY ORDER OF THE CHIEF OF STAFF:

1 Incl
n/c

R. E. KOON
Brigadier General, USAF
Deputy Director of Operations

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Hq ADC ADOOT-F 381 Subject: (Uncl) Air National Guard Air Defense Augmentation

ADOOT-B 381 (9 Jun 53)

2d Ind

27 Aug 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Operations, Headquarters USAF, Washington 25, D. C.

1. The position of this command remains unchanged since our letter, subject: "(Uncl) Use of Inactive ANG Units for Air Defense", file ADOOT-F 353, 12 August 1952, in which it was stated that this command would be unable to absorb the additional troop spaces required to implement the Air National Guard Air Defense augmentation plan within its present or programmed space allocations. Implementation of this plan was based primarily on the proposed authorization of additional officer personnel spaces as provided in your letter, subject: "Use of Inactive ANG Units for Air Defense (Uncl)", file AFOOP-OP, 4 December 1952.

2. Letter from the National Guard Bureau, subject: "ANG-ADC Test Alert Program", file NG-AFOOT, 8 June 1953, states that the severe shortage of tactical type aircraft presently being experienced by the Air National Guard precludes the continuation of the augmentation plan for the present. Request this headquarters be furnished the most current programming of tactical type aircraft to Air National Guard units.

3. If additional officer personnel spaces cannot be authorized and if sufficient numbers of tactical type aircraft will not be available to the Guard in the near future, it is deemed advisable to hold the implementation of the plan in abeyance until officer personnel spaces and aircraft are available.

FOR THE COMMANDER:

1 Incl
n/c

JARRED V. CRABE
Major General, USAF
Chief of Staff

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ADOC-F 381

18 May 1953

SUBJECT: (Uncl) Air National Guard Defense Augmentation

TO: Chief
National Guard Bureau
Washington 25, D. C.

1. Reference the conversation between Colonel Hughes, Chief, O&T Branch of the Air Force Division, your headquarters, and Lt. Colonel Hinton, this headquarters, during Colonel Hughes' recent visit. The following Air National Guard Squadron locations are recommended by this headquarters for implementation of the plan to use Air National Guard units to augment air defense in the event the test presently being conducted proves the plan feasible:

126th Fighter-Interceptor Squadron - Milwaukee, Wisconsin
 178th Fighter-Interceptor Squadron - Fargo, North Dakota
 138th Fighter-Interceptor Squadron - Syracuse, New York
 101st Fighter-Interceptor Squadron - Boston, Massachusetts
 137th Fighter-Interceptor Squadron - White Plains, New York
 148th Fighter-Interceptor Squadron - Reading, Pennsylvania
 175th Fighter-Interceptor Squadron - Sioux Falls, South Dakota
 165th Fighter-Bomber Squadron - Louisville, Kentucky
 133th Fighter-Interceptor Squadron - Manchester, New Hampshire
 194th Fighter-Bomber Squadron - Hayward, California
 115th Fighter-Bomber Squadron - Van Nuys, California
 172nd Fighter-Bomber Squadron - Battle Creek, Michigan
 103rd Fighter-Bomber Squadron - Philadelphia, Pennsylvania
 169th Fighter-Bomber Squadron - Peoria, Illinois
 104th Fighter-Bomber Squadron - Baltimore, Maryland

2. The above is for planning purposes and is not to be construed as a recommendation that the Air National Guard air defense augmentation plan be adopted. Evaluation of further operations of the test units at Hayward, California and Syracuse, New York is required before this headquarters can make a recommendation as to adoption of the plan on a permanent basis.

FOR THE COMMANDING GENERAL:

JOSEPH D. HORNSBY
 Lt Col. USAF
 Ass't Adj Gen.

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SECRET SECURITY INFORMATION

103

DCS/O

Authority to Order ANG to Active Military Service

Cofs

23 January 1953

VC

Capt. V.A. Winders/311/bjd

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1. A message from Headquarters USAF, AFCCS 52860, dated 22 January 1951, to CG, ADC gave this command authority, in the event of emergency, to order such units of the ANG as may be required into active military service. This authority was used by this headquarters as a basis for operational plans for the use, in air defense, of the sixteen (16) ANG fighter squadrons which were not mobilized during the recent ANG call-up. Since the return of ANG units to State control, new mobilization assignments have been made by Headquarters USAF. These assignments gave ADC seventeen (17) ANG M-Day Fighter Wings and TAC six (6) ANG M-Day Fighter Wings.

2. The question arose as to whether or not the message from Headquarters USAF giving ADC authority to order all ANG units to active military service would still apply in light of the new mobilization assignments giving TAC M-Day ANG units. Therefore, this headquarters queried USAF in a letter dated 19 December 1952 as to whether it was intended that ADC should retain authority to order all inactive ANG units into active military service or only those seventeen (17) wings with an M-Day assignment to ADC.

3. USAF's 1st Indorsement to our query states that the authority to order ANG units into active military service will expire on 30 June 1953. They also state that pending legislation, ADC is presently limited to calling only the ANG units which have not served during the current emergency. Of the sixteen (16) ANG squadrons which have not served, thirteen (13) squadrons have a present M-Day assignment to ADC. Headquarters USAF states they are taking action, evidently to provide for the enactment of legislation which will provide for ordering ANG units into active military service subsequent to 30 June 1953.

4. Due to the present limited capability of ANG units, because of the return of units without equipment to State control, the problem presented by a lack of authority to order the units to active military service is not critical. However, as the ANG units are re-equipped, (by end of FY 53 ANG programming indicates five aircraft per squadron recently returned from active military service and eight aircraft per squadron which was not activated), their capability will increase. To effectively utilize this capability, ADC should have authority to order the ANG units to active duty. The attached 2nd Indorsement to USAF requests that the authority given to the Commanding General, ADC in USAF message AFCCS 52860 be renewed as soon as possible with this authority to apply to the seventeen (17) wings with an M-Day assignment to ADC.

JOHN C. MEYER
Colonel, USAF
Director, O&T
Ext 212/213

KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations
221/222

1 Attachment
Proposed 2nd Ind to USAF

FILE NUMBER 314

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SECRET SECURITY INFORMATION

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ADOOT-F 325

19 Dec 1952

SUBJECT: (Unclassified) Authority to Order ANG Units Into Active
Military Service

TO: Director of Operations
Headquarters USAF
Washington 25, D. C.

1. Reference your letter AFOP-OP-R, Subject: (Uncl) Mission of
ANG Fighter Units, dated 6 October 1952 and your letter AFOP-OP-R,
same subject, dated 4 November 1952. These letters made a mobilization
assignment of seventeen (17) ANG fighter wings to Air Defense Command.

2. Reference your message AFCOS 52860, 22 January 1951, which
authorizes ADC, in the event of emergency, to order such units of the
ANG of the United States into active military service as may be required
to fulfill our mission. At the time this message was received, all in-
active ANG fighter units had a mobilization assignment to ADC.

3. Request information as to whether Headquarters USAF intends
that ADC shall retain authority to order all inactive ANG units into
active military service or only seventeen (17) ANG fighter wings
with a mobilization assignment to ADC.

FOR THE COMMANDING GENERAL:

THOMAS C. SAVAGE
Major, USAF
Asst. Adj. Gen.

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O&T-F

Comments on ADC Briefing
O&T-D10 April 1953
Maj M.C. Johansen/727/1d
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1. Reference ANG Backup on page 38. Fifty-two ANG Squadrons have an M-Day assignment to ADC. Nineteen of these squadrons are designated Fighter-Interceptor and will be retained by ADC indefinitely after M-Day. The balance of the 52 ADC M-Day ANG squadrons (33 squadrons) will be retained by ADC for M-Day plus three months and will then be assigned to Tactical Air Command. In addition to the 52 ADC M-Day ANG squadrons, there are 18 TAC M-Day ANG squadrons. Of these 18 squadrons, 3 did not serve on active duty during the present (Korean) emergency. These 3 TAC M-Day ANG squadrons have been made available to ADC pending the enactment of legislation which will allow delegation of authority to ADC to call its 52 M-Day squadrons.

2. It is estimated that this legislation will be secured by 1 July 1953. ADC does not have access to the balance (15 squadrons) of the TAC M-Day ANG SQUADRONS. A summary of the ANG backup status as of 1 April is as follows:

a. ADC has 55 ANG squadrons (52 ADC M-Day and 3 TAC M-Day ANG squadrons) available for air defense.

b. Sixteen ANG squadrons (13 ADC M-Day and 3 TAC M-Day) can be called to active duty by the Air Defense Force Commander since they did not serve during the present Korean emergency.

c. The balance of the 55 squadrons (39 ADC M-Day squadrons) are available to ADC for air defense but they must be called by presidential order under AFR 45-51 dated 15 September 1950, subject: Mobilization of the ANG, as amended.

3. Recommend that ANG Backup, as of 1 April, reflect that 55 ANG fighter units are available to ADC. The cross-hatched circles on the chart facing page 38 should be deleted. A solid black circle should be added at Dayton, Ohio, Mansfield, Ohio, and Dallas, Texas, to reflect the three TAC M-Day ANG squadrons which are temporarily available. A sentence should be added to page 38 stating that due to the recent return of many ANG units from active duty, without UE aircraft, only 5 to 8 F-51s are assigned to each squadron.

4. Reference current Fighter Deployment, page 35. Paragraph 4, second sentence, should read, "All-Weather fighter interceptor aircraft are designed for the Air Defense Command Mission and are capable of interception and destruction of the target under any conditions of weather day or night."

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O&T-F

Comments on ADC Briefing (Contd)

O&T-D

10 Apr 1953

5. Reference Kill vs Cost, page 57. Paragraph 2, sixth sentence should read "the kill against low night attack increases from near zero to about 45% in 1957."

6. The Fighter-Interceptor Division considers this to be an excellent publication.

WALTER I. OLSON
Lt Colonel, USAF
Actg Chief, Ftr-Intep Div
Ext. 313/662

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Hq EADF EAOOT-FT 325 Subject: (Uncl) Ordering ANG Units Into Active Military Service Under Emergency Conditions

ADOOOT-B 325 (16 July 53) 1st Ind 30 Jul 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commander, Eastern Air Defense Force, Stewart AFB, Newburgh, N.Y.

1. Although the problem created by the expiration of ADC authority to order specified ANG units to active duty has been presented to Headquarters USAF (reference Inclosure #2), legislation to extend that authority is not expected during this session of Congress.

2. Under existing legislation, ANG units can be ordered into active military service only as stated by Inclosure #1. It is assumed that these units would be immediately ordered to active duty in the event of hostilities; therefore, plans for the utilization of these units should not be discarded. In addition, ANG fighter-interceptor units are still required to conduct interceptor training. Participation in training for air defense operations by ANG units should be encouraged in order that the combat readiness of those units may be as high as possible.

BY ORDER OF THE COMMANDER:

2 Incls
1. n/c
2. Msg ADOOT-B 21833,
23 Jul 53, to COFS,
USAF

LEWIS E. SMITH
Captain, USAF
Asst Command Adj

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STATE OF NEW YORK
EXECUTIVE DEPARTMENT
Division of Military and Naval Affairs
270 Broadway, New York 7, New York

15 June 1953

SUBJECT: Ordering Air National Guard Units Into Active Military Service
Under Emergency Conditions

TO: Commanding General, Eastern Air Defense Force, Stewart Air
Force Base, Newburgh, New York

1. Reference is made to Annex C of Operations Plan, Serial No.
3-52, above subject.

2. It is desired to bring to your attention the fact that the
authority, namely Section 21 of the Universal Military Training & Service
Act, as amended, under which units of the Air National Guard may be
ordered by the President into the active military service of the United
States, will expire on 1 July 1953, unless further extended by Congress
prior to that date.

3. In the event that such Congressional action is not taken, it
would appear that two recourses are open in order to carry out the terms
and intensions of the Agreement. The one method would be to invoke the
provisions of Section 233 (b) (1) of the Armed Forces Reserve Act of
1952. This, however, would also require Congressional action in order
to determine the number of National Guard personnel required for the
purpose. The other recourse is to invoke the provisions of the Act of
January 21, 1903, as amended (see 32 U.S.C., Sec 81a and 81b) which pro-
vides for a "call" of the National Guard by the President Through the
govenors of the respective states. It should be noted that under the "
"call" procedure the units will serve in a militia status and not as
the National Guard of the United States. This militia status may present
some difficulties in the desired employment of the Air National Guard
on the assigned missions.

4. It is accordingly believed that your Headquarters might properly
present this matter to the Secretary of the Air Force with a view to
securing Congressional action either for an extension of the authority
contained in Section 21 of the Universal Military Training & Service Act,

Incl #1

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Subject: Ordering ANG Units into Active Mil Serv Under Emerg Conds

as amended, or for a appropriate Congressional action under Section 233(b) (1) of the Armed Forces Reserve Act. If the latter course is adopted, the determination of the number of personnel required should necessarily be made by the Congress prior to the emergency itself.

FOR THE GOVERNOR:

s/t/ KARL F. HAUSAUER
Maj Gen, MYNG, Comdg.
Chief of Staff to the
Governor

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HQ ADC ENT AFB COLO SPRGS COLO

UNCLASSIFIED

PRIORITY

COFS, USAF, WASH D C

23 July 53

ADOOT-B 21833. This hq has rec informal info that no further attempts w/b made by your hq to obtain leg during curr session of Congress to extend auth for recall to act mil sv of such tac ANG units as may be used for air def of the cont U. S. against an initial atk. The cutback in AF programming will result in earlier equipping of ANG ftr units than was planned. Full benefits from the increase in ANG capability can be realized only if the Comd is given auth to dir immed use of that capability. It is strongly urged that the decn not to press for curr leg be reconsidered and the proposal for such action be reinstated.

COMDR ADC

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12 February 1953

Major General R. C. Wilson
 Commandant
 Air War College
 Maxwell AFB, Alabama

Dear Bim:

Because General Chidlaw is away on a prolonged absence, I am taking the liberty of answering your letter to him of 27 January 1953.

There is considerable merit in what you say about the longer range air defense. This concept is under continuous study by this headquarters as well as Project Lincoln and the Rand Corporation. And, speaking in general principles, it is correct to say that the best defense, (other than "shooting 'em in their nest") would be to catch them taking off and fight them all the way to the target. But, there are problems in implementation that are staggering.

I'll elaborate further. As you know, air defense for critical areas of the U. S. must be prepared to meet attacks from all directions. This means building defense outward. Next, by the time a distant early warning line, including flank extensions over the ocean approaches, can actually be put into operation the air threat will be delivery vehicles of all sizes, ranging from F-84 size up to the classic medium and heavy bombers - and with speeds up to 500 knots or so. Thus, the maximum warning time (if unequivocal) we could expect is around 3 hours or less; and we still wouldn't have a "picture" of the over-all attack. Where is the main force? Which penetrations are feints? Which penetrations are diversions? Can we afford automatically to commit airborne task forces in the direction of all penetrations? If we do, we'll be "suckered" out of position - and if we don't, the intercept in force can't take place any farther out than with more conventional interceptors (i.e., radius of action of 500 miles or so).

Preliminary war gaming of the airborne task force concept shows that extremely serious flaws exist unless radar surveillance is continuous from target area out to the DEW line. You can readily estimate the cost of such an undertaking.

In addition, there are serious technical difficulties to be ironed out even if we would attempt to implement such a concept. AEW does not yet work over land -- communications for operation of the DEW

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lines are still in the research stage -- centralized (and this would really be a centralized operation!), data gathering, threat evaluation and weapon commitment is a long way off -- and these are just a few of the problems.

Don't misunderstand; we are not defeatists. Development is being pushed on these problems, and serious studies continuing.

Right now, however, the best solution we can see for air defense against all probable types and numbers of delivery vehicles (not including the ballistic missile) appears to be a family of weapons, one supplementing the other, against all the various strategies, tactics and countermeasures that can be used against us. This family is:

- a. Manned Interceptors. These interceptors should have 15-25% speed advantage over attackers, radius of action 300-500 miles, deadly armament and rapid turn-around.
- b. Unmanned Interceptors. Supersonic speed, range 150-250 miles -- high kill, and rapid rate of launching.
- c. Local Missiles. Homing-all-the-way, a very high rate of fire.

And, of course, a surveillance and control system of sufficient depth to utilize the radius of action of the longest range weapon. This ground environment must also provide rapid data display, over-all threat evaluation and weapon assignment. Flexibility in this system will be essential as long as the initiative rests with the attacker.

One more thought on very long range interceptors. Studies and war games show that for a given monetary ceiling you can buy more over-all kill capability if you invest in larger numbers of shorter range interceptors. The basic reasons for this are:

- a. Added interceptor range costs additional money and a performance loss. (This means less interceptors of questionable performance advantage except for range.)
- b. To use effectively the longer range of these interceptors, the cost of the surveillance and control system mounts rapidly.
- c. As a corollary to b. above, if our system has an early warning line without solid tracking capability throughout the system behind that line, early commitment of long range interceptor forces might well result in their being drawn too far out of position effectively to counter enemy maneuvers in that area where we did not have solid coverage.

While this discourse merely touches on a few parts of the picture, I do hope it will clarify the points you raised.

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If this doesn't help and if you would like further data, please accept our invitation to drop out here and spend a few hours with us. A round table discussion should be of mutual advantage.

Some time ago one of your students, Colonel Ernest H. Beverly, suggested that this command might furnish pertinent problems to the Air War College for attempted solution by the students as thesis work. I am accordingly attaching a list of problem areas and suggested thesis topics. I realize that some of the suggested topics are too broad for individual research, considering the time and facilities available to the Air War College students. I am including them, however, to outline those areas within which more specific topics could be selected. Perhaps too, a few of the broader topics might be worked on by groups or advanced research students.

We all appreciate here your kind comments as to the character of the collective presentation made on the occasion of our last visit to the War College. I hope we can always maintain that intimate relationship which is so helpful to us both.

With best personal regards, I am

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

1 Incl
List of Problem Areas
& Suggested Thesis Topics

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ADOPR 381

18 Feb 1953

SUBJECT: (Unclassified) Air Defense Weapons System

TO: Director of Requirements
 Headquarters, USAF
 Washington 25, D. C.

1. Introduction. Information available from sources such as "Rand Studies," "Joint Air Defense Board Studies" and studies prepared by this Headquarters, leads as to the conclusion that the weapons family shown in attached chart (Incl 1) is the desired type of air defense weapon system to counter the enemy threat of manned and unmanned aircraft, during the time period now through 1960.

a. Interceptors.

- (1) As long as the enemy threat of manned aircraft exists, interceptors such as the F-101 (I), F-102 and F-103, possessing the combination of high speed and relatively long combat radius, will be required in the air defense weapon system. These interceptors, in addition to possessing high kill probability, provide mobility and flexibility which is impossible with surface-to-air missiles in any changing situation.
- (2) Development and testing of the Interceptor (X) (Rammer) appears attractive in light of its high kill probability in relation to the complexity and high cost of future, more conventional interceptors.

b. Interceptor Armament. Interceptor armament for the time period under consideration should consist of the best combination selected from such developments as:

- (1) 2.75" FFAR or equivalent.
- (2) GAR-1 (for subsonic and supersonic interceptors).
- (3) AEROWOLF - A formal requirement has been submitted for this weapon for further test for possible use on ADC interceptors and augmentation aircraft from other commands. Infra red development along this line could provide a night capability for day fighters.

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Subject: (Unclassified) Air Defense Weapons System

- (4) Large Rocket (TERROW) - A requirement has been submitted for the development of a large (approximately 300 pounds) unguided rocket as an augmentation armament for air defense by 1955. Your Headquarters has indicated that the Large Rocket cannot be made available in this time period. Any delay in this development program would decrease the value of the Large Rocket in air defense. It is believed however that development and testing of this weapon would be highly profitable since it would provide insurance against unreliability of other air-to-air missiles, and would in addition, provide an air-to-air vehicle for employing atomic weapons in air defense.

- (5) Other armament developments.

c. Long Range Surface-to-Air Missiles. Present indications are that Bomarc I and Bomarc II will become a part of air defense weapons system commencing with Bomarc I in late 1957 and Bomarc II late in 1958. It is recommended that the development, testing and production schedules for these missiles be accelerated to provide this command with long range surface-to-air missiles at the earliest possible date.

d. Short Range Surface-to-Air Missiles. In the short range missile field, an orderly progression appears to be as follows:

- (1) NIKE (with radius of 25 NN). Mid 1953 to Mid 1956 at which time it will be supplemented by the TALOS and TALOS (W) missile systems.
- (2) TALOS and TALOS (W) (with radius of 50 NW). This missile could become operational late 1955 and would be in the air defense weapons system through 1958 at which time it should be replaced by a homing all-the-way missile.
- (3) Homing all-the-way missile. This missile system should be capable of very high rate of fire, preferably with semi-active type seeker; and should be less expensive than other type surface-to-air short range missiles. In its early use it could provide low altitude protection and later all altitude.

e. Atomic Weapons. It is anticipated that several of the weapons in air defense will be armed with atomic warheads, (i.e. Bomarc, Large Rocket (TERROW), TALOS, and possibly the homing-all-the-

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way missile) providing the current feasibility studies indicate this to be profitable.

2. The anticipated numbers of these weapons that will be required are shown in the attached message, ADOPR 2494, 5 Dec 52 (Incl 2) from Headquarters ADC to Director of Plans, Headquarters USAF.

3. The numbers and types of weapons indicated in this letter can at best be considered as general requirements. Only by elaborate war gaming can the answer be found to the question of best combination and proportion of weapons for the air defense weapons system.

4. This Headquarters is undertaking the studies to provide the required answers, but the limited study facilities and personnel will require a long term effort. With time the most critical factor for air defense planning, it is suggested that a high priority study for the air defense weapons family be initiated by your Headquarters separately or in conjunction with this Headquarters and/or the Rand Corporation. The required data would then be provided at an earlier date.

2 Incls

1. Availability
Schedule (estimated)
2. Message ADOPR 2494

/s/ FREDERICH H. SMITH, JR.
Major General, USAF
Vice Commander

Info Cys to:

CG AMC
CG ARDC

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Basic Ltr fm ADC, Subject: Air Defense Weapons System, dated 18 February 1953

AFDRQ-AD

1st Ind

2 Apr 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters concurs with the weapons family outlined in basic letter with the following reservations:

a. Interceptors: The F-101(I) was presented 1 December 1952 with the F-100 (I) and the F-102 in the competition for the interceptor aircraft to replace the F-89F. In this competition the F-101 (I) was not favorably considered due to its late availability. However, this does not preclude giving future consideration to this aircraft, along with the new F-89 proposal, as a long range interceptor.

b. Rammer: The desirability of the interceptor (X)(Rammer) is at present controversial in this headquarters. ARDC is presently studying this concept to provide more definitive information on which this headquarters can evaluate this proposal.

c. AEROWOLF: The optimum way of meeting the requirement for an infrared guided aircraft rocket, including development of AEROWOLF, is being evaluated by ARDC. Use of this weapon is planned for three types of operations in the tactical and air defense fields:

- (1) As straight augmentation to the fair weather, daylight armament capabilities of our day fighter types operating against fighters, fighter-bombers and bombers.
- (2) As day/night armament for our day fighters.
- (3) Same as b. above for our all-weather interceptors.

d. Large Rocket (TERROW): To implement the requirement established by your command for a large fragmenting rocket, a project has been established by ARDC. The code name for this development is BIRD DOG. Design proposals are currently being evaluated by ARDC.

e. Atomic Weapons: Development of an atomic warhead capability for BOMARC, TALOS W, and NIKE B missiles has been approved by the JCS. Although the size of BIRD DOG precludes use with implosion type A warheads now contemplated, the BOAR rocket, under development at NOTS, is expected to be effective for air defense as well as tactical operation. Feasibility of using BOAR on F-89Ds and F-102s will be investigated by the ARDC.

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Basic Ltr fm ADC, Subject: Air Defense Weapons System, dated 18 February 1953 (Contd)

2. A priority study is presently underway by the RAND Corporation to determine the best combinations of the weapons presently contemplated for the air defense system. It is not felt that a duplicate study should be undertaken by this headquarters, but that the best results can be obtained by this headquarters assisting your headquarters and the RAND Corporation in your studies.

BY COMMAND OF THE CHIEF OF STAFF:

2 Incls: w/d

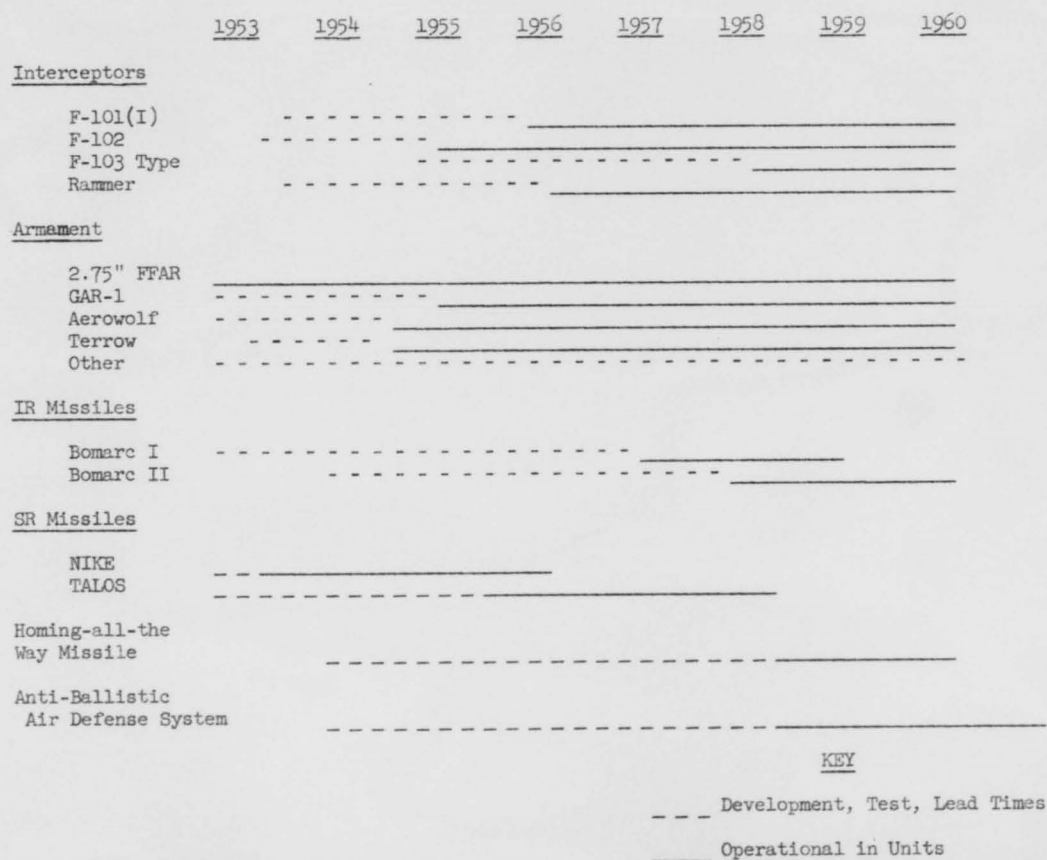
/s/ GEORGE E. PRICE
Brig. General, USAF
Director of Requirements
DCS/Development

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20 Feb 1953

SUBJECT: (Restricted) Defense Against Threat of Ballistic Missiles

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. During the last few years much mention has been made of an enemy threat, the character of which is a Vertical Trajectory Missile (Ballistic, Mach 10-20). Intelligence agencies through the media of intelligence estimates, and many scientific groups studying the Air Defense problem deal summarily with this problem in their published reports. In most cases, this information is so nebulous that it is practically useless for Air Defense planning purposes.

2. Best information available in this headquarters indicates that this threat with intercontinental capability could appear in small numbers by late 1957 and in numbers of devastating proportions by 1958-1959. These conclusions are so highly conjectural that they constitute an unrealistic and hazardous basis for planning.

3. However, if the enemy threat, as stated in paragraph 2, is a realistic threat in the time periods indicated then it behooves all responsible agencies to be cognizant of this threat and to direct their efforts toward means to counter this threat. It is anticipated that the research and development lead times required for an Air Defense System to counter this threat will be considerably in excess of the four to five years required for development of more conventional systems reflected in present planning.

4. The seriousness of the ballistic threat to the United States is such that this headquarters urges special emphasis by the Director of Requirements on all actions deemed necessary to obtain an accurate estimate of Soviet capabilities in this field.

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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Basic Ltr fm ADC, Subject: (R) Defense Against Threat of Ballistic
Missiles, Dated 20 February 1953

AFDRQ-AD

1st Ind

10 Mar 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D.C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters agrees with the seriousness of the problem stated in basic letter and accordingly has presented the problem in detail to the Director of Intelligence, DCS/O who has primary cognizance of these matters in the USAF. The Director of Intelligence is presently engaged in a study to determine the total enemy threat for the 1958-1960 time period. The ballistic missile threat will be a major part of this study.

2. Your headquarters will be advised of the results of this study at the earliest possible date.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ & /t/ J. O. Guthrie
JAMES O. GUTHRIE
Brigadier General, U.S.A.F.
Deputy Director of Requirements

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B/L fm ADC, Subj: (R) Defense Against Threat of Ballistic Missiles,
20 Feb 53

ADOPR 471.6

2nd Ind

25 Jun 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Requirements, Headquarters USAF, Washington 25, D. C.

REFERENCES: Your letter AFDRQ-AD, Subject: "(Secret) Threat of Soviet Ballistic Missile", 30 April 1953, and attachment thereto, same subject, a top secret study prepared by Dir/Intel., DCS/O, Headquarters USAF

Air Defense Command DCS/Intelligence document "Report on , the Technological Factors Influencing Concept B (Soviet Attack Using Inter-continental Missiles)", a top secret study prepared 26 January 1953 and revised 26 May 1953, forwarded to Headquarters USAF, Dir/Intelligence 9 June 1953.

1. This headquarters concurs that the limiting factor in this problem is the lack of technical knowledge, however, this deficit can be greatly diminished by any and all information obtained through intelligence sources. Any technical data, production rates, and time schedules obtained through these channels could conceivably be of very great value in determining the most direct bearing which should be taken to provide a defense against this type of missile within the available time period.

2. Based upon the above referenced intelligence reports, we believe that your approach to the solution of the problem is highly desirable. In this regard, Air Defense Command offers the following suggestions:

a. All action agencies should again be made aware of the urgency of the time factor since the overall importance of the problem cannot be over-emphasized.

b. All intelligence agencies should be supported in an effort to intensify and accelerate a program to obtain additional information on Soviet missile characteristics and capabilities.

c. Project LINCOLN and Project RAND should be authorized to conduct high priority comprehensive studies of the problem, considering it as a new and basic project independent of conclusions by other study and research groups.

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B/L fm ADC, Subj: (R) Defense Against Threat of Ballistic Missiles,
20 Feb 53

3. This headquarters feels that the problem has not been subjected to sufficient emphasis nor that sufficient appropriations have been allocated to permit the drawing of reliable conclusions regarding the feasibility of a suitable defense against the ballistic threat. In short, this headquarters does not agree with the defeatist initial conclusion of the University of Michigan, as pointed out in above referenced letter, that there is no defense against this missile, particularly since there is evidence of only limited research of the problem.

FOR THE COMMANDER:

JARRED V. CRABB
Major General, USAF
Chief of Staff

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MEMORANDUM FOR RECORD:

1. ADC's original letter, USAF's first Indorsement and ADC's second Indorsement combined in the attached correspondence. The Top Secret USAF letter, referred to in our 2nd Indorsement filed this Hq ADC-TSCO-378 is the study promised in AFDRQ-AD 1st Ind.

2. Summary of AFDRQ-AD letter:

a. Detailed Information on Soviet ballistic missile development is not available.

b. Intelligence considers the seriousness of the threat sufficient warrant development of appropriate countermeasures.

c. Project WIZARD, University of Michigan, directed to present detailed development plan for a system defense against threat.

d. University of Michigan has initially concluded that:

" --- it is very doubtful that a feasible system can be proposed to defend against --- (ballistic threat)."

e. ARDC has been directed to request Project LINCOLN---- and Hq USAF is requesting Project RAND to investigate the ballistic missile problem.

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AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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Office of the Commanding General

29 Jan 1953

SUBJECT: (Uncl) Requirement for an Infrared Guided Air-to-Air Rocket

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. In accordance with Air Force Regulation 57-3, the following requirement is submitted.

2. Requirement previously established required that all Air Defense Command interceptors possess all weather capability. It is realized that some percentage of the air battles in defense of the U. S. will occur in good weather, day or night. In addition, a large percentage of the interceptors in Air Defense Command, for several years in the future, will not be capable of carrying other air-to-air guided rockets capable of high kill probability. Therefore a requirement exists for an air-to-air guided rocket to provide high kill probability armament for those interceptors not capable of carrying other air-to-air guided rockets. It appears that this requirement can be met with "Aerowolf", a proposal by Aerojet Corporation, Azusa, California.

3. Objective:

a. To possess in Air Defense Command units by January 1955 an air-to-air guided rocket, with high kill probability, for those Air Defense Command interceptors not capable of carrying other guided air-to-air rockets.

b. To provide, by January 1955, a high kill probability air-to-air guided rocket for those augmentation force interceptors, provided by other commands, not capable of carrying other guided air-to-air rockets.

c. To possess in Air Defense Command units by July 1955 additional guided armament, to be carried externally, for Air Defense Command interceptors presently capable of carrying the all weather air-to-air guided rockets.

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SUBJECT: (Uncl) Requirement for an Infrared Guided Air-to-Air Rocket

4. Description:

a. Nomenclature: Infrared Guided Air-to-Air Rocket
("Aerowolf").

b. Purposes:

- (1) To provide Air Defense Command Fighter Interceptor Squadrons and those augmentation Fighter Interceptor Squadrons of other commands, with an air-to-air guided rocket, possessing high kill probability, for use on those interceptors not capable of carrying other air-to-air guided rockets.
- (2) To provide additional armament, to be carried externally, for Air Defense Command interceptors presently capable of carrying the all weather air-to-air guided rocket.
- (3) To provide additional armament with high kill probability at low altitude.

c. Performance:

- (1) Operational reliability of 80%, or greater, and a kill probability of 50%, or greater, per operational missile when fired individually.
- (2) Initial capability of being launched from .85 Mach fighters at subsonic target aircraft.

d. Design Features:

- (1) Guidance: Seeker system employing infrared, for night operation, and the ultraviolet for day operation.
 - (a) Pilot selection in interceptor cockpit for optional day or night operation.
 - (b) Seeker range, at 30,000 feet altitude, for day operation approximately 8,000 yards and night operation approximately 15,000 yards.
- (2) Missile range - minimum of 4,000 yards.

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SUBJECT: (Uncl) Requirement for an Infrared Guided Air-to-Air Rocket

- (3) Propulsion: Solid rocket, propellant with minimum burn time of two (2) seconds.
- (4) Warhead: About ten (10) pounds containing approximately five (5) pounds H.E.
- (5) Fuzing: Contact, with break-wire contact on control surfaces, and auxiliary proximity (by diminishing return signal) to provide for self-destruction in the event of a miss.
- (6) Configuration:
 - Weight: Approximately 60 pounds
 - Length: 75 to 80 inches
 - Diameter: Body, 3.5 to 4.0 inches
Fins, 13.0 to 14.0 inches

e. Special Features:

- (1) Capable of being launched by present interceptors using lead pursuit tactics.
- (2) Require little or no interceptor fire control system retrofit. Required retrofit to be provided, as a kit, and accomplished by service personnel.
- (3) To be carried externally and launched from rocket rail.

f. Proposed Basis of Issue: To all Air Defense Command Interceptor Squadrons and to interceptor squadrons provided as augmentation forces.

g. Method of Meeting the Requirement: It is recommended that the Aerojet project "Aerowolf" be adopted and that the project be given a top priority for further development, testing and production.

5. Employment of the Infrared Guided Air-to-Air Rocket is compatible with the air defense system concept in the time era 1953 to 1960. This armament will provide present Air Defense Command interceptors with an armament capable of a high kill probability in good weather, day and night. In addition to this presently proposed capability, the Infrared Guided Air-to-Air Rocket should possess

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Subject: (Uncl.) Requirement for an Infrared Guided Air-to-Air Rocket

development potential to be compatible with advanced fire control systems programmed for introduction into the Air Defense System.

6. Request this requirement be approved and vigorous action be taken to make the Infrared Guided Air-to-Air Rocket available for tactical use by January 1955.

Info copy to
CG, ARDC
CG, AMC

/s/ FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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Basic Ltr fm ADC, Subject: Requirement for an Infrared Guided Air-to-Air Rocket, Dated 29 January 1953

AFDRQ-AD

1st Ind

4 Mar 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. A tentative requirement has been established for an infrared guided aircraft rocket for use as outlined in paragraph 3 of basic letter. ARDC has been requested to determine the feasibility of developing such a weapon and prepare military characteristics for validation by this headquarters.

2. Based on other programs of this nature, a two year period until operational availability, appears optimistic. An estimate of the development time required for this missile is expected with ARDC's feasibility study.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ C. P. Lessig
Colonel, USAF
Deputy Director of Requirements

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B/L VC, ADC, Subj: (U) Requirement for an Infrared Guided Air-to-Air Rocket, 29 Jan 53, w/1st Ind Hq USAF, 4 Mar 53

ADOPR 471.6 (29 Jan 53)

2nd Ind

24 Jun 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Requirements, Headquarters USAF, Washington 25, D. C.

This Headquarters desires a current report on the progress of the infrared guided air-to-air rocket development.

FOR THE COMMANDER:

/s/ JOSEPH D. HORNSBY
Lt Col, USAF
Asst Command Adj

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ADOPR 452.1

7 Jan 1953

SUBJECT: (Secret) High Speed, High Performance Interceptor

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. In accordance with AFR 57-3, dated 28 May 1951, the following requirement is submitted:

a. Introduction. Along with the improved capability throughout the air defense system, particularly in the field of low altitude surveillance and control and extended seaward coverage in coastal areas, it is anticipated that in the period starting in 1958, the enemy penetrations will consist of large formations of high speed bombers using "punch-through" tactics. In order to efficiently employ all deployed air defense weapons by utilizing this extended coverage, a very high performance interceptor is required. In coastal areas where it is impossible to deploy interceptors out near the limit of radar coverage, much of this extended coverage is wasted as far as combat time is concerned for the following reasons:

- (1) The combination of speed vs. range of present and programmed interceptors is such that by using optimum climb and cruise out speed, insufficient combat time is available prior to the time other air defense weapons must be omitted.
- (2) By using maximum climb and cruise out speed insufficient range is available to complete combat prior to the time other Air Defense Weapons (F-99 and the Nike and AAA) must be employed against mass attack.

b. Objective: To possess, in the tactical units of Air Defense Command by 1958, a manned interceptor capable of high climb speed, high level flight speed, high descent speed and fast re-service time; thus enabling the interceptor to strike the same attacking force twice before the attack reaches its target.

c. Description:

- (1) Nomenclature: All Weather Interceptor, such as the F-103.

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Subject: (Secret) High Speed, High Performance Interceptor (Cont'd)

- (2) Purpose: A manned interceptor capable of intercepting and destroying a .86 Mach number bomber at very high altitudes, then returning to base for turn-around to intercept again at a closer range. Recommend AF priority 1A.
- (3) Interceptor must possess:
 - (a) Combat radius of 525 N/M
 - (b) Very high climb speed, approximately Mach 2.5
 - (c) Very high straight and level speed at altitudes, approximately M 3.0
 - (d) Ability to return to base at a very high speed, approximately Mach 2.5
 - (e) Ability to perform a combat turn-around in a maximum of 15 minutes
- (4) Design Features: The design of the F-103 appears to be applicable. (With the use of the periscope to reduce frontal area drag.)
- (5) Special Features:
 - (a) Periscope for forward visibility
 - (b) Ram jet engine for high thrust at altitude
 - (c) Fire control system with a lock-on range of 50 N/M
- (6) Proposed Basic of Issue: Sufficient number of interceptors to integrate into the Air Defense family of weapons.
- (7) Methods of Meeting the Requirements Production of the F-103 interceptor.

2. Since there is no manned interceptor scheduled for production after the F-102, it is requested that a contract for the production of an interceptor, such as the F-103, be let as soon as possible to provide a means of meeting the threat of large numbers of Mach .86 bombers.

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Subject: (Secret) High Speed, High Performance Interceptor (Cont'd)

3. This requirement for a manned interceptor will exist as long as there is a manned aircraft threat against this country because:

a. As the threat changes in some areas, manned interceptors can be redeployed in accordance with the situation.

b. It is the opinion of this command that the presently programmed interceptors cannot effectively combat the threat as indicated in Paragraph 1a above, in the period beginning 1958.

Info cys to:
CG, ARDC
CG, AMC

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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B/Ltr fm ADC, subject: (Secret) High Speed, High Performance Interceptor, dtd 7 Jan 53.

AFDRQ-AD

1st Ind

28 Jan 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. This headquarters concurs with the requirement for a manned interceptor capable of high climb speed, high level flight speed, high descent speed and fast re-service time. A firm requirement will be established based on the detailed requirements submitted in basic letter.
2. The Air Council with approval of the Chief of Staff has agreed that a new fighter interceptor (FIX) should not be phased into the interceptor program prior to October 1959.
3. In view of this decision, development of the F-103 is progressing under a strict research program and it is not presently contemplated that this aircraft will be oriented towards the air defense mission. However, this would not preclude consideration of the F-103 in a new FIX competition.
4. Past experience on the MX-1554 program makes it mandatory that firm requirements be submitted at an early date for competitive bidding if a new aircraft is to be made available in the above time period.
5. Close coordination will be maintained with your headquarters in establishing these requirements.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ C. P. Lessig
Colonel, USAF
Deputy Director of Requirements

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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7 Apr 1953

SUBJECT: (Restricted) Requirement for Long Range Interceptor

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. Under provisions of Air Force Regulation 57-3, 28 May 1951, the following requirement is submitted:

a. Introduction:

- (1) The useful employment of interceptor aircraft in air defense is highly dependent upon the warning and control limitations of ground radar environment. The geographical areas of radar warning and control in the North American Continent are growing with the introduction of each new phase of the radar system, and as these areas increase, the range requirements for the interceptor aircraft become greater. Programmed augmentations of the present radar system and studies conducted for the design of a complete force to combat the enemy threat during the period 1956 to 1960, indicate a range requirement greater than that expected in any combat aircraft currently planned for the Air Defense Command. A combat radius of 700 to 1,000 nautical miles is required during the period discussed.
- (2) The interceptor purchased to meet this long range requirement should possess high performance qualities for air-to-air combat, long flight duration (four to five hours) capability for combat air patrol and search missions and dual presentation radar. The dual presentation is required for precise navigation and to reduce combat crew fatigue during long missions. This interceptor can be used to extend the warning area of AEW&C aircraft during periods of Air Defense readiness; it can be employed to fight and provide early warning information over great distances in Canada and the Western Central parts of the United States;

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SUBJECT: (Restricted) Requirement for Long Range Interceptor

and it can be used extensively by the Alaskan
and Northeast Air Command.

b. Objective. To procure an all-weather interceptor with
the following capabilities:

- (1) Long combat radius - 700-1000 N/M.
- (2) Combat ceiling - 60,000 feet.
- (3) Heavy and varied armament, including atomic armament.
- (4) High speed - Mach 1.4 - 1.9 @ 35,000 feet.
- (5) High capability for broadcast control.
- (6) Multi-engine reliability.
- (7) Two-scope presentation.

c. Description.

(1) Nomenclature:

(a) F-89 Perimeter Defense Fighter as proposed in
Northrop Preliminary Design Report Number
PD-165, 27 February 1953, title "Preliminary
Proposal F-89 Perimeter Defense Fighter".

(b) Two-place intercept version of F-101 as pro-
posed in McDonnell Report #2549, title "F-101
Performance Summary".

(2) Purpose: To provide an interceptor to be used around
the perimeter of the Continental United States and in
areas of the United States where ground radar environ-
ment is limited, applying the function of broadcast
control from early warning aircraft or ground radar
sites. This interceptor, with its heavy and varied
armament load and long combat radius, could remain in
the combat area long enough to complete several attacks.

(3) Performance:

(a) As stated in Northrop Preliminary Design Report
Number PD-165.

(b) As outlined in McDonnell Report #2549.

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(4) Design Features:

- (a) As stated in Northrop Preliminary Design Report Number PD-165.
- (b) As outlined in McDonnell Report #2549.

(5) Special Features: None.

(6) Proposed Basis of Issue: Approximately 20% of the total Air Defense Command interceptor force.

(7) Methods of Meeting the Requirement:

- (a) Award Northrop Aircraft Company a production contract.
- (b) Award McDonnell Aircraft Inc. a production contract.

2. It is requested that Headquarters USAF give serious consideration to production of a tactical prototype of the Northrop Perimeter Defense fighter to enter competition with the F-101 I to meet the long range requirement.

3. At the present time there is no interceptor programmed for Air Defense which can accomplish the requirement for long range at supersonic speed with multi-engine and dual-presentation reliability. It is urgently requested that the long range interceptor be made available for Air Defense Command by late 1955.

Info copies to
CG, ARDC
CG, AMC
CG, WADC
Atten: WCL

/s/ FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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Basic Ltr fm ADC, Subject: (r) Requirement for Long Range Interceptor,
Dated 7 April 1953

AFDRQ-AD

1st Ind

17 Apr 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. A General Operational Requirement for a long range interceptor which will fulfill your requirement is presently being coordinated in this headquarters. The two aircraft mentioned in basic letter will be considered as a means of meeting this General Operational Requirement.

2. Any future information relative to your requirement will be forwarded to your headquarters.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ JAMES R. GUNN, JR.
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements

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B/L Hq Air Defense Command, subject: (Secret) Fighter Interceptor,
 Rammer, ADOPR 452.1

ADOPR 452.1 (15 July 1952) 2nd Ind 3 Dec 1952

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Requirements, Headquarters USAF, Washington 25, D. C.

1. Although the preparation of a detailed operation concept as requested in paragraph 4 of first indorsement cannot be accomplished at this time, the generalized concept of a Ramming Interceptor has been generated around the following three (3) primary facts:

a. The Russians now have large numbers of TU-4 type bombers. It is anticipated that the threat of large numbers of bombers carrying atomic bombs will stay in the subsonic (approximately M.87) speed range through 1956.

b. The support and operation of programmed interceptors against the threat described above will be of rapidly increasing complexity. The cost of these weapons is constantly increasing. It appears unsound to think of extremely large number of these complex and costly weapons being committed to the specialized role of Air Defense.

c. It would be sound and desirable to think of large numbers (3000 or more) of weapons for Air Defense if the complexity and cost could be adequately reduced.

2. Based upon the above facts, ADC's requirement for a Ramming Interceptor has been submitted. The performance and design criteria reflect sacrifices in operational requirements wherever possible. The weapon described in the basic letter can be used against targets having a speed up to Mach .87. Therefore, it is not in competition with more advanced weapons such as the F-102, F-103, or F-99 which are required by increased target speeds.

3. Informal information received from RAND Corporation personnel, who are preparing a study on the Rammer Interceptor, indicates that during visual flight conditions the kill probability of a ramming interceptor is much greater than that for a conventional interceptor firing rockets, missiles, or guns. In addition to the greater kill capability, the presence of remaining interceptors in Air Defense might well have a deterring effect on enemy bomber crews.

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B/L Hq Air Defense Command, subject: (Secret) Fighter Interceptor,
Rammer, ADOPR 452.1

ADOPR 452.1 (15 July 1952) 2nd Ind

4. The trend toward increasing complexity of aircraft components is clearly discernible in present interceptor procurement programs. Although this trend has been dictated by the increasing demands on performance and capability, it is felt imperative that the Air Force provide an alternate approach in its research and development program. Should the development of the rammer interceptor prove entirely successful, it would be used to supplement programmed all weather interceptors.

5. In view of the reasons stated above, it is requested that the requirement for a ramming interceptor be approved and that a project be established immediately for its development.

FOR THE COMMANDING GENERAL:

FREDERIC P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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HEADQUARTERS
AIR DEFENSE COMMAND
Ent Air Force Base
Colorado Springs, Colorado

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23 March 1953

SUBJECT: (Secret) Requirement for the Development of Atomic
Warheads for Air Defense Weapons

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

1. The following requirement is submitted in accordance with Air
Force Regulation 57-3, dated 28 May 1951.

2. Information available from liaison sources indicates that
research and development is underway in the field of Atomic Energy, to
provide for diversified types of atomic warheads. Air Defense Command
studies on the effectiveness of weapons indicate that the H.E. type
warheads presently programmed for air defense may not effect the
necessary high kill probability required under certain conditions of
enemy attack upon the United States. Therefore, a requirement exists
in Air Defense Command for lightweight atomic warheads of lowest
possible cost with yields within the range of 1 - 20 KT.

3. Objective:

a. To provide Air Defense Command units with high kill
potential armament at an economical cost.

b. To provide the Air Defense System with atomic warheads for:

- (1) Air-to-Air Rockets (TERROW)
- (2) Surface-to-Air long range Guided Missiles (BOMARC)
- (3) Surface-to-Air short range Guided Missiles (TALOS)

4. Description:

a. Nomenclature: 1 - 20 KT yield Atomic Warhead for:

- (1) Air-to-Air Rockets (TERROW)
- (2) Surface-to-Air Guided Missile (BOMARC)
- (3) Surface-to-Air Guided Missile (TALOS)

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SUBJECT: (Secret) Requirement for the Development of Atomic Warheads for Air Defense Weapons

b. Purpose: To provide for a high kill potential against mass attack in air defense armament, i.e.; Interceptor Rockets (TERROW), long range Surface-to-Surface Guided Missiles (BOMARC) and short range Surface-to-Air Guided Missile (TALOS).

c. Performance: Not applicable.

d. Design Features:

- (1) Designed to replace the H.E. warhead presently designed for the specific air defense armament.
- (2) Designed so that the warhead could be installed at all times with a capability for core installation upon short (10-15 minutes) notice.
- (3) Designed for programmed in-flight core insertion and retraction.
- (4) Designed for economical production.

e. Special Features:

- (1) Operationally safe and reliable.
- (2) Not subject to chain reaction while installed in the missiles in storage or at the launching site.

f. Proposed Basis of Issue:

- (1) Concept of operation and quantity required will be furnished as soon as current detailed studies are completed.
- (2) At present it is anticipated that approximately ten (10) per cent of the required armament; i.e., TERROW, BOMARC and TALOS; will be equipped with atomic warheads.

g. Method of Meeting the Requirement: Request that Headquarters USAF initiate a project for research and development of cheap, small yield atomic warheads for air defense weapons.

5. The existence of atomic warheads in the air defense system would, in addition to providing for a high kill potential, have a

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SUBJECT: (Secret) Requirement for the Development of Atomic
Warheads for Air Defense Weapons

considerable psychological affect on the enemy and would discourage
mass attack formation penetrating the defense system.

6. Request that the requirement for development of the cheapest
possible 1 - 20 KT atomic weapons be given a high priority for research
and development and that the project be vigorously pursued for an early
tactical production.

/s/ FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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Basic Ltr fm ADC, Subject: Requirement for the Development of Atomic Warheads for Air Defense Weapons, Dated 23 March 1953

AFDRQ-AD

1st Ind

22 May 1953

DEPARTMENT OF THE AIR FORCE, HQ USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. The JCS have approved development of versions of the BOMARC and TALOS W pilotless interceptors equipped with atomic warheads (XW-12). Concurrently the AEC was notified of this approval and requested to collaborate in optimizing the warhead-vehicle combinations, provide necessary design information and material and to render technical assistance.

2. The relatively small size of TERROW precludes consideration at this time of its use with implosion type atomic warheads. The BOAR rocket being developed for tactical low level delivery at NOTS under joint Navy-Air Force sponsorship however, will also be adaptable for air-to-air use. It will incorporate the larger and more efficient XW-7 warhead and have a configuration similar to the MK-7 bomb. Approximate physical characteristics are: length, 185"; diameter, 30"; and weight, 2200 lbs. Its compatability for use with the F-89 is being investigated.

3. Yields obtainable with the XW-12 using current stockpile cores are approximately 2 and 12 KT. The AEC, however, has indicated that development of more efficient low yield weapons with cores of radical hydrodynamic design appears possible and could be undertaken. This would probably involve sacrificing interchangeability with conventional stockpile cores. This headquarters is studying the problem of establishing a requirement for atomic warheads of increased efficiency with yields of the order of 2 KT.

BY COMMAND OF THE CHIEF OF STAFF:

/s/ JAMES R. GUNN, JR.
Colonel, USAF
Chief, Air Defense Division
Directorate of Requirements

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ADOPR 461.6

6 May 1953

SUBJECT: (Secret) Requirement for Weapons with Atomic Capability
in the Air Defense System

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

- REFERENCES:
- a. Letter, Subject: (Secret) "Development of a 'Quick Fix' Large Unguided Air-to-Air Rocket (Terror)" Headquarters Air Defense Command, 13 August 1952.
 - b. Letter, Subject: (Secret) "Development of a 'Quick Fix' Large Rocket" Headquarters Air Defense Command, 29 November 1952.
1st Indorsement, Department of the Air Force, Headquarters USAF, 18 December 1952.
2nd Indorsement, Headquarters Air Defense Command, 19 January 1953.
 - c. Letter, Subject: "Nuclear Armament for Interceptors" (Top Secret) Headquarters Air Defense Command, 31 January 1952.
1st Indorsement, Department of the Air Force, Headquarters USAF, 21 February 1952.
 - d. Letter, Subject: (Secret) "Atomic Weapons in Air Defense," Headquarters USAF, 29 May 1952.
 - e. Letter, Subject: (Secret) "Requirement for the Development of Atomic Warheads for Air Defense Weapons" Headquarters Air Defense Command, 17 March 1953.

1. The following requirement is submitted in accordance with Air Force Regulation 57-3, 28 May 1951.

2. Introduction:

- a. A requirement exists for atomic capability for local and area defense weapons in the air defense system. Atomic warheads will provide an emergency high kill capability not possible in conventional

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability
in the Air Defense System

weapons. The area defense weapons, interceptor aircraft carrying atomic bombs, will be employed to inflict attrition and to disperse large enemy formations at the outer limits of the combat zone. The local defense weapons, surface-to-air missiles, will be used as high kill insurance against those bombers near the target area which have penetrated the area defense. The additional cost of the nuclear components of this program can be considered negligible since the essential weapon can be made available from the national stockpile for its role in air defense, and returned when the tactical situation dictates a higher priority need. It is estimated that 200 - 400 interceptors and approximately 200 Talos missiles can be equipped with the atomic potential by 31 December 1955.

b. This letter deals with the requirement for Talos surface-to-air guided missile and the general requirement for interceptor armament. It does not supersede previous requirements for atomic warheads in air defense as referenced above.

3. Objective:

a. To procure a local defense surface-to-air missile for the air defense system with the following capabilities:

- (1) Beam-rider.
- (2) Rapid rate of fire; approximately 4 - 6 rounds per minute from a site.
- (3) High kill potential.
- (4) Armament - conventional and atomic warhead.
- (5) Range - 50 miles or greater.
- (6) Speed - Mach 2.5.
- (7) Altitude - 60,000 feet.

b. To provide an area defense weapon with the following capabilities:

- (1) To be carried by all-weather interceptor aircraft.
- (2) High kill potential.
- (3) To be on application of an atomic bomb.

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability in the Air Defense System

4. Description:

a. Nomenclature:

- (1) Talos - Talos-W, Surface-to-air guided missile.
- (2) F-89D aircraft modified for air-to-air application of an atomic bomb.

b. Purpose: To provide the air defense system with both surface-to-air and air-to-air weapons utilizing an atomic warhead by 1955. The growing enemy threat, from both the numerical and performance standpoint, makes it essential that all weapons be employed to their maximum capability. By introducing the Talos missile into the weapon family and equipping both it and the long range interceptor with atomic effectiveness, the kill potential of the air defense system can be greatly increased. It is the opinion of this headquarters that the cost-kill factor for atomic kills will in time be less than for conventional explosives. This headquarters urgently request that this requirement be approved and that in accordance with Air Force Regulation 50-11, it be given a 1-A priority for development and production.

c. Performance:

- (1) Both the local and the area defense application of the atomic weapon must be adaptable to the air defense weapons system either as a part of or fitting into the system.
- (2) Talos must be capable of growth to ranges of 50 miles or more.
- (3) Missile speed must approximate Mach 2.5 and must have complementary high performance.
- (4) Talos-W must be a beam-rider mid-course guidance only.
- (5) The Talos missile with conventional warhead must have active seeker terminal guidance in addition to mid-course guidance.
- (6) The interceptor must have toss bomb or level flight bombing capability.
- (7) The interceptor must be capable of the maximum radius of action to permit long range interception of enemy aircraft at the outer limits of the combat area.

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability in the Air Defense System

d. Design Features:

- (1) The Talos missile, as designed by the Navy, modified for land based employment.
- (2) A method of in-flight insertion and safing the Talos-W to assure that its use over troops or populated areas can be carried out with a minimum of hazard as discussed in letter, SWPDV-7-953.6, Subject: "Employment of Talos-W by Department of Army and Air Force as a Land Based Air Defense Weapon", to Director of Requirements, United States Air Force, Washington 25, D. C.
- (3) Navy advanced radar modified for land based employment.
- (4) F-89D, as produced by Northrop, modified for toss and level bombing.
- (5) A method of in-flight insertion and safing of the atomic core to be operated by the pilot.

e. Special Features: None

f. Proposed Basis of Issue:

- (1) Approximately four hundred (400) Talos missile available to the air defense system by December 1955. Of this number approximately two hundred (200) should have atomic warheads.
- (2) The available Talos to be equitably distributed between approximately twenty (20) sites by December 1955.
- (3) Approximately 200 - 400 interceptors, modified for atomic air-to-air bombing, to be available to the air defense system by December 1955.

g. Method of Meeting the Requirement:

- (1) Engineering reports from reliable sources state that the Talos missile system, a Naval development, can be economically modified to fit into the air defense system as an integral part, meeting the existing requirement.

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability in the Air Defense System

- (2) Present information from the Special Weapons Center, Kirtland Air Force Base, indicates that the modification of the E-6 fire control system in the F-89D, with the Hughes universal computer, would enable this aircraft to engage in level and toss bombing tactics. Reference letter SWD (SWR) Headquarters Air Force Special Weapons Center, Subject: "Project HEAVENBOUND".

5. Operational Concept:

a. Employment: Atomic warheads will be used in the air defense system to inflict attrition upon the enemy aerial force from the time of interception up to the bomb release line. The air defense interceptor will make the initial attack upon the formation with atomic armament. The purpose for the atomic warhead at this point is two-fold; first, to inflict heavy attrition upon the enemy force and second, to break-up the formation so that conventional weapons can be brought to bear. The Talos missile, with the atomic warhead, will be used to circle other local defense missiles in heavy industrial and populated areas to inflict high kill on that part of the bomber force which escape the area defense weapons. All atomic warheads are to be detonated at optimum altitude to effect a kill on aircraft while causing minimum of destruction on the surface.

b. Insertion and Safety:

- (1) In-flight insertion and retraction of the nuclear core will be accomplished remotely through a motor driven device. Programmed arming would be initiated as follows:
- (a) Talos-W, when the missile is captured in radar beam.
 - (b) Interceptor armament, an arming selector switch which can be activated for insertion or retraction at the discretion of the pilot
- (2) Atomic warheads will be safe during take-off and/or launch as follows:
- (a) Talos-W will be "safe" at launch and will remain safe until "captured" in the radar beams. Activation of the programmed arming will be accomplished remotely by the ground controller. "Safe" destruction, after core insertion, will be accomplished at the discretion of the controller.. In addition

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability in the Air Defense System

to "safe" destruction, provision for in-flight retraction of the core at the controller station, must be possible.

(b) Interceptor armament will be safe until armed by the pilot. In-flight retraction will be provided for at the selection of the pilot.

(3) The assembled weapon will be designed so as to allow for installation of the core into the insertion cradle in fifteen (15) minutes or less. This installation will be accomplished on intelligence information prior to the operational alert.

c. Strength: Preliminary planning indicates that Air Defense Command will have:

- (1) Two hundred (200) Talos missiles which can be equipped with atomic warheads. These missiles will be equitably deployed outside the Nike and AAA defenses in the north-eastern complex of the United States.
- (2) Two hundred (200) to four hundred (400) all-weather interceptors, capable of delivering the atomic armament, will be in the air defense system. These interceptors will be equitably deployed along the boundaries (northern, eastern and western) so as to be capable of intercepting the enemy formations before reaching strategic targets.

d. Storage:

- (1) Responsibility: Storage and handling custody must be in the hands of the USAF, specifically in Air Defense Command. This requirement is essential since the effective employment of nuclear devices in air defense may be accomplished on very short notice; time is a critical aspect of air defense.
- (2) Location: Storage of the nuclear charge will be the Air Defense Command installation in close proximity to the weapon as follows:
 - (a) Talos; at the launching revetment (round-house).
 - (b) Interceptor; adjacent to the parking stand.

NOTE: The H.E. head will be installed in the armament piece.

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SUBJECT: (Secret) Requirement for Weapons with Atomic Capability
in the Air Defense System

(c) Conditions; The nuclear core will be stored in
cubicles or revetments under specified storage
conditions.

6. At the present time atomic weapons are not available to Air
Defense Command. It is, therefore, urgently requested that Talos and
Talos-N and F-89D's, modified for atomic bombs, be made available to
the air defense system by late 1955.

/t/ FREDERIC H. SMITH, JR.
Major General, United States Air Force
Commanding

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ADOPR 471.6

13 Jul 1953

SUBJECT: (SECRET) Requirement for a Study of Air-to-Air Guided Rocket
With Atomic Warhead in the Air Defense System

TO: Director of Requirements
Headquarters USAF
Washington 25, D. C.

- REFERENCES:
- a. Letter, subj: (Secret) Requirement for Weapons with Atomic Capability in the Air Defense System, Headquarters Air Defense Command, 6 May 1953.
 - b. Report No. D-152-945-001, "Utilization of the Shrike as an Air Defense Missile", Bell Aircraft Corporation, 28 October 1952.
 - c. Technical Report, AFSWC 53-9, "Feasibility of Nuclear Weapons for Air Defense", Air Force Special Weapons Center, Kirtland AF Base, New Mexico, 8 June 1953.

1. Members for this headquarters attended a conference, subject: "Heavenbound", at Headquarters Air Research & Development Command on 30 June 1953. During this conference the group representatives from Headquarters USAF, Headquarters ARDC and Headquarters, ADC, recommended a program to be followed in developing atomic capability for Air Defense Command. The program is as follows:

- a. Investigation of "Free-Fall" bombing (tactics and accuracies). This is to be joint ADC-APGC project and should be completed by March 1954.
- b. Development of the F-89/E-6A fire control system and/or the F-102/E-9 fire control system with 42 series BoAR with MK-7 warhead. This program is to be completed by January 1956.
- c. Development Improvements.
 - (1) High velocity BoAR (44 series) with MX-12 warhead. This is to be a three and one-half ($3\frac{1}{2}$) year program.
 - (2) Guided Air Rocket (GAR) capability.
 - (a) A study considering use of "Shrike" as a "quick-fix" method of delivering the atomic warhead.

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ADOPR 471.6, Subj: (S) Requirement for a Study of Air-to-Air Guided Rocket with Atomic Warhead in the Air Defense System (Cont'd)

- (b) Low yield, small diameter warhead for guided air rockets of 12-15 inch diameter (i.e., Meteor, Oriole, etc).

d. Development Study.

- (1) Logistics
- (2) Operations

2. This headquarters' investigation into the problem of delivering an unguided atomic warhead from an interceptor aircraft into an enemy high speed bomber formation indicates that a high degree of skill and precision on the part of the pilot is required to attain a good hit while at the same time assuring interceptor escape. The Bell Aircraft Corporation Study, "Utilization of the Shrike as an Air Defense Missile" presents some interesting factors for guided aerial delivery of the atomic warhead. It appears feasible to develop Shrike initially, as an interim quick-fix guided air rocket for atomic delivery by December 1955 and ultimately, as an improved guided air rocket with a short range (ten to twenty-five miles) by late 1956 or early 1957. Request that a high priority study project be initiated to evaluate the Bell proposal.

3. To provide for atomic capability in the air defense system prior to the development of a guided air rocket, Air Defense Command requests:

- a. That authority be granted to investigate the feasibility of free-fall bombing, using air defense interceptors, under the cognizance of Air Proving Ground Command.
- b. That the free-fall bombing project be given a 1-A priority so that testing can be accomplished by March 1954.
- c. USAF assistance in expediting this program.

FOR THE COMMANDER:

/s/ KENNETH P. BERGQUIST
Brigadier General, USAF
DCS/Operations

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6 February 1953

Lieutenant General Laurence S. Kuter
Deputy Chief of Staff, Personnel
Headquarters U. S. Air Force
Washington 25, D. C.

Dear Larry:

We recently held a conference at this headquarters, attended by personnel representatives from the Air Defense Forces and their counterparts here. The Deputies for Personnel of the Defense Forces were asked to identify the major problems facing them which were beyond their capability to solve, and which required action by higher headquarters. Some matters were brought to light that can and will be corrected through our own action. There are other problems, however, that require action by your headquarters. Most of these items have been brought to the attention of your people previously, through correspondence, telephone conversations and/or visits of staff officers to your headquarters, but we still do not have satisfactory solutions. The problem areas in which we need help are as follows:

1. Assignment of Airmen to Other ZI Commands. In our continued efforts to improve stability, this has proved a vexing problem. It appears to us that the need for withdrawal of our skilled airmen for assignment to other ZI commands stems largely from a reluctance of the other commands to accept normal personnel assignment policies, or their failure to train and upgrade their own airmen. I am informed by our Airmen Assignments Branch that we have only very rarely received skilled airmen from the other ZI commands. We have done our best to solve shortages in the higher skill levels from within our own resources, supplemented by such help as you have been able to give us in the allocation of skilled people from normal pipeline sources. We suggest that other ZI commands be required to do the same.

The number of such withdrawals levied upon us is not great, but they usually involve personnel for which we, too, have an urgent need. We have registered protests against these losses, but so far without success. Examples of these reassignments to other ZI commands are:

a. 89 airmen, 71 of which were in the aircraft maintenance, personnel, and supply career fields, were reassigned to ConAC in July, 1952.

b. 100 jet maintenance personnel, at the 5 and 7 skill level, were reassigned to ATRC in August, 1952.

c. 122 airmen, of which 57 were in the aircraft maintenance and supply career fields, were reassigned to AMC in September and October, 1952.

Right now we are faced with the reassignment to AMC of 115 airmen for depot level specialist training and subsequent overseas assignment. Included in this proposed move are 66 airmen in the higher skill levels of the radar mechanic and supply fields. Of the airmen requested for this shipment, 42 are to be at apprentice level. I do not understand why such men cannot be secured from ATRC schools directly. This would save an extra move for the personnel involved and contribute to greater stability.

2. Withdrawal of Aircraft Maintenance Personnel. The reduction in the number of assigned skilled aircraft maintenance personnel during the past few months, caused by withdrawals for assignment to an overseas or ZI command, raises serious doubt as to the ability of our defense forces to properly man the fighter squadrons to be activated in the next six months. Our planned expansion program will require the spreading of our talent much thinner than it is even now. Unless those aircraft maintenance personnel in the higher skill levels are allowed to remain with us, and are augmented by overseas returnees, we will be required to man these new units with an unacceptably high percentage of apprentice level airmen. This problem is particularly serious in view of the greater difficulty of maintenance of the new and increasingly complex jet interceptors we are receiving now, and our requirement to keep these aircraft combat ready around the clock.

I realize that we must train and upgrade our own apprentices to the five and seven level, but this becomes particularly difficult when we are faced with recurring losses of the experienced airmen need to accomplish this training.

Closely connected with the problem of withdrawal of airmen as casualties for overseas shipment is that of the manning of units scheduled for overseas movement. Some such units are going to non-combat areas. We recently asked formal permission to man these units on an equivalent basis with our own, as a matter of policy. Your headquarters would not give blanket authority, but asked that we justify each individual case. On the assumption that overseas units have their own training capability, comparable to ours, I see no reason for their initial manning to differ from that of ADC units in the ZI, which must be ready at all times to perform a combat mission certainly as vital and important as that of any overseas unit. The requirement for submitting a detailed justification in connection with each individual unit movement will, I feel, do little but impose an unnecessary administrative burden.

3. The Officers' Effectiveness Report Program. Even though all commands have made marked progress in the execution of this program, there is still a strong feeling on the part of our commanders that the conscientious attitude we have adopted will hurt ADC officers in their future promotions, particularly permanent promotions. Your headquarters had indicated that this command has the best spread of effectiveness ratings so far in the program. We are duly proud of our results to date, but I am concerned over the fact that some of the other commands have, theoretically, a much higher percentage of outstanding and very fine officers, as reflected in their effectiveness rating spread. Until your headquarters has more nearly equalized the rating distribution among commands, there is a probability that officers assigned to ADC may be penalized. I suggest, as a possible solution, that all permanent promotion boards have a representative of those commands which have attained the objectives you have established in this program. Some thought might also be given to the establishment of a weight factor to be used to compensate for inequities in effectiveness ratings of various commands. At the very least, every officer promotion board in the Air Force, whether considering officers for permanent or temporary promotion, should be provided with tabulations of the relative standing of the major commands at various periods during the development of the rating spreads.

4. Coordination of Personnel Programming with Equipment Delivery Schedules. This command has been faced with the perennial problem of having overages in certain officer and airmen career fields while being critically short in others. We understand that this situation exists Air Force wide and is attributed largely to the "stretch-out" in arms production, to slippage in delivery of aircraft or other equipment, and to unforeseen delays in completion of base facilities. We are aware of the fact that "Project Guidance", recently established by your headquarters, is designed to alleviate the problem to some extent by setting up controls on OJT of airmen at base level. We suggest, however, that in the future vigorous action be taken by your headquarters to more closely coordinate personnel programming with equipment delivery and base construction schedules, and that the flow of students through ATRC courses be adjusted to changes that occur in these schedules. When overages in certain airmen specialties develop, we suggest that action be taken to prevent continued student flow from ATRC courses in these specialties making such overages even worse. When this happens the job of retraining these men falls on the base; we feel it would be better management to divert them while in ATRC student status to specialist training for which there is a real need.

I realize that some of the problems outlined above are not the kind that can be quickly and easily solved. There may be factors relating to them of which we are not aware. I do feel, however, that prompt and

positive action is needed on items 1 and 2 in order for this command to be able to properly perform its all important mission. Your assistance in obtaining this will be greatly appreciated.

Sincerely,

FREDERIC H. SMITH, JR.
Major General, USAF
Vice Commander

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28 Nov 1952

Major General Walter E. Todd
 Commanding General
 Western Air Defense Force
 Hamilton Air Force Base
 Hamilton, California

Dear Wee:

Your letter of 7 November 1952 on the subject of losses in skilled aircraft maintenance personnel was most timely. It arrived just as I was ready to leave on a trip to Washington, so I took it with me to show the Director of Military Personnel, Jack McCormick, how our commanders feel about the constant drain on our personnel resources. Jack was absent, but I showed the letter to his assistant, John Ives.

The personnel people in Hq USAF are sympathetic, but that is about as far as it goes. The gap between available trained personnel and projected requirements which exists in this command exists also in the other major commands. We are just being given greater responsibilities than we can handle with optimum effectiveness at the present time. It might be of interest to you to know that ADC has fourth priority in manning, with FEAF, SAC and USAFE taking precedence.

We will give you all the help we can at this headquarters. Although it is possible that you will continue to lose skilled airmen in greater numbers than you receive them, the spread should be reduced from now on. For the last three months, we have had to assign skilled personnel to Central Air Defense Force in greater proportion than to your command and to Eastern Air Defense Force. The reason, of course, was because of CADC's heavy loss of Air National Guard personnel. At the same time, we eased off in allocating overseas levies to CADC. From now on, you can expect a relatively larger share of incoming pipeline personnel and a relatively smaller proportion of overseas quotas.

We will continue, as we have in the past, to keep Hq USAF aware of the problem you discussed. For over a year we have been warning them of the difficulties emphasized by your letter. Last May I went to Washington and told them that the F-86D is an exception of those in Korea. We warned them of the impact of our impending Air National Guard losses. About all USAF could do was to step up our flow of basic airmen.

Just recently we were directed to send 98 airmen in various AFSC's to Air Materiel Command for depot level special training prior to going overseas. Some of these we could spare as they were in field in which we have an overage. On the maintenance people, however, we made the

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strongest kind of protest. I followed this up with a personal call and TWX to McCormick. We were turned down on the maintenance supervisors but did get off the hook on eleven personnel of varying AFSC's for whom AMC indicated they had no requirement.

Your statement that the solution of the problem will depend upon our own efforts is entirely true. In this connection, I should like to point out that although you will be required to activate new squadrons early in 1953, those squadrons are not scheduled to receive aircraft until the last quarter of the fiscal year. You have up to seven months from now to train and up-grade mechanics for the new squadrons.

Air Training Command schools are wide open in the career fields in which your command will be short. Your people have asked for very few school quotas in the jet fighter mechanic field during recent months. We can obtain a substantial number of spaces in these courses if you will request them.

I shall withhold comment on your proposal to place other types of airplanes in our F-86D squadrons until I receive the operations study which you mentioned.

Let me reiterate that we will do everything possible to keep Hq USAF aware of our personnel situation and its effect on our capability. Please continue to send your comments on specific problems. They provide excellent ammunition.

Sincerely,

FREDERIC H. SMITH, JR
Major General, USAF
Vice Commander

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HEADQUARTERS WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

WDPFM 200.3

2 April 1953

SUBJECT: (Unclassified) Personnel Status, Western Air Defense Force

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. A recent survey of Western Air Defense Force indicates the personnel status is rapidly approaching the critical point. During the last six months this command has, through overseas and ZI shipments, lost numerous skilled personnel, both officer and airman. Projected losses, combined with those in the past, will further aggravate current officer and airman shortages; critical skill shortages have already developed in the 30, 42, 43, 64 and 96 career fields for airmen. Personnel fluctuation and instability of the personnel program can be attributed to the following:

- a. Large levies for ZI and overseas shipments.
- b. Activation of five new fighter squadrons.
- c. Pending activation of two new fighter squadrons.
- d. Pending activation of mobile radar sites.
- e. Release of National Guard, Reserve and regular airmen.
 - (1) Approximately 690 National Guard and Reserve airmen, many at the skilled level, will be eligible for separation between March and July of this year; many of these are in specialties listed above as being critically short. Of the total of 690 airmen, 316 are assigned to the 25th Air Division. Complete information concerning these releases was furnished in our letter, file WDPFM 210.8, Subject: Release of Reserve and National Guard Airmen, 6 March 1953.
- f. Reorganization of air base groups and squadrons to air defense groups.

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g. Pending deployment of three fighter squadrons.

2. In an effort to combat past and projected personnel and skill level losses, the following actions have been taken and are being continued within this command:

a. Special base level courses in radio/radar maintenance and supply are in operation at Geiger Field and McChord AFB.

b. The MTD unit for F86-D technicians presently operating at Larson AFB is being utilized to the fullest extent by personnel assigned to the 25th Air Division to include units other than the 323d Squadron.

c. All units have accelerated OJT programs.

d. Emphasis continues to be placed on utilization of available technical training, to include specialized factory courses. However, in view of the shortage of fully qualified personnel, unit commanders are reluctant to place in technical training those individuals who have demonstrated potential aptitude for fulfilling requirements; the absence of qualified individuals requires approximately two airmen to perform duties normally performed by one qualified airman.

3. As a result of the recent activation of five 86-D fighter-interceptor squadrons and the pending activation of two fighter squadrons 20 April 1953, the command will experience personnel shortages in all career fields and further aggravation of the current skill shortage. This can be attributed to constant personnel fluctuation and changes outlined in paragraph 1. In spite of additional and accelerated training, the overall skill level of airmen has not increased appreciably. The current command manning, based on present authorizations and not considering requirements for activation of additional mobile radar and two additional fighter squadrons, is as follows: Fighter units: Officers 56%, airmen 65%; AC&W units: Officers 70%, airmen 78%. Total manning as of 22 March 1953 was 81% in officer strength and 93% in airman strength. For information the following breakdown of skill level of assigned airmen as of 28 February 1953 is furnished:

1 (unskilled)	- 10%	5 (skilled)	- 36%
3 (semi-skilled)	- 39%	7 (supervisory)	- 15%

4. Authorizations for fighter-interceptor pilots including units activated the first half of this calendar year total 616; this figure does not include authorizations for units being deployed. Without an influx of jet qualified pilots, this command will be unable to man any fighter squadron to an acceptable degree. Shortages in other technical and administrative officer fields are rapidly developing, such as 3016, 3034, 3044, 4313, 4316, 6424, 6416 and 7324. During January and February

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alone this command suffered a net loss of 101 officers.

5. It is understood your headquarters is not in position to offer immediate relief in our present and projected shortages. The personnel situation is outlined above for the purpose of furnished your headquarters with the latest available information in order that all possible consideration may be afforded WADF in personnel allocations and withdrawals. In the meantime, you are assured all possible measures will be pursued by this command to perform the required mission with available personnel.

FOR THE COMMANDING GENERAL:

T. R. McCANN
Major, USAF
Asst Air Adj Gen

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Hq WADF WDPPM 200.3 Subject: (Unclassified) Personnel Status, WADF

ADPPM 200.3 (2 Apr 53) 1st Ind 6 May 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton AFB,
Hamilton, California

1. This headquarters is cognizant of the personnel situation in your command and, where feasible, is taking action to the extent possible to adjust differences in Air Defense Force manning.

2. Since receipt of this correspondence, your command has been allocated an additional 400 airmen in the Aircraft Maintenance Career Field, and thirty (30), out of a total fifty (50), additional pilots allocated to the Air Defense Command.

3. All possible assistance will continue to be given your command toward equalizing personnel gains and losses within the command.

BY COMMAND OF MAJOR GENERAL SMITH:

THOMAS C. SAVAGE
Major, USAF
Adj Gen.

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Subject: (Unclassified) Personnel Status, WADF

From: PPM

To: DP

Thru: PMP

Date: 21 Apr 53

Comment No. 1

1. Reference Colonel Horton's comments, it is true that WADF has a lower manning percentage in some fields than the other two Defense Forces. The fields most undermanned in WADF are the 27, 29, 40, 42 and 43 fields. Detailed information concerning relative manning has been forwarded to PMP, so that they can take necessary action to balance the withdrawals and input, in order to establish an equitable manning throughout the Air Defense Command.

2. This situation will slowly improve from the action taken by PMP. In my opinion, no special actions are indicated at this time. If in the future some of these shortages become worse, we could then take action to divert the entire pipeline into WADF to balance the manning.

ALBERT M. CHRISTOPHER
Major, USAF
Chief, PPM-A
Ext 782/759

CARROLL C. SMITH
Lt Colonel, USAF
Director, PPM
Ext 531

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Subject: (Unclassified) Personnel Status, WADF
 From: DMP To: DCS/P

Date: 5 May 1953
 Comment No. 2

1. Current records of this office indicate that Western Air Defense Force is lower manned than the other Air Defense Forces in only the 27 and 29 career fields.

2. The variance in the figures is possibly caused by this office having more current information on gains and losses to this command than that possessed by PPM. Listed below is the manning status of Air Defense Forces in career fields and subcareer fields considered critical to this command:

27 (Air Traffic Control & Warning)

EADF	70%
WADF	67%
CADF	73%

29 (Communications Operations)

EADF	80%
WADF	73%
CADF	75%

40 (Intricate Equipment Maintenance)

EADF	21%
WADF	61%
CADF	62%

42 (Aircraft Accessories Maintenance)

EADF	71%
WADF	86%
CADF	49%

425 (Aircraft Hydraulics Maintenance)

EADF	65%
WADF	77%
CADF	35%

426 - 431 (Electrical) (Electrical Mechanics)

EADF	87%
WADF	96%
CADF	73%

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Subject: (Unclassified) Personnel Status, WADF
From: DMP To: DCS/P

Date: 5 May 1953
Comment No. 2 (Cont'd)

431 (Instrument) (Instrument Mechanics)

EADF	130%
WADF	132%
CADF	144%

Jet Aircraft Maintenance Personnel

EADF	93%
WADF	101%
CADF	76%

Conventional Aircraft Maintenance Personnel

EADF	85%
WADF	85%
CADF	170%

3. A strenuous effort is being expended at all times to maintain all Air Defense Forces at the same manning level. The loss and gain of personnel, over which this headquarters has no control, coupled with the continuous change of authorizations makes it extremely difficult to maintain an even manning status of Air Defense Forces.

AUZIE J. JONES
CWO, USAF
Chief, Airmen's Asgmt Branch
Ext 709

ROBERT M. CLARK
Lt Colonel, USAF
Director of Military Personnel
Ext 264/265

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From: Hq ADC Ent AFB Colorado Springs Colo 21 July 1953
To: C/S USAF Washington D. C.

ADPMP-O 1633 . Personal from Crabb to McCormick. Reference is made to your airmail message AFPMP-1 AM 1749, 7 July 1953. Of officers listed in Part V of your message, the following are not available for reasons as indicated: Capt William Markham, AO 680049, 34th Air Div, is due for release from AD on 3 Sep 1953. 2d Lt Elmer M. Koski, AO 222375, 54th Ftr-Intcp Sq, was killed in an aircraft accident in June 1953. Although the remaining officers listed in your message can theoretically be considered available for this TDY, their release would seriously jeopardize the operational capability of the command. As of 6 July, this command had a ratio of 1.4 pilots per assigned aircraft. The no of pilots attending schedule, on TDY, or not present for duty reduced this ratio to .9 pilots per aircraft. Of this latter figure, only .4 pilots per aircraft were combat ready. Each additional combat ready pilot selected for TDY results in the loss of combat capability of one aircraft. In addition, there is an existing levy of 33 jet qualified pilots to ferry aircraft under project High Flight (your message AFOOP-OC-T 50779). The direct bearing of these levies on the combat capabilities of this command especially in view of the survival concept, necessitates req relief from furnished pilots for these projects.

COMDR ADC

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HEADQUARTERS
WESTERN AIR DEFENSE FORCE
Hamilton Air Force Base
Hamilton, California

OFFICE OF THE COMMANDING GENERAL

7 Nov 1952

Major General Frederic H. Smith, Jr.
Vice Commander
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

Dear Freddy:

We have been giving a lot of serious thought recently to the manning requirement to be imposed on this command in the immediate future, in support of the Air Defense Command Fighter-Interceptor expansion program.

As you know, the USAF troop program anticipates the activation and manning of eight additional fighter-interceptor squadrons by this command during the next four (4)-month period (through February 1953). Five of these squadrons, as well as two of our existing squadrons, will be equipped with F-86-D type aircraft with the attendant inflated requirement for additional highly skilled maintenance and support type people. In addition we will pick up a minimum of twelve additional jet type fighter aircraft at Yuma. This phase of the program alone will pose a requirement of more than a 100% increase in maintenance personnel in the fighter system of this command alone.

We have previously been informed that we can expect no outside assistance in manning these units and there appears to be little correlation between our present resources and this projected requirement. Although I most certainly do not want to appear overly pessimistic, I do feel that perhaps we are not completely realistic in our present planning. When considered in conjunction with the fact that we are presently experiencing difficulty in maintaining the necessary standards of maintenance and logistical support in our existing fighter units, due to the shortage of skilled airmen, the picture from here does not look encouraging for this program for some time to come.

A redistribution of our presently assigned maintenance airmen would result in an overall manning of approximately 50% of requirement in each of these organizations. Even this

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Major General Frederic H. Smith, Jr.

figure is overly optimistic, because of the acquisition in recent months of several thousand basic airmen who have quite naturally been classified into the fields where our need is greatest, our overall maintenance career field assignment appears much better than is the actual case. A closer analysis reveals that the people at the higher skill levels with sufficient "know how" to be of any constructive value to our units during this critical period are critically short even for our present requirements, and a redistribution of these airmen (5 and 7 level) will result in the assignment of approximately 20 to 25% of requirement to each of the units concerned.

A factor contributing materially to this problem is the present undesirable attrition and replacement trend. Since the 1st of August we have received requirements to furnish 754 skilled maintenance type airmen for overseas and other assignments. During this same period we have received 240 maintenance type airmen as replacements. As of this date the pipeline is almost empty. We have 60 maintenance airmen scheduled in from all sources against a projected additional requirement for approximately 1200. Considering the fact that the normal pipeline flow is approximately four (4) months, it would seem that we can expect little if any additional assignments during this four-month period while continuing to lose many of our remaining skilled people. For example, included in the total losses listed above are requirements to furnish 230 skilled maintenance airmen for overseas shipment departing within the next sixty days. These people alone would provide the skilled requirement for three fighter squadrons and the net loss suffered by this command in the past four months would have gone a long way towards providing the minimum skilled requirement for this entire program. We have previously attempted, without success, to be released from these requirements. Although I am confining this discussion primarily to the maintenance aspect of the problem, because I considered it the most critical, there are many other support fields which are equally limited. I am not too concerned about the additional requirement for combat crews. Although we do not presently possess our projected requirement by any means, it is believed that we are on much firmer ground here than in any other personnel phase of this program.

We feel that we have taken all feasible measures to improve our capability of meeting our maintenance requirements. We are obtaining technical school quotas for those few basic airmen who meet the minimum qualifications for training in these critical skills. Our commanders are

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Major General Frederic H. Smith, Jr.

conducting supervised courses of instruction to the extent of their ability in an effort to accelerate the training of our basic airmen who are not qualified for the technical training schools, and we are utilizing all factory training quotas. All of these measures will still fall far short of meeting the minimum requirement for the forthcoming phase of this program. It now appears that we are to be faced with the necessity of providing cadres for these new units made up primarily of airmen at the three (apprentice) skill level. If this does become necessary I believe the impact it will have on the operational capability of these units is readily apparent. In this regard the fact that we will acquire seven F-86-D equipped squadrons during the initial phase is a matter of particular importance. Tests have indicated that this aircraft initially requires an average of 40 hours of maintenance for each hour of flying as compared to 5.1 for our present F-86, 4.7 for the F-94 and 13.3 for the F-89. This differential will of course be reduced through experience, but is indicative of one of our early problems.

I realize that the trained people to man these units very probably do not exist in the Air Force today. We also have been informed that we have a proportionate share of ADC resources, consequently the job must be done with the nucleus we presently have available together with an accelerated training program for those technical school graduates who will be made available from the training command facilities. However, if the attrition of our skilled people should continue at the rate of the past several months, the effects on our ability to support this program are self-evident.

My Operations people are preparing a detailed study in which it will be recommended that we establish a ratio of not more than three of the F-86-D type aircraft to one of our proven aircraft (F-86A, F or F-94A, B) in each of the units to be so equipped. In light of our past experience with the F-89 I believe this is essential in order to maintain the minimum air defense capability and the proficiency of a minimum number of our combat crews.

I present this problem more in an informative vein than otherwise, as it appears that the solution will be largely

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Major General Frederic H. Smith, Jr.

ours. I do, however, urgently recommend that every effort be made to stabilize our remaining skilled support people, at least until completion of the early phases of this program.

Sincerely,

s/t Wee
WALTER E. TODD
Major General, USAF
Commanding

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19 November 1952

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AIRCRAFT CONTROL AND WARNING TRAINING

I. A review of personnel assigned to AC&W units by AFSC reveals overages in nearly all career fields. Exceptions are:

27150,70	Air Operations Specialist
36351,71	Crypto Repairman

A. Many career fields are nearly even; that is, "auth" equals "asgnd". These are:

20430,50,70	Intelligence Operations Technician
27330,50,70	AC&W Operator
29010,29130,50,70	Communications Operator
29230,50,70	Crypto Operator
96010,96130,50,70	Air Police

B. In all career fields there are overages of "10" and "30" level personnel and shortages of "90" and "70" level people, with the exception of the following:

27330,50,70	AC&W Operator
30010,30131,51,73	Ground Communications Technician
90230,50	Medics

In the above 3 fields there are overages at all skill levels. This fact points up the large amount of OJT that is necessary to meet the skill requirements of this command.

II. In AC&W, the following career fields are considered critical, due to the complexity and length of training necessary:

30130,50,70,71	Airborne Radio Mechanic & Technician
30010,30131,51,72,73	Ground Radio Mechanic & Technician
30230,50,71,70	Airborne Radar Mechanic & Technician
30231,51,72,73	Ground Radar Mechanic & Technician

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A. The following summary, as of 31 Sep 52, will present the manning picture in these career fields:

	<u>AFSC</u>	<u>Auth</u>	<u>Asgd</u>	<u>Ret 30Jun53</u>
Air-	30130	137	475	433
borne	50	313	296	158
Radio	70	68	72	49
	<u>71</u>	<u>19</u>	<u>37</u>	<u>28</u>
		537	880	668
	30010	0	25	24
	30131	189	699	623
Ground	51	475	519	298
Radio	72	26	57	43
	<u>73</u>	<u>21</u>	<u>155</u>	<u>108</u>
		711	1455	1096
	30230	6	451	445
Air-	50	428	177	158
Borne	70	45	28	23
Radar	<u>71</u>	<u>93</u>	<u>32</u>	<u>20</u>
		572	688	646
	30231	0	473	441
Ground	51	537	615	450
Radar	72	141	77	51
	<u>73</u>	<u>145</u>	<u>124</u>	<u>73</u>
		823	12389	1015

There is no problem in any of these fields from the standpoint of the quantity of people. We have 122% of the skilled radio mechanics (5 and 7 level) we need - airborne and ground - in our AC&W Sqdns. We have 343 more radio mechanics than our total need today. These people, through OJT, will meet future losses of skilled people.

We have 76% of the skilled radar mechanics (5 and 7 level) we need - airborne and ground combined - in our AC&W Sqdns. We have 575 more radar mechanics than our total need today. These people, through OJT, will meet future losses of skilled people.

Again, our job centers on training to increase the proficiency of people with the lower skill levels.

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III. Since training is our problem let us examine briefly our programs in the various categories.

A. AN/CPS-6B

1. Provides GCI capability to include height findings information.

2. OJT Program - 9 officers trained at GE formulated training materials which were published and distributed by GE. These materials reached units in Aug and Sep and training programs on a 5th shift basis are now underway. Comments from field are very favorable.

3. ATRC is involved in court proceedings to obtain right-of-way land for permanent 6B installation at Keesler AFB. There is no firm date for starting of ATRC course on 6B - probably next summer.

4. AF Pictorial Service is now making a set of 25 film strips at Selfridge AFB to cover maintenance of the 6B. They are also starting on an operational movie in two parts. One part covers the 6B specifically and one part covers operation in general.

5. A large modification to the CPS-6B is being furnished by GE to provide EW capability. A special factor training requirement on this change, for approximately 60 people (2 per site), has been submitted to ATRC. First installation of this modification is scheduled for December. Informal information indicates the training requested will be available after the first of the year.

6. All factor trained 6B people are frozen and in addition, provision has been made for the ADF's to obtain freezes on OJT trainees, when they become skilled.

B. AN/FPS-3

1. Provides range and azimuth only. A separate height-finding radar must be used to provide GCI capability.

2. Mobile version is known as AN/MPS-7.

3. Factory training has been carried on at Bendix Radio, Towson, Md., for maintenance personnel. A total of 391 spaces have been allocated for this training (approximately 8 per site). Recent information indicates the last factory class entered training for eight (8) weeks on 3 Nov 52. It is expected that on ATRC course at Keesler AFB will be available soon. The permanent AN/FPS-3 site at Keesler, however, is being delayed along with that for the CPS-6B (see Par III,A, 3 above). An FPS-3 has been set up on a temporary basis in a hanger at Keesler and should be ready for use in training maintenance personnel within 30 to 60 days.

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4. A draft of an FPS-3 Handbook has been made and a reproduction copy is now in process. It is expected that printed copies will be available in January or February, 1953. An OJT program similar to that now going on for the AN/CPS-6B will be implemented when the Handbooks are available. Work projects (laboratory type experiments) and wall charts have already been furnished by Bendix Radio.

5. When FPS-3 Handbooks are available, a joint project with TAC will be undertaken to compile an annex covering the MPS-7.

6. Factory trainees are not frozen because this equipment is used world wide (almost).

C. AN/FPS-5

1. Provides height information.

2. Mobile version is known as AN/MPS-4

3. Factory training was provided at Hazeltine Electric Corp. for 64 people. Since this set is not complex, training of additional maintenance personnel is accomplished through OJT at the sites.

D. AN/TPS-10D

1. Provides height information.

2. Delivery of this equipment to ADC units was originally scheduled to start in November 1952. A change in priority of sites has resulted in a delay of 30 to 60 days (delay caused by necessity of fabrication of cables for new sites).

3. ATRC is conducting a 4 week course at Keesler AFB. First students from ADC entered training on 6 September 1952. A special training requirement for 276 spaces has been submitted.

4. An OJT program is being prepared for distribution from this headquarters. The rough draft of the material should be ready approximately 17 Nov 52.

E. AN/FPS-6

1. Provides height information (high powered).

2. Mobile version is known as AN/MPS-14.

3. This set is manufactured by GE Co. and delivery is scheduled for approximately January 1953 at rate of six (6) per month.

4. Training will be conducted at Keesler AFB. A five (5) week course has been set up, however, reporting instructions have not been received. A training requirement of 130 spaces has been submitted.

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F. AN/TPS-1D

1. This set provides EW information.
2. ATRC has established a five (5) week course at Keesler AFB. A training requirement for 89 spaces was submitted in May 52. There has been a slippage in delivery to ADC units until next spring or summer with the exception of 3 sets. The three sets will be located at Walker AFB, Kirtland AFB, and Rapid City AFB. Since a total of 35 people have received training, ATRC has been requested to cancel the balance of our original requirement until such time as delivery of equipment is more firm. All students coming out of Keesler now receive training on this equipment.

G. Pinetree Project.

1. Training for 16 airmen (2 per site) was obtained on the Vivian Diesel.
2. Ten (10) airmen were trained free of cost at Canadian Marconi on communication equipment.
3. The ADF's were instructed to give special training to the supply people going to the "O" sites so that matters pertaining to transportation could be readily handled.
4. A check with C&E indicates it will be next summer or fall before most of the communication and radar equipment will be delivered. PTR will have to monitor delivery of this equipment and arrange for Canadian training as appropriate. A request has been sent to the Pinetree project Office for information on training conducted by the Canadian Military Department.
5. Hq USAF advised it would not be possible to use ATRC formal schools for training of "C" site personnel because their "over-seas" tour could not be interrupted. The FPS-3 Handbook will meet the OJT need at these sites.

H. AEW&C (Airborne EW and Control)

1. The following major items of electronic gear will be mounted in the Lockheed Constellation (RC-121-C and D).
 - a. AN/APS-20B search radar, manufactured by GE Co.
 - b. AN/APS-45 height finding radar, manufactured by Philco Corp.

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2. A Table of Organization was prepared at this headquarters and furnished to Hq USAF for review and approval. Information obtained informally indicates a T/O has been approved and Lt Col Glenn, Project Officer, has been requested to obtain a copy for our use.

3. Prior to receipt of the approved manning document, the following training steps have been taken for personnel available from existing sources:

a. Two (2) officers with AFSC 3054 and two (2) officers with AFSC 1635 were given a 4 weeks period of TDY with the Navy at Patument, Md.

b. Three (3) airmen with AFSC 30271 were given TDY training with the Navy. Two attended at Norfolk, Virginia and one attended at Anacostia, Md.

c. Director of Training, Hq USAF, was requested on 27 Jun 52 to provide 40 spaces (airmen) for electronic training with the Navy Fleet Airborne Electronic Training Units (FAETU). This training is now in progress.

d. A requirement for training the crew of the RC-121, such as pilot, flight engineer, maintenance crew chief, power plant mechanic, etc., was furnished the Director of Training, Hq USAF on 10 Jul 52. No action has resulted to date.

e. Recently a requirement for factory training of graduates of the Navy FAETU's was submitted to include the following:

- | | | |
|-----------------|---------|----------------------------------|
| (1) At Philco | 2 weeks | height finder radar |
| (2) At GE | 3 weeks | search radar |
| (3) At Lockheed | 2 weeks | equipment installation
in A/C |

Meanwhile, the CG, Patrick AFB, has given approval to send Navy trained personnel to his base for TDY to obtain as much information as possible on the APS-20A radar set. This set is similar to that which will be used in the RC-121-C and D. Three (3) officers and four (4) airmen are at Patrick now and it is intended to keep sending all FAETU graduates until the factory training starts.

I. Passive Detection.

Six PD stations are located in WADF, three in EADF, and one in CADF. Each of the ADF's have been training operator-mechanics for

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this equipment. These stations use airborne-type electronic gear as ground based "ferrets" with a future capability as a ground-based jammers.

J. Crypto Maintenance.

AFR 66-21 has opened the way for OJT type training of Crypto maintenance personnel, providing approval is first obtained from Hq USAF. Hq USAF turned down our request to initiate this training on the basis that the ATRC course will alleviate shortages. Information on the allocation of pipeline graduates was not given. A check with PPM shows assignment of 28 to ADC by 30 Jun 53. This 28, plus 14 now on hand, totals 52 against a requirement of 128 spaces. Additional pipeline allocations will be available about the first of the year. At that time the situation will be reviewed and if necessary Hq USAF will be requested to reconsider.

IV. The attached graph projects our Controller (AFSC 1635) status to 30 Jun 54, based on present trends. Training of controllers is a function of O&T; however, the people must be furnished by Personnel. This matter is under study by PPM, DCS/P.

V. The following is a summary of the electronic-type officer status as of 31 Sep 52:

<u>AFSC</u>	<u>Title</u>	<u>Auth</u>	<u>Asgd</u>	<u>Ret 30 Jun 53</u>
301	Comm-El Staff Off	199	171	148
302	ECM Off	105	39	32
303	Comm Off	333	329	253
304	Ground Electronics Off	280	234	189
305	Air Electronics Off	51	31	25

These AFSC's are considered critical due to the length of training and experience desired. Every effort should be made to obtain more pipeline assignees for ADC.

A. The ECM Officer situation is not as critical as would seem at first glance. Present requirements are for manning the ten (10) PD sites, the ECM B-25's, and certain staff positions. Wartime conditions would change this picture, however.

B. Implementation of the AEW Program will require more ECM Officers and Air Electronics Officers.

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SUMMARY

1. Radar and Radio Mechanic situation is good.
2. We need Controllers. PPM has this problem well in hand.
3. We must watch the status of:
 - a. Comm-Electronic Staff Officers
 - b. ECM Officers
 - c. Comm Officers
 - d. Ground Electronic Officers
 - e. Air Electronic Officers

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HEADQUARTERS WESTERN AIR DEFENSE FORCE
HAMILTON AIR FORCE BASE
HAMILTON, CALIFORNIA

WDFTN 353

27 April 1953

SUBJECT: (Unclassified) Proficiency Level of Technically Trained
Personnel

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Reference your letter, file ADFTR-D 353, 24 March 1953, subject as above.
2. Attached hereto are comments and criticisms received from representative units of this command. It is felt that these comments would be more constructive submitted as received from the individual units.
3. In reviewing the inclosures to this correspondence, the consensus of opinion seems to be that the training offered through technical schools has been generally satisfactory. The main problem in raising the percentage of fully qualified technically trained personnel appears to be the difficulty in operating comprehensive proficiency OJT programs for graduates of basic courses. The high attrition rate of supervisory level airmen within this command has caused considerable concern in a majority of our units. Where it is the duty of the training schools to train personnel in this category to the apprentice level, it is the responsibility of the unit of assignment to raise the proficiency of individuals to the fully qualified level. Without adequate supervisory personnel within the units, this training requires excessive time and operates to maintain a low level of proficiency over a longer period than should normally be expected.
4. In addition to the constructive criticisms listed in inclosures hereto, the following comments are noted:
 - a. Technical school courses should possibly be modified to include instruction in research of T/Os, manuals, regulations, and various directives governing the types of equipment in which instruction is given. A general complaint appears to be that individuals are received from the schools who have little or no knowledge that there are publications governing the maintenance and operation of the equipment on which they were trained.

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WDPTN 353, Hq WADF, Subject: (Unclassified) Proficiency Level of Technically Trained Personnel

b. Several of the units are of the opinion that the technical schools should use more mock-ups and training aids in order to give the trainees some practical experience with the equipment used. Though it is realized that the schools are established primarily for instruction in theory, fundamentals, and basic techniques, it would be of considerable value to gaining units if the individuals were given practical working knowledge of the equipment.

c. In the past it has generally been felt that instructors were chosen from young, inexperienced airmen rather than using noncommissioned officers who have had field training in the specialty involved and who know the problems that may be encountered by the operating units. This has been the subject of criticism during the past few years, especially in the advanced courses.

5. Your attention is invited to inclosure number one, as pertains to comments by the 761st AC&W Squadron. The comments and recommendations therein appear to have been given extensive thought, and should prove beneficial as constructive criticism concerning the courses mentioned.

FOR THE COMMANDING GENERAL:

3 Incls:

1. Replies fr 25th AD(D)
2. Replies fr 27th AD(D)
3. Replies fr 28th AD(D)
(To ADC ltr ADFTR-D
353 dtd 24 Mar 53)

s/t/ Jack J. Jones
JACK J. JONES
1st Lt., USAF
Asst Adj GEN

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HEADQUARTERS
3450th Technical Training Wing
FRANCIS E. WARREN AIR FORCE BASE
WYOMING

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MF-353

6 May 1953

SUBJECT: Field Experience for ATRC Instructors

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado

1. In connection with the program under which instructors from the various technical training courses conducted by this Headquarters are placed on TDY with field organizations for the purpose of obtaining operational experience, thirty-four (34) airmen instructors have been sent on TDY to the following Organizations under your Command since January 1952:

<u>Base</u>	<u>No. of Instructors</u>
637th AC&W Squadron, Othello, Washington	1
680th AC&W Squadron, Bonners Ferry, Idaho	2
751st AC&W Squadron, Mt. Laguna, California	1
758th AC&W Squadron, Neah Bay, Washington	1
759th AC&W Squadron, Naselle, Washington	1
760th AC&W Squadron, Colville, Washington	6
778th AC&W Squadron, Havre, Montana	5
789th AC&W Squadron, Florence Station, Nebraska	2
793rd AC&W Squadron, Hutchinson NAS, Kansas	3
796th AC&W Squadron, Bartlesville, Oklahoma	2
325th Operations Sq, McChord AFB, Washington	4
568th Supply Sq, McGuire AFB, New Jersey	2
78th Communications Sq, Hamilton AFB, California	4

2. Due to the excellent cooperation and assistance received from personnel of your Command, the instructor TDY program outlined above has helped considerably in providing the necessary practical experience for our airmen instructors, and has also served to acquaint training personnel of this Headquarters with the problems which graduates of our technical courses will encounter in their field assignments. However, at this time, it is considered advisable to review the locations available for such instructor TDY, in order to provide additional Bases for such assignments, and to locate Bases to which instructors from newly established courses may be sent for field experience.

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F. E. Warren AFB, Wyo MF-353 Subj: Field Experience for ATRC Instructors - (cont'd)

3. It is therefore requested that the attached list of courses be reviewed, and that one or more Bases or Organizations under your Command be indicated to which airmen instructors from these courses could be assigned for thirty-one (31) day periods of field experience. If possible, it is requested that the Bases selected be in addition to those listed in paragraph 1 above.

FOR THE COMMANDING OFFICER:

1 Incl:
List of Courses

/s/ LEE O. BISHOP
Capt., USAF
Asst Wing Adj

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Hq 3450th Tech Tng Wg, MF-353, Subject: Field Experience for ATRC
Instructors

ADPTR-F 353 (6 May 53)

1st Ind

22 May 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding Officer, 3450th Technical Training Wing, Francis E.
Warren Air Force Base, Wyoming

1. This command concurs in the assignment of airmen instructors to Air Defense Command bases for a period of temporary duty as indicated in basic letter. The following bases are recommended for this training:

<u>Course No.</u>	<u>Course Title</u>	<u>ADC Activity</u>
29150	Communications Center Specialist	43rd Comm Sq, Hamilton AFB, Hamilton, Calif.
36150	Installer Cable Man	566th AB Gp, Hamilton AFB, Hamilton, Calif.
36250	Central Office Equipment Mechanic	566th AB Gp, Hamilton AFB, Hamilton, Calif.
36350	Communications Machine Repairman	43rd Comm Sq, Hamilton AFB, Hamilton, Calif.
47152	Special Vehicle Mechanic	Selfridge AFB, Michigan
47152-S	Crash Fire Truck Maintenance	Presque Isle AFB, Maine
47154	Vehicle & Motorized Equipment Engine Mechanic	O'Hare Intl Aprt, Ill & Otis AFB, Falmouth, Mass.
47154-P	Special Cummins 100 KW Generator	635th AC&W Sq, McChord AFB, Wash. 25th Air Div, McChord AFB, Wash. or 663rd AC&W Sq, Lake City, Tenn.
47155	Vehicle & Motorized Equipment Electrician	O'Hare Intl Aprt, Ill & Otis AFB, Falmouth, Mass.
47171	Vehicle Maintenance Technician	O'Hare Intl Aprt, Ill & Otis AFB, Falmouth, Mass.

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Hq 3450th Tech Tng Wg, MF-353, Subject: Field Experience for ATRC
Instructors

ADPTR-F 353 (6 May 53) 1st Ind (Contd)

<u>Course No.</u>	<u>Course Title</u>	<u>ADC Activity</u>
* 56550	Heating Specialist	McChord AFB, Wash & Portland Intl Aprt, Portland, Ore.
		(Any of these Bases)
64150	Warehousing Specialist	McGuire AFB, N.J.
64151	Organizational Supply Specialist	Otis AFB, Falmouth, Mass. McChord AFB, Wash.
64152	Supply Records Specialist	Hamilton AFB, Hamilton, Calif.
64171	Warehousing Supervisor	Selfridge AFB, Mich.
64172	Supply Inspection Technician	
64173	Organizational Supply Supervisor	
64174	Supply Records Supervisor	
64175	Stock Control Technician	
6411	Supply Staff Officer	
6424	Supply Officer	
4384	Ground Equipment Main- tenance Officer	Otis AFB, Falmouth, Mass.
6434	Supply Services Officer	Hamilton AFB, Hamilton, Calif. or Selfridge AFB, Mich.

* TDY personnel should spend fifty (50) percent of the time at McChord Air Force Base which burns coal and fifty (50) percent at Portland International Airport which burns oil.

2. This command is unable to offer training for the following courses inasmuch as Air Defense Command does not have the type of equipment involved.

36251 Carrier Repeater Mechanic
56250 Gas Generating Plant Operator (Oxygen)

3. Multiple choices have been given for assignment of your instructor personnel in a number of instances. It is requested that this command be advised of final decision and notified in advance as to the number of personnel to be assigned to each base and the approximate date of arrival.

FOR THE COMMANDING GENERAL:

1 Incl
n/c

RECTOR C. DACUS
Captain, USAF
Asst. Adj. Gen.

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TECHNICAL TRAINING COURSES
FOR WHICH
INSTRUCTOR FIELD EXPERIENCE IS DESIRED

<u>Course Number</u>	<u>Course Title</u>
29150	Communications Center Specialist
36150	Installer Cableman
36250	Central Office Equipment Mechanic
36251	Carrier Repeater Mechanic
36350	Communications Machine Repairman
47152	Special Vehicle Mechanic
47152-B	Crash Fire Truck Maintenance
47154	Vehicle and Motorized Equipment Engine Mechanic
47154-P	Special Cummins 100 KW Generator
47155	Vehicle and Motorized Equipment Electrician
47171	Vehicle Maintenance Technician
56250	Gas Generating Plant Operator (Oxygen)
56550	Heating Specialist
60370	Motor Transportation Supervisor
64150	Warehousing Specialist
64151	Organizational Supply Specialist
64152	Supply Records Specialist
64171	Warehousing Supervisor
64172	Supply Inspection Technician
64173	Organizational Supply Supervisor
64174	Supply Records Supervisor
64175	Stock Control Technician
4384	Ground Equipment Maintenance Officer
6411	Supply Staff Officer
6424	Supply Officer
7434	Supply Services Officer

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ADPTR-D 353

19 Jan 1953

SUBJECT: Assignment to Technical Schools

TO: Commanding General
Air Training Command
Scott Air Force Base
Illinois

1. Reference is made to message, your headquarters, ETT 124A, 7 January 1953, and to paragraph V.b "Brief of Training Discussion," 21 May 1952, attached. The policy of this command has been based on the agreement stated in above referenced paragraph V.b.
2. Air Defense Command subordinate units have been instructed as follows:
 - a. Personnel will be sent to ATRC schools in accordance with the current directives covering PCS and TDY.
 - b. In those cases where PCS is required, a statement has been Authorized in the PCS orders to the effect that the student is desired by his parent unit upon completion of training.
3. It is suggested that, if further clarification or a re-discussion is required, a conference be convened at your convenience. If ADC units are misinterpreting current instructions, this headquarters will take prompt corrective action upon notification by your command.

FOR THE COMMANDING GENERAL:

1 Incl:
Brief of Training Discussion,
21 May 52

JOSEPH D. HORNSEY
Lt Col, USAF
Ass't Adj Gen.

Ltr ADPTR-D 353, ADC, Ent AFB Colo, 19 Jan 53, subj: Asgmt to Tech Sch

ETT 220.3

1st Ind

4 Feb 1953

Hq Air Training Command, Scott Air Force, Illinois

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Policy established by your Command based upon the agreement stated in paragraph 1 of basic communication has subsequently been superseded and this Headquarters at the present time is working on the policy as established by Headquarters USAF in message AFPMP-2-E 37570, 13 February 1952 from Headquarters USAF to all Major Air Commands.

2. This Headquarters does not deem a conference as referenced in paragraph 3 of basic communication apropos at this time in view of the policy established by Headquarters USAF which becomes effective 1 February 1953. The policy as established in message AFPTP-T 91/52, 7 November 1952, Headquarters USAF, to all Major Air Commands, states that all basic airman courses of Air Training Command, and Navy, and Air University will be attended in a PCS status and all formal courses other than basic and fundamental will be attended in a TDY status.

FOR THE COMMANDING GENERAL:

1 Incl
n/c

M. N. JONES
Major, USAF
Executive
DCS/Personnel

Hq ADC, ADPTR-D 353, Subj: Asgmt to Tech Sch.

ADPTR-D 353 (19 Jan 53)

2nd Ind

18 Feb 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Director of Training, Headquarters United States Air Force, Washington
25, D. C.

1. Request authority to include a statement in PCS orders similar to that outlined in paragraph 2b of basic letter. It is realized that Air Force wide requirements may take precedence over a request for the return of a student upon completion of formal training.

2. The normal return of a PCS student permits a more efficient training program from helper to mechanic (5) level. OJT given a helper level airman while awaiting assignment to formal training tends to produce a better caliber of student. OJT, after formal training, of the same individual helps to integrate the entire training problem of producing 5 level skills in the shortest possible time. In addition, reasonable assurance of return aids in preventing the disposal of marginal and/or undesirable airmen through PCS training. Our experience has indicated that return of PCS students has resulted in a trend towards assigning airmen to formal training who become successful students.

FOR THE COMMANDING GENERAL:

1 Incl
n/c

JOHN W. JONES
Lt Col, USAF
Ass't Adj Gen

B/L fr ADC, dtd 19 Jan 53, Subj: Assignment to Technical Schools

AFPTR-T

3d Ind

13 Mar 1953

Department of the Air Force, Hq USAF, Washington 25, D. C.

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado

1. The policy announced in message ADPTR-S-2 57731, dated 10 November 1952 as amended by AFPTR-T, ALZICOM 114/52, dated 11 December 1952 and AFPTR*^t, ALZICOM 36/53, dated 10 March 1953 governs the assignment of airmen to schools on PCS and TDY. Many factors were considered in arriving at that policy.
2. In the case of basic courses it is proposed that all airmen who are to receive such training will do so immediately upon completion of basic military training and before assignment to a unit. Among the advantages of this procedure are:
 - a. It provides the maximum amount of time to utilize the school graduate.
 - b. It improves stability of assignment by eliminating one movement from unit to school.
 - c. It saves the cost of one movement.
3. Your assigned airmen may attend all other courses that are appropriate to your command. They will attend such courses in accordance with instructions contained in ATPTR-T ALZICOM 36/53, dated 11 March 1953 cited above.
4. For your further guidance, a letter is forthcoming requesting that you advise your total airman advanced and lateral course training requirements by course for Fiscal Year 1954. Upon receipt of these requirements you will be issued quotas for the entire year at an even, regular flow. This action is intended to provide you the maximum possible training with the minimum cost in training facilities.

BY COMMAND OF THE CHIEF OF STAFF:

1 Incl
n/c

JOSEPH W. KELLOGG
Col. USAF
Executive
Directorate of Training

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566TH FIELD MAINTENANCE SQUADRON
566TH AIR DEFENSE GROUP
Hamilton Air Force Base
Hamilton, California

GPSAZ

23 March 1953

SUBJECT: Restrictive and Uneconomical Practices

THRU: Commanding Officer
566th Air Defense Group
Hamilton Air Force Base
Hamilton, California

TO: Commanding General
Air Defense Command
Ent Air Force Base
ATTN: Air Inspector
Colorado Springs, Colorado

1. I am submitting this letter under the provisions of Air Defense Command Letter 5-3, dated 19 September 1951.

2. This organization received a mandatory quota for special training on the AN/ARC-33 on message 28th PPE 01363 directing that two airmen proceed to Scott Air Force Base, Illinois, for a period of three weeks. On 20 February 1953 we submitted a negative report to the message stating that we were utilizing the services of assigned technical representative, which was forwarded to 28th Air Division on 566th Air Defense Group message CPPE 220. To this a reply was received on 28th AD message, 28th PPE 02006 stating that, "Higher Headquarters feels training provided by assigned technical representative is not of such nature to warrant release from training made available through ATRC".

3. This is considered uneconomical for the following reasons:

a. The AN/ARC-33 has been in use on this base for at least six (6) months and the training was begun then, when it was needed, by Mr. Johnson, who is a very capable Philco Technical Instructor. There is also a school being conducted by the 84th Fighter-Interceptor Squadron by other Philco Technical Instructors, which includes training on the AN/ARC-33. We have not utilized this school as we had covered the subjects taught there in our own shop classes. We are currently covering the AN/ARN-14 set, training in ILAS equipment and IFF set and necessary cross training.

b. Mr. Johnson has demonstrated the ability to develop all necessary instruction to train our assigned mechanics in the AN/ARC-33 Radio set, as well as other sets. He has conducted this training and has checked out almost all of our mechanics on this set. One of the airmen who had to be sent on this quota had already been checked out on the set by Mr. Johnson. It is my considered opinion that Mr. Johnson has given our airmen as good, if not better, training than that given at Scott Air Force Base, since there they get only the amount of training as the limited time permits, where here they receive the degree of training which they need.

c. We can give the required training with our present set-up in a shorter time than other schools will be able to initiate their classes. I feel that we are utilizing the services of Mr. Johnson to an efficient and economical degree and this practice is the real justification for his assignment. To duplicate his efforts at Scott Air Force Base will cost a minimum of \$343.16 for transportation and meal tickets in this case. The travel time and the time of the course will also be lost to the organization in the case of the two airmen.

4. This case is similar to the situation which arose in the Fall of 1952 when we were required to send airmen to the F-89 course at Amarillo Air Force Base, Texas, when at the same time the Training Command Mobile Training Unit was stationed here at Hamilton Air Force Base. That situation involved six (6) airmen and they received the same training as was being given at the MTU. A letter of uneconomical practices was submitted at that time.

TYRUS C. HOLMES
Lt Col USAF
Commanding

B/Ltr: GPSAZ, 566th Fld Maint Sq, 23 Mar 53, subj: Restrictive and Uneconomical Practices

GFPPE 353

1st Ind

1 Apr 1953

HEADQUARTERS 566th Air Defense Group, Hamilton Air Force Base, Hamilton, California

TO: Commanding General, 28th Air Division (Defense), Hamilton Air Force Base, Hamilton, California

1. The basic protest against mandatory quotas for training schools appears justified, where such formal school training duplicates or is possibly inferior to the training afforded at an airman's home base.

2. Although the AN/ARC-33 is relatively new equipment for use on fighter aircraft, such equipment has been in use on this base, and personnel have received training in its maintenance, for approximately six (6) months. This training has been conducted by a capable Philco Technical Instructor, whose qualifications appear to be equal or superior to the average instructor in technical schools. Despite this excellent, extended training, the mandatory quota of two (2) airmen for the school at Scott Air Force Base was filled.

3. Doubt exists that the training afforded at Scott Air Force Base justifies the expense of travel and loss of time involved. This case typifies an area where economies can and should be practiced in accordance with existing Air Force directives for effective savings in manpower and in funds.

KLEM F. KALBERER
Colonel, USAF
Commanding

566th FM Sq GPSAZ Subject: Restrictive and Uneconomical Practices

PDP 353 (23 Mar 53)

2nd Ind

7 Apr 1953

HQ 28TH AIR DIVISION (DEFENSE), Hamilton AFB, Hamilton, California

TO: Commanding General, Western Air Defense Force, Hamilton AFB,
Hamilton, California

1. Forwarded for your consideration.
2. Message referred to in basic letter is your message, WDPPE 36085,
dated 9 December 1953.

FOR THE COMMANDING GENERAL:

JOHN H. HOFF, JR.
CWO USAF
Asst Adj Gen

566th Field Maint Sq, Hamilton AFB, Calif., GPSAZ, Subject: Restrictive and Uneconomical Practices

WDPTN 300.8 (23 Mar 53)

3rd

27 Apr 1953

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. This headquarters does not concur with basic communication. It is the policy of this command to utilize special course class spaces provided wherever possible. The training offered by technical instructors is intended to supplement rather than replace training for which special courses have been established, and for which quotas are available.

2. It is considered inappropriate for unit commanders to utilize the services of technical instructors to duplicate or replace the training that is offered by special Training Command courses except as follows:

a. When equipment is received by units prior to availability of special courses within Training Command schools.

b. When special training course class spaces are not available in sufficient numbers to train all the required personnel to complete the mission.

FOR THE COMMANDING GENERAL:

MARVIN L. CRAM
Capt. USAF
Asst Adj Gen

566th Fld Maint Sq, 566th Air Def Gp, GPSAZ, Subj: Restrictive and Uneconomical Practices

ADPTR-D 353 (23 Mar 53)

4th Ind

11 May 1953

HQ AIR DEFENSE COMMAND, Ent Air Force Base, Colorado Springs, Colorado

TO: Commanding General, Western Air Defense Force, Hamilton Air Force Base, Hamilton, California

1. Concur with the 3rd Indorsement. The primary job of technical instructors is to furnish On-the-Job Training necessary to upgrade airmen from 3 to 5 and from 5 to 7 skill levels. Except as indicated in paragraph 2, 3rd Indorsement, the use of technical instructors to duplicate ATRC courses is undesirable.

2. It is suggested that all of your unit commanders be reminded of the primary job assigned to the technical instructor group.

BY COMMAND OF GENERAL CHIDLAW:

ROBERT E. BRUCE
Lt. Colonel, USAF
Director of Training

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ADPTR-F 353

10 Feb 1953

SUBJECT: Radio and Radar OJT Program

TO: Commanding General
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York (Identical ltr CG, CADE; CG, WADF)

1. An accelerated OJT program for apprentice level radio and radar mechanics was initiated by letter this headquarters, ADOCE 353, 3 October 1951, subject as above. This program was originally scheduled to last approximately six (6) months.

2. The results attained from this accelerated program were very gratifying. However, our requirement for fully-trained and qualified personnel was not fulfilled at the end of the OJT period and has not been fulfilled to date. It is possible that after the accelerated OJT period, some interest was lost in the OJT program. Where this has occurred, every effort should be made to rejuvenate the program and to see that it is continued. The program need not be on an accelerated basis unless local conditions warrant it.

3. With the advent of new electronic equipment, it is mandatory that a sound OJT program be maintained. Due to personnel changes, some units may find it necessary to repeat the accelerated program for newly-assigned personnel as well as for border-line students of the former classes.

4. It is requested that action be taken to inform all subordinate echelons of your command of the need for maintaining and continuing a productive OJT program.

BY COMMAND OF MAJOR GENERAL TODD:

R. SKALAK
Major, USAF
Actg Dir of Tng

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HEADQUARTERS

668TH AIRCRAFT CONTROL AND WARNING SQUADRON
Mather Air Force Base
Mather Field, California

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353

21 July 1952

SUBJECT: AN/CPS-6B OJT Program

THRU: Commanding General
28th Air Division (Defense)
Hamilton Air Force Base
Hamilton, California

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colo.

1. Reference is made to letter, ADPTR-A 353, dated 18 April 1952, Headquarters Air Defense Command, Subject: "AN/CPS-6B On-The-Job Training Program".

2. Submitted herewith is a complete and detailed analysis of subject program as reflected by initial courses of instruction.

3. The 28th Air Division (Defense), commands two (2) AC&W Squadrons that maintain AN/CPS-6B Radar Systems. Subject program was implemented officially on 1 May 1952 and 5 May 1952 for the 668th AC&W and the 666th AC&W Squadrons respectively. It is desired to point out that both organizations were highly receptive to the planned program and were wholeheartedly enthusiastic over the anticipated results. All personnel were sincerely cooperative and the interest exhibited by them is reflected by the very satisfactory results of the initial courses. Due to the lack of training aids and materials that was expected to be furnished by General Electric, the instructors and students were required to improvise and to use extreme diligence and ingenuity to realize effective results. Their efforts toward making this program a success is commendable.

4. GENERAL:

a. Philco Technical Instructors:

Mr. James D. Abbott, 668th AC&W Sq.
Mr. Austin B. Jones, 668th AC&W Sq.
Mr. W.L. Morgan, 666th AC&W Sq.
Mr. Jack Stoll, 666th AC&W Sq.

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Hq, 668th AC&W Sq., 353 Subj: AN/CPS-6B OJT Program

b. General Electric Field/Representatives:

Mr. Robert C. Philpott, 668th AC&W Sq.
Mr. Harry Parker, 666th AC&W Sq.

- (1) Philco Technical Instructors conducted lectures as outlined in Lesson Plans Manuals and supervised maintenance adjustments and laboratory experiments. General Elect Field/Representatives assisted as needed with technical information and contributed toward instruction on actual maintenance procedures.
- (2) Initial classes consisted of four (4) students each. All students possessed Primary AFSC's 30231. It was not deemed advisable to enter the highest skill level airmen into the first courses since such action would have possibly detracted from the normal maintenance activities. However, records of all students were screened in order that only those students with a high degree of learning ability and technical aptitude were chosen. Also, each student had been in respective organizations for a period long enough so that duty performance on the job could be effectively evaluated. Duty performance and interest displayed by airmen were large factors in student selection.

5. LECTURES AND TESTS:

a. Lectures were standard in both classes. Lesson Plan Manuals as published by General Electric (not revised) were adhered to very closely. A very few lectures were omitted due to the non availability of the revised editions. However, this is not considered too important and it is hoped that students in the initial classes can hear the omitted lectures at a later date.

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Hq, 668th AC&W Sq., 353 Subj: AN/CPS-6B PJT Program

b. Lectures were given four (4) hours a day, five (5) days a week during daylight hours. Emphasis was placed on fundamentals refreshing in addition to 6B circuitry. Due to the comparatively small number of students, classes were informal and class participation was exceptionally good.

c. A pre-course examination was given to all students in order that the course could be evaluated. Weekly quizzes were given covering the lectures and maintenance procedures. Weekly quizzes comprised 25% of the final grade. A final exam having 100 questions comprise 50% of the final grade. All quizzes were screened by the program monitor and emphasis was placed on similarity of questions asked each class. Questions were essay, true-false, and trouble-shooting typed. Copies of weekly quizzes will be forwarded at a later date for dissemination to other commands.

6. PRACTICAL EXPERIMENTS AND MAINTENANCE PROCEDURES:

a. Actual on-the-job PM procedures were practiced four (4) hours each day, five (5) days a week. All students assisted at each scheduled PM period. During operational periods students were allowed to work on and repair spare components, calibrate RHI and B Scopes, and observe set operation in all respects. One class was fortunate in that, during the latter phase of the course they assisted with a complete system overhaul and was afforded the opportunity to observe G.E. factory overhaul procedures. It is felt that time was utilized very effectively by all students and instructors during the practical work periods.

b. A final lab experiment was given to all students that consisted of eight (8) maintenance adjustments. Grades made on experiments comprise 25% of the total final grade. Adjustments given on lab exam were; MDS, VSWR, Power Reading, Stalo Adj., RHI Cal., B-Scan Cal., Mtl Cont Assy Adj., and MTI Rcvr Adj.

7. FORMS:

a. ADC Forms 20 were maintained on each airman. Included in item 12, subject form, were lecture numbers for any given week. This was done in lieu of title phases since course outlines, etc., had not been furnished by G.E.. Requiring use of other forms was deviated from. It was not desired to burden instructor personnel with a large amount of paper work. ADC Forms 20 are considered adequate along with any memoranda. Instructors are maintaining to indicate students class participation, tardiness, etc. ADC Forms 20 bearing information pertinent to 6B

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Hq, 668th AC&W Sq., 353 Subj: AN/CPS-6B OJT Program

OJT only are forwarded to Squadron Training Officer to be attached to airman's regular Form 20. It is felt that successful completion of subject course indicated authorization for upgrading of airmen insofar as technical aspects of OJT are concerned.

8. EVALUATION:

a. As mentioned in paragraph 5b above, a pre-course examination was given to all students. Students averaged 12.7% answers correct. The final written examination was identical to the pre-course exam. Average number of answers correct on the final exam was 71%, indicating a gain of 58.3%. All students had worked on the system at least to (2) months utilizing regular OJT methods to gain experience. The 6B OJT Program consumed an approximate two (2) months. It is well proven therefore, that for the same amount of time, the 6B OJT course is far more effective in increasing skill and experience levels. In some instances maintenance sections may be handicapped due to the releasing of personnel to attend the 6B course, however, the difficulties experienced are outweighed by the gain of more competent and skilled mechanics. Students are not lost to a section when entered in the course. As pointed out in paragraph 6a, students continue to participate in normal maintenance functions. In many instances repairable components are repaired promptly by student and instructor personnel that otherwise might remain unserviceable for an undesired period because of a large work load.

9. SUMMARY:

a. It can be concluded that subject AN/CPS-6B OJT Program is a highly effective and economical training course designed to improve OJT and normal maintenance procedures and techniques pertinent to complex radar systems. It is strongly recommended that subject course be continued indefinitely and that all concerned personnel be advised as to the very satisfactory results of the initial courses in order that consideration may be given toward possible implementation of similar programs for other types complex radar systems.

ARTHUR E. WAGONER
Captain, USAF
28AD 6B OJT Program Supervisor

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668th AC&W Sq 353, Subj: AN/CPS-6B OJT Program

OCE-3 (21 Jul 52)

1st Ind

7 Aug 1952

Headquarters 28th Air Division (Defense), Hamilton Air Force Base,
Hamilton, California

THRU: Commanding General, Western Air Defense Force, Hamilton AFB,
Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

The implementation of this AN/CPS-6B Training Program should alleviate the past problem of raising the skill level of radar repairman to the desired proficiency. Completion of the first class of students indicates favorable results in producing a rapid familiarization of all new personnel in the intricacies of the AN/CPS-6B equipment.

FOR THE COMMANDING OFFICER:

JAMES M. UPTAIN
1st Lt, USAF
Adjutant General

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ADPTR-A 353

7 Feb 1953

SUBJECT: Training for Officer Personnel on AN/FPS-3 Radar

TO: Commanding General
Air Training Command
Scott Air Force Base
Illinois

1. Final preparations are being made to implement an Air Defense Command AN/FPS-3 OJT program for radar mechanics. The program is designed primarily to afford proficiency training on the AN/FPS-3 radar for all skill levels. A course outline and lecture material has been formulated and will be available for use by 1 April 1953.

2. It is planned to utilize one officer, AFSC 3044 in each Air Division (Defense) to implement, supervise and monitor the FPS-3 OJT program. Officers tentatively selected have spent the last twelve (12) months in devising, supervising, and monitoring the current Air Defense Command AN/CPS-6B OJT program. All officers were factory trained on the CPS-6B radar, however, due to their activities being confined to the CPS-6B program, these officers did not have the opportunity to attend the factory training course on FPS-3 radar. These officers need accelerated training on FPS-3 radar. This training coupled with their present knowledge of, and experience in, controlling an intensified OJT program, will adequately prepare them to implement and supervise the forthcoming FPS-3 OJT program.

3. Under the provisions of paragraph 3f, AFR 50-9, 1 July 1952, the following special training requirements are established.

- a. AN/FPS-3 Radar - Search.
- b. Course designed to familiarize students with equipment characteristics and to enable them to discuss general theory and circuit analysis. Graduates will not be required to perform maintenance.
- c. Graduates will be utilized as described in paragraph 2 above.

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Hq ADC, ADPTR-A 353, Subject: Training of Officer Personnel on
AN/FPS-3 Radar (Cont'd)

d. A requirement for ten (10) spaces exists. All entrants possess AFSC 3044, are highly qualified and have had considerable experience in the field of ground radar maintenance and operation. All personnel are considered to be above average in capability and skill.

FOR THE COMMANDING GENERAL:

Info cy:
CG, TTAF

JOSEPH D. HORNSBY
Lt Col, USAF
Ass't Adj Gen.

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Ltr ADPTR-A, Hq ADC, Ent AFB, Colo, 7 Feb 53, Subj: "Training of Officer
Personnel on AN/FPS-3 Radar"
GTE 353 Com 1st Ind 14 Feb 1953

Hq Air Training Command, Scott Air Force Base, Illinois

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Special Training Course Number 30273A-S3 on the AN/FPS-3 radar is scheduled to start at Kessler Air Force Base, Mississippi approximately 1 March 1953. The course length will be eight academic weeks. It is not considered feasible to attempt the technical training of personnel scheduled for utilization as OJT supervisors in a shorter period of time; therefore, this Headquarters recommends that the training be accomplished in Course Number 30273-S3. A copy of the syllabus for this course is attached for your information.

2. In the event that this course will satisfy your training requirement, action will be taken to allocate quotas in early classes. In view of the existence of this course, the time and expense involved in formulating a new course, and for the reason stated in paragraph 1 above, it is considered economically unsound to plan a shorter course for this limited number of personnel.

3. It is requested that a copy of future special training requests be forwarded to the Director of Training, Headquarters, USAF, in accordance with paragraph 3f, Air Force Regulation 50-9.

FOR THE COMMANDING GENERAL:

1 Incl
Syllabus - Crse
No. 30273A-S3

JIMMIE WAX
Major, USAF
Executive
DCS/Operations

Cy Furn
Dir of Tng, USAF
CG, TTAF

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ADPTR-A 353

23 Mar 1953

SUBJECT: AN/FPS-3 On-the-Job Training Program

TO: Commanding General (Identical ltr CG, CADE, CG, WADF)
Eastern Air Defense Force
Stewart Air Force Base
Newburgh, New York

1. This letter announces the Air Defense Command AN/FPS-3 OJT Program to be implemented in the near future.
2. A special FPS-3 OJT Manual is nearing completion and should be ready for distribution in approximately one month. The manual has been prepared for the purpose of obtaining a simple comprehensive text of value to the average 3-5 level radar mechanic. The manual contains a lecture and course outline that can be fitted to a variety of working schedules. This manual will furnish a complete supplement to associated publications and adequately equip commanders to conduct effective OJT.
3. An Air Defense Command directive is now being formulated that will consider all aspects of an FPS-3 OJT Program. Implementation procedures and policies for the FPS-3 program are based on information obtained from the current successful AN/CPS-6B OJT Program. It is intended that the unit commander exercise maximum initiative in conducting the program. Air Division Technical Instructors will be required to actually implement, supervise and monitor the program under the direction of the Division Director of Training.
4. To gain full benefit from the FPS-3 OJT Program, the complete cooperation of all supervisory personnel is mandatory. Units that energetically supported the CPS-6B program are now experiencing considerable success in maintenance effectiveness. The necessity for each commander's full cooperation and understanding of the desired results of the program should be emphasized.

BY COMMAND OF GENERAL CHIDLAW:

/s/ ROBERT E. BRUCE
Lt Colonel, USAF
Dir of Tng

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ADCR 50-19

ADC REGULATION)
50-19)HEADQUARTERS AIR DEFENSE COMMAND
Ent Air Force Base, Colorado Springs, Colo.
16 July 1953

TRAINING

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AN/FPS-3 Radar System OJT Program

1. Purpose. This regulation announces the publication of ADC Manual 50-9, "AN/FPS-3 Radar OJT Program," and AN/FPS-3 Maintenance Handbook; delineates command responsibilities; and outlines implementation procedures for establishing an AN/FPS-3 OJT Program.

2. Definition. The AN/FPS-3 OJT Program is proficiency training in accordance with paragraph 2b, AFR 50-23.

3. General. a. The AN/FPS-3 radar represents a major portion of this command's primary radar systems. To insure maintenance effectiveness, a comprehensive and continuing OJT program is essential.

b. The ADC AN/FPS-3 OJT Program is specifically intended to increase the proficiency of radar maintenance personnel, with a resultant increase in over-all maintenance effectiveness, and to specialize skilled personnel on AN/FPS-3 radar.

c. Unit programs in progress prior to publication of this directive will be revised to include instruction specified in ADCM 50-9.

d. A final examination, prepared by this headquarters, will be based on ADCM 50-9.

4. Responsibilities. a. Air defense force commanders will provide policy direction and broad staff supervision to insure compliance with this directive.

b. Air division (defense) commanders will establish implementation procedures and operational policies, supervise and monitor training progress, and render staff assistance necessary to conduct successful training programs. It is suggested that a technical instructor, proficient in ground radar systems, be appointed to implement, supervise, and monitor the FPS-3 training activities under the direction of the air division (defense) training officer.

c. Unit commanders are responsible for the detailed supervisory functions and operational procedures necessary to accomplish the training requisite outlined in this directive.

5. Procedures. a. The training objective is achieved by the following procedures:

- (1) Issuance of supplementary directives to delineate individual responsibility in conducting the OJT program.

ADCR 50-19

- (2) Selection of qualified personnel to administer and supervise the program.
 - (3) Establish adequate grading criteria to insure that the proficiency of each trainee meets the requirements outlined in AFR 35-430.
 - (4) Emphasize the necessity for full cooperation and complete understanding of the intent of the program.
 - (5) Maximum use of contractor technicians, qualified USAF factory-trained personnel, and Bendix field engineers.
6. Specific Instructions. a. FPS-3 factory-trained officers and airmen will be assigned to unit radar maintenance sections for primary duty.
- b. Students will receive a minimum of two hours instruction per work period.
- c. Personnel who have not been factory-trained but possess considerable experience on FPS-3 radar will be evaluated prior to course entry and granted credit for phases in which proficient.
- d. Laboratory instruction will require maximum use of the Philco Demonstrator and the Student Learner Chassis.
- e. Student participation in classroom discussions will be emphasized. Home study problems will be assigned to students frequently.
- f. Training sessions will not be interrupted except for operational necessities or during preventive maintenance periods.
- g. It is suggested that units devise a method to create a spirit of competition between students. An example would be to award a three-day pass to the outstanding student.
- h. AN/FPS-3 Certificate of Training will be awarded each trainee who satisfactorily completes the two hundred forty hour course.
7. Accountability. a. ADC Manual 50-9 and the AN/FPS-3 Maintenance Handbook are furnished organizations in sufficient quantity to provide each trainee with a copy. Prior to issue, an accounting procedure will be established to insure retainability and to preclude unauthorized personnel acquiring the books. This procedure will include a periodic inventory of training material.
- b. The AN/FPS-3 Maintenance Handbook can be retained by the student. The student should use the handbook for personal notes on the particular laboratory experiment being studied.

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8. Reports and Records. a. Special recurring reports will not be required in administering the program. Progress reports will be requested periodically by this headquarters. Reports of difficulties, letters containing comments relative to methods of improvement, and effectiveness of program will be forwarded to this headquarters direct with information copies to unit, air division, and air defense force commanders.

b. Records necessary to insure positive control and evidence of progress may be devised locally. A suggested chart is attached.

9. Classification. Classification action will be in accordance with AFR 35-392. Satisfactory completion of the course of instruction presented in the AN/FPS-3 OJT Program is not required for upgrading, however, satisfactory completion of the course of instruction can be used as a measure of individual proficiency.

10. Implementation. Implementation of programs will be completed one month subsequent to publication date of this directive. (ADPTR)

BY ORDER OF THE COMMANDER:

OFFICIAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff

Walter W. Robinson
WALTER W. ROBINSON
Colonel, USAF
Command Adjutant

1 Attachment
Progress Sample Form

DISTRIBUTION:

A

SAMPLE FORM

AN/FPS-3 JET PROGRESSION CHART

TEXT: ADC Manual 50-9

INSTRUCTORS: R.L. Jones, Philco Tech. Inst. Capt. P.D. Payne, R.O. M/Sgt. W.L. Williams, NCOIC S/Sgt. E.F. Fork	LEGEND: Instructor's Initial and Date for Lecture Completed. Examination Mark in Percent.	SUBJECT								SECTION I - Transmitting Equipment (Examination)
		INTRODUCTION: Lect 1-General Description & Characteristics of Radar Set AN/FPS-3	Lect 2 - "Modulator Drive	Lect 3 - "Modulator MD-128/FPS-3	Lect 4 - Magnetrons Magnetron Tuning	Lect 5 - Radar Transmitter T-286/FPS-3	Lect 6 - Power Supply PP-553/FPS-3	Lect 7 - Induction Voltage Regulator CU-116/FPS-3	Lect 8 - Control Circuit for Transmitter T-286/FPS-3	
AIRMAN'S NAME										
E.W. Collins, M/Sgt. AFSC 30370	RO	DATE								71
R.L. Piper, T/Sgt. AFSC 30372	PP	DATE								71
F.T. Miller, S/Sgt. AFSC 30352	RO	DATE								70
B.O. Abbott, A/1c AFSC 30352	PP	DATE								71
P.D. Fork, A/2c AFSC 30332	RO	DATE								71
K.F. Lester, A/2c AFSC 30332	PP	DATE								71
S.V. Young, A/3c AFSC 30332	PP	DATE								70
J.K. Baker, A/3c AFSC 30332	PP	DATE								62
B.R. Jackson, A/3c AFSC 30332	PP	DATE								74

EXAM GRADE

Attachment 1, ADCR 50-19, 16 Jul 53

COPY

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ADPTR-D 353

23 Apr 1953

SUBJECT: On-the-Job Training for Airmen Possessing AFSC 32230D

TO: Commanding General
Eastern Air Defense Force (Identical ltrs to CADF & WADF)
Stewart Air Force Base
Newburgh, New York

1. In accordance with paragraph 5b, ADCR 50-3, 6 March 1952, this Headquarters has prepared a training package for proficiency training on E-4, 5 and 6 Fire Control Systems. This package consists of course outlines, reference materials and training aids. Each squadron converting to aircraft utilizing one of these fire control systems will be furnished the training package in the near future.

2. To obtain maximum benefit from the training program, the following rules are furnished as a guide:

a. Graduates of the Lowry Air Force Base Course 32250D should be the airmen to receive this training. In general, it is not considered desirable to attempt cross-training from 32250A to the D shred-out by OJT. Maximum use of the 32250D course is recommended to provide cross-training.

b. To the maximum extent possible, instructors should be airmen possessing AFSC 32271D who are graduates of either the Hughes Factory Training School or the Lowry Air Force Base 32271D Course. These personnel may, of course, obtain assistance and technical advice from the technical representative and the technical instructors assigned.

c. The classes should be constructed at the rate of two hours per day, five days a week, under formal classroom conditions.

d. Training should be scheduled in such a manner that personnel undergoing training do not have their attendance of classes interrupted by other details.

e. Individual Progress Charts should be kept for each airman being trained. The record should be sufficiently detailed to permit an accurate indication of how much of the training course the

Hq ADC, ADPTR-D 353, Subject: On-the-Job Training for Airmen Possessing
AFSC 32230D

airman has completed. This will enable him to continue the course without repetition or omission in the event of transfer. A form similar to Section 2, AF Form 623, "Formal On-the-Job Training Record", is suggested.

3. For your information, a copy of the course outline and a discussion of the training package and concept are inclosed.

BY COMMAND OF MAJOR GENERAL SMITH:

2 Incls:

1. Crse Outline
2. Discussion of
Crse Outline

R. SKALAK
Major, USAF
Actg Dir of Tng

HQ ADC, ADPTR-D 353, Subject: On-the-Job Training for Amn Possessing
AFSC 32230D

PT 353 (23 Apr 53)

1st Ind

7 May 1953

HQ CENTRAL AIR DEFENSE FORCE, P. O. BOX 528, Kansas City, Missouri

TO: Commanding General, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Reference paragraph 1, basic letter, request Personnel Training Directorate, Deputy for Personnel, Headquarters CADF, be furnished a training package at earliest possible date.

2. Paragraph 2a, basic letter, is not in complete agreement with the context of ADC letter ADPPM-C 220.01, dated 11 April 1953, Subject: Cross-training of Airmen in the Armament Systems Maintenance Career Field. Request firm information if cross-training from 322-OA to 322-OD by OJT is desired. This headquarters strongly recommends cross-training by OJT.

FOR THE COMMANDING GENERAL:

2 Incls
w/d

EDWARD D. MEYER
LT COL USAF
ADJ GEN

Hq ADC, ADPTR-D 353, Subject: On-the-Job Training for Airmen
Possessing AFSC 32230D

ADPTR-B 353 (23 Apr 53)

2nd Ind

14 May 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commanding General, Central Air Defense Force, P. O. Box 528,
Kansas City, Missouri

1. Reference paragraph 1, 1st Indorsement, action has been taken to secure additional copies of the training package. A training package will be furnished as soon as possible.

2. Reference paragraph 2, 1st Indorsement, cross-training by OJT alone is not recommended for reasons listed below:

a. Special course length, Hughes Factory (25 weeks).

b. Formal course length (32250D) Lowry AFB, (195 academic days) USAF Training Prospectus, Page A-32-7.

c. Formal course length, (32271D) Lowry AFB, (135 academic days) USAF Training Prospectus, Page A-32-9.

d. The training package referred to in basic and 1st Indorsement is designed specifically to give the practical experience necessary to qualify Lowry AFB graduates (AFSC 32230D) for the 5 level AFSC. Time required, based on two hours of classroom instruction per day plus six hours of line maintenance, is six months.

e. In view of the information presented in the courses above, and the length of subject courses, we feel that the time required to present this information by OJT would be prohibitive. This should not be construed as restricting you from cross training, however, provided you consider it necessary. The training package is not designed for this purpose.

3. It is strongly recommended that you use the formal courses available to the maximum of your capability. OJT should be used primarily for proficiency training and for cross training only as a last resort. If you find it necessary to cross train your people in the units and you require additional training material or advise, the Training Directorate, This headquarters, will assist in any way possible.

BY COMMAND OF GENERAL CHIDLAW:

RECTOR C. DACUS
Captain USAF
Asst Adj Gen

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D. C.

AFFMP

3 Mar 1953

SUBJECT: On-the-Job Training

TO: Commanding General
Air Defense Command
Ent AF Base
Colorado Springs, Colorado

1. During the past several years, graduates from Air Training Command Schools have satisfied the bulk of the Air Force requirements for apprentice level skills and a sizeable portion of the supervisor and technician level skills. Despite a maximum production rate from out technical schools, and on-the-job training efforts made by each command, we are still faced with a critical worldwide shortage of supervisors, technicians, and skilled workers. This situation can be attributed generally to increased skill requirements generated by our rapid expansion, the loss of trained regular airmen upon expiration of their enlistments, and the return of a large number of experienced Reserve and Air National Guard airmen to civilian life.

2. During the next several years, and particularly in Fiscal year 1955, large numbers of airmen, whose enlistments in the Air Force followed the out-break of hostilities in Korea, will become eligible for discharge. Since few of these individuals are career-minded, we anticipate that we will continue to lose many skilled airmen. At the same time, our continued buildup to a 143 Wing Air Force will increase our overall requirement for airmen at the senior (5) and supervisor-technician (7) levels. This, coupled with our current skill deficiencies, constitutes our most serious personnel problem.

3. In order to satisfy the personnel requirements of the expansion program, each major command, in addition to the training responsibilities outlined in AFR 50-23, 14 January 1953, must train a proportionate share of the skills which cannot be produced in technical schools. Attached as Inclosure 1 is a tabulation of the number of airmen that must be up-graded to each 5 and 7 level Air Force Specialty by your command prior to end FY 1954. When you analyze these figures, you will find that in some specialties you are asked to train more airmen to the senior level than you presently have assigned in the apprentice level. Bear in mind that this is a long range objective and that additional resources will be provided during this period. Attached as Inclosure 2 is a sample computation of the method used to determine your training requirements. At the present time Air

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Ltr to ADC subj: On-the-Job Training

Training Command is revising their production rate of basic specialities. As soon as this information is available, you will be advised of your apprentice level training requirements for Fiscal Year 1954. At the same time you will be furnished a list of your training requirements for FY 1955.

4. The information contained in Inclosure 1 was derived by comparing projected authorization for your command, for end FY 1954, with our estimate of your assigned strength on that date. The projected assigned strength was based on your actual 30 September 1952 inventory, which was adjusted to reflect on-the-job training in progress on that date, and all known and estimated gains and losses. Any on-the-job training completed by your command subsequent to 30 September 1952, which was not reflected in your 6AF-P2 report as of that date, may be deducted from the training requirements listed on Inclosure 1.

5. Since changes in the USAF operating program can be expected and adjustments may be necessary in our estimate of losses, the training requirements contained in Inclosure 1 should be used only for general planning purposes. Upon receipt of your 30 June 1953 6AF-P2 report in this headquarters, a revised estimate of the training to be completed prior to 30 June 1954, and during Fiscal Year, 1955, will be furnished your headquarters. It is anticipated that this information will be available on or about 31 August 1953.

6. Air Training Command is prepared to provide you limited assistance in establishing your OJT program, as set forth in AFR 50-23. The information referred to in paragraph 4b(6) of this regulation was disseminated to all major commands by ATRC letter, subject: "On-the-Job Training Advisory Service," 4 March 1952. The course for training OJT administrators referred to in paragraph 4c(5) is now available at Chanute, Sheppard, Warren, and Kessler Air Force Bases, and will be established at Amarillo, Scott and Lowry Air Force Bases in the near future.

7. Your comments and recommendations on this program are requested.

BY COMMAND OF THE CHIEF OF STAFF:

2 Incls:

1. Airmen OJT Reqmts (6 cys)
2. Method of Determining OJT Reqmts (in dup)

JOHN H. MCCORMICK
Major General, USAF
Director of Military Personnel

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REF ID: A66666

NOTE: TO BE USED ONLY WHEN THE DATA IS NOT AVAILABLE

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D.C.

AFPMC

5 Mar 1953

SUBJECT: On-the-job Training

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Included in the Air Force's announced commitment to build up to the 143 Wing structure by FY 1955 is a further requirement that each unit of the force be combat ready. Effectiveness of units will depend to a large extent, of course, upon the quality of assigned personnel. You are now short personnel at the skilled (5) and technician-supervisor (7) levels, and you face large airmen losses in FY 55 through non-reenlistment and normal attrition.

2. The FY 1954 loss rate will be relatively low compared with FY 1955. However, in recognition of the lead time for individual training, this Headquarters is programming an expanded technical training capacity. Relatively few airmen will go direct from basic military training to operational commands in FY 1954 without first receiving training in technical schools. Additional space has been reserved for the training of basic airmen from commands. Finally, Air Training Command capacity for advanced training from the 5 skill to the 7 skill level has been increased substantially.

3. The acute skill and experience shortage which confronts the Air Force demands that immediate action be taken to develop and execute a completely integrated formal and proficiency on-the-job training program. As an initial step in organization an effective Air Force on-the-job training program, each command will be provided with planning guidance within a few days as to the number of airmen in each Air Force specialty who have to be trained on-the-job to the 5 and 7 skill levels prior to end FY 1954. Precedence and priorities for training in each skill will be established and integrated with ATRC school production. This information will constitute a statement of trained personnel requirements to be met by each command, similar to the directive now provided the Air Training Command for formal technical school training. Each command will be provided with trained personnel requirements for FY 1955 at a later date.

1386

Subject: "On-the-job Training"

4. The continued procurement of airmen into the Air Force from the lower mentality groups, as we share the manpower pool with the other services, will probably make the OJT program even more difficult. Since approximately one-third of total airmen procured will be of the lower qualitative distribution, these lower mentality groups must become capable of accomplishing productive work.

5. This headquarters will initiate revised and additional reporting requirements designed to meet the operational needs throughout the Air Force in monitoring and conducting the on-the-job training program. Air Training Command has been alerted to expect increased demand for OJT advisory services as outlined in AFR 50-23. Any comments, recommendations, or proposed solutions from your point of view will be of valuable assistance to us in performing the task which lies ahead.

BY COMMAND OF THE CHIEF OF STAFF:

LAURENCE S. KUTER
Lieutenant General USAF
Deputy Chief of Staff Personnel

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ADPTR-D 353

16 Mar 1953

SUBJECT: On-the-Job Training

TO: Lieutenant General Laurence S. Kuter
Deputy Chief of Staff, Personnel
Headquarters United States Air Force
Washington 25, D. C.

1. The problem presented in your 5 March 1953 letter on On-the-Job Training and General McCormick's letter of 3 March 1953 which contains further details, will be difficult to solve. Personnel instability, lack of skilled personnel for instructors and a shortage of training materials are going to be our major obstacles.
2. Personnel instability is a fact of current military life which we recognize. Full utilization of the training capability of overseas commands, excluding units engaged in active combat, can reduce the personnel turnover rate. Any increase in our skill pool, generated through decreased overseas requirements, will aid the on-the-job training program.
3. One of the keystones of our current on-the-job training efforts is the contractor technician, particularly the technical instructor. To assure the effective utilization of contractor technical instructors in long range training programs, it will be necessary to amend AFR 66-18. The time limitation imposed by this regulation is discussed in General Chidlaw's letter to you on this subject, 21 January 1953. A continuing shortage of skilled military personnel for use as instructors, coupled with the planned build-up to 143 wings, forces us to place more training responsibility on the relatively stabilized technical instructor group. An alternate solution would be the use of Civil Service instructors, grades GS-7 through GS-13 or 14.
4. On-the-Job Training Advisory Service has been received from the Air Training Command. The major benefit has been in those areas where refresher or basic to apprentice level training was required. Due to the nature of the Training Command experience, it has been difficult for the Advisory Service to provide written training material for the training of airmen from the 3 to the 5 level and from the 5 to the 7 level. In some areas, notably the primary radars of the AC&W net, it has been necessary for us to prepare our own material. This condition is being partially alleviated by our agreement with the Training Command to give their key instructors practical experience through temporary duty at selected units of our command.

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Hq ADC, ADPTR-D 353, Subject: On-the-Job Training

5. An analysis in 1951 of our OJT problem revealed two major weaknesses. The skill which we had was not being transferred to our new people because there was a lack of understanding of instructional techniques in the OJT process. The other difficulty was in the area of human relations in OJT. To correct these deficiencies, two handbooks, copies attached, were produced. More recently, we have taken advantage of the OJT Advisory Course and plan to continue the use of this course along with our two manuals.

6. As a result of the magnitude of the coming OJT task, we are studying the requirement for full time military and/or civilian positions for OJT responsibility. Implementation of the results of this study and increasing Advisory Service, for which you have alerted Air Training Command, will aid in our solution of the OJT problem. In addition, assistance from your office in stabilizing trained personnel and in keeping the contractor technician program effective will help to assure the desired OJT goals.

FOR THE COMMANDING GENERAL:

2 Incls:

1. Ltr fr Gen
Chidlaw
2. ADC Manuals
50-7 & 50-8

JARRED V. CPABB
Major General, USAF
Chief of Staff

RESTRICTED

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
Washington 25, D. C.

COPI

137

14 Apr 1953

SUBJECT: (Unclassified) On-the-Job Training

TO: Commanding General
Air Defense Command
Ent Air Force Base
Colorado Springs, Colorado

1. Reference is made to letter, subject as above, to General Kuter from General Crabb, dated 16 March 1953, and to letter, subject as above, to General McCormick from General Crabb, dated 18 March 1953.

2. The problem of personnel instability in your command is one common throughout the Air Force. Unfortunately, under current programming guidance, little or no change can be expected during the next two fiscal years. In addition to non-reenlistment losses, overseas requirements must continue to be met. Since these requirements must be filled to the maximum extent possible with fully skilled people, relief in this area as a solution to the problem must be eliminated.

3. In connection with continued utilization of contractor technicians, reference is made to letter to General Chidlaw from General Kuter dated 11 March 1953. As stated therein, action has been initiated in this headquarters to obtain a temporary waiver of the limitations imposed by AFR 66-18. This waiver is for the express purpose of extending time of retention of contractor technicians for training purposes. However, the retention of contractor technicians presently under contract beyond 30 June 1953 will be subject to the action of Congress on Fiscal Year 1954 appropriations.

4. The agreement between your command and Air Training Command to increase the practical experience of key instructors by placing them on TDY with selected units in your command is commendable. In recognition of the pressing need to achieve maximum utilization of trained instructor personnel, the education career field has been revised to provide a means of identifying instructors on personnel records by technical specialty and quality level. The former Education Air Force Specialties have been deleted and are replaced by the prefixes "T" and "S" before the Air Force Specialty denoting technical qualification. The prefix "T" identifies a fully qualified technical instructor, while the prefix "S" identifies

Subject: (Unclassified) On-the-Job Training

personnel with instructor experience, but who are not considered fully qualified. In addition, a continuing effort is made to procure fully qualified, experienced instructors. Two Air Force Regulations, AFR 36-64 (Officers) and AFR 39-41 (Airmen), are currently in force which offer an opportunity for interested, qualified personnel to apply for instructor duty. It is felt that the contents of these directives, plus the agreement mentioned above constitute a feasible means of maintaining high instructor quality, since experience proves that the most important single difference between an outstanding instructor and those less successful is an earnest desire to instruct.

5. It is gratifying to note the interest of your command in on-the-job training as well as the action you have taken to properly accomplish this requirement. This headquarters will continue to render all possible assistance in lessening the impact of the on-the-job training requirement placed on the commands.

BY COMMAND OF THE CHIEF OF STAFF:

E. S. WETZEL
Major General, USAF
Ass't Deputy Chief of Staff
Personnel

COPY

138

ADPTR-D 353

11 May 1953

SUBJECT: On-the-Job Training

TO: Deputy Chief of Staff, Personnel
Headquarters USAF
Washington 25, D. C.

1. USAF letter, subject as above, 14 April 1953, has been received. The revision of the Education Career Field is of particular interest to this command.

2. The identification of instructor ability through the use of a prefix will be an asset to ADC's long range OJT planning. It is expected that the number of airmen assigned to this command who are in this category will be very limited. Plans for controlling the distribution of these airmen would be appreciated.

3. The value of airmen with instructional ability will be increased if they are stabilized. It is recommended that "Protected" assignment, such as those of AFFOTC instructors, be considered for this group.

FOR THE COMMANDING GENERAL:

JARRED V. CRABB
Major General, USAF
Chief of Staff

1392

B/L fr Hq ADC, ADPTR-D 353, Subj: On-the-Job Training

AFTMP (11 May 53)

1st Ind

1 Jun 1953

Dept. of the Air Force, Headquarters, USAF, Wash 25, D. C.

TO: Commander, Air Defense Command, Ent Air Force Base,
Colorado Springs, Colorado

1. Your interest in the utilization of technical instructors within Air Defense Command is greatly appreciated. However, the revised Education and Training Career Field is not effective until October 1953. It is assumed that all airmen assigned to your command who are qualified for the award of the technical instructor prefix in accordance with paragraph 24, AF Manual 35-1 will be so classified, and the highest capabilities of each individual will be most effectively utilized to accomplish your mission.

2. Until such time as technical instructor requirements are reflected on the monthly Enlisted Manning Reports, no action can be taken to allocate instructor personnel, as such, to your Command. Returnee technical instructor personnel will be allocated to ZI commands according to their technical AFSC. Since technical instructors will not be identified with a prefix until October 1953, the forecast returnee roster will not include that information until the world-wide allocations for March 1954, (FCS 3-AF-P26), is submitted. Technical instructor personnel will then be identified for the convenience of major air commanders in determining most equitable assignment for these personnel. At such time that technical instructor requirements are properly reflected on the monthly enlisted manning reports, technical instructors will be allocated to fulfill such requirements consistent with their availability.

3. Every effort is being made by this Headquarters to keep "frozen" or "protected" assignments limited to only those areas which are absolutely necessary. As of 31 March 1953, USAF overseas units had an authorization for 251,693 airmen. Of the 590,087 airmen assigned to the ZI units, less than 189,549 were considered as available for overseas assignments. In this available figure are included many overages within career fields, skills that are not usable overseas and also personnel with temporary deferments. It can readily be seen that to increase the number in "frozen" or "protected" assignments, by including all technical instructors for all major ZI commands, would decrease the stability of personnel not in such assignments.

B/L fr Hq ADC ADPTR-D 353 Subject: On-the-Job Training

AFFMP (11 May 53)

1st Ind contd

4. A study is presently being prepared to determine the feasibility of increasing the period of ZI residency and service retainability for oversea selection criteria. In the event the selection criteria can be increased, it is believed sufficient stability can be achieved through normal command control and the number of personnel presently in "protected" assignments reduced accordingly.

BY COMMAND OF THE CHIEF OF STAFF:

JOHN H. McCORMICK
Major General, USAF
Director of Military Personnel

138

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139

23 January 1953

Lieutenant General L. S. Kuter
Deputy Chief of Staff, Personnel
Headquarters USAF
Washington 25, D. C.

Dear Larry:

Your headquarters has advised us in a message, AFME 42032, dated 7 January 1953, that contracts for technical instructors are rapidly approaching the end of the time limit established by AFR 66-18. The message further advised that we must take action to insure that competent Air Force instructors are trained and available by 1 July 1953.

I feel that any discussion at this time relative to elimination of contractor technicians is unrealistic. No one knows better that you how our skilled military people are being drained off to satisfy overseas requirements.

Right now we are faced with a build-up of the mobile radar sites, the airborne early warning and control system, the Canadian radar extension units, and with the activation of new fighter squadrons. As you are aware, our equipment is becoming increasingly complex. Add to these factors the need for constant readiness to perform our primary mission, and you can see that we have a training problem of the first magnitude. Even if we keep the contractor technicians now assigned to us, we are going to have difficulty in solving our problems. If we lose them, the situation which will result is rather apparent. The skills we have will, in great measure, be diverted from "doing" to teaching, and our turnover rate will guarantee a lack of any continuity in training.

The principle underlying a time limitation on the use of technical instructors, as imposed by AFR 66-18, was sound when the directive was written. Today it is not. I feel that it is highly uneconomical to dissipate the source of excellent instructor "know" which we have in the technical instructors, at least until such time as we have greater personnel stability, our build-up is complete, and our equipment is standardized. In view of the intricate systems programmed for this command, I see a definite need for the technical instructors even beyond Fiscal Year 1954.

I will appreciate anything you can do to see that the contractor technician requirements are re-evaluated.

Sincerely,

B. W. CHIDLAW
General, USAF
Commanding

1395

COPY

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HEADQUARTERS
575TH AIR DEFENSE GROUP
SELFRIDGE AIR FORCE BASE, MICHIGAN

BPGT 461

11 May 1953

SUBJECT: Request for On-The-Job Training Program Advisory Service,
Class Type "C"

TO: Commanding Officer
4708th Defense Wing
Selfridge Air Force Base
Michigan

1. In accordance with paragraph 4b(3), AFR 50-23, dated 14 January 1953, request two (2) copies each, of Package Training Material, including program outlines and examinations for use in On-The-Job Training Program, be furnished this headquarters, to cover all AFSC's for airmen in the following career fields.

<u>CAREER FIELD</u>	<u>CODE</u>	<u>CAREER FIELD</u>	<u>CODE</u>
Intelligence	20	Supply	64
Photography	23	Procurement	65
Weather	25	Administrative	70
Operations	27	Printing	71
Communications	29	Information	72
Radio Maint	30	Personnel	73
Armament System Maint	32	Education	75
Weapons	33	Entertainment	77
Tng Devices Maint	34	Welfare	79
Wire Maint	36	Management Methods	80
Aircraft Accessories	42	Budgetary, Accounting	
A & E Maint	43	and Disbursing	81
Vehicle Maint	47	Statistical	83
Metal Worker	53	Medical	90
Construction	55	Rescue & Survival	92
Utilities	56	Ground Safety	93
Fabric, Lthr & Rbr	58	Marine	94
Transportation	60	Fire Fighting	95
Food Service	62	Security & Law Enforce	96
		Special Activities	99

2. Above On-The-Job Training Material is needed for proper implementation of the program at this station.

FOR THE COMMANDING OFFICER:

RUSSELL W. GETCHELL
CWO USAF
Adjutant

1396

575 Air Def Gp, Selfridge AFB, Michigan, BPGT 461, Subj: Request for On-the-Job Training Program Advisory Service, Class Type "C"

GJ 353 OJT (11 May 53)

4th Ind

10 Jun 1953

HQ TECHNICAL TRAINING AIR FORCE, GULFPORT, MISSISSIPPI

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. Packaged Training Material is under preparation for both Formal and Proficiency OJT. One course F27150, "Air Operations Specialist", is completed. Your Headquarters will receive an automatic distribution of ten (10) copies in the very near future. Both Formal and Proficiency OJT Packaged Courses will be announced as completed in the USAF Training Prospectus.

2. As an interim measure, until the above cited courses are published, Technical Training Air Force upon request, will provide type "C" packaged material consisting of syllabi of instruction developed for formal courses conducted within this Command, local Technical Training Air Force base OJT program outlines and some guidance for using the material. Training literature prepared for formal classroom situations is the only material available for guidance in planning OJT programs until such time as the OJT Packaged Courses specifically being prepared for that purpose are available.

3. If your organization desires for immediate use, training materials such as are described in paragraph 2, the USAF Training Prospectus should be reviewed to determine which courses are applicable to your training requirement. Single copies of the desired syllabi of instruction should be requested by number and title directly from the base conducting the course. The letter should include a statement that the material is to be used for OJT purposes.

4. Attached as Inclosure 1 is a listing of formal courses taught at bases in this command. Type "C" training material for the Majority of courses are available with instructions for the use of such material in OJT programs.

FOR THE COMMANDING GENERAL:

1 Incl
TTAF Reg-5-6

NATHAN KAPLAN
CWO, USAF
Asst Adj Gen

ADPTR-A 353

8 Apr 1953

SUBJECT: AN/CPS-6B OJT Program

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

1. Reference is made to letter this headquarters, file ADPTR-A 353, 18 April 1952, Subject: "AN/CPS-6B On-the-Job Training Program."

2. A survey was conducted recently to evaluate the over-all effectiveness of the CPS-6B OJT Program. The evaluation reveals major differences in results obtained by individual units. Several units have successfully accomplished 80 - 90 percent of their training. Some units have accomplished less than 10 percent of their training task. Units within your command considered deficient in producing the desired results of the 6-B program are:

<u>Unit</u>	<u>No. of Students Graduated as of 15 Jan 1953</u>
750th AC&W Sq	1
669th AC&W Sq	5

3. Available information indicates there will not be an Air Training Command formal CPS-6B course prior to December 1953. In view of this information and the added importance of OJT in maintaining CPS-6B effectiveness, it is requested that immediate action be taken to rejuvenate the program in deficient areas and to assure all personnel concerned are exerting maximum efforts.

BY COMMAND OF GENERAL CHIDLAW:

ROBERT E. BRUCE
Lt Colonel, USAF
Dir of Tng

575 Air Def Gp, Selfridge AFB, Michigan, BPGT 461, Subj: Request for On-the-Job Training Program Advisory Service, Class Type "C"

GJ 353 OJT (11 May 53)

4th Ind

10 Jun 1953

HQ TECHNICAL TRAINING AIR FORCE, GULFPORT, MISSISSIPPI

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. Packaged Training Material is under preparation for both Formal and Proficiency OJT. One course F27150, "Air Operations Specialist", is completed. Your Headquarters will receive an automatic distribution of ten (10) copies in the very near future. Both Formal and Proficiency OJT Packaged Courses will be announced as completed in the USAF Training Prospectus.

2. As an interim measure, until the above cited courses are published, Technical Training Air Force upon request, will provide type "C" packaged material consisting of syllabi of instruction developed for formal courses conducted within this Command, local Technical Training Air Force base OJT program outlines and some guidance for using the material. Training literature prepared for formal classroom situations is the only material available for guidance in planning OJT programs until such time as the OJT Packaged Courses specifically being prepared for that purpose are available.

3. If your organization desires for immediate use, training materials such as are described in paragraph 2, the USAF Training Prospectus should be reviewed to determine which courses are applicable to your training requirement. Single copies of the desired syllabi of instruction should be requested by number and title directly from the base conducting the course. The letter should include a statement that the material is to be used for OJT purposes.

4. Attached as Inclosure 1 is a listing of formal courses taught at bases in this command. Type "C" training material for the Majority of courses are available with instructions for the use of such material in OJT programs.

FOR THE COMMANDING GENERAL:

1 Incl
TTAF Reg-5-6

NATHAN KAPLAN
CWO, USAF
Asst Adj Gen

575th Air Def Gp, BPCT 461, Subject: Request for On-the-Job Training
Program Advisory Service, Class Type "C"

ADPTR-F 353 (11 May 53)

5th Ind

23 Jun 1953

HQ AIR DEFENSE COMMAND, Ent AFB, Colorado Springs, Colorado

TO: Commander, Eastern Air Defense Force, Stewart Air Force Base,
Newburgh, New York

1. Information contained in paragraph 1, preceding indorsement, was furnished your headquarters by letter, this headquarters ADPTR-F 353, subject: OJT Packaged Courses, 22 Jun 1953. Distributing of Courses F 27150, Air Operations Specialist, was made to your headquarters by letter this headquarters, ADPTR-F 353, subject: OJT Packaged Course, 22 June 1953.

2. If type "C" packaged material, as mentioned in paragraph 2 and 3, preceding indorsement, is desired, it is requested that material used by each Technical Training Air Force base be requested separately, through this headquarters.

BY ORDER OF THE COMMANDER:

1 Incl
n/c

ROBERT E. BRUCE
Lt Colonel, USAF
Dir of Tng

ADPTR-A 353

8 Apr 1953

SUBJECT: AN/CPS-6B OJT Program

TO: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

1. Reference is made to letter this headquarters, file ADPTR-A 353, 18 April 1952, Subject: "AN/CPS-6B On-the-Job Training Program."

2. A survey was conducted recently to evaluate the over-all effectiveness of the CPS-6B OJT Program. The evaluation reveals major differences in results obtained by individual units. Several units have successfully accomplished 80 - 90 percent of their training. Some units have accomplished less than 10 percent of their training task. Units within your command considered deficient in producing the desired results of the 6-B program are:

<u>Unit</u>	<u>No. of Students Graduated</u> <u>as of 15 Jan 1953</u>
750th AC&W Sq	1
669th AC&W Sq	5

3. Available information indicates there will not be an Air Training Command formal CPS-6B course prior to December 1953. In view of this information and the added importance of OJT in maintaining CPS-6B effectiveness, it is requested that immediate action be taken to rejuvenate the program in deficient areas and to assure all personnel concerned are exerting maximum efforts.

BY COMMAND OF GENERAL CHIDLAW:

ROBERT E. BRUCE
Lt Colonel, USAF
Dir of Tng

RESTRICTED

Hq ADC ADPTR-A 353 Subject: AN/CPS-6B OJT Program

WDOCE-2 353 (8 Apr 53)

1st Ind

21 Apr 1953

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, 27th Air Division (Defense), Norton Air Force Base, California

1. Reference basic correspondence and Reports of AN/FPS-10, (CPS-6B) OJT Training, File 27DOPT 353, dated 14 April and 14 January 1953.

2. Information at this headquarters indicates the personnel shortages noted in the Radar Maintenance Career Fields at the 669th and 750th AC&W Squadrons no longer exists.

3. Request this headquarters be notified by indorsement hereon of the present status of the AN/FPS-10 OJT Program at these squadrons. This information should include:

- a. Number of airmen assigned to the Radar Maintenance Section by AFSC.
- b. Number of airmen assigned that are graduates of the Factory Training Course on the AN/CPS-6B.
- c. Number of airmen assigned that have completed the FPS-10 (CPS-6B) OJT Training Program.
- d. Total number of officers and airmen graduated from the FPS-10 (CPS-6B) OJT Training Program to date.
- e. Total number of officers and airmen presently undergoing this training.
- f. Anticipated completion dates of classes now in progress.
- g. Factors impairing the accomplishment of these courses at this time.

BY COMMAND OF BRIGADIER GENERAL HUTCHINSON:

MARVIN L. GRAM
Capt. USAF
Asst Adj Gen

RESTRICTED

RESTRICTED

Hq ADC ADPTR-A 353 Subject: AN/CPS-6B OJT Program

27DOPT 353 (8 Apr 53)

2nd Ind

5 May 1953

HQ 27TH AIF DIVISION (DEFENSE), Norton Air Force Base, San Bernardino, California

TO: Commanding General, Western Air Defense Force, Hamilton Air Force Base, Hamilton, California

1. In compliance with paragraph 3 of 1st Indorsement the following information is presented.

2. Personnel Status at the 669th AC&W Squadron:

a. There are fifteen (15) airmen presently assigned to the Radar Maintenance Section of this Squadron.

(1) One (1) airman is in the seven (7) proficiency level.

(2) Six (6) airmen are in the five (5) proficiency level.

(3) Eight (8) airmen are in the three (3) proficiency level.

b. Out of the airmen assigned only one (1) is a graduate of the General Electric Factory Training Course.

c. Eight (8) of the assigned airmen have completed the FPS-10 OJT Training Program to date, with one man currently on TDY.

d. Eight (8) airmen have graduated from the FPS-10 OJT Training Course to date, with no officers having participated.

e. The present class in FPS-10 OJT Training consists of two (2) airmen and one (1) officer.

f. Anticipated completion date will be on or about 15 June 1953.

3. Personnel Status at 750th AC&W Squadron:

a. There are sixteen (16) airmen presently assigned to the Radar Maintenance Section of this Squadron.

(1) Three (3) airmen are in the seven (7) proficiency level.

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Hq ADC ADPTR-A 353 Subject: AN/CPS-6B OJT Program (Cont'd)

- (2) Eleven (11) airmen are in the five (5) proficiency level. One (1) man holding an Airborne Radar AFSC.
- (3) Two (2) airmen are in the three (3) proficiency level, one (1) man having been a Radar Operator.
- b. Out of the airmen assigned, only one (1) man is a graduate of the General Electric Factory Training Course.
- c. Five (5) of the assigned airmen have completed the FPS-10 OJT Training Program to date.
- d. Five (5) airmen have graduated from the FPS-10 training course to date, no officers being in any class.
- e. The present class in FPS-10 OJT training consists of two (2) airmen, with no officers participating.
- f. It is anticipated that completion of the present course will occur on or about 15 June 1953.

4. Considering the number of men to be placed in a class for FPS-10 training an allowance has to be made for a sufficient number of men to make up four (4) maintenance crews. In making up the Maintenance Crews a certain number of men from the Radar Maintenance Section will have to be considered for leaves, TDY, sickness or absence for other reasons. Since the Radar is rather complex, it is considered essential that men should not work on the radar equipment alone, and that certain number of mechanics assigned are in the apprentice level. Thus, at least three (3) men should be assigned to each shift. Of all of the seventeen (17) mechanics authorized, assigned and present for duty, and one (1) airman assigned as Section Chief, there are four (4) men available for full time FPS-10 Training. However, due to the above mentioned factors, it is most practical to assign two (2) or three (3) men to the training. At times, section strength dropped below authorized level and as most frequently required by squadron operations commitments, the students had to supplement the regular maintenance crews.

5. A brief resume of the FPS-10 OJT Training Program conducted at the 750th AC&W Squadron follows:

- a. The first training course was started with four (4) airmen, out of these four (4) airmen, one (1) was discharged, two (2) went TDY to Keesler Air Force Base and one (1) graduated.

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Hq ADC ADPTR-A 353 Subject: AN/CPS-6B OJT Program (Cont'd)

b. The second training course started with five (5) airmen attending. One (1) went TDY to Kessler Air Force Base and four (4) graduated.

c. The task of training was further complicated by an acute personnel shortage coupled with a rather serious breakdown of the set which required the assistance of the student airmen.

d. It can be seen from the above that training, in view of the large attrition rate and personnel turnover, could not possibly have been conducted to any greater extent.

6. A summary of training conducted at the 669th AC&W Squadron follows:

a. The first class started with four (4) airmen attending, of which three (3) graduated and one (1) transferred.

b. The second class started with two (2) airmen participating, of which one (1) was discharged and one (1) was transferred to the next class.

c. The third class started with four (4) airmen, of which one (1) was dropped because of primary AFSC change and one (1) interrupted because of personnel shortage. This course then continued with three (3) more airmen being added. This brought the number of airmen up to five (5). All have graduated.

7. The present FPS-10 OJT program is a formal course and calls for utilization of only four (4) or one fifth (1/5) of the total maintenance personnel per class. The overall objective is to have all maintenance personnel complete this training course. It is pointed out that this formal OJT program is carried on in addition to the normal OJT given to all assigned personnel. The result of the combined OJT program indicates that the overall proficiency of the entire radar maintenance section has been raised materially.

8. It is the opinion of this Headquarters that FPS-10 OJT Training has progressed satisfactorily within this division in spite of personnel shortages. In view of the above factors impairing training activities, it is felt that a maximum effort on the part of the Squadrons and their instructors has been expended towards improving proficiency. This is borne out by the fact that Radar "out" time has been substantially reduced.

FOR THE COMMANDING OFFICER:

THEODORE HUNT JR
MAJOR USAF
Asst Adjutant General

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Hq ADC, ADPTR-A 353, Subject: AN/CPS-6B OJT Program (Unclassified)

WDOCE-2 353 (8 Apr 53)

3rd Ind

28 May 1953

HQ WESTERN AIR DEFENSE FORCE, Hamilton AFB, Hamilton, California

TO: Commanding General, Air Defense Command, Ent Air Force Base, Colorado Springs, Colorado

1. To better evaluate the AN/CPS-6B OJT Training Program of the 27th Air Division, a Comparison was made with those of the 25th and 28th Air Divisions. This is summarized in the chart, attached as Inclosure 1.

2. It will be noted that while the units of the 27th Air Division have graduated fewer personnel from their programs, they also have fewer personnel assigned. Expressed as a percentage of personnel Trained or being trained, these units compare somewhat more favorably.

a. 25th Air Division:

635th AC&W Squadron - 74%
757th AC&W Squadron - 74%

b. 27th Air Division:

669th AC&W Squadron - 80%
750th AC&W Squadron - 50%

c. 28th Air Division:

666th AC&W Squadron - 75%
668th AC&W Squadron - 89%

FOR THE COMMANDING GENERAL:

Added 1 Incl:
AN/CPS-6B OJT
Tng Status Chart

J. P. CRIM
Major, USAF
Asst Adj Gen

cc: CG 27th ADiv
Norton AFB, Calif.

6.

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	7 Level Airmen Asgd	5 Level Airmen Asgd	3 Level Airmen Asgd	Total Airmen Asgd	Factory Tng Graduates (Airmen)	OJT Tng Graduates (Airmen)	Airmen Now in OJT Program
<u>25th Air Division</u>	I	I	I	I	I	I	I
635 AC&W Sq	4	10	3	17	1	20*	3*
757 AC&W Sq	3	10	4	17	1	See Note	
<u>27th Air Division</u>							
669 AC&W Sq	1	6	8	15	1	8	3
750th AC&W Sq	3	11	2	16	1	5	2
<u>28th Air Division</u>							
666 AC&W Sq	2	18	0	20	1	12	2
668 AC&W Sq	2	14	2	18	1	12**	3**

* Combined school conducted at the 635 AC&W Sq.

** In addition 2 airmen from the 4th Radar Calibration Sq, and 1 airman from ATFC are attending the program at the 668 AC&W Sq.

Incl #1

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HEADQUARTERS
27TH AIR DIVISION (DEFENSE)
NORTON AIR FORCE BASE
SAN BERNARDINO, CALIFORNIA

In Reply Refer To:
27DOFT 353

14 Apr 1953

SUBJECT: Report of AN/FPS-10 OJT Training From 1 January to
31 March 1953

THRU: Commanding General
Western Air Defense Force
Hamilton Air Force Base
Hamilton, California

TO: Commanding General
Air Defense Command
ATTN: ADPTR
Ent Air Force Base
Colorado Springs, Colorado

1. The following is a report on the progress of the AN/Fps-10
(CPS-6BO OJT Training Program in this Division for the period 1
January through 31 March 1953, and is submitted for your information.

2. 669th AC&W Squadron:

a. During this three (3) month period, a total of two
hundred and fifty (250) hours of instruction was given to the three
airmen undergoing the FPS-10 training at this Squadron. Prior to
this period, these airmen had received sixty-two (62) hours of
instruction on the course. Two of these students are at the three
(3) level of proficiency and one (1) is at the five (5) level. By
the end of March, these men had entered into the final phases of
the course.

b. In February, one of the two Philco Technical Instructors
was transferred from the squadron. This left one Philco Instructor
for carrying on the FPS-10 training. The General Electric Company
Representative at the site assisted in the instruction on the
maintenance adjustments. But the great bulk of the instruction on
the theory and circuitry of the FPS-10 was conducted by the Philco
Technical Instructor.

c. At the end of the period, there were fifteen (15)
radar mechanics assigned to this Squadron. With three men on the
fifth shift training, there remained only twelve men for the regular

Hq 27th ADiv (Def), 27DOPT 353, Subj: Rpt of AN/FPS-10 OJT Tng
from 1 Jan to 31 Mar 53 - Cont'd

maintenance crews. Additional personnel shortages in the unit resulted in the radar mechanics being required for other squadron duties more often than normally expected. Because of all this, the training had to be interrupted many times so that the students could assist in regular maintenance work. During the first part of March, there was a serious breakdown of the radar system which necessitated using the students for assistance in the repair work. At this time, about three (3) days of classroom work were lost.

d. Classes for this training are frequently held at night out of necessity. The regular Preventive Maintenance periods are scheduled for night time hours; and the students often have to be present for these periods for the practical instruction on the maintenance adjustments and also for assistance in the maintenance work on the radar. It is not feasible, because of the transportation problem from the squadron living area to the site, to schedule students for classroom work during the day time and then practical work at night. Therefore, at those times when the students are required at the night time Preventive Maintenance periods, classroom work is also scheduled at night. Because of the personnel shortage, as stated above, the students are rather frequently needed for assistance during these maintenance periods.

e. One of the three students, a three (3) level airman, was sent on a quota to the Western Air Defense Force eight week TDY, Radio and Radar Maintenance Instruction Course, at Geiger Field, for the 23 March class. When he returns he should be able to complete the FPS-10 course in a short period of time. The other two students at the squadron will continue with the FPS-10 course and they should finish in the very near future.

3. 750th AC&W Squadron:

a. Two, three (3) level, airmen completed the FPS-10 course at this Squadron in February and were given the certificates of training. These men received a total of three hundred and eighty-six (386) hours of instruction in the course. The last two hundred and sixteen (216) hours of this instruction was given during January and February, the remainder having been given before this period.

b. Two, seven (7) level, airmen proceeded with the FPS-10 course after the completion by the above men. These seven (7) level airmen had previously completed one hundred and seventy (170) hours of instruction in the course prior to this reporting period. They, together with the above three (3) level men, had been in a class of four students. Because of personnel losses in the Squadron, this

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from 1 Jan to 31 Mar 53 - Cont'd

class had to be split with the three (3) level men continuing through the course and the seven (7) level airmen completing at a later date. By the end of March, these seven (7) level men had entered the final phase of the course and should complete it in a very short time.

c. From the last part of February through the end of March, one hundred and sixty (160) hours of instruction in the FPS-10 course was given to the seven (7) level airmen. This gave a total of three hundred and seventy-six (376) hours of FPS-10 instruction presented at the Squadron during the three (3) month period.

d. Instruction was presented by the two (2) Philco Technical Instructors at the Squadron, with the General Electric Representative assisting with the instruction on maintenance adjustments. For approximately one month during the reporting period there was only one (1) Philco Instructor assigned to the Squadron.

e. At the end of March there were eighteen radar mechanics assigned to the Squadron, with two (2) of these available for the fifth shift FPS-10 training. During the first week in March, no instruction was conducted because one (1) of the two (2) students was away at a basketball tournament. Difficulties in scheduling because of sickness, squadron duties and absences of maintenance personnel for other reasons, prevented a full forty (40) hour week of instruction every week. However, consistent with the operational mission of the unit, as much time as was practicable was devoted to FPS-10 training.

4. Enclosed are monthly reports for this period from each FPS-10 Squadron showing a breakdown of the phases of course instruction and the number of hours spent on them.

5. At both Squadrons, the Philco Demonstrator and Laboratory Units electronics training aids have been installed in the training room where the FPS-10 training is conducted. At the 669th AC&W Squadron this is the B-Scan Room, and at the 750th AC&W Squadron it is the Triangulation Room. These training aids are being integrated into the overall training of the electronics personnel in the functioning and trouble shooting of fundamental electronic circuits.

6. The FPS-10 program is progressing successfully. The airmen who have completed this course show a marked improvement in their overall technical proficiency. The course has provided them with the necessary background for solving the maintenance problems connected with the complex FPS-10 radar.

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7. As with all OJT Programs, the greatest difficulty encountered in conducting this FPS-10 course is in the scheduling of classes. In units performing an operational mission, it is difficult to conduct classes on a regular day to day basis. Personnel scheduled for training frequently have to be called upon for the many other required squadron duties. This situation is aggravated at the present time by the general shortage of personnel. However, this training has been incorporated in the overall operations of the units, and a continual effort is being made to devote as much time as is feasible to this particular training program.

FOR THE COMMANDING GENERAL:

6 Incl

1-3. 750th AC&W Sq, Rpt of
OJT Tng Conducted on
FPS-10, dtd:

1. Mar 53
2. Feb 53
3. Jan 53

4-6 669th AC&W Sq, Subj:
same as incls above,
4. Mar 53
5. Feb 53
6. Jan 53

ALBERT L. PERKINS
Lt. Col., USAF
Adjutant General

SECRET

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ADPTR-F 353

3 Mar 1953

SUBJECT: Comparative Formal School and OJT Training Lengths

TO: Director of Training
Headquarters, USAF
Washington 25, D. C.

1. Reference is made to paragraph 2, first indorsement this headquarters, 24 December 1952, to letter your headquarters, subject as above, 11 December 1952.

2. It has been noted that for numerous AFSC's, the number of training days required to qualify personnel at the apprentices level by OJT is in excess of three hundred fifty (350) days. This command is cognizant of the limited training capability of Air Training Command, however, it is not considered desirable for tactical commands to undertake helper to apprentice level OJT when the period exceeds six (6) months.

3. Productivity of personnel is a factor to be considered. If an airman is required to undergo a long OJT period to obtain his apprentice AFSC, then his productive months for the Air Force are limited. With present-day austerity, it is mandatory that an airman reach the productive stage as soon as possible. A long drawn-out OJT period is not in consonance with this program.

4. The morale of the airman is adversely affected if he is required to participate in an overly long OJT program. Knowing that he is ineligible for upgrading or promotion during the long training period results in a lowering of the airman's morals, and reflects in his ability to absorb training.

5. It is requested that the above factors be considered in all OJT plans for helper level personnel advancement to apprentice skills.

FOR THE COMMANDING GENERAL:

/s/ JOSEPH D. HORNGBY
Lt Col, USAF
Asst Adj Gen

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