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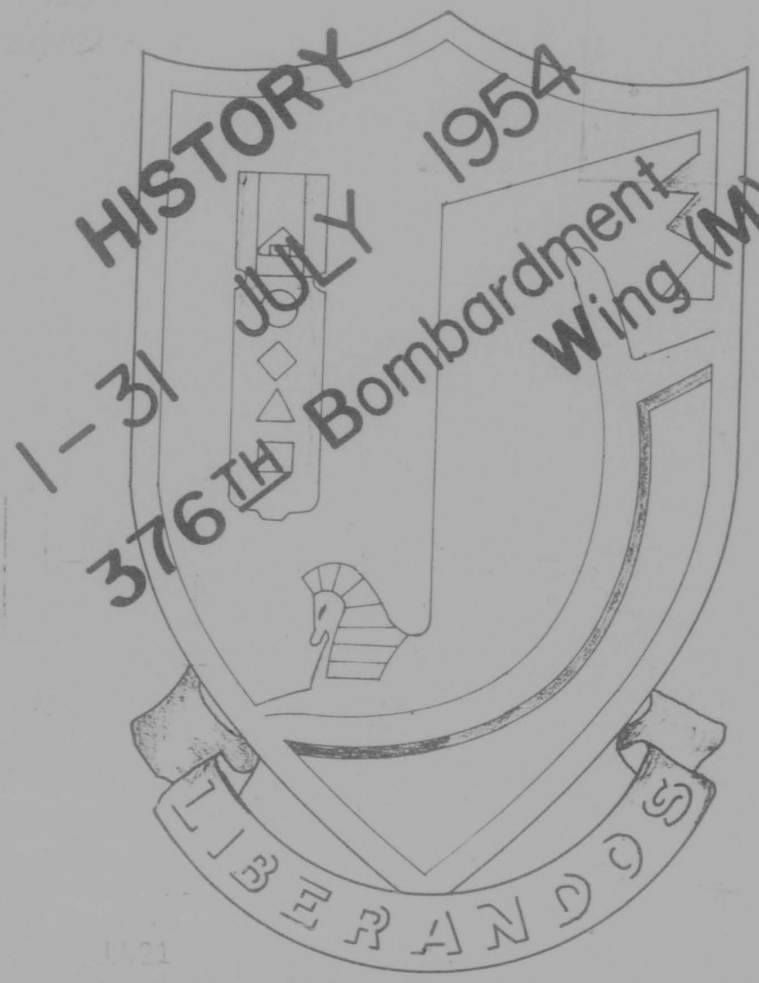
HISTORY

1 - 31 JULY 1954

376TH Bombardment Wing (M)



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HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 JULY - 31 JULY 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics
Maintenance Squadron

THIS REPORT PREPARED BY:

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APPROVED BY:

JOHN P. PROCTOR
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	I, 2
Personnel Problems	2, 3
Crew Status	3, 4
Reenlistment Rate - AWOL Rate	4
Changes in Key Personnel	4
Roster of Key Personnel	5
CHAPTER II . . . Operations and Training	6
Flying Time	7
Status of Test Projects	7 - 18
CHAPTER III . . . Maintenance	19
Aircraft Status	20 - 23
Maintenance Training Activities	23, 24
Equipment Malfunctions	24 - 26
Maintenance Engineering Difficulties	26, 27
Operational Difficulties	27 - 29
Special Developments	29, 30
General Remarks	30, 31

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PERSONNEL

The total number of officers assigned at the end of July 1954 was 391,[1] which was six more than in June,[2] but was seven less than authorized strength.[3] There were 363 officers effectively assigned,[4] 18 more than in June,[5] or 91.2 percent of authorized strength.[6] The figures and percentage for manning in required specialties in July were the same as for effectively assigned during the month.[7] There were nine officers transferred or discharged during July,[8] or 2.26 percent of authorized strength.[9] There were 15 officers assigned during July,[10] or 3.76 percent of authorized strength.[11]

The total number of airmen assigned at the end of July 1954 was 2029,[12] which was 72 more than during June,[13] and was 324 more than

1. Report, "Monthly Analysis (July 1954)", n.d., prep by D/P, 376th Bomb Wing, Hereafter cited as "376th Pers Analysis for July 54", exhibit #1, and chart, exhibit #2.
2. History 376th Bomb Wing for June 54, page 1.
3. "376th Pers Analysis for July 54", n.d., exhibit #1, and Chart, exhibit #2.
4. "376th Pers Analysis for July 54", n.d., exhibit #1.
5. History 376th Bomb Wing for June 54, page 1.
6. "376th Pers Analysis for July 54", n.d., exhibit #1.
7. Ibid.
8. Ibid, by career fields: Admin Staff-1, Pilots-3, Navigator-1, Comm-Elect Staff-1, Pilot AOB-1, Dermatologist-1, and Radar Intercept-1, Total - 9.
9. "376th Pers Analysis for July 54", n.d., exhibit #1.
10. Ibid, by career fields: Comm-Electronics Staff-1, Air Ops Off-1, Ops Staff-1, Avn Med-1, Navi-Bombardier-4, Comm-1, Supply-1, Med Administrator-1, Radar Intercept-1, Acft Performance Engr-1, and Intel Off-1, for a total of 15.
11. "376th Pers Analysis for July 1954", n.d., exhibit #1.
12. Ibid, and chart, exhibit #3.
13. History 376th Bomb Wing for June 1954, page 1.

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authorized strength.[14] There were 1347 airmen effectively assigned,[15] 13 more than in June,[16] or 79 percent of authorized strength.[17] The manning in required specialties figure for airmen in July was 1092,[18] which was an increase of 92 over the June figure.[19] There were 31 airmen discharged of transferred during July,[20] or 1.81 percent of authorized strength,[21] and 108 airmen assigned during July,[22] or 6.33 percent of authorized strength.[23]

PERSONNEL PROBLEMS

The officer effective manning has improved with the assignment of one 6421 and three 1524's.[24] Officer manning in AFSC's 1435, 3054, 4355 and 6424 remained critically short. Airmen manning in

14. "376th Pers Analysis for July 1954", n.d., exhibit #1, and chart, exhibit #3.
15. Ibid.
16. History 376th Bomb Wing for June 54, page 1.
17. "376th Pers Analysis for July 1954", n.d., exhibit #1.
18. Ibid.
19. History 376th Bomb Wing for June 54, page 2.
20. "376th Pers Analysis for July 1954", n.d., exhibit #1, by career fields: Comm-Ops-2, Radio & Radar Maint-3, Airplane & Engine Maint-9, Vehicle Maint-1, Metal Working-1, Fabric leather & rubber Repair-4, Transportation-1, Supply-2, Admin-4, Pers-1, and Medical-3, for a total of 31.
21. "376th Pers Analysis for July 54", n.d., exhibit #1.
22. Ibid, by career fields: Comm-Ops-1, Radio & Radar-27, Armt Sys-Maint-2, Atomic Wpns-9, Intricate Equip Maint-2, Acft Accessories-Maint-1, Airplane & Eng Maint-20, Mun & Wpns Maint-2, Vehicle-1, Utilities-1, Trans-1, Food Service-3, Supply-12, Admin-8, Pers-2. Med-3, and Spl Actys-3, Total - 108.
23. "376th Pers Analysis for July 54", n.d., exhibit #1.
24. Report, "Air Training Report for the Month of July 1954, Sec J, RCS: 6-SAC-T12", n.d., hereafter cited as "376th T-12, Sec J, for July 54", n.d., exhibit #4, & footnote #10, this History.

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the aircraft maintenance field has shown steady improvement during the month of July, attributed to an import of 20 personnel and normal upgrade action.[25] Manning in AFSC 43133, and 43153 was at 83 percent by primary and 86 percent by duty AFSC. The manning in AFSC's 43151J, 43151B and 43152A was at 48 percent by primary and 14 percent by duty AFSC. In the supervisor/technician skill levels in AFSC 43170, 43171J and 43171B manning was at 90 percent by primary and 100 percent by duty AFSC, for the month of July 1954. A critical shortage of supervisor/technicians in the armament systems maintenance career field still existed within the Wing. Manning in AFSC's 32171B, 32370 and 32371C was at 13 percent by primary and seven percent by duty AFSC. Due to the low level of experience of the K-Systems mechanics, training of personnel was continuing through maximum use of the mobile training detachment and contractor technicians.[26]

CREW STATUS

There was one new B-47 crew formed during July 1954, and 10 non-ready crews became ECM combat ready. One observer was lost and one was gained while another observer was changed. Thirty-two ECM combat ready crews have been trained to a point where they could be deployed in the event of an emergency. There were 29 non-combat ready crews in training at the end of July 1954. An average of 47 B-47 crews

25. "376th T-12, Sec J, for July 54", n.d., exhibit #4, and footnote #22, this History.
26. "376th T-12, Sec J, for July 54", n.d., exhibit #4.

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were assigned for the month.[27]

On KC-97 crews, there were no excessive crew changes and/or temporary crew substitutions, no new crews formed during the month, and there were 21 crews available for training in July 1954.[28]

REENLISTMENT RATE - AWOL RATE

There were 16 expiration term of service discharges during the month of July 1954 with four reenlisting. That gave the Wing a reenlistment rate of 25 percent. There were no other types of discharges during the month.[29]

There were three airmen AWOL during the month against a total of 2420 officers and airmen assigned, for a percentage of 1.23 for the month of July 1954.[30]

CHANGES IN KEY PERSONNEL

Colonel Ralph T. Holland, USAF, was appointed Wing Director of Materiel,[31] replacing Lieutenant Colonel Wendell D. Lack, USAF, who was assigned duty as Chief of Maintenance.[32] Major Carl F. Funk, USAF, who had been Chief of Maintenance, was reassigned to the 376th Field Maintenance Squadron,[33] where he assumed command of the Squadron.

27. "376 T-12, Sec J, Jul 54", n.d., exhibit #4, & chart, exhibit #5.
28. "376 T-12, Sec H&I, Jul 54", n.d., exhibit #4a, & chart, exhibit #5.
29. "376th Pers Analysis for July 54", n.d., exhibit #1.
30. Ibid, and chart, exhibit #6.
31. PAM 38, Hq 376 Bomb Wing, 22 July 54, files, 376th Bomb Wing.
32. Ibid.
33. SO 122, Hq 376th Bomb Wing, 22 Jul 54, files, 376 Bomb Wing.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	HOLLAND, RALPH T.	Colonel
Director of Personnel	SHELTON, DONALD L.	Major
Director of Special Tests and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	LACK, WENDELL D.	Lt Colonel
Chief of Intelligence	GARCIA, JOSEPH M.	Captain
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron	LOLLAR, CLARENCE L.	Lt Colonel
513th Bomb Squadron	ABRAMS, JAMES S.	Lt Colonel
514th Bomb Squadron	WEDDLE, OWEN A.	Lt Colonel
376th Air Rflg Sq	COPLEY, ROBERT E.	Lt Colonel
376th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th Armt & Elec Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

During the month of July 1954 the B-47 aircraft of the Wing flew 79 hours and 15 minutes ferrying aircraft, two hours and five minutes on a fly-over at Barksdale, and 86 hours and 30 minutes for Test and Tactics, for a total of 167 hours and 50 minutes on missions ordered by higher headquarters.[34]

The Wing expended a total of 91 hours and 25 minutes during July (KC-97 time) transporting crews, ferrying aircraft, transporting General Frank A. Armstrong, USAF, Second Air Force Commander, to the Detroit Air Show, and aiding test project #1, all ordered by higher headquarters.[35]

The B-47 aircraft of the Wing flew a total of 1247 operational hours with an average of 47 crews assigned, for an average of 26 hours and 31 minutes flown per crew assigned.[36]

The KC-97 aircraft of the Wing flew a total of 628 hours and 25 minutes including test flights.[37]

STATUS OF TEST PROJECTS

Project One was completed and the final report was covered in the June History.[38]

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34. "376th T-12, Sec J, for July 54", n.d., exhibit #4.
35. "376th T-12, Sec H & I, for July 54", n.d., exhibit #4a.
36. "376th T-12, Sec J, for July 54", n.d., exhibit #4, and chart, exhibit #7.
37. Report, "Historical Report for the Month of July 1954", n.d., prep by 376th D/M, hereafter cited as "376th Maint Hist Rept for Jul 54", n.d., exhibit #8.
38. History 376th Bomb Wing for June 54, pp 7 thru 10.

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Project 1A increased five percent in completion to 85 percent, with an additional 20 hours and six minutes being flown. As reported in June, attempts were made to increase effectiveness of the jammer by reducing the swept band width.[39] The area of the rotor capacitor was reduced to one quarter its former size thus reducing the band width to approximately five megacycles. The center frequency was set between 140 and 145 megacycles to avoid interference with civilian and military aeronautical and mobile facilities. A series of flight tests were conducted to evaluate the narrower sweep. Two KC-97 aircraft, one simulating a bomber and the other simulating a fighter were flown at a fixed separation of a predetermined course from the ground station, at 10,000 feet with separations from 10 to 20 miles. Results were not satisfactory. Effective jamming was usually not obtained until the fighter was between 80 and 100 miles from the ground station. Further details are covered in the Report.[40]

Project 1X increased one percent to 32 percent of completion. Tuning capacitors for both the receiver and transmitter were being constructed by the WAC Engineering Co., of Dayton, Ohio. Little progress on this project was anticipated until the capacitors were delivered. Experimentation continued utilizing existing noise strips and conventional methods of modulation. Plate modulation proved to

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39. History, 376th Bomb Wing for June 54, pp 7 thru 10.
40. Report, "376th Bomb Wing, Medium, Test and Development Program RCS: SAC-U30)", 2 Aug 54, hereafter cited as "376th U-30 for July 54", 2 Aug 54, exhibit #9.

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be unsatisfactory due to the inability of the modulation transformer to pass the necessary supersonic frequencies. Heising Modulation appears to be the most efficient method of modulation available, however, tests were inconclusive due to the lack of a suitable power supply. A regulated DC supply is being constructed.[41]

Project Six remained the same as in June[42] due to personnel requirements for Project "Blue Cradle" causing a suspension of work on Project Six.[43]

Project 10 remained the same as in June 1954.[44]

Project 15 increased one percent to 66 percent of completion. Tests mentioned in June's Report were completed at Eglin Air Force Base. Results were covered in the Report.[45]

Project 15-6 increased seven percent to 35 percent of completion with four hours being flown for a total of 25 hours and 25 minutes. A total of 180 ALT-6 systems were on hand.[46] After exhaustive ground testing it was concluded that a sweep speed of 15 megacycles per second was the most effective and should be used on initial flight testing of B-47 type aircraft.[47]

Project 25 remained at the same stage of completion with 10 hours more being flown. The final report was delayed in order to include

41. "376th U-30 for July 54", 2 Aug 54, exhibit #9.
42. History 376th Bomb Wing for June 54, page 11.
43. "376th U-30 for July 54", 2 Aug 54, exhibit #9.
44. Ibid.
45. Ibid.
46. Ibid.
47. Attachment #1, to exhibit #9, this History.

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last minute changes. The AT-190B antenna was mentioned as being structurally unsuitable in the June History.[48] The antenna was modified by placing a cork strip on each side of the center steel rod to prevent the outer shell from vibrating against the steel rod and fracturing. Flights were performed up to optimum altitude and maximum airspeed with success. Further tests were to be made.

The helix antenna mounts seem satisfactory now that a putty like compound called "duck soup" was used to fair the leading edge of the mount with the skin of the aircraft. When the compound hardens it prevents the chaff from lodging between the two surfaces.

The tape jam of the ALE-1 strippers seemed to be eliminated with the use of a new chaff chute bracket, engineered by Douglas Aircraft Company. Three missions were flown without any apparent tape jamming.

Other difficulties were also noted: Chaff was blowing back into the cradle and bomb bay due to insufficient suction of the venturi. That was corrected by installation of a metal flange on the leading edge of the venturi. Two subsequent flights showed no evidence of chaff in the cradle or bomb bay.

The electronic equipment check out in the cradle was hindered by numerous wiring discrepancies found on the cradle and the aircraft. The turn around cradles and aircraft are being functional tested at the Douglas Aircraft Company to correct these discrepancies.[49]

48. History 376th Bomb Wing for June 54, page 14.
49. "376th U-30 for July 54", 2 Aug 54, exhibit #9.

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Project 26 "Fatima" was completed. The purpose of "Fatima" was to determine whether certain substances can be used tactically as radar screening mediums more efficiently than chaff. Through tests it was determined that sulphur dioxide was the main substance producing an echo on the "S" and "X" band radars. The echo produced by the gas did not compare with that of an equal weight of chaff, was not as intense, as large, nor did it persist as long as the chaff echo. It was recommended that the problem be turned over to a University or Research Agency equipped with facilities and technical personnel to exploit that and like phenomenon to their fullest since the present weight and volume of gas required to produce radar targets by this method would be prohibitive for use in modern bombardment aircraft.[50]

Project 27 increased five percent to 40 percent of completion, with an additional 14 hours and 43 minutes being flown. Due to poor weather and high Mach on the 9th of July, station keeping was poor, resulting in a poorly flown formation and consequent poor chaff corridor. Generally, most of the radar had little difficulty in tracking the sowing aircraft and the fly-over aircraft because of the poor corridor. Weather on the mission was poor at flight altitude with build-ups along the entire course. No chaff malfunctions were reported. The rate of fall of the bottom of the chaff was about 700 feet per minute. The rate of fall of the top was about 500 feet per minute.

50. Report, "Final Report Test Project 26 'Fatima'", 5 July 54, files, D/CTT, 376th Bomb Wing.

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At one time the top of the chaff was reported to be at 41,000 feet. The chaff corridor flown on the 21st of July at 35,000 feet was much more successful. Only one fly-over aircraft was seen on the FPS-3 radar and then only at intervals for about twenty miles, after which it was lost. The CPS-6 did not see any of the fly-over aircraft. The MSQ-2 seemed to have better ability in finding and tracking aircraft than the M-33, which was able with slight difficulty to track all aircraft that it acquired. The chaff didn't affect automatic tracking until maximum range was approached. MSQ-2 and M-33 radars along the beach were not able to acquire the aircraft although they were warned of their approach. One of several things that was determined was that chaff does not give the formation any appreciable aid from being tracked by gun laying radars after the gun layer locks on. The Air Proving Ground Command recommended that a night chaff corridor test be flown in August.[51]

Auxiliary Project Five remained at five percent of completion. Necessary equipment for this test has not been obtained. Two additional IFF transponders BC-966 have been obtained. This equipment is rather old and will have to be thoroughly checked before use. A total of three of them are now on hand. By using one for spare parts, two can probably be placed in good condition. A ground station interrogator-responser TC-127A or CPA-1, has been obtained for use with the airborne transponder. This equipment is brand new but is short a few

51. "376th U-30 for July 54", 2 Aug 54, exhibit #9.

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items necessary for operation. Efforts are being made to obtain the necessary parts.[52]

Auxiliary Project Six increased one percent to 18 percent of completion. Construction was started on 12 oscillator amplifier units for the jammer. At present time tube sockets and 14 tuning condensors have been mounted. Further work is delayed awaiting parts from supply. A search was made for a suitable power supply to be used with the oscillator-amplifier units. It was impossible to find a stock power supply capable of supplying the proper voltage and current. Necessary parts for construction of this power supply have been ordered.[53]

Auxiliary Project 12 remained static during July due to the project officer assisting with "Blue Cradle".[54]

Auxiliary Project 13 remained the same during July due to the project officer assisting with "Blue Cradle".[55]

Auxiliary Project 14 was delayed due to project officer assisting in tests on Project 15-6.[56]

Auxiliary Project 15 increased 22 percent to 98 percent of completion. Two KC-97F aircraft are completely modified except for interphone system. The delay is the non-availability of the interphone control box. This item is on back order by supply and it will be installed as soon as it becomes available. Both aircraft have been

52. "376th U-30 for July 54", 2 Aug 54, exhibit #9.
53. Ibid.
54. Ibid.
55. Ibid.
56. Ibid.

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flown on numerous tests with no reported deficiencies noted.[57]

Auxiliary Project 18 increased one percent to 29 percent of completion. Previous to this month, the building of a VHF Sweep Jammer using an increductor has progressed to the point where a variable frequency jammer had been built. A potentiometer on the front panel could be used to set the frequency at any point within its 100 to 130 mc range with power output between 50 and 80 watts. To obtain a linear wave for sweeping the increductor the unregulated power supply used for the control tubes had to be improved. A regulated power supply was added to the existing 750 volt supply. Two PA2 type voltage regulators were used giving a 300 volt regulated output at 55 ma. A sweep circuit using a 6J6 and 6U8 type tubes was built. These tubes were tried in several circuits in an attempt to generate and deliver a linear current wave to the increductor control winding. The present circuit, which is the best of any tried so far, utilized a free running multivibrator for the basic sweep frequency. The output is integrated and amplified by a pentode. The signal then goes through a cathode follower to the control tubes and from there to the increductor. Fairly linear sweeps have been obtained with this circuit. Sweep rates from 200 to 1500 cycles per second and sweep ranges from 10 to 30 megacycles are possible.[58]

Auxiliary Project 20 was initiated on 1 July 1954, titles "Use of Land Camera for Navigation with APS-23". By the end of July it was

57. "376th U-30 for July 54", 2 Aug 54, exhibit #9.
58. Ibid.

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19 percent complete with eight hours having been flown. The proposed system would require an aircraft's navigational radar to be on the air for only a few seconds out of every 20 to 30 minutes. The technique involves dead reckoning or celestial navigation by the navigator between predetermined check points. When the area of the check points is reached the navigational radar is placed ON, adjusted, and a picture taken of the indicator face with a Polaroid Land Camera attachment. The radar is then immediately returned to STANDBY. After one minute the navigator may remove the finished positive print from the camera, and with the use of his map and proportional dividers, determine his exact position. The W-3 camera, because of its size and physical characteristics, was impractical to mount in the B-47 aircraft. Instead, a mission was simulated on the T-2 Ultrasonic Trainer, and results showed that navigation by means of pictures is possible. A 610 nautical mile flight showed an error of only four miles.[59]

Auxiliary Project 21, "Infra-red Station Keeping Device", was initiated 30 June and by the end of July was 17 percent complete. The station keeping problem is being analyzed for the B-47 aircraft. Due to the severe limitations of space and the complexity of existing equipment in the aircraft, a station keeping system which is physically small and simple to operate is being sought. In addition, the system must not increase the aircraft's susceptibility to passive homing and

59. "376th U-30 for July 54", 2 Aug 54, exhibit #9.

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detecting devices. Because of the urgency of obtaining a suitable system no attempt will be made to design an overall system which will meet all the desired requirements. Instead an intensive survey will be made of all known existing systems which may be adapted to the problem to determine their suitability.[60]

Auxiliary Project 22 "Effectiveness Test of VHF Jammer AN/ALT-7", was initiated on 12 July 1954 and by the end of the month was at 18 percent of completion. The transmitter (AN/ALT-7) was received for installation in B-47 aircraft. It was designed for operation from 24 to 170 megacycles as either a spot jammer or as a sweep jammer with ability to sweep a band of approximately 10 percent of the center frequency. Facilities are included in the transmitter for either noise modulation or CW. This transmitter may be operated against communications or radar within its frequency band using appropriate antennas where available. It was determined that there is no existent antenna suitable for mounting on the B-47 aircraft to cover frequency from 85 mc down. Arrangements have been made to secure from the British Government a number of whip antennas such as those used on their jet aircraft. They are somewhat more flexible and are of a stepped diameter design similar to the shafts of some types of golf clubs. These will be tested if the whip types presently available fail mechanically. Informal arrangements have been made with WADC to conduct VSWR tests and radiation pattern test if the antenna proves to be mechanically

60. "376th U-30 for July 54", 2 Aug 54, exhibit #9.

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feasible.[61]

Project "Operational Test of AN/APS-54", was initiated on 18 June 1954 and by the end of July was at 85 percent of completion with 22 hours flown. The AN/APS-54 was a small receiving set designed to afford an aircrew positive warning that their aircraft is being tracked by gunlaying radar, whether airborne or ground controlled. The APS-54 is designed to preclude an electronic surprise attack by providing warning information that the aircraft is under surveillance. Knowledge that the aircraft is under surveillance should enable an aircrew to initiate active evasive action and countermeasures only when necessary. The ability to determine when enemy gunlaying radars have acquired the aircraft will increase the effectiveness of presently known techniques and tactics. Such advance warning and acquisition of intelligence should reduce crew fatigue and improve morale. A test program to determine the effect of electronic radiation on the APS-54 emanating from parent or accompanying aircraft was conducted between 18 June and 23 July 1954. The program also included an operational shakedown against gunlaying radar on 23 July 1954. When settings were made on the AN/APS-54 so that warning circuit was not triggered by electronic emissions of parent and accompanying aircraft, no readable intelligence was obtained on six runs against the MSQ-2 even though the time of "lock on" and "break lock" was known.[62]

Project "Runway Reflector" increased from 50 to 100 percent of

61. "376th U-30 for July 54", 2 Aug 54, exhibit #9.
62. Ibid.

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completion. The reflector construction was completed. Operational suitability tests will be conducted in the near future. The 376th Bombardment Wing operations section will have the B-47 crews make periodic checks on the reflector to determine its effectiveness as an aid in locating the runway during IFR conditions.[63]

Project "ARC-21 Radio Equipment Installation" was initiated on June fifth and by the end of July was five percent complete with 16 hours having been flown. One aircraft was modified with the ARC-21 equipment installed. Ground checks and flight tests proved the installation to be satisfactory. Enough equipments were available to modify the remaining aircraft assigned, but the project was delayed. The delay was the result of having to transfer six ARC-21 sets to MacDill Air Force Base, Florida., and ten sets to Carswell Air Force Base, Texas, to support project "Big Eva". The ARC-21 set installed in KC-97G #912 was still being evaluated.[64]

63. "376th U-30 for July 54", 2 August 54, exhibit #9.
64. Ibid.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of July 1954 the Wing had 48 B-47's assigned and possessed and 22 KC-97's assigned and possessed,[65] which was the same as during June 1954.[66] The B-47 aircraft flew a total of 1281 hours,[67] (202:40 hours less than in June),[68] giving a figure of 26:36 hours flown per possessed aircraft,[69] which was 4:19 hours less than in June 1954.[70] The KC-97 aircraft flew a total of 628:25 hours,[71] (53:25 hours less than in June 1954),[72] giving a figure of 28:34 hours flown per possessed aircraft,[73] which was 2:25 hours less than in June 1954.[74]

The in-commission rate on B-47 aircraft in July was 68:68 percent,[75] which was 8.58 percent lower than in June;[76] while on KC-97 aircraft the July figure was 68:45;[77] which was 5.34 lower than in

65. Report, "Historical Report for the Month of July 1954", n.d., prep by D/M, 376th Bomb Wing, hereafter cited as "376th Maint Hist Rept for July 54", n.d., exhibit #8, & chart, exhibit #10.
66. History 376th Bomb Wing for June 54, page 26.
67. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8.
68. History 376th Bomb Wing for June 54, page 26.
69. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8, and chart, exhibit #11.
70. History 376th Bomb Wing for June 54, page 26.
71. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8.
72. History 376th Bomb Wing for June 54, page 26.
73. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8, and chart, exhibit #11.
74. History 376th Bomb Wing for June 54, page 26.
75. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8, & chart, exhibit #12.
76. History 376th Bomb Wing for June 54, page 26.
77. "376th Maint Hist Rept for Jul 54", n.d., exhibit #8, and chart, exhibit #12.

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June 1954.[78] The AOCP rate for B-47 aircraft in July was 17.72 percent,[79] an increase of 2.39 percent over June;[80] while on KC-97 aircraft was 15.27 percent in July,[81] which was 2.39 lower than in June 1954.[82] The ANFE rate for both types of aircraft during June and July was 100 percent.[83]

The direct manhours expended per flying hour on B-47 type aircraft during July was 39.3 hours,[84] an increase of 7.8 hours over June;[85] while on KC-97 aircraft the July figure was 24.7 hours,[86] an increase of 5.5 hours over the June figure.[87] Maintenance manhours expended during July were: 87,013 direct manhours, 117,730 indirect manhours, 6,835 overtime manhours, 11,067 hours expended for passes, and 59,654 manhours listed as absent time - from a total of 197,898 available manhours.[88]

There were approximately 145 component parts changed on B-47 aircraft during July,[89] against 85 changed during June;[90] and 48

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78. History 376th Bomb Wing for June 54, page 26.
79. "376th Maint Hist Rept for July 54", n.d., exhibit #8, and chart, exhibit #13.
80. History 376th Bomb Wing for June 54, page 26.
81. "376th Maint Hist Rept for July 54", n.d., exhibit #8, and chart, exhibit #13.
82. History 376th Bomb Wing for Jun 54, page 26.
83. "376th Maint Hist Rept for July 54", n.d., exhibit #8, and History 376th Bomb Wing for Jun 54, page 26, & chart, exhibit #12.
84. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
85. History 376th Bomb Wing for Jun 54, page 26.
86. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
87. History 376th Bomb Wing for Jun 54", page 26.
88. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
89. Ibid.
90. History 376th Bomb Wing for Jun 54, page 26.

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changed on KC-97 aircraft in July,[91] against 35 for June.[92] The Wing quality control unit inspected four KC-97 and eight B-47 type aircraft processed through the Wing maintenance docks. The unit supervised 18 KC-97 type aircraft and 15 B-47 type aircraft test flights during the month. There were 304 unsatisfactory reports submitted during July 1954.[93]

The number of engines changed during July increased to nine,[94] over five for June,[95] on B-47 type aircraft and decreased from 252 for June to 249 in July on KC-97 type aircraft.[96]

There were 41 malfunctions in July,[97] a decrease of three from the June figure.[98] Of these, 32 were on B-47 aircraft: Bombing systems had 12, three due to maintenance personnel - eight due to material failure - and one due to other causes; communications system had one due to material failure; power plant systems had two due to material failure; and there were 17 aircraft general malfunctions, five of which were due to maintenance personnel and the remaining 12 due to material failure. Nine were on KC-97 aircraft: Air refueling systems had three due to material failure; power plant systems had four - one due to aircrew and three due to material failure. The remaining

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91. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
92. History 376th Bomb Wing for June 54, page 27.
93. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
94. Ibid, and chart, exhibit #14.
95. History 376th Bomb Wing for June 54, page 27.
96. Ibid, and "376 Maint Hist Rept for Jul 54", n.d., exhibit #8.
97. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
98. History 376th Bomb Wing for June 54, page 27.

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two KC-97 malfunctions were on propellor and aircraft general systems,[99] both due to material failure.

MAINTENANCE TRAINING ACTIVITIES

Eight airmen, AFSC 30230, from MacDill Air Force Base reported to the 376th Armament and Electronics Maintenance Squadron (A & E Squadron) for training in ECM equipment for the Phase III configuration on B-47 aircraft. They and six men from the 376th A & E Squadron were given training for a total of 126 hours.[100] The training included actual work on B-47 aircraft such as loading chaff and preflight of equipment. Shop work included instruction on cable-making, including antenna cables for the AN/ALT-6. As of the end of July, a total of 64 academic hours were completed.[101]

The airmen mentioned above received training on the theory of operation of the ALT-6 power supply, radio transmitter, control and indicator operation, and practical field methods of trouble shooting, set-up procedures and methods of testing, and all safety features.[102]

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99. "376th Maint Hist Rept for July 54", n.d., exhibit #8.
100. Broken down: AN/ALT-6 (all phases) - 32 hours, AN/ALT-7 (all phases) - 22 hours, AN/APS-54 - 15 hours, AN/ALE-1 - 15 hours, SAC procedures (outline) - 4 hours, test equipment - 8 hours, Shop practices - 10 hours, Antennas - 4 hours, AN/ALT-8 (outline) - 4 hours, AN/APT-9 (review) - 4 hours, Line maintenance - 8 hours. Total - 126 hours.
101. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954", 1 Aug 54, by Nicholson, hereafter cited as "376th U-19 for July 54, 1 Aug 54, by Nicholson, exhibit #16.
102. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954", 1 Aug 54, by Lella and Ladwig, hereafter cited as "376th U-19 for Jul 54", 1 Aug 54, by Lella & Ladwig, exhibit #17.

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Three men from the autopilot section were attending a course on the A-12D Gyropilot. Due to their limited background, instruction was also given in static electricity, series circuits, parallel circuits, transformers, ohms law, power, resistor color coding, electrical symbols and electron tube theory. Fifty one hours of instruction was given on the A-12D Gyropilot.[103]

Four 20 hour classroom courses were given to the majority of the K-system mechanics. Classes were conducted in these courses during the month by field engineers from General Mills, Inc., Western Electric Co., and Sperry Gyroscope Company. With the arrival of two fly-away benches, one mockup was made available for continuous training.[104]

Eight A-5 airmen received 160 manhours of instruction in a review course of basic math and electronics, given in two classes of four men each.[105]

EQUIPMENT MALFUNCTIONS

Some malfunctions of Blue Cradle equipment occurred during the month, but are not considered significant in view of the small number

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103. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954", 1 Aug 54, by 8 Fld Engrs, hereafter cited as "376th U-19 for Jul 54", 1 Aug 54, by 8 Fld Engrs, exhibit #18.
104. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954", 1 Aug 54, by Pearson, hereafter cited as "376th U-19 for Jul 54", 1 Aug 54, by Pearson, exhibit #19.
105. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954", 1 Aug 54, by Faux and Perman, hereafter cited as "376th U-19 for Jul 54", 1 Aug 54, by Faux, exhibit #20.

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of operating hours in the air. Data will continue to be accumulated as more equipment is installed and operated, and will be analyzed in future reports.[106]

Some actuators in the ALE-1 strippers have been found with poorly soldered connections which prevented their operation. No UR action will be taken until further data is obtained.

The interim handbook of instructions on the APS-54 on page 44 states that a negative pulse amplitude of 0.13 volts is necessary to trigger the PRF multivibrator. A decimal point mistake was made in the publication. The figure should be 1.3 volts. The handbook also indicated that the PRF discriminator calibration strap was adjusted at the factory for proper calibration. Two APS-54's were selected for spot checks and the PRF discriminator calibration was found to be improper. UR's will not be submitted since the publication is an interim handbook.[107]

All of the APS-54 antennas are being checked on the line and many defective crystals are being found. (See "Special Developments", page 29, this History).

During the month there were writeups on the A-12D Gyropilot for J-2 compass inoperative, aileron chatters in turns, elevator jitter, altitude hunt, aileron jitter, rudder chatter, disengages in small turns, will not follow PDI, will not hold heading and aileron roll.

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106. "376th U-19 for Jul 54", 1 Aug 54, by Nicholson, exhibit #16.
107. "376th U-19 for Jul 54", 1 Aug 54, by Nevitt, exhibit #21.

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These malfunctions, were traced to unbalanced, mismatched and bad electron tubes.[108] Writeups were routine in nature.

MAINTENANCE ENGINEERING DIFFICULTIES

The shop test data given in the interim handbook of instructions for the APS-54 is very vague and not entirely suitable. Therefore, a different procedure was devised utilizing a UPM 15 pulse generator and a USM-24A synchroscope. The procedure was simple, accurate and time saving. The information on the test procedure will be written up later.

A definite test program is being investigated for accurate testing of the APS-54 system.[109]

The P-8 control box located to the left and slightly in back of the operator's position is very difficult to remove from the aircraft. The reason it is difficult to remove is the Adelphi clamps which hold the cannon connector AN3101A-20-27S and AN3101A-22-14P. It is almost impossible to disconnect the cannon connector without breading the Adelphi clamp. The clamp, itself, cannot be removed due to the impossibility of getting a screw driver in position to remove the screws holding it. If the Adelphi clamp were not installed, leaving the cables unclamped, the problem would be solved. (This installation would then be identical to that of the M-1 control box, which is

108. "376th U-19 for Jul 54", 1 Aug 54, by 8 Fld Engrs, exhibit #18.
109. "376th U-19 for Jul 54", 1 Aug 54, by Nevitt, exhibit #21.

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located to the left of the P-8 control box.[110]

OPERATIONAL DIFFICULTIES

Difficulties have been experienced in the operation of Blue Cradle after installation in the aircraft. These difficulties include failure of the transmitters to operate, inoperative chaff dispensers, no indication on chaff counter, erroneous indication of high voltage on transmitter control panel. In the majority of cases these difficulties have been caused by errors in the aircraft wiring for Blue Cradle. In order to locate troubles quickly and take corrective action, two test panels are in the process of construction. One panel will test the control wiring to the ECM junction box in the bomb bay and the other will test the control wiring to the ECM junction box in the ATO compartments. By means of these panels all circuits can be tested prior to the installation of the equipment. This procedure will probably continue until such time as the aircraft are cleared of all discrepancies; later these panels will be used as a part of periodic maintenance and whenever troubles recur. This report of last month mentioned a test panel for the cradle, to be used in the shop to run up all equipment installed on the cradle. One of five projected panels has been constructed and has been used to good effect. In fact a panel or console of this type is essential to

110. "376th U-19 for Jul 54", 1 Aug 54, by Pearson, exhibit #19.

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operation of Blue Cradle. It was originally intended to include drawings of this panel and other details in this report, but changes in the design of the panel has made it impossible to prepare them in time for this report. Since all three panels will be extensively used during August, the next report should present an evaluation of these panels with schematics. Since one panel is specifically designed for the ATO compartment, this information will be given to the personnel on TDY training with the 376th A & E Squadron.[111]

Line and shop tests which are being conducted on the APS-54 equipment, indicate that a large number of APS-54 systems are either inoperative or operating at very low efficiency. It appeared that most of the equipment would require calibration of the PRF discriminator, crystal detector replacements in the antenna assembly and sensitivity readjustment.[112] (Further data in par IX, exhibit #21, this History).

Since the June report, a few additional cases where the periscope clam shell dome cover on B-47E turnabout aircraft could not be opened after the aircraft became airborne. This was caused by interference between the aircraft fairing skin and the ring gear of the clam shell mechanism. This condition occurred only in flight and was attributed to pressure produced by inflight air resistance forcing the fairing against the ring gear thereby preventing the hand crank

111. "376th U-19 for Jul 54", 1 Aug 54, by Nicholson, exhibit #16.
112. "376th U-19 for Jul 54", 1 Aug 54, by Nevitt, exhibit #21.

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from turning the ring gear. It was found that the channel around the upper portion of the stationary dome cover was spread out and the moveable cover was striking this channel. It was recommended that the airplane manufacturer should provide greater clearance between the cowling and this mechanism. Action Taken To Correct: The malfunctions were corrected by removing the fairing and trimming off the forward edge of the stationary dome to allow clearance for the moveable cover.[113] UR numbers 376BW-54-1234 and 376BW-54-1236 were submitted.

SPECIAL DEVELOPMENTS

Tests were being conducted during the month to determine the condition of the crystal detectors in the antenna assemblies. Tests so far indicate that a large percentage of the antenna installations are defective (over 40 percent) either due to crystals or antenna cables.

Tests will be made to determine the amplitude of the antenna crystal current that exists when radar equipment on the aircraft and on adjacent line aircraft is operative.

The data from the above tests will be analyzed to determine the contributing factors of the crystal failures and the degree of crystal protection necessary. Mr. Nevitt, field engineer for the Philco Corporation conceived a protective circuit which he believes will eliminate the cause of the crystal failure. Additional data on this

113. "376th U-19 for Jul 54", 1 Aug 54, by Pearson, exhibit #19.

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development will be reported during August.[114]

During the month of July a new AN/AIC-10 mock-up was completed and put into operation. As soon as final diagrams and pictures of this mock-up have been completed and they will be forwarded as requested by Second Air Force.[115]

Both the J-2 and the N-1 compass mock-ups are now operational and tied into the A-12D Gyropilot mock-up.

Since the mockup has been brought close to completion several modifications have been decided upon. It is hoped that these modifications intended to improve the mock-up will be completed before the end of August.

The initial plans have been made for a B-18 amplifier checker for the field shop. In lieu of a tube tester, the checker will compare the output voltages of the Sperry type 6AQ5's in each channel. There also will be provisions for checking the turn motor, cross-feed modulator, bank integrator, altitude control, and compass amplifier sections of the B-18 amplifier.[116]

GENERAL REMARKS

Tests of the ARN-14 antenna system aboard our B-47 aircraft were not completed during the month of July as previously anticipated. Prior committments precluded making these tests but every effort will

114. "376th U-19 for Jul 54", 1 Aug 54, by Nevitt, exhibit #21.
115. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954"k 1 Aug 54, by Fritsch, hereafter cited as "376th U-19 for Jul 54", 1 Aug 54, by Fritsch, exhibit #22.
116. "376th U-19 for Jul 54", 1 Aug 54, by 8 fle engrs, exhibit #18.

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be made to have them completed during the month of August.

During the month of July, RCA field service representatives assisted us in building a mock-up for the AN/ARC-21 equipment. This mock-up is now complete with the exception of the AIC-10 components for keying and audio. However, as of this writing we are not authorized the associated test gear for the AN/ARC-21 and until such time as this test equipment is made available to us our ability to service this equipment will be limited. The test equipment referred to is the ME-75/ARC-21 Multimeter and the DA-84/ARM-6 Dummy Load.[117]

117. "376th U-19 for July 54", 1 Aug 54, by Fritsch, exhibit #22.

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MONTHLY ANALYSIS (JULY 1954)

1. Officers Assigned during July 1954:

RANK	AFSC	NAME	AFSN
Major	(3016)	James S. Hunphrey	AO 859974
Major	(1435)	John W. Berg	AO 698447
Major	(1416)	Arthur L. Wallace	11228A
Major	(9356C)	Charles C. Dugan	19592A
Major	(1521P)	Lowell G. Phillips	18050A
Capt	(1521A)	Peter J. Chille	17231A
Capt	(3034)	Lloyd H. Bergman	AO 1644272
Capt	(6424)	Robert L. Adams	17928A
Capt	(1521)	Virgil L. Carson	AO 2032008
Capt	(1525D)	William R. Chappell	AO 2086654
Capt	(9025)	Marvin P. Odom	AO 2213629
1st Lt	(1561)	Thomas J. Bolin	AO 2098899
1st Lt	(4324)	William W. Carter	AO 944264
2nd Lt	(2051)	Donley D. Eyolfson	AO 3013384
2nd Lt	(6421)	Robert W. Shouse	AO 3009475

TOTAL: 15

2. Officers Transferred during July 1954:

a. To 301st Bomb Wing, Barksdale Air Force Base, Louisiana:

Major	(1234C)	Robert B. Brown	376 Hq Squadron
Major	(3016)	James S. Humphrey	376 Hq Squadron

b. Transferred one each as listed to: 805th Air Base Group, Barksdale Air Force Base, Louisiana, Third Strategic Support Squadron, Barksdale Air Force Base, Louisiana, Ellington Air Force Base, Texas, James Connally Air Force Base, Texas, Scott Air Force Base, Illinois, one Resignation and one released from active duty:

Capt	(1231B)	Steven G. Jones	513th Bomb Squadron
1st Lt	(1561)	Thomas J. Bolin	512th Bomb Squadron
Major	(1534A)	Henry J. Parker	376th Air Refueling Sq
Capt	(1241W)	Charles McNeilly	376th Air Refueling Sq
2nd Lt	(1231C)	Malcolm D. Quick	376th Air Refueling Sq
Major	(7016)	Marvin O. McCord	376th Hq Squadron
Capt	(9556)	Robert D. Helmer	376th Tactical Hospital

TOTAL: 9

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3. Airmen Assigned during July 1954 (By Primary AFSC):

29370	- 1	43134B	- 2	64131	- 4
30150	- 3	43154B	- 2	64151	- 7
30230	- 16	43170	- 1	64173	- 1
30250	- 7	43171B	- 2	70010	- 3
30352	- 1	43171D	- 1	70230	- 2
32351F	- 1	43171J	- 1	70250	- 1
32370	- 1	43271D	- 1	70270	- 2
33130	- 4	46150	- 1	73170	- 1
33150	- 3	46170	- 1	73270	- 1
33170	- 2	47171	- 1	90010	- 1
40350	- 1	56130	- 1	90930	- 1
40370	- 1	60310	- 1	90950	- 1
42350	- 1	62230	- 1	99015	- 3
43133	- 20	62250	- 2		

TOTAL: 108

4. Airmen Transferred and Discharged (not reenlisted) in July 1954 (By Primary AFSC):

29373	- 2	53450	- 1
30171	- 1	58010	- 1
30250	- 2	58131	- 3
43131J	- 2	60310	- 1
43151H	- 1	64151	- 2
43152A	- 1	70010	- 2
43152B	- 1	70230	- 1
43154B	- 1	70250	- 1
43156	- 1	73250	- 1
43170	- 1	90150	- 2
43271D	- 1	90670	- 1
47131	- 1		

TOTAL: 31

5. Reenlistment Rate:

No Disch - ETS	No Reenl	% Reenl
16	4	25
4 months average		33.3

Discharges by Squadron:

ETS

NAME		ORGANIZATION	
A/2C	Molnor, Joseph Jr.	376 Fld Maint Sq	
A/1C	Harper, Donald G.	376 Fld Maint Sq	
A/1C	Hood, Raymond	376 Fld Maint Sq	
S/Sgt	Landburg, Donald	376 Fld Maint Sq	(Reenl)

0042

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Discharges by Squadron (Cont'd)

T/Sgt	Oppedal, Delmar O.	376th A & E Maint Sq
A/2C	Woodrum, Claude	376th A & E Maint Sq
S/Sgt	Schaecher, William	376th A & E Maint Sq
S/Sgt	Dietzman, Ralph D.	376th A & E Maint Sq
S/Sgt	Moore, Eugene R.	376 Periodic Maint Sq
S/Sgt	Ransey, Theodore L.	376 Periodic Maint Sq (Reenl)
S/Sgt	Kasper, John T.	376 Periodic Maint Sq
A/1C	Greeven, Hal V.	376 Air Refueling Sq
S/Sgt	Fitake, Hardold A.	376 Air Refueling Sq
S/Sgt	Fine, Robert W.	512th Bomb Squadron
S/Sgt	Boone, Richard A.	512th Bomb Squadron
S/Sgt	Ward, Eugene C.	513th Bomb Squadron

6. AWOL Rate per 1000:

	Assigned	No. AWOL	Percent
Officers:	391	0	0
Airmen:	2029	3	1.48
TOTAL:	2420	3	1.23
4 months average			.85

AWOLs by Squadron:

M/Sgt	Baker	376th Hq Squadron
A/2C	Phillips	376th Fld Maint Squadron
A/3C	Mc Glothan	376th Fld Maint Squadron

7. Gains and Losses:

	No Disch & Trfd	% Auth Strength	No Asgd	% Auth Strength
Officers	9	2.26	15	3.76
Airmen	31	1.81	108	6.33

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS
376th Hq Sq	64	71	55	55	85.9	85.9
512th Bomb Sq	65	63	61	61	93.8	93.8
513th Bomb Sq	65	64	64	64	98.3	98.3
514th Bomb Sq	65	57	56	56	86.1	86.1
376 Air Rflg Sq	85	82	81	81	95.1	95.1
376 A&E Maint Sq	16	18	15	15	93.7	93.7
376 Per. Maint Sq	5	5	4	4	80.0	80.0

0043

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Effective Manning of Officers (Cont'd)

376 Fld Maint Sq	7	8	6	6	85.7	85.7
376 Tac Hosp	27	24	20	20	74.1	74.1
Consolidated MIRS						
	398	391	363	363	91.2	91.2

9. Effective Manning of Airmen:

ORGN	AUTH	ASGD	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS
376th Hq Sq	117	158	103	98	88.	83.8
512th Bomb Sq	105	158	91	55	86.7	52.4
513th Bomb Sq	105	153	87	52	82.9	49.5
514th Bomb Sq	105	151	82	48	78.1	45.7
376 Air Rflg Sq	228	251	195	161	89.9	70.6
376 A&E Maint Sq	426	451	327	239	76.8	56.1
376 Per. Maint Sq	158	181	108	99	68.4	62.7
376 Fld Maint Sq	363	438	275	262	75.8	72.1
376 Tac Hospital	98	88	79	78	80.6	79.6
TOTAL:	1705	2029	1347	1092	79.0	64.0
Consolidated MIRS						
	1705	2029		1172		68.7

% of Maximum score 10%

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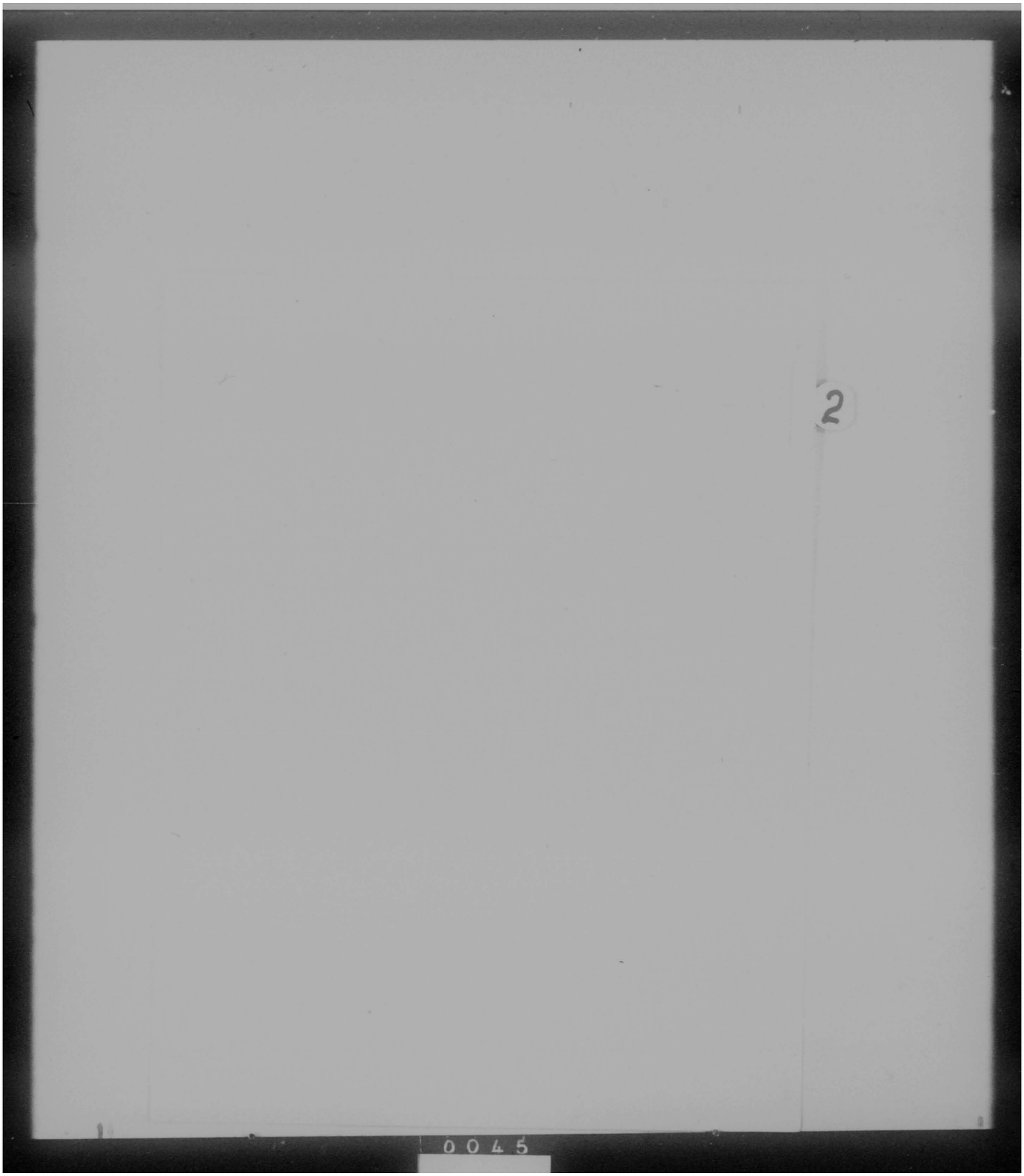

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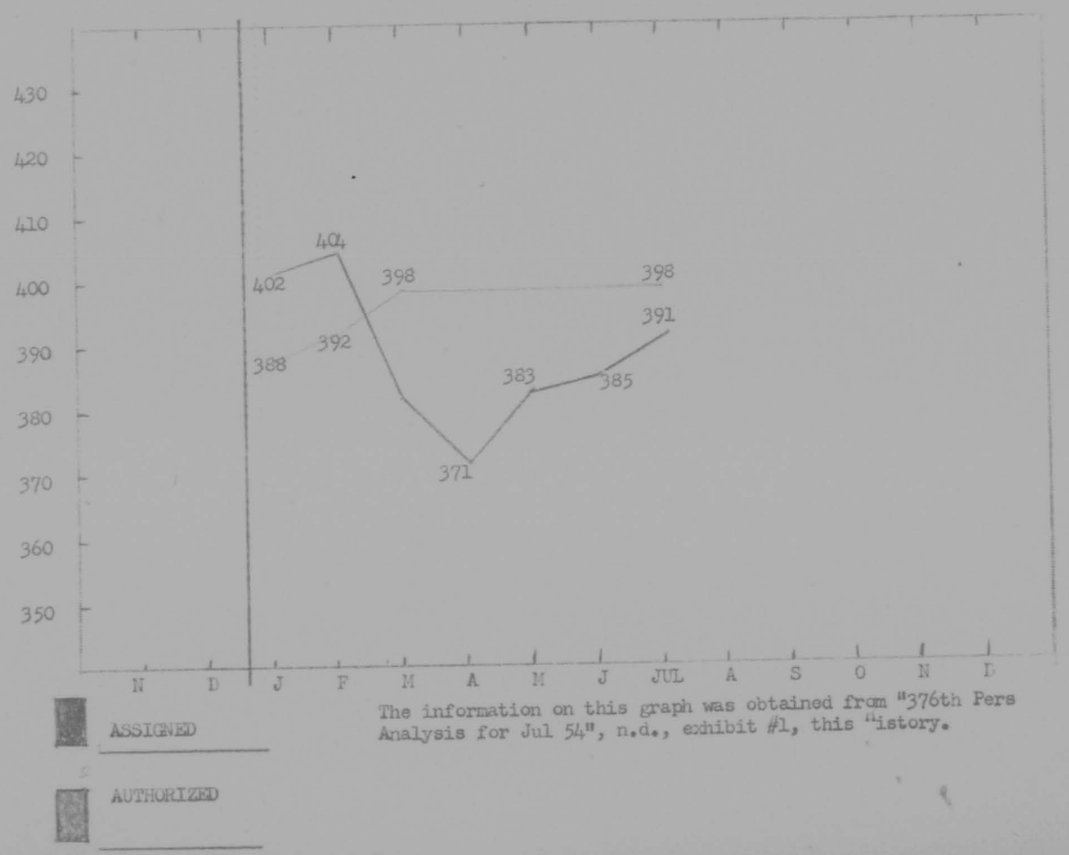

The information on this graph was obtained from "376th Pers Analysis for Jul 54", n.d., exhibit #1, this "istory.

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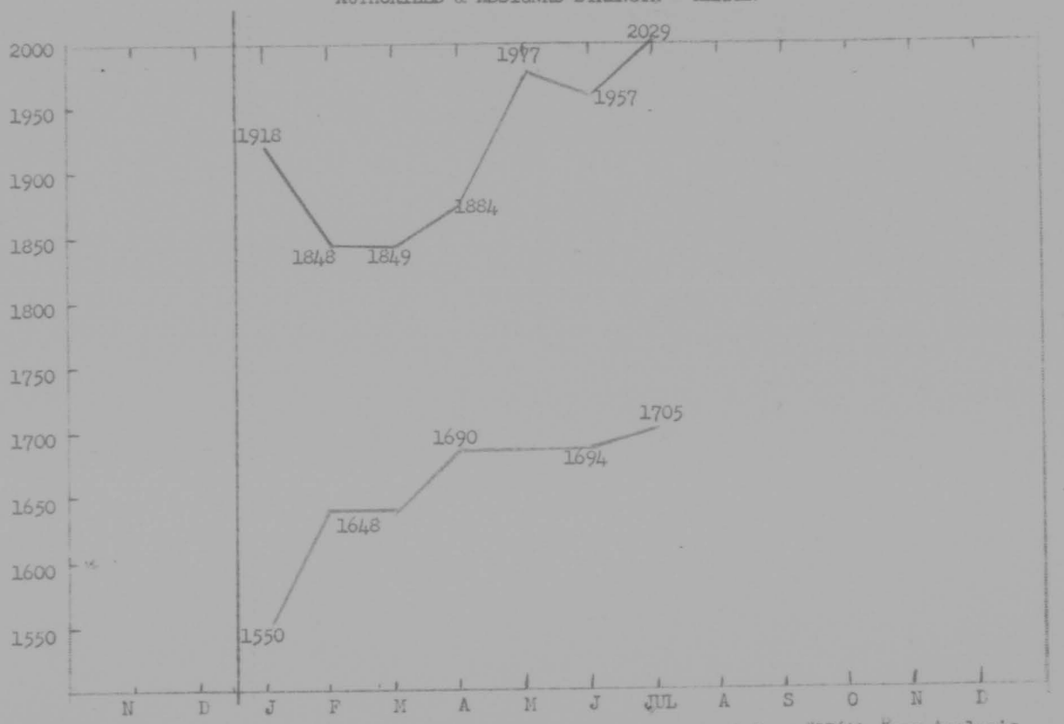

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The information on this graph was obtained from #376th Pers Analysis for Jul 54", n.d., exhibit #A, this History.

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION J

Air Training Report for the Month of July 1954
(RCS: 6-SAC-T12)

Section J:

c. Wing Commander's Remarks - Part III:

(1) Hours flown performing missions ordered by Higher Headquarters:

(a)	Ferrying aircraft	79:15
(b)	Fly-Over Barksdale	2:05
(c)	Test and Tactics	86:30
	TOTAL	167:50

(2) Weather or Local Conditions Affecting Training:

(a) None.

(3) Directives Imposed by ATC or SAC on Aircraft:

(a) An average of 6 B-47's per day were grounded at Douglas Tulsa for ECM Modifications.

(4) Combat Crew Member Gains and Losses:

(a) Gains: One Observer.

(b) Losses: One Observer (PCS ARTC).

(5) Crew Member Changes:

(a) One Observer.

(6) New Crews:

(a) N-49-AO 22 July 1954.

(7) Crew Status Changes:

(a) N-07-BO ECM Combat Ready, 29 July 1954.

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(b) N-08-AO ECM Combat Ready, 23 July 1954.

(c) N-09-AO ECM Combat Ready, 23 July 1954.

(d) N-39-AO ECM Combat Ready, 23 July 1954.

(e) N-42-AO ECM Combat Ready, 16 July 1954.

(f) N-46-AO ECM Combat Ready, 16 July 1954.

(g) N-69-BO ECM Combat Ready, 9 July 1954.

(h) N-73-AO ECM Combat Ready, 16 July 1954.

(i) N-77-AO ECM Combat Ready, 29 July 1954.

(j) N-82-AO ECM Combat Ready, 29 July 1954.

(8) Standardization Crews:

(a) N-04-AO Wing Standardization Crew

(b) N-11-AO, N-35-AO, and N-70-AO are Squadron Standardization crews

(9) Personnel and Materiel Problems:

(a) The officer effective manning has improved with the assignment of four officers in authorized AFSC, one 6421 and three 1524's.

(b) Officer manning in AFSC's 1435, 3054, 4355 and 6424 remains critically short.

(c) Manning in the Aircraft Maintenance Field has shown steady improvement during the month of July. This can be attributed to an import of 20 personnel and normal upgrade action. Manning in AFSC 43133/53 is at 83% by Primary and 86% by Duty. The manning of AFSC's 43151J, 43151B, and 43152. is at 48% by Primary and 145% by Duty. In the Supervisory/Technician skill levels in AFSC 43170, 43171J, and 43171B, manning is at 90% by Primary and 100% by Duty for the month of July.

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There was a net gain of 3 people in these AFSC's.

(d) A critical shortage of Supervisor/Technicians in the Armament Systems Maintenance Career Field still exists within the Wing. Manning in AFSC's 32171E, 32370, and 32371C is at 13% by Primary and 7% by Duty. There was a net gain of one in thes specialities during July.

(e) Due to the low level of experience of the K-System mechanics, training of personnel is continuing through maximum use of MTD and Contractor Technicians.

(10) SAC Minimum Training Requirements:

(a) Not applicable.

(11) Special Training Month:

(a) Not Applicable.

(12) Field Training Operations:

(a) None.

(13) Non-Combat Ready Crews that could be used in case of an emergency:

(a) Thirty-two ECM Combat Ready Crews have been trained to a point where they could be deployed in event of an emergency.

(14) Non-Combat Ready Crew Training:

(a) Thirty-nine non-combat ready crews were in training at the end of the month.

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Wing Commanders Remarks for the Month of July

(15) Comments or Recommendations of the Wing Commander:

(a) Fuel cell leaks required an excessive expenditure of man hours. Twenty-eight B-47 fuel leaks required 1499 maintenance man hours. This is a slight increase, in the number of fuel leaks encountered, compared to last month. Approximately the same number of manhours were expended this month compared to the previous month. SAAMA has furnished assistance with fuel cell repairs; however, this assistance did not arrive until 27 July 1954.

(b) Excessive aircraft days were lost in the Periodic Inspection Back Line. An average of thirteen aircraft days were expended per B-47 Periodic Inspection. An average of six days of the thirteen days were awaiting parts.

(c) Supply continued as a limiting factor in the production of flying hours during the month of July with an increase in the B-47 AOCP rate over the previous month.

(d) The AOCP rate for B-47 was 17.884. Recurring items were:

1	Canopy Seal	(1A7E-5-32234-504)	6 each
2	Spider	(1A7E-9-20806)	4 each
3	Cooling Unit	(4577-18401-1)	4 each

(e) There was no appreciable equipment difficulties except for a shortage of high pressure air chucks. These are expected momentarily.

(f) A considerable shortage of aircraft was evident during the month. Shortage was caused by modification project "Blue Cradle". An average of eight aircraft per day was required on this project.

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Wing Commanders Remarks for the Month of July

(g) There still exists a shortage of 7 level personnel on the line as well as in Armament & Electronics Squadron. Personnel overages continue in the lower or 3 level skill.

(h) Squadrons have an extensive OJT program and the 3 level personnel are being upgraded to the 5 level. This program does require time as the personnel must first be awarded 5 level before OJT to the 7 level.

(i) The average number of crews assigned during July was 47. A total of 1247 hours were flown by the above crews for an average of 26:31 hours per crew.

(j) The average number of possessed aircraft during July was 43. The average flying time per aircraft was 29:00 hours.

(k) In compliance with paragraph 8b, SAC Regulation 50-43, unit crew training charts are attached as inclosure.

Robert T. Calhoun

ROBERT T. CALHOUN
Colonel, USAF
Commander

1 Incl
50-43 Trng Charts

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION I

Air Training Report for Month of July 1954
(RCS: 4-SAC-T12)

1. Supply continued as a limiting factor in the production of flying hours during the month of July. The AOCP rate for the KC-97G aircraft was 15.32% in July.

2. The crowded conditions in the Air Refueling Squadron will be alleviated within the next 60 days. Additional space will be made available to the Air Refueling Squadron as soon as the tactical squadrons move into their new locations in the remodeled hangars.

3. An average of 21 crews were available for training; they flew 633 hours for an average of 30 hours per crew.

4. An average of 22 aircraft were assigned during the month. The average time per assigned aircraft was 28:47 hours.

Robert T. Calhoun
ROBERT T. CALHOUN
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM (SAC)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

SECTION H

Air Training Report for the Month of July 1954
(RCS: 4-SAC-T12)

SECTION H:

a. Hours flown performing missions ordered by higher headquarters: Total time: 91:25.

(1) Transported three crews to Renton, Washington and return time: 16:00.

(2) Three crews ferrying aircraft from Renton, Washington and return time: 28:30.

(3) Aircraft to Olmstead AFB, Pa., and return - test project directive # 1 time: 10:00.

(4) Aircraft to Oklahoma City, Oklahoma, and return: cargo time: 5:5[illegible]

(5) Aircraft to Detroit, Michigan and return - General Armstrong to Air Show. Time: 6:55.

(6) Test Project Directive # 1 - Local time: 24:10.

b. Weather and local conditions affecting training:

(1) None.

c. Restrictions by AMC or SAC on aircraft:

(1) None.

d. Excessive crew changes and/or temporary crew substitutions:

(1) Crew changes and/or temporary crew substitutions were not excessive.

e. Crews formed during the month:

(1) None.

f. Crew status changes for the month of July 1954:

(1) M-10-BO to T-10-BO 21 July 1954.

(2) T-14-CO to M-14-DO 21 July 1954. Aircraft Commander transferred and replacement not checked out under SAC 51-19.

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376.AREPS Commander's Remarks of Air Training Report for month of July 1954 (RCS: 4-SAC-T12) (Continued)

g. Squadron Standboard Crew:

(1) T-02-AO.

h. Remarks on material and personnel problems which adversely affect training accomplishments:

(1) AOCP status decreased slightly over the previous month – a decrease from 17.64% in June to 15.32% in July.

Recurring items were:

(a) Pressurtrol (4406-P6700048) six each.

(b) A continued shortage exists for serviceable A-11 hack watches and master watches.

(c) SAC Manual 50-3 does not provide for a temperature variance on long range cruise missions which results in a long range capability of less than 100% in respect to per cent variance. Revisions to this manual should be made to include temperature departure.

i. During the quarter ending July 1954, there were shortages in 50-8 training minimums in the following catagories: Navigation, long range cruise control missions and pilot proficiency . The squadron has been flying the majority of its alloted time on Air Refueling Missions in order to give maximum support to the parent wing which is in the B-47 check out phase. A total of 665 wet hookups and 3198 dry hookups were accomplished during the quarter. One hundred seventy two (172) hours of transition with instruction was flown during the quarter to expedite the checkout of new crews and replacement personnel. This time curtailed the pilot proficiency training considerably.

j. Coments or recommendations by Squadron Commander: The deplorable crowded condition of the Squadron Operations still exist as mentioned in the SAC inspection report. This creates a severe handicap in respect to operational and administrative effectiveness.

k. The following information is submitted as required by Change 2, Supplement V, SAC Regulation 50-25:

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-02-AO	X	X	X				X		X	X
T-03-DO	X	X	X	X		X	X		X	X
T-04-AO	X	X	X	X		X	X		X	X
T-05-DO	X	X	X				X		X	X

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376AREFS Commander's Remarks of Air Training Report of Month of July 1954
(RCS: 4-SAC-T12) (Continued)

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-06-EO	X	X	X				X		X	X
T-07-AO	X	X	X	X		X	X		X	X
T-08-EO	X	X	X				X		X	X
T-09-BO	X	X	X				X		X	X
T-10-BO	X	X	X				X		X	X
T-11-BO	X	X	X				X		X	X
T-12-CO	X	X	X				X		X	X
T-13-BO	X	X	X	X		X	X		X	X
T-14-EO	X	X	X				X		X	X
T-15-CO	X	X	X	X		X	X		X	X
T-16-CO	X	X	X	X		X	X		X	X
T-17-EO	X	X					X		X	X
T-18-AO	X	X	X	X		X	X		X	X
T-19-BO	X	X	X				X		X	X
T-20-BO	X	X	X				X		X	X
T-21-DO	X		X	X		X	X			
T-22-CO	X	X					X		X	

Jack E Womack
JACK E WOMACK
Major, USAF
Commander

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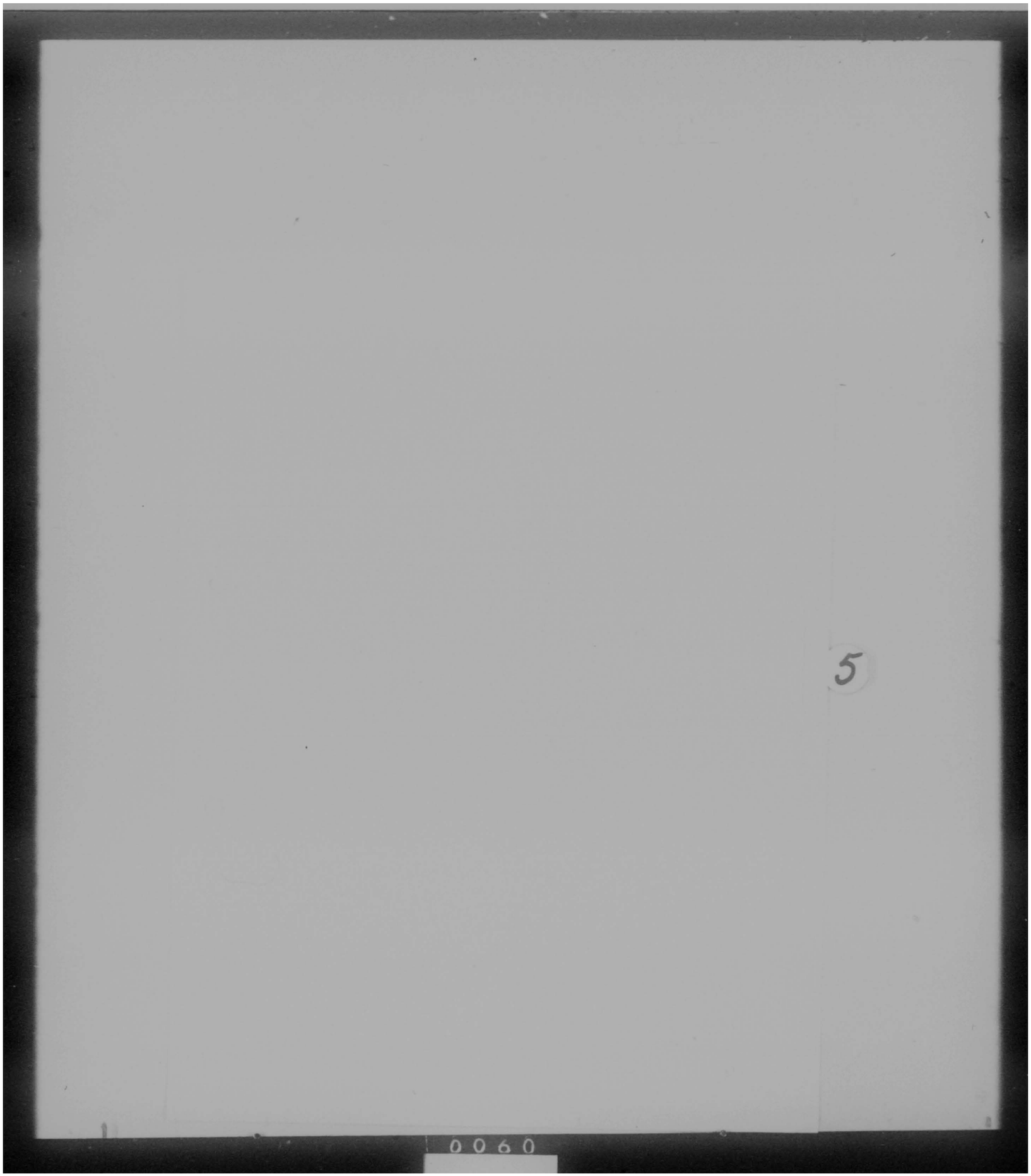

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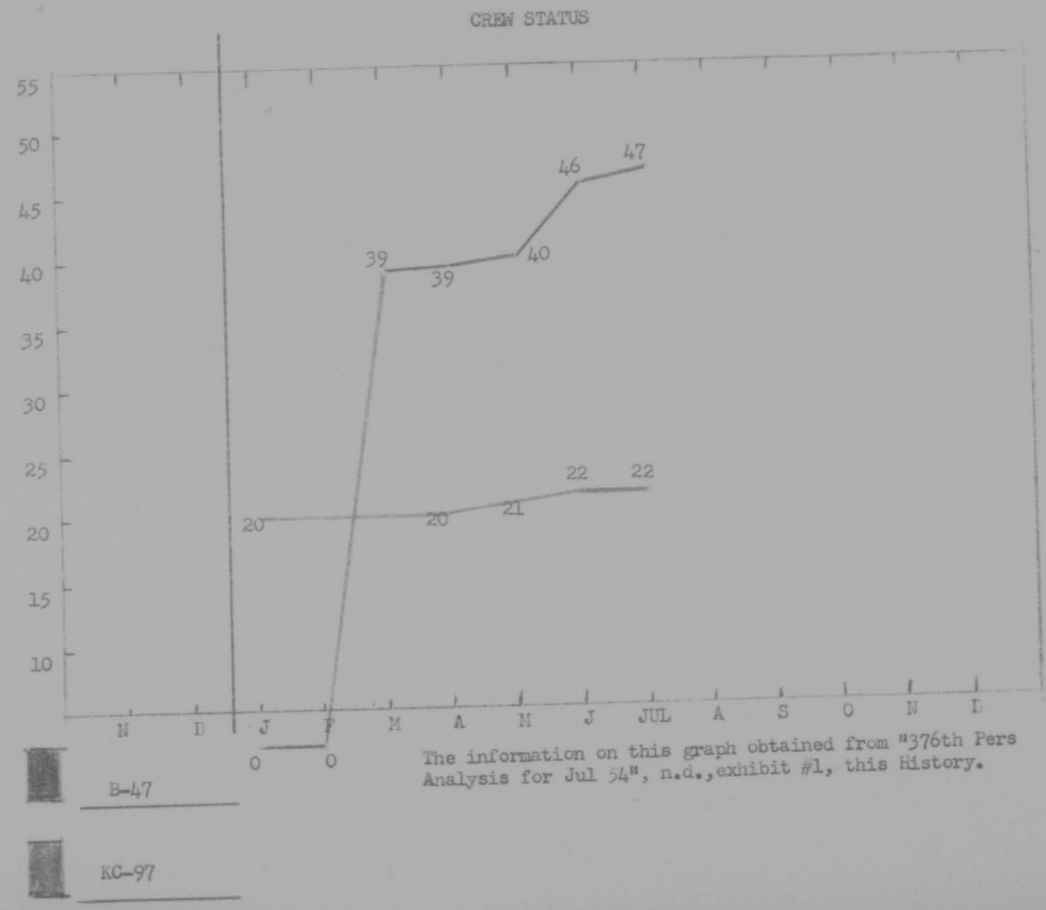

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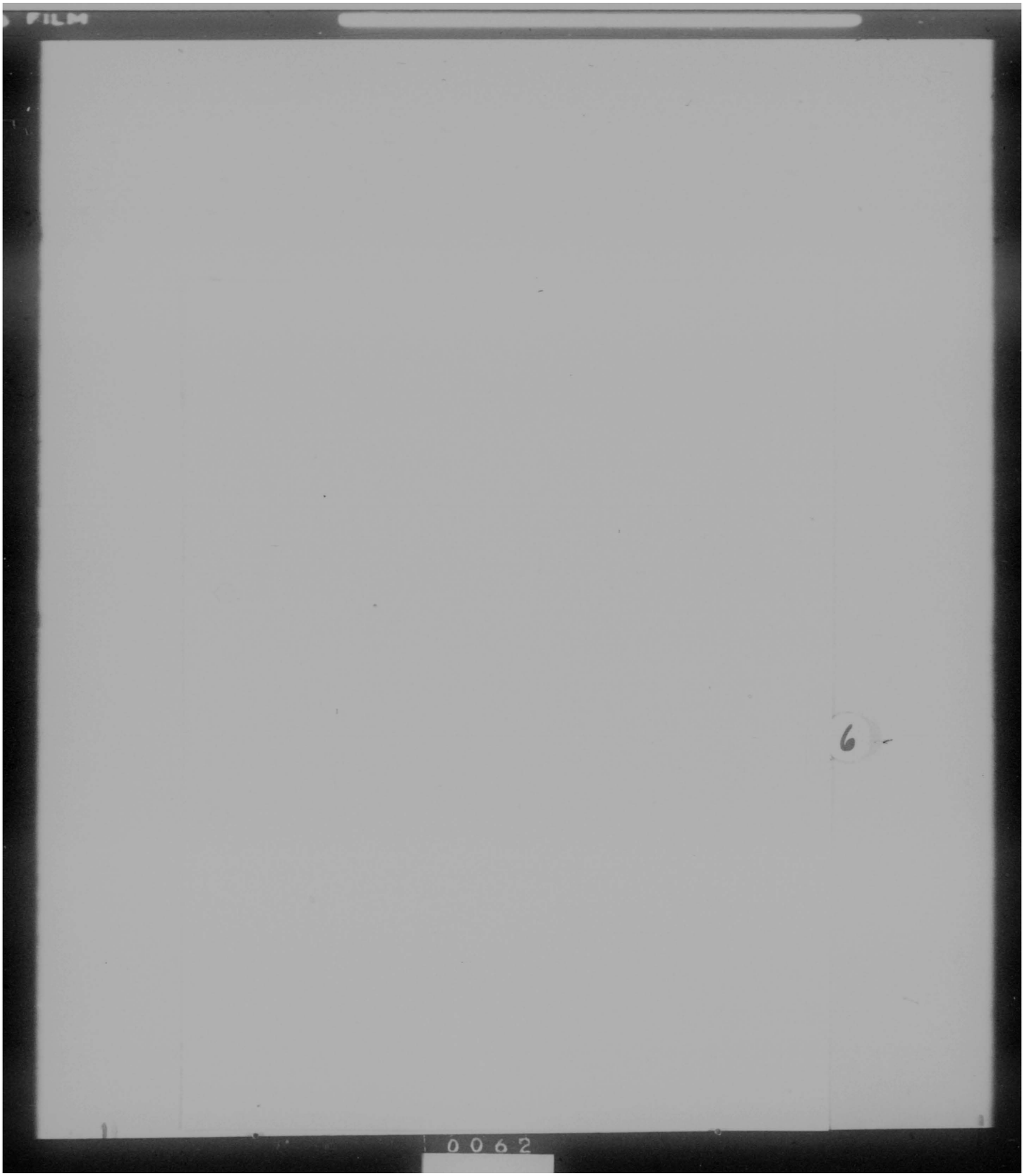

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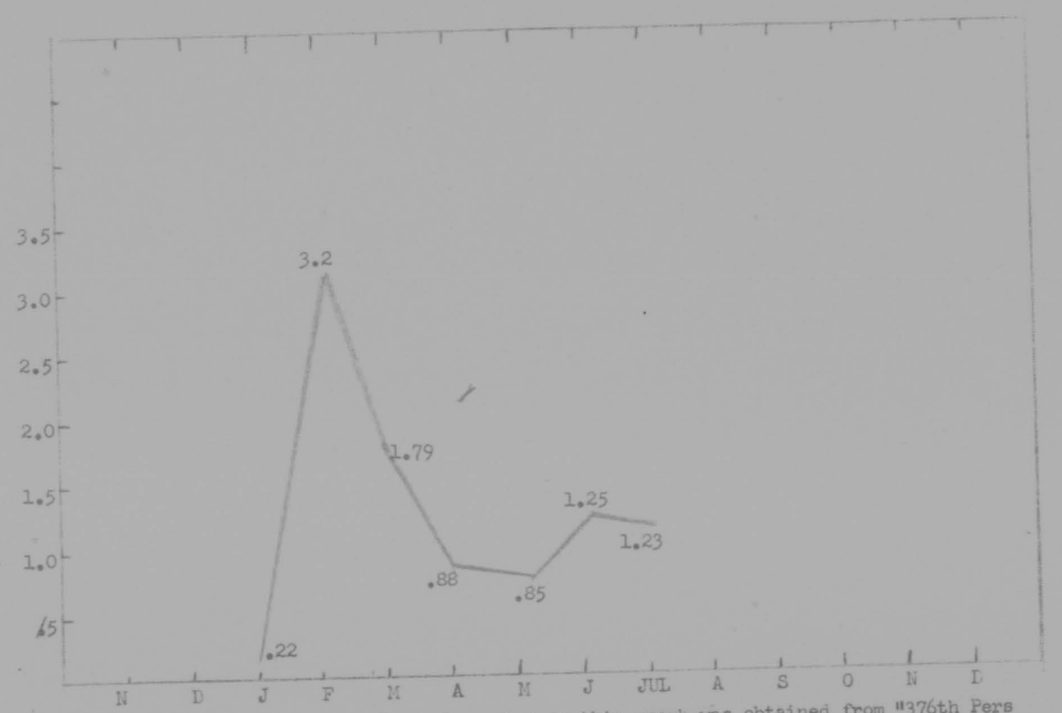

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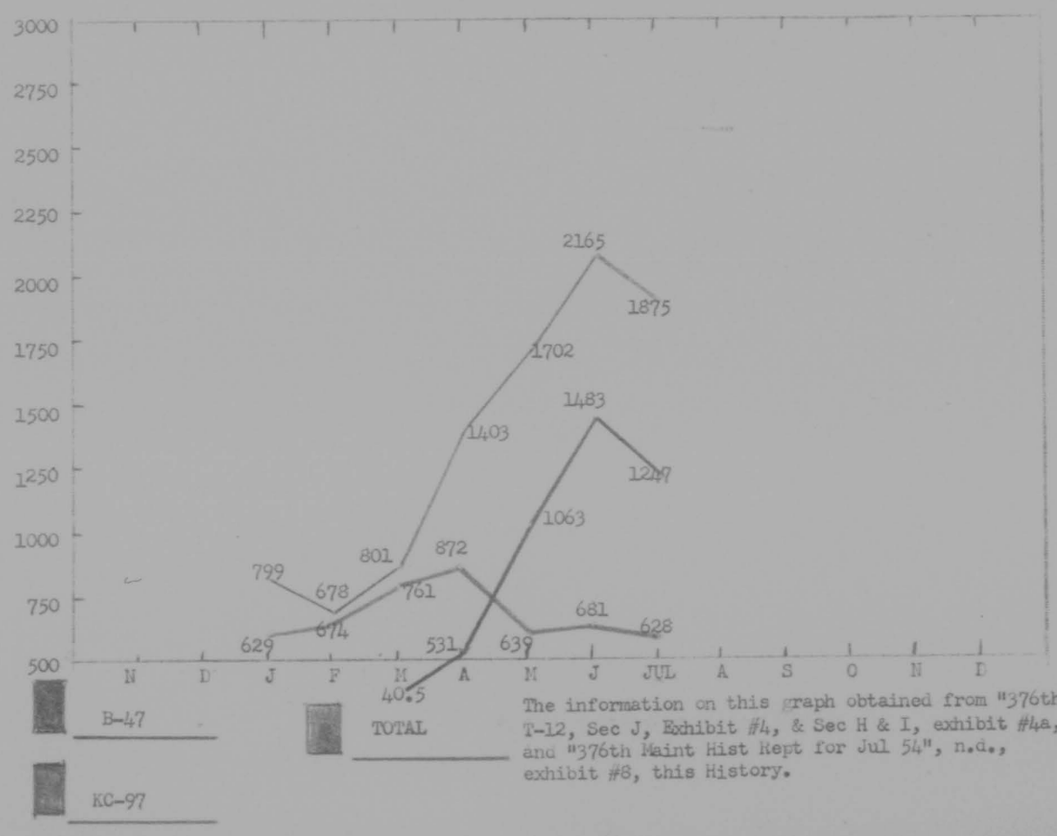
FLYING TIME



The information on this graph obtained from "376th T-12, Sec J, Exhibit #4, & Sec H & I, exhibit #4a, and "376th Maint Hist Rept for Jul 54", n.d., exhibit #8, this History.

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HISTORICAL REPORT FOR THE MONTH OF JULY 1954

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was seventy (70) for the month. The average in-commission rate was 68.59%. A total of 1909:25 hours were flown, for an average of 27:17 hours per possessed aircraft. The Wing AOCP rate was 16.96% compared to 16.05% during the previous month. There were 36.9 direct manhours expended per flying hour. The Wing expended 46% of available manhours as direct time.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 aircraft:

The Wing had an average of forty-eight (48) possessed for the month. Average in-commission rate was 69.68% compared to 77.26% during the previous month. Total hours flown were 1281:00 for an average of 26:36 per possessed aircraft. The AOCP rate was 17.72%, an increase over 15.33% for the previous month. Direct manhours per flying hour was 39.3 hours.

b. KC-97 aircraft:

The Wing had an average of twenty-two (22) KC-97's for the month. Average in-commission rate was 68.45% compared to 73.79% during the previous month. The total hours flown were 628:25, for an average of 28:34 per possessed aircraft. The AOCP rate was 15.27%, a decrease over the 17.64% during the previous month. Direct manhours per flying hour was 24.7 hours

3. There were forty-one (41) malfunctions for the month compared to forty-four (44) during the previous month. Following is a breakdown of causes by system and agency responsible.

	System	No	Agency Responsible
B-47			
	Bombing	3	Maintenance Personnel
	Bombing	8	Material Failure
	Bombing	1	Other
	Communications	1	Material Failure
	Power Plant	2	Material Failure
	Aircraft General	5	Maintenance Personnel
	Aircraft General	12	Material Failure
		32	
KC-97	Air Refueling	3	Material Failure
	Power Plant	1	Air Crew
	Power Plant	3	Material Failure
	Propeller	1	Material Failure
	Aircraft General	1	Material Failure
		9	

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4. A total of nine (9) B-47 engines were changed during the month compared to five (5) during the previous month. A total of five (5) KC-97 engines were changed during the month compared to five (5) changes during the previous month. Average time at B-47 engine change was seventy-one hours. Average time at KC-97 engine change was 249 hours.

TOC & RECORDS

1. During the month of July thirty-seven new T.O.'s were received on B-47 aircraft making a total of 2,875 applicable T.O.'s to all B-47 aircraft.

2. There were five (5) R-4360 engines and nine (9) J47-25 engines changed, with an average time of 249 hours on the R-4360 engines and seventy-one on J-47-24 engines.

3. Approximately 145 component parts changed on B-47 aircraft and approximately forty-eight on KC-97 aircraft.

4. Approximately 2300 T.C.G. were complied with on B-47 and KC-97 aircraft for the month of July.

AIRCRAFT MAINTENANCE STANDARDIZATION TEAM

An extensive training program is still being carried out. The team is monitoring all OJT at section level. All malfunction reports were monitored and logged and a summary prepared. Copies of new PI inspection cards for KC-97 were made up for all sections. All concerned were briefed on the use of the new cards. Three (3) maintenance SOP's were written. One man is attending MSD B-47 school on base. Material was gathered for "Maintenance Memo's" and submitted for publication. Assisted tactical and support organizations in maintenance and supply problems.

QUALITY CONTROL

1. During the month of July 1954 the Quality Control Unit inspected four (4) KC-97 and eight (8) B-47 type aircraft processed through the 376th Maintenance Docks. The Unit also performed in-commission inspections on Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in 3A0 Manual 66-12.

3. The Unit supervised eighteen KC-97 type aircraft and fifteen B-47 type aircraft test flights during the month of July.

4. Three hundred and four Unsatisfactory Reports were submitted during the month of July.

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1. There was a total of eighty-five cannibalizations for the month, twenty-five of which were for Air Refueling Squadron (KC-97's).

2. The unit was inspected by Quality Control, 2AF inspection team, dur[illegible] g the month.

3. A follow-up is being made on all outstanding TCC's applicable to the aircraft of the Wing.

John J. Evans

JOHN J. EVANS
MAJOR, USAF
Acting Chief of Maintenance

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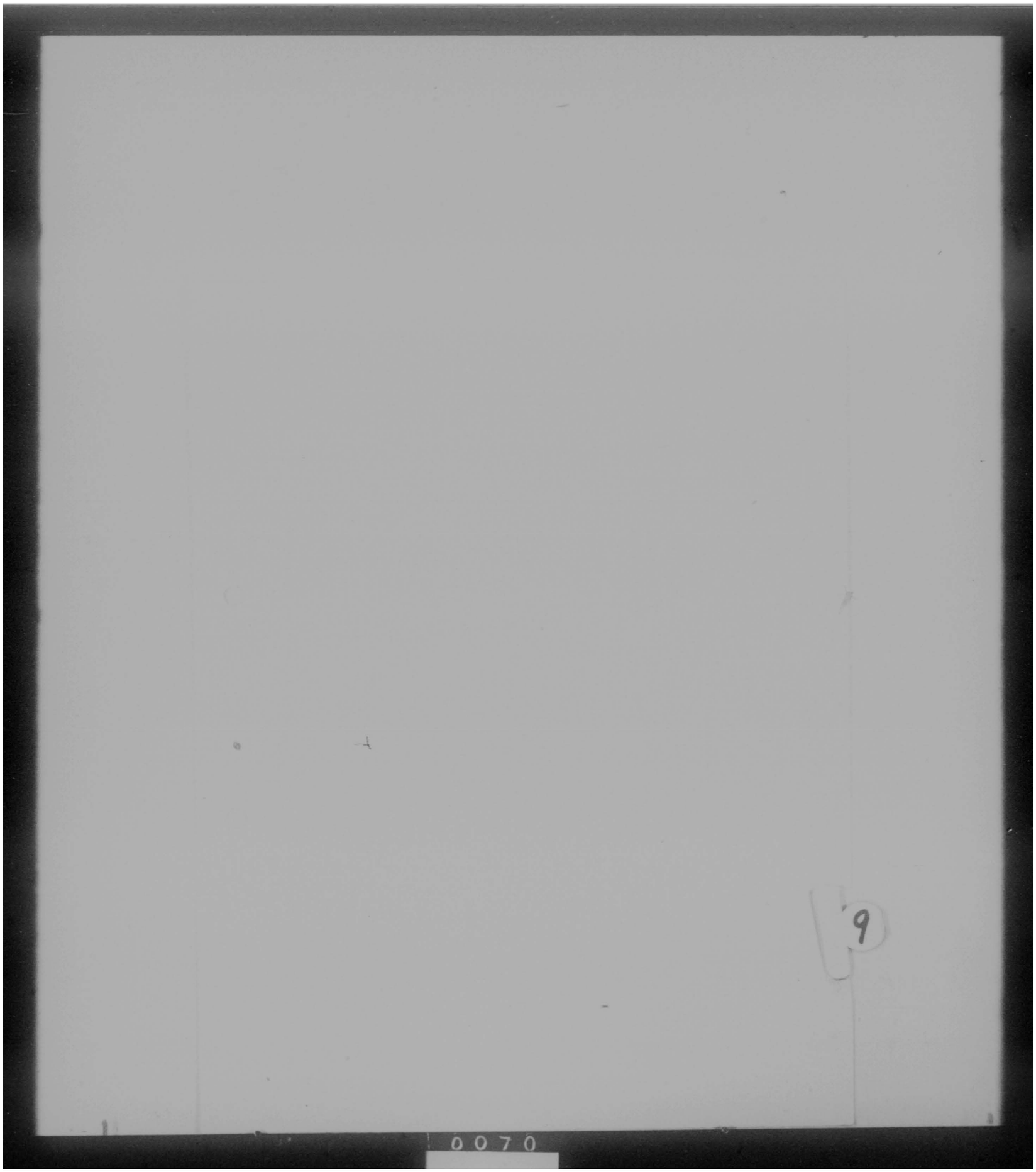

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HEADQUARTERS
376th BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

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Initials: [illegible]
Date: 6 Aug 54

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2 August 1954

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC - U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 July 1954 through 31 July 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1, "Development of an Unattended Communications Jammer".

(1) Date initiated: 30 November 1952

(2) Percentage complete: 100%

(3) Hours flown: 346:46

(4) Present status: The final report on this project was forwarded 23 July 1954. This project will not be reported on in the future.

(a) Fifteen QRC-8 were received on 30 July 1954.

b. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952

(2) Percentage complete: 85%

(3) Hours flown: 182:25

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(4) Present status: As reported last month, attempts have been made to obtain increased effectiveness of the jammer by reducing the swept band width.

(a) The area of the rotor capacitor was reduced to one quarter its former size thus reducing the band width to approximately five megacycles. The center frequency was set between 140 and 145 megacycles to avoid interference with civilian and military aeronautical and mobile facilities.

(b) A series of flight tests were conducted to evaluate the narrower sweep. Two (2) KC-97 aircraft were used, one simulating the jamming bomber and the other a fighter. These aircraft were flown at a fixed separation along a predetermined course from the ground station. Separate runs were made at separations of twenty, fifteen and ten miles with both aircraft at an altitude of ten thousand feet. The jamming aircraft was equipped with two transmitters each with an output of 270 watts. Runs were made with each transmitter using modulation rates as follows:

1. One with fixed 1000 cycle tone and one with fixed 800 cycle tone.

2. Each with continuously varying tone through range of 400 to 800 cycles.

3. Both with fixed 800 cycle tone.

4. One with fixed 800 cycle tone and one with continuously varying tone through range of 400 to 800 cycles.

(c) Results of this test were generally unsatisfactory. Effective jamming was usually not obtained until the fighter was between 80 and 100 miles from the ground station.

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1. In one instance a condition four was obtained at a range of 34 miles from the ground station with an aircraft separation of ter miles but this condition could not be duplicated on subsequent runs.

2. Modulation under (b) 1 and 2 above gave slightly better results than the others.

(d) During the month, a visit was made to the Cook Laboratories at Skokie, Ill. to discuss with them their findings in their study for the Air Force on VHF communications jamming techniques. They had experimented with VHF sweep jamming, however they had experimented with various methods of pulse jamming which they likened to sweep. It was their conclusion that pulse jamming and consequently sweep jamming, was the least effective of all methods tried.

c. Test Project Number 1X. "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953

(2) Percentage completed: 32%

(3) Hours flown: None

(4) Present status: Tuning capacitors for both the receiver and transmitter are being constructed by the WAC Engineering Co., of Dayton, Ohio. Little progress on this project is anticipated until these capacitors are delivered.

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(a) Experimentation continued utilizing existing noise strips and conventional methods of modulation. Plate modulation proved unsatisfactory due to the inability of the modulation transformer to pass the necessary supersonic frequencies. Heising Modulation appears to be the most efficient method of modulation available, however tests were inconclusive due to the lack of a suitable power supply. A regulated DC supply is being constructed.

d. Test Project Number 6, "Minimum Performance Standards of ECM Equipments and Installations".

(1) Date initiated: May 1952

(2) Percentage complete: 42%

(3) Hours flown: None

(4) Present status: Due to personnel requirements for Project Blue Cradle, work was suspended this month on this project.

e. Test Project Number 10, "Chaff Against A.I.".

(1) Date initiated: 4 August 1952

(2) Percentage complete: Project 10A-100%, Project 10B-100%
Project 10C-Unknown

(3) Hours flown: Project 10A-unknown, Project 10B-100 hours
Project 10C-unknown

(4) Present status: No change from previous month.

f. Test Project Number 15, "Development and Test of the AN/APT-16 as a Sweep Jammer".

(1) Date initiated: 27 October 1952

(2) Percentage complete: 66%

(3) Hours flown: 54:50

(4) Present status: Tests mentioned in last month's report were completed at Eglin AFB using MSQ-2 radars at sites number 2, 3 and 4 located at the Santa Rosa Island Test Facility.

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(a) The three MSQ-2 radar were locked on a mutual target, a water tower at field #2, approximately 25,000 yards distant.

(b) To determine the deviation of the MSQ-2 computers as a result of jamming, the following instrumentation was made:

1. Esterline Angus recorder for azimuth and elevation changes.

2. Plotting board with plotting pen to determine the relative amount of jitter introduced in the antenna system.

3. Cursor ring camera to determine the deviation in mils of the azimuth and elevation changes.

4. MLQ-3 van at site #5 for monitoring of the jamming signal.

(c) For the first phase of the jamming test, a sweep width of approximately 200 megacycles was used to cover the frequencies of the three MSQ-2 radar. The sweep speed was varied in steps from 200 to 1600 sweeps per minute. The sweep frequency was from 2700 megacycles to 2900 megacycles. The MSQ-2 frequencies were 2755 mc., 2742 mc. and 2830 mc. at sites 2,3 and 4 respectively.

(d) A total of 46 runs were made using the sweep width and sweep rate mentioned above with one, two and three sweeping APT-16A.

1. The first twelve runs were conducted with one APT-16A. Of the sweep rates tried, it appeared that 300 sweeps per minute was most effective. Multiples thereof at 600 and 1200 SPM also appeared to be very effective.

2. The next twelve runs were made with two APT-16A. The most effective sweep rate was between 400 and 500 and at 800 SPM.

3. The third set of twelve runs was made with three APT-16A. Optimum jamming conditions were obtained with 300 SPM. Effective jamming was obtained at 700 and 1200 SPM but to a lesser degree.

g. Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 operated as a Sweep Jammer with the Helix or Stub against Search and Tracking Radars".

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(1) Date initiated: 1 April 1954

(2) Percentage complete: 35%

(3) Hours flown: 25:25

(4) Present status: A total of 180 ALT-6 systems are now on hand. One flight test was run against the MSQ-2 at Little Rock. Due to associated equipment malfunction, data received could not be accepted. Three systems were transported to Eglin Air Force Base, Florida to evaluate the best sweep width and sweep rates for this equipment. In order to reduce the variables encountered in airborne testing, the equipment was set up on the ground approximately seven miles from the Florosa Island Test Sites with line of site between Jamming transmitter and Radar sites 2, 3, 4 and 5. Over 100 runs were made against three MSQ-2 Radars using different sweep widths, sweep speeds and modulation. Combinations of one, two and three transmitters were used on these tests. Test data is now in the process of evaluation and will not be available for this report. This data will be made the subject of a special report. (See attachment #1)

h. Test Project Number 25, "Development of an ECM Cradle for B-47 Aircraft".

(1) Date initiated: 1 September 1953

(2) Percentage complete: 100%

(3) Hours flown: 31:30

(4) Present status: The final report on this project is being delayed in order to include some last minute changes. The expected completion of this report should be the 10 August 1954.

(a) The difficulties as reported in last months report are being corrected and evaluated. Following are the discrepencies and the proposed fix:

1. Structural suitability of the AT-190B antenna. A number of modifications have been tried, to overcome this discrepency. To date, one of these modifications

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appears to be structurally satisfactory. This consisted of placing a cork strip on each side of the center steel rod to prevent outer shell from vibrating against steel rod and fracturing. A set of these antennas have been flown on six (6) flights for a total of thirty one (31) hours without any noted damage to the antennae. Flights were under all conditions up to optimum altitude and maximum airspeed. Tests will be continued with this antenna to completely evaluate it structurally and electrically.

2. Chaff interference with the helix antenna mount. Two fixes have been tried and both appear to be satisfactory. The simplest of the two is being evaluated each time chaff is dispensed from the cradle. This fix consists of applying a putty like compound called "duck soup" between the antenna mount and the skin of the aircraft. The "duck soup" is used to fair in the leading edge of the mount with the skin of the aircraft. When it becomes hard it prevents the chaff from lodging between the two surfaces.

3. Tape jam of the ALE-1 chaff strippers. Douglas Aircraft Company has engineered a new chaff chute bracket which eliminates the chaff tape pile up and jam in the throat of the ALE-1. This fix has been flown on three missions without any apparent jamming of tapes.

(b) Additional difficulties have been experienced with the cradle installation in the aircraft.

1. Chaff has been blowing back into the cradle and bomb bay due to insufficient suction of the venturi. This discrepency is being corrected by installing a metal flange on the leading edge of the venturi to increase the venturi action. Two flight tests have been performed with this modification accomplished and both flights showed no evidence of chaff in the cradle or bomb bay. This increased suction has the tendency of pulling the chaff tapes from under the dispensers out through the space between the dispenser and chaff chute. This difficulty will be corrected by closing the gap between the dispenser and the chaff chute.

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2. The electronic equipment check out in the cradle has been hindered by numerous wiring discrepencies found on the cradle and aircraft. The turn around cradles and aircraft are being functional tested at Douglas Aircraft Company to correct these discrepencies.

i. Test Project Number 26, "Project Fatima".

(1) Date initiated: 15 April 1953

(2) Percentage complete: 100%

(3) Hours flown: 15:00

(4) Present status: The final report has been completed and forwarded. This project will not be covered in future U-30 reports.

j. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 40%

(3) Hours flown: 31:53

(4) Present status: Test flights similar to ones reported for June were flown at Eglin AFB on 9 and 21 July.

(a) Due to poor weather and high Mach on the 9th of July, station keeping was poor, resulting in a poorly flown formation and consequent poor chaff corridor.

1. Generally, most of the radar had little difficulty in tracking the sowing aircraft and the fly-over aircraft because of the poor corridor.

2. Weather on the mission was poor at flight altitude. There were build-ups along the entire course.

3. No chaff malfunctions were reported. The rate of fall of the bottom of the chaff was about 700 feet per minute. The rate of fall of the top was about 500 feet per minute. At one time the top of the chaff was reported to be at 41,000 feet.

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(b) The chaff corridor flown on the 21st of July at 35,000 feet was much more successful. On the fly-over, the aircraft flew directly over the chaff stream. The observers could not station keep while over the chaff, however the chaff corridors were clearly discernable on their scopes.

1. The FPS-3 radar picked up one fly-over aircraft at 100 miles. The chief controller was asked to give close attention to this target. The target was visible at intervals along the edge of the chaff stream for about twenty miles when it was lost and never reacquired. None of the other aircraft could be seen.

2. The CPS-6 did not see any of the fly-over aircraft.

3. The MSQ-2 seemed to have better ability in finding and tracking aircraft than the M-33. The M-33 was able with slight difficulty to track all aircraft that it acquired. The chaff did not affect automatic tracking until maximum range was approached. MSQ-2 and M-33 radars along the beach were not able to acquire the aircraft although they were warned of their approach.

4. The Cumulus clouds all along the route and consequent updrafts was probably the cause of some chaff being measured at 40,000 feet three hours after the drop. The bottom of the chaff at this time was 6,000 feet. An average rate of fall was recorded as 12,000 feet per hour at other points along the corridor.

(c) From these tests several things have been determined:

1. It is difficult for an experienced GCI controller to track aircraft over the chaff stream.

2. Aircraft can navigate in the corridor, but station keeping is difficult at present state of proficiency.

3. Chaff does not give the formation any appreciable aid from being tracked by gun laying radars after the gun layer locks on.

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4. The dispensing rate of ten feet per minute (five feet per minute for each type of chaff) seems adequate.

(d) The APG has recommended a night chaff corridor test. This test is scheduled for 5 August 1954. Thirteen aircraft are to be furnished by the 376th Bomb Wing, ten to dispense chaff and three to be placed in three cells that follow the dispensing formation. Twelve B-47's will be furnished by the 301st Bomb Wing. These aircraft will form three, five ship cells with a 376th Bomb Wing chaff and APS-54 equipped plane as lead plane.

1. The course flown will be from a point in the Gulf of Mexico about 30 miles northwest of Tampa to a point 30 miles south of Pensacola.

2. RR-44 chaff will be dispensed from each sowing aircraft at the rate of 10 feet per minute with lateral aircraft separation of 2½ miles.

3. Three formations will follow the dispensing aircraft at intervals of 15 minutes, 30 minutes and one hour.

4. The IP time for the chaff dispensers will be 2100 hours. Chaff dispensing will begin 30 miles after IP. No electronic jamming will be performed.

5. All aircraft following the sowing aircraft will carry RR-39 and APS-54 when so equipped. When warning is indicated on APS-54, self protection chaff will be dispensed until warning stops.

6. The chaff dispensing aircraft will fly at maximum altitude, following aircraft will be at optimum altitude. Bombing aircraft will not show lights.

7. Interception will be attempted by AI equipped night fighter aircraft controlled from Tyndall AFB.

k. Auxiliary Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953

(2) Percentage complete: 5%

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(3) Hours flown: None

(4) Present status: Current efforts are directed toward obtaining the necessary equipment for use in this test and placing it in operating condition.

(a) Two additional IFF transponders BC-966 have been obtained. This equipment is rather old and will have to be thoroughly checked before use. A total of three transponders are now on hand. By using one of these for spare parts, two transponders can probably be placed in good condition.

(b) A ground station Interrogator-responser RC-127A or CPX-1, has been obtained for use with the airborne transponder. This equipment is brand new but is short a few items necessary for operation. Efforts are being made to obtain the necessary parts.

l. Auxiliary Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954

(2) Percentage complete: 18%

(3) Hours flown: None

(4) Present status: Construction was started on twelve oscillator amplifier units for the jammer. At present time tube sockets and 14 tuning condensors have been mounted. Further work is delayed awaiting parts from supply.

(a) A search was made for a suitable power supply to be used with the oscillator-amplifier units. It was impossible to find a stock power supply capable of supplying the proper voltage and current. Necessary parts for construction of this power supply have been ordered.

m. Auxiliary Project Number 12, " 'X' Band Passive Detection and Homing System".

(1) Date initiated: 1 February 1954

(2) Percentage complete: 63%

(3) Hours flown: None

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(4) Present status: Work on this project was suspended during the month while project officer assisted with "Blue Cradle" project.

n. Auxiliary Project Number 13, "Use of Transistors in Future Projects".

(1) Date initiated: 1 March 1954

(2) Percentage complete: 40%

(3) Hours flown: None

(4) Present status: Work on this project was suspended during the month while project officer assisted with "Blue Cradle" project.

o. Auxiliary Project Number 14, "Development and Test of APT-5A and APT-9 for Higher Power Output and Sweep Jammer".

(1) Date initiated: 5 March 1954

(2) Percentage complete: 20%

(3) Hours flown: None

(4) Present status: Work on this project was suspended during the month while project officer assisted in tests of Project 15-6.

p. Auxiliary Project Number 15, "KC-97F Modification".

(1) Date initiated: 28 January 1954

(2) Percentage complete: 98%

(3) Hours flown: N/R

(4) Present status: The two KC-97F aircraft are completely modified except for interphone system. The delay is the non-availability of the interphone control box. This item is on back order by supply and it will be installed as soon as it becomes available. Both aircraft have been flown on numerous tests with no reported deficiencies noted.

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q. Auxiliary Project Number 18, "Development of a Sweep Jammer Using a VHF Increductor".

(1) Date initiated: 1 April 1954

(2) Percentage complete: 29%

(3) Hours flown: None

(4) Present status: Previous to this month, the building of a VHF Sweep jammer using an increductor has progressed to the point where a variable frequency jammer had been built. A potentiometer on the front panel could be used to set the frequency at any point within its 100 to 150 mc range with power output between 40 and 80 watts.

(a) To obtain a linear wave for sweeping the Increductor, the unregulated power supply used for the control tubes had to be improved. A regulated power supply was added to the existing 750 volt supply. Two 0A2 type voltage regulators were used giving a 300 volt regulated output at 55 ma.

(b) A sweep circuit using a 6J6 and 6U8 type tubes was built. These tubes were tried in several circuits in an attempt to generate and deliver a linear current wave to the Increductor control winding. The present circuit, which is the best of any tried so far, utilizes a free running multivibrator for the basic sweep frequency. The output is integrated and amplified by a pentode. The signal then goes through a cathode follower to the control tubes and from there to the Increductor. Fairly linear sweeps have been obtained with this circuit. Sweep rates from 200 to 1500 cycles per second and sweep ranges from 10 to 30 megacycles are possible.

r. Auxiliary Project Number 20, "Use of Land Camera for Navigation with APS-23".

(1) Date initiated: 1 July 1954

(2) Percentage complete: 19%

(3) Hours flown: 8:00

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(4) Present status: The operational status of passive homers necessitates the navigation of aircraft without a continuous radar presentation of the terrain. The proposed system would require an aircraft's navigational radar to be on the air for only a few seconds out of every 20 to 30 minutes. The technique involves dead reckoning or celestial navigation by the navigator between predetermined check points. When the area of the check points is reached the navigational radar is placed ON, adjusted, and a picture taken of the indicator face with a Polaroid Land Camera attachment. The radar is then immediately returned to STANDBY. After one minute the navigator may remove the finished positive print from the camera, and with the use of his map and proportional dividers, determine his exact position.

(a) The purpose of these tests is to determine the practicability of navigating high speed, high altitude, aircraft using this technique. Mr. F. Weis, WCLRR4, of WADC, was contacted to see what action had been taken to mount a Land Camera on a radar indicator. It was found that a special camera of the Polaroid type had been fabricated and several reconnaissance test missions flown with the camera installed in a B-29. The camera, Radar Recorder Type W-3, was obtained on a loan basis from WADC for tests at this station. It was also learned that an order has been placed by WADC for a Polaroid Camera which will mount in place of the O-15, however delivery is not anticipated until sometime in 1955.

(b) Because of the size and physical characteristics of the W-3 camera, it was impractical to attempt mounting in a B-47 aircraft. Instead, a mission was simulated on the T-2 Ultrasonic Trainer. The results of the mission indicated that navigation by means of pictures is possible. The mission covered a distance of 610 NM with an error at the end of the flight of 4 NM. A total of seven pictures were taken over a period of 1½ hours, the average time the radar was on for each picture was 43 seconds and the average time taken to locate the position using the pictures was 1 minute. On the basis of this test a smaller type of oscilloscope camera using the Polaroid principle was obtained on a loan basis from Carswell Air Force Base, Texas. It was found that this camera was small enough physically to be mounted in an aircraft.

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(c) A camera mount has been fabricated to facilitate mounting the above camera in both a KC-97 and a B-47 aircraft. Some difficulty was encountered in attempting to obtain pictures of the indicator presentation on the APS-23 with the O-15 camera in place. It turned out that the blue light from the oscilloscope flourecence was being reflected up to the O-15 camera and not being transmitted to the Polaroid camera. The only film available for the Polaroid camera is orthochromatic which is not sensitive to the orange phosphorecence of the cathode ray tube. In order to use the present camera for flight tests it will be necessary to remove the O-15 camera periscope.

(d) Work is being undertaken to design a new periscope which will allow both the O-15 camera and the Polaroid Land camera to photograph the face of the cathode ray tube. In the mean time flight tests using the present camera have been planned and two navigators have been assigned to the project. Each of the navigators have been familiarized with the operation of the Polaroid camera and the technique to be used in navigating from the pictures. Each of them have undergone a two hour simulated mission on the T-2 Ultrasonic Trainer using the Land Camera.

(e) Two sorties have been scheduled on KC-97 aircraft so that any apparent difficulties may be rectified before the camera is tested in a B-47. A total of six test flights, two on a KC-97 and four on a B-47, will be completed during the month of August.

(f) During the time the flight tests are being conducted work will continue on fabrication of the new camera periscope. In addition WADC will be contacted in an attempt to find out when a prototype of the Polaroid camera, which is to replace the O-15, will be available for test purposes.

s. Auxiliary Project Number 21, "Infra-red Station Keeping Device".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 17%

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(3) Hours flown: None

(4) Present status: The station keeping problem is being analyzed for the B-47 aircraft. Due to the severe limitations of space and the complexity of existing equipment in the aircraft, a station keeping system which is physically small and simple to operate is being sought. In addition, the system must not increase the aircraft's susceptibility to passive homing and detecting devices. Because of the urgency of obtaining a suitable system no attempt will be made to design an overall system which will meet all the desired requirements. Instead an intensive survey will be made of all known existing systems which may be adapted to the problem to determine their suitability.

(a) An infra-red system was decided on as having the most promise for providing a satisfactory solution. The abundance of infra-red radiation available from jet exhausts of the B-47 aircraft make it ideal for detection by a passive device.

(b) To date two trips pertinent to this project have been made by personnel from this lab. One trip to Chicago, Ill. included a visit to the Fog-O-Scope Corperation which manufactures an infra-red device for use on trucks to aid in driving through fog. This device was fairly small and has possibilities for use in an aircraft. The Fog-O-Scope Corporation has very limited facilities for production and to date does not have a model available for testing in aircraft.

(c) The project engineer visited the library at the Air University, Maxwell AFB, Alabama where a considerable amount of research was done on infra-red devices. In August a visit is planned to the Farrand Optical Company in New York City reference a Navy infra-red project, to Fort Monmouth, New Jersey reference signal Corps devices such as "snooper scopes", to Cambridge Field Station, Cambridge Mass. to visit Dr. Heinz Fischer, an authority on infra-red and to the infra-red labs at Rome Air Development Center and WADC.

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t. Auxiliary Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7".

(1) Date initiated: 12 July 1954

(2) Percentage completed: 18%

(3) Hours flown: None

(4) Present status: The AN/ALT-7 jamming transmitter has been received for installation in B-47 aircraft. This transmitter was designed for operation from 24 to 170 megacycles as either a spot jammer or as a sweep jammer with ability to sweep a band of approximately ten percent of the center frequency. Facilities are included in the transmitter for either noise modulation or CW. This transmitter may be operated against communications or radar within its frequency band using appropriate antennas where available.

(a) Preliminary examination of first item received revealed the following.

1. Equipment is simple and easy to operate. Power output over band is essentially as claimed in tech order.

2. Dial calibration is sufficiently accurate for setting up sweep operation. Dial is not accurate enough for spot jamming "setting on".

3. Antenna is not available for operation of this equipment below 85 megacycles.

4. If SWR of 5.1 is exceeded, there is danger of damage to micro-match unit used for power meter.

(b) It has been determined that there is no existant antenna suitable for mounting on the B-47 aircraft to cover frequency from 85 mc down. On 21 July 1954 it was decided to provide an antenna for general temporary use for testing of the AN/ALT-7. This antenna would be fabricated locally from easily available parts.

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1. As the B-47 only provides for use of stub antennas, such an antenna must use a stub base. A number of such bases were available from AT-190 antennas which had failed in flight. These bases were modified to receive a teflon insulating socket into which a standard 43 inch whip (AS-161) was mounted. Clamping and antenna feed modifications were also made to provide additional rigidity and to provide a normal end fed antenna arrangement.

2. As the characteristics of the first product produced a resonant point at 90 megacycles, and as it was not considered desirable to utilize longer whips due to ground clearances on the aircraft, a matching system was constructed of two pieces of parallel RG-8/U 36 inches long. This extended the frequency range down to 60 mc and at 70 mc gave a VSWR of about 2:1. The best match was of course at the normal resonant point of 90 mc at which the VSWR was approximately 1.2:1. VSWR was still acceptable to 110 mc at which point it was 5:1. This rise continued to 115 mc where it was 7:1. There after it dropped until at 140 mc it was approximately 2.7:1.

3. Of interest during the VSWR tests was the electrical failure of the regular black bakelite stub antenna insulation. This was at a power of approximately 250 watts on the antenna, VSWR 2:1, frequency 70 mc. This failure occured after about two minutes operation. It is planned in the future to investigate this more thoroughly in reference to other stub antennas.

4. Flight tests are now in progress to determine the mechanical ability of the antenna to withstand speeds approaching Mach 1.

5. Arrangements have been made to secure from the British Government a number of whip antennas such as those used on their jet aircraft. These are somewhat more flexible and are of a stepped diameter design similar to the shaffs of some types of golf clubs. These will be tested if the whip types presently available fail mechanically.

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6. Informal arrangements have been made with WADC to conduct VSWR tests and radiation pattern test if the antenna proves to be mechanically feasible.

u. Test Project Number, "Operational Test of AN/APS-54

(1) Date Initiated: 18 June 1954

(2) Percentage complete: 85%

(3) Hours flown: 22:00

(4) Present status: The AN/APS-54 is a small receiving set designed to afford an aircrew positive warning that their aircraft is being tracked by gunlaying radar, either airborne or ground controlled. The APS-54 is designed to preclude an electronic surprise attack by providing warning information that the aircraft is under surveillance. Knowledge that the aircraft is under surveillance should enable an aircrew to initiate active evasive action and countermeasures only when necessary. The ability to determine when enemy gunlaying radars have acquired the aircraft will increase the effectiveness of presently known techniques and tactics. Such advance warning and acquisition of intelligence should reduce crew fatique and improve morale.

(a) A test program to determine the effect of electronic radiation on the APS-54 emanating from parent or accompanying aircraft was conducted between 18 June and 23 July 1954. The program also included an operational shakedown against gunlaying radar on 23 July 1954.

(b) Four B-47 sorties, totaling approximately twenty-two hours, were flown. Standard B-47 APS-54 sets were utilized. Standard maintenance and pre-flight checks were accomplished on equipment prior to flight by A & E personnel under the supervision of competent supervisors. The crew member actually checking the equipment in the air was briefed thoroughly on duties and procedures to be followed.

1. The initial mission disclosed the minimum setting necessary to screen APS-54 from radiations emanating from parent aircraft. Subsequent flights

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were made to re-check these settings and determine the effect of electronic missions on the APS-54 emanating from accompanying aircraft.

2. Having determined the extent to which emanations from the parent and accompanying aircraft affect the APS-54, a fourth sortie was flown against an MSQ-2 radar in a combat configuration.

(c) When settings were made on the AN/APS-54 so that warning circuit was not triggered by electronic emissions of parent and accompanying aircraft, no readable intelligence was obtained on six runs against the MSQ-2 even though the time of "lock on" and "break lock" was known.

v. Test Project Number, "Runway Reflector".

(1) Date initiated: 16 March 1954

(2) Percentage complete: 100%

(3) Requested by Fourth Air Division Headquarters

(4) Present status: The reflector construction has been completed. Operational suitability tests will be conducted in the near future. The 376th Bombardment Wing operations section will have the B-47 crews make periodic checks on the reflector to determine its affectiveness as an aid in locating the runway during IFR conditions.

w. Test Project Number, "ARC-21 Radio Equipment Installation".

(1) Date initiated: 5 June 1954

(2) Percentage complete: 5%

(3) Hours flown: 16:00

(4) Present status: One aircraft has been modified with the ARC-21 equipment installed. Ground checks and flight tests prove this installation to be satisfactory. Enough equipments were available to modify the remaining aircraft assigned, but the project was delayed. This delay is the result of having to transfer six (6) ARC-21 sets to McDill AFB, Fla. and ten (10) sets to Carswell AFB, Texas to support project

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SECRET

"Big Eva". Evaluation of the ARC-21 set installed in KC-97G #912 is still in operation.

FOR THE COMMANDER:

CARL A BARR
Capt., USAF
Ass't Adjutant

SECRET

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KODAK SAFETY FILM

Attachment #1 to SAC U-30 Report For Month of July

PROJECT 15-6

AN/ALT-6 Sweep Jammer

SAC Mission 104, 26 July 1954

OBJECT OF MISSION:

The object of this mission was to determine the most effective sweep speeds and sweep widths of the AN/ALT-6 transmitter when used singly and in combinations. Sweep speeds of 15, 20 and 30 megacycles per second, and sweep widths of 60, 100, 200 and 300 megacycles were used.

1. GENERAL:

a. This test was conducted with the jamming transmitters located in a fixed position. The transmitters were operated against three (3) MSQ-2 type radars located approximately 10,000 yards from the jamming site. The frequencies of the radars were such that one appeared near the center of the frequency band to be covered and the other two appeared near the ends of the band. The three radars are located at sites 2, 3 and 4 of the Santa Rosa Island Facility (STRIFT) at Eglin AFB, Florida. An MLQ-3 installation was utilized for monitoring frequency limits and relative power outputs over the band.

b. The three (3) MSQ-2 radars were "locked-on" a mutual target. The target was a water tower located at auxiliary field 2. The tower was approximately 25,000 yards from the radars.

c. To determine the effects of the jamming, the following instrumentation was used at each MSQ-2 radar site:

(1) Two (2) Easterline Angus pen recorders. One of these recorders was used to plot variations in azimuth in degrees and the other was used to plot variations in height in thousands of feet.

(2) Plotting board. This was used to record relative amounts of antenna jitter caused by jamming.

(3) Personnel. In addition to the regularly assigned personnel at the various sites, commissioned ECM observers were assigned to each site.

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2. SITE CONDITIONS:

a. Site #3. Radar 10, located at this site, received little or no jamming. This may be due to a microwave antenna located directly between the MSQ-2 and the jamming transmitters. This condition has existed in five previous tests under similar conditions.

b. Site #4. Radar 8, located at this site, received so much jamming that the recorded data could not be used. Whenever any jamming was being done a condition 5 occurred and the operator could not stay on the target. A comparison of various sweep speeds and sweep widths therefore could not be made.

c. Site #2. Radar 20, located at this site, gave a good series of conditions throughout the mission. Data from this site only was used in the final analysis.

3. METHOD OF EVALUATION:

a. Average conditions for each run were obtained by dividing the pen recordings (azimuth and height) into four equal sections, giving a condition for each section, and then taking the average of the four conditions. This is believed by the site observers to give an accurate measurement of jamming conditions.

b. The following is a list of conditions and what they represent:

(1) Condition 1 - Jamming present but below $\frac{1}{4}$ degree error.

(2) Condition 2 - $\frac{1}{4}$ to 1 degree error.

(3) Condition 3 - 1 to 2 degree error.

(4) Condition 4 - 2 to 4 degree error.

(5) Condition 5 - Over 4 degree error.

4. DATA:

a. The following information was obtained with the transmitters operating at a sweep speed of fifteen (15) megacycles per second.

Run No.	Number of Transmitters	Sweep Width	Type Modulation	Type Antenna	Average Condition (Az)	Average Condition (Height)
1	3	100	Noise	Helix	5.0	4.25
4	3	200	"	"	5.0	4.0
7	3	300	"	"	4.5	2.25

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Run No.	Number of Transmitters	Sweep Width	Type Modulation	Type Antenna	Average Condition (Az)	Average Condition (Height)
10	3	60	Noise	Helix	4.0	2.75
13	2	60	"	"	2.5	2.25
16	2	200	"	"	4.0	2.0
19	2	100	"	"	-	3.5
22	2	300	"	"	2.75	1.25
25	1	300	"	"	2.0	1.0
28	1	200	"	"	2.0	1.5
31	1	100	"	"	2.75	2.0
34	1	60	"	"	1.5	2.0
37	2	60	CW	"	1.5	1.5
40	2	100	"	"	1.75	1.25
43	2	200	"	"	1.0	-
46	2	300	"	"	1.0	-
51	1	60	Noise	Stub	2.0	-
52	1	100	"	"	2.0	-
55	1	200	"	"	1.25	-

b. The following information was obtained with the transmitters operating at a sweep speed of twenty (20) megacycles per second.

Run No.	Number of Transmitters	Sweep Width	Type Modulation	Type Antenna	Average Condition (Az)	Average Condition (Height)
2	3	100	Noise	Helix	4.5	3.75
5	3	200	"	"	4.5	3.25
8	3	300	"	"	3.0	1.75
11	3	60	"	"	-	1.75
14	2	60	"	"	1.5	1.5
17	2	200	"	"	3.0	1.5
20	2	100	"	"	2.0	2.5
23	2	300	"	"	2.5	2.25
26	1	300	"	"	1.25	1.0
29	1	200	"	"	1.75	1.25
32	1	100	"	"	1.25	1.5
35	1	60	"	"	1.25	1.75
38	2	60	CW	"	1.0	1.25
41	2	100	"	"	1.0	1.25
44	2	200	"	"	1.0	-
47	2	300	"	"	1.0	-
49	1	60	Noise	Stub	4.25	-
53	1	100	"	"	1.75	-
56	1	200	"	"	2.0	-

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c. The following information was obtained with the transmitters operating at a sweep speed of thirty (30) megacycles per second.

Run No.	Number of Transmitters	Sweep Width	Type Modulation	Type Antenna	Average Condition (Az)	Average Condition (Height)
3	3	100	Noise	Helix	4.25	3.5
6	3	200	"	"	4.5	2.0
9	3	300	"	"	4.0	1.5
12	3	60	"	"	3.25	2.5
15	2	60	"	"	2.0	1.5
18	2	200	"	"	2.5	1.25
21	2	100	"	"	3.0	3.0
24	2	300	"	"	1.75	2.0
27	1	300	"	"	1.25	1.0
30	1	200	"	"	1.5	1.0
33	1	100	"	"	1.25	1.75
36	1	60	"	"	1.0	1.25
39	2	60	CW	"	1.0	1.25
42	2	100	"	"	1.0	-
45	2	200	"	"	1.0	-
48	1	300	"	"	1.0	-
49	1	60	Noise	Stub	1.0	-
54	1	100	"	"	1.25	-
57	1	200	"	"	1.5	-

5. RECOMMENDATIONS AND/OR CONCLUSIONS:

a. The results of this test show that a sweep speed of 15 megacycles per second was the most effective for all sweep widths.

b. As was expected, the effectiveness of the jamming increased as the number of transmitters covering the same frequency band was increased. It is believed that the use of only one transmitter covering a given frequency band would be impractical even if the transmitter were capable of jamming the victim radar. This conclusion is drawn from the fact that a simple anti-jamming feature incorporated in the radar (such as the "coast" circuit on the MSQ-2) would very materially reduce the effectiveness of the jamming. When using this feature it is only necessary for the radar operator to operate a button when the jamming signal first occurs on range ("j") scope. The operation of two or more transmitters over the same frequency band would make this type of anti-jamming less effective, as well as providing more jamming power.

c. It is recommended that a sweep speed of 15 megacycles per second be used in ititial airborne testing of the AN/ALT-6 equipment in B-47 type aircraft.

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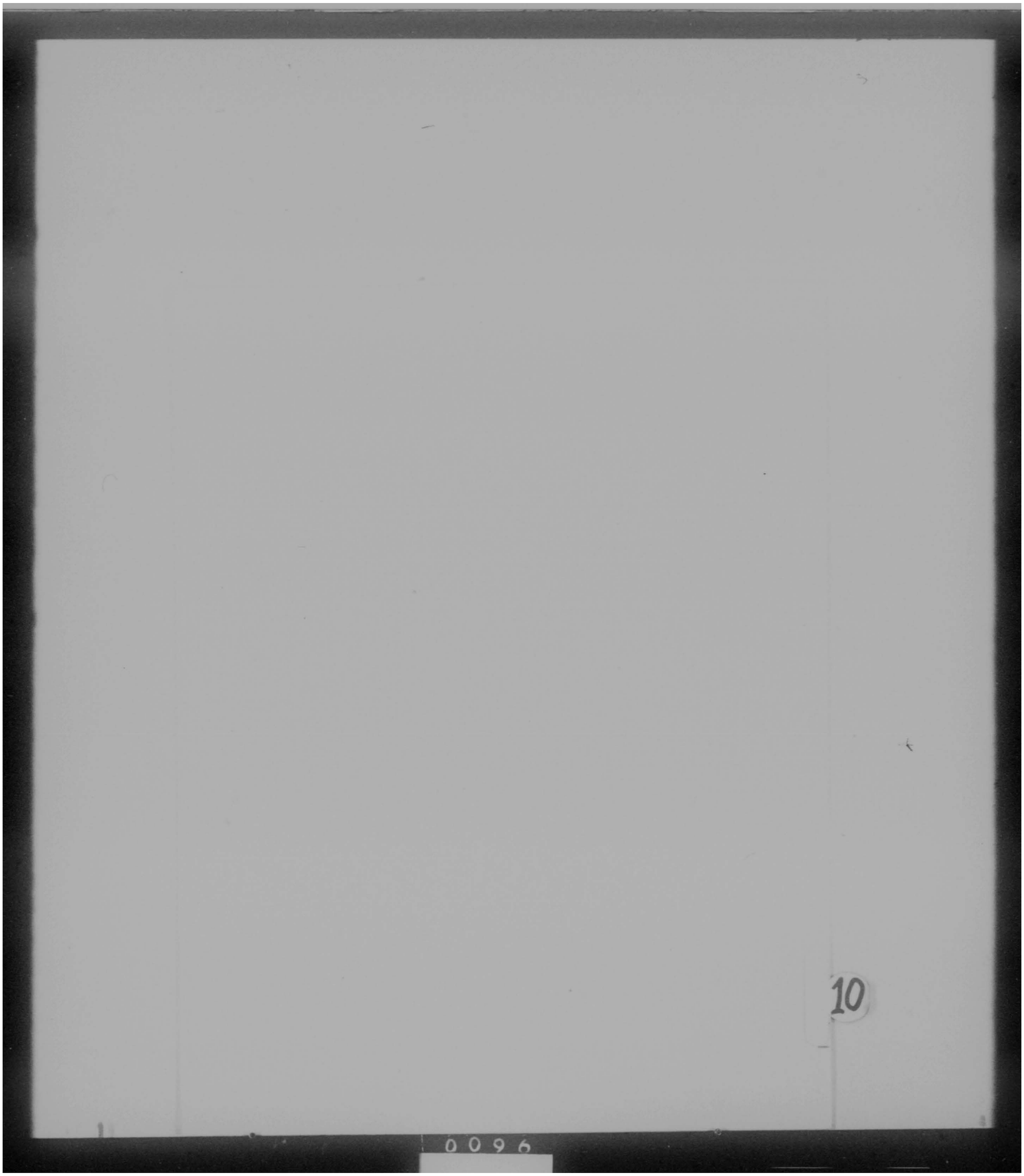

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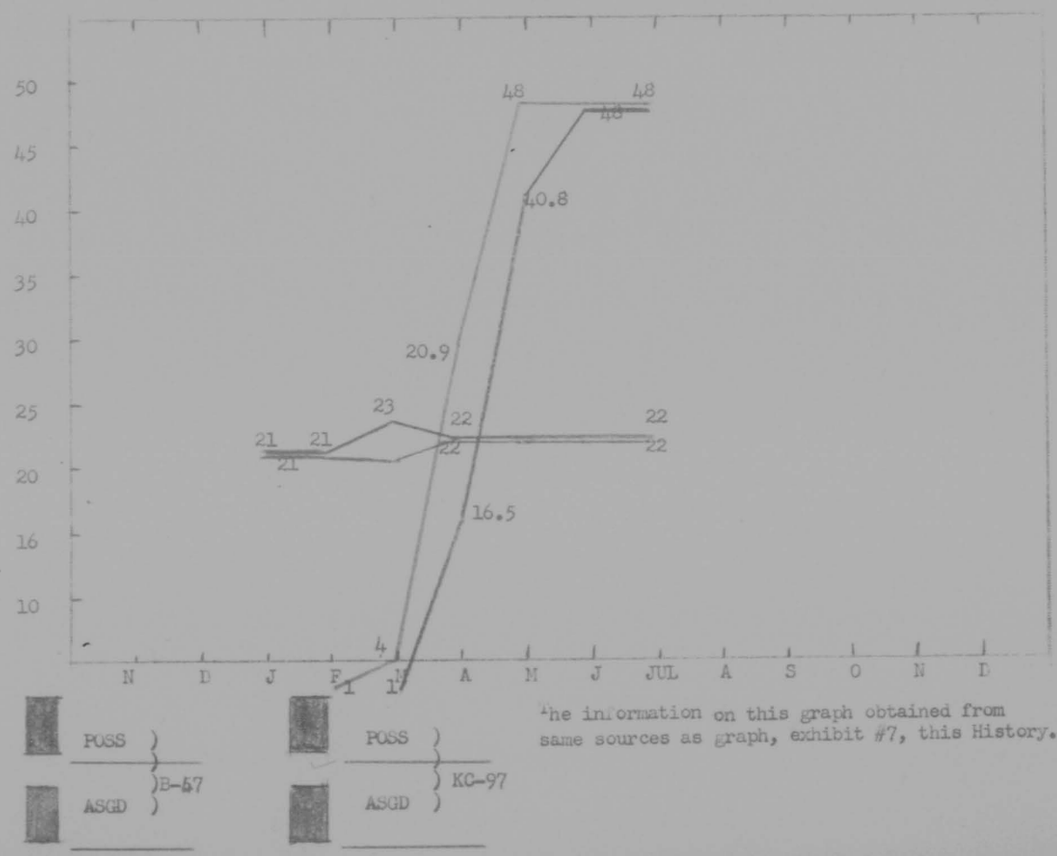
ASSIGNED & POSSESSED AIRCRAFT



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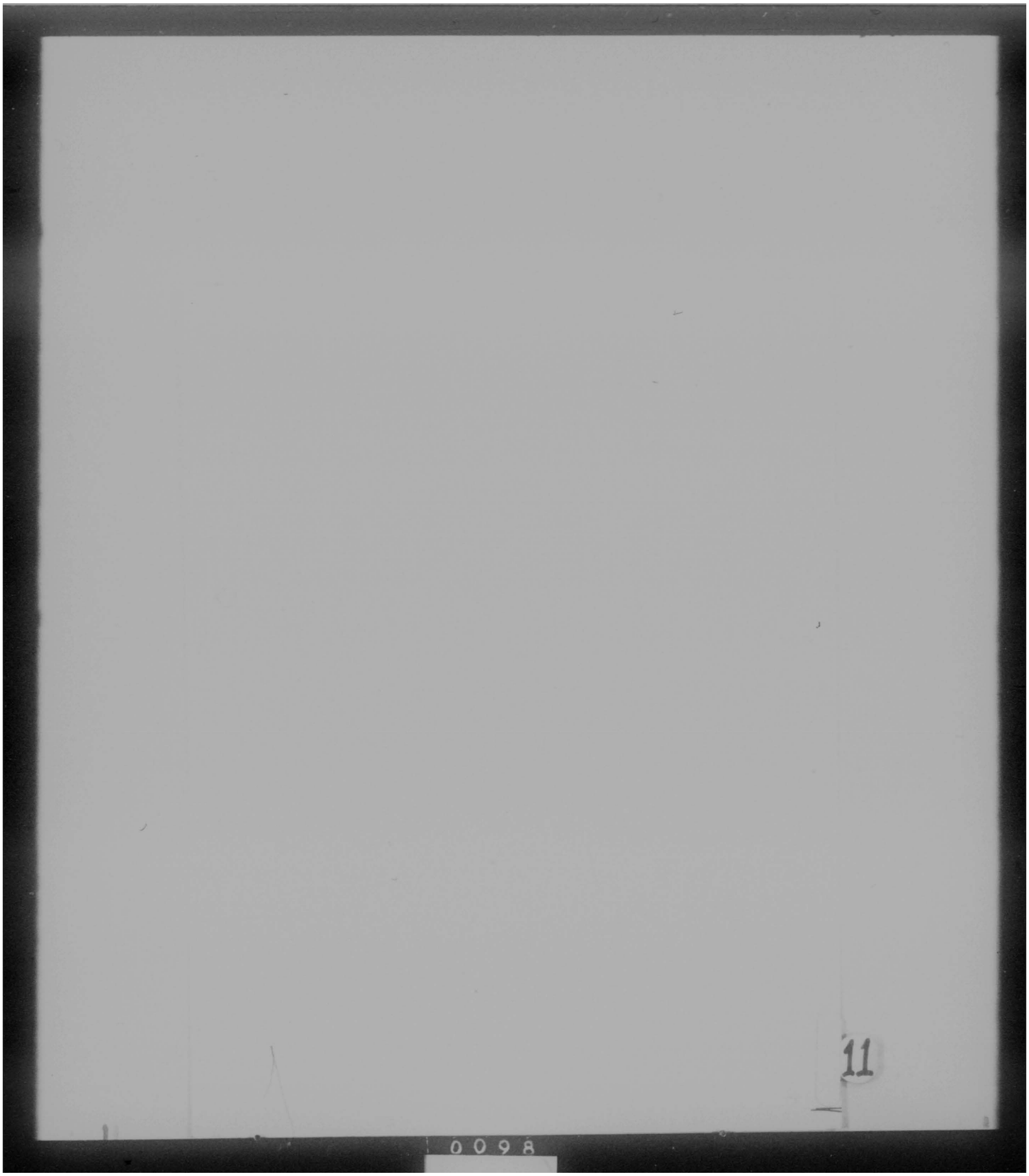

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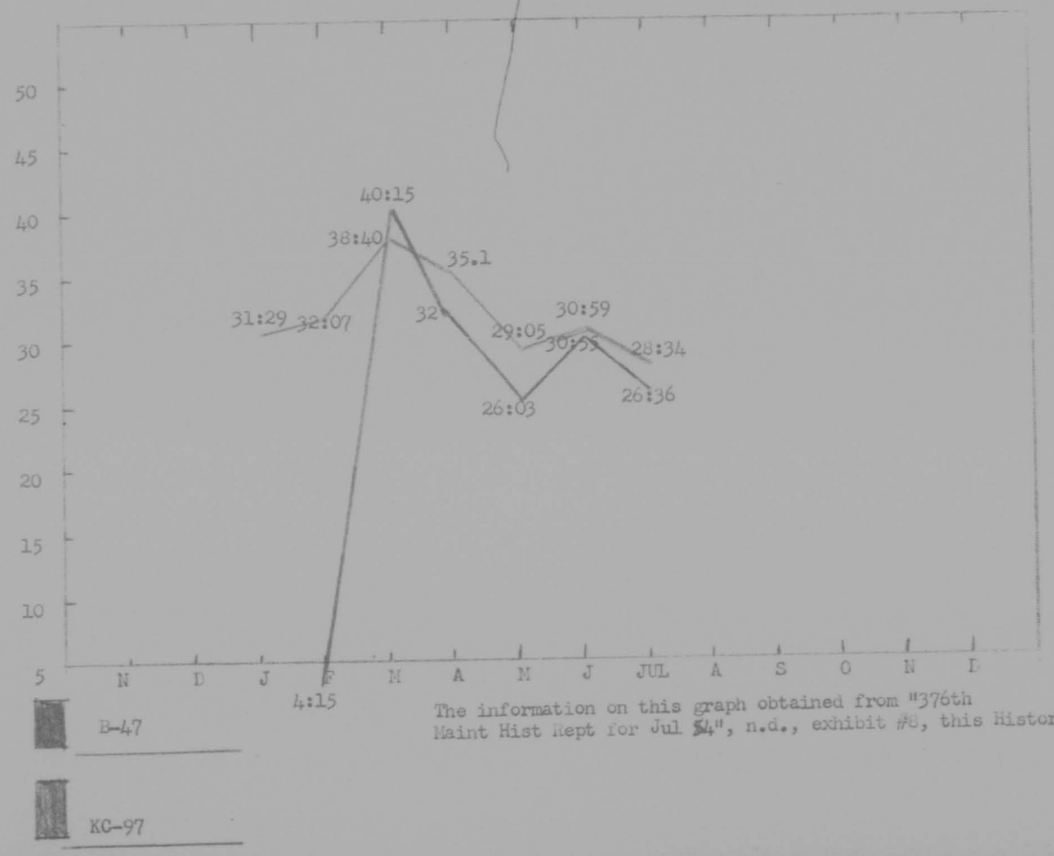
FLYING TIME PER POSSESSED AIRCRAFT



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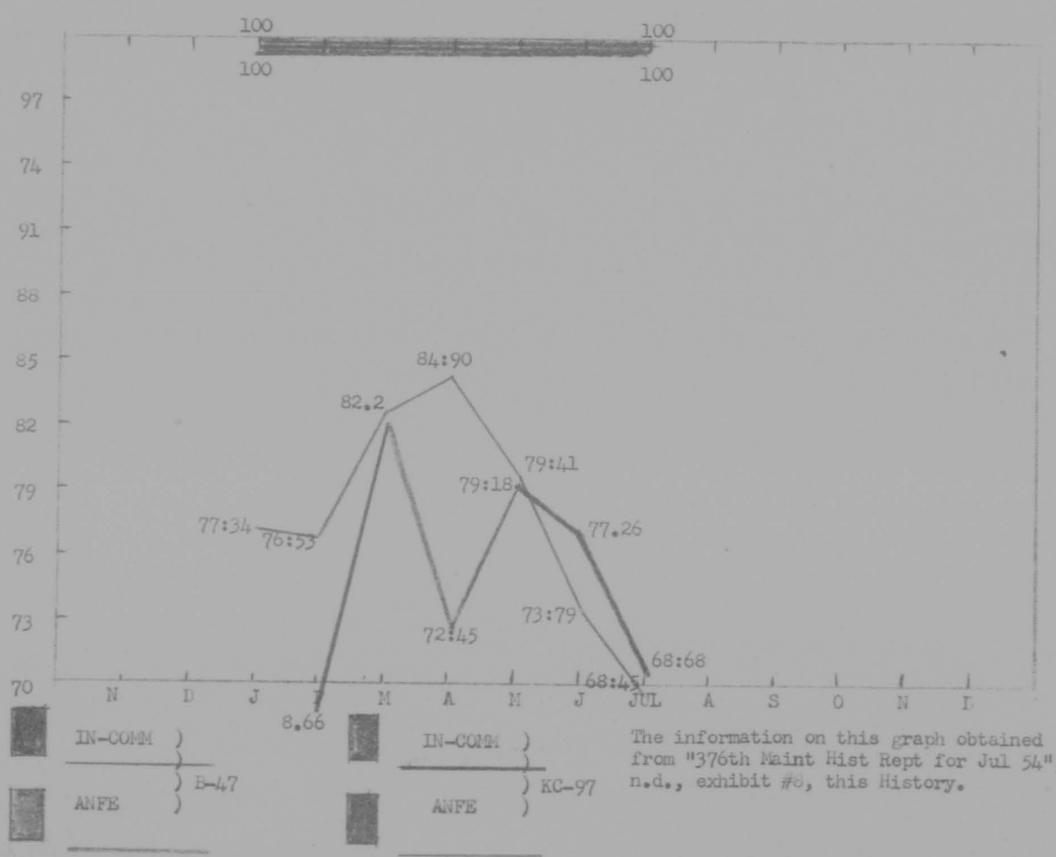
IN-COMMISSION & ANFE RATES



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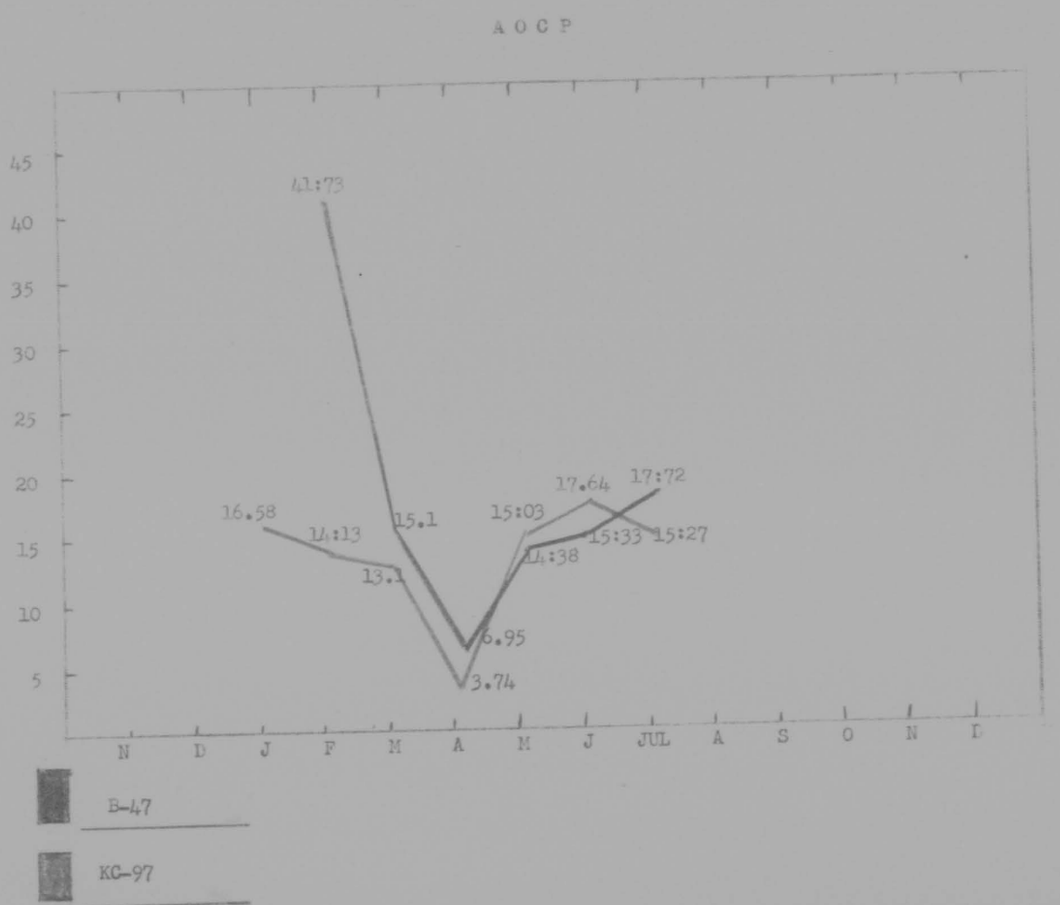

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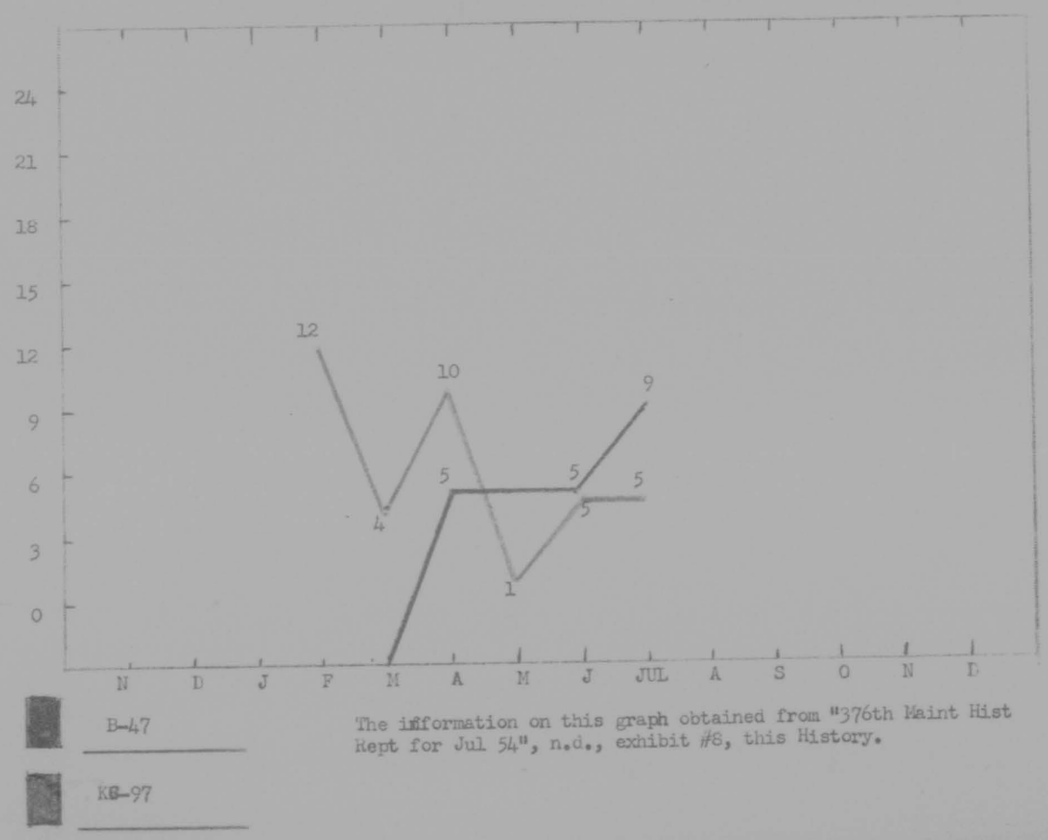
NUMBER OF ENGINES CHANGED



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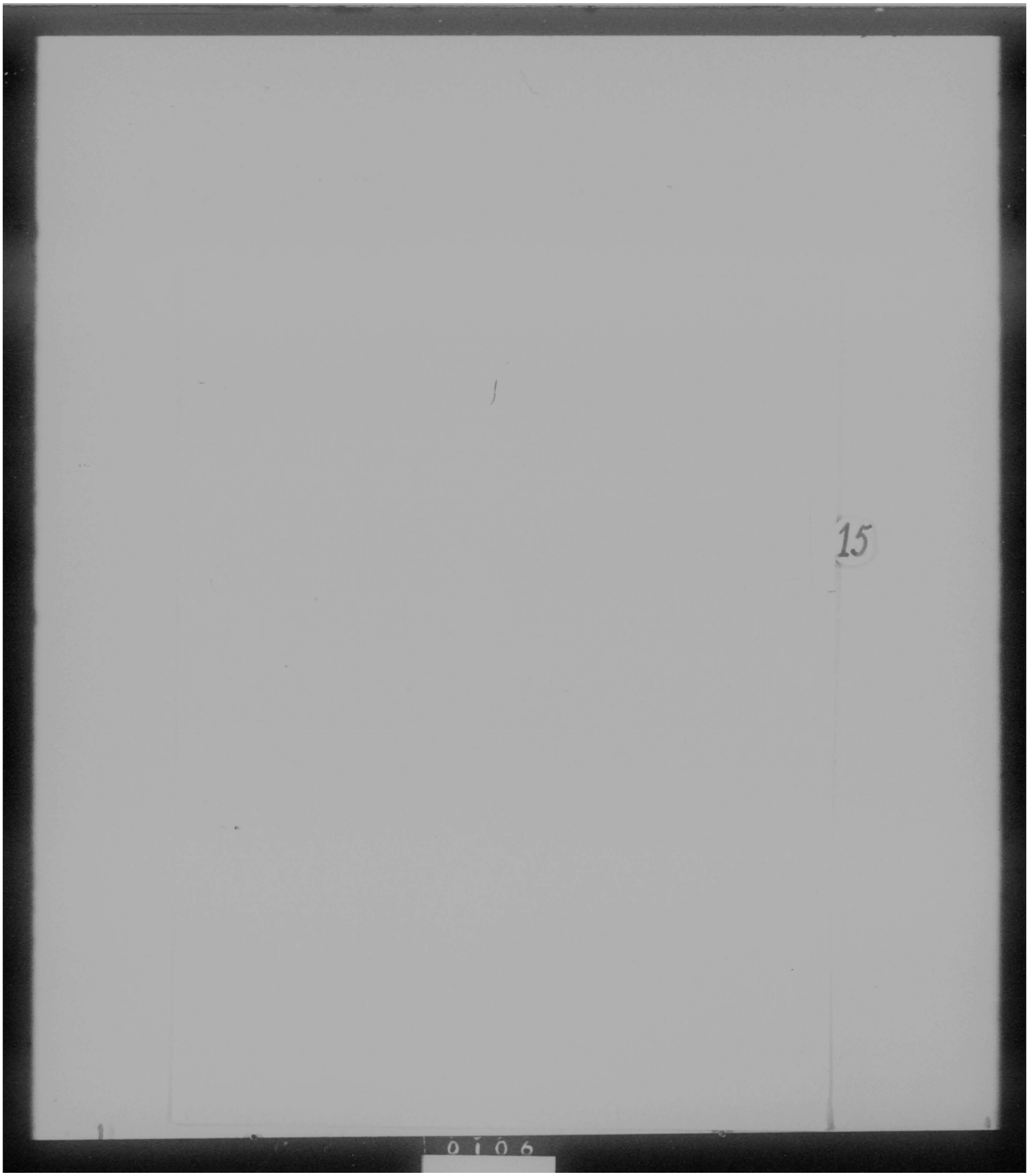

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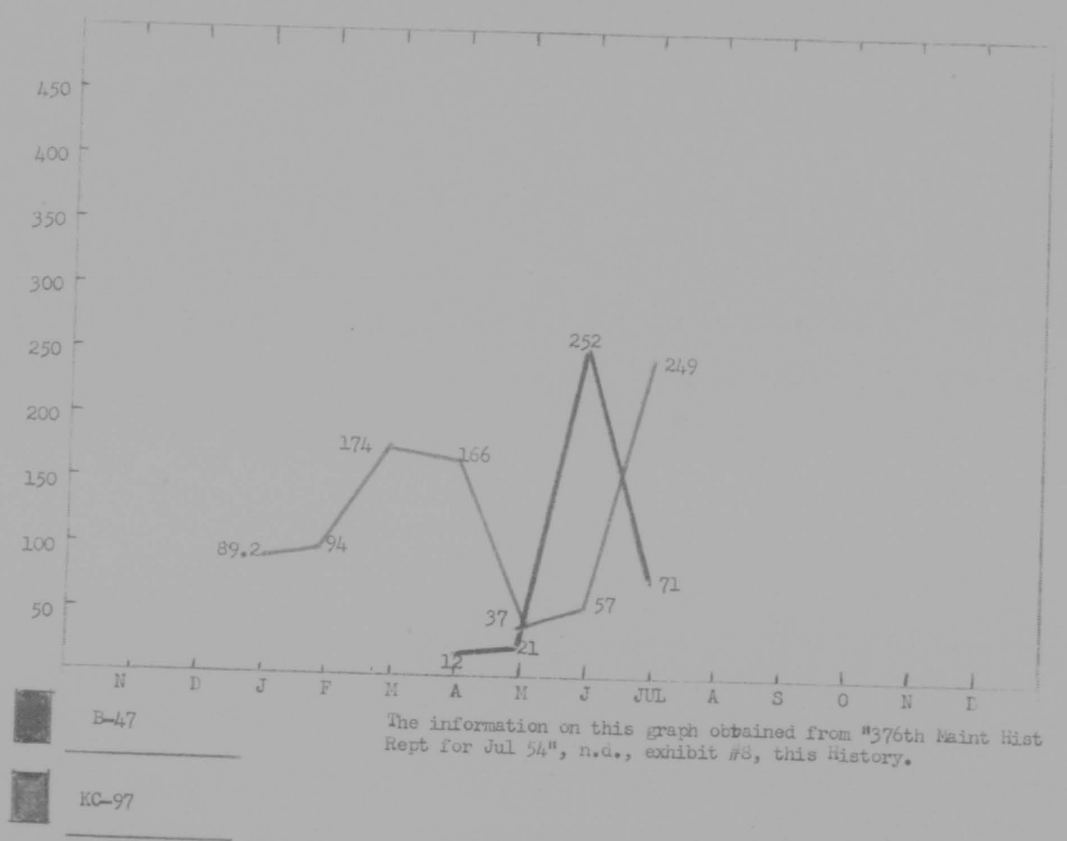
AVERAGE ENGINE TIME AT CHANGE



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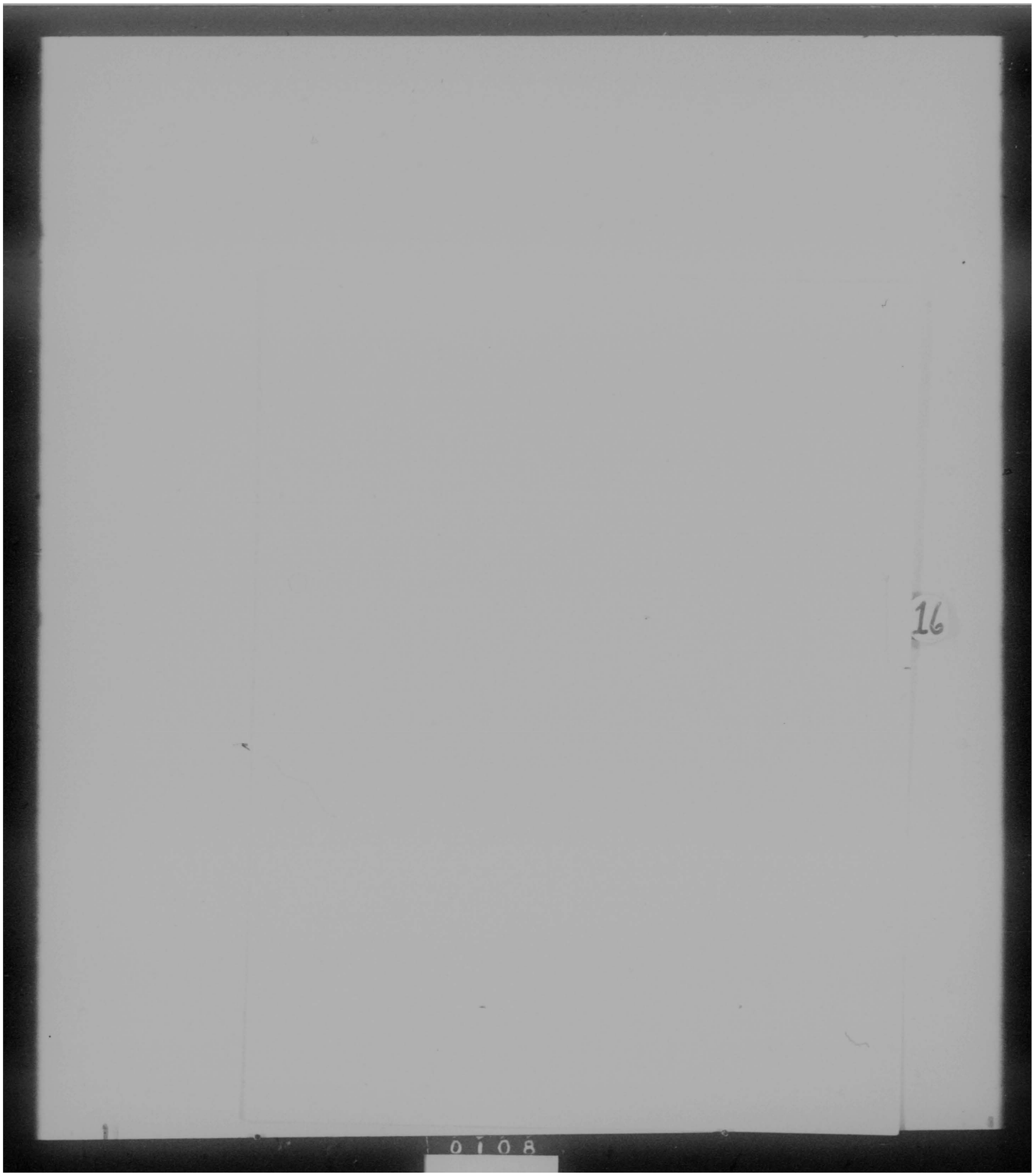

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CONFIDENTIAL

376TH AFMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 August 195[illegible]

Contractor: Dynamic Electronics Inc.
Forest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: [illegible], For Month Ending 31 July 195[illegible]

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 July 195[illegible] submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Line Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eight (8) airmen, AFSC 30230, from MacDill AFB reported to the 376th A & E Squadron for training in ECM equipment for the phase III configuration of B-47 aircraft. A complete training outline was prepared for these men as follows:

AN/ALT-6 (all phases)	32 hours
AN/ALT-7 (all phases)	22 hours
AN/APS-54	15 hours
AN/ALE-1	15 hours
SAC Procedures (outline)	4 hours
Test Equipment	8 hours
Shop Practices	10 hours
Antennas	4 hours
AN/ALT-8 (outline)	4 hours
AN/APT-9 (review)	4 hours
Line Maintenance	8 hours

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Training will include actual work on B-47 such as loading chaff and preflight of equipment. Shop work will include instruction on cable-making, including antenna cables for the AN/ALT-6. These airmen will be present for 128 academic hours and the course has been tailored to this time. Instructors for the courses are Mr. Guy H. Nicholson, (Dynamic) Mr. Robert G. Nevitt, (Philco), and Mr. John A. Lella, (General Electric); Mr. Nicholson supervised the preparation and conduct of the training. A number of schematics have been reproduced and will be forwarded to the airmen with their notebooks after completion of the course. 2AF Form 87 is being maintained on all men attending the class and will also be forwarded. As of 31 July 1954 sixty-four (64) academic hours have been completed. Incorporated with these airmen wer six airmen, AFSC 30230, from the 376th A & E Squadron for a total of fourteen (14) men.

b. Classes Instructed:

(1) General Introduction (2 hours).

(2) Phase III B-47 aircraft, configuration and aircraft wiring (4 hours).

(3) AN/ALT-7: Introduction, characteristics, preliminary analysis and block diagram, modulator and oscillator circuit analysis (16 hours).

(4) Total man-hours of instruction - 224 hours
Classroom time - 22 hours
Time in preparation of course and supervision 21 hours

2. OJT:

a. Supervision of one 30250 in construction of Blue Cradle Test panel - 15 hours.

b. Supervision of one 30250 in construction of ATO compartment test unit - 8 hours.

c. Supervision of one 30250 in construction of test unit for aircraft wiring - 6 hours.

d. Instruction of six (6) men, AFSC 30230, in opera-

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tion of Blue Cradle test panel - 4 hours

e. Instruction of two (2) men, AFSC 30230, in check-out of aircraft wiring - 4 hours

3. Training Time:

Available instructor time for the month of July was 164 hours
Instruction time totaled - 43 hours for classroom
- 37 hours for OJT
Total - 80 hours or 49% of available time

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems

2. I estimate my services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

1. Some malfunctions of Blue Cradle equipment occurred during the month, but are not considered significant in view of the small number of operating hours in the air. Data will continue to be accumulated as more equipment is installed and operated, and will be analyzed in future reports.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Difficulties have been experienced in the operation of Blue Cradle after installation in the aircraft. These difficulties include failure of the transmitters to operate, inoperative chaff dispensers, no indication on chaff counter, erroneous indication of high voltage on transmitter control panel. In the majority of cases these difficulties have been caused by errors in the aircraft wiring for Blue Cradle. In order to locate troubles quickly and take corrective action, two test

0111

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panels are in the processof construction. One panel will test the control wiring to the ECM junction box in the bomb bay and the other will test the control wiring to the ECM junction box in the ATO compartments. By means of these panels all circuits can be tested prior to the installation of the equipment. This procedure will probably continue until such time as the aircraft are cleared of all discrepancies; later these panels will be used as a part of periodic maintenance and whenever troubles re-occur. This report of last month mentioned a test panel for the cradle, to be used in the shop to run up all equipment installed on the cradle. One of five projected panels has been constructed and has been used to good effect. In fact a panel or console of this type is essential to operation of Blue Cradle. It was originally intended to include drawings of this panel and other details in this report, but changes in the design of the panel has made it impossible to prepare them in time for this report. Since all three panels will be extensively used during August, the next report should present an evaluation of these panels with schematics. Since one panel is specifically designed for the ATO compartment, this information will be given to the personnel on TDY training with the 376th A & E Squadron.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

GUY H. NICHOLSON
Dynamic Electronics Field Engineer

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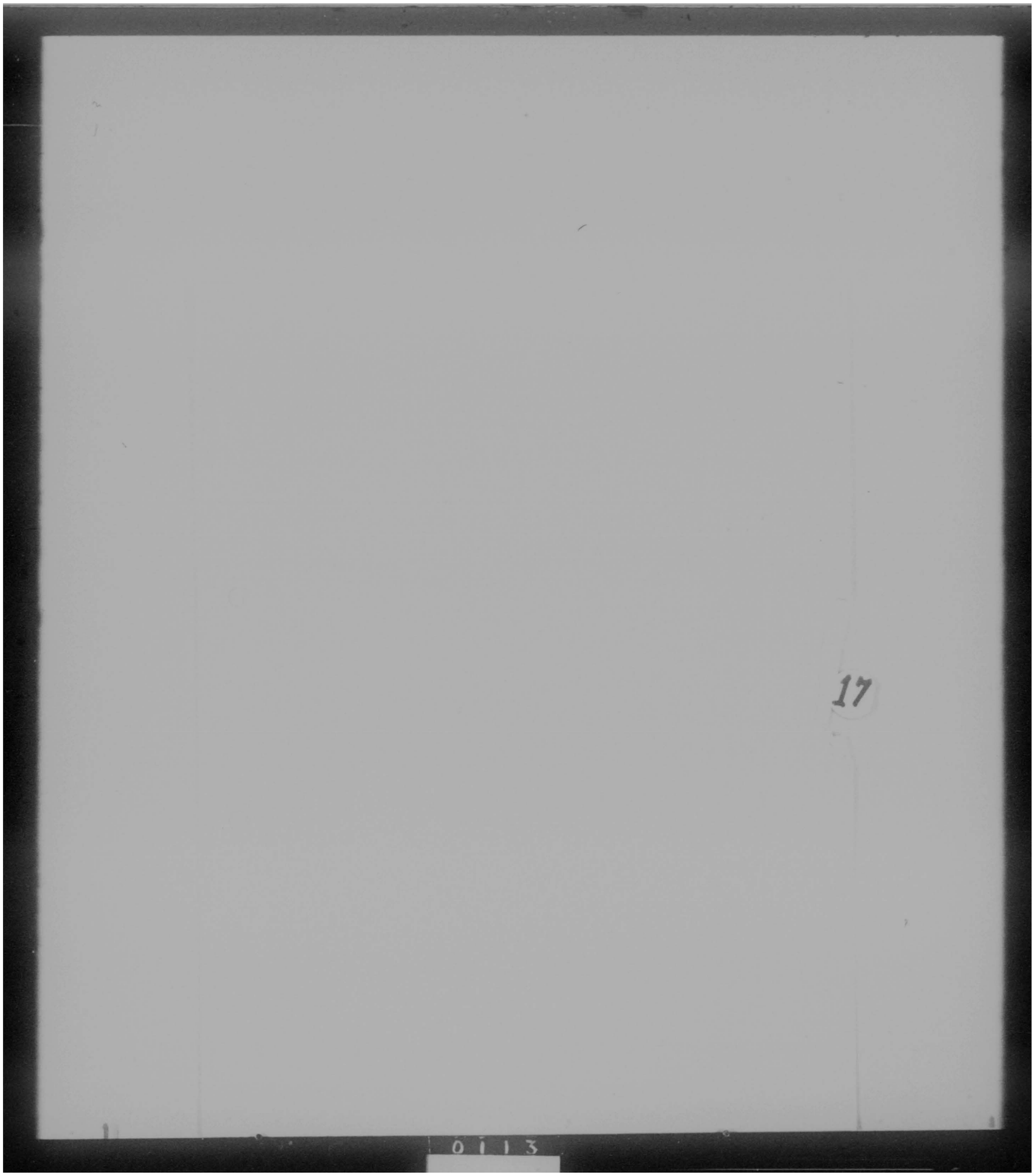

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CONFIDENTIAL

376TH ACMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 3 August 1954

Contractor: General Electric Company
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 July 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John A. Lella
Mr. Hal Ladwig, arrived 30 July 1954

II. EQUIPMENT: AN/ALT-6 Countermeasures Transmitting Set

III. TRAINING ACTIVITIES:

1. Classroom Training - 30 hours - 14 men

a. Theory of operation of ALT-6. Power Supply, Radio Transmitter, Control and Indicator operation. Practical field methods of trouble shooting. Set-up procedures and methods of testing. Also all safety features.

b. Approximately 50 hours was spent preparing exams and material for training purposes and familiarizing myself with the B-47 airplane in connection with blue cradle project.

2. O. J. T. (30230) (30250) (30372)

a. System operation, cabling construction, installation procedures. Some theory of operation. 88 hours. (approximately total)

3. Of 168 hours of available instruction time, 118 hours were used.

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IV. UTILIZATION:

1. Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the AN/ALT-6 Countermeasures Transmitting Set, and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate out services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted

IX. SPECIAL DEVELOPMENTS:

1. Since there are a number of errors in the present T. O., a list is being compiled to be submitted to the Air Force before they begin their publications.

X. GENERAL REMARKS:

1. With the arrival of Mr. Ladwig it is expected the O.J.T. training will be on a larger increase. More students are expected to arrive from other bases and their training scheduled as fast as we can complete one group and start another.

John A. Lella

JOHN A. LELLA
Senior Technical Representative
General Electric Company

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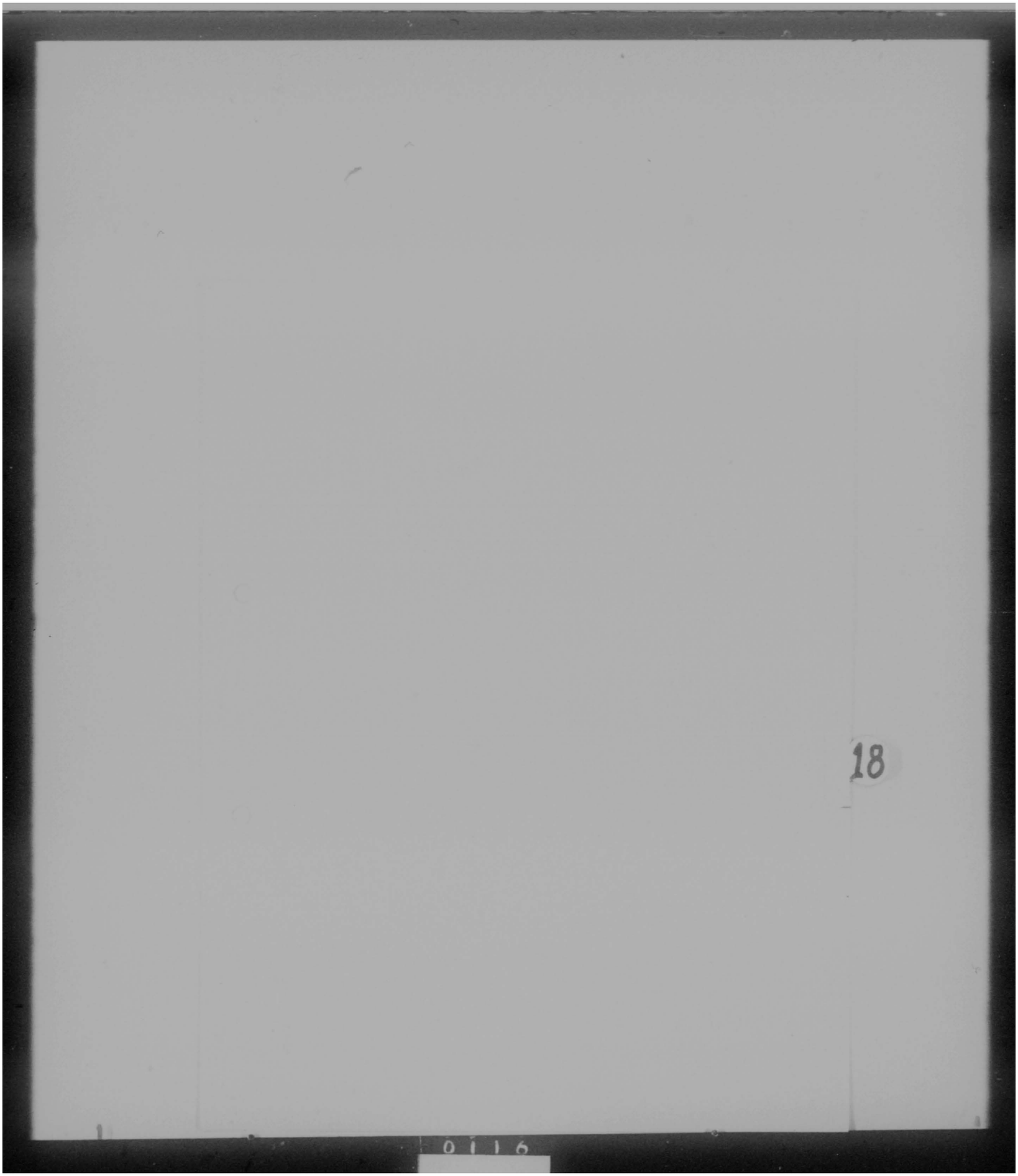

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 August 1954

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 July 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Eugene D. Pearson

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom:

a. Three men from the autopilot section are at present attending a course on the A-12D Gyropilot*. Due to their limited background instruction was also given in static electricity, series circuits, parallel circuits, transformers, ohms law, power, resistor color coding, electrical symbols and electron tube theory. All three men have 40432 AFSC.

b. The sections on which autopilot insturction was given were: B-47 Aircraft (general), B-47 Power Control System, General Description, Flight Operation, ILAS Instrument Approach, Components and Functions, Functional Description, Automatic Approach Operation, Instrument Landing System, Ground Check Procedure, Primary Power Supply and Power Release and Interlock Circuit.

c. Below is a summary of the hours devoted to instruction and the preparation of instruction:

* Reg. U.S. Pat. Off.

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	Instruction Hrs.	No. Students	Student Hrs.
A-12D Gyropilot	51	3	17
Prep. of Instructions	9		

2. OJT

a. The training was divided into two categories, planned and informal. The writer endeavored to give instructions on the subjects that the men seemed to need most. There were three (3) 40432's, three (3) 43156's, five (5) 40453's three (3) 70471's and two (2) 40470's assigned who were available for training.

Planned OJT

	Inst hrs.	Class Length	Students in July	Students to date	Student Hrs.
Ground Check Procedure	4	2	2	12	4
F-1 Turn Cont. and N tie-in	2	2	1	1	2
Compass Swinging Procedure	3	3	4	4	12

Informal OJT

	Inst Hours	Students	Student Hours
A-12D General (AFROTC)	1	30	8
A-12D General (Airmen)	4	9	13
Shop Test Equipment	1	2	2
Test and Training Procedure	1	4	4
Shop Procedures	2	3	3
A-12D Mockup	31	6	56
Aileron Channel	1	7	3
J-2 Compass	1	6	3
Elevator Channel	1	2	2
Trouble Shooting Procedure	6	5	14
Other	3	7	5

b. The writer upon specific request also rendered technical advice and information to the men concerning various portions of the F-1 Autopilot, and the N-1 Compass

	Inst Hrs.	Students	Stu Hrs.
F-1	3	8	8
N-1	13	12	34

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c Of 160 hours of available instruction time, 137 hours were used for training.

IV. UTILIZATION:

1. Primary purpose of the writers assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the Wing, and the training of aircrew personnel in operating and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the writer are estimated to be for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

1. During the month there were writeups on the A-12D Gyropilot* for J-2 Compass inoperative, aileron chatters in turns, elevator jitter, altituie hunt, aileron jitter rudder chatter, disengages in small turns, will not follow PDI, will not hold heading and aileron roll. These malfunctions were traced to unbalanced, mismatched and bad electron tubes. Writeups were routine in nature

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Both the J-2 and the M-1 Compass mockups are now operational and tied into the A-12D Gyropilot* mockup.

2. Since the mockup has been brought close to completion several modifications have been decided upon. It is hoped that these modifications intended to improve the mockup will be completed before the end of August.

3. The initial plans have been made for a B-18 amplifier checker for the field shop. In lieu of a tube tester, the checker will compare the output voltages of the Sperry type 6AQ5's in each channel. There also will be provisions for checking the turn motor, cross-feed modulator, bank integrator, altituie control, and

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7AE, Subject: Monthly Technical Report, RCS; 3-AMC-U19, For Month Ending 31 July 1954

compass amplifier sections of the B-18 amplifier.

X. [illegible] REMARKS:

1. Mr. K. A. Rauk, Sperry Gyroscope Company Area Supervisor for the Southern District Office visited the 376th A & E Squadron on July 14 for a routine visit.

EUGENE D. PEARSON
Field Engineer
Sperry Gyroscope Company

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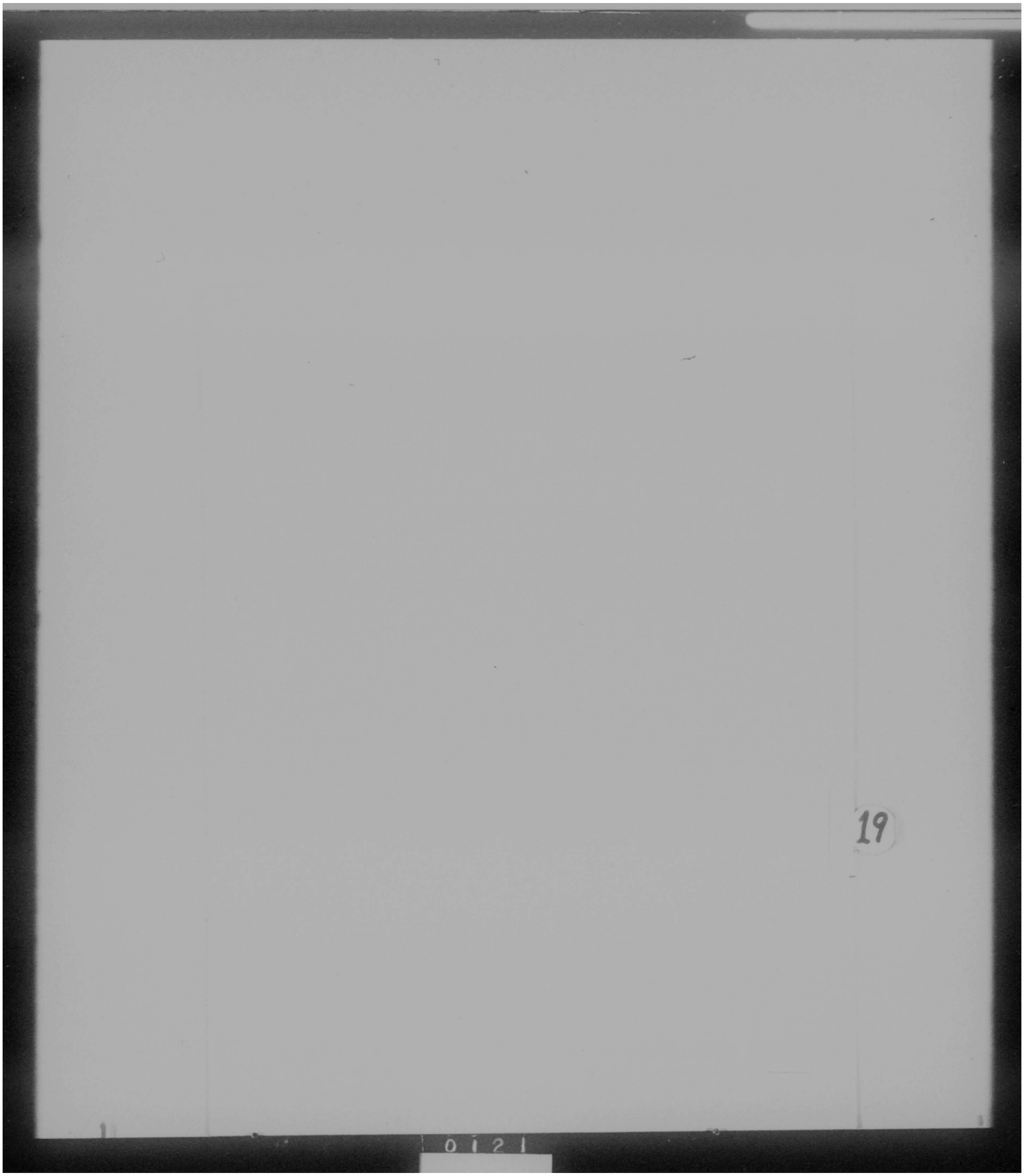

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376TH ABUT & ELECT MAINT SQ
376th Bombardment Wing H
Barksdale Air Force Base
Louisiana

7AT 1 August 1954

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-J19, For Month Ending 31 July 1954

TO: Commander
376th Bombardment Wing H
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 July 1954 submitted in accordance with AFR 66-18 and SAC Reg 56-4.

I. SUBMITTED BY: Mr. Robert J. Lenes, General Mills, Inc.
Mr. John T. Kennedy, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. William C. Cromwell, Sperry Gyroscope Co
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.
Mr. William Laich, Sperry Gyroscope Co.
(Departed 19 July 1954)

II. EQUIPMENT: K-4A Bomb-Navigation System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Four 20 hour classroom courses have been given to the majority of the K-System mechanics. Classes were conducted in these courses during the month of July by General Mills, Inc., Western Electric Company and Sperry Gyroscope Company Field Engineers.

b. Since these classroom courses have been attended by most of the mechanics another 20 hour course has been outlined. This course, will utilize the K-System Training film, still projections and system components, is designed to alleviate the general lack of understanding of the heading and leveling

0122

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loops demostrated by the mechanics not only in the proficiacy test but also in OJT discussions. This course will begin as soon as suitable projectors are available to the A & E Squadron for an extended period. The 376th A & E Squadron has requested a 16 mm movie projector and an H-1 Visual Aid Classroom Projector.

c. As reported in last months report and first indorsement, the availability of but two mockups to support the 376th Bomb Wing activity precluded effective uitlization of a mockup for training purposes in July. With the arrival of two Fly-Away Benches, this problem is being alleviated. A mockup is now being made available for continuous training.

d. The symposium type class for operators has continued 3 days weekly without interruption throughout the month of July. Material discussed in these classes is being edited for presentation to all operators through the medium of the 376th Bomb Wing Observer Digest.

e. The following is the status of classrom training for the month of July 1954. All students had 32130 AFSC's with the exception of the operators whose AFSC is 1544B.

SUBJECT	COURSE (hrs)	No. Instrd to date	No. Instrd in July	Inst Man-hrs	Stu Man-hrs
ICE Loops (Sp)	20	102	12	64	256
Computer Loops (Sp)	20	114	4	20	80
Mock-up (Sp)	20	20	8	34	128
Symposium (Sp & WE)	3	85	32	68	118
APS/23 Loops (WE)	20	122	10	60	200
Mock-up - APS/23 (WE)	20	20	8	40	140
Y-4 Indoctrination (GMI)	20	102	17	76	340
Coordinate Converter Tester, Part II (GMI)	3	49	13	12	39
Component Teardown (Sp)	52	7	7	104	364

Total Student man-hours of training for July - 1665

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loops demostrated by the mechanics not only in the proficiency test but also in OJT discussions. This course will begin as soon as suitable projectors are available to the A & E Squadron for an extended period. The 376th A & E Squadron has requested a 16 mm movie projector and an H-1 Visual Aid Classroom Projector.

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APS/23 Loops (WE)	20	122	10	60	200
Mock-up - APS/23 (WE)	20	20	8	40	140
Y-4 Indoctrination (GMI)	20	102	17	76	340
Coordinate Converter Tester, Part II (GMI)	3	49	13	12	39
Component Teardown (Sp)	52	7	7	104	364

Total Student man-hours of training for July - 1665

0124

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

2. OJT:

a. OJT during the month of July included periodic procedures, test equipment and alignment procedures, system analysis and trouble-shooting.

PLANNED OJT

Subject	Instructor Hours	Student Hours	Students
Periodic Procedures	72	288	12
Test Equipment and Alignment Procedures	15	29	9

INFORMAL OJT

Subject	Instructor Hours	Student Hours	Students
System analysis	308	487	90
Trouble-Shooting	81	159	40

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of July for a total of 1192 man-hours. Of this total, 954 man-hours were utilized for formal and OJT training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duti also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the above named Field Engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS: Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Detail:

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7AS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

a. The P-8 Control Box located to the left and slightly in back of the operators position is very difficult to remove from the aircraft. The reason it is difficult to remove is the Adelphi Clamps which hold the Cannon Connector AN3101A-22-27S and AN 3101A-22-14P. It is almost impossible to disconnect the Cannon Connector without breaking the Adelphi Clamp. The clamp, itself, cannot be removed due to the impossibility of getting a screw driver in position to remove the screws holding it. If the Adelphi Clamp were not installed, leaving the cables unclamped, the problem would be solved. (This installation would then be identical to that of the M-1 Control Box, which is located to the left of the P-8 Control Box).

2. Recommendations:

a. Elimination of the Adelphi Clamp would correct this problem.

3. Action taken to correct:

a. A UR is being submitted to correct this.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Detail

a. Since last months report, a few additional cases where the periscope clam shell dome cover on B-47E turnabout aircraft could not be opened after the aircraft became airborne. This was caused by interference between the aircraft fairing skin and the ring gear of the clam shell mechanism. This condition occurred only in flight and was attributed to pressure produced by in flight air resistance forcing the fairing against the ring gear thereby preventing the hand crank from turning the ring gear. It was found that the channel around the upper portion of the stationary dome cover was spread out and the moveable cover was striking this channel.

2. Recommendations:

a. Airplane manufacturer should provide greater clearan between cowling and this mechanism.

0126

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7AT, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

3. Action taken to correct:

a. The malfunctions were corrected by removing the fra ing and trimming off the forward edge. The channel was flattened around the edge of the stationary dom to allow clearance for the movable cover. UR numbers 376EM-54-1235 and 376EM-54-1236 have been submitted.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. W. Laich, Sperry Gyroscope Company Field Engineer completed his scheduled three week assignment with the 376th A & E Squadron on 19 July 1954. Mr. Laich instructed field shop personnel teardown and alignment procedures for the computers and stabilization unit.

2. Mr. K. A. Mauk, Sperry Gyroscope Company Supervisor visited the 376th A & E Squadron July 14 for a routine visit.

3. Mr. J. Kennedy, Western Electric Company Field Engineer, was absent 19 July through 30 July 54 on his yearly vacation.

H. S. KOPALA
Field Engineer Coordinator
Sperry Gyroscope Company

J. T. KENNEDY
Field Engineer
Western Electric Company

ROBERT J. IDLES
Field Engineer
General Mills, Inc.

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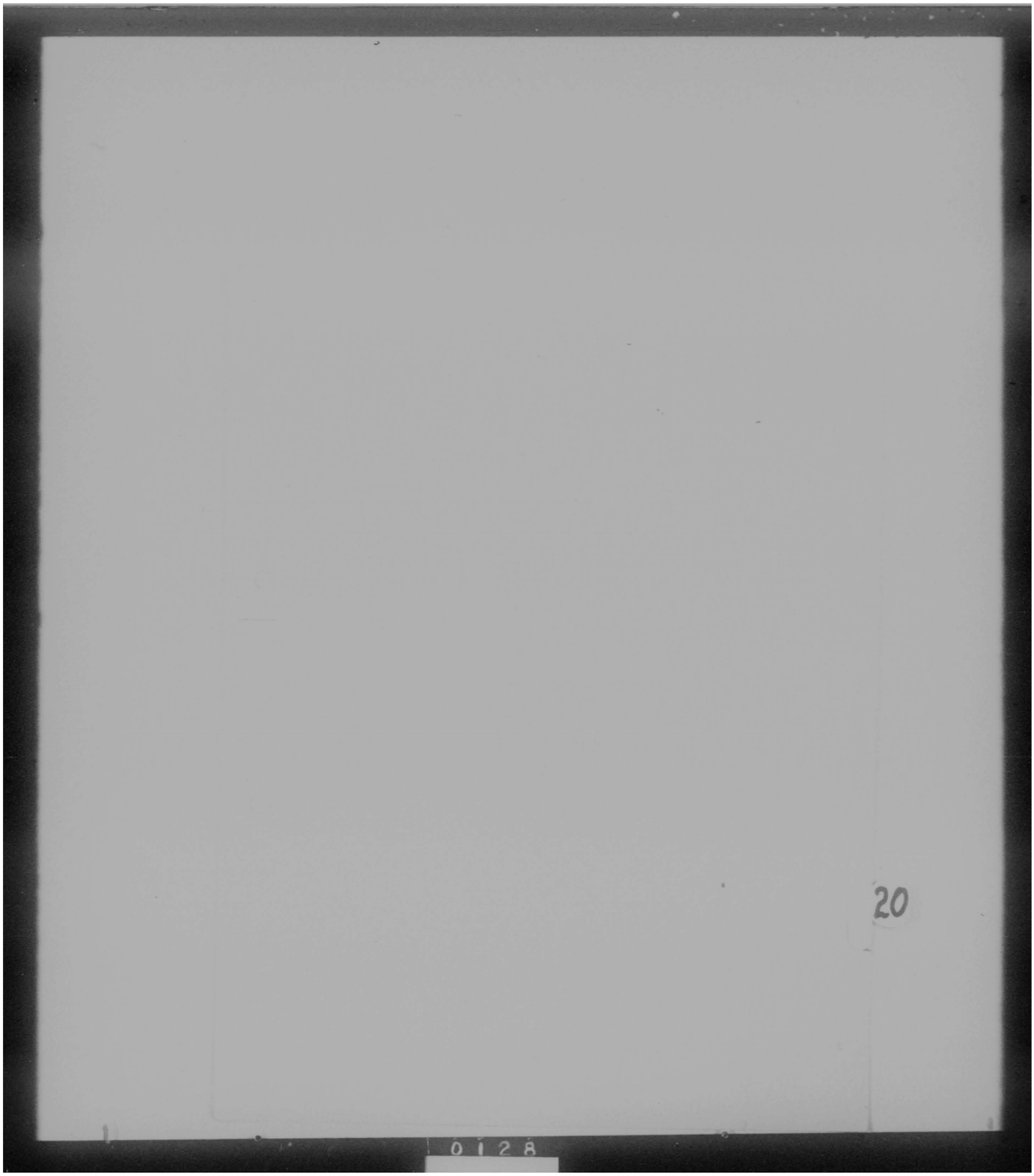

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1 August 1954

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, [illegible] MC-U19, For Month Ending 31 July 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 July 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: K. R. Faux, Crosley
E. M. Perman, Crosley

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eighty man hours were spent, by the authors of this report, in preparing, administering and evaluating the results of an overall evaluation examination given to the men of the A-5 work section. An outline of a course of instruction to be given the A-5 men was prepared and classes were begun. Total time: 80 hours.

b. Eight A-5 airmen (AFSC 32330C) received 160 man hour of instruction in a review course of basic math and electronics. This course was given to two classes of 4 men each. To date each class has been in attendance 20 hours with the duration of the course established to be sixty hours. Total time: 40 hours.

0129

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2. OJT:

a. Two A-5 airmen received 48 man hours of instruction in checking aircraft wiring for faulty cabling between A-5 components. Total time: 24 hours.

b. Three A-5 airmen received 48 man hours of instruction in [illegible] and repairing faulty A-5 components in the [illegible] shop. Total time: 20 hours.

c. Two A-5 airmen were given 16 man hours of instruction in setting up and operating test equipment for [illegible] procedures. Total time: 8 hours.

d. Four A-5 airmen were given 40 man hours of instruction in A-5 power requirements, sources and cabling. Total time: 20 hours.

e. Two A-5 airmen were given 8 man hours of instruction in using Technical Orders and stock lists to expedite the ordering of spare parts. Total time: 4 hours.

f. Six A-5 airmen received 144 man hours of instruction in maintenance procedures. Total time: 24 hours.

g. Two A-5 airmen were given 16 man hours of instruction in detailed study of firing circuit and gun charger operation. Total time: 8 hours.

h. Four A-5 airmen were given 16 man hours of instruction in adjusting the cathode ray tube for proper positioning of the sweep. Total time: 4 hours.

i. Four A-5 airmen were given 32 man hours of instruction in Automatic Gun Charger and Free Fire Box modification and testing. Total time: 8 hours.

3. Training Program:

a. Available time - 320 hours
Total training time - 240 hours
Training % - 75%

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the

0130

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

A-5 System, and training of aircraft personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate our services to be for an indefinite period.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS INCLUDING EFFECTIVE MAINTENANCE ENGINEERING RECOMMENDATIONS: Negative.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

K. R. FAUX
Field Engineer
Crosley

E. M. PERMAN
Field Engineer
Crosley

0131

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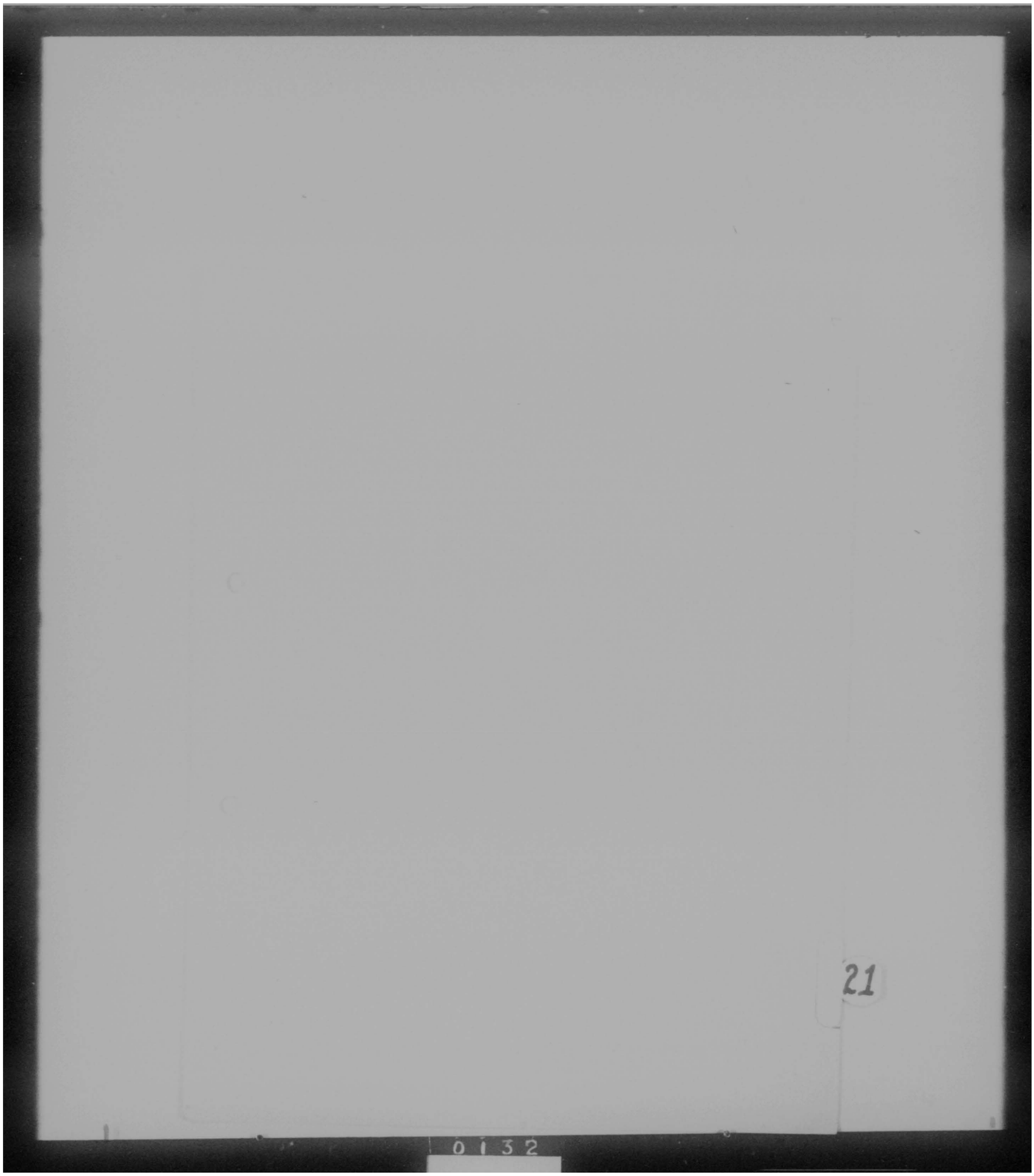

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376TH ARMT & DIRCT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7A3

3 August 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: J-AMC-U19, For Month Ending 31 July 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 July 1954, submitted in accordance with AFM 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/APS-54, CRC-8, AN/ALE-1, Flue Cradle, SAC Project # 6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Fifteen (15) hours of classroom instruction was given to a class of 14 men on the ALE-1 equipment, 8 of whom are TDY from Mac Dill AFB.

b. Training aids were prepared for the ALE-1 and APS-54 equipment for maintenance personnel and operating instructions were prepared on the APS-54 for distribution to flight personnel. (20 hours).

c. Instructor time (10 hours). Preparing classes, test and grading.

2. OJT:

a. Supervised two men in checking the APS-54 on the line (24 hours).

b. Trained three shop personnel how to test APS-54 equipment in accordance with a procedure that I devised. (24 hours).

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7AF, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954

c. Miscellaneous AF for airman (28 hours).

d. OJT for operations (5 hours).

3. Training Time:

Available instruction time for the month was 168 hours.

Time devoted to classroom instruction	25 hours
Time devoted to training aids	20 hours
Instructor time	10 hours
Time devoted to OJT	73 hours
Total Instruction Time	118 hours or 70% of available time

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 FCS equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems, and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

1. Some actuators in the ALE-1 strippers have been found with poorly soldered connections which prevented their operation. No UR action will be taken until further data is obtained.

2. The Interim Handbook of Instructions on the APS-54 on page 44 states that a negative pulse amplitude of 0.13 volts is necessary to trigger the PRF multivibrator. A decimal point mistake was made in the publication. The figure should be 1.3 volts. The handbook also indicates that the PRF discriminator calibration strap was adjusted at the factory for proper calibration. Two APS-54's were selected for spot checks and the PRF discriminator calibration was found to be improper. UR's will not be submitted since the publication is an Interim Handbook.

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7AF, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 July 1954.

3. All of the APS-54 antennas are being checked on the [illegible] and many defective crystals are being found. (See Paragraph IX for further data).

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. The shop test data given in the Interim Handbook of Instructions for the APS-54 is very vague and not entirely suitable, therefore, I devised a different procedure utilizing a UPN 25 pulse generator and a DUM 2mA synchroscope. The procedure is simple, accurate and time saving. The information on this test procedure will be written up and submitted in the near future.

2. A definite test program is being investigated for accurate line testing of the APS-54 system.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Line and shop tests which are being conducted on the APS-54 equipment, indicate that a large number of APS-54 systems are either inoperative or operating at very low efficiency. I believe that most of the equipment will require calibration of the PRF discriminator, crystal detector replacements in the antenna assembly and sensitivity readjustment. (See Paragraph IX for further data).

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Tests are being conducted at the present time to determine the condition of the crystal detectors in the antenna assemblies. Tests so far indicate that a large percentage of the antenna installations are defective (over 40%) either due to crystals or antenna cables.

2. Tests will be made to determine the amplitude of the antenna crystal current that exists when radar equipment on the aircraft and on adjacent line aircraft is operative.

3. The data from the above tests will be analyzed to determine the contributing factors of the crystal failures and the degree of crystal protection necessary. I have conceived a protective circuit which I believe will eliminate the cause of the crystal failure. Additional data on this development will be reported next month.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMS-U19, For Month Ending 31 July 1954

X. GENERAL REMARKS: Negative.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Pacific Corporation

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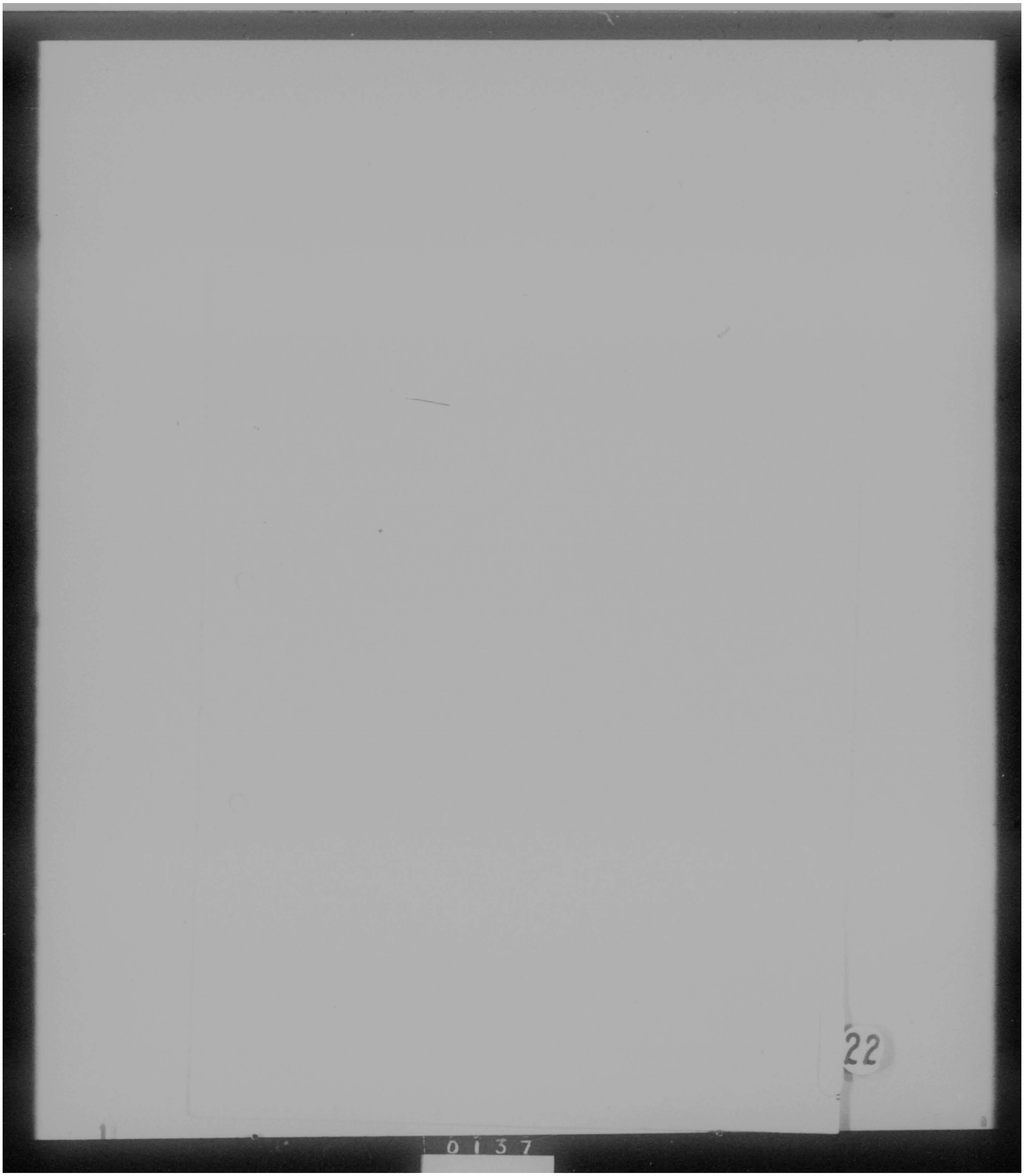

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376TH ABPT & ELECT MAINT SQ
376th Bombardment Wing H
Barksdale Air Force Base
Louisiana

7AL 2 August 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, TO3: 3-AAC-U19, For Month Ending 31 July 1954

TO: Commander
376th Bombardment Wing H
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 July 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Homer C. Fritsch

II. EQUIPMENT: APS-42A, APX-6, APN-1, APN-11, APN-9, SCR-718, SCR-718D, APN-12, ARC-3, ARC-27, ARC-8, ARN-6, ARN-7, ARN-12, ARN-14 and ARN-18.

III. TRAINING ACTIVITIES:

1. Classroom: Negative.

2. OJT:

a. Two airmen (AFSC 30151) of the Auxiliary Radar Field Maintenance Section were given OJT covering the troubleshooting procedures to be followed when working with the AN/APS-42A radar equipment. This training also included the proper use and operation of associated test equipment. Total time: 20 hours.

b. Instruction covering the use of test equipment in conjunction with the troubleshooting and repair of the AN/ARN-14 VOR equipment was given to 4 airmen (AFSC 30150) of the Field and Line Maintenance Sections. This training was comprised of

0138

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trouble isolation procedures and the checking of minimum performance standards. Total time: 40 hours.

c. One airman (AFSC 30151) of the Auxiliary Radar Field Maintenance Section was given instruction in the proper use of the AN/UPM-6 test equipment when used for troubleshooting and alignment of AN/APX-6 IFF equipment. Total time: 24 hours.

d. Two airmen (AFSC 30150) of the Field Radio Maintenance Section were given training in the troubleshooting procedures to be followed when servicing AN/ARC-10 equipment. Total time: 24 hours.

e. One airman (AFSC 30150) of the Field Radio Maintenance Section was given instruction covering the troubleshooting procedures to be used when working with the AN/ARN-6 ADF equipment. Total time: 16 hours.

f. During the month of July there was a total of 168 hours available for training of which 124 hours were utilized for that purpose. Of the total time available, 74% was used for training purposes.

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel in the operation, calibration, and maintenance of the APS-42A, APX-6, APN-1, APN-11, APN-9, SCR-718, SCR-718D, APN-12, ARC-3, ARC-27, ARC-8, ARN-6, ARN-7, ARN-12, ARN-14, ARN-18 and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. It is estimated that the services of Mr. Fritsch can be terminated on or about indefinite.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

0139

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VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. During the month of July a new AN/AIC-10 mock-up was completed and put into operation. As soon as final diagrams and pictures of this mock-up have been completed they will be forwarded as requested in 2AF Message DM6B 3912, dated 27 July 54.

X. GENERAL REMARKS:

1. Tests of the ARN-14 antenna system aboard our B-47 aircraft were not completed during the month of July as previously anticipated. Prior commitments precluded making these tests but every effort will be made to have them completed during the month of August.

2. During the month of July RCA field service representatives assisted us in building a mock-up for the AN/ARC-21 equipment. This mock-up is now complete with the exception of the AIC-10 components for keying and audio. However, as of this writing we are not authorized the associated test gear for the AN/ARC-21 and until such time as this test equipment is made available to us our ability to service this equipment will be limited. The test equipment referred to is the ME-75/ARC-21 Multimeter and the DA-84/ARM-6 Dummy Load.

HOMER C. FRITSCH
Field Engineer
Philco Corporation

0140

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HISTORY
1-31 AUGUST 1954
376TH Bombardment Wing (M)

LIBERANDOS

BARKSDALE AIR FORCE BASE
LOUISIANA

RSI Contl No
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Classification: SECRET
Authority: [illegible] Bomb Wing (M)
Initials: Murphy
Date: 11 OCT 1954

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 AUGUST - 31 AUGUST 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron, Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics
Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

For and in the absence of JOHN P. PROCTOR Col, USAF
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

RSI Contl No
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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Conversion Status	1
Fiscal Year 1955 Funding Program	2
Personnel	2 - 4
Personnel Problems	4
SAC Management Control System	5
Crew Status	5, 6
Reenlistment Rate - AWOL Rate	6
Roster of Key Personnel	7
CHAPTER II . . . Operations and Training	8
Flying Time	9
SAC Management Control System	9 - 11
Status of Test Projects	11 - 19
CHAPTER III . . . Maintenance and Supply	20
Aircraft Status	21 - 24
Maintenance Capability	24, 25
SAC Management Control System	25
Maintenance Training Activities	25 - 28
Equipment Malfunctions	28
Maintenance Engineering Difficulties	28, 29
Supply Problems	29, 30
Special Developments	30
General Remarks	30
Supply	30, 31

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CONVERSION STATUS

According to Second Air Force Programming Plan 34-53, the 376th Bombardment Wing was assigned four combat ready dates: There were 22 crews to be ECM combat ready by July first, 33 to be ECM combat ready by August first, 45 to be ECM combat ready by September first, and 45 to be ready for ECM and normal bombardment operations by the first of October 1954.

The shortage of RG-78 cable (HV to ECM transmitter on cradle) had delayed the combat equipping of aircraft for the ECM/EWP mission. At the end of August, three aircraft were equipped with the cable and the other 45 to be completed by 10 September 1954. August 18th found the conversion training for combat crews on schedule. There were 32 crews capable of performing ECM missions with ECM equipped aircraft.

Of the 107 K-systems maintenance personnel with 3-level PAFSC's, 92 were performing duty in higher levels. Time in grade and lack of experience have prevented them from being given PAFSC's commensurate with their capability.

During July an average of 10 aircraft per day were undergoing modifications and were not available for training. As a result the unit failed to accomplish its flying hour allocation. It is expected that the wing will meet its overall combat ready date of October first 1954.[1]

1. Ltr, Hq 2AF, Subj: "(Uncl) Programming Report No. 7, 2AF Programming Plan 34-53, Conversion of the 376th BW to B-47 type aircraft", Status as of 10 Aug 54, Unless otherwise specified. Files, 376th Historical Section.

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FISCAL YEAR 1955 FUNDING PROGRAM

The Wing was affected by a drop in the funds reserved by the Base Comptroller. Base wide there was a drop of $115,000 from fiscal year 1954 to 1955, directly imposing a reduction on the Wing funds. From the first of January through 30 April the majority of officers and a great number of airmen were TDY at schools, with travel and per diem charged to Training Command funds, and the people, not being available to go on other TDY during the period, did not use 376th TDY funds. Therefore the 1954 utilization does not show a correct annual picture. It was stated that the Wing TDY obligations would be closely monitored during July and August and if utilization indicated, additional funds would be requested.[2]

PERSONNEL

The total number of officers assigned at the end of August 1954 was 376,[3] which was 15 less than in July,[4] and was 23 less than authorized strength.[5] A total of 357 officers were effectively assigned,[6] six less than in July,[7] or 89.4 percent of authorized

2. D/F, "FY 1955 Funding Program", Wing CO to Wing CR, 16 July 54, attached, exhibit #1.
3. Report, "Monthly Analysis (August 1954)", n.d., prep by D/P, 376th Bomb Wing, hereafter cited as "376th Pers Anal for Aug 54", n.d., exhibit #2, and chart, exhibit #3.
4. History 376th Bomb Wing for July 54, page 1.
5. "376th Pers Anal for Aug 54", n.d., exhibit #2, and chart, exhibit #3.
6. "376th Pers Anal for Aug 54", n.d., exhibit #2.
7. History 376th Bomb Wing for Jul 54, page 1.

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strength.[8] The figures and percentage for manning in required specialties in August were the same as for effectively assigned during the month.[9] There were 25 officers transferred or discharged during August,[10] or 6.2 percent of authorized strength,[11] and 10 officers assigned,[12] or 2.5 percent of authorized strength.[13]

The total number of airmen assigned at the end of August 1954 was 2016,[14] which was 13 less than in July,[15] but was 311 more than authorized strength.[16] There were 1426 airmen effectively assigned,[17] 79 more than in July,[18] or 83.6 percent of authorized strength.[19] The manning in required specialties figure for airmen in August was 1154,[20] which was an increase of 62 over the July figure.[21] There were 76 airmen transferred or discharged during

8. "376th Pers Anal for Aug 54", n.d., exhibit #2.
9. Ibid.
10. Ibid, by career fields: Acft Maint-1, Ops Staff-1, Navi-Bombardiers-3, Pilot AOB's-1, Comm Off-1, Armt Sys-1, Unclass'd-3, Navigators-2, Pilots-6, Intel Photo Radar-1, Intel-1, Med Administrator-1, Supply-1, Personnel-1, and Nurse-1. Total - 25.
11. "376th Pers Anal for Aug 54", n.d., exhibit #2.
12. Ibid, by career fields: Comm Electronics Staff-1, Unclass'd-3, Supply-2, Pilots-2, Intel-1, and Research and Development-1, Total - 10.
13. "376th Pers Anal for Aug 54", n.d., exhibit #2.
14. Ibid, and chart, exhibit #4.
15. History 376th Bomb Wing for July 54, page 1.
16. "376th Pers Anal for Aug 54", n.d., exhibit #2, and chart, exhibit #4.
17. Ibid.
18. History 376th Bomb Wing for July 54, page 2.
19. "376th Pers Anal for Aug 54", n.d., exhibit #2.
20. Ibid.
21. History 376th Bomb Wing for July 54, page 2.

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August,[22] or 4.4 percent of authorized strength,[23] and 68 airmen assigned,[24] or 3.9 percent of authorized strength.[25]

PERSONNEL PROBLEMS

Officer manning of the 376th Bombardment Wing remained relatively the same as in July. Five observers were reassigned to the 301st Bombardment Wing (Barksdale Air Force Base) and only one was gained. Officer manning in AFSC's 2044, 3054, 3244, 3254, 4334, 4355, 4363, and 7324 remained critically short. In the maintenance field, manning improved slightly to 94 percent by primary and 84 percent by duty AFSC in the 43133/53 field. Upgrading brought manning up to 70 percent by primary and 196 percent by duty in 43151J, 43151B and 43152 AFSC's. The manning situation at the supervisor/technician level of the armament systems maintenance career field changed very little during the month and remained critical at 13 percent by primary and nine percent by duty AFSC.[26]

22. By career fields: Comm Ops-3, Radio & Radar-5, Armt Sys Maint-3, Atomic Wpns-1, Intri Equip Maint-1, Acft Access Maint-4, Airplane & Eng Maint-21, Munitions & Wpns Maint-1, Veh Maint-1, Metal Work-2, Const-1, Fabric leather & rubber-9, Food Sv-2, Supply-7, Admin-4, Pers-4, Med-6, Rescue & Survival-1, Total - 76.
23. "376th Pers Anal for Aug 54", n.d., exhibit #2.
24. Ibid, by career fields: Intel-1, Radio & Radar-11, Intri Equip Maint-2, Airplane & Eng Maint-23, Metal Work-3, Fabric leather & rubber-4, Trans-2, Food Sv-1, Supply-4, Admin-12, Pers-2, Mgt-1, and Med-2. Total - 68.
25. "376th Pers Anal for Aug 54", n.d., exhibit #2.
26. Report, "Air Training Report for the Month of August 1954, Sec J, RCS: 6-SAC-T-12, " n.d., hereafter cited as "376th T-12, Sec J, for August 54", n.d., exhibit #5.

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SAC MANAGEMENT CONTROL SYSTEM

Manning in required specialties received 24 out of 30 possible points for officers and 7.5 out of a possible 75 points for airmen. AWOL rate obtained 30 points out of 30, ground safety obtained 3.8 points and mobile training detachment utilization received 20 out of 20 points. Total points possible was 220, and the total earned was 101.3 for 46 percent of the total.

MOS for airmen was expected to improve considerably by the end of September due to proficiency test results for upgrading of personnel being returned.[27]

CREW STATUS

B-47's:

There were three B-47 crews formed during August 1954, four crews were disbanded due to an observer from each crew being transferred. One crew became combat ready and 23 crews advanced from non ready to ready status giving an average of 23 crews combat ready, and 23 non-combat ready crews that were in training at the end of the month. Ten EOR non combat ready crews have been trained to a point where they could be deployed in event of an emergency. The Wing lost a co-pilot (grounded indefinitely) and five observers (transferred to 301st

27. Report, "SAC Management Control System, Quarter Ending 31 July 54", n.d., hereafter cited as "SAC Mgt Control Sys, as of 31 Jul 54", n.d., exhibit #6.

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Bombardment Wing), and gained one co-pilot and one observer.[28]

KC-97's:

One crew was formed during August 1954, and there were no excessive crew changes or temporary crew substitutions, nor any crew status changes. There were an average of 21 crews available for training during the month. Eighteen crews were ready and three were non ready at the end of August 1954.[29]

REENLISTMENT RATE - AWOL RATE

There were 59 discharges during August 1954 with 27 reenlisting, giving the Wing a reenlistment rate of 45.7 percent. That was an increase of 20.7 percent over the figure for July 1954.

There were four airmen AWOL during August giving the Wing a figure of 1.98 for the airmen and an AWOL rate of 1.67 for the Wing.[30]

28. "376th T-12, Sec J, for August 54", n.d., exhibit #5, and chart, exhibit #7.
29. Report, "Air Training Report for the Month of August 1954, Sec I, RCS: 4-SAC-T12, n.d., hereafter cited as "376th T-12, Sec I, for August 1954, n.d., exhibit #5a, and chart, exhibit #7.
30. "376th Pers Anal for Aug 54, n.d., exhibit #2, and chart, exhibit #8.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	HOLLAND, RALPH T.	Colonel
Director of Personnel	SHELTON, DONALD L.	Major
Director of Special Tests and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	LACK, WENDELL D.	Lt Colonel
Chief of Intelligence	GARCIA, JOSEPH M.	Captain
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron	LOLLAR, CLARENCE L.	Lt Colonel
513th Bomb Squadron	ABRAMS, JAMES S.	Lt Colonel
514th Bomb Squadron	WEDDLE, OWEN A.	Lt Colonel
376th Air Rflg Squadron	COPLEY, ROBERT E.	Lt Colonel
376th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th Armt & Elec Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

During the month of August 1954 the B-47 aircraft of the wing flew 114 hours and 55 minutes ferrying aircraft, 100 hours and 55 minutes for Test and Tactics, and 118 hours and five minutes for the SAC Bombing Competition, for a total of 333 hours and 55 minutes performing missions ordered by higher headquarters. The total operational hours flown during August were 1155, for an average of 24 hours and 34 minutes flown per assigned B-47 crew.[31]

During August 1954 the KC-97 aircraft flew 410 hours and 35 minutes performing missions ordered by higher headquarters. The total hours flown operationally were 723, for an average of 34 hours and 26 minutes per assigned KC-97 crew.[32]

SAC MANAGEMENT CONTROL SYSTEM

Flying safety earned 32 of a possible 40 points for a total of 80 percent. The extremely low ground safety score can be attributed directly to two deaths during the quarter. Each death is assessed an accident cost of $31,500.

KC-97's received 40 of a possible 50 points, night celestial navigation proficiency received 20 of 20 points, cruise control proficiency received six of 15 points, wet hook-ups received 20 of 20 points, radar rendezvous received 20 of 20 points, scored crews

31. "376th T-12, Sec J, for Aug 54", n.d., exhibit #5.
32. "376th T-12, Sec I, for Aug 54", n.d., exhibit #5a.

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(tanker) received six of 10 points, combat crews (tanker) received seven of 10 points and physical conditioning (Air Refueling) received two of 20 points. Of a possible 165 points, operations received 121 points for a percentage of 73.3.

The mobile training detachment utilization was 100 percent of maximum score. Score is determined by attendance. With the overage of personnel in the tactical squadrons, Periodic Maintenance and Field Maintenance, sufficient personnel should be made available for MTD training to assure maximum score in this item. Utilization dropped below that figure for June and July, but the total quarterly attendance resulted in maximum score.

The data for computation of flying hours as a "percent of required" was taken from the SAC F-1 report. By deleting "Routine requirements", item 1c(2), which are impossible to accomplish due to "Missions Orders by Higher Echelons after Weekly Schedule is Completely Established", item 1c(1)(a)) the score on this item could be increased considerably. Operations data was based on KC-97 operations only. The Air Refueling Squadron was placed under 50-8 training requirements the beginning of the quarter but is not under the SAC Management control System. This rating is informal for the use of the Wing. During this quarter the Air Refueling Squadron gave a great portion of time to air refueling training of the bomb squadrons and was unable to complete all minimum training requirements. Cruise control proficiency was low but should improve with practice. The score for physical conditioning was

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based on KC-97 crews only. That item was based on attendance and maximum score should be attained every month.[33]

STATUS OF TEST PROJECTS

Project 1A increased one percent to 86 percent of completion with 80 hours and 43 minutes more being flown, for a total of 263 hours and eight minutes. Results obtained with the five megacycle band width transmitters reported last month were unsatisfactory. The bandwidth of the two transmitters was further reduced to one megacycle where effective jamming was obtained. Effective jamming in this case is considered to be the denial of understandable communications to the fighter pilot when he is within 25 miles of the jamming aircraft. With two transmitters operating simultaneously, effective jamming was obtained from a point 30 nautical miles from the ground station, where the run was started, to a point 114 nautical miles distant. The seperation between the jamming aircraft and the simulated fighter was 25 nautical miles throughout the run. A chart was prepared comparing the one and five megacycle bandwidth transmitters.[34]

Project 1X remained at the same percentage of completion as in

33. "SAC Mgt Control Sys for Jul 54", n.d., exhibit #6.
34. Report, "376th Bomb Wing, Medium, Test and Development Program (RCS: SAC-U30)", 1 Sep 54, hereafter cited as "376th U-30 for Aug 54", 1 Sep 54, exhibit #9, and History 376th Bomb Wing for July 54, page 1 (exhibit #9).

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July 1954.[35] The design of all transmitter, receiver, and control circuits in the unattended VHF communications jammer was complete and ready for bench checking.[36]

Project six remained at the same percentage of completion as in June and July 1954.[37]

Project 10 remained at the same stage of completion. The Air Proving Ground Command tested the SCR-720 Airborne Intercept Radar System in Navy F-7F aircraft against bomber aircraft. That test and their final report on completion of said test was accepted by SAC Headquarters as full satisfaction of the requirement. Therefore Test Project Number 10 was considered completed.[38]

Project 15 remained at the same percentage of completion as in July.[39] Testing was postponed until new QK387A magnetrons were received. It was noted that some of the dust covers on the AT-404 horns heated excessively. Some comparison tests were conducted with old and new horns. Indications were that the dust covers deteriorate with time. Satisfactory operation was obtained when a one-quarter inch thick teflon cover was substituted. Difficulty was experienced with cross threading of the UG-17/U semi-rigid coaxial cable. They are made of brass and have fine threads which invariably become

35. History 376th Bomb Wing for July 54, page 8.
36. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
37. History 376th Bomb Wing for June and July, pages 11, and 9 respectively, and "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
38. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
39. Ibid, and History 376th Bomb Wing for July 54, page 9.

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crossed, resulting in a poor connection and consequently high VSWR which damages the magnetrons. The connectors were redesigned to a clamp design, allowing rapid coupling of the RG-17/U to either the transmitter or the antenna without fear of damage or poor connections.[40]

CHANGE OF PROJECT TITLE:

New ALT-8 equipment has been received from the Raytheon Manufacturing Company. The AN/APT-16 (XA) and AN/APT-16A equipments will only be used for laboratory and ground tests. All future reports will use the equipment designation of AN/ALT-8. Test programs will continue to provide necessary information on the proper sweep speed and bandwidth to effectively jam gunlaying and EW/GCI type radars. All AN/APT-16A equipments on hand were converted to automatic sweep jammers.[41] Following paragraph contains report on ALT-8 under new number.

Project Number 15, "Effectiveness Test of Sweep Jammer AN/ALT-8. Initiated 9 August, was 12 percent complete with no hours flown. Two systems of the ALT-8 equipment were received from the Raytheon Manufacturing Company. Each ALT-8 system consisted of two transmitters, two horn antennas, a power supply and a control box. The lower frequency transmitter covered the frequency range of 2300 mc to 3150 mc. The higher frequency transmitter covered the range of 3100 mc to 4105

40. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
41. Ibid.

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mc. Each transmitting magnetron may be tuned at variable slow sweep speeds, six to 20 mc per second, or at high sweep speeds of either 1800 of 6000 mc per second. The band width at slow sweep speeds can be varied from approximately 30 megacycles to the entire band width that the magnetron is capable of covering. At fast sweep speeds, the band width is determined by the size of the interchangeable metal cam located in the magnetron tuning assembly. At present only two cams are available, a 60 mc cam and a 200 mc cam. Other cams have been requested and are now being manufactured by the Raytheon Manufacturing Company.[42]

Two ALT-8 and one ALT-6 system were transported to Eglin Air Force Base, Florida, for tests. Data obtained was the subject of a special report.[43]

Project 15-6 remained at the same stage of completion as during July. Flight testing was delayed while making modifications for antenna installations on the B-47 aircraft. General Electric Company, contacted for an AN/ALT-6 test set, stated the first model would be available for testing about 10 September 1954.

The recent arrival of Wave Guide, Slotted Lines, and VSWR Meters enabled the laboratory to perform complete and improved methods of checking VSWR of the modified stub antenna, AT-185/AP versus the various types of horns and helix antennas. It was apparent that only

42. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
43. Ibid, and attachment #1, thereto.

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the helix antenna could be used with the AN/ALT-6 system, until a better antenna is developed.[44]

Project 25 was at 100 percent of completion with 31 hours and 30 minutes having been flown.[45] That was the same as in July 1954.[46] The final report was delayed in order to include additional pertinent information. Difficulties of a structural nature were successfully corrected by the addition of a cork strip.[47] After 70 hours one antenna broke off in flight as a result of metal fatigue failure of the center rod caused by vibration and drag forces imposed on the antenna. On two antennas the Bakelite bases of the antennas were replaced with Teflon bases which began to loosen after 12 hours of flying, but which have not broken off after 52 hours flying.

There were three new AT-490 stub antennas being tested. Two were plastic sleeved and one metal. After the first mission one of the plastic sleeved antennas was too loose for further testing, but the other two antennas were still being flown for evaluation after 24 hours and 50 minutes, though they were loose in the base.

Search was still being made for a better grade compound such as the "duct supe" which was used to seal the space between the helix antenna mount and skin of the aircraft. The "duct supe" has decreased

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44. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
45. Ibid.
46. Exhibit #9, History 376th Bomb Wing for July 54, page 6.
47. History 376th Bomb Wing for July 54, page 10.

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the amount of chaff lodging between the antenna mount and the skin of the aircraft.

Further tests were flown with the new chaff chute and still were without incident.[48]

The addition of the venturi flange has eliminated the blow-back of chaff into the bomb bay.[49] The sheet metal flange was installed between the chaff dispensers and chaff chutes has also prevented the tape jams mentioned in the July History.[50]

All aircraft have been through the turn around process at Douglas Aircraft Company where a functional test was performed on each aircraft and cradle. No discrepancies have been reported since this turn around.[51]

Project 27 increased to 50 percent of completion with an additional 17 hours having been flown. The night chaff corridor test described in the July report was flown. An interim report covering the data in the test was in process of reproduction at the time of this writing.[52]

Auxiliary Project Five increased to six percent of completion. The needed equipment was received but some auxiliary items are still on order. A BC-966-A airborne transponder and a BC-127-A ground

48. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
49. History 376th Bomb Wing for July 54, page 10.
50. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9, and History 376th Bomb Wing for July 54, page 10.
51. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
52. Ibid.

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interrogator-responder have been assembled and are in the process of being checked out.

A request for bibliography on IFF equipment was sent to the Air University Library at Maxwell Air Force Base, Alabama. Some data on the Russian SRO IFF equipment was received and more was requested.[53]

Auxiliary Project Six increased two percent to 20 percent of completion. The parts for the power supply and oscillator amplifier were received. The power supply was completed and the oscillator amplifier was nearing completion.[54]

Auxiliary Project 12 remained at 63 percent of completion. Work on this project was suspended while the project officer engineered changes to the whip antenna for "Blue Cradle" and the ALT-7.[55]

Auxiliary Project 13 remained at the same stage of completion due to the project officer assisting with "Blue Cradle".[56]

Auxiliary Project 14 remained the same as in July. Sweep unit parts were being manufactured by the machine shop for sweeping the APT-5A transmitter. Work was suspended on the project during the first half of August while the project officer was placed on TDY to WADC as a GRC liaison officer.[57]

Auxiliary Project 15 was considered 100 percent complete even

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53. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
54. Ibid.
55. Ibid.
56. Ibid.
57. Ibid.

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though the parts for the interphone installation were not received.

Auxiliary Project 18 increased to 30 percent of completion. Modifications have been made which have improved the VHF Jammer, but an improved method of coupling the antenna, or a better antenna will be required for the transmitter to be used over a very wide range of frequency.[59]

Auxiliary Project 20 increased to 25 percent of completion with a total of 20 hours having been flown. Two flight tests in B-47's to determine practicability of navigation by using Land Camera pictures of the radar indicator presentation were made. This type navigation reduces the aircraft's susceptability to location by radar DF nets and passive homing devices. This is possible by maintaining the radar in standby condition except when a picture is being taken. One rotation of the radar is sufficient for a picture. The results of these tests show that it is possible to accurately navigate B-47 aircraft under adverse weather and changing wind conditions using the photographic technique. The interim report on this will be covered in the September Historical Report.

A total of two KC-97 missions were flown with the Dumont-Polaroid camera mounted on the APS-42 indicator but results were inconclusive. Modification of the MX754 periscope for adaption of the Polaroid camera was completed and flight tested but the picture was

58. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
59. Ibid.

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too small. Efforts will be made to produce a periscope and lens assembly which will produce a larger picture.[60]

Auxiliary Project 21 increased to 25 percent of completion. An extensive survey of existing systems which may be adapted to the station keeping problem was completed. This survey indicated that no one could supply an experimental model which could be tested within a year. General opinion was that the direct viewing, infra-red system should work. This type of equipment is available and has been obtained. It has been modified for aircraft installation for use in station keeping. A test program has been set up to determine the feasibility of the technique and the suitability of the equipment. An infra-red viewer, designated the AN/SAR-45, was obtained from Dr. P. J. Ovrebo at WADC. It was tested by an observer standing at one side of a runway as a B-47 aircraft took off. By observation of the jet exhausts the aircraft could be tracked out an estimated 15 miles. Installation of infra-red lights on the aircraft should increase this range to from 50 to 100 miles in good weather.[61]

60. "376th U-30 for Aug 54", 1 Sep 54, exhibit #9.
61. Ibid.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of August 1954 the Wing had 48 B-47's assigned and possessed, and 22 KC-97's assigned and possessed,[62] which was the same as during June and July.[63] The B-47 aircraft flew a total of 1182 hours and 25 minutes,[64] (98 hours and 35 minutes less than in July)[65] giving a figure of 24 hours and 40 minutes flown per possessed aircraft,[66] which was one hour and 56 minutes less than during July 1954.[67] The KC-97 aircraft flew a total of 761 hours and 10 minutes,[68] (132 hours and 45 minutes more than in July 1954),[69] giving a figure of 32 hours and 39 minutes flown per possessed aircraft,[70] which was six hours and five minutes more than in July 1954.[71]

The in-commission rate of B-47 aircraft in August was 76.48 percent,[72] which showed a small increase of 7.80 percent over the July

62. Report, "Historical Report for the Month of August 1954", n.d., prep by D/M, 376th Bomb Wing, hereafter cited as "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #11.
63. Histories 376th Bomb Wing for June & July 54, pages 26 & 20.
64. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #12.
65. History 376th Bomb Wing for July 54, page 20.
66. "376th Maint Hist Rept for Aug 54", n.d., exhibit "10, & chart, exhibit #13.
67. History 376th Bomb Wing for July 54, page 20.
68. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #12.
69. History 376th Bomb Wing for July 54, page 20.
70. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #13.
71. History 376th Bomb Wing for July 54, page 20.
72. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #14.

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figure,[73] while on KC-97 aircraft the August figure was 79.58 percent,[74] which was 11.13 percent over the July 1954 figure.[75] The AOCP rate for B-47 aircraft in August was 11.56 percent,[76] a decrease of 6.16 percent from the July figure,[77] while on KC-97 aircraft was 7.28 percent,[78] a decrease of 7.99 percent from the July figure.[79] The ANFE rate for both types of aircraft was 100 percent,[80] the same as it has been since the last of January 1954.[81]

The direct manhours expended per flying hour on B-47 type aircraft during August was 30.2 hours,[82] a decrease of 9.1 hours from the July figure,[83] while on KC-97 aircraft the August figure was 17.3,[84] a decrease of 7.4 from the July figure.[85] Maintenance manhours expended during August 1954 were: 97,389 direct manhours, 112,801 indirect manhours, 10,879 manhours overtime, 15,535 manhours listed as pass time, 65,948 manhours listed as absent time, and

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73. History 376th Bomb Wing for July 54, page 20.
74. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #14.
75. History 376th Bomb Wing for July 54, page 20.
76. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #15.
77. History 376th Bomb Wing for July 54, page 21.
78. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #15.
79. History 376th Bomb Wing for July 54, page 21.
80. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10, & chart, exhibit #14.
81. Histories 376th Bomb Wing, Jan through Jul 1954.
82. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
83. History 376th Bomb Wing for Jul 54, page 21.
84. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
85. History 376th Bomb Wing for July 54, page 21.

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210,190 manhours listed as available time.

There were approximately 60 component parts changed on B-47 aircraft during the month,[86] against 145 changed in July,[87] while on KC-97 type aircraft there were 45 changed,[88] against 48 changed during July 1954.[89] The quality control unit inspected four KC-97 and nine B-47 aircraft processed through the 376th maintenance docks, and supervised 16 KC-97 and 17 B-47 type aircraft test flights during the month. There were 261 unsatisfactory reports submitted during the month of August 1954.[90]

The number of engine changes during August was eight on B-47 aircraft,[91] one less than in July,[92] and on KC-97 aircraft increased from five in July[93] to seven in August.[94] On B-47's the average engine time at change was 87.3 hours, while on KC-97's the time was 204 hours.[95]

There were 59 malfunctions for the month,[96] compared to 41 for the month of July 1954.[97] Of these, 54 were on B-47 type aircraft: Bombing system had 31 malfunctions, 25 charged to material failure,

86. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
87. History 376th Bomb Wing for July 54, page 21.
88. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
89. History 376th Bomb Wing for July 54, pages 21 & 22.
90. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
91. Ibid, and chart, exhibit #16.
92. History 376th Bomb Wing for July 54, page 22.
93. Ibid, and chart, exhibit #16.
94. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.
95. Ibid, and chart, exhibit #17.
96. Ibid.
97. History 376th Bomb Wing for July 54, page 22.

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communications system had two malfunctions, both charged to material failure; gunnery had one malfunction due to material failure: air refueling had one malfunction due to material failure and one due to other causes; power plant had four malfunctions due to material failure; and aircraft general had a total of 14 malfunctions, 11 due to material failure, two due to maintenance personnel, and one due to other reasons. The remaining five malfunctions were on KC-97 type aircraft: one malfunction charged to air refueling system, three charged to power plant system, and one charged to propeller system, all due to material failure.[98]

MAINTENANCE CAPABILITY

The factors that affected the capability of maintenance to provide aircraft for operational training during the month were: (1) An average of 12 B-47 aircraft days were expended per B-47 periodic inspection, (2) One hundred and ninety-eight aircraft days were lost to ECM modification project "Blue Cradle" at Tulsa, Oklahoma, (3) Thirty-two aircraft days were lost for fuel cell repair, (4) 141 aircraft days were lost due to AOCP, (5) Ground power shortages of two generators for Marthons, one rectifier, one C-26, and five high pressure air compressors. The days listed above as lost total 371

98. "376th Maint Hist Rept for Aug 54", n.d., exhibit #10.

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days from a total of 1488 available days, showing a restriction of capability.[99]

SAC MGT CONTROL SYSTEM

For flying hours the Wing received 50 of a possible 60 points, reports of survey earned 17 of a possible 20 points, and technical order compliance earned 16.5 points of a possible 60 points. The total points received were 83.5 of a possible 140, for a total of 59.6 percent.

This was the first quarter that Technical Order compliance had been rated on the SAC Management Control System. The low score was primarily due to the fact that approximately 85 of the 103 outstanding TO's are awaiting parts for compliance. A recent SAC message revised the method of computation and disregards technical orders on which the organization was awaiting parts. The change will be effective on future reports.[100]

MAINTENANCE TRAINING ACTIVITIES

CLASSROOM:

A total of 33 airmen were given 48 hours training on the APS-54 radar. Six airmen were given 24 hours training on the ALE-1 chaff dispenser. Twenty airmen were given 32 hours instruction on the

99. "376th T-12, Sec J, for Aug 54", n.d., exhibit #5.
100. "SAC Mgt Control Sys, as of 31 Jul 54", n.d., exhibit #6.

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ALT-7. Seventeen airmen were given instruction for 24 hours on the ALT-8.[101]

A total of 68 hours on theory of the ALT-6 countermeasure transmitter was given to men from the 376th Bomb Wing as well as from MacDill Air Force Base, Mountain Home Air Force Base, and Castle Air Force Base.[102]

Three men from the autopilot section attended a 17 hour course on the A-12D Gyropilot during the month.[103]

Eight different 20 hour courses were conducted during August. Two were new courses, and the others were all continuations of previous courses, on the K-4A Bomb-Navigation System. A total of 149 airmen were given 1132 manhours of instruction. Subjects covered were: I.C.B. Loops, mock-up, Computer Loops, B-2 Navigation Unit, Symposium, APS-23 Loops, Mock-up -APS-23, APS-23 trouble shooting, Optical test equipment and Y-4 indoctrination.[104]

On the A-5 system eight airmen were given 40 hours instruction on theory, eight were given 40 hours instruction on general analysis,

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101. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by Nevitt, exhibit #18.
102. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by Lella & Ladwig, exhibit #19.
103. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by Pearson, exhibit #20.
104. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by 8 Flt Engrs, exhibit #21.

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and 13 were given 60 hours of basic electronics and associated mathematics.[105]

ON THE JOB TRAINING:

Eight airmen were given instruction. One airman was given 32 hours instruction on trouble shooting procedures on AN/ARN-6 radio equipment, including proper use of the associated test equipment. One airman was instructed for 24 hours on system operation and trouble isolation on the AN/AIC-10 equipment. One airman was given 80 hours instruction on operation and maintenance procedures on the AN/ARN-14 VOR equipment including proper use of the signal generator SG-13 and oscilloscope OS-8B. During the month 141 hours of instruction were presented.[106]

A total of 94 airmen were given formal and informal OJT during August for a total of 74 hours covering all phases of the A-12D Gyropilot.[107]

During August 174 airmen were given instruction for system analysis on the K-4A Bomb-Navigation System, and 71 airmen were given instruction in trouble shooting on the K-4A System.[108]

Three airmen were given eight hours instruction on checking for

105. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by Faux & Perman, exhibit #22.
106. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for August 54", by Fritsch, exhibit #23.
107. "376th U-19 for Aug 54", by Pearson, exhibit #20.
108. "376th U-19 for Aug 54", by 8 Fld Engrs, exhibit #21.

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field change modifications on the A-5 system. Six were given one hour instruction each on field change modifications. Eight airmen received 20 hours instruction on Blue Cradle modifications which affect the A-5 operation. Thirteen airmen were given 27 hours instruction in trouble shooting procedures. Two airmen were given two hours instruction on the use of the "Magic Wand".[109]

EQUIPMENT MALFUNCTIONS

The writeups on the A-12D Gyropilot were all traced to unbalanced, mismatched, and bad electron tubes, during August 1954.[110]

Three ALT-7 sweep capacitors were defective. They were vacuum sealed in a glass container along with the sweep motor. Cause of failure was being investigated. Two mistakes were found in the schematic diagram of the ALT-8. Adjustments were made to the APS-54, according to an APS-54 manufacturing representative, for setting the PRF bias, but this method of adjustment was not suitable for reliable equipment operation.[111]

MAINTENANCE ENGINEERING DIFFICULTIES

A complete functional test of ECM equipment on all aircraft of the Wing was conducted to detect and correct discrepancies in the aircraft wiring, as installed or modified for Blue Cradle operation.

109. "376th U-19 for Aug 54", by Faux & Perman, exhibit #22.
110. "376th U-19 for Aug 54", by Pearson, exhibit #20.
111. "376th U-19 for Aug 54", by Nevitt, exhibit #18.

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The discrepancies were corrected by the Douglas Aircraft Corporation, Tulsa, Oklahoma. Two discrepancies, relating to phase III configuration B-47 aircraft were noted: (1) repeated tripping of circuit breakers for AFC compartment AN/ALE-1 dispensers when operated on the intervalometer positions, and (2) intermittent or inoperative AN/ALE-1 chaff dispensers due to dispenser case not being completely grounded to the aircraft frame.[112]

Instead of using A/C inverters on ground run-ups of the K-systems, Marathon Power Units were to be used, but all of the K-plugs on them were found to be in poor condition. Ground power section was inspecting and repairing the K-plugs and meanwhile the A/C inverters were used.[113] The problem was being cleared up.

There were no operational difficulties on any of the equipment during the month of August 1954.[114]

SUPPLY PROBLEMS

The ALT-6 magnetrons, L3040 and L3041 were listed as expendable items even though they cost $920.00 each. Phone calls to Gentile Air Force Base and to Air Materiel Command were made and it was found that the bad tubes should be thrown away. Evidently no provisions

112. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954", 1 Sep 54, hereafter cited as "376th U-19 for Aug 54", by Nicholson, exhibit #24.
113. "376th U-19 for Aug 54", by S Fld Engrs, exhibit #21.
114. Exhibits #16 thru #22, this History.

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were made to send the tubes back to Litton for repair.[115]

SPECIAL DEVELOPMENTS

APS-54 crystals were being damaged by strong radar signals. Elimination of the trouble was to be tried by protective circuitry.[116]

Fourteen sets of photostatic copies of technical order sheets covering the A-12D Gyropilot, N-1 Compass, and C-1 Amplifier were distributed to all men of the autopilot section. The A-12D Gyropilot fly-away mock-up with the J-2 and N-1 Compass tie-ins was considered complete.[117]

GENERAL REMARKS

The omni equipment aboard B-47E aircraft #406 was operating continually at a substandard level. The ARN-14 VOR equipment was checked, the antenna installation was checked, antenna cable connectors were checked, antenna was examined, but the reason was not determined. Further tests were to be made in order to find the cause of this trouble.[118]

SUPPLY

The status of unit essential equipment for the Wing during the

115. "376th U-19 for Aug 54", by Lella & Laqwig, exhibit #19.
116. "376th U-19 for Aug 54", by Nevitt, exhibit #18.
117. "376th U-19 for Aug 54", by Pearson, exhibit #20.
118. "376th U-19 for Aug 54", by Fritsch, exhibit #23.

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month of August 1954 was 88 percent.[119]

The percentage of special purpose clothing during the early part of the month was 87 for aircrew, 88 for survival, and 56 percent for ground crew.[120]

119. D/F to 376th D/M from D/M Supply, Subject: "Historical Report for Month of August", 10 Sep 54, exhibit #25.
120. Ibid.

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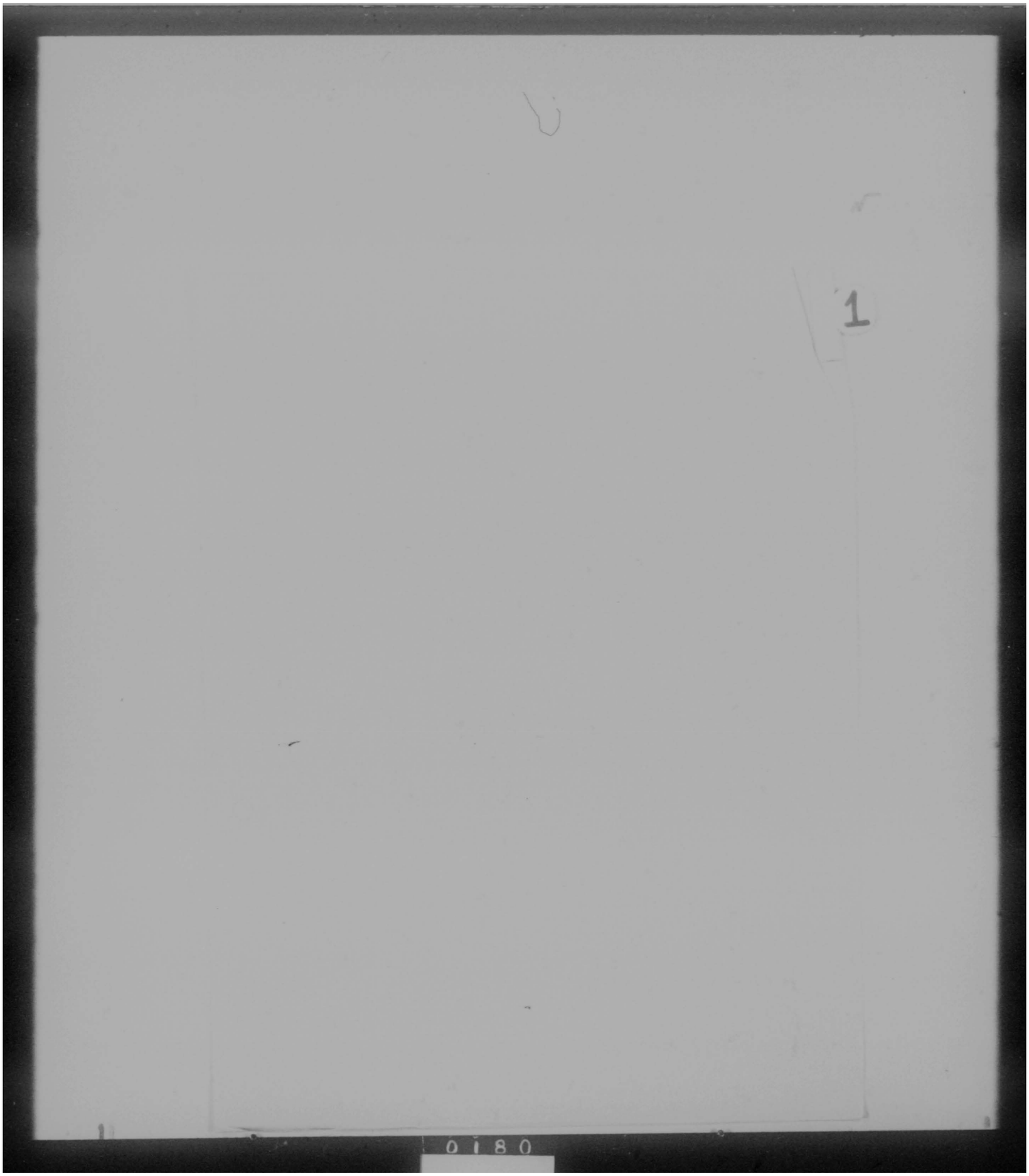

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DISPOSITION FORM

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FILE NO.

SUBJECT: FY 1955 Funding Program

TO 7 CO | FROM 7CR | DATE 16 July 54 | COMMENT NO. 1

1. The Base Comptroller has advised this office that the following program has been developed for the 376th Bomb Wing for fiscal year 1955. This program only includes those funds which are specifically reserved by the Base Comptroller for this organization. For comparison, the actual utilization during fiscal 1954 is also given.

	54 utilization	1955 annual program	Avail 1 July-30 Sept
a. TDY ECM	17,159	18,000	5,400
b. TDY 376th	54,793	44,800	13,440
c. ECM Supplies	*	15,000	4,500
d. ECM Equip	*	5,000	1,500

* Due to activation of the "local purchase store" on 1 May, complete figures are not available.

2. The reduction in Wing TDY funds is due to a base-wide reduction from $320,000 to 205,000 dollars from fiscal 54 to fiscal 55. A portion of this reduction was passed on to this Wing. From 1 Jan through 30 April, the majority of the officers and a great number of airmen were TDY at schools, with travel and perdiem charged to Training Command Funds. These people were not available to go on other TDY during this period, and therefore did not use 376th Bomb Wing TDY Funds. Therefore, the 1954 utilization does not reflect a true annual picture.

3. The Base Budget and Accounting Officer has advised, that he will closely monitor our TDY obligations during July and August. If our utilization indicates that additional funds are required, we can request an increase in our funding program.

4. Additional funds for ECM supplies and equipment can be secured as the need arises.

/s/t/RICHARD K. CUNLIFFE
Major, USAF
Wing Comptroller

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THIS IS A TRUE COPY.

William A. Mungley
Major, USAF, Wing Adjutant

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED.

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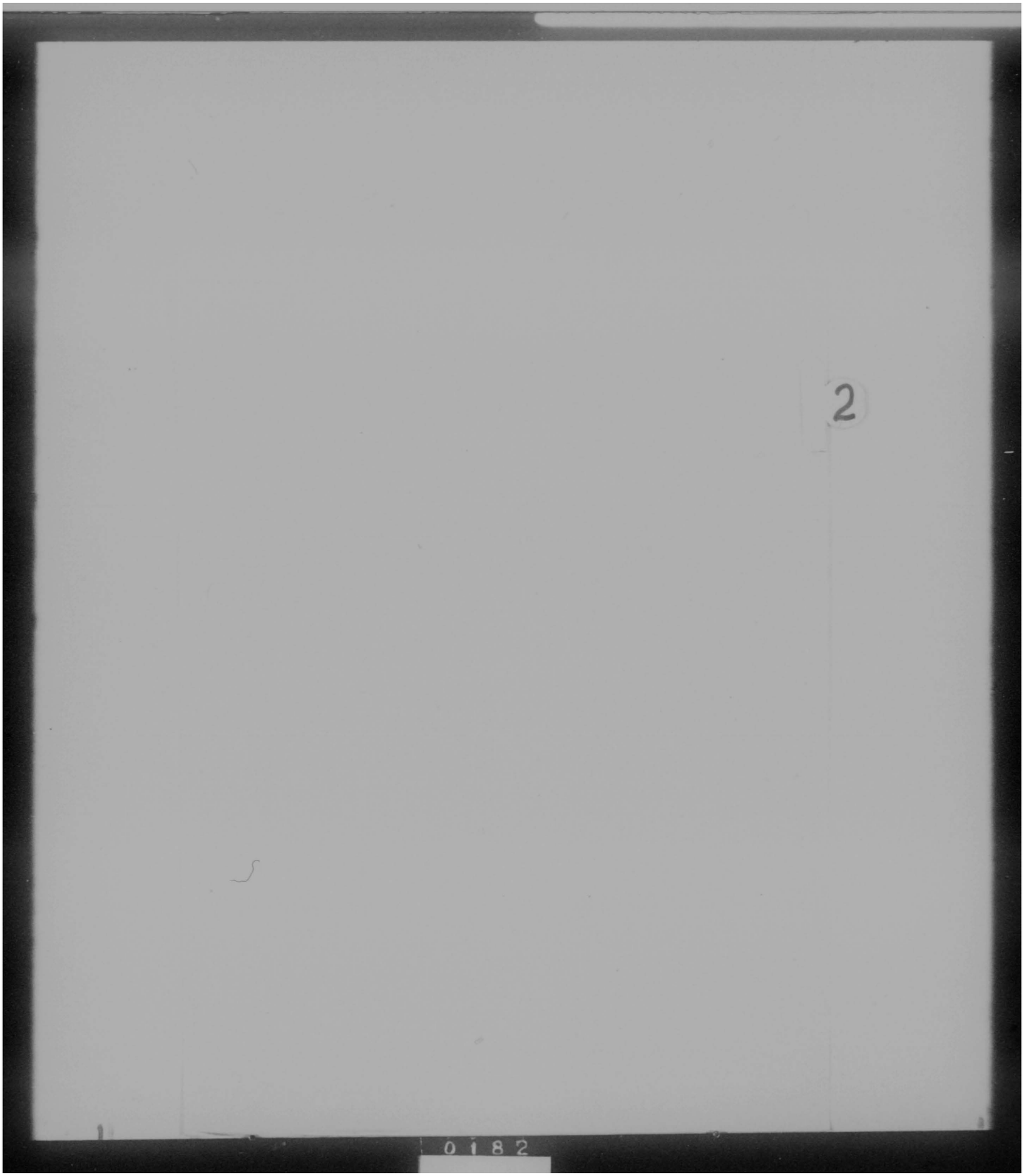

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MONTHLY ANALYSIS (AUGUST 1954)

1. Officers Assigned during August 1954:

RANK	AFSC	NAME
Capt	(3034)	Gordon S. Lugenbell
Capt	(0001)	Ben W. Cotton
Capt	(0001)	Richard M. Simmons
1st Lt	(6414)	Joe L. Craig
1st Lt	(0001)	Chester E. Bennett
1st Lt	(1224C)	Geln E. Roudabush
1st Lt	(1224C)	G. B. Williford
1st Lt	(2054)	William J. Gleason
2nd Lt	(8691)	Thomas J. Whelan
2nd Lt	(6421)	Joe H. Morris

TOTAL: 10

2. Officers Transferred during August 1954:

a. Transferred to 301st Bomb Wing, Barksdale AFB, La.

RANK	AFSC	NAME	ORGN
Capt	(0001)	Ben W. Cotton	Hq 376th Bomb Wing M
Capt	(0001)	Richard M. Simmons	Hq 376th Bomb Wing M
Capt	(1521A)	James H. Cobb	Hq 376th Bomb Wing M
Capt	(1521A)	Peter J. Chille	Hq 376th Bomb Wing M
1st Lt	(0001)	Chester E. Bennett	Hq 376th Bomb Wing M

b. Transferred to Camp Kilmer, New Jersey.

1st Lt	(1044C)	Robert B. English	376 Periodic Maint Sq
1st Lt	(9025)	Robert W. Braden	376 Tac Hospital
2nd Lt	(9754)	Ruth A. McMurdo	376 Tac Hospital

c. Transferred to Sedalia AFB, Missouri.

Capt	(1234C)	Fred Grindle	376 Air Refueling Sq
Capt	(1534A)	Robert Clark	376 Air Refueling Sq
2nd Lt	(1231C)	William Jonnson	376 Air Refueling Sq

d. Transferred to Parks AFB, California.

1st Lt	(6421)	Rodney P. Doering	513th Bomb Sq M
1st Lt	(7321)	Alonzo E. Oliver	376 Armt & Elect Maint Sq

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e. Transferred to Wright-Patterson AFB, Ohio.

RANK	AFSC	NAME	ORGN
Lt Col	(4344)	Sherrill L. Powell	376 Fld Maint Sq
Capt	(1534A)	Joseph W. Best	376 Air Refueling Sq

f. Transferred to 3d Strat Support Sq, Barksdale AFB, La.

1st Lt	(1224C)	G. B. Williford	Hq 376 Bomb Wing M
1st Lt	(1224C)	Glenn E. Roudabush	376 Air Refueling Sq

g. Released From Active Duty.

1st Lt	(2041)	William U. Smith	Hq 376th Bomb Wing M
1st Lt	(2054)	Billy C. Wright	512th Bomb Sq M

h. Transferred one each, in order listed, to Second Air Force, McConnell AFB, Castle AFB, 805th Air Base Group, and Ellington Air Force Base, Texas.

Major	(1416)	Roy F. Lantz	Hq 376th Bomb Wing M
Major	(1525E)	Wayne W. Holt	512th Bomb Sq M
Major	(1245Z)	Pat M. Howard	513th Bomb Sq M
Capt	(3034)	Lloyd H. Bergman	Hq 376th Bomb Wing M

TOTAL: 25

3. Airmen Assigned during August 1954: (By PAFSC)

20150	-	1	58131	-	1
30150	-	2	58150	-	2
30230	-	5	58151	-	1
30250	-	3	60130	-	1
30270	-	1	60170	-	1
40330	-	1	62250	-	1
40433	-	1	64010	-	1
43133	-	7	64130	-	1
43134B	-	1	64151	-	2
43154B	-	3	70010	-	2
43156	-	2	70230	-	1
43170	-	1	70232	-	1
43171D	-	3	70250	-	6
43171K	-	1	70252	-	2
43332	-	1	73170	-	1
43352	-	2	73251	-	1
43372	-	1	80130	-	1
43373	-	1	90631	-	1
53450	-	2	90930	-	1
53470	-	1			

TOTAL: 68

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4. Airmen Transferred and Discharged (not reenlisted) in August 1954: (By PAFSC)

29353	- 3	43152A	- 6	58151	- 1
30171	- 1	43152B	- 4	58230	- 1
30250	- 2	43154A	- 1	62010	- 2
30270	- 2	43159	- 1	64131	- 1
32150G	- 1	43170	- 1	64151	- 6
32171F	- 1	43171J	- 2	70230	- 2
32351F	- 1	43271B	- 1	70250	- 2
33170	- 1	43271D	- 1	73010	- 1
40471	- 1	46270	- 1	73170	- 3
42350	- 1	47155	- 1	90250	- 1
42530	- 2	53430	- 2	90270	- 1
42570	- 1	55270	- 1	90450	- 2
43136	- 1	58010	- 1	90650	- 1
43151B	- 2	58130	- 5	90951	- 1
43151W	- 1	58150	- 1	92250	- 1

TOTAL: 76

5. Reenlistment Rate:

No Disch -	No Reenl	% Reenl
59	27	45.7

Discharges by Squadron:

Headquarters Squadron:

A/1C Robertson
S/Sgt Crews (Reenl)
M/Sgt Nycum (Reenl)
S/Sgt Dickenson
M/Sgt Klokowski (Reenl)
M/Sgt McCullum (Reenl)

376th Air Refueling Sq:

S/Sgt Harold
S/Sgt Bolling
S/Sgt Railes
S/Sgt Crippin
S/Sgt Wallis
S/Sgt Spohr (Reenl)
S/Sgt Walsh
A/1C Owen
A/1C Peterson

514th Bomb Sq

M/Sgt Chamberlain (Reenl)
M/Sgt Stroble (Reenl)

512th Bomb Sq:

S/Sgt Gamble
M/Sgt Carmody
S/Sgt Morris (Reenl)

513th Bomb Sq:

S/Sgt Key
A/1C Key
S/Sgt Forsyth (Reenl)
M/Sgt Spurlock (Reenl)
M/Sgt Homer (Reenl)
M/Sgt Batchelor (Reenl)
M/Sgt Winfrey (Reenl)

376th Fld Maint Sq:

M/Sgt Vickery (Reenl)
T/Sgt Garton (Reenl)
A/1C Hood
S/Sgt Landbury (Reenl)
S/Sgt Wilkerson
S/Sgt Pace
A/3C Wilburn

0185

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376th Fld Maint Sq (Cont'd):

T/Sgt Whitas (Reenl)
A/1C Nystrom
S/Sgt F. Rousseau (Reenl)
S/Sgt B. Rousseau

376th Periodic Maint Sq:

S/Sgt Seib
A/1c Tudor
S/Sgt Hersey
S/Sgt Hoey (Reenl)
S/Sgt McClure (Reenl)

376th Tac Hospital:

S/Sgt Tabor (Reenl)
S/Sgt Connell (Reenl)
S/Sgt Pace

376th Armt & Elect Maint Sq:

M/Sgt Kilcrease (Reenl)
S/Sgt Mann
S/Sgt Wyncoop
S/Sgt Scherer (Reenl)
S/Sgt Carter
S/Sgt Lewis
S/Sgt Hoey
T/Sgt Wallace (Reenl)
S/Sgt Brown
A/1C Bell
M/Sgt Pauk (Reenl)
M/Sgt Price (Reenl)
A/1C Hargrove

6. AWOL Rate per 1000:

	Assigned	No. AWOL	Percent
Officers	376	0	0
Airmen	2016	4	1.98
TOTAL:	2392	4	1.67

AWOLs by Squadron:

A/2C Miller - 376th Fld Maint Sq
A/2C McMillion - 376th Fld Maint Sq
A/1C Scarbough - 376th Fld Maint Sq
A/3C McCormack - 376th Fld Maint Sq

7. Gains and Losses

	No. Disch & Trfd	% Auth Strength	No. Asgd	% Auth Strength
Officers	25	6.2	10	2.5
Airmen	76	4.4	68	3.9

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8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD	MIRS	% EFF ASGD	% MIRS
Hq 376 Bomb Wg M	64	68	55	55	85.9	85.9
512th Bomb Sq	65	62	60	60	92.3	92.3
513th Bomb Sq	65	64	62	62	95.4	95.4
514th Bomb Sq	65	60	59	59	90.7	90.7
376th Air Rflg Sq	85	76	77	77	90.6	90.6
376th Armt & Elect Maint Sq	16	16	16	16	100.	100.
376th Fld Maint Sq	7	6	6	6	85.7	85.7
376th Fer Maint Sq	5	4	4	4	80.0	80.0
376th Tac Hosp	27	20	18	18	66.6	66.6
TOTAL	399	376	357	357	89.4	89.4
CONSOLIDATED MIRS:						
	399	376		357		

9. Effective Manning of Airmen:

ORGN	AUTH	ASGD	EFF ASGD	MIRS	% EFF ASGD	% MIRS
Hq 376 Bomb Wg M	117	160	102	100	87.2	85.5
512th Bomb Sq	105	159	99	59	94.3	56.2
513th Bomb Sq	105	154	94	58	89.5	55.2
514th Bomb Sq	105	153	96	70	91.4	66.6
376th Air Rflg Sq	228	242	202	166	88.5	72.8
376th Armt & Elect Maint Sq	426	455	335	235	78.6	55.2
376th Fld Maint Sq	363	431	323	303	88.9	83.5
376th Fer Maint Sq	158	182	106	95	67.1	60.1
376th Tac Hosp	98	80	69	68	72.6	71.6
TOTAL	1705	2016	1426	1154	83.6	67.6
Consolidated MIRS:						
	1705	2016		1236		72.5

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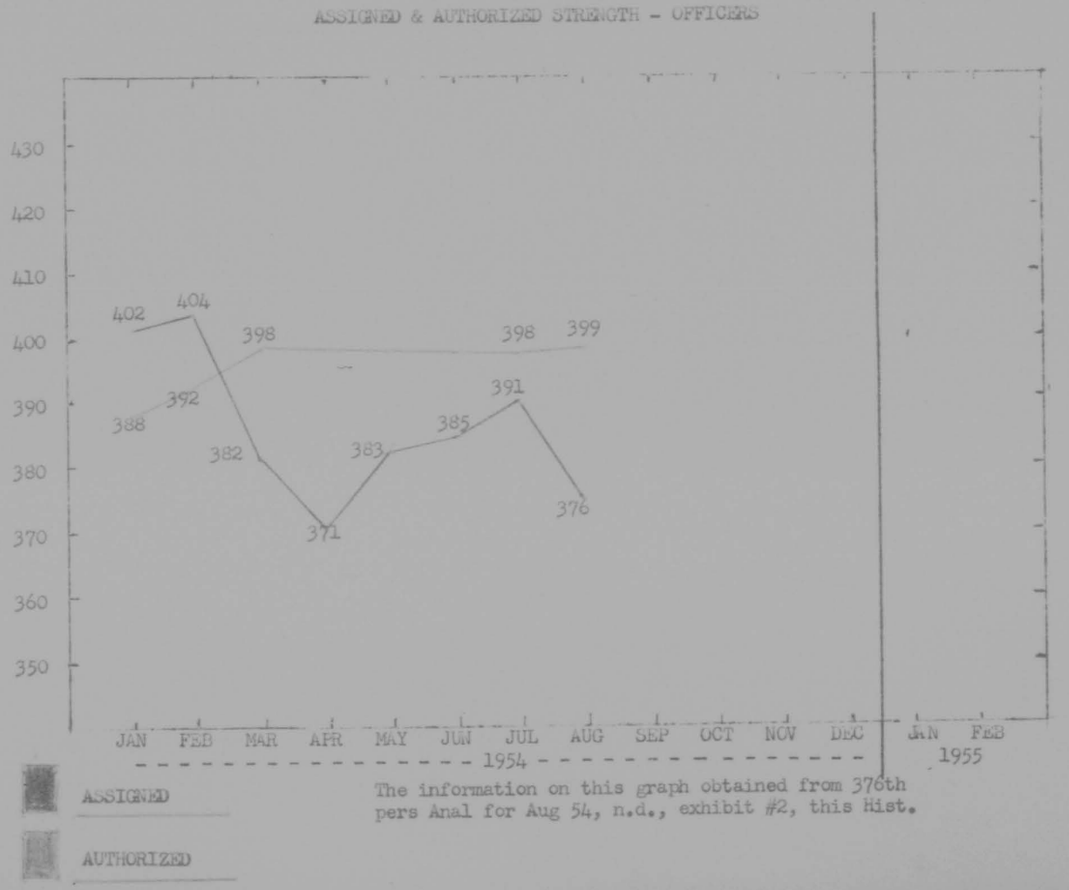
ASSIGNED & AUTHORIZED STRENGTH - OFFICERS



The information on this graph obtained from 376th pers Anal for Aug 54, n.d., exhibit #2, this Hist.

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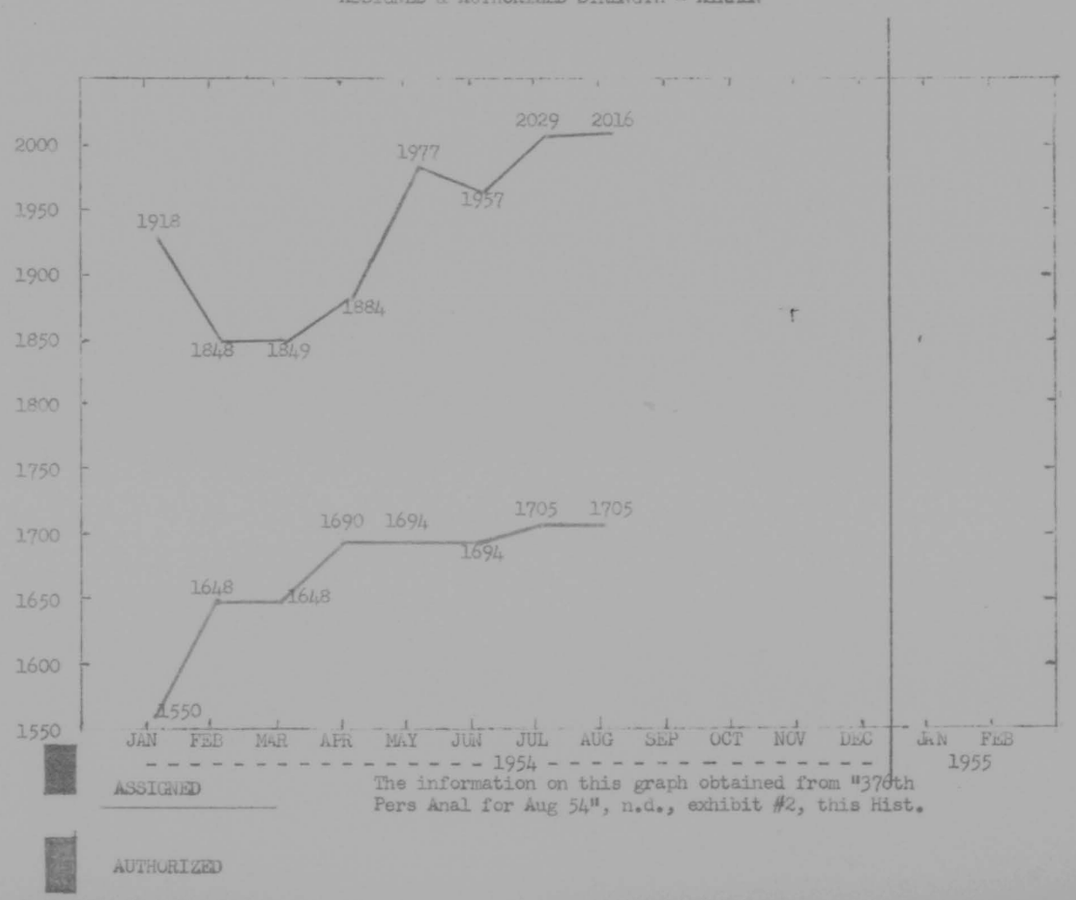
ASSIGNED & AUTHORIZED STRENGTH - AIRMEN



The information on this graph obtained from "370th Pers Anal for Aug 54", n.d., exhibit #2, this Hist.

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HEADQUARTERS
376TH BOMBARDMENT WING (MEDIUM)
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION J

Air Training Report for the Month of August 1954
(RCS: 6-S.C-T12)

Section J:

c. Wing Commander's Remarks - Part III:

(1) Hours flown performing missions ordered by higher headquarters:

(a) Ferrying aircraft	114:55
(b) Test & Tactics	100:55
(c) Bombing Competition	118:05
TOTAL	333:55

(2) Weather or local conditions affecting training:

(a) Bombing Competition 23 - 28 August 1954.

(3) Directives Imposed by MAC or SAC on Aircraft:

(a) An average of seven B-47's per day were grounded at Tulsa for ECM Modification.

(4) Combat Crew Member Gains and Losses:

(a) Gains: 1 Co-Pilot.
1 Observer.

(b) Losses: 1 Co-Pilot (Grounded Indefinite).
5 Observers (PCS 301st Bomb Wing).

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(5) Crew Member Changes:

(a) 1 Co-Pilot.

(b) 2 Observers.

(6) New Crews:

(a) M-17-.0 13 August 1954.

(b) M-50-.0 13 August 1954.

(c) M-83-.0 13 August 1954.

(7) Crew Status Changes:

(a) M-17-.0 Disbanded 20 August. Observer Transferred.

(b) M-40-.0 Disbanded 20 August. Observer Transferred.

(c) M-50-.0 Disbanded 20 August. Observer Transferred.

(d) M-83-.0 Disbanded 20 August. Observer Transferred.

(e) M-01-.0 to R-01-.0 effective 9 August 1954.

(f) M-03-.0 to R-03-.0 effective 27 August 1954.

(g) M-04-.0 to R-04-.0 effective 20 August 1954.

(h) M-05-.0 to R-05-.0 effective 23 August 1954.

(i) M-06-.0 to R-06-.0 effective 12 August 1954.

(j) M-08-.0 to R-08-.0 effective 20 August 1954.

(k) M-09-.0 to R-09-.0 effective 27 August 1954.

(l) M-11-.0 to R-11-.0 effective 9 August 1954.

(m) M-12-.0 to R-12-.0 effective 9 August 1954.

(n) M-34-.0 to R-34-.0 effective 31 August 1954.

(o) M-36-.0 to R-36-.0 effective 12 August 1954.

(p) M-37-.0 to R-37-.0 effective 9 August 1954.

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Wing Commander's Remarks Cont'd

(q) R-39-AO to R-39-AO effective 18 August 1954.

(r) R-40-AO to R-40-AO effective 12 August 1954.

(s) R-42-AO to R-42-AO effective 9 August 1954.

(t) R-43-AO to R-43-AO effective 20 August 1954.

(u) R-68-AO to R-68-AO effective 18 August 1954.

(v) R-69-BO to R-69-BO effective 27 August 1954.

(w) R-70-AO to R-70-AO effective 23 August 1954.

(x) R-71-AO to R-71-AO effective 18 August 1954.

(y) R-75-AO to R-75-AO effective 18 August 1954.

(z) R-78-AO to R-78-AO effective 23 August 1954.

(aa) R-80-AO to R-80-AO effective 12 August 1954.

(bb) R-10-AO ECM Combat Ready 26 August 1954.

(8) Standardization Crews:

(a) R-04-AO Wing Standardization Crew.

(b) R-11-AO, R-35-AO, and R-70-AO are Squadron Standardization Crews.

(9) Personnel and Material Problems:

(a) The officer effective manning of the 376th Bombardment Wing remained relatively the same as July. However, five Observers (1525B) were reassigned to the 301st Bombardment Wing.

(b) Officer manning in AFSC'S 2044, 3054, 3244, 3254, 4334, 4355, 4364, and 7324 remains critically short.

(c) Manning in the Aircraft Maintenance Field has continued to improve during August. A net gain of seven in AFSC 43133/53 was realized, bringing the manning to 94% by primary and 84%

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Wing Commander's Remarks Cont'd

by duty. There was a loss of two 43151B's and six 43152A's during August. However, considerable upgrading of 43131J and 43131B personnel brings the manning in 43151J, 43151B and 43152A AFSC's to 70% by primary and 196% by duty.

(d) Manning at the Supervisory/Technician level of the Armament Systems Maintenance Career Field changed very little during the month and remains critical. Manning is 13% by primary and 9% by duty.

(e) The re-enlistment rate for the month of August was 43%.

(f) Due to the low level of experience of the B-System mechanics, training of personnel is continuing through maximum use of MTD and Contractor Technicians.

(g) The following factors affected the capability of maintenance to provide aircraft for operational training during the month:

(1) Excessive aircraft days were lost in the docks and Dock Back Line. An average of 12 B-47 aircraft days were expended per B-47 Periodic Inspection. However, this was caused by unscheduled maintenance found in the dock inspection.

(2) One hundred and ninety-eight aircraft days were lost to ECM modification project "Blue Cradle" at Tulsa.

(3) Thirty-two aircraft days were lost for fuel cell repair.

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Wing Commander's Remarks Cont'd

(4) One hundred forty-one aircraft days were AOCP days

(5) Ground power shortages of two generators for Marthons, One Rectifier, one C-26, and five High Pressure Air Compressors affected the capability of Maintenance.

(10) SAC Minimum Training Requirements:

(a) Not Applicable.

(11) Special Training Month:

(a) Not Applicable.

(12) Field Training Operations:

(a) None.

(13) Non-Combat Ready Crews that could be used in case of an emergency:

(a) Ten ECM Non-Combat Ready Crews have been trained to a point where they could be deployed in event of an emergency.

(14) Non-Combat Ready Crew Training:

(a) Twenty-three non-combat ready crews were in training at the end of the month.

(15) Comments or Recommendation of the Wing Commander:

(a) The factors affecting training listed under paragraph (9)g total 371 lost aircraft days. With a total of 1488 aircraft days assigned and considering the minimum turn-around time, a restriction as to the capability is evident.

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Wing Commander's Remarks Cont'd

(b) Supply continued as a limiting factor in the production of flying hours. The B-47 NOCF rate was 11.76%. This is an improvement of 6.1% over July.

(c) Support rendered the Bombing Competition during the 10 days was an additional drain on the Wing's capability through loss of equipment and manpower.

(d) Total NOCF items were 96. The average NOCP for a single aircraft was four days. The longest NOCP was 13 days for an inverter, type F-47. Recurring items were:

1. Inverter (4224-F-46-2), 9 each.
2. Nut (6500-511708), 4 each.
3. Receiver (1600-218997125), 7 each.
4. Relay (3380-574275-5565), 8 each.

(e) The ECM modification project "Blue Cradle" will be completed on or about 3 September 1954.

(f) The average number of crews assigned during August was 47. A total of 1155 hours were flown by the above crews for an average of 24:34 hours per crew.

(g) The average number of possessed aircraft during August was 40. The average flying time per aircraft was 24:04 hours.

(h) In compliance with paragraph 8b, SAC Regulation 50-43, unit crew training charts are attached as inclosure #1.

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Wing Commander's Remarks Cont'd

(i) In compliance with S.C message DOTRS 12407, information requested is attached as inclosure #2.

2 Incls
1. 50-43 Charts
2. Suppl Info

For and in the absence of:
JOHN P. PROCTOR
Colonel, USAF
Commander

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SAC REG 50-43 TRAINING (REVISED)

512TH BOMB SQDN.

Posted As of 31 Aug 54

AIRCRAFT COMMANDER

R-01-AO
BEADLE
N-02-AO
MINOR
R-03-AO
LABEN
N-04-AO
BRITT-SMITH
N-05-AO
JARVIS CH
R-06-AO
SCOTT
N-07-AO
BEALE
R-08-AO
DILL
R-09-AO
COLEMAN
N-10-AO
KOSTER
R-11-AO
MINICK
R-12-AO
VAN SANT
N-13-AO
SAUNDERS
N-14-AO
ANDERSON
N-15-BO
FERNANDES
N-16-AO
NICHES

CO-PILOT

R-01-AO
CASTLE
N-02-AO
KELLY
R-03-AO
GRAMMAS
R-04-AO
MAHER
N-05-AO
SEIZ
R-06-AO
HASKINS
N-07-AO
RHODES
R-08-AO
SIGLER
R-09-AO
JONES
N-10-AO
RICHELMAN
R-11-AO
KITCHENS
R-12-AO
WALKER
N-13-AO
THORNTON
N-14-AO
COX
N-15-BO
SUTCH
N-16-AO
COPELAND

OBSERVER

R-01-AO
LEBARRON
N-02-AO
KIRSCH
R-03-AO
LICHTER
R-04-AO
LEJUNE
N-05-AO
DOYLE
R-06-AO
SCHERER
N-07-AO
WHITAKER
R-08-AO
BAUCH
R-09-AO
WRIGHT
N-10-AO
McCLARREN
R-11-AO
SAVAGE
R-12-AO
CHANDLEY
N-13-AO
PETERSON
N-14-AO
FORD
N-15-BO
CARSON
N-16-AO
MEAHL

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Trng Completed
Accumulative Trng
Not Required

SAC REG 50-43 TRAINING (REVISED)

513TH BOMB SQDN

Posted As of 31 [illegible] 54

AIRCRAFT COMMANDER

CO-PILOT

OBSERVER

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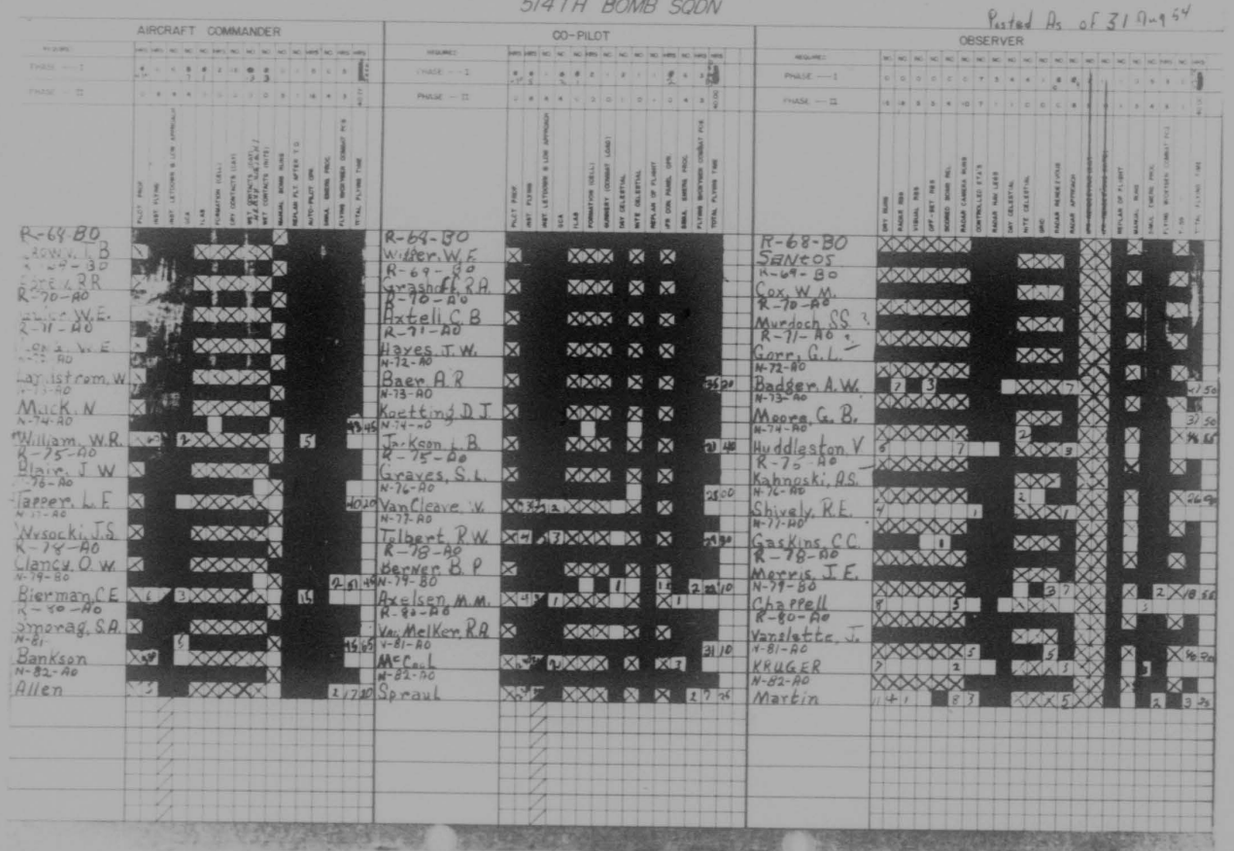
SAC REG 50-43 TRAINING (REVISED)

514TH BOMB SQDN

Posted As of 31 Aug 54



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SUPPLEMENTAL INFORMATION

N01 Visual Releases 1/80/
N01 Night Cel Nav Negative
N04 Visual Releases 2/GE/GE/
N04 Night Cel Nav 3/5/20/22/
N05 Visual Releases 5/840/GE/GE/GE/GE/
N05 Night Cel Nav Negative
N06 Visual Releases 1/Mis Release
N06 Night Cel Nav Negative
N07 Visual Releases 4/520/585/810/GE/
N07 Night Cel Nav Negative
N08 Visual Releases 4/530/GE/GE/GE/
N08 Night Cel Nav 5/10/12/13/18/26/
N09 Visual Releases 4/815/GE/GE/GE/
N09 Night Cel Nav Negative
N10 Visual Releases
N10 Night Cel Nav 2/10/15
N11 Visual Releases 4/700/800/840/900/
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N13 Night Cel Nav 2/10/30/
N14 Visual Releases Negative
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N69 Night Cel Nav Negative
N70 Visual Releases Negative
N70 Night Cel Nav 1/00/
N72 Visual Releases 4/625/930/GE/GE/
N72 Night Cel Nav Negative
N73 Visual Releases 4/140/540/GE/GE/
N73 Night Cel Nav Negative
N74 Visual Releases Negative
N74 Night Cel Nav 2/12/15/
N78 Visual Releases 4/220/370/900/900/
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N81 Night Cel Nav 2/5/10/
N82 Visual Releases 3/320/GE/GE/
N82 Night Cel Nav 1/20/

Encl #2

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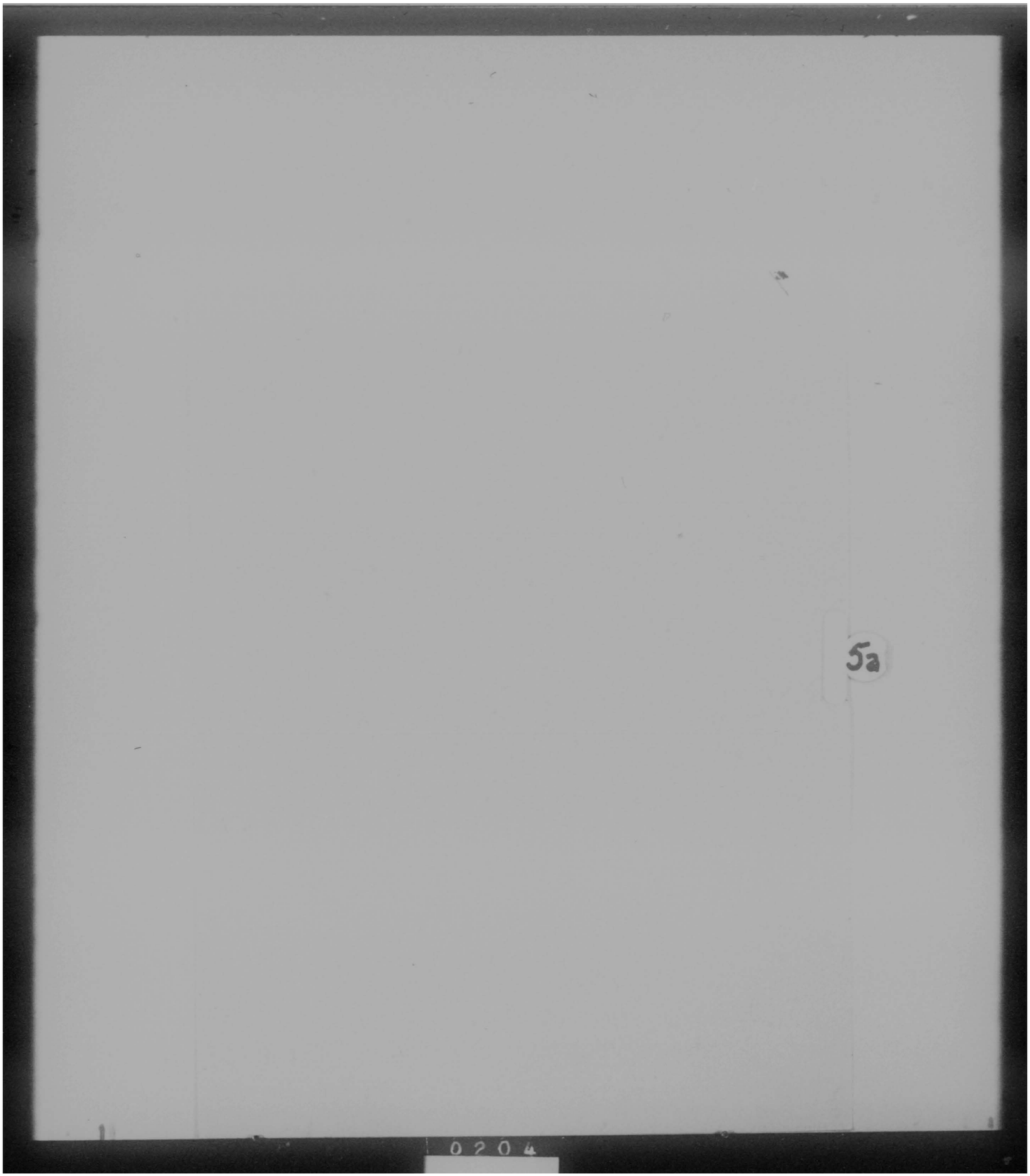

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION I

Air Training Report for Month of August 1954
(RCS: 4-SAC-T12)

1. Supply continues as a limiting factor in the production of flying hours during the month of August. The AOCP rate for the KC-97G aircraft was 7.31% for August or a decrease of 8.01% over July.

2. The shortage of summer flying suits should be alleviated per 2AF message DM3HI 2582, dated 19 July 1954.

3. An average of 21 crews were available for training; they flew 723 hours for an average of 34:26 hours per crew.

4. An average of 22 aircraft were possessed during the month. The average time per possessed aircraft was 32:52 hours.

For and in the Absence of
Robert J. Calhoun
JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (M)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

SECTION H

Air Training Report for the Month of August 1954
(RCS: 4-SAC-T12)

SECTION H:

a. Hours Flown Performing Missions Ordered by Higher Headquarters:

Total Time: 410:35

(1) Two crews to Sidi Slimane, 2AF Operations Order 29-54.
Time: 74:30

(2) One crew to United Kingdom. Wing Survey Team.
Time: 51:40

(3) One crew to MacDill AFB for flyover.
Time: 8:20

(4) Two crews to Tulsa and return cargo.
Time: 6:00

(5) One crew to Chanute AFB - cargo.
Time: 5:55

(6) One crew to Bergstrom AFB - passengers.
Time: 3:20

(7) Seventeen crews to Hunter AFB, 2AF Operations Order 32-54.
Time: 204:35

(8) Test Project Directive #1.
Time: 56:15

b. Weather and local conditions affecting training:

(1) None.

c. Restrictions by AMC or SAC on aircraft:

(1) None.

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Squadron Commander's Remarks for the Month of August 1954 (Cont'd)

d. Excessive crew changes and/or temporary crew substitutions:

(1) Not excessive.

e. Crews formed during the month:

(1) M-23-AO formed 1 August 1954.

f. Crew status changes for the month of August 1954:

(1) None.

g. Squadron Standboard Crew:

(1) T-02-AO.

h. Remarks on Materiel and Personnel:

(1) AOC status decreased to 7.31% from the previous month 14.34%.

(2) Support of the 92nd Bombardment Wing on air refueling missions has curtailed pilot proficiency missions and night time.

i. SAC Minimum Requirements:

(1) Not applicable.

j. Comments or Recommendations by Squadron Commander:

(1) Continual shortage of summer flying suits.

k. The following information is submitted as required by Change 2, Supplement V, SAC Regulation 50-25:

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-02-AO	X	X	X				X		X	X
T-03-DO	X	X	X	X		X	X		X	X
T-04-AO	X	X	X	X		X	X		X	X
T-06-EO	X	X	X				X		X	X
T-07-AO	X	X	X	X		X	X		X	X

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Squadron Commander's Remarks for the Month of August 1954 (Cont'd)

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-08-EO	X	X	X			X	X		X	X
T-09-BO	X	X	X			X	X		X	X
T-10-BO	X	X	X				X		X	X
T-11-BO	X	X	X			X	X		X	X
T-12-CO	X	X	X				X		X	X
T-13-BO	X	X	X	X		X	X		X	X
M-14-EO	X	X	X			X			X	
T-15-CO	X	X	X	X		X	X		X	X
T-16-CO	X	X	X	X		X	X		X	X
T-17-EO	X	X	X				X		X	X
T-18-AO	X	X	X	X		X	X		X	X
T-19-BO	X	X	X			X	X		X	X
T-20-BO	X	X	X			X	X		X	X
M-21-DO	X	X	X	X		X	X			
T-22-CO	X	X				X	X			
M-23-AO										

ROBERT E. COPLEY
Lt Col., USAF
Commander

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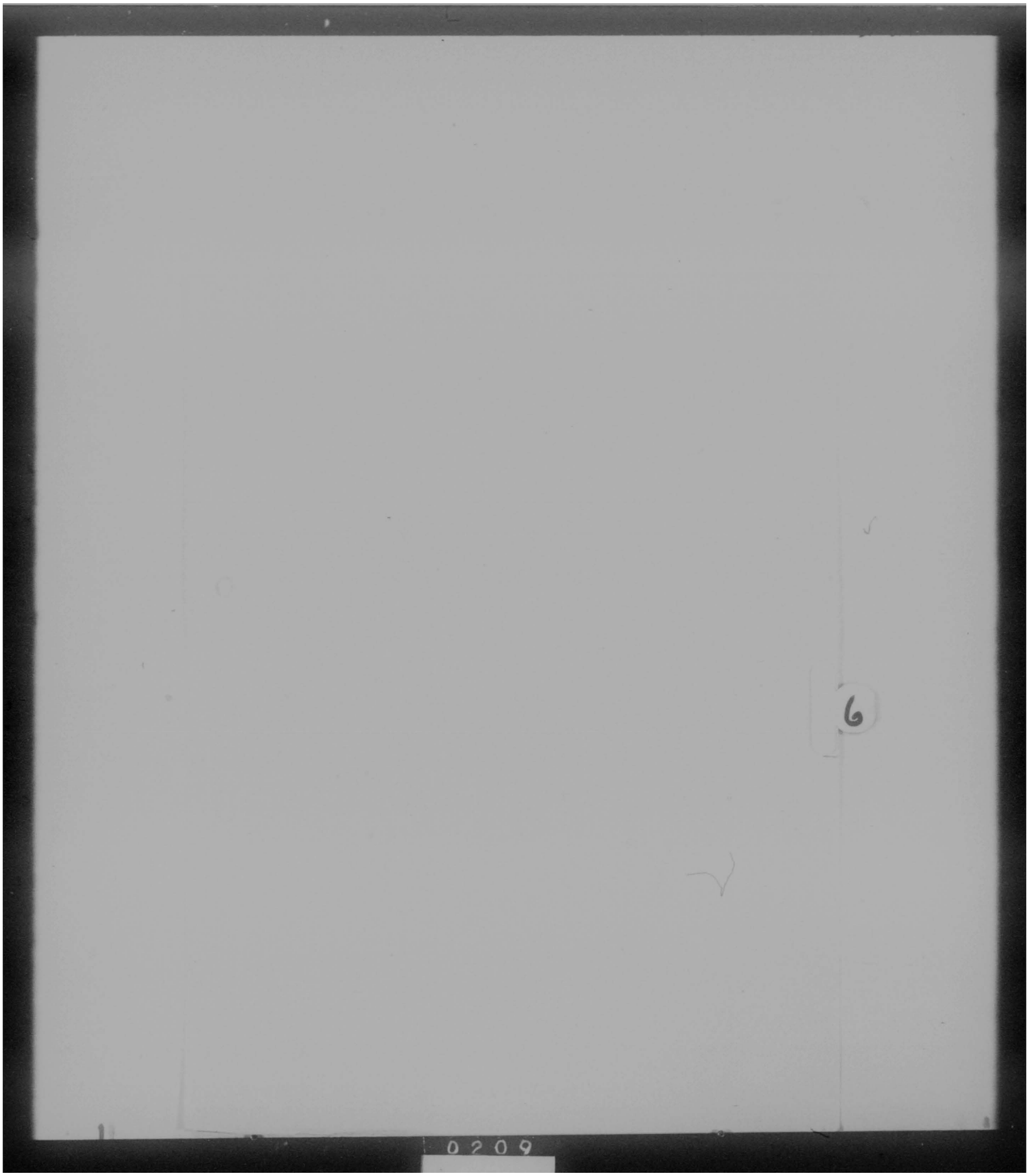

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SAC MANAGEMENT CONTROL SYSTEM
Quarter Ending 31 July 54

	Possible Points	Score	Points Earned
PERSONNEL	220	46%	101.3
1. Manning in Required Specialties			
a. Officers	30	80%	24
b. Airmen	75	10%	7.5
2. AWOL Rate per 1000	30	100%	30
3. Ground Safety	25	15%	3.8
4. Reenlistment Rate	40	40%	16
5. Mobile Train. Det. Utilization	20	100%	20
MATERIEL	140	59.6%	83.5
1. Flying Hours as a % of Required	60	88.7%	50
2. Reports of Survey	20	85%	17
3. Tech Order Compliance	60	27.8%	16.5
	(120)		
USCM & FLYING SAFETY	40	80%	32
1. USCM	80	NA	
2. Flying Safety	40	80%	32
	(520)		
OPERATIONS	165	73.3	121
1. Training Minimums			
a. B-47	150	NA	—
b. KC-97	50	79%	40
2. RBS Radar Bombing Accuracy	40	NA	—
3. RBS Visual Bombing Accuracy	25	NA	—
4. Nite Celestial Navigation Proficiency	20	100%	20
5. Cruise Control Proficiency KC-97	15	40%	6
6. ECM Proficiency	40	NA	—
7. Camera Gunnery	20	NA	—
8. Air Refueling Proficiency			
a. Wet Hook-ups	20	100%	20
b. Radar Rendezvous	20	100%	20
9. Scored Crews			
a. Bombardment	40	NA	—
b. Tanker	10	60%	6
10. Combat Ready Crews			
a. Bombardment	40	NA	—
b. Tanker	10	70%	7
11. Physical Conditioning (ARS only)	20	10%	2
GRAND TOTAL	565	59.8	337.8

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SAC MANAGEMENT CONTROL SYSTEM
Quarter Ending 31 July 54
(ANALYSIS)

1. MIRS of airmen should improve considerably by the end of September. Proficiency test results for upgrading of personnel should be returned by the middle of September.

2. The extremely low ground safety score can be attributed directly to two deaths during the quarter. Each death is assessed an accident cost of $31,500.

3. Mobile training detachment utilization was 100% of maximum score. Score is determined by attendance. With the overage of personnel in the Tac Squadrons, PM and FA, sufficient personnel should be made available for MTD training to assure maximum score in this item. Utilization has dropped below this figure the last two months, but the total quarterly attendance resulted in maximum score.

4. The data for computation of flying hours as a Percent of Required is taken from the SAC F-1 report. By deleting Routine Requirements (item 1c(2)) which are impossible to accomplish due to "Missions Orders by Higher Echelons after Weekly Schedule is Completely Established" (item 1c(1)(a)) the score on this item could be increased considerably.

5. This is the first quarter that Tech Order Compliance has been rated on the SAC Management Control System. The low score is due primarily to the fact that approximately 85 of the 103 outstanding TO's are awaiting parts for compliance. A recent SAC message has revised the method of computation and disregards Tech Orders on which the organization is awaiting parts. This change will be effective on future reports.

6. Operations data is based on KC-97 operations only. The Air Refueling Squadron was placed under 50-8 training requirements the beginning of the quarter but is not under the SAC Management Control System. This rating is informal for the use of this Wing. During this quarter ARS has given a great portion of time to air refueling training of the bomb squadrons and was unable to complete all minimum training requirements. Cruise control proficiency was low but should improve with practice.

7. The score for physical conditioning is based on KC-97 crews only. This item is based on attendance and maximum score should be attained every month.

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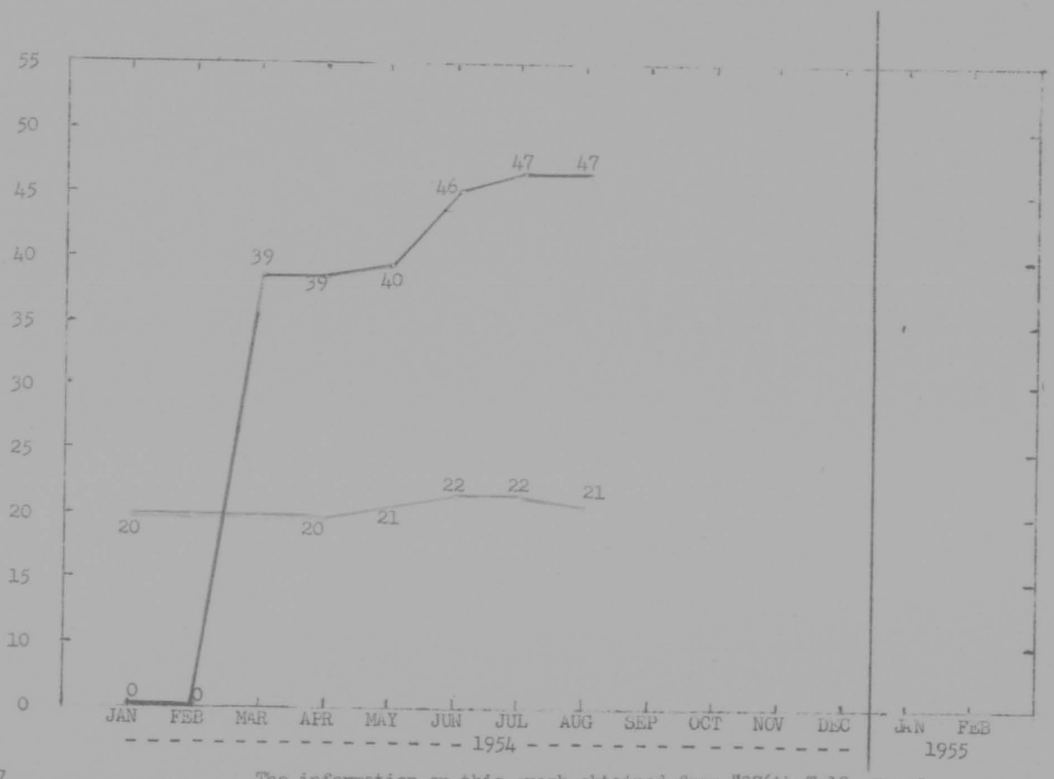
CREW STATUS



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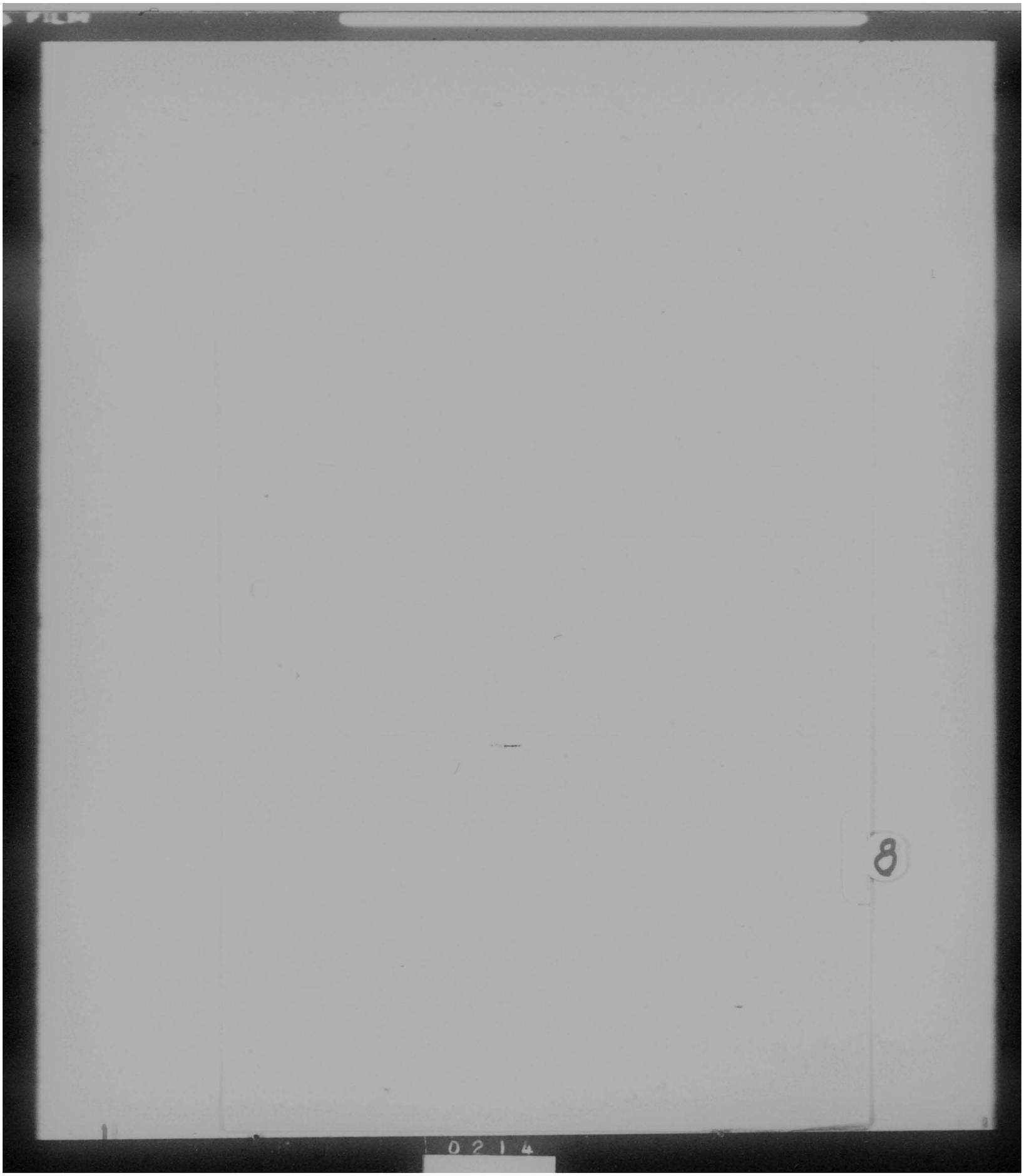

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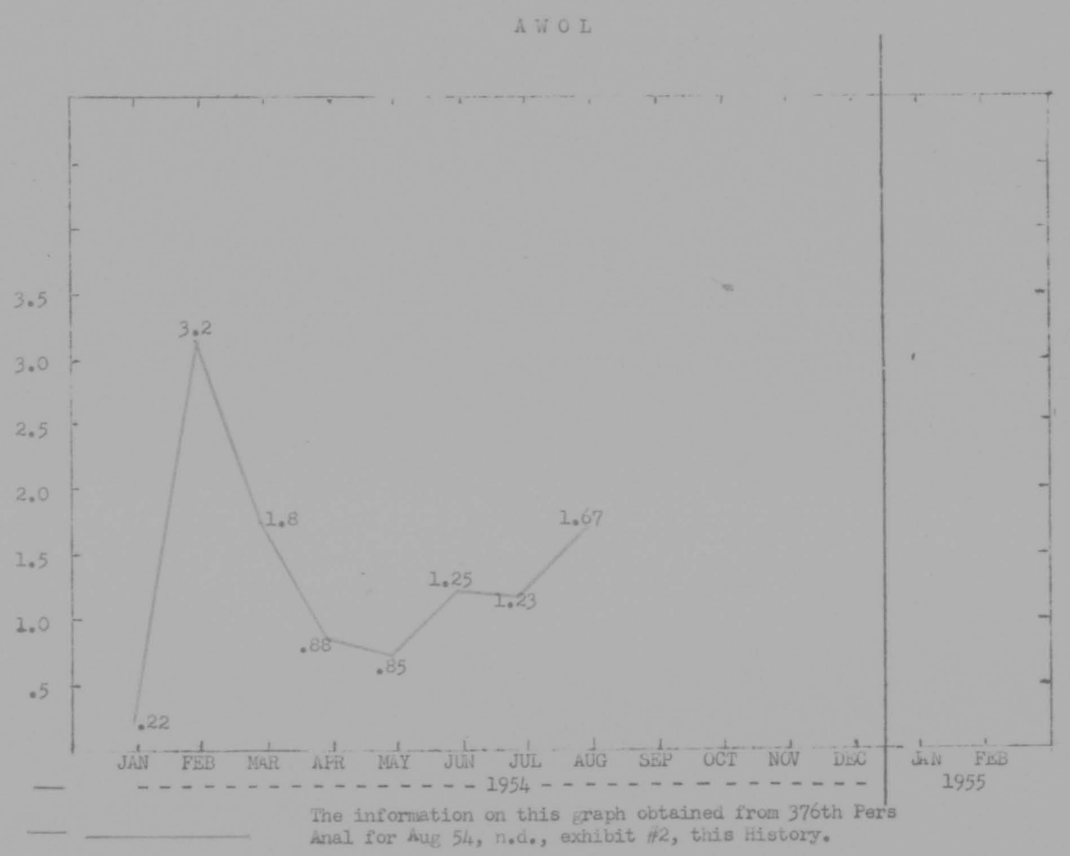

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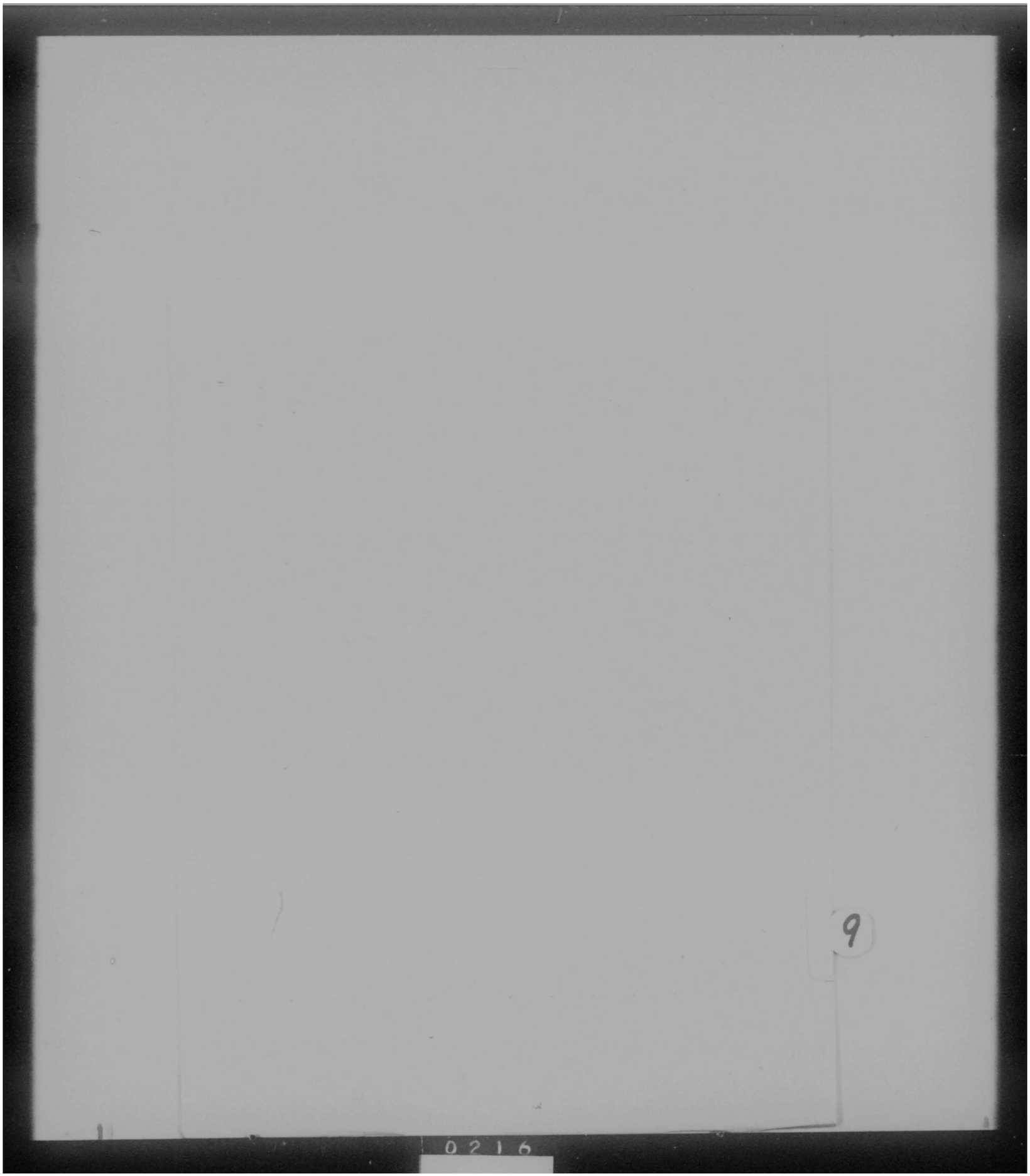

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HEADQUARTERS
376th BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

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Auth: COMDR 376 BOMWG
Initials:
DATE: 7 Sep 54

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1 September 1954

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC - U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 August 1954 through 31 August 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952

(2) Percentage complete: 86%

(3) Hours flown: 262.68

(4) Present status: Results obtained with the five megacycle band width transmitters reported last month were unsatisfactory. The bandwidth of the two transmitters was further reduced to one megacycle where effective jamming was obtained. Effective jamming in this case is considered to be the denial of understandable communications to the fighter pilot when he is within 25 miles of the jamming aircraft.

(a) With two transmitters operating simultaneously, effective jamming was obtained from a point thirty nautical miles from the ground station, where the run was started, to a point 114 nautical miles distant. The separation between the jamming aircraft and the simulated fighter was 25 nautical miles throughout the run.

(b) The following chart was prepared as a comparison between the one and five megacycle band width transmitters:

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0217

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Megacycles swept	5 mc	5 mc	1 mc
Separation	15 n.m.	10 n.m.	25 n.m.
Approximate distance of Fighter from Ground Station	112 n.m	85 n.m.	30 n.m.
Average Power in any 70 KC VHF Channel	4.2 watts	4.2 watts	21 watts

The above transmitters had an average power output of 300 watts each.

(c) A test was conducted using an AN/ARC-3 VHF transmitter as a spot jammer in the interest of finding the minimum amount of power required to jam a single VHF channel. The ARC-3 was keyed and modulated with a 1000 cycle tone throughout the run. Effective jamming, with 25 miles separation between aircraft, did not occur until the aircraft were 106 miles from the ground station.

(d) Additional tests will be run with only one transmitter operating on a one megacycle bandwidth. In addition, other transmitters will be modified to operate with a two megacycle bandwidth and tested in various configurations. Using this method, we will determine the maximum bandwidth which may be swept and the number of transmitters necessary to obtain effective jamming.

b. Test Project Number 1X, "Development of an Unattended Communications Jammer."

(1) Date initiated: 2 June 1953

(2) Percentage completed: 32%

(3) Hours flown: None

(4) Present status: The design of all transmitter, receiver and control circuits in the unattended VHF communications jammer is complete and ready for bench checking.

(a) A contract was given to the WAC Engineering Company of Dayton, Ohio for the purchase of the necessary special tuning capacitors. Five such capacitors are being built for this project.

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Upon completion of the first composite unit, project personnel will visit the manufacturer to inspect and test the proposed unit. If all tests prove satisfactory, four additional units will be constructed and delivered.

(b) Upon receipt of these units, the transmitter and receiver circuits will be wired and bench tested prior to flight testing of the complete unit.

c. Test Project Number 6, "Minimum Performance Standards of ECM Equipments and Installations."

(1) Date initiated: May 1952

(2) Percentage complete: 42%

(3) Hours flown: None

(4) Present status: Due to personnel requirements for Project Blue Cradle, work was suspended this month on this project.

d. Test Project Number 10, "Chaff Against A. I."

(1) Date initiated: 4 August 1952

(2) Percentage complete: Project 10A-100%, Project 10B-100%
Project 10C-Cancelled.

(3) Hours flown: Project 10A-unknown, Project 10B-100 hours
Project 10c-unknown

(4) Present status: The Air Proving Ground Command is testing the SCR-720 Airborne Intercept Radar System in Navy F 7F Aircraft against bomber aircraft. This test and their final report on completion of said test has been accepted by SAC Headquarters as full satisfaction of the requirement. Therefore, Test Project Number 10 is hereby considered completed. Personnel of this Wing will render support to APGC on request.

e. Test Project Number 15, "Development and Test of the AN/APT-16A Sweep Jammer."

(1) Date initiated: 27 October 1952

(2) Percentage complete: 66%

0219

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(3) Hours flown: 54:50

(4) Present status: During previous tests at Eglin Air Force Base, Florida, wide gaps in the sweep spectrum were detected by the MLQ-3 monitoring van. These gaps were about 40 megacycles wide and occurred in the vicinity of the MSQ-2 radar frequencies. Further testing was postponed until new QK387A magnetrons were received.

(a) Three old QK387A's were received but only one can be swept. The others are not usable due to binding of the tuning stem inside the magnetron. Tests were conducted at Eglin Air Force Base, Florida, with one I-16A. Sweep widths used were 70 mc, 130 mc, and 250 mcs. Sweep rates were varied in steps of 200 sweeps per minute from 1600 spm to 200 spm. Evaluation of this test is now underway. Conclusions will be reported in September.

(b) It was noted that some of the dust covers on the AT-404 horns heated excessively. Some comparison tests were conducted with old and new horns. Indications are that the dust covers deteriorate with time. Satisfactory operation was obtained when a one quarter inch thick teflon cover was substituted.

(c) Considerable difficulty has been experienced with cross threading of the UG-17/U semi-rigid coaxial cable. These connectors are made of brass and have fine threads. These threads invariably become crossed, resulting in a poor connection and a consequently high VSWR which damages the magnetrons. An attempt has been made to re-design these connectors so that no threading is required. The adapted design is similar to the magnetron line coupling in the transmitter. This clamp type connector allows rapid coupling of the RG-17/U to either the transmitter or the antenna without fear of damage or poor connections.

(5) Change of project titles: New ALT-8 equipment has been received from the Raytheon Manufacturing Company. The AN/APT 16 (XA) and AN/APT-16A equipments will only be used for laboratory and ground tests. All future reports will use the equipment designation of AN/ALT-8. Test programs will continue to provide necessary information on the proper sweep speed and bandwidth to effectively jam gunlaying and EW/GCT type radars.

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All AN/APT-16A equipments on hand has been converted to automatic sweep jammers. Report on ALT-8 under new project number follows.

f. Test Project Number 15, "Effectivness Test of Sweep Jammer AN/ALT-8".

(1) Date initiated: 9 August 1954

(2) Percentage completed: 12%

(3) Hours flown: None

(4) Present status: Two systems of the ALT-8 equipment were received from the Raytheon Manufacturing Company. Each ALT-8 system consisted of two transmitters, two horn antennas, a power supply and a control box. The lower frequency transmitter covers the frequency range of 2300 mc to 3150 mc. The higher frequency transmitter covers the range of 3100 mc to 4105 mc. Each transmitting magnetron may be tuned at variable slow sweep speeds, 6 to 20 mc per second, or at high sweep speeds of either 1800 or 6000 mc per second. The band width at slow sweep speeds can be varied from approximately 30 megacycles to the entire band width that the magnetron is capable of covering. At fast sweep speeds the band width is determined by the size of the interchangeable metal cam located in the magnetron tuning assembly. At present only two cams are available, a 60 mc cam and a 200 mc cam. Other cams have been requested and are now being manufactured by the Raytheon Manufacturing Company.

(a) Two ALT-8 systems and one ALT-6 system were transported to Eglin Air Force Base, Florida, for tests. In order to reduce the variables encountered in airborne testing the equipment was set up on the ground approximately five miles from the Florala Island Test Site. Line of sight conditions were established between the jamming site and radar site two. Approximately thirty runs were made against the MSQ-1 radar located at site two using different combinations of sweep widths, sweep speeds and different numbers of transmitters. This data is the sulject of a special report attached. (Attachment Number 1)

(b) Several more ALT-8 systems are expected to arrive at this station in the near future. Flight testing of this equipment will be accomplished upon their arrival.

0221

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g. Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 Operated as a Sweep Jammer with the Helix or Stub against Search and Tracking Radars.

(1) Date initiated: 1 April 1954

(2) Percentage complete: 38%

(3) Hours flown: 25.25

(4) Present status: A total of 180 ALT-6 systems are now on hand. Flight testing of the ALT-6 equipment in B-47 aircraft has been delayed while making modifications for antenna installations on the aircraft. The first flight test of this equipment in the B-47 is scheduled to be run 3 September 1954.

(5) General Electric Company was contacted in reference to a test set for the AN/ALT-6. They stated the first model would be available for testing around the 10th of September. They further recommended that we purchase a CUBIC calorimetric wattmeter, Model MC-1B. The Cubic Corporation was contacted, through proper channels, and complete data was received including price lists. The following is a list of specifications for the model MC-1B.

Average Power	0-600 Watts
Peak Power	600 KW
VSWR	1.1 Max.
Frequency Range	
Basic Unit	2.6 to 3.9 KMC
with adapters	2.6 to 18.0 KMC
Input Connector	AN type OG.53/U
Calorimetric fluid	Distilled water
Power Input (Circulator Unit)	115V, 50-60 cycle, 120 watts
Size	Termination 30" X 6" X 6" Circulator 12" X 11" X 19"
Weight	Termination 17 lbs. Circulator 45 lbs.

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(6) STUB ANTENNA (AT-185, Modified or AT-520). The recent arrival of Wave Guide, Slotted Lines and VSWR Meters enable this laboratory to perform complete and improved methods of checking VSWR of the modified stub antenna, AT-185/AP versus the various types of horns and helix antennas.

Before the actual checking of antennas began, it was necessary to locally manufacture coaxial adapters to change from type "N" connectors to the large connectors, associated with RG-17/U and RG-117/U coaxial cables. After these were manufactured, it was necessary to check them over our desired frequency of 220 mc to 3800 mc. This was accomplished by feeding a signal through a slotted line, our manufactured adapters, and a dummy load for minimum reflections. Results of this test showed our connectors to have a rising curve with a VSWR of 1.05:1 at 2500 mc, increasing to 1.7:1 at 3200 mc, and then dropping again as frequency increased to 3800 mc. It was decided that the adapters would be suitable for checking antennas.

An AT-520 (which is an AT-185 modified at Gentile Air Force Base, Ohio, under our specifications) was then checked, indicating a high VSWR of 3.0:1 at 3000 mc and 2.5:1 at 2900 mc. These readings are much higher than the allowable VSWR standards that were specified by this laboratory at the start of manufacture. We specified that no antenna will have a higher VSWR than 2.2:1.

This liberal tolerance of VSWR on the AT-520 is still considerably higher than the recommended 1.5:1 for operation with the ALT-6 transmitter. It is recommended that the AT-520 not be employed in conjunction with this transmitter until the AT-520 can be improved to a better load, or, the restrictions on the transmitter magnetron are relaxed.

Further checking of VSWR improved the reading of the Horn antenna AT-528/ALT-8, Serial number 27. This antenna had a number of high places, the highest at 3050 mc with a VSWR 2.25:1. The lowest 1.1:1 at 2800 mc. If our readings are accurate, the AT-528 Horn antenna should be no better in VSWR than a good, modified AT-520 Stub antenna.

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At present, a stub with a slot antenna is being tried but at this time no results have been achieved. Until a better antenna is developed, it is apparent that only the helix can be used with the AN/ALT-6 system.

h. Test Project Number 25, "Development of an ECM Cradle for B-47 Aircraft".

(1) Date initiated: 1 September 1953

(2) Percentage complete: 100%

(3) Hours flown: 31.30

(4) Present status: The final report on this project has been delayed so that additional pertinent information may be included. Reproduction of this report is awaiting verification of certain technical data by Douglas Aircraft Company.

(a) The difficulties reported last month are being corrected and evaluated as follows:

1. Structural Suitability of the AT-190B Antenna

The first stub antennas mounted on the bomb bay doors of the B-47 aircraft broke along the trailing edge of the antenna shell. These antenna were of the conventional AT-190B type. It was apparent that the shell of the antenna was cracking due to vibration of the center rod against the inside of the outer shell. To minimize the vibration, the antennas were dismantled and reassembled with cork spacer between the center rod of the antenna and the outer streamlining shell. This modification stopped the breakage of the antenna shell. Each antenna had approximately seventy hours flying time at speeds of .86 Mach and altitudes to 40,000 feet without evidence of a crack in the outer shell. After fifty hours flying time, two antennas were loose at the base. After seventy hours, one of the antennas broke off in flight. The center rod of the antenna had broken at the base, probably due to metal fatigue caused by vibration and drag forces imposed on the antenna.

0224

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Two more antennas have been modified with Teflon bases replacing the standard Bakelite base. It was considered that the greater compressability of the Teflon would absorb some of the shock and vibration of the center rod; however, after twelve hours flying time, the Teflon base stubs began to loosen. These stubs have not broken off after 52 hours flying.

On 22 August, three new AT-490 stub antennas from WADC were flown for evaluation. These stubs are a blade type antenna with a long supportive sleeve at the base of the antenna. Two of the antennas had plastic sleeves and one had metal. One of the plastic sleeve antennas became too loose at the base for further testing after the first mission. The other two antennas have 24:50 hours flight time. Both antennas are loose in the base but they are being flown for further evaluation.

The effect of an additional dielectric, inside the AT-190B stubs, on the electrical characteristics of the antennas was considered. Laboratory tests indicate that it has no apparent effect. The possibility of filling the stub with a foam type plastic is being investigated.

2. Chaff Interference with the Helix Antenna Mount

The problem of chaff lodging between the antenna mount and skin of the aircraft is still under investigation. The application of "Duct Supe", a commercial sealer, to smooth the leading edge of the mount is most promising. Search is being made for a better grade of compound which will withstand greater temperature changes and be more stable under high speed and vibration. The amount of chaff lodging between the antenna mount and the skin of the aircraft has been decreased.

3. Tape Jam of the ALE-1 Chaff Strippers

The new chaff chute bracket engineered by the Douglas Aircraft Company has completely eliminated the chaff tape pile up and jam in the throat of the ALE-1. All tests flown with this new bracket installed have been without incident.

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4. Chaff Blow-Back into Cradle

The addition of a venturi flange to the original venturi to increase the suction of the system has eliminated the chaff blow-back into the bomb bay. The venturi sections are being modified to include this additional flange. The difficulty of chaff tapes being drawn through the chaff chute has also been corrected. A sheet metal flange has been installed to close the gap between the chaff dispensers and chaff chutes. This prevents tapes being drawn into the chutes.

5. Electronic Equipment Checkout in the Cradle

All aircraft have been through the turn around process at Douglas Aircraft Company where a functional test was performed on each aircraft and cradle. No discrepancies have been reported since this turn around. Additional functional checks will be made of equipment installed in the cradles.

i. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 50%

(3) Hours flown: 48:53

(4) Present status: The night chaff corridor test described in last month's report was flown on 3 August 1954. An interim report covering this and all other tests has been prepared and is in the process of reproduction.

j. Auxiliary Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953

(2) Percentage complete: 6%

(3) Hours flown: None

(4) Present status: Most of the equipment necessary to begin a coordinated test program has been received; however, several auxiliary items are still on order. One each BC-966-A airborne transponder and BC-127-A ground interrogator-responder have been assembled and are in the process of being checked out.

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(a) A request for bibliography on IFF equipment has been sent to the Air University Library at Maxwell Air Force Base, Alabama.

(b) Some Air Technical Intelligence data has been received on the Russian SRO IFF equipment. Additional data has been requested.

(c) When all equipment is operative, various methods of jamming or deceiving the ground or airborne equipment will be attempted and refinement made of the most practical and effective method.

k. Auxiliary Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954

(2) Percentage complete: 20%

(3) Hours flown: None

(4) Present status: Back ordered parts for the power supply and oscillator amplifier for this jammer have been received. This allowed completion of the power supply and resumption of work on the oscillator amplifier which is now nearing completion. Bench tests, checks for frequency range, tuning procedure, and methods and percentage of modulation will be accomplished in September when oscillator amplifier is completed.

l. Auxiliary Project Number 12, "'X' Band Passive Detection and Homing System".

(1) Date initiated: 1 February 1954

(2) Percentage complete: 63%

(3) Hours flown: None

(4) Present status: Work on this project was suspended while the project officer engineered changes to the whip antenna for "Blue Cradle" and the ALT-7.

m. Auxiliary Project Number 13, "Use of Transistors in Future Projects".

(1) Date initiated: 1 March 1954

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(2) Percentage complete: 40%

(3) Hours flown: None

(4) Present status: Work on this project was suspended while project officer assisted with "Blue Cradle" project.

n. Auxiliary Project Number 14, "Development and Test of APT-5A and APT-9 for Higher Power Output and Sweep Jammer".

(1) Date initiated: 5 March 1954

(2) Percentage complete: 20%

(3) Hours flown: None

(4) Present status: Sweep unit parts are being manufactured by the machine shop for sweeping the APT-5A transmitter. Work was suspended on this project during the first two weeks of August while the project officer was placed on TDY to WADC as a QRC liaison officer.

o. Auxiliary Project Number 15, "KC-97F Modification".

(1) Date initiated: 28 January 1954

(2) Percentage complete: 100%

(3) Hours flown: None

(4) Present status: The two KC-97F aircraft are completely modified except for completion of interphone installation. Parts are on order to finish this installation. For all practical purposes this project is considered complete.

p. Auxiliary Project Number 18, "Development of a Sweep Jammer Using a VHF Increductor".

(1) Date initiated: 1 April 1954

(2) Percentage complete: 30%

(3) Hours flown: None.

0228

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(4) Present status: The maximum power output of the VHF Jammer is now about 100 watts at the high (150 mc) end of the band and 50 watts at the low (100 mc) end. During the month, several improvements were made in the method of applying a linear range of sweep frequencies to the increductor control windings.

(a) Voltages were changed in the control circuit to improve the shape of the input wave form. Different tubes were used in the sweep amplifier circuit to allow for larger signal amplification. The sweep generator circuit was improved so that constant amplitude is available over the entire range of sweep frequencies.

(b) A separate bias supply has been added to improve stability and accuracy for setting of center frequency . Sweep speeds of from 200 to 1200 cycles are now available.

(c) Until this time, the transmitter has been used on a standard 50 ohm load with a matching capacitor in the line. Good stability and fairly constant power output have been obtained with a gradual power increase toward the high end of the range. However, when the transmitter is connected to the AT-190 or AT-191 antenna, considerable difficulty is experienced. The transmitter power may vary from ten to 100 watts at irregular sections of the frequency range. Instability and loss of frequency control occur at many spots in the range. An improved method of coupling to the antenna, or a better antenna will be required for this transmitter to be used over a very wide range of frequency.

q. Auxiliary Project Number 20, "Use of Land Camera For Navigation with the AN/APS-23".

(1) Date initiated: 1 July 1954

(2) Percentage complete: 25%

(3) Hours flown: 20:00

(4) Present status: Two flight tests have been completed in a B-47 to determine the practicability of navigating by using Land Camera pictures of the radar indicator presentation.

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This type of navigation will reduce the aircraft's susceptability to location by radar DF nets and passive homing devices. This is possible by maintaining the radar in standby condition except when a picture is being taken. One rotation of the radar is sufficient for a picture. The results of these tests show that it is possible to accurately navigate B-47 aircraft under adverse weather and changing wind conditions using the photograph technique. The interim test report on this is being written and will be submitted within the next two weeks.

(a) A total of two KC-97 missions were flown with Dumont-Polaroid camera, Model 297 on loan from Carswell Air Force Base, Texas, mounted on the APS-42 indicator. The results of these missions were inconclusive because of the inherently poor indicator presentation of the APS-42. Attention is called to the Air Proving Ground Command Final Report, June 1954, Subject: Operational Suitability Test of Radar Set AN/APS-42 Project Number APG/TAE/62-AB-1.

(b) Section WCLRR-4 at WADC was contacted to determine the status of the Polaroid cameras on order which will mount in place of the O-15 camera. A delivery date has not been established due to contractual difficulties.

(c) Modification of the MX754 periscope for adaption of the Polaroid camera was completed and flight tested. The resulting pictures were usable but it would be desirable to obtain a larger picture of the indicator (approximately three inches in diameter). The present size is about one and one half inches in diameter. Efforts will be made to produce a periscope and lens assembly which will produce a larger picture.

r. Auxiliary Project Number 21, "Infra-red Station Keeping Device".

(1) Date initiated: 30 June 1954

(2) Percentage complete. 25%

(3) Hours flown: None

0230

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(4) Present status: An extensive survey of existing systems which may be adapted to the station keeping problem was completed. This survey indicated that no one could supply an experimental model which could be tested within a year. General opinion was that the direct viewing, infra-red system should work. This type of equipment is available and has been obtained. It has been modified for aircraft installation for use in station keeping. A test program has been set up to determine the feasibility of the technique and the suitability of the equipment.

(a) The survey of suitable systems for station keeping was made by the project engineer through visits to the following places: Farrand Optical Company in New York City, reference a Navy Infra-red project; Fort Monmouth, New Jersey, reference Signal Corps devices such as the "snooper scope"; Cambridge Field Station, Cambridge, Mass., to visit Dr. Heinz Fischer, an authority on infra-red, and to Infra-Red Laboratories at Rome Air Development Center and WADC. The infra-red viewer to be used for test purposes was obtained from Dr. P. J. Ovrebo at WADC. This viewer is designated AN/SAR-4X. Major R. A. Smith from Fort Monmouth, New Jersey, will bring another type of viewer designated AN/AAR-1 (XE-1) to Barksdale about the middle of September. Signal Corps personnel will supervise installation of this equipment and tests will be conducted to determine its suitability for use in the B-47.

(b) One test was performed with the IR viewer AN/SAR-4X. This consisted of standing at one side of a runway as B-47 aircraft took off during a Bombing Competition here at Barksdale. Observations were made as to the appearance of jet exhausts, and estimates made as to the range to which they could be tracked. The jets could only be clearly seen from the rear, and from this aspect, they could be tracked out to approximately 15 miles.

(c) Future tests are planned which will employ infra-red lights on the aircraft. It appears, from information received from the field trip, that these lights will be of sufficient intensity to permit ranges from 50 to 100 miles in good weather.

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Attachment #1 to SAC U-30 Report For Month of August

PROJECT 15

AN/ALT-8 Sweep Jammer

SAC Mission 104, 26 August 1954

1. OBJECT:

The object of the test was to determine the jamming effectiveness of the AN/ALT-8 transmitter when used singly and in combinations using slow-frequency sweep rates of 10, 15, and 20 megacycles per second at sweep widths of 100, 200, and 300 megacycles and using the fast frequency sweep speed with sweep widths of 60 and 200 megacycles.

2. GENERAL:

a. Introduction.

(1) Transmitting Set AN/ALT-8, a remote controlled airborne transmitting system designed for use on aircraft to jam 1000-4105 mc radar signals. It offers three types of jamming missions and permits rapid changing from one type to either of the other two. The three types of jamming are spot-frequency, automatic, slow-frequency (approximately 6-20mc/sec) and automatic fast-frequency sweep (sweeps the selected band 15 times per second, ie. 6000 mc/sec for 200 mc sweep width.

(2) Two transmitters (T-477/ALT-8 are furnished with each transmitting set. Each will accept one of four magnetron oscillator tubes. Type QK 459 for the frequency range 2300-3100mc, type QK 460 for the range 3100-4105 mc, type QK 465 for the range 1000-1500 mc, or type QK 466 for the range 1500-2300mc. Only the QK 459 and QK 460 are furnished in transmitter of the basic ALT-8 equipment; the QK 465 and QK 466 will be provided seperately in oscillator kits.

(3) The QK 459 type oscillator tube was used for these tests.

b. Test Procedure.

(1) This test was conducted with the jamming transmitters located in a fixed position. The transmitters were

SECRET

0232

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operated against one (1) MSQ-2 type radars located approximately 10,000 yards from the jamming site. The radar was located at site 2 of the Santa Rosa Island Facility (STRIFT) at Eglin AFB, Florida. An MIQ-3 installation was utilized for monitoring frequency limits and relative power outputs over the band.

(2) The MSQ-2 radar was "locked on" a fixed ground target. The target was a water tower located at auxiliary field 2. The tower was approximately 25,000 yards from the radars.

(3) To determine the effects of the jamming, the following instrumentation was used at each MSQ-1 radar site:

(a) Two (2) Esterline Angus pen recorders. One of these recorders was used to plot variations in azimuth in degrees and the other was used to plot variations in height in thousands of feet.

(b) Plotting board. This was used to record relative amounts of antenna jitter caused by jamming.

(c) Personnel. In addition to the regularly assigned personnel at the site, an ECM observer was assigned to the site.

2. METHOD OF EVALUATION:

a. Average conditions for each run were obtained by dividing the pen recordings (azimuth and height) into four equal sections, giving a condition for each section, and then taking the average of the four conditions. This is believed by the site observers to give an accurate measurement of jamming conditions.

b. The following is a list of the conditions and what the represent:

(1) Azimuth:

(a) Condition 1 - Jamming present but below $\frac{1}{4}$ degree error.

(b) Condition 2 - $\frac{1}{4}$ to 1 degree error.

(c) Condition 3 - 1 to 2 degree error.

(d) Condition 4 - 2 to 4 degree error.

(e) Condition 5 - Over 4 degree error.

0233

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(2) Elevation:

(a) Condition 1 - Jamming present but below $\frac{1}{4}$ degrees error.

(b) Condition 2 - 1000 feet to 2000 feet error.

(c) Condition 3 - 2000 feet to 3000 feet error.

(d) Condition 4 - 3000 feet to 4000 feet error.

(e) Condition 5 - Over 4000 feet error.

3. DATA:

a. The following information was obtained with the transmitters operating at a fast sweep speed and a sweep width of 60 mc and 200 mc.

No. of Runs	Number of Transmitters	Sweep Width	Average Condition (Azimuth)	Average Condition (Elevation)
3	1	60	3.16	3.42
2	2	60	2.88	3.5
3	1	200	2.92	3.33
3	2	200	3.50	3.58

b. The following information was obtained with one transmitter operating at slow speeds as shown and one or two transmitters operating at fast speeds.

No. of Runs	Slow Sweep Speed	Fast Sweep Width	No. of Fast Transmitters	Average Azimuth Condition	Average Elevation Condition
1	10	60	1	3.75	3.00
1	15	60	1	4.00	-
1	20	60	1	3.75	3.25
1	10	200	1	5.00	2.75
1	10	200	2	5.00	4.00
1	15	200	2	5.00	4.00
1	20	200	2	5.00	4.00

c. The following information was obtained with the transmitters operating at slow speeds with sweep width of 100 and 200 mc.

No. of Runs	Number of Transmitters	Sweep Speed	Sweep Width	Average Azimuth Condition	Average Elevation Condition
1	1	10	100	5.0	3.25
1	1	15	100	4.5	4.25
1	1	20	100	4.75	3.25

0234

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No. of Runs	Number of Transmitters	Sweep Speed	Sweep Width	Average Azimuth Cond.	Average Elev. Cond.
1	2	10	100	4.5	2.75
1	2	15	100	4.75	4.25
1	2	20	100	5.0	4.25

4. CONCLUSIONS:

a. The fast sweep and the slow sweep cannot be compared. The slow sweep causes a large error each time the radar was hit by the jamming signal, however, as soon as the transmitter swept past the radar signal the operator was able to re-acquire the target. The fast sweep causes the antenna to oscillate continuously as the radar is hit thirty times per second. This results in the Radar "J" scope being continuously cluttered and at times all targets are obliterated.

b. Under these conditions, with two (2) transmitters operating in fast sweep, each time a slow sweep transmitter swept thru the MSQ-1 radar frequency, the radar broke lock.

c. During these tests the fast sweep presented a more effective type of jamming.

d. Since the results of the slow sweep was essentially the same as the AN/ALT-6 test covered in SAC U-30 Report for the month of July, and the radar was being severly abused, the rest of the slow sweep test was cancelled.

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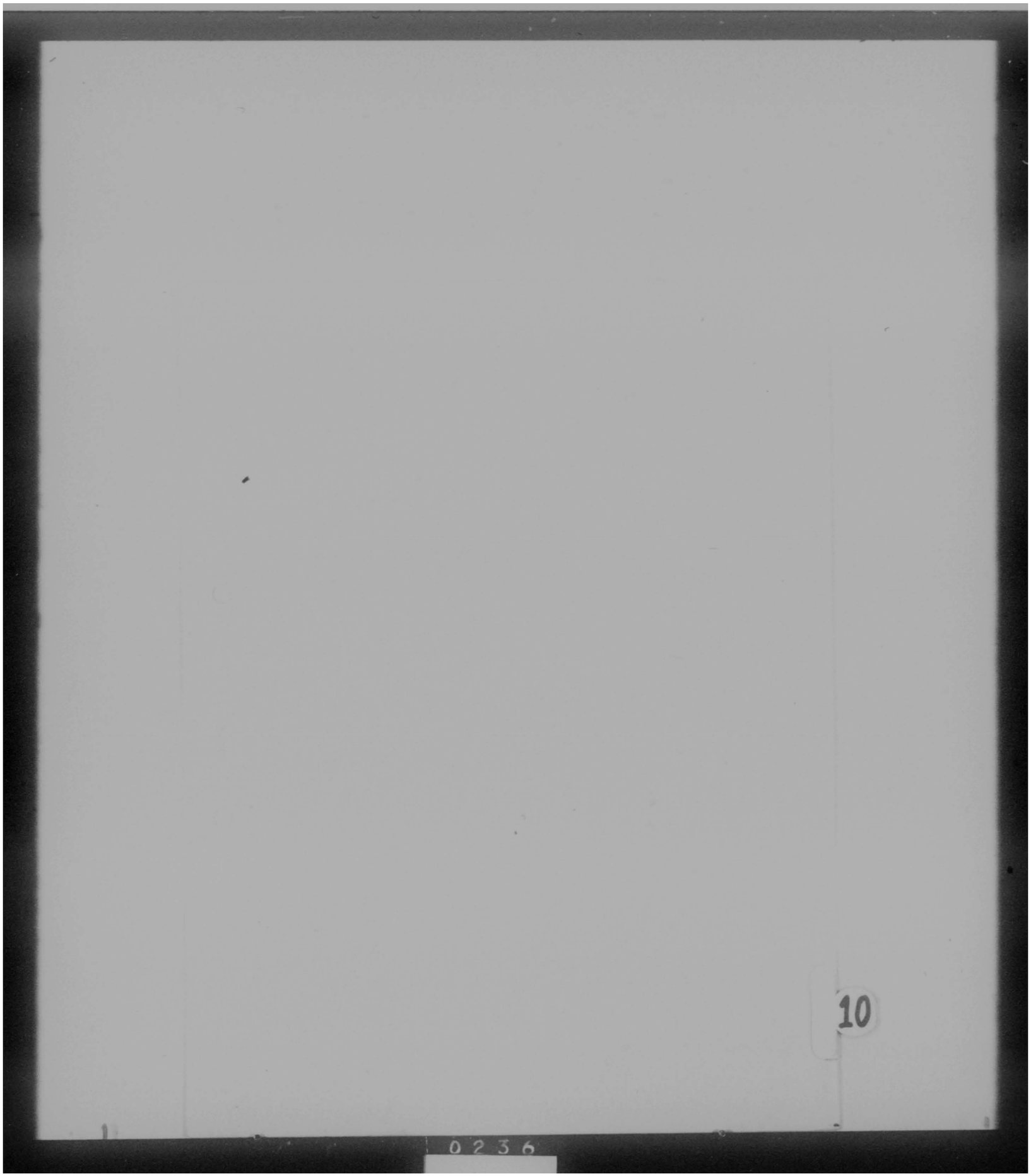

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HISTORICAL REPORT FOR THE MONTH OF AUGUST 1954

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 70 for the month. The average in-commission rate was 74.45%. A total of 1943:35 hours were flown, for an average of 27:45 hours per possessed aircraft. The Wing AOCP rate was 10.21% compared to 16.96% for the previous month. There were 30.2 direct man hours expended per flying hour. The Wing expended 46.3% of available manhours as direct time.

2. Following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 Aircraft:

The average possessed B-47 aircraft for the month was forty-eight (48). Average in-commission rate was 76.42% compared to 68.68% for the previous month. There were 1182:25 hours flown for an average of 24:40 hours per possessed aircraft. The AOCP rate was 11.56% a decrease from 17.72% for July. Direct manhours per flying hour was 44.6 hours.

b. KC-97 Aircraft:

The Wing had an average of twenty-two (22) KC-97's for the month. Average in-commission rate was 79.58% compared to 69.45% for previous month. A total of 761:10 hours were flown for an average of 34:37 hours per possessed aircraft. The AOCP rate was 7.28% a decrease from 15.27% for previous month. Direct manhours per flying hour was 17.3 hours.

3. There were fifty-nine (59) malfunctions for the month compared to forty-one (41) for the previous month. Following is a breakdown of the causes by system and responsible agency.

	System	No	Agency Responsible
B-47			
	Bombing	3	Air Crew
	Bombing	25	Material Failure
	Bombing	3	Other
	Communications	2	Material Failure
	Gunnery	1	Material Failure
	Air Refueling	1	Material Failure
	Air Refueling	1	Other
	Power Plant	4	Material Failure
	Aircraft General	11	Material Failure
	Aircraft General	2	Maintenance Personnel
	Aircraft General	1	Other
		54	

0237

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System	No	Agency Responsible
KC-97		
Air Refueling	1	Material Failure
Power Plant	2	Material Failure
Propeller	1	Material Failure
	4	

---

1. Seven (7) new TO's were received on B-47 aircraft and four (4) applicable to KC-97 aircraft.

2. There were eight (8) engine changes on B-47 aircraft averaging 57.3 hours at change. Seven (7) engine changes were made on KC-97 aircraft with an average of 304 hours at change.

3. Approximately 1100 TO's were supplied with on B-47 aircraft and 150 on KC-97 aircraft.

An intensive training program is being carried on in conjunction with Factory Technical Representatives. Tech Order Familiarization Logs are being monitored by this section. Tests have been given throughout the Wing on Form 1's and bench check procedures. Four (4) new SOP's were written and distributed. First Lieute nt Craig was assigned CIO of the section the first of the month. This section has operated without an officer directly assigned for several months. Four (4) airmen have been TDY through the past month.

---

1. During the month of August 1954 the Quality Control Unit inspected four (4) KC-97 and nine (9) B-47 aircraft processed through the 376th Maintenance Docks. The Unit also performed In-Commission inspections on Wing assigned Aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The Unit supervised sixteen (16) KC-97 type aircraft and seventeen (17) B-47 type aircraft test flights during the month of August.

4. During the month of August the Unit gained two (2) men.

5. Two-hundred and sixty-one (261) Unsatisfactory Reports were submitted during the month of August.

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SUPPLY LIAISON

1. The total of 47 JCPs on B-47 and 27 on KC-97 for the month of August.

2. Bench Stocks for (1) Squadrons have been revised for the new 30 day level with the exception of A & E.

3. Cannibalization for the month on B-47 was 100, and for KC-97 aircraft, a total of 14.

Robert S Wilson
ROBERT S WILSON
1st Lt, USAF
Chief of Maintenance

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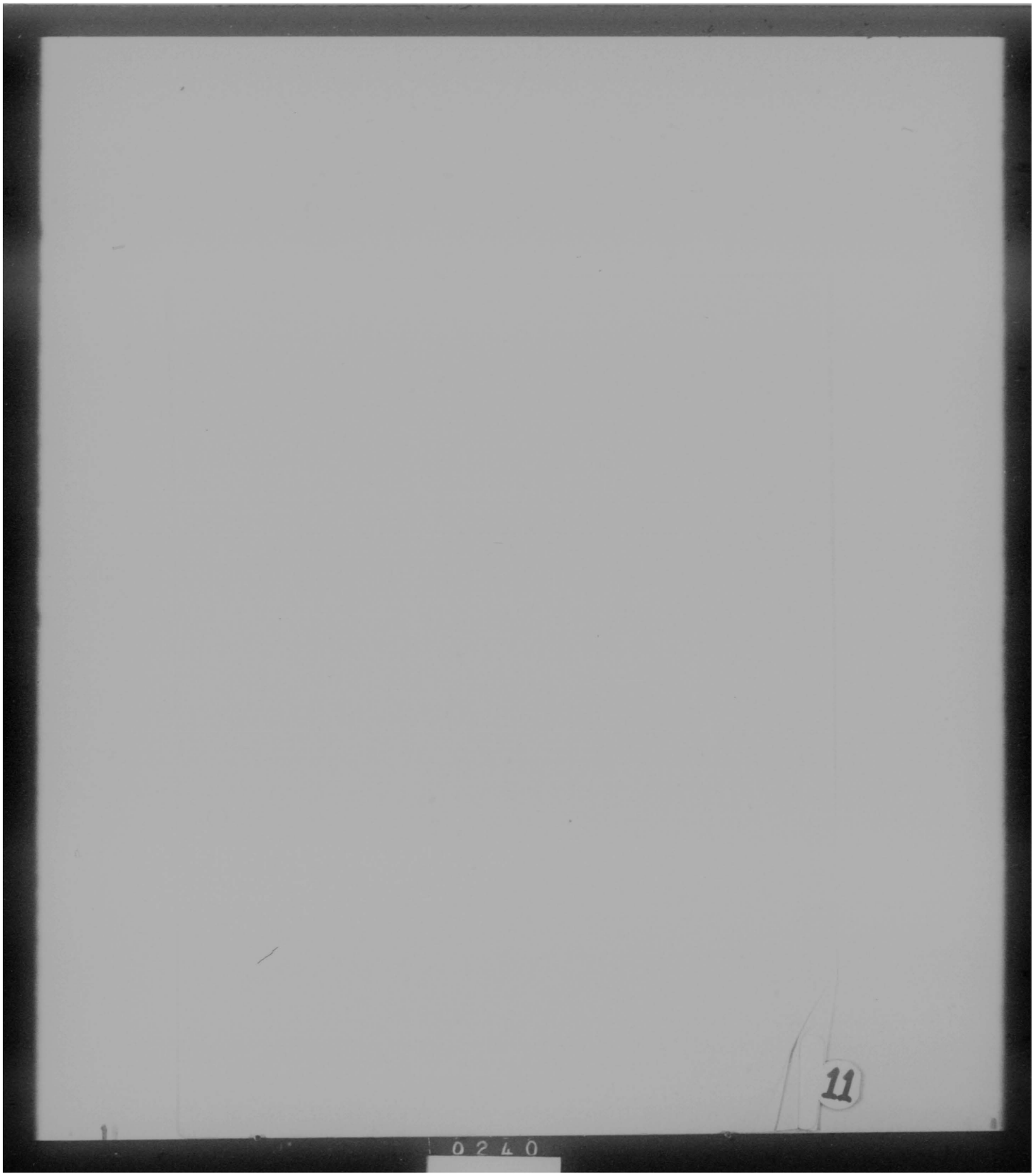

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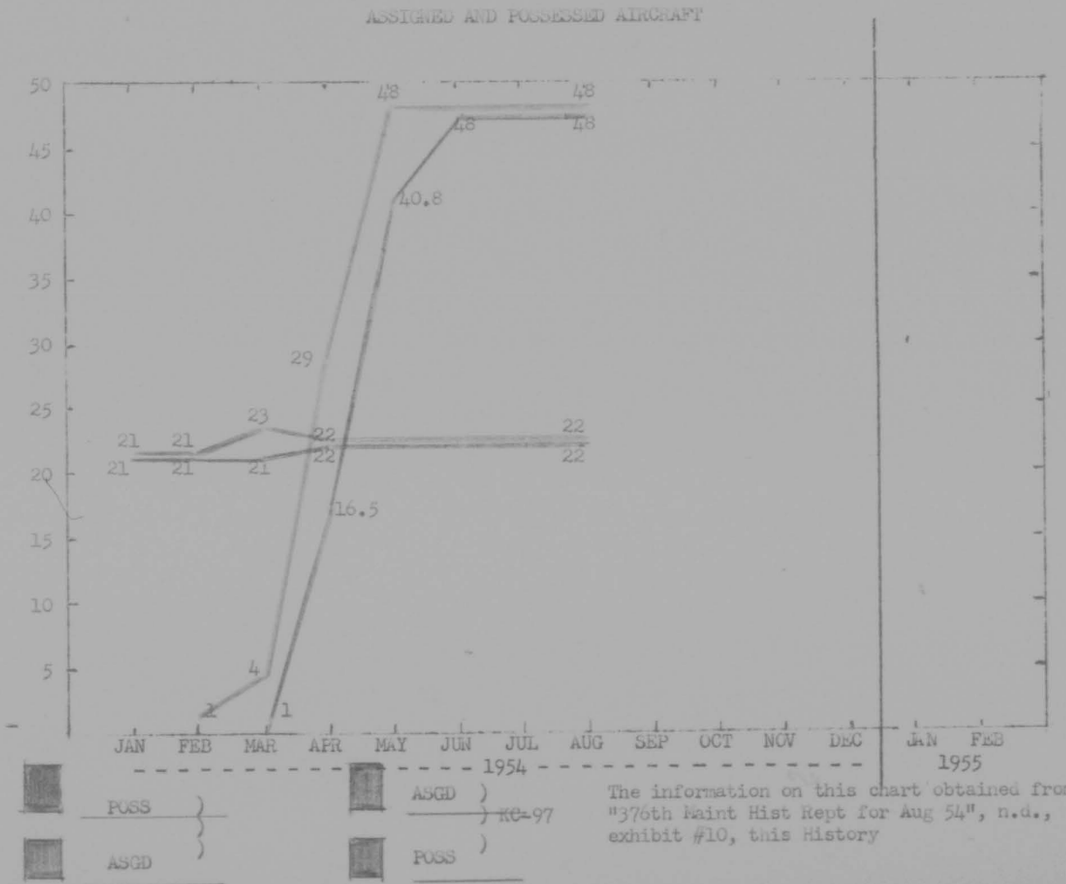
ASSIGNED AND POSSESSED AIRCRAFT



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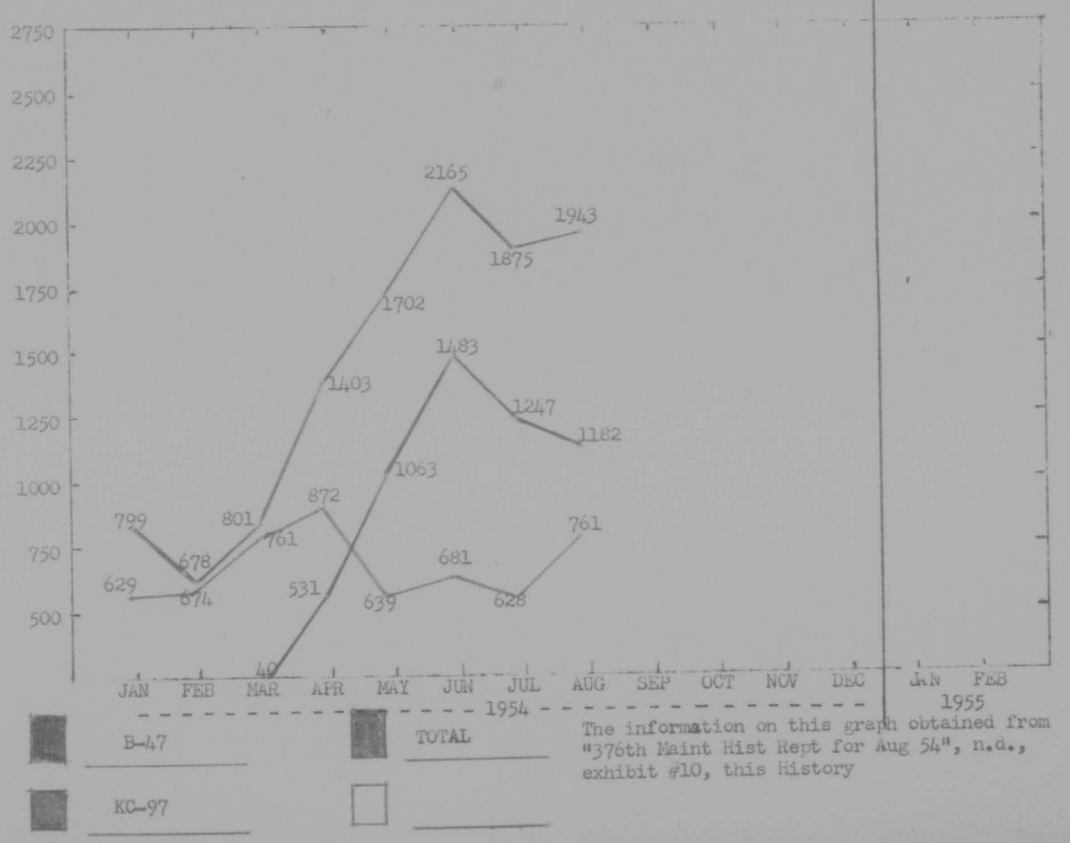
FLYING TIME



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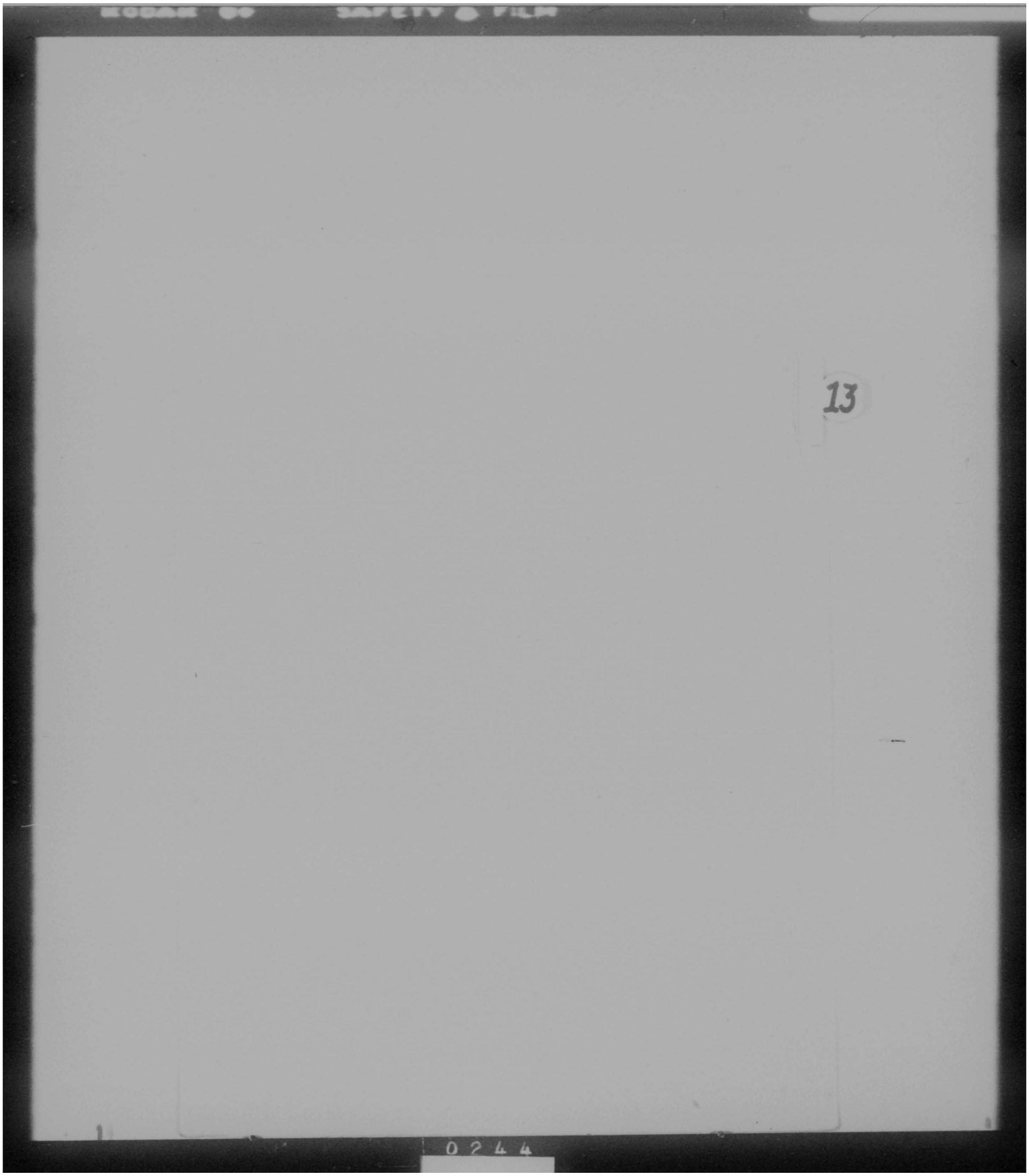

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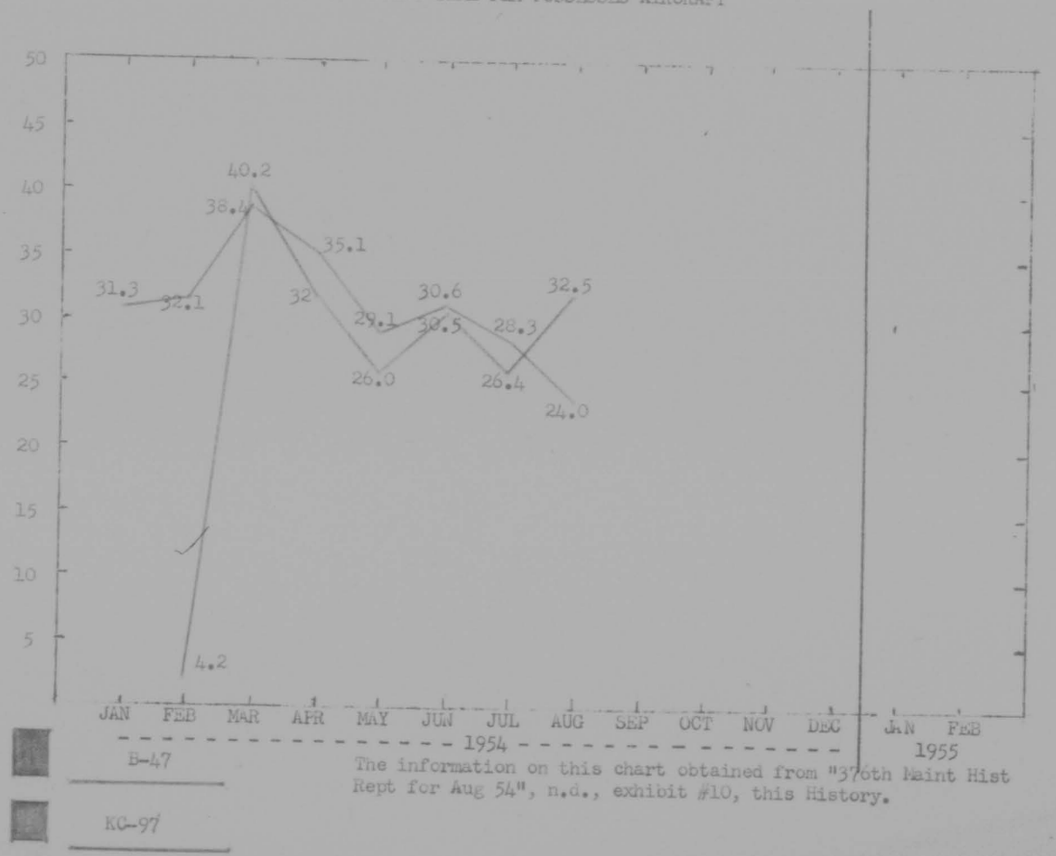
FLYING TIME PER POSSESSED AIRCRAFT



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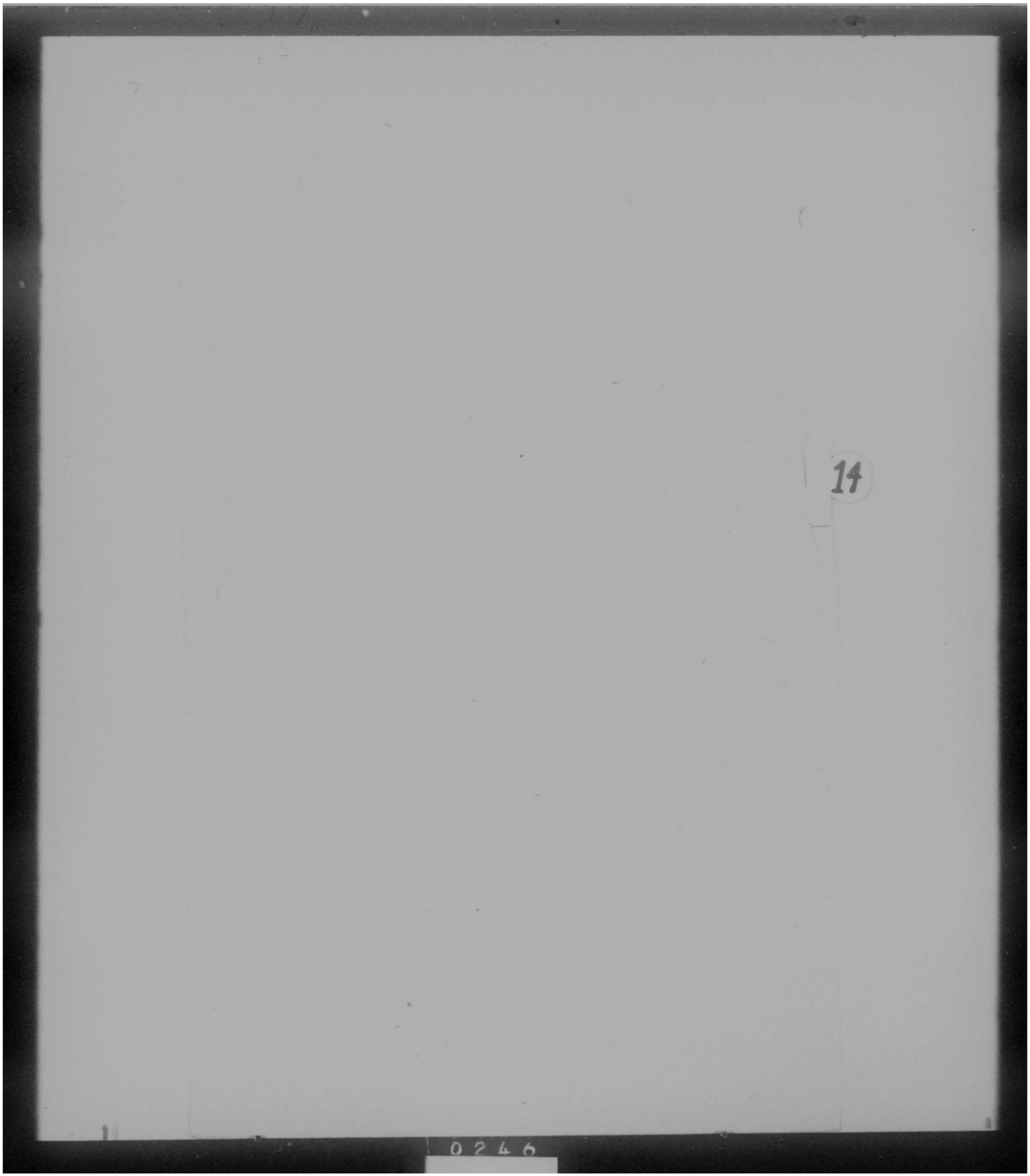

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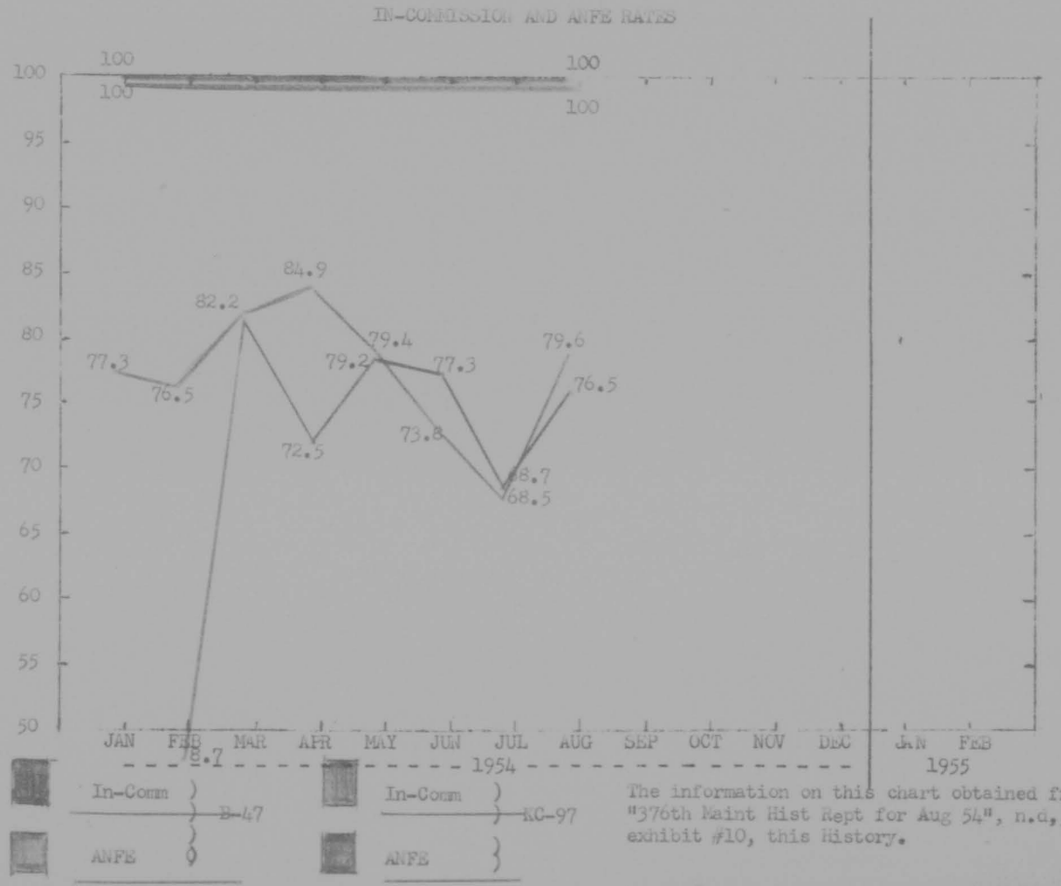
IN-COMMISSION AND ANFE RATES



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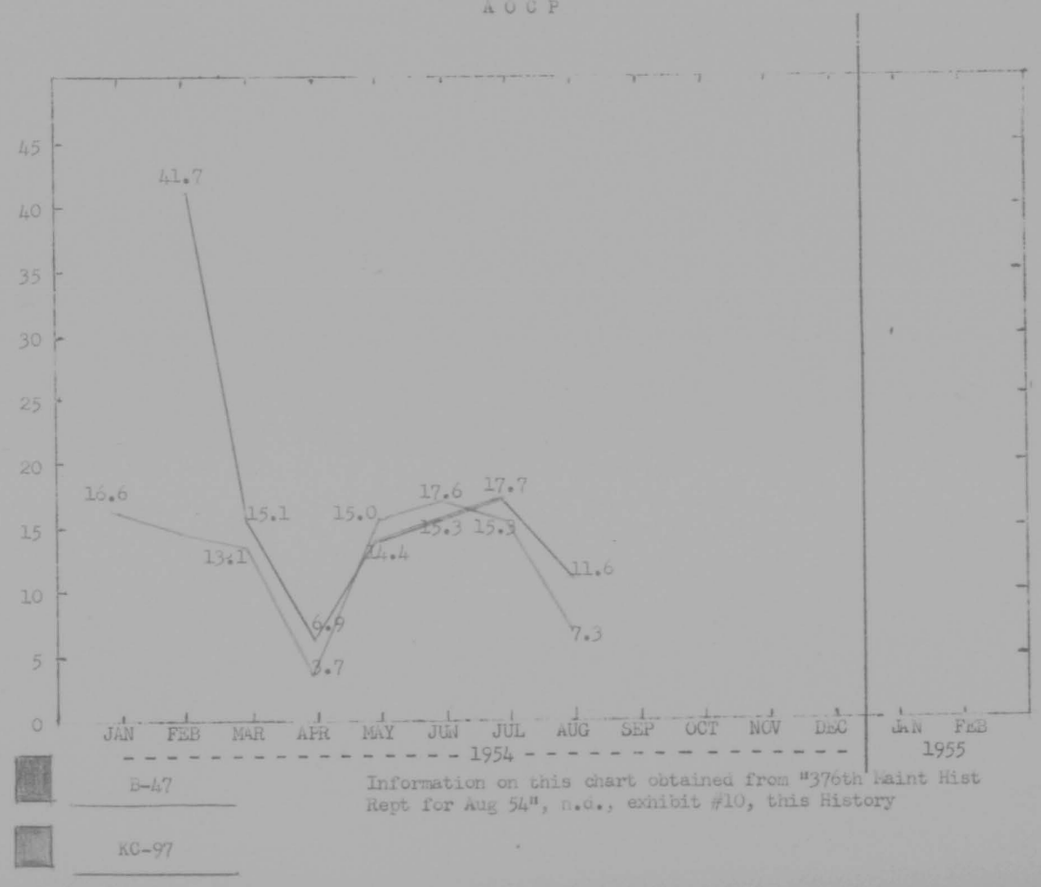
A O C P



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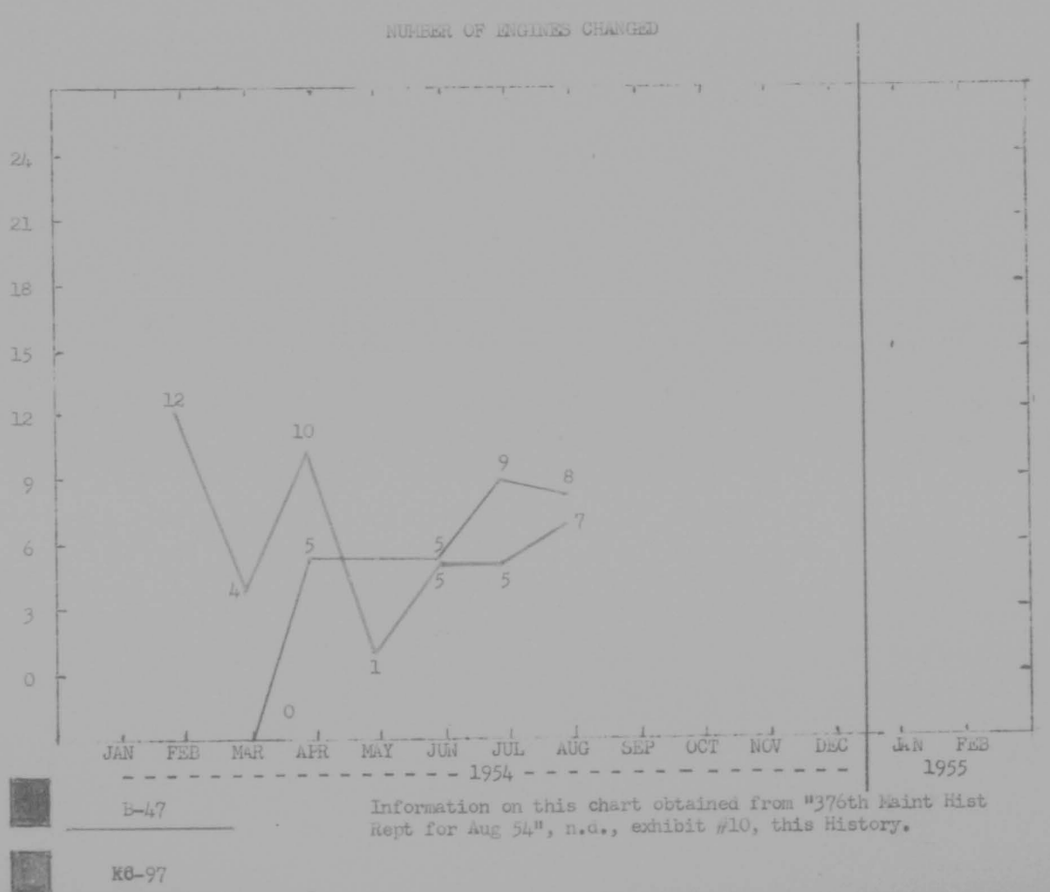

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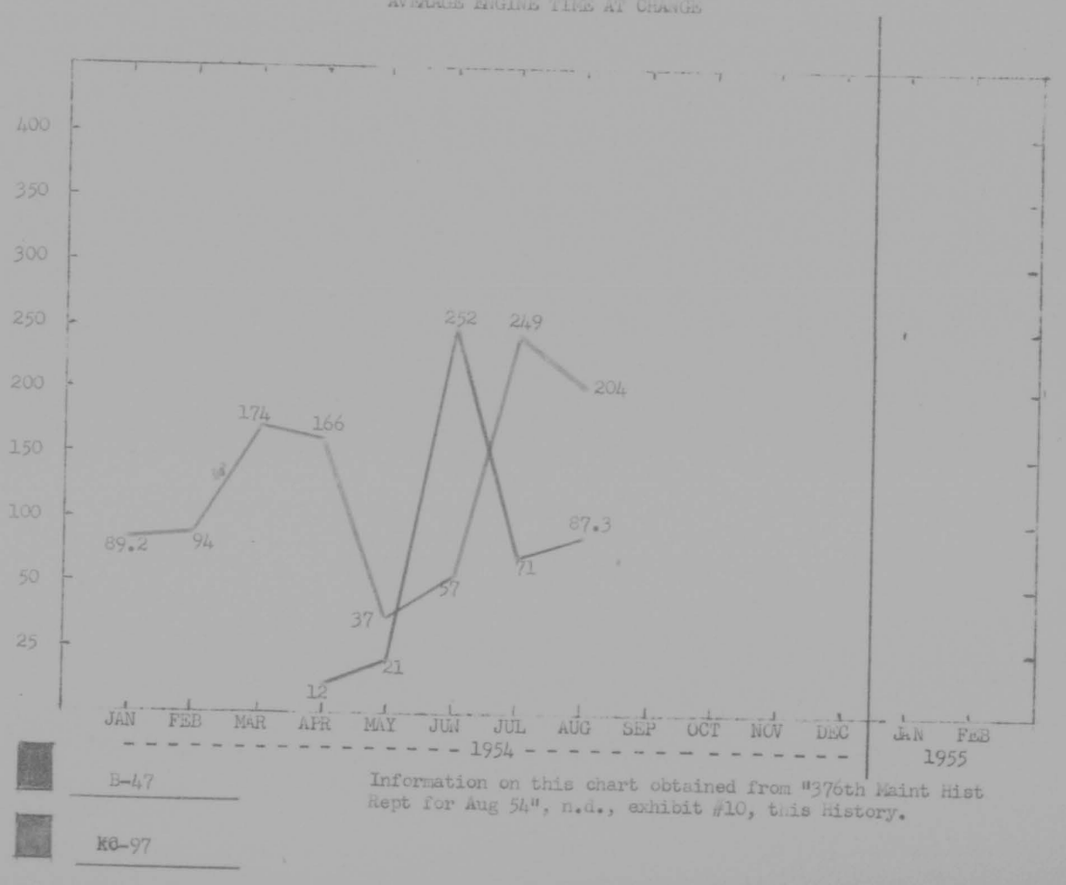
AVERAGE ENGINE TIME AT CHANGE



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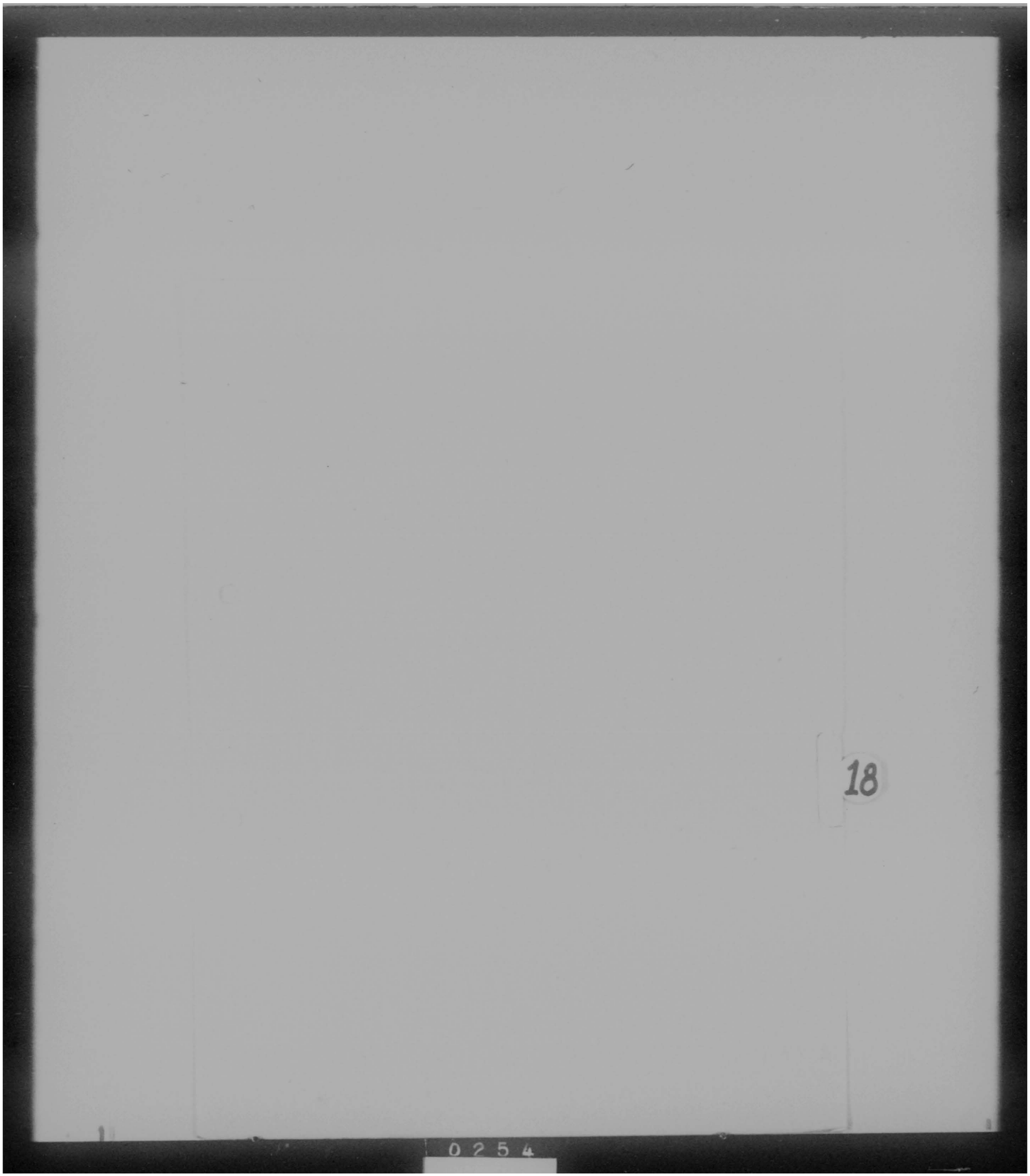

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 September 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 August 1954, submitted in accodance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project # 6.

III. TRAINING ACTIVITIES:

1. Classroom:

Taught APS-54 to 20 airmen 20 hours
Taught APS-54 to 13 airmen 28 hours
Taught ALE-1 to 6 airmen 24 hours
Taught ALT-7 to 14 airmen 12 hours
Taught ALT-7 to 6 airmen 20 hours
Taught ALT-8 to 17 airmen 24 hours
Grading papers, Preparing test etc. 8 hours
136 Total hours

2. OJT

Wrote S.O.P. for APS-54 antenna checking	2 hours
Supervised APS-54 antenna & System check	6 hours
Supervised building classroom mock-ups	12 hours
Assisted Blue Cradle Maintenance	2 hours
Assisted ALE-1 Maintenance	2 hours
Instructed TDY Officers	4 hours
	28 hours

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

3. Total number of hours available for instruction 176 hours. Total number of classroom and OJT hours 164 hours or 93% of the available time.

4. The training program now in progress was started last month and the airmen being trained are from McDill, Castle, Mountain Home and Barksdale Air Force Bases.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

1. Three ALT-7 sweep capacitors have been found defective. These capacitors are vacuum sealed in a glass container along with the sweep motor. The cause of failures is being investigated. No UR will be submitted since this transmitter has been manufactured on a "crash" basis and does not meet the standards for final production items.

2. Two mistakes have been found in the schematic diagram of the ALT-8. Part L101 servo output transformer should be shown as 2 separate transformers in a single container with the two primary windings connected to produce series opposing voltages across the secondary windings. The second error found is in the modulator output circuit. The video signal is shown coupled to the secondary of transformer T1 and it should be coupled to the junction of L104 and L1A. Mr. Negrey, who is a Raytheon Representative, has been notified of these errors. No UR can be submitted since the manuscript is an Interum Handbook of Instructions.

3. APS-54 manufacturing representative visiting Barksdale AFB this month advocated the setting of the PRF bias adjustment by lowering the line voltage to 90V AC and

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adjusting the bias just below the point where the indicator lamp would light. This method was tried and increased sensivity of the APS-54 resulted with interaction between the nose and tail channel. Both indicator lamps would light simultaneously when a signal was received by either nose or tail channel. This method is unsuitable for reliable equipment operation.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: See General Remarks.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: See General Remarks.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Tests which I have conducted indicate that the APS-54 antenna crystals are receiving R.F. pulses representing an energy of approximately 0.3 erg. When the APG-32 radar is operating in the aircraft the APS-54 tail anter crystal current increases from 160 micro amperes (bias current) to 260 micro amperes. Since the average currer increase 100 micro amperes the peak current can be calculated to be 100 milliamps or 25 milliamps per crystal. Futher calculations show this energy level is approximately 0.3 erg. The 1N23B type crystal, that is used in the APS-54, is rated at 0.3 erg for burnout proof tes Strong radar signals apparently are causing the crystal damage reported in my July report. Protective circuitry will be tried and futher results will be reported next month.

X. GENERAL REMARKS:

1. Due to the TDY absence of Mr. Guy H. Nicholson, Dynamic Electronics Representative and the resulting increase in my teaching load only a small percentage of the work the I had scheduled for myself this month could not be accom lished.

2. A fixed frequency transistor blocking oscillator is planned for line testing the APS-54. The antenna installation can be checked by procedure which I have written up in SOP form this month.

Robert G Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

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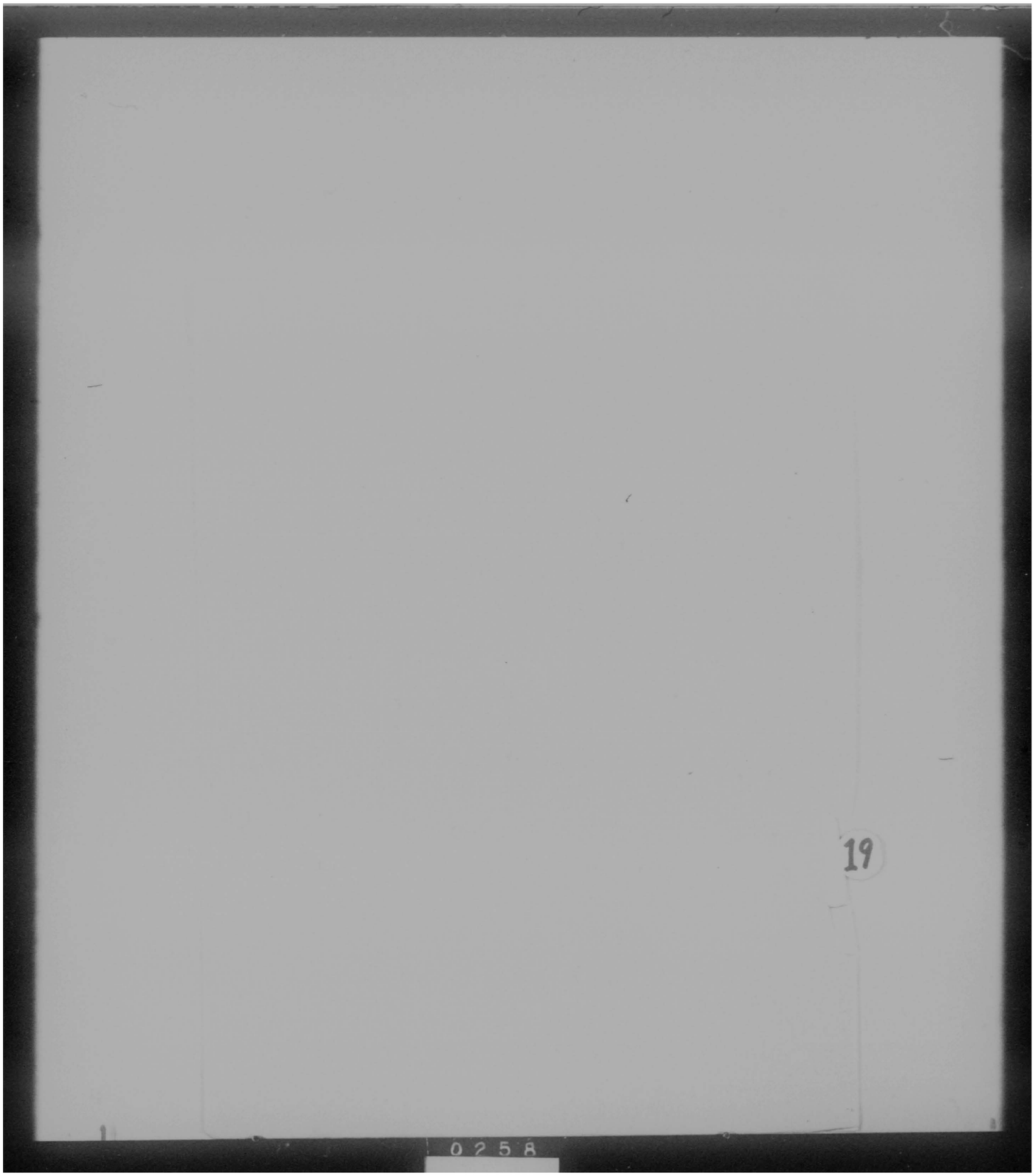

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 September 1954

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 August 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: J. E. Lella
H. A. Ladwig

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Three series of ALT-6 theory classes were held this mont for men from MacDill, Mountain Home and Castle as well as men from this squadron.

2. Checking new equipment has given an opportunity to run continuous OJT classes for Field Maintenance personnel.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technic advice on equipment performances and maintenance proble

2. Utilization this month:

	Hrs Available	Theory class	OJT
J. A. Lella	104	8	68
H. A. Ladwig	176	60	95

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7AE, Subject: Monthly (Technical) Report, WDS: 3-M.C-719, for Month Ending 31 August 1954

Mr. Lella spent 12 hours in preparation of an in-flight maintenance plan. On the 23rd he left for a 14 day TDY to the Utica plant.

3. We estimate our services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

The only malfunctions encountered were caused by damage in shipment.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negativ

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERI PERFORMANCES:

The ALT-6 magnetrons, L3040 and L3041 are listed as expendable items even though they cost $920.00 each. Base Supply called the man in charge of the property class at Gentile AFD and was instructed to throw the bad items away since they were expendable. Captain Clark called the man in charge of tubes at AMC (Mr. Griffiths) and was told the same thing again.
Evidently no provisions have been made to send these tubes back to Litton for repair.

Herman A. Ladwig
HERMAN A. LADWIG
Field Engineer
General Electric Co.

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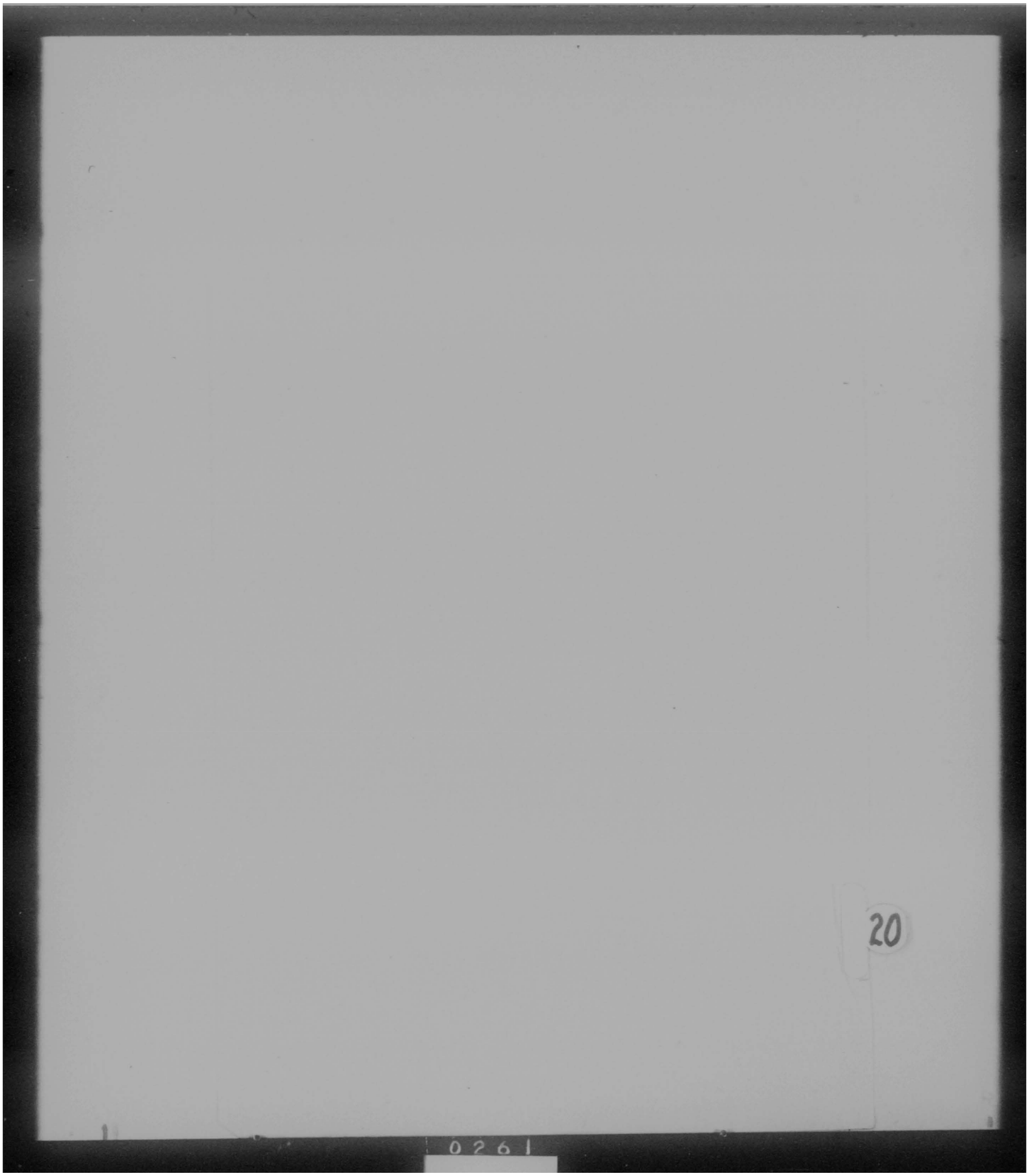

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 September 1954

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 August 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Eugene D. Pearson

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom

a. Three men from the auto-pilot section attended a course on the A-12D Gyropilot* during the first week of the month. The interlock circuit was covered in some detail - first in class with the use of prints and then on the A-12D mock-up in the field shop. Malfunctions were introduced into the mock-up and the students were required to analyze the malfunction. They then used a VOM to verify their analysis. All three men had a 40432 AFSC.

Below is a summary of the hours devoted to instruction and the preparation of instruction.

	Inst Hours	No. Students	Student Hours
A-12D Gyropilot*	17	3	51
Prep. of Instruction	3		

*Reg U. S. Pat. Off.

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2. OJT

a. The training was divided into two categories, planned and informal. The writer endeavored to give instructions on the subjects that the men seemed to need most. There were three (3) 40432's, two (2) 40433's, five (5) 40453's, two (2) 70471's and two (2) 40470's assigned who were available for training.

b. Planned OJT

	Inst Hrs	Class length	Students in Aug	Students to date	Stude Hours
Vertical Gyro	2	2	1	2	2
Servo & T T Servo	2	2	1	4	2
Repeat back Null Check	4	2	4	4	8

c. Informal OJT

	Inst Hrs	Students	Student h
Aileron Servo Replacement	2	2	4
Servo Cable Tension	2	3	5
Altitude Control	1	3	2
K Tie-in	2	6	6
Servo Control	1	3	1
Vertical Flight Gyro	1	2	1
Line Analyzer Operation	1	3	2
Basic Electricity	2	4	2
Elev. Diff. Limit Switch	1	3	1
Equipment Check Procedure	2	2	2
Rudder Channel	2	7	6
Aileron Channel	4	9	8

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	Inst Hrs	Students	Student hrs
[illegible]el	1	4	2
Interlock Circuit	2	6	2
A-12D Mock-up	24	5	41
A-12D General	3	12	9
[illegible]er	4	5	8
Trouble Shooting Procedure	11	9	26

d. The writer upon specific request also rendered technical advice and information to the men concerning various portions of the F-1 Auto-pilot, and the N-1 Compass

	Inst Hrs.	Students	Stu Hrs.
F-1	1	4	2
N-1	7	10	15

e. The writer spent an additional forty-four (44) hours giving informal OJT to the men in the auto-pilot section of the 301st Bomb Wing. The hours are noted and itemized under X. General Remarks.

f. Of 201 hours of available instruction time 146 hours were used for training.

IV. UTILIZATION:

1. Primary purpose of the writers assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the Wing, and the training of aircrew personnel in operating and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the writers are estimated to be terminated in April, 1957.

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7AE, Subject: Monthly Technical Report, RCS: 3-AAC-1019, For Month Ending 31 August 1954

V. EQUIPMENT MALFUNCTIONS:

1. During the month the A-12D Gyropilot* was written up for: aileron chatter in level flight, aileron chatt in turns, altitude control will not hold within plus or minus 50 feet, auto-pilot slow in making heading corrections, aircraft constantly rolls, elevator chatter, and aircraft wallows. These malfunctions, which were routine in nature, were traced to unbalan mismatched, and bad electron tubes.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negat

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEE PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Fourteen (14) sets of photostatic copies of T.O. sheets covering the A-12D Gyropilot*, N-1 Compass, and C-1 Amplifier have been distributed to the men in the auto-pilot section. Additional copies will be requested so that all the men in the auto-pilot section will have a set of these T.O. sheets.

2. The A-12D Gyropilot* fly-away mock-up with the J-2 and N-1 Compass tie-ins is now considered completed.

3. During the last two weeks of the month parts for a second A-12D Gyropilot* fly-away mock-up were ordere The actual plans for the mock-up should be completed shortly. The mock-up will be wired as suggested by the manufacturer with all units wired through the Junction Box. However only the terminals used in the aircraft will have test jacks mounted on the moc up instrument panel. The Junction Box will be acce able from the rear. It will be laid out so that for training purposes the instructor can easily insert malfunctions into the system.

X. GENERAL REMARKS:

1. During the month the 301st Bomb Wing auto-pilot technical representative was on vacation for two weeks. In his absence the writer rendered technical advice and assistance.

0265

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7AE, Subject: Monthly Technical Report, RCS: 3-AMD-019, For [illegible]
Ending 31 August 1954

Below is an intemization of the Informal OJT the writer gave the 301st Bomb Wing.

	Inst Hrs.	Students	Student Hr
Line Analyzer Operation	17	3	28
Servo Control	1	1	1
Vertical Flight Gyro	1	2	2
Equipment Check Procedure	3	5	6
A-12D General	2	6	6
Trouble Shooting Procedure	17	2	19
Other	2	7	4
N-1 Compass	1	6	2

Eugene D. Pearson

EUGENE D. PEARSON
Field Engineer
Sperry Gyroscope Company

0266

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1 September 1954

7AE

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 August 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert J. Lenes, General Mills, Inc.
Mr. Allen R. Jones, Western Electric Co. (Arrived 17 August 1954)
Mr. Michael Nowak, Western Electric Co.
Mr. John T. Kennedy, Western Electric Co. (Departed 13 August 1954)
Mr. William C. Cromwell, Sperry Gyroscope C
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigation System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eight different twenty hour courses were conducted during the month of August . Two of these were ne courses; the others were all continuations of previous courses. In addition to these, one new four hour course was conducted. These courses were conducted by Field Engineers of General Mills, Inc., Sperry Gyroscope Co. and Western Electric Co.

b. Three indoctrination courses were completed this month. All K-System personnel have been cycled

0268

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through these courses at least once. At a later date, those with below average grades, a minority, will be cycled through again. In the meantime, instructor will emphasize the alignment and trouble shooting fields.

c. A mock-up, to be devoted entirely to training is now available. It has been placed in a classroom but, to date, is not operational due to lack of components. This difficulty will be remedied shortly as the missing components are now on order. This mock-up will permit a large increase in system alignment and trouble shooting, training, which previously had been hampered by a shop need for all existing mock-ups.

d. The Heading and Stailization Course outlined in the Monthly Technical Report dated 1 August 1954, has as yet not begun. The suitable projectors, necessary for this course, are not available. The A & E Squadron is not authorized projectors and are forced to use the Air Base's equipment. The equipment at this base is old and in poor condition. It is being rewo ed off base and should be available shortly.

e. The trice weekly symposium with K-Observers has continued with a greatly increased attendance. The Observers have taken a particular liking to this typ of training. Those Observers who are unable to attend a particular class receive the information discussed at this class through the monthly Observers Digest.

f. The following is the status of classroom training fo the month of August 1954. All students had 32130E AFSC's with the exception of the Observer whose AFSC is 1544B.

SUBJECT	COURSE (hrs)	No. Instrd to date	No. Instrd in August	Inst. Man-hrs	Stu. Man-hr
I.C.E. Loops (Sp)	20	105	3	20	60
Mock up (Sp)	20	28	8	40	160
Computer Loops (Sp)	20	118	4	20	80
D-2 Nav Unit (Sp)	4	56	56	40	224

0269

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SUBJECT	COURSE (hrs)	No. Instrd to date	No. Instrd in August	Inst Man-hrs	Stu. Man-hrs
Symposium (Sp & W.E.)	3	141	56	78	168
APS/23 Loops (W.E.)	20	125	3	20	60
Mock-up - APS/23 (W.E.)	20	23	3	20	60
APS/23 Trouble Shooting	20	5	5	40	100
Optical Test Equipment	20	4	4	20	80
Y-4 Indoctrination	20	109	7	40	140

Total Student man-hours of training for August - 1132

2. OJT:

a. OJT during the month of August included test equipment alignment procedures, system analysis and trouble shooting.

PLANNED OJT

Subject	Instructor Hours	Student Hours	Students
System Analysis	451	611	174
Trouble Shooting	89	177	71

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of August for a total of 1224 man-hours. Of this total, 901 man-hours were utilized for Formal OJT.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duti also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the above named Field Engineers can be terminated by April 1956.

0270

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7AF, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

V. EQUIPMENT MALFUNCTIONS: Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Detail:

a. A directive from the Chief of Maintenance, entitle "Proper Use of Inverter System on the B-47", dated 13 August 1954, cautioned K-line mechanics not to use A/C inverters on ground run-ups of the K-Syste in order to decrease the number of invertor failur

b. The K-line mechanics, along with supervisory personnel, are in full accord with this directive and are attempting to follow it. All A/C K-external receptacles were inspected and found to be in good shape. All K-plugs on the Marathon Power Units were inspected and found to be in poor condition. This situation will render A & E's attempt to comply with the directive most difficult.

2. Recommendations:

a. Permit a temporaty deviation from the directive un til all K-plugs can be repaired.

3. Action taken to correct:

a. It was suggested to the Ground Power Section that K-plugs should be inspected and repaired. Ground Power is following this suggestion and the problem is being eliminated.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. J. T. Kennedy, Western Electric Company Field Engineer, departed this station 13 August 1954. He was replaced by Mr. A. Jones, also of the Western Electric Company.

4

0271

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

2. The results of the A.F. Senior Bomb-Nav Proficiency Test, used to up-grade personnel, were returned to this base during the latter part of this report period. A breakdown of personnel by AFSC's will be included in the next monthly report.

3. Another method of disseminating information became available to K-Field Engineers recently. The Personnel preparing the Maintenance Bulletin, printed by the Office of the Chief of Maintenance and distributed to all maintenance sections, stated that any articles which were submitted by K-System people pertaining to maintenance would be included in their memo. This Bulletin will enable the Field Engineer to contact all maintenance sections and bring to the attention problems peculiar to the K-System.

4. Mr. M. S. Kotula, Sperry Gyroscope Field Engineer and Wing Coordinator was requested to attend a Training Conference at S.A.C. Headquarters during the latter part of August.

Dana G. Doherty
DANA G. DOHERTY
Field Engineer - Acting Coordinator
Sperry Gyroscope Co.

Allen R. Jones
ALLEN R. JONES
Field Engineer
Western Electric Co.

Robert J. Lenes
ROBERT J. LENES
Field Engineer
General Mills,

0272

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1 September 1954

7AE

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 August 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: K. R. Faust, Crosley
E. M. Perman, Crosley

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eight A-5 airmen (AFSC 32330C) received 160 man hou of instructions in Basic Radar Theory employed in the A-5 Fire Control System. This course was given to two classes of four (4) men each. Total time 40 hours.

b. Eight A-5 airmen (AFSC 32330C) received 160 man hours of instruction in General A-5 Analysis. This course was given to two classes of four (4) men each. Total time 40 hours.

c. Thirteen A-5 airmen received 260 man hours of instruction in Basic Electronics and associated mathematics employed in the A-5. This course was given to 3 classes. Total time 60 hours.

0274

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7AE, Subject: Monthly Technical Report, RCS: [illegible]
Ending 31 August 1954.

2. OJT:

a. Three A-5 Airmen received 24 man hours of instructions while checking for Field Change Modifications. Total time 8 hours.

b. Six A-5 Airmen received 1 hour of instructions each, in making modifications according to Field Change Notices. Total time 6 hours.

c. Eight A-5 Airmen received 160 hours of instructions on "Blue Cradle" modifications which affect the A-5 Operation. Total time 20 hours.

d. Two A-5 Airmen received 60 man hours of instruction while trouble shooting difficult malfunctions on the line. Total time 12 hours.

e. Two A-5 Airmen received 4 man hours of instructions in use of "Magic Wand". Total time 2 hours.

f. Four A-5 Airmen received 40 man hours of instruction while trouble shooting A-5 components in the shop. Total time 10 hours.

g. Three A-5 Airmen received 2 hours of instructions in obtaining proper AF Stock Numbers for A-5 spare parts. Total time 6 hours.

h. Four A-5 Airmen were given 20 man hours of instructions on trouble shooting procedures. Total time 5 hours.

3. Thirty-five hours were expended in class preparations. This included preparing class outline, preparing examinations and correcting examinations. Total time 35 hours.

4. Training Program:

a. Available time - 280 hours
Total training time - 214 hours
Training % - 80%

0275

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

IV. UTILIZATION:

1. Breif description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration, and maintenance of the A-5 System, and training of aircraft personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate our services to be for an indefinite period.

V. EQUIPMENT MALFUNCTIONS: Negative

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS INCLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Unknown

IX. SPECIAL DISCUSSIONS: Negative.

X. GENERAL REMARKS: Negative.

K. R. Faught

K. R. FAUGHT
Field Engineer
Crosley

0276

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7LE 1 September 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St. and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 August 1954, submitted in accordance with AFR 65-18 and S.C Reg 65-4.

I. SUBMITTED BY: Mr. Homer C. Fritsch

II. EQUIPMENT: APS-42A, APN-1, APN-11, APN-12, APN-70, APN-76 APX-6, ARC-27, ARN-6, ARN-12, ARN-14, ARN-18, AIC-10, 1854.

III. TRAINING ACTIVITIES:

1. Classroom: Negative.

2. OJT:

a. One airman (AFSC 30150) of the radio field maintenance section was given OJT covering the trouble shooting procedures to be followed when working on the AN/ARN-6 radio compass equipment. This also included instruction in the proper use of the asso iated test equipment. Time: 32 hours.

b. One airman (AFSC 30150) was given OJT covering the system operation and trouble isolation procedures to be used when working on the AN/AIC-10 equipment. Time: 24 hours.

c. Five airmen (AFSC 30150 & 30130) of the radio fiel maintenance section were given instruction coverin the proper use of the tube checking equipment TV-7 Time: 5 hours.

0278

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d. One airman (AFSC 30150) was given instruction covering the operation and maintenance procedures to be used when working on the AN/ARN-14 VOR equipment. This training also included instruction in the proper use of the signal generator SG-13 and oscilloscope OS-8B. Time: 80 hours.

e. During the month of August there were a total of 176 hours available for training purposes. Of this time 141 hours of training was presented which amou to 80 percent of the available time.

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel in the operation, calibration, and maintenance of the APS-42A, APN-1, APN-11, APN-12, APN-70, APN-76, APX-6, ARC-27, ARN-6, ARN-12, ARN-14, ARN-18, AIC-10, and 1854. Also, the training of aircre personnel in the operation and in-flight maintenance techniques and procedures. In addition, duties include assisting in the resolution of difficult repair problem and rendering technical advice on equipment performance and maintenance problems.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPEMENTS: Negative.

X. GENERAL REMARKS:

1. During the month of August additional tests were performed on the ARN-14 VOR equipment aboard B-47E #408 in an effort to determine why the omni equipment installed in this aircraft continually operated at a substandard level. Four ARN-14 sets were tried in this aircraft with the same results; range limited to 30 miles or less. Each omni set installed wasfirst checked to be sure that it was in good working order and met all sensitivity standards.

When the results obtained with each set were found to

0279

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be the same, the next step was to check the antenna installation. The antenna cable connectors were checked and found to be all right. The cable was then checked for continuity and shorts and found to be satisfactory.

An examination of the antenna showed that provision had been made for impedance matching by means of a tuned stub. It was decided to try different settings of this stub to secure better performance. This test was made with a SG-13 signal generator setting 30 feet behind and slightly to the right of the aircraft. The omni set in the aircraft was a R-541/ARN-14. The matching stub was adjusted until the point of maximum signal was obtained as evidenced by a decrease in IF cathode current in the R-541. However, the increase in signal strength was slight.

At this point the antenna was removed from the aircraft and taken to the Test and Tactics Squadron in order to check the actual impedance and resonant frequency. At the same time a new antenna was procured and all tests were performed on both antennas. The tests showed both antennas to have very close to the same characteristics in both resonant frequency and impedance over the range of 108mc to 140mc. In other words, these tests did not provide a clue to where the trouble lies.

The new antenna was then installed aboard the aircraft but it was still impossible to pick up the Shreveport omni station with enough magnitude to actuate the equipment while on the ground. In-flight checks provedthe new antenna to be somewhat better than the original, extending the range to over 40 miles.

The results of these tests would indicate that some of the ARN-14 antennas aboard B-47E aircraft are not functioning efficiently. However, we do not have the equipment necessary to determine just where the fault is, since checks of that sort will require the use of closely controlled laboratory test gear and conditions.

The only remaining tests that we have not been able to make are the replacement of the antenna lead in coaxial cables aboard the B-47's which have never given satisfactory results. There still is the possibility that even though the cables now installed check

0280

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all right in so far as continuity is concerned they may not have the proper radio frequency characteristics for good signal transfer. Again, this is only a suposition and the only means we have for testing this possibility is by substitution. This will be done just as soon as prior maintenance commitments and availability of the aircraft make possible.

The aforementioned test of two antennas conducted with the Directorate of Counter-Measures Tests & Tactics proved that over the frequency range of 108mc to 140mc there were few frequencies where they did not show a reactive impedance. This impedance ranged from 5 ohms at 115mc to 170 ohms at 120mc. Other values between those impedance limits were obtained over the whole band. These results were similar regardless of the setting of the matching stub. Under such conditions the length and characteristics of the coax cable can have a pronounced effect on the performance of an antenna. This could be the key to the trouble but we will not know until we are able to make the cable substitution tests.

HOMER C. FRITSCH
Field Engineer
Philco Corporation

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1 September 1954

7AE

Contractor: Dynamic Electronics Inc.
Forest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 August 1 submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Classes were held for eight (8) airmen, one 30250 and seven 30230, TDY from other SAC Bases. Total hours of instruction: 10. Subjects covered: Phase III configuration of B-47 aircraft, equipmer employed and elementary tactical application, instruction on B-47 aircraft including location of equipment, circuit breakers, antennas, wiring and controls.

2. OJT:

1. Five airmen, one 30250 and four 30230, accompanied Mr. Nicholson on functional test of aircraft at Douglas Aircraft Corporation (See paragraph VI below). These airmen conducted this test under direct supervision of Mr. Nicholson. Approximate number of hours of instruction: 175 hours.

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0283

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7.3, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 August 1954

3. Available for instruction at Barksdale AFB.	48 hours
Hours of classroom instruction and preparation	12 hours
Per cent	25%
Available for instruction at Douglas Aircraft Corp.	186½ hours
Approximate Instruction time	175 hours
Per cent	90% (Approx)

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. From 4 August to 24 August inclusive Mr. Nicholson supervised a complete functional test of ECM equipment on all aircraft of 376th Bomb Wing (M) at Douglas Aircraft Corporation, Tulsa, Oklahoma. The purpose of this test was to detect and correct discrepancies in the aircraft wiring, as installed or modified for Blue Cradle operation. All discrepancies revealed by this test have been corrected by Douglas Aircraft Corporation, and details of these discrepancies have been reported to 376th A & E Squadron. In the course of the test two difficulties, which relate to all Phase III (ECM) configuration B-47 aircraft, were encountered. These difficulties were:

   a. Repeated tripping of circuit breakers (15 amp DC) for ADC compartment AN/ALE-1 dispensers when operating the interval ometer positions. These circuit breakers are not adequate to take the current surge

0284

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through the chaff dispenser motor during the "on-off" cycles in the intervalometer positions in particular when operated in the "A" position. UR# 376EW-54-1421 has been submitted with the recommendation that 20 Amp circuit breakers be installed. Douglas Aircraft Corp. representatives stated that they are installing 20 Amp circuit breakers under ECP modification of their production aircraft.

2. Intermittent or inoperative AN/ALE-1 chaff dispensers when installed in ATO compartments. The AN/ALE-1 chaff dispenser will not operate unless the dispenser case is completely grounded to the aircraft frame. In the ATO compartment the dispenser is mounted on the chaff hopper, but this hopper does not always make perfect contact with the aircraft. The hopper is not bolted to the aircraft but held in position by quick release pins for easy removal of the entire hopper. Under conditions of vibration (in-flight), slight shifting of the hopper will cause intermittent or completely inoperative chaff dispensers. This condition will be aggravated by oxidation of the bottom of the hopper and of the brackets on which the hopper rest. Incomplete grounds will cause the speed of the AN/ALE-1 to vary with the reduced voltage available to operate the dispenser motor, and in addition, an intermittent ground will result in increased radiated noise. No UR's have been submitted on this condition because definite evidence of dispenser failure for this cause is difficult to detect and will not always be revealed by ground tests. It is known, however that some dispensers can be started by hand pressure on the hopper when they fail at first instance; a loaded hopper has sufficient weight to make good contact in a static condition, but it would be possible for the hopper to shift slightly in flight. Good engineering practice indicates that the dispensers should be bonded directly to the frame of the aircraft to insure a good ground at all times. This recommendation is also made as insurance against dispenser failure on important missions.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

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0285

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7AE, Subject: Monthly Technical Report, RCS: 3-ANC-U19 For Month Ending 31 August 1954

X. GENERAL REMARKS:

1. Mr. Nicholson left Barksdale AFB on 3 August for Douglas Aircraft Corporation and returned on 26 August. Approximately seventy hours of overtime were performed at Douglas on the functional test.

Guy H Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics

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0287

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SECURITY CLASSIFICATION (If any)

DISPOSITION FORM

FILE NO.

SUBJECT: Historical Report for Month of August

TO: 7DN

FROM: 7DMS

DATE: 10 Sept. 54

COMMENT NO. 1

The UER percentages as of 25 August 1954 for organizations of the Wing are as follows:

Hq Squadron -	86%	Fld Maint Sq -	88%
512th Bm Sq -	92%	Per Maint Sq -	93%
513th Bm Sq -	89%	Air Refueling-	91%
514th Bm Sq -	91%	Tac Hospital -	88%
A&E Maint Sq-	78%	Wing Average -	88%

Percentages of special purpose clothing as of 5 August 1954 for organizations of the Wing are as follows:

	Air Crew	Survival	Ground Crew
Hq Squadron	93	81	51
512th Bm Sq	91	92	78
513th Bm Sq	72	86	58
514th Bm Sq	83	92	45
A&E Maint Sq	83	35	50
Fld Maint Sq	65	70	54
Per Maint Sq	81	100	65
Air Refuel Sq	94	88	59
Tac Hospital	95	100	52
Wing Average	87	88	56

WILLIAM M. POWER, JR.
Captain, USAF
Chief of Supply

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED

AIR FORCE - 2AF BARKSDALE SEP

0288

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HISTORY

SEPTEMBER 1954

376TH Bombardment Wing (M)

I-30

BARKSDALE AIR FORCE BASE

LOUISIANA

SECRET

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SECRET

Classification: SECRET
Authority: [illegible] Wing (M)
Initials: [illegible]
Date: [illegible]

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 SEPTEMBER - 30 SEPTEMBER 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

RSI Cmd No
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A U T H O R I T Y

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . .Organization and Personnel	
Personnel	1, 2
Personnel Problems	2, 3
Crew Status	3
Reenlistment & AWOL Rates	3, 4
Changes in Key Personnel	4, 5
Roster of Key Personnel	6
CHAPTER II . . .Operations and Training	7
Flying Time	8, 9
Status of Test Projects	9—16
CHAPTER III . . .Maintenance and Supply	17
Aircraft Status	18—21
Maintenance Capabilities	21, 22
Engine Changes	22, 23
Training Activities	24—26
Equipment Malfunctions	26, 27
Maintenance Engineering Difficulties	27, 28
Operational Difficulties	28
Special Developments	28, 29
Supply	29

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SECRET

PERSONNEL

The total number of officers assigned at the end of September 1954 was 378,[1] which was two above the August figure,[2] and was 21 less than authorized strength.[3] A total of 356 officers were effectively assigned,[4] one less than in August,[5] or 89.2 percent of authorized strength.[6] The figures and percentage for manning in required specialties in September 1954 were the same as for effectively assigned during the month.[7] There were 11 officers transferred or discharged during September,[8] or 2.8 percent of authorized strength,[9] and 16 officers assigned,[10] or 4.0 percent of authorized strength.[11]

The total number of airmen assigned at the end of September 1954 was 2044,[12] which was 28 more than in August,[13] and was 342 more than authorized strength.[14] There were 1440 effectively assigned

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1. Report, "Monthly Analysis (September 1954)", n.d., prep by D/P 376th Bomb Wing, hereafter cited as "376th Pers Anal for Sep 54, exhibit #1, and chart, exhibit #2.
2. History 376th Bomb Wing for August 54, page 2.
3. "376th Pers Anal for Sep 54", exhibit #1, & chart, exhibit #2.
4. Ibid.
5. History 376th Bomb Wing for August 54, page 2.
6. "376th Pers Anal for Sep 54", exhibit #1.
7. Ibid.
8. Ibid: Navi-Bombardiers-2, and 1 each: Air Comdr, Dental officer, Armt Staff, Pers Staff, Navigator, Pilot, Pilot AOB, Comm, and Intelligence officer, for a total of 11.
9. "376th Pers Anal for Sep 54", exhibit #1.
10. Ibid: Navigators-3, Air Ops officers-2, and 1 each: Intel Staff officer, Pers Staff, Air Police, ECM, Intel, Acft Maint, Intel-Photo-Radar, Navi-Bombardier, and Armt Ops officer, for total of 16.
11. "376th Pers Anal for Sep 54, exhibit #1.
12. Ibid, and chart, exhibit #3.
13. History 376th Bomb Wing for August 54, page 3.
14. "376th Pers Anal for Sep 54", exhibit #1, & chart, exhibit #3.

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airmen,[15] 14 more than in August,[16] or 86.3 percent of authorized strength.[17] The manning in required specialties for airmen in September was 1173,[18] which was 19 above the August figure.[19] There were 83 airmen transferred or discharged during September,[20] or 4.9 percent of authorized strength,[21] and 99 airmen assigned,[22] or 5.7 percent of authorized strength.[23]

PERSONNEL PROBLEMS

The officer effective manning of the 376th Bombardment Wing, Medium, has improved slightly during September. This was attributed to the assignment of five officers in authorized AFSC's. Officer manning in AFSC's 3054, 3244, 3254, 4334,4355, 4364, 6424, and 7324 remained critically short. Manning in the aircraft maintenance field had decreased considerably during September. This was attributed to the decrease in authorization of AFSC's 43133/53 and increases in

15. "376th Pers Anal for Sep 54", exhibit #1.
16. History 376th Bomb Wing for August 54, page 3.
17. "376th Pers Anal for Sep 54", exhibit #1.
18. Ibid.
19. History 376th Bomb Wing for August 54, page 3.
20. "376th Pers Anal for Sep 54", exhibit #1, by career fields: Intel-1, Photo Mapping-3, Comm Ops-6, Radio & Radar Sys-12, Armt Sys Maint-7, Atomic Wpns-1, Intri Equip-2, Acft Accessories-2, Airplane & Eng Maint-25, Mun & Wpns-1, Trans-1, Food Service-1, Supply-4, Admin-9, Pers-1, and Med-6, for total of 83.
21. "376th Pers Anal for Sep 54", exhibit #1.
22. Ibid, by career fields: Intel-1, Radio & Radar Sys-24, Armt Sys Maint-12, Intri Equip-3, Airplane & Eng-32, Mun & Wpn-1, Veh-5, Fabric leather & rubber-1, Food Service-1, Supply-3, Admin-11, and Medical-5, for a total of 99.
23. "376th Pers Anal for Sep 54", exhibit #1.

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AFSC's 43131/51J. Manning in AFSC's 43133/53 was 303 percent by primary and 276 percent by duty AFSC. Manning in AFSC's 43151J/51B/52A was 58 percent by primary and 165 percent by duty AFSC. Manning at the supervisor/technician level of the armament systems maintenance career field increased slightly during September. Manning in AFSC's 32171B, 32370, and 32371C was 16 percent by primary and 18 percent by duty. The low experience level of K-Systems mechanics continued to be a detriment. Training of personnel was continuing through maximum use of MTD and contractor technicians.[24]

CREW STATUS

Twelve non-ready combat crews have been trained to a point where they could be deployed for ECM-support missions in event of an emergency. Fifteen non-combat ready crews were in training at the end of September 1954.

The average number of crews assigned was 46 during September.[25]

Twenty-one KC-97 crews were assigned during September 1954.[26]

REENLISTMENT RATE - AWOL RATE

There were 69 discharged during September with 13 reenlisting,

24. Report, "Air Training Report for the month of September 1954, Sec J, RCS: 6-SAC-T12", 5 Oct 54, hereafter cited as "376th T-12 Sec J, for Sep 54", 5 Oct 54, exhibit #4.
25. Ibid, and chart, exhibit #5.
26. Report, "Air Training Report for the month of September 1954, Sec H&I, RCS: 4-SAC-T12", 5 Oct 54, hereafter cited as "376th T-12, Sec H&I, for Sep 54", 5 Oct 54, exhibit #6.

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resulting in a Wing reenlistment rate of 18.8 percent for the month,[27] showing a decrease of 26.9 percent from the August figure.[28]

There were four airmen AWOL during the month of September 1954, giving the Wing a figure of 2.0 for the airmen and an AWOL rate of 2.02 percent for the Wing.[29] That was an increase of .35 percent over the August figure.[30]

CHANGES IN KEY PERSONNEL

During the month the Wing lost Major Donald L. Shelton, USAF, Director of Personnel, when he was reassigned to Headquarters SAC.[31] Major Edward P. Bowman was assigned to the Wing on 26 August 1954,[32] and he replaced Major Shelton as Director of Personnel.[33]

Another change taking place during the month of September was the assignment of Lieutenant Colonel Wendell D. Lack, Chief of Maintenance, as the commander of the 376th Air Refueling Squadron.[34] He took the place of Lieutenant Colonel Robert E. Copley, who was assigned to Headquarters 4th Air Division, Barksdale Air Force Base, Louisiana.[35] Lieutenant Colonel Robert S. Milner, former Chief of Current Operations, replaced Colonel Lack, as chief of Maintenance.[36]

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27. "376th Pers Anal for Sep 54", exhibit #1.
28. History 376th Bomb Wing for August 54, page 6.
29. "376th Pers Anal for Sep 54", exhibit #1.
30. History 376th Bomb Wing for August 54, page 6, & chart, exhibit #7.
31. SO 208, Hq 4ADiv, 25 Aug 54, par 8.
32. SO 209, Hq 4ADiv, 26 Aug 54, par 22.
33. PAM 48, Hq 376th BWg, 31 Aug 54.
34. SO 153, Hq 376th BWg, 4 Sep 54, par 1.
35. SO 217, Hq 4ADiv, 3 Sep 54, par 11.
36. PAM 49, Hq 376th BWg, 7 Sep 54.

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Lieutenant Colonel Shirley A. Kolpin, USAF, was assigned to the Wing in September 1954,[37] and assigned duty as Chief of Intelligence during the first week.[38]

37. SO 217, Hq 4ADiv, 3 Sep 54, par 27.
38. PAM 50, Hq 376th BWg, 10 Sep 54, par 1.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	HOLLAND, RALPH T.	Colonel
Director of Personnel	BOWMAN, EDWARD P.	Major
Director of Special Tests and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	MILNER, ROBERT S.	Lt Colonel
Chief of Intelligence	KOLPIN, SHIRLEY A.	Lt Colonel
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron, M	LOLLAR, CLARENCE L.	Lt Colonel
513th Bomb Squadron, M	ABRAMS, JAMES S.	Lt Colonel
514th Bomb Squadron, M	WEDDLE, OWEN A.	Lt Colonel
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Colonel
376th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th A & E Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Missions ordered by higher headquarters:

Ferrying aircraft required six hours and 50 minutes. ECM test required 218 hours and five minutes. Support of Second Air Force Operations Order 135-54 required four hours. Support of B-47 Static display at Abilene, Texas required two hours and 50 minutes. The total hours required for higher headquarters during September 1954 was 231 hours and 45 minutes.[37]

KC-97 Missions ordered by higher headquarters:

Four passenger flights were flown during September 1954: one to Campbell Air Force Base, Kentucky, and return for five hours and 35 minutes; one to Turner Air Force Base, Georgia, and return for five hours and five minutes; one to Abilene, Texas and return for four hours and 10 minutes; and one to Lockbourne Air Force Base, Ohio and return for seven hours and five minutes.

Two cargo flights were flown: one to Wright-Patterson Air Force Base, Ohio and return for eight hours and five minutes; and one to Kelly Air Force Base, Texas and return for four hours and 50 minutes.

One Passenger and cargo flight was flown to McConnell Air Force Base, Kansas, to Turner Air Force Base, Georgia, to Pinecastle Air Force Base, Florida, and return for 12 hours and five minutes.

There were four support flights flown: one in support of Second Air Force Operations Order 32-54 for eight hours; one (15 crews) in

37. "376th T-12, Sec J, for Sep 54", Oct 54, exhibit #7.

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support of 301st Bombardment Wing Operations Order 130-54 for 66 hours and 25 minutes; six crews in support of ECM test projects for 37 hours and 10 minutes; and one crew to Memphis, Tennessee in support of Second Air Force Operations Order 135-54 for four hours and 20 minutes.

Second Air Force Standardization Crew flying proficiency required four hours and 20 minutes.

Higher headquarters missions required the flying of 167 hours and 20 minutes in KC-97 aircraft during the month.[38]

A total of 46 B-47 crews flew 1186 hours during the month for an average of 26 hours and 18 minutes per assigned crew.[39]

A total of 21 KC-97 crews flew a total of 605 hours and 35 minutes for an average of 28 hours and 50 minutes per assigned crew.[40]

STATUS OF TEST PROJECTS

Project 1A increased one percent in completion to 87 percent, with an additional 14 hours being flown. Flight tests were in progress to determine the effectiveness of one and two megacycle sweep jammers. A test flown on 9 September had power supply difficulties and was inconclusive. A calibration test was run on the modified ARC-3 VHF receiver. It was used to determine the signal strength of the jammers and ground station. The variation of AC from 112-120 volts had no

38. "376th T-12, Sec H&I, for Sep 54", 5 Oct 54, exhibit #6.
39. "376th T-12, Sec J, for Sep 54", 5 Oct 54, exhibit #4.
40. "376th T-12, Sec H&I, for Sep 54", 5 Oct 54, exhibit #6.

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effect on calibration. The DC voltage was varied and it was found that a change of a few volts resulted in a large change in sensitivity of the receiver.[41]

Project 1X increased one percent to 33 percent of completion. Initial checks on the equipment indicated a favorable conclusion. The tuning capacitor had several errors and the correction of these delayed completion of the capacitor, and its delivery to Barksdale Air Force Base, Louisiana.[42]

Project 15 remained at 12 percent of completion, but 10 hours and 30 minutes were flown. Three missions using the ALT-8 equipment were scheduled but two of them aborted, while the third mission was flown 22 September 1954. Results of the mission were not evaluated for inclusion in this report. The ALT-8 could not be used in the cradle without modification to install larger relays.[43]

Project 15-6 increased to 60 percent of completion with an additional 39 hours having been flown.[44] Two missions were flown during September, one on the 3rd and one on the 22nd. Results of the one flown on the 3rd are contained in this History.[45] Results of the mission flown on the 22nd were not evaluated at the end of the month,

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41. Report, "376th Bomb Wing, Medium, Test and Development Program (RCS: SAC-U30), 1 Oct 54, hereafter cited as "376th U-30 for September 54", 1 Oct 54, exhibit #8.
42. Ibid.
43. Ibid.
44. Ibid.
45. Page 6, par f. Test Project Number 27, this History, exhibit #8.

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and certain serious malfunctions hindered the effectiveness of the mission.[46]

Project 25: An ECM cradle was developed which would carry 18 standard racks of equipment and 3500 units of RR-39 (or equivalent) chaff. Alternate configurations provide 5800 units of chaff or a maximum of 48 standard racks of ECM equipment. Upon removal of the cradle, the parent aircraft become normal bomb carriers. All B-47 aircraft in the Wing were to be modified.

The "Blue Cradle" was developed to carry sufficient ECM Transmitters and chaff in the B-47 aircraft to provide the following combat capabilities: (1) ECM self protection, (2) ECM escort combat support, (3) Chaff corridor laying, and (4) Broad front ECM confusion.

The Cradle was designed to operate effectively throughout the ECM Spectrum, limited only by the equipments available.

The ECM Cradle consists of a very strong light weight tubular steel framework which attaches to the bomb rack mounts. Contained in the framework is the electrical system consisting of control circuits for the transmitters and chaff strippers and necessary power provisions. Supplied with the cradle are special racks which will accommodate all present types of ECM equipment, two sizes of chaff hoppers complete with dispersal chutes, power hoists for rapid cradle

46. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.

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installation and removal, and ground handling equipment consisting of wheels, tow-bar, and waterproof dust cover. After static and flight testing, it was concluded that it was entirely feasible to install ECM systems and chaff in the bomb bay of B-47 aircraft. The limitations of such an installation are the spare requirements of the installed equipment, power available from the parent aircraft, and the frequency ranges available in present ECM transmitters. The advantages of this configuration are the extreme flexibility available to plan ECM support, the comparative ease of maintaining cradles in shop areas, very low cost of less than $40,000 per installation as compared to several million dollars each for special ECM airplanes, and the fact that a wing equipped with cradles retains its combat capability as a bomb wing.[47]

Project 27 increased to 55 percent of completion with an additional 151 hours and 37 minutes being flown. Two chaff corridor missions were flown during the month. The first one flown on 3 September was to test the effectiveness of a chaff corridor and electronic jamming when used simultaneously against early warning, ground controlled intercept, and gun laying radars. The second was flown on 22 September.[48] Results of the two missions seem to indicate that this technique is worthwhile.

47. Report, Final Report Project Number 25, dtd 7 Oct 54, classified files, Hq 376th Bomb Wing.
48. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.

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Auxiliary Project Five did not increase in percentage of completion during September 1954. An initial test program was formulated to determine the practicability of IFF deception. Several simple methods will be tried, using the existing equipment without modification. Uncontrolled tests indicated that it appeared difficult for an ECM operator without special training to detect and utilize the pulses emanating from a self-triggering BC-996-A airborne transponder.[49]

Auxiliary Project Six increased to 40 percent of completion. The 12 oscillator-amplifier units have been completed. A standard noise strip from an APT-5A is being used to noise modulate this transmitter. Additional testing and study will be required before a firm procedure can be developed.[50]

Auxiliary Project 18 increased one percent to 31 percent of completion. Considerable reflected power was obtained when an antenna was connected to this transmitter, and unstable oscillation was also experienced. Both difficulties were partially overcome by the addition of a low pass filter in the antenna circuit. The transmitter also has a pulsing capability with pulse rates of 20 to 2000 cycles per second.[51]

Auxiliary Project 20 increased 20 percent to a total of 45 percent of completion. This project is the one concerning use of the

49. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.
50. Ibid.
51. Ibid.

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Land Camera for navigation. Results of the project thus far show that the technique is practical and shall reduce the aircraft's susceptability to location by radar DF nets and passive detectors. It was found that a Polaroid camera had been developed by WCLFI-3 which incorporated the photographic features desired by the 376th Bombardment Wing. It was found that there would have to be a complete redesign of the camera and periscope to allow mounting the camera on the APS-23 indicator in the B-47E.[52]

Auxiliary Project 21 increased to 30 percent of completion. A suitable location for the installation of the equipment in a B-47 aircraft has not been found, thus making it impossible to completely evaluate the infrared station keeping technique.[53]

Auxiliary Project 22 increased to 40 percent of completion. Tests were not conclusive but indicate that 12 ALT-7's used at fixed frequency to barrage jam a 10 megacycle band centered at 70 megacycles would produce a condition five against the SCR-270. That condition occurred when the equipment was first turned on at a range of 175 nautical miles from the radar.[54]

Auxiliary Project 23 increased 50 percent to 75 percent of completion. A total of 36 whip antennas have been modified by the Directorate of Test and Tactics (376th Bomb Wing) for test purposes. One

52. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.
53. Ibid.
54. Ibid.

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of the antennas (#00) has been flown for 120 hours and sent to WADC for further testing. Three other antennas had 15 flying hours, and 11 had 11 hours, while 18 had only five hours on them, without any failures.[55]

Auxiliary Project 24 increased two percent to 10 percent of completion. The 3.5 to 5.0 megacycle coils, mentioned in the August History,[56] which were sent to Hallicrafters for re-winding, have been returned. They no longer overheat, but the power output is 0.5 to 1.0 db less and the bandwidth 200 KC narrower than the coil fabricated by the Director of Test and Tactics (376th Bomb Wing) for this band.

A series of tests were completed using a four KV power supply with the QRC-8 transmitter. After 25 hours of operation, there was no deterioration of the components of the transmitter. The power output of the equipment was the same as registered at the start of the tests. A considerable amount of work was put into preparing the QRC-8 and the 18-S4 to operate non-simultaneously on a 70 foot antenna to be placed on the B-47.[57]

Project "Operational Test AN/APS-54" increased to 42 percent of completion with eight additional hours having been flown. Flight tests were conducted during the month, consisting of runs against an RBS Site. The first test was not successful because each time the A-5

55. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.
56. Ibid.
57. Ibid.

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tail radar was placed in operation, the tail warning light of the APS-54 would come "on" and remain lighted as long as the A-5 radar remained in operation. After experimentation by the WADC representative, the second flight test was successful. From an average of 26 runs, it was shown that with a gain setting of medium, the nose light comes on at an average range of 40 miles from the ground radar. The tail warning light comes on at an average range of 12 miles prior to reaching the radar site. As the aircraft flys beyond the radar, the nose warning light goes out at an average range of 11 miles beyond the radar, and the tail warning light remains lighted until the aircraft is approximately 45 miles beyond the radar. There have been equipment and installation defects on the APS-54. When a maintenance team was organized to correct the errors in installation and equipment malfunctions, nine aircraft were checked with none being operational. A total of nine discrepancies were noted.[58]

58. "376th U-30 for Sep 54", 1 Oct 54, exhibit #8.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of September 1954, the Wing had 48 B-47's assigned and possessed, and 22 KC-97's assigned and possessed,[59] which was the same as during June, July and August 1954.[60] The B-47 aircraft flew a total of 1230 hours and 10 minutes[61] (48 hours and 10 minutes more than in August),[62] giving a figure of 25 hours and 40 minutes flown per possessed aircraft,[63] which was one hour more than during August.[64]

The KC-97 aircraft flew a total of 602 hours and five minutes[65] (159 hours and five minutes less than in August),[66] giving a figure of 27 hours and 18 minutes flown per possessed aircraft,[67] which was five hours and 21 minutes less than in August 1954.[68]

The in-commission rate of B-47 aircraft in September was 69.35 percent,[69] which showed 7.13 percent less than in August 1954,[70] while on KC-97 aircraft the September figure was 70.65 percent,[71] which was 8.93 percent below the August figure.[72] The AOCP rate for

59. Report, "Historical Report for the month of September 1954, 376th Maintenance Control Unit, n.d., prep by D/M 376 BWg, hereafter cited as "376 Maint Hist", n.d., exhibit #9, & chart, exhibit #10.
60. Histories, Jun thru Aug 54, Chap III, 376th Bomb Wing.
61. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #11.
62. History 376th Bomb Wing for August 1954, page 21.
63. "376th Maint Hist," n.d., exhibit #9, & chart, exhibit #12.
64. History 376th Bomb Wing for August 1954, page 21.
65. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #11.
66. History 376th Bomb Wing for August 1954, page 21.
67. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #12.
68. History 376th Bomb Wing for August 1954, page 21.
69. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #13.
70. History 376th Bomb Wing for August 1954, page 21.
71. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #13.
72. History 376th Bomb Wing for August 1954, page 22.

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B-47 aircraft in September was 11.18 percent,[73] a slight decrease from the figure of 11.56 in August,[74] while on KC-97 aircraft, the September figure was 7.72,[75] a slight increase over the figure of 7.29 percent in August 1954.[76] The ANFE rate for both types of aircraft in September was 100 percent,[77] the same as it has been since the last of January 1954.[78]

The direct manhours expended per flying hour on B-47 type aircraft during September was 46.7, while on KC-97 type aircraft was 26.2 hours,[79] a decrease of 16.5 on B-47 and 8.9 on KC-97 type aircraft.[80] Maintenance manhours expended during September were: 101,957 direct manhours, 105,547 indirect manhours, 9,712 manhours overtime, 15,000 manhours as pass time, and 56,885 manhours were expended as absent time, from a total of 207,404 manhours available.[81]

There were approximately 45 component parts changed on B-47 aircraft during the month,[82] against 60 changed during August,[83] while on KC-97 aircraft, 95 component parts were changed in September,[84] as

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73. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #14.
74. History 376th Bomb Wing for August 1954, page 22.
75. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #14.
76. History 376th Bomb Wing for August 1954, page 22.
77. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #13.
78. Histories 376th Bomb Wing, Chapter III, Jan thru Aug 1954.
79. "376th Maint Hist", n.d., exhibit #9.
80. History 376th Bomb Wing for August 1954, page 22.
81. "376th Maint Hist", n.d., exhibit #9.
82. Ibid.
83. History 376th Bomb Wing for August 1954, page 23.
84. "376th Maint Hist", n.d., exhibit #9.

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against 45 changed in August 1954.[85] The Quality Control Unit inspected three KC-97, five B-47 and three C-47 type aircraft processed through the maintenance docks, and supervised 10 KC-97, 12 B-47 and two C-47 aircraft test hops during September 1954. There were 343 Unsatisfactory Reports submitted during the month.[86]

The number of engine changes during September was 16 on B-47 type aircraft[87] (eight more than in August),[88] and three on KC-97 type aircraft[89] (four less than in August).[90] On B-47's the average engine time at change was 114 hours[91] (26.7 hours more than in August),[92] while on KC-97 aircraft, the average engine time at change was 205 hours in September[93] (one hour more than in August).[94]

There were 42 malfunctions for the month,[95] compared to 59 in August;[96] of these, 31 were on B-47 type aircraft: Bombing system had 13 malfunctions, two charged to maintenance personnel, and 11 charged to material failure; aircraft general systems had 13 malfunctions, one charged to aircrew, three charged to maintenance personnel, six charged to material failure, and three charged to other

85. History 376th Bomb Wing for August 1954, page 23.
86. "376th Maint Hist", n.d., exhibit #9.
87. Ibid, and chart, exhibit #15.
88. History 376th Bomb Wing for August 1954, page 23.
89. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #15.
90. History 376th Bomb Wing for August 1954, page 23.
91. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #16.
92. History 376th Bomb Wing for August 1954, page 23.
93. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #16.
94. History 376th Bomb Wing for August 1954, page 23.
95. "376th Maint Hist", n.d., exhibit #9.
96. History 376th Bomb Wing for August 1954, page 23.

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against 45 changed in August 1954.[85] The Quality Control Unit inspected three KC-97, five B-47 and three C-47 type aircraft processed through the maintenance docks, and supervised 10 KC-97, 12 B-47 and two C-47 aircraft test hops during September 1954. There were 343 Unsatisfactory Reports submitted during the month.[86]

The number of engine changes during September was 16 on B-47 type aircraft[87] (eight more than in August),[88] and three on KC-97 type aircraft[89] (four less than in August).[90] On B-47's the average engine time at change was 114 hours[91] (26.7 hours more than in August),[92] while on KC-97 aircraft, the average engine time at change was 205 hours in September[93] (one hour more than in August).[94]

There were 42 malfunctions for the month,[95] compared to 59 in August;[96] of these, 31 were on B-47 type aircraft: Bombing system had 13 malfunctions, two charged to maintenance personnel, and 11 charged to material failure; aircraft general systems had 13 malfunctions, one charged to aircrew, three charged to maintenance personnel, six charged to material failure, and three charged to other

85. History 376th Bomb Wing for August 1954, page 23.
86. "376th Maint Hist", n.d., exhibit #9.
87. Ibid, and chart, exhibit #15.
88. History 376th Bomb Wing for August 1954, page 23.
89. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #15.
90. History 376th Bomb Wing for August 1954, page 23.
91. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #16.
92. History 376th Bomb Wing for August 1954, page 23.
93. "376th Maint Hist", n.d., exhibit #9, & chart, exhibit #16.
94. History 376th Bomb Wing for August 1954, page 23.
95. "376th Maint Hist", n.d., exhibit #9.
96. History 376th Bomb Wing for August 1954, page 23.

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causes; power plant had four malfunctions, one charged to aircrew, two charged to material failure, and one charged to other reasons. The remaining 11 malfunctions were on KC-97 aircraft: three were on power plant system, charged to material failure; two were on propellers, charged to material failure; two were aircraft general charged to maintenance personnel; and four charged to aircraft general, due to material failure.[97]

MAINTENANCE CAPABILITY

The capability of maintenance was affected during September 1954 by: (1) Excessive aircraft days were lost to docks and dock backline. (2) A total of 99 aircraft days were expended in the docks compared to 77 days expended in August, caused by unscheduled maintenance found in dock inspections. Fuel cell repair caused 158 aircraft days to be lost as compared to 90 days lost during August. In September, 157 AOCP aircraft days were lost. There were 93 cannibalizations of B-47 aircraft for the month of September 1954. The ground power equipment in-commission status directly affected the capability of maintenance.[98]

Supply difficulty letters were submitted on the cases listed below: (A) an average of 14 percent of nine authorized and assigned Marthon Diesels were out of commission for parts. (B) An average of

97. "376th Maint Hist", n.d., exhibit #9.
98. "376th T-12, Sec J, for Sep 54", 5 Oct 54, exhibit #4.

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seven percent of 35 assigned rectifiers (36 authorized) were out of commission for parts. (C) An average of 21 percent of 34 assigned motor generators (36 authorized) were out of commission for parts. (D) An average of 44 percent of ten C-26 units (12 authorized) were out of commission for parts. (E) An average of 32 percent of 14 assigned C-21 units (12 authorized) were out of commission for parts. (F) An average of 44 percent of four assigned high pressure compressors (nine authorized) were out of commission for parts.[99]

ENGINE CHANGES

The Wing Commander considered the number of engine changes in the last few months to be excessive. In order to investigate the situation, he requested the Director of Materiel to notify him, in writing, of each engine change, and a report of informal investigation of each engine change where it was suspected that the change was due to foreign objects entering the air intake.[100]

During the period from the first to 10 September, there were six engine changes, five due to spacer ring rub, and one due to damage by foreign object.[101]

On 13 September, aircraft #52-439 had an engine change on #6 engine due to #2 bearing failure. Also, on 13 September, during a

99. "376th T-12, Sec J, for Sep 54", 5 Oct 54, exhibit #4.
100. DF from 376 CO to 376 D/M, "Engine Changes", 30 Aug 54, exhibit #17.
101. DF from 376 D/M to 376 CO, "Engine Change Due to Foreign Objects", 10 Sep 54, exhibit #18.

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post flight inspection, an engine on aircraft #52-409 of the 513th Bombardment Squadron was found to have nicks in the 1st and 2nd stage rotor blades beyond allowable limits. Investigation found that the safety lock ring from the power take-off case came out of position and went through the engine apparently on the last flight.[102]

B-47 #52-400, engine number three, was changed on 16 September for foreign object damage to the inlet guide vanes, the first row of rotor blades, and to the second row of stator blades. The cause of the damage was undetermined. Two engines on B-47 #52-394 were changed for foreign object damage. Engine #3 was changed on 16 September for damage to the rotor blades, and number four was changed on the 17th for damage to the first row of rotor blades. It was not determined what entered the engine, but whatever did, did so at the run-up area.

On 20 September, aircraft #52-409 had an engine with a high oil pressure reading and when the Technical Representative couldn't remedy it, he recommended engine change.[103]

Engine number one on aircraft #421 was changed on 29 September due to excessive vibration. It was found that the spacer ring was worn completely through on the engine.[104]

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102. DF from 376 Maint Control to 376 D/M, "Engine Changes", 13 Sep 54, to CO 376 BWg, exhibit #19.
103. DF from 376 Maint Control to 376 CO, "Engine Changes", 20 Sep 54, exhibit #20.
104. DF from 376 D/M to 376 Chief of Maint, "Report of Engine Change", 30 Sep 54, exhibit #21.

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TRAINING ACTIVITIES

CLASSROOM:

During the month, two classes were conducted on the A-12D Gyropilot. One was a review course on interlock and signal circuits, and the other was familiarization on the overall operation of the A-12D Gyropilot.[105] The total time spent on both courses was 48 manhours.

Twenty-six airmen received 520 hours of instruction in basic mathematics and electronics as employed in the A-5 Fire Control System.[106] The course was given to eight classes of 20 hours each.

Two 20 hour and two 4 hour courses were given on the K-4A Bomb-Navigation system. The total time spent during the courses in September 1954 was 1336 manhours.[107]

During the month, classes on the AN/ALT-7 were hampered because of the Blue Cradle build-up, lack of notebooks and lack of practical work. The training for TDY airmen had to be conducted during the Blue Cradle build-up while the Armament & Electronics ECM Section was facing an exceptionally heavy work load.[108]

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105. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 Sep 1954", by Kronlage, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by Kronlage", 1 Oct 54, exhibit #22.
106. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 Sep 54", by Faux, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by Faux", 1 Oct 54, exhibit #23.
107. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 Sep 54", by 7 Fld Engrs, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by 7 Fld Engrs, 1 Oct 54, exhibit #24.
108. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 Sep 54", by Nicholson, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by Nicholson", 1 Oct 54, exhibit #25.

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Eleven airmen spent 352 hours on the theory of operation on the AN/ALT-6 maintenance procedures and bench checks. Proper operation on cradle including installation and remote controls.[109]

ON THE JOB TRAINING:

One airman received 32 hours instruction on the AN/ARN-6 radio compass equipment; two airmen received 18 hours instruction on the AN/AIC-10 equipment; three airmen received 76 hours on trouble shooting procedures on the AN/ARN-13 equipment on B-47 aircraft, including use of the SG-13 signal generator; and two airmen received four hours instruction on the AN/APS-24 trouble shooting procedures.[110]

OJT - Planned:

Six students received 12 hours instruction on A-12D test procedures. Eight students received 26 hours instruction on A-12D theory.

Informal (OJT):

Seven students received 35 hours on A-12D theory. Twelve students received 52 hours instruction on A-12D trouble shooting. Four students received eight hours instruction on the F-1 Auto-pilot. Seven students received 12 hours instruction on the N-1 Compass.[111]

Twelve A-5 airmen received 48 hours instruction on modifications

109. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 Sep 54", by Lella, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by Lella", 1 Oct 54, exhibit #26.
110. Report, "Monthly Technical Repor5, RCS: 3-AMC-U19, For Month Ending 30 Sep 54", by Fritsch, 1 Oct 54, hereafter cited as "376th U-19 for Sep 54 by Fritsch", 1 Oct 54, exhibit #27.
111. "376th U-19 for Sep 54 by Kronlage", 1 Oct 54, exhibit #22.

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on the A-5 Fire Control System. Eight A-5 airmen received 160 hours instruction on trouble shooting line malfunctions on the A-5 Fire Control System. Four A-5 airmen received 100 hours instruction in trouble shooting shop malfunctions in the A-5 Fire Control System. Two airmen received 24 hours instruction on setting up the AN/APG-32A mockup.[112]

Ten students received 152 hours instruction on test equipment and alignment procedures on the K-4A Bomb-Navigation System, 814 hours on systems analysis, and 208 hours on trouble shooting.[113]

Forty-eight officers (B-47 crew members) received two hours instruction on Blue Cradle wiring and Phase III wiring; one airman received 12 hours instruction on Blue Cradle test equipment; and 11 airmen received 32 hours instruction on AN/ALT-6 operational difficulties in cradle and proper bench check procedures.[114]

EQUIPMENT MALFUNCTIONS

Four Wing aircraft were found to have improperly assembled UG-21/U type connectors (to connect the omni antenna to the coaxial feed line). When the connectors were disassembled, the coaxial cable properly stripped, and the plug reassembled, the trouble was cured,

112. "376th U-19 for Sep 54 by Faux", 1 Oct 54, exhibit #23.
113. "376th U-19 for Sep 54 by 7 Fld Engrs, 1 Oct 54, exhibit #24.
114. "376th U-19 for Sep 54 by Nicholson". 1 Oct 54, exhibit #25.

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providing excellent VOR reception. There wre 17 more B-47E aircraft in the Wing giving poor VOR reception and in each case the VOR receiver is known to be good. It is believed that the same trouble will be found.[115]

One aircraft was written up for altitude control not holding the aircraft on the reference altitude. The altitude control unit was faulty and was replaced. The remaining A-12D malfunctions were routine and due to electronic tube failures.[116]

To date, eight bench failures of variable "sweep" capacitors in the AN/ALT-7 have been found due to high RF voltages. The Hallicrafter Corporation was to supply a new type of "sweep" capacitor, replacing all those in transmitters in possession of the Wing.[117]

MAINTENANCE ENGINEERING DIFFICULTIES

The 376th Bombardment Wing has been equipped with B-47E, Phase III ECM aircraft since April 1954. Distribution of revisions to T.O. 1B-47B-2 have not yet included installation or wiring diagrams for Phase III installation with the exception of AN/ALE-1 and AN/APS-54 installations. The aircraft of the Wing have circuit breakers marked "AN/APT-5A" and "AN/APT-16". The markings have not been changed even though the AN/APT-5A will not be used on B-47 aircraft, but the

115. "376th U-19 for Sep 54 by Fritsch", 1 Oct 54, exhibit #27.
116. "376th U-19 for Sep 54 by Kronlage", 1 Oct 54, exhibit #22.
117. "376th U-19 for Sep 54 by Nicholson", 1 Oct 54, exhibit #25.

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circuit breaker is also used for AN/APT-16 circuits.[118]

OPERATIONAL DIFFICULTIES

The test equipment for Blue Cradle was still under construction. On the Test Console, one "crash" unit was in use and two consoles were partially complete, and two had the sheet metal parts complete. The two ATO compartment test units were about 90 percent complete. The aircraft test unit (two needed) had one approximately 85 percent complete. Difficulties in construction of equipment is the non-availability of AF items and the necessity for local purchase of many NISL items.[119]

The present antenna systems on ALT-6 have given a power loss to the transmitted signal. Connections of the cable, antenna, and transitians were not well matched. An Unsatisfactory Report has been submitted.[120]

SPECIAL DEVELOPMENTS

An additional AIC-8 interphone station was devised for KC-97 #1347, to be used by an ECM operator. The system was unique in that the operator was required to be able to use all communications facilities aboard the aircraft, and also make it impossible for him to be transmitting over the air when he thinks he is using the interphone.

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118. "376th U-19 for Sep 54 by Nicholson", 1 Oct 54, exhibit #25.
119. Ibid.
120. "376th U-19 for Sep 54 by Lella". 1 Oct 54, exhibit #26.

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He is able to monitor audio output of three ECM receivers individually or simultaneously. Such a station design was brought about by modifying the existing AIC-8 components necessary and installed aboard the aircraft.[121]

The Base (Barksdale Air Force Base) photo laboratory made photostatic copies of the autopilot circuits and tied-in equipment in booklet form for every man in the autopilot section. Two Scorsby tables were received thus enabling rebalance of the vertical gyro, thereby increasing the performance of the unit.[122]

SUPPLY

During September 1954, the supply status was as follows: UEE percentage for the Wing was 87.8 percent. On special purpose clothing, the figures were: Aircrew - 85.9 percent; Survival - 86.6 percent, and Ground Crew - 56.7 percent.[123]

121. "376th U-19 for Sep 54 by Fritsch", 1 Oct 54, exhibit #27.
122. "376th U-19 for Sep 54 by Kronlage", 1 Oct 54, exhibit #22.
123. "376th Maint Hist", n.d., exhibit #9.

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MONTHLY ANALYSIS (SEPTEMBER 1954)

1. Officers Assigned during September 1954:

RANK	AFSC	NAME	AFSN
Lt Col	(2016)	Shirley A. Kolpin,	6071A
Major	(7316)	Edward P. Bowman	AO 581433
Capt	(1435)	Edward W. Lynch	AO 689316
Capt	(7724)	William C. Peters	AO 704734
Capt	(1435)	James E. Orth	AO 2083643
Capt	(3024)	Joseph A. Derie	AO 5900359
Capt	(2054)	Gerald G. Furbish	AO 831665
Capt	(4344)	Joseph R. Carpenter	AO 581491
Capt	(2044)	Jack L. Gray	AO 739088
2d Lt	(1521A)	Ivan S. Cason	AO 5026217
2d Lt	(1521A)	Raymon T. Palladino	AO 5026225
2d Lt	(1521A)	Donald G. Ziemba	AO 5026232
2d Lt	(1531P)	William J. Guman	AO 3035281
2d Lt	(1531P)	Charles L. Harris	AO 3034983
2d Lt	(1531P)	Carl S. Jasko	AO 3035284
2d Lt	(3241)	Lester D. Griffith	AO 3009360

TOTAL: 16

2. Officers Transferred during September 1954:

a. Two each to Fourth Air Division and Ellington Air Force Base.

Lt Col	(0066A)	Robert E. Copley	376th Air Rflg Sqdn
Lt Col	(3216)	Earnest A. Reeves	376th A&E Sqdn
Major	(1534A)	Charles Spare	376th Air Rflg Sqdn
1st Lt	(2051)	William J. Bollman	376th Air Rflg Sqdn

b. One each as listed to the following: Fitzsimmons Gen Hosp, Second Air Force, SAC, James Connally Air Force Base, Castle Air Force Base, 648th ACTW, and 301st Bomb Wing.

Lt Col	(9826)	Robert B. Frey	376th Tac Hosp
Major	(1521A)	William H. Drake	376th Hq Sqdn
Major	(7316)	Donald L. Shelton	376th Hq Sqdn
Capt	(1231B)	Joe H. Copeland	512th Bomb Sqdn
Capt	(1245)	Marvin M. Watkins	512th Bomb Sqdn
Capt	(3034)	Gordon S. Lugenbeel Jr.	376th Hq Sqdn
2d Lt	(1521A)	Donald C. Ziemba	376th Air Rflg Sqdn

TOTAL: 11

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3. Airmen Assigned during September 1954 (By PAFSC):

20450 - 1	43133 - 23	70010 - 6
30151 - 1	43134 - 5	70250 - 3
30230 - 21	43156 - 2	70270 - 2
30470 - 2	43171D - 1	90010 - 1
32330C - 8	46010 - 1	90250 - 2
32350 - 1	47010 - 2	90631 - 1
32370 - 1	47134 - 3	90651 - 1
32371F - 1	58151 - 1	
32372F - 1	62270 - 1	
40471 - 2	64131 - 1	
40550 - 1	64151 - 1	
43131B - 1	64173 - 1	

TOTAL: 99

4. Airmen Transferred and Discharged (not Reenl) in Sep 1954 (By PAFSC):

20451 - 1	40453 - 1	46270 - 1
22350 - 3	42450 - 2	60170 - 1
29353 - 4	43131J - 1	62270 - 1
29373 - 2	43151J - 3	64130 - 1
30131 - 1	43152A - 9	64171 - 1
30150 - 5	43152B - 3	64173 - 2
30151 - 5	43154B - 1	70010 - 3
30250 - 2	43156 - 3	70250 - 6
32330C - 2	43171B - 1	73251 - 1
32150E - 3	43170 - 1	90230 - 2
32351F - 2	43171J - 1	90430 - 1
33150 - 1	43271B - 1	90670 - 1
40452 - 1	43271D - 1	90730 - 1
		90850 - 1

TOTAL: 83

5. Reenlistment Rate:

No Discharged	No Reenl	% Reenl
69	13	18.8

Discharged by Squadron:

376th Hq Sqdn	A/1C G. W. Grigg	S/Sgt J. T. Carlisle
	A/2C A. F. Rhyesman	A/1C A. R. Dozier
	M/Sgt R. E. Thomas (reenl)	A/1C R. L. Stricker
	A/1C G. E. McVety	S/Sgt C. D. Skinner

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Discharged by Squadron (Cont'd)

512th Bomb Sqdn	S/Sgt R. G. Dyer	A/1C C. R. Myers
	S/Sgt J. W. Trippe	M/Sgt R. C. Defreez (reenl)
513th Bomb Sqdn	A/1C J. Katz	A/1C J. S. Redwine
	A/1C E. R. Karczeweri	S/Sgt S. W. Hardcastle
	T/Sgt W. C. Newman (reenl)	A/1C W. Wood
	S/Sgt D. T. Goddard	T/Sgt T. J. Geurts
	M/Sgt R. M. Fillmore	A/2C C. D. Albertson
	A/1C R. A. Lowtier	A/1C R. E. Payne
	A/2C J. B. Cooper	S/Sgt W. H. Wagenecht
	A/1C L. W. Rosenkranz	T/Sgt G. E. Taylor (reenl)
	S/Sgt S. C. Orlevitch	S/Sgt R. H. Roe
	A/1C V. E. Morgan	T/Sgt A. Goodman
514th Bomb Sqdn	S/Sgt T. C. Vaughn	M/Sgt C. W. Locklear (reenl)
	S/Sgt J. A. Vaughn	
376 Fld Maint Sqdn	T/Sgt M. H. Wilkinson (reenl)	S/Sgt R. C. Polhl
	S/Sgt C. H. Cook	M/Sgt L. E. Tanner (reenl)
	S/Sgt G. H. Durkam	A/1C P. R. Johnson
	S/Sgt N. D. Holmes	M/Sgt T. Knight (reenl)
	M/Sgt M. C. Bright (reenl)	S/Sgt W. E. Schindel
	A/1C H. F. Liory (reenl)	A/1C R. C. Sanderlin
376 A&E Maint Sqdn	S/Sgt D. E. Knee	A/1C E. Streeter
	A1C R. Jacobsen	S/Sgt R. A. Smith
	S/Sgt J. R. Langlois	S/Sgt G. M. Langlois
	S/Sgt B. A. Peters	T/Sgt R. L. Owens (reenl)
	S/Sgt B. L. Shaw	A/1C E. J. Walsh
	S/Sgt E. L. Kethley (reenl)	
376 Air Rflg Sqdn	S/Sgt E. G. Brown	T/Sgt B. L. Walters (reenl)
	T/Sgt E. E. Clinger	
376 Per Maint Sqdn	A/2C A. P. Bischop	S/Sgt D. D. Anderson
	S/Sgt R. B. Barlow	S/Sgt C. D. Curwell
	T/Sgt L. L. Carter	A/1C I. W. Porter
	A/1C P. K. Crews	
376 Tac Hosp	S/Sgt R. G. Barnesky	

6. AWOL Rate per 1000:

	Assigned	No AWOL	Percent
Officers	378	0	0
Airmen	2044	5	2.0
TOTAL	2422	5	2.02

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AWOL Rate (Cont'd)

AWOLs by Squadron:

376 Tac Hosp	A/B Bell	A/3C Garcia
376 A&E Maint Sq	A/3C Lemasters A/3C Martin	A/3C Bush

7. Gains and Losses:

	No Disch & Trfd	% Auth Strength	No Asgd	% Auth Strength
Officers	11	2.8	16	4.0
Airmen	83	4.9	99	5.7

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS
Hq 376 B Wg	64	69	54	54	84.4	84.4
512 Bomb Sq	65	61	59	59	90.8	90.8
513 Bomb Sq	65	60	59	59	90.8	90.8
514 Bomb Sq	65	61	60	60	92.3	92.3
376 Air Rflg Sq	85	80	80	80	94.1	94.1
376 A&E Maint Sq	16	17	16	16	100.0	100.0
376 Fld Maint Sq	7	6	6	6	85.7	85.7
376 Per Maint Sq	5	4	4	4	80.0	80.0
376 Tac Hosp	27	20	18	18	66.6	66.6
TOTAL:	399	378	356	356	89.2	89.2
CONSOLIDATED MIRS:	399	378		356		89.2

9. Effective Manning of Airmen

ORGN	AUTH	ASGD	NO ASGD	NO MIRS	% EFF ASGD	% MIRS
Hq 376 B Wg	117	169	105	105	89.7	87.2
512 Bomb Sq	105	154	98	65	93.3	61.9
513 Bomb Sq	105	148	97	69	92.4	65.7
514 Bomb Sq	105	153	99	75	94.3	71.4
376 Air Rflg Sq	228	246	205	167	89.9	74.1
376 A&E Maint Sq	426	457	332	235	77.9	55.2
376 Fld Maint Sq	383	456	324	298	84.6	77.8
376 Per Maint Sq	138	173	106	88	76.8	63.7
376 Tac Hosp	95	88	74	71	77.9	74.7
TOTAL:	1702	2044	1440	1173	86.3	68.9
Consolidated MIRS:	1702	2044		1229		72.2

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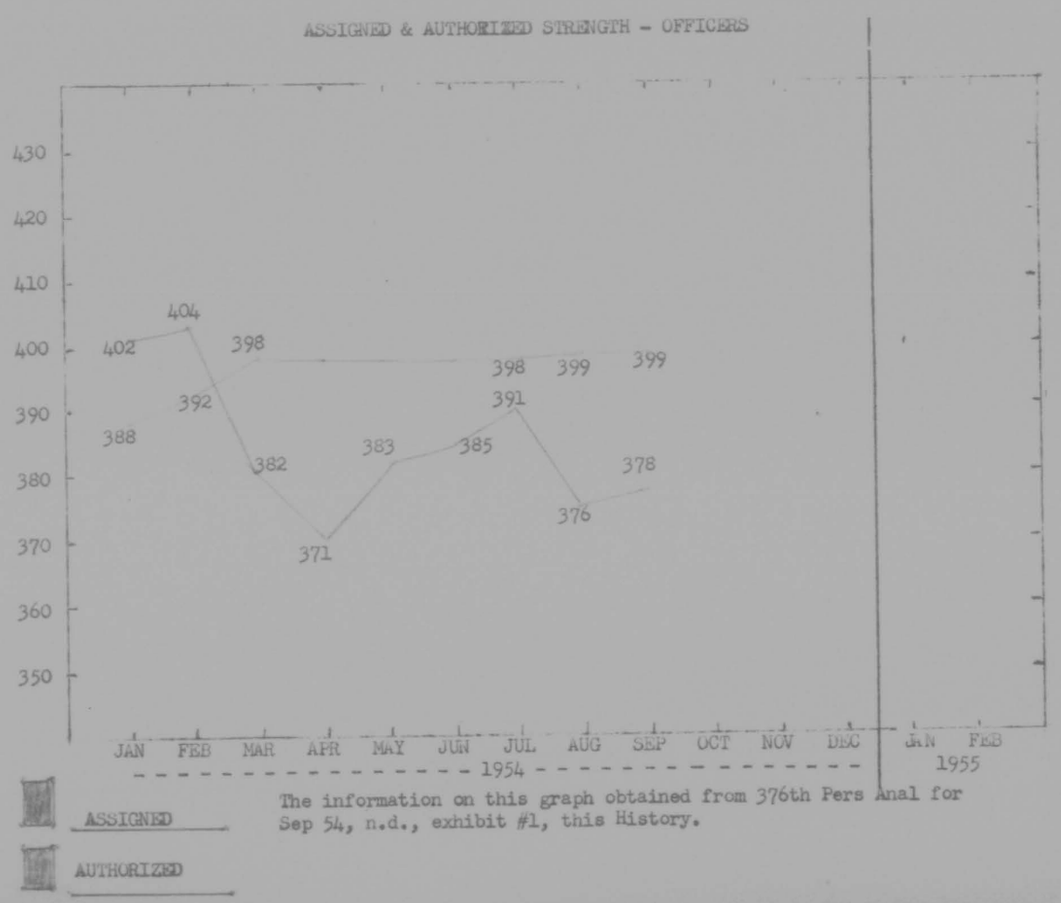

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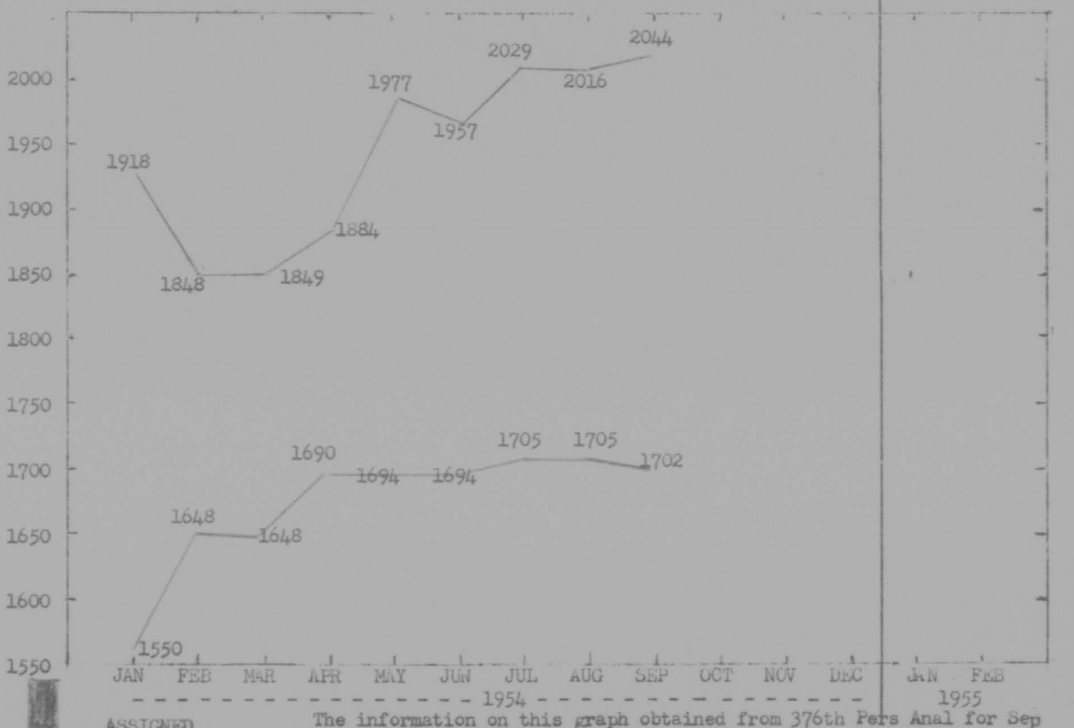
ASSIGNED & AUTHORIZED STRENGTH - AIRMEN



The information on this graph obtained from 376th Pers Anal for Sep 54, n.d., exhibit #1, this History.

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

CLASSIFICATION Sec
Auth: CO 376TH BOMB
Initials: [illegible]
Date: 5 OCT 54

WING COMMANDER'S REMARKS

SECTION J

Air Training Report for the Month of September 1954
(RCS: 6-SAC-T12)

SECTION J:

c. Wing Commander's Remarks - Part III.

(1) Hours flown performing missions ordered by higher headquarters:

(a)	Ferrying aircraft	6:50
(b)	ECM Test	218:05
(c)	Support of 2AF Operations Order #135-54	4:00
(d)	Support of B-47 Static Display at Abilene, Texas	2:50
	TOTAL	231:45

(2) Weather or local conditions affecting training:

(a) Twenty-three sorties (Approximately 138 flying hours) were lost due to weather.

(3) Directives imposed by AMC or SAC on aircraft:

(a) None.

(4) Combat Crew Member Gains or Losses:

(a) Gains: 2 Co-Pilots.
1 Observer.

(b) Losses: 2 Co-Pilots (1 Indefinite medical suspension,
1 PCS Training Command;
1 Observer (Reassigned Wing Staff).

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Wing Commander's Remarks for the Month of September 1954

(5) Crew Member Changes:

(a) 3 Co-Pilots.

(b) 2 Observers.

(6) New Crews:

(a) N-51-AO 22 September 1954.

(b) N-52-AO 24 September 1954.

(7) Crew Status Changes:

(a) N-43-BO dissolved effective 22 September 1954.

(b) N-02-AO to R-02-AO effective 1 September 1954.

(c) N-07-BO to R-07-BO effective 24 September 1954.

(d) N-35-AO to R-35-AO effective 3 September 1954.

(e) N-41-CO to R-41-CO effective 13 September 1954.

(f) N-46-AO to R-46-AO effective 10 September 1954.

(g) N-72-AO to R-72-AO effective 10 September 1954.

(h) N-73-AO to R-73-AO effective 2 September 1954.

(i) N-74-AO to R-74-AO effective 24 September 1954.

(j) N-82-AO to R-82-AO effective 16 September 1954.

(k) N-13-AO ECM Combat Ready effective 17 September 1954.

(l) N-38-AO ECM Combat Ready effective 3 September 1954.

(m) N-44-AO ECM Combat Ready effective 30 September 1954.

(n) N-45-AO ECM Combat Ready effective 30 September 1954.

(o) N-47-AO ECM Combat Ready effective 30 September 1954.

(p) N-51-AO ECM Combat Ready effective 30 September 1954.

(q) N-52-AO ECM Combat Ready effective 30 September 1954.

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Wing Commander's Remarks for the Month of September 1954

(r) M-76-BO ECM Combat Reday effective 3 September 1954.

(s) M-79-AO ECM Combat Ready effective 17 September 1954.

(t) M-81-AO ECM Combat Ready effective 3 September 1954.

(8) Standardization Crews:

(a) R-04-AO Wing Standardization Crew.

(b) R-11-AO, R-35-AO, and R-70-AO are Squadron Standardization Crews.

(9) Personnel and Materiel Problems:

(a) The officer effective manning of the 376th Bombardment Wing, Medium, has improved slightly during September. This is attributed to the assignment of five officers in authorized AFSC's.

(b) Officer manning in AFSC's 3054, 3244, 3254, 4334, 4355, 4364, 6424, and 7324 remains critically short.

(c) Manning in the Aircraft Maintenance Field has decreased considerably during September. This is attributed to the decrease in authorization of AFSC's 43133/53 and increase in AFSC's 43131/51J. Manning in AFSC's 43133/53 is 303 percent by Primary and 276 percent by Duty. Manning in AFSC's 43151J/51B/52A is 58 percent by Primary and 165 percent by Duty.

(d) Manning at the Supervisory/Technician level of the Armament Systems Maintenance career field increased slightly during September. Manning in AFSC's 32171E, 32370, and 32371C is 16 percent by Primary and 18 percent by Duty.

(e) The re-enlistment rate for the month of September was 15 percent.

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Wing Commander's Remarks for the Month of September 1954

(f) The low experience level of E-System mechanics continues to be a detriment. Training of personnel is continuing through maximum use of MTD and Contractor Technicians.

(g) The following factors affected the capability of maintenance to provide aircraft for operational training during the month of September.

1 Excessive aircraft days were lost to docks and dock back line. A total of 99 aircraft days were expended in the docks compared to 77 days expended last month. This was caused by unscheduled maintenance found in dock inspections.

2 One hundred fifty-eight aircraft days were lost for fuel cell repair, as compared to 90 days lost during August.

3 One hundred fifty-seven AOCP aircraft days were lost during September.

4 There were 93 cannibalizations of B-47 aircraft for the month of September.

5 The Ground Power Equipment in-commission status directly affected the capability of maintenance. Supply difficulty letters are being submitted on cases listed below.

a An average of 15 percent of nine authorized and assigned Marathon Diesels were out of commission for parts.

b An average of seven percent of 35 assigned rectifiers (36 authorized) were out of commission for parts.

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c An average of 21 percent of 34 assigned motor generators (36 authorized) were out of commission for parts.

d An average of 44 percent of ten C-26 units (12 authorized) were out of commission for parts.

e An average of 32 percent of the 14 assigned C-21 units (12 authorized) were out of commission for parts

f An average of 44 percent of four assigned high pressure compressors (nine authorized) were out of commission for parts.

(10) SAC Minimum Training Requirements:

(a) Not applicable.

(11) Special Training Month:

(a) Not applicable.

(12) Field Training Operations:

(a) None.

(13) Non-Combat Ready Crews that could be used in case of an emergency:

(a) Twelve Non-Combat Ready crews have been trained to a point where they could be deployed for ECM-Support missions in event of an emergency.

(14) Non-Combat Ready Crew Training:

(a) Fifteen non-combat ready crews were in training at the end of the month.

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Wing Commander's Remarks for the month of September 1954

(15) Comments or Recommendations of the Wing Commander:

(a) The factors affecting training listed under paragraph (9) g total 414 lost aircraft days. With a total of 1440 aircraft days assigned, (30 days X 48 assigned aircraft) a resulting 29 percent of assigned aircraft days were lost to maintenance factors. This figure, plus other AOCM factors of minor signifinance, reflects an evident restriction of the capability to produce flying hours.

(b) Supply items continue to be a limiting factor in the production of flying hours. The B-47 AOCP rate during September was 11.28 percent, approximately the same as th previous month.

(c) Total AOCP items were 54. The largest AOCP loss in aircraft days was 66 days for three inverters (4200-B61147). Recurring items were:

1 Item	No.	Days AOCP	Stock No.
Compass	2	6	6348-6970-1
Cell	2	17	1AFE-FCD29166M
Drives	2	3	1AFE-9-26164
Indicator, EGT	3	17	6126-149E27
Indicator	2	6	6040-674090
Indicator, AS	2	2	6025-739CK4-023
Indicator, R/C	2	2	6025-716BK8-036
Inverter	3	66	4200-B61147

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Wing Commander's Remarks for the Month of September 1954

Item	No.	Days AOCP	Stock No.
Pump	3	7	48395-TF-57300-
Relay	2	7	3380-574275-5565
Regulator	2	15	4505-30016-1
Valve	2	1	4815-10221

(d) The average number of crews assigned during September was 46. A total of 1186 hours were flown by the above crews for an average of 26 hours and 18 minutes per crew.

(e) The average number of possessed aircraft during September was 48. The average flying time per aircraft was 25 hours and 13 minutes.

(f) In view of the excessive loss of flying hours due to maintenance and supply difficulties, priority was given those crews undergoing training in accordance with Supplement I, SAC Regulation 50-43.

(g) In compliance with paragraph 8L, SAC Regulation 50-43, unit crew training charts are attached as Inclosure #1.

(h) In compliance with SAC Message DOTRS 12487, information requested is attached as Inclosure #2.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

2 Incls
1. 50-43 Trg Charts
2. Individual CRA

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INDIVIDUAL CEA

R11A0	Visual Releases	Negative
	Night Cel Nav	1/17
R37A0	Visual Releases	1/3500
	Night Cel Nav	Negative
R40A0	Visual Releases	Negative
	Night Cel Nav	1/7
R69B0	Visual Releases	4/370/690/1060/4500/
	Night Cel Nav	Negative
R70A0	Visual Releases	4/140/510/550/810/
	Visual Releases	Negative
R80A0	Night Cel Nav	1/25/
N10A0	Visual Releases	4/350/1190/1800/6000/
	Night Cel Nav	Negative
N13A0	Visual Releases	Negative
	Night Cel Nav	3/3/5/7/
N38A0	Visual Releases	Negative
	Night Cel Nav	6/10/10/10/12/20/30/
N41C0	Visual Releases	6/325/725/740/950/1600/200/
	Night Cel Nav	1/7/
N44A0	Visual Releases	Negative
	Night Cel Nav	5/0/4/17/18/30/
N45A0	Visual Releases	Negative
	Night Cel Nav	5/5/8/14/25/54/
N46A0	Visual Releases	5/960/1220/4700/5280/5700/
	Night Cel Nav	Negative
N47A0	Visual Releases	4/405/790/2680/5000/
	Night Cel Nav	5/1/13/13/21/45/
N48B0	Visual Releases	Negative
	Night Cel Nav	2/10/30/
N51A0	Visual Releases	Negative
	Night Cel Nav	6/3/10/10/12/20/35/
N52A0	Visual Releases	Negative
	Night Cel Nav	4/10/10/40/40/

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Incl #2

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INDIVIDUAL CEA (Cont'd)

N7410	Visual Releases	4/350/440/450/2350/
	Night Cel Nav	4/20/20/22/42/
N7680	Visual Releases	4/440/820/1450/1800/
	Night Cel Nav	4/5/10/10/15/
N7780	Visual Releases	Negative
	Night Cel Nav	1/10/
N7900	Visual Releases	5/200/260/570/840/5400/
	Night Cel Nav	1/15/
N8140	Visual Releases	4/520/2000/2350/6500/
	Night Cel Nav	Negative

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SAC REG 50-43 TRAINING (REVISED)

512TH BOMB SQDN.

Posted As of 27 Sept 54

Combat Ready

AIRCRAFT COMMANDER

CO-PILOT

OBSERVER

CONFIDENTIAL

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SAC REG 50-43 TRAINING (REVISED)

Trng Completed
Accumulative Trng
Not Required
Combat Ready

513TH BOMB SQDN

Posted As of 27 Sept 54

AIRCRAFT COMMANDER

CO-PILOT

OBSERVER

CONFIDENTIAL

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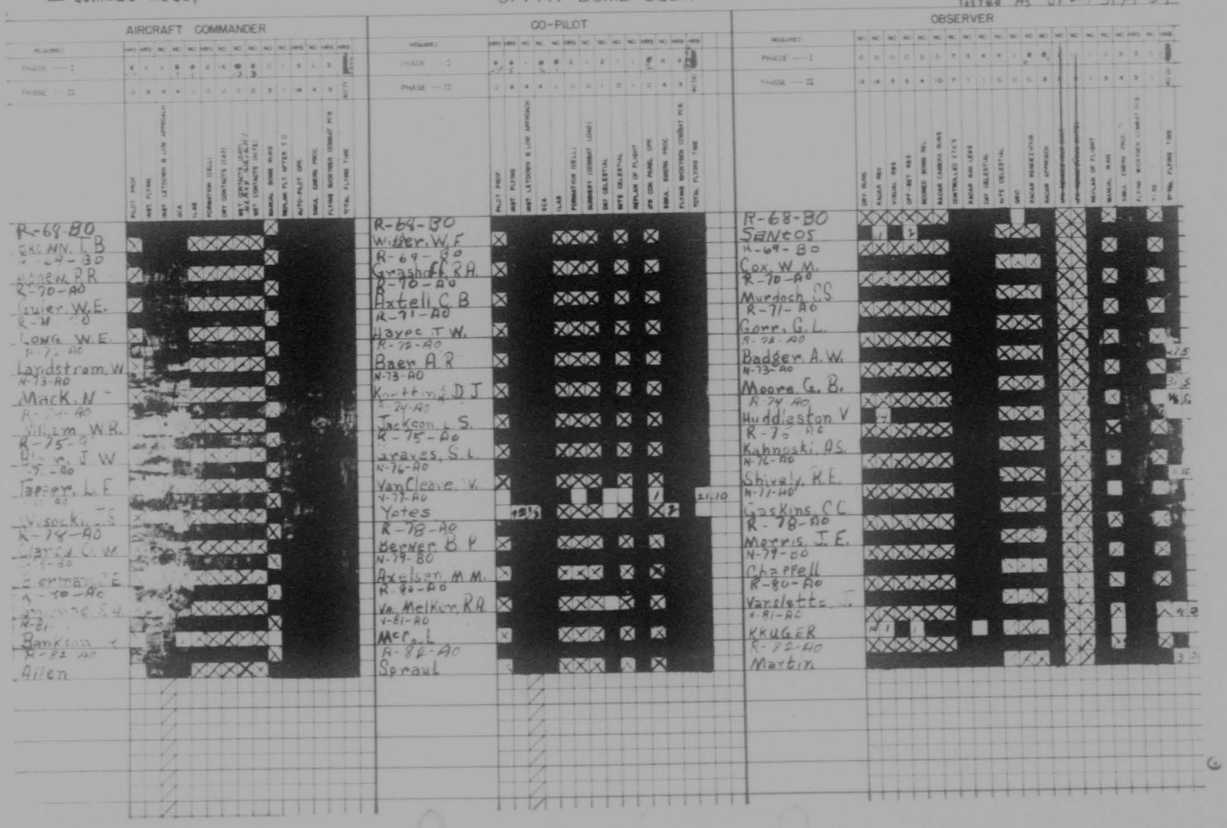
Trg Completed
Accumulative trg
Not Received
Combat Ready

SAC REG 50-43 TRAINING (REVISED)

514TH BOMB SQDN

Posted As of 27 Sept 54



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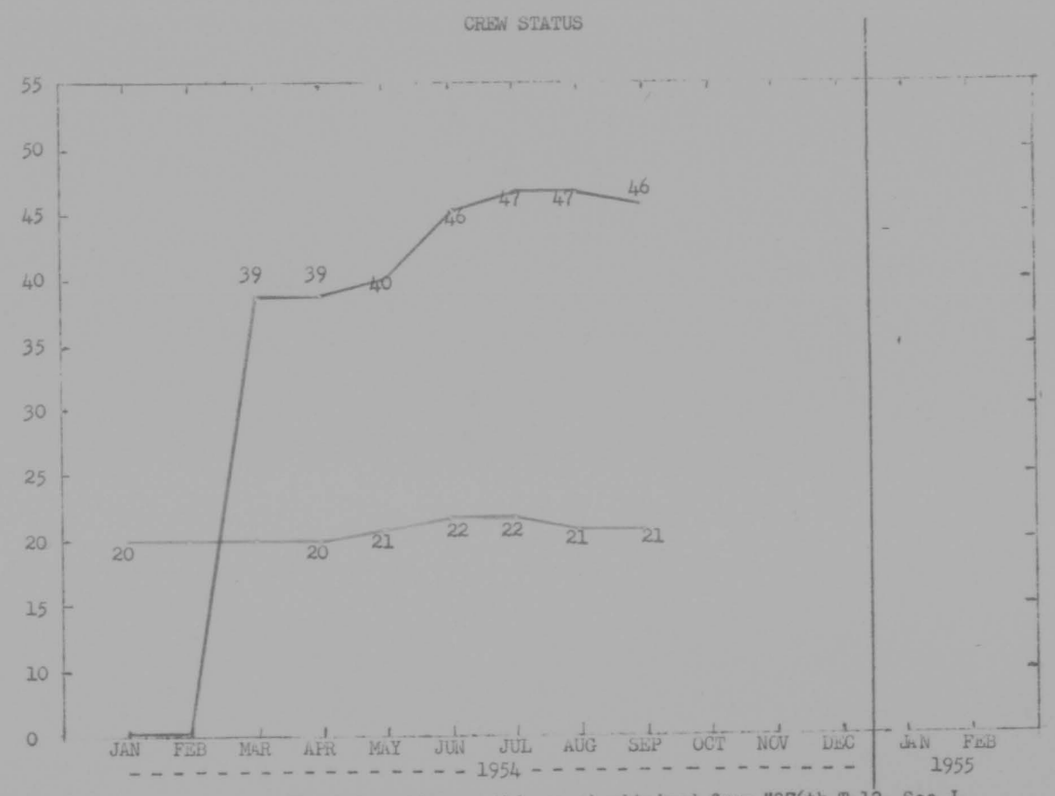

The information on this graph obtained from "376th T-12, Sec J, and Sec H&I, for Sep 54, n.d., exhibits #4 and 6, this History.

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CLASSIFICATION: SECRET
Auth: CO 376th BOMWG
Initials: Mungley
Date: 4 Oct 54

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION I

Air Training Report for Month of September 1954
(RCS: 4-SAC-T12)

1. An average of 21 crews were available for training; they flew 605:35 hours for an average of 28:50 hours per crew.

2. An average of 22 aircraft were possessed during the month. The average time per possessed aircraft was 27:30 hours.

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (H)
Barksdale Air Force Base
Louisiana

CLASSIFICATION SECRET
Auth: DD 376TH BW
Initials: [illegible]
Date 5 October

SQUADRON COMMANDER'S REMARKS

SECTION H

Air Training Report for the Month of September 1954
(RCS: 4-SAC-T12)

SECTION H:

a. Hours Flown Performing Missions Ordered by Higher Headquarters:

Total time: 167:20

(1) One crew from Hunter Air Force Base, Georgia, in support of 2AF Operations Order 32-54.

Time: 8:00

(2) Fifteen crews in support of 301st Bombardment Wing Operations Order 130-54.

Time: 66:25

(3) Six crews in support of ECM Test projects:

Time: 37:10

(4) Second Air Force Standardization Crew flying proficiency:

Time: 4:30

(5) One crew to Campbell Air Force Base, Kentucky, and return - passengers:

Time: 5:35

(6) One crew to McConnell Air Force Base, Kansas, to Turner Air Force Base, Georgia, to Pinecastle Air Force Base, Florida, and return - Passengers and cargo:

Time: 12:05

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(7) One crew to Turner Air Force Base, Georgia, and return - Passengers:

Time: 5:05

(8) One crew to Wright-Patterson Air Force Base, Ohio, and return - Cargo.

Time: 8:05

(9) One crew to Abilene, Texas and return - Passengers.

Time: 4:10

(10) One crew to Memphis, Tennessee, in support of 2AF Operations Order 135-54.

Time: 4:20

(11) One crew to Kelly Air Force Base, Texas, and return - Cargo.

Time: 4:50

(12) One crew to Lockbourne Air Force Base, Ohio, and return - Passengers.

Time: 7:05

b. Weather and Local conditions affecting training:

(1) None.

c. Restrictions by AMC or SAC on aircraft:

(1) None.

d. Excessive crew changes and/or temporary crew substitutions:

(1) Not excessive.

e. Crews formed during the month:

(1) None.

f. Crew status changes for the month of September 1954:

(1) None.

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g. Squadron Standboard Crew:

(1) T-02-AO.

h. Remarks on Materiel and Personnel:

(1) The AOCP rate increased to 7.99% during September as compared to 7.31% for the previous month.

i. SAC Minimum Requirements:

(1) Not applicable.

j. Comments or Recommendations by Squadron Commander:

(1) None.

k. The following information is submitted as required by Change 2, Supplement V, SAC Regulation 50-23:

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-02-AO	X	X	X				X		X	X
T-03-BO	X	X	X	X		X	X		X	X
T-04-AO	X	X	X	X		X	X		X	X
T-06-FO	X	X	X				X		X	X
T-07-AO	X	X	X	X		X	X		X	X
T-08-EO	X	X	X			X	X		X	X
T-09-BO	X	X	X			X	X		X	X
T-10-BO	X	X	X				X		X	X
T-11-BO	X	X	X			X	X		X	X
T-12-DO	X	X	X				X		X	X
T-13-BO	X	X	X	X		X	X		X	X
M-14-FO	X	X	X			X	X		X	
T-15-CO	X	X	X	X		X	X		X	X
T-17-FO	X	X	X				X		X	X

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CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-18-BO	X	X	X	X		X	X		X	X
T-19-PO	X	X	X			X	X		X	X
T-20-BO	X	X	X			X	X		X	X
M-21-DO	X	X	X	X		X	X			
T-22-CO	X	X				X	X			

M-23-AO - Aircraft Commander and Pilot presently undergoing transition in accordance with Supplement IX, SAC Regulation 51-19.

WENDELL D. LACK
Lt Colonol, USAF
Commander

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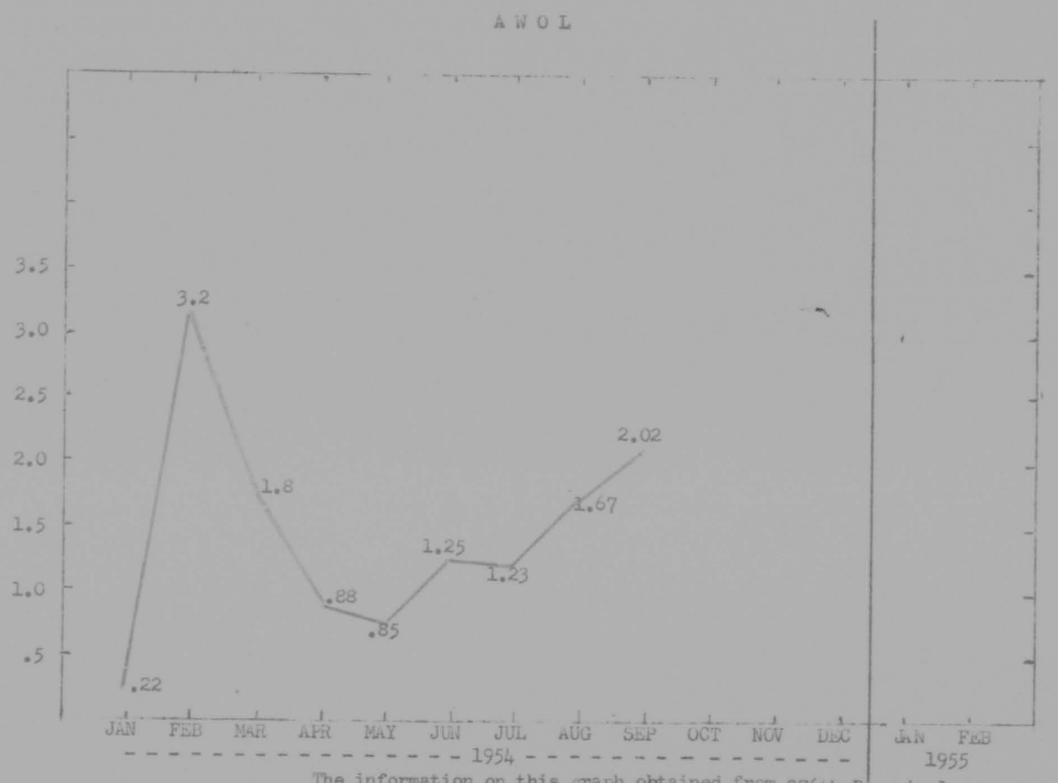

The information on this graph obtained from 376th Pers Anal for Sep 54, n.d., exhibit #1. this History.

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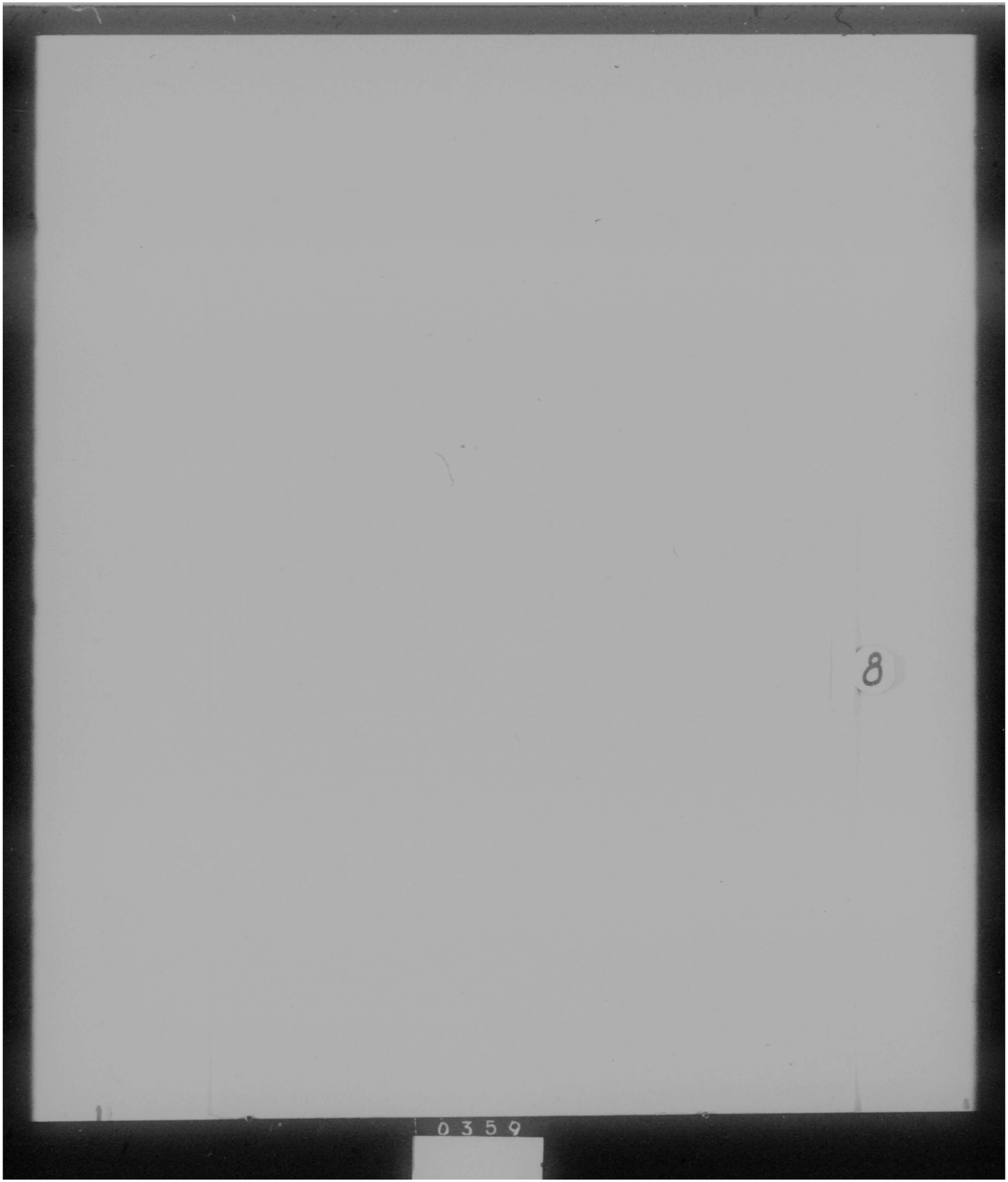

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HEADQUARTERS
376th BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
Auth: COMDR 376 BOMWG
Initials: Murphy
DATE: 11 Oct 1954

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1 October 1954

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC - U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 September 1954 through 30 September 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952

(2) Percentage complete: 87%

(3) Hours flown: 276.68

(4) Present status: Flight tests are in progress to determine the effectiveness of one megacycle and two megacycle sweep jammers.

(a) A test was flown on 9 September 1954, using a bandwidth of one and two megacycles. Only one transmitter was used during any specific run. A separation of 25 miles was maintained between aircraft. Trouble was encountered with the inverter and alternator aboard the aircraft which reduced the transmitter power about 100 watts. No desired jamming conditions were obtained. Because of the inconclusive results it was decided to refly the mission. Three additional flight tests were aborted because of bad weather and aircraft failure.

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(b) A calibration test was run on the modified ARC-3 VHF receiver. This was used to determine the signal strength of the jammers and ground station. The test instrumentation consisted of a signal generator and a vacumn tube voltmeter. Varying the AC from 112-120 volts had no effect on calibration. The DC voltage was varied and it was found that a change of a few volts resulted in a large change in sensitivity of the receiver.

1. Sensitivity readings were also taken with varying microvolt inputs at 142.38 megacycles and 117.18 megacycles, which were the two frequencies used in monitoring jamming signals. The results of this test showed the receiver to be approximately twice as sensitive at 117.18 megacycles as it was at 142.38 megacycles.

2. The sensitivity change did not affect any of the flight tests, since jamming and ground station signals are received simultaneously, and hence are affected in the same manner.

b. Test Project 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953

(2) Percentage completed: 33%

(3) Hours flown: None

(4) Present status: Bench checks of the transmitter, receiver, and control circuits in the unattended VHF communications jammer have been completed on the prototype. Initial checks indicated a favorable conclusion. Further checks cannot be made until WAC Engineering Company of Dayton, Ohio, completes and delivers the necessary tuning capacitors.

(a) Personnel assigned to Project 1X visited WAC Engineering for a period of one week for the purpose of inspecting and testing the first completed model of the tuning capacitor. Several errors were discovered in this unit and a number of modifications were suggested to the WAC personnel.

0361

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(b) A second unit will be ready for inspection and testing on or about 5 October 1954. This unit will incorporate all suggested changes and corrections. Personnel will visit WAC Engineering to make a final inspection prior to acceptance of this overall design and mechanical structure of the tuning capacitor. The first unit will be hand carried to Barksdale Air Force Base for further bench checking of the unattended communications jammer as a composite unit.

c. Test Project Number 15, "Effectiveness Test of Sweep Jammer AN/ALT-8".

(1) Date initiated: 9 August 1954

(2) Percentage complete: 12%

(3) Hours flown: 10:30

(4) Present status: Five systems were received the first of this month making a total of seven complete systems on hand.

(a) Three missions using the AN/ALT-8 were scheduled during the month. The first and second mission aborted. The third mission was flown on 22 September 1954. On this mission, seven aircraft were equipped with one each AN/ALT-8. The results of this mission have not been evaluated and will be included in next months' report.

(b) All B-47's in this wing are being modified so the ALT-8 can be operated in the ATO compartment. Completion of this project is expected before the 15th of October 1954.

(c) The ALT-8 may not be used at this time in the cradle, because the type of relays installed will not handle the power required without modification to install larger relays.

(d) The following is a list of power requirements for the ALT-8:

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One Transmitter operating per system

	Regulated 115V AC	Unregulated 115V AC	Total
STANDBY	4.6 Amps	.6 Amps	5.2 Amps
OPERATE	5.0 Amps	10.5 Amps	15.5 Amps

Two Transmitters operating per system

	Regulated 115V AC	Unregulated 115V AC	Total
STANDBY	8.6 Amps	1.4 Amps	10.0 Amps
OPERATE	8.8 Amps	11.2 Amps	20.0 Amps

d. Test Project 15-6, "Engineering and Flight Test of the AN/ALT-6 Operated as a Sweep Jammer with a Helix or Stub against Search and Tracking Radars.

(1) Date initiated: 1 April 1954

(2) Percentage complete: 60%

(3) Hours flown: 64:25

(4) Present status: A total of 180 systems are on hand.

(a) Two missions were flown on this equipment during the month. The results of the mission flown on 3 September 1954 are contained in Paragraph F, Test Project Number 27. The results of the mission flown on 22 September 1954 have not been evaluated and will be submitted in next months' report.

(b) The following serious malfunctions of associated equipment have developed which materially reduced the effectiveness of the mission of 22 September 1954.

1. UG-1105 and 1106/ALT-6 Coaxial to waveguide adapter: These adapters are sub-contracted by General Electric. All adapters on hand by this organization were built either by Telerad Manufacturing Company or Bogart Manufacturing Company.

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Approximately 20 adapters built by Telerad have become unserviceable. Only one manufactured by Bogart has failed. The threads on the Telerad adapters were not undercut to allow for silver plating; therefore, the UG 532/U connector on the RG-117/U antenna cable will not fit properly. Another common malfunction occurs because the center conductor and pickup probe are improperly soldered together and come apart after being used a few times. Unsatisfactory Reports are being submitted.

2. RG-117/U Coaxial Cable: The RG-117/U coaxial cable is the weakest part of the entire system.

   a. The teflon insulation used in RG-117/U is soft. When connecting the cable to another piece of equipment using the RG-532/U connector, the least misalignment of the teflon will cause it to bind. The connectors are made of soft brass. Stripping the threads of the connector results when force is used to tighten the connections.

   b. The center conductor becomes loose and slips in the teflon insulation.

3. UG-532/U Connectors: These connectors have been reported as unsatisfactory in previous SAC U-30 reports. (Reference Paragraph 2e (4) (c) SAC U-30 report for period of 1 through 31 August 1954). An Unsatisfactory Report has been submitted on this condition.

e. Test Project Number 25, "Structural Suitability of the AT-190B Antenna".

(1) Date initiated: 1 September 1953

(2) Percentage complete: 100%

(3) Hours flown: 31:30

(4) Present status: The final report is now being reproduced. It will be forwarded through channels within the next ten days.

(a) During the month of September the program of flight testing of stub antennas was continued. The two special AT-490 antennas from WADC reported last

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month were removed on 2 September and returned to WADC after 39:10 hours flight time. Both antennas were loose in the base.

(b) The two teflon base AT-1908 antennas modified by this organization and first flown on 16 August now have a total of 122:35 hours flight time, however, both antennas are extremely loose at the antenna base. In an attempt to decrease the side buffeting action of the AT-190 type antennas, a round antenna was constructed by this organization and first flown on 1 September 1954. The antenna now has 70:00 hours flight time. It appears to be as solid mechanically as the AT-190 type antennas; however, it is also becoming loose around the base.

(c) On 10 September 1954, five antennas were received from WADC. To date, these antennas have 42:40 hours flight time. They are all conventional AT-190 and AT-191 types with a filler inserted between the inner rod and the outer shell. The fillers are of the following types: Number one antenna MR rosin, 15% shredded material, Number two antenna and Number three antenna, Lockfoam 10 pounds cubic feet, Number four antenna and Number five antenna, rubber filled. The Number one antenna has become extremely loose around the base. The Number five antenna is as solid as when installed. The other three antennas are all slightly loose at the base. Another antenna that was received from WADC is a knife model of Federal Telephone and Telegraph Laboratories, which was installed and flown for 1:35 hours. It is still as rigid as when installed. All antennas will continue to be flown until a complete evaluation is obtained.

f. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 55%

(3) Hours flown: 200:30

(4) Present status: Two chaff corridor missions were flown during the period of this report. The results of these missions are as follows:

(a) Mission Number 7, 3 September 1954:

0365

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SAFETY FILM

1. The purpose of the mission was to test the effectiveness of a chaff corridor and electronic jamming when used simultaneously against early warning, ground controlled intercept, and gun laying radars.

2. The plan was for seven B-47's flying in a "V" formation at 33,000 feet to dispense chaff from Meridian, Mississippi to a point about 45 miles west of Tampa, Florida. Two miles lateral separation and 420 knots true airspeed were to be maintained throughout the corridor. Electronic jamming was to be performed throughout the 367 mile length of the corridor.

   a. RR-39 chaff was to be dispensed from two hoppers at a rate of five feet per minute per hopper per aircraft. RR-39 chaff was to be dispensed from Meridian, Mississippi to a point about 15 miles south of the coast at Eglin Air Force Base, Florida. From a point 10 miles south of the coast of Eglin, RR-44 chaff was to be dispensed from two hoppers at the rate of five feet per hopper per aircraft. This method was to have produced a five mile overlap of RR-39 and RR-44 chaff. RR-44 chaff was to be dispensed throughout the remainder of the corridor.

   b. After the corridor was sown the formation was to break up and over fly the corridor individually in the reverse direction. One thousand feet altitude separation was to be maintained between each aircraft. While over-flying the corridor, the highest aircraft was to fly at 36,000 and the lowest at 30,000 feet. No electronic jamming was to be performed or chaff dispensed during the corridor over-fly.

3. Chaff and electronic equipment were as follows:

   a. Each aircraft was loaded with 40 cartons of RR-44/AL chaff and 16 cartons of RR-39/AL chaff.

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b. Each aircraft was equipped with four ALT-6 transmitters and two ALT-7 transmitters.

The ALT-6 transmitters swept a band from 2700 to 3100 megacycles at a rate of 15 megacycles per second. These jammers were directed against gun laying and CPS-6 radars.

The frequency of the ALT-7 transmitters were set as follows: Four from 71 to 72 megacycles, two from 65 to 66 megacycles; and two from 75 to 76 megacycles. These jammers were directed against the SCR-270 and 602 radars.

4. The mission was flown as briefed; station keeping was very good throughout the corridor. Only one aircraft was out of formation for any appreciable time. That aircraft wandered about six miles north of the formation. No malfunctions were reported on the ALT-7 transmitters, and only four ALT-6 transmitters did not work during the ECM run. Of the four ALT-6 malfunctions, one was inoperative and the other three sets did not turn on due to open circuit breakers on the cradle. Fourteen ALT-7's and 24 ALT-6 transmitters were operational during the test.

a. Not enough RR-39 chaff was loaded to sow the first 180 miles of the corridor. Eight cartons of chaff when dispersed at five feet per minute will last only about 22 minutes or about 154 miles. Excluding the 30 mile gap, approximately three bundles of chaff were sown per square mile throughout the 367 mile corridor.

b. The A-5 systems did not work well on this mission. Only two of seven systems were reported in operating condition. The co-pilot reported that no fighters were picked up by the Fire Control Radar. Of the two systems used only one indicated that chaff was picked up while it was being dispensed. It appears that only one A-5 system out of seven was working properly, since in the past, chaff was readily picked up by the A-5 while it was being dispensed.

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c. F-86-D's were scrambled from Tyndall Air Force Base, Florida and were controlled by the CPS-6 at Tyndall. The fighters reported only two radar lock-on's out of seven targets on the AI scopes. Chaff caused the AI radar to break lock on three occassions. For the complete breakdown of the success on fighter intercepts consult the table at the end of the CPS-6 report.

5. GROUND RADAR

a. Electronic jamming was very effective against the SCR-270 as indicated by the scope photographs. During the mission, weak echoes were picked up which were estimated to be chaff. This radar was unable to track the formation due to jamming. On the return flight, where no electronic jamming was used, the B-47's were tracked intermittently by the SCR-270.

b. At 1730, electronic jamming was picked up at about 300 degrees on the MSQ-2 radars. This jamming was picked up at the time that the jammers were turned on. The first jamming strobe was strong and about 20 degrees wide. Jamming increased until the formation was 90 miles out, at which time strobes were all over the scope. This condition of jamming continued until the formation was about 70 miles southeast of the site, where the jamming became somewhat weaker. It was still good enough to hide the chaff corridor in that direction. Adjustment of the gain only reduced or increased the brightness of the jamming. When the jamming was turned off at about 1823, the corridor showed up very bright. In an effort to fix the MSQ-2 on the sowing force, the FPS-3 called ranges and azimuths from 160 miles out, but due to very strong jamming the MSQ-2 had very little success in finding a target in the jamming.

0368

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A target was picked up at 33,000 and 40,000 yards and tracked for one minute, this target was probably a B-47. The target was not in the jamming strobe, but in a null to the right of the jamming strobe. The target was lost when the jamming strobe increased and shifted. One other target was tracked during the south bound run, but this was a slow moving target that was not at flight altitude of 33,000 feet. The other MSQ-2 radars did not pick up any target during the first portion of the mission.

On the north bound portion of the mission, the MSQ-2 radars were able to track targets above the chaff for short periods of time. It must be pointed out that the MSQ-2 radars received co-ordinates from the M-33 radar. The M-33 radar was not affected by electronic jamming.

c. As on previous missions, the RR-39 chaff did not show up on the FPS-3. The formation was picked up at 180 miles northwest and tracked with ease until the RR-44 chaff was dispensed. While RR-44 chaff was being dispensed, the head of the chaff stream was tracked until the formation was out of range. The only aircraft that were tracked were two that were out of the chaff to the north of the corridor. The other aircraft returning through the corridor were observed after leaving the RR-44 corridor south of Eglin. They were tracked on a northwest heading until they were out of radar range. Electronic jamming had no effect on the FPS-3. No jammers were available at the frequency band.

d. The FPS-4 was used to measure the heights and depth of the chaff corridor.

e. Chaff and electronic jamming were very effective against the CPS-6 at Tyndall. This ground controlled intercept facility was rendered almost useless due to jamming and chaff.

0369

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(b) Mission Number 8, 22 September 1954

1. The purpose of the mission was to test the effects of chaff and electronic jamming when used simultaneously against ground radars. Self protective electronic jamming and corridor reseeding techniques were also to be tested.

2. The plan was for Alpha force, composed of 10 B-47's flying in a "V" formation, to lay a chaff corridor, and to perform electronic jamming from Meridian, Mississippi to a point about 45 miles west of Tampa, Florida. This force was to be followed by three, three ship forces (Bravo, Coca, and Delta).

a. Alpha force was to be composed of three elements, each flying in a "V" formation, and deployed in such a way as to form a large V formation. The altitude to be flown was 35,000 feet indicated, with 438 knots true airspeed to be maintained. Two miles lateral separation between aircraft was required within Alpha force.

The chaff to be loaded in each aircraft in Alpha force was 36 cartons of RR-39 chaff and 30 cartons of RR-44 chaff. The exact loading by hopper with the dispensing rates are shown in the following table:

Hopper	Number of Cartons	Type	Rate per Minute
#2	6	RR-39	2.5
#3	10	RR-39	5
#4	10	RR-44	5
#5	10	RR-39	5 Spare
#6	10	RR-44	5 Spare
#7	10	RR-44	5
#8	10	RR-39	5

At Meridian, Mississippi each aircraft was to turn on dispensers three and eight, which should result in 10 feet of chaff per minute being dispensed per aircraft. The RR-44 chaff was to be dispensed from 10 miles south of Eglin to 45 miles west of Tampa, Florida.

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Hopper number two (RR-39) was also to be turned on during the run and would be dispensed at 2.5 per minute. This method would produce a total of 12.5 feet of chaff per minute for the over water portion of the mission. The additional 2.5 feet per minute of RR-39 chaff was included as an additional defense against fighter AI radar.

Electronic jamming was to be performed by Alpha force throughout the 360 mile length of the corridor. Two ALT-7 transmitters per aircraft were set as follows:

AIRCRAFT POSITION	FREQUENCY OF ALT-7
1	65 and 66
2	67 and 68
3	69 and 70
4	71 and 72
5	73 and 74
6	75 and 76
7	69 and 70
8	71 and 72
9	73 and 74
10	71 and 72

In addition to the ALT-7 transmitter, each aircraft in Alpha force was to have four ALT-6 transmitters sweeping from 2700 to 3100 megacycles at a rate of 15 megacycles per second.

b. Bravo force, containing three B-47's flying in a "V", was to fly over the corridor five minutes after Alpha at 438 knots true airspeed and 35,000 feet. This force was to play the role of a bombing force and would not drop chaff or use electronic jamming.

c. Coca force was to follow Bravo force through the corridor maintaining 15 minute separation. Coca force was to be composed of three B-47's and would fly at 35,000 feet and 438 knots true airspeed. This force was to check the effects of reseeding the corridor.

0371

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Each aircraft in this force was to have 10 cartons of RR-39 chaff loaded in the ATO hoppers. Two ALT-7 transmitters were to be installed in each aircraft of this force.

Chaff was to be dispensed at the rate of one bundle every 15 seconds by each aircraft from Meridian, Mississippi to a point 15 miles south of Eglin.

From a point 10 miles south of Eglin to the point 45 miles west of Tampa, chaff dispenser number two was to be set at five feet per minute and be timed: ON for two minutes and OFF for one. This method would allow the reseeding to be more easily detected by the ground radars.

The ALT-7 transmitters were to be turned on at Meridian and not turned off until the end of the corridor was reached. The ALT-7 transmitters were to be set as follows:

1st Aircraft	70.5 and 71.5 mc
2nd Aircraft	71.5 and 72.5 mc
3rd Aircraft	71 and 72 mc

d. Delta force was to fly at 35,000 feet and hold 438 knots true airspeed 15 minutes behind Coca force. Self protection jamming was to be tested by the three B-47's in Delta force. Each aircraft was to have four ALT-6 transmitters that were to sweep from 2700 to 3100 megacycles at a rate of 15 megacycles per second. No chaff was to be dispensed by Delta force.

e. All weather fighters were to be controlled by the FPS-3 at Eglin and the CPS-6 at Tyndall. Eglin's fighters would be scrambled from Moody Air Force Base, Georgia and then controlled by the FPS-3 at Eglin. Tyndall fighters would be scrambled from Tyndall. By having fighters controlled from two differents radars about 70 miles apart, a more realistic test of the corridor would be produced. Due to maintenance and other difficulties, Moody's all weather fighters could not be scrambled from Eglin.

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3. The mission was not flown as planned because of radar trouble in the lead and deputy lead aircraft. Incorrect wind information at flight altitude resulted in the corridor being sown farther to the west at the beginning than planned. A correction was made at the coast line which resulted in the second half of the corridor being sown farther north and east than planned. A visual fix on Mobile indicated that the formation was too far west of course and a 10 degree turn executed in order to lay the corridor as near as possible to the desired position. The number seven ship did not get the signal of the 10 degree turn and was plotting his position on the map when the turn was begun. The overall station keeping of the formation was good. Because of a radar malfunction, the deputy lead aborted the mission. This resulted in nine aircraft being available to lay the corridor. Alpha force flew the route at 430 knots true airspeed instead of 438. The corridor was about 15 degrees east of the planned route heading.

a. Bravo force was seven minutes behind Alpha force and flew the planned route. Since Alpha flew a course west of the planned route and then corrected to the east of the planned route, a "dog leg" was formed. This "dog leg" caused Bravo force to intercept the corridor over Eglin instead of over Meridian, Mississippi. Bravo force changed it's heading and flew over the chaff corridor.

b. Coca force was 16 minutes behind Bravo at Meridian, Mississippi and flew the same route as Bravo. It should be noted that the planned IP times at Meridian were not controlled times. The IP times were desired to be used only as an approximate separation.

c. Delta force was 15 minutes behind Coca force and slightly to the east of the planned route, but intercepted the corridor north of Eglin. This force corrected to fly over the corridor, but did not top over it.

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Delta force was picked up outside of the corridor by the CPS-6 at Tyndall. This is covered in the Ground radar portion of this report.

d. In order to clarify the formation flown and the malfunctions reported, the following reports are installed.

ALPHA FORCE

1

3 2 Aborted

7 4

9 8 5 6 (4,5 and 6 closed formation to the left 2 miles)

10 (8 took over lead)

(Separation Planned/Separation

BRAVO FORCE

1

3 2 5 minutes/7 minutes

COCA FORCE

1

3 2 15 minutes/16 minutes

DELTA FORCE

1

3 2 15 minutes/15 minutes

EGM Equipment Malfunctions

The following is a list of reported ECM Equipment Malfunctions and the post-flight findings on aircraft indicated for the Wing Mission of 22 September 1954.

Formation Position	Reported Malfunction	Post Flight
Alpha 1	Alternator switch will not work on normal	Ground checked cradle with alternator switch on external. Checked OK

0374

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Formation Position	Reported Malfunction	Post Flight
Alpha 2	Transmitter Nr 3 inoperative Transmitter Nr 4 inoperative Transmitter Nr 9 inoperative Transmitter Nr 10 inoperative Transmitter Nr 2 inoperative Stripper Nr 4 inoperative	Transmitter Nr 3 OK Transmitter Nr 4 OK Transmitter Nr 9 OK Transmitter Nr 10 inoperative Transmitter Nr 2 OK Stripper OK PILOT LIGHT BAD.
Alpha 4	Transmitter Nr 4 inoperative Transmitter Nr 5 inoperative Transmitter Nr 11 inoperative	Transmitter Nr 4 inoperative Transmitter Nr 5 inoperative Transmitter Nr 11 inoperative
Alpha 5	Transmitter Nr 5 inoperative	Transmitter Nr 5 OK-PILOT LIGHT-BAD
Alpha 6	Transmitter Nr 2 inoperative Transmitter Nr 3 inoperative Transmitter Nr 4 inoperative Transmitter Nr 9 inoperative Transmitter Nr 10 inoperative	Transmitter Nr 2 OK Transmitter Nr 3 OK Transmitter Nr 4 OK Transmitter Nr 9 OK Transmitter Nr 10 OK
Alpha 7	Transmitter Nr 2 inoperative Transmitter Nr 4 inoperative	Transmitter Nr 2 OK Transmitter Nr 4 inoperative Transmitter Nr 3 inoperative
Alpha 9	Nr 5 Stripper operated for 20 minutes	Stripper jammed with tape

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Coca 1	Transmitter Nr 2 inoperative	Transmitter Nr 2 inoperative
Coca 2	Transmitter Nr 1 inoperative Transmitter Nr 2 inoperative	Transmitter Nr 1 inoperative Transmitter Nr 2 inoperative
Delta 1	Transmitters Nrs 3,4,9 and 10 inoperative	All checked okay except transmitter #3 which had its transmitter selector switch in the "B" positi - on.
Delta 2	Transmitter Nr 4 inoperative	Checked OK
	Transmitter Nr 9 light tagged inoperative	Wiring trouble in cradle

2. Alpha two reported "K" system malfunction during the time his ECM equipment was on. He further reported malfunctioning "S" Band jammers and four out of five of these jammers were OK on post flighting. One possible reason for the "K" system equipment failure is the co-pilot's alternator power selector switch. In switching from the "Normal Position" to the "Cradle Position Normal", there is a period of no-contact in the switch. If the switching operation is slow, the possibility of losing the "K" system through a monentary alternator power loss is very likely, and it would take at least five minutes to regain the "K" system radar, due to the timing circuits. On future ECM flights the co-pilots alternator power selector switch will be placed in the "Cradle Normal" position of the selector switch which is identical to the "Normal Position". In this position, alternator power is supplied to the ECM buss; it also cuts the A-5 turret drive motor off. The A-5 drive motor may be operated by placing the A-5 emergency switch in the "ON" position, if it is required.

3. Several ALT-6 and ALT-8 transmitters were reported inoperative, but on the post flight proved in commission. The crews were briefed to turn the inverters and the transmitters on at approximately the same time. It is believed that on these aircraft the transmitters were switched on before the inverters had time to stablize themselves. These transmitters are very frequency sensitive and will not operate unless the frequency (400 cycles) is within close limits. If these equipments are turned on before the proper frequency is reached by the inverters, they will not operate and must be turned off for complete recycling.

0376

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4. A call was placed to the General Electric factory by the G.E. Field Representative to request information on the lowest possible temperatures for satisfactory operation of the ALT-6 transmitters. The field representative was informed that the equipment was designed to withstand minus 55 degrees Centigrade. If the temperature is much less than this, there is considerable doubt that the transmitter will operate. The friction of the dissimilar metals in the magnetron tuning head becomes very high at temperatures less than minus 55 degrees Centigrade. The G. E. factory also recommended that the transmitters be operated in the standby position immediately after take off. It was also recommended that the inverters be turned on for at least one minute before the transmitters are turned on.

a. The operating procedure should be to have the inverters turned on immediately after take off, and after one minute, the transmitters should be placed in the standby position.

b. During the mission, the temperature at flight altitude was minus 57 degrees Centigrade.

5. The complete ground radar reports are not available at this time, but the effects on the ground radars at Eglin Air Force Base and at Tyndall were almost identical to those on the 3 September 1954 mission. On this mission a fighter cap was attempted by the FPS-3 at Eglin, but was unsuccessful because the cap aircraft returned to the base with a radar malfunction.

6. In general, the SCR-270, MSQ-2 and CPS-6 were jammed by electronic jamming. The FPS-3 was not affected by jamming or by the RR-39 chaff. The gun laying radars reported a few targets for short periods of time by using A-2 mode and antenna smoothing. Neither the FPS-3 or the CPS-6 were successful in vectoring fighters to any of the force.

7. The complete fighter report is not available at this time. The unofficial report from Tyndall is that 20 fighters were scrambled during the mission and only one got a Judy (target on scope). This particular fighter had a malfunction and had to break off his pass. The pass was being made on Delta force after it flew south of the corridor.

8. The completed reports for missions seven and eight will be forwarded in about 10 days.

9. It has been mentioned that Alpha flew a "dog leg" route which resulted in Bravo, Coca, and Delta forces intercepting the corridor at an angle of between 15 and 20 degrees. That method of intercepting the chaff corridor at an angle seems very desirable and assures the interception by the following forces. However, this interception should be made near the beginning of the corridor and not half way down the corridor.

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g. Auxiliary Project Number 5, "Development of IFF Jammer".

(1) Date initiated. 21 September 1953

(2) Percentage complete: 6%

(3) Hours flown: None

(4) Present status: An initial test program has been formulated to determine the practicability of IFF deception. Several simple methods will be tried, using the existing equipment without modification.

(a) Uncontrolled tests indicate that it may be quite difficult for an ECM operator without special training to detect and utilize the pulses emanating from a self-triggering BC-996-A airborne transponder.

(b) The additional information requested, (reference SAC-U30, 1 September 1954) has not been received as of this date. This includes a bibliography on IFF from the Air University and supplementary data on the Russian SRO.

h. Auxiliary Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954

(2) Percentage complete: 40%

(3) Hours flown: None

(4) Present status: The twelve oscillator-amplifier units have been completed. A standard noise strip from an APT-5A is being used to noise modulate this transmitter.

(a) Bench checks show that this transmitter draws one ampere of current with 300 volts on the plate. Some difficulty has been experienced in the Heising modulation chokes because the amplifiers are drawing so much current. Further bench checks show that a

0378

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frequency band of 22 megacycles can be covered with 12 oscillator-amplifier units. Modulation will broaden this band a little, but for full coverage, it is recommended to stack the pulses at the half power points of each unit. The frequency band now being covered is 60 to 82 megacycles.

(b) No accurate power checks have been made because of lack of parts to build a voltage divider network to provide proper voltage. However, each unit is expected to develop approximately an eight watt output.

(c) Some work on the tuning procedure has been completed. Additional testing and study will be required before a firm procedure can be developed.

i. Auxiliary Project Number 18, "Development of a Sweep Jammer Using a VHF Increductor".

(1) Date initiated: 1 April 1954

(2) Percentage complete: 31%

(3) Hours flown: None

(4) Present status: Considerable reflected power was obtained when an antenna was connected to this transmitter. Unstable oscillation was also experienced. Both of these difficulties have been partially overcome by the addition of a low pass filter in the antenna circuit. This filter, which cuts off at 180 megacylces, was constructed so that it could be installed in the coaxial cable between the transmitter and the antenna. Using an AT-190B antenna with the filter, the maximum reflected power was less than 10% at the 150 megacycle end of the band. Power output was 100 watts at 150 megacycles, and 25 watts at 100 megacycles. Reflected power at the 100 megacycle end of the band was too small to measure.

(a) Some low level pulse circuits have been developed to give the transmitter a pulsing capability. The method used was to pulse the screen voltage of the 4X-150A tubes with a 2D21 gas tetrode. A charging circuit was added to give variable pulse rates and widths. Pulse rates of 20 to 2000 cycles per second have been used.

0379

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Pulse widths of three to 500 microseconds have also been used. A pulse transformer has been obtained and higher level pulses will be tried.

(b) A new transformer is being used in the control circuit because of the extremely high voltage. The 750 volt transformer previously used caused excessive burnout of the 6B06 control tubes. The replacement is a 500 volt transformer which will give lower plate dissipation. The 6B06 type tubes have been replaced by 807 type to improve the plate dissipation factor.

j. Auxiliary Project Number 20, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated. 1 July 1954

(2) Percentage complete. 45%

(3) Hours flown. 20.00

(4) Present status: The interim test report, discussing the results of navigating B-47 aircraft by using Land Camera pictures, has been completed and submitted for reproduction. The results show that this type of navigation is practical and will reduce the aircraft's susceptability to location by radar DF nets and passive detectors. The camera and periscope combinations, used for the tests, provided usable pictures, but it is desired to obtain a combination which includes a data box and provides a full size picture on the standard Polaroid film.

(a) A trip was made to WADC to discuss the possibilities of obtaining a camera with the above refinements. Mr. Wies, WCLRR-4, who has two modified versions of the W-3 camera on order from the Polaroid Corporation, was contacted and the problem discussed. After studying the observers compartment of the B-47 he concluded that the cameras on order would not fit in a B-47. A meeting was then arranged with Mr. Frank Pallazo, WCLFI-3 and it was found that a Polariod camera had been developed by WCLFI-3 which incorporates the photographic features desired by the 376th Bombardment Wing.

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This camera was obtained on a two week loan to determine if the camera could be mounted and operated in a B-47E. It was found that a complete redesign of the camera and periscope will be necessary to allow mounting the camera on the APS-23 indicator in the B-47E.

(b) WADC was contacted and informed that the prototype camera would not fit in the observers compartment of the B-47. Mr. Crumm, CCLFI, requested information from the 376th Bombardment Wing on a camera and periscope configuration which will fit in the B-47.

(c) A trip is planned to WADC the first week in October to furnish them with the information on the required camera. An attempt will be made to fabricate a prototype camera at WADC which will fulfill the requirements.

k. Auxiliary Project Number 21, "Infrared Station Keeping Device".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 30%

(3) Hours flown: 6:00

(4) Present status: A suitable location for the installation of this equipment in a B-47 aircraft has not been found. This has made it impossible to completely evaluate the infrared station keeping technique. The two viewers which are now being tested are the AN/SAR-4X and the AN/AAR-1 (XE-1). The AN/AAR-1(XE-1) is a viewer received from the Evans Signal Corps Lab at Fort Monmouth, New Jersey. Major R.A. Smith from Fort Monmouth assisted in the tests with this viewer from 13 September to 15 September. The following difficulties were encountered in installing the viewers.

(a) The navigator's position in the B-47 has very limited field of view which is completely unsatisfactory for this project. The co-pilot's position has a limited field of view to the front due to the pilot's seat. The plexiglass canopy causes very serious distortion when looked through at shallow angles and angles less than 20 degrees above the horizontal. The reflection from lights inside the aircraft cause considerable trouble when using the viewer

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without some means of shielding.

(b) The pilots' position has very limited space, in addition to the same problems encountered in the co-pilot's position. However, the field of view is not limited in the same way. The only suitable place to look out of the B-47 with the viewer is through the pilot's front window which is constructed of optical glass. The size of the viewers being tested has made it impossible to test the technique through this window. Information is expected early in October from the Capehart Farnsworth Corporation, Fort Wayne, Indiana, on a viewer similar to the type being tested but considerably smaller. This may permit the location of the viewer in the pilot's position of the B-47. Flight tests conducted to date have indicated the following:

1. The jet exhausts of the B-47 cannot be used as a signal source for an IR viewer. Range of only one and one-half miles were obtained in the air. (The longer ranges obtained from the ground were due to the jet engines being run at much greater power during take-off.) The above range could only be obtained when directly behind the aircraft.

2. It is planned to replace one of the navigational lights, located on the top of the vertical stabilizer, with a suitable IR light. The wattage necessary to obtain a reliable range of eight miles with the IR viewer is approximately 300 watts. Since planets appear exactly the same as a continuous IR signal source, a coding arrangement is essential. Each aircraft may be equipped with IR lights which may be turned on and off manually. The head aircraft can be equipped to emit the proper code. Moonlight causes considerable trouble when detecting weak IR signals. The moonlight causes a high background level which obscures the weak signal.

(c) Future tests are planned to verify the range versus wattage data obtained, also to continue checking the suitability of the IR viewer technique. Efforts are being made to obtain the smaller viewer from the Capehart Farnsworth Corporation and to arrive at a suitable mount for the equipment in the B-47 aircraft.

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The following opinions have been expressed by pilots who have made the flight tests:

1. With a suitable mount and shielding, no difficulty should be encountered in monitoring the IR signal.

2. A certain "feel" is developed for interpreting the signal and estimating changes in position after using the viewer for a while.

1. Auxiliary Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7".

(1) Date initiated: 12 July 1954

(2) Percentage complete. 40%

(3) Hours flown: 15:00

(4) Present status: Flight tests were run utilizing the ALT-7 as a radar jammer against the Mark II radar, and against a modified SCR-270. It must be noted that the modified SCR-270 does not possess the internal characteristics of the Russian Dumbo, which it simulates, and is probably an easier radar to jam. It is similiar to the Dumbo in single-lobe antenna pattern, frequency, pulse width, and PRF. the IF bandpass, however, is approximately 1.4 megacycles which is excessively wide for a radar using a 15 microsecond pulse.

The first test utilized two ALT-7's as spot jammers with fixed frequency transmission and narrow noise modulation. They were carried in a B-47 aircraft flying a radial track at 35,000 feet. At a range of 30 nautical miles, one transmitter achieved a condition four on the modified SCR-270, and a condition three on the MARK II. The results from two transmitters were only slightly better.

The above test is inconclusive since the MLQ-3, which monitored the test, indicated that the transmitters had drifted off frequency.

A second test was conducted using a KC-97 aircraft so that an operator could insure that the transmitters remain on frequency.

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Four runs were completed using one and two transmitters as swept jammers; and one and two transmitters as spot jammers, modulated with a narrow band of noise.

The following table indicates the best conditions obtained against SCR-270:

Configuration	Condition	Distance
One swept ALT-7	4	6 Nautical Miles
Two swept ALT-7's	Abort due to equipment malfunction	
One Spot ALT-7	5	78 Nautical Miles
Two Spot ALT-7's	5	103 Nautical Miles

A third series of flight test has been started, testing the frequency stability of the ALT-7 under condition of altitude and extreme cold. Preliminary results of these tests indicate an occasional failure of F-103 and the sweep motor, when the equipment is cold soaked and turned on after only one minute of warmup. Three ALT-7's have been loaned to AFOTC at Eglin Air Force Base for cold and altitude tests.

ALT-7's have been utilized in conjunction with SAC Project Number 27, "Chaff Corridor". While results of these tests are not conclusive, they indicate that 12 ALT-7's used at fixed frequency to barrage jam a 10 megacycle band centered at 70 megacycles will produce a condition five against the SCR-270. This condition occurs when the equipment is first turned on at a range of 175 nautical miles from the radar.

m. Auxiliary Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954

(2) Percentage complete: 75%

(3) Hours flown: See paragraph 4

(4) Present status; A total of 36 whip antennas have been modified by 7DCTT for test purposes.

(a) These have been manufactured in four different groups which have varying amounts of flying time and are now being used as indicated below:

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Group	Antenna Number	Flying Time	Location	Comments
	00	120 plus hours	Aircraft	See Par (b)
	1	15 plus hours	Aircraft	See Par (b)
	2	0 hours	WPAFB	See Par (b)
Group 1	3&4	15 plus hours	Aircraft	
	5	0 hours	SAAMA	See Par (b)
Group 2	6 thru 16	11 plus hours	Aircraft	See Par (b)
Group 3	17 thru 34	5 plus hours	Aircraft	
Group 4	SAAMA 00	0 hours	WPAFB	See Par (b)

1. As may be seen, this represents a total aggregate time of better than 300 hours without any failures. It should be pointed out, however, that individual cumulative time is rather small and there remains a possibility of eventual dissatisfaction with this arrangement. This is not very likely if the performance of antenna #00 may be taken as indicative.

(b) In the listing given above, a number of antennas are shown with a note referring to this paragraph for explanation of their status.

Antenna #1: After about 15 hours of flying time with a 40½ inch whip, this antenna was converted to a 30½ inch whip to see if the shorter whip would stay on the aircraft. This conversion was done on 28 September 1954.

Antenna #2: This antenna has no flying time. After manufacture, it was given to the Aircraft Radiation Laboratory at WADC to undergo tests and improvements. They have recommended a minor electrical change. This consists of silver soldering the spacing washer to the transition cone of the center lead-in coaxial conductor. This resulted in considerable improvement in the VSWR, according to informal reports received from WADC. Improvements are also being made to the matching section which accompanies the whip.

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Antenna #5: This antenna has no flying time. After manufacture, it was given to the ECM section of San Antonio Air Material Area (SAAMA) at Kelly Air Force Base, San Antonio, Texas. This was a model for their manufacture of 100 whip antennas. See Antenna "SAAMA #00".

Antenna #6: After about 10 hours of flying time, this antenna was converted to a 54½ inch whip. This long whip now has eight hours of flying time and no evidence of mechanical failure is indicated.

Antenna SAAMA "00": This is the first of the "manufactured" whip antennas. It is very similar in appearance to those produced at Barksdale, except the dimensions are different. They have been standardized for ease of production. The antenna incorporates the change outlined in the discussion of antenna #2, given above, reference the silvered cone extension washer. The first 50 antennas will be identical to this model. The remaining 50 will be streamlined. The antennas modified at Barksdale will be reworked to conform with the SAAMA production model. Present delivery dates call for the first 50 on 10 October 1954, with the remaining 50 on 10 November 1954. The antenna # SAAMA 00" is now at WADC undergoing tests.

(c) The receipt of a recent teletype message, WCLRC 31485, from WADC does much to clarify the general situation in regards to present plans for this series of whip antennas.

(d) In view of the above, and to allow for the maximum flexible arrangement, the stub base presently used to retain the whips will continue to provide a set screw on the side, allowing the whip to be removed and a different size whip inserted. Therefore, all bases may be utilized for any size whip desired.

The normal unmatched resonant points of these antennas are as follows:

30½ inch whip - 112 MCS
40½ inch whip - 86 MCS
54½ inch whip - 64 MCS

This provides a frequency spacing of approximately 20 MCS, and allows a considerable latitude of choice depending on tactical requirements. The 30½ inch whip, after matching, compares favorably with the AT-190, all things considered.

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This might be a possible solution to the AT-190 breakage problem discussed in this report. It may be noted that only the resonant points are given for the Antennas. The range of the whip may be extended by plus or minus 25% of its resonant frequency, by the use of matching sections as indicated in the table below:

30½ inch whip - 112 Plus or Minus 25% or 84 to 140 MCS
40½ inch whip - 86 Plus or Minus 25% or 60 to 112 MCS
54½ inch whip - 64 Plus or Minus 25% or 48 to 80 MCS

This is calculated for a VSWR of five to one, or below, which is required for operation of the ALT-7. The particular type of matching influences these figures considerably. Therefore, the above figures should be taken as only very rough approximations. Work is still in progress to improve matching sections.

n. Auxiliary Project Number 24, "Effectiveness of Tests of QRC-8".

(1) Date initiated: 2 October 1954

(2) Percentage complete: 10%

(3) Hours flown: None

(4) Present status: The 3.5 to 5.0 megacycle coils mentioned in the previous report which were returned to Hallicrafters for re-winding have been received back at this organization. They no longer overheat, but the power output is 0.5 to 1.0 db less and the bandwidth 200 KC narrower than the coil fabricated by 7DCTT for this band. Flight tests scheduled for next month may show satisfactory effectiveness of this coil; if this is the case, no further action need be taken for the 3.5 to 5.0 megacycle operation of this equipment.

A series of tests have been completed using a four KV power supply with the QRC-8 transmitter. After 25 hours of operation there was no deterioration of the components of the transmitter. The power output of the equipment was the same as registered at the start of the tests. Altitude chamber tests are scheduled to be completed in the first week of October at Barksdale.

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A considerable amount of work was completed this month in preparing the QRC-8 and the 18-S4 to operate non-simultaneously on a 70 foot antenna to be placed on the B-47. This work consisted of testing an antenna tuning capacitor for tuning the ARC-8 to the 70 foot antenna at any frequency required in the 3.5 to 5.0 megacycle band, and of preparing antenna switching relays for installation on the equipment. OCAMA has been requested to procure 50 Jennings 500 MMFD 5 KV variable capacitors from Jennings Radio in San Jose, California. These capacitors are actually being procured through the Douglas Aircraft Comapny at Tulsa, Oklahoma from funds authorized for "Blue Cradle". Male and female dies have been fabricated to form fiber glass covers for these tuning capacitors. This cover is necessary to prevent the pilot from inadvertently touching the capacitor and being severely shocked. Two of the covers are complete. The drill jigs for the mounting holes for the covers are now in the process of being fabricated. The parts for the fabricating of the antenna switching relays arrived during the month. The relays have been assembled and ten aircraft have been completely wired for relay switching to either the 18-S4 or QRC-8.

Flight tests of the QRC-8 in the band or 3.5 to 5.0 megacycles will be conducted during October. Copper wire for winding additional antenna tuning capacitors is on hand, however, the coils will not be fabricated until all other QRC-8 testing has been completed. The coil to be wound will be used with 5.0 to 6.5 megacycle band and 2.0 to 3.5 megacycle band.

Standard operating procedures covering transmitter tuning and antenna matching have been prepared and are in the process of being edited. They will be printed and distributed to the operating agencies.

o. Test Project Number, "Operational Test AN/APS-54".

(1) Date initiated: 18 June 1954

(2) Percentage complete: 42%

(3) Hours flown: 14:00

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(4) Present status: Two flight tests were conducted during the month of September. Both flights consisted of runs against an RBS Site. The first flight test was not considered successful, because each time the A-5 tail radar was placed in operation, the tail warning light of the APS-54 would come "on" and remain lighted as long as the A-5 radar remained in operation. The WADC representative conducted several experiments to obtain successful blanking of the A-5 radar in an attempt to prevent continuous illumination of the APS-54 tail warning light. He arrived at a tentative fix by taking the 100 volt blanking pulse from the IFF blanking jack and feeding it into the APS-54. A second flight test of the APS-54 proved to be successful. The equipment operated satisfactorily with both the APS-23 and the A-5 radars in operation.

(a) Flight tests conducted to date, indicate that adjustment of the gain control is not critical. Variations from maximum sensitivity to minimum sensitivity reduces the range approximately 30 miles.

1. With the gain setting a medium, the nose light comes on at an average range of 40 miles from the ground radar. The tail warning light comes on at an average range of 12 miles prior to reaching the radar site.

2. As the aircraft flys beyond the radar, the nose warning light goes out at an average range of 11 miles beyond the radar, and the tail warning light remains lighted until the aircraft is approximately 45 miles beyond the radar.

3. The distances listed above are an average of 26 runs made to date against RBS radars of the MSA-2 type.

(b) Some deficiencies were discovered in the handbook of instructions during these tests. A meeting is being held on 30 September at Building 125, Wright-Patterson Air Force Base, Ohio for the purpose of correcting these defects.

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Two members of the 376th Bombardment Wing are attending this meeting.

(c) From the results of the tests to date, it appears that a portion of the difficulties experienced with the APS-54 can be attributed to the equipment and handbook of instruction. A portion of the difficulties encountered have been in the aircraft installation.

(d) The WADC representative stated that upon his return to Wright-Patterson Air Force Base, he would recommend that a representative, qualified on the APS-54, be sent for a period of 30 days TDY to the 376th Bombardment Wing to assist in determining and correcting equipment and installation defects. It is felt that the assistance of such an individual would be invaluable in solving the APS-54 problem.

(e) A maintenance team was organized to correct the errors in installation and equipment malfunctions. Nine aircraft have been checked to date. None were operational. Two Unsatisfactory Reports have been submitted and several more are under study. The following is a list of prevelant discrepancies:

1. Aft antenna cable, external conductor, was grounded to aircraft in pressure seal at station 329.

2. Forward antenna cable, external conductor, was grounded to aircraft pressure seal.

3. A-5 blanking pulse cable terminals were missing.

4. Aft antenna cable and A-5 blanking cable switched.

5. Aft antenna cable not connected.

6. Improper terminal on tail antenna cable. Adapter used to make connection grounds to aircraft chassis.

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7. Nose antenna cable shorted, center to outer conductor.

8. Bad cyrstals

9. Wrong type crystals (IN 23A for IN 23B)

FOR THE COMMANDER:

WILLIAM H MURPHY
Major USAF
Adjutant

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HISTORICAL REPORT FOR THE MONTH OF SEPTEMBER 1954

376th Wing Maintenance Control Unit

Reports And Analysis and Control Unit

1. The Wing average possessed aircraft was seventy (70) for the month. The average in-commission rate was 69.76%. A total of 1832:15 hours were flown; for an average of 26:12 hours for possessed aircraft. The Wing AOCP rate was 10.09% as compared to 10.21% for the previous month. There were 36.2 direct manhours expended per flying hour. The wing expended 49% of available manhours as direct time.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 Aircraft:

The Wing has an average of forty-eight (48) B-47 aircraft possessed for the month. Average in-commission rate was 69.35% compared to 76.48% for the previous month. Total hours flown were 1230:10 for an average of 25:40 per possessed aircraft. The AOCP rate was 11.18% a slight decrease from 11.56% for tne previous month. Direct manhours per flying hour was 46.7 hours.

b. KC-97 Aircraft:

The Wing had an average of Twenty-two (22) KC-97's possessed for the month. The average in-commission rate was 70.65% compared to 79.58% for the previous month. Total hours flown were 602:05 for an average of 27:18 per possessed aircraft. The AOCP rate was 7.72% a slight increase over 7.28% for the previous month. Direct manhours expended per flying hour was 26.2 hours.

3. There were forty-two (42) malfunctions for the month compared to fifty-nine (59) for the previous month. Following is a breakdown of causes by system and agency responsible.

	System	No	Agency Responsible
B-47			
	Bombing	2	Maintenance Personnel
	Bombing	11	Material Failure
	Air Refueling	1	Other
	Power Plant	1	Air Crew
	Power Plant	2	Material Failure
	Power Plant	1	Other
	Aircraft General	1	Air Crew
	Aircraft General	3	Maintenance Personnel
	Aircraft General	6	Material Failure
	Aircraft General	3	Other
		31	
KC-97			
	Power Plant	3	Material Failure
	Propeller	2	Material Failure
	Aircraft General	2	Maintenance Personnel
	Aircraft General	4	Material Personnel
		11	

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4. A total of sixteen (16) B-47 engines were changed during the month compared to eight (8) for the previous month. A total of three (3) KC-97 engines were changed during the month compared to six (6) for the previous month. Average time B-47 engine change was 114 hours. Average time KC-97 engine change was 205 hours.

5. During this period a total of 101,957 manhours were expended as direct time, 105,547 hours were expended as indirect time, 9,712 hours overtime. A total of 15,000 hours were given for pass time. Manhours available for work were 207,404 and 56,885 were reported as absent time.

TOC & RECORDS

1. There were a total of sixteen (16) engine changes on B-47 aircraft with an average engine operating time of 114 hours and three (3) engine changes on KC-97 aircraft with an engine operating time average of 205 hours.

2. There were 29 new T.O.'s received during the month.

3. There were 749 TOC accomplished during the month.

4. Approximately 95 component parts were changed on KC-97 aircraft and approximately 45 component parts changed on B-47 aircraft. Reason for drop in number of parts changed on B-47 aircraft was T.O. 1B-47A-6 deleted approximately half of the time change items.

AIRCRAFT MAINTENANCE STANDARDIZATION TEAM

Numerous training evaluation tests were given to maintenance personnel in the Wing. Several SOP's were written and submitted for publication. An extensive OJT monitoring program is being carried out throughout the Wing. All malfunction reports were monitored and a summary prepared. The team assisted the ECM section im making B-47 PI cards, and putting the cards on the sequence chart. PI cards for seat ejection were made. Materiel for "Maintenance Memo's" were gathered and submitted for publication. All malfunctions and engine changes were investigated by this section.

QUALITY CONTROL

1. During the month of September 1954 the Quality Control Unit inspected three (3) KC-97, five (5) B-47 type aircraft and three (3) C-47 type aircraft processed through Maintenance Docks. The Unit also performed IN-Commission inspections on Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications outlined in SAC Manual 66-12.

3. The Unit supervised ten (10) KC-97 type aircraft and twelve (12) B-47 type aircraft and two (2) C-47 type aircraft test hops during the month of September.

4. Three-hundred and forty-three (343) Unsatisfactory Reports were submitted during the month of September.

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SUPPLY LIAISON

1. During the month of September a total of 69 line items were reported as AOGP. Fifty-seven (57) items for B-47 aircraft and twelve (12) for KC-97 aircraft.

2. Recurring AOGP items are as follows:

1AFE-FCD29166M	Cell	(B-47)
4305-391082-8 &-9	Carb	(KC-97)
1AFE-9-26164	Drive	(B-47)
6600-458892-5	Hose	(B-47)
6025-1297B8-04	Indicator	(B-47)
6126-149E27	Indicator	(B-47)
6040-674090	Indicator	(B-47)
6025-739CX4-023	Indicator	(B-47)
6025-716BK8-036	Indicator	(B-47)
4248-B71147	Inverter	(B-47)
4839-TF57300-7	Pump	(B-47)
3380-574275-5565	Relay	(B-47)
4504-30016-1	Regulator	(B-47)
4815-102221	Valve	(B-47)

3. All wing B-47 and KC-97 aircraft were 100% ANFE for the month.

4. A total of 108 cannibalizations were made in the wing. Ninety-three (93) for B-47 aircraft and fifteen (15) on KC-97 aircraft

/s/t/ROBERT S MILNER
LTCOL, USAF
Chief of Maintenance

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Consolidate Send to 7AB

SECURITY CLASSIFICATION (If any)

DISPOSITION FORM

FILE NO.

SUBJECT Historical Report for Month of September

TO 7DM FROM 7DMS DATE 6 October 54 COMMENT NO. 1

1. The UEE percentages as of 25 Sept. 54 for organizations of the Wing are as follows:

Hq Squadron - 86%	Fld Maint Sq - 88%
512th Bm Sq - 89%	Per Maint Sq - 92%
513th Bm Sq - 86%	Air Refueling - 92%
514th Bm Sq - 89%	Tac Hospital - 88%
A&E Maint Sq- 80%	Wing Average - 88%

2. Percentages of special purpose clothing as of 5 Sept. 1954 for organizations of the Wing are as follows:

	Air Crew	Survival	Ground Crew
Hq Squadron	94	100	51
512th Bm Sq	92	92	78
513th Bm Sq	76	90	60
514th Bm Sq	86	93	46
A&E Maint Sq	88	35	55
Fld Maint Sq	64	70	42
Per Maint Sq	81	100	66
Air Refueling	94	95	59
Tac Hospital	95	100	55
Wing Average	89	93	55

W M Power Jr

WILLIAM M. POWER, JR.
Captain, USAF
Chief of Supply

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED

AIR FORCE - 2AF BARKSDALE SEP

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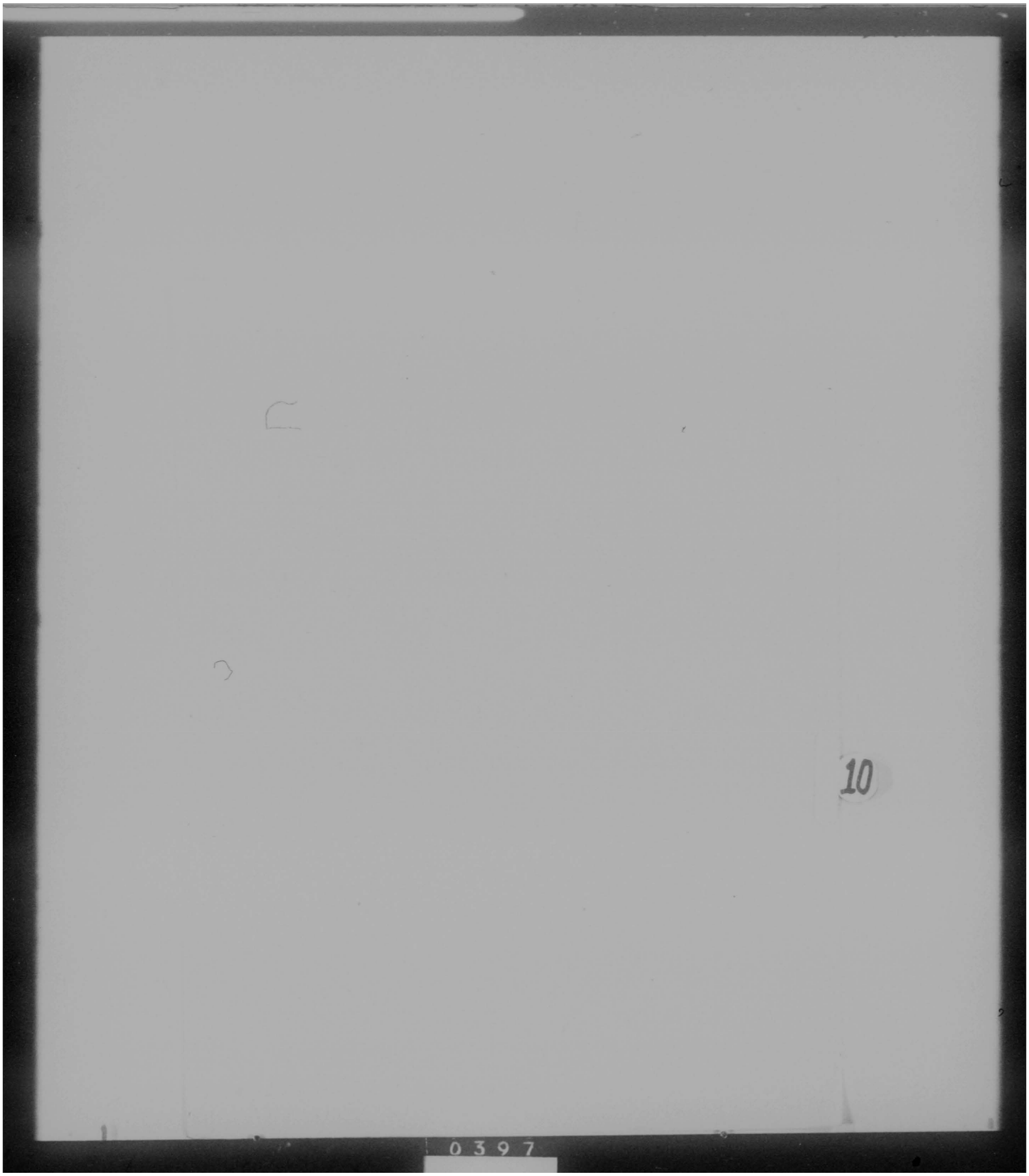

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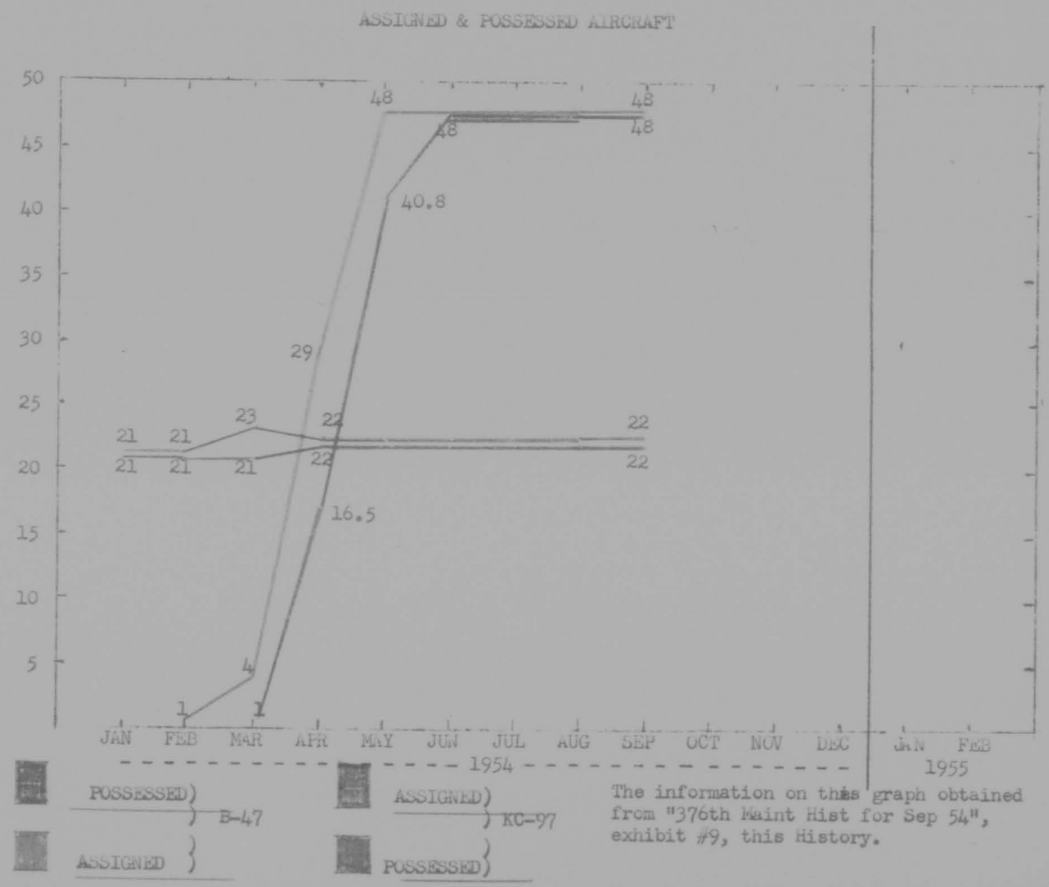

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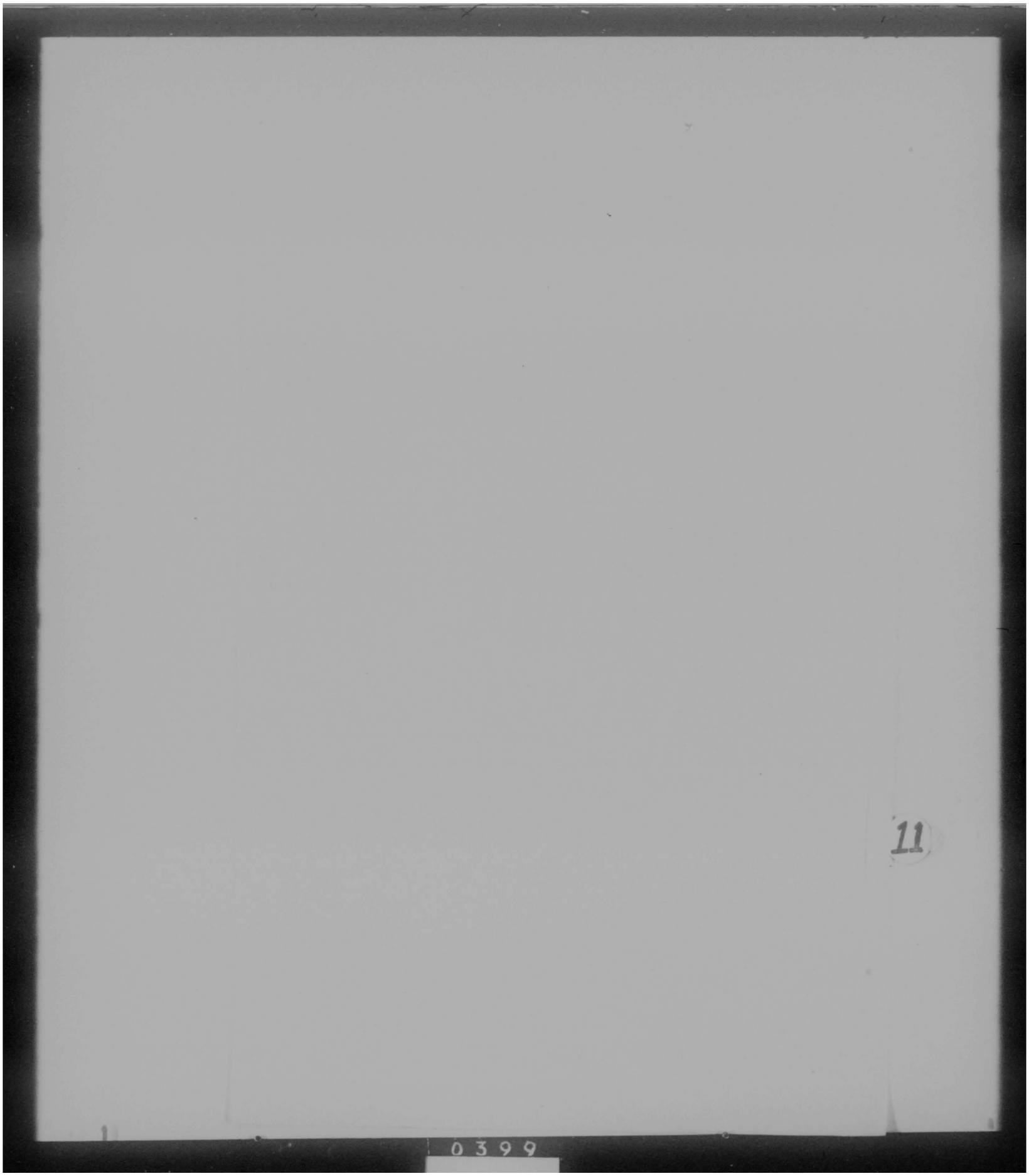

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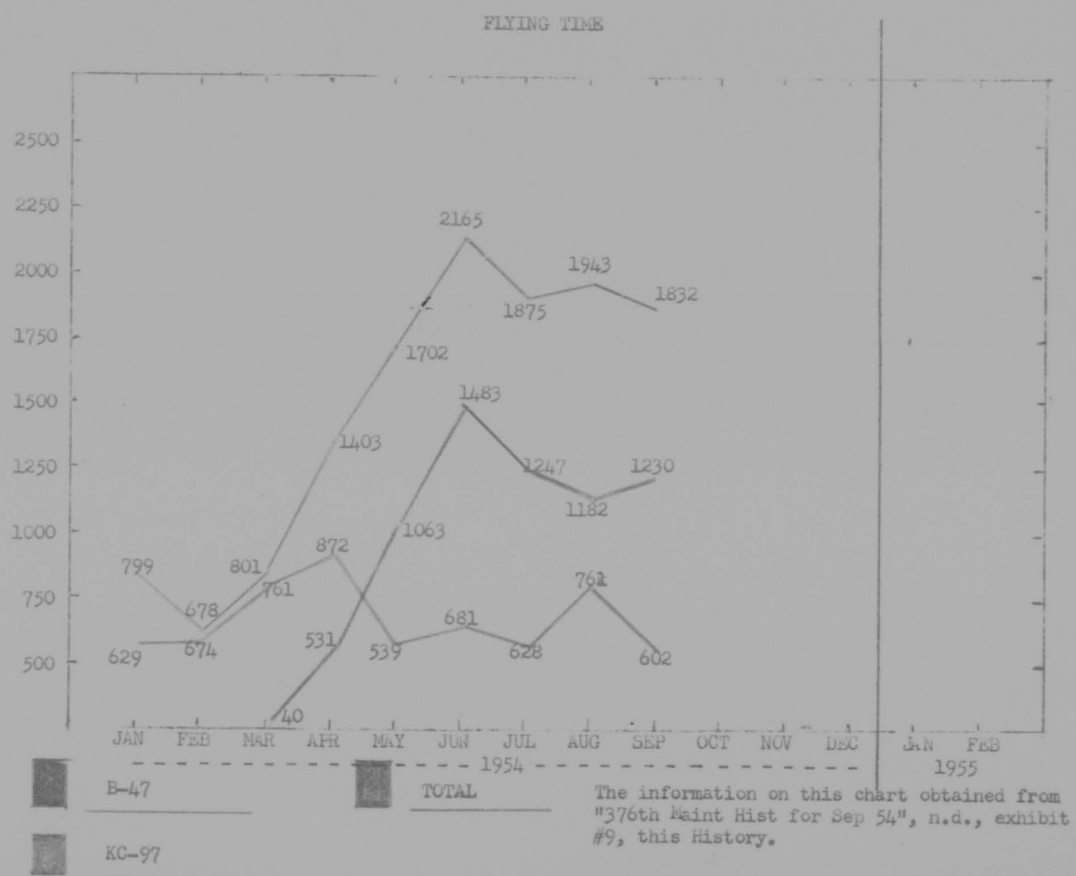

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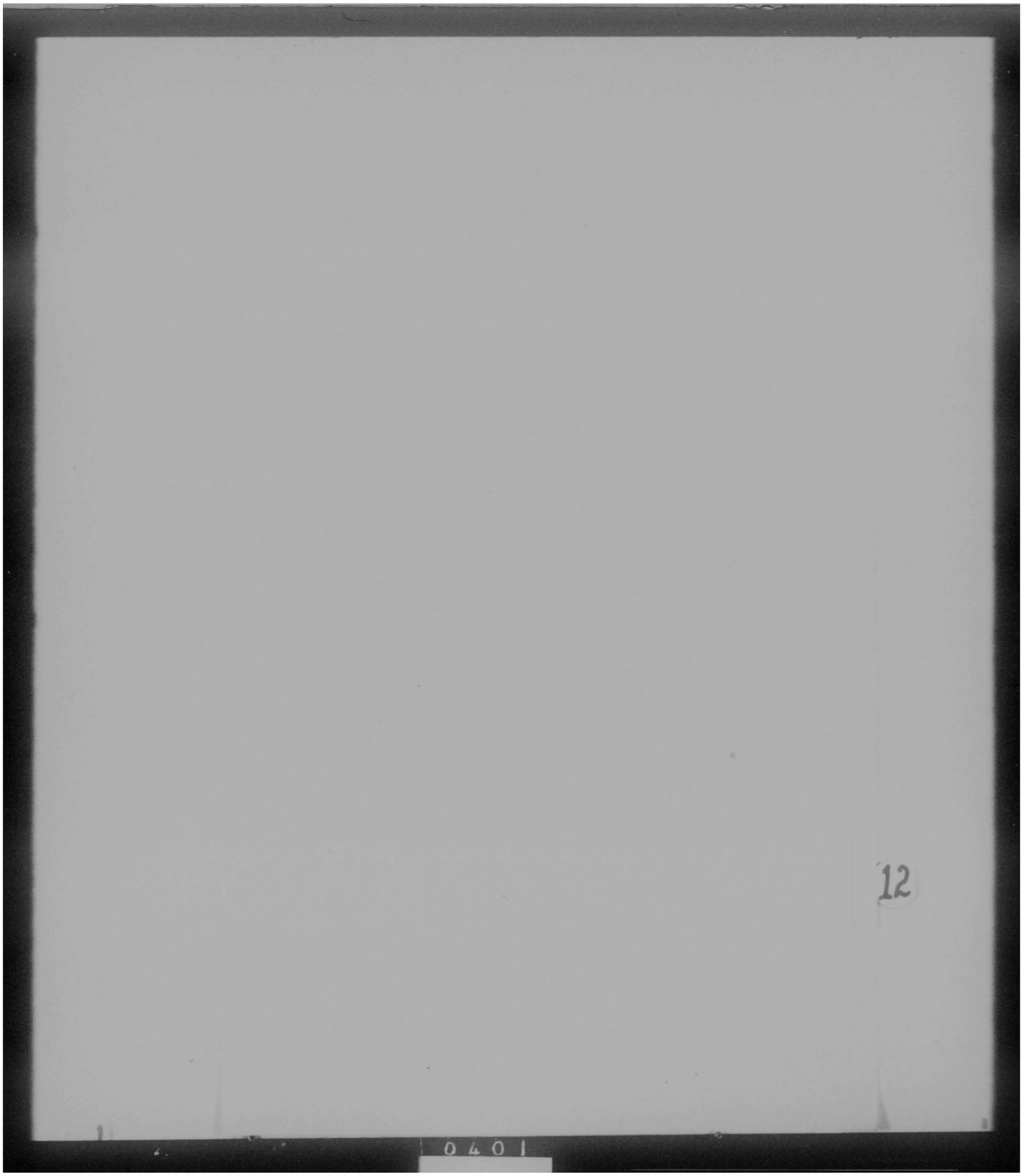

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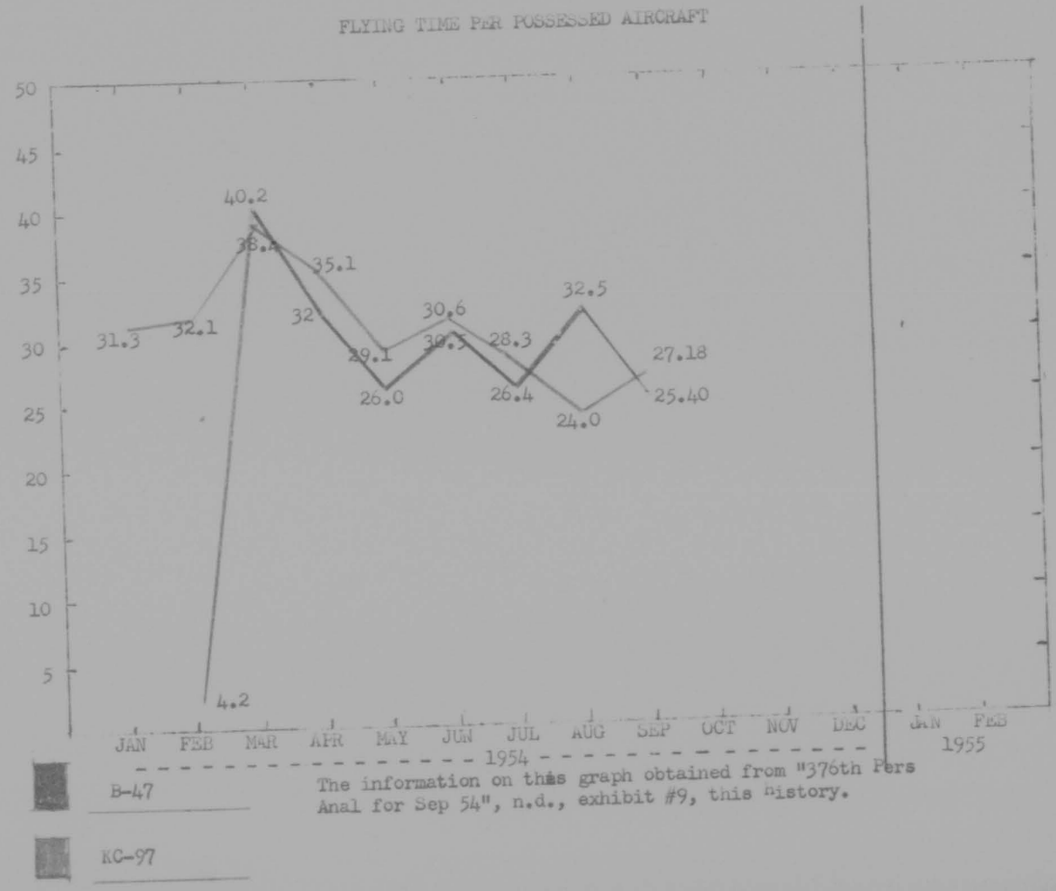
FLYING TIME PER POSSESSED AIRCRAFT



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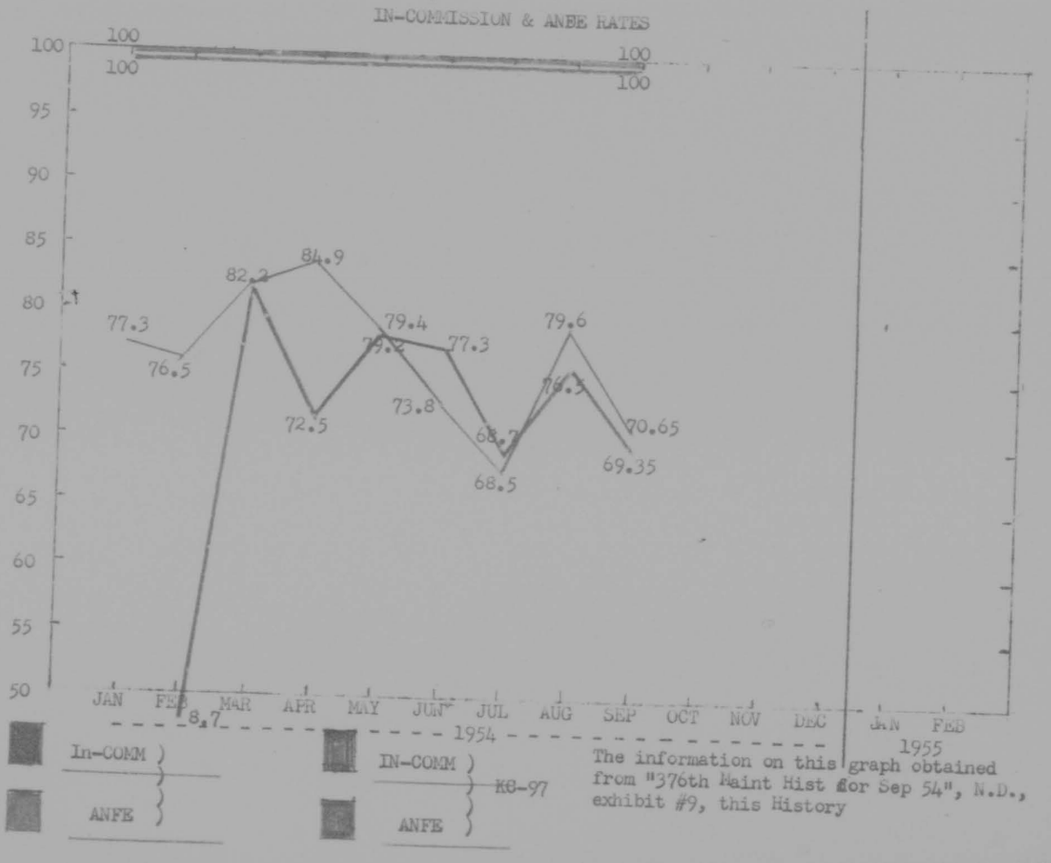

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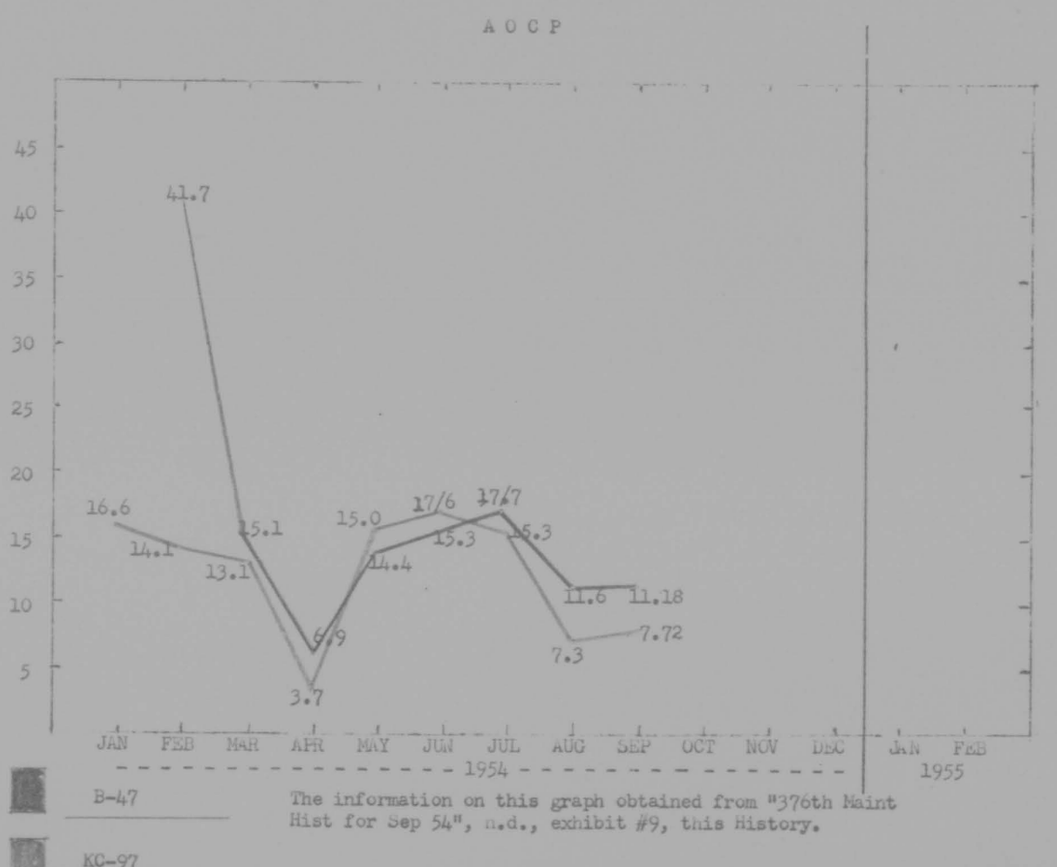

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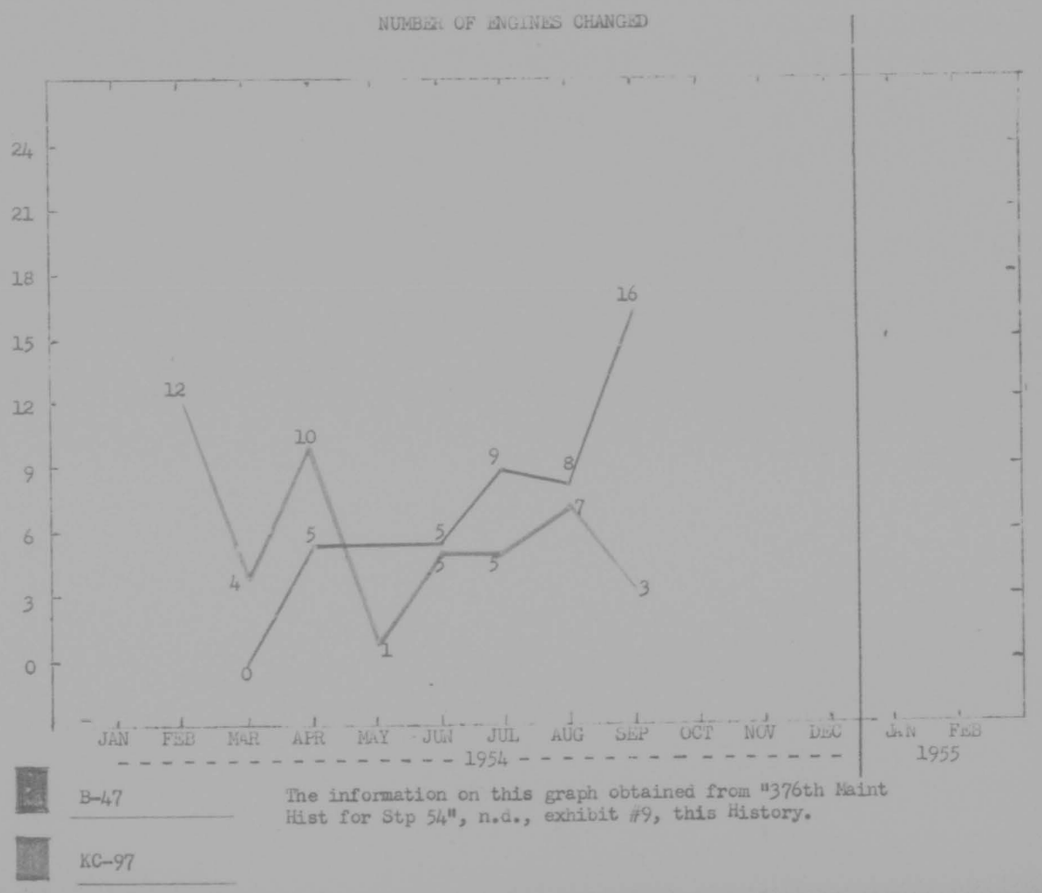

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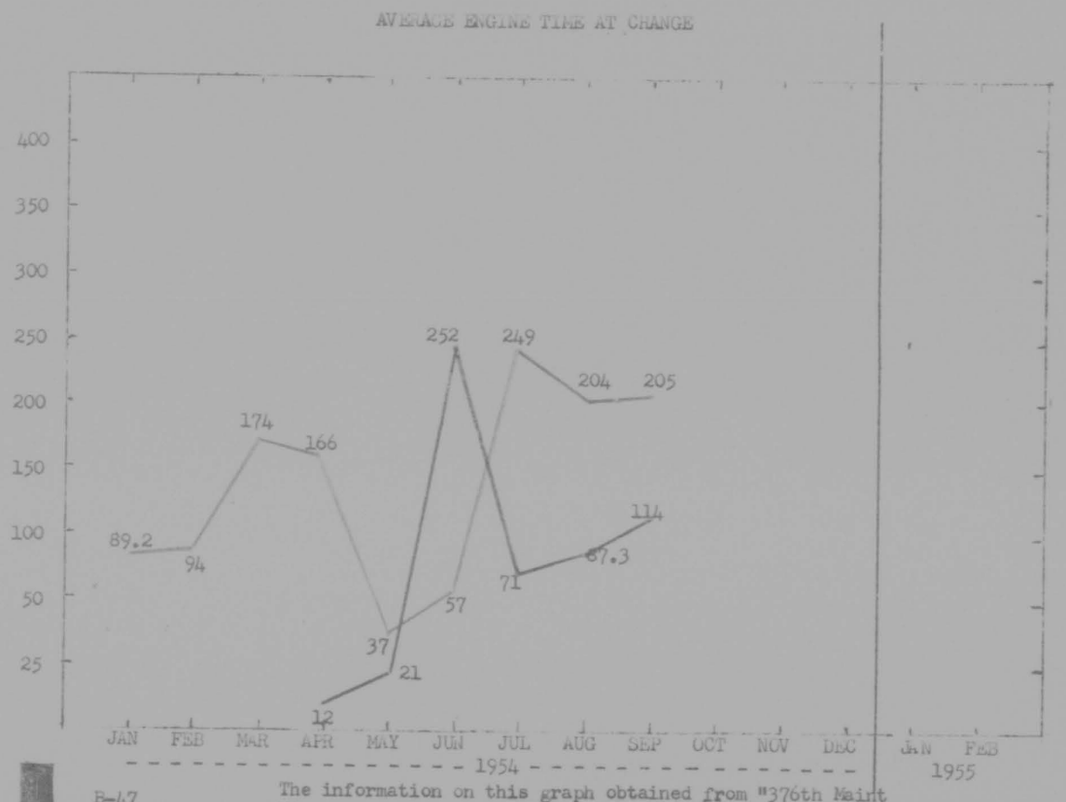

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DISPOSITION FORM

SECURITY CLASSIFICATION (If any)

C C
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FILE NO.

SUBJECT: Engine Changes

TO: 7D/M

FROM: 700

DATE: 30 Aug 54

COMMENT NO. 1

1. Due to what I consider the excessive number of engine changes this Wing has experienced in the last few months, request that you take the following action:

a. Notify me in writing of each engine change.

b. Submit a report of an informal investigation of each engine change where it is suspected that an engine change is due to foreign object entering the air intake.

/s/t/JOHN P. PROCTOR
Colonel, USAF
Commander

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THIS IS A TRUE COPY.

William H. Murphy
Major, USAF, Wing Adjutant

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FILE NO.

SUBJECT: Engine Change Due to Foreign Objects

TO: 7CO

FROM: 7DM
Lt Howley/2571
(_____)

DATE: 10 Sep 1954

COMMENT NO. 1

1. There have been six (6) jet engine changes from 1 Sep through 10 Sep 54. Of these six changes, five were for spacer ring rub. One engine was removed for damage by foreign object.

2. Aircraft 52-431 - #1 Engine:

a. Inlet guide vanes and 1st stage rotor blades damaged beyond repair. Damage discovered at post flight. Cause unknown. Aperiodic insoection was completed 18 August 54. Aircraft went to Tulsa 19 Aug 54 and returned on 31 Aug 54. Damage discovered during post flight upon return.

b. Minor repair was required on new engine when small nicks were found in 1st stage rotor blades after run-up. Damage believed to be caused by some small object such as a piece of safety wire. Nicks filed out. Engine OK.

/s/t/RALPH T HOLLAND
Colonel, USAF
Director of Materiel

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THIS IS A TRUE COPY.

William H. Murphy

William H. Murphy, Major, USAF

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FILE NO. | SUBJECT: Engine Changes

TO 7DM | FROM 7DMM/2271 (Maj. Evans____) | DATE 13 Sep 54 | COMMENT NO. 1

1. Aircraft Ser. No. 52-439, 513th Sq. During Post Flight, 13 September 1954, when engine was motored over, a noise was heard near the center section of the engine. The General Electric Tech. Rep. Mr. Wilson was called to listen to the noise and help in diagnosing trouble. He advised #2 bearing failure in #6 engine. There has been no reported difficulties with this engine in the past. It has a total time of 140:00 hours. A check of oil filters revealed very fine etal particles. Now undergoing engine change.

2. Aircraft Ser. No. 52-409, 513th Sq. During Post Flight, 13 September 1954, nicks were found in 1st and 2nd stage rotor blades, #3 engine, beyond allowable limits. A work order was called in at 10:15 hours. Inspectors from Quality Control and General Electric Tech. Rep. investigated and found the Safety lock ring from the P. T. O. (Power-take-off) case came out of position and went through the engine apparently on the last flight. This lock ring was either not locked in position or broke. Engine time is 96:00 hours. Engine being removed for overhaul and investigation to determine cause of lock ring failure.

/s/t/ROBERT S. MILNER
Lt Col, USAF
Chief of Maintenance

COMMENT #2

TO: Commander, 376th Bomb Wing -

Two engine changes - one for foreign object - if further investigation reveals what happened to the safety lock ring I will advise you.

/s/HOLLAND

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William H. Murphy

William H. Murphy, Major, USAF

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DISPOSITION FORM

FILE NO. | SUBJECT Engine Changes

TO 700 | FROM 7DMM/McKee/857 | DATE 20 Sep 54 | COMMENT NO. 1

1. Four (4) J-47 engines and one (1) R-436- engine were change on the 16th and 17th of September. Listed below are the reasons for these changes:

a. B-47 Serial Number 52-409 Engine Number Six (6). After a flight on the 8th of September, the pilot wrote up the oil pressure as being high and stated that the pressure indicated 27 psi above 70%. The transmitter was changed and the aircraft flew five and a half (5½) hour mission with a normal pressure reading. On the 15th of September during the pilots preflight the oil pressure went to 32 psi at 100%. The normal pressure at 100% would be approximately 23 psi. The transmitter was again changed but did not correct the trouble. The General Electric Technical Representative was then called and he proceded to "blow out" the oil line using an air compressor. Through an error on his part, he connected the air pressure to the oil return line instead of the pressure line with no results. He then recommended an engine change. The Standboard Team was not notified until after the engine change had been accomplished. During the investigation by the Standboard Team, it was indicated by the crew chief that he was not familiar with the "trouble shooting" procedures for jet engines since nothing had been done to find the trouble other than call the General Electric Representative. It was during this investigation that the General Electric Representative's error was found. The jet engine minor repair section was notified and it was recommended that the pressure line be pressurized using air and the engine then be checked in the test cell.

b. KC-97 Serial Number 52-908 Engine Number Four (4) was changed on the 15th of September for internal failure. Cylinders three (3) four (4) and five (5) in D row had separated slightly from the crankcase and the crankcase bolts between C and D row had been stretched.

c. B-47 Serial Number 52-400 Engine Number Three (3) was changed on the 16th of September for foreign object damage to the inlet guide vanes, the first row of rotor blades, and to the second row of stator blades. Any additional damage will have to be determined through minor repair. The damage was found by the post flight crew after a flight. At present it is impossible to determine what caused the damage but in the immediate area were found several steel bristles from the ramp sweeper. The Flight Chief was instructed to have his men police the area and to inform them of the Wing Policy of keeping the ramp clean at all times, by having the steel type sweeper brushes changed to the fibre type and to caution all crew chiefs against leaving their area in a disorderly condition after maintenance has been preformed.

d. B-47 Serial Number 52-394. Two (2) engines were change on this aircraft for foreign object damage. Engine number three (3) was changed on the 16th of September for damage to the rotor blades. The damage was found by the post flight

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crew. Engine number four (4) was changed on the 17th of September for damage to the first row of rotor blades. The engine was preflighted by the ground crew and then taken to the run-up area for an accelleration check. After this check the aircraft was returned to the ramp and made ready for flight. The damage was found during the air crew's preflight. It is apparent that what ever entered the engine, did so, at the run-up area.

/s/t/RALPH T. HOLLAND
Colonel, USAF
Director of Materiel

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William H. Murphy

William H. Murphy, Major, USAF

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DISPOSITION FORM

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FILE NO.

SUBJECT: Report of Engine Change

TO 7COM

FROM 7DM/622

DATE 30 Sep 54

COMMENT NO. 1

LT CRAIG/857

Engine #1 on aircraft # 421 was changed on 29 Sep 54 due to excessive vibration. It was found that the spacer ring was worn through completely on this engine.

/s/t/RALPH T HOLLAND
Colonel, USAF
Director of Materiel

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William H. Murphy
Major, USAF, Wing Adjutant

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 October 1954

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-0119, For Month Ending 30 September 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Eugene D. Pearson
(departed September 30, 1954)
Mr. Henry J. Kronlage
(arrived September 15, 1954)

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom:

a. Five (5) men from the auto-pilot section attended two (2) courses on the A-12D Gyropilot* during the month of September. The first course was a review on the Interlock and signal circuits. The second course was of a familiarization nature to acquaint men recently assigned to the auto-pilot section with the overall operation of the A-12D Gyropilot*. These men will attend the MTD as soon as time permits. AFSC's of the men in class were 40453 (3) and 40471 (2).

b. Below is a summary of the hours devoted to instruction and preparation of instruction.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Gyropilot*	21	5	48
Preparation of Material	7		

*Reg. U.S. Pat. Off.

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2. Planned OJT:

a. Below is a summary of the Planned OJT given during the month of September.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Test Procedures	12	6	12
A-12D Theory	26	8	32

3. Informal OJT:

a. The following OJT was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (3) 4313's (3) 40433's, (5) 40470's and (5) 40471's available for training.

b. A summary of the Sperry Field Engineers' time spent for informal OJT is as follows:

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	35	7	54
Trouble Shooting	52	12	62

c. The writers upon specific request also rendered technical advice and information to the men concerning various portions of the F-1 Bendix Auto-pilot and the Kearfott N-1 Compass.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
F-1 Auto-Pilot	8	4	12
N-1 Compass	12	7	30

d. Of 240 hours of available instruction time 173 hours were used for training.

IV. UTILIZATION:

1. The primary purpose of the writers' assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

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2. The services of the writers are estimated to be termina in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. During the month of September an aircraft was written-u for altitued control not holding the airplane on the re erence altitude. The altitude control unit was found t have a high uncaged null and was replaced.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failures.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. During the month of September the Base Photo Laboratory made a number of photostatic copies of the auto-pilot circuits and the tied-in equipment. These schematics were made into booklet form and given to every man in the auto-pilot section. It is expected that these book lets will be of great value to the maintenance personne since it contains sufficient information to locate any auto-pilot malfunction.

2. Two scorsby tables were received by the auto-pilot fiel maintenance section during the month. This test fixtur makes it possible for the men to rebalance vertical gyr and thus increase the performance of the unit. Since the fly-away mock-up cable for the vertical gyro is not long enough to permit use of this test fixture, an ex- tension cable is being fabricated.

X. GENERAL REMARKS:

1. Mr. Eugene D. Pearson was recalled to New York by Sperry Gyroscope Company during the month and departed the Base on 30 September. Mr. H. J. Kronlage arrived on 15 September, to replace Mr. Pearson.

Henry J. Kronlage

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

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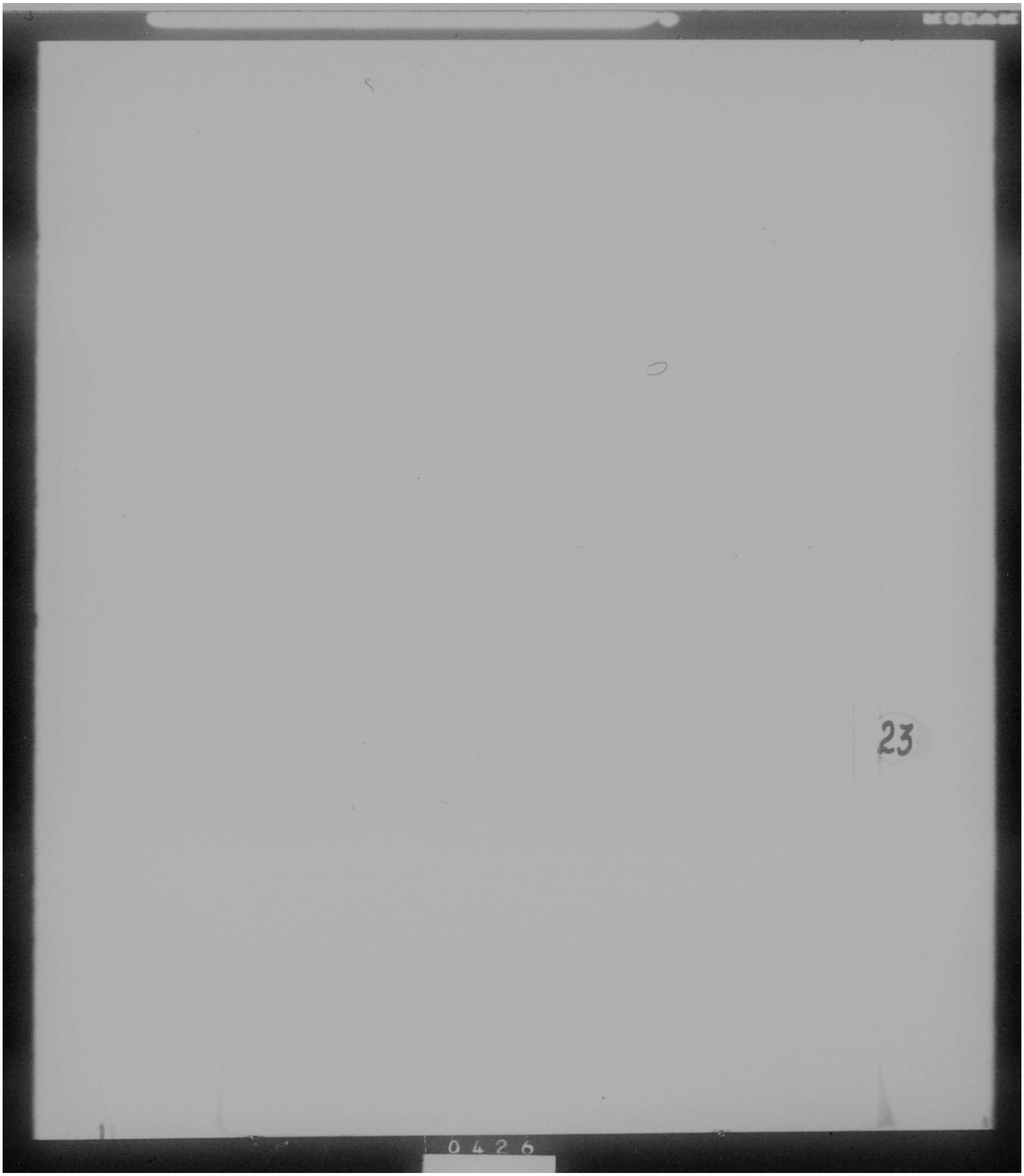

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376TH ARMT & PLYCT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 October 1954

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954 submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Arthur G. Jolley

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom.

a. Twenty-six A-5 airmen (AFSC 32330C) received 520 man hours of instruction in Basic Mathematics and Electronics employed in the A-5 Fire Control System. This course was given in eight classes of 20 hours each. Total time 160 hours.

2. OJT:

a. Twelve A-5 airmen were given 48 man-hours of instruction while working modifications called for in Field Change Notices. Total time 24 hours.

b. Eight A-5 airmen received 160 man-hours of instruction while trouble shooting difficult line malfunctions. Total time 20 hours.

c. Four A-5 airmen received 100 man-hours of instruction while trouble shooting difficult malfunctions in the A-5 shop. Total time 25 hours.

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d. Two A-5 Airmen received 24 man-hours of instruction while setting up the AN/APG 32A mock-up in the A-5 Shop. Total time 12 hours.

3. Twenty-four hours were expended in class room preparati This included preparing course outlines, preparing examination and correcting examinations. Total time 24 h

4. Training Program:

a. Available time 280 hours
Total training time 265 hours
Training Per Cent 94%

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration, and maintenance of the A-5 Syst and training of aircrew personnel in operation and in-flig maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate our services to be for an indefinite period.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. E. M. Pearman, who went on emergency leave 30 August 1954, was permanently replaced 6 September 1954 by Mr. Arthur G. Jolley.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley

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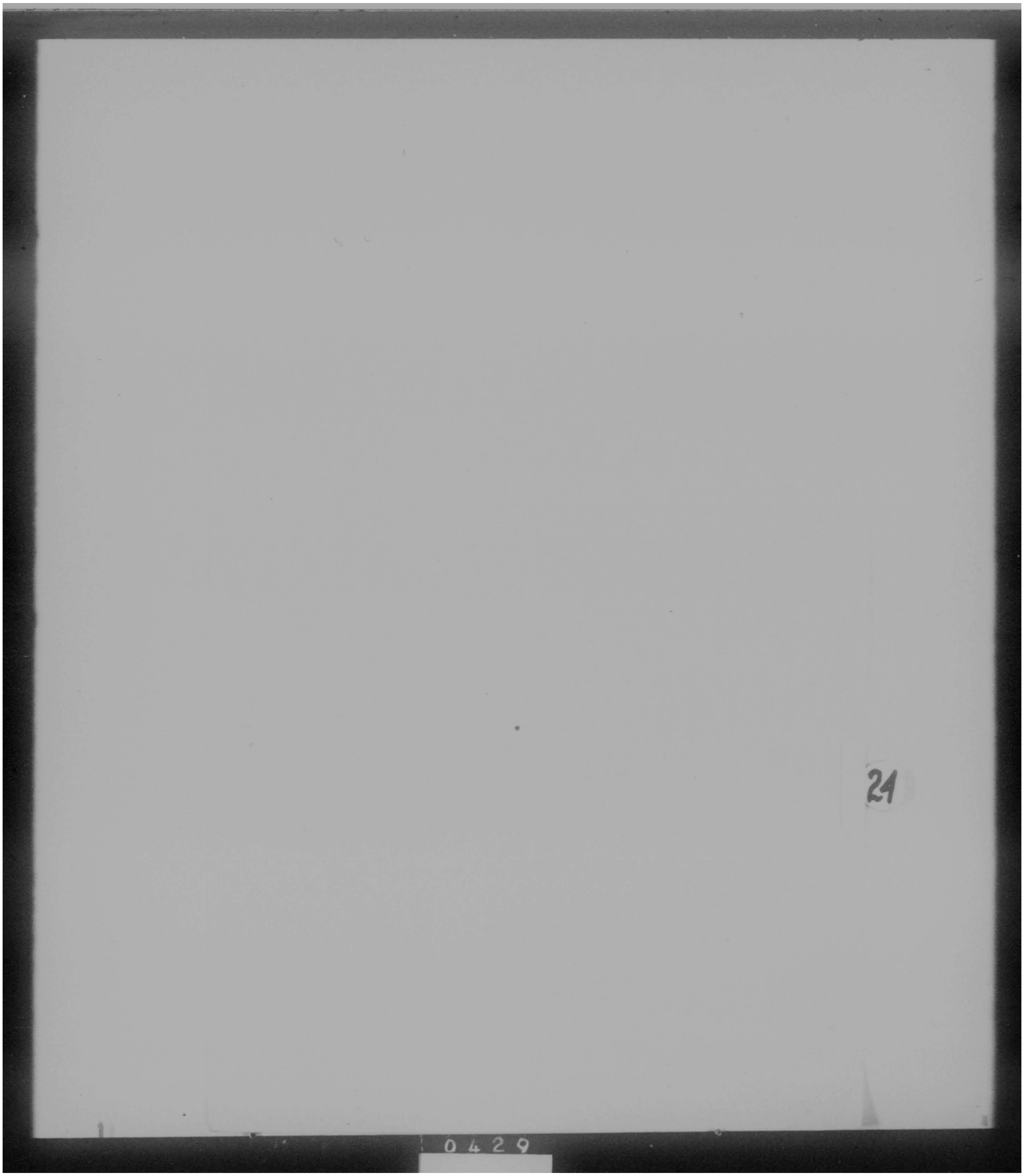

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 October 1954

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-4U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert J. Lenes, General Mills, Inc.
Mr. Allen R. Jones, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigation System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Two (2) twenty hour courses and two (2) four hour courses were conducted during the month of September. This includes a new four hour course on the Forward Sighting Loops. These courses were conducted by Field Engineers of General Mills, Inc., Sperry Gyroscope Co. and Western Electric Co.

b. An overall K-System trouble-shooting course outline has been completed. The implementation of this course in the training program should increase the effectiveness of the program considerably. Power for this mock-up is not available at this time.

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c. The symposium type class for operator training is continuing at a satisfactory attendance rate. This training is being supplemented with training materials included in the monthly 376th Wing Observer's Digest.

d. The following is the status of classroom training for the month of September 1954. All students had 32130 AFSC's with the exception of the Observers whose AFSC is 1544B.

SUBJECT	COURSE (hrs)	No. Instrd to date	No. Instrd in Sept	Inst Man-hrs	Stu. Man-hrs
D-2 Nav Unit (Sp)	4	84	28	28	112
Symposium (Sp & W.E.)	3	206	65	96	260
AFS/23 Trouble Shooting	20	22	18	88	360
Optical Test Equipment	20	22	18	88	360
Forward Sighting	4	61	61	56	244

Total Student man-hours of training for September - 1336

2. OJT:

a. OJT during the month of September included test equipment alignment procedures, system analysis and trouble-shooting.

PLANNED OJT

Subject	Instructor Hours	Student Hours	Students
Test Equipment and Alignment Procedures	55	152	10

INFORMAL OJT

Subject	Instructor Hours	Student Hours	Contacts
System Analysis	417	814	532
Trouble Shooting	79	208	60

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of September for a total of 1260 man-hours. Of this total, 907 man-hours were utilized for formal and OJT training.

0431

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U13, For Month Ending 30 September 1954

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4 Bomb-Navigation System and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System Field Engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS: Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. D. G. Doherty, Sperry Gyroscope Company Field Engineer began his yearly two week vacation on 29 September 1954.

2. Mr. M. S. Kotula, Sperry Gyroscope Company Field Engineer returned from a SAC training conference 3 September 1954.

Michael S. Kotula — Allen R. Jones — Robert J. Lenes

MICHAEL S. KOTULA	ALLEN R. JONES	ROBERT J. LENES
Field Engineer Coordinator	Field Engineer	Field Engineer
Sperry Gyroscope Company	Western Electric Co.	General Mills, Inc.

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 October 1954

Contractor: Dynamic Electronics Inc.
Forest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN /ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal classes were held on the AN/ALT-7 for 21 airmen, composing of 19 airmen TDY from other SAC bases and 2 airmen from 376th A & E Squadron.

b. Classes on B-47E (Phase III ECM aircraft were conducted for 21 airmen for 4 hours, and 13 airmen for 8 hours. These classes were conducted on the aircraft and students were shown location of all equipment, wiring, antennas and circuit breakers. Remote control circuits were fully explained. Instructor time for these classes was 14 hours.

c. Formal classes were held on the AN/ALT-7 for 4 airmen, AFSC 30230, of the 376th A & E Squadron. Complete course in this equipment was given in 24 hours of instruction. Instructor time was 26 hours.

d. Comments on training from airmen, TDY from other SAC bases, were received. Among these comments were the following:

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0434

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(1) Students objected to morning and afternoon classes on different types of equipment.

(2) Classroom facilities were not adequate.

(3) Proper notebooks could not be obtained.

(4) Practical shop-work could not be conducted.

In reply to these comments, students were informed:

(1) Other duties of the instructors necessitated scheduling of classes on two items of equipment to run concurrently.

(2) The A & E classroom is not large enough to handle more than eight students comfortably and has been excessively noisy during Project Blue Cradle build-up. The day-room of the barracks had to be used as a classroom and equipment could not be taken to this classroom.

(3) 376th A & E Supply Section had made several attempts to get proper notebooks but without success. Instructor purchased seven notebooks for these classes to fill the need. Forty (40) notebooks were obtained at Local Purchase Store size 8" by 4", stenographer type, but these notebooks are entirely inadequate as to size and do not conform with security regulations.

(4) Work of the 376th A & E shop during an exceptionally busy period could not be disrupted to furnish practical work for the classes.

Despite the difficulties mentioned it was possible to furnish these students with instruction and information, which they could not obtain elsewhere. It goes without saying that much depends on the interest and aptitude of the individual student, and several students complimented the 376th A & E ECM Section on the course. This training program started during Blue Cradle build-up with the 376th A & E ECM Section facing a heavy work load and numerous new problems. It should be noted that training TDY airmen had to be conducted at the expense of training personnel of the 376th A & E Squadron. There is a definite need for this training and it is hoped that it has proved as satisfactory as circumstances permit.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

2. OJT:

a. OJT training for B-47 crews on operation of ECM equipment was conducted. This included individual instruction to co-pilots at the aircraft. General instruction amounted to two hours for 48 officers, specialized instruction to 19 officers for an additional two hours.

b. OJT training for six airmen, 30230, on Blue Cradle wiring and Phase III wiring conducted for an additional two hours.

c. OJT supervision for one airmen, 30250, and two airmen, 30230, on Blue Cradle test equipment was conducted for a total of 12 hours.

d. General OJT and supervision of Cradle testing, involving several airmen teams, amounted to approximately 22 hours.

3. Training Time:

a. Available for training	160 hours
Formal training	65 hours
OJT training	52 hours
Total	117 hours
Per Cent of training time	73%

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required for an indefinite period.

V. EQUIPMENT MALFUNCTIONS:

1. 376th Bomb Wing M has been equipped with ninety (90) AN/ALT-7 transmitters. To date there have been eight (8) bench failures of the motor-driven variable "sweep" capacitor, C261, in the T464/ALT-7. These capacitors are subject to high RF voltages, especially under high VSWR conditions.

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The capacitors are from stator to rotor, then are repeatedly and, in some cases, short out. The voltage breakdown rating of this capacitor is not adequate for the developed RF voltages; this rating should exceed the normal safety factor in view of its correction between the push-pull tank coils. UR # 376BW-54-1809 has been submitted.

2. The Hallicrafter Corporation is supplying a new type of "sweep" capacitor to replace those in all transmitters of the 376th Bomb Wing M.

a. Maintenance personnel are being instructed on proper precautions to be observed in keeping VSWR within safe limits. These precautions include proper ground planes on shop antennas, use of antenna AT-190 and AT-191A/AP above a frequency of 80 megacycles and use of specially constructed whip antennas below a frequency of 80 megacycles. It is also recommended that the manufacturer revise the interim handbook to include proper information on antennas and necessary precautions to prevent the build-up of high RF voltages, due to antenna to-transmitter mismatch.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. 376th Bomb Wing M has been equipped with B-47E, Phase III ECM, aircraft since April, 1954. Distribution of revisions to T.O. 1B-47B-2 have not yet included the instructions or wiring diagrams for the Phase III installation, with the exception of the AN/ALE-1 and AN/APS-54 installations. Since Phase III drawings and instructions are still included in T.O. considerable confusion is caused to ECM personnel.

a. The 376th A & E Squadron managed to obtain the original engineering drawings (WADC) for the prototype aircraft and were able to overcome this difficulty and instruct personnel accofdingly.

2. Reference aircraft of 376th Bomb Wing M still have circuit breakers installed and marked "AN/APT-5A" and "AN/APT-16". These circuit breakers markings have not been changed, even though the AN/APT-5A will not be used on B-47 aircraft and the circuit breaker so marked, is also used for the AN/APT-16 circuits.

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Similarly the AN/APT-16 circuit breaker is also used for the AN/ALT 6 and AN/ALT-8 installation.

a. A recommendation has been made through channels that the 370th Bomb Wing M change the circuit breaker identification as follows:

"AN/APT-5A" 5 amp DC Navigator's DC Panel.
"AN/APT-16" 15 amp AC Main AC Panel

both to read "ECM Transmitters #1 and #2."

A recommendation is herewith made to relocate the "AN/APT-5A" circuit breaker to the co-pilot's DC Circuit Breaker Panel to obviate possible failure to actuate this circuit breaker during ECM operations. This relocation might still be possible in part of the Phase III ECP Program.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Test equipment, specially for Blue Cradle operation, is still under construction. This test equipment comprises:

5 Portable test consoles.
2 ATO compartment test units
2 Blue Cradle aircraft wiring test units.

The status of this equipment is as follows:

a. Test consoles, one "crash" unit complete and in use, two consoles partially complete, remainder with sheet metal work partially complete.

b. ATO compartment test units, two about 90% complete.

c. Aircraft test unit, one about 85% complete.

Difficulties encountered in construction of this equipment center in non-availability locally of AF items and the necessity for local purchase of many NISL items.

2. These test units ar quite complex as to wiring and require substantila numbers of many components. While these units will eventually be completed, it is recommended that test units, such as the Blue Cradle test console, be procured on contract. Not only would this method be more expeditious, it would be result in a better instrument with features such as panel mounted laboratory standard meters.

0438

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

3. No convenient method of testing primary power sources has been provided on Blue Cradle. At the present time the main junction must be opened and temporary connection made to the AC and DC buses. This operation is not easy and consumes considerable time.

a. A recommendation has been forwarded through channels to install permanent test cables on all cradles. This cable, comprising four conductors, will connect directly to the test consoles and facilitate measurement of DC and AC voltages and AC line frequencies.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Nicholson attended a conference at OCAMA on 17 September 1954 concerning procurement of spare parts for Project Blue Cradle.

Guy H. Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics

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375TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 October 1954

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, NCS: 3-AMS-WL9, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. J. E. Lella
Mr. H. A. Ladwig

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Theory of operation of AN/ALT-6 maintenance procedures and bench checks. Proper operation on cradle including installation and remote controls. AFSC 32030/50.

No. Men	Hours	Man-hours
11	32	352

2. OJT:

a. Operational difficulties in cradle. System requirements. Indentification. Proper use of tools (special tools) in alignment of AN/ALT-6. Proper bench check procedures. Total time: 200 hours.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

IV. UTILIZATION:

1. Brief Description of duties: To advise Air Force Personnel in the operation and maintenance of the AN/ALT-6 Centimeter Transmitting Set; to acquaint military personnel with new developments in the equipment and in more efficient methods of maintenance; to obtain information for improving the equipment and maintenance procedures.

2. It is estimated that the services of the General Electric Company Technical Representatives will be needed indefinitely.

V. EQUIPMENT MALFUNCTIONS:

1. Time, Motor Relay K205.

a. Detail: Equipment will not time out. (three failures

b. Cause: Unknown.

c. Recommendation: A U.R. is being written as soon as information as to cause can be compiled.

2. R601.

a. Detail: R601 D. C. position pot. bias shorted windings. (four failures)

b. Cause: Unknown.

c. Recommendation: A U.R. is being written as soon as a fix as to cause is compiled.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. The present antenna system on the ALT-6 has given a power loss to the transmitted signal. Connections of the cable and antenna and transitions are not well matched. As soon as the correct dimensions are obtained a U.R. will be submitted.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

0442

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

IX. SPECIAL DEVELOPMENTS:

1. A complete nine (9) month level of spare parts for the APT-5 is expected with-in the next month.

X. GENERAL REMARKS: Negative.

John A. Lella

JOHN A. LELLA
Senior Technical Representative
General Electric Company

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1 October 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St, and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AFC-U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 195 submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Homer C. Fritsch

II. EQUIPMENT: APS-42A, APN-1, APN-11, APN-12, APN-70, APN-76, APX-6, ARC-27, ARN-6, ARN-12, ARN-14, ARN-18, AIC-10, 18S4.

III. TRAINING ACTIVITIES:

1. Classroom: Negative.

2. OJT:

a. One airman (AFSC 30150) of the field radio maintenance section was given OJT covering the trouble shooting procedures to be followed when working on the AN/ARN-6 radio compass equipment. This training also included instruction in the propor use of the associated test equipment. Time: 32 hours.

b. Two airmen (AFSC 30150) were given OJT covering the system operation and trouble isolation procedures to be used when working with the AN/AIC-10 equipment. Time: 18 hours.

c. Three airmen (AFSC 30150 & 30170) of the line radio maintenance section were given instruction in trouble shooting procedures to be followed when working with AN/ARN-14 equipment aboard B-47E aircraft.

0445

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This instruction consisted primarily of methods that can be used to determine which components of the V system are malfunctioning and the proper means of correcting troubles that may be encountered with th system. Instruction was also given in the use of t SG-13 signal generator to determine the relative se sitivity of the omni system aboard any B-47 aircraf Time: 76 hours.

d. Two airmen (AFSC 30151 & 30171) of the Auxiliary Radar Field Maintenance Section were given OJT in t trouble shooting procedures to be followed when mal functions are encountered with the range mark circu in the AN/APS-42A radar equipment. Time: 4 hours.

e. During the month of September there was a total of 160 hours available for training of which 130 hours were utilized for that purpose. This amounts to 8 of the time available being devoted to training.

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel in the operation, calibration, and maintenance of the APS-42A, APN-1, APN-11, APN-12, APN-70, APN-76, APX-6, ARC-27, ARN-6, ARN-12, ARN-14, ARN-18, AIC-10, and 1854. Also, the training of aircrew personnel in the operation and in-flight maintenance techniques and procedures. In addition, duties include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

V. EQUIPMENT MALFUNCTIONS:

1. Detail: The tests to determine the reason why the ARN-2 equipment aboard B-47E #408 continued to exhibi short range were completed this month. It was discovered that the UG-21A/U type connector used to connect the omni antenna to the coaxial feed line was improperly assembled at the factory. The connector was assmebled in such a way that the center pin of the UG-21A/U just barely made contact with its female conterpart on the antenna assembly. The contact was enough to show continuity when checked with an ohmeter but not enough for efficient RF transfer. After this discovery three other aircraft, Nos. 398, 399 and 423 were checked and the same condition was found in each VOR antenna system. UR # 376BW-54-1908 has been submitted on this discrepancy.

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All of these aircraft had been getting poor VOR reception.

2. Action taken to establish fixes: The connectors in question were disassembled, the coaxial cable properly stripped, and the plug reassembled. In all four cases this cured the trouble and provided excellent VOR reception. There are 17 more B-47E aircraft in this wing giving poor omni reception and in each case the ARN-14 receiver is known to be good. Therefore, on the basis of the foregoing facts it is believed tha the trouble will be found in the same connector As fast as possible these remaining aircraft wi be checked and the connectors assembled properl

a. Known fixes for production teams: It is re commended that closer inspection of these connectors be made at the factory before th are installed in the aircraft. Close inspection of the connectors showed that the coaxial cable had not been properly strippe before connecting it to the plug and this w the cause of the malfunction.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negativ

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. An additional AIC-8 interphone station was devised for KC-97, #1347, to be used by the ECM operator. This system was unique in that the operator was required to be able to use all of the communication facilities aboard the aircraft and also make it impossible for hir to accidentally be transmitting over the air when he thought he was using the interphone. In addition he was to be able to monitor the audio output of three EC receivers either individually or all simultaneously as he saw fit. Such an interphone station was designed by modifying the existing AIC-8 components necessary and installed aboard the aircraft.

X. GENERAL REMARKS: Negative

Homer C. Fritsch

HOMER C. FRITSCH
Field Engineer
Philco Corporation

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HISTORY

1-31 OCTOBER 1954

376TH Bombardment Wing (M)

LIBERANDOS

BARKSDALE AIR FORCE BASE
LOUISIANA

RSI Contl No
S 09715

S 13986

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Initials: Murphy
Date:

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 October - 31 October 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics
Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

RSI Contl No
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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Conversion Status	1
Organization of Air Refueling Units	1, 2
Second Air Force Inspection	2-4
Personnel	4-6
Personnel Problems	6, 7
Crew Status	7
Reenlistment Rate- AWOL Rate	7, 8
Changes in Key Personnel	8
Roster of Key Personnel	9
CHAPTER II . . . Operations and Training	10
Flying Time	11
Operations Order 137-54 "Bull Market"	12-14
Status of Test Projects	14-20
CHAPTER III . . . Maintenance	21
Aircraft Status	22-25
Maintenance Training Activities	25-28
Equipment Malfunctions	28, 29
Maintenance Engineering Difficulties	29, 30
Operational Difficulties	30
Special Developments	30

SECRET

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SECRET

F O R E W O R D

Appended to the 376th Bombardment Wing History for September 1954 were two reports which have since been changed. Rather than have the Historian go into the necessary detail in the way of explanation, he has added the corrected copies of the reports to this History.

They are attached and marked: Exhibit #23, which replaces Exhibit #25 in September History, and Exhibit #24, which replaces Exhibit #27 in September History.

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"CONVERSION STATUS"

The 376th Bombardment Wing was declared combat ready on 28 September 1954. Effective 1 October 1954, the unit became subject to the training requirements outlined in Supplement XVIII, Strategic Air Command Regulation 50-8, and to the provisions of the Strategic Air Command Management Control System.

In personnel, all levels, the Wing is below strength. In flying hours, combat ready crews, and bombing missions the Wing is above 70 percent of the programmed amount. In both BCR and normal operational readiness index, the Wing had seven, which was the required amount.[1]

ORGANIZATION OF AIR REFUELING UNITS

In a letter from Headquarters Second Air Force,[2] the Director of Plans for that headquarters presented the question of whether or not it would be a good idea to reorganize the air refueling squadrons into air refueling wings. For that purpose, the question was asked of air division or separate wings utilizing B/RB-47 aircraft. It was suggested that a small group of senior officers convene to consider the problem instead of making a detailed and complete study of the matter. The commanders were asked, considering only factors of operational suitability, whether they recommended the reorganization. A draft showing the scope of study conducted in Second Air Force Headquarters

1. Report, "(Uncl) Progress Report No.8, 2AF Programming Plan 34-53, Conversion of the 376th BW to B-47 Type Aircraft, "Status as of 1 October 1954", 5 October 1954, classified files, 376th BW.
2. Ltr, Hq 2AF to Comdr 4ADiv, "Organization of Air Refueling Units (Unclassified), 13 Oct 1954, Class. files, 376th BW (Secret).

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was attached to the letter.[3]

Colonel John P. Proctor, 376th Bombardment Wing Commander, made his comments: "Reorganization of air refueling forces into air refueling wings appears to me to be operationally suitable, and is recommended". He also said it was desirable considering the high gear EWP concept. Due to the new concept, tanker aircraft must be utilized as tankers, and not deverted to cargo or transport functions. It would result in better supervision, better training, easier scheduling, simplified air traffic control, and rotational moves would not be adversely affected.[4]

SECOND AIR FORCE INSPECTION

In the general evaluation it was stated that:

> The tactical units of the 4th Air Division were capable of performing their assigned EWP Mission with the following exceptions in the 376th Bombardment Wing. The capability of the Wing was limited because requirements for equipment and aircraft spare parts in support of the 4th Air Division task force and the wing deployment plan exceeded available assets of the wing. Factors further limiting the capability of the wing were a lack of crew briefing on the EWP, the time element involved in loading the ECM cradle and equipment shortages associated with the cradles.
>
> The 376th Bombardment Wing was operating in an effective manner but had been handicapped by numerous problems. The Wing had the dual mission of becoming combat ready in ECM and bombardment and the additional requirement of

3. Ltr, Hq 2AF to Comdr 4ADiv, Organization of Air Refueling Units (Unclassified), 13 Oct 1954, class files, 376th Bw (Secret).
4. D/F, CO 376 BW to Comdr 4ADiv, "Organization of Air Refueling Units (Unclass'd), 25 Oct 1954, class files, 376 Bw (Secret).

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supporting test and tactics missions. Accelerated combat ready dates for each of these missions had created a complex and difficult workload. Aircrew training had been hampered initially during the conversion program in that programming of observer personnel training did not coincide with that of the pilots, thereby delaying integrated aircrew training. In addition, a further delay was caused by phasing aircraft through the depot for ECM modification during the conversion program. Heavy support commitments levied by higher headquarters on the 376th Air Refueling Squadron had added substantially to an already difficult workload.

The Wing had been very effective in meeting ECM and bombardment phase combat ready dates. Excellent EWP planning was being performed; however, aircrews had not been briefed on the EWP at the time of the inspection. Quantity training had been overstressed at the expense of quality training. ECM training was insufficient to provide aircrews with the necessary knowledge of the technical ECM equipment and loading requirements. The bombardment phase of the SAC Regulation 50-43 program appeared to be insufficient in bombing requirements in comparison to other B-47 wings. The number of bombing gross errors and the amount of unscoreable scope camera film were excessive. Target study photos available for visual RBS and visual bombing were limited. There was a backlog of parachutes due for repack.

The capability of the 376th Bombardment Wing was limited because equipment and aircraft spare parts requirements levied on the wing deployment plan were more than the available assets of the wing.

The supervision and management in the 376th Periodic Maintenance Squadron was outstanding.

In the operations section of the report it was stated that the threefold mission of the Wing was that of becoming combat ready in both ECM and Bombarument along with supporting ECM test and tactics

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mission requirements. These missions are not compatible in many respects and this created a heavy burden on both the staff and crews. The Wing bombardment 50-8 training program requirements should be reduced accordingly and the quality of training should not be compared to other bombardment combat wings.

Excellent EWP planning and crew folders had been accomplished; however, the capability of the Bombardment Wing to satisfactorily complete all aspects of the assigned ECM mission was marginal. Factors contributing to this situation were: (a) crews were not briefed on the assigned mission (b) the period of time required to load ECM cradles with all available trained personnel appeared to be excessive (c) malfunctioning of ECM chaff dispensing equipment and the unreliability of the electronic sweep jammer.[5]

PERSONNEL

The total number of officers assigned at the end of October 1954 was 381,[6] which was three above the figure for September,[7] but was 75 less than authorized strength.[8] A total of 360 officers

5. Report, "Inspection Report-The Inspector General Second Air Force", for period 13-24 September 1954", 15 Oct 54 (Secret), files, classified section, 376th Bomb Wing.
6. Report, "Monthly Analysis (October 1954)", n.d., prep by D/P 376 Bomb Wing, hereafter cited as "376th Pers Anal for Oct 54", exhibit #1, and chart, exhibit #2.
7. History 376th Bomb Wing for September 54, page 1.
8. "376th Pers Anal for Oct 54", exhibit #1, & chart, exhibit #2.

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were effectively assigned,[9] four more than in September,[10] or 78.9 percent of authorized strength.[11] The figures and percentage for manning in required specialties in October were the same as for effectively assigned during the month.[12] There were 10 officers transferred or discharged during October,[13] or 2.2 percent of authorized strength,[14] and 13 officers assigned,[15] or 2.8 percent of authorized strength.[16]

The total number of airmen assigned at the end of October 1954 was 1973,[17] which was 71 less than in September,[18] and was 251 more than authorized strength.[19] There were 1461 effectively assigned airmen,[20] 21 more than in September,[21] or 84.84 percent of authorized strength.[22] The manning in required specialties for airmen in October was 1230,[23] which was 57 above the September figure.[24] There

9. "376th Pers Anal for Oct 54", exhibit #1, & chart, exhibit #2.
10. History 376th Bomb Wing for Sep 54", page 1.
11. "376th Pers Anal for Oct 54", exhibit #1.
12. Ibid.
13. Ibid: 2 each-Pilots and Navigators; 1 each-D/N, Navi-bombardier, Armt Sys Maint, Med Supply, Intel, and Supply Superintendent.
14. "376th Pers Anal for Oct 54", exhibit #1.
15. Ibid: 5 Navi-Bombardiers; and 1 each-Intel, Oral Surg, Nav, Atomic Wpns, Admin, Gnd Electronics, Nurse, & Suppl. Superintendent.
16. "376th Pers Anal for Oct 54", exhibit #1.
17. Ibid, and chart, exhibit #3.
18. History 376th Bomb Wing for September 54, page 1.
19. "376th Pers Anal for Oct 54", exhibit #1, & chart, exhibit #3.
20. Ibid.
21. History 376th Bomb Wing for September 54, page 1.
22. "376th Pers Anal for Oct 54", exhibit #1.
23. Ibid.
24. History 376th Bomb Wing for September 54, page 2.

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were 157 airmen transferred or discharged during October,[25] or 9.1 percent of authorized strength,[26] and 91 airmen assigned,[27] or 5.3 percent of authorized strength.[28]

PERSONNEL PROBLEMS

The officer effective manning decreased compared to September. The decrease was attributed to the SAC manning document which the wing received each month. Officer manning in AFSC's 3054, 3254, 4334, 4355, 4364 and 7324 remained critically short. Manning in the aircraft maintenance field changed slightly during the month. Manning in AFSC's 43133/53 was at 300 percent by primary and 269 percent by duty. Manning in AFSC's 43151J/54B and 52A was at 64 percent by primary and 164 percent by duty. That represents an eight percent increase by primary and one percent decrease by duty. Supervisory/ technician level in AFSC's 43170/71B and 71J manning was at 84 percent by primary and 110 percent by duty. The armament systems

25. "376th Pers Anal for Oct 54", exhibit #1, by career fields: Intel-1, Comm-Ops-3, Radio & Radar Sys Maint-7, Armt Sys Maint-19, Intri Equip Maint-1, Acft Access Maint-4, Airplane & Eng Maint-92, Mun & Wpns Maint-2, Vehicle Maint-1, Fabric leather & rubber repair-3, Food Sv-1, Supply-3, Admin-7, Pers-10, Hgt-1, & Med-2.
26. "376th Pers Anal for Oct 54", exhibit #1.
27. Ibid, by career fields: Intel-1, Air Traffic Control & Warn-1, Comm-Ops-2, Radio & Radar Maint-28, Armt Sys Maint-2, Intri Equip-Maint-4, Airplane & Eng Maint-4, Mun & Wpns Maint-5, Vehicle Maint-3, Metal Work-1, Trans-1, Food Service-2, Supply-3, Admin-25, Pers-1, Medical-5, and aircrew protection-3.
28. "376th Pers Anal for Oct 54", exhibit #1.

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maintenance career field manning was slightly higher by duty during the month. AFSC's 32171B, 32370 and 32371C showed 15 percent by primary and 24 percent by duty.[29]

CREW STATUS

The average number of B-47 crews assigned during October 1954 was 46,[30] of which 12 were in training at the end of the month. Also, 12 non-ready crews have been trained to a point where they could be deployed for ECM-support missions in event of emergency.[31]

There was an average of 21 KC-97 crews (18 ready and 3 non-ready) available for training during the month.[32]

REENLISTMENT RATE - AWOL RATE

There were 38 normal Expiration Term of Service discharges during the month with 13 reenlisting, giving the Wing a reenlistment rate of 34.2 percent.[33]

Three airmen were AWOL during the month giving the Wing an AWOL rate of 1.27 percent,[34] which was a decrease of .75 percent from

29. Report, "Air Training Report for the Month of October 1954, (RCS: 6-SAC-T12) Sec J, 5 Nov 54, hereafter cited as "376 T-12 for Oct, Sec J, 5 Nov 54", exhibit #4.
30. Ibid, and chart, exhibit #5.
31. "376th T-12 for Oct 54, Sec J, " 5 Nov 54, exhibit #4.
32. Report, "Air Training Report for the Month of October 1954, (RCS: 4-SAC-T12) Sec H&I, 5 Nov 54", hereafter cited as "376th T-12 for Oct 54", Sec H&I, 5 Nov 54", exhibit #6, and chart, exhibit #5.
33. "376th Pers Anal for Oct 54", exhibit #1.
34. Ibid, and chart, exhibit #7.

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the figure for September 1954.[35]

CHANGES IN KEY PERSONNEL

During October the only change in key personnel was the reassignment of Colonel Ralph T. Holland, USAF, Director of Materiel, 376th Bomb Wing, to Headquarters USAF.[36] Colonel Robert T. Calhoun, USAF, Deputy Wing Commander was acting as Director of Materiel until the Wing was assigned another officer to take Colonel Holland's place.

35. History 376th Bomb Wing for Sep 54, page 4.
36. SO 246, Hq 4ADiv, 6 Oct 54, par 11, files, Adj Sec, 376 Bomb Wing.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	CALHOUN, ROBT. T. (Actg)	COLONEL
Director of Personnel	BOWMAN, EDWARD P.	Major
Director of Special Tests and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	MILNER, ROBERT S.	Lt Colonel
Chief of Intelligence	KOLPIN, SHIRLEY A.	Lt Colonel
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron, M	LOLLAR, CLARENCE L.	Lt Colonel
513th Bomb Squadron, M	ABRAMS, JAMES S.	Lt Colonel
514th Bomb Squadron, M	WEDDLE, OWEN A.	Lt Colonel
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Colonel
376th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th A & E Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Missions Ordered by Higher Headquarters:

Ferrying aircraft during October 1954 required five hours and 10 minutes, ECM test expended 121 hours during the month, and in execution of Second Air Force Operations Order 137-54, the Wing expended 440 hours, or a total of 566 hours and 10 minutes flown on missions ordered by higher headquarters.[37]

KC-97 Missions Ordered by Higher Headquarters:

Transporting VIP's to McConnell, Pinecastle, Offutt and Lockbourne Air Force Bases and return required 28 hours and 29 minutes during October 1954. Second Air Force Operations Order 137-54 required 158 hours and 15 minutes, and ECM tests required 19 hours and 55 minutes for total of 206 hours and 20 minutes during October.[38]

Total Flying Time:

B-47 aircraft of the Wing flew a total of 1499 operational hours,[39] giving a figure of 32 hours and 36 minutes flown per assigned crew.[40]

The KC-97 aircraft of the Wing flew a total of 603 operational hours,[41] giving a figure of 28 hours and 42 minutes per assigned crew.[42]

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37. "376th T-12 for Oct, Sec J, 5 Nov 54", exhibit #4.
38. "376th T-12 for Oct, Sec H&K, 5 Nov 54", exhibit #6.
39. "376th T-12 for Oct, Sec J, 5 Nov 54", exhibit #4, & chart, exhibit #8.
40. "376th T-12 for Oct, Sec J, 5 Nov 54", exhibit #4.
41. "376th T-12 for Oct, Sec H&I, 5 Nov 54", exhibit #6, & chart, exhibit #8.
42. "376th T-12 for Oct, Sec H&I, 5 Nov 54", exhibit #6.

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OPERATIONS ORDER 137-54 "BULL MARKET"

A requirement existed for destruction of certain targets of high priority in the northeastern United States. Attack by an unsupported bombardment force would enjoy only a marginal probability of success against these strongly defended targets. Target distances were such that pre-strike staging and air refueling were necessary.

Supported by air refueling, diversionary and BDM forces, the 376th Bomb Wing was to launch simulated atomic bombardment strikes from Campbell Air Force Base, Kentucky, against specified targets in the northeastern United States.

The purpose was to perform electronic jamming and sow a chaff corridor 18 miles wide and 370 miles long by dispensing chaff in an area within range of Tyndall and Eglin Air Force Base radars, to test the effectiveness of this corridor in providing protection for subsequent aircraft and to provide a decoy force.[43]

In the report of Operation "Bull Market", Colonel John P. Proctor, USAF, 376th Bomb Wing Commander stated:

> As a graduation exercise, I consider the operation successful. I feel that the 376th Bombardment Wing (M) is combat ready.
>
> As an evaluation of chaff dispensing and electronic counter-measures tactics, the operation was not satisfactory. As indicated in the body of the report, there were too many variables involved, too many restrictive conditions imposed, to properly evaluate the success or failure of the tactics or equipment. However:
>
> a. Eastern Air Defense Force reported good to

43. 376th Bomb Wing Ops Order 137-54, 22 Oct 54, files, Plans Sec, D/O, 376th Bomb Wing (Secret).

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excellent jamming of "S" band radars and reported that fighter controllers in the direction centers were further confused by chaff.

b. A comparison of the number of firing passes made on diversionary 301st bombers with those made on 376th bombers indicates that our ECM protected bombers receive only 50% of the fighter attacks suffered by unprotected bombers. Fighter pilots made numerous reports of chaff being highly effective against AI radars. Guided missile and AA radars reported chaff very effective in protecting aircraft in or near chaff.*

The pre-strike staging team was deployed on X -1 as planned in the order. The deployment phase of the exercise was considered very successful. Weather in the target area on X #1 and in the refueling area on X #2 delayed execution of the first strike mission two days and in turn delayed the last two deployments. Only 39 of the scheduled 41 crews were available for the exercise. Special weapons, air refueling and aircraft performance were considered excellent, and the following observations were made:

a. The 376th Bombardment Wing is capable of implementing and executing combat strike missions.

(1) 376th Bombardment Wing is capable of performing both its ECM and special weapons missions.
(2) 376th Bombardment Wing is capable of operating from a forward staging base.
(3) Crews are capable of daylight maximum weight air refueling.
(4) Crews are capable of flying cell formation during instrument conditions and at night.
(5) Crews possess an acceptable bombing capability.

b. This exercise had too many restrictive factors. These

*. Report, "376th Bombardment Wing Report on Exercise "Bull Market", Operations Order 137-54", 15 Nov 54, files, Plans section, D/O, 376th Bomb Wing.

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included CAA weather minimums under which ECM could be performed, tanker aircraft performance limitations restricting selection of air refueling area, SAC Regulations requiring navigation lights in the target areas, and SAC directives prohibiting filing block altitude reservations for alternate as well as primary routes.**

* *

STATUS OF TEST PROJECTS

Project 1A increased one percent to 88 percent of completion, with an additional six hours having been flown, making a total of 283 hours and eight minutes. Flight tests were in progress to determine the accumulative effects of the configuration (sweeping a one and two megacycle bandwidth), and to determine the number of jammers necessary to accomplish desired conditions of jamming. Development of an antenna to increase the gain in a forward direction was underway. During a test flown on 6 October 1954, no desired jamming condition was obtained. Results from that test, and one flown on 9 September, indicated that one jammer with a swept bandwidth of one or two megacycles was not sufficient to obtain effective jamming 110 miles from the GCI station, with 25 miles separation between aircraft.[44]

Project 1X increased three percent to 36 percent of completion.

**. Report, "376th Bombardment Wing Report on Exercise "Bull Market", Operations Order 137-54", 15 Nov 54, files, Plans Sec, D/O, 376th Bomb Wing.

44. Report, "376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U-30)", 1 Nov 54, hereafter cited as"376th U-30 for Oct 54", 1 Nov 54, exhibit #9.

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The first of five tuning capacitors was delivered in early October for evaluation and acceptance. It did not meet all the specifications in the contract. These deficiencies were being corrected by project engineers at Barksdale Air Force Base, in order to speed up the completion of the project. Composite packaging of the equipment was nearing completion. This was to facilitate tracking of the two units.[45]

Project 15 increased six percent to 18 percent of completion with an additional two hours and 15 minutes having been flown for a total of 12 hours and 45 minutes. Twenty-one additional systems were received from the Raytheon Company, making a total of 28 on hand in the Wing. The AN/ALT-8's operated in conjunction with the AN/ALT-6 during Project 27 and during the 376th Bomb Wing Air Defense Command exercises on the east coast will be covered as soon as the separate report (376th Director of Test and Tactics) is available. The only specific AN/ALT-8 mission flown against the MSQ-2 radar at Eglin Air Force Base, Florida, was unsuccessful. Inoperative IFF on both aircraft, poor communications between the radar controller and the aircraft, poor radar tracking and interference from other aircraft on the range, very little usable data was obtained. During the month of October, 44 of the 45 combat B-47's assigned to the Wing were modified to enable the AN/ALT-8 to be

45. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.

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operated from the ATO compartments.[46]

Project 15-6 increased two percent to 62 percent of completion with an additional 80 hours (total 144:25) having been flown. The RG-117/U coaxial cable, together with UG-532/U connectors, continued to be the weakest part of the entire system. Additional difficulties were caused by vibrations which were generated in the bombbay doors and then carried through the coaxial cable to the transmitter. Tests indicate that the teflon used as a dielectric in the transmitter and in the transmission cable of the antenna, was not sufficiently chemically inert, allowing an electrolysis to take place causing an eventual high resistance short.[47]

Project 27 increased 11 percent to 65 percent of completion with no extra hours flown. There was one chaff corridor mission flown on 19 October but the ground radar report was not available at this writing, so it will be contained in the next report.[48]

Auxiliary Project 5 increased four percent to 10 percent of completion with no hours flown. This project was initiated on 21 September 1954 and titled "Development of IFF Jammer". Ground tests performed with the BC-966-A airborne transponder, located in an unused ECM tower approximately one-half mile from the laboratory, demonstrated that any given code can be detected and read, provided that the return pulses are synchronized with the interrogator-responsor

46. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.
47. Ibid.
48. Ibid.

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sweep voltage.[49] The mode of presentation is on an "A" scope.

Auxiliary Project 6 increased five percent to 45 percent of completion with two hours flown. One test flight was flown on 24 October and with only a short run, the results indicate that the equipment was feasible for barrage jamming. Additional work on the equipment was required and additional flights against other radars were to be scheduled.[50]

Auxiliary Project 14 was not reported in September 1954 but was 20 percent complete in August, and 30 percent in October. A sweep drive coupled to the main tuning shaft of the APT-5 shows promise. The principal of operation is as follows: With the antenna coupling set at optimum power output for the band to be swept, the plate and cathode will track in the "L" band from 20 to 50 megacycles increments.[51]

Auxiliary Project 18 increased four percent to 35 percent of completion. Several changes were required in the wiring of the control circuit of the increductor to eliminate the burning out of control circuit. The oscillator wiring has been replaced, and in some cases moved, to improve the high frequency performance over the entire range.[52]

Auxiliary Project 20 increased five percent to 50 percent of completion with no extra hours flown. The Wing was awaiting a

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49. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.
50. Ibid.
51. Ibid.
52. Ibid.

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prototype Polaroid Camera and periscope attachment from the Photographic Laboratory at the Wright Air Development Center, Dayton, Ohio. The camera and periscope will mount on the APS-23 indicator in the B-47E aircraft. It will permit pictures to be taken of the indicator with the O-15 camera or the Polaroid camera. The entire format of the standard Polaroid film will be utilized, including the display of a clock, counter, and data tab. This camera should provide suitable pictures and data to enable the observer of the B-47 aircraft to navigate without continuous radar mapping.[53]

Auxiliary Project 21 increased five percent to 35 percent of completion with no additional hours flown. The second approach to this problem would be the employment of equipment (infra-red type) for homing of guided missiles.[54]

Auxiliary Project 22 increased five percent to 45 percent of completion with 11 hours flown (total 26 hours). As a result of tests flown during the month, it was believed that, given sufficient transmitters, sweep jamming is more dependable than barrage jamming.[55]

Auxiliary Project 23 increased from 75 to 85 percent of completion with an additional 300 hours (600 hours total) flown. The data obtained during October, for the most part, confirms the

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53. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.
54. Ibid.
55. Ibid.
56. Ibid.

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estimates made during September 1954. No indication of structural failure was apparent on any of the three types of whip antennas tested.[56]

Auxiliary Project 24 increased from 10 to 25 percent of completion with four hours and 25 minutes having been flown. During the flight test, the jamming effectiveness was very poor. All but five of the B-47's in the Wing have been wired for the antenna switching relay. An error was discovered in the wire of the power cable from the power supply to the transmitter and was corrected.[57]

Auxiliary Project 25 was 70 percent complete with 890 hours flown. Five antennas, filled with different types of material, were flown and it was found that of the two filled with rubber, one was still as rigid at the base as before it was flown, and the other antenna was slightly loose at the base.

The two teflon base antennas were flown for approximately 146 hours and were extremely loose at the base. The round type antenna was flown for 94 hours and 50 minutes, and compared favorably with the AT-190 type for durability. The knife edge thin solid stub antenna had 19 hours and 15 minutes flight time and was as rigid as when installed. A laminated plastic UHF stub antenna received from WADC had 18 hours and 20 minutes and was still as rigid as when installed.[58]

56. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.
57. Ibid.
58. Ibid.

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Auxiliary Project 26 increased from 24 to 65 percent with four hours flown (total 18 hours). During October, a team of technicians under the supervision of personnel of the Wing conducted an inspection of the original APS-54 installations on 35 B-47 aircraft of the Wing. Discrepancies were corrected when practicable, and Unsatisfactory Reports were submitted in those cases requiring action at higher echelon.[59]

Auxiliary Project 27, "A B-47 ECM Configuration Study", was initiated 20 September 1954 and as of the end of October was 25 percent complete. In the preliminary ECM study, emphasis was placed on space availability, weight and balance, and electrical power availability. Preliminary engineering was divided into two separate proposals. The first proposal would be an addition of ECM equipment to the Phase III B-47 aircraft. The ATO compartment ECM configuration would be left intact, and additional equipments would be added in the battery compartment. The additional equipment added was two ALT-7 or ALT-8 transmitters with power supplies; and two ALT-7 transmitters with power supplies. With this equipment added, the total ECM capability of the B-47 aircraft would be four "S" bands and two low frequency transmitters. The second proposal would be a change in the ECM configuration of the Phase IV B-47 aircraft. This proposal calls for the installation of four ALT-6 or ALT-8 transmitters with power supplies.[60]

59. "376th U-30 for Oct 54", 1 Nov 54, exhibit #9.
60. Ibid.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of October 1954, the Wing had 48 B-47's assigned and 47.6 possessed, and 22 KC-97's assigned and possessed.[61] The B-47 aircraft flew a total of 1519 hours and 15 minutes (maintenance figures), which was 289 hours and five minutes more than in September,[62] giving a figure of 31 hours and 40 minutes flown per possessed aircraft,[63] six hours more than in September 1954.[64]

The KC-97 aircraft flew a total of 616 hours and 20 minutes,[65] which was 14 hours and 15 minutes more than in September,[66] giving a figure of 28 hours and one minute flown per possessed aircraft,[67] which was 43 minutes more than in September 1954.[68]

The in-commission rate of B-47 aircraft in October was 79.50 percent,[69] which showed 10.15 percent more than in September;[70] while on KC-97 aircraft the October figure was 81.18 percent,[71] an

61. Report, "Historical Report for the Month of October 1954", n.d., hereafter cited as "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #11.
62. History 376th Bomb Wing for Sep 54, page 18.
63. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #12.
64. History 376th Bomb Wing for Sep 54, page 18.
65. "376th Maint Hist for Oct 54", n.d., exhibit #10.
66. History 376th Bomb Wing for Sep 54, page 18.
67. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #12.
68. History 370th Bomb Wing for Sep 54, page 18.
69. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #13.
70. History 376th Bomb Wing for Sep 54, page 18.
71. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #13.

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increase of 10.53 percent over the September figure.[72] the AOCP rate for B-47 aircraft in October was 6.82 percent,[73] a decrease from 11.18 percent for September;[74] while on KC-97 aircraft the rate for October was 4.25 percent,[75] a decrease from 7.72 percent for September 1954.[76] The ANFE rate on both types of aircraft was 100 percent,[77] as it has been for the last 10 months.[78]

The direct manhours expended per flying hour on B-47 type aircraft during October was 31.5,[79] a decrease of 15.2 manhours from the September figure;[80] while on KC-97 aircraft the October figure was 23.3,[81] a decrease of 2.9 manhours from the September figure.[82] Maintenance manhours expended during October were: 97,238 direct manhours, 103,166 indirect manhours, 8,909 overtime manhours, 12,655 given as pass time, and 55,866 manhours listed as absent time. The available manhours for October was 200,404,[83] a decrease of 7,000 manhours from the September figure,[84] which was reflected in all the October figures.

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72. History 376th Bomb Wing for Sep 54, page 18.
73. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #14.
74. History 376th Bomb Wing for Sep 54, page 19.
75. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #14.
76. History 376th Bomb Wing for Sep 54, page 19.
77. Tp, C.J. Dedow, Historian, w/clerk D/H, 20 Nov 54,& chart exh.#13.
78. Histories 376th Bomb Wing, Jan thru Oct 1954.
79. "376th Maint Hist for Oct 54", n.d., exhibit #10.
80. History 376th Bomb Wing for Sep 54, page 19.
81. "376th Maint Hist for Oct 54", n.d., exhibit #10.
82. History 376th Bomb Wing for Sep 54, page 19.
83. "376th Maint Hist for Oct 54", n.d., exhibit #10.
84. History 376th Bomb Wing for Sep 54, page 19.

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There were approximately 76 component parts changed on B-47 aircraft during October,[85] an increase of 31 over the September figure;[86] and 43 changed on KC-97 aircraft,[87] a decrease of 52 from the September figure.[88] The Quality Control Unit inspected five B-47 and four KC-97 aircraft processed through the maintenance docks, and supervised 18 B-47 and 11 KC-97 aircraft test flights during the month of October 1954. There were 329 Unsatisfactory Reports submitted during the month.[89]

The number of engine changes during October was six for B-47's[90] which was a decrease of 10 from September,[91] and on KC-97's the figure was two,[92] a decrease of one from the September figure.[93] On B-47 type aircraft, the average engine time at change was 83 hours,[94] which was a decrease of 31 hours from the September figure,[95] and on KC-97 type aircraft in October was 283 hours,[96] which was an increase of 78 hours over the September figure.[97]

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85. "376th Maint Hist for Oct 54", n.d., exhibit #10.
86. History 376th Bomb Wing for Sep 54, page 19.
87. "376th Maint Hist for Oct 54", n.d., exhibit #10.
88. History 376th Bomb Wing for Sep 54, page 19.
89. "376th Maint Hist for Oct 54", n.d., exhibit #10.
90. Ibid, & chart, exhibit #15.
91. History 376th Bomb Wing for Sep 54, page 20.
92. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #15.
93. History 376th Bomb Wing for Sep 54, page 20.
94. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #16.
95. History 376th Bomb Wing for Sep 54, page 20.
96. "376th Maint Hist for Oct 54", n.d., exhibit #10, & chart, exhibit #16.
97. History 376th Bomb Wing for Sep 54, page 20.

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There were 62 malfunctions on B-47 aircraft during October,[98] and nine on KC-97 aircraft,[99] which was an increase of 31 on B-47 aircraft[100] and a decrease of two on KC-97 aircraft.[101] The malfunctions on B-47 aircraft were: Bombing System was charged with two due to aircrew, 28 (10 from Sep) due to material failure, and three (2 from Sep) due to other reasons; Communications was charged with five (3 from Sep) due to material failure; Gunnery was charged with one due to material failure; Power Plant was charged with one each due to maintenance personnel, material failure and other reasons; Aircraft general was charged with 18 due to material failure, and one each due to maintenance and other reasons. Malfunctions on KC-97 aircraft were: Power Plant was charged with two, Air Refueling was charged with two, and Propeller was charged with one - all due to material failure; Aircraft general was charged with one due to maintenance personnel, two due to material failure, and one due to aircrew.[102]

MAINTENANCE TRAINING ACTIVITIES

CLASSROOM:

Missions during the month prevented a large amount of classroom training during October 1954. Four airmen received a 28 hour

98. "376th Maint Hist for Oct 54", n.d., exhibit #10.
99. Ibid.
100. History 376th Bomb Wing for Sep 54, page 19.
101. Ibid.
102. "376th Maint Hist for Oct 54", n.d., exhibit #10.

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course in the AN/ALT-7 equipment.[103]

Two 20 hour courses and two 4 hour courses on the K-4A Bomb-Navigation System were conducted during the month of October, including optical test equipment, APS-23 trouble shooting, D-2 Navigational Unit, and forward sighting. The symposium type class for operator training was in operation during the month. The number of men attending the classes as listed above was 18, 17, 11, 54, and 55 respectively. The total student manhours used during the month of October 1954 was 1180.[104]

Twenty-five A-5 airmen received 500 manhours of instruction in basic radar theory in the form of six classes of 20 hours each on the A-5 Fire Control Bomber Tail Defense System.[105]

During October 1954, four 2 hour courses on the operation of the Line Analyzer (A-12D Gyropilot) were given to acquaint the airmen with the various A-12D autopilot tests which can be made on the aircraft with the analyzer. Four 3 hour courses on the balancing of vertical gyros with the Scorsby Table were also held. Three 2 hour courses on the A-12D Gyropilot data flow were given. The

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103. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954", by Nicholson, 1 Nov 54, hereafter cited as "376th U-19 for Oct 54 by Nicholson, 1 Nov 54, exhibit #17.
104. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 Oct 54", by 7 Fld Engrs, 1 Nov 54, hereafter cited as "376th U-19 for Oct 54 by 7 Fld Engrs", 1 Nov 54, exhibit #18.
105. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 Oct 54", by Faux, 1 Nov 54, hereafter cited as "376 U-19 for Oct 54 by Faux", 1 Nov 54, exhibit #19.

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number of students attending were 10 for Line Analyzer Operation, 10 for vertical gyro balance test, and eight for A-12D Gyropilot data flow.[106]

ON THE JOB TRAINING (OJT):

Three airmen were given 12 hours of instruction on the QRC-8 and ALT-7 equipment.[107]

Sixty-five airmen received OJT on the AN/ALT-6 Countermeasure transmitting set: Installation problems, preflight checks and trouble shooting in aircraft, on cradle in shop, and on test bench mock-ups.[108]

Ten airmen received 20 hours of instruction on the Blue Cradle operation, three airmen received 15 hours instruction on Blue Cradle Aircraft Operational Check, seven airmen received eight hours instruction on antenna cable construction, one airman received three hours instruction on the ALT-7, two airmen received four hours instruction on the AN/ALE-1 and six airmen received five hours instruction on inverter operation.[109]

Twelve students received 54 hours instruction on test equipment

106. Report, "Monthly Technical Report, RCS: 3-AAC-U19, For Month Ending 31 Oct 54", by Kronlage, 1 Nov 54, hereafter cited as "376th U-19 for Oct 54 by Kronlage, 1 Nov 54", exhibit #20.
107. Report, "Monthly Technical Report, RCS: 3-AAC-U19, For Month Ending 31 Oct 54", by Nevitt, 1 Nov 54, hereafter cited as "376th U-19 for Oct 54 by Nevitt", 1 Nov 54, exhibit #21.
108. Report, "Monthly Technical Report, RCS: 3-AAC-U19, For Month Ending 31 Oct 54", by Lella, 1 Nov 54, hereafter cited as "376 U-19 for Oct 54 by Lella", 1 Nov 54, exhibit #22.
109. "376th U-19 for Oct 54 by Nicholson", 1 Nov 54, exhibit #17.

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and alignment procedures, 741 student hours were spent on system analysis and 212 student hours were spent on trouble shooting procedures.[110]

Six A-5 airmen were given 24 manhours of instruction while working modifications called for in A-5 Field Change Notices.[111]

Seven students received 15 hours instruction on A-12D test procedures and five students received eight hours instruction on the N-1 Compass.[112]

EQUIPMENT MALFUNCTIONS

Discrepancies encountered on installation of AFS-54 have been 96 bad crystals, 12 shorted bulkhead connectors, 11 shorted coaxial cables and three coaxial cables without connector plugs. Unsatisfactory Reports were submitted on all discrepancies.[113]

On the ALT-6, the timing relay K209 would not time out on two sets. There were six failures on the R601 "pot" shorting. An Unsatisfactory Report was to be submitted as soon as General Electric Company determines the cause of the bad crystals. A physical construction fix was being tried on the R601 "pot".[114]

Sealed K-System amplifiers were beginning to fail more frequently

110. "376th U-19 for Oct 54 by 7 Fld Engrs", 1 Nov 54, exhibit #18.
111. "376th U-19 for Oct 54 by Faux", 1 Nov 54, exhibit #19.
112. "376th U-19 for Oct 54 by Aronlage, 1 Nov 54, exhibit #20.
113. "376th U-19 for Oct 54 by Nevitt, 1 Nov 54, exhibit #21.
114. "376th U-19 for Oct 54 by Bella, I Nov 54, exhibit #22.

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as the equipment operating time increased. Some of the failing amplifiers could be discovered in periodic inspection if proper test equipment were included in ECI-20-00-24.[115]

On the A-12D Gyropilot, one of the malfunctions was "no rudder response from turn know signals", and the other was "rudder trim meter inoperative", replacement was made in each case.[116]

MAINTENANCE ENGINEERING DIFFICULTIES

No mock-up facilities were available for the AN/ALE-1, AN/APS-54 and AN/APT-6 equipment. The APS-54 system is composed of three major components, necessitating the removal of the entire system from an aircraft to trouble shoot and bench check any one of the components, thus a mock-up is needed for adequate training in the equipment.[117]

Two cases have occurred where coating had peeled from the outside of the radome for AS680/APS-54. It was not known whether moisture-soaked radomes reduce the sensitivity of the AN/APS-54. Peeling is probably the result of normal weathering conditions. Unsatisfactory report action was taken. Operation of the AN/ALE-1 with the TD-93 intervalometer continued to be unpredictable. On one mission, two out of three dispensers deactuated the AN/ALE-1 dispenser circuit-breaker in the aft DC power panel; the dispensers were operated at 15, 30, and 45 second intervals using a special cam

115. "376th U-19 for Oct 54 by Nicholson", 1 Nov 54, exhibit #17.
116. "376th U-19 for Oct 54 by 7 Fld Engrs", 1 Nov 54, exhibit #18.
117. "376th U-19 for Oct 54 by Faux", 1 Nov 54, exhibit #19.

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setting on position "L" of the chaff dispenser control. An Unsatisfactory Report was submitted.

Sustained efforts over a period of eight months were made through supply channels to obtain TL 323/U, Signal Corps item, the special cable tool necessary for the assembly of cables using UG 154/U and UG 532/U connectors.[118]

OPERATIONAL DIFFICULTIES

It was necessary to recycle the system when one of the 115 VAC was removed from the system by manually turning the system off and on. A fix has been developed by the General Electric Company whereby it will automatically recycle when voltages are returned. An Unsatisfactory Report was submitted.[119]

SPECIAL DEVELOPMENTS

A crystal protector was installed on aircraft 52-389 and both antennas were checked and found to be in perfect shape after one month of operation. The aircraft flew three missions for the month and accumulated 13 hours and 45 minutes flying time.[120]

118. "376th U-19 for Oct 54 by Kronlage, 1 Nov 54, exhibit #20.
119. "376th U-19 for Oct 54 by Hella", 1 Nov 54, exhibit #22.
120. "376th U-19 for Oct 54 by Nevitt", 1 Nov 54, exhibit #21.

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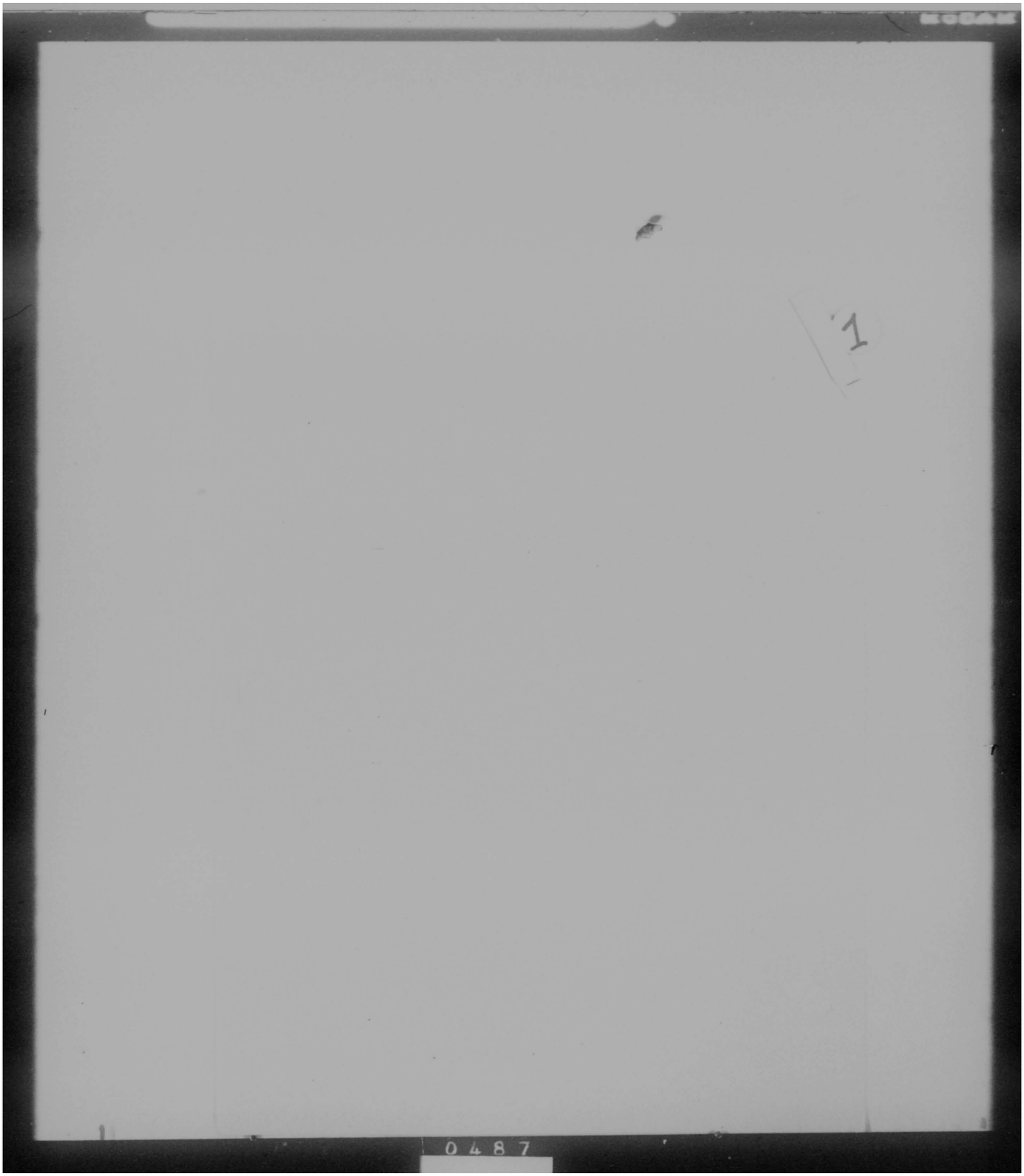

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SAFETY FILM

MONTHLY ANALYSIS (OCTOBER 1954)

1. Officers Assigned during October 1954:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Capt	(2054)	Carl J. Nalbroski	A0733219	376 Hq Sq
1st Lt	(9836D)	Rafall Aponte, Jr.	A02260372	376 Tac Hosp
1st Lt	(1531P)	William T. Lloyd	A01865362	376 Air Rflg Sq
1st Lt	(3274)	Leslie A Sayers	A01112956	376 A&E Maint Sq
2nd Lt	(1521A)	John O. Barnett	A03015973	376 Air Rflg Sq
2nd Lt	(1521F)	Norman F Cronin	A03026234	376 Air Rflg Sq
2nd Lt	(1521F)	James T Jessen	A08025839	376 Air Rflg Sq
2nd Lt	(1521F)	Henry E. Marshall	A03033778	376 Air Rflg Sq
2nd Lt	(7021)	Drake E. Omstead	A03010541	376 Hq Sq
2nd Lt	(3041)	Bobby G. Quinn	A02206632	376 A&E Maint Sq
2nd Lt	(9751)	Therese J.R. Rheaume	AN2242737	376 Tac Hosp
2nd Lt	(1521F)	Jack K. Walker	A03033784	376 Air Rflg Sq
CWO	(64100)	Roy A. Mase	AW2111450	376 Fld Maint Sq

TOTAL: 13

2. Officers Transferred, one each as listed, to HQ USAF, Castle AFB, Calif., Ellington AFB, Texas, Parks AFB, Calif., Resignation from Service, James Connally AFB, Texas, Released from Active Duty, Camp Kilmer, N.J., Hq 301st Bomb Wing, and Carswell AFB, Texas:

Col	(0046C)	Ralph T. Holland	A0441843	376 Hq Sq
Capt	(1525B)	John M. Alderson, Jr.	A0927951	513 Bomb Sq
Capt	(1534A)	Glen A. Dodd	A0667264	376 Air Rflg Sq
Capt	(1534A)	Paul J. Limm	A0723118	376 Air Rflg Sq
1st Lt	(3234)	Thomas K. Dyer	20176	376 A&E Maint Sq
1st Lt	(1044P)	Thomas A. Howley	A02224340	376 Hq Sq
1st Lt	(1044P)	Joseph E. Mlynarczyk	A02000266	514 Bomb Sq
2nd Lt	(9031)	Edward J. Daigle	A02262098	376 Tac Hosp
2nd Lt	(2051)	Richard F. Ochoa	A03003181	376 Hq Sq
CWO	(64100)	Sim C. Embry, Jr.	AW2122765	376 Fld Maint Sq

TOTAL: 10

3. Airmen Assigned During October 1954 (By Promary AFSC):

20430	- 1	43171B	- 1	70010	- 17
27250	- 1	43271D	- 2	70230	- 2
29010-	- 1	46010	- 5	70250	- 4
29370	- 1	47171	- 3	70270	- 2
30230	- 28	53450	- 1	73251	- 1
32330C	- 1	60350	- 1	90010	- 2
32330F	- 1	62010	- 1	90250	- 2
40150	- 1	62250	- 1	90670	- 1
40170	- 1	64151	- 2	92210	- 1
40433	- 2	64175	- 1	92250	- 1
				92270	- 1
TOTAL:	91			43271B	- 1

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4. Airmen Transferred and Discharged (not REENL) in Oct 54 (By PRIM AFSC):

20450	- 1	42650	- 1	58151	- 1
29353	- 2	43131D	- 1	62270	- 1
29370	- 1	43131J	- 44	64151	- 2
30170	- 1	43151D	- 1	64173	- 1
30230	- 1	43152B	- 12	70230	- 1
30250	- 2	43133	- 24	70250	- 5
30270	- 1	43153	- 2	70270	- 1
30470	- 2	43154B	- 3	73170	- 1
32130E	- 10	43170	- 3	73230	- 1
32150E	- 2	43171B	- 1	73250	- 2
32351F	- 5	43271D	- 1	73251	- 5
32372F	- 2	46250	- 1	73270	- 1
40170	- 1	46270	- 1	80130	- 1
42330	- 1	47131	- 1	90430	- 1
42550	- 2	58010	- 2	90450	- 1

TOTAL: 157

5. Reenlistment Rate:

Number Discharged	Number Reenlisted	% Reenlisted
38	13	34.2

Discharged by Squadron:

376th Hq Sq	SSGT E. J Wilkins	MSGT T C Struth (REENL)
	MSGT M J Barr (REENL)	*A/2C R D Rychtiger
	A/1C J E Murphy	MSGT H L Neely (REENL)
	SSGT M D Dunson (REENL)	SSGT J W Jamroz
512th Bomb Sq	A/1C M D Holdcraft	
513th Bomb Sq	SSGT F E Fetsch	*SSGT R H Thraves
	MSGT H H Graham (REENL)	A/2C E T Jalbert
	A/1C T A Baum	A/1C M L Smith, Jr
	*A/1C R A Boehnke	SSGT F R Lane
514th Bomb Sq	*SSGT M P Lewis	*A/1C J W Trunnell, Jr
	*A/1C J M Jones	*A/B R D Stanley
		SSGT A A Gizynski
376th Armt & Elect Maint Sq	SSGT J W Peeples	*A/1C C C LaMourey
		SSGT J R Runa (REENL)
376th Fld Maint Sq	A/1C G C Lynch	*A/1C J W Milton
	SSGT J T Shealy, Jr	*A/2C J C King
	SSGT R T Conn	MSGT J Thomas (REENL)
	*A/1C L F Foote	SSGT R L Griggs
	A/1C W L Townsend	MSGT C W Williams (REENL)
	A/1C R E Lee	SSGT B J Brown
	*A/1C Innocenzi	MSGT J F Ryan (REENL)
		TSGT W H Pope

0489

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5. Reenlistment Rate: (Continued)

376th Periodic Maint Sq	*SSGT G W Rogers		*SSGT J S Byrd
	*SSGT D G O'Brien		TSGT H M Mansfield (REENL)
			MSGT J D Lindsey (REENL)
376th Air Rflg Sq	SSGT G T Slider		SSGT R J Thuotte
	TSGT R R Chipman	(REENL)	SSGT H C Atkins (REENL)
			SSGT G J Richardson
376th Tac Hospital	A/1C J H Johnson		SSGT C A Harner
	*SSGT J K Hopkins		SSGT J L Thomas

*Indicates airmen discharged but not included in the Reenlistment Rate.

6. AWOL Rate per 1000:

	Assigned	Number AWOL	Percent
Officers	381	0	0
Airmen	1972	3	1.52
TOTAL:	2353	3	1.27

7. Gains and Losses

	Number Disch & Trfd	% AUTH Strength	Number Assigned	% AUTH Strength
Officers	10	2.2	13	2.8
Airmen	157	9.1	91	5.3

8. Effective Manning of Officers:

ORG	AUTH	ASGD	EFF ASGD	NR MIRS	% EFF ASGD	% MIRS
376 Hq Sq	70	67	55	55	78.6	78.6
512 Bomb Sq	77	60	59	59	76.6	76.6
513 Bomb Sq	77	59	58	58	75.3	75.3
514 Bomb Sq	77	59	59	59	76.6	76.6
376 Air Rflg Sq	100	85	85	85	85.0	85.0
376 Armt & Elec Maint Sq	16	18	15	15	93.8	93.8
376 Fld Maint Sq	7	8	6	6	85.7	85.7
376 Per Maint Sq	5	4	4	4	80.0	80.0
376 Tac Hospital	27	21	19	19	70.4	70.4
TOTAL:	456	381	360	360	78.9	78.9
CONSOLIDATED MIRS:						
	456	381		366		80.3

0490

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9. Effective Manning of Airmen

ORGN	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376 Hq Sq	36	81	47	100	29	74	30	68	80.6	91.4	83.3	84.0
512 Bomb Sq	76	29	104	31	72	22	45	21	94.7	75.9	59.2	72.4
513 Bomb Sq	76	29	103	26	74	24	44	22	97.4	82.8	57.9	75.9
514 Bomb Sq	76	29	103	29	76	25	51	24	100	86.2	67.1	82.8
376 Air Rflg Sq	195	53	209	46	171	41	124	39	87.7	77.4	63.6	73.6
376 Armt & Elec Maint Sq	360	66	413	68	284	57	241	47	78.9	86.4	67.0	71.2
376 Fld Maint Sq	242	141	297	142	199	121	177	116	82.2	85.8	73.1	82.3
376 Per Maint Sq	114	24	141	21	91	17	82	15	79.8	70.8	71.9	62.5
376 Tac Hospital	1	94	1	92	1	83	1	83	100	88.4	100	84.4
TOTAL:	1176	1418	546	555	997	795	464	435	84.8	85.0	67.6	79.7
Consolidated MIRS:	1176		546			796		450		67.7		82.4

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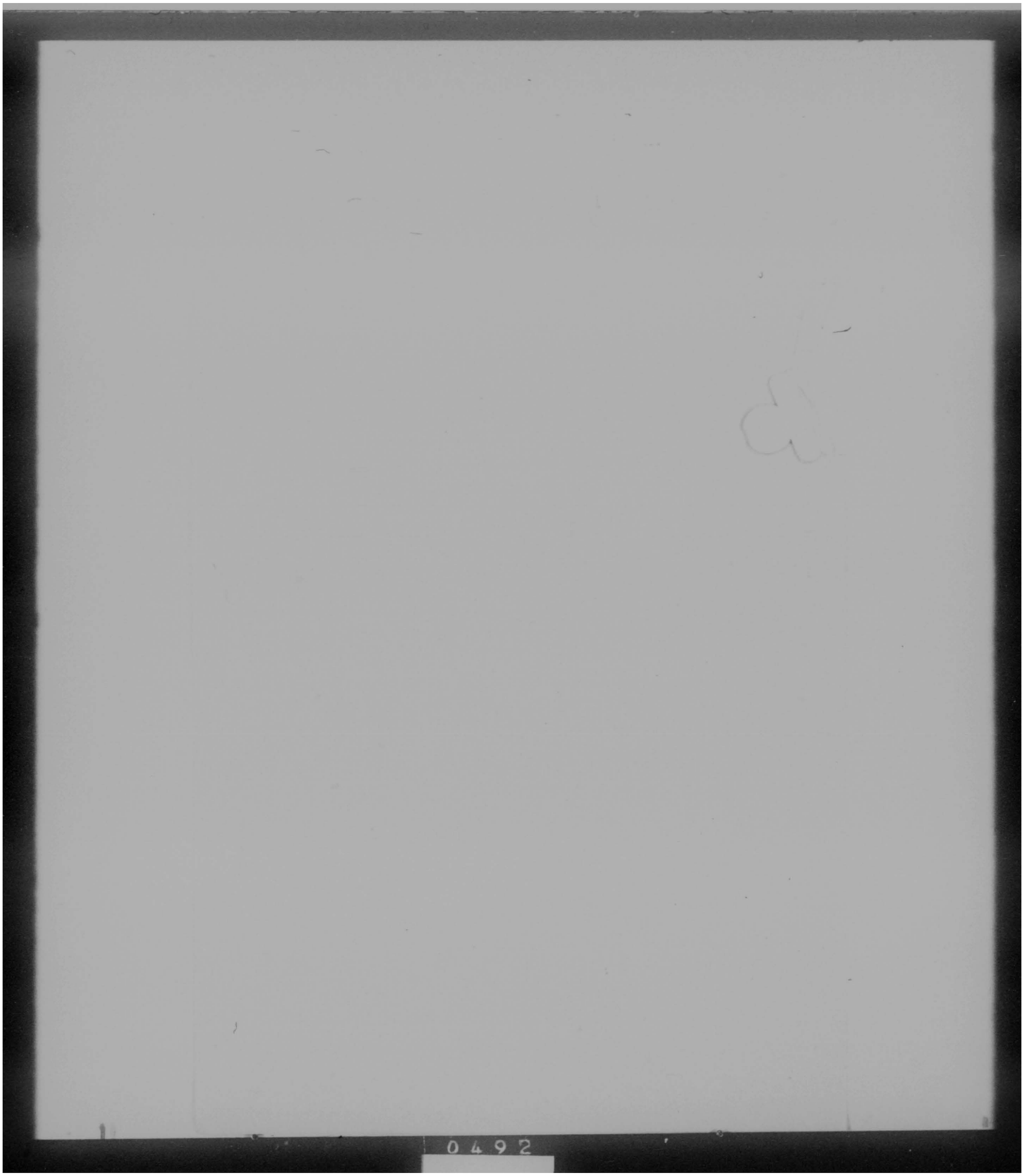

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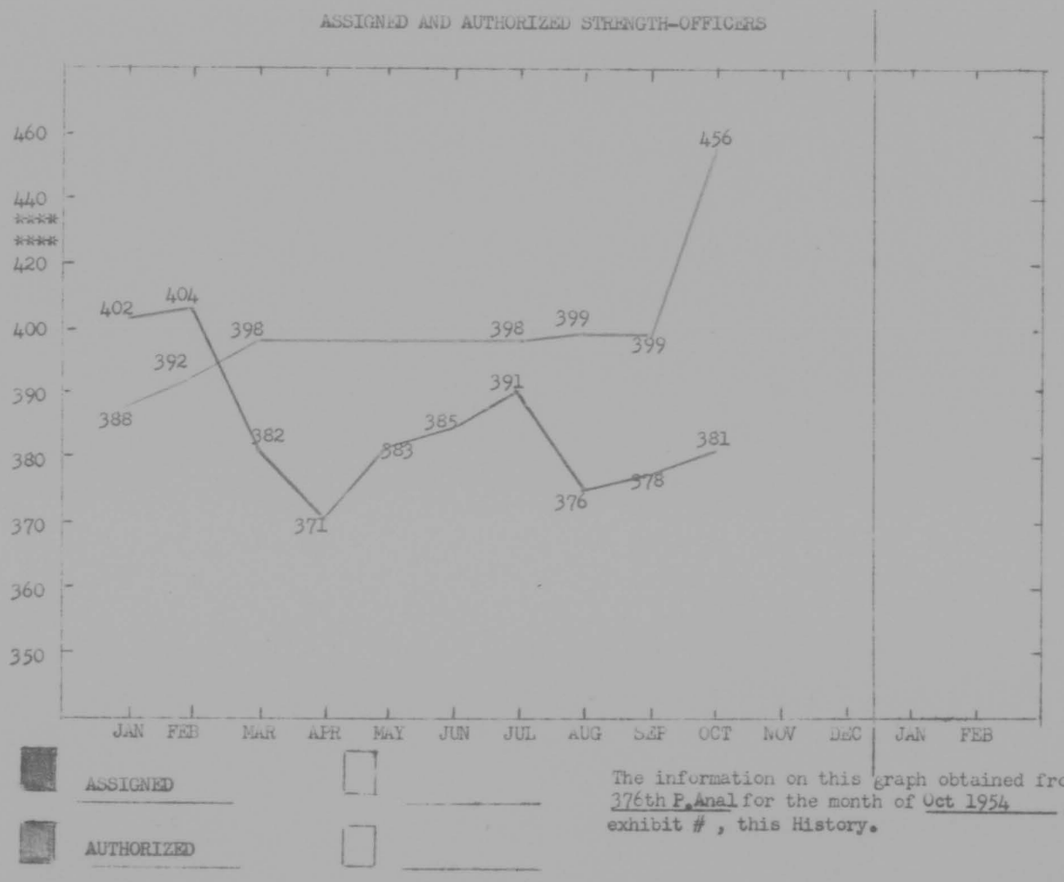
ASSIGNED AND AUTHORIZED STRENGTH-OFFICERS



The information on this graph obtained from 376th P.Anal for the month of Oct 1954, exhibit # , this History.

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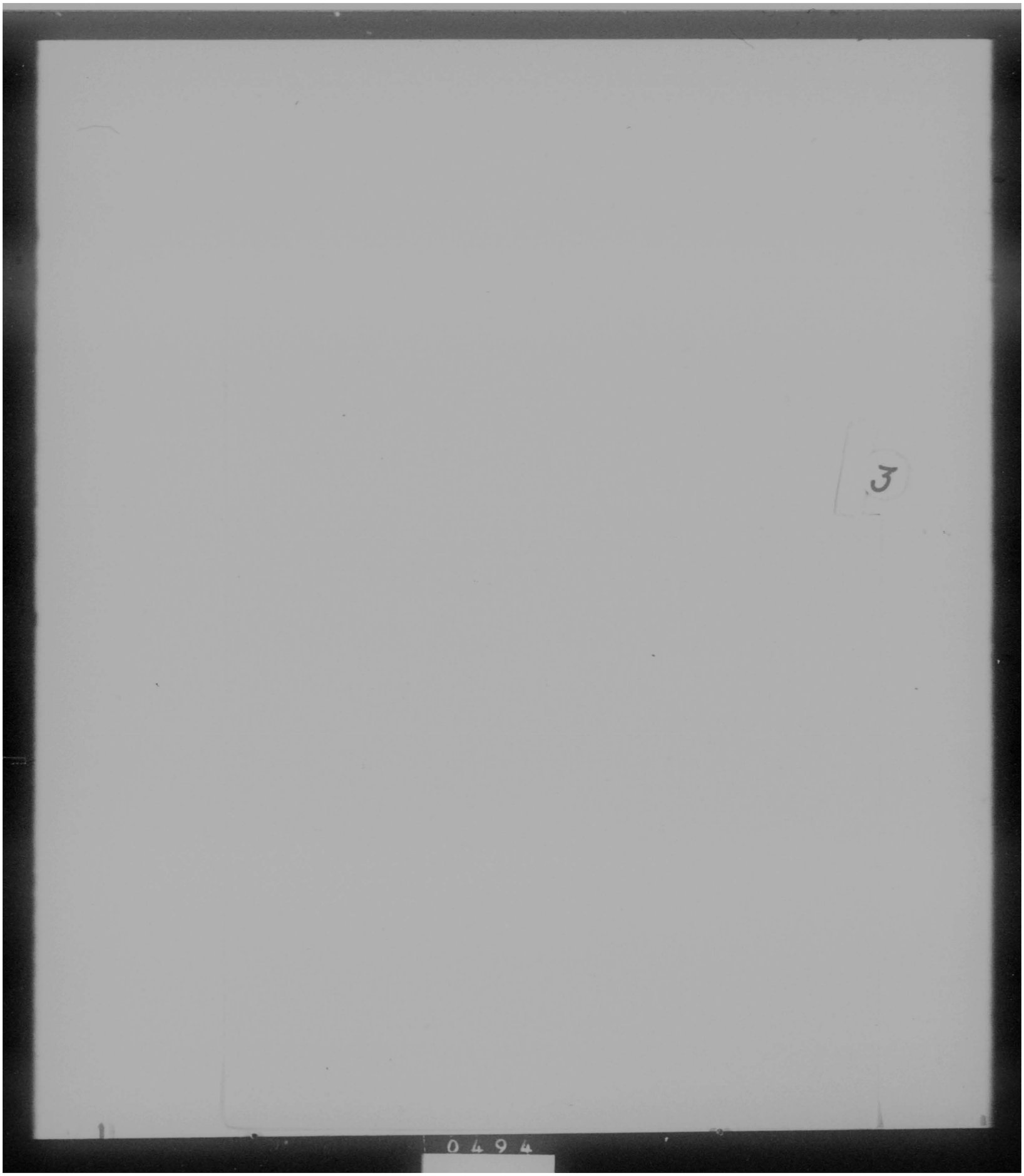

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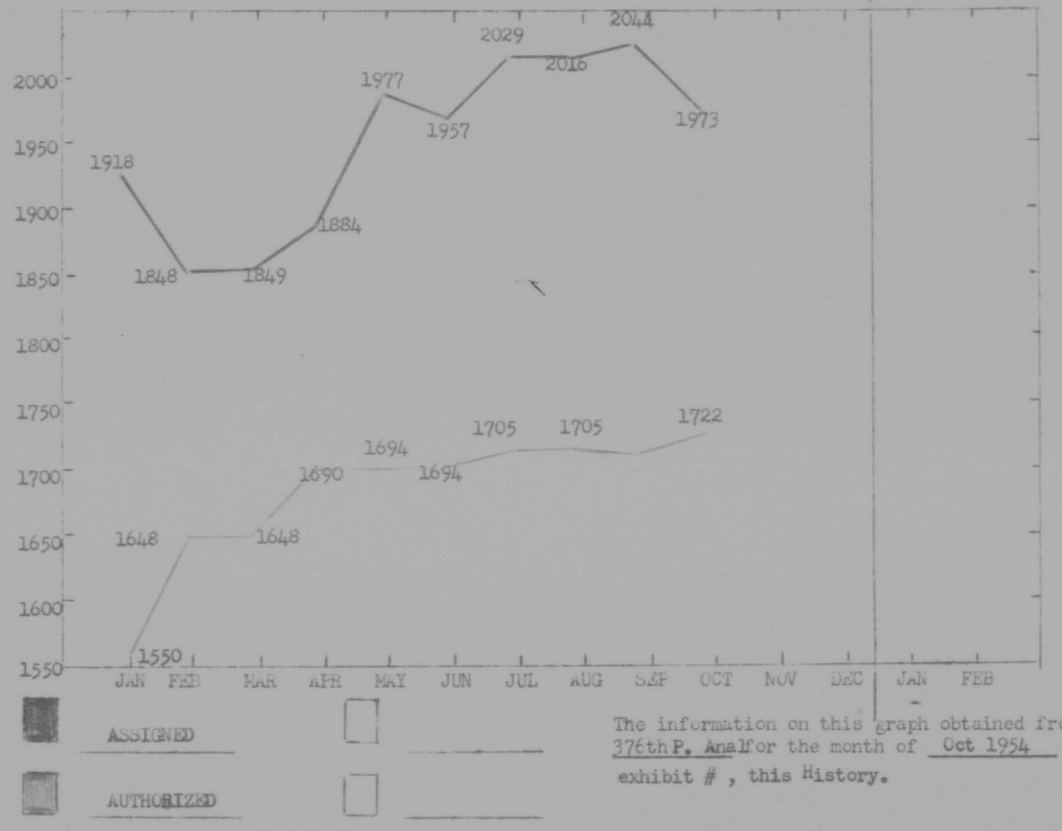

The information on this graph obtained from 376th P. Anal for the month of Oct 1954, exhibit # , this History.

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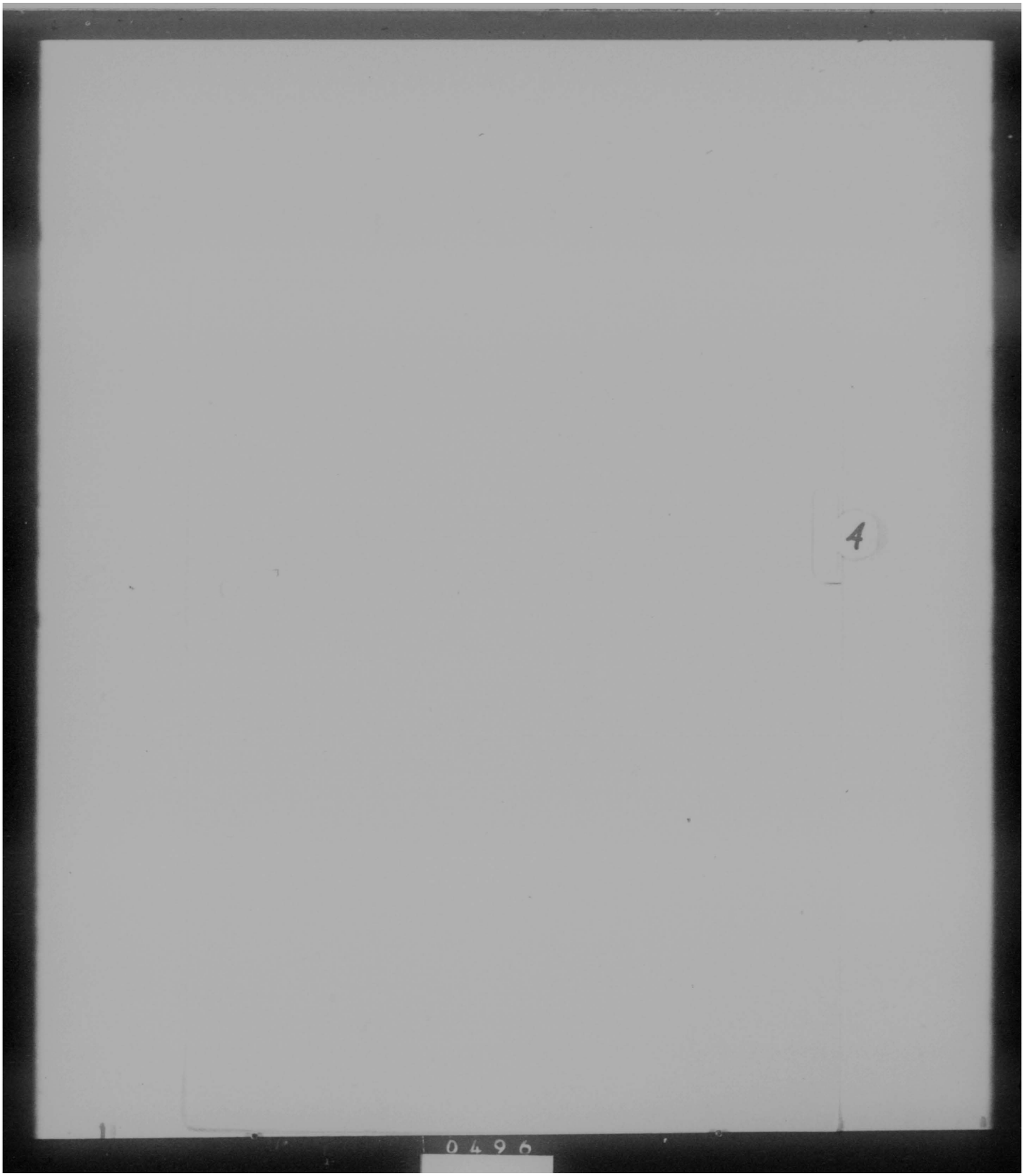

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
Authority: CGSAF 37[illegible]
Initials: [illegible]
Date: 5 November 1954

WING COMMANDERS REMARKS

SECTION J

Air Training Report for the Month of October 1954
(RCS: 6-SAC-T12)

SECTION J:

c. Wing Commander's Remarks - Part III

(1) Hours flown performing missions ordered by higher headquarters:

(a)	Ferrying aircraft	5:10
(b)	ECM Test	121:00
(c)	Execution of 2AF Operations Order 137-54	440:00
	TOTAL	566:10

(2) Weather or local conditions affecting training:

(a) Fifty-six sorties were cancelled due to weather.

(3) Directives imposed by AMC or SAC on aircraft:

(a) None.

(4) Combat crew member gains or losses:

(a) Gains: None.

(b) Losses: 1 Observer re-assigned 93rd Bombardment Wing 1 October 1954.

(5) Crew member changes:

(a) None.

(6) New crews:

(a) None.

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0497

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(7) Crew status changes:

(a) R-41-AO dissolved effective 1 October 1954.

(b) N-76-BO to R-76-BO effective 1 October 1954.

(c) N-79-CO to R-79-CO effective 4 October 1954.

(d) N-16-BO ECM Combat ready effective 8 October 1954.

(8) Standardization Crews:

(a) R-04-AO Wing Standardization crew.

(b) R-11-AO, R-35-AO and R-70-AO are Squadron Standardization crews.

(9) Personnel and Material Problems:

(a) The officer effective manning decreased compared to September. This decrease is attributed to the new authorization for tactical squadrons of an authorized crew ratio of 1.5 per aircraft.

(b) Officer manning in AFSC's 3054, 3254, 4334, 4355, 4364 and 7324 remains critically short.

(c) Manning in the Aircraft Maintenance Field has changed slightly during the month. Manning in AFSC's 43133/53 is at 300% by primary and 269% by duty. Manning in AFSC's 43151J/51B and 52A is at 64% by primary and 164% by duty. This represents an 8% increase by primary and 1% decrease by duty. Supervisory/Technician level in AFSC's 43170/71B and 71J manning is at 84% by primary and 110% by duty.

(d) The armament systems maintenance career field manning is slightly higher by duty this month. AFSC's 32171E, 32370 and 32371C show 15% by primary and 24% by duty.

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Air Training Report for the Month of October 1954 (Cont'd)

(e) The re-enlistment rate for the month of October was 23%. An increase of 8% over September.

(f) An average of 31 percent of ten C-26 units (12 authorized) were out of commission for parts.

(g) An average of 15 percent of the 15 assigned C-21 units (12 authorized) were out of commission for parts.

(10) SAC Minimum Training Requirements:

(a) Not applicable.

(11) Special Training Month:

(a) Not applicable.

(12) Field Training Operations:

(a) Test of facilities: Pickup facilities at Campbell Air Force Base and operational facilities at Clarksville Base were tested. All facilities were adequate.

(b) Exercise: 26, 29, and 30 October, the 376th Bombardment Wing conducted an exercise in accordance with 2AF Operation Order 137-54, dated 19 October 1954. Seven aircraft were dispatched each day on 26 and 29 October and five on 30 October to Campbell Air Force Base and loaded on dates deployed.

(c) Maneuvers: None.

(13) Non-Combat Ready Crews that could be used in case of an emerger

(a) Twelve non-combat ready crews have been trained to a point where they could be deployed for ECM-support missions in the event of an emergency.

(14) Non-Combat Ready Crew Training:

(a) Twelve non-combat ready crews were in training at the end of the month.

0499

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Air Training Report for Month of October 1954 (Cont'd)

(15) Comments or Recommendations of the Wing Commander:

(a) The continuous effort expended on the AOCP rate of B-47's has reduced the rate from 11.28% in September to 6.82% in October for a decrease of 4.46%.

(b) The low experience level of E-system mechanics and observer affects the quality of radar bombing. Training of personnel is continuing through maximum use of radar trainers, MTD, and Contractor Technicians.

(c) The average number of crews assigned during October was 46. A total of 1499 hours were flown for an average of 32:36 hours per crew.

(d) The average number of possessed aircraft during October was 48. The average flying time per aircraft was 31:13 hours.

(e) In compliance with paragraph 4b, SAC Regulation 50-43, unit crew training charts are attached as inclosure 1.

(f) In compliance with SAC message DOTRS 12487, information requested is attached as inclosure 2.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

2 Incls
1. 50-43 Tng Charts
2. Individual CEA

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SAC REG 50-43 TRAINING (REVISED)

512TH BOMB SQDN

THIS COMPLETED ACCUMULATIVE TAC REQUIRED FOR Combat Ready

Posted As of 31 Oct 57

AIRCRAFT COMMANDER

R-01-AO BRADLEY
R-02-AO MINOR
R-03-AO BADEN
R-04-AO BRASHEAR
R-05-AO GAUTSCHI
R-06-AO SCOTT
R-07-AO BEALE
R-08-AO DILL
R-09-AO CLICKMAN
N-10-AO KLEIBER
R-11-AO DERRICK
R-12-AO VAN SAN-
N-13-AO SAUNDERS
N-14-AO ANDERSON
N-15-BO SLANSAAS
N-16-BO WICKES

CO-PILOT

R-01-AO CASTLE
R-02-AO KELLY U.T.
N-03-AO GRAMMAS
R-04-AO MAHER
R-05-AO SEIZ
R-06-AO HASKINS
R-07-AO RHODES
R-08-AO SIGLER
R-09-AO JONES
N-10-AO RICKELMAN
R-11-AO KITCHENS
R-12-BO WALKER
N-13-AO THORNTON
N-14-BO COX
N-15-BO SUTCH
N-16-BO RICKETTS

OBSERVER

R-01-AO LEBARRON
R-02-AO MIRSCH
R-03-AO LICHTER
R-04-AO DEJUNG
R-05-AO DOYLE
R-06-AO SCHERER
R-07-AO WHITAKER
R-08-AO BAUCH
R-09-AO WRIGHT
N-10-AO MCCLARKEN
R-11-AO SAVAGE
R-12-AO FORD
N-13-AO PETERSON
N-14-BO O'CONNELL
N-15-BO LARSON
N-16-BO MEAHL

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SAC REG 50-43 TRAINING (REVISED)

513TH BOMB SQDN

Trng Completed
Accumulative Trng
Not Required
Combat Ready

Posted As of 31 Oct 54

AIRCRAFT COMMANDER

R-34-AO Holman, A.F.
R-35-AO Francis, H.C.
R-36-AO Smith, J.E.
R-37-AO Anderson, J.P.
N-38-AO Hoskinson, C.J.
R-39-AO Paschall, M.
R-40-AO Covington
Partial Crew
Lowman, R.P.
R-42-AO
Chalmers, R.T.
R-43-AO
Gaston, G.E.
N-44-AO
Lyles, J.T.
N-45-AO
Stahle, P.J.
N-46-AO
Shepard, E.
N-47-AO
Ruddell, T.W.
Partial Crew
Furlow, L.C.
N-51-AO
McCallum
N-52-AO
SMITHINGEN

CO-PILOT

R-34-AO Niersbach, N.G.
R-35-AO Reavis, C.L.
R-36-AO Stone, S.E.
R-37-AO Copp, W.
N-38-AO LaCasse, W.
R-39-AO Smith, E.E.
R-40-AO Johnson, G.H.
Partial Crew
WAGNER
R-42-AO Sorenson, R.N.
R-43-AO Ailes, R.H.
N-44-AO Markham, R.
N-45-AO Shepherd, E.V.
N-46-AO Ellanson, R.C.
N-47-AO Shofstall
Partial Crew
YATES
N-51-AO
MASON
N-52-AO
STARMAN

OBSERVER

R-34-AO Wellino, W.B.
R-35-AO Kondziolka, E.K.
R-36-AO Gore, H.L.
R-37-AO Mandall, L.D.
N-38-AO Hedrick
N-39-AO Hough, W.S.
R-40-AO Quercia, D.P.
R-42-AO Martin, J.K. F.
R-43-AO Waldheim, E.H.
N-44-AO Telson, A.
N-45-AO Kelly, V.B.
N-46-AO Bauer, R.H.
N-47-AO HEAD
N-51-AO
DAVIS
N-52-AO
VAIL

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CONFIDENTIAL

Trng Completed
Accumulative Trng
Not Required
Combat Ready

SAC REG 50-43 TRAINING (REVISED)

514TH BOMB SQDN

Posted As of 31 Oct 54

AIRCRAFT COMMANDER

R-69-BO
BROWN, L B
R-69-BO
Agnew, R R
R-70-AO
Guiea, W E.
R-71-AO
LONG, W E.
R-72-AO
Landstream, W
R-73-AO
Mack, N.
R-74-AO
Williams, W R
R-75-AO
Blair, J W
R-76-AO
Hopper, L F
N-77-BO
Wrsocki, J S.
R-78-AO
Clancy, O W.
R-79-CO
Bierman, C E.
R-80-AO
Smorag, S A.
N-81-
Bankson, r
R-82-AO
Allen

CO-PILOT

R-69-BO
Wilter, W E
R-69-BO
Grashoff, R A.
R-70-AO
Axtell, C B
R-71-AO
Hayes, J W.
R-72-AO
Baer, R R
R-73-AO
Koetting, D J
R-74-AO
Jackson, L S.
R-75-AO
Graves, S L.
R-76-AO
VanCleave, W.
N-77-BO
Yates
R-78-AO
Berker, B P.
R-79-CO
Axelsen, M M.
R-80-AO
Van Melker, R A
N-81-AO
McCool
R-82-AO
Sproul

OBSERVER

R-68-BO
SENCOS
R-69-BO
Cox, W M.
R-70-AO
Murdoch, S S
R-71-AO
Garr, G L.
R-72-AO
Badger, A W.
R-73-AO
Moore, G. B.
R-74-AO
Huddleston, V
R-75-AO
Kabacki, A S.
R-76-AO
Shively, R E.
N-77-BO
Gaskins, C C.
R-78-AO
Morris, J E.
R-79-CO
Chappell
R-80-AO
Vanslette, J.
N-81-AO
KRUGER
R-82-AO
Martin

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INDIVIDUAL CEA

R01A0	Visual Release	3/695/2225/950/
	Night Col Nav	2/15/15
R02A0	Visual Release	4/800/650/250/600/
	Night Col Nav	Negative
R03A0	Visual Release	4/3200/1854/2850/2700/
	Night Col Nav	Negative
R04A0	Visual Release	Negative
	Night Col Nav	1/16/
R06A0	Visual Release	3/760/930/1860
	Night Col Nav	Negative
R09A0	Visual Release	4/470/500/800/1740/
	Night Col Nav	Negative
R34A0	Visual Release	Negative
	Night Col Nav	1/20/
R43A0	Visual Release	Negative
	Night Col Nav	1/4/
R68A0	Visual Release	4/200/210/480/780/
	Night Col Nav	Negative
R70A0	Visual Release	Negative
	Night Col Nav	2/6/8/
R71A0	Visual Release	Negative
	Night Col Nav	1/24/
R74A0	Visual Release	4/430/680/800/840/
	Night Col Nav	Negative
R75A0	Visual Release	4/865/960/975/1225/
	Night Col Nav	Negative
R76A0	Visual Release	2/235/540/
	Night Col Nav	Negative
R79A0	Visual Release	1/1150/
	Night Col Nav	Negative
N10A0	Visual Release	1/930/
	Night Col Nav	Negative
N15A0	Visual Release	Negative
	Night Col Nav	2/15/15/

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N38A0	Visual Release Night Col Nav	4/1140/3700/580/450/ Negativo

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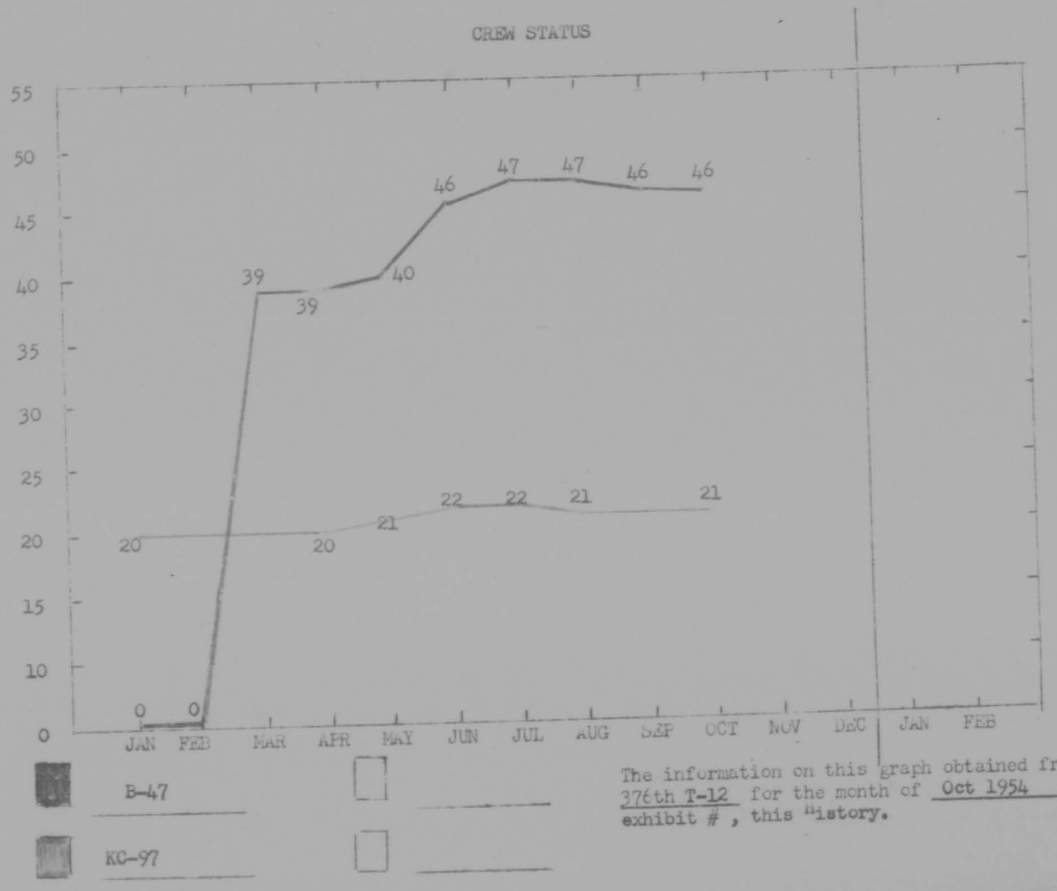

The information on this graph obtained from 376th T-12 for the month of Oct 1954, exhibit # , this History.

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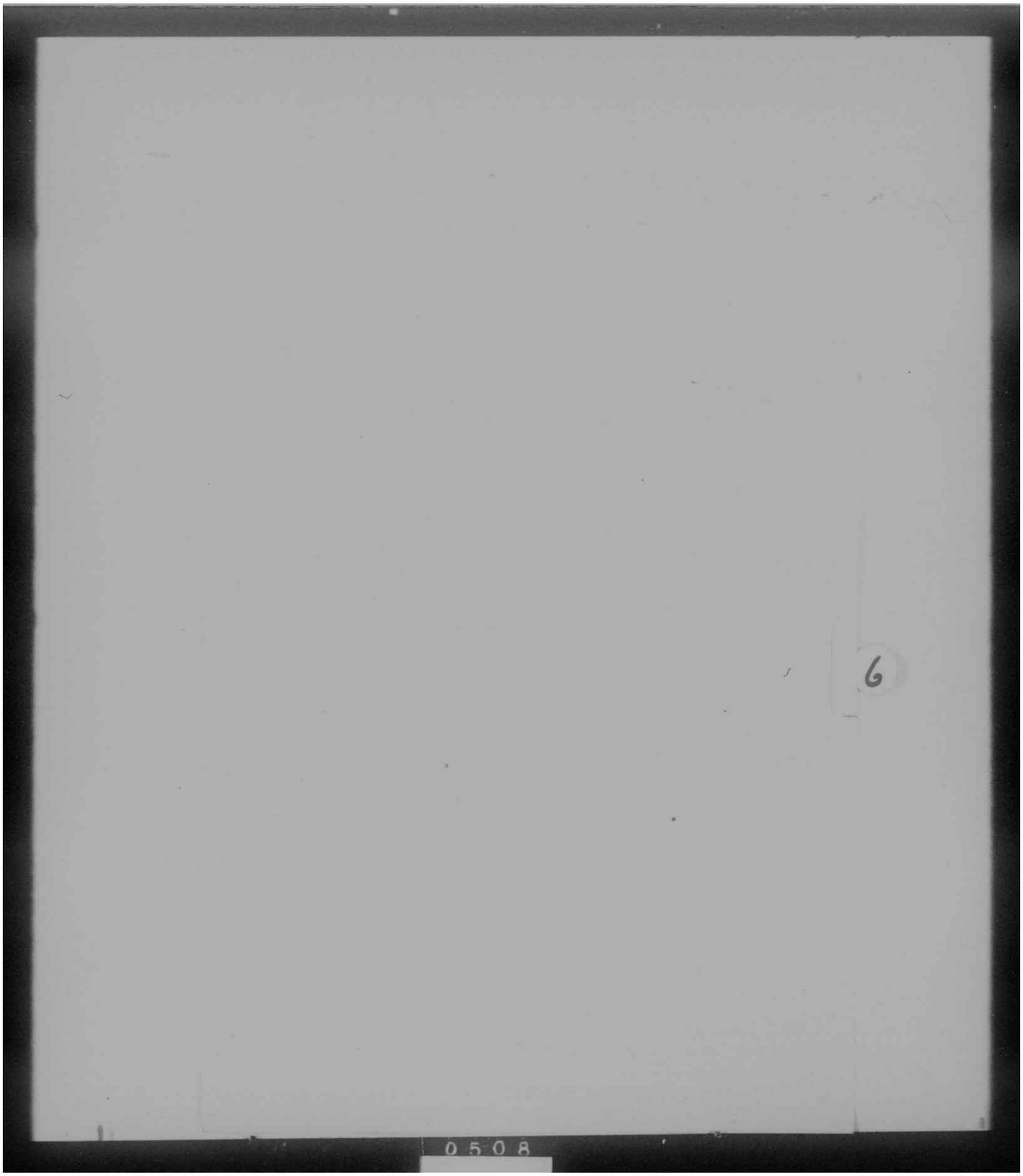

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SEC
Authority: COMDR 3[illegible]
Initials: [illegible]
Date: 5 November 195[illegible]

WING COMMANDER'S REMARKS

SECTION I

Air Training Report for Month of October 1954
(RCS: 4-SAC-T12)

1. An average of 21 crews were available for training; they flew 603 hours for an average of 28:42 hours per crew.

2. An average of 22 aircraft were possessed during the month. The average time per possessed aircraft was 27:25 hours.

3. Supply difficulty letters have been submitted on navigation equipment items. Aggressive supply follow up action is continuing.

4. Replacements for anticipated crew shortages have been requisitioned.

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (M)
Barksdale Air Force Base
Louisiana

Classification: SECRET
Authority: Comdr 376t
Initials:
Date: 5 November 195[illegible]

SQUADRON COMMANDER'S REMARKS

Air Training Report for the Month of October 1954
(RCS: 4-SAC-T12)

SECTION H:

a. Hours Flown Performing Missions Ordered by Higher Headquarters:

Total Time: 206:20

(1) Forty-one sorties accomplished for Second Air Force Operations Order 137-54.

Time: 158:15

(2) Five crews in support of ECM Test Projects.

Time: 19:55

(3) Two crews to McConnell Air Force Base, Kansas and return - Transporting VIP's.

Time: 10:05

(4) One crew to Pinecastle Air Force Base, Florida and return - Transporting VIP's.

Time: 6:35

(5) One crew to Offutt Air Force Base, Lockbourne Air Force Base and return - Transporting VIP's.

Time: 11:30

b. Weather and local conditions affecting training:

(1) None

c. Restrictions by AMC or SAC on Aircraft:

(1) None

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Squadron Commander's Remarks for Air Training Report for month of October 1954 - RCS: 4-SAC-T12

d. Excessive Crew changes and/or temporary crew substitutions:

(1) No excessive changes during the month.

e. Crews Formed during the Month:

(1) None.

f. Crew Status changes during the Month:

(1) Crew T-03-CO to M-03-CO.

(2) Crew M-14-FO to T-14-FO.

g. Squadron Standardization Board Crew:

(1) Crew T-02-DO.

h. Materiel and Personnel Problems:

(1) The AOCP decreased to 4.25% during October 1954, as compared to 7.99% for the previous month.

(2) A critical shortage exists in navigational equipment as follows:

(a) Hack watches (A-11 and A-17)

(b) Master watches

(c) B-2 and/or Weems plotters

(3) Crew position losses due to release from service for the period December, January and February are as follows:

(a) Boom Operators: 12

(b) Radio Operators: 4

(c) Flight Engineers: 4

i. SAC minimum requirements:

(1) Not applicable

j. Comments or Recommendations by the Squadron Commander:

(1) Reference pa ragraph h(3) - Because of the potential discharges within the squadron, it is recommended that replacement boom operators and radio operators be made available as a critical shortage will exist in these positions with[illegible]

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Squadron Commander's Remarks for Air Training Report for month of October 1954 - RCS: 4-SAC-T12

Personnel should be made available in the near future, otherwise crew regression will result because of the interim training period to qualify replacement crew members.

k. The following information is submitted as required by Change 2, Supplement V, SAC Regulation 50-23:

Crew Number	1	2	3	4	5	6	7	8	9	10
T-02-DO	X	X	X				X		X	X
M-03-CO	X	X	X	X		X	X		X	X
T-04-AO	X	X	X	X		X	X		X	X
T-06-FO	X	X	X				X		X	X
T-07-BO	X	X	X	X		X	X		X	X
T-08-FO	X	X	X			X	X		X	X
T-09-BO	X	X	X			X	X		X	X
T-10-BO	X	X	X				X		X	X
T-11-BO	X	X	X			X	X		X	X
T-12-GO	X	X	X				X		X	X
T-13-BO	X	X	X	X		X	X		X	X
T-14-FO	X	X	X			X	X		X	
T-15-CO	X	X	X	X		X	X		X	X
T-16-CO	X	X	X	X		X	X		X	X
T-17-FO	X	X	X				X		X	X
T-18-BO	X	X	X	X		X	X		X	X
T-19-BO	X	X	X			X	X		X	X
T-20-CO	X	X	X			X	X		X	X
M-21-FO	X	X	X	X		X	X			

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Squadron Commander's Remarks for Air Training Report for month of October 1954 - RCS: 4-SAC-T12

Crew Number	1	2	3	4	5	6	7	8	9	10
T-22-CO	X	X				X	X			
M-23-CO	X		X				X			

WENDELL D. LACK
Lt Colonel, USAF
Commander

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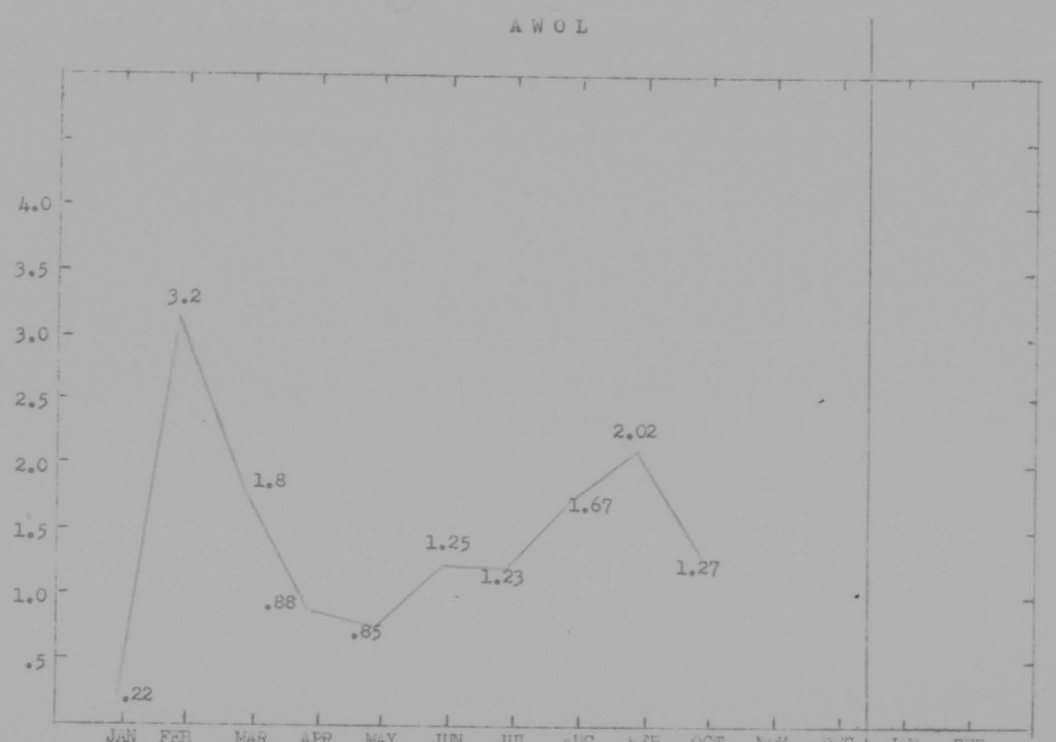

The information on this graph obtained from 376th P.Anal for the month of Oct 1954, exhibit # , this History.

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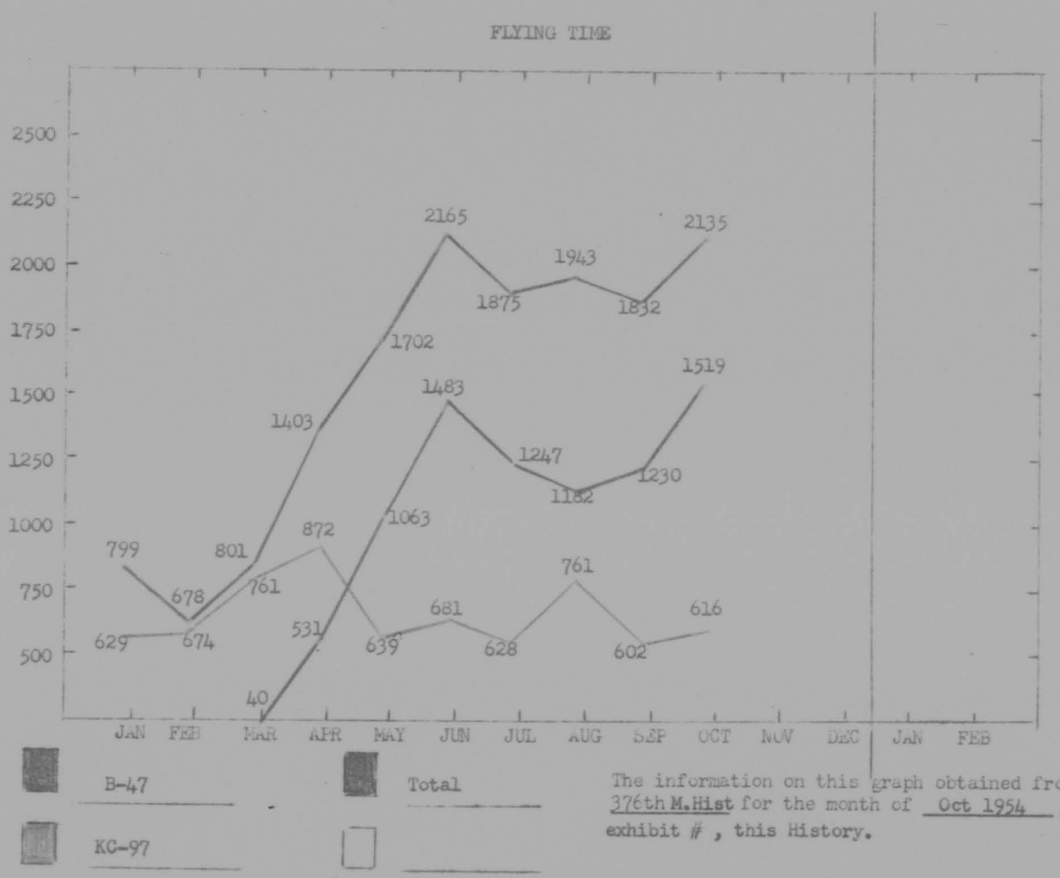

The information on this graph obtained from 376th M.Hist for the month of Oct 1954, exhibit # , this History.

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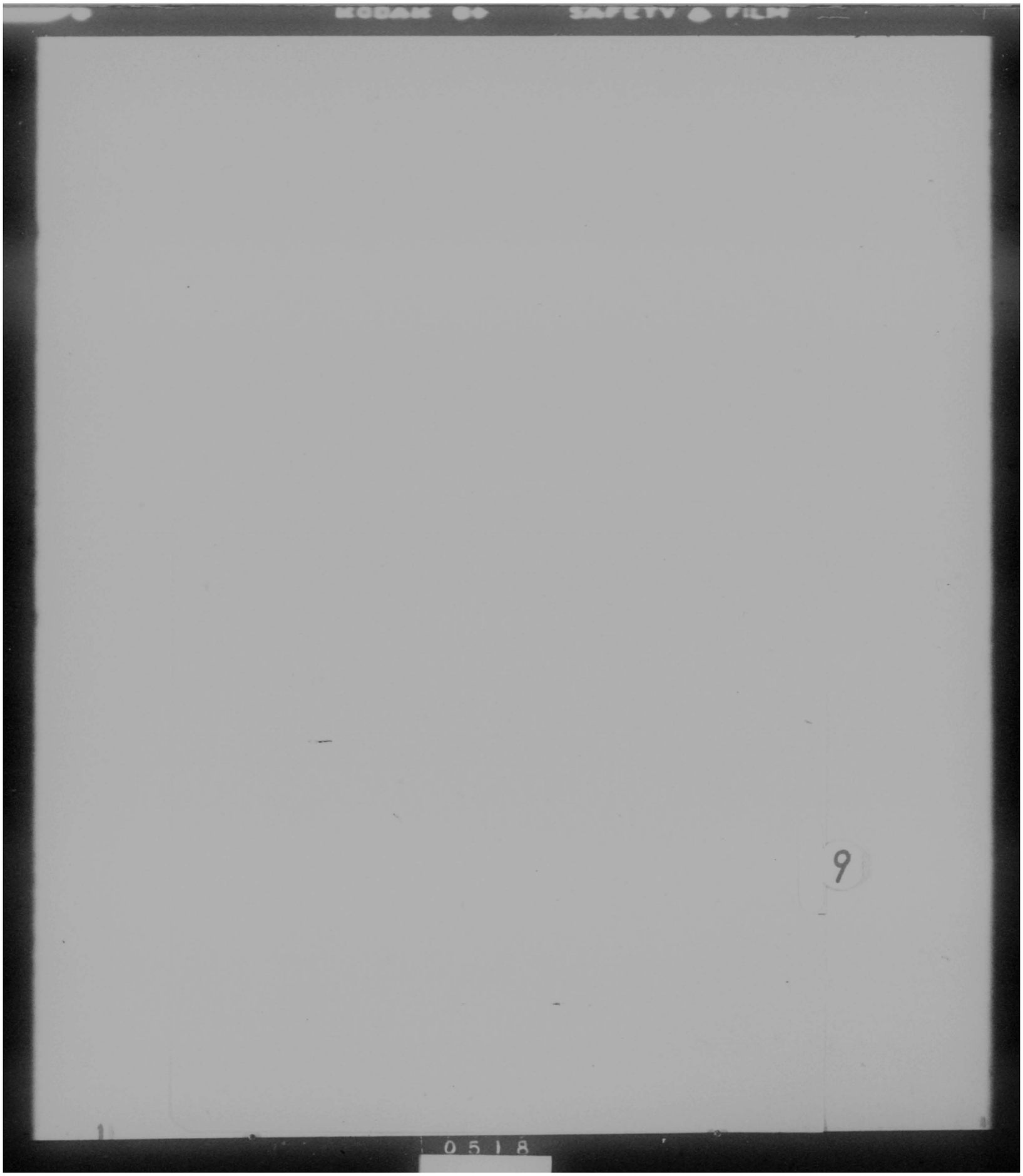

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HEADQUARTERS
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
Auth: COMDR 376 BOMBWG
Initials: Murphy
Date: 10 Nov 54

7DCTT

1 November 1954

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 October through 31 October 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952

(2) Percentage complete: 88%

(3) Hours flown: 283:08

(4) Present Status: Flight tests are in progress to determine the accumulative effects of the present configuration (Sweeping a one and two megacycle bandwidth), and to determine the number of jammers necessary to accomplish desired conditions of jamming. Development of an antenna to increase the gain in a forward direction is underway.

(a) A test was flown on 6 October 1954. Two KC-97's were employed, flying on a predetermined course while maintaining 25 miles separation. One aircraft was used as the fighter, carrying the VHF receiver; the other was used as the bomber, carrying the jamming transmitter. Five runs were completed. One jammer, with a swept bandwidth of one megacycle, was used on the first two runs. One jammer, with a swept bandwidth of two megacycles, was used on the other three runs. The average power output of the transmitters on this flight test was 250 watts. No desired jamming condition (four or five) was obtained during the test. The results obtained, on this and the

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9 September 1954 flight, indicate that one jammer with a swept bandwidth of one or two megacycles is not sufficient to obtain effective jamming 110 miles from the GCI station, with 25 miles separation between aircraft.

(b) Two graphs, Inclosures 1 and 2 are attached. One is the Variation of the GCI Signal versus Distance from the Ground Station, labeled Signal Strength - GCI Station. This signal was recorded at an altitude of 10,000 feet. The ground station output was 50 watts, and the frequency was 1142.38 megacycles. The second graph is a plot of the jamming signal strength versus separation between aircraft, labeled Jamming Signal Strength versus Separation. From these two graphs, relative signal strength of the jammer and ground station may be compared for any distance from the station at various separations of the aircraft.

b. Test Project 1-X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953

(2) Percentage completed: 36%

(3) Hours flown: None

(4) Present status:

(a) Two trips to WAC Engineering Company, Dayton, Ohio were completed during the period, for the purpose of coordinating the development of special tuning capacitors required on this project.

(b) The first of the five VHF tuning capacitors manufactured was delivered to 7DCTT on 6 October 1954 for evaluation and acceptance. This capacitor did not meet all the specifications established in the contract. The deficiencies noted are in the process of being corrected by project engineers at Barksdale, in order to speed up the completion of the project. Detailed instructions on correcting the deficiencies noted in the first capacitors will be forwarded to WAC Engineering Company to enable them to correct the four remaining capacitors before delivery.

(c) Composite packaging of the equipment is nearing a final stage. The tuned RF, local oscillator, and mixer stages of the receiver will be mounted with the buffer and power amplifier stages of the transmitter on one chassis in a standard rack. This is done to facilitate tracking of the two units. The IF and control circuits are mounted in a

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half rack, while the power supply and modulator are constructed on a single chassis in a full rack.

(d) The IF and control circuits are complete and have tested satisfactorily on the bench. The wiring on the front end of the receiver has been checked for tracking and sensitivity. The tracking is satisfactory; however, the sensitivity requires additional work. The buffer stages have been wired and checked for bandwidth. This test has proved satisfactory. As yet, the ability of the buffer stages to track with the receiver is unknown. Additional engineering and modification of the capacitor may be necessary to complete this phase of the project.

c. Test Project Number 15, "Effectiveness Test of Sweep Jammers AN/ALT-8".

(1) Date initiated: 9 August 1954

(2) Percentage complete: 18%

(3) Hours flown: 12:45

(4) Present status: Twenty-one additional systems were received during the month from the Raytheon Company. This makes a total of 28 complete systems on hand in the Wing.

(a) Only one specific AN/ALT-8 mission was scheduled during the reporting period. The AN/ALT-8's on hand were operated in conjunction with the AN/ALT-6 during the flying of Project 27 on 19 October 1954. They were also operated during the recent 376th Bomb Wing Air Defense Command exercises on the east coast. Specific results of these operations will be made the topic of a separate report.

(b) The only specific AN/ALT-8 mission flown, on 7 October with two B-47's flying against the MSQ-2 radar at Site #3, Eglin Air Force Base, Florida, was unsuccessful. The mission was planned as follows: Each aircraft was to fly parallel courses 30 miles north of Site #3 and to 30 miles south., The jamming aircraft would fly west of Site #3 and the tracking aircraft east of Site #3. The first run was planned to place the aircraft five miles apart, two and one-half miles on both sides of the site, and fly a paralled course until 30 miles beyond the site. At the completion of the first run, the aircraft would then turn away from each other and start the second run 15 miles apart. At the completion of the second run, the aircraft would turn away from each other and start the next run 25 miles

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apart. The same procedure applied to the fourth run which would place the aircraft 35 miles apart. Positioning of the aircraft would be controlled by the FPS-3 radar at Site #30. IFF would be used to aid in tracking both aircraft by the radar. Due to inoperative IFF on both aircraft, poor communications between the radar controller and the aircraft, poor radar tracking and interference from other aircraft on the range, very little usable data was obtained from this test.

(c) During the month, 44 of the 45 combat B-47's assigned to the Wing have been modified to enable the AN/ALT-8 to be operated from the ATO compartments. All cabling, wiring and control circuits have checked out satisfactorily. Additional racks and antennas, which are now in short supply, will be placed in the aircraft as received.

d. Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 Operated as a Sweep Jammer with a Helix or Stub Antenna Against Search and Tracking Radars".

(1) Date initiated: 1 April 1954

(2) Percentage complete: 62%

(3) Hours flown: 144:25

(4) Present status:

(a) The RG-117/U coaxial cable, together with UG-532/U connectors, continue to be the weakest part of the entire system. Additional difficulties are caused by vibrations which are generated in the bombbay doors and then carried through the coaxial cable to the transmitter. The cable is not sufficiently flexible to cushion the transmitter from vibrations originating in the doors where the antenna is seated. This results in eventual wear which causes electrical dissymmetry between connectors.

(b) Operation of the AN/ALT-6, both in aircraft and on the bench, indicates that the teflon used as a dielectric, in the transmitter and in the transmission cable of the antenna, is not sufficiently chemically inert. This results in an electrolysis process when two dissimilar metals are at a different potential and are in contact with the teflon dielectric. Eventually, when the teflon becomes saturated with one of the metals, a high resistance short occurs.

(c) After noting a decided decrease in the effectiveness of jamming from equipments which had been operated on several missions, together with the difficulties encountered in

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(a) and (b) above; three transmitters were returned to the General Electric Company to determine if any damage had been caused to the magnetrons. The power output is listed below for the equipment as received at the factory, after having been operated by this station, and after adjustment by the factory:

Transmitter Number	As Received	After Adjustment
1	306 Watts	375 Watts
2	390 Watts	395 Watts
3	355 Watts	360 Watts

It should be noted that the power output is consistently higher than when the transmitter was new. The transmitters selected for these tests were equipments with the maximum number of hours. It is logical to assume that "cooking" of the magnetrons is the reason for their rise in power output.

(d) It was decided that the coaxial cable problem should be resvaluated. First, coaxial cable loss has always been taken as a matter of course, about which nothing much has been done. Of late, however, various literature has discussed a technical advance known as the "strip transmission line". This type of line combines the advantages of both wave-guide and coaxial cable. The loss per length is small and it can handle a wide band of frequencies. A section of this type of line has been constructed and testing started in 7DCTT laboratory.

(e) A momentary loss of either the 115 volts AC regulated or unregulated power to Blue Cradle will cause the AN/ALT-6 to turn itself off. Although the AC voltage is reapplied, the set will remain off until the OFF-ON switch is returned to the OFF position, and then recycled to the ON position. This condition will also occur if the set is turned to the STANDBY position before the inverters have stabilized. An Unsatisfactory Report has been submitted recommending a method for correcting this condition. It was further recommended that this correction be adopted as an emergency field change.

(f) A "Calorimetric Wattmeter" has been received from the Cubic Manufacturing Company which measures power in the microwave regions from 2.6 to 3.95, 7.05 to 10, and 8.2 to 12.4 KMCS. This will assist considerably in measuring transmitter power output, and determining the effectiveness of the equipments operated in this range.

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e. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 65%

(3) Hours flown: 200:30

(4) Present status: One chaff corridor mission was flown on 19 October 1954 against Eglin Air Force Base and Tyndall Air Force Base radars.

(a) Four forces (Alpha, Bravo, Coca, and Delta) participated on the mission. Alpha force, the main ECM force, consisted of eight B-47's. This force flew a "V" type formation with two miles lateral spacing between aircraft. Chaff was dispensed at a rate of 10 feet per minute by each aircraft. Electronic jamming was performed from a point 61 miles south of New Orleans, Louisiana to Albany, Georgia.

(b) Alpha force penetrated within 70 miles of Tyndall Air Force Base, Florida under the protection of the jamming and confusion produced by Coca, the diversionary force. Coca force (three B-47's flying in a "V" formation with four miles lateral separation) flew from 35 miles west of Bradenton, Florida to 21 miles south of Eglin Air Force Base, Florida. Each aircraft dispensed RR-44 chaff at a rate of 20 feet per minute throughout the run from Tampa area to the Eglin area and during the return to Tampa. Electronic countermeasures were also performed during the entire run. Each ECM aircraft (Alpha and Coca Forces) contained four ALT-6, two ALT-6, two ALT-7, and two ALT-8 transmitters. The ALT-6 and ALT-8 transmitters swept 2700 - 3100 megacycles and 2900 - 3100 megacycles respectively. The ALT-7 transmitters were set to sweep jam at 72 megacycles.

(c) Alpha force began the penetration run by starting the chaff corridor and electronic jamming 61 miles south of New Orleans. At this time, Coca force was 21 miles south of Eglin where it began a 225 degree turn to return over the diversionary corridor. Alpha force was not acquired by the CPS-6 at Tyndall until their range was less than 70 miles. This did not allow sufficient time for scrambling of fighters. Eglin's FPS-3 acquired Alpha force at a range of 220 miles, but due to telephone difficulties could not give the information to Tyndall GCI. Eglin GCI had no fighters to vector against Alpha force. They had scrambled all six of their fighters for a cap against Coca force.

(d) Delta force consisted of six B-47's from the 301st Bomb Wing. These crews had no experience over-flying a chaff

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corridor. This force did not enter the corridor until they were 35 miles northeast of Tyndall. The corridor was sown east of its planned position and the wind caused it to drift further east. This resulted in the corridor being located about 50 miles too far to the east when Delta force reached the corridor intercept point.

(e) The gun laying radars were unsuccessful in tracking Coca force, and enjoyed little success in tracking Alpha force. During the diversionary run and the main penetration, several targets were tracked by the gun laying radars. Most of these targets were fighters.

(f) Fighters obtained approximately four splashes. Most of the splashes were made on Coca force, which went too close to the defended area. Several fighter splashes were made on other fighters. The extreme right aircraft in Alpha force had radar and communications malfunctions. It did not receive the signal for a turn at the coast line. This placed the aircraft out of formation, and one "stern chase splash" was reported on that aircraft.

(g) Delta force was not over the chaff corridor in the Eglin area. Gun laying radars were able to track that force with ease.

(h) The complete ground radar report is not available at this time. It will be included in the interim report of this mission which will be completed within approximately two weeks.

(i) Three additional chaff corridor missions were flown in conjunction with Eastern Air Defense Force during the latter part of this reporting period. Only preliminary information is available at this time; therefore, these missions will be made the subject of a separate report.

f. Auxiliary Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953

(2) Percentage complete: 10%

(3) Hours flown: None

(4) Present status: One complete Mark III IFF system has been put into operation and performance checked on the ground. The first flight test is scheduled for 3 November 1954.

(a) The purpose of the initial flight test will be:

1. To determine if aircraft, proceeding along a prescribed

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course, can be satisfactorily "tracked" with the RC-127 interrogator-responsor.

2. To determine the effects, if any, of range and altitude on transpondor performance.

3. To determine both the ease and accuracy of code decipherment.

(b) Ground tests performed with the BC-966-A airborne transponder, located in an unused ECM tower approximately one-half mile from the laboratory, demonstrated that any given code can be detected and read, provided that the return pulses are synchronized with the interrogator-responsor sweep voltage. The mode of presentation is on an "A" scope.

(c) Several BC-966-A transpondors are now on hand and at least three of these are in good operating condition. The emergency code switch, to be used during the flight tests, has been fabricated locally, pending procurement of Power Control Box BC-958-A.

(d) Additional information on IFF has been received from the Air University and a complete report of the Russian SRO (TR-AE-28) is now available to this organization.

g. Auxiliary Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954

(2) Percentage complete: 45%

(3) Hours flown: 2:00

(4) Present status: One test flight, using the 12 oscillator-amplifier units, was flown against the SCR-270 radar (modified) at Eglin Air Force Base, Florida on 24 October 1954. The flight was made in a C-47 type aircraft, flying at 5000 feet altitude. A modified 40 inch whip antenna was used and the 12 output frequencies were pre-set throughout the frequency band from 60 to 80 megacycles. On run one, the aircraft was picked up at about 10 miles from the radar site and tracked. Shortly thereafter, the jamming equipment was turned on and a condition two obtained on the radar scope (jamming over approximately 100 degrees). Near targets, within 10 to 15 miles, could be observed through the jamming, but all distance targets were obscured in the jammed sector. At about 30 to 40 miles range, jamming ceased due to equipment malfunction, which the airborne operator could not repair. The AN/MLQ-3 van at Site #10

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monitored the radar frequency and logged five of the 12 signals during the jamming. Signals near the radar frequency could not be logged by the MLQ-3 because the proximity of the radar blocked all reception near the radar frequency, 70.5 megacycles.

(a) Even though only a short run was obtained, it did indicate that the equipment is feasible for barrage jamming. Additional work on the equipment is required to make it more reliable and to increase the power output, when 12 separate signals are fed into a single antenna.

(b) Additional flight tests will be scheduled against the modified SCR-270, the British MK II, and the SCR-602 radars. The AN/MLQ-3 at Site #5 will be scheduled so that frequencies closer to the radar frequency may be monitored.

h. Auxiliary Project Number 14, "Modification for 'L' Band APT-5A and APT-9 Sweep Jamming".

(1) Date initiated: February 1954

(2) Percentage complete: 30%

(3) Hours flown: None

(4) Present status:

(a) A sweep drive coupled to the main tuning shaft of the APT-5 shows promise. The principal of operation is as follows: With the antenna coupling set at optimum power output for the band to be swept, the plate and cathode will track in the "L" band from 20 to 50 megacycles increments.

(b) The drive assembly is composed of a 28V DC motor mounted rigidly on the side of the APT-5. This assembly uses two worm gear arrangements to drive the gear, locked to the main tuning shaft. The two worm gears are necessary to match the torques of the tuning shaft to the drive motor. The shaft is supported by a bracket mounted on the panel of the APT-5. Provisions have been made for the drive gear, which is attached to a tuning knob on the main shaft, to be disengaged from the worm gear, so that the cathode setting may be altered to meet the band requirement.

i. Auxiliary Project Number 18, "Development of a Sweep Jammer Using a VHF Increductor".

(1) Date initiated: 1 April 1954

(2) Percentage complete: 35%

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(3) Hours flown: None

(4) Present status: Several changes were required in the wiring of the control circuit of the increductor to eliminate the burning out of control tubes. The bias type tube has also been changed to improve the control circuit. The oscillator wiring has been replaced, and in some cases moved, to improve the high frequency performance over the entire range.

(a) The control tubes now being used are the 807W type, which were substituted for the 6BG6 type to improve the plate dissipation factor. Three 807W type tubes are being used instead of the two 6BG6 tubes. An additional 807W has been added in the pulse circuit in conjunction with the 2D21 gas tube.

(b) The bias circuit, using one half of a 12 AU7, was not satisfactory and a 6 x 4 type tube has been added in its place.

(c) A separate filament transformer has been added to the chassis to provide for the separate filaments of the pulse tube and the bias supply tube. This also permits the use of separate filiment circuits for the control and oscillator tubes.

(d) Rewiring of the oscillator circuit has resulted in an increase of efficiency of about 20%. Output power at the high end of the band is now 120 watts.

(e) The transmitter has been tuned as high in frequency as 160 megacycles when it was used as a test jammer against the IFF project. Results of the test were not conclusive because the transmitter could not be permitted to remain in operation for a sufficient length of time. This shutdown was necessary since the current required to drive the increductor at this frequency was too high for the control tubes.

j. Auxiliary Project Number 20, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 1 July 1954

(2) Percentage complete: 50%

(3) Hours flown: 20:00

(4) Present status: The 376th Bomb Wing is awaiting a prototype Polaroid Camera and periscope attachment from the Photographic

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Laboratory at the Wright Air Development Center, Dayton, Ohio. This camera and periscope will mount on the APS-23 indicator in the B-47E aircraft. It will permit pictures to be taken of the indicator with either the O-15 camera or the Polaroid Camera. The entire format of the standard Polaroid film will be utilized, including the display of a clock, counter, and data tab. This camera should provide suitable pictures and data to enable the observer of the B-47 aircraft to navigate without continuous radar mapping.

(a) A visit was made to WADC during the first week of October to ascertain if they could provide assistance in producing or procuring a Polaroid Camera and periscope assembly which could serve as a standard to obtain additional cameras. A meeting was held with representatives of the R&D Operations Staff, WCLOO-1; Photographic Laboratory, WCLFI-3, the Armament Laboratory, WCLGS-2; and the 376th Bombardment Wing. All available information on camera and periscope requirements, as well as information on space restrictions in the B-47E observer's compartment, were given to the Photographic Laboratory by the representatives of the 376th Bombardment Wing.

(b) A recent telephone conversation with WADC informed the 376th Bombardment Wing that a camera and periscope design had been decided upon. Also, that the Photographic Laboratory was ready to start work on a wooden mock-up of the system. Upon completion, which should be the second week in November, the model will be sent to Barksdale for an installation check in the B-47E aircraft. The model will then be returned to WADC for any changes necessary prior to fabrication of the prototype.

(c) When the prototype camera is received by the 376th Bombardment Wing, flight tests will be conducted to determine the operational suitability of the equipment as a means of navigating B-47 aircraft.

k. Auxiliary Project 21, "Infrared Station Keeping Device".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 35%

(3) Hours flown: 6:00

(4) Present status: Sufficient data has been obtained to date to evaluate the direct-viewing technique of station keeping. It now remains only to obtain "hardware" and make necessary aircraft modifications to obtain an evaluation of a complete system. However, before the expense of building a complete system

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is undertaken, it is advisable to evaluate a second approach for the solution of the problem. This second approach would employ equipment of the type used for infrared homing in guided missiles. This type of equipment will provide an observer with the necessary data output for station keeping. A TDY trip is planned during the latter part of this month (October) to Air Force and civilian laboratories that are working on missile homing heads. Among the places to be visited are WADC, Philco Corporation, RCA, Eastman Kodak Company, and Capehart Farnsworth Company.

(a) Location of IR Lamp: A suitable location for the Infrared Signal Lamp was found on the B-47 aircraft. This location is the tip section of the vertical stabilizer, which is made of fiber-glass, and is removable. The Infrared Lamp can be mounted on the inside of tip section with window material flush mounted to make it visible. Radiation will then be visible with a hemispherical coverage to the rear. No sections have been modified to date.

(b) Susceptibility of IR Lamp: The presence of a strong infrared source on the vertical stabilizer may increase the danger of attack by infrared seeking missiles. However, it may develop that a modulated, intense, infrared source may serve as a countermeasure against this same type of missile. It is hoped that some answers for this aspect of the system's suitability will be obtained as a result of visiting the companies and personnel working specifically in IR problems.

(c) Type of IR Lamp: The optimum lamp to be used has not been selected at this time. However, General Electric has developed a new quartz Infrared Lamp which seems to have promise. The lamp peaks in the one and two micron wave length region. This lamp has been ordered from the General Electric Company. Suitability tests will be run as soon as they are obtained.

1. Auxiliary Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7".

(1) Date initiated: 12 July 1954

(2) Percentage complete: 45%

(3) Hours flown: 26:00

(4) Present status: During this period, a test was conducted to determine the effect of massed sweeping transmitters against the SCR-270 (modified) radar operating in the VHF Band. The requirement for this test was presented by the results of a

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previous test wherein 12 fixfrequency ALT-7's were used to barrage jam a 10 megacycle band. In this previous test, two equipment malfunctions occured leaving a blank in the jamming which coincided with the frequency of the target radar. The current test was divided into two parts.

(a) Six transmitters, noise modulated, were set to sweep a frequency band centered on the target radar. The equipment was turned on at a range of 175 nautical miles and achieved an immediate condition one of jamming. This jamming improved until a condition four was obtained, when the jamming transmitters were directly overhead, at an altitude of 35,000 feet.

(b) Sixteen transmitters, noise modulated, were set to sweep a frequency band centered on the target radar. The equipment was turned on at a range of 175 nautical miles. It achieved a condition five of jamming at a range of 100 nautical miles. As a result of this test, it is believed that, given sufficient transmitters, sweep jamming is more dependable than barrage jamming.

m. Auxiliary Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954

(2) Percentage complete: 85%

(3) Hours flown: 600:00 (approximately)

(4) Present status:

(a) During the period, this organization was requested by Strategic Air Command to prepare information (AFR 57-4) on the whip antennas designed by the 376th Bombardment Wing for use with the AN/ALT-7. Additional information was requested on the feasibility of using unmodified whip antennas, AS-161 and AS-150, formerly employed with the ARQ-8 transmitter, in the B-36 program.

(b) Tests were initiated to determine the useful frequency range of unmodified whip antennas, when used with the AN/ALT-7, which requires a VSWR of five-to-one or less. The AS-161 was usable from 61 to 92 megacycles, and the AS-150 from 82 to 119 megacycles. Since the requirement did not specify any desired range of operation, but only inquired if the antennas were adequate for use with the AN/ALT-7, SAC was informed that the unmodified antennas were acceptable for the ranges shown above.

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(c) A portion of the AFR 57-4 information on the whips could not be supplied until after it was received from Wright Air Development Center. WADC designed an improved type matching section for the antenna, which assisted in improving the VSWR and extending the range of the antennas as follows:

Modified AS-97 or AT-(XA-214)/AP 54½" 42-79 mc/s
Modified AS-161 or AT-(XA-213)/AP 40½" 58-103 mc/s
Modified AS-150 or AT-(XA-212)/AP 30½" 98-143 mc/s

These figures confirm, for the most part, the estimates presented in last month's report.

(d) In addition to the above, WADC forwarded copies of the blueprints of their improved matching section. Since these matching sections make possible approximately 26 megacycles greater coverage at the high frequency end, a request will be made for WADC to arrange for San Antonio Air Materiel Area to produce 150 each of the three types of sections required for the 376th Bombardment Wing's use.

(e) A streamlined cap which attaches to the top of the stub base of the modified whip antenna was designed this month. The cap attaches to the top of the base by means of four flush screws. It reduces edge turbulance, provides weather protection for the teflon insulators, washers and bolts. This cap was taken to SAAMA; they will fabricate and fit it on the next 50 antennas manufactured.

(f) Collectively, the whip antennas have flown in the neighborhood of 1000 hours without a failure. Individually, the short 30½ inch whip antenna has flown 23:40 hours, the long 50¼ inch whip has flown 31:40 hours; and the medium or 40½ inch whips each have flown over 100 hours. No indication of structural failure is apparent on any of the three types of whips.

n. Auxiliary Project Number 24, "Effectiveness Tests of QRC-8".

(1) Date initiated: 2 October 1954

(2) Percentage complete: 25%

(3) Hours flown: 4:25

(4) Present status:

(a) One flight test has been conducted using a B-47 as the bomber and a KC-97 as the fighter. The QRC-8 was

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operating at 500 CPS sweeping from 3.5-5.0 megacycles. The jamming effectiveness was very poor, ranging from a maximum of 8 miles separation for a condition four at an intercept point 70 miles from the GCI site; decreasing to three miles separation at a distance of 35 miles from the GCI site. A ground check of the QRC-8 showed normal operation on the GCI frequency, however, the power output was substandard at other points in the band. The HF receiver being jammed was operated on MVC instead of AVC; this reduced the jamming effectiveness. The RSI-6 Russian receiver has AVC on at all times.

(b) Further flight tests will be conducted in order to determine whether the effectiveness of the QRC-8 is below that of the Project Number 1 jammer, and if so, the reasons.

(c) Two tests have been run in the altitude chamber using two different QRC-8 transmitters. QRC-8, serial number 14, arced over at 19,000 feet, inside the Increductor. QRC-8, serial number 15 began arcing at 25,000 feet and became inoperative at 35,000 feet. Inspection showed an open resistor and a shorted capacitor (C-13). These were replaced and all high voltage terminals were coated with anti-corona dope. During test number 2, arcing began across the C-13 terminals at 25,000 feet. At 34,000 feet, a sustained arc occurred in L-4, the RF filament choke. It was concluded that the terminals on the Increductor and the RF choke were too short and too closely spaced for high altitude operation. All tests in the altitude chamber were performed using a 3100 VDC high voltage power supply.

(d) The dies manufactured for molding fiberglass tuning capacitor covers have been sent to Douglas Aircraft Corporation at Tulsa, Oklahoma. Douglas will manufacture sufficient capacitor covers to equip all 376th Bombardment Wing aircraft.

(e) All but five B-47's have been wired for the antenna switching relay. The remaining aircraft will be completed upon receipt of additional relays. During the QRC-8 preflight checks, it was discovered that the wire used in the power cable from the power supply to the transmitter was too small, which resulted in a seven or eight volt drop in the input AC voltage to the transmitter. It was determined that Douglas had made an error by installing the small size wire. They are sending a crew to change the cable in all aircraft. In the meantime, the cable was changed in one aircraft in order to flight test the QRC-8.

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In addition, a full length antenna with a tuning capacitor was installed on the test aircraft. This modification will be made on all aircraft as soon as the capacitors and mounting covers are received. Five of the six QRC-8 transmitters tested by 7DCTT have had malfunctions. The printing of the SOP's for transmitter tuning and antenna matching is in progress. The SOP's should be finished and distributed during the first week of November 1954.

o. Auxiliary Project Number 25, "Structural Suitability of Stub Antennas".

(1) Date initiated: 1 July 1954

(2) Percentage complete: 70%

(3) Hours flown: 890:00

(4) Present status: The program of flight testing of stub antennas was continued during the month of October. The five antennas received from WADC on 10 September 1954 as reported in last month's SAC U-30 Report, were returned to WADC with the record of their flight time included. These five stub antennas have a total of 66:20 hours flight time. They have been on routine training missions of B-47 aircraft. None of the antennas have cracks in the outer shell. All antennas are loose in the base, except number five. A breakdown follows:

(a) Stub Number One, AT-190B/AP, Phostron Company, filled with 15% shredded material. This antenna is loose at the base. It was slightly loose after the first flight and increased with each succeeding flight.

(b) Stub Number Two, AT-191B/AP, Phaostron Company, filled with Lockfoam, 10 pounds per cubic feet. This antenna also loosened slightly at the base after the first flight, but with succeeding flights the antenna remained about the same.

(c) Stub Number Three, AT-190B/AP, Phaostron Company, filled with Lockfoam, 10 pounds per cubic feet. This antenna was similar to antenna Number One in becoming loose at the base.

(d) Stub Number Four, AT-190B/AP, Phaostron Company, filled with rubber. This antenna did not loosen at the base as rapidly as the other AT-190B/AP antennas. It is still more rigid than the Number One and Number Three antennas.

(e) Stub Number Five, AT-190B/AP, Phaostron Company, filled with rubber. This antenna is still as rigid at the base.

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(f) The two teflon base AT-190 type antennas, modified by this organization and first flown on 16 August, were removed after 146:15 hours flight time. Both antennas were extremely loose at the antenna base. No further information could be gained by allowing the antennas to fly until they broke off in flight.

(g) The round type antenna, constructed by this organization in an attempt to decrease the side buffeting action believed to be characteristic of the AT-190 type stubs, was flown for 94:40 hours and then removed. This antenna compares favorably with the AT-190 type antennas for durability.

(h) This organization has filled two AT-190B antennas with "Eccofoam FP", a casting resin sold as Stycast by Emerson and Cuming, Incorporated. This is an easy material to use in filling the antennas. These antennas are now being test flown.

(i) The knife edge thin solid stub antenna, a model of Federal Telephone and Telegraph Laboratory received from WADC, now has 19:15 hours flight time. It is as rigid as when installed. Another antenna recently received from WADC is a laminated plastic UHF stub. This antenna has 18:20 hours flight time and is as rigid as when installed.

p. Auxiliary Project Number 26, "Operational Test AN/APS-54".

(1) Date initiated: 18 June 1954

(2) Percentage complete: 65%

(3) Hours flown: 18:00

(4) Present status: During the month of October, a team of technicians, under the supervision of personnel of this organization, conducted an inspection of the original APS-54 installations on 35 B-47 aircraft of this Wing. Discrepancies were corrected when practicable, and Unsatisfactory Reports were submitted in those cases requiring action at higher echelon. In addition, weekly telegraphic reports were submitted to SAC Headquarters and to WADC.

(a) It was determined that the antenna crystals of the APS-54 are particularly vulnerable to burn-out from radiation of the K-System radar and the A-5 gunlaying radar during ground operations. A crystal protective device has been developed at this station and installed on one aircraft for test purposes. Future reports will indicate the degree of success achieved by this device.

(b) An Unsatisfactory Report was submitted on the type bulkhead connector used to connect the antenna cables through

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pressure seals at station number 200 and number 329. The present connector, UG 492/U, grounds the external conductor to the frame of the aircraft at the stations indicated.

(c) Unsatisfactory Reports were submitted on the routing of the nose antenna cable and K-Systems blanking cable. Present routing causes these cables to show intermittant opens and shorts.

(d) Frequent mislabeling and mislocating of cables of this installation is indicative of poor inspection techniques at the installation point.

q. Auxiliary Project Number 27, "A B-47 ECM Configuration Study".

(1) Date initiated: 20 September 1954

(2) Percentage complete: 25%

(3) Hours flown: None

(4) Present status:

(a) A preliminary ECM study was made of the B-47E aircraft. Emphasis was placed on space availability, weight and balance, and electrical power availability. This study showed that sufficient space was available in the battery compartment. Approximately 700 pounds could be carried in this compartment without exceeding the weight and balance limitations of the aircraft. The electrical power is available, although the design and Boeing acceptable limits are exceeded.

(b) Preliminary engineering sketches were made for two possible configurations of ECM equipment. The first of these made possible the installation of two "S" band transmitters with power supplies, and two low frequency transmitters with power supplies. In this installation, the battery remained in its present position with the ECM equipment installed around it. The second installation removed the battery from this compartment and placed it in the left hand ATO compartment. This change allowed for the installation of four "S" band transmitters with power supplies, and one low frequency transmitter with power supply. An additional low frequency transmitter and power supply was proposed for the camera compartment. The battery compartment area was space engineered for the acceptance of control boxes and antennas for the ECM equipments.

(c) A conference was held between personnel from OCAMA, Oklahoma City, Oklahoma and personnel of 7DCTT to discuss the

0536

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proposed ECM installations. This has been a joint project throughout. The following items were discussed:

1. Engineering feasibility, OCAMA would guide the engineering.

2. Effect on programming of B-47 production and IRAN.

3. Facilities commitment for B-47 modification.

4. Procurement commitment for aircraft and equipment.

Following this conference, two engineers from OCAMA and two representatives from 7DCTT made a trip to Boeing Aircraft Company, Wichita, Kansas to check engineering and power requirements which may conflict with these proposals. Boeing engineers would not commit themselves on the feasibility of the proposals. However, they did express dissatisfaction concerning the possibility that the installation of this equipment would exceed the design power limitations of the aircraft.

(d) Preliminary engineering was divided into two separate proposals. The first proposal would be an addition of ECM equipment to the Phase III B-47 aircraft. The ATO compartment ECM configuration would be left intact, and additional equipments would be added in the battery compartment. The additional equipment added was two ALT-6 or ALT-8 transmitters with power supplies; and two ALT-7 transmitters with power supplies. With this equipment added, the total ECM capability of the B-47 aircraft would be four "S" band and two low frequency transmitters. The second proposal would be a change in the ECM configuration of the Phase IV B-47 aircraft. This proposal calls for the installation of four ALT-6 or ALT-8 transmitters with power supplies; and two ALT-7 transmitters with power supplies. A more detailed description of these proposals has been submitted to Headquarters, Strategic Air Command. These proposals were used to brief the Electronic Warfare Panel, Strategic Air Command; the ECM Phasing Group, Langley Air Force Base, Virginia; and Wright Air Development Center, Wright Field, Dayton, Ohio.

(e) Personnel of WADC were briefed on the two proposals on 4 October 1954. Again, the only major objection to the proposals was the possibility of exceeding the design electrical power limitations of the aircraft.

(f) The ECM Phasing Group conference at Langley Air Force Base, Virginia was briefed on 5 October 1954. This group received the proposals with great enthusiasm and their interest in

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increasing the ECM capability of the B-47 aircraft.

(g) The proposals were presented to the Electronics Warfare Panel, Strategic Air Command, on 25 October 1954. No immediate objections were raised following the presentation. Major Lindberg, DOCET, Strategic Air Command, was given copies of the preliminary engineering and a written description of the proposals. Major Lindberg stated that he would initiate the AFR 57-4 requirements letter.

FOR THE COMMANDER:

William H. Murphy

WILLIAM H. MURPHY
Major, USAF
Adjutant

2 Incls
1. Chart - Signal Strength-GCI Station
2. Chart - Jamming Signal Strength vs Separation

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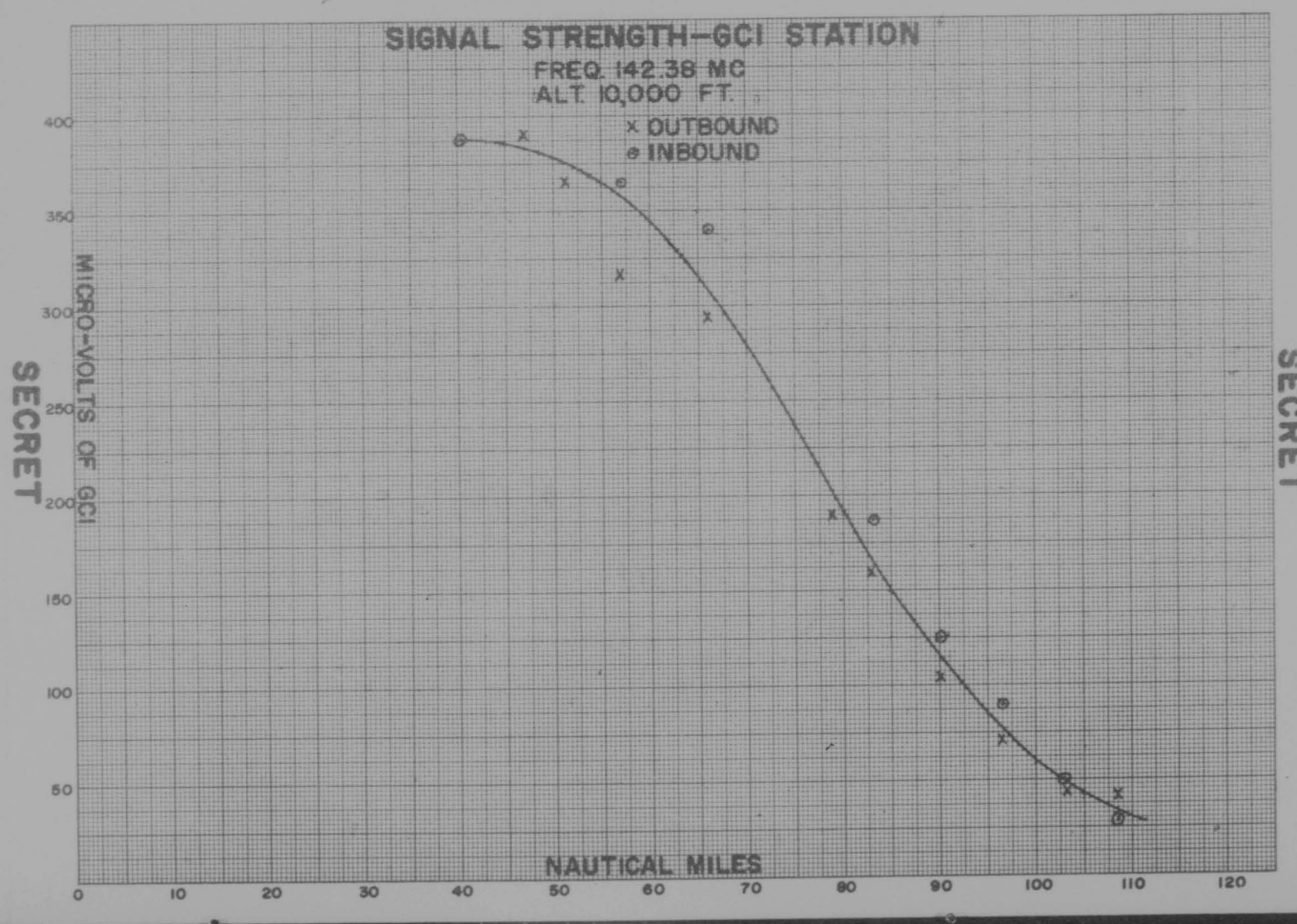

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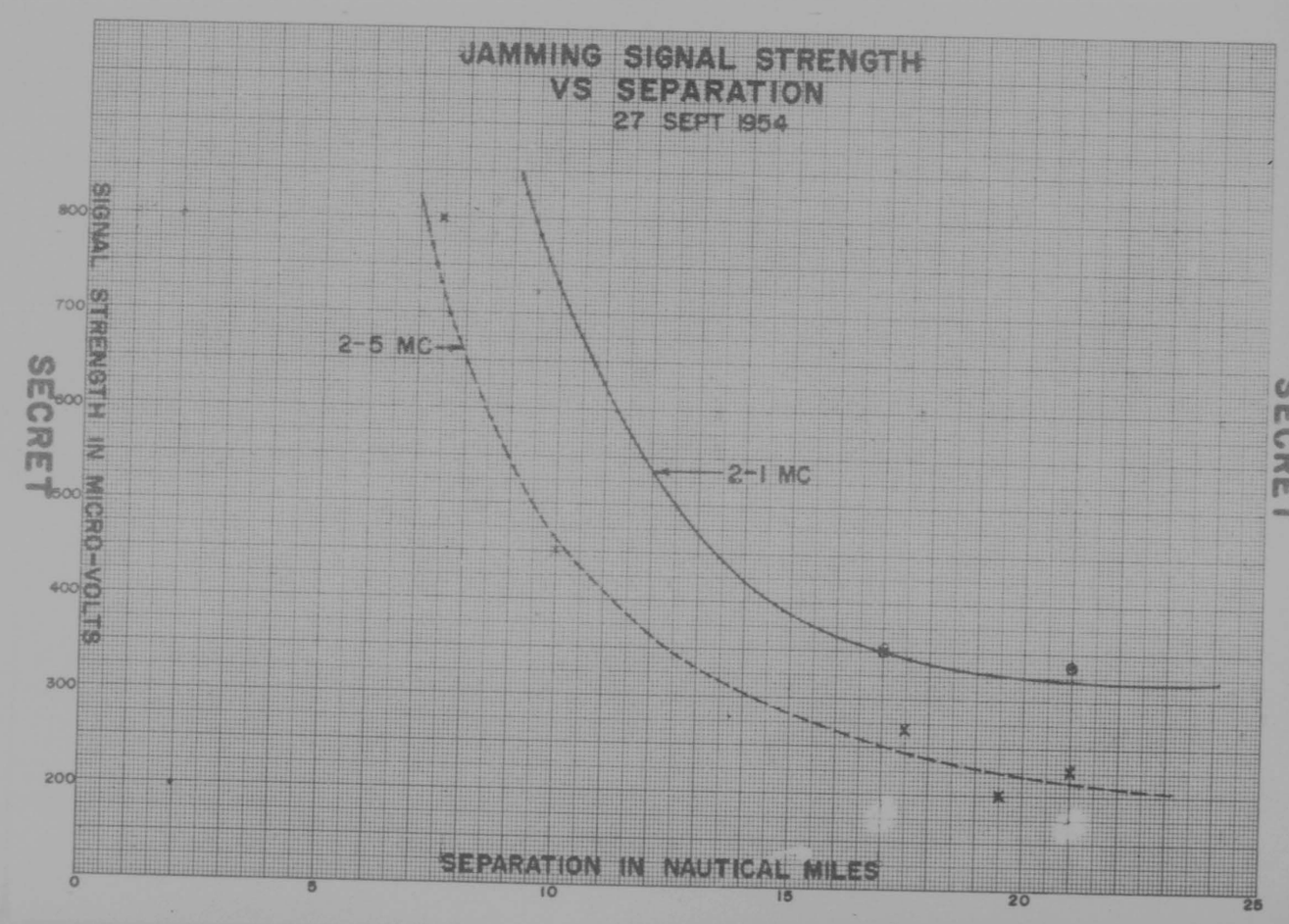

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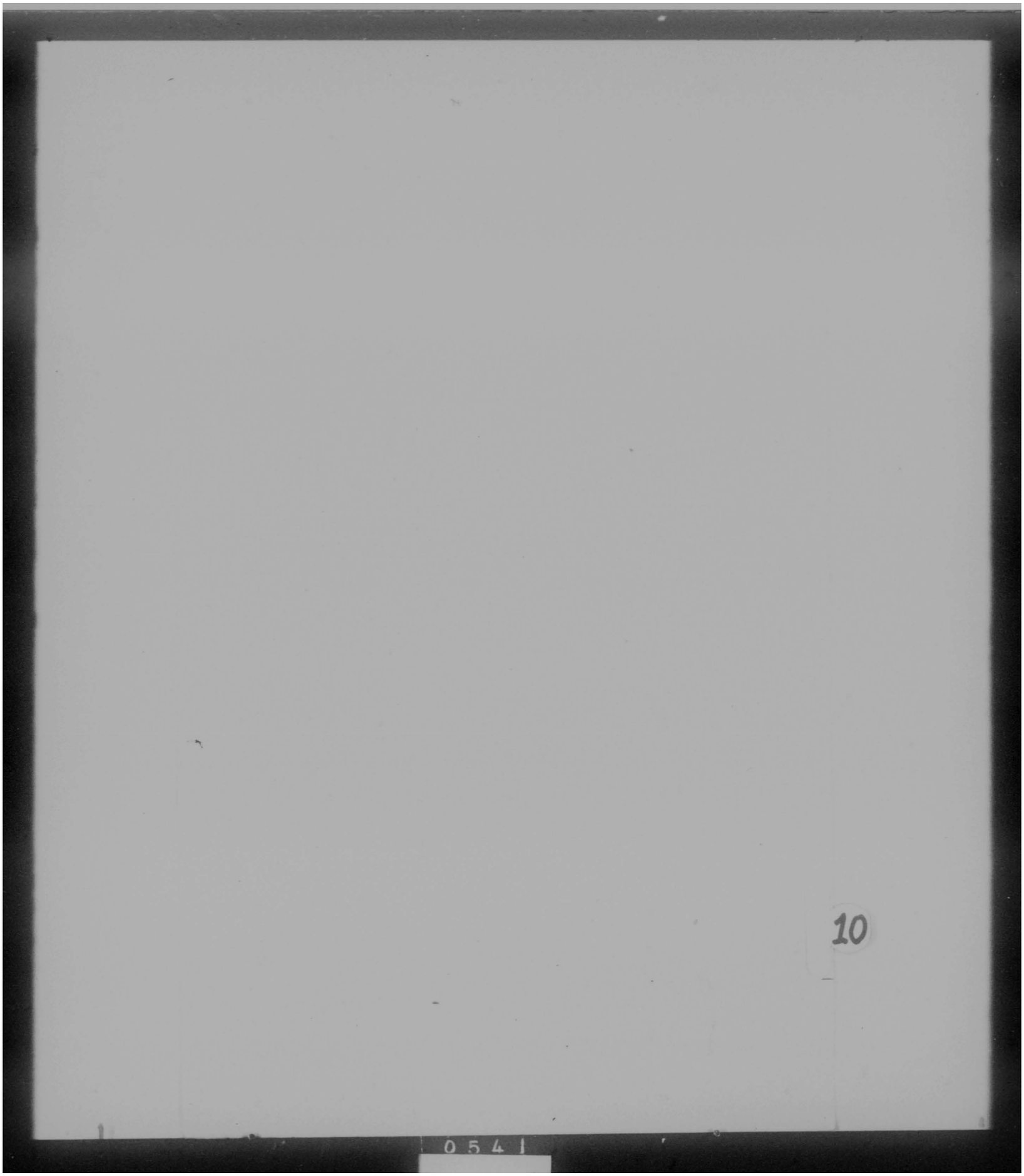

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HISTORICAL REPORT FOR THE MONTH OF OCTOBER 1954

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 69.6 for the month. The average in-commission rate was 80.03%. A total of 2135:35 hours were flown for an average of 30:05 hours per possessed aircraft. The Wing AOCP rate was 6.01% compared to 10.09% for the previous month. There were 29.9 direct manhours expended per flying hour. The Wing expended 49% of available manhours as direct time.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 Aircraft:

The Wing had an average of 47.6 B-47 aircraft possessed for the month. Average in-commission rate was 79.50% compared to 69.35% for the previous month. Total hours flown were 1519:15 for an average of 31:40 hours per possessed aircraft. The AOCP rate was 6.82% decrease from 11.18% for the previous month. Direct manhours per flying hour was 31.5 hours.

b. KC-97 Aircraft:

The Wing has an average of twenty-two (22) KC-97's possessed for the month. The average in-commission rate was 81.18% compared to 70.65% for the previous month. Total hours flown were 616:20 for an average of 28:01 per possessed aircraft. The AOCP rate was 4.25% a decrease from 7.72% for the previous month. Direct manhours expended per flying hour was 23.3 hours.

3. There were seventy-one (71) malfunctions for the month, of which fifteen (15) were a carry over from September, compared to forty-two (42) for the previous month. Following is a breakdown of causes by system and agency responsible.

	System	No	Agency Responsible
B-47			
	Bombing	2	Air Crew
	Bombing	28 (10)	Material Failure
	Bombing	3 (2)	Other
	Communication	5 (3)	Material Failure
	Gunnery	1	Material Failure
	Power Plant	1	Maintenance Personnel
	Power Plant	1	Material Failure
	Power Plant	1	Other
	Aircraft General	18	Material Failure
	Aircraft General	1	Maintenance Personnel
	Aircraft General	1	Other
		62 (15)	

0542

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NOTE: Figures in parenthesis are carry over malfunctions from September

KC-97

Power Plant	2	Material Failure
Air Refueling	2	Material Failure
Propeller	1	Material Failure
Aircraft General	1	Maintenance Personnel
Aircraft General	2	Material Failure
Aircraft General	1	Air Crew
	9	

4. A total of six (6) B-47 engines were changed during the month compared to sixteen (16) for the previous month. A total of two (2) KC-97 engines were changed during the month compared to three (3) for the previous month. Average B-47 engine time at change was 83 hours. Average KC-97 engine time at change was 283 hours.

5. During this period a total of 97,238 manhours were expended as direct time, 103,166 hours were expended as indirect time and 8,909 hours overtime. Manhours available for work were 200,404. 55, 866 hours was reported as absent time. A total of 12,655 hours were given as pass time.

TOC & RECORDS

1. There were 397 T. O.'s complied with on B-47 aircraft and seven (7) new T.O's received during the month. There was one (1) outstanding T. O. per B-47 aircraft.

2. There were 120 T.O's complied with on KC-97 aircraft and eight (8) new T.O's received during the month. There were seventy-two (72) outstanding T.O's per KC-97 aircraft.

3. There were six (6) jet engines changed during the month with eighty-three (83) hours average per engine and two (2) KC-97 engines changed with 283 hours average engine time.

4. There were approximately forty-three (43) component parts changed on KC-97 aircraft and seventy-six (76) on B-47 aircraft.

AIRCRAFT MAINTENANCE STANDARDIZATION TEAM

1. Numerous training evaluation tests were given to maintenance personnel in the Wing. Several SOP's were written and submitted for publication. An extensive OJT monitoring program was carried out throughout the Wing. All malfunction reports were monitored and a summary prepared. Materiel for "Maintenance Memo's" was gathered and submitted for publication. All Engine changes were investigated by this section.

0543

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QUALITY CONTROL

1. During the month of October 1954 the Quality Control Unit inspected five (5) B-47 and four (4) KC-97 type aircraft processed through maintenance docks. The Unit also performed in-commission inspections on-Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The Unit supervised eleven (11) KC-97, eighteen (18) B-47 and four (4) C-47 type aircraft test flights during the month of October.

4. Three hundred and twenty-nine (329) Unsatisfactory Reports were submitted during the month of October.

SUPPLY LIAISON

1. Total line items AOCP for month of October was forty-seven (47). Thirteen (13) were on KC-97 and thirty-four (34) on B-47's. ANFE's are 100% for October. Recurring AOCP's are as follows:

4140-4801-12	Detector	2 ea
6134-25000A36-A1-1A1	Indicator	2 ea
6025-1214BX8-05	Indicator	4 ea
6119-8DJ43AAM	Indicator	4 ea
6034-14602-1J-A1	Indicator	3 ea
6119-8TJ49GAA	Power Unit	2 ea
4224-GC18-1	Panel Assy	3 ea
1600-218997125	Rec/xmitter	2 ea

John J. Evans, Maj. USAF

for ROBERT S. MILNER
Lt Col., USAF
Chief of Maintenance

0544

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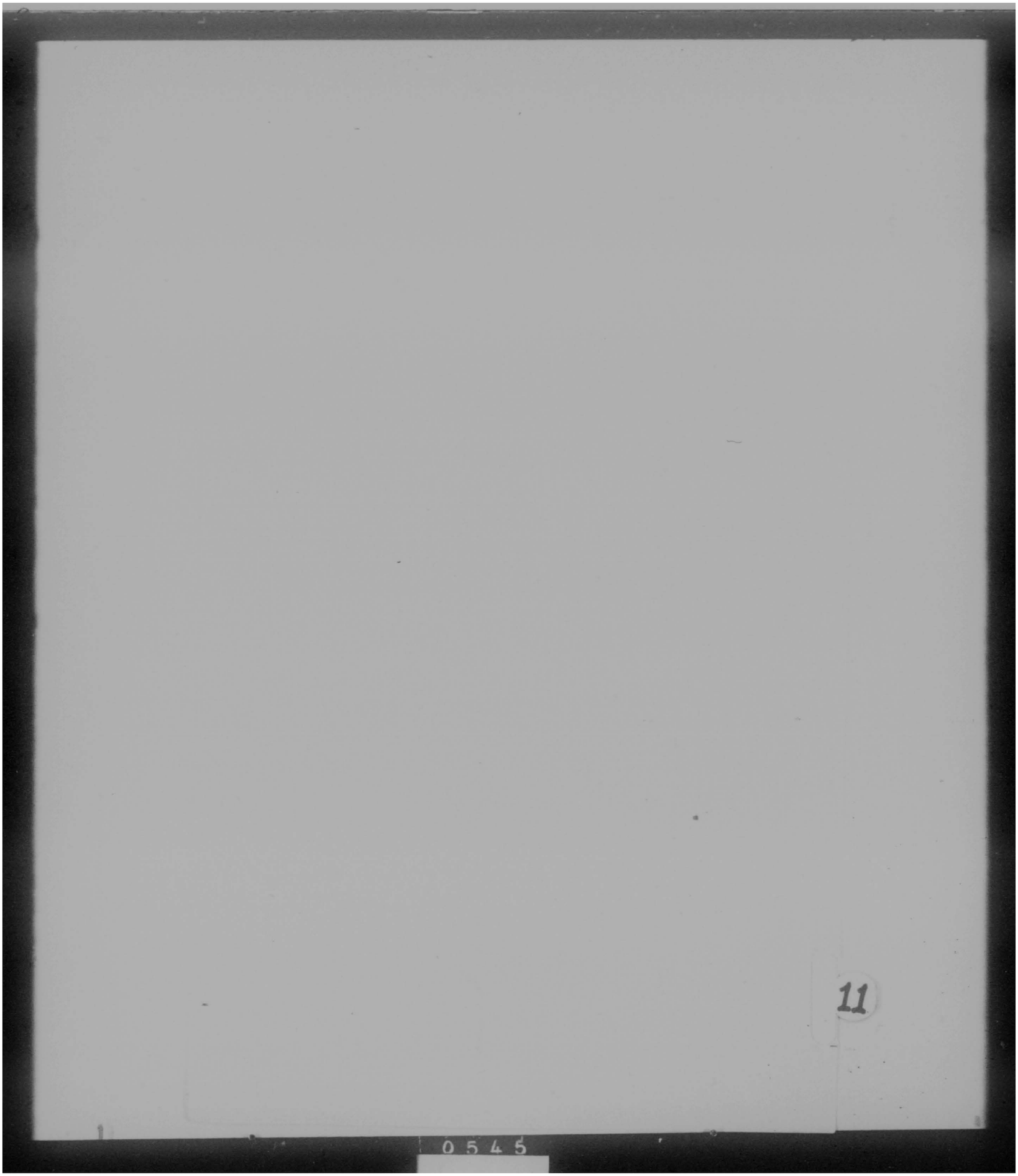

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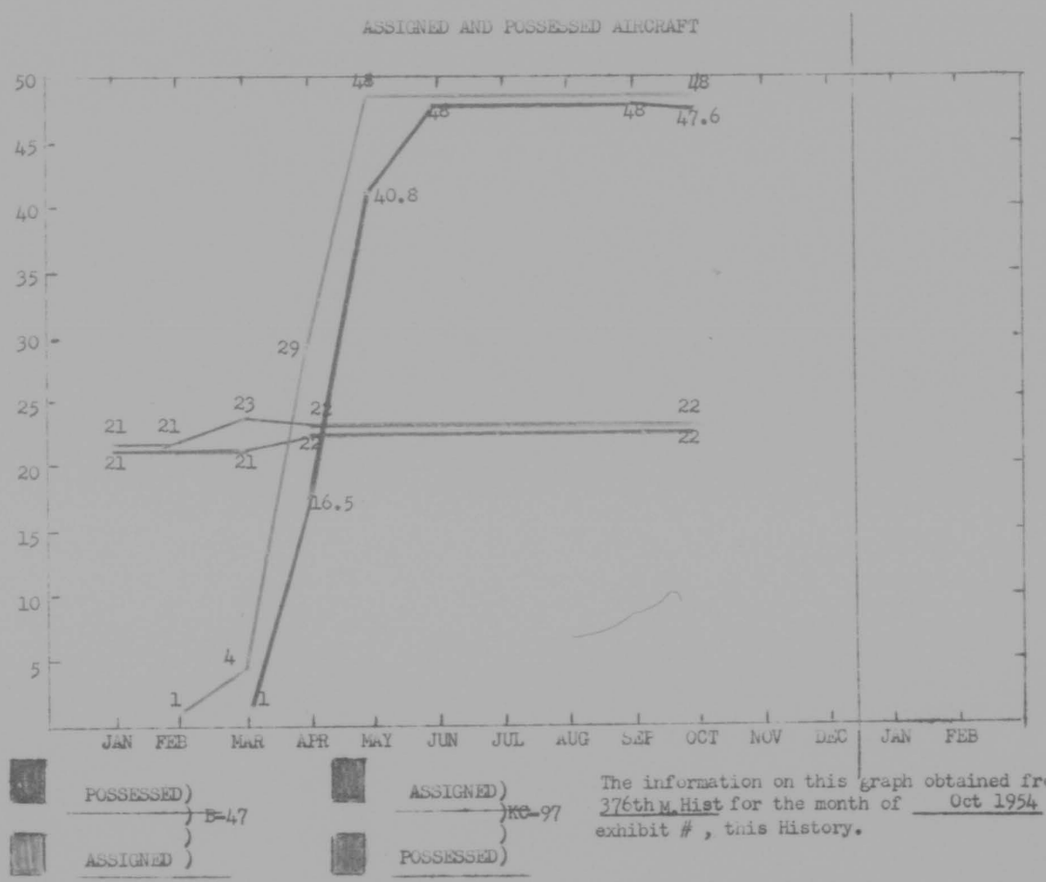

The information on this graph obtained from 376th M. Hist for the month of Oct 1954, exhibit # , this History.

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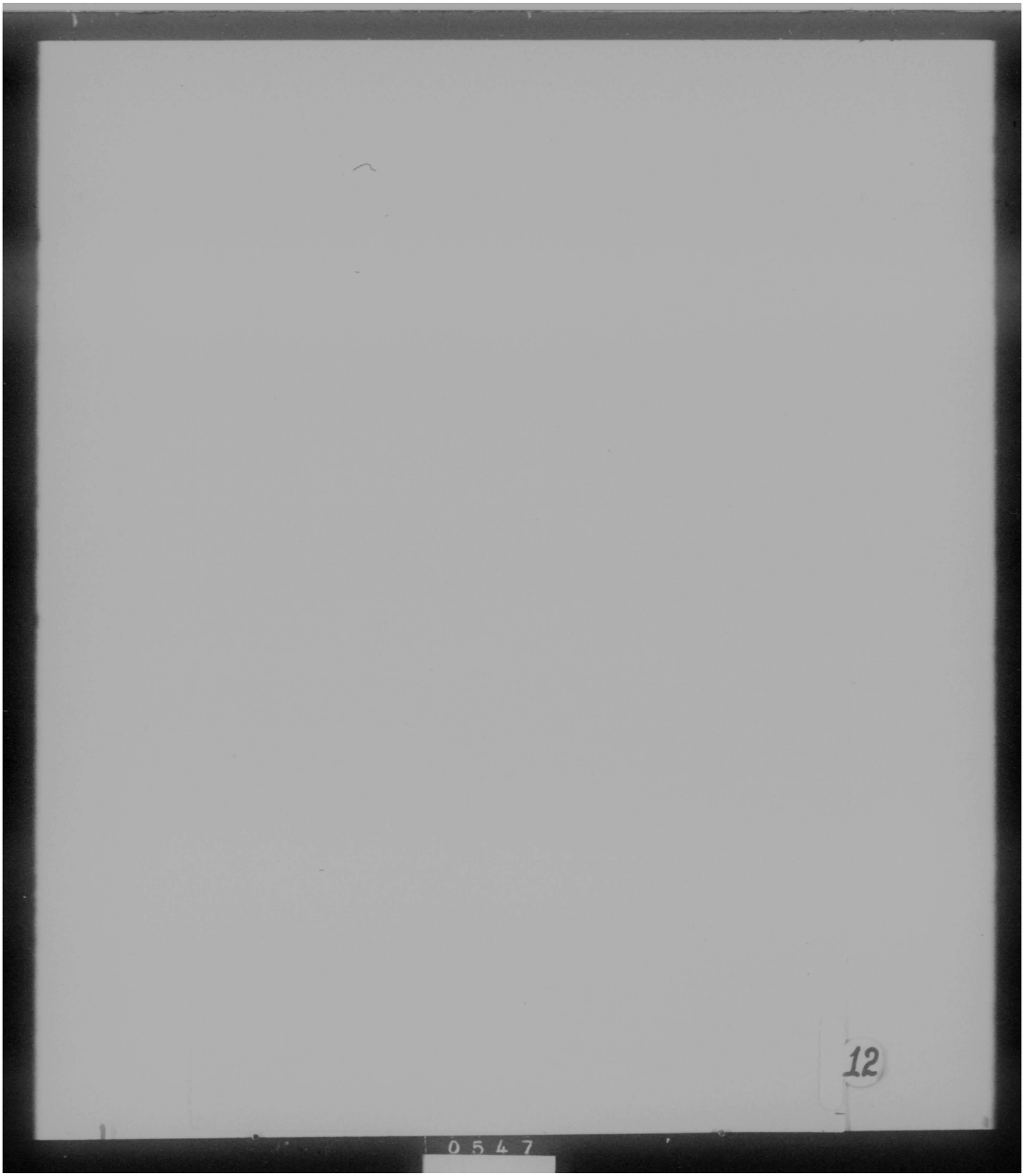

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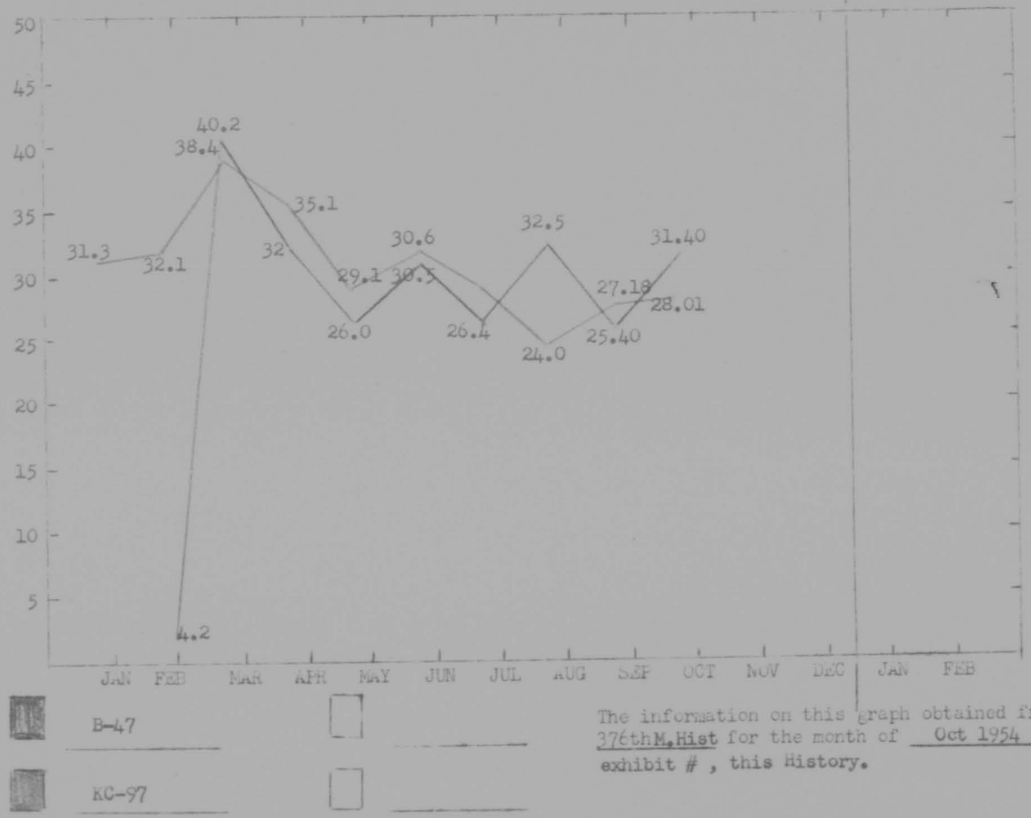
FLYING TIME PER POSSESSED AIRCRAFT



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SAFETY FILM

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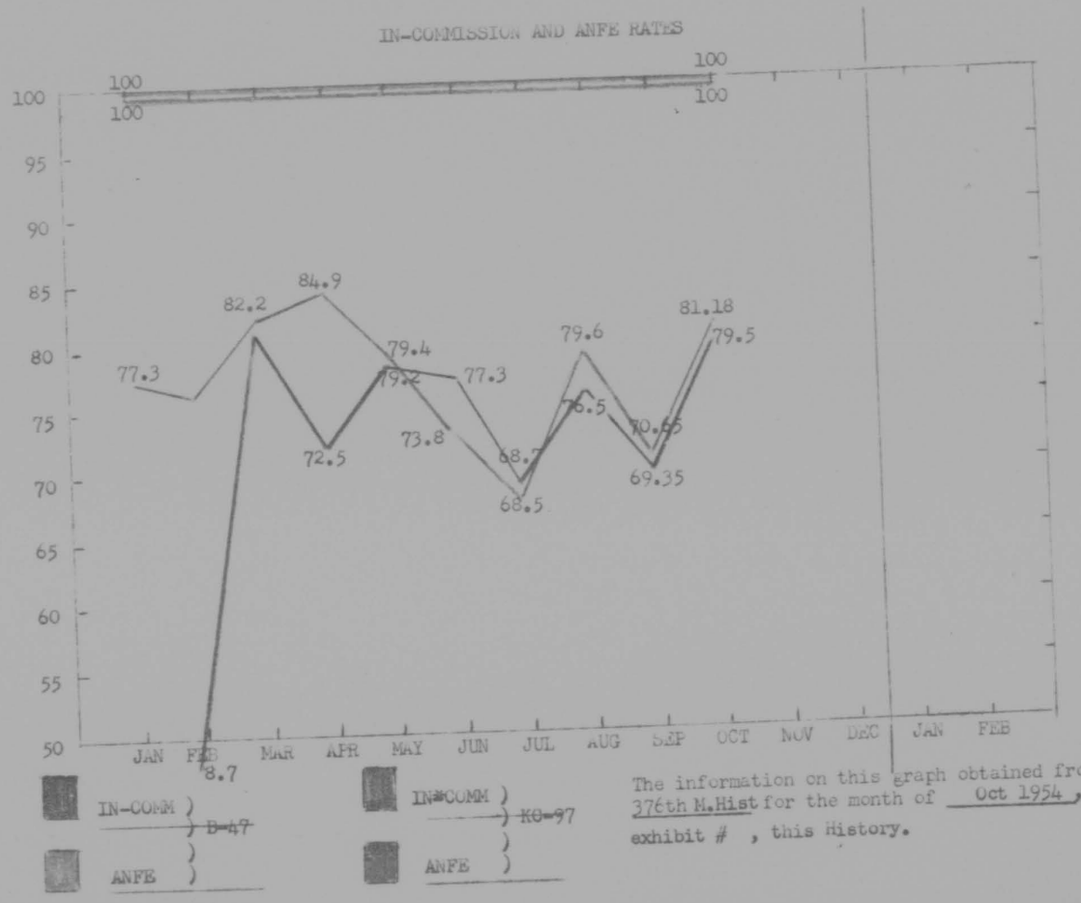

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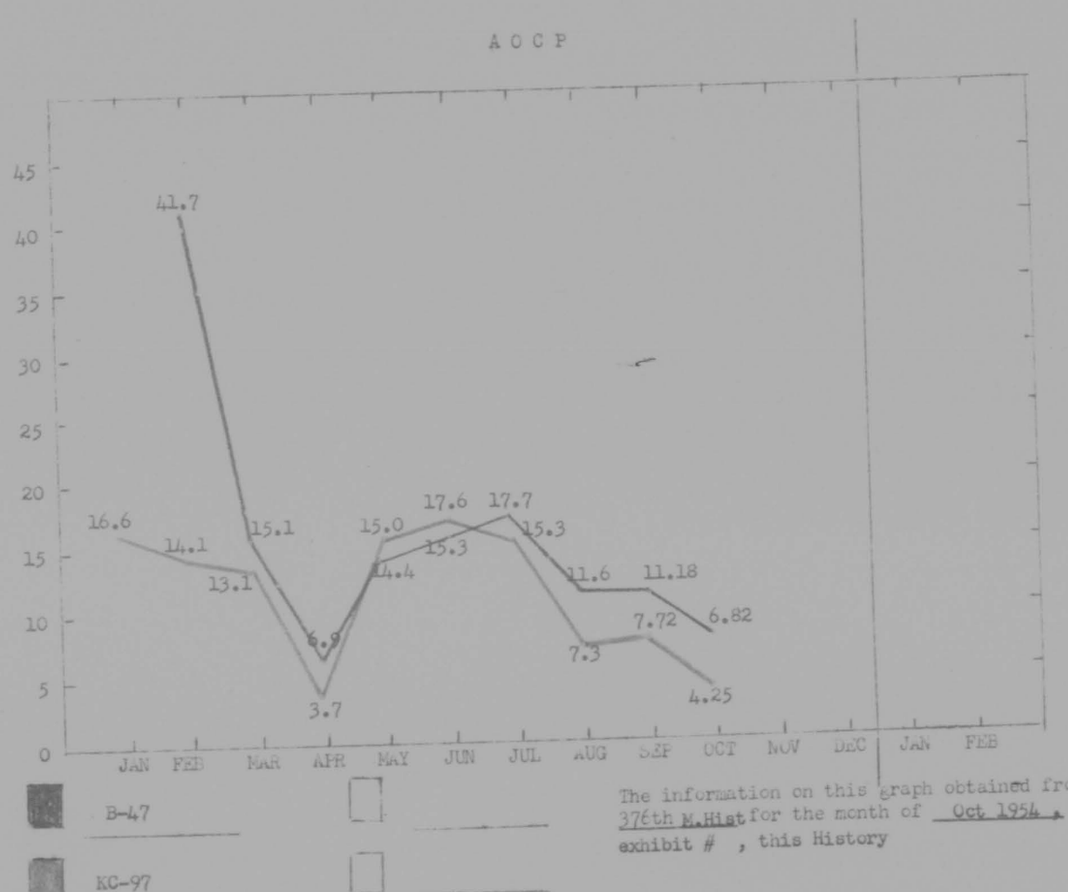

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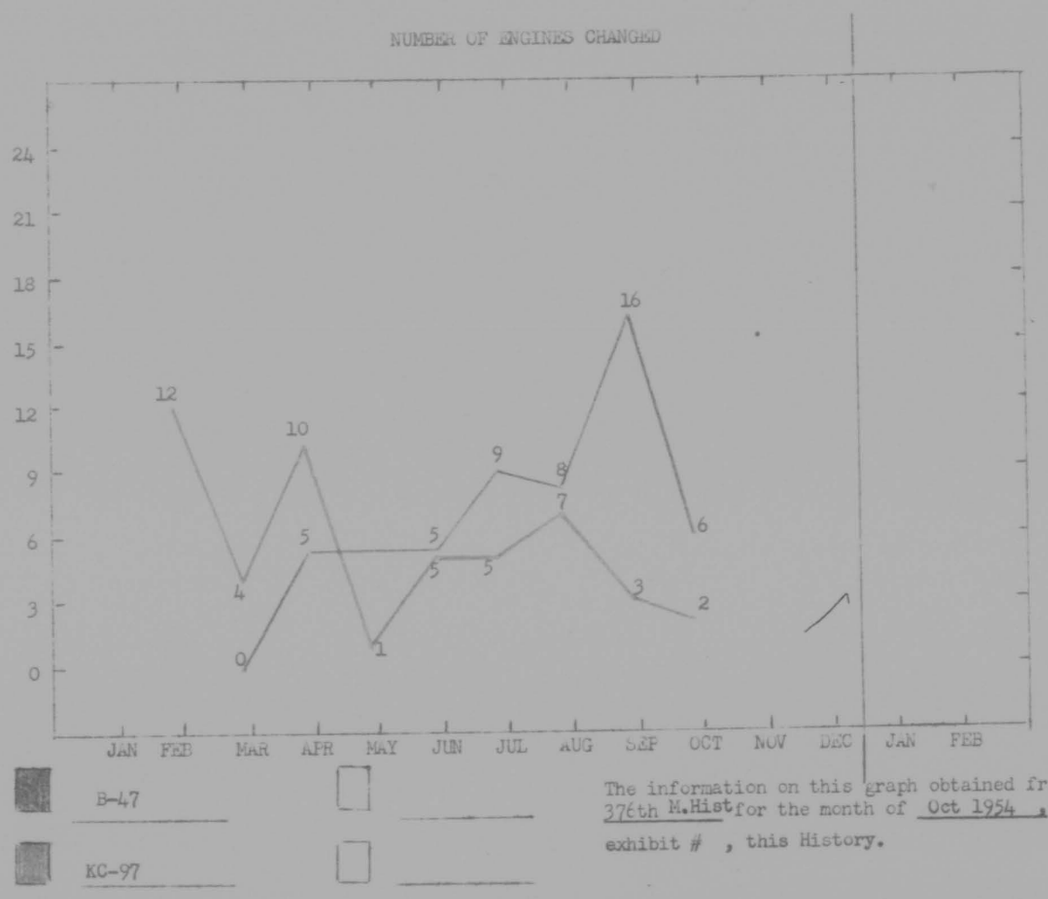

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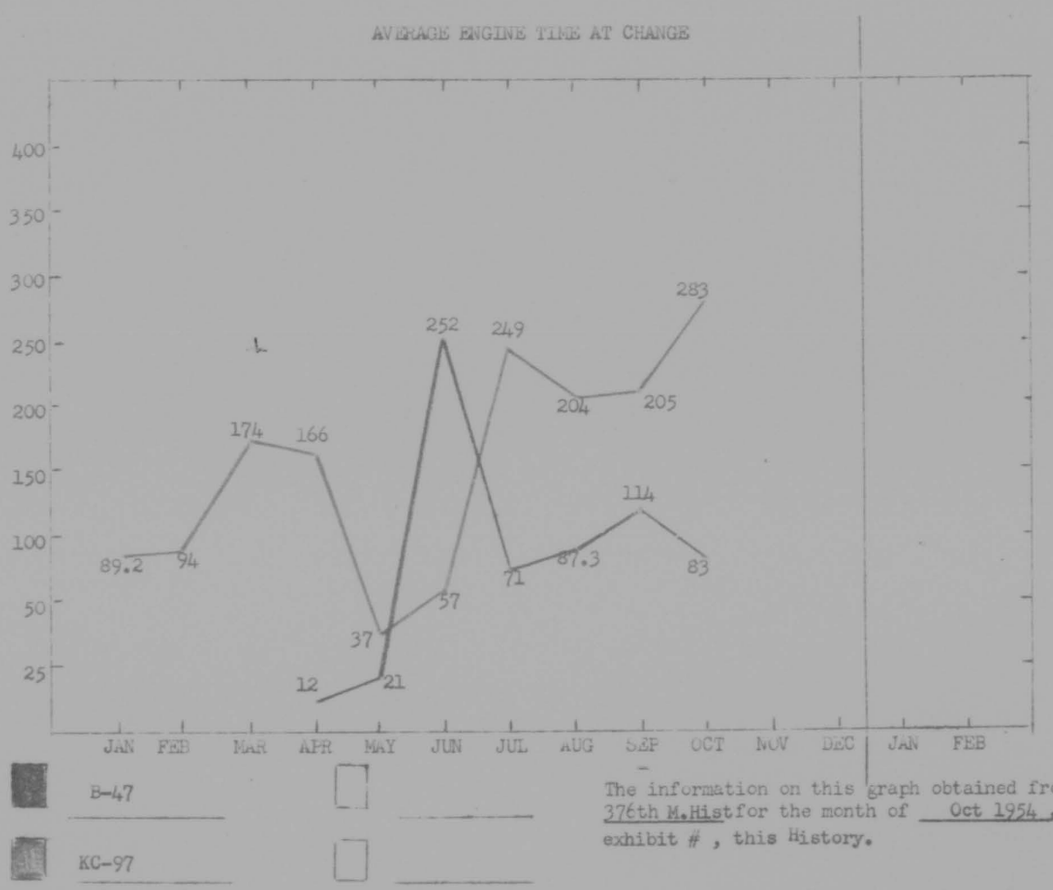

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376TH A/RT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 November 1954

Contractor: Dynamic Electronics Inc.
Forest Hills, N. Y.

SUBJECT: Monthly Technical Report, ROS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 October 1954, submitted in accordance with AFR 65-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALR-2, Blue Cradle, SAC Project # 6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal training was conducted for four airmen, AFSC 30230, on AN/ALT-7 equipment. A course on this equipment was completed in 28 hours of instruction. Instructor time 30 hours. It was not possible to hold additional formal training during October owing to the work load for missions during the weeks of October 18 and 25.

2. OJT:

a. Instruction was given to the co-pilots for two missions on the operation of ECM equipment; 6 hours. Instruction was given to maintenance personnel as follows:

Blue Cradle Operation	10 airmen	20 hours
Blue Cradle Test Equip.	3 airmen	15 hours
Blue Cradle Aircraft Operational Check	20 airmen	18 hours
Antenna Cable Construction	7 airmen	8 hours

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0558

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

AN/ALT-7	1 airman	3 hours
AN/ALE-1	2 airmen	4 hours
Inverter Operation	6 airmen	5 hours

Informal instruction given to RCA Field Engineer from Mac Dill AFB on Phase III (ECM) Equipment; 12 hours.

3. Available for instruction during October: 152 hours.

Training time: 120 hours.

Percentage 78%.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Two cases have occurred where coating has peeled from the outside of the radome for AS 680/APS-54. It is not known whether moisture-soaked radomes reduce the sensitivity of the AN/APS-54. Peeling is probably the result of normal weathering conditions. UR action is being taken. Operation of the AN/ALE-1 with the TD-93 intervalometer continues to be unpredictable. On one mission two out of three dispensers deactuated the AN/ALE-1 dispenser circuit-breaker (15 amp DC) in the aft DC power panel; these dispensers were operated at 15, 30 and 45 second intervals using special cam setting on position "E" of the chaff dispenser control. UR number 376BW-54-1421 was submitted on 27 August 1954 but no authorization has been received to install 20 or 25 amp circuit breakers.

Sustained efforts over a period of eight months were made through supply channels to obtain TL 323/U, Signal Corps item, the special cable tool necessary for the assembly of cables using UG 154/U and UG 532/U connectors.

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0559

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7AE, Subject: Monthly Technical Report, RCS: 3-AMD-U19, For Month Ending 31 October 1954

The 376th Bombardment Wing has fabricated a large number of these cables and uses 270 of them. Information was received that this tool is not available in USAF, consequently it was necessary to have base facilities copy and fabricate this tool to the best of their ability. These tools cannot be fabricated locally out of material strong enough to withstand necessary stress and continued usage, however the locally fabricated tools have filled a dire need despite frequent breakage.

2. It is recommended that the necessary information on AS-680/APS-54 radomes be disseminated to using organizations. A fix on the AN /ALE-1 chaff dispenser circuit breakers is required before any operations, using the TD-93/ALE-1 intervalometer, are possible. It is recommended that prompt action be taken to secure tool TL-323/U for use by all Wings may be required to fabricate antenna cables and replacement cables. This tool is absolutely indispensable.

3. Action taken, where possible, is outlined above.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Nicholson visited Douglas Aircraft Corporation Tulsa, Oklahoma on 14 and 15 October in connection with shipment of spare parts for Project Blue Cradle.

Guy H. Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics Inc.

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0560

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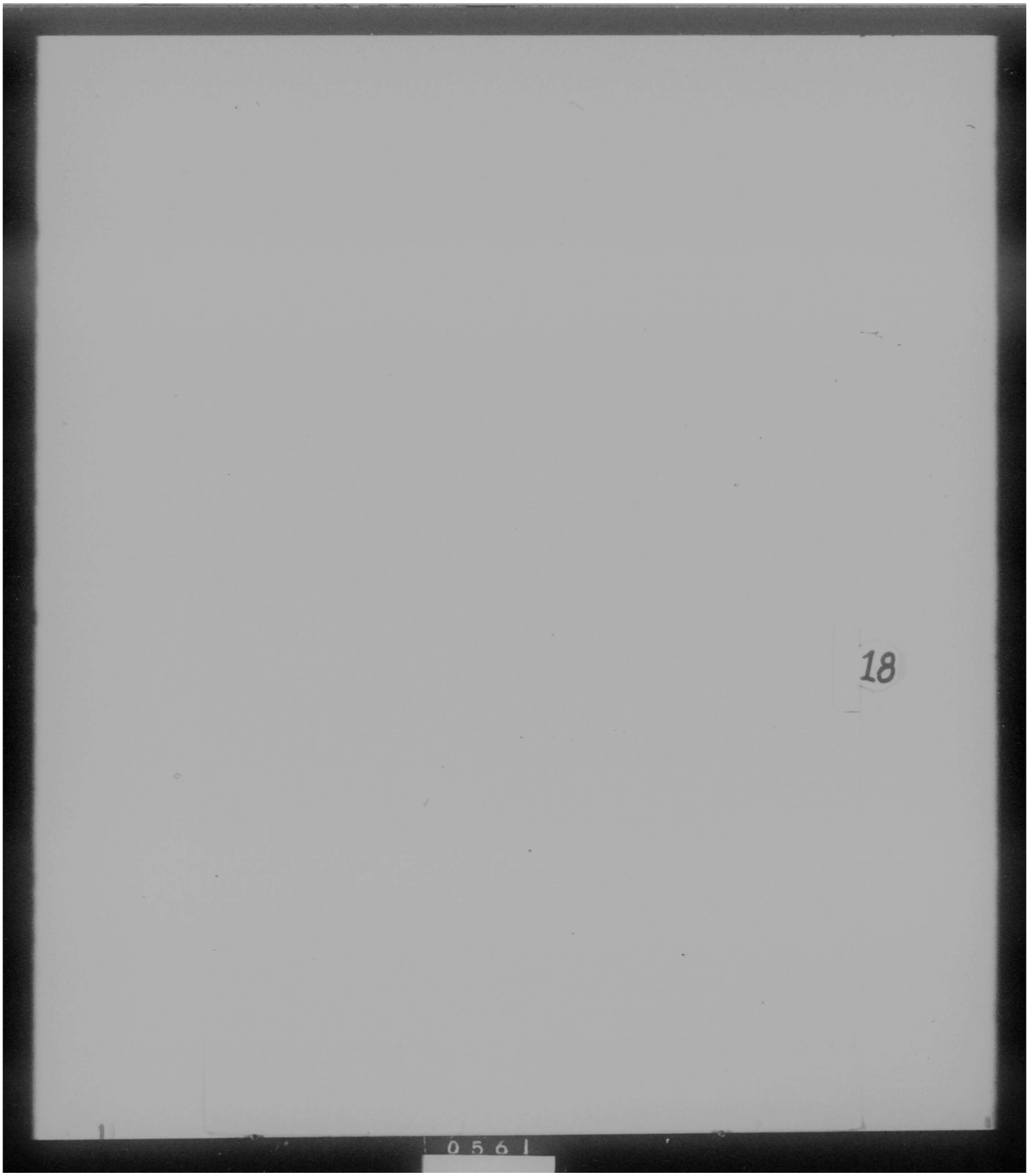

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 November 1954

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Follwwing is Technical Report for month ending 31 October 1954, submitted in accordance with AFR 66-16 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert J. Lenes, General Mills, Inc.
Mr. Allen R. Jones, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigation System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Two (2) twenty hour courses and two (2) four hour courses were conducted during the month of October. This includes courses on Optical Test Equipment, APS/23 Trouble Shooting, D-2 Navigational Unit, and Forward Sighting. These courses were conducted by Field Engineers of General Mills, Inc., Western Electric Co., and Sperry Gyroscope Company respectively.

b. The symposium type class for operator training continued throughout October. Many of the items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

0562

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c. The following is the status of classroom training for the month of October 1954. All students had 32130E and 32150E AFSC's with the exception of the Observers whose AFSC is 1544B.

SUBJECT	Course Hrs.	No. Instr. to date	No. Instr in October	Inst Man-Hrs	Stu Man-Hrs
Optical Test Equipment	20	40	18	84	368
APS/23 Trouble Shooting	20	39	17	84	340
D-2 Navigation Unit	4	95	11	28	44
Forward Sighting	4	115	54	52	216
Symposium	3		55	88	212

Total Student Man-hours of training for October - 1180.

2. OJT:

a. OJT during the month of October included test equipment alignment procedures, system analysis and trouble shooting.

PLANNED OJT

Subject	Instructor Hours	Student Hours	Students
Test Equipment and Alignment Procedures	54	140	12

INFORMAL OJT

Subject	Instructor Hours	Student Hours	Contacts
System Analysis	430	743	520
Trouble Shooting	125	212	60

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of October for a total of 1112 man-hours. Of this total, 945 man-hours were utilized for formal and OJT training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

0563

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2. We estimate that the services of the K-System Field Engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS:

1. Detail:

a. Sealed K-System amplifiers are beginning to fail more frequently as the equipment operating time increases. Some of these failing amplifiers could be caught in periodic inspection if proper test equipment were included in ECL-20-00-24.

2. Action To Establish fixes:

a. Since there is no fixe for production items and since the amplifier failure rate has been relatively low, periodic amplifier checking should help decrease the number of unsuccessful flights attributed to amplifier failures. Shifter Phase roll and pitch adjustment, part number 7CSG T-101044 has been deleted from ECL 20-00-24, revision dated 15 July 1954; Basic ECL 20-00-24 dated 23 March 1954. An alternate item, Synchro Signal Tester 7CAC 801908, part number T-101003 is supposed to be on automatic distribution per SAC letter dated 4 August 1954 file number DMBBl. However, this item is not on the ECL either. Since this organization has neither item, amplifiers cannot be checked at the present time.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. D. G. Doherty, Sperry Gyroscope Company Field Engineer returned from vacation 13 October 1954.

0564

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, [illegible]
Ending 31 October 1954

2. Mr. E. Boelte, Sperry Gyroscope Company District Manager and Mr. R. Fedotoff, Sperry Gyroscope Company K-System Supervisor visited the 376th Bombardment Wing on 12 October 1954.

Michael S. Kotula	Michael Nowak	Robert J. Lenes
MICHAEL S. KOTULA	MICHAEL NOWAK	ROBERT J. LENES
Field Engineer Coordinator	Field Engineer	Field Engineer
Sperry Gyroscope Company	Western Electric Co.	General Mills, Inc.

0565

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19

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 November 1954

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 October 1954 submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Arthur G. Jolley
(Departed 8 October 1954)
Mr. Roger G. Recher
(Arrived 13 October 1954)

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Twenty-five A-5 airmen (AFSC 32330C) received 500 man-hours of instruction in basic radar theory. This course was given to six classes of 20 hours each. Total time 120 hours.

2. OJT:

a. Six A-5 airmen were given 24 man-hours of instruction while working modifications called for in A-5 Field Change Notices. Total time 12 hours.

b. A-5 mechanics received instruction in trouble shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions on the line and in the docks. Total time 80 hours.

0567

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c. A-5 Mechanics received instruction in trouble shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions in the field shop.
Total time 60 hours.

3. Training Program:

a. Available time 320 hours.

b. Total training time 272 hours.

c. Per Cent training time 88%.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration, and maintenance of the A-5 Fire Control System and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Arthur G. Jolley was transferred on 8 October 1954 and was replaced by Mr. Roger G. Recher, 13 October 1954.

Kenneth R Faux

KENNETH R. FAUX
Field Engineer
Crosley

0568

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base

7AE 1 November 1954

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 October 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom:

a. During the month of October four two hour courses on the operation of the Line Analyzer were completed. The purpose of this course is to acquaint the airmen with the various A-12D autopilot tests which can be made on the aircraft with the analyzer. During the class many important analyzer checks were made on the A-12D mock-up as examples and each airman was given the opportunity of personally making the check. AFSC's of the men who attended this class are (2) 40471, (1) 40470, (2) 40433, (2) 43156, (3) 40453.

b. Four three hour courses on the balancing of Vertical Gyros with the Scorsby Table were also held. During this course the mock-up's Vertical Gyro was balanced as an example. A step by step procedure for balancing Vertical Gyros was prepared to aid in teaching this course and to be used in the future as part of the Vertical Gyro test procedure. AFSC's of men who attended this class are (6) 43156, (2) 40453, (1) 40471, (1) 40433.

*Reg. U.S. Pat. Off.

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c. Three two hour courses on the A-12D Gyropilot Data flow were given. This course briefly reviewed what was taught at the MTD and discussed various flight discrepancies and the corrective action taken. AFSC's of the men who attended these classes are: (2) 40471, (1) 40470, (2) 40453, (3) 43156.

d. Below is a summary of the hours devoted to instruction and preparation of instruction.

	Inst. Hrs.	No. Stu.	Stu.Hr
Line Analyzer Operation	8	10	20
Vertical Gyro Balance Test	12	10	30
A-12D Gyropilot Data Flow	6	8	16

2. Planned OJT:

a. Below is a summary of the Planned OJT given during the Month of October.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Test Procedures	15	7	22
A-12D Theory	8	5	10

3. Informal OJT:

a. The following is a summary of the Informal OJT which was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (3) 43156's (5) 40433's, (5) 40470's, and (5) 40471's available for training.

	Instr. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	40	15	62
Trouble Shooting	12	10	24

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, the F-1 Bendix autopilot and the Kerarfott N-1 compass was given.

	Instr. Hours.	No. Stu.	Stu. Hrs.
F-1 Autopilot	4	4	8
C-1 Amplifier	7	5	10
N-1 Compass	10	4	12

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c. Of 168 hours available instruction time 129 hours were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the writer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. The following equipment malfunctions occurred during the month of October.

a. No rudder response from turn know signals. Primary windings of T-603 shorted internally. Replaced six channel amplifier. Not repairable at this station.

b. Rudder trim meter inoperative. Open circuit between pins W & V of J-6 (rudder trim meter windings). Not repairable at this station. Replaced Flight Controller.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failures.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

Henry J. Kronlage Jr

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

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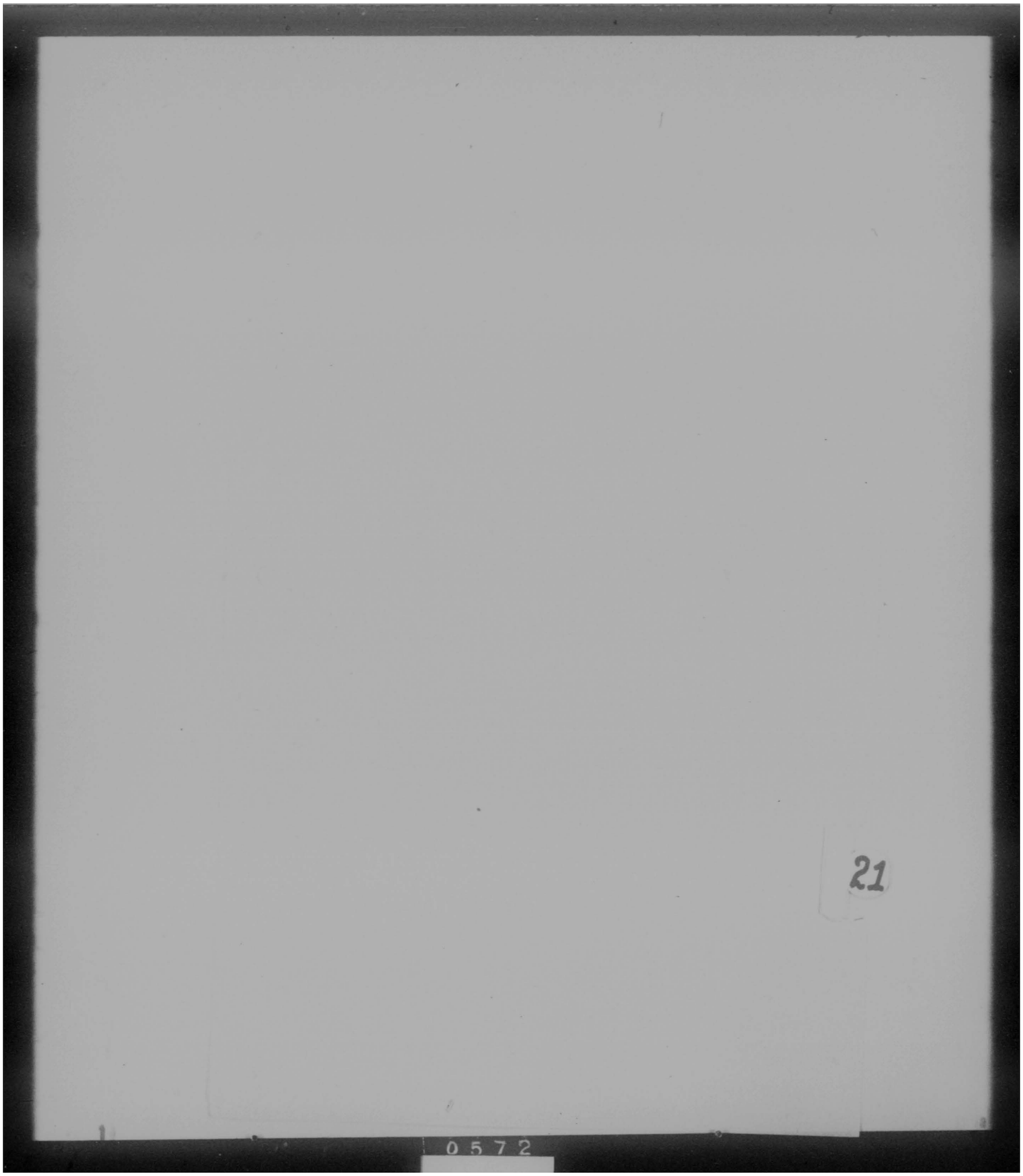

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 November 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 October 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project # 6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. 112 duty hours were spent at Lowry Air Force Base, Colorado for the ECM 30250 WEMP test project.

2. OJT:

a. 12 hrs. of OJT was given to 3 airmen on the QRC-8 and ALT-7 equipment.

3. Total time available for training was 144 hours. Total training time was 124 hours or 86% of total available time.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures.

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0573

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. Detail:

a. A good deal of time was spent in locating and establishing fixes for APS-54 installation discrepancies. The most prominent troubles encountered have been:

96 bad 1N23B Crystals

12 Shorted bulkhead connectors

11 Shorted coaxial cables

3 Coaxial cables without connector plugs

2. Action Taken:

a. The following UR's have been submitted on APS-54: 376BW-54-1861, 376BW-54-1862, 376BW-54-2152, 376BW-54-2153.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Detail:

a. No mock-up facilities are available for this equipment. Reference SAC MSG DM6E 2808. For DM3E1, 13 July 54 "Part 2. Hq USAF had advised that AN/ALE-1, AN/APS-54, and AN/APT-6 are considered non-complex systems and no bench sets will be authorized."

The APS-54 system is composed of (3) three major components. Any one of these major components is interdependent on the other two. This fact necessitates the removal of the entire system from a aircraft to trouble shoot and bench check any one of the components. This is also applicable to any ECM system containing more than one major component.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

A system mock-up is mandatory for an adequate training program in this organization.

2. Recommendations:

a. It is recommended that a mock-up system be authorized for the 376th Bombardment Wing M ECM equipment in the following quantities:

2 - ALE-1
2 - APS-54
2 - ALT-6
2 - ALT-7
2 - ALT-8

3. Action Taken: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The crystal protector which I have mentioned in previous reports has been installed on Aircraft 52-398 since October 1. Both antennas have been checked and found to be in perfect shape after the month of operation. The aircraft flew 3 missions for the month and accumulated 13 hours and 45 minutes of flying time. The length of time the APG-32 radar was used is not known.

X. GENERAL REMARKS:

1. I have been on TDY to Lowry Air Force Base, Colorado for most of the past month assisting in the preparation of the ECM 30250 WEMP test. I left Barksdale Air Force Base for Lowry on 1 October and returned on 25 October for duty.

Robert G. Nevitt
ROBERT G. NEVITT
Field Engineer
Philco Corporation

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 November 1954

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 October 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: J. A. Lella

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom: Negative.

a. All training during this month had to be OJT on missions being flown. Installation problems, preflight checks and trouble shooting in aircraft, on cradle in shop, and on test bench mock-ups.
Number of men - 65
Number of hours - 120

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performances and maintenance problems.

2. It is estimated that the services of General Electric Technical Representatives is indefinite.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 October 1954

V. EQUIPMENT MALFUNCTIONS:

1. K209:

a. Detail: Timing relay K209 will not time out. (2 failures)

b. Cause: Unknown.

c. Recommendation: UR being submitted as soon as cause is determined. (company checking)

2. R601:

a. Detail: R601, DC pot. shorting. (6 failures)

b. Cause: Physical construction.

c. Recommendation: General Electric Company has been notified and is awaiting fix.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. It was necessary to recycle the system when one of the 115 VAC was removed from the system by manually turning the system on and off. A fix has been developed by the General Electric Company (wire change) whereby it will automatically recycle when voltages are returned. UR 376EW-54-2151 has been submitted.

2. UR 376EW-54-190, 376EW-54-1911 and 376EW-54-1912 cover antenna system operational difficulties written in report of 30 September 1954.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFOMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Hal Ladwig returned to plant 2nd and 3rd week of October and was reassigned TDY to Eglin AFB, Flordia.

2. Mr. Joseph W. Steel assigned 376th A & E Maintenance Squadron 1 November 1954.

John A. Lella

JOHN A. LELLA
Field Engineer
General Electric Co.

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 October 1954

Contractor: Dynamic Electronics Inc.
Forest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal classes were held on the AN/ALT-7 for 21 airmen, composing of 19 airmen TDY from other SAC bases and 2 airmen from 376th A & E Maintenance Squadron.

b. Classes on B-47E (Phase III ECM aircraft were conducted for 21 airmen for 4 hours, and 13 airmen for 8 hours. These classes were conducted on the aircraft and students were shown location of all equipment, wiring, antennas and circuit breakers. Remote control circuits were fully explained. Instructor time for these classes was 14 hours.

c. Formal classes were held on the AN/ALT-7 for 4 airmen, AFSC 30230, of the 376th A & E Squadron. Complete course in this equipment was given in 24 hours of instruction. Instructor time for these classes was 26 hours.

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2. OJT:

a. OJT training for B-47 crews on operation of ECM equipment was conducted. This included individual instruction to co-pilots at the aircraft. General instruction amounted to two hours for 48 officers, specialized instruction to 19 officers for an additional two hours.

b. OJT training for six airmen, 30230, on Blue Cradle wiring and Phase III wiring conducted for an additional two hours.

c. OJT supervision for one airman, 30250, and two airmen, 30230, on Blue Cradle test equipment was conducted for a total of 12 hours.

d. General OJT and supervision of Cradle testing, involving several airmen teams, amounted to approximately 22 hours.

3. Training Time:

a. Available for training	160 hours
Formal Training	65 hours
OJT Training	52 hours
Total	117 hours
Per Cent of training time	73%

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate that my services can be terminated by April 1954

V. EQUIPMENT MALFUNCTIONS:

1. 376th Bomb Wing M has been equipped with ninety (90) AN/ALT-7 transmitters. To date there have been eight (8) bench failures of the motor-driven variable "sweep" capacitor, C261, in the TL64/ALT-7. These capacitors are subject to high RF voltages, especially under high VSWR conditions.

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7AE, Subject: Monthly Technical Report, RCS: 3-[illegible], [illegible]
Ending 30 September 1954

The capacitors are from stator to rotor, then are repeatedly and, in some cases, short out. The voltage breakdown rating of this capacitor is not adequate for the [illegible] RF voltages; this rating should exceed the normal safety factor in view of its connection between the push-pull tank coils. UR # 376BW-54-1809 has been submitted.

2. The Hallicrafter Corporation is supplying a new type of "sweep" capacitor to replace those in all transmitters of the 376th Bomb Wing M.

a. Maintenance personnel are being instructed on proper precautions to be observed in keeping VSWR within safe limits. These precautions include proper ground planes on shop antennas, use of antenna AT-190 and AT-191A/AP above frequency of 80 megacycles and use of specially constructed whip antennas below a frequency of 80 megacycles. It is also recommended that the manufacturer revise the interim handbook to include proper information on antennas and necessary precautions to prevent the build-up of high RF voltages, due to antenna to-transmitter mismatch.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. 376th Bomb Wing M has been equipped with B-47E, Phase III ECM, aircraft since April 1954. Distribution of revisions to T.O. 1B-47B-2 have not yet included the instructions or wiring diagrams for the Phase III installation, with the exception of the AN/ALE-1 and AN/APS-54 installations. Since Phase III drawings and instructions are still included in T.O. considerable confusion is caused to ECM personnel.

a. The 376th A & E Squadron managed to obtain the original engineering drawings (WADC) for the prototype aircraft and were able to overcome this difficulty and instruct personnel.

2. Reference aircraft of 376th Bomb Wing M still have circuit breakers installed and marked "AN/ART-5A" and "AN/APT-16". Those circuit breaker markings have not been changed, even though the AN/APT-5A will not be used on B-47 aircraft and the circuit breakers so marked, is also used for the AN /APT-16 circuits.

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Similarly the AN/APT-16 circuit breaker is also used for the AN/ALT-6 and AN/ALT-8 installation.

a. A recommendation has been made through channels that the 376 Bomb Wing M change the circuit breaker identification as follows:

"AN/APT-5A" 5 amp DC Navigator's DC Panel.
"AN/APT-16" 15 amp AC Main AC Panel

Both to read "ECM Transmitters #1 and #2."

A recommendation is herewith made to relocate the "AN/APT-5A" circuit breaker to the co-pilot's DC Circuit Breaker Panel to obviate possible failure to actuate this circuit breaker during ECM operations. This relocation might still be possible in part of the Phase III ECP Program.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Test equipment, specially for Blue Cradle operation, is still under construction. This test equipment comprises:

5 Portable test consoles.
2 ATO compartment test units.
2 Blue Cradle aircraft wiring test units.

The status of this equipment is as follows:

a. Test consoles, one "crash" unit complete and in use, two consoles partially complete, remainder with sheet metal work partially complete.

b. ATO compartment test units, two about 90% complete.

c. Aircraft test unit, one about 85% complete.

Difficulties encountered in construction of this equipment center in non-availability locally of AF items and the necessity for local purchase of many NISL items.

2. No convenient method of testing primary power sources has been provided on Blue Cradle. At the present time the main junction box must be opened and temporary connection made to the AC and DC buses. This operation is not easy and consumes considerable time.

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a. A recommendation has been forwarded through channels to install permanent test cables on all cradles. This cable, comprising four conductors, will connect directly to the test consoles and facilitate measurement of DC and AC voltages and AC line frequencies.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Nicholson attended a conference at OCAMA on 17 September 1954 concerning procurement of spare parts for Project Blue Cradle.

Guy H Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics

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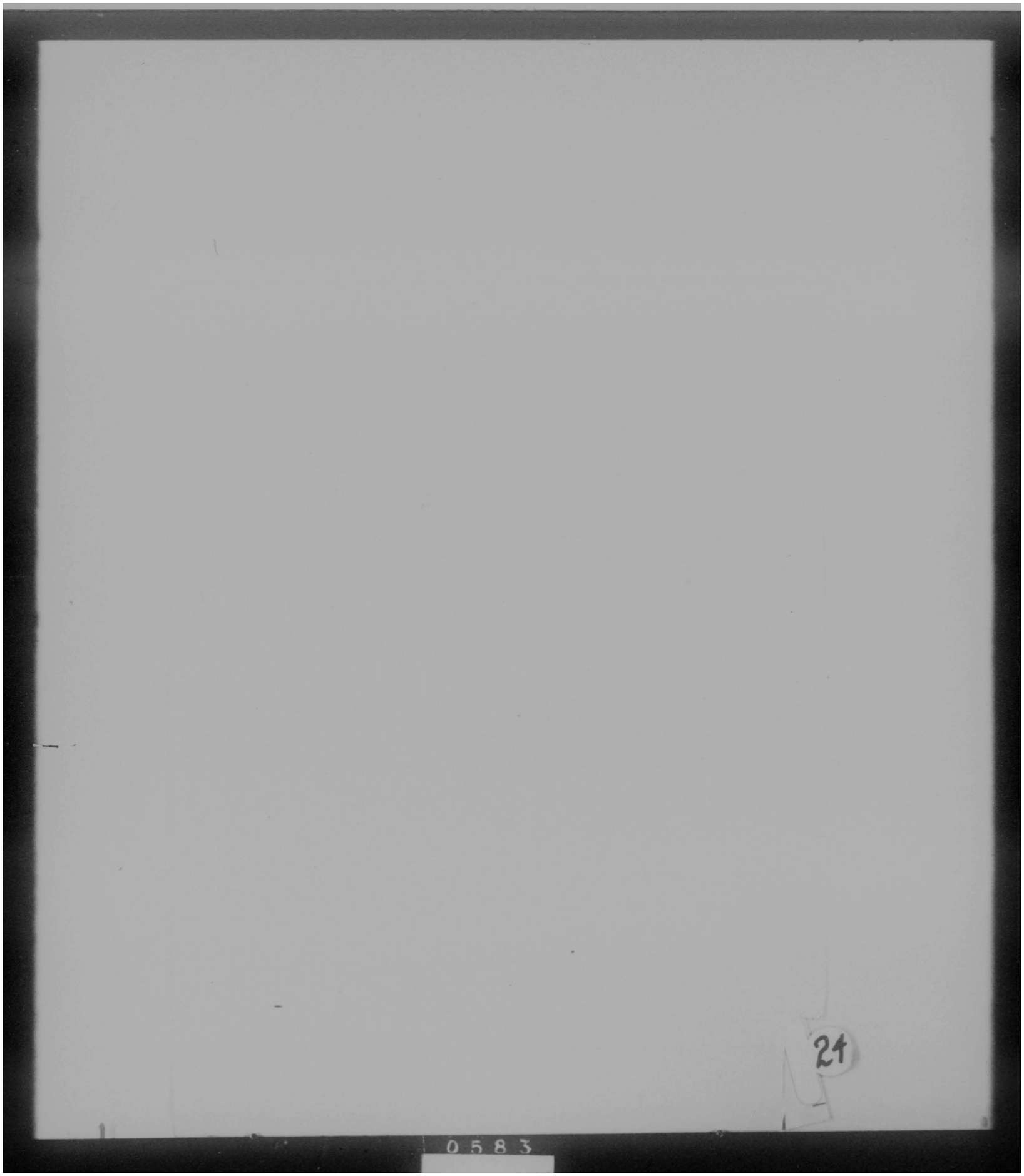

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 October 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 September 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 September 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project # 6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Classes this month were composed of TDY personnel from Castle AFB and Smokey Hill AFB. Four Barksdale AFB personnel were trained.

Taught ALE-1 to 20 airmen	24 hours
Taught APS-54 to 12 airmen	24 hours
Miscellaneous instructor	6 hours
Total	54 hours

2. OJT

a. Supervision of APS-54 Crystal Protector Project — 36 hours

b. OJT training on all assigned equipment — 29 hours

65 hours total OJT

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3. Time Available For Training 168 hours
Time devoted to training 119 hours
Per Cent devoted to training 71%

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate that my services can be terminated by April 1957.

V. EQUIPTMENT MALFUNCTIONS:

1. All aircraft APS-54 installations are being checked and discrepancies in the installation are being corrected. UR's are being submitted on all malfunctions.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Detail:

a. The Preliminary Handbook for chaff countermeasure dispensing set AN/ALE-1 on page 5, Section 4, paragraph D states that the spring return auxiliary togale switch mounted on the stripper is for the purpose of enabling the chaff loading personnel to complete the loading without having to additionally operate the control unit which may be remotely situated. Table IV indicates that the tape speed with the intervalometer and control unit connected to the striper is 2.5 feet per minute which is the proper tape speed to use during loading operations for the correct alignment of the initial bundle of chaff. Unfortunately the tape speed will not be 2.5 feet per minute as stated in the Preliminary Handbook except under certain conditions. It might be 80 feet per minute which would be entirely unsuitable for the initial alignment of the fires bundle of chaff.

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When the control unit is connected directly to the dispenser without using an intervalometer, as is the case with the Blue Cradle, the tape speed obtained will depend entirely upon the setting of the control box selector switch. This would necessitate turning the control box selector switch to the 2.5 feet per minute position before the auxiliary stripper switch could be used for the initial alignment of the first bundle of chaff.

2. Recommendations:

a. Switch S1 in control box C-1282/ALE-1 is a single pole single throw toggle switch and its function is the power "on" - "off" switch. By changing this switch to a double pole single throw switch in order that line A to connector J2 could be broken the stripper would always operate at 2.5 feet per minute from the remote position. If it were desirable to operate the stripper at some other speed from the remote position the circuit breaker for the control box could be opened, switch S1 on the control box turned "on" and the tape speed selector switch turned to the desired speed. It is recommended that the above modification be incorporated in all future ALE-1 equipment that is manufactured and that units now in the field be eventually modified.

3. Action Taken to Correct: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. In previous reports I have indicated that numerous APS-54 antenna crystals (1N23B type) were defective. These are being replaced. The proceedure that I developed for checking the antenna installation for defective crystals without removing the radome is also proving to be very reliable. Prior to removing the radome I estimate the number of crystals that are bad from measurements that I take. In each case my estimations have been correct when I physically checked the crystals.

2. A protective device for the APS-54, 1N23B antenna crystals has been designed, built and will be installed on one aircraft.

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Previous monthly reports have mentioned this intended project and the need of crystal protective circuitry. The divice is designed to protect the APS-54 antenna crystals from the aircraft own radar while airborne and from strong RF fields encountered when the aircraft is on the ground. The protective device is housed in a 3"x5"x5" metal box. Antenna and blanking cables which normally connect to the APS-54 are connected to the crystal protector and leads from the crystal protector connect to the APS-54. No modification of the APS-54 equipment is necessary. The crystal protector has been checked under laboratory conditions where it proved to be entirely satisfactory, judging from all of the tests which were conducted. There perhaps may be other contributing factors to the crystal failures experienced at this base other than those for which the crystal protector was designed to correct, however I feel confident that very great increase in crystal life will result by the use of the protective circuit.

X. GENENERAL REMARKS:

1. I will leave Barksdale Air Force immediately for Lowry Air Force Base for a 20 day TDY on orders, for the purpose of reviewing test items for AFSC 30250.

Robert G Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

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HISTORY

1-30 NOVEMBER 1954

376TH Bombardment Wing (M)

LIBERANDOS

BARKSDALE AIR FORCE BASE
LOUISIANA

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Initials: Murphy
Date: 1 [illegible] 5

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 NOVEMBER - 31 NOVEMBER 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics
Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

3-2484-10A

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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CONTENTS

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	1, 2
Personnel Problems	2, 3
Crew Status	3, 4
Status of Airman Aircrew Personnel	4, 5
Reenlistment - AWOL Rate	5
SAC Management Control System	5, 6
Changes in Key Personnel	6, 7
Roster of Key Personnel	8
CHAPTER II . . . Operations and Training	9
Flying Time	10 - 12
Status of Test Projects	12 - 20
CHAPTER III . . . Maintenance	21
Aircraft Status	22 - 24
Training Activities	24 - 27
Equipment Malfunctions	27
Maintenance Engineering Difficulties	28, 29
Special Developments	30
Facilities	31
Installation Maintenance	32

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PERSONNEL

The total number of officers assigned at the end of November 1954 was 390[1] which was nine more than the figure for October,[2] but was 82 less than authorized strength.[3] A total of 366 officers were effectively assigned,[4] six more than in October,[5] or 77.5 percent of authorized strength.[6] The figures and percentage for manning in required specialties in November were the same as for effectively assigned during the month.[7] There were ten officers discharged or transferred during November,[8] which was the same as in October,[9] or 2.1 percent of authorized strength,[10] and 19 officers assigned,[11] or 4.0 percent of authorized strength.[12]

The total number of airmen assigned at the end of November 1954

1. Report, "Monthly Analysis (November 1954)", n.d., hereafter cited as "376th Pers Anal for Nov 54", n.d., exhibit #1, and chart, exhibit #2, this History.
2. History 376th Bomb Wing for Oct 54, page 4, and chart, exhibit #2, this History.
3. "376th Pers Anal for Nov 54", exhibit #1, and chart, exhibit #2, this History.
4. "376th Pers Anal for Nov 54", exhibit #1, this History.
5. History 376th Bomb Wing for Oct 54, pages 4 and 5.
6. "376th Pers Anal for Nov 54", exhibit #1, this History.
7. Ibid.
8. Ibid, by career fields - one each: Pers Staff officer, Otolaryngologist, Nurse-gen dy, Pilot AOB, Navi, Navi-Bombardier, Supply officer, Personnel officer, administrative officer and Medical services superintendent, for a total of 10.
9. History 376th Bomb Wing for Oct 54, page 5.
10. "376th Pers Anal for Nov 54", exhibit #1, this History.
11. Ibid, by career fields: 4 each- Pilots, Navi's and Navi-Bombardiers, Pers officers-2; and 1 each - Med off-general, Acft Performance Engr, Admin off, Production Procurement off, and Installation Engineer, for a total of 19.
12. "376th Pers Anal for Nov 54", exhibit #1, this History.

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was 1973,[13] which was the same as in October,[14] and was 148 more than authorized strength.[15] There were 1480 effectively assigned airmen,[16] 19 more than in October,[17] or 80.75 percent of authorized strength.[18] The manning in required specialties for airmen in November was 1301,[19] which was 71 above the October figure.[20] There were 86 airmen transferred or discharged during November,[21] or 4.7 percent of authorized strength,[22] and 86 airmen assigned,[23] or 4.7 percent of authorized strength.[24]

PERSONNEL PROBLEMS

The officer effective manning decreased slightly during November as compared to October. The decrease was caused by the addition of a B-47 Cadre T/D-A to each squadron. No assigned officers have as

13. "376th Pers Anal for Nov 54", exhibit #1, & chart, exhibit #3.
14. History 376th Bomb Wing for Oct 54, page 5.
15. "376th Pers Anal for Nov 54", exhibit #1, and chart, exhibit #3, this History.
16. "376th Pers Anal for Nov 54", exhibit #1, this History.
17. History 376th Bomb Wing for Oct 54, page 5.
18. "376th Pers Anal for Nov 54", exhibit #1, this History.
19. Ibid.
20. History 376th Bomb Wing for Oct 54, page 5.
21. "376th Pers Anal for Nov 54", exhibit #1, this History by career fields: Intel-2, Comm-Ops-2, radio & radar sys maint-6, Armt sys maint-9, Atomic Wpns-1, Intri Equip Maint-2, Acft Acc Maint-4, Airplane & Eng Maint-35, Mun & Wpns Maint-6, Vehicle Maint-1, Metal Work-5, Food Sv-1, Supply-4, admin-4, and 1 each- Pers, Ed & Trng Education, Stat Spl, & Medical - total - 86.
22. "376th Pers Anal for Nov 54", exhibit #1, this History.
23. Ibid, by career fields: Photomapping-1, Comm-Ops-7, radio & radar Sys-15, Armt Sys-8, Intri Equip-7, A & E Maint-24, Mun & Wpns-1, Vehicle Maint-3, Metal-3, fabric leather & rubber-2, trans-2 admin-7, pers-3, stat spl-1, & Med-2, total - 86.
24. "376th Pers Anal for Nov 54", exhibit #1, this History.

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yet been ear-marked as Cadre Personnel. Officer manning in AFSC's 1435, 3054, 3854, 4334, 4355, 4364 and 7324 remain critically short. Manning in the aircraft maintenance field changed slightly during the month. Manning in AFSC's 43133/53 was at 180 percent by primary and 153 percent by duty. Manning in AFSC's 43151J/51B/52A was at 76.8 percent by primary and 125 percent by duty. Supervisory level in AFSC's 43170/71B/71J manning was at 81.6 percent by primary and 91.9 percent by duty. This represents a 12.4 percent loss by primary and 19.4 percent loss by duty.[25]

The armament system career field shows a loss of 1.7 percent manning by primary and a gain of 11 percent by duty.[26]

Effective manning in the A-series system field, AFSC's 32130A/50A was 184 percent. Effective manning in AFSC's 32150B, 32150C and 32150D was at zero percent. Effective manning in the supervisory level AFSC 32170A was 38 percent and manning in required specialty was nine percent.[27]

CREW STATUS

The average number of B-47 crews assigned during November 1954 was 45,[28] of which 12 non-combat ready bombardment crews were in

25. Report, "Air Training Report for the Month of November 1954, (RCS: 6-SAC-712) Sec J, n.d., hereafter cited as "376th T-12 for Nov 54, Sec J", exhibit #4, this History.
26. Ibid.
27. Ibid.
28. Ibid, and chart, exhibit #5, this History.

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training at the end of the month. Twelve non-combat ready crews have been trained to a point where they could be deployed for R&M missions in the event of an emergency.[29]

The average number of KC-97 crews available for training during the month was 21,[30] of which 19 were ready and two were not.[31]

STATUS OF AIRMAN CREW PERSONNEL

The 376th Air Refueling Squadron has reached a point where the need for assignment of additional crew personnel has become critical due to the large number of separations to take place within the next six months.

Each of the positions has, in addition to the authorized amount, a 25 percent training overage. There were 30 flight engineers authorized with 34 assigned, of which there were 21 qualified with one pending transfer. Three were to be separated during the month of November, one in January and two due in February showing a shortage of three flight engineers. There were 30 Radio Operators authorized with 22 assigned (all qualified), one was due for separation in November, three in January and one in March showing a shortage of 13 Radio Operators. There were 60 Boom Operators authorized with 54 assigned, of which there were 44 qualified, three more were due in

29. "376th T-12 for Nov 54, Sec J", exhibit #4, this History.
30. Report, "Air Training Report for the Month of November 1954, (RCS: 4-SAC-T12) Sec H&I, hereafter cited as "376th T-12 for Nov 54, Sec H&I," exhibit #6, & chart, exhibit #5, this History.
31. "376th T-12 for Nov 54, Sec H&I", exhibit #6, this History.

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November. During the next six months 23 were due for separation showing a shortage of 25 boom operators at the end of the six month period.

Trainable replacements must be procured to prevent crew regression.[32]

REENLISTMENT-AWOL RATE

There were 74 normal discharges during the month of November 1954 with 13 reenlisting, giving the Wing a reenlistment rate of 17.6 percent,[33] which was a decrease of 16.6 percent from 34.2 percent which was the October figure.[34] That drop in the reenlistment rate was due to a new method of computation.[35]

There were five airmen AWOL during the month giving the Wing an AWOL rate of 1.06 percent,[36] which was a decrease from the October figure.[37]

SAC MANAGEMENT CONTROL SYSTEM

For the month of November 1954 the Wing received 30 percent of

32. D/F, from Comdr 376 Air Rtlg Sq to D/: 376 Bwg, "Status of Airman Crew Personnel", 4 Nov 54, attached, exhibit #7, this History.
33. "376th Pers Anal for Nov 54", exhibit #1, this History.
34. History 376th Bomb Wing for Oct 54, page 7.
35. D/F fr 376th D/F to CO, "SAC Management Control System, 7 Dec 1954, " exhibit #8, and TWX, Hq SAC to CG 2AF, GOA 40757, 2 Dec 1954, exhibit #9, this History.
36. "376th Pers Anal for Nov 54", exhibit #1, and chart, exhibit #10, this History.
37. History 376th Bomb Wing for Oct 54, page 7, and chart, exhibit #10, this History.

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maximum score for officers, ten percent for airmen (direct support) and 50 percent for airmen (indirect support) under manning in required specialties. Under AWOL rate, for a two month average the Wing received 100 percent of maximum score. Under Reenlistment Rate, for a two month average, 20 percent was received. Under Ground Safety the index was .687, the accident cost index was .22 for a score of 100 percent of maximum score. The drop in manning in required specialties for officers and indirect support airmen was due to the change in the T/O for the bomb squadrons and air refueling squadron and picking up cadre personnel (116 airmen and 16 officer personnel).[38]

CHANGES IN KEY PERSONNEL

Major Edward P. Bowman, USAF, Director of Personnel was transferred to the 805th Air Base Group effective 12 November 1954.[39] He was replaced by Captain Edmund T. Fleming, USAF, who was transferred to the Wing from the 3rd SSS on 11 November,[40] and was assigned duty as Director of Personnel on the same date.[41]

Lieutenant Colonel Archibald D. Odom, USAF, was assigned duty as Wing Director of Materiel, effective 17 November 1954,[42]

38. D/F to Wg CR from D/P "SAC Management Control System, 7 Dec 54, exhibit #8, this History.
39. SO 279, Hq 4ADiv, par 23, dtd 12 Nov 54, files, 376 Bomb Wing.
40. SO 275, Hq 4ADiv, par 12, dtd 8 Nov 54, files, 376 Bomb Wing.
41. PAM 71, Hq 376 BWg, par 9, 15 Nov 54, files, 376 Bomb wing.
42. PAM 72, Hq 376 BWg, par 2, 22 Nov 54, files, 376 Bomb wing.

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replacing Colonel Robert T. Calhoun, USAF, Deputy Wing Commander, who had been acting as the director.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEINBACHER, ROBERT J.	Colonel
Director of Materiel	ODOM, ARCHIBALD D.	Lt Col
Director of Personnel	FLEMING, EDMUND T.	Captain
Director of Special Tests and Tactics	BONDARS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	MILNER, ROBERT S.	Lt Col
Chief of Intelligence	ROLFIN, SHIRLEY A.	Lt Col
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron, M	LOLLAR, CLARENCE L.	Lt Col
513th Bomb Squadron, M	ADKINS, JAMES S.	Lt Col
514th Bomb Squadron, M	WEDDLE, OWEN A.	Lt Col
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Col
370th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th A & E Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Missions Ordered by Higher Headquarters:

Ferrying aircraft consumed nine hours, and ECM test expended 55 hours, for a total of 64 hours flown on missions ordered by higher headquarters during the month of November 1954.[43]

KC-97 Missions Ordered by Higher Headquarters:

Second Air Force Operations Order 38-54 required 91 sorties for a total of 569 hours and 55 minutes. Test Project Directive Number 1 required seven sorties for a total of 42 hours and five minutes, showing a total of 612 hours being flown on missions ordered by higher headquarters during the month.[44]

Total Flying Time:

B-47 aircraft of the Wing flew a total of 1138 operational hours during the month,[45] while the total aircraft time was 1163 hours and 45 minutes.[46] The KC-97 aircraft of the Wing flew a total of 846 operational hours,[47] while the total KC-97 aircraft time was 854 hours and 25 minutes.[48]

The B-47 crews flew an average of 25.3 hours per assigned

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43. "376th T-12 for Nov 54, Sec J, exhibit #4, this History.
44. "376th T-12 for Nov 54, Sec H&I, exhibit #6, this History.
45. "376th T-12 for Nov 54, Sec J, exhibit #4, this History.
46. Report, "Historical Report for the Month of November 1954, 376 Wing Maint Control Unit", n.d., hereafter cited as "376 Maint Hist for Nov 54", exhibit #11, and chart, exhibit #12, this Hist.
47. "376th T-12 for Nov 54, Sec H&I, exhibit #6, this History.
48. "376th Maint Hist for Nov 54", exhibit #11, and chart, exhibit #12, this History.

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crew,[49] while the KC-97 crews flew an average of 40.3 hours per assigned crew.[50]

During November the 376th Bombardment Wing was the only unit on Barksdale Air Force Base adequately using the Mobile Training Detachment (3500 hours per month). As the wing gets older in B-47's it will need less time.[51]

During the first half of the month, flying time was low. There was a special staff meeting on 16 November in order to discuss that particular problem. During October the Wing flew the required amount of hours but did not obtain the required amount of training, therefore, points were lost on the rating system. The Wing Commander believed one discrepancy was lack of supervision by either the squadron commanders, engineering officers, line chiefs or crew chiefs. The Commander suggested the following policy: When you ask for four airplanes and a spare, that's what you will get - no more regardless of how many you have in commission. Any airplane not airborne one and one half hours after scheduled take-off time will be an abort and will not be flown that day. That should cause considerable consternation, but that would allow the Commander to put his finger on the man who caused the airplane to abort. This would mean that maintenance is going to have to be sure of the condition of the airplanes

49. "376th T-12 for Nov 54, Sec J," exhibit #4, and chart, exhibit #13, this History.
50. "376th T-12 for Nov 54, Sec H&I, exhibit #4, and chart, exhibit #13, this History.
51. Minutes, 376 Bwg staff meeting, 3 Nov 54, files, Hq 376 BWg.

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before thay turn them over to operations. If not, the chief of operations will scream loudly, which is expected. It will cause the tactical squadrons to lose flying time. On the other hand, you will get more training accomplished out of flying time you have available. It is expected that two hours after an airplane aborts, it will be known who caused it. If you have an abort, that leaves an airplane on the ground to correct any discrepancies and have it ready for the next scheduled flight. We will fall short on flying on a planned scheduled manner. We will accomplish more training with the number of flying hours we get.[52]

STATUS OF TEST PROJECTS

Project 1A increased two percent to 90 percent of completion with an additional 12 hours and 12 minutes having been flown, making a total of 295 hours and 29 minutes. The final report on this project was in the process of being written. A chart, "Number of 5 MC Transmitters Required to Jam Fighter Receiver", was prepared.[53] The chart allows quick determination of the number of sweeping VHF communications jammers required to adequately jam GCI communications.[54]

52. Minutes, Special Staff Meeting, 376th Bomb Wing, 16 Nov 54, files 376th Bomb Wing.
53. Inclosure #1 to Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)" for Nov 54, hereafter cited as "376th U-30 for Nov 54", 1 Dec 54, exhibit #14.
54. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.

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Project 1X increased two percent to 38 percent of completion. A tentative final package for the transmitter and receiver tuning sections was completed. The packing of this unit required the machining of a special gear train which is used for mechanically coupling the receiver and transmitter tuning units. An overshoot of the received signal was found to be one megacycle. A clutch and brake assembly was added and proved acceptable. The overshoot became negligible in that it fell within the band-pass of the receiver and allowed positive locking action. No attempt was made to track the transmitter with the receiver. Further engineering on the tuning capacitor may be necessary to accomplish satisfactory tracking.[55]

Project 27 remained at 65 percent of completion though 15 additional hours were flown. RR44 chaff has been collecting on the UHF communications antenna, and tests were in progress to eliminate the condition. A priority of 50 was given to the 376th Wing tests at the Air Proving Ground. Cancellation of tests under the system employed at the Air Proving Ground Command only permits 24 hour notification, making rescheduling difficult due to schedules having to coincide with 376th Wing maintenance and training schedules.[56]

Project 29 (formerly numbered Auxiliary Project Number 20) remained at the same stage of completion (50%), with an additional six

55. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
56. Ibid.

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hours having been flown. The Wing was still awaiting a prototype Polaroid camera and periscope attachment from the Photographic Laboratory at the Wright Air Development Center, Dayton, Ohio.[57]

Project 30 (formerly numbered Auxiliary Project Number 21) increased two percent in completion to 37 percent, with no additional hours flown. Based on the results of a survey of direct-viewing, infra-red devices, and flight tests of direct-viewing equipment, it was concluded that a direct-viewing, infrared device was not satisfactory as a station keeping aid in the B-47 type aircraft. Three missile manufacturers, who were working on infrared seekers were visited. Eastman Kodak Company showed particular interest and conducted tests in their laboratory with the Dove infrared seeker to determine its suitability. Results obtained demonstrated that the seeker held promise of solving the problem. A two week visit to the company was made - to substantiate the findings, modify the seeker and circuitry for flight testing, and become familiar with the system operation - to support maintenance of equipment while flight tests were conducted at Barksdale Air Force Base, Louisiana.[58]

Auxiliary Project Five increased from 10 to 40 percent of completion with 25 hours and 36 minutes having been flown. Several flight tests were conducted using the Mark III IFF System in conjunction with AN/ALT-7 transmitters. The initial flight test demonstrated

57. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
58. Ibid.

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that it was possible to track an aircraft with the Mark III System without the aid of search radar, provided variations in aircraft range, azimuth, and altitude were carefully controlled. Improvement in the range of the equipment was being made to simulate tactical conditions. Succeeding missions, using the AN/ALT-7 transmitters as sweep jammers, gave good indication that jamming of the IFF ground equipment was possible.[59]

Auxiliary Project Six increased from 45 to 50 percent of completion with an additional one and one half hours being flown. Complete modification of the oscillator-amplifier units was accomplished. The oscillator change improved stability and facilitated tuning. The amplifier modification enabled the amplifiers to operate cooler with somewhat greater power output then before. Details of runs may be found on pages 9 and 10 of the Report.[60]

Auxiliary Project 14 increased from 30 to 50 percent of completion. A total of 14 AN/APT-5 and AN/APT-9 systems were installed in Wing B-47 aircraft. These systems were used as barrage jammers against FPS-3 radar at Palermo, New Jersey. The equipments were installed on the cradle in the bomb bay. The equipment, when turned on, was approximately 170 miles from the radar. Effective jamming was noted for two minutes. Jamming ceased due to malfunction of equipment. Five systems had malfunctions. An interim report was being

59. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
60. Ibid.

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prepared and will be covered when available.[61]

Auxiliary Project 15-6 increased from 62 to 70 percent of completion. The increased sweep speed of the AN/ALT-6 resulted in more effective jamming. The malfunction rate of the equipment was excessive because of the unsatisfactory transmission cable RG-117/U. The AT-518 helix antenna did not provide the required omni-directional characteristics. The antennas are mounted flush with the skin of the aircraft in such a manner that most of the radiated energy forms a narrow carpet directly beneath the aircraft.[62]

Auxiliary Project 18 increased from 35 to 36 percent of completion. Laboratory tests indicated that the jammer was not very effective, either pulsing or sweeping; however, it was effective as a spot jammer. It was decided to see if it could be used as a search and lock-on spot jammer. The transmitter could not be adjusted to track to the receiver due to the non-linear scale on the receiver. The worst problem encountered was the antenna, none of those available for VHF would work with the increductor.[63]

Auxiliary Project 22 increased from 45 to 85 percent of completion. It was apparent that the frequency sweeping device, made up of motor B-201 and rotary capacitor C-261, was not reliable for high altitude operation. Of 89 ALT-7 transmitters assigned to the Wing, 14 sweep units have failed. Two AN/ALT-7 systems were taken to the

61. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
62. Ibid.
63. Ibid.

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Air Proving Ground Command for cold and altitude tests.[64]

Auxiliary Project 23 remained at the same stage of completion. Fifty streamlined whip antennas (30½ inch) were received from [redacted]. Flying hours continued to accumulate on the whip antennas with no mechanical of physical breakdowns. Electronic evaluation of the antennas will be made when the matching sections are available.[65]

Auxiliary Project 24 increased from 25 to 40 percent of completion, with 22 hours and 25 minutes more being flown (total 26:50). Two simulated penetration missions were flown using the QRC-8 against the Collins 18-S4 receiver installed in B-47 type aircraft. This receiver is relatively unsusceptable to sweep jamming, due to it having a narrow bandwidth and a noise limiter. Good results were obtained from the missions.[66]

Auxiliary Project 25 increased from 70 to 75 percent of completion with an additional 84 hours flown (total 974). The knife edge thin solid stub antenna, received from WADC, had 24 hours and five minutes flying time on it and was still rigid.[67]

Auxiliary Project 26 increased from 65 to 85 percent of completion with no additional flying time. Furtner altitude chamber testing was accomplished with Eccofoam FP, used to coat high voltage

64. "375th U-30 for Nov 54", 1 Dec 54, exhibit WL4, this History.
65. Ibid.
66. Ibid.
67. Ibid.

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terminals, showing a great improvement in high altitude operation. Points which had been arcing at 25,000 feet operated satisfactorily at 35,000 feet. All SRC-8's are to be repackaged by Hallicrafters Company. All B-47's in the wing have the antenna switching relays and associated wiring completed. The crystal protective device mentioned in previous Histories continued to give satisfactory service. For operational planning purposes, the APS-54 warning system in operational assigned B-47 aircraft is completely unreliable. This is caused by installation errors which prohibit normal operation and excessive crystal burnout caused by high RF energy feeding through from other electronic equipment on the same aircraft. The factory installation errors are of such magnitude that a depot must be used to correct this condition.[68]

Auxiliary Project 28 "Testing of RG-117/UG, RF Transmission Line", was initiated 1 November 1954 and as of the end of the month was 85 percent completed. Testing of RG-117/U cable will be completed when Auxiliary Project 29 is completed as comparison tests have to be made.[69]

Auxiliary Project Number 29 "Testing of Styroflex" RF Transmission Line" was initiated 9 November 1954 and as of the end of the month was 40 percent completed. The cumulative defects associated with RG-117/U cables and connectors made urgent the need for a

68. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
69. Ibid.

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better RF transmission line system for use with the AN/ALT-6 and AN/ALT-8 transmitters. Only one was found which was suaptable to the particular usage. Tests showed that the Styroflex line had none of the physical troubles associated with RG-117/U.[70]

Auxiliary Project 30 "Reduction of Connector Losses in RF Transmission Lines" was initiated on 10 November 1954 and by the end of the month was 60 percent completed. Tests in Projects 28 and 29 indicated that the connectors used were the weakest link in the RF transmission system.[71]

Auxiliary Project 31 "Design of Antenna for 2700-3600" was initiated on 12 November 1954 and by the end of the month was 40 percent completed. Operational flight tests indicate the requirement for an omni-directional, low VSWR, aerodynamically acceptable antenna for use with the ALT-6 in frequency range from 2700 to 3600 mcs. The helixes now in use are not satisfactory. Work was begun on scaling down the AT-135 to make use of the AT-190 antenna mounting base commonly installed on wing aircraft. Early tests show a VSWR below 2:1 for this scaled down prototype, proving the feasibility of the work. Because of radiation pattern difficulties, a new physical shape has been decided upon for the radiating element; and a prototype is being machined.[72]

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70. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.
71. Ibid.
72. Ibid.

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Auxiliary Project 32 "Suitability Test of Blue Cradle", was initiated on 1 September 1954 and by the end of November was 100 percent completed. The cradles were operational since July 1954. Up until the end of November, six cradle hoisting beams have been broken. These beams, with additional rivets added in order to carry the rivet shear load, have a safety factor of 2.7. Although the beam does not come up to the design load, it was not considered to be the primary reason for failure of the beams. Corrective measures in the form of training installation crews are being taken to eliminate these problems.[73]

73. "376th U-30 for Nov 54", 1 Dec 54, exhibit #14, this History.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of November 1954, the Wing had 48 B-47's assigned and 47.8 possessed,[74] and 22 KC-97's assigned and possessed,[75] which was the same as in October except for an increase of .2 for possessed B-47 aircraft.[76] Maintenance figures showed a total of 1163:45 hours flown on B-47 aircraft in November for an average of 24:39 hours per possessed aircraft,[77] which was 7:01 hours less than in October;[78] while 854:25 hours were shown on KC-97 aircraft in November for an average of 38:49 hours per possessed aircraft,[79] which was an increase of 10:48 hours over the figure for October.[80]

The in-commission rate for B-47 aircraft in November was 70:25[81] which was a drop of 9.25 from the October figure,[82] while on KC-97 aircraft the November figure was 85:30,[83] showing a 4:12 percent increase over the October figure.[84]

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74. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #15, this History.
75. Ibid.
76. History 376th Bomb Wing for October 1954, page 22.
77. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #16, this History.
78. History 376th Bomb Wing for Oct 54, page 22.
79. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #16, this History.
80. History 376th Bomb Wing for Oct 54, page 22.
81. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #17, this History.
82. History 376th Bomb Wing for Oct 54, page 22.
83. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #17, this History.
84. History 376th Bomb Wing for Oct 54, page 22.

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The AGCP rate for B-47 aircraft in November was 9.35 percent,[85] which was 2.53 percent over the October figure,[86] while on KC-97 aircraft the November figure was 2.20 percent,[87] a decrease of 2.05 percent from the October figure.[88] The AWPA rate on both types of aircraft for November was 100 percent,[89] which was the same in October 1954.[90]

Manhour expenditure was not compiled for the month of November due to electrical machine accounting being phased in and comparative figures not being available.

There were approximately 40 component parts changed on B-47 aircraft during November,[91] a decrease of 36 from the October figure,[92] and 46 changed on KC-97 aircraft,[93] an increase of three over the October figure.[94] There were eight B-47 aircraft, two KC-97 aircraft and one C-47 aircraft processed through the maintenance docks. The unit supervised 16 B-47, six KC-97 and one C-47 aircraft test flights during the month. There were 300 Unsatisfactory Reports submitted during November 1954.[95]

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85. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #18, this History.
86. History 376th Bomb Wing for Oct 54, page 23.
87. "376th Maint Hist for Nov 54", exhibit #11, & chart, exhibit #18.
88. History 376th Bomb Wing for Oct 54, page 23.
89. Tp, C.J. Bedow-Hist, with Sgt. Curtain, Reports & Analysis Sec, D/M 376 BWg, 3 Jan 55, & chart, exhibit #17, this History.
90. History 376th Bomb Wing for October 1954, page 23.
91. "376th Maint Hist for Nov 54", exhibit #11, this History.
92. History 376th Bomb Wing for Oct 54, page 24.
93. "376th Maint Hist for Nov 54", n.d., exhibit #11, this History.
94. History 376th Bomb Wing for Oct 54, page 24.
95. "376th Maint Hist for Nov 54", n.d., exhibit #11, this History.

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The number of engines changed on B-47 aircraft in November was five,[96] which was a decrease of one from the October figure,[97] and on KC-97 aircraft was three,[98] which was an increase of one over the October figure.[99] On B-47 aircraft, the average engine time at change was 197 hours in November,[100] an increase of 114 hours over the October figure,[101] and on KC-97 aircraft it was 337 hours,[102] an increase of 54 hours over the October figure.[103]

There were 44 malfunctions (both types of aircraft) for November 1954,[104] a decrease of 27 from the October figure.[105] Due to the new reporting procedure, a breakdown was not available.

TRAINING ACTIVITIES

Classroom:

A special short course on Blue Cradle and Phase III (B-47) installation was prepared, covering the operation of AN/ALT-6, AN/ALT-7, AN/ALT-8, AN/ALR-1 equipment, complete circuitry of Blue

96. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #19, this History.
97. History 376th Bomb Wing for Oct 54, page 24.
98. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #19, this History.
99. History 376th Bomb Wing for Oct 54, page 24.
100. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #20, this History.
101. History 376th Bomb Wing for Oct 54, page 24.
102. "376th Maint Hist for Nov 54", n.d., exhibit #11, and chart, exhibit #20, this History.
103. History 376th Bomb Wing for Oct 54, page 24.
104. "376th Maint Hist for Nov 54", n.d., exhibit #11, this History.
105. History 376th Bomb Wing for Oct 54, page 24.

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Cradle and associated aircraft wiring, the Phase III installation and aircraft wiring and preflight procedures on all equipment.[106]

Two 20 hour courses and two 4 hour courses were conducted during November covering optical test equipment, APS-23 trouble shooting, D-2 Navigational unit and forward sighting (K-4A Bomb-Navigation System). The symposium type class for operator training continued throughout November. Total student manhours of training for the month of November was 1015.[107]

One hundred manhours of instruction were given on basic radar theory, 52 manhours of instruction were given on radio frequency head theory and tuning, and six manhours were given on synchronizer testing.[108]

Six 4 hour courses on the A-12D Gyropilot data flow. The purpose of each A-12D component and how the component accomplishes its purpose was discussed thoroughly to give the airmen a complete picture of the operation of the A-12D.[109]

Ninety airmen received instruction on the AN/ALE-1, 12 airmen

106. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954", by Nicholson, 1 Dec 54, hereafter cited as "376th U-19 for Nov 54 by Nicholson, 1 Dec 54, exhibit #21.
107. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954", by 8 Fld Engrs, 1 Dec 54, hereafter cited as "376 U-19 for Nov 54 by Lenes, 1 Dec 54", exhibit #22.
108. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954", by Faux, 1 Dec 54, hereafter cited as "376th U-19 for Nov 54 by Faux, 1 Dec 54", exhibit #23.
109. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954", by Kronlage, 1 Dec 54, hereafter cited as "376th U-19 for Nov 54 by Kronlage, 1 Dec 54", exhibit #24.

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received instruction on the ALT-7, and 13 airmen received instruction on the ALT-8.[110]

There were 48 men receiving instruction on the operation and installation of system on cradle and on aircraft, and preflight and postflight checks.[111]

On The Job Training (OJT):

Eight airmen received five hours instruction on Blue Cradle Test equipment, six received eight hours on Blue Cradle test equipment construction, two airmen received six hours instruction on inverter test stand construction, two airmen received ten hours instruction on cradle modification and two airmen received ten hours instruction on QRC-8 installation.[112]

During November 1954, OJT included 417 student hours on test equipment and alignment procedures, 546 student hours on system analysis, and 185 student hours on trouble shooting on the K-4A Bomb-Navigation System.[113]

A-5 mechanics received instruction in trouble shooting and adjustment of the A-5 while in resolution of difficult malfunctions and in working A-5 field changes.[114]

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110. Report, "Monthly Technical Report, RCS: 3-AMC-019, For Month Ending 30 November 1954", by Nevitt, 1 Dec 54, hereafter cited as "376th U-19 for Nov 54 by Nevitt, 1 Dec 54", exhibit #25.
111. Report, "Monthly Technical Report, RCS: 3-AMC-019, For Month Ending 30 November 1954", by Lella, 1 Dec 54, hereafter cited as "376th U-19 for Nov 54 by Lella, 1 Dec 54", exhibit #26.
112. "376th U-19 for Nov 54 by Nicholson, 1 Dec 54", exhibit #21.
113. "376th U-19 for Nov 54 by Lenes, 1 Dec 54", exhibit #22.
114. "376th U-19 for Nov 54 by Faux, 1 Dec 54", exhibit #23.

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Planned OJT on A-12D test procedures was given eight students, and on A-12D theory was given 12 students during the month. Informal OJT was given 17 students on A-12D theory, and six students on trouble shooting. Four students received instruction on the F-1 autopilot, three received instruction on the C-1 amplifier, and five received instruction on the N-1 compass.[115]

The Philco field engineer conducted OJT on the APX-8 for 14 hours, ALT-8 for 23 hours, ALT-7 for 16 hours and APS-54 for ten hours, during November 1954.[116]

OJT on the ALT-6 Countermeasure Transmitting Set, covering system bench checking and trouble shooting techniques, was given to eight airmen for a total of 111 hours.[117]

EQUIPMENT MALFUNCTIONS

The malfunctions on the A-12D Gyropilot during November were: "Rudder engage switch will not remain in the engaged position" due to rudder servo engage clutch solenoid open preventing the servo from engaging; replaced servo. "Aircraft looses excessive altitude in turns", due to altitude control static line connector having stripped threads and leaking; replaced six channel amplifier.[118]

115. "376th U-19 for Nov 54 by Aronlage, 1 Dec 54", exhibit #24.
116. "376th U-19 for Nov 54 by Nevitt, 1 Dec 54", exhibit #25.
117. "376th U-19 for Nov 54 by Letla, 1 Dec 54", exhibit #26.
118. "376th U-19 for Nov 54 by Aronlage, 1 Dec 54, exhibit #24.

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MAINTENANCE ENGINEERING DIFFICULTIES

Proper operation of AN/ALT-8 equipment on Blue Cradle was not possible with the existing power and control circuitry in the cradle junction box. To enable the AN/ALT-8 to be used on the cradle the replacement of the power control relay for each transmitter position was recommended. It was decided to modify four transmitter positions on each cradle; this involves the replacement of 180 relays and minor wiring changes, but requires considerable number of manhours to accomplish. Eight cradles have already been modified. At the same time, the cable which connects the transmitter to the cradle positions must be modified to actuate the relay. There were objections to the use of one cable for both AN/ALT-6 and AN/ALT-8 equipments. It was recommended that separate cables be fabricated for the AN/ALT-8. Since approximately 200 cables will be required by the 376th Bomb Wing, and since these cables incorporate the cabling between the control units and power supplies, it was recommended that these cables be fabricated by the depot supporting the wing.[119]

A malfunction which occurred on the ALT-8 can be corrected and will be beneficial to other bases where BOR operators are used: The fast sweep indicator light on the ALT-8 control box was found to be lighted while the fast sweep motor was inoperative. This false indication was caused by the fast sweep solenoid actuating the fast

119. "376th U-19 for Nov 54 by Nicholson, 1 Dec 54", exhibit #21.

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sweep light microswitch before actuating the other microswitch due to a slight difference in the actuator fingers. It was recommended that the actuator mechanism be constructed stronger. An Unsatisfactory Report was submitted.[120]

An engineering change proposal to be followed by an Air Force Technical Order Compliance has been received for changing the wiring of K209 to facilitate automatic recycling of the AN/ALT-6 system. General Electric Company representatives were monitoring the installation of a clamp assembly on the high voltage plugs of power supply P-933 to prevent these plugs from turning and subsequently leaking when the high voltage cable is connected.

Bad front castings were received from the vendor on PP-933. Leaky castings are being replaced on a complaint basis by General Electric representatives.

The cable guards of PP-933 and T-402 had holes of insufficient diameter on the initial system. Those are being replaced on a complaint basis. An Unsatisfactory Report was submitted.

UG-1106 and UG-1105 transitions (Telerad) had incorrect thread pitch. They were replaced on a complaint basis. An Unsatisfactory Report was submitted.[121]

120. "376th U-19 for Nov 54 by Nevitt, 1 Dec 54", exhibit #25.
121. "376th U-19 for Nov 54 by Lella, 1 Dec 54", exhibit #26.

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SPECIAL DEVELOPMENTS

Testers for the Phase III aircraft wiring, and for Blue Cradle aircraft wiring were manufactured, and the cradle testers were 98 percent complete.[122]

The APS-54 crystal protector, which has been mentioned in previous reports, has been installed on aircraft #398 for a full two months. The aircraft has flown 26 and one half hours during that period. The crystal in both the nose and tail antennas are still in perfect condition. An intermittent short circuit in the nose antenna cable caused the dry cell in the crystal protector to prematurely fail. The dry cell was replaced on 15 November 1954. Normal life of the dry cell is estimated to be between six months to a year. Defective crystals in other APS-54 aircraft antennas were replaced at the time the crystal protector was installed. The present condition of the crystals in these other aircraft is not known, however, one instance is known where two crystals in one antenna assembly failed in less than 36 hours after installation. A comparative study of the condition of the crystals in other aircraft that were changed two months ago is planned. Although complete testing of the APS-54 crystal protector has not been finished, technical data on this device is included.[123]

122. Inclosures #1 thru #4, exhibit #21, this History.
123. "376th U-19 for Nov 54 by Nevitt, 1 Dec 54", exhibit #25 this History.

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0625

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FACILITIES

During the staff meeting on 3 November 1954, one of the subjects discussed was that of gas spillage. Colonel John P. Proctor, USAF, Wing Commander said, "At Campbell (Air Force Base, Kentucky) they had a good system. By each pit they have lights on the ground and fire hoses. Why don't we write a letter to Base and suggest the same system".

A letter was then initiated,[124] from the Wing Commander to the Base Commander, recommending installation of a light, type RLEE-14, which has a 60 degree radius of turn from center and a 45 degree angle up and down, on each pit. Also, installation of a fire hydrant at each pit, having a siamese fitting, 50 feet of hose and a high pressure nozzle. This should minimize fire hazards during refueling.

The letter was sent to the installation engineer.[125] The engineer was investigating the request for cost and criteria and the request was to be placed in the proper program at the appropriate time without further action on the part of the Wing.[126]

124. Ltr, Hq 376th BWg, "Night Lights and Fire Hydrant on Refueling Pits", 19 Nov 54, to Comar 805th ABGp, files, D/M, 376 BWg.
125. D/F from DCO to Inst Engr, "Night Lights and Fire Hydrant on Refueling Pits", 23 Nov 54, files, D/M, 376th BWg.
126. 1st Ind from 805th ABGp to CO 376th BWg, 10 Dec 54 to Ltr Hq 376th BWg Barksdale AFB, "Night Lights and Fire Hydrant on Refueling Pits", files, D/M, 376th Bomb Wing.

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INSTALLATION MAINTENANCE

In the past, the Air Installations Office had one individual assigned to a group of buildings such as barracks, mess halls, and other buildings. A change took place, where inspectors went around to inspect the buildings, and where needed, write up work orders and send them to the Air Installations Office. After that, a supervisor was to come around to see that the work has been completed.[127] This system should be an improvement over the old one as long as the inspectors inspect the buildings regularly and thoroughly, and it does not take an unduly long period before the needed work is completed.

127. Minutes, 376 Bwg staff meeting, 3 Nov 54, files, hq 376 Bwg.

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0628

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MONTHLY ANALYSIS (NOVEMBER 1954)

1. Officers Assigned during November 1954:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Lt Col	(12310)	George R. Brindle	9946A	513 Bomb Sq
Major	(1044C)	James M. Masterson	A0433877	376 Air Rflg Sq
Capt	(1224P)	Darwood Brandon	A0945914	376 Air Rflg Sq
Capt	(9326)	William H. Brayles	A03000930	376 Tac Hosp
Capt	(7324)	Edmund T. Fleming	A0760047	376 Hq Sq
Capt	(4324)	Joseph K. Harris	A0823575	513 Bomb Sq
Capt	(7024)	James H. Ryan Jr.	A0533028	512 Bomb Sq
1st Lt	(6521)	Ray E. Derosia	A02215150	376 A&E Sq
1st Lt	(12310)	Ray L. George	A01912277	376 Air Rflg Sq
1st Lt	(7324)	James M. Neustadter	A02234985	376 Hq Sq
2nd Lt	(1521F)	Allen K. Garrity	A03026258	376 Air Rflg Sq
2nd Lt	(1534P)	Luke D. Johnson	A03023546	376 Air Rflg Sq
2nd Lt	(1521F)	Will McGilvray	A03034950	376 Air Rflg Sq
2nd Lt	(1521F)	John J. Udall	A03034709	376 Air Rflg Sq
2nd Lt	(1531P)	John E. Rogers Jr.	A03034006	376 Air Rflg Sq
2nd Lt	(1534P)	George J. Schneider	A03023557	376 Air Rflg Sq
2nd Lt	(1531P)	Milden E. Smith	A03035907	376 Air Rflg Sq
2nd Lt	(5521)	Lawrence K. Whalley	A03009064	376 Hq Sq
2nd Lt	(1521F)	Elliott J. Wills	A03034957	376 Air Rflg Sq

2. Officers Transferred and Separated, one each as listed, to Headquarters 805th Air Base Group Barksdale Air Force Base, Louisiana, Separated from Service, Camp Kilmer, N.J., Released from Active Duty, Ellington Air Force Base, Texas, Released from Active Duty, Lackland Air Force Base, Texas, James Connally Air Force Base, Texas, Headquarters 805th Air Base Group, Barksdale Air Force Base, Louisiana, and Second Altitude Chamber Indoctrination Flight:

Major	(7316)	Edward P. Bowman	A0581433	376 Hq Sq
Capt	(9446C)	Benjamin L. Harrison	A02241502	376 Tac Hosp
1st Lt	(9754)	Ann M. Bacon	AN2241743	376 Tac Hosp
1st Lt	(1241)	Vincent R. Cramer	A0768461	513 Bomb Sq
1st Lt	(1534A)	Ted L. Grissom	A0208414	376 Air Rflg Sq
1st Lt	(1525D)	Allen D. Lebaron	21819A	512 Bomb Sq
1st Lt	(6421)	William T. Rassieur	20321A	512 Bomb Sq
1st Lt	(7324)	John B. Roche	A02221628	376 A&E Sq
2nd Lt	(7021)	Drake B. Amstead	A03010541	376 Hq Sq
WOJG	(90000)	Michael D. LaMontia	AW2201136	376 Tac Hosp

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3. Airmen Assigned during November 1954 (by Primary AFSC):

22330	1	43131J	4	47171	1	70230	2
29333	1	43133	14	53010	1	70250	5
29353	4	43134	3	53171	1	73230	1
29370	2	43152A	1	53430	1	73250	1
30130	1	43152B	2	58010	1	73251	1
30230	14	46270	1	58150	1	83150	1
32351F	8	47134	1	60310	1	90010	2
40433	7	47154	1	60350	1		

TOTAL: 86

4. Airmen Transferred & Discharged (not reenl) in Nov 54 (by Primary AFSC)

20450	1	32351F	3	43151B	4	53450	3
20470	1	33150	1	43152A	5	53471	1
29150	1	40350	1	43170	3	62350	1
29353	1	40370	1	43153	3	64131	1
30150	3	42430	1	43171B	5	64151	3
30151	2	42550	1	46010	1	70230	2
30170	1	42630	2	46150	1	70250	1
32150E	3	43131A	1	46250	2	70252	1
32330F	1	43131B	10	46270	2	73270	1
32350C	1	43131J	2	47155	1	75270	1
32350F	1	43132A	1	53230	1	83150	1
				43152B	1	90230	1

TOTAL: 86

5. Reenlistment Rate (October and November 1954):

Number Discharged	Number Reenlisted	% Reenlisted
74	13	17.6

Discharged by Squadrons (November 1954 only):

376th Hq Sq	S/Sgt C.A. Growney Jr.	S/Sgt W.J. Woods* A/1C E.M. Lombard*
512th Bomb Sq	T/Sgt P.B. Jones (Reenl)*	S/Sgt M Zmyewski S/Sgt C.E. Campbell (Reenl)
513th Bomb Sq	M/Sgt S.M. Ellis (Reenl)* A/B S. Commandi*	A/1C R.E. Hubley A/B B.W. Pagan*
514th Bomb Sq	T/Sgt J.N. Wade S/Sgt J.E. Wilson	S/Sgt C.E. Perkins (Reenl) A/1C G.R. Farina*
370th Periodic Maint Sq	S/Sgt P.R. Byrd (Reenl)	A/2C F.V. Albertelli A/3C D. Costellanos*
376th Tac Hosp	S/Sgt B. Holstead	A/2C R.W. Laban

0630

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Discharges by Squadron (Cont'd):

376th Armt & Elec Maint Sq	T/Sgt D.R. Erickson (Reenl)*	S/Sgt B.R. Thompson
	T/Sgt M Hosey Jr. (Reenl)	A/1C R.R. Blackburn Jr.
	S/Sgt H.J. Bannen	A/1C R.D. Burch
	S/Sgt J.L. Claxton*	A/1C E.R. Cox Jr.
	S/Sgt J.W. Dunham	A/1C G.O. Jennings
	S/Sgt G.R. Goudy (Reenl)	A/1C M. Kruika
	S/Sgt C.D. Gregory	A/1C R.R. Lynn
	S/Sgt D.L. Mosur	A/1C J.M. Phillips
	S/Sgt L.E. Preston	A/1C M.F. Pullen
	S/Sgt D.E. Seelye	A/2C C.C. Barnette*
		A/3C R.V. Lemasters*
376th Field Maint Sq	M/Sgt S.R. Mason (Reenl)*	S/Sgt D.E. Paugh
	M/Sgt E.W. Powell	S/Sgt T.R. Taylor
	T/Sgt W.L. Tucker (Reenl)*	A/1C R.E. Davis
	S/Sgt R.T. Mills Jr.	A/1C G.E. Lange
	S/Sgt D.O. Parchert	A/1C A. Walters Jr.
		A/1C R.E. Wells
376th Air Rflg Sq	T/Sgt E.E. Swain (Reenl)	S/Sgt J.A. Robertson (Reenl)
	T/Sgt B.F. Wegren (Reenl)*	T/Sgt F.J. Billington (Reenl)*
	T/Sgt L. Johnson (Reenl)	S/Sgt V.D. While
	S/Sgt B. Harris*	A/1C W.C. Austin*
	S/Sgt R.P. Miller*	S/Sgt J.L. Faulk
	S/Sgt S.J. Rotolo (Reenl)	A/2C F.E. Daley
		A/3C B. Johnson

* Indicated airmen discharged during November 1954 but not included in the Reenlistment Rate.

6. AWOL Rate per 1000 (October and November 1954)

	Assigned	Number AWOL	Percent
Officers	771	0	0
Airmen	3955	5	1.26
TOTAL	4726	5	1.06

AWOL by Squadron:

A/3C E.J. Hawkins - 376th Air Rflg Sq
A/3C B.C. Malone - 376th Armt & Elec Maint Sq

7. Gains and Losses

	No. Discharged & Transferred	% Auth Strength	Number Assigned	% Auth Strength
Officers	10	2.1	19	4.0
Airmen	86	4.7	86	4.7

0631

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8. Effective Manning of Officers

ORGN	AUTH	ASGD	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS
376th Hq Sq	76	67	54	54	71.1	71.1
512 Bomb Sq	79	58	57	57	72.2	72.2
513 Bomb Sq	79	61	60	60	75.9	75.9
514 Bomb Sq	78	59	59	59	75.6	75.6
376 Air Rflg Sq	100	96	96	96	96.0	96.0
376 Armt & Elec Maint Sq	19	19	14	14	73.7	73.7
376 Fld Maint Sq	8	7	6	6	75.0	75.0
376 Per Maint Sq	6	4	4	4	66.6	66.6
376 Tac Hospital	27	19	16	16	59.3	59.3
TOTAL:	472	390	366	366	77.5	77.5
Consolidated MIRS:	472			377		79.8

0632

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9. Effective Manning of Airmen:

	DIR SUPP		INDIR SUPP		DIR		INDIR		DIR		INDIR	
	AUTH	ASGD	AUTH	ASGD	EFF ASGD	NO MIRS	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS	% EFF ASGD	% MIRS
376th Hq Sq	43	42	81	96	34	29	73	68	79.1	67.4	90.1	83.9
512 Bomb Sq	86	100	25	32	79	67	18	18	91.9	77.9	72.0	72.0
513 Bomb Sq	85	96	26	26	81	63	17	17	95.3	74.1	65.4	65.4
514 Bomb Sq	88	103	25	28	85	69	20	19	96.6	78.4	80.0	76.0
376 Air Rflg Sq	193	202	57	53	174	124	47	43	90.2	64.2	82.5	75.4
376 A&E Maint Sq	382	434	70	59	293	257	50	44	76.7	67.3	71.4	62.9
376 Fld Maint Sq	274	305	147	144	198	181	118	113	72.3	66.1	80.3	76.9
376 Per Maint Sq	121	137	27	20	94	91	15	14	77.7	75.2	55.6	51.9
376 Tac Hospital	1	1	94	95	1	1	83	83	100	100	88.4	88.4
TOTAL:	1273	1420	552	553	1039	882	441	419	81.6	69.2	79.9	75.9
Consolidated MIRS:												
	1273		552			937		446		73.6		80.8

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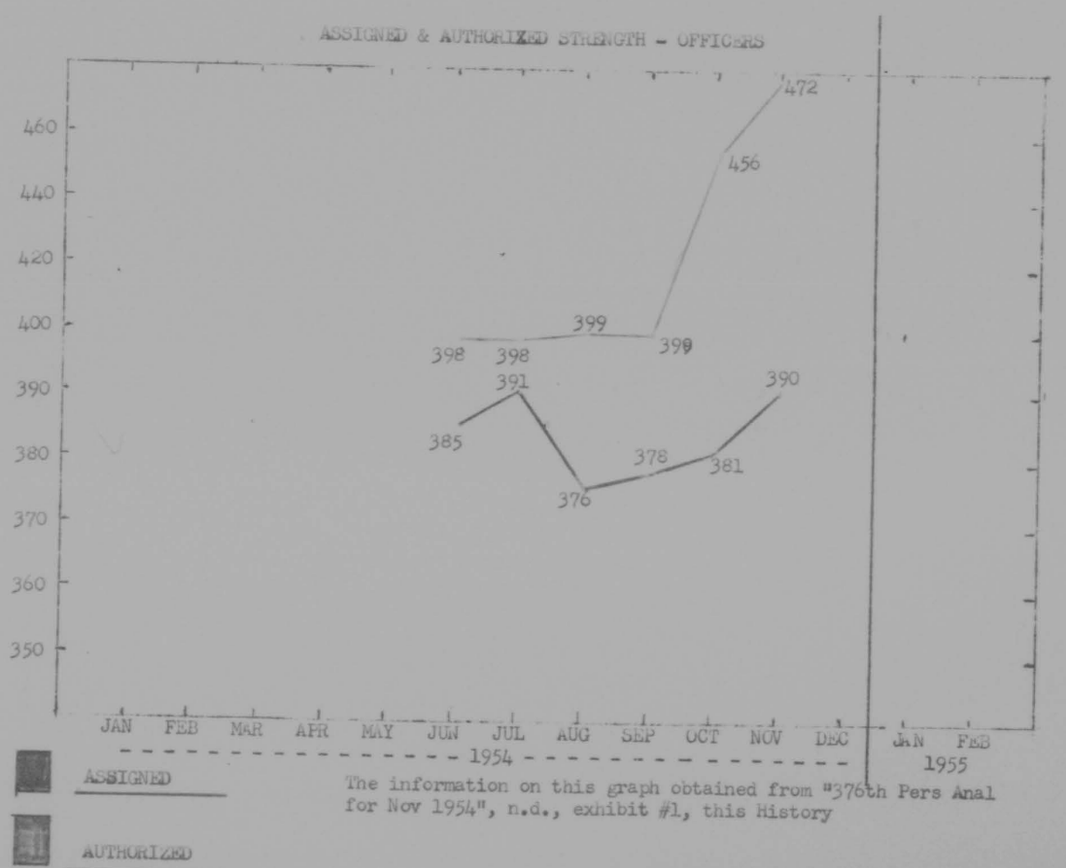

The information on this graph obtained from "376th Pers Anal for Nov 1954", n.d., exhibit #1, this History

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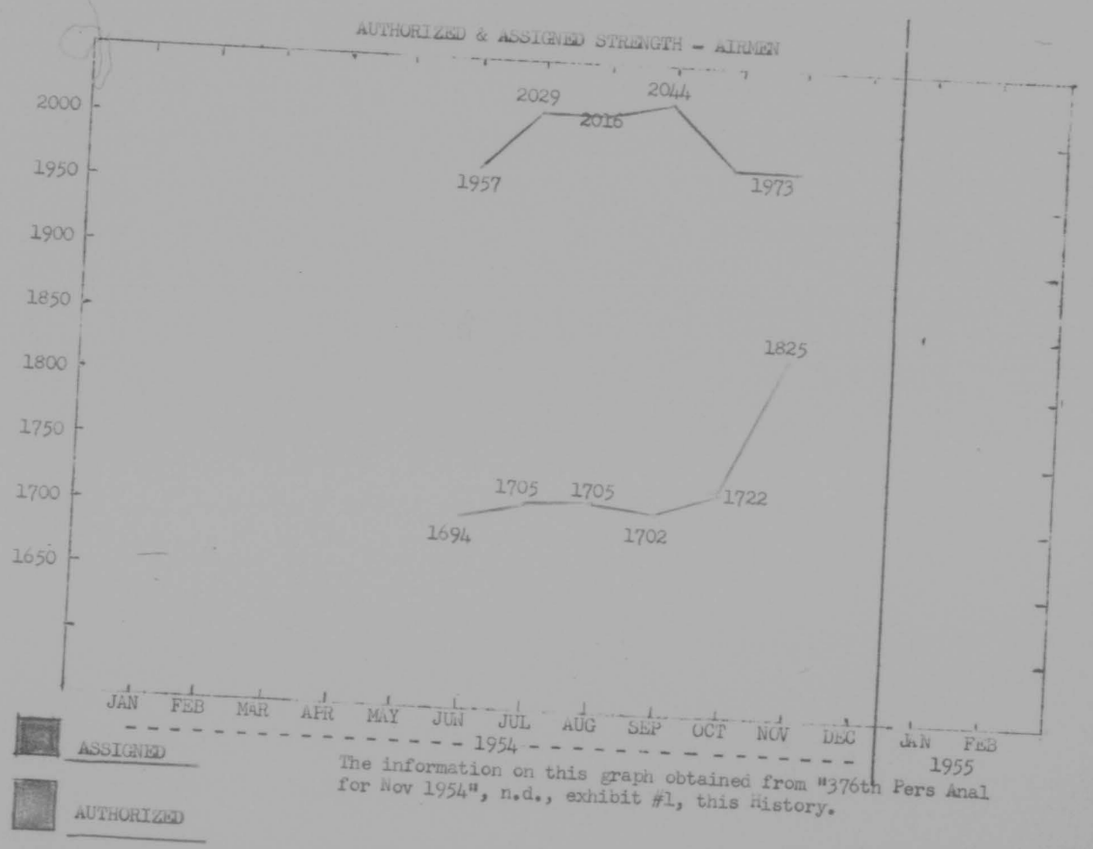

The information on this graph obtained from "376th Pers Anal for Nov 1954", n.d., exhibit #1, this History.

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HEADQUARTERS
376TH BOMBARDMENT WING (MEDIUM)
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION J

AIR TRAINING REPORT FOR THE MONTH OF NOVEMBER 1954

(RCS: 6-SAC-T12)

SECTION J:

c. Wing Commander's Remarks - Part III

(1) Hours flown performing missions ordered by higher headquarters:

(a) Ferrying aircraft 9:00

(b) ECM Test 55:00

TOTAL 64:00

(2) Weather or local conditions affecting training:

(a) Eleven sorties (approximately 66 flying hours) were lost due to weather.

(3) Directives imposed by ATC or SAC on aircraft:

(a) None.

(4) Combat crew member gains or losses:

(a) Gains: None.

(b) Losses: One Observer discharged from service.

One Co-Pilot discharged from service.

(5) Crew Member changes:

(a) One Aircraft Commander.

(b) One Observer.

(c) Three Co-Pilots.

(6) New crews:

(a) N-53-AO - 2 November 1954.

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0639

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Wing Commander's Remarks for the Month of November 1954

(7) Crew status changes:

(a) R-01-AO dissolved effective 10 November 1954.

(b) N-14-AO dissolved effective 2 November 1954.

(c) N-13-AO to R-13-AO effective 10 November 1954.

(d) N-15-BO declared ECM Combat Ready effective 12 November 1954.

(e) N-16-AO declared ECM Combat Ready effective 12 November 1954.

(8) Standardization Crews:

(a) R-04-AO Wing Standardization Crew.

(b) R-11-AO, R-37-AO and R-70-AO are Squadron Standardization Crews

(9) Personnel and Material Problems:

(a) The officer effective manning decreased slightly during November as compared to October. This decrease was caused by the addition of a B-47 Cadre T/D-A to each squadron. No assigned officers have as yet been ear-marked as Cadre Personn

(b) Officer manning in AFSC's 1435, 3054, 3254, 4334, 4355, 4364 and 7324 remain critically short.

(c) Manning in the Aircraft Maintenance Field has changed slightly during the month. Manning in AFSC's 43133/53 is at 180% primary and 153% by duty. Manning in AFSC's 43151J/51B/52A is at 76.8% primary and 125% by duty. Supervisory level in AFSC's 43170/71B/71J manning is 71.6% by primary and 91.9% by duty. This represents an 12.4% loss by primary and 19.4% loss by duty.

(d) The Armament system career field shows a loss of 1.7% manning by primary and a gain of 11% by duty.

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ding Commander's Remarks for the month of November 1954

(e) Effective manning in the K-series system field, AFSC's 32130E/50E is 184%. Effective manning in AFSC's 32150B, 32150C and 32150D is 0%. Effective manning in the supervisory level AFSC 32170E is 38% and manning in required speciality is 9%.

(f) Of 960 aircraft days available for 20 operational days, 20 were lost to TDY, 104 to ACCP, 75 for Periodic Inspection, and 118 for maintenance. Of the 118 aircraft days lost for maintenance, 72 were for fuel leaks.

(g) The major malfunction affecting training was in the K-system. Nine aborts were traced directly to the failure of the 1Z2-tube in the modulator. UR's have been submitted on this tube. Other K-system malfunctions did not indicate a definite pattern or cause.

(10) SAC Minimum Training Requirements:

(a) Not Applicable.

(11) Special training month:

(a) Not Applicable.

(12) Field training operations:

(a) None.

(13) Non-Combat Ready Bombardment Crews that could be used in case of emergency:

(a) Twelve non-combat ready bombardment crews have been trained to a point where they could be deployed for ECM Missions in the event of an emergency.

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Wing Commander's Remarks for the Month of November 1954

(14) Non-Combat Ready Training:

(a) Twelve non-combat ready bombardment crews were in training at the end of the month.

(b) One non-combat ready ECM crew was in training at the end of the month.

(15) Comments or Recommendations of the Wing Commander:

(a) The ACCP rate on B-47's has increased from 6.82% in October to 9.35% in November.

(b) The low experience level of K-system mechanics and observers affects the quality of radar bombing. Training of personnel is continuing through maximum use of radar trainers, MTD, and Contractor Technicians.

(c) The average number of crews assigned during November was 45. A total of 1138 hours were flown for an average of 25.3 hours per crew.

(d) The average number of possessed aircraft during November was 48. The average flying time per aircraft was 23.7 hours.

(e) In compliance with SAC Message DOTRS 12487, information requested is attached as Inclosure #1.

(f) In compliance with Second Air Force Message OTA 3534, the information requested is attached as Inclosure #2.

JOHN P. PROCTOR
Colonel, USAF
Commander

2 Incls:
1. Ftr Intercepts
2. Individual CEA

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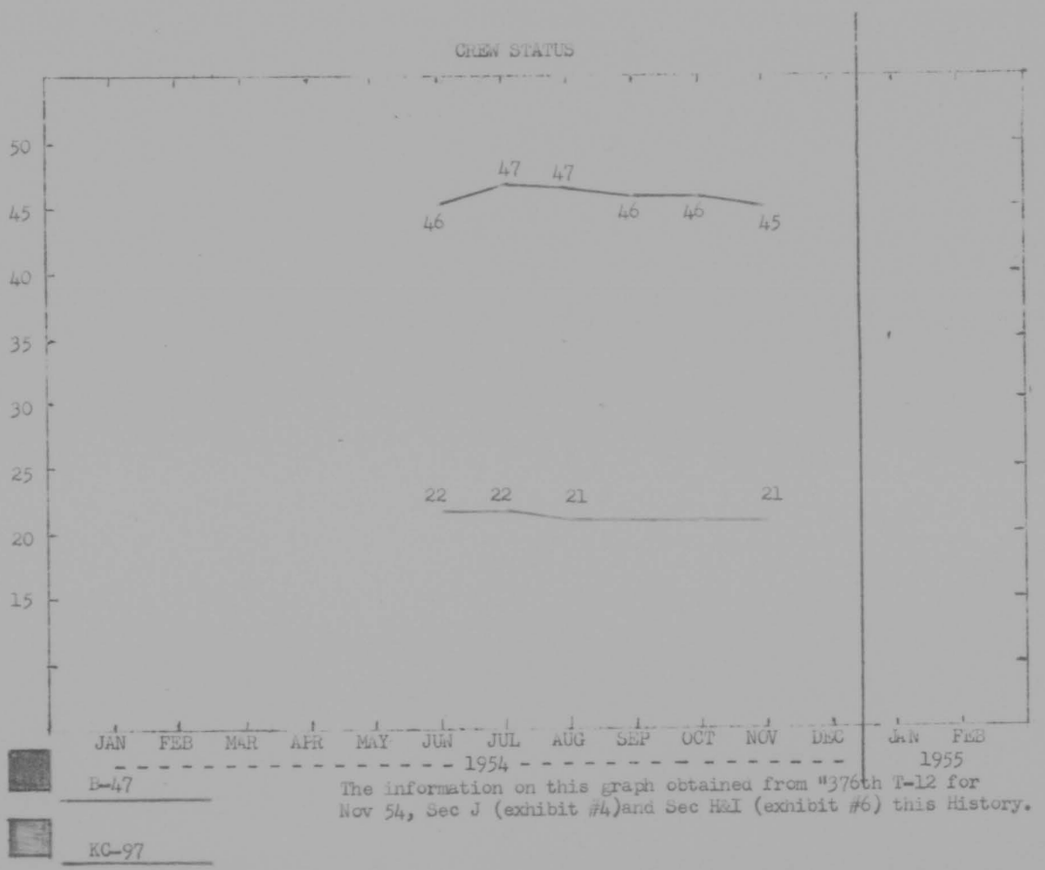

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

SECTION I

Air Training Report for Month of ~~September~~ November 1954
(RCS: 4-SAC-T12)

1. An average of 21 crews were available for training; they flew 846 hours for an average of 40.3 hours per crew.

2. An average of 22 aircraft were possessed during the month. The average time per aircraft was 38.5 hours.

3. Supply difficulty letters have been submitted on navigation equipment items. Aggressive supply follow up action is continuing.

4. Replacements for anticipated crew shortages have been requisitioned

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (M)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

SECTION H

Air Training Report for the Month of November 1954
(RCS: 4-SAC-T12)

SECTION H:

a. Hours flown performing missions ordered by higher headquarters:

(1) 2AF Operations Order 38-54. Ninety-one sorties for 569:55.

(2) Test Project Directive Number 1. Seven sorties for a total of 42:05.

b. Weather and local conditions affecting training:

(1) None.

c. Restrictions by AMC or SAC on aircraft:

(1) None.

d. Excessive crew changes and/or temporary crew substitutions:

(1) Crew changes and/or temporary crew substitutions were not excessive.

e. Crews gained for the month of November.

(1) Three crews were formed in November. Crews are presently TDY HTTU, Palm Beach Air Force Base, Florida.

M-24-AO effective 12 November 1954.

M-25-AO effective 17 November 1954.

M-26-AO effective 23 November 1954.

f. Crew status changes for month of November 1954.

(1) None.

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g. Standardization crew and non-scored crews.

(1) Squadron Standboard Crew.

a. T-02-DO.

(2) Non-scored crews.

a. M-03-CO.

1 Crew regressed to student status due to standardization board action.

b. T-14-FC.

1 Crew became combat ready during the closed training quarter.

c. T-04-AO.

1 Aircraft Commander TDY to USAF Instrument Pilot Instructor School 17 September to 30 November inclusive. Crew lacked one (1) Pilot Proficiency flight.

h. Materiel and Personnel Problems:

(1) The AOCP decreased to 2.20% during November as compared to 4.25% for the previous month.

(2) A shortage exists in navigational equipment as follows:

a. B-2 and/or Weems Plotters.

(3) Projected crew member losses due to discharge from service for December 1954, and January, February, March and April 1955.

a. Boom Operators: 22.

i. SAC Minimum Requirements:

(1) Completed.

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Squadron Commander's Remarks for the Month of November 1954

j. Comments or recommendations by the Squadron Commander:

The loss of boom operators, h (3) a above, will greatly retard expansion to thirty crews. It will take a minimum of 30 days to qualify an untrained airman as assistant boom operator or scanner. The heaviest losses are expected in December, January, and February when seventeen (17) are being discharged and do not intend to re-enlist. Unless replacements are made available immediately this squadron will be able to man only twenty crews by the end of April 1955.

k. The following information is submitted as required by Change 2, Supplement U, SAC Regulation 50-23.

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-02-DO	X	X	X				X		X	X
T-03-CO	X	X	X	X		X	X		X	X
T-04-AO	X	X	X	X		X	X		X	X
T-06-FO	X	X	X				X		X	X
T-07-BO	X	X	X	X		X	X		X	X
T-08-FO	X	X	X			X	X		X	X
T-09-BO	X	X	X			X	X		X	X
T-10-BO	X	X	X				X		X	X
T-11-BO	X	X	X			X	X		X	X
T-12-GO	X	X	X				X		X	X
T-13-BO	X	X	X	X		X	X		X	X
T-14-FO	X	X	X			X	X		X	
T-15-CO	X	X	X	X		X	X		X	X
T-16-CO	X	X	X	X		X	X		X	X

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Squadron Commander's Remarks for the Month of November 1954

CREW NUMBER	1	2	3	4	5	6	7	8	9	10
T-17-FO	X	X	X				X		X	X
T-18-BO	X	X	X	X		X	X		X	X
T-19-BO	X	X	Y			X	X		Y	X
T-20-CO	Y	X	Y			X	Y		X	X
M-21-FO	X	X	Y	X		X	X		X	
T-22-CO	X	X	Y			X	X		X	
M-23-DO	Y		Y				X		X	
M-24-AO										
M-25-AO										
M-26-AO										

Wendell D. Lack
WENDELL D. LACK
Lt Colonel, USAF
Commander

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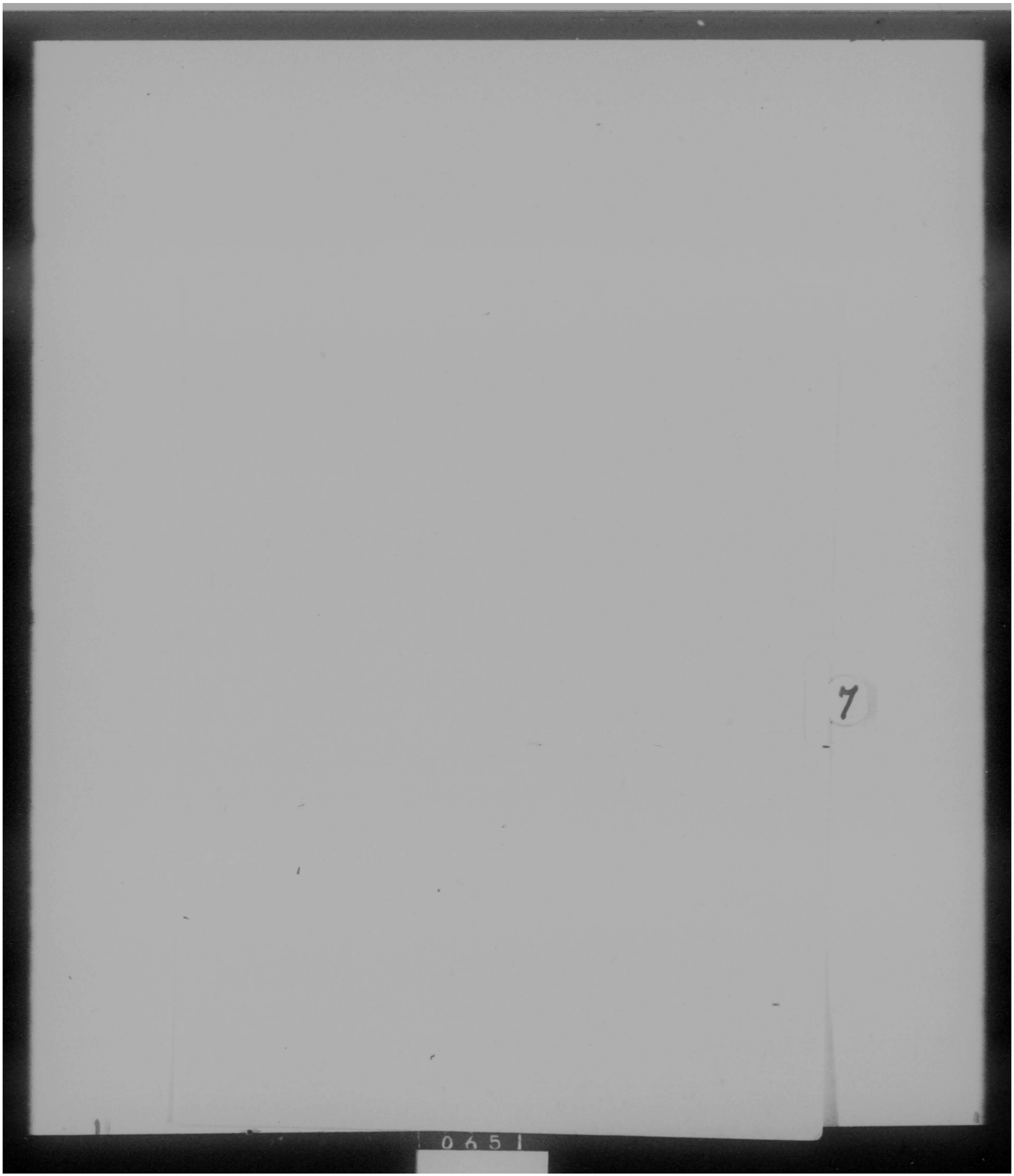

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DISPOSITION FORM

SECURITY CLASSIFICATION (If any)

C C
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FILE NO.

SUBJECT: Status of Airmen Crew Personnel

TO: Director of Personnel, 376BOMWG(M)

FROM: Commander, 376AREFS

DATE: 4 Nov 54

COMMENT NO. 1

1. This organization has reached the point at which the need for assignment of additional crew personnel has become critical due to the large number of separations within the next six (6) month period.

a. Status as of 1 Nov 54 is shown below:

CREW POSITION	AUTH*	ASGD	DUE OUT BY MONTH						NEXT 6 MONTHS
			NOV	DEC	JAN	FEB	MAR	APR	
Flt Engineer	30	34**	3		1	2			6
Radio Operator	30	22	1		3		1		5
Boom Operator	60	54***	1	2	9	6	2	3	23

*Plus 25% Tng Overage
**One not trainable - Pending Transfer
***Four known due in during November.

2. At the present time 21 crews are combat ready or approaching combat readiness. One crew is in training at West Palm Beach and one crew is being formed to enter training at West Palm Beach during the month of November. There are presently assigned 21 qualified KC-97 Flight Engineers, 44 qualified Boom operators and 22 qualified radio operators. In view of the requirement for all personnel to satisfactorily complete KC-97 MTD or HTTU before commencing flight checkout and the period of time required for flight checkouts, it is obvious that action must be taken immediately to procure trainable replacements or crew regression will result. It is also pointed out that nine of the assigned Flight Engineers have an extremely low experience level, i.e. 100 hours panel time or less, and will require an extremely long training period.

3. It is requested that every effort be made to furnish replacements in sufficient time to allow them to be trained to combat ready status prior to discharge dates of personnel being discharged.

C C
O O
P P
Y

WENDELL D. LACK
Lt Col., USAF
Commander

A TRUE COPY.

WILLIAM H. MURPHY, Major, USAF

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED.

16—54901-3 U. S. GOVERNMENT PRINTING OFFICE

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SAC MANAGEMENT CONTROL SYSTEM

7OR 7DP 7 Dec 54

1. In compliance with D/F your office, subject as above, dated 23 Apr 54, the following information is submitted:

a. Manning in Required Specialties:

		% of Maximum Score
Officers	79.8	30
Airmen (Direct Support)	73.6	10
Airmen (Indirect Support)	80.8	50

b. AWOL Rate per 1000 (2 months average)

	% of Maximum Score
1.06	100

c. Reenlistment Rate (2 months average)

	% of Maximum Score
17.6	20

d. Ground Safety (2 months average)

Ground Safety Index	Accident Cost Index	% of Maximum Score
.687	.22	100

2. Manning in required specialties for officers and indirect support airmen was decreased from last month's figures due to change in the T/O for the three Bomb Squadrons and Air Refueling Sq, and picking up cadre personnel (116 airmen and 16 officers).

3. The reenlistment rate decreased due to new method of computation. Airmen resigning for the purpose of reenlisting for their own vacancy are no linger used (SAC Message GCA 40757, dated 2 Dec 54).

EDMUND T. FLEMING
Capt, USAF
Dir of Pers

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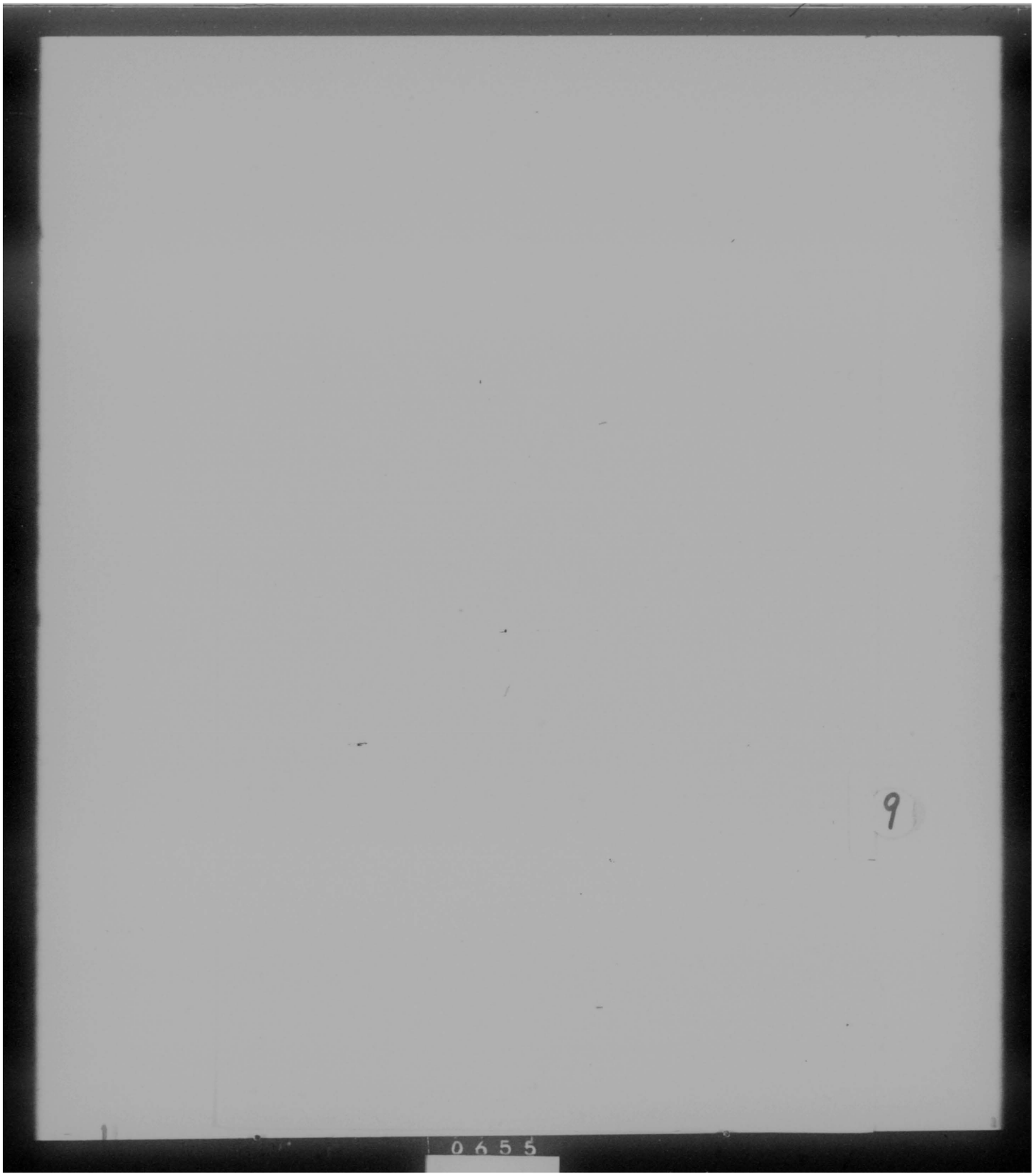

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RR JWFKL SUPVR JEDMH

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RR JEDBO ESDL JESHN JESKH JSPA JESTU JLJSA JWFKH 888

DE JEDMH567

R 022237Z ZEX

FM COMDRSAC OFFUTT AFB NEBR

TO JEDBO/COMDRAIRDV 801 LOCKBOURNE AFB OHIO

JESDL/COMDRSTRATEVALSQZ3908 MACDILL AFB FLA

JESDL/COMDRSTRATEVALRON 3942 MACDILL AFB FLA

JESDL/COMDRAIRDIV 6 MADILL AFB FLA

JESHN/COMDRAIIV 38 HUNTER AFB -

JESKH/COMDRAIRDIV IPY LAKE CHARLES AFB LA

JESPA/COMDRAIRDIV 813 PINECASTL EAFB FLA

JESTU/COMDRAIRDIV RP TURNER AFB GA

JLJSA/COMDRSTRATRECONWG 72 RAMEY AFB PR

JWFKL/COMDRAF 2 BARKSDALE AFB LA

JWFKL/COMDRAIRDIV 4 ARKSDA

E AFB LA

XU N C L A S S I F I E D/ GGA 40757. REF COMPUTATION OF REENLISTMENT RATES FOR SAC WG & ABGP MGT CON SYS. EFF W/SCORES COMPUTED FOR THE PERIOD ENDING WITH NOV, CODEJS7 W/B DELETED FR BOTH THE UNBERATOR AND DENOMINATOR. WG SCORES WILL INCLUDE DATA FOR THE FOUR MONTH PERIOD AUG - NOV WITH CODE S7 DELETED FR EA MONTH. ABGP SCORES WILL INCLUDE DATA FOR THE 3 MONTH PERIOD SEP - NOV WITH CODE S7 DELETED FR EA MONTH. THS MSG XHTD TO SAC MAJ SUBORD COMDS IN ZI, SAC AIR DIVS UNDER NERD AFS, SAC COMBT & COMP WGS IN ZI ON NON-AD STATIONS, SAC COMBAT WINGS OVERSEAS, SAC MAJ SUBORD COMDS O/S.

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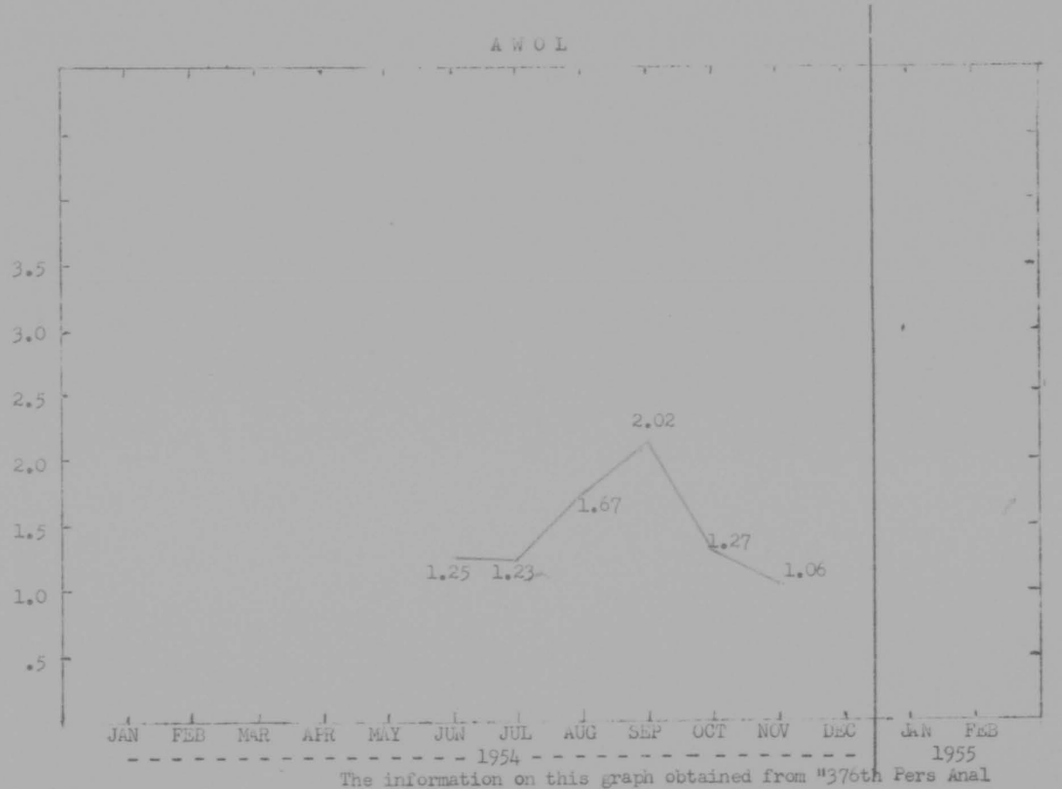

The information on this graph obtained from "376th Pers Anal for Nov 54", n.d., exhibit #1, this History.

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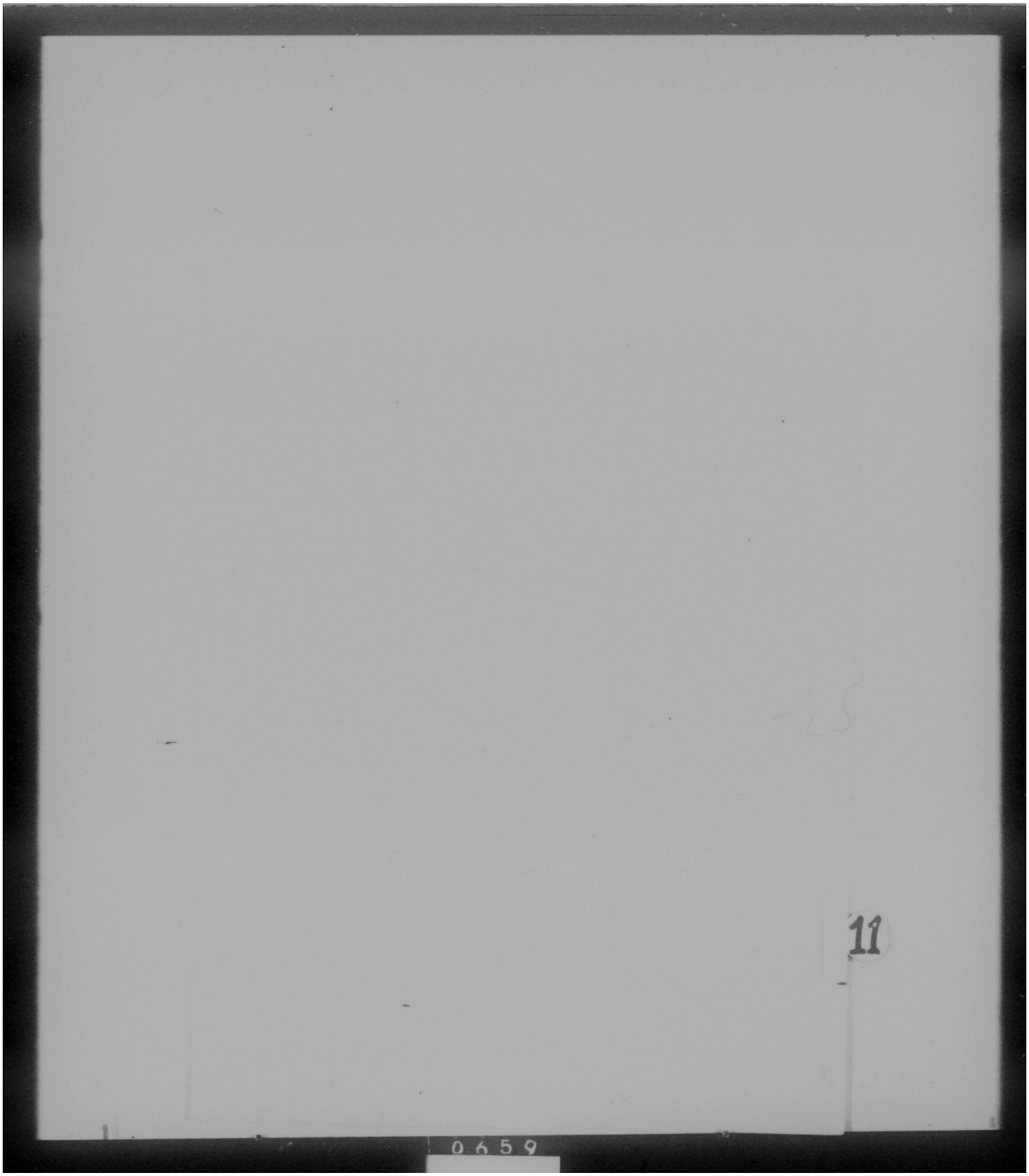

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HISTORICAL REPORT FOR THE MONTH OF NOVEMBER 1954

376th Wing Maintenance Control Unit

Reports And Analysis and Control Unit

1. The Wing average possessed aircraft was 69.8 for the month. The average in-commission rate was 75.02%. A total of 2018:10 hours were flown for an average of 29:12 hours per possessed aircraft. The Wing AOCP rate was 7.09% compared to 6.01% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 Aircraft;

a. B-47 Aircraft: The Wing had an average of 47.8 B-47 aircraft possessed for the month. The average in-commission rate was 70.25% compared to 79.50% for the previous month. Total hours flown were 1163:45 for an average of 24:39 hours per possessed aircraft. The AOCP rate was 9.35% an increase over 6.82% for the previous month.

b. KC-97 Aircraft: The Wing had an average of 22 KC-97 aircraft possessed for the month. The average in-commission rate was 85.30% compared to 81.18% for the previous month. There was a total of 854:25 hours flown for an average of 38:49 per possessed aircraft. The AOCP rate was 2.20% a decrease from 4.25% for the previous month.

3. Manhour expenditure was not compiled for the month of November. Electrical machine accounting was being phased in and comparative figures are not available.

4. There were forty-four malfunctions for the month compared to seventy-one for the previous month. Due to the new reporting procedure a breakdown as presented for previous months is not available.

5. A total of five B-47 engines were changed during the month compared to six for the month of October. A total of three KC-97 engines were changed during the month of which two were changed off base compared to two for the previous month. The average B-47 engine time at change was 197 hours. Average KC-97 engine time at change was 337 hours.

TOC & RECORDS

1. There were 386 TO Compliances accomplished during the month on B-47 aircraft and 28 TO Compliances accomplished on KC-97 aircraft.

2. There were 5 new TO's with a total of 240 compliances received during the month for B-47 aircraft and 3 TO's for a total of 88 compliances for KC-97 aircraft.

3. There are 37 outstanding TO's on B-47 aircraft and 42 outstanding TO's on KC-97 aircraft.

4. There were approximately 40 component parts changed on B-47 aircraft and approximately 46 component parts changed on KC-97 aircraft.

5. There were 5 J-47-25 engines changed during the month with an average of 197.2 hours per engine, and one (1) R-4360-59B engine changed at 262 hours.

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QUALITY CONTROL

1. During the month of November the Quality Control Unit inspected eight (8) B-47, two (2) KC-97 and one (1) C-47 type aircraft processed through Maintenance Docks. The Unit also performed in-commission inspections on Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The Unit supervised sixteen (16) B-47, six (6) KC-97 and one (1) C-47 type aircraft test flights during the month of November.

4. The Unit lost one (1) airman through PCS during the month of November, and three (3) personnel returned from TDY to school.

5. Three-hundred (300) Unsatisfactory Reports were submitted during the month of November.

SUPPLY LIAISON

1. Total cannibalizations for month of November is 74; B-47: 64; KC-97: 10.

2. Sixty-three line items AOCP for the month.

3. Recurring AOCP are as follows:

Bolt - 1AFE-6-33520-1	B-47	(2)
Control - 6062-803834	B-47	(4)
Flowmeter - 2319-80J64G-AA-1		(3)
Indicator - 6126-149B27		(6)
Indicator - 6040-674090		(3)
Indicator - 6025-1214Bx8-05		(3)
Indicator -6034 - 14602-1J-A1		(8)
Tubes, Inner - 3900-615000		(2)

4. Supply Liaison has worked with SAC SIP teams presently visiting Barksdale for the greater part of the month in setting up Dock and Shop replinishment and pre-issue levels.

Robert S Milner

ROBERT S MILNER
LTCOL, USAF
Chief of Maintenance

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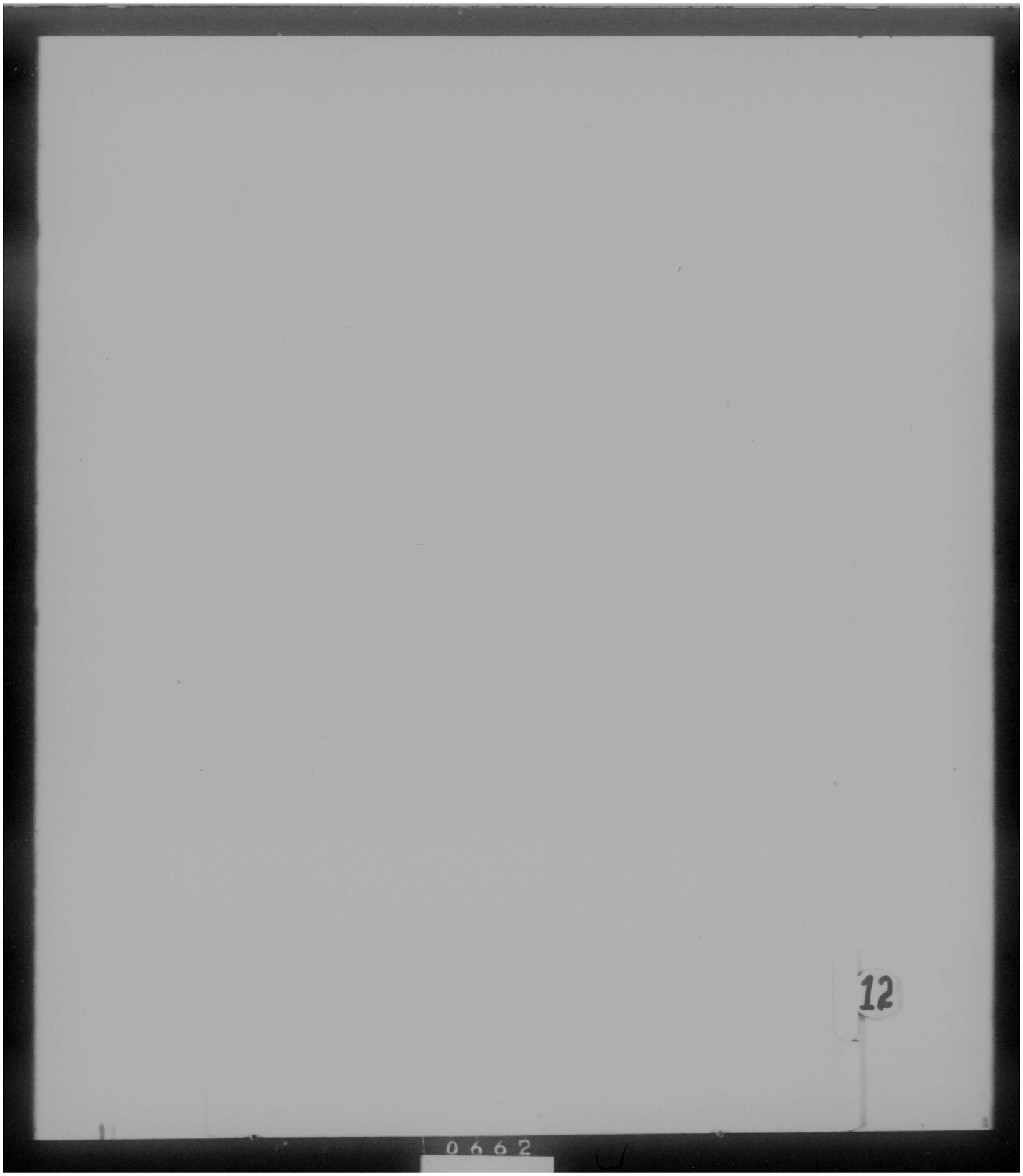

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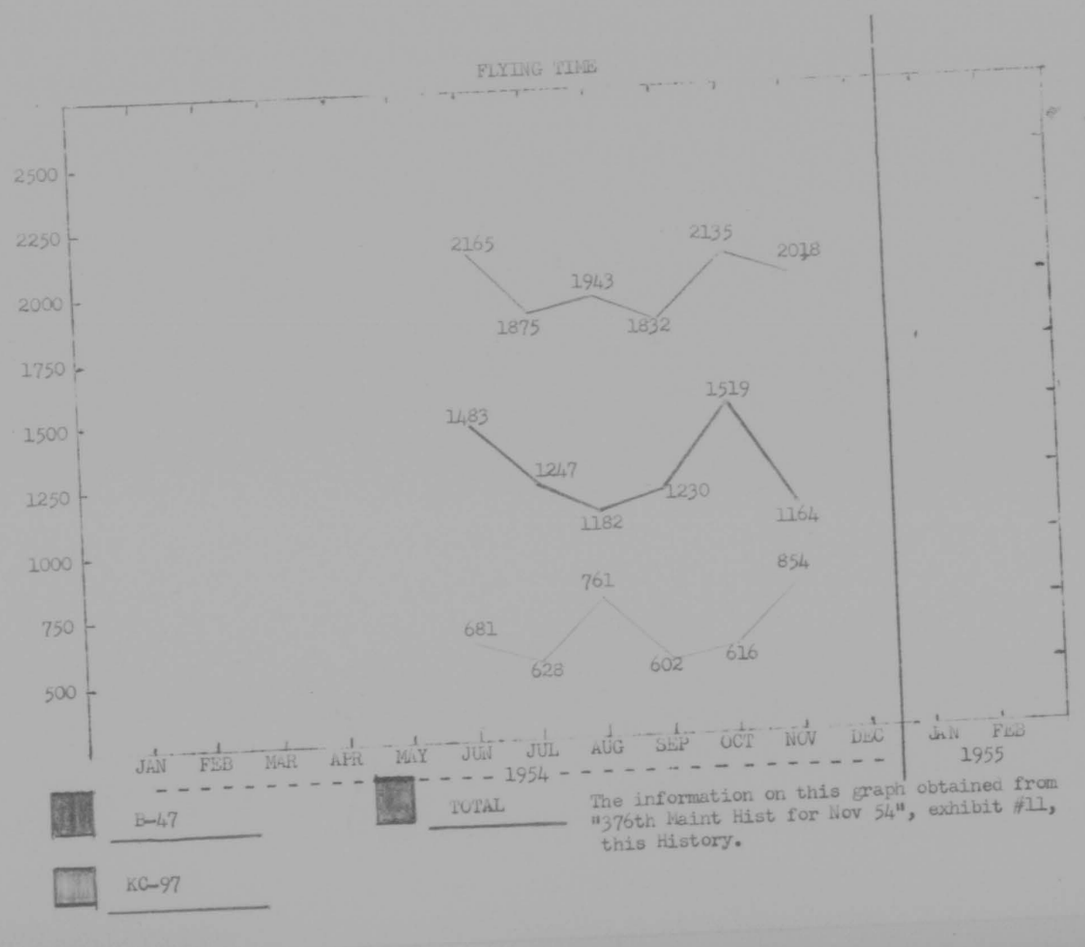

The information on this graph obtained from "376th Maint Hist for Nov 54", exhibit #11, this History.

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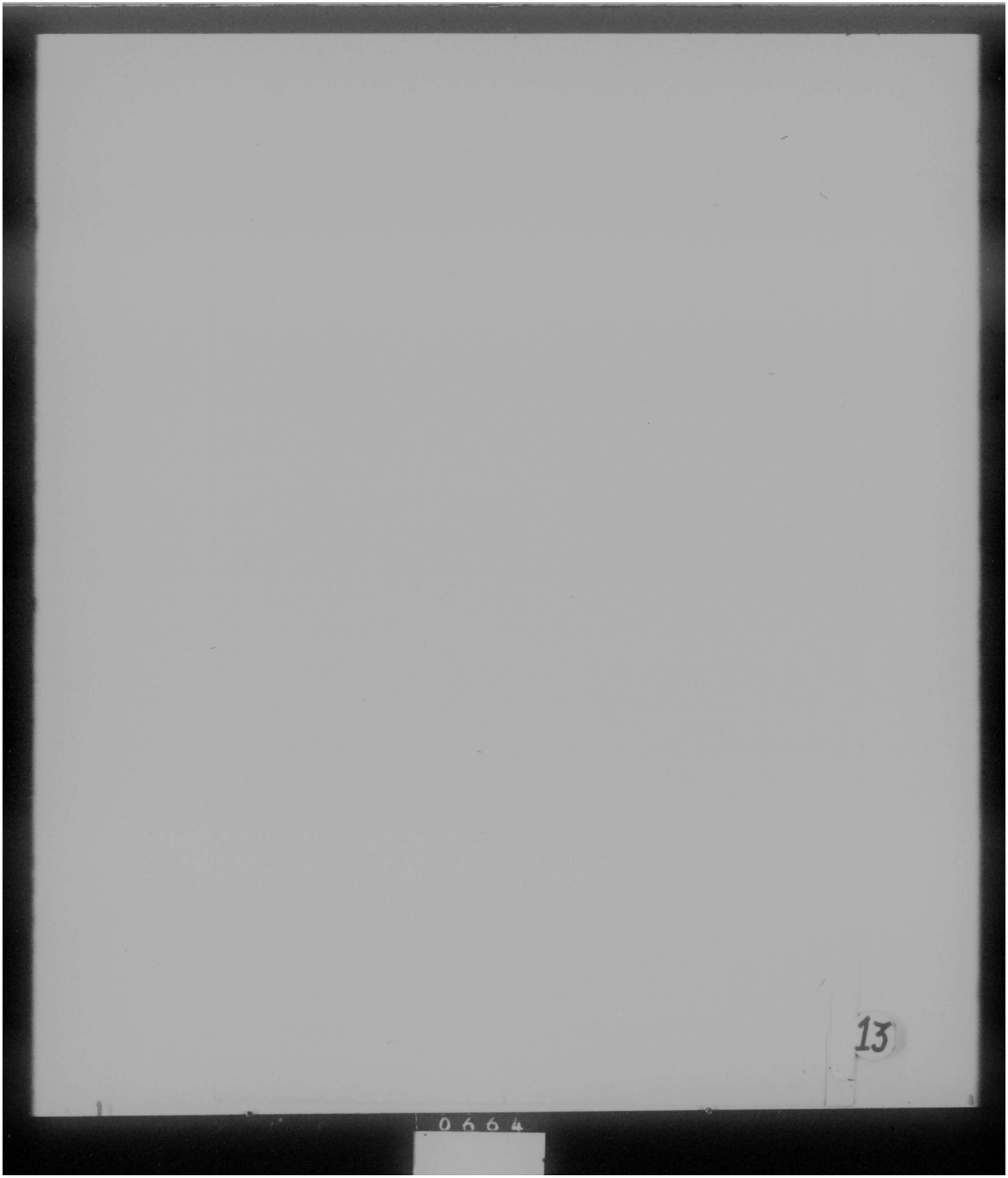

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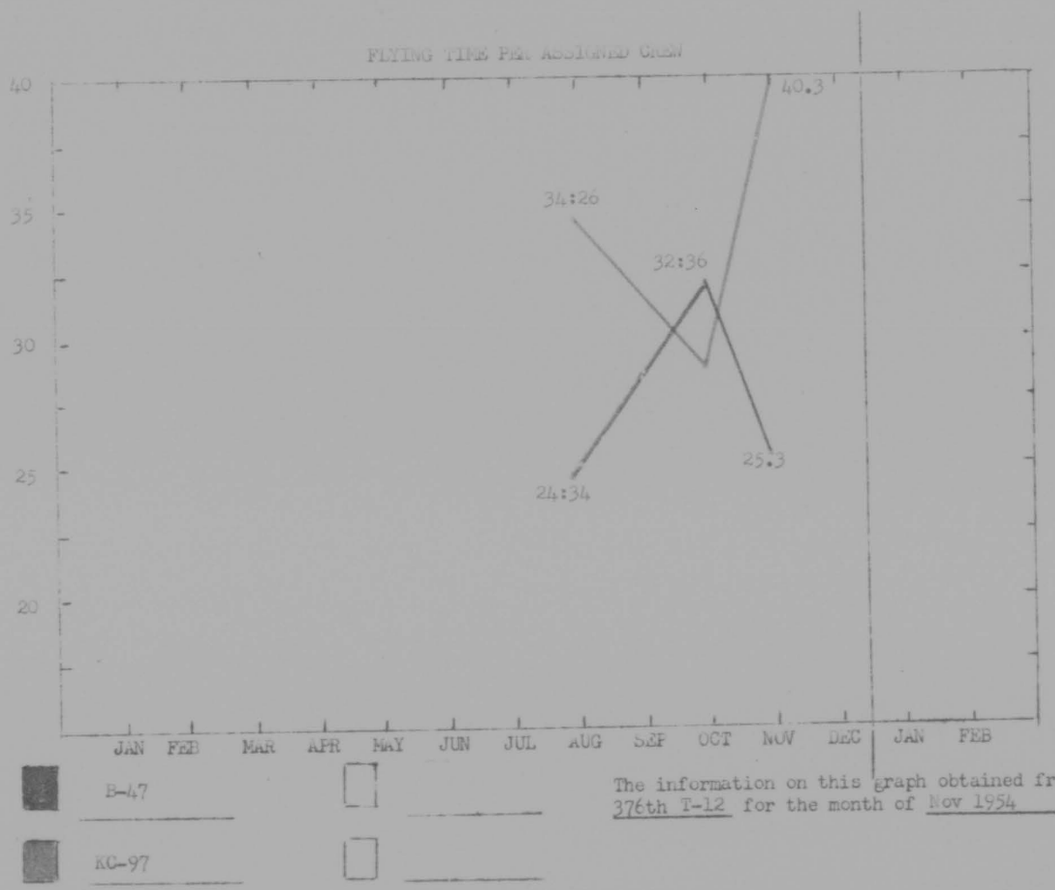

The information on this graph obtained from 376th T-12 for the month of Nov 1954

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HEADQUARTERS
376th BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
Auth: CCMDR 376 BOMWG
Initials: Murphy
Date: 13 Dec 54

TDCTT

1 December 1954

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 November through 30 November 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer.

(1) Date initiated: 30 November 1952

(2) Percentage complete: 90%

(3) Hours flown: 295:20

(4) Present status: The final report on this project is being written. A chart, "Number of 5 MC Transmitters Required to Jam Fighter Receiver", has been prepared. (Inclosure #1). This chart allows quick determination of the number of sweeping VHF communications jammers required to adequately jam GCI communications.

(a) The GCI station on which this chart is based was a 50 watt ground station, a BC-640 transmitter, modulated 100 per cent. The airborne jammer swept a five megacycle band of frequencies using a center frequency of 142.38 megacycles. All transmitters bracketed this frequency. Each transmitter had an average output of 300 watts.

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(b) Sixteen runs were made using a five megacycle transmitter. Results show that the signal strength, at any particular point in space, has to be in the vicinity of six to one for adequate jamming.

1. The chart (inclosure #1) is based on data obtained from extensive flight tests. The watts indicated in each square of the chart are the watts output from the combined transmitters; one transmitter transmitting 300 watts, two, 600 watts etc. This also gives an idea of the power required from the aircraft to operate the transmitters. The input primary power required is twice the wattage, since the transmitter is about 50 percent efficient.

b. Test Project 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953

(2) Percentage completed: 38%

(3) Hours flown: None

(4) Present status:

(a) A tentative final package for the transmitter and receiver tuning sections has been completed. The packing of this unit required the machining of a special gear train which is used for mechanically coupling the receiver and transmitter tuning units.

(b) A drive motor was mounted and mechanically connected to the tuning circuits and electrically coupled to the control circuits. Tests to determine the speed at which the band of 100 mc. to 150 mc. could be tuned indicated a possible sweep of two and one-half seconds. During the above tests, an overshoot of the received signal was observed and found to be one megacycle. This overshoot necessitated either the addition of an AFC circuit, which would be time consuming, or a clutch and brake assembly. The latter, being the easier and more desirable method, was tried and found to be acceptable.

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The overshoot is now negligible in that it falls within the bandpass of the receiver and allows a positive locking action.

(c) Preliminary sensitivity checks were made using a two and one-half second sweep rate. A relatively smooth curve was obtained of two micro volts at 100 mc and nine micro volts at 150 mc. This curve compares very favorably with the sensitivity curves of all existing Air Force VHF receivers.

(d) Tests of the control relays indicated the need of hermetically sealed relays with higher current capacity contacts. Relays of the prescribed type are being ordered. They will be sealed in a metal can which will aid in the shielding of the control circuits from the noise generated by arcing contact points on the relays.

(e) No attempt has been made to track the transmitter with the receiver. Further engineering on the tuning capacitor may be necessary to accomplish satisfactory tracking.

c. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 65%

(3) Hours flown: 215:30

(4) Present status: RR44 chaff has been collecting on the UHF communications antenna. Until UHF communications are improved no large chaff formations will be scheduled. Tests to eliminate this condition are in progress.

(a) The interim report on mission seven was completed and sent through distribution on 5 November 1954. The reports on missions eight and nine will be completedearly in December.

(b) Two missions were scheduled on Project 27-A, to determine why RR44 chaff does not "paint" on 70 mc radar. These missions were cancelled by APGC because of tests scheduled with lower than priority 50 assigned. In one instance, the mission was cancelled because the modified SCR 270 radar was out of commission for maintenance.

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Preliminary tests indicate that RR44 chaff is breaking up or "bird nesting" when it is dispensed at B-47 operational speeds. Additional tests will be scheduled and conducted against 70 mc radars to obtain further proof of this.

(c) One mission was schedule on Project 27-B to compare the radar echos of individual units, old and new types, of chaff with the radar echos of B-47 and KC-97 aircraft. This mission was cancelled because of higher priority tests at APGC and with the CPS-6 at Tyndall Air Force Base.

(d) A priority of 50 is given to the 376th Wing tests at APGC. This is the same priority given to SAC training exercises. This low priority does not always afford our tests assurance of ranges at APGC. Cancellation of tests under the system employed by APGC only permits 24 hours notification. This arrangement makes rescheduling difficult since 7DCTT must also schedule to coincide with the 376th Bombardment Wing maintenance and training schedules.

d. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 50%

(3) Hours flown: 26:00

(4) Present status: This project was formerly numbered as Auxiliary Project Number 20. The 376th Bombardment Wing is still awaiting a prototype Polaroid camera and periscope attachment from the Photographic Laboratory at the Wright Air Development Center, Dayton, Ohio. The delay in producing the camera was because the first design yielded a periscope casting which could not be removed from the mold. This required complete redesign which has been undertaken. The detail drawings are 10 per cent complete and the machine shop should be able to start fabrication within the next week. A wooden mock-up is being made of the camera and periscope assembly, so that mounting can be tested in the B-47E type aircraft before the prototype camera is completed.

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(a) The present design of the camera incorporates a 105mm, f 3.5 lens which was the only one available to the engineers at WADC. The f 3.5 lens will necessitate an exposure in excess of one fast sweep of the radar antenna; the exact amount cannot be determined until the mirror system can be set-up and tested. Research on commercial lenses, undertaken by the 376th Bombardment Wing, has turned up a faster lens; the Schnider Xenotar, f 2.8, 105mm. An inquiry has been sent to the distributor of the lens, requesting information on the lens dimensions, which will determine whether or not the lens can be incorporated in the camera. These dimensions will be submitted to WADC.

(b) When the prototype camera is received, flight tests will be conducted to determine the operational suitability of the equipment, as a means of navigating B47 aircraft.

e. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 37%

(3) Hours flown: 6:00

(4) Present status:

(a) From the work accomplished to date, it is concluded that a direct-viewing, infrared device is not satisfactory as a station keeping aid in the B-47 type aircraft. This conclusion is based on the results of a survey of direct-viewing, infrared devices, and flight tests of direct viewing equipment.

(b) An evaluation of missile infrared seekers was initiated to determine if devices of this nature would prove feasible as an aid to stationkeeping. Initial calculations established the feasibility of such devices. A visit was made to the following missile manufacturers who are working on infrared seekers:

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1. Philco Corporation-Reference Sidewinder Missle

2. Eastman Kodak Company-Reference Dove Missile

3. Hughes Aircraft Corporation-Reference Falcon Missile

Each of these manufacturers confirmed the feasibility of using an infrared seeker as a station-keeping aid. Eastman Kodak Company showed particular interest in the problem and conducted tests in their laboratory with the Dove infrared seeker to determine its suitability. They stated the results obtained demonstrated that the seeker holds promise of solving the problem. A two week visit isplanned to Eastman Kodak Company to accomplish the following:

a. Substantiate their findings.

b. Modify the infrared seeker and associated circuitry for flight testing.

c. Become familiar with the system operation to support maintenance of equipment while flight tests are being conducted at Barksdale Air Force Base, Louisiana.

(5) Future Plans: Laboratory and flight tests will be conducted to evaluate the infrared seeker tentatively being procured from Eastman Kodak Company. The evaluation will essentially consist of:

(a) Measurement of angular resolution.

(b) Determination of range capabilities against B-47 aircraft with and without suitable beacons.

(c) Evaluation of interpretation circuits and visual presentation.

(d) Determination of the vulnerability of the B-47 aircraft to infrared detection with or without the infrared beacon.

It is estimated that flight tests will be started in the later part of January 1955.

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f. Auxiliary Test Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953

(2) Percentage completed: 40%

(3) Hours flown: 25:36

(4) Present status: Several flight tests have been conducted using the Mark III IFF system in conjunction with AN/ALT-7 transmitters. Radar scope photography has been used on the "A" scope of the interrogator responsor to permanently record some of the more significant data. The information obtained to date is for the most part qualitative in nature, and is considered necessary for the acquirement of useful, statistically sound data.

(a) The initial flight test demonstrated that it is feasible to track an aircraft with the Mark III system without the aid of search radar, provided that variations in aircraft range, azimuth, and altitude are carefully controlled. An attempt is being made to improve the range of this equipment, so that it will more nearly simulate tactical conditions.

(b) Succeeding missions, using the AN/ALT-7 transmitters as sweep jammers have given good indications that jamming of the IFF ground equipment is possible.

g. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954

(2) Percentage complete: 50%

(3) Hours flown: 4:30

(4) Present status:

(a) A complete modification of the oscillator-amplifier units has been completed. The oscillator was changed from a push-pull circuit to a single ended Hartley circuit using one half of the 12AU7 tube. This change eliminates one tuning control in each circuit, improves stability and facilitates tuning.

0673

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The other one half of the 12AU7 tube is used as an amplifier clamp tube to prevent the amplifier tube from drawing excessive current if grid excitation is lost. The amplifier modification includes the replacement of the bakelite sockets with lower loss ceramic sockets and the replacement of the 6AQ5 tubes with type 5763 tubes. The type 5763 tubes are capable of greater plate power dissipation than the 6AQ5 tubes which allows the amplifiers to operate cooler with somewhat greater power output than before. All twelve units were modified and normally run with a total power output of approximately 35 watts.

(b) A flight test was completed on 30 November 1954 at Eglin Air Force Base, Florida.

1. The flight test was run against the modified SCR 270 radar and the AN/MLQ-3 using the project 6 barrage jammer. Six test runs were made between Eglin Air Force Base and Andalusia, Alabama using a C-47 aircraft flying at an altitude of 9000 feet.

2. On run 1, outbound from Eglin, and run 2, inbound form Andalusia, a standard AS-161 whip antenna (40.5 inches) mounted on top of the aircraft was used. Jamming conditions between 3 and 5 were maintained throughout both runs. When the barrage jammer was turned on, saturation of the radar receiver occurred over approximately a 100 degree sector with bright scope jamming on the rest of the scope. Saturation was evident on the "A" scope in that the main pulse decreased to approximately one-third to one-fourth normal amplitude. The trace appeared as uniform grass with no targets or normal noise spikes present.

3. On run 3, outbound from Eglin, a modified 40.5 inch whip mounted on the bottom of the aircraft was used. Jamming was observed, but of less intensity than on runs 1 and 2. Occasional targets could be seen on the radar.

4. On run 4, inbound from Andalusia, the standard AS-161 whip on top of the aircraft was used .

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Results were essentially the same as for runs 1 and 2.

5. On run 5, outbound from Eglin, the jammer remained turned off to allow the radar to track the aircraft.

6. On run 6, inbound from Andalusia, the jammer was alternately turned on and off for fifteen second intervals. Each time the jammer was switched on, the main pulse of the radar diminished on the scope. Targets and normal noise spikes disappeared indicating receiver saturation.

7. No equipment trouble was experienced, although the 400 cycle voltage varied from approximately 130 volts, at the beginning of the test, to about 101 volts at the end of the test. With the normal AS-161 antenna, the transmitter output was 30 watts forward and approximately two watts back power. With the modified whip forward, power was approximately 20 watts and back approximately 10 watts.

8. The barrage frequencies, as logged by the aircraft observer during the tests, were 58.2, 59.2, 61.8, 63.3, 64.9, 65.7, 67.1, 68.9, 71.0, 72.8 and 74.2 megacycles. The 12 signals were also logged by the AN/MLQ-3 ground set. The radar frequency during the test was approximately 70.5 megacycles. The AN/MLQ-3 operators also noted there was little or no indication of modulation.

b. Auxiliary Test Project Number 14, "Modification for "L" Band AN/APT-5A and AN/APT-9 Sweep Jamming."

(1) Date initiated: February 1954

(2) Percentage complete: 50%

(3) Hours flown: None

(4) Present status:

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(a) An interim report is being prepared on this project. This report will be completed by 15 January 1955.

(b) A total of 14 AN/APT-5 and AN/APT-9 systems were installed in Wing B-47 aircraft for a November training mission with EADF. These systems were used as barrage jammers against a FPS-3 radar site at Palermo, New Jersey. The equipments were installed on the cradle in the bomb bay which is in the unpressurized section of the aircraft. The equipment was turned on when the aircraft were approximately 170 miles from the FPS-3 radar. Effective jamming was noted for a period of two minutes. Jamming ceased due to malfunction of equipment. All equipments were ground checked at the end of the mission. Five systems had malfunctioned.

(c) The probability of having a usable operational sweep jammer with higher power output by modifying the APT-5A or the APT-9 is questionable. Basic inadequacies in these equipments are the limiting factors for any improvement.

i. Auxiliary Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 and AN/ALT-8 ECM Systems".

(1) Date initated: April 1954

(2) Percentage complete: 70%

(3) Hours flown: 144:25

(4) Present status:

(a) The latest flight test, using 28 AN/ALT-6 systems, was run against the EADF radar defense net during November. Each transmitter swept a 400 mc bandwidth at a maximum allowable speed of 30 mc per second. All 28 transmitters were set in the same frequency band. Previous test missions used the same bandwidth, however, a 10-15 mc per second speed had been used. All planning for this mission was directed at jamming the CPS-6 radars.

0676

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There were no "G" band gunlaying radars used in this test.

(b) The observer reports proved that the increased sweep speed of the AN/ALT-6 resulted in more effective jamming than the previously used 10-15 mc per second rate. The malfunction rate of this equipment was excessive because of the unsatisfactory transmission cable (RG-117/U) used. The conditions of jamming, at varying distances from the ground radar, indicates that the AT-518 helix antenna does not provide the required omni-directional characteristics. These antennas are mounted flush with the skin of the aircraft in such a manner that most of the radiated energy forms a narrow carpet directly beneath the aircraft.

(c) Approximately one hundred tests have been performed here during the past eighteen months with various "S" band sweep jammers. The results of these tests lead us to believe that the most effective sweep speed to use against a CPS-6 type radar is approximately 5 to 15 "hits" on enemy signal per second. At present, the AN/ALT-6 will not sweep this speed. A new magnetron is being procured by AMC which will allow a selection of slow speeds or fast speeds up to 25 "hits" per second. Selection of the best sweep speeds and bandwidth, to be used against CPS-6 and gunlaying radars, will be made with the AN/ALT-6 when equipment is available.

(d) All tests missions using at least 12 AN/ALT-6 transmitters, sweeping a 400 mc bandwidth at 10-30 mc per second, have completely jammed the SCR-584 gunlaying radars at distances beyond its maximum pickup range. We do not know if increased sweep speed will increase or decrease this effectiveness.

(e) AN/ALT-6 systems have been used on 12 test missions to date. The results of these tests prove that this equipment, set on the fast sweep selection, is operationally worthless. Used singularly or in numbers, this equipment will not produce conditions of effective jamming on the CPS-6 or gunlaying radars.

0677

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This is a direct result of the present fixed sweep speed of the AN/ALT-8 which is approximately 30 "hits" per second. Prototype equipment was furnished this Wing in early 1954 which had a speed of from 1/3 to 1/2 of the present production equipment. Exhaustive tests were made by this Wing and personnel from Raytheon and WADC. The results of this series of tests showed that the speed was excessive to a point that the dwell time of the jamming signal in the victim radar was so short that only faint splatters resulted on radar scope. No effective jamming was obtained during the test. This fact was agreed upon by all parties engaged in this test. The request for a slower sweep speed, ranging between 5 to 15 "hits" per second, was made at this time. However, according to existing contractual directives, all AN/ALT-8 transmitters have a fast sweep at an unusable rate of 30 "hits" per second. WADC and Raytheon have been contacted on this problem during the month. The existing contractual requirements have not been changed, as yet, even though both agree that the speed must be changed.

(f) New motors have been secured, plus factory technical assistance, for installation in three (3) AN/ALT-8 transmitters. This motor will cause the transmitter to sweep a selected bandwidth at a speed of six "hits" per second. Flight tests of this equipment will be made during December.

0678

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j. Auxiliary Test Project Number 18,"Development of a sweep Jammer using a VHF Increductor".

(1) Date Initiated; 1 April 1954

(2) Percentage Complete: 36%

(3) Hours Flown: None

(4) Present status: Prior to this month, the emphasis was placed on the development of a sweeping, pulsing VHF Jammer. Lab tests indicated that the jammer was not very effective, either pulsing or sweeping, however, it was effective as a spot jammer. The single knob tuning control is an advantage over most sets. The power output of from 50 to 100 watts is sufficient for spot jamming. A conference was held to discuss the possibility of using the increductor transmitter, with a receiver, as a search and lock-on spot jammer. This application would require the transmitter to track with a receiver and an antenna in the frequency range of 100 to 150 megacycles. As a result of the conference, a test directive was written and work was begun to see if the transmitter could be used.

(a) A test for stability of the transmitter, with respect to temperature, shows a frequency drift of as much as two megacycles in one hour. Automatic frequency control would be required for any spot jamming.

(b) Comparisons were made between the transmitter and an ARR-5 receiver to get an idea as to how tracking could be accomplished. The transmitter could not be adjusted to track to this receiver because of the non-linear scale on the receiver. A curve comparing the control current of the transmitter to the frequency of the transmitter is fairly linear when working into a dummy load. This curve changes considerably when attempting to use an antenna.

(c) The worst problem so far encountered is the antenna. None of the antennas available for VHF will work with the increductor. The reflected energy, from the antenna to the transmitter, causes it to skip sections of the frequency range and to stop oscillation entirely in other sections. At present, an attempt is being made to build a matching section, or isolation device, for use between the increductor and the antenna, to decrease reflected power to allow stability of the transmitter.

0679

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K. Auxiliary Test Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7".

(1) Date initiated: 12 July 1954

(2) Percentage complete: 85%

(3) Hours flown: 26:00

(4) Present status: A survey of equipment failures has been completed with the cooperation of personnel of the 376th A & E Squadron. It is apparent that the frequency sweeping device, made up of motor B-201 and rotary capacitor C-261, is not reliable for high altitude operation. Of 89 ALT-7 transmitters assigned to this Wing, 14 sweep units have failed. The failure rate indicated by these figures may be optimistic since no flight records are available to insure that all 89 transmitters have been operated at high altitudes.

(a) Two AN/ALT-7 systems have been taken to the APGC for cold and altitude tests. This is a coordinated, joint effort to investigate the problem thoroughly and recommend a solution if possible. No results are available at this date.

L. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954

(2) Percentage complete: 85%

(3) Hours flown: N/A

(4) Present status: Fifty streamlined whip antennas (30½ inch) have been received from SAAMA. Fifty whip antennas made by SAAMA must be returned to be fitted with streamlined caps. Twenty-four (24) locally fabricated antennas were returned to SAAMA for retrofit.

(a) Mr. Wills, of WADC, has improved the original whip (30½") matching section. The new drawings will arrive at SAAMA in time for initial production. Mr. R.C. Johns at Headquarters AMC (MTMCT) has advised that manufacture of these matching sections by SAAMA will start in early December 1954.

0680

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(b) Flying hours continue to accumulate on the whip antennas with no mechanical or physical breakdowns.

(T-1)	AT-(XA212)/AP	- 57:05 Hours
(T-00)	AT-(XA213)/AP	- 146:55 Hours
(T-16)	AT-(XA219)/AP	- 65:05 Hours

(c) Final electronic evaluation of these antennas will be made when the matching sections become available.

m. Auxiliary Test Project Number 24, "Effectiveness Tests of QRC-8".

(1) Date initiated: 2 October 1954

(2) Percentage completed: 40%

(3) Hours flown: 26:50

(4) Present status:

(a) Two simulated penetration missions were flown this month using the QRC-8 against the Collins 18-S4 receiver installed in B-47 type aircraft. This receiver is relatively unsusceptable to sweep jamming for the following reasons.

1. It has a bandwidth approximately one third that of the BC-348 and one seventh that of the RSI-6, Russian receiver. Wide bandwidth receivers are more susceptable to sweep jamming.

2. A series noise limiter is incorporated in the 18-S4 receiver which reduces narrow pulse amplitude 70%. Narrow pulses are the resultant audio signal from a receiver being jammed by the sweep technique.

(b) The results of the first mission were as follows: On Run #1, jamming condition five was obtained when the bomber and fighter were seven miles apart at an intercept point 120 nautical miles from the GCI site.

On Run #2, a condition four was obtained as the aircraft passed one another, no separation, 80 nautical miles from the GCI site.

0681

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The GCI transmitter was a BC-610, operating on 4731.5 KC, with a power input to the final amplifier of 500 watts to a vertical, one quarter wave antenna. The QRC-8 was operating over the band from approximately 3.5 to 5.0 mc at a 500 CPS sweep rate.

(c) The results of the second mission were as follows:

On Run #1, no jamming condition better than condition four was obtained. This was caused because the jammer was off frequency.

On Run #2, a condition four was obtained when the bomber and fighter were 14 nautical miles apart. This occurred at an intercept point 80 nautical miles from the GCI site.

On Run #3, a condition four was obtained, when fighter and bomber were 16 nautical miles apart, at an intercept point 50 nautical miles from the GCI site.

On Run #4, a condition four was obtained, when the fighter and bomber were nine nautical miles apart, at an intercept point 38 nautical miles distant from the GCI site. The GCI transmitter was a BC-610 operating on 4397.6 KC with a power input to the final amplifier of 500 watts. A vertical whip antenna loaded to six amperes R.F. was used.

The quality of modulation was superior to that of previous missions, which utilized a remote GCI transmitter modulated over land lines. The victim receiver was a Collins 18-S4 receiver which is not as susceptable to sweep jamming as the BC-348 or RSI-6

(d) A flight test was conducted to determine the radiation pattern of the new antenna system used with the QRC-8. Inclosures 2 and 3 reveal, that on the two frequencies checked, a substantially omnidirectional pattern was obtained. The relative amplitudes of the two patterns should not be used as a signal strengthcomparison. (See inclosures four through eleven)

(e) Ground tests were performed to determine radiation efficiency of the QRC-8 into the long wire antenna as compared to the Project Number One transmitter into the old antenna configurations.

0682

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[illegible] NCR's for antenna matching and transmitter tuning [illegible] being printed for A & R use.

. [illegible] Project Number 25, "Structural Suitability [illegible] Stub Antennas".

(1) Date Initiated: 1 July 1954

(2) Percentage complete: 75%

(3) Hours flown: 974:00

(4) Present status: The flight testing program of stub antennas is continuing with the following antennas:

(a) The two AT-190B antennas filled with Eccofoam FI by this organization, as reported in last months SAC-U30 report, now have a total of 33:25 hours flight time. No cracks have formed in the antenna shells; however, the antenna bases have started loosening in the same way as the unmodified AT-190B antennas.

(b) The knife edge thin solid stub antenna, which was received from WADC, now has 24:05 hours flight time. It is still as rigid as when installed.

(c) The laminated plastic UHF stub, received from WADC as reported in last month's SAC U-30, now has 30:00 hours flight time, and it is as rigid as when installed.

(d) Another antenna received from WADC, which has 33:25 hours flying, is a mesh reinforced plastic stub with dimensions similiar to the AT-190B antenna. This antenna is as rigid as when installed.

c. Auxiliary Test Project Number 26, "Operational Test [illegible]/APS-54".

(1) Date initiated: 18 June 1954

(2) Percentage complete: 85%

(3) Hours flown: 18:00

(4) Present status: The inspection of the original APS-54 installations on B-47 aircraft, described in previous reports, was completed for all aircraft assigned this Wing. Discrepancies were corrected when practicable.

0683

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Inclosures four, six eight and ten show that the signal strength of the QRC-8 system is in most cases 200 per cent to 300 per cent stronger than the Project Number One system. From inclosures number five, seven, nine and eleven it will be noted that, with the exception of the area around eight mc, the second harmonic radiation is relatively low.

(f) Further altitude chamber testing has been accomplished with a representative of Hallicrafters Company present. Experiments with plastic potting compound, Eccofoam FP, used to coat high voltage terminals, indicated a great improvement in high altitude operation. Points which had been arcing at 25,000 feet operated satisfactorily at 35,000 feet. The Hallicrafters Company has agreed to repackage all QRC-8's to improve the high altitude characteristics.

(g) The QRC-8 as delivered had tuning knobs on the front panel with no locking devices. This requires adjustment of the transmitter in the aircraft due to the occurance of accidental misadjustment during installation. The Hallicrafters Company will remove the knobs and provide locking, screw driver adjustments to alleviate this condition.

(h) A team from Douglas Aircraft Company has been rewiring all B-47 aircraft of the 376th Bombardment Wing to rectify an error in wire size on the interconnecting cable between the QRC-8 transmitter and power supply. AWG #10 wire is being substituted for the original AWG #20 wire. All B-47's, with the exception of those on TDY, etc, have been modified.

(i) All B-47's have the antenna switching relays and associated wiring completed.

(j) Douglas Aircraft Company has delivered two preproduction fiberglass capacitor covers for inspection and approval. These have been returned to Douglas for production.

(k) The antenna tuning capacitors ordered from Jennings Manufacturing Company by Douglas will be delivered, as manufactured, beginning approximately 1 December 1954. It is anticipated that the installation of the QRC-8 in all B-47 aircraft will be completed by 15 January 1955.

0684

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Unsatisfactory reports were submitted in those cases requiring action at higher echelon. Weekly telegraphic reports were submitted to SAC Headquarters and to WADC. In addition, a complete list of those discrepancies resulting from faulty cable installation at the factory was submitted to representatives of Boeing Aircraft Corporation.

(a) The crystal protective device mentioned in previous reports has continued to give satisfactory service.

(b) An auxiliary project is being initiated to completely test the value of this protective crystal device. A solution to the problem must be obtained before any dependability of the APS-54 system can be expected.

(c) For operational planning purposes, the APS-54 warning system in operational assigned B-47 aircraft is completely unreliable. This is caused by installation errors which prohibit normal operation and excessive crystal burn-out caused by high RF energy feeding through from other electronic equipment on the same aircraft. The factory installation errors are of such a magnitude that a field team from the aircraft manufacturer or a depot must be used to correct this condition. Boeing Aircraft Corporation at Wichita, Kansas was contacted in November concerning their errors in installation. This was their first information that the system was unusable. A copy of all correspondence on the matter was immediately forwarded to them. The request for outside assistance has been given to Second Air Force.

p. Auxiliary Test Project Number 28, "Testing of RG-117/UG, RF Transmission Line".

(1) Date initiated: 1 November 1954

(2) Percentage complete: 85%

(3) Hours flown: N/A

(4) Present status: Tests on UG-117/U RF transmission line itself have been completed. Losses vary with age, type and amount of use, making possible difinitive figures only on new section. Prior to testing, it was necessary

0685

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to visually check the cable selected, even when brand new, as shipping on reels often caused circumferential deformities due to cold flow. The line was fitted with UG-532 connectors on the test equipment.

(a) A ten foot section was tested at 2700 mc to 3600 mc in conjunction with the ALT-6. Dielectric losses and heating of the cable averaged 20 per cent of the input power. These dielectric losses were aggravated by the connector discontinuities. Connector flange threads were weak and either stripped or cross-threaded easily. The center conductor stiffness caused the receptacle fingers to tear loose easily in the UG-352 connectors when the line is removed. Lack of circumferential stability of the center conductor under continued use and gentle bends made consistent loss figures difficult to obtain. When connecting lines, it was difficult to tell when connectors' dielectrics bottomed due to thread stiffness. When the weight of the line did not cause damage to the receptable, upon removal it often displaced the dielectic around the center conductor of the UG-532 connectors enlarging the hole. This weight also deformed the connector plate on the UG-11061 ALT-6 wave-guide-to-Coax transformer causing poor mating of dielectric within the transformer thus causing the VSWR to increase sharply. Looseness of the outer conductor in dielectric made insertion of line into the receptacle a dubious procedure. The depth of insertion at center conductor could not be determined. Lack of conformity in dielectrics diameters and connectors makes both construction and proper mating difficult.

(b) Testing of UG-117/U cable will be completed when Auxiliary Project 29 is completed. Comparison tests are yet to be made.

q. Auxiliary Test Project Number 29, "Testing of "Styroflex" RF Transmission Line".

(1) Date initiated: 9 November 1954

(2) Percentage complete: 40%

(3) Hours flown: N/A

(4) Present status: The cumulative defects associated with RG-117/U cables and connectors made urgent the need for a better RF transmission line system for use with the AN/ALT-6 and AN/ALT-8 transmitters. The ideal line at

0686

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these frequencies would be one with an air dielectric. A canvas was made of manufacturersof composite dielectric coaxial lines and only one was found which was adaptable to our use, a Phelps-Dodge product known as Styroflex. A ten foot section of semi-rigid line was secured from Communications Products Company and testing begun. These tests showed the Styroflex line to have none of the physical troubles associated with RG-117/U. It had less power loss even though the test line was fitted with UG-154 connectors. So promising were the results that a visit was made to the Communications Products Company to further investigate the possibilities. As a result of this conference, a ten foot section of flexible Styroflex was obtained and further tests were run in conjunction with Auxiliary Test Project Number 30 to eliminate the connector problems. In these tests, the line center conductor itself was used as the pick-up probe in the UG11061, ALT-6 wave-guide to coax transformer as well as the excitation probe in the transformer at the calorimeter wave-guide input. A VSWR of less than 1.3:1 has been obtained across the 2700-3600 mc band tested. Attenuation tests are being conducted at present. Early results show the losses in the composite dielectric line to be consistently less than those with the solid dielectric line and its connectors. Lack of cold flow in the unplasticized, spiral, tape wound support for the inner conductor holds the circumferential specifications constant throughout the lines, regardless of line conformations. The line is light weight compared with RG-17 or RG-117/U. It is not easily deformed by outside stresses, giving strength with great flexibility. Temperature cycling in excess of our requirements does not affect the line. Pressure sealing to prevent moisture accumulation due to "breathing" can be easily accomplished if necessary.

r. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

(1) Date initiated: 10 November 1954

(2) Percentage complete: 60%

(3) Hours flown: N/A

(4) Present status: Tests run in Auxiliary Test Project 28 and 29, as well as maintenance difficulties encountered in Project "Blue Cradle" were indicative that the connectors used (UG-532, UG-352, UG-154) are the weakest link in the RF transmission system. It was decided to design and construct a set of

0687

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fittings which would eliminate the VSWR problem, cut down drastically the waste of man hours and equipment and also sharply increase the dependability and effectiveness of the present transmitters. It was further decided to tie this program together with Auxiliary Test Project Number 29, "Testing of Styroflex RF Transmission Lines" to create a dependable low loss RF transmission system to include everything from the transmitter through the antenna. To eliminate the connector difficulties encountered during installation and operation, it was decided to make the line center conductor serve as both the pickup probe and the radiating element. To increase dependability and ease of installation, a quick disconnect fitting was devised and built, employing no threaded joints. Initial tests of this new fitting show that installation time is in seconds with complete freedom from line damage.

The VSWR has been reduced from a peak of 4:1 to below 1.3:1 . Probe positioning errors are reduced to a minimum by incorporating a ferrule at the rear of the fitting. During early testing, the line was terminated at each end of the probe in a waveguide-to-coaxial-transformer equipped with quick-disconnect fittings. This same fitting may also be used with the UG-352 and UR-532 with a simple modification. This eliminates all the dielectric-mating, cross-threading, thread stripping and receptacle damage now common with standard connectors.

s. Auxiliary Test Project Number 31, "Design of Antenna for 2700-3600".

(1) Date initiated: 12 November 1954

(2) Percentage complete: 40%

(3) Hours flown: N/A

(4) Present status: Operational flight tests indicate the requirement for an omni-directional, low VSWR, aerodynamically acceptable antenna for use with the ALT-6 in frequency range from 2700 to 3600 mcs. The helices now in use are not satisfactory.

(a) Work has begun on scaling down the AT-135 to make use of the AT-190 antenna mounting base commonly installed in our aircraft. Early tests show a VSWR below 2:1 for this scaled down prototype, proving the feasibility of the work. Because of radiation pattern difficulties, a new physical shape has been decided upon for the radiating element; and a prototype is being machined.

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t. Auxiliary Test Project Number 32, "Suitability Test of "Blue Cradle".

(1) Date initiated: 1 September 1953

(2) Percentage complete: 100%

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status:

(a) Although the development of the cradle is completed, suitability testing of its operation is still in progress. Any information related to these suitability tests will be submitted under this test project.

(b) The cradle has been operational since July of this year. During this period, a total of six cradle hoisting beams have been broken. This is the beam to which the C-9 bomb hoist chain is attached when loading and unloading the cradle. Two of these beams are used; one is located overhead forward in the bomb bay and the other is located aft in the bomb bay.

(c) Two of the ruptured beams and one good beam were taken to Douglas Aircraft Company for analysis. Douglas engineers fabricated two new beams to be used in additional tests to check the beam failure. One beam was the standard type and the other had additional rivets added in order to carry the rivet shear load. These beams ruptured at 9650 pounds and 10,800 pounds respectively. This last figure gives a factor of safety of 2.7. Douglas Aircraft Company will make good the factor of safety of three if we deem it necessary.

(d) Although the beam does not come up to the design load, it was not considered to be the primary reason for failure of the beams. Corrective measures in the form of training installation crews are being taken to eliminate these problems.

FOR THE COMMANDER:

William H. Murphy

WILLIAM H MURPHY
Major, USAF
Adjutant

11 Incls
1. Chart - Number of 5 mc Tran. required to Jam Fighter Rec.
2 thru 11 - QRC-8 Charts

0689

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SECRET

NUMBER OF 5 MC TRANSMITTERS REQUIRED TO JAM FIGHTER RECEIVER

TABLE ____

NAUTICAL MILES FROM GCI SITE

	10	15	20	25
110	1 300 WATTS	2 600 WATTS	2 600 WATTS	2 600 WATTS
100	2 600 WATTS	2 600 WATTS	3 900 WATTS	3 900 WATTS
90	3 900 WATTS	5 1500 WATTS	7 2100 WATTS	7 2100 WATTS
80	5 1500 WATTS	9 2700 WATTS	11 3300 WATTS	12 3600 WATTS
70	8 2400 WATTS	12 3600 WATTS	16 4800 WATTS	17 5100 WATTS
60	9 2700 WATTS	14 4200 WATTS	18 5400 WATTS	20 4100 WATTS
50	10 3000 WATTS	16 4800 WATTS	21 6300 WATTS	23 6900 WATTS
40	10 3000 WATTS	17 5100 WATTS	21 6300 WATTS	24 7200 WATTS

SEPARATION BETWEEN AIRCRAFT IN NAUTICAL MILES

GCI FIELD STRENGTH	
NM	MV
110	30
100	44
90	115
80	192
70	278
60	320
50	378
40	387

ONE 5 MC TRANSMITTER FIELD STRENGTH	
NM	MV
10	232
15	141
20	110
25	100

** EACH TRANSMITTER–300 WATTS
** GCI GROUND STATION–50 WATTS

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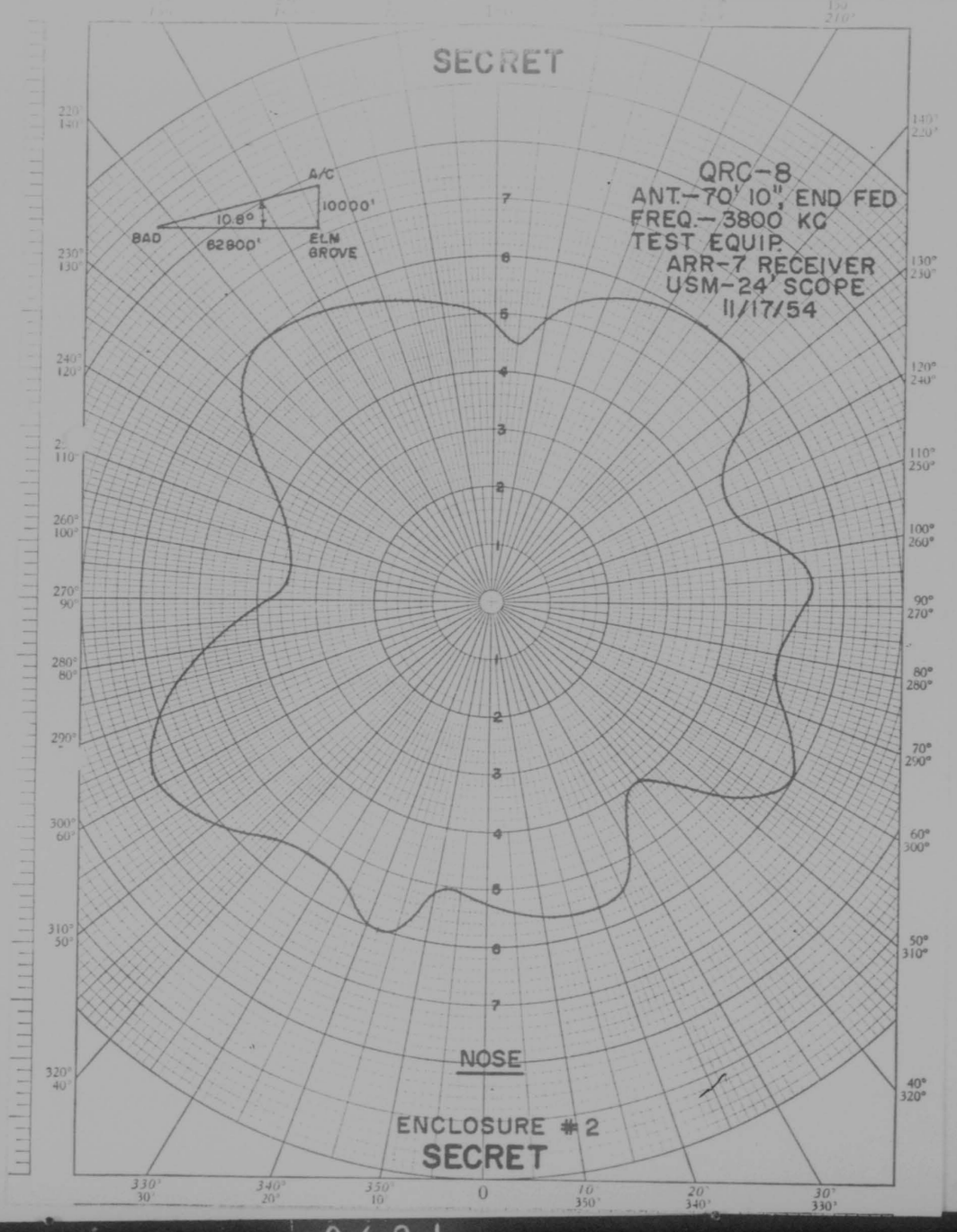

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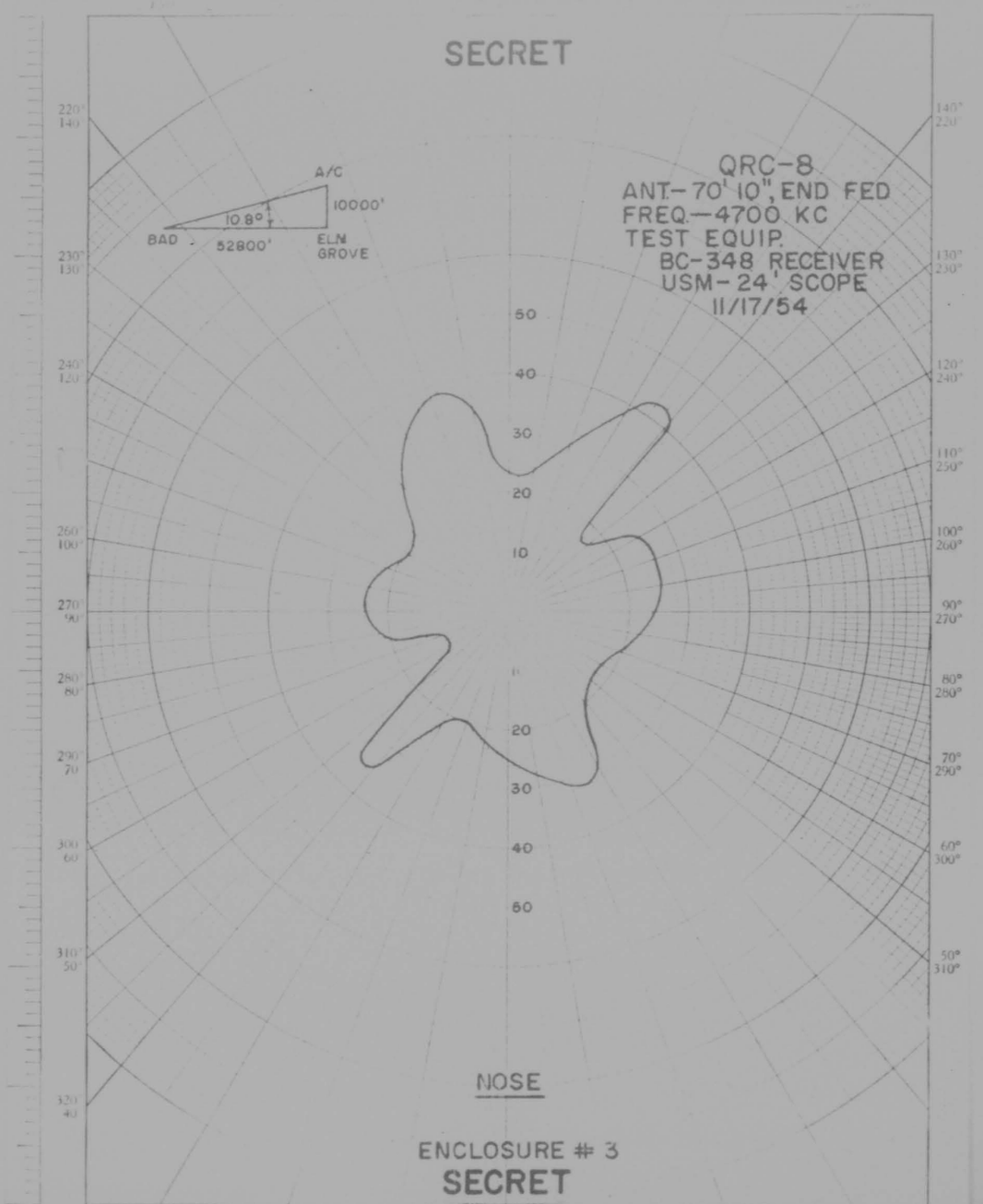

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SIGNAL STRENGTH OF H.F. SWEEP JAMMER INTO 3 DIFFERENT ANTENNAS

QRC-8, PRESENT SYSTEM-A/C 414, 11/18/54 —— 270° HEADING, 70' 10" ANT., END FED
PROJ. # 1 —A/C 2300 4/22/54 - - - 275° HEADING, 60' SHUNT FED ANT.
PROJ. # 1 —A/C 2412 4/22/54 —— 270° HEADING, 46' 5" END FED ANT.
JAMMER SWEEPING 3.5 - 5.0 MC, 500 CPS
11/19/54

ENCLOSURE # 4

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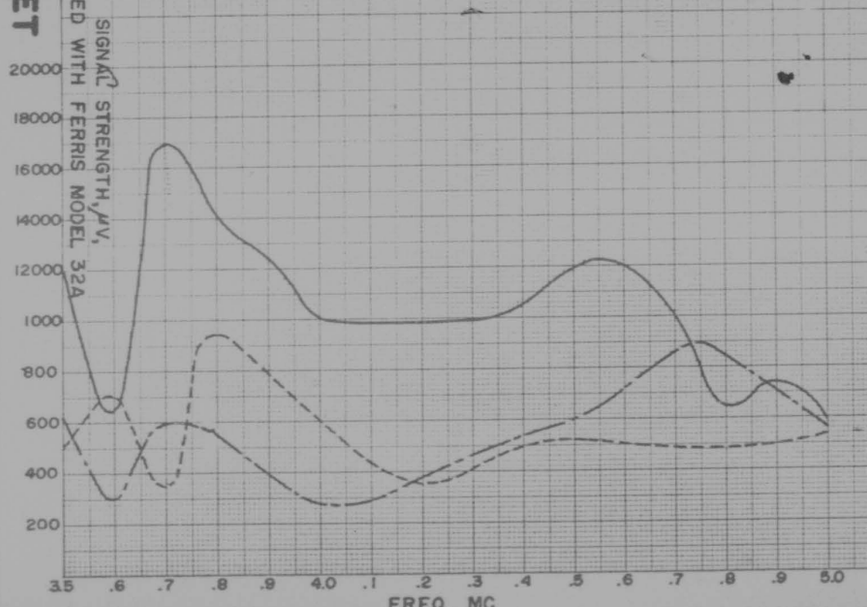

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2ND HARMONIC SIGNAL STRENGTH, QRC-8, INTO 70' 10" ANTENNA

QRC-8 SWEEPING 3.45–5.0 MC, 500 CPS
BEARING 270°
F.S. METER 1/2 MILE FROM A/C 414
11/18/54

ENCLOSURE #5

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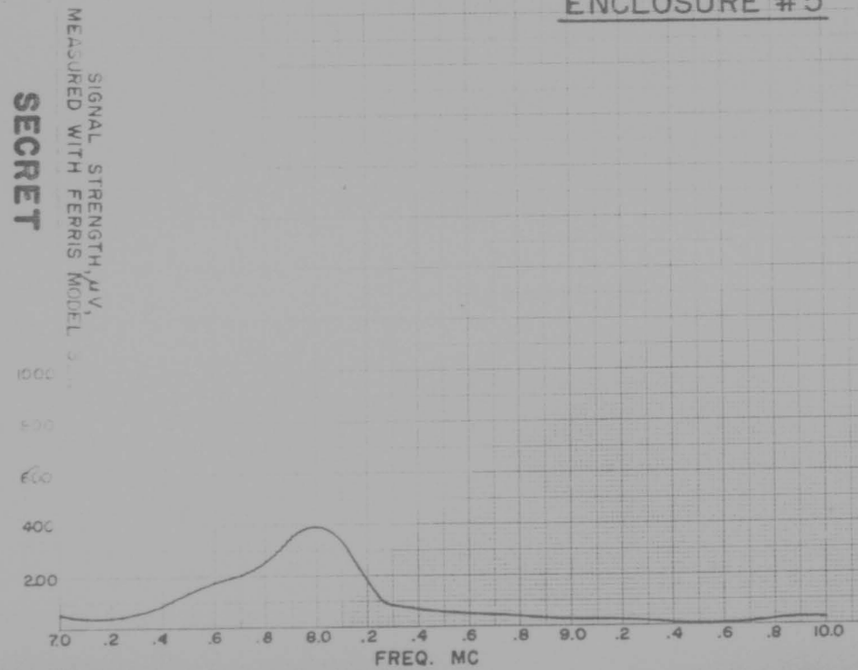

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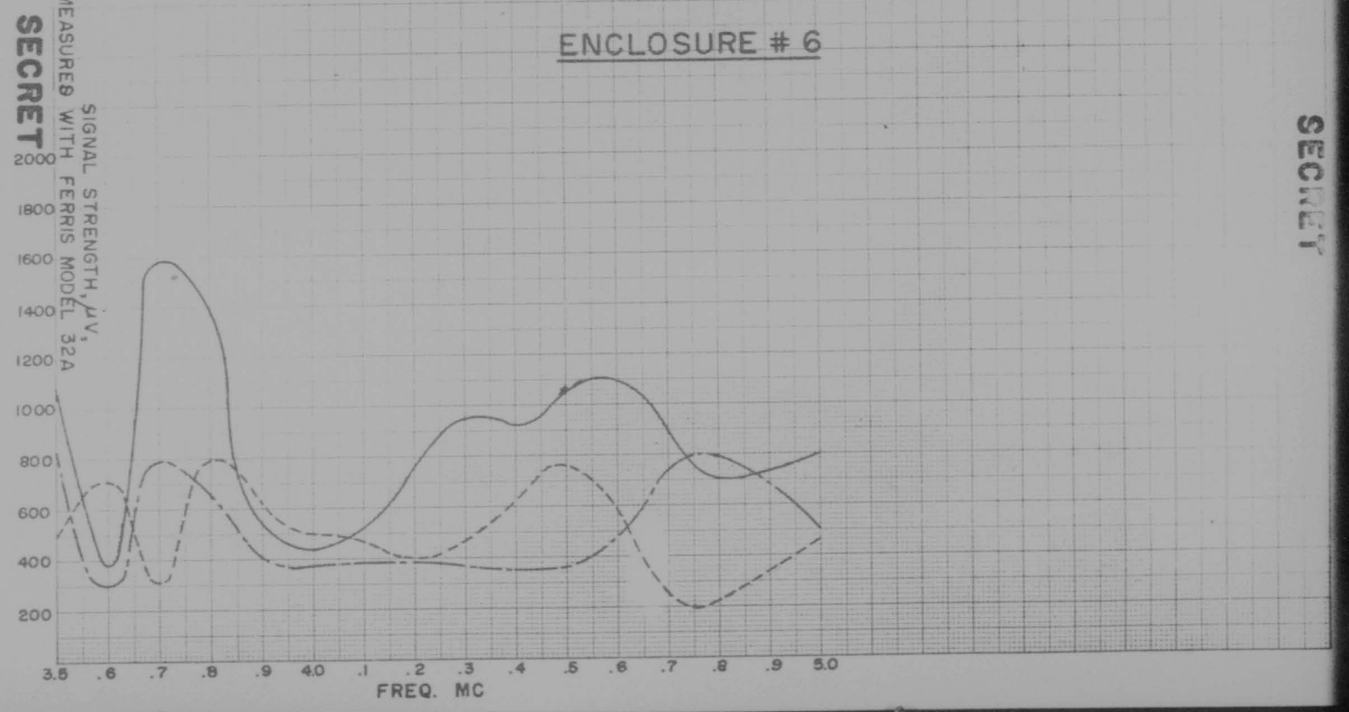
SIGNAL STRENGTH OF H.F. SWEEP JAMMER INTO 3 DIFFERENT ANTENNAS

QRC-8 PRESENT SYSTEM A/C 414, 11/18/54 —— HEADING, 85°, 70' 10" END FED ANTENNA
PROJ. #1—A/C 2300, 4/22/54 ---- HEADING, 90°, 60' SHUNT FED ANTENNA
PROJ. #1—A/C 2412, 4/22/54 —·— HEADING, 90°, 46' 5" END FED ANTENNA
JAMMER SWEEPING 3.5-5.0 MC, 500 CPS
11/19/54

ENCLOSURE # 6



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2ND HARMONIC SIGNAL STRENGTH, QRC-8 INTO 70' 10" ANTENNA

QRC-8 SWEEPING 3.5–5.0, MC, 500 CPS
BEARING 85°
F.S. METER 1/2 MILE FROM A/C 414
11/18/54

ENCLOSURE # 7

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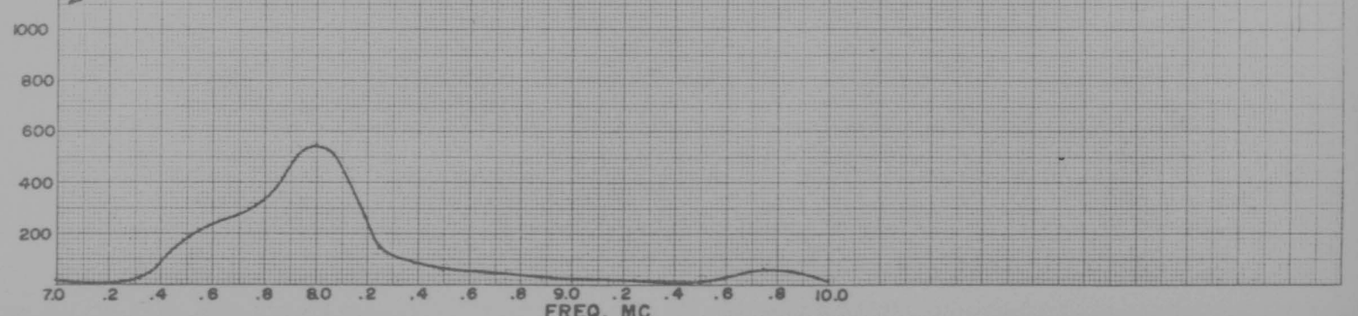

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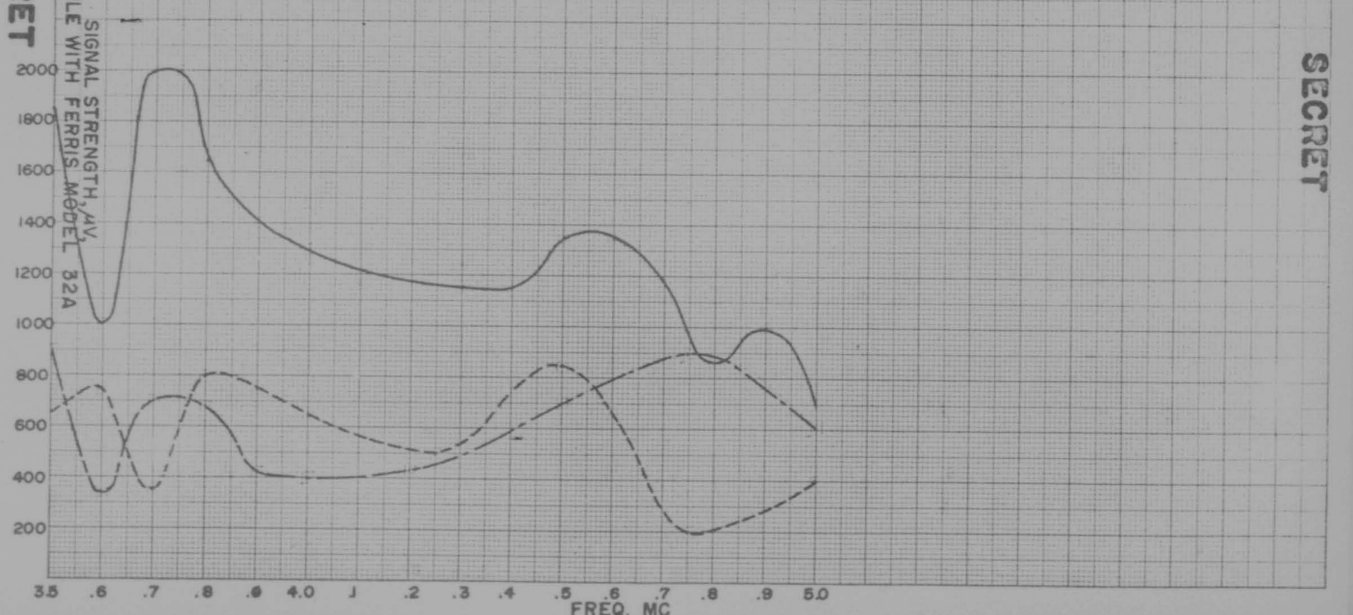
SIGNAL STRENGTH OF H.F. SWEEP JAMMER INTO 3 DIFFERENT ANTENNAS

QRC-8, PRESENT SYSTEM—A/C 414, 11/18/54 ——— HEADING, 355°, 70' 10" END FED, "C" TUNED.
PROJ. #1 —A/C 2300, 4/22/54 - - - - - HEADING, 330°, 60' SHUNT FED
PROJ. #1 —A/C 2412, 4/22/54 —·— HEADING, 360°, 46' 5" END FED
JAMMER SWEEPING 3.5–5.0 MC, 500 CPS
11/19/54

ENCLOSURE # 8



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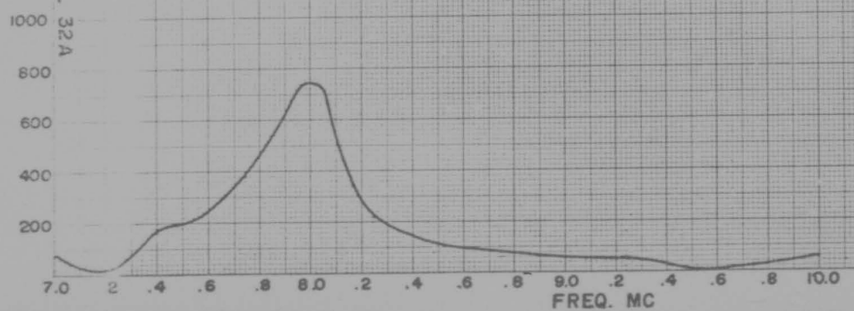
2ND HARMONIC SIGNAL STRENGTH, QRC-8 INTO 70' 10" ANTENNA

QRC-8 SWEEPING 3.43–5.0 MC, 500 CPS
BEARING 355°
F.S. METER 1/2 MILE FROM A/C 414
11/18/54

ENCLOSURE #9



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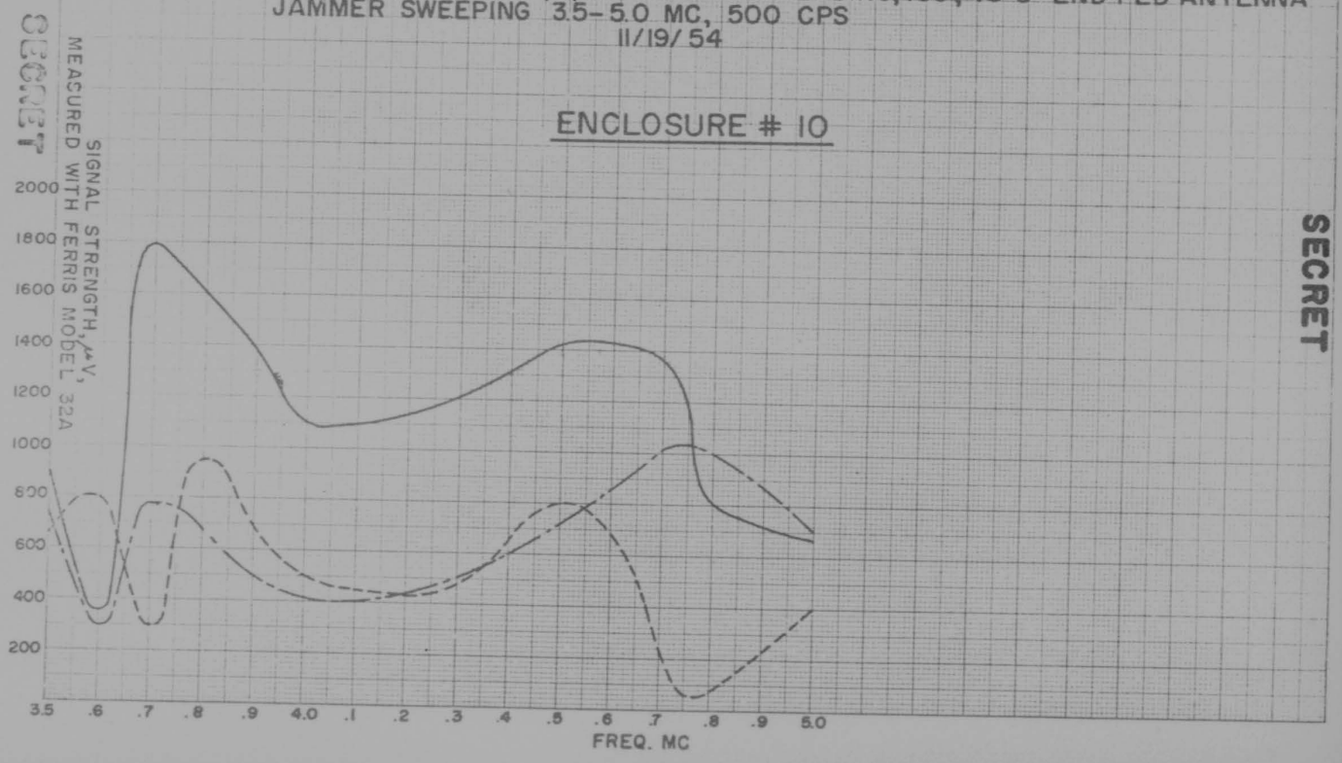
SIGNAL STRENGTH OF H.F. SWEEP JAMMER INTO 3 DIFFERENT ANTENNAS

ORC-3, PRESENT SYSTEM-A/C 414, 11/18/54 ——HEADING, 175° 70' 10" END FED ANTENNA
PROJ. #1-A/C 2300, 4/22/54 ----HEADING, 180° 60' SHUNT FED ANTENNA
PROJ. #1-A/C 2412, 4/22/54 —·—HEADING, 180° 46' 5" END FED ANTENNA
JAMMER SWEEPING 3.5-5.0 MC, 500 CPS
11/19/54

ENCLOSURE # 10



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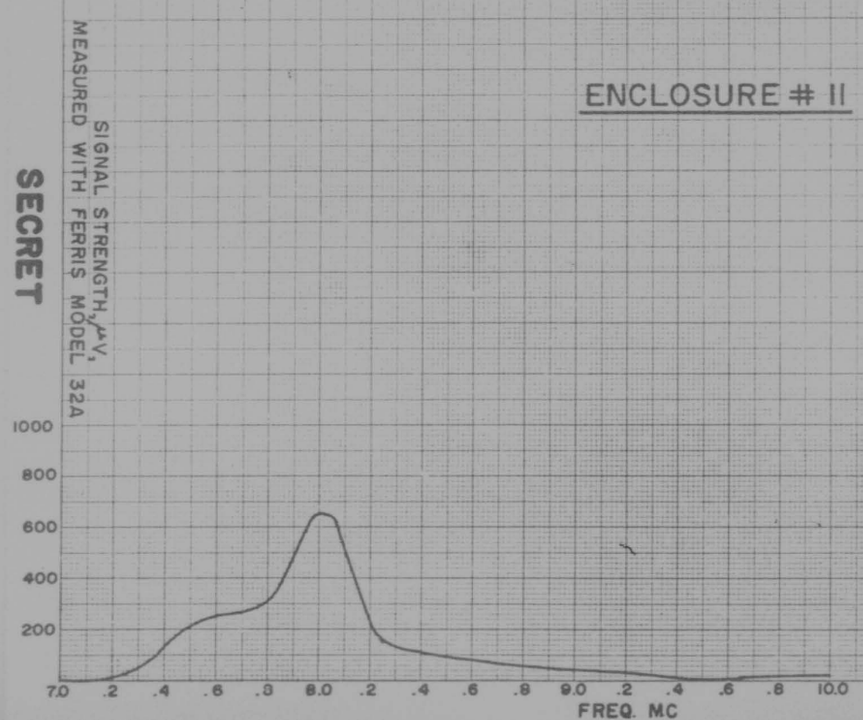
2ND HARMONIC SIGNAL STRENGTH, QRC-8, INTO 70' 10" ANTENNA

QRC-8 SWEEPING 3.5-5.0 MC, 500 CPS
BEARING 175°
F.S. METER 1/2 MILE FROM A/C 414
11/18/54

ENCLOSURE # 11



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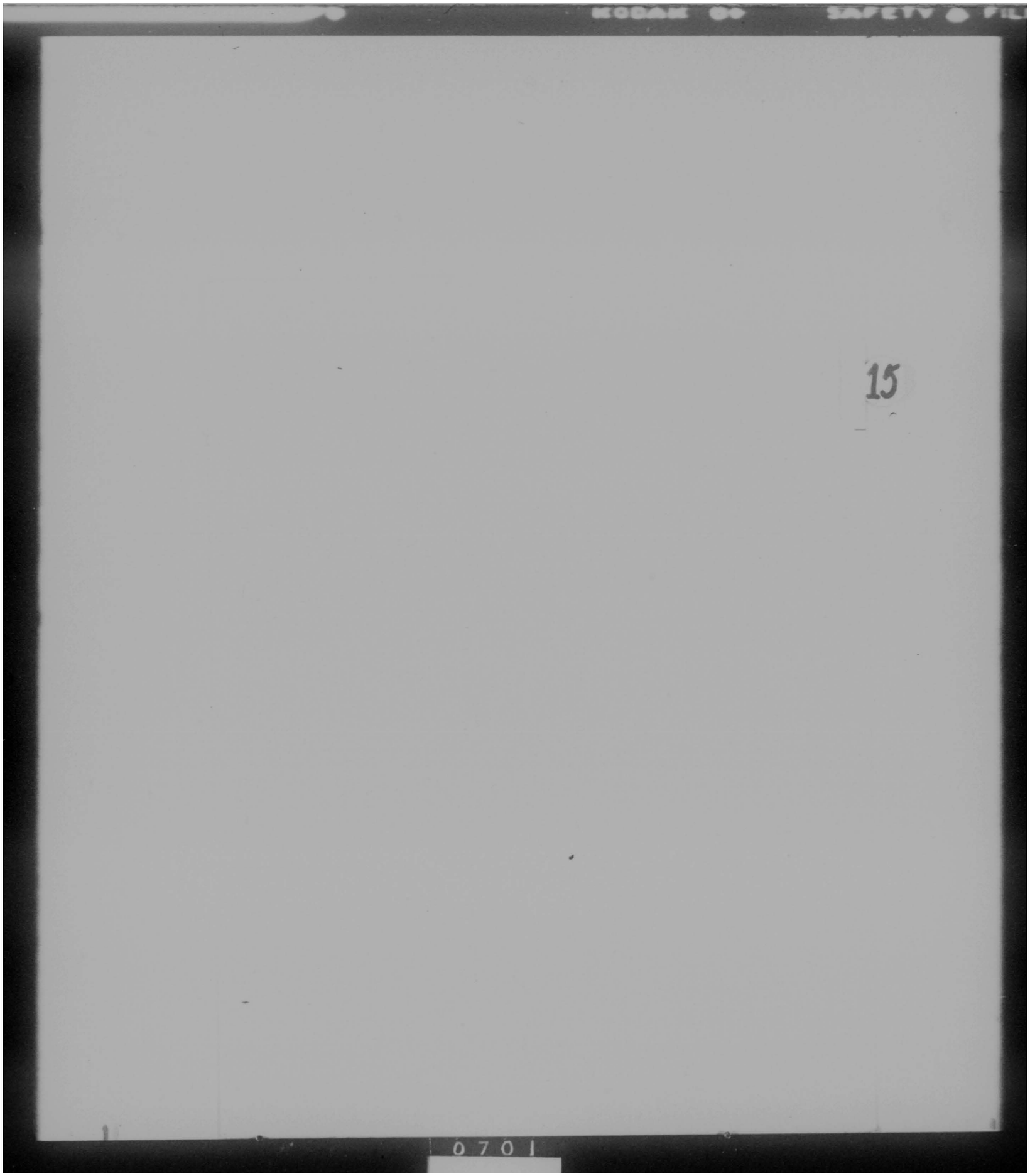

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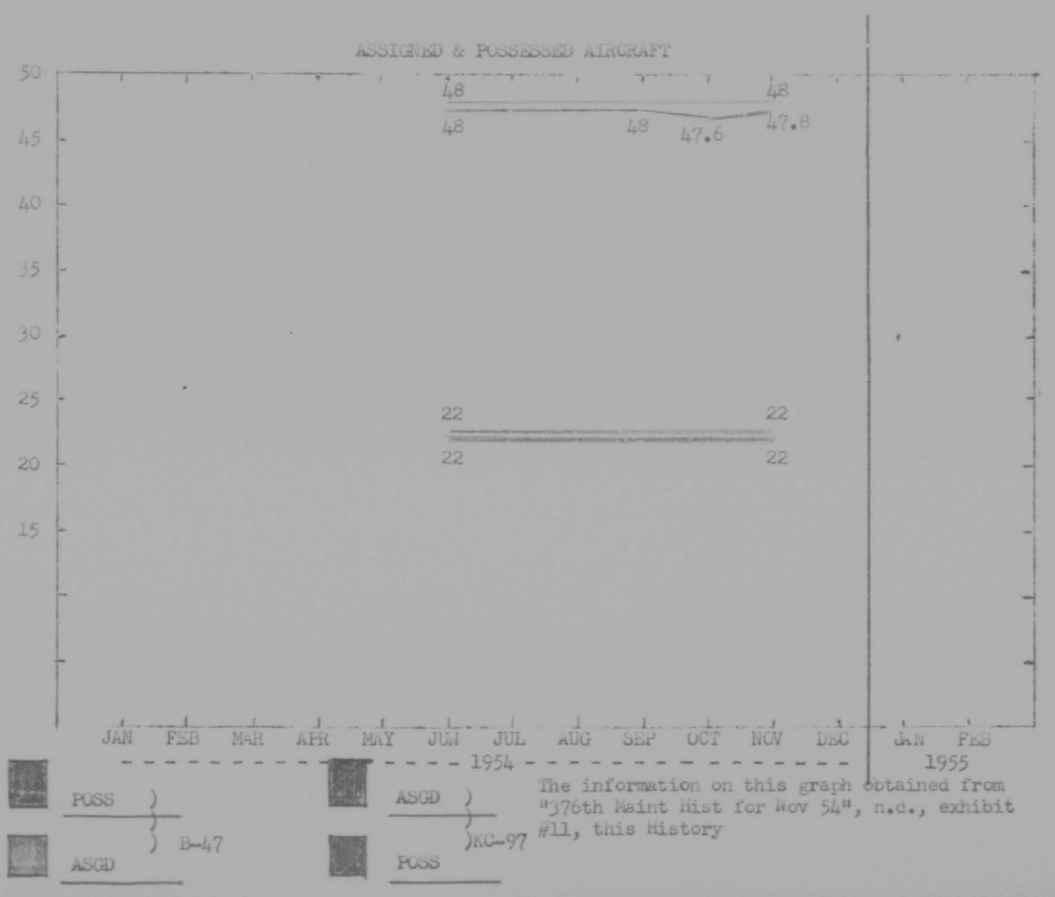

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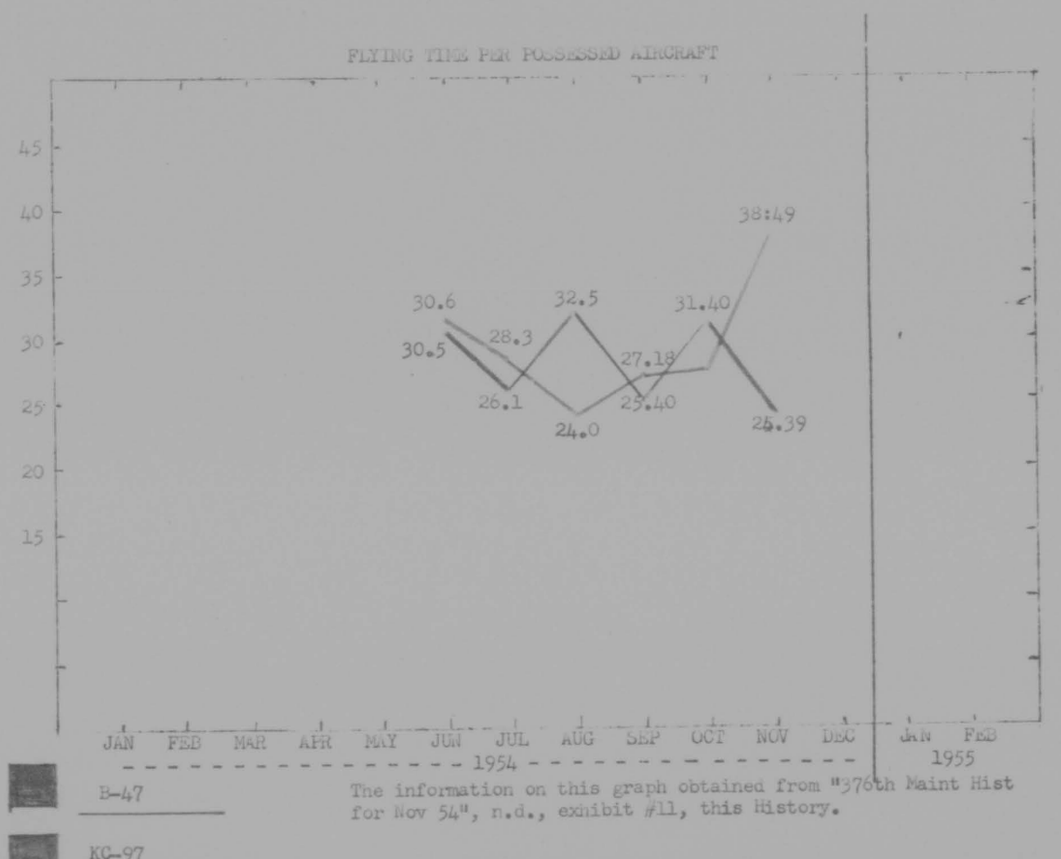

The information on this graph obtained from "376th Maint Hist for Nov 54", n.d., exhibit #11, this History.

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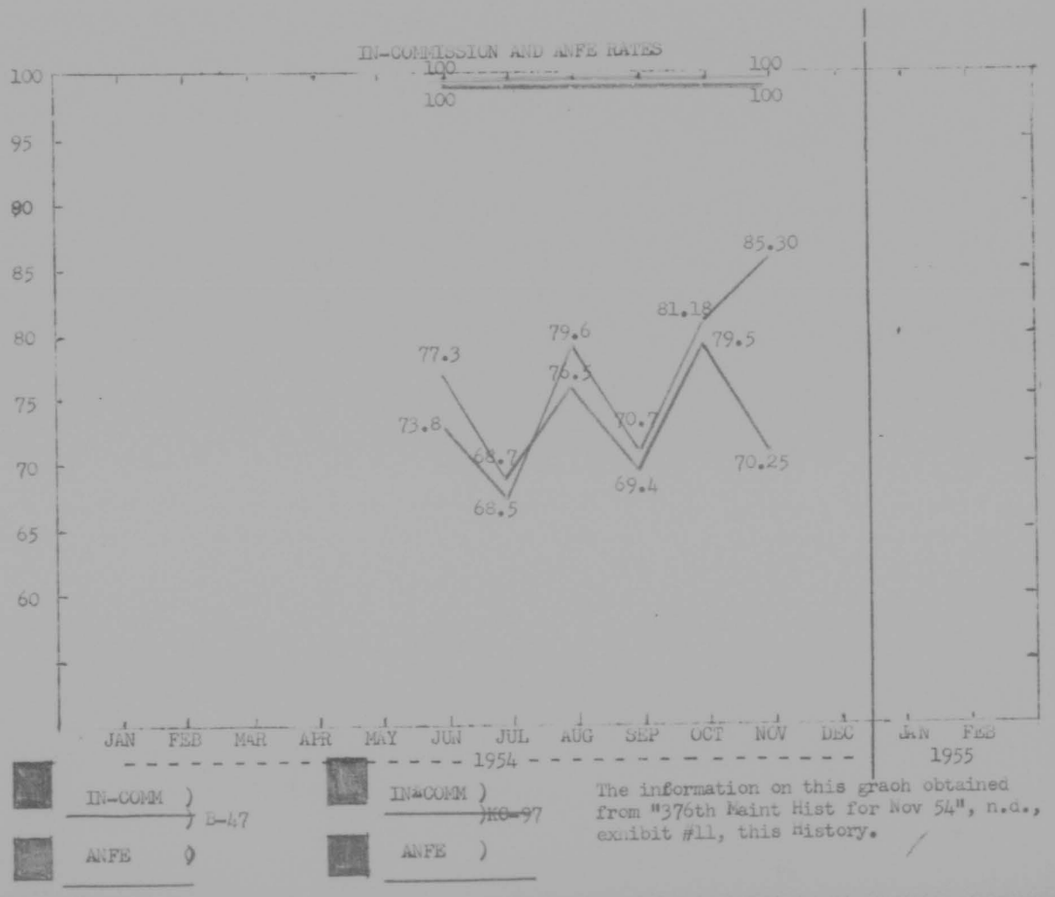

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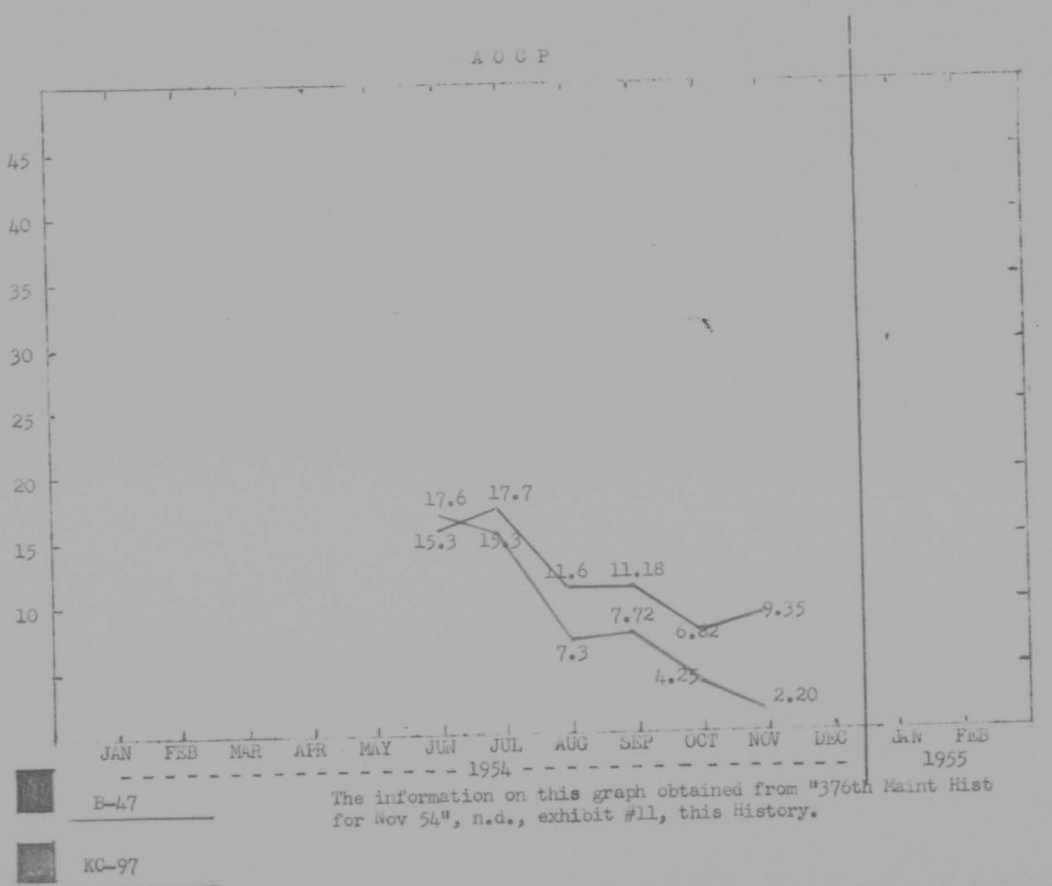

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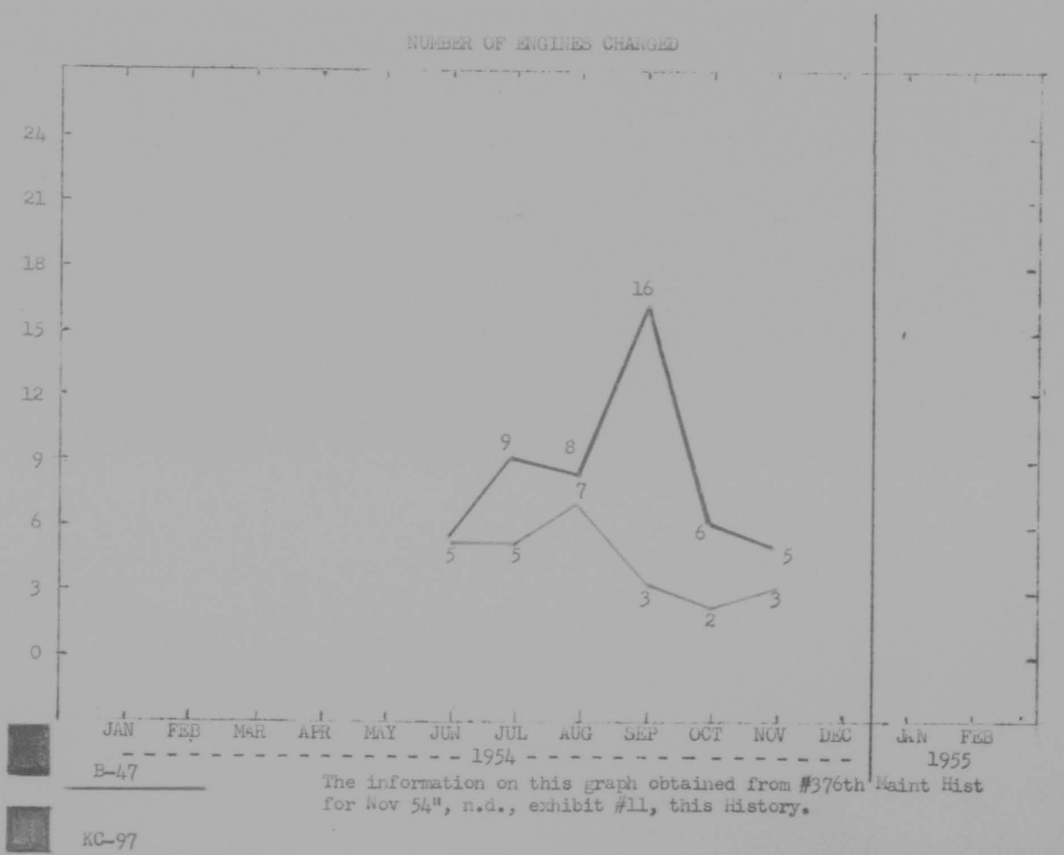

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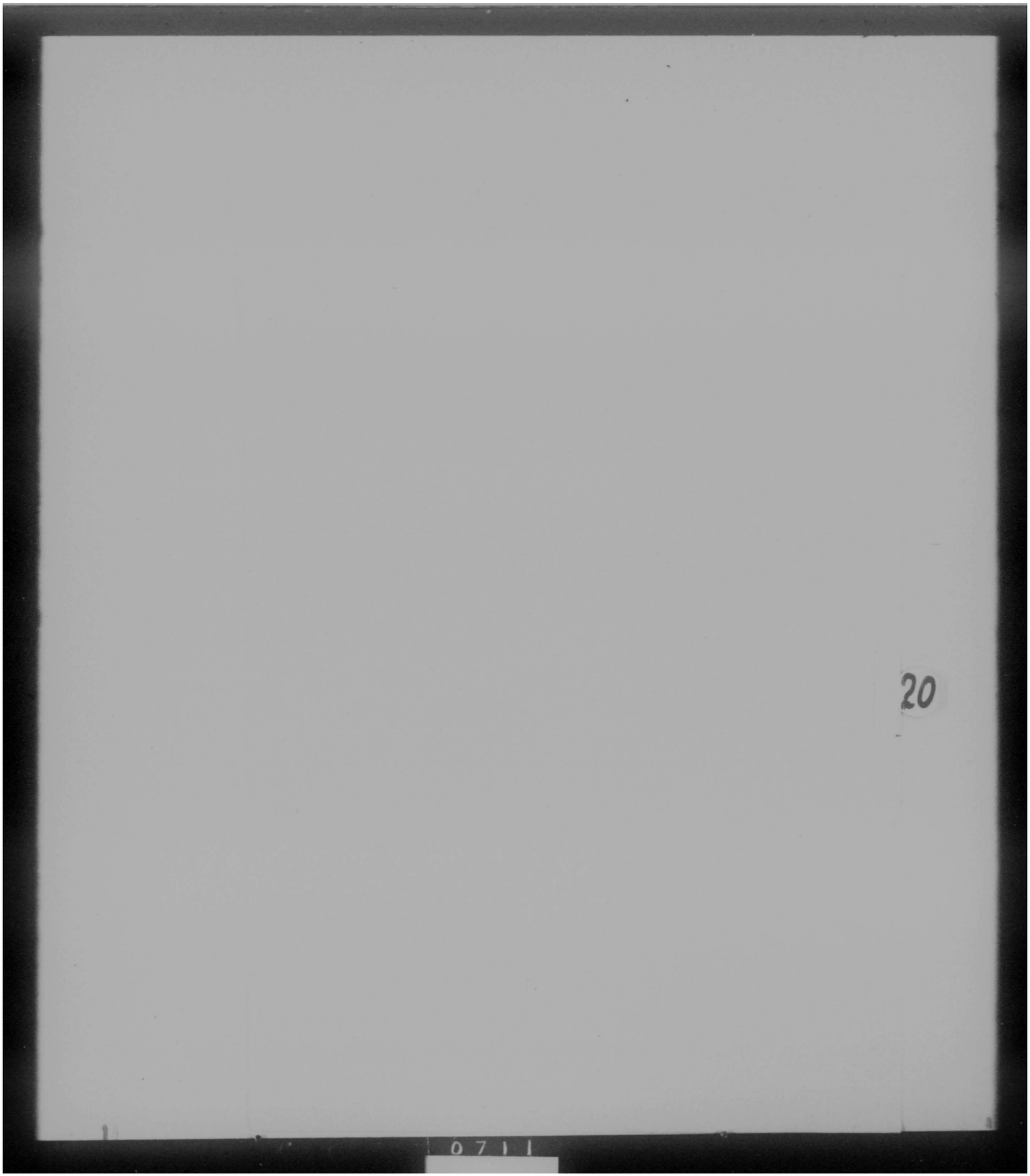

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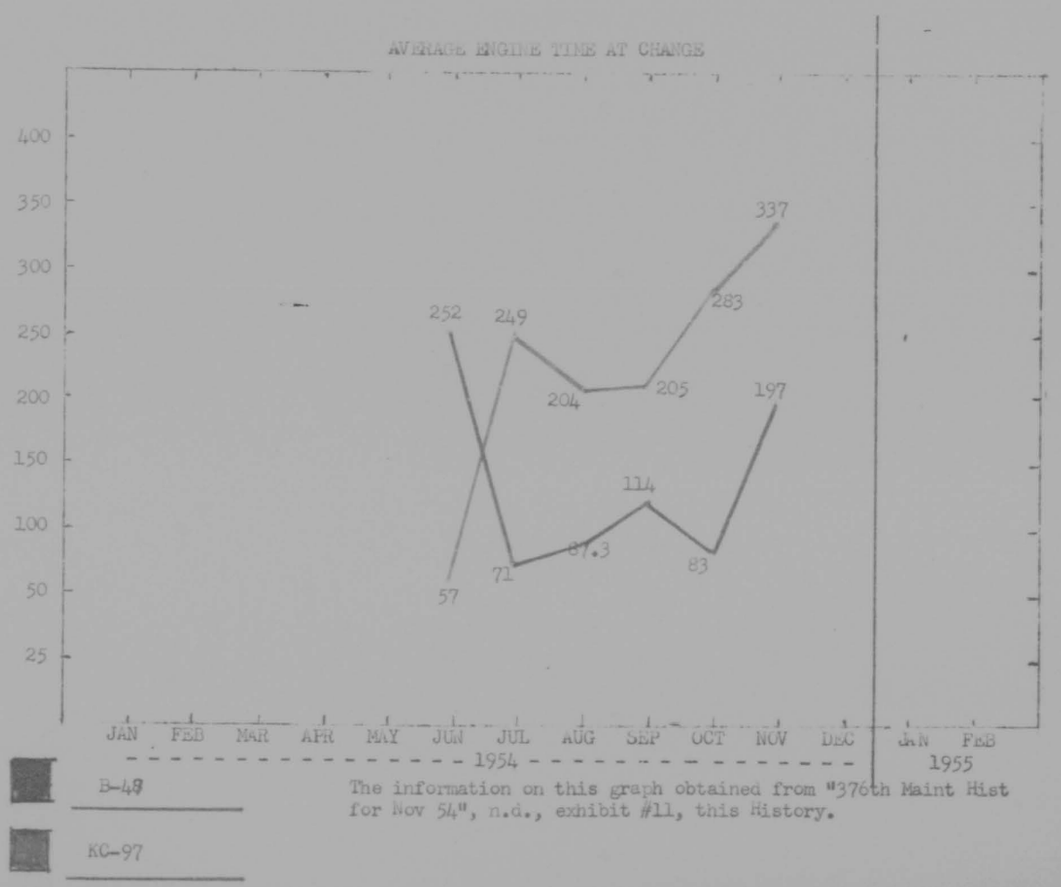

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 December 1954

Contractor: Dynamic Electronics Inc.
Forrest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: An/ALT-6, AN/ APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. A special short course on Blue Cradle and Phase III (B-47) installation was prepared. The purpose of this course is to provide training for all airmen of the ECM Section in a 20 hour period. This short course covers the operation of AN/ALT-6, AN/ALT-8, AN/ALT-7, and AN/ALE-1 equipment, complete circuitry of Blue Cradle and associated aircraft wiring, the Phase III installation and aircraft wiring and preflight procedures on all equipment. Two classes of thirty (30) airmen each have completed this course. Instructor time for each course was 16 hours, the remaining 4 hours being conducted by other field engineers. Detailed lesson plans for this course have also been prepared. Total instruction time: 32 hours. Preparation and other instructor time: 18 hours.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-019, for Month Ending 30 November 1954

2. OJT:

a. Performance check list for AN/ALT-7 equipment were prepared in conjunction with field maintenance personnel, 15 hours. Informal briefing given to one officer on new ECM equipment, 10 hours. Informal instruction was also given as follows:

Blue Cradle Test Equipment	8 airmen 5 hours
Blue Cradle Test Eqpt Construction	6 airmen 8 hours
Inverter Test Stand Construction	2 airmen 6 hours
Cradle Modification	2 airmen 10 hours
QRC-8 Instruction	2 airmen 10 hours

3. Available for instruction during November: 160 hours. Training Time: 114 hours. Percentage: 71%.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate that my services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Proper operation of AN/ALT-8 equipment on Blue Cradle is not possible with the existing power and control circuitry in the cradle junction box. With this circuitry the AN/ALT-8 starts its time-delay cycle, regardless of the remote control circuits, whenever the inverters are turned on.

2. To enable the AN/ALT-8 to be used on the cradle the replacement of the power control relay for each transmitter position was recommended. It was decided to modify four transmitter positions on each cradle; this involves the replacement of 180 relays and minor wiring changes, but requires considerable number of man-hours to accomplish. Eight cradles have already been modified. At the same time the cable, which connects the transmitter to the cradle positions, must be modified to actuate the relay.

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There are some objections to use of one cable for both AN/ALT-6 and AN/ALT-8 equipments; these objections are outlined in full in paragraph IX below. It is recommended that separate cables be fabricated for the AN/ALT-8. Since approximately 200 cables will be required by the 376th Bomb Wing and since these cables incorporate the cabling between the control units and power supplies it is recommended that these cables be fabricated by the depot supporting the wing.

3. Action taken, where possible, is outlined above.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PREFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Blue Cradle Test Equipment. Current status of the test equipment, which has been mentioned in previous reports, is as follows; Testers (2) for Phase III aircraft wiring are complete. Testers (2) for Blue Cradle aircraft wiring are complete except for necessary connectors. Cradle Testers (5) are about 98% complete, lacking are one connector, labelling of controls and incidental wiring, packing of spare components and operational check. Details of the testers for aircraft, the ATO Compartment Tester and Blue Cradle Aircraft Wiring Tester, are submitted as enclosures to this report and comprise schematics and complete operating instructions. Complete details on the Cradle Tester are still in preparation and will be submitted with a future report. The Field Maintenance (ECM) section has done excellent work in the construction of all these testers.

2. AN/ALT-8 Installation in B-47 ATO Compartments. AN/ALT-8 equipment has been installed in the ATO compartments of thirteen aircraft of the 376th Bomb Wing. Three aircraft have a dual installation and ten aircraft have a single installation. This equipment is operational and uses the cabling provided for the AN/ALT-6 installation. When the AN/ALT-8 is used with this cabling, the following conditions exist:

a. Relay AN3312-1 in the ECM Junction Box in the ATO Compartment is actuated when the remote transmitter control switch is placed in the "Stand-by" position.

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This relay connects the 115v AC regulated supply to the equipment and within the equipment a step down transformer and a rectifier circuit supply 28v DC for the control and tuning circuits of the equipment.

b. At the same time as this relay actuates, 28 volts DC from the aircrafts system is applied to the control unit, C-1508/ALT-8, through pin R of receptacle J301. This source of 28 volts operates the "power on" light and supplies 28 volts to the fast sweep solenoid, L1C2, and the servo-reversing relay, K301.

c. An anomalous condition is thus created with separate 28 volt sources controlling part of the same circuitry and with the "power on" light indicating regardless of operation of the equipment.

d. The 28 volt DC circuit from the aircraft system is routed from the circuit breaker on the pilot's DC panel to the ATO compartment. This is a minimum distance of 25 feet and the conductor size is #20. No data is available on the operating currents and voltages of L1C2 and K301, but erratic operation of both devices is possible when a voltage drop exists in this circuit. Circuit conditions, therefore, increase the probability of malfunction and erratic tuning of the magnetron, with the particular possibility of sweep tuning outside the preset sector limits. To increase the reliability of operation it is recommended that the aircraft cabling be modified and that the conditions, under which the equipment has been designed and tested, be restored. This modification entails the removal of the 28 volt DC lines to pin R of J301 and the insertion of a wire between pin R of J301 and pin R of J206. If such a modification is made, the cabling can no longer be used to operate the AN/ALT-6, and the installation will no longer be compatible for both sets. This recommendation is made on the basis of standard practice and not on the basis of any known malfunction.

X. GENERAL REMARKS: Negative.

Guy H. Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics Inc.

Incls:
1 Schematic ATO Compartment Tester
2 Instructions for operator of ATO Compartment
3 Schematic Blue Cradle Aircraft Wiring Tester
4 Instructions for operation of Blue Cradle Tester

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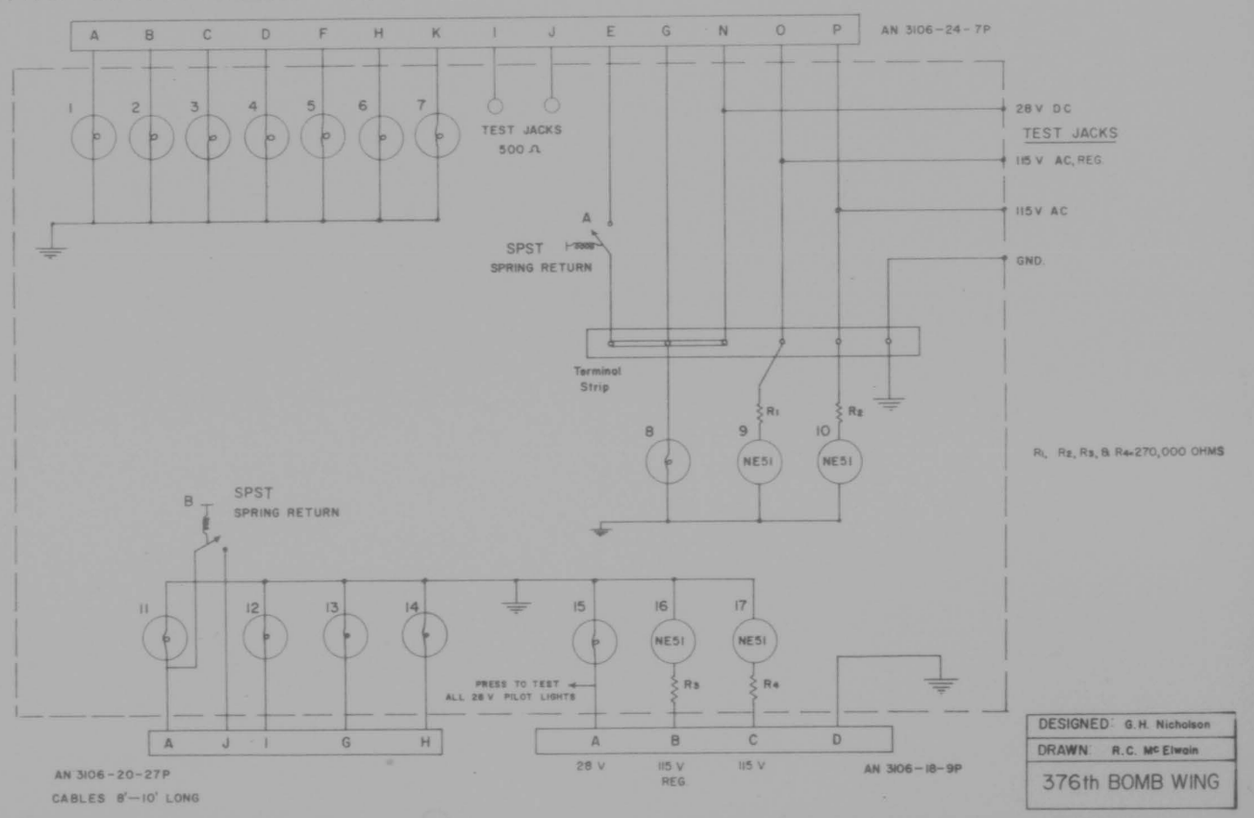
ATO COMPARTMENT ECM TESTER



DESIGNED:	G.H. Nicholson
DRAWN:	R.C. Mc Elwain
376th BOMB WING	

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B-47E Phase III ECM AIRCRAFT TESTER

1. PURPOSE:

The Phase III ECM B-47E Aircraft Tester is designed to test the aircraft wiring to all ECM equipment installed in aircraft ATO compartment. The tester is light and compact and will enable personnel to check the aircraft wiring in a matter of minutes. The tester can be used for periodic maintenance inspection and for fast determination of any malfunction in the aircraft wiring.

2. DESCRIPTION:

The tester is built into an aluminum case 8" x 7" x 4". It is provided with three cables 8-10 feet long; connectors on these cables are inserted into the following receptacles: -

Cable A (14 conductors): transmitter receptacle on ECM Junction Box.

Cable B (4 conductors): Test receptacle on ECM Junction Box.

Cable C (5 conductors): connector receptacle on the AN/ALE-1 chaff dispenser

A schematic diagram of the tester is submitted with these instructions. Circuits in operating condition are indicated by pitot lights when power is turned on and when controls are activated at the co-pilots station.

3. TEST PROCEDURE:

A. In ATO compartment to be tested tester cables are inserted into proper receptacles as detailed above. The chaff dispenser cable is inserted into the AN/ALE-1 dispenser if length and convenience permit; these circuits can be tested separately.

B. Activate D.C. Circuit Breaker "AN/APT-5A" on Navigators panel and A.C. Circuit Breaker "AN/APT-16" on Main A.C. Panel. Apply external AC and DC power to the aircraft, and turn on the secondary inverter and switch inverter output to the secondary bus. Power input pilot lights, #15, 16, 17, should then indicate on tester. This verifies power input to the ATO compartment.

C. At co-pilot's position, turn transmitter #1 (Left ATO) or #2 (Right ATO) to the "standby" position. Standby power lights #8, 9, 10, on the tester will then indicate together with lights #6, 7. Voltage and line frequency may be measured at the test jacks provided, using a suitable multimeter (AN/PSM-6).

D. At co-pilot's position turn the same transmitter control to the "transmit" position. Lights #1, 2 will then indicate.

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E. Operate toggle switch "A" to the on position and hold. The [illegible] "ON" light at the co-pilot's panel will then indicate.

F. At test jacks marked "500 ohms" measure resistance with a multimeter. Resistance can vary as much as plus or minus 20% of the 500 ohm value. This verifies the series dropping resistor to the co-pilots indicator light when AN/ALT-6 and AN/ALT-8 transmitters are used.

G. At co-pilot's position, turn the transmitter control to the "Reset" position. Lights #3,4,5 will then indicate. All other lights, already indicating, will remain on.

H. For fast check-out, turn transmitter switch at co-pilots position to "Reset" position. Pilot lights #1 through #10 and # 15, 16, 17 should then indicate.

I. AN/ALE-1 Chaff Dispenser Circuit Check with cable from tester connected to the cable to the chaff dispenser, then on the chaff dispenser (#1 for Left ATO, #2 for Right ATO) at co-pilots station. Set speed control at 2½ FPM, light #11 will indicate; operate toggle switch "B" to on position to signal operator at co-pilots position, indicator light on the control box will then blink off. Operator will then switch to 5 FPM and procedure is repeated through all speeds. The light indications are as follows: -

2½ FPM	Lights #11
5 FPM	#11, 13
10 FPM	#11, 14
20 FPM	#11, 12
40 FPM	#11, 12, 13
80 FPM	#11, 12, 13, 14

On the intervalometer positions A through F, the light indications are as follows: -

A	Lights #12, 13, 14 on, #11 blinks every 5 seconds
B	Lights #12, 13, 14 on, #11 blinks every 10 seconds
C	Lights #12, 13, 14 on, #11 blinks every 15 seconds
D	Lights #12, 13, 14 on, #11 blinks every 20 seconds
E	Lights #12, 13, 14 on, #11 blinks according to cam setting
F	Lights #12, 13, 14 on, #11 blinks according to cam setting

This completes the check of the aircraft wiring for the AN/ALE-1 chaff dispenser. To check the dispenser motor, re-connect cable to the dispenser and operate toggle switch on the dispenser. Dispenser speeds may be checked with a 20 foot test tape, which can be run through the dispenser and timed.

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics, Inc.

0720

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ATC TESTER PARTS LIST

1 ea Aluminum box size 8" X 7" X 4" with suitable carrying handle

17 pilot light sockets

13 WE 313 pilot lights

4 NE 51 leon lamps

4 270,000 ohm ½ watt resistors

2 SPST toggle switches, spring loaded

6 test jacks

2 terminal strips - 8 terminal

1 AN 3106-24-7P connector

1 AN 3106-18-9P connector

1 AN 3106-20-27P connector

#20 wire, sphaghetti, amp terminals.

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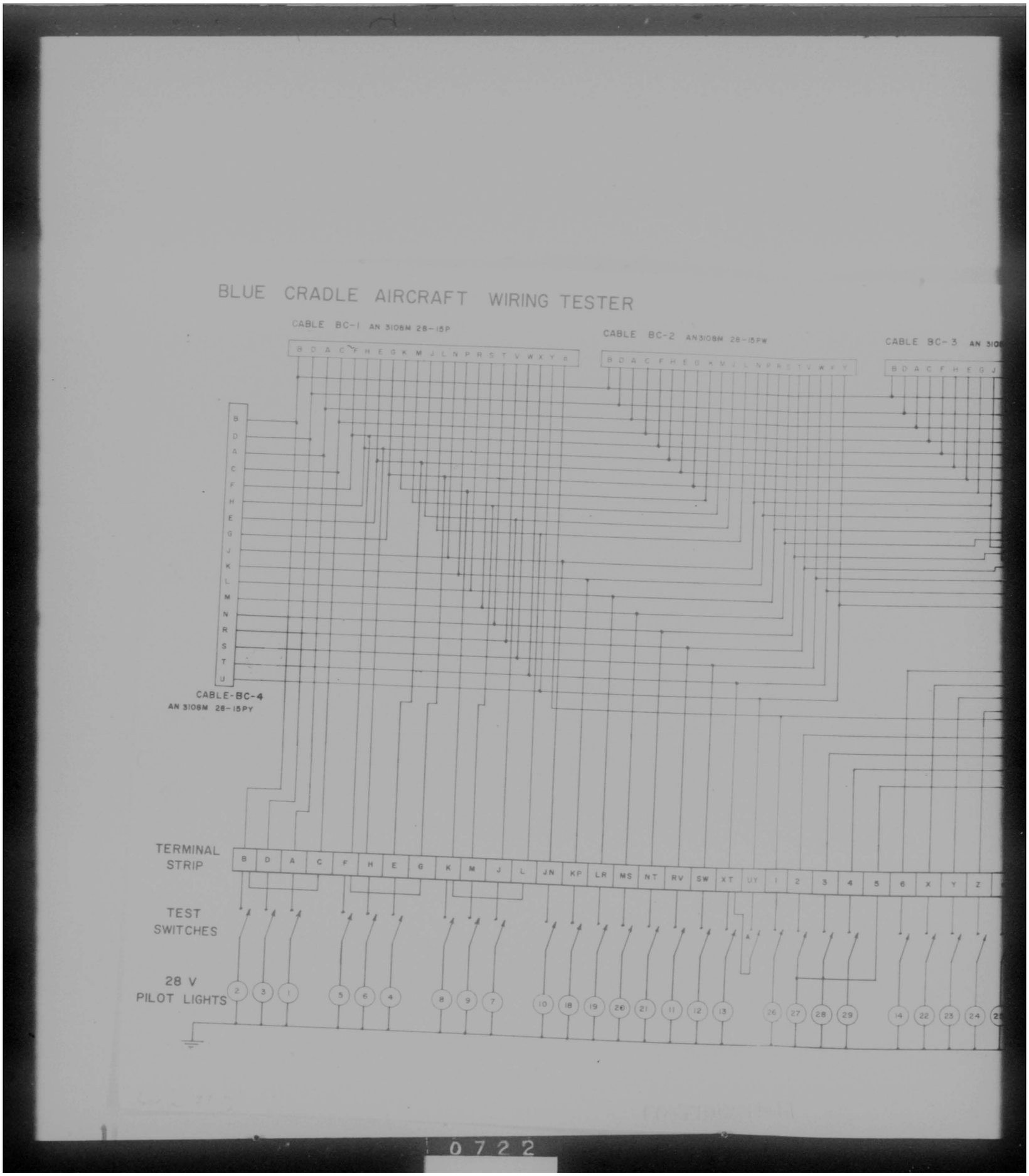

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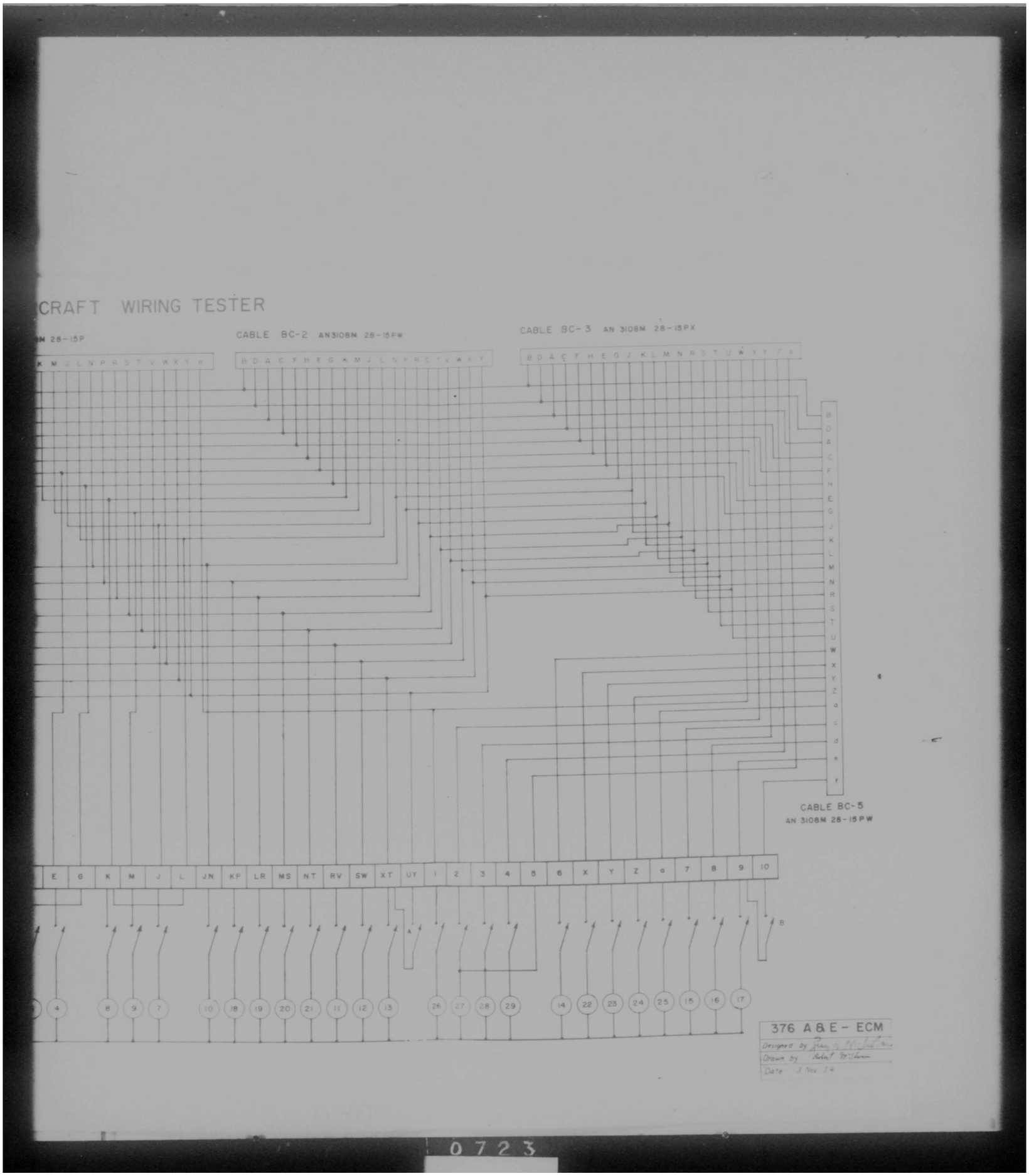

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BLUE CRADLE AIRCRAFT TESTER

1. PURPOSE:

The Blue Cradle Aircraft Wiring Tester is designed to test the wiring of all control circuits for ECM equipment in the aircraft of the 376th Bomb Wing M modified for Blue Cradle operation. This tester is specifically designed for periodic maintenance inspection of Blue Cradle circuits only. It can also be used for fast determination of any malfunction in these circuits.

2. DESCRIPTION:

The tester is built into an aluminum case 19"x12"X12". The fron panel is provided with twenty-nine (29) pilot lights and associated switches for continuity testing. The tester is connected to the ECM Junction Panel in the bomb-bay by means of five (5) cables, which are inserted in sequence. The ECM controls at the co-pilots position are then actuated and circuits proven by pilot light indications on the tester.

3. TEST PROCEDURE:

a. Two airmen are required to perform this test. One must be stationed at the co-pilots position and the other at the test position in the bomb-bay. Communication between the two operators by the aircraft interphone system is necessary.

b. D.C. Power must be applied to the aircraft. The Alternator Select Switch must be placed in the "Ext-Power -Blue Cradle" position.

c. The tester is placed on the bomb-bay walkway on the forward bulkhead. Operator identified Cable #1 and inserts this cable in #1 receptacle on the ECM Junction Panel.

IMPORTANT NOTE: CONNECT ONLY ONE CABLE.

The following chart shows the equipment controlled by circuits in each of the five cables.

(Reference Chart 1)

d. Operator at co-pilots position will actuate D.C. circuit breakers for transmitters #3 through #14, chaff dispensers #3 through #8 and inverter control circuits. All circuits breakers are on the co-pilots D.C. circuit breaker panel.

e. When the cable connection has been made in the bomb-bay, #3 transmitter switch is placed in the "stand-by" position. Indicator light for #3 transmitter should indicate immediately on the co-pilots panel. Tester operator actuates the switches

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0724

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on the tester as follows: - switches #1 through #13 nd #1⁹ through #21. Only pilot #2 should indicate. Transmitter switch is then placed in the "transmit" position and the same switches on the tester are actuated: Pilots #2 and #3 should indicacte. Transmitter switch (#3) is then placed in the reset position and the same tester switches are actuated, pilots #1, #2, #3 should indicate.

Note: When indicated pilots do not light, control circuit is open. When pilots, other than those indicated, light, a short wxists between control circuits.

This completes the test tor #3 transmitter.

f. Transmitters #4 and #5 are tested in the same manner. The following chart shows the pilots which will indicate for each transmitter.

(Reference Chart #2)

g. #3 Chaff Dispenser circuits are now checked.

1. Operator at the co-pilots position places the Speed Selector Switch for #3 dispenser in the "80 FPM" position and turns the dispenser control switch "on". Operator at the tester then actuates the same switches as for the transmitter test. Pilots #10, #11, #12, #13 should indicate. Switch "A" on the tester is now switched on and off several times, with each cycle the indicator light on the control box should blink "on" and the counter should indicate.

2. If desired, a complete check of the control circuits of the dispenser for all speed settings may be made. The following chart indicates the pilots which should light for each individual setting of the Speed Selector Switch.

(Reference Chart #3)

3. The chaff dispensers AN/ALE-1, now installed on the cradle, are not equipped with TD-93/ALE-1 intervalometers. Control circuits for the intervalometer provision have been included in the aircraft wiring. The circuits may be checked in a similar manner with the Speed Selector Switch placed in the intervalometer positions A through F. The following chart gives the pilot light indications for each setting of the intervalometer positions of the selector switch.

(Reference Chart #4)

h. Tester operator now actuates switch for Pilot #26. Pilot should indicate. Operator at the co-pilots position should

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turn the Alternator Select Switch to the other two cradle positions: (Cradle-Normal, R.H. Alt on L. H. Bus). Pilot #26 should indicate in these positions also. This completes the test for Cable #1.

i. Cable #2 is now inserted in the ECM Junction Panel (Cable #1 must be disconnected). Circuits for transmitters #6, #7, #8 and Chaff Dispenser #4 are tested in the same manner. Test of para 3h above is not applicable.

j. (1) Cable #2 is removed and Cable #3 is inserted. The test for transmitters #9, #10 and Chaff Dispenser #5 is conducted in the same manner. Since only two transmitters are controlled by this cable, there will be no indications on pilots #7, #8, #9.

(2) Operator at the co-pilots position will now turn on the Right and Left Inverters on the ECM Inverter Panel. Pilots #26 and #29 should indicate when the switches are actuated on the tester. The Left Inverter is now switched to "spare" position. Pilot #27 should indicate and "spare" light on the inverter panel should also indicate. The Left Inverter is switched off and the Right Inverter is switched to the "spare" position, pilot #28 should indicate along with the pilot on the inverter panel. This completes the test for Cable #3. Test of para 3h above is not applicable.

k. Cable #3 is removed and Cable #4 inserted. Tests for transmitters #11 and #12 and Chaff Dispenser #6 are made. This is the same test as for Cable #3, but test of para 3.j.(2) is not applicable.

l. Cable #4 is removed and cable #5 is inserted. Tests are conducted for transmitters #13, #14 and Chaff Dispenser #7 as before. Chaff Dispenser #8 is also controlled by this cable and additional pilots are provided. This pilots are #14 through #17 and #22 through #25. These switches should also be actuated during the transmitter tests to check for possible shorts. The pilot indications for #8 Chaff Dispenser are shown in the following chart. To operate counter actuate switch "B".

(Reference Chart #5)

m. No provisions are made for Cable #6. This is a spare cable and all circuits are unused at this time.

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Chart #1

EQUIPMENT	Cable #1	Cable #2	Cable #3	Cable #4	Cable #5	Cable #6
Transmitter #3	X					
Transmitter #4	X					
Transmitter #5	X					
Transmitter #6		X				
Transmitter #7		X				
Transmitter #8		X				
Transmitter #9			X			
Transmitter #10			X			
Transmitter #11				X		
Transmitter #12				X		
Transmitter #13					X	
Transmitter #14					X	
Inverters			X			
Chaff Dispenser #3	X					
Chaff Dispenser #4		X				
Chaff Dispenser #5			X			
Chaff Dispenser #6				X		
Chaff Dispenser #7					X	
Chaff Dispenser #8					X	
A. C. Control	X					

REVISION NO TEST CABLE SPARE

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Chart #F-

Transmitters #3, #6, #9, #10, #13	ON PILOTS
Standby	#2
Transmit	#2 #3
Reset	#1 #2 #3
Transmitters #4, #7, #10, #12, #14	
Standby	#5
Transmit	#6 #5
Reset	#4 #5 #6
Transmitters #5, #3	
Standby	#8
Transmit	#9 #8
Reset	#7 #8 #9

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0728

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Chart #3

SPEED SETTING -------)	2½	5	10	20	40	80
Pilot Light #10	on	on	on	on	on	on
Pilot Light #11		on			on	on
Pilot Light #12			on			on
Pilot Light #13				on	on	on

Chart #4

INTERVALOMETER	A	B	C	D	E	F
Pilot Light #18			on	on	on	
Pilot Light #19		on				on
Pilot Light #20	on				on	on
Pilot Light #21				on	on	on
Pilot #10, 11, 12, 13 on in all int. settings						

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Chart #5

CHAFF DISPENSER #8 (Cable #5)

Speed Setting	2½	5	10	20	40	80
Pilot Light #14	on	on	on	on	on	on
Pilot Light #15		on			on	on
Pilot Light #16			on			on
Pilot Light #17				on	on	on

Intervalometer	A	B	C	D	E	F
Pilot Light #22			on	on	on	
Pilot Light #23		on				on
Pilot Light #24	on				on	on
Pilot Light #25				on	on	on
Pilots #14, 15, 16, 17 on in all int settings						

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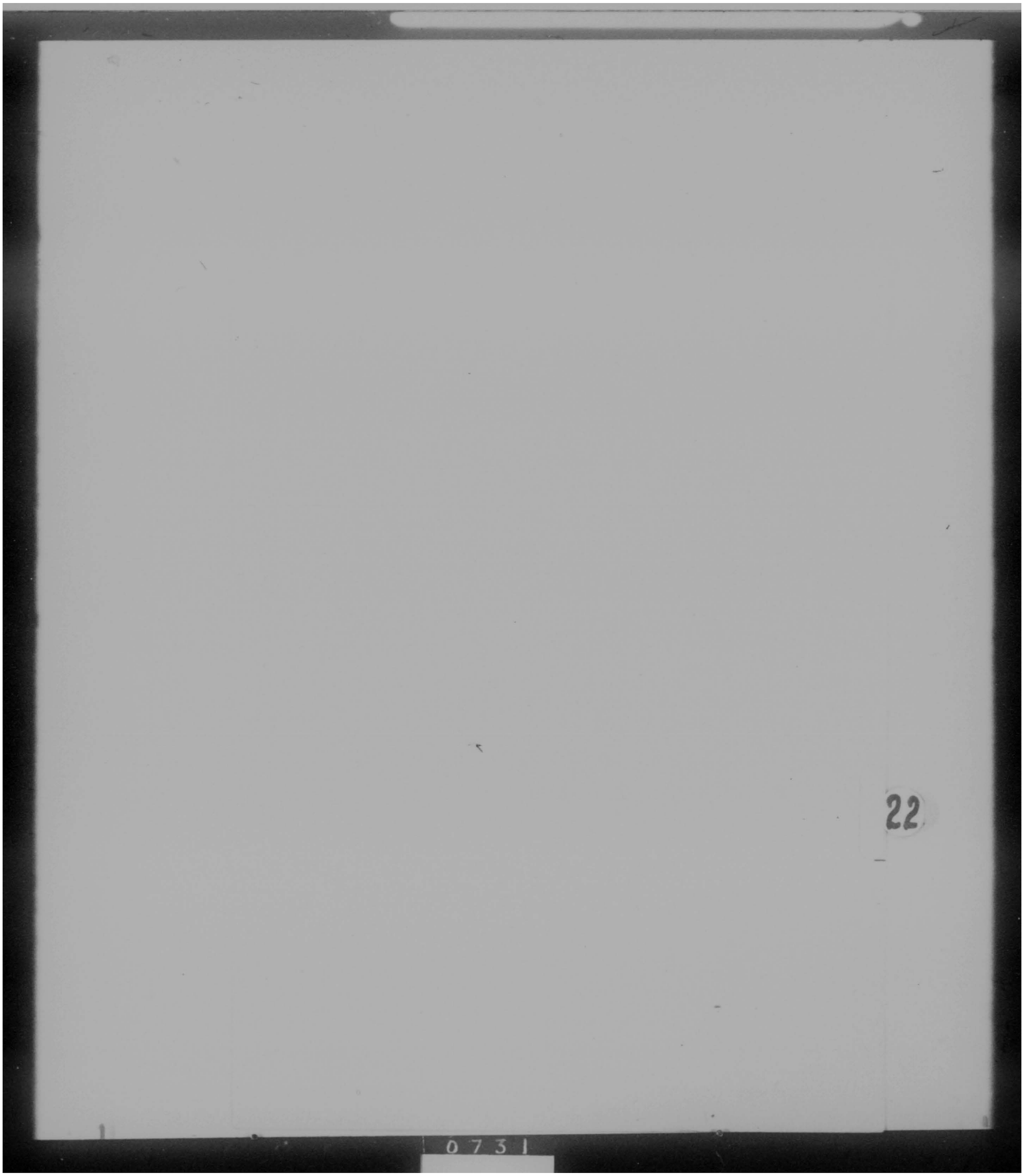

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 December 1954

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert J. Lenes, General Mills, Inc. (Departed 30 November 1954)
Mr. John Bolen, Western Electric Co. (Arrived 10 November 1954)
Mr. Allen R. Jones, Western Electric Co. (Departed 9 November 1954)
Mr. Michael Nowak, Western Electric Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigation System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Two (2) twenty hour courses and two (2) four hour courses were conducted during month of November. This includes courses on Optical Test Equipment, APS-23 Trouble Shooting, D-2 Navigational Unit and Forward Sighting.
b. The training mock-up is being utilized for one twenty hour mechanic malfunction trouble shooting

0732

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course and for operator course on in-flight maintenance and malfunction symptom reporting.

c. The symposium type class for operator training continued throughout November. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

d. The following is the status of classroom and mock-up training for the month of November 1954. All students had 32130E and 32150E AFSC's with the exception of the observers whose AFSC is 1544B.

SUBJECT	COURSE (hrs)	No. Instrd to date	No. Instrd in October	Inst. Man-hrs	Stu. Man-hrs
Optical Test Equipment	20	54	14	72	256
APS/23 Trouble Shooting	20	57	18	72	280
D-2 Navigational Unit	4	103	8	8	32
Forward Sighting	4	126	11	12	44
Mock-up (mechanic)	20	8	8	72	160
Mock-up (operator)	4	22	22	72	72
Symposium (operator)	3	-	57	78	171

Total Student man hours of training for November - 1015.

2. OJT:

a. OJT during the month of November included test equipment, alignment procedures, system analysis and trouble shooting. The planned OJT program utilized an aircraft which was scheduled for training daily.

PLANNED OJT

Subject	Instructor Hours	Student Hours	Students
Test Equipment and Alignment Procedures	146	417	11

0733

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INFORMAL OJT

Subject	Instructor Hours	Student Hours	Students
System Analysis	295	546	330
Trouble Shooting	129	185	60

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of November for a total of 1104 man-hours. Of this total, 95[illegible] man-hours were utilized for formal and OJT training. 87% of available time was devoted to training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in the operation and in-flight maintenance, techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System Field Engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS: Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Robert J. Lenes, General Mills, Inc. Field Engineer, is departing this station as planned on 30 November 1954. There will be no replacement for Mr. Lenes. If special Field Service assistance is required for the optical equipment, Second Air Force has a roving representative available.

0734

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2. Mr. Allen R. Jones, Western Electric Field Engineer, departed this station 9 November 1954 for reassignment at Carswell Air Force Base.

3. Mr. John Bolen, Western Electric Field Engineer, arrived this Wing 10 November 1954 as a replacement for Mr. Jones.

MICHAEL KOTULA	MICHAEL NOWAK	ROBERT J. LINES
Field Engineer Coordinator	Field Engineer	Field Engineer
Sperry Gyroscope Company	Western Electric Co.	General Mills, Inc.

4

0735

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 December 1954

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Roger G. Recher

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Five A-5 mechanics (AFSC 32330C) received 100 man-hours of instruction in Basic Radar Theory. This course was given to two (2) classes of twenty (20) hours each. Total instructor time 40 hours.

b. Thirteen A-5 mechanics were given 52 man-hours of instruction in Radio Frequency Head Theory and Tuning. This course was given to five (5) classes of four (4) hours each. Total instructor time 20 hours.

c. Three A-5 mechanics were given 6 man-hours of instruction in Synchronizer Testing. This two (2) hour course was given to two (2) classes. Total instructor time 4 hours.

0736

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2. OJT:

a. Twelve (12) hours were expended in aiding A-5 mechanics in working A-5 Field Changes. Total time 12 hours.

b. A-5 mechanics received instruction in trouble shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions. Eighty (80) hours was expended with Line Maintenance, twenty (20) hours in Periodic Inspection and thirty (30) hours in the Field Shop. Total instructor time 130 hours.

3. In addition to actual instruction thirty-six (36) hours were expended in preparing class outlines and in other administrative work relative to the actual teaching. Total time 36 hours.

4. Training Program:

a. Available time 320 hours.

b. Total Training Time 242 hours.

c. Percent Training Time 75.6%.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the A-5 fire control system and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

0737

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley

0738

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 December 1954

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom:

a. Six (6) four (4) hour courses on the A-12D Gyropilot Data Flow were scheduled during the month of November. The purpose of each A-12D component and how the component accomplishes its purpose was discussed thoroughly during the classes in order to give the airmen a complete picture of the operation of the A-12D. AFSC's of the men who attended the classes were (1) 43156, (3) 40433's, (5) 40453's, (2) 40471's and (1) 40470.

b. A training film on the in-flight operation of the A-12D Gyropilot was shown to the pilots of the 376th Bombardment Wing during the month of November. After the film was over Sperry Field Engineer answered the pilot's questions regarding the film or questions regarding A-12D operation which were not covered by the film.

*Reg. U.S. Pat. Off.

0739

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c. Below is a summary of the hours devoted to classroom training and preparation of instruction.

COURSE	Inst. Hrs.	No. Students	Student Hrs.
A-12D Gyropilot Data Flow	24	12	48
Air Crew Training	3	56	56
Preparation of Material	8		

2. Planned OJT:

a. Below is a summary of the Planned OJT given during the Month of November.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Test Procedures	12	8	14
A-12D Theory	16	12	16

3. Informal OJT:

a. The following is a summary of the Informal OJT which was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (1) 43156, (8) 40453's, (5) 40433's, (1) 40470 and (5) 40471's available for training.

	Instr. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	34	17	50
Trouble Shooting	12	6	24

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, the F-1 Bendix autopilot and the Kerfott N-1 compass was given.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
F-1 Autopilot	4	4	4
C-1 Amplifier	2	3	4
N-1 Compass	7	5	9

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c. Of 160 hours available instruction time 122 hours were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry Field Engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. The following equipment malfunctions occurred during the month of November.

a. Malfunction: Rudder engage switch will not remain in the engaged position

Cause of Malfunction: Rudder servo engage clutch solenoid open preventing the servo from engaging.

Corrective Action: Replaced rudder servo.

b. Malfunction: Aircraft looses excessive altitude in turns.

Cause of Malfunction: Altitude control static line connector had stripped threads and was leaking.

Corrective Action: Replaced six channel amplifier.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failures.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

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VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

Henry J. Kronlage

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

0742

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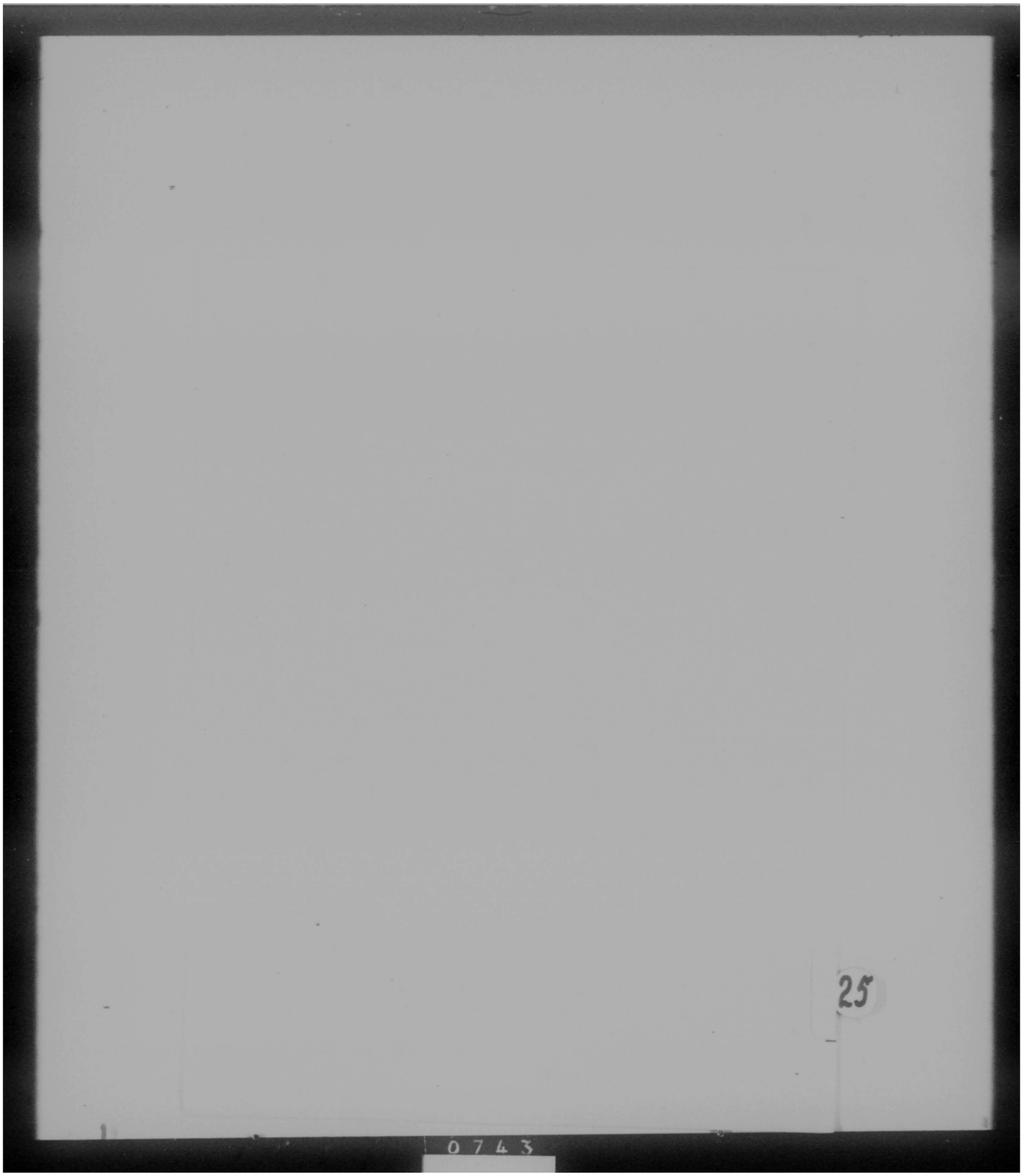

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 December 1954

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

Taught ALE-1 to 90 airmen (3 classes)	7 hours
Taught ALT-7 to 12 airmen	16 hours
Taught ALT-8 to 13 airmen	16 hours
Preparation for classes	12 hours
Writing class outline	6 hours
Total Classroom Time	57 hours

2. OJT:

OJT time for QRC-8	14 hours
OJT time for ALT-8	23 hours
OJT time for ALT-7	16 hours
OJT time for APS-54	10 hours
Total OJT time	63 hours

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0744

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required until April 1957.

V. EQUIPMENT MALFUNCTIONS: See Operational Difficulties Encountered.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. The equipment malfunctions which have occured during the month have been of minor nature. One of these is cited because it van be corrected and will be beneficial to other bases where ECM operators are employed.

a. Detail: The fast sweep indicator light on the ALT-8 control box was found to be lit while the fast sweep motor was inoperative. This false indication was caused by the fast sweep solenoid actuating the fast sweep light microswitch before actuating the other microswitch due to a slight difference in the actuator fingers.

b. Recommendations: It is recommended that the actuator mechanism be constructed stronger.

c. Action Taken to Correct: UR # 376BW-54-2609 has been submitted.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The APS-54 crystal protector, which has been mentioned in previous reports, has been installed on aircraft # 398 for a full two months. The aircraft has flown 26½ hours during this period.

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7AE, Subject: Monthly Technical Report, RCS: 3-AAC-U19, For Month Ending 30 November 1954

The crystal in both the nose and tail antennas are still in perfect condition.

An intermittent short circuit in the nose antenna cable caused the dry cell in the crystal protector to prematurely fail. The dry cell was replaced on November 15. Normal life of the dry cell is estimated to be between 6 months and a year.

Defective crystals in other APS-54 aircraft antennas were replaced at the time the crystal protector was installed. The present condition of the crystals in these other aircraft is not known, however one instance is known where 2 crystals in one antenna assembly failed in less than 36 hours after installation. A comparative study of the condition of the crystals in other aircraft that were changed two months ago is planned.

Although complete testing of the APS-54 crystal protector has not been finished, technical data on this device is included as a supplement to this report.

2. Lamp bulbs are being used as a dummy load for the QRC-8 transmitter and a photo electric type wattmeter will be built for this transmitter in the near future.

X. GENERAL REMARKS:

1. Considerable writing has been done during the month such as the crystal protector writeup, equipment check list, class outlines etc.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

Incls:
1 Crystal Protector APS-54
2 Schematic (Figure #1)
3 Schematic (Figure #2)

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CRYSTAL PROTECTOR APS-54

Robert G. Nevitt
Philco Corporation

Scope of Protection:

The APS-54 crystal protector is designed to protect the 1N23B antenna crystals from strong RF fields while the aircraft is on the ground and to protect these crystals from the aircraft's own radar during normal flight operation.

B-47 Aircraft Problem:

Due to the close proximity of the ARC-32 radar antenna and the tail APS-54 antenna, on the standard B-47 installation, the RF coupling is sufficient to cause burnout of the 1N23B crystals. These crystals have a nominal burnout pulse rating of only 0.3 erg. The APS-23 radar antenna and the nose APS-54 antenna are sufficient separated so that the nose APS-54 does not need to be protected from the aircraft's radar

Both nose and tail APS-54 antennas require protection from strong RF fields external to the aircraft which are encountered while the aircraft is parked on the ramp. The primary source of these strong RF fields is from adjacent aircraft radars that are being tested.

Other Type Aircraft:

For other type aircraft a problem similiar to that for the B-47 type aircraft exists. In some instances the problem may be more complex because of both antennas needing protection from the aircraft's radars. Some installations may require ground protection only.

The crystals protector is designed only for radars with positive polarity blanking pulses which may require slight radar modificationsin some cases.

Aircraft may have dual antennas for either nose, tail or both APS-54 channels. The crystal protector can be used for these installations also.

Physical Description of Protectors:

The crystal protector shown schematically in figure 1 was built in a box 3" x 5" x 5". The box consisted of two halves. One-half served as a mount and the second half contained the circuitry. The box was mounted by the APS-54. Antenna and blanking cables that normally would connect to the APS-54 were connected to the crystal protector and four short cables from the crystal protector were connected to the APS-54. In order to operate the crystal protector relay a wire was connected to the rear of the DC fuse, F302. This connection to the fuse holder eliminated modification of the APS-54 control box.

The crystal protector shown in figure 2 could be built in a smaller box especially if the protective bias source were made smaller. A large flashlight dry cell was used as the potential source in the experimental model.

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Types of Crystal Protectors:

Two versions of the crystal protector are included in this report. The first (figure 1) can be considered as a universal protector since it could be used for any of the problems cited in the previous paragraphs. The second (figure 2) is a simplified version designed for B-47 type installations. A third version could be built for protection from strong RF fields encountered on the ground only if desired.

Theory of Operation Ground Protection:

When the anode of the crystal detector is positive with respect to its cathode current will flow through the crystal. If the voltage polarity is reversed the crystal will exhibit a much larger resistance to the flow of current and essentially no current will flow. This the principal upon which the operation of the crystal protector is based, When the aircraft is on the ground, and the APS-54 is turned "off", a voltage is applied to the antenna crystals, having the proper polarity to bias the voltage across the antenna element larger in amplitude than the protective bias potential before the crystal could conduct in the forward direction. By limiting the magnitude of the crystal current in this manner, crystal burnout is prevented.

Theory of Operation Flight Protection:

When the APS-54 is turned "on", relays in the crystal protector are actuated which change the internal circuitry so that positive polarity blanking pulses from the aircraft's radar are applied to the antenna crystals. These blanking pulses are applied to the crystals, at the same instant that RF energy from the aircraft's radar arrives at the APS-54 antenna, thus biasing the crystals during the interval when the radar transmitter fires thereby preventing crystal burnout.

Protective Circuitry:

The circuit shown in figure 1 will be discussed in detail, however figure 2 will now be discussed since it is a simplified version of figure 1.

A partial diagram of an APS-54 antenna detector assembly is drawn on figure 1 for reference purposes. The complete antenna detector assembly consists of 4 parallel networks of the type shown.

Relays in the diagram are shown in the de-energized or ground protection position. In this position a positive polarity source of potential is applied to both APS-54 antenna crystals in the back or non conducting direction.

When the APS-54 is turned "on" the relays in the crystal protector and the circuitry is thus changed. The crystal protector does not effect the normal operation of the APS-54.

The video signal from the APS-54 antenna detector assembly has a positive voltage polarity. This signal is applied to the cathode of a germanium crystal diode, in the crystal protector therefore a high impedance path to ground exists.

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A negative bias voltage is applied to the APS-54 antenna during normal operation to increase the sensitivity of the detectors. Since the antenna crystals are biased in the conducting direction a current of approximately 160 micro amperes flows in the antenna circuit. In order that the crystal protector would not effect the normal bias current in the antenna circuit, a source of potential in the protector bucks the DC antenna current trying to flow to ground inside the protector and also biases the germanium crystals in the protector in such a way that a very high impedance exists to ground.

Since the germanium crystal diodes, in the protector, between the two antennas are back to back, a high impedance path exist between them and interaction is verly low.

Germanium crystal diodes are also wired between the blanking inputs to prevent interaction. Additional blanking inputs could be added to the protector and mixed in this manner if a condition were ever encountered where an APS-54 antenna had to be protected from several radars on the aircraft.

Positive polarity blanking pulses from the aircraft's radar are applied to two potentiometers in the crystal protector. The output of these potentiometers are isolated and combined by utilizing germanium crystal diodes. Positive blanking pulses are passed through these crystals, through the protective bias source and then through crystal diodes to the APS-54 nose and tail antennas. The path for the blanking pulses through the protector crystal diodes is such that the diodes offer very low impedance to the signal in the desired direction and a very high impedance in the undesired direction, or that direction which would cause interaction.

Blanking pulses are applied to both the nose and tail channels of the APS-54 amplifier during normal usage, therefore no undesirable effects are produced by blanking both antennas simultaneously.

Protective Bias Source:

A protective bias of 1.5 volts was used in the experimental crystal protector. While the aircraft is on the ground this source biases the APS-54 antenna crystals in the back direction. The back resistance of the APS-54 antenna, is high, being approximately 19,000 ohms to the 1.5 volt source. The back bias current is therefore relatively low (approximately 85 micor amperes per antenna). If the bias current for both antennas were 200 micro amperes it would take 208 days or over 1/2 half year before one ampere hour of battery capacity had been used. A small mercury cell (0.625" diameter x 0.560" high) has a 1 ampere hour capacity and larger cells having a 3.6 ampere hour capacity are easily obtainable.

Construction Precaution:

Two precautions are necessary during the construction of the crystal protector. 1. Care must be taken in soldering the germanium crystal diodes since heat can ruin them. 2. The shielded antenna cable which passes through the crystal protector must not have its outside shielding grounded in the protector unit. The outside shielding is soldered to the coaxial connector (which is mounted on plexiglass) so that continuity is maintained from the antenna.

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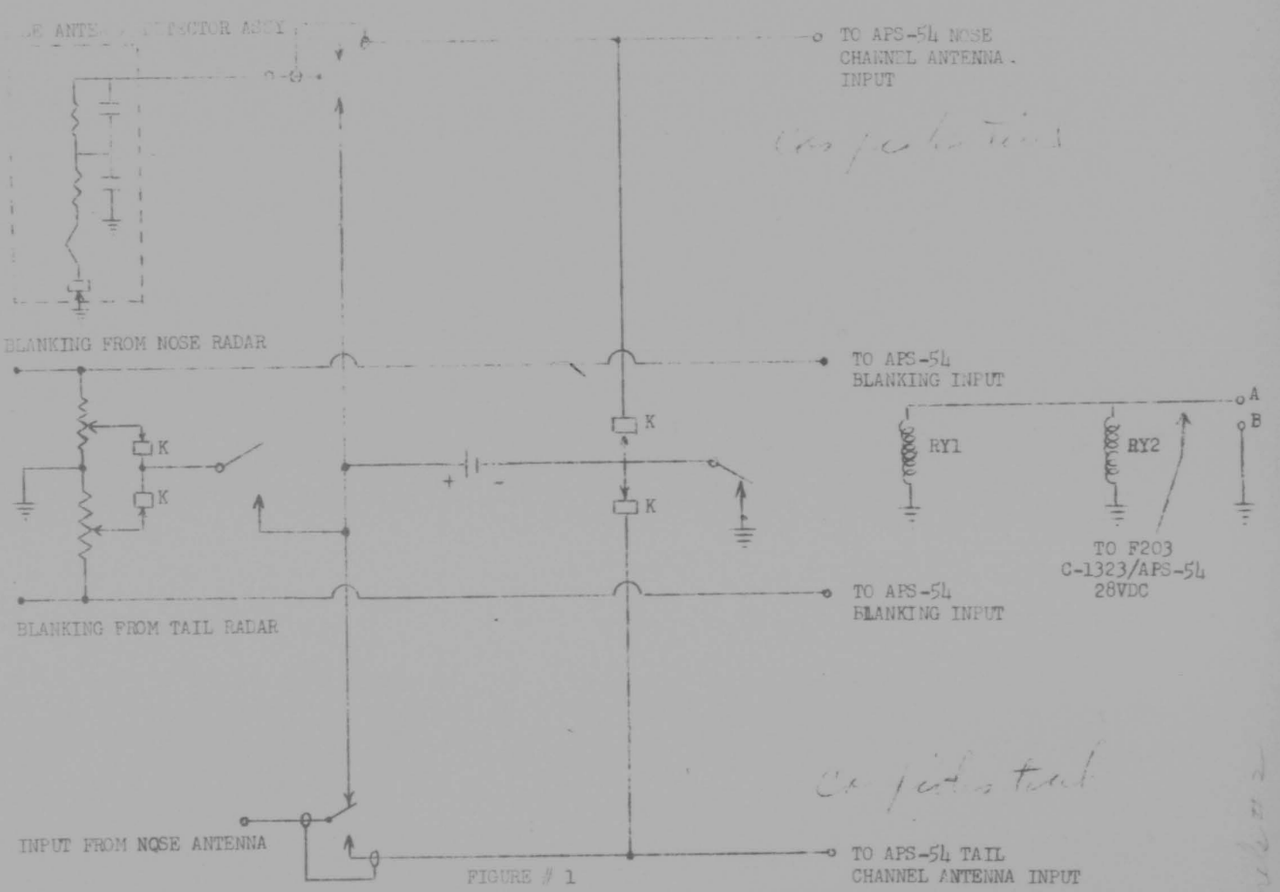

FIGURE # 1

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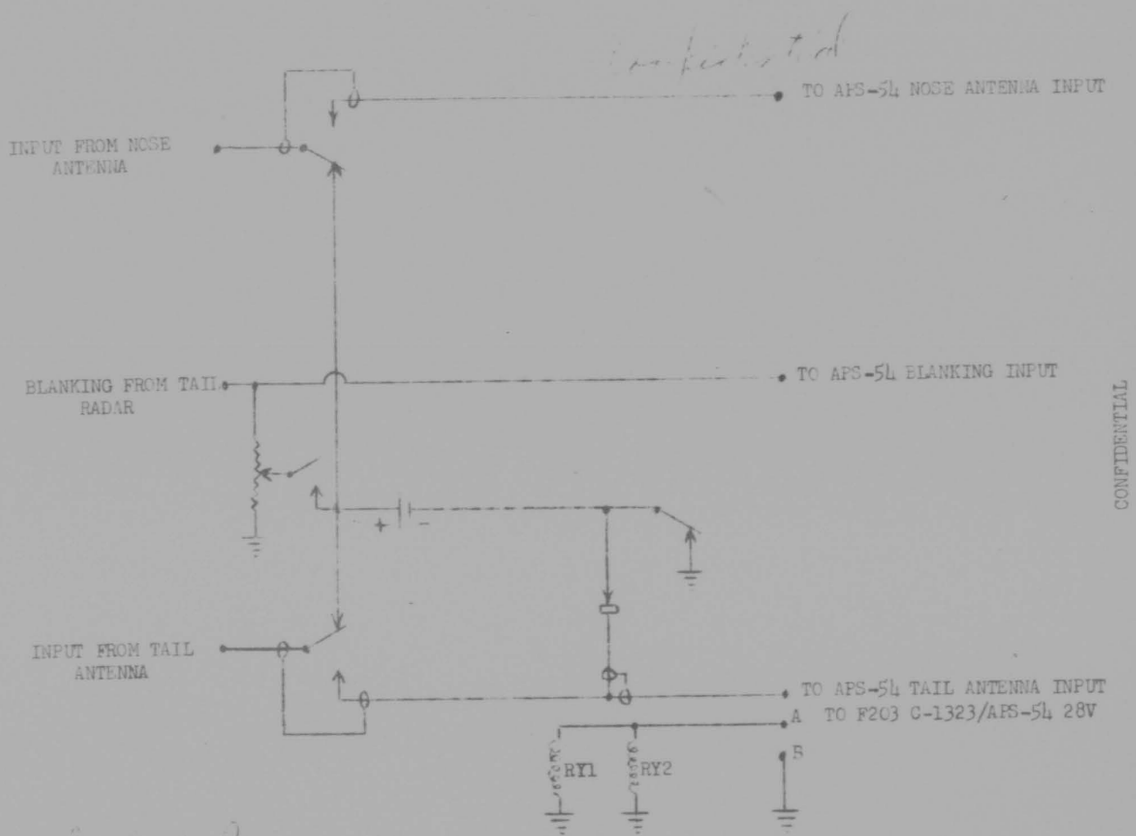

FIGURE # 2

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 December 1954

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 November 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 November 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John A. Lella
Mr. Joseph W. Steel
(arrived 1 November 1954)

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Operation and installation of system on cradle and on aircraft. Pre-flight and post-flight checks.

No. of Men 48
Classroom hours (2 classes) 6

2. OJT:

a. System bench checking and trouble shooting techniques. Also supervised retrofiting.

No. of Men 8
OJT hours 111

3. Availability:

a. Time available for training: 160 hours
b. Total time devoted to training: 117 hours or 73% of available time.

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IV. UTILIZATION:

1. The primary purpose of this assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performances and maintenance problems.

2. It is estimated that the services of General Electric Technical Representatives is indefinite.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. An E.C.P. (engineering change proposal) to be followed by and Air Force T.O.C. (technical order compliance) has been received for changing the wiring of K209 to facilitate automatic recycling of the AN/ALT-6 system.

2. Under a complaint analysis report, the representatives at this base are monitoring the installation of a clamp assembly on the high voltage plugs of power supply PP-933 to prevent these plugs from turning and subsequently leaking when the high voltage cable is connected.

3. Bad front castings were received from the vendor on PP-933. Leaky castings are being replaced on a complaint basis by General Electric representatives.

4. The cable guards of PP-933 and T-402 had holes of insufficient diameter on the initial system. Those are being replaced on a complaint basis. UR # 376BW-54-1910 has been submitted.

5. UG-1106 and UG-1105 transitions (Telerad) had incorrect thread pitch. These are being replaced on a complaint basis. UR # 376BW-54-1911 has been submitted.

VIII. SUPPLY PROBLEMS PRECULDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. General Electrie is sending their AN/ALT-6 antenna system engineer to Barksdale Air Force Base to work with the Air Force in trying to overcome antenna system losses.

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X. GENERAL REMARKS: Negative.

Joseph W. Steel

JOSEPH W. STEEL
Field Engineer
General Electric Co.

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HISTORY
1-31 DEC 1954
376TH Bombardment Wing (M)

BARKSDALE AIR FORCE BASE
LOUISIANA

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Classification: SECRET
Authority: CO 376th Bomb Wing (M)
Initials: Murphy
Date: 10 Feb 55

H I S T O R Y O F

376TH BOMBARDMENT WING MEDIUM
1 DECEMBER - 31 DECEMBER 1954

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron, Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics
Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

for JOHN P. PROCTOR Col, USAF
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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CONTENTS

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	1, 2
Personnel Problems	2, 3
Crew Status	3, 4
Reenlistment-AWOL Rate	4
SAC Management Control System	4, 5
Changes in Key Personnel	5, 6
Roster of Key Personnel	7
CHAPTER II . . . Operations and Training	8
Flying Time	9, 10
Operation "Bowie Knife"	10, 11
Operation "Green Apple"	11-13
Status of Test Projects	13-20
CHAPTER III . . . Maintenance and Supply	21
Special Weapons Loading Swivel	22, 23
Foreign Object Catcher	23, 24
Blue Cradle Portable Hoisting Stand and Dolly	24, 25
Aircraft Status	25, 28
Training Activities	28-31
Equipment Malfunctions	31
Maintenance Engineering Difficulties	31
Operational Difficulties	32
Special Developments	32, 33

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PERSONNEL

The total number of officers assigned at the end of December 1954 was 402[1] which was 12 more than the figure for November,[2] but was 72 less than authorized strength.[3] A total of 370 officers were effectively assigned,[4] four more than in November,[5] or 78.4 percent of authorized strength.[6] The figures and percentage for manning in required specialties in December were the same as for effectively assigned during the month.[7] There were six officers discharged or transferred during December,[8] which was four less than in November,[9] or 1.3 percent of authorized strength,[10] and 18 officers assigned,[11] or 3.8 percent of authorized strength.[12]

The total number of airmen assigned at the end of December 1954 was 1987,[13] which was 14 more than in November,[14] and was 144 more

1. Report, "Monthly Analysis (December 1954)", n.d., hereafter cited as "376th Pers Anal for Dec 54", n.d., exhibit #1, and chart, exhibit #2, this History.
2. History 376th Bomb Wing for Nov 54, page 1, and chart, exhibit #2, this History.
3. "376th Pers Anal for Dec 54", n.d., exhibit #1, and chart, exhibit #2, this History.
4. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
5. History 376th Bomb Wing for Nov 54, page 1.
6. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
7. Ibid.
8. Ibid, by career fields: Pilot APB's-2, and 1 each - Aircraft Maintenance officer, Pilot, Radar Operator and Navigator-Bombardier - for a total of six.
9. History 376th Bomb Wing for Nov 54, page 1.
10. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
11. Ibid, by AFSC: Pilots-6, Navigators-4, Navi-Bombardiers-4, Comm officers-2, and 1 each Air Operations officer, and Supply officer, for a total of 18.
12. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
13. Ibid, and chart, exhibit #3, this History.
14. History 376th Bomb Wing for Nov 54, page 2.

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than authorized strength.[15] There were 1532 effectively assigned airmen,[16] 52 more than in November,[17] or 82.8 percent of authorized strength.[18] The manning in required specialties for airmen in December was 1412,[19] which was 111 above the November figure.[20] There were 88 airmen discharged or transferred during December,[21] or 4.8 percent of authorized strength,[22] and 101 airmen assigned,[23] or 5.5 percent of authorized strength.[24]

PERSONNEL PROBLEMS

The officer effective manning for the Wing increased slightly during December as compared to November. The increase was attributed to the gain of 17 officers in authorized AFSC's against the loss of six officers. Officer manning remained critically short in AFSC's

15. "376th Pers Anal for Dec 54", n.d., exhibit #1, and chart, exhibit #3, this History.
16. Ibid.
17. History 376th Bomb Wing for Nov 54, page 2.
18. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
19. Ibid.
20. History 376th Bomb Wing for Nov 54, page 2.
21. "376th Pers Anal for Dec 54", n.d., exhibit #1, by career fields: Intel-2, Photo Mapping-2, Comm Ops-1, Radio & Radar-1, Armt Sys-4, Intri Equip-3, Acft Acc Maint-5, Airplane & Eng Maint-46, Mun & Wpns Maint-1, Vehicle Maint-2, Metal Work-5, Trans-1, Food Service-2, Supply-5, Admin-5, Pers-1, Medical-1, & aircrew Protection-2, for a total of 88.
22. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
23. Ibid, by career fields: Comm Ops-3, Radio & Radar-12, Armt Sys-8, Acft Acc-5, Airplane & Eng-13, Mun & Wpns-1, Metal Work-3, Const-1, Fabric leather & rubber-1, Trans-2, Food Sv-4, Supply-3, Admin-5, Pers-1, Med-15, also 24 airmen whose records were not received and their AFSC's are not known, for a total of 101.
24. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.

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1435, 3054, 4334, 4355, 6424, and 7324. Manning in the aircraft maintenance field has changed slightly during the month. Manning in AFSC's 43230/50 was at 17 percent by primary and 154 percent by duty with 28 percent of the authorization being cadre personnel. The AFSC's 43151E/51B/43251 were 77 percent manned by primary and 125 percent by duty. Twenty-one 43151E's were cadre personnel. At the supervisory level, AFSC's 43270/71/43171E, manning was 73 percent by primary, 93 percent by duty and 13 percent of the authorization was cadre personnel. In the armament systems career field, AFSC's 32170E and 32370C, manning was at 20 percent by primary and 46 percent by duty. Effective manning in the K-series system field, AFSC's 32130E/50E, was at 191 percent. Effective manning in AFSC's 32150B, 32150C and 32150D was zero percent. Effective manning in the supervisory level AFSC 32170E was at 43 percent and manning in required specialty was eight percent.[25]

CREW STATUS

Prior to this writing the crew status information was obtained from Air Training Report as of the last day of the reporting month. From this month on the information will be obtained from the Monthly Combat Crew Roster - as of the fifth day following the end of the month being reported on.

25. Report, "Air Training Report for the Month of December 1954, (RCS: 6-SAC-T12), Part V", 6 Jan 55, hereafter cited as 376th T-12 for Dec 54, Part V", 6 Jan 55, exhibit #4, this History.

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The combat crew roster for B-47 crews showed a total of 37 crews ready and 13 non-ready, giving a total of 50 B-47 combat crews assigned as of 5 January 1955.[26]

There was a total of 21 ready KC-97 crews and six non-ready KC-97 crews assigned as of 5 January 1955.[27]

REENLISTMENT-AWOL RATES

During the month of December 1954, there were 71 normal discharges with eight reenlistments, giving the Wing a reenlistment rate of 11.3 percent,[28] which was a drop of 6.3 percent from the November figure.[29]

There were four airmen AWOL during December, giving the Wing an AWOL rate of 1.68 percent,[30] which was an increase of .62 percent over the November figure.[31]

SAC MANAGEMENT CONTROL SYSTEM

For the month of December, 1954 the Wing received 30 percent of

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26. Report, "Monthly Combat Crew Roster, 512th, 513th and 514th Bomb Squadrons, (RCS: 2AF-P2), as of 5 January 1955, attached, exhibit #5, and chart, exhibit #6, this History.
27. Report, "Monthly Combat Crew Roster, 376th Air Refueling Squadron, (RCS: 2AF-P2), as of 5 January 1955, attached, exhibit #7, and chart, exhibit #6, this History.
28. "376th Pers Anal for Dec 54", n.d., exhibit #1, this History.
29. History 376th Bomb Wing for Nov 54, page 5.
30. "376th Pers Anal for Dec 54", n.d., exhibit #1, and chart, exhibit #8, this History.
31. History 376th Bomb Wing for Nov 54, page 5.

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maximum score for officers and 40 percent for airmen (direct support) and 50 percent for airmen (indirect support) under manning in required specialties. Under AWOL rate the Wing received 100 percent of maximum score. Under reenlistment rate the Wing only received 10 percent of maximum score. The ground safety index was 8.33, the accident cost index was .47, giving the Wing 60 percent of maximum score for ground safety. Officers manning in required specialties dropped due to loss of qualified personnel. Airmen manning in required specialties was increasing as personnel completed on the job training. The reenlistment rate decreased due to large number of airmen being released early for the Christmas holidays. Ground safety decreased due to three military injuries and one government vehicle accident.[32]

CHANGES IN KEY PERSONNEL

Two changes in key personnel took place during December. Major Seaborn M. Hunt, USAF, Commander of 376th Periodic Maintenance Squadron was transferred to 376th Field Maintenance Squadron effective 5 January 1955.[33] He was replaced by Major Chester R. Lamb, USAF, who assumed command of the squadron on 13 January 1955.[34]

Lieutenant Colonel Clarence L. Lollar, USAF, Commander of the

32. D/F, to 376th Comdr fr 376th D/P, "SAC Management Control "System", 10 Jan 55, attached, exhibit #9, this History.
33. SO 225, Hq 376th Bomb Wing, 27 Dec 54, par 2.
34. SO 1, 376 Pd Maint Sqdn, 5 Jan 55.

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512th Bomb Squadron was reassigned to Wing Headquarters effective 13 December 1954[35] and was replaced by Major John Luts, who assumed command on the same date,[36] while Colonel Lollar became Deputy Director of Operations.

35. SO 216, Hq 376th Bomb Wing, 13 Dec 54, par 3.
36. SO 84, 512th Bomb Squadron, 13 Dec 54, files, 376th Bomb Wing.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	CDOM, ARCHIBALD D.	Lt Col
Director of Personnel	FLEMING, EDMUND T.	Captain
Director of Special Tests and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	MILNER, ROBERT S.	Lt Col
Chief of Intelligence	KOLPIN, SHIRLEY A.	Lt Col
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron, M	LUTS, JOHN	Major
513th Bomb Squadron, M	ABRAMS, JAMES S.	Lt Col
514th Bomb Squadron, M	WEDDLE, OWEN A.	Lt Col
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Col
376th Field Maint Sq	FUNK, CARL F.	Major
376th Periodic Maint Sq	HUNT, SEABORN M.	Major
376th A & E Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Missions Ordered by Higher Headquarters:

Ferrying aircraft consumed nine hours and 30 minutes, ECM testing expended 47 hours and five minutes, and Second Air Force Operations Order 149-54 required 334 hours and 55 minutes, for a total of 391 hours and 30 minutes flown on missions ordered by higher headquarters during the month of December 1954.[37]

KC-97 Missions Ordered by Higher Headquarters:

Ferrying aircraft consumed seven hours and 55 minutes and Test and Tactics expended 24 hours and 55 minutes, showing a total of 32 hours and 50 minutes as being expended on missions ordered by higher headquarters for the month of December 1954.[38]

Total Flying Time:

B-47 aircraft of the Wing flew a total of 898 operational hours during the month,[39] while the total flying time as shown on the form 110A was 938 hours and 15 minutes,[40] 38 hours and 15 minutes of which was used for test hops. An average of 20 hours and eight minutes was flown per assigned B-47 combat crew.[41]

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37. "376th T-12 for Dec 54, Part V, " 6 Jan 55, exhibit #4, this History.
38. Report, "Air Training Report for the month of December 1954, (RCS: 4-SAC-T12), Part IV", 6 Jan 55, hereafter cited as "376th T-12 for Dec 55, Part IV", 6 Jan 55, exhibit #10, this History.
39. "376th T-12 for Dec 54, Part V", 6 Jan 55, exhibit #4, this History.
40. Ibid, and chart, exhibit #11, this History.
41. "376th T-12 for Dec 54, Part V," 6 Jan 55, exhibit #4, and chart, exhibit #12, this History.

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The KC-97 aircraft of the Wing flew 425 operational hours in December 1954, while the total flying time as shown on the form 110A was 442 hours and 40 minutes,[41] 13 hours and five minutes of which was used for test hops and an additional four hours and 35 minutes which were added on the supplement.[42] The KC-97 ready crews flew an average of 19 hours and eight minutes per assigned crew while an average of 23 hours was flown per assigned non-ready combat crew.[43]

OPERATION "BOWIE KNIFE"

The 376th Bombardment Wing conducted radar bombing evaluation missions against target B at San Antonio, Texas, on 7, 8, 9 and 10 December 1954, as directed by Second Air Force Operations Order 149-54. Practice RBS runs at Little Rock, Arkansas were made to check radar equipment prior to the evaluated run on San Antonio. Polar grid legs were flown to complete the evaluation phase.

The concept of the mission was to determine the current radar bombing capability of the Wing, to compare the radar bombing accuracy of B-47 crews at various levels of experience and training, to determine the effects of different altitudes and air speeds on B-47 bombing accuracy, and to determine the grid navigation capability of the Wing.

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41. "376th T-12 for Dec 55, Part IV", 6 Jan 55, exhibit #10, and chart, exhibit #11, this History.
42. "376th T-12 for Dec 55, Part IV", 6 Jan 55, exhibit #10, this History.
43. Ibid, and chart, exhibit #12, this History.

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The overall results of mission "Bowie Knife" were considered excellent. Forty crews were briefed to fly the mission but due to equipment malfunctions only 36 crews were scored by the bomb plot. Twenty nine crews accomplished the grid navigation with only 24 being photoscored. Navigation on the mission was considered good. There were nine post-target aborts experienced. Bombardment: the radar bombing was considered excellent. Of the 40 crews briefed to fly the mission, 36 were scored by the RBS evaluation site. Fifty three aircraft were airborne during the entire exercise with 13 pre-target aborts. The overall performance results were excellent. Actual fuel-time progress curves closely paralleled the predicted ones.

Average air miles flown versus planned..103 percent. Average fuel used versus planned..102.2 percent. Average time flown versus planned..103 percent. The 13 pre-target aborts were: 11 for inoperative radar equipment, one for loss of cabin pressurization, one for communications failure. The nine post-target aborts were: Communications difficulties were mainly HF with only six aircraft failing to forward strike reports.[44]

OPERATION "GREEN APPLE"

This operation was flown 10 November 1954 by two crews from the 376th Bombardment Wing. Three B-47 aircraft were scheduled to

44. Report, "Report on Operation BOWIE KNIFE, 22 Dec 1954, files, Plans Section, 376th D/O.

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participate in the mission, one from each squadron, but due to a ground abort, only two completed the mission. The basic concept of the mission was to determine performance data on B-47 aircraft while flying at maximum altitudes, to determine if the current 376th Bombardment Wing Emergency War Plan was adequate and what could be done to improve it. CONCLUSIONS: General - the results of "Green Apple" were considered very successful. Due to the ground abort, the mission took off two hours late but experienced no difficulty on take-off with a maximum internal fuel load. The runway temperature was 55 degrees and the take-off roll was 8500 feet. The routes and altitudes were flown as briefed with minor deviations which were attributed to weather. The peel-off in the target area was accomplished with no difficulty and no buffeting was experienced. It was done at about 40,000 feet and a 30 degree bank. The aircraft returned to Barksdale Air Force Base with an adequate fuel reserve over the field. Navigation on the mission was considered good. Some deviations from planned tracks were encountered over water, mostly due to weather although the lead navigator should have obtained a fix from the Mississippi Delta. PERFORMANCE: The overall results were excellent. Actual fuel-time progress curves closely paralleled that predicted. Additional fuel was used because aircraft leveled off at 10,000 feet to assemble whereas it was planned to climb and assemble on course. Also, the flight descended to optimum altitude at the end of the escape corridor over Tampa and immediately climbed 1,000 feet because

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of weather. This resulted in the progress curves departing from the predicted as portrayed on the chart. No new communications difficulties were encountered although UHF contact with GCA and the Wingman was lost for approximately two hours due to chaff on the UHF antenna.

RECOMMENDATIONS: That the UHF antenna be repositioned to preclude chaff from grounding out voice transmissions, that assembly be made at altitude wherever possible to save fuel in mission of this type.[45]

STATUS OF TEST PROJECTS

Project 1A remained at the same stage of completion as in November 1954, with an additional two hours and 20 minutes being flown. The flight was to substantiate the field strength readings of the GCI station for the final report, which was to be completed in January 1955.[46]

Project 1X increased one percent to 39 percent of completion. The receiver portion of the jammer was modified by replacing the open type control relays with shielded, hermetically sealed relays. This was done to reduce receiver interference from relay contact arcing. A satisfactory reduction of the tracking error has not been accomplished. A conference with WAC Engineering Company, Dayton,

45. Report, "Report on Operation "Green Apple", files, 376th B/O.
46. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)", 1 Jan 55, hereafter cited as "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.

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Ohio, was requested for early January to see what can be done about the tracking error.[47]

Project 27 increased five percent to 70 percent of completion with no extra hours flown. Prior test runs at 10,000, 20,000 and 30,000 feet at an indicated airspeed of 250 knots were flown. As the altitude was increased the speed increased to Mach .67; it was evident that the persistence of the chaff echo decreased to 15 minutes or less. It was also evident that when the chaff was dispensed at higher altitudes and higher Mach numbers it was less effective. A joint chaff corridor mission with the Eighth Air Force, Eglin Air Force Base and Tyndall Air Force Base, Florida, was planned for 25 January 1955[48] and will be covered in the January history.

Project 29 increased two percent to 52 percent of completion with no additional hours having been flown. The Wing was still waiting for the prototype Polaroid Camera and periscope attachment from the Wright Air Development Center, Dayton, Ohio. It was mounted on the AN/APS-23 indicator in the B-47E aircraft, permitting pictures to be taken of the indicator with either the O-15 camera or the Polaroid camera. The entire format of the standard Polaroid film will be utilized including the display of a clock, counter, and data tab. This camera should provide suitable pictures and data to enable the observer of the B-47 aircraft to navigate without continuous radar

47. "376th U-30 foe Dec 54", 1 Jan 55, exhibit #13, this History.
48. Ibid.

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mapping. Attempts are being made to find a faster lens than the f 3.5, 105mm which was the only one available.[49]

Project 30 increased three percent to 40 percent of completion with no additional hours flown. Preliminary ground tests at Rochester, New York (Eastman Kodak Company) indicated the possibility of detecting a 500 watt Infrared source at a range of ten miles. The modified Dove infrared seeker head and associated test equipment was to be loaned to the 376th Bombardment Wing by Eastman Kodak Company and the Naval Bureau of Ordnance for flight testing in January 1955.[50]

Project 31, "Operational Test of the QRC-4 VHF Communications Jammer", was initiated 26 November 1954 and at the end of December was zero percent complete. The QRC-4 equipment for the test was expected to be received on 1 February 1955, design problems prevent delivery sooner.[51]

Auxiliary Project 5 increased five percent to 45 percent of completion with an additional two hours and 23 minutes flown. Results of a test with the IFF transponder, installed in a KC-97 aircraft, were being evaluated as a basis for future flight tests.[52]

Auxiliary Project 6 increased five percent in completion to 55 percent of completion with an additional one and one half hours

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49. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.
50. Ibid.
51. Ibid.
52. Ibid.

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being flown. Flight testing conducted on 17 December against the modified SCR-270 and the AN/MLQ-3 at Eglin Air Force Base, Florida, using only eight units of the 12 unit barrage jammer, proved very effective. No malfunctions were experienced during the test. The jamming transmitter output was 24.5 watts forward power and 3.5 watts back power during the test.[53]

Auxiliary Project 14 remained at 50 percent of completion. The interim report was being prepared and is expected to be completed by 15 January 1955.[54]

Auxiliary Project 15-6 remained at the same stage of completion, 70 percent, as in November. The AN/ALT-8 transmitter modification described in the November U-30 was not completed. The slower speed replacement sweep motors were improperly wound. These are to be replaced in January.[55]

Auxiliary Project 18 increased four percent to 40 percent of completion. Most of the work during the month was in trying to match the increductor to an antenna.[56]

Auxiliary Project 22 remained at the same stage of completion as in November. The final report was being prepared and should be completed in January 1955.[57]

Auxiliary Project 23 remained at the same stage of completion

53. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.
54. Ibid.
55. Ibid.
56. Ibid.
57. Ibid.

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as in November (85 percent). Final tests were to be made when the depot manufactured matching sections become available.[58]

Auxiliary Project 24 increased five percent to 45 percent of completion with an additional seven hours having been flown. The simulated penetration missions flown during the month employed the QRC-8 against the Collins 18-54 receiver installed in B-47 type aircraft. On all the runs, at points where checked, at least a condition four of jamming was obtained.[59]

Auxiliary Project 25 increased five percent to 80 percent of completion. An additional 180 hours were flown for a total of 1154 flying hours. The two AT-190B antennas filled with "Eccofoam FP" had a total of 47 hours and 58 minutes of flying on them. No cracks have formed, but the antenna bases were as loose as the unmodified AT-190B antennas.

The knife edge, thin, solid stub antenna, had 24 hours of flight time on it and was still as rigid as when installed.

The laminated plastic UHF stub received from Wright Air Development Center had 47 hours and 40 minutes of flight time and was as rigid as when installed.

A mesh reinforced plastic stub with dimensions similar to the AT-190B antenna had 54 hours and 38 minutes flight time and was as rigid as when installed.

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58. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.
59. Ibid.

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The four, thin, AT-190B antennas received from Wright Air Development Center had a total of 30 hours and 38 minutes of flying. No cracks appeared, but the bases have started loosening in the same manner as the unmodified AT-190B antennas.[60]

Auxiliary Project 26 decreased from 85 percent completed in November to 65 percent of completion in December 1954. Additional testing of the equipment was delayed awaiting correction of faulty aircraft cable installations and action on Unsatisfactory Reports submitted during the months of October and November 1954.[61]

Auxiliary Project 27 remained at the same stage of completion as in October 1954.[62]

Auxiliary Project 28 increased five percent in completion to 90 percent. Completion of tests will be accomplished when Auxiliary Project #29 is finished. All laboratory tests have been concluded except final comparison tests between RG-117U and the "Styroflex" cable.[63]

Auxiliary Project 29 increased 20 percent to 60 percent of completion. All except final laboratory tests have been completed. As soon as new connectors have been machined, installed and tested, a series of flight tests will begin to verify performance. Both cold-soak and dampness tests will be made at altitude.[64]

60. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.
61. Ibid.
62. Ibid.
63. Ibid.
64. Ibid.

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Auxiliary Project 30 increased from 60 percent to 90 percent of completion. The final design of RF fittings was decided upon and machining begun. It is hoped that a new and more satisfactory type of connector for use with ECM equipment may be developed from these results.[65] These connectors were also adaptable for other equipment.

Auxiliary Project 31 increased two percent to 42 percent of completion. A prototype diamond shaped antenna was constructed, designed to mate with the RF fittings developed under Auxiliary Project 30.[66]

Auxiliary Project 32 was at 100 percent of completion. No additional failures have occurred. Two beams were tested and the one with additional rivets installed to provide added strength held over 1,000 pounds before it failed. According to the most commonly used configuration, the beam (with added rivets), is good for 87.5 percent of the new design load.[67]

Auxiliary Project 35, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing", was initiated 1 December 1954 and by the end of the month was at five percent of completion. The purpose of the project was to modify the AN/APS-54 from its present status as a strictly passive device to an active countermeasure weapon, by combining the AN/APS-54 with the AN/ALE-1 Chaff dispenser.

65. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History
66. Ibid.
67. Ibid.

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It was noticed that when an aircraft using the AN/APS-54 is within the effective range of gun-laying radar, the indicator lights come on. Relays have been received which, when installed, will cause the chaff dispenser to operate at that time.[68]

Auxiliary Project 34,"ARC-27 Antenna Installation Modification and Evaluation" was initiated on 9 November 1954 and by the end of December was at 90 percent of completion with 23 hours flown. In the past, UHF communications had become unreliable during and after chaff dispensing operations on "Blue Cradle" B-47 aircraft. Interference caused by chaff dispensed from the cradle striking the antenna, and complete failure of communications due to the rope type chaff hanging on the antenna are the two problems to be solved. On one fix, the antenna was relocated and swept back at a 30 degree angle. The other fix was a fiber glass radome fabricated to completely inclose the antenna. The radome has a 20 degree sweep on the leading edge. In neither case was there any interference or hanging of chaff, but the radome installation was the simpler of the two fixes.[69]

68. "376th U-30 for Dec 54, 1 Jan 55, exhibit #13, this History.
69. Ibid.

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CHAPTER III

MAINTENANCE

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SPECIAL WEAPONS LOADING SWIVEL

A swivel, similar to the one used in Operation "Bull Market",[70] was developed by Technical Sergeant Mark Hosey Jr., USAF, at the request of the Commander, 1st Aviation Field Depot Squadron, 3918th Air Base Group, APO 194. The request was based on a need for a faster and more efficient way to load special weapons on B-47 aircraft.

The original swivel was constructed during December 1953, using facilities of the 3918th Air Base Group's machine shop. The design and plans for the swivel were basically T/Sgt Hosey's. Upon completion of construction and testing, at R.A.F. Station, Upper Heyford, England, the commander of 22nd Bomb Wing approved it for use within his command.

On approximately 1 June 1954, Sergeant Hosey started construction on another swivel, similar but less than half as heavy and with greater safety factors. Sergeant Hosey supervised construction of the improved swivel which was put to use at R.A.F. Station, Burtonwood, England. That swivel was completed and initially tested on 15 February 1954.

On 18 March 1954, Sergeant Hosey was transferred to 805th Air Base Group, Barksdale Air Force Base, Louisiana, bringing with him

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70. Report, "376th Bomb Wing Report on Exercise "Bull Market", Operations Order 137-54", 15 Nov 54, files, Plans Section, D/O, 376th Bomb Wing.

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the design and plans of the improved swivel, which was constructed at Barksdale Air Force Base, Louisiana on 2 June 1954. In July of the same year, Sergeant Hosey was transferred to 376th Armament and Electronics Maintenance Squadron as a member of the Special Weapons Team. The 376th A & E Maintenance Squadron was given a requirement by Headquarters Second Air Force to test the new swivel.[71]

The swivel, after testing, indicated that a saving of from six to 10 manhours per loading, and a reduction in the number of personnel needed for loading (from eight to five) was apparent. This swivel weighed 62 pounds and was manufactured at a $60.00 cost.[72]

A pictorial presentation of the swivel covering installation, positioning of the special weapons trailer, attaching the swivel assembly to the weapon, hoisting the trailer, positioning the trailer tongue, and swiveling the trailer under the aircraft, is appended to this History.[73]

FOREIGN OBJECT CATCHER

A/1C Nicholas P. Innocenzi, 376th Field Maintenance Squadron, designed a device to prevent foreign objects from accidentally entering the compressor section of the J-47 engine during build-up and

71. D/F fr 7AE to 376th Comdr, "Development of Special Weapons Loading Swivel by T/Sgt Hosey", 15 Nov 54, attached, exhibit #14.
72. Report, "Special Weapons Loading Swivel Field Test Conducted by the 376th Armament & Electronics Maintenance Squadron, n.d., attached, exhibit #15.
73. Series of 13 pictures, attached, exhibit #16.

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engine installation on the aircraft. The device consists of four pieces of light gauge flexible metal with padded edges. The metal pieces are used to cover the air inlet area between the air guide islands. The lowest piece incorporates a catch pan for catching and retaining any small item which may be dropped in or near the engine air inlet. The catch pan is used to cover the engine screens between guide islands 2 and 3 as well as to cover the air inlet area between these islands. The device has been locally manufactured and proved itself through daily use. In addition, Airman Innocenzi designed and placed into use a set of gauging blocks to measure accurately and easily the distance between the long arm linkage and the accessory gear casing of the J-47 engine. The blocks have greatly assisted in the installation of the fuel regulator on the J-47 engine.[74]

BLUE CRADLE PORTABLE HOISTING STAND AND DOLLY

Project "Blue Cradle" imposed a heavy work load on the ECM Section of the 376th Armament and Electronics Maintenance Squadron. A/1C George R. Lohneis of that organization has contributed many valuable suggestions and ideas beneficial to the section. Most important was his submission of the idea, drawing of preliminary plans and supervision of construction of a Blue Cradle portable hoisting

74. Ltr, Hq SAC to Comdr 2AF, "Notification of Award", 22 Dec 54, w/ 1st & 2d Inds, files, 376th Wing Adjutant's Section.

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stand and associated dolly. The engineering design of the Blue Cradle made it a virtual impossibility to remove or perform maintenance on any of the three "Cradle" inverters from the "Cradle" due to the location of the inverter can and the clearance between the inverter can and the ground. The inverter can with the inverters installed weighs 185 pounds and requires a clearance of three feet. Engineering of the Crafle allowed only a few inches clearance for this purpose. The Cradle loaded weighs approximately 7,000 pounds. Several solutions were offered but due to expense, safety factors to personnel, and non-portability were discarded as being impractical. Airman Lohneis submitted his plans to the officer in charge of his section. Plans were discussed with the Squadron Commander and personnel of the 376th Field Maintenance Squadron who were called on to lend technical assistance as the plans called for construction in the Field Maintenance shops. The plans were accepted and the hoisting stand and dolly were constructed. The stand has been used continually by the ECM Section and is considered indispensable for inverter change and maintenance.[75]

AIRCRAFT STATUS

During the month of December 1954, the Wing had 48 B-47's

75. D/F From 7AE to 376th Comar "Commendation of Airman", 19 Nov 54, Historical Files, 376th Bomb Wing.

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assigned and possessed,[76] and 22 KC-97's assigned and possessed,[77] which was the same as in November except for an increase of .2 for possessed B-47 aircraft.[78] Maintenance figures showed a total of 938 hours and five minutes flown on B-47 aircraft in December for an average of 19:36 hours flown per possessed aircraft,[79] which was 5:03 hours less than in November;[80] while 442:40 hours were flown on KC-97 aircraft, for an average of 20:10 hours flown per possessed aircraft for the month,[81] which was a decrease of 18:39 hours from the November figure.[82] The decrease was due to the holiday period.

The in-commission rate for B-47 aircraft in December was 79.13 percent,[83] which was 8.88 above the November figure,[84] while on KC-97 aircraft the December figure was 60 percent,[85] which was a decrease of 20.30 percent from the November figure.[86]

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76. Report, "Historical Report for the Month of December 1954", 376th Wing Maintenance Control Unit, n.d., herafter cited as "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #18.
77. Ibid.
78. History 376th Bomb Wing for November 1954, page 22.
79. "376th Maint Hist for Dec 54", exhibit #15, chart, exhibit #11, and chart, exhibit #19, this History.
80. History 376th Bomb Wing for November 54, page 22.
81. "376th Maint Hist for Dec 54", exhibit #17, chart, exhibit #11, and chart, exhibit #19, this History.
82. History 376th Bomb Wing for November 1954, page 22.
83. "376th Maint Hist for Dec 54, exhibit #17, and chart, exhibit #20, this History.
84. History 376th Bomb Wing for Nov 54, page 22.
85. "376th Maint Hist for Dec 54, exhibit #17, and chart, exhibit #20, this History.
86. History 376th Bomb Wing for Nov 54, page 22.

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The AOCP rate for B-47 aircraft in December was 5.92 percent,[87] which was a drop of 3.43 percent from the November figure;[88] while on KC-97 aircraft the figure was 6.35 percent,[89] which was a 4.15 percent increase over the November figure.[90]

There were approximately 30 component parts changed on B-47 aircraft during December,[91] which was a drop of 10 from the month of November;[92] while on KC-97 aircraft the figure was 23 parts changed in December,[93] as against 46 changed for November 1954.[94] There were five B-47 and four KC-97 aircraft processed through the maintenance docks. There were 17 B-47 and 13 KC-97 test flights during December 1954, and 206 Unsatisfactory Reports were submitted during the month.

The number of engines changed on B-47 type aircraft in December was seven,[95] which was an increase of two over the November figure;[96] while on KC-97 aircraft the figure was one,[97] compared to three for November 1954.[98] The average engine time at change for

87. "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #21, this History.
88. History 376th Bomb Wing for Nov 54, page 23.
89. "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #21, this History.
90. History 376th Bomb Wing for Nov 54, page 23.
91. "376th Maint Hist for Dec 54", exhibit #17, this History.
92. History 376th Bomb Wing for Nov 54, page 23.
93. "376th Maint Hist for Dec 54", exhibit #17, this History.
94. History 376th Bomb Wing for Nov 54, page 23.
95. "376th Maint Hist for Dec 54", exhibit #18, and chart, exhibit #22, this History.
96. History 376th Bomb Wing for Nov 54, page 24.
97. "376th Maint Hist for Dec 54", exhibit #18, and chart, exhibit #22, this History.
98. History 376th Bomb Wing for Nov 54, page 24.

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B-47's was 164 hours,[99] a decrease from November;[100] while on KC-97's the time at change was 464 hours,[101] an increase over the November figure.[102]

There were 39 malfunctions during December 1954,[103] a decrease of five from the November figure.[104] Both types of aircraft were 100 percent AWFE in December,[105] the same as in November 1954.[106]

TRAINING ACTIVITIES

CLASSROOM:

Seven classes, two hours each, on the A-12D interlock circuits were held during the month of December. For training purposes, the circuit was divided into three parts, each requiring a two hour class. After this, a two hour review course was held. As of the end of the month, 12 students had 36 hours instruction on the above subject.[107]

Mock-up utilization and symposium type classes for operator

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99. "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #23, this History.
100. History 376th Bomb Wing for Nov 54, page 24.
101. "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #23, this History.
102. History 376th Bomb Wing for Nov 54, page 24.
103. "376th Maint Hist for Dec 54", exhibit #17.
104. History 376th Bomb Wing for Nov 54, page 24.
105. "376th Maint Hist for Dec 54", exhibit #17, and chart, exhibit #20, this History.
106. History 376th Bomb Wing for Nov 54, page 24.
107. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954", 1 Jan 55, by Kronlage, hereafter cited as "376th U-19 for Dec 54 by Kronlage", 1 Jan 55, exhibit #24.

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training continued through December on the K-4A Bomb-Navigational System. During the month a total of 343 student manhours were expended on 90 students.[108]

Six A-5 mechanics received 120 manhours of instruction in basic radar theory, and two A-5 mechanics received 40 manhours of instruction in basic electronics and mathematics.[109]

Ninety airmen received seven hours instruction on the AN/ALE-1, and 13 airmen received 17 hours instruction on the AN/ALT-8.[110]

Two classes of 15 airmen each were held covering Blue Cradle and Phase III B-47 ECM installations, each class required 20 hours of instruction.[111]

Fifteen airmen received three hours instruction on operation and installation of the AN/ALT-6 system on the cradle and on the aircraft including pre-flight and post-flight checks. Twelve maintenance airmen received 20 hours instruction on theory and service of the AN/ALT-6 Countermeasures Transmitting Set.[112]

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108. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954", 1 Jan 55, by 6 Fld Engrs, hereafter cited as "376th U-19 for Dec 54 by 6 Fld Engrs, 1 Jan 55, exhibit #25.
109. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954", 1 Jan 55, by Faux, hereafter cited as "376th U-19 for Dec 54 by Faux", 1 Jan 55, exhibit #26.
110. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954", 1 Jan 55, by Nevitt, hereafter cited as "376th U-19 for Dec 54, by Nevitt", 1 Jan 55, exhibit #27.
111. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954", 1 Jan 55, by Nicholson, hereafter cited as "376th U-19 for Dec 54 by Nicholson", 1 Jan 55, exhibit #28.
112. Report, "Monthly Technical Report, RCS: 3-AMC-U19,(next page)

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KODAK SAFETY FILM

ON THE JOB TRAINING (OJT):

Planned OJT was held for eight students for eight hours on A-12D test procedure, and for 10 students for 18 hours on A-12D theory.

Informal OJT was conducted in the way of question and answer periods of 40 student hours on A-12D theory and 32 hours on trouble shooting. Also, two students received four hours on the F-1 Auto-pilot; three students received three hours on the C-1 Amplifier, and four students received 18 hours instruction on the N-1 Compass.[113]

OJT on the K-4A Bomb-Navigational System was given to 271 Students for a total of 574 student hours, covering system analysis, and to 36 students for a total of 79 student hours, covering trouble shooting.[114]

A-5 mechanics received instruction on trouble shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions. Twenty hours were expended in line Maintenance, 15 in periodic inspection and 12 hours in the field shop.[115]

OJT was given to 376th Bombardment Wing airmen for 18 hours on the ALE-1, six hours on the ALT-7, 22 hours on the ALT-8, 20 hours on the APS-54, 12 hours on the QRC-8 and 18 hours on general electronics.[116]

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112. (Cont'd) For Month Ending 31 Dec 54", 1 Jan 55, by Lella, Hereafter cited as "376 U-19 for Dec 54 by Lella", 1 Jan 55, exhibit #29.
113. "376th U-19 for Dec 54 by Kronlage", 1 Jan 55, exhibit #24.
114. "376th U-19 for Dec 54 by 6 Fld Engrs, 1 Jan 55, exhibit #25.
115. "376th U-19 for Dec 54 by Faux", 1 Jan 55, exhibit #26.
116. "376th U-19 for Dec 54 by Nevitt", 1 Jan 55, exhibit #27.

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Six officers received an outline of Blue Cradle and Phase III ECM installation for three hours. Five Armament and Electronics airmen were instructed for four hours on Blue Cradle and two airmen were given two hours instruction on QRC-8.[117]

Twelve airmen received 93 hours OJT on system bench checking and trouble shooting techniques.[118]

EQUIPMENT MALFUNCTIONS

Servo control motor would not run when pilot switch was turned on; replaced servo control. Autopilot inoperative; replaced #6 channel amplifier.[119]

MAINTENANCE ENGINEERING DIFFICULTIES

The lack of proper test equipment and tools made ALT-6 maintenance and repair on certain jobs difficult. The General Electric Company proposed flyaway maintenance bench for the ALT-6 would make it possible for qualified personnel to perform all necessary tests, adjustments and routine maintenance work to keep the ALT-6 equipment in operating condition.[120]

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117. "376th U-19 for Dec 54 by Nicholson, 1 Jan 55, exhibit #28.
118. "376th U-19 for Dec 54 by Lella, 1 Jan 55, exhibit #29.
119. "376th U-19 for Dec 54 by Kronlage", 1 Jan 55, exhibit #24.
120. "376th U-19 for Dec 54 by Lella, 1 Jan 55, exhibit #29.

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OPERATIONAL DIFFICULTIES

Description and operating details of Blue Cradle Test Console were to be included in this report, but reproduction difficulties caused a delay until the January report.[121]

A change to the wiring of the time delay relay K-209 was made to allow the ALT-6 equipment to automatically return to normal operation in the event that primary power is lost and then reapplied to the system.

A modification was to be made to the PP-933 high voltage connectors to prevent turning when the cable is fastened to them. Also, the power guards for the PP-933 and transmitter T-402 have holes of insufficient diameter, and it was proposed that they be replaced with guards having holes of the correct diameter.

Coaxial connector UG-532 was sometimes difficult to remove or fasten to UG-1105 or UG-1106 waveguide to coaxial transition due to early transitions having incorrect thread pitch. Defective transitions on the base were being replaced and the manufacturer notified for correction.[122]

SPECIAL DEVELOPMENTS

The principles of the APS-54 crystal protector described in

121. "376th U-19 for Dec 54 by Nicholson, 1 Jan 55, exhibit #28.
122. "376th U-19 for Dec 54 by Lella, 1 Jan 55, exhibit #29.

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the November History,[123] can also be applied to radar equipment. Short supplement is appended to this report.[124] After three months, the crystals in the APS-54 utilizing the crystal protector are still in perfect shape.[125]

On 3 December 1954, the first shipment of ALT-6 spare parts arrived at Barksdale Air Force Base, consisting of a nine month stock level for the 180 systems on hand. Five items planned for shipment were not included and were to be shipped later; they are needed for repairs that are not possible without these items.[126]

123. Exhibit #27, History 376th Bomb Wing for November 1954.
124. APS-54 Crystal Protector Supplement, appended to exhibit #27, this History.
125. "376th U-19 for Dec 54 by Nevitt", 1 Jan 55, exhibit #27.
126. "376th U-19 for Dec 54 by Lella, 1 Jan 55, exhibit #29.

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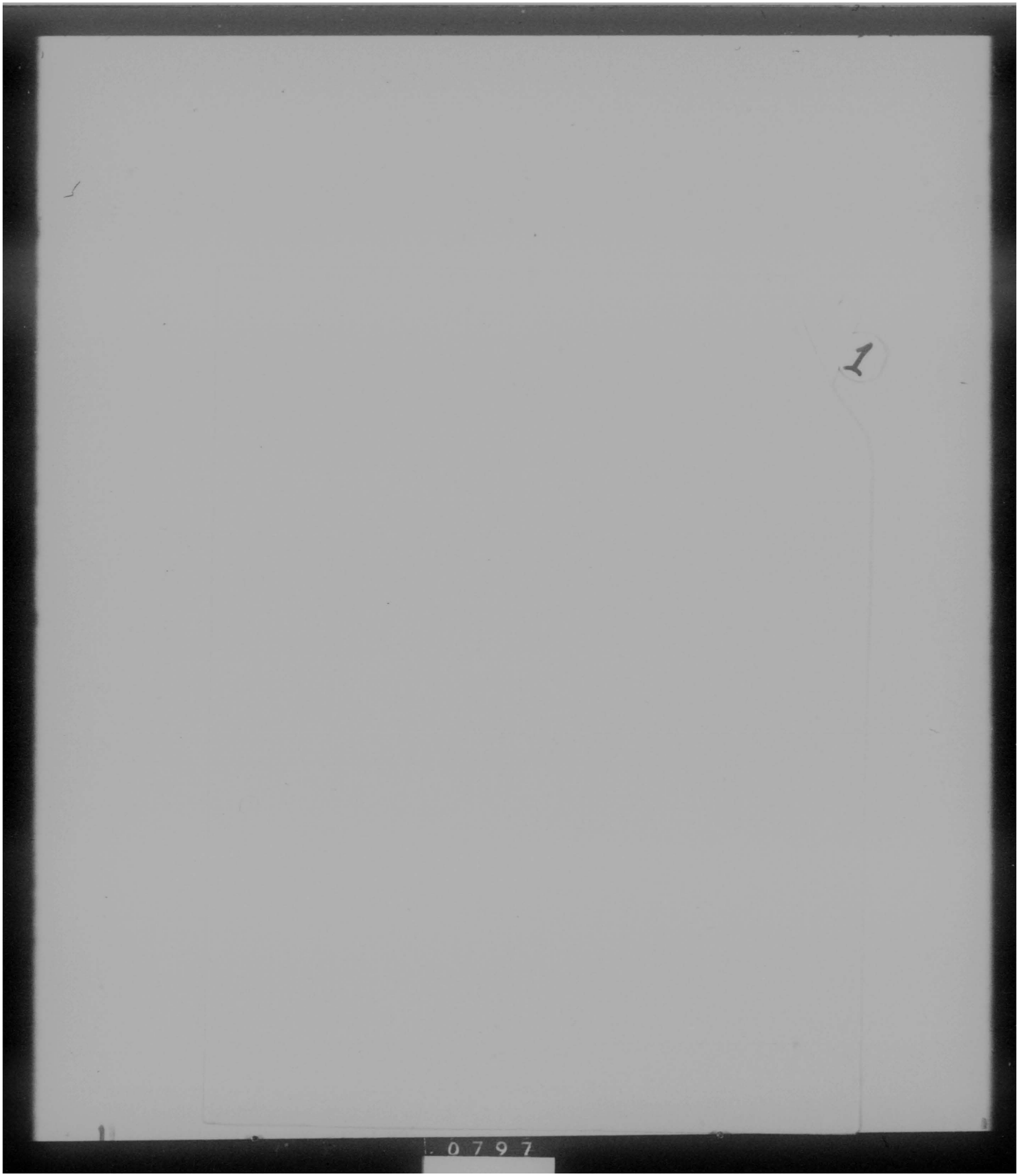

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MONTHLY ANALYSIS (DECEMBER 1954)

1. Officers Assigned during December 1954:

RANK	AFSC	NAME	AFSN	ORG ASGD TO
Capt	(1435)	Thomas J. Jones	AO 1908685	376 AEE Maint Sq
Capt	(3034)	Miles K. Luke	16302A	513th Bomb Sq
Capt	(1525B)	Alfred C. Landers	AO 2043692	513th Bomb Sq
Capt	(1525B)	Harold L. Oakmail	AO 443726	376 Air Rflg Sq
Capt	(1224P)	Durward Brandon	AO 945914	376 Air Rflg Sq
1st Lt	(1521A)	Glen N. Bird	AO 2032152	514th Bomb Sq
1st Lt	(1525B)	Joseph W. Brooks	AO 785563	512th Bomb Sq
1st Lt	(3034)	George B. Ellis	AO 1910726	376 Hq Sq
1st Lt	(6424)	Troy L. Wicker	AO 1910874	513th Bomb Sq
2nd Lt	(1531P)	Jerry A. Bartholomew	AO 3036552	376 Air Rflg Sq
2nd Lt	(1531P)	Louis B. Endris	AO 3036561	376 Air Rflg Sq
2nd Lt	(1531P)	Juan C. Garcia	AO 3036565	376 Air Rflg Sq
2nd Lt	(1231B)	Edward B. Jones	AO 3025794	514th Bomb Sq
2nd Lt	(1531P)	Ralph B. Littlefield	AO 3036576	376 Air Rflg Sq
2nd Lt	(1124Q)	Daniel B. Massey	AO 3825798	376 Hq Sq
2nd Lt	(1224P)	Stutley R. Olson	AO 3036695	376 Air Rflg Sq
2nd Lt	(1231B)	John A. Ryan	AO 3233872	514th Bomb Sq
2nd Lt	(1224P)	John D. Woytych	AO 3007752	376 Air Rflg Sq

TOTAL: 18

2. Officers Transferred and Separated during December 1954: Two to Lincoln Air Force Base, Nebraska, and one each to Davis-Monthan Air Force Base, Arizona, Hq 301st Bomb Wing, Barksdale Air Force Base, Louisiana, Released from active duty, and 301st Air Refueling Squadron, Barksdale Air Force Base, Louisiana, as listed:

Major	(1245)	Henry N. Simpson	11011A	376 Hq Sq
Capt	(1245)	William A. O'Connel	14631A	512th Bomb Sq
Capt	(4344)	William L. Kelly, Jr.	AO 861589	376 Fld Maint Sq
1st Lt	(1231C)	Charles V. Creech, Jr.	AO 783045	376 Air Rflg Sq
1st Lt	(1554)	Leland M. Moyer	AO 2082506	376 Hq Sq
2nd Lt	(1521F)	Allen K. Gerrity	AO 2026238	376 Air Rflg Sq

TOTAL: 6

3. Airmen Assigned during December 1954 (By Primary AFSC):

29353 - 3	43131J - 2	43271D - 1
30130 - 9	43152B - 2	43371 - 1
30230 - 3	43170 - 2	46270 - 1
32330C - 4	43171B - 1	53010 - 3
32351F - 4	43250 - 2	55270 - 1
42152 - 1	43251 - 1	58170 - 1
42230 - 4	43271B - 1	60330 - 2

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Airmen Assigned During December (Cont'd):

62230	- 2	70010	- 1	90010	- 11		
62250	- 2	70250	- 3	90130	- 2		
64131	- 2	70270	- 1	90230	- 1		
64151	- 1	73251	- 1	90670	- 1		

TOTAL: 77 (24 with AFSC not known - Records not received)

20150	- 1	42350	- 1	43153	- 3	53450	- 3
20450	- 1	42650	- 1	43154B	- 4	60150	- 1
22350	- 2	42670	- 1	43156	- 2	62250	- 2
29353	- 1	43131B	- 2	43170	- 5	64151	- 3
30150	- 1	43131J	- 2	43171B	- 2	64173	- 1
32150B	- 1	43151B	- 1	43271D	- 2	70010	- 1
32351F	- 3	43151J	- 6	46230	- 1	70230	- 2
40150	- 2	43133	- 1	47154	- 1	70250	- 2
40453	- 1	43134B	- 1	47155	- 1	73251	- 1
42250	- 1	43152A	- 3	53150	- 1	90651	- 1
42330	- 1	43152B	- 12	53430	- 1	92210	- 1
						92230	- 1

TOTAL: 88

5. Reenlistment Rate (one month only):

Number Discharged	Number Reenlisted	% Reenlisted
71	8	11.3

Discharged by Squadrons:

376th Hq Sq	T/Sgt L.L. Beasley (Reenl)	S/Sgt H.B. Shaefer
	T/Sgt W.D. Stroud (Reenl)*	A/1C B.O. Cochran (Reenl)
	S/Sgt F.L. Blue, Jr.	A/1C J.B. Holloway, Jr.
	S/Sgt H.T. Holland	A/1C C.A. Sodano
	S/Sgt C.L. Mobley	A/2C D.J. Hicks
	S/Sgt H.J. Parker	A/3C M.B. Woods
512th Bomb Sq	T/Sgt C.L. Singleton (Reenl)	S/Sgt A.J. Wagner
	S/Sgt J.L. Hall	A/1C R.J. Henningsen
		A/2C H.W. May
514th Bomb Sq	S/Sgt M.B. McBee	A/1C P.J. Jacuzzo
	S/Sgt J.C. Heenlem	A/1C W.R. Myers*
	S/Sgt W.J. Quinn	A/2C A.B. Rossi
	S/Sgt L.W. Schneider	A/1C N.L. Hasser (Reenl)
	S/Sgt T.M. Sowder	A/B P. Buckner*
		A/B D.L. Sheets*
513th Bomb Sq	A/3C A.S. Lawson*	M/Sgt M.N. Batchelor (Retired)*

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5. Reenlistment Rate (Continued):

376th Armt & Elect Maint Sq	S/Sgt H.T. Mann		A/1C	G.R. Pulsifer
	S/Sgt J.R. Runa (Reenl)		A/2C	B.J. Sherman*
	S/Sgt J.A. Willis (Reenl)		A/3C	L. Lightfoot*
376th Field Maint Sq	M/Sgt R.P. Juneau (Reenl)		A/1C	T.G. Chimielis*
	S/Sgt W.A. Evans, Jr.		A/1C	J.B. Gooch
	S/Sgt J.J. Foglyano		A/1C	W. Keassling, Jr.
	S/Sgt J.D. Hatlock		A/1C	H.H. Kirk, Jr.
	S/Sgt C.J. Hofstad		A/1C	D.E. Lookenott
	S/Sgt E.F. Jeffries		A/1C	C.W. Purdy
	S/Sgt L.K. Lau		A/1C	R.J. Rieser
	S/Sgt J.R. Laurent		A/1C	H.C. Schick
	S/Sgt E.A. Lipsky		A/1C	E. Thornton, Jr.
	S/Sgt H.L. Matter		A/1C	J.C. Vernon
	S/Sgt G.P. Millus		A/1C	C.E. Walsh
	S/Sgt P.D. Zarrella		A/2C	P.J. Mitchell
	A/1C R.E. Bennet, Jr.		A/3C	W.E. Bateman
	A/1C J.B. Bentley		A/B	C.R. Goodwill
			A/B	R.D. Parriott
376th Periodic Maint Sq	M/Sgt D.O. Scheffer (Reenl)*		S/Sgt	J.E. Omigaj
	S/Sgt R.G. Burns*		A/1C	A.A. Oost
	S/Sgt F.H. Cortney		A/1C	F.A. Gentile
	S/Sgt G.M. Gonzolez		A/1C	W.G. Price
376th Air Rflg Sq	M/Sgt R.E. Roberts (Reenl)*		A/1C	R.K. Custer
	T/Sgt A.E. Baxter		A/1C	R. Dordal
	S/Sgt B.R. Chalmers		A/1C	R.A. Raitanen*
	S/Sgt R.A. Hoenig		A/1C	H. Taniguchi
	S/Sgt E. Turner*		A/2C	C.T. Tracy
376 Tac Hosp	S/Sgt J.T. Barker*		A/1C	K.C. Holt
	S/Sgt J.M. Rigby*		A/1C	F.W. Moore (Reenl)

* Airmen separated but not included in Reenlistment Rate

6. AWOL Rate per 1000 (December 1954 only):

	Assigned	Number AWOL	Percent
Officers	402	0	0
Airmen	1986	4	2.01
TOTAL:	2388	4	1.68

AWOL by Squadron:

376 Flg Maint Sq: A/3C G.H. Harvey A/B C. McClothan

376 Air Rflg Sq: A/2C W.J. Kegley

376 Tac Hosp A/2C G.B. Taylor

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7. Gains and Losses:

	No Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	6	1.3	18	3.8
Airmen	88	4.8	101	5.5

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376 Hq Sq	76	68	58	76.3
512 Bomb Sq	79	59	59	74.7
513 Bomb Sq	79	63	61	77.2
514 Bomb Sq	78	61	61	77.2
376 Air Rflg Sq	100	102	92	92.0
376 Armt & Elec Maint Sq	19	20	14	73.7
376 Per Maint Sq	6	4	4	66.6
376Flu Maint Sq	8	6	5	62.5
376 Tac Hosp	27	19	16	59.3
TOTAL:	472	402	370	78.4
CONSOLIDATED MIRS:				
	472	402	374	79.2

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9. Effective Manning of Airmen:

UNIT	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	I.DIR % EFF ASGD	I.DIR % MIRS
376th Hq Sq	43	45	81	96	34	34	73	71	79.1	79.1	90.1	87.7
512th Bomb Sq	86	97	24	27	82	77	19	18	95.3	89.5	79.2	75.0
513th Bomb Sq	85	94	24	16	80	64	16	16	94.1	75.3	66.7	66.7
514th Bomb Sq	88	96	24	23	84	68	16	16	95.5	77.3	66.7	66.7
376 Air Rflg Sq	193	208	57	58	175	153	49	48	90.7	79.2	86.0	84.2
376 A&E Maint Sq	382	459	70	57	297	264	53	47	77.8	69.1	75.7	67.1
376 Fld Maint Sq	274	286	169	167	212	205	144	137	77.4	74.8	85.2	81.1
376 Per Maint Sq	121	129	27	19	100	98	13	12	82.6	81.0	48.1	44.4
376 Tac Hospital	1	1	94	109	1	1	84	83	100	100	89.3	88.4
TOTAL:	1273	1415	570	572	1065	964	467	448	83.7	75.7	81.9	78.6
CONSOLIDATED MIRS:	1273		552			1018		467		80.0		81.9

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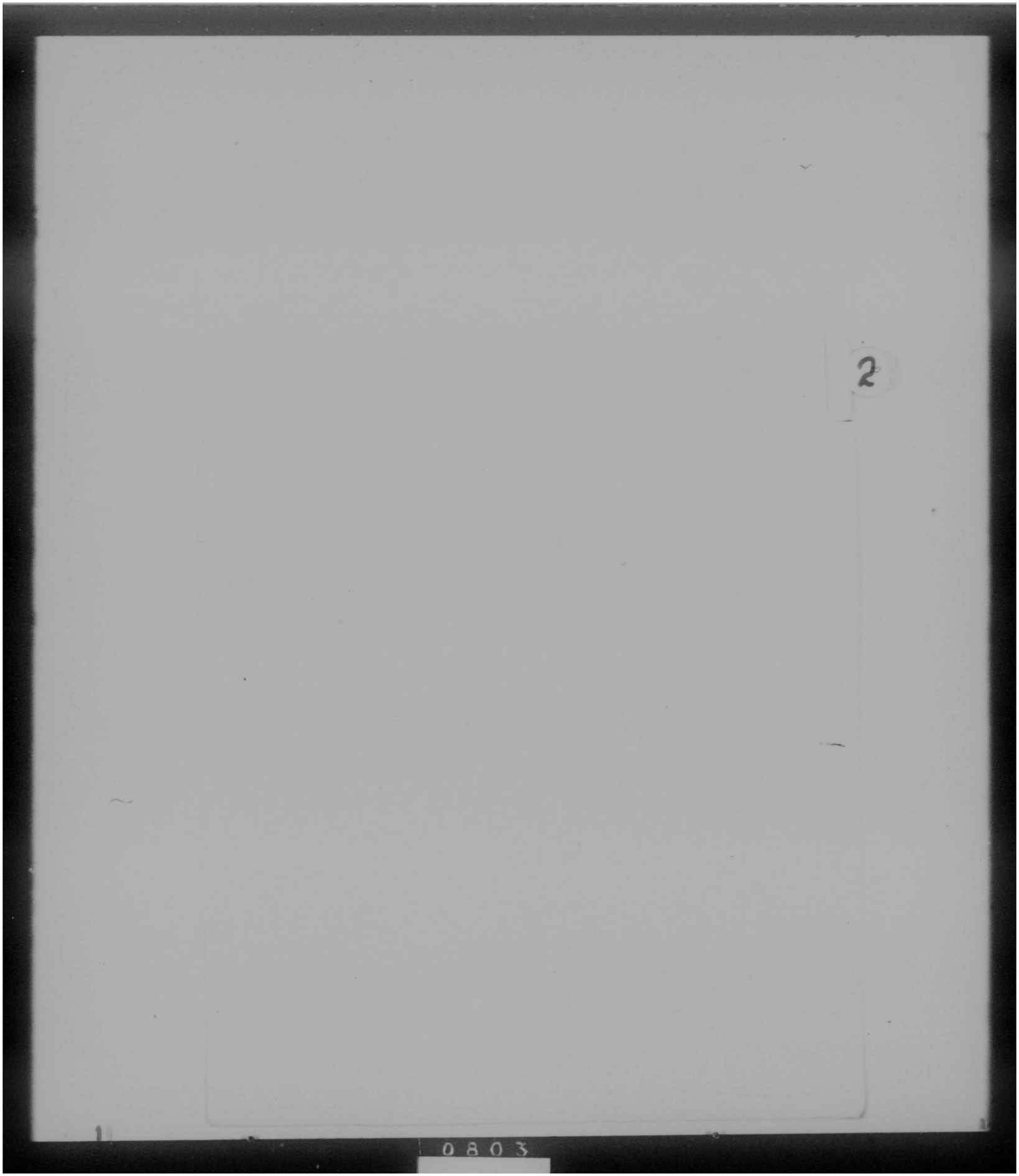

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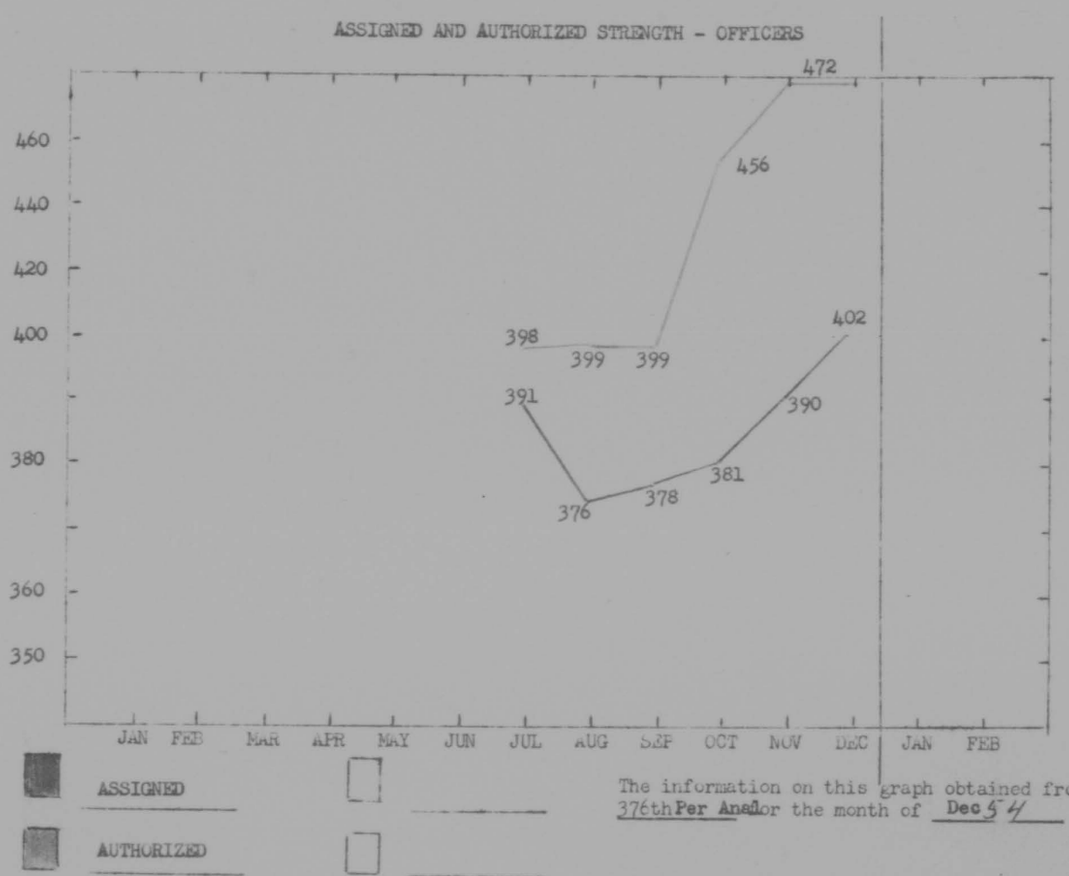

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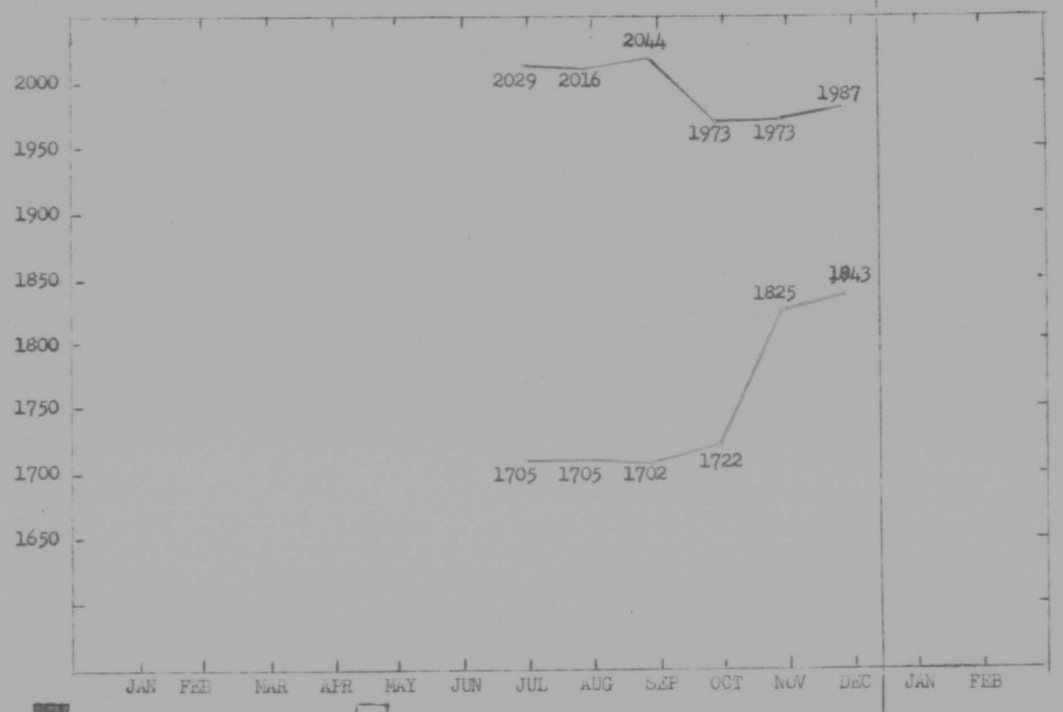

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The information on this graph obtained from 376th Pers Anal for the month of Dec 54

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
AUTH: CC/DR 376TH BOMW
Initials:
Date: 6 Jan 55

WING COMMANDER'S REMARKS

PART V

AIR TRAINING REPORT FOR THE MONTH OF DECEMBER 1954
(RCS: 6-SAC-T12)

PART V

6. Wing Commander's Remarks - Part V.

(a) Hours flown performing missions ordered by higher headquarters:

(1) ECM Test: 47:05

(2) Ferrying aircraft: 9:30

(3) 2AF Operations Order 149-54: 334:55

TOTAL 391:30

(b) Weather or local conditions affecting training:

(1) Three sorties (approximately 16 flying hours) were lost due to weather.

(c) Directives imposed by AMC or SAC on aircraft:

(1) None

(d) Combat crew member gains or losses:

(1) Gains: Two Co-Pilots
Three Observers

(2) Losses: None

(e) Crew member changes:

(1) Aircraft Commander: Four

(2) Co-Pilot: Three

(3) Observer: Three

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Wing Commander's Remarks for the Month of December 1954

(f) New Crews:

(1) R-17-AO 10 December 1954

(2) R-18-AO 10 December 1954

(3) R-34-AO 10 December 1954

(4) R-83-AO 10 December 1954

(5) R-84-AO 17 December 1954

(g) Crew Status Changes:

(1) R-38-BO dissolved effective 17 December 1954

(2) R-47-AO dissolved effective 17 December 1954.

(h) Standardization Crews:

(1) R-04-AO Wing Standardization Crew.

(2) R-11-AO, R-37-AO, and R-70-AO are Squadron Standardizati Crews.

(i) Personnel and Materiel Problems:

(1) The officer effective manning for the 376th increased slightly during the month of December as compared to November. This increase can be attributed to the gain of 17 officers in authorized AFSCs against the loss of six officers.

(2) Officer manning in AFSCs 1435, 3054, 4334, 4355, 6424, and 7324 remain critically short.

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(3) Manning in the Aircraft Maintenance Field has changed slightly during the month. Manning in AFSCs 43230/50 is at 179% by primary and 134% by duty with 26% of the authorization being cadre personnel. The AFSCs 43151E/51E/43251 are 77% manned by primary and 125% by duty. Twenty-one 43151E are cadre personnel. At the supervisory level in AFSCs 43270/71/43171E manning is 73% by primary, 93% by duty and 13% of the authorization is cadre personnel. In the Armament Systems Career Field, AFSCs 32170E and 32370C, manning is at 20% by primary and 46% by duty.

(4) Effective manning in the W-series System Field, AFSCs 32130E/50E is 191%. Effective manning in AFSC's 32150B, 32150C and 32150D is 0%. Effective manning in the supervisory level AFSC 32170E is 43% and manning in required speciality is 8%.

(J) SAC Minimum Training Requirements:

(1) Not applicable.

(K) Non-Combat Ready Crews capable of Deploying:

(1) Nine non-combat ready bombardment crews have been trained to a point where they could be deployed for ECM mission in the event of an emergency.

(L) Non-Combat Ready Crew Training:

(1) Seventeen non-combat ready crews were in training during the month of December. Eight non-ECM ready crews were in training during the month of December.

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Wing Commander's Remarks for Month of December 1954

(1) Flying Time Differences:

(1) AF Form 11A's 938:15

(2) 6-SAC-T12: 898:00

(a) A difference of 40:15 is as follows:

1 Test Hops - 38:15

2 Aircraft flown by other than 376th crews - 2:00.

(4) Field Training Operations:

(1) Not applicable.

(5) Special Training Month:

ITEMS	PROGRAMMED	ACCOMPLISHED	PERCENTAGE
Flying Hours	990	898	90
Sorties	180	155	86
Transition	63	65	103
Radar RBS	180	155	86
Visual RBS	84	13	15
Radar Camer. Attacks	65	48	70
Visual Releases	20	2	10
Night Celestial	14	9	60
Day Celestial	24	12	50
Grid	52	33	63
Wet Hook Ups	110	62	56
Rendezvous	31	10	30
Gunnery Max Load	9100	2998	33
Fighter Intercepts	24	7	29

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Wing Commander's Remarks for the Tenth of December 1954

(c) Comments or Recommendations of the Wing Commander:

(1) The AOCP rate on B-47's has decreased from 9.25% in November to 6.10% in December.

(2) Training of personnel is continuing through maximum use of radar trainers, UTD and Contractor Technicians.

(3) The average number of crews assigned during December was 49. A total of 936 hours were flown for an average of 20.8 hours per crew.

(4) The average number of possessed aircraft during December was 48. The average flying time per aircraft was 19.5 hours.

(5) Initial briefing and target study of Special E/F requirements necessitated reduction of air training program. Practice alert, Operations Order 101-53, adversely affected scheduled training on 17 December 1954. Excessive air aborts and adverse weather over bombing ranges precluded training as programmed.

(6) Disbandment of two crews was required due to lack of proficiency of primary crew members and anticipated separation of a co-pilot. These reassignments were necessary in the interest of security prior to E/F assignments.

JOHN P. PROCTOR
Colonel, USAF
Commander

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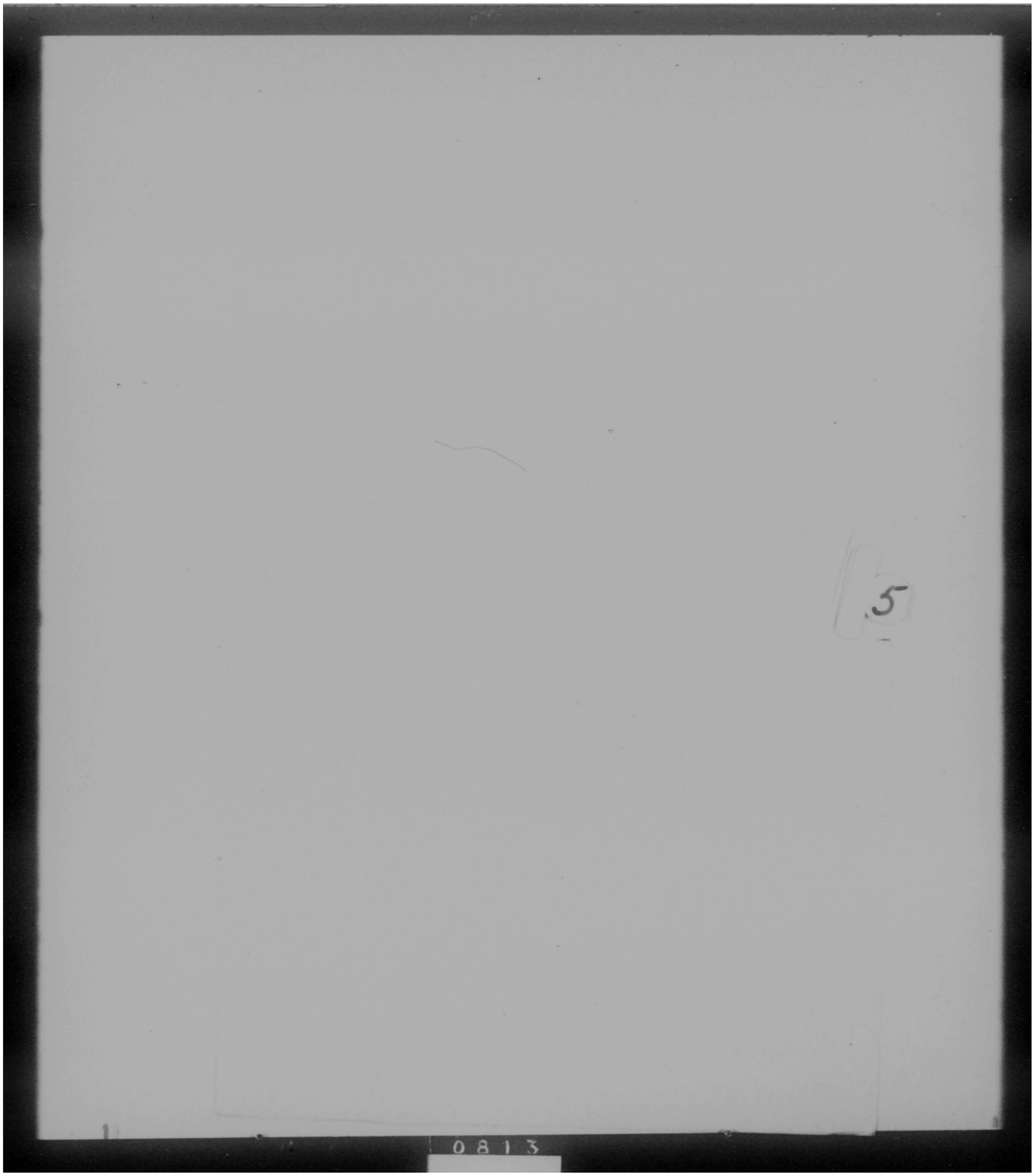

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512TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	RO2AO	RO3AO	RO4AO
ACFT COMDR:	Captain Minor, J. M.	Captain Boden, V. E.	Captain Bamhour, J. D.
CO-PILOT:	Major Kelly, C. J.	Major Grumman, G. T.	1st Lt Miller, L. Jr.
OBSERVER:	Captain Kirsch, R. A. AO 769052	Captain Lichter, M. A. AO 1703957	Captain DeJung, C. J. AO 2073489

CREW NUMBER:	RO5AO	RO6AO	RO7AO
ACFT COMDR:	Captain Goutschi, F. H. Jr.	Captain Scott, R. W.	Captain Beale, J. C.
CO-PILOT:	1st Lt Seiz, W. C. III	1st Lt Haskin, C. C.	Captain Rhodes, B. D.
OBSERVER:	Captain Doyle, A. J. Jr. AO 752557	Captain Scherer, M. E. AO 667197	Captain Whitaker, J. E. AO 739063

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512TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	R08AO	R09AO	R11AO
ACFT COMDR:	Major Dill, G. E. Jr.	Captain Coleman, F.	Captain Derrick, B. D.
CO-PILOT:	Captain Sigler, A. L.	1st Lt Jones, T. D.	1st Lt Kitchens, G. E.
OBSERVER:	Captain Baugh, J. R. AO 692361	Major Wright, J. P. AO 659086	Major Savage, R. E. AO 433031

CREW NUMBER:	R12BO	R13AO	R15BO
ACFT COMDR:	Captain Van Sant, E. R.	Captain Saunders, T. R.	Captain Flanagan, G. A.
CO-PILOT:	1st Lt Walker, W. W.	Captain Thornton, M. C.	1st Lt Sutch, V. D.
OBSERVER:	Lt Col Ford, P. C. AO 725425	Major Peterson, L. U. AO 679168	Captain Carson, V. L. AO 2023008

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512TH BOMB.RDMENT SQU.DRON
376TH BOMB.RDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-P2

As of 5 January 1955

CREW NUMBER:	R16BC	N10.0	N1[illegible].0
ACFT COMDR:	Captain Markos, E. G.	Captain Krieter, J. J.	Captain Dunaway, B. B. Jr
CO-PILOT:	Captain Ricketts, J. E.	Captain Rickelman, T. E.	Captain Castle, L. R. Jr
OBSERVER:	Jr. Lt Mandl, S. Jr. AO 2905134	Captain McLaren, J. P. [illegible]	Jr. Lt [illegible] [illegible]

CREW NUMBER:	N18.0		
ACFT COMDR:	Major Anderson, J. M.		
CO-PILOT:	Captain Cox, A. C.		
OBSERVER:	Captain Landers, W. G. AO 2043692		

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513TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1953

CREW NUMBER:	R3440	R3580	R3640
ACFT COMDR:	Major Holman, A. F.	Major Lowman, R. P.	Captain Leitch, J. E.
CO-PILOT:	Major Niersbach, N. C.	Major Revis, C. L.	Captain Stone, S. F. Jr.
OBSERVER:	Captain Welling, W. B. 11094	Captain Kondziolka, E. P. AO 743377	Captain Gano, H. C. AO 746742

CREW NUMBER:	R3740	R3900	R4040
ACFT COMDR:	Captain Anderson, J. P.	Captain Marshall, M. L.	Major Carrington, L. H.
CO-PILOT:	Captain Copp, W. H.	Captain LaCasse, W.	Captain Johnson, G. H.
OBSERVER:	Captain Randall, I. D. Jr. AO 761248	1st Lt Hedrick, C. R. AO 2072651	Captain Quercia, D. P. AO 2070317

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513TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-P2

As of 5 January 1955

CREW NUMBER:	R4280	R4340	R44.0
ACFT COMDR:	Major Chambers, R. T.	Captain Hobson, G. E.	Captain Lyles, [illegible] T.
CO-PILOT:	Captain Warner, P. A.	1st Lt Miles, R. N.	1st Lt Markham, R. D.
OBSERVER:	Captain Mardinjak, F. AO 710289	Captain Waldheim, E. H. AO 2072395	Captain Wilson, A. AO 713971

CREW NUMBER:	R46.0	R[illegible]0	N45.0
ACFT COMDR:	Captain Shepard, E.	Captain McCollum, V. W.	Captain Stahle P. J.
CO-PILOT:	1st Lt Ellanson, R. C.	1st Lt Monson, G. H.	1st Lt Shepherd, E. V.
OBSERVER:	1st Lt Bauer, R. H.	Captain Davis, F. H. AO 5734015	Major Kelley, V. B. [illegible]

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513TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-P2

As of 5 January 1955

CREW NUMBER:	N52.0	N53.0	N54.0
ACFT COMDR:	Captain Swearingen, T. M.	Captain Furlow, L. C.	Major Francis, H. C.
CO-PILOT:	Captain Stirman, E. J.	1st Lt Smith, E. E.	1st Lt Shofstall, J. D.
OBSERVER:	1st Lt Vash, B. J. AO 1911522	Captain O'Connell, R. J. AO 668749	1st Lt Hough, W. S. AO 2098834

CREW NUMBER:	N55.0	N56.0	PARTIAL CREW
ACFT COMDR:	Captain Ruddell, J. N.	Captain Hoskinson, C. J.	
CO-PILOT:	Captain Sorensen, R. N.	Captain Harris, J. H.	
OBSERVER:	Major Phillips, L. G. 18050A	Captain Head, J. A. AO 725062	1st Lt Moss, D. D. AO 2219611

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514TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster- RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER	R68.0	R69.0	R70.0
ACFT COMDR	Major Brown, T. B. Jr.	Captain Agnew, R. R.	Captain Guier, W. C.
CO-PILOT	Captain Secrest, J. P.	Major Grashoff, R. A.	1st Lt Axtell, C. B.
OBSERVER	Captain Santos, A. V. A0434926	Captain Cox, W. M. A0676510	Captain Murdock, S. S. A02076693

CREW NUMBER	R71.0	R72.0	R73.0
ACFT COMDR	Captain Long, W. E.	Captain Landstrom, W. D.	Captain Mack, N.
CO-PILOT	1st Lt Hayes, J. W.	1st Lt Baer, A. R.	1 t Lt Koetting, D. J.
OBSERVER	Captain Gorr, G. L. A02009102	Captain Badger, P. R. A0789434	Captain Moore, G. B. A0731215

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514TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

as of 5 January 1955

CREW NUMBER	R7440	R7540	R7680
ACFT COMDR	Captain Williams, T. R.	Captain Blair, J. M.	Captain Tapper, L. F.
CO-PILOT	Captain Jackson, L. S.	Captain Graves, S. L.	Captain VanCleave, W. S.
OBSERVER	Captain Huddleston, V. R. 18671A	Captain Kahnoski, W. S. A0708474	Captain Shively, R. E. A0928057

CREW NUMBER	R7840	R7980	R8040
ACFT COMDR	Captain Clancy, O. W.	Major Biermann, C. E.	Captain Shomos, S. A.
CO-PILOT	Captain Berner, B. P.	1st Lt Tolbert, R. W.	1st Lt VonWolker, R. A.
OBSERVER	Captain Morris, J. E. A0776334	Captain Chappell, W. R. A02086654	1st Lt VanSletto, J. A. A0683351

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514TH BOMBARDMENT SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - UCS: 2AF-B2

As of 5 January 1955

CREW NUMBER	B82.0	N77B0	N81.0
ACFT COMDR	Captain Allen, C. D.	Captain Wysocki, J. S.	Captain Bunkson, W. W.
CO-PILOT	1st Lt Spraul, D. L.	Captain Yates, C. C.	Captain McCool, J. E. Jr.
OBSERVER	Captain Martin, W. D. A02275052	1st Lt Gaskin, C. C. 2479[illegible]	Captain Krueger, W. F. A0926630

CREW NUMBER	N-83-.0	N-84-.0	
ACFT COMDR	Major Wallace, A. L.	Captain Axelsen, W. W.	
CO-PILOT	2d Lt Jones, E. N.	2d Lt Ryan, J. E.	
OBSERVER	1st Lt George, R. L. A01912277	1st Lt Bird, G. W. A02032152	

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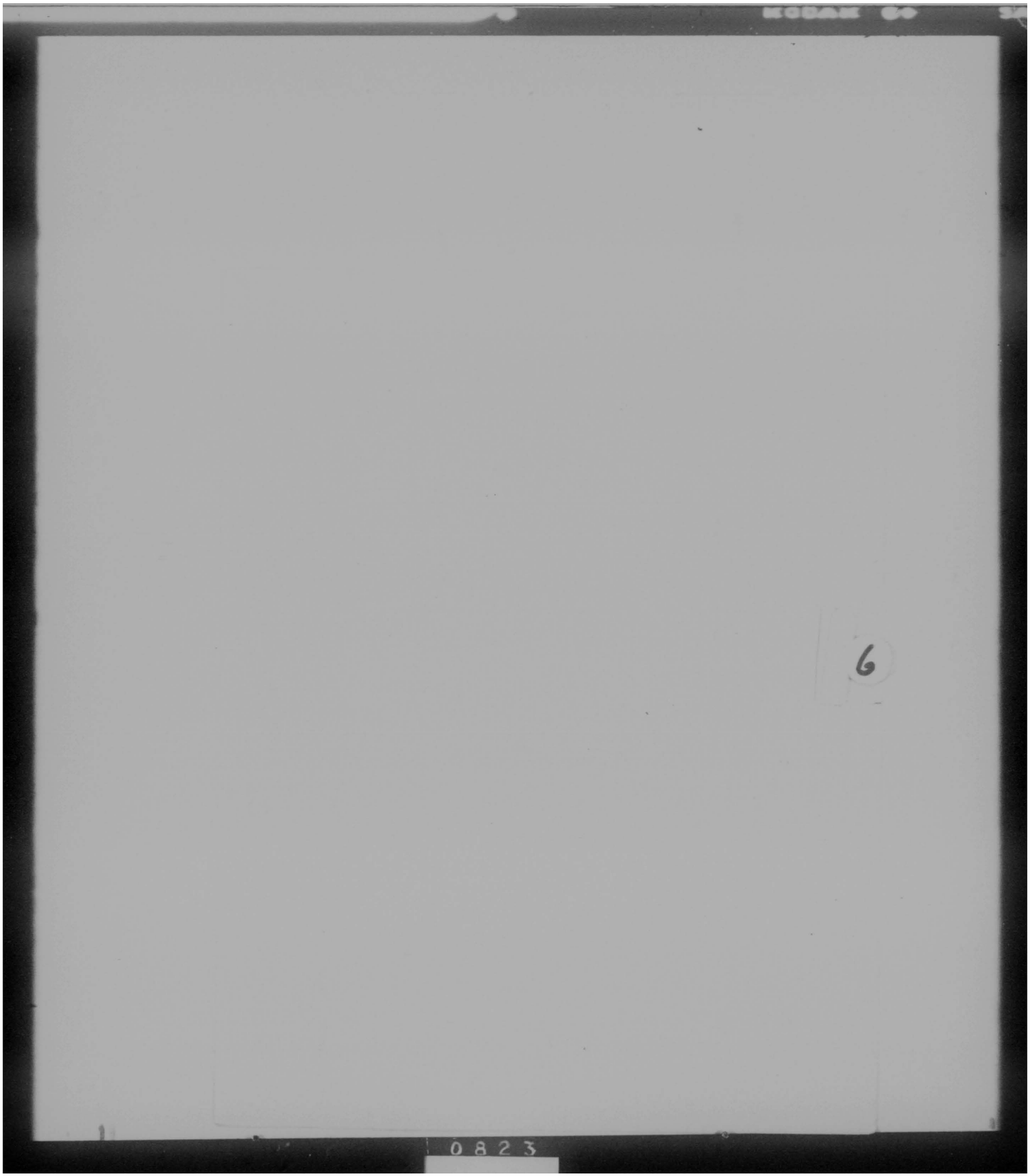

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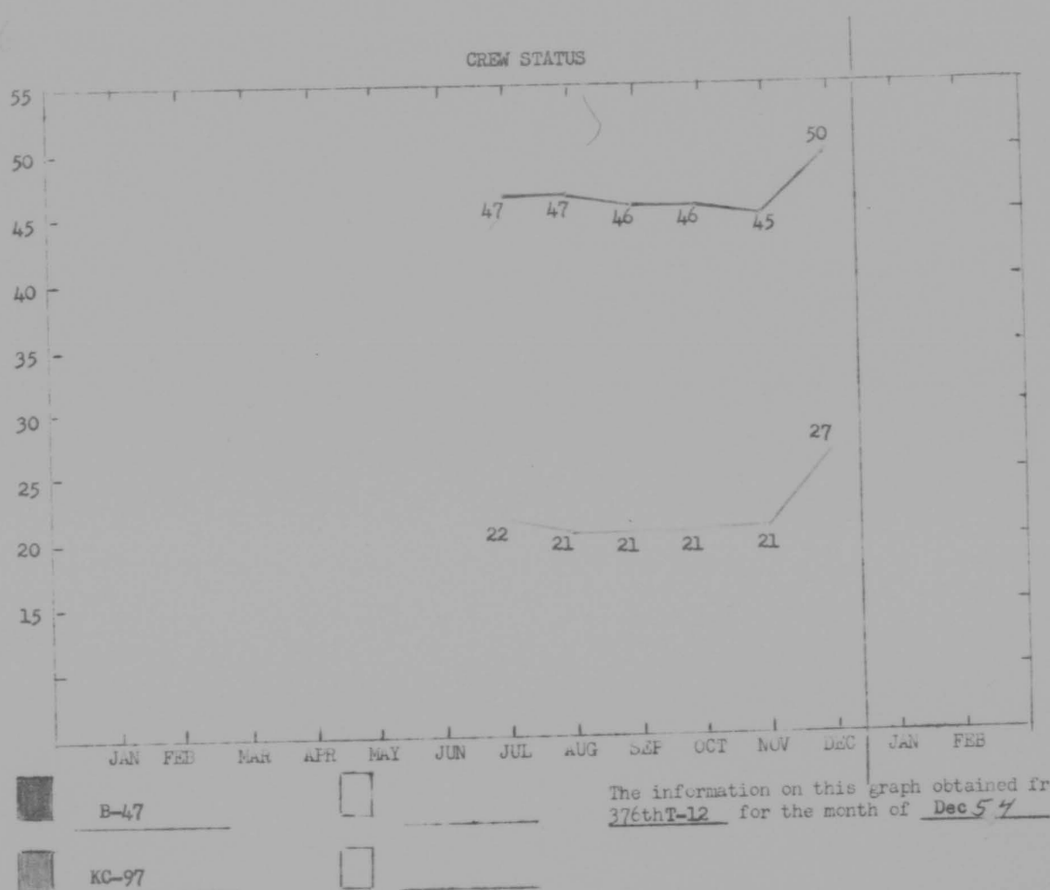

The information on this graph obtained from 376thT-12 for the month of Dec 54

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2-W-P2

As of 5 January 1955

CREW NUMBER	T-02-DO	T-03-CO	T-04-BO
AC/FT COMDR	Captain Gauch, E. W. Jr.	1st Lt Holt, M. J.	Captain Difolla, J. P.
PILOT	1st Lt Scott, L. A.	1st Lt Register, J. B.	1st Lt Little, W. L.
NAVIGATOR	Captain Brown, J. B.	2d Lt Jessen, J. T.	2d Lt Paliadino, R. T.
FLIGHT ENG	MSGT Alderson, T. E.	MSGT Paccione, W. D.	TSGT Plante, E. K.
RADIO OPR	TSGT Billington, P. G.	A/1C Thomas, L. W.	A/1C Turgeon, E. A.
REFLG TECH	TSGT Rodgers V.	A/1C Marshall, D. L.	SSGT Matyinsik, R. R.
REFLG SPECL	A/1C Reeves, D. R.	A/1C Evans, M. B.	A/1C Czeska, E. J.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-P2

As of 5 January 1955

CREW NUMBER	T-06-FC	T-07-BO	T-08-BO
AC/FT CO/DR	Captain Huston, S. R.	Major Rohout, R. F.	Captain Stockton, L. M.
PILOT	1st Lt Smith, R. N. Jr.	1st Lt Walker, T. Y.	2d Lt George, W. E.
NAVIGATOR	Captain Cuno, F. T.	Captain Ferrell, J. G.	Captain Troy, T. A.
FLIGHT ENG	TSGT Christenson, D. L.	TSGT Fabrice, P. J.	TSGT England, C. J.
RADIO OPR	A/1C Comer, W. F. Jr.	TSGT Ward, J. W.	A/1C Loth, R. A.
REFLG TECH	SSGT Torjan, B. W.	TSGT Atkins, W. C.	SSGT Penny, R. L.
REFLG SPECL	A/2C Delgado, R. M.	A/1C Dodson, D. T.	A/1C Buehrle, T. C.

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376TH AIR REFUELING S UADRON
376TH BOMBARD ENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-P2

as of 5 January 1955

CREW NUMBER	T-09-BO	T-10-BO	T-11-BO
ACFT COMDR	Captain Keach, P. D.	Captain Burgess, R. W. Jr.	Major Bright, W. M.
PILOT	1st Lt Hall, W. S.	2d Lt Russell, ... T.	1st Lt Korsteer, R. E.
NAVIGATOR	1st Lt Allen, F. R.	1st Lt Manisee, W. R.	1st Lt Vender, G. M.
FLIGHT ENG	TSGT Wilson, G. ...	TSGT Zakris, J. ...	TSGT Harrison, C. W.
RADIO OPR	A/1C Hogen, D. F.	TSGT Saucari, C. ...	A/1C Cole, L. ...
REFIG TECH	SSGT Brack, L. R.	SSGT Sides, D. C.	TSGT Beard, W. E.
REFIG SPECL	SSGT Knutson, S. G.	A/1C Caver, M. W.	TSGT Butts, D. W.

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376TH AIR REFUELING S U.DRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2WF-P2

as of 5 January 1955

CREW NUMBER	T-12-GO	T-13-BO	T-14-FO
ACFT COMDR	1st Lt Cathey, F. F.	Captain Spiller, W. L. Jr.	1st Lt Clinard, D. L.
PILOT	1st Lt Hall, J. C.	1st Lt Brookshire, J. T.	1st Lt Mills, C. C.
NAVIGATOR	1st Lt Whiting, C. A. Jr.	Captain Boebe, T. W.	1st Lt Engh, D. F.
FLIGHT ENG	TSGT Perez, L.	TSGT Stevens, C. F.	TSGT Prudon, G. W.
RADIO OPR	TSGT Tope, C. H.	A/1C Stuckrad, J. F.	SSGT Berkheimer, E. M.
REFLG TECH	SSGT Cotter, W. S.	TSGT Dague, D. D.	SSGT Gallihan, E. A.
REFLG SPECL	SSGT Vickmair, R. J.	A/1C Willys, C. R.	A/1C Heald, F. A.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-72

As of 5 January 1955

CREW NUMBER:	T1500	T1600	T1700
ACFT COMDR:	Captain Funk, D. C.	Captain Bellamy, L. H.	Major Alexander, J. V.
PILOT:	1st Lt Cole, W. W.	2D Lt Davey, T. E.	1st Lt [illegible]
NAVIGATOR:	Captain Remsor, G. L.	Captain DiIulio, [illegible] F.	1st Lt Rollert, J. [illegible]
FLIGHT ENG:	MSGT Litto[illegible], W. W. Jr.	TSGT Cook, J. J.	MSGT Negren, [illegible] S.
RADIO OPR:	TSGT Kull, G. Jr.	A/1C McLean, J. A.	SSGT Burchfield, [illegible] M.
REFLG TECH:	TSGT Walters, W. L.	TSGT Johnson, R. [illegible]	TSGT Chipman, R. R.
REFLG SPECL:	SSGT Johnson, G. R.	SSGT Thompso[illegible], M. E.	A/1C France, D. E.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	T18BC	T19BO	T20CO
ACFT COMDR:	Major Scusley, R. J. Jr.	Major Maxwell, J. D.	Major Womack, J. E.
PILOT:	1st Lt Schmitt, D. F.	1st Lt Bryan, W. A.	1st Lt Cash, W. K.
NAVIGATOR:	1st Lt Brown, W. S. Jr.	1st Lt Crook, J. A.	1st Lt Connolly, J. W.
FLIGHT ENG:	MSGT Robertson, J. A.	MSGT Atchley, W. B.	TSGT Williams, C. T.
RADIO OPR:	SSGT Johns, R. P.	SSGT Wallace, R. G.	A/1C Pedersen, G. P.
REFLG TECH:	A/1C Wolk, E. O.	SSGT Rotolo, S. J.	TSGT Lentsch, A. L.
REFLG SPECL:	TSGT Todd, A. T.	A/1C Scapicchio, A. J.	SSGT Parks, E. E. Jr.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	T18BO	T19BO	T20CO
ACFT COMDR:	Major Scusley, R. J. Jr.	Major Maxwell, J. E.	Major Womack, J. E.
PILOT:	1st Lt Schmitt, O. F.	1st Lt Bryan, W. A.	1st Lt Cash, W. K.
NAVIGATOR:	1st Lt Brown, W. S. Jr.	1st Lt Crook, J. A.	1st Lt Connolly, J. W.
FLIGHT ENG:	MSGT Robertson, J. A.	MSGT Atchley, W. B.	TSGT Williams, C. T.
RADIO OPR:	SSGT Johns, R. P.	SSGT Wallace, R. G.	A/1C Pedersen, G. P.
REFLG TECH:	A/1C Wolk, E. C.	SSGT Rotolo, S. J.	TSGT Lentsch, A. L.
REFLG SPECL:	TSGT Todd, A. T.	A/1C Scapicchio, A. J.	SSGT Parks, E. E. Jr.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	T21FO	T22CO	T23DO
ACFT COMDR:	1st Lt Graham, S. M.	Major Davis, E. C.	Captain Roubal, L. R.
PILOT:	2D Lt Teomney, W. L.	2D Lt Peterson, R. W.	2D Lt Sevel, D. J.
NAVIGATOR:	1st Lt Lloyd, W. T.	Captain Miracle, B. A.	2D Lt Harris, C. L.
FLIGHT ENG:	TSGT Waites, G. E.	MSGT Gorski, C. J.	TSGT Starr, J. H.
RADIO OPR:	A/2C Carson, P. E.	A/1C Sugg, J. C.	MSGT Romines, F. R.
REFLG TECH:	SSGT Hall, C. T.	MSGT Rucker, S. C.	SSGT Jones, F. C.
REFLG SPECL:	SSGT Hogg, J. B.	SSGT Browning, D. A.	SSGT Bailey, E. C.

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2AF-P2

As of 5 January 1955

CREW NUMBER:	M2430	M2510	M2630
ACFT COMDR:	Captain Lynch, E. W.	*	Captain Ortiz, J. E.
PILOT:	2D Lt Hoey, H. L.	*	1st Lt Van Bergen, R. H.
NAVIGATOR:	2D Lt Walker, J. K.	2D Lt Barrett, J. O.	1st Lt Cason, I. S.
FLIGHT ENG:	MSGT Brewer, E. E.	*	MSGT Waddle, W. P.
RADIO OPR:	A/1C Swartz, D. E.	A/1C Williams, D. L.	A/2C Faye, J. G.
REFLG TECH:	A/1C Goff, N. E.	*	SSGT Epperson, C.
REFLG SPECL:	A/1C Savage, J. W.	*	SSGT Jones, F. C.

*Crew positions filled
by S.F. Personnel
Undergoing HTTU

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2-P-P2

As of 5 January 1955

CREW NUMBER:	M27.0	M28.0	M29.0
AC/PT CCMDR:	*	*	Major Masterson, J. D.
PILOT	*	*	1st Lt Baird, H. D.
NAVIGATOR:	2D Lt Cronin, N. F.	2D Lt Marshall, H. E.	2D Lt Guman, L. J.
FLIGHT ENG:	*	*	SSGT Ohm, M. D.
RADIO OPR:	A/2C Cunningham, B. D.	A/2C Hill, R.	TSGT Rodrick, J. W.
REFLG TECH:	*	*	SSGT Holl, L. W.
REFLG SPECL:	*	*	A/1C Hanson, C. H.

*Crew positions filled by 15th AF, personnel undergoing HTTU.

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0835

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Monthly Combat Crew Roster - RCS: 2.F-F2

As of 1 January 1955

ADDITIONAL CREW PERSONNEL:

PILOTS:

Selby, J. W.	2D Lt

NAVIGATORS:

Littlefield, R. H. Jr.	2D Lt
Johnston, D. D.	2D Lt
Schneider, G. J.	2D Lt
Jasko, C. S.	2D Lt
Udall, J. J.	2D Lt
McGilvary, W.	2D Lt
Hughes, J. E. Jr.	2D Lt
Smith, M. E. Jr.	2D Lt
Wills, E. J. Jr.	2D Lt
Deyton, J. R.	2D Lt

FLIGHT ENGINEERS

Stout, L.	TSGT
Dunn, J.	TSGT
Palmer, B. F.	TSGT
Cave, J. J.	SSGT
Kaminski, H.	SSGT
Milner, R. E.	SSGT
Moore, J. I.	A/1C
Lindsey, C. R.	SSGT
Robinson, J. E.	A/1C

BOOM OPERATORS

Clanton, J. E.	MSGT
Reid, J. G.	MSGT
Coupland, R. N.	A/3C
Mangelin, T. C	A/1C
Whitaker, H. G.	SSGT

RADIO OPERATORS:

Blanchard, C. J.	A/2C
Woodford, N. O.	A/1C

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0836

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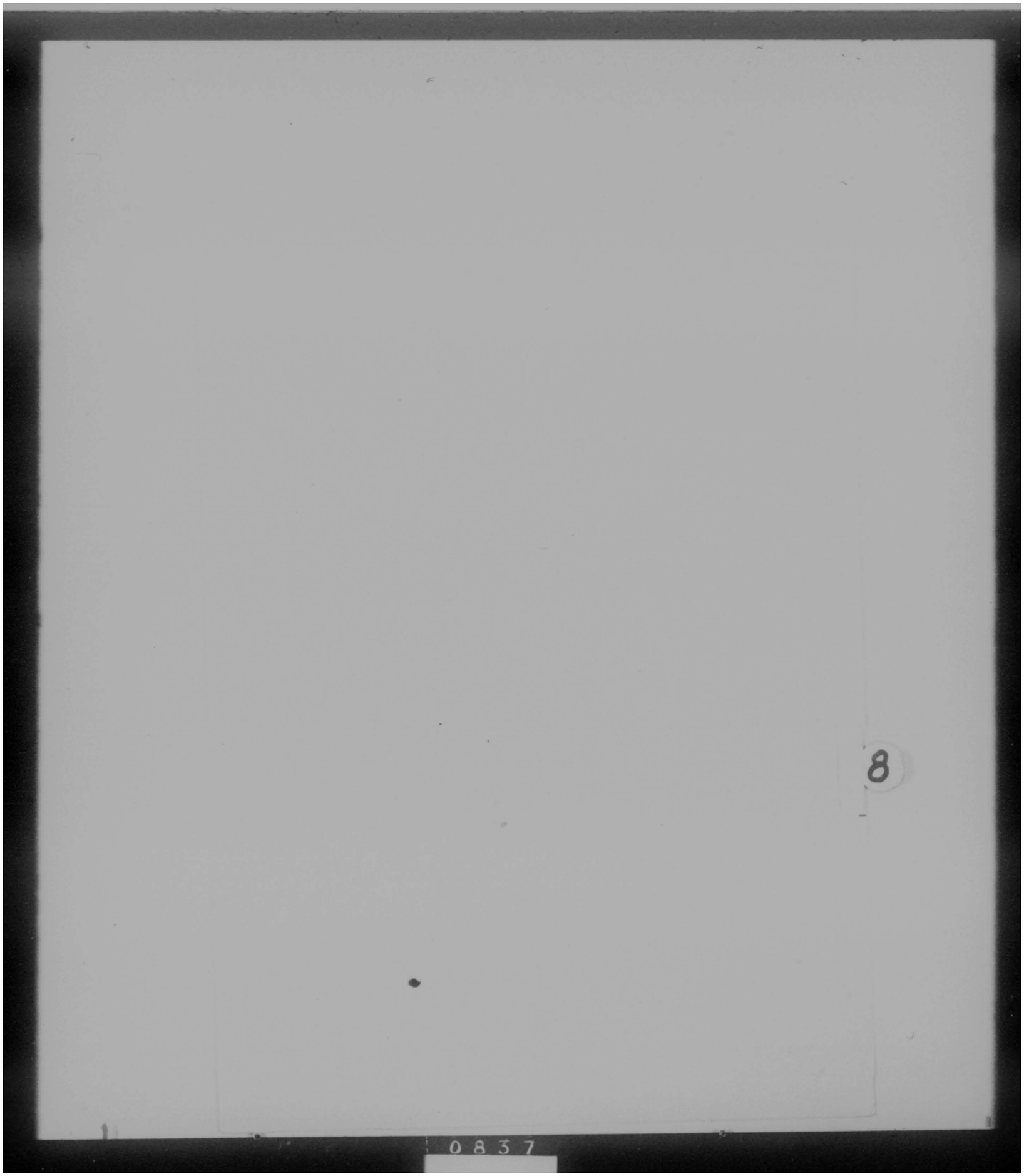

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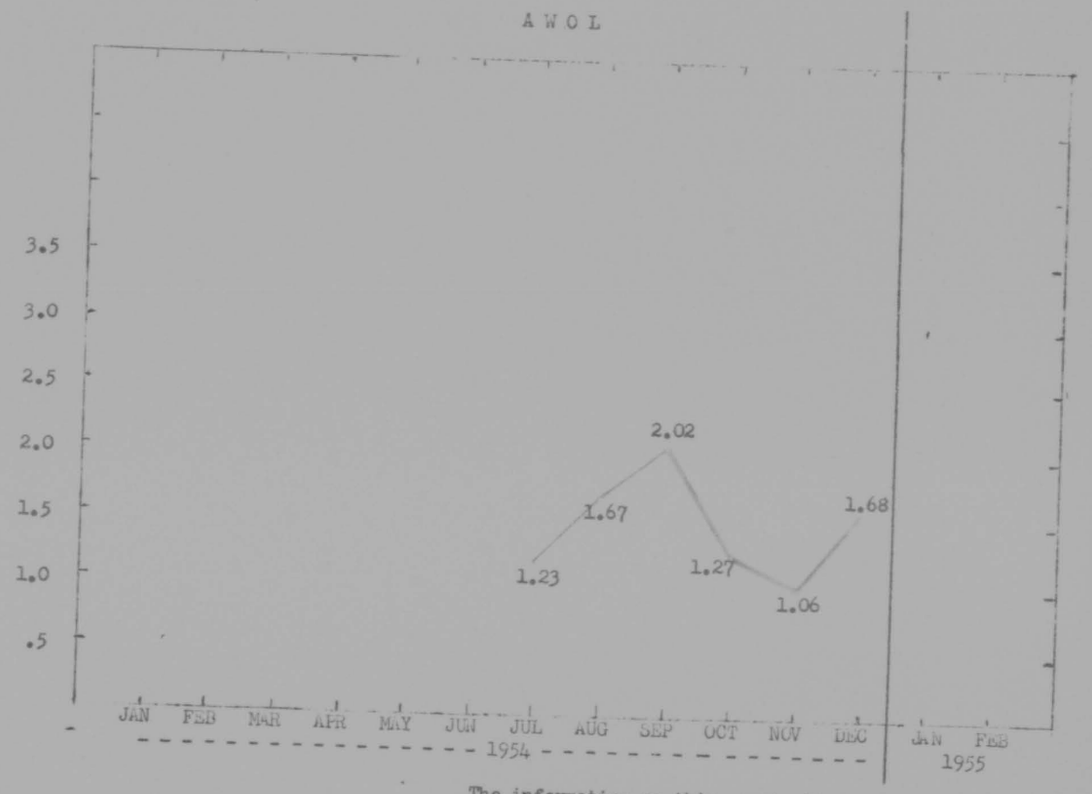

The information on this graph obtained from 376th Pers Anal for Dec 54, exhibit #1, this History

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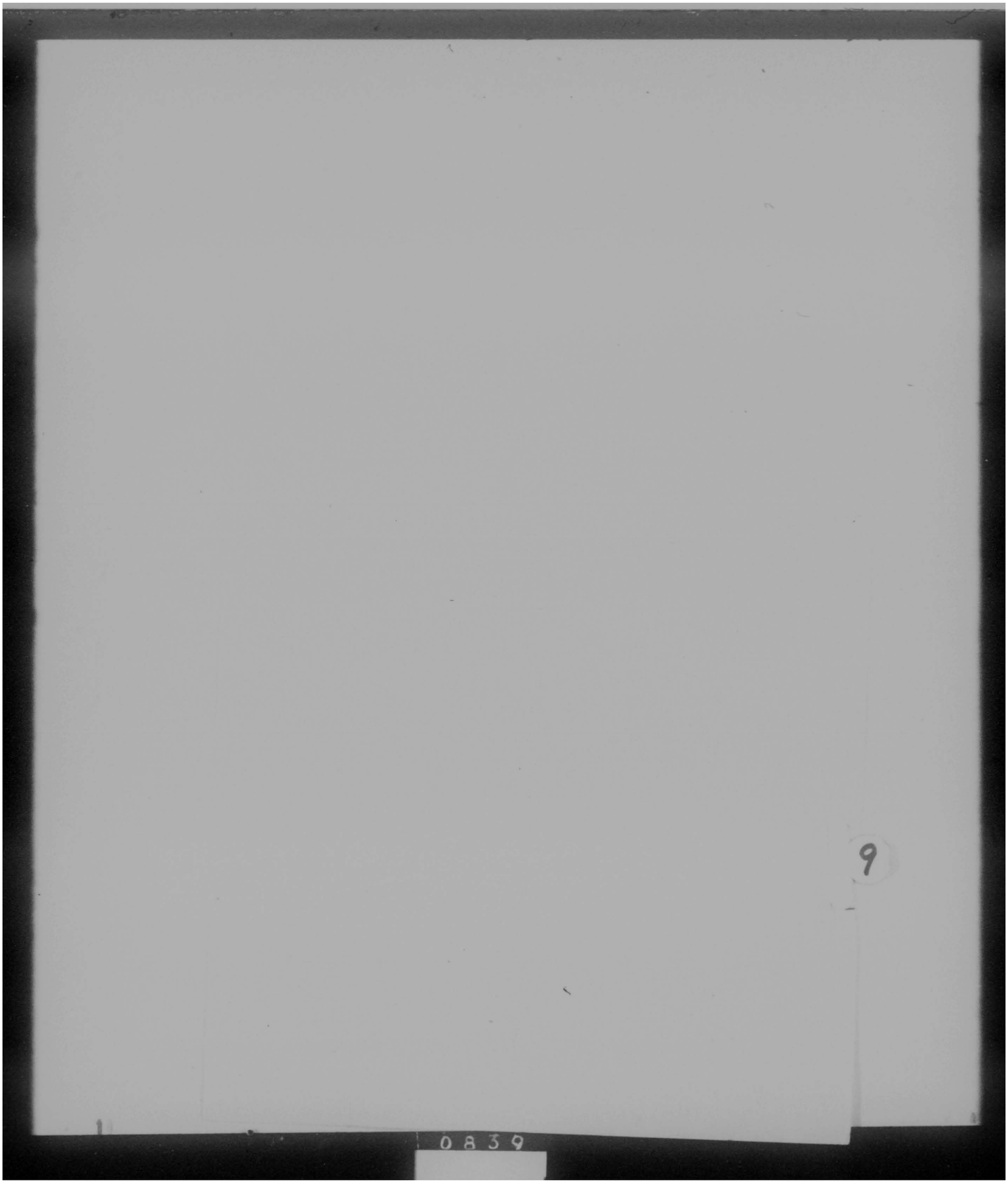

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DAC Management Control System

76A 7LP 10 Jan 55

1. In compliance with D/F your office, subject as above, dated 23 Apr 54, the following information is submitted:

a. Manning in Required Specialties:

		% of Maximum Score
Officers	79.2	30
Airmen (Direct Support)	80.0	40
Airmen (Indirect Support)	81.9	50

b. AWOL Rate per 1000:

1.68	100

c. Reenlistment Rate:

11.3	10

c. Ground Safety:

Ground Safety Index	Accident Cost Index	
8.33	.47	60

2. Officers AWOL dropped slightly due to lost of qualified personnel. Airmen AWOL is increasing as personnel complete OJT.

3. The reenlistment rate decreased due to large number of airmen being released early for the Christmas holidays.

4. Ground Safety decreased due to three (3) military injuries and one Government vehicle accident.

EDMUND T FLEMING
Capt, USAF
Director of Personnel

THIS IS A TRUE COPY.

WILLIAM H. MURPHY, Major USAF

0840

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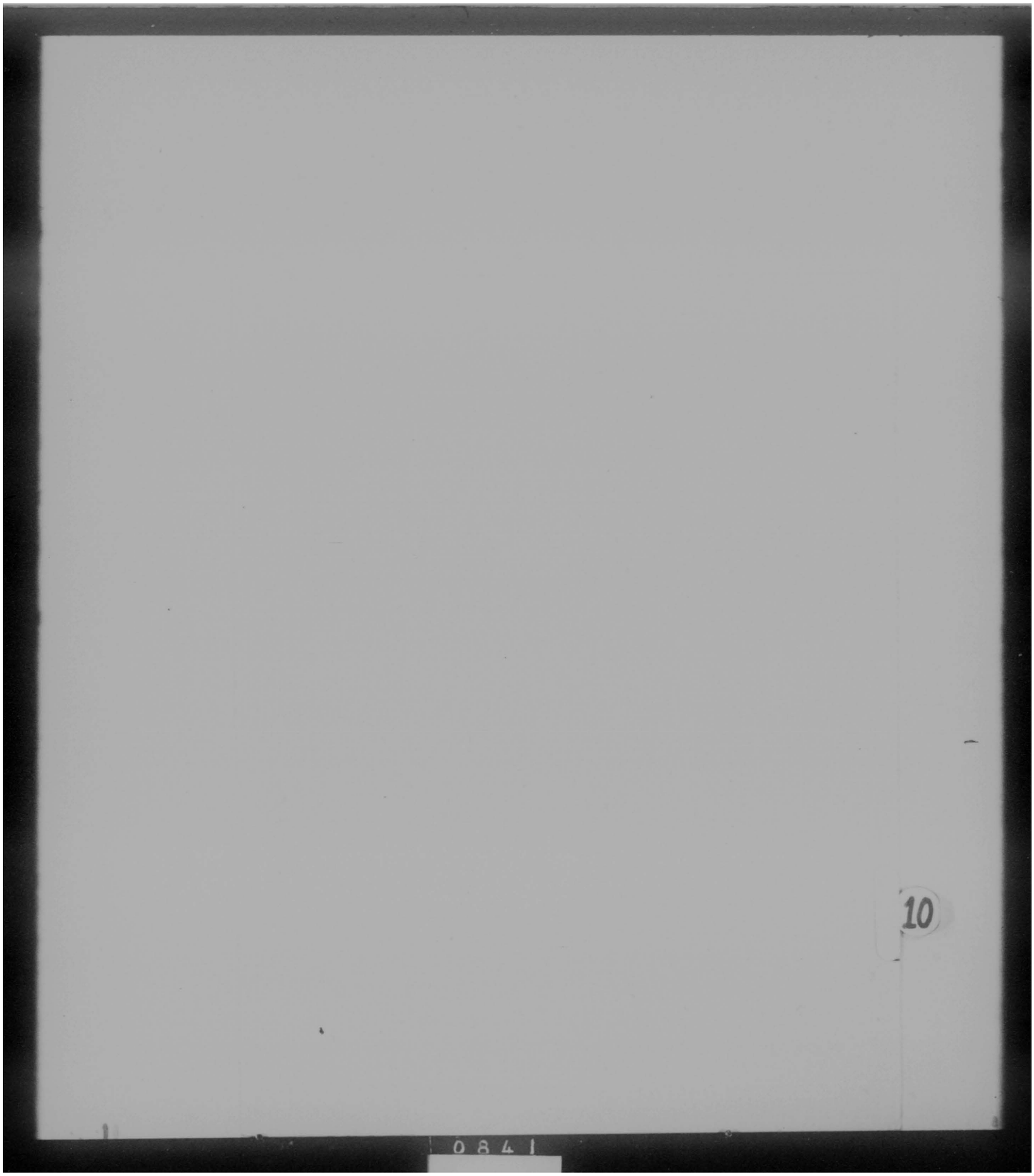

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

Classification SECRET
Auth: COMDR 376th BW
Initials:
Date: 6 Jan 55

WING COMMANDER'S REMARKS

PART IV

Air Training Report for December 1954
(RCS: 4-SAC-T12

I concur with the comments of the Squadron Commander.

JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (H)
Barksdale Air Force Base
Louisiana

Classification: SECRET
Auth: CC OR 376TH B
Initials:
Date: 6 Jan 55

SQUADRON COMMANDER'S REPORT

PART III

Air Training Report for the Month of December 1954
(RCS: 4-3 C-712)

PART III

6. Squadron Commander's Remarks - Part III

a. Hours flown performing missions ordered by higher headquarters:

(1) Test and Tactics 24:55

(2) Ferrying aircraft 7:55

TOTAL 32:50

b. Weather and local conditions affecting training:

(1) Negative.

c. Restrictive Directives:

(1) Negative.

d. Combat crew member gains and losses:

(1) Crew members gained:

(a) Two co-pilots.

(b) Two navigators.

(c) Five flight engineers.

(d) Ten radio operators.

(e) Two boom operators.

(2) Crew members lost:

(a) Two navigators - one PCS to ACB school and one PCS to 301st Air Refueling Squadron.

(b) One flight engineer - discharged from the service.

(c) Three radio operators - two PCS Ramey AFB and one discharged from the service.

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PART III - Squadron Commander's Remarks for the Month of December 1954

(c) Three radio operators - two PCC Runny AF5, one discharged from the service.

e. Crew member changes:

(1) One co-pilot.

(2) Two navigators.

(3) Two flight engineers.

(4) Four radio operators.

(5) Six boom operators.

f. New crews:

(1) Three non-ready crews formed during the month.

(a) M27AO - 3 December 54

(b) M28AO - 3 December 54

(c) M29AO - 17 December 54

g. Crew status changes:

(1) MO3CO to TO3CO, 7 December 54 - Upgraded.

h. Standardization Crew:

(1) TC2DO.

i. Additional material and personnel problems.

(1) The MOCP rate increased to 6.55% during the month, as compared to 2.20% for the previous month. However, the MOCM rate was 35.71%. This was due almost entirely to the resurfacing of control surfaces on eight aircraft.

j. SAC minimum training requirements not accomplished:

(1) Not applicable.

k. Non-combat ready crews capable of deploying:

(1) Two.

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PART III - Squadron Commander's Remarks for the Month of December 1954

a. Non-Combat Ready Crew Training:

(1) The average flying time on non-combat ready crews was 23:00 and combat ready crew average flying time was 19:8.

b. Flying time Differences:

(1) AF Form 110.: 442:40.

(2) 4-S.C-T12: 425:00.

(a) A difference of 17:40 is as follows:

Test Hops - 13:05.

November Supplemental 4-S.C-T12: 4:35.

c. Special Training Month Remarks:

(1) Programmed flying time allocated was originally 490:00, however this was reduced to 382:00. Of the new allocated time, 111% was flown. Programmed pilot proficiency was not accomplished due to two air aborts, two maintenance cancellations and one ground abort. Programmed heavy gross weight hook-ups were not accomplished due to one ground abort and four deviations by receivers. These deviations were due to scheduled transfer not completing requirements for heavy gross weight hook-ups. Accomplishments exceeded other requirements of programmed training. Fifteen radar navigational logs were accomplished in lieu of scheduled celestial navigation due to adverse weather conditions.

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PART III - Squadron Commander's Remarks for the Month of December 1954

(2) Programmed Training accomplished is as follows:

Training Item	Programmed	Accomplished	Percent Accomplished
A. Flying Time	490	423:00	87
B. Sorties	99	84	84
C. Pilot Proficiency	20	17	85
D. Transition	6	6	100
E. Navigation	45	62	137
1. Grid	14	16	114
2. Day Cel	17	25	147
3. Nite Cel	14	19	136
F. Radar Approaches	21	32	151
G. Rendezvous	29	30	104
H. Wet Hook Ups	93	95	102
1. Above 15M	43	90	210
2. Radio Silence	30	47	153
3. Heavy Gr. Wt.	10	6	60
4. Nite	10	18	180
I. Cargo Loading	20	26	130
J. Passenger Loading	20	25	125
K. Long Range Cruises	14	17	121

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PART III - Squadron Commander's Remarks for the Month of December 1954

c. Comments or Recommendations by the Squadron Commander:

(1) The high [illegible] to (reference paragraph i(1) due to control surface [illegible], was the result of all affected aircraft having consecutive dates of manufacture. The reduction of programmed flying time without corresponding change in training requirements necessitated the additional 11½ flying time.

WENDELL D. LOCK
Lt Colonel, USAF
Commander

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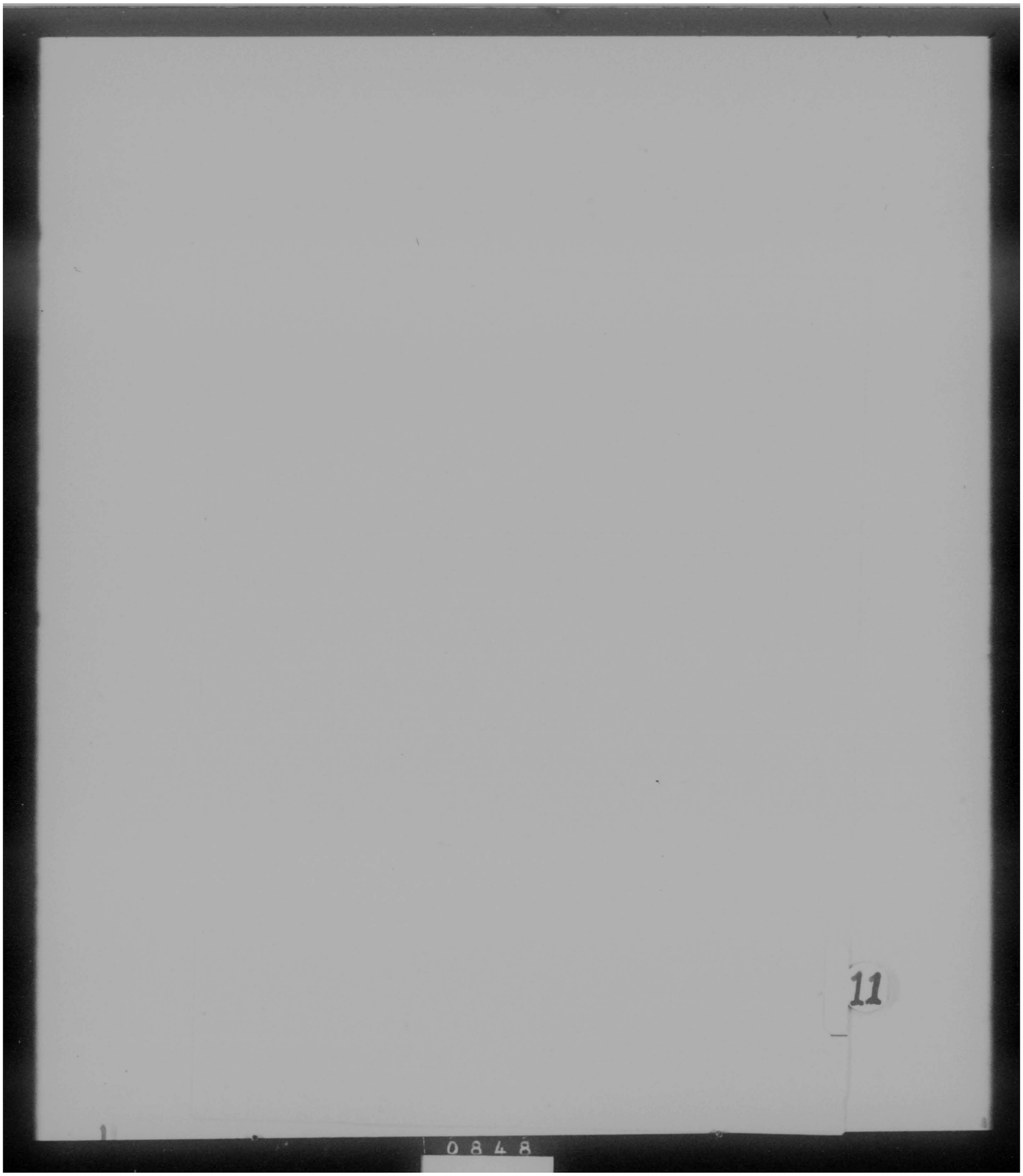

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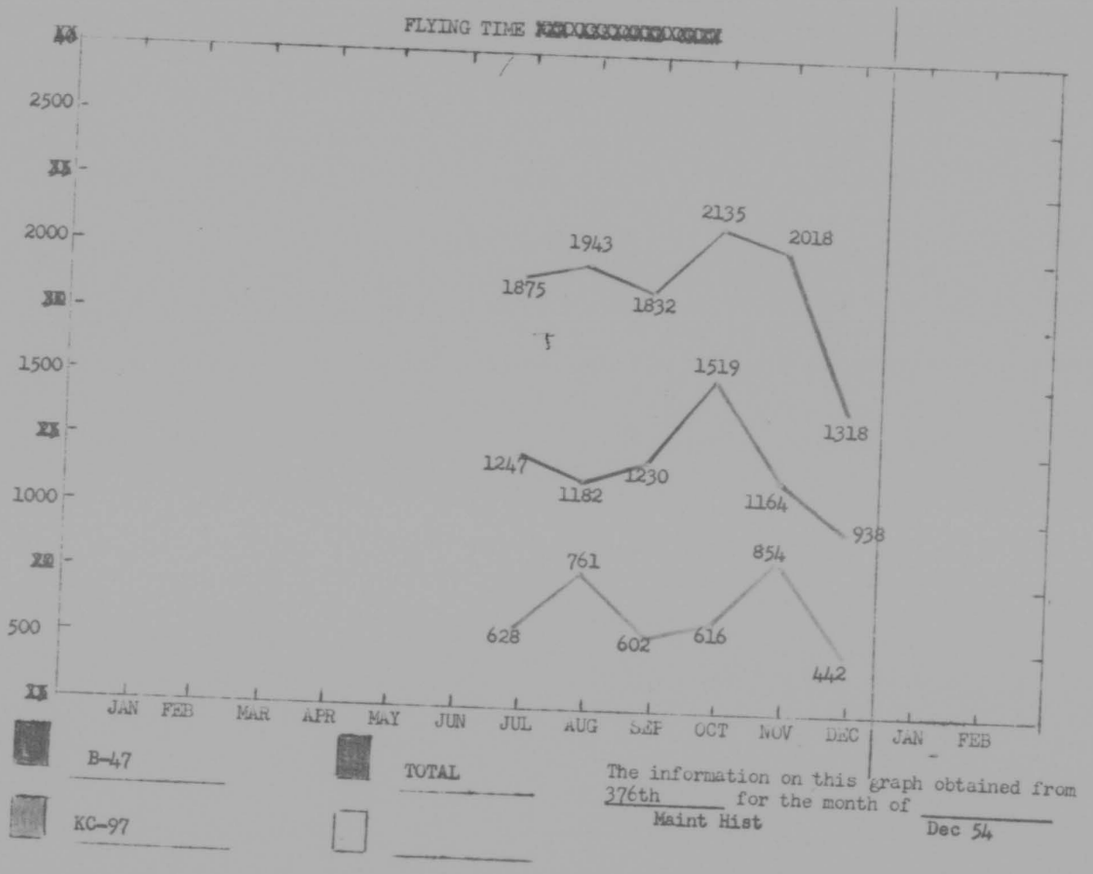

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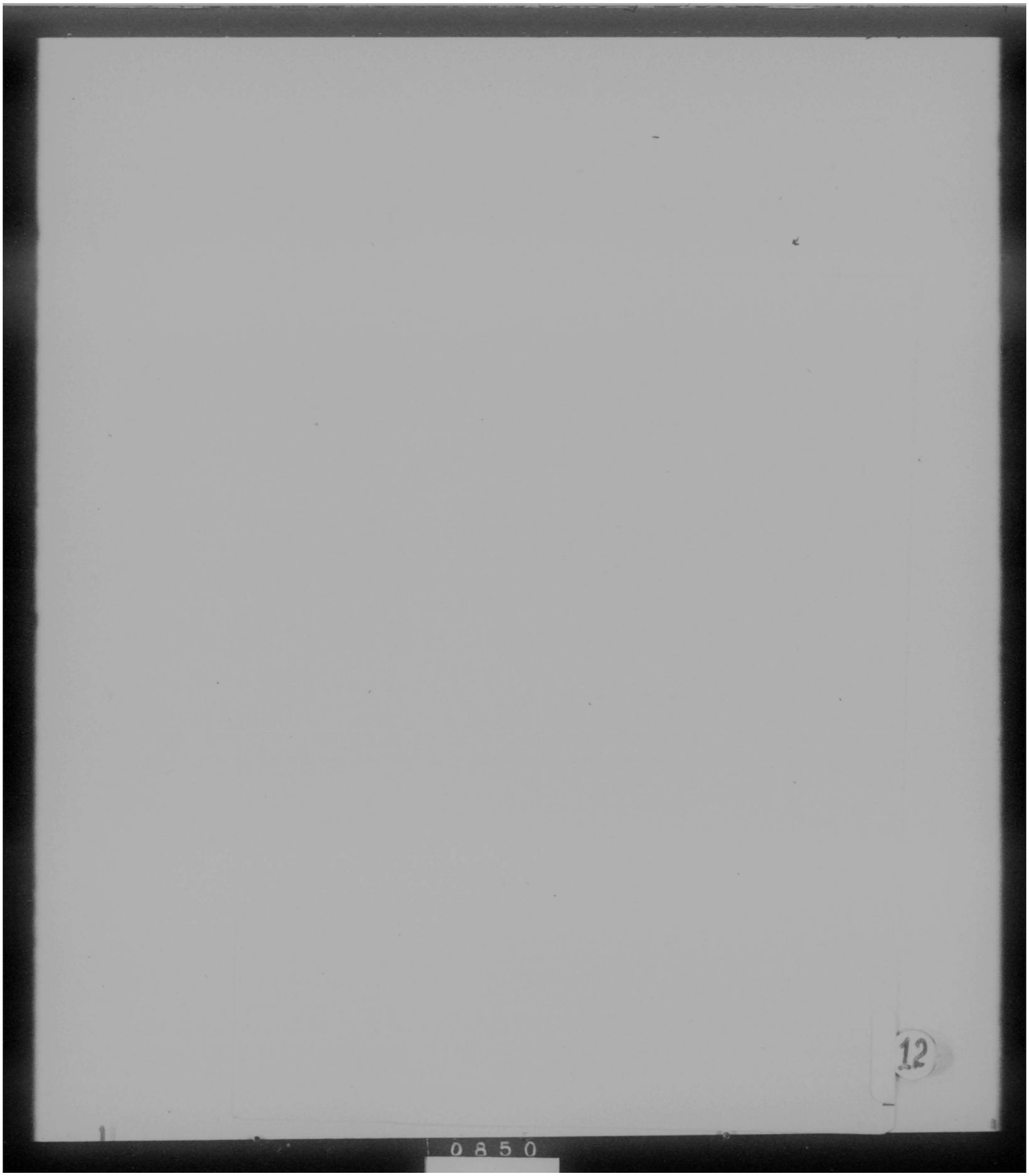

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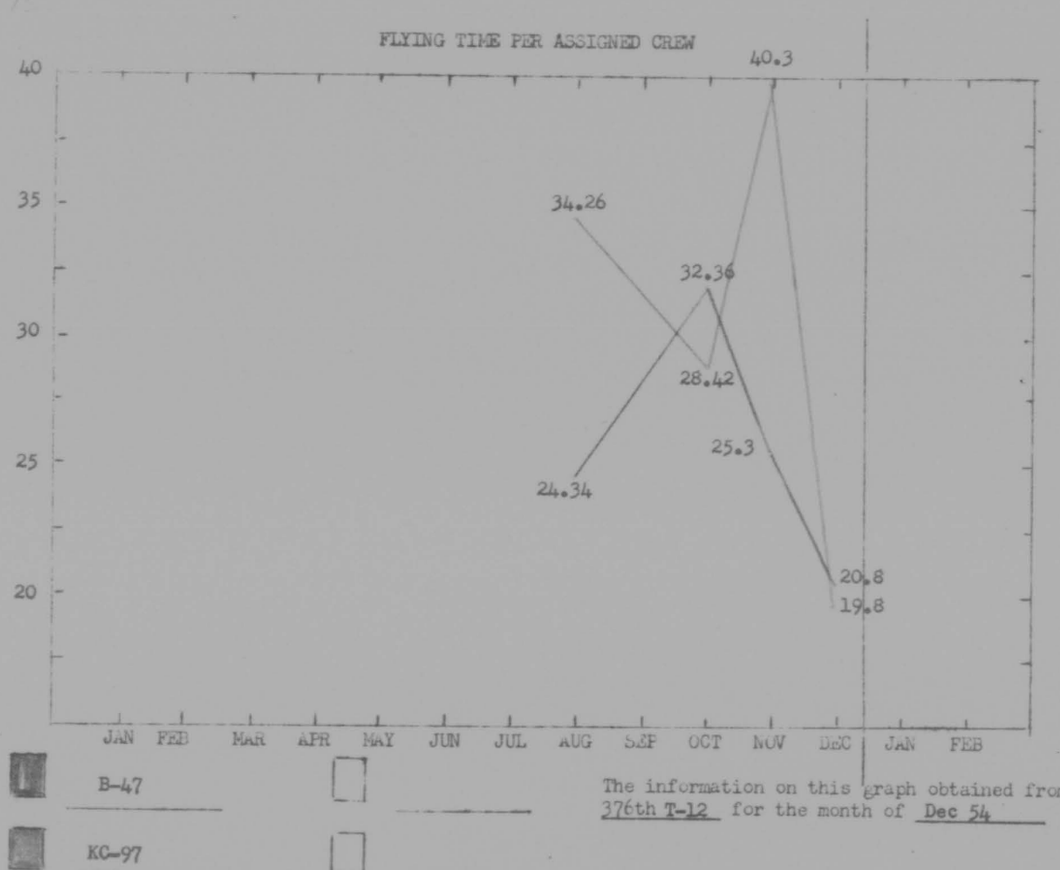

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HEADQUARTERS
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

Classification: SECRET
Auth: COMDR 376 BOMW
Initials: [illegible]
Date: 7 Jun 55

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1 January 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 December through 31 December 1954.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer.

(1) Date initiated: 30 November 1952

(2) Percentage complete: 90%

(3) Hours flown: 297:40

(4) Present status:

(a) The final report on this project is being written and should be complete in January.

(b) An additional two hour and twenty minute flight test was flown in December to substantiate the field strength readings of the GCI station for the final report. This test was flown at an altitude of 18,000 feet over the same track used on previous tests. At this altitude the aircraft passed through a null between vertical lobes at a range of approximately 50 nautical miles from the station. This confirms findings in previous jamming flight tests which showed increased jamming conditions recorded at this range.

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KODAK SAFETY FILM

b. Test Project Number 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953

(2) Percentage complete: 39%

(3) Hours flown: None

(4) Present status:

(a) The receiver portion of the jammer was modified by replacing the open type control relays with shielded, hermetically sealed relays. This was done to reduce receiver interference from relay contact arcing.

(b) An investigation was made of the frequency tracking between the transmitter stages. The tracking error between stages varied between plus and minus 5% throughout the VHF band. A satisfactory reduction of the tracking error has not been accomplished. The trouble appears to be due to the high minimum capacity of the tuning condensers. The high capacity results in a very poor L/C ratio in the tank circuits. The excessive capacitance and insufficient inductance in the tank circuits results in excessively high "Q". When the "Q" of a circuit is excessively high due to lack of inductance, the efficiency of the circuit drops and the tuning becomes much more critical.

(c) A conference with WAC Engineering Company, Dayton, Ohio, has been requested for early in January 1955. The purpose of this conference will be to determine the ability of WAC to decrease the minimum capacity of the tuning capacitor to a point where sufficient inductance can be inserted.

c. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954

(2) Percentage complete: 70%

(3) Hours flown: 215:30

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(4) Present status:

(a) No missions were flown on the chaff corridor during this period.

(b) Two tests were flown on Test Project Number 27A to test RR-44/AL chaff against the modified SCR-270 radar (71 mc) at Eglin Air Force Base, Florida. Each test consisted of a run at 10,000 feet, 20,000 feet and 30,000 feet at an indicated airspeed of 250 knots. Each run consisted of an outbound leg from the radar and an inbound leg to the radar site. Chaff was not dispensed on the outbound legs to assure that the B-47 aircraft could be tracked without chaff. Chaff was dispensed on the inbound legs at a rate of ten feet per minute. An average of eight bundles of RR-44/AL chaff was dispensed each mile. The chaff was detected and photographed at the radar on five of the six runs. Neither the B-47 aircraft nor the chaff was detected on one of the runs at 30,000 feet. Even though the chaff appeared on the radar scope on five of the six runs, it did not persist longer than 20 minutes on any run. As the altitude was increased the speed increased to Mach .87 and the persistence of the chaff echo decreased to 15 minutes or less. It is evident that when the chaff is dispensed at higher altitudes and higher Mach numbers it will be less effective. These and previously run tests indicate that RR-44/AL chaff in its present form is not suitable for chaff corridor use.

(c) A joint chaff corridor mission with the 8th Air Force, Eglin Air Force Base, and Tyndall Air Force Base, Florida is planned for 25 January 1955. A preliminary conference for coordination of this mission was held with Eglin Air Force Base personnel during December.

d. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 52%

(3) Hours flown: 26:00

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(4) Present status: The 376th Bomb Wing is awaiting a prototype Polaroid Camera and periscope attachment from the Photographic Laboratory at the Wright Air Development Center, Dayton, Ohio. This camera and periscope will mount on the AN/APS-23 indicator in the B-47E aircraft. It will permit pictures to be taken of the indicator with either the O-15 camera or the Polaroid camera. The entire format of the standard Polaroid film will be utilized including the display of a clock, counter and data tab. This camera should provide suitable pictures and data to enable the observer of the B-47 aircraft to navigate without continuous radar mapping.

(a) The detail drawings of the prototype camera have been completed by WADC. One set of the drawings is being sent to the 376th Bomb Wing and another set has been submitted to the machine shop at Wright Air Development Center for manufacture of the camera.

(b) The only lens available at the present time is an f 3.5, 105mm lens. The 376th Bomb Wing has obtained a sketch of an f 2.8, 105mm Schneider Xenotar lens which will be more suitable if there is sufficient mounting space. The sketch has been sent to the photographic laboratory at WADC which will determine the possibility of using this faster lens.

(c) A flight test has been scheduled for the last week in January so that the camera may be checked under actual operating conditions. The camera body must be a casting which will require considerable time to produce; therefore, it may not be possible to meet the above date for testing.

e. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954

(2) Percentage complete: 40%

(3) Hours flown: 6:00

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(4) Present status:

(a) Two representatives of the Hughes Aircraft Corporation visited this organization to make preliminary plans for a joint test to be conducted at Holloman Air Force Base the week of 24 January 1955. This test will determine:

1. The infrared radiation pattern of a B-47 aircraft.

2. The radiation pattern and field strength of a 500 watt General Electric quartz infrared lamp.

3. Maximum detection range of the GAR 1B (Falcon) missile head against the infrared lamp used as a beacon.

(b) A visit was made to the Eastman Kodak Company, Rochester, New York, to modify the Dove infrared seeker head for flight testing. Preliminary ground tests made at Rochester indicate the possibility of detecting a 500 watt IR source at a range of ten miles. The 500 watt quartz infrared lamps received from the General Electric Company were used in this test.

(c) The modified Dove IR seeker head and associated test equipment will be loaned to the 376th Bomb Wing by Eastman Kodak Company and the Naval Bureau of Ordnance for flight testing in January.

f. Test Project Number 31, "Operational Test of the QRC-4 VHF Communications Jammer".

(1) Date initiated: 26 November 1954

(2) Percentage complete: 0%

(3) Hours flown: None

(4) Present status:

(a) The project directive for this test was received during the month. Tests will begin as soon as the QRC-4 equipment is received.

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(b) A teletype message from Headquarters, ARDC on 8 December 1954 indicates a delay in the delivery of the first item to WADC due to unexpected design problems. Test models will be delivered to the 376th Bomb Wing when engineering tests are completed on the first model by WADC. This equipment is expected by 1 February 1955.

g. Auxiliary Test Project Number 5, "Development of IFF Jammer."

(1) Date initiated: 21 September 1953

(2) Percentage complete: 45%

(3) Hours flown: 28:09

(4) Present status:

(a) One flight test with the IFF transponder installed in a KC-97 aircraft was flown during the month. The results of this test and previous experiments are being evaluated as a basis for future flight tests.

(b) One of the objectives of this project is the determination of an effective type of jamming for use against the Mark III IFF system or similar systems such as the Russian SRO. Other aircraft vectoring problems are not being considered because of the lack of associated radar tracking equipment.

(c) Preparation is being made to simulate various tactical conditions under which the Mark III system might be employed. Several flight tests are planned for January using a transponder installed in a T-33 aircraft and a B-47 equipped with AN/ALT-7 jamming transmitters.

h. Auxiliary Test Project Number 6, "Development of VHF Broadband Barrage Jammer."

(1) Date initiated: 5 April 1954

(2) Percentage complete: 55%

(3) Hours flown: 6:00

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(4) Present status:

(a) The 12 R.F. amplifiers which make up the jammer barrage were changed from a series fed plate circuit to a shunt fed plate circuit in order to eliminate the plate by-pass condensers from the tank circuit. In the series circuit, as previously used, the by-pass condensers in the 12 amplifier plate tank circuits were effectively in parallel across the noise modulation voltage. This caused much of the higher frequency components of the noise modulation to be by-passed to ground. Elimination of the by-pass condensers resulted in a considerable increase in modulation, particularly by the high frequency noise components. The AN/APT-5A noise modulator, which is being used as the barrage noise source, does not produce enough power to modulate 12 amplifier units; however, eight units may be modulated to approximately 40 percent.

(b) A flight test was conducted on 17 December against the modified SCR-270 radar and the AN/MLQ-3 at Eglin Air Force Base, Florida. Only eight units of the 12 unit barrage jammer were used for this test. Four test runs were made between Eglin Air Force Base and Andalusia, Alabama, using a C-47 aircraft flying at an altitude of 9,000 feet. A standard AS-161 whip antenna mounted on top the aircraft was used as the jammer antenna.

1. On Run 1 (outbound from Eglin) and Run 2 (inbound from Andalusia) jamming conditions four and five were maintained. The jammed sector varied from about 70 degrees to 80 degrees, when the jammer was 60 miles distant, to 360 degrees when the jammer was ten miles distant. Jamming appeared as bright scope jamming on the PPI scope and greatly increased noise grass on the A scope.

2. On Run 3 (outbound from Eglin) the jammer remained off to allow the radar to track the aircraft.

3. On Run 4 (inbound from Andalusia) the jammer was alternately turned on and off for 15 second intervals. All targets in the jammed sector were hidden by noise jamming each time the jammer was turned on.

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4. No malfunctions were experienced during the test. The jamming transmitter output was 24.5 watts forward power and 3.5 watts back power during the test.

5. The barrage frequencies as logged by the AN/MLQ-3 operator were 64, 66, 68, 69, 70.5, 71.5, 72, and 74 megacycles. The radar frequency was logged at 71 megacycles.

i. Auxiliary Test Project Number 14, "Modification for "L" Band AN/APT-5A and AN/APT-9 Sweep Jamming."

(1) Date initiated: February 1954

(2) Percentage complete: 50%

(3) Hours flown: None

(4) Present status:

(a) An interim report is being prepared on this project and will be completed by 15 January 1955.

j. Auxiliary Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 and AN/ALT-8 ECM Systems."

(1) Date initiated: 1 April 1954

(2) Percentage complete: 70%

(3) Hours flown: 144:25

(4) Present status:

(a) The AN/ALT-8 transmitter modification described in the November report has not been completed. The slower speed replacement sweep motors were improperly wound. These will be replaced in January. Tests will begin at this time.

k. Auxiliary Project 18, "Development of a Sweep Jammer Using a VHF Increductor."

(1) Date initiated: 1 April 1954

(2) Percentage complete: 40%

(3) Hours flown: None

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(4) Present status:

(a) Work this month was almost entirely on the problem of matching the Increductor to an antenna. Previous to this several antennas had been tried with no success. Observations were made using the AN/ARR-8 receiver. With this equipment all of the VHF range could be observed at one time. The difficulty with the antennas tested was not so much that the VSWR was too high but that the oscillator became unstable. Some sections of the band were not covered at all. Skips in frequency of as much as 15 megacycles were noted. The skips occured when the reflected power was less than ten percent.

(b) A matching transformer has been made to be used with the transmitter and an AT-190B antenna. The transformer was inserted in the coax line between the antenna and the transmitter. Using this for matching, the skips were eliminated from the frequency range. The transformer, however, introduces a loss of about 15% of the normal power.

(c) A trip was made to C. G. S. Laboratories in Stamford, Connecticut, and the antenna problem was discussed with the manufacturers of the Increductor. Several types of matching transformers were considered, and a piece of ferrite was obtained for use as a core. So far no success has been obtained using the ferrite material because of excessive heating of the core. More work is being accomplished along this line.

1. Auxiliary Test Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7."

(1) Date initiated 12 July 1954

(2) Percentage complete: 85%

(3) Hours flown: 26:00

(4) Present status:

(a) The final report on this test project is being prepared and will be completed in January.

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m. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954

(2) Percentage complete: 85%

(3) Hours flown: N/A

(4) Present status:

(a) Final tests on these antennas will be made when the depot manufactured matching sections become available. The final report should be completed by 15 February 1955.

n. Auxiliary Test Project Number 24, "Effectiveness Test of QRC-8".

(1) Date initiated: 2 October 1954

(2) Percentage complete: 45%

(3) Hours flown: 33:50

(4) Present status:

(a) A simulated penetration mission was flown this month using one QRC-8 installed in a B-47 operating against a BC-348 receiver installed in a KC-97 aircraft. This was the first mission flown against the BC-348 since the 70 foot 10 inch, capacity tuned, antenna system was adopted for the QRC-8.

(b) The results of this mission were as follows:

1. On Run 1 a jamming condition four was obtained when the bomber and fighter were 19 nautical miles apart at an intercept point 106 nautical miles from the GCI site.

2. On Run 2 a condition four of jamming was obtained when the bomber and fighter were 42 nautical miles apart at an intercept point 90 nautical miles from the GCI site.

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3. On Run 3 a condition four of jamming was obtained when the bomber and fighter were 15 nautical miles apart at an intercept point 52 nautical miles from the GCI site.

4. On Run 4 a condition four of jamming was obtained when the fighter and bomber were 20 nautical miles apart at an intercept point 37 nautical miles from the GCI site.

(c) The GCI transmitter used was a BC-61CI operating on 4397.5 KC with a power input to the final amplifier of 500 watts. A 20 foot vertical whip antenna was used, loaded to six amperes. The GCI signal quality was excellent. The observer in the KC-97 could read the GCI site loud and clear at the beginning and end of each run. The signal strength of the jammer at 4397.5 KC was about average compared to the rest of the 3.5 to 5.0 megacycle band which was being swept at a 300 cycle per second rate.

(d) Five antenna tuning capacitors have been received; 15 others have been shipped. Of those received, one has been installed. The remainder will be installed when the fiberglass covers are received from Douglas Aircraft Company. Receipt of these covers is expected in time for installation of capacitors in five B-47 aircraft scheduled for a mission on 13 January 1955.

(e) Antennas 70 feet 10 inches long are being installed on all B-47 aircraft in the wing. Installations are now complete on four aircraft.

(f) A visit was made to Perrin Air Force Base, Texas, for the purpose of coordinating a mission scheduled for 13 January 1955. Plans call for five B-47 aircraft equipped with QRC-8 transmitters to make penetration runs against the FPS-3 GCI site at Perrin. Three KC-97 aircraft from the 376th Bomb Wing will be vectored, as simulated fighters, by the ground controller.

(g) The SOP's for antenna matching and transmitter tuning are being printed for A & E Squadron use.

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o. Auxiliary Project Number 25, "Structural Suitability of Stub Antennas".

(1) Date initiated: 1 July 1954

(2) Percentage complete: 80%

(3) Hours flown: 1,154:00

(4) Present status: The flight testing program of stub antennas is continuing with the following antennas:

(a) The two AT-190B antennas filled with "Eccofoam FP" by this organization, as reported last month, now have a total of 47:58 hours of flight time. No cracks have formed in the antenna shells; however, the antenna bases are as loose as the unmodified AT-190B antennas.

(b) The knife edge, thin, solid stub antenna, a laboratory model produced by the Federal Telephone and Telegraph Company, now has 24:00 hours of flight time. It is still as rigid as when installed.

(c) The laminated plastic UHF stub received from WADC now has 47:40 hours of flight time and is as rigid as when installed.

(d) A mesh reinforced plastic stub with dimensions similar to the AT-190B antenna now has 54:38 hours of flight time and is as rigid as when installed. This antenna was received from WADC.

(e) The four thin AT-190B antennas received from WADC and first test flown on 24 November now have a total of 30:38 hours. There are no cracks in the shells of these antennas although the bases have started loosening in the same manner as the unmodified AT-190B antennas.

p. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

(1) Date initiated: 1 June 1954

(2) Percentage complete: 65%

(3) Hours flown: 18:00

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(4) Present status:

(a) Additional testing of this equipment has been delayed awaiting correction of faulty aircraft cable installations and action on Unsatisfactory Reports submitted during the months of October and November 1954.

q. Auxiliary Test Project Number 27, "A B-47 ECM Configuration Study".

(1) Date initiated: 20 September 1954

(2) Percentage complete: 25%

(3) Hours flown: N/A

(4) Present status:

(a) There have been no developments since the last report. Additional preliminary engineering information was sent to Major Lindberg, DCCET, SAC Headquarters, and Major Eich, AMC Headquarters.

r. Auxiliary Test Project Number 28, "Testing of RG-117U, RF Transmission Line".

(1) Date initiated: 1 November 1954

(2) Percentage complete: 90%

(3) Hours flown: N/A

(4) Present status:

(a) Completion of tests will be accomplished when Auxiliary Project # 29 is finished. All laboratory tests have been concluded except final comparison tests between RG-117U and the "Styroflex" cable.

s. Auxiliary Test Project Number 29, "Testing of 'Styroflex' RF Transmission Line".

(1) Date initiated: 9 November 1954

(2) Percentage complete: 60%

(3) Hours flown: N/A

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(4) Present status:

(a) All except final laboratory tests have been completed. As soon as new connectors have been machined, installed and tested, a series of flight tests will begin to verify performance. Both cold-soak and dampness tests will be made at altitude.

t. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

(1) Date initiated: 10 November 1954

(2) Percentage complete: 90%

(3) Hours flown: N/A

(4) Present status:

(a) The final design of RF fittings which cause a minimum of electrical discontinuity has been decided upon and the machining begun. It is not intended that these particular fittings should be a cure-all in themselves. It is hoped, however, that a new and more satisfactory type of connector for use with ECM equipment may be developed from these results.

(b) Although this set of fittings was designed for a specific cable and associated equipment, the ease of adaptability to other equipment has been investigated. By using the new fittings, the VSWR of a section of RG-117/U cable has been reduced to less than 1.3:1 as compared to a ratio of 4:1 for the same length of cable using the old connectors.

u. Auxiliary Test Project Number 31, "Design of Antenna for 2700-3600 Megacycles".

(1) Date initiated: 12 November 1954

(2) Percentage complete: 42%

(3) Hours flown: N/A

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(4) Present status:

(a) A prototype diamond shaped antenna has been constructed. It is designed to mate with the RF fittings developed under Auxiliary Test Project Number 30. Low power tests show that the antenna VSWR is below 2:1 from 2500 to 3700 megacycles, below 1.5:1 from 2700 to 3700 megacycles, and approximately 1.25:1 from 2900 to 3450 megacycles. High power tests were made with a VSWR below 2.25:1 from 2600 megacycles to 3600 megacycles.

(b) Additional tests are to be made using a new outdoor ground plane now under construction. Tests will also be made of the vertical and horizontal radiation patterns.

v. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

(1) Date initiated: 1 September 1953

(2) Percentage complete: 100%

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status:

(a) No additional failures have occurred other than the six beam failures that were reported in the November U-30 report.

(b) Numerous cradles have been loaded and unloaded without failure since the last report. With all personnel aware of the problem, no further difficulties are anticipated. This knowledge of the limitations of the system, along with training and experience, should completely eliminate the cradle hoisting difficulties.

(c) A letter was received from Douglas Aircraft Company, dated 2 December 1954. This letter explained the laboratory testing of two identical production beams. The first beam failed at 9,640 pounds. The second beam, which had additional rivets installed to provide added strength, failed at 10,840 pounds.

0867

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(d) The production beam was designed for a maximum load of 12,000 pounds. The first beam sustained 80% of the designed load. The second beam sustained 90% of the designed load.

1. The 12,000 pound maximum load is based on an 8,000 pound cradle (4,000 pounds per beam), a load factor of 2.0 and a safety factor of 1.5.

2. The cradle configuration most commonly used is the half chaff and half electronic equipment configuration. The total weight of this configuration is 6,460 pounds (3,660 pounds at the aft end and 2,800 pounds forward). The 3,660 pounds exerted on the aft beam is the greatest load applied at any time. Using this load as a basis for figuring a new design load, the resulting maximum load is 11,000 pounds. This makes the hoist beams now in the field good for 87.5% of the new design load.

w. Auxiliary Test Project Number 35, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

(1) Date initiated: 1 December 1954

(2) Percentage complete: 5%

(3) Hours flown: None

(4) Present status:

(a) The purpose of this test project is to modify the the AN/APS-54 from its present status as a strictly passive device to an active countermeasure weapon. This is to be accomplished by combining the AN/APS-54 with the AN/ALE-1 chaff dispenser.

(b) The visual warning information which is presented on the control-indicator unit (C1323/APS-54) of the AN/APS-54 may be presented on as many as six remote indicator lamp displays. Each display has two lamps, one for the nose, one for the tail. As there is only one remote indicator display on the B-47E aircraft, there is output available to energize two relays, which in turn may be used to operate the chaff dispenser.

0868

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(c) It has been observed that when an aircraft using the AN/APS-54 is within the effective range of anti-aircraft guns controlled by gun-laying radar, both the nose and tail indicators of the AN/APS-54 are lighted.

By having one relay energized when the nose indicator is lit, and the other relay energized when the tail indicator is lit, the two relays may be incorporated with the control circuitry of the chaff dispenser in such a manner that when both nose and tail indicator lights are on (such as would occur when the aircraft was in range of gun-laying radar) the chaff dispenser will operate.

(d) Relays have been received which will satisfactorily perform the operation described above. When the relays are mounted on a suitable panel and installed in an aircraft with the necessary cabling, the modified AN/APS-54 will be ready for flight testing.

x. Auxiliary Project Number 34, "ARC-27 Antenna Installation Modification and Evaluation".

(1) Date initiated: 9 November 1954

(2) Percentage complete: 90%

(3) Hours flown: 23:00

(4) Present status:

(a) UHF radio communication has become unreliable during and after chaff dispensing operations on "Blue Cradle" B-47 aircraft. Interference caused by chaff dispensed from the cradle striking the antenna, and complete failure of communications due to the rope type chaff hanging on the antenna are the two problems to be solved.

(b) Two approaches were followed to accomplish a workable fix.

1. On one fix the antenna was relocated at station 1150.9 and installed at a swept back angle of approximately 30 degrees. The purpose of this installation was two-fold. It would remove the antenna from the battery drain which allowed battery acid to eat away the coax cable, and the backward sweep would prevent the chaff from hanging on the antenna.

0869

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2. A fiber glass radome was fabricated to completely inclose the antenna. This radome has a 20 degree sweep on the leading edge. The installation of this radome is simple; it requires riveting the radome flange to the aircraft.

(c) A flight test was performed to determine the effect on the radiation pattern of the antenna by each fix. There was no radical departure from the original pattern in either case.

(d) In other tests chaff was dispensed from the cradle at various rates to check on the elimination of interference and hanging of chaff on the antenna. In both cases there was no interference or hanging of chaff.

(e) The radome installation is the simpler of the two fixes.

FOR THE COMMANDER:

William H Murphy

WILLIAM H MURPHY
Major, USAF
Adjutant

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14

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SECURITY CLASSIFICATION (If any)

DISPOSITION FORM

FILE NO.	SUBJECT	Developement of Special Weapons Loading Swivel by T Sgt Hosey
TO 7CO	FROM 7AE	DATE 15 Nov 54 COMMENT NO. 1

1. Reference your D/F dated 2 November 1954, the following is submitted.

2. T Sgt Hosey first developed a swivel similar to that we are now using, at the request of the Commander, 1st Aviation Field Depot Squadron, 3918th Air Base Group, APO 194. This request was based on the need for a faster and more efficient way to load Special Weapons on B-47 aircraft.

3. The swivel was constructed during the month of Dec 1953 using the facilities of the 3918th A.B.G.'s machine shop. The design and plans for construction of this swivel were basically T Sgt Hosey's though some technical advice was rendered by Capt. T. J. Callahan. The construction was completed and the swivel tested at R.A.F. Station, Upper Heyford, England. The Commander of the 22nd Bomb Wing observed the initial tests of this swivel and approved it for use with his command.

4. On 1 June 1954, T Sgt Hosey asked his commander and was granted approval to construct another swivel similar to the first one but less than half as heavy and with greater safety factors than the one previously constructed. T Sgt Hosey supervised construction of this improved swivel which is the one now in use at R.A.F. Station, Burtonwood, England. This swivel was completed and initially tested on 15 Feb 1954.

5. On 18 March 1954, T Sgt Hosey was transferred to the 805th A.B.G., Barksdale Air Force Base. T Sgt Hosey brought with him the design and plans for this swivel and presented these plans to Capt. Miller, 301st Aviation Squadron. On 2 June 1954, the swivel was constructed at Barksdale Air Force Base.

6. The 301st Aviation Squadron was deactivated in July 1954 and T Sgt Hosey was transferred to the 376th Armament & Electronics Maintenance Squadron as a member of the Special Weapons team. T Sgt Hosey brought the swivel with him to this organization. By directive of Headquarters, Second Air Force, the 376th A & E Maintenance Squadron was given a requirement to test this swivel. These tests were conducted under the supervision of 1st Lt. W. E. Mann, of this squadron and T Sgt Hosey. Results of these tests with photographs were forwarded to Second Air Force and a copy of the report (classified) is on file in this squadron.

7. T Sgt Hosey's records indicate that he has been awarded an Outstanding Airman Achievement Award covering a six month period from 1 July 1953 to 31 December 1953. This award is general in nature and does not comment on any specific achievement of T Sgt Hosey. The award does indicate that T Sgt Hosey was recognized as a man who had the capabilities to design technical devices.

DD FORM 1 FEB 50 96 REPLACES NME FORM 96, 1 OCT 48, WHICH MAY BE USED.

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8. I sincerely believe that the swivel developed by T Sgt Hosey is a valuable aid to Special Weapons Loading and would like to see Sgt. Hosey receive a commendation ribbon for his efforts. He is due for separation on th 20th of November and intends to re-enlist, but unfortunately, at another base. We have submitted necessary requests for construction of additional swivels for use with B-47 aircraft of the 376th Bombardment Wing. As near as I can determine, the initial plans, improvements and final construction of the swivel now in use have been Sgt Hosey's and it has been through his initiative and ability that we now have the use of this aid to the Special Weapons loading.

DAVID R. SCHULTZE
Major USAF
Commander

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SPECIAL WEAPONS LOADING SWIVEL FIELD TEST CONDUCTED
BY THE 376TH ARMAMENT & ELECTRONICS MAINTENANCE SQ

1. Purpose: In compliance with message DM6A2 9452 and to ascertain the feasibility of the special weapon loading swivel, designed by Technical Sergeant Mark Hosey, 376th Armament & Electronics Maintenance Squadron, to reduce the time and number of personnel required in loading special weapons.

2. Investigation:

a. Pre load test.

(1) The total weight that the loading swivel would be required to support was derived from the following:

N-1 Trailer	Wt	873 lbs
P-3 Trailer without tool box	Wt	900 lbs
MK-6 Weapon	Wt	8,500 lbs
Total		10,273 lbs
Plus 11% Safety Factor		1,130 lbs
Total		11,403 lbs

(2) The swivel with the aid of a crane raised a concrete block weighing 11,400 lbs. approximately 12 inches. The concrete block was then raised and lowered several times through a space of 6 inches in order to determine the amount of flexing the swivel assembly could stand without shearing or acquiring a permament set.

(3) The swivel assembly flexed approximately ¼ inch and no shearing was encountered in the above operation. A visual inspection, along with the ability to remove all screws in the swivel assembly without evidence of binding, indicated that no permanent set had occurred.

b. Load Test and Procedures.

(1) The equipment used for this phase of the test is as follows:

The normal special weapons bomb bay configuration.

Special weapons loading swivel.

N-1 Trailer

MK-6 Weapon.

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(2) This phase of the test was carried out under the most adverse conditions that could be simulated at that time. The two primary conditions were: (1) A slanting hard stand and (2) the aircraft had not been moved for three days which would allow for any settling that might have occurred.

(3) A pictorial presentation of the loading sequence is as follows:

(a) Photo # 1 "The special weapons loading swivel".

(b) Photo # 2 Step #1 "Installation of Swivel".

This is the manner in which the swivel assembly is installed in the aircraft. Note that each end of the swivel assembly is attached to a C-9 hoist idler sprocket by means of a single pin. This operation can be accomplished by 2 men in approximately ½ minute.

(c) Photo # 3, #4 and #5 Step # 2 "Positioning of Trailer".

This is the approximate position that the dolly is brought under the aircraft. There is no precise position that the dolly must be brought under the aircraft due to the fact that the swivel assembly is free to move approximately 12 inches in any direction. The slant of the hard stand is apparent in this group of photos. This operation can be accomplished by 3 men in 2 minutes.

(d) Photo #6 and #7 Step # 3 "Attaching the Swivel Assembly to the Weapon".

This is the manner in which the swivel assembly is attached to the weapon. The swivel assembly is lowered into the clevis in photo #6 and is shown secured in photo #7. The small angle arm with the knurled knob is called the counter balance and is used to shift the center of gravity of the trailer so that when hoisted, the trailer will ride tail heavy instead of in the normal nose heavy position. This is necessary due to the small clearance between the top of the trailer and the bomb bay door. This operation can be accomplished by 1 man in ½ minute.

(e) Photo #8, #9 and #10 Step #4 "Hoisting the Trailer".

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when the trailer is being hoisted the front wheels must break ground first as shown in photo #8. If they do not break ground first the counter balance must be readjusted. The trailer should be continued to be raised until the back wheels have broken ground as shown in photo #9. Photo #10 shows the altitude of the trailer when it is in position to be swiveled under the aircraft. This operation can be accomplished by 3 men in ½ minute.

(f) Photo #11 Step # 5 "Positioning the Trailer Tongue".

The tongue of the trailer is moved as far as possible in the direction of the front wheels of the aircraft. This will allow the tongue of the trailer to be positioned between the two front wheels of the aircraft when the trailer is swiveled to its final position under the aircraft. This operation can be accomplished by 1 man with no time element involved.

(g) Photo #12 and #13 Step #6 "Swiveling the Trailer Under the Aircraft".

The swiveling of the trailer under the aircraft was stopped in Photo "12 at approximately 45 degrees in order to show the clearance between the top of the trailer and the bomb bay door. The final swiveled position of the trailer is shown in photo #13. This operation can be accomplished by 3 men in approximately 1 minute.

3. Miscellaneous: The special weapon loading swivel assembly required approximately 240 man-hours to manufacture and the cost of the material is estimated at $60.00. The total weight of the swivel assembly is 62 lbs.

4. Comclusion: The results of the loading test show that a N-1 or P-3 trailer loaded with a MK-6 weapon can be placed in the loading position under a B-47 aircraft by 3 men in a time period of 3 to 5 minutes.

5. Recommendations: Based on the test conducted it is believed that consideration should be given to the manufacture in quantity and supply of the swivel to using organizations. The use of the swivel would reduce the number of personnel involved in a special weapon loading to 5 men and would save 6 to 10 man hours per loading.

2 Incls
1. Pictures, 3 sets 13 each
2. Drawings 1 set

/t/s/DAVID R. SCHULTZE
Major, USAF
Commander

A CERTIFIED TRUE COPY.

WILLIAM H. MURPHY, Major, USAF

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THE SPECIAL WEAPONS LOADING SWIVEL

INSTALLATION OF SWIVEL

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POSITIONING OF TRAILER

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POSITIONING OF TRAILER

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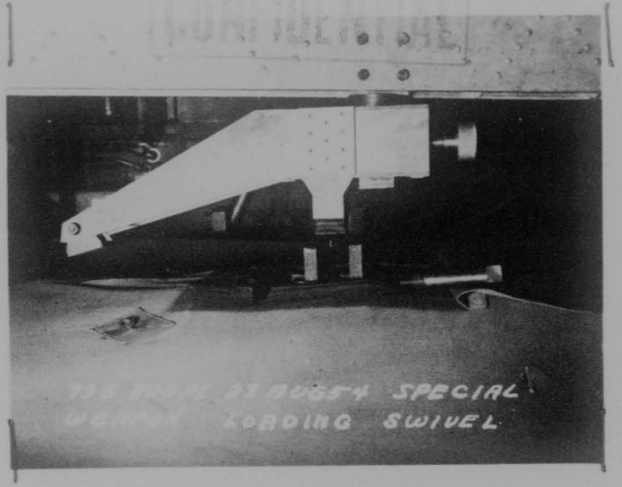

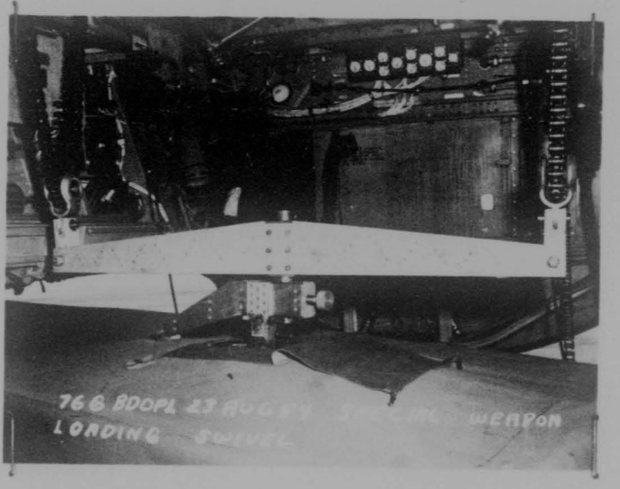

ATTACHING THE SWIVEL ASSEMBLY TO WEAPON

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HOISTING THE TRAILER

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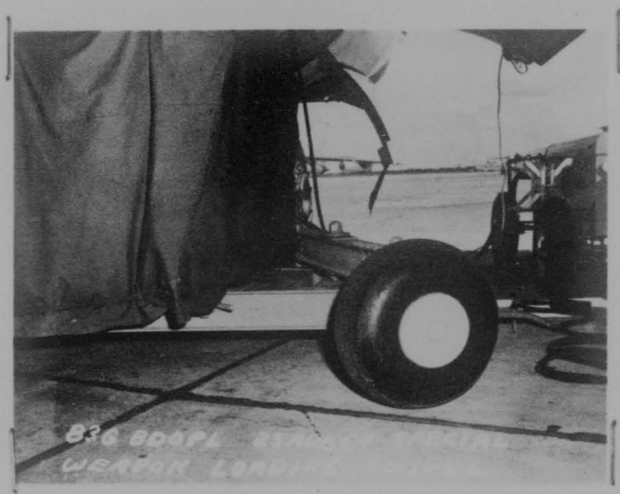
HOISTING THE TRAILER



POSITIONING THE TRAILER TONGUE

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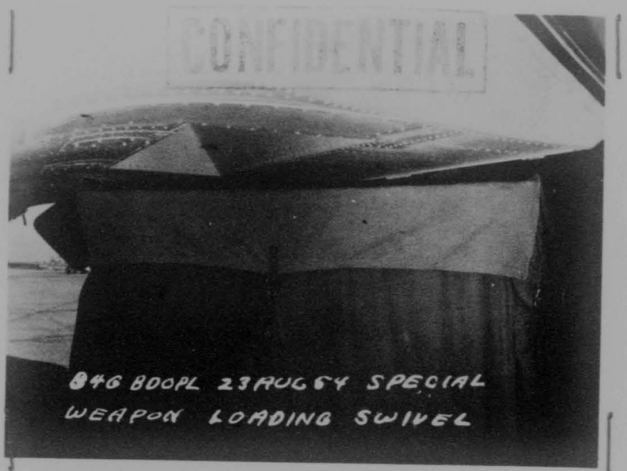

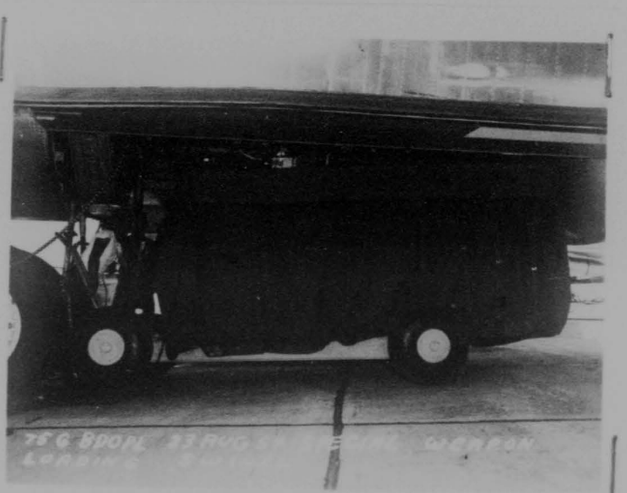

SWIVELING THE TRAILER UNDER THE AIRCRAFT

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HISTORICAL REPORT FOR THE MONTH OF DECEMBER 1954

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed Aircraft was 70 for the month. The average in-commission rate was 73.12%. A total of 1380:45 hours were flown for an average of 19:42 hours per possessed aircraft. The Wing AOCP rate was 6.05% compared to 7.09% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 Aircraft;

a. B-47 Aircraft: The Wing had a average of 48 B-47 aircraft possessed for the month. The average in-commission rate was 79.13% compared to 70.25 for the previous month. There was a total of 938:05 for an average of 19:36 hours per possessed aircraft. The AOCP rate was 5.92% a decrease from 9.35% for the previous month.

b. KC-97 Aircraft: The Wing had an average of 22 KC-97 Aircraft possessed for the month. The average in-commission rate was 60% compared to 85.30% for the previous month. There was a total of 442:40 hours flown for an average of 20:10 per possessed aircraft. The AOCP rate was 6.35% an increase over 2.20% for the previous month.

3. Manhour expenditure figures are not available for the month of December. Information is extracted from Electrical Machine Accounting reports which are not complete until approximately the 15th of each month.

4. The malfunction figures reported herein are taken from the U-15 report which is compiled from the 20th day through 21st day of the following month. During this period there were 39 aborts compared to 44 for the previous month.

5. A total of seven B-47 engines were changed during the month compared to five for the month of November. One KC-97 engine was changed compared to three for the previous month. The average B-47 engine time at change was 164 hours. KC-97 engine time at change was 464 hours.

TOC & RECORDS

1. There were 286 T.O. with 416 compliances c/w during the month on the B-47 aircraft and 75 T.O. c/w on the KC-97 aircraft.

2. There were 2 new T.O.'s with 96 compliances, received for the B-47 aircraft and 4 new T.O. with 68 compliances received for KC-97 aircraft for the month.

3. There were approximately 30 component parts change on B-47 aircraft and approximately 23 component changed on KC-97 aircraft.

4. There were 7 J-47-23 engines changed with an average time of 164 hours per engine and one R-4360-59B engine changed at 464 hours.

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QUALITY CONTROL

1. During the month of December 1954 the Quality Control Unit inspected five (5) B-47 and four (4) KC-97 type aircraft processed through the Maintenance Docks. The unit also performed in-commission inspections on Wing Assigned aircraft.

2. The unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The unit supervised seventeen B-47 test flights and thirteen KC-97 test flights during the month of December.

4. Two-hundred and six Unsatisfactory Reports were submitted during the month of December.

SUPPLY LIAISON

1. Total cannibalizations for the month of December were 74: B-47; 64: KC-97: 10.

2. Thirty-seven line items AOCP for the month.

3. Recurring AOCP are as follows:

Brake - 4103-14735 MSTI	(2)
Canopy - 1AFE-4-1850-562	(2)
Indicator - 6034-14602-1J-A1	(4)
Indicator - 6126-149E27	(4)
Indicator - 6034-16800-1A1A1	(3)
Machmeter - 6025-815K03	(2)
Panel - 1AFE-AAF150500	(2)

4. All B-47 and KC-97 aircraft were 100% ANFE for December.

MAINTENANCE STANDARDIZATION TEAM

During the month of December the Maintenance Stand Team initiated a large scale OJT program to be implemented throughout each maintenance organization in the Wing. Periodic surveys of the program revealed that a marked improvement has come about throughout each maintenance organization due to the agressive action taken by the maintenance supervisors and the Technical Representatives in support of the Maintenance OJT Program.

ROBERT S MILNER
LTCOL, USAF
Chief of Maintenance

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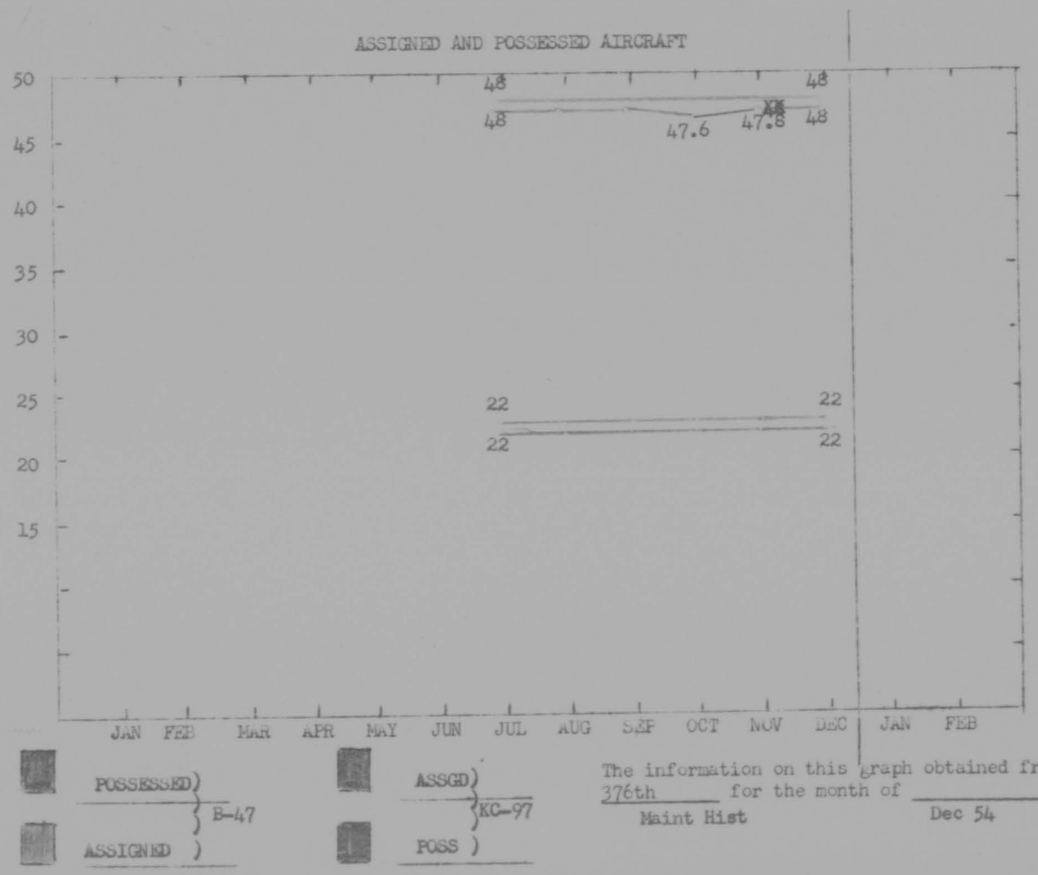

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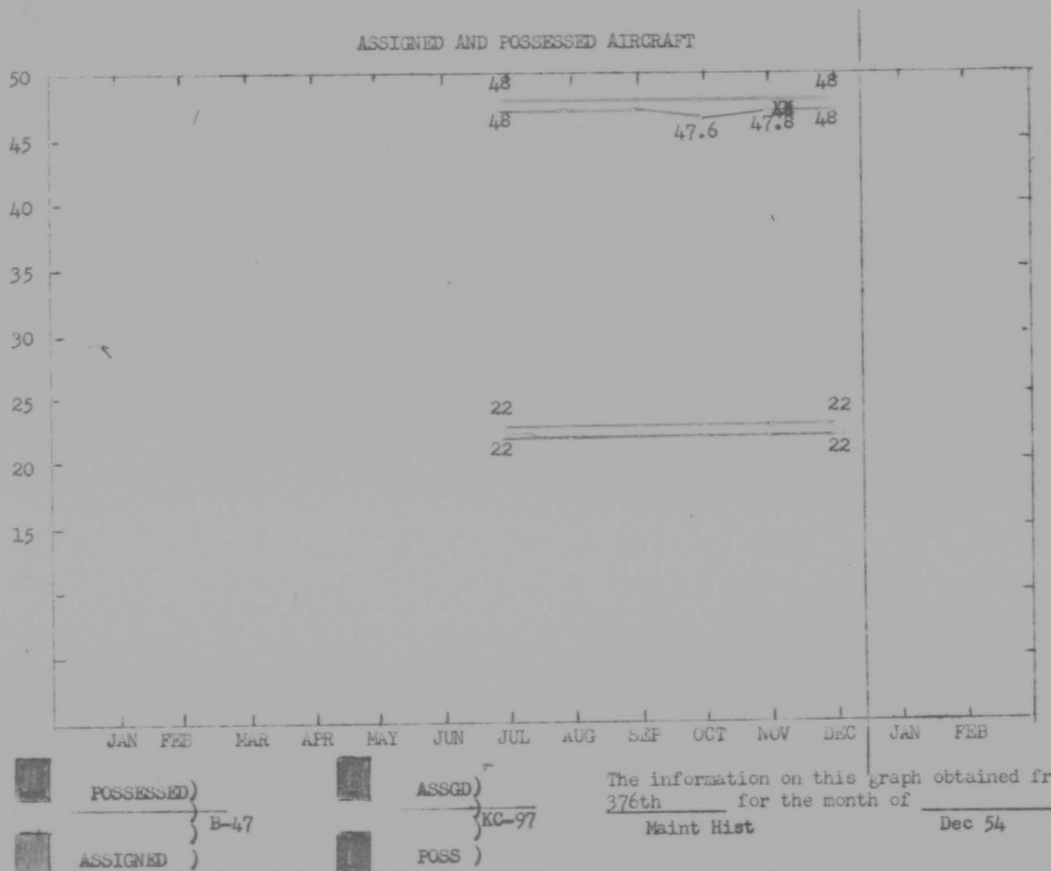

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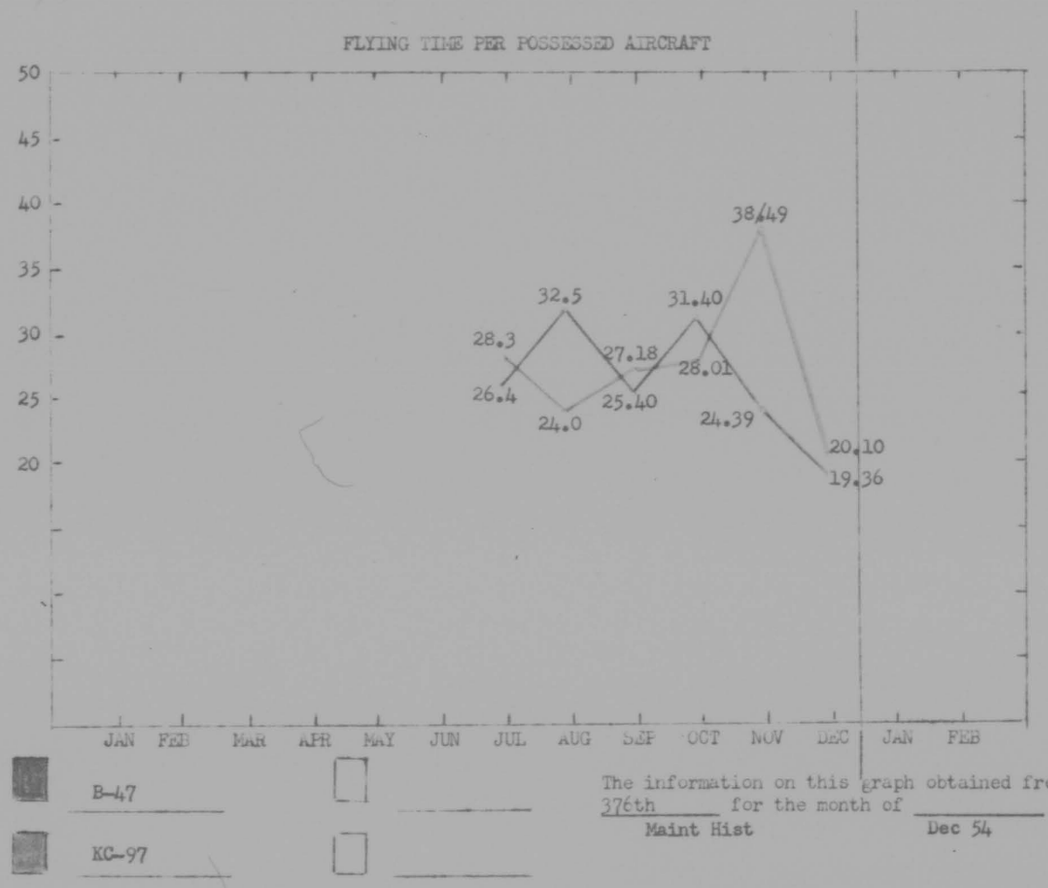

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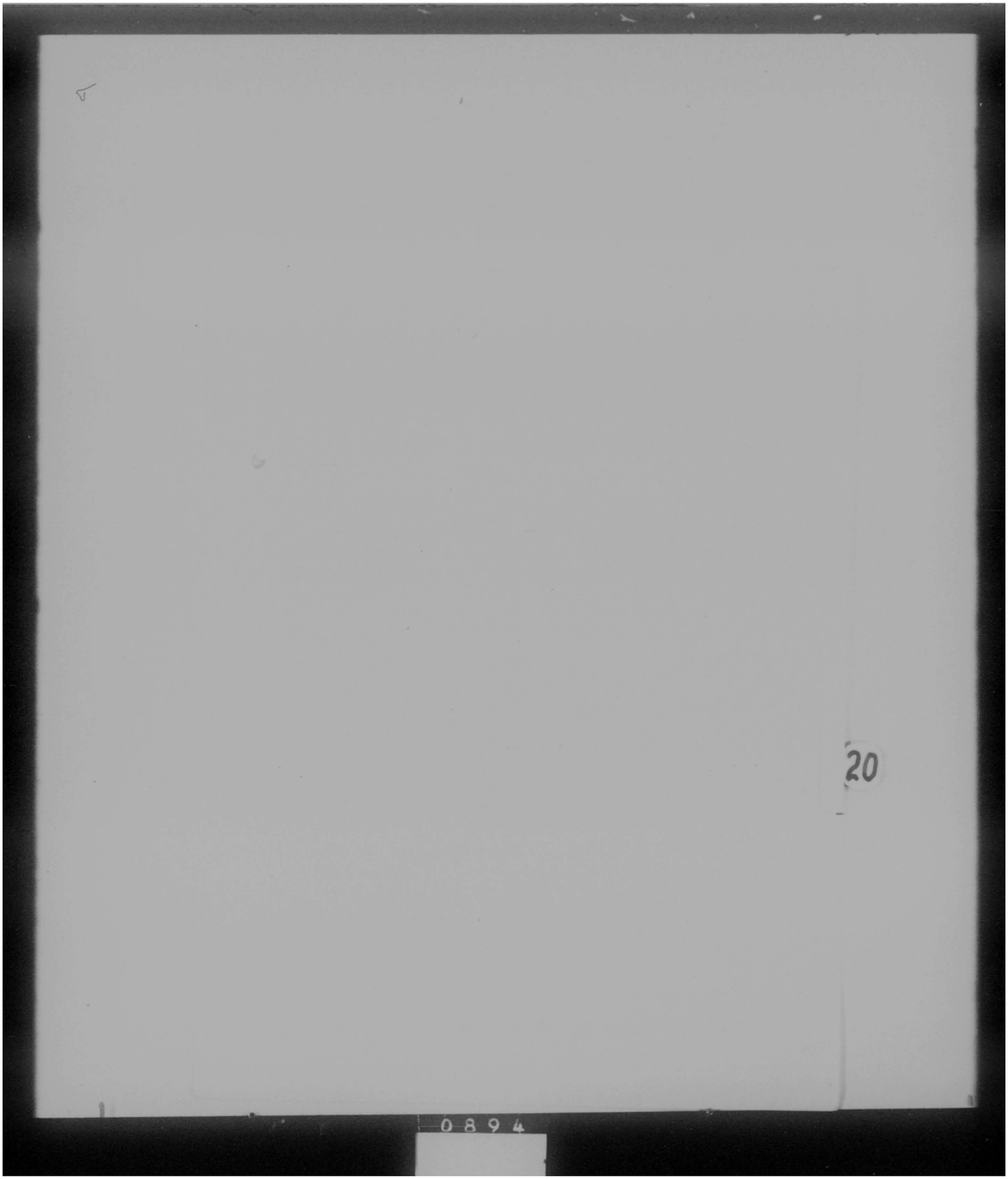

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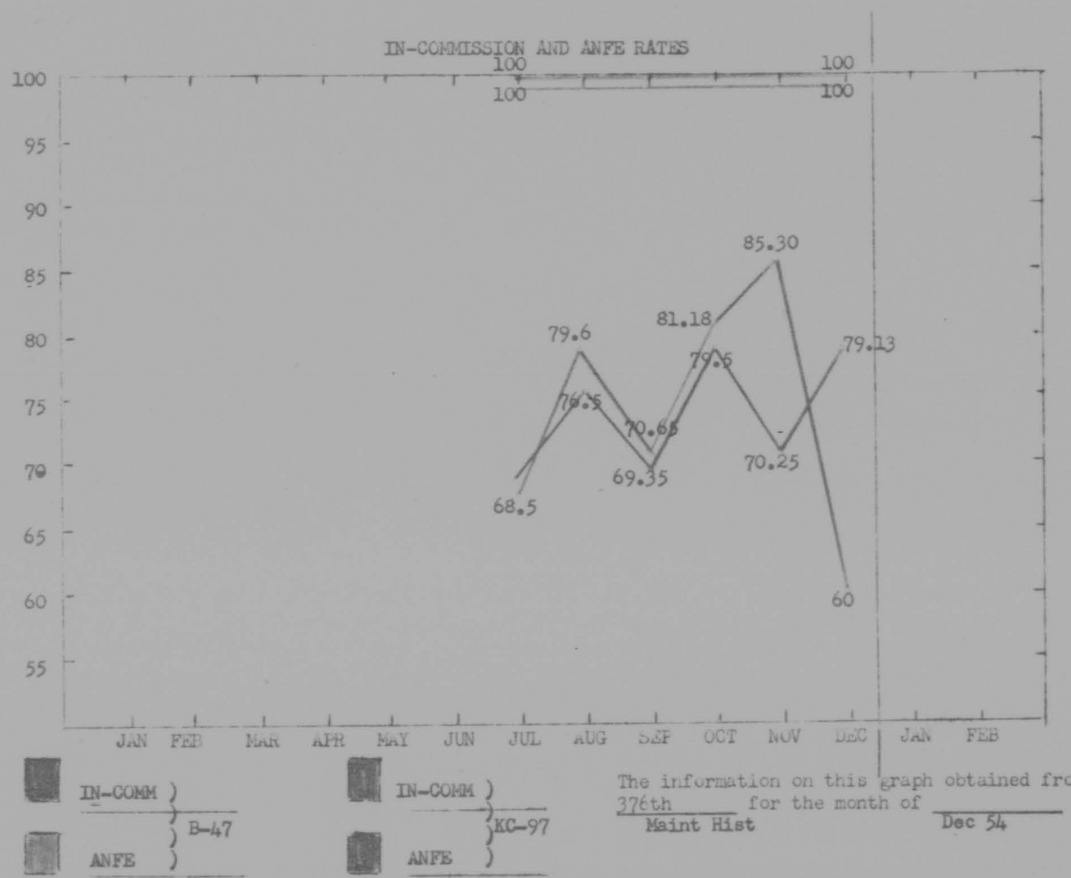

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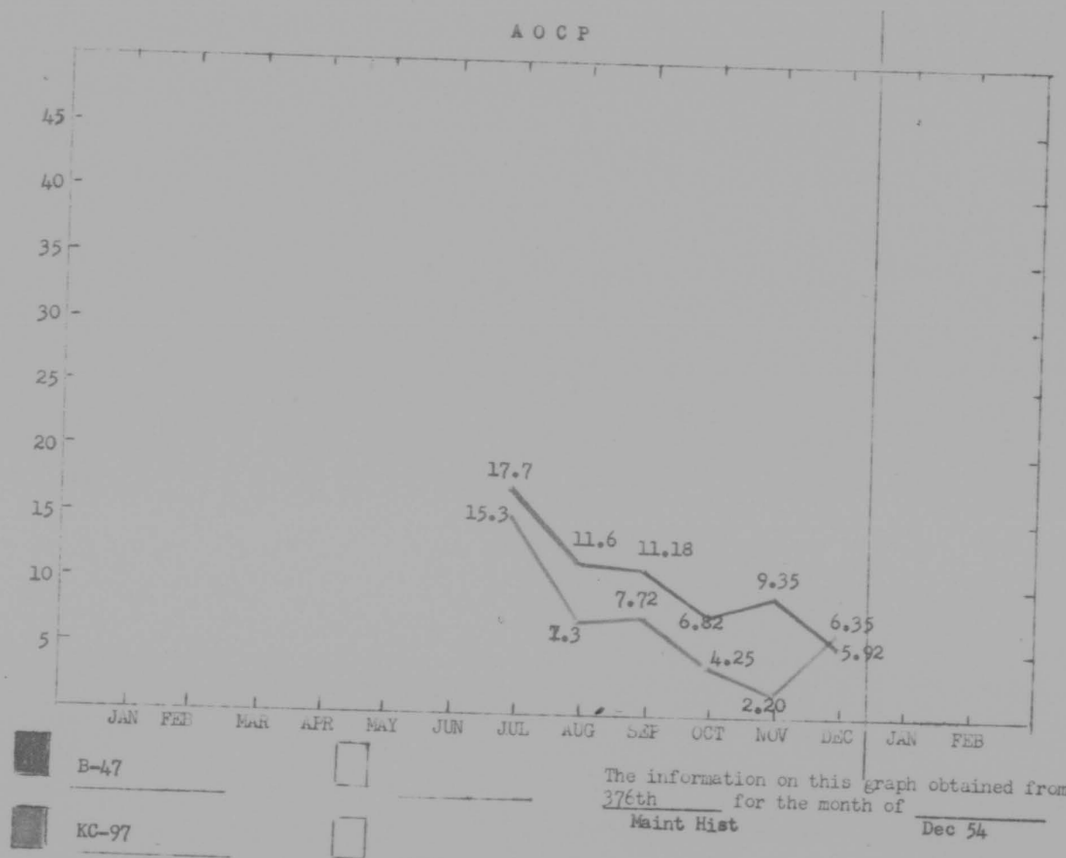

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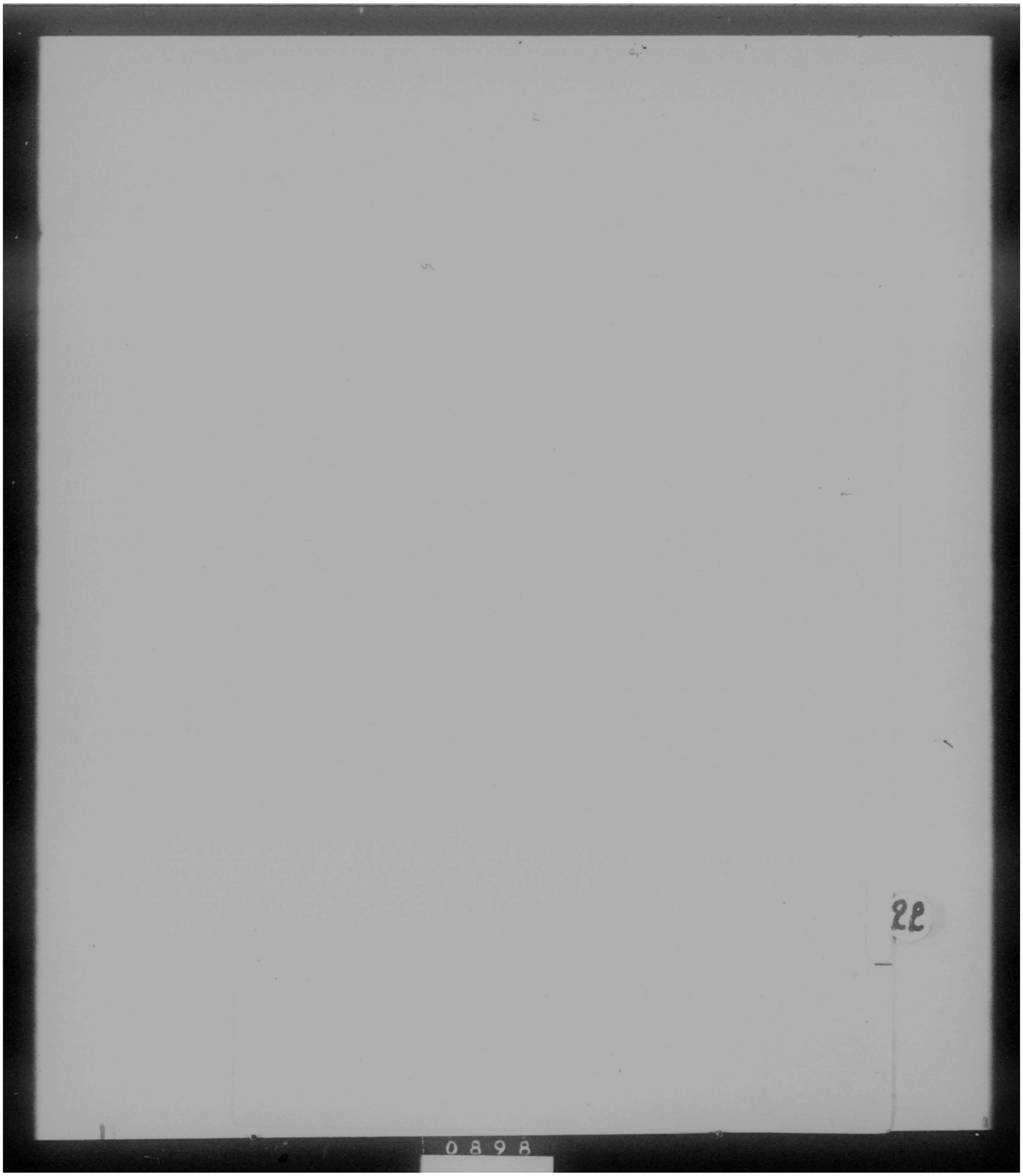

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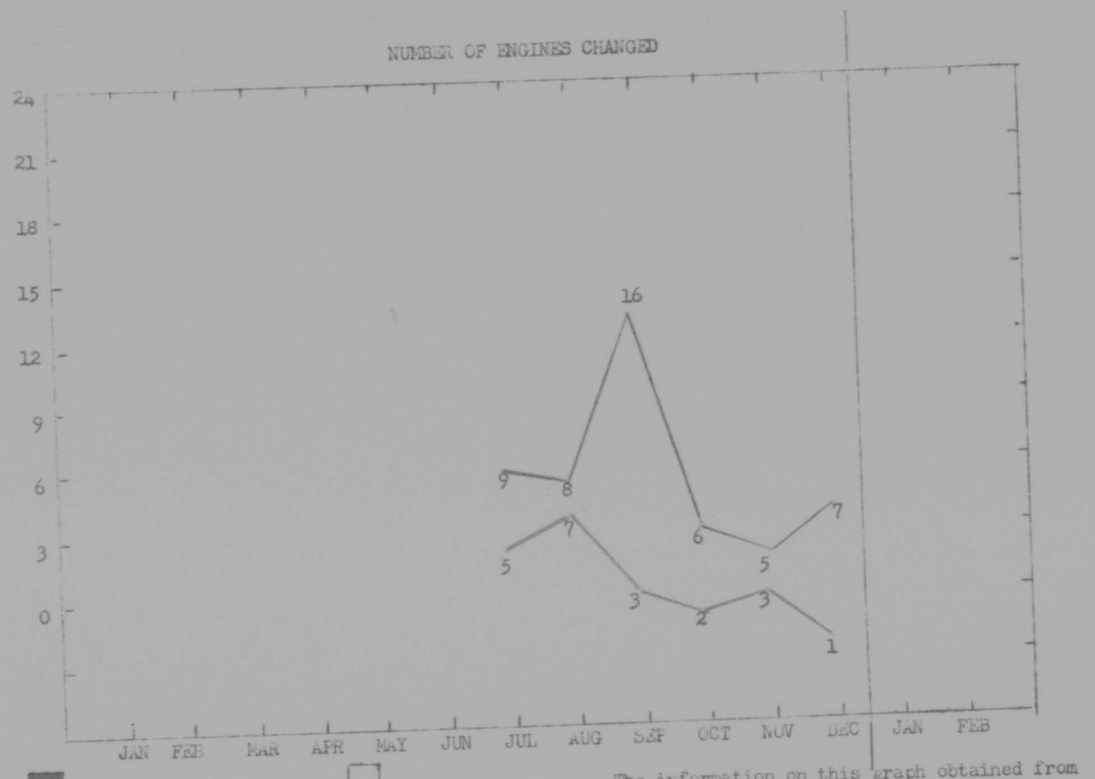

The information on this graph obtained from 376th Maint Hist for the month of Dec 54

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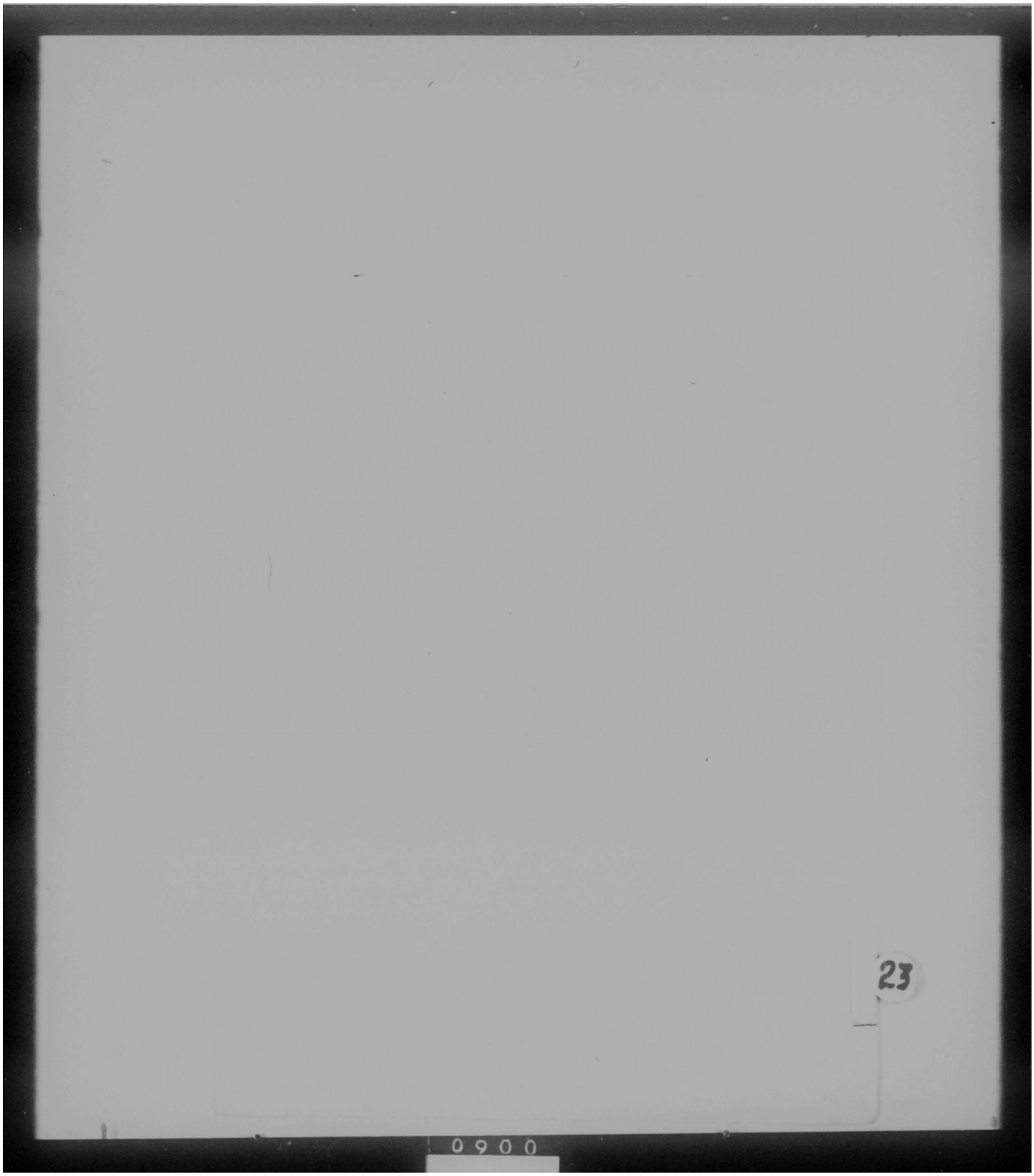

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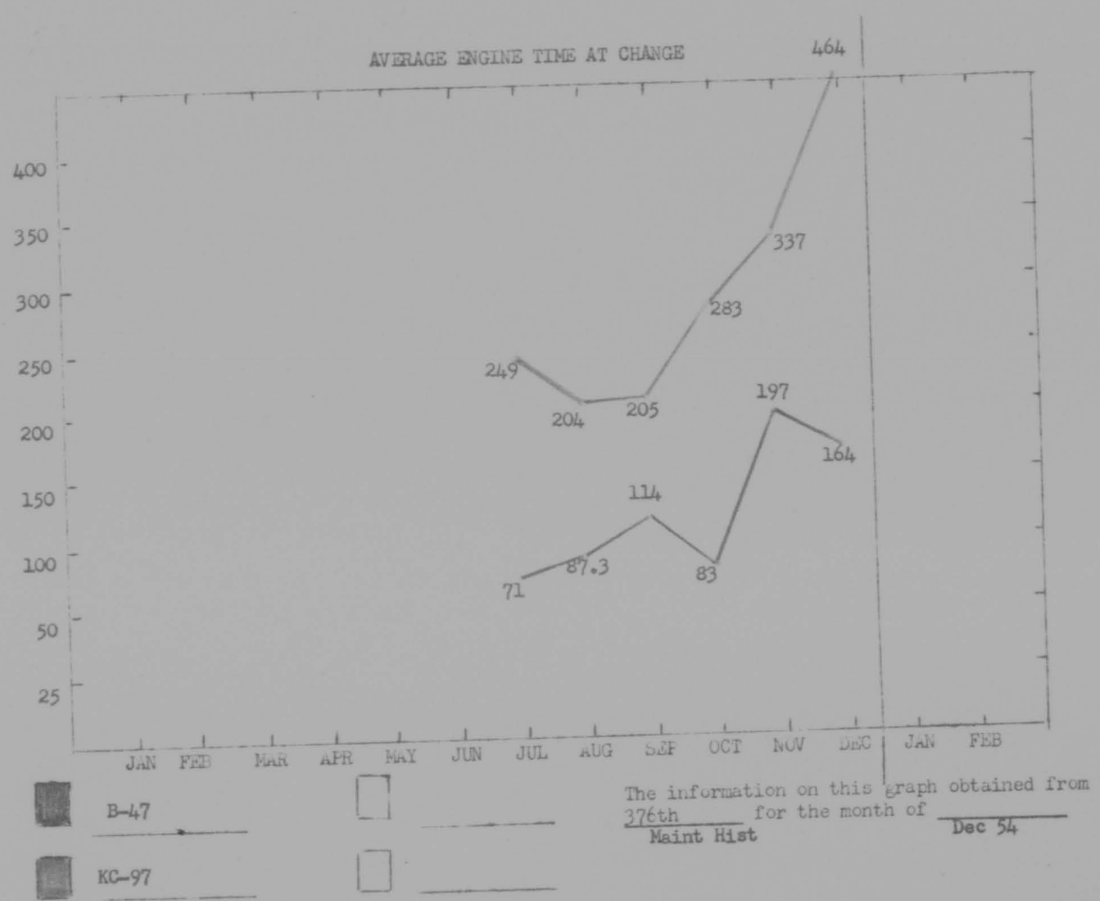

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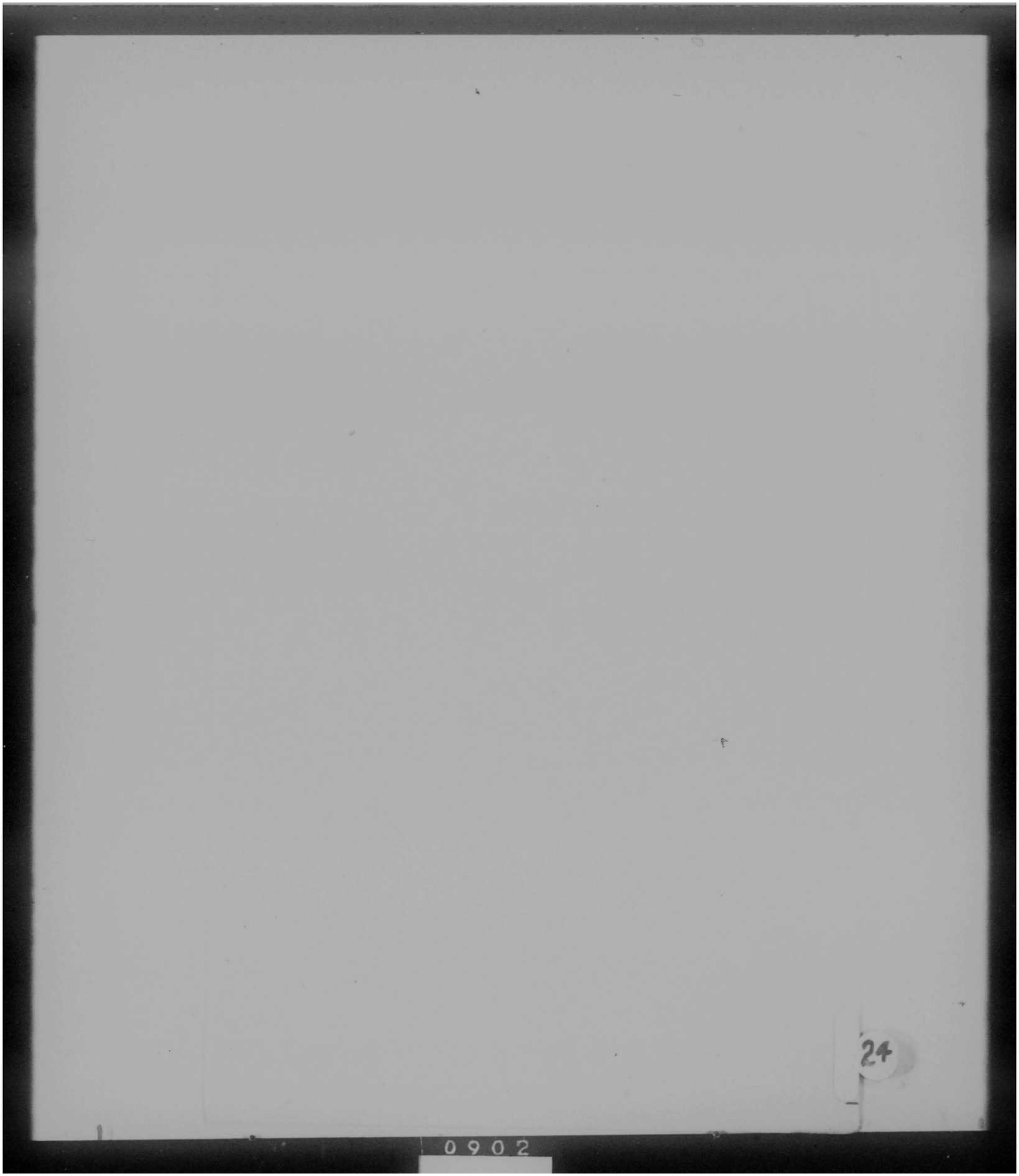

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 January 19[illegible]

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyropilot*

III. TRAINING ACTIVITIES:

1. Classroom:

a. Seven (7) two (2) hour classes on the A-12D interlock circuits were held during the month of December. For training purposes, the A-12D interlock circuit is divided into three parts, each part requiring a two hour class. After the airmen have attended a two hour class on all three parts, a two (2) hour review class will be scheduled which will rapidily cover the entire A-12D interlock circuit. Twelve (12) airmen have attended a two hour class on the first part of the interlock circuit and six (6) airmen have attended a two hour class on the second part of the interlock circuit. AFSC's of the men in class were (1) 43156, (3) 40433's, (5) 40453's, (2) 40471's and (1) 40470.

* Reg. U.S. Pat. Off.

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b. Below is a summary of the hours devoted to classroom training and preparation of instructions.

COURSE	Inst. Hrs.	No. Students	Student hrs.
A-12D Gyropilot Interlock circuit	14	12	36
Preparation of material	6		

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of December.

	Inst. Hrs.	No. Stu.	Stu Hr.
A-12D Test Procedure	8	8	8
A-12D Theory	12	10	18

3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer quastions and increase proficiency during routine operations and will continue as required. There were (1) 43156, (6) 40453's, (7) 40433's, (1) 40470 and (5) 40471's available for training.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	25	17	40
Trouble Shooting	18	8	32

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, the F-1 Bendix autopilot and the Kearfott N-1 compass was given.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
F-1 Autopilot	4	2	4
C-1 Amplifier	3	3	3
N-1 Compass	12	4	18

0904

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c. Of 140 hours available instruction time 102 hours (73%) were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTION:

1. The following equipment malfunctions occurred during the month of December.

a. Malfunction: During a ground check of the A-12D the servo control motor did not run when the pilot switch was turned on.

Cause of Malfunction: Servo control motor brushes were worn excessively and not making good contact with the commutator. Commutator was scared and pitted.

Corrective Action: Replace servo control. Not repairable at this station.

b. Malfunction: Auto pilot inoperative. Very easy to overpower.

Cause of Malfunction: R-247, Servo amplifier screen grid resistor, burned out.

Corrective Action: Replaced 6 channel amplifier. Not repairable at this station.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failure.

0905

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE AND [illegible] PERFORMANCE: Deleted

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: From 27 December to 31 December 1954, the writer was on vaction. Mr. McCoy, the Sperry Autopilot Representative to the 301st Bomb Wing, periodically checked the progress of the 376th Bomb Wing Autopilot Section during this period.

Henry J. Kronlage
HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

0906

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 January 1955

Contractor: General Mills, Inc.
Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, ECS: 3-AMC-U19, For Month Ending 31 December 1954.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John Bolen, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. Dana G. Doherty, Sperry Gyroscope Co.
Mr. Michael S. Kotula, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The training mock-up is being utilized for operator course on in-flight maintenance and malfunction symptom reporting.

b. The symposium type class for operator training continued throughout December. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observers Digest.

c. The following is the status of classroom and mock-up training for the month of December 1954. All students had 32130E and 32150E AFSC's with the exception of the observers whose AFSC is 15445.

0908

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SUBJECT	COURSE (hrs)	No Instrd to date	No. Instrd in December	Inst. Man-hrs	Stu Man-hrs
Mock-up (mechanic)	20	12	4	24	48
Mock-up (operator)	4	59	37	148	148
Symposium (operator)	3	—	49	60	147

Total student man hours of training for December 1954 - 343

2. OJT:

a. OJT during the month of December included test equipment, alignment procedures, system analysis and trouble shooting.

INFORMAL OJT

Subject	Instructor Hours	Student Hours	Students
System Analysis	361	574	271
Trouble Shooting	65	79	36

3. Field Engineers were available to the 376th A & E Maintenance Squadron during the month of December for a total of 948 man-hours. Of this total, 663 man-hours were utilized for formal and OJT training. 71% of available time was devoted to training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation, calibration and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in operation and in-flight maintenance, techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System Field Engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS: Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

0909

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. GENERAL REMARKS:

1. Mr. H. J. Kronlage left on vacation 27 December 1954.

2. Mr. J. F. Monahan left on vacation 20 December 1954.

3. Mr. M. S. Kotula visited the Sperry plant at Great Neck, N. Y. from 20 December to 27 December 1954.

William C. Cromwell

WILLIAM C. CROMWELL
Field Engineer Coordinator
Sperry Gyroscope Company

Michael P. Nowak

MICHAEL NOWAK
Field Engineer
Western Electric Co.

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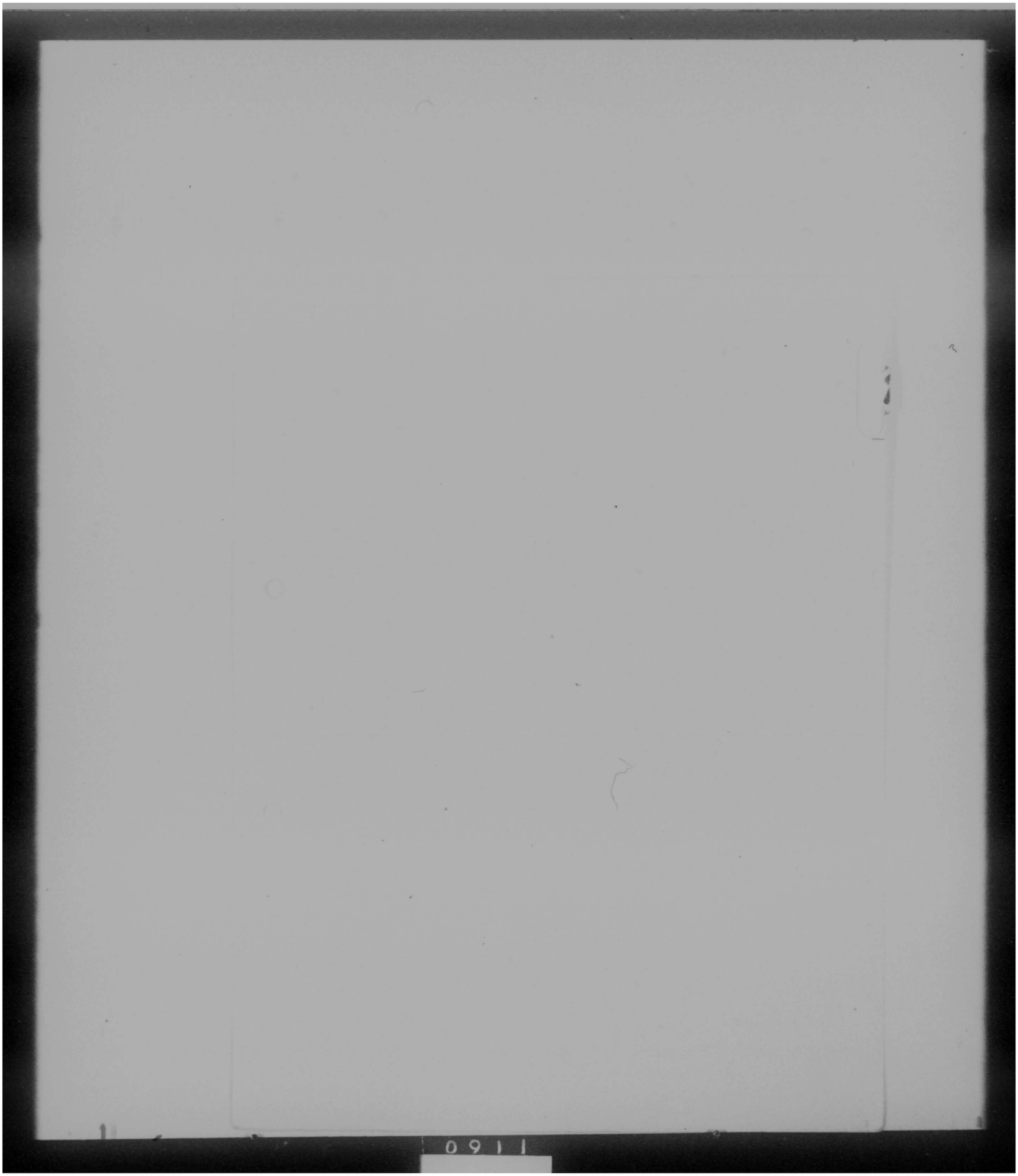

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 January 1955

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Roger G. Recher

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Six A-5 mechanics (AFSC 32330C) recieved 120 man-hours of instruction in basic radar theory. This twenty (20) hour course was given to two (2) classes. Total instructor time 40 hours.

b. Two A-5 mechanics (AFSC 32330C) received 40 man-hours of instruction in basic electronics and mathematics. This twenty (20) hour course was given to one (1) class. Total instructor time 20 hours.

2. OJT:

a. A-5 mechanics received instruction in trouble shootin and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions. Twenty (20) hours were expended in line maintenance, fifteen (15) hours in periodic inspection and twelve (12) hours in the field shop. Total time 47 hours.

0912

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b. Sixteen (16) hours were expended in aiding A-5 mechanics in completing A-5 field changes. Total time 16 hours.

3. In addition to actual instruction, forty-eight (48) hours were expended in preparing class outlines and in other administrative work relative to the training program.

4. Training program:

a. Available time: 320 hours.

b. Total training time: 171 hours.

c. Percent training time: 53.4%.

d. Due to leaves and holiday schedule, men were not available for classroom training. This is reflected in the low percent of training time for this report period.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, claibration and maintenance of the A-5 fire control system and training of aircrew personnel in the operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate our services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley
2

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 January 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a.	Taught ALE-1 to 90 airmen (3 classes)	7 hours
b.	Taught ALT-8 to 13 airmen	17 hours
	Total classroom time	24 hours

2. OJT:

a.	OJT time ALE-1	18 hours
b.	OJT time ALT-7	6 hours
c.	OJT time ALT-8	22 hours
d.	OJT time APS-54	20 hours
e.	OJT time QRC-8	12 hours
f.	OJT General Electronics	18 hours
	Total OJT time	96 hours

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

3. Availability:

a. Total time available for training 152 hours.
b. Total training time 120 hours or 78% of available time.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in- flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate that my services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The principles of the APS-54 crystal protector described in my report last month can also be applied to radar equipment. A short supplement relating to this aspect is included with this report.

2. The crystals in the APS-54 utilizing the crystal protecto are still in perfect shape. The protector has been installed three (3) months.

X. GENERAL REMARKS:

1. I intend to include a supplement to my next report complete data on the QRC-8 photo electric wattmeter and the APS-54 line tester.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

3 Incl
1. APS-54 Crystal Protector (Supplement)
2. Improved TR Circuit
3. Radar Crystal Blanking Circuit

2

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0916

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APS-54 Crystal Protector
(Supplement)

Introduction

Most radar equipment utilizes a common antenna for the receiver and transmitter. Since the receiver and transmitter are connected to a common waveguide, some means must be employed to protect the receiver from the high power transmitted pulses. A TR tube is such a protective device and it is used in practically all modern radar equipment.

TR tubes do not give complete protection to the receiver input circuitry. A small amount of RF energy leaks past the TR tube into the receiver input circuit.

Initially a large RF signal is necessary to fire the TR tube, however, once the gas in the tube ionizes the amount of RF energy that leaks past the protective device is much smaller. A DC voltage is normally applied to the TR tube in order that the initial RF voltage necessary to ionize the gas in the tube be kept to a minimum. The initial spike of RF voltage that leaks through the TR tube is relatively large even in a well designed circuit.

A crystal diode is universally used as a mixer in microwave radar receivers. These crystal diodes have a low burnout pulse rating and their life is greatly reduced by the spike that leaks by the TR tube.

The voltage necessary to fire a TR tube varies with the age of the tube, temperature, keep alive voltage and other factors. These tubes are a constant source of trouble. Their characteristics are very critical primarily because of the high degree of crystal protection needed.

The circuits described in this paper can be used separately or together. Their purpose is to provide a higher degree of crystal protection which would result in a non critical TR tube and longer crystal life.

Radar Crystal Blanking Circuit

Figure 1 is a block diagram of the radar crystal blanking circuit to be described. A positive pulse is applied to the cathode of the crystal diode from the timing circuit which prevents the crystal from conducting in the forward direction when the magnetron fires. The magnetron firing is delayed a fraction of a microsecond by the delay line in order that the crystal will be biased to cutoff during the spike period. The width of the pulse will determine the length of the crystal blanking and it can be designed so that the blanking period will end a small fraction of a microsecond after the transmitted pulse.

Improved TR Circuit

A second circuit is shown in figure 2. A voltage pulse from the modulator is applied to the TR tube a small fraction of a microsecond before the modulator fires. The pulse applied to the TR tube would be aiding the keep alive voltage and it would cause the TR tube to fire before the magnetron thus eliminating the large spike which otherwise would result.

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0917

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IMPROVED TR CIRCUIT

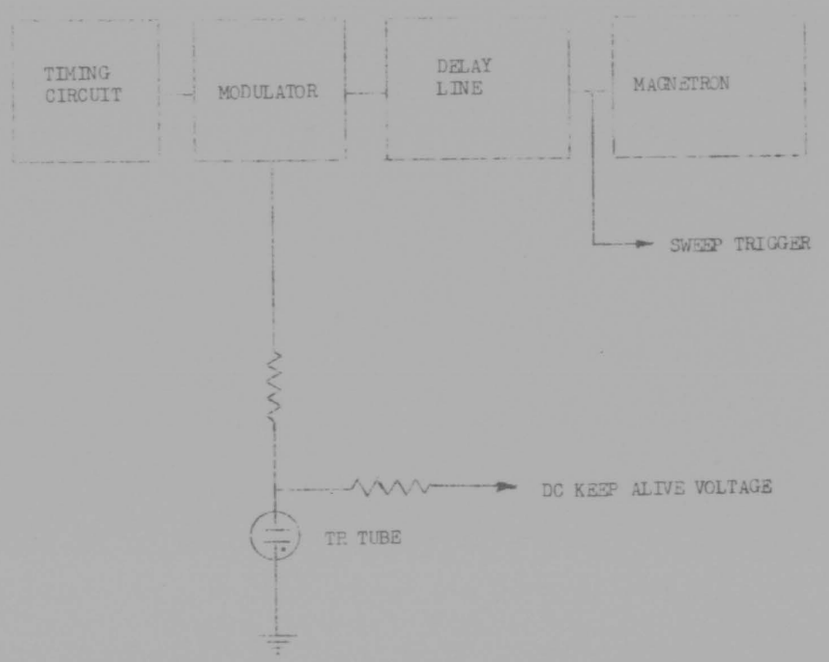

FIGURE 2

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RADAR CRYSTAL BLANKING CIRCUIT
BLOCK DIAGRAM

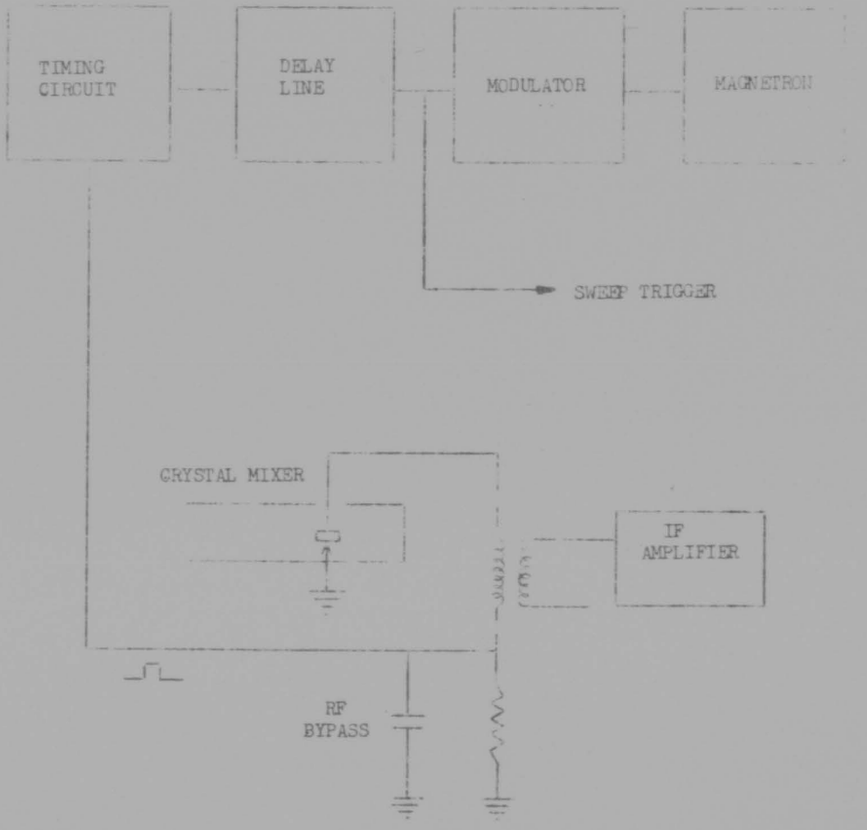

FIGURE 1

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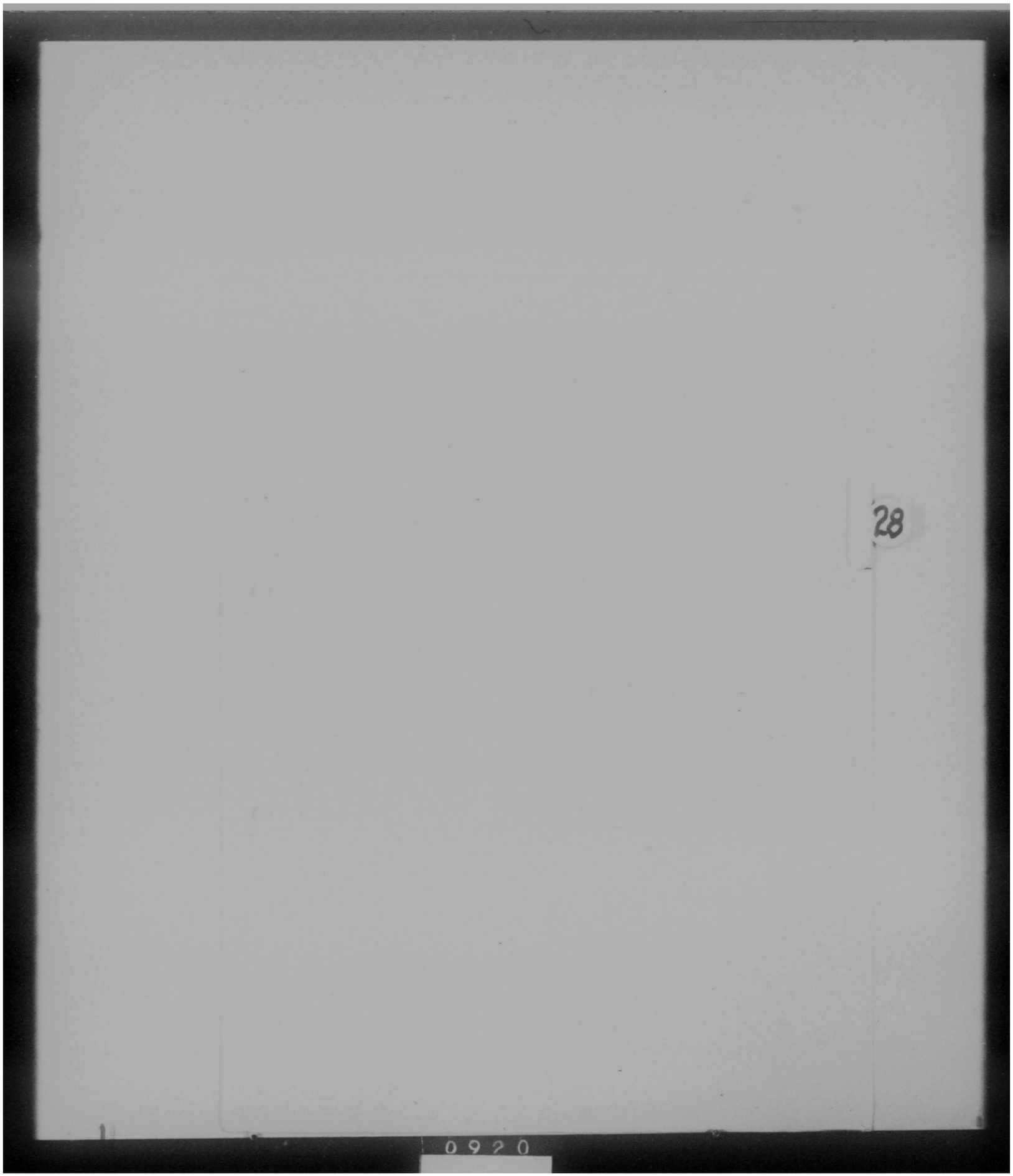

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE 1 January 1955

Contractor: Dynamic Electronics Inc.
Forrest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal classes were held on Blue Cradle and Phase III B-47 ECM installations. Two classes of fifteen airmen each were given this course; twenty hours of instruction were required for each class. Total instructor time was 47 hours.

b. Training:

1. A complete schedule and training outline for airmen expected from other SAC bases was prepared. Lesson plans for part of this training were also prepared. Approximately 28 hours were donated to this work.

2. OJT:

a. Outline of Blue Cradle and Phase III ECM installation was given to six officers, B-47 crew members. Time: 3 hours.

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0921

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

b. OJT training for Armament & Electronics airmen was given as follows:

Blue Cradle, five airmen, 4 hours.
QRC-8, two airmen, 2 hours.

3. Training Time:

a. Due to the holiday period there were only 120 hours available for training purposes. Formal training was conducted for 47 hours, other training activities for 37 hours for a total of 84 hours or 70% of total training time.

IV. UTILIZATION:

1. Priamry purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment. Duties also include assisting on the resolution of difficult repair problems and rendering technical advicé on equipment performance and maintenance problems.

2. I estimate that my services can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Description and operating details of Blue Cradle Test Console were scheduled for inclusion with this report but the reproduction of schematics and photographs was not completed in time. This data will be forwarded with the next report.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

Guy H Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics

2

0922

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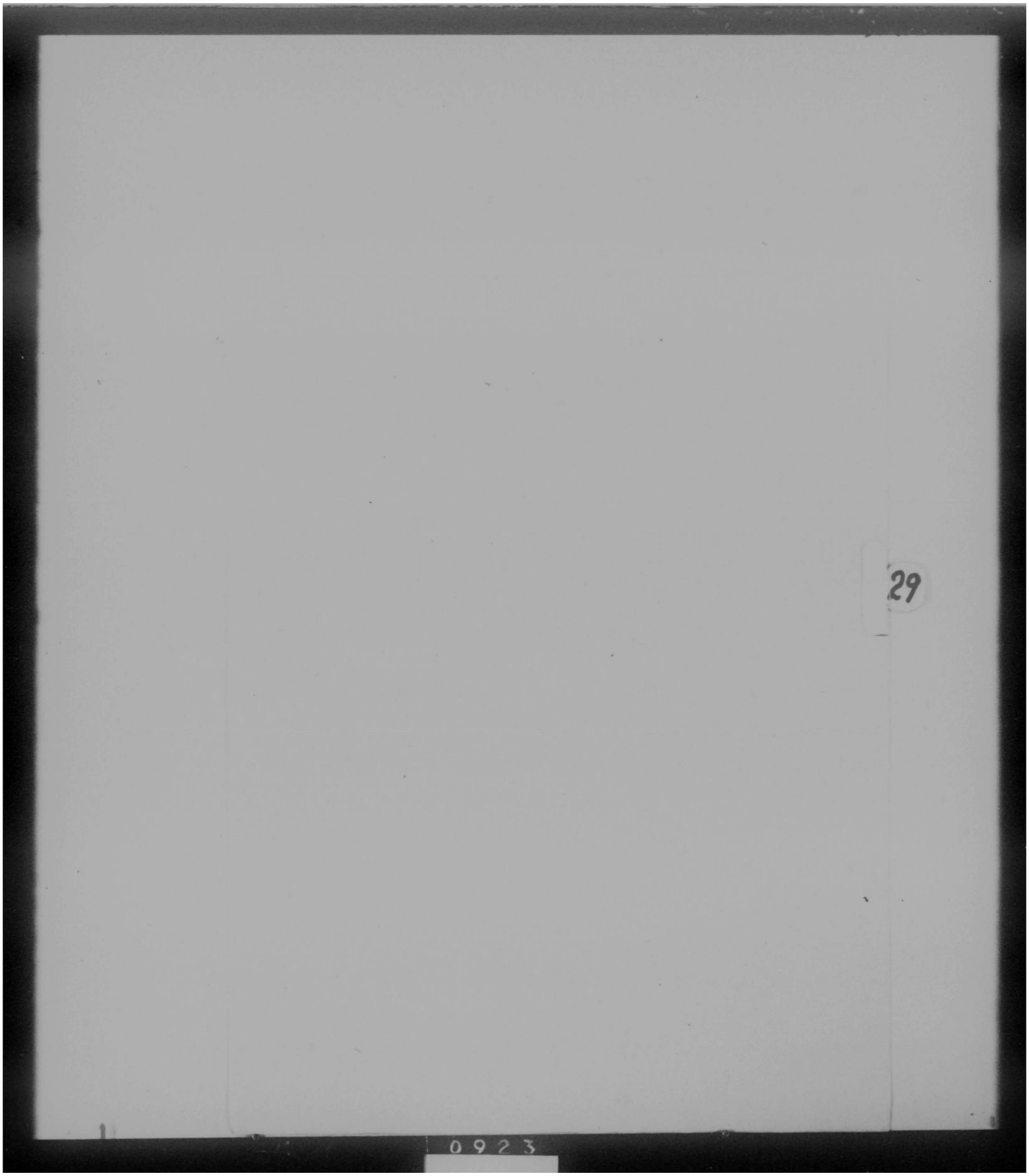

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

7AE

1 January 1955

Contractor: General Electric Company
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 December 1954, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John A. Lella
Mr. Joseph W. Steel

II. EQUIPMENT: AN/ALT-6 Countermeasures Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Operation and installation of ALT-6 system on cradle and on aircraft. Preflight and postflight checks.
Number of airmen - 15
Classroom hours - 3

b. Theory and service instruction of the ALT-6 for maintenance airmen.
Number of airmen - 12
Classroom hours - 20

2. OJT:

a. System bench checking and trouble shooting techniques. Also supervised retrofiting.
Number of airmen - 12
OJT hours - 93

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

3. Availability:

a. Time available for training: 152 hours.

b. Total time devoted to training: 116 hours or 76% of the available time.

IV. UTILIZATION:

1. The primary purpose of this assignment is the training of maintenance personnel in the calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. The lack of proper test equipment and tools makes certain ALT-6 maintenance and repair jobs difficult. At the present time no test equipment is available this station for checking RF power nor for setting up the magnetron filament control circuit, trouble-shooting a complete system, or any part of a system, locating a defective unit assembly, subassembly or component. These checks could be made quickly and effectively with the use of maintenance bench that would completely check out any system. The General Electric proposed flyaway maintenance bench for the ALT-6 will make it possible for qualified personnel to perform all necessary tests, adjustments, and routine maintenance work to keep the ALT-6 equipment in operating condition. This maintenance bench is recommended.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. ECP (engineering change proposal) number CG-11T538-ECP-16 has been supplied by General Electric to change the wiring of the time delay relay K-209. This change is proposed to allow the equipment to automatically return to normal operation in the event that primary power is lost and then reapplied to the system. TOC (technical order compliance) number 12P3-2ALT6-501 has been prepared directing this change. This wiring change is being made on all systems at this activity by General Electric Representatives. This wiring change has been incorporated in ALT-6 equipment presently being produced. UR number 376BW-54-2151 has been submitted on this condition.

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7AE, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 December 1954

2. It was determined that the power supply, PP-933, high voltage connectors sometimes turned when the cable is fastened to them. This results in damage to the high voltage connector pressure seal gasket. As a result ECP number CG11538-9 was submitted by General Electric to the Air Force proposing that the power supply be modified with a clamp assembly which will be mounted behind the high voltage connectors to prevent their turning.
This modification will be made on all systems at this activity under a complaint analysis report by General Electric Representatives as soon as the clamp assemblies arrive. An engineering change has been incorporated that will prevent the connectors from turning on future production systems. UR 376BW-55-61 has been submitted on this condition.

3. The cable guards of power supply PP-933 and transmitter T-402 have holes of insufficient diameter. This due to variations in connector manufacturing tolerances. ECP number CG-11538-ECP-12 has been submitted by General Electric to the Air Force proposing that these cable guards be replaced with ones which have the correct hole diameter. All systems at this activity will be retrofited on a complaint basis by the General Electric Representatives as soon as the new cable guards arrive. UR number 376BW-54-1910 has been submitted on this condition.

4. Coax connector (type UG-532) is sometimes difficult to remove or fasten to UG-1105 or UG-1106 waveguide to coax transition. This is because some of the early transitions were recived with an incorrect thread pitch. All defective transition plates at this activity are being replaced by General Electric Representatives on a complaint basis. The manufacturer of this transition has been notified of this problem and all future transitions should be satisfactory. UR number 376BW-54-1911 has been submitted on this condition.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The first shipment of ALT-6 spare parts were flown from the Utica factory to Brookdale Air Force Base on 3 December 1954. This shipment consists of a nine month stock level for the 150 systems on hand at this activity. Five items planned for this shipment will be sent at a a later date. Until these items are received, several equipment malfunctions cannot be repaired.

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X. GENERAL REMARKS:

1. Mr John A. Lella spent the week of 19 December on vacation.

2. Mr. D'Hoostelaere, General Electric antenna system engineer spent three days at Barksdale Air Force Base this month working with the problems of overcoming ALT-6 antenna system losses.

3. Mr. Holstead of General Electric product service division visited Second Air Force Headquarters at Barksdale Air Force Base this month to discuss the need and disposition of General Electric representatives.

Joseph W. Steel

JOSEPH W. STEEL
Field Engineer
General Electric Co.

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HISTORY

1 JAN – 28 FEB 1955

376TH Bombardment Wing (M)

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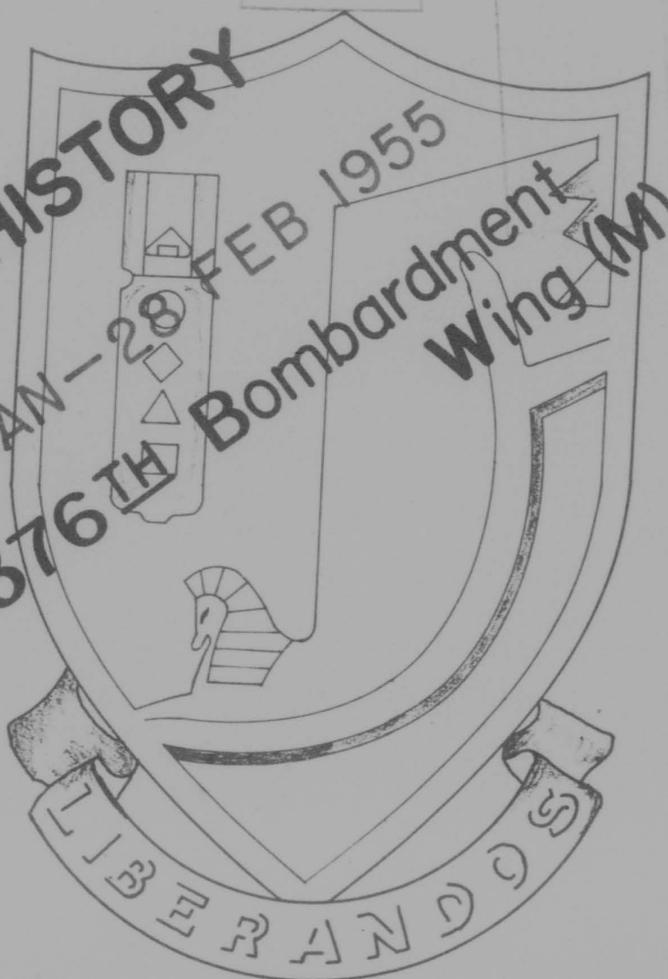

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Classification: SECRET
Authority: CO 376th Bomb Wing (M)
Initials: Murphy
Date: 22 Apr 1955

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 JANUARY - 28 FEBRUARY 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
376th Tactical Hospital
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron, Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

For and in the absence of JOHN P. PROCTOR
Colonel, USAF
Commander

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(Second Air Force, Strategic Air Command)

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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CONTENTS

	Page
CHAPTER I . . . Organization and Personnel	
Organization	1, 2
Clarification of the Wing Mission	2
4AD Non-Compliance Program	3, 4
Personnel	4 - 7
Personnel Problems	7, 8
Air Refueling Squadron Personnel Problems	8 - 10
Problems Affecting the Wing Mission	10, 11
Security Clearances	11, 12
Crew Status	12
Reenlistment and AWOL Rates	13
Changes in Key Personnel	13, 14
Roster of Key Personnel	15
CHAPTER II . . . Operations and Training	16
Flying Time	17, 18
Flying Accomplishments	18, 19
Operations Order 7-55 (OPEN MIND)	19, 20
Training	20 - 26
Status of Test Projects	26 - 38
CHAPTER III . . . Maintenance and Facilities	39
Aircraft Status	40 - 42
Maintenance Problems	42, 43
Equipment Malfunctions	43 - 45
Maintenance Engineering Difficulties encountered	45
Operational Difficulties	46
Special Developments	46, 47
Facilities	47, 48

SECRET

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ORGANIZATION

Near the end of January 1955, a letter was sent to the Commander, 4th Air Division requesting a "Non T/O Personnel Authorization for the 376th Bombardment Wing (M)". The secret mission of the Wing requires that additional personnel be made available to the Wing. In the past, the Directorate of Countermeasures Tests and Tactics (DCTT) was part of the Directorate of Operations (D/O) and a request was made to establish the DCTT as a separate Directorate, requiring 25 officers, 24 airmen and one civilian, of which 15 officers, nine airmen and one civilian space were to be withdrawn from the D/O. The "Blue Cradle" has been integrated into the Wing Emergency War Plan (EWP). Project "Blue Cradle" will absorb the two officer and 45 airmen spaces presently designated for support of Project 25, plus 22 airman spaces which are presently utilized in the 376th Armament and Electronics Maintenance Squadron from the Countermeasures Test and Tactics Section, and will require an increase of four officer and 43 airman spaces. In comparison to the presently assigned personnel, the DCTT will require an additional 10 officers less 13 airmen; while Project "Blue Cradle" will require an additional four officers plus 65 airmen.[1]

Timely technical intelligence information is very important to the Wing, providing necessary guidance in considering the relative importance among the projects being conducted within the 376th

1. Ltr to Hq 4AD fr Hq 376th BWg, "Non T/O Personnel Authorization for 376th Bombardment Wing (M)", w/incls 1 thru 25, 27 Jan 55, files, (Secret), Wg Adj Office, Hq 376th Bomb Wing.

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Bombardment Wing. A good working arrangement, in the form of weekly briefings conducted by Second Air Force Intelligence with the 376th DCTT, is in existance.

CLARIFICATION OF THE WING MISSION

The primary mission of the 376th Bombardment Wing was:

a. To develop and test both tactics and ECM techniques and make recommendations to SAC Headquarters.
b. To develop and maintain capability and perform ECM cover and diversion in support of strategic bombardment operations.
c. To determine the capability of existing ECM equipment employed by SAC.
d. To maintain a field laboratory for operation engineering.
e. In addition to the above, maintain a capability of normal bombardment wing operations.

The mission of the Wing is clearly stated, but there seems to be a misunderstanding as to the real mission of the Wing.

Although a modified 50-8 program was submitted to higher headquarters on 16 September 1954, to date this Wing is still under the standard bombardment 50-8 program, is rated in the SAC Management Control System on these accomplishments and, in addition, is required to do its necessary ECM test and development work. It is urgently recommended that some action be taken to clarify the position of the Wing and to establish for the Wing a reasonable training program in view of its additional committments. This change in program should also allow for the includion of the 376th Bombardment Wing in the EWP as an Electronics Countermeasures Unit and at the same time authorize lead and select crews with its corresponding allotments for spot promotions.[2]

2. Ltr, 376th DCTT, "Problems Affecting the Mission of the 376th Bomb Wing", 8 Feb 55, attached, exhibit #1.

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4TH AIR DIVISION NON-COMPLIANCE PROGRAM

During December 1954, a program was initiated by Brigadier General Maurice A. Preston, USAF, Commander, 4th Air Division, Barksdale Air Force Base, Louisiana, the purpose of which was to launch the starting phase of an overall continuing 4th Air Division compliance program applicable to all organizations under the command of the Division. Briefings were held for officers and NCO's of the first three grades, at which the program was fully explained. Basically, the Program was implemented because of lack of compliance with written and verbal directives. For this purpose, a form, known as the 4th Air Division Non-Compliance Report, was developed and disseminated to each officer and NCO concerned. Evaluation of forms when filled out will indicate areas of non-compliance. It was expected that proper implementation of the program would increase the individuals standard of performance, bring about a full realization of a true military organization and increase the overall effectiveness of the Command as a whole.[3]

The program was implemented 15 January and was to continue for an indefinite period. At first, much difficulty was experienced due to improper, incomplete and illegible entries on the reports.[4]

By the last of January 1955, the areas of non-compliance were

3. Ltr, "4AD Compliance Project", Hq 4AD, 4 Jan 55, files, 376th Adj Sec, file MIL-5.
4. Ltr, "4AD Compliance Program", Hq 4AD, 31 Jan 55, Adj Sec, Hq 376th Bomb Wing, file MIL-5.

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as follows, in the order listed: Improper Appearance, Security, Maintenance, Failure to Repair, Management & Supervision, Discourteous & Disobedience, Incorrect Forms, Ground Safety, Unclean Area, and Supply.[5]

And, by the end of February were: Discourteous & Disobedience, Improper Appearance, Failure to Repair, Maintenance, Security, Management & Supervision, Incorrect TWX's & Correspondence, Incorrect Forms, Supply, Illegal Parking, Unclean Area, and Ground Safety.[6]

From the evaluation of the non-compliance reports received by the end of February 1955, it appeared that the first five areas needing improvement are: Improper Appearance, Security, Discourteous & Disobedience, Failure to Repair, and Maintenance.[7]

PERSONNEL

Thirteen officers were assigned during January 1955,[8] or 2.8 percent of authorized strength,[9] and 14 assigned during February[10]

5. Report, "Analysis of 4AD Compliance Report", Hq 4AD, 1 Feb 55, file MIL-5, Adj Sec 376th Bomb Wing.
6. Report, "4AD Compliance Program Report (19-25 Feb 55)", w/incls 1 thru 4, file MIL-5, Adj Sec 376th Bomb Wing.
7. Ibid.
8. Report, "Monthly Analysis January 1955, n.d., hereafter cited as "376th Pers Anal for Jan 55", n.d.," attached, exhibit #2, Offs assigned - Navi-Bombardiers-4, Navigators-2, Oral Surgeons-2, and 1 each - Production Control officer, Acft Maint Staff offr, Pers Serv officer, Acft Maint officer, and Pilot, for a total of 13.
9. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
10. Report, "Monthly Analysis (February 1955)," n.d., hereafter cited as "376th Pers Anal for Feb 55", n.d., attached, exhibit #3, officers assigned: Navigators-6, Nurses general duty-3,

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or 3.0 percent of authorized strength.[11] The total number of officers assigned at the end of January was 402,[12] which was the same as in December,[13] and was 408 in February 1955.[14] Both January and February figures were lower than authorized strength which was 465 for each month.[15] A total of 369 officers were effectively assigned in January or 79.4 percent,[16] and 372 effectively assigned in February or 80 percent.[17] The figures for manning in required specialties for each month were the same as the figures for effectively assigned during the month.[18] There were 12 officers discharged or transferred during January,[19] or 2.6 percent of authorized strength,[20] and eight officers discharged or transferred during February[21] or 1.7 percent of authorized strength.[22]

---

10. (Cont'd) and 1 each - Research & Development Administrator, Acft Maint officer, Sanitary & Industrial Hygiene Engr, Med Supply off, and Pilot, for a total of 14.
11. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.
12. "376th Pers Anal for Jan 55", n.d., exhibit #2, and chart, exhibit #4, this History.
13. History 376th Bomb Wing for Dec 54, page 1.
14. "376th Pers Anal for Feb 55", n.d., exhibit #3, and chart, exhibit #4, this History.
15. Chart, attached, exhibit #4, this History.
16. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
17. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.
18. Comparison, exhibits #2, & #3, this History.
19. "376th Pers Anal for Jan 55", n.d., exhibit #2: Nurses general duty-2, Atomic Wpns officers-2, and 1 each - Air Comdr, Armt Sys Maint officer, Acft Maint staff officer, Industrial Planning officer, Nurse operating room, Personnel officer, Navigator, and communications officer, for a total of 12.
20. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
21. "376th Pers Anal for Feb 55", p.d., exhibit #3: Pilots-2, and 1 each - ECM officer, Radiologist, Navigator, Personnel officer, Intelligence officer, and Navi-Bombardier, for total of 8.
22. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.

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There were 42 airmen assigned to the Wing in January[23] or 2.3 percent of authorized strength,[24] and 57 assigned to the Wing in February[25] or 3.1 percent of authorized strength.[26] The total number of airmen assigned at the end of January 1955 was 1909,[27] and in February was 1907,[28] each more than 80 above authorized strength. There were 1538 airmen effectively assigned or 83.2 percent in January,[29] and 1568 airmen effectively assigned in February 1955 or 84.4 percent of authorized strength.[30] The manning in required specialties for airmen in January was 1392 or 76.45 percent,[31] and in February was 1390 or 76.1 percent of authorized strength.[32] There were 119 airmen transferred or discharged in January or 6.5 percent of

23. "376th Pers Anal for Jan 55", n.d., exhibit #2, by career fields: Photomapping-1, A&E Maint-5, Mun & Wpns Maint-4, Vehicle Maint-1, Metal Working-1, Fabric leather & rubber repairs-3, Trans-1, Supply-1, Admin-3, Pers-2, and Medical-1, + 19 whose records were not received and their AFSC's are not known - total of 42.
24. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
25. "376th Pers Anal for Feb 55", n.d., exhibit #3 by career fields: Intel-1, Photomapping-4, Radio & Radar Sys Maint-11, Armt Sys Maint-6, Atomic Wpns Maint-1, Acft Acc Maint-7, A&E Maint-5, Mun & Wpns Maint-1, Vehicle Maint-1, Metal working-2, fabric leather & rubber-1, Trans-2, Food Sv-1, Supply-2, Admin-5, Pers-1, Medical-2, Aircrew Protection-2, and Special Activities-2, for a total of 57.
26. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.
27. "376th Pers Anal for Jan 55", n.d., exhibit #2, and chart, exhibit #5, this History.
28. "376th Pers Anal for Feb 55", n.d., exhibit #3, and chart, exhibit #5, this History.
29. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
30. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.
31. "376th Pers Anal for Jan 55", n.d., exhibit #2, this History.
32. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History.

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authorized strength,[33] and 59 airmen transferred or discharged in February or 3.2 percent of authorized strength.[34]

PERSONNEL PROBLEMS

The officer effective manning for the 376th Bombardment Wing remained relatively the same for January and February as compared to December 1954. Thirteen officers were gained and 12 officers lost in January and 14 officers were gained and eight officers lost in February. During January AFSC's 1435, 4334, 4355, 6424, and 7324 were critically short, and during February AFSC's 1435, 3254, 4334, 4364, and 4355 were critically short.

Manning in the aircraft maintenance field only changed slightly during January and February. In January, manning in AFSC's 42030/50/70 was at 64.3 percent with only three airmen assigned at the supervisory level, and in February, manning in AFSC's 40230/50/70 was at 56 percent with only four airmen assigned at the supervisory level. With the known losses and no known input within six months, effective manning will be 31 percent.

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33. "376th Pers Anal for Jan 55", n.d., exhibit #2, by career fields: Intel-2, Photomapping-1, Comm Ops-4, Radio & radar sys Maint-5, Armt Sys Ma nt-12, Atomic Wpns Maint-6, Intri Equip Maint-1, Acft Acc Maint-9, A&E Maint-40, Mun & Wpns maint-9, Vehicle Maint-2, Metal work-6, fabric leather & rubber repair-3, Trans-2, Supply-3, Admin-9, Pers-2, Med-1, Aircrew protec-1, Spl Actys - total - 119.
34. "376th Pers Anal for Feb 55", n.d., exhibit #3, by career fields: Comm Ops-2, Radio & Radar sys maint-5, Armt Sys maint-4, Atomic Wpns maint-1, Intri equip maint-1, Acft Acc maint-2, A&E maint-9, Mun & Wpns maint-4, Vehicle maint-4, Metal work-1, Trans-3, Food Sv-1, Supply-3, Admin-10, Pers-5, Mgt Methods-1, Med-3, total-59.

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Effective manning in AFSC's 32150B, 32150C, and 32150D was at zero percent during January and February. Effective manning in the supervisory level AFSC 32170E was 40 percent and manning in required specialty was 10 percent. Training is authorized from the 32150E field into the other 32150 career field sub-divisions, however, personnel with the technical knowledge required are not available as instructors. Effective manning in the Drafting career field, AFSC 22350, was at 33.3 percent with no projected input. Effective manning in the Transportation career field was critical with manning at 44 percent. Operations was seriously hampered, in that two of the 60170 supervisors were TDY to Detachment of Patients, leaving only two for duty. Effective manning in the Personal Equipment career field was 53.3 percent in January and increased to 60 percent in February. During January, manning in AFSC's 70230/50/70 was at a critical 68.2 percent and was projected to drop to 64.7 percent by 1 March 1955 with a projected input of only three clerks.[35]

AIR REFUELING SQUADRON PERSONNEL PROBLEMS

There was a critical shortage of personal equipment specialists in the Air Refueling Squadron. A total of six personnel were

35. Report, "Air Training Report for the Month of January 1955, (RCS: 3-SAC-T12), Part V", 4 Feb 55, hereafter cited as "376th T-12, Part V, for Jan 55", exhibit #6, and "Air Training Report for the Month of February 1955, (RCS: 3-SAC-T12), Part V", 4 March 1955, hereafter cited as "376th T-12, Part V, for Feb 55", exhibit #7, this History.

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authorized in the 7, 5, and 3 levels with two airmen assigned (both were on the job training to the three level). Four assistant boom operators were discharged from the service during February, and only two replacements were assigned, causing training for non-combat ready crews to be retarded. As an assistant boom operator becomes qualified, he is assigned to a combat-ready crew. This process tends to set up a situation whereas the boom operators on non-combat ready crews are constantly undergoing HTTU or MTD training.[36]

A critical shortage is developing in the Wing with no forecast inputs to compensate for losses. The skill level of personnel available is below the required quality.

The lack of qualified supervisory airmen in the Armament and Electronics Maintenance Squadron continues to be a critical area.

AFSC		AUTH	ASGD BY AFSC	ASGD BY DY AFSC
32170	- K-Sys Series	39	4	15
30270	- ECM Maint Tech	15	7	17
32150C	- Radar & Intercom Spec	6	0	0
32150B	- Optics Spec	3	0	0
32150D	- Computer Spec	3	0	0

The degree of experience of the supervisory personnel mentioned on page seven seriously affects the Armament and Electronics Maintenance capability and the OJT training of the lower skill levels.

36. Report, "Air Training Report for the Month of January 1955 (RCS: 4-SAC-T12), Parts III & IV, 4 Feb 55, hereafter cited as "376th T-12, Parts III & IV, 4 Feb 55", files, D/O, 376th Bomb Wing, and "Air Training Report for the Month of February 1955, (RCS: 4-SAC-T12), Parts, III & IV, 4 Mar 55, hereafter cited as "376th T-12, Parts III & IV, for Feb 55", exhibit #8, this History.

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Mandatory quotas are still being received for supervisory ECM and K-Systems airmen. During the month of January, the Wing received mandatory quotas for ten 5 and 7 level airmen in these career fields. The following airmen have been transferred:

Number	PAFSC	Transferred to:
2	32150E	Sedalia and Lockbourne Air Force Bases
1	32150F	Lockbourne Air Force Base
1	32151F	Lowry Air Force Base

And, one 30270 was nominated for transfer.[37]

PERSONNEL PROBLEMS AFFECTING THE WING MISSION

The personnel in the electronics countermeasures activity were selected by name and reputation with the assistance of Headquarters, Strategic Air Command (SAC). Officers and airmen possessing the necessary technical qualifications are limited throughout the Air Force. Stability of personnel in this specific category is particularly lacking and causing a retrogression in the Wing mission. By way of trying to eliminate the instability, a personnel control roster listing ECM officer personnel by name was submitted to Headquarters SAC for consideration and acceptance. It is apparent that some action must be taken to freeze this type engineer.

The authorization under which the Wing is operating is completely unsatisfactory as far as the DCTT is concerned. In this

37. TWX, "376thCR 814, from 4AD to SAC, "Unit Individual C Report, RCS: AF-V2, 31 Jan 1955, files, 376th Comptroller Section.

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connection, the Wing has prepared a new TDA requesting proper authorization for support of the Wing Headquarters, Directorate of Countermeasures Test and Tactics, and the 376th Armament and Electronics Squadron which are also affected. After a comprehensive study of the situation, it was felt that the new TDA contained a request for a conservative number of personnel by number and grade.

Qualified instructors and technicians needed for the large training program which the Wing has been engaged in must remain with the Wing in order to protect its training and development capability. The numbers and grades of personnel who have attended the course given by the Wing have not been sufficient to allow for the organization of ECM sections of other wings. A request was made for the Directorate of Armament and Electronics, Headquarters SAC, to negotiate a new contract for the RCS and Philco Technical Representatives who serve as technical engineers in the DCTT. Under the present contract we are unable to approach a monthly salary that is being offered to many of our Technical Representatives by outside civilian electronic companies. The assignment of these personnel is essential if the progress of the Laboratory is to continue.

SECURITY CLEARANCES

Many phases of the tactics, plans, and proposed equipment covered in the daily work of the DCTT are classified Top Secret.

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Thus, it is felt that all personnel assigned to that Directorate should be cleared for Top Secret information. The present system to obtain a Top Secret clearance is for Air Materiel Command to process the request direct to the Office of the Secretary of the Air Force. Anything that could be done to expedite or change this situation, primarily for those contractor technicians assigned to the Guided Missiles Section, would alleviate many difficulties in pursuing the Wing Mission.[38]

CREW STATUS

During the month of January, there were 37 B-47 combat ready/lead crews and 13 non-ready crews assigned[39] which was the same as during December 1954,[40] and 20 ready and seven non-ready KC-97 crews during January[41] which was one less ready and one more non-ready than in December.[42] February found 37 ready and 12 non-ready B-47 crews[43] and 19 ready and seven non-ready KC-97 crews assigned.[44]

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38. Ltr, Hq 376 BWg, "Problems Affecting The Mission of the 376th Bomb Wing", 8 Feb 55, exhibit #1, this History.
39. "376th T-12, Part V, for Jan 55", exhibit #6, and chart, exhibit #9, this History.
40. History 376th Bomb Wing for December 1954, page 4.
41. "376th T-12, Parts III & IV, for Jan 55", files, D/O 376 BWg, and chart, exhibit #9, this History.
42. History 376th Bomb Wing for December 1954, page 4.
43. "376th T-12, Part V, for Feb 55", exhibit #7 and chart, exhibit #9, this History.
44. "376th T-12, Parts III & IV, for Feb 55", exhibit #8, and chart exhibit #9, this History.

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REENLISTMENT-AWOL RATES

During January 1955, there were 69 airmen discharged of which 18 reenlisted, giving the Wing a reenlistment rate of 26.1 percent,[45] which was an increase of 14.8 percent over the December figure.[46] In February 1955, there were 36 airmen discharged with nine reenlisting, which gave the Wing a reenlistment rate of 25 percent,[47] a decrease of 1.1 percent from the January figure.[48]

There were four airmen AWOL during January giving the Wing an AWOL rate of 1.73 percent,[49] which was an increase of .05 percent over the December figure.[50] During the month of February 1955, there were no airmen AWOL, giving the Wing a zero AWOL rate.[51] Under the SAC Rating System, the cumulative score for December and January was 1.70 percent,[52] and for December, January and February, the cumulative score was 1.14 percent for reenlistment rate.[53]

CHAPGES IN KEY PERSONNEL

During December 1954, Major Carl F. Funk, USAF, Commander of 376th Field Maintenance Squadron received orders reassigning him to Headquarters Second Air Force with a reporting date of 10 January

45. "376th Pers Anal for Jan 55", n.d., exhibit #2, this Hist.
46. History 376th Bomb Wing for Dec 54, page 4.
47. "376th Pers Anal for Feb 55", n.d., exhibit #3, this Hist.
48. "376th Pers Anal for Jan 55", n.d., exhibit #2, this Hist.
49. Ibid, and chart, exhibit #10, this Hist.
50. History 376th Bomb Wing for December 1954, page 4.
51. "376th Pers Anal for Feb 55", n.d., exhibit #3, this History and chart, exhibit #10.
52. Ibid.
53. Ibid.

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1955.[54] He was replaced by Major Seaborn M. Hunt, USAF, former commander of 376th Periodic Maintenance Squadron who was transferred to the 376th Field Maintenance Squadron, reporting on 5 January,[55] who in turn was replaced as Squadron Commander by Major Chester R. Lamb, USAF, who came from the 100th Air Refueling Squadron at Robins Air Force Base, Georgia, to 4th Air Division, and was further assigned to 376th Periodic Maintenance Squadron, reporting on 29 December 1954,[56] and assuming command of the Squadron on 5 January 1955.[57]

Major Charles C. Dugan, Commander of the 376th Tactical Hospital left Barksdale Air Force Base, Louisiana, on 4 January 1955 for 126 days TDY to Natnaumedeen, Bethesda, Md.,[58] and Captain William W. Wilder, USAF, assumed command of the Tactical Hospital during his absence.

Colonel Robert H. Borders III, USAF, DCTT, left on 180 days TDY to Goose Air Base, Labrador on 20 February 1955.[59] During his absence Lieutenant Colonel Richard G. Hall assumed the duties of Director.

On 12 January 1955 Major David R. Schultze, Commander, 376th Armament and Electronics Maintenance Squadron, left for Lowry Air Force Base for approximately 90 days TDY and during his absence Major Robert L. Markey, USAF, assumed command of the Squadron.

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54. SO 305, par 5, Hq 4AD, 11 December 1954.
55. SO 225, par 2, Hq 376th Bomb Wing, 27 December 1954.
56. SO 19, par 6, Hq 4AD, 29 November 1954.
57. SO 1, 376th Per Maint Sq, 5 January 1955.
58. SO 319, par 9, Hq 4AD, 28 December 1954.
59. SO 31, par 12, Hq 4AD, 2 February 1955.

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ROSTER OF KEY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	ODOM, ARCHIBALD D.	Lt Col
Director of Personnel	FLEMING, EDWARD T.	Captain
Director of Countermeasures Test and Tactics	BORDERS, ROBERT H. III	Colonel
Comptroller	CUNLIFFE, RICHARD K.	Major
Chief of Maintenance	MILNER, ROBERT S.	Lt Col
Chief of Intelligence	KOLPIN, SHIRLEY A.	Lt Col
Wing Adjutant	MURPHY, WILLIAM H.	Major
Flying Safety Officer	KELLEHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL U.	Major
376th Tac Hospital	DUGAN, CHARLES C.	Major
512th Bomb Squadron, M	LUTS, JOHN	Major
513th Bomb Squadron, M	ABRAMS, JAMES S.	Lt Col
514th Bomb Squadron, M	WEDDLE, OWEN A.	Lt Col
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Col
376th Field Maint Sq	HUNT, SEABORN M.	Major
376th Periodic Maint Sq	LAMB, CHESTER R.	Major
376th A & E Maint Sq	SCHULTZE, DAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

One hundred and 65 hours and 55 minutes were expended on ECM testing during the month of January 1955.[60] During February, ECM testing required 188 hours and 20 minutes, Second Air Force Operations Order 7-55 (Open Mind) required 101 hours and 10 minutes, and SES evaluation required 13 hours and 20 minutes, for a total of 302 hours and 50 minutes expended on higher headquarters missions.[61]

KC-97 Higher Headquarters Missions:

During January, KC-97 aircraft expended 33 hours and 35 minutes for test and tactics, 21 hours and 15 minutes ferrying crews to Warner Robins Air Force Base, Seattle, nine hours and 30 minutes on a cargo flight, 12 hours and 35 minutes on a passenger flight, 50 hours and 10 minutes on a survey flight to the United Kingdom for the Wing, showing a total of 127 hours and five minutes flown on higher headquarters missions.[62] During February, KC-97 aircraft expended 35 hours and 55 minutes on Operation Open Mind, 73 hours and 55 minutes returning from TDY at Loring Air Force Base, 23 hours and 35 minutes on passenger flights to MacDill Air Force Base, Florida, five hours and 50 minutes on a special passenger flight to Offutt Air Force Base, Nebraska, 12 hours and five minutes on a special passenger and cargo

60. "376th T-12, Part V, for Jan 55", exhibit #6, this Hist.
61. "376th T-12, Part V, for Feb 55", exhibit #7, this Hist.
62. "376th T-12, Parts III & IV, for Jan 55", files, D/o, Training Section, Hq 376th Bomb Wing.

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flight to Davis-Monthan Air Force Base, Arizona, and 36 hours and 15 minutes on special test and tactics, for a total of 187 hours and 35 minutes expended on higher headquarters missions.[63]

Total Flying Time:

The total flying time (including test flights) for the month of January 1955 was 1410 hours for B-47 type aircraft,[64] an increase of 471 hours and 45 minutes over the December figure,[65] and 238 hours more than the figure for February (1172 hours).[66]

On KC-97 type aircraft, the total flying time for January was 645 hours,[67] which was an increase of 202 hours and 20 minutes over the December figure,[68] and 127 hours more than the amount flown in February 1955 (518 hours).[69]

FLYING ACCOMPLISHMENTS

Operationally during January, the Wing was programmed for 1300 B-47 flying hours and flew 1389, and during February was programmed for 1200 hours and flew 1233 hours. On KC-97 aircraft, the Wing was programmed for 600 hours in January, and flew 636:45 hours, and

63. "376th T-12, Parts III & IV, for Feb 55", exhibit #8, this Hist.
64. "376th T-12, Part V, for Jan 55", exhibit #6, this Hist, and chart, exhibit #11, this Hist.
65. History 376th Bomb Wing for Dec 54, page 9.
66. "376th T-12, Part V, for Feb 55", exhibit #7, and chart, exhibit #11, this Hist.
67. "376th T-12, Parts III & IV, for Jan 55", files, 376th D/O, Training Section, and chart, exhibit #11, this Hist.
68. History 376th Bomb Wing for Dec 54, page 10.
69. "376th T-12, Parts III & IV, for Feb 55", exhibit #8, and chart, exhibit #11, this Hist.

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during February, was programmed for 543 hours and flew 504 hours. Also during February, Radar RBS, Visual RBS, Nite Celestial, Flight Engineer, Gunnery, Wet hook-ups and Radar Rendezvous accomplishments earned a score of 125.5 out of a possible 160 points.[70]

OPERATIONS ORDER 7-55 (OPEN MIND)

The purpose of Operation "Open Mind" was to test three things:

a. The basic concept of a quick strike capability of the 376th Bombardment Wing (M) aircraft and crews.

b. The air refueling support for strike aircraft enroute to the target.

c. The validity of planning factors in use by the 376th Bombardment Wing (M) for this type mission.

Twelve B-47 aircraft and crews were selected for the mission with six crews rotating every 48 hours, and one of the six aircraft on alert status was rotated daily to maintain a specified maintenance schedule. The execution order was received at 0013Z 8 February 1955 and "H" hour was established as 0001Z 8 February 1955. The aircraft departed on schedule, that is, within the specified two hour time limit. The first refueling was accomplished without incident but the second was aborted by the tankers due to ice fog. Five aircraft landed at Loring Air Force Base, Maine, and the other one, that had

70. Wing Commander's Notebook, Hq 376th Bomb Wing.

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aborted prior to the descent for the second refueling, landed at Lockbourne Air Force Base, Ohio. Due to this alert status, 50-8' training suffered with a resultant loss of flying time.

The special weapons phase of the exercise was conducted in accordance with instructions contained in Second Air Force Operations Order 7-55. It was determined that a bomb could remain in an aircraft for a maximum of 14 days without adverse effects, provided:

1. That battery load checks be accomplished once every 72 hours.

2. That a 10 pound bag of desicant be placed in the revolver assembly before it is moved to position, to keep excess moisture out of the pit.

3. All tapes be left on the bomb until pre-take-off check is accomplished.[71]

Another factor that negated flying training accomplishments in February was excessive duty not involving flying (DNIF). The Bomb Squadrons accumulated 197 crew days of DNIF during the month. There was no Wing Flight Surgeon available for crew supervision during the month.[72]

TRAINING

CLASSROOM:

Fifteen maintenance airmen were given 20 hours of instruction

71. Report, "376th Report on Exercise OPEN MIND, Operations Order 7-55, 17 February 1955, files, 376th D/O, Plans Section.
72. "376th T-12, Part V, for Feb 55", exhibit #7, this Hist.

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during January in the "Blue Cradle" short course,[73] as outlined in the December report,[74] two officers and 10 airmen TDY from other SAC bases completed 36 hours of instruction on a course as outlined in an appendix to this history.[75]

Twenty-five airmen received approximately three hours instruction on operation and installation of AN/ALT-6 on cradles and problems on trouble shooting when loading of cradles on B-47 type aircraft,[76] and in February, three airmen received approximately 14 hours instruction on the AN/APS-54.[77]

A-5 mechanics received training in January as follows: four received eight hours instruction in A-5 firing circuits, three received 20 hours instruction in A-5 antenna control, two received two hours instruction in selsyn theory and zeroing procedure, two received four hours instruction in theory and test procedures of the lead checker for testing A-5 computing system, four received four hours instruction in RF, head tuning, and three received four hours

73. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955", 1 Feb 55, by Nicholson, hereafter cited as "376th U-19 for Jan by Nicholson, 1 Feb 55", exhibit #12.
74. Exhibit #28, History 376th Bomb Wing for December 1954.
75. "376th U-19 for Jan by Nicholson, 1 Feb 55", exhibit #12.
76. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955", 1 Feb 55, by Lella, hereafter cited as "376th U-19 for Jan by Lella, 1 Feb 55", exhibit #13.
77. Report, Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar 55, by Nevitt, hereafter cited as "376th U-19 for Feb by Nevitt, 1 Mar 55", exhibit #15.

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instruction in procedures for component testing in shop,[78] and in February received training: three received four hours instruction in RF head theory and tuning procedures, seven received instruction for eight hours in firing circuits theory, three received four hours instruction on antenna thyratron drive theory, three received four hours instruction in antenna modes of operation theory, six received four hours instruction in antenna relay operation theory, 22 received two hours instruction in lead checker theory and operation, and ten received eight hours instruction in shipboard tester theory and operation.[79]

On K-4A Bomb-Navigational System:

Twelve mechanics received approximately 10 hours instruction in mock-up (trouble shooting), 41 operators received approximately four hours instruction on in-flight maintenance, 45 operators received approximately three hours instruction in symposium type class, three mechanics received approximately 20 hours instruction on AN/APS-23 Loops, and two mechanics received approximately 20 hours instruction on Computer Loops, during January 1955.[80]

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78. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955", 1 Feb 55 by Faux, hereafter cited as "376th U-19 for Jan 55 by Faux, 1 Feb 55", exhibit #16.
79. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar 55 by Faux, hereafter cited as "376th U-19 for Feb 55 by Faux, 1 Mar 55", exhibit #17.
80. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955", 1 Feb 55 by 7 Fld Engrs, hereafter cited as "376th U-19 for Jan by 7 Fld Engrs, 1 Feb 55", exhibit #18, this History.

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During February, 14 mechanics received approximately 20 hours instruction on mock-up (trouble shooting), 59 operators received approximately four hours instruction in in-flight maintenance, 52 operators received approximately four hours instruction in symposium type class, two mechanics received approximately 20 hours instruction weekly on the AN/APS-23 Loops, and two mechanics received approximately 20 hours instruction weekly in Computer Loops.[81]

On the A-12D Gyropilot:

During January, 18 students received 60 student hours on the A-12D Gyropilot interlock circuits, and 12 students received approximately five hours instruction on A-12D signal sources.[82] During February, 12 students received approximately three hours instruction on A-12D Gyropilot signal sources, and eight students received approximately two hours instruction on A-12D components.[83]

On The Job Training (OJT):

During January, four airmen received 14 hours instruction in installation of QRC-8 equipment, three airmen received three hours instruction on completion of Blue Cradle testers, three more airmen

81. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar 55 by 7 Fld Engrs, hereafter cited as "376th U-19 for Feb 55 by 7 Fld Engrs, 1 Mar 55", exhibit #19.
82. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955", 1 Feb 55 by Kronlage, hereafter cited as "376th U-19 for Jan by Kronlage, 1 Feb 55", exhibit #20.
83. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar 55 by Kronlage, hereafter cited as "376th U-19 for Feb 55 by Kronlage, 1 Mar 55", exhibit #21.

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received instruction for 10 hours on the AN/ALT-7 equipment,[84] and in February, three airmen received seven hours instruction on B-47 alternator circuitry, and two airmen received six hours instruction on Blue Cradle transmitter control.[85]

During January, 38 airmen were given OJT for approximately six hours on installation problems, pre-flight checks, cradle checkout test bench procedures, and test equipment (usage) for the AN/ALT-6.[86] In February, 23 airmen received OJT for approximately five hours on the AN/ALT-6.[87]

A-5 mechanics received instruction in trouble shooting and adjustment of the A-5, instruction in analyzing a gun charger malfunction, and were given aid and explanation of field changes to the A-5 systems.[88] February instruction was just about the same as in January, on this equipment.[89]

Approximately 11/2 hours instruction were given to 195 airmen on systems analysis on the K-4A Bomb-Navigation equipment during January, and eight airmen received approximately 2 1/2 hours instruction on trouble shooting on this equipment. The low trouble shooting figure

84. "376th U-19 for Jan by Nicholson, 1 Feb 55", exhibit #12.
85. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar 55 by Nicholson, hereafter cited as "376th U-19 for Feb 55, 1 Mar 55, by Nicholson, exhibit #22.
86. "376th U-19 for Jan by Lella, 1 Feb 55", exhibit #13.
87. Report, "Monthly Technical REport, RCS: 3-AMC-U19, For Month Ending 28 Feb 55", 1 Mar by Lella, hereafter cited as "376th U-19 for Feb 55 by Lella, 1 Mar 55", exhibit #23.
88. "376th U-19 for Jan by Faux, 1 Feb 55", exhibit #16.
89. "376th U-19 for Feb by Faux, 1 Mar 55", exhibit #17.

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shows that the maintenance personnel are becoming more proficient in their duties.[90] In February, 125 airmen received approximately two hours instruction on systems analysis on the K-4A Bomb-Navigation System equipment while 24 airmen received approximately 3 1/2 hours in trouble shooting.[91]

On The A-12D Gyropilot:

All hours on A-12D instruction for both January and February are approximate hours. Twenty students received 2 1/2 hours instruction on theory, six received three hours on trouble shooting, two received four hours instruction on the F-1 autopilot, two received one hour on the C-1 amplifier, and five received three hours instruction on the N-1 compass during January,[92] and 15 students received three hours on theory, six students received two hours on trouble shooting, two students received three hours on the F-1 autopilot, two received two hours on the C-1 amplifier, and six received two hours on the N-1 compass under the informal OJT program in February 1955.[93]

Planned OJT:

During January, 12 students received two hours instruction on A-12D theory and nine students received two hours on test procedures.[94] In February, 14 students received two hours on test procedures and

90. "376th U-19 for Jan by 7 Fld Engrs, 1 Feb 55", exhibit #18.
91. "376th U-19 for Feb by 7 Fld Engrs, 1 Mar 55", exhibit #19.
92. "376th U-19 for Jan by Kronlage, 1 Feb 55", exhibit #20.
93. "376th U-19 for Feb by Kronlage, 1 Mar 55", exhibit #21
94. "376th U-19 for Jan by Kronlage, 1 Feb 55", exhibit #20.

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10 received two hours on theory.[95]

STATUS OF TEST PROJECTS

Project 1A remained at 90 percent of completion in January,[96] but increased to 100 percent during February 1955 when the final report was completed and was being prepared for printing.[97]

Project 1X increased one percent to 40 percent of completion in January,[98] and one percent more in February 1955.[99] Observations in January showed that receiver sensitivity decreased sharply at the high frequency end, due to the particular frequency change characteristics of the tuning capacitor. The WAC Engineering Company, manufacturers of the capacitor, were unable to construct a tuning capacitor that would meet the required specifications.[100] Four other companies were contacted and two of them expressed a desire to negotiate a contract for development of the equipment. Some compromise in specifications was believed necessary.[101]

Project 27 increased from 70 to 75 percent of completion in

95. "376th U-19 for Feb 55 by Kronlage, 1 Mar 55", exhibit #21.
96. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30) for Jan 55", 4 Feb 55, hereafter cited as "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.
97. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30) for Feb 55", 7 Mar 55, hereafter cited as "376th U-30 for Feb, 7 Mar 55", exhibit #25.
98. "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.
99. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
100. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
101. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.

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January with 78:30 additional hours being flown, for a total of 293:20 hours. B-36 aircraft were used to over-fly the chaff corridor - and results, even considering the fact that the sowing aircraft did not maintain the proper two mile lateral spacing between aircraft and one of the middle aircraft aborted, were good.[102] This project remained at the same stage of completion during February.[103]

Project 29 remained at 52 percent of completion in January[104] and February, still awaiting the prototype Polaroid camera and periscope assembly. The camera and periscope were completed, assembled and bench tested at the Wright Air Development Center.[105]

Project 30 increased two percent to 42 percent of completion in January,[106] and three percent to 45 percent in February 1955 with three additional hours being flown. Tests were conducted at Holloman Air Force Base by the Wing and the Hughes Aircraft Corporation during January, but results were not known by the end of February. Other tests indicate that the B-47 aircraft is vulnerable to attack from the rear by infra red seeking missiles of the GAR-1B type.[107]

No progress was made on Project 31 in January or February due to an indefinite delay in production of the QRC-8 transmitters.[108]

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102. "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.
103. "376th U-30 for Feb 55", 7 Mar 55, exhibit #25.
104. "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.
105. "376th U-30 for Feb 55", 7 Mar 55, exhibit #25.
106. "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.
107. "376th U-30 for Feb 55", 7 Mar 55, exhibit #25.
108. "376th U-30 for Jan 55", 4 Feb 55, exhibit #24.

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Auxiliary Project 5 increased from 45 to 50 percent of completion in January with five additional hours flown,[109] and increased to 80 percent of completion in February with no extra hours flown. The final report was being prepared in February, but due to newly received intelligence data, additional tests were contemplated.[110]

Auxiliary Project 6 remained at the same stage of completion from December 1954 through February 1955.[111] Work on the oscillator-amplifier units was held up pending arrival of the tuning capacitors.[112]

Auxiliary Project 14 remained at 50 percent of completion from December through February. An interim report was being prepared.[113]

Auxiliary Project 15-6 increased one percent to 71 percent of completion in January with two more hours flown (total 146:25),[114] and increased to 75 percent in February with a total of 161:55 hours having been flown. Results of tests showed that, for any band to be covered, a sweep speed of 20 mcs per second was the most effective.[115]

Auxiliary Project 18 remained at 40 percent of completion in January with work on improvement of the increductor VHF transmitter being continued.[116] During February a search-and-stop circuit

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109. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
110. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
111. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
112. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
113. Ibid.
114. "376th U-30's for Jan & Feb, exhibits #24 & #25, this Hist.
115. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
116. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
117. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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utilizing a phanastron was being tested as the possible answer to the search-and-lock-on feature of the jammer.[118]

Auxiliary Project 22 increased to 100 percent of completion in January with the final report being completed:[119]

> This project was initiated on 12 July 1954 to investigate the airborne operating characteristics of the AN/ALT-7, its effectiveness against radar and communications, and to determine whether a practical number of jammers will produce satisfactory jamming conditions.
>
> Cold and altitude tests were run on three transmitters. The Tests indicated that the transmitter frequency was not stable enough for preset spot jamming operation.
>
> After thorough testing, it was concluded that:
>
> 1. The AN/ALT-7 transmitter when used as a sweep jammer is not effective against VHF communications.
> 2. The AN/ALT-7 transmitter when used as a spot jammer with narrow band noise is effective against VHF communications but requires an ECM operator.
> 3. The effectiveness of the AN/ALT-7 when used as a sweeping jammer against radar such as the simulated Dumbo, varies in proportion to the number of transmitters used to cover a particular spectrum.
> 4. The AN/ALT-7 transmitter when used as a spot jammer or in a barrage is effective against the simulated Dumbo Radar.
> 5. The dial calibration is not sufficiently accurate to eliminate any ambiguity when a calibrated received is used to set the operating frequency.
> 6. The frequency sweeping unit is not reliable and does not meet specifications of sweep rate as given in the equipment handbook.
>
> It was recommended that:

118. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
119. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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1. The AN/ALT-7 not be considered for use as a sweeping VHF communications jammer.
2. For radar jamming whenever possible AN/ALT-7 transmitters should be operated in preset barrage rather than a sweeping barrage.[120]

Auxiliary Project 23 remained at 85 percent of completion in January,[121] and increased to 90 percent in February 1955.[122] Matching sections for the 70 megacycle whip antenna had not arrived by the end of February thus delaying final tests. Thirty matching sections were received for antenna AT (XA-214) AP (54½" Whip).[123]

Auxiliary Project 24 increased from 45 percent to 70 percent of completion in January,[124] and to 80 percent of completion in February 1955.[125] In January, two simulated penetration missions were flown using the QRC-8 transmitters aboard B-47 aircraft with KC-97 aircraft acting as fighter intercept aircraft. The second mission used 12 B-47 aircraft as jammers with three KC-97 aircraft acting as interceptors. The B-47 aircraft had eight QRC-8 transmitters aboard and seven of these were operative. No intercepts were made during the mission and no communications were possible at separation distances of less than 40 miles down to approximately 38 miles from the ground site.[126] A similar mission flown in February

120. Report, "376th Final Rept on Aux Test Proj 22", Effectiveness Test of VHF Jammer AN/ALT-7, 24 Jan 55, files (Secret) Hq 376 Bomb Wing.
121. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
122. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
123. Ibid.
124. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
125. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
126. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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was not too good due to the GCI controller having knowledge of the track, altitude, speed and IP time of the bomber force. By the end of February, 32 aircraft of the Wing were equipped with the QRC-8 installations.[127]

Auxiliary Project 25 increased to 90 percent of completion in January with an additional 152:42 hours being flown. Of the two AT-190B antennas filled with "Eccofoam FP", one had 96 and the other had 103 hours flying time with no cracks forming in the antenna shells, but the bases had the same looseness as previously reported. This condition was not aggravated by additional flight time. These antennas are being retired from flight testing.

The knife-edge, thin, solid stub antenna, a laboratory model manufactured by the Federal Telephone and Telegraph Company, has 43 hours of flight time with no defects noted. Flight tests will be continued.[128] In February an additional 4:15 hours were flown and no defects were noted.[129]

The laminated plastic UHF stub received from WADC had 82 hours flight time and was still in good condition. Testing on this antenna will continue.[130] In February, 33:15 additional hours were flown and it was found that the antenna was still in good condition.

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127. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
128. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
129. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
130. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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Flight testing will continue.[131]

The mesh reinforced plastic stub similar to the AT-190B had 103 hours flight time with no defects noted. Flight tests will be discontinued and the antenna will be returned to WADC for inspection and evaluation.[132]

The four thin AT-190B antennas received from WADC had 79 hours each (total 316 hours) and, except for a slight looseness at their bases, these antennas are in good condition. Flight tests will be discontinued and the antennas returned to WADC for inspection and evaluation.[133]

Auxiliary Project 26 remained at 65 percent of completion in January with additional testing being delayed due to faulty aircraft cable installations.[134] In February, it increased to 70 percent of completion with two more hours flown. The faulty cable installations have not been corrected, but suitability tests continued with aircraft in which the cables have not yet deteriorated. It was decided that the APS-54 nose video cable and K-system blanking cables are shorting out at a point under the co-pilot's catwalk where they pass the cabin spill valve. The maximum temperature to be expected here is 495° and the maximum temperature under which the polytheline dielectric of the cable (RG-714) is usable is 212° Farenheit. As of

131. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
132. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
133. Ibid.
134. Ibid.

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23 February 1955, 39 out of 45 APS-54 cable installations have failed. Because of the impossibility of completing valid tests on the equipment at this time, the percentage for completeness of the test has been assessed at 40 percent.[135]

Auxiliary Project 27 remained the same in January as in December 1954,[136] no further action was contemplated unless requested by higher headquarters.[137]

Auxiliary Project 28 remained at 90 percent of completion in January. Completion of tests will be accomplished when Auxiliary Project #29 is finished.[138] During February, nothing was accomplished on this project.[139]

Auxiliary Project 29 remained at 60 percent of completion in January. Twenty feet of double braid "styroflex" cable and 20 feet of aluminum clad "styroflex" cable were purchased for flight tests scheduled for January and other days in February.[140] In February, five flights were made giving outstanding results despite the failure of a number of transmitters due to mechanical faults in the sweep mechanisms. Results were roughly 35 percent more effective than the standard setup. It was found that the Army Signal Corps was using the "styroflex" cable in countermeasures systems. The cable's

135. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
136. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
137. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
138. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
139. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
140. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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unusual second pass band characteristics indicate the possible use of the cable as a filter, rejection device, and limited transmission line over the secondary frequency range.[141]

Auxiliary Project 30 remained at the same stage of completion in January. Negotiations for a contract with Communications Products Company of Freehold, New Jersey, for the new low loss connectors, were not agreeable as to price and the connectors were manufactured in the Base Machine Shop, and silver-plated locally. They were installed and flight testing was to be accomplished on flights of Auxiliary Project #29.[142] In February, flights were made,[143] and upon inspection by the Signal Corps personnel at Fort Monmouth, New Jersey, the connectors were pronounced as good as the state of the art permits for the particular intended use. A few minor modifications are planned to provide slight increases in efficiency.[144]

Auxiliary Project 31 remained at 42 percent of completion in January. Tests on the large ground plane showed the diamond shaped prototype antenna to be acceptable from 700 to 4000 megacycles. Radiation patterns made at the Air Force Cambridge Research Center were found to be as the theoretical computations indicated. Six antennas were being constructed for use of flight tests of Auxiliary Project #29.[145] In February, they were flown and two mechanical

141. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
142. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
143. See "Auxiliary Project 29", pages 33 and 34, this History.
144. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
145. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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failures were found. It was believed that these failures would not occur under normal conditions.[146]

Auxiliary Project 32 remained at the same stage of completion in January with one more cradle hoisting beam breaking due to improper loading procedure.[147] There is a possible requirement for installing six chaff intervalometers on the cradle for use with the AN/ALE-1 chaff dispenser. A mechanical safety link for cradle hoisting is also being investigated to prevent the cradle from falling and injuring personnel in future beam failures.[148]

In January, Auxiliary Project 33 increased to 50 percent of completion. Relay boxes were made and wired, and laboratory tests were conducted with the AN/APS-54 and AN/ALE-1 chaff dispenser.[149] In February, the project increased to 55 percent of completion. Two flight tests were made but were unsuccessful due to unsatisfactory conditions existing in the AN/APS-54 installations.[150] Further testing will be delayed pending corrections.[151]

Auxiliary Project 34 increased to 100 percent of completion in January with 24 additional hours being flown. Results of flight tests were satisfactory on both types of installation. The radome type was chosen as the one to be used. By the end of the month, 12 radomes were completed and installed. Five aircraft with the radomes

146. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
147. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
148. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
149. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
150. See "Auxiliary Project 26, pages 32 and 33, this History.
151. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.

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installed participated in a flight with no UHF communication malfunctions being reported.[152] The end of February found a total of 44 radomes fabricated. They satisfactorily protect the UHF antenna from interference by chaff from the cradle and produce no significant changes in the antenna radiation pattern. The radomes are being installed at a rate of four per day during the down-time of any particular aircraft. Upon periodic inspection, no apparent defects have been noted.[153]

Auxiliary Project 35, "Operational Test of Converter QRC-9", was initiated on 3 January 1955, and by the end of the month was at five percent of completion. The QRC-9 is an experimental equipment designed to convert signals in the "X" band frequency range to "S" band. The converter uses a traveling-wave tube as a wide band amplifier and a klystron as a local oscillator. Tests indicate that when used with an S-121 rapid scan receiver, the QRC-9 will provide spectrum search of the "X" or "S" bands, either separately or simultaneously.[154] In February, this project increased to 85 percent of completion. Tests on the QRC-9 used with an S-121 rapid scan receiver are near completion. Due to non-availability of S-131 intercept receiver, the QRC-9 could not be tested for direction finding on "X" band, however, the video detector and pre-amplifier box associated with this capability were tested by other means and found to be essentially

152. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.
153. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
154. "376th U-30 for Jan 55, 4 Feb 55", exhibit #24.

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flat, with a sensitivity between 45 to 50 decibels below one milli-watt. One test of the QRC-9, with the S-121 receiver and an AN/ALT-6 transmitter used in a remote location, found that a fixed signal or a sweeping signal could be received. A test was run to determine if the signal output from the converter portion of the QRC-9 would be sufficient to feed into the S-121 receiver and thus receive "X" band signals. The "X" band output from the QRC-9 was found to be from 0 decibels to 10 decibels greater when the traveling wave tube was used than when the signal was taken directly from the mixer. This indicates that a maximum gain of approximately ten is realized in the TWT when the QRC-9 is used for "X" band reception.[155]

Auxiliary Project 37, "Barrage Jamming Modifications of the AN/ALT-6 and AN/ALT-8", was initiated 20 January and by the end of February was at 15 percent of completion. The basic idea of the project is to widen the sidebands of the AN/ALT-6 transmitter, allowing the transmitter to "cover" a wider portion of the spectrum.[156]

Auxiliary Project 39, "Crystal Video System Jamming Homer", was initiated 24 January and by the end of February was at 15 percent of completion. An AN/ARD-9(XA-2) crystal video direction finder was received from WADC and was undergoing bench tests prior to being installed in a T-33 aircraft to be tested to determine the possibility of homing on a jamming signal.[157]

155. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
156. Ibid.
157. Ibid.

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Auxiliary Project 41, "X Band Transmission Line and Antenna", was initiated 1 February and by the end of the month was at 15 percent of completion. Thus far, work has been of a research nature. It is fairly certain that a scaled down version of the dielectric loaded transmission line antenna, or "diamond" antenna, will be used.[158]

Auxiliary Project 42, "Development of a Chaff Tape Cutter", was initiated 7 February and by the end of the month was at five percent of completion. Two concepts under investigation are: (1). A solenoid actuated blade, and (2). A rotary disc type cutter.[159]

Auxiliary Project 44, "Modification of B-47 Aircraft for Installation of AN/ALT-7 in Battery Compartment", was initiated 10 February and by the end of the month was at 50 percent of completion. An attempt is being made to install two AN/ALT-7 transmitters with power supplies in the battery compartment of the aircraft. Plans for the installation were completed and include wiring diagrams of the power and control circuits.[160]

158. "376th U-30 for Feb 55, 7 Mar 55", exhibit #25.
159. Ibid.
160. Ibid.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the Month of January 1955, the Wing had 48 B-47's assigned and possessed,[161] and 22 KC-97's assigned and possessed,[162] which was the same as in December 1954.[163] Maintenance figures showed a total of 1409:40 hours flown on B-47 aircraft in January, and 645:55 hours flown in KC-97 type aircraft.[164] In February, the Wing had 48 B-47's assigned and possessed and 22 KC-97's assigned and possessed,[165] as in January 1955.[166] Maintenance figures showed that the B-47's flew a total of 1242:30 hours and KC-97's flew a total of 518 hours in February 1955.[167] The flying time per possessed aircraft in January was 29:24 for B-47's and 29:21 for KC-97's,[168] and in February was 25:54 for B-47's and 23:37 for KC-97's.[169]

The in-commission rate in January was 77:06 for B-47's and 74:84 for KC-97's,[170] and in February was 75:80 for B-47's and 76:22

161. Report, "Historical Report for the Month of January 1955", 376 Wing Maintenance Control Unit, n.d., hereafter cited as 376th Maint Hist for Jan 55", exhibit #26, and chart, exhibit #27.
162. Ibid.
163. History 376th Bomb Wing for Dec 1954, pages 25 and 26.
164. "376th Maint Hist for Jan 55", n.d., exhibit #26.
165. Report, "Historical Report for the Month of February 1955", 376th Wing Maintenance Control Unit, n.d., hereafter cited as "376th Wing Maint Hist, for Feb 55", n.d., exhibit #28, and chart, exhibit #27, this History.
166. "376th Maint Hist for Jan 55", exhibit #25, and chart, exhibit #27, this History.
167. "376th Maint Hist for Feb 55", n.d., exhibit #28, this Hist.
168. "376th Maint Hist for Jan 55", exhibit #26, and chart, exhibit #29, this Hist.
169. "376th Maint Hist for Feb 55", exhibit #28, and chart, exhibit #29, this Hist.
170. "376th Maint Hist for Jan 55", exhibit #26, and chart, exhibit #30, this Hist.

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for KC-97's.[171] The AOCP rate in January was 8:03 for B-47's and 7:27 for KC-97's,[172] and in February was 3:08 for B-47's and 5:32 for KC-97 aircraft.[173] Both types of aircraft were ANFE during both January and February 1955,[174] which was the same as in December 1954.[175]

There were approximately 52 component parts changed on B-47 aircraft and 36 changed on KC-97 aircraft in January 1955,[176] and in February there were 55 changed on B-47 aircraft and 36 on KC-97 aircraft.[177] There were eight B-47 aircraft and four KC-97 aircraft processed through the 376th maintenance docks in January,[178] and in February there were seven B-47 and four KC-97 aircraft processed through the docks.[179] Eleven B-47 and nine KC-97 test flights were flown during January,[180] and 10 B-47 and eight KC-97 test flights were flown in February 1955.[181] A total of 262 Unsatisfactory Reports were submitted in January,[182] and 298 submitted in February 1955.[183]

171. "376th Maint Hist for Feb 55", exhibit #28, and chart, exhibit #30, this Hist.
172. "376th Maint Hist for Jan 55", exhibit #26, and chart, exhibit #31, this Hist.
173. "376th Maint Hist for Feb 55", exhibit #28, and chart, exhibit #31, this Hist.
174. "376th Maint Hist for Jan and Feb 55", exhibits #26, and #28, and chart, exhibit #30, this Hist.
175. History 376th Bomb Wing for Dec 54, page 28.
176. "376th Maint Hist for Jan 55", exhibit #26, this Hist.
177. "376th Maint Hist for Feb 55", exhibit #28, this Hist.
178. "376th Maint Hist for Jan 55", exhibit #26, this Hist.
179. "376th Maint Hist for Feb 55", exhibit #28, this Hist.
180. "376th Maint Hist for Jan 55", exhibit #26, this Hist.
181. "376th Maint Hist for Feb 55", exhibit #28, this Hist.
182. "376th Maint Hist for Jan 55", exhibit #26, this Hist.

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A total of eight B-47 engines and two KC-97 engines were changed in January,[184] and eight B-47 engines and six KC-97 engines were changed in February.[185] The average engine time at change for B-47 engines was 157 hours and on KC-97 engines was 422 during January,[186] and 257 for B-47 engines and 393 hours for KC-97 engines during February.[187]

There were 58 B-47 and six KC-97 malfunctions in January,[188] and 71 B-47 and four KC-97 malfunctions during February.[189]

MAINTENANCE PROBLEMS

Lack of equipment, used to perform various tests and maintenance on equipments under test, has affected the efficiency and output of the Wing. Concerted efforts have been made to obtain necessary test equipment. Correspondence concerning this problem was forwarded to Headquarters, Air Materiel Command where it was delayed for about two years while little or nothing was done to acquire the equipment. Due to the high cost of the electronic equipment, and limited funds, it has has been impossible to procure the necessary amounts of equipment

183. "376th Maint Hist for Feb 55", exhibit #28, this Hist.
184. "376th Maint Hist for Jan 55", exhibit #26, and chart, exhibit #32, this Hist.
185. "376th Maint Hist for Feb 55", exhibit #28, and chart, exhibit #32, this Hist.
186. "376th Maint Hist for Jan 55", exhbit #26, and chart, exhibit #33, this Hist.
187. "376th Maint Hist for Feb 55", exhibit #28, and chart, exhibit #33, this Hist.
188. "376th Maint Hist for Jan 55", exhibit #26, this Hist.
189. "376th Maint Hist for Feb 55", exhibit #28, this Hist.

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expediently. Many of the required items are Air Force stock items that are not available and require purchasing outside the Air Force. Field strength meters, electronic scope recording devices, and Esterline Angus recorders are examples of required equipment.[190]

The Wing is authorized eleven 3,000 pound per square inch compressors and only five are assigned. This shortage seriously affects the capability of the Wing to launch more than a minimum number of aircraft at one time.[191]

EQUIPMENT MALFUNCTIONS

A malfunction on the AN/ALE-1 chaff dispenser system was found due to a deficiency in the emergency loading switch. Unsatisfactory Report 376BW-55-580 was written and a proposed modification to eliminate the difficulty is appended to the report.[192]

Four Z101 units failed in the ALT-8 transmitters. Z101 is in the high voltage circuit of the transmitter and is one of many components in a sealed can. It was recommended that an analysis be made to determine which part or parts are shorting and take corrective action. Unsatisfactory Report 376BW-55-620 was submitted.[193]

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190. Ltr, "Problems Affecting The Mission of the 376th Bomb Wing", 8 Feb 55", attached, exhibit #1.
191. "376th T-12, Parts III & IV, for Jan 55", files, D/O Training Section, Hq 376th Bomb Wing.
192. Report, "Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 Jan 55", 1 Feb 55, by Nevitt, hereafter cited as "376th U-19 for Jan by Nevitt, 1 Feb 55", exhibit #15.
193. "376th U-19 for Feb by Nevitt, 1 Mar 55", exhibit #16.

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Several malfunctions of gun chargers were reported in one day, during a period of rainy weather, and in each case the left gun fired 100 percent and the right gun fired zero percent. Due to the construction of the charger, moisture could leak into the right hand charger, collecting in the charger housing only in cases where the sealing compound had broken around the lid of the charger. Unsatisfactory Report 376BW-55-223 was submitted. Resealing of charger lids, on all Wing aircraft, was initiated in January.[194]

A more than average number of broken "stand off" condensers on Pre-IF amplifier and Main receiver sub-assemblies in the receiver transmitter unit occurred. Various theories were advanced as to the cause, but the consensus was that the condensere were not rugged enough. It was becoming difficult to obtain replacements. The manufacturer started to use larger and more rugged condensers and with the passing of time the new IF units will be received.[195]

The circuit breaker B-6 (A-12D Gyropilot System) popped and would not reset. The cause was that the power transmitter T-402 was shorted between pins 8 and nine. V-401 (6X5 rectifier tube) shorted from the filament to the cathode. Corrective action in this case was to replace the B-18 amplifier unit due to its not being reparable at Barksdale Air Force Base, Louisiana. Unsatisfactory Report 376BW-55-220 was

194. "376th U-19 for Jan by Faux, 1 Feb 55", exhibit #16.
195. "376th U-19 for Feb by 7 Fld Engrs, 1 Mar 55", exhibit #19.

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submitted on this part.[196] During February, there was one malfunction with a short between different pins, which required the replacing of another B-18 unit.[197]

MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED

Testing equipment for the AN/ALT-6 and AN/ALT-8 transmitters will not be adequate because, of what we do not have, some has not been manufactured, while others have not been designed. Temporarily, the Wing is using the AN/APR-4 and AN/APR-9 receivers, on loan from DCTT, for test purposes. The AN/APR-4 is being used with the AN/ALT-6, AN/ALT-8 and AN/ALT-7 Transmitters for testing on the flight line, and the AN/APR-9 is being used by field maintenance personnel to check the AN/ALT-6 and AN/ALT-8 in the shop. A recommendation was made for B/RB-47 wings to be authorized appropriate ECM receivers.[198]

A high frequency - low amplitude jitter was noted to occur in aircraft when aircraft or ground power was being used. Most of the jitter was lost when insulating material was placed between the PP-259 unit chassis and the aircraft frame. An investigation into the cause, and the fix, of the different types of wavy range mark was being conducted by Boeing, Western Electric, and Sperry Gyroscope Companies.[199]

196. "376th U-19 for Jan by Kronlage, 1 Feb 55", exhibit #20.
197. "376th U-19 for Feb by Kronlage, 1 Mar 55", exhibit #21.
198. "376th U-19 for Feb by Nicholson, 1 Mar 55", exhibit #22.
199. "376th U-19 for Feb by 7 Fld Engrs, 1 Mar 55", exhibit #19.

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OPERATIONAL DIFFICULTIES

The inverter schematic, Sec IV, Figure 4-12 (Blue Cradle Handbook), was found to be incorrect. As drawn, placement of the inverter switches in the "on" position will short the main DC bus to ground; neither manual or automatic switching of the spare inverter to the R.H. bus can be made, and the arm of the L.H. bus transfer relay has been omitted from the drawing. In the Handbook, Radio Transmitter T-464/ALT-7, Figure 7-11, Radio Transmitter schematic has the values of resistors R214 and R227 interchanged. In addition, there are a number of minor errors in the text, for example, page 3-10, paragraphs h and i, and page 4-11, paragraph 4-22, contain incorrect statements.[200]

SPECIAL DEVELOPMENTS

Five Blue Cradle Test Consoles have been completed. Photographs and schematics of this console are appended to this History.[201] A console simulates, in portable form, the aircraft power and control circuits and is used to perform a complete shop checkout of an equipped cradle. It carries all the necessary cables, components, and a kit of spare parts. A test console of this type is essential to maintenance of any cradle or pod type installation.[202]

200. "376th U-19 for Jan by Nicholson, 1 Feb 55", exhibit #12.
201. See Incls #2 & #3, to exhibit #12, this Hist.
202. "376th U-19 for Jan by Nicholson, 1 Feb 55", exhibit #12.

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Additional crystal protectors were being built for test and tactics purposes. The crystals in aircraft #398 (crystal protector installation) were checked 15 January and were found to be in good condition.[203] A simplified version of the AN/APS-54 crystal protector was developed using one less relay than the old one.[204]

Second Air Force wrote a letter to the Wing outlining a proposed compass calibration procedure. The procedure, as proposed, cannot be recommended at present, and perhaps not as long as the earth's magnetic field is utilized as the source of heading information.[205] Arrangements were made to give the K-Systems WEMP Test to all K-Systems mechanics. This will show categories where weaknesses exist and then training programs can be set up.[206]

FACILITIES

During the tour of duty of one of the officers assigned as Refueling Officer, certain deficiencies were noted along with some areas that could stand improvement from a safety viewpoint. One bad thing seems to be the use of whistle with which the Refueling Officer is to alert the men around the plane that a serious spillage and/or fire was taking place. When the auxiliary power unit is running, some of the men cannot hear the whistle. It was suggested that a powered

203. "376th U-19 for Jan by Nevitt, 1 Feb 55", exhibit #14.
204. "376th U-19 for Feb by Nevitt, 1 Mar 55", exhibit #15.
205. "376th U-19 for Jan by 7 Fld Engrs, 1 Feb 55", exhibit #18.
206. "376th U-19 for Feb by 7 Fld Engrs, 1 Mar 55", exhibit #19.

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device be used with power from the electric light outlet in each pit.

To alert a fire truck, a man must be sent to the pump house to telephone the dispatch to contact the truck. This seems to be a rather slow method. It was suggested that a rotating flashing amber light be conbined with the audible powered device mentioned in the paragraph above. A switch on an extension cord could be furnished to the refueling Officer. These signals are specially necessary at night when hand signals cannot be seen. At the same time, another flood light was suggested to illuminate the left side of the aircraft. It was also suggested that one man less than required by 4th Air Division on refueling would be sufficient. Also mentioned were: a need for pressure gauges on refueling nozzles, repainting of ground plugs, and a standardization of defueling procedures.[207]

207. D/F to Comdr fr 512th Refueling Officer, "Report Refueling Officer", 1 Dec 54, attached, exhibit #34, this History.

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HEADQUARTERS 376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

PROBLEMS AFFECTING THE MISSION OF THE 376TH BOMB WING

1.PERSONNEL:

A lack of stability of personnel in the electronics countermeasures field has seriously affected the mission of the 376th Wing. The personnel in this activity were selected by name and reputatuon with the assistance of Headquarters SAC. Officers and airmen possessing the necessary technical qualifications are limited throughout the Air Force. A personnel control roster listing ECM personnel by name has been submitted to Headquarters SAC for consideration and acceptance. It is imperative that some action be taken to freeze this type of engineer.

A new TDA has been prepared by the 376th Bombardment Wing requesting the proper authorization for support of the Wing Headquarters, Directorate of Countermeasures Test and Tactics, and the 376th Armament and Electronics Squadron. A great amount of effort has been spent in surveying the workload for each section concerned; therefore, the personnel, numbers, and grades are not excessive, but rather conservative, The present authorization for personnel which the wing is now operating under is completely unsatisfactory. Assistance in obtaining the new TDA is necessary.

The 376th Bombardment Wing has been engaged in a large training program for personnel in the ECM field who have been sent for this training from other SAC organizations and direct from Keesler AFB. The numbers and grades of personnel who have attended this course of instruction have not been sufficient to allow for the organization of ECM sections in other wings. To protect the training and development capability of the 376th Wing, new units must be manned from these trainees. The qualified instructors and technicians must remain with the wing.

A request has been made to the Directorate of Armament and Electronics, Headquarters SAC, to negotiate a new contract for the RCS and Philco Technical Representatives who serve as technical engineers in the Directorate of Countermeasures Test and Tactics. Under the present contracts, we are unable to approach a monthly salary that is being offered to many of our Technical Representatives by outside civilian electronic companies. The stability that we enjoy in the assignment

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of the high caliber personnel can never be attained with Air Force officers. We are dependent on the assignment of these personnel if the progress of the Laboratory is to continue.

2. INTELLIGENCE:

Timely technical intelligence information is very important to this wing. This information provides necessary guidance in considering the relative importance amoung the projects being conducted within the 376th Bombardment Wing. A very good working arrangement is now existant between the Directorate of Intelligence, Second Air Force, and the 376th Directorate of Countermeasures Test and Tactics. Weekly briefings are conducted every Friday afternoon by personnel from Second Air Force. This is very helpful.

3. CLARIFICATION OF THE WING MISSION:

2AF letter 23-5 dated 9 September 1953 gives the primary mission of the 376th Bombardment Wing as follows:

a. To develop and test both tactics and ECM techniques and make recommendations to SAC Headquarters.

b. To develop and maintain capability and perform ECM cover and diversion in support of strategic bombardment operations.

c. To determine the capability of existing ECM equipment employed by SAC.

d. To maintain a field laboratory for operation engineering.

e. In addition to the above, maintain a capability of normal strategic bombardment wing operations.

Even though this mission is clearly stated, there appears to be serious confusion in higher headquarters as to the real mission of the Wing. Although a modified 50-8 training program was submitted to higher headquarters on the 16 Sept. 1954, to date this wing is still under the standard bombardment 50-8 program, is rated in the SAC Management Control System on these accomplishments and in addition is required to do its necessary ECM test and development work. It is urgently recommended that some action be taken to clarify the position of the Wing and to establish for the Wing a reasonable training program in view of its additional committements. This change in program should also allow for the inclusion of the 376th Bombardment Wing in the EWP as an Electronics Countermeasures Unit and at the same tome authorize lead and select crews with its coresponding allotments for spot promotions.

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4. SECURITY CLEARANCES:

It is felt necessary that all personnel assigned the Directorate of Countermeasures Test and Tactics should be cleared for Top Secret information. This is deemed necessary because many phases of the tactics, plans, and proposed equipments covered in the daily work of this Directorate are classified Top Secret. We have been unable to process Top Secret clearances for Contractor Technician personnel. It is understood that the only way to secure Top Secret clearance is for AMC to process the request direct to Office of the Secretary of the Air Force. Anything that may be done to correct the situation, particularly for the key contractor technicians assigned the Guided Missles Section, will alleviate many difficulties in pursuing our mission.

5. TEST EQUIPMENT:

The efficiency and output of the wing is affected not only by the personnel assigned but also by the equipment which they use to perform various tests and maintenance on equipments under test. In this regard, many concerted efforts have been made to secure necessary test equipment for the Laboratory. This problem was referred to Hq AMC who did lottle or nothing in the way of securing equipment, but rather delayed the correspondance for about two years while most of the equipment then required was purchased from local funds. Most of the electronics test equipment is very expensive. Because of these high prices we are unable to procure the necessary amounts of equipment expediently with the limited funds available. Again, many of the items required in the Laboratory are Air Force stock items which are not available and require purchasing outside the Air Force. Specific examples of equipment required by the Laboratory are field strength meters, various types of electronic scope recording devices, and Esterline Angus Recorders.

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William H. Murphy

WILLIAM H. MURPHY, MAJOR USAF

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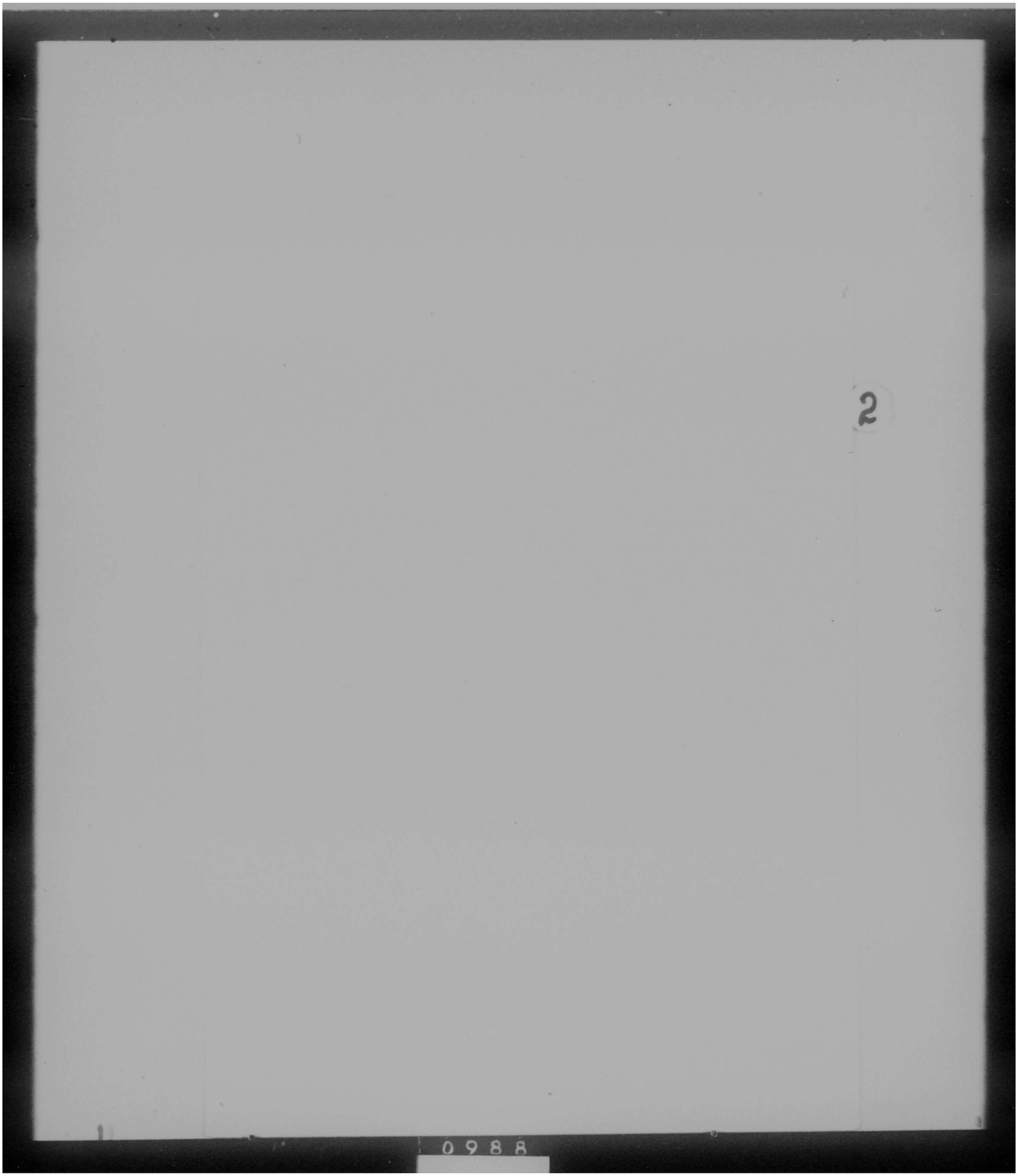

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MONTHLY ANALYSIS (JANUSRY 1955)

1. Officers Assigned during January 1955:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Capt	(4355)	James O. Adams,	AO 859542	376th Hq Sq
2nd Lt	(1521A)	Kenneth D. Royer	AO 3035632	376th Hq Sq
2nd Lt	(1521A)	Parrie W. Williams, Jr.	AO 3035634	376th Hq Sq
Major	(4316)	Chester R. Lamb	AO 445386	376 Per Maint Sq
1st Lt	(9836D)	William J. Lear	AO 3001576	376th Tac Hosp
1st Lt	)9836D)	Saul I. Nitzberg	AO 3001399	376th Tac Hosp
1st Lt	(7341)	Harold D. Baird	AO 2066460	376 Air Rflg Sq
Capt	(4341)	William Main	AO 558190	376 Air Rflg Sq
2nd Lt	(1531)	Thomas J. Mascarella	AO 3036967	376 Air Rflg Sq
Capt	(1044P)	Richard L. Auxhard	AO 734170	376 Air Rflg Sq
2nd Lt	(1531P)	Joseph J. Tighe	AO 3038900	376 Air Rflg Sq
2nd Lt	(1521)	James L. Ashcraft	AO 3035381	376 Air Rflg Sq
2nd Lt	(1521)	Paul R. Thompson	AO 3035396	376 Air Rflg Sq

TOTAL: 13

2. Officers Transferred and Separated during January 1955: Three to 805th Air Base Group, Barksdale Air Force Base, Louisiana, three separated from Service, two to Headquarters Second Air Force, and one each to: Headquarters Strategic Air Command, Chanute Air Force Base, Illinois, 1927 AACS, Barksdale Air Force Base, Louisiana, and Mather Air Force Base, California, for a total of 12, as listed:

RANK	AFSC	NAME	AFSN	TRFD FROM
1st Lt	(3274)	Leslie A. Sayers	AO 1112956	376 A&E Maint Sq
1st Lt	(3271)	Ray Ricaud	AO 3002865	376 A&E Maint Sq
Capt	(3034)	Miles K. Luke	16302A	376 A&E Maint Sq
1st Lt	(9754)	Florence Patterson	AN 2241863	376 Tac Hosp
1st Lt	(9734)	Betty J. Prince	AN 2242038	376 Tac Hosp
2nd Lt	(9754)	Elaine M. Ehrler	AN 2242330	376 Tac Hosp
Capt	(3234)	Melvin L. Flowers	AO 688016	376 Fld Maint Sq
Major	(4316)	Carl F. Funk	6550A	376 Fld Maint Sq
Lt Col	(0066A)	Hugh B. Vail	7654A	376 Hq Sq
1st Lt	(6531)	Joe L. Craig	AO 1862886	376 Fld Maint Sq
Capt	(7321)	Orville L. Coil	AO 696750	376 Air Rflg Sq
1st Lt	(1534A)	Owen Kean, Jr.	AO 2214640	376 Air Rflg Sq

3. Airmen Assigned during January 1955 (by Prim AFSC):

22330 - 1	43271 - 1	60350 - 1	73231 - 1
43151E - 1	46130 - 4	64131 - 1	90230 - 1
43171B - 1	47135 - 1	70010 - 1	AFSC not known-
43230 - 1	53450 - 1	70250 - 2	records not
43250 - 1	58010 - 3	73170 - 1	received - 19

TOTAL: 42

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4. Airmen Transferred & Separated (not Reenl) in Jan 1955 (by Prim AFSC):

20430 - 1	33150 - 5	43251 - 3	60150 - 1
20350 - 1	33170 - 1	43231 - 1	60350 - 1
22350 - 1	40250 - 1	43350 - 5	64010 - 1
29353 - 2	42131 - 1	46010 - 4	64151 - 1
29373 - 2	42151 - 1	46250 - 4	64173 - 1
30150 - 1	42171 - 1	46270 - 1	70010 - 1
30250 - 2	42350 - 6	47151 - 1	70270 - 1
30252 - 1	43131E - 17	47170 - 1	70250 - 7
30372 - 1	43151B - 2	53010 - 1	73250 - 1
32150E - 3	43151E - 7	53150 - 1	73251 - 1
32330F - 2	43171B - 2	53271 - 1	90970 - 1
32350C - 1	43171E - 1	53450 - 3	92230 - 1
32351F - 3	43230 - 1	58150 - 2	99015 - 1
32350F - 3	43250 - 1	58151 - 1	TOTAL: 119

5. Reenlistment Rate (December 1954 and January 1955):

Number Discharged	Number Reenlisted	% Reenlisted
140	26	18.5

Discharged by Squadrons:

376 Hq Sq	*MSGT R L Sanders (Reenl)	*SSGT G H Beattie
	SSGT C D Clark	*SSGT D W McCease
	*SSGT P M Culp	SSGT R G Sawyer
	*SSGT H M Marshall	SSGT R A Parker (Reenl)
	SSGT H A Short (Reenl)	A/1C J H McDonald
	SSGT C W Welch (Reenl)	A/2C A B Pratt
512 Bomb Sq	*A/1C D A Deenst	A/1C W E Whitmore, Jr
	A/1C P A Larsen	A/2C J N Thatcher
513 Bomb Sq	SSGT R L Macy	A/1C M E Allen
	SSGT B T Umberger, Jr.	A/1C J J Landry (Reenl)
	SSGT J H Walker	A/2C E L Renteria
514 Bomb Sq	A/1C R B Andrews	*A/2C J C Byrnes, Jr.
	A/1C G L Johnson, Jr.	*A/3C K R McBrien
376 Armt & Elec Maint Sq	SSGT L V Brooks	SSGT W L Mayer
	SSGT M E Browner (Reenl)	SSGT W D Moffott
	SSGT H L Carter	A/1C H J Black
	SSGT J L Donahue	A/1C R L Brown
	SSGT G E Eason	A/1C R D Irvine (Reenl)
	*SSGT J L Frazier	*A/1C W R Shart, Jr
	SSGT R R Hoffman	A/1C J E Smith
	SSGT W C Love	*A/2C R G Dryden
	SSGT D E Lakehart (Reenl)	*A/2C R L Winn, Jr.

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5. (Continued):

376 Fld Maint Sq	SSGT J L Beck	SSGT C E Ward
	SSGT B L Cox	SSGT B C Williamson (Reenl)
	*SSGT R L Dennis	SSGT J W Pettus (Reenl)
	SSGT R J Dugan (Reenl)	A/1C R J Brdas
	*SSGT J J Massicotte (Reenl)	A/1C J L Brehman
	SSGT D W O'Daniel	A/1C R L Musselman
	SSGT G W Smith	A/1C R D Griffin
	SSGT J C Stafford	A/2C G W Griffin
376 Per Maint Sq	SSGT J L Foster (Reenl)	SSGT R R Roey (Reenl)
	SSGT S C Hall, Jr.	SSGT S W Williamson (Reenl)
	SSGT G Morrison	A/1C D E Fuller (Reenl)
	SSGT D V Poppen	A/1C C F Miller
376 Air Rflg Sq	SSGT W P Comer, Jr.	SSGT D C Sides
	SSGT J R English	SSGT R C Stollenwerk (Reenl)
	SSGT R N Farley	SSGT R G Wallace
	SSGT E A Galligan	A/1C D M Coggins
	SSGT F D M Johnson (Reenl)	A/1C T C Wangelin
	*SSGT J B Hogg	A/2C W A Davis
	SSGT C B King	*A/2C R G Fanelli
	SSGT J J Haudwork (Reenl)	A/3C J S Giamis
	SSGT J G Reid	
376 Tac Hospital	SSGT W L Babcock (Reenl)	

* Airmen separated but not included in the reenlistment rate.

6. AWOL Rate per 1000 December and January:

	Assigned	Number AWOL	Percent
Officers	804	0	0
Airmen	3895	8	2.05
TOTAL:	4699	8	1.70

AWOL by Squadron (January 1955 only):

376 Air Rflg Sq	A/2C H Polston, Jr.	A/2C J E Jackson
376 Per Maint Sq	A/B B D Phillips	
376 Tac Hospital	A/3C A Garcia	

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7. Gains and Losses:

	No Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	12	2.6	13	2.8
Airmen	119	6.5	42	2.3

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376 Hq Sq	70	69	55	78.6
512 Bomb Sq	79	59	59	74.7
513 Bomb Sq	79	62	61	77.2
514 Bomb Sq	78	61	61	78.2
376 Air Rflg Sq	100	107	94	94.0
376 Armt & Elec Maint Sq	18	17	15	88.3
376 Fld Maint Sq	8	5	5	62.5
376 Per Maint Sq	6	4	4	66.6
376 Tac Hosp	27	18	15	55.6
TOTAL:	465	402	369	79.4
CONSOLIDATED MIRS:	465	402	387	83.2

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9. Effective Manning of Airmen:

ORG	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376th Hq Sq	57	44	80	86	36	36	70	62	63.2	63.2	87.5	77.5
512th Bomb Sq	86	87	24	25	84	74	19	18	97.7	86.1	79.2	75.0
513th Bomb Sq	85	88	24	14	81	67	12	12	95.3	78.8	50.0	50.0
514th Bomb Sq	88	92	24	21	84	72	16	16	95.5	81.8	66.7	66.7
376 Air Rflg Sq	193	203	57	57	171	152	50	46	88.6	78.8	87.7	80.7
376 A&E Maint Sq	348	443	72	53	280	245	48	47	80.5	70.4	66.7	65.3
376 Fld Maint Sq	274	275	170	167	241	210	144	142	88.0	76.6	85.7	83.5
376 Per Maint Sq	121	121	27	21	100	96	15	13	82.6	79.3	55.6	48.1
376 Tac Hospital	1	1	94	111	1	1	86	83	100	100	91.5	88.3
TOTAL:	1253	1354	572	555	1078	953	460	439	86.0	76.1	80.4	76.8
CONSOLIDATED MIRS:	1253		572			989		457		78.9		79.9

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MONTHLY ANALYSIS (FEBRUARY 1955)

1. Officers Assigned during February 1955:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Lt Col	(8446)	Felix A. Kalinski	10132A	376th Hq Sq
Capt	(1224P)	Sidney R. Hawkins	AO 718909	376 Air Rflg Sq
Capt	(4344)	Bruce E. Schultze	AO 819626	376th Hq Sq
1st Lt	(9754)	Dorthy J. Lacy	AN 2242966	376th Tac Hosp
1st Lt	(9754)	Patricia E. Urbanie	AN 2242889	376th Tac Hosp
1st Lt	(1534B)	Lloyd G. Wentworth, Jr.	AO 1911526	376th Hq Sq
2nd Lt	(1531P)	John J. Fallon	AO 3037456	376 Air Rflg Sq
2nd Lt	(9754)	Joyce M. Goodson	AN 2242890	376th Tac Hosp
2nd Lt	(1531P)	Glen E. Hastings	AO 3037462	376 Air Rflg Sq
2nd Lt	(1531P)	James H. Hops	AO 3037463	376 Air Rflg Sq
2nd Lt	(9121)	Donald R. McFee	AO 3002143	376th Tac Hosp
2nd Lt	(1531P)	Robert T. Patton	AO 3037460	376 Air Rflg Sq
2nd Lt	(9031)	Carl M. Semon	AO 2262035	376th Tac Hosp
2nd Lt	(1531P)	John F. Walsh	AO 3037493	376 Air Rflg Sq

TOTAL: 14

2. Officers Transferred and Separated during February 1955: Two to Camp Kilmer, New Jersey, two to 301st Air Refueling Squadron, Barksdale Air Force Base, Louisiana, and one each to - James Connally Air Force Base, Texas, Wright-Patterson Air Force Base, Ohio, Separated from the Service, and Mather Air Force Base, California, as listed:

RANK	AFSC	NAME	AFSN	TRFD FROM
1st Lt	(1534A)	Joseph W. Connally	AO 713057	376 Air Rflg Sq
1st Lt	(7324)	Wallace R. Brooks	AO 2248975	513th Bomb Sq
2nd Lt	(1224P)	Stutley R. Olson	AO 3036695	376 Air Rflg Sq
2nd Lt	(1521F)	Paul R. Thompson	AO 3035396	376 Air Rflg Sq
Capt	(1234B)	Cyril J. Hoskinson	AO 534504	513th Bomb Sq
Capt	(3024)	James C. Shive	AO 679129	513th Bomb Sq
Capt	(9636)	Robert L. Willis, Jr.	AO 2241554	376th Tac Hosp
1st Lt	(2051)	Thurman C. Russell	AO 2086708	514th Bomb Sq

3. Airmen Assigned during February 1955 (by Prim AFSC):

20470 - 1	32130E - 2	43231 - 3	64151 - 1
22151 - 1	32330C - 1	46250 - 1	70010 - 4
22330 - 1	32331F - 1	47134 - 1	70250 - 1
22350 - 2	32350C - 1	53430 - 2	73251 - 1
30130 - 1	32351F - 1	58010 - 1	90651 - 1
30131 - 5	33170 - 1	60350 - 1	90010 - 1
30150 - 1	42330 - 7	60370 - 1	92230 - 2
30230 - 3	43151E - 1	62250 - 1	99015 - 2
30250 - 1	43171A - 1	64131 - 1	TOTAL: 57

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4. Airmen Transferred & Separated (not Reenl) in Feb 1955 (by Prim AFSC):

29333 - 1	40270 - 1	47154 - 2	70270 - 1
29353 - 1	42151 - 2	53450 - 1	70232 - 1
30150 - 2	43171B - 1	60130 - 1	73170 - 1
30170 - 1	43230 - 1	60170 - 1	73250 - 2
30250 - 1	43251 - 3	60350 - 1	73251 - 2
30372 - 1	43350 - 3	62270 - 1	80230 - 1
32150E - 1	43371 - 1	64151 - 2	90130 - 1
32150G - 1	46130 - 3	64175 - 1	90330 - 1
32351F - 2	46250 - 1	70230 - 1	90951 - 1
33170 - 1	47151 - 2	70250 - 7	TOTAL: 59

5. Reenlistment Rate (December 54, January 55 and February 55):

Number Discharged	Number Reenlisted	% Reenlisted
176	35	19.9

Discharged by Squadrons (February 1955 only):

376th Hq Sq	MSGT C B Roesler (Reenl)	*SSGT W B Smith
	TSGT C J Dedow (Reenl)	A/1C A J Johnson
	SSGT N G Bakalis	A/1C L A Johnston
	SSGT E J Edwards	*A/1C N M Litz
	SSGT M W Marsh	
512th Bomb Sq	SSGT G N Spendlove	
514th Bomb Sq	SSGT J E Garrison	SSGT F T Swann
	SSGT L W Moore	
376 Armt & Elec Maint Sq	TSGT V G Cagle (Reenl)	SSGT R J Gager
	SSGT A X Reichert (Reenl)	SSGT J F Halpin
	SSGT J T Cooney	SSGT T D Kasey
	SSGT B D Eidson	A/1C R D Armer
376 Fld Maint Sq	SSGT F M Altamuro, Jr.	A/1C H P Long
	*SSGT J L Walker (Reenl)	A/1C L M Smith, Jr.
	A/1C J S Dukes, Jr.	A/2C R L Rousselle
	A/1C R J Hall	
376 Air Rflg Sq	TSGT C T Williams	SSGT H E Thonpson (Reenl)
	SSGT D A Browning	SSGT C E Williams
	SSGT P S Guida	A/1C T C Buehrle
	*SSGT S Hagel (Reenl)	*A/1C R P Johns
	SSGT S S Huber	A/2C R N Coupland (Reenl)
	SSGT S G Knutson (Reenl)	SSGT E W Brooks (Reenl)
	SSGT R D Miller (Reenl)	*Airmen separated but not included in reenlistment rate.

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6. AWOL Rate per 1000 (Dec 54, Jan 55 and Feb 55):

	Assigned	Number AWOL	Percent
Officers	1212	0	0
Airmen	5802	8	1.38
TOTAL:	7014	8	1.14

AWOL by Squadron (February 1955 only): None.

7. Gains and Losses:

	No Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	8	1.7	14	3.0
Airmen	59	3.2	57	3.1

8. Effective Manning of Officers:

ORGN	ASGD	AUTH	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376th Hq Sq	70	71	56	80.0
512 Bomb Sq	79	59	59	74.7
513 Bomb Sq	79	57	57	72.2
514 Bomb Sq	78	61	61	78.2
376 Air Rflg Sq	100	113	96	96.0
376 A&E Maint Sq	18	16	15	83.3
376 Fld Maint Sq	8	5	5	62.5
376 Per Maint Sq	6	4	4	66.7
376 Tac Hosp	27	22	19	70.4
TOTAL:	465	408	372	80.0
Consolidated MIRS:				
	465	408	379	81.5

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9. Effective Manning of Airmen:

ORGN	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	EFF ASGD	NO MIRS	EFF ASGD	NO MIRS	% EFF ASGD	% MIRS	% EFF ASGD	% MIRS
376 Hq Sq	57	46	80	87	39	38	68	63	68.4	66.7	85.0	78.8
512th Bomb Sq	86	86	24	24	84	73	18	17	97.7	84.9	75.0	70.8
513th Bomb Sq	85	88	24	15	80	67	15	15	94.1	78.8	62.5	62.5
514th Bomb Sq	96	91	24	19	89	72	16	16	92.7	75.0	66.7	66.7
376 Air Rflg Sq	193	198	57	54	164	158	48	44	85.0	81.9	84.2	77.2
376 Armt & Elec Maint Sq	348	450	72	49	301	246	49	45	86.5	70.7	68.1	62.5
376 Fld Maint Sq	266	283	170	164	252	207	146	139	94.7	77.8	85.9	81.8
376 Per Maint Sq	121	121	27	21	98	95	15	13	81.0	78.5	55.6	48.1
376 Tac Hospital	1	1	94	110	1	1	85	81	100	100	90.4	86.2
TOTAL:	1253	1364	572	543	1108	957	460	433	88.4	76.4	80.4	75.8
CONSOLIDATED MIRS:	1253		572			993		450		79.3		78.7

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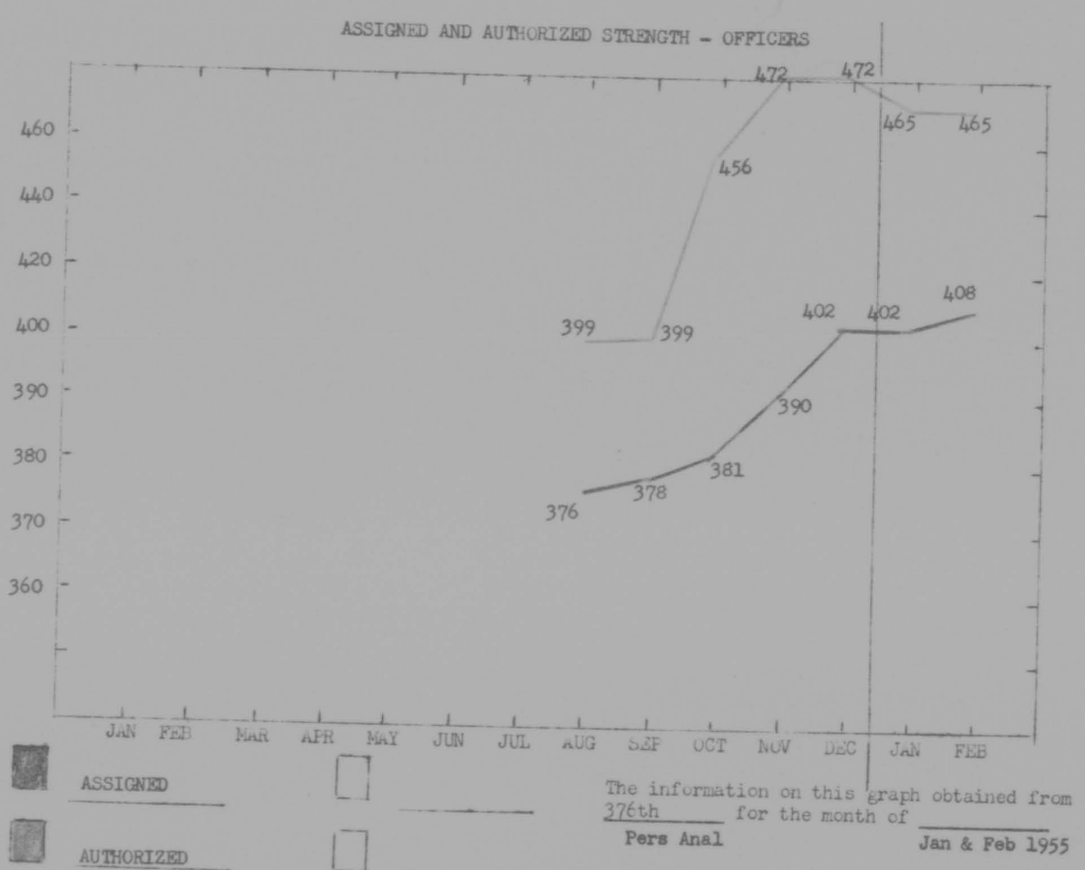

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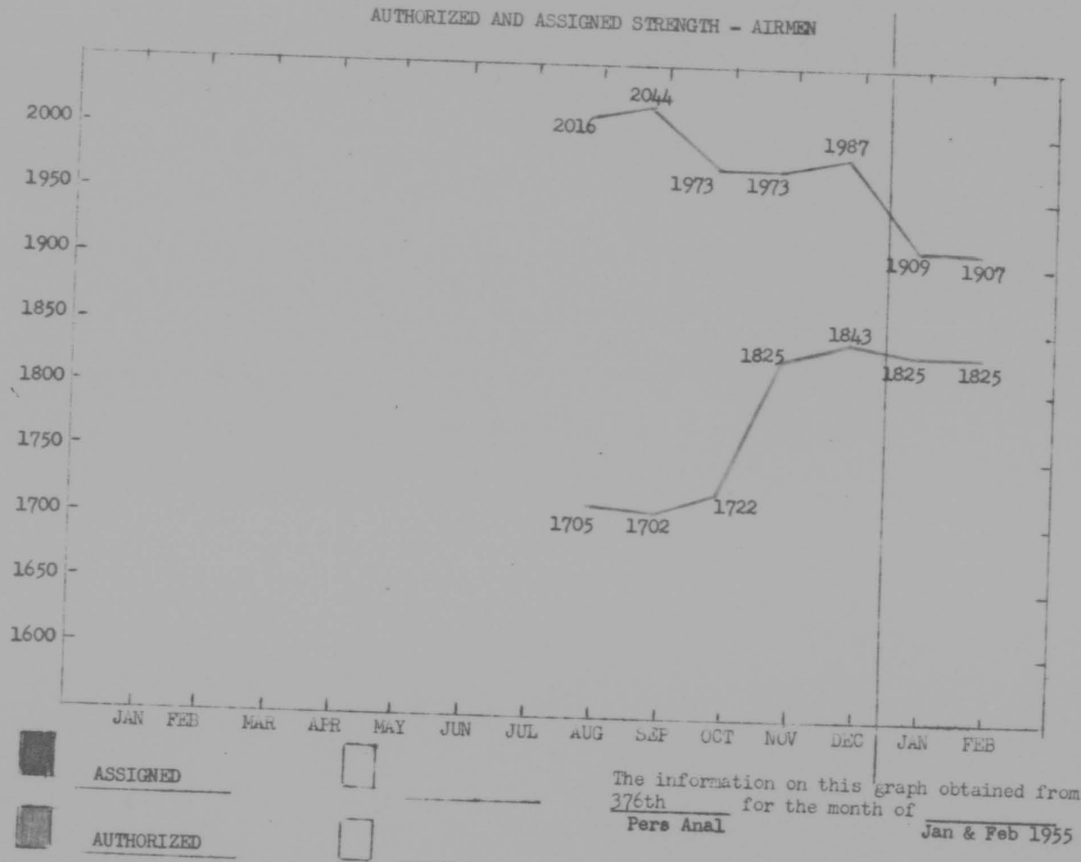

The information on this graph obtained from 376th Pers Anal for the month of Jan & Feb 1955

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DATE: 4 Feb 55

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HEADQUARTERS
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART V

Air Training Report for the Month of January 1955
(RCS: 3-SAC-T12)

PART V:

6. Wing Commander's Remarks - Part V.

(a) Hours flown performing missions ordered by Higher Headquarters:

(1) ECM Test: 165:55

(b) Weather or local conditions affecting training:

(1) None.

(c) Directives imposed by AMC or SAC on aircraft:

(1) None.

(d) Combat crew member gains or losses:

(1) Gains: None.

(2) Losses: One co-pilot, indefinitely suspended from flying.

(e) Crew member changes:

(1) Aircraft Commanders: Two.

(2) Co-Pilot: Two.

(3) Observer: None.

(f) New crews:

(1) N55 effective 1 January 1955.

(2) N56 effective 1 January 1955.

(g) Crew status changes:

(1) N15 to R15 effective 1 January 1955.

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(2) N16 to R16 effective 1 January 1955.

(3) N44 to R44 effective 1 January 1955.

(4) N51 to R51 effective 1 January 1955.

(5) R04 to L04 effective 10 January 1955.

(6) R11 to L11 effective 10 January 1955.

(7) R37 to L37 effective 10 January 1955.

(8) R70 to L70 effective 10 January 1955.

(9) N84 to XXXXX effective 25 January 1955.

(h) Standardization Crews:

(1) I04, Wing Standardization Crew.

(2) L11, L37, and L70 are Squadron Standardization Crews.

(i) Personnel and Materiel Problems:

(1) The officer effective manning for the 376th remained relatively the same for January as compared to December. Thirteen officers were gained and 12 officers were lost. Effective manning of officers is 62 percent.

(2) Officer manning in AFSC's 1435, 4334, 4355, 6424, and 7324 remain critically short.

(3) Manning in the Aircraft Maintenance Field has changed only slightly during January. Manning in AFSC's 42030/50/70 is at 64.3% with only three airmen assigned at the supervisory level.

(4) Effective manning in AFSC's 32150B, 32150C, and 32150D is 0%. Effective manning in the supervisory level AFSC 32170E is 40% and manning in required speciality 10%.

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(5) Effective manning in the Drafting Career Field, AFSC 22350 is at 33.3% with no projected input.

(6) Effective manning in the Personal Equipment Career Field, AFSC 92250/70 is at 53.3%. This manning is considered critical in that there are no seven level personnel assigned or projected.

(7) Effective manning in AFSC's 73230/50/70 is at 46.3% with an additional eight personnel projected as losses prior to 1 March 1955. Manning in AFSC's 70230/50/70 remains critical. Manning is presently at 68.2% and projected to drop to 64.7% by 1 March 1955 with a projected input of only three clerks.

(8) Recurring malfunctions of the D-1 inverter and failure of 1Z2 tubes and crystals in the PT124 receiver transmitter unit are major factors affecting completion of radar training requirements.

(j) SAC Minimum Training Requirements:

(1) Not applicable.

(k) Non-Combat Ready Crews capble of Deploying:

(1) Five non-combat ready bombardment crews have been trained to a point where they could be deployed for RCM missions in the event of an emergency.

(l) Non-Combat Ready Crew Training:

(1) Thirteen non-ready crews were in training during the month of January. Eight non-ready RCM crews were in training

1006

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during the month of January; however, six of these crews were not available for flying in that the observers are currently TDY to McConnell Air Force Base, Kansas.

(2) Twelve sorties for a total of 48 hours were flown as XXXXX time in conjunction with training non-ready crew personnel.

(m) Flying time differences:

(1) 110-A: 1410:00

(2) 3-SAC-T12: 1389:00

(a) A difference of 21:00 is due to test hop time reported in AF Form 110-A reports but not included in 3-SAC-T[illegible]

(n) Field Training Operations:

(1) Not applicable.

(o) Special Training Month:

(1) Not applicable.

(p) Comments or Recommendations of the Wing Commander:

(1) The NOCP rate on B-47's increased from 6.10% in December to 8.33% for January.

(2) The average number of combat ready/lead crews assigned during January was 37. A total of 1228 hours (including test hop time) were flown for an average of 33:10 hours per crew.

(3) The average number of non-combat ready crews available for flying training was seven. A total of 182 hours were flown for an average of 26 hours per crew.

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Part V, Wing Commander's Remarks, Air Training Report, January 1955

(4) The average number of possessed aircraft during January was 48. The average flying time per aircraft was 29:22 hours.

(5) Fifteen air refueling sorties were lost during January. Three aircraft were required on standby status, in support of Second Air Force Operations Order 3-55, for period 17 through 21 January 1955. On 18 January three sorties were lost due to the fact that the wing had not been notified of a delay in the operation, consequently three tankers were maintained on standby status that could have been utilized for training

JOHN P. PROCTOR
Colonel, USAF
Commander

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CLASSIFICATION: SECRET
AUTH: CO MDR 376TH BOMW
INITIALS: [illegible]
DATE: 4 March 1955

HEADQUARTERS
376TH BOMBARDMENT WING, MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART V

Air Training Report for the Month of February 1955
(RCS: 3-SAC-T12)

PART V:

6. Wing Commander's Remarks - Part V.

a. Hours flown performing missions ordered by higher headquarters:

(1) ECM Test: 188:20

(2) Second Air Force Operations Order 7-55 "Open Mind" 101:10

(3) SES evaluation 13:20

TOTAL 302:50

b. Weather or local conditions affecting training:

(1) Adverse weather prevented flying on three days; 91 hours lost.

c. Directives imposed by ANC or SAC on aircraft:

(1) None.

d. Combat crew member gains or losses:

(1) Gains: None.

(2) Losses: One aircom PCS-PAOS school; one observer reclassified and reassigned to 376th Air Refueling Squadron.

e. Crew Member Changes:

(1) Aircraft Commanders: One.

(2) Co-pilots: One.

(3) Observers: One.

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Part V, Wing Commander's Remarks, Air Training Report, February 1955

f. New crews:

(1) N85 effective 1 February 1955.

(2) N97 effective 23 February 1955.

(3) N98 effective 23 February 1955.

(4) N99 effective 23 February 1955.

g. Crew status changes:

(1) N56 disbanded 18 February; aircom PCS-P:OB school.

(2) R02 to L02, 21 February; upgraded.

(3) R68 to L68, 21 February; upgraded.

(4) N18 disbanded 23 February; reformed as training pool crew

(5) N53 disbanded 23 February; reformed as training pool crew

(6) N83 disbanded 23 February; reformed as training pool crew

h. Standardization crews:

(1) L04, wing standardization crew.

(2) L11, L37, and L70 are squadron standardization crews.

i. Additional Materiel and Personnel Problems:

(1) The officer effective manning for the 376th remained relatively the same for February as compared to January. Fourteen officers were gained and eight officers were lost. Effective manning of officers is 82 percent.

(2) Officer manning in AFSC's 1435, 3254, 4334, 4364, and 4355 remain critically short.

(3) Manning in the aircraft maintenance field has decreased during the month of February. Effective manning in

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AFSC's 40230/50/70 is at 56 percent with only four airmen assigned at the supervisory level. With the known losses and no input within six months, effective manning will be 31 percent.

(4) Effective manning in the transportation career field is critical with manning at 44 percent. Operations is seriously hampered, in that two of the 60170 supervisors are presently TDY to Detachment of Patients, leaving only two for duty.

(5) Effective manning in the supply career field is 70 percen

(6) Effective manning in personal equipment career field is 60 percent.

(7) Career field 321. There is an overall overage of "X" systen mechanics at the three and five level; however, manning at the seven level is critically low: 38 are authorized; four are assigned by PAFSC and 22 by duty. Manning in AFSC's 32150C, 32150D, and 32150B is 0 percent There are 14 airmen authorized and none assigned. Training is authorized from the 32150E field into these career field sub-divisions. However, personnel with the technical knowledge required are not available as instructors.

J. SAC Minimum Training Requirements not Accomplished:

(1) Not applicable.

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Part V, Wing Commander's Remarks, Air Training Report, February 1955

k. Noncombat ready crews capable of deploying:

(1) Eight crews, N10, N17, N45, N52, N54, N55, N77, and N81 have been trained to a point where they could be deployed for ECM missions in the event of an emergency.

l. Noncombat ready crew training:

(1) Twelve noncombat ready crews were in training during the month of February; however, five of these crews were not available for flying in that the aircraft commanders, co-pilots, or observers were TDY to McConnell Air Force Base, Kansas. Two complete noncombat ready crews were TDY for 10 days during the month in support of Second Air Force Operations Order 101-55, dated 8 January 1955.

(2) Eighteen sorties for a total of 84 hours were flown as XXXXX time in conjunction with training noncombat ready crew personnel.

m. Flying time differences: Rescinded per SAC MSG DOTRS 45873.

n. Field training operations:

(1) Not applicable.

o. Special training month remarks:

(1) Not applicable.

p. Comments or recommendations of the Wing Commander:

(1) The AOCP rate on B-47's decreased from 8.03 percent in January to 3.08 percent during February. The majority of malfunctions and materiel failures were in the RT-124

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and wave guide units. During February 45 aircraft days were lost due to ANFE of RT-124 units and 18 aircraft days were lost to ANFE of wave guides.

(2) The average number of combat ready/lead crews assigned during February was 37. A total of 975 hours (including test flight time) were flown for an average of 26.4 hours per crew.

(3) The average number of noncombat ready crews available for flying training was seven. A total of 197 hours were flown for an average of 28 hours per crew.

(4) The average number of possessed aircraft during February was 48. The average flying time per aircraft was 26.16 hours.

(5) Second Air Force Operations Order 7-55 "Open Mind" curtailed flying training 25 percent during the first eight days of February.

(6) Excessive DNIF of combat crew members during February negated flying training accomplishments. Bombariment squadrons accumulated 197 crew days of DNIF during February. No Wing Flight Surgeon is available for crew supervision.

(7) Four crews will be disbanded in the next 90 days, unless qualified replacement co-pilots are made available to

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this wing. Two co-pilots have resigned and USAF has given date of separation in March. One co-pilot is committed for PAOB in May and one's active duty tour will end during May. Personnel resources to prevent disbandment of crews are not available within the wing.

(8) Recommend that target rotation policy as outlined in paragraph 7d, Supplement XVIII, SAC Regulation 50-8 be amended to read: "1/3 of total required on radar and visual RBS," in lieu of "total accomplished." The regulation now reads: "1/3 of radar or visual accomplished," which tends to hamper both radar and visual record activity. Increased RBS traffic due to activation of new units further aggravates this condition.

(9) Recommend that the minimum altitude for record radar bombing be established at 33,000 feet. The present minimum altitude of 35,000 feet tends to restrict the number of aircraft operating on the radar bombing sites, because aircraft are limited due to heavy gross weight from attaining the maximum altitude of 41,000 feet until the last hour of the mission. This limitation in routine training limits RBS utilization. Also, required altitude separation of 2,000 feet between aircraft places some aircraft three to six thousand feet above optimum altitude.

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Part V, Wing Commander's Remarks, Air Training Report, February 1955

(10) In accordance with Second Air Force Regulation 50-11 dated 4 June 1954, the following combat crews have successfully completed special weapons standardization checks during February: Crews L04, L11, L37, L70, R08, R12, R42, R72, R80, and N77.

JOHN P. PROCTOR
Colonel, USAF
Commander

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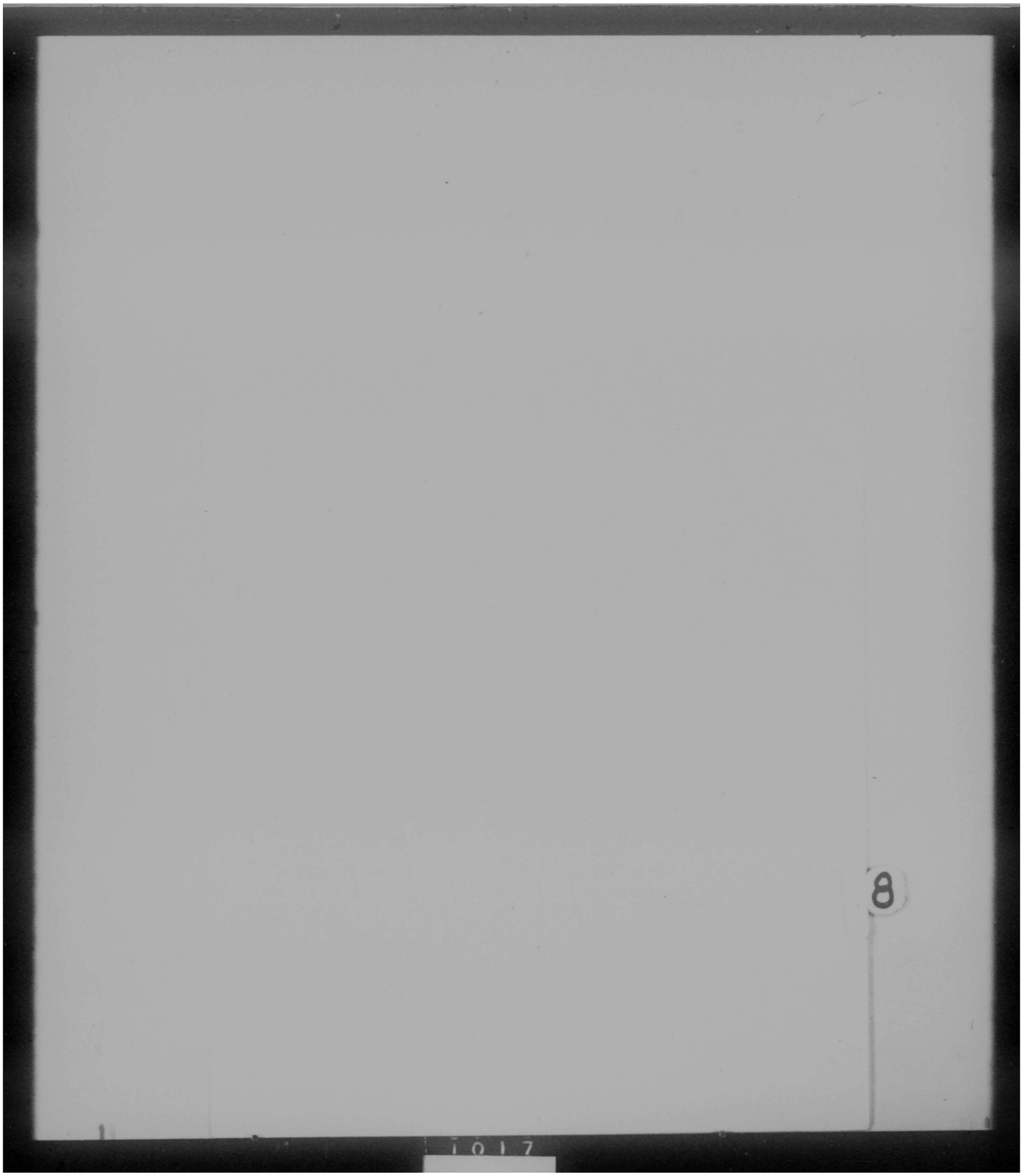

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CLASSIFICATION SECRET
AUTH: CC, 376TH BOMB WG
NAME:
DATE: 4 March 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDERS REMARKS

PART IV

Refueling Air Training Report for the Month of February 1955
(RCS: 4-SAC-T12)

PART IV:

7. a. I concur with comments of the Squadron Commander.

b. Reference non-combat ready crew training, six non-combat ready crews were assigned during the month; however, five of the six crews were TDY to MTD or HTTU training during the month.

c. The average number of possessed aircraft during February was 22. Aircraft flew a total of 518 hours for an average of 23.5 hours per possessed aircraft.

d. The eight KC-97 Aircraft and crews plus associated maintenance and control personnel committed to operation "Open Mind" cost this squadron approximately one-third of one month's training for the eight crews involved. The flying time to and from Loring plus the one mission flown at Loring was poor compensation for the time and effort expended on this mission.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (M)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

PART III

Air Training Report for the month of February 1955
(RCS: 4-SAC-T12)

PART III

6. Squadron Commander's Remarks - Part III

a. Hours flown performing missions ordered by Higher Headquarters

(1)	Operation "Open Mind":	35:55
(2)	Return from TDY at Loring AFB:	73:55
(3)	Passenger flights to Mac Dill AFB:	23:35
(4)	Special passenger flight to Offutt AFB:	5:50
(5)	Special passenger and cargo flight to Davis-Monthan AFB:	12:05
(6)	Special Test & Tactics:	36:15
	TOTAL:	187:35

b. Weather and local conditions affecting training:

(1) Four pilot proficiency and two air refueling flights were cancelled due to weather. Total time lost was 21:00.

(2) All KC-97 training flights were cancelled on 26 February 1955 pending inspection of electro-turbo systems. Time lost was 40:00.

c. Restrictive directives:

(1) Negative.

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Part III - Squadron Commander's Remarks for the month of February 1955

d. Combat crew member gains and losses:

(1) Crew members gained:

(a) Two flight engineers.

(b) One radio operator.

(c) Two assistant boom operators.

(2) Crew members lost:

(a) One Aircraft Commander - transferred to 301st Bombardment Wing, Medium.

(b) One Co-pilot - transferred to 301st Bombardment Wing, Medium.

(c) One Navigator - transferred to 301st Bombardment Wing, Medium.

(d) Three flight engineers - one transferred to 301st Bombardment Wing, Medium; two discharged from the service.

(e) Two radio operators - one transferred to 301st Bombardment Wing; one discharged from the service.

(f) Four assistant boom operators - discharged from the service.

e. Crew member changes:

(1) Four navigators.

(2) Three flight engineers.

(3) Five radio operators.

(4) Two boom operators.

(5) Three assistant boom operators.

f. New crews:

(1) Negative.

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Part III - Squadron Commander's Remarks for the month of February 1955

g. Crew status changes:

(1) T11 to M11, 1 February 1955 - Downgraded.

(2) M28 transferred to 301st Bombardment Wing, Medium, 11 February 1955.

(3) M29 re-designated M99TP, 23 February 1955.

h. Standardization crew:

(1) T02.

i. Additional material and personnel problems:

(1) The AOCP rate decreased to 5.32 percent during the month as compared to 7.27 percent for the previous month.

(2) The lack of trained assistant boom operators is greatly retarding non-combat ready crew training. As an assistant boom operator becomes qualified, he is assigned to a combt ready crew. This process tends to set up a situation whereas the boom operators on non-combat ready crews are constantly undergoing MTTU or MTD training.

j. SAC minimum training requirements not accomplished:

(1) Not applicable.

k. Non-combat ready crews capable of deploying:

(1) One.

l. Non-combat ready crew training:

(1) The average flying time for non-combat ready crews available for training was 12:40 hours as compared to 26:15 hours for combat ready crews.

(a) Crew M11 was downgraded due to a non-combat ready flight engineer assigned.

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1021

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Part III - Squadron Commander's Remarks for the month of February 1955 Secret

Due to the ground trainining program for the flight engineer, assistant boom operator, plus heavy 50-8 commitments, this crew accomplished only two training sorties during the month as a crew. The flight engineer and assistant boom operator flew additional sorties with other crews during regular 50-8 training missions in order to complete 51-19 requirements.

m. Flying time differences:

(1) Rescinded by SAC message DOTRS 45873.

n. Special training month remarks:

(1) Not applicable.

o. Comments or recommendations of the Squadron Commander:

(1) The assignment of eight aircraft in support of operation "Open Mind" has hampered the 50-8 training program since only three refuelings were actually accomplished by eight crews during a 10 day TDY period.

WENDELL D. LACK
Lt Colonel, USAF
Commander

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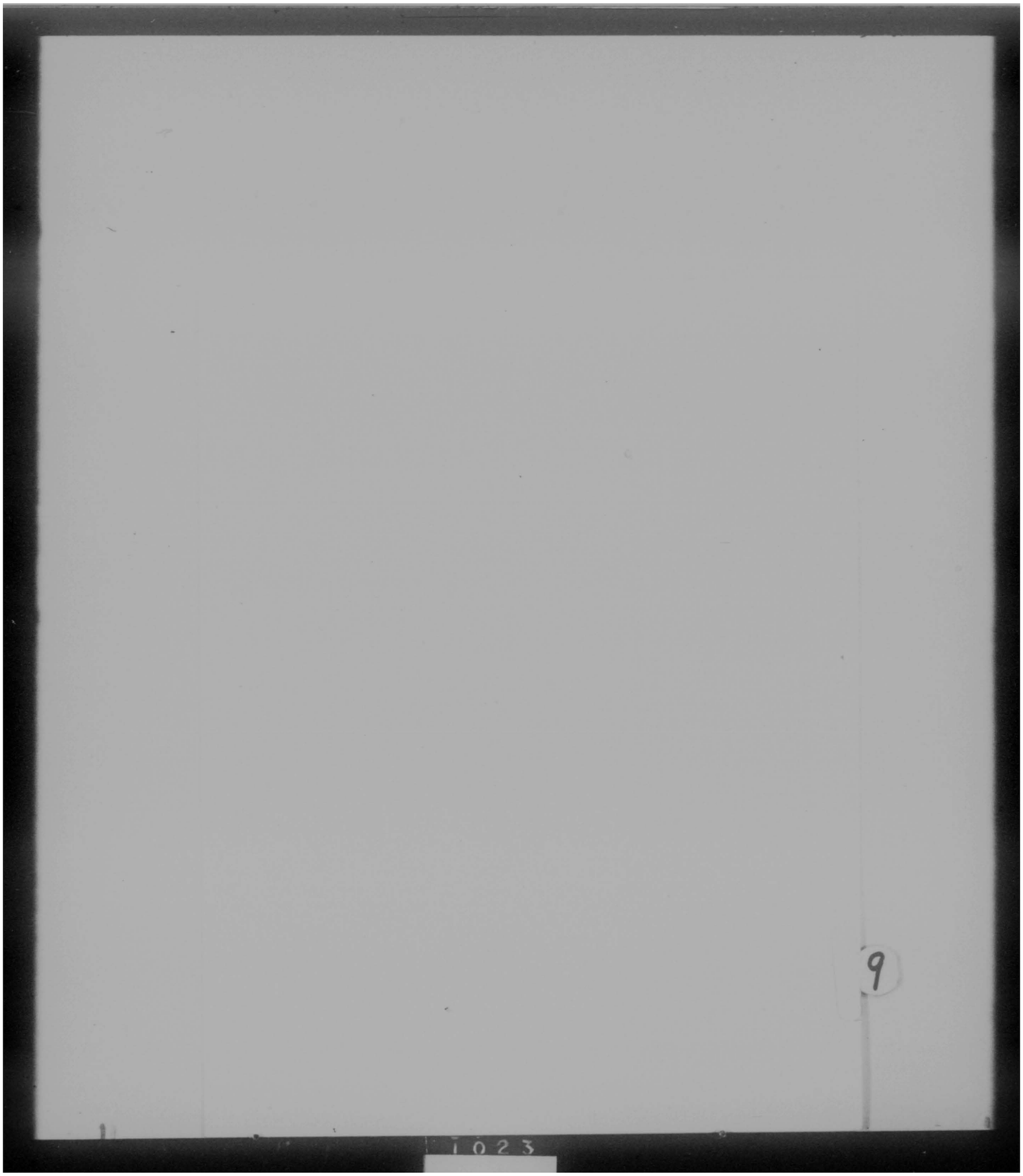

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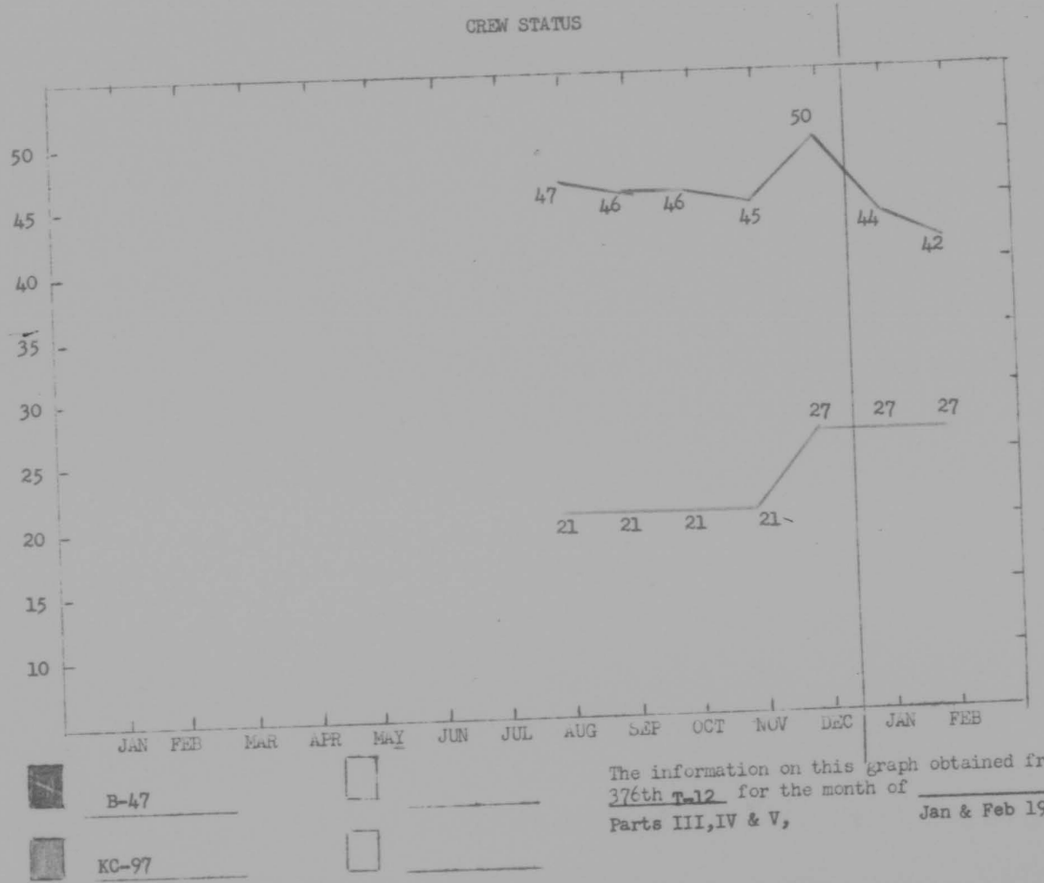

The information on this graph obtained from 376th T-12 for the month of Jan & Feb 1955
Parts III, IV & V,

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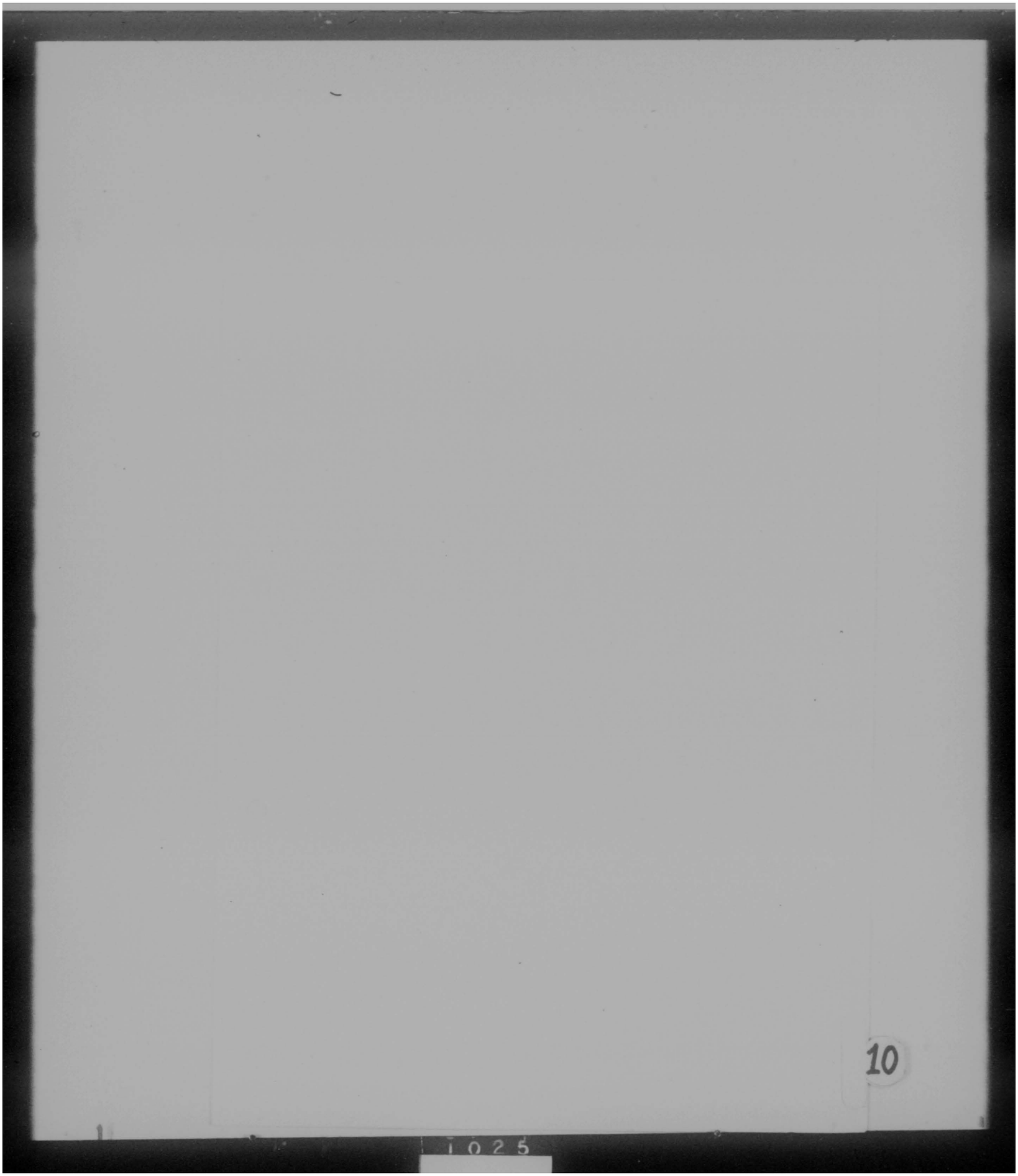

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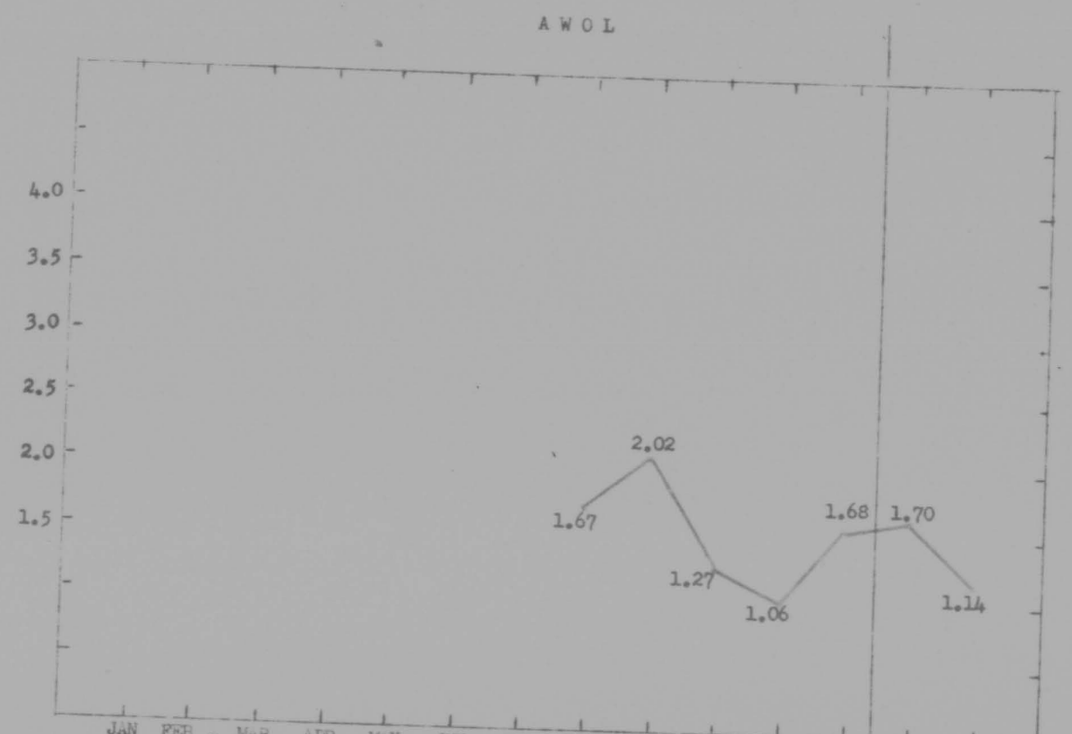

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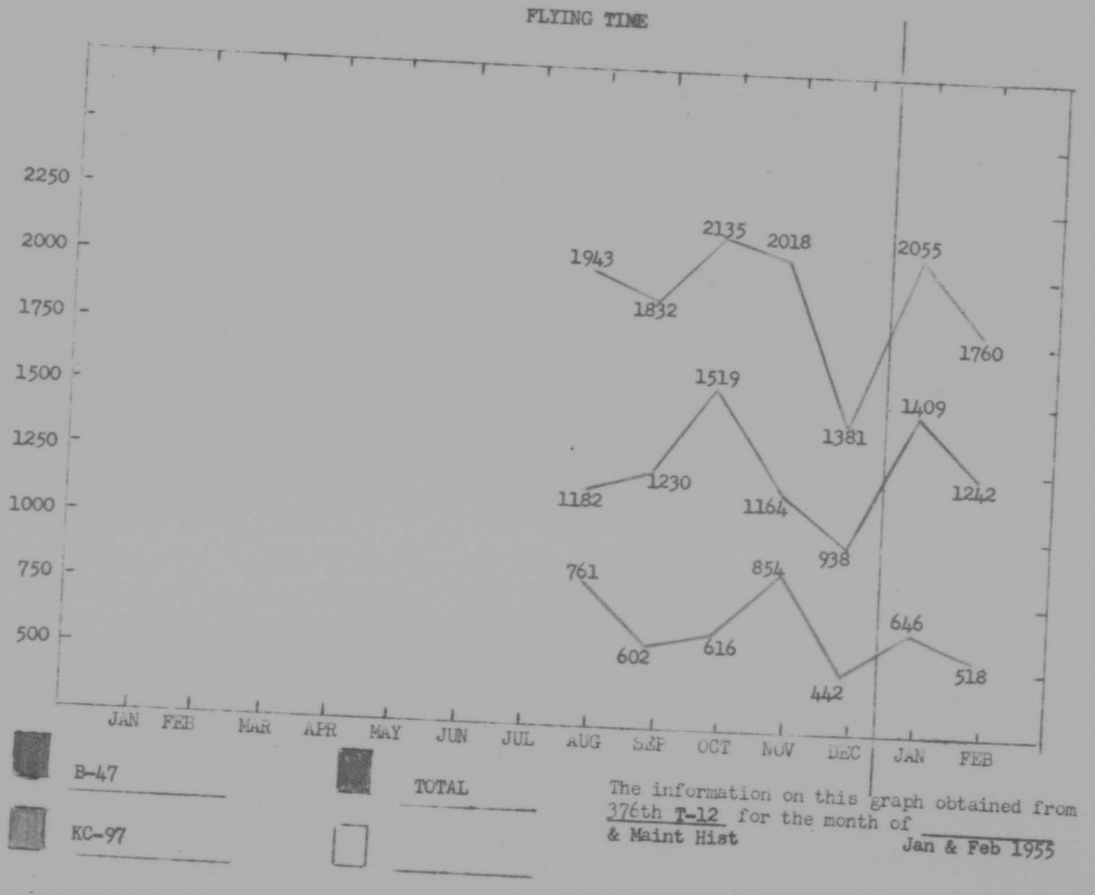

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 February 1955

Contractor: Dynamic Electronics Inc.
Forrest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report, for month ending 31 January 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal training was conducted for fifteen (15) airmen in the Blue Cradle "Short" Course, as outlined in report for 1 December 1954. This course was completed in twenty (20) hours of instruction. Instructor Time: 24 hours.

b. Formal training was started on 24 January 1955 for two officers and ten airmen, TDY from other SAC bases. This course of instruction is outlined in enclosure #1 to this report. A special classroom was made available for this course and thirty-six hours of instruction were completed. Total instructor time, including all necessary preparation for this course was 64 hours.

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376AFMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

2. OJT:

a. OJT training was given to four airmen in installation of the ORC-8 equipment. Approximately fourteen hours were devoted to close supervision of these men during preparation for a test mission employing five aircraft. Later in the month these men completed installation and preparation for a test mission with twelve aircraft in a highly satisfactory manner and without close supervision.

b. OJT training was given to three airmen on completion of the special Blue Cradle testers. Time: 8 hours.

c. OJT training was given to three airmen on AN/ALT-7 equipment. Time: 10 hours.

3. Training Time:

Available for training:	168 hours
Training Time:	138 hours
Percent in training:	71 %

IV. UTILIZATION:

1. The primary purpose of this assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

2. It is estimated that the services of General Electric Technical Representatives in indefinate.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Errors in Manuals:

1031

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a. Reference Blue Cradle Handbook (Secret), inverter schematic, sec IV, figure 4-12. This schematic is incorrect. As drawn, placement of the inverter switches in the "on" position will short the main DC bus to ground; neither manual or automatic switching of the spare inverter to the R.H. bus can be made, and the arm of the L.H. bus transfer relay has been omitted from the drawing.

b. Reference Handbook Radio Transmitter T-464/ ALT-7 (Confidential), Hallicrafter Co., Figure 7-11, Radio Transmitter Schematic. On this schematic the values of resistors R214 and R227 are interchanged. In addition there are a number of minor errors in the text, for example page 3-10 paragraphs h and i and page 4-11 paragraph 4-22 contain incorrect statements.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The Blue Cradle Test Consoles (5) have been completed. Photographs and schematics of this console are submitted as enclosures #2 and #3 to this report. In brief outline this console simulates in portable form the aircraft power and control circuits and is used to perform a complete shop check-out of an equipped cradle, and can also be used to operate a cradle after it has been hoisted into an aircraft. The test console has control circuits for twelve transmitters and six chaff dispensers; one control box C-1282/ALE-1 is used to control all six dispensers and the necessary switching is performed by a stopping relay, and indicator lights show which dispenser is connected to the control box. Control circuits for operating the cradle inverters and for turning on AC and DC power are provided. Indicator lights and test jacks are furnished for checks on the power distribution buses. A special cable is provided for checking the cradle transmitter circuits when equipment is not installed and to insure that unused transmitter positions are in operating condition.

1032

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-J19, For Month Ending 31 January 1955.

The console is large enough to carry all necessary cables and components, including a kit of spare parts if it should prove desirable at a later date space is also available for permanent mounting of field stren indicators, frequency meters and receivers. In the original design test meters for AC and DC voltages and frequency were to be mounted permanently on the console, however meters of suitable accuracy could not be obtained for permanent mounting on the console A special cover for the console panel has been designed and made for mobility purposes. The photographs enclosed with this report shows the console connected to a cradle in the normal operating position. This data will give some indication of work involved in construction of the consoles; under norma circumstances construction of this scope cannot be considered a regular A & E function and the ECM Secti has done most commendable work in completing these consoles. It is emphasized that a test console of this type is essential to the maintenance of any cradle or pod type of installation. In the event of more extensive use of this type of device it is recommended that suitable test consoles be designed for each particular application and in conjunction with maintenance engineering personnel of the using organization, and that these consoles be fabricated under contract concurrently with the equipment. Under this type of procurement it is possible to incorporate features in these consoles, such as permanently mounted meters, which will enhance their value as test instruments.

X. GENERAL REMARKS: Negative.

Guy H. Nicholson

Guy H. Nicholson
Field Engineer
Dynamic Electronics

3 Incls.
1. ECM Training Outline
2. Console in Operating Position (photograph)
3. Blue Cradle Tester Schematic

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Confidential

ECM TRAINING OUTLINE

376th Bomb Wing M

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ECM TRAINING

PHASE III B-47E ECM EQUIPMENT AND INSTALLATION.

DURATION:

15 academic days, 6 hours of instruction per day.

TOTAL: 90 hours of instruction.

SUBJECTS:

1.	(a)	ECM Phase III B-47 installation	7 hours
	(b)	Aircraft familiarization	2 hours
2.	(a)	AN/ALE-1 Chaff Dispenser and TD-93/ALE-1 Intervalometer	12 hours
	(b)	Chaff loading	3 hours
3.	(a)	AN/ALT-7 Transmitter	15 hours
4.	(a)	AN/ALT-8 Transmitter	15 hours
5.	(a)	AN/ALT-6 Transmitter	21 hours
6.	(a)	AN/APS-54 Receiver	15 hours

INSTRUCTORS:

Mr. Guy H. Nicholson	Dynamic Electronics
Mr. Robert G. Nevitt	Philco Corporation
Mr. John A. Lella	General Electric Co.
Mr. Joe W. Steel	General Electric Co.

TRAINING NCOIC:

S/Sgt John P. Tassin

SCHEDULE:

All courses will commence on Monday morning. Students should report to 376th A & E Squadron not later than the Wednesday preceeding the start of the class.

Courses will start 24 January, 14 February and 7 March 1955. Reporting dates will be 19 January, 10 February and 3 March 1955

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TRAINING AIDS:

2AF Training Form 87 will be maintained on all students. Schematics will be supplied. One copy of all training manuals, student notebooks and schematics will be forwarded to the students' commands upon completion of the course.

SUBJECT DETAIL:

1. ECM Phase III B-47E.

   (a) Aircraft familiarization - - - - - - - - - - - - - - - 2 hour

   (b) Background of ECM developement, phasing of B-47, phase III capability, complete circuitry in aircraft, aircraft power sources, installation, maintenance and testers - - - - - - - - - - - - - - - - - - 7 hour

2. AN/ALE-1 Chaff Dispenser.

   (a) Introductory lecture on chaff, complete course on AN/AL E-1 and TD-93/ALE-1 intervalometer, operation, maintenance and test procedures. - - - - - - - - - - - 12 hours

   (b) Chaff loading - 3 hours

3. AN/ALT-7 Transmitter

   (a) Complete course on equipment operation, maintenance and test. Course will include antenna discussion and use of test equipment TS-174 and AN/PRM-10 - - - - - - - - 10 hours

4. AN/ALT-8 Transmitter

   (a) Complete course on equipment operation, maintenance and test. Course will include period on megnetron theory. - 15 hours

5. AN/ALT-6 Transmitter

   (a) Complete course on equipment operation, maintenance and test. Course will include instruction on use of test equipment. - - - - - - - - - - - - - - - - - - 21 hours

6. AN/APS-54 Receiver

   (a) Complete course on equipment operation, maintenance and test. Course will detail special problems encountered with this equipment and possible solutions. Use of test equipment AN/USM-24 and AN/URM-15 and special test devices will be included. - - - - - - - 15 hours

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1036

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SCHEDULE DETAIL:

1st day	AM	Phase III indoctrination	3 hours
	PM	AN/ALE-1 Chaff lecture	1 hour
		AN/ALE-1 - - # 1	2 hours
2nd day	AM	Phase III installation	1 hour
		Aircraft	2 hours
	PM	AN/ALE-1 - - # 2	3 hours
3rd day	AM	Phase III installation	3 hours
	PM	AN/ALE-1 - - # 3	3 hours
4th day	AM	Chaff loading	3 hours
	PM	AN/ALE-1 - - # 4 and test	3 hours
5th day	AM	AN/ALT-7 - - # 1	3 hours
	PM	AN/ALT-7 - - # 2	3 hours
6th day	AM	AN/ALT-7 - - # 3	3 hours
	PM	AN/ALT-8 - - # 1	3 hours
7th day	AM	AN/ALT-7 - - # 4	3 hours
	PM	AN/ALT-8 - - # 2	3 hours
8th day	AM	AN/ALT-7 - - # 5 and test	3 hours
	PM	AN/ALT-8 - - # 3	3 hours
9th day	AM	AN/ALT-8 - - # 4	3 hours
	PM	AN/ALT-8 - - # 5 and test	3 hours
10th day	AM	AN/ALT-6 - - # 1	3 hours
	PM	AN/ALT-6 - - # 2	3 hours
11th day	AM	AN/ALT-6 - - # 3	3 hours
	PM	AN/APS-54 - #1	3 hours
12th day	AM	AN/ALT-6 - - # 4	3 hours
	PM	AN/APS-54 - #2	3 hours
13th day	AM	AN/ALT-6 - - # 5	3 hours
	PM	AN/APS-54 - # 3	3 hours
14th day	AM	AN/ALT-6 - - # 6	3 hours
	PM	AN/APS-54 - - # 4	3 hours
15th day	AM	AN/ALT-6 - - # 7 review and test	3 hours
	PM	AN/APS-54 - - # 5 review and test	3 hours

for JAMES B. CLARK
Captain, USAF
OIC ECM Division

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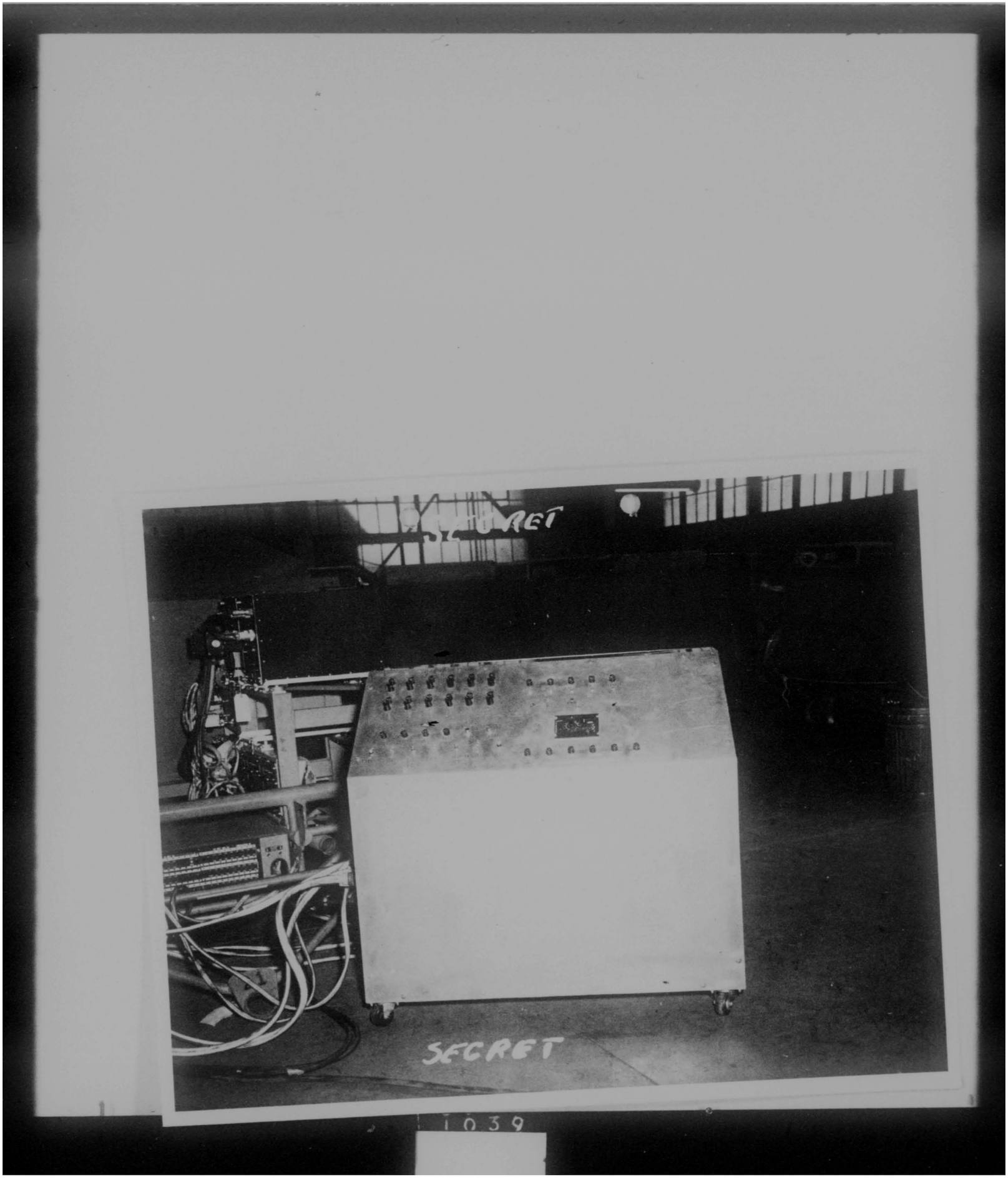

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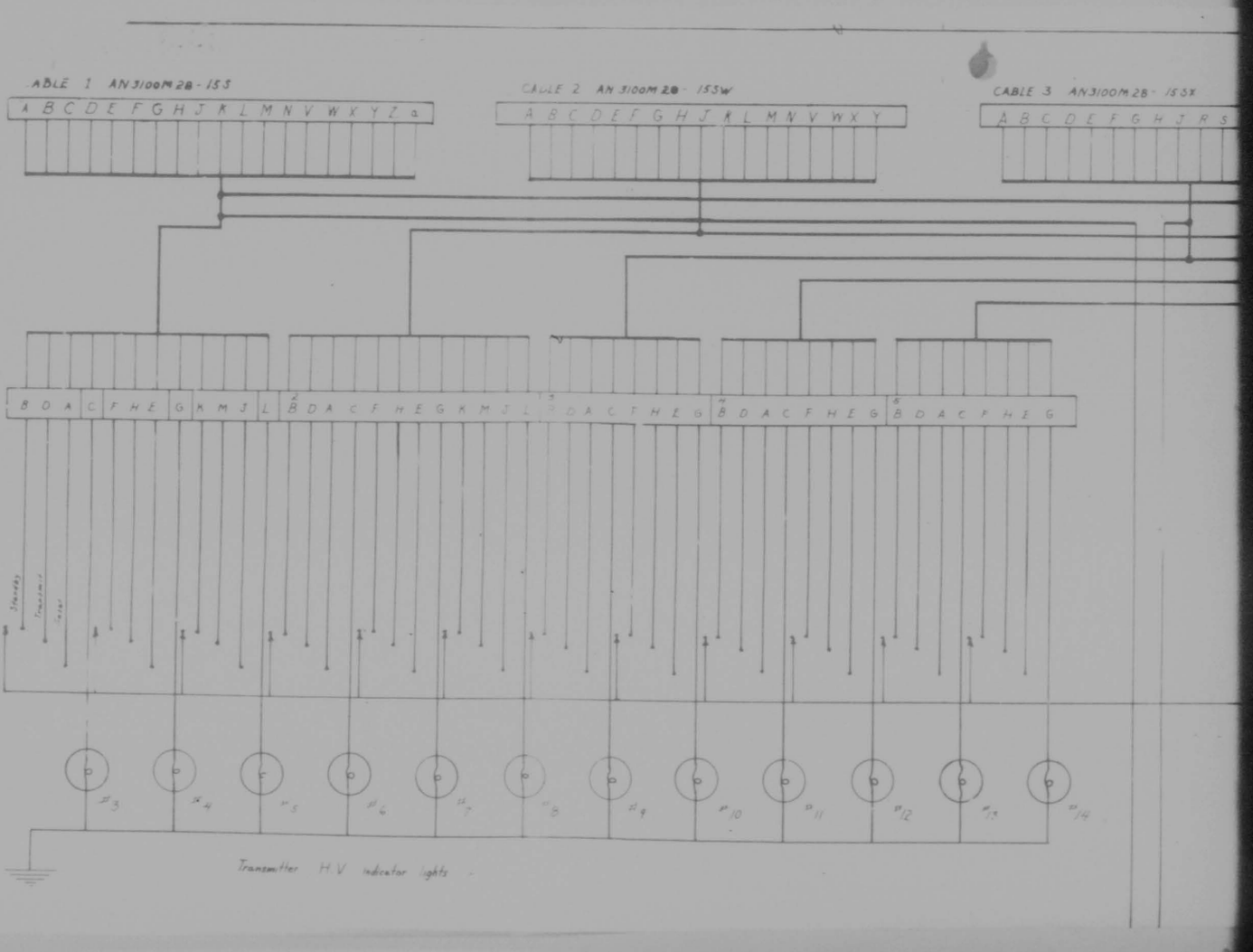

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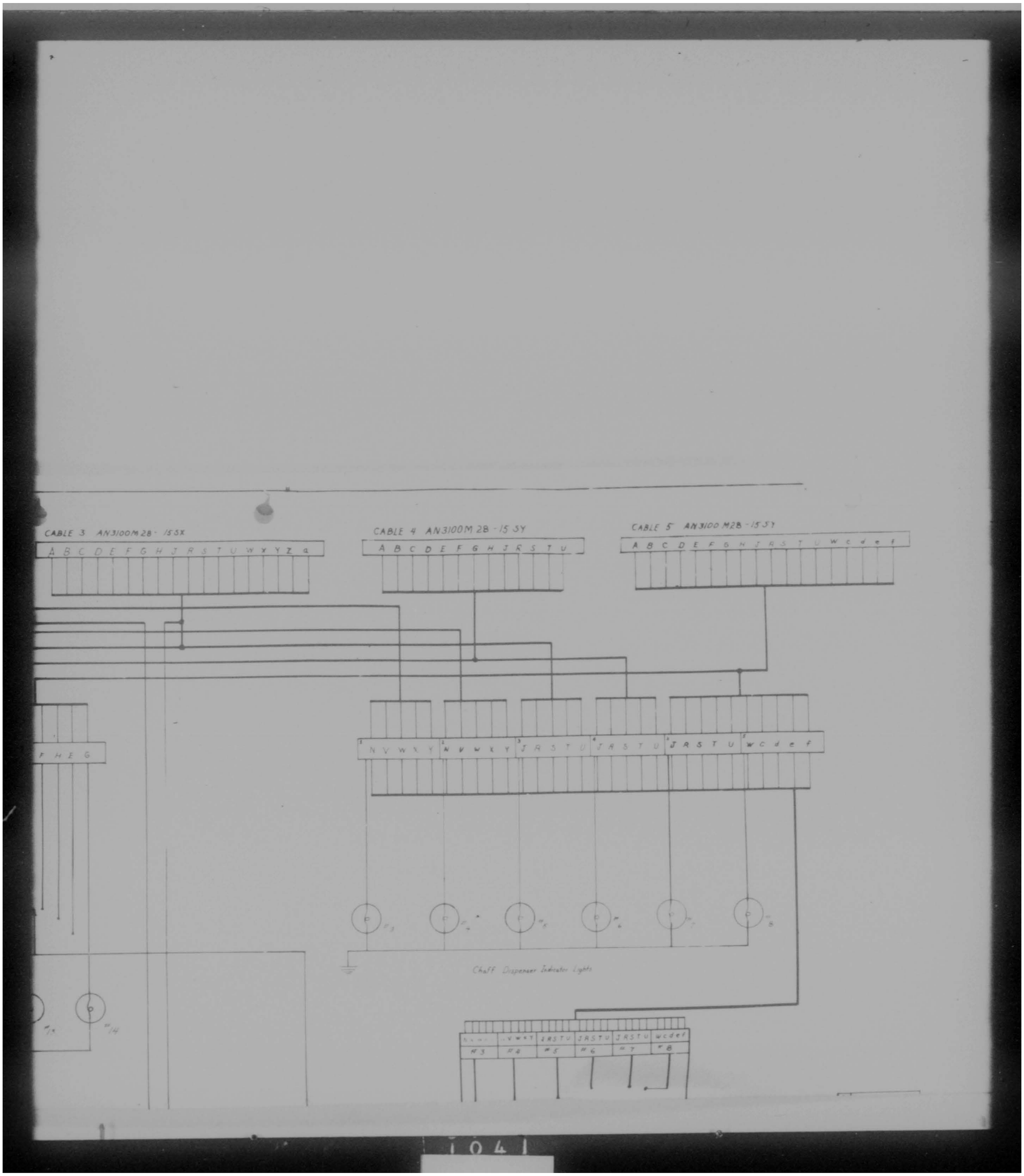

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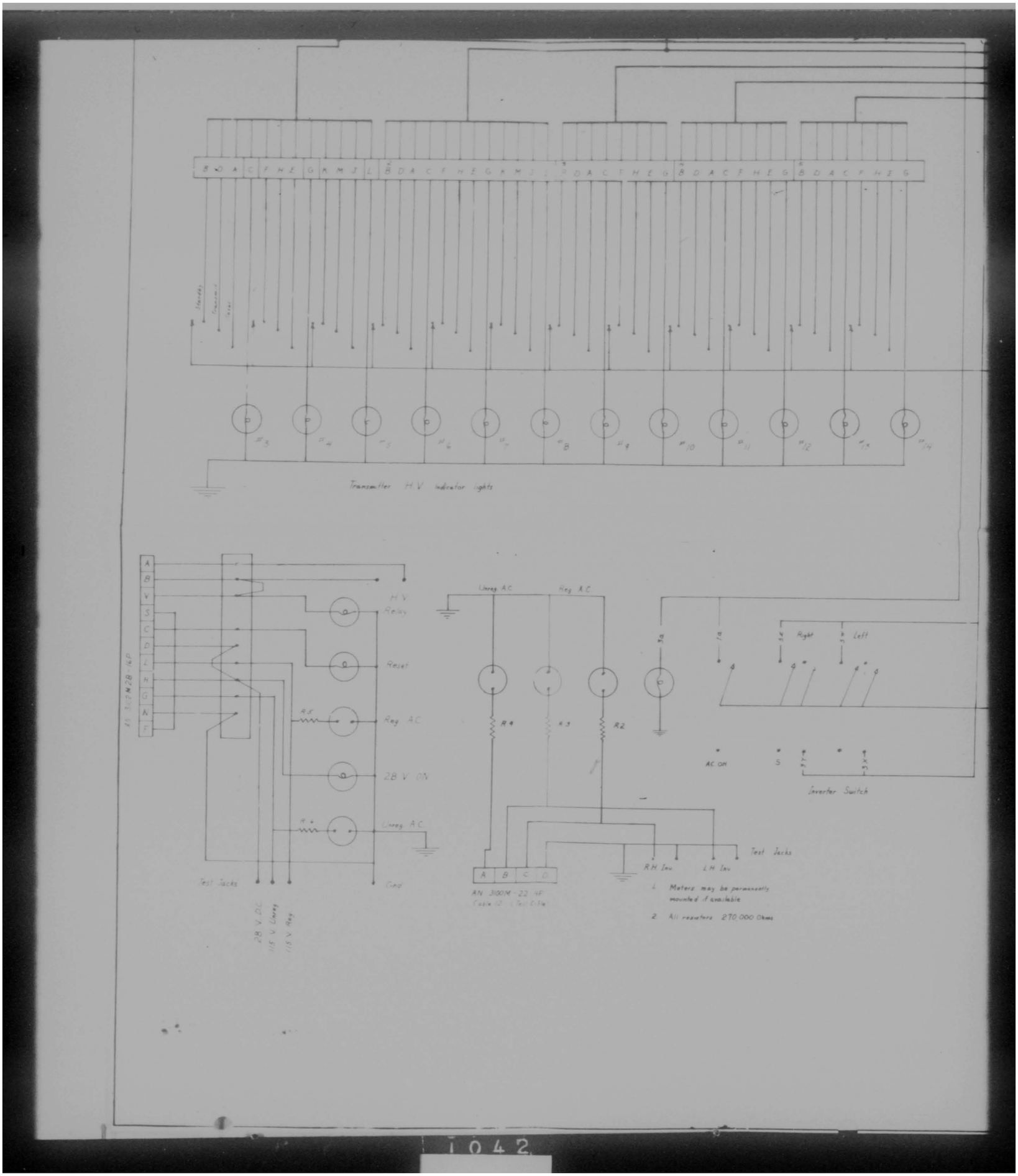

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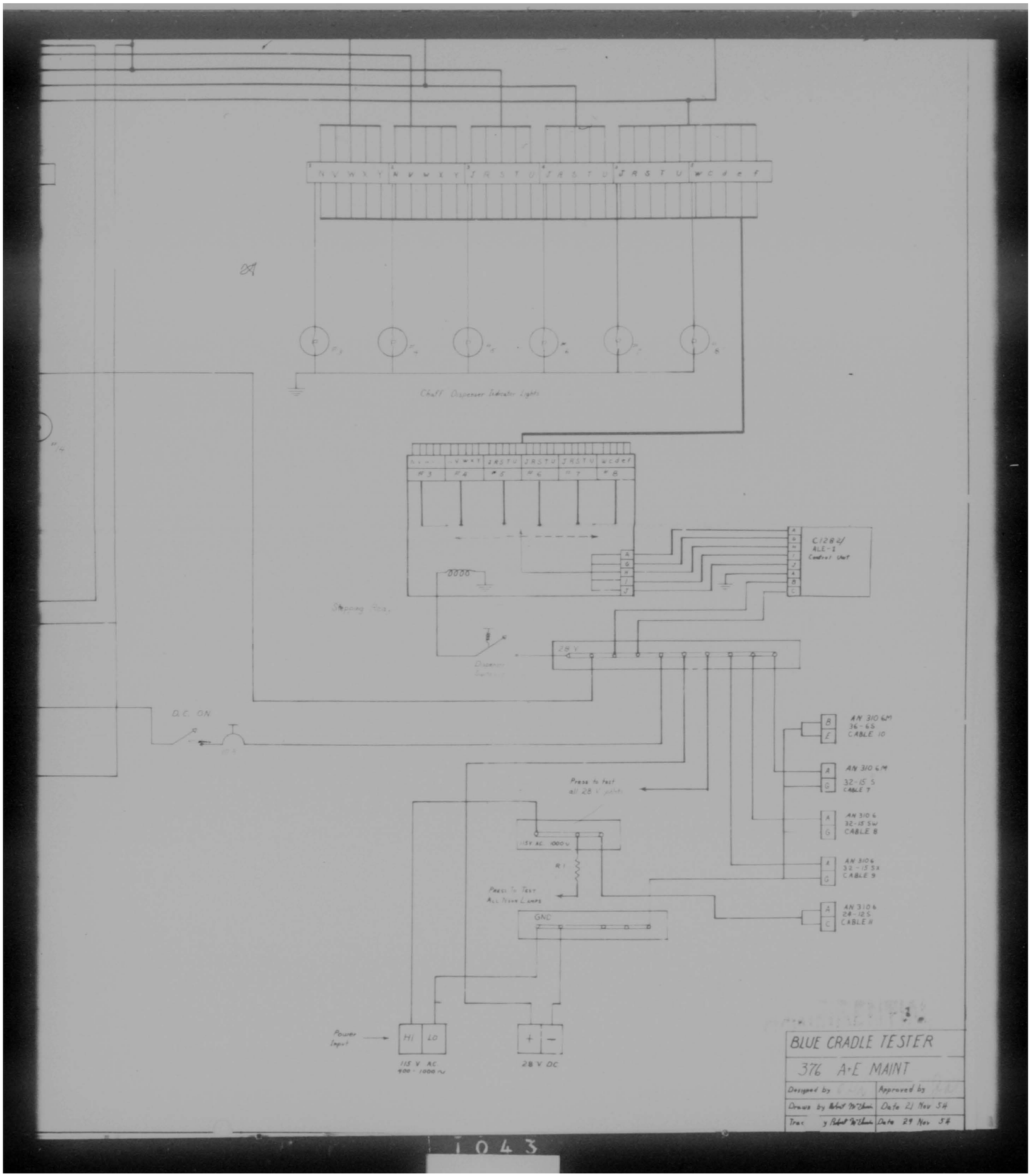

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13

1044

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 February 1955

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 January 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: John A. Lella
Joseph W. Steel

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Classroom training was given on operation and installation of ALT-6 on cradle and problems on trouble shooting when loading of cradle on B-47 type aircraft.

Number of airmen - - - - - - - - - 25
Number of hours per airman - - - - 3
Total man hours - - - - - - - - - 75
Instructor man hours - - - - - - - 3

2. OJT:

a. OJT given on missions being flown. Installation problems, preflight checks, cradle check out, test bench procedures, test equipment, (usage).

Number of Airmen - - - - - - - - 38
Total Training Time - - - - - - -239
Instructor man hours - - - - - -239
Time Utilized in training - - - - 74%
Time Available for Training - - -320

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performances and maintenance problems.

2. It is estimated that the services of General Electric Technical Representatives are indefinite.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Joseph W. Steel has taken personal time off as of the 28 January 1955 because of death in his family. He will return as soon as the estate is settled.

John A. Lella

JOHN A. LELLA
Field Engineer
General Electric Co.

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1046

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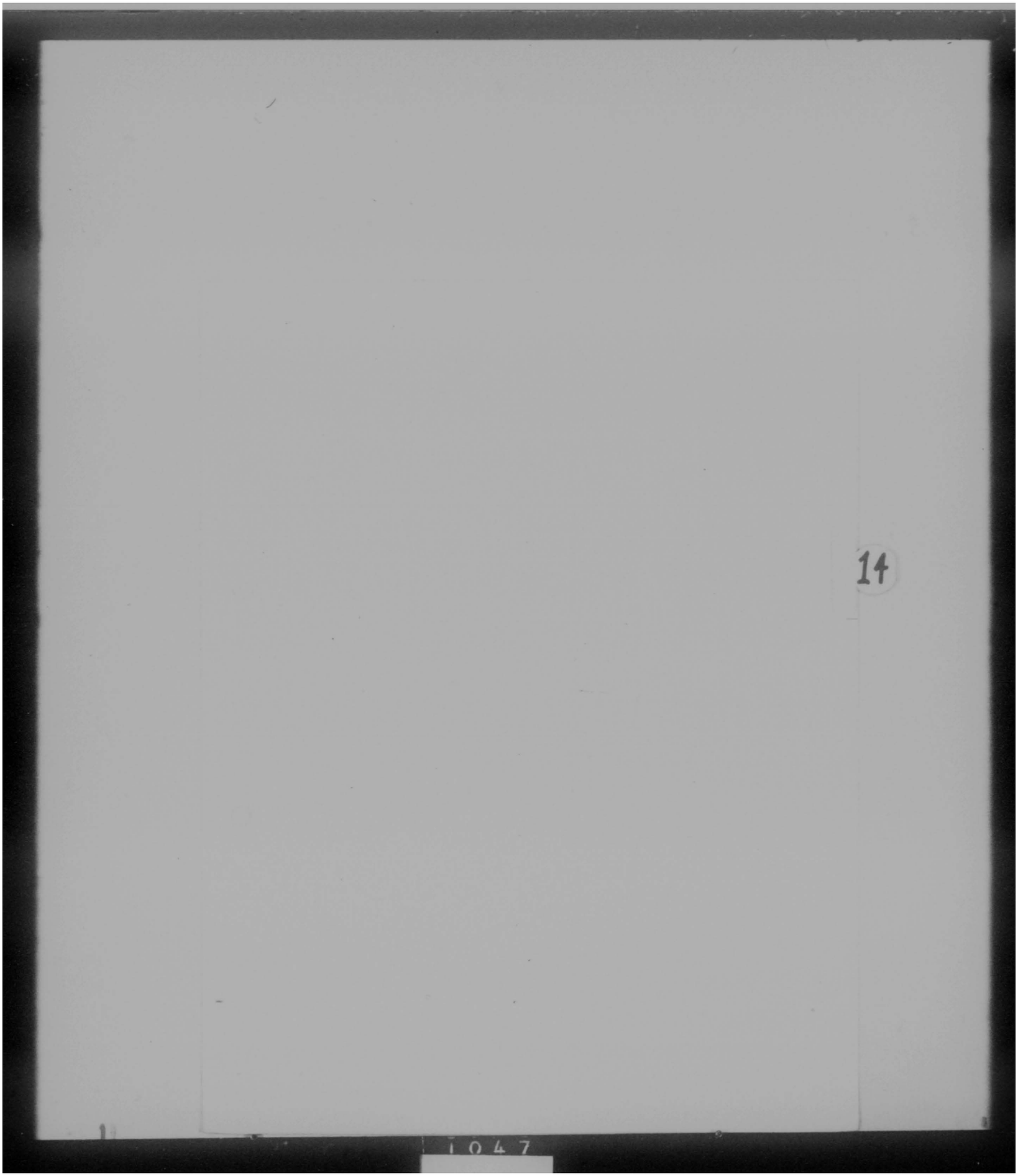

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376MMS 1 February 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 January 1955, submitted in accordance with AFR 66-18 and SAE Reg 66-4.

I. SUBMITTED BY: Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1 Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

Classes for TDY ECM personnel have been resumed. All of the formal training conducted this month has been for these personnel.

1. Classroom:

Taught ALE-1 to 2 officers and 10 airmen	16 hours
Taught ALT-8 to 2 officers and 10 airmen	8 hours
Preparation and other miscellaneous	6 hours
	30 hours

2. OJT:

OJT time ALE-1	17 hours
OJT time ALT-7	10 hours
OJT time ALT-8	27 hours
OJT time QRC-8	20 hours
OJT time test equipment	14 hours
OJT time general electronics	12 hours
	100 hours

1048

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

3. Total time available for training during the month 168 hours. Total time devoted to training 130 hours or 78%.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 EWM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required until April 1957

V. EQUIPMENT MALFUNCTIONS:

1. A UR number 376BW-55-380 has been written on the ALE-1 system describing deficiencies in the Emergency Loading Switch. This difficulity was written up in my report for month ending 30 September 1954.
Part of a training aid diagram is included with this report showing the proposed modification of the ALE-1 control box which will correct the ALE-1 Emergency Loading Switch difficulity.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Maintenance Engineering Difficulties for the month were minor and only required OJT assistance in shop testing techniques.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Additional crystal protectors are being built for Test and Tactics test purposes.

2. The crystals in A/C 398 (crystal protector installation were checked 15 January and were found to be in good condition.

1049

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

X. GENERAL REMARKS:

1. Due to a heavy teaching load starting the latter part of January and extending up to the present time, I have not completed the writting of APS-54 and ORC-8 test equipment suppliments which I thought that I could include with this report.

Robert G. Nevitt

1 Incl
ALE-1 Wiring Diagram

ROBERT G. NEVITT
Field Engineer
Philco Corporation

3

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1050

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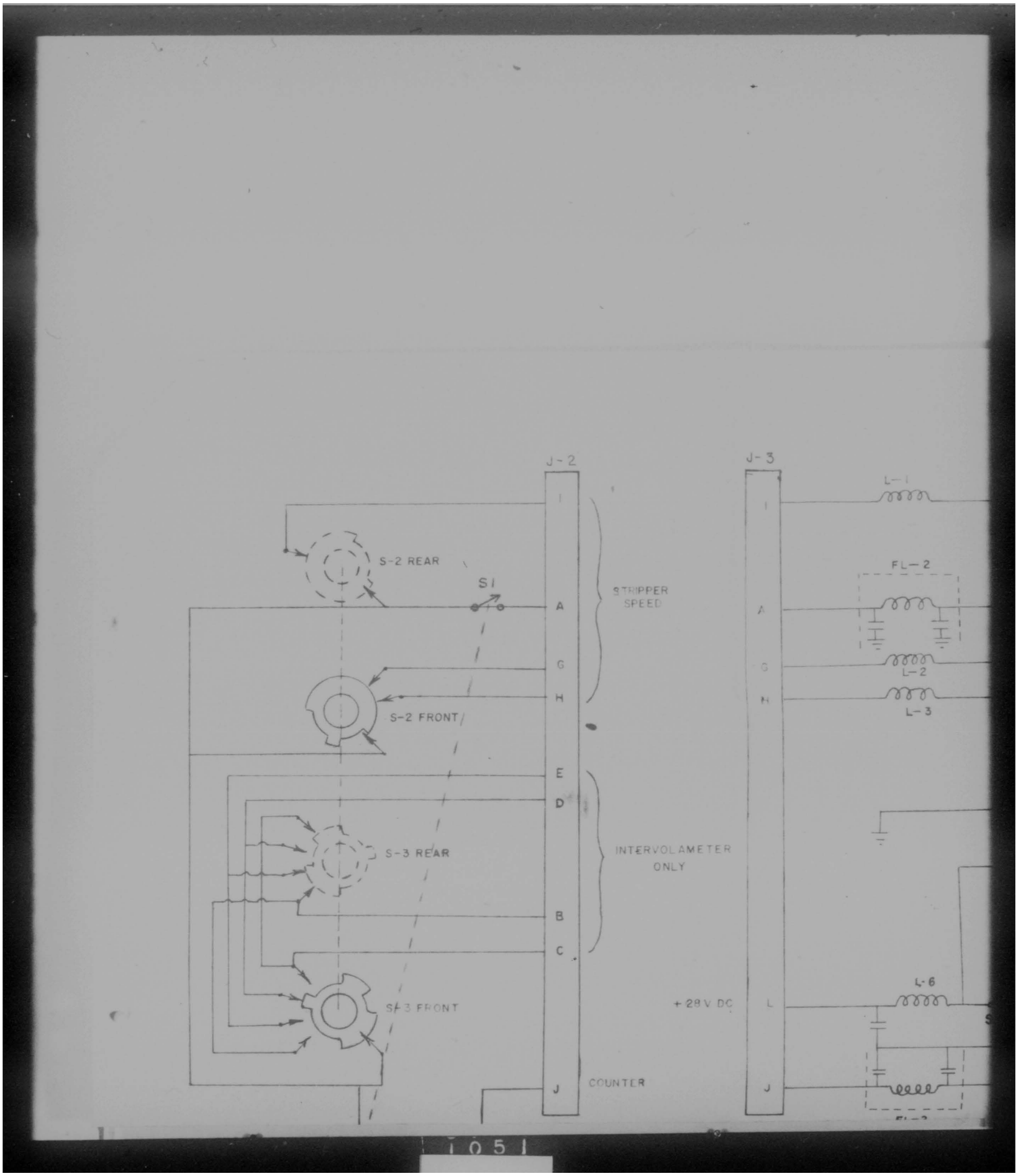

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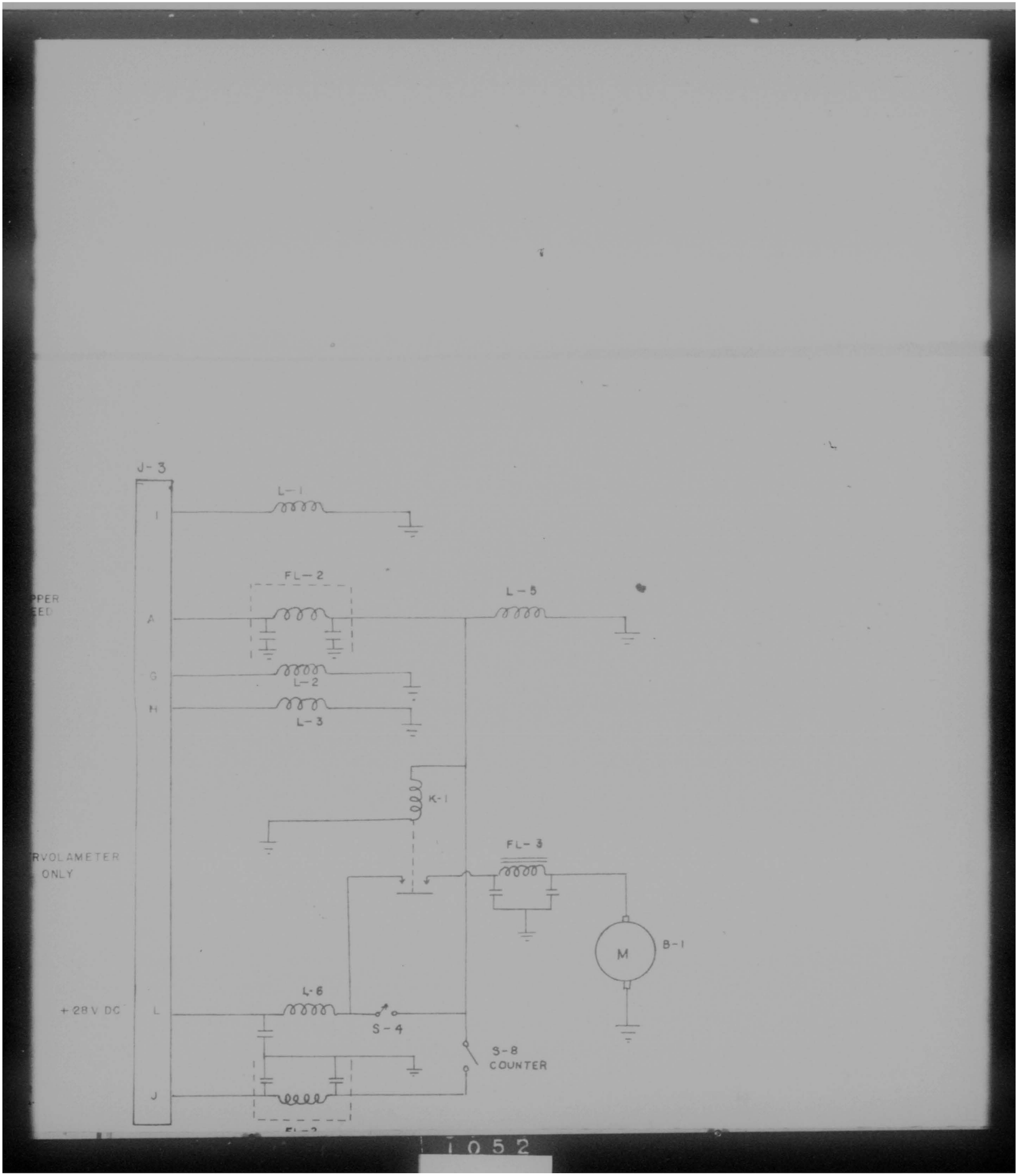

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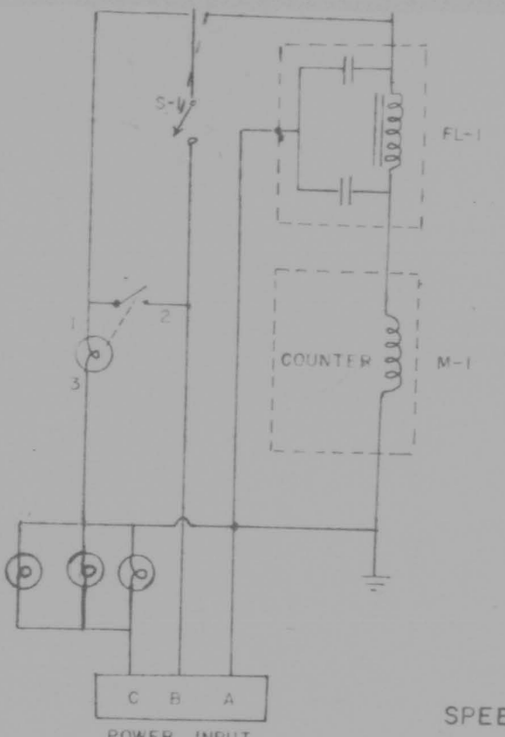

CHANGE →

SPEEDS

2.5	A ONLY
5	A & G
10	A & H
20	A & I
40	A, G, I
80	A, G, H, I

REFERENCE DESIGNATION	PAR
B1	MOTOR
J3	CONNECTOR
K1	RELAY-25
XI1, XI2, XI3	LIGHT ASS
I1, I2, I3	LAMP-T-1-3
XI4	LIGHT ASS
I4	LAMP-T-3-
J1	CONNECTOR-
J2	CONNECTOR-
M1	COUNTER
S1	SWITCH-TOG
S2	SWITCH-SEL
S3	SWITCH-SEL
FL1	FILTER-1.5
L1, L2	ACTUATOR-T
L3	ACTUATOR-T
L5	ACTUATOR-T
S4	SWITCH-TOG
S8	SWITCH-LIMI
FL2	FILTER-DUAL
FL3	FILTER-20 A
L6	CHOKE
C1	CAPACITOR 2

1053

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REFERENCE DESIGNATION	PART NAME	PART NO.
B1	MOTOR	RC-10213 (D-1/ALE-1)
J3	CONNECTOR-RECEPTACLE	AN3102A-20-27P (RA-99011A20-27P)
K1	RELAY-25 AMP SPST	AN3320-1 (RA-99014)
X1, X12, X13	LIGHT ASSY-PLASTIC PLATE	MS 25010-2 (RA-99040-2)
I1, I2, I3	LAMP-T-1-3/4 BULB	AN 3140-327 (RA-99041)
XI4	LIGHT ASSY-INDICATOR	AN 3157-4 (RA-8860)
I4	LAMP-T-3-1/4 BULB	AN 3121-313 (RA-8845)
J1	CONNECTOR-RECEPTACLE	AN 3102A-14S-7P (RA-99011A14S7P)
J2	CONNECTOR-RECEPTACLE	AN 3012A-20-27S (RA-99011A20-27S)
M1	COUNTER	RC-10212
S1	SWITCH-TOGGLE, SP	AN 3021-2 (RA-8677).
S2	SWITCH-SELECTOR	RC-10529-2
S3	SWITCH-SELECTOR	CDS-258B (SEE RC-10529)
FL1	FILTER-1.5 AMP, 150 DVC	RA-99067
L1, L2	ACTUATOR-TYPE "G"	RB 10540A
L3	ACTUATOR-TYPE "H"	RB 10541A
L5	ACTUATOR-TYPE "J"	RB-10545A
S4	SWITCH-TOGGLE, SP	AN 3021-7 (RA-99158-7)
S8	SWITCH-LIMIT	RA-8676
FL2	FILTER-DUAL, 1.5 AMP, 150 VDC	RA-99012
FL3	FILTER-20 AMP, 100 VDC	RA-99013
L6	CHOKE	RA-8790
C1	CAPACITOR 2 OUF, 200 VDC	RA-99115

ALE-1

DIAGRAM, W
CONTROL, S

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1054

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PART NO.
RC-10213 (D-1/ALE-1)
AN3102A-20-27P (RA-99011A20-27P)
AN3320-1 (RA-99014)
MS 25010-2 (RA-99040-2)
AN 3140-327 (RA-99041)
AN 3157-4 (RA-8860)
AN 3121-313 (RA-8845)
AN 3102A-14S-7P (RA-99011A14S7P)
AN 3012A-20-27S (RA-99011A20-27S)
RC-10212
AN 3021-2 (RA-8677)
RC-10529-2
CDS-258B (SEE RC-10529)
RA-99067
RB 10540A
RB 10541A
RB-10545A
AN 3021-7 (RA-99158-7)
RA-8676
RA-99012
RA-99013
RA-879[illegible]
RA-99115

ALE-1

DIAGRAM, WIRING, CONTROL, STRIPPER

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1055

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15

1056

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376TH AWMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 March 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 28 February 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Craile, SAC Project #6.

III. TRAINING ACTIVITIES:

Four TDY Technical Representatives visited for familarization training and were here four days during this report period. Time devoted to their training is included with OJT time.

1. Classroom:

Taught ALE-1 to 12 TDY airmen	16 hours
Taught ALT-8 to 24 TDY and 3 Barksdale AFB airmen (2 classes)	28 hours
Taught APS-54 to 22 TDY and 4 Barksdale AFB airmen (3 classes)	44 hours
Miscellaneous insturctor details	8 hours
Total Classroom Time	96 hours

2. OJT:

OJT time ALE-1	8 hours
OJT time ALT-8	4 hours
OJT time. APS-54 and supervised building crystal protectors	23 hours

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1057

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

OJT time QRC-8	9 hours
OJT General Electronics	10 hours
Total OJT Time	54 hours

3. Total time devoted to training 150 hours or 99% of the available time for training (152 hours available).

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required until April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. Detail: Four Z101 units have failed in ALT-8 transmitter. Z101 is in the high voltage circuit of the transmitter and consists of a coupling device between modulator and magnetron, filtering device and magnetron filament transformer. One or more of the components in this sealed can assembly are shorting out the high voltage supply upon failing.

2. Recommendations: It is recommended that an analysis be performed by the manufacturer to determine which part or parts are shorting out and to take corrective action as deemed necessary.

3. Action Taken: A UR # 376EW-55-620 has been submitted on the defective unit.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. A simplified version of the AFS-54 crystal protector has been developed. The new version operates on the same principles as the older version but uses one less relay.

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1058

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3764ESS, Subject: Monthly Technical Report, RCS: 3-U.S-019, For Month Ending 28 February 1955

X. GENERAL REMARKS: Negative.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

3

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1059

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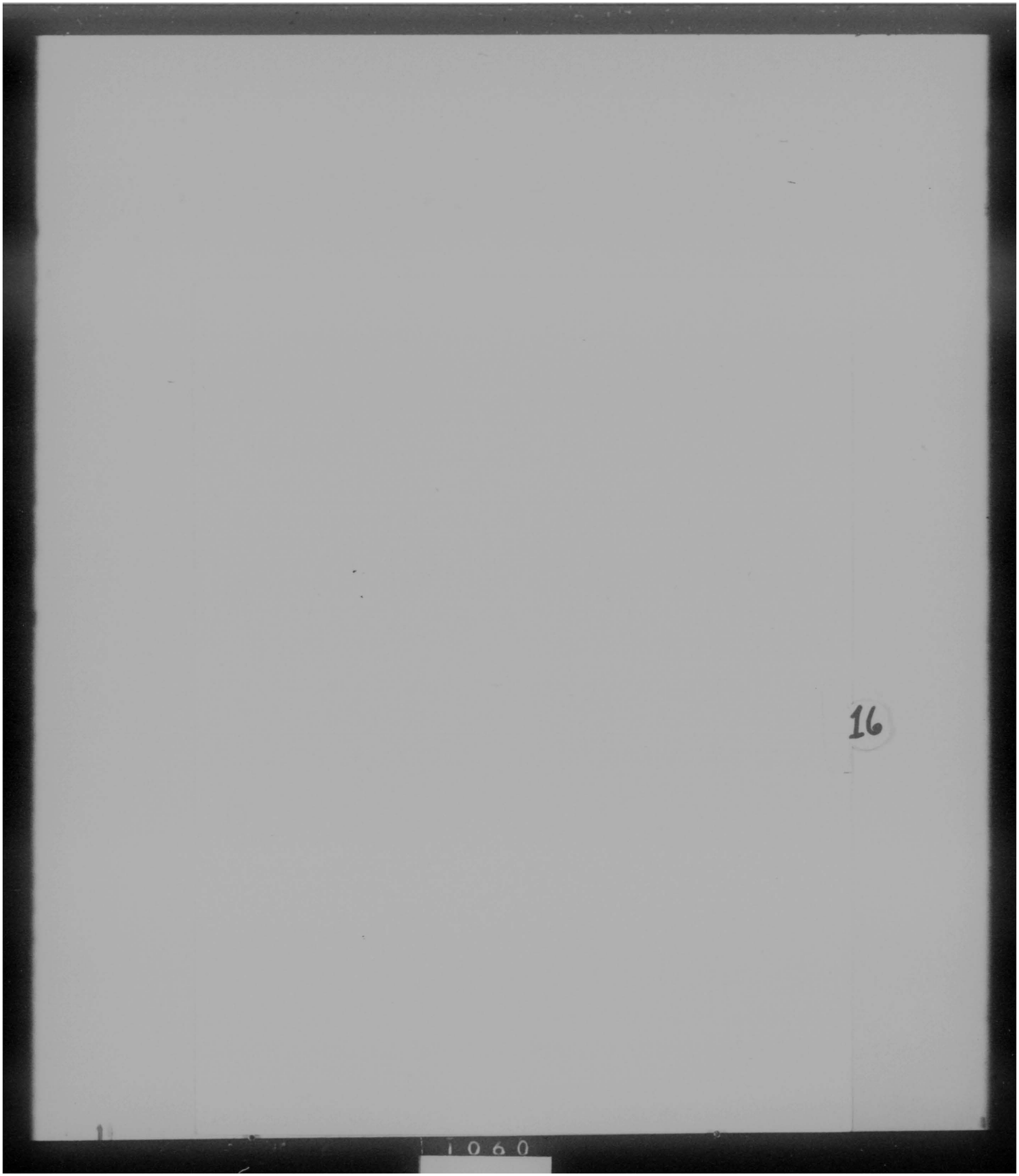

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 February 1955

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 January [illegible] submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Roger G. Recher

II. EQUIPMENT: System, Fire Control Bomber Tail Defence, Typ A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Four A-5 mechanics (AFSC 32330C) received 32 man hours of instructions in A-5 Firing Circuits. Total instructor time: 8 hours.

b. Three A-5 mechanics received 60 man hours of instruction in A-5 antenna control. Total instructor time: 20 hours.

c. Two A-5 mechanics received 4 man hours of instruction in selsyn theory and zeroing procedure. Total instructor time: 2 hours.

d. Two A-5 mechanics received 8 man hours of instruction in theory and test procedures of the lead checker for testing A-5 computing system. Total instructor time: 4 hours.

e. Four A-5 mechanics received 16 man hours of instruction in R.F. head tuning. Total instructor time: 4 hours.

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f. Three A-5 mechanics received 12 man hours of instruction in procedures for component testing in shop. Total instructor time: 4 hours.

2. OJT:

a. A-5 mechanics received instruction in troubleshooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions. Sixty-four hours were expended in the field shop, seventy-eight hours were expended in line maintenance, and twelve hours in periodic inspection. Total time: 154 hours.

b. Thirty-six hours were expended in explaining and aiding A-5 mechanics in completing field changes Total time: 36 hours.

c. Twenty hours were expended in analyzing a gun charger malfunction. A-5 mechanics were utilized in this work. (See Par V, Equip. Malfunctions Total time: 20 hours.

3. In addition to actual instruction 20 hours were expended in preparing class outlines, and training aids and in other administrative work relative to the training program. Total time: 20 hours.

4. Training program:

a. Available time: 320 hours.

b. Total training time: 272 hours.

c. Percent training time: 85%.

IV. UTILIZATION:

1. Brief description of assigned duties; Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the A-5 fire control system and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by April 1957.

1062

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V. EQUIPMENT MALFUNCTIONS:

1. Details:

a. Several cases of charger malfunctions were repor ed in one day. This was during a period of rain weather and in each case the right gun had fired 0% and the left gun had fired 100%. In all case the gun chargers had operated before the flight immediately after the flight. It was noted that, due to the construction of the charger, moisture could leak into the right hand charger, but would normally not enter the left hand charger. This moisture could collect in the charger housing onl if a sealing compound had become broken around th lid of the charger. This lid is on the top of th charger housing on the left hand configuration, b due to the interchangeability of left and right h chargers, it is on the bottom of the right charg and apt to collect moisture.

b. To prove or disprove the theory that this conditi could cause ice to form inside the charger at hig altitude, water was allowed to drip down the side of a reported faulty charger and then the charger (right hand) was cold soaked in dry ice for appro imately 2½ hours. After this, operation of the charger was attempted, but it failed to operate. The charger was immediately inspected and it was found that an insulating material around RY-1 had become damp and frozen in a solid state. In its frozen condition the insulating material was warp and wedged against RY-1 preventing the contacts from closing.

2. (a) This malfunction has been reported in UR #376EW-55 223, dated 27 January 1955, covering Johnson Fare Box Gun Charger P/N 5910 JFB059-2.

b. No fixes are known for production items.

c. Action has been initiated at this level to re-sea the lids of all gun chargers in an attempt to pre vent moisture from collecting in the chargers and thus eliminate future malfunctions of this nature

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

Negative.

1063

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES:

Deleted.

IX. SPECIAL DEVELOPMENTS:

Negative.

X. GENERAL REMARKS:

Negative.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley

1064

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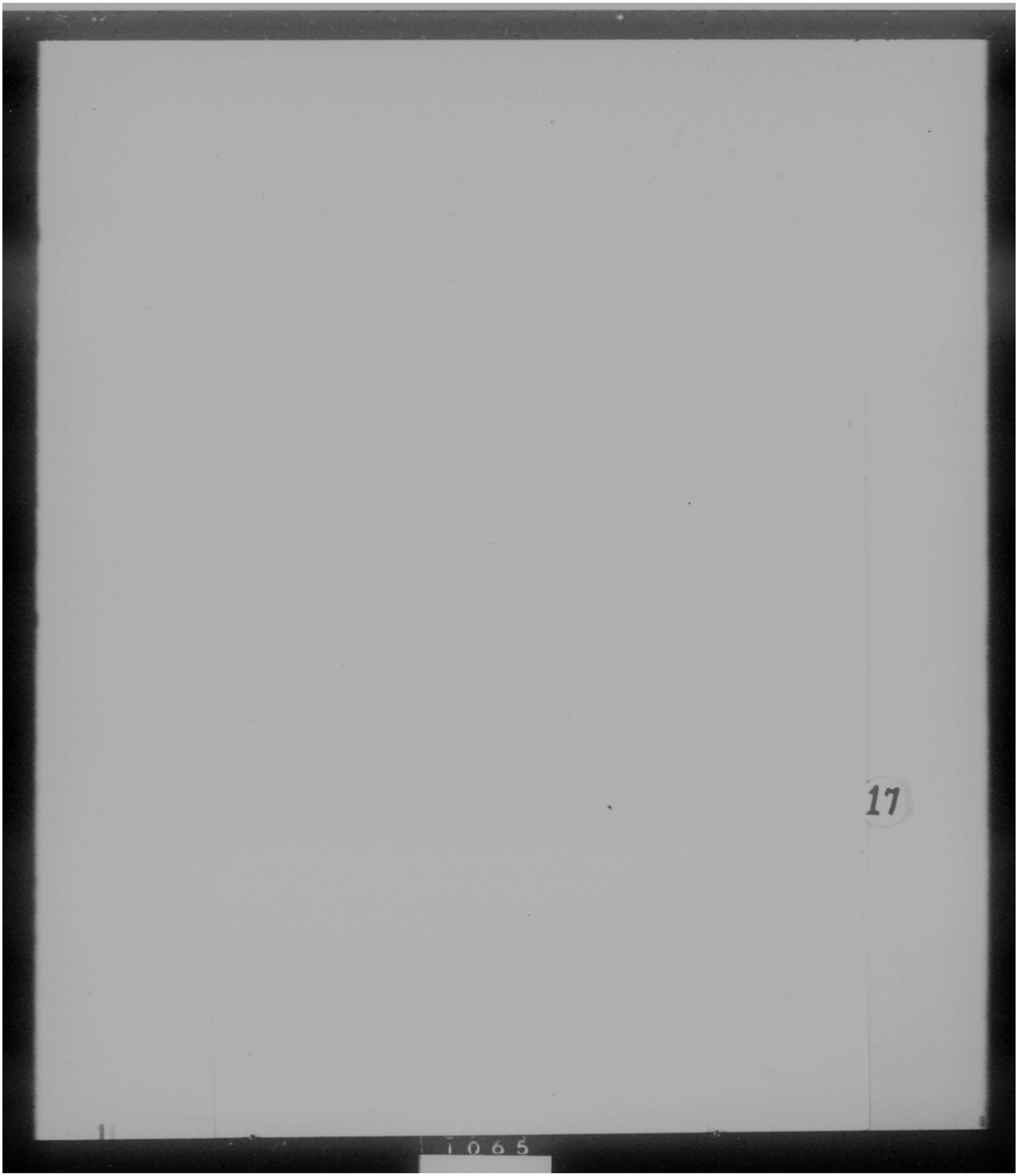

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376TH ARMT & ELECT MAINT SQ
376th Bombariment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 March 1955

Contractor: Crosley Div of AVCO Mfg Corp.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 28 February 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr, Roger G. Recher

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Three A-5 mechanics (AFSC 32330C) received 12 man hours of instruction in RF head theory and tuning procedures. Total Instructor time: 4 hours.

b. Seven A-5 mechanics received 28 man hours of instruction in firing circuits theory. Total insturctor time; 8 hours. (2 classes of 4 hours each)

c. Three A-5 mechanics received 12 man hours of instruction on antenna thyratron drive theory. Total insturctor time: 4 hours.

d. Three A-5 mechanics received 12 man hours of instruction in antenna modes of operation theory. Total insturctor time: 4 hours.

e. Six A-5 mechanics received 24 man hours of instruction in antenna relay operation theory. Total insturctor time: 8 hours. (2 classes of 4 hours)

1066

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f. Twenty two A-5 mechanics received 44 man hours of insturction in lead checker theory and operation. Total instructor time: 10 hours. (5 classes of two hours)

g. Ten A-5 mechanics received 80 man hours of instruction in shipboard tester theory and operation. Total instructor time: 32 hours. (4 classes of eight hours)

2. OJT:

a. A-5 mechanics received instruction in trouble shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunction Sixty hours were expended in the field shop, and eighty hours were expended in line maintenance. Total time: 140 hours.

b. Forty hours were expended in explaining and aiding A-5 mechanics in completing field changes. Total time: 40 hours.

3. In addition to actual instruction 20 hours were expended in preparing class outlines and training aids, and in other administrative work relative to the training program. Total time: 20 hours.

4. Training Program:

a. Available time: 320 hours.
b. Total training time: 270 hours.
c. Percent training time: 84 %.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the A-5 fire control system and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice of equipment performance and maintenance problems.

2. We estimate that our services can be terminated by April 1957.

1067

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELPOMENTS: Negative.

X. GENERAL REMARKS: Negative.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley

1068

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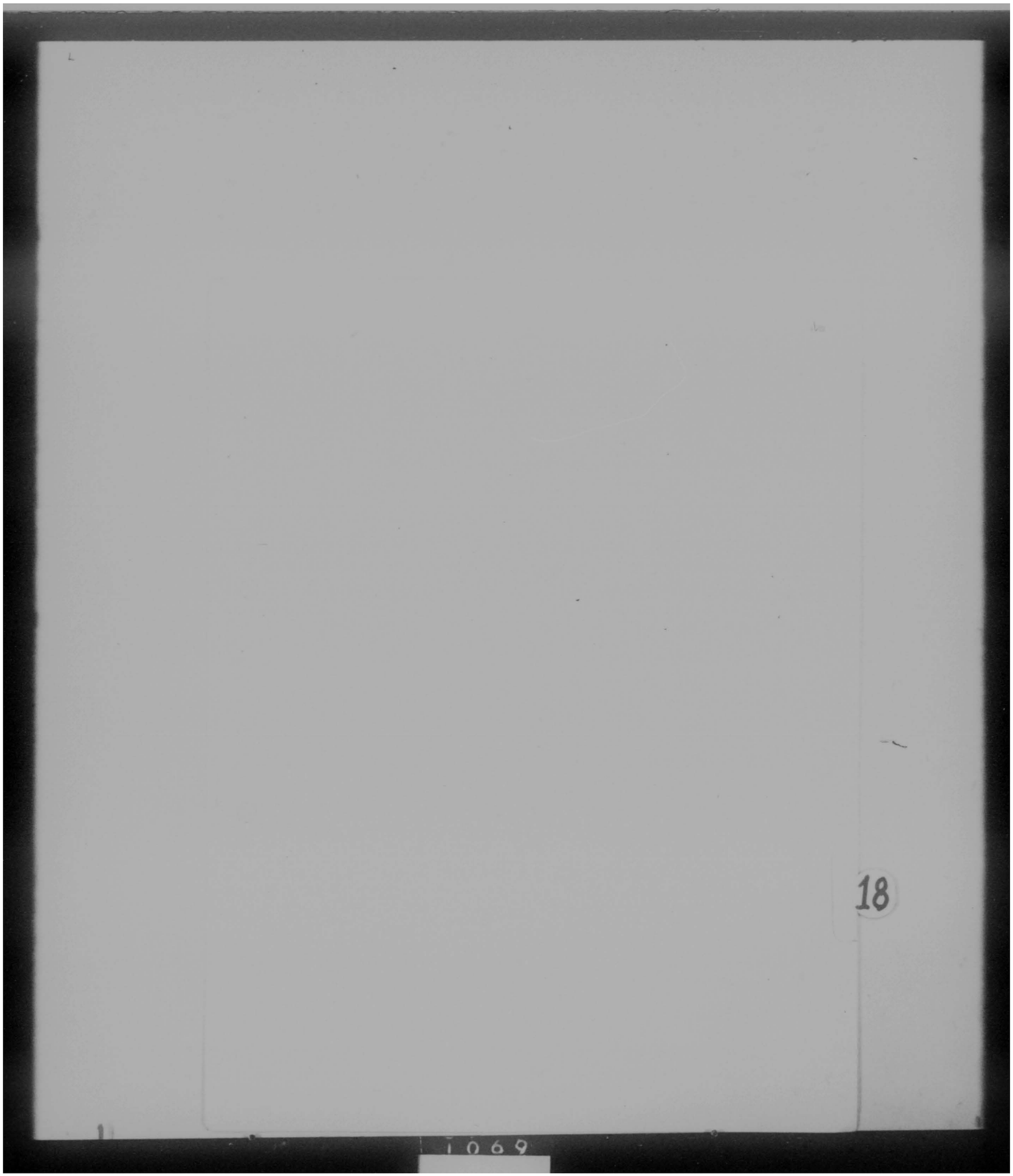

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 February 1955

Contractor: Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 January 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John Bolen, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. Jack W. Boileau, Sperry Gyroscope Co.
(Arrived 20 January 1955)
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. Dana G. Doherty, Sperry Gyroscope Co.
(Departed 7 January 1955)
Mr. Michael S. Kotula, Sperry Gyroscope Co.
(Departed 31 January 1955)
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The symposium type class for operator training continued throughout January. This class which has been conducted three days weekly was expanded 24 January to five days weekly. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

b. The operator in flight maintenance class, conducted five days weekly for four hours per day, continued throughout January. Whenever the training mockup is available it is utilized for demonstration in this class.

1070

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c. The mechanics mockup trouble-shooting class was conducted during the month of January. This course should increase proficiency in line, periodic and field maintenance.

d. Several courses which have been given to most of the personnel in the past are presently being give to a few men who for one reason or another were not available to receive this instruction.

e. The following is the status of classroom and mock-up training for the month of January 1955. All students had 32130E and 32150E AFSC's with the exception of the observers whose AFSC is 15[illegible]3.

Subject	Course Hrs	No. Inst. To Date	No. Inst. In Jan.	Instr Man Hrs	Stu Man Hrs
Mockup (Mechanic)	20	24	12	120	240
In Flight Maintenance (Operator)	4		41	160	164
Symposium (Operator)	3		45	63	135
AN/APS 23 Loops	20	128	3	20	60
Computer Loops	20	116	2	20	40

2. Planned OJT:

a. OJT during the month of January included system analysis and trouble-shooting. The low trouble-shooting figure indicates that the maintenance personnel are becoming proficient in their tasks.

Subject	Inst. Hrs.	No. Stu.	Stu. Hrs.
System Analysis	242	195	320
Trouble-Shooting	10	8	20

3. Field engineers were available to the 376th A & E Maint enance Squadron during the month of January for a total of 792 man-hours. Of this total, 635 man-hours were utilized for formal and OJT training. 80% of availabl time was devoted to training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in operation and in-flight maintenance techniques and procedures.

1071

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Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System Field engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS:

Malfunctions to date have been routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE:

Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Letter from Headquarters, Second Air Force dated 10 December 1954, Subject: Compass Calibration Procedure, requested comments in this report concerning a proposed compass calibration procedure. The following paragraphs contain the comments of the field engineers listed in this report.

a. Assume that two flux valve mounts (K and N1) could be designed and installed in the B-47 which mounts would be so calibrated and constructed that the flux valve could be rotated any desired number of degrees accurately. During compass swinging, the aircraft would remain on one known heading while the flux valve was rotated through 360 degrees. From this procedure three errors are to be obtained namely index, single cycle, and double cycle errors.

1072

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b. It appears that the proposed method would be satisfactory if all three of these errors could be attributed to the flux valve itself. With the exception of the index error, this is not the case. Singl- and double cycle errors are attributed to many factors outside of the flux valve as well as the flu- valve itself. These outside factors include the influence of ferro-magnetic material in other parts of the aircraft, Electromagnetic fields produced by electrical currents of comonents and wiring in the aircraft and perhaps several other factors. These factors affect the earth's magnetic field in such a manner that these lines are slightly distorted at the flux valve position. During the conventional compass swinging procedure, These disturbing factors exterior to the flux valve, rotate with the valve and simulate in flight operation. These factors are considered to be compensated for adequately by the available adjustments. Under the proposed procedure, however, the earth's magnetic field at the flux valve position would be constant while the flux valves were rotated. The flux valve would be rotated while the distortion fixed. This procedure would probably give totalally erroneous single and double cycle corrections. This in no way simulated conditions in flight.

c. The relative magnitude of the actual errors and erroneous corrections can only be determined by exhaustive research and testing. The factors mentioned above as well as others not herein considered, suggests that the proposed compass swinging procedure is one which cannot be recommended at present and perhaps not as long as the earth's magnetic field is utilized as the source for heading information.

X. GENERAL REMARKS:

1. Mr. J. F. Monahan returned from vacation 3 January 19

2. Mr. M. S. Kotula was on vacation 3 January through 7 January 1955.

3. Mr. J. W. Boileau, Sperry Gyroscope Company Field Engineer arrived 20 January 1955 to assume the responsibility of Field Engineer coordinator.

1073

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-W19, For Month Ending 31 January 1955.

4. Mr. M. S. Kotula departed 31 January 1955 for another assignment.

5. Mr. D. G. Doherty departed 7 January 1955 to report for induction into the Armed Forces.

Michael S. Kotula
Field Engineer Coordinator
Sperry Gyroscope Company

Michael Nowak
Field Engineer
Western Electric Company

1074

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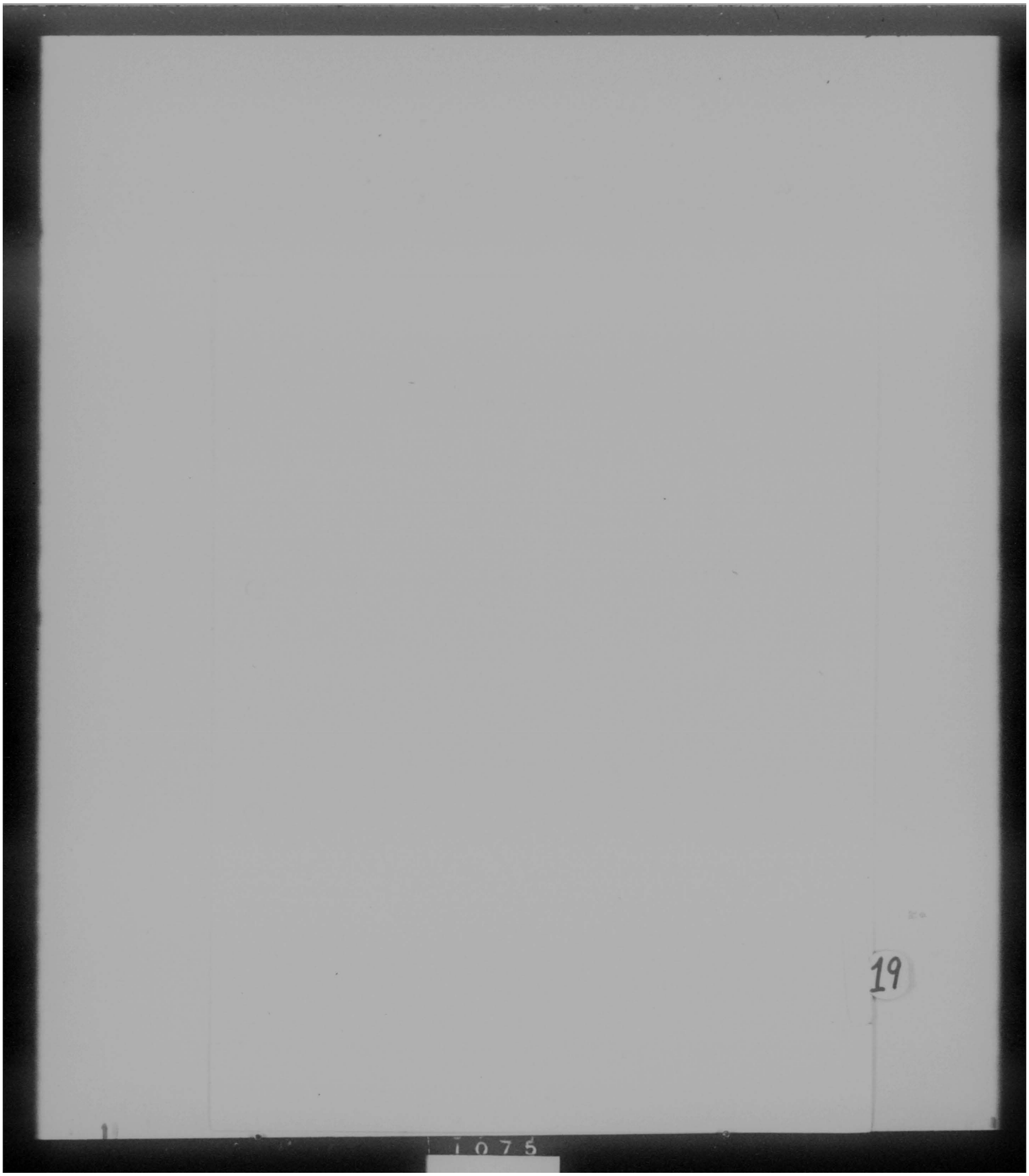

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 March 1955

Contractor: Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 28 February 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John Bolen, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. Jack W. Boileau, Sperry Gyroscope Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The symposium type class for operator training was conducted five days weekly throughout February. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

b. The operator in-flight maintenance class, conducted five days weekly for four hours per day, continued throughout February. Whenever the training mockup is available it is utilized for demonstration in this class.

1076

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c. The mechanics mockup trouble-shooting class was conducted during the month of February. This course should increase proficiency in line, periodic and field maintenance. This class was discontinued one week short of the scheduled 30 days because of the need of all available men for extra guard duty etc, during the present "Penetration Move".

d. Several courses which have been given to most of the personnel in the past are presently being given to a few men who for one reason or another were not available to receive this instruction. This instruction was finished on 28 February.

e. The following is the status of classroom and mock-up training for the month of February 1955. All students had 32130E and 32150E AFSC's with the exception of the observers whose AFSC is 1544B.

SUBJECT	Course Hrs	No. Inst. To Date	No. Inst. In Feb.	Instr. Man Hrs	Student Man Hrs
Mockup (Mechanic)	20 (weekly)	36	14	128	292
In Flight Maintenance (Operator)	4 (monthly)		59	107	237
Symposium (Operator)	4 (monthly)		52	57	207
AN/APS 23 Loops	20 (weekly)	131	2	20	40
Computer Loops	20 (weekly)	118	2	52	104

2. Planned OJT:

a. OJT during the mont of February included system analysis and trouble-shooting.

SUBJECT	Inst.Hrs.	No.Stu.	Stu.Hrs.
System Analysis	199	125	260
Trouble-Shooting	59	24	81

3. Field engineers were available to the 376th A & E Maintenance Squadron during the month of February for a total of 760 man-hours. Of this total, 622 man-hours were utilized for formal and OJT training. 81.8% of available time was devoted to training.

1077

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IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation and maintenance of the K-4A Bomb-Navigation System and the training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System field engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS:

1. More than an average number of broken "stand off" condensers were reported this month. These condensers are found on the Pre-IF amplifier and Main Receiver sub-assemblies located in the Receiver Transmitter Unit, and are used as by pass condensers for the filaments, screen grids and cathodes of various tubes.

2. Because of the construction (two plates with a long hollow cylinder of creamic material making up the dielectric) and the way they are mounted on the sub-unit (one plate fastened securely to the chassis of the sub-unit) various theories have been advanced for this sudden influx of broken by pass condensers such as:

   a. Repeated handling of the sub-units, i.e., removing and replacing them from the Receiver Transmitter unit when trouble shooting and performing various checks.

   b. Vibration of the aircraft when flying at the higher mock ratings.

   c. Closer checking by the maintenance personnel during the last month for this condition. Symptoms on the radar, when one or two of these ceramic condensers are broken, ar not always readily discernible since the radar will still operate but the picture will usually be marginal. Maintenance personnel are aware of this and have set up the practice of checking these condensers when ever a Receiver Transmitter Unit is removed.

1078

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3. Regardless of the reason these condensers are breaking, it is the consensus of opinion that these ceramic condensers are not rugged enough.

4. Local Fix: This condition is being met by replacing any ceramic condenser which is found broken, but the problem is in obtaining these condensers. At present there are a number of Receiver Transmitter Units AWP for these condensers.

5. Factory Fix: This same problem has plagued other wings and because of the over all picture regarding this condition, the factory is now using a larger and more rugged condenser.

6. The Armament and Electronic Squadron has already received a few IF sub-units having the ruggedized condensers, but when they will replace all the IF and main receiver sub-units is a matter of time. Therefore, Armament and Electronic is still faced with the problem of obtaining replacements for by pass condensers which break.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. An investigation the first part of the month of the wavy range mark problem encountered on aircraft 52-423 showed it to be a high-frequency low amplitude jitter which occurred on both aircraft and ground power. The theory was advanced that this could be caused by pick-up due to different chassis grounds employed on various components making up the APS-23 and the ICE.

2. On this particular aircraft it was found that by physically lifting the PP-259 (APS-23 power supply) chassis from its mount , which is attached to the aircraft frame, eliminated this high-frequency jitter on the APS-23 scope. Because of the above findings it was recommended to Armament and Electronic that some type of insulating material be put between the PP-259 chassis and the aircraft frame.

3. Maintenance personnel have reported encountering this same condition on aircraft 52-400, aircraft 53-419, and others and have eliminated it in each case by the above "fix".

1079

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4. It should be noted that:

a. Isolating the PP-259 from the aircraft frame will not eliminate all types of wavy range mark which may occur.

b. This condition which occurs on some "E" models is not common only to the 376th Bombardment Wing aircraft, but has been reported at other wings.

c. Investigation of the cause and "fix" of the different types of wavy range mark is being conducted by Boeing, Western Electric, and Sperry at different locations. The 376th Armament and Electronics Squadron will be kept abreast on any findings.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Arrangements are being made to give the K-System MENP test to all K-System mechanics the first part of March. As the name implies, Written Examination for Measuring Proficiency, this test will show the catagories where weaknesses exist and a training program can then be set up around these results.

X. GENERAL REMARKS:

1. Mr. R. P. Lutz, Superintendent of Western Electric Waughtown and Greenborough Shops, and Mr. J. H. Covell, of Western Electric Field Engineering Force, visited Barksdale Air Force Base to gather an overall picture of the performance of the APS-23.

2. Mr. K. A. Mauk, Aero Supervisor from Sperry Gyroscope Company's New Orleans District Office, made a routine visit to Barksdale Air Force Base to discuss any administration or technical problems of the Sperry Field Engineers assigned to this location.

Michael Nowak
MICHAEL NOWAK
Field Engineer
Western Electric Company

Jack W. Boileau
JACK W. BOILEAU
Field Engineer Coordinator
Sperry Gyroscope Company

1080

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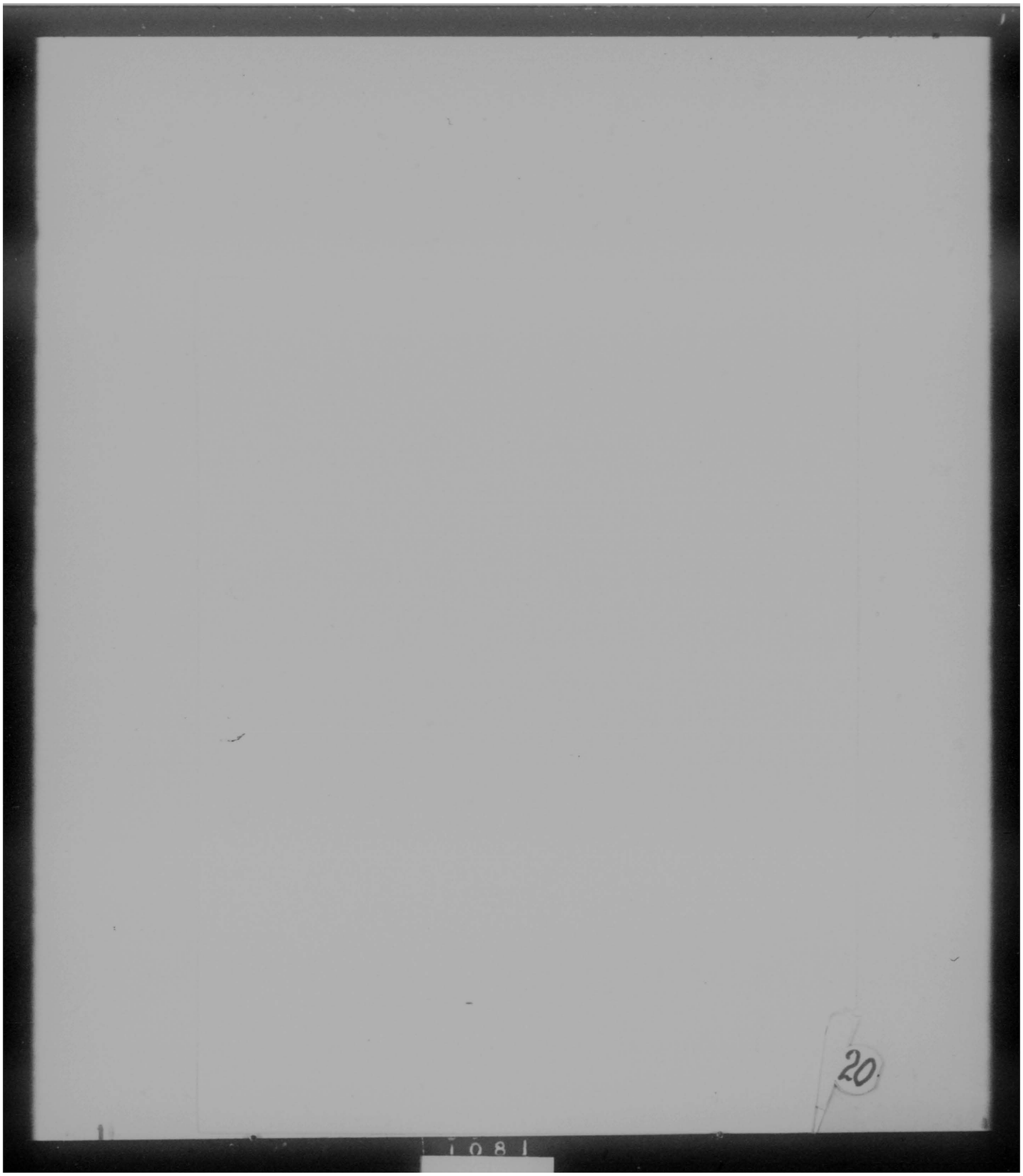

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 February 1955

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 January 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyroscope

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eight (8) two (2) hour classes on the A-12D interlock circuits were held during the month of January. Five (5) of these classes were on Part III of the interlock circuit and the remaining three (3) were review classes on the entire interlock circuit. As of 31 January fifteen (15) airmen had completed the eight hour interlock circuit course. Make-up classes will be scheduled for the six (6) airmen who have missed one or more of the four two hour interlock circuit classes. AFSC's of the men in class were (5) 42270, (6) 42250, and (7) 42230.

b. During the month of January an A-12D Signal Source course which is planned to last eight hours was begun. This course explains how the A-12D keeps the aircraft straight and level on a magnetic heading, how altitude control holds the aircraft on a given altitude and how coordinated turns are accomplished automatically by the aircraft commander, the observer or the bombing system. Seven (7) two (2) hour signal Source classes were completed as of 31 January. AFSC of the men in class were (4) 42270's, (4) 42250's, and (4) 42230's.

1082

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c. Below is a summary of the hours devoted to classroom training and preparation of instructions.

COURSE	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Gyropilot Interlock circuit	16	18	60
A-12D Signal Sources	14	12	58
Preparation of Material	6		

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of January.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Test Procedure	18	12	25
A-12D Theory	14	9	20

3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (6) 42270's (8) 42250's and (7) 42230's available for training.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	30	20	48
Trouble Shooting	11	6	22

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, the F-1 Bendix autopilot and the Kearfott N-1 compass was given.

	Inst. Hrs.	No. Stu.	Stu. Hrs.
F-1 Autopilot	6	2	8
C-1 Amplifier	2	2	2
N-1 Compass	10	5	16

c. Of 168 hours available instruction time 127 hours (75%) were used for training.

1083

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IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and inflight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTION:

1. The following equipment malfunction occurred during the month of January.

a. Malfunction: Autopilot AC. circuit breaker (B-6) popped and would not stay in when it was reset.

Cause of Malfunction: T-402 (Power Transformer) shorted between pins 8 and 9. V-401 (6X5 rectifier tube) shorted from filament to cathode.

Corrective Action: Replaced B-18 Amplifier. Not repairable this station.

U.R. Number: 376BW-55-220.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failure.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE:

Deleted.

1084

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 January 1955.

IX. SPECIAL DEVELOPMENTS:

Negative.

X. GENERAL REMARKS:

Negative.

Henry J. Kronlage

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

1085

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 March 1955

Contractor: Sperry Gyroscope Company
Great Neck, L. I., N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 28 February 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyropilot

III. TRAINING ACTIVITIES:

1. Classroom:

a. During the month of February 1955, ten (10) airmen completed the eight hour A-12D Signal Source Course which was begun last month. Make-up classes will be scheduled for the airmen who have missed one or more of the signal source classes when time permits. Six (6) two hour A-12D signal source classes were conducted during the month of February. AFSC's of the men in class were (5) 42270's, (5) 42250's, (3) 42230's.

b. Toward the latter part of the month a course titled A-12D Gyropilot components was started. This course will be conducted on the A-12D mock-up and will cover the operation of each component individually. Whenever possible, the units will be disassembled so that the mechanics can see how the component accomplishes its function. A definite time length for this course has not been set. Two (2) two hour A-12D component courses were completed during February. AFSC's of the men in class were (5) 42270's, and (3) 42250's.

1087

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c. Below is a summary of the hours devoted to classroom training and preparation of instructions.

COURSE	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Gyropilot Signal Sources	12	12	34
A-12D Components	4	8	16
Preparation of Material	4		

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of February.

SUBJECT	Inst.Hrs.	No.Stu.	Stu.Hrs.
A-12D Test Procedures	24	14	32
A-12D Theory	16	10	20

3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (6) 42270's (8) 42250's and (7) 42230's available for training.

SUBJECT	Inst.Hrs.	No.Stu.	Stu.Hrs.
A-12D Theory	31	15	42
Trouble Shooting	7	6	14

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, the F-1 Bendix autopilot and the Kearfott N-1 compass was given.

SUBJECT	Inst.Hrs.	No.Stu.	Stu.Hrs.
F-1 Autopilot	4	2	6
C-1 Amplifier	2	2	4
N-1 Compass	8	6	14

c. Of 152 hours available instruction time 112 hours (73%) were used for training.

1088

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IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used by the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. The following equipment malfunction occurred during the month of February.

a. Malfunction: Autopilot A.C circuit breaker popped and would not stay in when it was reset.

b. Cause of Malfunction: T-402 (power transformer) shorted between pins 1 and 4 causing an AC circuit breaker to pop, R-247 (screen grid resistor) was burned out and the wiring in the immediate vicinity was damaged.

c. Corrective Action: Replaced six channel (B-18) amplifier. Not reparable this station, UR Number 376EW-55-419 submitted on defective part.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failure.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX: SPECIAL DEVELOPMENTS: Negative.

1089

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X. GENERAL REMARKS: Negative.

Henry J. Kronlage

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 March 1955

Contractor: Dynamic Electronics Inc.
Forrest Hills, N. Y.

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 28 February 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal classes were held on the AN/ ALT-7 for twelve (12) men, eight hours, to complete course on this equipment for first group of TDY students. Formal classes were held on the AN/ALT-7 for twelve (12) men for eight hours to start course on this equipment for second group of TDY students. Formal classes were also held on B-47 Phase III installation for second group for sixteen hours. Total instructor time was thirty-eight hours.

2. OJT:

a. B-47 alternator circuitry as modified for Blue Cradle for three men, seven hours. Blue Cradle transmitter control circuitry for two men, six hours. Indoctrination of visiting field engineers, twelve hours.

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3. Training Time:

a.	Available time for training	88 hours
b.	Classroom	38 hours
c.	OJT	25 hours
d.	Percent of time in training	71.6

IV. UTILIZATION:

1. The primary purpose of this assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

2. It is estimated that the services of the writer can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. On February 8 and 9 a conference was held at Barksdale Air Force Base on test equipment requirements for AN/ALT-6 and AN/ALT-8 transmitters. The test equipment, recommended by WADC, is comprehensive, however the majority of equipment is still not manufactured and some is not yet designed. This will mean that test equipment for these two systems will not be adequate for a considerable length of time. In addition to the recommended list the conference decided that there were two additional items of test equipment needed, namely a frequency measuring instrument and power measuring instrument suitable for flight line use. Necessary features of these instruments were listed as simplicity, portability and self-power. Arrangements will be made by WADC for the design of such equipment. The tentative equipment list contains a spectrum analyzer and summation bridges with a complete range of directional couplers and dummy loads; it should be noted that this is bench equipment of high accuracy and requiring a degree of skill in operation. Two questions arise, these are: (a) In the interim what is the flight line mechanic to use to set frequency limits on the flight line and to determine whether a transmitter is "putting out" adequately? (b) What is the field maintenance mechanic to use for magnetron check for moding, spectrum and power?

1093

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

2. The 376th ECM section has answered these two questions by use of AN/APR-4 and AN/APR-9 receivers, calibrated by available frequency meters. The AN/APR-4 receivers are used on a portable mock-up, which can and has been used on the flight line with AN/ALT-6, AN/ALT-8 and AN/ALT-7 transmitters. The AN/APR-9 is bench mounted and is used by the field maintenance section to check AN/ALT-6 and AN/ALT-8 transmitters. The receivers in use are on loan from Directorate of Countermeasures Test and Tactic 376th Bombardment Wing M. These receivers should be used as an adjunct rather than being the only test equipment available, but it must be stated that they have enabled the 376th Bombardment Wing to operate the equipment with reasonable efficiency; however it has not been possible to check power output from AN/ALT-6 and AN/ALT-8 transmitters with any degree of accuracy.

3. In view of the above a requirement does exist for B/RB-47 wings for ECM receivers. At the present time there is no authorization for such receivers. This requirement is vital until the simple test equipment is available, which might be a period of two years or more. Even after all the recommended test equipment is available, the requirement will still exist for a means of checking frequency and spectrum quickly and simply and reserving the more complicated test equipment for checking transmitters of marginal performance. In addition there may also be a requirement for operational in-flight checks by use of a guinea-pig station which this report is not competent to evaluate. It is recommended that B/RB-47 wings be authorized appropriate ECM receivers. With new receivers becoming available some of the older AN/APR-4 receivers (including all tuning units) could be put to excellent use in these wings.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Previous reports have listed several discrepancies in ECM transmitter control circuitry on B-47 aircraft. All these discrepancies have now been submitted in UR form but it has not been possible to assemble all the information in time for inclusion in this report. Additional discrepancies have been discovered in wiring diagrams for later model aircraft as included in the revisions of 15 November 1954 to Technical Order 1B-47B-2. All these discrepancies and UR action will be fully reported next month.

3 Incl 1

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2. Special Report:

a. Installation of QRC-8 transmitters in Aircraft of 376th Bombardment Wing M is complete in twenty-six (26) aircraft as of 28 February 1955. Factors which have affected completion of this installation are as follows:

1. Initial difficulties with the equipment as delivered by Hallicrafter Company, which necessitated all transmitters being returned to the manufacturer for re-work. This additional work included "potting" of all the high voltage connections to reduce corona at altitude.

2. Installation difficulties included under-sized wiring between the transmitter and power supply, which was corrected by a Douglas Aircraft retrofit and fabrication of a cover and mounting for the antenna tuning capacitor and modification to the antenna changeover relay cases to prevent breakage of the vacuum relay.

b. All difficulties have been resolved and installation is proceeding normally. Thirty-seven systems have been bench checked and three test missions have been flown, comprising four aircraft, eight aircraft, and twelve aircraft respectively. Of the twenty-four test aircraft there were four QRC-8 malfunctions, all involving blown fuses. The overall malfunctions, including the bench check, are as follows:

1. All fuses in all transmitters changed from 15 amp to 20 amp. This was an error by the manufacturer, as total AC current in an off-resonant condition is 17 amps.

2. H.V. rectifier type 5R2: 6 failure

3. H.V. relay (K4): 1 failure
4 contacts temporarily "stuck" closed.

4. Case Blower: 3 failures
1 broken fan blade

5. Power Amplifier Type 4-400A: 1 failure.

6. Tank Coil L3: 1 not usable (3-4mc)

7. Current Amplifier 6CD6: 1 failure.

1095

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376AEMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955

8. Grid Leak Resistor R16: 2 failures

9. Compensator control for C34: 2 controls temporarily stuck.

c. The following observations can be made on the above failures. At the present time the cause for the sticking of the K4 relay is not known and these rel are under special test by Directorate of Counter-measures Tests and Tactics, 376th Bombardment Wing. Failure of the H.V. rectifier cannot be considered significant as many sets were turned off and on again before the time delay had relaxed, thus causin the power supply to be heavily overloaded. There are three vendors for the case blower and it is known that two types are not reliable, namely those supplied to Hallicrafters by Globe Industries and Eastern Air Devices.

X. GENERAL REMARKS:

1. Mr. Nicholson attended the Test Equipment Conference at Barksdale Air Force Base on February 8 and 9, and the ECM Requirements Conference at Dayton Air Force Base on February 15 and 16.

Guy H. Nicholson

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics Inc.

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1096

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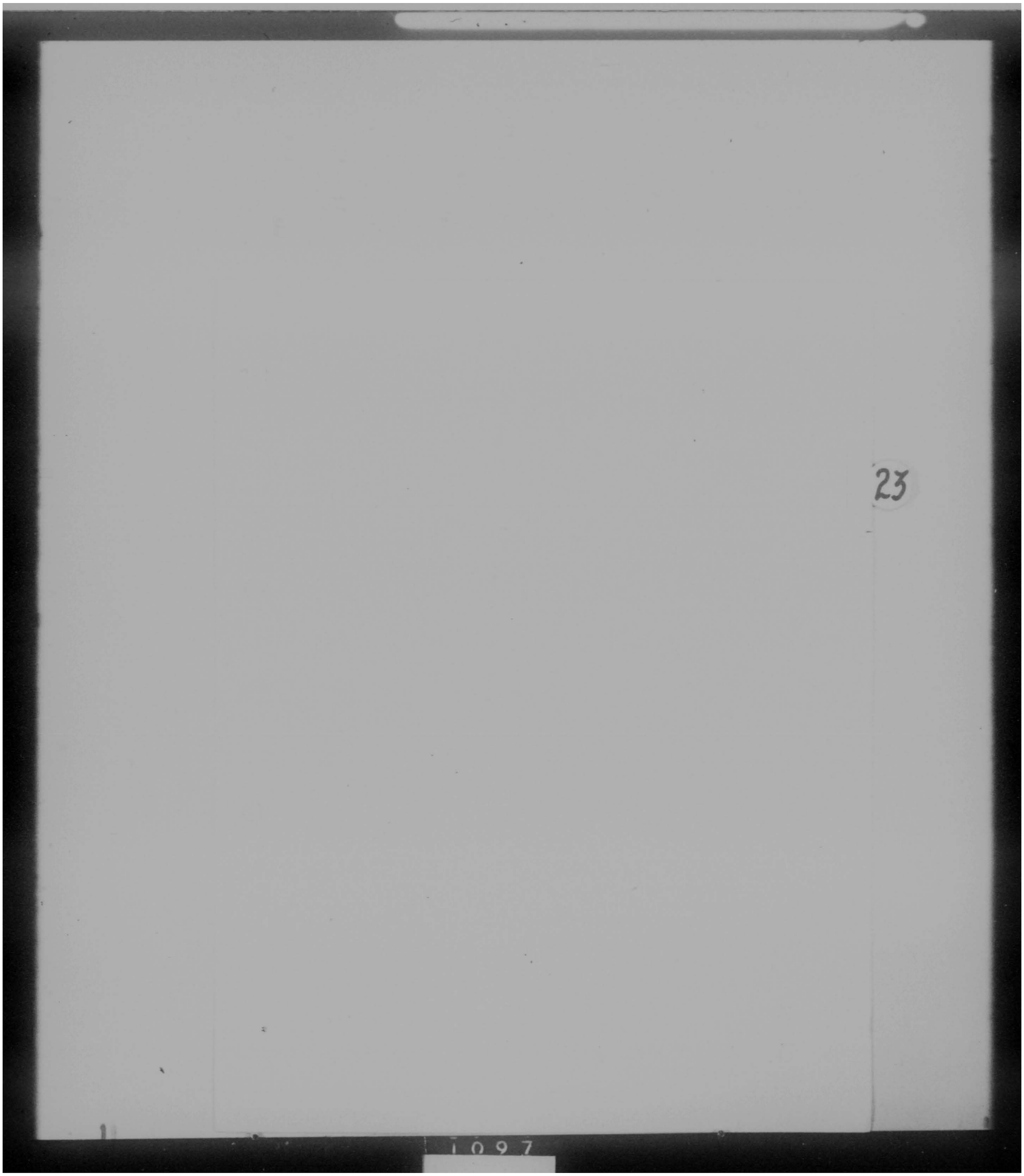

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

375AEMS

1 March 1955

Contractor: General Electric Co.
Utica, New York

SUBJECT: Monthly Technical Report, R/S: 3-AMC-W19, For Month Ending 28 February 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 28 February 1955 submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: John A. Lella
Joseph W. Steel

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Theory of operation, calibration, and maintenance procedures on ALT-6 was given to 25 students from different SAC bases. Two classes held.

Total number of students	25
Total classroom hours	21
Total instructor hours	42

2. OJT:

a. OJT was given to line and shop personnel as reguired.

Total number of men	23
Total number of hours	108
Total number of instructor hrs.	108

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Number of hours available	204
Number of hours training	150
Per cent training	73.5%

IV. UTILIZATION:

1. The primary purpose of this assignment in the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

2. It is estimated that the services of General Electric technical representatives will be April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE:

Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Mr. A. C. D'Hoostelaere from General Electric engineering attended a conference on ALT-6 and ALT-8 test equipment with representatives attached to 376th Bomb Wing.

2. Special or peculiar test equipment that is to be simple in operation and handling is to be developed to suppliment the test equipment already on hand. Much of this will probably not be obtained for at least two (?) years.

3. Special tools required were also brought up. A list was carried to Dayton Air Force Depot for necessary action. As of the present time most SAC bases receiving the ALT-6 will not have these tools

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376ARMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 28 February 1955.

or a necessary video receiver (APR-4 or APR-9) for minimum operational and maintenance checks on the equipment.

X. GENERAL REMARKS:

1. Mr. A. C. D'Hoostelaere attended a conference here February 8th and 9th, 1955.

John A Lella

JOHN A. LELLA
Field Engineer
General Electric Co.

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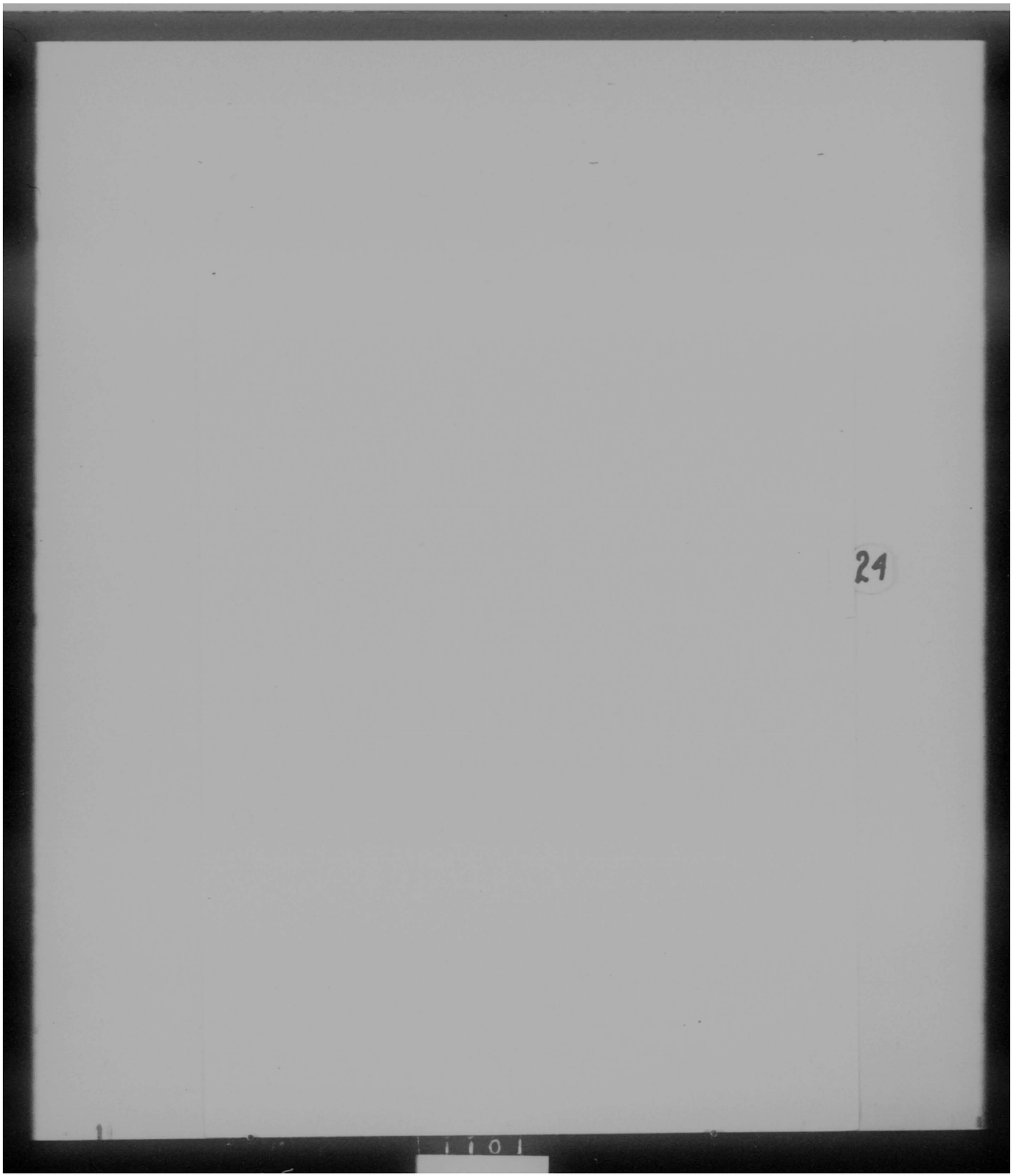

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

Classification SECRET
Auth: COMDR 376 BOMWG M
Initials: Wrigley
Date: 4 Feb 55

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4 February 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 January through 31 January 1955.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952.

(2) Percentage complete: 90%.

(3) Hours flown: 297:40.

(4) Present status: All testing has been completed on this project and the final report is being prepared for publication.

b. Test Project Number 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953.

(2) Percentage complete: 40%.

(3) Hours flown: None.

(4) Present status:

(a) A check on the receiver sensitivity throughout the tuning range was made. From this and previous sensitivity measurements, it was observed that receiver sensitivity decreases sharply at the high frequency end. Further investigation

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proved the decrease in sensitivity was due to the particular frequency change characteristics of the tuning capacitor.

(b) A conference with engineers of the WAC Engineering Company (the capacitor manufacturer) was held on 5 January 1955. The difficulties encountered with the capacitor were discussed and it was mutually agreed that WAC Engineering Company is not capable of constructing a tuning capacitor to meet our required specifications. The WAC Engineering Company has initiated a request to be relieved of the contract for the tuning capacitor.

(c) Several capacitor manufacturers were contacted and conferences have been scheduled for the early part of February. Several of the companies have indicated an interest in the contract.

(d) A new set of engineering drawings of the desired capacitor have been completed and reproduced in a quantity large enough to supply all prospective manufacturers. These drawings show the changes necessary from experiments with the WAC capacitor. A complete frequency change versus degree rotation chart was made for each section of the capacitor. If the charts are followed by the contractor, satisfactory tracking will be assured and a loaded "Q" of 15 will be obtained in the tuned stages.

c. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954.

(2) Percentage complete: 75%.

(3) Hours flown: 293:20.

(4) Present status:

(a) Mission Ten was flown on 25 January 1955. This mission was similar to Mission Nine except that B-36 aircraft from Eighth Air Force, Carswell Air Force Base, Texas, over-flew the corridor. Previously, only B-47 aircraft have been used.

(b) The chaff formation of 11 aircraft did not keep the proper two mile lateral spacing between aircraft; therefore, the corridor had long gaps. One of the middle aircraft aborted and the resultant gap did not close. The northern-most chaff aircraft was also out of position. This caused the formation of two narrow corridors instead of the intended single wide corridor.

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(c) Electronic jamming from the chaff sowing force was very effective against the MSQ-2 gun-laying radars, the SCR-270, and the AN/CPS-6 early warning radars. The electronic jamming aided greatly in allowing the chaff force to fly the entire 350 miles of the corridor with only one possible loss to fighters. It is pointed out that the flight plan and control time for beginning the corridor and crossing the coast line had been given to the GCI controllers several hours before the mission. The control time for the B-36 forces was not given to the controllers.

(d) The three flights of B-36 aircraft did not have any previous experience in over-flying a chaff corridor and did not stay over the heaviest concentration of chaff. Fighters were able to make four attacks on the last flight. Gun-laying radars tracked several of the aircraft as they flew in the gaps rather than over the chaff. No jamming of any type was used by the B-36 force.

(e) Detailed information on this mission will be forwarded in the Interim Report on Mission Ten.

d. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 52%.

(3) Hours flown: 26:00.

(4) Present status:

(a) The 376th Bombardment Wing is still awaiting the prototype Polaroid camera and periscope assembly from the photographic laboratory at WADC, Dayton, Ohio. This camera and periscope will mount on the indicator of the AN/APS-23 radar in the B-47E aircraft and will allow pictures to be taken of the indicator with either the Polaroid or the O-15 camera. This camera will enable the observer of the B-47 to navigate without continuous radar mapping and will therefore reduce the aircraft's susceptibility to passive detection and direction finding. The castings for the camera body have been completed and are now being machined. The remaining components of the camera are 40% complete and assembly should be completed by the middle of February.

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(b) Bench tests of the assembled camera will be conducted at WADC to determine the time required for proper film exposure and the optimum light intensity needed to photograph the information in the data box.

(c) A flight test has been scheduled for the last week in February so that the camera may be checked under actual operating conditions.

e. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 42%.

(3) Hours flown: 6:00.

(4) Present status:

(a) The experiments made by the project engineer at Eastman Kodak Company during the last part of December indicate that the use of an infrared technique is feasible for station keeping. It was demonstrated that the PAR-56-SP, 300 watt lamp, used as a beacon, could be detected at a distance of ten miles. The light output from the lamp, chopped at a 200 cycle per second rate, produced a signal to noise ratio of ten to one at this range. Chopping of the light source and use of a tuned detector enables reduction of unwanted interference. The detector used was the standard DOVE missile optics system with a lead sulphide cell. The equipment used in these experiments has been borrowed from Eastman Kodak Company and the U. S. Navy Bureau of Ordnance; additional tests will be conducted with it.

(b) Now that a range figure has been established for an infrared system, an analysis is being made of the degree of accuracy which should be built into the complete system. It is believed that sufficient accuracy can be obtained where the normal movements of the B-47 aircraft are the limiting factors. The results of the analysis will show what can be expected for any desired accuracy, what types of formations will be possible, and in what manner the complexity and cost might be affected by increased accuracy. The accuracies required for the various tactical formations to be flown must be determined before an experimental system can be designed.

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(c) Joint tests are being conducted during the last week of January at Holloman Air Force Base by 376th Bombardment Wing and ARDC, on their contract with Hughes Aircraft Corporation. They are also interested in obtaining the infrared radiation pattern of a B-47 aircraft in the air. In addition to the radiation pattern, they will determine the maximum detectable range of the B-47 with the GAR-1B Falcon seeker-head. This information will assist them in evaluating their infrared seeker when launched at different aspects toward a jet aircraft. The 376th Bombardment Wing will gain valuable information on the vulnerability of the B-47 to attack by heat seeking missiles and determine whether the infrared beacon for station keeping will increase the vulnerability of the aircraft to such an attack. The results of this test are expected to be available for the February U-30 report.

f. Test Project Number 31, "Operational Test of the QRC-4 VHF Communications Jammer".

(1) Date initiated: 26 November 1954.

(2) Percentage complete: 0%.

(3) Hours flown: None.

(4) Present status: No work was accomplished on this project because the equipment is not yet available. We are expecting delivery from Hallicrafters Company on or about 20 February 1955.

g. Auxiliary Test Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 53.

(2) Percentage complete: 50%.

(3) Hours flown: 33:28.

(4) Present status:

(a) It has been determined that the RC-127 ground interrogator-responsor of the Mark III IFF system is susceptible to VHF electronic jamming using the AN/ALT-7 transmitter. The exact ranges at which jamming is effective are difficult to evaluate from airborne tests in which the IFF response and the jamming vary. To minimize the variation in IFF response, tests are now being made which use the IFF equipment in a manner which maximizes IFF res-

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ponse. In this way, jamming effectiveness can be evaluated under conditions optimum for the IFF equipment.

(b) In the tests currently being conducted, the Mark III transponder is installed in a tower approximately eight miles from the ground station. A strong, steady return is obtained from the transponder. This not only simulates optimum IFF operation, but eliminates the variable of a moving transponder. The AN/ALT-7 jamming transmitters are installed in B-47 type aircraft which approach the ground station at operational altitude and attempt to obliterate the IFF return pulse. Effective jamming has been obtained with the jamming aircraft at distances up to 100 miles from the ground site.

h. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954.

(2) Percentage complete: 55%.

(3) Hours flown: 6:00.

(4) Present status:

(a) The design of the 12 oscillator-amplifier units which make up the barrage jammer is being directed to plug-in type units. A "breadboard" model of the plug-in units has been completed and tested for frequency range, power output, and component breakdown. Each plug-in unit will consist of two tubes mounted on an aluminum chassis measuring 5" x 1½" x 2". Twelve of these units and a noise modulator will be mounted in a standard ATR rack. The noise modulator will be the AN/APT-5A noise strip modified for higher power output. The noise strip modification consists of replacing the four 807 modulator tubes with type 6146 tubes.

(b) A new power supply for the barrage transmitter was completed. This power supply has a higher current capability than the one previously used and will deliver 450 volts at 1.6 amperes. The 12 barrage units will use about 1.2 amperes. This will leave 400 milliamperes as a safety factor. There is no increase in size or weight of the new power supply over that of the old supply.

i. Auxiliary Test Project Number 14, "Modification for 'L' Band AN/APT-5A and AN/APT-9 Sweep Jamming".

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(1) Date initiated: February 1954.

(2) Percentage complete: 50%.

(3) Hours flown: None.

(4) Present status: An interim report is being prepared on this project.

j. Auxiliary Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 and AN/ALT-8 ECM Systems".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 71%.

(3) Hours flown: 146:25.

(4) Present status:

(a) Ten AN/ALT-8 sweep motors have been received from Raytheon on an exchange basis. These motors are constant speed motors and operate at a speed of 280 RPM.

(b) Two AN/ALT-8's modified by installation of the slow speed motors, and four AN/ALT-6's were installed in a B-47 aircraft and flown on 31 January 1955. These installations also used Styroflex RF transmission lines (Auxiliary Project 29) and a new diamond-shaped antenna (Auxiliary Project 31). Although results of this mission have not been analyzed, it appears that the modified ALT-8's and the new transmission lines and antennas will prove operationally satisfactory.

(c) Extensive testing of these items will be conducted during the month of February.

k. Auxiliary Test Project Number 18, "Development of a Sweep Jammer using a VHF Increductor".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 40%.

(3) Hours flown: None

(4) Present status:

(a) Work on improvement of the Increductor VHF transmitter was continued. The control circuit was improved to some extent by the addition of resis-

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tance in series with the control windings to protect the control tubes from overload. This method will be used until a low voltage transformer for the control power supply is obtained.

(b) An antenna matching transformer was made from five turns of a B and W 3010 Miniductor coil. When checked with the AT-190/AP antenna in the laboratory, results were very good. The VSWR was below two between 90 and 140 megacycles and power output was above 55 watts.

(c) On a recent trip to Johns Hopkins University, test personnel obtained some information on their VHF Increductor project. They expressed interest in our project and agreed to an exchange of information. Operational curves are being plotted on the transmitter so that more information on the two projects may be exchanged.

(d) The loaded "Q" of the Increductor was measured and found to be quite low. At 100 megacycles, the "Q" is five. There is a gradual increase to a "Q" of about nine at 150 megacycles.

l. Auxiliary Test Project Number 22, "Effectiveness Test of VHF Jammer AN/ALT-7".

(1) Date initiated: 12 July 1954.

(2) Percentage complete: 100%.

(3) Hours flown: 26.

(4) Present status: The final report on this test project has been completed and the project will no longer be reported.

m. Auxiliary Test Project Number 22, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954.

(2) Percentage complete: 85%.

(3) Hours flown: N/A.

(4) Present status: Final tests on these antennas will be conducted when the depot manufactured matching sections are obtained. It is expected that 30 matching sections for the 40½ inch whip antenna (AT-XA214/AP) will be received early in February. Eventually, there will be

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150 of these matching sections. There will also be 150 of the matching sections for the 54½ inch whip antenna (AT-XA213/AP) and the 30½ inch whip antenna (AT-XA212/AP).

n. Auxiliary Test Project Number 24, "Effectiveness Test of QRC-8".

(1) Date initiated: 2 October 1954.

(2) Percentage complete: 70%.

(3) Hours flown: 60:25.

(4) Present status:

(a) Two simulated penetration missions were flown this month using QRC-8 transmitters installed in B-47 aircraft of the 376th Bombardment Wing. Both missions were flown against the GCI site at Perrin Air Force Base, Dennison, Texas. KC-97 aircraft of the 376th Bombardment Wing, directed by the GCI site, were used to simulate interceptors. Use of these aircraft provided the necessary transportation of air observers and instrumentation to gather test data. The GCI control station used was a BC-610I transmitter with 500 watts input to the final amplifier. A 20 foot vertical whip antenna, loaded to 7.4 amperes of RF current, was used. The operating frequency was 4397.5 kilocycles.

(b) On the first mission, 14 January, it was intended that five B-47 aircraft equipped with QRC-8 transmitters, operating over the band of from 3.5 to 5.0 megacycles, would make four penetration runs against Perrin Air Force Base. Each penetration was from a point approximately 150 nautical miles east of the radar site. The three KC-97 aircraft, simulating the interceptors, were spaced so that intercept points would be approximately 40, 70 and 100 nautical miles east of Perrin Air Force Base. One B-47 aircraft aborted on the first run because of engine failure. Post-flight inspection revealed that only two of the four remaining QRC-8 transmitters were operational throughout the mission. Of the 12 attempted intercepts, three were clear misses which could be attributed to jamming; three were good intercepts where jamming was so poor as to have little or no

1110

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effect. On the other six, effective jamming was obtained at ranges of from 50 to 100 miles and separations of from 15 to 20 miles, which would probably have prevented intercept by AI equipped fighters at night. As actually occurred, however, visual contact was made on these runs--sometime prior to and after jamming--by having the aircraft continue on the last understood vector.

(c) The second mission was flown against Perrin Air Force Base on 25 January. The same ground equipment was used and three KC-97 aircraft, directed from the GCI site, were used as interceptors. Twelve B-47 aircraft with eight QRC-8 transmitters installed made the penetration from Barksdale Air Force Base. Seven of the eight QRC-8 transmitters were operated during the mission. The remaining QRC-8 was inoperative because of bad wiring in the antenna relay. No intercepts were made on this mission and effective jamming was obtained at separation distances of approximately 40 miles. No communications were possible for separations of less than approximately 40 miles at ranges down to approximately 38 miles from the ground site.

(d) All B-47 aircraft of the 376th Bombardment Wing are now equipped with the 70'10" long wire antenna. This antenna may be used with either the QRC-8 or the Collins 18S4 communications set by means of the automatic antenna switching system.

(e) Douglas Aircraft Company has completed delivery of the 50 fiberglass antenna tuning capacitor covers. Nineteen of the tuning capacitors have been installed and the remaining 26 are being installed. All QRC-8 aircraft installations should be completed during the month of February.

(f) Twenty-one QRC-8 transmitters have been received from the Hallicrafters Company after being modified to improve high altitude operation. These transmitters were used on the 25 January mission. Testing has shown that frequency stability versus temperature rise varies from about zero KC drift to as much as 800 KC drift before frequency stability is reached. A&E personnel will be instructed to attempt adjustment for reducing drift to a maximum of 300 KC. Tests have not as yet been performed on the modified equipments to determine their altitude capabilities.

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o. Auxiliary Test Project Number 25, "Structural Suitability of Stub Antennas".

(1) Date initiated: 1 July 1954.

(2) Percentage complete: 90%.

(3) Hours flown: 1306:42.

(4) Present status:

(a) The two AT-190B antennas filled with "Eccofoam FP" have a total of 199:00 hours of flight time. One antenna has 96:00 hours and the other has 103:00 hours. No cracks have formed in the antenna shells; however, the antenna bases have the same loose condition as reported previously. Previous flight tests have proven that the looseness of the base is not aggravated by additional flight time. These antennas are being retired from flight test.

(b) The knife-edge, thin, solid stub antenna, a laboratory model produced by the Federal Telephone and Telegraph Company, has 43:00 hours of flight time. No defects are noted in this antenna. Flight tests with this antenna will be continued.

(c) The laminated plastic UHF stub received from WADC has 82:00 hours of flight time. The antenna is in good condition and flight tests will continue.

(d) A mesh reinforced plastic stub similar to the AT-190B antenna has 103:00 hours of flight time. No defects were noted in this antenna. Flight tests will be discontinued and the antenna will be returned to WADC for their inspection and evaluation.

(e) The four thin AT-190B antennas received from WADC have a total of 316:00 hours of flight time (79 hours each). Except for a slight looseness at their bases, these antennas are in good condition. Flight tests will be discontinued and the antennas returned to WADC for their inspection and evaluation.

p. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54"

(1) Date initiated: 1 June 1954.

(2) Percentage complete: 65%.

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(3) Hours flown: 18:00.

(4) Present status: Additional testing of this equipment has been delayed awaiting correction of faulty aircraft cable installations and action on UR's submitted during the months of October and November 1954.

q. Auxiliary Test Project Number 27, "A B-47 ECM Configuration Study".

(1) Date initiated: 20 September 1954.

(2) Percentage complete: 25%.

(3) Hours flown: N/A.

(4) Present status: There have been no new developments since the last report.

r. Auxiliary Test Project Number 28, "Testing of RG-117/U, RF Transmission Line".

(1) Date initiated: 1 November 1954.

(2) Percentage complete: 90%.

(3) Hours flown: N/A.

(4) Present status: Completion of tests will be accomplished when Auxiliary Project #29 is finished. All laboratory tests have been concluded except final comparison tests between RG-117/U and the "Styroflex" cable.

s. Auxiliary Test Project Number 29, "Testing of 'Styroflex' RF Transmission Line".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 60%.

(3) Hours flown: N/A.

(4) Present status: All laboratory tests are complete. The new connectors have been machined, installed and tested. Flight tests were scheduled for 31 January, and 4, 9, 14, 17, 23, and 28 February. For these tests, 20 feet of double braid "Styroflex" cable and 20 feet of aluminum clad "Styroflex" cable were purchased.

t. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

1113

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(1) Date initiated: 10 November 1954.

(2) Percentage complete: 90%.

(3) Hours flown: N/A.

(4) Present status: Negotiations for a contract with Communications Products Company of Freehold, N.J., were initiated for the manufacture of the new low loss connectors. Their bid was considered excessive so the connectors were fabricated in the Base Machine shops and silver-plated locally. These connectors have been installed on cables and will be flight tested on the flights of Auxiliary Test Project #29.

u. Auxiliary Test Project Number 31, "Design of Antenna for 2700-3600 Megacycles".

(1) Date initiated: 12 November 1954.

(2) Percentage complete: 42%.

(3) Hours flown: N/A.

(4) Present status:

(a) Tests on the large ground plane showed the diamond shaped prototype antenna to be acceptable from 700 to 4000 megacycles.

(b) A trip was made to the Air Force Cambridge Research Center in order to make radiation patterns. These were found to be as the theoretical computations had indicated.

(c) Six of these antennas are now being constructed and will be utilized on the flight tests of Auxiliary Test Project #29.

v. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

(1) Date initiated: 1 September 1953.

(2) Percentage complete: 100%.

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status: One more cradle hoisting beam has been broken since the last report. The failure was caused by improper loading procedure.

1114

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w. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

(1) Date initiated: 1 December 1954.

(2) Percentage complete: 50%.

(3) Hours flown: None.

(4) Present status:

(a) The relay boxes were fabricated and wired. Laboratory tests were made on the operation of the relays with the AN/APS-54 and AN/ALE-1 chaff dispenser.

(b) Flight testing of this project will be made in conjunction with tests on Auxiliary Test Project #26.

x. Auxiliary Test Project Number 34, "ARC-27 Antenna Installation, Modification and Evaluation".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 100%.

(3) Hours flown: 47:00.

(4) Present status:

(a) The flight evaluation of the two modifications has been completed. The results of all tests were satisfactory on both type installations.

(b) Considering the merits of both modifications, the radome modification was chosen as the one to be used. Materials were procured and the radomes are being fabricated by our laboratory. To date, 12 radomes have been completed and installed on the aircraft. Five of the aircraft with radomes installed participated in a Project #27 mission on 25 January. No UHF communication malfunctions were reported by these aircraft.

y. Auxiliary Test Project Number 35, "Operational Test of Converter CRC-9".

(1) Date initiated: 3 January 1955.

(2) Percentage complete: 5%.

(3) Hours flown: None.

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(4) Present status:

(a) The QRC-9 is an experimental equipment designed to convert signals in the "X" band frequency range to "S" band. The converter uses a traveling-wave tube as a wide band amplifier and a klystron as a local oscillator.

(b) Tests show that the QRC-9, when used with an S-121 rapid scan receiver, will provide spectrum search of the "X" or "S" bands, either separately or simultaneously.

(c) Future tests will be made to determine if the above equipment, plus an S-131 intercept receiver, will provide direction finding on "X" band.

FOR THE COMMANDER:

WILLIAM H MURPHY
Major, USAF
Adjutant

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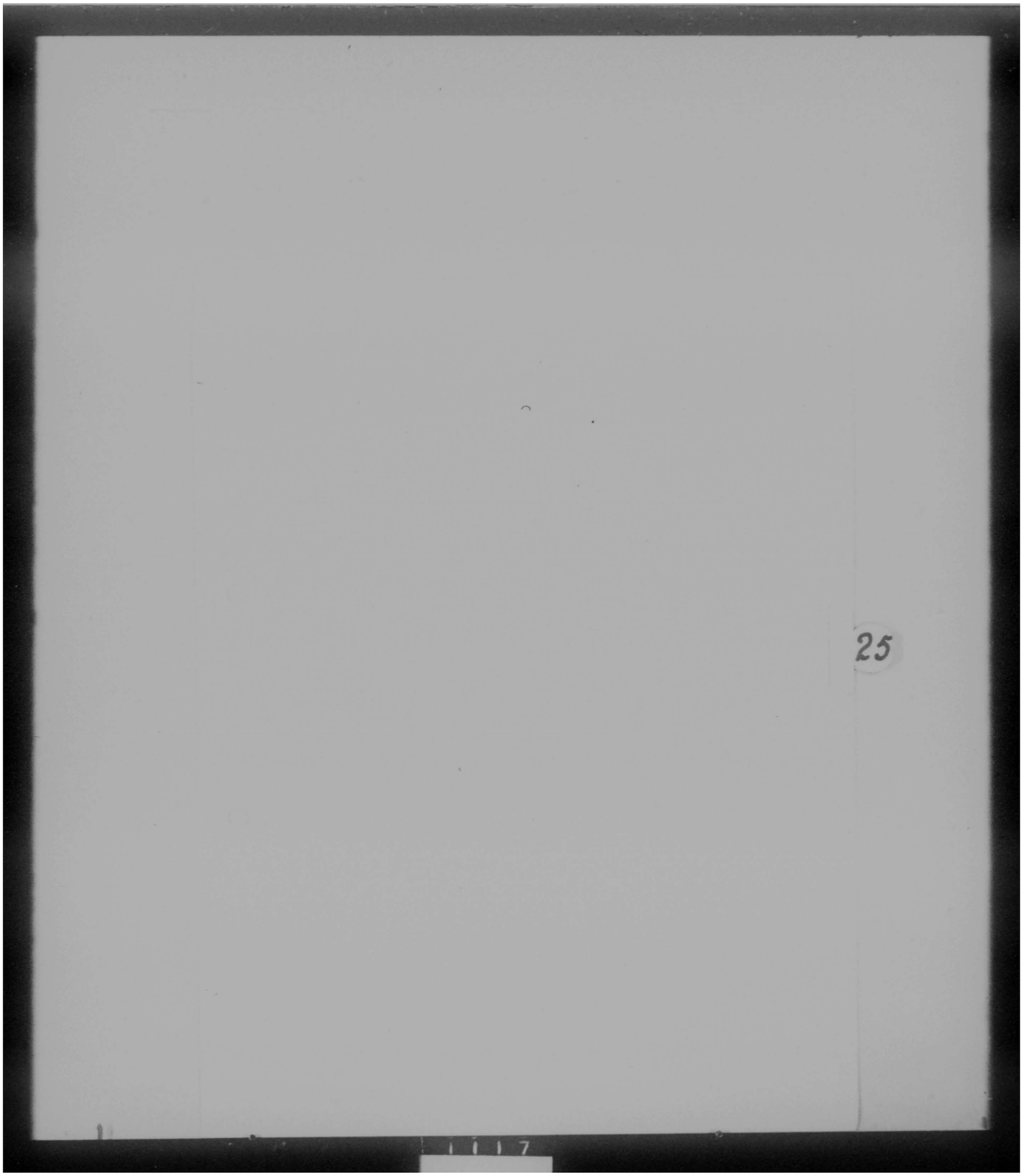

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Auth: COMDR 376 BOMWG M
Initials:
Date: 8 March 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT 7 March 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 February through 28 February 1955.

2. The status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952.

(2) Percentage complete: 100%.

(3) Hours flown: 297:40.

(4) Present status: The final report on this project has been completed and is being prepared for printing.

b. Test Project Number 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953.

(2) Percentage complete: 41%.

(3) Hours flown: None.

(4) Present status:

(a) Since the WAC Engineering Company, Dayton, Ohio, is unable to build the tuning capacitors to specified requirements, action was taken to find a manufacturer capable of performing the job. The

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1118

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entire capacitor problem was discussed with the following companies: Radio Condenser, Hammarlund Manufacturing, Johanson Manufacturing, and Cardwell Capacitor; to date the Radio Condenser Company and Cardwell Manufacturing Company have expressed a desire to negotiate a contract for the development of this equipment. Some compromise in our specifications will have to be made, but it is believed that a satisfactory unit can be constructed.

(b) A modulator for the transmitter has been constructed without the identification device installed. The removal of this device was necessary due to the lack of a modulation transformer capable of passing the supersonic tone required for operation of the device.

(c) On 1 March personnel from this Wing will visit the Navy Bureau of Aeronautics, Washington, D.C., to obtain information on the APQ-33. This jammer is capable of operating as a search-and-lock-on jammer in the 100 to 200 megacycle frequency band. Discussions will be held with the Navy project engineers regarding completed laboratory and flight tests of this equipment.

c. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954.

(2) Percentage complete: 75%.

(3) Hours flown: 293:20.

(4) Present status:

(a) The interim report on Mission Ten flown 25 January will be forwarded as soon as the scope photo negatives and logs are available from the Air Force Operational Test Center at Eglin Air Force Base, Florida. They are writing a final report on Project SAE-116-A-1, thereby causing delay in the release of photographs and logs.

(b) Two random chaff missions have been planned for 3 and 15 March respectively. Range times have not yet been approved by the Air Proving Ground Command.

(c) A chaff corridor mission is planned for 9 March 1955, and a mission planning conference was held 23 February between the 11th and the 376th Bombardment Wings. Twelve B-47 and nine B-36 air-

1119

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craft will participate in the mission, which will be similar to the mission of 25 January 1955. The first flight of B-36 aircraft will make bomb runs out of the chaff corridor, and the second flight will perform electronic jamming while over-flying the chaff corridor.

d. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 52%.

(3) Hours flown: 26:00.

(4) Present status:

(a) The 376th Bombardment Wing is still awaiting the prototype Polaroid camera and periscope assembly from the photographic laboratory at WADC, Dayton, Ohio. This camera and periscope will mount on the indicator of the AN/APS-23 radar in the B-47E aircraft, replacing the present periscope used with the O-15 camera, but still providing the O-15 capability. The camera will reduce the aircraft susceptibility to passive detection and direction finding by allowing the observer to navigate without continuous radar mapping of the terrain. The camera and periscope have been completed and assembled. Bench tests are being conducted at the present time to check the mirror system and determine the number of sweeps necessary for obtaining correct exposure.

(b) The project engineer will visit the photographic laboratory at WADC the first week in March to observe the bench tests and determine when the camera can be obtained for testing in a 376th Bombardment Wing B-47 aircraft.

(c) After the camera has been mounted on the AN/APS-23 indicator in the B-47, it will be checked for accessibility of controls and static operation. If the static tests are satisfactory, several flight tests will be conducted so that the camera can be tested under actual operating conditions.

e. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 45%.

1120

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(3) Hours flown: 9:00.

(4) Present status:

(a) Tests were conducted at Holloman Air Force Base, New Mexico, by the 376th Bombardment Wing and the Hughes Aircraft Corporation during the latter part of January. The purpose of these tests was to determine the radiation pattern of a B-47 aircraft and the effect of a 300-watt beacon on an infrared seeking missile. The data obtained will not be completely reduced and available for another month or two.

(b) The following qualitative results were observed during the tests which were conducted at an altitude of 10,000 feet with the aircraft within 500 feet altitude of each other. The B-47 aircraft is vulnerable to attack from the rear by missiles of the Falcon GAR-1B type. Sufficient infrared radiation was obtained to maintain lock for ranges of approximately ten to 20 miles, depending on whether the aircraft was operated at 86% or 100% power setting. No significant radiation was apparent from head-on runs. The effect of the 300-watt beacon compared with the aircraft radiation in the rear quadrant appeared insignificant.

(c) A preliminary analysis of the accuracy required for the infrared station keeping system indicates that an optical system with approximately 0.2 degree resolution is required, and that the equipment will have to be mounted on a stabilized platform which will remain truly vertical within plus or minus six minutes of arc. During a visit to the Eastman Kodak Company it was determined that the required resolution could be obtained with a focal length on the order of ten inches. The Control Engineering Company, Norwood, Massachusetts, and the W. L. Maxson Company, New York City, both felt they could adapt their present stable vertical platforms to the infrared equipment and provide the required accuracy.

(d) The beacon design problem was discussed with the General Electric Lamp Division, Cleveland, Ohio. No immediate solution is apparent, however, a conference has been set for 4 March 1955 between the project engineer, the General Electric Company, and the Grimes Manufacturing Company, to discuss possible solutions requiring a minimum of new development.

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(e) An interim report is being prepared on the present status of this project. The report will describe the completed system and the capability which can be expected.

f. Test Project Number 31, "Operational Test of the QRC-4 VHF Communications Jammer".

(1) Date initiated: 26 November 1954.

(2) Percentage complete: ~0%.

(3) Hours flown: None.

(4) Present status: There will be an indefinite delay in the production of the first QRC-4 transmitters. This project will not be reported on until the transmitters are received.

g. Auxiliary Test Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953.

(2) Percentage complete: 80%.

(3) Hours flown: 33:28.

(4) Present status: The final report on this project was being prepared during February; however, in view of recently received intelligence data, additional tests are contemplated. These tests should be completed during March 1955.

h. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954.

(2) Percentage complete: 55%.

(3) Hours flown: 6:00.

(4) Present status:

(a) Work on the construction of the 12 oscillator-amplifier units which make up the barrage jammer has been held up temporarily pending arrival of the tuning capacitors. The Hammarlund Manufacturing Company, who makes the condensers, has given a delivery date of 4 March 1955.

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(b) Some work has been done on the main chassis layout. It will consist essentially of a deck, a number of receptacles and interconnecting wiring. The 12 oscillator-amplifier stages and the noise modulator will be interchangeable plug-in type units.

(c) A prototype of the oscillator-amplifier units has been built and the 12 required for the jammer will be started as soon as the tuning capacitors are received.

i. Auxiliary Test Project Number 14, "Modification for 'L' Band AN/APT-5A and AN/APT-9 Sweep Jamming".

(1) Date initiated: February 1954.

(2) Percentage complete: 50%.

(3) Hours flown: None.

(4) Present status: An interim report is being prepared on this project.

j. Auxiliary Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 and AN/ALT-8 ECM Systems".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 75%.

(3) Hours flown: 161:55.

(4) Present status:

(a) Five B-47 sorties were flown during February, three were against the FPS-10 radar at Bartlesville, Oklahoma, one against the MSQ-2 bomb scoring radar at Little Rock, Arkansas, and one against four AN/MPQ-16 radars (Modified SCR-584) at Fort Bliss, Texas. The results of these missions are discussed under Auxiliary Project 29.

(b) Results of tests covering the AN/ALT-6 indicate that for any band to be covered, a sweep speed of 20 megacycles per second is the most effective. This is true when the AN/ALT-6 is used singly or in combinations against a radar complex consisting of gun-laying and EW/GCI "S" band radars.

(c) The speed of the AN/ALT-8 fast sweep motors, as reported last month, was in error. Speed of these new motors is constant at 180 RPM. This speed has proven to be more satisfactory than the speed of the former fast sweep motors.

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k. Auxiliary Test Project Number 18, "Development of a Sweep Jammer using a VHF Increductor".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 45%.

(3) Hours flown: None.

(4) Present status:

(a) Considerable time has been spent on the design of an adequate Increductor control circuit. The low resistance of the Increductor control windings makes a high current power supply necessary. Two new transformers have been ordered for this purpose.

(b) A search-and-stop circuit utilizing a phanastron is being tested as the possible answer to the search-and-lock-on feature of the jammer. A circuit was built using a 6AS6 as a phanastron and a 6AL5 as a diode stopper. The sawtooth output of the circuit will be coupled through DC amplifiers to the control winding of the Increductor. This circuit might also be used to control a search-and-lock-on receiver to be used with the transmitter. Information on Increductor tests has been received from Johns Hopkins University which will aid in designing circuits for use with the Increductor.

l. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954.

(2) Percentage complete: 90%.

(3) Hours flown: N/A.

(4) Present status:

(a) Final tests on the 70 megacycle whip antenna are awaiting receipt of matching sections being manufactured by SAAMA. Thirty of these sections have been received for antenna AT(XA-214)AP (54½" Whip). It was erroneously reported last month that these sections were for the 40½" whip, which is the AT(XA-213)AP.

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(b) SAAMA advised that 150 matching sections for the XA-213 and XA-214 whips will not be completed until 17 March 1955.

m. Auxiliary Test Project Number 24, "Effectiveness Test of QRC-8".

(1) Date initiated: 2 October 1954.

(2) Percentage complete: 80%.

(3) Hours flown: 179:04.

(4) Present status:

(a) One simulated penetration mission was flown this month using QRC-8 transmitters installed in B-47 aircraft of the 376th Bombardment Wing. This mission was flown against the GCI site at Perrin AFB, Texas. KC-97 aircraft of the 376th Bombardment Wing, directed by the GCI site, were used to simulate interceptors. Use of these aircraft provided the necessary transportation of air observers and instrumentation to gather test data. The GCI control station used was a BC-610I transmitter with 500 watts input to the final amplifier. A 20 foot vertical whip antenna, loaded to 72 amperes of RF antenna current, was used. The operating frequency was 4320 KC.

(b) On this mission of 17 February it was intended that 12 B-47 aircraft, equipped with QRC-8 transmitters operating over the band from 3.5 to 5.0, would make two penetration runs against Perrin Air Force Base, Texas. Each penetration was from a point 150 NM from the radar site. Run #1 was an east to west run. Run #2 was a west to east run. The three KC-97 aircraft simulating the interceptors were spaced so that intercept points would be approximately 40, 70, and 100 NM from the radar site.

(c) Only ten B-47 aircraft arrived in the mission area. Post-flight inspections revealed that of the ten QRC-8 installations, seven were operational, two worked with weak output, and one was completely dead. On the first penetration only one KC-97 had communications with the radar site on HF, the other two could not find the GCI controller's frequency. This was due to the ground station being off frequency. The one KC-97 with communications noted a Condition Four of jamming when 15 NM away from the bomber force at a time

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when the bombers were 80 NM from the GCI site. When the second penetration run was started, all three KC-97 aircraft had communications with the GCI site and three successful jamming runs were obtained. Separation distances for a Condition Four of jamming varied from 15 NM at 60 NM from the GCI site up to 70 NM separation when the bombers were 90 NM from the GCI site. Visual contact was made on three of the four runs as a result of the KC-97 aircraft following the initial vector given. Had the GCI controller not known the track, altitude, speed and IP time of the bomber force, this probably would not have occurred.

(d) At present there are 32 B-47 aircraft with complete QRC-8 installations. Completion of the remaining aircraft was delayed by late delivery of antenna tuning capacitors from Douglas Aircraft Company.

(e) All antenna switching relays are being modified to prevent breakage. Ten relays have been modified to date.

(f) A maintenance class consisting of 25 students from the 376th Armament and Electronics Squadron completed a four-day course of instruction in theory and maintenance of the QRC-8. Approximately 50 additional students must be trained.

n. Auxiliary Test Project Number 25, "Structural Suitability of Stub Antennas".

(1) Date initiated: 1 July 1954.

(2) Percentage complete: 90%.

(3) Hours flown: 1306:42.

(4) Present status: There are only two stub antennas now being tested, both of which are special antennas received from WADC. Following is the flight time and performance information of each:

(a) The knife-edge, thin, solid stub antenna, a laboratory model produced by the Federal Telephone & Telegraph Company, has 47:15 hours of flight time. No defects in this antenna have been noted.

(b) The laminated plastic VHF stub has 115:15 hours of flight time and is still in good condition.

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o. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

(1) Date initiated: 1 June 1954.

(2) Percentage complete: 70%.

(3) Hours flown: 20.

(4) Present status:

(a) Corrective action has not yet been taken at higher echelon on the faulty aircraft cable installation described in previous reports. Operational suitability tests have been resumed, however, utilizing those aircraft on which the cables have not yet deteriorated.

(b) On 9 February 1955 two B-47 aircraft made six test runs, converging nose-on and passing over and under. Aircraft #1 simulated a fighter aircraft by operating the APS-23 radar in sector scan, dead ahead, with the antenna tilted up at the maximum angle and with high PRF (800 pps). The APG-32 was in search operation. The APS-54 in aircraft #2 was pre-flighted and set at maximum sensitivity with "Min PRF" set at 500 and the "Delay" switch "Out".

(c) Various altitude separations were flown to insure that aircraft #2 passed through the cone of radiation from both radar sets on aircraft #1. This circumstance did occur since aircraft #2 was visible on both radar scopes in aircraft #1.

(d) On only one run did the APS-54 give any indication of the other radars. At that time the tail indicator light was illuminated intermittently for approximately one minute while in the cone of radiation of the APG-32 radar.

(e) At the conclusion of the test the APS-54 receiver was inspected and no discrepancies were noted. No reason has been determined for the failure of the APS-54 to function on the other five runs.

(f) It has been decided that the APS-54 nose video cable and K-system blanking cables are shorting out at a point under the co-pilot's catwalk where they pass the cabin heat spill valve. The maximum temperature to be expected here is 495° F. The maximum temperature under which

1127

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the polyetheline dielectric of the cable (RG-714) is usable is 212° F. As of 23 February 1955, 39 out of 45 APS-54 cable installations have failed. Unsatisfactory reports have been submitted.

(g) Because of the impossibility of completing valid tests on the equipment at this time, the percentage for completeness of the test has been re-assessed at 40%.

p. Auxiliary Test Project Number 27, "A B-47 ECM Configuration Study".

(1) Date initiated: 20 September 1954.

(2) Percentage complete: 25%.

(3) Hours flown: N/A.

(4) Present status: Several months ago SAC, WADC, ARDC, AMC and USAF were briefed on this project. The 376th Bombardment Wing is not contemplating any further action unless requested by higher headquarters.

q. Auxiliary Test Project Number 28, "Testing of RG-117/U, RF Transmission Line".

(1) Date initiated: 1 November 1954.

(2) Percentage complete: 95%.

(3) Hours flown: N/A.

(4) Present status: Completion of tests will be accomplished when Auxiliary Project 29 is finished. All laboratory tests have been concluded except final comparison tests between RG-117/U and the Styroflex cable.

r. Auxiliary Test Project Number 29, "Testing of Styroflex RF Transmission Line".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 65%.

(3) Hours flown: 15½.

(4) Present status:

(a) The following flight tests were made utilizing the new Styroflex cable:

1. One local flight to measure pattern of radiation (four hours).

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2. One flight against gunlaying equipment at Ft Bliss Artillery Center, Texas (one hour).

3. Two flights against GCI radar at Bartlesville, Oklahoma (nine hours).

4. One flight against RBS site at Little Rock, Arkansas (one and a half hours).

(b) All flights gave outstanding results despite the failure of a number of transmitters due to mechanical faults in the sweep mechanisms. The results obtained over the standard setup were roughly evaluated at 35% more effective.

(c) A trip was made to Ft Monmouth, N.J, when it was discovered that the Army Signal Corps was utilizing Styroflex cable in countermeasure systems. The results and general conclusions of the Signal Corps concerning the cable are similar to those of this organization, i.e., that it is the best obtainable at this time. Additionally, they have given consideration to the cable's unusual second pass band characteristics. This remarkable phenomenon not found in other cables is due to the helical membrane method of supporting the inner conductor. The air gap formed by the pitch of the membrane and its size determines, in conjunction with dielectric constant of the membrane, a composite transmission mode. The mode allows the cable to be used in some region higher than the normal attenuation cut off point. This indicates the possible use of the cable as a filter, rejection device, and limited transmission line over the secondary frequency range.

s. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

(1) Date initiated: 10 November 1954.

(2) Percentage complete: 95%.

(3) Hours flown: 15½.

(4) Present status:

(a) The connectors mentioned in the January report were used on the flights listed under Auxiliary Project 29 above. During the visit to Ft Monmouth, N.J., these connectors were inspected by Signal Corps personnel and pronounced as good as the state of the art permits for the particular intended use.

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(b) A few minor modifications are planned to provide slight increases in efficiency.

t. Auxiliary Test Project Number 31, "Design of Antenna for 2700 - 3600 Megacycles".

(1) Date initiated: 12 November 1954.

(2) Percentage complete: 45%.

(3) Hours flown: 15:30.

(4) Present status: The six diamond shaped prototype antennas mentioned in the report for January 1955 were used in the flight tests described in Auxiliary Project 29. There were two mechanical failures, each of which involved failure of the central coaxial conductor receptacle to make good contact. This was not regarded as unusual inasmuch as the receptacles had been formed of ordinary brass stock because spring brass was not immediately available. These failures will not occur under normal conditions.

u. Auxiliary Test Project 32, "Suitability Test of Blue Cradle".

(1) Date initiated: 1 September 1953.

(2) Percentage complete: 100%.

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status:

(a) There is a possible requirement for installing six chaff intervalometers on the cradle for use with the ALE-1 chaff dispenser. This installation is being investigated.

(b) A mechanical safety link for cradle hoisting is also being investigated to prevent the cradle from falling and injuring personnel in case of any future beam failures.

v. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

(1) Date initiated: 1 December 1954.

(2) Percentage complete: 55%.

(3) Hours flown: 3:00.

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(4) Present status:

(a) Laboratory bench tests have proved that the automatic chaff dispenser control will operate satisfactorily. In preparation for flight tests the relay control units were installed in three aircraft. Installation of the system requires approximately two and a half manhours. A pre-flight test can be made in conjunction with the normal AN/APS-54 preflight, requiring a few extra minutes.

(b) Two flight tests have been made and neither test produced the desired results because at no time during either test were both warning lights of the AN/APS-54 lighted. The success of this project hinges entirely on the correction of several unsatisfactory conditions which now exist in the AN/APS-54 installations. Further flight testing will be delayed until these corrections are made. (See Auxiliary Test Project 26 above).

w. Auxiliary Test Project Number 34, "ARC-27 Antenna Installation, Modification and Evaluation".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 100%.

(3) Hours flown: Twelve aircraft with radome installed have been operational since 25 January 1955.

(4) Present status:

(a) A total of 44 radomes have been fabricated by this laboratory out of fiberglass. The radome satisfactorily protects the UHF antenna from interference by chaff dispensed from the cradle. It produces no significant change in the antenna radiation pattern.

(b) These radomes are being installed at a rate of four per day during the down time of any particular aircraft. All radomes have been periodically inspected and show no apparent defects.

x. Auxiliary Test Project Number 35, "Operational Test of Converter QRC-9".

(1) Date initiated: 3 January 1955.

(2) Percentage complete: 85%.

(3) Hours flown: None.

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(4) Present status:

(a) Tests on the QRC-9 used in conjunction with an S-121 Rapid Scan Receiver are near completion and the final report is being prepared.

(b) Due to non-availability of an S-131 Intercept Receiver, the QRC-9 was not tested for direction finding on "X" band; however, the video detector and pre-amplifier box associated with this capability were tested by other means and found to be essentially flat, with a sensitivity between 40 to 45 DB below one milliwatt.

(c) One operational test was made of the QRC-9 in conjunction with the S-121 receiver. An AN/ALT-6 transmitter was operated in a remote location. After connecting an S-band antenna to the QRC-9, a fixed signal or a sweeping signal could be received.

(d) A test was run to determine if the signal output from the converter portion of the QRC-9 would be sufficient to feed into the S-121 receiver and thus receive "X" band signals. The traveling wave tube was by-passed; the signal for the S-121 receiver was taken directly from the mixer through the low-pass filter. The "X" band output from the QRC-9 was found to be from 0 DB to 10 DB greater when the traveling wave tube was used than when the signal was taken directly from the mixer. This indicates that a maximum gain of approximately ten is realized in the TWT when the QRC-9 is used for "X" band reception.

y. Auxiliary Test Project Number 37, "Barrage Jamming Modifications of AN/ALT-6 and AN/ALT-8".

(1) Date initiated: 20 January 1955.

(2) Percentage complete: 15%.

(3) Hours flown: None.

(4) Present status:

(a) The basic idea of this project is to widen the sidebands of the AN/ALT-6 transmitter. This allows the transmitter to "cover" a wider portion of the spectrum, which is accomplished, however, at the expense of peak power.

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(b) Members of the SAC Ad Hoc Committee indicated that representatives from both General Electric Corporation and Lyton Manufacturing Company had stated the output signal from the AN/ALT-6 magnetron might be increased in bandwidth to approximately 30 megacycles.

(c) A study was made of the AN/ALT-6 schematic and it was proposed that the magnetron be "padded" by a condenser. This would produce a "squegging" oscillator effect capable of producing harmonic rich sidebands, or in effect, frequency modulation within the limits of the magnetron bandwidth at a particular frequency setting.

(d) Physical inspection of the AN/ALT-6 revealed that there is adequate space within the transmitter to allow the modification to be made; therefore, parts were ordered and should arrive within a few days.

(e) A preliminary bandwidth test was made at 2805 megacycles. This showed a complete width of 2769 to 2825 megacycles. Test was made under the optimum conditions of the magnetron directly feeding the open air. As this shows a spectrum of 56 megacycles width, the statement by the manufacturers mentioned in paragraph "b" above must refer to the half power points. Present half power points are $6\frac{1}{2}$ megacycles each side, or a total of 13 megacycles.

z. Auxiliary Test Project Number 39, "Crystal Video System Jamming Homer".

(1) Date initiated: 24 January 1955.

(2) Percentage complete: 15%.

(3) Hours flown: None.

(4) Present status:

(a) An AN/ARD-9(XA-2) crystal video direction finder has been received from WADC. This is now undergoing bench tests prior to being installed in a T-33 aircraft.

(b) The objective of the flight test is to determine if it is possible to home in on a jamming signal. If possible, some tactic or technique must be utilized to eliminate this condition.

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aa. Auxiliary Test Project Number 41, "X Band Transmission Line and Antenna".

(1) Date initiated: 1 February 1955.

(2) Percentage complete: 15%.

(3) Hours flown: None.

(4) Present status: Work accomplished on this project consists only of preliminary literary research on transmission lines and mathematical calculations on antennas. Use of the second pass band of the Styroflex cable as a transmission line has been considered, but attenuation measurements and bandwidths for various cables have not yet been measured. It is fairly certain that a scaled down version of the dieletric loaded transmission line antenna, or "diamond" antenna, will be used.

bb. Auxiliary Test Project Number 42, "Development of a Chaff Tape Cutter".

(1) Date initiated: 7 February 1955.

(2) Percentage complete: 5%.

(3) Hours flown: None.

(4) Present status:

(a) This project was established to investigate a means of chaff tape disposal by use of a tape cutter. The requirements established for this unit are:

1. Minimum weight.

2. Compactness.

3. Efficiency and dependability.

4. Minimum amount of required power from existing dispenser or external source.

5. Simplicity of manufacture and ease in installation.

(b) All possibilities will be given consideration and those most promising will be designed, developed and tested.

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(c) Two concepts that are being investigated are:

1. A solenoid actuated blade - This makes use of the solencid action to deliver the force required for a knife-edge blade to cut the chaff tape.

2. A rotary disk type cutter - The principle applied here is similar to the rotary lawnmower, plus added modifications.

(d) These two concepts are presently under development; therefore detailed information will not be stressed at this time.

cc. Auxiliary Test Project Number 44, "Modification of B-47 Aircraft for Installation of AN/ALT-7 in Battery Compartment".

(1) Date initiated: 10 February 1955.

(2) Percentage complete: 50%.

(3) Hours flown: N/A.

(4) Present status: An attempt is being made to increase the ECM capability of the Phase III B-47 aircraft by installing two AN/ALT-7 transmitters with power supplies in the battery compartment of the aircraft. Plans of the installation have been completed and include wiring diagrams of the power and control circuits. A prototype installation will be made pending approval.

FOR THE COMMANDER:

William H. Murphy

WILLIAM H. MURPHY
Major, USAF
Adjutant

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HISTORICAL REPORT FOR THE MONTH OF JANUARY 1955

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 70 for the month. The average in-commission rate was 76.36%. A total of 2055:55 hours were flown for an average of 29:22 hours per possessed aircraft. The Wing AOCP rate was 7.79% compared to 6.05% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 Aircraft: The Wing had an average of 48 B-47 aircraft possessed for the month. The average in-commission rate was 77.06% compared to 79.13% for the previous month. The B-47 aircraft flew a total of 1409:40 hours for an average of 29:24 hours per possessed aircraft. The AOCP rate was 8.03% compared to 5.92% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 aircraft for month of January. The average in-commission rate was 74.84% compared to 60% for the previous month. There was a total of 645:55 hours flown for an average of 29:21 hours per possessed aircraft. The AOCP rate was 7.27% an increase over 6.35% for the month of December.

3. During this period a total of 88.247 manhours were expended as direct time, 91,474 indirect time and 8,566 overtime. There were 179,720 man hours available for work and 75,275 absent hours. Of the absent hours 1,315 were for authorized pass time.

4. The following malfunction figures are extracted from the U-15 report prepared from the 20 December through 21 January. During this period there were 58 B-47 aborts compared to 30 for previous report; there were 6 KC-97 aborts compared to 9 for previous period.

5. A total of 9 B-47 engines were changed during the month compared to 7 for the previous month. Two (2) KC-97 engines were changed compared to one (1) for the month of December. The average B-47 engine time at change was 157; the average KC-97 engine time was 422 hours.

TOC & RECORDS

1. There were 501 T.O.'s complied with on B-47 aircraft and 3 T.O.'s complied with KC-97 aircraft.

2. There were 8 new T.O.'s received during the month with a total of 384 compliances on B-47 aircraft and 0 new T.O.'s received with a total of 0 compliances.

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3. There were 8 J-47-25 engine changes. Average engine time is 157 for the month, and 2 R-4360-59B engine changes. Average time is 422 hours.

4. There were approximately 52 component parts changed on B-47 aircraft and approximately 36 changed on KC-97 aircraft.

QUALITY CONTROL

1. During the month of January 1955 the Quality Control Unit Inspected eight (8) B-47, four (4) KC-97 and one (1) C-47 type aircraft processed through the Maintenance Docks. The Unit also performed In-Commission inspections on Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The Unit supervised eleven (11) B-47 test flights, nine (9) KC-97 test flights and one (1) C-47 test flight during the month of January.

4. Two-hundred and sixty-two (262) Unsatisfactory Reports were submitted during the month of January.

SUPPLY LIAISON

1. B-47's had 41 line items AOCP for the month.

2. KC-97's had 13 line items AOCP for the month.

3. Total of 54 AOCP line items.

4. Recurring AOCP are as follows:

Relay - 3380-542265-2915
Receiver-Transmitter - 1600-218997125
Indicator - 6040-652191
Cell - 1AFH-15-23196-5
Indic tor - 6025-716808-036
Indicator - 6126-149827
Indicator - 6119-8DJ43A4M
Inverter - 4224-F-46-2

5. Cannibalization for the month of January was 50 for B-47's and 33 for KC-97's. Wing total of 83. ANFE 100%.

1138

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MAINTENANCE STAND TEAM

1. WEMP testing program was begun and is being conducted by stand team. All malfunction and abort reports were monitored and a summary prepared. Scheduling personnel for the MTD was turned over to LP office. However, the team is still closely monitoring the MTD and OJT program in the maintenance sections. A complete on the spot study was made of manpower and proceedures in the electric shop and in the K-System shops of the wing.

For Joe F. Carlisle

ROBERT S MILNER
LTCOL USAF
Chief of Maintenance

1139

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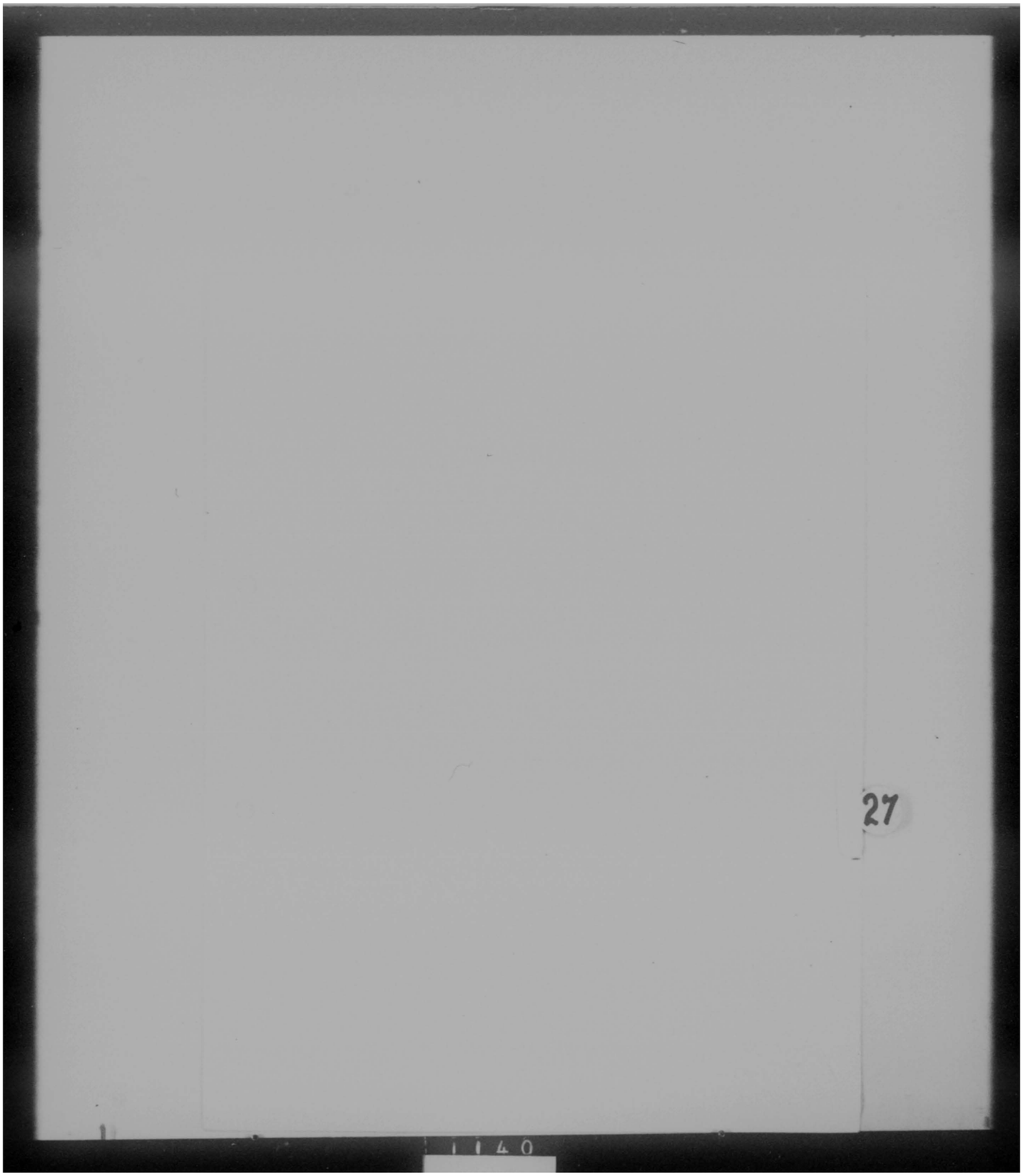

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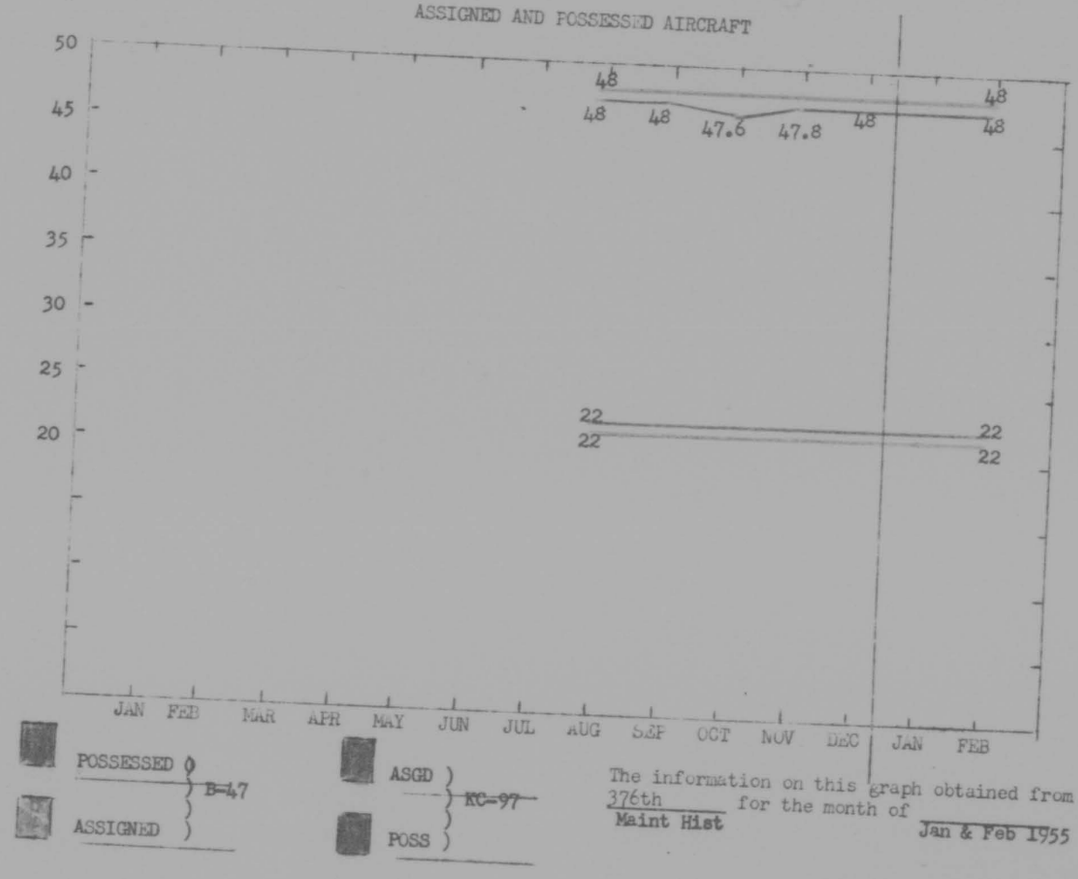

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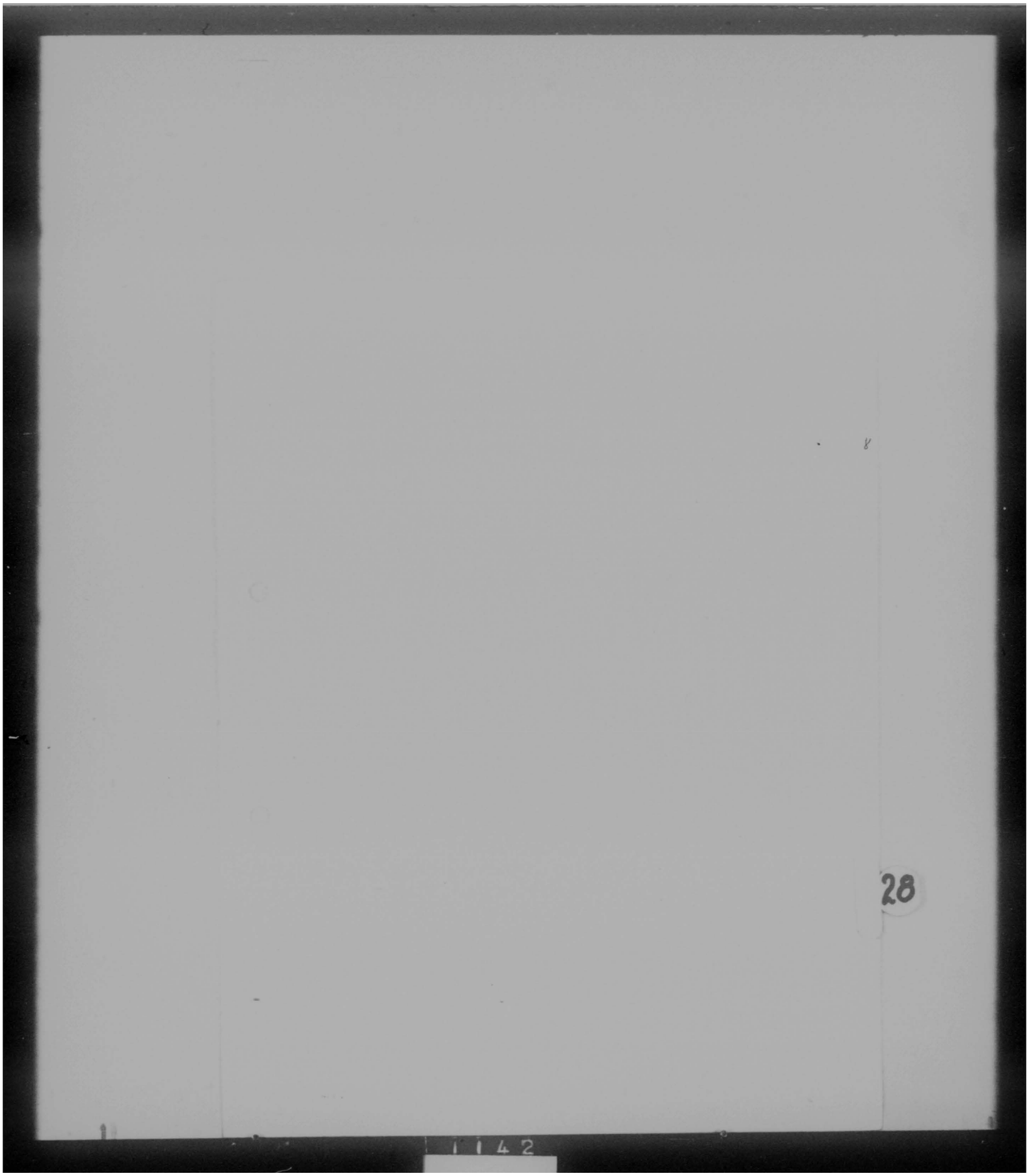

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376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 70 for the month. The average in-commission rate was 75.85%. A total of 1760:30 hours were flown for an average of 25:06 hours per possessed aircraft. The Wing AOCP rate was 3.77% compared to 7.79% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft:

a. B-47 Aircraft: The Wing had an average of 48 B-47 aircraft possessed for the month. The average in-commission rate was 75.30% compared to 77.06% for the previous month. Hours flown were 1242:30 for an average of 25:54 hours per possessed aircraft. The AOCP rate was 3.08% compared to 8.03% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 KC-97 aircraft for the month. The average in-commission rate was 76.32% compared to 74.84% for January. Total hours flown were 518:00 for an average of 23:37 hours per possessed aircraft. The AOCP rate was 5.32% a decrease from 7.77% for January.

3. In February a total of 76,917 manhours were expended as direct time, 80,687 as indirect and 6,679 overtime. There were 157,604 manhours available for work and 80,379 absentee hours. Of the absent hours 1,549 were for pass. The above figures are based upon a 44 hour week of which 4 hours each week per airman is absent time for Ground Training, parades, squadron duty or excused from duty.

4. The malfunction figures listed are taken from the U-15 Report covering the period 20 January through 21 February. During this period there were 71 B-47 aborts compared to 58 for the previous month. There were 4 KC-97 aborts compared to 6 for the previous month.

5. As in the previous month there were 8 B-47 engine changes. Six KC-97 engines were changed compared to 2 for January. The average engine time at change: B-47 - 257 hours, KC-97 - 393 hours.

TOC & RECORDS

1. During the month there were 123 T.O.'s accomplished on B-47 aircraft and 46 on KC-97 aircraft.

2. There were 4 new T.O.'s received for B-47 aircraft and 3 for KC-97 aircraft.

1143

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3. There were 8 engines changed on B-47 aircraft with an average of 257 hours per engine. There were 6 engines changed on KC-97 aircraft with an average of 393 hours per engine.

4. There were approximately 36 component parts changed on KC-97 aircraft and 55 parts changed on B-47 aircraft. These items are time change components.

QUALITY CONTROL

1. During the month of February 1955 the Quality Control Unit inspected 7 B-47, 4 KC-97 and 1 C-47 type aircraft processed through the Maintenance Docks. The Unit also performed in-commission inspections on Wing assigned aircraft.

2. The Unit requisitioned, received and distributed technical publications as outlined in SAC Manual 66-12.

3. The Unit supervised ten B-47 test flight, 8 KC-97 test flight and one C-47 test flight during the month of February.

4. Two hundred and ninety eight Unsatisfactory Reports were submitted during the month of February.

SUPPLY LIAISON

1. B-47's had 27 line items AOCP for the month.

2. KC-97's had 8 line items AOCP for the month.

3. Total of 35 line items.

4. Recurring AOCP are as follows:

Indicator EGT - 6126-149227
Inverter - 4224-F-46-2
Indicator Tach - 6125-150214-03
Relay - 3380-701220-4635
Machmeter6025-315U-8-05
Gage - 6143-AW2-3132

5. Total Cannibalization for February was 88. 64 for B-47's and 24 for KC-97's. ANFE 100%.

1144

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MAINTENANCE STAND DOWN

1. MEP was given to maintenance personnel in the wing. Due to the MEP control officer not having people available to serve as proctors two members of the Maintenance Standardization Team spent approximately 90% of their time with the examination. Examinations on TAC Manuals took up the other 10%.

2. Major William A Prather was reassigned to Quality Control Section.

3. MEP test were given to the 321SOS M-System personnel.

4. Project was started to determine the cause of so much invertor malfunctions.

5. Project was also started on the 30 KVA alternators to correct the erroneous wiring that exist in some of the aircraft assigned this wing.

Robert B Miller
ROBERT B MILLER
LtCol USAF
Chief of Maintenance

1145

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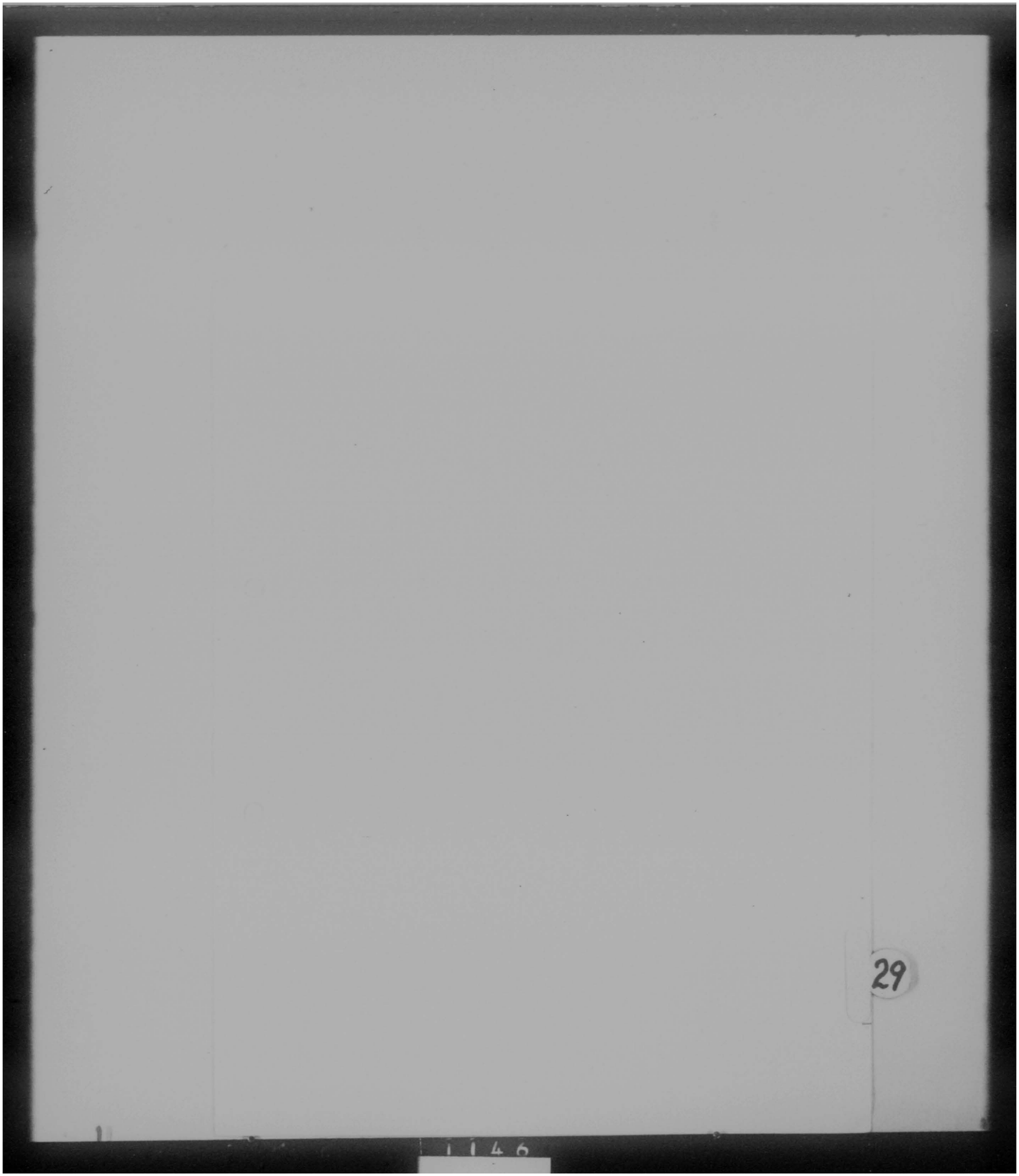

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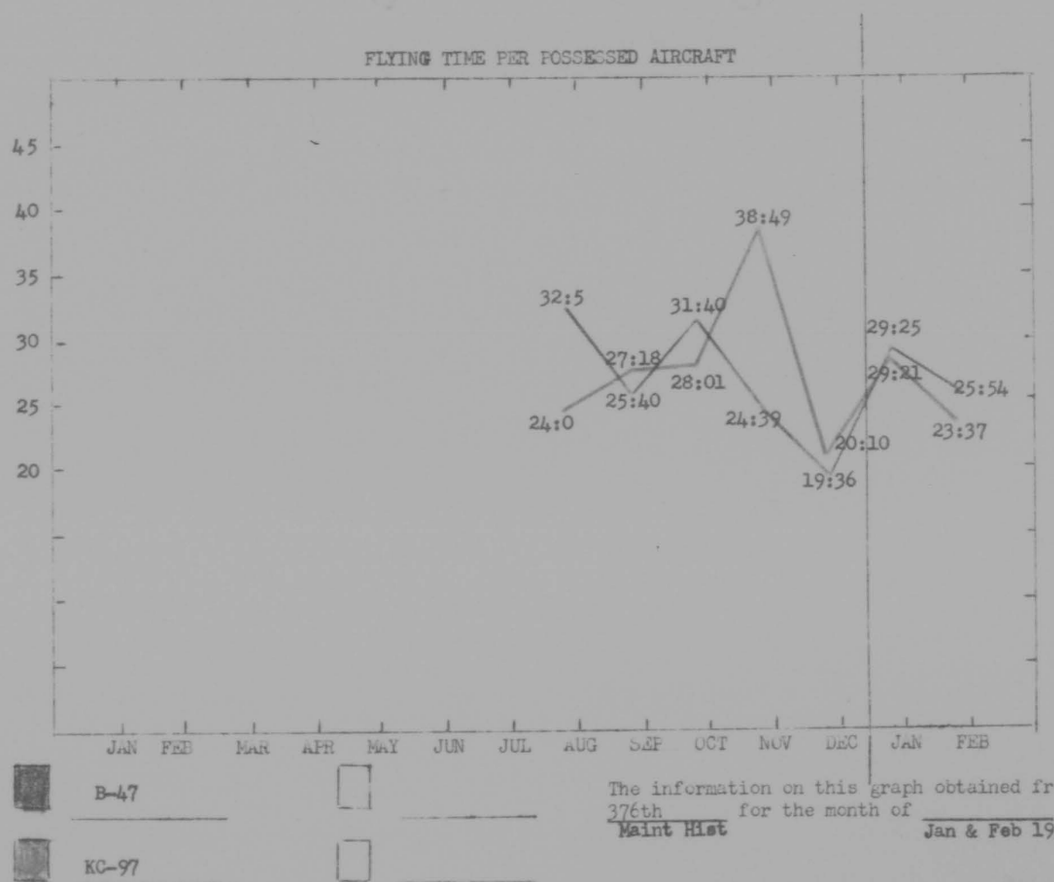

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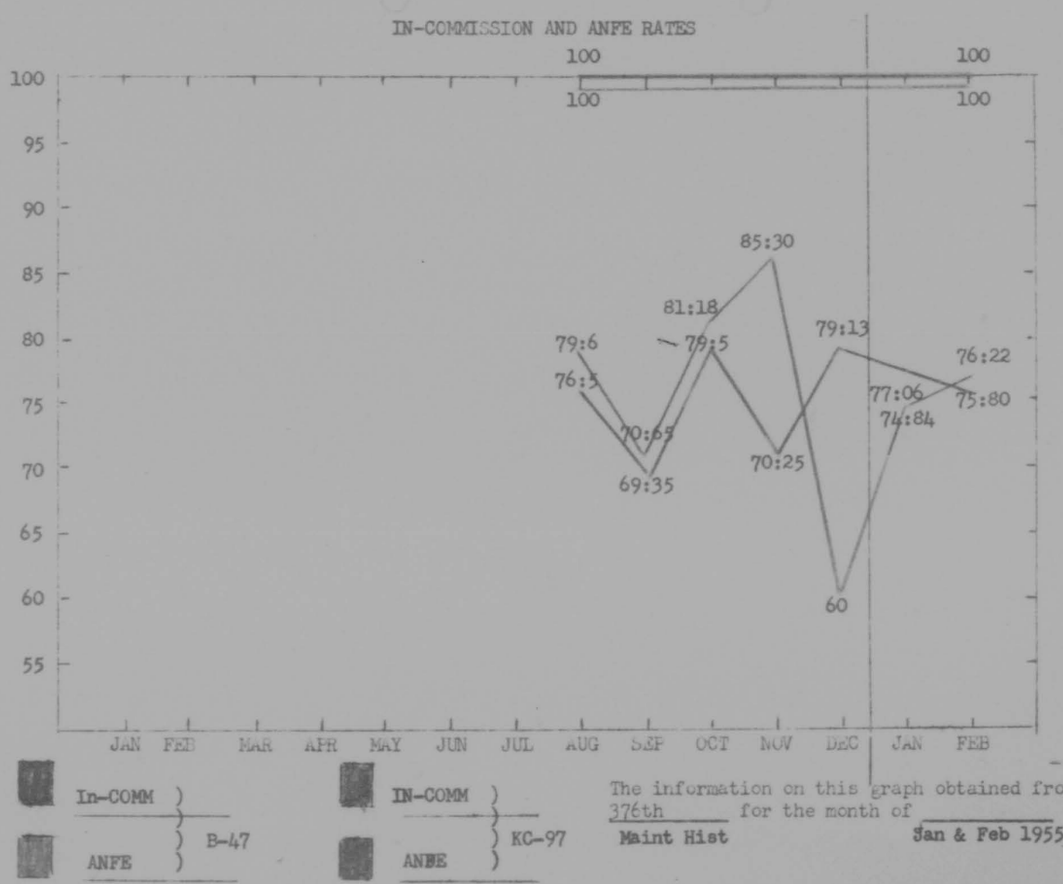

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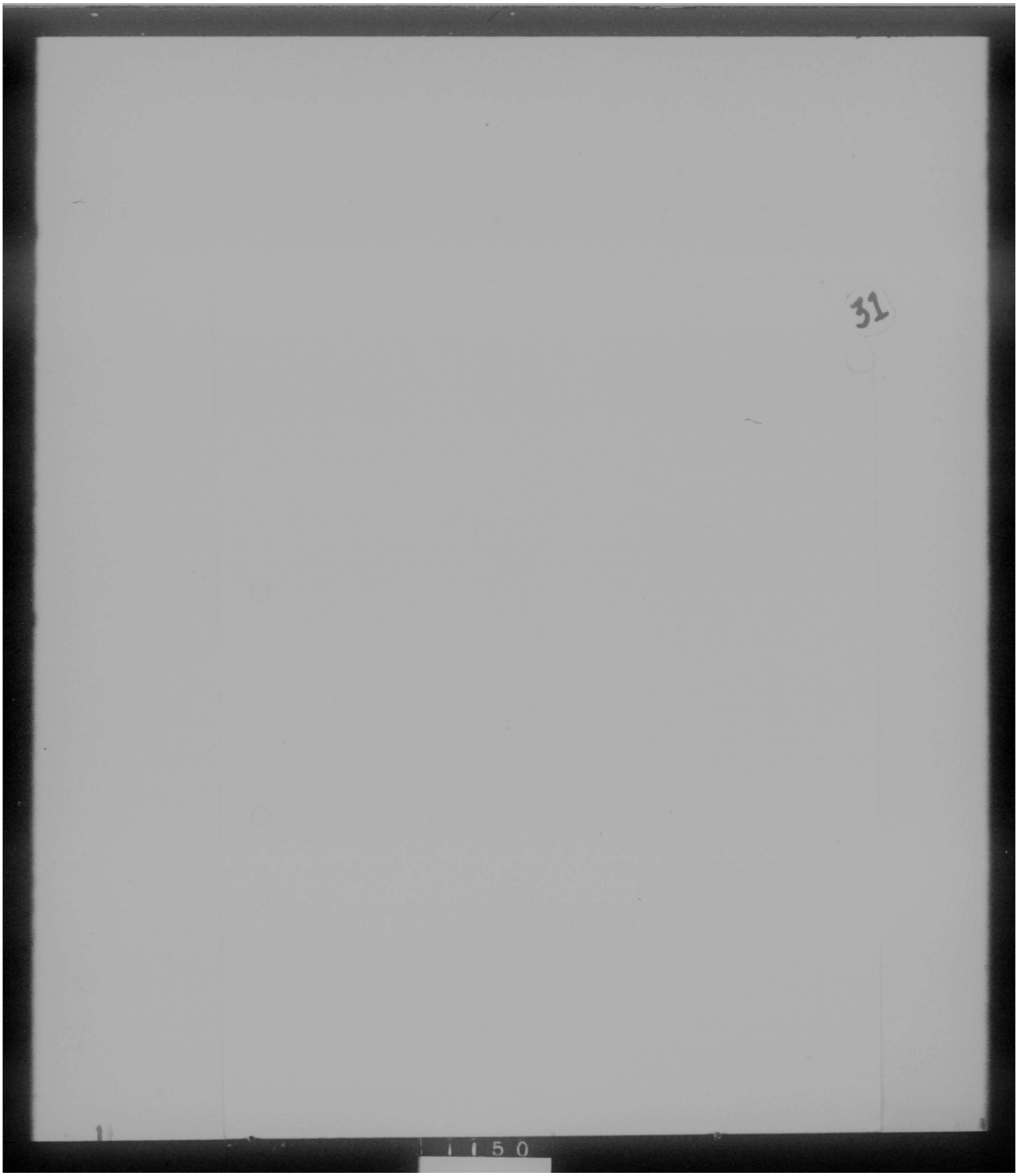

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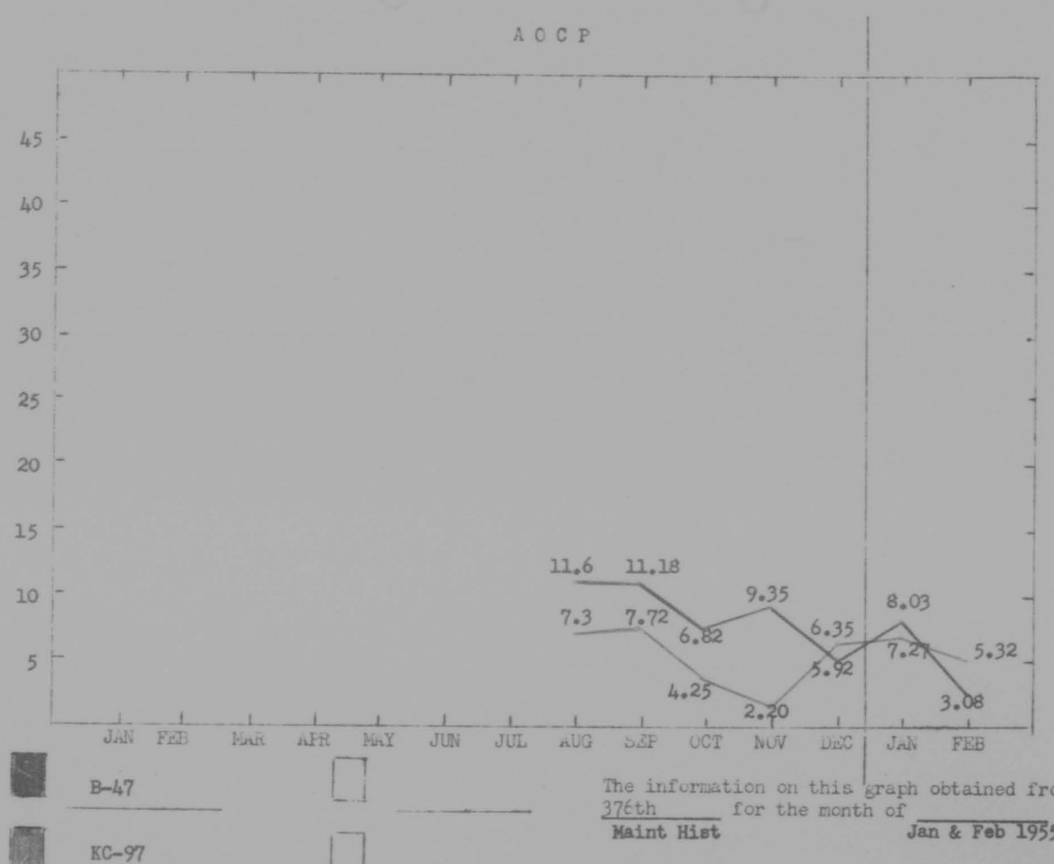

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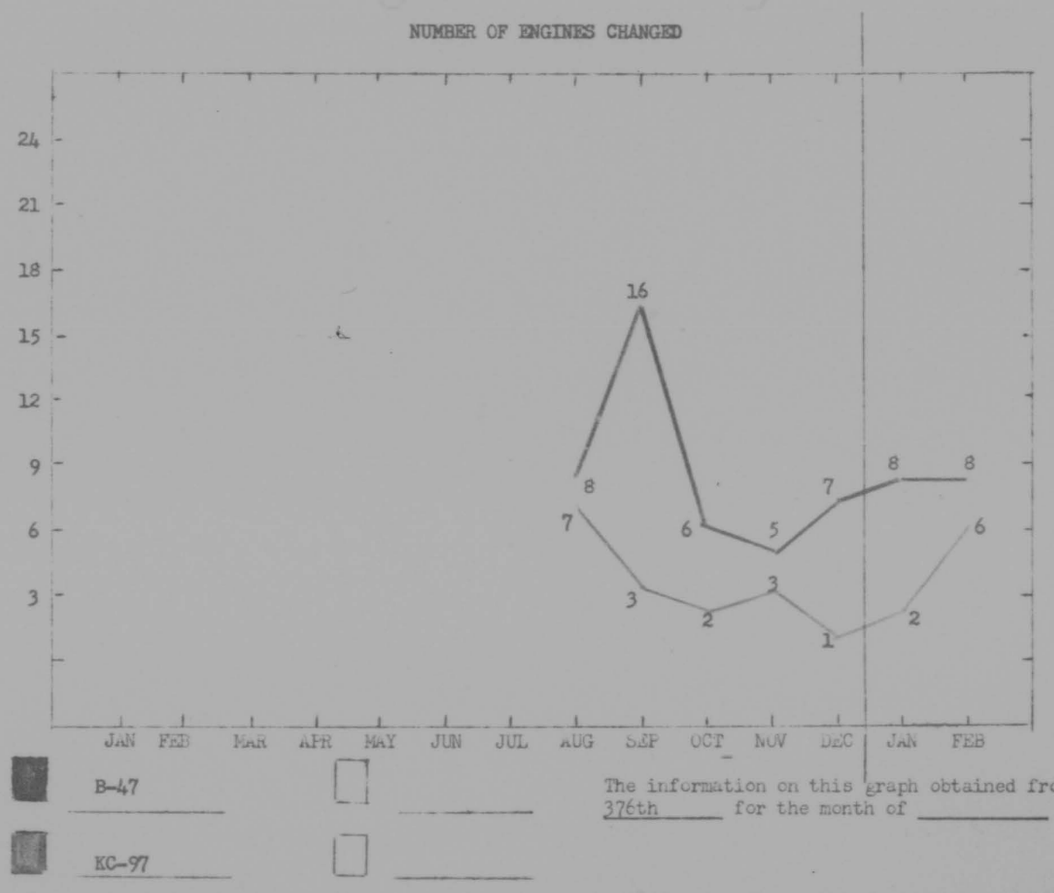

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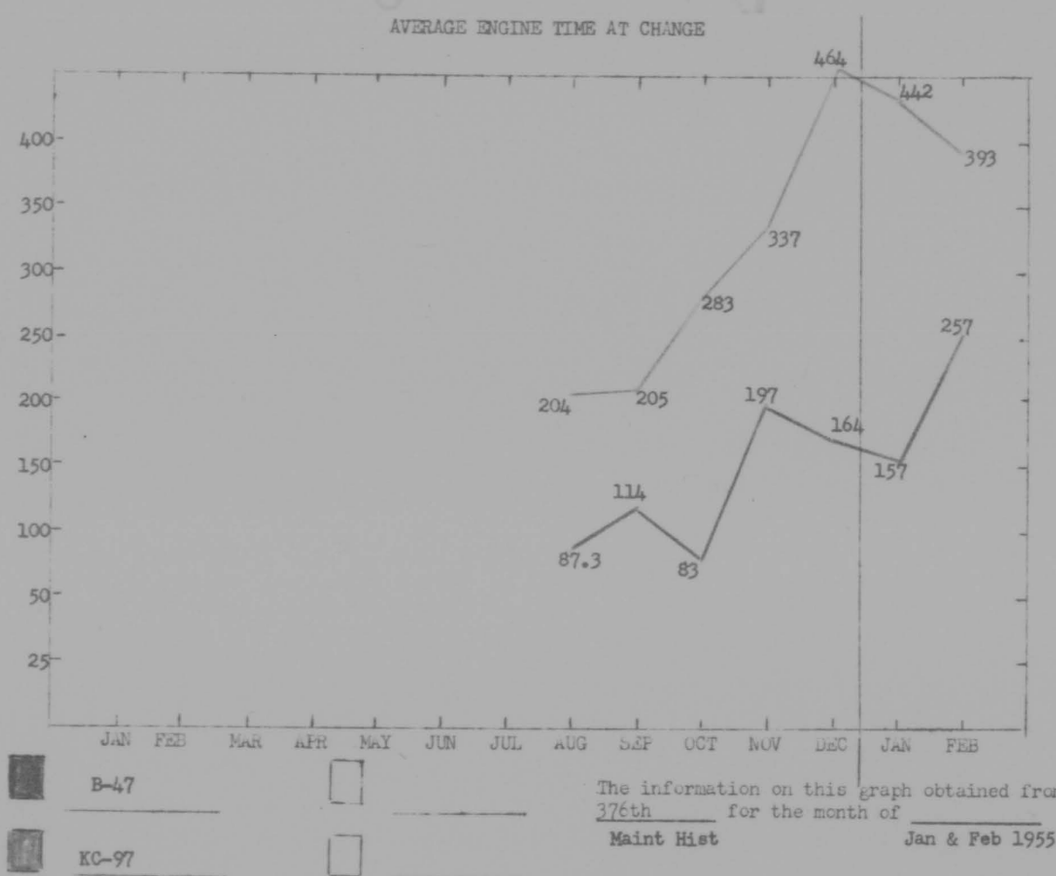

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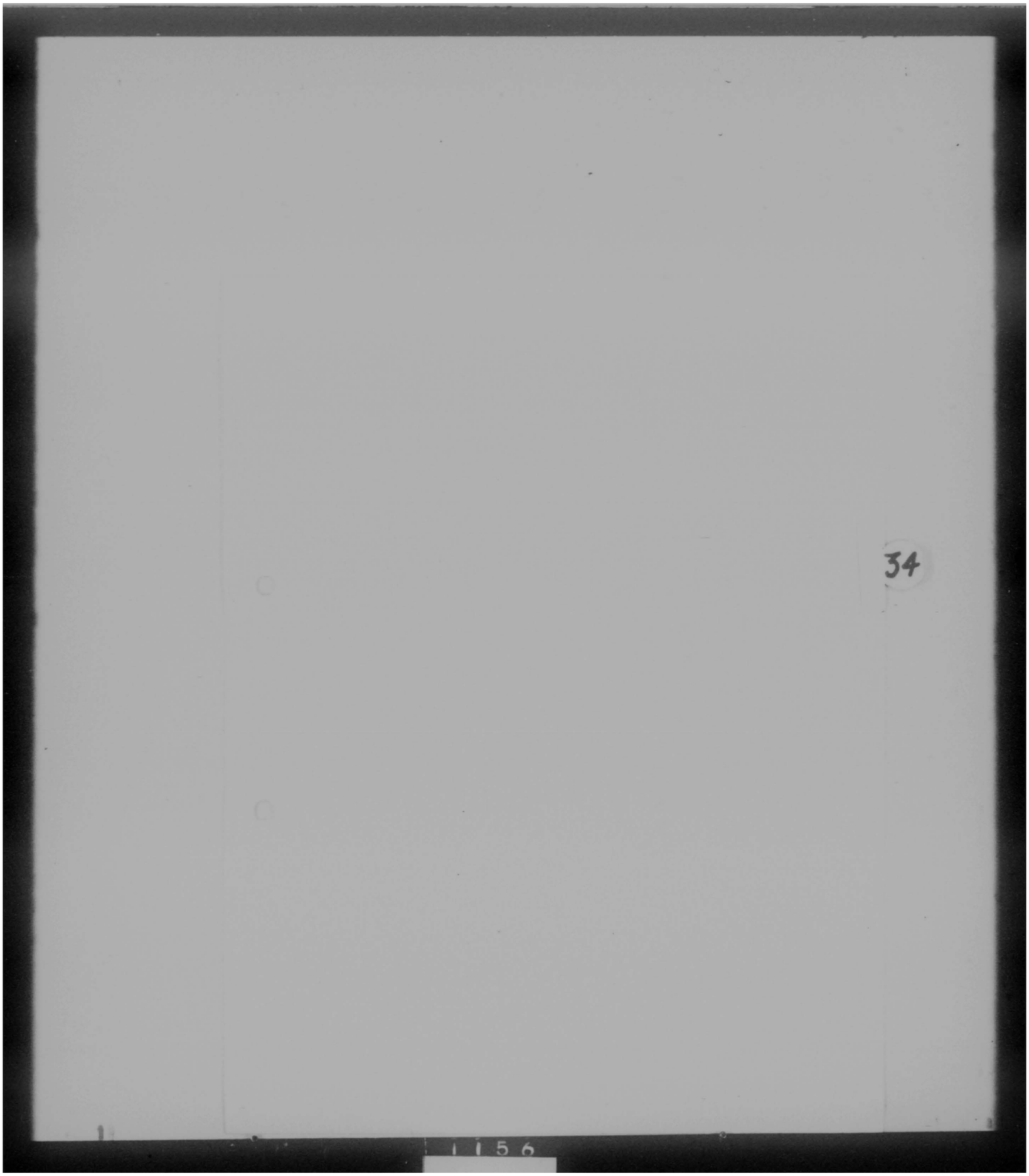

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Report Refueling Officer

TO: Commander FROM: 512th 1 Dec 1954
Refueling Officer

1. This report covers the tour of duty of Captain T. E. Rickelman as Refueling Officer for 21 October 1954. During this tour two airplanes were defueled and eight refueled.

2. In general the personnel seemed more cognizant with theri duties than was evident during my last similar duty tour some weeks ago. However, some deficiencies were noted together with areas which could stand improvement from the safety viewpoint.

3. Noted deficiencies together with suggestions for improvement are listed below:

a. The Refueling Officer is issued a whistle with which he is supposed to alert the men around the plane that a serious spillage and/or fire is taking place. On two different airplanes this officer blew one blast as loud as he could (after notifying all involved personnel) yet neither the APU operator nor the two men on the left side of the airplane could hear the whistle. Therefore this officer believes the whistle is inadequate as a signaling device. Since a signal is definitely needed it is suggested that a powered device be furnished for this purpose. The power could be obtained from the electric light outlet of each pit.

b. In the opinion of this officer the means of alerting the fire truck which are presently used (sending a man to the pump house to telephone the dispatch to contact the fire truck) does not provide as rapid an alert as seems desirable. It is suggested that the audible signaling device mentioned in subparagraph 3a above be combined with a rotating flashing amber lite and the two items mounted permanently at each pit. A switch for each or one switch for both could be furnished to the R.O. on an extension cord. By pressing the aural switch the men around the airplane could be alerted (shutting down the APU and manning fire extinguishers, etc) and the other switch could be used to start the amber light and then alert the fire truck that assistance is required. These signals are expecially needed at night when no hand signals can be seen.

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c. Even though flashlights are used for night operations they are not entirely adequate and should be used only to supplement a large electric flood light. It is recommended that another such light be furnished to illuminate the left side of the airplane as well as the right.

d. Some misunderstanding is apparent as to whether one or two men are required on the left side of the airplane during refueling. In several cases one of these men attempted to man the fire extinguisher on the right side of the airplane. This officer suggests that one man is adequate on the left side of the plane since the APU operator can watch the forward portion of the airplane. Since either the panel operator or the pit operator can man the right hand fire extinguisher, one man less than required by LAD letter dated 13 July 1954, would seem adequate to insure safety.

e. No pressure gages are attached to the refueling nozzles as required by T.O. 1B-47-511. These gauges are needed for two reasons; 1, the R.O. cannot monitor the gauge in the pit as readily as the panel operator could monitor a gauge and the hose nozzle and 2, feeling the hose for pressure surges is not adequate for checking shut off valves for the wing tanks nor for the forward auxiliary tank. Since 0-150 PSI gauges are relatively cheap and simple to install it is suggested that they be obtained as soon as practicable.

f. If the faded condition of the paint surrounding the ground plug is any criterian, the condictivity of th e ground plugs has not been checked for quite some time. This check is required by T.O. 19-1-105. It is suggested that the paint be renewed and the date stenciled therein whenever the conductivity checks are performed. It should be pointed out that a resistance of over 100,000 ohms consitutes no ground at all and results in a hazardous situation due to static electricity.

g. It has been the custom of this officer to read the pilot's, co-pilot's, and refueling panel gauges before (and after) refueling, compute the difference required in pounds, convert it

1158

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gallons, and check the quantity added (or subtracted) as indicated by the pit gallon meter. Average error runs between 50 to 200 gallons. In one case the error was 1000 gallons. The difference in fuel is either an error in gage readings or perhaps indicates that a supposedly closed wing tank valve is open and permitting fuel to get into one (or both) wing tanks. In order to double check such discrepancies in the future it is suggested that gage readings before and after refueling (all three sets of indicators) be recorded on the refueling check list and any major discrepancies between computed and actual gallons be noted on the Form 1 and subsequently checked by dip stick and by draining the wing tanks; it is recommended that this be made a standard Wing procedure. In order to prevent possible hazardous flight situation arising from lack of fuel or an improper center of gravity about either the lateral or longitudinal axis. Many flight safety incident reports are on record indicating that fuel gages often do not show the proper amount of fuel in the tanks.

h. Defueling of the airplanes certainly seems to require more standardization and safety procedures. For instance the 50 feet cable will not carry the load of the booster pumps used for defueling and becomes so hot as to constitute a hazard. Until a heavier cable is obtained or a procedure followed which will reduce the electrical load perhaps the short cable should be used. Neither cable is satisfactory for one reason or the other. Further, according to the check list and directives no one should be in the airplane during fueling operations. This seems impracticable for defueling since, even if the procedure of presetting switches prior to putting power on the airplane is followed, defueling operations are so varied and the aircraft system so set up that several trips in and out of the airplane are necessary to obtain the desired fuel levels. This requires cutting power, turning on power, and precomputation of gallons to be defueled with each setting. This procedure is not necessarily safer than having one operator in the plane and certainly seems unnecessarily complicated. This officer suggests that a Wing SOP for defueling be set up permitting one man in the airplane, this man being thoroughly familiar with ground escape from the airplane.

1159

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Report Refueling Officer (Cont'd)

i. To prevent excessive pressure surges it is recommended that the number of pumps be reduced to one when the quantity to be refueled is within 300 gallons of the computed amount or whenever all tanks are filled except two. One pump will maintain 35-45 PSI with any two tank valves open thus no time is lost and the amount of fuel being by-passed is reduced.

4. The above data and suggestions are presented with a veiw to improving the fueling operations even more toward our ultimate goal of reasonable safety.

/s/ Thomas E. Rickelman
THOMAS E. RICKELMAN
Captain, USAF

TO: 7DM FROM: 7R2 21 Dec 54 COMMENT #2

I believe believe that the comments and suggestions given in Comment #1 merit consideration.

/s/t/ JOHN LUTS
Major, USAF
Commander

TO: DM FROM: 376DM 7 Jan 55 COMMENT #3

Request the recommendations in Comment #1 be considered in a possible revision of HAD un-numbered letter, Subject: Average Ground Refueling and Defueling, dated 13 Jul 54.

/s/t/ ARCHIBALD D ODOM
Lt Col, USAF
Director of Materiel

A CERTIFIED TRUE COPY:

Ernest A Reeves
ERNEST A. REEVES
Lt Col, USAF

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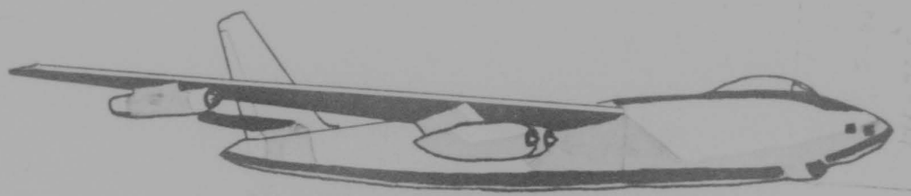

(UNCLASSIFIED)

HISTORY

OF THE

376TH BOMBARDMENT WING(M)

376th

FOR THE MONTH OF

MAR. 1-31, 1955

9181

BARKSDALE AIR FORCE BASE

RSI Cont No S11813

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Classification: SECRET
Authority: CO 376th Bomb Wing (M)
Initials: Murphy
Date: 10 MAY 1955

(Unclassified)

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 MARCH - 31 MARCH 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron, Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron
376th Tactical Hospital

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

W H Murphy Major, USAF
For and in the absence of JOHN P. PROCTOR
Colonel, USAF
Commander

(Second Air Force, Strategic Air Command)

RSI Cont'l No
S11813

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	1, 2.
Personnel Problems	2, 3.
Crew Status	3, 4.
Reenlistment and AWOL Rates	4.
Key Personnel	5.
CHAPTER II . . . Operations and Training	6.
Flying Time	7, 8.
Training	8, 9.
Status of Test Projects	10 - 23.
CHAPTER III . . . Maintenance	24.
Aircraft Status	25, 26.
Equipment Malfunctions	27.
Maintenance Engineering Difficulties	27 - 29.
Operational Difficulties	29.
Special Developments	29, 30.

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PERSONNEL

The total number of officers assigned at the end of March 1955 was 403,[1] which was five less than in February,[2] and was 46 less than authorized strength.[3] A total of 376 officers were effectively assigned,[4] four more than in February,[5] or 81.7 percent of authorized strength.[6] The figures and percentage for manning in required specialties in March were the same as for effectively assigned during the month.[7] There were 10 officers discharged or transferred during March,[8] which was two less than in February,[9] or 2.2 percent of authorized strength,[10] and five officers assigned,[11] or 1.1 percent of authorized strength.[12]

The total number of airmen assigned at the end of March 1955 was 1871,[13] which was 36 less than in February,[14] but was 46 more

1. Report, "Monthly Analysis March 1955, n.d.," hereafter cited as "376th Pers Anal for Mar 55", n.d., exhibit #1, and chart, exhibit #2, this History.
2. History 376th Bomb Wing for Jan & Feb 55, page 4.
3. "376th Pers Anal for Mar 55", n.d., exhibit #1, and chart, exhibit #2, this History.
4. Ibid.
5. History 376th Bomb Wing for Jan & Feb 55, page 5.
6. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
7. Ibid.
8. "376th Pers Anal for Mar 55", n.d., exhibit #1, by career fields: Pilots-4; Intelligence officers-2, and 1 each - Acft Maint Staff officer, Bombardier, Navi-Bombardier and Navigator, for a total of 10.
9. History 376th Bomb Wing for Jan & Feb 55, page 4.
10. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
11. Ibid, by career fields: One each - Operations Staff officer, Navi-Bombardier, Navigator, Pilot, and Nurse-general duty, for a total of 5.
12. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
13. Ibid, and chart, exhibit #3, this History.
14. History 376th Bomb Wing for Jan & Feb 55, page 6.

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than authorized strength.[15] There were 1563 effectively assigned airmen,[16] 25 more than in February,[17] or 85.6 percent of authorized strength.[18] The manning in required specialties for airmen in March was 1397 or 76.3 percent.[19] There were 85 airmen transferred or discharged in March or 4.7 percent of authorized strength,[20] and 49 airmen assigned or 2.7 percent of authorized strength.[21]

PERSONNEL PROBLEMS

Officer effective manning for the Wing was 85 percent in March 1955. Manning remained critically short in AFSC's 1435, 3254, 4334, 4364, and 4355. Effective manning in the intelligence career field was 78 percent, but due to drop within next six months to approximately 57 percent. In the 321 career field, manning in AFSC's 32150B, 32150C and 32150D was zero percent, with 14 airmen authorized and none assigned. Training is authorized from the 32150E field into

15. "376th Pers Anal for Mar 55", n.d., exhibit #1, and chart, exhibit #3, this History.
16. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
17. History 376th Bomb Wing for Jan & Feb 55", page 6.
18. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
19. Ibid.
20. Ibid, by career fields: Photomapping-1, Comm Ops-3, Radio & Radar Repair-15, Armt Sys Maint-2, Intri Equip Maint-1, Acft Acc Repair-5, Airplane & Eng Maint-11, Mun & Wpns Repair-6, Vehicle Maint-3, Metal Work-5, Const-1, Fabric, leather & rubber repair-3, Trans-3, Food Sv-3, Supply-2, Admin-6, Info-1, Pers-2, Mgt-1, and Medical-11, for a total of 85.
21. "376th Pers Anal for Mar 55", n.d., exhibit #1, by career fields: Intel-2, Radio & Radar repair-8, Armt Sys Maint-1, Intri Equip-2, Acft Acc Repair-2, Vehicle Maint-3, Metal Work-6, Fabric, leather & rubber-1, Trans-2, 69131-1, Supply-4, Admin-3, Pers-6, Mgt-2, and Medical-6, for a total of 49.

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these career field sub-divisions but no instructors are available. Effective manning in the 402 career field was 62 percent, but is due to drop to 43 percent within six months. Effective manning in the munitions and weapons maintenance field was 68 percent, and is due to drop to 50 percent within six months. In the aircraft and engine maintenance field, manning was 53 percent and is due to drop to 36 percent within six months. In the air transportation career field, manning was at a critical 55 percent. Operations had only three 60170's for duty out of five assigned. Effective manning was 72 and 40 percent in the supply and personal equipment career fields respectively.[22]

The lack of boom operators and assistant boom operators in the 376th Air Refueling Squadron will cause four non-combat ready crews and one training pool crew to be disbanded prior to 1 July 1955. This situation is due to personnel scheduled to be discharged during the period.[23]

CREW STATUS

During the month of March 1955, there were 39 combat ready/lead crews assigned and they flew an average of 34.5 hours per crew; there

22. Report, "Bombardment Air Training Report for month of March 1955", (RCS: 3-SAC-T12), hereafter cited as "T-12, Bombardment, for Mar 55", exhibit #4, this History.
23. Report, "Refueling Air Training Report for month of March 1955", (RCS: 4-SAC-T12), hereafter cited as "T-12, Refueling, for Mar 55", exhibit #5, this History.

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were four non-combat ready crews available for flying (total nine) and they flew an average of 40 hours per crew.[24]

On KC-97 crews there were 17 ready that flew an average of 35:24 hours per crew, and eight non-ready that flew an average of 10:20 hours per crew.[25]

REENLISTMENT-AWOL RATES

During March, there were 38 airmen discharged of which 11 reenlisted, giving the Wing a reenlistment rate of 28.9 percent,[26] which was an increase of 3.9 percent over the February figure.[27]

There were two airmen AWOL in March 1955, giving the Wing an AWOL rate of .88 percent,[28] which was an increase of .88 over the zero percentage for February.[29] Under the SAC Rating System, the cumulative score for the period December through March was 10 AWOLs for a total percentage of 1.08.[30]

24. "T-12, Bombardment, for Mar 55", exhibit #4, and chart, exhibit #6, this History.
25. "T-12, Refueling, for Mar 55", exhibit #5, and chart, exhibit #6, this History.
26. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.
27. History 376th Bomb Wing for Jan & Feb 1955, page 13.
28. "376th Pers Anal for Mar 55", n.d., exhibit #1, and chart, exhibit #7, this History.
29. History 376th Bomb Wing for Jan & Feb 1955, page 13.
30. "376th Pers Anal for Mar 55", n.d., exhibit #1, this History.

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KEY PERSONNEL

Normally, this part of the history is devoted to changes in key personnel and also a roster of key personnel. Due to a change in procedure for publication of the officers roster, formerly published each month, now published bi-monthly, time did not allow inclusion of this section in this history. The changes in key personnel and the roster reflecting the status of the officers concerned will be included next month as usual.

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

During March 1955, ECM testing required 301:40 hours; Second Air Force Operations Order 110-55 required 286:40 hours: Second Air Force Operations Order 17-55 required 296:55 hours: SES Evaluation used 104:35 hours and Second Air Force Operations Order 108-55 used 77:10 hours, showing a total of 1067 hours flown on missions ordered by higher headquarters.[31]

KC-97 Higher Headquarters Missions:

A total of 79:55 hours were flown on four special passenger flights during March; three special passenger and cargo flights used 31:45 hours; and Second Air Force Operations Order 17-55 required 152 hours, giving a total of 263:35 hours flown on missions ordered by higher headquarters.[32]

Total Flying Time:

Total flying time for B-47 aircraft in March, including test flights, was 1347 hours,[33] which was a drop of 63 hours from the February figure.[34]

Total flying time for KC-97 aircraft in March was 684:28 hours,[35]

31. "T-12, Bombardment, for Mar 55", exhibit #4, this History.
32. "T-12, Refueling, for Mar 55", exhibit #5, this History.
33. "T-12, Bombardment, for Mar 55", exhibit #4, and chart, exhibit #8, this History.
34. History 376th Bomb Wing for Jan & Feb 55, page 18.
35. "T-12, Refueling, for Mar 55", exhibit #5, and chart, exhibit #8, this History.

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which was an increase of 39:28 over the figure for February 1955.[36]

TRAINING

Classroom:

Twelve airmen received 23 hours of instruction on operation and maintenance of the AN/ALT-6 during March 1955.[37]

Eight airmen received 21 hours instruction on the AN/ALT-8, during the month; 13 airmen received 39 hours instruction on the AN/APS-54; and four airmen received 12 hours instruction on the AN/ALE-1 during March 1955.[38]

Three A-5 mechanics received four hours instruction in RF head theory and tuning; two A-5 mechanics received four hours instruction in firing circuits theory; and two A-5 mechanics received four hours instruction in antenna relays operation during March 1955.[39]

Symposium type classes were held for Observers during March; 31 student manhours were given on in-flight maintenance; and 270 student manhours were given on operation of the K-4A Bomb-Navigation System.[40]

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36. History 376th Bomb Wing for Jan & Feb 55, page 18.
37. Report, "Monthly Technical Report for Month Ending 31 March 55", 1 Apr 55, by Lella, hereafter cited as "U-19 for Mar 55 by Lella", 1 Apr 55, exhibit #9, this History.
38. Report, "Monthly Technical Report for Month Ending 31 March 1955", 1 Apr 55, by Nevitt, hereafter cited as "U-19 for Mar 55 by Nevitt, 1 Apr 55, exhibit #10, this History.
39. Report, "Monthly Technical Report for Month Ending 31 March 55", 1 Apr 55, by Faux, hereafter cited as "U-19 for Mar 55 by Faux", 1 Apr 55, exhibit #11, this History.
40. Report, "Monthly Technical Report for Month Ending 31 March 55", 1 Apr 55, by 5 Fld Engrs, hereafter cited as "U-19 for Mar 55 by 5 Fld Engrs", 1 Apr 55, exhibit #12, this History.

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Nine students received a total of 48 student hours instruction on the A-12D Gyropilot.[41]

On The Job Training (OJT):

Two airmen received six hours and three airmen received eight hours instruction on Blue Cradle Aircraft Testers, and two airmen received six hours instruction on Blue Cradle inverter circuits during the month, while instruction was also given on Blue Cradle Control circuitry, AN/ALT-7, AN/ALT-8, and B-47 Alternator Circuitry, but the number of airmen was not known.[42]

A total of 36 airmen received 245 hours instruction in general alignment and trouble shooting on the AN/ALT-6 in March 1955.[43]

Six students received 30 student hours instruction on the A-12D test procedures and 10 students received 20 student hours instruction on A-12D theory on a planned OJT program, while under the informal OJT program, 15 students received 74 student hours on A-12D theory, and six students received 32 student hours instruction on trouble shooting, two students received three hours instruction on the C-1 amplifier, and eight students received 15 student hours instruction on the N-1 compass.[44]

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41. Report, "Monthly Technical Report for Month Ending 31 Mar 55", 1 Apr 55, by Kronlage, hereafter cited as "U-19 for Mar 55 by Kronlage", 1 Apr 55, exhibit #13, this History.
42. Report, "Monthly Technical Report for Month Ending 31 March 1955", 1 Apr 55, by Nicholson, hereafter cited as "U-19 for Mar 55 by Nicholson", 1 Apr 55, exhibit #14, this History.
43. "U-19 for Mar 55 by Nevitt", 1 Apr 55, exhibit #10, this History.
44. "U-19 for Mar 55 by Kronlage", 1 Apr 55, exhibit #13, this History.

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STATUS OF TEST PROJECTS

As mentioned in the January-February History,[45] Test Project Number 1A, "Development of Unattended Communications Jammer", initiated 30 November 1952, was completed with a total of 297:40 hours having been flown. The following is a summary of this Test Project:

SYNOPSIS:

> The purpose of Project 1A was to design, construct and test a prototype frequency sweep jammer, and to determine the feasibility of using a sweep jamming technique against VHF voice communications between ground control intercept stations and fighter-intercept aircraft.
>
> Jamming transmitters with a power output of from 300 to 400 watts were designed and built. The transmitters have an adjustable sweep rate from 100 to approximately 1200 hits per second, with provisions for a variable sweep rate. Sweep widths of from one megacycle up to 20 megacycles may be obtained.
>
> Various aspects of the problem were investigated. Tests were run using both slow and fast sweep rates. The most effective rate was found to be one which varied in the range of 800 to 1000 hits per second.
>
> The result of these tests indicate that for effective jamming, the average of the jamming signal field strength at the receiver terminals must be approximately six times the field strength of the communications signal.

For jamming of Ground Controlled Intercept (GCI) communications to be effective, the radio receiver in the intercepting fighter aircraft must be jammed before the fighter is within airborne radar intercept range of the intruding bomber. It has been determined that to do this, the jammer should have an effective jamming radius of at least 25 miles around the aircraft being protected. Several types of jamming which might be used against VHF communications are: SPOT

45. History 376th Bomb Wing for January-February 1955, page 26.

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JAMMING, which required an operator is considered unsatisfactory due to additional weight, power, and space required for equipment and operator. BARRAGE JAMMING, would require a large number of transmitters to be effective, this too is considered unsatisfactory. SEARCH-AND-LOCK-ON JAMMING systems automatically perform the duties of an ECM operator in spot jamming. The system searches a band, stops when a victim signal is received, and sets a jamming transmitter on the victim frequency. Such a device is difficult to build and maintain because of the complexity of equipment. This system is also vulnerable to spoofing or other counter-measures. SWEEP JAMMING covers a band of frequencies and can be incorporated into jamming transmitters that are relatively simple and easy to construct. No receiver is needed and each sweep jammer may be designed to cover a great many channels without requiring accurate setting on frequency. A sweep jammer can combine a small amount of equipment with a wide frequency coverage. It also lends itself extremely well to unattended jamming which is a requirement for aircraft such as the B-47 because the frequency and sweep bandwidth for each transmitter may be easily set before each flight.

Recommendations were made as follows:

1. That the equipment described in this report, or comparable equipment, not be considered an effective communications jammer against receivers having circuitry such as the AN/ARC-3 and SCR-523.
2. That equipment such as described in this report, or comparable equipment, be used only if a marginal degree of jamming effectiveness or "nuisance value" is tolerable, or if aircraft-to-ground communications jamming is desired.

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3. That a sweep rate which varies in the range of from 800 to 1000 hits per second be used for maximum effectiveness of sweep jamming against communications.

4. That the minimum sweep width compatible with jamming requirements and available space be used for maximum effectiveness of sweep jamming against communications.

5. That maximum possible power output be used for maximum effectiveness of sweep jamming against communications.

6. That continued effort be devoted to this problem to insure an effective piece of equipment at the earliest possible date.[46]

A detailed description of the flight tests and additional data on results of these tests is contained in the appendix to this history.[47]

Project 1X increased one percent to 42 percent of completion in March 1955. A visit was made to the Navy Bureau of Aeronautics and Navy Research Test Center at Patuxent, Maryland, for the purpose of coordinating (Project 1X) information with test information on the AN/APQ-33, which is the Navy version of a search-and-lock-on type jammer. Although it is operational, limitations prohibiting its use on B-47 bombers are: It is excessively large and heavy, difficult to maintain; no identification device; will not jam a single signal if there are other carriers within the four megacycle pass band of the receiver; probable intercept of an enemy signal is slight due to the slow search rate of the receiver; receiver is not sufficiently sensitive; thus, the range desired for the project could not be

46. Report, "Final Report Test Project 1A", Hqrs 376th Bomb Wing, 24 March 1955, files, (Class), 376th Bomb Wing.
47. Ibid.

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attained. Radiation patterns, modulation, and antenna types were discussed and valuable information was obtained from Navy project engineers.[48]

Test Project 15 was authorized by Headquarters SAC, directing the development and test of the AN/A:T-16 as a sweep jammer.

In the past, the practice has been to provide bomber type aircraft with an ECM operator and numerous spot jammers with associated setting on equipment, but aircraft such as the B-47 do not have the room for the ECM operator and his equipment.

The magnetron tuning system of the AN/APT-16 makes it possible to convert the equipment to a slow or rapid sweep jammer wherein the transmitter automatically and continually sweeps through a pre-selected band of frequencies. Both slow and fast sweeps create enough jamming of gun-laying radar within the band to break automatic tracking or cause sufficient error in automatic and manual tracking to make fire control inaccurate. Fifty-four hours of flight tests indicated that the most effective rapid sweep rate against gun-laying type radars was between 300 and 450 sweeps per minute with sweep width between 60 and 200 megacycles.

Conclusions were that slow sweep jamming was ineffective against search and gun-laying type radars when used singly or in small numbers, but could be very effective against gun-laying type radars when

48. Report, "The 376th Bombardment Wing, Medium, Test and Development program (RCS: SAC-U30) for Mar 55", 8 Apr 55, hereafter cited as "376th U-30 for Mar 55", 8 Apr 55", exhibit #15, this Hist.

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used in large numbers. Rapid sweep jamming was not effective against radars such as the CPS-6 when used singly or in small numbers, but is effective when a sweep rate between 300 and 450 sweeps per minute is used.

It was recommended that the AN/APT-16 sweep jammer tests be concluded because magnetrons for the sets were no longer available, and the AN/APT-16 has been made obsolescent by newer sets such as the AN/APT-6 and AN/ALT-8, which incorporate automatic sweep.[49]

Project 27 increased 10 percent to 85 percent of completion with an additional 62 hours having been flown, bringing the total to 355:20 hours on this project, and 178:55 hours on Project 27R (Random Chaff Screening). An interim report was being prepared covering the flights during March 1955.[50]

Project 29 remained at the same stage of completion as in February (52 percent). Tests at WADC showed that mirrors in the completed Land Camera and periscope assembly were not perfectly aligned resulting in a certain amount of light loss from the radar indicator to the O-15 and Land Cameras. Mirror adjustments should be completed early in April, then the unit is to be mounted on an AN/APS-23 mock-up at WADC. If that test proves satisfactory, the unit is to be delivered to the Wing.[51]

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49. Report, "376th Bombardment Wing Final Report Test Project 15, Sweeping AN/APT-16 Radar Jammer", 25 March 1955, classified files, Hq 376th Bomb Wing.
50. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
51. Ibid.

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Project 30 increased two percent to 47 percent of completion with two more hours flown (total 11:00). A visit was made to Grimes Manufacturing Company, Urbana, Ohio to discuss beacon considerations for the infrared system. Several lamps were considered acceptable as beacons, but one, the H1000-A16, manufactured by General Electric, was considered most satisfactory. Another trip was made to Headquarters SAC for the purpose of familiarizing interested personnel in the proposed station keeping system, and obtaining evaluations and recommendations on the system requirements. As a result of the discussion, the following requirements evolved. It is felt that these requirements should be used as a basis for design of the system; however, changes may be tolerated if it is not feasible to meet each of these requirements exactly. Due to unpredictable errors that exist in the present 50,000 foot pressure type altimeter, accurate altitude separation for the proposed station keeping system cannot be maintained. Verification tests will continue. The Kollsman Instrument Company, Elmhurst, Long Island, New York, manuracturer of pressure type altimeters used in B-47 aircraft, stated that it is possible to measure an altitude separation within 25 feet provided the new altimeter presently being bought by the Air Force is used and is correctly calibrated at the operational altitude. Upon procurement of the new altimeters, operational suitability tests will be flown.[52]

Project 32, "Cell Support Tests", was initiated on 17 February

52. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.

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1955, and by the end of March was at five percent of completion with 18:35 hours having been flown. The purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell configurations from enemy GCI, gun-laying and intercept type radars. The first mission in a B-47 aircraft, using one AN/ALT-8, Styroflex Cable, modified connectors, and S-Band antenna, was flown against the ADC, AN/FPS-10 radar site at Bartlesville, Oklahoma. A second mission was flown with two B-47's, each carrying one AN/ALT-8. 376th Bomb Wing observers were present at each mission to collect operating logs and photographic data. Preliminary indications are encouraging, but the data reduction was not complete.[53]

Auxiliary Project 5 increased 20 percent to 100 percent of completion, with an additional three hours flown (total 36:28). One additional flight test was flown to test the AN/ALT-7 jammers against the IFF system operating at 169 megacycles. Good results were shown out to 100 miles using three AN/ALT-7 transmitters. The final report should be completed soon.[54]

Auxiliary Project 6 remained at 55 percent of completion. Construction is under way, three units have been completed on the oscillator-amplifier units which make up the barrage jammer. The desired tuning range of 60 to 90 megacycles was obtained.[55]

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53. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
54. Ibid.
55. Ibid.

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Auxiliary Project 15-6 increased one percent to 76 percent of completion with an additional 90:35 hours having been flown. Three sorties were flown against the FPS-10, and nine were flown in conjunction with Project 27 against the Eglin-Tyndall radar complex. Results were covered in Projects 27 and 32 respectively.[56]

Auxiliary Project 18 remained at 45 percent of completion. The search-and-stop circuit built was used to sweep the VHF transmitter over the 100-150 megacycle range. Sensitivity was improved. After the correct power supplies have been built, the transmitter should automatically lock-on any frequency to which the receiver is previously set. There is no VHF increductor receiver manufactured which will meet project specifications. CGS Laboratories, Stamford, Connecticut, was to give the schematics and sell the increductors to the Wing to build a receiver that will meet project specifications.[57]

Auxiliary Project 23 remained at 90 percent of completion. San Antonio Air Materiel Area has stated that matching sections for the AT(XA-213)AP antennas were complete. The Barksdale Air Force Base Supply Liaison Officer at SAAMA promised immediate delivery to the Wing. Now in process are matching sections for the AT(XA-212)AP antenna.[58]

Auxiliary Project 24 increased five percent to 85 percent of completion. Altitude chamber tests of the QRC-8 transmitters showed:

56. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
57. Ibid.
58. Ibid.

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Test #1. An arc developed at 25,500 feet and at 27,000 the AC fuses blew out. That was the first time this trouble occurred.

Test #2. Under the same conditions as in Test #1, the set operated up to 33,250 feet when a large sustained arc from the positive high voltage input receptacle blew the AC fuses. The set operated normally when returned to ground altitude.

Test #3. Conditions were the same as for Test #1, the set operated normally up to 33,400 feet when an arc occurred in the PP-87 power supply blowing the AC fuses.

From the results of the tests, it was concluded that the QRC-8 is not operationally reliable above 30,000 feet. Further insulation and improved lead dress should raise the altitude to 35,000 feet. It is believed that above this altitude, arcing would cause frequency instability. A final report was being written on the project.[59]

Auxiliary Project 25 remained at 90 percent of completion with an additional 32 hours being flown. At the request of WADC, flight test on the remaining two stub antennas was terminated, and they were sent to WADC for inspection and evaluation. Unless additional antennas are received from WADC, or new stub type antennas are designed by the Wing, the project will be ended. A report covering the complete project was being written.[60]

Auxiliary Project 26 (incorrectly numbered 25, on top of page

59. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
60. Ibid.

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13 in the report),[61] increased two percent to 72 percent of completion with 2:15 hours more being flown, (total 22:15). On a flight with an F-86D aircraft, equipped with Airborne Intercept radar, against a B-47 equipped with the AN/APS-54, the tail warning section operated properly with the A-5 system off and the "Min PRF" control set at "Min" but failed to function when the A-5 radar was on, or with any other setting of the "Min PRF" control. Further tests will be scheduled with the five remaining functional aircraft.[62]

Auxiliary Project 27 remained at 25 percent of completion with no further action contemplated unless requested by higher headquarters.[63]

Auxiliary Project 28 increased one percent to 96 percent of completion. Fifteen feet of the new RG-117/U cable were received but has not been flight tested.[64]

Auxiliary Project 29 increased two percent to 67 percent of completion with an additional 7:30 hours being flown (total 23). Additional Styroflex cable for further testing is not available due to limited output and expense of production. Hallicrafters Company, Chicago was to investigate the best transmission systems available for the AN/ALT-6 and AN/ALT-8, it was agreed that the system recommended or produced by Hallicrafters must produce results equal to

61. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
62. Ibid.
63. Ibid.
64. Ibid.

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those produced by the system recommended by the 376th Bomb Wing. Headquarters USAF agreed to produce 50 ARC-24(t) systems for 376th Bomb Wing aircraft, each consisting of: Six - 6 foot cables with quick disconnect connectors and outlet adapter for AN/ALT-6; Two 8 foot cables equipped with quick disconnect adapters for outlet of AN/ALT-8; Eight antennas, either diamond or AT-11 type, modified to fit AB-109 mounts. Hallicrafters Company had 30 days in which to determine the best system and then sufficient equipment of the final system has to be produced to outfit 50 aircraft.[65]

Auxiliary Project 30 increased one percent to 96 percent of completion with seven and one half additional hours flown (total 23). It appears that a clamping ring similar to the type employed in UG-532/U connectors may have to be used. Work to achieve greater mechanical stability and electrical performance by use of a Tchebysheff step transformer has been started and the new connector sent to WADC and to Hallicrafters for study.[66]

Auxiliary Project 31 increased one percent to 46 percent of completion with seven and one half hours flown (total 23). The diamond, helix and horn antennas were undergoing study at Hallicrafters in connection with the AN/ALT-6 and AN/ALT-8.[67]

Auxiliary Project 32 increased 15 percent to 100 percent of completion; the cradles have been operational since July 1954. A

65. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
66. Ibid.
67. Ibid.

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spare cradle was modified to accept the chaff intervalometers for use with the AN/ALE-1 dispenser with no change in aircraft wiring.[68]

Auxiliary Project 33 increased 10 percent to 65 percent of completion with 1:15 more hours flown (total 4:30). A flight test of the equipment against the AN/MSQ-2 radar at Eglin Air Force Base (Site three), Florida, consisting of six runs, each 60 miles long, were flown at optimum altitude. The warning receiver and relay installation was arranged to start the AN/ALE-1 chaff dispensers when triggered from the ground radar signal and successful results were obtained on each run.[69]

Auxiliary Project 34 remained at 100 percent of completion with all aircraft having the radome installed. Interference with the UHF antenna was eliminated with use of the radome but after numerous chaff missions, an abrasion was noticed on the leading adge of the radome. To correct this condition, leading edges of all radomes were coated with a latex smoothing compound. Suitability tests were to continue.[70]

Auxiliary Project 35 remained at 85 percent of completion. Tests of the QRC-9 used with the S-121 rapid scan receiver were complete and the final report was being written.[71]

Auxiliary Project 37 remained at 15 percent of completion. It

68. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
69. Ibid.
70. Ibid.
71. Ibid.

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was decided to broad band the AN/ALT-6 by means of injecting a 10 megacycle signal into the filament of the magnetron by use of a bifilar choke coil inserted in the filament leads.[72]

Auxiliary Project 39 increased two percent to 17 percent of completion. The ARD-9 crystal video receiver was bench tested during January, February, and March. Flight tests have not been made yet. The TS-403/U signal generator showed a low sensitivity which is believed will seriously limit the range of homing on low power jammers.[73]

Auxiliary Project 41 increased one percent to 16 percent of completion, with preliminary literary research continuing and construction on test models of the antennas to begin soon. At this time, it appears that a double ridge flexible waveguide type of X-band transmission line will be used.[74]

Auxiliary Project 42 increased 10 percent to 15 percent of completion. A prototype rotary disc type chaff tape cutter seemed most promising, however, improvements were apparent, and a second model was being constructed for testing. Other concepts of chaff tape cutting were still being investigated.[75]

Auxiliary Project 44 remained at 50 percent of completion with engineering drawings and wiring schematics being completed. A

72. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.
73. Ibid.
74. Ibid.
75. Ibid.

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prototype installation was to be made pending approval.[76]

76. "376th U-30 for Mar 55", 8 Apr 55, exhibit #15, this History.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of March 1955, the Wing had 48 B-47's assigned and possessed,[77] and 22 KC-97's assigned and possessed,[78] which was the same as in February 1955.[79] Maintenance figures showed a total of 1593:05 hours flown for an average of 33:19 hours flown per possessed B-47 aircraft; and a total of 719:40 hours flown for an average of 33:10 hours flown per possessed KC-97 aircraft.[80]

The in-commission rate in March was 78.44 percent[81] compared to 75.80 percent for February.[82] The AOCP rate for B-47's was 3.2 percent and for KC-97's was .38 percent for March 1955.[83] The ANFE rate was 100 percent for both types of aircraft during the month.[84]

There were approximately 65 component parts changed on B-47 aircraft in March, and 20 on KC-97 aircraft for the period. During the month there were eight B-47 and five KC-97 type aircraft processed through the maintenance docks, and flight line inspections were performed on 12 B-47 and five KC-97 aircraft.[85] There were 14 flight

77. Report, "Historical Report for the month of March 1955, 376th Wing Maintenance Control Unit", n.d., hereafter cited as "376th Maint Hist for Mar 55", n.d., exhibit #16, and chart, exhibit #17, this History.
78. Ibid.
79. History 376th Bomb Wing for Jan & Feb 55, page 40.
80. "376th Maint Hist for Mar 55", n.d., exhibit #16, and chart, exhibit #18, this History.
81. Ibid, and chart, exhibit #19, this History.
82. History 376th Bomb Wing for Jan U Feb 55", pages 40 and 41.
83. "376th Maint Hist for Mar 55", n.d., exhibit #16, and chart, exhibit #20, this History.
84. Ibid, and chart, exhibit #19, this History.
85. Ibid.

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tests on B-47 aircraft and 19 on KC-97 type aircraft for the month.[86] A total of 342 Unsatisfactory Reports (UR's) were submitted during March 1955.[87]

The following manhour figures were based on a 44 hour week, with four hours per week, per airman, used for Ground Training, Parades, Squadron Duty or excused from duty. A total of 85,979 manhours were expended as direct time, 91,194 manhours as indirect time, 8,957 manhours as overtime, 76,855 absentee hours, and a total of 177,174 manhours available for work.[88]

A total of 12 B-47 engines were changed in March,[89] as against eight for February;[90] and 11 KC-97 engines changed in March,[91] as against six for February.[92] The average engine time at change for B-47's was 236, and for KC-97's was 398 hours in March 1955.[93] There were 51 B-47 and 17 KC-97 aborts in March,[94] as against 71 B-47 and four KC-97 aborts in February 1955.[95]

87. "376th Maint Hist for Mar 55", n.d., exhibit #16, this History.
88. Ibid.
89. Ibid, and chart, exhibit #21, this History.
90. History 376th Bomb Wing for Jan & Feb 55", page 42.
91. "376th Maint Hist for Mar 55", n.d., exhibit #16, and chart, exhibit #21, this History.
92. History 376th Bomb Wing for Jan & Feb 55, page 42.
93. "376th Maint Hist for Mar 55", n.d., exhibit #16, and chart, exhibit #22, this History.
94. Ibid.
95. History 376th Bomb Wing for Jan & Feb 55, page 42.

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EQUIPMENT MALFUNCTIONS

One failure of a cooling pump motor in an AN/ALT-8 transmitter was experienced, causing the thermal switch to actuate, shutting off the high voltage - the cause was undetermined. Complete pump and motor assembly was removed and sent with the UR, and the unit was replaced.[96]

Seventeen UG-1106 centerpins have broken (UR 376BW-54-1910 was submitted). Also threads on the UG-1106 have stripped causing six malfunctions (UR 376BW-54-1911 was submitted). Center pins (one piece) and new heads for UG-1106 are to be furnished by General Electric Company on a complaint basis.[97]

Equipment malfunctions on the A-12D Gyropilot occurred in March as follows: Autopilot aileron axis jitters in straight and level flight. Worn generator brushes were the cause. The unit (servo control) was replaced because it was not reparable at Barksdale Air Force Base (UR 376BW-55-723 was submitted).[98]

MAINTENANCE ENGINEERING DIFFICULTIES

During the last two months, discrepancies were noted in the B-47 ECM transmitter control circuitry for the Phase III installation as follows: Aircraft 52-394 through 507, including all aircraft of the 376th Bombardment Wing (M), will not accomodate the production model

96. "U-19 for Mar 55 by Nicholson", 1 Apr 55, exhibit #14, this Hist.
97. "U-19 for Mar 55 by Lella", 1 Apr 55, exhibit #9, this Hist.
98. "U-19 for Mar 55 by Kronlage", 1 Apr 55, exhibit #13, this Hist.

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of the T464/ALT-7. The transmitter will not operate in these aircraft due to wiring changes made for the thyratron speed control circuit for the sweep motor. This discrepancy also applies to Blue Cradle, and new transmitters cannot be used until cabling is modified. Other discrepancies have been previously reported, namely the AN/ALT-6, will not sweep because of omission of one wire in transmitter to power supply cabling (also applicable to aircraft 52-565 through 587), and the AN/ALT-8 operating with two sources of 28V DC in the control circuitry.

Aircraft 52-565 through 53-2287 will permit operation of the AN/ALT-8, but the equipment cannot be turned off at the remote position. The transmitter will be in "standby" condition as long as there is power on the secondary inverter buss. The AN/ALT-8 is also operating with two sources of 28V DC in the control circuitry. The discrepancies were covered in UR's 376BW-55-620 through 55-622.[99]

The correct determination of the AN/ALT-6 transmitter efficiency is impossible at this station due to the lack of power measuring equipment, which is not available to the Air Force as yet, and none is expected in the near future.[100]

A need exists for AN/APS-54 line test equipment. AN/APS-54 test equipment and procedures developed by Mr. Robert G. Nevitt, Philco

99. "U-19 for Mar 55 by Nicholson", 1 Apr 55, exhibit #14, this Hist.
100. "U-19 for Mar 55 by Lella", 1 Apr 55, exhibit #9, this Hist.

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Field Engineer, and mentioned previously,[101] are still needed. Explanation and a schematic of the equipment needed is appended to this History.[102]

OPERATIONAL DIFFICULTIES

The design of the AN/ALE-1 counter circuit is such that a false indication of chaff reserve can be obtained when using the TD-93 intervalometer. The difficulty could be corrected on intervalometer positions A through D by a slight modification, and on positions E and F by another slight modification (UR 376BW-55-906 was submitted.[103]

SPECIAL DEVELOPMENTS

No QRC-8 missions were flown during March. The remaining 19 sets were returned from the factory and by the end of the month, 14 sets were installed.[104]

The Air Force and Hallicrafter Company were trying to develop a better antenna system for the AN/ALT-6 and AN/ALT-8.[105]

A QRC-8 photo electric RF wattmeter, which could be used with any transmitting equipment using a lamp bulb dummy load, is described

101. Exhibit #22, History 376th Bomb Wing for August 1954.
102. Supplements to exhibit #10, this History.
103. "U-19 for Mar 55 by Nevitt", 1 Apr 55, exhibit #10, this Hist.
104. "U-19 for Mar 55 by Nicholson", 1 Apr 55, exhibit #14, this Hist.
105. "U-19 for Mar 55 by Lella". 1 Apr 55, exhibit #9, this Hist.

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in this History, also attached is a schematic of the latest AN/APS-54 crystal protector. A program was started on Barksdale to determine the operation of the AN/ALE-1 type D-1 stripper under various load conditions to determine if any strippers are defective and need replacement.[106]

The K-System WEMP test was given to all the K-System mechanics, and a training program was being set up around the results.[107] The Historian will try to cover this program in the next history.

106. "U-19 for Mar 55 by Nevitt", and appendices thereto, 1 Apr 55, exhibit #10, this History.
107. "U-19 for Mar 55 by 5 Engrs", 1 Apr 55, exhibit #12, this Hist.

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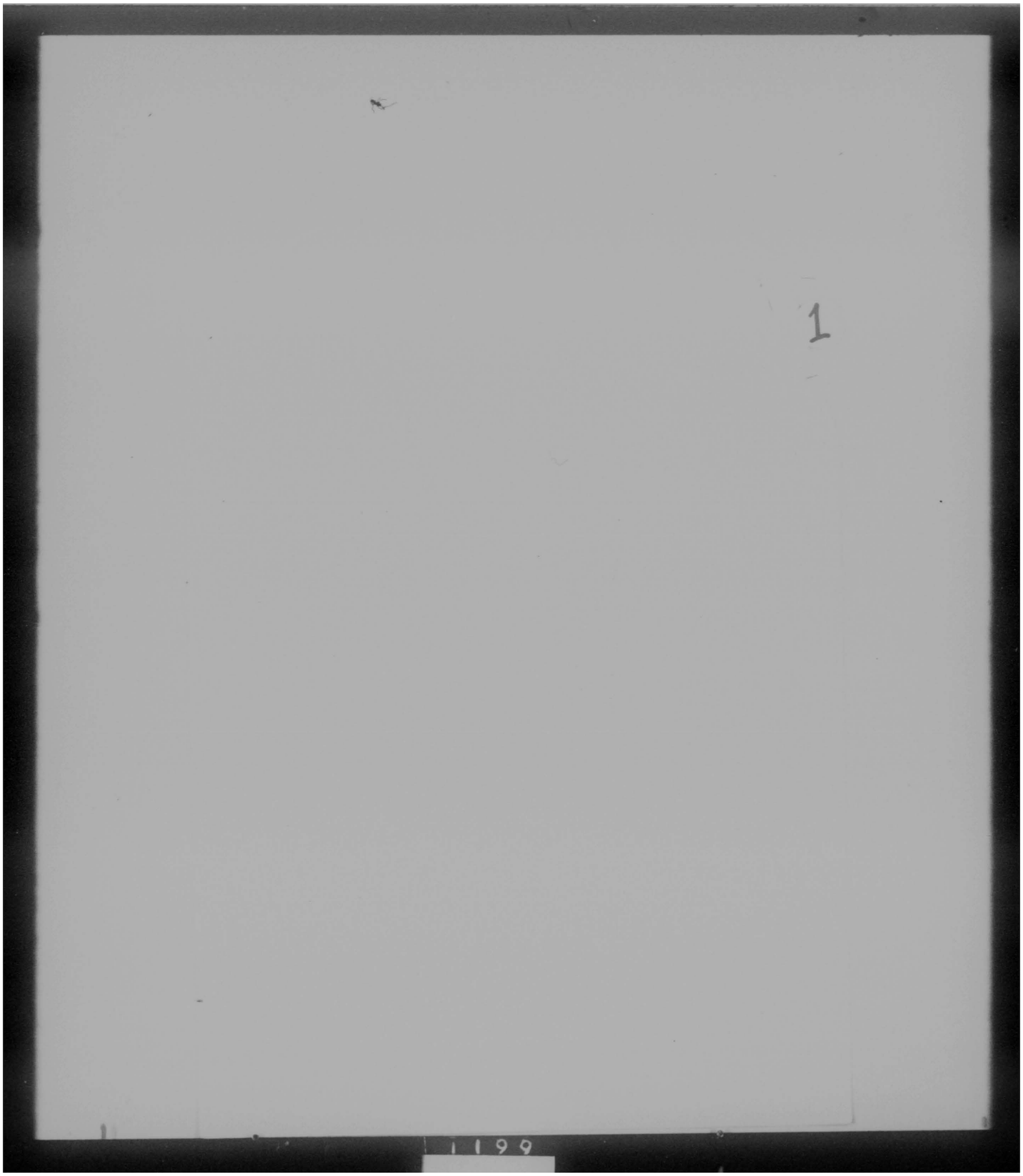

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SAC Management Control System

376A 376DP 7 Apr 55

1. In compliance with D/F your office, subject as above, dated 23 Apr 54, the following information is submitted:

a. Manning in Required Specialties

		% of Maximum Score
Officers	83.1	50
Airmen (Direct Support)	80.6	40
Airmen (Indirect Support)	77.6	30

b. AWOL Rate per 1000 (Dec 54, Jan, Feb, and Mar 55):

1.08	100

c. Reenlistment Rate (Dec 54, Jan, Feb, and Mar 55):

21.5	20

d. Ground Safety (Dec 54, Jan, Feb, and Mar 55):

Ground Safety Index	Accident Cost Index	% of Maximum Score
4.75	.49	100

2. Officer MIRS rose due to all officer authorization for B-47 Cadre being reallocated to the 301st Bomb Wing. Auth: 2AF message DPLM 3908, dated 19 Mar 55.

3. Indirect Support Airmen MIRS dropped slightly. Eighty-five airmen were separated or reassigned out of the Wing and forty-nine airmen were assigned.

4. Ground Safety rose to 100% of the maximum score. No injuries or Government vehicle accidents were charged to the Wing for the month of March. A more accurate method of computing mileage was used during the month of March which raised the mileage for the four month period.

/s/t/JAMES M. NEUSTADTER, 1STLT, USAF
Personnel Officer

THIS IS A TRUE COPY.

William H. Murphy
WILLIAM H. MURPHY, MAJOR, USAF

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MONTHLY ANALYSIS (MARCH 1955)

1. Officers Assigned during March 1955:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Col	(1416)	Bernard V. Ogas	4518A	376th Hq Sq
Capt	(1521A)	Philip F. Lachapelle	AO 2089681	376th Hq Sq
1st Lt	(1534P)	James S. Lundberg	AO 3005709	376 Air Rflg Sq
1st Lt	(1231C)	Charles V. Creach, Jr.	AO 783045	512 Bomb Sq
2nd Lt	(9734)	Rosemarie Barella	AN 2242984	376 Tac Hosp

TOTAL: 5

2. Officers Transferred and Separated during March 1955: Three to Loring Air Force Base, Maine, and one each to Camp Kilmer, New Jersey, Mather Air Force Base, California, Wolters Air Force Base, Texas, 301st Bomb Wing, Barksdale Air Force Base, Louisiana, James Connally Air Force Base, Sheppard Air Force Base, Texas, and one released from active duty, as listed:

Capt	(1234C)	Lemuel H. Bellamy	AO 796649	376 Air Rflg Sq
Capt	(1534A)	Thomas M. Beebe	AO 2060457	376 Air Rflg Sq
1st Lt	(1231C)	Thomas E. Davey	AO 3006196	376 Air Rflg Sq
Major	(4316)	John J. Evans	AO 503828	376th Hq Sq
Major	(1541)	Richard H. Fouts	AO 666645	376 Air Rflg Sq
Capt	(2054)	Walter A. Sudymont	AO 557634	376th Hq Sq
Capt	(1521A)	Philip F. Lachapelle	AO 2089681	376th Hq Sq
1st Lt	(1231B)	Elbert E. Smith	AO 1911944	513th Bomb Sq
1st Lt	(2054)	William J. Gleason	AO 2214863	512th Bomb Sq
1st Lt	(Charles C. Haskin		AO 1847666	512th Bomb Sq

TOTAL: 10

3. Airmen Assigned during March 1955 (by Prim AFSC):

20430	- 2	53010	- 2	64175	- 1
20450	- 1	53270	- 1	70250	- 3
30130	- 5	53450	- 2	73010	- 1
30150	- 2	53470	- 1	73230	- 2
30250	- 1	58131	- 1	73231	- 2
32351F	- 1	60170	- 1	73250	- 1
40230	- 2	60330	- 1	80130	- 1
42010	- 1	69131	- 1	80230	- 1
42132	- 1	64151	- 2	90230	- 4
47131	- 2	64173	- 1	90631	- 1
47155	- 1			90670	- 1

TOTAL: 49

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4. Airmen Transferred and Separated (not Reenl) in March 55 (by Prim AFSC):

22350	- 1	30250	- 3	42250	- 1
29353	- 1	30270	- 2	42270	- 1
29370	- 2	32150E	- 1	42330	- 1
30150	- 3	32371F	- 1	43151B	- 1
30170	- 1	40250	- 1	43171A	- 2
30230	- 6	42152	- 2	43171E	- 2
43350	- 2	55250	- 1	70230	- 2
43370	- 1	58250	- 2	70250	- 4
43371	- 3	58170	- 1	72171	- 1
46130	- 2	60150	- 1	73250	- 1
46250	- 3	60350	- 1	73251	- 1
46270	- 1	60370	- 1	80230	- 1
47131	- 1	62230	- 1	90130	- 1
47151	- 1	62250	- 1	90250	- 7
47154	- 1	62270	- 1	90450	- 1
53170	- 1	64151	- 1	90470	- 1
53450	- 4	64171	- 1	90650	- 1

TOTAL: 85

5. Reenlistment Rate (Dec 54, Jan, Feb & Mar 55):

Number Discharged	Number Reenlisted	% Reenlisted
214	46	21.5

Discharged by Squadrons (March 1955 only):

376th Hq Sq	*MSGT S H Grieme (Retired)	SSGT L V Smith (Reenl)
	SSGT K L Burch (Reenl)	SSGT A E Thomason (Reenl)
	SSGT R P Goforth	A/1C H G Hamilton
	SSGT E H Sanders, Jr (Reenl)	
513th Bomb Sq	SSGT A G Meigh	A/1C B Orff, Jr.
514th Bomb Sq	TSGT E E Mathews (Reenl)	SSGT R H Sanders
376th Armt & Elec Maint Sq	TSGT C Y Bennett, Jr.	*A/1C E V Dubee
	SSGT J G Barbin	*A/1C J C Newson
	SSGT H B Bristol	A/1C R E Zimmerman
	SSGT B C Martin (Reenl)	A/2C G D Bettee
	SSGT A M Rogers	A/2C K L Judge
	SSGT J C Vurno	A/3C A E Duffy
376th Fld Maint Sq	*MSGT E E King (Reenl)	SSGT J W Pettus (Reenl)
	SSGT A T Berry	*SSGT J L Walker (Reenl)
	SSGT M Tulya	*A/2C J S Allem

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Discharged by Squadrons (Cont'd)

376th Fld Maint Sq	SSGT I Marks	A/2C B E Lane
	SSGT A E Owens	*MSGT C J Mifkovic (Reenl)
	SSGT H E Pagan	A/1C E C Bennet, Jr.
376th Air Rflg Sq	SSGT E M Berkheimer	SSGT R E Milner (Reenl)
	SSGT G R Johnson	A/1C P J Roddy
376th Tac Hospital	SSGT W L Babcock (Reenl)	A/2C H S Maye (Reenl)
	SSGT E W Brooks (Reenl)	A/3C G J Macioch
	*A/1C C A Clark	A/B G E Taylor

*Airmen separated but not included in the Reenlistment rate.

6. AWOL Rate per 1000 (dec 54, Jan, Feb & Mar 55):

	Assigned	Number AWOL	Percent
Officers	1615	0	0
Airmen	7673	10	1.30
TOTAL:	9288	10	1.08

AWOL by Squadron (March 1955 only)

376th Air Rflg Sq	A/2C Hamaoka
376th Fld Maint Sq	A/3C R M Smith

7. Gains and Losses:

	NR Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	10	2.2	5	1.1
Airmen	85	4.7	49	2.7

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376th Hq Sq	64	69	54	84.4
512th Bomb Sq	77	57	57	74.0
513th Bomb Sq	77	57	57	74.0
514th Bomb Sq	77	62	62	80.5
376 Air Rflg Sq	100	110	94	94.0
376 A&E Maint Sq	15	16	14	93.3
376 Fld Maint Sq	7	5	5	71.4
376 Per Maint Sq	5	4	4	80.0
376 Tac Hospital	27	23	20	74.1
TOTAL:	449	403	367	81.7
Consolidated MIRS:	449	403	373	83.1

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9. Effective Manning of Airmen:

ORGN	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF NO ASGD	DIR EFF NO MIRS	INDIR EFF NO ASGD	INDIR EFF NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376th Hq Sq	57	46	80	86	39	39	65	64	68.4	68.4	81.3	80.0
512th Bomb Sq	86	86	24	25	84	74	19	18	97.7	86.1	79.2	75.0
513th Bomb Sq	85	86	24	18	80	65	17	17	94.1	76.5	70.8	70.8
514th Bomb Sq	96	91	24	21	90	74	18	17	93.8	77.1	75.0	70.8
376 Air Rflg Sq	193	191	57	51	160	148	50	43	85.0	76.7	87.7	75.4
376 A&E Maint Sq	348	442	72	44	300	253	46	42	86.2	72.7	63.9	58.3
376 Fld Maint Sq	266	273	170	163	245	213	148	137	92.1	80.1	87.1	80.5
376 Per Maint Sq	121	127	27	18	104	100	12	11	86.0	82.6	44.4	40.7
376 Tac Hospital	1	1	94	102	1	1	85	81	100	100	90.4	86.2
TOTAL:	1253	1343	572	528	1103	967	460	430	88.0	77.2	80.4	75.2
Consolidated MIRS:												
	1253		572			1010		444		80.6		77.6

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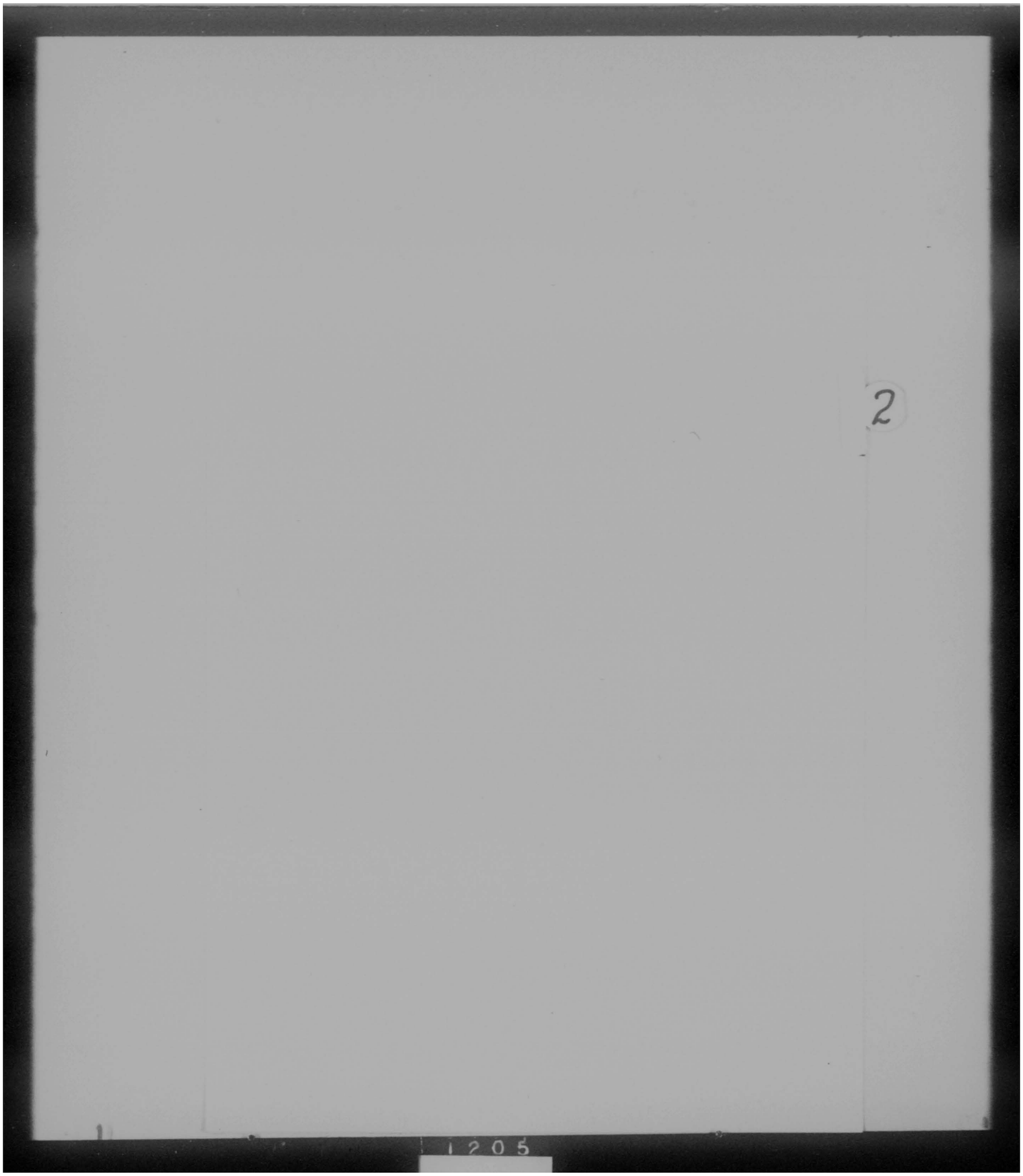

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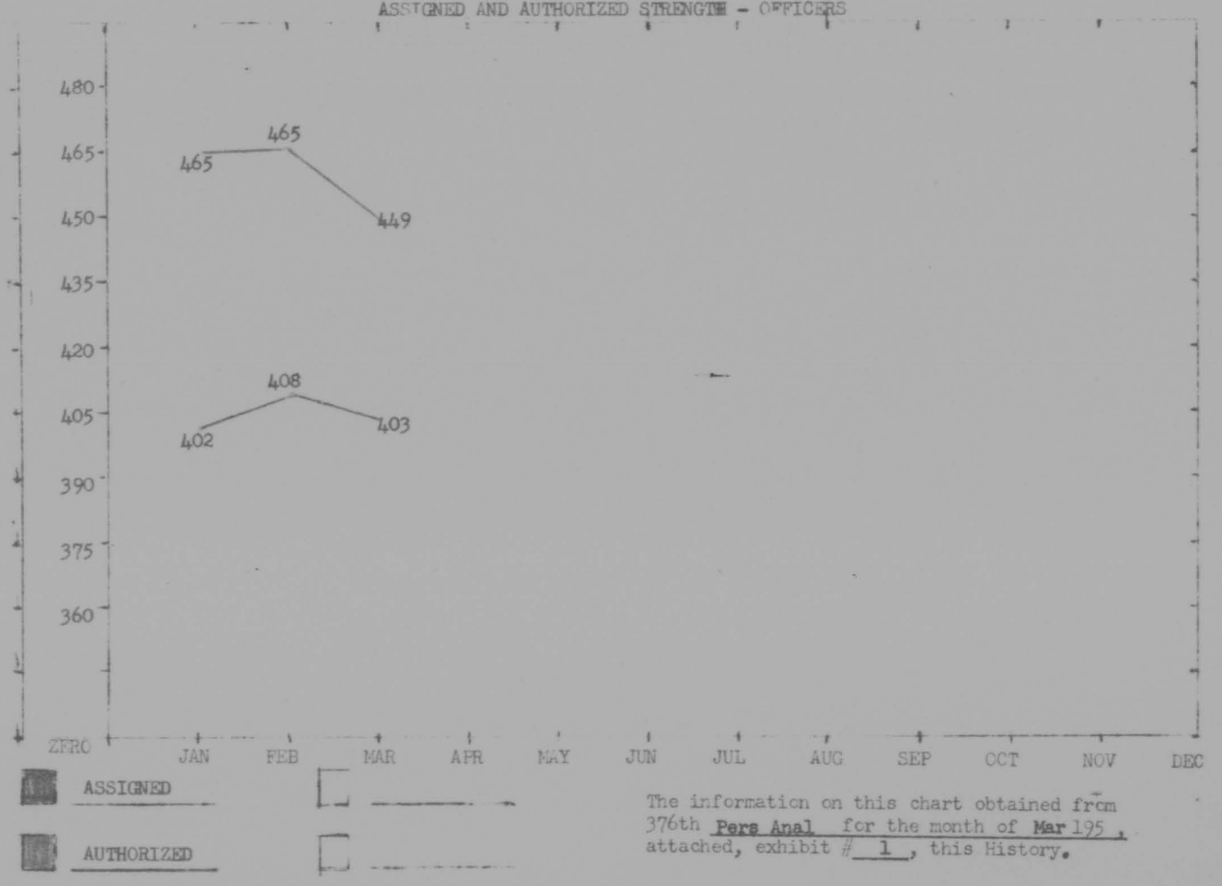
ASSIGNED AND AUTHORIZED STRENGTH - OFFICERS



The information on this chart obtained from 376th Pers Anal for the month of Mar 195 , attached, exhibit # 1 , this History.

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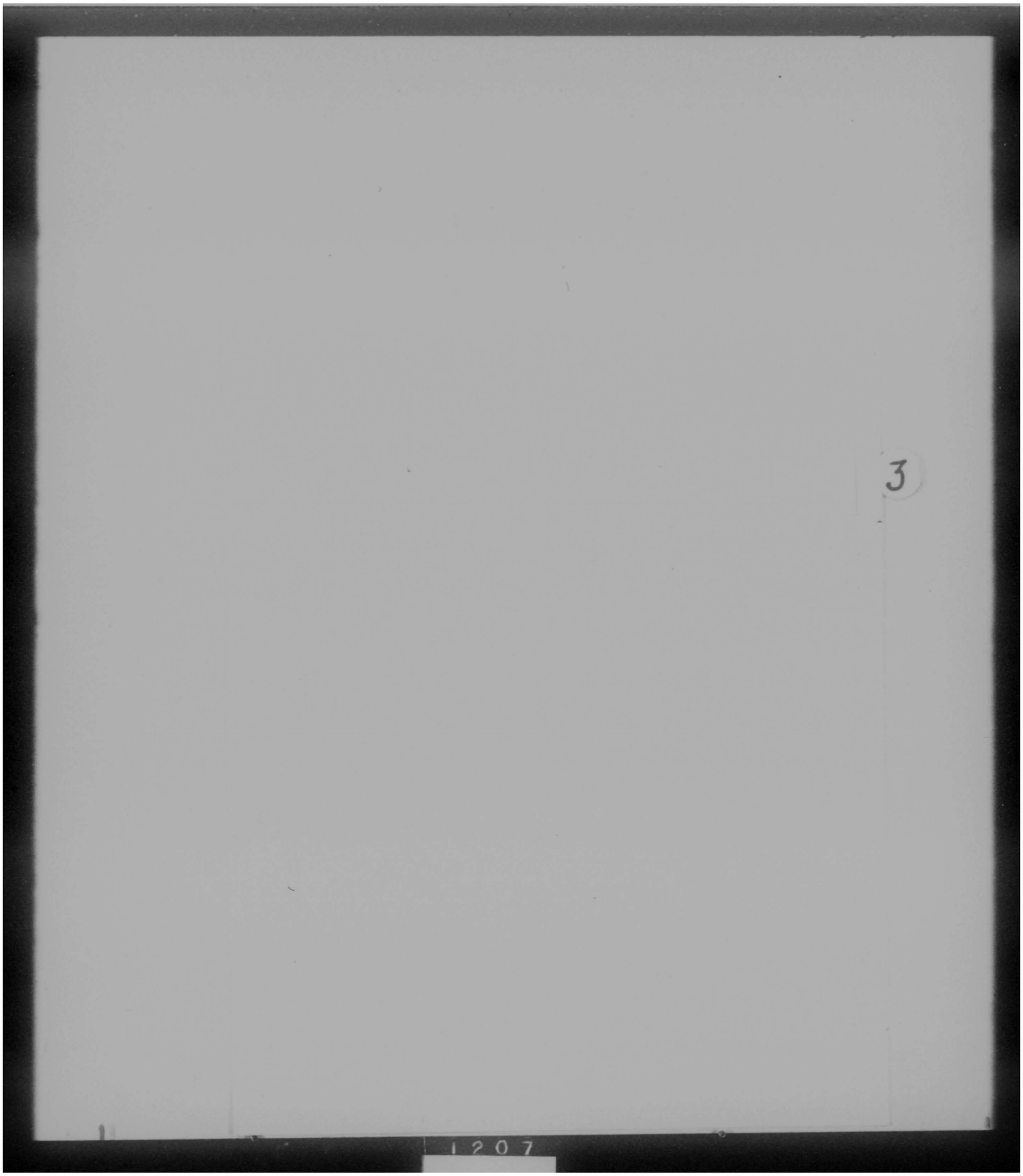

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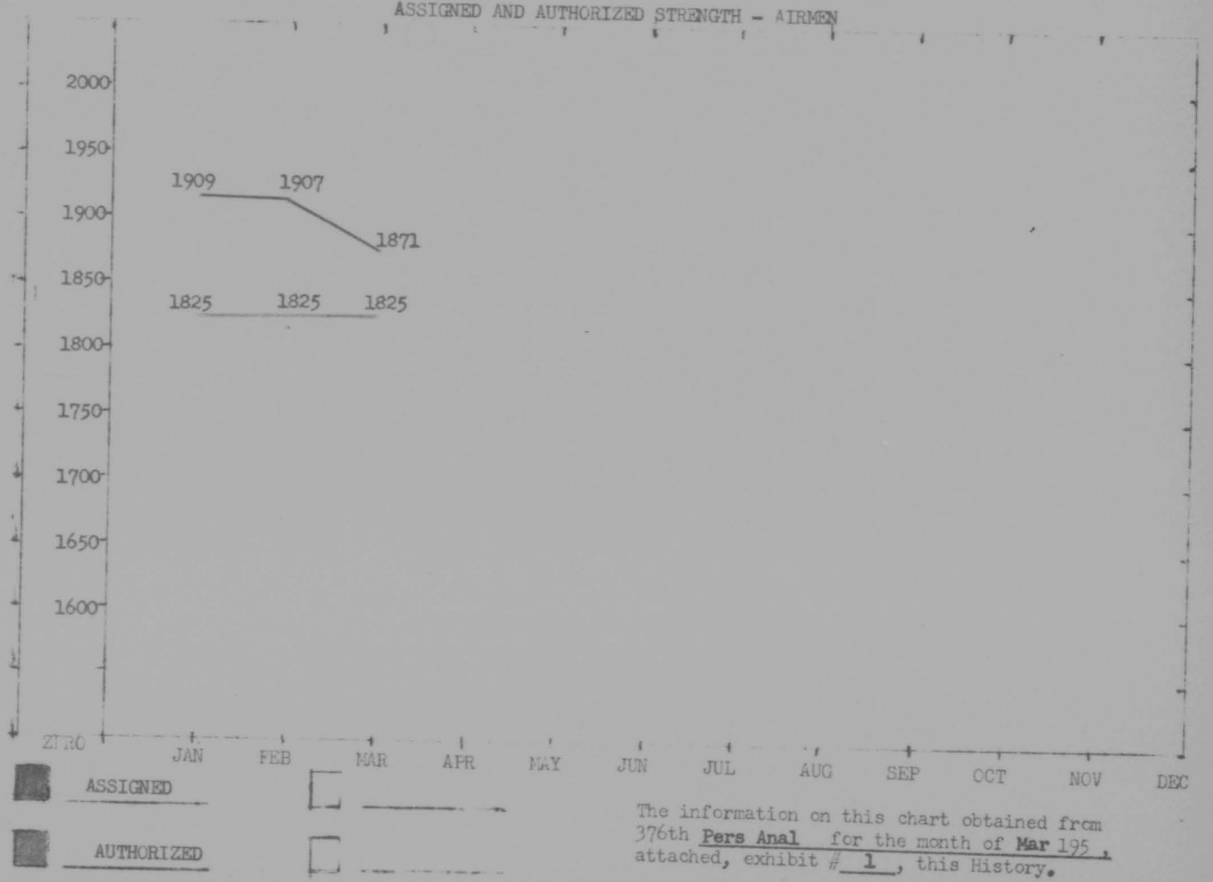
ASSIGNED AND AUTHORIZED STRENGTH - AIRMEN



The information on this chart obtained from 376th Pers Anal for the month of Mar 195 , attached, exhibit # 1 , this History.

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CLASSIFICATION: SECRET
AUTH: COMDR 376TH BOWGM
Initials Murphy
Date: 4 April 1958

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART V

Bombardment Air Training Report for month of March 1955
(RCS: 3-SAC-T12)

PART V:

6. Wing Commander's Remarks - Part V.

a. Hours flown performing missions ordered by higher headquarters:

(1)	ECM Test:	301:40
(2)	Second Air Force Operations Order 110-55;(Broomstick)	286:40
(3)	Second Air Force Operations Order 17-55; USCM.	296:55
(4)	SES Evaluation:	104:35
(5)	Second Air Force Operations Order 108-55;(Firmground)	77:10
	TOTAL	1067:00

b. Weather or local conditions affecting training:

(1) Adverse weather prevented flying on one day; 60 hours lost.

c. Directives imposed by AMC or SAC on aircraft:

(1) None.

d. Combat crew member gains or losses:

(1) Gains: One co-pilot.

(2) Losses: One co-pilot released from Active Duty: One Aircom transferred to wing staff.

e. Crew member changes:

(1) Three aircoms.

(2) Two co-pilots.

(3) Three observers.

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for March 1955

f. New crews: None.

g. Crew status changes:

(1) N45 to R45, 1 March. Upgraded.

(2) N77 to R77, 2 March. Upgraded.

(3) R03 to N03, 31 March. Regressed.

(4) R36 to N36, 22 March. Regressed.

(5) R16 to L16, 15 March. Upgraded.

(6) R35 to L35, 15 March. Upgraded.

(7) R39 to L39, 8 March. Upgraded.

(8) R43 to L43, 15 March. Upgraded.

(9) R69 to L69, 3 March. Upgraded.

(10) R78 to L78, 3 March. Upgraded.

(11) R82 to L82, 8 March. Upgraded.

h. Standardization Crews:

(1) L04, wing standardization crew.

(2) L11, L37, and L70 are squadron standardization crews.

i. Additional materiel and personnel problems:

(1) Officer effective manning for the 376th Bombardment wing increased three percent during March as compared to February. Effective manning of officers is 85 percent.

(2) Officer manning in AFSC's 1435, 3254, 4334, 4364, and 4355 remains critically short.

(3) Effective manning in the intelligence career field is 78 percent. With the known losses and no known input within six months, effective manning will be approximately 57 percent.

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(4) Career field 321: Manning in AFSC's 32150B, 32150C, and 32150D is zero percent. There are 14 airmen authorized and none assigned. Training is authorized from the 32150E field into these career field sub-divisions; however, personnel with the technical knowledge required are not available as instructors.

(5) Effective manning in the 402 career field is 62 percent. With the known losses and no known input within six months, effective manning in this specialty will be 43 percent.

(6) Effective manning in the munitions and weapons maintenance field is 68 percent. With the known losses and no known inputs within six months, effective manning will be 50 percent.

(7) Effective manning in the aircraft and engine maintenance field is 53 percent. With the known losses and no known input within six months, effective manning will be 36 percent.

(8) Effective manning in the air transportation career field is critical with manning at 55 percent. Operations is seriously hampered in that one of the 60170 supervisors is presently TDY to Detachment of Patients and one is pending reassignment, leaving only three for duty.

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(9) Effective manning in the supply career field is 72 percent.

(10) Effective manning in the personnal equipment career field is 40 percent.

j. S&C minimum Training requirements not accomplished:

(1) Some minimum training requirements were not accomplished by crews assigned this wing. Thirty-eight percent of the flying time expended during the quarter was flown in ECM test, training, or higher headquarters directed missions in which little, if any, 50-8 training minimums could have been accomplished.

k. Noncombat ready crews capable of deploying:

(1) Six crews: N10, N17, N52, N54, N55, and N81 have been trained to a point where they could be deployed for ECM missions in the event of an emergency.

l. Noncombat ready crew training:

(1) Nine noncombat ready crews (excluding TP crews) were in training during the month of March; however, five of these crews were not available for flying in that the aircraft commander, co-pilot, or observer were DNIF for prolonged periods, TDY to school, or lack of phase II training.

(2) Fifteen sorties for a total of 73 hours were flown as time in connection with training noncombat ready crew personnel.

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for March 1955

m. Flying time differences: Rescinded per SAC MSG DOTRS 45873.

n. Field training operations:

(1) Test of facilities: Pickup facilities at Barksdale Air Force Base and operational facilities at Bossier Base were tested. All facilities were adequate.

(2) Exercise: On 23 and 25 March, the 376th Bombardment Wing conducted an exercise in accordance with Second Air Force Operations Order 17-55, dated 8 March 1955. Nine aircraft were loaded on each day. On 23 March four aircraft were loaded with MK-6 training units and flown on the exercise with IFI being completed during refueling. All other aircraft were loaded with WR weapons and off-loaded prior to take off.

(3) Manèuvers: None.

o. Special training month remarks:

(1) Not applicable.

p. Comments or recommendations of the Wing Commander:

(1) The AOCP rate on B-47 aircraft increased from 3.08 percent in February to 3.27 percent for March; an increase of .19 during the month.

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for March 1955

(2) The average number of combat ready/lead crews assigned during March was 39. A total of 1347 hours (including test flight time) were flown for an average of 34.5 hours per crew.

(3) The average number of non-combat ready crews available (excluding TF crews) for flying training was four. A total of 160 hours were flown for an average of 40 hours per crew.

(4) The average number of possessed aircraft during March was 48. The average time per aircraft was 32.9 hours.

(5) In accordance with Second Air Force Regulation 50-11, dated 4 June 1954, the following combat crews have successfully completed special weapons standardization checks during March: Crews L43, L69, L78, R05, R06, R13, R15, R40, R73, R74, R75, R76, N10, N17, N52, N54, N55, N81, and N85.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

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CLASSIFICATION: SECRET
AUTH: COMDR 376TH BOMWGM
NAME: Murphy
DATE: 5 April 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART IV

Refueling Air Training Report for the Month of March 1955
(RCS: 4-SAC-T12)

PART IV:

7. I concur with comments of the Squadron Commander.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (H)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

PART III

Air Training Report for the month of March 1955
(RCS: 4-SMC-R12)

PART III

6. Squadron Commander's Remarks - Part III

a. Hours flown performing missions ordered by Higher Headquarters:

(1) Three (3) special cargo and passenger flights to Davis-Monthan AFB and return: 31:45

(2) One special passenger flight to MacDill AFB, West Palm Beach International Airport and return: 14:40

(3) One special passenger flight to MacDill AFB and return: 8:15

(4) One special passenger flight to Wright-Patterson AFB, Griffiss AFB, Friendship International Airport, Bolling AFB, Maxwell AFB and return: 12:50

(5) One special passenger flight to United Kingdom and return: 44:05

(6) Second AF Operations Order 17-55 - (USCM): 152:00

TOTAL: 263:35

b. Weather or local conditions affecting training:

(1) All training flights for KC-97 aircraft were cancelled by Headquarters 2AF, 26 Feb 1955 to 1 Mar 1955 inclusive pending inspection of electronic turbo system. Time lost was 40:00 hours.

1218

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(2) Two (2) pilot proficiency flights and one (1) air refueling mission were cancelled due to weather. Time Lost: 12:00

c. Restrictive Directives:

(1) Negative.

d. Combat crew member gains and losses:

(1) Crew members gained:

(a) One co-pilot.

(b) Two Navigators.

(c) Two engineers.

(d) Two radio operators.

(e) Two assistant boom operators.

(2) Crew members lost:

(a) Two aircraft commanders; 1 PCS Loring AFB; 1 delay en-route PCS SAC HQ.

(b) One co-pilot - PCS Loring AFB.

(c) Two navigators; 1 PCS Loring AFB; 1 PCS FEAF.

(d) Four flight engineers; 1 PCS [illegible]TS; 1 PCS 38th AD; 1 PCS Loring AFB; 1 discharged.

(e) Three radio operators; 1 discharged; 1 PCS Loring AFB; 1 PCS Rancy AFB.

(f) One boom operator; 1 PCS Loring AFB.

(g) Three assistant boom operators; 1 PCS Loring AFB; 2 discharged.

e. Crew members changed:

(1) Four aircraft commanders.

(2) Four co-pilots.

(3) Three navigators.

(4) Seven assistant boom operators.

(5) Four flight engineers.

(6) Four Radio operators.

(7) One boom operator.

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PART III - Squadron Commanders Remarks for month of March 1955

f. New crews:

(1) Negative:

g. Crew status changes:

(1) T-15 deleted, 1 March 1955. Crew transferred PCS to Loring AFB, Me., EDCSA: 1 March 1955.

(2) T-14 to M-14, 7 March 1955 - Downgraded due to loss of combat ready flight engineer (transferred PCS).

h. Standardization Crew:

(1) T-02.

i. Additional material and personnel problems:

(1) The ACCP rate for the month was .38 percent as compared to 5.32 percent for the previous month.

(2) The lack of boom operators and assistant boom operators will cause 4 non-combat ready crews and one training pool crew to be disbanded prior to 1 July 1955. This situation is due to personnel scheduled to be discharged during the period. The squadron will have 19 combat ready; plus one standardization crew 1 July 1955.

j. SAC Minimum training requirements not accomplished:

(1) Crew T-15 lacked two pilot proficiency flights to complete training requirements. This was due to the aircraft commander being re-assigned to the Wing Standardization Crew. The former aircraft commander on the Standardization Crew was earmarked for crew T-15, however, he was assigned TDY to Second Air Force, and subsequently assigned to Headquarters SAC. This required assigning the only available combat ready aircraft commander, who was undergoing advanced survival training. Date of return was 1 April 1955.

1220

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Sec 7

PART III - Squadron Commander's Remarks for the Month of March 1955

(2) Due to a heavy schedule for night refueling requirements and USCH, none of the non-combat ready crews completed 90 hours flying. It is proposed that requirements as outlined in Supplement IX, S.C Regulation 51-19 will be completed for all non-combat ready crews during the month of April 1955.

k. Non-combat ready crews capable of deploying:

(1) Two.

l. Non-combat ready crew training:

(1) The average flying time for combat ready crews was 35:24 hours as compared to 10:20 hours for non-combat ready crews. This was due to all available non-combat ready personnel utilized for guard duty during the USCH period.

m. Flying time differences:

(1) Rescinded by S.C Message DCTRS 45873 and Change I, Supplement IV to S.C Regulation 50-23, dtd 7 Jan 55.

n. Special Training Month remarks:

(1) Negative.

o. Comments or recommendations of the squadron commander:

(1) Negative.

WILLIAM D. LACK
Lt Colonel, USAF
Commander

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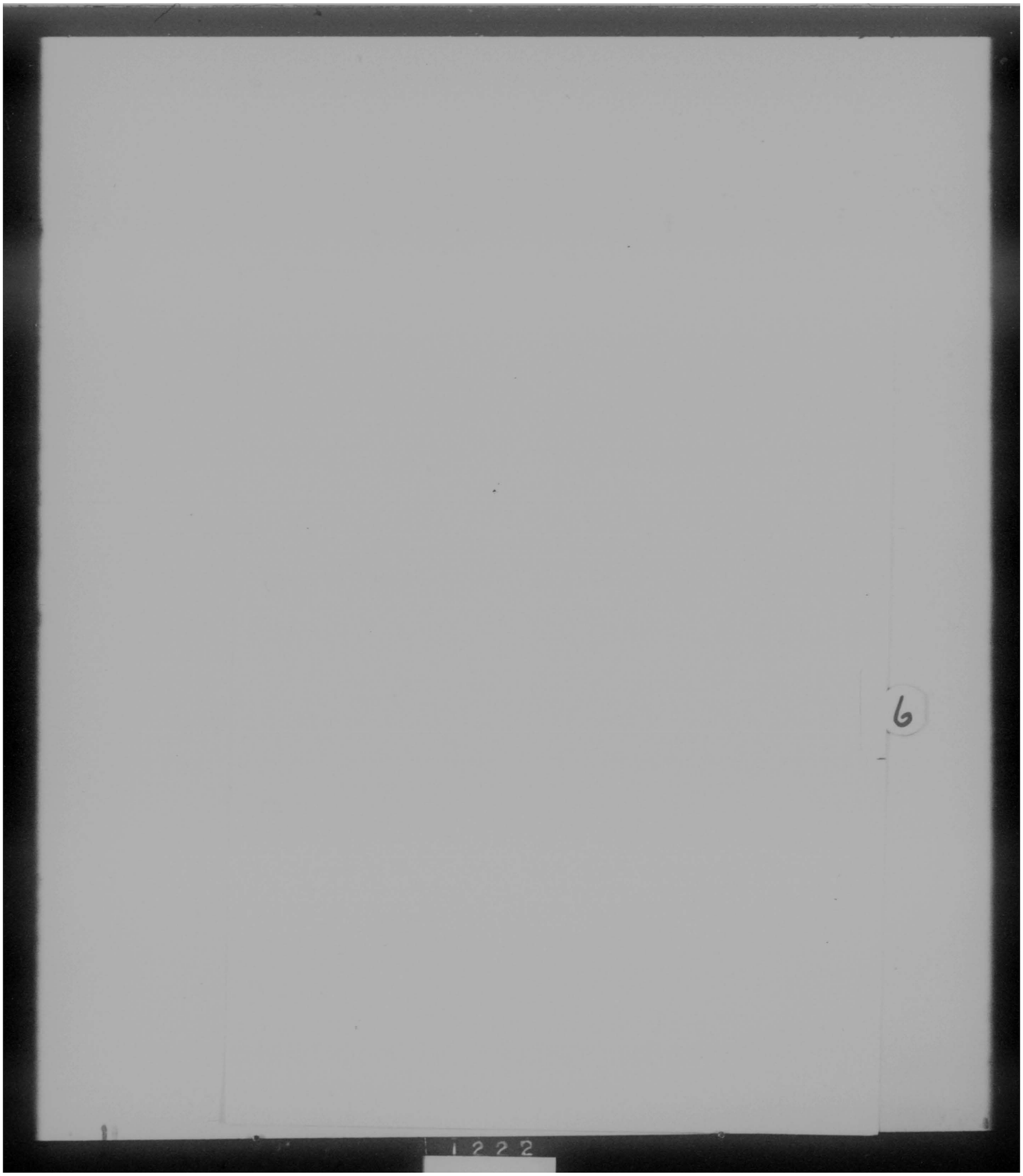

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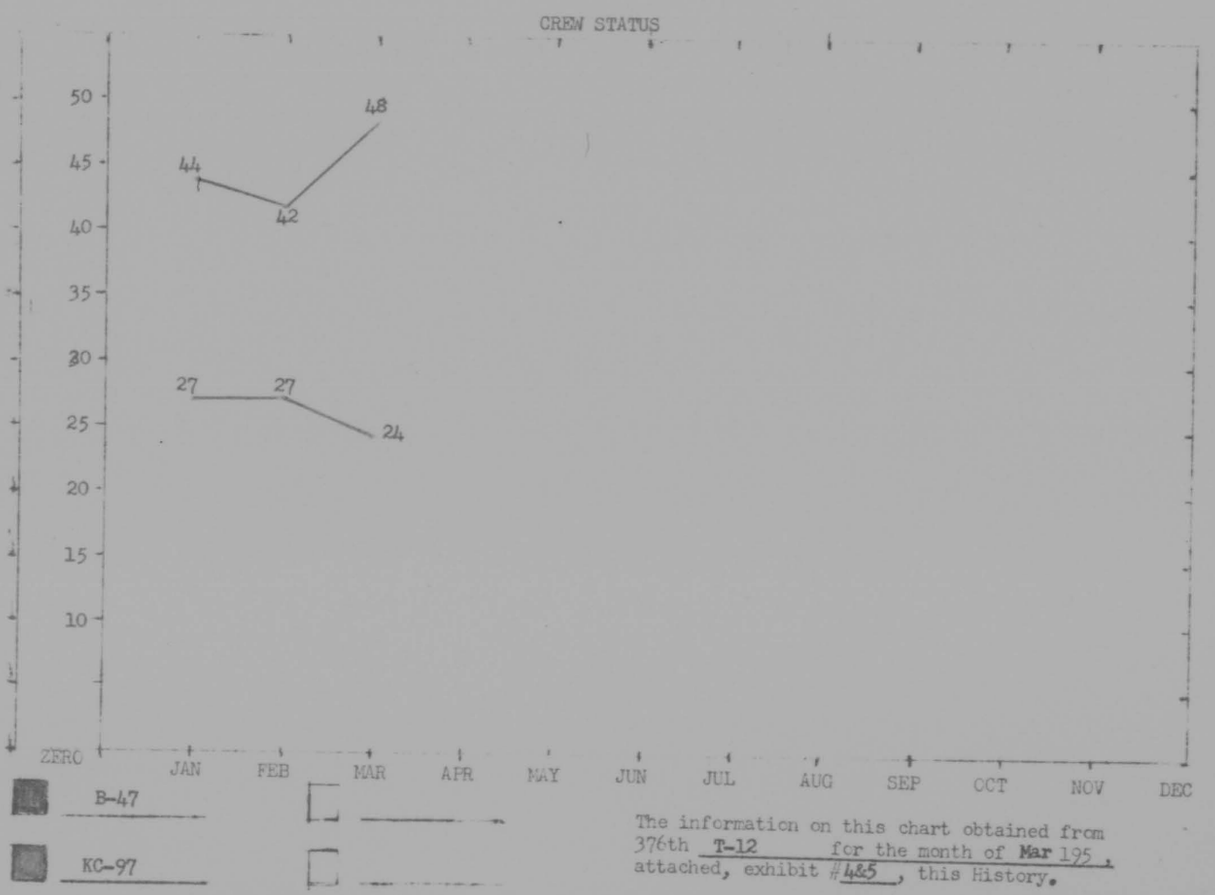

The information on this chart obtained from 376th T-12 for the month of Mar 195 , attached, exhibit #485 , this History.

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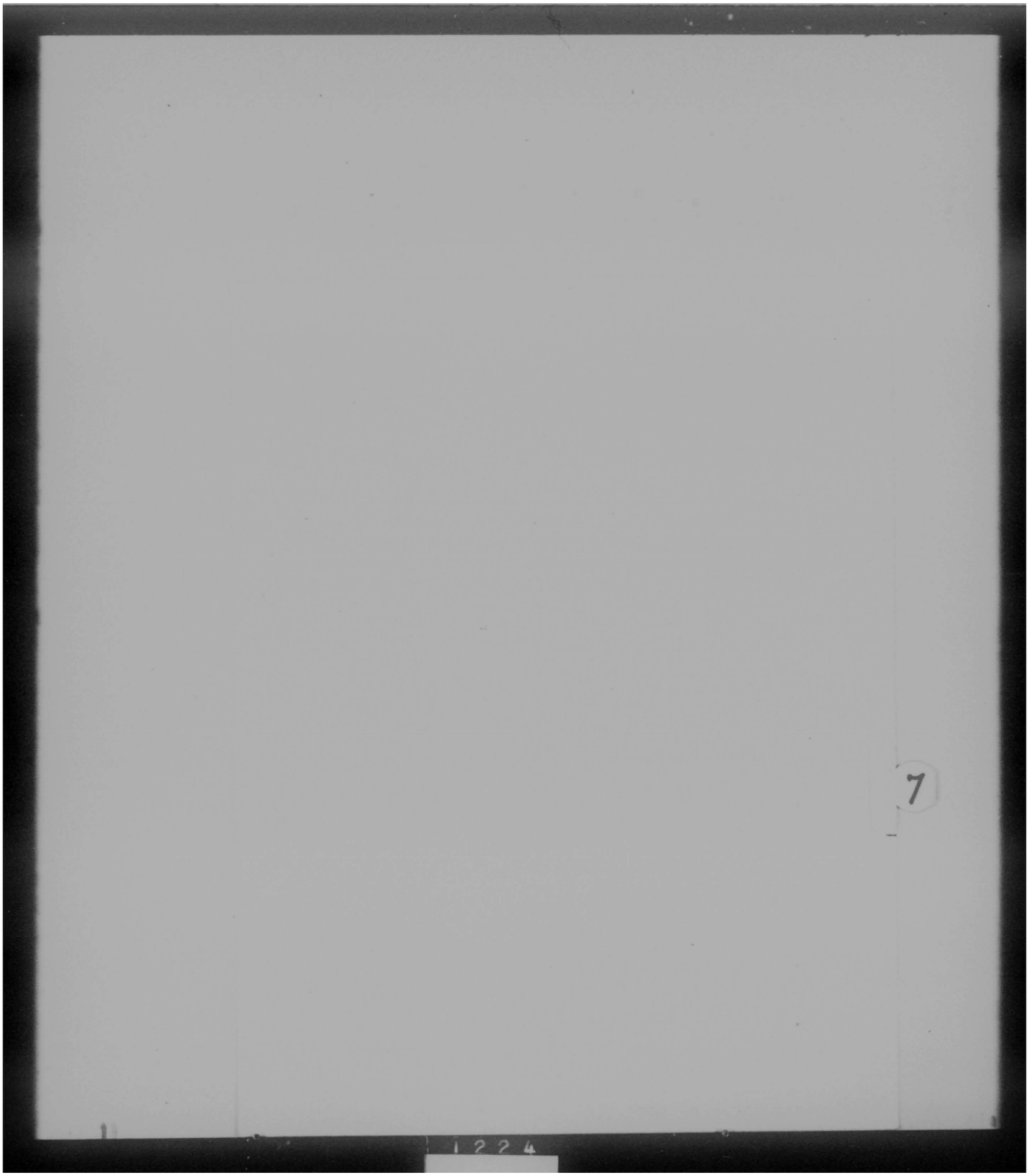

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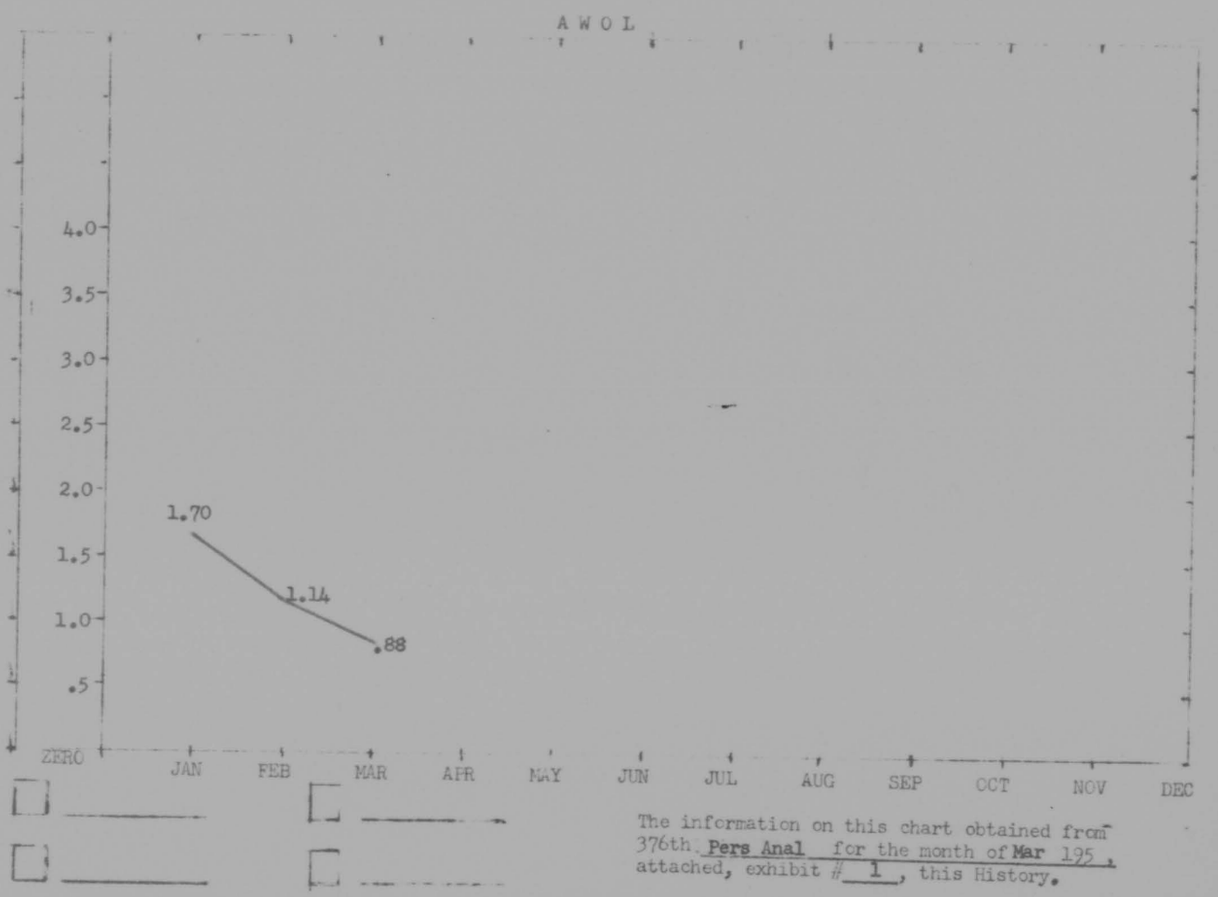

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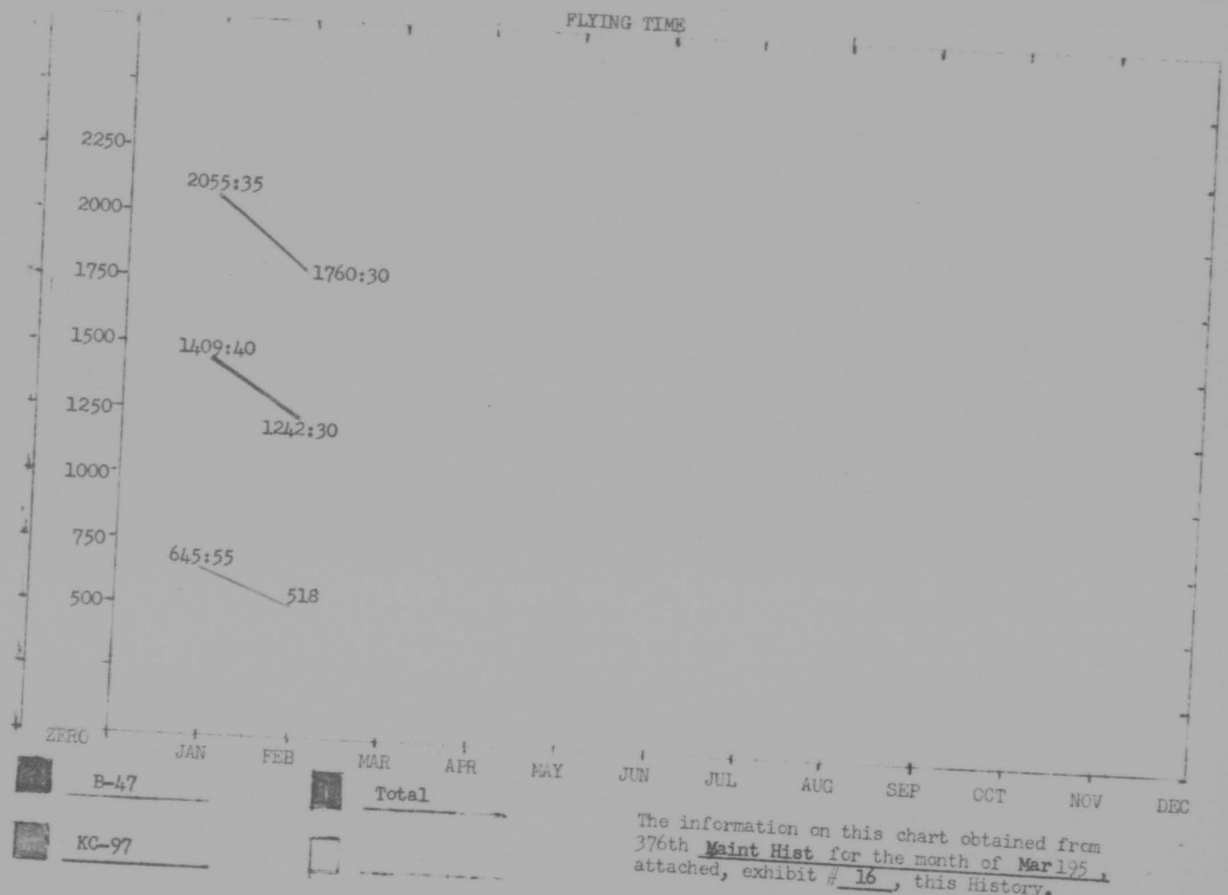

The information on this chart obtained from 376th Maint Hist for the month of Mar 195 , attached, exhibit # 16 , this History.

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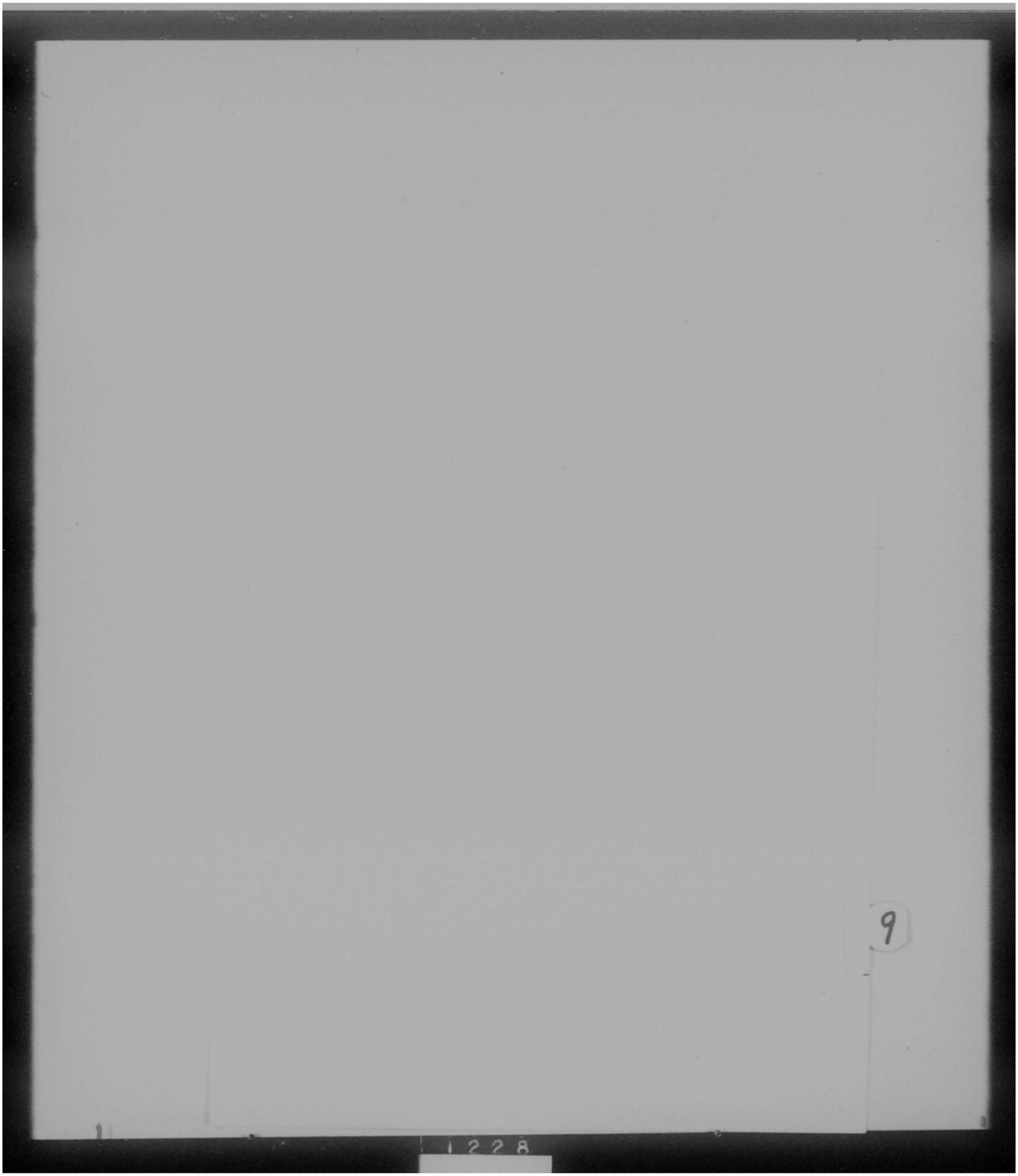

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS

1 April 1955

Contractor: General Electric Company
Utica, New York

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: John A. Lella
Joseph W. Steel

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Operational and Maintenance of ALT-6.
Number of men - 12.
Number of instructor hours - 23.

2. OJT:

a. General Alignment and Trouble-Shooting.
Number of men - 36
Number of instructor hours - 245.

3. Number of hours available for training - 368.
Number of hours taught - 268.
Percent on training - 70.9%.

IV. UTILIZATION:

1. Brief description of duties: To advise Air Force personnel in the operation and maintenance of the AN/ALT-6; to acquaint military personnel with new

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1229

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developments in the equipment and in more efficient methods of maintenance; to obtain information for improving the equipment and maintenance procedures.

2. It is estimated that the services of the General Electric Company Technical Representatives will terminate on or about April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. Description of Malfunction:

a. UG-1106 centerpins continue to break. Number of malfunctions - 17. Reference UR 376EW-54-1910.

b. UG-1106 threads continue to strip. Number of malfunctions - 6. Reference UR 376EW-54-1911.

2. Center pins (one piece) and new heads for UG-1106 will be furnished by General Electric Company on complaint analysis basis.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. The correct determination of the ALT-6 transmitter efficiency is impossible in this organization due to the lack of power measuring equipment. This test equipment is not available to the Air Force as yet and none is expected in the near future.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The Air Force and Halicrafter Corporation are developing a better antenna system for the ALT-6 and ALT-8.

X. GENERAL REMARKS: Negative.

John A. Lella

JOHN A. LELLA
Field Engineer
General Electric Co.

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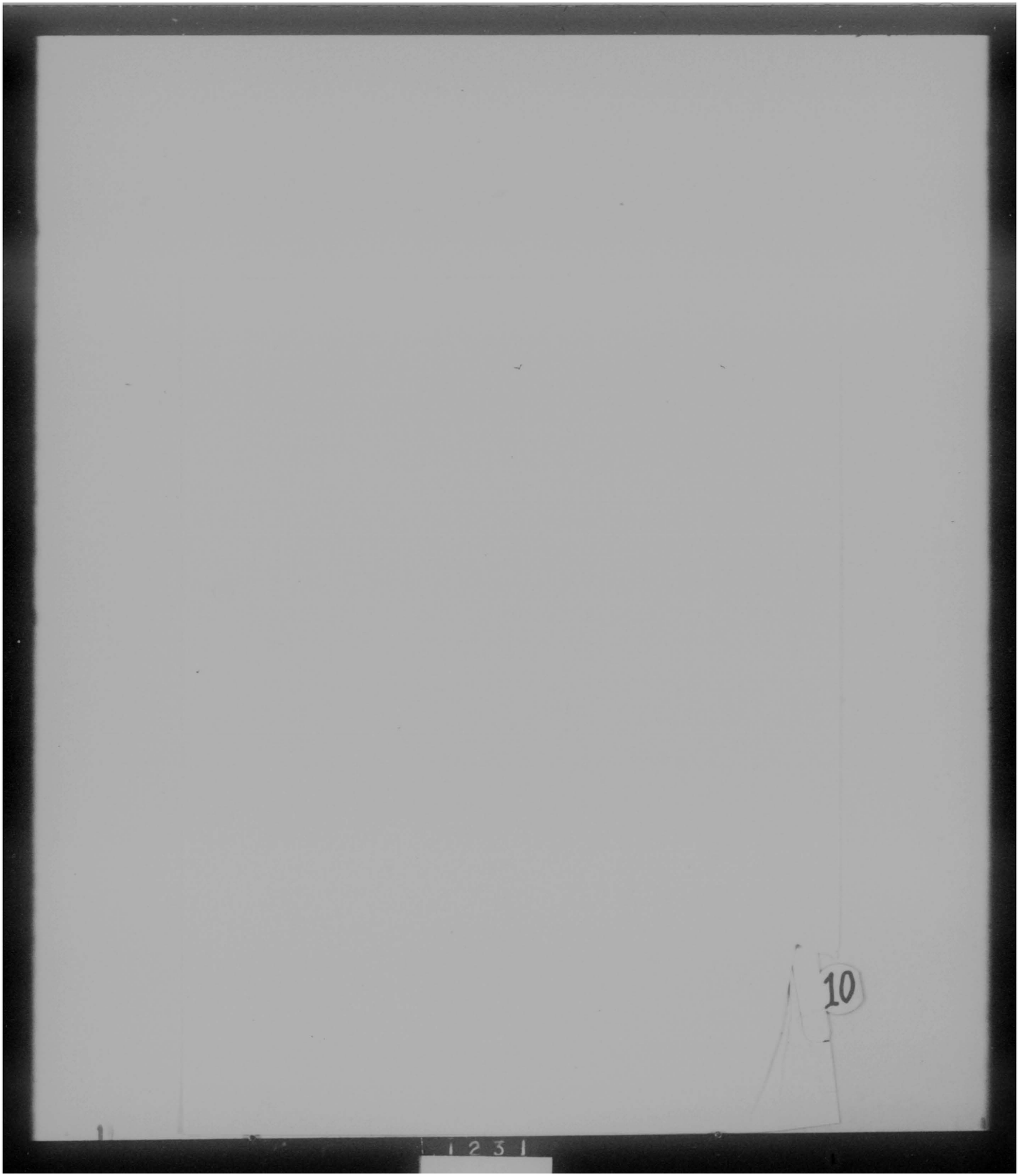

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376TH A&NT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 April 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classes have been started for Barksdale personnel following the same pattern used for TDY personnel classes which have been discontinued.

2. Classroom:

Taught ALT-8 to 24 TDY airmen and 8 Barksdale airmen (2 classes)	21 hours
Taught APS-54 to 24 TDY airmen and 13 Barksdale airmen (3 classes)	39 hours
Taught ALE-1 to 12 TDY airmen and 4 Barksdale airmen (1 class)	12 hours
Miscellaneous instructor time	8 hours
Total Classroom Time	80 hours

3. OJT:

OJT time ALE-1 (including supervision of TD-93 Blue Cradle Installation	21 hours
OJT time APS-54	22 hours

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1232

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OJT time ALT-8	13 Hours
OJT time QRC-8	4 Hours
OJT General Electronics	10 Hours
	70 Hours

4. Total time devoted to training 150 hours or 81.5% of the available time (184 hours).

IV. UTILIZATION:

1. Primary putpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

V. EQUIPMENT MALFUNCTIONS:

1. The equipment malfunctions that have occured during the past month have been of a minor nature and do not warrant mention of in this report.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Detail: A definite need exists for APS-54 line test equipment. The APS-54 test equipment and procedures developed by this author and mentioned in technical representative report dated 1 September 1954, Section X, paragraph 2, will provide a simple and reliable check on the performance of the system. A supplement is included with this report which gives information concerning the design of a transistor blocking oscillator line tester for the APS-54.

2. Recommendations: I recommend that test equipment, similar in design to that described in the supplement, be built by a manufacturer on a contract basis, and be distributed through Air Force channels to all organizations using the APS-54.

3. Action Taken: This report.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

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376AEMS, Subject: Monthly Technical Report For Month Ending 31 March 1955

1. Detail: The design of the ALE-1 counter circuit is such that a false indication of chaff reserve can be obtained when using the TD-93 intervalometer.

The B-47 installation of the ALE-1 control box makes it difficult for the co-pilot to observe the reading of the chaff reserve counter. He assumes that the system is operating proper if the signal lamp is flashing.

During normal intervalometer operation the signal lamp will flash on for each bundle of chaff dispensed. A chaff discharge consists of approximately 6 bundles of chaff in intervalometer positions A, B, C, and D of the control box selector switch. The signal lamp would flash 6 times per discharge and then remain off for a predetermined interval until the next discharge.

If all the chaff were discharged or if the stripper failed with the microswitch counter (S-8) closed, the counter and signal lamp would continue operating. The signal lamp would flash once per discharge interval and the counter would indicate one bundle discharged. This abnormal mode of operation of the signal lamp could easily go unnoticed by a busy operator or co-pilot.

If the control box selector switch were in the E or F intervalometer position, a false indication of chaff reserve would also be obtainable. Since a single bundle chaff discharge is obtained in the E and F position, the operator could never be certain from control box indication as to correct operation of the ALE-1 system. The signal lamp and counter would operate in the normal manner even if the stripper were disconnected. The stripper counting switch (S-8) is not in the circuit for the E and F intervalometer positions.

2. Recommendations: Reference to ALE-1 diagram inclosed with my report for month ending 31 January 1955. The difficulty cited above could be corrected for intervalometer positions A, B, C, and D by changing one wire on switch S-8, in the D-1 stripper, so that this switch would be connected between the junction of L6 and S4. With this modification the signal lamp would remain lit continuously after all of the chaff had been discharged. This would be the same indication as is now obtained in the continuous feet per minute positions of the control box selector switch. Since the counter-signal lamp circuit would be hooked to the stripper DC power source, the signal lamp would remain "off" if the stripper circuit breaker opened.

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A modification of the TD-93 intervalometer is necessary, in addition to the above modification, in order to correct the difficulty in intervalometer positions E and F. Wire J_1 and J_0 should be disconnected from pin J of the input and output plugs respectively and a wire should be connected between these two connectors.

3. Action Taken: This report and UR 376EW-55-906.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. A brief description of the QRC-8 photo electric RF wattmeter is included with this report as a supplement. A photo electric RF wattmeter can be utilized with any transmitting equipment using a lamp bulb dummy load.

2. A schematic of the latest APS-54 crystal protector and a brief description are included as a supplement to this report.

3. The ALE-1 type D-1 stripper should be checked under a 40 pound load. At this base a program has been started to determine the operation of the stripper under various load conditions in order of the stripper under various load conditions in order to determine if any strippers are defective and need replacing. As of this date test are inclusive. Final results will be submitted upon completion of this experiment.

X. GENERAL REMARKS: Negative.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

3 Incls
1. APS-54 Line Test Equipment
2. APS-54 Crystal Protector
3. Photo Electric Wattmeter (Unclassified)

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1235

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APS-54 LINE TEST EQUIPMENT

In order to have a reliable check on the performance of the APS-54 it is necessary that a weak signal of sufficient amplitude to trigger the lamp channel be available. The APS-54 has a built in test oscillator but this is primarily for checking the equipment in flight. The output of the built in test oscillator is very large and therefore no accurate test can be made of receiver sensitivity. A test oscillator has been designed and built by this author which will simulate a weak radar signal. The oscillator output is adjusted in the maintenance shop so that its output will be just sufficient to trigger the APS-54 lamp channel if the set under test has normal sensitivity.

The APS-54 test oscillator is a transistor blocking oscillator which generates positive output pulses of short duration simulating a radar signal from the APS-54 antenna detector assembly. The oscillator is built in a metal box 3"x2"x2". Actually it could have been made smaller even using standard size components but it was not considered advisable.

The oscillator has a built in power source consisting of a 1 ampere hour mercury cell. A bias voltage is available for the APS-54 antenna which could be used to power the oscillator but this wasn't considered to be good design since a standard output signal is desirable. (A standard output could not be accurately obtained from the test oscillator if the antenna crystal bias voltage were used due to individual tolerances between sets.)

The operating PRF of the test oscillator can be adjusted in the shop by changing the variable resistor in the transistor base emitter circuit. This would enable line maintenance personnel to check the accuracy of the APS-54 PRF lower limit switch. The frequency of the test oscillator would be adjusted in the maintenance shop.

A schematic diagram of the APS-54 line tester is included with this report to illustrate the simplicity of the circuit. This schematic is meant to serve as a guide for design and manufacture of a suitable piece of line test equipment. Values are not shown on the schematic since they would depend upon the type blocking oscillator transformers used and other factors.

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1236

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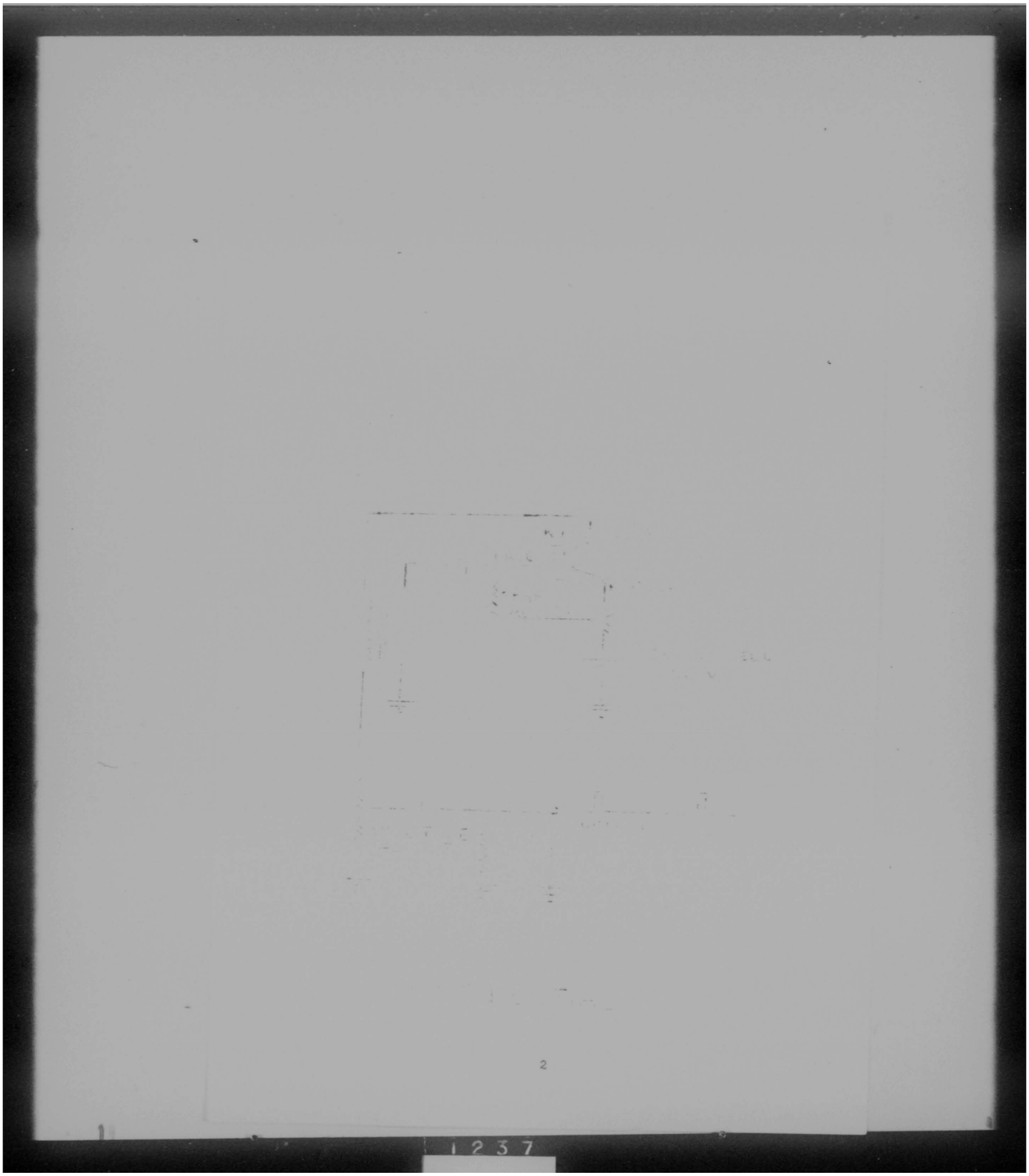

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APS-54 CRYSTAL PROTECTOR

The schematic included with this report represents a futher simplification of the APS-54 crystal protector. One relay has been eliminated and one resistor and one capacitor have been added.

The theory of operation is similar to that of crystal protectors which were described in previous reports. As the antenna crystals are biased in the back or high resistance direction when the tail radar transmitter fires, the current in the forward direction limited for this period. After the transmitter fires the crystal diode in the protector appears as an open circuit during the receiver listening period. The ground protection circuit is the same as in previous circuits. A potential source such as a mercury cell biases the crystals in the back direction while the APS-54 is turned "off".

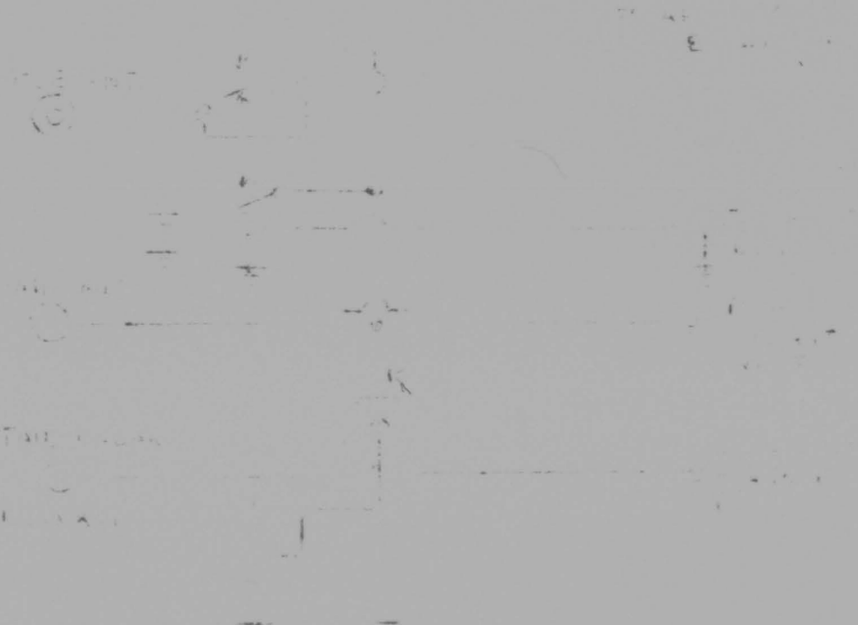

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PHOTO ELECTRIC WATTMETER
(Unclassified)

A photo electric RF wattmeter is a relatively cheap item and has fast response to changes in RF energy levels. For transmitters using lamp bulbs for a dummy load it makes an ideal wattmeter. A photo voltaic type of photo electric cell and a meter are the principle components required for building this instrument. The design is essentially the same as that of a photo type exposure meter used for photography.

The scale on the meter can be expanded or contracted as desired by the use of non linear resistance elements (such as crystal diodes) in the design. A variable resistor can also be included in the circuitry for calibration purposes.

The position of the photo electric cell relative to the lamp bulb source has a great effect on the sensitivity of the meter required and upon the calibration. Once the proper positioning has been determined and the system has been calibrated, nothing can be changed without effecting calibration.

An unmounted photo cell was bought for the construction of the photo electric wattmeter at a cost of 25 cents. Mounted cells often sell for high as 8 dollars.

In order to calibrate the photo wattmeter a variac and an AC wattmeter or suitable substitutes can be used. The brightness of the bulbs will be the same for a given power dissipation whether the power utilized is RF or 60 cycles AC, therefore the unit can be calibrated using AC line voltage and a suitable AC wattmeter.

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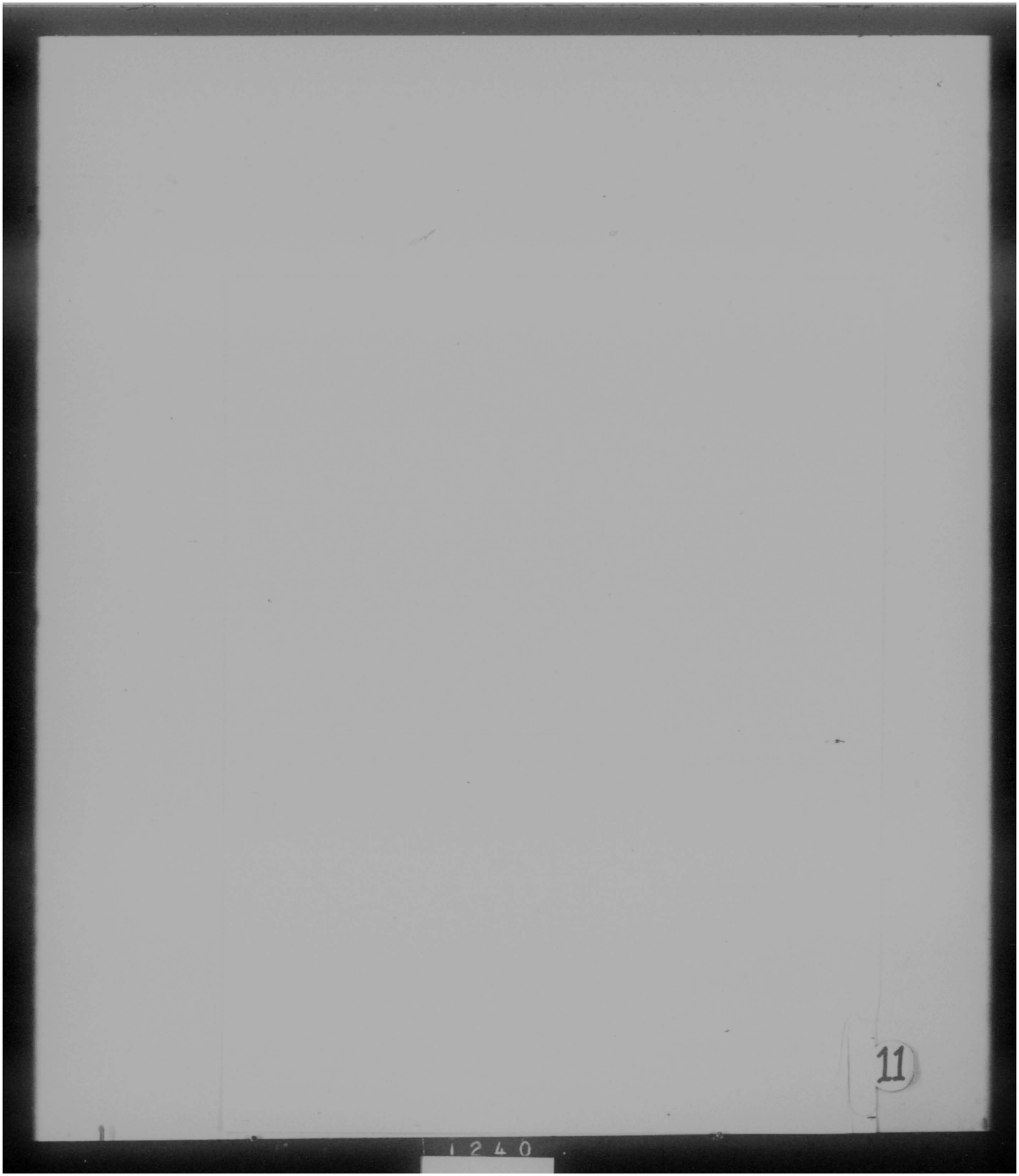

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 April 1955

Contractor: Crosley Div of AVCO Mfg. Corp.

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY Mr. Kenneth R. Faux
Mr. Roger G. Recher
(Departed 30 March 1955)

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Three A-5 mechanics were given 12 man hours of instruction in R. F. head theory and tuning. Total instructor time 4 hours.

b. Two A-5 mechanics received 8 man hours of instruction in firing circuits theory. Total instructor time 4 hours.

c. Two A-5 mechanics received 8 man hours of instruction in antenna relays operation. Total instructor time 4 hours.

2. OJT:

a. A-5 mechanics received instruction in trouble-shooting and adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions.

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Forty-eight (48) hours were expended in the field shop. Twenty-six hours were expended in periodic inspection and 52 hours were expended in line maintenance. Total time: 126 hours.

b. Seventy-two hours were expended in explaining and aiding A-5 mechanics in completing field changes. Total time: 72 hours.

3. In addition to actual instruction 32 hours were expended in preparing class outlines and training aids, and in other administrative work relative to the training program. This includes 22 hours spent in preparing an A-5 valuation test. Total time: 32 hours.

4. Training Program:

a. Available time: 320 hours.
b. Total Training Time: 242 hours.
c. Percent Training Time: 75.6%.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the A-5 fire control system and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by 1 April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

1242

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376 AENS, Subject: Monthly Technical Report For Month Ending 31 March 1955

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Roger G. Recher was transferred 30 March 1955, [illegible] to be replaced by Mr. Paul Conevay.

Kenneth R Faye

KENNETH R. FAYE
Field Engineer
Crosley

1243

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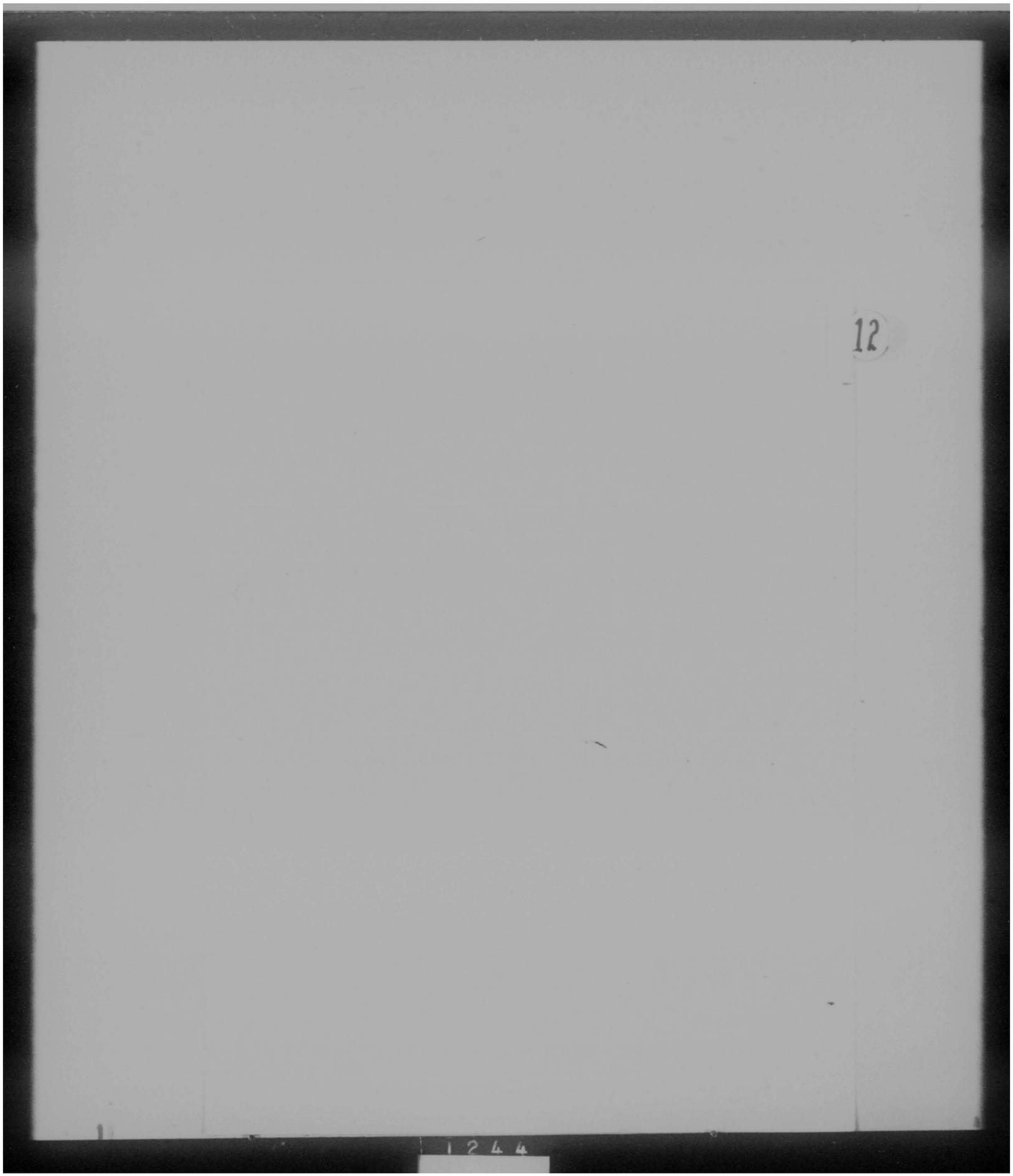

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 April 1955

Contractor: Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John Bolen, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. Jack W. Boileau, Sperry Gyroscope Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The symposium type class for operator training was conducted five days weekly throughout March. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

b. The following is the status of classroom training for the month of March 1955. All students were observers whose AFSC's is 1544B.

SUBJECT	COURSE HOURS	INSTRUCTOR MAN HOURS	STUDENT MAN HRS
In-Flight Maintenance (Operator)	4	19	31
Symposium (Operator)	4	81	270

1245

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2. OJT:

a. OJT during the month of March included system analysis and trouble-shooting.

SUBJECT	INSTRUCTOR MAN HOURS	STUDENT MAN HOURS
System Analysis	410	628
Trouble-Shooting	130	170

3. The training program was revamped somewhat during the month of March, and resulted in more OJT and less classroom and mock-up training. This change in program was prompted by a 2AF directive stating that the fifth mock-up assigned to the 376th Armament and Electronics Maintenance Squadron which was being used for training was to be turned in. The reason for the directive was because the fly-away benches and components were needed at other location.

4. Field engineers were available to the 376th Armament and Electronics Maintenance Squadron during the month of March for a total of 840 man-hours. Of this total time, 640 man-hours were utilized for formal and OJT training. 76 percent of available time was devoted to training.

IV. UTILIZATION:

1. The primary purpose of our assignment is the training of maintenance personnel in the operation and maintenance of of the K-4A Bomb-Navigation System and the training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the services of the K-System field engineers can be terminated by April 1956.

V. EQUIPMENT MALFUNCTIONS:

1. Malfunctions during the month of March were routine in nature.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

1246

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VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. The K-System WEMP (Written Examination for Measuring Proficiency) test was given to all the K-System mechanics. A training program is being set up around the results.

X. GENERAL REMARKS:

1. Mr. John Bolen and Mr. Michael Nowak attended a Western Electric conference at Fort Worth, Texas from 14 March 18 March 1955.

MICHAEL NOWAK
Field Engineers
Western Electric Company

JACK W. BOILEAU
Field Engineer Coordinator
Sperry Gyroscope Company

1247

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13

1248

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS

1 April 1955

Contractor: Sperry Gyroscope Company
Great Neck, L.I., N.Y.

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage

II. EQUIPMENT: A-12D Gyropilot

III. TRAINING ACTIVITIES:

1. Classroom:

a. Eleven (11) hours of classroom training was accomplished on the A-12D component course which was begun during the month of March. AFSC's of the men in class were (3) 42270's, (4) 42250's, and (2) 42230's.

b. Below is a summary of the hours devoted to classroom training.

COURSE	Instr Hrs.	No. Students	Student Hrs.
A-12D Components	11	9	48

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of March.

SUBJECT	Instr Hrs.	No. Stu.	Stu. Hrs.
A-12D Test Procedures	20	6	30
A-12D Theory	12	10	20

1249

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3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer questions and [illegible] proficiency during routine operations and will continue as required. There were (6) 42270's, (8) 42250's, and (7) 42230's available for training.

SUBJECT	Inst.Hrs.	No.Stu.	Stu.Hrs.
A-12D Theory	63	15	74
Trouble-Shooting	16	6	32

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, and the Kearfott N-1 compass was given.

SUBJECT	Inst.Hrs.	No. Students	Student Hours
C-1 Amplifier	3	2	6
N-1 Compass	11	8	15

c. Of 184 hours available instruction time 139 hours (76%) were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used th the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. The following equipment malfunction occurred during the month of March.

a. Malfunction: Autopilot aileron axis jitters in straight and level flight. Malfunction was duplicated on ground and also aileron was too easy to overpower on ground check.

1250

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b. Cause of Malfunction: Aileron generator brushes worn excessively and not making good contact with commutator. Commutator needed to be turned down.

c. Corrective Action Taken: Replaced servo control. Not reparable at this station. UR number 376EM-55-723 submitted on defective part.

2. The remaining malfunctions were routine in nature and were attributed to electron tube failures.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS: Negative.

HENRY J. KRONLAGE
Field Engineer
Sperry Gyroscope Company

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14

1252

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 April 1955

Contractor: Dynamic Electronics Inc.
Forrest Hills, N. Y.

SUBJECT: Monthly Technical Report For Month Ending 31 March 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 March 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy H. Nicholson

II. EQUIPMENT: AN/ALT-6, AN/APS-54, QRC-8, AN/ALE-2, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Formal classes were held on B-47 Phase III (ECM) installation for ten (10) airmen, TDY from other SAC bases. Twelve hours of instruction were completed.

b. Formal classes were held on AN/ALT-7 for same students. Course on this equipment was completed in thirty-two hours.

2. OJT:

a. OJT training was given as follows: Blue Cradle Aircraft Testers, 2 men, 6 hours and 3 men, 8 hours. Blue Cradle Cradle Control Circuitry, 10 hours; AN/ALT-8, 11 hours; AN/ALT-7, 8 hours; B-47 Alternator Circuitry 11 hours. Blue Cradle Inverter Circuits, 2 men 6 hours.

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1253

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3. Training Time:

Available for Training - 152 hours.
Classroom and Tests - 49 hours.
OJT Time - 60 hours
Total Training Time - 109 hours.
Percent of Training Time - 71.7%.

IV. UTILIZATION:

1. The primary purpose of this assignment is the training of maintenance personnel in calibration and maintenance of the AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

2. It is estimated that the services of the writer can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. One failure of cooling pump motor in AN/ALT-8 transmitter was experienced. Cause was undetermined. Magnetron was not damaged as thermal switch actuated and shut off high voltage.

2. Complete pump and motor assembly was removed and forwarded as exhibit for UR Number 376BW-55-792, with the recommendation that the assembly be examined by proper agency for cause of failure.

3. Pump assembly was replaced. It is believed that repair of these units should be performed at depot level and that field organizations should simply make replacement. Futher malfunctions will be reported promptly.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. In report of 1 March 1955 brief mention was made of discrepancies in B-47 ECM transmitter control circuitry for the Phase III installation. These discrepancies were revealed by comparison of wiring diagrams contained in Technical Order 1B-47B-2, revision of 15 November 1954. In summary these discrepancies are as follows:

a. Aircraft 52-394 through 507, including all aircraft of the 376th Bombardment Wing (M), will not accomodate the production model of the T464/ALT-7. This transmitter will not operate in these aircraft because of wiring changes made for the thyratron speed

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control circuit for the sweep motor. This discrepancy also applies to Blue Cradle, and new transmitters cannot be used until cabling is modified. Other discrepancies have been previously reported, namely the AN/ALT-6 will not sweep because of omission of one wire in transmitter to power supply cabling (also applicable to aircract 52-565 through 587) and the AN/ALT-8 is operating with two sources of 28V DC in the control circuitry.

b. Aircraft 52-565 through 53-2278 will permit operation of the AN/ALT-8; but the equipment cannot be turned off at the remote position. The transmitter will be in "standby" condition as long as there is power on the secondary inverter buss. The AN/ALT-8 is also operating with two sources of 28V DC in the control circuitry.

2. All these discrepancies were called to the attention of Captain James B. Clark, Officer in Charge of the ECM Section , 376th Armament and Electronics Maintenance Squadron. Under his instructions UR's were prepared to cover above discrepancies. UR's are as follows: 376EW-55-620 (ALT-8), 376EW-55-621 (ALT-6), 376EW-55-622 (ALT-7). It is recommended that the necessary fixes be determined by the proper agency and that they be performed by qualified depot teams or under special contract.

3. No action has been taken, pending information and instruction on fixes. It is learned informally from WADC and AMC representatives that the AN/ALT-7 and AN/ALT-6 discrepancies mentioned in Paragraph VI, 1a above will be corrected under special contract. No information is as yet available regarding fixes for the AN/ALT-8 discrepancies.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. No QRC-8 missions were flown during the month of March. The remaining nineteen sets were returned from the factory and to date fourteen of these sets have been installed in the wings aircraft. This brings the total installed to forty complete systems.

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5

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376AEMS, Subject: Monthly Technical Report For Month Ending 31 March 1955

X. GENERAL REMARKS:

1. I have resigned my position with Dynamic Electronics effective on 28 March 1955. My resignation has no connection whatever with my work with the 376th Bomb Wing (M). My assignment has extended for thirty-three months and has been a memorable experience, made even more pleasant by association with the officers of the Armament and Electronics Squadron and the Wing. Their cooperation and partnership in many of the problems, the help and willingness of the NCO's and men, would encourage any man to do his best and engender pardonable pride in being with the 376th Bombardment Wing (M). My only wish is to return as soon as possible.

GUY H. NICHOLSON
Field Engineer
Dynamic Electronics

4

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1256

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15

1257

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SECRET

Classification: SECRET
Auth: COMDR 376 BCMWG M
Initials: Murphy
Date: 8 April 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT

8 April 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 March through 31 March 1955.

2. Status of currently assigned test projects is as follows:

a. Test Project Number 1A, "Development of Unattended Communications Jammer".

(1) Date initiated: 30 November 1952.

(2) Percentage complete: 100%.

(3) Hours flown: 297:40.

(4) Present status: Final report on this project has been completed for transmission to higher headquarters. It will no longer be reported.

b. Test Project Number 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953.

(2) Percentage complete: 42%.

(3) Hours flown: None.

(4) Present status:

(a) Personnel concerned with development of an unattended communications jammer visited the

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Navy Bureau of Aeronautics and Navy Research Test Center at Patuxent, Maryland, for the purpose of coordinating Project 1X information with test information on the AN/APQ-33. The AN/APQ-33 is the Navy version of a search-and-lockon type jammer. Although it is operational, the following serious limitations prohibit its use on the B-47 bomber:

1. Excessively large and heavy.

2. Difficult to maintain.

3. No identification device.

4. Will not jam a single signal if there are other carriers within the four megacycle pass band of the receiver.

5. Probable intercept of an enemy signal is slight due to the slow search rate of the receiver.

6. Receiver is not sufficiently sensitive; thus, the range desired for the project could not be attained.

Radiation patterns, modulation, and antenna types were discussed and much valuable information obtained from the Navy project engineers. A written report on the AN/APQ-33 has been requested from the Navy for this project. This information will greatly aid further development of Project 1X.

(b) Contractual negotiations are in the process to procure necessary tuning capacitors for Project 1X.

c. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954.

(2) Percentage complete: 85%.

(3) Hours flown: (27) 355:20 - (27R) 178:55.

(4) Present status:

(a) Scope photograph negatives and logs of Mission Ten flown 25 January have been received and interim report is being completed.

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(b) The latest mission of Project 27 was flown on 9 March 1955 using nine B-47 aircraft from the 376th Bomb Wing to sow a corridor and nine B-36 aircraft from the 11th Bomb Wing to overfly and make bombing runs out of the corridor. The B-47's and one flight of three B-36's used electronic jamming. The mission was conducted successfully and an interim report is being written.

(c) Three missions on Project 27R (Random Chaff Screening) were flown on 3, 11 and 15 March 1955. On 3 March, six B-47 aircraft were used to sow an area of 20,000 square miles with random chaff targets while flying random courses. Two B-47's tested the screening effectiveness by simulating bomb runs through the area. The mission was successful and the bombers escaped detection. An interim report of this mission is being prepared.

(d) On 11 March, six B-47's were used to sow random streams of chaff over an area 80 by 250 miles. Chaff was dispensed at a rate of ten feet per minute on the straight legs, but none was dispensed on the turns. Two B-47's tested the screening effectiveness by simulating bombing runs through the area to Eglin and Tyndall Air Force Bases. The mission was executed successfully. The radar controllers found it much easier to track the trails than it had been to track random bundles used on the 3 March mission. The controller at the AN/CPS-6 radar at Tyndall Air Force Base did not detect either of the bombers. The controller at the AN/FPS-3 radar at Eglin Air Force Base was able to track both bombers intermittently during the bomb run. However, during the run, the bombers were overflying RR-39/AL chaff which does not cover the AN/FPS-3 frequency. An interim report of this mission is being prepared.

(e) On 15 March, a mission was planned to use six B-47 aircraft to lay a random corridor 60 to 250 miles followed by two B-47's as bomb carriers. One of the bombers dropped random chaff. Chaff was dispensed by using the intervalometer on position "D", four to six bundles dispensed every 20 seconds. In addition, the co-pilot turned the dispensers off

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at irregular intervals; they were never on more than five minutes and never off more than two minutes. It must be noted that when the chaff dispensing intervalometers are operated in position "D", the normal 15 ampere circuit breakers should be replaced with 20 ampere breakers. Last-minute aircraft substitutions precluded changing to 20 ampere circuit breakers. One aircraft aborted before take off and three chaff dispensers failed to operate properly (the two with 15 ampere breakers and one with a 20 ampere breaker) because of overload. The co-pilot of one aircraft attempted to remedy the situation by dispensing a steady stream of chaff manually. All aircraft were detected by the radars at Tyndall and Eglin Air Force Bases. Results of this mission are considered inconclusive and the mission has been re-scheduled to be completed during the first part of April.

d. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 52%.

(3) Hours flown: 26:00.

(4) Present status:

(a) Several light tests have been conducted on the completed Land camera and periscope assembly for the AN/APS-23 in the photographic laboratory at WADC. The tests have shown that the mirrors in the periscope are not perfectly aligned, resulting in a certain amount of light loss from the radar indicator to the O-15 and Land cameras. The photographic laboratory is now attempting to remedy the situation by adjusting the mirrors after each test. These adjustments should be completed the first part of April. After the mirror adjustments are completed, the unit will be mounted on an AN/APS-23 mockup at WADC and the indicator presentation photographed by both the O-15 and Land camera. If the unit proves satisfactory after this test, it will be delivered to the 376th Bomb Wing. There is

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a possibility that the O-15 camera will not receive sufficient amount of light to provide a good picture because the beam splitting mirror used in the periscope provides 80% of the available light for the polaroid camera and 20% for the O-15. This was the only mirror available to the photographic laboratory at the time of manufacture. The 376th Bomb Wing has ordered mirrors which will provide the following percentages of transmission and reflection respectively: 40-60, 50-50, 60-40. If the O-15 does not receive sufficient light in the present model, tests will be performed with the other mirrors to determine the most desirable combination.

(b) After the camera has been delivered to the 376th Bomb Wing, flight tests will be conducted with the equipment mounted on the AN/APS-23 indicator in a B-47E aircraft.

e. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 47%.

(3) Hours flown: 11:00.

(4) Present status:

(a) A visit was made by the project engineer to Grimes Manufacturing Company, Urbana, Ohio, to discuss beacon considerations for the infrared system. A General Electric representative also participated in the discussions. Several different lamps were considered acceptable as beacons. The lamp designated H1000-A16, manufactured by General Electric, was considered most satisfactory. This lamp can be electrically modulated. General Electric is making further investigations into its use as an infrared source. It is felt a suitable mounting fixture for this lamp can be made for installation in B-47 type aircraft.

(b) Another trip was made to Headquarters SAC for the purpose of familiarizing interested

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personnel in the proposed station keeping system, and obtaining evaluations and recommendations on the system requirements. As a result of the discussion, the following requirements evolved. It is felt these requirements should be used as a basis for design of the system; however, changes may be tolerated if it is not feasible to meet each of these requirements exactly:

1. Position accuracy (horizontal plane) ..... ±30 yds or ± 3% of horizontal range, whichever is greater
2. Maximum horizontal range ..... 10 nautical miles
3. Minimum horizontal range ..... 200 yards
4. Maximum altitude separation ..... 6000 feet
5. Station keeping area ..... 180° sector of a circle having 10 NM radius symmetrically located in azimuth to rear of lead aircraft
6. Vulnerability ..... System must not be subject to passive detection from ground
7. Type aircraft ..... B-47, possibly B-52
8. Design criteria ..... Techniques & design must be within present state of art so system can provide interim capability

After this discussion the question was raised of the accuracy with which an altitude separation could be maintained between two B-47 aircraft using the present 50,000 ft pressure type altimeter. Several tests were flown in conjunction with regular training missions at Barksdale Air Force Base to determine this accuracy. These tests indicate that unpredictable altitude errors exist which would prohibit use of these altimeters in the proposed station keeping system. Further tests are being conducted to verify this conclusion.

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(c) The Kollsman Instrument Company, Elmhurst, Long Island, New York, manufacturer of pressure type altimeters used in B-47 aircraft, was visited to determine how accurately the altitude separation between two aircraft can be measured by these instruments. They stated it is possible to measure an altitude separation within 25 ft provided their newer pressure type altimeter, presently being bought by the Air Force, is used and is correctly calibrated at the operational altitude. The 376th Bomb Wing is attempting to procure several of these altimeters to determine if they will be operationally suitable for infrared station keeping system.

(d) An interim report is being prepared on the present status of this project. The report will describe the complete system and capability that can be expected.

f. Test Project Number 32, "Cell Support Tests".

(1) Date initiated: 17 February 1955.

(2) Percentage complete: 5%.

(3) Hours flown: 18:35.

(4) Present status:

(a) Purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell configurations from enemy GCI, gun-laying and intercepter type radars.

(b) The first mission on this project was run on 4 March 1955 against the ADC, AN/FPS-10 radar site at Bartlesville, Oklahoma. One B-47 aircraft with one AN/ALT-8 installed in left ATO compartment was used on this mission to simulate a Phase III type aircraft. The Styroflex antenna cable, modified connectors, and S-band antenna, now under test in the 376th Bomb Wing, were also used.

(c) A second mission was run on 14 March against the same radar site with two B-47 aircraft, each carrying one AN/ALT-8 in left ATO compartment.

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(d) The 376th Bomb Wing observers were at the radar site on both missions to collect operating logs and photographic data. Data reduction on the missions has not been completed. Preliminary indications are encouraging in that the best jamming effectiveness was obtained to date when only one or two jammers were used.

(e) Additional missions are scheduled in April against ADC sites.

g. Auxiliary Test Project Number 5, "Development of IFF Jammer".

(1) Date initiated: 21 September 1953.

(2) Percentage complete: 100%.

(3) Hours flown: 36:28.

(4) Present status:

(a) One additional flight test was made during March to test the effectiveness of the AN/ALT-7 jammers against the IFF system operating at 169 megacycles. Good jamming results were obtained out to about 100 miles using three AN/ALT-7 transmitters.

(b) Final report on this project is complete and being prepared for printing. This project will no longer be reported.

h. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954.

(2) Percentage complete: 55%.

(3) Hours flown: 6:00.

(4) Present status:

(a) Construction is under way on the 12 oscillator-amplifier units which make up the barrage jammer. Three units have been completed.

(b) Tests were made on a prototype of plug-in units and results were:

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Tuning range -- 50 - 86 megacycles

Plate voltage - 350 volts

Plate current - 90 ma.

Power output -- 6.5 to 10 watts

The voltage and current measurements are for both the oscillator and amplifier stage. After a modification of the tank circuit, the desired tuning range of 60 to 90 megacycles was obtained.

i. Auxiliary Test Project Number 15-6, "Engineering and Flight Test of the AN/ALT-6 and AN/ALT-8 ECM Systems".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 76%.

(3) Hours flown: 252:30.

(4) Present status:

(a) Three B-47 sorties were flown against the FPS-10 radar at Bartlesville, Oklahoma, in support of SAC Project 32.

(b) These sorties employed one AN/ALT-8 transmitter for each Phase III aircraft. The 180 RPM motors were used, along with experimental cables, connectors and antennas.

(c) Nine sorties were flown in conjunction with Project 27 against the Eglin-Tyndall radar complex. On these sorties, six AN/ALT-6 and two AN/ALT-8 transmitters were utilized per B-47. This equipment was set to barrage jam at fixed frequencies which were spaced at 5 megacycle separation from 2700 to 3000 megacycles.

(d) Reference paragraphs "c" and "f", Projects 27 and 32 respectively, for results of above sorties.

(e) This project will be reported next month under SAC Project 32 and will no longer be listed separately as Auxiliary Test Project 15-6.

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j. Auxiliary Test Project Number 18, "Development of a Sweep Jammer using a VHF Increductor".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 45%.

(3) Hours flown: None.

(4) Present status:

(a) The search-and-stop circuit built during the previous month has been utilized to sweep the VHF transmitter over the range from 100 to 150 megacycles. Two tubes used as triode D.C. amplifiers have been added to improve the sensitivity of the circuit. The output of an AN/ARR-5 receiver, taken at the discriminator, is being used to operate the phantastron sweep tube. Lock-on has been accomplished over most of the range. After the correct power supplies have been built, the transmitter should automatically lock-on any frequency to which the receiver is previously set. Extra components required for this automatic lock-on are being added to the transmitter chassis.

(b) A visit was made to the CGS Laboratories, Stamford, Connecticut, to discuss availability of the VHF increductor receiver which they manufacture on Air Force Contract AF33(600) 27369. The only receiver built to date belongs to WADC. It would take approximately 45 days to build another. Furthermore, much circuitry in the receiver and control system is not applicable to this project. The CGS Laboratory is willing to give the receiver schematics and sell the necessary increductors to the 376th Bomb Wing for building a receiver which will meet project specifications.

k. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954.

(2) Percentage complete: 90%.

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(3) Hours flown: N/A.

(4) Present status:

(a) SAAMA has advised that the matching sections for the AT(XA-213)AP and AT(XA-214)AP antennas are now complete. Contact was made with the Barksdale Air Force Base Supply Liaison Office at SAAMA 30 March and immediate delivery was promised.

(b) Matching sections for the AT(XA-212)AP antenna are now in the process of manufacture. No delivery date on these has been received.

1. Auxiliary Test Project Number 24, "Effectiveness Test of QRC-8".

(1) Date initiated: 2 October 1954.

(2) Percentage complete: 85%.

(3) Hours flown: 179:04.

(4) Present status:

(a) Altitude tests of modified QRC-8 transmitters were conducted in the altitude chamber at Barksdale Air Force Base. Results were as follows:

Test #1. QRC-8 operated on a dummy load with 3100 vdc applied from modified PP-87 power supply. The band from 3.5 to 5.0 megacycles was swept at a 500-cycle rate. Set operated normally up to 25,500 feet, at which time an arc developed between R-15, the modulator plate current metering resistor, and ground. Intermittent arcing continued up to 27,000 feet, at which altitude a sustained arc caused the AC fuses to blow. No trouble has been experienced at this point in previous altitude tests.

Test #2. Operating conditions same as for Test #1. The set operated properly up to 33,250 feet, at which altitude a large sustained arc from the positive high voltage input receptacle was observed and AC fuses blew. The set operated normally when returned to ground altitude.

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Test #3. Operating conditions same as for Test #1. Set operated properly up to 33,400 feet, at which altitude an arc occurred in the PP-87 power supply from the lower filament pin of V-302 (5Z2 rectifier tube) to ground, and the AC fuses blew.

(b) From results of these tests it is concluded the QRC-8 is not operationally reliable above 30,000 feet. Further work with additional insulation and improved lead dress should raise this altitude to 35,000 feet. This is probably the highest altitude possible with the equipment due to intermittent arcing which occasionally occurs in the compensating capacitor. This arcing does not cause a malfunction but does cause frequency instability.

(c) Final report on this project is being written.

m. Auxiliary Test Project Number 25, "Structural Suitability of Stub Antennas".

(1) Date initiated: 1 July 1954.

(2) Percentage complete: 90%.

(3) Hours flown: 1338:42.

(4) Present status:

(a) At the request of WADC, flight test on the remaining two stub antennas has been terminated. The antennas were removed from the aircraft and returned to WADC for inspection and evaluation. A report covering total time flown, location of antennas on the aircraft, and flight conditions imposed on the antennas was also sent to WADC.

(b) Unless additional antennas are received from WADC or new stub type antennas are designed or developed by this laboratory, this project will be terminated.

(c) A report covering the complete project is being written.

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n. Auxiliary Test Project Number 25, "Operational Test of AN/APS-54".

(1) Date initiated: 1 June 1954.

(2) Percentage complete: 72%.

(3) Hours flown: 22:15.

(4) Present status:

(a) Two flight tests were scheduled during this period using F-86D aircraft with AI radar systems to make nose-on and tail-on passes at a B-47 carrying AN/APS-54 equipment. On the first test the tail warning section operated properly when the B-47 A-5 gun-laying radar was "off" and with the "Min PRF" control set at "Min". It failed to function when the A-5 radar was "on", or with any other setting of the "Min PRF" control. This test appears to bear out previous impressions that "Min PRF" of the blanking pulse from the A-5 normal jack (30 volts) is insufficient for AN/APS-54 blanking. Previous tests with the AN/APS-54 tail blanking cable attached to the IFF trigger jack (100 volts) of the A-5 have resulted in proper blanking. During nose-on passes the nose lamp blinked intermittently at all times, but during three runs out of five, the lamp glowed steadily while the B-47 was being tracked by the fighter.

(b) The second test was cancelled due to weather after two tail-on passes. Equipment functioned normally during these two runs.

(c) During this period one more set of AN/APS-54 cables shorted out due to heat at the cabin heat spill valve. This leaves only five functional aircraft out of 45.

(d) Two flight tests of the AN/APS-54 are scheduled for April.

o. Auxiliary Test Project Number 27, "A B-47 ECM Configuration Study".

(1) Date initiated: 20 September 1954.

(2) Percentage complete: 25%.

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(3) Hours flown: N/A.

(4) Present status: The 376th Bomb Wing is not contemplating any further action on this project unless requested by higher headquarters. It will no longer be reported until further action is directed.

p. Auxiliary Test Project Number 28, "Testing of RG-117/U RF Transmission Line".

(1) Date initiated: 1 November 1954.

(2) Percentage complete: 96%.

(3) Hours flown: N/A.

(4) Present status:

(a) Fifteen feet of the newest available RG-117/U cable were received from the Amphenol Corporation. This cable is the final approved and accepted version, all RG-117/U previous to this being of an interim and conditionally accepted type. Physical appearance of this new cable is similar to the old, the only apparent difference being that the center conductor appears less mobile and diameter of the Teflon dielectric has been reduced from 0.635" to 0.612". Assuming the same dielectric content as for the old cable, a mathematical analysis shows that the size change gives a reduction in characteristic impedance from 50.6 to 49.8 ohms.

(b) A section of this new cable was outfitted with the new connectors developed under Auxiliary Test Project 30 and tested for losses. Dielectric and resistive losses for the new cable were about the same as for the old. The new cable has not yet been flight tested so no information is available as to its dimensional stability.

q. Auxiliary Test Project Number 29, "Testing of Styroflex RF Transmission Line".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 67%.

(3) Hours flown: 23:00.

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(4) Present status:

(a) Additional Styroflex cable for further testing is not available to this organization because the entire limited output of the Phelps-Dodge Corporation factory has been absorbed by a number of government agencies and a few private concerns. Manufacture of this cable is normally on a contract basis for an individual run of not less than 1000 feet, or a cost of approximately $2500. No smaller amounts are available or may be produced because of the expense of producing the cable.

(b) On 10 March, a conference was held at Barksdale Air Force Base to discuss problems encountered in the ALT-6 and ALT-8 transmissions. Representatives from WADC, OCAMA, and Headquarters SAC participated. The 376th Bomb Wing recommended use of Styroflex cables, together with new connectors and Diamond antenna fabricated by the 376DCTT Laboratory, as a solution to these problems. As a result of this conference, no individual action was taken by WADC or OCAMA. SAC requested ARDC to establish QRC-27(t).

(c) At a later date, a meeting at WADC was held with representatives from the Aero Reconnaissance Laboratory, ARDC-376th Bomb Wing Liaison Officer, Col. Proctor and Lt Col. Hall, 376th Bomb Wing. It was agreed that the Hallicrafters Company, Chicago, would investigate the best transmission systems available for the AN/ALT-6 and AN/ALT-8. It was further agreed that, regardless of what system was produced or recommended by Hallicrafters, it must produce results equal to those produced by the system recommended by the 376th Bomb Wing.

(d) Headquarters USAF has agreed to produce 50 of the QRC-27(t) systems to be made available for installation in 376th Bomb Wing aircraft on/before May 1955. Each QRC-27(t) unit will consist of the following:

6 - 6 ft cables with quick disconnect connectors and quick disconnect outlet adapter for AN/ALT-6

1272

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2 - 8 ft cables equipped with quick disconnect adapters for outlet of AN/ALT-8

8 - Antennas, either Diamond or AT-11 type, modified to fit AB-109 mounts

Tests of the transmission system recommended for fabrication by Hallicrafters will be performed upon notification from WADC that original models are available for test. These tests should be performed no later than the week of 18 April.

(e) Blueprints were made for various components of the system developed by the 376th Bomb Wing using the Styroflex cable and were made available to interested agencies.

(f) On 24 and 25 March, a visit was made to WADC to determine status of the proposed QRC items to be used with the Styroflex cable.

(g) At present, the Styroflex cable and other cables suitable for use at frequencies between 2600 and 4000 megacycles are being investigated by Hallicrafters on a QRC contract. The company has 30 days in which to determine the best system. Sufficient equipment of the final system will be produced to outfit 50 aircraft.

r. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

(1) Date initiated: 10 November 1954.

(2) Percentage complete: 96%.

(3) Hours flown: 23.

(4) Present status:

(a) A mechanically improved connector was designed; electrically, it is the same as the original model. This new connector was tested with a piece of the accepted RG-117/U cable. It was discovered that the outer conductor, or braid, has a greater tendency to "accordian" with these connectors. Therefore, experiments are in progress to utilize a clamping ring similar to the type employed in UG-532/U connectors.

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(b) The method presently being experimented with, using center conductor of the cable as pickup probe in the waveguide to coaxial cable adaptor, leaves much to be desired in both the RG-117/U and Styroflex cables. This is due to the critical positioning and length of probe. This could be eliminated and considerable over-all improvement obtained through the use of a Tchebysheff step transformer. This would allow grounding of the cable center conductor on the far side of the wave guide, thus achieving greater mechanical stability and improved electrical performance. Work along these lines has begun, but proper proportioning of the various elements has not yet been accomplished.

(c) The new connector was forwarded to WADC. A contract has been let to Hallicrafters to study it, and other similar components of RF systems, on a QRC basis. A set of blueprints for the new connectors was sent to WADC.

s. Auxiliary Test Project Number 31, "Design of Antenna for 2700-3600 Megacycles".

(1) Date initiated: 12 November 1954.

(2) Percent complete: 46%.

(3) Hours flown: 23.

(4) Present status:

(a) The Diamond antenna has been used with good results on various flight tests in connection with Test Project 32. Blueprints of the antenna parts have been made and copies sent to WADC.

(b) During a visit to WADC on 24 and 25 March, engineers there inquired about our preference for the Diamond antenna over the helix and horn. It was explained that neither of these antennas fitted into the AB-109 antenna mounts; both are too directional for our use. Another fact is that the polarization of the helix is unique because it will not receive from, or, more important, transmit signals to other helical

1274

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antennas having a reverse pitch. This might be a serious shortcoming for countermeasure work.

(c) At present, the Diamond antenna, helix and horn are undergoing study at Hallicrafters under a QRC contract. In a 30-day period, this study will attempt to determine which antenna is most suitable for use with the RF systems of the AN/ALT-6 and AN/ALT-8.

t. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

(1) Date initiated: 1 September 1953.

(2) Percentage complete: 85%.

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status:

(a) One of the spare cradles is being modified to accept the chaff intervalometers for use with the AN/ALE-1 chaff dispenser. Six intervalometers are being installed in the electronic equipment racks behind the transmitter control panels. There is space enough to install three intervalometers on each side of the cradle. No changes in aircraft wiring are necessary for intervalometer installation. Cradle wiring changes comprise cutting into the control wiring bundle from the cradle junction box to the AN/ALE-1 dispenser and splicing in control cables to the intervalometers at this point.

(b) The prototype intervalometer installation will be used to check out the system and provide a model for other cradle installations if requirements warrant. Drawings, wiring schematic changes, and photographs of the installation will be made from the prototype installation.

u. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

(1) Date initiated: 1 December 1954.

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(2) Percentage complete: 65%.

(3) Hours flown: 4:30.

(4) Present status:

(a) A flight test of this equipment was flown on 14 March 1955 using a B-47 aircraft at optimum altitude against the AN/MSQ-2 radar at Eglin Air Force Base Site Three. Six runs were made, each 60 miles in length and arranged to pass the radar site at ranges from two to 12 miles. The AN/APS-54 warning receiver and relay installation was arranged to start the AN/ALE-1 chaff dispensers when triggered from the ground radar signal. On each run, the chaff dispensers were successfully triggered by the radar signal and RR-39/AL chaff was dropped. Exact ranges at which the chaff drops were triggered by the radar will be determined when the radar logs are received from Eglin Air Force Base.

(b) Another flight test has been scheduled for 6 April against a S-band tracking radar at Eglin Air Force Base. Another flight test has been tentatively planned against a X-band tracking radar at Fort Bliss, Texas.

v. Auxiliary Test Project Number 34, "ARC-27 Antenna Installation, Modification and Evaluation".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 100%.

(3) Hours flown: All aircraft have had the radome installed since 16 March 1955.

(4) Present status:

(a) The fiberglass radome over the UHF antenna satisfactorily eliminates interference caused by chaff dispensed from the cradle, but a secondary problem has developed. Aircraft which participated in numerous chaff missions since radome installation show evidence of abrasion on leading edge of the radome. To correct this deficiency, leading edges of

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all radomes have been coated with a latex smoothing compound similar to that used on other aircraft radomes.

(b) Tests and inspections will be continued to check suitability of the modified radomes.

w. Auxiliary Test Project Number 35, "Operational Test of Converter QRC-9".

(1) Date initiated: 3 January 1955.

(2) Percentage complete: 85%.

(3) Hours flown: None.

(4) Present status:

(a) Tests of the QRC-9 used in conjunction with the S-121 rapid scan receiver are complete and final report is being prepared.

(b) Sensitivity curves of the AN/APR-9 intercept receiver were run for comparison with the curves made of the QRC-9. On X-band, the AN/APR-9 and TN-131 tuning unit had an average sensitivity which was approximately 30 DB better than the QRC-9 and S-121. On S-band, the AN/APR-9 and TN-129B tuning unit had about 20DB better sensitivity than the QRC-9 and S-121. On both bands, the frequency response of the AN/APR-9 was flatter and more uniform than response of the QRC-9 and S-121.

x. Auxiliary Test Project Number 37, "Barrage Jamming Modifications of AN/ALT-6 and AN/ALT-8".

(1) Date initiated: 20 January 1955.

(2) Percentage complete: 15%.

(3) Hours flown: None.

(4) Present status:

(a) Problems of S-band jamming were discussed by groups of officers and civilian engineers at both General Electric, Utica, N.Y., and the

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Litton Corporation, San Carlos, California, in February. Merits of a broader jamming signal and work accomplished by General Electric to achieve broad banding of the AN/ALT-6, Litton Corporation magnetrons were also discussed and studied. It was decided to broad band the AN/ALT-6 by means of a method suggested by General Electric.

(b) Mr Charles Willard, General Electric, called this organization and volunteered information concerning methods they have tried. He suggested we try injecting a ten megacycle signal into the filament of the magnetron by means of a bi-filar choke coil inserted in the filament leads. Mr Willard claimed a power of approximately ten watts from a Class "C" amplifier would be sufficient. He advised that of the various methods tried, the one described above provided the best results.

(c) An AN/ALT-6 transmitter was obtained to check feasibility of the modification and amount of space available for mounting additional oscillator and Class "C" amplifier.

y. Auxiliary Test Project Number 39, "Crystal Video Jamming Homers".

(1) Date initiated: 24 January 1955.

(2) Percentage complete: 17%.

(3) Hours flown: None.

(4) Present status:

(a) During the past two months, the ARD-9 crystal video receiver has been bench tested. Cables have been fabricated for its use with the APA-70C antenna video switching unit and the two-directional antennas, AT-(XA-199)/U and AT-(XA-200)/U. Flight tests will be made with this equipment to determine if homing can be accomplished on S-band jamming.

(b) The TS-403/U signal generator is being used for sensitivity checks. A dipole was built for use with the signal generator to analyze

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operation of the receiver antennas. Sensitivity checks show the crystal video receiver minimum discernible signal is -45 dbm and the bandwidth between 15 and 20 megacycles. The very low sensitivity will seriously limit the range of homing on low power jammers.

(c) The antennas have been mounted on a KC-97 aircraft. Directivity of the antennas will be down and forward of the aircraft. This is not an ideal installation because directivity should be toward the front and more directly ahead of the aircraft; however, for the first test to be flown on 1 April, the installation will be adequate to check sensitivity and determine range capability of the receiver. For future tests, a better installation is planned utilizing either a B-47 or fighter aircraft.

z. Auxiliary Test Project Number 41, "X-Band Transmission Line and Antenna".

(1) Date initiated: 1 February 1955.

(2) Percentage complete: 16%.

(3) Hours flown: None.

(4) Present status:

(a) Preliminary literary research is continuing. Mathematical design has been largely finalized on the antenna, and test models will be constructed soon.

(b) Informal discussions with various personnel of WADC indicate the X-band transmission line most likely to be used will be a double ridge flexible waveguide type. This will be utilized at 4000 megacycles and higher frequencies. A sample section of this type of guide was shown by a sales representative from the Airtron Corporation during a recent visit here. The guide is similar in appearance to normal wave guide but is very flexible.

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aa. Auxiliary Test Project Number 42, "Development of a Chaff Cutter".

(1) Date initiated: 7 February 1955.

(2) Percentage complete: 15%.

(3) Hours flown: None.

(4) Present status:

(a) The rotary disc type chaff tape cutter presently shows the most promise for meeting established requirements. A prototype model of this type cutter was fabricated and tested. In principle, it cuts the tape satisfactorily as designed; however, improvements were immediately apparent. A second model is being constructed and will be extensively tested upon completion.

(b) Other possible concepts of chaff tape cutting are still being investigated.

bb. Auxiliary Test Project Number 44, "Modification of B-47 Aircraft for Installation of AN/ALT-7 in Battery Compartment".

(1) Date initiated: 10 February 1955.

(2) Percentage complete: 50%.

(3) Hours flown: N/A.

(4) Present status: Preliminary engineering drawings and wiring schematics have been completed for possible installation of two AN/ALT-7 transmitters and power supplies to be located within the B-47 battery compartment. A prototype installation will be made pending approval.

FOR THE COMMANDER:

William H. Murphy

WILLIAM H. MURPHY
Major, USAF
Adjutant

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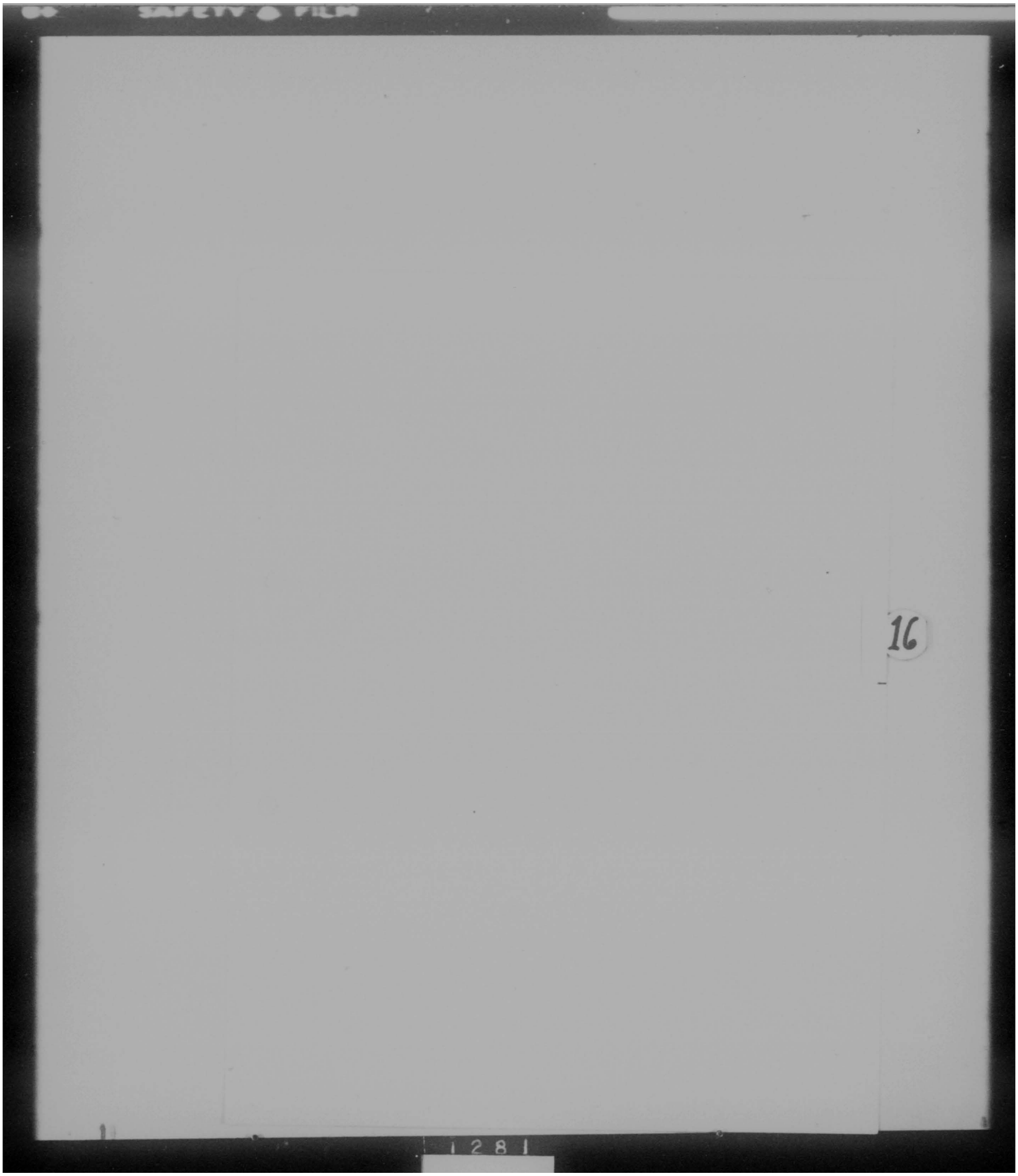

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HISTORICAL REPORT FOR THE MONTH OF MARCH 1955

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 70 for the month. The average in-commission rate was 77.56%. A total of 2312:45 hours were flown for an average of 33.04 hours per possessed aircraft. The Wing AOCP rate 2.36% compared to 3.77% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft.

a. B-47 Aircraft: The Wing had an average of 48 B-47 aircraft possessed for the month. The average in-commission rate was 78.44% compared to 75.80% for the previous month. Hours flown were 1593:05 for an average of 33.19 hours per possessed aircraft. The AOCP rate was 3.27% compared to 3.08% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 KC-97 aircraft for the month. The average in-commission rate was 75.65% compared to 76.22% for February. Total hours flown were 719:40 for an average of 33:10 hours per possessed aircraft. The AOCP rate was .38%, a decrease from 5.32% for February.

3. In March a total of 85,979 manhours were expended as direct time, 91,194 as indirect and 8,957 overtime. There were 177,174 manhours available for work and 76,855 absentee hours. Of the absent hours 1,654 were for pass. The above figures are based upon a 44 hour week of which 4 hours per airman is absent time for Ground Training, parades, Squadron Duty or excused from duty.

4. The malfunction figures listed are taken from the U-15 report covering the period of 21 February through 20 March 1955. During this period there were 51 B-47 aborts compared to 71 for the previous month. There were 17 KC-97 aborts compared to 4 for the previous month.

5. There were 12 B-47 engine changes in March compared to 8 for the previous month. Eleven KC-97 engines were changed compared to 6 for February. The average engine time at change: B-47-236 hours, KC-97-398 hours.

TOC & RECORDS

1. During the month there were 514 T.O.'s accomplished on B-47 aircraft and 95 on KC-97 aircraft.

2. There were 6 new T.O.'s received for B-47 aircraft and 6 for KC-97 aircraft.

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3. there were 12 Engine changes on B-47 aircraft with an average of 236 hours per engine. There were 11 engine changes on KC-97 aircraft with an average of 393 hours per engine.

4. There were approximately 20 component parts changed on KC-97 aircraft and 65 component parts changed on B-47 aircraft.

QUALITY CONTROL

1. During the month of March 1955 the Quality Control Unit inspected eight (8) B-47, and five (5) KC-97 aircraft processed through the Periodic Maintenance Docks. The unit also performed Flight Line inspections on twelve (12) B-47 and five (5) KC-97 aircraft.

2. Incoming publications were received, reviewed and processed as directed by SAC Manual 66-12.

3. The unit supervised the flight test of fourteen (14) B-47 and nineteen (19) KC-97 aircraft during the month.

4. Three hundred and forty-two (342) Unsatisfactory Reports were processed during the month.

5. Major J.M. Anderson was assigned as Officer In Charge of the Unit on 25 March 1955.

SUPPLY LIAISON

1. B-47's had 11 line items AOCP for the month.

2. KC-97's had 4 line items AOCP for the month.

3. Total of 15 line items.

4. The recurring AOCP was zero (0) for the month.

5. Total cannibalization for March was 59.40 for B-47's and 19 for KC-97's. ANPE 100%.

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MAINTENANCE STAND TEAM

1. WEAP Tests have been given through out the Wing in following career fields and the percentage completed are:

43 Field-B-47 are 97% complete.
43 Field-KC-97 are 20% complete.
30 Field-K-System are 80% complete.
30 Field-ECM Section are 100% complete.

2. A study of a Training program and requirements to bring Wing Maintenance to a higher level is under way.

3. All malfunction reports were monitored and a summary submitted.

4. A new set of Periodic Inspection cards and charts is being prepared for ECM.

James O Adams Capt USAF
for ROBERT S. MILNER
LT. COL. USAF
Chief of Maintenance

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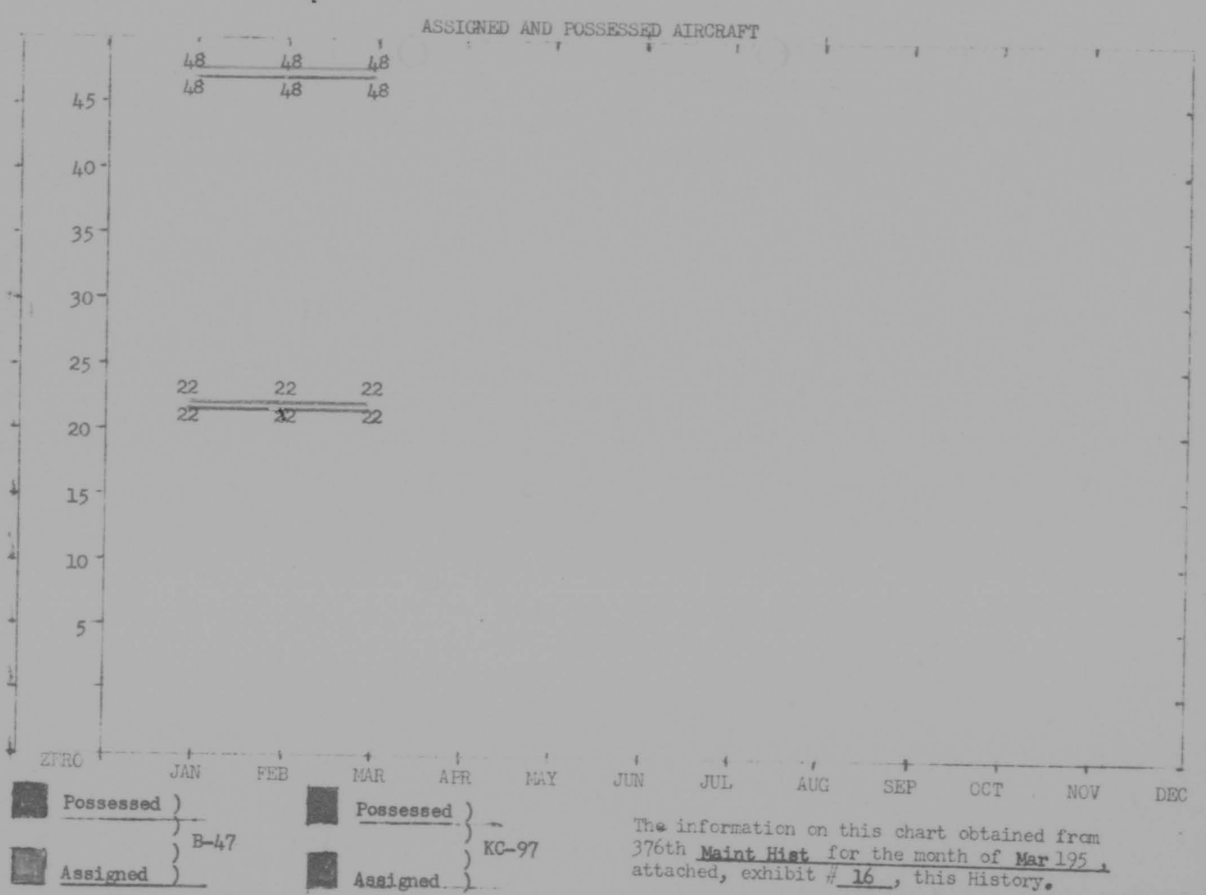

The information on this chart obtained from 376th Maint Hist for the month of Mar 195 , attached, exhibit # 16 , this History.

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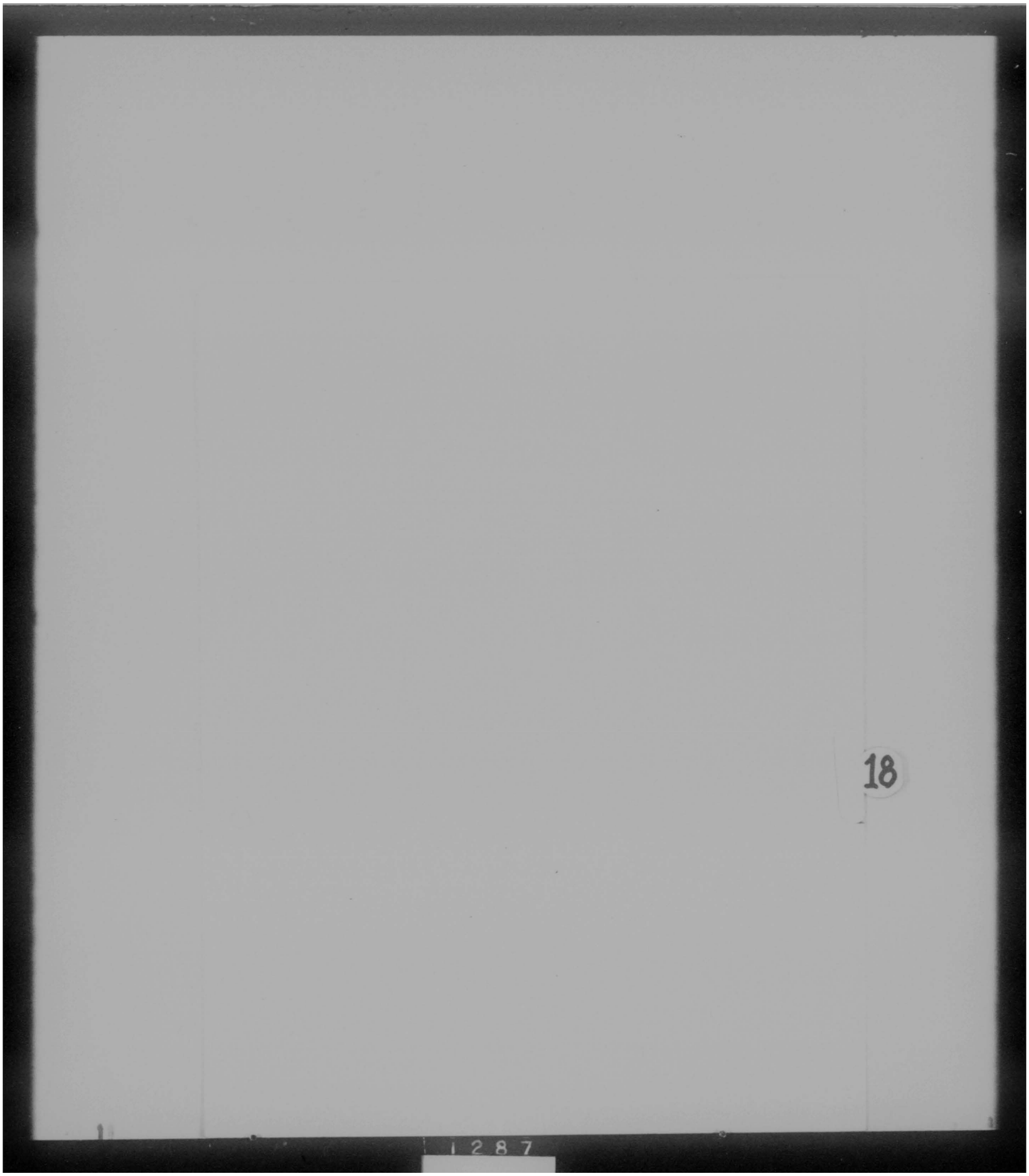

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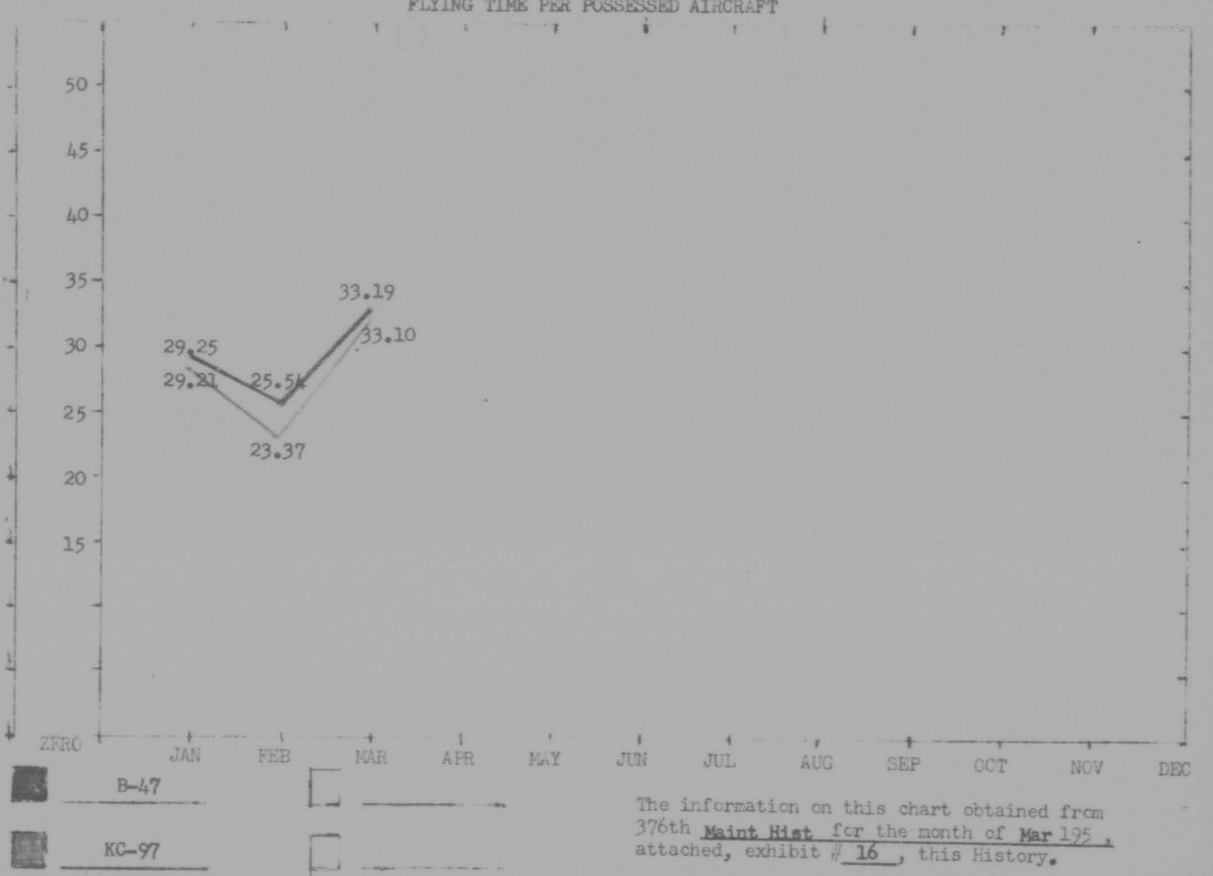
FLYING TIME PER POSSESSED AIRCRAFT



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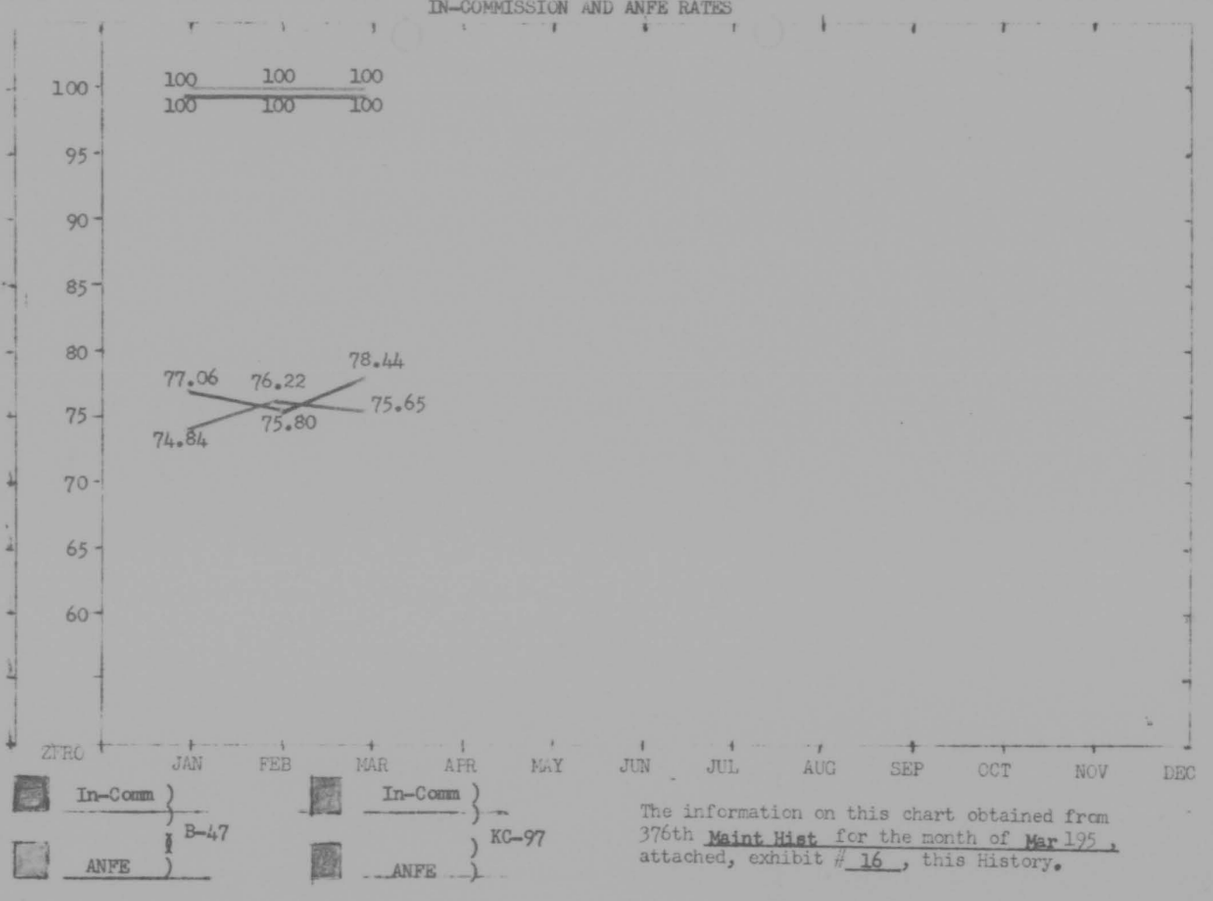
IN-COMMISSION AND ANFE RATES



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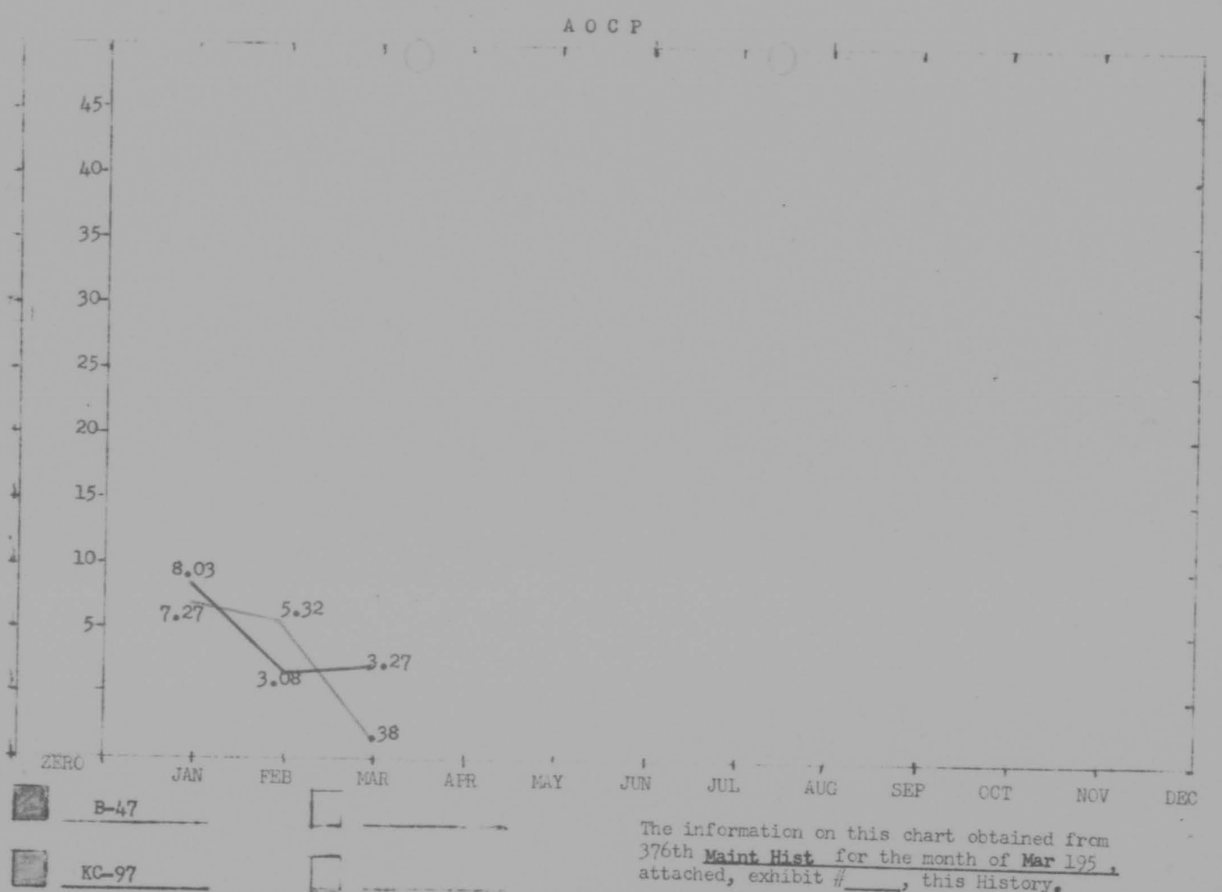

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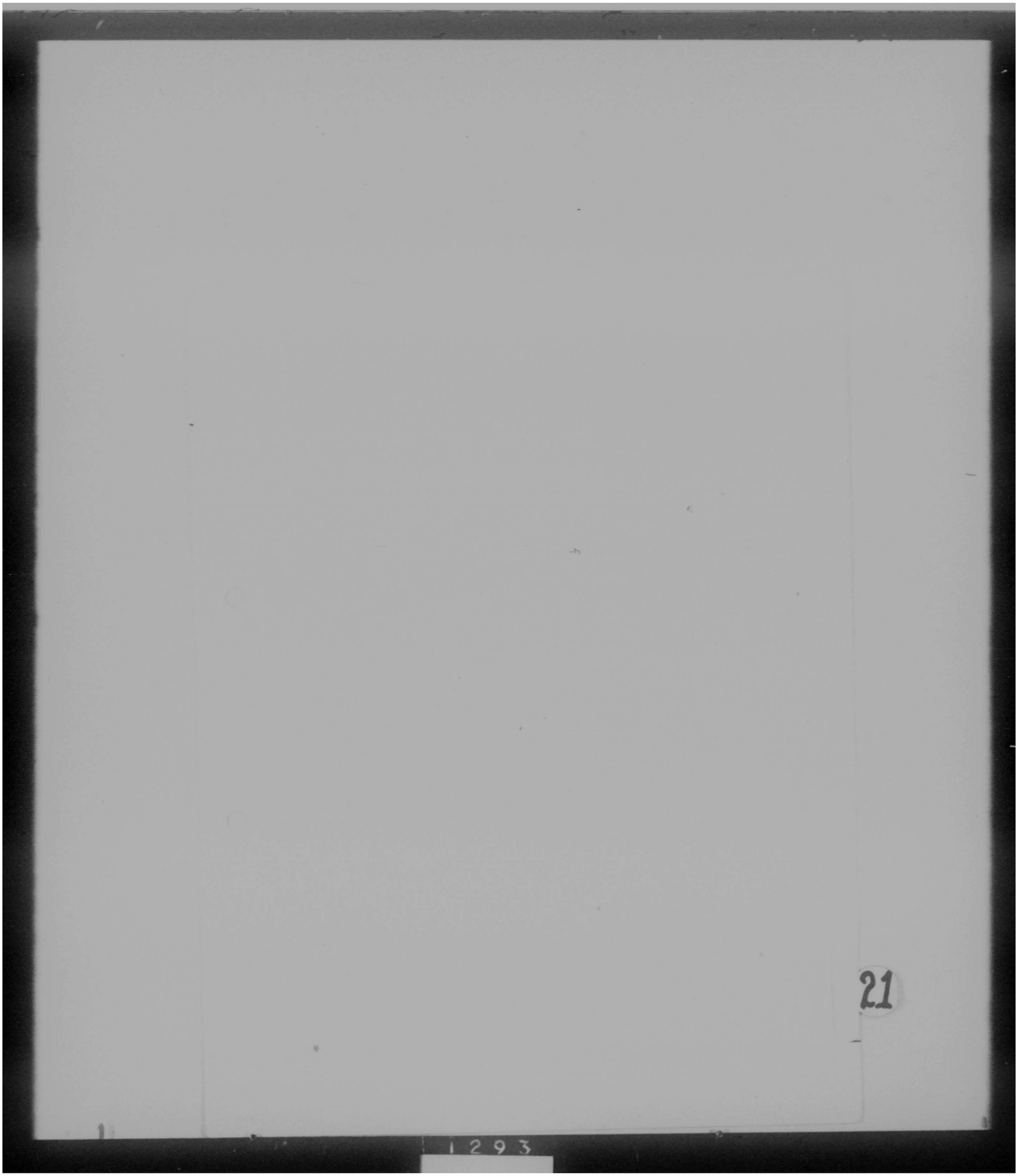

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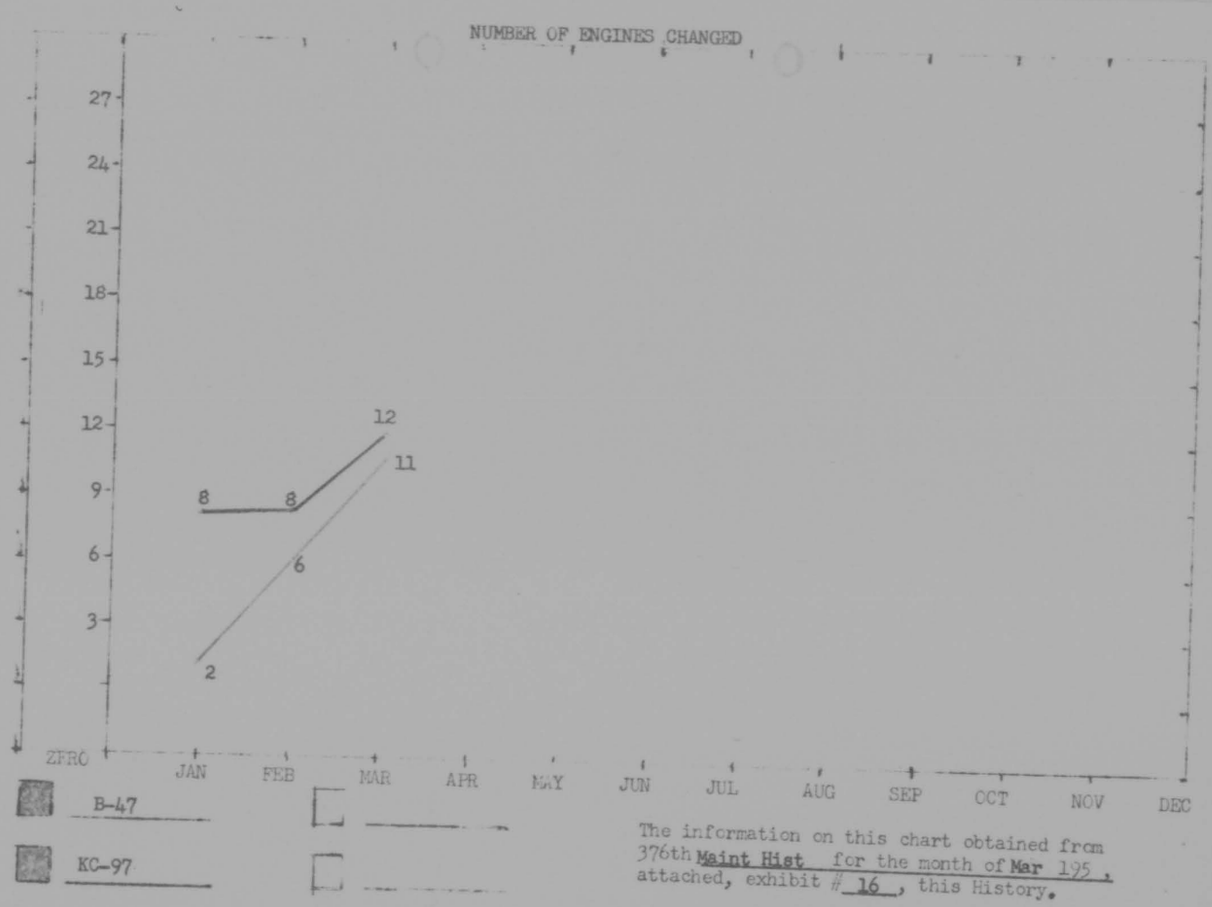

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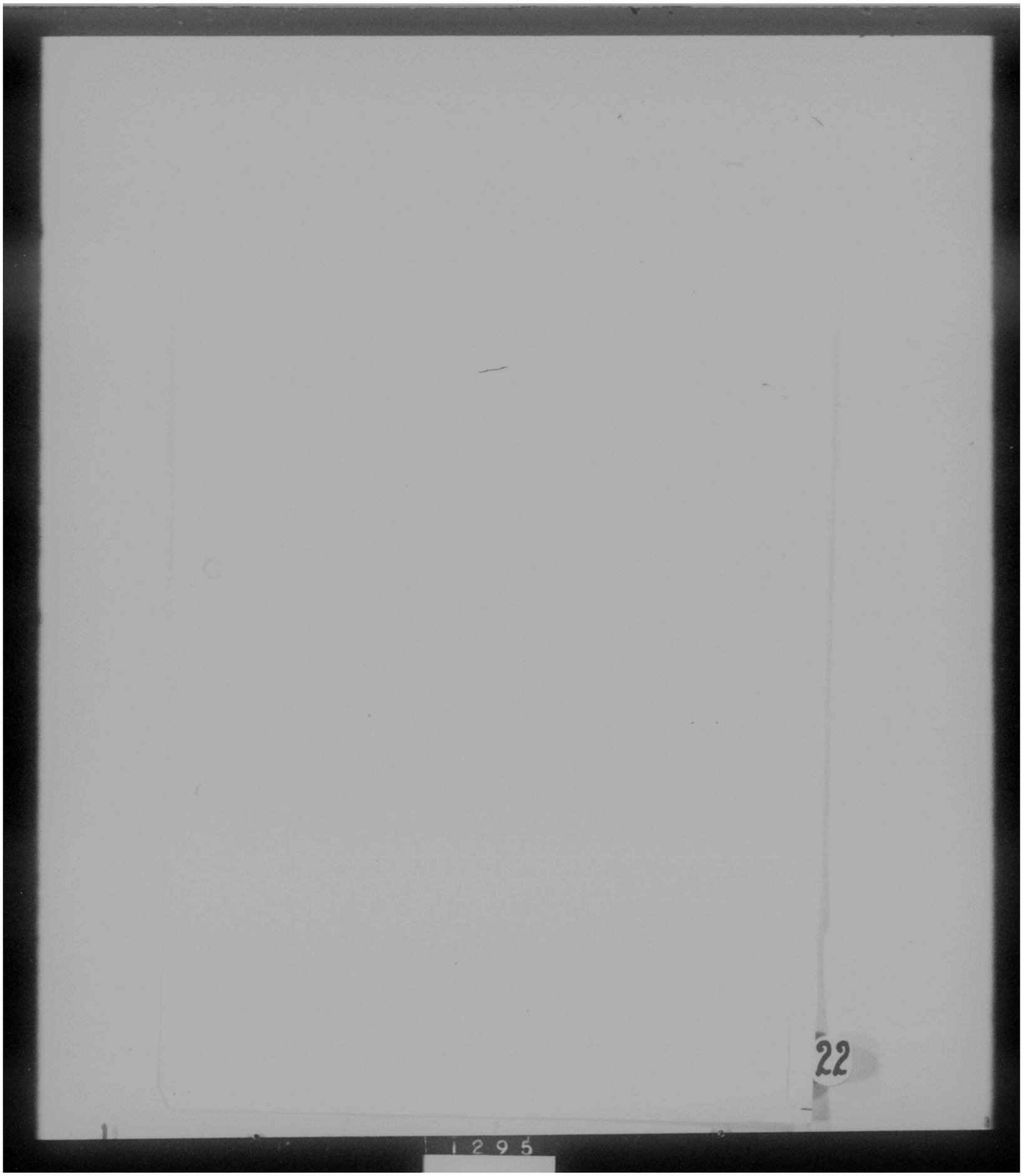

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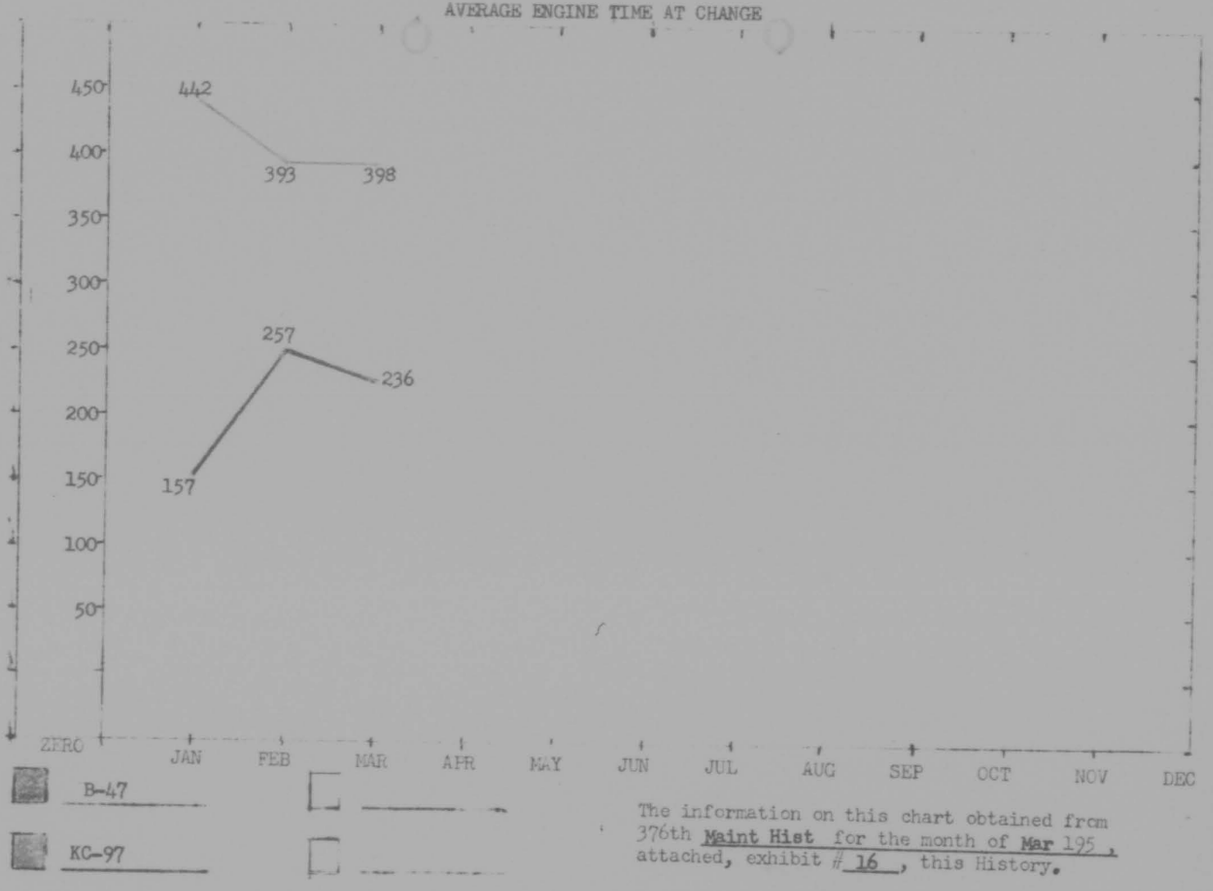
AVERAGE ENGINE TIME AT CHANGE



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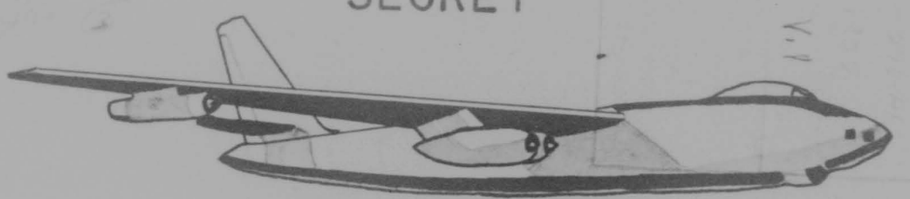

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HISTORY

OF THE

376TH BOMBARDMENT WING(M)

FOR THE MONTH OF

1-30 APRIL 1955

BARKSDALE AIR FORCE BASE

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Classification: SECRET
Authority: CG 376th Bomb Wing (M)
Initials: Humphrey
Date: 21 JUN 1955

(Unclassified)

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 APRIL - 30 APRIL 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing Medium
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron, Medium
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron
376th Tactical Hospital

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

For and in the absence of JOHN P. PROCTOR Colonel, USAF
Commander

Robert T. Calhoun Col, USAF

(Second Air Force, Strategic Air Command)

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	1, 2
SAC Management Control System	2, 3
Personnel Problems	3, 4
Crew Status	4, 5
Reenlistment and AWOL Rates	5, 6
Changes in Key Personnel	6
Roster of Key Personnel	7
CHAPTER II . . . Operations and Training	8
Flying Time	9
Training	10 - 12
Status of Test Projects	12 - 25
CHAPTER III . . . Maintenance	26
Aircraft Status	27 - 29
Equipment Malfunctions	29
Operational Difficulties	29, 30
Special Developments	30
Barksdale Open House	30, 31

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PERSONNEL

The total number of officers assigned at the end of April 1955 was 399,[1] which was four less than in March,[2] and was 50 less than authorized strength.[3] A total of 362 officers were effectively assigned,[4] 14 less than in March,[5] or 80.6 percent of authorized strength.[6] The figures and percentage for manning in required specialties (MIRS) in April were the same as for effectively assigned during the month.[7] There were 13 officers separated or reassigned in April,[8] which was three more than in March,[9] or 2.9 percent of authorized strength,[10] and nine officers assigned,[11] or 2.0 percent of authorized strength.[12]

The total number of airmen assigned at the end of April 1955 was 1844,[13] which was 27 less than in March,[14] but was 19 more than

1. Report, "Monthly Analysis (April 1955)", n.d., hereafter cited as "Pers Anal for Apr 55", n.d., exhibit #1, this History and chart, exhibit #2.
2. History 376th Bomb Wing for March 1955, page 1.
3. "Pers Anal for Apr 55, n.d., exhibit #1, and chart, exhibit #2, this History.
4. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
5. History 376th Bomb Wing for March 1955, page 1.
6. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
7. Ibid.
8. "Pers Anal for Apr 55", n.d., exhibit #1, by career fields: Pilots-4, Armt Sys Maint Offs-2, and 1 each - Flt Test Maint Off, Intel Off, Navi-Bombardier, Ops Staff Off, ECM Staff Off, Nav, and Med Off, Avn Medicine, for a total of 13.
9. History 376th Bomb Wing for March 1955, page 1.
10. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
11. Ibid, by career fields: Pilots-4, Navi-Bombardiers-3, and 1 each-Ops Staff Off, and Acft Maint Off, for a total of nine.
12. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
13. Ibid, and chart, exhibit #3, this History.
14. History 376th Bomb Wing for March 1955, page 1.

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authorized strength.[15] There were 1571 effectively assigned airmen,[16] eight more than in March,[17] or 86.08 percent of authorized strength.[18] The MIRS for airmen in April was 1391 or 75.42 percent of authorized strength.[19] There were 86 airmen transferred or discharged in April or 4.7 percent of authorized strength,[20] and 60 airmen assigned or 3.3 percent of authorized strength.[21]

SAC MANAGEMENT CONTROL SYSTEM

Under this system the Wing received 40 percent of maximum score for officers, 50 percent for direct support airmen, and 20 percent for indirect support airmen for manning in required specialties; 100 percent of maximum score for AWOL rate; 20 percent of maximum score for reenlistment rate, and 100 percent of maximum score for ground safety. Officer and indirect support airmen MIRS dropped due to qualified personnel being reassigned or separated.[22] The ground safety

15. "Pers Anal for Apr 55", n.d., and chart, exhibit #3, this History.
16. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
17. History 376th Bomb Wing for March 1955, page 2.
18. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
19. Ibid.
20. Ibid, by career fields: Radio & Radar Maint-21, Armt Sys Maint-7, Acft Accessories Maint-4, Airplane & Eng Maint-22, Mun & Wpns Maint-2, Vehicle Maint-3, Metal Working-6, Fabric leather & rubber repair-2, Trans-1, Food Sv-2, Supply-1, Stat Sv & Mach Acctg-1, Admin-7, Pers -1, and Med-6, for a total of 86.
21. "Pers Anal for Apr 55", n.d., exhibit #1, by career fields: Radio & Radar Maint-20, Armt Sys Maint-2, Intri Equip Maint-3, Acft Acc Maint-3, Airplane & Eng Maint-1, Mun & Wpns Repair-3, Vehicle Maint-6, Metal Work-2, Fabric leather & rubber repair-2, Trans-2, Supply-9, Stat Sv-1, and Med-6, for a total of 60.
22. D/F, "SAC Management Control System", 5 May, from 376th D/P to 376th CR, exhibit #4, this History.

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figure was 100 percent, same as in March 1955.[23]

PERSONNEL PROBLEMS

Officer effective manning for the 376th Bombardment Wing decreased four percent during April as compared to March. Effective manning of officers in April was 81 percent; however, with known losses of approximately 24 key officers within six months, effective manning will become critical. Officer manning in AFSC's 1435, 2054, 3024, 3254, and 7324 remained critically short. Effective manning in the intelligence career field was 57 percent; with known losses during May and June, effective manning will decrease to approximately 38.5 percent.

Career field 321: There was an overall overage of "K" Systems Mechanics at the three and five level; however, a critical shortage still existed at the seven level and at the five level for "K" Systems Radar and Interconnection Computer Technicians and "K" Series Stabilization and Optics Repairmen. Manning in AFSC's 32150B, 32150C, and 32150D was still zero percent. There were 14 airmen authorized in these career field subdivisions and none assigned. Training was authorized from 32159E to these three career field subdivisions, but personnel with technical knowledge required to train these personnel were not available as instructors.

Effective manning in the munitions and weapons maintenance field

23. Exhibit #1, to History 376th Bomb Wing for March 1955.

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was 63 percent; with known losses and no known input within six months, effective manning will be at 50 percent.

Career field 534: Effective manning was 50 percent; however, with the loss of 10, five level airmen within six months, effective manning will be at 34 percent.

Effective manning in the 702 career field was 62 percent. With known losses of 15 airmen within six months, effective manning in this specialty will be at 46 percent.

Effective manning in the 732 career field was 57 percent.[24]

During the period 16 May through 8 September 1955, the 376th Air Refueling Squadron will lose four boom operators and five assistant boom operators due to discharge. Since there is no scheduled input in this specialty, it will be necessary to replace these losses from non-combat ready crews. As a result, by 1 July 1955, this squadron will have only 20 complete crews including the Wing Standardization Crew. In addition to the nine boom operators required to maintain 25 crews, one radio operator will be required.[25]

CREW STATUS

B-47 CREWS:

During the month of April 1955, there was an average of 35 B-47

24. Report, "Bombardment Air Training Report for Month of April 1955 (RCS: 3-SAC-T12)", n.d., hereafter cited as "Bombardment T-12 for Apr 55", n.d., exhibit #5, this History.
25. Report, "Refueling Air Training Report for the Month of Apr 55 (RCS: 4-SAC-T12)", n.d., hereafter cited as "Refueling T-12 for Apr 55", n.d., exhibit #6, this History.

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combat ready/lead crews, and an average of 11 non combat ready crews assigned, showing a total of 46 B-47 crews assigned for the month.[26] Combat ready/lead crews flew a total of 763 hours for an average of 21.6 hours per crew. Non combat ready crews flew a total of 327 hours for an average of 43 hours per crew.[27]

KC-97 CREWS:

There were 19 combat ready KC-97 crews and six non combat ready crews assigned during April, showing a total of 25 crews.[28] Ready crews flew an average of 19:17 hours per crew and non ready crews flew an average of 38:00 hours per crew.[29]

REENLISTMENT - AWOL RATES

During April there were 36 airmen discharged, of which eight reenlisted, giving the Wing a reenlistment rate of 22.2 percent,[30] which was a drop of 6.7 percent from the March figure.[31]

There were five airmen AWOL during the month, against an assigned strength of 2243 personnel, giving the Wing an AWOL rate of 2.23 percent,[32] which was an increase of 1.35 over the March figure.[33]

---

26. "Bombardment T-12 for Apr 55", n.d., exhibit #5, and chart, exhibit #23, this History.
27. "Bombardment T-12 for Apr 55", n.d., exhibit #5, this History.
28. Tp by Historian with clerk, 376th ARRPS, o/a 1 June 1955.
29. "Refueling T-12 for Apr 55", n.d., exhibit #6, this History.
30. "Pers Anal for Apr 55", n.d., exhibit #1, this History.
31. History 376th Bomb Wing for March 1955, page 4.
32. "Pers Anal for Apr 55", n.d., exhibit #1, and chart, exhibit #24, this History.
33. History 376th Bomb Wing for March 1955, page 4.

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Under the SAC Rating System, the Wing received 20 percent for the reenlistment rate and 100 percent for the AWOL rate.[34]

CHANGES IN KEY PERSONNEL

During April 1955, Colonel Robert H. Borders III, USAF, Director of Countermeasures Test and Tactics was still TDY, having left o/a 20 February 1955 for approximately 180 days, at Goose Bay Air Base as a member of the SAC Liaison Team. Lieutenant Colonel Richard G. Hall, USAF, Assistant Director of Countermeasures Test and Tactics, assumed the duties of Director while Colonel Borders was gone.[35]

Major Edward T. Fleming, USAF, Director of Personnel, was promoted to the grade of Major with date of rank 9 February 1955.[36]

Major Charles C. Dugan, USAF, Commander of the 376th Tactical Hospital was still TDY, to Natnaumedeen, Bethesda, Maryland, Captain William W. Wilder, USAF, who assumed command when Major Dugan left, was separated o/a 18 April,[37] at which time Captain William H. Broyles, USAF, assumed command.[38]

34. D/F, "SAC Management Control System", from 376th D/P to 376th CR, 5 May 55, exhibit #4, this History.
35. SO 31, Hq 4th ADiv, 2 Feb 55, par 12, files, 376th Bomb Wing.
36. 376th Bomb Wing Officers Roster as of 5 May 1955.
37. SO 96, Hq 4th ADiv, 14 Apr 55, files, 376th Bomb Wing.
38. Tp by Historian with clerk, 376th Tac Hosp orderly room o/a 25 April 1955.

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ROSTER OF ASY PERSONNEL

Wing Commander	PROCTOR, JOHN P.	Colonel
Deputy Wing Commander	CALHOUN, ROBERT T.	Colonel
Director of Operations	LEIMBACHER, ROBERT J.	Colonel
Director of Materiel	COOK, ARCHIBALD D.	Lt Col
Director of Personnel	FLEMING, EDWARD T.	Major
Director of Countermeasures Test and Tactics	HALL, RICHARD G.	Lt Col
Comptroller	CUNLIFFE, RICHARD R.	Major
Chief of Plans	HALL, JAMES H.	Lt Col
Chief of Maintenance	MILNER, ROBERT S.	Lt Col
Chief of Intelligence	KOLPIN, SHIRLEY A.	Lt Col
Wing Adjutant	MURPHY, WILLIAM H.	Major
Director of Safety	KELLAHER, JAMES F.	Major

COMMANDERS OF ASSIGNED UNITS

Hq 376th Bomb Wing, M	FAIRBANKS, RUSSELL D.	Major
376th Tac Hospital	BROYLES, WILLIAM H.	Captain
512th Bomb Squadron, M	LUTZ, JOHN	Major
513th Bomb Squadron, M	ABRAMS, JAMES S.	Lt Col
514th Bomb Squadron, M	WADDLE, OWEN A.	Lt Col
376th Air Rflg Squadron	LACK, WENDELL D.	Lt Col
376th Field Maint Sq	HUNT, SEABORN M.	Major
376th Periodic Maint Sq	LAMB, CHESTER H.	Major
376th Armt & Elect Maint Sq	SCHULTZE, FAVID R.	Major

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

During April 1955, ECM testing required 126:05 hours, and Second Air Force Operations Order 108-55 (Firm Ground) used 31:35 hours, showing a total of 157:40 hours flown on missions ordered by higher headquarters.[39] Firm Ground was a Top Secret operation and as such is covered by a separate narrative.[40]

KC-97 Higher Headquarters Missions:

A total of 4:55 hours were required for one Test and Tactics mission; a VIP flight to Offutt to Wayne-Major, Michigan used 10:00 hours; a passenger flight to Eglin Air Force Base, Florida, used 5:30 hours and a ferry mission to Seattle, Washington used 18:20 hours for a total of 38:45 hours flown on higher headquarters missions.[41]

Total Flying Time:

Total flying time for B-47 aircraft in April was 1234:50 hours[42] (maintenance figures), a drop of 112:50 hours from the March figure.[43]

Total flying time for KC-97 aircraft in April was 602:20 hours,[44] which was a drop of 82:08 hours from the March figure.[45]

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39. "Bombardment T-12 for Apr 55", n.d., exhibit #5, this History.
40. Appendix Narrative to April History, 376th Bombardment Wing (M), (Top Secret).
41. "Refueling T-12 for Apr 55", n.d., exhibit #6, this History.
42. Report, "Historical Report for the Month of April 1955, 376th Bomb Wing Maintenance Control Unit", n.d., hereafter cited as 376 Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #8, this History.
43. History 376th Bomb Wing for March 1955, page 7.
44. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #8, this History.
45. History 376th Bomb Wing for March 1955, page 7.

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TRAINING

Classroom:

Sixteen airmen received one hour instruction on the AIE-1 Chaff dispenser, and one airman received 12 hours on the AIE-1; sixteen airmen received a total of 20 hours instruction on the AN/APS-54: and eight airmen received a total of 24 hours on the AN/ALT-8.[46]

Twenty-eight students received a total of 45 hours instruction on operation, maintenance, and alignment procedures of the ALT-6.[47]

Wing Observers attended a symposium type class on the K-4A Bomb-Navigational System for a total of 454 student manhours. The training program for K-mechanics based on the results of the WEMP test was placed into effect 11 April 1955 and classes were conducted two hours, five days a week on one of the field shop mock-ups. The course was set-up on a weekly basis: Monday - Computer adjustment, Tuesday - Computer accuracy checks, Wednesday - ICE alignment, Thursday - Radar alignment, and Friday - Stabilizer System adjustments. As of the end of the month, mechanics had received 92 student manhours instruction on the K-4A Bomb-Navigational System.[48]

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46. Report, "Monthly Technical Report for Month Ending 30 Apr 55", 1 May 55, by Nevitt, hereafter cited as "U-19 for Apr 55 by Nevitt", 1 May 55, exhibit #9, this History.
47. Report, "Monthly Technical Report for Month Ending 30 Apr 55", 16 May 55, by Lella, hereafter cited as "U-19 for Apr 55 by Lella", 16 May 55, exhibit #10, this History.
48. Report, "Monthly Technical Report for Month Ending 30 Apr 55", 1 May 55, by 5 Engrs, hereafter cited as "U-19 for Apr 55 by 5 Engrs", 1 May 55, exhibit #11, this History.

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Forty-four A-5 mechanics were given an A-5 evaluation test designed to evaluate their proficiency in ten separate categories of A-5 theory of operation and maintenance. The purpose of the test was to determine which of the men required classroom training in the various categories. Training to be given, from test results, should raise the overall proficiency level of personnel in A-5 maintenance sections.[49]

On the A-12D Gyropilot, 10 students received four hours instruction each on A-12D components, six students received 12 hours instruction on the A-12D interlock circuits, and five students received eight hours instruction on A-12D signal sources.[50]

On The Job Training (OJT):

Eighteen hours instruction were given on the CRC-8, 15 hours on the ALT-8, 14 hours on the APS-54, and 10 hours on the ALT-7.[51]

Fourteen students received 180 student hours of instruction on the retrofit program and PP 993 power supply troubleshooting technicalities, and thirty-four students received 60 student hours instruction on installation problems and operation of the "C" configuration of the AN/ALT-6 Countermeasures Transmitting Set.[52]

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49. Report, "Monthly Technical Report for Month Ending 30 April 55", 1 May 55, by Faux, hereafter cited as "U-19 for Apr 55 by Faux", 1 May 55, exhibit #12, this History.
50. Report, "Monthly Technical Report for Month Ending 30 Apr 55", 1 May 55, by Kronlage, hereafter cited as "U-19 for Apr 55 by Kronlage", 1 May 55, exhibit #13, this History.
51. "U-19 for Apr 55 by Nevitt", 1 May 55, exhibit #9, this History.
52. "U-19 for Apr by Lelle", 16 May 55, exhibit #10, this History.

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K-Systems mechanics received a total of 427 student manhours of instruction on systems analysis on the K-4A Bomb-Navigational System, and 137 student manhours of troubleshooting on the system.[53]

A-5 mechanics received instruction in troubleshooting and system adjustment (line, field, and periodic maintenance), and field changes for a total of 243 hours during the month.[54]

Under the planned OJT program, six students received 32 student hours on A-12D test procedures, and eight students received 30 student hours on A-12D theory; under the informal OJT program, 12 students received 72 student hours on A-12D theory and six students received 36 student hours on troubleshooting. Two students received two hours each on the C-1 amplifier and six students received 13 student hours on the N-1 compass.[55]

STATUS OF TEST PROJECTS

Project 1X remained at 42 percent of completion. Manufacturers were contacted concerning purchase of special tuning capacitors for this project. The Radio Condenser Company, Camden, New Jersey, seems to be the best possibility for furnishing a satisfactory unit. This company constructed test models of the capacitors to approximate their estimate of minimum capacity obtainable. Figures obtained in this

53. "U-19 for Apr 55 by 5 Engrs", 1 May 55, exhibit #11, this History.
54. "U-19 for Apr 55 by Faux", 1 May 55, exhibit #12, this History.
55. "U-19 for Apr 55 by Aronlage", 1 May 55, exhibit #13, this History.

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manner differed from those specified by the project engineer, but with recalculation, it is believed the data can be modified to use capacitors as offered by the company. Capacitors should arrive in approximately 10 weeks.[56]

Project 27 remained at 52 percent of completion. Interim reports on random, and continuous chaff corridor missions were being prepared.[57]

Project 29 remained at 52 percent of completion. The prototype camera and periscope assembly has not yet arrived. The project engineer was to pick up the camera in early May.[58]

Project 30 increased one percent to 48 percent of completion. The final report was delayed pending results of tests on accuracy of old and new style pressure altimeters.[59]

Project 32 increased five percent to 10 percent of completion. This project is being held in abeyance until antennas, cables, and connectors under the QRC-27(T) program can be evaluated.[60]

Auxiliary Project Five: In August 1954, information concerning the Russian IFF transponder type SRO was received by this organization

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56. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30), for April 1955", hereafter cited as "376th U-30 for April 1955", n.d., exhibit #14, this History.
57. Ibid.
58. Ibid.
59. Ibid.
60. Ibid.

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with a request to determine the vulnerability of the equipment and its associated interrogator to electronic jamming. A study of available information on the SRO revealed a striking resemblance of this equipment to the now obsolete Allied Mark III IFF System. Tests were made against this equipment and results obtained should be applicable to SRO equipment.

One of the simplest and most effective means of destroying the system is to jam the interrogator-responsor ground equipment. This was done at ranges up to 100 miles with AN/ALT-7 jamming transmitters under optimum IFF conditions. Completely effective jamming can be obtained over any 15 megacycle portion of the IFF band up to 170 megacycles at ranges up to 100 miles using three AN/ALT-7 transmitters adjusted for narrow-band noise modulation and low sweep rate.

The Soviet is presently using an IFF system similar to the Allied Mark III or SCR 695, called the SRO "Fishnet"; it operates within an estimated frequency range of 157 to 187 megacycles. The tunable radio frequency loop dimensions of the receiver-transmitter section of the SRO are practically the same as those of the SCR 695; therefore, frequency of operation could be identical. The mechanism used for sweeping the band in the SRO may reduce width of the band being swept to less than that of the SCR-695, i.e., less than 30 megacycles. It is believed that the "Fishnet" system could be easily saturated and that it is also vulnerable to any good VHF jammer.

Because of unavailability of the SRO and significant similarities

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between the Russian equipment and Mark III transponder, it was decided that tests would be conducted using the Mark III system. Operation principles of both systems are the same and results obtained by use of the Mark III should be applicable to the SRO. Little is known about Russian ground equipment; however, it is probably very similar to the RC-127A used in these tests.

Conclusions were: (1) The "A" scope of the ground interrogator-responsor can be jammed by signals from frequency sweeping AN/ALT-7 transmitters. (2) With the transpondor at a distance of 4.3 miles or more from the interrogator, complete obliteration of the transpondor pulse can be effected with three or more sweeping AN/ALT-7 transmitters at a distance of 100 nautical miles or less, with the jamming aircraft at an altitude of 32,000 feet. (3) Partial jamming is obtained up to 150 nautical miles. Jamming effectiveness at this range increases as more jamming transmitters are added, or as the distance between interrogator and transpondor increases. (4) Most effective jamming is obtained when the AN/ALT-7 transmitters are operated with narrow band noise modulation and low sweep rate (approximately 30 hits per second). (5) Under any conditions, this equipment (Mark III) would be unsuitable for an IFF set for ranges in excess of 150 miles because of inherent limitations of the equipment. It is suggested that the SRO is serving only as an interim measure and need not reflect the latest design in this field.

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It was recommended that: (1) For effective jamming of the SRO system, at least three AN/ALT-7 transmitters, adjusted for narrow band noise modulation and slow sweep rate, be used to cover each 15 megacycle portion of the frequency range to be jammed. (2) A requirement be made either to extend upper frequency limit of the AN/ALT-7 to 190 megacycles or to provide a similar jamming transmitter for the SRO range. (3) If future intelligence information reveals the USSR is using the SRO or a system similar to the Mark III for vectoring or tracking of fighter aircraft, that additional research be made as to the exact type of operation and components used.[61]

Auxiliary Project 6 increased 10 percent to 65 percent of completion. A barrage jammer was being constructed for the frequency range of 60 to 90 megacycles. Laboratory tests on the completed oscillator amplifier units showed promise. Plans were to test the broad band jammer against the SCR-270 radar at Eglin Air Force Base.[62]

Auxiliary Project 14 was still at 100 percent of completion. Attempts were made to modify the AN/APT-5A and AN/APT-9 for increased power output and sweep jamming capability in the frequency range of 1000 to 1500 megacycles. After testing, it was concluded that power output of the AN/APT-5A could be increased by increasing oscillator voltage, but operation under such conditions is not reliable and is particularly unsuitable for high-altitude operation. Further,

61. Report, "376th Bombardment Wing Final Report Auxiliary Test Project 5, IFF Jamming, 18 April 1955", Hist files, 376th Bomb Wing.
62. "376th U-30 for Apr 55", n.d., exhibit #14, this History.

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inherent mechanical difficulties make the AN/APT-5A and AN/APT-9 unsuitable for modification as sweep jammers at L-band frequencies. It was recommended that the AN/APT-5A and AN/APT-9 not be considered for use as a sweep jammer in the L-band. Work on this project was terminated and reporting will be discontinued.[63]

Auxiliary Project 18 remained at 45 percent of completion. During the past year (1954), a VHF jamming transmitter was built using a power increductor. Power output from this jammer is above 70 watts over the frequency range between 100 and 156 megacycles. Control circuits for the transmitter have been built so that it is capable of being swept over its frequency range approximately three times per second. Used with the output of a receiver discriminator, the transmitter can be made to lock-on any frequency which is set up on the receiver in the same frequency range. Then the plan was to build an increductor receiver to work in conjunction with the transmitter so that the whole system will function as a search-and-lock jammer. Arrangements were made to obtain five increductors for building the VHF receiver.[64]

Auxiliary Project 23 remained at 90 percent of completion. One hundred and fifty matching sections for the AT(XA-213)AP and 150 sections for the AT(XA-214)AP antennas manufactured by San Antonio Air Materiel Area have been received by the 376th Bomb Wing. A like amount for the AT(XA-212)AP antennas are in the process of manufacture but there was no delivery date given. Matching sections consist of

63. "376th U-30 for Apr 55", n.d., exhibit #14, this History.
64. Ibid.

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coaxial cable lengths inserted in the antenna lead at the base of the antenna.[65]

Auxiliary Project 24 remained at 85 percent of completion. A set of molds were fabricated to mold fiber-glass antenna tuning coil covers. One was molded and when tests are completed the remaining covers will be molded. An antenna tuning coil is required to tune the ARC-9 antenna over 2.0 to 3.5 megacycle and 5.0 to 6.3 megacycle bands. The final report was completed with the exception of ground and flight data on the two bands mentioned above. Modifications have been completed to reduce breakage of antenna switching relays. The high altitude capability of the QRC-8 is expected to be improved with potting compound to insulate the high voltage input receptacle and lead from the front panel of the transmitter.[66]

Auxiliary Project 25 increased 10 percent to 100 percent of completion. Data was being assembled and a final report being prepared.[67]

Auxiliary Project 26 increased three percent to 75 percent of completion with an additional 3:30 hours flown (total 25:45). Two flight tests were conducted during this period with F-86D aircraft carrying AI radar to make nose-on and tail-on passes at a B-47 carrying the AN/APS-54 warning receiver. The AN/APS-54 worked reasonably well on more

65. "376th U-30 for Apr 55", n.d., exhibit #14, this History.
66. Ibid.
67. Ibid.

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than 30 such passes when the receiver blanking cable was connected to the IFF trigger jack of the A-5 radar, the delay switch "IN", and the "MIN PRF" control set to "MIN". During nose-on passes, the AN/APS-54 gave indications of tracking radar when fighter was an average of 8.2 nautical miles away and during passes made from the rear, indications were shown at an average of 7.7 nautical miles away. One more set of AN/APS-54 cables shorted due to heat at the cabin heat spill valve, and no answer has been received to any of numerous UR's submitted on this condition.[68]

Auxiliary Project 28 was revised and the new percentage of completion was set at 65 percent, with the first 35 hours flown during the month. The revision of this project included addition of Auxiliary Projects 28, 29, 30 and 31. This project includes the development and testing of all components of S-band RF transmission systems to determine the best configuration for use on B-47 and other aircraft. On 8 April, the Wing was advised that the Amphenol Corporation was conducting research on a new RF cable to replace the RG-117/U. The new cable will have a woven flexible center conductor with a dielectric composed of thin Teflon wrappings. Outer covering is to be vinyl plastic. Woven conductor and Teflon wrapping dielectric will give the cable more flexibility and permit close quality control.

At a conference on 13 April, the Hallicrafters people showed the

68. "376th M-30 for Apr 55", n.d., exhibit #14, this History.

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RF system produced under the ARC-27 contract, utilizing the RG-117/U cable with new connectors which were better, but complicated. The first set of QRC-27(T) cables, connectors, and antennas were delivered to Barksdale Air Force Base. Laboratory tests showed the equipment to be acceptable from a VSWR (Voltage Standing Wave Ratio) standpoint.[69]

Auxiliary Projects 30 and 31 will no longer be reported separately as they have been included as part of Auxiliary Project 28.[70]

Auxiliary Project 32 remained at 85 percent of completion, the cradles have been operational since July 1954. One of the spare cradles was modified by addition of six intervalometers (for use with Blue Cradle "B" configuration only). If tests indicate that this installation is desirable, other cradles will be modified.[71]

Auxiliary Project 33 remained at 65 percent of completion. No flight tests were flown during April. Six runs made in March and results compiled, with illustrations in the form of charts are appended to this history.[72]

Auxiliary Project 34, "AN/ARC-27 Antenna Installation, Modification and Evaluation", was at 100 percent of completion. All Wing aircraft have had the chaff guard radomes installed since 16 March 1955. Inspections indicate chaff is pitting holes in the leading edge of some

69. "376th U-30 for Apr 55", n.d., exhibit #14, this History.
70. Ibid.
71. Ibid.
72. Ibid.

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chaff guards, five of which were repaired with a fiberglass compound. A modification has been initiated whereby a neoprene coating is applied to the leading edge of the guard. Follow-up inspections and tests will be made to check how effectively modification is reducing pitting of the guards.[73]

Auxiliary Test Project Number 35, "Evaluation and Suitability Test of the Hallicrafters Converter QRC-9":

The QRC-9 converter provides separate or simultaneous reception of S and X band signals when used in conjunction with an auxiliary rapid scan receiver and is a valuable aid to increased probability of intercept. Sensitivity of the converter to X band signals is somewhat lower than is desirable for reconnaissance receivers. The converter is of sound construction and would be relatively easy to service and maintain.

Evaluation and suitability tests were conducted on Hallicrafters QRC-9 converter. This converter was specifically designed to convert X band signals to frequencies of rapid scan search receivers such as the NRL-S-121. Provisions have been made for operating on either X or S band, or both bands simultaneously. The converter will provide spectrum search at S and X band and direction finding at X band when used in conjunction with the S-121 or S-131 receiver and appropriate antennas. The converter is a valuable aid to increased probability

73. "376th U-30 for Apr 55", n.d., exhibit #14, this History.

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for intercepting S and X band signals; however, sensitivity is somewhat lower than is desirable for reconnaissance receivers. A test was run in which the traveling wave tube of the QRC-9 was by-passes and signals were taken directly from the mixer output. The X band output was found to be only 0 to 10 DB less than when the traveling wave tube was used. This suggests that converters could be made considerably smaller and lighter and possibly be incorporated directly in a present receiver to increase tuning range.

It was concluded from the tests that: (1) The Hallicrafters converter will provide spectrum search at S and X bands and direction finding at X band when used in conjunction with the S-121 rapid scan receiver, S-131 intercept receiver, and appropriate antennas. (2) Converter QRC-9 is a valuable aid to increased probability for intercepting S and X band signals. (3) The converter is well designed, soundly constructed, and would be relatively simple to service and maintain.

Recommendations were that: (1) The Hallicrafters QRC-9 converter not be adopted for use in ECM installations, due to (a) Too much Auxiliary equipment. (b) Duplication in use of traveling wave tube. (c) X band signals show up in reverse on the ERL-S-121 indicator and, (d) numbers obtained from the indicator (non-linear scale) having to be interpolated. (e) Meter switch on QRC-9 cannot be left in I mix position due to possible loss of fain in the QRC-9. (f) Possibility of operator error and interaction within QRC-9 when used on S and X bands simultaneously - resulting in either gain or loss of X band

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signal. (2) Further research and development be conducted on the rapid scan receiver principle utilizing traveling wave tubes. (3) Investigation be made of the possibility for developing smaller and lighter converters to include in present receivers. Some suggestions are: (a) Tests have suggested the converter principle could possibly be incorporated in the receiver equipment rather than in a separate unit. (b) Local oscillator in the CRC-9 be changed from 12 to six KMC frequency in order to have the X and S band signals displayed in the same direction. (c) The local oscillator and mixer circuits alone would furnish adequate S band signal output to operate the ERI-S-120 receiver, with possible elimination of a sizable portion of the CRC-9. (d) Use of CRC with different auxiliary equipment because ERI-S-121 is considered obsolete, and a possible solution would be to build several converters into a single unit with outputs that could be used by receivers already operational.[74]

Auxiliary Project 37 increased two percent to 17 percent of completion. Preliminary tests were conducted in an attempt to broadband the AN/ALT-6 transmitter for spot jamming according to a method described be General Electric engineers. A bifilar choke was constructed and when used with the AN/ALT-6 the amplitude had a small rise on the high frequency side of the transmitter output but none was noted on the low side. Several minor changes were made with no better

74. Report, "376th Bombardment Wing Final Report Auxiliary Test Project 35, Evaluation and Suitability Test of Hallicrafters Converter CRC-9", April 1955, Hist files, 376th Bomb Wing.

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results. It appeared that instead of injecting the 10 watt signal directly into the magnetron filament circuit, advantage should be taken of the power gain of the 4-400A modulator tube in the AN/ALT-6 by injecting the signal onto the grid of this tube. Ways of coupling the RF signal into the input of the modulator stage were being investigated.[75]

Auxiliary Project 39 increased three percent to 20 percent with the first eight hours flown. Two flight tests were flown to test the ARD-9 crystal video receiver for possible use as a homing device on S band jamming transmitter signals. On the first flight, the ARD-9 receiver, associated switching unit and directional antennas, were installed in a KC-97 aircraft. An AN/APR-9 receiver was used to obtain signal strength at various ranges and altitudes. The jammer was an AN/ALT-6 connected to an AT-520 antenna mounted on a large ground plane outside the laboratory building. Results indicated that usable signals for homing could be obtained as far out as 50 miles on an AN/APR-9 receiver, however, altitude of the aircraft is an important factor in consideration of signal strength. At altitudes less than 15,000 feet, maximum range at times was less than 10 miles, due to location and pattern of the jamming transmitter antenna and receiving stub. Maximum range obtained on the ARD-9 crystal video receiver at any time was about two miles. On the second flight, two C-47 aircraft were

75. "376th U-30 for Apr 55", n.d., exhibit #14, this History.

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used with the AN/ALT-6 jammer and an AT-520 stub mounted in one aircraft and the ARD-9 receiver with directional antennas mounted in the nose section of the other aircraft, at an altitude of 3,000 feet. It was found that ranges of less than one-half mile were required to obtain any indication on the ARD-9 receiver.[76]

Auxiliary Project 41 became part of Auxiliary Project 29, and will no longer be reported separately.[77]

Auxiliary Project 44 remained at 50 percent of completion with engineers still awaiting approval of the prototype installation of two AN/ALT-7 transmitters and power supplies to be located within the B-47 battery compartment.[78]

76. "376th U-30 for Apr 55", n.d., exhibit 714, this History.
77. Ibid.
78. Ibid.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of April 1955, the Wing lost two B-47B aircraft due to project High Noon, under which the B-47B aircraft were to be turned in; the remaining 46 Wing assigned aircraft are B-47E's. The Wing lost possession of three other aircraft, two to Douglas Aircraft Company for modification and one at Riverside, California with a fuel cell out.[79] With 46 assigned B-47 aircraft and an equal number possessed,[80] the total flying hours for this type aircraft were 1234:50, for an average of 26:50 hours flown per possessed B-47 aircraft.[81]

The figure for assigned and possessed KC-97 aircraft was 22,[82] which was the same as in March 1955.[83] On the last day of March, one of the KC-97's flew a few hours (away from the station) causing that time to be added to the April figure (grand total 602:20) giving an average of 27:18 hours flown per possessed KC-97 aircraft.[84]

The in-commission rate in April was 84 percent on B-47's,[85] which was an increase of 5.56 percent over the March figure;[86] and on KC-97

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79. Tp by Historian with clerk, Reports & Analysis Sec, D/M, 376th Bomb Wing.
80. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #15, this History.
81. Ibid, and chart, exhibit #16, this History.
82. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #15, this History.
83. History 376th Bomb Wing for March 1955, page 25.
84. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #16, this History.
85. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #17, this History.
86. History 376th Bomb Wing for March 1955, page 25.

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aircraft the figure was 86.14 percent,[87] which was 10.49 percent over the March figure.[88] The AOGP rate for B-47's in April was .57 percent,[89] a decrease of 2.63 percent from the March figure;[90] and on KC-97 aircraft was 1.50 percent,[91] an increase of 1.12 over the March figure.[92] There were approximately 40 component parts changed on B-47 aircraft and 25 on KC-97 aircraft in April 1955.[93] Five B-47 and six KC-97 aircraft were processed through the maintenance docks, 12 B-47 and 13 KC-97 test flights were flown, and flight line inspections were performed on 12 B-47 and four KC-97 aircraft.[94]

In April, a total of 75,468 manhours were expended as direct time, 81,963 as indirect time, and 4,591 overtime. There were 167,428 manhours available for work and 79,448 absentee hours, of the absentee hours, 2,032 manhours were for pass.[95]

There were six B-47 engines changed in April,[96] a drop of six from the March figure;[97] and two KC-97 engines changed,[98] compared

87. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #17, this History.
88. History 376th Bomb Wing for March 1955, page 25.
89. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #18, this History.
90. History 376th Bomb Wing for March 1955, page 25.
91. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #18, this History.
92. History 376th Bomb Wing for March 1955, page 25.
93. "376th Maint Hist for Apr 55", n.d., exhibit #7, this History.
94. Ibid.
95. Ibid.
96. Ibid, and chart, exhibit #19, this History.
97. History 376th Bomb Wing for March 1955, page 26.
98. "376th Maint Hist for Apr 55", n.d., exhibit #7, and chart, exhibit #19, this History.

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to 11 for March.[99] The average engine time at change on B-47 engines was 292 hours, and on KC-97 engines was 595 hours,[100] showing an increase on both types of engines.[101]

EQUIPMENT MALFUNCTIONS

The type 1z2 tube when used in socket B-1205 (high voltage rectifier) in the modulator has a high failure rate. Failure of this tube results in loss of PPI presentation and it is not uncommon to have two or three aborts during a month due to its failure. A local attempt was made to have maintenance personnel periodically check the tube to predict failure; this system does not prevent failure, nor does it enable maintenance personnel to catch all 1z2 tubes which are about to fail. It was recommended that selenum rectifiers be used to replace the 1z2 tubes, which is being done in new equipment.[102]

Equipment malfunctions on the A-12D Gyropilot were routine in nature and attributed to electron tube failures.[103]

OPERATIONAL DIFFICULTIES

Difficulties encountered in operation of the Power Supply PP 993 were overcome by K209 recycling modification, 16-K1 longer interlock

99. History 376th Bomb Wing for March 1955, page 26.
100. "376th Maint Hist for Apr 55", n.d., exhibit #7, & chart, exhibit #20, this History.
101. History 376th Bomb Wing for March 1955, page 26.
102. "U-19 for Apr 55 by 5 Engrs", 1 May 55, exhibit #11, this History.
103. "U-19 for Apr 55 by Kronlage", 1 May 55, exhibit #13, this History.

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actuator pins, and 16-R lock washers of Hi E. plug.[104]

SPECIAL DEVELOPMENTS

Installation of QRC-8 equipment on all aircraft of the 376th Bomb Wing was completed on 15 April 1955.[105] The Wing received the A-12D bench mock-up, which was sent to the 376th Armament and Electronics Maintenance Squadron.[106]

BARKSDALE OPEN HOUSE

Barksdale Air Force Base played host to an estimated 26,000 visitors (4,427 autos by actual count), from the Arkansas, Louisiana, Texas area, on 1 May 1955. The Air Police were out in force to prevent conjestion, assist people to locate parts of the Base they were trying to find, and to handle the parking of vehicles on the ramp, which was done in an exemplary manner (observed by the Historian).

An exhibition was put on by the Air Force Drum and Bugle Corps (complete to kilts and Bag-pipes), and the Drill Team from Headquarters USAF. The precision of the drill team was something that made almost any airman envious. A static display was available, encompassing the B-47, C-124, KC-97,[107] T-33, and H-5 Helicopter. Fly-overs

104. "U-19 for Apr 55 by Lella", 16 May 55, exhibit #10, this History.
105. "U-19 for Apr 55 by Nevitt", 1 May 55, exhibit #9, this History.
106. "U-19 for Apr 55 by Kronlage", 1 May 55, exhibit #13, this Hist.
107. Picture, Barksdale Observer, 6 May 55, showing a static KC-97 and a couple of kids watching the "Blue Angels", exhibit #21, this History.

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and high speed passes were flown with B-47's, F-84's, T-33's, and a B-36; a JATO take-off by a B-47, a rescue demonstration by an H-5 Helicopter, an air-to-air refueling between a KC-97 and a B-47, and a parachute landing by a B-47 Stratojet. The Navy's famed "Blue Angels" thrilled spectators with their tight formation acrobatics (five foot spacing),[108] putting on a matchless exhibition of precision flying with blue and yellow smoke trails spewing from wing tip tanks which enabled ground observers to follow their movements.

The extremely large number of vehicles, upon leaving the Base, caused what was later called the worst traffic jam in the history of Shreveport, Louisiana.

108. Picture, Barksdale Observer, 29 Apr 55, exhibit 7/22, this History.

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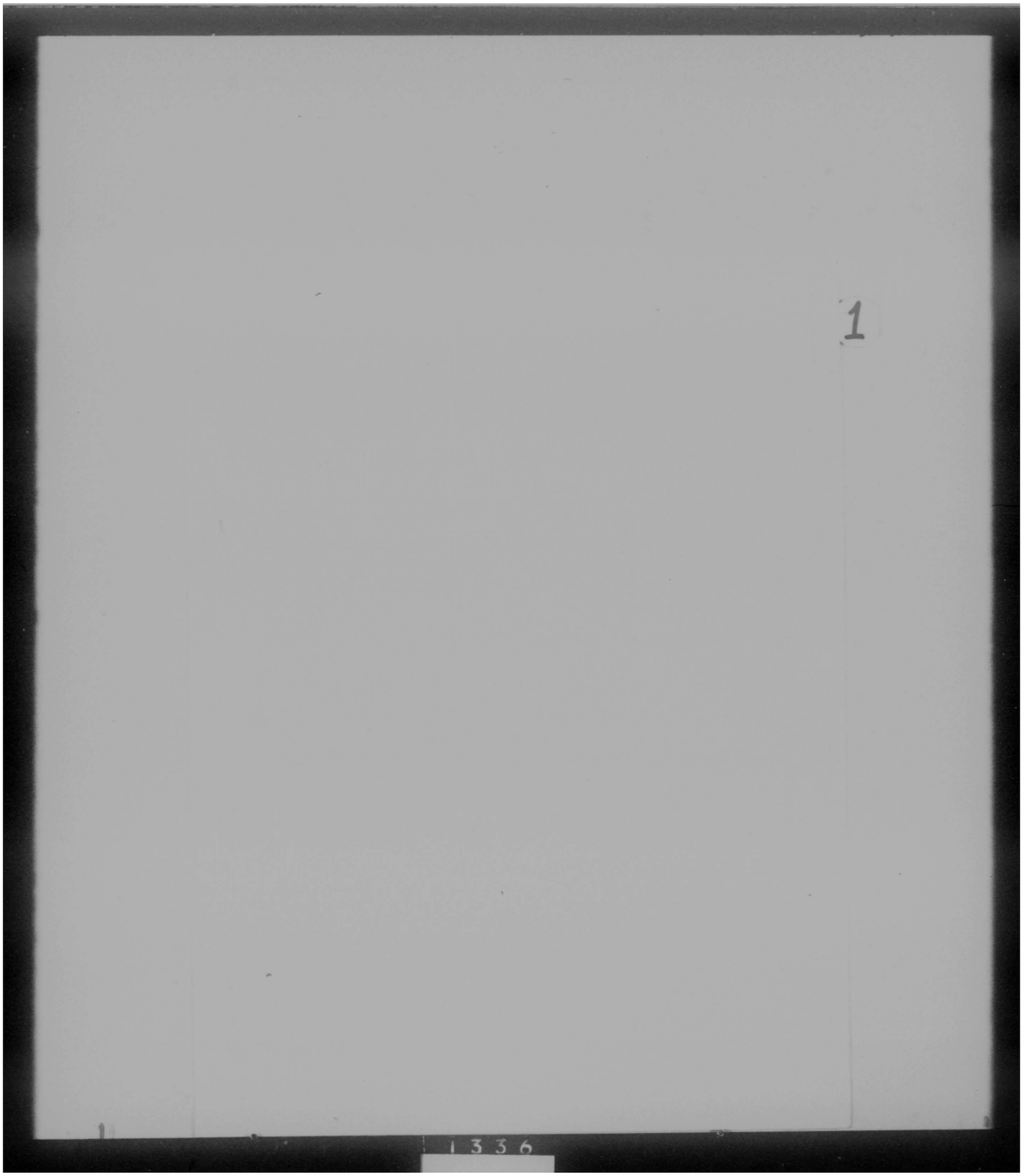

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MONTHLY ANALYSIS (APRIL 1955)

1. Officers Assigned during April 1955:

RANK	AFSC	NAME	AFSN	ORGN ASGD TO
Major	(1411)	Wallace N. Scott	AO 426701	376th Hq Sq
Major	(4344)	William J. Meeboer	AO 858037	376th Hq Sq
Capt	(1521B)	Wade G. Wood	AO 671159	376th Hq Sq
1st Lt	(1521B)	Charles R. Mayence	AO 1864285	376th Hq Sq
Capt	(1234C)	John C. Lesman	AO 2081106	512th Bomb Sq
2nd Lt	(1231B)	Ronald C. Rasmussen	AO 3025325	512th Bomb Sq
Capt	(1521B)	Victor T. Metz	AO 782939	513th Bomb Sq
2nd Lt	(1231B)	Millford J. Audleman	AO 3026073	513th Bomb Sq
Capt	(1231C)	Maurice A. Rogers	AO 768680	376 Air Rflg Sq

TOTAL: 9

2. Officers Transferred and Separated during April 1955: Four released from active duty, two to Camp Kilmer, New Jersey, and 1 each, as listed, to Headquarters SAC, Headquarters Second Air Force, Westover Air Force Base, Mass., James Connally Air Force Base, Texas, Maxwell Air Force Base, Alabama, 301st Bomb Wing, Barksdale Air Force Base, Louisiana, and Keesler Air Force Base, Mississippi:

Capt	(9356)	William W. Wilder	AO 2261008	376 Tac Hosp
1st Lt	(2051)	Nelson A. Italiano	AO 3003035	376th Hq Sq
1st Lt	(3231)	Clyde Buchanan, Jr.	AO 3003226	376 A&E Maint Sq
1st Lt	(3231)	Billy R. Rain	AO 2248727	376 A&E Maint Sq
Major	(3016)	Willie C. Troy	AO 860408	376th Hq Sq
Major	(4331)	William A. Prather	AO 667549	376th Hq Sq
Capt	(1234C)	Eugene W. Gauch, Jr.	AO 935075	376 Air Rflg Sq
Capt	(1411)	Dorsey C. Loux	AO 2090378	376th Hq Sq
Capt	(1525B)	Dominic P. Quercia	AO 2070317	513th Bomb Sq
1st Lt	(1231B)	Laurence Maher, Jr.	AO 1911933	512th Bomb Sq
Major	(1231B)	Charles J. Kelly	AO 789393	512th Bomb Sq
Lt Col	(1231B)	George R. Brendle	9946A	513th Bomb Sq
Capt	(1534A)	Brady A. Miracle	AO 707965	376 Air Rflg Sq

TOTAL: 13

3. Airmen Assigned during April 1955 (by Prim AFSC):

30130	- 1	42330	- 1	53130	- 1	64132	- 1	90270	- 1
30131	- 1	42350	- 1	53270	- 1	64151	- 2	90630	- 1
30230	- 18	43371	- 1	58130	- 1	64152	- 4	90930	- 1
32170E	- 1	46270	- 3	58151	- 1	64173	- 1	90015	- 1
32330C	- 1	47134	- 1	60150	- 1	68010	- 1		
40230	- 3	47154	- 3	60350	- 1	90230	- 1		
42171	- 1	47155	- 2	64010	- 1	90250	- 1	TOTAL:	60

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4. Airmen Transferred and Separated (not Reenl) in Apr 55 (by Prin AFSC):

30150	- 1	42171	- 2	43251	- 1	53450	- 6	73170	- 1		
30170	- 1	42250	- 1	43270	- 1	58151	- 1	90010	- 1		
30171	- 1	42350	- 1	43350	- 2	58250	- 1	90250	- 2		
30230	- 4	43131E	- 1	43371	- 2	60330	- 1	90350	- 1		
30250	- 14	43151E	- 2	46250	- 2	68230	- 2	90570	- 1		
32150E	- 5	43171A	- 1	47135	- 1	64173	- 1	90670	- 1		
32350C	- 1	43171E	- 1	47151	- 1	68150	- 1				
32370C	- 1	43230	- 11	47155	- 1	70250	- 7	TOTAL:	86		

5. Reenlistment Rate (Apr 55):

Number Discharged	Number Reenlisted	% Reenlisted
36	8	22.2

Discharged by Squadrons (April 1955 only):

376th Hq Sq	*MSGT J P MOSLEY (Reenl)	A/1C C Cavagnetto
	*TSGT J A Leggett (Reenl)	A/1C J F Kennison
	SSGT R D Arnold	A/1C B N Ruckman
514th Bomb Sq	A/1C T Perrodin	
376 Air Rflg Sq	MSGT O P Paposodore (Reenl)	SSGT F C Jones (Reenl)
	SSGT W E Baker	SSGT D R Reeves
	SSGT F A Heald	
376th Armt & Elec Maint Sq	TSGT B J Russell (Reenl)	A/1C J E Pratt (Reenl)
	SSGT J W Collins (Reenl)	A/1C D K Reese
	SSGT W B Griffen	A/2C H M Bailey
	SSGT H D Sahjean	A/2C M F Cross
	SSGT W C Stauss, Jr.	A/2C A D Murphy
376th Fld Maint Sq	MSGT B J Perry	A/1C E A Grvelak
	SSGT L Blanton	A/1C R L Garrison (Reenl)
	SSGT D B Bolton	A/1C R J Welty
	SSGT A W Erbe	A/1C R R Zick
	SSGT G S Katz	A/2C J L Sirois
	SSGT J A Misher	A/3C D L Halvorsen
	A/1C L R Bratcher	*A/B B D Phillips
376th Periodic Maint Sq	A/2C C E Burton, Jr. (Reenl)	A/2C C L Kling (Reenl)
376th Tac Hosp	SSGT K L Coleman (Reenl)	*A/B L C Lalowski
	A/1C B B Flowers	

* Airmen separated but not included in the Reenlistment Rate.

1338

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6. AWOL Rate per 1000 (April 1955 only):

	Assigned	Number AWOL	Percent
Officers	399	0	0
Airmen	1844	5	2.71
TOTAL:	2243	5	2.23

AWOL by Squadron:

514th Bomb Sq A/2C J H Ernest

376th Fld Maint Sq SSGT R D Miller A/B F B Woodall

376th Tac Hosp A/3C C McNary

376th Air Rflg Sq A/2C P W Reeves

7. Gains and Losses:

	NO. Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	13	2.9	9	2.0
Airmen	86	4.7	60	3.3

8. Effective Manning of Officers:

	AUTH	ASGD	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376th Hq Sq	64	71	54	84.4
512th Bomb Sq	77	56	56	72.7
513th Bomb Sq	77	59	59	76.6
514th Bomb Sq	77	60	60	77.9
376 Air Rflg Sq	100	108	93	93.0
376 S&E Maint Sq	15	14	12	80.0
376 Fld Maint Sq	7	5	5	71.4
376 Per Maint Sq	5	4	4	80.0
376 Tac Hosp	27	22	19	70.4
TOTAL:	449	399	362	80.6
Consolidated MIRS:	449	399	366	81.5

1339

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9. Effective Manning of Airmen:

ORGN	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376th Hq Sq	57	47	80	85	39	39	65	59	68.4	68.4	81.3	73.8
512th Bomb Sq	86	85	24	23	79	72	20	16	91.9	83.7	83.3	66.7
513th Bomb Sq	85	85	24	17	80	65	18	17	94.1	76.5	75.0	70.8
514th Bomb Sq	96	93	24	21	92	78	18	17	95.8	81.3	75.0	70.8
376 Air Rflg Sq	193	188	57	50	157	147	49	41	81.3	76.2	86.0	71.9
376 A&E Maint Sq	348	434	72	53	314	253	54	49	90.2	72.7	75.0	68.1
376 Fld Maint Sq	266	263	170	158	246	219	141	129	92.5	82.3	82.9	75.9
376 Per Maint Sq	121	123	27	19	104	101	15	11	86.0	83.5	55.6	40.7
376 Tac Hosp	1	1	94	99	1	1	79	79	100	100	84.0	84.0
TOTAL:	1253	1319	572	525	1112	975	459	418	88.7	77.8	80.2	73.1
Consolidated MIRS:	1253		572			1011		430		80.7		75.2

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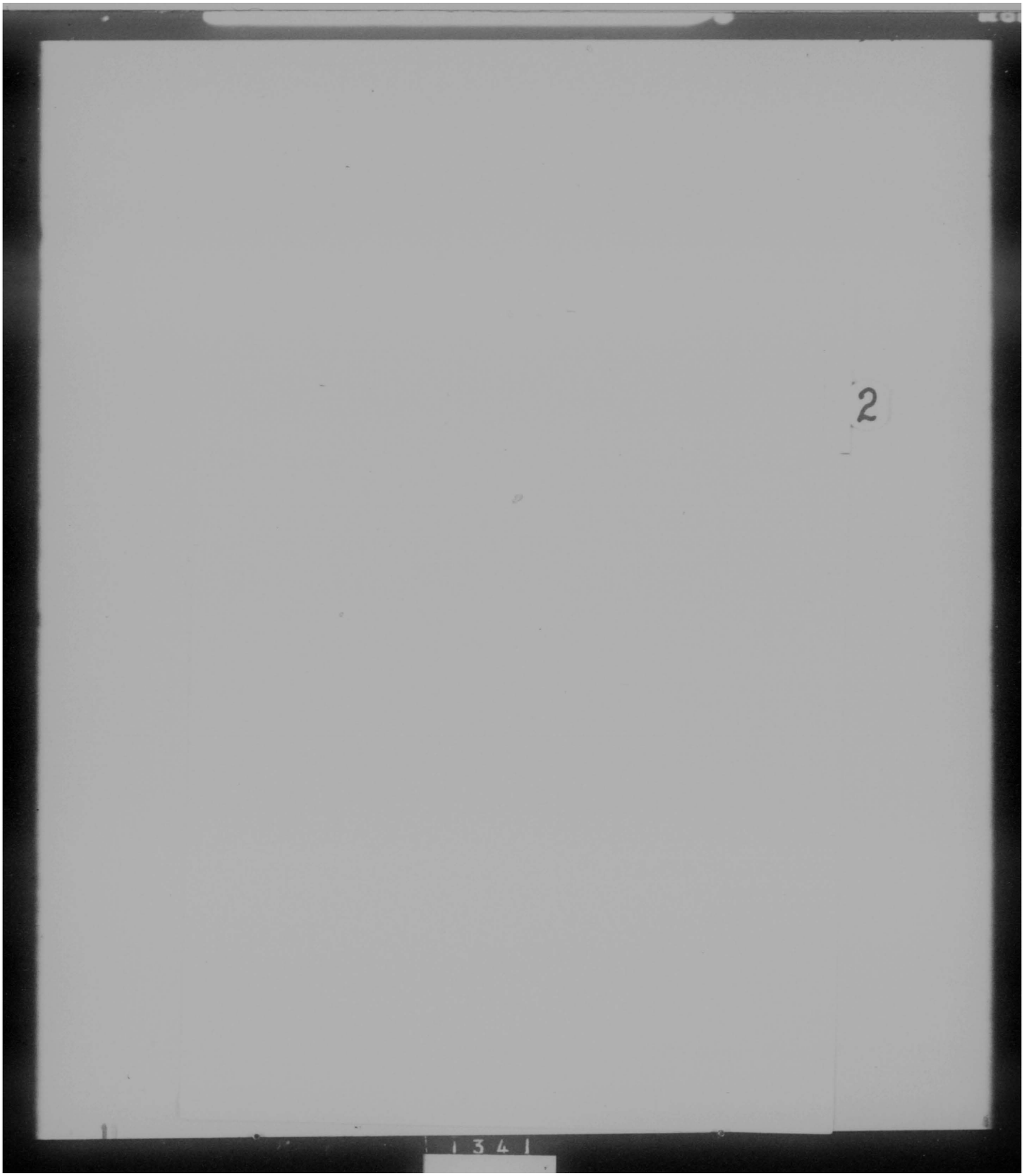

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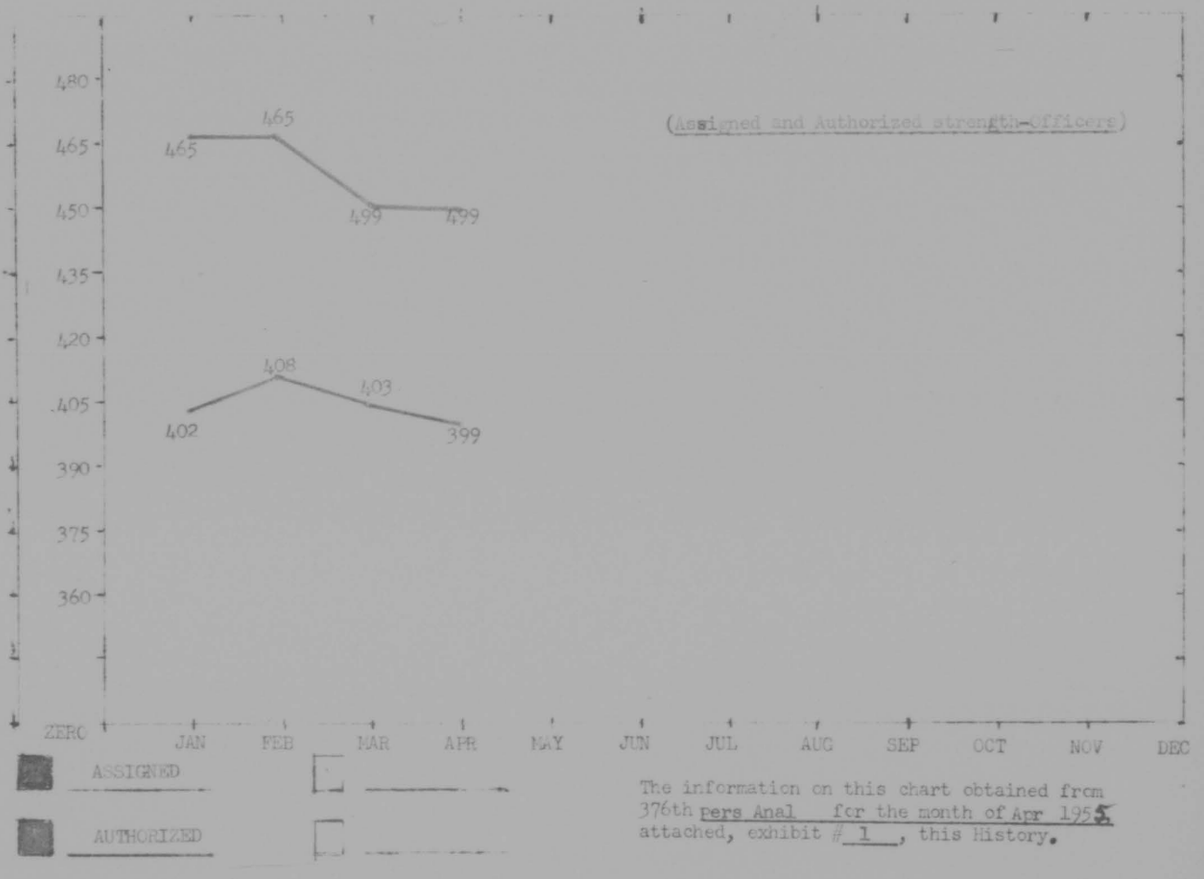

The information on this chart obtained from 376th pers Anal for the month of Apr 1955 attached, exhibit # 1, this History.

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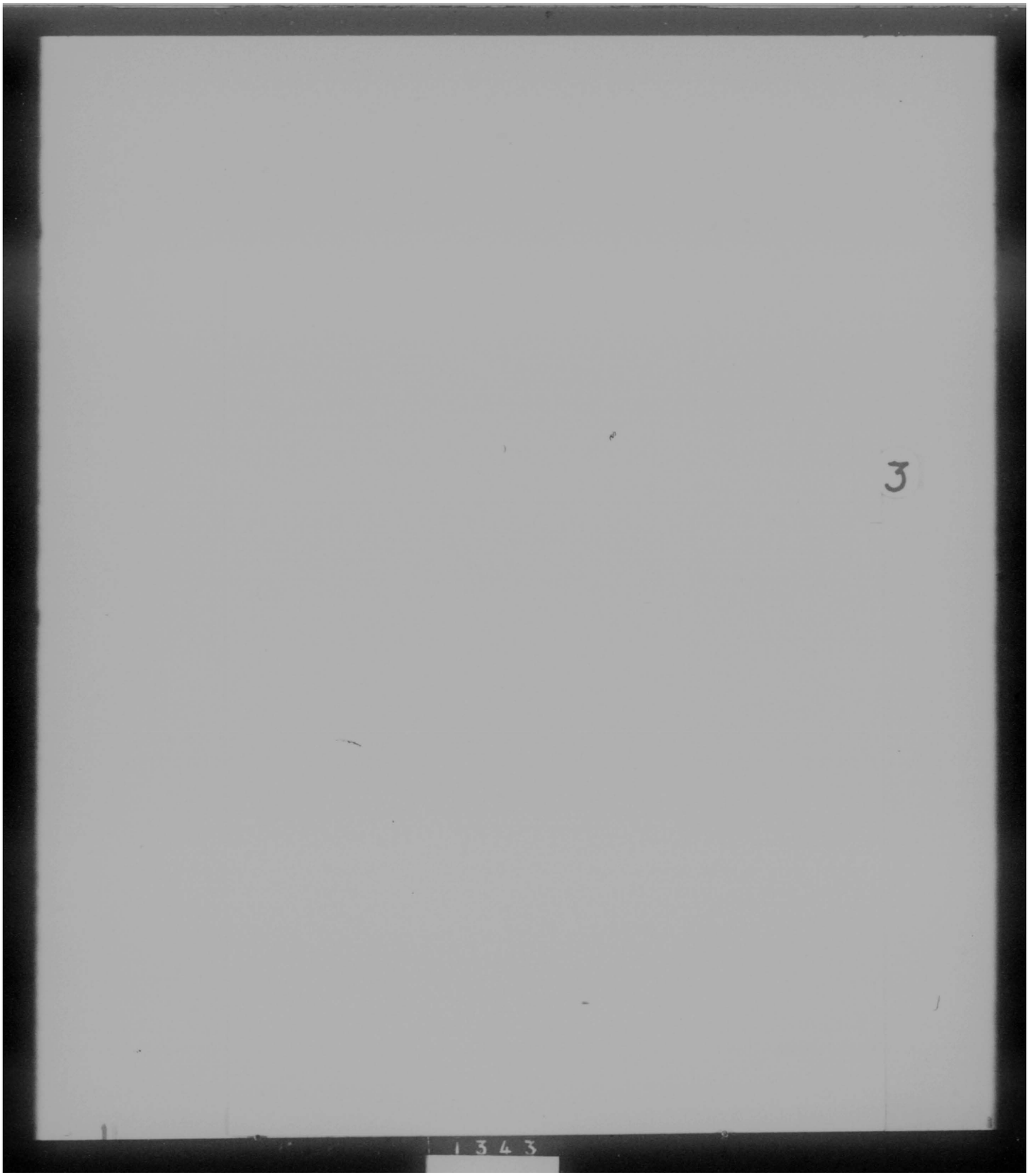

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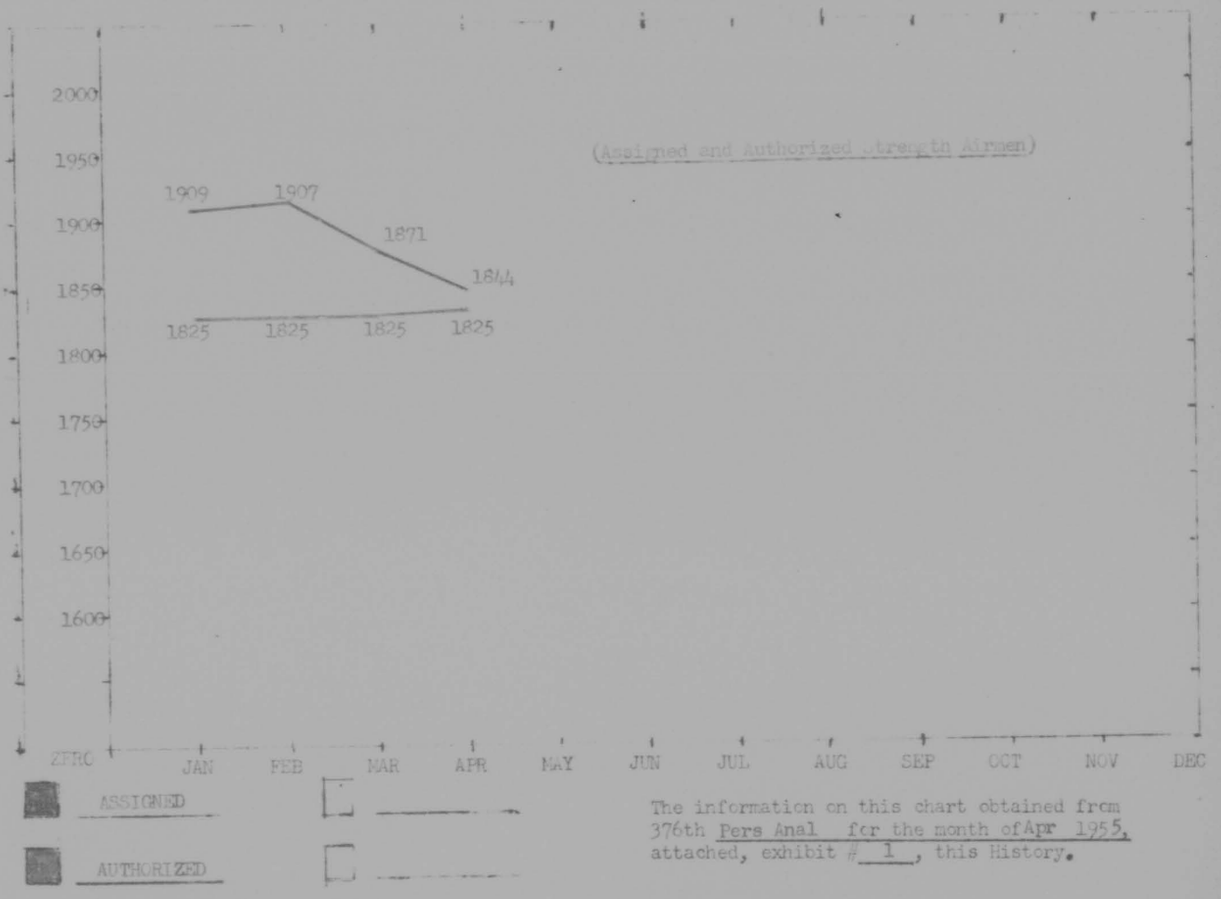

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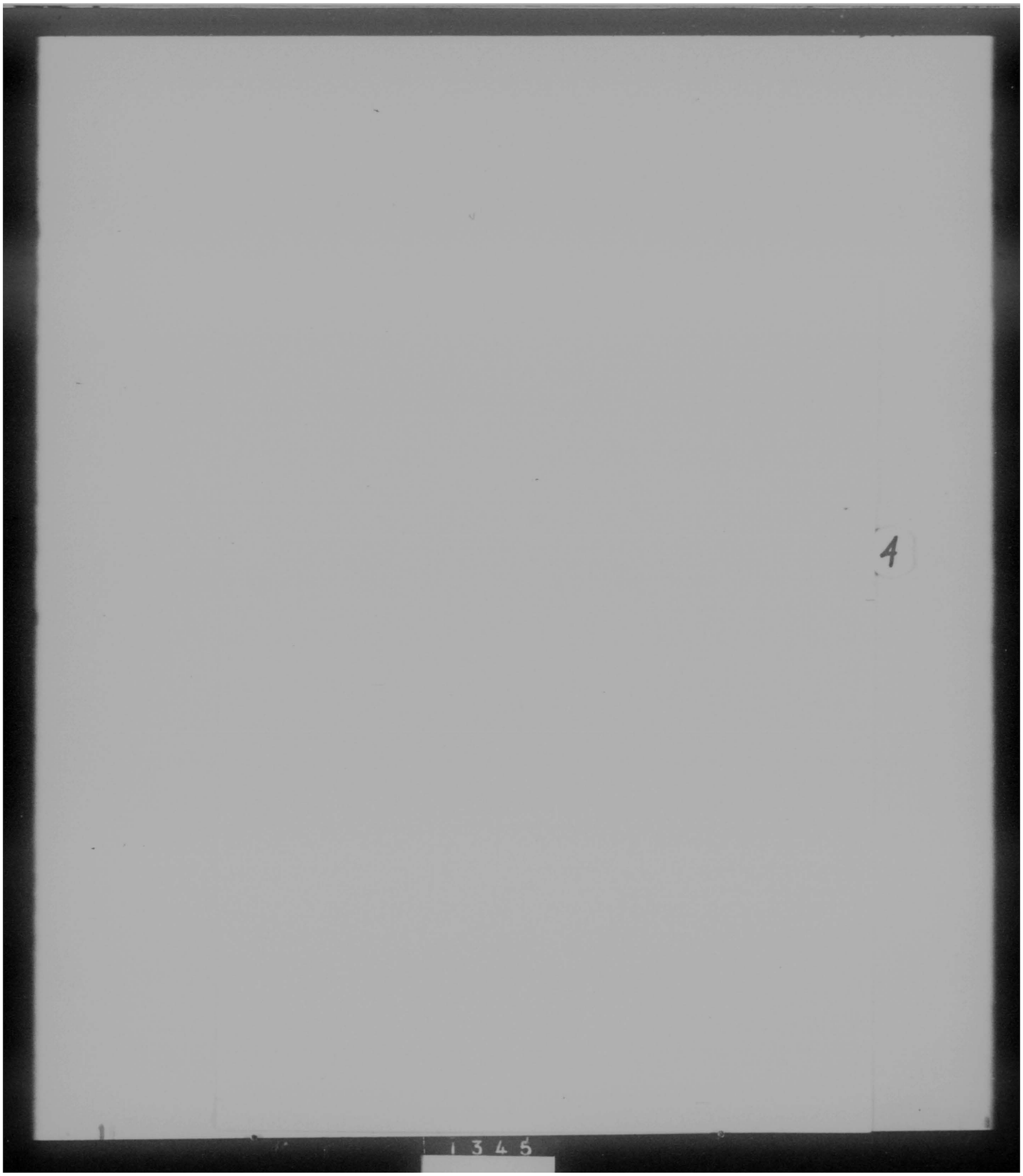

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SAC Management Control System

376CR 376DP 5 May 55

1. In compliance with D/F your office, subject as above, dated 23 Apr 54, the following information is submitted:

a. Manning in Required Specialties

		% of Maximum Score
Officers	81.5	40
Airmen (Direct Support)	80.7	50
Airmen (Indirect support)	75.2	20

b. AWOL Rate per 1000 (April 55):

2.23	100

c. Reenlistment Rate (April 55):

22.2	20

d. Ground Safety (April 55):

Ground Safety Index	Accident Cost Index	% of Maximum Score
2.94	.17	100

2. Officer and Indirect Support Airmen MIRS dropped due to qualified perxonnel being reassigned or separated.

3. Ground safetv remained 100% of maximum score. No government vehicle accidents were charged to the Wing for the month of April 1955.

/s/t/JAMES M. NEUSTADTER, 1STLT, USAF
Wing Personnel Officer

THIS IS A TRUE COPY:

WILLIAM H. MURPHY, MAJOR, USAF.

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AUTH: CONDR 376TH BOMWG
Initials
Date: 5 May 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART V

Bombardment Air Training Report for Month of April 1955
(RCS: 3-SAC-T12)

PART V:

6. Wing Commander's Remarks - Part V.

a. Hours flown performing missions ordered by higher headquarters:

(1) ECM Test: 126:05

(2) Second Air Force Operation Order 108-55 (Firmground) 31:35

157:40

b. Weather or local conditions affecting training:

(1) None

c. Directives imposed by AMC or SAC on aircraft:

(1) None

d. Combat crew member gains or losses:

(1) Gains: Three copilots.

(2) Losses: Two copilots; one copilot transferred to 3810th General Hospital, Maxwell Air Force Base, Alabama and one transferred to PACE school. Two observers; one compassionate transfer to Westover Air Force Base, Massachusetts, and one transferred to squadron staff. Two aircons transferred to wing staff.

e. Crew member changes:

(1) Three aircons.

(2) Nine copilots.

(3) Three observers.

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1348

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Wg Cmdr's Remarks, Bombardment Air Trg Rpt for April 1955

f. New crews: None.

g. Crew status changes:

(1) R05 to L05, 1 April. Upgraded.

(2) R09 to L09, 1 April. Upgraded.

(3) R51 to L51, 1 April. Upgraded.

(4) R71 to L71, 1 April. Upgraded.

(5) R80 to L80, 1 April. Upgraded.

(6) R40 to N40, 8 April. Regressed.

(7) R12 to N12, 11 April. Regressed.

(8) R75 to L75, 20 April. Upgraded.

(9) N72 disbanded, 25 April.

(10) N10 to R10, 30 April. Upgraded.

(11) N81 to R81, 30 April. Upgraded.

h. Standardization Crews:

(1) L04, wing standardization crew.

(2) L11, L37, and L70 are squadron standardization crews.

i. Additional materiel and personnel problems:

(1) Officer effective manning for the 376th Bombardment Wing decreased four percent during April as compared to March. Effective manning of officers is 81 percent; however, with a known loss of approximately 24 key officers within six months, effective manning will become critical.

(2) Officer manning in AFSC's 1435, 2054, 3024, 3254, and 7324 remain critically short.

(3) Effective manning in the intelligence career field is 57 percent. With the known losses during May and June, effective manning will decrease to 38.5 percent.

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(4) Career Field 293. Effective manning in the radio maintenance career field is 70 percent. With the known losses and no projected input within six months, effective manning will decrease to 60 percent.

(5) Effective manning in personal equipment career field is 60 percent.

(6) Career Field 321. There is an overall overage of "K" Systems Mechanics at the three and five level; however, a critical shortage still exists at the seven level and at the five level for "K" Systems Radar and Interconnection Computer Technicians and "K" Series Stabilization and Optics Repairmen. Manning in AFSC's 32150E, 32150G, and 32150D is still 0 percent. There are 14 airmen authorized in these career field subdivisions and none assigned. Training is authorized from 32150E to these three career field subdivisions; however, the personnel with technical knowledge required to train these personnel are not available as instructers.

(7) Effective manning in the munitions and weapons maintenance field is 63 percent. With the known losses and no known input within six months, effective manning will be 50 percent.

(8) Career Field 534. Effective manning is 50 percent; however, with the loss of ten, five level airmen within six months, effective manning will be 34 percent.

(9) Effective manning in the 702 career field is 62 percent. With the known loss of 15 airman within six months, effective manning in this specialty will be 46 percent.

1350

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Wg Comdr's Remarks, Bombardment Air Trng Hpt for April 1953

(10) Effective manning in the 732 career field is 57 percent.

j. SAC minimum training requirements not accomplished:

(1) Not applicable.

k. Noncombat ready crews capable of deploying:

(1) Five crews, M12, M17, M52, M54 and M55, have been trained to a point where they could be deployed for EWM missions in the event of an emergency.

l. Noncombat ready crew training:

(1) Eleven noncombat ready crews (excluding TP crews) were in training during the month of April. Of the aforementioned crews two did not accomplish 25 hours per crew due to emergency leave of Aircm Tapper and the reassignment of one aircm to another crew.

(2) 27 sorties for a total of 131 hours were flown as XXXXX time in connection with training noncombat ready crew personnel.

m. Flying time differences: Rescinded per SAC msg DOTRS 45873.

n. Field training operations:

(1) None.

o. Special training month remarks:

ITEMS	PROG	ACCOMP	PERCENTAGE
Flying hours	1100	1207	109.7
Sorties	189	217	114.8
Transition	152	186	124.0
Radar MBS	82	151	184.1
Visual MBS	36	40	111.1
Radar Malfunction	46	65	141.5

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Wg Comdr's Remarks, Bombardment Air Trng Dpt for April 1955

Simulated Radar Attacks	48	42	87.0
Simulated Visual Attacks	24	10	41.6
Visual Releases	42	29	69.0
Night Celestial Logs	36	12	33.3
Day Celestial Logs	22	24	109.0
Simulated Polar Grid Logs	30	14	46.5
Wet Hook-ups (6000#)	196	201	102.5
Dry Contacts	372	1311	352.5
Radar Rendezvous	51	31	61.0
Gunnery, Max Load	16	11	68.0
Cell	7	5	71.5

p. Comments or recommendations of the Wing Commander:

(1) The AOCP rate on B-47 aircraft decreased from 3.27 percent for March to .57 percent for April; a reduction of 2.7 percent.

(2) The average number of combat ready/load crews assigned during April was 35.4. A total of 763 hours (including test flight time) were flown for an average of 21.6 hours per crew.

(3) The average number of noncombat ready crews available (excluding TP crews) for flying training was 7.6. A total 327 hours were flown for an average of 43 hours per crew.

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Wg Comdr's Remarks, Bombardment Air Trng Rpt for April 1955

(4) An average of 47 aircraft possessed during April flew a total of 1234 hours for an average of 26.3 hours per possessed aircraft.

For and in the absence of

JOHN P. PRATHER
Colonel, USAF
Commander

Col, USAF

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AUTH: CO 376TH BOMW
NAME: Humphrey
DATE: 5 May 55

HEADQUARTERS
376TH BOMBARDMENT WING (MEDIUM)
Barksdale Air Force Base
Louisiana

WING COMMANDERS REMARKS

PART IV

Refueling Air Training Report for the Month of April 1955
(RCS: 4-SAC-T12)

PART IV:

7. a. I concur with the comments of the Squadron Commander.

b. The shortage of Inflight Refueling Technicians is becoming critical. Effective manning is presently 43 percent. With known losses and no projected input within six months, effective manning will be reduced to 32 percent.

c. The average number of possessed aircraft during April was 22. Aircraft flew a total of 598:50 hours for an average of 27.2 hours per possessed aircraft.

For and in the absence of

JOHN P PROCTOR
Colonel, USAF
Commander

Col, USAF

Secret

1355

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (M)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REMARKS

PART III

Air Training Report for the Month of April 1955
(RCS: 4-SAC-T12)

PART III

6. Squadron Commander's Remarks - Part III

a. Hours flown performing missions ordered by Higher Headquarters:

(1) One Test and Tactics mission: 4:55

(2) One passenger flight to Eglin Air Force Base, Florida, and return: 5:30

(3) One VIP flight from Barksdale to Offutt to Wayne-Major, Michigan and return: 10:00

(4) One ferry mission to Seattle and return: 18:20

TOTAL 38:45

b. Weather or local conditions affecting training:

(1) Adverse weather conditions precluded the accomplishment of two sorties (17:00).

c. Restrictive Directives:

(1) None.

d. Combat crew member gains and losses:

(1) Crew members gained:

(a) One aircraft commander.

(b) Three navigators.

1356

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(c) One boom operator.

(d) One assistant boom operator.

(2) Crew members lost:

(a) One aircraft commander - Processing for separation.

(b) One pilot - Transferred (PCS) to Westover AFB, Mass.

(c) Three navigators - One PCS Keesler; two Mather AFB.

(d) One boom operator - Discharged from the service.

(e) One assistant boom operator - Discharged from service.

e. Crew members changed:

(1) Two aircraft commanders.

(2) One pilot.

(3) Three navigators.

(4) Two boom operators.

(5) Three assistant boom operators.

f. New crews:

(1) Negative.

g. Crew status changes:

(1) M11 to T11, 30 April 1955, Upgraded.

h. Standardization Crew:

(1) TO2.

i. Additional materiel and personnel problems:

(1) The AOCP rate for April was 1.50 percent as compared to .38 percent for March.

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PART III - Squadron Commanders Remarks for Month of April 1955:

(2) During the period 16 May-- 8 September 1955 this organization will lose four boom operators and five assistant boom operators due to discharge. Since there are no scheduled input in this speciality, it will be necessary to replace these losses from non-combat crews. As a result, by 1 July 1955, this squadron will have only twenty complete crews including the Wing Standardization Crew. In addition to the nine boom operators required to maintain 25 crews, one radio operator will be required.

j. SAC minimum training requirements not accomplished:

(1) Not applicable.

k. Non-combat ready crews capable of deploying:

(1) Three. M14, M24, and M27 are considered capable of deploying in event of emergency.

l. Non combat ready crew training:

(1) Six crews. The average flying time for non combat ready crews was 38:00 per crew available (excluding TP crews). This does not meet the requirement of 50 hours per non combat ready established by Second Air Force Message DOTRF 1763, dated 8 March 1955. However, special emphasis was required for upgrading assistant boom operators to primary boom operators to prevent further combat crew regression.

Secret 3

1358

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PART III - Squadron Commanders Remarks for Month of April 1955

m. Flying time differences:

(1) Rescinded by SAC Message DOTRS 45873 and Change I, Supplement IV and SAC Regulation 50-23, dated 7 January 1955.

n. Special Training Month Remarks:

(1) Eight aborts were due to refueling system malfunctions. It is believed that these aborts were due to the large number of dry contacts accomplished during the month. The scheduled wet hookups were accomplished by increasing fuel loads to accomplish boom operator training. This was considered of greater importance than the accomplishments of rendezvous. Of 18 boom operator trainees, the average completion toward check-out was 75 percent. Of the 18, three were completed, five - 95 percent complete, 3 - 85 percent complete.

(2) The difference between the total wet hookups reported on the T12 and the training month analysis is due to the wet hookups for the training month were programmed as 6,000 pound transfers. The wet hookups recorded on the T12 are reported in accordance with SAC Regulation 50-23.

(3) Special Traing Month:

ITEM	PROGRAMED	ACCOMPLISHED	PERCENTAGE
Flying hours	550	584	106
Sorties	105	128	122
Transition	125	146	117

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1359

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PART III - Squadron Commanders Remarks for the Month of April 1953:

Navigation	24	52	216
Grid	8	8	100
Nite celestial	8	6	100
Radar Legs	8	28	350
Radar approach	23	33	143
*Rendezvous	54	46	85
Nite Rend	10	4	40
Refueling Wet hookups	216	264	131
Dry hookups	432	1699	395
Long range cruise	8	8	100

*Explained in remarks.

e. Comments or recommendation of the squadron commander:

(1) The training of boom operators has greatly improved in the past month and the squadron is now in position to absorb trained boom operator losses with the assignment of assistant boom operators. Non-combat ready crew training as a whole has progressed very satisfactorily thus far and with assignment of replacement personnel, upgrading to combat ready status can be accomplished as scheduled.

MERRILL D LACK
Lt Colonel, USAF
Commander

Secret

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7

1361

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HISTORICAL REPORT FOR THE MONTH OF APRIL 1955

3766th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 68 for the month. The average in-commission rate was 84.70%. A total of 1837:10 hours were flown for an average of 24:07 hours per possessed aircraft. The Wing ACCP rate .07% compared to 2.36% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft.

a. B-47 Aircraft: The Wing had an average of 46 B-47 aircraft possessed for the month. The average in-commission rate was 84.00% compared to 78.44% for the previous month. Hours flown were 1234:50 for an average of 26:50 hours per possessed aircraft. The ACCP rate was .57% compared to 3.27% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 KC-97 aircraft for the month. The average in-commission rate was 86.1% compared to 75.45% for March. Total hours flown were 602:20 for an average of 27:22 hours per possessed aircraft. The ACCP rate was 1.30% an increase from .0% for March.

3. In April a total of 75,408 manhours were reported as direct time, 21,663 as indirect time, and 4,591 overtime. There were 107,428 manhours available for work and 79,444 absentee hours. Of the absent hours 4,092 were for pass. The above figures are based upon a 44 hour week of which 4 hours per airman is absent time for Ground Training, Parades, Squadron Duty or excused from duty.

4. The malfunction figures listed are taken from the U-15 report covering the period of March 21 through 20 April 1955. During this period there were 24 B-47 aborts compared to 51 for the previous month. There were 13 KC-97 aborts compared to 17 for the previous month.

5. There were 6 B-47 engine changes in April compared to 12 for the previous month. Two KC-97 engines were changed compared to 11 for March. The average engine time at change: B-47 - 292 hours, KC-97 - 595 hours.

TCO & RECORDS

1. During the month there were 400 T.O.'s accomplished on B-47 aircraft and 150 on KC-97 aircraft.

2. There were 5 new T.O.'s received for B-47 aircraft and 8 for KC-97 aircraft.

3. There were 6 engine changes on B-47 aircraft with an average of 292 hours per engine. There were 2 engine changes on KC-97 aircraft with an average of 595 hours per engine.

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4. There were approximately 25 component parts changed on KC-97 aircraft and 40 component parts changed on B-47 aircraft.

QUALITY CONTROL

1. During the month of April 1955, the Quality Control Unit inspected five (5) B-47 and six (6) KC-97 aircraft processed through the Periodic Maintenance Docks. The unit also performed flight line inspections on twelve (12) B-47 aircraft and four (4) KC-97 aircraft.

2. Incoming publications were received, reviewed and processed as directed by SAC Manual 66-12.

3. The unit supervised the flight test of twelve (12) B-47 and thirteen (13) KC-97 aircraft during the month.

4. A.J. Malentukonis and R.M. McNutt were assigned to the unit and A.E. Thomason and C.E. Roberts were reassigned from this unit during the month of April.

SUPPLY LIAISON

1. B-47's had five (5) line items AOCP for the month.

2. KC-97's had six (6) line items AOCP for the month.

3. Total of eleven (11) line items.

4. The recurring AOCP was zero (0) for the month.

5. Total cannibalization for April was 39; B-47's 19 and KC-97's 20.

6. As of 30 April 1955, ANFE items are 15 for B-47's and 6 for KC-97's.

MAINTENANCE STANDARDIZATION TEAM

1. The Maintenance Standardization Team has been manned in accordance Chapter VI, SAC Manual 66-16.

2. The Malfunction report has been assigned to the team again.

3. New post flight cards have been received from Air Force and are now in use by the Bombardment Squadrons.

4. An Engine conditioning course has been established within the Wing for Jet and Reciprocating engines.

5. M.E.M.P. Tests have been completed on the B-47 type aircraft. Test for the KC-97 aircraft are scheduled for the month of May.

1363

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6. The Team is monitoring the OJT program, in accordance with the MEMP program.

7. The Maintenance Standardization Team is monitoring the progress of SAC Manual 66-4 in the Armament & Electronics Squadron, and completing the follow-up action on the SAF Stand Team visit.

Joe L. Carlisle

JOE L. CARLISLE
Major, USAF
Actg Chief of Maintenance

1364

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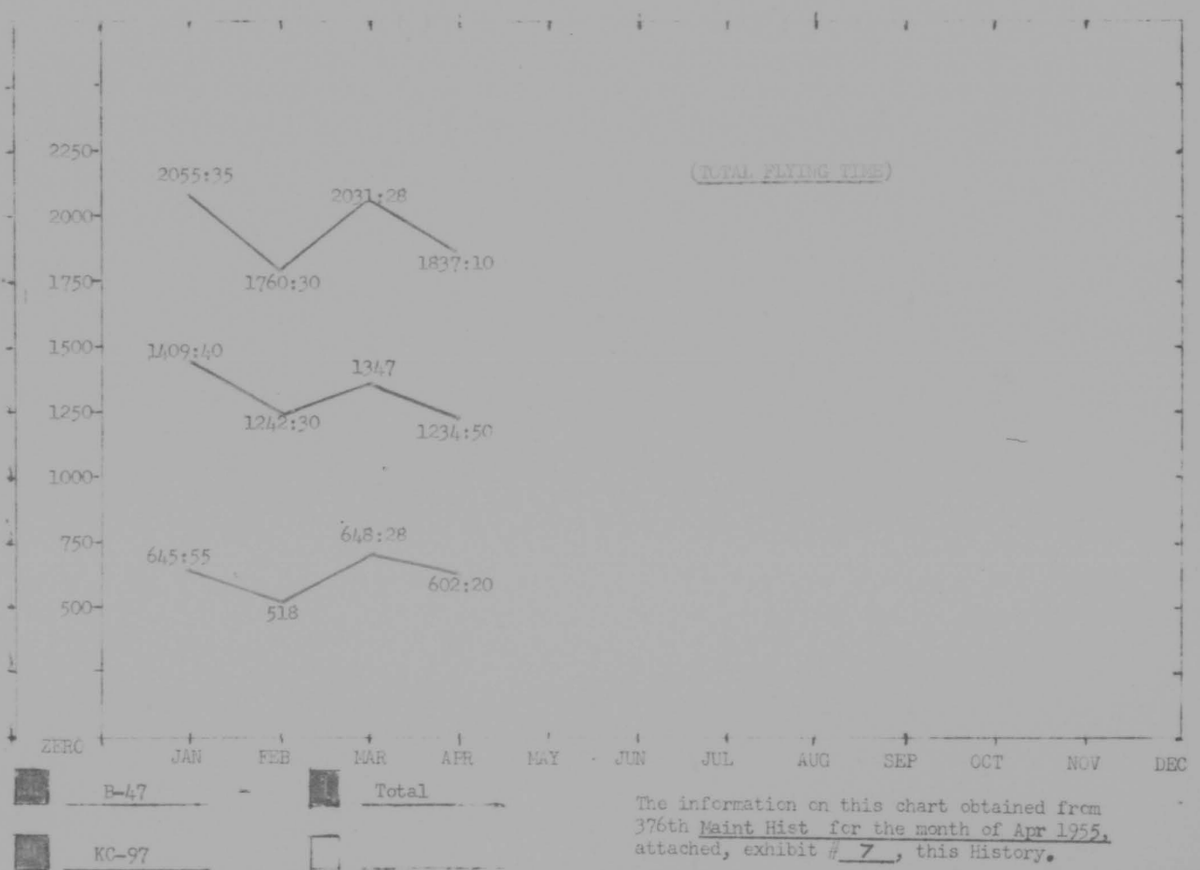
(TOTAL FLYING TIME)



The information on this chart obtained from 376th Maint Hist for the month of Apr 1955, attached, exhibit # 7, this History.

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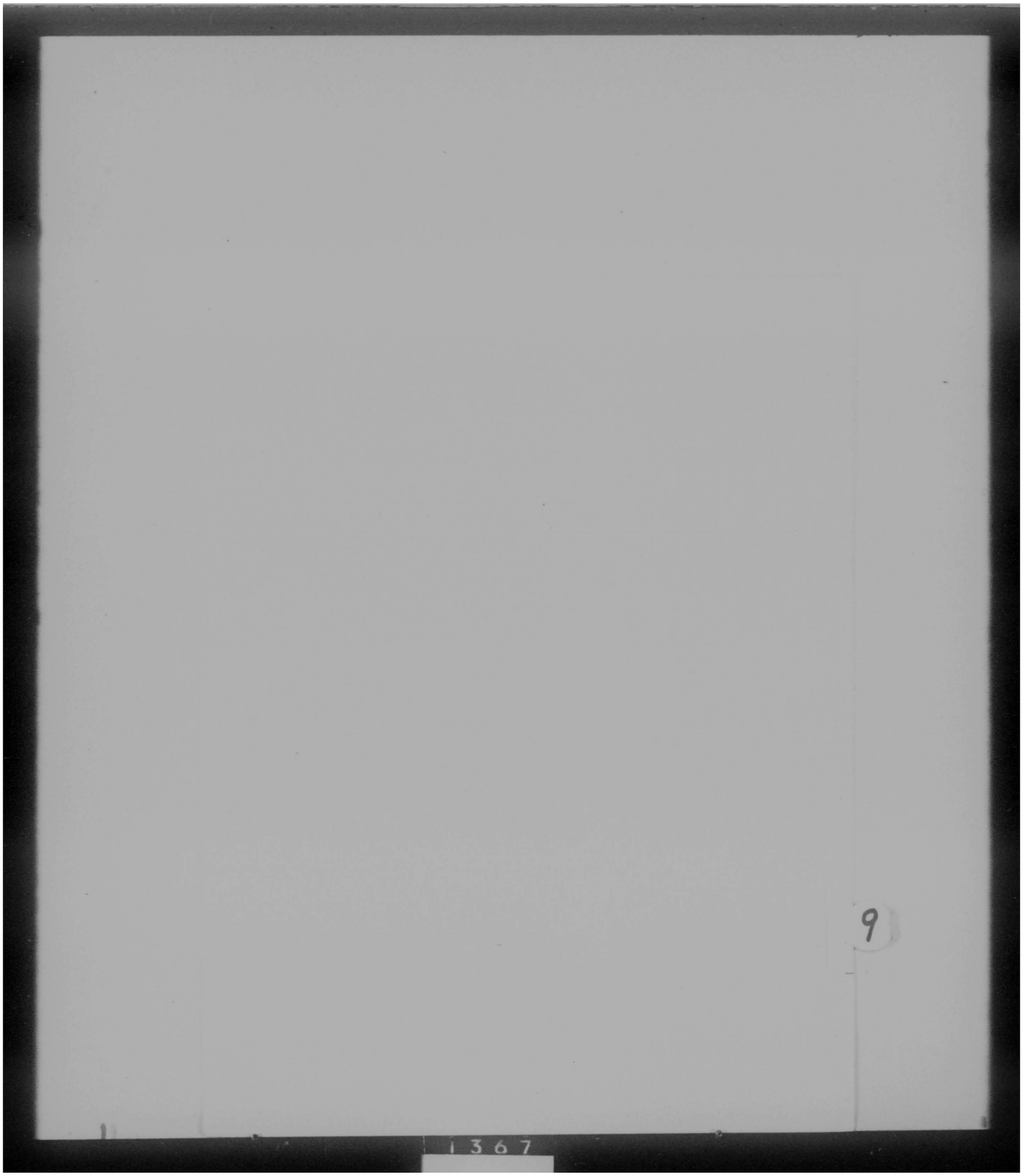

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 May 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 April 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 April 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Robert G. Nevitt

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle, SAC Project #6.

III. TRAINING ACTIVITIES:

1. Classroom:

Taught ALE-1 to 16 airmen	16 hours
Taught APS-54 to 16 airmen	20 hours
Taught ALE-1 to 8 airmen	12 hours
Taught AN/ALT-8 to 8 airmen	24 hours
Total classroom time	72 hours

2. OJT:

OJT time for QRC-8	18 hours
OJT time for ALT-8	15 hours
OJT time for APS-54	14 hours
OJT time for ALT-7	10 hours
Total	57 hours

3. Total time devoted to training 129 hours of 76% of the available time for training (168 hours available).

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376ABMS, Subject: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 30 April 1955.

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. I estimate my services to be required until April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCE: Deleted.

IX. SPECIAL DEVELOPMENTS:

1. Mr. Guy H. Nicholson, now with Philco Corporation, returned and reported in to 376th Bomb Wing on 28 April 1955 on VOCO. Mr. Nicholson's orders will follow. Mr. Nevitt will be leaving during the first week of May for a new assignment at Fort Huachuca, Arizona.

2. QRC-8 Monthly Maintenance Report. Installation of QRC-8 equipment in all aircraft of the 376th Bomb Wing was completed on 15 April. No missions were scheduled during the month and no malfunctions or difficulties were encountered.

X. GENERAL REMARKS: Negative.

Robert G. Nevitt

ROBERT G. NEVITT
Field Engineer
Philco Corporation

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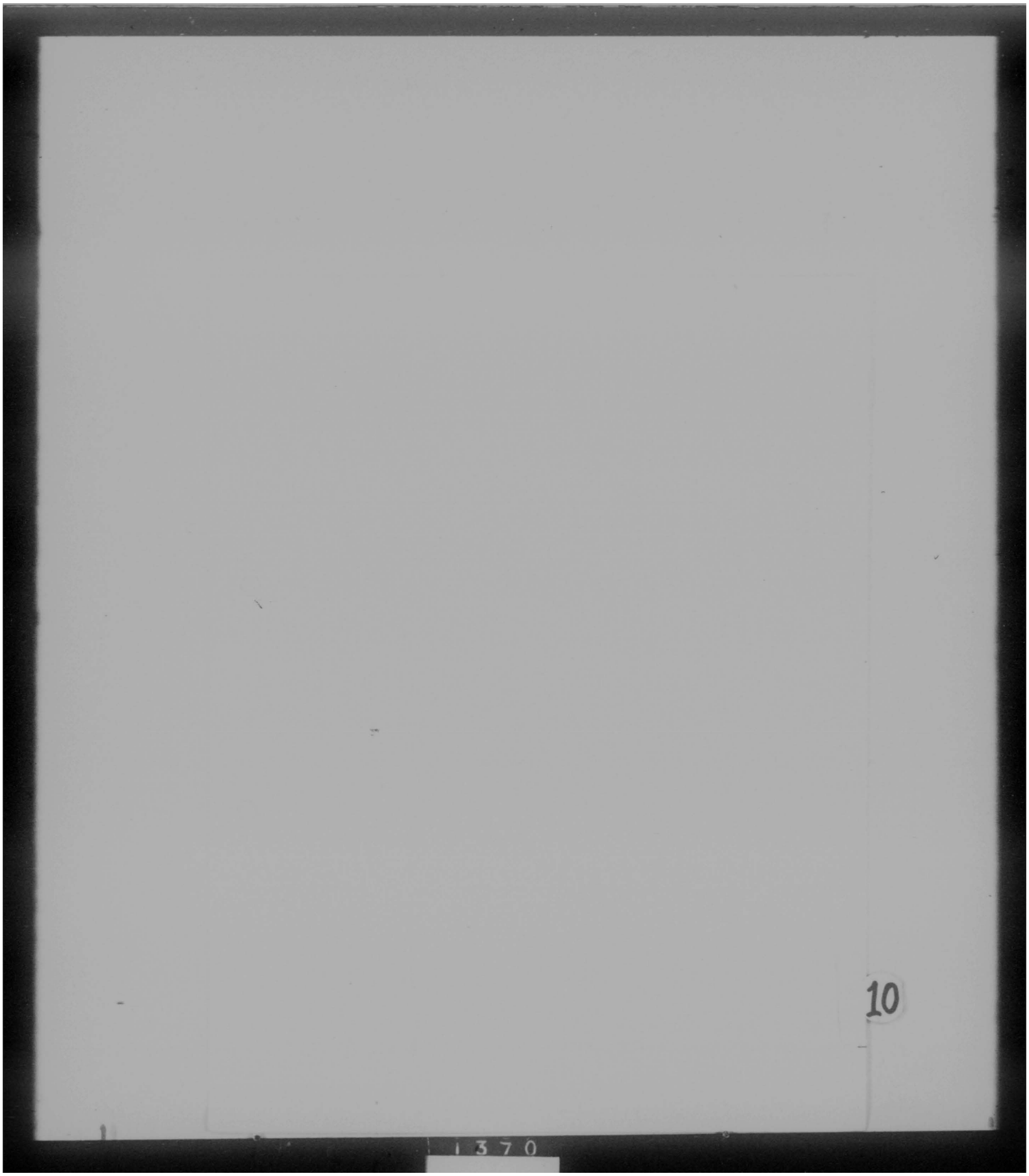

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing (M)
Barksdale Air Force Base
Louisiana

376AEMS 16 May 1955

Contractor: General Electric
Utica, New York

SUBJECT: Monthly Technical Report For Month Ending 30 April 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 April 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. J.A. Lella
Mr. J.W. Steel

II. EQUIPMENT: AN/ALT-6 Countermeasure Transmitting Set

III. TRAINING ACTIVITIES:

1. Classroom:

a. Training was given on operation, maintenance and alignment procedures of the ALT-6. Also theory of operation and fundamentals of ckt. was taught.

b. Below is a summary of the hours devoted to classroom training.

Classroom Hrs.	Instr Hrs.	No. Students
45	45	28

2. OJT

a. Maintaining of retrafit program and (PP 993) Power Supply trouble shooting technicatilies.

Instr Hrs.	No. Students	Student Hrs.
180	14	180

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3. OJT

Installation problems and operation are C caufig-uration.

Instr Hrs.	No. Students	Student Hrs.
60	34	60

Total training hrs. available --- 336
Total training hrs. used --- 285
No. of hrs training --- 84.8%

IV. Utilization:

a. The primary purpose of this assignemnt is the training of maintenance personnel in calibration, operation, and maintenance of AN/ALT-6. Duties also include rendering technical advice on equipment performance and maintenance problems.

b. It is estimated that the services of a General Electric Technical Representative will be April 1956.

V. Negative

VI. Negative

VII. Operational Difficulties Encountered.

a. The difficulties encountered are the operation of the Power Supply PP 993 have been overcome with modifications which have been completed. (1. 376BW UR-2426 K-T. K209 recycling modification.
(2. 376BW UR 61 16-KI longer interlock actuator pins.
(3. 376BW UR 801 16-R lock washers of Hi E. plug.

VIII. Negative

IX. Special developements. Negative

X. General Remarks. Negative

John Lella

JOHN LELLA
General Electric
Utica, New York

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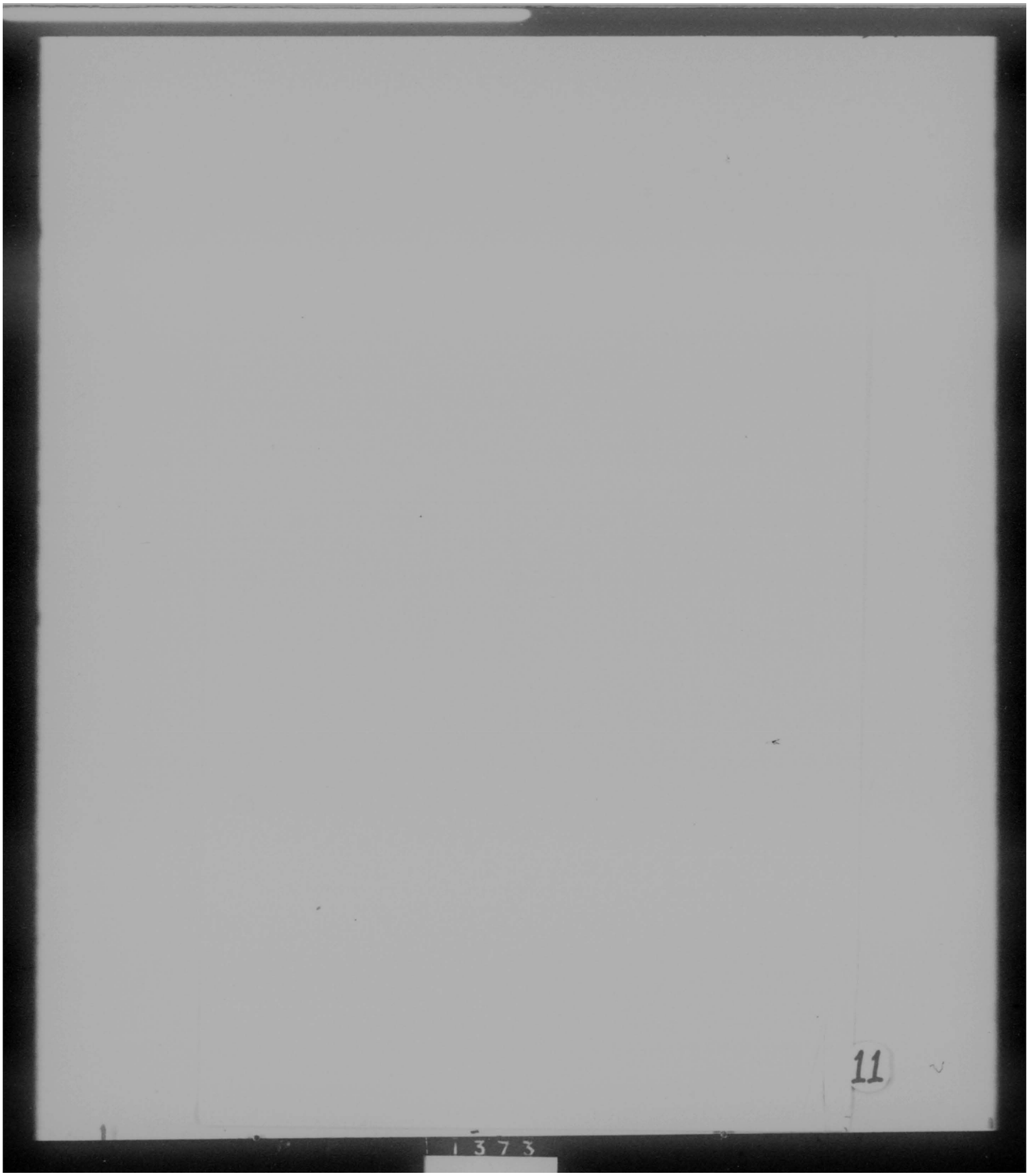

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 May 1955

Contractor: Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report For Month Ending 30 April 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 30 April 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. John Bolen, Western Electric Co.
Mr. Michael Nowak, Western Electric Co.
Mr. Jack W. Boileau, Sperry Gyroscope Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The symposium type class for operator training was conducted three days weekly throughout March. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

b. The following is the status of classroom training for the month of April 1955. All students were observers.

SUBJECT	COURSE HOURS	INSTRUCTOR MAN HOURS	STUDENT MAN HRS
Symposium (Operator)	3 (Daily)	80	454

1374

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2. MOCK-UP:

a. A training program for K-Mechanics based on the results of the WEMP (written examination for measuring proficiency) test was put into effect 11 April 1955 and these classes are being conducted two hours five days weekly on one of the Field Shop Mock-ups.

b. This mock-up course is set up on a weekly bases, i.e:

Computer adjustment conducted on Monday.
Computer accuracy checks conducted on Tuesday.
ICE alignment conducted on Wednesday.
Radar alignment conducted on Thursday.
Stab System adjustments conducted on Friday.

SUBJECT	COURSE HOURS	INST. MAN HR	STUDENT MAN HR
Mechanic Mock-up Course	2 (Daily)	32	92

3. OJT.

a. OJT during the month of April included system analysis and trouble shooting.

SUBJECT	INSTRUCTOR MAN HOURS	STUDENT MAN HOURS
System Analysis	322	427
Trouble shooting	114	137

4. Field engineers were available to the 376th Armament and Electronics Maintenance Squadron during the month of April for a total of 688 man-hours. Of this total time, 548 man hours were utilized for formal and OJT Training. 79 percent of available time was devoted to training.

IV UTILIZATION:

1. The summary purpose of our assignamnt is the training of Maintenance personnel in the operation and maintenance of the K-4A bomb-navigation system and the training of Air-Crew personnel in operation and in-flight maintenance technique and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the service of the K-system field engineers can be terminated by April 1957.

1375

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376\EMS, SUBJECT: Monthly Technical Report for Month Ending 30 April 55.

V EQUIPMENT MALFUNCTIONS:

1. DETAIL:

a. The type 1z2 tube when used in socket V-1205 (high voltage rectifier) in the modulator has a high failure rate. Failure of this tube results in loss of PPI presentation and it is not uncommon to have two or three aborts during a month due to its failure.

2. ACTION TO ESTABLISH FIX:

a. A local attempt to cope with this situation has been to have maintenance personnel mark and periodically check the setting of the TF-106 auto-transformer following a prescribed procedure in an effort to predict failure of this tube.

b. The above check does not prevent failure of V-1205 and of course does not enable the maintenance personnel to catch all 1z2 which are about to fail.

3. RECOMMENDATIONS:

a. Recommend that a T.O. Kit containing a selenum rectifier to replace the 1z2 use in V-1205 be made available at Wing Level. This selenum rectifier is presently being installed in new equipment as per Western Electric ECP-2021.

VI MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Negative

VII OPERATIONAL DIFFICULITIES ENCOUNTERED:

1. Negative

VIII SPECIAL DEVELOPEMENTS:

1. Negative

IX GENERAL REMARKS:

1. Mr. Michael Nowak was on emergency leave from 1 April to 8 Apiril.
2. Mr. John Bolen departed from this organization on 18 April 55.

Michael Nowak
Michael Nowak
Field Engineers
Western Electric Co.

Jack W Boileau
Jack W. Boileau
Field Engineer Coordina
Sperry Gyrosope Co.

1376

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 May 1955

Contractor: Crosley Div of AVCO Mfg Corp

SUBJECT: Monthly Technical Report For Month Ending 30 April 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 April 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Paul Conway
(Arrived 5 April 1955)

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Forty-four A-5 mechanics were given an A-5 Evaluation Test designed to evaluate their proficiency in ten separate categories of A-5 theory of operation and maintenance. The purpose of the test is to determine which of the men require classroom training in the various categories. The training to be given, from the test results, will raise the overall proficiency level of the men in the A-5 maintenance section. Total instructor time 18 hours.

2. OJT:

a. A-5 mechanics received instruction in trouble-shooting and system adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions.

1378

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Sixty-eight hours were expended in line maintenance.
Forty-five hours were expended in field maintenance
Thirty-two hours were expended in periodic maintenan
Total time: 145 hours.

b. Twenty hours were expended in instructing and aiding A-5 mechanics in completing field changes.
Total time: 20 Hours.

3. In addition to actual instruction, sixty hours were expended in preparing class outlines and training aids and in other administrative work related to the training program. This includes fifty-hours expended in grading the A-5 Evaluation Test (Par II, 1), analyzing the result and preparing charts with each man's proficiency rating in each of the ten categories. The ratings of each man, as derived from the test results, are with respect to the other men in the A-5 work section and will be used for scheduling training. Total time: 60 hours.

4. Training Program:

a. Available time: 320 hours.

b. Total Training time: 243 hours.

c. Percent training time: 75.9%.

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personne on operation, calibration and maintenance of the A-5 fire control system and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by 1 April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

1379

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376AEMS, Subject: Monthly Technical Report For Month Ending 30 April 1955

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative.

X. GENERAL REMARKS:

1. Mr. Paul Conway, who replaced Mr. Roger G. Recher, arrived 5 April 1955.

Kenneth R. Faux

KENNETH R. FAUX
Field Engineer
Crosley

1380

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13

1381

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376 AEMS

1 May 1955

Contractor: Sperry Gyroscope Company
Great Neck, L.I., N.Y.

SUBJECT: Monthly Technical Report For Month Ending 30 April 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 30 April 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage
Mr. James T. Lawrence (Arrived 25 April 1955)

II. EQUIPMENT: A-12D Gyropilot

III. TRAINING ACTIVITIES:

1. Classroom:

a. A total of thirty-four (34) hours of classroom training was accomplished during the month of April. AFSC's of the men in class were (2) 42370's, (4) 42350's and (6) 42330's.

b. Below is a summary of the hours devoted to classroom training.

COURSE	Instr. Hrs.	No. Students	Student Hrs.
A-12D Components	14	10	40
A-12D Interlock Circuits	12	6	32
A-12D Signal Sources	8	5	18

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of March.

1382

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SUBJECT	Inst. Hrs	No. Stu.	Stu Hrs.
A-12D Test Procedures	28	6	32
A-12D Theory	23	8	30

3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer questions and increase proficiency du during routine operations and will continue as required. There were (2) 42370Is, (4) 42350's and (8) 42330's available for training.

SUBJECT	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	48	12	72
Trouble Shooting	18	6	36

b. Upon specific request the following technical advice and information concerning various portions of the Bendix C-1 amplifier, and the Kearfott N-1 compass was given.

SUBJECT	Inst. Hrs.	No. Students	Student Hours
C-1 Amplifier	2	2	4
N-1 Compass	9	6	14

c. Of 208 hours available instruction time 162 hours (77%) were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used in the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. Equipment malfunctions were routine in nature during the month of April and in most cases were attributed to electron tube failures.

1383

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376AE/S, Subject: Monthly Technical Report for Month Ending 30 April 1955.

VI. Same as last Month.

VII. " "

VIII. Special Developements:

During the month of April the 376th A & E Squadron received the A-12D Bench Mock-up. Sperry part number 1,000,044.

IX. General Remarks:

a. Mr. Lawrence arrived on 25 April 55 to replace the writer, who will depart for a Military leave of absence on 25 May 1955.

Mr. James T. Lawrence
Field Engineer
Sperry Gyroscope Company

1384

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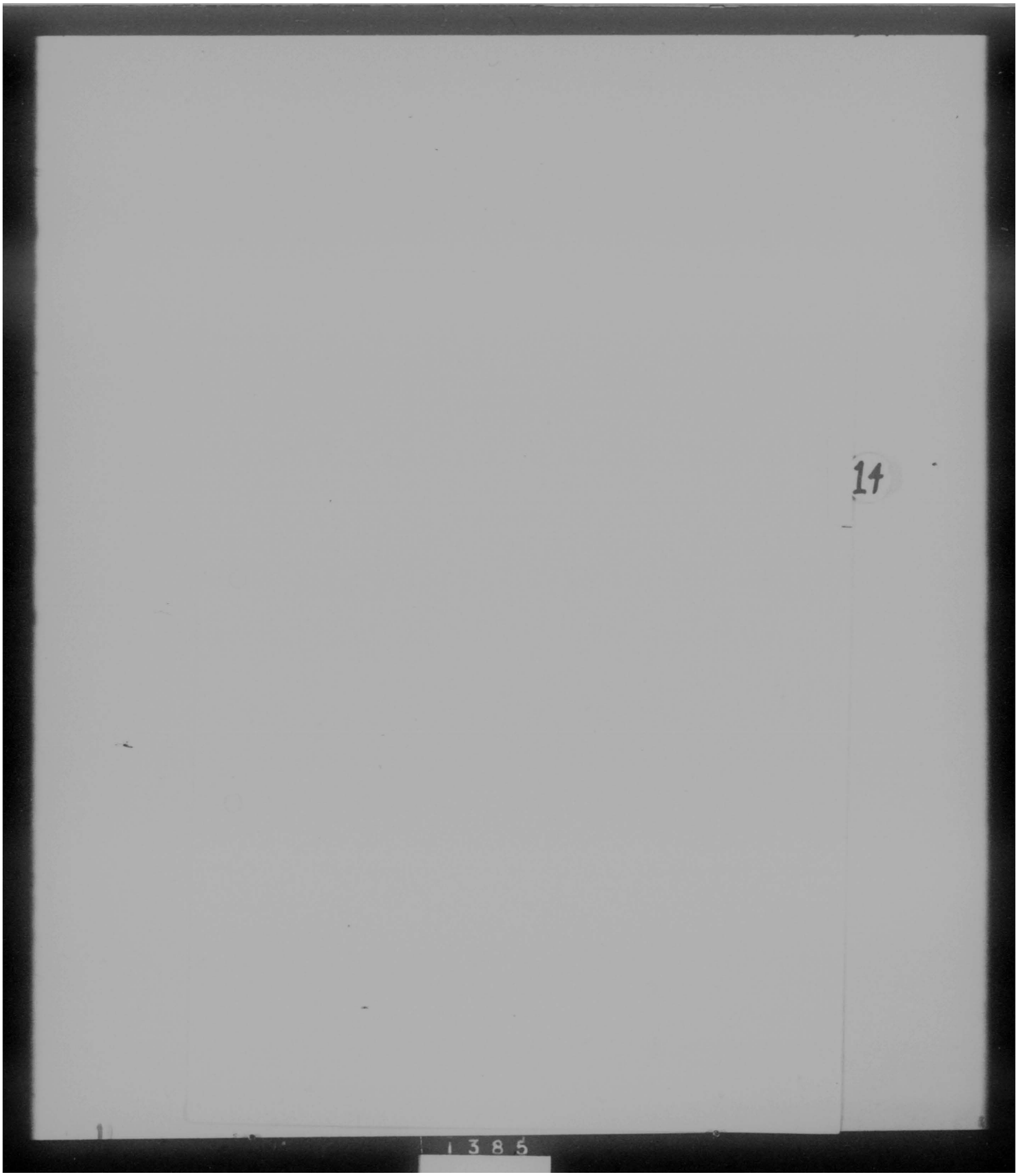

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Classification: SECRET
Auth: COMDR 376 BOMWG M
Initials:
Date: 10 May 55

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 April through 30 April 1955.

2. Status of currently assigned test projects is as follows:

a. Test Project Number 1X, "Development of an Unattended Communications Jammer".

(1) Date initiated: 2 June 1953.

(2) Percentage complete: 42%.

(3) Hours flown: None.

(4) Present status:

(a) Letters and specifications have been received from various manufacturers who were queried concerning purchase of special tuning capacitors required for this project. The Radio Condenser Company, Camden, New Jersey, seems the best possibility for furnishing a satisfactory unit.

(b) This company has constructed test models of the capacitors to approximate their estimate of minimum capacity obtainable. Their estimates of minimum capacities are:

Driver Section - 4.3 micro micro farads with grounded frame
3.2 micro micro farads with floating frame

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1386

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Buffer, Mixer Plate and Mixer Grid Sections - 5.4 micro micro farads with grounded frame
4.7 micro micro farads with floating frame

Final Amplifier Grid Section - 5.4 micro micro farads with grounded frame
4.7 micro micro farads with floating frame

Receiver Tuning Capacitor - 5.6 micro micro farads with grounded frame
4.7 micro micro farads with floating frame

These figures differ from the values specified by the project engineer approximately two micro micro farads per section. The difference in capacitance will require recalculation of the capacitance curves, but it is believed all data can be modified to use the capacitors as offered by the Radio Condenser Company.

(c) The Purchasing and Contracting Officer at Barksdale Air Force Base has forwarded a purchase order to the Radio Condenser Company and it is anticipated the capacitors will arrive in eight to ten weeks.

b. Test Project Number 27, "B-47 Chaff Corridor".

(1) Date initiated: 9 April 1954.

(2) Percentage complete: 85%.

(3) Hours flown: (27) 355:20 - (27R) 178:55.

(4) Present status:

(a) Interim reports on random chaff missions of 3 and 11 March are being printed and will be forwarded early in May. Interim reports on the continuous corridor missions of 25 January and 9 March are being processed for printing and will be forwarded early in May.

(b) The random chaff mission planned for 13 April was cancelled because of severe frontal weather that date. The random chaff mission scheduled for 21 April was cancelled 20 April by Air Proving Ground Range Scheduling because of a Number One Over-ride mission at Air Proving Ground on that date. Details of this cancellation were included in our message to Headquarters SAC, 376DCTT 5-0381, 25 April.

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c. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 52%.

(3) Hours flown: 26:00.

(4) Present status:

(a) The prototype Polaroid camera and periscope assembly manufactured by the Photographic Laboratory at WADC, Dayton, Ohio, has been completed and is ready for delivery to the 376th Bombardment Wing for testing. Camera and periscope will mount on the indicator of the AN/APS-23 radar in B-47E aircraft, replacing the present periscope used with the O-15 camera but still providing the O-15 capability. By providing the radar observer with "pictures in a minute", the camera will allow aircraft to be navigated without continuous radar mapping and therefore reduce its susceptibility to passive detection and direction finding techniques.

(b) The project engineer will visit the Photographic Laboratory at WADC early in May to pick up the camera and deliver special mirrors obtained by the 376th Bombardment Wing. These mirrors will be used to determine optimum light-splitting ratio between the O-15 and Polaroid camera.

(c) The prototype camera will be mounted on the indicator of the AN/APS-23 radar in a B-47E aircraft at Barksdale Air Force Base and will be checked for accessibility of controls and static operation. If static tests prove the camera satisfactory, several flight tests will be flown so the camera can be tested under actual operating conditions.

d. Test Project Number 30, "Development of a Passive Station Keeping Capability".

(1) Date initiated: 30 June 1954.

(2) Percentage complete: 48%.

(3) Hours flown: 11:00.

(4) Present status:

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(a) Military and civilian representatives from ARDC and WADC visited this organization for the purpose of becoming familiar with this project. They were briefed on the nature and principles of the proposed IR station keeping system and status of the final project report now in preparation. They requested a copy of the final report and said another meeting would be arranged to discuss this report.

(b) Final report will describe the complete IR station keeping system and capabilities that can be expected. Capabilities and requirements were given briefly in the March report. Final report has been delayed pending results of tests on the accuracy of old and new style pressure altimeters. The report should be completed during May.

e. Test Project Number 32, "Cell Support Tests".

(1) Date initiated: 17 February 1955.

(2) Percentage complete: 10%.

(3) Hours flown: 18:35.

(4) Present status:

(a) Purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell configurations from enemy GCI, gun-laying and intercepter type radars.

(b) Interim reports on the first two missions flown on 4 March and 14 March 1955 were completed.

(c) This project is being temporarily held in abeyance until the antennas, cables, and connectors under the QRC-27(T) program can be evaluated.

(d) To initiate this program, two sorties were flown against Air Defense Command AN/FPS-10 radar site at Bartlesville, Oklahoma, on 29 and 30 April. Data obtained on these missions, when reduced, will be compared with results obtained on the Project 32 sortie of 4 March 1955.

(e) Additional missions are scheduled in May.

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f. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

(1) Date initiated: 5 April 1954.

(2) Percentage complete: 65%.

(3) Hours flown: 6:00.

(4) Present status:

(a) A barrage jammer is being constructed for the frequency range of 60 to 90 megacycles. Jammer consists of ten separate, small, noise modulated, oscillator-amplifier transmitters mounted in one standard ECM rack and fed to a single antenna. A power supply is mounted in another standard ECM rack.

(b) Oscillator-amplifier units for the barrage jammer have been completed and mounted on the main chassis. Laboratory tests have been made and results are promising. With ten oscillator-amplifier units operating, a power output of approximately 20 watts was obtained. This is not a true indication of total power obtainable because several units were below the 60 to 90 megacycle range. It is expected the power output will be considerably higher when all tuned circuits of the units have been properly adjusted.

(c) Flight plans are being made to test the VHF broad band jammer against the SCR-270 radar at Eglin Air Force Base. It is anticipated results of this test can be given in next month's report.

g. Auxiliary Test Project Number 14, "Modification of AN/APT-5A and AN/APT-9 for L-Band Sweep Operation".

(1) Date initiated: 8 February 1954.

(2) Percentage complete: 100%.

(3) Hours flown: None.

(4) Present status:

1390

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(a) This project was initiated to modify AN/APT-5A and AN/APT-9 jamming transmitters for increased power output and sweep jamming capability in the frequency range of 1000 to 1500 megacycles. A minimum power output of 50 watts and sweep width of at least 20 megacycles were desired. It was intended that modified transmitters be interim equipment for use until L-band magnetrons became available for AN/ALT-6 and AN/ALT-8 transmitters.

(b) An attempt was made to increase transmitter output power by replacing the 3C22 oscillator tube in the AN/APT-5A with a type 6161 power triode. With the 6161 tube installed, highest frequency of operation possible was 450 megacycles with a power output of 70 watts. High inter-electrode capacity of the 6161 tube decreased resonant frequency of the transmitter cavity so that operation in the L-band was not possible.

(c) It was found that power output of the AN/APT-5A could be increased approximately 100% by increasing plate voltage on the present oscillator tube (GL-3C22) by 25%. To accomplish this, the normal plate supply of 940 volts was raised to 1200 volts by adding a four-microfarad input filter capacitor. To prevent overheating with this arrangement, capacity of the cooling blower was doubled and oscillator filament voltage reduced to five volts by inserting a 0.65 ohm resistor in the filament lead. Power output was increased from averages of about 35 watts to about 65 watts in the frequency range of 1000 to 1500 megacycles.

(d) One flight test was conducted in conjunction with operation "Bull Market" during October 1954. Two AN/APT-5A transmitters with PP-104/APT-5 power supplies modified for high voltage output were mounted in the unpressurized cradle section of a B-47 aircraft and flown at an altitude of 40,000 feet. The AN/APT-5A transmitters were tuned to 1310 and 1315 megacycles respectively for operation against an AN/FPS-3 radar. Ground observer reports from the radar site indicated both AN/APT-5A transmitters became inoperative after about three minutes of operation. Post-flight checks showed that condenser C-201 in the oscillator cavity shorted

1391

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under high voltage applied to plate of the GL-3C22 tube. Further inspection revealed signs of scorching due to arcing in the cavity, which most likely occurred at high altitude. Seven unmodified AN/APT-5A transmitters functioned properly during this flight.

(e) An attempt to increase power output of the AN/APT-9 transmitter by increasing plate voltage on the 2C39A oscillator tube was not successful. The 2C39A tube used in the AN/APT-9 has a lower power dissipation rating than the tube used in the AN/APT-5A, and operates near the maximum rating limits at normal plate voltage used in the AN/APT-9. A further increase over normal plate voltage resulted in instability, internal arcing in the tube, excessive grid currents, and failure of tube seals from overheating. For these reasons, no further attempt was made to increase power output from the AN/APT-9.

(f) Several methods of sweeping frequency of the transmitters were considered. The first was to vary the bias and antenna loading controls. Tests were conducted on five AN/APT-5A transmitters. Average frequency sweep of three megacycles was obtained by varying the bias control; varying the antenna loading control gave about five megacycles sweep. This approach was not practical because marked changes in power output from 30 to 40 watts occurred as controls were varied. Varying the oscillator plate voltage from 940 to 1200 volts varied the frequency about six megacycles, with the set tending to go out of oscillation at several places.

(g) The next approach to rapid sweeping was installing a small, motor-driven, rotary butterfly capacitor inside the AN/APT-5A tuning cavity. It was discontinued because the ECM Techniques Evaluation Section at WADC tried similar installations in the AN/APT-9 with poor results on L-band frequencies. This method, however, is being used to modify the AN/APT-9 for rapid sweep under a QRC contract. When completed, the transmitter will sweep approximately ten percent of the center frequency at a variable rate and will be called the AN/APT-9(QRC-19T). However, operation will only be at frequencies below 1000 megacycles.

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(h) A sweep mechanism was devised whereby cathode and plate tuning controls were simultaneously tuned over a bandwidth of approximately 30 megacycles by means of a drive motor and set of gears. Inherent mechanical difficulties in the AN/APT-5A tuning mechanism limited sweep speed to about four megacycles per second. This gives a maximum jamming rate of only eight hits per minute, which is not an effective rate for radar jamming.

(i) From the tests described, it has been concluded that power output of the AN/APT-5A can be increased by increasing oscillator voltage, but operation under such condition is not reliable and is particularly unsuitable for high-altitude operation. Further, inherent mechanical difficulties make the AN/APT-5A and AN/APT-9 unsuitable for modification as sweep jammers at L-band frequencies. Recommend the AN/APT-5A and AN/APT-9 not be considered for use as a sweep jammer in the L-band.

(j) Work on this project has been terminated and reporting of this project will be discontinued.

h. Auxiliary Test Project Number 18, "Development of a Sweep Jammer using a VHF Increductor".

(1) Date initiated: 1 April 1954.

(2) Percentage complete: 45%.

(3) Hours flown: None.

(4) Present status:

(a) During the past year a VHF jamming transmitter was built using a power Increductor. Power output from this jammer is above 70 watts over the frequency range between 100 and 156 megacycles. Control circuits for the transmitter have been built so that it is capable of being swept over its frequency range approximately three times per second. Used with the output of a receiver discriminator, the transmitter can be made to lock-on any frequency which is set up on the receiver in the same frequency range.

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(b) At present, the plan is to build an Increductor receiver to work in conjunction with the transmitter so that the whole system will function as a search-and-lock jammer. Arrangements have been made to obtain five Increductors for building the VHF receiver. This receiver will be of the search-and-lock type in the frequency range between 100 and 156 megacycles. A schematic for a receiver similar to the one to be built is being supplied by the C.G.S. Laboratories, Stamford, Connecticut. The transmitter is being rewired so that it may be used with the completed receiver.

1. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

(1) Date initiated: 25 August 1954.

(2) Percentage complete: 90%.

(3) Hours flown: N/A.

(4) Present status:

(a) One hundred and fifty matching sections for the AT(XA-213)AP and 150 for the AT(XA-214)AP antennas manufactured by SAAMA have been received by the 376th Bomb Wing. One hundred and fifty matching sections for AT(XA-212)AP antennas are in the process of manufacture but no delivery date is available.

(b) The three antennas developed under this project are modifications of certain old style whips. The redesigned antennas are fitted with Teflon insulated bases so they may be plugged into standard AB-109 aircraft antenna receptacle and have RF connectors for use with RG-14/U cable, as used on ECM equipment. A matching section is provided for each antenna to broaden the usable bandwidth. Characteristics of the antennas are:

AT(XA-212)AP - A modification of the old 30½" AS-150 whip, designed to work from 97 to 140 megacycles. Has a matching section approximately 8½" long.

1394

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AT(XA-213)AP - A modification of the old 40½" AS-161 whip, designed to work from 57 to 100 megacycles. Has a matching section approximately 10¼" long.

AT(XA-214)AP - A modification of the old 54½" AS-97 whip, designed to work from 45 to 77 megacycles. Has a matching section approximately 14½" long.

Matching sections consist of coaxial cable lengths inserted in the antenna lead at the base of the antenna.

j. Auxiliary Test Project Number 24, "Effectiveness Test of QRC-8".

(1) Date initiated: 2 October 1954.

(2) Percentage complete: 85%.

(3) Hours flown: 179:04.

(4) Present status:

(a) A set of molds were fabricated to mold fiberglass antenna tuning coil covers. One cover was molded and a coil installed. Remaining covers will be molded when tests on the first coil and cover are completed. An antenna tuning coil is required to tune the QRC-8 antenna over 2.0 to 3.5 megacycle and 5.0 to 6.3 megacycle bands. An experimental coil has been designed consisting of 13 turns of number ten AWG Formvar copper wire wound six turns per inch on a four inch diameter form. This coil has a "Q" factor of 400 to 500. Efforts are being made to improve the "Q".

(b) Final report on this project is complete, with the exception of ground and flight data on the two bands mentioned above. Ground field strength measurements and inflight radiation patterns will be made on these bands.

(c) Modifications have been completed to reduce breakage of antenna switching relays. Modification consists of more secure tie-down

1395

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points for antenna leads to the relay. No broken relays have been reported since the modifications were made.

(d) The Hallicrafters Company will furnish enough potting compound to insulate the high voltage input receptacle and lead from the front panel of the transmitter. It is expected this will improve high altitude capability of the QRC-8.

(e) Spare Increductors have been returned to Hallicrafters for potting. With potted Increductors on hand, it will not be necessary to return transmitters to the manufacturer for replacements.

k. Auxiliary Test Project Number 25, "Structural Suitability Tests of Stub Antennas".

(1) Date initiated: 1 July 1954.

(2) Percentage complete: 100%.

(3) Hours flown: 1338:42.

(4) Present status: No further tests on stub antennas were performed during April. Data previously collected is being assembled and a final report is under preparation.

l. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

(1) Date initiated: 1 June 1954.

(2) Percentage complete: 75%.

(3) Hours flown: 25:45.

(4) Present status:

(a) Two flight tests were conducted during this period using F-86D aircraft with AI radar systems to make nose-on and tail-on passes at a B-47 carrying the AN/APS-54 warning receiver. The AN/APS-54 worked reasonably well on more than 30 such passes when the receiver blanking cable was connected to the IFF trigger jack of the A-5 radar, the delay switch "IN", and the "MIN PRF" control set to "MIN".

1396

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(b) During 12 valid passes made nose-on, the AN/APS-54 gave indications of the tracking radar when fighter was at distances varying from three to 15 nautical miles, with indications at an average of 8.2 nautical miles. During 19 valid passes made from the stern, the AN/APS-54 gave indications of the tracking radar when fighter was at distances from four to 12 nautical miles, with indications at an average distance of 7.7 nautical miles.

(c) During the next 30-day period, tests will be conducted using the AN/APS-54 receiver in formations flying Test Project Number 32 in order to determine susceptibility of the AN/APS-54 to interference from S-band jamming transmitters in adjacent aircraft.

(d) During April one more set of AN/APS-54 cables shorted due to heat at the cabin heat spill valve. No answer has been received to any of numerous UR's submitted on the AN/APS-54 installation in B-47 aircraft.

m. Auxiliary Test Project Number 28, "S-Band RF Systems".

(1) Date initiated: 1 November 1954.

(2) Percentage complete: 65%.

(3) Hours flown: 35.

(4) Present status:

(a) This test project has been revised to include tests previously reported as Auxiliary Test Projects Number 28, 29, 30 and 31. This project includes the development and testing of all components of S-band RF transmission systems to determine the best configuration for use on B-47 and other aircraft.

(b) On 8 April, the 376th Bombardment Wing was advised the Amphenol Corporation was conducting research on a new RF cable to replace the present RG-117/U. A phone call to the company confirmed this and details on the proposed cables were obtained. The new cable will have a woven flexible center conductor, with a dielectric composed of thin Teflon wrappings. Outer covering is to be vinyl plastic. Woven conductor and Teflon wrapping

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dielectric will give the cable more flexibility and permit closer quality control. Construction of the cable from layers of Teflon wrappings reduces the possibility of defects from imperfections. It is understood each layer of dielectric is to be greased with silicones to allow sliding and prevent moisture entering the cable. It was suggested the center and outer conductors be silver plated. This idea was accepted by the company representatives who promised to send a section of the cable for test as soon as it was produced.

(c) On 13 April, conference was held at O'Hare Intl Airport, Chicago, Illinois. Personnel attending were Col. Proctor, Lt Col. Hall, Maj Thatcher, Capt Clark and Lt Ott from the 376th Bombardment Wing; Mr Whiting from WADC; and Messrs Foote and Kurth of the Hallicrafters Company. The Hallicrafters people showed the RF system produced under the QRC-27 contract. It consisted of two cable connectors, an adapter to screw onto the UG-1106/ALT-6, an adapter to screw onto the AN/ALT-8 RF output receptacle, and an adaptor to screw onto the base of a modified AT-111/AP antenna. The cable used was regular RG-117/U. It was the opinion of 376th Bombardment Wing representatives that the cable connectors were an improvement over the UG-532/U connectors, but were rather complicated. It was suggested the adaptor for the transformer plate of the UG-1106/ALT-6 and the plate itself should be made in one piece with a thicker plate to provide additional cable support. It was also suggested that the adaptor for the antenna and the antenna itself be made in one piece. These suggestions were adopted since they would reduce logistic requirements and considerably improve the system electrically. Observers from the 376th Bombardment Wing expressed dissatisfaction with choice of RG-117/U cable based on poor results obtained from it in past tests. Mr Whiting stated that, in the opinion of WADC, it was the best cable currently available. The cable and antenna had been specified by WADC, and the Hallicrafters Company designed the connectors and adaptors. Measurements were made on a B-47 aircraft to determine correct cable lengths for use with the AN/ALT-6 and AN/ALT-8 installations.

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(d) The first set of QRC-27(T) cables, connectors, and antennas were delivered to Barksdale Air Force Base by Mr Robert Kurth of Hallicrafters Company for preliminary tests. On 25 April, laboratory tests were conducted on the equipment and the system is acceptable from a VSWR standpoint. Curves showing the VSWR of a typical QRC-27(T) RF transmission system and modified AT-111/AP antenna are illustrated on page 22. Additional curves showing power losses of the QRC-27(T) transmission line compared to the Styroflex system are illustrated on page 23. Flight tests conducted on 26 and 27 April indicate a region of less intense radiation exists immediately below the aircraft. Approximately equal horizontal and vertical components of radiation exist at a distance beyond five miles. Flight tests will be continued to determine the durability, stability, and operational characteristics of the QRC-27(T) system in connection with Project 32.

(e) No antenna pattern measurements were accomplished at Barksdale Air Force Base since adequate pattern measurements for the 376th Bombardment Wing Diamond, the modified AT-111/AP and the AT-520 antennas were provided by the Hallicrafters Company.

n. Auxiliary Test Project Number 30, "Reduction of Connector Losses in RF Transmission Lines".

(1) Date initiated: 10 November 1954.

(2) Percentage complete: 96%.

(3) Hours flown: 23.

(4) Present status: This project is now part of Auxiliary Test Project Number 28, "S-Band RF Systems", and will no longer be reported as Auxiliary Test Project Number 30.

o. Auxiliary Test Project Number 31, "Design of Antenna for 2700-3600 Megacycles".

(1) Date initiated: 12 November 1954.

(2) Percentage complete: 46%.

1399

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(3) Hours flown: 23.

(4) Present status: This project is now part of Auxiliary Test Project Number 28, "S-Band RF System", and will no longer be reported as Auxiliary Test Project Number 31.

p. Auxiliary Test Project Number 32, "Suitability Tests of Blue Cradle".

(1) Date initiated: 1 September 1953.

(2) Percentage complete: 85%.

(3) Hours flown: The cradles have been operational since July 1954.

(4) Present status:

(a) The Blue Cradle is equipped with ALE-1 chaff dispensers that do not have intervalometers. This portion of the project was initiated to determine suitability for modification of the cradle with a variable rate chaff dispensing capability by the installation of intervalometers. One of the spare cradles has been modified by the addition of chaff intervalometers for use with AN/ALE-1 chaff dispensers. Six intervalometers are installed in racks behind transmitter control panels with three units on each side of the cradle. This installation is for use with Blue Cradle "B" configuration only. No changes in aircraft wiring were necessary for this modification. Cradle wiring changes consisted of cutting into the control wiring bundle from the cradle junction box and splicing in control cables to intervalometers at this point.

(b) A report is on file in 376DCTT including drawings, wiring schematic changes, part lists, and photographs of the installation. This information will be used to modify other cradles if results of the random chaff phase of Test Project Number 27 indicate such an installation is desirable.

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q. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

(1) Date initiated: 1 December 1954.

(2) Percentage complete: 65%.

(3) Hours flown: 4:30.

(4) Present status:

(a) No flight tests were flown on this project during April. A test is scheduled for May to be run against the M-33 X-band tracking radar.

(b) Results of the mission flown 14 March 1955 have been compiled from radar and navigation logs. On this mission, a B-47 aircraft flew at optimum altitude (0.74M) against the MSQ-2 S-band tracking radar at Eglin Air Force Base. Six runs were made, each 60 miles in length and arranged to pass the radar site at ranges from two to 12 miles. The AN/APS-54 warning receiver and relay installation was arranged to start AN/ALE-1 chaff dispensers when triggered from the ground radar signal. Relays are wired so chaff is dispensed only when both nose and tail warning lamps are lighted.

(c) Results of the six runs made are illustrated in the charts on pages 24 to 29. Referring to chart for Run #1, distances shown are actual ground distances to the aircraft track. Chaff was dispensed during part of the run shown as a broken line. It should be noted that chaff drops were made at a tape speed of ten feet per minute to allow the radar site to record positions where chaff was dispensed. No attempt was made to "jam" the radar with chaff or to break-lock, although the radar did break-lock one time during Run #4.

(d) From the charts, it can be seen that, except for short periods of about half a minute or less, the dispenser was always triggered for ranges less than approximately 30,000 to 40,000 yards. In the chart for Run #4, it

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is interesting to note the radar locked on chaff at 1507 at 14,399 yards and the dispenser stopped shortly thereafter. In view of results on other runs, this probably occurred because the radar beam was pulled off aircraft by the chaff.

(e) On Run #5, the dispenser operated during the entire run, and on Run #6, it operated nearly the entire run. On these runs, and particularly Run #6, the aspect at which radar viewed the aircraft varied from almost head-on to almost tail-on.

r. Auxiliary Test Project Number 34, "AN/ARC-27 Antenna Installation, Modification and Evaluation".

(1) Date initiated: 9 November 1954.

(2) Percentage complete: 100%.

(3) Hours flown: All aircraft have had the radome installed since 16 March 1955.

(4) Present status: Chaff guard radomes, fabricated locally to prevent chaff from forming on the UHF antenna and causing communication failures, have been installed on all 376th Bombardment Wing Blue Cradle B-47 aircraft. Inspections indicate chaff is pitting holes in the leading edge of some chaff guards. Holes in five guards have been patched with a Fiberglass compound. A modification has been initiated whereby a neoprene coating is applied to the leading edge of the guard. Follow-up inspections and tests will be made to check how effectively modification is reducing pitting of the guards.

s. Auxiliary Test Project Number 35, "Operational Test of Converter QRC-9".

(1) Date initiated: 3 January 1955.

(2) Percentage complete: 100%.

(3) Hours flown: None.

(4) Present status: Tests of the QRC-9 used in conjunction with the S-121 rapid scan receiver were completed in March. Final report has been completed and sent to higher headquarters 27 April. This project will no longer be reported.

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t. Auxiliary Test Project Number 37, "Barrage Jamming Modifications of AN/ALT-6 and AN/ALT-8".

(1) Date initiated: 20 January 1955.

(2) Percentage complete: 17%.

(3) Hours flown: none.

(4) Present status:

(a) Preliminary tests were conducted in an attempt to broadband the AN/ALT-6 transmitter for spot jamming according to a method described by General Electric engineers. This plan consists of injecting a ten megacycle signal of approximately ten watts into the magnetron filament circuit by means of link coupling to a bifilar filament choke. A bifilar choke was constructed and found to be resonant at 12 megacycles; a 12 megacycle signal of 12 to 15 watts was therefore used for the initial test. Bandwidth of the AN/ALT-6 transmitter output was observed on an AN/APR-9 receiver as the 12 megacycle signal was switched on and off. With the 12 megacycle signal being injected into the filament circuit, a very small rise in amplitude could be observed on the high frequency side of the transmitter output, but none was noted on the low side. Several minor changes were made with no better results.

(b) For the next test the 12 megacycle signal was lowered to five megacycles for bringing side bands closer to the center frequency of the transmitter. This change did not affect the bandwidth to any great extent; however, it was estimated this change would increase the bandwidth three to five megacycles. It was thought this small change in bandwidth might be increased by increasing power of the injected RF signal. To try this, the QRC-8 transmitter was used as a five megacycle RF source. The QRC-8 has a power output of over 200 watts; with 200 watts from the QRC-8 coupled into the AN/ALT-6 magnetron filament circuit, a bandwidth increase of approximately ten megacycles was noted on the AN/APR-9 receiver. From these results

1403

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it can be safely assumed that a greater power than the ten watts suggested by General Electric is required to adequately broaden the bandwidth. This is further indicated by the fact that the noise modulator of the AN/ALT-6 is capable of supplying a considerably greater power than ten watts.

(c) It appears that instead of injecting the ten-watt signal directly into the magnetron filament circuit, advantage should be taken of the power gain of the 4-400A modulator tube in the AN/ALT-6 by injecting the signal onto the grid of this tube. Ways of coupling the RF signal into the input of the modulator stage are being investigated.

u. Auxiliary Test Project Number 39, "Crystal Video Jamming Homers".

(1) Date initiated: 24 January 1955.

(2) Percentage complete: 20%.

(3) Hours flown: 8.

(4) Present status:

(a) Two flight tests have been flown this month. The ARD-9 crystal video receiver was tested for possible use as a homing device on S-band jamming transmitter signals.

(b) On the first flight test, the ARD-9 receiver, associated switching unit and directional antennas, were installed in a KC-97 aircraft. An AN/APR-9 receiver was used to obtain signal strength at various ranges and altitudes. The jammer used was an AN/ALT-6 connected to an AT-520 antenna mounted on a large ground plane outside the laboratory building. Results of the nine runs made on the test indicate usable signals for homing could be obtained as far out as 50 miles on an AN/APR-9 receiver, however, altitude of the aircraft is an important factor in consideration of signal strength. At altitudes less than 15,000 feet, the maximum range at times was less than ten miles. This was probably

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due to location and pattern of the jamming transmitter antenna and receiving stub. Maximum range obtained on the ARD-9 crystal video receiver at any time was about two miles. Jamming was received when aircraft was almost directly over the jamming antenna at an altitude of 10,000 feet.

(c) The second flight test was run using two C-47 type aircraft. The AN/ALT-6 jammer with an AT-520 stub was mounted in one aircraft and the ARD-9 receiver with directional antennas was mounted in nose section of the other aircraft. Altitude of the flight was 3000 feet. The low altitude was chosen so landmarks could be easily located to obtain accurate distances between aircraft. For this test, an AN/APR-9 receiver and an AT-520 stub were taken along to help locate the jamming frequency and determine range at which jamming could be received. After several runs from different angles toward the jamming aircraft, it was found that ranges of less than one-half mile were required to obtain any indication on the ARD-9 receiver. It is believed that if the receiver antenna could be brought into the main radiation pattern of the jamming stub antenna, the range could be increased to approximately four miles. This is difficult, however, because energy from the jamming aircraft is directed toward the ground, and directional antennas on the front of the aircraft carrying the ARD-9 receiver are pointed ahead to give homing information.

v. Auxiliary Test Project Number 41, "X-Band Transmission Line and Antenna".

(1) Date initiated: 1 February 1955.

(2) Percentage complete: 16%.

(3) Hours flown: None.

(4) Present status: This project is now part of Auxiliary Test Project Number 29, "X-Band RF Systems", and will no longer be reported as Auxiliary Test Project Number 41.

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w. Auxiliary Test Project Number 44, "Modification of B-47 Aircraft Installation of AN/ALT-7 in Battery Compartment".

(1) Date initiated: 10 February 1955.

(2) Percentage complete: 50%.

(3) Hours flown: N/A.

(4) Present status: Preliminary engineering drawings and wiring schematics have been completed for possible installation of two AN/ALT-7 transmitters and power supplies to be located within the B-47 battery compartment. A prototype installation will be made upon approval of the installation.

FOR THE COMMANDER:

William H. Murphy

WILLIAM H. MURPHY
Major, USAF
Adjutant

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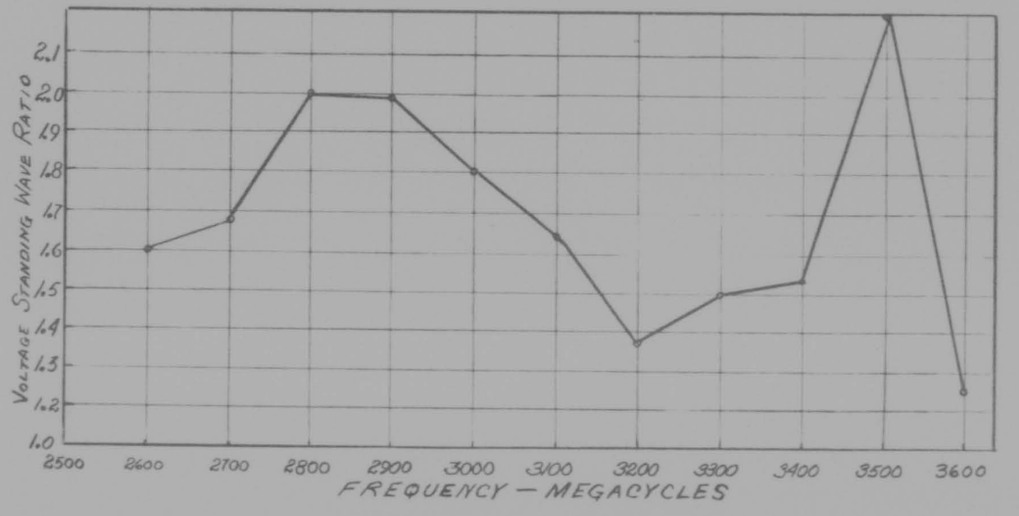
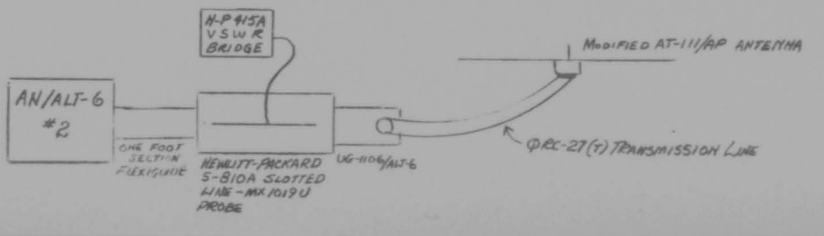
AUXILIARY · TEST PROJECT NUMBER 28

QRC-27(T) RF SYSTEM 376TH BOMB WING 27 APRIL 1955





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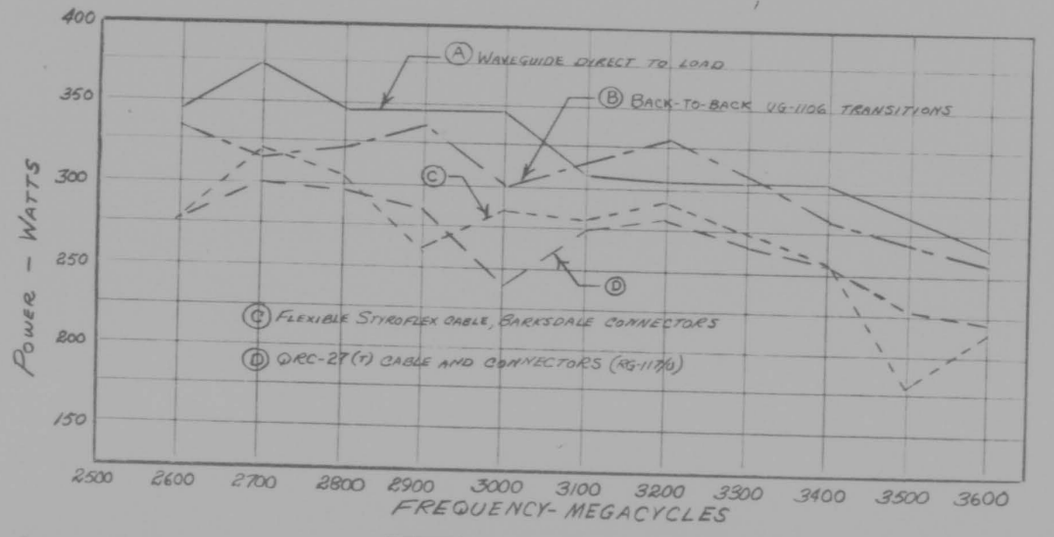
AUXILIARY TEST PROJECT NUMBER 28

TRANSMISSION LINE LOSSES 376TH BOMB WING 30 APRIL 1955



CURVE Ⓐ - AN/ALT-6 THROUGH FLEXIGUIDE AND SLOTTED LINE INTO CUBIC CALORIMETER.

CURVE Ⓑ - AN/ALT-6 THROUGH FLEXIGUIDE, SLOTTED LINE AND TWO UG-1106/ALT-6 (BACK-TO-BACK) INTO CUBIC CALORIMETER

CURVE Ⓒ - PER FIGURE 1

CURVE Ⓓ - PER FIGURE 1

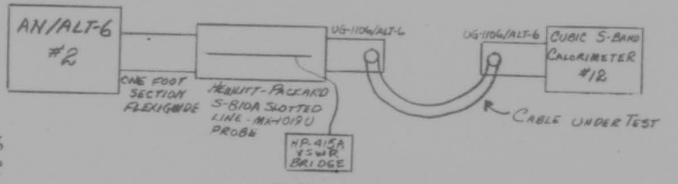


FIGURE - 1

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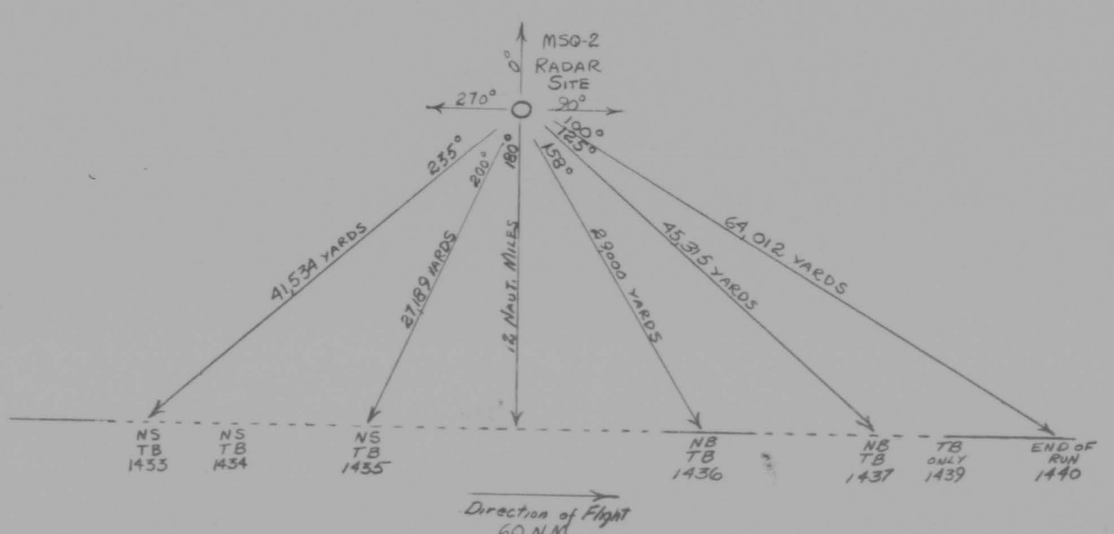

RUN #1 - AUX 33 - 14 MARCH 55

104 UNITS OF RR 3½AL DROPPED
CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE

NS - NOSE LAMP ON STEADY NB - NOSE LAMP BLINKING

TS - TAIL LAMP ON STEADY TB - TAIL LAMP BLINKING

NOT DRAWN TO SCALE

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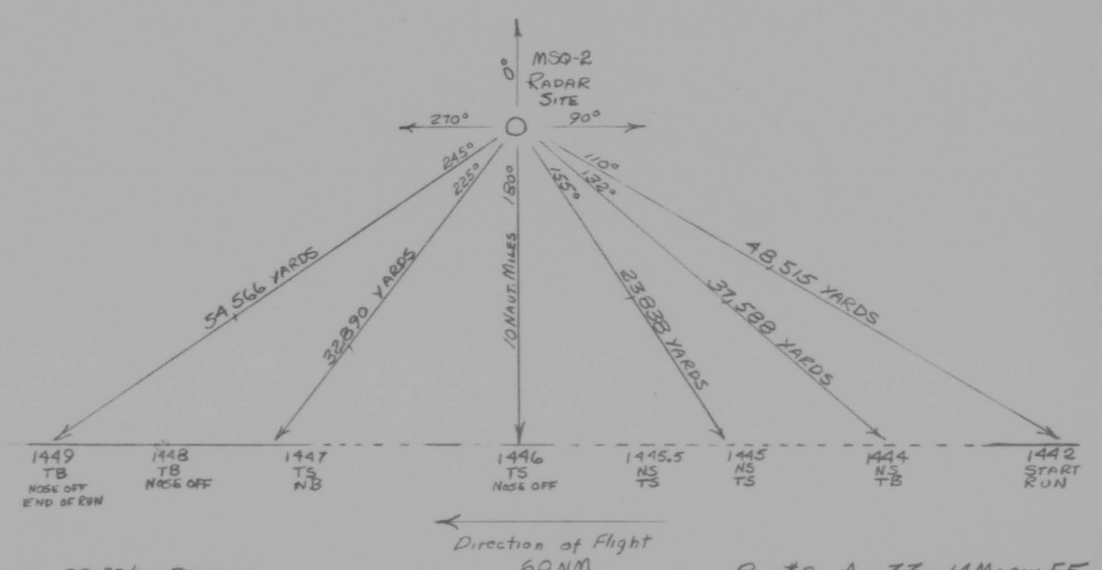

70 UNITS OF RR-39/AL DROPPED
CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE
NS - NOSE LAMP ON STEADY NB - NOSE LAMP BLINKING
TS - TAIL LAMP ON STEADY TB - TAIL LAMP BLINKING
NOT DRAWN TO SCALE

RUN #2 - AUX 33 - 14 MARCH 55

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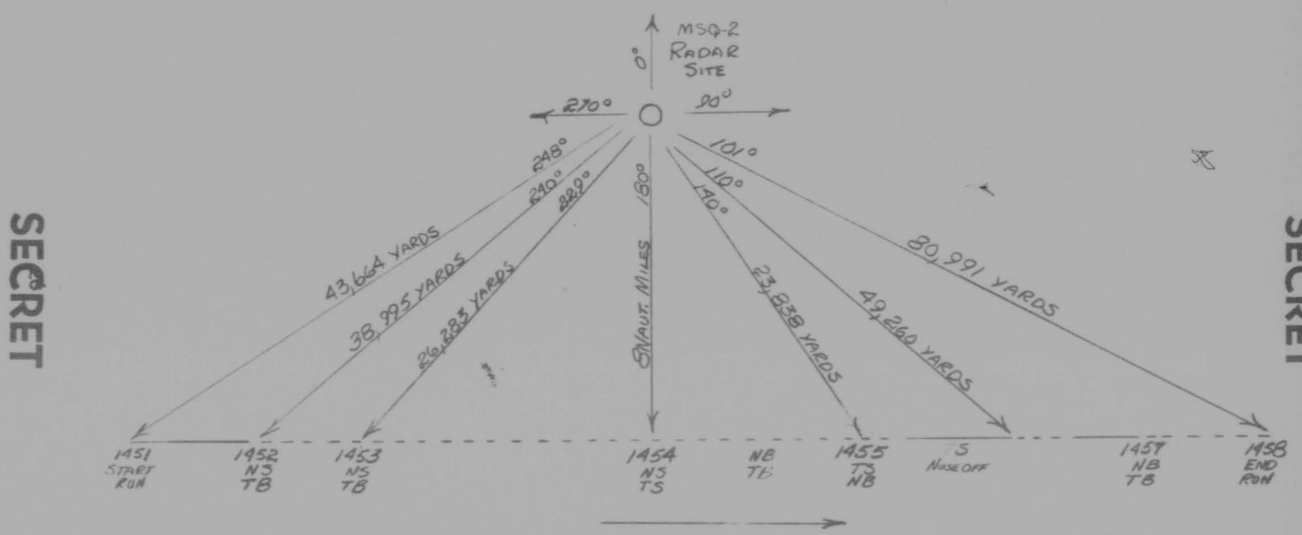

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106 UNITS OF RR-39/AL DROPPED
CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE
NS - NOSE LAMP ON STEADY
TS - TAIL LAMP ON STEADY
NB - NOSE LAMP BLINKING
TB - TAIL LAMP BLINKING
NOT DRAWN TO SCALE

RUN #3 - AUX 33 -- 14 MARCH 55

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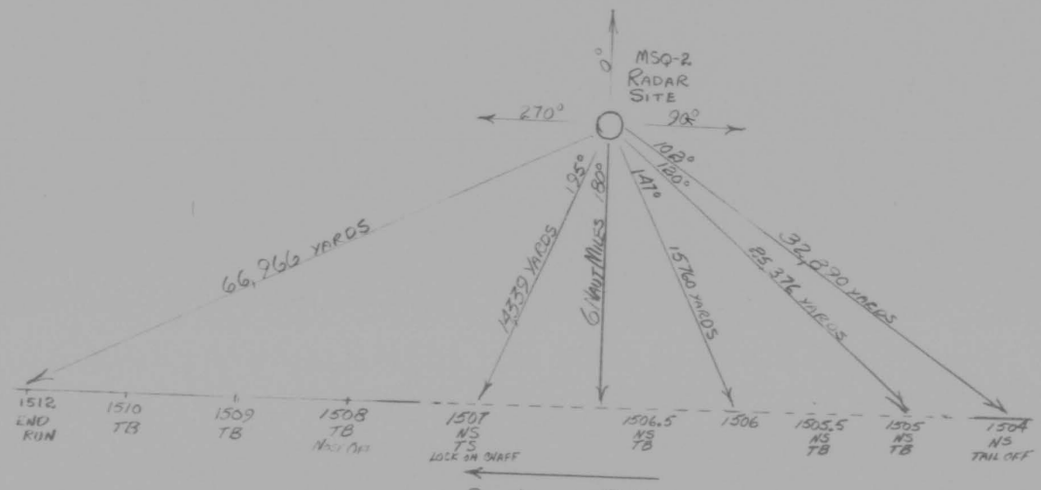

88 UNITS of RR 39/AL DROPPED

CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE

NS - NOSE LAMP ON STEADY NB - NOSE LAMP BLINKING

TS - TAIL LAMP ON STEADY TB - TAIL LAMP BLINKING

NOT DRAWN TO SCALE

RUN #4 - AUX 33 - 14 MARCH 55

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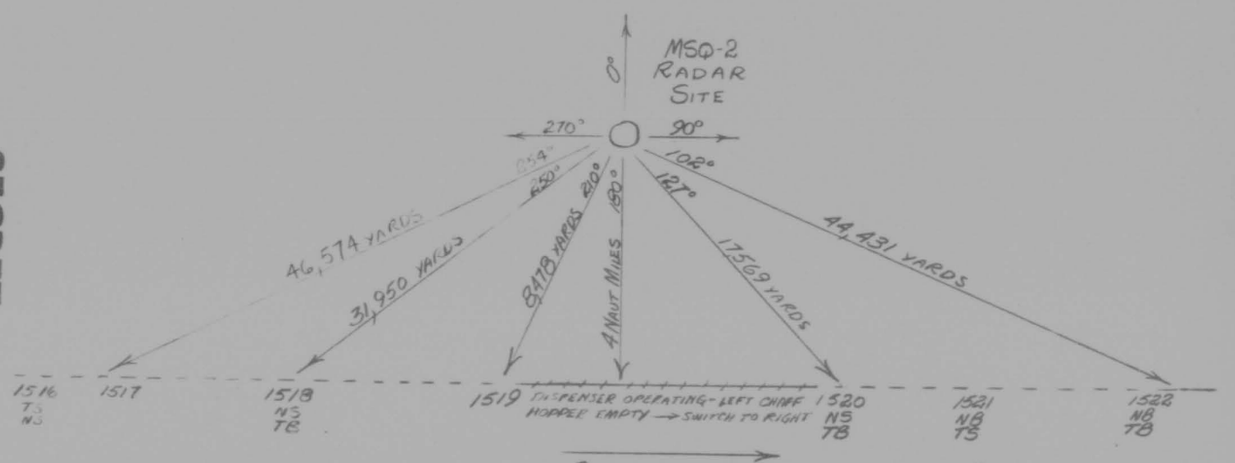

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128 UNITS OF RR-39/AL DROPPED

CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE

NS - NOSE LAMP ON STEADY NB - NOSE LAMP BLINKING

TS - TAIL LAMP ON STEADY TB - TAIL LAMP BLINKING

NOT DRAWN TO SCALE

RUN #5 - AUX 33 - 14 MARCH 55

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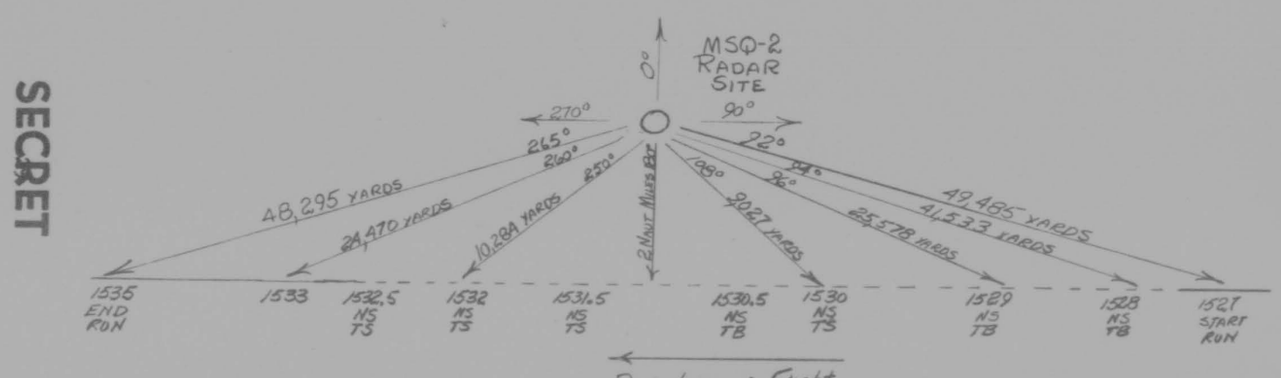

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208 UNITS OF RR-39/AL DROPPED

CHAFF DROPPED DURING PORTION OF RUN SHOWN AS BROKEN LINE

NS - NOSE LAMP ON STEADY NB - NOSE LAMP BLINKING

TS - TAIL LAMP ON STEADY TB - TAIL LAMP BLINKING

NOT DRAWN TO SCALE

RUN #6 - AUX 33 - 14 MARCH 55

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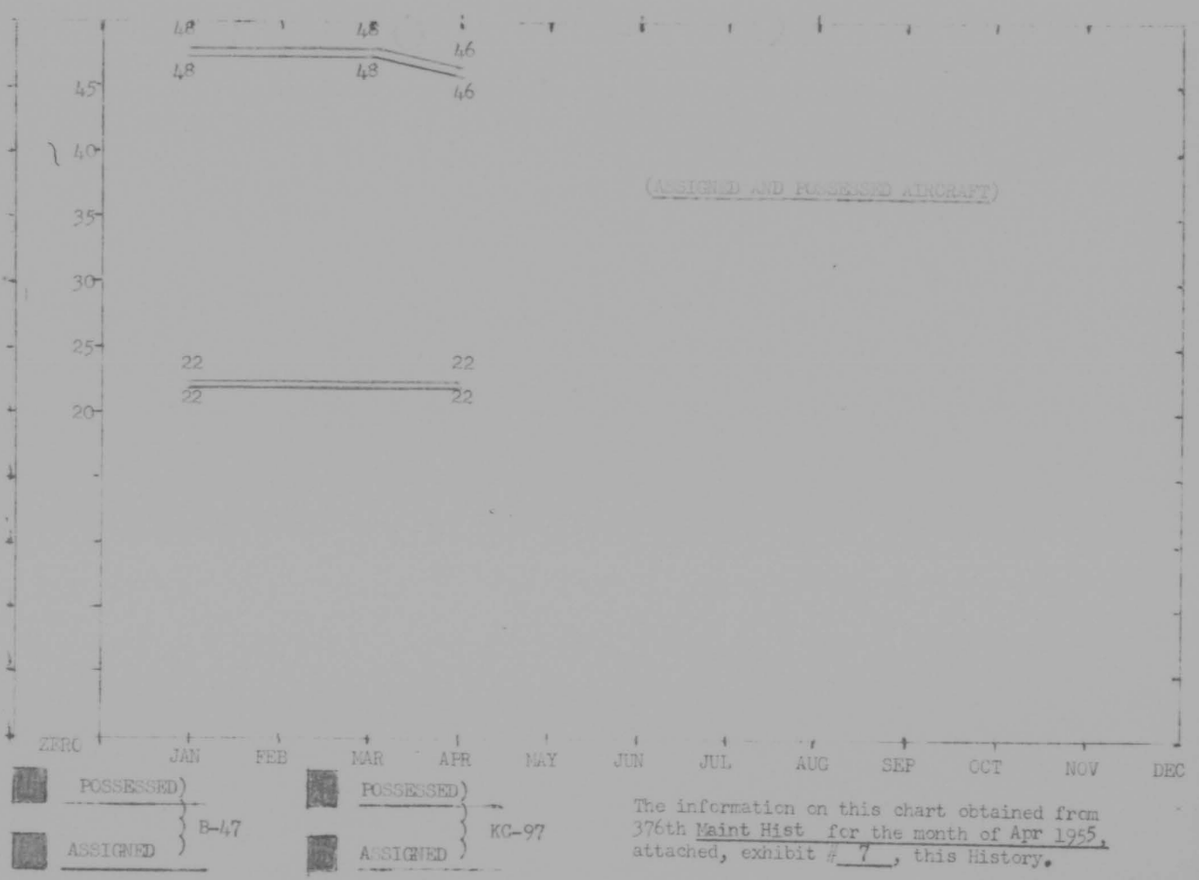

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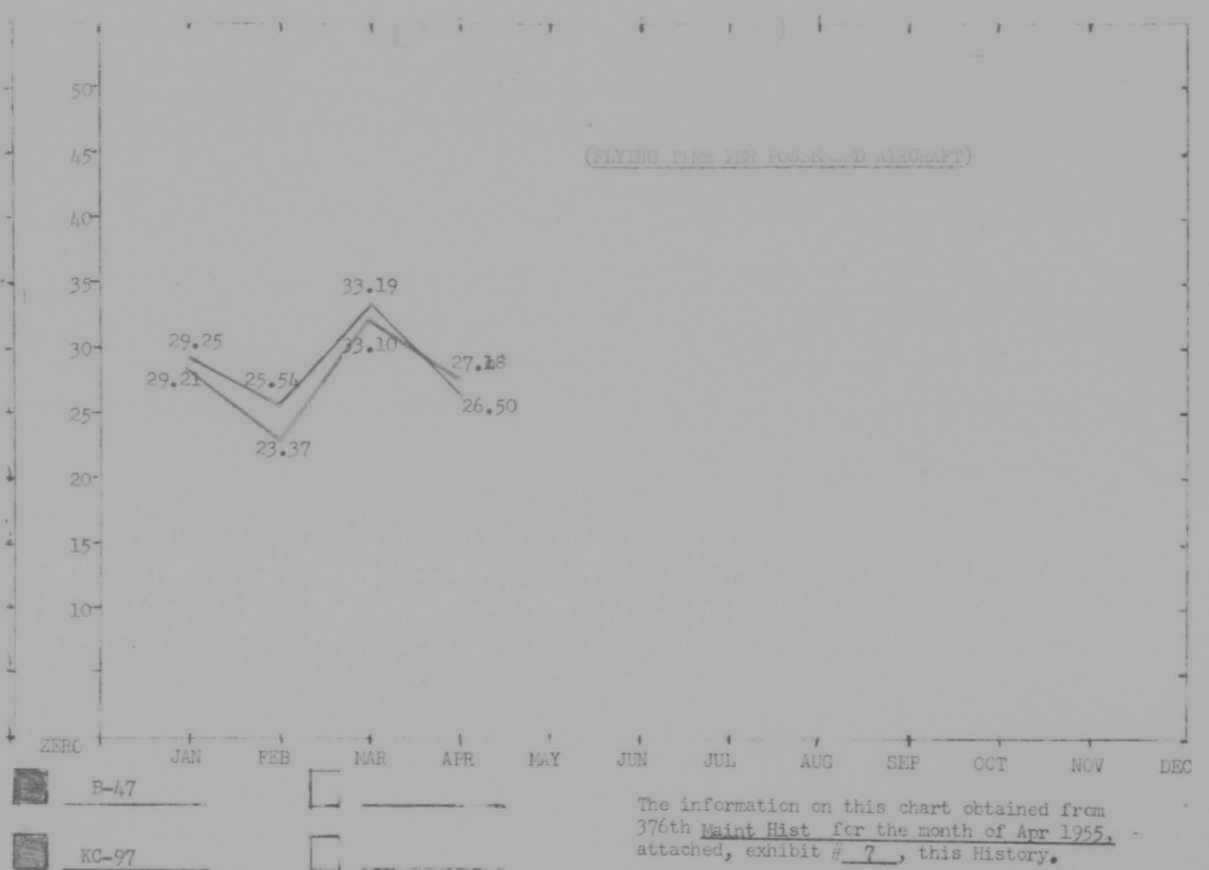

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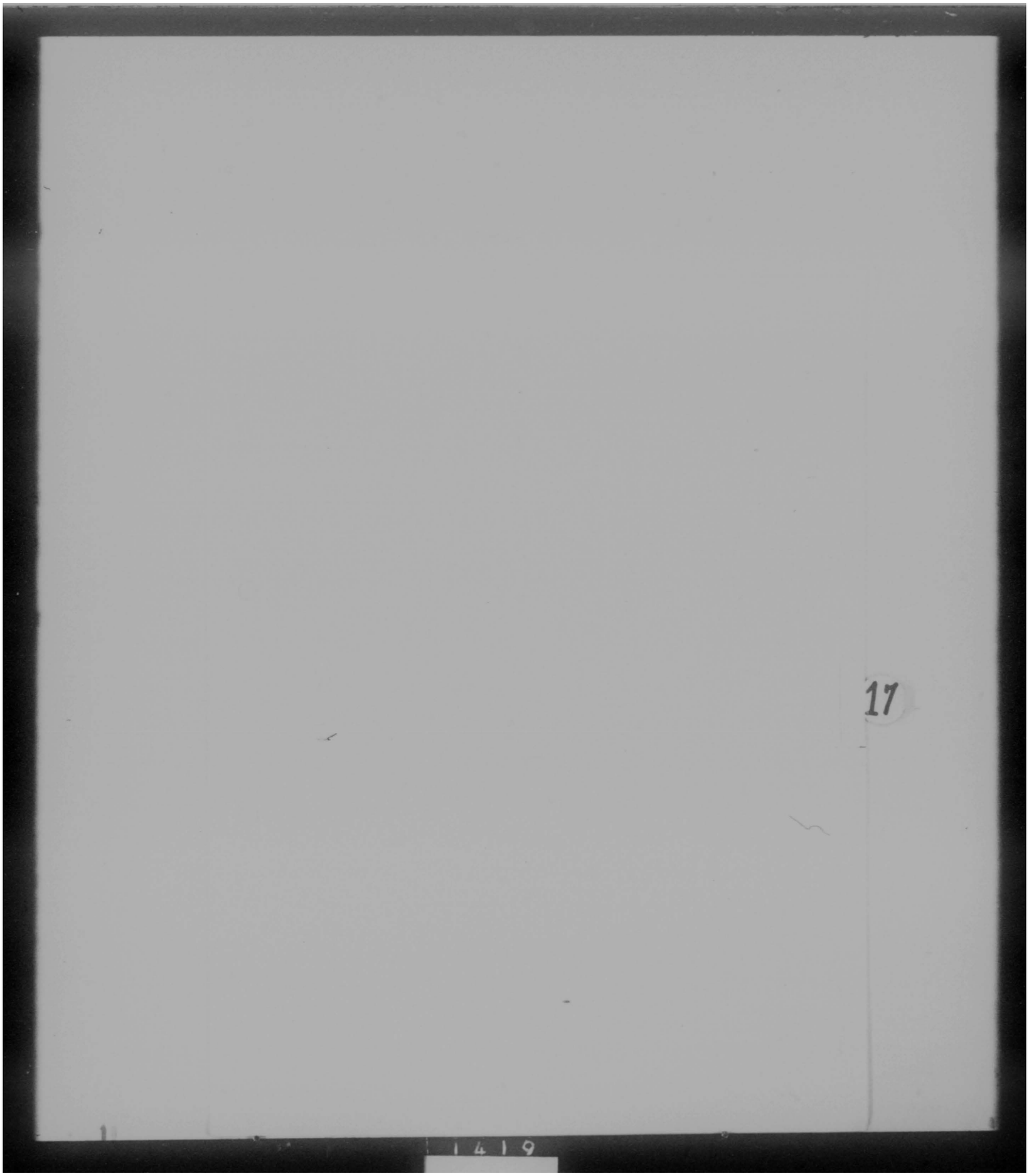

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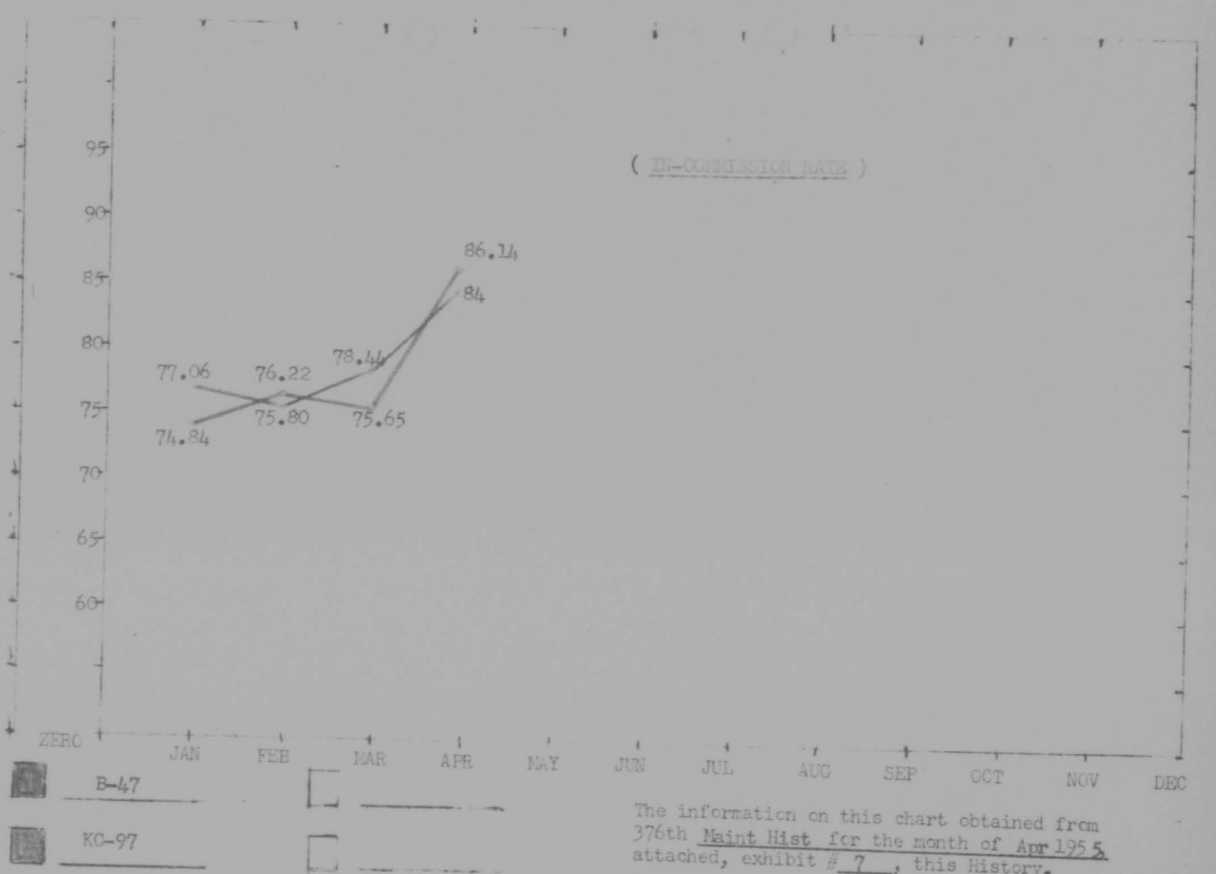

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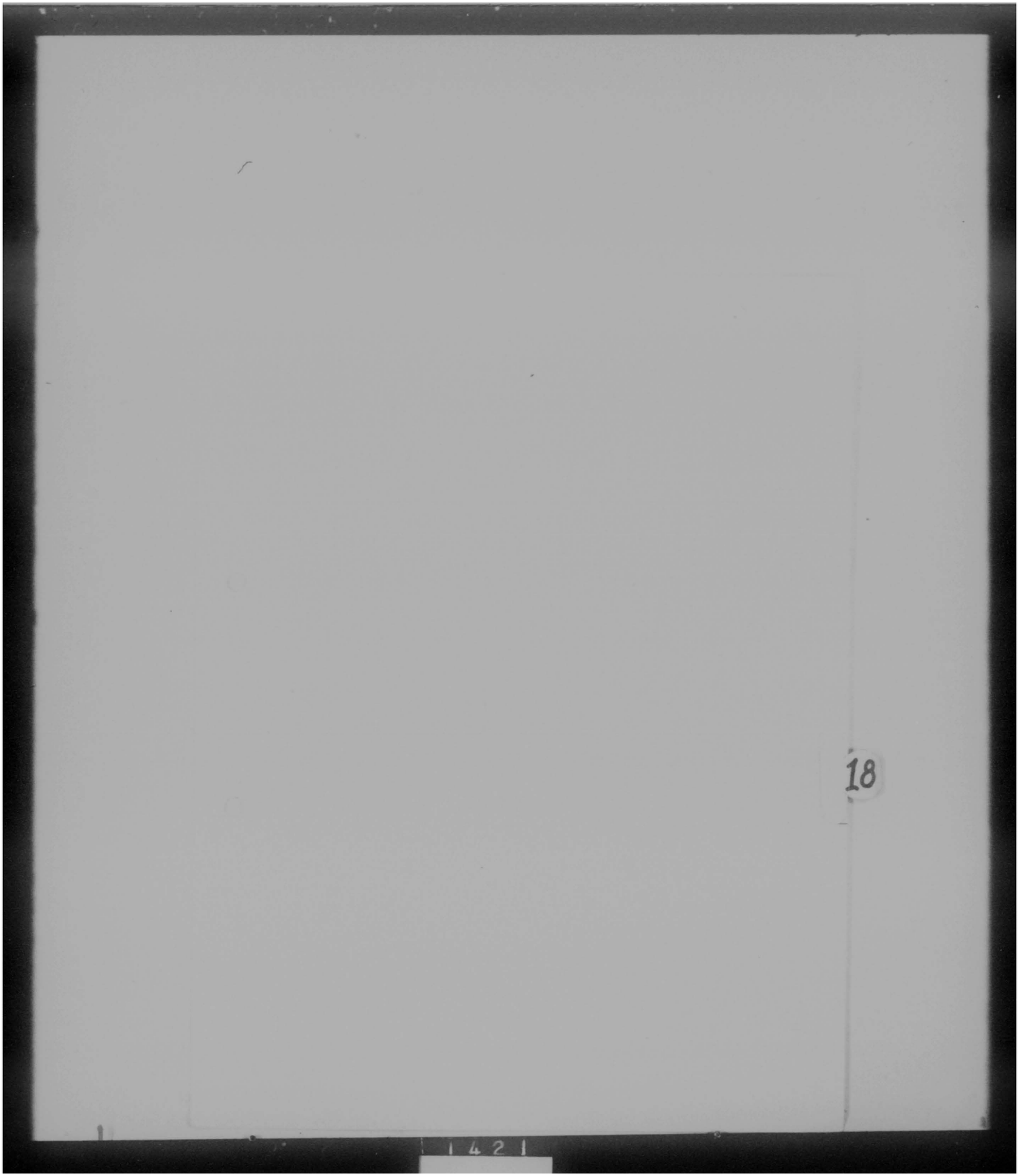

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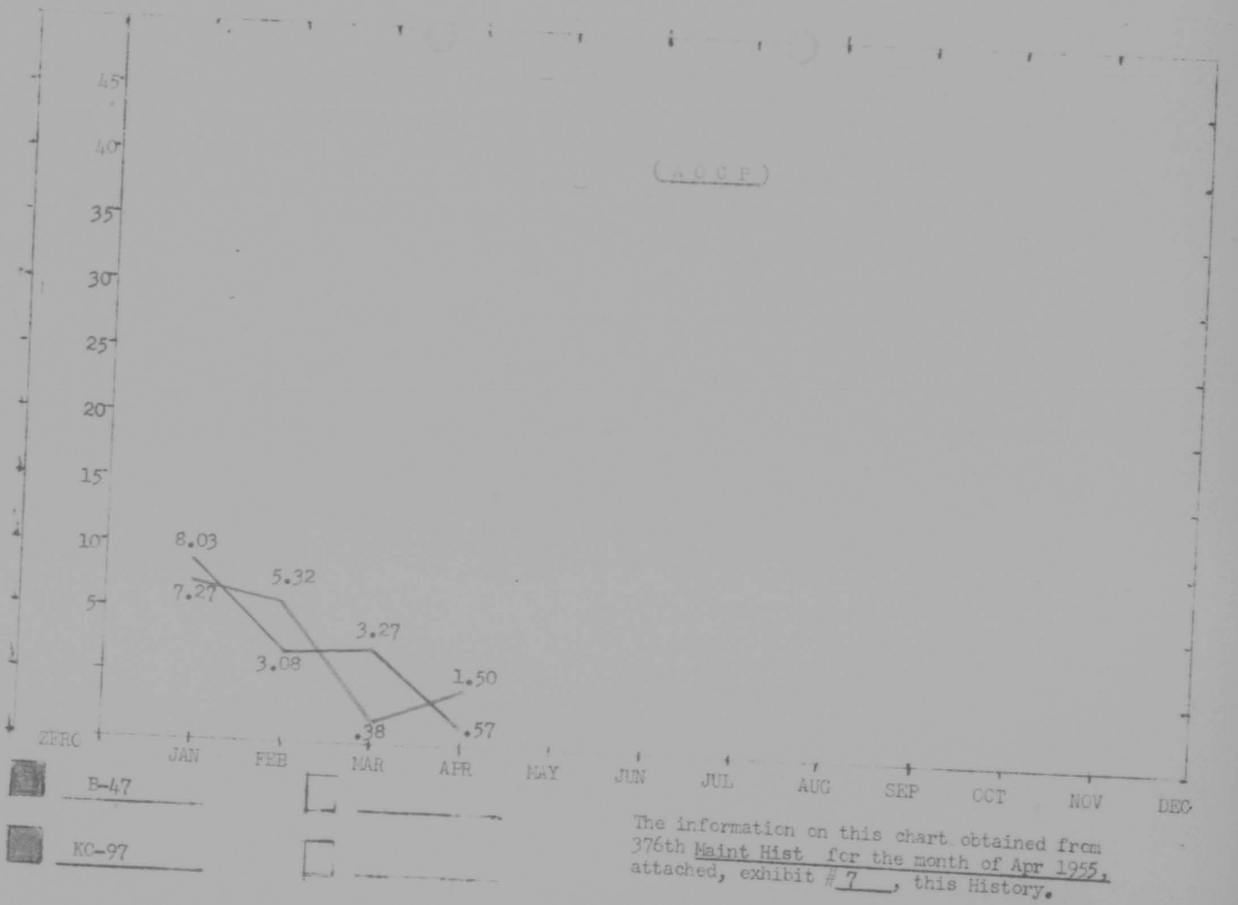

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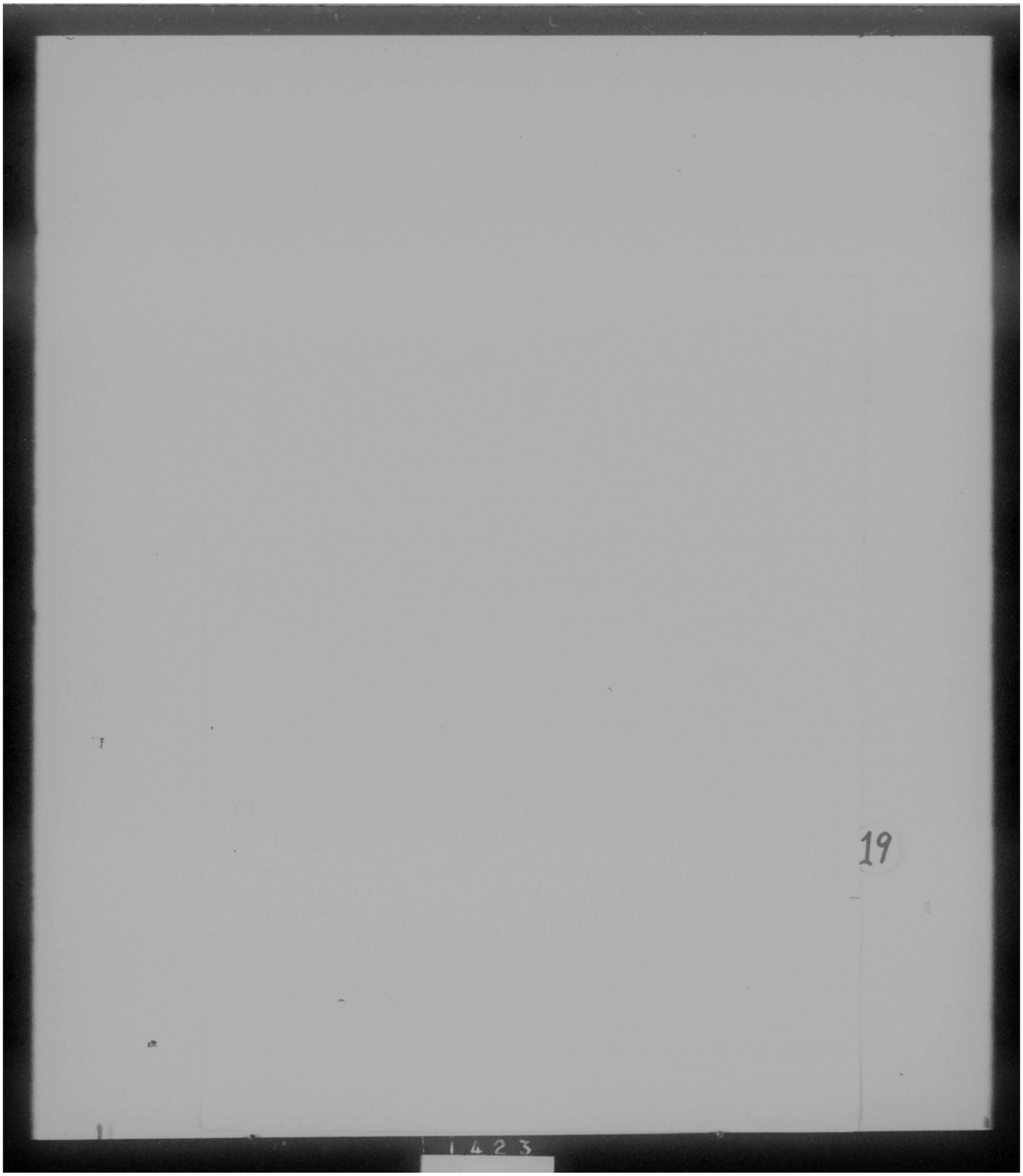

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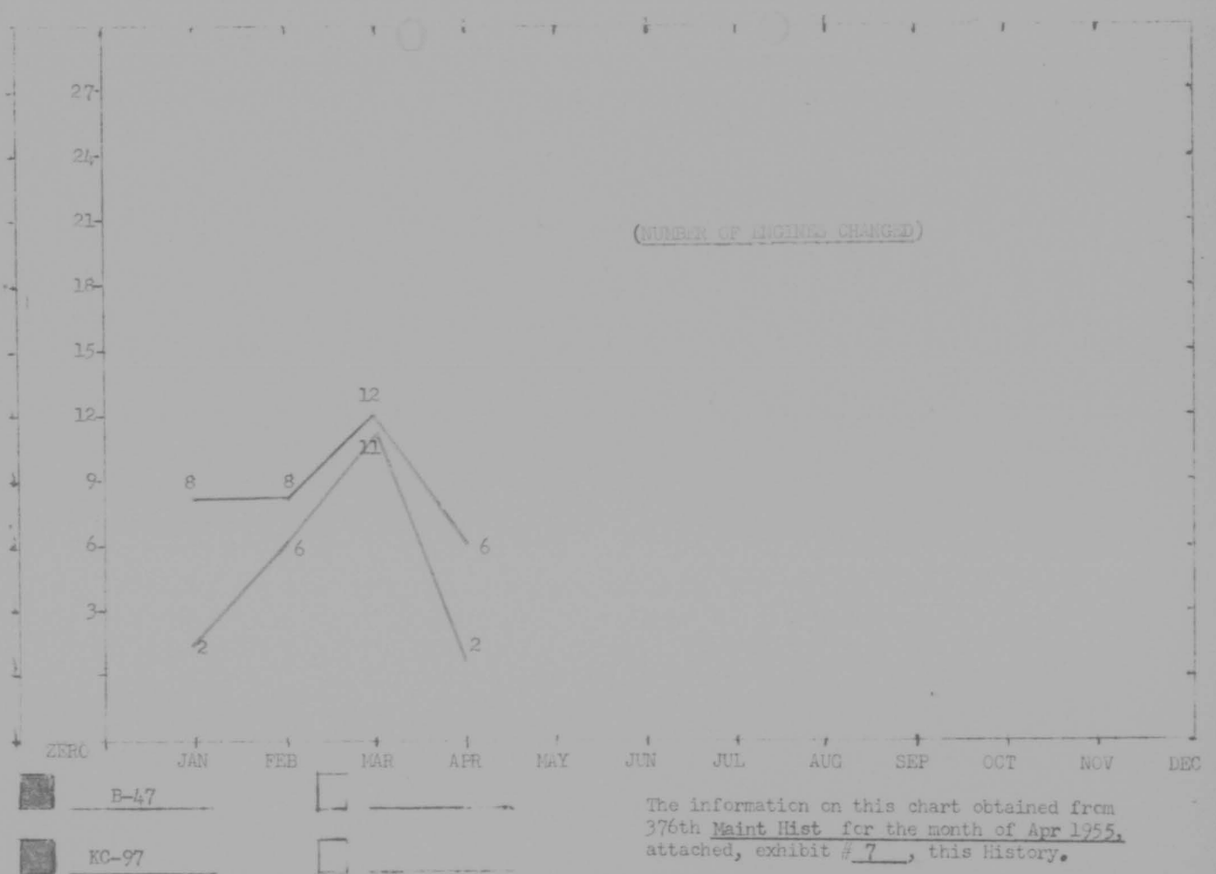

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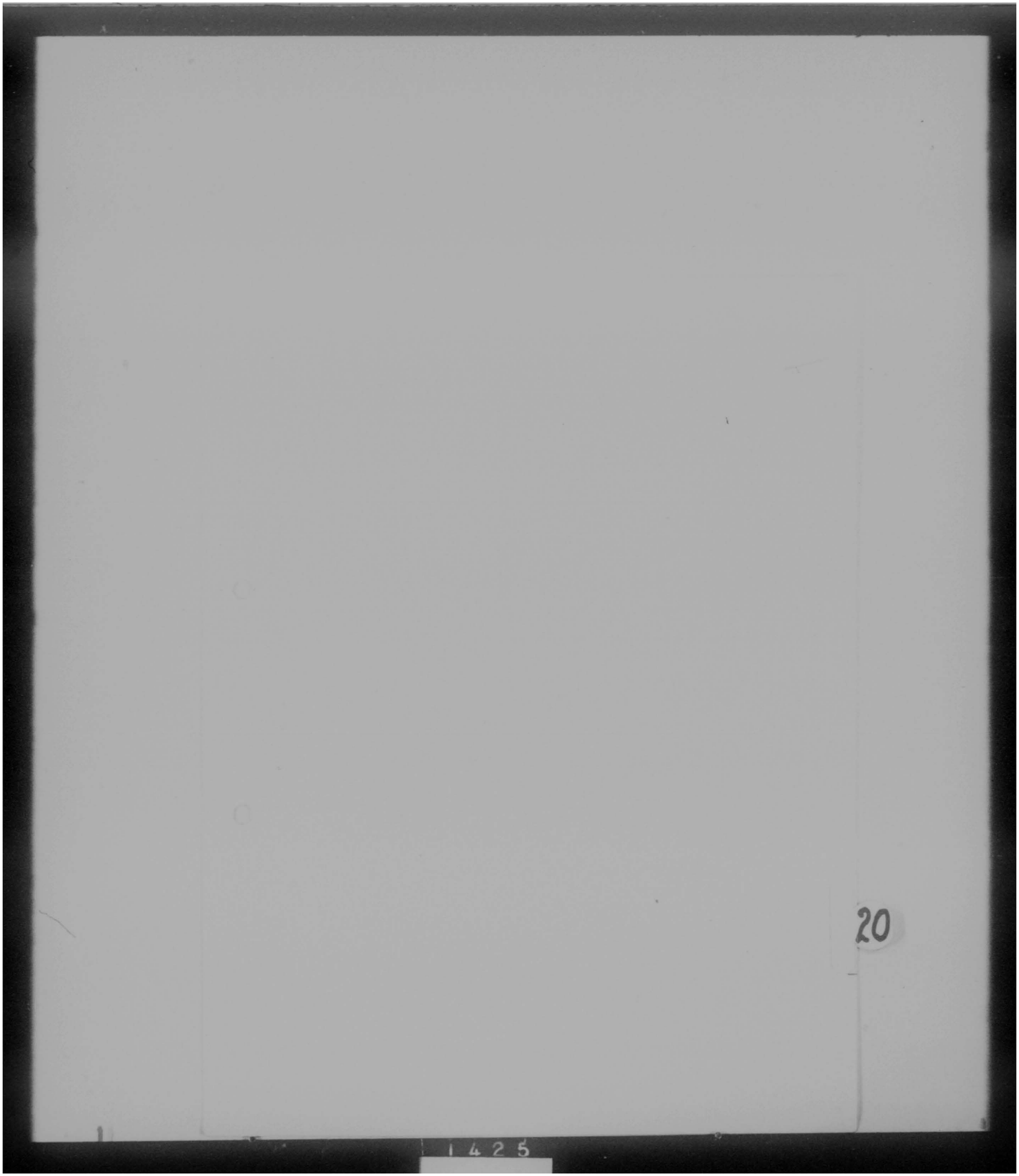

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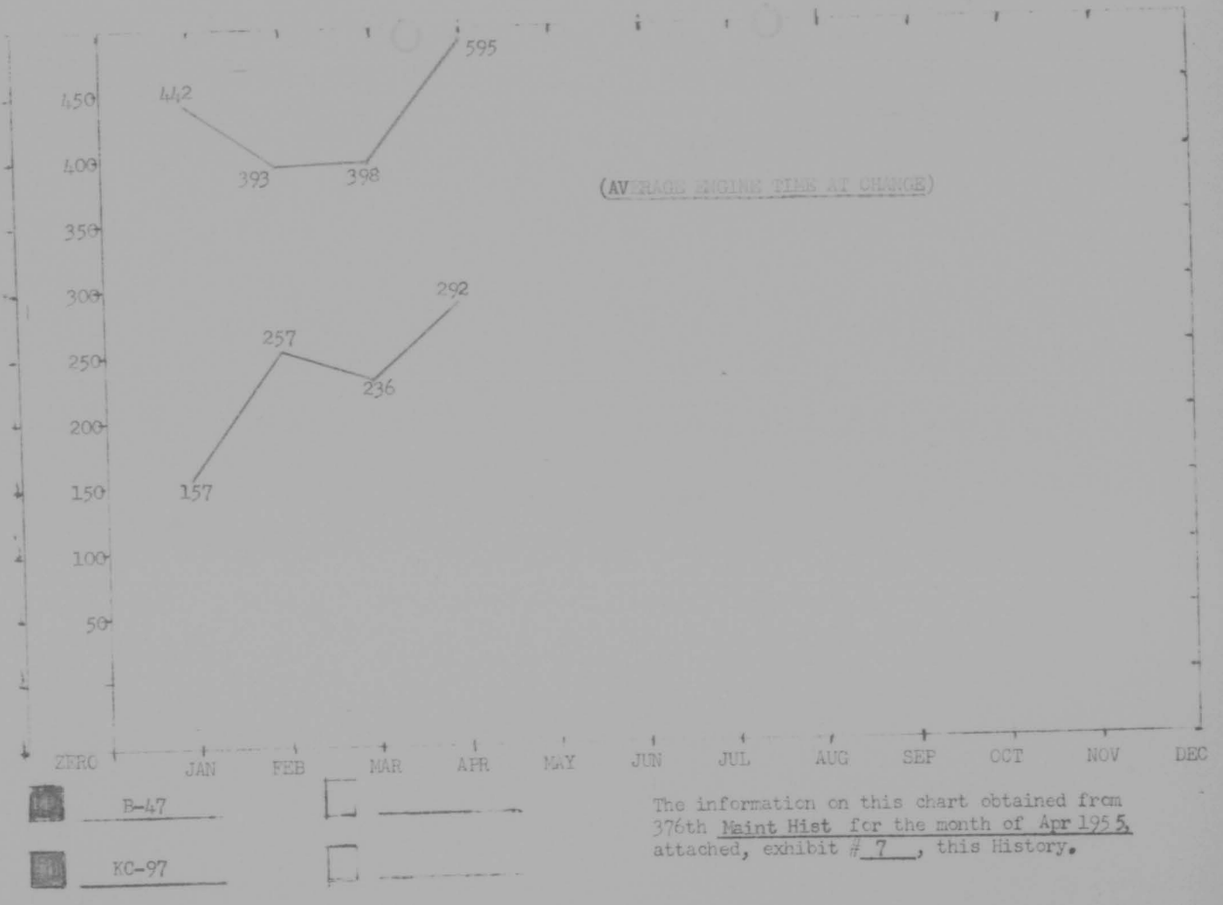

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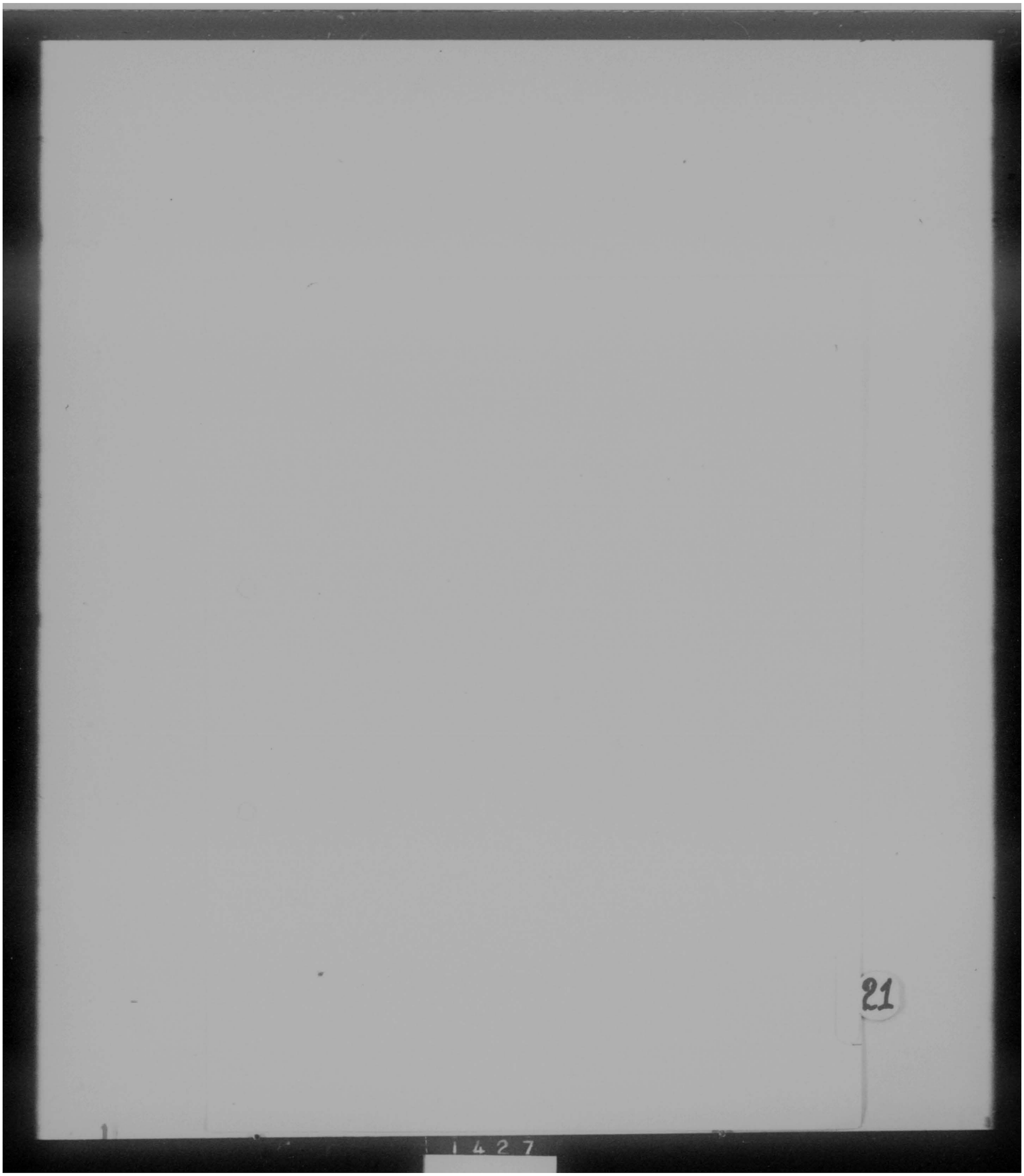

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TYPICAL OF THE THRONGS THAT STARED at Barksdale's greatest open house and air show are these two unidentified kids as they are "goggle-eyed" while the Navy's "Blue Angels" perform their death-defying stunts.—(Photo by Kabelitz)

One of the largest crowds ever to visit Barksdale in the Base's history took advantage of last Sunday's "open house" to witness an air show that was tops from all angles.

An estimated 26,000 visitors — there were 4,427 automobiles by actual count — poured through the gates, which were thrown open to visitors at noon to watch the Navy's famed "Blue Angels" jet team perform; a fly-over of Barksdale's own B-47 Stratojet long-range swept-wing bombers; an aerial performance of a squadron of F84F Fighter jets from England AFB, Louisiana, and static displays staged by the 3rd Strategic Support Squadron, the 301st and the 376th Bombardment Wings, all of Barksdale.

Highlight of the show was the performance of the Navy's "Blue Angels" team, a tightly timed, expertly flown group of four F9F Cougar jet planes.

With two "standbys" for replacements, in case of trouble on the part of the regular four, they thrilled the immense crowd with their five-foot spaced formation flying, buzzes and stunt-flying.

Static displays of aircraft and Air Force equipment and procedures were sponsored by the 3rd Strategic Support Squadron, the 301st and the 376th Bombardment Wings.

Spectators returning to Shreveport from the Air Show, by their very numbers, created what was described as "the worst traffic jam in Shreveport's history."

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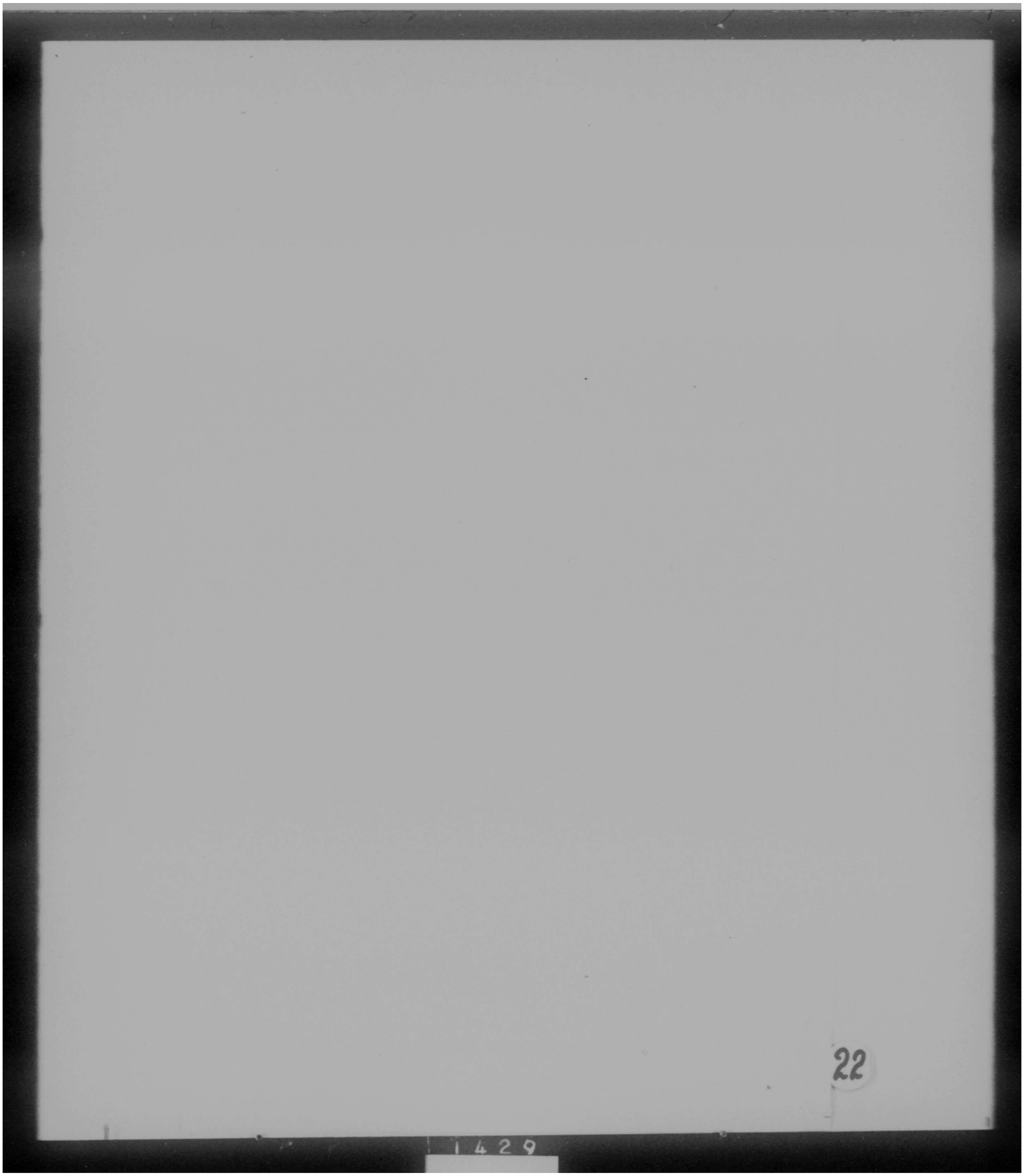

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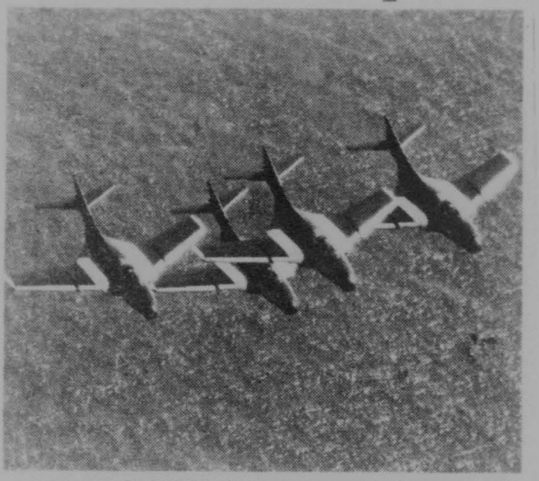

THEIR TAIL PIPES blasting symmetrical streams of vapor behind them, the U. S. Navy's famous BLUE ANGELS prepare to execute another of their intricate close formation maneuvers. In their new swept-wing Grumman F9F-8 "Cougar" jets, the BLUE ANGELS hold a tight five-foot separation formation throughout their entire routine. The team approaches the sonic barrier during some of their high speed maneuvers, done at altitudes ranging from 100 to 6,000 feet. The Blue Angels will appear here Sunday, May 1, in connection with Barksdale's participation in the Holiday in Dixie celebration.

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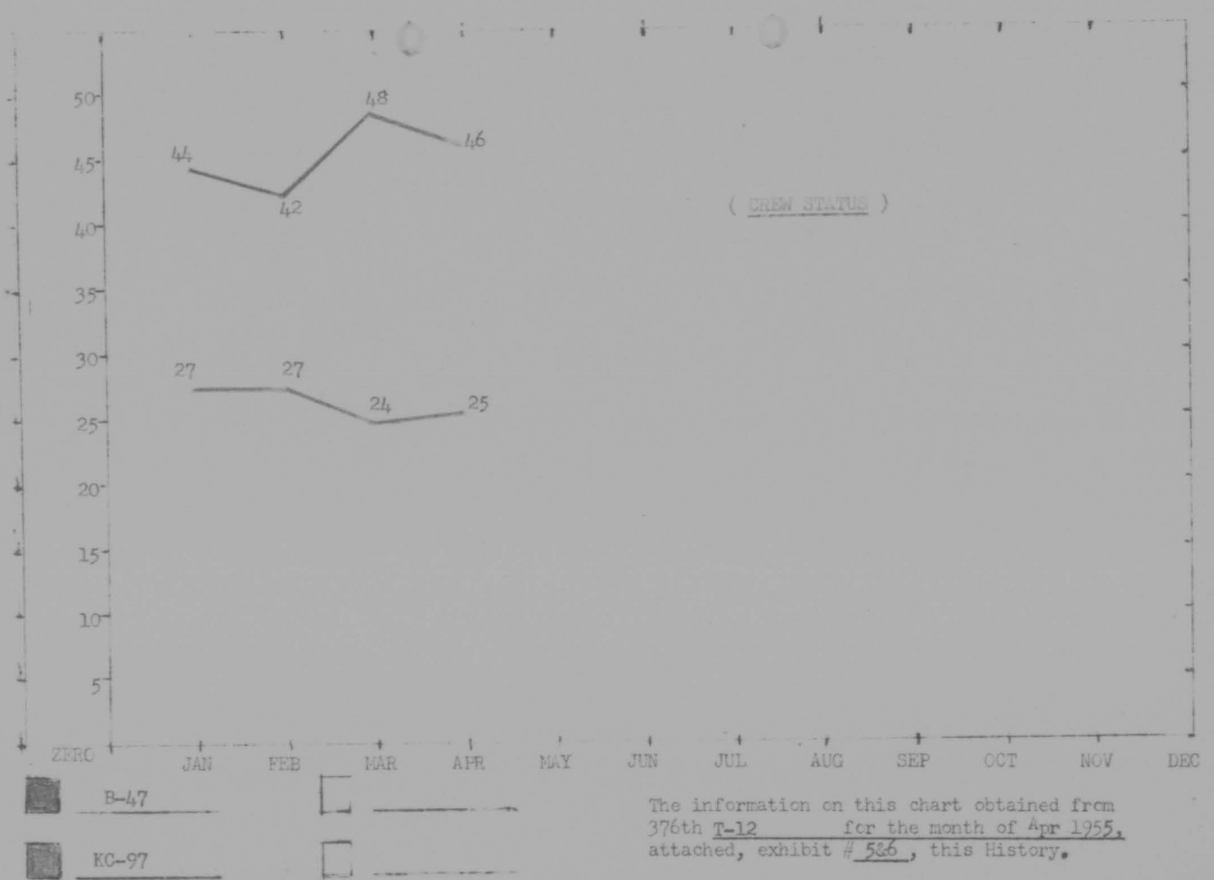

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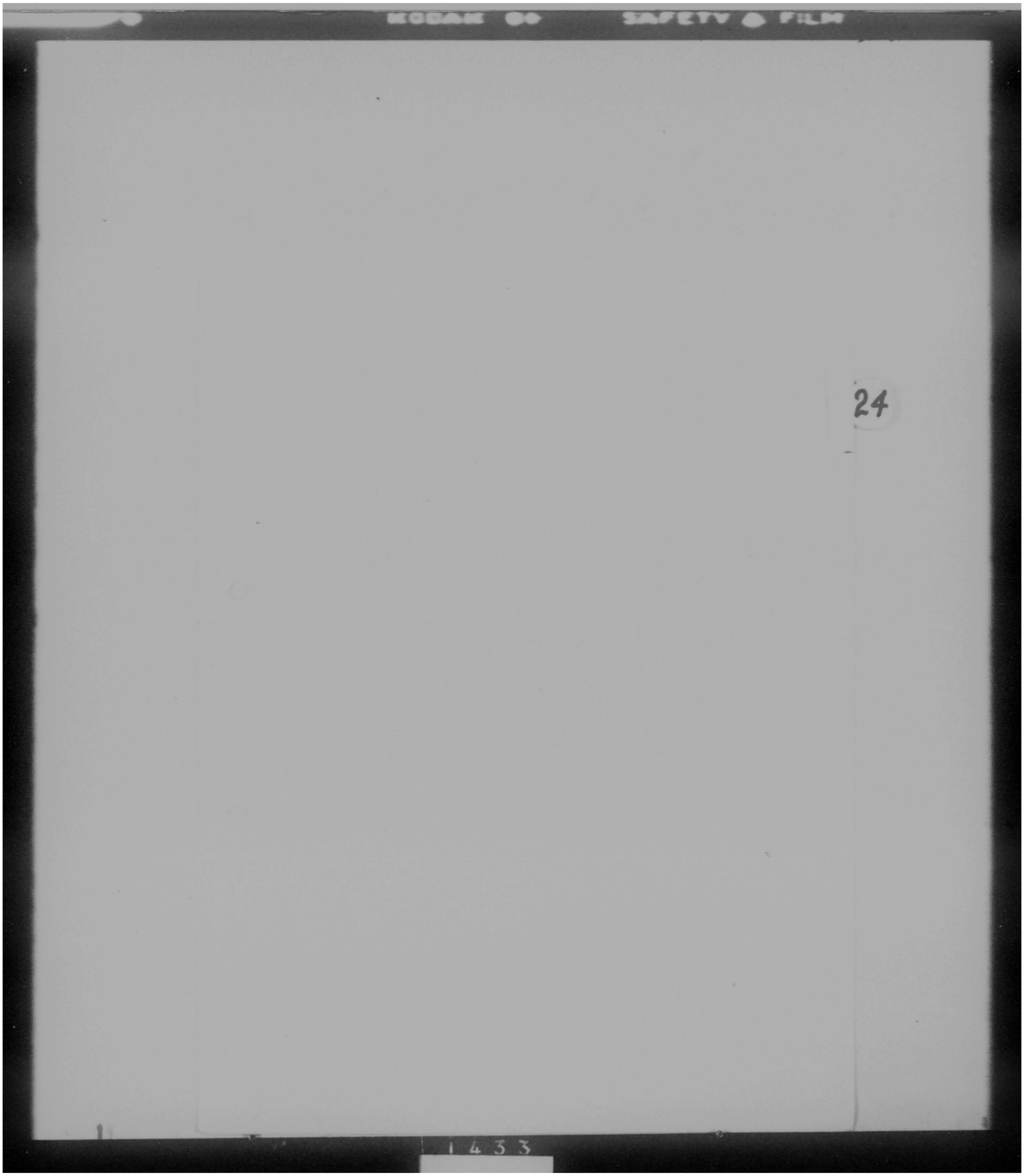

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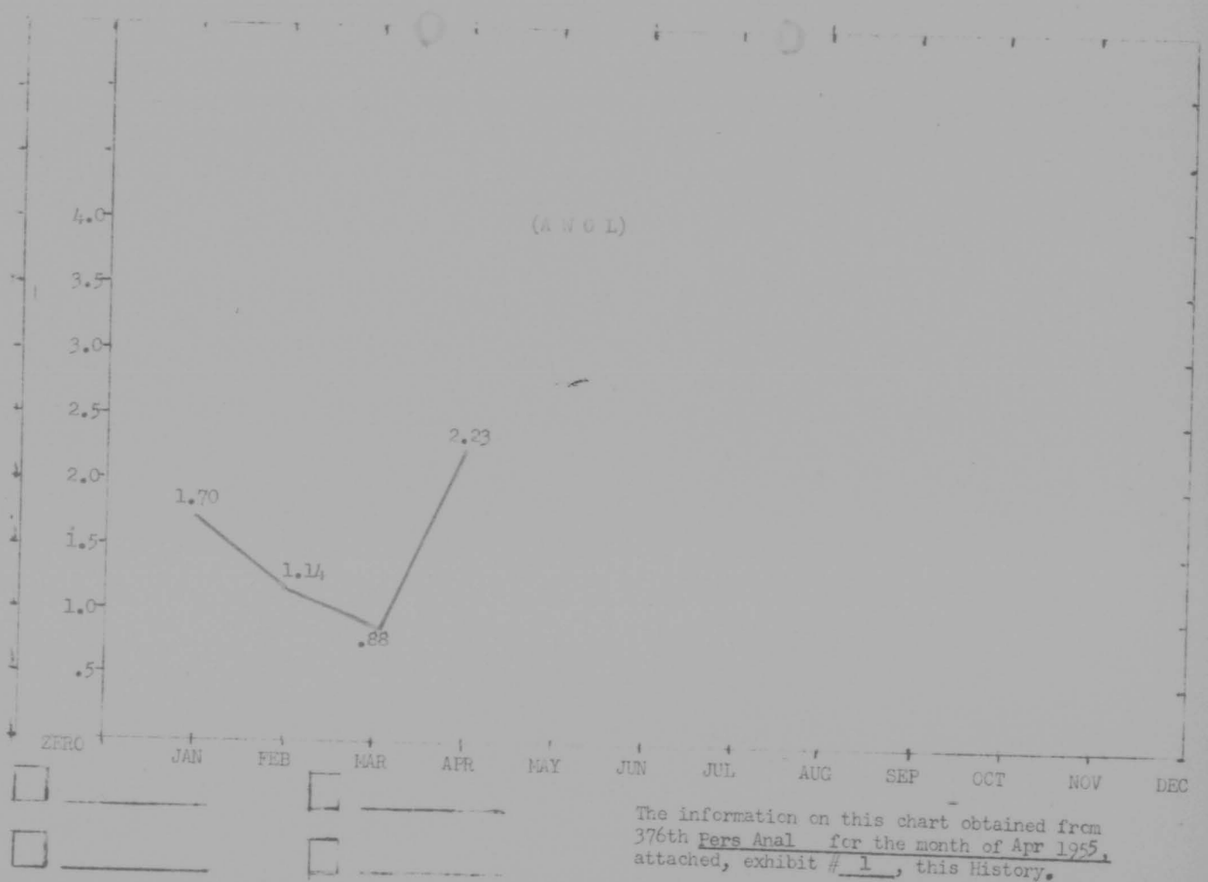

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T.S. K-WG-376-HI
Apr 1955
Appendix V.2

RETURN TO
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ASI/HOA
Maxwell AFB, AL 36112

APPENDIX NARRATIVE
TO

(Unclassified)
HISTORY OF THE

376TH BOMBARDMENT WING (M)

FOR THE MONTH OF

1-30 APRIL 1955

DOWNGRADED AT 12 YEAR
INTERVALS; NOT AUTOMATICALLY
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AUTHORIZED DOWNGRADING AT
Date 17 JUN 1955
Signed Robert T. Calhoun

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APPENDIX NARRATIVE

TO

(Unclassified)

HISTORY OF THE

376TH BOMBARDMENT WING (M)

FOR THE MONTH OF

1-30 APRIL 1955

RETURN TO:
Director
Aerospace Studies Inst
ATTN: Archives Branch
Maxwell AFB, Alabama

K-WG-376-HI
Apr 1955
Appendix

Tracing:
1. ~~Operation~~ FIRM GROUND

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APPROVED BY:

For and in the absence of Robert T. Calhoun
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OPERATION FIRM GROUND

General Information:

During January 1955, a tactics panel was convened at SAC Headquarters to discuss several subjects. Some of these subjects were not resolved,[1] and "Cell assembly after take-off" was not discussed. In the event simultaneous Inflight Insertion-Air Refueling is adopted as a standard tactic, a procedure must be developed to assemble a cell after take-off without intermediate level-off, as specified in the Medium Jet Bombardment Tactical Doctrine. The present tactics will still remain applicable to aircraft not needing refueling.

Recommendations were for a night/IFR cell which would be more compact and maneuverable, and would deny the GCI operator the number of aircraft within the cell.

Mission of 376th Bombardment Wing:

To conduct a test exercise to develop and standardize medium jet bombardment tactics using a minimum of two day or night missions incorporating cell assembly, and a maximum number of runs against available ADC or APG GCI sites using the proposed night/IFR penetration cell tactics. The objectives were to determine the maximum detection range by an alert GCI operator, and, Maximum range at which the GCI operator can identify the number of aircraft within the cell.

1. Items not discussed were: a. Tanker/Bomber formation air refueling procedures, b. Tanker/Bomber formation rendezvous techniques, c. Tanker station keeping techniques, d. Jet Bombardment Night/IFR penetration cell formations, e. Simultaneous inflight insertion during air refueling.

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In order to obtain the needed data, an Operations Order was promulgated.[2] Due to the limited number of missions to be flown on this operation, only highly qualified bomber crews were to be selected, with aircraft scheduling at the discretion of the Wing Commanders. However, all missions were to be completed prior to 9 April 1955.

The compact penetration cell (proposed) was designed to provide maneuverability, deny enemy GCI operator the number of aircraft within the cell as long as possible, and confuse the GCI operator when the cell splits and individual aircraft proceed to their assigned targets.[3] Two methods of flying the proposed cell were a flat cell, and one providing altitude separation.

The 376th Bombardment Wing, Medium, planned three missions, with cells of six aircraft on each mission. The route was selected so as to pass within range of five Central Air Defense Command GCI radar sites.[4] A qualified ECM observer was to be placed at each site. The first two missions were to be flown at 35,000 feet during daylight, and the third mission to be flown at the same altitude during darkness. On the first mission, Delta type penetration cell was planned for take-off until turn-around point, and Echo penetration cell from Dallas, Texas, to completion of the mission. The second mission, identical to

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2. Second Air Force Operations Order 108-55, (Firm Ground), 376th Bomb Wing, D/O Plans Section.
3. Ibid.
4. CADC radar sites: a. Bartlesville, Oklahoma. b. Hutchinson, Kansas. C. Tinker Air Force Base, Oklahoma. D. Duncanville, Texas. e. Ellington Air Force Base, Texas.

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the first, but using the Echo type cell during the first half of the mission, and Delta type cell during the last half. The third mission should use the type cell considered best from the experience gained on the first two missions.[5]

Maneuver as executed:

Five aircraft were available for the first mission, with cells being flown as briefed, except for the last leg being cut short, due to shortage of fuel. The aircraft had radar malfunctions, but maintained cell position visually.

Six aircraft were available for the second mission which was flown as briefed with a short last leg due to shortage of fuel. Radar malfunctions and poor radar scope photography reduced the scope photos available for the final report.

Five aircraft were available for the third mission, with one having to abort prior to the first GCI radar site, the others completed the mission with the final leg being cut short due to shortage of fuel. Since no significant difference was noted in radar pick-up range for either type cell, Echo cell was flown, due to altitude separation.

Conclusions:

The average maximum range at which the aircraft may be detected by an alert GCI operator is 109 nautical miles. The average maximum

5. Report, "Final Report, 376th Bomb Wing Ops Order 108-55", D/O Plans Section 376th Bomb Wing.

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range at which the radar operator can identify the total number of aircraft within the cell is 103 nautical miles. The difference in cell structure of Delta and Echo type cells has no significant effect on the range at which the aircraft may be picked up by the radar site. The maximum radar detection range by an alert GCI operator would probable be decreased by using present SAC Tactical Doctrine type cell, due to greater separation between aircraft. Tha maximum range at which the GCI operator can identify the total number of aircraft within the cell would probably be decreased by the same means. The maximum range at which the GCI operator can identify the individual aircraft is increased if cell is tangential to radar site. As separation between aircraft in cell is decreased, the cell will be picked up at greater ranges. Delta and Echo cells are more maneuverable than Tactical Doctrine type cells. The maximum radar detection range by an alert GCI operator increases as the altitude of the cell increased. Individual aircraft blips are approximately the same size as a formation blip, but are not as bright as a formation blip at equal range. The cell assembly described will accomodate an assembly after take-off of a cell formation to include 12 or more aircraft.

Recommendations:

Where possible, aircraft making a penetration should fly directly over a radar site to decrease the maximum range at which the GCI operator can identify the total number of aircraft within the cell. When a large number of aircraft are involved, the cell assembly that should be used is one described in the Report.[6] Routes, penetration

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cell diagrams, CADF radar site data, Duncanville Observer Logs, aircraft radar scope photos for penetration cell and cell assembly are also included in the Report.

6. Tab "F" to "Final Report, 376th Bomb Wing Ops Order 108-55", D/O Plans Section, 376th Bomb Wing.
7. Tabs "A" through "F", in order listed, to "Final Report, 376th Bomb Wing Ops Order 108-55", D/O Plans Section, 376th Bomb Wing.

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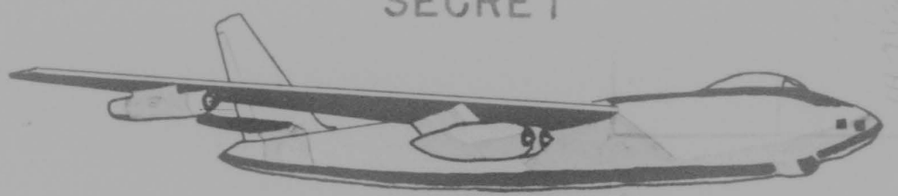

(UNCLASSIFIED)

HISTORY

OF THE

376TH BOMBARDMENT WING(M)

FOR THE MONTH OF

1-31 MAY 1955

BARKSDALE AIR FORCE BASE

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HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 MAY - 31 MAY 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing, Medium
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron
376th Tactical Hospital

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

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Lt Col, USAF
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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, dated 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Personnel	1, 2
Personnel Problems	2, 3
SAC Management Control System	3
Crew Status	4
Reenlistment and AWOL Rates	4, 5
Changes in Key Personnel	5
CHAPTER II . . . Operations and Training	6
Flying Time	7
Training	8 - 10
Status of Test Projects	10 - 22
CHAPTER III . . . Maintenance	23
Aircraft Status	24, 25
Equipment Malfunctions	26
Maintenance Engineering Difficulties	26
Operational Difficulties	26, 27
Special Developments	27, 28

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PERSONNEL

The total number of officers assigned at the end of May 1955 was 398,[1] which was one less than in April,[2] and was 51 less than authorized strength.[3] A total of 362 officers were effectively assigned,[4] the same as in April,[5] or 80.6 percent of authorized strength.[6] The figures and percentage for manning in required specialties (MIRS) in May were the same as for effectively assigned during the month.[7] There were eight officers separated or reassigned in May,[8] which was five more than in April,[9] or 1.8 percent of authorized strength,[10] and seven officers assigned,[11] or 1.6 percent of authorized strength.[12]

The total number of airmen assigned at the end of May 1955 was 1808,[13] which was 36 less than in April,[14] and was 17 less than

1. Report, "Monthly Analysis (May 1955)", n.d., hereafter cited as "Pers Anal for May 55", n.d., exhibit #1, and chart, exhibit #2, this History.
2. History 376th Bomb Wing for April 1955, page 1.
3. "Pers Anal for May 55", n.d., exhibit #1, and chart, exhibit #2, this History.
4. "Pers Anal for May 55", n.d., exhibit #1, this History.
5. History 376th Bomb Wing for April 1955, page 1.
6. "Pers Anal for May 55", n.d., exhibit #1, this History.
7. Ibid.
8. "Pers Anal for May 55", n.d., exhibit #1, by career fields: Pilots-3, Navi-Bombardiers-2, Ops Staff-2, and Navi-1, total -8.
9. History 376th Bomb Wing for April 1955, page 1.
10. "Pers Anal for May 55", n.d., exhibit #1, this History.
11. Ibid, by career fields: Pilots-2, ECM offs-2, Navi-Bombardiers-2, and Air Commanders-1, total - 7.
12. "Pers Anal for May 55", n.d., exhibit #1, this History.
13. Ibid, and chart, attached, exhibit #3, this History.
14. History 376th Bomb Wing for April 1955, page 1.

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authorized strength.[15] There were 1566 effectively assigned airmen,[16] five less than in April,[17] or 85.8 percent of authorized strength.[18] The MIRS for airmen in May was 1384 or 75.9 percent of authorized strength.[19] There were 94 airmen transferred or discharged or 5.2 percent of authorized strength,[20] and 58 airmen assigned or 3.2 percent of authorized strength.[21]

PERSONNEL PROBLEMS

Officer effective manning in the intelligence career field was 50 percent. With known losses and no known input, within six months effective manning will be reduced to 35 percent.

In career field 321 manning in AFSC's 32150B, 32150C and 32150D was zero percent. Training was authorized from the 32150B career field into the other branches listed above, however, personnel with the technical knowledge required are still not available as

15. "Pers Anal for May 55", n.d., exhibit #1, and chart attached, exhibit #3, this History.
16. "Pers Anal for May 55", n.d., exhibit #1, this History.
17. History 376th Bomb Wing for April 1955, page 2.
18. "Pers Anal for May 55", n.d., exhibit #1, this History.
19. Ibid.
20. Ibid, by career fields: Photomapping-2, Comm Ops-1, Radio & Radar Maint-13, Armt Sys Maint-18, Intrl Equip Maint-2, Acft Acc Maint-6, Airplane & Eng Maint-27, Veh Maint-6, Metal Working-2, Const-1, Trans-1, Food service-3, Admin-7, Pers-1, and Medical-4, total - 94.
21. "Pers Anal for May 55", n.d., exhibit #1, this History by career fields: Intel-1, Radio & Radar Maint-8, Armt Sys Maint-8, Acft Acc Maint-7, Airplane & Eng Maint-1, Mun & Wpns Repair-1, Veh maint-3, Metal Working-1, Const-3, Fabric leather & rubber-repair-2, Food Service-1, Supply-8, Finance Acctg & auditing-1, Admin-4, Pers-6, and Medical-3, total - 58.

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instructors. Effective manning in the aircraft and engine maintenance field was 46 percent, and unless changes take place, is due to drop to 36 percent within six months. Effective manning in the munitions and weapons career field was 60 percent. Effective manning in the airframe career field sub-division was 55 percent, and unless changes occur, is due to drop to 34 percent within six months. Effective manning in the personnel career field was 52 percent and due to drop to 44 percent within six months. Effective manning in the personal equipment career field was 40 percent.[22]

SAC MANAGEMENT CONTROL SYSTEM

Under this system the Wing received 40 percent of maximum score for officers, 50 percent for direct support airmen, and 10 percent for indirect support airmen for manning in required specialties; 100 percent for AWOL rate; 30 percent for reenlistment rate; and 100 percent of maximum score for ground safety. Indirect support airmen MOS dropped due to qualified personnel being reassigned or separated.[23]

22. Report, "Bombardment Air Training Report for Month of May 1955 (RCS: 3-SAC-T12)", 4 Jun 55, hereafter cited as "Bombardment T-12 for May 55", 4 Jun 55, exhibit #4, this History.
23. D/F, "SAC Management Control System", 6 May 55, attached to exhibit #1, this History.

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CREW STATUS

B-47 Crews:

On the 31st of May 1955 there were 37 ready/lead crews and 10 non-ready B-47 combat crews assigned.[24] During the month there were no crew members gained, but three were lost. Five crew members were changed, no new crews were formed, one crew was upgraded, seven crews were redesignated as incomplete and one crew was dissolved.[25]

KC-97 Crews:

On the 31st of May there were 18 ready and six non-ready KC-97 combat crews assigned.[26] During the month there were no new crews formed, nine members were gained and nine lost, 23 crew members were changed, five crews were redesignated to incomplete and one crew was regressed.[27]

REENLISTMENT AND AWOL RATES

During May there were 28 airmen discharged, of which 10 reenlisted giving the Wing a reenlistment rate of 35.7 percent,[28] which was an increase of 13.5 percent over the April figure.[29]

24. TWX, 376th V-1 Report for 31 May 55, files, 376th D/O Section, and chart, exhibit #5, this History.
25. "Bombardment T-12 for May 55", 4 Jun 55, exhibit #4, this Hist.
26. TWX, 376th V-1 Report for 31 May 55, files, 376th D/O Section, and chart, exhibit #5, this History.
27. Report, "Air Refueling Air Training Report for the Month of May 1955, (RCS: 4-SAC-T12)", 4 Jun 55, hereafter cited as "Refueling T-12 for May 55", 4 Jun 55, exhibit #6, this History.
28. "Pers Anal for May 55", n.d., exhibit #1, this History.
29. History 376th Bomb Wing for April 1955, page 5.

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There were two airmen AWOL during the month, against a figure of 2206 assigned personnel, giving the wing an AWOL rate of .91 percent,[30] which was a decrease of 1.32 percent from the figure for April 1955.[31]

CHANGES IN KEY PERSONNEL

Due to the impending TDY with the necessary packing of records, the Historian was not able to obtain the needed background material on key personnel changes. The changes will be included as soon as the records again become available to the Historian.

30. "Pers Anal for May 55", n.d., exhibit #1, and chart, exhibit #7, this History.
31. History 376th Bomb Wing for April 1955, page 5.

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

During May 1955, SOR testing required 201:35 hours, ferrying aircraft to and from the modification depot required 6:30 hours, and the Armed Forces Day demonstration used 20:00 hours, showing a total of 228:05 hours flown on missions ordered by higher headquarters.[32]

KC-97 Higher Headquarters Missions:

Three passenger flights used a total of 32:55 hours, a special passenger flight to the United Kingdom and North Africa and return used 50:35 hours, and special test and tactics used 15:10 hours, showing a total of 105:40 hours flown on missions ordered by higher headquarters.[33]

Total Flying Time:

For B-47 aircraft, the total flying time in May was 1253:30 hours, including test hops,[34] a slight increase over the April figure.[35]

On KC-97 aircraft the total flying time in May was 719:50 hours, including test hops,[36] an increase of 117:30 hours over the April figure.[37]

32. "Bombardment T-12 For May 55", 1 Jun 55, exhibit #5, this Hist.
33. "Refueling T-12 for May 55", 1 Jun 55, exhibit #6, this History.
34. Report, "Historical Report for Month of May 1955", 370th Wing Maintenance Control Unit, hereafter cited as "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #9, this History.
35. History 370th Bomb Wing for April 1955, page 9.
36. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #9, this History.
37. History 370th Bomb Wing for April 1955, page 9.

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TRAINING

Classroom:

A total of 171 student manhours of instruction were given to wing observers on the K-4A Bomb-Navigational System during May 1955, in symposium type classes. The mock-up training program for K-Systems mechanics showed 96 student manhours of instruction being given,[38] in the same manner as in April 1955.[39]

On the A-5 System (Fire Control Bomber Tail Defense) two mechanics received 32 manhours of instruction in testing and adjusting procedures; eight mechanics were given 40 manhours instruction in turret drive theory; five mechanics received 30 manhours of instruction in transmitting and receiving theory; 10 operators received classroom and mock-up training in operation.[40]

Instruction on the A-12D Gyropilot showed 10 students received eight hours general instruction; 23 students received eight hours instruction on interlock circuits, seven students received two hours instruction on signal sources, and eight students received four hours instruction on trouble shooting during May 1955.[41]

38. Report, "Monthly Technical Report for Month Ending 31 May 1955", 1 Jun 55, hereafter cited as "U-19 for May 55 by Nowak", 1 Jun 55, exhibit #10, this History.
39. Exhibit #11, History 376th Bomb Wing for April 1955.
40. Report, "Monthly Technical Report for Month Ending 31 May 55", 1 Jun 55, hereafter cited as "U-19 for May 55 by Faux", 1 Jun 55, exhibit #11, this History.
41. Report, "Monthly Technical Report for Month Ending 31 May 55", 1 Jun 55, hereafter cited as "U-19 for May 55 by Kronlage", 1 Jun55, exhibit #12, this History.

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41. Report, "Monthly Technical Report for Month Ending 31 May 55", 1 Jun 55, hereafter cited as "U-19 for May 55 by Kronlage", 1 jun55, exhibit #12, this History.

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Formal classes were held for 16 airmen on the AN/ALT-7 and also on the AN/ALT-8, this completed the course of instruction for the 16 airmen on all ECM equipment.[42]

On the Job Training (OJT):

Systems analysis was taught for a total of 420 student manhours and trouble shooting was taught for a total of 140 student manhours on the K-4A Bomb-Navigational System.[43]

A-5 mechanics received instruction in trouble shooting and system adjustment while engaged in line, field, and periodic maintenance.[44]

Under the planned OJT program six students received 41 student hours instruction on A-12D test procedures, and eight students received 56 student hours instruction on A-12D theory. Under the informal OJT program 12 students received 96 student hours instruction on A-12D theory, six students received 60 student hours instruction on trouble shooting, and four students received 66 student hours instruction on system analysis.[45]

ECM personnel received 65 student hours instruction on maintenance problems of the AN/ALT-3 and 25 student hours instruction on

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42. Report, "Monthly Technical Report for Month Ending 31 May 55", 1 Jun 55, hereafter cited as "U-19 for May 55 by Nicholson", 1 Jun55, exhibit #13, this History.
43. "U-19 for May 55 by Nowak", 1 Jun 55, exhibit #10, this History.
44. "U-19 for May 55 by Faux", 1 Jun 55, exhibit #11, this History.
45. "U-19 for May 55 by Kronlage", 1 Jun 55, exhibit #12, this Hist.

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the AN/ALT-7.[46]

Four students received 48 student hours instruction on the Blue Cradle inverter control circuit, 28 officers received one hour instruction covering operating procedures and current difficulties, four students received 12 student hours on B-47 ATO wiring tester, four students received eight student hours on inverter circuit, two men received four hours instruction on Blue Cradle tester, and two men received eight hours on Blue Cradle cabling revisions.[47]

STATUS OF TEST PROJECTS

Project 1X increased one percent to 43 percent of completion:

Test Project 1X is an electro-mechanical approach to the problem of an unattended search, lock-on and spot jammer for GCI communications.

The receiver is a conventional superhetrodyne using a cascode front end for maximum sensitivity and signal-to-noise ratio. The receiver local oscillator serves two functions: as a normal local oscillator for the receiver, and as excitation for the transmitter. A high gain 30 megacycle IF amplifier is used to feed the second detector, which in turn controls a DC amplifier to actuate the tuning control relay. The tuning control relay acts to stop the tuning motor and actuate the transmitter control circuits. A look-through circuit is also incorporated in the receiver for allowing the unit to determine when the enemy signal shifts frequency or discontinues transmission. In the event the received signal disappears, all circuits return to the normal search position and receiver recycles for normal search.

46. Report, "Monthly Technical Report for Month Ending 31 May 55", 1 Jun 55, hereafter cited as "U-19 for May 55 by Sancho", 1 Jun 55, exhibit #14, this History.
47. "U-19 for May 55 by Nicholson", 1 Jun 55, exhibit #13, this History.

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The transmitter uses a hetrodyne principle for excitation. The receiver local oscillator beats with a fixed frequency 30 megacycle oscillator, is fed into a mixer, which in turn feeds the first buffer amplifier. The signal is built up and used to excite the power amplifier. The transmitter is modulated from two sources; a noise generator, and a supersonic oscillator. The supersonic oscillator has a selector switch for determining the tone to be used for each mission. This tone is used for identification purposes, and, when received by a second jammer, de-energizes control circuits in the second jammer, thus preventing the possibility of more than one jammer jamming the same frequency.

A breadboard model has been completed of the entire unit minus the identification device. All circuits appear satisfactory; however, a special tuning capacitor is required to facilitate proper tracking with good inductance versus capacitance ratios. Negotiations have been completed with the Radio Condenser Company, Camden N.J., for construction of such a capacitor. It will be of the straight line frequency variety, constructed in four sections.

Correspondence has been received from the Radio Condenser Company informing project personnel of proposed construction procedures and indicating the probable frequency versus capacitance curves.[48]

Project 27 increased from 85 to 87 percent of completion, with an additional 49 hours flown on the 27R phase (total 227:55 hours). A 27R mission using eight B-47 aircraft was flown during May in the Eglin-Tyndall area, testing results of random chaff combined with electronic jamming.[49]

Project 29 increased eight percent to 60 percent of completion, with an additional 11:24 hours being flown. A mount was being

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48. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30), 9 Jun 1955, hereafter cited as "376th U-30 for May 55", exhibit #15, this History.
49. Ibid.

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SAFETY FILM

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developed for the camera and periscope assembly. The prototype assembly manufactured by the Photographic Laboratory at WADC was successfully installed and flown on two test flights in a B-47E aircraft of the 376th Bombardment Wing. A project engineer picked up the first prototype camera and periscope assembly for testing. No mounting difficulties were found.

A flight test conducted on 11 May 1955 obtained data on optimum exposure time, f-stop setting, and receiver gain setting for obtaining the best photographs with both the O-15 and Land cameras:

(1) The new camera and periscope assembly does not interfere with any required movement or operation which must be performed by the radar observer while in flight.

(2) The Land camera lens should be set to f-3.5 for all photos.

(3) The O-15 camera lens should be set to f-2.3 for all photos.

(4) The receiver gain should be set slightly higher than normal when a picture is to be taken.

(5) Exposure time should correspond to one fast sweep of the radar antenna.

On 24 May the second flight was flown, in which the aircraft was navigated solely by use of the Polaroid pictures, to an IP for a bomb run and then back to the home station. The flight measured 1684 nautical miles.[50]

Project 30 increased one percent to 49 percent of completion, with 100 additional hours flown (total 111:00). A maximum degree

50. "376th U-30 for May 55", exhibit #15, this History.

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of radio silence may be kept by permitting one aircraft in a formation to navigate using his radar in accordance with SAC Project 29, and the other aircraft to follow by a passive station keeping technique. Passive station keeping technique under study uses the principles of infrared radiation and detection.[51]

Project 32 increased 10 percent to 20 percent of completion, with an additional 151:15 hours flown (total 169:50). It was decided to consider evaluation of the antennas, cables, and connectors under the QRC-27(T) program as part of the Project 32. Missions were flown against AN/FPS-10, AN/MPQ-16, and AN/CPS-6B radars to evaluate effects of various combinations of AN/ALT-6, AN/ALT-8 and chaff. On missions in which only a single ALT-8 was used, indicated inadequate protection for any usable range. A particular difficulty, having a profound effect on test results, is lack of test equipment for proper checking and setting up of jamming transmitters before each mission.[52]

Project 33, "Personal Radio Alert Equipment", was initiated on 6 May 1955, and by the end of the month was at 15 percent of completion.

> The mission of SAC required immediate availability of key personnel and early availability of many other personnel when alert conditions exist. Purpose of this project is to determine a feasible method of quickly alerting specific groups of individuals through the use of radio. Under this plan, each individual would be equipped with a small radio receiver that could conveniently be carried in a shirt pocket. This receiver would be tuned to a specific frequency upon which an alert signal could be broadcast.
>
> Research is now being conducted to determine the best

51. "376th C-30 for May 55", exhibit #15, this History.
52. Ibid.

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frequency of frequencies for use at all hours of the day and night with a maximum ground wave radiation. The United States Time Corporation has volunteered to investigate timing mechanisms that would be suitable for use as a miniature spring wound alarm to be tripped by a solenoid or relay. This would provide an audio alarm when a relay in the miniature receiver was activated by a transmitted signal.

The National Mobile Radio conference held in Kansas City, Kansas, was attended by the project engineer. This conference pertained directly to the problem of one-way radio paging systems. Several ideas concerning miniaturization of equipment, selective calling and types of audible alarm were derived from this conference.

Preparations have been made for conducting tests using a three kilowatt transmitter available at Barksdale Air Force Base. This type transmitter is generally available on most SAC bases and could readily be used for transmission of alert signals. Testing of ground wave ranges and suitable antennas will start immediately. When a suitable frequency has been obtained, a miniature receiver will be constructed and tested, with the use of transistors being contemplated because of low battery drain.[53]

Auxiliary Project 6 increased two percent to 67 percent of completion with an additional 8:00 hours flown (total 14:00). Two flight tests were flown, the first of which was confined to 2,000 feet and below due to weather, and the second at 9,000 to 11,000 feet, both in C-47 aircraft. Jamming conditions and intensity varied with range, with examples extracted from radar operator's log.[54] Jamming in the major lobe sectors was in all cases interse enough to hide all targets in the sector. Some work was done on the antenna and was apparent in that targets could be consistently seen at ranges of 90

53. "375th U-30 for May 55", exhibit #15, this History.
54. Ibid.

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to 100 miles and targets reaching saturation extended out from 40 to 50 miles.[55]

Auxiliary Project 18 increased two percent to 47 percent of completion. This project was originally designed to build a sweep jammer, but it was found that this would require prohibitive numbers of high powered jammers to be effective. It was then decided to use the increductor system as part of a search-and-lock-on jamming system for the same frequency range (100 to 156 megacycles). A transmitter was built and with the arrival of five increductors from the manufacturers, a receiver will be built.[56]

Auxiliary Project 23 remained at 90 percent of completion. The three antennas developed were modifications of old style dipps, fitted with Teflon insulated bases and RF connectors. The antennas are the AT(XA-212)AP, AT(XA-213)AP and AT(XA-214)AP. There is a matching section for each of the antennas. A final report should be completed during June 1955.[57]

Auxiliary Project 24 increased two percent to 87 percent of completion. This project was to test the tactical suitability of the QRC-8(T) jamming transmitter system. The QRC-8 is an HF communications jammer which covers from two to 10 megacycles, sweeping at rates of from 200 to 2000 cycles per second. Indications are that the QRC-8 is practical in the 3.5 - 5.0 band which is the band

55. "376th U-30 for May 55", exhibit #15, this History.
56. Ibid.
57. Ibid.

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of primary interest. With four or more transmitters sweeping at 300 to 800 cycles per second, a bomber formation can be protected against intercept by high frequency GCI directed fighters. Good jamming was obtained as close as 40 miles to a GCI site when a 500 watt ground station was used for high frequency communication. Results on the 2 - 3 megacycle band were poor. It is believed that fair results should be obtained in the 3.0 - 6.5 megacycle band, but this cannot be checked because the meter needed to measure field strength will not be available for about five weeks.[58]

Auxiliary Project 25 was completed and the final report written:

The object of the project was to check suitability of the AT-190 B/AP antenna for use on B-47 aircraft, along with a number of experimental stub type antennas received from WADC. After testing the AN/ALT-7 with this antenna (approximately 800 hours), it was apparent that the antenna was unsatisfactory on B-47 aircraft, due to cracks in outer shell, pieces missing, antenna broken off, bakelite base chipping, antenna loose in AB-109/AP antenna mount. Modifications were attempted:: trying to get a more secure fit at the antenna base (unsuccessful); similar antennas with wider cross section (unsuccessful); Teflon bases instead of bakelite (unsuccessful). On 10 September, five antennas were received from WADC: One AT-190B/AP filled with 15 percent shredded material, one AT-191B/AP filled

58. "370th U-30 for May 55", exhibit #15, this History.

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with Lockfoam, one AT-190B/AP filled with Lockfoam, two AT-190B/AP filled with rubber. They were each flown for 66:20 hours and returned to WADC for inspection and evaluation. Two AT-190B/AP antennas were filled with Eccofoam FP, and both were satisfactory except for being loose at the base. A wire mesh reinforced plastic stub similar to the 190B was flown for 103 hours and then returned to WADC for inspection and evaluation. Four thin airfoil shape antennas similar to the AT-190B/AP were flown for 85 hours each and returned to WADC. Two additional stubs received from WADC were tested: One was a laminated plastic UHF stub which had 143 hours on it when returned to WADC, the other was a wide knife blade type made by Federal Telephone and Telegraph Laboratory which had 52 hours on it when returned to WADC. All modified AT-190B/AP antennas and the experimental antennas from WADC were in satisfactory condition, except that all had become loose at the base, not critically so - and additional flight time did not aggravate the looseness. In no case was the outer shell cracked as in the original AT-190B antennas.[59]

Auxiliary Project 26 increased five percent to 80 percent of completion with an additional 37:00 hours flown (total 62:45 hours). The AN/APS-54 is a small wide band, crystal-video receiver designed to afford an aircrew positive warning that their aircraft is being tracked by airborne or ground-based gunlaying radar. It operates in the 2600 to 11000 megacycle range, providing dual channels to give

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59. "376th U-30 for May 55", exhibit #15, this History.

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coverage both fore and aft of the aircraft.

An alarm lamp display indicates whether radar signals of selectable minimum PRF are arriving from the nose or the tail. Provisions are made to give instantaneous visual warnings or to delay indications until aircraft has been illuminated continuously by the radar for a period of two seconds. The audible warning information is presented as audio-frequency tones corresponding to the pulse repetition frequencies of the intercepted signals. The complete operating system uses two antenna-detectors to provide a cone of coverage with an included angle of 120 degrees aft of the aircraft and a similar coverage forward. Two blanking receptacles are provided for connection to the blanking pulse outputs of the aircraft radar systems. These blanking inputs cut off the warning system for the duration of the transmitted radar pulse and prevent interference from the aircraft radar.

Four B-47 missions, totaling approximately 22 hours, were flown, but proper operation of the equipment was not obtained due to a high noise level in the equipment, due to faulty installation of the antenna cables. A temporary fix was obtained by feeding the 100 volt pulse from the IFF trigger jack into the APS-54, but no permanent fix has been found. With the system operating properly, 26 runs were made against the MSQ-2 radar. It was found that: Adjustment of gain control from maximum to minimum sensitivity reduced range approximately 30 miles; with gain control set at medium, nose light comes on at average range of 40 miles from the ground radar and tail warning light comes on at average of 12 miles prior to reaching the radar site; as the aircraft flies beyond the radar, the nose warning light goes out at average of 11 miles and tail warning light remains on until approximately 45 miles from the radar. By October 1954 it was apparent that few of the AN/APS-54's in the Wing were functional.

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1470

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Discrepancies were corrected in the non-functional installations where practical and unsatisfactory reports submitted on others. Three major causes of incorrect operation were discovered:

(1) Antenna-detector crystals are particularly vulnerable to damage from radiation of the K-system radar and A-5 gun-laying radar during ground operations. Of 320 crystals removed and tested, 99 failed to meet requirements.

(2) AN/APS-54 nose video cables and K-system blanking cables were shorting out under co-pilot's catwalk near the cabin spill valve. As of 1 May 1955, 42 out of 45 APS-54 cable installations have failed due to the extreme heat.

(3) Video cables picking up skin currents where they pass through bulkheads, where the external conductor becomes grounded.

Other discrepancies discovered were small. In February, a series of tests made to determine whether the AN/APS-54 would give warning of an airborne tracking radar under simulated combat conditions. On only one run was there any indication, and this was an intermittent blinking for one minute. Upon examination of the receiver, no discrepancies were noted which could cause the AN/APS-54 to function, on the other runs.

Flight tests were made which emphasized several fundamental weaknesses in the AN/APS-54 system. One question was raised as to whether or not the B-47 aircraft would receive warning of an impending attack from a radar in time to perform effective countermeasures. Other flight tests showed that the AN/APS-54 was useless

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in the presence of jamming.[60]

Auxiliary Project 32 remained at 85 percent of completion. No additional work was accomplished during May 1955.[61]

Auxiliary Project 33 remained at 65 percent of completion. The AN/APS-54 is a small, wide-band crystal video receiver designed to give visual and audible warning that the aircraft is being tracked by radar (see pages 17 and 18). The purpose of this project is to modify the AN/APS-54 from a passive device to an active countermeasure weapon, by equipping the APS-54 to trigger chaff bursts which are operated by relays parallel to the nose and tail lights. Three relay control units were bench tested and found to work. Two flight tests were flown but neither was satisfactory because of settings on the video amplifier. A B-47 aircraft flew six runs against the MPS-2 S-band tracking radar with excellent results, the chaff being triggered for ranges less than approximately 20000 to 40000 yards. A flight test was scheduled for May against the M-33 X-band tracking radar which was not available, but should be in June 1955.[62]

Auxiliary Project 34, "ARC-27 Antenna Installation Modification and Evaluation", initiated 9 November 1954 was 100 percent complete with 45 aircraft operational since 16 March 1955. The object of the project was to correct the unsatisfactory condition of UHF radio communications caused by chaff striking the AT-247/ARC-27 stub antenna.

60. "376th U-30 for May 55", exhibit #15, this History.
61. Ibid.
62. Ibid.

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The Malfunction Data Collection and Analysis Section of the 370th Armament and Electronics Squadron showed that during a ten-week period, 11 UHF radio malfunctions were directly attributed to chaff collecting on the antenna. Two solutions were worked out and test flown, and from the merits of both ideas, it was decided to use the radome. The radome kept the chaff from striking the antenna, though it interfered with communications during chaff dispensing operation, and ceased afterward. The leading edges of the radomes showed an abrasion from the chaff, but upon being treated with filler and Neoprene compound, showed very little or no abrasion.[63]

Auxiliary Project 29 remained at 20 percent of completion. From results of the first two tests it appeared that homing on a jamming aircraft with a video receiver would be very difficult near the 3000 megacycle range. A receiver such as the AN/APR-9 could be utilized for homing but even then it is a difficult problem. More tests were to be flown as other receivers were received.[64]

Auxiliary Project 44 remained at the same stage of completion as during April 1955.[65]

Auxiliary Test Project Number 45, "AN/ALQ-5 Project", was initiated 2 May 1955 and by the end of the month was at 10 percent of completion. The purpose of the project was to test and evaluate

63. "370th U-30 for May 55", exhibit #15, this History.
64. Ibid.
65. Ibid.

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tactical use of the AN/ALQ-3 C-band search-and-lock-on jamming system. No equipment has arrived yet. A school was set up for Armament and Electronic personnel to familiarize the maintenance section with the AN/ALQ-3 circuitry, and was conducted by two factory representatives from the W. L. Maxon Company, New York City.[66]

66. "376th U-30 for May 55". exhibit #15, this History.

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CHAPTER III

MAINTENANCE

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AIRCRAFT STATUS

During the month of May 1955, the Wing had 46 B-47's assigned, and 43 possessed.[67] With a total of 1253:30 hours flown, an average of 29:08 hours was flown per possessed B-47 aircraft.[68] The figure for assigned and possessed KC-97 aircraft was 22 for May,[69] and with a total of 719:50 hours flown, an average of 32:44 hours was flown per possessed KC-97 aircraft.[70]

The in-commission rate in May was 83:05 percent on B-47 type aircraft,[71] showing a slight decrease from the April figure;[72] and was 87:68 for KC-97 aircraft,[73] which was a slight increase over the April figure.[74]

There were no line items AOCP for May on either B-47 or KC-97 type aircraft,[75] which was the same as in April 1955.[76] During May there were 20 line items ANFS for B-47, and three for KC-97 type aircraft.[77] Due to a change in the method of reporting the ANFE rate, it

67. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #16, this History.
68. Ibid, and chart, exhibit #17, this History.
69. Ibid, and chart, exhibit #16, this History.
70. Ibid, and chart, exhibit #17, this History.
71. Ibid, and chart, exhibit #18, this History.
72. History 376th Bomb Wing for April 1955, page 27.
73. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #18, this History.
74. History 376th Bomb Wing for April 1955, page 28.
75. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #19, this History.
76. History 376th Bomb Wing for April 1955, page 28.
77. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #19, this History.

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68. Ibid, and chart, exhibit #17, this History.
69. Ibid, and chart, exhibit #16, this History.
70. Ibid, and chart, exhibit #17, this History.
71. Ibid, and chart, exhibit #18, this History.
72. History 376th Bomb Wing for April 1955, page 27.
73. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #18, this History.
74. History 376th Bomb Wing for April 1955, page 28.
75. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #19, this History.
76. History 376th Bomb Wing for April 1955, page 28.
77. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #19, this History.

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1477

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is being shown as "line items ANFE", starting with this History. There were approximately 50 component parts changed on B-47 and 20 component parts changed on KC-97 aircraft during the month.[78] Eleven B-47 and four KC-97 aircraft were processed through the 376th maintenance docks, 14 B-47 and 15 KC-97 test flights were flown, and flight line inspections were performed on 12 B-47 and four KC-97 aircraft.[79]

There were 77,834 manhours expended as direct time, 77,767 as indirect time and 3,821 as overtime. There were 155,671 manhours available for work, and 85,734 absentee hours. Of the absent hours, 1,035 manhours were for passes.[80]

There were nine engine changes on B-47 aircraft in May,[81] an increase of three over the April figure,[82] and three engines changed on KC-97 aircraft,[83] an increase of one over the April figure.[84] The average engine time at change on B-47 aircraft was 165 hours,[85] a decrease of 127 hours from the April figure;[86] and was 409 on KC-97 aircraft,[87] a drop of 186 hours from the April

78. "Maint Hist for May 55", n.d., exhibit #8, this History.
79. Ibid.
80. Ibid.
81. Ibid, and chart, exhibit #20, this History.
82. History 376th Bomb Wing for April 1955, page 28.
83. "Maint Hist for May 55", n.d., exhibit #8 and chart, exhibit #20, this History.
84. History 376th Bomb Wing for April 1955, page 28.
85. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #21, this History.
86. History 376th Bomb Wing for April 1955, page 29.
87. "Maint Hist for May 55", n.d., exhibit #8, and chart, exhibit #21, this History.

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figure.[88]

EQUIPMENT MALFUNCTIONS

On the A-12D Gyropilot the malfunctions during May 1955, were routine in nature and in most cases attributable to electron tube failures or faulty A/C power supplies.[89]

Forty new transmitters T h64/ALT-7 (production model) were given an initial bench test inspection and nine were found to have minor discrepancies which were easily corrected. A consolidated unsatisfactory report was submitted.[90]

MAINTENANCE ENGINEERING DIFFICULTIES

Several Wing aircraft were found to have discrepancies in the wiring connectors at the switches controlling the Blue Cradle inverters. The discrepancies were all corrected by the end of the month. The discrepancies mentioned above emphasized certain inadequacies in the Blue Cradle inverter circuitry. A method is needed to monitor inverter voltage, due to aircraft in the "C" configuration using only 83 percent of available inverter power, and a variation of four amperes will overload the inverters. A means should be provided to run the spare inverter (unloaded) while right and left

88. History 376th Bomb Wing for April 1955, page 29.
89. "U-19 for May 55 by Kronlage", exhibit #12, this History.
90. "U-19 for May 55 by Nicholson", exhibit #13, this History.

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hand inverters are operating, to prevent "cold soaking" at altitude. Some method should be provided to indicate inverter failure, at present a co-pilot has no way to know which AN/ALT-8 system has to be recycled.[91]

OPERATIONAL DIFFICULTIES

A Boeing team arrived to perform SECP 556-4K and 556-6K, which modified Wing aircraft to conform with other B-47 aircraft, and after the modification the AN/ALT-8 system could not be turned off while there was power on the secondary inverter bus; this deletes the capability on the basic aircraft after several months of operation for test and operational purposes. An Unsatisfactory Report was made and an interim fix was recommended, but a permanent fix will have to be established.[92]

SPECIAL DEVELOPMENTS

When SECP 556-6K is performed the ECM systems cabling formerly to the aircraft is discarded. In the 376th Bombardment Wing the AN/APT-16 cables were reclaimed and modified for use with AN/ALT-8 systems on the Blue Cradle (this included all control and high voltage cables. Ninety cabling systems have been reclaimed with a conservative estimated saving of $6750 to the United States Air Force. In addition the AN/APT-6 cabling will be modified for use with AN/ALT-7 systems and part of AN/APT-9 cabling can also be reclaimed. Other

91. "U-1y for May 55 by Nicholson", exhibit #13, this History.
92. Ibid.

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bomb wings might be able to use some of the cabling on shop mock-ups, and so forth.[93]

93. "U-19 for May 55 by Nicholson", exhibit #13, this History.

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1482

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SAC Management Control System

376A 376DP 6 May 55

1. In compliance with D/F your office, subject as above, dated 23 Apr 55, the following information is submitted:

a. Manning in Required Specialties

		% of Maximum Score
Officers	82.0	40
Airmen (Direct Support)	81.8	50
Airmen (Indirect Support)	74.5	10

b. AWOL Rate per 1000 (April and May 1955):

1.57	100

c. Reenlistment Rate (April and May 1955):

20.1	30

d. Ground Safety (April and May 1955):

Ground Safety Index	Accident Cost Index	% of Maximum Score
2.91	.23	100

2. Indirect Support Airmen MIBS dropped due to qualified personnel being reassigned or separated.

3. Ground Safety remained 100% of maximum score. No government vehicle accidents were charged to the Wing for April or May 1955.

s/t/JAMES , NEUSTADTER, 1STLT, USAF
Personnel Officer

1483

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MONTHLY ANALYSIS (MAY 1955)

1. Officers assigned during May 1955:

RANK	AFSC	NAME	APSN	ORGN ASGD TO
Lt Col	(1231B)	George R. Brendle	9946A	514 BOMRON
Major	(1521B)	David J. Latz	AO 771942	376 Hq Sq
Capt	(1521B)	Wade G. Wood	AO 671159	376 Hq Sq
2d Lt	(3021)	Elwood L. Fenrite	AO 3009127	512 BOMRON
Major	(1231C)	Charles W. Kampmann	10587A	376 AREFS
Col	(0066C)	Anthony J. Perna	4641A	376 Hq Sq
2d Lt	(3021)	Larry G. Ingold	AO 3009128	513 BOMRON

TOTAL: 7

2. Officers Transferred and Separated during May 1955 (as listed): Two released from active duty, two transferred to Headquarters SAC, and one each transferred to Lackland Air Force Base, Texas, Parks Air Force Base, California, Westover Air Force Base, Mass, and one to 32nd Bomb Squadron, Barksdale Air Force Base, Louisiana:

1st Lt	(1231B)	Robert N. Sorenson	20501A	513 BOMRON
1st Lt	(1234C)	Stewart M. Graham	AO 1857166	376 AREFS
Major	(1416)	Walton B. Henderson	6954A	376 Hq Sq
Lt Col	(1416)	Ray W. Whipple	AO 663683	376 Hq Sq
Capt	(1521B)	Robert J. O'Connell	AO 668749	513 BOMRON
1st Lt	(1534A)	Byron H. Engh	AO 1857871	376 AREFS
1st Lt	(1231C)	William S. Hall	AO 3005413	376 AREFS
Capt	(1521B)	Wade G. Wood	AO 671159	376 Hq Sq

TOTAL: 8

3. Airmen assigned during May 1955: (By Prim AFSC)

20430 - 1	42330 - 1	62270 - 1
30133B - 3	43251 - 1	64131 - 6
30150 - 1	46230 - 1	64132 - 1
30151 - 2	47134 - 1	64151 - 1
30230 - 2	47135 - 1	67130 - 1
32130E - 7	47152 - 1	70010 - 1
32351F - 1	53470 - 1	70250 - 3
42131 - 3	55010 - 1	73230 - 3
42132 - 2	55251 - 2	73231 - 3
42152 - 1	58010 - 2	90250 - 3

TOTAL: 58

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4. Airmen Transferred and Separated (not Reenl) in May 55 (By Prim AFSC):

22151	- 1	42330	- 2	47154	- 1
22350	- 1	43131E	- 5	47155	- 2
29373	- 1	43151E	- 1	53150	- 2
30170	- 2	43151E	- 12	55230	- 1
30250	- 11	43171A	- 1	60170	- 1
32150E	- 13	43171B	- 1	62250	- 2
32330C	- 3	43171E	- 4	62270	- 1
32350F	- 1	43231	- 1	70230	- 1
32351F	- 1	43250	- 1	70250	- 6
40152	- 1	43371	- 1	73170	- 1
40250	- 1	47134	- 1	90250C	- 1
42250	- 3	47135	- 1	90670	- 1
42270	- 1	47151	- 1	90950	- 2

TOTAL: 94

5. Reenlistment Rate (April & May 1955):

Number Discharged	Number Reenlisted	% Reenlisted
64	18	28.1

Discharged by Squadrons (May 1955 only):

376 Hq Sq	*MSGT T C Struth (Retired)	A/1C L E Deer (Reenl)
	A/3C K L Buel	
512 Bomb Sq	SSGT A J Bouffard Jr	
513 Bomb Sq	TSGT P W Morris (Reenl)	A/1C R L Clark
514 Bomb Sq	*SSGT H W Cooper	SSGT T H Monasco (Reenl)
	A/1C R L Wade	
376 ARefS	MSGT J M Clanton (Reenl)	MSGT C Papasodoro (Reenl)
	*MSGT H W Zaun (Retired)	*TSGT L T Hampton (Reenl)
	SSGT R J Vicenair	
376 A & E Maint Sq	*MSGT A D Scerbo (Reenl)	SSGT D A Rowe Jr
	SSGT J H Solesbee	SSGT B J Wright
	A/1C J T Cantrell (Reenl)	A/1C J H Pierce
	*A/1C G C Woolman	A/1C W C Salter (Reenl)
	A/1C E W Barlow Jr	*A/2C R A Doucet
376 Fld Maint Sq	TSGT A C Karleskint (Reenl)	*SSGT N M Brittain (Reenl)
	*SSGT V W Hensley	SSGT J S Spence
	A/1C L J Baker	A/1C J A Patterson
	A/1C J W Uraninec	A/1C J R Ingalis
	A/3C L Bear	*A/B C McGlothan

1485

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Discharged by Squadrons Cont'd)

376 Tac Hosp SSGT E E Coleman (Reenl) SSGT H Fournier Jr.
A/1C J F Casey A/2C C D Minard (Reenl)

& Amn separated but not included in Reenlistment Rate.

6. AWOL Rate per 1000 (April & May 1955):

	Assigned	Number AWOL	Percent
Officers	797	0	0
Airmen	3652	7	1.92
TOTAL:	4449	7	1.57

AWOL by Squadron:

376 Fld Maint Sq A/3C R L Ward A/B C McGlothan

7. Gains and Losses:

	NR Separated & Reassigned	% Auth Strength	Number Assigned	% Auth Strength
Officers	8	1.8	7	1.6
Airmen	94	5.2	58	3.2

8. Effective Manning of Officers:

ORGN	AUTH	ASGD	EFF ASGD AND MIRS	% EFF ASGD AND MIRS
376 Hq Sq	64	70	55	85.9
512 BOMRON	77	59	59	76.6
513 BOMRON	77	58	57	74.0
514 BOMRON	77	59	59	76.6
376 AREFS	100	106	92	92.0
376 A&E Maint Sq	15	15	12	80.0
376 Fld Maint Sq	7	5	5	71.4
376 Per Maint Sq	5	4	4	80.0
376 Tac Hosp	27	22	19	70.4
TOTAL:	449	398	362	80.6
Consolidated MIRS:	449	398	368	82.0

1486

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9. Effective Manning of Airmen:

ORGN	DIR SUPP AUTH	DIR SUPP ASGD	INDIR SUPP AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376th Hq Sq	57	49	80	83	40	40	66	56	70.2	70.2	82.5	70.0
512 BOMRON	86	80	24	23	79	67	20	15	91.9	77.9	83.3	62.5
513 BOMRON	85	80	24	19	76	63	19	18	89.4	74.1	79.2	75.0
514 BOMRON	96	93	24	20	91	82	18	16	94.8	85.4	75.0	66.7
376 ARMTS	193	188	53	50	152	144	48	39	78.8	74.6	90.6	73.6
376 A&E Maint Sq	348	416	72	54	319	262	52	47	91.7	72.7	72.2	65.2
376 Fld Maint Sq	266	259	170	160	246	215	140	130	92.5	80.8	82.4	76.5
376 Per Maint Sq	121	117	27	20	104	103	17	11	86.0	85.1	63.0	40.7
376 Tac Hosp	1	0	94	97	0	0	79	76	0	0	84.0	80.9
TOTAL:	1253	1282	572	526	1107	976	459	408	86.4	77.9	80.2	71.3
Consolidated MIRS:	1253		572			1025		426		81.8		74.5

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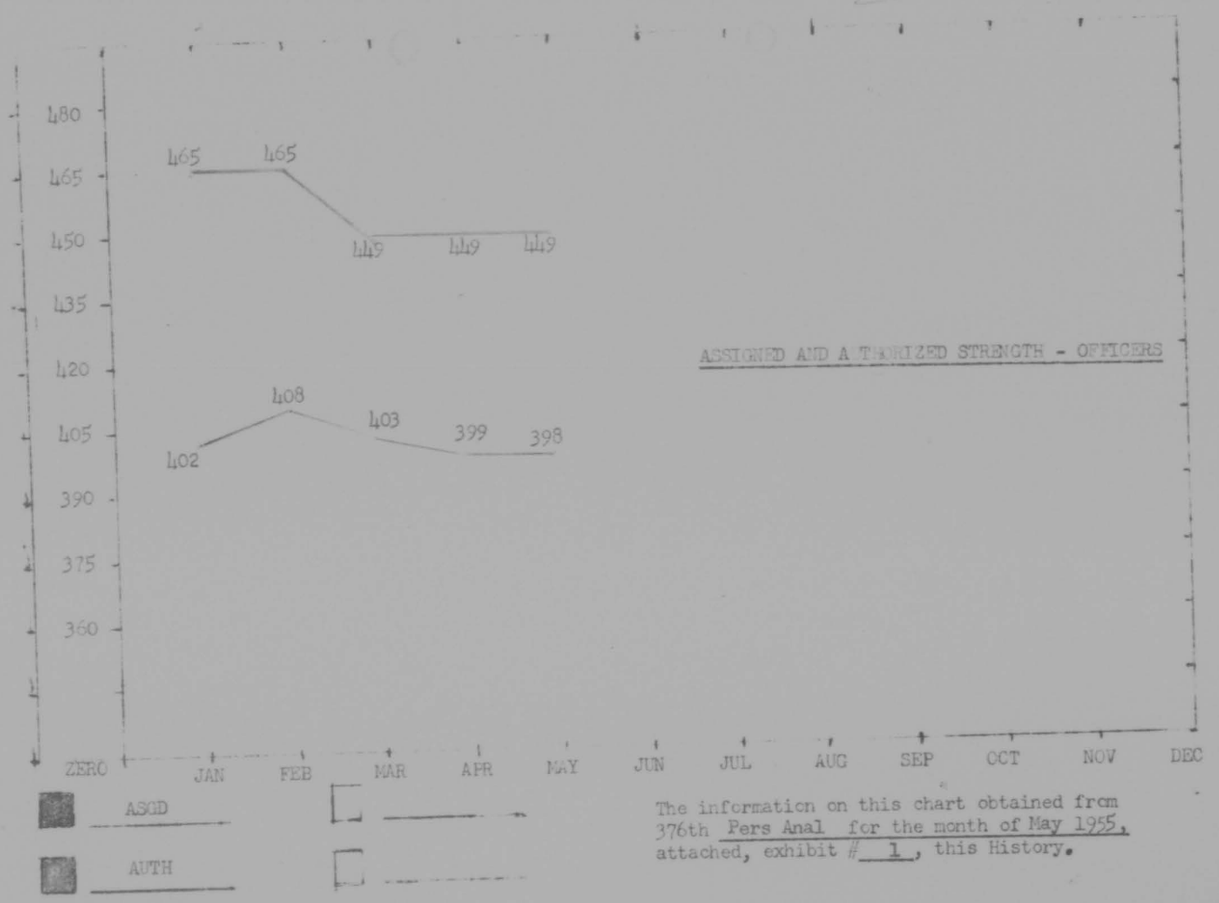

ASSIGNED AND AUTHORIZED STRENGTH - OFFICERS

The information on this chart obtained from 376th Pers Anal for the month of May 1955, attached, exhibit # 1, this History.

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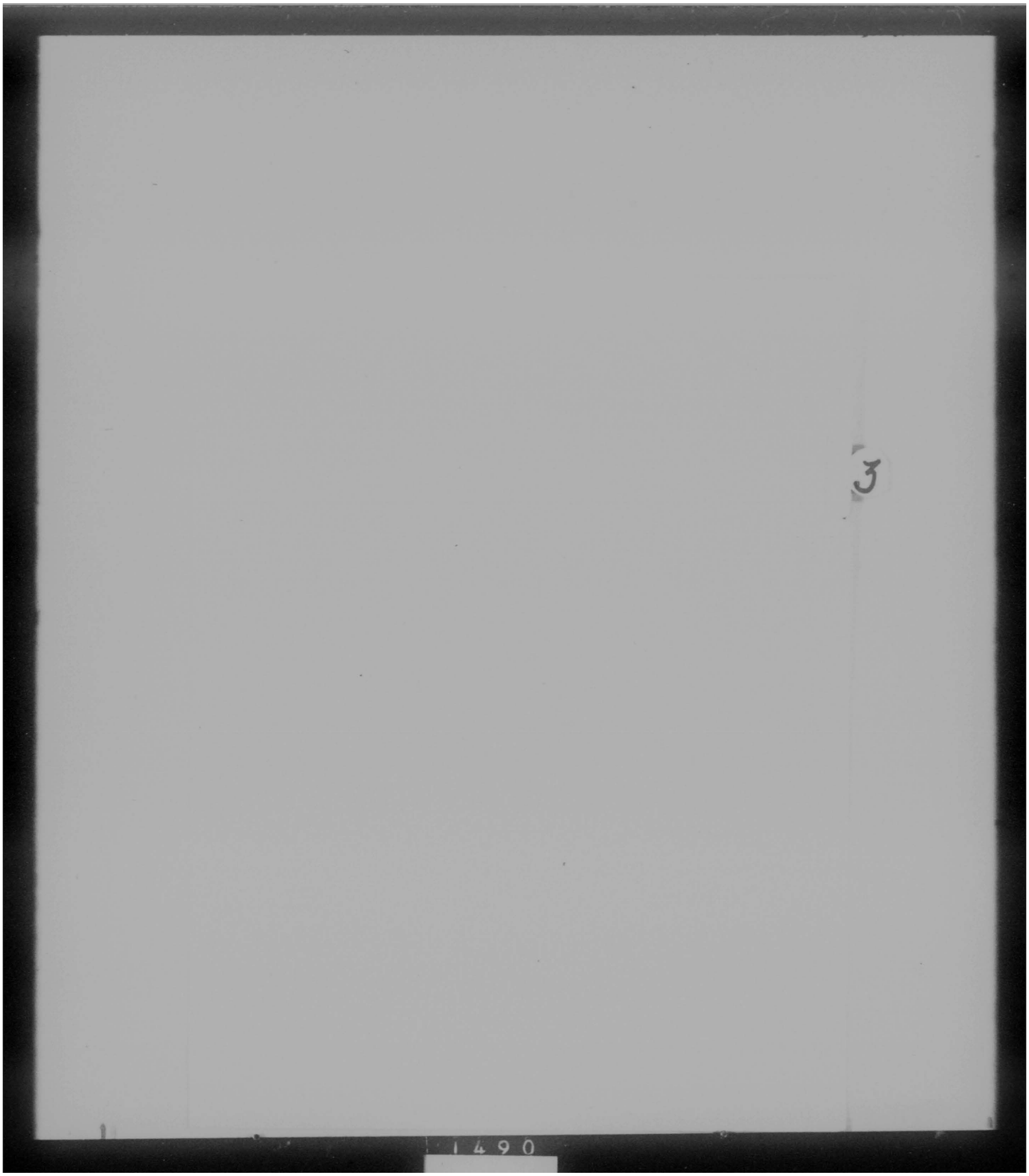

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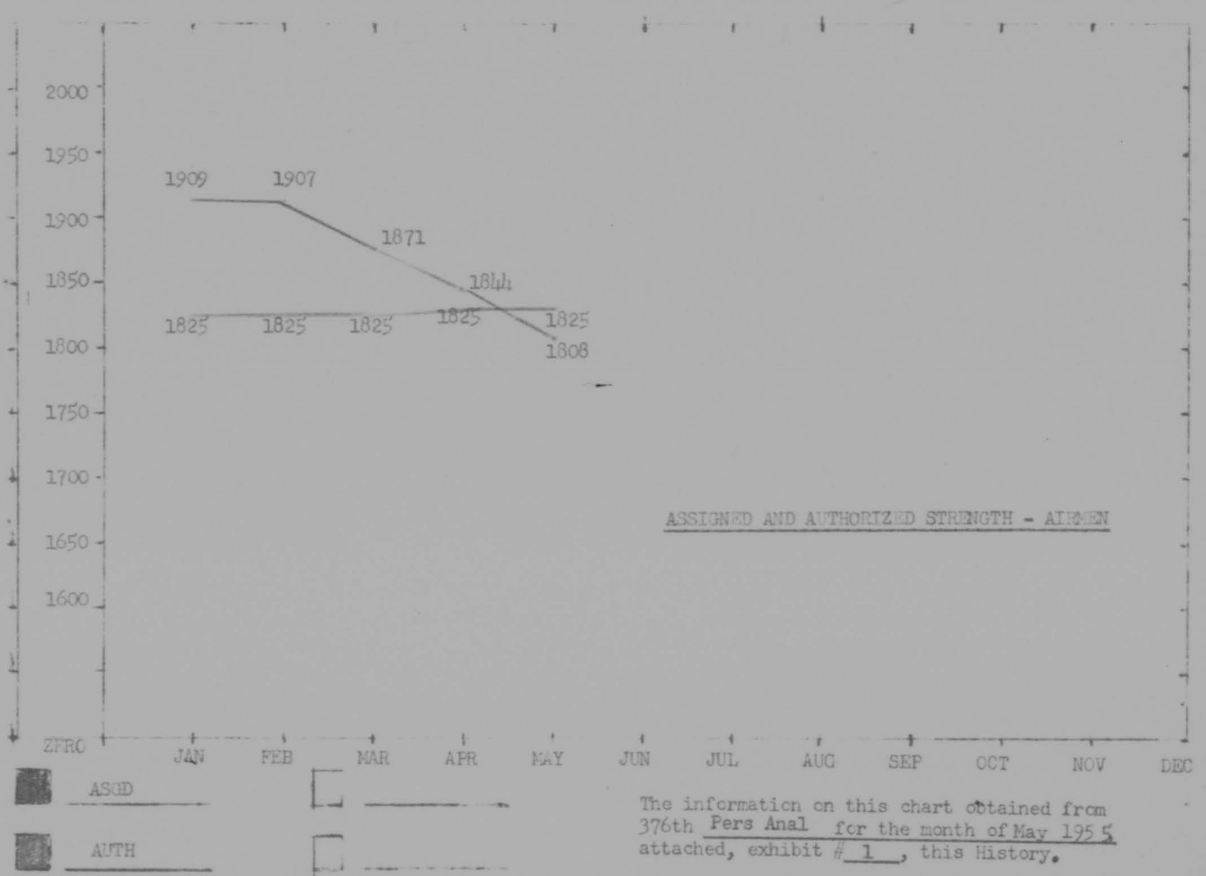

ASSIGNED AND AUTHORIZED STRENGTH - AIRMEN

The information on this chart obtained from 376th Pers Anal for the month of May 1955 attached, exhibit # 1, this History.

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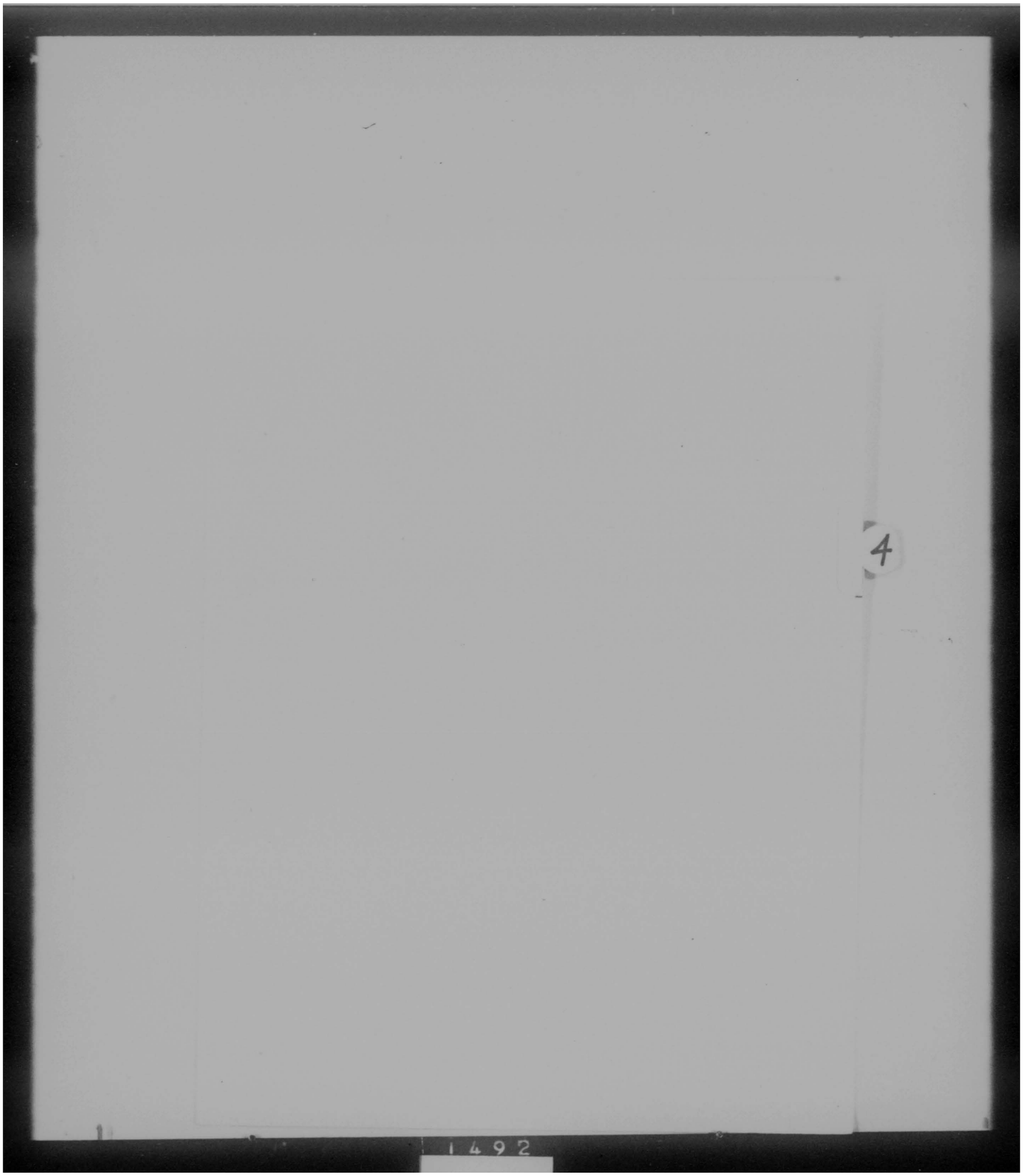

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

CLASSIFIECATION: SECRET
AUTH: COMDR 376TH BW
INITIALS:
DATE: 4 June 1955

WING COMMANDER'S REMARKS

PART V

Bombardment Air Training Report for month of May 1955
(RCS: 3-SAC-=12)

PART V:

6. Wing Commander's Remarks - Part V.

a. Hours flown performing missions ordered by higher headquarters:

(1) ECM Test: 201:35

(2) Ferrying aircraft to and from modification depot: 6:30

(3) Armed Forces Day Demonstration: 20:00

TOTAL 228:05

b. Weather or local conditions affecting training:

(1) Adverse weather prevented flying for one day: 56 hours lost,

c. Directives imposed by AMC or SAC on aircraft:

(1) None.

d. Combat crew member gains or losses:

(1) Gains: None

(2) Losses: One aircom reassigned to squadron staff: one pilot separated from service; one observer reassigned to general hospital.

e. Crew member changes:

(1) Three aircoms.

(2) Two co-pilots.

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f. New crews: None.

g. Crew Status changes:

(1) N52 to B52, 31 May. Upgraded.

(2) N03 to IN03, 12 May. Redesignated IAW SAC MSG 33939.

(3) N12 to IN12, 12 May. Redesignated IAW SAC MSG 33939.

(4) N36 to IN36, 12 May. Redesignated IAW SAC MSG 33939.

(5) N40 to IN40, 12 May. Redesignated IAW SAC MSG 33939.

(6) N85 to IN85, 12 May. Redesignated IAW SAC MSG 33939.

(7) N08 to IN57, 12 May. Redesignated IAW SAC MSG 33939.

(8) N99 to IN86, 12 May. Redesignated IAW SAC MSG 33939.

(9) N97 dissolved 17 May.

h. Standardization Crews:

(1) S04, Wing Standardization Crew.

(2) L11, L37, and L70 are Squadron Standardization Crews.

i. Additional materiel and personnel problems:

(1) Officer effective manning for the 376th Bombardment Wing decreased three percent during May as compared to April. Effective manning is 82 percent.

(2) Officer manning in AFSC's 1234B, 1245, 2054, 3124, 3254, and 7324 remains critically short.

(3) Effective manning in the intelligence career field is 50 percent. With known losses and no known input, within six months effective manning will be reduced to 35 percent.

(4) Career field 321: Manning in AFSC's 32150B, 32150C and 32150D is zero percent. Training is authorized from the 32150E career field into these career field sub-divisions;

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however, personnel with the technical knowledge required are still not available as instructors.

(5) Effective manning in the aircraft and engine maintenance field is 46 percent. With known losses and no known input, within six months effective manning will be reduced to 36 percent.

(6) Effective manning in the munitions and weapons maintenance field is 60 percent.

(7) Effective manning in Airframe Career field sub-division is 55 percent. With known losses and no known input, within six months effective manning will be reduced to 34 percent.

(8) Effective manning in Personnel Career Field is 52 percent. With known losses and no known input, within six months effective manning will be reduced to 44 percent.

(9) Effective manning in the Personnel Equipment Career Field is 40 percent.

(10) On 13 May 1955 the Boeing Airplane Company began accomplishing the Phase III ECM modification on 376th Wing aircraft. Twenty-four B-47 aircraft were processed through this line during the month with each aircraft being grounded for four to five days. This program will continue through 17 June 1955.

(11) During the month, an excessive number of B-47 wing drag angle cracks were found during periodic inspections. Further inspection of all aircraft revealed 19 aircraft contained single drag angle cracks and two contained double drag angle cracks.

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for May 1955

During May, five aircraft received depot modification and 16 more are scheduled for modification during June. This modification requires a minimum of 15 to 21 days by the depot.

(12) It has been found that as the B-47 aircraft reach approximately 400 flying hours, excessive sheet metal work is necessary to repair cracks in wing trailing edges, control surfaces, bomb bay tank support pods, etc. During May, this work was beyond the capability of the Sheet Metal Shop of Field Maintenance and depot assistance was requested. A team of sheet metal specialists arrived from the depot on 27 May.

(13) Supply support during May was very good in most classes, but certain items of electronics equipment were AWPE during the month. Wave guide and RT-124's were primary supply items affecting training.

j. SAC Minimum Training Requirements not accomplished:

(1) ECM requirements required under Supplement Y, SAC Regulation 50-8 were not accomplished during May 1955. This Supplement was received 26 May 1955; however, Supplement I, SAC Regulation 51-20, which establishes scoring criteria for ECM sorties, was not received until 1 June 1955. Special emphasis will be directed toward the accomplishment of ECM training items during June.

k. Men-combat ready crews capable of deploying:

(1) Three crews: N17, N54, and N55, have been trained to a point where they could be deployed for ECM missions in the event of an emergency.

1496

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for May 1955

1. Non-Combat ready crew training:

(1) Four non-combat ready crews (Excluding IN crews) were in training during May.

(2) Fourteen sorties for a total of 60 hours were flown as 5X time in training non-combat ready crew personnel.

m. Flying time differences: Rescinded per SAC Message DOTRS 45873.

n. Field Training Operations:

(1) Test of facilities: None.

(2) Exercise: On 26 May 1955, the 376th Bombardment Wing conducted an exercise in accordance with Second Air Force Operations Order 126-55, dated 11 May 1955. Six aircraft were loaded by 805th Air Base Group. This was an air weapons inspection of 4th Air Division units conducted by Second Air Force Inspectors.

o. Special Training Month remarks:

(1) Not applicable.

p. Comments or recommendation of the Wing Commander:

(1) The excessive number of wing drag angle repairs required in addition to the Phase III ECM modification has greatly reduced the flying training program for May and will further retard training during June. Authority has been granted by HQ. Second Air Force to schedule all aircraft requiring drag angle modification into the depot during June in order that all aircraft will be available for deployment in July.

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Wg Comdr's Remarks, Bombardment Air Tng Rpt for May 1955.

(2) The average number of combat ready/lead crews assigned during May was 37. A total of 972 hours (Excluding test flight time) were flown for an average of 26.25 hours per crew.

(3) The average number of non-combat ready crews available for flying training was four. A total of 122 hours were flown for an average of 30.5 hours per crew.

(4) The average number of possessed aircraft during May was 43.2. The average time per aircraft was 28.9 hours.

John P. Proctor

JOHN P. PROCTOR
Colonel, USAF
Commander

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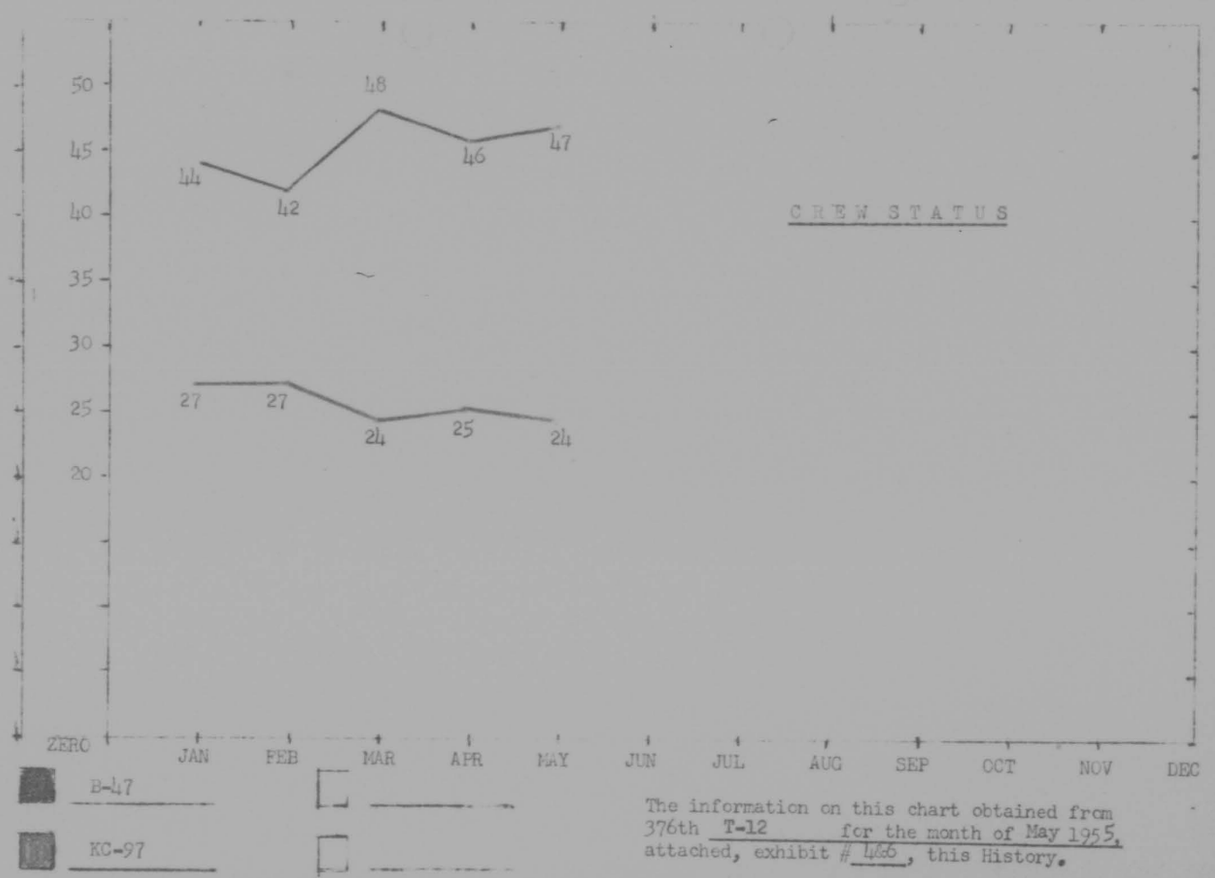

CREW STATUS

The information on this chart obtained from 376th T-12 for the month of May 1955, attached, exhibit # 486, this History.

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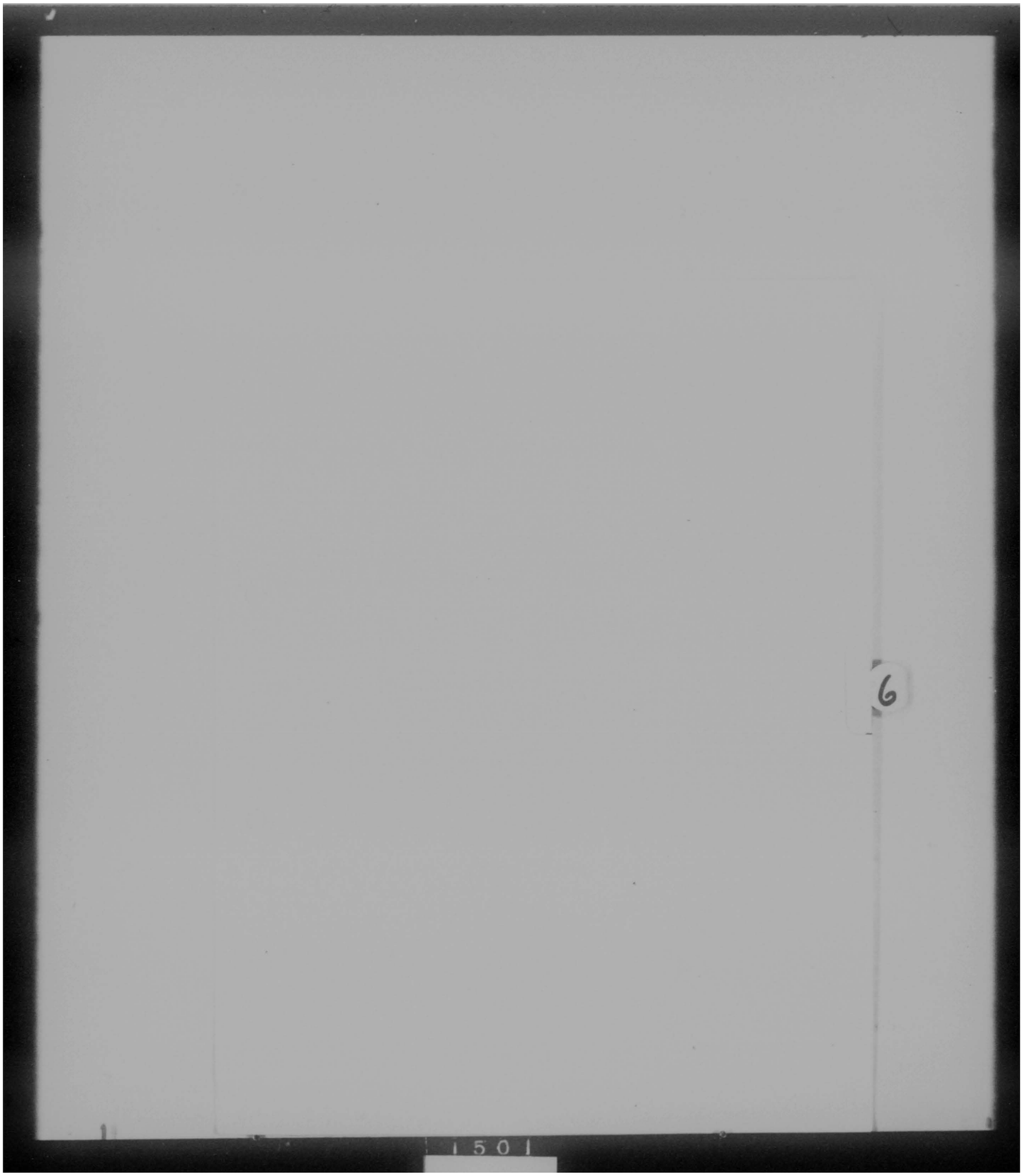

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

CLASSIFICATION: SECRET
AUTH: COMDR 376TH BW
INITIALS: Murphy
DATE: 4 June 1955

WING COMMANDER'S REMARKS

PART IV

Refueling Air Training Report for the month of May 1955
(RCS: 4-SAC-T12)

PART IV:

7. a. Emphasis this month was placed on accomplishing a maximum amount of SAC Regulation 50-8 requirements prior to deployment. Command emphasis will be placed on non-combat ready crew training in the future.

John P. Proctor
JOHN P. PROCTOR
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (H)
Barksdale Air Force Base
Louisiana

SQUADRON COMMANDER'S REPORTS

PART III

Air Training Report for the month of May 1955
(RCS: H-SAC-R12)

PART III

6. Squadron Commander's Remarks - Part III

a. Hours flown performing missions ordered by Higher Headquarters:

(1) One passenger flight to MacDill AFB, Hunter AFB, and return to Barksdale AFB: 9:35

(2) One passenger flight to Stead AFB, Travis AFB, and return to Barksdale AFB: 14:00

(3) One passenger flight to Stead AFB and return to Barksdale AFB: 16:20

(4) One special passenger flight to United Kingdom, North Africa, and return to Barksdale AFB: 50:35

(5) Special Test and Tactics: 35:10

TOTAL 105:40

b. Weather or local conditions affecting training:

(1) Adverse weather conditions precluded the accomplishment of four sorties (19:30).

c. Restrictive Directives:

(1) None.

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PART III - Squadron Commander's Remarks for month of May 1955.

4. Combat crew number gains and losses:

(1) Crew members gained.

(a) One pilot.

(b) Two navigators.

(c) Two flight engineers.

(d) Two radio operators.

(e) Two assistant boom operators.

(2) Crew members lost:

(a) One pilot. Separated from the service.

(b) Two navigators. Two TDY to LOR school.

(c) Two flight engineers. One indefinite DNIF; one processing for discharge from the service.

(d) Two radio operators. Two transferred (PCS).

(e) Two assistant boom operators. Two discharged from the service.

e. Crew member changes:

(1) One aircraft commander.

(2) Three pilots.

(3) Five navigators.

(4) Two flight engineers.

(5) Four radio operators.

(6) Three boom operators.

(7) Five assistant boom operators.

f. New crews:

(1) Negative.

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HQ III - Squadron Commander's Remarks for month of May 1955

c. Crew Status changes:

(1) T-21 to II-21, 12 May 1955 (SAC message 33030, 2 May 1955).

(2) T-25 to II-25, 12 May 1955 (SAC message 33030, 2 May 1955).

(3) T-26 to II-26, 12 May 1955 (SAC message 33030, 2 May 1955).

(4) T-27 to II-27, 12 May 1955 (SAC message 33030, 2 May 1955).

(5) 1799 P to II3000, 12 May 1955 (SAC message 33030, 2 May 1955).

(6) II-26 dissolved, 31 May 1955. No replacement assistant bomb aimer available.

(7) T-21 to II-21, regressed.

h. Standardization crew:

(1) 702.

i. Additional material and personnel problems:

(1) Supplement IX to SAC Regulation 51-10, dated 20 April 1955 requires the completion of survival training and ejection seat training for all crew members and flight simulator training for aircraft commanders, pilots, and flight engineers, prior to check-out. At the present time this requirement affects the following potential crew members: Two aircraft commanders, three

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PART III - Squadron Commander's Remarks for month of May 1955.

pilots, thirteen navigators, eight flight engineers, four radio operators and eight assistant boom operators. It is estimated that 90 percent of this personnel could be checked out by 15 July 1955 if it were not for the new pre-checkout requirements. In view of the above and scheduled 90 day rotational TDY, new estimate of completion date for checkout of 38 crew members involved is 1 January 1956. The new checkout requirement will seriously affect the replacement of combat ready crew members lost during the next six months and subsequent up-grading of non combat ready personnel as well as the formation of new crews.

(2) As reported previously, the shortage of qualified boom operators and assistant boom operators remains critical and is further aggravated by the problem posed by supplement IX to SAC Regulation 51-19, covered in paragraph 6i(1) above.

j. SAC minimum training requirements not accomplished:

(1) Negative.

k. Non combat ready crews considered deploying:

(1) Two. B24 and B21 are capable of deploying in event of an emergency.

l. Non combat ready crew training:

(1) Three non combat ready crews were available for training during May.

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PART III - Squadron Commander's Remarks for month of May 1965

(2) Five sorties for a total of 20 hours were flown as 5X time in training non combat ready crews per mod.

n. Flying time differences:

(1) Not applicable.

n. Special training month remarks:

(1) Not applicable.

o. Comments or recommendations of the Squadron Commander:

(1) The squadron accomplished 16.6 percent of 50-6 quarterly training requirements during May. Emphasis is being placed on completing all 50-6 training items prior to deployment in July.

(2) The average number of combat ready crews assigned during May was 17 crews. A total of 567 hours (excluding test hop time) were flown for an average of 33.4 hours per crew. (Excluding Standardization Crew)

(3) The average number of non combat ready crews available for flying training was three. A total of 67 hours were flown for an average of 22.3 hours.

(4) The average number of possessed aircraft was 22. The average time per aircraft was 32.7 hours.

WENDELL D LACK
Lt Col., USAF
Commander

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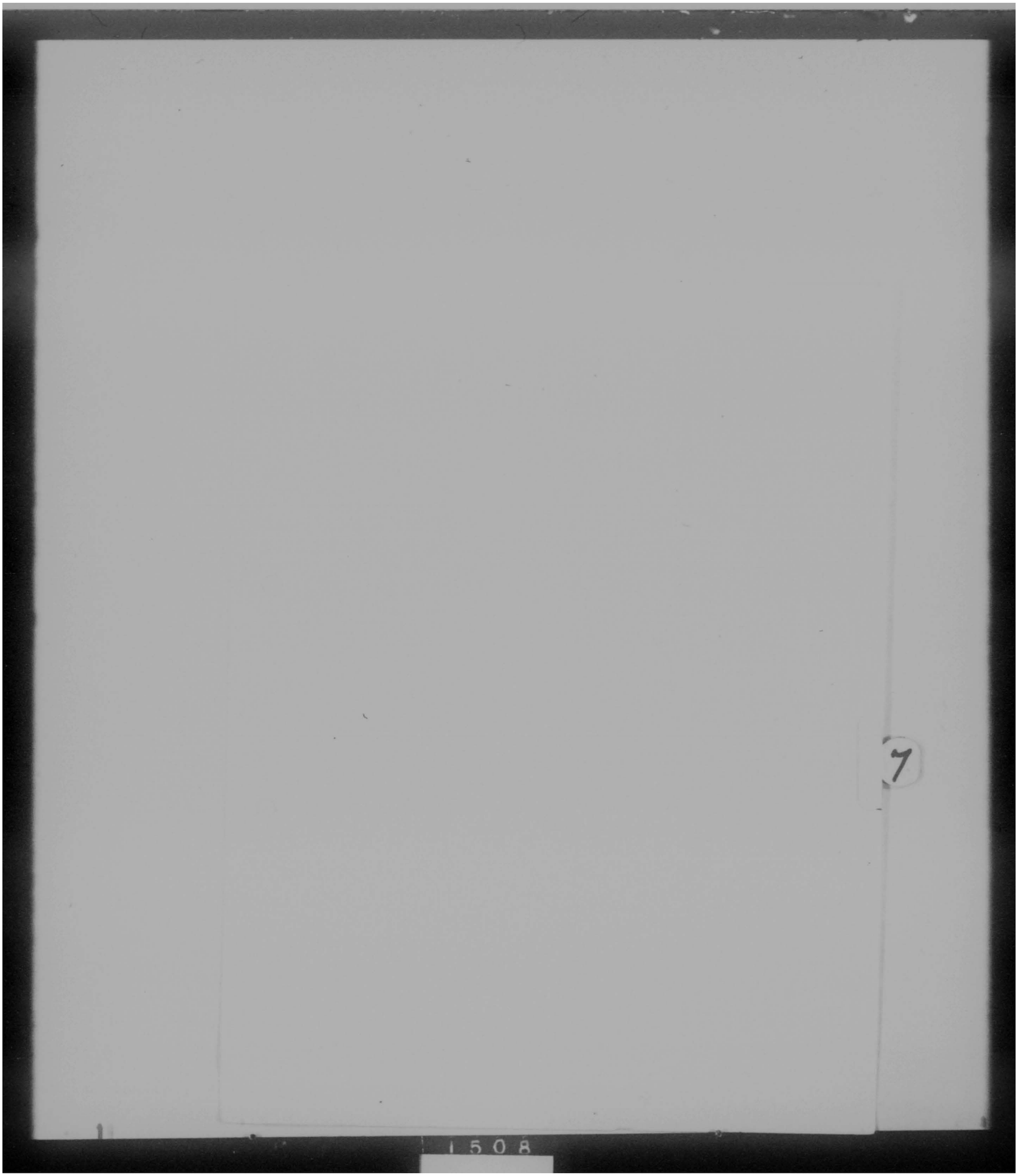

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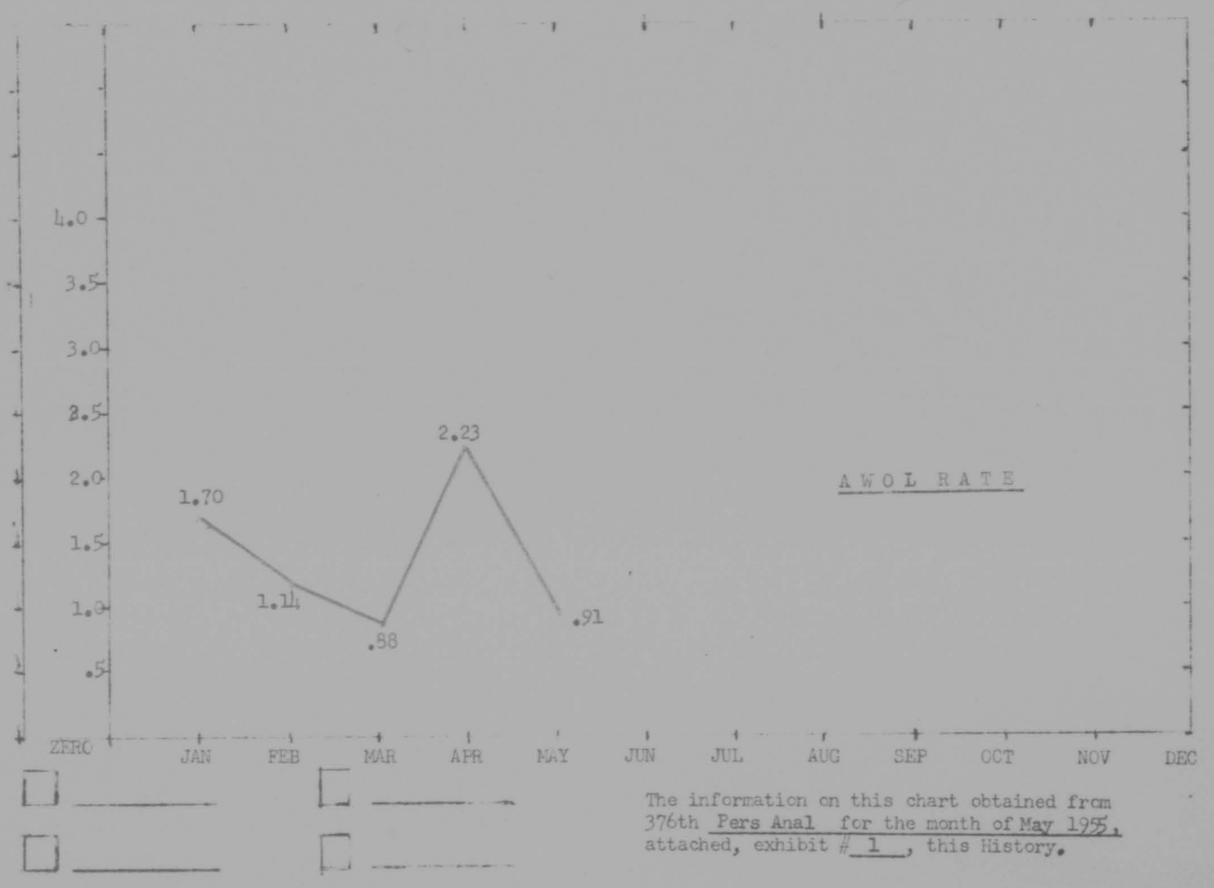

AWOL RATE

The information on this chart obtained from 376th Pers Anal for the month of May 1955, attached, exhibit # 1, this History.

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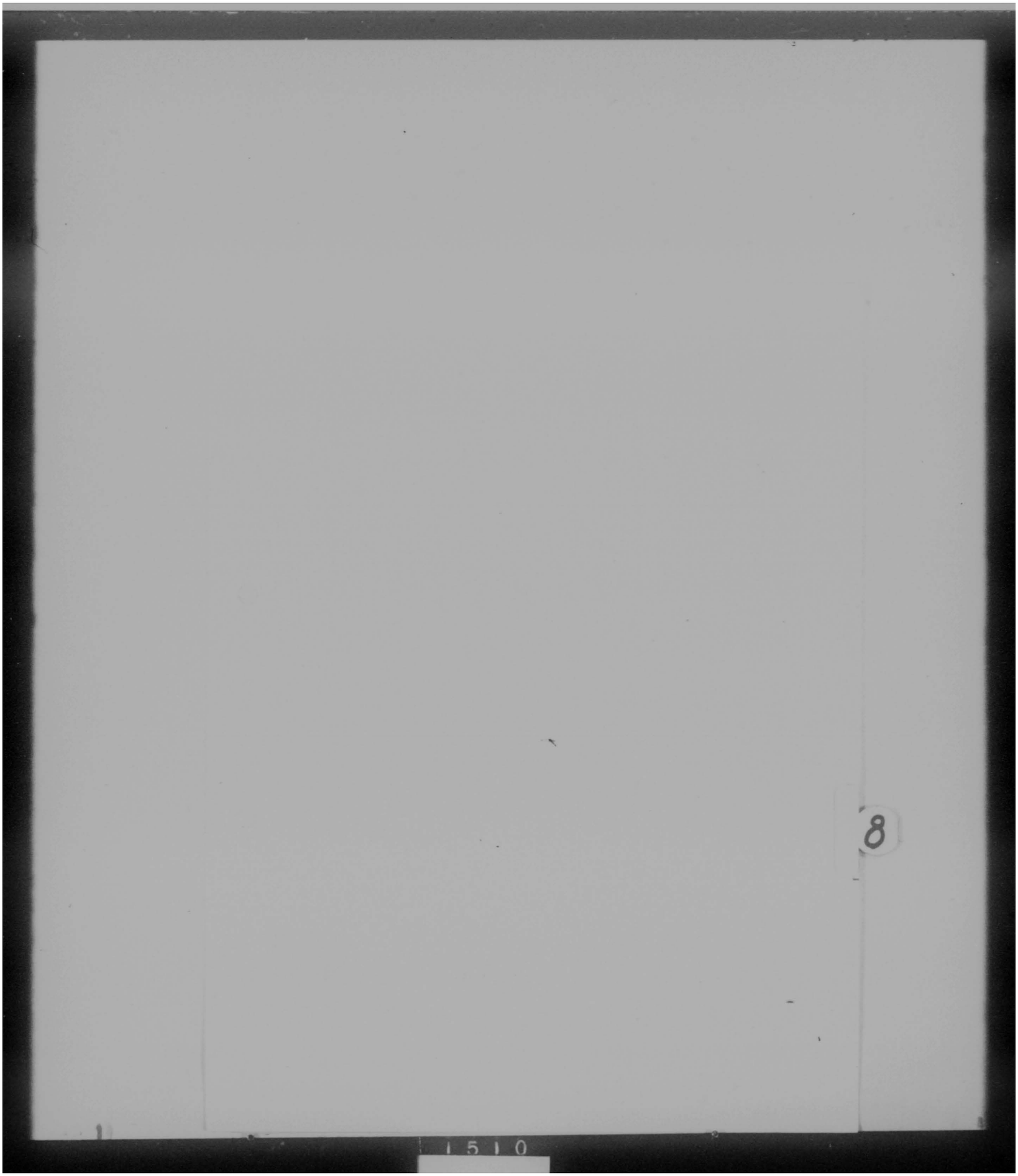

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HISTORICAL REPORT FOR THE MONTH OF MAY 1955

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 65 for the month. The average in-commission rate was 84.62%. A total of 1,973:20 hours were flown for an average of 30:25 hours per possessed aircraft. The ACCP rate was 0 compared to .37% for the previous month.

2. The following is a breakdown of paragraph 1, for B-47 and KC-97 aircraft.

a. B-47 Aircraft: The Wing had an average of 43 B-47 aircraft possessed for the month. The average in-commission rate was 83.05% compared to 84.00% for the previous month. Hours flown were 1,253:30 for an average of 29:08 hours per possessed aircraft. The ACCP rate was 0 compared to .57% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 KC-97 aircraft for the month. The average in-commission rate was 87.68% compared to 86.14% for April. Total hours flown were 719:50 for an average of 32:44 hours per possessed aircraft. The ACCP rate was 0, a decrease from 1.50% for April.

3. In May a total of 77,834 manhours were expended as direct time, 77,767 as indirect time, and 3,821 as overtime. There were 155,671 manhours available for work and 85,734 absentee hours. Of the absent hours, 1,035 were for pass. The above figures are based upon a 44 hour week of which 4 hours per airman is absent time for Ground Training, Parades, Squadron Duty or excused from duty.

4. The malfunction figures listed are taken from the U-15 report covering the period of April 21 through 20 May 1955. During this period there were 39 B-47 aborts compared to 24 for the previous month. There were 12 KC-97 aborts compared to 13 for the previous month.

5. There were 9 B-47 engine changes in May compared to 6 for the previous month. There were 3 KC-97 engine changes compared to 2 for April. The average engine time a change: B-47, 165 hours; KC-97, 409 hours.

TOC & RECORDS

1. During the month there were 143 TO's accomplished on B-47 aircraft and 157 on KC-97 aircraft.

2. There were 6 new TO's received for B-47 aircraft and 5 for KC-97 aircraft.

3. There were 9 engine changes on B-47 aircraft with an average of 165 hours per engine. There were 3 engine changes on KC-97 aircraft with an average of 409 hours per engine.

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TOC & RECORDS CONTINUED

4. There were approximately 20 component parts changed on KC-97 aircraft and 50 component parts changed on B-47 aircraft.

QUALITY CONTROL

1. During the month of May 1955, the Quality Control Unit inspected eleven (11) B-47 aircraft and four (4) KC-97 aircraft processed through the Periodic Maintenance Docks. This Unit also performed Flight Line inspections on twelve (12) B-47 aircraft and four (4) KC-97 aircraft.

2. Incoming publications were received, reviewed and processed as directed by SAC Manual 66-12.

3. This Unit supervised the flight test of fourteen (14) B-47 aircraft and fifteen (15) KC-97 aircraft during the month.

4. Master Sergeant Charles J. Mifkovic was assigned to this Unit and Airman Third Class Griffith was transferred overseas from this Unit during the month of May 1955.

SUPPLY LIAISON

1. B-47 aircraft had no line items AOCP for the month of May 1955.

2. KC-97 aircraft had no line items AOCP for the month of May 1955.

3. The recurring AOCP was zero (0) for the month.

4. Total cannibalization for May were 33. B-47: 17. KC-97: 16.

5. As of 31 May 1955, ANFE items are 20 for B-47 and 3 for KC-97.

MAINTENANCE STANDARDIZATION TEAM

1. The Maintenance Standardization Team is still recording and monitoring the malfunction report.

2. New Air Force preflight and post-flight cards have been received and are now in use throughout the Wing.

3. W.E.M.P. Tests for KC-97 have been completed.

4. Volume V, Issue 1 of the Maintenance Memo was compiled and published as of 1 June 1955.

5. All malfunctions and engine changes were investigated by the team.

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MAINTENANCE STANDARDIZATION TEAM CONTINUED

6. The A & E members have been working consistantly with the A & E Squadron on procedures and the implementation of 3AC Manual 66-4, and the follow-up action of the 2AF A & E Stand Team visit that was conducted during April 1955.

7. New pre-flight and post-flight cards have been given to the A & E Squadron for their comments and/or changes.

8. The A & E pre-abort board is being attended by the A & E Stand Team members.

for AVERILL F. HOLMAN Lt Col
LT COL, USAF
Chief of Maintenance

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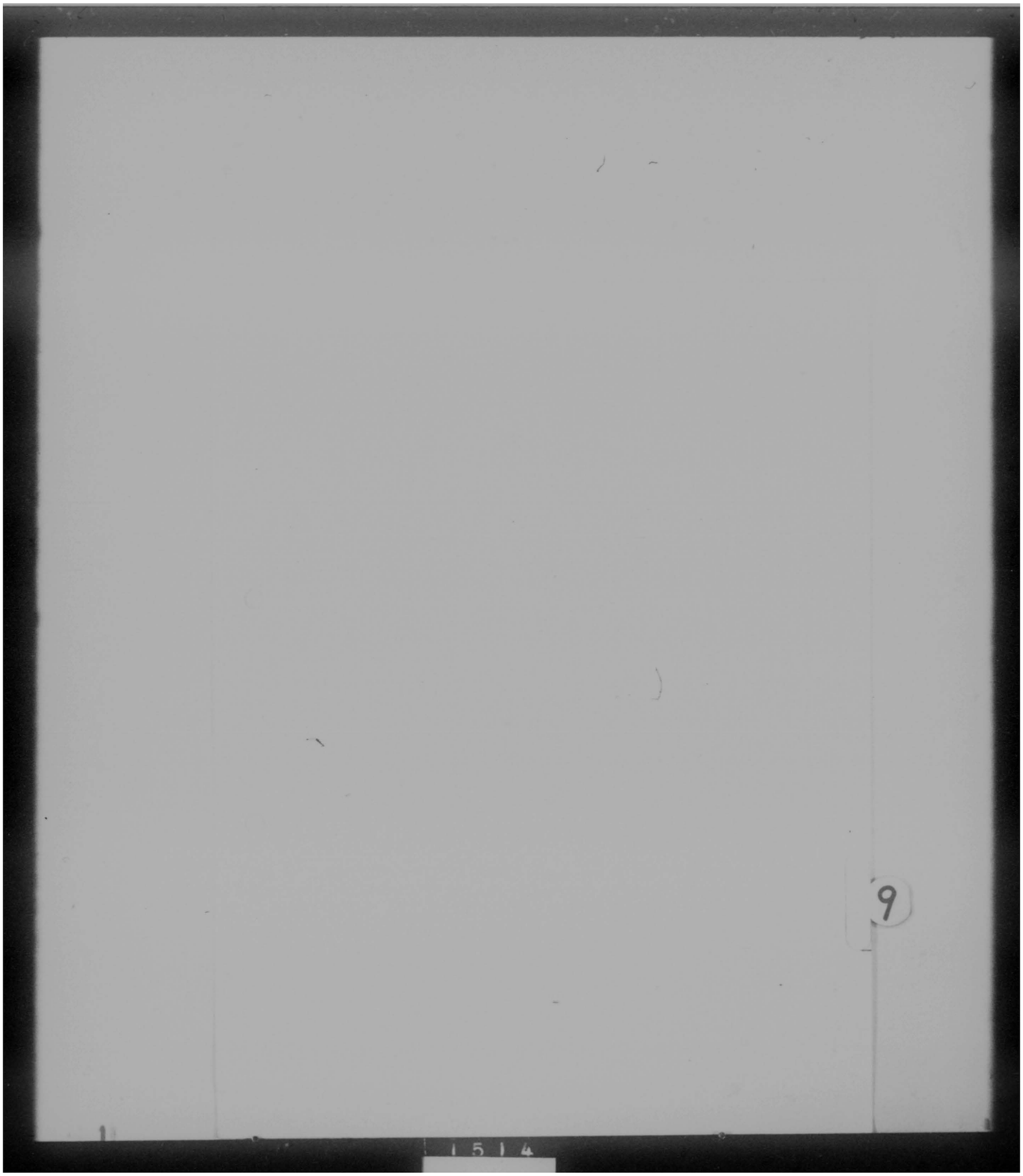

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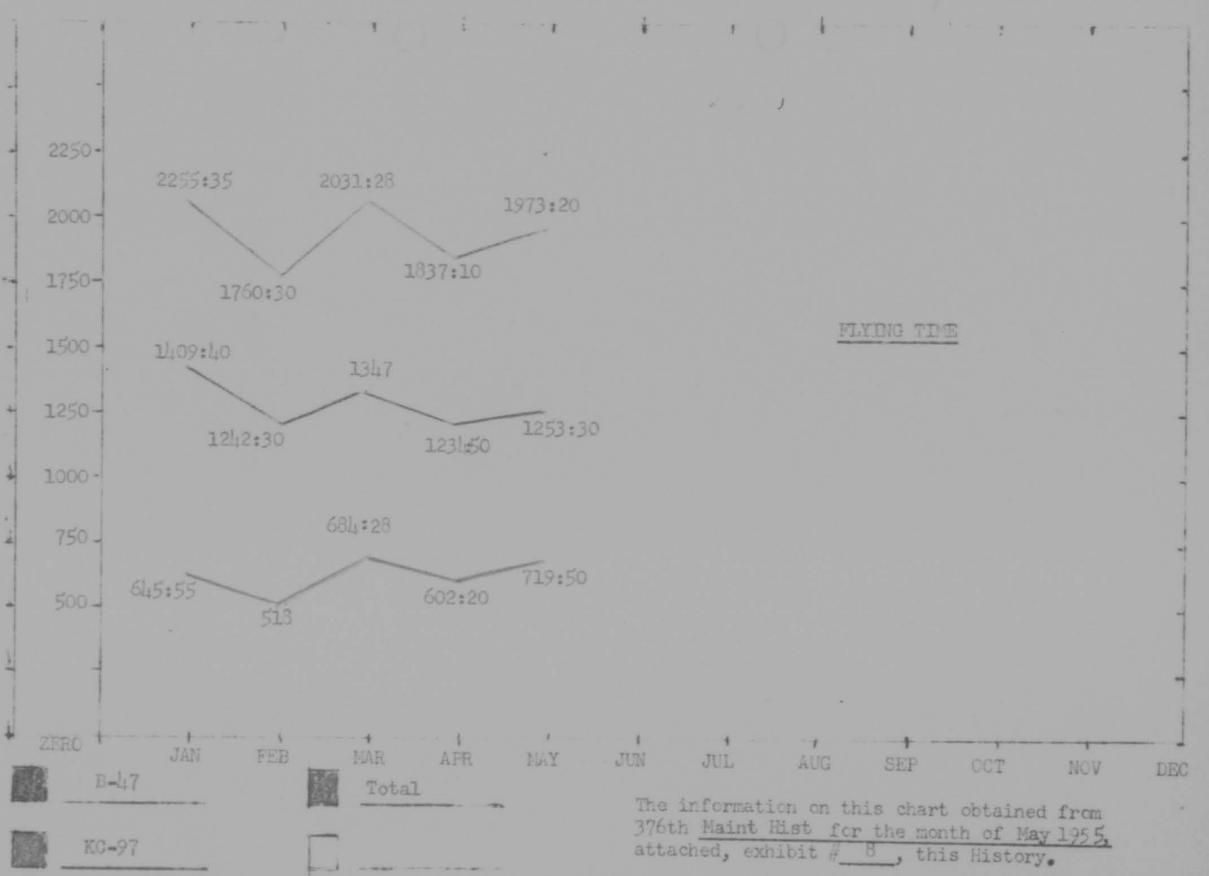

The information on this chart obtained from 376th Maint Hist for the month of May 1955, attached, exhibit # 8, this History.

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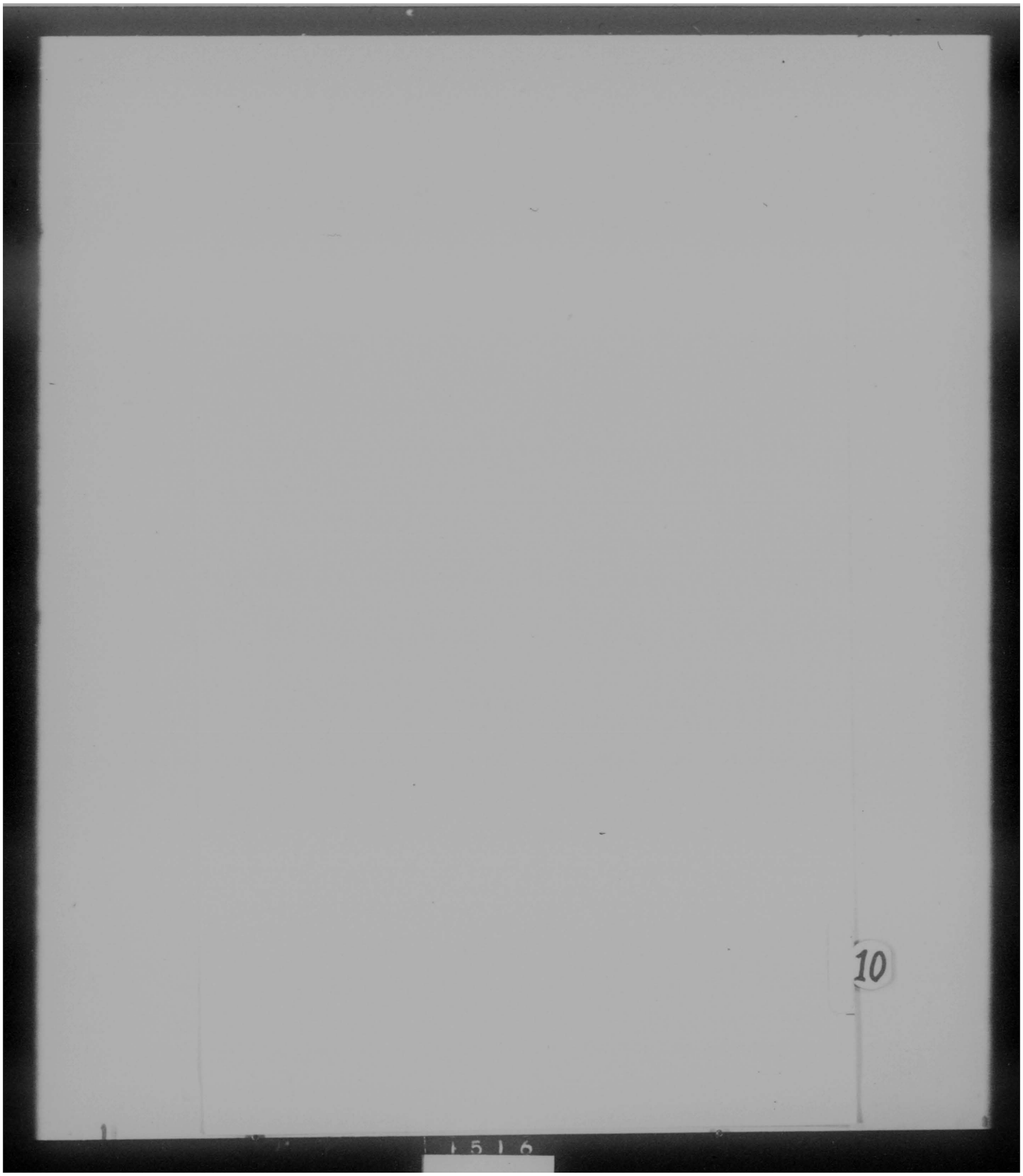

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 June 1955

Contractor: Sperry Gyroscope Company
Western Electric Company

SUBJECT: Monthly Technical Report For Month Ending 31 May 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for the month ending 31 May 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Michael Nowak, Western Electric Co.
Mr. Jack W. Boileau, Sperry Gyroscope Co.
Mr. William C. Cromwell, Sperry Gyroscope Co.
Mr. John F. Monahan, Sperry Gyroscope Co.

II. EQUIPMENT: K-4A Bomb-Navigational System.

III. TRAINING ACTIVITIES:

1. Classroom:

a. The symposium type class for operator training was conducted three days weekly throughout May. Some items discussed in this class are prepared for publication in the 376th Bomb Wing Observer's Digest.

b. The following is the status of classroom training for the month of May 1955. All students were observers.

SUBJECT	COURSE HOURS	INSTRUCTOR MAN HOURS	STUDENT MANHOURS
Symposium (Operator)	3 Daily	54	171

2. MOCK-UP:

a. A training program for K-Mechanics based on the results of

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the WEMP (written examination for measuring proficiency) was continued through the Month of May. These classes are being conducted two hours five days weekly on one of the Field Shop Mock-ups.

b. This mock-up course is set up on a weekly bases, i.e:

Computer adjustment conducted on Monday.
Computer accuracy checks conducted on Tuesday.
ICE alignment conducted on Wednsday.
Radar alignment conducted on Thursday.
Stab System adjustments conducted on Friday.

SUBJECT	COURSE HOURS	INST. MAN HR	STUDENT MAN HR
Mechanic Mock-up Course	2 (Daily)	32	96

3. OJT.

a. OJT during the month of May included system analysis and trouble shooting.

SUBJECT	INSTRUCTOR MAN HOURS	STUDENT MAN HOURS
System Analysis	330	428
Trouble shooting	126	148

4. Field engineers were available to the 376th Armament and Electronics Maintenance Squadron during the month of May for a total of 704 man-hours. Of this total time, 542 man hours were utilized for formal and OJT Training. 77 percent of available time was devoted to training.

IV. UTILIZATION:

1. The summary purpose of our assignment is the training of Maintenance personnel in the operation and maintenance of the K-4A bomb-navigation system and the training of Air Crew personnel in operation and in-flight maintenance technique and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that the service of the K-system field engineers can be terminated by April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

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376AEMS, SUBJECT: Monthly Technical Report for Month Ending 31 May 55.

1. Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Negative

VIII. SPECIAL DEVELOPMENTS:

1. Negative

IX. GENERAL REMARKS:

1. Mr. W. C. Cromwell started his two weeks vacation 30 May.

2. Mr. W. A. Bernath, W. E. Central area supervisior, visited the W. E. Field Engineers at Barksdale AFB, 10 May 1955.

Michael Nowak
Field Engineers
Western Electric Co.

Jack W. Boileau
Field Engineer Coordinator
Sperry Gyroscope Co.

1519

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 June 1955

Contractor: Crosley Division of AVCO Mfg Corp.

SUBJECT: Monthly Technicial Report for Month Ending 31 May 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 May 1955, submitted in accordance with AFR 66-18 and 3AC Reg 66-4.

I. SUBMITTED BY: Mr. Kenneth R. Faux
Mr. Paul Conway

II. EQUIPMENT: System, Fire Control Bomber Tail Defense, Type A-5.

III. TRAINING ACTIVITIES:

1. Classroom:

a. Two A-5 mechanics were given 32 man hours of instruction in testing and adjusting procedures. Total instructor time: 16 hours.

b. Eight A-5 mechanics were given 40 man hours of instruction in Turrent Drive Theory. Total instructor time: 20 hours.

c. Five A-5 mechanics received 30 man hours of instruction in Transmitting & Receiving Theory. Total instructor time: 12 hours.

d. Ten A-5 operators (co-pilots) received classroom and mock-up training in A-5 operation. This included a briefing in malfunction write-ups and in flight maintenance procedures. Total instructor time: 20 hours.

1521

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2. OJT:

a. A-5 mechanics received instruction in trouble shooting and system adjustment of the A-5 while assistance was given in the resolution of difficult malfunctions. Fifty-two hours were expended in line maintenance, forty-eight hours were expended in field maintenance. Thirty-six hours were expended in periodic maintenance. Total time: 136 hours.

b. Sixteen hours were expended in instructing and aiding A-5 mechanics in completing field changes. Total time: 16 hours.

3. In addition to actual instruction twenty hours were expended in preparing class outlines and training aids and in other administration work relative to the training program. Total time: 20 hours.

4. TRAINING PROGRAM:

a. Available time: 320 hours
b. Total training time: 240 hours
c. Percent training time: 75%

IV. UTILIZATION:

1. Brief description of assigned duties: Primary purpose of our assignment is the training of maintenance personnel on operation, calibration and maintenance of the A-5 fire control system and in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. We estimate that our services can be terminated by 1 April 1957.

V. EQUIPMENT MALFUNCTIONS: Negative.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED: Negative.

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED: Negative.

VIII. SUPPLY PROBLEMS PRECLUDING EFFECTIVE MAINTENANCE ENGINEERING PERFORMANCES: Deleted.

IX. SPECIAL DEVELOPMENTS: Negative

X. GENERAL REMARKS:

1522

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1. Mr. Carl Drakely, Crosley Field Engineering Supervisor from Cincinnati, Ohio and Mr. Eugene Holden, Crosley Central District Field Supervisor from Wichita, Kansas visited this installation 18 May 1955.

Kenneth R. Faux
KENNETH R. FAUX
Field Engineer
Crosley

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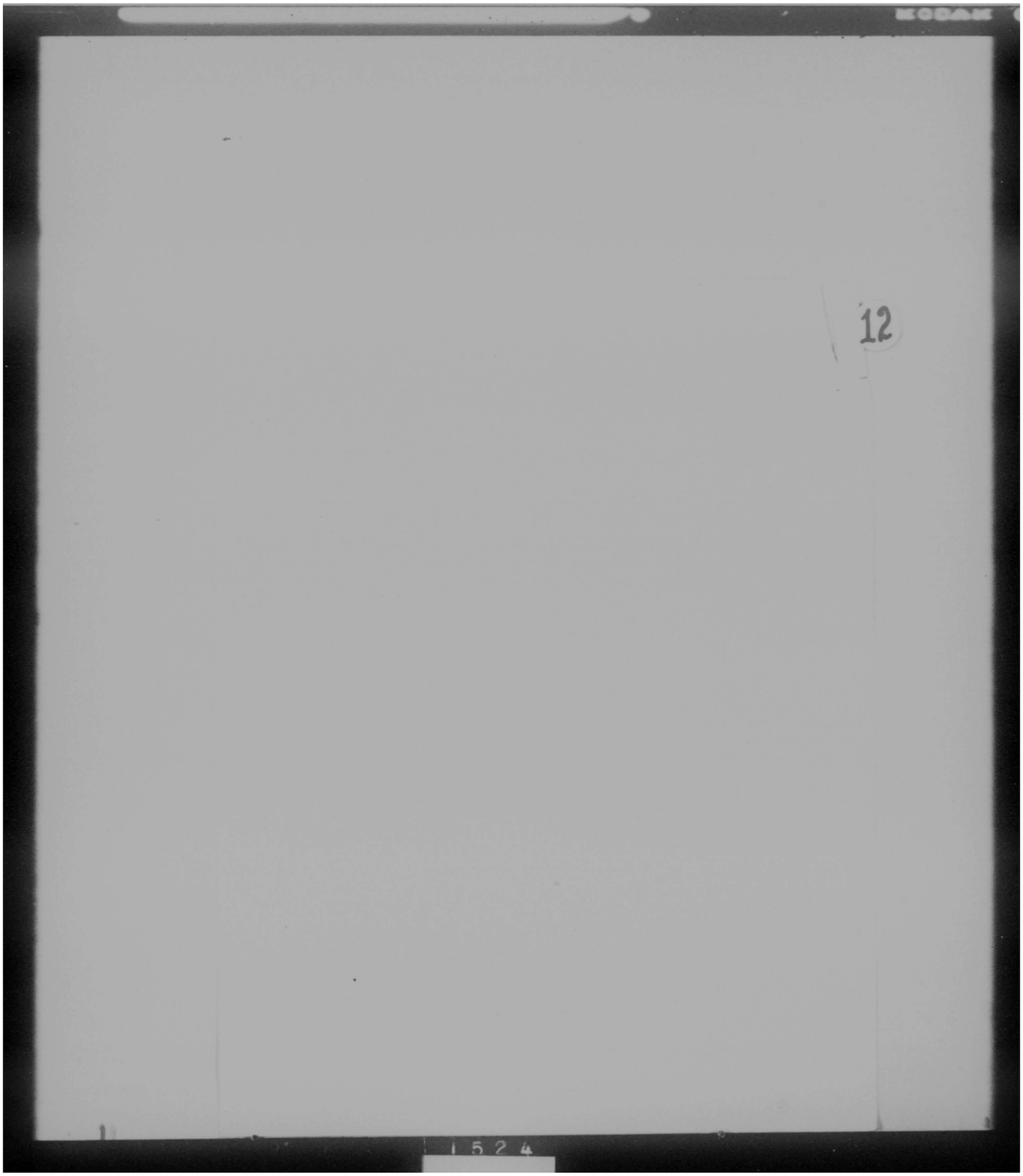

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376th AMNT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 June 1955

Contractor: Sperry Gyroscope Company
Great Neck, L.I., N.Y.

SUBJECT: Monthly Technical Report For Month Ending 31 May 1955

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 May 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Henry J. Kronlage (Departed May 24, 1955
Mr. James T. Lawrence

II. EQUIPMENT: A-12D Gyropilot

III. TRAINING ACTIVITIES:

1. Classroom:

a. A total of twenty-two (22) hours of classroom training was accomplished during the month of May. AFSC's of the men in class were (2) 42370's, (4) 42350's and (6) 42330's.

b. Below is a summary of the hours devoted to classroom training.

COURSE	Instr. Hrs.	No. Students	Student Hrs.
A-12D General	8	10	80
A-12D Interlock Circuits	8	23	46
A-12D Signal Sources	2	7	14
A-12D Trouble Shooting	4	8	32

2. Planned OJT:

a. Below is a summary of the planned OJT given during the month of May.

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376ASMS, Subject: Monthly Technical Report for Month Ending 31 May 1955.

SUBJECT	Inst. Hrs	No.Stu.	Stu Hrs.
A-12D Test Procedures	30	6	[illegible]
A-12D Theory	27	8	56

3. Informal OJT:

a. The following is a summary of the informal OJT which was conducted to answer questions and increase proficiency during routine operations and will continue as required. There were (2) 42370's, (4) 42350's and (8) 42330's available for training.

SUBJECT	Inst. Hrs.	No. Stu.	Stu. Hrs.
A-12D Theory	49	12	96
Trouble Shooting	48	6	60
System Analysis	40	4	66

b. Of 288 hours available instruction time 216 hours (75%) were used for training.

IV. UTILIZATION:

1. The primary purpose of the writer's assignment is the training of maintenance personnel in the theory, calibration and maintenance of the A-12D automatic pilot equipment used in the wing, and the training of aircrew personnel in operation and in-flight maintenance techniques. Duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. The services of the Sperry field engineer is estimated to terminate in April 1957.

V. EQUIPMENT MALFUNCTIONS:

a. Equipment malfunctions were routine in nature during the month of May and in most cases were attributed to electron tube failures or faulty A/C power supplies.

VI. Same as last Month.

VII. Same as last Month.

VIII. Special Developments: Negative.

IX. General Remarks: Mr. Kronlage, who deported 24 May 1954 on military leave, devoted a considerable portion of his time

1526

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376ARMS, Subject: Monthly Technical Report For Month Ending 31 May 1955.

to the orientation of the writer in SAC operational and maintenance procedures, in order that the change in Company representation be accomplished with a minimum of inconvenience to the squadron.

James T. Lawrence

Mr. James T. Lawrence
Field Engineer
Sperry Gyroscope Company

1527

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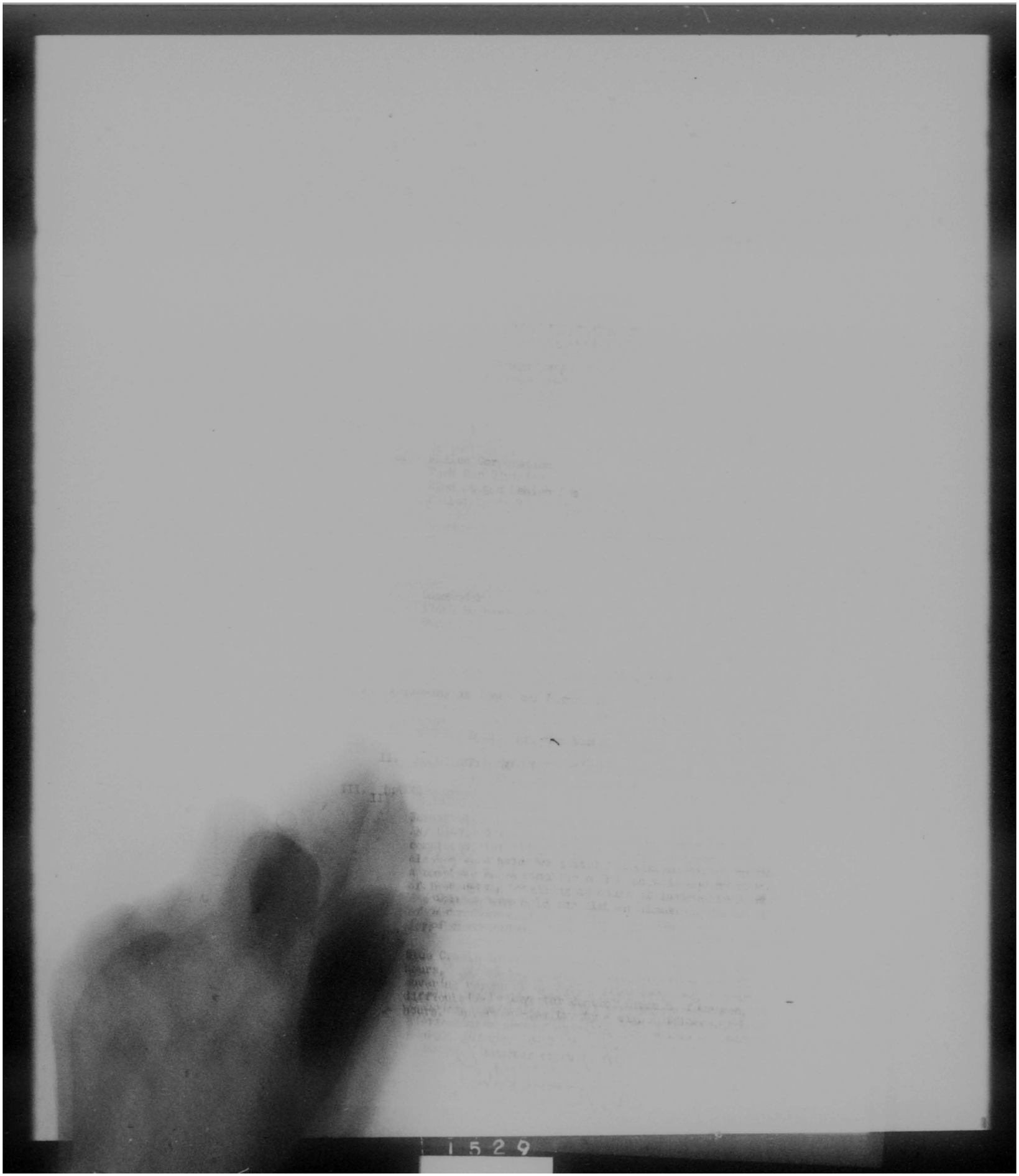

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS 1 June 1955

Contractor: Philco Corporation
Tech Rep Division
22nd St and Lehigh Ave
Philadelphia 32, Pennsylvania

SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 May 1955.

TO: Commander
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

1. Following is Technical Report for month ending 31 May 1955, submitted in accordance with AFR 66-18 and SAC Reg 66-4.

I. SUBMITTED BY: Mr. Guy Nicholson

II. EQUIPMENT: AN/ALT-7, AN/ALT-8, AN/APS-54, QRC-8, AN/ALE-1, Blue Cradle Project.

III. TRAINING ACTIVITIES:

1. Classroom:

Formal classes were held for sixteen airmen on the AN/ALT-7. A complete course on this equipment was completed, totalling 40 hours of instruction. Formal classes were held for sixteen airmen on the AN/ALT-8. A complete course was given and completed in 40 hours of instruction. This instruction completed training for sixteen airmen on all ECM equipment.

2. OJT:

Blue Cradle Inverter Control Circuit, four men, 12 hours, AN/APS-54, twenty - eight officers, 1 hour covering resume of operating procedures and current difficulties. B-47 ATO wiring tester four men, 3 hours. Inverter circuit, four men, 2 hours. B-47

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1530

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Blue Cradle Tester, two men, 2 hours. Blue Cradle Cabling revisions, two men, 4 hours. General ECM indoctrination to Mr. Frank Carr and Mr. Jack Kinsley, Philco Corp. assigned to Carswell AFB, 20 hours. Blue Cradle Problems, eight men, 3 hours.

3. Available for instruction 168 hours
   - Classroom 80 hours
   - OJT 47 hours
   - Training % 75.6%

IV. UTILIZATION:

1. Primary purpose of my assignment is the training of maintenance personnel on operation, calibration, and maintenance of B-47 ECM equipment and training of aircrew personnel in operation and in-flight maintenance techniques and procedures. My duties also include assisting in the resolution of difficult repair problems and rendering technical advice on equipment performance and maintenance problems.

2. April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. T 464/ALT-7 production model transmitters. Forty new systems were given an initial bench test inspection. An unusual quantity of these transmitters showed up with discrepancies; a total of nine transmitters or 28% of those tested were inoperative or deficient. This is considered to be a high percentage for "brand-new" equipment, removed from original packing. None of these discrepancies were of a serious nature and all were corrected without difficulty. In brief outline these discrepancies were three (3) 4X150A Tetrodes with low emission, two (2) broken interlock switches (S204), one (1) short in power input connector (J201), wire broken off switch (S201), open interlock circuit, one locknut loose on R236, one terminal broken off E206 noise filter, one noise filter E206 shorted to ground.

2. A consolidated UR was submitted #376W-55-932 on these discrepancies. There was some evidence, not by any means conclusive, that these transmitters had been handled in and out of dust covers after final acceptance tests.

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376AEMS, SUBJECT: Monthly Technical Report, RCS: 3-AMC-U19, For Month Ending 31 May 1955.

3. One recommendation was made regarding the position of the case interlock switch (S204). The plunger arm of this switch extends beyond the back of the chasis and is easily broken when equipment is removed from its dust cover. This switch could be located within the chassis and an actuating bracket installed inside the dust cover. A request was also made for information on the adjustment, of R236; this potentiometer controls the dial setting of the thyratron sweep control circuit. No information is included in the revised manufacters handbook and the calibration of the sweep speed control will be affected by adjustments of this potentiometer.

VI. MAINTENANCE ENGINEERING DIFFICULTIES etc.

1. Blue Cradle inverter Circuit. Several Aircraft of the 376th Bomb Wing (M) were found to have discrepancies in the wiring connectors at the switches controlling the Blue Cradle inverters. These discrepancies were in the main crossed circuitry between the right hand and spare inverters.

2. Correct wiring diagrams were prepared and maintenance personnel were shown how to correct this condition by use of one of the special ECM testers. All aircraft have been corrected.

3. The above discrepancies have served to emphasize certain inadequances in the Blue Cradle inverter circuitry. These are as follows:

a. No means are provided for monitoring inverter voltage or frequency. Since Blue Cradles in the "C" configuration are using 83% of available inverter power and a variation of four amperes will overload the inverters, it is believed that a close inflight check should be kept on inverter output.

b. No means are provided for running the spare inverter (unloaded) while right and left hand inverters are operating. This means that the spare inverter "cold soaks" at altitude. No tests have been conducted to date to determine whether this will affect automatic switching of the inverter.

c. No means are provided for indicating inverter failure, other than a pilot light which indicates

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when the spare inverter is running. No means are provided for indicating whether the spare inverter is operating on the right or the left bus, consequently the co-pilot will not know which AN/ALT-8 system will have to be recycled.

4. Due to the priority of other projects and the preparations for summer exercises, it has not been possible to investigate the above. As the inverters accumulate operating hours and, in view of the fact that periodic maintenance is virtually impossible (it takes 30 man-hours to remove an inverter from the cradle). It is desirable to have improved means for monitoring inverter performance in flight.

VII. OPERATIONAL DIFFICULTIES ETC.

1. On the arrival of the Boeing team to perform SECP 556-4K and -6K drawings were obtained and studied. SECP 556-6K now modifies aircraft of 376th BW to conform with other B-47 aircraft, and after this modification is performed the AN/ALT-8 system cannot be turned off while there is power on the secondary inverter bus. This modification deletes the AN/ALT-8 capability on the basic aircraft after several months of operation for test and operational purposes.

2. This situation was brought to the attention of Captain James B. Clark and UR# 929, was prepared and forwarded.

3. A recommendation for an emergency fix was made. This recommendation is not considered adequate for permament modification, since it does not solve the question of compatibility between AN/ALT-8 and AN/ALT-6 systems. Reference is made to the investigation and recommendations of the Directorate of Test and Tactics, 376th BW on this question. Their recommendations are still valid in principle and with slight modification can be adapted to 376th BW aircraft after SECP 556-6K is completed.

VIII. DELETED

IX. SPECIAL DEVELOPMENTS.

1. When SECP 556-6K is performed the ECM systems cabling

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376AEMS, SUBJECT: Monthly Technical Report, RCS: 3-AWC-U19, For Month Ending 31 May 1955.

formerly to the aircraft is discarded. In the 376th BW the AN/APT-16 cables have been reclaimed and modified for use with AN/ALT-8 systems on Blue Cradle - this includes all control and high voltage cables. Ninety of these cabling systems have been reclaimed with a conservative estimate of $75 dollars materiel cost per system or a saving to USAF of $6750. In addition the AN/APT-6 cabling will be modified for use with AN/ALT-7 systems and part of AN/APT-9 cabling can also be reclaimed. Other bomb wings might be able to put some of this cabling to use on shop mock-ups, mobility etc.

2. Mr. Robert Nevitt, Philco Corporation, left for a new assignment on 3 May 1955. QRC-8 report. No missions scheduled during the month; no malfunctions reported.

Guy H Nicholson

GUY H. NICHOLSON
Field Engineer
Philco Corporation

1534

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376TH ARMT & ELECT MAINT SQ
376th Bombardment Wing M
Barksdale Air Force Base
Louisiana

376AEMS

1 June 1955

Contractor: Dynamic Electronics
73-39 Woodhaven Blvd.
Glendale, L.I., N.Y.

SUBJECT: Monthly Technical Report, For the Month Ending 31 May 1955

TO: Commander
376th Bombardment Wing (M)
Barksdale Air Force Base
Louisiana

1. Following is the Technical Report for month Ending 31 May 1955. submitted in accordance with AFR 66-18 and SAC Regulation 66-4 for the 376th Bombardment Wing (M).

I. SUBMITTED BY: Mr. Louis A. Sancho

II. EQUIPMENT: AN/ALE-1, AN/ALT-7, AN/QRC-8, AN/APS-54, AN/ALT-8.

III. TRAINING ACTIVITIES:

1. Classroom:

All training during this reporting period was in the form of OJT.

2. OJT:

Assistance was rendered to field shop personnel, accounting for 55 instructor hours and 90 student hours. Broken down in the following manner:

a. Assistance was given to field ECM personnel on maintenance problems of the ECM Transmitter AN/ALT-8. Instructor hours 35, student hours 65.

b. Aid was also given to ECM Field personnel on ECM transmitter AN/ALT-7 instructor hours 20 and student hours 25.

c. An additional 47 hours was consumed in the preparation of training material on the AN/APS 54,

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1536

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376AEMS, SUBJECT: Monthly Technical Report for Month Ending 31 May 1955.

AN/ALT-7 and AN/ALT-8.

d. There were 136 hours available during this reporting period. Of this available time 75% was spent in training.

IV. UTILIZATION:

1. The primary purpose of my assignment is the training of maintenance personnel, on the operation, calibration, and maintenance of the aforemgntioned electronic counter-measures equipment. Training of air crew personnel on in-flight maintenance techniques and procedures. Duties also include assisting in the resolution of difficult repair problems, and rendering technical advice on equipment performance and maintenance problems. I estimate my services can be terminated on April 1957.

V. EQUIPMENT MALFUNCTIONS:

1. No unusual malfunctions.

VI. MAINTENANCE ENGINEERING DIFFICULTIES ENCOUNTERED:

1. Negative

VII. OPERATIONAL DIFFICULTIES ENCOUNTERED:

1. Negative.

VIII. SPECIAL DEVELOPMENTS:

1. Negative

IX. GENERAL REMARKS:

1. I was officially assigned to Barksdale on 2 May 1955. Due to processing time I began my duties on 4 May 1955.

2. I was officially absent on two days, 19 & 20 May 55 for personal reasons.

Louis A. Sancho
LOUIS A. SANCHO
Field Engineer
Dynamic Electronics

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SECRET

Classification: SECRET
Auth: COMDR 376 BOMWG M
Initials: Memphy
Date: 9 June 55

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT 9 June 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 May through 31 May 1955. Each succeeding paragraph deals with individual project progress.

2. Test Project Number 1X, "Development of an Unattended Communications Jammer".

a. Date initiated: 2 June 1953.

b. Percentage complete: 43%.

c. Hours flown: None.

d. Present status:

(1) Test Project 1X is an electro-mechanical approach to the problem of an unattended search, lock-on, and spot jammer for GCI communications.

(2) The receiver is a conventional superhetrodyne using a cascode front end for maximum sensitivity and signal-to-noise ratio. The receiver local oscillator serves two functions: as a normal local oscillator for the receiver, and as excitation for the transmitter. A high gain 30 megacycle IF amplifier is used to feed the second detector, which in turn controls a DC amplifier to actuate the tuning control relay. The tuning control relay acts to stop the tuning motor and actuate the transmitter control circuits. A look-through circuit is also incorporated in the receiver for allowing the unit to determine when the enemy signal shifts frequency or discontinues transmission. In

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the event the received signal disappears, all circuits return to the normal search position and receiver re-cycles for normal search.

(3) The transmitter uses a hetrodyne principle for excitation. The receiver local oscillator beats with a fixed frequency 30 megacycle oscillator, is fed into a mixer, which in turn feeds the first buffer amplifier. The signal is built up and used to excite the power amplifier. The transmitter is modulated from two sources: a noise generator, and a supersonic oscillator. The supersonic oscillator has a selector switch for determining the tone to be used for each mission. This tone is used for identification purposes, and, when received by a second jammer, de-energizes control circuits in the second jammer, thus preventing the possibility of more than one jammer jamming the same frequency.

(4) A breadboard model has been completed of the entire unit minus the identification device. All circuits appear satisfactory; however, a special tuning capacitor is required to facilitate proper tracking with good inductance versus capacitance ratios. Negotiations have been completed with the Radio Condenser Company, Camden, N.J., for construction of such a capacitor. It will be of the straight line frequency variety, constructed in four sections.

(5) Correspondence has been received from the Radio Condenser Company informing project personnel of proposed construction procedures and indicating the probable frequency versus capacitance curves.

3. Test Project Number 27, "B-47 Chaff Corridor".

a. Date initiated: 9 April 1954.

b. Percentage complete: 87%.

c. Hours flown: (27) 355:20 - (27R) 227:55.

d. Present status:

(1) This project concerns the investigation and development of continuous and random chaff dispensing techniques for masking bomber formations.

(2) Interim reports on random chaff missions of 3 and 11 March have been printed and forwarded to Headquarters SAC. In-

1540

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terim reports on the continuous corridor missions of 25 January and 9 March have been printed and forwarded to Headquarters SAC 27 May.

(3) The random chaff mission planned for 13 April, cancelled, re-planned for 20 April and cancelled, as noted in the April SAC U-30 report, was flown 27 April with seven B-47 aircraft. Report on this mission is being processed for printing and will be forwarded in June.

(4) A 27R mission using eight B-47 aircraft was flown on 27 May in the Eglin-Tyndall Air Force Base area to test the effect of random chaff combined with electronic jamming. Results of this mission will be reported when radar data has been analyzed.

4. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

a. Date initiated: 30 June 1954.

b. Percentage complete: 60%.

c. Hours flown: 37:24.

d. Present status:

(1) A camera and periscope mount is being developed to mount on the indicator of the AN/APS-23 radar in a B-47E aircraft for photographing the indicator with either a Polaroid or O-15 camera. The Polaroid camera, which produces a finished print in one minute, will enable the B-47 observer to navigate without continuous radar mapping, thereby reducing aircraft susceptibility to passive detection and direction finding.

(2) The prototype Polaroid-Land camera and periscope assembly manufactured by the Photographic Laboratory at WADC has been successfully installed and flown on two test flights in a B-47E aircraft of the 376th Bomb Wing.

(3) The project engineer made a trip to WADC on 4 May to deliver special mirrors obtained through the 376th Bomb Wing and pick up the first prototype camera and periscope for testing. The first camera contains an 80-20 beam splitting mirror which passes 80% of the available light from the AN/APS-23 indicator to the Polaroid camera and 20% to the O-15 camera. Mirrors delivered to the Photographic Laboratory will be used to determine optimum light splitting ratio between the two cameras using another prototype camera manufactured at the laboratory.

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(4) The first camera was returned to Barksdale and immediately installed on a B-47E aircraft to determine any existing mounting difficulties. None were found; therefore, arrangements were made to install the camera on the T-2 navigational trainer and to brief a B-47 radar observer on camera operation.

(5) A flight test was conducted on 11 May to check the camera installation operationally in flight and to determine optimum exposure time, f-stop setting, and receiver gain setting for obtaining the best photographs with both the O-15 and Land cameras. The observer photographed the indicator of the AN/APS-23 with both the O-15 and Land cameras over areas which yielded discernible video returns from ground targets. Various exposure times, camera f-stop settings, and receiver gain settings were used during the test. The following conclusions were reached based on data obtained from the first flight test:

(a) The new camera and periscope assembly does not interfere with any required movement or operation which must be performed by the radar observer while in flight.

(b) The Land camera lens should be set to f-3.5 for all photographs.

(c) The O-15 camera lens should be set to f-2.3 for all photographs.

(d) The receiver gain should be set slightly higher than normal when a picture is to be taken.

(e) Exposure time should correspond to one fast sweep of the radar antenna.

(6) A second flight test was conducted on 24 May. This test simulated actual conditions in that the observer was required to navigate aircraft solely by means of the Polaroid pictures over a course of 1684 nautical miles including areas of very poor radar ground returns. The observer was able to navigate over the prescribed course to an IP for a bomb run, then navigate aircraft back to the home station using only the Land camera pictures during the navigation legs. A detailed flight test report on this mission is being prepared at the present time.

(7) It is planned to conduct one additional flight test using the prototype camera and a different radar observer.

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After the flight test has been completed and data analyzed, sufficient information will be available for making recommendations concerning specifications for an operational camera.

5. Test Project Number 30, "Development of a Passive Station Keeping Capability".

a. Date initiated: 30 June 1954.

b. Percentage complete: 49%.

c. Hours flown: 111:00.

d. Present status:

(1) In order to minimize the possibility of aircraft being detected by passive means, it is necessary to attain a maximum degree of radio silence. By permitting one aircraft in a formation to navigate, using his radar in accordance with SAC Project 29, and the other aircraft to follow by means of a passive station keeping technique, a high degree of radio silence may be attained. Passive station keeping technique under study in this project uses the principles of infrared radiation and detection for obtaining position information necessary for station keeping.

(2) Since requirements of the system as described by SAC are considered somewhat flexible, certain components of the proposed station keeping equipment could assume a variety of form. Final report on this project will describe a typical system with possible variations in some components.

(3) Final report on this project is still in the process of being compiled. This report will describe the capabilities and limitations that can be expected from the proposed system. It is anticipated that a draft copy of this report will be completed early in June.

6. Test Project Number 32, "Cell Support Tests".

a. Date initiated: 17 February 1955.

b. Percentage complete: 20%.

c. Hours flown: 169:50.

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d. Present status.

(1) Purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell configurations from enemy GCI, gunlaying and interceptor type radars.

(2) It was decided to consider evaluation of the antennas, cables, and connectors under the QRC-27(T) program as part of Project 32.

(3) Six missions were flown against the Air Defense Command AN/FPS-10 radar site, Bartlesville, Oklahoma. The first mission on 4 May was a single B-47 aircraft using four AN/ALT-6 transmitters in a Blue Cradle and two AN/ALT-8 transmitters in the ATO compartments with QRC-27(T) RF systems. The second mission flown on 11 May was a single B-47 aircraft using four AN/ALT-6 transmitters in a Blue Cradle and two AN/ALT-8 transmitters in the ATO compartments with QRC-27(T) RF systems. At pre-determined points during the mission, all transmitters were turned to standby, except the AN/ALT-8 in the left ATO compartment, so that jamming effectiveness of a single AN/ALT-8 could be evaluated, as well as all transmitters. On 13 May, missions 3 and 4 were flown. Mission 3 used three B-47 aircraft having a single AN/ALT-8 in the left ATO compartment with QRC-27(T) RF systems. Mission 6 on 20 May had five B-47 aircraft using a single AN/ALT-8 in the left ATO compartment with QRC-27(T) RF systems.

(4) Two missions were flown against two AN/MPQ-16 radars at Fort Bliss, Texas, on 2 May. The first mission was a single B-47 aircraft using four AN/ALT-6 transmitters in a Blue Cradle, and two AN/ALT-8 transmitters in ATO compartments with QRC-27(T) RF systems. The second mission was a single B-47 aircraft using four AN/ALT-6 transmitters in a Blue Cradle, and two AN/ALT-8 transmitters in the ATO compartments. Horn antennas were used on the AN/ALT-6 transmitters and helix antennas were used on the AN/ALT-8 transmitters. The two AN/MPQ-16 radars did not break-lock as a result of jamming on either mission.

(5) One mission was flown against the AN/CPS-6B radar at Tyndall Air Force Base 27 May. Six B-47 aircraft were used carrying four AN/ALT-6 transmitters in a Blue Cradle, and two AN/ALT-8 transmitters in the ATO compartments with QRC-27(T) RF systems. Chaff was also used on this mission but will be evaluated under test Project Number 27.

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(6) Preliminary evaluation of the missions where aircraft were only using a single AN/ALT-8 transmitter in the left ATO compartment to simulate Phase III aircraft would seem to indicate inadequate protection for any usable range. Six aircraft were skin painted through the jamming on a 100-mile tangent from the radar site. On the two missions where a single B-47 aircraft was used with four AN/ALT-6 transmitters in the Blue Cradle and two AN/ALT-8 transmitters in the ATO compartments, aircraft was skin painted on the 100-mile tangent from the radar site. During the mission at Tyndall Air Force Base, very few skin paints were observed and no height could be obtained. Controllers were able to vector fighters toward jamming strobes but only two splashes were obtained and those were made by visual contact of the fighters. The mission would appear to be successful but the AN/CPS-6 radar set worked poorly. The AN/CPS-6 at Tyndall Air Force Base was peaked up, however by mission time skin paints of B-47 aircraft without chaff or electronic jamming was difficult beyond 50 to 60 nautical miles.

(7) Data obtained on these missions is being reduced and interim reports are being prepared. Further missions are scheduled for June.

(8) A particular difficulty encountered on these tests, which has a very profound affect on test results, is lack of test equipment for proper checking and setting up of jamming transmitters before each mission. This is particularly true in setting up sweep operation of AN/ALT-6 and AN/ALT-8 transmitters. Since no specific test equipment exists for this purpose, an AN/APR-9 receiver is used for bench pre-flight test and frequency setting. Exact setting of frequency and sweep width must be done at the aircraft with antennas and RF cables connected to the transmitters. For this test an AN/APR-9 receiver is carried in a truck to each aircraft and used for the pre-flight test. This is time consuming in that the transmitter must be allowed to operate for some time so that compensation may be made for frequency drift. A simpler and faster procedure which can be used at the aircraft is required since the AN/APR-9 is ordinarily not a part of Bombardment Wing equipment. An AN/APR-4 receiver does not work well because numerous images make measurements difficult and prone to error. A wave meter cannot be used on slow sweeping transmitters because frequency is continually changing.

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7. Test Project Number 33, "Personal Radio Alert Equipment".

a. Date initiated: 6 May 1955.

b. Percentage complete: 15%.

c. Hours flown: N/A.

d. Present status:

(1) The mission of SAC requires immediate availability of key personnel and early availability of many other personnel when alert conditions exist. Purpose of this project is to determine a feasible method of quickly alerting specific groups of individuals through the use of radio. Under this plan, each individual would be equipped with a small radio receiver that could conveniently be carried in a shirt pocket. This receiver would be tuned to a specific frequency upon which an alert signal could be broadcast.

(2) Research is now being conducted to determine the best frequency or frequencies for use at all hours of the day and night with a maximum ground wave radiation. The United States Time Corporation has volunteered to investigate timing mechanisms that would be suitable for use as a miniature spring wound alarm to be tripped by a solenoid or relay. This would provide an audio alarm when a relay in the miniature receiver was activated by a transmitted signal.

(3) The National Mobile Radio Conference held in Kansas City, Kansas, was attended by the project engineer. This conference pertained directly to the problem of one-way radio paging systems. Several ideas concerning miniaturization of equipment, selective calling and types of audible alarm were derived from this conference.

(4) Preparations have been made for conducting tests using a three kilowatt transmitter available at Barksdale Air Force Base. This type transmitter is generally available on most SAC bases and could readily be used for transmission of alert signals. Testing of ground wave ranges and suitable antennas will start immediately. When a suitable frequency has been obtained, a miniature receiver will be constructed and tested. Use of transistors is contemplated because of low battery drain.

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8. Auxiliary Test Project No. 6, "Development of VHF Broad Band Barrage Jammer".

a. Date initiated: 5 April 1954.

b. Percentage complete: 67%.

c. Hours flown: 14:00.

d. Present status:

(1) A barrage jammer is being constructed for the frequency range of 60 to 90 megacycles. Jammer consists of ten separate, small, noise modulated oscillator-amplifier transmitters mounted in one standard ECM rack and fed to a single antenna. A power supply is mounted in another standard ECM rack.

(2) Two flight tests were flown during April against the modified SCR-270 radar at Eglin Air Force Base. The first flight was flown on 13 April using a C-47 type aircraft, an AT(XA-213)AP antenna and matching section. Bad weather in the Eglin area limited aircraft altitude to 2000 feet and below. Because of low altitude, jamming was effective on ranges from 15 to 20 miles.

(3) The second flight was flown 19 May using a C-47 aircraft at 9000 to 11000 feet altitude. An AS-161 whip antenna mounted on the top left side was used. Power output from the jammer was approximately 40 watts throughout the test.

(4) Run 1 was made outbound to Andalusia, Alabama, a distance of 54 miles. Run 2 was made inbound from Andalusia. Runs 3 and 4 were made outbound to and inbound from Greenville, Alabama, a distance of 85 miles. Poor weather conditions limited remaining runs to Crestview, Florida, a distance of about 20 miles. Thirty-six photographs were made of the radar scopes at various points throughout the runs.

(6) Jamming conditions and intensity varied with range, with the following typical examples as extracted from radar operator's log:

Range Miles	Jamming Condition
6	360°
13	almost 360°
31	110° sector from 340-90° and 170-240°

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Range Miles	Jamming Condition
46	90° sector from 330-60° with several minor jammed lobes of about 10-20° each.
55	80° sector from 330-50°. Weak back lobe jamming.
85	60° sector from 340-40°.

(7) Jamming in the major lobe sectors, as indicated above, was in all cases intense enough to hide all targets in the sector.

(8) Some work had been done on the radar antenna since the last mission. Strong targets on the PPI scope made arc's of about 30 to 40 degrees, which indicates that the half power beam width of the antenna was probably 20 to 30 degrees. The improvement was also evident in that targets could be consistently seen at ranges of 90 to 100 miles and targets reaching saturation extended out 40 to 50 miles.

9. Auxiliary Test Project Number 18, "Development of a VHF Communications Jammer Using an Increductor".

a. Date initiated: 1 April 1954.

b. Percentage complete: 47%.

c. Hours flown: None.

d. Present status:

(1) Original purpose of this project was to build a sweep jammer utilizing a power Increductor as the amplifier tank circuit for sweep jamming the 100 to 156 megacycle communications band. A transmitter was built with power output of 50 to 100 watts. Frequency range of the transmitter was 100 to 156 megacycles and was capable of sweeping this range at rates of 200 to 1200 sweeps per second. This flexibility was due to use of the Increductor which allowed sweeping with no moving parts. At this time tests conducted in conjunction with another project proved sweep jamming of communications channels in the VHF band was not effective unless prohibitive numbers of high powered jammers were used. It was then decided to use the Increductor transmitter as part of a search-and-lock-on jamming system for the same frequency range. Special search-and-lock-on con-

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trol circuits were built to complete transmitter section of the jammer. In the past month these special circuits and required power supplies have been added to the transmitter chassis. Several changes are still required to make the transmitter cover the correct range of frequencies.

(2) A search-and-lock-on receiver will be required to complete the jammer. A receiver will be built to cover the same frequency range covered by the transmitter. This receiver will also utilize the Increductor for all tuned circuits, thereby eliminating rotary capacitors. With permission of WADC, circuit diagrams were obtained from the C.G.S. Laboratories at Stamford, Connecticut, developers and manufacturers of the Increductor. Five Increductors have been requisitioned and construction of the receiver will begin when they are received.

10. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

a. Date initiated: 25 August 1954.

b. Percentage complete: 90%.

c. Hours flown: N/A.

d. Present status:

(1) The three antennas developed under this project are modifications of certain old style whips. Redesigned antennas are fitted with Teflon insulated bases so they may be plugged into standard AB-109 aircraft antenna receptacles and have RF connectors for use with RG-14/U cable, as used on ECM equipment. A matching section is provided for each antenna to broaden the usable bandwidth. Characteristics of the antennas are:

AT(XA-212)AP - A modification of the old 30½" AS-150 whip, designed to work from 97 to 140 megacycles. Has matching section approximately 8½" long.

AT(XA-213)AP - Modification of the old 40½" AS-161 whip, designed to work from 57 to 100 megacycles. Has matching section approximately 10¼" long.

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AT(XA-214)AP - Modification of the old 54½" AS-97 whip, designed to work from 45 to 77 megacycles. Has matching section approximately 14½" long.

(2) Matching sections consist of coaxial cable lengths inserted in the antenna lead at the base of the antenna.

(3) A final report on this project is being prepared and will be completed during June.

11. Auxiliary Project 24, "Effectiveness Test of the QRC-8".

a. Date initiated: 2 October 1954.

b. Percentage complete: 87%.

c. Hours flown: 179:04.

d. Present status:

(1) This project was initiated to test tactical suitability of the QRC-8(T) jamming transmitter system. The QRC-8 is an HF communications jammer covering the spectrum from two to ten megacycles using the sweeping technique. This spectrum is broken into the following bands: 2-3 mc, 3-5 mc, 5-6.5 mc, 6.4-7.5 mc, 7.5-9.0 mc, 9.0-10.2 mc. Sweeping at rates of 200 to 2000 cycles per second is achieved electronically by means of a saturable reactor used in the RF oscillator tank circuit.

(2) Tests to date indicate the QRC-8 is practical in the 3.5-5.0 mc band which is the band of primary interest. Using four or more QRC-8 transmitters sweeping this band at rates from 300 to 800 cycles per second, sufficient jamming power is available to protect a bomber formation against intercept by HF GCI directed fighters. Good jamming was obtained as close as 40 miles to a GCI site when a 500 watt ground station was used for HF communication with the fighters.

(3) Work is continuing on matching the QRC-8 to the long wire antenna used on the 2-3 and 5-6.5 megacycle bands. To date, results on the 2-3 megacycle band have been quite poor due to the low antenna resistance of 1.5 to 2.0 ohms in this band. Maximum power transfer efficiency is in the order of 10% to 15%. The antenna tuning coil in use has a "Q" of 300 to 500 over the

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2-3 megacycle band, resulting in low loss, but the impedance transformation ratio is too high for good results.

(4) In the 5.0-6.5 megacycle band, using the same antenna tuning coil, power transfer efficiency is in the order of 20% to 25%. Fair jamming results should be obtainable on this band. No field strength measurements have been made due to the lack of an HF field intensity meter. Such a meter is expected to be available in about five weeks.

12. Auxiliary Project Number 25, "Structural Suitability of Stub Antennas".

a. Date initiated: 1 July 1954.

b. Percentage complete: 100%.

c. Hours flown: 1338:42.

d. Present status: The flight testing of stub antennas is complete. This is a final report summarizing the complete project.

(1) The object of this project was to check suitability of the AT-190B/AP antenna for use on B-47 aircraft. A number of experimental stub type antennas received from WADC were also flight tested.

(2) When suitability tests were begun on the AN/ALT-7 transmitter, the only antenna available for the frequency range was the AT-190B/AP stub. After a number of flights using this antenna, it was apparent the antenna was mechanically unsatisfactory for use on B-47 aircraft. Approximately 800 flying hours were accumulated on these antenna to give them a fair evaluation. Flight altitudes ranged from ground level to 41000 feet and airspeeds were flown as fast as 0.81 mach. Antenna locations varied from bomb bay door installations (station 290-410) to as far back as station 1090. No matter what the flight conditions or antenna location, the same unsatisfactory conditions existed when antenna was visually checked: cracks in outer shell, and in some cases, pieces missing (see attached photographs); antenna completely broken off (see attached photographs); bakelite base chipping; antenna loose in AB-109/AP antenna mount (secured before flight).

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(3) Flight testing of this antenna was discontinued and minor modifications were accomplished to make it suitable for B-47 use. This laboratory was chiefly concerned with trying to make the AT-190B/AP antenna work on B-47 aircraft, whereas WADC, along with modifying the AT-190B/AP, was experimenting with other stub type antennas. A number of these experimental stub antennas were received from WADC and flight evaluation tests performed by 376th Bomb Wing. Summary of the flight evaluation on modified AT-190/AP antenna and experimental stubs is as follows:

(a) This laboratory first experimented with trying to get a more secure fit at the antenna base. Both the antenna base and AB-109 antenna mount were modified in several ways in order to reduce antenna vibration. Results were unsuccessful.

(b) Three stub type antennas similar to the AT-190B/AP but of thinner and wider cross section were received from WADC. These antennas had a supporting sleeve extending out from the antenna base. Two of the supporting sleeves were plastic and the other, metal. One of the plastic sleeve antennas was removed after the first flight and the other two were removed after 39 hours due to loose bases. These were considered unsatisfactory and returned to WADC.

(c) Two AT-190B/AP antennas were modified with Teflon bases instead of bakelite. This was to absorb shock and vibration of the center rod. These antennas flew 146 hours before being removed due to loose bases.

(d) On 10 September, five more antennas were received from WADC:

One AT-190B/AP, Phaostron Company, filled with 15% shredded material.

One AT-191B/AP, Phaostron Company, filled with Lockfoam, 10 lb/cu. foot.

One AT-190B/AP, Phaostron Company, filled with Lockfoam, 10 lb/cu. foot.

Two AT-190B/AP, Phaostron Company, filled with rubber.

1552

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These antennas were flown 66 hours 20 minutes each before being returned to WADC for inspection and evaluation.

(e) Two AT-190B/AP antennas were filled with Eccofoam FP, a casting resin. One antenna had 96 hours on it, and the other had 103 hours. Both were satisfactory, except for being loose at the base.

(f) A wire mesh reinforced plastic stub similar in appearance to the AT-190B/AP antenna was flown for 103 hours and then returned to WADC for inspection and evaluation.

(g) Four thin airfoil shape antennas similar to the AT-190B/AP type were flown for 85 hours each and returned to WADC.

(h) Two additional stubs received from WADC were tested. One was laminated plastic UHF stub; 143 hours were logged on this antenna. The other special antenna was a wide knife blade type stub made by Federal Telephone and Telegraph Laboratory. This antenna had 52 hours on it before being returned to WADC.

(4) All modified AT-190B/AP antennas and the WADC experimental antennas were in satisfactory condition, except that all had the tendency to become loose at the base. In most instances this was not critical and the looseness at the base was not aggravated by additional flight time. In no case was the outer shell cracked as on the original AT-190B/AP antennas.

13. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

a. Date initiated: 18 June 1954.

b. Percentage complete: 80%.

c. Hours flown: 62:45.

d. Present status:

(1) The AN/APS-54 is a small, wide band, crystal-video receiver designed to afford an aircrew positive warning that their aircraft is being tracked by airborne or ground-based gunlaying radar. It operates in the

1553

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frequency range of 2600 to 11000 megacycles and provides dual channels to give coverage both fore and aft of the aircraft. An alarm lamp display indicates whether radar signals of selectable minimum PRF are arriving from the nose or the tail. Provisions are made to give instantaneous visual warnings or to delay indications until aircraft has been illuminated continuously by the radar for a period of two seconds. The audible warning information is presented as audio-frequency tones corresponding to the pulse repetition frequencies of the intercepted signals. The complete operating system uses two antenna-detectors to provide a cone of coverage with an included angle of 120 degrees aft of the aircraft and a similar coverage forward. Two blanking receptacles are provided for connection to the blanking pulse outputs of the aircraft radar systems. These blanking inputs cut off the warning system for the duration of the transmitted radar pulse and prevent interference from the aircraft radar.

(2) This project was initiated to investigate operational suitability of the AN/APS-54 in single aircraft and multi-aircraft formations in the following phases:

(a) To evaluate the installation of cables, connectors, racks and wiring for the AN/APS-54 in B-47 aircraft.

(b) To determine affect on the operation of the AN/APS-54 of other electronic equipment, both accessory and functional to the B-47 and nominal support aircraft.

(c) To determine affect of electronic equipment in other nearby friendly aircraft on the operation of the AN/APS-54.

(d) To investigate reaction of the AN/APS-54 to ground-based gunlaying radar.

(3) Between 18 June and 23 July 1954 a series of preliminary tests were completed to determine optimum settings of controls, susceptibility of equipment to radiations emanating from parent aircraft and accompaning aircraft, and the operation of the system against the MSQ-2 tracking type radar. Four B-47 missions, totaling approximately 22 hours, were flown, but proper opera-

1554

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tion of the equipment was not obtained. Tests indicated such a high noise level in the equipment that when the bias was set to prevent continual triggering of the warning light circuits, no warning was obtained when the parent aircraft was tracked by the MSQ-2 radar. Further inspection placed the cause of this high noise level in the faulty installation of the antenna cables.

(4) On 26 August 1954, two representatives from WADC, and one from the Federal Telecommunications Laboratories, visited this organization to help determine and solve difficulties encountered in the AN/APS-54. One APS-54 receiver was removed from the aircraft and bench checked thoroughly. When flight tested, this equipment failed to function when the A-5 gunnery radar was placed in operation. A WADC representative conducted several experiments to obtain successful blanking of the A-5 radar in an attempt to prevent continuous illumination of the AN/APS-54 tail warning light. He determined that the 30 volt blanking pulse from the A-5 radar was not sufficient in amplitude. He arrived at a tentative fix by taking the 100 volt pulse from the IFF trigger jack and feeding it into the APS-54. No permanent fix has been offered.

(5) With the system operating properly, 26 runs were made against RBS radars of the MSQ-2 type. The following information was gained as a result of these runs:

(a) Adjustment of the gain control is not critical. Variations from maximum sensitivity to minimum sensitivity reduces the range approximately 30 miles.

(b) With the gain setting at medium, nose light comes on at an average range of 40 miles from the ground radar. The tail warning light comes on at an average range of 12 miles prior to reaching the radar site.

(c) As the aircraft flies beyond the radar, the nose warning light goes out at an average range of 11 miles and the tail warning light remains on until approximately 45 miles from the radar.

(d) By 1 October 1954, it became apparent that few of the AN/APS-54's assigned the 376th Bomb Wing were functional. At that time a team of 376th Bomb

1555

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Wing technicians was established to inspect and repair original AN/APS-54 installations on B-47 aircraft of this Wing. Discrepancies were corrected where practical and Unsatisfactory Reports were submitted in those cases requiring action at higher echelon. Three major causes of incorrect operation were discovered:

1. It was determined that the antenna-detector crystals are particularly vulnerable to damage from radiation of the K-system radar and the A-5 gunlaying radar during ground operations. Of 320 crystals removed from AN/APS-54 antennas and tested with a TS-268D/U crystal test set, 99 failed to meet requirements. Unsatisfactory Report, Serial Number 376BW-54-1862, was submitted 7 October 1954.

2. It was determined the AN/APS-54 nose video cables and K-system blanking cables are shorting out at a point under the co-pilot's catwalk where they pass the cabin heat spill valve. The maximum temperature to be expected here is 495°F. Maximum temperature under which the polyetheline dielectric of the cable (RG-71U) is usable is 212°F. As of 1 May 1955, 42 of 45 APS-54 cable installations have failed. Unsatisfactory Report, Serial Number 376BW-54-2152, was submitted 5 November 1954.

3. Because the AN/APS-54 receiver system operates just slightly above the noise level, it is important that video cables be grounded only at the amplifier chassis to avoid picking up skin currents. The nose antenna video cable passes through the pressure bulkhead near station 45 and the tail antenna video cable passes through the pressure bulkhead at station 329. In both cases, bulkhead connectors UG-492/U are used. Fiber washers are used to prevent flange portion of the connector grounding to the airframe but no steps have been taken to prevent the threaded portion from grounding. Eleven cases were discovered where the external conductor of these video cables were grounded. Unsatisfactory Report 376BW-54-1861 was submitted 7 October 1954.

1556

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(7) In addition to major sources of malfunction discussed above, the following discrepancies were discovered:

(a) In three cases, a PL-259A connector was installed on the aft end of the tail antenna cable instead of a UG-260.

(b) In three cases, no connector was installed on aft end of the A-5 blanking cable.

(c) In two cases, the A-5 blanking cable and tail antenna cable were switched and labeled wrong.

(d) In two cases, the nose antenna UG-492/U cable connectors were shorted at installation.

(e) In one case, the connections to the remote indicator lights were reversed.

(f) In one case, the wire supplying 28 volts DC to the "Forward" light on the remote indicator was omitted.

(8) On 9 February 1955, a series of operational tests were begun to determine whether the AN/APS-54 would give warning of an airborne tracking radar under simulated combat conditions. A preliminary test included the use of two B-47 aircraft which made six test runs, converging nose-on and passing over and under. Aircraft #1 simulated a fighter by operating the APS-23 radar in sector scan, dead ahead, with the antenna tilted up at the maximum angle and with high PRF (800PPS). The AN/APG-32 was in search operation. The AN/APS-54 in aircraft #2 was pre-flighted and set at maximum sensitivity with "Lower PRF Limit" set at 500 and the two-second delay switch OUT. Various altitude separations were flown to insure that aircraft #2 passed through the cone of radiation from both radar sets on aircraft #1. This circumstance did occur since aircraft #2 was visible on both radar sets of aircraft #1. On only one run did the AN/APS-54 give any indication of the other radars. At that time, the tail indicator light was illuminated intermittently for approximately one minute while in the cone of radiation of the AN/APG-32 radar. At the conclusion of the test, the AN/APS-54 receiver was inspected and no discrepancies were noted. No reason was determined for failure of the AN/APS-54 to function on the other runs.

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(9) Four flight tests were conducted using one B-47 and as many as four F-86D aircraft per test. Fighter aircraft equipped with AI radar were under GCI control and vectored into nose-on passes and tail chases with each pass beginning well outside the lock-on range of the AI radar. Separation distances between aircraft were measured accurately by radar means at the instant the AI radar locked onto the target B-47, and again at the instant an indication was given by the AN/APS-54. This series of tests emphasized several fundamental weaknesses in the AN/APS-54 system. The "PRF Lower Limit" control is completely unreliable and should be used only in the "MIN" position. This position is required in any case to detect the long range mode of the AI radar which has a PRF of 450 PPS since there is no operating point between "MIN" and "500". With "PRF Lower Limit" control at "MIN", all radar signals will activate the AN/APS-54. In areas of great electronic activity, even use of the two-second delay will not prevent lights from blinking continuously. When flying in the immediate area of high-power early warning radars, lights are activated continuously for minutes at a time. These system deficiencies made completion of tests difficult under controlled conditions; however, more than 30 runs were completed under conditions which were believed to produce valid results. In 12 nose-on passes, the APS-54 indicated presence of the tracking radar at separation distances between aircraft ranging from three to 15 nautical miles. Average distance at which an indication was received was 8.2 nautical miles. The fighter closed toward the bomber on an average distance of 3.77 nautical miles between the time the AI radar locked-on the bomber and the bomber crew received warning. These closing distances varied from 0 to 14 nautical miles. In 19 tail chases, the APS-54 indicated presence of the tracking radar at separation distances from 4.5 to 12 nautical miles. Average distance at which an indication was received was 7.7 nautical miles. The fighter closed toward the bomber an average distance of 2.39 nautical miles between time the AI radar locked on and the bomber crew received warning. These closing distances varied from 0 to 10 nautical miles. Results of this series of tests raises the question concerning whether a B-47 crew would receive warning of an impending attack from a radar in time to perform effective countermeasures.

(10) Three flights were conducted during May 1955 using two, three, and five B-47 aircraft formations in order to determine susceptibility of the AN/APS-54 to

1558

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interference from sweeping S-band jamming transmitters in formations with five nautical miles lateral separation between aircraft. In every case, regardless of the delay switch setting, the AN/APS-54 was rendered useless in the presence of jamming because both lights stayed on continuously. Jamming is identified in the audio section of the AN/APS-54 by a fast choo-choo rhythm in rise and fall of the noise level. In these formation tests during periods when jamming transmitters were off, the tail warning light was often illuminated continuously by the K-system radar of other aircraft. This condition existed regardless of the delay switch setting. No accurate formation information is available on this portion of the test since it occurred during form-up periods while aircraft separation varied in all directions from five to 15 nautical miles.

(11) Two tests have been scheduled during the next 30-day period in connection with Auxiliary Project 33 to test response of the AN/APS-54 against X-band tracking radar.

(12) No answer has been received to any of the Unsatisfactory Reports submitted in October and November 1954 on AN/APS-54 installation in B-47 aircraft.

14. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

a. Date initiated: 1 September 1953.

b. Percentage complete: 85%.

c. Hours flown: Cradles have been operational since July 1954.

d. Present status: No additional work accomplished during the month of May.

15. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self-Protection Chaff Dispensing".

a. Date initiated: 1 December 1954.

b. Percentage complete: 65%.

c. Hours flown: 4:30.

1559

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d. Present status:

(1) The AN/APS-54 is a small, wide-band crystal video receiver designed to give an aircrew positive warning that their aircraft is being tracked by airborne or ground-based gunlaying radar. It operates in the frequency range of 2600 to 11000 megacycles and provides dual channels to give coverage both fore and aft of the aircraft. An alarm lamp display indicates whether radar signals are arriving from the nose or tail of the aircraft, or both. Purpose of this test project is to modify the AN/APS-54 from its present status as a strictly passive device to an active countermeasure weapon.

(2) Flight tests of the B-47 AN/APS-54 installation have shown that both the nose and tail lights of the AN/APS-54 indicator unit will be illuminated at ranges from 16 to 20 miles when approaching gunlaying type radar. Both lights will remain illuminated until the aircraft is between 11 and 16 miles beyond the radar.

(3) It is a simple matter to make the AN/APS-54 trigger chaff bursts. Two relays are required; one relay coil is wired parallel to the nose light, the other to the tail light. Relay contacts are in series with chaff dispenser ON-OFF switch. Thus, when a gunlaying radar is tracking aircraft, and both nose and tail lights are illuminated, relay contacts are closed and chaff dispenser will operate.

(4) During January, three relay control units were fabricated and wired. Laboratory bench tests showed the system would work satisfactorily. In preparing for flight tests, relay control units were installed in three aircraft. Each required approximately two and one-half manhours. A pre-flight test can be made in conjunction with normal AN/APS-54 pre-flight, requiring a few extra minutes.

(5) Two flight tests were flown during February. Neither test produced desired results because at no time during either test were both warning lights illuminated. It was determined later that errors were made on both tests by setting the PRF lower limit selector on the video amplifier AM-924/APS-54 at too high a lower limit. It was decided that on subsequent

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tests the PRF lower limit selector would be set on the "MINIMUM" position.

(6) During March, a B-47 flew at optimum altitude for 0.74 mach against an MSQ-2 S-band tracking radar at Eglin Air Force Base. Six runs were made, each 60 miles in length and arranged to pass the radar site at ranges of two to 12 miles. Excellent results were obtained in that chaff dispenser was always triggered for ranges less than approximately 30000 to 40000 yards. Complete details of the test and results were given in the U-30 report for March.

(7) No flight tests were flown on this project during April. A flight test was scheduled during May for a mission against the M-33 X-band tracking radar; however, test was cancelled due to non-availability of the radar. This mission is scheduled to be flown during June.

16. Auxiliary Test Project Number 34, "ARC-27 Antenna Installation Modification and Evaluation".

a. Date initiated: 9 November 1954.

b. Percentage complete: 100%.

c. Hours flown: 47.
45 aircraft operational since 16 March 1955.

d. Present status: Project is complete and this is the final report.

(1) Object of this project was to correct the unsatisfactory condition of UHF radio communications caused by chaff striking the AT-247/ARC-27 stub antenna. An increase of UHF radio communication difficulties became apparent on B-47 aircraft dispensing chaff from the Blue Cradle. Flight crews reported unreliable communications during and after chaff dispensing from the cradle chaff hopper. In some cases, complete UHF radio failure was reported. Interference was caused by chaff striking the stub antenna; complete failure occurred when the rope-type chaff from the RR-44/AL bundle wrapped around and adhered to the UHF stub. A check with Malfunction Data Collection and Analysis Section, 376th Armament and Electronic Squadron, showed that during a ten-week period, 11 UHF radio

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malfunctions were directly attributed to chaff collecting on the antenna.

(2) Many solutions were suggested to correct this situation but were eliminated for one reason or another. Two of the ideas had promise of correcting this unsatisfactory condition. The first was to sweep the antenna back approximately 30 degrees from the vertical axis. The sweep angle would decrease chance of chaff hanging onto the antenna (see Figure 1, Attachment 2). The other idea was to completely inclose the UHF stub antenna in a fiberglass radome (see Figure 2, Attachment 2). The radome has approximately 20 degrees sweep to the leading edge to prevent chaff from hanging up. If chaff did stick to the leading edge, radio communications would still be possible because the radome protects the antenna from being shorted out. The two modifications were made and flight tests begun to check suitability of the installations. Antenna radiation patterns were made on both installations and compared with a standard antenna radiation pattern. The pattern for each modification compared favorably with the standard pattern. To evaluate the effect of chaff on radio communications, four chaff dispensing missions were flown for each modification. On all flights, interference from chaff striking the antenna or radome was noticeable, but good radio communications returned when chaff dispensing operations ceased.

(3) Considering the merits of both modifications, the radome modification was chosen as the one to be used. Materials were procured and radomes fabricated by this laboratory. Radomes were immediately installed on aircraft as they became available. As of 16 March 1955, all 45 B-47 aircraft of this Wing have been modified.

(4) The neoprene coating for protection of the leading edge of the radome was intentionally left off when radomes were originally installed because it was believed the chaff would have a tendency to stick to the radome leading edge if this edge was not a hard, smooth surface. Aircraft which participated in numerous chaff missions since the radome installation showed evidence of abrasion on the leading edge of the radome. It was therefore necessary to apply a coat of filler compound and four coats of neoprene compound to the radome leading edge for protection

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against abrasion from chaff, rain, dust, etc. Periodic inspections made since this additional modification have shown very little, if any, abrasion to leading edge of the fiberglass radome.

(5) Radomes will continue to be periodically checked and preventive maintenance performed as necessary to keep them in a satisfactory condition.

17. Auxiliary Test Project Number 39, "Crystal Video Jamming Homers".

a. Date initiated: 24 January 1955.

b. Percentage complete: 20%.

c. Hours flown: 8.

d. Present status:

(1) Purpose of this project is to determine if homing on a bombing aircraft can be accomplished by use of a crystal video type receiver installed in a fighter aircraft. Five crystal video receivers are to be tested. The first one received, and the one being tested at this time, is the ARD-9 receiver. Equipment with the receiver is the APA-700 switching unit and two directional antennas, AT-(XA-199)/U and AT-(XA-200). Bench tests show sensitivity of the ARD-9 receiver is about -45dbm, or about 30 db less than a receiver such as the AN/APR-9. Tests were made in the frequency range of 2700 to 3000 megacycles.

(2) Two flight tests have been made. The ARD-9 crystal video receiver was used against an AN/ALT-6 jammer on both tests. An AN/APR-9 receiver was used to check signal strength and locate jamming frequency. On the first test, with the jammer on the ground and the ARD-9 receiver in a KC-97 aircraft, a maximum range of two miles was obtained. On the same test using AN/APR-9 receiver, usable signals were detected as far out as 50 miles. On the second flight test the AN/ALT-6 jammer was installed in a C-47 aircraft and the ARD-9 receiver in another C-47. Maximum range for the ARD-9 receiver was less than one-half mile. Range for reception of the jammer on the AN/APR-9 receiver, which was also taken on the flight, was not constant and was less than six miles at all times. Different altitudes and approaches were tried with little success.

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against abrasion from chaff, rain, dust, etc. Periodic inspections made since this additional modification have shown very little, if any, abrasion to leading edge of the fiberglass radome.

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(3) From results of the first two tests, it appears that homing on a jamming aircraft with a crystal video receiver would be very difficult because of the short range possible. This applies only to the frequency range near 3000 megacycle. Other ranges of frequency have not been checked. A more sensitive receiver, such as the AN/APR-9, could be utilized for homing, but even then it is a difficult problem. Antenna patterns do not overlap when planes are near the same altitude. More tests will be flown on this project as the other receivers to be tested are received.

18. Auxiliary Test Project 44, "Modification of B-47 Aircraft Installation of AN/ALT-7 in Battery Compartment".

a. Date initiated: 10 February 1955.

b. Percentage complete: 50%.

c. Hours flown: N/A.

d. Present status: No additional work was accomplished during the month of May.

19. Auxiliary Test Project Number 45, "AN/ALQ-3 Project".

a. Date initiated: 2 May 1955.

b. Percentage complete: 10%.

c. Hours flown: None.

d. Present status:

(1) Purpose of this project is to test and evaluate tactical use of the AN/ALQ-3 S-band search-and-lock-on jamming system. No equipment has yet been received so actual tests have not been initiated. Cables and connectors were ordered for ten units so that laboratory and flight tests may begin as soon as the first units are received.

(2) A school has been initiated for Armament and Electronic personnel to familiarize the maintenance section with

1565

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the AN/ALQ-3 circuitry. This school has been conducted daily by two factory representatives from the W. L. Maxson Company, New York City.

FOR THE COMMANDER:

WILLIAM H. MURPHY
Major, USAF
Adjutant

2 Incls
1. Photo, Antenna Modification
2. Photo, Antenna Modification, Fig. 1 and 2

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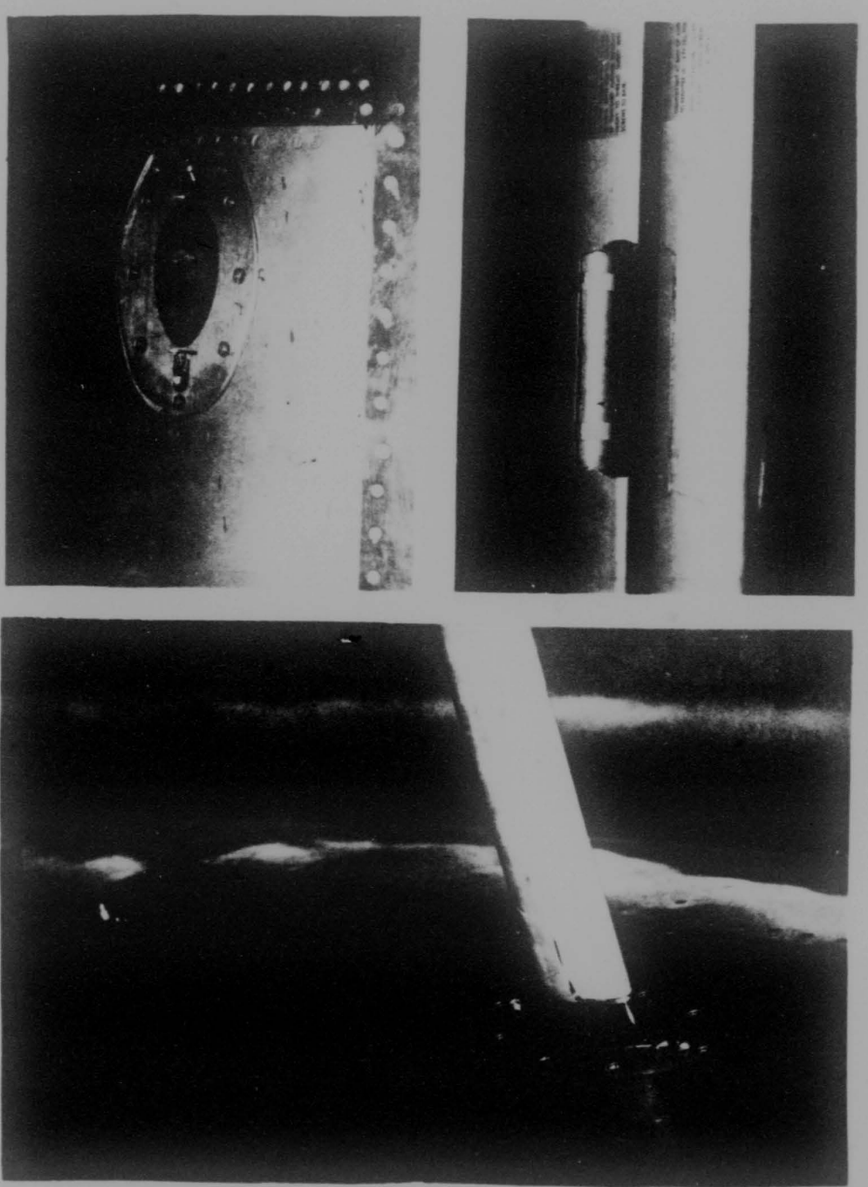

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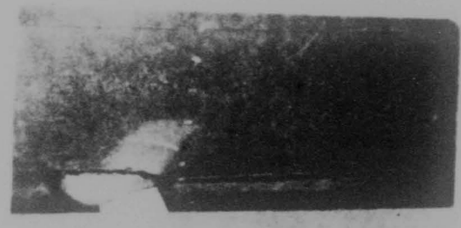

Figure 1

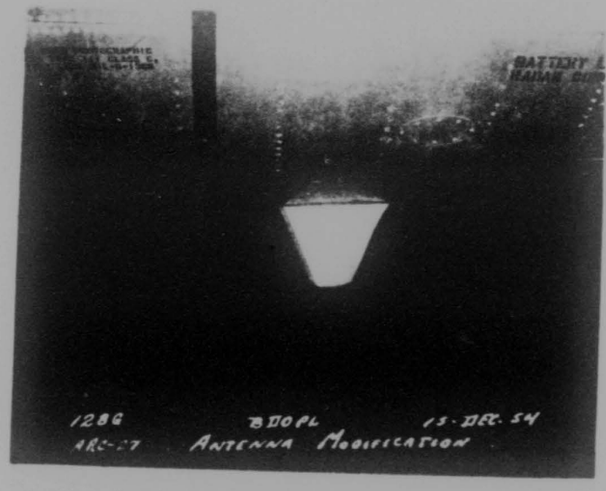

Figure 2

Mdl #2

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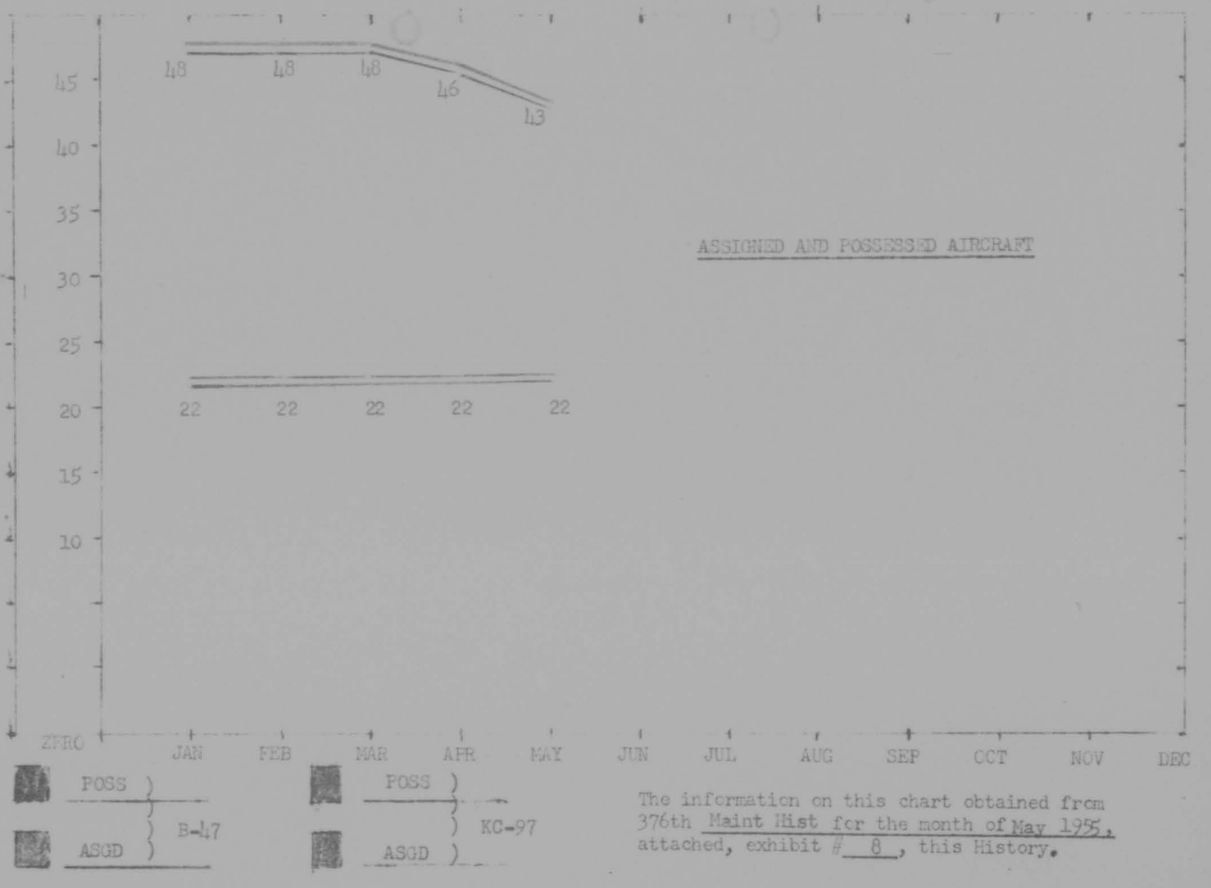

The information on this chart obtained from 376th Maint Hist for the month of May 1955, attached, exhibit # 8, this History.

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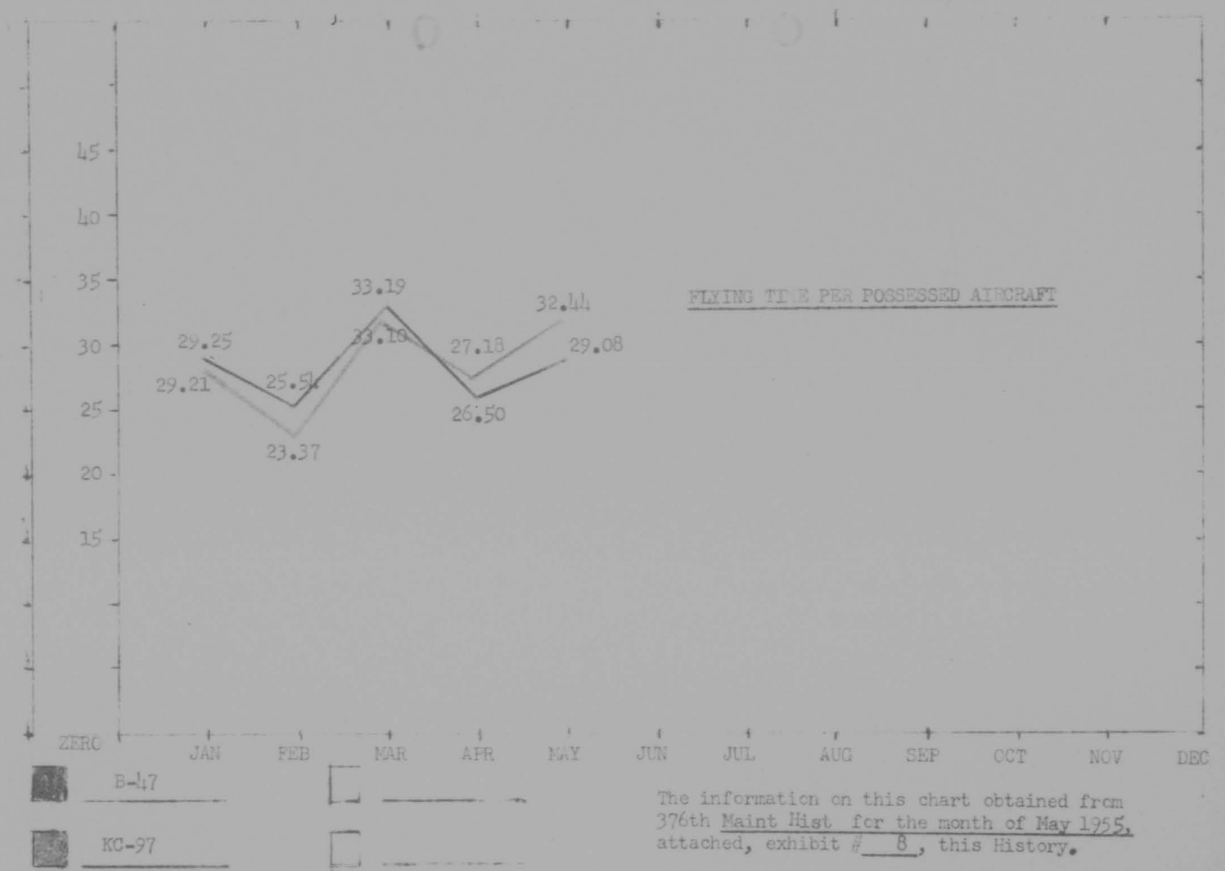

FLYING TIME PER POSSESSED AIRCRAFT

The information on this chart obtained from 376th Maint Hist for the month of May 1955, attached, exhibit # 8, this History.

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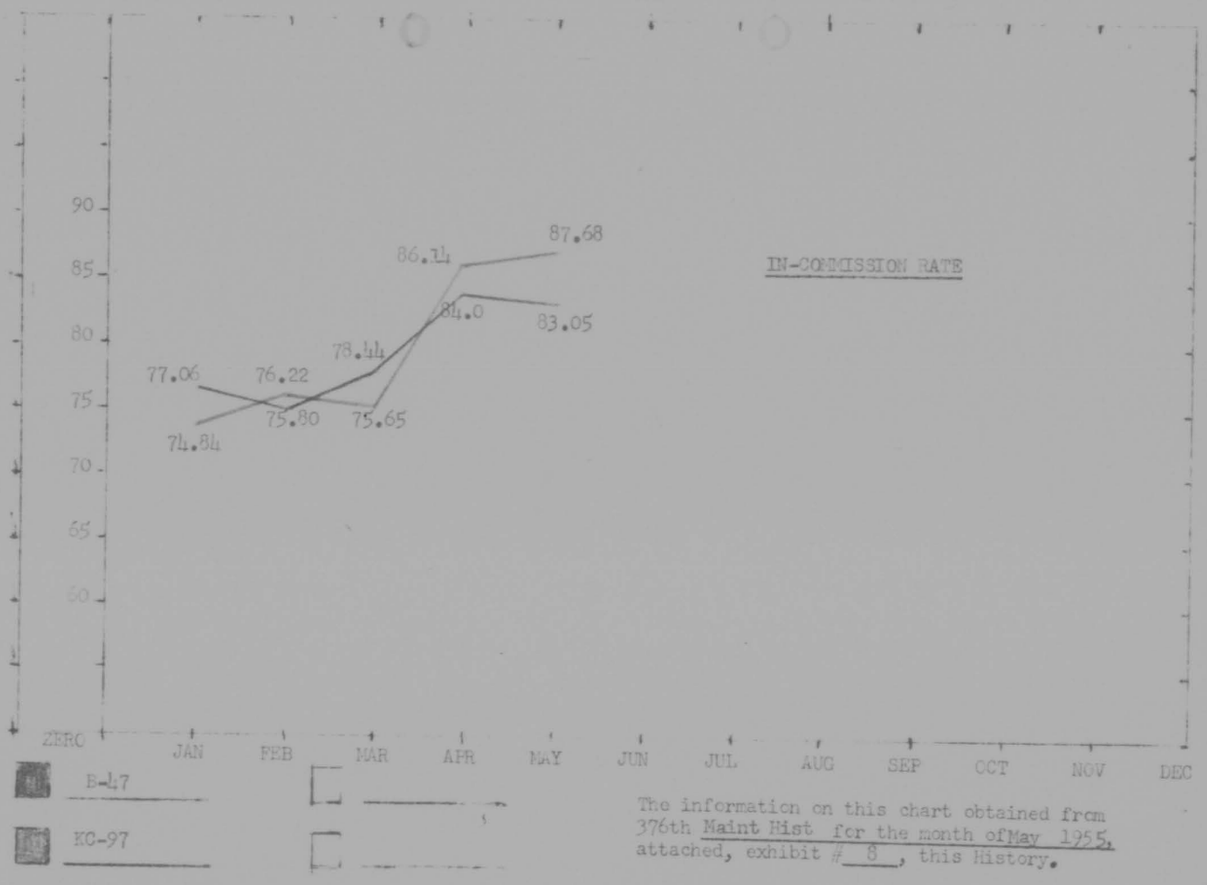

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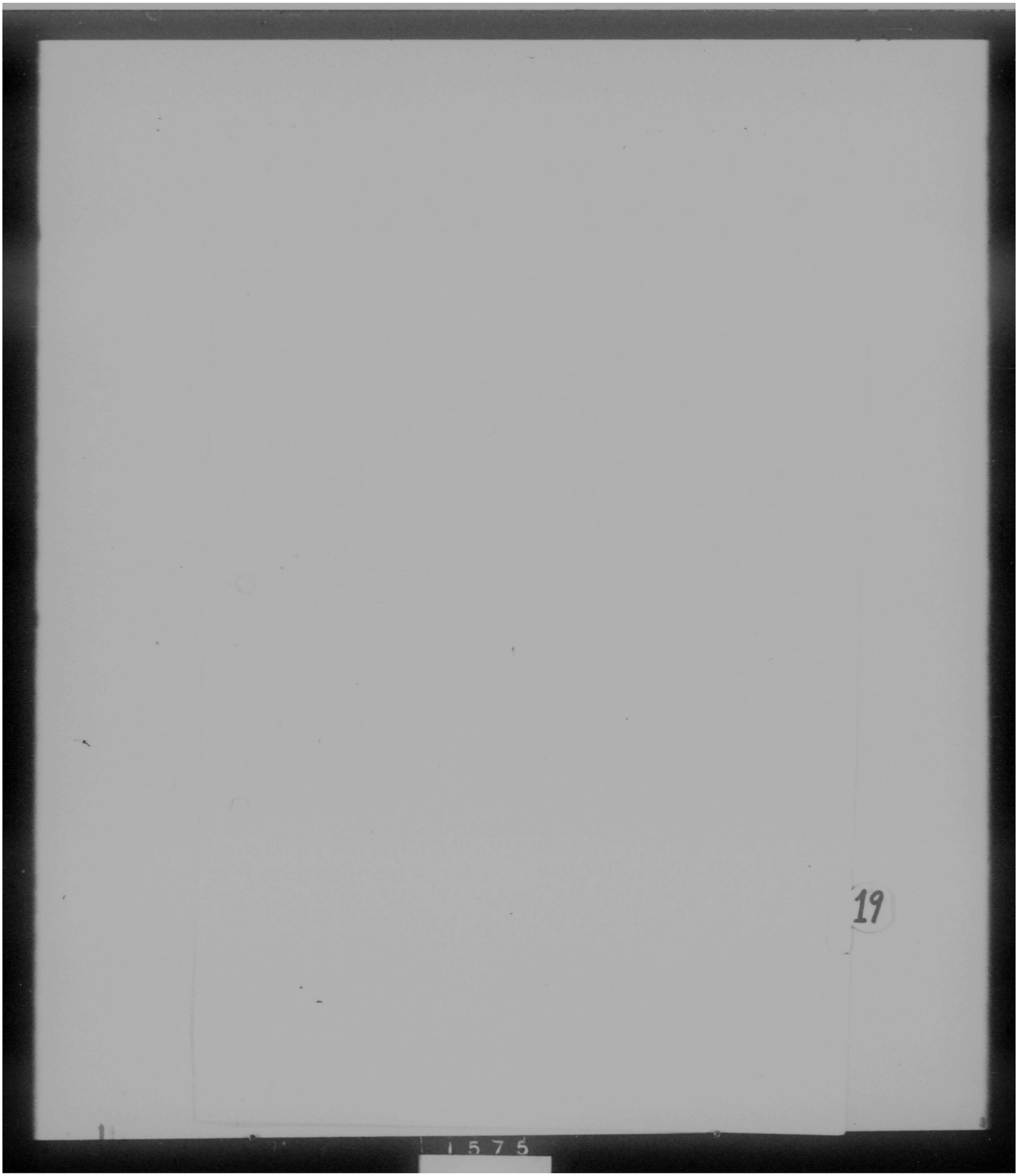

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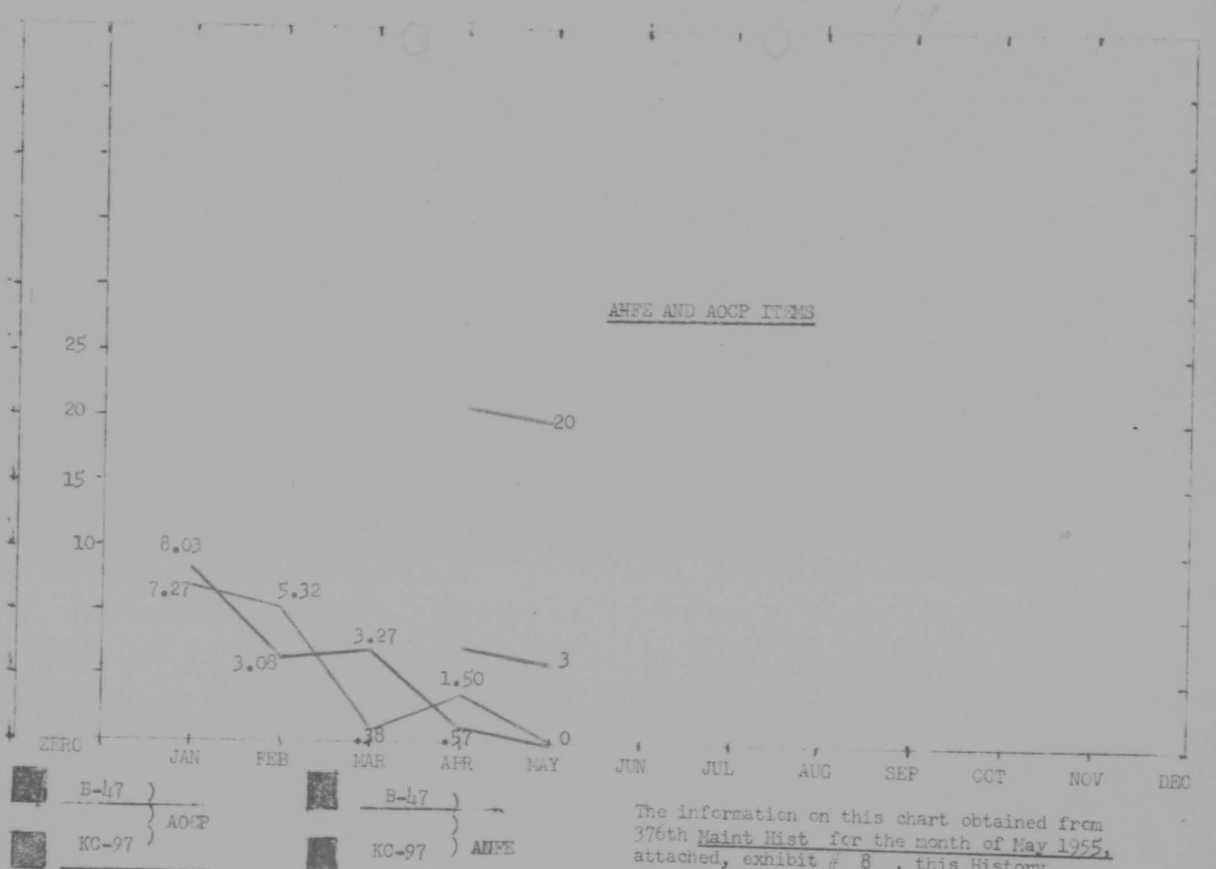

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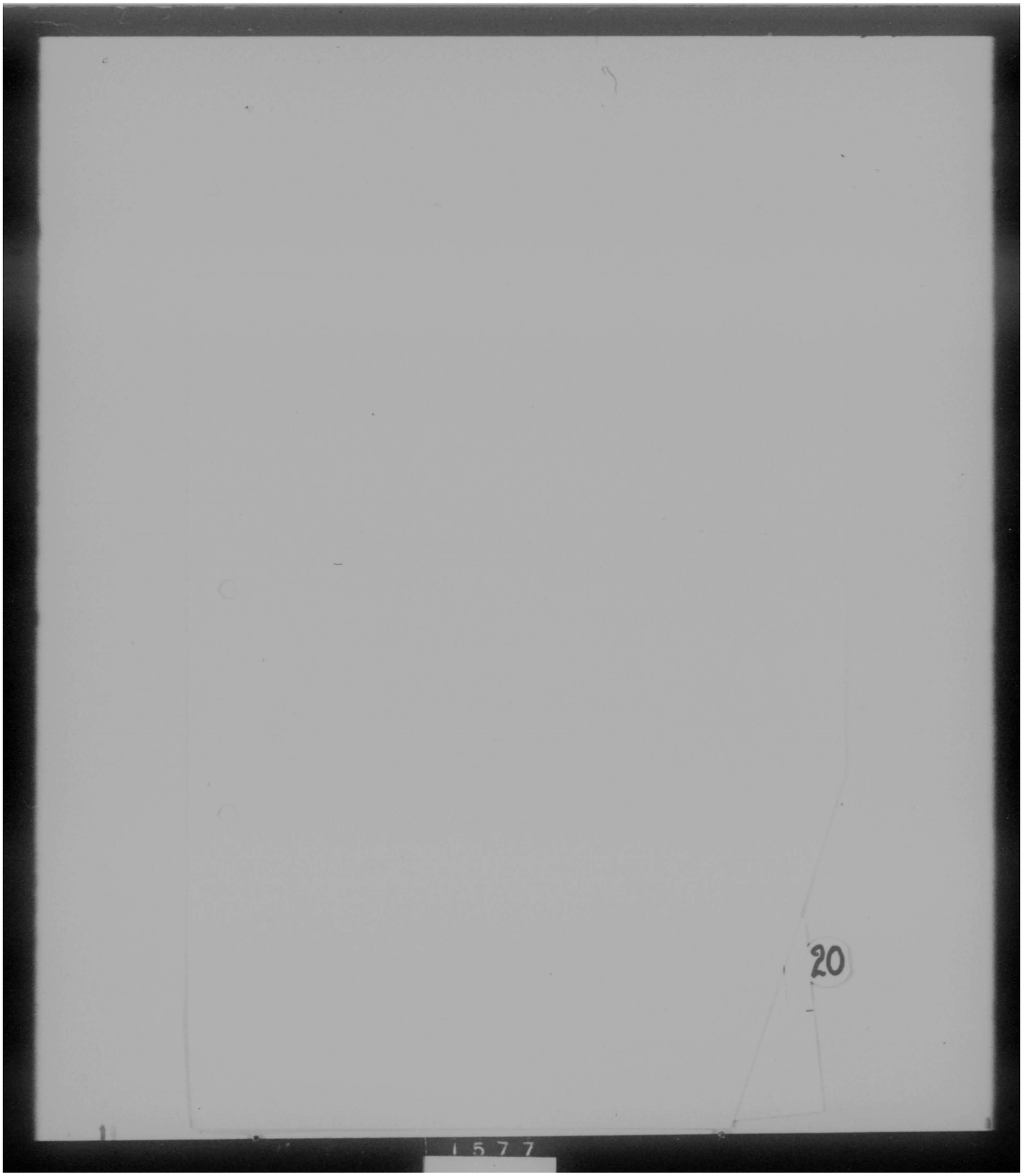

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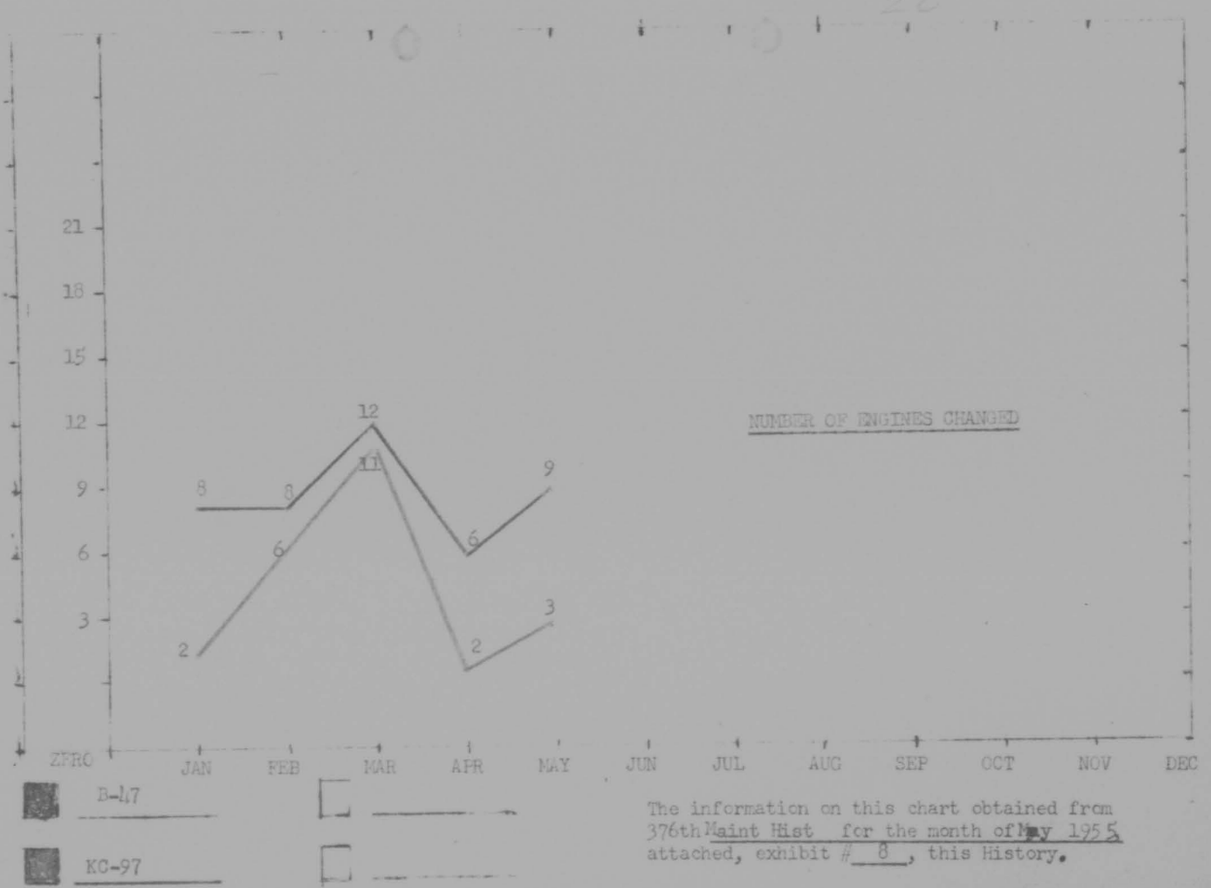

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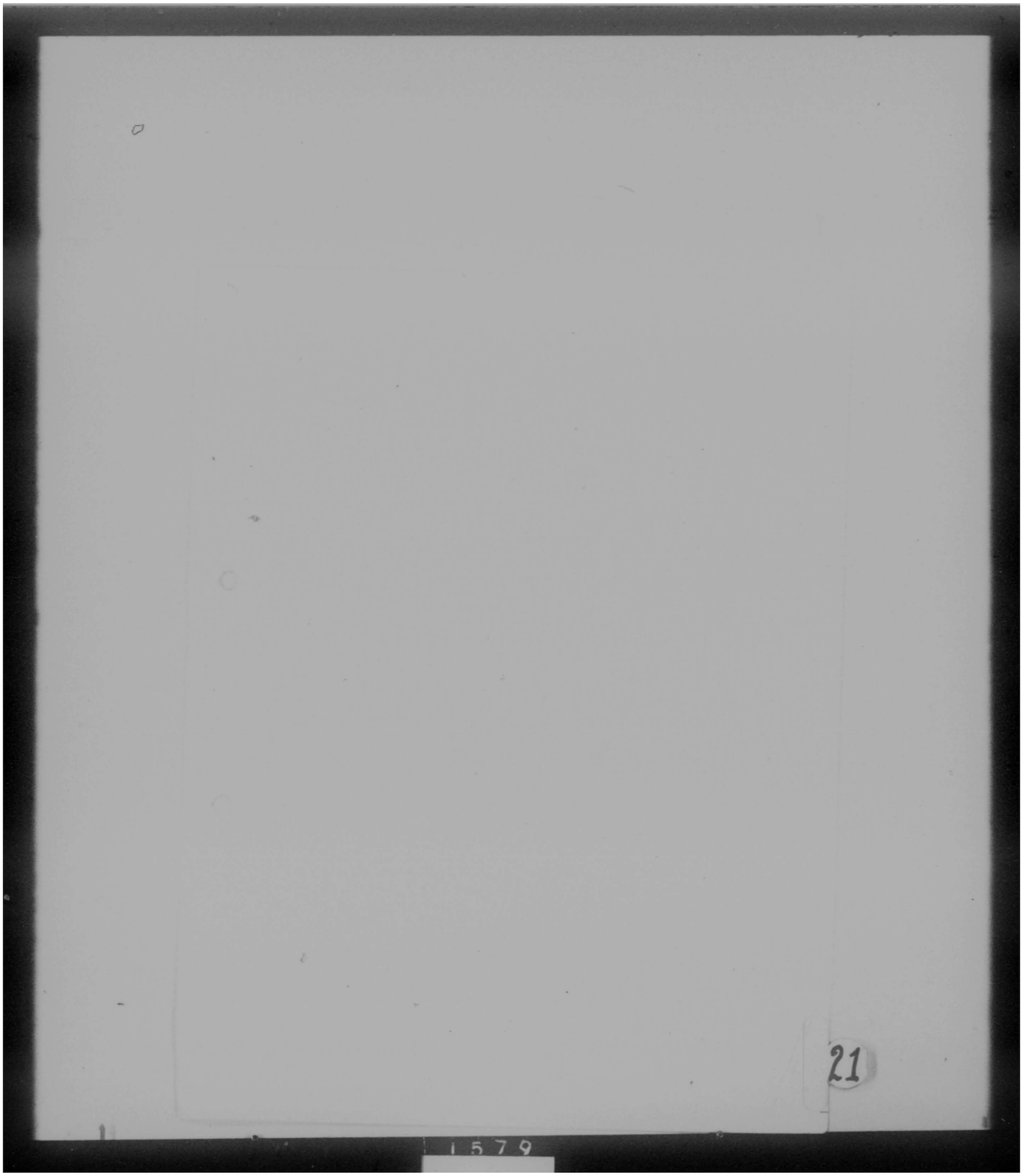

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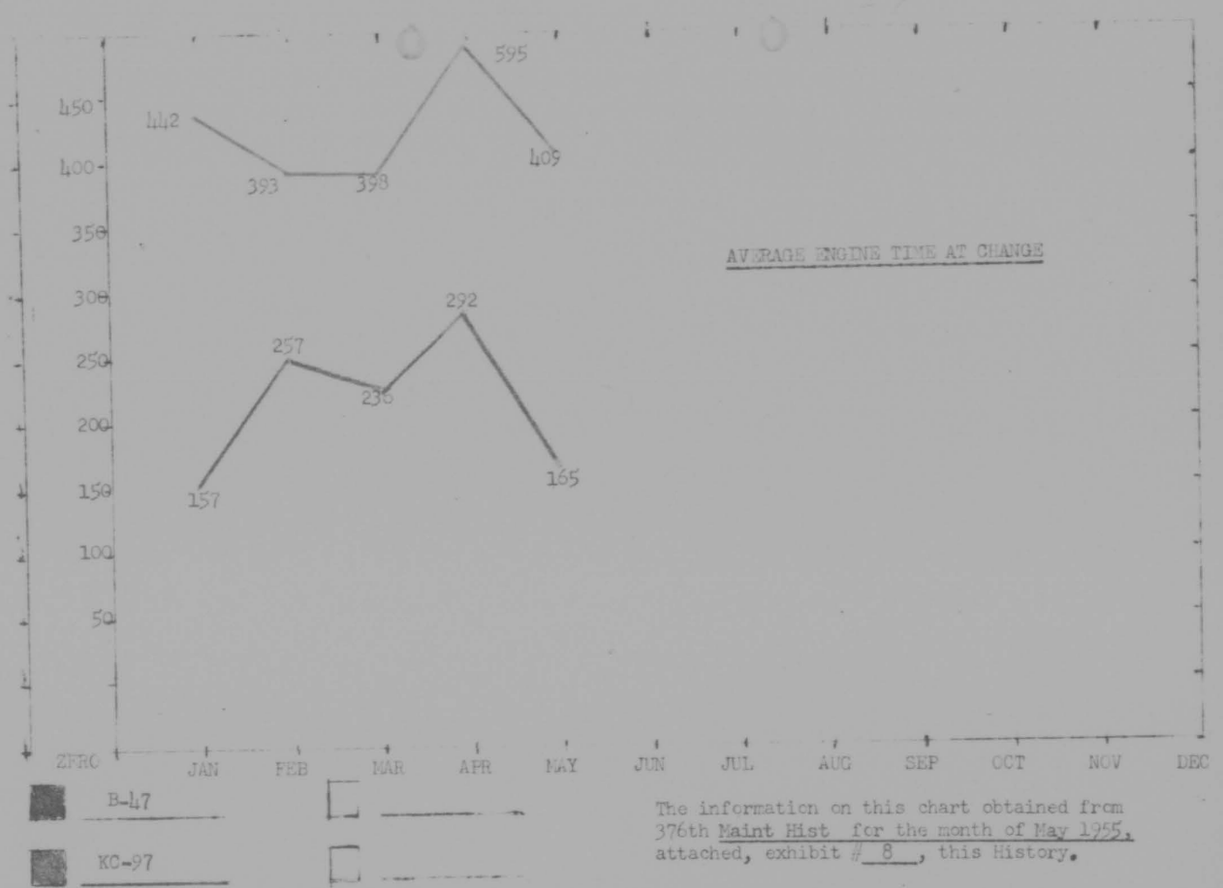

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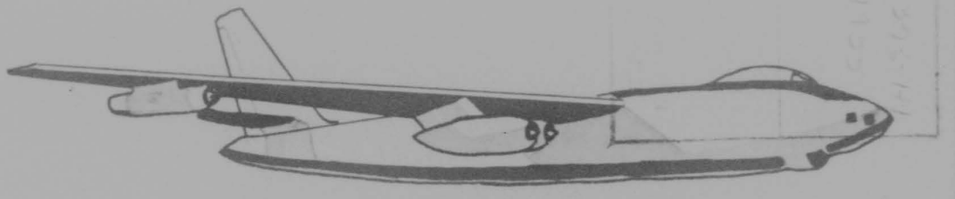

HISTORY

OF THE

376TH BOMBARDMENT WING(M)

LIBERANDOS

FOR THE MONTH OF

1-30 JUNE 1955

BARKSDALE AIR FORCE BASE

LOUISIANA

RSI Code No. S12908

11834

BCR610

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CLASS: SECRET
AUTH: COMDR 376 Bomb Wing
Initials: Ch Savage
Date: 16 Aug '55 Mej

HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 JUNE - 30 JUNE 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing, Medium
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron
376th Tactical Hospital

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

Richard G. Hall
RICHARD G. HALL
Lt Col, USAF
Commander (Rear Echelon)

(Second Air Force, Strategic Air Command)

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AUTHORITY

This Historical Report is prepared in accordance with the provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1954, as amended.

Air Force Manual 210-1, 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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1587

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CONTENTS

	Page
CHAPTER I. . . Organization and Personnel	
Personnel	1, 2
Personnel Problems	2, 3
SAC Management Control System	3
Crew Status	4
Reenlistment and AFTL Rates	4, 5
CHAPTER II . . . Operations and Training	6
Flying Time	7
Status of Test Projects	8 - 13
CHAPTER III . . . Maintenance	14
Aircraft Status	15 - 17

1588

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PERSONNEL

The total number of officers assigned at the end of June 1955 was 397,[1] which was one less than in May 1955,[2] and was 52 less than authorized strength.[3] A total of 358 officers were effectively assigned,[4] four less than in May 1955,[5] or 79.7 percent of authorized strength.[6] The figures and percentage for manning in required specialties in June were the same as for effectively assigned during the month.[7] There were seven officers separated or reassigned in June,[8] which was one less than in May,[9] or 1.56 percent of authorized strength,[10] and six officers assigned,[11] or 1.34 percent of authorized strength.[12]

The total number of airmen assigned at the end of June 1955 was 1862,[13] which was 54 more than in May,[14] and was 45 more than

1. Report, "Monthly Analysis (June 1955)", n.d., hereafter cited as "Pers Anal for Jun 55", n.d., exhibit #1, and chart, exhibit #2, this History.
2. History 376th Bomb Wing for May 1955, page 1.
3. "Pers Anal for Jun 55", n.d., exhibit #1, and chart, exhibit #2, this History.
4. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
5. History 376th Bomb Wing for May 1955, page 1.
6. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
7. Ibid.
8. "Pers Anal for Jun 55", n.d., exhibit #1, by career fields: Pilots-3, Pers Offs-2, and one each - Nurse Gen Duty, and Intel Officer, for a total of seven.
9. History 376th Bomb Wing for May 1955, page 1.
10. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
11. Ibid, by career fields: Pilots-3, and one each - Navi-Bombardier, Nurse Anesthetist, and EEM officer, for a total of six.
12. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
13. Ibid, and chart, attached, exhibit #3, this History.
14. History 376th Bomb Wing for May 1955, page 1.

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authorized strength.[15] There were 1536 effectively assigned airmen,[16] 30 less than in May,[17] or 84.5 percent of authorized strength.[18] The manning in required specialties for airmen in June was 1347 or 74.1 percent of authorized strength.[19] There were 49 airmen transferred or discharged or 2.7 percent of authorized strength,[20] and 107 airmen assigned or 5.9 percent of authorized strength.[21]

PERSONNEL PROBLEMS

Officer manning was critically short in AFSC's 1130, 1245, 2052, 3002, 3251 and 7324. Effective manning in the Intelligence career field was 45 and within six months was due to drop to 27 percent. In the Photo Interpreter career field effective manning was at 66 percent and due to drop to 33 percent within six months. In the 321 career field, even though there is an overall overage of "5" systems mechanics at the three and five level, a critical shortage

15. "Pers Anal for Jun 55", n.d., exhibit #1, and chart, attached, exhibit #3.
16. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
17. History 376th Bomb Wing for May 1955, page 2.
18. "Pers Anal for Jun 55", n.d., exhibit #1, this History.
19. Ibid.
20. Ibid, by career fields: Intel-4, Comm Ops-3, Radio & Radar repair-1, Armt Sys Maint-2, Acft Acc-2, Airplane & Eng Maint-17, Veh-2, Fabric leather & rubber-1, Trans-2, Supply-5, Admin-6, Pers-2, and Med-3, for a total of 49.
21. "Pers Anal for Jun 55", n.d., exhibit #1, this History by career fields: Intel-1, Radio & Radar Maint-9, Armt Sys Maint-6, Acft Acc-49, Airplane & Eng Maint-4, Veh-1, Metal working-7, Fabric leather & rubber-4, Food Sv-1, Supply-3, Admin-2, Pers-6, Med-11, Aircrew Protection-2, and one unknown, for a total of 107.

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still existed at the seven level and at the five level in the "K" series Stabilization and Optics sub-career fields: At the seven level, 30 were authorized, 10 assigned by primary AFSC, and 29 assigned by duty AFSC, showing that manning should improve in the near future. Effective manning in the inflight refueling career field was 45 percent and due to drop to 32 percent within six months; in the Personnel career field, effective manning was 66 percent and due to drop to 52 percent within six months; in the Air Transportation career field, manning was 44 percent.[22]

SAC MANAGEMENT CONTROL SYSTEM

Under this system the Wing received 40 percent of maximum score for officers, 60 percent for direct support airmen, and 10 percent for indirect support airmen for manning in required specialties; 100 percent for AWOL rate; 30 percent for reenlistment rate; and 100 percent for ground safety.[23] The above figures showed no increase over those for May, except for direct support airmen, which increased 10 percent.[24]

22. Report, "Bombardment Air Training Report for month of June 1955," (RCS: 3-SAC-T12), hereafter cited as "Bomb T-12 for Jun 55", n.d., exhibit #4, this History.
23. D/S, "SAC Management Control System", 8 July 1955, attached to exhibit #1, this History.
24. History 376th Bomb Wing for May 1955, page 3.

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CREW STATUS

B-47 Crews:

On the 30th of June 1955, there were 38 ready/lead crews and nine non-ready B-47 combat crews assigned.[25] During the month there was one co-pilot lost, and one gained. Four crew member changes took place, one new crew was formed, four ready crews were upgraded to lead crews, one non-ready crew upgraded to ready, and two incomplete crews were dissolved.[26]

KC-97 Crews:

On the 30th of June 1955 there were 13 ready and six non-ready combat ready KC-97 crews assigned.[27] During the month there were four crew members gained and eight lost. Thirty-one crew members were changed, no new crews were formed, and no crew status changes took place.[28]

REENLISTMENT AND AWOL RATES

During June there were 34 airmen discharged, of which 13 reenlisted giving the Wing a reenlistment rate of 38.2 percent,[29] which

25. TWX, 376th V-1 Report for 30 June 55, Files, 376th D/O Section, and chart, exhibit #5, this History.
26. "Bomb T-12 for Jun 55", n.d., exhibit #4, this History.
27. TWX, 376th V-1 Report for 30 Jun 55, Files, 376th D/O Section, and chart, exhibit #5, this History.
28. Report, "Refueling Air Training Report for the month of June 1955 (RCS: 4-MAC-T12), n.d., hereafter cited as "Refueling T-12 for Jun 55", n.d., exhibit #6, this History.
29. "Pers Anal for Jun 55", n.d., exhibit #1, and chart, exhibit #7, this History.

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1592

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was an increase of 2.5 percent over the May figure.[30]

There were three airmen AWOL during June, against a figure of 2259 assigned personnel, giving the Wing an AWOL rate of 1.33 percent,[31] which was an increase of .42 percent over the May figure.[32]

30. History 376th Bomb Wing for May 55, page 11.
31. "Pers Anal for Jun 55", n.d., exhibit #1, and chart, exhibit #7, this History.
32. History 376th Bomb Wing for May 1955, page 5.

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

During June 1955, FCF testing required 136:40 hours, ferrying aircraft to and from modification depot required 37:45 hours, and RCS evaluation required 112:05 hours, showing a total of 346:30 hours having been flown on higher headquarters missions.[33]

KC-97 Higher Headquarters Missions:

The only higher headquarters missions flown by the 98th KC-97 aircraft during June 1955 were two passenger flights to Davis-Monthan Air Force Base, Arizona, with a combined total of 17:40 hours flying time.[34]

Total Flying Time:

For B-47 aircraft, the total flying time in June was 1151:15 hours,[35] which was a slight decrease from the May figure.[36]

On KC-97 aircraft, the total flying time in June was 565:45 hours,[37] which was a slight decrease from the May figure.[38]

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33. "Load T-12 for Jun 55", n.d., exhibit #4, this History.
34. "Refueling T-12 for Jun 55", n.d., exhibit #6, this History.
35. Report, "Historical Report for the Month of June 1955", n.d., hereafter cited as "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #9, this History.
36. History 376th Bomb Wing for May 1955, page 7.
37. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #9, this History.
38. History 376th Bomb Wing for May 1955, page 7.

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FLYING TIME

B-47 Higher Headquarters Missions:

During June 1955, MCM testing required 196:40 hours, ferrying aircraft to and from modification depot required 37:45 hours, and SBS evaluation required 112:05 hours, showing a total of 346:30 hours having been flown on higher headquarters missions.[33]

KC-97 Higher Headquarters Missions:

The only higher headquarters missions flown by the Wing KC-97 aircraft during June 1955 were two passenger flights to Davis-Monthan Air Force Base, Arizona, with a combined total of 17:40 hours flying time.[34]

Total Flying Time:

For B-47 aircraft, the total flying time in June was 1131:15 hours,[35] which was a slight decrease from the May figure.[36]

On KC-97 aircraft, the total flying time in June was 565:45 hours,[37] which was a slight decrease from the May figure.[38]

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33. "Comb T-12 for Jun 55", n.d., exhibit #4, this History.
34. "Refueling T-12 for Jun 55", n.d., exhibit #6, this History.
35. Report, "Historical Report for the Month of June 1955", n.d., hereafter cited as "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #9, this History.
36. History 376th Bomb Wing for May 1955, page 7.
37. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #9, this History.
38. History 376th Bomb Wing for May 1955, page 7.

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STATUS OF TEST PROJECTS

Project 1X remained at the same stage of completion (43 percent) as in May 1955.[39] The first model was due to be delivered on approximately 10 July.[40]

Project 27 increased three percent to 90 percent of completion with an additional 36:40 hours flown (total 264:35), on Project 27B. Evaluation of the entire Project 27 test program was made and a final report was to be completed in July 1955.[41]

Project 29 increased from 60 to 90 percent of completion with no extra hours flown. The last mission flown on this project was 1684 nautical miles, flight time was 5:04 hours with a total flight error of 17 nautical miles. Thirteen pictures were taken with an average of 29 seconds radar time ON per picture, and the average time required to locate position was 2.2 minutes. Sufficient information was then available for making recommendations concerning specifications for an operational camera.[42]

Project 30 increased from 49 to 60 percent of completion. The amount of hours flown, as stated in the May report, was erroneous, (111:00), should have been 11:00 hours. The final report was to have been completed in July, covering basic details, including

39. Exhibit #15, History 376th Bomb Wing for May 1955.
40. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30) 11 Jul 55, hereafter cited as "U-30 for Jun 55", 11 Jul 55, exhibit #10, this History.
41. Ibid.
42. Ibid.

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capabilities and limitations of a typical infra-red (IR) station keeping system which could be developed. An analysis of the accuracy and possible errors of the system is also included, with suggestions on the construction of a system.[43]

Project 32 increased from 20 to 24 percent of completion with an additional 225:55 hours flown (total 395:45 hours). The purpose of the project was to determine tactics and ECM equipment necessary to protect certain bomber cell formations from enemy GCI, gunlaying and interceptor type radars. Additional 376th Bomb Wing Diamond antennas were fabricated locally and tests started to evaluate them when used with the QRC-27(T) cables and connectors. During June, eight missions were flown against different types of radar and using different transmitter configurations of transmitters and antennas. Results were to be available in July. Still needed is test equipment for the transmitters.[44]

Project 33 increased three percent to 18 percent of completion. A series of field strength tests were being run in which measurements were taken at distances of seven, 14 and 30 miles from the transmitting station. By the end of June it was apparent that the frequencies from four to ten megacycles would not be suitable.[45]

Auxiliary Project 6 remained at the same stage of completion (67

43. "U-30 for Jun 55", 11 Jul 55, exhibit #10, this History.
44. Ibid.
45. Ibid.

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percent). Using a C-47 aircraft, four flight tests were flown against the modified SCR-270 radar. On each flight the barrage frequencies were randomly pre-set in the 80 to 90 megacycle band. Effective jamming was obtained varying from 360 degree coverage at 13 miles to 60 degree sector coverage at 85 miles.[46]

Auxiliary Project 10 increased two percent to 49 percent of completion. A transmitter was built with a power output of 50 to 100 watts in the frequency range of 100 to 150 megacycles. It incorporated circuits which allowed it to be swept through the VHF frequency band and lock on any frequency to which an associated receiver was tuned. If frequency of the receiver is changed, the transmitter will automatically shift frequency to follow the receiver.[47]

Auxiliary Project 23 remained at 90 percent of completion. Three whip antennas were developed under this project, and the final report was to have been completed in July 1955.[48]

Auxiliary Project 24 increased one percent to 80 percent of completion with no additional hours flown. Results were:

> Flight tests in the 3.5 to 5.0 megacycle band show the AN/ARC-8 is capable of jamming voice communications from a 500 watt ground transmitter. With four jammers sweeping from 3.5 to 5.0 megacycles at different rates between 300 and 800 hits per second, fighter communications were jammed when separation between fighter and bombers was 20 nautical miles at a distance of 40 nautical miles from

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46. WCL-30 for Jun 55", 11 Jul 55, exhibit #10, this History.
47. Ibid.
48. Ibid.

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the GCI site. At a distance of 80 nautical miles from the GCI site, jamming was accomplished with separation of 40 to 50 miles between bomber and fighter.

In order to continue test on other frequency bands, it was necessary to design an antenna loading coil. Coils and fiberglass plastic housings are being fabricated for all 376th Bomb Wing aircraft; 24 housings have been built to date. [49]

Auxiliary Project 26 increased to 85 percent of completion with an additional 4:20 hours having been flown. It was determined that the installations of cables, connectors and wiring for the AN/APS-54 unsuitable. During June 1955, three flight tests were completed - one against the M-33 radar at Eglin Air Force Base, Florida, which confirmed the claim that the APS-54 could be triggered by X-band tracking radar. The other two tests showed that S-band frequency-swept jamming transmitters in the same aircraft affect the warning light circuits. [50]

Auxiliary Project 28 increased from 65 percent, [51] to 70 percent of completion. In the use of high powered S-band transmitters, such as the AN/APT-16, AN/ALT-6 and AN/ALT-8, considerable difficulties were encountered in the form of melting of magnetrons, low power output, and poor performance, the cause was determined to be the RG-117/U cable and UG-352/U connectors used in RF transmission lines to the antennas. The Styroflex cable was found to be satisfactory, (replacing the RG-117/U) and a new connector was designed. The new

49. "U-30 for Jun 55", 11 Jul 55, exhibit #10, this History.
50. Ibid.
51. History 376th Bomb Wing for April 1955, page 19.

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cable and redesigned connectors gave lower VSWR and increased power output over the 2600 to 3600 megacycle range.[52]

Auxiliary Project 32 remained at 85 percent of completion. Six prototype control systems for use with the AN/ALT-8 transmitter were received from the Raytheon Manufacturing Company. A Blue Cradle was to be modified to accommodate the new control system. The modification is simple and may be changed back to the original in a few minutes.[53]

Auxiliary Project 33 increased five percent to 70 percent of completion with an additional 2:50 hours flown. The first test was void because two detector crystals failed during the test. The second flight was so successful that validity of the test was questioned. It was suspected that other radars in the area might have been tracking the test aircraft. Precautions were to be taken to prevent that in the later tests.[54]

Auxiliary Project 39 remained at 20 percent of completion. Reporting on this project was suspended until other receivers are obtained for test.[55]

Auxiliary Project 45 remained at 10 percent of completion. No equipment had arrived by the end of June, but was due to arrive in

52. "U-30 for Jun 55", 11 Jul 55, exhibit #10, this History.
53. Ibid.
54. Ibid.
55. Ibid.

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1601

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July 1955.

Several visitors to the Directorate of Countermeasures Test and Tactics from various SAC B-47 wings have expressed a desire to obtain copies of the SAC B-30 Report. Problems encountered and solved by the 376th Bomb Wing in equipment installation, operation, and maintenance should closely parallel those of bomb wings equipped with new ECM gear. In the opinion of this organization, copies or extracts of this report should be disseminated to all SAC wings now having or scheduled for B-47 aircraft. Information and techniques developed by the Directorate of Countermeasures Test and Tactics regarding ECM equipment will prove invaluable to wing and squadron ECM officers in planning future maintenance, operations and training requirements.[36]

36. "B-30 for Jun 55", 11 Jul 55, exhibit #10, this History.

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CHAPTER III

-AINTENANCE

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AIRCRAFT STATUS

During the month of June 1955, the Wing had 46 B-47's assigned, and 44 possessed.[57] With a total of 1131:15 hours flown, an average of 25:22 hours was flown per possessed B-47 aircraft.[58] The figure for assigned and possessed KC-97 aircraft was 22 for June,[59] and with a total of 565:45 hours flown, an average of 25:22 hours was flown per possessed KC-97 aircraft.[60]

The in-commission rate in June was 78.94 percent on B-47 type aircraft,[61] showing a drop of 4.11 from the May figure;[62] and was 85.74 percent on KC-97 aircraft,[63] which was a slight drop from the May figure.[64]

There were 12 line items AOCP on B-47 aircraft and four on KC-97 aircraft during June,[65] which was an increase from the zero figure for May 1955.[66] There were 20 ANFE items on B-47 aircraft,[67] which was the same as in May,[68] and seven on KC-97 aircraft during

57. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #11, this History.
58. Ibid, and chart, exhibit #12, this History.
59. Ibid, and chart, exhibit #11, this History.
60. Ibid, and chart, exhibit #12, this History.
61. Ibid, and chart, exhibit #13, this History.
62. History 376th Bomb Wing for May 1955, page 24.
63. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #13, this History.
64. History 376th Bomb Wing for May 1955, page 24.
65. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit
66. History 376th Bomb Wing for May 1955, page 24.
67. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #14, this History.
68. History 376th Bomb Wing for May 1955, page 24.

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1604

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the month,[69] which was an increase of four.[70]

There were approximately 100 component parts changed on B-47 aircraft and 20 changed on KC-97 aircraft during the month,[71] which was the same as in May on KC-97 aircraft, but was double the amount on B-47 aircraft.[72] Eight B-47 and four KC-97 aircraft were processed through the Periodic Maintenance docks, 10 B-47 and three KC-97 flight line inspections were performed, and 23 B-47 and 16 KC-97 test flights were flown.[73]

In June a total of 85,520 manhours were expended as direct time, 89,596 manhours were expended as indirect time, and 14,213 manhours were expended as overtime. There were 175,086 manhours available for work and 65,035 manhours were considered as absentee hours. Of the absentee hours, 942 were for passes.[74]

There were 30 B-47 engine changes in June,[75] an increase of 21 over the May figure,[76] and seven on KC-97 aircraft,[77] an increase of four over the May figure.[78] Foreign object damage was the prime

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69. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #14, this History.
70. History 376th Bomb Wing for May 1955, page 24.
71. "Maint Hist for Jun 55", n.d., exhibit #8, this History.
72. History 376th Bomb Wing for May 1955, page 25.
73. "Maint Hist for Jun 55", n.d., exhibit #8, this History.
74. History 376th Bomb Wing for May 1955, page 25.
75. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #15, this History.
76. History 376th Bomb Wing for May 1955, page 25.
77. "Maint Hist for Jun 55", n.d., exhibit #8, and chart, exhibit #15, this History.
78. History 376th Bomb Wing for May 1955, page 25.

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causeof the large number of engines changed on B-47 aircraft in June.[79] The averare engine time at change on B-47 aircraft was 345 hours, and was 671 hours on KC-97 aircraft for the month.[80]

79. "Maint Hist for Jun 55", n.d., exhibit #70, this History.
80. Ibid, and chart, exhibit #16, this History.

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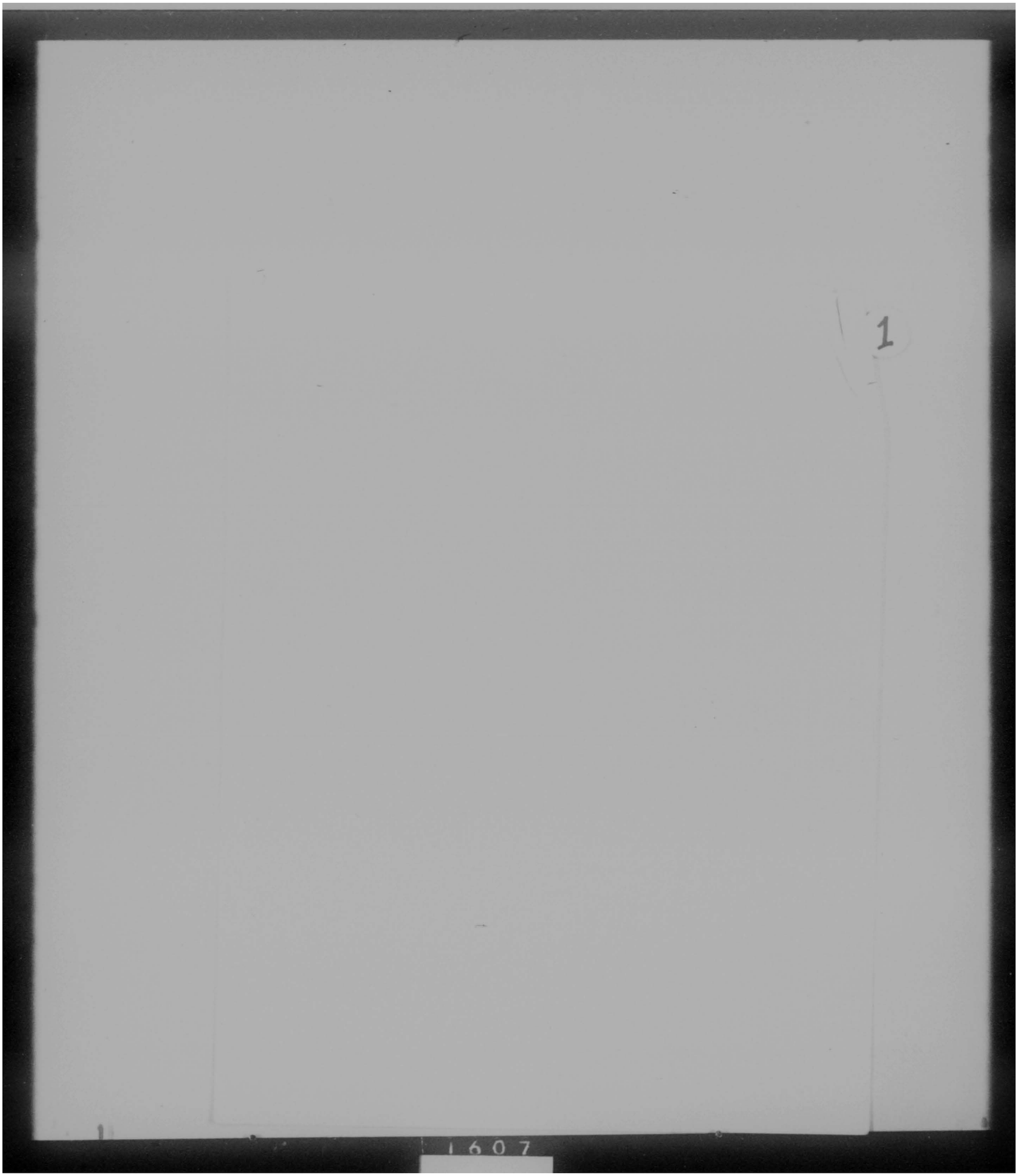

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376A

1. In compliance with D/F your office, subject as above, dated 23 Apr 54, the following information is submitted:

a. Manning in Required Specialties

		% of Maximum Score
Officers	82.4	40
Airmen (Direct Support)	85.1	60
Airmen (Indirect Support)	74.7	10

b. AWOL Rate per 1000 (April, May and June 1955):

1.49	100

c. Reënlistment Rate (April, May and June 1955):

31.6	30

d. Ground Safety (April, May and June 1955):

Ground Safety Index	Accident Cost Index	% of Maximum Score
2.45	.21	100

2. Ground Safety remained 100% of maximum score. No government vehicle accidents were charged to the Wing for April, May or June 1955.

J J TORMA, LTCOL, USAF
Director of Personnel

1608

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MONTHLY ANALYSIS (June 1955)

1. Officers assigned during June 1955:

RANK	AFSC	NAME	ORGN ASGD TO
Capt	(1521B)	Alvis B. Hill	514 BOMRON
Capt	(9744)	Edith A. Smith	376 Tac Hosp
2d Lt	(3021)	Douglas C. Cameron	376 Hq Sq
2d Lt	(1231B)	Walter W. Bednarsky	376 Hq Sq
2d Lt	(1231B)	William R. Bond	376 Hq Sq
2d Lt	(1231B)	Herbert J. Breuwer	376 Hq Sq

TOTAL: 6

2. Officers Transferred and Separated during June 1955 - Five released from active duty, one to 301st Bomb Wing (Barksdale Air Force Base, Louisiana), and one to Headquarters USAFTT, in order listed:

1st Lt	(9754)	Hazel M. Tate	376 Tac Hosp
1st Lt	(7321)	Delos F. Hamlin Jr.	376 A&E Maint Sq
1st Lt	(7321)	John E. Monkhouse Jr.	376 Per Maint Sq
1st Lt	(1231B)	John W. Hayes	514 BOMRON
1st Lt	(1231C)	Charlie S. Mills	376 AREFS
Col	(1231B)	Bernard V. Ogas	376 Hq Sq
Capt	(2051)	Marian A. Denny	513 BOMRON

TOTAL: 7

3. Airmen assigned during June 1955, by primary AFSC:

20430	- 1	43171B	- 2	73230	- 2
30130	- 6	43171E	- 1	73231	- 1
32130E	- 4	43371	- 1	73170	- 1
30132A	- 2	47135	- 1	90230	- 1
30153	- 1	53430	- 1	90250	- 2
32351	- 1	53010	- 6	90430	- 2
32351F	- 1	58010	- 3	90630	- 3
42131E	- 6	58250	- 1	90550	- 1
42230	- 21	64151	- 2	90930	- 1
42330	- 12	62250	- 1	90950	- 1
42250	- 3	64174	- 1	92230	- 2
42132	- 5	70250	- 2	Unknown	- 1
42351	- 2	73010	- 2		

TOTAL: 106 + 1 =107

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4. Airmen Transferred and Separated (not reenlisted) during June 1955, by Primary AFSC:

20431	- 1	*43151E	- 3	*64131	- 1
*20450	- 2	43170	- 1	*64151	- 4
*20650	- 1	43171E	- 3	70010	- 1
29353	- 1	43171E	- 2	70230	- 1
*29353	- 1	*43171E	- 2	70250	- 2
29370	- 1	43231	- 1	*70252	- 1
*30250	- 1	*43250	- 1	70270	- 1
*32132E	- 1	43330	- 1	73170	- 1
*32150E	- 1	*43371	- 1	73251	- 1
42151	- 1	47135	- 1	90250	- 1
42231	- 1	*47151	- 1	*90250	- 1
*43131E	- 1	*58151	- 1	*90750	- 1
43151E	- 1	60330	- 1		

* Discharged (not reenlisted)

TOTAL: 49

5. Reenlistment Rate (April, May and June 1955)

Number Discharged	Number Reenlisted	% Reenlisted
98	31	31.6

6. AWOL Rate per 1000 (April, May and June 1955)

	Assigned	Number AWOL	Percent
Officers	1194	0	0
Airmen	5514	10	1.81
TOTAL	6708	10	1.49

7. Gains and Losses:

	No Separated & Reassigned	% Auth Strength	No Asgd	% Auth Strength
Officers	7	1.56	6	1.34
Airmen	49	2.70	107	5.89

8. Effective Manning of Officers:

ORGN	Auth	Asgd	Eff Asgd and MIRS	% Eff Asgd and MIRS
376 Hq Sq	64	76	55	85.9
512 BOMRON	77	60	60	77.9
513 BOMRON	77	54	54	70.1
514 BOMRON	77	61	60	77.9
376 ARMS	100	101	91	91.0
376 AMS Maint Sq	15	14	11	73.3
376 Fld Maint Sq	8	7	6	75.0
376 Per Maint Sq	4	3	3	75.0
376 Tac Hosp	27	21	18	66.7
TOTAL:	449	397	358	79.7

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9. Effective Manning of Airmen:

ORGN	DIR AUTH	DIR SUPP ASGD	INDIR AUTH	INDIR SUPP ASGD	DIR EFF ASGD	DIR NO MIRS	INDIR EFF ASGD	INDIR NO MIRS	DIR % EFF ASGD	DIR % MIRS	INDIR % EFF ASGD	INDIR % MIRS
376 HEDRON	57	48	80	80	40	39	63	55	70.2	68.4	78.8	68.8
512 EOMRON	86	76	24	22	77	73	20	16	89.5	84.2	83.3	66.7
513 EOMRON	85	81	24	19	77	64	20	18	90.6	78.8	83.3	75.0
514 EOMRON	96	94	24	20	92	81	18	16	95.8	84.4	75.0	66.7
376 ARGFS	193	185	53	50	150	140	46	38	77.8	72.5	86.8	71.7
376 FLTMAINTRON	283	300	186	168	252	212	142	128	89.0	74.9	76.3	68.8
376 FDMAINTRON	94	107	20	19	86	86	16	12	91.5	91.5	80.0	60.0
376 ARMT&ELCTMAINTRON	345	428	72	56	297	239	55	49	86.1	69.3	76.4	68.1
376 TACHOSP	1	0	94	107	0	0	85	81	0	0	90.4	96.2
TOTAL	1240	1321	577	541	1071	934	465	413	86.4	75.3	80.6	71.6
Consolidated MIRS	1240		577			1031		431		83.1		74.7

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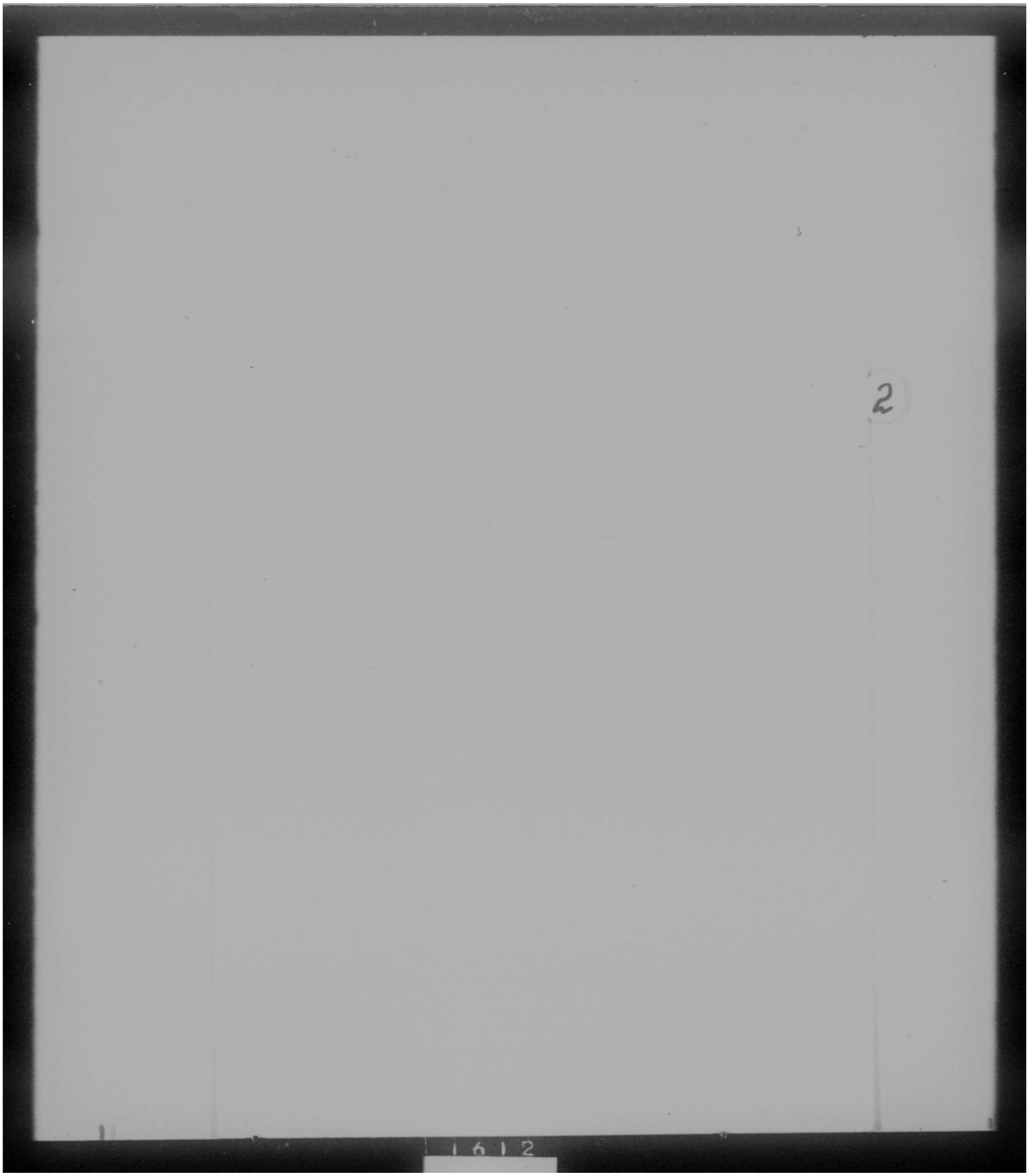

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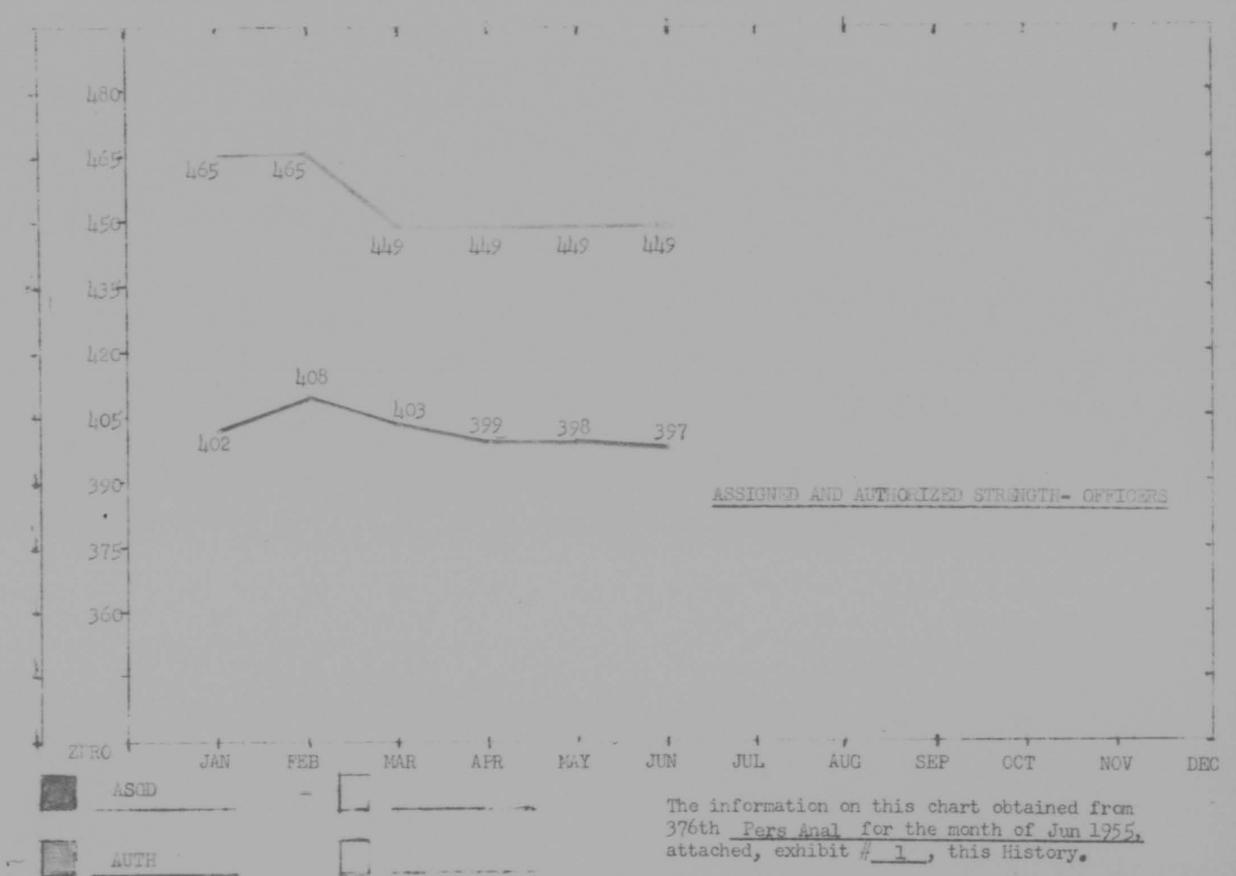

ASSIGNED AND AUTHORIZED STRENGTH- OFFICERS

The information on this chart obtained from 376th Pers Anal for the month of Jun 1955, attached, exhibit # 1, this History.

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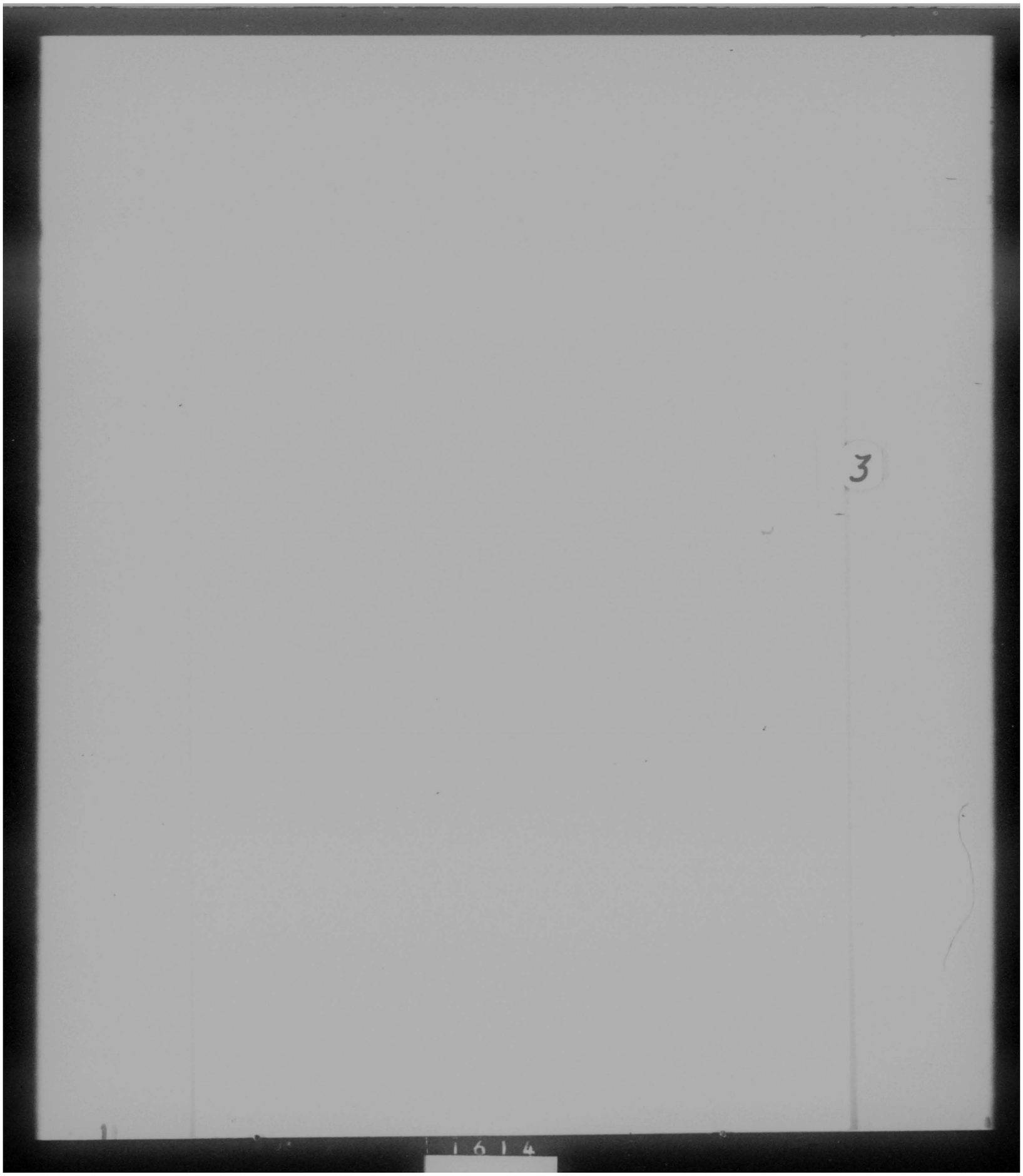

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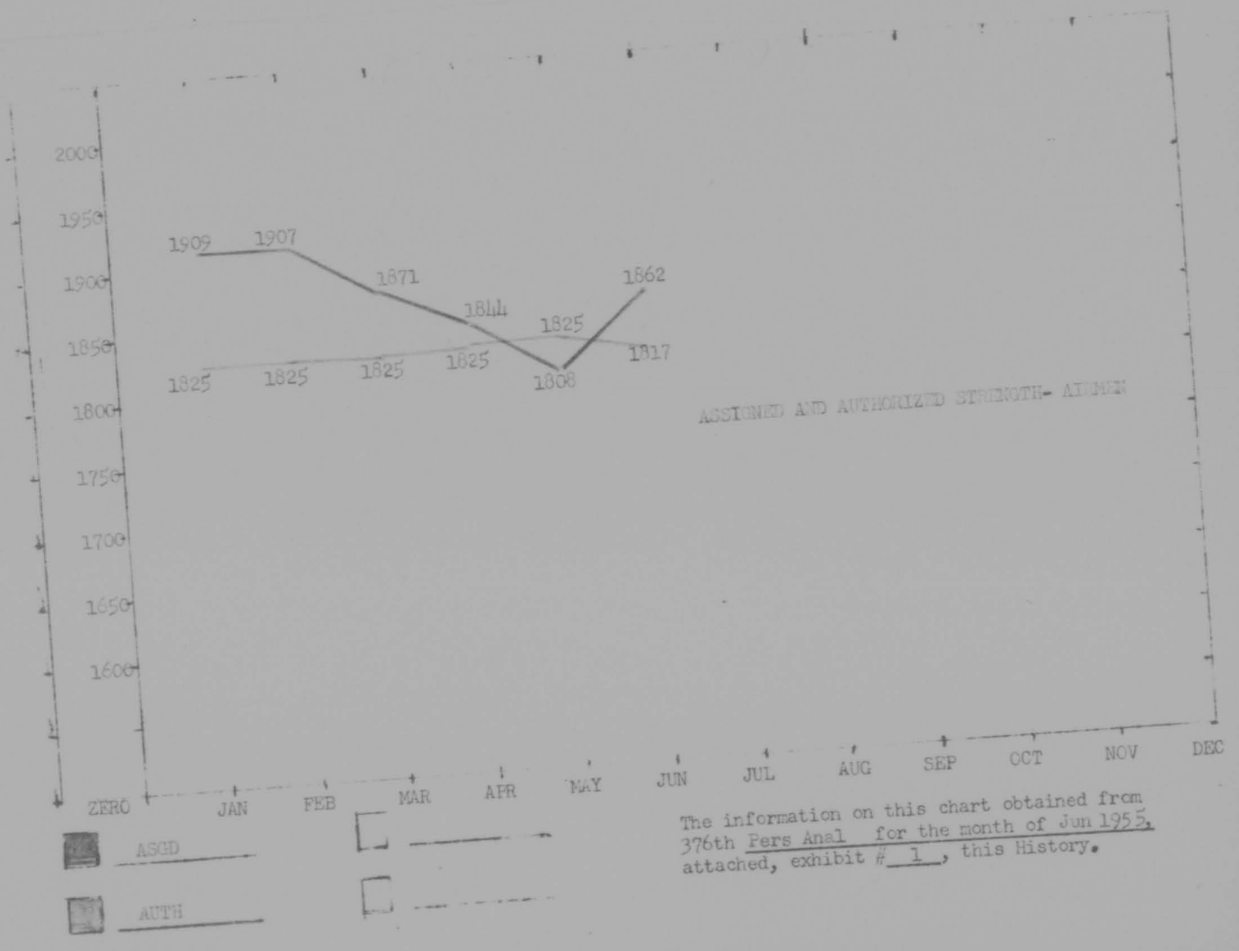

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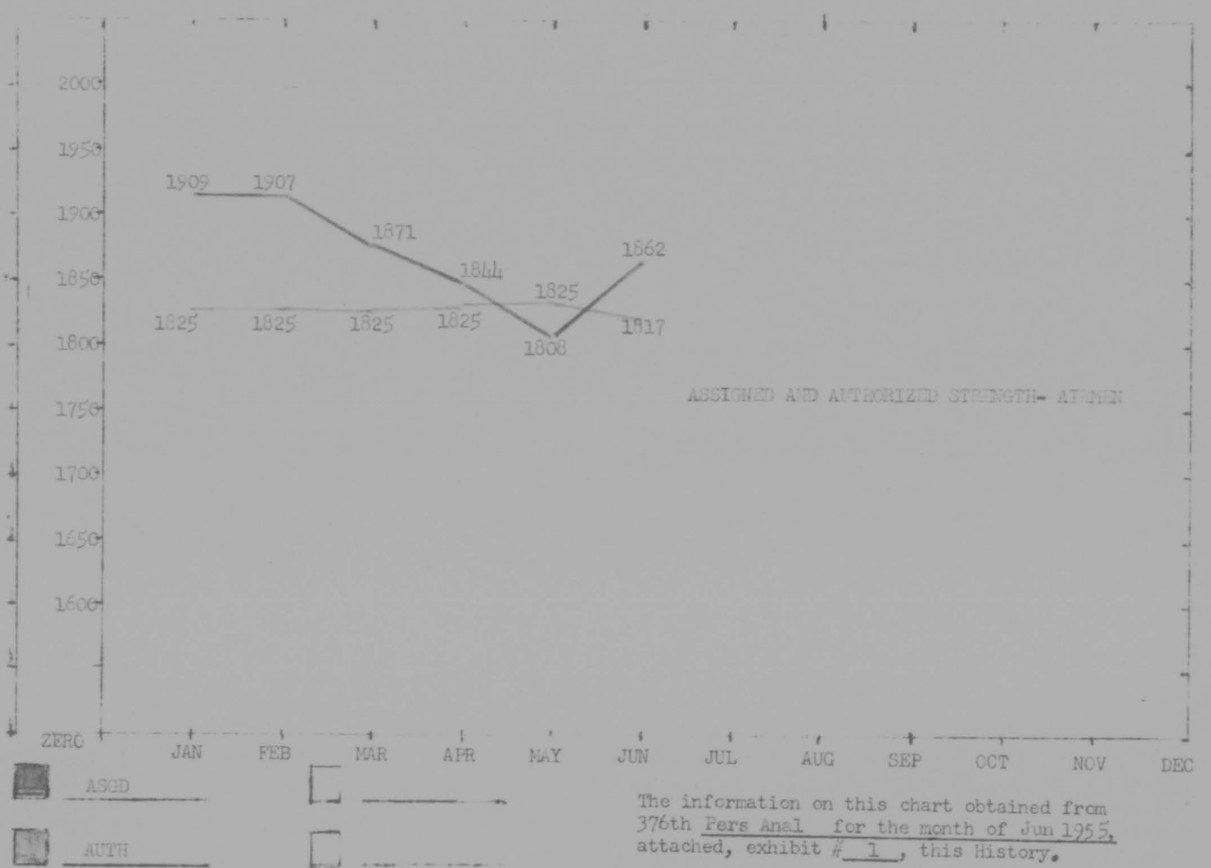

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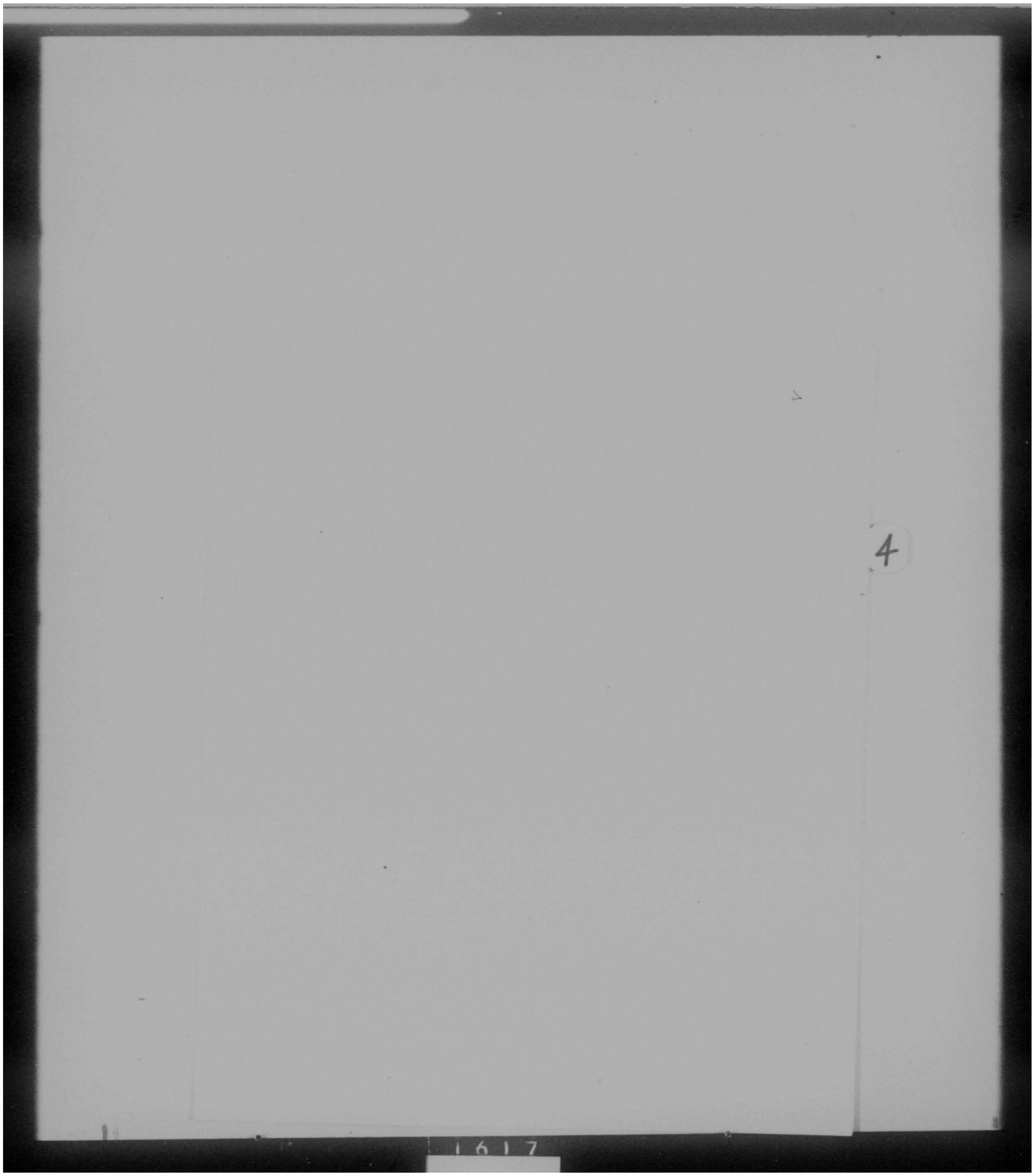

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

CLASSIFICATION: SE
AUTH: COMMONWGM 37
INITIALS [illegible]
6 JULY 1955

WING COMMANDER'S REMARKS

PART V

Bombardment Air Training Report for month of June 1955
(RCS: 3-SAC-T12)

PART V:

6. Wing Commander's Remarks - Part V

a. Hours flown performing missions ordered by higher headquarters:

(1)	BCM Test:	196:40
(2)	Ferrying aircraft to and from modification depot:	37:45
(3)	SES Evaluation	112:05
	TOTAL	346:30

b. Weather or local conditions affecting training:

(1) None.

c. Directives imposed by AMC or SAC on aircraft:

(1) None.

d. Combat crew member gains or losses:

(1) Gains: One co-pilot .

(2) Losses: One co-pilot s eparated from service.

e. Crew member changes:

(1) Three co-pilots.

(2) One observer.

f. New crews:

(1) IM19 effective 10 June 1955.

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Wg Condr's Remarks, 376th Bombardment Wing Air Tng Rept for Jun 55

e. Crew Status changes:

(1) R08 to L08, 24 June. Upgraded.

(2) R13 to L13, 30 June. Upgraded.

(3) R42 to L42, 7 June. Upgraded.

(4) R74 to L74, 20 June. Upgraded.

(5) N54 to R54, 30 June. Upgraded.

(6) N03 dissolved 30 June.

(7) N57 dissolved 10 June.

h. Standardization Crews:

(1) S04, wing standardization crew.

(2) L11, L37, and L70 are squadron standardization crews.

i. Additional materiel and personnel problems:

(1) Officer manning in AFSC's 1434B, 1245, 2054, 3024, 3254 and 7324 remains critically short.

(2) Effective manning in the intelligence career field is 45 percent. With known losses and no known input, within six months effective manning will be reduced to 27 percent.

(3) Effective manning in the Photo Interpreter career field is 66 percent. With known losses and no known input, within six months effective manning will be 33 percent.

(4) Career field 321: Even though there is an overall overage of "E" System Mechanics at the three and five level, a critical shortage still exists at the seven level and at the

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Wg Comdr's Remarks, 376th Bombardment Wing Air TNG ,EPT for JUN 55

five level in the "K" Series Stabili,ation and Optics sub-fields. Manning at the seven level is as follows: Authorized 38, ten assigned by PAFSC, and 27 assigned by DAFSC. The large number assigned duty compared to the number assigned PAFSC is an indication of the number that is presently in training. Through this training, manning at the seven level will imerove in the near future. Manning in AFS: 32150B is 20 percent, 32150C is 80 percent, and 32150D is 25 percent.

(5) Effective manning in the inflight refueling career field is 45 percent. With known losses and no known input, within six months effective manning will be reduced to 32 percent.

(6) Effective manning in the Air Transportation career field is 44 percent.

(7) Effective manning in the Personnel career field is 66 percent. With known losses and no input, within six months effective manning will be reduced to 52 percent.

(8) During the month of June the Boeing Airplane Company was accomplishing the Phase III SCM modification on 376th Bombardment Wing aircraft. Twenty-one aircraft were processed through the line during this time, with each aircraft out for four days, a total of 84 aircraft days.

(9) A total of nine aircraft were in the depot during June for drag angle modification. This resulted in a loss of 152 aircraft days.

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(10) Approximately 44 aircraft days were lost due to repair of cracks in wing trailing edges, control surfaces, and bomb bay tank support pods. A team of nine sheet metal technicians from SAAMA were engaged in this work for the entire month of June.

(11) Supply support during June was very good in most classes, but certain items of electronics equipment were AOTE during the month. Wave guides and RT-124's were the primary supply items affecting training. A supply difficulty letter has been submitted.

3. SAC Minimum Training Requirements not accomplished:

(1) Only 40.6 percent of the monthly ECM requirements under Supplement X, SAC Regulation 50-8 was accomplished during June 1955. Fifty-six Big Snow, 52 Little Snow, and 26 Big River runs were scheduled. Of these, 34 Big Snow, 28 Little Snow, and 11 Big River runs were accomplished. Eighteen electronic and four chaff runs were lost due to the ADC site cancelling or performing unscheduled maintenance. Twenty-one electronic and seven chaff runs were cancelled due to weather precluding use of electronic jamming equipment. Ten electronic runs were not accomplished due to ECM equipment malfunctions and maintenance personnel errors. Credit for two Big River runs was lost because the scope photos taken by the ADC sites were either completely blank or so blurred as to be unscorable. Only seven photos were received prior to the end of the month.

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Wg Comdr's Remarks, 376th Bombardment Wing Air Tng Dept for JUN 55

k. Non-combat ready crews capable of deploying:

(1) Four crews: N12, N17, N20 and N55 have been trained to a point where they could be deployed for ECM missions in the event of an emergency.

l. Non-combat ready crew training:

(1) Four non-combat ready crews (excluding IN crews) were in training during June.

(2) Eighteen sorties for a total of 78 hours were flown as 5X time in training non-combat ready crew personnel.

(3) The following non-combat ready crews are estimated to be combatready on dates indicated:

(1) N12 1 September 1955

(2) N17 15 July 1955

(3) N20 1 October 1955

(4) N55 1 October 1955

(5) IN19 1 February 1956

(6) IN36 1 Decembe r 1955

(7) IN40 1 Novenber 1955

(8) IN35 1 Novenber 1955

(9) IN46 1 February 1956

m. Flying time differences: Rescinded per SAC Message DOTTS 45973.

n. Field Training Operations:

(1) Test of facilities: None.

(2) Exercise: None.

o. Special Training Month remarks:

(1) Not applicable.

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Hq Comdr's Remarks, 376th Bombardment Wing Air Tng Rept for Jun 55

P. Comments or recommendation of the Wing Commander:

(1) Excessive drag angle repairs required in addition to the Phase III ECM modification has greatly reduced the flying training program for the month of June. It is anticipated that 44 of the 46 aircraft assigned will be available for deployment during July. Of the two remaining, one is presently at OCAMA, and the other is scheduled to go to OCAMA for repair of double drag angle cracks; these two aircraft are scheduled to remain at Barksdale AFB on return from modification for use in ECM tests.

(2) Two flying days were lost in execution of Operations Order 10-55 test alerts.

(3) The average number of combat ready/lead crews assigned during June was 37. A total of 804 hours (excluding test flight time) were flown for an average of 21.73 hours per crew.

(4) The average number of non-combat ready crews available for flying training was three. A total of 77 hours were flown for an average of 25.66 hours per crew.

(5) The average number of possessed aircraft during June was 44. The average time per aircraft was 25.5 hours.

(6) Reference 2AF message DOTG 2628 dated 14 June 1955. Six crew members sustained injuries as a result of judo training, requiring the attention of the flight surgeon. Only one crew member was placed DNIF due to this training.

STUYVESANT D. McELROY
Colonel, USAF
Commander

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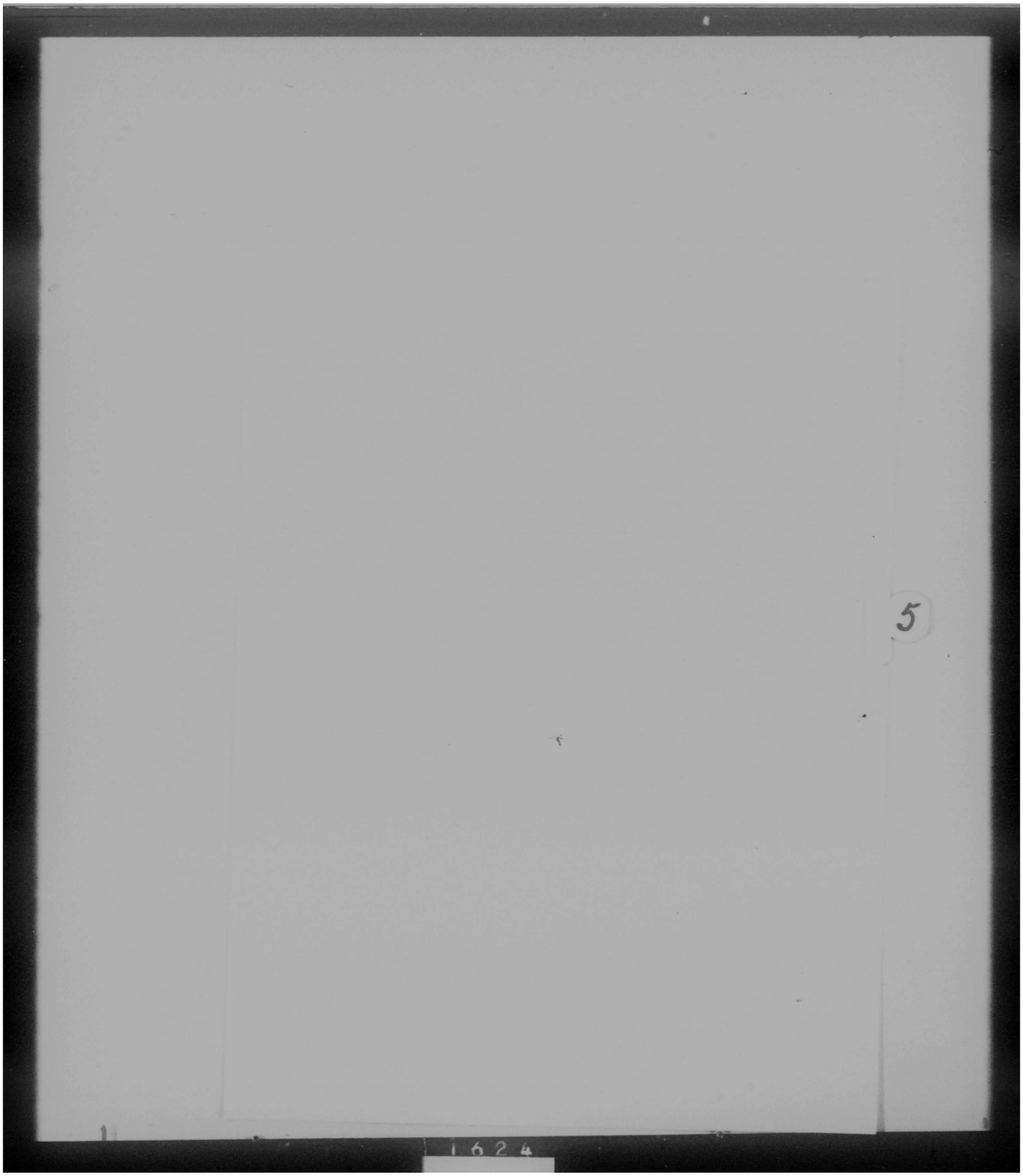

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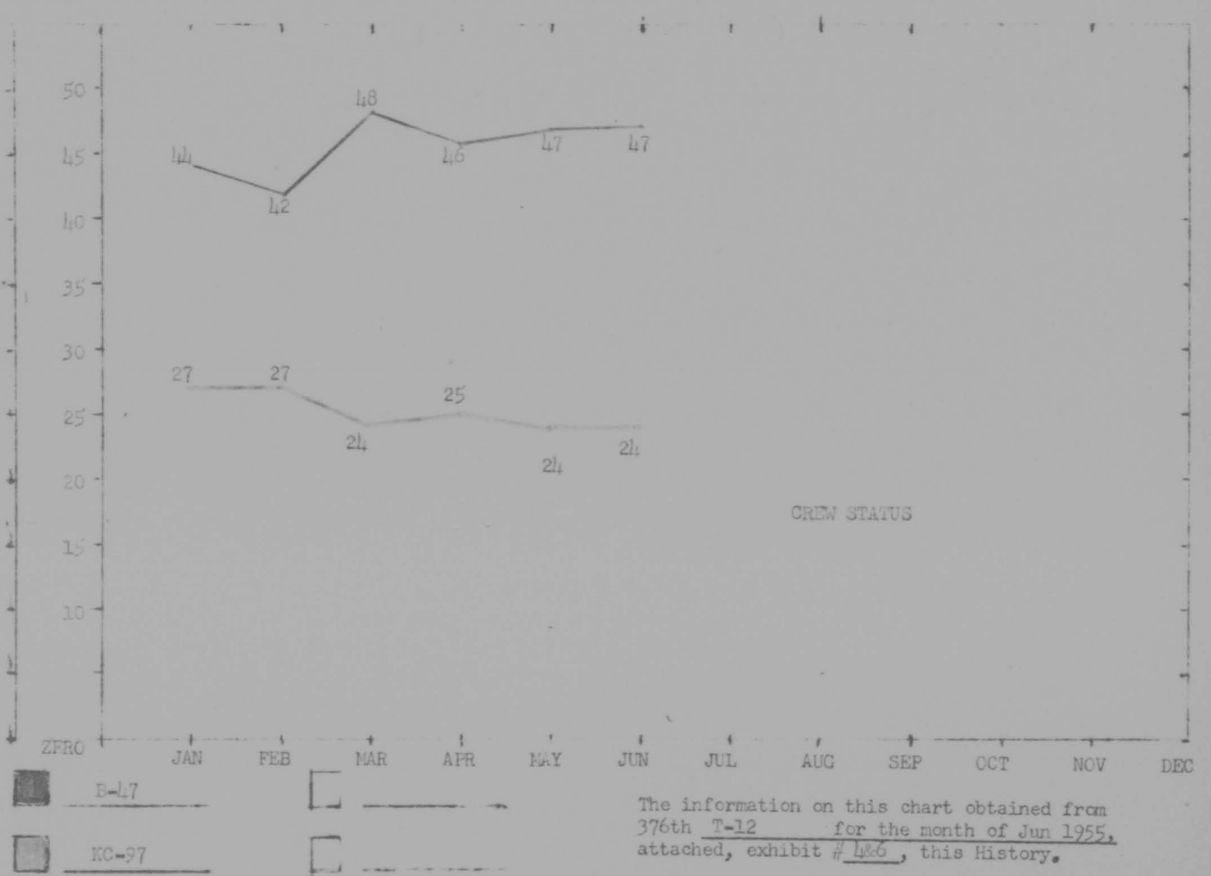

CREW STATUS

The information on this chart obtained from 376th T-12 for the month of Jun 1955, attached, exhibit # L&6, this History.

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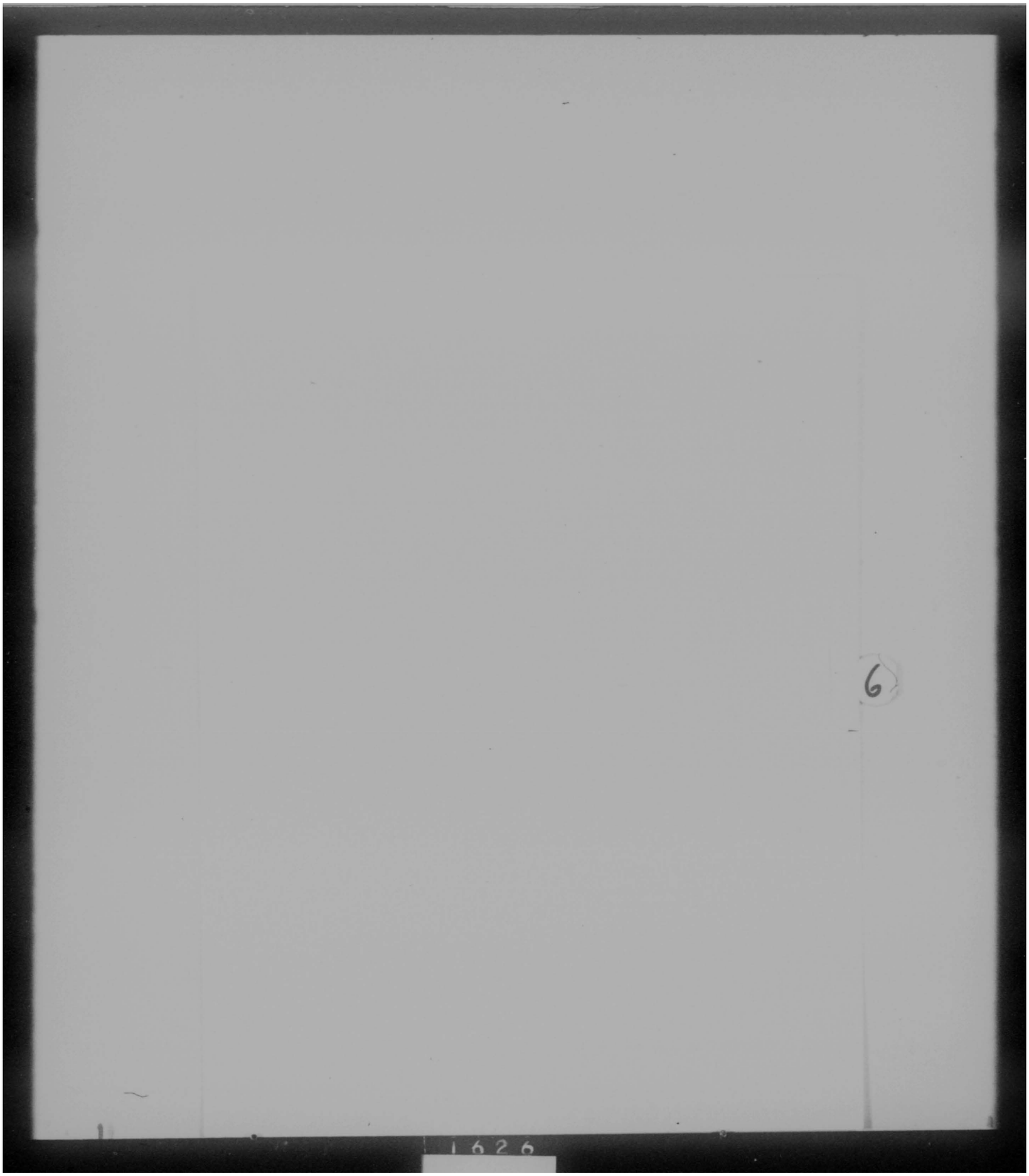

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CLASSIFICATION: SECRET
AUTH: COMDR 376TH BOMWGN
Initials
Date: 6 July 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

WING COMMANDER'S REMARKS

PART IV

Refueling Air Training Report for the month of June 1955
(RCS: 4-SAC-T12)

PART IV:

7. I concur with comments of the Squadron Commander.

STEPHEN D. McELROY
Colonel, USAF
Commander

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376TH AIR REFUELING SQUADRON
376TH BOMBARDMENT WING (H)
Barksdale Air Force Base
Louisiana

CLASSIFICATION: SECRET
AUTH CO 376TH BOMB WG
INITIALS
DATE 6 JUL 55

PART III

Air Training Report for the Month of June 1955
(RCS: 4-SAC-T12)

PART III

6. Squadron Commander's Remarks - PART III

a. Hours flown performing missions ordered by Higher Headquarters:

(1) One passenger flight to Davis-Monthan AFB and return to Barksdale AFB (2AF Message DOTC 4654, 24 May 1955): 9:10

(2) One passenger flight to Davis-Monthan AFB and return to Barksdale AFB (2AF Message DOTC 4654, 24 May 1955: 8:30

TOTAL: 17:40

b. Weather or Local conditions affecting training:

(1) Negative.

c. Restrictive Directives:

(1) Covered in 6i (1) below.

d. Combat crew member gains and losses:

(1) Crew members gained:

(1) One navigator.

(b) Two radio operators.

(c) One assistant boom operator.

(2) Crew members lost:

(a) One aircraft commander - Reassigned (PCS).

(b) One pilot - Reassigned to MAOB school (PCS).

(c) Two navigators - Reassigned (PCS).

(d) One flight engineer - Processing for discharge from service.

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PART III - 376th BW (M), Squadron Commander's Remarks for month of June 1955

(e) One radio operator. Discharged from the service.

(f) One boom operator. Processing for discharge from the service.

(g) One assistant boom operator. Processing for discharge from the service.

e. Crew member changes.

(1) One aircraft commander

(2) Two pilots

(3) Five navigators

(4) One flight engineer

(5) Five radio operators

(6) Six boom operators

(7) Eleven assistant boom operators

f. New crews:

(1) Negative

g. Crew Status changes:

(1) Negative

h. Standardization crew:

(1) TO2

i. Additional materiel and personnel problems:

(1) The outstanding maintenance difficulties encountered during the month of June were as follows:

(a) Five aircraft were out of commission for approximately two days each for compliance with TO 2R-L360-511. This technical order requires a compression and valve check on engines with between 50 and 100 hours. Nine cylinders were changed due to low compression.

(b) Ten aircraft were out of commission for two days each for compliance with TO 1C-97-239 which requires certain DC electrical rewiring.

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PART III - 376th BW (H), Squadron Commander's Remarks for the Month of June 1955

(c) Three aircraft were unavailable for Air Refueling missions due to required compliance with TO 1C-97(K)-240. Six aircraft were unavailable for flying for approximately two days each due to compliance with the above cited technical order which requires boom check replacement.

j. SAC minimum training requirements not accomplished:

(1) Negative.

k. Non combat ready crew capable of deploying:

(1) Two - M14 and M21 are capable of deploying in event of emergency.

l. Non combat ready crew training:

(1) Two non combat ready crews were available for training during the month of June 1955

(2) A total of 23 hours were flown for an average of 11.5 hours per crew.

(3) Four M21 crew members were student status during June due to failure to pass standardization checks. The pilot assigned the crew at the beginning of the month was reassigned and replaced by one who was DNIF during the greater part of the month. M21 was able to obtain only five hours as a complete crew due to the unavailability of instructors.

(4) Crew M14 flew 18 hours as a crew during June. The pilot was re-assigned (PCS) during the month and the new pilot at the time of assigment was required by previously published orders to attend Block Training; thus delaying the necessary standboard check until the latter part of the month.

(5) Estimate of date non combat ready crews will be combat ready:

(a) M14 - 1 August 1955.

(b) M21 - 1 December 1955.

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PART III - 376th BW (M), Squadron Commander's Remarks for month of June 1955

(e) EM24 - 1 September 1955.

(d) EM25 - 1 December 1955.

(e) EM27 - 1 December 1955.

(f) EM30 - 1 January 1956.

The estimated dates for combat ready status of the above crews takes into consideration the projected crew member losses and the training of replacements for all combat ready crews presently assigned this organization. Crew M23 will not depart on the organization's scheduled rotational 90 day TDY in July and the flying time and training that can be accomplished by this crew will be limited. This extends estimated date this crew will be combat ready.

m. Flying time differences:

(1) Not applicable.

n. Special Training month remarks:

(1) Not applicable.

o. Comments or recommendations of the Squadron Commander:

(1) The squadron has accomplished 86 percent of 50-8 quarterly training requirements as of the end of June.

(2) The average number of combat ready crews assigned during June was 17 crews. A total of 485 hours (excluding test hop time) was flown for an average of 28.5 hours per crew (excluding standardization crew).

(3) The average number of possessed aircraft was 22. The average time per aircraft was 25.6 hours.

SECRET Wendell D. Lack

WENDELL D. LACK
Lt Colonel, USAF
Commander

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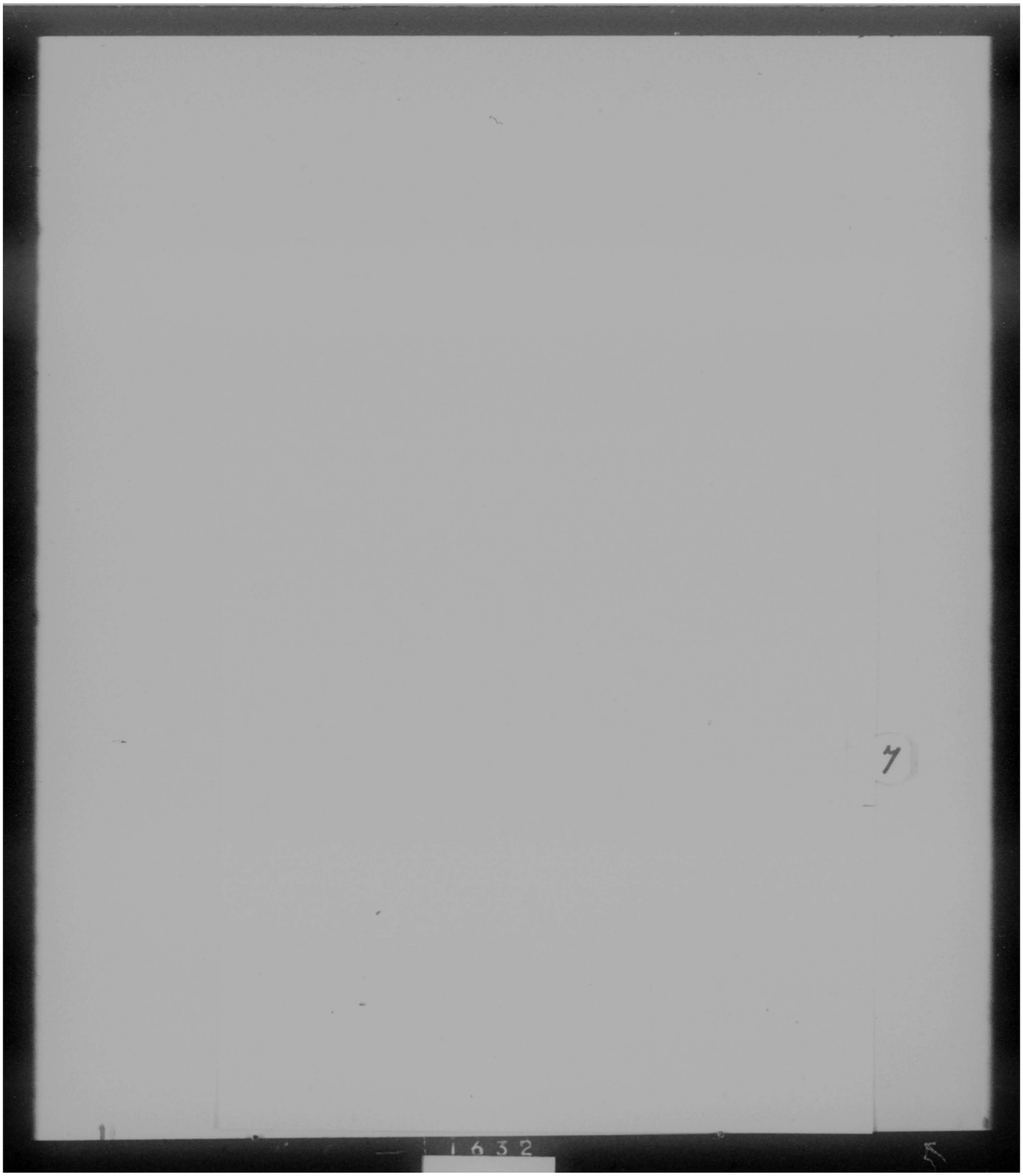

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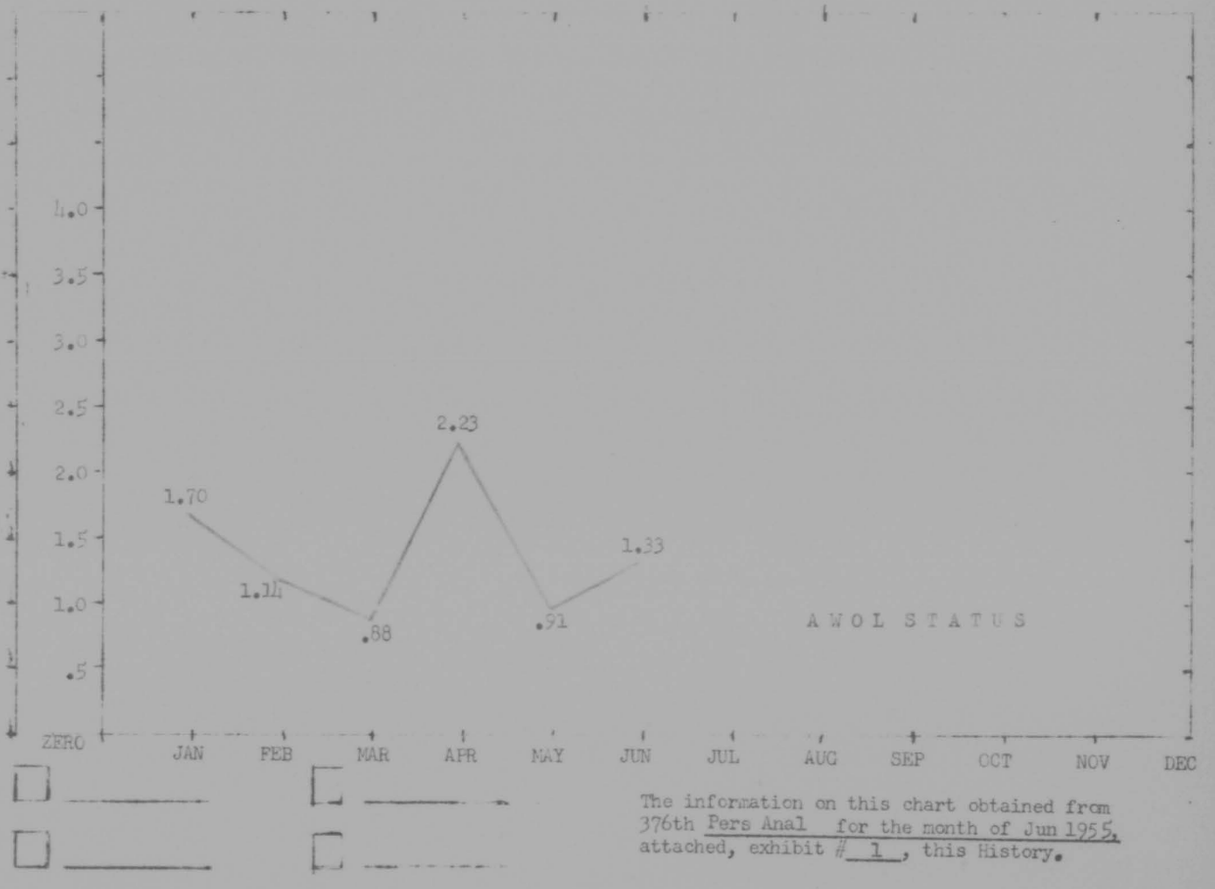

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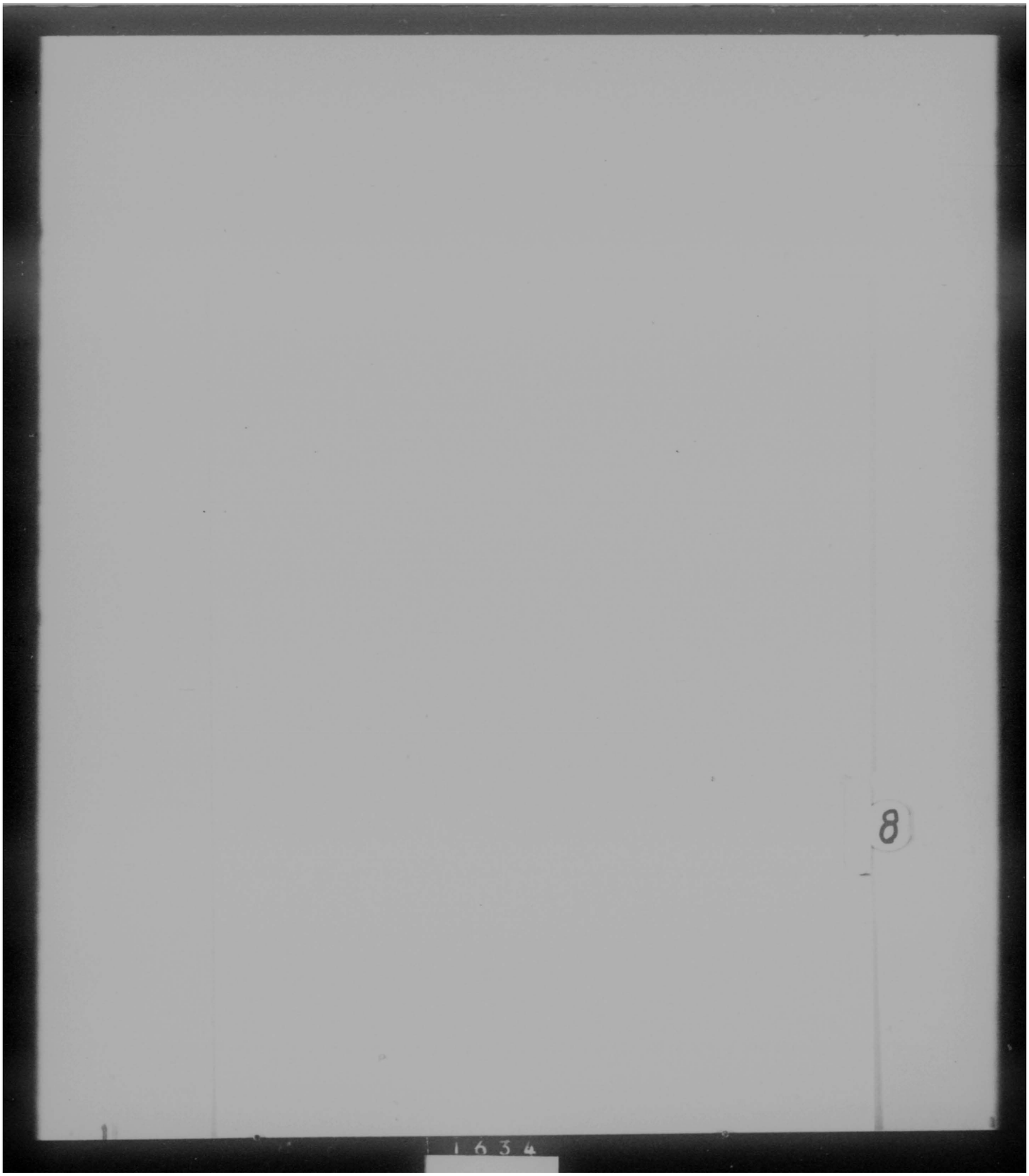

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HISTORICAL REPORT FOR THE MONTH OF JUNE 1955

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing average possessed aircraft was 66 for the month. The average in-commission rate was 80.64%. A total of 1,688:00 hours were flown for an average of 25:44 hours per possessed aircraft. The AOCP rate was .02 compared to 0% for the previous month.

2. The following is a breakdown of paragraph 1, forB-47 and KC-97 aircraft.

a. B-47 Aircraft: The Wing had an average of 44 B-47 aircraft possessed for the month. The average in-commission rate was 78.94% compared to 83.05% for the previous month. Hours flown were 1,131:15 for an average of 25:22 hours per possessed aircraft. The AOCP rate was 02 compared to 0% for the previous month.

b. KC-97 Aircraft: The Wing possessed 22 KC-97 aircraft for the month. The average in-commission rate was 85.74% compared to 87.60% for May. Total hours flown were 565:45 for an average of 25:22 hours per possessed aircraft. The AOCP rate was .02, an increase from 0% for May.

3. In June a total of 85,520 manhours were expended as direct time, 67,566 as indirect time, and 14,213 as overtime. There were 172,086 man-hours available for work and 65,035 absentee hours. Of the absent hours 942 were for pass. The above figures are based upon a 44 hour week of which 4 hours per airman is absent time for Ground Training, Parades, Squadron Duty or excused from duty.

4. The malfunction figures listed are taken from the U-15 report covering the period of May 21 through 20 June 1955. During this period there were 29 B-47 aborts compared to 39 for the previous month. There were 8 KC-97 aborts compared to 12 for the previous month.

5. There were 30 B-47 engine changes in June compared to 9 for the previous month. There were 7 KC-97 engine changes compared to 3 for May. The average engine time a change: B-47, 345 hours; KC-97, 671 hours.

TCG & RECORDS

1. During the month there were 266 TO's accomplished on B-47 aircraft and 163 on KC-97 aircraft.

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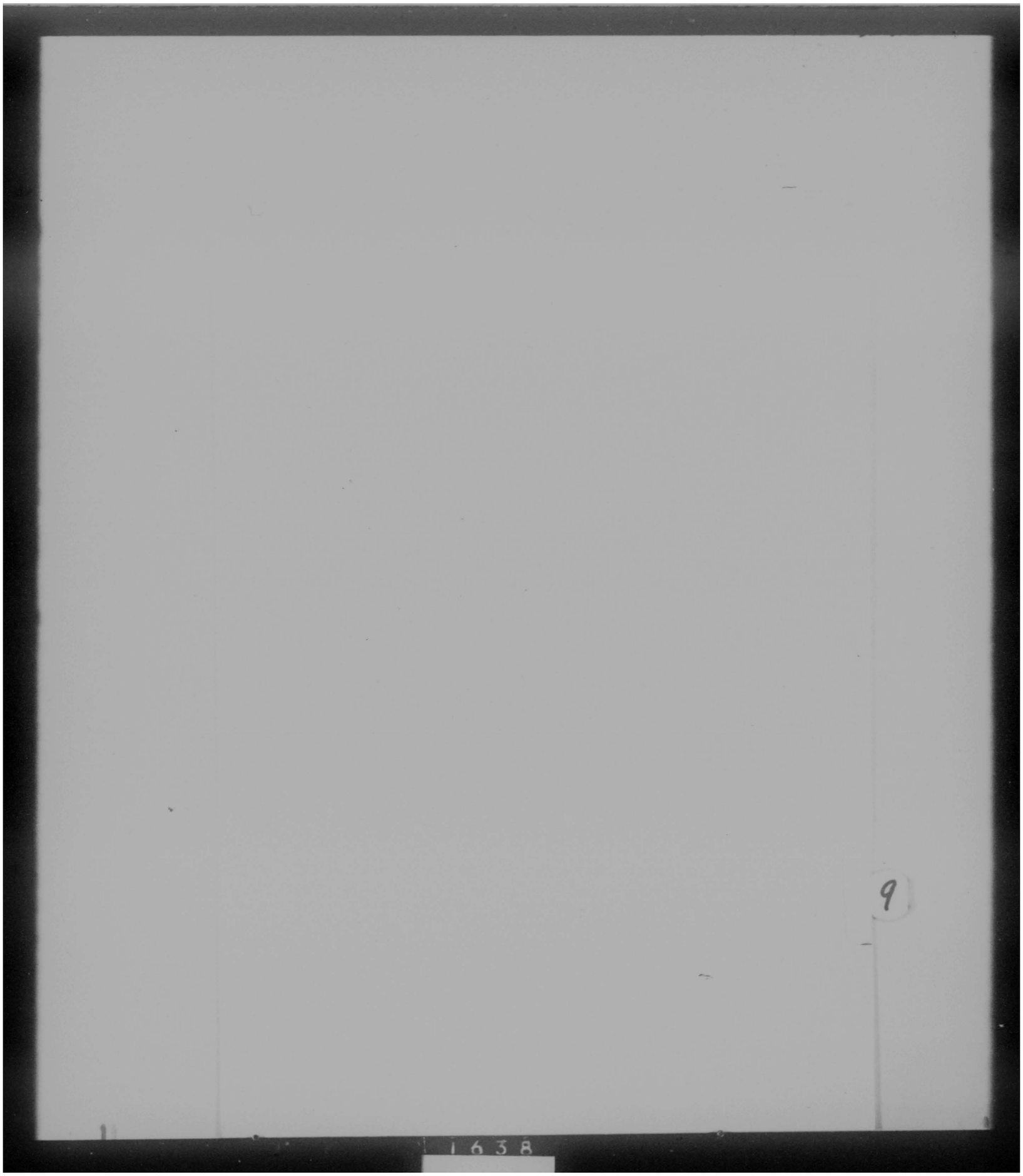

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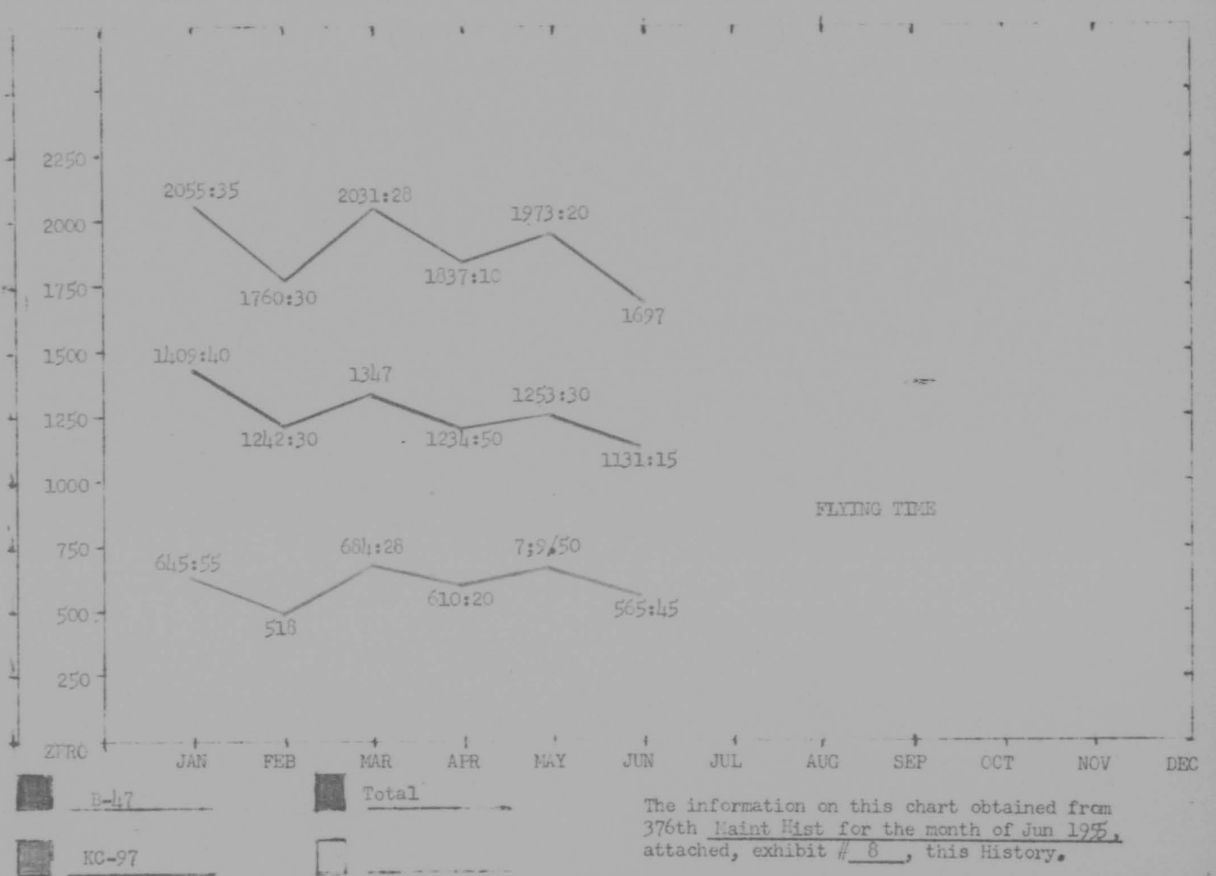

The information on this chart obtained from 376th Maint Hist for the month of Jun 1955, attached, exhibit # 8, this History.

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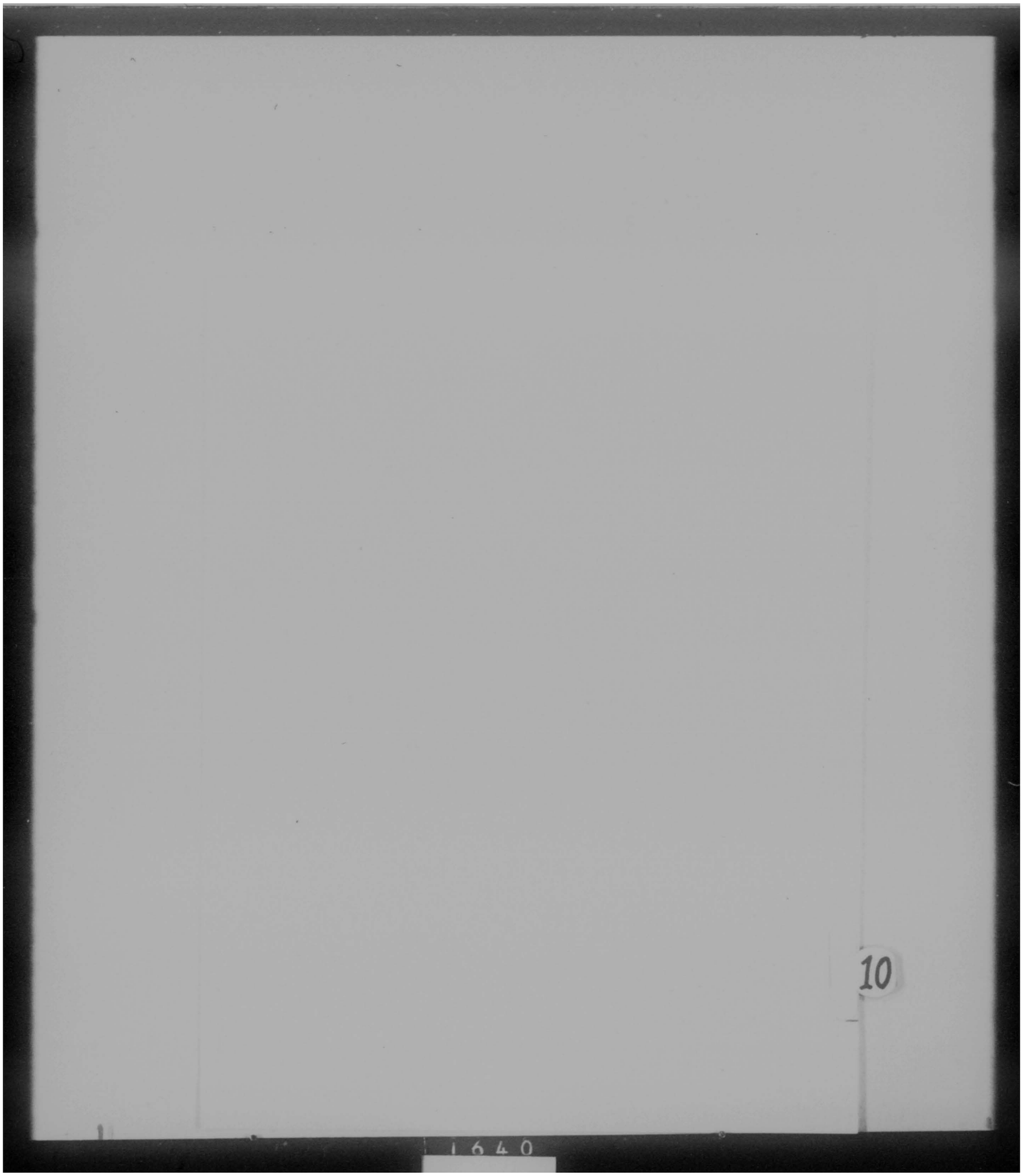

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Classification: SECRET
Auth: COMDR 376BOMWG M
Initials:
Date: 11 July 55

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT

11 July 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 June through 30 June 1955. Each succeeding paragraph deals with individual project progress.

2. Test Project 1X, "Development of an Unattended Communications Jammer".

a. Date initiated: 2 June 1953.

b. Percentage complete: 43%.

c. Hours flown: None.

d. Present status:

(1) The jammer designed under this project is an electro-mechanical approach to the problem of an unattended search, lock-on and spot jammer for use against GCI communications. The receiver continuously searches the band of 100 to 156 mc while the transmitter tracks with it in an inoperative state. When a signal is received, a tuning control relay acts to stop the tuning motor and actuate transmitter control circuits. A look-through circuit allows the unit to determine when the enemy signal shifts frequency or discontinues transmission. In the event signal disappears, all circuits return to the normal search position and receiver re-cycles for normal search. The transmitter is modulated from two sources: a noise generator, and a supersonic oscillator. The supersonic tone is used for identification purposes, and when received by a second

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Classification: SECRET
Auth: COMDR 376BOMWG M
Initials: C. L. Hauge
Date: 11 July 55

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT

11 July 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

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jammer, de-energizes control circuits in the second jammer, thus preventing the possibility of more than one jammer jamming the same frequency.

(2) A breadboard model has been completed of the entire unit minus the identification device. All circuits appear satisfactory; however, a special tuning capacitor is required to facilitate proper tracking with good inductance versus capacitance ratios. This capacitor is now under construction by the Radio Condenser Company, Camden, New Jersey. Delivery of the first model will be between 5 and 10 July.

3. Test Project Number 27, "B-47 Chaff Corridor".

a. Date initiated: 9 April 1954.

b. Percentage complete: 90%.

c. Hours flown: (27) 355:20 - (27R) 264:35.

d. Present status:

(1) This project concerns investigation and development of continuous and random chaff dispensing techniques for masking bomber formations.

(2) The report on the random chaff mission flown 27 April with seven B-47 aircraft has been printed and forwarded to Headquarters SAC.

(3) The 27R mission flown 27 May in the Eglin-Tyndall AFB area, which combined random chaff and electronic jamming, has been evaluated and the report is being processed for printing.

(4) Evaluation of the entire Project 27 test program is being made and final report will be completed in July.

4. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

a. Date initiated: 30 June 1954.

b. Percentage complete: 90%.

c. Hours flown: 37:24.

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d. Present status:

(1) A camera and periscope assembly has been developed which mounts on the indicator of the AN/APS-23 radar in a B-47E aircraft. The periscope allows the indicator presentation to be photographed by either a Polaroid or 0-15 camera. The Polaroid camera, which provides a print in one minute, will enable the B-47 observer to navigate without continuous radar mapping, thereby reducing aircraft susceptibility to passive detection and direction finding.

(2) Two successful flight tests have been conducted with the prototype camera and periscope manufactured at the Photographic Laboratory at WADC, installed on the AN/APS-23 indicator in a B-47E aircraft. The first of these flight tests was to determine optimum f-stop and exposure settings, and the second to simulate an actual navigation mission. For the second flight test the observer was required to navigate the aircraft by means of Land camera pictures over the following pre-designated route: from Barksdale AFB, west-north-west to Amarillo, north over western Kansas, east to a pre-IP for a bomb run on Omaha RBS, and return to Barksdale AFB by the most direct route. After a base fix had been established following take-off, the AN/APS-23 was turned to "standby" and maintained in that condition except when a picture was taken. Navigation between picture areas was accomplished by dead reckoning. After the bomb run on Omaha, another base fix was established and radar returned to "standby" for the return trip. Statistics for this mission are shown below:

Mission distance ------1684 NM
Flight time ----------5:04
Total error for flight -17 NM
Number of pictures -----13
Average time radar
ON per picture --------29 seconds
Average time required
to locate position -----2.2 minutes

(3) Sufficient information is now available for making recommendations concerning specifications for an operational camera; therefore, a final report will be written for this project and submitted in order that desired action may be taken.

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5. Test Project Number 30, "Development of a Passive Station Keeping Capability".

a. Date initiated: 30 June 1954.

b. Percentage complete: 60%.

c. Hours flown: 11:00.

d. Present status:

(1) In order to minimize the possibility of aircraft being detected by passive means, it is necessary to maintain a maximum degree of radio and radar silence. By permitting one aircraft in a formation to navigate, using his radar in accordance with SAC Test Project Number 29, and the other aircraft to follow by means of a passive station keeping technique, a high degree of radar silence may be attained. Passive station keeping technique under study in this project uses the principle of infrared radiation and detection for obtaining position information necessary for station keeping.

(2) Final report on this project has been completed and will be forwarded during July. This report is a study covering basic details, including capabilities and limitations of a typical IR station keeping system which could be developed. An analysis of the accuracy and possible errors of the system is also included, with suggestions on the construction of a system.

6. Test Project Number 32, "Cell Support Tests".

a. Date initiated: 17 February 1955.

b. Percentage complete: 24%.

c. Hours flown: 395:45.

d. Present status:

(1) Purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell formations from enemy GCI, gunlaying and interceptor type radars.

(2) Evaluation of QRC-27(T) antennas, cables and connectors was continued. Additional 376th Bomb Wing Diamond antennas were fabricated locally and tests started to evaluate these antennas when used with the QRC-27(T) cables and connectors.

1645

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(3) Two missions were flown against the 33d Air Division radar complex. The first mission, flown on 8 June, used four B-47 aircraft, each equipped with four AN/ALT-6 and two AN/ALT-8 transmitters in Blue Cradle. QRC-27(T) RF systems were used. The second mission, flown 9 June, used five ECM support B-47 and two B-47 bomb carriers. Each ECM aircraft was equipped with four AN/ALT-6 and two AN/ALT-8 transmitters in the Blue Cradle. QRC-27(T) RF systems were used. Evaluation of these missions has not been completed due to amount of data to be reduced. Preliminary study shows that both missions were successful examples of daylight penetration of radar frontiers-in-depth. A detailed interim report covering results of these missions is being prepared.

(4) Four missions were flown against the Air Defense Command AN/FPS-10 radar site at Bartlesville, Oklahoma. The first mission on 10 June used one simulated Phase III B-47 aircraft. The second mission on 16 June used six simulated Phase III B-47 aircraft. The third mission on 17 June used three simulated Phase III B-47 aircraft; and the fourth mission on 21 June used two simulated Phase III B-47 aircraft. Each aircraft was equipped with one AN/ALT-8 in the left ATO compartment. The 376th Bomb Wing Diamond antennas and QRC-27(T) cables and connectors were used on all missions. These Phase III B-47 tests cannot be satisfactorily evaluated to yield a definite conclusion until the entire series have been flown.

(5) A mission was flown on 14 June against modified SCR-584 gunlaying type radar at Fort Bliss. Three runs were made, each using a different equipment installation. The first run was by a B-47 aircraft equipped with four AN/ALT-6 and two AN/ALT-8 transmitters in the Blue Cradle using 376th Bomb Wing Diamond antennas with QRC-27(T) cables and connectors. The second run was by a B-47 aircraft equipped with the same transmitter configuration but using modified AT-111 antennas with the QRC-27 (T) cables and connectors. The third run was made by a B-47 aircraft with the same transmitter configuration but using helix antennas on the AN/ALT-6 transmitters and modified AT-111 antennas on the AN/ALT-8 transmitters with QRC-27(T) cables and connectors. Acquisition difficulties minimized the available data, causing results to be inconclusive. All aircraft were tracked on tangential runs, but available tracking time was very short. From visual observations it was concluded the

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Diamond antenna was the most effective for all aspects of the target aircraft with respect to the radar site.

(6) A mission was flown on 23 June against modified SCR-584 gunlaying type radar at Eglin AFB. Two runs were made, each using a different equipment installation. The first run was by a B-47 aircraft equipped with four AN/ALT-6 and two AN/ALT-8 transmitters in the Blue Cradle using 376th Bomb Wing Diamond antennas and QRC-27(T) cables and connectors. The second run was made by a B-47 equipped with the same transmitter configuration but using helix antennas on the AN/ALT-6 transmitters and modified AT-111 antennas on the AN/ALT-8 transmitters with QRC-27(T) cables and connectors. A third aircraft equipped with all AT-111 antennas was scheduled but did not make the run due to maintenance cancellation. Lack of comparative data precluded completion of data evaluation. Acquisition difficulties negated many runs, plus the fact that jamming was quite intense during the time aircraft were within range.

(7) Data obtained on antenna comparison missions is being reduced and interim reports prepared. Further missions are scheduled for July.

(8) In conjunction with this project, particular attention has been directed toward proper checking and pre-flighting of AN/ALT-6 and AN/ALT-8 transmitters. Because sweep width, sweep speed, and transmitter operation have such an important affect on jamming effectiveness, pre-flight set up (and post-flight inspection) on each aircraft is carefully monitored by test personnel working with Armament and Electronics maintenance personnel. In order to prepare a typical configuration of four AN/ALT-6 and two AN/ALT-8 transmitters in the Blue Cradle and check sweep speeds and sweep width, approximately one hour's work by two men is required provided no difficulties are encountered. Since no test equipment exists for this purpose, stop watch and an AN/APR-9 receiver are used. Although excellent results are obtained with the AN/APR-9 receiver, its construction is not particularly suited for continual use as line test equipment. Also, it is not ordinarily a part of bombardment wing equipment. There is urgent need for test equipment specifically designed for use with the AN/ALT-6, AN/ALT-8 and other similar sweeping transmitters. It is doubtful if full effectiveness of these jamming transmitters could be realized by a bombardment wing in ordinary circumstances without such test equipment. A standard operating procedure

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for use by maintenance personnel in setting up and checking transmitters is being prepared and will be tried on future missions.

(9) On recent missions a total of 100 AN/ALT-6 and 80 AN/ALT-8 transmitters were carefully pre-flight checked in the aircraft to insure accuracy of frequency settings, sweep width and sweep speed. High and low frequency limits, sweep width, and transmitter modulation were checked with AN/APR-9 receivers. Sweep speeds of AN/ALT-6 transmitters were checked with a stop watch by observing the time interval required for transmitter to sweep through the pre-set sweep width. Of transmitters pre-flighted, 56 AN/ALT-6 and 52 AN/ALT-8 transmitters actually flew missions and were post-flighted. Failure of equipment between pre-flight and post-flight included ten AN/ALT-6 and 15 AN/ALT-8 transmitters, giving a reliability of 82% for AN/ALT-6 and 71% for AN/ALT-8. Of the AN/ALT-6 failures, two had power supply failures two would not sweep, two would not come on, and one had no modulation. Three other AN/ALT-6 transmitters had either been set up on image frequencies or the frequency had changed far outside the limits originally set. Of the AN/ALT-8 failures, five would not come on, four would not sweep, five had blown fuses indicating power supply failure, and one had changed frequency far outside originally set limits. Between pre-flight and post-flight the AN/ALT-6 frequency settings remained within plus or minus ten megacycles, discounting the three frequency discrepancies listed above. Frequency drift averaged less than five megacycles and speed setting remained within plus or minus one and one-half megacycles per second of original settings. Frequency settings of the AN/ALT-8 transmitters remained within plus or minus ten megacycles, discounting the one frequency discrepancy listed above. Frequency drift averaged less than six megacycles. Sweep speed of the AN/ALT-8 transmitters was not checked because all operation was on the fast speed of 1200 mc/second which is not adjustable. No measurements of RF power output were made on pre-flight or post-flight because no suitable test equipment exists for this purpose.

7. Test Project Number 33, "Personal Radio Alert Equipment".

   a. Date initiated: 6 May 1955.

   b. Percentage complete: 18%.

   c. Hours flown: N/A.

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d. Present status:

(1) The SAC mission requires immediate availability of key personnel and early availability of many other personnel when alert conditions exist. Purpose of this project is to determine a feasible method of quickly alerting specific groups of individuals through use of radio. Under this plan each individual would be equipped with a small radio receiver that could conveniently be carried in a shirt pocket. This receiver would be tuned to a specified frequency upon which an alert signal could be broadcast.

(2) Field strength measurements are being made to determine the relative value of different radio frequencies using ground wave propagation during day and night operation under various practical conditions. Test transmitter presently being used is a BC-610 (400 watts). On each of the test frequencies from ten to two megacycles, a vertical quarter wave antenna is used. Current at the antenna base is adjusted to the same value on all frequencies so the radiated power is the same on all frequencies. Field strength measuring equipment used on the test is a Stoddart Aircraft Company Model NM-20B Noise and Field Intensity Meter.

(3) A series of field strength tests are presently being run in which measurements are taken at distances of seven, 14 and 30 miles from transmitting station. Measurements are also being taken in the open and inside a typical steel masonry building in a downtown area seven miles from transmitter location.

(4) From measurements taken thus far it appears frequencies from four to ten megacycles would not be usable. It was discovered that signal strengths on these frequencies averaged two to 12 micro-volts per 30.5 centimeters at a distance of 14 miles during the day. Heavy interference and severe hetrodynes from distant stations were encountered during night measurements. In the downtown area, signals in the nine to ten megacycle range were too small for measuring. On the fifth floor of a downtown building, no measurable signal could be obtained on any frequency between four and ten megacycles. Inside the building, seven miles distant from the transmitter, usable signals were received only on frequencies of approximately three megacycles and below. Inside the building, the three megacycle field strength was approximately 1.9 micro-volts with a 30.5 centimeter antenna and nine micro-volts when a man's body was used as the antenna.

1649

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8. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

a. Date initiated: 5 April 1954.

b. Percentage complete: 67%.

c. Hours flown: 14:00.

d. Present status:

(1) A barrage jammer was constructed for frequency range between 60 and 90 megacycles. Jammer consists of ten separate, small, noise modulated oscillator-amplifier transmitters mounted in one standard ECM rack and fed to a single antenna. A power supply is mounted in another standard ECM rack.

(2) Four flight tests have been completed against the modified SCR-270 radar at Eglin AFB using a C-47 type aircraft. On each flight the barrage frequencies were randomly pre-set in the range of 60 to 90 megacycles. Effective jamming was obtained varying from 360 degree coverage at 13 miles to 60 degree sector coverage at 85 miles.

(3) During the month of June, flight testing on this project was deferred in favor of flights on Test Project Number 32.

9. Auxiliary Test Project Number 18, "Development of a VHF Communications Jammer using an Increductor".

a. Date initiated: 1 April 1954.

b. Percentage complete: 49%.

c. Hours flown: None.

d. Present status:

(1) Purpose of this project is to develop a search-and-lock-on VHF communications jammer using electronic rather than mechanical tuning. Saturable reactors are used as the tuning elements in both the transmitter and receiver. A transmitter has been built with a power output of 50 to 100 watts in the frequency range of 100 to 156 mc. The transmitter incorporates circuits which allow it to be swept through the VHF

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frequency band and lock on any frequency to which an associated receiver is tuned. If frequency of the receiver is changed, the transmitter will automatically shift frequency to follow the receiver. An AN/ARR-5 receiver has been used to test transmitter circuits.

(2) An electronically tuned receiver is under construction. Associated with the receiver will be control circuits to cause receiver to automatically scan the band, locate a signal, identify it, lock on, tune transmitter to the same frequency and begin jamming with periodic look-through. Should the victim signal change frequency, jamming system will follow the change. If the victim signal is discontinued, the receiver will resume searching until another signal is found. Provisions will be made to prevent one jammer from locking on another in the vicinity.

10. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

a. Date initiated: 25 August 1954.

b. Percentage complete: 90%.

c. Hours flown: N/A.

d. Present status:

(1) Three whip antennas for operation in the frequency range of 45-140 megacycles were developed. Antennas may be plugged into standard AB-109 aircraft antenna receptacles and have RF connectors for use with RG-14/U cable, as used on ECM equipment. A matching section is provided for each antenna to broaden the usable bandwidth. Nomenclature and frequency range of antennas are:

AT(XA-212)AP - 97 to 140 megacycles, 8½" matching section
AT(XA-213)AP - 57 to 100 megacycles, 10¼" matching section
AT(XA-214)AP - 45 to 77 megacycles, 14½" matching section

(2) Draft of the final report on this project has been completed. This will be published and forwarded during July.

11. Auxiliary Test Project Number 24, "Effectiveness Test of the QRC-8".

a. Date initiated: 2 October 1954.

b. Percentage complete: 88%.

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c. Hours flown: 179:04.

d. Present status:

(1) This project was initiated to test tactical suitability of the QRC-8(T) jamming transmitter system. The QRC-8 is an HF communications jammer covering the spectrum of two to ten megacycles using the sweeping technique. The frequency spectrum is divided into six bands selectable by means of plug-in coils. Jamming rates of 200 to 2000 hits per second are achieved electronically by means of a saturable reactor used in the RF oscillator circuit.

(2) Flight tests in the 3.5 to 5.0 megacycle band show the QRC-8 is capable of jamming voice communications from a 500 watt ground transmitter. With four jammers sweeping from 3.5 to 5.0 megacycles at different rates between 300 to 800 hits per second, fighter GCI communications were jammed when separation between fighter and bombers was 20 nautical miles at a distance of 40 nautical miles from the GCI site. At a distance of 80 nautical miles from the GCI site, jamming was accomplished with separation of 40 to 50 nautical miles between bomber and fighter.

(3) In order to continue test on other frequency bands, it was necessary to design an antenna loading coil. Coils and fiberglass plastic housings are being fabricated for all 376th Bomb Wing aircraft; 24 housings have been built to date.

12. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

a. Date initiated: 18 June 1954.

b. Percentage complete: 85%.

c. Hours flown: 66:25.

d. Present status:

(1) This project was initiated to investigate operational suitability of the AN/APS-54 in single and multi-aircraft formations. Tests previously reported have indicated:

(a) Present installation of cables, connectors and wiring for the AN/APS-54 in B-47 aircraft is unsuitable.

1652

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(b) Blanking pulse received by the AN/APS-54 from the A-5 radar is not of sufficient amplitude.

(c) In aircraft at 35,000 ft approaching and being tracked by a ground-based RBS or gunlaying type radar, the nose light is activated at a range of approximately 40 nautical miles and the tail light at a range of approximately 12 nautical miles.

(d) Antenna video-detecting crystals, 1N23B, have a high failure rate apparently due to radiation from adjacent aircraft during ground operation and maintenance.

(e) Present calibration of the "PRF Lower Limit" control is unsuitable for tactical operation.

(f) Warning time afforded by the AN/APS-54 system in either the nose or tail direction is not sufficient for the crew to perform effective countermeasures.

(g) A single S band frequency-swept jamming transmitter in an adjacent aircraft flying five miles abeam is sufficient to render both nose and tail channels of the AN/APS-54 inoperative because the lights stay on continuously.

(2) During June 1955, three flight tests were completed. One of these, flown on 21 June against the M-33 radar at Eglin AFB, confirmed the claim that the AN/APS-54 could be triggered by X-band tracking radar. Two tests, flown on 9 and 16 June, tested the affect on the warning light circuits of one, two, three and four S-band frequency-swept jamming transmitters in the same aircraft. With the Delay switch IN and the PRF Lower Limit control at MIN, the following conclusions resulted:

(a) Two transmitters in the ATG compartments keep the tail light on and will occasionally light the nose light.

(b) Two transmitters in the ATO compartments, plus one in the bomb bay cradle, keep both lights on.

(c) One transmitter in the ATO compartment will usually cause the tail light to blink or glow continuously.

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(d) One or two transmitters in the cradle will keep the nose light on.

(e) Two transmitters in the cradle, plus two in the ATO compartments, will keep both lights on.

(f) Four transmitters in the cradle will keep both lights on.

(g) With two transmitters on in the ATO compartments causing both lights to glow, turning the PRF Lower Limit to "500" will extinquish both lights.

(h) With two transmitters in the ATO compartments and one in the cradle causing both lights to glow, the nose light is not affected by any setting of the PRF Lower Limit control but the tail light goes off when the switch is turned up to "2000".

(3) Final report on this project is under preparation.

13. Auxiliary Test Project Number 28, "S-Band RF Systems".

a. Date initiated: 1 November 1954.

b. Percentage complete: 70%.

c. Hours flown: 35:00.

d. Present status:

(1) In using high powered S-band jamming transmitters, such as the AN/APT-16, AN/ALT-6 and AN/ALT-8, considerable difficulties were encountered in the form of multiple moding of magnetrons, low power output, and poor performance. Through experience with these sets and a series of ground and airborne tests, cause of the troubles was found to be the RG-117/U RF cable and UG-352/U connectors used in RF transmission lines to the antennas. Abnormal power losses and high voltage standing wave ratios occurred in the RG-117/U cables due to dielectric losses, migrations of center conductors, and changes in dielectric size due to temperature variations.

(2) The problem was studied and attempts were made to improve RF transmission line systems. Since some of the problem seemed to be due to the RG-117/U cable, it was felt other high power, low loss cables should be investigated. One cable which appeared to be electri-

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cally and physically suitable was Styroflex manufactured by the Phelps Dodge Corporation. Several feet of this cable were obtained and fitted with UG-352/U connectors. The cable was then tested and it was found very little cable heating occurred but the VSWR was still quite high. It was also noted that the high VSWR was due to the UG-352/U connectors; therefore, a new low loss connector was designed.

(3) The new connector was designed to reduce discontimuities in outer and inner conductors to a minimum. The connectors were designed to be held together by means of a clamp for eliminating cross threading and poor mating which were often encountered in the old connectors. For the AN/ALT-6 transmitter, the inner conductor was made to serve as the pickup probe which is normally a separate part of the UG-1106/ALT-6 wave guide to coaxial connector. With the new cable and redesigned connectors, substantially lower VSWR and increased power output were obtained over the frequency range of 2600 to 3600 megacycles.

(4) A QRC contract to provide a satisfactory RF system was let to the Hallicrafters Company, Chicago, Illinois. The system, as supplied by the Hallicrafters Company, uses RG-117/U cable fitted with quick disconnect connectors. The system also includes stub antennas, adapters for the AN/ALT-8 antenna terminals, and two types of adapters for the AN/ALT-6 antenna output wave guide to coaxial transition. The Hallicrafters Company has supplied the 376th Bomb Wing with:

273 - six foot cables
121 - eight foot cables
451 - AN/ALT-8 adapters
310 - straight AN/ALT-6 adapters
75 - 90 degree AN/ALT-6 adapters
408 - Model 5001 stub antennas (modified AT-111)

Electrical and mechanical inspections of this QRC-27(T) equipment indicated it to be superior to the old system. A considerable number of rejects on the equipment were made due to mechanical imperfections. Burrs on the connectors prevented proper mating, and center conductors of the cables were too short for proper seating in receptacles. The Hallicrafters Company sent a representative to rework all cables and correct other discrepancies.

(5) The QRC-27(T) RF systems have been used extensively on flight tests of Test Project Number 32 and on 50-8

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flights. Careful inspection of each system is made on all pre-flight and post-flight inspections. Following is a list of discrepancies observed on a group of 40 systems over a ten-day period.

(a) Two AN/ALT-6 adapter plates arced badly.

(b) Five AN/ALT-8 adapters had center conductors pushed back through the Teflon, which closed the basket. This will not allow center conductor of the cable to seat properly. All AN/ALT-8 adapters have this tendency.

(c) One AN/ALT-8 adapter showed burns where it was connected to the cable, probably caused by arcing.

(d) One QRC-27(T) antenna arced under the Teflon. The Teflon had a small hole in it.

(e) Three QRC-27(T) antennas lost their rubber gaskets.

(f) Two QRC-27(T) antennas had the Teflon covering cracked, and one had tip of the Teflon rubbed off.

(g) Three cable conductors slipped so they were out of sight on one end.

(h) One cable connector heated while running up an AN/ALT-8.

(i) The AN/ALT-6 adapter plates show quite a bit of silver plate flaking. Foreign matter and plating debris are present in most of the adapters after a flight. There were three cases of slight arcing and two that arced badly.

(j) AN/ALT-8 adapters, in most cases, show foreign matter and plating debris after a flight. There were four cases of slight arcing.

(k) The QRC-27(T) antennas show quite a bit of silver plate flaking. Foreign matter and plating debris are present in most antennas after a flight.

(6) The modified AT-111 stub antenna furnished as part of the QRC-27(T) RF system has been used extensively on jamming test flights of Test Project Number 32. Azimuth coverage of the antenna appears satisfactory in the horizontal plane when the antenna is mounted on either the bomb bay doors or the side of the aircraft

1656

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at a 22 degree tilt from the vertical. From results obtained with this antenna, it appears the pattern is one typical for a quarter wave stub. The antenna radiates a shallow omni-directional pattern in the horizontal plane with a maximum of intensity at approximately 100 miles from the aircraft. At closer ranges the intensity falls off to a region of weak intensity immediately below the aircraft.

14. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

a. Date initiated: 1 September 1953.

b. Percentage complete: 85%.

c. Hours flown: Cradles have been operational since July 1954.

d. Present status:

(1) Six prototype control systems for use with the AN/ALT-8 transmitter were received from the Raytheon Manufacturing Company. Each control system consists of a control box to replace the normally used C-1508/ALT-8 control box and a smaller control panel to replace the one normally used in the crew compartment. With the new control system, the AN/ALT-8 transmitter may be pre-set for operation on any one of four pre-selected frequencies. Operation may be either spot jamming or fast sweep jamming of 200 megacycles width, centered on any one of four pre-set frequencies. Frequency and mode of operation is selectable by means of switches on co-pilot's control panel.

(2) A Blue Cradle will be modified to accommodate the new control system. Modification consists of three changes in the cradle junction box and wiring of a new control cable from cradle to co-pilot's control panel. No additional aircraft wiring is required because sufficient spare wires already exist between cradle and co-pilot's control panel. Once completed, the installation may be changed back to original configuration in a few minutes.

15. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

a. Date initiated: 1 December 1954.

b. Percentage complete: 70%.

1657

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c. Hours flown: 7:20.

d. Present status:

(1) Purpose of this project is to modify the AN/APS-54 airborne warning receiver installation to allow its use as an active countermeasures weapon. By means of relays connected to the warning lamp circuit the AN/APS-54 receiver is made to operate chaff dispensers whenever both tail and nose warning lamps are lighted.

(2) During March, a successful flight test was made against an MSQ-2 S-band tracking radar. The chaff dispenser was triggered by the radar signal whenever aircraft was within approximately 30,000 to 40,000 yards of the radar site.

(3) Two flight tests were flown during June against the M-33 X-band tracking radar at Eglin AFB. The first test was considered unsuccessful because two of the four detector crystals failed on both the nose and tail antenna during the test. Some chaff was dispensed automatically on this flight but results were inconclusive. The second flight test was more successful in that chaff was automatically dispensed for the duration of each 60 nautical mile run or whenever aircraft was within approximately 30 miles of the radar site. The high degree of success on this mission raises some doubt as to validity of the results. It is suspected that other radars in the area might have been tracking the test aircraft. In future tests against the M-33 radar, precautions will be taken to prevent other radars from tracking the aircraft during the test, and actual signals being received by the AN/APS-54 receiver will be monitored or recorded. Accurate distances have not been computed for these tests because radar track logs and operator logs have not yet been received from Eglin AFB.

16. Auxiliary Test Project Number 39, "Crystal Video Jamming Homers".

a. Date initiated: 24 January 1955.

b. Percentage complete: 20%.

c. Hours flown: 8:00.

d. Present status:

(1) Purpose of this project is to determine if homing on a bombing aircraft can be accomplished by use of a crystal

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video receiver installed in a fighter aircraft. Five different crystal video receivers are to be tested.

(2) Two flight tests have been made with the ARD-9 receiver and the AT(XA-199)/U and AT(XA-200)/U antennas. The receiver was installed in a C-47 type aircraft and used to home on an AN/ALT-6 jamming transmitter on the ground and on an AN/ALT-6 in another C-47 aircraft. In both cases maximum range at which jammer signal could be detected was less than two miles. From the flight tests and results of laboratory tests, it has been concluded that the ARD-9 receiver is not sensitive enough to be of practical use in homing on a jamming transmitter.

(3) Reporting on this test project will be discontinued until such time as the other receivers to be tested are obtained.

17. Auxiliary Test Project Number 45, "AN/ALQ-3 Suitability Test".

a. Date initiated: 2 May 1955.

b. Percentage complete: 10%.

c. Hours flown: None.

d. Present status:

(1) Purpose of this project is to test and evaluate tactical use of the AN/ALQ-3 S-band search-and-lock-on jamming system. No equipment has yet been received, therefore, actual tests have not been initiated. The W. L. Maxson Company has advised the units will be shipped to the 376th Bomb Wing during July.

(2) Instructions were completed in the operation and theory of the AN/ALQ-3. Military personnel instructed consisted of three airmen, two from the Armament and Electronics Maintenance Section and one from the Directorate of Countermeasures Test and Tactics. Duration of the course was six weeks. Thirty hours of classroom instructions were conducted per week, which consisted of 24 hours of instruction and six hours of tests and review.

18. Several visitors to the Directorate of Countermeasures Test and Tactics from various SAC B-47 wings have expressed a desire to obtain copies of the SAC U-30 report. Problems encountered and solved by the 376th Bomb Wing in equipment installation, operation, and maintenance

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should closely parallel those of bomb wings equipped with new ECM gear. In the opinion of this organization, copies or extracts of this report should be disseminated to all SAC wings now having or scheduled for B-47 aircraft. Information and techniques developed by the Directorate of Countermeasures Test and Tactics regarding ECM equipment will prove invaluable to wing and squadron ECM officers in planning future maintenance, operations and training requirements.

FOR THE COMMANDER:

Carey L. Savage
for WILLIAM H. MURPHY
Major, USAF
Adjutant

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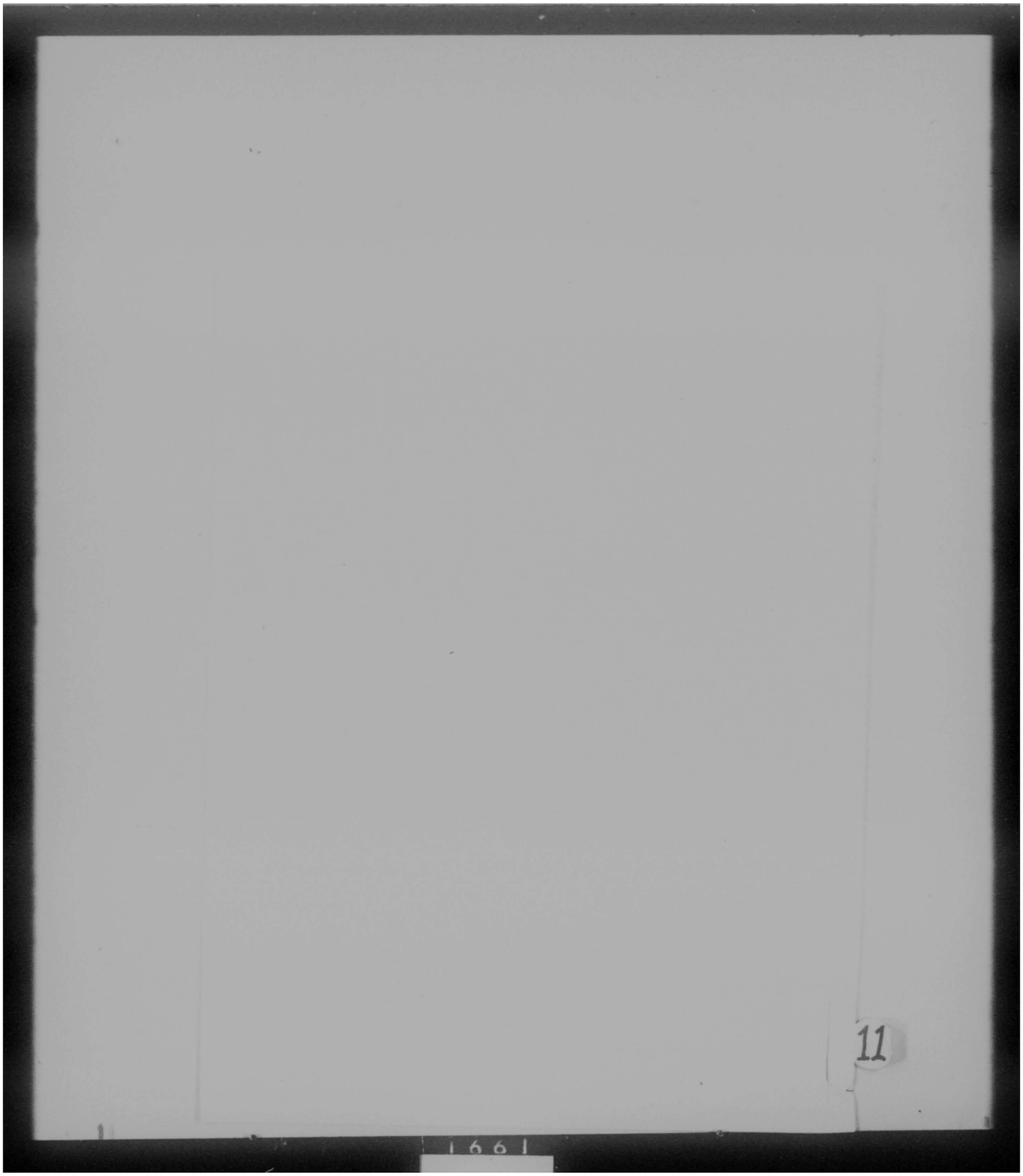

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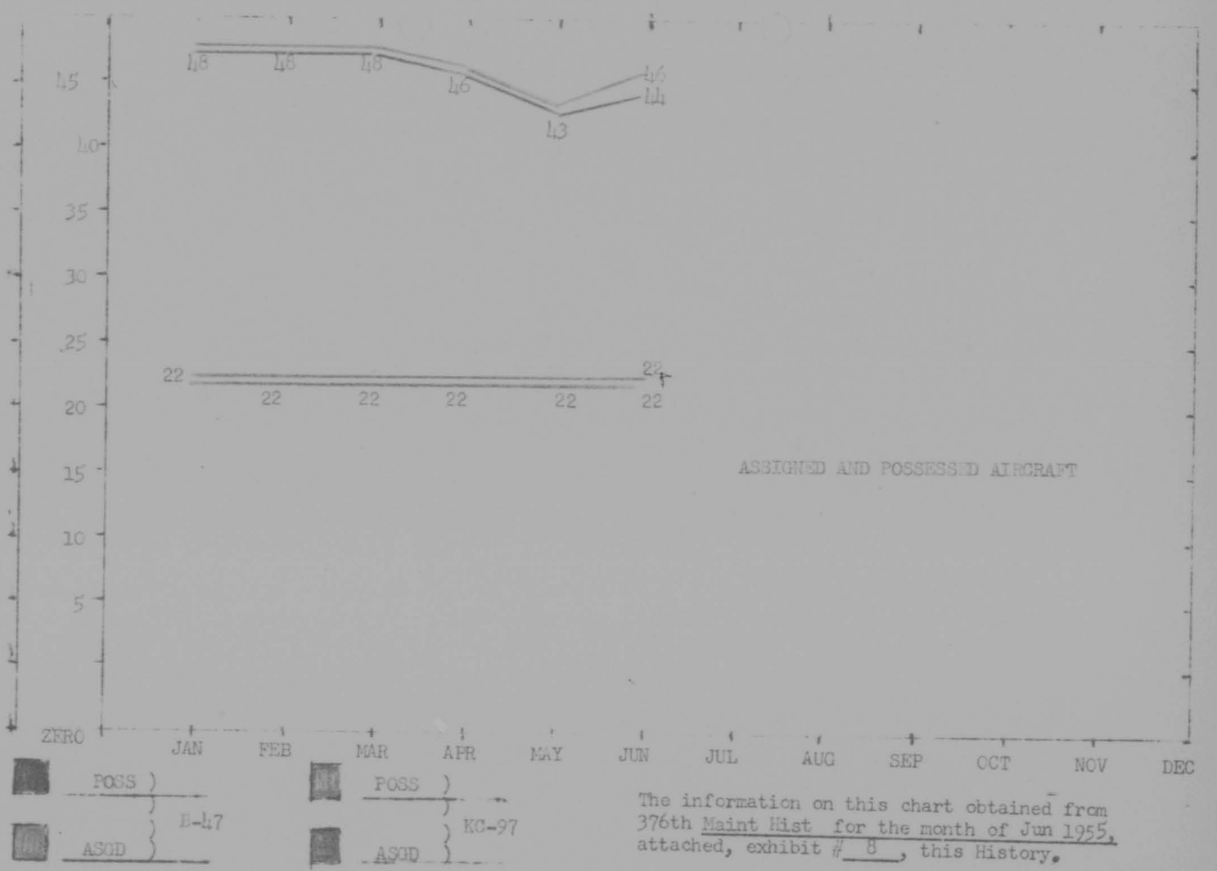

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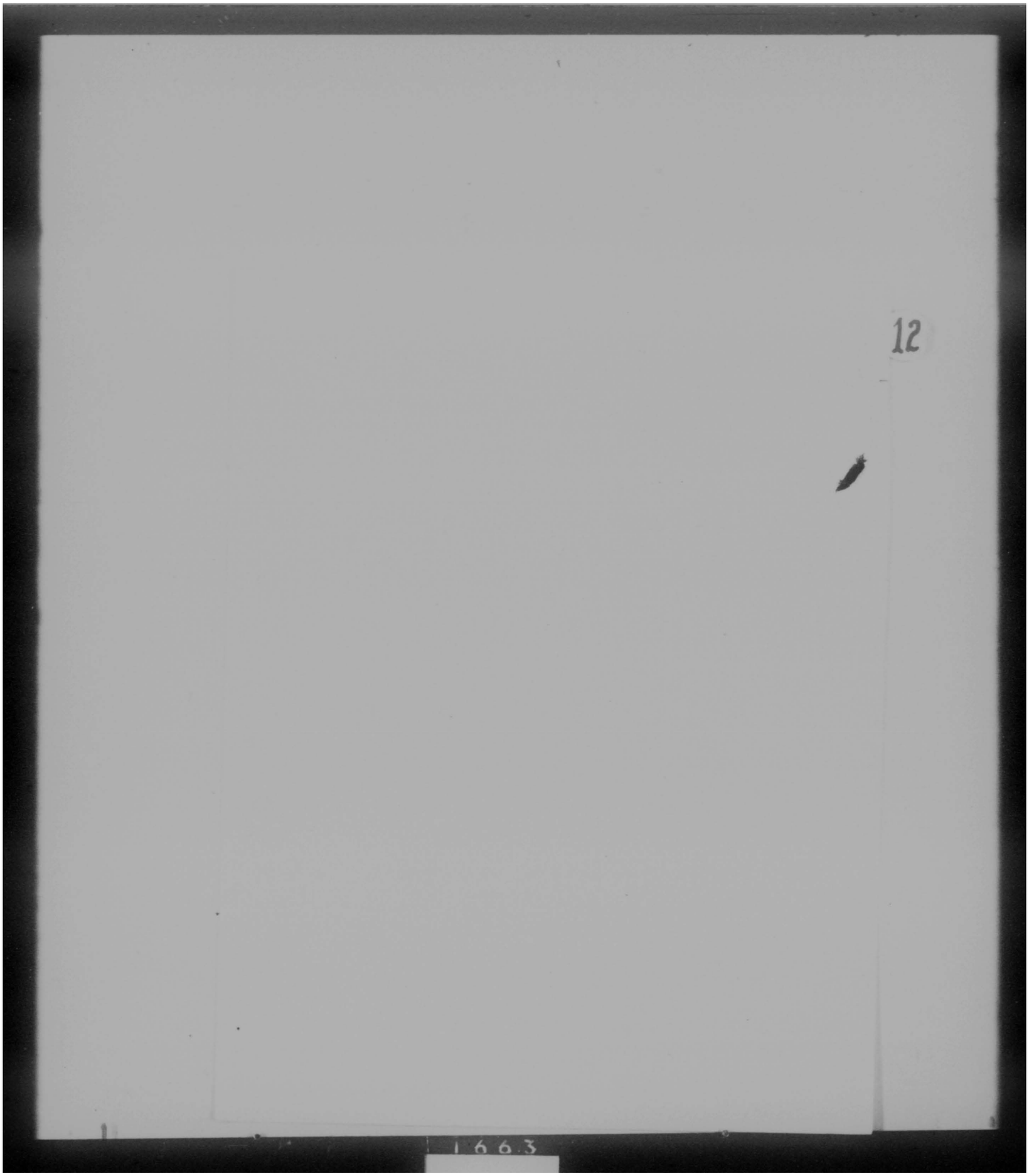

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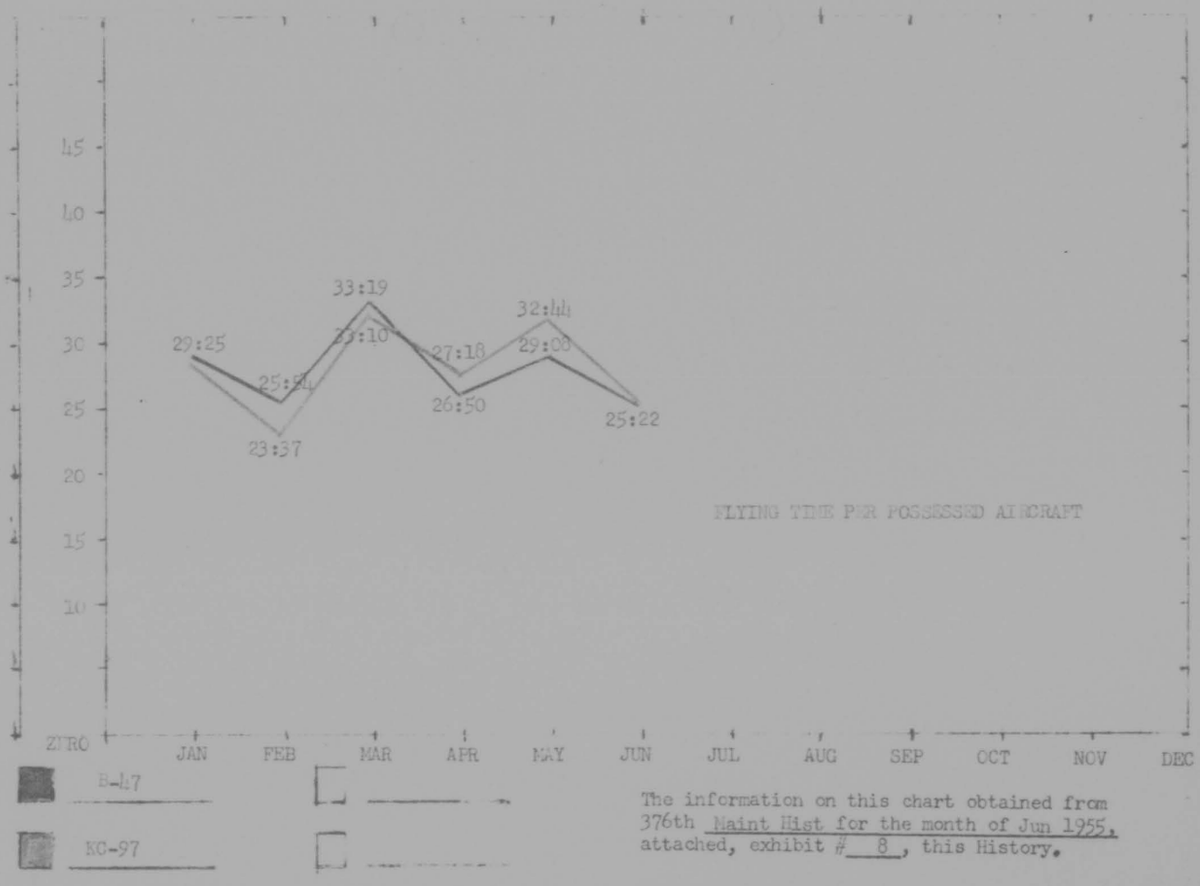

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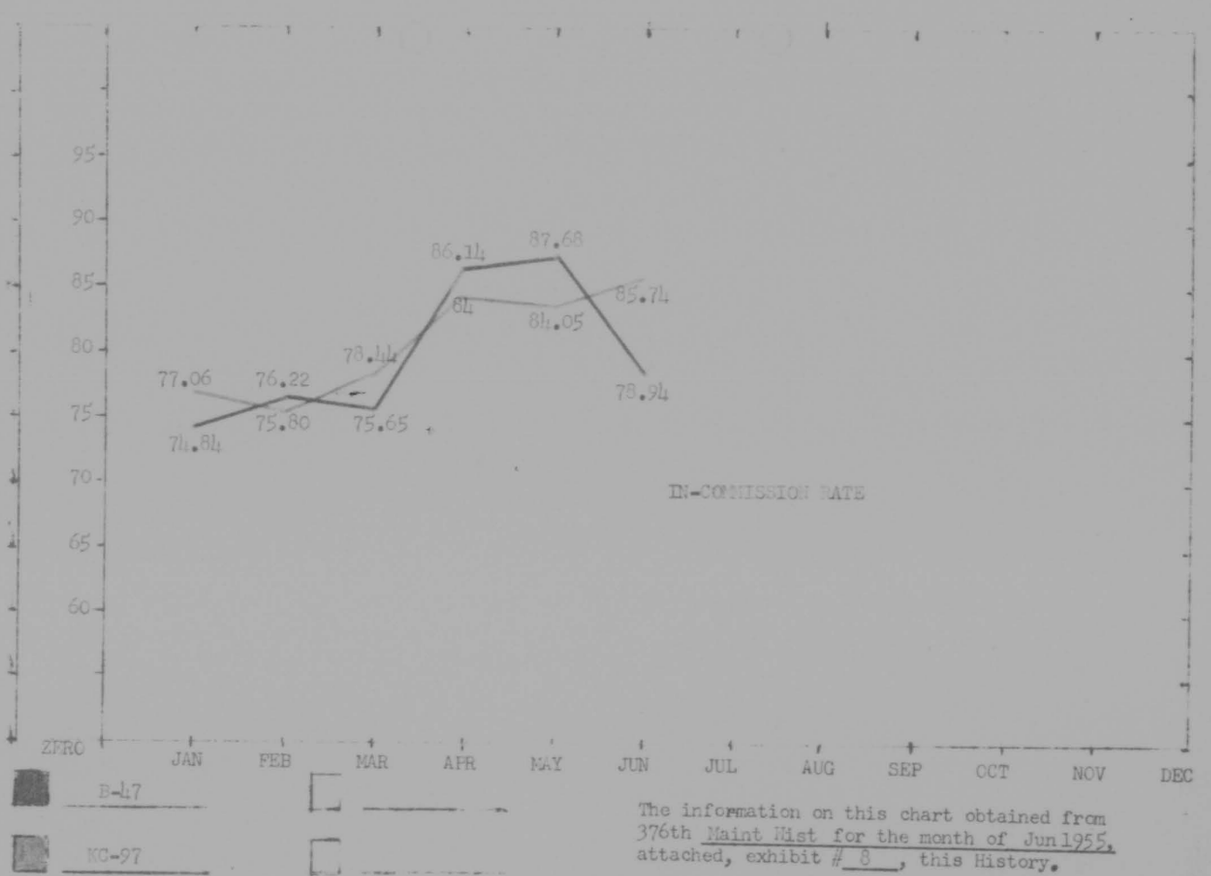

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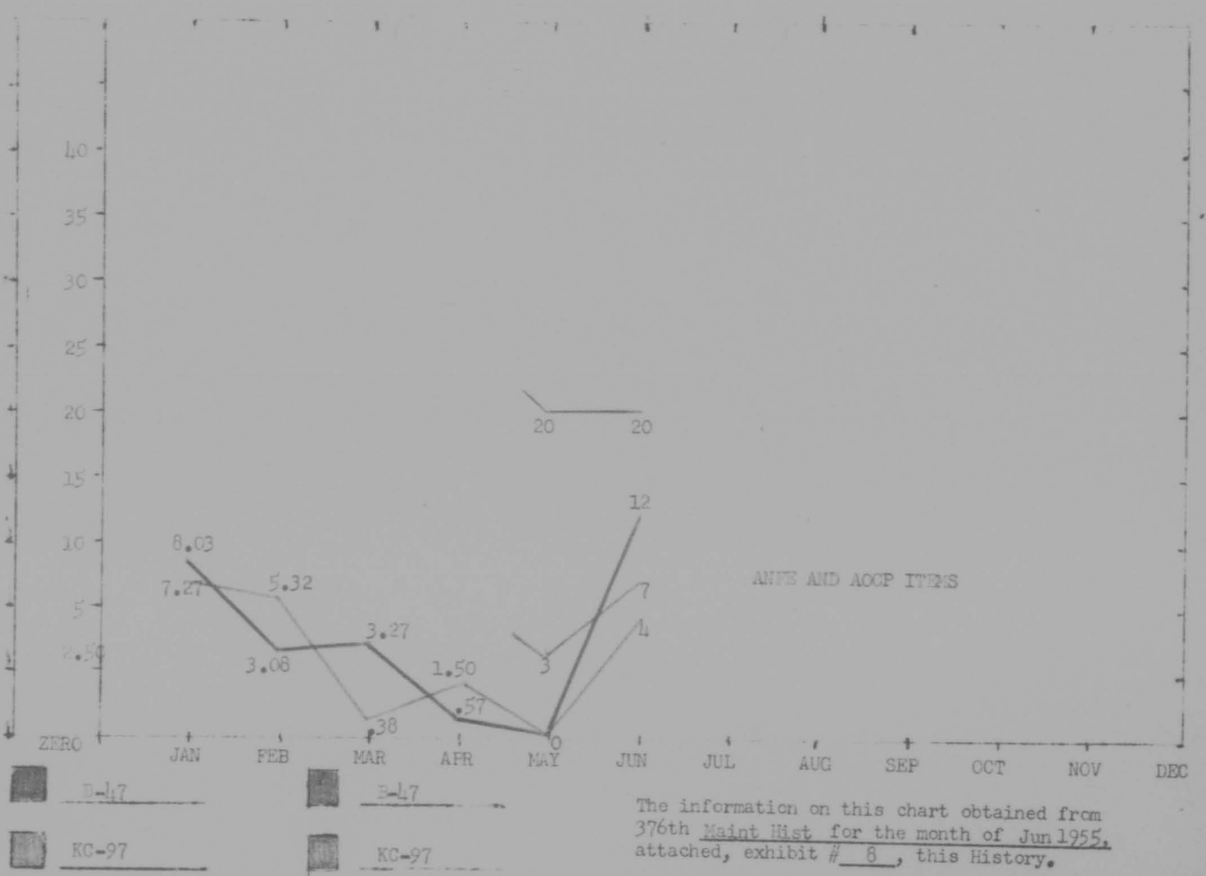

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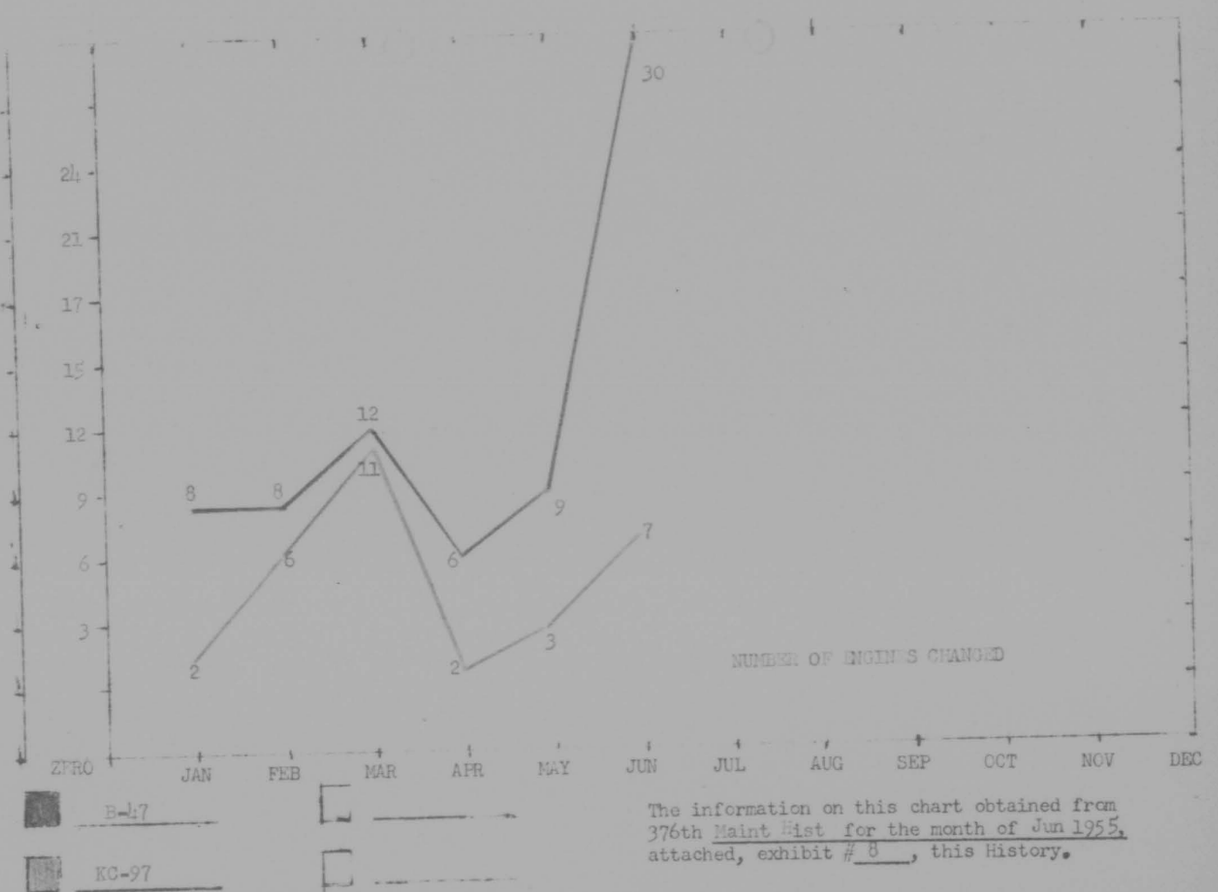

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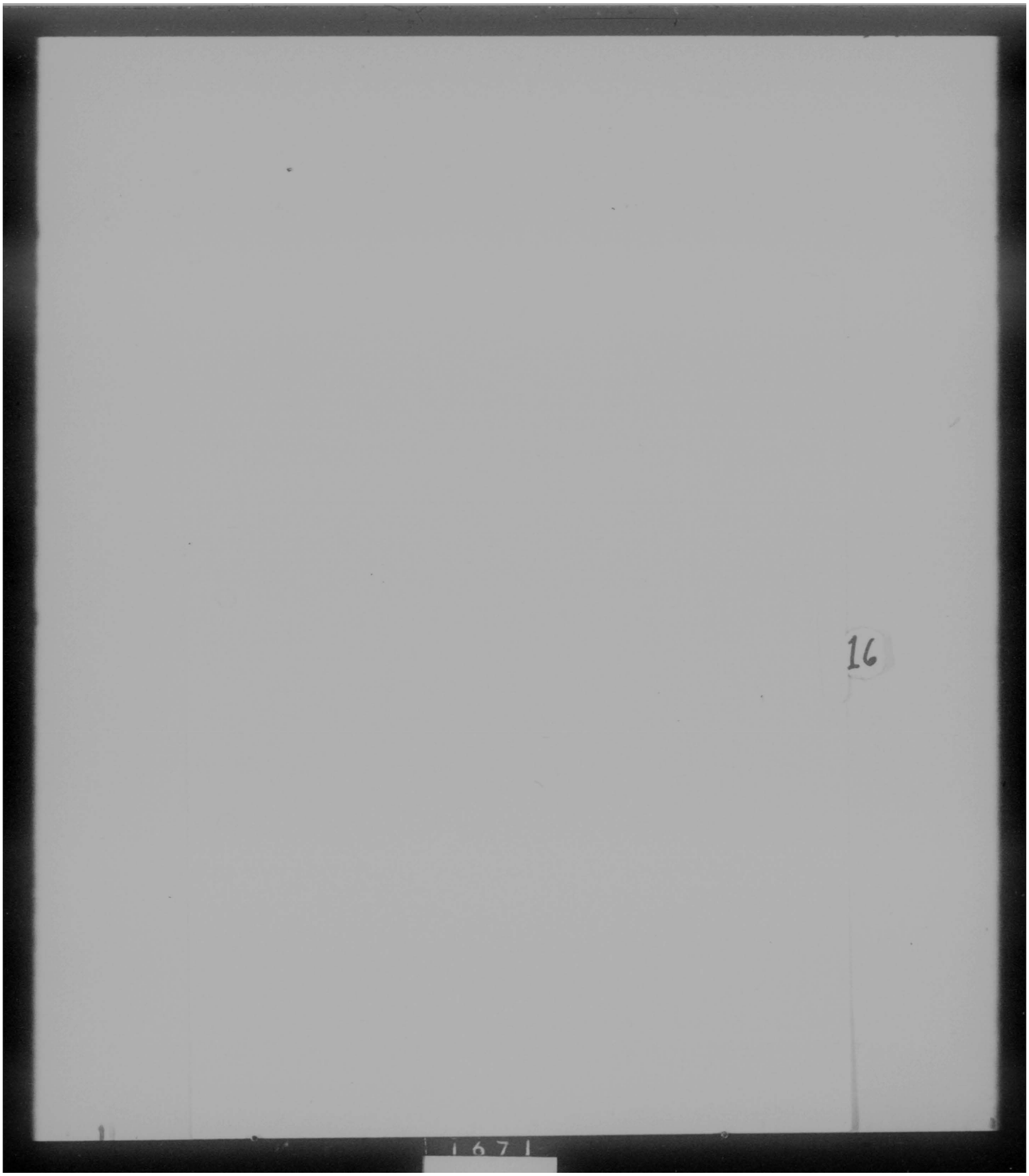

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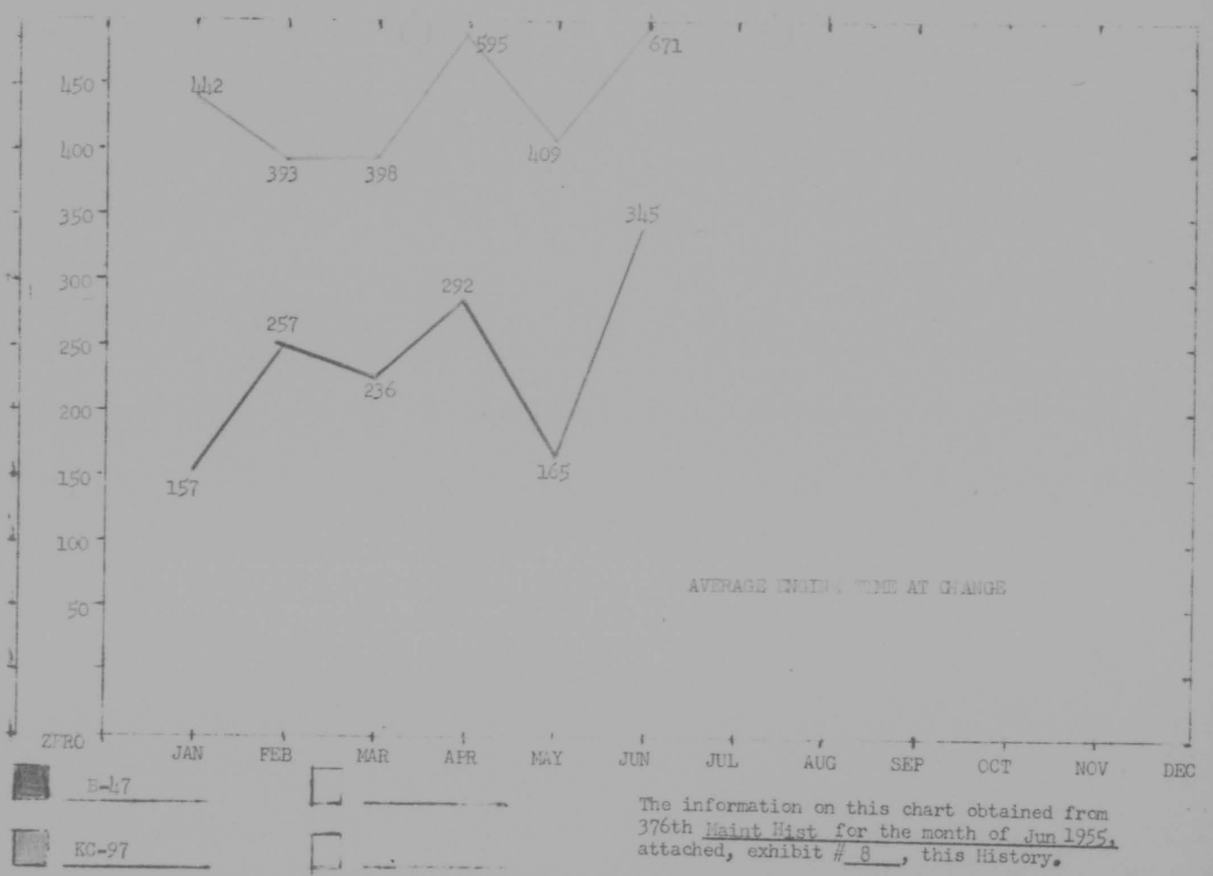

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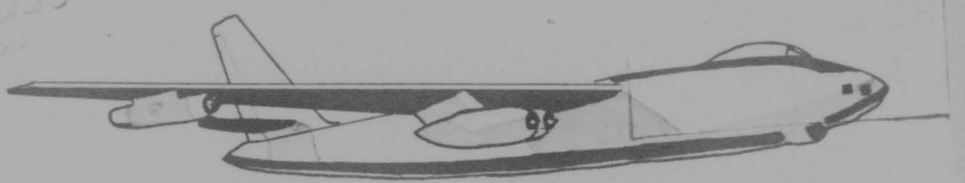

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HISTORY

OF THE

376TH BOMBARDMENT WING(M)

LIBERANDOS

FOR THE MONTH OF

1-31 JULY 1955

13245

BARKSDALE AIR FORCE BASE

LOUISIANA

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CLASS: SECRET
AUTH: COMDR 376 BOMB WING
Initials:
Date: 16 Sep 55

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HISTORY OF

376TH BOMBARDMENT WING MEDIUM

1 JULY - 31 JULY 1955

ASSIGNED UNITS

Headquarters 376th Bomb Wing, Medium
512th Bombardment Squadron, Medium
513th Bombardment Squadron, Medium
514th Bombardment Squadron, Medium
376th Air Refueling Squadron
376th Field Maintenance Squadron
376th Periodic Maintenance Squadron
376th Armament and Electronics Maintenance Squadron
376th Tactical Hospital

THIS REPORT PREPARED BY:

Major WILLIAM H. MURPHY - Historical Officer
T/Sgt CARL J. DEDOW - Historical Technician

APPROVED BY:

Richard G. Hall
RICHARD G. HALL
Lt Col, USAF
Commander (Rear Echelon)

(Second Air Force, Strategic Air Command)

RSI Book No
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A U T H O R I T Y

This Historical Report is prepared in accordance with the Provisions of the following Regulations and Manuals:

Air Force Regulation 210-3, 30 August 1951, as amended.

Air Force Manual 210-1, 15 September 1952.

Strategic Air Command Regulation 210-1, 4 June 1954.

Strategic Air Command Manual 210-1, June 1951.

Second Air Force Regulation 210-1, 1 July 1954.

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C O N T E N T S

	Page
CHAPTER I . . . Organization and Personnel	
Organization	1
Personnel	1
Personnel Problems	1, 2
Crew Status	2
Major Aircraft Accident (B-47E 52-421A)	3, 4
CHAPTER II . . . Operations and Training	5
Flying Time	6, 7
Status of Test Projects	7 - 15
Aircraft Status	15, 16

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ORGANIZATION

The organization of the 376th Bombardment Wing, Medium, was disrupted during the first half of July 1955. This was brought about by readying the Wing for the temporary duty period at Upper Heyford, England, starting at approximately mid-July 1955. The mission was to conduct maximum routine training during a 90 day rotational temporary duty, thus enabling combat crews and maintenance personnel to better accomplish their EWP assignments. Two B-47 aircraft and crews remained at Barksdale Air Force Base in support of ECM test directives, and three B-47 aircraft and crews departed for Castle Air Force Base, California, for two weeks training and subsequent participation in the Strategic Air Command World Wide Bombing and Navigation Competition.[1]

PERSONNEL

Information on personnel statistics was not available at the writing of this History.

PERSONNEL PROBLEMS

Effective manning was 16 percent in the 204 (Intelligence) career field, with one person being assigned by both primary and duty AFSC (Air Force Specialty Code), out of six authorized positions. In the administrative career field (702) effective manning was 46 percent, and with known losses and no known inputs, will drop to

1. Ops Order, "376th Bomb Wing Ops Ord 305-55", 28 Jul 55, files, 376th Historical files.

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39 percent within six months. Effective manning in the personnel career field (731) (732 and 733) was 36 percent in July,[2] a drop of 30 percent from the June figure,[3] the reason for which is not known at this writing.

CREW STATUS

The Wing lost one select crew (S04),[4] and gained one non-ready B-47 crew (N20). One non-ready crew was upgraded to ready status, and one lead crew was downgraded to non-ready status. This showed a total of 39 ready/lead and nine non-ready crews assigned during the month of July 1955.[5]

The Wing had no new KC-97 crews formed during the month, but one non-ready crew was downgraded to incomplete status and one incomplete crew was upgraded to non-ready status. This showed a total of 16 combat ready and six non-ready crews assigned for July.[6]

The figures for reenlistment and AWOL rates were not available at this writing.

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2. Report, "376th Bombardment Wing, Bombardment Air Training Report for Month of July 1955 (RCS: 3-SAC-T12)", hereafter cited as " Bomb T-12 for Jul 55", exhibit #1, this History.
3. History 376th Bomb Wing for June 1955, page 3.
4. Report, "Report of Major Aircraft Accident, B-47E Ser. No. 52-421A, 512 Bomb Squadron, 376th Bomb Wing, hereafter cited as "Major Aircraft Accident B-47E 52-421A", files, 376th Historical Section, and pages 3 and 4, this History.
5. "Bomb T-12 for Jul 55", exhibit #1, and chart, exhibit #2, this History.
6. Report, "376th Bomb Wing Air Reflg Air Training Report for July 1955 (RCS: 4-SAC-T12)", hereafter cited as "Air Rflg T-12 for Jul 55", exhibit #3, and chart, exhibit#2, this History.

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MAJOR AIRCRAFT ACCIDENT
B-47E #52-421A

The time was 2459 hours, Central Standard Time, 13 July 1955. The place, Barksdale Air Force Base, Louisiana. The crew was the 376th Bombardment Wing Standardization Board Crew and consisted of Captain John D. Brashear Jr. (Aircraft Commander), Captain Loaton R. Castle Jr. (Co-pilot), Captain Clifton J. DeJung (Observer) and Airman first class James W. Waller (Flight Engineer). The aircraft was the flight leader of five aircraft in the second flight of a 15 aircraft "Wing Simulated Combat Mission", terminating at Upper Heyford Royal Air Force Station, England. The aircraft (take-off gross weight 170,000 pounds) made a normal night take-off to the southeast about 8,600 feet down a 10,000 foot dry runway and was observed to climb in a normal manner until it disappoared into a 300 foot broken layer of clouds. Approximately three minutes after take-off, while the aircraft was accelerating, the aircraft crashed in a slight bank to the right with a high rate of sink on a heading of 250 degrees, which was 107 degrees right of take-off heading and 135 degrees right of the briefed climb-out heading. The aircraft exploded as a result of hitting the ground and all personnel aboard were killed upon impact. It was believed that the fire occurred after the crash. The primary cause of the accident was undetermined, but apparently some sort of cockpit contamination was present, because the canopy was in the open position and so was the "ram air" shut off valve.

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The source of the contamination could not be determined. Number four engine was shut down, apparently due to some malfunction, and the right emergency aileron power unit was operating at impact.

Aircraft 52-421A was totally destroyed including the majority of 263 equipment (all loose equipment on aircraft) and "Blue Cradle" installation for a total cost of $2,095,522.00. Added to this figure is the figure for primate property damage which was estimated at $4,500.00.[7]

7. "Major Aircraft Accident B-47E 52-421A", files, 376th Bomb Wing Historical Section.

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CHAPTER II

OPERATIONS

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FLYING TIME

B-47 Higher Headquarters Missions:

During July 1955, operation "Deep Rock"[8] required a total of 453:00 hours, ferrying aircraft to and from modification depot used 8:00 hours, unit simulated combat mission used 417:00 hours and an orientation and evaluation mission required 331:35 hours for a total of 1209:35 hours flown on B-47 aircraft performing missions ordered by higher headquarters.[9]

KC-97 Higher Headquarters Missions:

During July 1955, operation "Deep Rock" required a total of 83:40 hours, temporary duty deployment required 591:40 hours, two cargo flights used 8:00 hours (4 each) and a ferry flight required 2:30 hours, showing a total of 685:50 hours flown in KC-97 aircraft on missions ordered by higher headquarters during July 1955.[10]

Total Flying Time:

The total flying time for B-47 aircraft, including test hops, in July was 1,278:45 hours.[11] That figure would have been higher but two aircraft remained at Barksdale Air Force Base, three aircraft went to Castle Air Force Base for Strategic Air Command Bombing Competition,[12] and one aircraft crashed after take-off.[13]

8. SAC Ops Ord 94-55, "Deep Rock", files, War Room, 376 Bomb Wing.
9. "Bomb T-12 for Jul 55", exhibit #1, this History.
10. "Air Rflg T-12 for Jul 55", exhibit #3, this History.
11. "Bomb T-12 for Jul 55", exhibit #1, and chart, exhibit #4, this History.
12. Ops Ord, "376th Bomb Wing Ops Ord 305-55", 28 Jul 55, files, 376th Historical Section.
13. "Major Aircraft Accident, B-47E 42LA", pages 3&4, this Hist.

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The total flying time for KC-97 aircraft, excluding test hops, in July was approximately 709:48 hours.[4]

STATUS OF TEST PROJECTS

Project 1X, "Development of an Unattended Communications Jammer", was initiated on 2 June 1953 and as of the end of July 1955 was at 43 percent of completion. The jammer designed under this project was an electro-mechanical approach to the problem of an unattended search, lock-on and spot jammer for use against Ground Controlled Intercept (GCI) communications. The receiver continuously searches the band of 100 to 156 megacycles while the transmitter tracks with it in an inoperative state. When a signal is received, a tuning control relay acts to stop the tuning motor and actuate transmitter control circuits. A look-through circuit allows the unit to determine when enemy signal shifts frequency or discontinues transmission. In the event the signal disappears, all circuits return to normal search position and the receiver recycles for normal search. The transmitter is modulated from two sources: a noise generator, and a supersonic oscillator. The supersonic tone produced is for identification purposes and when received by a second jammer, de-energizes control circuits in the second one, thus preventing the possibility of more than one jammer jamming the same frequency. A breadboard model

4. "Air Rflg T-12 for Jul 55", exhibit #2, and chart, exhibit #4, this History.

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(minus identification device) was completed with satisfactory operation except for the tuning capacitors which are being replaced. The new capacitors, manufactured by the Radio Condenser Company, Camden, New Jersey, were being integrated into the overall unit. Some difficulty was experienced with the RF stage of the receiver due to a higher input capacity of the 6BQ7 RF tube than that stated in the manufacturer's specifications. It was not known whether that was normal for the tube or if it was an exception, so other tubes were ordered to check input capacity.[15]

Project 27, "B-47 Chaff Corridor", which was initiated on 9 April 1954 increased from 90 to 95 percent of completion. The project concerns investigation and development of continuous and random chaff dispensing techniques for masking bomber formations. The entire project was being evaluated and the final report was being processed for printing.[16]

Project 29, "Use of Land Camera for Navigation with the AN/APS-23", was initiated 30 June 1954, and during July 1955 remained at 90 percent of completion. A camera and periscope assembly has been developed which mounts on the indicator of the AN/APS-23 in a B-47 aircraft. The periscope allows the indicator presentation to be photographed by either a Polaroid or O-15 camera. The Polaroid camera, which provides

15. Report, "The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)", 4 August 1955, hereafter cited as "376th U-30 for Jul 55", exhibit #5, this History.
16. Ibid.

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a print in one minute, will enable the B-47 observer to navigate without continuous radar mapping, thereby reducing aircraft susceptibility to passive detection and direction finding. The final report was being prepared and was to be completed in August 1955.[17]

Project 30, "Development of a Passive Station Keeping Capability", initiated 30 June 1954, was 100 percent complete during the month and the final report submitted to Strategic Air Command Headquarters.[18]

Project 32, "Cell Support Tests", initiated 17 February 1955 increased from 24 to 25 percent of completion in July. The purpose of the project was to determine tactics and ECM equipment necessary to protect certain bomber cell formations from enemy GCI, gunlaying and interceptor type radars. No tests were flown in July due to the Wing being readied for the temporary duty.[19] An acute need exists for field type test equipment to enable fast, accurate setting up of the AN/ALT-6 and AN/ALT-8 transmitters, in order that large numbers of the transmitters may be set up exactly as required in the shortest length of time.[20]

Project 33, "Personal Radio Alert Equipment", initiated 6 May 1955, increased from 18 to 20 percent of completion during July 1955. This project grew out of a need for the immediate availability of key personnel when alert conditions exist. The plan was for an

17. "376th U-30 for Jul 55", exhibit #5, this History.
18. Ibid.
19. "Organization", page 1 this History.
20. "376th U-30 for Jul 55", exhibit #5, this History.

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individual to carry, in his pocket, a small radio receiver tuned to a specific frequency over which an alert signal could be given. In tests made to determine the best usable frequency, it was found that the band from four to ten megacycles had to be eliminated from consideration due to low signal strengths during daylight and extreme interference from distant stations at night. It was also found that field strength down to 2.95 megacycles was becoming greater, but, below 2.95 megacycles, it became impossible to erect an electrical quarter wave antenna. To obtain the needed high signal-to-noise ratio, a three kilowatt transmitting station was being set up. The transmitter was a Wilcox 96D, common to most Strategic Air Command Bases. The antenna (50 foot vertical wire top loaded with a large coil and capacity hat) is hung from a 60 foot pole, 300 feet from the transmitter, and designed for maximum ground wave radiation at 2131 kilocycles, and is connected by a coaxial transmission line. The receiver portion of the project was still in the study phase. Tentative design requirements were: small and light, capable of being worn on wrist or in pocket, mechanically unattended operation and mechanically produce alert by sound or vibration, fixed to one frequency.[21]

Auxiliary Project 6, "Development of VHF Broad Band Barrage Jammer", initiated 5 April 1955 remained at 67 percent of completion during July 1955. The barrage jammer constructed for the 60 to 90

21. "376th U-30 for Jul 55", exhibit #5, this History.

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megacycle range consisted of 10 separate, small, noise modulated oscillator-amplifier transmitters mounted in one standard BCM rack and fed to a single antenna, with a power supply mounted in another rack. On four flight tests it was found that against the SCR-270 radar at Eglin Air Force Base, Florida, with barrage frequencies preset randomly in the range from 60 to 90 megacycles, effective jamming was obtained varying from 360 degrees coverage at 13 miles to 60 degrees sector coverage at 85 miles.[22]

Auxiliary Project 18, "Development of a VHF Communications Jammer using an Increductor", initiated 1 April 1954 increased from 49 to 50 percent of completion. The purpose of the project was to develop a search-and-lock-on VHF communications jammer using electronic rather than mechanical tuning. A transmitter was built with a power output of 50 to 100 watts in the range of 100 to 156 megacycles. The transmitter will lock-on any frequency to which an associated receiver is tuned. The transmitter will automatically shift frequency to follow the receiver, which is in the construction stage. To date the master sweep circuits, multi-vibrator circuits, RF circuits, IF sub-assembly and control circuits have been built, each on a separate chassis with the plan to mount all sections and a power supply on a larger rack for completing the receiver.[23]

Auxiliary Project 23, "Development of 70 Megacycle Whip Antenna" was initiated on 25 August 1954, and by the end of July 1955 remained

22. "376th U-30 for Jul 55", exhibit #5, this History.
23. Ibid.

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at 90 percent of completion. The three antennas developed were: AT(XA-212)AP - 97 to 140 megacycles with 8½ inch matching section, AT(XA-212)AP - 57 to 100 megacycles with 10½ inch matching section, AT(XA-214)AP - 45 to 77 megacycles with 14½ inch matching section. They may be plugged into the standard AB-109 aircraft antenna receptacles and have RF connectors for use with RG-14/U cable as used on ECM equipment.[24] Draft of the final report was completed.

Auxiliary Project 24, "Effectiveness Test of the QRC-8", initiated on 2 October 1954, remained at 88 percent of completion during July 1955. The QRC-8 is an HF communications jammer covering the spectrum of two to ten megacycles using the sweeping technique. Frequency spectrum is divided into six bands selectable by means of plug-in coils. Jamming rates of 200 to 2000 hits per second are achieved electronically by means of a saturable reactor used in the RF oscillator circuit. In the 3.5 to 5.0 megacycle band the QRC-8 is capable of jamming voice communications from a 500 watt ground transmitter. With four jammers sweeping from 3.5 to 5.0 megacycles at different rates between 300 and 800 hits per second, fighter GCI communications were jammed when separation between fighter and bombers was 20 nautical miles at a distance of 40 nautical miles from the GCI site. At a distance of 80 nautical miles from the GCI site, jamming was accomplished with separation of 40 to 50 nautical miles between

24. "376th U-30 for Jul 55", exhibit #5, this History.

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bomber and fighter.[25]

Auxiliary Project 26, "Operational Test of AN/APS-54", initiated on 18 June 1954 remained at 85 percent of completion in July. The project was to investigate operational suitability of the AN/APS-54 airborne warning receiver in single and multi-aircraft formations. The test was to evaluate the complete installation, determine the effect of electronic equipment in friendly aircraft on the APS-54, and to investigate the reaction of the APS-54 to ground based gun-laying radar. Final report was being prepared.[26]

Auxiliary Project 28, "S-Band RF Systems", was initiated on 1 November 1954 and increased five percent to 75 percent of completion in July 1955. In using high powered transmitters such as the AN/APT-16, AN/ALT-6 and AN/ ALT-8 much difficulty was encountered due to poor RF transmission lines and connectors used with these systems. A contract was let to the Hallicrafters Company, who provided RG-117/U cables fitted with quick disconnectors, stub antennas, and adapters for the jamming transmitters. The systems were then installed in Wing aircraft prior to going TDY. (Special report to Headquarters Strategic Air Command July 1955). The ALT-6 was being modified to allow the magnetron oscillator tube to be operated remote from the case. A separate small case has been built to hold the magnetron and remote cables, and cooling fluid lines are being fabricated.[27]

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25. "376th U-30 for Jul 55", exhibit #5, this History.
26. Ibid.
27. Ibid.

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Auxiliary Project 32, "Suitability Test of Blue Cradle", initiated 1 September 1953 remained at 85 percent of completion in July 1955. The cradles have been operational since July 1954. Each of the six prototype control systems (Raytheon Manufacturing Company) consists of another control box to replace the C-1508/ALT-8 control box and a smaller control panel to replace the one normally used in the crew compartment. With the new system the ALT-8 may be pre-set for operation on any one of four pre-selected frequencies and may be spot, or fast sweep jamming of 200 megacycles width, centered on any one of four pre-set frequencies, selected by means of switches on the co-pilot's control panel. Four ALT-8 transmitters and the new four-channel control boxes have been mounted in a cradle and auxiliary control panels mounted in the co-pilot's position. Wiring of required connectors and changes in aircraft wiring are expected to be completed in August. A flight test was flown with an ALT-8 transmitter and the new control system in a C-47 aircraft and monitored by an AN/APR-9 receiver at Barksdale Air Force Base, Louisiana. All equipment worked satisfactorily.[28]

Auxiliary Project 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing", initiated 1 December 1954 increased 10 percent to 80 percent of completion in July 1955. Purpose is to modify the APS-54 airborne warning receiver installation to allow its use an an active countermeasures weapon. By means of relays

28. "376th U-30 for Jul 55", exhibit #5, this History.

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connected to the warning lamp circuit, the APS-54 receiver is made to operate chaff dispensers whenever both tail and nose warning lamps are lighted. Successful tests were flown against both the X and S-band ground based tracking radars at Eglin Air Force Base, Florida, with automatic chaff dispensing triggered by a tracking signal from an MSQ-2 set whenever the aircraft was within 30,000 to 40,000 yards of the site. Against the M-33 radar, chaff was triggered at 30 miles from the site.[29] Final report was being prepared during July.

Auxiliary Project 45, "AN/ALQ-3 Suitability Test", initiated 2 May 1955 remained at 10 percent of completion in July. Purpose of the project was to test and evaluate tactical use of the AN/ALQ-3 S-band search-and-lock-on jamming system. The first set was received but was lacking two cables and two coolant lines which were scheduled to arrive in August. Cables for subsequent tests are to be made by the Wing. When laboratory tests are completed the equipment will be installed in a KC-97F aircraft which was modified for it.[30]

AIRCRAFT STATUS

B-47 Aircraft:

During the month of July 1955, the Wing had 45 B-47 aircraft assigned and 43 possessed,[31] with one aircraft being destroyed on

29. "376th U-30 for Jul 55", exhibit #5, this History.
30. Ibid.
31. Report, "Historical Report for the Month of July 1955, 376th Maint Control Unit", n.d., hereafter cited as "Maint Hist for Jul 55", exhibit #6, & chart, exhibit #7, this History.

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crash landing after take-off at Barksdale Air Force Base, Louisiana.[32] A total of 1,278:45 hours were flown during the month, showing an average of 29:73 hours flown per possessed B-47 aircraft.[33] The in-commission rate for B-47 aircraft was 91.14 percent for July,[34] an increase of 12.20 percent over the June figure.[35] There were no line items AOCP during the month, but there were two line items [illegible] for July 1955.[36] There were 52 component parts changed during the month. Two B-47 and two C-47 aircraft were processed through the Periodic maintenance docks, 34 safety of flight inspections were performed on B-47 aircraft and 11 flight line inspections, and six B-47 test flights were supervised by the quality control unit.[37]

There was a total of 13 B-47 engines changed during the month,[38] with an average of 251 hours flown per engine at time of change.[39]

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32. Major Aircraft Accident, pages 3 and 4, this History.
33. "Maint Hist for Jul 55", n.d., exhibit #6, and chart, exhibit #8, this History.
34. "Maint Hist for Jul 55", n.d., exhibit #6, and chart, exhibit #9, this History.
35. History 376th Bomb Wing for June 1955, page 15.
36. "Maint Hist for Jul 55", n.d., exhibit #6, and chart, exhibit #10, this History.
37. "Maint Hist for Jul 55", n.d., exhibit #6, this History.
38. Ibid, and chart, exhibit #11, this History.
39. "Maint Hist for Jul 55", n.d., exhibit #6, and chart, exhibit #12, this History.

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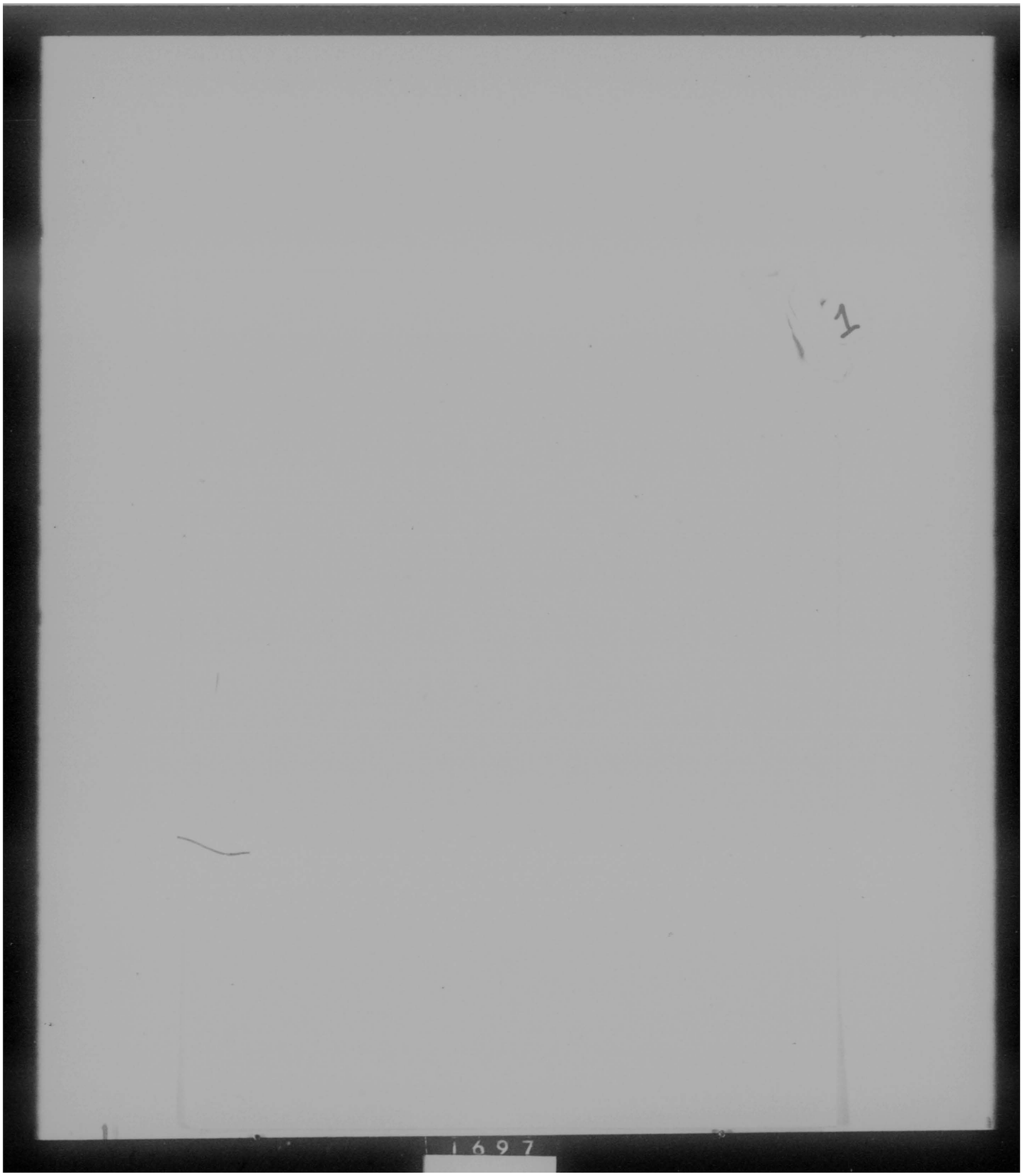

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HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
APO 194, New York, N. Y.

CLASSIFICATION: SECRET
AUTH: CGM 376TH BOMWGM
INITIALS
Date: 5 August 1955

WING COMMANDER'S REMARKS

PART V

Bombardment Air Training Report for Month of July 1955
(RCS: J-SAC-T12)

PART V

6. Wing Commander's Remarks - Part V

a. Hours flown performing missions ordered by higher headquarters:

(1) "Deep Rock" mission, 7AD Ops Order #94-55, 8 July 1955: 453:00

(2) Ferrying aircraft to and from modification depot: 8:00

(3) USCM: 417:00

(4) Orientation/Evaluation mission - Message ODTO 7-3047, dated 14 July 1955: 331:35

TOTAL: 1209:35

b. Weather or local conditions affecting training:

(1) None.

c. Directives imposed by AMC or SAC on aircraft:

(1) None.

d. Combat crew member gains or losses:

(1) Gains: None.

(2) Losses: Crew 504, aircraft accident, 14 July 1955.

e. Crew member changes:

(1) Two co-pilots.

(2) One observer.

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Wing Commander's Remarks, 376th Bombardment Wing Air Training Report for July 1955

f. New crews:

(1) N20 effective 1 July 1955.

g. Crew status changes:

(1) N17 to R17, 7 July 1955: Upgraded.

(2) L75 to N75, 23 July 1955: Downgraded.

h. Standardization Crews:

(1) L11, Wing Standardization Crew.

(2) L16, L37, and L70 are Squadron Standardization Crews.

i. Additional materiel and personnel problems:

(1) Career field 204: Effective manning is 16 percent, of the six positions authorized in this career field only one person is assigned by both primary and duty.

(2) Effective manning in the administration career field is 46 percent. With known losses and no known inputs, effective manning will be further reduced to 39 percent within six months.

(3) Effective manning in personnel career field is 36 percent. This career field continues to remain critical and no known inputs are forecast.

(4) Materiel problems: None.

j. SAC Minimum Training Requirements not accomplished:

(1) Approximately 77 percent of SAC minimum training requirements were accomplished during the training quarter ending 31 July 1955. One hundred percent completion of minimum training requirements was not attained during the month of

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Wing Commander's Remarks, 376th Bombardment Wing Air Training Report for July 1955

July, due to scheduled deployment to United Kingdom, participation in exercise "Deep Rock", and accomplishment of 7th Air Division "Orientation/Evaluation" mission. Further formal ECM training will be hampered by restriction imposed by letter S.C, DOPLT, dated 9 May 1955, Subject: ECM activities of the 376th Bombardment Wing while on overseas Rotation.

k. Non-combat ready crews capable of deploying:

(1) Three crews: N12, N20 and N55 have been trained to a point where they could be deployed for ECM missions in the event of an emergency.

l. Non-combat ready crew training:

(1) Three non-combat ready crews (excluding IN crews) were in training during July.

(2) Four sorties for a total of 26 hours were flown as 54 time in training non-combat ready crew personnel.

(3) The following non-combat ready crews are estimated to be combat ready on dates indicated:

(a)	N12	1 November 55
(b)	N20	1 September 55
(c)	N55	1 September 55
(d)	IN19	1 February 56
(e)	IN36	1 December 55
(f)	IN40	1 October 55
(g)	IN35	1 November 55

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Wing Commander's Remarks, 376th Bombardment Wing Air Training Report for July 1955

(h) IN86 1 February 56

(i) N75 - Awaiting board action under provisions of AFR 36-5

m. Flying time differences: Rescinded per SAC message DOTAS 45973.

n. Field Training Operations:

(1) Test of facilities: None.

(2) Exercise: None.

o. Special Training Month Remarks:

(1) Not applicable.

p. Comments or Recommendations of the Wing Commander:

(1) The average number of combat ready/lead crews assigned during July was 39. A total of 1129 hours (excluding test flight time) were flown for an average of 28.9 hours per crew.

(2) The average number of non-combat ready crews available for flying training was three. A total of 48:00 hours were flown for an average of 16 hours per crew. Non-combat crews were not scheduled to participate in the "Deep Rock" exercise, therefore the desired 25 hours per crew for the month was not attained.

(3) The average number of possessed aircraft during July was 43. The average time per aircraft was 29.73 hours.

(4) Reference 2AF message DOTG 2628, dated 14 June 1955.

a. None.

Stephen D. McElroy

STEPHEN D. McELROY
Colonel, USAF
Commander

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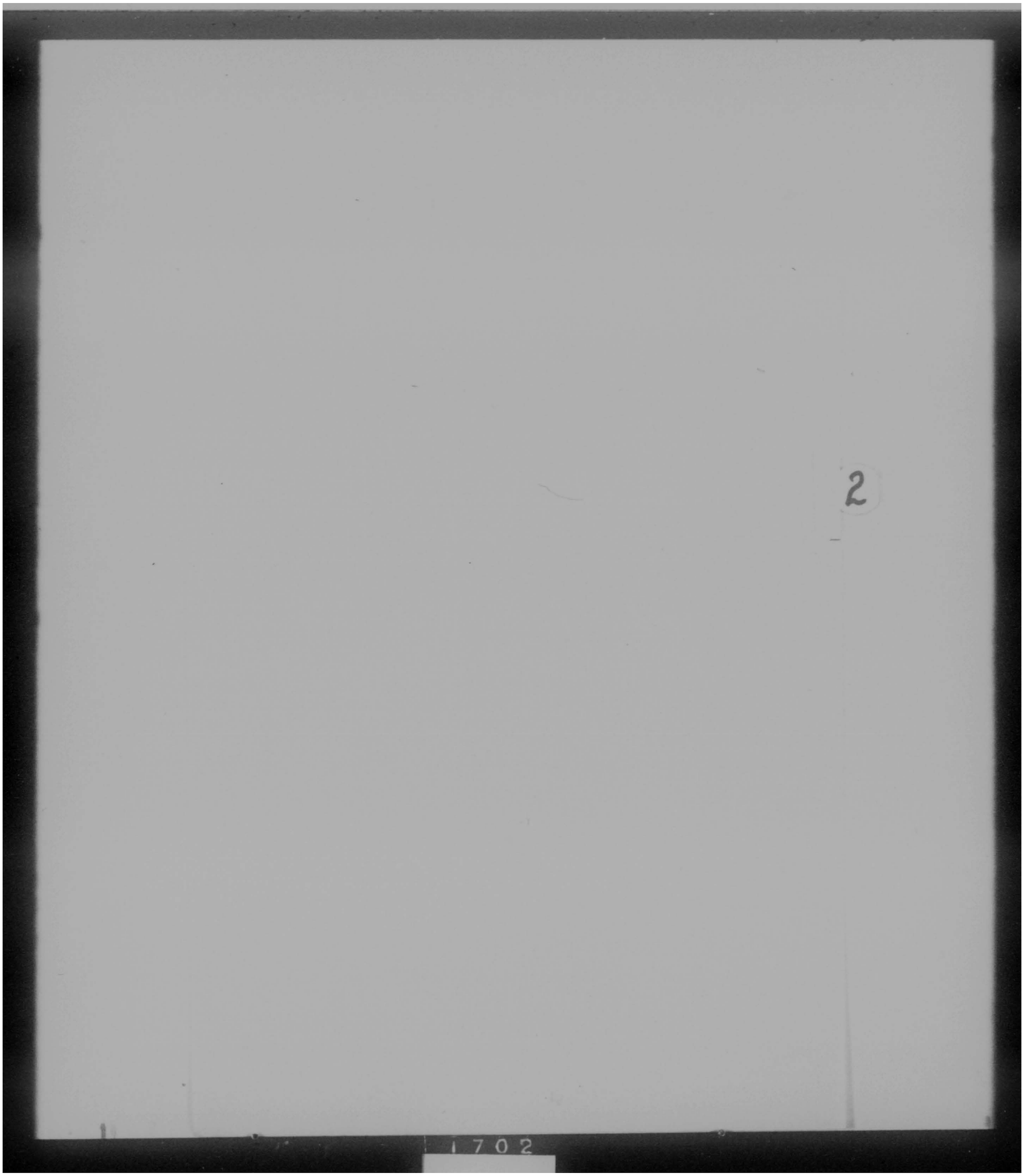

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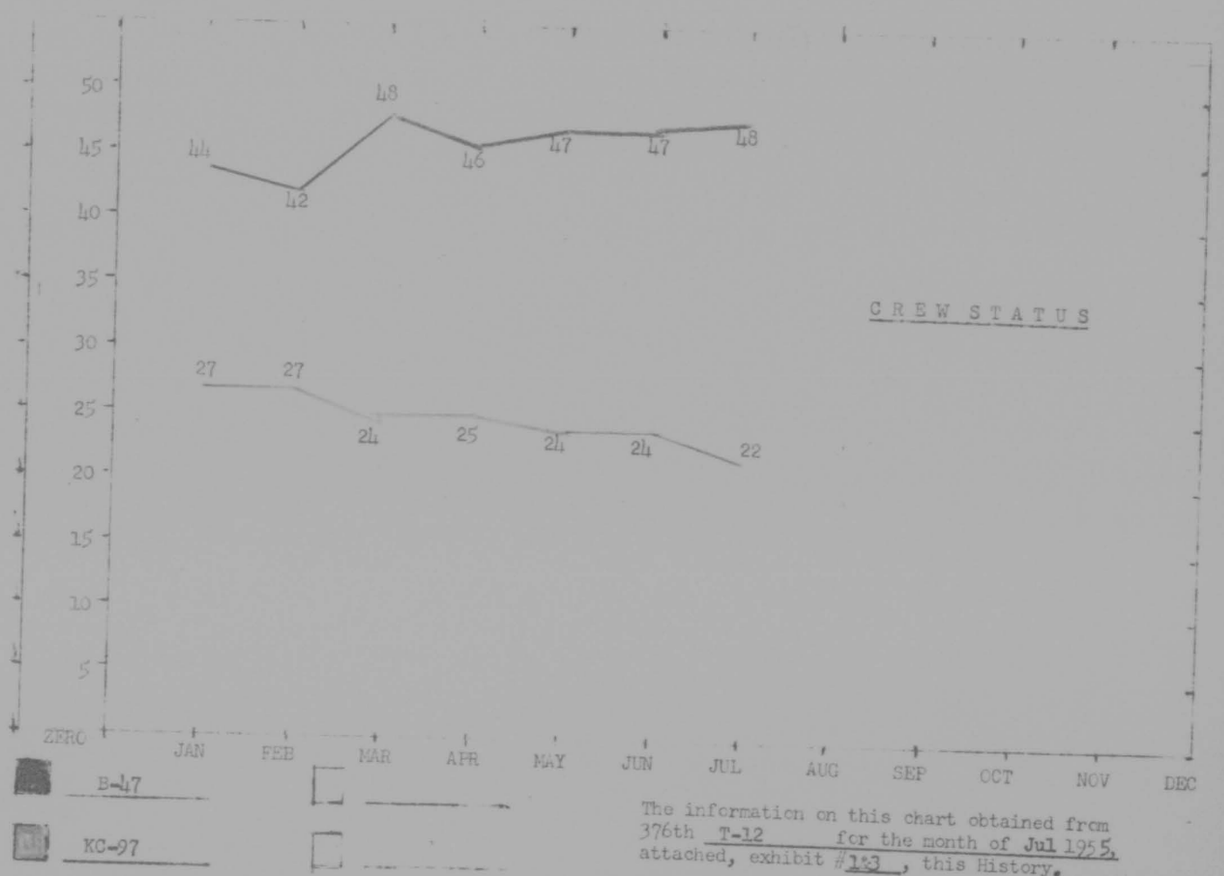

CREW STATUS

The information on this chart obtained from 376th T-12 for the month of Jul 1955, attached, exhibit #1&3, this History.

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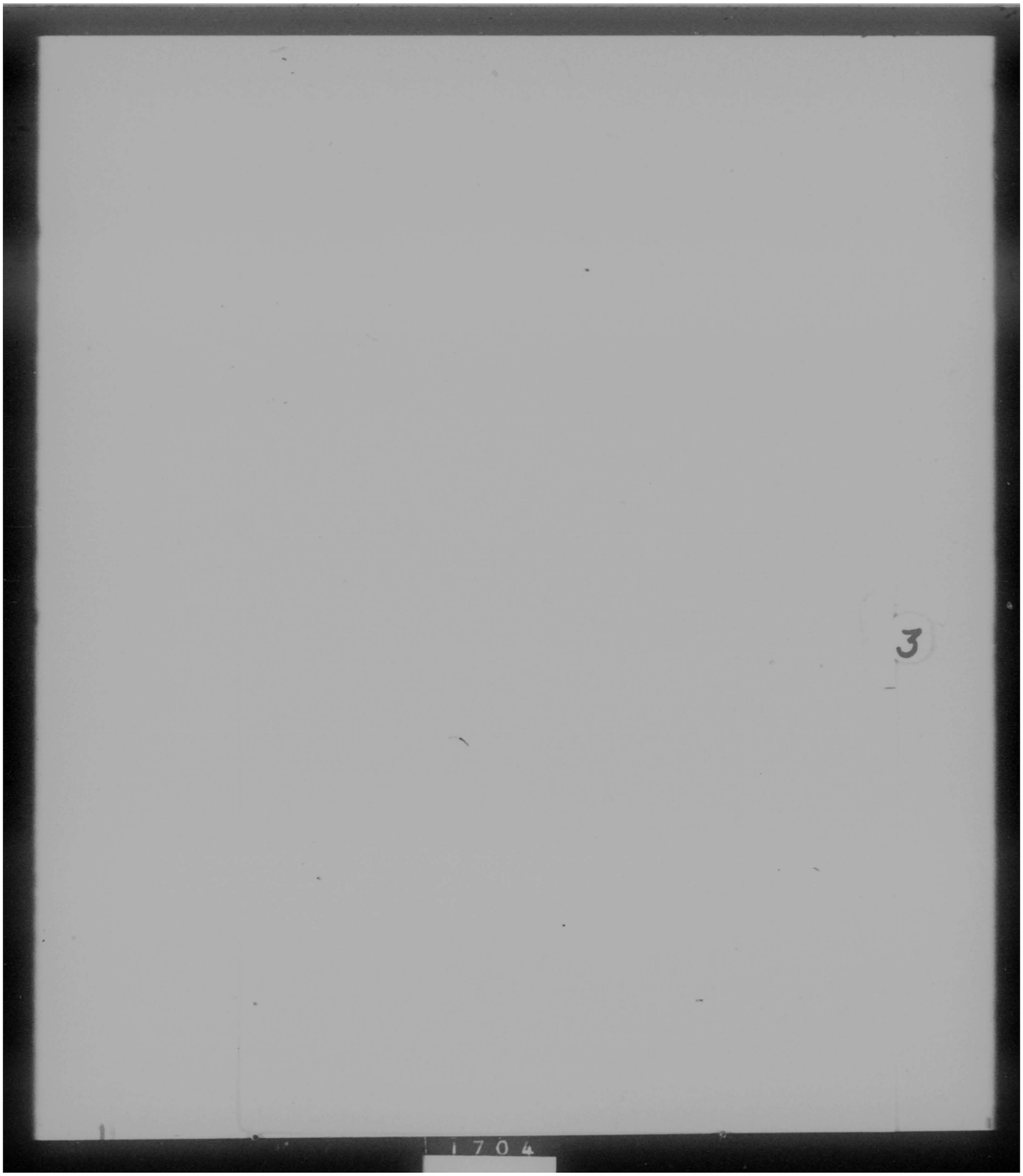

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376TH AIR [illegible] SQUADRON DETACHMENT
376TH [illegible] ARDMENT [illegible]
APO 113 [illegible] YORK, N.Y.

PART III

Air Training Report for the Month of July 1955
(RCS: 4-SAC-T12)

PART III

6. Squadron Commander's Remarks - PART III

a. Hours flown performing missions ordered by Higher Headquarters:

(1) TEY Deployment (Operations Order 95-55): 591:40

(2) Operation Deeprock (Operations Order 94-55: 83:40

(3) Cargo flight to Tulsa and return to Barksdale AFB: 4:00

(4) Cargo flight to Tinker AFB and return to Barksdale AFB: 4:00

(5) Ferry flight to Carswell AFB and return to Barksdale AFB: 2:30

TOTAL - 685:50

b. Weather or Local Conditions Affecting Training:

(1) Negative.

c. Restrictive Directives:

(1) Covered in 61 (1) below.

d. Combat crew member gains and losses:

(1) Crew members gained:

(a) Two flight engineers.

(b) Four boom operators.

(2) Crew members lost:

(a) One boom operator - Discharged from the service.

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(b) Three assistant boom operators - one processing for discharge from the service, and two discharged from the service.

c. Crew member changes:

(1) One aircraft commander.

(2) One pilot.

d. Crew Ops:

(1) Negative.

e. Crew status changes:

(1) [illegible]-21 to [illegible]-21, 11 July 55, regraded due to the assignment of assistant boom operator not checked out.

(2) [illegible]-24 to [illegible]-24, 11 July 55, upgraded.

h. Standardization crews:

(1) 2-02.

(2) 2-06.

i. Additional material and personnel problems:

(1) The outstanding difficulties encountered during the month of July are as follows:

(a) During the period of 1-15 July two aircraft were out of commission for one day each for propeller inspection and repair, one aircraft was AOCP for 3 days for brakes, and one aircraft was AOCP for ten days for a fuel cell.

(b) There were five engine changes during the month, requiring the five aircraft affected to be out of commission for a total of 8.3 days.

(c) The maintenance check and inspection of propeller de-icing system required by T.O. 01-1-213 (Inspection of forging type steel blade, Hamilton Standard

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PART III - 376TH [illegible], (W), Squadron Commander's Remarks for month of July 1955

Propeller, model [illegible] and 24260) resulted in the recording of nineteen of this organization's twenty TDY KC-97G aircraft on the 25th of July. As of 31 July, twelve aircraft were still out of commission as result of this inspection. For the period 25-31 July, the average number of days out of commission per aircraft for the twenty TDY aircraft possessed was 5.68 days.

(d) The AOCP rate for July was 7.20 percent as compared to .0 percent for June. As of 31 July, seven aircraft were AOCP for a total of 4 complete propeller assemblies each. Four aircraft were AOCP for a total of 53 blades.

j. SAC [illegible] training requirements not accomplished: [illegible]

(1) Covered in 61 (3) below.

k. Non-combat ready crews capable of deploying:

(1) Three - [illegible]-14, [illegible]-24 and [illegible]-21 are capable of deploying in event of emergency.

l. Non-combat ready crew training:

(1) An average of two non-combat ready crews were available for training during the month of July.

(2) A total of 64 hours were flown for an average of [illegible]2 hours per crew.

(3) Crew [illegible]-14 flew a total of 85 hours during the quarter, which was 5 hours short of the required 90 hours. The crew flew 38 hours in May, 19 hours in June, and 28 hours in July. The shortage of flying time in June as explained in the Commander's Remarks for that month was due to the reassignment (PCS) of the pilot and the assignment of a replacement pilot who because of TDY orders delayed the necessary standboard check until the latter part of June. The shortage of flying time in July was caused by the KC-97G propeller problem covered in 61 (1) (c) above.

(4) Estimate of date non-combat ready crews will be combat ready: [illegible]

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PART III - 376th BW(H), Squadron Commander's Remarks for the Month of July 1955

(a) [illegible]14 - 1 August 1955.

(b) [illegible]24 - 1 August 1955.

(c) [illegible]21 - 1 December 1955.

(d) [illegible]25 - 1 December 1955.

(e) [illegible]27 - 1 December 1955.

(f) [illegible]30 - 1 January 1956.

m. Flying time differences:

(1) Negative.

n. Special training month remarks:

(1) Negative.

o. Comments or recommendations of the Squadron Commander:

(1) The squadron completed 100 percent of the combat ready crew 50-8 quarterly requirments during July.

(2) The average number of combat ready crews assigned during July was sixteen. A total of 639 hours (excluding test hops) was flown for an average of 39.98 hours per crew (excluding two standardization crews).

(3) The average number of aircraft possessed by the squadron during July was 21. The two LC-97F aircraft remaining at Barksdale AFB were lost to the squadron on 15 July. The average time per aircraft was 33.2 hours.

(4) Local flying during the period 25-31 July totaled 14 sorties and 51 hours, including 3 sorties and 4 hours on test hops. Flying time for this period for crew T07 that departed on a Higher Headquarters flight to Castle AFB on 28 July will be reported in a supplemental report. The requirment for a 24 hour emergency air refueling strip alert, effective 26 July, precluded the obtaining of any more flying time with the limited amount of aircraft available.

WENDELL D LACK
LTCOL, USAF
Commander

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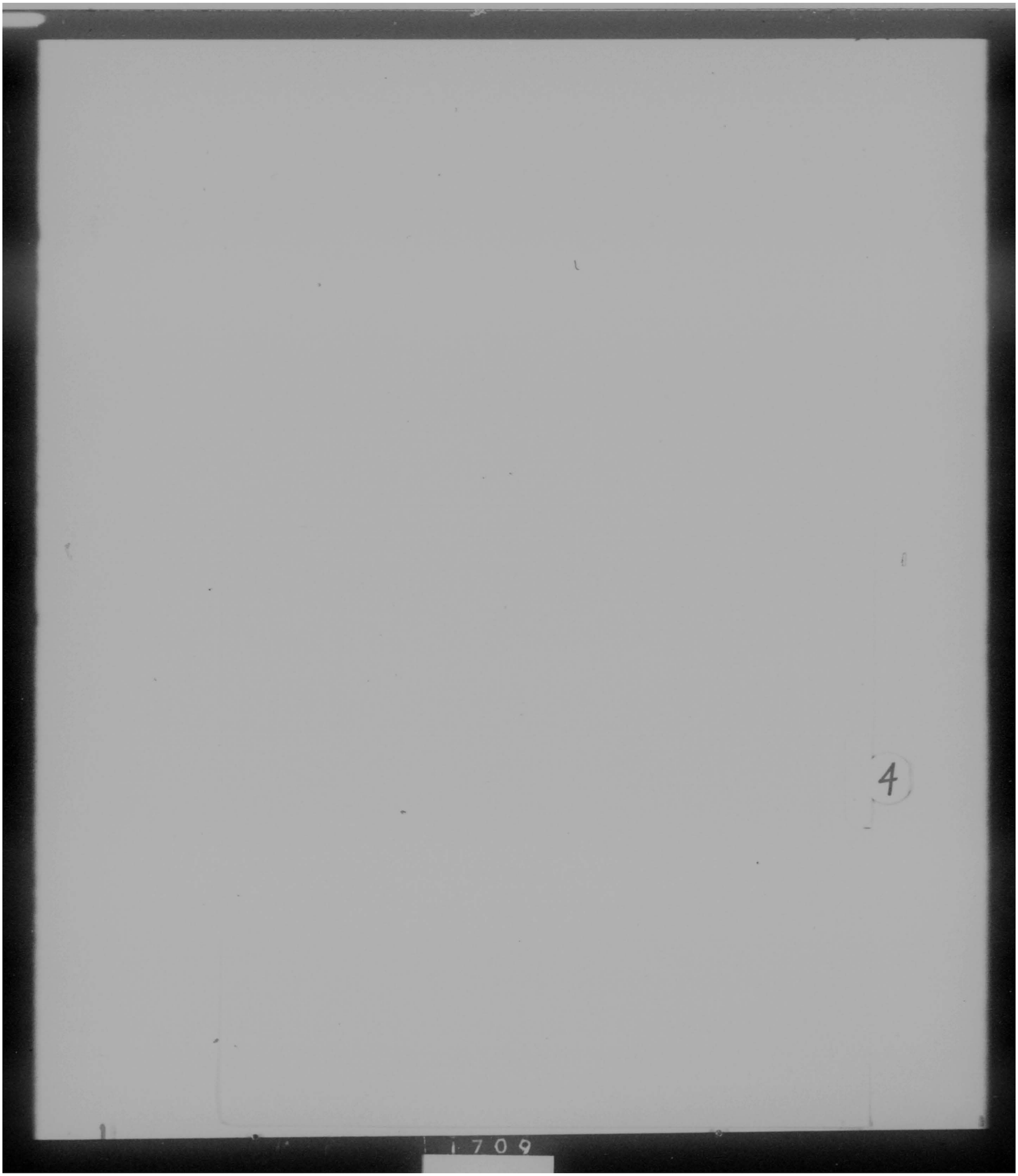

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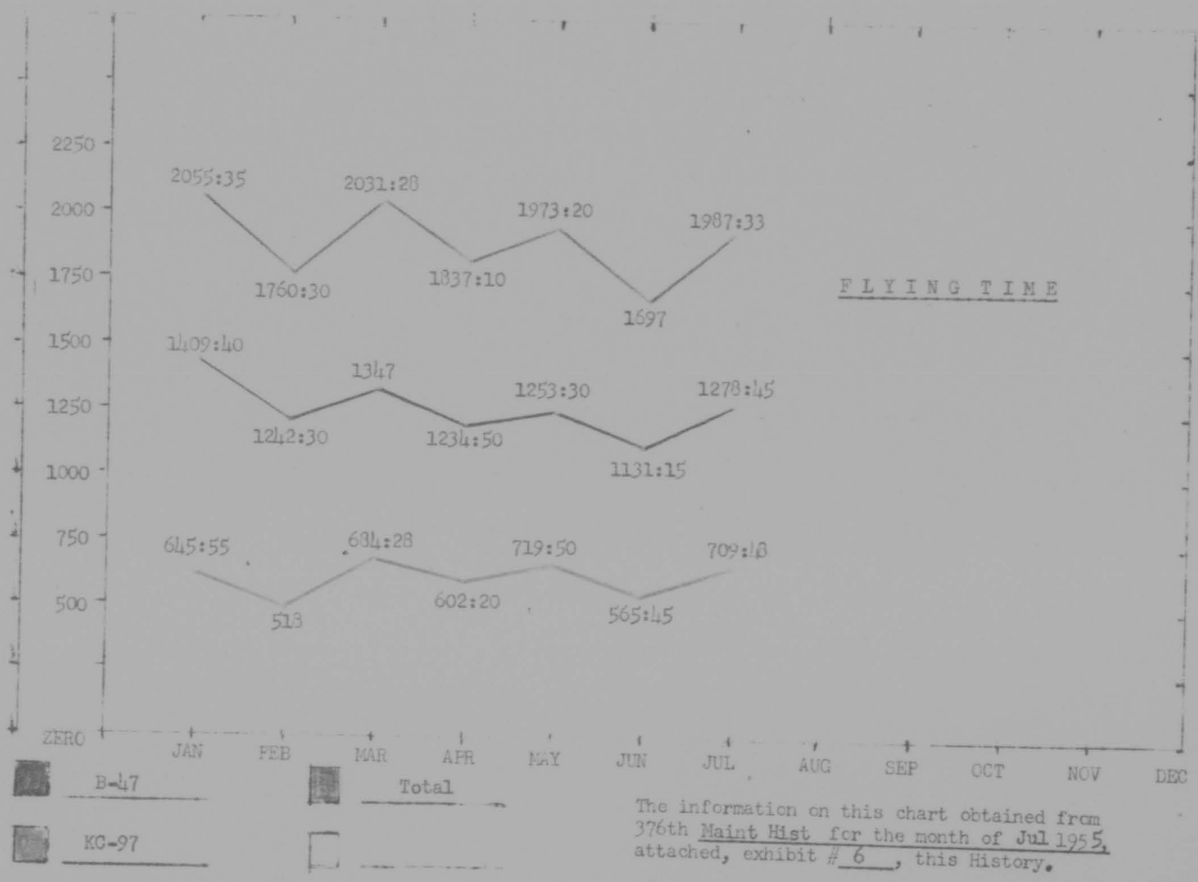

The information on this chart obtained from 376th Maint Hist for the month of Jul 1955, attached, exhibit # 6, this History.

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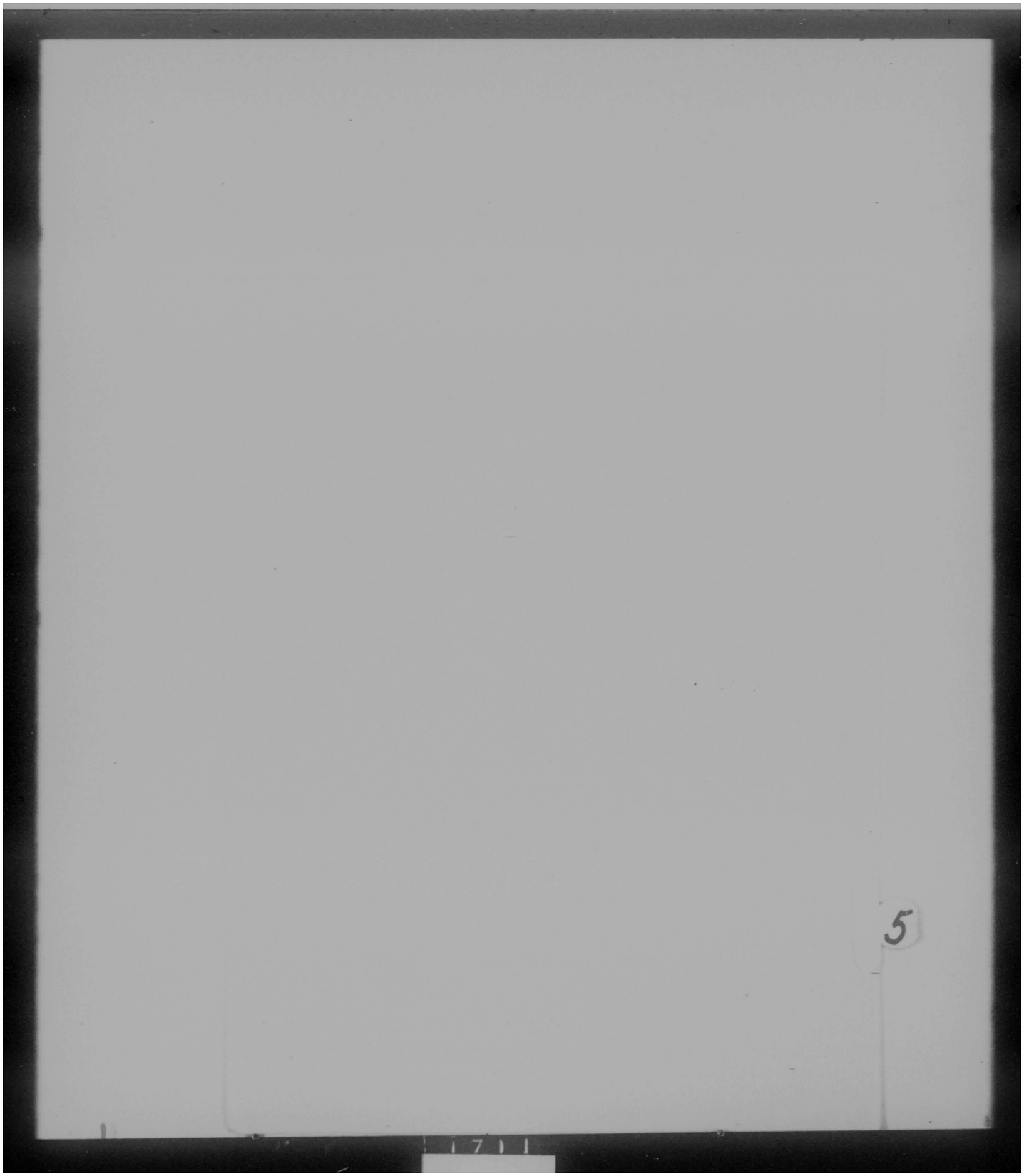

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Auth: COMDR 376BOMWG M
Initials: C.L. Savage Maj
Date: 4 Aug 1955

HEADQUARTERS
376TH BOMBARDMENT WING MEDIUM
Barksdale Air Force Base
Louisiana

376DCTT

4 August 1955

SUBJECT: The 376th Bombardment Wing, Medium, Test and Development Program (RCS: SAC-U30)

TO: Commander
Second Air Force
Barksdale Air Force Base
Louisiana

1. Submitted herewith is a report of the ECM projects assigned to the 376th Bombardment Wing, Medium. The period of this report is 1 through 31 July 1955. Each succeeding paragraph deals with individual project progress.

2. Test Project 1X, "Development of an Unattended Communications Jammer".

a. Date initiated: 2 June 1953.

b. Percentage complete: 43%.

c. Hours flown: None.

d. Present status:

(1) The jammer designed under this project is an electro-mechanical approach to the problem of an unattended search, lock-on and spot jammer for use against GCI communications. The receiver continuously searches the band of 100 to 156 megacycles while the transmitter tracks with it in a quiescent state. When a signal is received, a tuning control relay acts to stop the tuning motor and actuate transmitter control circuits. A look-through circuit allows the unit to determine when enemy signal shifts frequency or discontinues transmission. In the event the signal disappears, all circuits return to normal search position and the receiver re-cycles for normal search. The transmitter is modulated from two sources: a noise generator, and

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a supersonic oscillator. The supersonic tone thus produced is used for identification purposes, and when received by a second jammer, de-energizes control circuits in the second jammer, thus preventing the possibility of more than one jammer jamming the same frequency.

(2) A breadboard model has been completed of the entire unit, minus the identification device. The initial breadboard is satisfactory in all respects, with the exception of tuning capacitors. A second set of tuning capacitors has been constructed by the Radio Condenser Company, Camden, N.J. These capacitors were delivered to this station 21 July. Construction has begun to integrate this capacitor into the overall unit. Some difficulty is being experienced with the RF stage of the receiver due to a higher input capacity of the 6BQ7 RF tube than that stated in the manufacturer's specifications. It is not known yet if this is normal or if the tube is an exception. Several other tubes of the same type have been ordered to check average input capacity.

3. Test Project Number 27, "B-47 Chaff Corridor".

a. Date initiated: 9 April 1954.

b. Percentage complete: 95%.

c. Hours flown: (27) 355:20 - (27R) 264:35.

d. Present status:

(1) This project concerns investigation and development of continuous and random chaff dispensing techniques for masking bomber formations.

(2) Report on random chaff mission flown 27 May has been printed and forwarded to Headquarters SAC.

(3) Evaluation of the entire Project 27 test program is being made and final report is being processed for printing.

4. Test Project Number 29, "Use of Land Camera for Navigation with the AN/APS-23".

a. Date initiated: 30 June 1954.

b. Percentage complete: 90%.

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c. Hours flown: 37:24.

d. Present status:

(1) A camera and periscope assembly has been developed which mounts on the indicator of the AN/APS-23 radar in a B-47E aircraft. The periscope allows the indicator presentation to be photographed by either a Polaroid or 0-15 camera. The Polaroid camera, which provides a print in one minute, will enable the B-47 observer to navigate without continuous radar mapping, thereby reducing aircraft susceptibility to passive detection and direction finding.

(2) Final report for this project is being prepared and will be completed during August.

5. Test Project Number 30, "Development of a Passive Station Keeping Capability".

a. Date initiated: 30 June 1954.

b. Percentage complete: 100%.

c. Hours flown: 11:00.

d. Present status: Final report on this test project was submitted to Headquarters SAC during July. This project will no longer be reported.

6. Test Project Number 32, "Cell Support Tests".

a. Date initiated: 17 February 1955.

b. Percentage complete: 25%.

c. Hours flown: 395:45.

d. Present status:

(1) Purpose of this project is to determine tactics and ECM equipment necessary to protect certain bomber cell formations from enemy GCI, gunlaying and interceptor type radars.

(2) No flight tests were flown on this project during July because 376th Bomb Wing aircraft and equipment were being readied for departure for overseas TDY. Further flight tests are held in abeyance pending availability of aircraft.

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(3) Evaluation and reporting of missions flown prior to 23 June are complete, with the exception of two remaining reports. Progress in arriving at definitive answers to the test directive has been slow since all first phase tests were flown twice to evaluate the comparative operational suitability of two different antenna systems.

(4) An acute need exists for field type test equipment to enable fast, accurate setting up of the AN/ALT-6 and AN/ALT-8 transmitters. Successful performance of ECM support missions is directly related to the dependability ascribed the Armament and Electronics organization for furnishing on short notice equipment settings exactly as required in large numbers. While no such test equipment is available at present, the basic theory is well established for light-weight, portable, rugged equipment suitable for determining proper sweep speeds, frequency limits, power output, modulation percentage, etc., in the hands of relatively inexperienced personnel who must work under pressure in various climatic conditions. There is no time available for a long-range program leading to modified laboratory equipment. The requirement is for immediate production of practical items to be put into the hands of Armament and Electronics personnel immediately.

7. Test Project Number 33, "Personal Radio Alert Equipment".

a. Date initiated: 6 May 1955.

b. Percentage complete: 20%.

c. Hours flown: N/A.

d. Present status:

(1) The SAC mission requires immediate availability of key personnel and early availability of many other personnel when alert conditions exist. Purpose of this project is to determine a feasible method of quickly alerting specific groups of individuals through use of radio. Under this plan each individual would be equipped with a small radio receiver that could conveniently be carried in a shirt pocket. This receiver would be tuned to a specified frequency upon which an alert signal could be broadcast.

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(2) Field strength measurements were made to determine the best frequency, or frequencies, to be used for giving maximum ground wave radiation at all hours of the day or night. Early in the tests frequencies from four to ten megacycles were eliminated due to low signal strengths obtained during daylight operation and extreme interference from distant stations during night operation. More critical comparison measurements were made between two and three megacycles. Results of the comparison indicated that for the majority of time the signal field strength at 2.95 megacycles exceeded that of 3.312 megacycles. All field strength measurements down to 2.95 megacycles were made from a vertical transmitting antenna cut to one-quarter wave length at the frequency being measured, and loaded to the same antenna current and modulation percentage on all frequencies. Below 2.95 megacycles it became impossible to erect an electrical quarter wave antenna, though it was noted field strength was becoming progressively greater down to 2.95 megacycles.

(3) A series of field strength and noise measurements were taken at distances of seven, 14, and 30 miles from the transmitting station. Measurements were obtained in the open and inside a typical steel masonry building in a downtown area seven miles from the transmitter. The following list shows typical minimum field strength and maximum noise values obtained over a 24-hour period from a 200-watt transmitter on a frequency of 2.95 megacycles. Antennas one meter long, 30 centimeters long, and the human body were used.

Downtown Seven Miles from Transmitter		Out in the Country			
Outside	In Building	7 Miles from Xmtr	14 Miles from Xmtr	30 Miles from Xmtr	Max Noise
		uVolt/Meter of Antenna			
10.5uV	3.7uV	375uV	50uV	18uV	50uV
		uVolt/30 CM Antenna			
5.5uV	1.6uV	65uV	11uV	3uV	3uV
		uVolt/Human Body as Antenna Holding Hand on Antenna Terminal of Receiver			
35uV	7.5uV	70uV	85uV	18uV	100uV

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(4) A high signal-to-noise ratio is an item of prime importance in reliable operation of an automatic alarm system. A signal-to-noise ratio tolerable for good communications would not be adequate for reliable automatic alarm, and in a great number of cases might result in inadvertent or false alarm. The receiver used would therefore have to be designed for minimum sensitivity in keeping with the signal available from transmitting station. To obtain the required high signal-to-noise ratio, a three and a half kilowatt transmitting station is being set up. The transmitter to be used is a Wilcox 96D, common to most SAC bases.

(5) An antenna for the high power transmitter is hung from a 60-foot pole located approximately 300 feet from the transmitter building. The antenna is designed for maximum ground wave radiation at 2131 kilocycles. To achieve maximum ground wave radiation, the antenna consists of a 50-foot vertical wire top loaded with a large coil and capacity hat. In order to obtain maximum current in the linear portion of the antenna, minimum base loading is used to match the antenna to the coaxial transmission line. A coaxial transmission line was selected because it can be laid on the ground and not interfere with operation of existing communication facilities at the transmitter site.

(6) The receiver portion of this test project is still in the study phase of obtaining engineering data, coordinating information, developing several approaches to the problem, and surveying available components, systems, and current state of the art. Following are tentative design requirements which have been set for the receiver:

(a) Mechanical:

1. Small and light in weight.
2. Capable of being worn on wrist or in pocket.
3. Mechanically unattended operation.
4. Mechanically produce alert by sound or vibration.

(b) Electricals:

1. Fixed tuned to one frequency (crystal controlled).

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2. Sensitivity determined from results of field strength measurements.

3. Frequency determined primarily by transistors available, and secondly, by field strength data for operational application.

4. Selectivity to be determined by operational need.

5. Type of circuit contingent on sensitivity, selectivity, and use of transistors.

(c) Alarm Signal:

1. Visual - possible use of semi-conductor to light face of wristwatch for alert signal purpose.

2. Sound - possible use of voice, tone, coded tone or mechanical buzzer signal.

3. Shock - possible use of harmless electrical shock for alarm signal.

8. Auxiliary Test Project Number 6, "Development of VHF Broad Band Barrage Jammer".

a. Date initiated: 5 April 1954.

b. Percentage complete: 67%.

c. Hours flown: 14:00.

d. Present status:

(1) A barrage jammer was constructed for frequency range between 60 and 90 megacycles. Jammer consists of ten separate, small, noise modulated oscillator-amplifier transmitters mounted in one standard ECM rack and fed to a single antenna. A power supply is mounted in another standard ECM rack.

(2) Four flight tests have been completed against the modified SCR-270 radar at Eglin AFB using a C-47 type aircraft. On each flight the barrage frequencies were randomly pre-set in the range of 60 to 90 megacycles. Effective jamming was obtained varying from 360 degree coverage at 13 miles to 60 degree sector coverage at 85 miles.

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(3) During the month of July, flight testing on this project was deferred in favor of other projects. Additional flight tests are to be scheduled during August.

9. Auxiliary Test Project Number 18, "Development of a VHF Communications Jammer using an Increductor".

a. Date initiated: 1 April 1954.

b. Percentage complete: 50%.

c. Hours flown: None.

d. Present status:

(1) Purpose of this project is to develop a search-and-lock-on VHF communications jammer using electronic rather than mechanical tuning. Saturable reactors are used as the tuning elements in both the transmitter and receiver. A transmitter has been built with a power output of 50 to 100 watts in the frequency range of 100 to 156 megacycles. The transmitter incorporates circuits which allow it to be swept through the VHF frequency band and lock-on any frequency to which an associated receiver is tuned. If frequency of the receiver is changed, the transmitter will automatically shift frequency to follow the receiver. An AN/ARR-5 receiver has been used to test transmitter circuits.

(2) An electronically tuned receiver is under construction. Associated with the receiver will be control circuits to cause receiver to automatically scan the band, locate a signal, identify it, lock on, tune transmitter to the same frequency and begin jamming with periodic look through. Should the victim signal change frequency, jamming system will follow the change. If the victim signal is discontinued, the receiver will resume searching until another signal is found. Provisions will be made to prevent one jammer from locking on another in the vicinity.

(3) Five sections of the search-and-lock-on receiver have been built. These are the master sweep circuits, multi-vibrator circuits, RF circuits, IF sub-assembly, and control circuits. Each section was built on a separate chassis with the plan to mount all sections and a power supply on a larger rack for completing the receiver. Bench tests on the IF sub-assembly show the

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sensitivity to be in the order of one microvolt. Parts have been ordered to build the power supply for the receiver.

10. Auxiliary Test Project Number 23, "Development of 70 Megacycle Whip Antenna".

a. Date initiated: 25 August 1954.

b. Percentage complete: 90%.

c. Hours flown: N/A.

d. Present status:

(1) Three whip antennas for operation in the frequency range of 45 to 140 megacycles were developed. Antennas may be plugged into standard AB-109 aircraft antenna receptacles and have RF connectors for use with RG-14/U cable, as used on ECM equipment. A matching section is provided for each antenna to broaden the usable bandwidth. Nomenclature and frequency range of antennas are:

AT(XA-212)AP - 97 to 140 mc, 8½" matching section
AT(XA-213)AP - 57 to 100 mc, 10½" matching section
AT(XA-214)AP - 45 to 77 mc, 14½" matching section

(2) Draft of the final report on this project has been completed but publication was deferred in favor of reports on Test Projects Numbers 30 and 32.

11. Auxiliary Test Project Number 24, "Effectiveness Test of the QRC-8".

a. Date initiated: 2 October 1954.

b. Percentage complete: 88%.

c. Hours flown: 179:04.

d. Present status:

(1) This project was initiated to test tactical suitability of the QRC-8(T) jamming transmitter system. The QRC-8 is an HF communications jammer covering the spectrum of two to ten megacycles using the sweeping technique. The frequency spectrum is divided into six bands selectable by means of plug-in coils. Jamming rates of 200 to 2000 hits per second are achieved electronically by means of a saturable reactor used in the RF oscillator circuit.

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(2) Flight tests in the 3.5 to 5.0 megacycle band show the QRC-8 is capable of jamming voice communications from a 500 watt ground transmitter. With four jammers sweeping from 3.5 to 5.0 megacycles at different rates between 300 to 800 hits per second, fighter GCI communications were jammed when separation between fighter and bombers was 20 nautical miles at a distance of 40 nautical miles from the GCI site. At a distance of 80 nautical miles from the GCI site, jamming was accomplished with separation of 40 to 50 nautical miles between bomber and fighter.

(3) Loading coils and fiberglass housings for use on other frequency bands are being fabricated for all 376th Bomb Wing aircraft. All fiberglass housings have been completed and coils and terminals are being installed in them. When these are completed they will be shipped overseas to the 376th Bomb Wing TDY station where they will be installed in aircraft.

12. Auxiliary Test Project Number 26, "Operational Test of AN/APS-54".

a. Date initiated: 18 June 1954.

b. Percentage complete: 85%.

c. Hours flown: 66:25.

d. Present status:

(1) This project was initiated to investigate operational suitability of the AN/APS-54 airborne warning receiver in single and multi-aircraft formations. The tests included phases:

(a) To evaluate installation of cables, connectors, racks and wiring in B-47 aircraft.

(b) To determine effect on AN/APS-54 operation of other electronic equipment, both accessory and functional, in B-47 aircraft.

(c) To determine effect on AN/APS-54 operation of electronic equipment in nearby friendly aircraft.

(d) To investigate reaction of the AN/APS-54 to ground based gunlaying radar.

(2) Final report on this project is being prepared and will include report on Auxiliary Test Project Number 33.

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Results of these projects were essentially outlined in the monthly project reports for May and June.

13. Auxiliary Test Project 28, "S-Band RF Systems".

a. Date initiated: 1 November 1954.

b. Percentage complete: 75%.

c. Hours flown: 35:00.

d. Present status:

(1) In using high powered S-band jamming transmitters, such as the AN/APT-16, AN/ALT-6 and AN/ALT-8, considerable difficulty was encountered in multiple moding of magnetrons, low power output, and poor performance. Cause of the troubles was found to be the poor RF transmission lines and connectors used with these systems. This project was initiated to investigate transmission lines and connectors and attempt to improve the system performance. Several types of connectors and RF cables have been investigated.

(2) A QRC contract to provide a satisfactory RF system was let to the Hallicrafters Company, Chicago. This system, which consists of RG-117/U cables fitted with quick disconnect connectors, stub antennas, and adapters for the jamming transmitters, was being flight tested in conjunction with Test Project Number 32 up until the time the 376th Bomb Wing departed on TDY. A special report on results of these tests was submitted to Headquarters SAC during July. The QRC system is now installed in 376th Bomb Wing aircraft overseas and will be used in their ECM missions. It is expected that considerably more data will be obtained from results achieved through use of the system while the Wing is overseas.

(3) At present an AN/ALT-6 transmitter is being modified to allow the magnetron oscillator tube to be operated remote from the transmitter case. In this manner the transmitter may be installed in its normal position, while the magnetron is installed as close as possible to the antenna. It is expected the transmission line to the antenna may be reduced to a few inches. A separate small case has been built to hold the magnetron and remote control cables, and cooling fluid lines are being fabricated.

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14. Auxiliary Test Project Number 32, "Suitability Test of Blue Cradle".

a. Date initiated: 1 September 1953.

b. Percentage complete: 85%.

c. Hours flown: Cradles have been operational since July 1954.

d. Present status:

(1) Six prototype control systems for use with the AN/ALT-8 transmitter were received from the Raytheon Manufacturing Company. Each control system consists of a control box to replace the normally used C-1508/ALT-8 control box and a smaller control panel to replace the one normally used in the crew compartment. With the new control system, the AN/ALT-8 transmitter may be pre-set for operation on any one of four pre-selected frequencies. Operation may be either spot jamming or fast sweep jamming of 200 megacycles width, centered on any one of four pre-set frequencies. Frequency and mode of operation is selectable by means of switches on co-pilot's control panel.

(2) A Blue Cradle is being modified to accommodate the new control system. Four AN/ALT-8 transmitters and the new four-channel control boxes have been mounted in the cradle. Auxiliary control panels for the system have been mounted in the co-pilot's position. Wiring of required connectors and changes in aircraft wiring are expected to be completed in August. Flight tests of the new system will be scheduled when the installation has been completed.

(3) One flight test was flown using an AN/ALT-8 transmitter and the new control box in a type C-47 aircraft. Output signal from the airborne jammer was monitored by an AN/APR-9 receiver located in a van designated as Radar Training Set AN/GPQ-T1 located at Barksdale Air Force Base. Different channels were set up on the control box as follows:

Channel	Center Frequency	Type Jamming
1	2450 mc	sweep
2	2650 mc	sweep
3	3000 mc	sweep
4	3000 mc	spot

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Good results were obtained in this test in that all equipment worked satisfactorily. As the channel switch was turned to each channel position, jamming transmitter tuned to the proper pre-set center frequency for that channel and covered the proper band while sweeping. Following is a copy of the receiver log kept at the ground site during the flight:

Time	Channel	Type Jamming	Center Freq.	Signal Strength	Remarks
0915	-	-	-	-	Xmtr on Standby
0928	1	sweep	2450	0	Out of range
0930	2	sweep	2650	0	Out of range
0934	4	spot	3000	0	Out of range
0935	4	spot	3000	0	Acft turning for inbound run. Out of range
0950	4	spot	3000	0	Still inbound. Out of range
0952	4	spot	3000	1	Small signal. Range 26 miles
0953	3	sweep	3000	0	Can't see sweep sig.
0955	4	spot	3000	2	Sig. stronger
0957	3	sweep	3000	3	Good signal. Xmtr sweeping properly
1000	2	sweep	2650	4	Excellent signal. Sweeping properly
1001	1	sweep	2450	5	Sweeping properly. Range 2 miles
1002	1	sweep	2450	5	Heading west at 7000 feet
1006	1	sweep	2450	3	Signal weak. Range 12 miles
1010	1	sweep	2450	1	Signal very weak. Range 24 miles
1011	4	spot	3000	2	Signal weak.
1013	4	spot	3000	1	Signal very weak. Range 33 miles
1015	4	spot	3000	0	No signal. Out of range. Range 24 mi.
1019	4	spot	3000	1	Acft inbound. Small signal
1025	4	spot	3000	2	Signal getting stronger
1030	4	spot	3000	3	Good signal. Range 12 miles
1031	-	-	-	-	Eqpmt turned off. End of test.

1724

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15. Auxiliary Test Project Number 33, "Modification of AN/APS-54 for Automatic Self Protection Chaff Dispensing".

a. Date initiated: 1 December 1954.

b. Percentage complete: 80%.

c. Hours flown: 7:20.

d. Present status:

(1) Purpose of this project is to modify the AN/APS-54 airborne warning receiver installation to allow its use as an active countermeasures weapon. By means of relays connected to the warning lamp circuit, the AN/APS-54 receiver is made to operate chaff dispensers whenever both tail and nose warning lamps are lighted.

(2) Successful flight tests have been flown against both S-band and X-band ground based tracking radars at Eglin Air Force Base, Florida. Automatic chaff dispensing was triggered by a tracking signal from a MSQ-2 type radar whenever the aircraft was within approximately 30,000 to 40,000 yards of the radar site. Against the M-33 radar, chaff dispensing was triggered at ranges up to 30 miles from the radar site.

(3) Final report on this project is being prepared and will be included in the final report of Auxiliary Test Project Number 26.

16. Auxiliary Test Project Number 45, "AN/ALQ-3 Suitability Test".

a. Date initiated: 2 May 1955.

b. Percentage complete: 10%.

c. Hours flown: None.

d. Present status:

(1) Purpose of this project is to test and evaluate tactical use of the AN/ALQ-3 S-band search-and-lock-on jamming system. The first set was received during the last week of July. This equipment is lacking two cables and two coolant lines which are scheduled to arrive from the W. L. Maxson Corporation the first week of August. Cables for subsequent sets will be made up by the 376th Bomb Wing.

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(2) The equipment is being set up in the laboratory to check proper operation and familiarize maintenance personnel with the equipment. A KC-97F aircraft is being modified for installation of the AN/ALQ-3 when ground checks have been completed. A plate is being installed on the lower deck of the aircraft to mount the transmitter. Other components of the set will be mounted in existing racks. A 35 ampere circuit breaker is being installed to accommodate the required unregulated AC power.

(3) A test program is being drawn up which will use KC-97 aircraft as the first test vehicle, followed by a B-47 aircraft, for flights against S-band tracking and early warning radars.

FOR THE COMMANDER:

Cary L. Savage

CARY L. SAVAGE
Major, USAF
Acting Adjutant,
Rear Echelon

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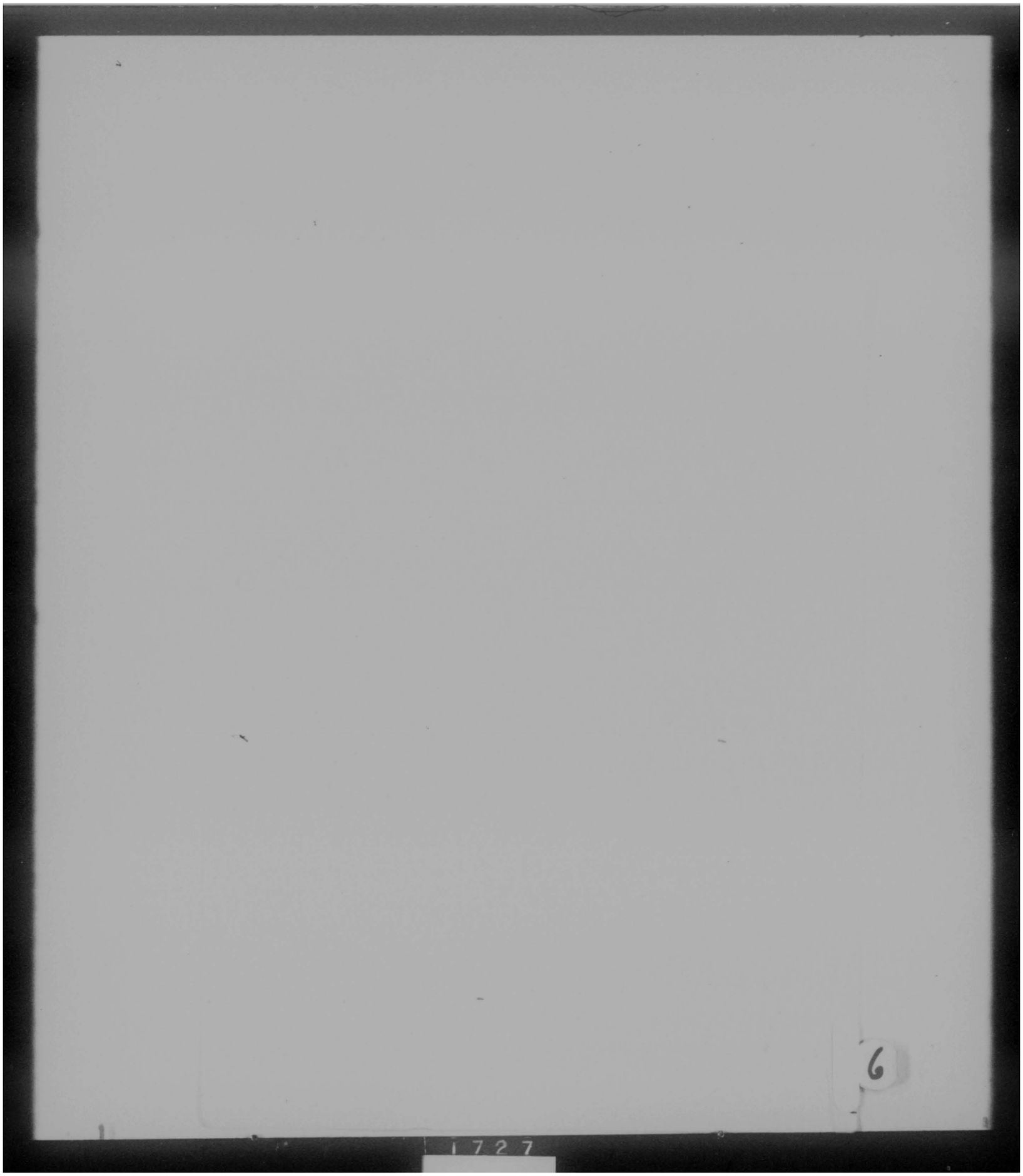

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HISTORICAL REPORT FOR THE MONTH OF JULY 1955

376th Wing Maintenance Control Unit

Reports and Analysis and Control Unit

1. The Wing had an average of 43 B-47 aircraft for the month. The average in-commission rate was 91.14%. A total of 1,278:45 hours were flown for an average of 29:73 hours per possessed aircraft. The ACCP rate was .42 compared to .02% for the previous month.

2. The July manhour figures are not available at this time due to the fact that this office does not recieve the SAC U-22 report until approximately the tenth of each month.

3. The malfunction figures listed are taken from the U-15 report covering the period of June 21 through 20 July 1955. During this period there were 25 B-47 aborts compared to 29 for the previous month.

4. There were 13 B-47 engine changes in July compared to 30 for the previous month. The average engine time for B-47 aircraft at change was 251 hours.

TOC & RECORDS

1. During the month there were 43 TO's accomplished on B-47 aircraft.

2. There were 9 new TO's recieved for B-47 aircraft.

3. There were 13 engine changes on B-47 aircraft with an average of 251 hours per engine.

4. There were approximately 52 component parts changed on B-47 aircraft.

QUALITY CONTROL

1. During the month of July 1955, the Quality Control Unit of Maintenance Control, performed safety of flight inspections on 34 B-47 type aircraft and 11 flight line inspections. There were four (4) flight line inspections performed on KC-97 type aircraft, two (2) B-47 and two (2) C-47 type aircraft inspected that were processed through Periodic Maintenance docks. Ten (10) jet engine installations inspected.

2. Technical publications were received and processed as directed by SAC Manual 66-12 by T/Sgt O.J. Junior (Rear Echelon).

3. This Unit supervised the test flights of six (6) B-47 type aircraft.

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SUPPLY LIAISON

1. Line items AOCP for B-47 aircraft was zero for the month of July 1955.

2. The recurring AOCP for July was zero.

3. There were 6 cannibalizations on B-47 aircraft for July 1955.

4. As of 31 July 1955, ANFE items for B-47 aircraft are 2.

STANDARDIZATION TEAM

1. The Maintenance Standardization Team has compiled new check lists for Jet Engine run up, ground controlled single point refueling, also aided in the developement of new ground crew pre-flight forms. Above forms are in the process of being published. Training courses are being initiated for handling and operating Ground Powered Equipment and Engine Conditioning, including run-up procedures. One member of the team in the 43 career field is still at Barksdale Air Force Base.

2. The A&E member of the Standardization Team who came on the advance party worked with the A&E advance party in setting up the A&E shops, laying out field shop mock-up space, assisting in tying in all mock-up to the power, and co-ordinating with base personnel in getting the security curtain put up for ECM Cradle Shop. Also working in the Wing Maintenance Control Room as the A&E dispatcher. The A&E members who remained until the third phase, assisted in the Wing Maintenance Control Room at Barksdale Air Force Base.

AVERILL F. HOLMAN
LT COL., USAF
Chief of Maintenance

1729

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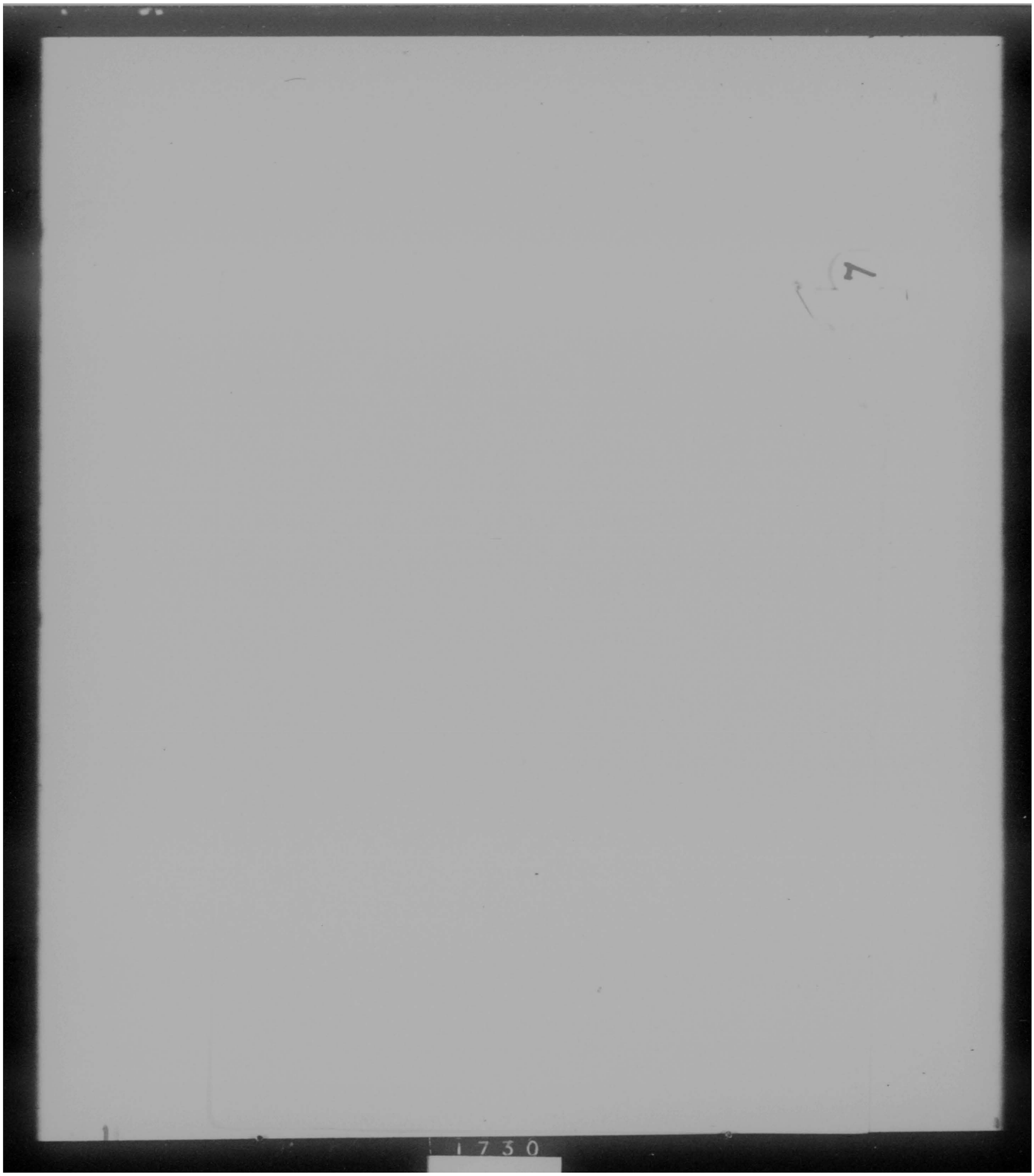

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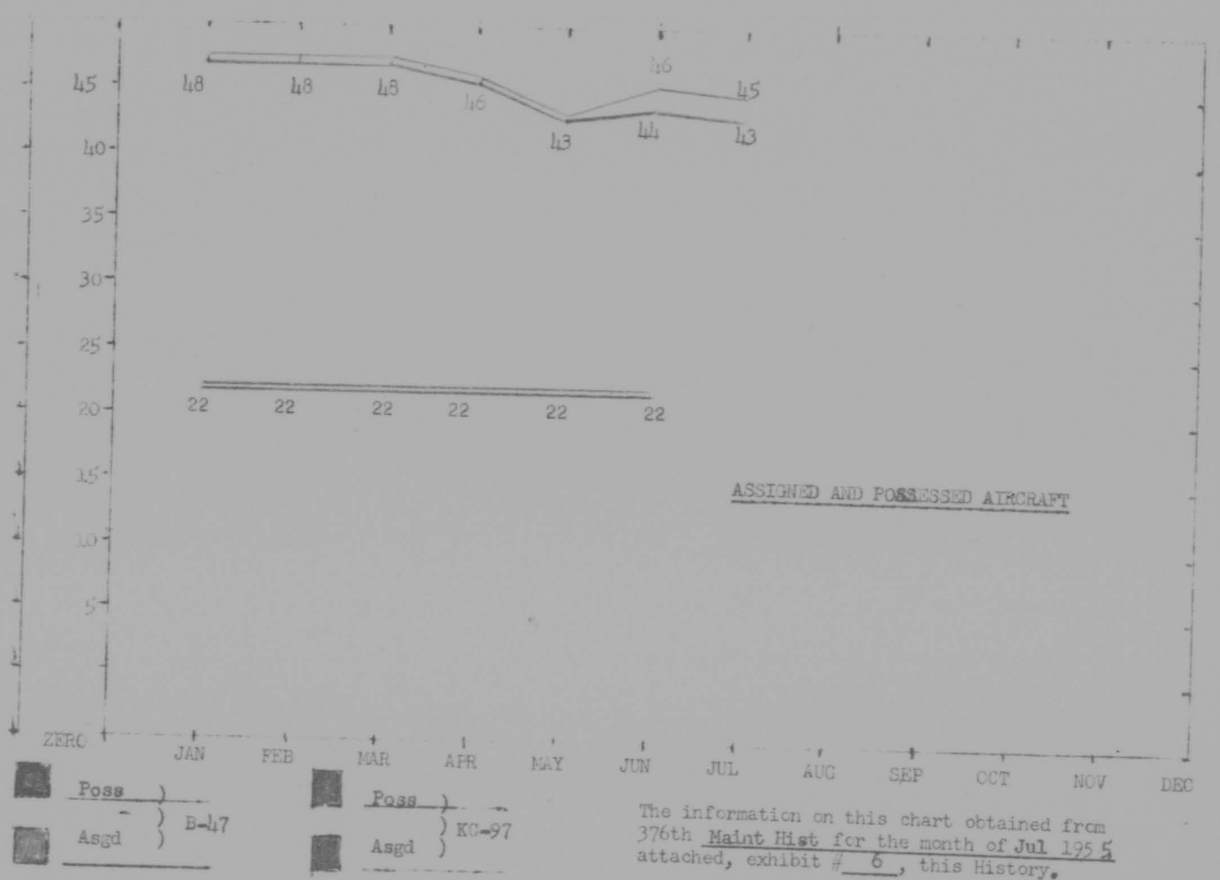

ASSIGNED AND POSSESSED AIRCRAFT

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1732

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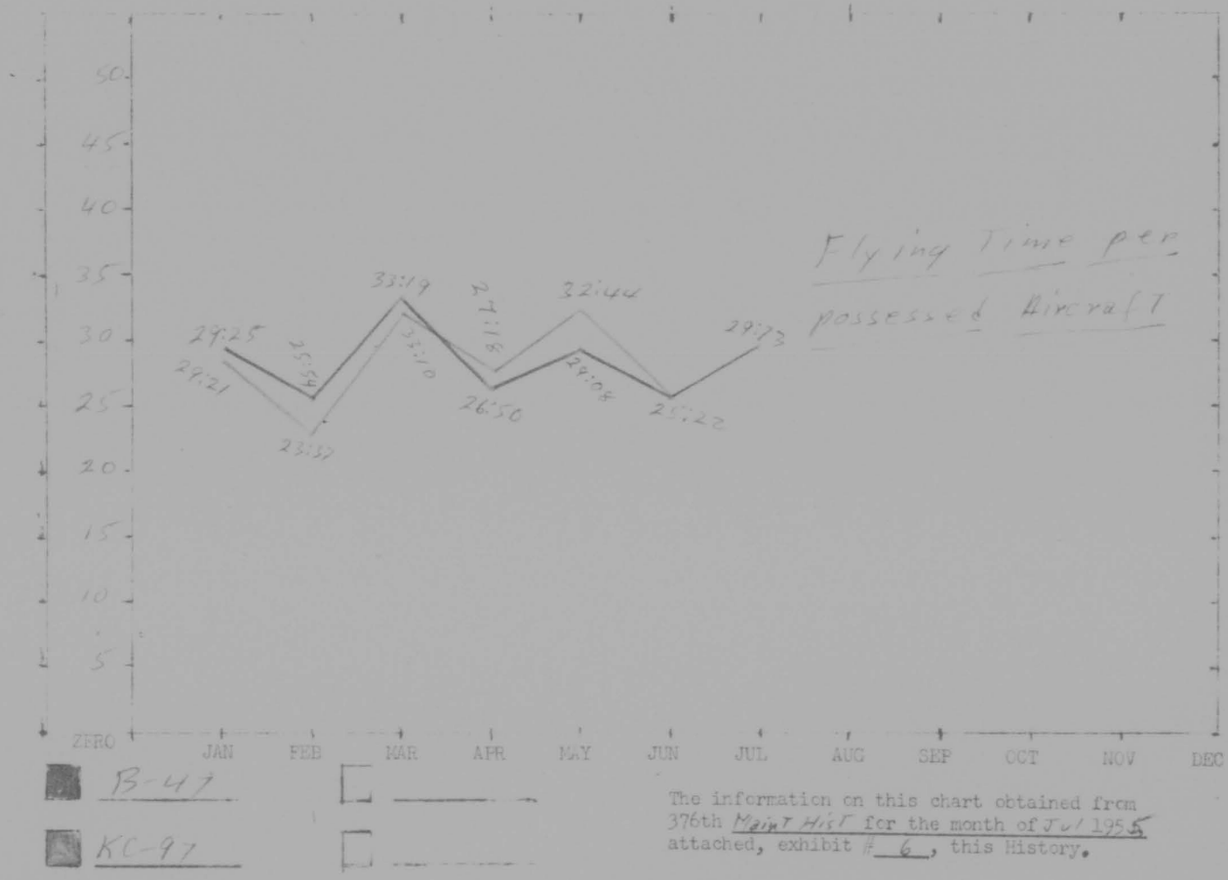

Flying Time per possessed Aircraft

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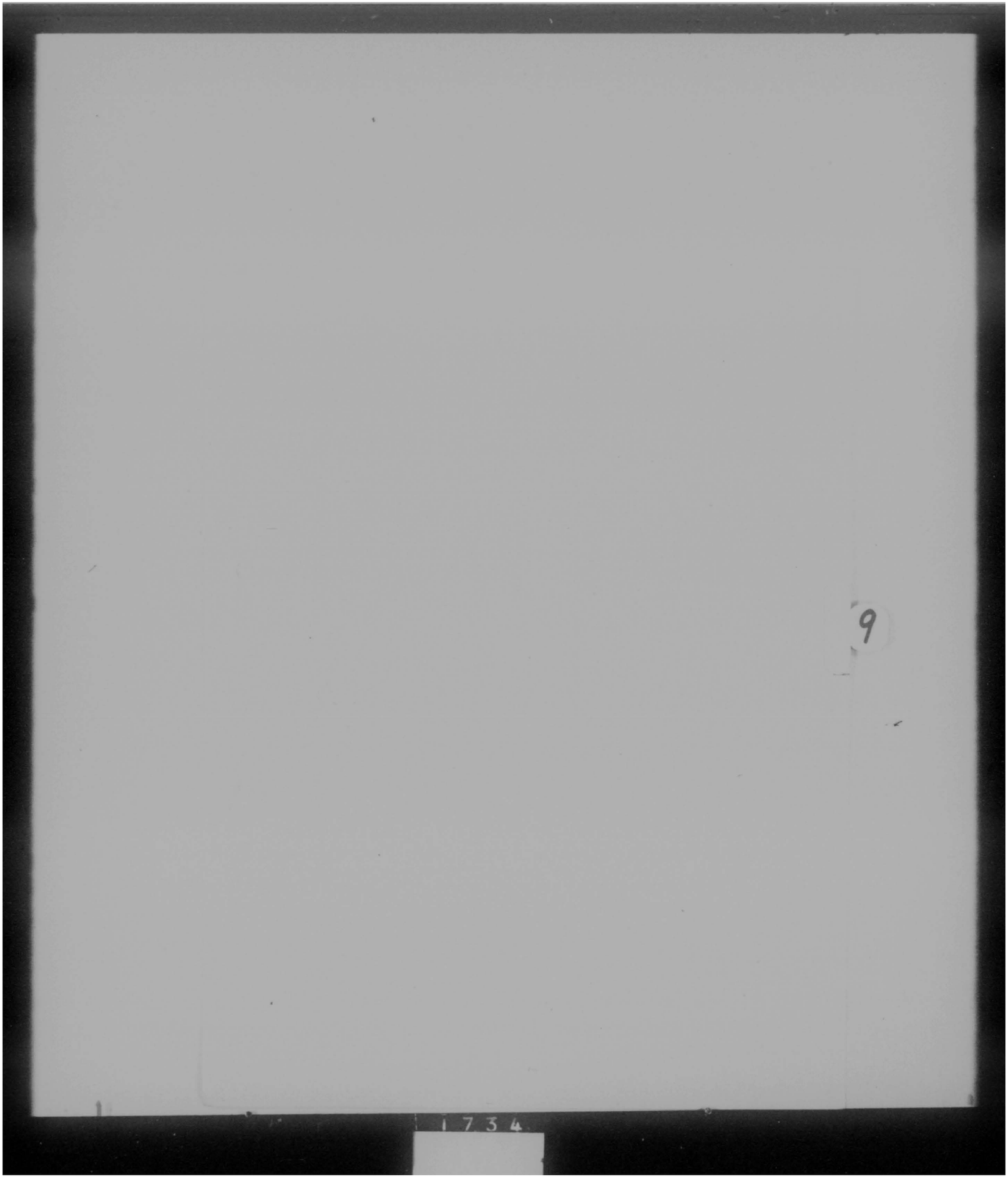

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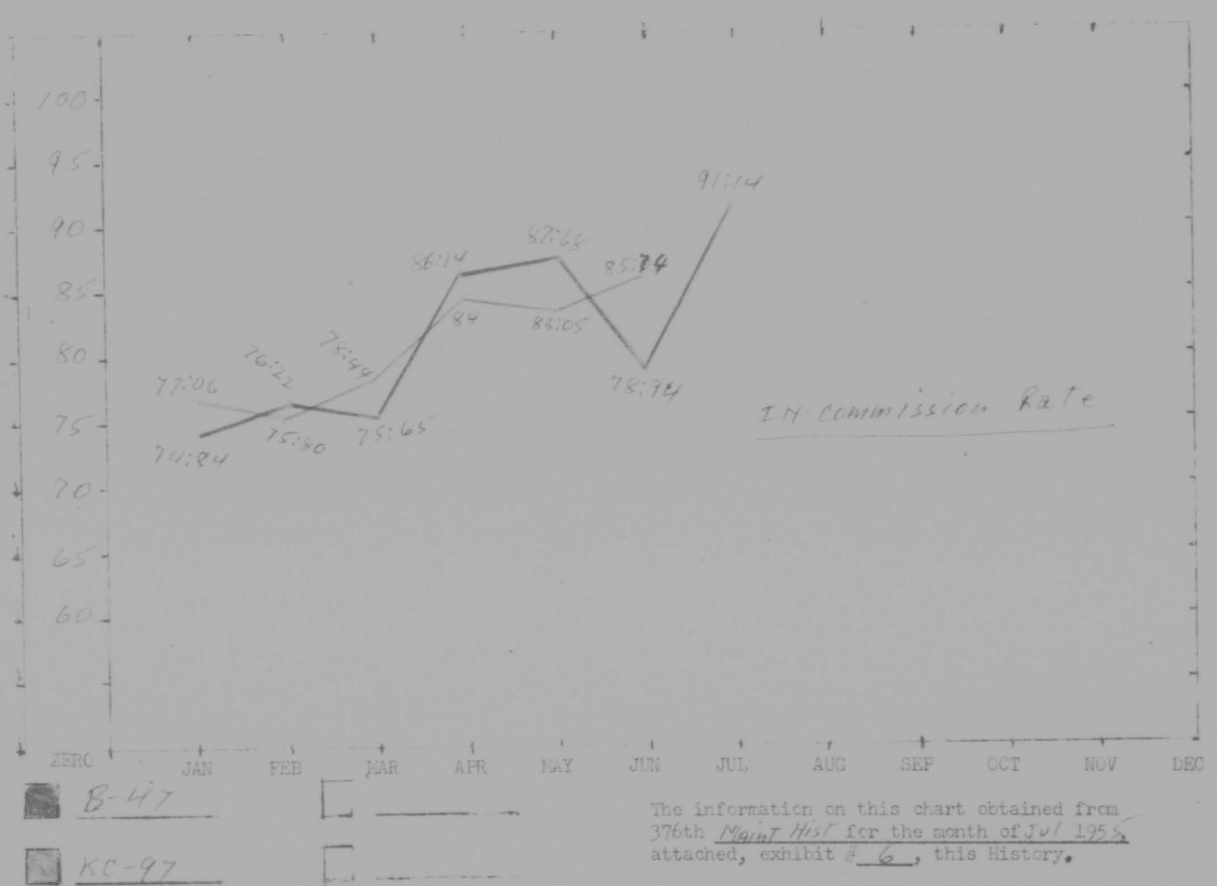

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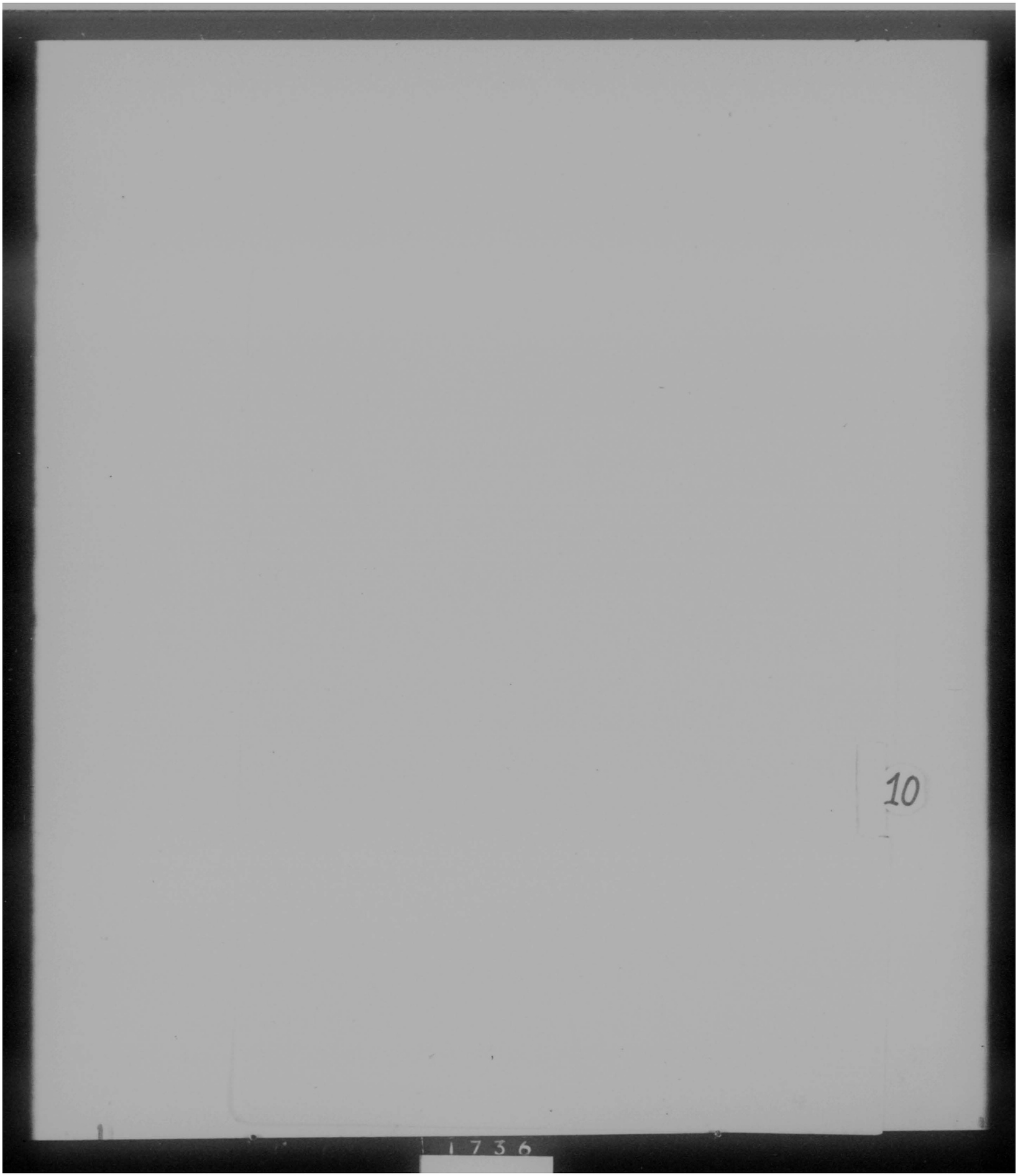

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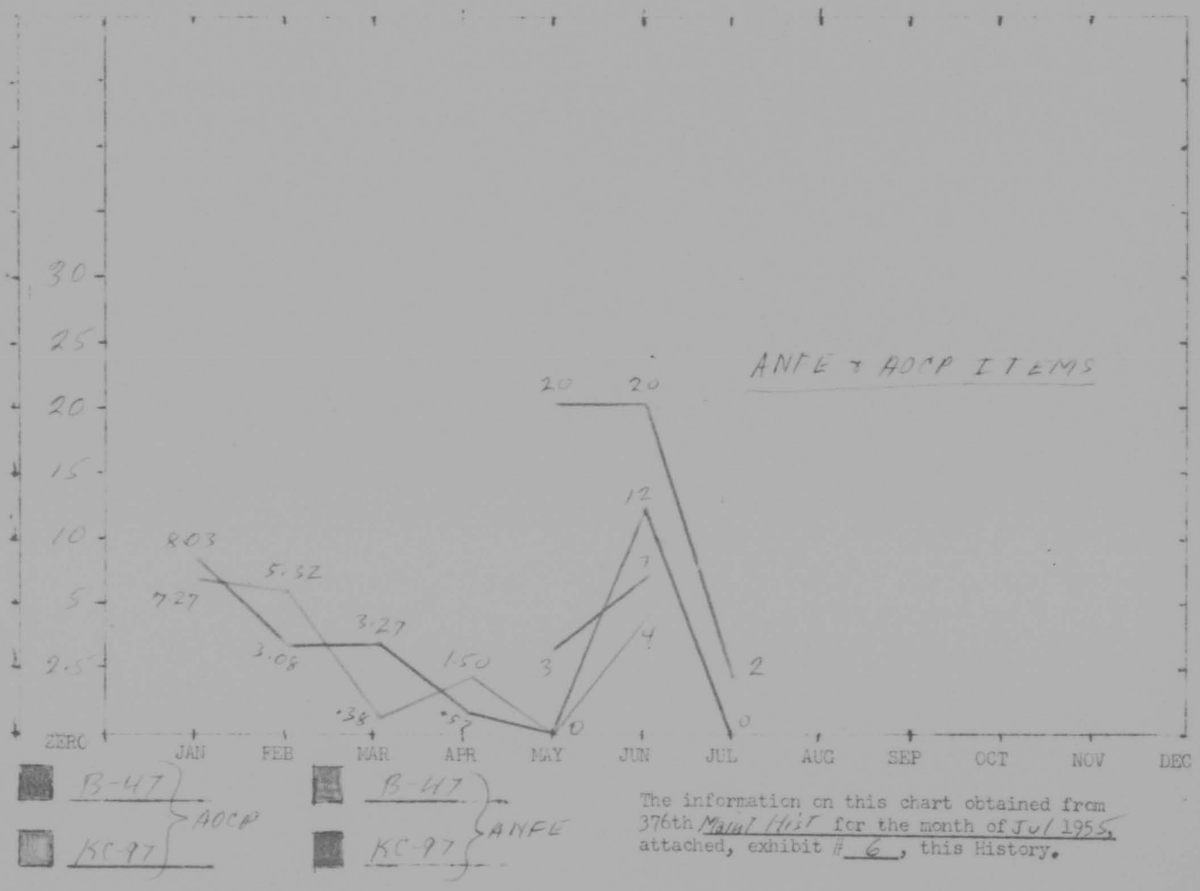

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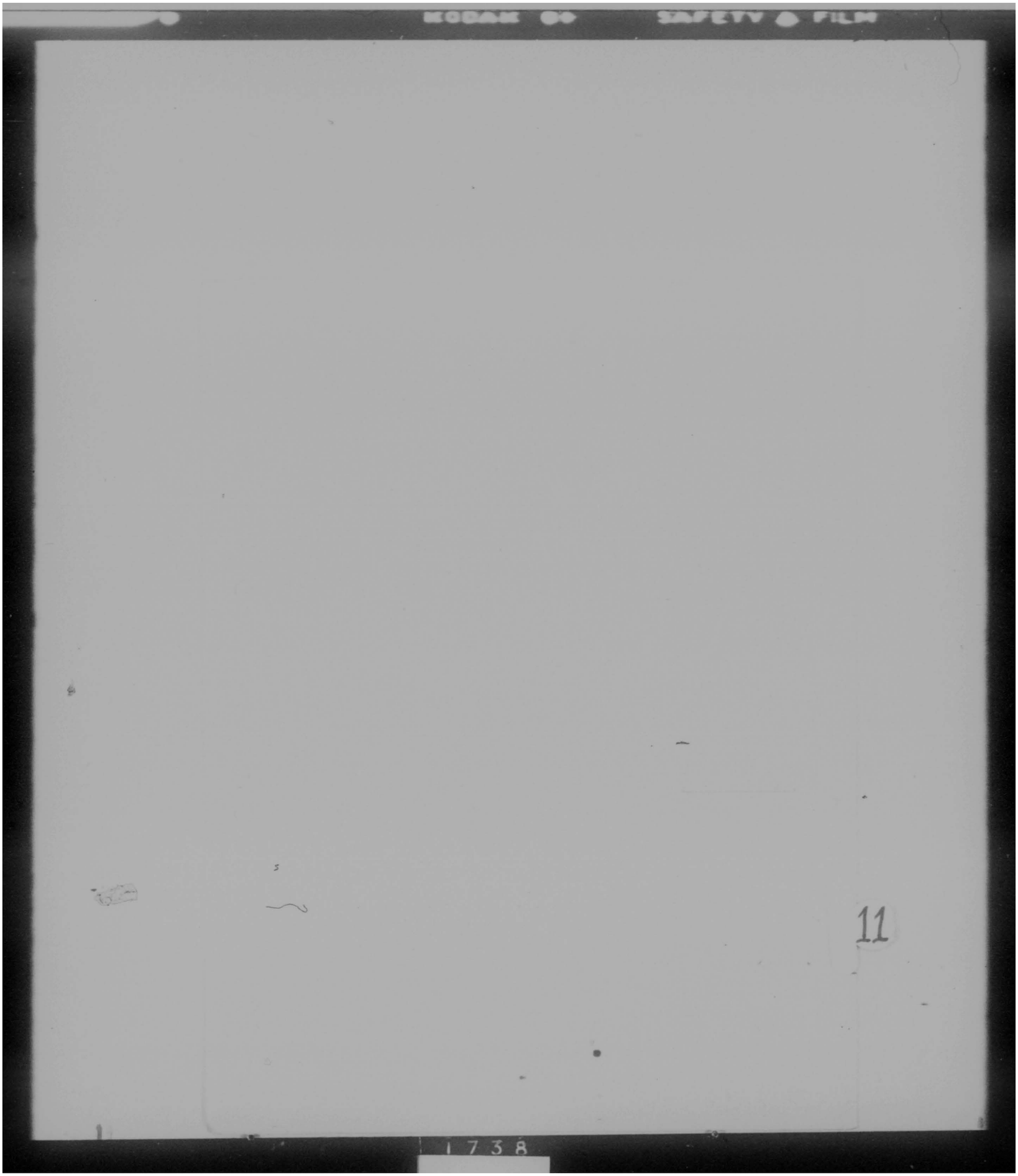

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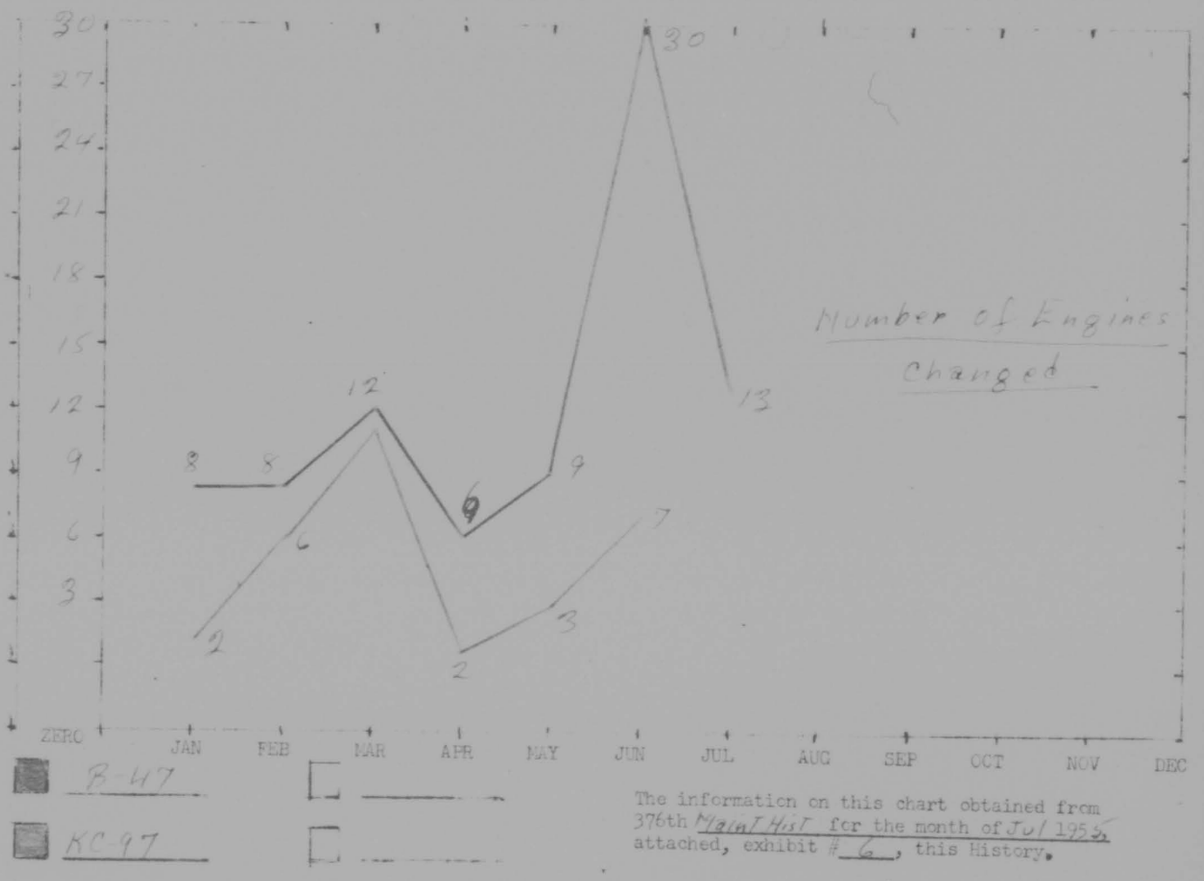

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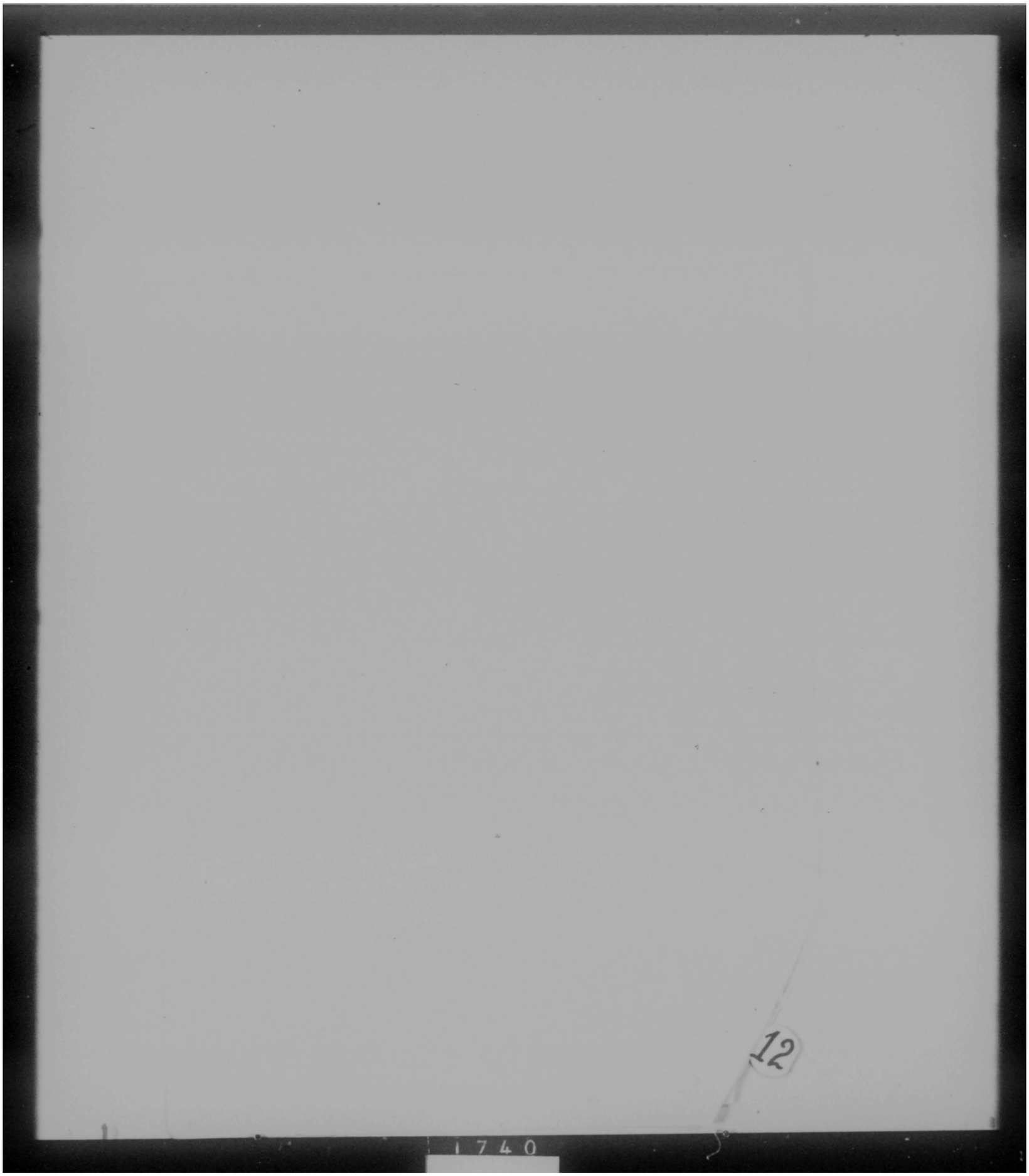

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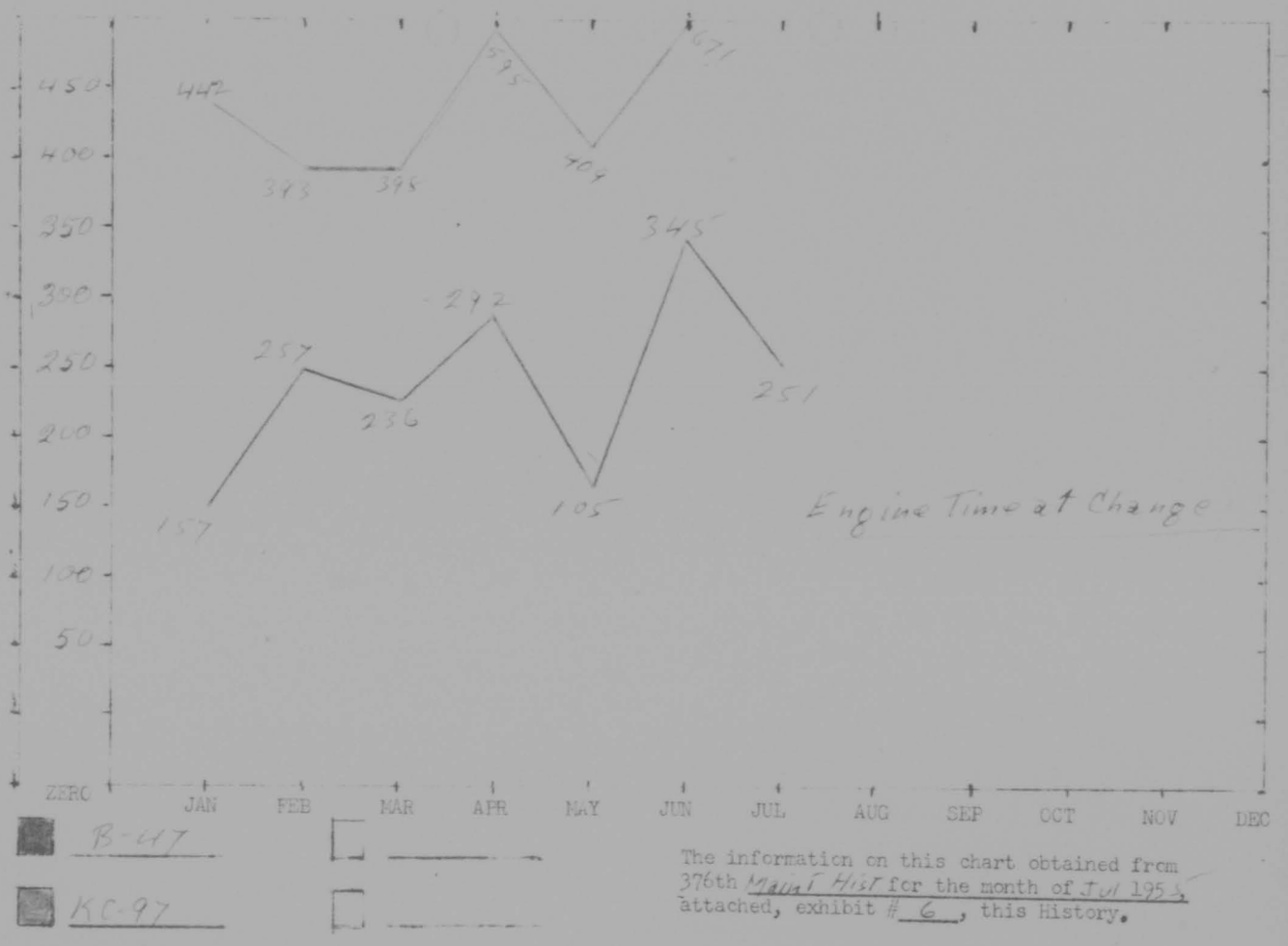

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DOCUMENT TO ROLL INDEX

Frame Number	Classification Number	Date Period	Vol.	Pt.	Title	Security Classification	Remarks
4	K-WG-376-Hi	Jul/54			376th Bomb Wing	S	
145		Aug/54				S	
293		Sep/54				S	
452		Oct/54				S	
592		Nov/54				S	
760		Dec/54				S	
932		Jan-Feb55				S	
1165		Mar/55				S	
1301		Apr/55	1			S	
1439		" "	2			S	
1448		May/55				S	
1585		Jun/55				S	
1677		Jul/55				S	
1746	K-WG-376-Hi	Aug-Oct55			376th Bomb Wing	S	
2070	Index				Index		
		Some unreadable pages - Best original					

3825 FORM JUL 71 O 23

Page 1 Of 1 Roll Number NO503

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2070