

THIS PAGE IS DECLASSIFIED IAW EO 13526

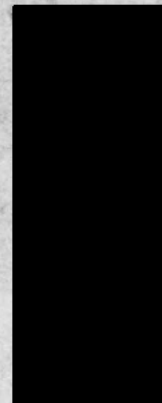
1-46 Southeast Asia (Jan - Jun 67)

Document is declassified IAW EO 13526.
FOUO material removed from this extract.

1018182

RETURN TO

AFB AL 86112



THIS PAGE IS DECLASSIFIED IAW EO 13526

0 2 4 4

This document is made available through the declassification efforts
and research of John Greenewald, Jr., creator of:

The Black Vault



The Black Vault is the largest online Freedom of Information Act (FOIA)
document clearinghouse in the world. The research efforts here are
responsible for the declassification of hundreds of thousands of pages
released by the U.S. Government & Military.

Discover the Truth at: <http://www.theblackvault.com>

PTTCZYUQ RUVAHA3900 1731637-EEEE--RUMTDOA.

NY EEEF

R 221637Z JUN 78

FM AFAL WPAFB

TO RUKLAAA/HQ TAC/DREA

INFO RUMJUMA/TFPC NELLIS AFB NEV

RUCJUFM/AFSC/SCOTT/MAJ TURNER

RUEFHQA/HQ USAF/AFDDDE/LT COL GRAFF

RUMTDOA/AFMPC/MOLVF/HOLLOWAN AFB MAJ HINES

BT

UNCLAS F F T O AVNS-4980F

FOR LT COL J.V. DEARBORN

SUBJ: TAC PARTICIPATION IN AFB'S FLIGHT TEST PROGRAM

REF: TELECON BETWEEN LT COL DEARBORN AND MAJ WARNER ON 16 JULY 78

1. 4980F ADVANCED DEVELOPMENT PROGRAM IS PRESENTLY CONDUCTING
A FLIGHT TEST PROGRAM OF OUR ADVANCED KINEMATIC BOMBING SYSTEM
(AKBS) INSTALLED IN AN F-4D AT HOLLOWAN AFB.

2. REQUEST TAC F-4D QUALIFIED PILOT PARTICIPATE IN THE TEST
PROGRAM. SINCE THE TEST PROGRAM WILL BE COMPLETED IN EARLY JULY

MAJ HINES AT HOLLOWAN AFB EXT EPPT SHOULD BE CONTACTED AS SOON
AS POSSIBLE.

BT

33900

NNNN

1-4c
KBS
58
72
RETURN TO
AFS/HRC
MAXWELL AFB AL 36112

1018182

SEN 25 Nov 76
1-4

CENTRAL INERTIAL GUIDANCE TEST FACILITY
Air Force Missile Development Center
Environmental Test Branch
Holloman Air Force Base, New Mexico
25 March 1970

TEST EVENT REPORT
Flight Simulator Test of Bombing System
Project 69DF

1. Title: Flight Simulator Test of Advanced Kinematic Bombing System for F-4D, Project 69DF, ION: 69DF1.

2. Background: The above system includes an inertial platform. Range testing indicates an angular error caused by aircraft maneuvering. Major John Hines, MDMWF Project Director, requested MDS support on 19 March to test the system under angular motion in the laboratory to see if the error could be measured. Mr. Abernathy and Major Miller, MDS, approved limited support.

3. Discussion:

a. On 20 March 1970 the system was set up at the flight simulator. The inertial platform was mounted on the simulator. A portable test set for the platform and the bombing system computer and electronics were set up and operated by Mr. Ron Gagne, General Electric engineer, and Sgt Meyers, MDMWF.

b. Two Model MX4839 platforms were tested on 23 March. The platform from aircraft 679 was tested during the morning, and the platform from aircraft 743 was tested during the afternoon. The platform gimbal position output compared to the flight simulator gimbal position was calibrated for each platform.

c. The flight simulator was positioned to simulate the platform configuration in the aircraft during a dive, i.e. pitch axis down 30°. Testing was also done with the roll axis over 40°. The response of the system to sinusoidal and square wave angular motion was recorded. The angular position of the flight simulator gimbal was recorded on one channel of a Sanborn recorder. The angular position of the corresponding inertial platform gimbal was recorded on an adjacent channel for comparison. Indicated position errors during range testing were approximately 2° in magnitude with response delays of three seconds. Recorder resolution for these laboratory tests were under 0.1° and 0.1 second for time delay.

d. The response of the bombing system angular position output, to both sinusoidal and square wave input motion from the flight simulator, was flat to the resolutions given above, within the following test conditions:

0.02 to 3 Hz
1.2° to 16.9° peak to peak
3 to 21°/second

For square wave test conditions, it should be noted that the response of the flight simulator is angular rate limited.

e. Approximately 35 MDS manhours were used for this test.

4. Summary:

This test demonstrated that the response of the bombing system, including the inertial platform, was flat. The indicated angular error and time delay experienced in range testing could not be produced by angular motion in the laboratory.

PREPARED BY:

T. D. Magnuson
T. D. MAGNUSON
Mechanical Engineer

Distribution: MDS
MDS1
MDSO
MDSO Library
MDSLE (3)
MDSLF (Maj Hines 3)

Steiler, Dr. Bernhard	German	Civilian, German Aviation and Space Research Institute
Watson, D. H.	English	Civilian, Royal Aircraft Establishment
Wilkinson, R. H.	English	Civilian, MIT

d. Total direct in-house costs by category:

Printing	\$1,369.00
Badges	104.00
Signs (Civil Engineering)	25.00
Informa	50.00
Miscellaneous	<u>20.00</u>
Total	\$1,568.00

e. Total manhours expended in administratively supporting the symposium: 1,809

f. Although there was a slight decrease in symposium attendance from off-base agencies, there still appears to be a great deal of interest in this series of symposiums. This is evidenced by the large number of off base attendance in spite of the extremely austere funding conditions that exist. This is further supported by many favorable comments from the attendees regarding its benefits to their activities. Specific benefits resulting from this meeting are intangible and results are of a more long range nature. Many of the attendees were involved in active test programs at the CIGTF and were able to witness progress. Others have pending programs and were able to discuss plans for the test program. Some new programs appear to be forthcoming as a result of the symposium discussions. The symposium offered an opportunity for CIGTF personnel to discuss current test progress and problems as well as to develop concepts of future test requirements. The symposium of course did permit the CIGTF to point out its test capabilities to future users.

FOR THE COMMANDER

Fred P. Ray, Jr.
 FRED P. RAY, JR.
 Symposium Manager

~~SECRET~~

DRAFT/Capt Hannah/18 Jun 63

CONFIDENTIAL

2-2-4

Aircraft and Aircraft Missile Testing

This study was conducted for the purpose of re-examining the aircraft and weapon systems testing done at AFMDC in the past, determining what is being done in this area at present, and what the requirements may be in the future for this type of testing.

This general area is then broken down into three sub-areas, history, present and future.

The GAM-63 (Rascal), Project MX-776, was initiated in 1946 as a study program leading to the development of a subsonic air-to-surface pilotless aircraft. Requirements subsequently changed to make it a supersonic missile. The great cost of the program dictated an initial development program using a scaled down research vehicle. A missile known as the Shrike came from this and this program was completed in 1953. In December 1951, the Air Force stated the production pilotless parasite bomber would be designated B-63 and 12 launches were made from this bomber in 1954. By now the launch vehicle was the B-47 and the designation changed in 1955 to the GAM-63. The GAM-63 was a rocket-powered, supersonic, canard configuration missile, weighing approximately 18,500 pounds; length, 32 feet; diameter, 4 feet; and maximum horizontal span, 17 feet. Completed 1955. 7-7

Project MX-773 was accomplished at Holloman from March 1948 to July 1948. It was for the purpose of developing a surface-to-surface guided missile. The contractor was Republic Aviation. Models were launched from a P-47 at 35,000 feet, using the zero rail launching technique.

The F-102 test program, started at Holloman in 1954, was to check out an armament system for the F-102. Part of this program fit hand in glove with the MB-1 program. In 1955, the tests continued, for the stated purpose of product improvement, verification, and to gather trajectory information using YF-102, F-102A, and TF-102A. This led to the F-102 Weapon System Demonstration, by Hughes and Convair, in 1956. The missiles involved were CAR-1, MB-1, and FFAR. Testing of F-102's is still continuing at Holloman.

The Duck (MX-2224A) was a decoy, short-range, air-launched missile to fly at 40,000 feet at Mach 55 and simulate a B-36 when viewed on radar. It was developed by Convair and testing was started in 1955. A B-29 was used as a launch aircraft initially and then a B-36 was used toward the completion of the tests in 1955.

7
 DECLASSIFIED AT 3 YEAR INTERVALS;
 DECLASSIFIED AFTER 12 YEARS.
 DOD DIR 5200.10

This Page Unclassified

AFMDC 63-1555

~~SECRET~~ CONFIDENTIAL

UNCLASSIFIED

~~CONFIDENTIAL~~
~~SECRET~~

The GAR-1 project started at Holloman in July 1954. The contractor was Hughes Aircraft Company and the aircraft involved were F-89's with the E-9 weapon system and the F-102 with the MG-3 weapon system. The XGAR-1B was the first heat seeker and equipped with STAR (Stationary Reticle). Prior missiles were ROR (Rotating Reticle).

In August 1955, the project name was changed to 208A test directive 5334-HI, and it was concluded that use of GAR-1B missiles need not be limited to interceptors with fully operating FCS's, but for tactical employment on such fighters as the F-84F, F-86H, F-100 and F-104, and such interceptors as the F-86D, F-89D and F-94C.

GAR-3's were launched in February 1956.

As of March 1956, the GAR-1B became the GAR-2, the GAR-1A became the GAR-3, and the GAR-1C became the GAR-4.

The GAR-2 and GAR-1 guide themselves by "proportional navigation". GAR-1 is radar seeking and GAR-2 is infrared seeking.

Last work under this project designation was in 1958.

In 1954, the GAM-67 MX-2013 Crossbow Project started at Holloman. Engineering Investigation Flights were made using the B-26.

The missile is a radiation seeking, air-to-surface missile to strike enemy early warning, search and other radar installations.

Missile was launched from the B-47 in May 1957. Crossbow development testing ended at AFMDC in June 1958.

Firing of the MB-1 started at Holloman in 1955 from F-89H aircraft. Douglas Aircraft is the prime contractor and the missile is an air-to-air unguided, ballistic type missile with a nuclear warhead.

This missile was fired from the F-102, F-101 and F-106 later in the program.

The SM-73 "Goose", System 123A Tests were performed here in 1956 to free flight test three fractional scale models of Goose System 123A for the purpose of measuring low lift drag and stability characteristics. Bull Goose tests were on the sled on 16 February 1957, and 6 April 1957. The contractor was Fairchild Aircraft and sub-contractor was Aerolab Development Company, Pasadena, California.

CLASSIFIED BY

SUBJECT

GROUP 2

EXPIRES AT TWO-YEAR

INTERVALS

AFMDC 63-1555

~~SECRET~~

UNCLASSIFIED

The YGAR-2A was a pre-production model of GAR-2A Falcon and work started at Holloman in May 1954. The program is still continuing.

In June 1957, tests on the GAR-8 System 221A (Sidewinder 1-A) began at Holloman. Aircraft used were the F-100D and F-104A. The missile is a passive, infrared homing guided aircraft missile. Firings continued until January 1960.

The GAR-9 (AN/ASG-18) Flight Test Program began April 1960, and by December 1962, seven GAR-9's had been fired. The missile is fired from the B-58.

GAM-72 Quail (WS-122A), manufactured by McDonnell Aircraft, was tested at AFMDC starting in November 1957. Testing concluded in 1962.

F-102A/Falcon Production Surveillance Program Project 800F, System 201A, was done at Holloman in 1958 to conduct production surveillance tests on the F-102A/Falcon Weapon System to insure that an operable system is being provided for ADC. Tests involved the MG-10 and GAR-1D.

Gar-3 tests have been going on since June 1958 and are continuing. Aircraft involved are F-102, F-106 and F-89.

The first XGAR-4 firing took place here December 1955 and GAR-4 testing continues. The GAR-4 is essentially an improved GAR-2. The GAR-4 uses passive infrared guidance and the GAR-3 uses semi-active pulse radar.

The GAR-1D/2A Vulnerability Test Program started at Holloman in April 1958 and its aim was to determine the vulnerability of the GAR-1D, a semi-active, radar seeking, guided, air-to-air missile, to ECM. The program ended in September 1960. Aircraft used were the F-102A and TF-102A.

The GAR-11 tests began here in May 1958. This missile was fired from the F-102 and these tests are continuing. The missile is a radar homing guided missile and targets are QB-47's. The fire control system is the MG-10.

GAM-77 Hound Dog (WS-131B) tests started in June 1961 and are continuing.

Tests on the GAM-83 (Bullpup) (WS-321A) were started in 1962 and are continuing.

UNCLASSIFIED

~~SECRET~~

CONFIDENTIAL

The Interceptor Improvement Program (IIP) is a current program involving the F-106. Originally this program was concerned with the F-101 and F-102 aircraft. Involved is the testing and evaluation of proposed modifications of the fire control system. The fire control system on the F-106 is the MAI/ANSO-25, and the missiles involved are the MB-1, GAR-3A and GAR-4A. Targets used are the Q-2C and QF-80 drones.

Electronic Deception and Repeater Development (ORC-151) is presently taking place at AFMDC with the equipment installed in a C-135 and flying IIP aircraft against it.

Testing of the ASG-18/GAR (Falcon) utilizing the B-58 is one of the current projects at Holloman. The missile is a passive radar guided missile, it jammed homes on jam and has velocity lock-on.

AFMDC's support of Navy testing at WSMR has recently seen three firings of the Sparrow missile in December 1962, and three firings of the Navy's F-4H against the Q-2C. The low level capability testing of this equipment was extremely successful.

In the near future, this Navy support will include the evaluation of the droppable stores section of the weapons system of the A-6 (Intruder) project and the development of weapons delivery tactics for the A-6. This project is under RFWAR Nr. 153 and the expected duration of testing is two years.

Other current projects are the Main IF and squelch improvement, multiple target firings of the GAR-3A, Tacon, manual selector evaluation, airborne computer testing and the 800 mile TSD evaluation.

The MME-1 evaluation started here in December 1961, and involves the F-106 and F-101. Forty-three (43) shots were fired, three prototypes, 15 test models, and 25 pre-production models. The project falls under AFSWC.

The Hughes ECP 0673R1 Ballistics Verification Program, checking range ballistics on the MB-1 Genie is continuing. This is flight testing using the F-101 and involves both captive flight and firing on the Q-2C and QF-80.

The RCU-1 and 2 Program involves flight testing of a B-52 penetration aid decoy rocket (chaff and ECM) using the F-100 and B-57. This is Category I type testing and the contractor is Raytheon.

4

CONFIDENTIAL

~~SECRET~~

AFMDC 63-1555

UNCLASSIFIED

~~SECRET~~

The F-106 Service Engineering Test Program (SET) started as the Service Revealed Deficiencies (SRD) Program in 1958 and is continuing. Category I and II tests were done here on the weapons system. In July 1961, the name was changed to SRD and the F-106 was operational. In March 1963, the name was changed to SET. This program evaluates contractor fixes on SRD on any system of the F-106. Presently these include ADF Communications distortion, Countermeasures firing (GAR-3A), elevation marker scope display, Hi "Q" launch investigation (GAR-4A), and Low Altitude /AMTI (Gar-3A).

Testing of the GAR-2B, an IR guided missile, using heated ground plates, Pogo high targets with flares, Q-2C's with flares on the wing tips, and unaugmented QF-80's as targets is presently being performed at AFMDC. This is for the purpose of testing the differences of the 2-B over the 2-A. The aircraft used are F-102's and F-101's.

The GAR-11 (MG-10) testing is a current project at Holloman. This represents a nuclear capability in a radar homing missile (passive) and is fired from the F-102 and QB-47.

The Parabandit is an air-launched target fired from an interceptor to permit it to carry its own targets. Development is continuing and the interceptor used presently is the F-102.

Evaluation of the APN-150, B-52H radar altimeter started at Holloman in September 1962 and has just recently been completed.

The GAM-77 Hound Dog tests started here in October 1960 and are continuing. This involves off-range firing as well as on, to impact on the range. The earlier tests were for the purpose of checking the low level capability, accuracy of targeting device and maneuverability. The off-range tests will impact in the 50 mile area. The Hound Dog is carried and launched from the B-52.

The GAM-83 TOSS-ARM project came to Holloman first in October 1962, and was a radar seeker or pilot controlled, radio, line-of-sight missile, primarily for the destruction of enemy radars. The project was cancelled in December 1962. At present the GAM-83 SPW is being tested and is a radio, pilot, line-of-sight controlled missile. The contractor is Martin. The GAM-83A is presently operational on TAC's F-100 aircraft and the B model incorporates a nuclear warhead. ASD is presently writing a follow-up program which is expected to come here, perfecting the warhead and fusing of the sub-missiles in the SPW.

~~CONFIDENTIAL~~



~~SECRET~~

ARPAT (Advanced Research Projects Agency Terminal) project started here in December 1962 and utilizes the B-57D-2 as the launcher. This is a feasibility study on launching an anti-missile missile from a platform in the air. The anti-missile missile envisioned is the H-81, which is an Army IR missile. These have been fired at a Pogo-Mi. Thought has been given to the use of inbound objects from Green River as possible targets.

Presently a program involving the air dropping of land mines from F-100's is in process.

The tests of the GAM-87 Skybolt guidance system (combination inertial and doppler) started here in September 1962. This involved flying the system in the C-131 and tracking it by radar and optical coverage requiring extreme accuracy. The Skybolt as such has been cancelled, but continued development of the guidance system is forthcoming. The Skybolt was made by Douglas and the guidance system by Nortronics.

*
Future

Looking into the future in an attempt to determine what the requirements may be in the manned aircraft/weapon systems, the Aerospace Technical Intelligency Study "The Estimated Development of Soviet Fighter Aircraft", TIS-AC-61-2, Task No. 614201, 28 June 1961, states, "All indications point toward continued use of manned interceptors by the Soviets for some time to come", and "numerous indicators point toward Soviet research on new fighters". Also, "it is not unreasonable to consider that the Soviets will shortly attain speeds on the order of Mach 2.5", and "they should be able to achieve such performance by about mid-1962".

Foreign Technology Division's "Development of Soviet Bomber Aircraft", FTD-TS-62-18, Task No. 614102, 25 October 1962, states, "Technical factors favor further Soviet development of existing manned systems to maintain an effective mixed striking force", and "it appears that the Soviets are investigating various means of effectively utilizing the manned aircraft concept as advances are made in both weapon system design and space exploitation".

From the Soviet book, "Military Strategy", authored by Marshal V. D. Sakalovski, the Soviet Deputy Minister of Defense, and a team of 14 high-ranking officers in mid-1962, in reference to the importance of piloted aircraft, "In addition, certain specific missions (for example, attacks against moving targets) can be performed more successfully by the Air Force than by missiles.

~~SECRET~~

~~CONFIDENTIAL~~

Front line fighter and fighter-bomber aircraft will obviously still be able to support ground troops effectively on the battlefield in the near future and, in conjunction with anti-aircraft missile troops, will be able to carry out missions to cover troop concentrations and important objectives from attack by enemy aircraft deep within the service areas of one Army group. But for this they must have greater speed and altitude than the enemy. Front line aviation could be effective in destroying the enemy's means of nuclear attack, primarily rockets, on the battlefield.

An important mission of the Air Force is still aerial reconnaissance in the interest of all branches of the Armed Forces.

The further improvement of aviation, its adaptation to bases without hangars, and improvement of technological flying data can considerably increase its combat capabilities in performing missions on the battlefields and in the enemy ZI."

Foreign Technology Division advises that Soviet airframe plants devoted primarily to aircraft production show a 50% increase in capacity over 1948. This has been a continuous build-up through the present.

For the official USAF position on the Future Role of Manned Aerospace Weapon Systems, the reader is referred to the paper by that name, prepared by the Office of the Deputy Director of Plans, Headquarters USAF, and signed by Maj Gen Jerry D. Page, Deputy Director of Plans for Aerospace Plans, Headquarters USAF. Some quotes follow: (Page 2) "We will need a mixed force, containing both elements (missiles and manned weapon systems), for the foreseeable future". (Page 3) "Clearly, manned weapon systems are a vital part of the mixed aerospace future demanded by our controlled response strategy". (Page 14) Summary: "Essential to continued military superiority is a diversification of weapon systems to include both manned and unmanned vehicles, since no single weapon system can do the entire job".

Conversations with persons in knowledgeable positions in ASD indicate that development of the F-4C and RF-4C systems will continue, similar development is expected for the TFX (F-111) and that weapons systems and reconnaissance will comprise the major development areas.

The establishment at the AFMDC/WSMR complex of an essentially complete reconnaissance range (the most complete in the United States), is looked upon as an excellent opportunity to establish a local reconnaissance capability, although our weapon systems engineering capability should be continued, or in fact, expanded.

UNCLASSIFIED

With the arrival of the 366th Tactical Fighter Wing at Holloman and their eventual transition into F-4C aircraft, an excellent operational testing and logistical support situation is a reality.

In view of the information available at this time, it is recommended that AFMDC stay in the airplane business and strive to establish and expand the capability for supporting weapon systems and reconnaissance testing.

* The RF-4C Category I testing will be done at Holloman and evaluations will begin before long to determine the location of the Category II tests. Approximately 2/3 of Category II is expected to involve sensor testing.

AFMDC 63-1555

8

UNCLASSIFIED

1-46

11101

28 JUN 65 0135z

0433

SEE 28 June 1965

RTTUZYU UNVAARAY 1740047-1111--DINT.CAL

NY EEEEE
R 207 457 JUN 65
FM ACD WPAFB
TO RUEBAA/AFSC/ROTC/ANDREWS AFB MO
INFO RUEBAA/AFSC/ROTC
RUMDCA/AFMDC/MOT/WHILL OYAN AFB WNE
ZEN/ASTP

BT
UNCLAS E F T O ARA
SUBJECT REQUEST FOR FLIGHT TEST
REFERENCE A. AFF 30-14/AFSC SUT 1
B. AFSC MSG 281002Z MAY 65
C. TELE NY NAW DINTI C AFSC/ROTC AND CAPT COVER AS/ASAL

27 JUN 65.
1. ACCORD REFERENCE (B) ABOVE CONCERNING THE ASTP STATEMENT OF CAPABILITY 65-4-15 PROVIDED THE PROGRAM SCHEDULE FURNISHED IN THE DEVELOPMENT PLANS STATUS IS ADHERED TO.
2. REFERENCE (B) AND (C) ARE IN ACCORDANCE WITH REFERENCE (A), IT IS UNDERSTOOD THAT ART WILL ATTEMPT RESUME CAPABILITY FOR ACCOMPLISHMENT OF THEIR REQUESTED SAFETY TESTS WITH THE PARTICIPATING ORGANIZATION (AFMDC) IN ORDER TO MEET THE PROGRAM SCHEDULE FURNISHED IN STATEMENT OF CAPABILITY 65-4-15.

BT
#3191

UNCLAS

UNCLAS
REF ID: A661793 177-100-0000--RWITVA.
TO RIAJETA/OWEP WHITE SANDS MISSILE RANGE WEX
TAND SUBER/NAWIRBYSCON WACH
RUMJETA/NAWIRBYSCON CHINA LAKE CNLIF
RUMJETA/OILCON AF3 WEX
BT

SEA 1-46
26 June 69
NLD
342
0169

UNCLAS
WHITE SANDS TO MS BOM; NAVARO PASS TO AIR-51000; WAC PASS TO
CRODE AUSA BMD WEX; WILLOWAN PASS TO WOOD LAMP I TELBAKHARA
SPECIAL TARGET REQUIREMENTS FOR WY-75 JED ARY; REQUEST FOR
A. WOOD LAMP I TO CONDUCT FOR ADDRESS OF 2 MAY 69

1. IN ADDITION TO THE SPECIAL TARGETING REQUIREMENTS REQUESTED IN
REF ID: A661793 PART TWO THE FOLLOWING IS REQUESTED FOR THE
FOLLOWING TO BE PROVIDED:

FOUR POLES PLACED AT A SIXTY FOOT SPACING FROM CENTER OF TARGET
(SEE R 100). THE POLES TO BE PLACED AT 0 DEGREES; 90 DEGREES,
180 DEGREES AND 270 DEGREES, RESPECTIVELY. THE POLES SHOULD
EXTEND 30 FEET ABOVE GROUND LEVEL. EACH POLE TO HAVE APPROX
ONE & A HALF FOOT CROSS ARM WITH ARMS TO BE ORIENTED PERPENDICULAR TO THE

PART TWO REF ID: A661793 UNCLAS
RADIALS. SPINES SHOULD BE PROVIDED FOR CLIMBING PURPOSES.
2. A MR. ROBERT WEXE FROM THE CHINA LAKE WAREHEAD GROUP WILL BE AT
YOUR ACTIVITY ON 1 JUL TO DIRECT THIS SPECIAL INSTRUMENTATION.
CHINA LAKE WILL FURNISH THE RECORDING EQUIPMENT THAT WILL BE
ATTACHED TO THE POLES.
BT

#1793

U.S. NEWS & WORLD REPORT

23 Jun 69
SEA 1-46

NEW MOVES TO HELP CAPTIVE GI'S IN VIETNAM

The full story of how Communists in Hanoi mistreat American POW's is now coming to light—

Men are denied medical care, held in solitary, used for propaganda stunts. Reds will not even tell which of 1,300 missing GI's are still alive.

U. S. officials, deeply worried, are determined to get action.

Deep official concern is starting to break into the open over 1,300 "forgotten Americans," missing in the Vietnam war and presumably in enemy hands.

More than three years of negotiations, carried on through "normal" diplomatic channels, have failed to produce even a list of names of those held as prisoners. No one in Washington knows even roughly how many of the missing Americans have survived and are living in captivity.

Now a change in U. S. policy is under way. Responsibility for getting action on these captured servicemen has been shifted from the State Department to the Pentagon, where officers are prodded by the *Pueblo* crewmen's description of their brutal captivity in Communist Korea.

Defense Secretary Melvin Laird, on May 19 and again on June 6, made an open appeal for the North Vietnamese to release names of their American prisoners, repatriate the wounded, permit inspection of prison camps, and begin to abide by the Geneva Convention on prisoners. Hanoi immediately refused. But more steps are in the offing, with a resort to world public opinion to be tried next.

Increasing evidence. Behind this growing U. S. concern is evidence, accumulating from several sources, that the American captives of this war are not receiving the humane treatment spelled out in the Geneva Convention and "endorsed" by North Vietnam with reservations. Many are reported to be undernourished, denied adequate medical care, kept in solitary confinement for long periods, refused communication with their families, and often used for trumped-up propaganda stunts.

Says Secretary Laird: "There is clear evidence that the enemy is treating the U. S. prisoners it holds inhumanely."

No inspection of the Communist prison camps in Vietnam has been permitted by non-Communists. Only six pilots, of the 800 shot down over North Vietnam, have been returned in the past two years. A few U. S. prisoners have escaped from Viet Cong hands in South Vietnam, but none from compounds in North Vietnam.

Little real information has come from the heavily censored letters received so far from about 100 U. S. prisoners who have been permitted to write home. These have averaged about two letters a year, most of them of postcard length. They total roughly 600.

staff and a special "interview room." That is where most of the endless propaganda films are made and interviews conducted by Red journalists from Poland, East Germany, Cuba and elsewhere.

There are clusters of "houses" inside the compound, each containing cells for one or two of the Americans. Every "house" has a loudspeaker that broadcasts English-language "news" and propaganda lectures.

In the "Hanoi Hilton," according to these reports, American prisoners are fed twice a day, and are permitted to wash six times a week and shave twice a week. Many Communist-line books and



Downed American airman being paraded through the streets by North Vietnamese guards. POW's are featured in propaganda films which Hanoi sells for a profit.

From propaganda films and magazine articles in the Communist press, some information is available about the physical setup of the main prison camp used for Americans, evidently located on the outskirts of Hanoi.

This is called the "Hanoi Hilton" by its inmates, and houses an undetermined number of captured U. S. pilots. It is surrounded by a red wall, topped by several strands of barbed wire, with an entrance gate on a "quiet street" of the North Vietnamese capital.

Inside is a large courtyard, and a long, low building that houses the camp

articles are available, translated into English.

Over all, the evidence thus far points to treatment not much different from that given to members of the *Pueblo* crew, held for 11 months in Communist North Korea. Pentagon officials say, however, that there is some reason for hope that at least beatings such as those inflicted in North Korea are not so common in the case of North Vietnam.

Heightening the official U. S. alarm over the prisoners in Vietnam is the lengthy period of captivity that many

U.S. NEWS & WORLD REPORT

HELPING CAPTIVE GI's

have endured. The first American shot down over North Vietnam was captured in August, 1964. At least 200 Americans have been missing for more than three and a half years—or longer than any U. S. serviceman was held prisoner in World War II. About 500 have been missing for two years or more.

At least some of the 1,300 missing Americans are known to have died of the treatment received as prisoners—particularly those who were wounded or injured when captured. A few such cases have been documented by Communist troops who have turned themselves in to the Allies.

Primitive medicine. Medical treatment given to American prisoners apparently varies widely but is generally primitive. Recent propaganda photographs show that some prisoners still suffer from injuries incurred at the time they were shot down. Many appear on crutches months later. Some are pictured with badly set bones, shrunken arms or legs as a result of poor medical aid. Dysentery and stomach ailments are reported to be common.

In one case in recent weeks, a repatriated GI died shortly after he was returned to U. S. custody, and an autopsy revealed that his head wound had been treated with the crudest type of surgery.

How many Americans have survived of the 1,354 listed officially as missing is said to be a genuine mystery. Only 342 Americans actually are listed as "captured or interned." Each of these was either seen captured soon after he bailed out, or identified in a Communist film or propaganda report.

Profiting from misery. There is evidence that the North Vietnamese may be making a substantial dollar profit from the propaganda films and pictures of their American PW's. Film footage of captured U. S. airmen, much of it obviously staged, has been distributed widely in Iron Curtain countries, and also sold to Western outlets through East German and Japanese firms.

The East German film agency "Deutsche Film Agentur," for example, offered U. S. television networks several hours of film of captive Americans for \$500,000. Other film has been bought by American magazines and TV for undisclosed amounts.

In most of these films, the same prisoners seem to show up time after time—being paraded through the streets, behind bars in solitary, listlessly playing table tennis, carrying trays of suspiciously large portions of food, even attending church services.

Of the treatment actually accorded most of the American captives, this much appears certain:

Solitary confinement seems to be imposed on nearly all, for at least some weeks or months. All six of the U. S. fliers repatriated thus far, for example, had been kept in solitary cells for months.

Undernourishment is common. Reports and pictures of U. S. prisoners indicate that most have lost from 10 to 40 pounds each, and some much more. Only one repatriate emerged at the same weight he had when captured. Food of the U. S. captives all seems to be Vietnamese, to which many Americans cannot adjust, and in portions that are small by U. S. standards.

Mail sent to and from their families, highly important to captive Americans, is either forbidden entirely or permitted capriciously.

Last October, for instance, all letters from prisoners to their families were cut off completely for six months. Delivery of the delayed letters was resumed

gradually in April, possibly because of approximately 200 telegrams of complaint that were sent by wives of prisoners to Xuan Thuy, North Vietnam's representative in Paris.

Parcels sent by the families of prisoners are rarely, if ever, delivered. The Geneva provision for monthly packages is ignored. Last Christmas, Hanoi hinted that it would pass some Yuletide parcels, so 714 of them were mailed by hopeful families. Six months later, there had been no confirmation that any had actually reached the men.

No one knows how many letters get through to the prisoners. And the Pentagon reports that only 1 in 13 of the missing Americans has been able to get a message back to his family. Those who have all use the same return address: "Camp of Detention of U. S. Pilots Captured in the Democratic Republic of Vietnam." No stamps are used.

Uncertain whereabouts. The actual location of most of the missing Americans is far from clear, even though much of the skimpy information appears to center on the "Hanoi Hilton." One pilot, recently returned, refers to a whole "Hanoi prison system." An article by a Hungarian correspondent tells of a num-



Navy Lieut. Robert F. Frishman told his interviewer: "It has been almost a year and a half since I last spoke to someone, madam."

Air Force Maj. Roger D. Ingvalson said prisoners were not allowed to work, but occasionally were allowed to sit outdoors in the sun.



U.S. NEWS & WORLD REPORT

ber of "Hiltons" scattered around North Vietnam. A Cuban writer, in an article last month, describes a camp for U. S. prisoners, "composed of small clusters of houses without fences."

Captives of the Viet Cong in the South, fewer in number than the pilots captured in the North, usually are kept constantly on the move, rarely held in camps with more than four other Americans. At least one prisoner of the Viet Cong escaped after being held for a year in a camp on Ca Mau Peninsula, near the southern tip of South Vietnam.

Efforts for exchange. As a consequence of secret negotiations with Hanoi in 1968, Washington had expected to begin talks with the North Vietnamese about a mass exchange of prisoners, soon after the U. S. ended the bombing of North Vietnam last November 1. But since then, Hanoi has consistently refused to discuss the issue further.

Until he was replaced at Paris, all attempts to deal with Hanoi about the missing Americans were handled by W. Averell Harriman, who had "responsibility for prisoner affairs" for the U. S. His negotiations were carried out largely through third countries and organizations with pipelines into Hanoi.



American prisoners are often kept in solitary confinement, denied adequate care.

On one occasion the Swiss Ambassador to Red China visited the State Department in Washington and then took a trip on his own to Hanoi, a visit since presumed to be an effort to get Ho Chi Minh to abide by the Geneva Convention. It, like others, was unsuccessful.

Dissatisfied with State Department

results, the Pentagon itself asked—and received—White House permission to take over efforts to make contact with the missing Americans, to find out who is alive, and try to get them back.

A straight swap of prisoners with Hanoi is ruled out. U. S. forces have captured some 5,000 North Vietnamese troops, but all have been turned over to the South Vietnamese—for imprisonment supervised by the International Red Cross. Hanoi, thus far, has shown no interest in getting back any of its imprisoned troops.

In past months, the Allies have released 103 of the PW's to North Vietnam, in the hope of getting some reciprocity. This has brought no action from Hanoi except a propaganda blast at the U. S. for its "piratical acts."

Defense officials make it clear that they continue to plan to press hard for a breakthrough on the issue of the missing 1,300 Americans. Most, they believe, are still alive in compounds like the "Hanoi Hilton."

One senior officer emphasized:

"Nothing short of knowing with certainty that their men are alive and being treated decently will relieve the growing anxiety of their families."

A GLIMPSE INTO THE LIFE OF TWO WAR PRISONERS

Hints of what life is like for at least some U. S. prisoners in North Vietnam emerge from a rare visit by an Italian journalist with two of them.

Two separate interviews, set up near Hanoi, were conducted by Oriana Fallaci and closely supervised by a North Vietnamese officer. They appeared in the Italian magazine, "L'Europeo," on April 17, 1969.

Interviewed first was a U. S. Navy flier identified as Lieut. Robert F. Frishman. Miss Fallaci described his appearance in this way:

"He was very young, very tall and terribly thin. Of a sickly, consumed thinness that hollowed his pale and mild face. He wore a pair of very wide gray trousers, then a blue pullover. . . ."

Kept in solitary. Among the lieutenant's first words was an indication that he had been kept in solitary confinement for a prolonged period.

"I thank you for coming, madam," he said. "It has been almost a year and a half since I last spoke to someone, madam. Since I was shot down, madam."

Asked if he had always been so thin,

he answered, "Oh no, I've lost a lot of weight, madam. . . ." At this point, he was interrupted loudly by the Communist officer.

The American then was asked how he lived and whether many other U. S. prisoners were with him. His reply:

"No, I can't tell you how many we are. . . . No, not a great many. . . . But not a few either. Yes, I live in a cell. There is this Vietnamese bed which is a sort of a table with a very thin mattress. . . . That's all, yes. It's a clean cell; it's me who keeps it clean."

Regular propaganda indoctrination of the prisoners was apparent. "Sometimes they give us a North Vietnamese paper in English," he commented. "And then they read the news over the loudspeaker, in English."

Voices in the cell. Later, Lieutenant Frishman referred to periodic "Voices of Vietnam" broadcasts—"you know, the loudspeaker in our cell."

As for mail, the naval flier said hesitantly that he had gotten a Christmas package and one letter from his wife during his 18 months' confinement.

An Air Force pilot identified as Maj. Roger Ingvalson then was brought in.

Erect, sturdy and uninjured, this officer kept a constant eye on the North Vietnamese officer as he gave this answer to questions about his captivity:

"No, we are not allowed to work. I do a lot of calisthenics; I keep in shape. You have to, haven't you? Sometimes, also, I am allowed to sit outdoors half an hour in the sun."

On one occasion, the Major was taken away from the prison. He said:

"Think of this—I was even able to get out of the. . . place where I live and visit the Army museum here in the city and see for myself what we have done to these people with our air raids. It was interesting and it was very generous of them to let us come and see it. . . ."

When asked about mail from his family, he refused to be specific, but then commented:

"They write me regularly and I write them regularly. Imagine, at Christmas I was even allowed to send them a radio message." After a moment, he added: "I wonder if they got it."

Copyright © 1969, by U.S. News & World Report, Inc., 2300 N Street, N.W., Washington, D. C. 20037, for entire contents of this publication. All rights reserved.

Vol. LXVI No. 25

JUNE 23, 1969

U.S. NEWS & WORLD REPORT

THE COMPLETE NEWS MAGAZINE

CONTENTS OF THIS ISSUE

Vietnam Cutback—How Far, How Fast.....	29
Latest Threat to the Boom <i>Money Experts Sound an Alarm.....</i>	32
Toward a Guaranteed Income <i>What's in the Works.....</i>	34
Welfare Union Steps Up Its Demands.....	36
Who Speaks for Negroes Now? <i>A Shift in Leadership.....</i>	38
Changes Coming in Auto Insurance.....	40
The "Spectacular '70s" <i>Preview of the Next Decade.....</i>	42
New Moves to Help Captive GI's in Vietnam.....	47
What Latin Americans Want From U. S.....	50
Student Power, Foreign-Style.....	56
At Mouth of Rhine: a New Megalopolis.....	58
If You Think America Has Slums—.....	64
The Nation's Reading Problem <i>A Rash of Ideas for Meeting It.....</i>	74
SDS "Invasion" of Industry.....	84
Harvard's Answer to Radicals.....	91
How to Reduce Campus Disorder <i>Report by Official Commission.....</i>	92
A Model City for Indian Lands.....	96
"Truth in Lending" Law—the Way It Will Work.....	100
News-Lines: What Businessmen Can and Cannot Do.....	103
David Lawrence Editorial.....	104
March of the News..... 8	U. S. Companies Abroad..... 68
People of the Week..... 16	Labor Week..... 84
Washington Whispers..... 24	Finance Week..... 100
Plus & Minus..... 66	Index to Newsletters..... 4

"U. S. News & World Report" goes to press on Friday night. Beginning on the following Monday, the current issue is available at the newsstands for one week—until the date printed on the cover. Extra copies desired should be bought before the cover date.

The Associated Press is exclusively entitled to the use for publication of the local, telegraphic and cable news published herein, originated by U.S. News & World Report or obtained from The Associated Press.

U.S. NEWS & WORLD REPORT®

June 23, 1969, Vol. LXVI—No. 25

THE UNITED STATES NEWS®
WORLD REPORT® U. S. WEEKLY®

Published weekly at Washington, D. C. News Department and Executive Offices, United States News Building, 2300 N Street, N.W., Washington, D. C. 20037. Tel. FE 3-7400. Copyright © 1969, by U.S. News & World Report, Inc., for entire contents of this publication. All rights reserved.

NEWS DEPARTMENT

David Lawrence, Editor
Owen L. Scott, Executive Editor
Howard Fieger, Senior Associate Executive Editor
Associate Executive Editors: John H. Adams, W. C. Bryant, L. Noble Robinson, Marvin L. Stone
Ben J. Grant Managing Editor
Derek Fox Art Editor
Albert Clark, David B. Richardson, Administrative Editors

NATIONAL STAFF

General Editors

Donald P. Doane, Ellis Haller, George E. Jones, James Lee, Paul L. Martin, Grant Salisbury, Lester Tanzer, Charles E. Whiting.

Special Editors

General News: Lucien D. Agniet, Clarke Beach, Wilnot W. Heicher, John B. Howard, William MacDougal, Howard M. Norton, Warner Rogdale, Jr., Albert L. Warner, Business and Finance: George Bolton, Charles M. Platt, Labor: Archie W. Robinson, Health & Education: Stephen L. Freland, Judiciary: Richard S. Ross, Economic Unit: John B. Bledsoe, Director, Charles H. Davey, Thomas H. F. Hughes, Ricardo Elba, Constantine Mastrantonis, White House: John P. Sutherland, Barbara Furlow, Politics: Robert W. Ruth, Diplomatic: Howard Handleman, Nathan J. Margolin, Carson Yalowitz, Military: J. Frank Diggs, Bonner Day, Ben Price, People of the Week, March of the News, News-Lines, News You Can Use: Fred M. Harmon, Wayne Oliver, Dale S. White, Robert G. Smith, Capitol Staff: Leonard Williams, Director, Donald Smith, L. David LeRoy.

Regional Bureaus—New York: Glenn Nixon, Kenneth S. Smith (Editor, U.S. Companies Abroad); San Francisco: Edwin J. Drechsel, Juanita R. Hogue, Los Angeles: LeRoy J. Hansen, Susan M. Thornton, Chicago: Edwin O. Haraldsen, Linda Klein, Detroit: Ben F. Phlegar, Shirley M. Gray, Houston: John W. Mashek.

INTERNATIONAL STAFF

Robert P. Martin, Charles S. Foltz, Jr., Administrative Editor, Senior Editor, Warlogram, Special Reports
John R. Gibson, Editor, Business Around the World
Mary Ann Lovenstein, Administrative Assistant
London: Joseph Framm, Senior European Editor; Paris: Frederick C. Panton; Geneva: Alfred Zanker; Bonn: Robert A. Hanger, Max Bachhausen, South and East Europe and Middle East: John Law, Alex Kucharav, Spain and Africa: Albert J. Meyers, Japan and Far East: K. M. Chrysler, South Asia: Sol W. Sanders, Wendell S. Merick, James N. Wallace; Canada: Richard K. Brame; Central America: Carl Miggall; South America: Joseph Benham.

NEWS-DESK EDITORS — Washington

Turner Eise, Walter Husted, Chief, News Desk, General News Editor
F. W. Gapp, LeRoy Mattingly, Chief, Text Desk, Production Editor
Clair Johnson, Editor, Special News Desk
N. Key Hart, Assistant Chief, News Desk
Donald Becker, Fred E. Galbraith, Jr., Robert C. Wilson, Iva Holland, Edwin P. Weigel, Richard J. Theobald, Richard L. Corum, Sophie Hall, Pauline Jennings, Fred Shaw, Vera Hughes, Roland Brown, David E. Pollard.

ART STAFF — Washington

H. Klebanoff, Executive Director, Art; Walter O. Grietschel, Director; Lee Gerlach, Associate Director; Artists: J. Ernest Beavin, Col Richardson, Steve Bodnarchuk, Duane McKenna, Christopher Worsley
Photos: Edward H. Castens, Director; Charles Kraft, Associate Director; Assistants: Del F. Truitt, John T. Bledsoe, Jr., Thomas P. Carfano, Monroe E. Finkard, Margaret J. Shimp, Photographers: Thomas J. O'Halloran, Chief, Warren K. Lefler, Marion S. Trikasio, Assistants; Charles R. Moroney, David L. Bugbee.

SERVICE DIVISION — Washington

Librarian: Luther A. Dawson; Research: Catherine A. Church, Patricia Avery, Patricia Saunders; Recording Division: Sybil M. Graves, Chief, Leased Wires: J. Ralph Graham, Chief, Manager, Reader Service: Audrey Forbes.

PUBLISHING DEPARTMENT

2300 N Street, N.W. Washington, D. C. 20037
John H. Sweet, President & Publishing Director
H. L. Behlke, Vice President—Advertising
S. J. Keker, Vice President—Circulation
H. G. Oberlander, Treasurer J. R. Osmond, Secretary

ADVERTISING HEADQUARTERS

45 Rockefeller Plaza, New York, N. Y. 10020, Tel. 246-3366

CIRCULATION DEPARTMENT

435 Parker Avenue Dayton, Ohio 45401
Charles W. Edwards, Manager

PRODUCTION OFFICE

Ralph M. Francisco, Manager
350 Dennison Avenue, Dayton, Ohio 45401, Tel. 263-2678

U. S. NEWS & WORLD REPORT, June 23, 1969

564
(Walleye)
20 June 1969
1-46

RYTZYUW RUTEDAA7173 1711749-EEER--RUMTQQA.
ZNY EEEEE
R 201739Z JUN 69
FM AFSC
TO RUMWANA/ASD ACFTM WPAFB OHIO
INFO RUMDQHE/NAVAIRSYDCOM FYA143-3 WASH DC
RUMTQQA/AFSC NOLW HOLL OMAN APO RWEX
BT
UNCLAS E F T O SCSAC
SUBJ: SVD 9-302-314A(S) WALLEYE.
REF (A) AFSC UNCLAS SCSAC 091947Z MAY 69
(B) AND UNCLAS ACFTM 261857Z MAY 69
(C) CCAF SECRET AFMPO 172229Z JUN 69
REQUEST COMPLIANCE WITH REF (C), SVD 9-302-314A(S) WALLEYE.
THIS DIRECTION SUPERCEDES VERBAL DIRECTION TO WITHHOLD
ACTION FOR REF (B). FUNDS REQUIRED FOR MAGNET PRODUCTION
WERE TRANSFERRED ON PA/BA NR 151, 3 MAY 69. FOM 96 WILL FOLLOW.
BT
#7173

201739Z JUN 69
1702

MEMO ROUTING SLIP		<i>Never Use for Approvals, Disapprovals, Concurrences, or Similar Actions</i>		ACTION	
1	TO MR CORNET MIDN	INITIALS	CIRCULATE		
		DATE	COORDINATION		
2			FILE		
			INFORMATION		
3			NOTE AND RETURN		
			PER CONVERSATION		
4			SEE ME		
			SIGNATURE		
REMARKS					
<p>It's gone now. TAC gave up and took it to Nellis</p> <p style="text-align: center;">SEA</p>					
FROM		DATE			
Bilbo		20 Jun 69			
MDOP-2		PHONE			
		4441			

DD FORM 95 1 OCT 60 Replaces DD Form 94, 1 Feb 50, and DD Form 95, 1 Feb 50, which will be used until exhausted. © GPO : 1975 O - 295-656

1-46
20 June 69

22 April 68

1. PROJECT: F4C Laser Bombing System (Program No. 1709)

The Laser Bombing System (LBS) is manufactured by Hughes Aircraft Company, Culver City, California. It consists of 2 subsystems: The laser ranging subsystem and the bombing computer subsystem. The laser receives beam pointing commands from the computer, and furnishes range information to the computer. The LBS provides aided delivery of conventional weapons. It mounts in the right forward sparrow well.

a. (2 March 1968) AFMDC, Holloman AFB, NM, was designated the site for testing of the F4C Laser Bombing System. (Ref Msg 012238Z Mar 68, AFSC to AFMDC/MDOP-1).

e. (5 April 1968) F4C SN 64-0775 arrived McDonnell Douglas Corporation, St Louis for LBS modification to be installed.

8. FORECAST:

a. LBS Unit #3 to be tested (acceptance testing) at the Hughes Aircraft Company Roof-Top Lab in Culver City, California, on or about 3 May 68.

b. Second aircraft arrival at MAC, St. Louis scheduled for 19 April input to begin mod.

d. Flight tests of modification on first aircraft (LBS pod) at MAC, St. Louis forecast completion 3 June 1968.

e. Bomb drops forecast to begin at AFMDC on 17 June 1968.

29 April 68

8. FORECAST:

a. LBS Unit #3 acceptance testing delayed to late May due to computer problems. Will be held at Hughes, Culver City, California.

b. Flight tests of modification on first aircraft (LBS pod) at MAC, St. Louis forecast completion 3 June 1968.

c. Bomb drops forecast to begin at AFMDC on 17 June 1968.

6 May 1968

8. FORECAST:

- a. LBS Unit #3 acceptance testing scheduled for 17 or 18 May at Hughes Aircraft Company, Culver City, California.
- b. Flight tests of modification on first aircraft (LBS pod) at McDonnell Aircraft Corporation, St. Louis forecast completion 3 June 1968.
- c. Bomb drops forecast to begin at AFMDC on 17 June 1968.

13 May 1968

8. FORECAST:

- a. LBS Unit #3 acceptance testing is now scheduled for 7 June 1968 at Hughes Aircraft Company, Culver City, California.
- b. Flight tests of modification on first aircraft (LBS pod) at McDonnell Aircraft Corporation. St. Louis forecast completion of 3 June 1968.
- c. Bomb drops forecast to begin at AFMDC on 17 June 1968.

20 May 1968

8. FORECAST:

- a. First aircraft arrival at Holloman set for 3 June 1968.
- b. LBS unit acceptance testing and demonstration at Culver City will be 13 June 1968.
- c. Arrival of first contingent of TAC personnel on or about 3 June 1968.
- d. Bomb drops forecast to begin at AFMDC on 17 June 1968.

27 May 1968

8. FORECAST:

- a. First aircraft arrival at Holloman set for 3 June 1968.
- b. LBS unit acceptance testing and demonstration at Culver City will be 13 June 1968.
- c. Arrival of first contingent of TAC personnel on or about 3 June 1968.
- d. Bomb drops forecast to begin at AFMDC on 17 June 1968.

10 June 1968

8. FORECAST:

- a. Aircraft 640775 to arrive at Holloman on 8 June 1968.
- b. TAC rear seat pilot to arrive about 11 June 1968.
- c. 2 TAC LBS technicians to arrive during the week of 10-14 June 1968.
- d. First LBS unit to arrive at Holloman on 14 June 1968.
- e. Hughes personnel to arrive on or about 12 June 1968.
- f. Flights to begin at AFMDC on 24 June 1968.

3 June 1968

8. FORECAST:

- a. First aircraft arrival (F4C 640775) set for week of 3-7 June 1968.
- b. LBS units testing at Hughes Aircraft Company, Culver City, Calif. set for 4 and 12 June 1968. Second phase (Class II modification acceptance tests by OOAMA) will be held at AFMDC on 7 and 21 June. This is for the LBS units for the first two aircraft.

- c. Arrival of TAC LBS maintenance personnel 6 June 1968. The crew chief will come with the aircraft.
- d. Arrival of Hughes test personnel on 6 June 1968.
- e. Bomb drops forecast to begin at AFMDC on 17 June 1968.

17 June 1968

2. EVENTS:

- a. F4C aircraft 640775 arrived at Holloman on 8 June 1968.
- b. Major Herrman, Deputy LBS Test Director, arrived at Holloman on 10 June 1968.
- c. Lt Walden, TAC rear seat pilot, arrived at Holloman on 11 June 1968.
- d. TSgt Dickins, LBS technician, arrived at Holloman on 10 June 1968.
- e. TSgt Phillips, LBS technician, arrived at Holloman on 10 June 1968.
- f. Mr. J. Wayne, Hughes senior systems engineer, arrived at Holloman on 13 June 1968.

8. FORECAST:

- a. First LBS unit to arrive at Holloman on 17 June 1968.
- b. Flights to begin at AFMDC on 24 June 1968.

24 June 1968

2. EVENTS:

- a. LBS pod #4 arrived at Holloman on 17 June 1968.
- b. TSgt Wright, LBS technician, arrived at Holloman AFB On 19 June 1968
- c. F4C aircraft #640772, with LBS pod #3, arrived at Holloman AFB on 20 June 1968.

8. FORECAST:

a. First flight pending successful test of LBS AN/AVB-1 and TM pack by Hughes Aircraft Company. Further delay in test schedule may be expected due to requirement to complete system demonstration prior to Air Force buy-off.

b. One TAC crew chief, aircraft #640775, to arrive at Holloman AFB on 24 June 1968.

Week of 22-28 June 1968

2. EVENTS:

a. SSgt Chilton, crew chief for F4C 640772 arrived at Holloman on 24 June 1968.

d. C-beacon installation is complete in both 775 and 772.

8. FORECAST:

a. First flight pending successful acceptance test of LBS AN/AVB-1 and TM pack by Hughes Aircraft Company. Earliest date now appears to be about 11 July 1968.

b. Acceptance test scheduled for 2 July 1968, with a back-up date of 8 July 1968.

8 July 1968

c. Permission obtained on 3 July 68 from ASD to fly the Laser Pod that is here solely for the purpose of checking out the instrumentation. This does not constitute the start of the flight test program, which can only start with an LBS Pod that has passed the acceptance test.

8. FORECAST:

a. Acceptance test now to be performed at Hughes, Culver City on 12 July 1968. Laser Pod, when accepted, will be shipped to AFMDC on a Hughes truck on 13 July 1968.

- b. First flight of the flight test program earliest date is 15 July 1968.
- c. Flight for the sole purpose of checking out the telemetry will be flown on or about 10 July 1968.

15 July 1968

- a. Status: Twenty-six days behind due to contractor problems in making the equipment operate.
- b. A ground check of the TM pack on aircraft 775 was conducted on 11 July 68, and equipment operation was found to be satisfactory.
- c. Camera mounts were installed on aircraft 775 on 11 July 68.
- d. The second TM pod for aircraft 772 arrived on 11 July 68.
- c. The four SUU 20 bomb dispensers that were to be furnished by ASD for the LBS test were put on back-order. Other resources are being investigated to solve this problem.

8. FORECAST:

- a. Acceptance test now to be performed at Hughes, Culver City, on 17 July 1968. Laser pod, when accepted, will be shipped to AFMDC by Hughes truck.
- b. First flight of the flight test program is dependent upon acceptance of the Laser pod.
- c. Flight for the sole purpose of checking out the telemetry will be flown on or about 15 Jul 68.

22 Jul 68

a. Status: 34 days behind due to contractor problems in making the equipment operate.

2. EVENTS:

a. After Aircraft 772 and 775 were reassigned to AFSC from TAC, project was advised that the aircraft would not be released for flight until the Class II modifications performed by McDonnell Aircraft Co. were reviewed by AFSC Maintenance Control. Maintenance Control released the aircraft for flight on 18 July 1968.

b. A TAC message dated 15 July 1968 stated that four SUU20 bomb dispensers are to be shipped on loan to combat model from England Air Force Base, La.

c. On 19 July, Aircraft 772 and 775 were flown for aircrew range check out and telemetry system check. This did not constitute the beginning of the flight test program since project still does not have a laser pod available that has passed the USAF acceptance tests.

4. PROBLEMS: Hughes Aircraft Company's inability to get the laser pod operating to pass the acceptance test is delaying the program considerably.

8. FORECAST:

a. Acceptance test of the LBS pod at Hughes, Culver City, is now scheduled for 24 July 1968. The pod, when test is successfully completed, will be shipped to Holloman Air Force Base by Hughes truck,

b. First flight of the test program is dependent upon acceptance of the Laser Pod.

c. Based on the above forecast, LBS flights have been requested for 30 July, 1 August and 2 August 1968.

29 July 1968

a. Status: 41 days behind due to contractor problems in making the equipment operate.

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force Acceptance Tests.

Line	Date	Requested	Scheduled	Flown	Results
1	22 22 July	775	775	775	Negative
2	24 July	775	775	775	TM good
3	26 July	775	775	775	TM good

Recap: 3 requested, 3 schedule, 3 flown (TM checkout only)

Line 1 - Power failure in LBS computer and instrumentation (TM) unit.

Line 2 - TM reception good - no release signal from LBS computer.

Line 3 - TM good - laser firing problems due to a disconnected lead in the cooling system.

b. On 25 July 1968, the four SUU-20A bomb dispensers arrived from England AFB, on loan for 180 days. Certain parts were missing (see problems).

c. On 25 July 1968, TCTO kits for TCTO 773 were received, and installation begun on F4C 640772.

a. The contractor's difficulties in getting a LBS pod to pass acceptance tests is delaying the program considerably.

b. The missing parts of the SUU-20A bomb dispensers preclude use of the units until the parts are obtained. Action has been taken to obtain the parts from England AFB.

b. First Flight of the test program is dependent on the acceptance tests of the LBS.

c. Three missions have been requested for the week of 29 July - 2 August. They will be flown for TM checkout of the TM system in 772 (the second aircraft), and for the formal test program if an USAF accepted LBS unit is available by then.

5 August 1968

a. Status: 49 days behind due to contractor problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and the computer-laser interface incurred at the Hughes Plant, Culver City, California.

(2) Test Plan published 15 May 1968

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	30 Jul (x-ray)	775	No	No	-
2	31 Jul (x-ray)	775	No	No	-
3	1 August	775	775	775	TM good
4	2 August	775	775	No	-

Recapt: 4 requested, 2 scheduled, 1 flown (TM checkout only).

Lines 1 and 2 - Range would not support (Pershing shots).

Line 3 - TM good - no release signal from LBS computer in Dive Toss mode.

Line 4 - Project requested cancellation to change to pod to Aircraft 772 (second aircraft).

b. On 29 July, the missing parts of the SUU20A Bomb Dispensers arrived from England AFB, on loan for 180 days.

4. PROBLEMS: The contractor's difficulties in getting a LBS pod to pass acceptance tests is delaying the program considerably.

a. USAF acceptance tests of the pod at Culver City has again been delayed due to contractor problems.

b. First flight of the test program is dependent on the acceptance tests of the LBS.

c. Three missions have been requested for the week of 3 - 9 August. They will be flown for TM checkout of the TM system in Aircraft 772 (the second aircraft), and for the formal test program on Aircraft 775 if a USAF accepted LBS unit is available by then.

12 August 1968

a. Status: 56 days behind due to contractor problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and the computer-laser interface incurred at the Hughes Plant, Culver City, California.

2. EVENTS:

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	6 August	772	772	772	TM good
2	8 August	772	772	No	--
3	9 August	772	772	772	TM good

Recap: 3 requested, 3 scheduled, 2 flown (TM checkout only).

Line - 1 TM good - problems encountered in turn-on of LBS.

Line 2 - WSMR Military Police did not set up road blocks in the target area. Project was unable to get re-scheduled, and range withdrew support.

Line 3 - TM good - problems with auto release.

b. TCTO's complied with:

4. PROBLEMS:

a. The contractor's difficulties in getting a LBS pod to pass acceptance tests is delaying the program considerably.

b. Munitions found that the missing parts (internal wiring harnesses, etc.) of the SUU 20A Bomb Dispensers which arrived from England AFB cannot be used on the F-4. After exhaustive attempts by project to find these parts, the problem was passed to TAC Headquarters.

8. FORECAST:

a. USAF acceptance test of the pod at Culver City has again been delayed due to contractor problems.

b. First flight of the test program is dependent on the acceptance tests of the LBS.

c. Three missions have been requested for the week of 11-17 August. They will be flown for TM checkout of the TM system in Aircraft 772 (the second aircraft) and for the formal test program on Aircraft 775 if a USAF-accepted LBS unit is available by then.

19 August 1968

a. Status: 63 days behind due to contractor ~~problems~~ problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and the computer-laser interface incurred at the Hughes Plant, Culver City, California.

2. EVENTS:

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	12 August	772	772	772	TM good
2	13 August	772	772	772	TM good
3	14 August	772	772	No	--

Recap: 3 requested, 3 scheduled, 2 flown (TM checkout only).

Line 1 - TM good. Initial problems with computer "turn-on" were encountered, but system operation was normal after a few minutes of operation.

Line 2 - TM good. LBS malfunctioned during the entire flight. The computer seemed to turn on occasionally but would lose power after about 10 seconds.

Line 3 - Project requested cancellation. Mission not required (TM checks complete).

4. PROBLEMS:

a. The contractor's difficulties in getting a LBS pod to pass acceptance tests is delaying the program considerably.

b. TAC Headquarters is expected to task Nellis AFB to provide the SUU20A bomb dispensers ready for use needed in the LBS test.

8. FORECAST:

a. USAF acceptance test of the pod at Culver City has again been delayed due to contractor problems.

b. First flight of the test program is dependent on the acceptance tests of the LBS.

c. Two missions have been requested for the week of 18-24 August. Only limited flights will be flown, for TM checkout, until a USAF-accepted LBS unit is available.

26 Aug 1968

a. Status: 70 days behind due to contractor problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and the computer-laser interface incurred at the Hughes Plant, Culver City, Calif.

2. EVENTS:

Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	21 August	772	772	No	--
2	23 August	775	775	No	--

Recap: 2 requested, 2 scheduled, 0 flown.

Line 1 - Static display for VIP and conference attendees.

Line 2 - LBS #4 returned 22 August 1968 to Culver City (none available).

4. PROBLEMS: The contractor's difficulties in getting a LBS pod to pass acceptance tests is delaying the program considerably.

8. FORECAST:

a. USAF acceptance test of the pod at Culver City has again been delayed due to contractor problems.

b. First flight of the test program is dependent on the acceptance tests of the LBS.

c. No missions requested until LBS #5 arrives at Holloman for testing.

(8) The second TAC crew will arrive 30 days after program start date.

3 Sep 68

a. Status: 78 days behind due to contractor problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and computer=laser interface incurred at the Hughes Plant, Culver City, California.

2. EVENTS:

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	29 August	775	775	No	--
2	30 August	775	775	775	Completed

Recap: 2 requested, 2 scheduled, 1 flown (not a part of the formal test program).

Line 1 - Project requested cancellation. Mission not required.

Line 2 - Mission flown for project aircrew training. LBS pod was not available for this flight.

b. On 26 August, three SUU-20A Bomb Dispensers arrived from Nellis AFB on loan for 180 days.

c. On 29 August, LBS Unit 5 passed USAF acceptance tests at Hughes, Culver City. Testing will begin as soon as this pod arrives at Holloman AFB.

4. PROBLEMS: The contractor's difficulties in getting a LBS pod to pass acceptance tests has considerably delayed the program.

8. FORECAST:

a. Project expects arrival of the first accepted LBS pod early in the week of 2-6 September 1968.

b. The first flight of the test program is forecast for 5 September 1968.

c. Three missions have been requested for the week of 1-7 September 1968.

9 Sep 1968

a. Status: 86 days behind due to contractor problems in making the equipment operate to acceptance tests specifications. This was the result of numerous problems with the bombing computer and computer-laser interface incurred at the Hughes Plant, Culver City, Calif.

2. EVENTS:

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	3 September	775	No	No	--
2	5 September	775	No	No	--
3	6 September	772	772	772	Completed
4	6 September	775	775	775	Completed

Recap: 4 requested, 2 scheduled, 2 flown (not a part of the formal test program).

Line 1 - Range could not support due to a Lance mission which required the TM relay van in the 90-mile area. Lance was given precedence because it was a live firing.

Line 2 - Range could not support due to a Fire Fly mission requiring the real time data readout equipment.

Lines 3 and 4 - Missions flown for project aircrew training. LBS pod was not available for this flight.

b. On 4 September 1968, the USAF accepted Laser pod #5 which arrived at Holloman AFB from Hughes, Culver City. The computer section, however, has not arrived as yet. It is undergoing plant QC inspection.

4. PROBLEMS: The contractor's difficulties in getting a LBS pod to pass acceptance tests has considerably delayed the program.

8. FORECAST:

- a. Project expects arrival of the computer section of the first accepted LBS system on 8 September 1968.
- b. The first flight of the test program is forecast for 10 September 1968.
- c. Four missions have been requested for the week of 8-14 September 1968 in anticipation of the beginning of the formal test program.

16 Sep 68

a. Status: 93 days behind due to contractor problems in making the equipment operate to acceptance-test specifications. This was the result of numerous problems with the bombing computer and computer-laser interface incurred at the Hughes Plant, Culver City, Calif.

2. EVENTS:

a. Flight Schedule

NOTE: These flights were for telemetry (TM) checkout only. The formal program cannot begin until Hughes Aircraft Company has provided a LBS unit that has passed Air Force acceptance tests.

Line	Date	Requested	Scheduled	Flown	Results
1	10 Sep	772	No	No	--
2	11 Sep	772	772	No	--

Recap: 2 requested, 1 scheduled, 0 flown (not a part of the formal test program).

Line 1 - Range could not support due to a Fire Fly mission requiring the real time data readout equipment.

Line 2 - Project requested cancellation due to lack of project equipment.

4. PROBLEMS:

a. The contractor's difficulties in getting a LBS pod to pass acceptance test has considerably delayed the program.

b. Due to the contractor's delays, TAC is considering releasing the TAC personnel involved in the project. This could delay the program up to two weeks after the formal test begins for the return of these personnel.

8. FORECAST:

a. Arrival of the computer section of the first accepted LBS pod is expected on 14 Sep 1968.

b. The first flight of the test program is forecast for 17 Sep 1968.

c. Six missions have been requested for the week of 15-21 Sep 1968 in anticipation of the beginning of the formal test program.

23 Sep 68

a. Status: 91 days behind due to contractor -----

2. EVENTS:

a. On 14 Sep 68, the first complete, accepted Laser System arrived at Holloman AFB from Hughes, Culver City. This begins the Hughes' contractual responsibilities as well as the formal test program of the Laser Bombing System.

b. On 17 Sep 68, the first flight of the LBS test program was flown.

c. During the week of 15-21 Sep 68, LBS test flights numbers 1-4 were flown.

d. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	17 Sep	772	772	772	Successful
2	17 Sep	No	772	772	Successful
3	18 Sep	772	772	772	Successful
4	18 Sep	772	No	772 No	----
5	19 Sep	772	772	772	Successful
6	19 Sep	772	772	No	----
7	20 Sep	772	No	No	----

Recap: 6 requested, 5 scheduled, 4 flown.

Line 2 and 4 - Range scheduled one of the two requested 18 Sep missions on 17 Sep with project approval.

Line 6 - Project requested cancellation for minor adjustments to be performed on project equipment.

Line 7 - Project withdrew request prior to mission being scheduled.

8. FORECAST: Seven test missions have been requested for the week of 22-28 September 1968.

30 Sep 68

a. Status: 96 days behind

2. EVENTS:

a. During the week of 22-28 September 1968, flight numbers LBS 5, 6 and 7 were flown.

b. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	24 Sep	772	772	772	Successful
2	24 Sep	775	775	775	Chase only
3	25 Sep	772	772	No	---
4	25 Sep	772	772	No	---
5	26 Sep	772	772	No	---
6	26 Sep	772	772	No	---
7	27 Sep	772	772	772	Successful
8	27 Sep	772	772	772	Successful

Recap::; 8 Requested, 8 scheduled, 4 flown.

Line 2 - Chase mission was flown for project aircrew training only.
(Part of Line 1 mission)

Lines 3 through 6 - Project requested cancellation for minor adjustments to be performed on project equipment.

b. Arrival of the second test LBS pod is expected momentarily.

7 Oct 68

a. Status: 101 days behind due to contractor ~~phorum~~ problems

2. EVENTS:

a. On 30 Sep 1968, the second complete Laser System (System #3) arrived at Holloman AFB from Hughes, Culver City. USAF acceptance sign-off at AFMDC was completed the same day.

b. During the week of 29 Sep - 5 Oct 68, Flight Numbers LBS-8 and 9 were flown (dry-no bomb drops).

c. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	30 Sep	772	772	No	----
2	30 Sep	772	772	No	----
3	2 Oct	775	775	775	Successful
4	2 Oct	775	775	775	Successful
5	3 Oct	775	775	No	----
6	4 Oct	775	775	No	----
7	4 Oct	775	775	No	----

Recap: 7 requested, 7 scheduled, 2 flown.

Lines 1 and 2 - Project requested cancellation for up loading and contractor inspection of newly-arrived Laser Bombing System No. 3 on Aircraft 775.

Lines 5 and 6 - Project requested cancellation for minor adjustments to be performed on project equipment.

Line 7 - Cancelled for weather in target area.

14 Oct 68

a. Status: 104 days behind due to contractor problems

2. EVENTS:

a. During the week of 6 - 12 Oct 68, Flight Numbers LBS-10, 11, 12 and 13 were flown (dry - no bomb drops).

b. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	7 Oct	772	772	772	Successful
2	8 Oct	772	772	No	----
3	8 Oct	772	772	772	Successful
4	9 Oct	772	772	No	----
5	9 Oct	772	772	No	----
6	10 Oct	772	772	No	----
7	10 Oct	772	772	772	Unsuccessful
8	11 Oct	772	772	772	Successful

Recap: 8 requested, 8 scheduled, 4 flown.

Line 2 - Cancelled for commercial power (electrical power was unavailable in Bldg 901 in time to prepare project equipment for the flight).

2 Lines 4 and 6 - Project requested cancellation for minor adjustments to be performed on project equipment.

Line 5 - Cancelled for aircraft maintenance.

Line 7 - Unsuccessful for project equipment.

4. PROBLEMS: Minor problems with the computer are causing the current delays.

21 Oct 68

a. Status: 110 days behind original schedule.

2. EVENTS:

a. During the week of 13-19 Oct 68, Flight Number LBS-14 and 15 were flown (dry - no bomb drops).

b. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	14 Oct 68	772	772	772	Unsuccessful
2	15 Oct	772	772	No	----
3	16 Oct	772	No	No	----
4	16 Oct	772	772	772	Unsuccessful
5	17 Oct	772	No	No	----
6	17 Oct	772	772	No	----
7	18 Oct	772	No	No	----
8	18 Oct	775	775	No	----

Recap: 8 requested, 5 scheduled, 2 flown.

Lines 1 and 4 - Unsuccessful for project equipment.

Lines 2 and 6 - Project requested cancellation for minor adjustments to be performed on project equipment.

Lines 3, 5 and 7 - Not scheduled due to lack of range support.

Line 8 - Cancelled for aircraft maintenance (ground abort - hydraulic leak).

4. PROBLEMS: This program has to date experienced extensive delays. Original delays were the result of numerous problems with the bombing computer and the bombing computer interface while the equipment was at the contractor's plant. These problems were eventually resolved to the extent that the equipment was able to pass Air Force acceptance-test specifications. Since arrival at AFMDC, it has become apparent that even though the equipment could pass acceptance tests, it was a long way from being usable. The equipment arrived here with design problems. When a design problem was corrected by Hughes personnel at AFMDC, it generally uncovered another deficiency that was masked by the original problem. For this reason, it has appeared at any one time, and does in fact appear at the present time, that correcting one deficiency will make the equipment usable to the extent testing is ready to begin. Until the equipment problems

are completely resolved, it appears that Hughes Aircraft Company will need considerably more manpower at AFMDC than they have at present.

28 Oct 68

a. Status: 114 days behind original schedule.

2. EVENTS:

a. During the week of 20-26 Oct 68, Flight Numbers LBS-16 and 17 were flown (dry - no bomb drops).

b. On 23 Oct 68, Flight Number LBS-18 was flown. This flight was the first live mission of the test program. Three BDU-33 practice bombs were dropped during the mission with encouraging results. (Actual impacts are classified).

c. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	21 Oct	772	772	772	Unsuccessful
2	22 Oct	772	772	772	Successful
3	23 Oct	772	772	772	Unsuccessful
4	24 Oct	772	772	No	--
5	25 Oct	775	775	No	--

Recap: 5 requested, 5 scheduled, 3 flown.

Line 1 - Unsuccessful for project equipment.

Line 3 - Unsuccessful (incomplete) - pilot error (switchology). Only half the bombs were dropped.

Lines 4 and 5 - Project requested cancellation for minor adjustments to be performed on project equipment.

4 Nov 68

a. Status: 115 days behind original schedule.

2. EVENTS:

a. On 23 Oct 68, the second TAC aircrew, Major Wingard and Lt Justice, arrived at Holloman AFB on TDY from Eglin AFB, Florida.

b. During the week of 27 October - 2 November 1968, Flight Numbers LBS-19, 20, 21 and 22 were flown.

c. During the reporting period, 22 BDU-33B practice bombs were dropped. The actual impacts are classified, but in general the results remain encouraging.

d. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	28 Oct	772	772	No	----
2	29 Oct	772	772	772	Successful
3	30 Oct	772	772	772	Successful
4	30 Oct	772	772	772	Successful
5	31 Oct	775	775	No	----
6	1 Nov	772	772	772	Successful

Recap: 6 requested, 6 scheduled, 4 flown.

Line 1 - Cancelled due to lack of range support (no real time read-out available K-1 or J-3).

Line 3 - Mission was x-rayed on the schedule.

Line 5 - Cancelled for aircraft maintenance (windscreen panel replacement).

11 Nov 68

a. Status: 120 days behind original schedule.

b. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	4 Nov	772	772	772	Successful
2	5 Nov	775	No	No	----
3	5 Nov	775	No	No	---
4	6 Nov	772	775	775	Unsuccessful
5	7 Nov	772	No	No	---
6	7 Nov	775	775	772	Unsuccessful
7	8 Nov	772	772	772	Unsuccessful
8	8 Nov	772	772	772	Successful

Recap: 8 requested, 5 scheduled, 5 flown, 2 successful.

Lines 2 and 5 - Not scheduled, no range time available.

Line 3 - X-ray, not scheduled. Both aircraft out for maintenance (tire change and canopy valve.)

Line 4 - Unsuccessful - telemetry system inoperative. Aircraft change requested by project to run a captive operational check of the LBS computer in 775.

Line 6 - Unsuccessful - gun camera failure (no aimpoint film).

Line 7 - Unsuccessful - WSMR real time read-out at King I unusable.

18 Nov 68

a. Status: 126 days behind original schedule.

2. EVENTS:

a. On 12 November 1968, a static bomb drop test was conducted to determine actual time delays and ejection velocities connected with BDU-33/MK-106 practice bombs dropped from SUU-20/SUU-21 bomb dispensers. Results should be instrumental in isolating miss distance problems.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Results
1	12 Nov	775	775	No	Gnd Abort
2	12 Nov	775	No	--	NRTA
3	13 Nov	775	775	775	Unsuccessful
4	13 Nov	775	No	--	NRTA
5	14 Nov	772	Line 8	--	Athena
6	14 Nov	772	Line 9	--	Athena
7	15 Nov	772	772	No	CNX WX
8	16 Nov	Line 5	No	--	NRTA
9	16 Nov	Line 6	772	772	Unsuccessful
10	16 Nov	775	775	775	Successful

Recap: 8 requested, 5 scheduled, 3 flown, 1 successful

Line 1 - ground abort, aircraft maintenance (hydraulic leak after start)

Lines 2, 4, 8 - not scheduled; no range time available (NRTA)

Line 3 - unsuccessful, project equipment (telemetry on aircraft inoperative)

Lines 5 and 6 - Athena day, no missions. Scheduling attempted on Saturday, 16 Nov.

Line 7 - cancelled, weather in target area 2000 feet.

Line 9 - unsuccessful, bombs would not release (broken wire in bomb dispenser)

Line 10 - X-ray for system captive check. Successful.

a. Major Vest, replacement for Major Herrman, Deputy Test Director, is expected to arrive at Holloman AFB on 16 Nov 68.

25 Nov 68

a. Status: 132 days behind original schedule.

a. On 18 Nov 68 Major Vest, replacement for Major Herrman, Deputy Test Director, arrived at Holloman AFB on TDY from Nellis AFB.

c. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	18 Nov	772	772	772	Unsuccessful
2	19 Nov	775	775	775	Successful
3	19 Nov	775	775	775	Successful
4	20 Nov	772	772	No	----
5	20 Nov	772	772	772	Successful
6	21 Nov	775	775	775	Successful
7	21 Nov	775	775	775	Successful
8	22 Nov	775	775	775	Successful
9	22 Nov	775	No	No	----
10	23 Nov	25 Nov	772	772	Successful
11	23 Nov	25 Nov	772	772	Successful
12	23 Nov	775	775	775	Unsuccessful

Recap: 10 requested, 12 scheduled. 10 flown, 8 successful.

Line 1 - Unsuccessful, project equipment. Bombs would not release (broken wire in LBS interface).

Line 4 - Ground abort, project equipment. LBS would not pass BIT test.

Line 9 - Not scheduled; no range time available (NR TA).

Lines 10 and 11 - These missions were requested for 25 Nov but due to range conflicts they were scheduled on Saturday, 23 Nov.

Line 12 - Unsuccessful for project equipment (LBS computer).

2 Dec 1968

a. Status: 138 days behind original schedule.

c. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	25 Nov	772	23 Nov	772	--
2	25 Nov	772	23 Nov	772	--
3	26 Nov	772	25 Nov	772	Unsuccessful
4	26 Nov	772	772	No	--
5	27 Nov	772	772	772	Unsuccessful
6	27 Nov	775	No	No	--
7	29 Nov	772	772	772	Successful
8	29 Nov	775	775	No	--
9	29 Nov	772	772	772	Unsuccessful

Recap: 9 requested, 6 scheduled, 4 flown, 1 successful.

Lines 1 and 2 - These missions were requested for 25 November, but due to range conflicts they were scheduled on Saturday, 23 November. Both missions were successful and were reported in the WAR for 17-23 November 1968.

Line 3 - Unsuccessful (incomplete) - pilot error (switchology). Mission was requested for 26 November and was scheduled and flown on 25 November.

Line 4 - Cancelled, weather in target area 2,00 feet overcast.

Line 5 - Unsuccessful, weather in target area precluded reliable optics.

Line 6 - Not scheduled, no range time available (NRTA).

Line 8 - Cancelled, project equipment (telemetry on aircraft inoperative).

Line 9 - Unsuccessful for project equipment (LBS computer).

b. TAC personnel assigned to Combat Model will depart Holloman AFB on or about 20 December 1968 and return 3 January 1969. This will not delay Combat Model testing due to range closure during this period.

10 Dec 1968

a. Status: 144 days behind original schedule.

b. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Results
1	2 Dec 68	775	775	No	--
2	2 Dec	775	775	No	--
3	3 Dec	775	775	775	Unsuccessful
4	3 Dec	775	775	775	Successful
5	4 Dec	775	775	No	--
6	4 Dec	772	772	No	--
7	5 Dec	772	No	No	--
8	5 Dec	775	No	No	--
9	6 Dec	775	No	No	--
10	6 Dec	772	772	772	Unsuccessful

Recap: 10 requested, 7 scheduled, 3 flown, 1 successful.

Lines 1 and 2 - Cancelled, weather in target area.

Line 3. Unsuccessful, project equipment (gelemetry on aircraft inoperative).

Line 5. Mission lost due to range error. DCD removed on S-band radar from the LBS mission and added it to an STV mission. This was contrary to the way it was scheduled, and they did not have the authority to make this change.

Line 6 - Mission cancelled by CO, WSMR, to allow an x-ray SMT mission to be flown. This decision cost us both line 6, and any chances of reschedule of line 5.

Lines 7 and 8 - Athena day, no missions.

Line 9 - Not scheduled; no range time available (NRTA).

Line 10 - Unsuccessful for project equipment (laser malfunction).

b. Aircraft 640772 will go to OOAMA on 16 December 1968 for the rocket ejection seat modification.

c. Aircraft 640775 will go to OOAMA on 23 December 1968 for the rocket ejection seat modification.

16 December 1968

a. Status: 148 days behind original schedule.

2. EVENTS:

a. On 13 December 1968, aircraft 604772 departed Holloman AFB to OOAMA for rocket ejection seat modification.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Results
1	9 Dec	772	772	772	Unsuccessful
2	10 Dec	775	775	775	Successful
3	11 Dec	775	775	775	Unsuccessful
4	11 Dec	775	775	775	Successful
5	12 Dec	775	775	775	Unsuccessful
6	12 Dec	775	775	775	Successful
7	13 Dec	775	775	No	--

Recap: 7 requested, 7 scheduled, 6 flown, 3 successful.

Line 1 - Unsuccessful, pilot error delayed the mission - range time expired prior to completion once the drops started.

Line 3 - Unsuccessful, project equipment (airborne telemetry inoperative).

Line 5 - Unsuccessful, range support (K-1 telemetry malfunction).

Line 7 - Mission cancelled for project requirement for adjustments to be made on aircraft TM equipment.

b. Aircraft 640775 will go to OOAMA on 23 December 1968, for the rocket ejection seat modification.

c. After 21 Dec, no range missions will be flown until after WSMR re-opens on Monday, 6 January 1969.

20 Dec 1968

a. Status: 151 days behind original schedule.

a. On 20 December 1968, aircraft 640775 departed Holloman AFB to OOAMA for rocket ejection seat modification.

b. LBS computers #4 and #5 (the active computers in the LBS test) have been shipped back to Hughes, Culver City, for design tests to be performed. They will be returned prior to 3 Jan 1968.

d. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Results
1	16 Dec	775	775	775	Successful
2	17 Dec	775	775	775	Successful
3	17 Dec	775	775	775	Successful
4	18 Dec	775	775	No	--
5	18 Dec	775	775	No	--
6	19 Dec	775	775	775	Successful
7	19 Dec	775	775	775	Unsuccessful

X-ray

Recap: 7 requested, 7 scheduled, 5 flown, 4 successful.

Lines 4 and 5 - Mission cancelled for project equipment (LBS computer malfunction).

Line 7 - X-Ray mission. Unsuccessful, project equipment (Laser subsystem).

b. Aircraft 640772 is scheduled for modification completion at OOAMA on 26 Dec 68.

c. Aircraft 640775 is scheduled for modification completion at OOAMA on 2 Jan 69.

6 Jan 1969

a. Status: 167 days behind original schedule.

a. On 27 December 1968, aircraft 640772 returned to AFMDC from OOAMA with the rocket ejection seat modification incorporated.

b. LBS computers 4 and 5 are still at Hughes Aircraft Company, Culver City, Calif. being adjusted by the contractor.

31

6 Jan 1969 (Continued)

8. FORECAST:

a. On 9 January 1969, aircraft 640772 will be flown to the Hughes plant at Culver City, Calif. to allow system 5 to be checked while on the aircraft. The system will then be ferried back to AFMDC on or about 11 January 1969.

b. Aircraft 604775 is due to return from OOAMA (where it had the seat modification performed) on 6 January 1969.

c. Estimated next flight for LBS system evaluation purposes will be 16 Jan 1969.

13 Jan 1969

5. EVENTS:

a. On 7 January 1969, aircraft 640775 returned to AFMDC from OOAMA with the rocket ejection seat modification incorporated.

b. LBS computers 4 and 5 are still at Hughes, Culver City, being adjusted by the contractor.

c. On 9 Jan 1969, aircraft 640772 was flown to Hughes, Culver City, to allow system 5 to be checked while on the aircraft. The system will be ferried back to AFMDC on 12 January 1969.

e. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	11 Jan 69	107	93	59	37

Line 1 - Recap since 17 Sep 1968.

6. PROBLEMS: System operation in certain modes. Primarily design problems (contractor). Actual problems are classified.

20 Jan 1969

5. EVENTS

a. on 12 January 1969, aircraft 640772 arrived at Holloman AFB from Hughes, Culver City, with LBS system #5 on board.

20 Jan 1969 (Continued)

b. LBS computer #4 is still at Hughes, Culver City, having changes incorporated by the contractor.

c. On 15 January 1969, two extra Hughes design engineers arrived at Holloman AFB to continue contractor efforts to solve current problems with the LBS system.

e. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	18 Jan	109	95	61	38
2	15 Jan	1	1	1	0
3	17 Jan	1	1	1	0

Line 1 - Recap since 17 Sep 1968.

Line 2 - Unsuccessful, project equipment (LBS computer subsystem).

Line 3 - Unsuccessful, project equipment (computer subsystem).

27 Jan 1969

5. Events

a. LBS computer #4 is still at Hughes Aircraft Co., Culver City, Calif. having changes incorporated by the contractor.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	25 Jan 69	119	104	65	37
2	20 Jan 69	2	2	2	0
3	21 Jan 69	2	1	1	0
4	22 Jan 69	2	2	0	0
5	23 Jan 69	2	2	0	0
6	24 Jan 69	2	2	1	0

Line 1 - Recap since 17 September 1968.

Line 2 - Both missions unsuccessful; project equipment (LBS computer subsystem and telemetry malfunction - first mission; computer subsystem - second mission).

Line 3 - Unsuccessful; project equipment (LBS computer subsystem).
Second mission, not scheduled due to no range time available (NRTA).

27 Jan 1969 (Continued)

Line 4 - First mission cancelled, project equipment; second mission cancelled, weather (high winds in target area).

Line 5 - Both missions cancelled for project adjustments to be made on the LBS system.

Line 6 - First mission cancelled, project equipment; second mission unsuccessful, project equipment (LBS computer subsystem).

6. PROBLEMS: System operation in certain modes. Primarily design problems (contractor). Actual problems are classified.

3 Feb 1969

5. EVENTS

a. On 31 January 1969, LBS system #4 was returned to Holloman AFB from Hughes, Culver City. System #3 (the back-up system) is still at Culver City.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	1 Feb 69	129	113	72	39
2	27 Jan 69	2	2	2	0
3	28 Jan 69	2	2	2	1
4	29 Jan 69	2	2	2	0
5	30 Jan 69	2	1	1	1
6	31 Jan 69	2	2	1	0

Line 1 - Recap since 17 Sep 1968.

Line 2 - Both missions unsuccessful; project equipment (LBS computer subsystem).

Line 3 - First mission was successful. Second mission was unsuccessful; project equipment (cannon plug to LBS left disconnected by INS shop personnel).

Line 4 - First mission unsuccessful; WSMR error (TM was not recorded). Second mission cancelled; aircraft maintenance (INS out of limits).

Line 5 - One mission not scheduled due to no range time available (Athena day). One mission was successful.

Line 6 - First mission unsuccessful; project equipment (LBS computer). Second mission cancelled; aircraft maintenance (roll stability augmentation malfunction).

6. PROBLEMS: Extensive delays to this program have been the result of design problems to the Laser Bombing System computer. Test prior to Christmas showed generally that serious design problems existed. From mid-December

3 Feb 1969 (Continued)

to mid-January, the contractor performed extensive system re-design which should have been accomplished before the equipment was delivered to AFMDC originally. Flights flown 19 through 25 January 1969 have demonstrated that the re-design solved the problems. The system is now in a state where the test program can begin in earnest. It has not been prior to this date.

10 Feb 1969

a. LBS System #3 (the back-up system) is still at Hughes, Culver City.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	8 Feb 69	139	122	76	41
2	3 Feb 69	2	2	2	1
3	4 Feb 69	2	1	1	1
4	5 Feb 69	2	2	1	0
5	6 Feb 69	2	2	0	0
6	7 Feb 69	2	2	0	0

Line 1 - Recap since 17 September 1968.

Line 2 - First mission unsuccessful; project equipment (LBS computer).
Second mission was successful.

Line 3 - One mission not scheduled due to no range time available (NRTA). One mission was successful.

Line 4 - First mission unsuccessful; aircraft maintenance (airborne abort - generator failure). Second mission cancelled; aircraft maintenance (generator failure).

Line 5 - Both missions cancelled; aircraft maintenance (generator).

Line 6 - Both missions cancelled; aircraft maintenance (generator).

17 Feb 1969

a. LBS System #3 (the back-up system) is still at Hughes, Culver City.

d. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	15 Feb 69	149	132	82	46
2	10 Feb 69	2	2	0	0
3	11 Feb 69	2	2	2	2

17 Feb 69 (Continued)

Line	Date	Requested	Scheduled	Flown	Success
4	12 Feb 69	2	2	2	1
5	13 Feb 69	2	2	0	0
6	14 Feb 69	2	2	2	2

Line 1 - Recap since 17 September 1968.

Line 2 - Both missions cancelled; maintenance insisted on a down day on aircraft 772 (775 in phase inspection).

Line 3 - Both missions successful.

Line 4 - First mission successful. Second mission unsuccessful, project equipment (LBS computer).

Line 5 - Both missions cancelled; first mission project equipment (LBS computer); second mission Weather (rain in target area).

Line 6 - Both missions successful. Second mission was the first on which M-117 inert bombs were dropped.

b. Arrival at AFMDC of LBS system #3 (the back-up system) is expected on Monday, 17 February 1969.

24 Feb 1969

a. On 17 Feb 1969, LBS System #3 (the back-up system) arrived at Holloman AFB from Hughes, Culver City. Three complete LBS systems are now on station at Holloman AFB.

c. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	22 Feb 69	157	140	87	48
2	17 Feb 69	2	2	0	0
3	18 Feb 69	2	2	2	1
4	19 Feb 69	2	2	1	0
5	20 Feb 69	2	2	2	1

24 Feb 1969 (Cont inued)

Line 1 - Recap since 17 September 1968.

Line 2 - Both missions cancelled; project equipment (LBS computer subsystem).

Line 3 - First mission successful. Second mission unsuccessful; weather in target area.

Line 4 - First mission cancelled for weather. Second mission unsuccessful; weather in target area precluded a hot drop of M-117.

Line 5 - First mission successful. Second mission unsuccessful; project equipment (LBS computer).

b. On 26 and 27 February 1969, a program review conference is to be held at Holloman AFB. Representatives from Pentagon, ASD, TAC, and Hughes Aircraft Company are expected to attend.

3 Mar 1969

a. On 26 and 27 February 1969 a program review and planning meeting was held at AFMDC. Attendees were from CSAF, ASD, AFMDC, TAC, USAFTFWC, Hughes Aircraft Company, and USMC (Pt Mugu, California). System performance to date was reviewed. Future system testing was discussed. Results are classified.

c. Flight Schedule

Line	Date	Requested	Scheduled	Flown	Success
1	1 Mar 69	170	153	100	60
2	24 Feb 69	2	2	2	1
3	25 Feb 69	3	3	3	3
4	26 Feb 69	4	4	4	4
5	27 Feb 69	2	2	2	2
6	28 Feb 69	2	2	2	2

Line 1 - Recap since 17 Sep 1968

Line 2 - 1 unsuccessful - Project equipment trouble - no auto weapon release.

6. PROBLEMS:

Extensive redesign by the Hughes "Tiger Team" has resolved serious problems. Present troubles appear to be due to telemetry equipment overloading the LBS computer.

10 Mar 1969

5. EVENTS:

a. On 3 March 1969, aircraft 640772 went into phase inspection at Holloman AFB.

b. On 6 March 1969, the Hughes "Tiger Team" returned to Holloman AFB due to numerous system problems encountered during this reporting period.

d. Flight Schedule:

Line	Date	Requested	Scheduled	Flown	Success
1	8 Mar 69	180	163	105	62
2	3 Mar 69	2	2	2	2
3	4 Mar 69	2	2	1	0
4	5 Mar 69	2	2	0	0
5	6 Mar 69	2	2	1	0
6	7 Mar 69	2	2	1	0

Line 1 - Recap since 17 Sep 1968.

Line 3 - First mission unsuccessful; project equipment (instantaneous weapon release - LBS computer). Second mission cancelled; weather in target area.

Line 4 - Both missions cancelled; project equipment (LBS computer & Laser sub-systems).

Line 5 - First mission unsuccessful; air abort - project equipment. Second mission cancelled; project equipment (Both LBS computer).

Line 6 - First mission unsuccessful; project equipment (LBS computer). Second mission cancelled; weather in target area.

6. PROBLEMS:

Extensive redesign by the Hughes "Tiger Team" has resolved serious problems. Present troubles appear to be due to telemetry equipment overloading the LBS computer.

a. Aircraft 640772 is expected out of phase inspection on Monday, 10 March 1969.

SIX *1-46*

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL SYS-D16	
1. TITLE Frankford Rain Firings (20mm)				2. NUMBER 921C- 69050	
3. DATE PREPARED 19 June 1969		4. ESTIMATED STARTING DATE 30 July 1969		5. EST. COMPLETION DATE 30 July 1970	
7. PERFORMING AGENCY AFMDC (MDT)		8. PARTICIPATING AGENCIES Frankford Arsenal		9. SECURITY OF PROJECT Unclassified	
10. AFSC PRIORITY (For AFSC use only)					
11. REQUESTING AGENCY AND JUSTIFICATION Army - Frankford Arsenal, 6 January 1966, subject: Rain Sensitivity Test Firing Program for 20mm Fuzer at AFMDC.					
ESTIMATED COSTS				13. RESOURCES STATUS	
				MANPOWER	
				FUNDS	
				<input type="checkbox"/> AVAILABLE <input checked="" type="checkbox"/>	
				<input type="checkbox"/> REQUESTED <input type="checkbox"/>	
				<input type="checkbox"/> COMPLETE	
12. ESTIMATED COSTS					
		A. MAN YEARS		C. NEXT FY	
		B. CURRENT FY		D. TOTAL	
		.04		100	
		.32		4268	
		.36		3850	
		.36		8218	
15. DESCRIPTION OF REQUIREMENT This test program will be conducted at the AFMDC Ballistic Rainfield facility for Frankford Arsenal. This program consists of a series of firings of 20mm ammunition through a rain environment, over approximately a one-year period.					
16. DESCRIPTION OF EFFORT a. <u>Introduction and Planning:</u> (1) Background: This test program was originally documented 11 February 1966, ESP 921C-0000-66059, for a series of 20mm ammunition firings through a rainfield. Forty test firings in four test days were conducted between April and August 1966. Twenty-one test firings were conducted on 21 and 22 March 1967. ESP 921C-0000-67063 dated 11 May 1967 extended the program through 30 June 1968. Four test firings were conducted 7 March 1968, to determine if optical units could photograph the functioning of 20mm ammunition through a rain environment or without rain. Sixteen test firings were conducted on 11 and 12 May 1968. This ESP will document the continuation of the test series for another year. No additional funds or manpower support are required to complete the program. Funds needed to support the program are included in the reimbursement under M1 PR Number, Frankford Arsenal A3131-2633 totaling \$12,200 originally documented. A total of \$4,082 has been expended to date, leaving a balance of \$8,118. Frankford Arsenal must make arrangements with AFMDC Comptroller (MDBC) for					
17. PERFORMING AGENCY APPROVAL <i>Francis H. Green</i> 31 July 69 FRAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office				18. AFSC APPROVAL	

Page 2 of 6 pages
921C - -69050
Frankford Rain Firings (20mm)

extension of M1PR.

(2) Test Approach: An indeterminate number of tests will be conducted on 20mm ammunition. The actual number of tests will depend on the technical adequacy of the data being accumulated from each test while the series is in progress. The best information available regarding the number of rounds of ammunition to be fired is based on experience with several similar series of tests which were recently conducted. The number of rounds to be fired is expected to be a minimum of ten to perhaps a maximum of three hundred. Various types of live fuzes with inert projectiles will be fired from a 20mm weapon through a simulated rain environment. No test vehicle runs on the MDT track are involved. It is proposed to mount a 20mm weapon (gun) at one end of the ballistic rainfield and position a hopper (stopping device) at about 1,000 to 2,000 feet from the gun. The purpose is to determine if the candidate ammunition fuzes are safe to fire in rain.

(a) These tests are outside the scope of normal track sled tests and AFMDC makes no assurance that useful data will be obtained.

(b) The simulated rain environment will vary with required test conditions. The mean volume droplet size for one condition will be approximately 1.5mm in diameter, whereas the mean volume droplet size for the other test condition will be approximately 4.0mm in diameter.

b. Test Objective: The objective of these tests is to determine rain sensitivity of various types of 20mm fuzes at limited ranges when fired through rain.

c. Test Schedule: These tests are planned to begin in late July 1969 and will be conducted over approximately a one-year period. Firings will be planned on the basis of customer readiness, preparation, track schedule flexibility, weather, etc. Four to eight hours of testing per scheduled firing day is anticipated. All hardware must be at AFMDC a minimum of two weeks prior to the first test date. The gun to be used in these tests is a single shot, 20mm weapon used in tests at AFMDC Test Track.

d. Resources:

(1) Facilities: Ballistic rainfield at the AFMDC Test Track, Directorate of Test Track buildings, equipment and instrumentation, and track shops.

Page 3 of 6 pages
 921C - -69050
 Frankford Rain Firings (20mm)

Shop and office space in the Test Track Complex will be made available to Frankford during the test program.

(2) Aircraft: Not required.

(3) Manpower (MY):

	<u>FY 70</u>			
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOTAL</u>
Military Personnel	-0-	-0-	.04	.04
Civilian Personnel	.01	.01	.30	.32
Contractor Personnel	-0-	-0-	-0-	-0-
TOTAL	.01	.01	.34	.36

(4) Funds:

(a) In accordance with controlling regulations AFSCM 170-1 and AFMDC 170-2, Frankford Arsenal will reimburse AFMDC for all expenditures except military pay. Frankford will provide an initial funding document in total amount as shown in subparagraph (4) (b) below and will provide supplementary funding documents for scope increases or unforeseen items which fall into the reimbursable category. On completion of program, all unused portions of reimbursement funds will revert to Frankford.

(b) Total fund estimate of charges to customer:

	<u>FY 70</u>			
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOTAL</u>
Civilian pay + 29%	\$ 50	-0-	\$3,718	\$3,768
Civilian overtime pay	-0-	-0-	500	500
Rainfield supplies	-0-	-0-	300	300
Other supplies	-0-	-0-	50	50
Contract operation (optical instrumentation)	-0-	\$2,500	-0-	2,500
Contract operation (rain erosion facility)	-0-	-0-	1,000	1,000
TOTAL	\$ 50	\$2,500	\$5,568	\$8,118

Page 4 of 6 pages
 921C- -69050
 Frankford Rain Firings (20mm)

(c) Total fund estimate of cost of free services to customer:

	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOTAL</u>
Military Pay	-0-	-0-	\$100	\$100

e. Test and Participating Agencies:

(1) Frankford Arsenal will do as follows:

- (a) Provide candidate 20mm fuzes.
- (b) Provide 20mm test weapon with suitable mounts.
- (c) Provide ammunition target plate and stopping device if required.
- (d) Furnish test personnel and test equipment.

(e) Furnish pertinent drawings, technical direction and coordination with AFMDC.

(f) Furnish information on the order of detonation involved with live fuzes and safety procedures for review and approval by cognizant AFMDC personnel.

(g) Coordinate with AFMDC project officer for instructions before shipping any test hardware or candidate ammunition.

NOTE: The requesting agency will be required to fund for any damage to the Track facility or its equipment resulting from malfunction of his test equipment or user-built or furnished equipment. All operations will be conducted in accordance with aircraft/missile/space/explosives and ground safety directives and regulations. AFMDC reserves the right to halt the test series at any time because of safety considerations.

(2) AFMDC Directorates will do as follows:

(a) MDM will:

- 1. Provide shop support for fabrication or modification to gun mount if required.

Page 5 of 6 pages
921C- -69050
Frankford Rain Firings (20mm)

2. Store and handle 20mm candidate ammunition.

(b) MDR, themselves and through the Army contractor, will provide the following support:

1. K-38 ballistic cameras
2. Stills, 4x5" color negatives and prints
3. Stills, 4x5" B&W negatives and prints
4. Motion picture documentation
5. Data reduction from ballistic cameras if required.

(c) MDT will:

1. Provide the AFMDC project officer
2. Provide engineering support.
3. Prepare test plan.
4. Operate the ballistic rainfield.
5. Provide technical measurements.
6. Provide communications and timing/programming.
7. Provide heavy equipment support (required cranes and lifting devices).
8. Provide safety and scheduling.

f. Safety: Track safety regulations will govern the operations of the work crews and observing personnel during these tests, as well as other aspects of the test. AFMDC reserves the right to halt testing at any time because of safety considerations or undue risk to MDT personnel, facilities or equipment.

Page 6 of 6 pages
 921C- -69050
 Frankford Rain Firings (20mm)

g. Security: No aspect of the proposed tests will require a security classification. The projectile which will be used is proprietary in nature.

h. Project Personnel:

<u>Agency</u>	<u>Name</u>	<u>Ofc Syn & Address</u>	<u>Phone</u>
Frankford Arsenal	Mr. John F. Fazio	SMUFA-J6100 Frankford Arsenal Philadelphia, Pa 11937	234-1800 ext 2-2287
AFMDC	Tyler A. Redfield Colonel, USAF Director, Test Track	MDT Holloman AFB, N. M. 88330	473-6511 ext 5-2133
AFMDC	David G. Cummings Project Officer	MDTO Holloman AFB, N. M. 88330	473-6511 ext 5-2161
AFMDC	James M. Dickerson Plans Officer	MDOP-2 Holloman AFB, N. M. 88330	473-6511 ext 4441

i. Reports:

(1) All costs will be accounted for on a monthly basis by the MDT funds manager and certified by the MDT project officer.

(2) Management report will be submitted as required.

SUBMITTED BY:

APPROVED BY:

David G. Cummings
 DAVID G. CUMMINGS
 Project Officer

Tyler A. Redfield
 TYLER A. REDFIELD, Colonel, USAF
 Director of Test Track

DATE: 1 July 1969

DATE: 1 July 1969

- 2 Atch
- 1. AFSC Form 103
- 2. Coordination Sheet



COORDINATION SHEET

921C- 69050

Frankford Rain Firings (20mm)

MDR David Ahlson DATE 7 Jul 69

MDBCB Earl H. Stirling DATE 8 July 69


MDTO RC Rettimed DATE 1 July 1969

MDOP-2 James M. Dickerson DATE 23 July 1969

SCOM-25 H.R. C. H. C. DATE 18 Jul 69

Atch 2

1-46
MDN
A

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE Photometer Prototype Acceptance Test				AF-R16
4. PROJECT OFFICE AFMDC/MDLD				2. PROJECT NO. MR-1 921A-0000-69003
5. MANAGEMENT ORGANIZATION AFTAC/TC-6B				3. OSD PROGRAM ELEMENT NO. N/A
6. RESPONSIBLE COMMAND AFSC				
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	SPECIAL	ACTION	<input checked="" type="checkbox"/> OTHER Termination	18 June 1969
9. NARRATIVE				
Reference letter (C) from AFTAC/TD-6B, subject "Forecasted Launches" (U), dated 8 May 1969. This action deletes support to this program.				
SUBMITTED BY:				
<i>Russell W. Brown</i>				
RUSSELL W. BROWN				
Plans Officer, Project Plans				
Date: <i>18 June 1969</i>				
				
Page 1 of 1.				

MDNH
1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL YMRDL																												
1. TITLE NWC RAIN EROSION TESTS				2. PROJECT NO. MR-1																												
				921B-9318																												
				3. OSD PROGRAM ELEMENT NO. N/A																												
4. PROJECT OFFICE AFMDC (MDT)		5. MANAGEMENT ORGANIZATION Naval Weapons Center		6. RESPONSIBLE COMMAND AFSC																												
7. TYPE OF REPORT				8. DATE PREPARED																												
<input checked="" type="checkbox"/> STATUS	<input type="checkbox"/> SPECIAL	<input type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	10 June 1969																												
9. NARRATIVE																																
<p>This management report is being written to document four additional tests requested by the Naval Weapons Center, for the purpose of evaluating the effects of a rain environment on a hemispherical shaped payload</p> <p>a. <u>Status</u>: Thirty tests were conducted at the AFMDC Test Track from 30 November 1967, to 18 April 1969. These tests were conducted to determine the erosion of radome samples moving through an artificial rain environment at velocities near 2,500 fps. NWC has committed \$15,680 to cover the cost of the additional tests.</p> <p>b. <u>Planning</u>: Four additional track tests will be conducted within a test velocity range of 2,350 fps to 2,600 fps. The first two tests will be conducted with a 6,000 foot rainfield, while the latter two tests will utilize only 3,000 feet of rain. Test velocity will be sustained in the rainfield, insofar as possible. The main payload is a hemisphere 13 inches in diameter. A 13 inch spike is attached to the front of the hemisphere. A cylinder 13 inches in diameter and 7 inches in length is attached to the aft of the hemisphere (flat portion). The total payload, including the mounting plate, weighs approximately 15 pounds. A gooseneck sled pushed by Lacrosse and Little John boosters and sustained by M-58 motors will be used.</p> <p>c. <u>Schedule</u>: Testing is expected to begin in mid July 1969 and be completed by December 1969.</p> <p>d. <u>Resources</u>:</p> <p>(1) <u>Manpower Requirements (MY)</u>: The following manpower requirements are anticipated by AFMDC for these additional tests.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">FY 70</th> <th rowspan="2">TOTAL</th> </tr> <tr> <th>MDI</th> <th>MDM</th> <th>MDR</th> </tr> </thead> <tbody> <tr> <td>Military</td> <td>54</td> <td>-0</td> <td>-0-</td> <td>54</td> </tr> <tr> <td>Civilian</td> <td>82</td> <td>-0-</td> <td>.05</td> <td>.87</td> </tr> <tr> <td>Contractor</td> <td>-0</td> <td>-0-</td> <td>-0-</td> <td>-0-</td> </tr> <tr> <td>TOTAL</td> <td>136</td> <td>-0-</td> <td>05</td> <td>141</td> </tr> </tbody> </table>						FY 70			TOTAL	MDI	MDM	MDR	Military	54	-0	-0-	54	Civilian	82	-0-	.05	.87	Contractor	-0	-0-	-0-	-0-	TOTAL	136	-0-	05	141
	FY 70			TOTAL																												
	MDI	MDM	MDR																													
Military	54	-0	-0-	54																												
Civilian	82	-0-	.05	.87																												
Contractor	-0	-0-	-0-	-0-																												
TOTAL	136	-0-	05	141																												

NWC Rain Erosion Tests
10 June 1969, Page 2 of 2.

(2) Funds (for the two additional tests):

(a) Total Fund estimate of charges to the customer:

	FY 70			<u>TOTAL</u>
	<u>MDT</u>	<u>MDM</u>	<u>MDR</u>	
Civilian regular pay + 29%	9,840	500	-0-	10,340
Civilian overtime pay	400	-0-	-0-	400
Supplies & Materials	600	500	-0-	1,100
Contract services	<u>1,000</u>	<u>-0-</u>	<u>8,236</u>	<u>9,236</u>
TOTAL	11,840	1,000	8,236	21,076

(b) Total fund estimate of cost free services to customer:

	FY 70			<u>TOTAL</u>
	<u>MDT</u>	<u>MDM</u>	<u>MDR</u>	
Military Pay	4,320	-0-	-0-	4,320
Other	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>	<u>-0-</u>
TOTAL	4,320	-0-	-0-	4,320

(c) Total funds reimbursable: 21,076
Total funds non-reimbursable: 4,320
TOTAL: 25,396

e. Job Order Number: B8028

SUBMITTED BY:

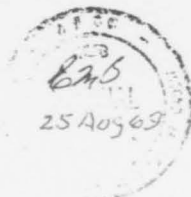
APPROVED BY:

Larry W. Pennell
LARRY W. PENNELL, 2d Lt, USAF
Project Officer

Tyler A. Redfield
TYLER A. REDFIELD, Colonel, USAF
Director of Test Track

DATE: 31 July 69

DATE: 31 July 1969



1 Atch
Coordination Sheet

COORDINATION SHEET
NWC Rain Erosion Tests

MDM *E. E. Hanson* DATE *5 July 69*

MDR *David Wilson* DATE *22 Aug 69*


MDBCB *J. E. Wilkes* DATE *15 July 1969*

SCOM-25 *H. R. Clifford* DATE *12 Jul 1969*

Atch 1

SFA X *[Handwritten signature]*

MDX H 9 June 69
1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL AF-R16
1. TITLE ECM PERFORMANCE CRITERIA (RCS Measurements of Sidewinder Missile, RAT SCAT Control #69-08)			2. PROJECT NO. AFMDC 4070 MR-2	3. OSD PROGRAM ELEMENT NO. 62403F
4. PROJECT OFFICE AFMDC (MDRT)		5. MANAGEMENT ORGANIZATION ASD (ASNAE-40)		6. RESPONSIBLE COMMAND AFSC
7. TYPE OF REPORT				8. DATE PREPARED 9 June 1969
STATUS	SPECIAL	ACTION	OTHER	Increase in Scope
		<input checked="" type="checkbox"/>		
9. NARRATIVE				
<p>The purpose of this Management Report is to document an increase in scope and project extension.</p> <p>a. Approximately 450 additional pit hours of measurements will be required to complete this program. More stringent requirements have been levied by the requesting organization in order that the deep null structures in the RCS patterns can be accurately obtained.</p> <p>b. Project completion is estimated for September 1969.</p>				
SUBMITTED BY:				
<p><i>[Handwritten Signature]</i> GEORGE D. LOCKE, JR., Captain, USAF Chief, Radar Target Scatter Division</p>				
DATE: <u>9 June 1969</u>				
COORDINATED:				
<p>DAVID S. WILSON, Lt Colonel, USAF Director of Technical Support</p>				
DATE: <u>David Wilson</u>				
				
1 Atch AFSC Form 103				

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO MDOP-2 (Mr. Dickerson/4441)
ATTN OF:

9 June 1969

SUBJECT: SEA Projects

TO: B

1. Hq ASD (ASJC), AFSC Deputy for Limited War, has recently determined that the following programs are not presently in support of SEA.

<u>Prog. No.</u>	<u>Title</u>	<u>NRD No.</u>
140A	SRAM	407
324A	F-111	467
410A	C-5A	379
319A	AGM-65A	452

2. The Official Center Project List dated 1 June 1969 and the Official Center Priority List dated 22 May 1969 should be corrected in accordance with this determination.

FOR THE COMMANDER

A handwritten signature in black ink, appearing to read "M. FindeLL", is written over the typed name.

MAX FINDELL, Colonel, USAF
Chief, Plans and Requirements Office

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO: MDOP-2 (Mr. Dickerson/4441)
ATTN OF:

9 June 1969

SUBJECT: SEA Projects

TO: B

1. Hq ASD (ASJC), AFSC Deputy for Limited War, has recently determined that the following programs are not presently in support of SEA.

<u>Prog. No.</u>	<u>Title</u>	<u>NRD No.</u>
140A	SRAM	407
324A	F-111	467
410A	C-5A	379
319A	AGM-65A	452

2. The Official Center Project List dated 1 June 1969 and the Official Center Priority List dated 22 May 1969 should be corrected in accordance with this determination.

FOR THE COMMANDER

A handwritten signature in dark ink, appearing to read "M. Findell", is written over a horizontal line.

MAX FINDELL, Colonel, USAF
Chief, Plans and Requirements Office

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO: MDOP-2 (Mr. Dickerson/4441)
ATTN OF:

9 June 1969

SUBJECT: SEA Projects

TO: B

1. Hq ASD (ASJC), AFSC Deputy for Limited War, has recently determined that the following programs are not presently in support of SEA.

<u>Prog. No.</u>	<u>Title</u>	<u>NRD No.</u>
140A	SRAM	407
324A	F-111	467
410A	C-5A	379
319A	AGM-65A	452

2. The Official Center Project List dated 1 June 1969 and the Official Center Priority List dated 22 May 1969 should be corrected in accordance with this determination.

FOR THE COMMANDER

A handwritten signature in black ink, appearing to read "M. Findell", written over a horizontal line.

MAX FINDELL, Colonel, USAF
Chief, Plans and Requirements Office

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO MDOP-2 (Mr. Dickerson/4441)
ATTN OF:

9 June 1969

SUBJECT: SEA Projects

TO: B

1. Hq ASD (ASJC), AFSC Deputy for Limited War, has recently determined that the following programs are not presently in support of SEA.

<u>Prog. No.</u>	<u>Title</u>	<u>NRD No.</u>
140A	SRAM	407
324A	F-111	467
410A	C-5A	379
319A	AGM-65A	452

2. The Official Center Project List dated 1 June 1969 and the Official Center Priority List dated 22 May 1969 should be corrected in accordance with this determination.

FOR THE COMMANDER

A handwritten signature in black ink, appearing to read "M. FindeLL", is written over the typed name.

MAX FINDELL, Colonel, USAF
Chief, Plans and Requirements Office

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO: MDOP-2 (Mr. Dickerson/4441)
ATTN OF:

9 June 1969

SUBJECT: SEA Projects

to: B

1. Hq ASD (ASJC), AFSC Deputy for Limited War, has recently determined that the following programs are not presently in support of SEA.

<u>Prog. No.</u>	<u>Title</u>	<u>NRD No.</u>
140A	SRAM	407
324A	F-111	467
410A	C-5A	379
319A	AGM-65A	452

2. The Official Center Project List dated 1 June 1969 and the Official Center Priority List dated 22 May 1969 should be corrected in accordance with this determination.

FOR THE COMMANDER



MAX FINDELL, Colonel, USAF
Chief, Plans and Requirements Office

SFA 1-46
7 June 69


7 JUN 69 11 39Z

RTTUZYUW RUMAAHA2728 1520358-UUUU--RUMTDOA.
ZNR UUUUU
R 062032Z JUN 69
FM AND WPAFB OHIO
TO RUMTDOA/AFMCC/AFOP/AFMFE/AFOTO HOLLOMAN AFB N MEX
RUMC WIA/AFATL/AFMFE/ECLIN AFB FLA
RUMJGGA/AFRPO HUGHES AIRCRAFT CO/CULVAR CITY CALIF
RUMJGGA/HUGHES AIRCRAFT CO, CANOGA PARK CALIF
INFO RUFFHCA/CCAF/AFRDDA
RUMTRAM/AFSC/SCCAC
BT

UNCLAS ASZII
SUBJECT: AIM-4H FALCON PROGRAM - PRICE SLED TESTS
TO IMPLEMENT THE SLED TESTING OF THE AIM-4H PIPE, ACD (ASZII) IS
HOLDING A MEETING ON 12-15 JUNE 1969 AT WRIGHT-PATTERSON AFB FOR THE
PURPOSE OF (A) DEFINING THE SLED TEST PROGRAM INCLUDING TEST
PARAMETERS, INSTRUMENTATION, NUMBER OF RUNS, HARDWARE REQUIREMENTS
AND SCHEDULE, (B) DEFINING THE ACTIONS AND SUPPORT TO BE PROVIDED
BY AFMCC, (C) DEFINING THE WORK TO BE ACCOMPLISHED BY CONTRACTOR
AND (D) ACTIONS REQUIRED BY ACD. ACD PLANNING IS TO PROVIDE GO-
AHEAD BY NO LATER THAN 15 AUG 1969 AFTER WHICH DATE THE NEED FOR
THIS TESTING RAPIDLY DISAPPEARS BECAUSE OF IMPROPER PHASING AND

PAGE 2 RUMAAHA2728 UNCLAS
INTERFERENCE WITH THE REST OF THE AIM-4H PROGRAM. AFMCC AND HUGHES
AIRCRAFT ATTENDANCE IS REQUESTED. SECRET CLEARANCE IS REQUIRED.
MEETING WILL START 0930 EACH DAY IN BLDG 16, POST A174, AREA B.
BT
#2728

SEA 1-46
MDNH

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL AF-R16
1. TITLE Electro-Optical Techniques for Reconnaissance				2. PROJECT NO. AFMDC 6263 MR-3
				3. OSD PROGRAM ELEMENT NO. 62403F
4. PROJECT OFFICE AFMDC (MDRC)		5. MANAGEMENT ORGANIZATION RTD/AFAL		6. RESPONSIBLE COMMAND AFSC
7. TYPE OF REPORT				8. DATE PREPARED 6 June 1969
STATUS	SPECIAL	ACTION	OTHER	
9. NARRATIVE The purpose of this report is to terminate the project. No resources have been expended during FY 1969.				
SUBMITTED BY <i>John L. Gordon</i> JOHN L. GORDON Project Officer Directorate of Technical Support Date: 6 June 1969				
				
Page 1 of 1				

SEA

MDWH
1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE Advanced Avionics (Advanced Kinematic Bombing System Flight Test) Short Title: Kinematic Bombing		2. PROJECT NO. AFMDC 698DF MR-1 (C1)		3. OSD PROGRAM ELEMENT NO. 63215F
4. PROJECT OFFICE AFMDC (MDL)	5. MANAGEMENT ORGANIZATION AFSC (AFAL)	6. RESPONSIBLE COMMAND AFSC		
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	SPECIAL	ACTION <input checked="" type="checkbox"/>	OTHER Amendment	3 June 1969
9. NARRATIVE				
<p>a. The purpose of this amendment is to update paragraphs 9, 9c, 9d (2) (a), 9e (1) (k), 9e (4) (a), 9h, and AFSC Form 103 of AKBS MR-1 dated 7 February 1969.</p> <p>b. Make pen and ink changes so that applicable parts of specified paragraphs read as follows (changes are underlined):</p> <p>(1) Paragraph 9:</p> <p>USAF Precedence Rating <u>1-7</u></p> <p>USAF Importance Category 1</p> <p>AFSC Priority <u>07M</u></p> <p>AFMDC Priority <u>C23</u></p> <p>(2) Paragraph 9c (U) Schedule:</p> <p>A total of 55 to 60 missions will be flown between <u>2 Sep 69</u> and <u>15 Feb 70</u> at the rate of approximately 10 per month. Of this number, <u>20 to 25</u> will be shakedown missions, some of which will involve dropping practice bombs for pilot familiarization and system calibration; 35 will be hot missions with multiple drops - 6 bombs per mission. Missions are estimated to require an average flying time of <u>1.2</u> hours each.</p> <p>(3) Paragraph 9d(2)(a):</p> <p>F-4D Aircraft and Munitions: One F-4D aircraft is programmed to be available for modification on <u>1 Jul 69</u>. It is expected that the mod will be completed and the aircraft ready for testing by <u>2 Sep 69</u>. Approximately <u>100</u> practice bombs (BDU-33) will be dropped for system calibration and pilot familiarization prior to dropping the larger GP bombs. One hundred twenty-five dummy M-117 GP bombs and 75 dummy MK-82 (Snakeye) GP bombs are planned to be utilized at the rate of six per mission. Nine test points are anticipated; however, this is subject to change prior to publication of the test plan.</p> <p>(4) Paragraph 9e(1)(k)</p> <p>Assure that test results are not released prior to publication of</p>				

MR-1 (C1), 698DF, Kinematic Bombing
Page 2, 3 June 1969

the final test report without permission of AFMDC. This does not pertain to the release of flight test data to the contractor. Flight test data will be released to the contractor as soon as it becomes available.

(5) Paragraph 9e (4) (a) 10.

Prepare final flight test plan, analyze flight test data, and write the flight test report.

(6) Paragraph 9h (U) Project Personnel:

<u>AGENCY</u>	<u>NAME</u>	<u>OFC SYM & ADRS</u>	<u>PHONE</u>
ASD	Capt. Bryan Kilgour Project Engineer	ASD (ASNAF-40) Wright-Patterson AFB OH 45433	5-2437
<u>AFAL</u>	Major Robert Kennedy 698DF Program Manager	AVN (698DF) WPAFB OH 45433	<u>295-2731</u>
<u>AFAL</u>	Capt. Joseph Ronchetto AKBS Project Manager	AVN (698DF) WPAFB OH 45433	<u>295-2731</u>
G.E.	Mr. R. C. Smith	G.E. Company Binghamton, N. Y.	RA 9-2511
G.E.	Mr. J. J. Corcoran	G.E. Company Binghamton, N. Y.	<u>RA 9-2511</u>
WSMR	Mr. Robert W. Ball Project Engineer	STEWS-NR-PA WSMR NM 88002	678-2797
Det. 3, AF Cont. Mgt. Div.	Mr. S. H. Marr Contracting Officer	CMTA Holloman AFB NM 88330	Ext. 4577
AFMDC	Major John W. Hines Project Officer (Test Director)	AFMDC (MDLW) HAFB NM 88330	Ext. 3005
AFMDC	Capt. Thomas P. McAtee Flight Test Pilot	AFMDC (MDLW) HAFB NM 88330	Ext. 3005
<u>AFMDC</u>	Lt. John F. Suerken Flight Test Engineer	AFMDC (MDLW) HAFB NM 88330	<u>Ext. 4300</u>
AFMDC	Val C. Ogden Plans Officer	AFMDC (MDOP-2) HAFB NM 88330	Ext. 4441

MR-1 (C1), 698DF, Kinematic Bombing
Page 3, 3 June 1969

c. Remove AFSC Forms 103 dated 7 Feb 69 and replace with AFSC Form 103
dated 3 June 69.

SUBMITTED BY:

John W. Hines

JOHN W. HINES, Major, USAF
Kinematic Bombing System Test Director



1 Atch
AFSC Form 103

1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE			F-111 Flight Test Program	
SHORT TITLE: F-111			2. PROJECT NO.	324A MR-2
			3. OSD PROGRAM ELEMENT NO.	27129F
4. PROJECT OFFICE	5. MANAGEMENT ORGANIZATION	6. RESPONSIBLE COMMAND		
AFMDC (MDL)	ASD (ASLT)	AFSC/SCCA		
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	SPECIAL	ACTION <input checked="" type="checkbox"/>	OTHER	Annual
				2 June 1969
9. NARRATIVE				
<p>The purpose of this Management Report is to document AFMDC support to the F-111 Flight Test Program in accordance with the System Package Program dated 31 October 1967. DOD Development Directive is No. F-111A-63-1 dated 8 January 1963. AFMDC is designated as the Responsible Test Agency by Aeronautical Systems Division. Priorities applicable to this program are as follows:</p> <p style="text-align: center;">USAF Precedence Rating: 3-70 USAF Importance Category: IC-1 AFSC Priority: 02B AFMDC Priority: B50</p> <p>a. <u>INTRODUCTION AND PLANNING:</u></p> <p>(1) Description of Test Item: Current testing involves the navigation and Doppler systems comprising the MK-II Avionic to be used on the FB-111A and F-111D aircraft.</p> <p>(2) Background:</p> <p>(a) The F-111 Flight Test Program was assigned to AFMDC in 1967. Originally, plans were made to test F-111D and FB-111A navigation, astrocompas, and doppler systems (MK-II Avionics); RF-111 reconnaissance systems; F-111D attack radar, air-to-ground weapons delivery and air-to-air weapons delivery (AIM-9D and AIM-7G); and FB-111A air-to-ground weapons delivery systems.</p> <p>(b) RF-111 testing was completed in September and October 1968. The test bed was an F-111A modified with reconnaissance equipment and cameras in the weapons bay.</p>				

Page 2 of 9
F-111
MR-2

(c) Development of the AIM-7G was re-assigned to ADTC at Eglin AFB, Florida. Subsequently, all air-to-air and air-to-ground weapons tests for the F-111D were re-assigned to Eglin AFB.

(d) Current testing at the WSMR consists of flight tests of the MK-II Avionics. No other type tests are envisioned for the future.

(3) Test Philosophy: The White Sands Missile Range provides a properly instrumented site for acquiring space point and velocity data required in the avionics tests. Additionally, the AFMDC was the logical test center to be involved with the development of the AIM-7G missile. Accordingly, the test program was assigned to AFMDC/WSMR in 1967.

(4) Test Approach: Mission aircraft stage from Carswell AFB, Texas, and fly non-stop to and over the WSMR. Arrival over Holloman AFB, New Mexico, is coordinated to be simultaneous with start of allotted range time. The test aircraft flies one of several navigation patterns over the range and data is gathered by ground radars and cinetheodolites. Air Force tankers provide aerial refueling after the aircraft leaves the range.

b. OBJECTIVES:

(1) The general objective is to conduct development and evaluation tests of the weapon systems and components.

(2) Specific objectives are to evaluate performance, reliability, maintainability, and probable service acceptability of the aircraft and systems.

c. SCHEDULE:

A total of 56 successful missions will be flown between May 1968 and December 1970 at a rate of approximately 1 successful mission per month. Missions are estimated to require average on-range flying times of 1 1/2 hours per aircraft. No drones or missiles are required.

d. RESOURCES:

(1) Facilities:

(a) Common Use Facilities:

<u>Type Space</u>	<u>Square Feet</u>	<u>Bldg #</u>
Administrative (Military)	180	819

Page 3 of 9
 F-111
 MR-2

<u>Type Space</u>	<u>Square Feet</u>	<u>Bldg #</u>
Engineering	N/A	N/A
Laboratory	N/A	N/A
Shop	N/A	N/A
High Bay	N/A	N/A
Storage	N/A	N/A
Hazardous Storage	N/A	N/A
Hangar Space	N/A	N/A
Ramp Space	N/A	N/A

(b) Sole Use Facilities:

<u>Type Space</u>	<u>Square Feet</u>	<u>Bldg #</u>
Administrative (Contractor)	345	817
Engineering	N/A	N/A
Laboratory	N/A	N/A
Shop	N/A	N/A
High Bay	N/A	N/A
Storage	N/A	N/A
Hazardous Storage	N/A	N/A
Hangar Space	N/A	N/A
Ramp Space	N/A	N/A

- (2) Aircraft: N/A
- (3) Missiles: N/A
- (4) Drones: N/A
- (5) Non-flying Test Items: N/A
- (6) AFMDC Non-expendable Support Equipment: N/A
- (7) AFMDC Non-expendable Material: N/A

- (8) AFMDC Expendable Equipment: N/A
- (9) AFMDC Expendable Material: N/A
- (10) Transportation: N/A
- (11) Communications: N/A
- (12) Manpower (MY):
 - (a) Cross-Service Support: N/A
 - (b) Common-Service Support:

	Description	MDL	TOTAL
FY69	Military	.20	.20
	Civilian	0	0
	Total	.20	.20
FY70	Military	.20	.20
	Civilian	0	0
	Total	.20	.20
FY71	Military	.10	.10
	Civilian	0	0
	Total	.10	.10

(c) Further breakdown by rank, AFSC, Fiscal Quarters, organization and division as shown on AFSC Forms 59 and 59A is included as Attachments 1 and 2 hereto.

(d) Manpower is available within AFMDC resources.

(13) Funds:

(a) Cross-Service Support: N/A

(b) Common-Service Support:

	Description	MDL	TOTAL
FY69	Supplies	0	0
	Equipment	0	0
	Travel	0	0
	Photography	0	0
	Flying Hours	0	0
	Military Pay	3,375	3,375
	Civilian Pay	0	0
	Civilian Overtime	0	0
	Total	<u>3,375</u>	<u>3,375</u>
FY70	Supplies	0	0
	Equipment	0	0
	Travel	350	350
	Photography	0	0
	Flying Hours	0	0
	Military Pay	3,375	3,375
	Civilian Pay	0	0
	Civilian Overtime	0	0
	Total	<u>3,725</u>	<u>3,725</u>

Description	MDL	TOTAL
FY71 Supplies	0	0
Equipment	0	0
Travel	350	350
Photography	0	0
Flying Hours	0	0
Military Pay	1,688	1,688
Civilian Pay	0	0
Civilian Overtime	0	0
Total	2,038	2,038

NOTE: FY69 funds presently available to MDL are sufficient to provide prescribed support.

e. PARTICIPATING AGENCIES AND RESPONSIBILITIES:

(1) ASD (ASLT) will:

(a) Furnish overall program guidance and such funds as may be required for AFMDC support.

(b) Provide AFMDC written detailed requirements annually by 1 December for the following Fiscal Year covering all areas of service and support to be furnished by AFMDC/WSMR.

(c) Furnish, install, and maintain all required targets. If it is decided to use existing targets and they have to be moved and/or refurbished, ASD will reimburse the costs.

(2) General Dynamics/Fort Worth (GDFW) will:

Page 7 of 9
F-111
MR-2

(a) Accomplish design, development, fabrication, and testing of the F-111, and is responsible for the development and integration of all Contractor Furnished Equipment (CFE) and integration of suitable Government Furnished Property (GFP) and Government Furnished Aeronautical Equipment (GFAE).

(b) Comply with published AFMDC/WSMR local flying directives pertaining to airspace utilization, safe flying practices, and airfield utilization procedures; all safety directives in effect of AFMDC; and all regulations governing AFMDC civilian contractor personnel.

(c) Maintain the security of classified information and equipment in keeping with the Industrial Security Manual.

(d) Provide all required NRD.

(e) Be responsible for all decisions affecting conduct of each mission.

(3) Det. 3 Hq AF Contract Management Division (CMTA) will provide authorized assistance to the contractor contingent upon assignment of secondary contract administration and receipt of applicable contracts. All base-funded supply and equipment issues to the MSC will be on a reimbursable basis and funds must be provided by ASD or other responsible agency prior to issuance.

(4) White Sands Missile Range (WSMR) will acquire and reduce data and furnish such other support required in accordance with approved National Range Documentation (NRD 467).

(5) AFMDC responsibilities are:

(a) The Directorate of Aircraft and Missile Test (MDL) is designated as OPR for this project and will:

1. Provide the AFMDC Project Officer who will review all project documentation, schedule range operations, and serve as Holloman point-of-contact for all operations subsequent to initial planning.

2. Prepare Part II of the Mission Folder in accordance with AFMDCR 55-6.

3. Vector the aircraft if required.

Page 8 of 9
 F-111
 MR-2

(b) The Directorate of Materiel (MDM) will provide standard office supplies for contractor representatives.

(c) The Directorate of Civil Engineering (MDE) will furnish janitor service and trash disposal. However, the contractor will be required to pay for these services.

(d) The Plans and Requirements Office (MDO) will review and sign all National Range Documentation as Range Sponsor.

f. SAFETY:

(1) All operations and activities will be conducted in accordance with the Air Force Safety and Accident Prevention Program applicable to Ground Explosives/Flight and Missile Safety. All range activities will be conducted in accordance with applicable WSMR regulations.

(2) Prior to the beginning of any operation or project, the Project Officer will assure that the Safety Office (MDI) is provided with a Safety Plan that outlines general safety procedures, specific explosive and payload data checklists and operational procedures.

g. SECURITY:

(1) Classified data will be given normal handling in accordance with applicable security regulations by project and contractor personnel.

(2) Contractors are responsible for their own proprietary data, if any.

h. PROJECT PERSONNEL:

Agency	Name and Position	Office Symbol and Address	Phone
ASD	Major R. G. O'Connors Chief, F-111 Test & Deployment	ASLT / WPAFB, OH	5-3183
General Dynamics	Mr. V. L. Salzman SPO Contact/Test Manager	General Dynamics Fort Worth, Texas	4826
AFMDC	1/Lt W. E. Jowers Project Monitor	MDLP HAFB, NM	7552
AFMDC	LtCol R. C. Roswurm Plans Officer	MDOP-2 HAFB, NM	4441

Page 9 of 9
F-111
MR-2

i. REPORTS:

AFMDC Project Officer will prepare Weekly Activity Reports and Management Reports for significant program changes and annual revision.

SUBMITTED BY:

Wilbur E. Jowers

WILBUR E. JOWERS, 1st Lt, USAF
Project Officer
Management Support Division
DATE: 2 June 1964

APPROVED BY:

Jack D. Beckelman

JACK D. BECKELMAN, Colonel, USAF
Director of Aircraft & Missile Test
DATE: 20 June 64



5 Atch

1. AFSC Form 59
2. AFSC Form 59A
3. AFSC Form 103
4. AFMDC Form 14
5. Coordination Sheet

"FORGING MILITARY SPACEPOWER"

MANPOWER REQUIREMENTS FORECAST											DATE PREPARED 2 June 1969					
TITLE (System/Project/Job) F-111 Flight Test Program				REQUIREMENTS FOR (Division/Center/Range) AFMDC (MDL)												
FUNCTION CODE	FUNCTION TITLE / POSITION DESCRIPTION	MIL GRADE / CIV BUDGET PROJECT	AFSC	QUARTERLY BY FISCAL YEARS								END OF YEAR				
				1/69	2/69	3/69	4/69	1/70	2/70	3/70	4/70	4/71	4/	4/		
6490	<u>MDL</u> Project Officer (MDLP)	1Lt	2821C	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20			
NOTE: Figures are in MQ/QTR.																

"FORGING MILITARY SPACEPOWER"

MANPOWER RECAPITULATION									DATE PREPARED 2 June 1969		
TITLE (System/Project/Job) F-111 Flight Test Program					REQUIREMENTS FOR (Division/Center/Region) AFMDC						
TYPE	QUARTERLY BY FISCAL YEARS								END OF YEAR		
	1/69	2/69	3/69	4/69	1/70	2/70	3/70	4/70	4/71	4/	4/
GENERAL											
COLONEL											
LT COLONEL											
MAJOR											
CAPTAIN											
LIEUTENANT	.20	.20	.20	.20	.20	.20	.20	.20	.20		
TOTAL OFFICERS	.20	.20	.20	.20	.20	.20	.20	.20	.20		
CMS											
SMS											
MSG											
TSG											
SSG											
A1C											
A2C											
A3C											
TOTAL AIRMEN											
TOTAL CIVILIANS											
AGG	.20	.20	.20	.20	.20	.20	.20	.20	.20		
NOTE: Figures are in MQ/QTR.											
REQUIREMENTS EXTENDING BEYOND NORMAL PROGRAMMING CYCLE											
TYPE	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/
OFFICERS											
AIRMEN											
CIVILIANS											
AGG											

DETAILED FUND SCHEDULE		1. PROJECT TITLE F-111 Flight Test Program			
		2. PROGRAM ELEMENT 27129F	3. PROJECT NO. 324A	4. DATE PREPARED 2 June 1969	
5. TOTAL FUND ESTIMATE OF CHARGES TO CUSTOMER					
A. LINE ITEM DESCRIPTION	B. TOTAL COSTS	C. FY _____ COSTS	D. FY _____ COSTS	E. FY _____ COSTS	
N/A	N/A	N/A	N/A	N/A	
TOTAL ESTIMATED COSTS					
N/A					
6. TOTAL FUND ESTIMATE OF COST OF FREE SERVICES TO CUSTOMER					
A. DESCRIPTION	B. AGENCY	C. TOTAL COSTS	D. FY <u>69</u> COSTS	E. FY <u>70</u> COSTS	F. FY <u>71</u> COSTS
Military Pay	MDLP	8,438	3,375	3,375	1,688
Travel	MDLP	700		350	350
TOTAL ESTIMATED COSTS		9,138	3,375	3,725	2,038
G. FY <u>69</u> FUNDS PRESENTLY AVAILABLE THIS DIRECTORATE <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE PRESCRIBED SUPPORT					
H. FY <u>70</u> FUNDS <input checked="" type="checkbox"/> WERE <input type="checkbox"/> WERE NOT INCLUDED IN <input checked="" type="checkbox"/> PART I <input type="checkbox"/> PART II OF THE FY <u>70</u> FIN PLAN. FUNDS INCLUDED <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE CONTRACTOR GOVERNMENT FURNISHED SUPPORT.					
I. FY _____ FUNDS <input type="checkbox"/> WERE <input type="checkbox"/> WERE NOT INCLUDED IN THE FY _____ BUDGET ESTIMATE. FUNDS INCLUDED <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE PRESCRIBED SUPPORT.					
7. OTHER COMMENTS					
DIRECTORATE'S SIGNATURE ELEMENT WILBUR E. JOWERS, 1st Lt, USAF F-111 Project Officer			SIGNATURE <i>Wilbur E. Jowers</i>		DATE 2 June 1969
COMPTROLLER'S SIGNATURE ELEMENT			SIGNATURE		DATE

COORDINATION SHEET
F-111 FLIGHT TEST PROGRAM

MDOP-2	<i>Ellis M. Bell</i>	DATE: 16 June 69
MDLP	<i>George F. Kuylenstierna</i>	DATE: 9 June '69
MDLT	<i>Richard W. Kuylenstierna</i>	DATE: 9 June '69
MDI	<i>Jack W. Kuylenstierna</i>	DATE:
MDI	<i>Vernon R. Chasing</i>	DATE: 12 Jun 69
MDE	<i>F. C. Reynolds, Maj</i>	DATE: 13 June 1969
CMTA	<i>Lawrence B. Anderson</i>	DATE: 13 June 1969

Atch 5

1-46

2000 14 322

See Xalga

28 May 69

RTTZYUW RUEBBA7115 1481326-TEES--R-147004.

ZNY TTES

R 011500Z MAY 69

FM AFSC

TO RUELEB/AFSC LOS ANGELES CALIF

RUMVAD/AFSC WPAFB OHIO

RUMTNA/AFSC BROOKS AFB TEX

RUMVAA/AFSC WPAFB OHIO

RUMDAM/AFSC L. O. HANSCOM FLD MASS

RUMLNA/AFSC PATRICK AFB FLA

RUMLMA/AFSC EGLIN AFB FLA

RUMTDC/AFSC HOLLAMAN AFB WYOM

RUMVTA/AFSC WRIGHT PATERSON AFB WYOM

RUMJED/AFSC EDWARDS AFB CALIF

RUMLEB/AFSC LOS ANGELES AFB CALIF

BT

UNCLAS E F T O FOR OFFICIAL USE ONLY/DOORM-3

FOR BUDGET. HQ USAF ALMAJORM MSG O DATED 28 MAY 1969

IS QUOTED BELOW FOR YOUR INFORMATION AND IMMEDIATE COMPLIANCE.

QUOTE: "SUBJECT: FY 1969 OPERATIONS OPERATING BUDGETS.

1. THE COMMITTEE ON APPROPRIATIONS IN HC 11480 (REPORT NO. 91-202), MAKING SUPPLEMENTAL APPROPRIATIONS FOR FY 1969, REDUCED THE NEW

PAGE 2 RUEBBA7115 UNCLAS E F T O

BUDGET (OBLIGATIONAL) REQUESTS FOR THE AIR FORCE BY \$82.8 MILLION IN O&M AND \$94.6 IN MILITARY PERSONNEL, AF.

2. THERE IS A SERIOUS FUNDING PROBLEM ASSOCIATED WITH THE AIR FORCE MILITARY PERSONNEL APPROPRIATION ACCOUNT. THE AMOUNT IN THE REVISED BUDGET WAS MINIMAL AND THERE IS DOUBT THAT IT WOULD HAVE COVERED FY 69 EXPENDITURES BEFORE THE HOUSE REDUCTION. IN THE EVENT THE FULL AMOUNT OF THE SUPPLEMENTAL IS NOT APPROPRIATED FOR FY 69 SOME TRANSFER OF FUNDS FROM OTHER APPROPRIATIONS OR FUNDS MAY BE REQUIRED.

3. IN VIEW OF THE AUSTERE FY 69 FUNDING CLIMATE IN O&M, AND THE EQUALLY AUSTERE FY 1970 FUNDING OUTLOOK, IT IS NECESSARY THAT ACTIONS BE TAKEN TO RESTRICT EXPENDITURES WHEREVER POSSIBLE; HOWEVER, NO ACTIONS WILL BE TAKEN WHICH ADVERSELY AFFECT COMBAT OPERATIONS OR IMPAIR SUPPORT OF SEA. THE FOLLOWING ARE EXAMPLES OF POSSIBLE REDUCTIONS:

A. DEPOT MAINTENANCE. AFSC SHOULD ASSUME THAT SEA WILL BE REDUCED APPROXIMATELY \$120 MILLION. WE BELIEVE THIS CAN BE ACCOMMODATED BY ADJUSTING THE POINT IN TIME WHEN O&M INCURS AN OBLIGATION FOR ORDERS PLACED WITH THE AF DMEP, THUS GENERATING A ONE-TIME SAVING IN FY 69. ALSO CONSIDER DEFERRING DEPOT

PAGE 3 RUEBBA7115 UNCLAS E F T O

OVERHAULING OF AIRCRAFT ENGINES AND RELATED EQUIPMENT (REFERENCE AFSC LETTER DED 19 FEB 69, SUBJECT: FY 69 OPERATIONS OPERATING BUDGET EXPENSE AUTHORITY CHANGE IN USE AUTHORITY).

B. SUPPLIES. RESTRICT SUPPLY TRANSPORTATION TO ESSENTIALS REQUIRED TO SUPPORT ESSENTIAL OPERATIONS.

C. DEFER ALL TRAVEL NOT DIRECTLY RELATED AND ESSENTIAL TO MISSION REQUIREMENTS.

D. DEFER CONTRACTS PROGRAMMED FOR REPAIR OF REAL PROPERTY, EXCEPT THOSE RELATED TO OPERATIONAL MISSION REQUIREMENTS OR TO PRESERVE LIFE AND HEALTH.

E. CANCEL ALL OTHER TYPES OF EXPENSES NOT CRITICAL TO MISSION ACCOMPLISHMENT. ASSUME NO REPAIR-IN-PLACE AND NO O&M COSTS BEING PLACED IN A "LEASE WITHOUT PAY" STATUS." END OF QUOTE

PAGE 2 RIENBA7115 UNCLAS E F T O
BUDGET (OBLIGATIONAL) REQUESTS FOR THE AIR FORCE BY \$22.0
MILLION IN O&M AND \$24.6 IN MILITARY PERSONNEL, AF.
2. THERE IS A SERIOUS FUNDING PROBLEM ASSOCIATED WITH THE
AIR FORCE MILITARY PERSONNEL APPROPRIATION ACCOUNT. THE AMOUNT IN
THE REVISED BUDGET WAS MINIMAL AND THERE IS DOUBT THAT IT WOULD HAVE
COVERED FY 69 EXPENDITURES BEFORE THE HOUSE REDUCTION. IN THE
EVENT THE FULL AMOUNT OF THE SUPPLEMENTAL IS NOT APPROPRIATED
FOR FY 69 SOME TRANSFER OF FUNDS FROM OTHER APPROPRIATIONS OR FUNDS
MAY BE REQUIRED.

3. IN VIEW OF THE UNSTABLE FY 69 FUNDING CLIMATE IN O&M, AND THE
EQUALLY UNSTABLE FY 1970 FUNDING OUTLOOK, IT IS NECESSARY THAT
ACTIONS BE TAKEN TO RESTRICT EXPENDITURES WHEREVER POSSIBLE;
HOWEVER, NO ACTIONS WILL BE TAKEN WHICH ADVERSELY AFFECT COMBAT
OPERATIONS OR IMPAIR SUPPORT OF SEA. THE FOLLOWING ARE EXAMPLES
OF POSSIBLE REDUCTIONS:

A. DEPOT MAINTENANCE. AFLO SHOULD ASSUME THAT SEA WILL BE
REDUCED APPROXIMATELY \$120 MILLION. WE BELIEVE THIS CAN BE
ACCOMMODATED BY ADJUSTING THE POINT IN TIME WHEN O&M INCURS AN
OBLIGATION FOR ORDERS PLACED WITH THE AF DRIF, THIS GENERATING
A ONE-TIME SAVING IN FY 69. ALSO CONSIDER DEFERRING DEPOT

PAGE 3 RIENBA7115 UNCLAS E F T O
OVERHAULING OF AIRCRAFT ENGINES AND RELATED EQUIPMENT (REFERENCE
AFLO LETTER DTD 19 FEB 69, SUBJECT: FY 69 OPERATING OPERATING
BUDGET EXPENSE AUTHORITY CHANGE IN HQS AUTHORITY).

H. SUPPLIES. RESTRICT SUPPLY CONSUMPTION TO THE MINIMUM
REQUIRED TO SUPPORT ESSENTIAL OPERATIONS.

C. DEFER ALL TRAVEL NOT DIRECTLY RELATED AND ESSENTIAL TO
MISSION REQUIREMENTS.

D. DEFER CONTRACTS PROGRAMMED FOR REPAIR OF REAL PROPERTY,
EXCEPT THOSE RELATED TO OPERATIONAL MISSION REQUIREMENTS OR TO
PRESERVE LIFE AND HEALTH.

E. CANCEL ALL OTHER TYPES OF EXPENSES NOT CRITICAL TO
MISSION ACCOMPLISHMENT. ASSUME NO REDUCTION-IN-FORCE AND NO
EMPLOYEES BEING PLACED IN A "LEAVE WITHOUT PAY" STATUS." END OF QUOTE
FOR: ALL ADDRESSEES EXCEPT OMD AND STD.

THIS HEADQUARTERS HAS A SERIOUS UNFUNDED REQUIREMENT FOR PAY
OF CIVILIAN PERSONNEL FINANCED WITH O&M (SEA) APPROPRIATION
FUNDS IN THE CURRENT FISCAL YEAR. STRICT COMPLIANCE TO USAF'S
INSTRUCTIONS TO DEFER AND CANCEL ALL EXPENSES OTHER THAN THOSE
ENUMERATED, IS MANDATORY, TO PRECLUDE A COMMAND OVER-OBLIGATION.
REQUEST THIS HEADQUARTERS (SCC00-3) BE ADVISED NLT 8 JUNE 1969

PAGE 4 RIENBA7115 UNCLAS E F T O
YOUR PROPOSED ACTIONS TO CURTAIL OBLIGATIONS FOR THE BALANCE
OF THE FISCAL YEAR TOGETHER WITH THE AMOUNT OF OBLIGATING AUTHORITY
AVAILABLE FOR WITHDRAWAL DUE TO YOUR CUSTODY. IN ADDITION,
IT IS REQUESTED THAT UNDELIVERED ORDERS OUTSTANDING BE CAREFULLY
REVIEWED FOR THE PURPOSE OF REDUCING OR CANCELLING THESE REQUIRE-
MENTS, IF FEASIBLE.

BT
#7115

1-46

ENGINEERING SERVICE PROJECT PLAN					REPORTS CONTROL SYMBOL		
1. TITLE Frankford 25mm Main Tests					SYS-D16		
2. NUMBER 921C-69054							
3. DATE PREPARED 23 May 1969		4. ESTIMATED STARTING DATE 30 May 1969		5. EST. COMPLETION DATE 30 May 1970		6. PROGRAM ELEMENT NA	
7. PERFORMING AGENCY AFMDC (DT)		8. PARTICIPATING AGENCIES Frankford Arsenal		9. SECURITY OF PROJECT Unclassified		10. AFSC PRIORITY (For AFSC use only)	
11. REQUESTING AGENCY AND JUSTIFICATION Army - Frankford Arsenal, 28 February 1968, subject: Military Potential Test of the TR: 6425 Weapon System, Test No. 7, Rain Sensitivity Test							
12. ESTIMATED COSTS					13. RESOURCES STATUS		14. REIMBURSEMENT
		A. MAN YEARS	B. CURRENT FY	C. NEXT FY	MANPOWER		<input type="checkbox"/> NONE
MANPOWER	MILITARY	.03	100	100	<input type="checkbox"/>	AVAILABLE	<input checked="" type="checkbox"/> PARTIAL
	CIVILIAN	.24	350	350	<input type="checkbox"/>	REQUESTED	<input type="checkbox"/> COMPLETE
FUNDS			1150	1150			
TOTALS		.27	1600	1600			
15. DESCRIPTION OF REQUIREMENT This test program will be conducted at the AFMDC Ballistic Rain Field facility for Frankford Arsenal. This program consists of a series of firings of 25mm ammunition through a rain environment, over approximately a one-year period.							
16. DESCRIPTION OF EFFORT a. <u>Introduction and Planning:</u> (1) <u>Background:</u> This test program was originally documented 29 March 1969, ESP 921C-0900-68054, for a series of gun firing tests using 25mm ammunition. These firings were to have been conducted over a one-year period. However, no firings have been conducted since the program was documented. This ESP will document the program for another year. No additional funds or manpower support are required to complete the program. Funds needed to support the program are included in the reimbursement under MIPR R-66-68, dated 29 February 1968, totalling \$3,000. Frankford Arsenal must make arrangements with AFMDC Comptroller (MDCB) for extension of MIPR. (2) <u>Test Approach:</u> An indeterminate number of tests will be conducted on 25mm ammunition. The actual number of tests will depend on the technical adequacy of the data being accumulated from each test while the series is in progress. The best information available regarding the number of rounds of ammunition to be fired is based on experience with several similar series of tests which were recently conducted. The number of rounds to be fired is expected to be a minimum of ten to perhaps a							
17. PERFORMING AGENCY APPROVAL <i>Max FindeLL</i> MAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office					18. AFSC APPROVAL		

Page 2 of 6 pages
 921C-69046
 Frankford 25mm Rain Tests

maximum of one hundred. Various types of live fuzes with inert projectiles will be fired from a 25mm weapon through a simulated rain environment. No test vehicle runs on the MDT track are involved. It is proposed to mount a 25mm weapon (gun) at one end of the ballistic rain field and position a hopper (stopping device) at about 1,000 to 2,000 feet from the gun. The purpose is to determine if the candidate ammunition fuzes are safe to fire in rain.

(a) These tests are outside the scope of normal track sled tests and AFMDC makes no assurance that useful data will be obtained.

(b) The simulated rain environment will vary with required test conditions. The mean volume droplet size for one condition will be approximately 1.5mm in diameter, whereas the mean volume droplet size for the other test condition will be approximately 4.0mm in diameter.

b. Test Objective: The objective of these tests is to determine rain sensitivity of various types of 25mm fuzes at limited ranges when fired through rain.

c. Test Schedule: These tests are planned to begin in late May 1969 and will be conducted over approximately a one-year period. Firings will be planned on the basis of customer readiness, preparation, track schedule flexibility, weather, etc. Four to eight hours of testing per scheduled firing day is anticipated. All hardware must be at AFMDC a minimum of two weeks prior to the first test date. The gun to be used in these tests is a single shot, 25mm weapon similar to the Frankford 20mm gun presently being used in tests at AFMDC Test Track.

d. Resources:

(1) Facilities: Ballistic rain field at the AFMDC Test Track, Directorate of Test Track buildings, equipment and instrumentation, and track shops. Shop and office space in the Test Track Complex will be made available to Frankford during the test program.

(2) Aircraft: Not required.

(3) Manpower (MY):

	FY 69				FY 70				GRAND TOTAL
	MDM	MDR	MDT	TOT	MDM	MDR	MDT	TOT	
Military personnel	---	---	.01	.01	---	---	.02	.02	.03
Civilian personnel	.01	.01	.10	.12	.01	.01	.10	.12	.24
Contractor personnel	---	---	---	---	---	---	---	---	---
TOTAL	.01		.11		.01	.01	.12	.13	0.27

Page 3 of 6 pages
921C-69046
Frankford 25mm Rain Tests

(4) Funds:

(a) In accordance with controlling regulations AFSCM 170-1 and AFMDC 170-2, Frankford Arsenal will reimburse AFMDC for all expenditures except military pay. Frankford will provide an initial funding document in total amount as shown in subparagraph (4)(b) below and will provide supplementary funding documents for scope increases or unforeseen items which fall into the reimbursable category. On completion of program, all unused portions of reimbursement funds will revert to Frankford.

(b) Total fund estimate of charges to customer:

	<u>FY 69</u>				<u>FY 70</u>				<u>GRAND TOTAL</u>
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	
Civilian pay plus 29%	\$ 50	-	\$200	\$250	\$ 50	-	\$200	\$250	\$ 500
Civilian overtime pay	-	-	100	100	-	-	100	100	200
Rain field supplies	-	-	100	100	-	-	100	100	200
Other supplies	-	-	50	50	-	-	50	50	100
Contract operation (optical instrumen- tation)	-	\$500	-	500	-	\$500	-	500	1,000
Contract operation (rain erosion facility)	-	-	500	500	-	-	500	500	1,000
TOTAL	\$ 50	\$500	\$950	\$1500	\$ 50	\$500	\$950	\$1500	\$3,000

(c) Total fund estimate of cost of free services to customer:

	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	<u>GRAND TOTAL</u>
Military pay	-	-	\$100	\$100	-	-	\$100	\$100	\$ 200

e. Test and Participating Agencies:

(1) Frankford Arsenal will do as follows:

- (a) Provide candidate 25mm fuzes.
- (b) Provide 25mm test weapon with suitable mounts.

Page 4 of 6 pages
921C-69046
Frankford 25mm Rain Tests

- (c) Provide ammunition target plate and stopping device if required.
- (d) Furnish test personnel and test equipment.
- (e) Furnish pertinent drawings, technical direction and coordination with AFMDC.
- (f) Furnish information on the order of detonation involved with live fuzes and safety procedures for review and approval by cognizant AFMDC personnel.
- (g) Coordinate with AFMDC project officer for instructions before shipping any test hardware or candidate ammunition.

NOTE: The requesting agency will be required to fund for any damage to the Track facility or its equipment resulting from malfunction of his test equipment or user-built or furnished equipment. All operations will be conducted in accordance with aircraft/missile/space/explosives and ground safety directives and regulations. AFMDC reserves the right to halt the test series at any time because of safety considerations.

(2) AFMDC Directorates will do as follows:

(a) MDM will:

- 1. Provide shop support for fabrication or modification to gun mount if required.
- 2. Store and handle 25mm candidate ammunition.

(b) MDR, themselves and through the Army contractor, will provide the following support:

- 1. K-38 ballistic cameras
- 2. Stills, 4x5" color negatives and prints
- 3. Stills, 4x5" B&W negatives and prints
- 4. Motion picture documentation
- 5. Data reduction from ballistic cameras if required.

(c) MDT will:

- 1. Provide the AFMDC project officer.

Page 5 of 6 pages
 921C-69046
 Frankford 25mm Rain Tests

2. Provide engineering support.
3. Prepare test plan.
4. Operate the ballistic rain field.
5. Provide technical measurements.
6. Provide communications and timing/programming.
7. Provide heavy equipment support (required cranes and lifting devices).
8. Provide safety and scheduling.

f. Safety: Track safety regulations will govern the operations of the work crews and observing personnel during these tests, as well as other aspects of the test. AFMDC reserves the right to halt testing at any time because of safety considerations or undue risk to MDT personnel, facilities, or equipment.

g. Security: No aspect of the proposed tests will require a security classification. The projectile which will be used is proprietary in nature.

h. Project Personnel:

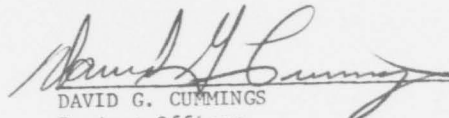
<u>Agency</u>	<u>Name</u>	<u>Ofc Sym & Address</u>	<u>Phone</u>
Frankford Arsenal	Mr. Francis Lombardi	SMUFA-J7000 Frankford Arsenal Philadelphia, Pa 11937	234-1800 ext 2-3248
AFMDC	Tyler A. Redfield Colonel, USAF Director, Test Track	MDT Holloman AFB, NM 88330	473-6511 ext 5-2133
AFMDC	David G. Cummings Project Officer	MDTO Holloman AFB, NM 88330	473-6511 ext 5-2161
AFMDC	James M. Dickerson Plans Officer	MDOP-2 Holloman AFB, NM 88330	473-6511 ext 4441

Page 6 of 6 pages
921C-69046
Frankford 25mm Rain Tests

i. Reports:

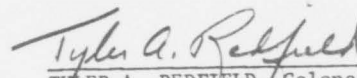
- (1) All costs will be accounted for on a monthly basis by the MDT funds manager and certified by the MDT project officer.
- (2) Management report will be submitted as required.

SUBMITTED BY:


DAVID G. CUMMINGS
Project Officer

DATE: 1 July 1969

APPROVED BY:


TYLER A. REDFIELD, Colonel, USAF
Director of Test Track

DATE: 1 July 1969



- 2 Atch
1. AFSC Form 103
 2. Coordination Sheet

COORDINATION SHEET


9210- 69046

Frankford 25mm Rain Tests

MDR	<u>David Wilson</u>	DATE	<u>7 Jul 69</u>
MDBCE	<u>Earl H. Stirling</u>	DATE	<u>8 July 69</u>
MDTO	<u>Robert C. Rettemel</u>	DATE	<u>1 July 1969</u>
MDOF-2	<u>James M. Dickerson</u>	DATE	<u>23 July 1969</u>
SJOM-25	<u>Harry K. Clifford</u>	DATE	<u>18 Jul 1969</u>

Atch 2

15 May 69
1-26

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL																										
1. TITLE AIM-9E END GAME II				AF-R16																										
2. NUMBER 1559 Task 232																														
3. DATE PREPARED 15 May 1969	4. ESTIMATED STARTING DATE 10 April 1969	5. EST. COMPLETION DATE 30 June 1969	6. PROGRAM ELEMENT 64708F																											
7. PERFORMING AGENCY AFMDC/MDLD	8. PARTICIPATING AGENCIES WRAMA/TFWC	9. SECURITY OF PROJECT SECRET /NOFORN	10. AFSC PRIORITY (For AFSC use only) 06V																											
11. REQUESTING AGENCY AND JUSTIFICATION AFLC (WRAMA): AIM-9E END GAME II Development Plan, dated 18 November 1968.																														
12. ESTIMATED COSTS			13. RESOURCES STATUS		14. REIMBURSEMENT																									
<table border="1"> <thead> <tr> <th></th> <th>A. MAN YEARS</th> <th>B. CURRENT FY</th> <th>C. NEXT FY</th> </tr> </thead> <tbody> <tr> <td rowspan="2">MANPOWER</td> <td>MILITARY 7.94</td> <td>8.32</td> <td></td> </tr> <tr> <td>CIVILIAN .52</td> <td>.52</td> <td></td> </tr> <tr> <td>FUNDS</td> <td></td> <td></td> <td>\$1,668.41</td> </tr> <tr> <td>TOTALS</td> <td>8.84</td> <td></td> <td></td> </tr> </tbody> </table>				A. MAN YEARS	B. CURRENT FY	C. NEXT FY	MANPOWER	MILITARY 7.94	8.32		CIVILIAN .52	.52		FUNDS			\$1,668.41	TOTALS	8.84			<table border="1"> <thead> <tr> <th>MANPOWER</th> <th>FUNDS</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> AVAILABLE</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> REQUESTED</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		MANPOWER	FUNDS	<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>	<input type="checkbox"/> REQUESTED	<input type="checkbox"/>	<input type="checkbox"/> NONE <input checked="" type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE
	A. MAN YEARS	B. CURRENT FY	C. NEXT FY																											
MANPOWER	MILITARY 7.94	8.32																												
	CIVILIAN .52	.52																												
FUNDS			\$1,668.41																											
TOTALS	8.84																													
MANPOWER	FUNDS																													
<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>																													
<input type="checkbox"/> REQUESTED	<input type="checkbox"/>																													
15. DESCRIPTION OF REQUIREMENT The purpose of this ESP is to document test support in accordance with the WRAMA Development Plan and amending messages. Testing will be conducted under NRD 457. DOD Development Directive is CSAF Confidential message 161427Z Jul 1968. AFMDC is designated as the Responsible Test Agency by WRAMA. Priorities applicable to this program are: USAF Precedence Rating: 1-7 USAF Importance Category: 1 AFSC Priority: 06V AFMDC Priority: B66																														
16. DESCRIPTION OF EFFORT a. INTRODUCTION AND PLANNING: (1) Description of Test Item: AIM-9 missiles with various modifications will be used. (2) Background: A total of 26 missiles were fired during the AIM-9E Development Program from 17 Jan to 22 Mar 1968. Thirty-nine (39) missiles were fired during the Product Verification phase between 9 Jul and 10 Oct 1968. (3) Test Philosophy: The maneuvering BQM-34A drone with flares provides a realistic target for the AIM-9 missile. (4) Test Approach: Optical data is the primary data for miss-distance and trajectory information.																														
17. PERFORMING AGENCY APPROVAL  MAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office Date: 3 July 1969			18. AFSC APPROVAL																											

Page 2 of 7
AIM-9E END GAME II

b. OBJECTIVES:

General objectives are to evaluate the AIM-9 modifications which are incorporated into the missiles. Specific objectives are contained in "AIM-9E End Game II Development Plan" classified SECRET and available at MDLD.

c. SCHEDULE:

A total of approximately 70 missions will be flown between 10 Apr and 30 May 1969 at a rate of 10 per week. Of this number, 40 will be captive without drones and 30 will be hot missions with multiple firings. Missions are estimated to require average flying times of one hour per aircraft and 45 minutes per drone.

d. RESOURCES:

(1) Facilities:

(a) Administration:

1. Bldg 819, 600 sq ft, Staff Support*
2. Bldg 893, 800 sq ft, Office and Work Space

(b) Highbay Building:

1. Bldg 823, 5,500 sq ft, Drone Assembly and Checkout*
2. Bldg 923, 4,500 sq ft, Drone Balance*
3. Bldg 924, 3,000 sq ft, Missile Assembly**

(c) Storage: 4,000 sq ft explosive storage in the Ammo dump area.

(d) Launch Facilities: Two drone launch pads are available at L-251. *

(e) Ramp Space: Parking for F-100 aircraft.

(2) Aircraft: A TAC F-4 will fly 70 hours. An AFMDC F-100 will be flown on captive missions and for photo/safety chase on 70 sorties for a total flying time of 70 hours.

*These facilities are shared with other BQM-34A drone and missile programs.

**This is a common use facility.

Page 3 of 7
AIM-9E END GAME II

(3) Missiles: Purchase and delivery to AFMDC of all missiles and hardware is the responsibility of WRAMA.

(4) Drones: Maneuvering BQM-34A drones with flares and BIDOPS will be flown in support of this program. There will be a backup drone for each mission. Approximately 30 missions are anticipated with a flying time of 45 minutes per mission. Drone utilization is authorized by Confidential AFSC message SCOA 201845Z Mar 69, on file in MDOO.

(5) Non-Flying Test Items: N/A

(6) AFMDC Non-Expendable Support Equipment:

- (a) Transient aircraft support equipment will be provided for the F-4.
- (b) Missile assembly and loading equipment (non-peculiar) will be supplied by MDMM.
- (c) Drone (BQM-34A) checkout and launch facilities are available.
- (d) MC-1A air compressor and four accumulator bottles (in parallel) with regulator for missile checkout.
- (e) Desks, chairs, filing cabinets, etc. are used in MDLD.

(7) AFMDC Non-Expendable Material: N/A

(8) AFMDC Expendable Support Equipment: BQM-34A drones

(9) AFMDC Expendable Material: JP-4 fuel, oil, drone RATO bottle, and drone flares are expended on each flight.

(10) Transportation: Vehicles for transportation of missiles from assembly area to aircraft are available in MDMM.

(11) Communications: Required UHF radio communications are provided as a range service and are specified in WSMR NRD 457.

(12) Manpower (MY):

- (a) Cross-Service Support: N/A

(b) Common-Service Support:

<u>DESCRIPTION</u>	<u>MDM</u>	<u>MDL</u>	<u>MDR</u>	<u>TOTAL</u>
FY 69 Military	2.62	5.25	.45	8.32
Civilian	.47	.05	-	.52
Total	3.09	5.30	.45	8.84

(c) Further breakdown by rank, AFSC, fiscal quarter, organization, and division as shown on AFSC Forms 59 and 59a is included as Atchs 2 and 3.

(d) Manpower is available within AFMDC resources.

(13) Funds:

(a) Cross-Service Support:

<u>DESCRIPTION</u>	<u>MDM</u>
F-100 Depot Costs	\$7,420
F-100 POL Costs	7,280
Total	\$14,700

1. FY 69 funds are to be charged to ASD Funding Code 57X3600-2894720-P671559-232-64708FX-S595600.

2. Funds have been requested by AFMDC for MDM charges; if received no reimbursement will be requested of the Project.

(b) Common-Service Support:

<u>DESCRIPTION</u>	<u>MDM</u>	<u>MDL</u>	<u>MDR</u>	<u>TOTAL</u>
FY 69 Supplies	\$ 5,260	\$ 800	\$ 541	\$ 6,060
Equipment		55,950		55,950
Photography			\$5,395	5,395
Flying Hours	18,148			18,148
Military Pay	14,540	40,400	2,740	57,680
Civilian Pay	22,582	495		23,077
Total	\$60,520	\$97,645	\$8,676	\$166,841

e. PARTICIPATING AGENCIES AND RESPONSIBILITIES:

(1) AFLC/WRAMA will:

(a) Provide missiles, hardware, project-peculiar equipment, project funds, and personnel assistance for missile assembly.

(b) Publish test plans.

Page 5 of 7
AIM-9E END GAME II

(c) Evaluate test results and prepare the final report.

(d) Checkout missile guidance and telemetry units.

(2) TAC/TFWC will:

(a) Provide F-4 launch aircraft and aircrews.

(b) Provide a test analyst.

(c) Assist in final analysis and final report publication.

(d) Provide an F-4 crew chief.

(3) AFMDC Responsibilities:

(a) The Directorate of Aircraft and Missile Test (MDL) is designated as OPR for this project and will:

1. Provide a Project Officer.

2. Provide facilities as indicated in d(1)(a) and (b).

3. Prepare range documentation and requests for radio frequency application.

4. Provide maneuvering BQM-34A drones.

5. Provide a Test Conductor.

6. Provide pilots for an F-100 for safety and photo chase for hot missions and for captive flights.

(b) The Plans and Requirements Office (MDO) will:

1. Act as the range sponsor.

2. Coordinate on any new or increase in existing AFMDC commitments.

3. Program support aircraft.

(c) The Directorate of Technical Support (MDR) will:

1. Provide an aerial photographer for firing missions.

Page 6 of 7
AIM-9E END GAME II

2. Provide 2 prints and 1 master copy of all documentary (color and b/w) film.

(d) The Directorate of Materiel (MDM) will:

1. Provide missile assembly and loading personnel and facilities.
2. Provide transient aircraft maintenance and parking and loading areas.
3. Provide normal support for the AFMDC F-100 aircraft.

(4) White Sands Missile Range will acquire and reduce data and furnish such other support required in accordance with approved National Range Documentation (NRD 45702).

f. SAFETY:

(1) All operations and activities will be conducted in accordance with the Air Force Safety and Accident Prevention Program, applicable to Ground/Explosives/Flight and Missile Safety. All range activities will be conducted in accordance with applicable WSMR regulations.

(2) All missile and drone handling, assembly, and loading procedures will be conducted in accordance with approved existing Air Force/TAC and AFMDC/MDLD procedures.

(3) Safety Hazards: Exercise and dummy warheads will be used. Several live warheads may be used. Operational Hazard Forms have been submitted to WSMR.

(4) Recovery: Unless the drone (BQM-34A) is expended by a missile hit, it will go through a standard parachute recovery and be reused. Recovery of missiles will not normally be required. If a malfunction occurs, recovery may be attempted to assist in engineering analysis.

g. SECURITY:

(1) Classified items are: Guidance and Control Units (Confidential); Missile miss-distances and mission results (SECRET/NOFORN).

(2) Classified data will be given proper handling as required by AFR 205-1.

(3) Contractors are responsible for the protection of their own proprietary data, if any.

h. PROJECT PERSONNEL:

<u>AGENCY</u>	<u>NAME & POSITION</u>	<u>OFF SYM & ADRS</u>	<u>PHONE</u>
AFLC/WRAMA	J. Lindsey Project Director	WRAMA (WRNEB) Robins AFB, GA	468-2663
TAC/TFWC	Maj. B. Fickel Project Pilot (TAC Project Officer)	TFWC/FWTF Nellis AFB, Nev	875-4741
WSMR	R. Ball Project Officer	NR-P White Sands Missile Range, NMex	285-2797
AFMDC	LtCol R. C. Roswurm Plans Officer	MDOP-2 Holloman AFB, NMex	787-4441
AFMDC	Capt R. Zollner Project Officer	MDLDE Holloman AFB, NMex	787-4343

i. REPORTS:

(1) AFMDC Project Officer will prepare the Management Report for undating the program.

(2) This document has been prepared by MDLD and coordinated by MDO.

SUBMITTED BY:

Ronald A. Zollner
RONALD A. ZOLLNER, Captain, USAF
Project Officer
DATE: 19 May 69



- 3 Atch
1. AFSC Form 103
2. AFSC Form 14
3. Coordination Sheet

DETAILED FUND SCHEDULE		1. PROJECT TITLE AIM-9E END GAME II		3. PROJECT NO. 1559 TASK 232		4. DATE PREPARED 15 May 1969	
		2. PROGRAM ELEMENT					
5. TOTAL FUND ESTIMATE OF CHARGES TO CUSTOMER							
A. LINE ITEM DESCRIPTION	B. TOTAL COSTS	C. FY 69 COSTS	D. FY COSTS	E. FY COSTS	F. FY COSTS	G. FY COSTS	H. FY COSTS
F-100 Depot Costs	7,420.00	7,420.00					
F-100 POL Costs	7,280.00	7,280.00					
TOTAL ESTIMATED COSTS	14,700.00	14,700.00					
6. TOTAL FUND ESTIMATE OF COST OF FREE SERVICES TO CUSTOMER							
A. DESCRIPTION	B. AGENCY	C. TOTAL COSTS	D. FY 69 COSTS	E. FY COSTS	F. FY COSTS	G. FY COSTS	H. FY COSTS
Equipment & Supplies	MDL	56,750.00	56,750.00				
Military Pay	MDL	40,400.00	40,400.00				
Civilian Pay	MDL	495.00	495.00				
Photo Supplies	MDR	5,395.00	5,395.00				
Military Pay	MDR	2,740.00	2,740.00				
F-100 Std Mil Costs	MDMM	7,135.00	7,135.00				
TOTAL ESTIMATED COSTS							

Atch #2

A. LINE ITEM DESCRIPTION		B. TOTAL COSTS	C. FY _____ COSTS	D. FY _____ COSTS	E. FY _____ COSTS
TOTAL ESTIMATED COSTS					

A. DESCRIPTION		B. AGENCY	C. TOTAL COSTS	D. FY 69 COSTS	E. FY _____ COSTS	F. FY _____ COSTS
F-100 Std Civ Costs	MDMM	4,012.00	4,012.00			
" Sys & Gen Sup Costs	MDMM	2,520.00	2,520.00			
" LCL Exp Factor-Civ	MDMM	2,573.00	2,573.00			
AGE Support	MDMM	928.00	928.00			
BQM-34A Support-Materiel	MDMM	5,260.00	5,260.00			
BQM-34A Support - Civ	MDMM	10,920.00	10,920.00			
TOTAL ESTIMATED COSTS						

Atch #2

DETAILED FUND SCHEDULE		1. PROJECT TITLE AIM-9E END GAME II			
		2. PROGRAM ELEMENT	3. PROJECT NO. 1559 TASK 232	4. DATE PREPARED 15 May 1969	
5. TOTAL FUND ESTIMATE OF CHARGES TO CUSTOMER					
A. LINE ITEM DESCRIPTION	B. TOTAL COSTS	C. FY _____ COSTS	D. FY _____ COSTS	E. FY _____ COSTS	
TOTAL ESTIMATED COSTS					
6. TOTAL FUND ESTIMATE OF COST OF FREE SERVICES TO CUSTOMER					
A. DESCRIPTION	B. AGENCY	C. TOTAL COSTS	D. FY 69 COSTS	E. FY _____ COSTS	F. FY _____ COSTS
BQM-34A Support-Mil	MDMM	7,405.00	7,405.00		
29% Civ Overhead Factor	MDMM	5,077.00	5,077.00		
TOTAL ESTIMATED COSTS		112,925.00	112,925.00		
G. FY 69 FUNDS PRESENTLY AVAILABLE THIS DIRECTORATE <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE PRESCRIBED SUPPORT					
H. FY _____ FUNDS <input type="checkbox"/> WERE <input type="checkbox"/> WERE NOT INCLUDED IN <input type="checkbox"/> PART I <input type="checkbox"/> PART II OF THE FY _____ FIN PLAN FUNDS INCLUDED <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE CONTRACTOR GOVERNMENT FURNISHED SUPPORT.					
I. FY 69 FUNDS <input checked="" type="checkbox"/> WERE <input type="checkbox"/> WERE NOT INCLUDED IN THE FY 69 BUDGET ESTIMATE. FUNDS INCLUDED <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT SUFFICIENT TO PROVIDE PRESCRIBED SUPPORT.					
7. OTHER COMMENTS Above costs are based on AFM 26-3 and 172-3d standards. Local experience factors are over and above standard costs. BQM-34A costs are local experience factors. 29% civilian overhead is standard. Unknown factors are overtime, any special security problems, unusual support for transient aircraft supporting the project.					
DIRECTORATE'S SIGNATURE ELEMENT		SIGNATURE		DATE	
COMPTROLLER'S SIGNATURE ELEMENT		SIGNATURE		DATE	

Atch 2

COORDINATION SHEET
 ENGINEERING SERVICE PROJECT PLAN
 AIM-9E END GAME II

MDLD	<i>Ronald A. Johnson</i>	DATE	<i>20 May 69</i>
MDLT	<i>Walter D. Johnson</i>	DATE	<i>21 May 69</i>
MDLP	<i>Gregory F. Johnson</i>	DATE	<i>22 May 1969</i>
MDL	<i>Jack W. Johnson</i>	DATE	<i>26 May 69</i>
MDCP	<i>William M. Bilbo</i>	DATE	<i>17 June 69</i>
MDOO	<i>John B. Bilbo</i>	DATE	<i>3 June 69</i>
MDM ^M	<i>John C. Bilbo</i>	DATE	<i>5 June 69</i>
MDR	<i>Bruce A. Dopler</i>	DATE	<i>30 June 69</i>
CMTA	<i>Robert D. Dwyer</i>	DATE	<i>5 June 1968</i>
MDBC	<i>Earl H. Strickling</i>	DATE	<i>5 June 1969</i>
MDI	<i>Earl H. Strickling</i>	DATE	<i>5 June 1969</i>
MDM	<i>F. G. Whring</i>	DATE	<i>13 JUNE 1969</i>

Atch #3

UNCLAS 150200Z APR 70 150230Z APR 70--RUMEDDA.

FM
TO: USAF

THREAT/ACT AFTER DELPH SHIP COME 5 2 KIRTLAND AFB TEX
UNCLAS/ACTO DELPH AFB FLA
DELPH SHIP'S CI NO 3 WHITE SANDS MISSILE RANGE NMX
DELPH SHIP WELLYWAY AFB NMX

SECRET

FOR THE SHIP TRIP TESTS. REFERENCE: UNCLAS APR 70 151000Z
UNCLAS.

THE FOLLOWING AFWAC SUPPORT IS REQUESTED FOR SHIP TRIP TESTING
IN 70.

SHIP TRIP WALT ALPH-010-240/A LOW ALTITUDE DELIVERY
COMBAT ON 17 JUL 70.

DELPH SHIP'S PRESENTATION GOES WITH THE WLO-010 SUBMISSION.
UNCLAS IS REQUESTED AT THIS TIME. UNCLAS/ACTO CONDUCTING THIS
IN ACCORD WITH THE SUBMISSION BY 70.
THE SUPPORT DATA LISTED IN PARA 1 ARE KNOWN AT THIS TIME.
UNCLAS/ACTO TESTS IN FY 70, THAT CAN ACCOMPLISHED WITH
C AIRCRAFT, WILL BE REQUESTED AS THEY ARRIVE.

A

SEA
(SEA-70)
15-769
01-46

*stand ADM
8 May 1969
1-46*

8 MAY 69 01 40Z

PTTUZYUW RUEBBHB 1614 1271983-UUUU--RUMTOOA.
ZNR UUUUU
P 071851Z MAY 69
FM NAVAIRSYSCOMHQ
TO RUVAAMA/ASD WPAFB
INFO RUMTDOA/AFMOC HOLLOWAN AFB
RUEBBAA/AFSC ANDREWS AFB
RUCLBMA/ADTC EGLIN AFB
RUWJPOA/NAVWPNSCENCORL CORONA

BT
UNCLAS
ASD FOR ASWCP/MR NOLIN - AFMOC FOR MOLWF - AFSC FOR SCSRW - ADTC FOR
ADTPE - NWCL FOR CODE 422
FROM PMA242-3, USAF DEPUTY PROJECT MGR FOR ARM SYSTEMS
SUBJ - QRC 335 SUPPORT FOR CAT 11/111 TESTING
REF - A. ASD (ASRSE) UNCLAS MSG 291613Z APR 69 NOTAL
1. THIS IS CONFIRMATION OF TELECON ON 30 APR 69 BETWEEN LT STANLEY/
MR NOLIN GIVING AUTHORITY TO USE UNOBLIGATED FUNDS OF \$6,189 FROM
PO F3365-69-4-0911 TO PROVIDE ENGINEERING SUPPORT FOR QRC 335
INVOLVED IN CAT 11/111 TEST AT HOLLOWAN AFB NM. PERIOD TO BE
COVERED IS 19 TO 29 MAY 69.
2. PMA242-3 REQUESTS COPIES OF OBLIGATING DOCUMENT AFTER COMPLETION
OF TASK. WE APPRECIATE YOUR ASSISTANCE IN PROVIDING PROMPT SUPPORT
FOR QRC 335 UTILIZED IN OUR TEST PROGRAMS.
BT
#1614

NNNN

SEA 1-46

MDRCS


3 May 1969

Obligations in Support of SEA Operations, RCS: HAF-XDD-C34

AFSC(SCCPM)

Transmitted is subject report for month of April 1969.

FOR THE COMMANDER:


J. W. SWENPORT
Chief, Budget Branch
Comptroller Division

- 2 Atchs
1. Obligs in Spt of SEA
Ops
2. SEA Narrative

MDR (MR. CORNETT)

OBLIGATIONS IN SUPPORT OF SEA OPERATIONS

HOLLAMAN AIR FORCE BASE, NEW MEXICO

RCS: HAF-XDD-C34

As of 30 April 1969

(In Thousands of Dollars)

<u>P.Z./DOBEDE</u>	<u>FY 1969</u> <u>ESTIMATED OBLIGS</u>	<u>FY 1969</u> <u>APPROVED OBLIGS</u>	<u>CURRENT</u> <u>MONTH OBLIGS</u>	<u>CUMULATIVE</u> <u>OBLIGS</u>
65803F				
15 Supplies & Materials	\$ 140	0	\$ 3	\$ 140
16 Equipment	39	0	0	39
04 Civilian Pay	50	0	2	50
05 Travel & Trans of Persons	33	0	0	28
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	\$ 312	0	\$ 10	\$ 307

MONTH OF APRIL

SEA NARRATIVE

Civilian Pay - DOD 04 - \$2,106
 Supplies & Materials - DOD 15 - \$3,469
 Equipment - DOD 16 - \$170
 Travel - DOD 05 - \$80

Civilian Pay shown is in support of the following:

Project 140A - SRAM	2 M/H	\$ 4
Project 912A-62001, BQM-34A	125 M/H	498
Project 921A-9032, F-106 SET	63 M/H	252
Project 921C-67061, Picatinny Rain Erosion	231 M/H	924
Project 6065 - Aerodynamics Decel Studies	60 M/H	240
Project 6263 - Electro-Optical Tech for Reson	47 M/H	188
	<hr/>	<hr/>
	528 M/H	\$2,106

Travel Performed by: 1 Officer - SEA Survival
 1 Airman - Project Palace Dog

1 5E1 MDW 1-46
R
Directorate of Test Track

OPERATIONS PLAN 14R-F

SUBJECT: Project 133B, (G. E. Rain Test)

AUTHORITY: R&D Management Report #4, dated 4 May 1969, Minuteman Environmental Sled Test Program.

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Dynalectron Corporation
General Electric Company (Mr. Art MacAulay)

1. Test Objectives:

a. The program objective is to measure the rain erosion caused by the equivalent of a half inch of rain per hour on an R/S shroud which has traveled through this media for the equivalent of 30,000 feet at a velocity of 2,000 to 3,000 feet per second.

b. For this test series the test specimen will enter a rainfield of 6,000 feet of half rain (every other nozzle covered), at a velocity of approximately 2,300 ft/sec.

2. Description:

a. A 26 5/8 inch base diameter cone will be mounted on the IMS 6832 monorail sled.

b. The wind velocity across the rainfield shall not exceed 1 knot. The rainfield environment must be known to assess any erosion damage to the cone materials.

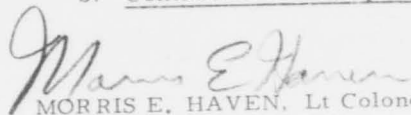
3. Basic Information:

a. IMS 6832; 2 sections	300.0 lbs
b. Payload and mtg. plate	69.0 lbs
c. 6 each M58 motors; 2 stages, 3 ea	276.0 lbs
d. Total third stage weight	645.0 lbs

- | | |
|---------------------------------------|-------------|
| e. PMS 6701 & water brake (2nd stage) | 192.0 lbs |
| f. 1 ea Lacrosse rocket motor | 842.0 lbs |
| g. Total firing weight of 2nd stage | 1,779.0 lbs |
| h. PMS 6805 (no brake) | 158.0 lbs |
| i. 1 ea Lacrosse rocket motor | 842.0 lbs |
| j. Total firing weight of 1st stage | 1,779.0 lbs |
4. Estimated Performance:
- a. Launch point: T. S. 34,983
 - b. Maximum velocity (computed): 2,468 ft/sec @ T. S. 27,925
 - c. Velocity at T. S. 26,700: 2,380 ft/sec
 - d. Velocity at T. S. 20,700: 2,281 ft/sec
 - e. Braking: 1st stage - friction
2nd stage - 7 inch water bags each side of rail T. S. 9,500
to T. S. 9,200
3rd stage - 3 inch double water bags T. S. 3,000 to T. S.
2,700.
5. Safety:
- a. Track Clearance Time:
 - (1) Initial: T-2 hours
 - (2) Final: T-1 hour
 - b. Hazard Area: T. S. 35,000 to South Arroyo Road.
 - c. Spectator Area: Open
6. Security: Unclassified.
7. Job Order Number: 133B1

8. Key Personnel:

- a. Track Project Officer: B. E. Engle, ext 5-2163.
- b. Contractor Test Representative: Mr. Art MacAulay, ext 4445.


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Track Optical
Instrumentation
"C" - Engineering
"D" - Technology N/A
"E" - Propulsion
"F" - Test Support

ANNEX "A" TO O-PLAN 14R-F
Instrumentation Division

1. Sled Instrumentation Branch: Not required.
2. Data Acquisition Branch:
 - a. Telemetry: Not required.
 - b. Timing and Trackside Instrumentation: Provide programmed start/stop for trackside optical units. (See Dynalectron POP)
 - c. Communications:
 - (1) Intercoms between Blockhouse Coco and launch pad are required.
 - (2) Provide intercom communications at even Ribbon Frame camera pads. (See POP.)
 - d. Firing Circuit Requirements: A firing cart at T. S. 34,983 for solid boosters is required. The Blockhouse Coco will be used as the launch control point.
 - e. Blockhouse Recorders: Not required.
 - f. Screenboxes: Screenboxes for second, third, and fourth stage firings required at T. S. 33,056, T. S. 27,191, and T. S. 23,930 (West rail).
 - g. First Motion: First motion circuitry is required at the launch point.
 - h. Spot Velocity Measurements: Spot velocity measurements are required from the following:
 - T. S. 33,200 to T. S. 33,000 in 100 ft increments.
 - T. S. 27,300 to T. S. 27,000 in 100 ft increments.
 - T. S. 26,800 to T. S. 20,600 in 200 ft increments.

ANNEX "B" TO O-PLAN 14R-F
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Data: As per Dynalectron POP.

A-1
B-1

2. Documentation/Engineering Optical Requirements:

a. Stills Requirements:

- (1) 4x5 Color Negatives - Pre/Post run coverage.
- (2) 35mm Color Slides - 2 original of each item shot.

b. Motion Picture Requirements: Pre and post run, 16mm Color, coverage is required.

3. Film/Data Processing Requirements:

- a. Still print requirements will be stated on the work order.
- b. Shadowgraphs, IMC's and FX film will be returned to MDTO after film processing.

4. Additional Information:

- a. The centerline of the nose cone will be 16 inches above the rail for all runs.
- b. The nose cone is 26 inches in diameter and 30 inches long.
- c. The sled including nose cone is 6 feet long.
- d. The sled will be on the west rail.
- e. All data is unclassified.

ANNEX "C" TO O-PLAN 14R-F
Engineering Division

- 1. The Engineering Division is responsible for the following:
 - a. Provide structural design and shop coordination for all test runs.
 - b. Provide theoretical run profiles.

B-2
C-1

ANNEX "E" TO O-PLAN 14R-F
Propulsion Division

1. Screenboxes: A screenbox for motor staging is required for the 2nd, 3rd, and 4th stages at T.S. 33,056, T.S. 27,191, and T.S. 23,930 on the west rail.
2. Propulsion: 2 ea Lacrosse and 6 ea M58's.

<u>Ignition</u>	<u>T. S.</u>	<u>Motors</u>
1st stage	34,983	1 ea Lacrosse
2nd stage	33,056	1 ea Lacrosse
3rd stage	27,191	3 ea M58 motors
4th stage	23,930	3 ea M58 motors

ANNEX "F" TO O-PLAN 14R-F
Test Support Division

1. Provide and install water bags at the following locations:
 - a. Install 7 inch bags, each side of track rail (W) inside the steel trays from T.S. 9,500 to T.S. 9,200.
 - b. Install 3 inch double bags on the track rail (W) from T.S. 3,000 to T.S. 2,700.
2. Provide two light units at the launch site on L-1 Day (if required). Project Officer will operate.
3. Inspect the west rail for debris that would interfere and/or impact the sled.
4. Provide technical support for collecting rainfield data.
5. Rainfield Data Requirements are as follows:
 - a. Rainfield:
 - (1) 6,000 feet with every other nozzle covered.

D-N/A
E-1

- (2) Nozzle Pressures: 9 ± 0.25 PSIG
- (3) Nozzle Angles: 65 deg above horizontal

b. Data Requirements:

- (1) Pre and post gauge readings of nozzle pressures.
- (2) Pre and post rain intensity samples at the following track stations:

T. S. 22,420	T. S. 23,414	T. S. 24,416
T. S. 22,422	T. S. 23,416	T. S. 25,377
T. S. 22,424	T. S. 24,412	T. S. 25,379
T. S. 23,412	T. S. 24,414	T. S. 25,381

(3) Pre and post water droplet distribution samples at track stations shown in para b. (2).

(4) Wind velocity and direction is required at 30 second intervals during time rain intensity and water droplet samples are taken.

(5) The rain intensity samples will be over a time duration of six (6) minutes.

(6) Water droplet (flour) sampling will be as short an interval of time as possible to maintain independent dough pellets. A time of one (1) second appears satisfactory from past experience.

c. Special Instructions:

(1) Hand held wind gauges will be used for measuring wind velocity and direction during the time the rain intensity and water droplet samples are obtained.

(2) Nozzle gauge pressure(s) must be stable at 9 ± 0.25 PSIG during data collection.

(3) Test will be cancelled if instability is indicated by the pressure regulators on L-day, or if stability cannot be demonstrated, on L-1 day.

(4) A record of the nozzle pressure gauge location, operational accuracy or calibration is required as a part of the test data for evaluation purposes.

(5) Data collection will not be valid if wind is in excess of 4 knots. Data will not be taken from multiple stations if wind is in excess of 2 1/2 knots.

(6) Post-test nozzle pressure gauge readings must be taken before the rainfield is in shut-down after the sled is fired. Personnel will be placed in a position to enter rainfield at earliest possible time. A well coordinated effort is required for minimum loss of time.

SGA MDNA 1-48

Directorate of Test Track
May 1969

OPERATIONS PLAN 18E-A

SUBJECT: Project 921A, F-105 Static Test

AUTHORITY: AFSC ESP titled F-105 Static Test

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Sacramento Air Materiel Area (AFLC/SMAMA), McClellan, California
Fairchild-Hiller Corporation (Republic Aviation Division),
Farmingdale, New York
Weber Aircraft Company, Burbank, California
Dynalectron Corporation
Physical Science Laboratory, New Mexico State University, Las Alamos,
New Mexico
Computation Division (MDRC)

1. Test Objective and Description:

a. Objective: The objective of the proposed tests is to obtain performance information and trajectory data in a zero-zero escape test on the F-105 vehicle.

b. Description: This test will be a static dual ejection. The sequence of ejection is aft canopy eject, aft dummy, forward canopy, and forward dummy. All events are sequenced automatically and the elapsed time from aft canopy ejection to forward dummy ejection is 1.05 seconds.

2. Basic Information:

a. General:

(1) Forebody	FDN 6331
(2) Pusher	NA
(3) Propulsion	None
(4) Weight (forebody)	5,500 lbs
(5) Ejection T.S.	16,000
(6) Sled Length (forebody)	24 ft

b. Estimated Performance: NA

c. Instrumentation: Three 800 MHz TM packages will be used. Velocity data is not required.

d. Recovery: NA

e. Reasons for Holds or Cancellation: Holds will be called at the discretion of the Track Project Officer. Failure of test equipment or prime data sources, or adverse weather conditions are causes for cancellation.

f. Countdown, L-1 Day: An L-1 day countdown is required.

g. Job Order Number: A9025

3. Tasks for Supporting Organizations:

a. Functional Support: All Divisions and Offices will provide personnel and equipment to comply with provisions of DOI 55-1, Subject: Programming and Conduct of Tests.

b. Reports: Reports shall be prepared in accordance with DOI 174-1, Subject: Preparation of Reports. Project summary reports will be prepared by all Divisions/Offices and submitted to the Track Project Officer within ten working days of the last test.

4. Key Personnel:

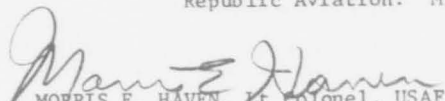
a. Project Officer: 2d Lt Larry W. Pennell, ext 5-2163

b. Project Engineer: Mr. Charles McCullough, ext 5-2654

c. Instrumentation Engineer: Mr. James Doherty, ext 5-2650

d. Customer Test Representatives:

SMAMA: Mr. David B. Ketcheson, ext 633-3458
Republic Aviation: Mr. Bob Frank, ext 5-2530


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Track Optical
Instrumentation
"C" - Complex Safety
"D" - Engineering
"E" - Technology NA
"F" - Propulsion
"G" - Test Support
"H" - PSL, NMSU
"I" - Computation
Division (MDRC)

ANNEX "A" TO OPLAN 18E-A
Instrumentation Division

1. Sled Instrumentation Branch:

a. Telemetry Instrumentation:

(1) Telemetry and signed conditioning with transmission on two MHz RF links will be provided by MDTIS. Switch closure and harp hardware will be provided by the contractor.

b. Space/Time: Not required.

2. Data Acquisition Branch:

a. Telemetry:

(1) FM/FM:

(a) Two magnetic tape recorders will be used to record the RF carriers as follows:

<u>Track</u>	<u>Data</u>
1	blank
2	RF A complex
3	RF B complex
4	Midway complex
5	blank
6	blank
7	blank

(b) Oscillograph Requirements: Oscillographs will be run at 0.4 ips for calcs and 10 ips on the run with the following channel/trace layout:

<u>Track No.</u>	<u>RF Link</u>	<u>IRIG SCO</u>	<u>Data</u>	<u>Peak to Peak Deflection</u>
1	-	-	One pps + first motion	0.25 inch
2	A	E	Front seat harp	1.0 "
3	A	A	Seat & canopy switches	0.5 "
4	A	C	Rear seat harp	1.0 "

A-1

5	A	13	Seat & canopy switches	0.5 inch
6	B	E	Strain gauge bridge #1	2.0 "
7	B	C	Strain gauge bridge #2	2.0 "
8	B	A	Strain gauge bridge #3	2.0 "
9	B	13	Strain gauge bridge #4	2.0 "
10	-	-	IRIG-B modulated timebase	0.25 "

b. Timing and Trackside Instrumentation:

- (1) Provide timebases and programming as in the POP for cameras.
- (2) Provide timebases to FM station
 - (a) 100 KHz
 - (b) IRIG-B modulated
 - (c) One pps + first motion
 - (d) Guidance timebase from -10 sec to +60 sec

c. Provide standard communication facilities.

d. Blockhouse Requirements:

- (1) Mobile launch trailer is required.
- (2) Power will be required to fire the ejection motors and initiate the ejection sequence.

3. Distribution of Data:

- a. File both magnetic tapes
- b. One copy of the oscillograph and one data book to Mr. Doherty MDTIA
- c. Two data books to Lt Pennell
- d. One copy of the oscillograph and one data book to Lt Pennell for relay to the contractor.

A-2

ANNEX "B" TO OPLAN 18E-A
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Data: See POP.
2. Aerial Instrumentation/Engineering Data: Not required.
3. Documentary/Engineering Optical Requirements:
 - a. Still:
 - (1) 4x5 B/W pre/post-run coverage
 - (2) 4x5 color negative pre/post-run coverage
 - (3) 35mm color slides
 - (4) Polaroid (emergency coverage only)
 - b. Motion Pictures: 16mm color pre-run, run, and post-run coverage as coordinated.
 - c. Hulcher: (70mm B/W 20 fps) one camera to cover ejection for immediate viewing as soon as possible after the run.
4. Film/Data Processing Requirements:
 - a. All film will be processed as soon as possible after each test.
 - b. All ribbon frame and 70mm metric film will have data reduced and film returned.
 - c. All other film to be delivered to the Directorate of Test Track as soon as possible.
 - d. Hulcher film will be delivered on the same day.

ANNEX "C" TO OPLAN 18E-A
Complex Safety (Reference DOI 127-1 and AFMDCR 127-2)

1. The hazard area is from T.S. 14,000 to T.S. 18,000. It will be evacuated prior to T-30 minutes by nonparticipating personnel. The final track clearance will be completed prior to T-30 minutes. Track Control will control all personnel in the hazard area after this time.
2. The post-test condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.
3. Post-test: After the sled vehicle has been declared safe, roads will be opened as directed by Track Control after clearance is received from the Project Officer.

B-1
C-1

ANNEX "D" TO OPLAN 18E-A
Engineering Division

1. Prepare sleds and hardware for conducting this test program.
2. Furnish other engineering support as required.

ANNEX "F" TO OPLAN 18E-A
Propulsion Division

1. Rocket Motors: None required.
2. Screen Boxes: None required.
3. The forebody front slipper beam will be placed on the track at the ejection station indicated.
4. In the event of a malfunction, customer personnel will disarm the seat ejection system after the sled has been disarmed.

ANNEX "G" TO OPLAN 18E-A
Test Support Division

1. Provide the mobile launch trailer and a generator to be located approximately 260 feet east of the ejection point (T.S. 16,000).
2. Provide other test support as required.

ANNEX "H" TO OPLAN 18E-A
Physical Science Laboratory, NMSU

1. Use center of black cross beneath rear cockpit of F-105 sled as reference point.
2. Zero time will be seat first motion.
3. Provide the following data in both tabular and graphic form.
 - a. "X" axis displacement vs time for both dummy and seat.
 - b. "Y" axis displacement vs time for both dummy and seat.

D-1
F-1
G-1
H-1

- c. "Z" axis displacement vs time for both dummy and seat.
 - d. "Y" and "Z" axis vs "X" axis for dummy and seat.
 - e. Dummy-seat miss distance.
4. Data is to be provided at 10-20 points per second.
5. Distances will be referenced to the center of the seat, dummy or canopy.
6. Distribution of Data: Send six copies of the data book to the Track Project Officer, 2d Lt Larry W. Pennell, AFMDC/MDTO (ext 5-2163).
- NOTE: The "X" axis is downtrack, the "Y" axis is crosstrack, and the "Z" axis is vertical.

ANNEX "I" TO OPLAN 18E-A
Computation Division (MDRC)

Provide two copies of the data print-outs to Lt Pennell as soon as possible.

H-2
I-1

2 May 69
1-46

2 52

DL

RTTZYUW RUVA445254 1221612-EEEE--RUJTDQA.

ZNY EEEEE

R 021524Z MAY 69

FM AED WPAFB

TO RUWJBMA/TFWC/CMS NELLIS AFB NEV

INFO RUMLAQA/TAC/DMM42

RUWJBMA/TFWC/CENELLIS AFB NEV

UJTDQA/AFMDC/MOLEC HOLLOWAN AFB NMEK

BT

UNCLAS E F T O A 97M APR 69

SUBJECT: APPROVAL OF CLASS II MODIFICATION OF F-4D/E AIRCRAFT

REF: TFWC LTR CMS DATED 8 APR 69

1. ASZM HAS REVIEWED THE MODIFIED TONE WIRING SCHEMATIC AND NOTES THAT THE POTENTIAL HAZARD OF THE ORIGINAL WIRING DIAGRAM HAS BEEN ELIMINATED. THEREFORE THE CLASS II TFWC 68-13 MODIFICATION IS HEREBY APPROVED.

2. UPON REMOVAL OF THE MODIFICATION IT IS RECOMMENDED THE THE SPECIAL WEAPON DELIVERY CIRCUIT BE RECERTIFIED IN ACCORDANCE WITH APPLICABLE DIRECTIVES.

BT

#6254

2
1015
1-46

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 6580TH AIR BASE GROUP (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO
ATTN OF: MDBPM-3

25 April 1969

SUBJECT: Navigator Manning

TO: MDN MDL MDS MDT MDR MDM

MDNH

The attached letter is forwarded for your information and guidance.

Albert D. Vizcarra
ALBERT D. VIZCARRA
Chief, Career Control Section
Personnel Division

1 Atch
AFSC(SCPBO-M) ltr, 16Apr69,
subj as above

DEPARTMENT OF THE AIR FORCE
 HEADQUARTERS AIR FORCE SYSTEMS COMMAND
 ANDREWS AIR FORCE BASE, WASHINGTON, D.C. 20331



10 APR 1969

TO: AFMPC
 FROM: Navigator Manning

AFMPC	AFMPC	AFMPC	2856 AEWG	WILFORD HALL USAF HOSP
AFMPC	AFMPC	AFMPC	6590 SPACYTRON	
AFMPC	AFMPC	AFMPC	1 STRATAEROSP DIV	

(USPO-ASGN)

The following is extracted from USAFMPC (AFMPC) letter, 11 April 1969, same subject.

a. Operational requirements, caused by Silt, have created a deficit manning situation in the navigator area. To minimize the impact of this condition and to equitably distribute this resource, we included navigators in the FPD system in October 1968. As we stand today, overall worldwide navigator manning has risen to approximately 90%. This relatively favorable manning position is primarily a result of project PARADE 2042 which returned approximately 750 navigators to rated duties during 1968.

b. Looking to the future, we see our requirements remaining relatively constant while our resource decreases. This resource reduction is caused by attrition (separation, retirement, etc.) exceeding production. A further complicating factor, the requirement to man F-4 backseats with navigators, is having a significant impact on worldwide navigator manning. Therefore, all commands can expect extremely austere navigator manning in the foreseeable future.

c. In order to maintain the crew manning necessary to support mission requirements, it will be necessary to place the same stringent management controls on the utilization of navigators as we have for pilots. As a result, we can be expected to draw down the number of navigators now performing behind-the-line (in nonrated duty). Because of critical field grade support manning, we will attempt to minimize the impact of this drawdown by permitting the number in support duties to reduce by attrition rather than by another formal withdrawal program. Our objective is to insure that navigator manning actions are viewed in the total context of crew requirements, support manning, and career development.

FOR THE COMMANDER
Chitwick, Maj
 Major, USAF
 AFMPC
 Department of the Air Force

FORGING MILITARY SPACEPOWER

NNNRRTTEZYUW RUVAHA4222 1131417-EEEE--RUWTDQA.
 ZNY EEEEE
 R 231403Z APR 69
 FM ASD WPAFB OHIO
 TO RUMTFJA/ATC/ATISD/ATOSE/ATXRG
 RUMAAA/TAC/DOFTT/COL MARTIN
 RUEOPUA/O FRANKFORD ARSENAL/JS100/PHILA PA
 RUMKRIA/SAAMA/SANEW/SANAT/SANAO/KELLY AFB TEX
 RUMJNTA/6511 TEST GP/FTNEM/NAV AIR FAC/EL CENTRO CALIF
 RUWTDQA/AFMDC/MDTO/HOLLOMAN AFB NM
 RUMJABA/AFIAS/F 2/NORTON AFB CALIF
 RUEBBAA/AFSC/SCSAC
 RUMJAAA/4441ST CCTW/WILLIAMS AFB ARIZ
 INFO RUMJBOA/AFPRO/NORTHROP CORP/HAWTHORNE CALIF

23 APR 69 17 45Z

SEA
1-46
23 April 69

3665

BT
 UNCLAS E F T O ASZJ/ASNNYJ APR 69.
 AFPRO PASS TO NORAIR DIV. SUBJ: F-5/T-38 IMPROVED EGRESS SYSTEM.
 REF ASD MSG UNCLAS EFTO ASZJ/ASNNYJ 261441Z MAR 69.
 1. REF MSG RELATED HOW INCREASE IN STORED VOLUME OF CONCURRENT
 F-104 DEVELOPMENT ON SEAT DROGUE CHUTE ADVERSELY AFFECTED
 PILOT VISIBILITY IN F-5/T-38 INSTALLATION BECAUSE OF GROWTH OF
 CHUTE CONTAINER. MSG REQUESTED TAC AND ATC PILOT EVALUATION OF

PAGE 2 RUVAHA4222 UNCLAS E F T O
 MODIFIED CONTAINER CONFIGURATION.
 2. PILOT EVAL NEGATIVE. REVISED ECP REQUESTED OF NORAIR
 TO INVESTIGATE AND ENGINEER NEW LOCATION. TESTS AT HOLLOMAN
 HALTED ON 12 MAR 69 AFTER TWO STATIC FIRINGS AND 100 KNOT AND
 150 KNOT RUNS. FOUR ADDITIONAL SLED RUNS HAD BEEN SCHEDULED.
 STATUS ON 12 MAR 69: IN ALL FIRINGS, ALL SUBSYSTEMS
 FUNCTIONED AND SEQUENCED AS PLANNED. DUMMY/CHUTE INVOLVEMENT
 IN 1ST STATIC FROM HIGH PITCH RATE. CAUSE CORRECTED IN
 X4-38 ROCKET CATAPULT. SECOND STATIC HAD FULL CHUTE AND SAFE
 LANDING. BOTH SLED RUNS COMPLETELY SUCCESSFUL FROM FRONT AND
 BACK SEATS.
 3. DELAY IN PROGRAM ESTIMATED AT MINIMUM OF SEVEN MONTHS.
 FIRM ESTIMATE OF DELAY AVAILABLE WHEN ECP RECEIVED AND APPROVED.
 BT
 #4222

NNNN

1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL	VMROL										
1. TITLE Goodyear Rain Erosion Tests				AF R16											
				2. PROJECT NO. 9452 MR-2											
				3. OSD PROGRAM ELEMENT NO. 78011F											
4. PROJECT OFFICE AFMDC/MDTO		5. MANAGEMENT ORGANIZATION WPAFB/MATC		6. RESPONSIBLE COMMAND WPAFB/MATC											
7. TYPE OF REPORT				8. DATE PREPARED											
<input checked="" type="checkbox"/>	STATUS	SPECIAL	ACTION	OTHER	21 April 1969										
9. NARRATIVE															
<p>The purpose of this Management Report is to update the status of this program.</p> <p>a. <u>PHASE I</u>: This part of the program is complete. Two successful sled tests were conducted using the large 70 pound material sample wedge. The wedge used was provided on a loan basis from WPAFB/MANE. Rain entrance velocities were about 3,000 fps on both tests. One test was conducted in June and one in August 1968.</p> <p>b. <u>PHASE II</u>: Two tests have been conducted in support of this phase. They consisted of the SHRIKE nose tip and rain entrance velocities which were 2,900 fps and 2,800 fps respectively. MDT support was as programmed, but the two SHRIKE nose tips were completely eroded by rain impingement during the tests. The tests were conducted in October 1968. This program went into standby for evaluation when these failures occurred.</p> <p>c. <u>STATUS</u>: A meeting was held 14 January 1969 with representatives attending from Goodyear Aerospace and MDTO. Results were verbally coordinated after the meeting with MATC.</p> <p>(1) <u>Payload</u>:</p> <p>(a) About 16 runs remain to be performed in the Goodyear Rain Erosion test series. Following is an outline of the payloads proposed for the runs:</p> <table border="0"> <thead> <tr> <th><u>Test No.</u></th> <th><u>Payload</u></th> </tr> </thead> <tbody> <tr> <td>1 - 3 (SHRIKE)</td> <td>Cone, 6" diameter base, 8" long, about 2 lbs.</td> </tr> <tr> <td>4 - 8 (SRAM)</td> <td>*Cone, 16" diameter base, 36" long, 20 lbs or less.</td> </tr> <tr> <td>9 - 13 (SST)</td> <td>*Cone, 16" base, 36" long, about 10 lbs.</td> </tr> <tr> <td>14 - 16 (Contingency)</td> <td></td> </tr> </tbody> </table> <p>*NOTE: Consideration will be given to reducing base diameter (and length) by using the Goodyear frustum and a section of the cone. Decision to be</p>						<u>Test No.</u>	<u>Payload</u>	1 - 3 (SHRIKE)	Cone, 6" diameter base, 8" long, about 2 lbs.	4 - 8 (SRAM)	*Cone, 16" diameter base, 36" long, 20 lbs or less.	9 - 13 (SST)	*Cone, 16" base, 36" long, about 10 lbs.	14 - 16 (Contingency)	
<u>Test No.</u>	<u>Payload</u>														
1 - 3 (SHRIKE)	Cone, 6" diameter base, 8" long, about 2 lbs.														
4 - 8 (SRAM)	*Cone, 16" diameter base, 36" long, 20 lbs or less.														
9 - 13 (SST)	*Cone, 16" base, 36" long, about 10 lbs.														
14 - 16 (Contingency)															

AF FORM 111, MAY 64

(JON: A9452)

made later by the contractor.

(b) Additional payload would be the instrumentation compartment (for gooseneck sled), one telemetry package and power supply. Compartment and instrumentation is roughly estimated at 70 pounds. Telemetry is not planned to be used on all runs.

(2) Test Profiles: It is desired to maintain a test velocity of 3,000 to 4,000 fps for a 6,000 foot length of rain field.

(3) Rain Field: Small diameter nozzles (small drop size), with a rain density of about 2 1/2 inches per hour, is planned.

(4) Electronic Instrumentation:

(a) Data measurements which are tentatively planned are as follows: (1) six vibrations measurements (3 axis) at two locations (mounting base, cone tip), (2) four thermal measurements at four points about equally spaced from mounting base to tip of payload.

(b) Instrumentation Division estimates that one antenna will suffice for about three test runs. Therefore, about five antennas should be procured for these tests. About six months lead time should be allowed for antenna procurement. Procurement will not be initiated, however, until the proposed tests, as outlined herein (or modified), have been approved by the project sponsor, WPAFB/MATC.

(c) Not all test runs are planned to be instrumented. It was emphasized to the contractor that MDT desires for instrumented runs to be grouped, insofar as possible to minimize time and effort required for installation and removal of telemetry.

(d) MDT will furnish, install and operate telemetry for all end instruments. MDT will also furnish and install accelerometers. Thermocouples for thermal measurements will be furnished by contractor. Decision on whether contractor or MDT will provide signal conditioning for thermocouples will be made at a later date.

(e) Velocity measurement will be by spot velocity counters.

(5) Telemetry Data Reduction: There are no telemetry data reduction requirements for AFMDC (MDRC).

(6) Optical Instrumentation: Optical instrumentation will be as previously documented, with IMC optical coverage providing prime data, together with some shadowgraph (3 IMC units, 1 horizontal and 1 vertical shadowgraph). Still and movie documentary photography will be provided as previously documented.

(7) Security: No aspect of this program has a security classification. The proposed tests can be conducted without any requirement for security classification.

(8) Schedule: The next test run under this program is tentatively planned to be in about the second quarter of FY70. The test program will extend well into the calendar year 1971.

(9) Propulsion: The program was initially set up to utilize Lacrosse, Nike, and M58A2 solid rockets. The Nike unit will now be replaced with a Genie rocket for the purpose of economics. Computer profiles have been coordinated and accepted by MATC using this configuration.

(10) Funds:

(a) In accordance with controlling regulations AFSCM 170-1, AFSCR 172-2 and AFMDCR 170-2, MATC has reimbursed AFMDC for civilian overtime pay, contract services and project supplies, materials and equipment. MATC has provided an initial funding document in total amount as shown in sub-paragraph below and will provide supplementary funding documents for scope increases or unforeseen items which fall into the reimbursable category. On completion of program, all unused portions of reimbursement funds will revert to MATC.

(b) A total of \$36,537.30 remains in this program (Procurement Directive ASD/AFMDC 68-9). If all three contingency sled runs are used, MATC has agreed to reimburse AFMDC an additional \$2,273 for estimated costs, if required. Original funds not used for Nike motors, which are to be replaced by Genie motors, will now be used for instrumentation support.

FY70

	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>
Military	1,458	0.0	4,455	5,913
Civilian regular pay	<u>360</u>	<u>600</u>	<u>8,928</u>	<u>9,888</u>
TOTAL	1,818	600	13,383	15,801

FY71					
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	<u>GRAND TOT</u>
Military Pay	6,318	360	19,305	25,983	31,896
Civilian regular pay	<u>8,928</u>	<u>720</u>	<u>38,688</u>	<u>48,336</u>	<u>58,224</u>
TOTAL	15,246	1,080	57,993	74,319	90,120

(c) Total fund estimate of charges to customer:

FY70				
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>
Civilian overtime pay			300	300
Supplies (general)	100		510	610
Supplies (rocket mtr)			1,110	1,110
Contract Services (Maint. MDT telemetry)			165	165
Contract Services (Optical instrum.)		1,950		1,950
Equipment (telemetry, ground station, VMS)			3,590	3,590
Other			<u>600</u>	<u>600</u>
TOTAL	100	1,950	6,275	8,325

FY71					
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOT</u>	<u>GRAND TOT</u>
Civilian overtime pay			1,300	1,300	1,600
Supplies (general)	400			400	1,010
Supplies (rocket mtr)			4,810	4,810	5,920
Contract Services (Maint. MDT telemetry)			715	715	880
Contract Services (Optical instrum.)		8,450		8,450	10,400
Equipment (telemetry, ground station, VMS)			12,090	12,090	15,680
Other			<u>2,600</u>	<u>2,600</u>	<u>3,200</u>
TOTAL	400	8,450	21,515	30,365	38,690

(11) Manpower: No additional personnel are required to support this program.

	FY70				FY71				TOT
	MDM	MDR	MDT	TOT	MDM	MDR	MDT	TOT	
Military Personnel	.162	0.0	.495	.657	.702	0.04	2.145	2.887	3.544
Civilian Personnel	.03	0.05	.744	.824	.12	0.06	3.224	3.404	4.228
Contractor Personnel		0.03		.03		0.15		0.15	0.18
TOTAL	.192	0.08	1.239	1.511	.822	0.25	5.369	6.441	7.952

(12) Resources:

(a) Facilities: Test track, Directorate of Test Track buildings, equipment and instrumentation, test track shops. Shop and office space in the test track complex will be made available to MATC during the test program, however shops working areas are also being used by other contractors, making it necessary that overhead hoists and ancillary equipment be shared.

(b) Aircraft: A helicopter for safety surveillance will be obtained on an availability basis from White Sands Missile Range (WSMR/STEW-S-NR-RR) and scheduled under National Range Documentation (NRD) no. 369.

(13) Test and Participating Agencies:

(a) MATC, themselves, or through their contractor GAC will do as follows:

1. Send letter to AFMDC (MDT) approving test profiles and formally requesting test support in accordance with minutes of meeting, Holloman conference 14 January 1969, verifying AFSC project number and priority.

2. Submit design for sledborne hardware (and integration of same with test vehicle) drawings to AFMDC (MDT) for approval.

3. Fabricate test equipment mount and install mount on test vehicle.

4. Define number of telemetry systems required. Provide test instrumentation plan to AFMDC (MDT).

5. Furnish and install end instruments for all telemetry data channels, signal condition, and wire the hard lines up to a common interface.

6. Coordinate with the AFMDC Project Officer prior to shipment of any test hardware well in advance.

7. Provide a work crew at test site during the program to be responsible for handling the payload and interpreting the test data and to work with the AFMDC Project Officer in conduct of the tests.

8. Designate a contractor point of contact in planning for and conducting the tests.

9. Provide hand tools and small power tools for use by contractor personnel at the test site in working on contractor hardware.

(b) Det 3, Air Force Contract Management Division, Holloman AFB, phone 4577, will provide assistance to the contractor in accordance with the base supply clause, if any, in the contract, if assigned secondary contract management authority and given a copy of the contract. Regarding issuance of any new supplies and equipment to the contractor, the following applies: All base funded supply and equipment issues will be on a reimbursable basis and funds must be provided by the management organization prior to issuance.

(c) White Sands Missile Range (WSMR) will provide a meteorological support available, for wind surveillance, under NRD No. 369.

(d) AFMDC directorates will do as follows:

1. MDM will,

a. Provide shop support for any fabrication, modification mounting and/or maintenance required on sleds other than that specifically assigned to MATC of GAC.

b. Store and handle rockets.

2. MDR, through operations contract, will provide camera coverage, trackside optical coverage, still and movie documentary coverage as required. MDR will also provide aerial photo coverage as required.

3. MDT will,

a. Provide the AFMDC Project Officer.

b. Provide engineering support, including preparation of computer-run test profiles and coordination with contractor.

c. Prepare Operations Plan.

d. Operate test track.

e. Provide rocket motors, on reimbursable or non-reimbursable basis depending on particular type of motors selected.

f. Provide engineering drawings of sleds to MATC and GAC for use in design of mount for payload.

g. Provide pusher vehicles as required.

h. Coordinate and approve contractor design for contractor hardware with emphasis on methods of attachment to test vehicle and vehicle modifications if any.

i. Design, fabricate and install pallets to accommodate MDT furnished instrumentation.

j. Provide and install telemetry systems.

k. For Phase II sled testing, furnish, install and operate telemetry.

(14) Safety: All operations at Holloman will be in accordance with Air Force safety regulations.

(15) Reports:

(a) All costs will be accounted for on a monthly basis by the MDT Resources Management Office.

(b) This document has been prepared and coordinated by MDTO. Now that it is approved and authenticated, planning is considered complete, and in accordance with AFMDCR 80-3, further documentation and coordination will be done by MDT for the duration of the test program.

(16) Project Personnel:

<u>AGENCY</u>	<u>NAME</u>	<u>OFC SYM & ADRS</u>	<u>PHONE</u>
WPAFB/ MATC	Lt John R. Williamson Project Representative	Wright-Patterson AFB, Ohio	Autovon 785-3028
GAC	Mr. W. V. Arnold	Goodyear Aerospace Corp., Akron, Ohio	Commercial (513) 794- 7593
AFMDC	Mr. J. Pat Brown Project Officer	MDTO, Holloman AFB, New Mexico	Autovon 867-1110 Commercial (505) 473-6511 Ext. 5-2161
AFMDC	Mr. J. M. Dickerson Plans Officer	MDOP-2, Holloman AFB, New Mexico	Autovon 867-4441 Commercial (505) 473-6511 Ext. 4441

SUBMITTED BY:

APPROVED BY:

J. Pat Brown

J. PAT BROWN
Project Officer

Tyler A. Redfield

TYLER A. REDFIELD
Colonel, USAF
Director of Test Track

DATE: _____

DATE: 2 May 1969

FOR THE COMMANDER

V. E. Liles

V. E. LILES LUEKE, Colonel, USAF
Chief, Plans and Requirements Office

DATE: 8 July 1969



- 2. Atch
- 1. AFSC 103
- 2. Coordination Sheet

COORDINATION SHEET

Project 9452, Goodyear Rain Erosion Tests

21 April 1969

MDI	<u>Boyd C. Stout</u>	DATE: <u>1 July 69</u>
MDM	<u>Frank S. Ehring</u>	DATE: <u>3 July 69</u>
MDR	<u>H. W. Jester</u>	DATE: <u>16 June 69</u>
MDBCA	<u>L. D. Hansen</u>	DATE: <u>8 July 69</u>
MDBCB	<u>J. E. Wickes</u>	DATE: <u>1 July 69</u>
SCOM-25	<u>Harry R. Clifford</u>	DATE: <u>1 July 69</u>
MDMM	<u>[Signature]</u>	DATE: <u>2 July 69</u>

Mr. J. M. Dickerson

MDOP-2

Ext 4441

13 May 69

Atch #2

100000 21 402

SEA 1-46
AGM-78B
11/11/69
18 Apr 69

RTTEZYXX RUEBAA7181 1281931-EEEE-RUNTDAA.
ZNY EEEEE ZEL RUEBAAA CITING RUKLAAA9248 1082338
R 181924Z APR 69
FM AFSC
TO RUVAAHA/ASD/ASRE/ASRES/ASNAE-40/PAFB OHIO
INFO RUNTDAA/AFMOC/MDLWF/HOLLOWAN AFB INEX
RUEFHQA/CSAF/AFXOWQA/AFSPDA
RUKLAAA/TAC/DORCFM
RUTJBMA/USAFTRWC/CTEM/FWT/NELLIS AFB NEV
RUCLBMA/USAFTRWC/DST/EGLIN AFB FLA
RUCLBMA/ADTC/ADTTY-2/EGLIN AFB FLA
BT
UNCLAS E F T O SCSRW
SUBJECT: F-105F/AGM-78B CAT 11/111 TESTS (U)
REF A. 17 APR 69 TELECON ASRES (FINCHER)/SCSRW (CILVIK).
B. AFMOC(S) MDLWF 092255Z APR 69.
REF A TELECON CONFIRMS ASD HAS TAKEN APPROPRIATE ACTION IN
RESPONSE TO REF B TO PROVIDE ADEQUATE FIELD SERVICE SUPPORT
OF APR-35 SYSTEM.
BT
#7181

SFA

15 apr 69
1-46
J

Directorate of Test Track
15 April 1969

OPERATIONS PLAN 3C-B

SUBJECT: Project 921B, NWC Radome Tests

AUTHORITY: Management Report No. 2, dated 8 April 1969

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Naval Weapons Center, Corona, California
Motorola, Inc., Scottsdale, Arizona
Dynalectron Corporation

1. Test Objective and Description:

a. Objective: The objective of this test is to subject a radome to a high velocity and a high amount of vibration and to determine the results.

b. Description: A two stage vehicle will propel a radome having an ogive shape. The propulsion used will be a Lacrosse rocket motor as the first stage and a Gila IV rocket motor as the second stage. Spot velocity breaksticks will be used to obtain velocities for this test.

2. Basic Information:

a. General:

	<u>Forebody</u>	<u>Pusher</u>
(1) Sled	IMS 6829	PMS 6805
(2) Propulsion	1 Gila IV	1 Lacrosse
(3) Length (ft)	12	12
(4) Height (ft)	1	1
(5) Loaded Weight (lbs)	458	1,000
(6) Expended Weight (lbs)	223	512
(7) Firing Point (T.S.)	32,186W	35,000W
(8) Estimated Stop Point (T.S.)	100W	13,000W

b. Estimated Performance:

(1) Maximum Velocity (fps)	6179	2134
(2) Maximum Velocity (T.S.)	25,810	32,186W
(3) Maximum Acceleration (g's)	101.1	25.9
(4) Maximum Deceleration (g's)	50.6	-
(5) Water Braking Entrance Velocity (fps)	1445	-

c. Instrumentation

(1) MDTI will provide communications, timing, programming and spot velocity.

(2) Optical instrumentation will be two Fastax cameras.

d. Recovery: Recovery by styrofoam water trays and layflat water sausages will be required.

e. Reasons for HOLDS or Cancellation:

(1) HOLDS will be called at the discretion of the Project Officer.

(2) The following are reasons for cancellation:

(a) Equipment failure which would adversely affect the success of the mission.

(b) Major sled structure deficiencies.

(c) High crosswinds and inclement weather.

f. Countdown: An L-1 day countdown is not required. Mission support on L-day will be in accordance with the Master Countdown.

g. Job Order Number: B9014

h. Project Number: 921B

i. Security: All aspects of this test are unclassified.

j. Safety:

(1) Track Clearance: Initial - T-1 hr and 15 min.
Final - T-45 min.

(2) Hazard Area: From 2,500 feet north of Coco Pad to 5,000 feet south of Alpha Pad.

(3) Closed Spectator Areas: All spectator areas will be closed for this test.

3. Tasks for Supporting Organizations:

a. Functional Support: All Divisions/Offices will provide personnel and equipment to comply with provisions of DOI 55-1, Subject: "Programming and Conduct of Tests."

b. Reports:

(1) Division Summaries: All supporting Divisions/Office Chiefs will provide a summary report to the Project Officer within ten working days after completion of the test series for inclusion in the Final Report.

(2) Final Report: A Final Report will be provided within thirty working days after completion of the test series. This report will be prepared by the Project Officer.

(3) Test Event Report: A Test Event Report will be prepared by the Project Officer after each run in the test series.


4. Key Personnel:

a. Track Project Officer: 2d Lt Thomas F. Wilson, ext 5-2161/2163.

b. Track Project Engineer: Mr. Daniel Krupovage, ext 5-2654.

c. Motorola Customer Test Coordinator: Mr. James Ott, Motorola, Inc., AC 602-947-1311.

d. Navy Customer Test Coordinator: Mr. Noel Gravelle, Naval Weapons Center, AC 714-736-4370.


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Track Optical Inst.
"C" - Complex Safety
"D" - Engineering
"E" - Technology N/A
"F" - Propulsion
"G" - Test Support

ANNEX"A" TO OPLAN 3C-B
Instrumentation Division

1. Sled Instrumentation Branch: N/A

2. Data Acquisition Branch:

a. Telemetry: N/A

b. Timing and Trackside Instrumentation:

(1) Provide GX timing and programmed start/stop to the following
 (see PIP for locations and timing):

FX-1 To view T.S. 25,810W
 FX-2 To view T.S. 16,900W

(2) Provide first motion to the Midway complex.

c. Communications: Existing blockhouse communication loops will be utilized.

d. Blockhouse Requirements: A Coco firing circuit for one Lacrosse solid rocket motor is required with a T-0 programmed firing pulse.

e. Screen Boxes: Arm the installed screen box pair at T.S. 32,186W, used for second stage ignition, with 300 volts. A Gila IV will be staged.

f. First Motion: First motion is required.

g. Spot Velocity and Time Recording: Spot velocities are required at the following track stations. Use breaksticks at all points. Mission sled travels on the WEST rail.

NR	START (T.S.)	STOP (T.S.)	NR	START (T.S.)	STOP (T.S.)
1	32,000	32,100	11	25,700	25,500
2	32,100	32,200	12	25,500	25,300
3	32,200	32,300	13	25,300	25,100
4	27,100	26,900	14	25,100	24,900
5	26,900	26,700	15	15,200	15,000
6	26,700	26,500	16	15,000	14,800
7	26,500	26,300	17	14,800	14,600
8	26,300	26,100	18	3,300	3,200
9	26,100	25,900	19	3,200	3,100
10	25,900	25,700	20	3,100	3,000

3. Distribution of Data: Deliver to the Project Officer four copies of the data collection booklet.

A-1

ANNEX "B" TO OPLAN 3C-B
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Data:

a. Ribbon Frame Data Units: N/A

b. Fixed Trackside Optical Data Units (2): See POP for timing, programming and locations.

FX-1 To view T.S. 25,810W
FX-2 To view T.S. 16,900W

c. Image Motion Units: N/A

d. Shadowgraph Units: N/A

e. Engineering Tracking Units: N/A

2. Documentary/Engineering Optical Requirements:

a. Motion Picture Requirements: Pre and post run coverage. One hundred feet of 16mm color. Since run will be in the morning, artificial lighting will be necessary.

b. Still Requirements: Pre and post run coverage. 4x5 still documentary negatives.

3. Film/Data Processing Requirements:

a. All film to be processed as soon as possible after each test.

b. All film to be delivered to Directorate of Test Track - Photo Optical Section.

c. All film is unclassified.

4. Additional Information: The forebody sled is approximately 12 feet long. It is approximately 1 foot high. The centerline of the radome is 7.625 inches above the top of the rail.

ANNEX "C" TO OPLAN 3C-B
Complex Safety (Reference MDTOI 127-1 and AFMDCR 127-2)

1. The hazard area is from 2500 ft north of Coco to South Arroyo Road. It will be evacuated prior to T-75 minutes by non-participating personnel. The final track clearance will be completed prior to T-45 minutes. Track Control will control all personnel in the hazard area after this time.
2. No personnel will be permitted in Track buildings west of Building 1179 during arming period and firing or on camera pad road. The drone launch area should be evacuated if at all possible. No spectator areas will be open and only essential personnel will be allowed in Midway.
3. The post-fire condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.
4. Post-fire: After the sled vehicle(s) have been declared safe by MDTP personnel, roads will be opened as directed by Track Control after clearance is received from the Project Officer.

ANNEX "D" TO OPLAN 3C-B
Engineering Division

1. Provide theoretical profiles as required.
2. Provide water braking schedules as required.
3. Provide fabrication of minor items and the usual shop work necessary to prepare the test vehicle for any run.
4. Insure proper fit of knife blades with screen boxes.
5. Provide coordination of work orders that are required.

ANNEX "F" TO OPLAN 3C-B
Propulsion Division

1. Sleds and Propulsion:

<u>Stage</u>	<u>Sled</u>	<u>Propulsion</u>
1	PMS 6805	1 - Lacrosse
2	IMS 6829	1 - Gila IV

C-1
D-1
E-N/A
F-1

2. Provide screen boxes at the following location:

<u>Location</u>	<u>Use</u>	<u>Number</u>
T.S. 32,186W	Second stage ignition	Pair

3. The mission sled launch point is T.S. 35,000W.


4. No bird protection will be required because the sled will be fired in the early morning hours.

ANNEX "G" TO OPLAN 3C-B
Test Support Division

1. Provide heavy equipment as required.
2. Provide water braking for the mission sled on the WEST rail as follows:
 - T.S. 3,100W to T.S. 2,700W, 400 feet of styrofoam water trays cut to a water depth of $\frac{3}{8}$ ".
 - T.S. 2,700W to T.S. 2,300W, 400 feet of styrofoam water trays cut to a water depth of $\frac{1}{2}$ ".
 - T.S. 2,300W to T.S. 1,900W, 400 feet of styrofoam water trays cut to a water depth of $\frac{3}{4}$ ".
 - T.S. 1,900W to T.S. 1,500W, 400 feet of styrofoam water trays cut to a water depth of $1\frac{1}{2}$ ".
 - T.S. 1,500W to T.S. 100W, 1,400 feet of double 3" layflat water sausages.

F-2
G-1

1-46
MDNH

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL	
1. TITLE T-38A T-38/F-5 Escape System				AF - R16	
				2. PROJECT NO. AFMDC 420L MR-2	
				3. OSD PROGRAM ELEMENT NO. 81 114F	
4. PROJECT OFFICE AFMDC (MDT)		5. MANAGEMENT ORGANIZATION ASD (ASWL)		6. RESPONSIBLE COMMAND AFSC (SCSA)	
7. TYPE OF REPORT				8. DATE PREPARED	
<input checked="" type="checkbox"/> X	STATUS	SPECIAL	ACTION	OTHER	10 April 1969
9. NARRATIVE					
<p>a. <u>Status</u>: Four tests were successfully conducted at the Holloman track in the period 15 January 1969 to 12 March 1969. The first two tests were single seat static firings, while the last two tests were dual ejection dynamic runs at nominal velocities of 100 and 150 KEAS respectively. Four tests remain to be conducted.</p> <p>b. <u>Schedule</u>: Due to proposed modifications to test hardware, testing has been postponed for an indefinite period of time. Testing may extend into FY 1970 but is expected to be completed in CY 1969.</p> <p>c. <u>Resources</u>: No change in manpower requirements or funding is anticipated due to the slippage of the test schedule.</p> <p>SUBMITTED BY:</p> <p><i>George M. Palmgren</i> GEORGE M. PALMGREN, Captain, USAF Project Officer Operations Office</p> <p>DATE: <u>10 Apr 69</u></p>					
					

DEPARTMENT OF DEFENSE
OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20315

SEA 1-46

MDBCB

8 April 1969

Obligations in Support of SEA Operations, RCS: HAF-XDD-C34

AFSC(SCCPM)

Transmitted is subject report for month of March 1969.

FOR THE COMMANDER

J. M. DAVENPORT
Chief, Budget Branch

2 Atchs
1. Obligs in Spt of SEA Ops
2. SEA Narrative

MDN (Mr. Cornett)

OBLIGATIONS IN SUPPORT OF SEA OPERATIONS

HOLLOMAN AIR FORCE BASE, NEW MEXICO

(In Thousands of Dollars)

RCS: HAF-XDD-C34
As of 31 March 69

<u>P.E./DOD EOE</u>	<u>FY 1969 ESTIMATED OBLIGS</u>	<u>FY 1969 APPROVED OBLIGS</u>	<u>CURRENT MONTH OBLIGS</u>	<u>CUMULATIVE OBLIGS</u>
15 Supplies & Materials	\$ 140	0	\$ 38	\$ 132
16 Equipment	89	0	39	89
04 Civilian Pay	50	0	3	48
05 Travel & Trans of Persons	33	0	1	28
	<hr/>	<hr/>	<hr/>	<hr/>
TOTAL	\$ 312	0	\$ 81	\$ 297

Month of March

SEA NARRATIVE

Civilian Pay - DOD 04 -	\$ 2,980.00
Supplies & Materials - DOD 15 -	38,320.00
Equipment - DOD 16 -	39,495.00
Travel - DOD 05 -	624.97

Civilian Pay shown is in support of the following:

Project 140A - SRAM	41 M/H	\$ 164
Project 420L - T-38/F-5 Escape System	32 M/H	128
Project 6065 - Aerodynamics Decel Studies	656 M/H	2,624
Project 6263 - Electro-Optical Tech for Recon	16 M/H	64
	<hr/>	<hr/>
TOTAL	745 M/H	\$2,980

Travel performed by: 1 Airman - Project Red Horse

1-46

MDNH

8 April 1969

CORONA HARVEST Report for the 1954-1964 Time Period in SEA

MDOP-2

1. Reference is made to your letter of 26 March 1969, subject as above. The Historical Division has covered all SEA activity as it pertains to the Air Force Missile Development Center in a series of histories listed below. These histories reflect available documentation in the referenced sources and copies of the histories are available at both Air Force Systems Command and the Air University. Should copies of these documents be needed, they are located in the historical archives at Holloman.

a. History of Air Force Missile Development Center July - December 1965, Volume I, April 1967 (Classified Secret). (This volume covers SEA activity from 1 July 1964 through 31 December 1965.)

b. History of Air Force Missile Development Center January - June 1966, Volume I, "Holloman and Southeast Asia 1 January - 31 December 1966," May 1967 (Classified Secret).

c. History of Air Force Missile Development Center January - June 1967, Volume I, August 1968 (Classified Secret).

d. History of Air Force Missile Development Center July - December 1967, "Holloman and Southeast Asia (U)," June 1968 (Classified Secret). (This is a monograph, soon to be issued as a portion of the over-all AFMDC history.)

e. SEA activity for the period January - December 1968 is currently being prepared.

LLOYD H. CORNETT, JR.
Center Historian

Atch
CH Form 8

LHC
8 April 69

CORONA HARVEST DOCUMENT IDENTIFICATION FORM

Date 8 April 1969

1. Please complete this form for each document you have on file which contains information pertinent to Project CORONA HARVEST.

2. Document Identification Data

Document Title History of Air Force Missile Development Center July - December 1965, Volume I.

Date of Publication April 1967

Security Classification Secret

Originating Agency AFMDC (MDNH)

Document Type (Check 1) Memo Message Report Plan
Monograph Analysis Other (Specify)

History

Is this a recurring report? Yes No

Frequency of Publication Semiannual

Remarks: This document covers SEA activity at the AFMDC from 1 July 1964 through 31 December 1965.

3. You will be notified of CORONA HARVEST requirements relative to the document identified within 30 days from our receipt of this form.

When unclassified, fold, staple, and mail.

When classified, forward in accordance with AFR 205-1.

1-46
SEA
7 April 69
7 APR 69 10 40Z
RTTEZYUW RUEBAA7137 6971323-EEEE--RUHTDQA.
ZNY EEEEE
R 271316Z APR 69
FM AFSC
TO ALAFSC
TO AIG 9323
BT
UNCLAS E F T O SCOPM
ALAFSC 415/69. FOR PLANS/PROGRAMS, ESO FOR ESCP.
PROGRAM 69BDF, TASK 29, KINEMATIC BOMBING SYS. IS A PART
OF S-EOLIGHT AND CARRIES AN 87M AFSC PRIORITY. MANAGEMENT
AGENCY IS AFAL. HQ AFSC OPR IS SC11. THIS PRIORITY IS
LISTED IN THE MARCH 31 HAF R-13 REPORT AS XX15 IN COLUMN D.
BT
#7137

SEA 1-46

Minutes of Meeting, Proposed AVW Chaff Dispenser Tests

1 April 1969

1. Place: Building 1179
2. Time: 0900 hours, 25 March 1969
3. Chairman: Robert C. Rethmel
4. Personnel Present:

<u>NAME</u>	<u>ORGANIZATION</u>
Mr. Neal W. Brune	MB Associates, San Ramon, Calif.
*Mr. David D. England	AFMDC, MDOP-1
*Mr. Val C. Ogden	AFMDC, MDOP-2
*Mr. Joe M. Mapes	AFMDC, MDTE
*Mr. Monroe A. Curtis	WSMR (NR-DR-N)
*Mr. R. L. Gilmore	Dynalectron Corporation
*Mr. R. M. Sandoval	Dynalectron Corporation
*Mr. William Folan	AFMDC, MDTI
*Capt George D. Locke, Jr.	AFMDC, MDRT
*Lt Larry W. Pennell	AFMDC, MDTO
*C. H. Smith, Jr.	General Dynamics/RAT SCAT

*Part-time attendance

5. Purpose: This was a preliminary discussion on a proposed test for a chaff dispensing rocket intended for electronic countermeasures. If it is decided to pursue track testing, an additional meeting (with the SPO represented) will be necessary prior to project documentation.

6. Payload: The payload would be the chaff dispensing rocket and its launcher. The rocket design is not yet completed. However, estimated rocket dimensions are ten inches long, two inches diameter, and a weight of about two pounds. About 0.3 pounds of chaff would be dispensed. Maximum payload dimensions, including launcher, are estimated to be four inch diameter, length two feet, and weight under fifty pounds. Sled-borne camera, if used, would be additional weight.

7. Test Profile:

a. It is desired to achieve a sled velocity of approximately Mach 1.4 before firing the rocket. The launcher would be mounted on the sled so that the rocket would be fired in the direction of sled motion and along the

No. 69-10A

longitudinal axis of the test track. (Position could vary from the longitudinal axis by a few degrees, if desired) The launcher is planned to be mounted at an angle of approximately 20 to 30 degrees to the horizontal plane. Detailed information on the rocket trajectory and chaff pattern is security classified.

b. Only one rocket would be launched in each sled test. A specific number of test runs has not been arrived at, but is roughly estimated at ten to fifteen tests.

c. Sled acceleration level is roughly estimated at 20 g to 30 g.

8. Test Vehicle: It is currently planned that a monorail vehicle would be used to carry the rocket and its launcher. (Sled No. IMS 6318-2 is tentatively planned to be used.) Launch of the rocket would be initiated by trackside screen box at the desired track station.

9. Electronic Instrumentation:

a. Telemetry or other onboard electronic instrumentation is not planned to be used.

b. A discussion was held with representative of NR-DR-N (WSMR) and with representatives of MDRT (RAT SCAT) in regard to use of portable radar to obtain pattern of dispensed chaff. Such support is expected to be available. Additional discussion on this subject will be necessary prior to project documentation and commitment of AFMDC support.

10. Optical Instrumentation:

a. Rocket velocity and position is desired, if possible. (Position need not be highly accurate, and is more important than velocity.) Since the chaff should present a visible, glistening cloud, it is possible that it may be partially recorded by optical instrumentation.

b. The rocket will be painted a distinctive color, to aid in optical coverage.

c. The possibility of using an onboard camera, to show the initial phase of ejection from the launcher, was briefly discussed. Smoke from the rocket might obscure such coverage. If used, camera would be mounted aft of gun, looking in direction of sled motion.

d. It is planned to have high speed trackside cameras near the track station at which the rocket would be launched.

e. The possibility of using a smoke tracer flare on the rocket, as an aid to optical coverage, was discussed.

f. It is currently anticipated that chaff would be dispensed in a single burst, at maximum altitude.

g. It is planned to initiate a flash-bulb, by screen box action, to serve as a reference point.

h. The possibility of some optical coverage from a helicopter was briefly discussed.

11. Security: Certain information on the pattern of dispensed chaff is security classified.

12. Safety: The safety aspects of the proposed tests will be reviewed in detail at the next meeting. Specifications for the rocket and launcher will be required, when available. Personnel will be in the radar van during the test and the safety aspect of the position of the van will need to be considered.

13. Recovery: Rocket recovery is not essential, but is desirable.

14. Schedule: It is tentatively planned that track testing will start in July 1969. The desired pattern of testing would probably be for several tests to be conducted on successive days, with a week or two of standdown time before another group of several tests is conducted.

15. Action: It is planned that a meeting on this subject will be held with a representative of the SPO (and contractor) within several weeks time. Test profile, test vehicle, instrumentation, etc., will be discussed in greater detail, and reimbursable costs determined. Following that meeting, if the SPO so desires the project will be documented, AFMDC commitment of resources will be made, and hardware preparations undertaken in support of the tests.

Robert C. Rethmel
ROBERT C. RETHMEL
Operations Office

Cy to: MDT
MDT (Mr. Rasmussen)
MDTA (Mr. MacGinitie)
MDTE, MDTL, MDTS, MDTP,
MDTT, MDTC, MDTO (Mr. Brown)
AVW-691 (Mr. George Maxwell)
All Conferees

NOTE: Request recipients of these minutes notify the chairman if any aspect of the minutes is not in accordance with discussion and decision of the conference, or if any important item of discussion has been omitted.

SEA 1-46

1111L

29 March 1969

1, 25 MAR 69 00 35Z

0962

1
2
3
4
5
6
7
8
9
10
11
12

RTTEZYUW RUVAHA1173 0371705-EEEE--RUWDOA.

ZNY EEEEE

R 281649Z MAR 69

FM ASD WPAFB O

TO AFMDC HOLLORN AFB NMEX

BT

UNCLAS E F T O ASERP MAR 69

FOR MDLW AT AFMDC

REFERENCE AFMDC MESSAGE 142221 MAR 69 SUBJECT: REPLACEMENT

STABILIZED CAMERA MOUNT - ART-57.

THE SPO HAS REVIEWED THE RECOMMENDATION IN REFERENCED MESSAGE

FOR A NEW STABILIZED CAMERA MOUNT TO REPLACE THE PRESENTLY

AVAILABLE A-28 MOUNTS. CONSIDERATION HAS BEEN GIVEN TO

THE DEGREE OF IMPROVED PERFORMANCE THAT MIGHT REASONABLY

BE EXPECTED AS CONTRASTED WITH COST, LEAD TIME VERSUS

REQUIRED TESTING. THE SPO DOES NOT BELIEVE THAT THE EXPENSE

OF A NEW MOUNT IF WARRANTED AT THIS TIME IN VIEW OF THE AMOUNT

OF TESTING REQUIRED TO BE ACCOMPLISHED AFTER THE NEW MOUNT



COULD BE AVAILABLE, INSTALLED AND USED.

BT

#1173

502

1-46
MDNH

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE TAC TARGET DELIVERY TECHNIQUE (Close Air Support System - CLASS)				2. PROJECT NO. 4144 AFMDC MR-2
				3. OSD PROGRAM ELEMENT NO. 6240527F
4. PROJECT OFFICE AFMDC/MDS		5. MANAGEMENT ORGANIZATION AFAL		6. RESPONSIBLE COMMAND AFSC
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	SPECIAL	ACTION	xx OTHER Termination	28 Mar 1969
9. NARRATIVE				
<p>The purpose of this Management Report is to terminate sled tests on the CLASS, Range and Range Rate Subsystem. Testing was accomplished by CIGTF for AFAL.</p> <p>a. <u>General</u>. During this program the CLASS subsystem was subjected to six rocket sled tests at AFMDC. The purpose of testing was to obtain dynamic range and range rate performance. The sled was used to simulate aircraft speeds over a ground location, with the added advantage of an accurate range and range rate reference measuring system. The run series were considered very successful with the system performing within specifications.</p> <p>b. <u>Resources</u>:</p> <p>(1) <u>Equipment</u>:</p> <p>(a) Test equipment has been returned to AFAL.</p> <p>(b) All AFMDC furnished equipment has been reprogrammed to support other programs.</p> <p>(2) <u>Funds</u>. The \$33,150 furnished by AFAL-will be expended shortly.</p> <p>(3) <u>Manpower</u>. Original Estimate - 2.0 Civilian Manyears, 2.7 Military Manyears. The actual expenditures were approximately the same as estimated.</p> <p>c. <u>Reports</u>. A Final Report will be published by AFMDC.</p>				
SUBMITTED BY:				
 MONTE D. MILLER, Major, USAF Project Manager Directorate of Guidance Test				
				
				Page 1 of 1

*Copy of 1-46
(S/W) 1-46
25 March 69*

20306 2 012

PITLEYUM RUKLAAA5622 0871944-UUUU--RUMTDOA.
ZNR UUUUU
P 281920Z MAR 69
FM TAC
TO RUMJEMA/USAFTRVC /CTE/ NELLIS AFB NEV
INFO RUEFHQA/CSAF/AFRDDA
RUEBBAA/AFSC /SCSAC/ANDREWS AFB MD
RUMTDOA/AFMDC /MDLDE/ HOLLOWAN AFB NMEX
RUJLMDA/WRAMA/WRNEB/ROBINS AFB GA
BT
UNCLAS DORCF
SUBJECT: AIM-9E END GAME II FLIGHT TESTS
REFERENCES: A. TAC (S/NF) DO 172147Z MAR 69.
B. WRAMA (LD WRNEB 251447Z MAR 69.

-
1. REQUEST YOU PROVIDE ONE (1) F-4E AND CREW CHIEF FOR SUPPORT
SUBJECT: TEST AS OUTLINED REF A AND REQUESTED REF B. TAC
SUPPORT TEST NO. 69-6-53 AND PRIORITY IC ASSIGNED.
 2. DIRECT COMMUNICATION WITH WRAMA AUTHORIZED.
- BT
#5622

UNCLAS E F T O WRNEBS 0561737-EEEE--RUMTDOA.

ZNY EEEEE

R 271020Z MAR 69

FM WRAMA ROBINS FB GA

TO RUMAAQA/ASFL ASZM1 WPAFB OHIO 27
INFO RUMMRA/COAMA CONEEA COMFTHILL AFB UTAH 137

RUMJEMA/TPVC CTE NELLIS AFB NEV

RUMTDOA/AFMDC MELDE HOLLOWAN AFB NMEX

RUMAAA/TAC DMMAZ

BT

UNCLAS E F T O WRNEBS

SUBJ F-4E MOD FOR AIM-9E END GAME II DEVELOPMENT PROGRAM.

THIS MSG CONFIRMS TELECON WITH MR. G. ARNOLD/ASZM-1 ON 26 MAR 69

IN WHICH WRNEBS WAS GRANTD APPROVAL TO PERFORM A CLASS 1B

MODIFICATION TO F-4E AIRCRAFT FOR WRMA TEST PLAN 63-1, END

GAME II PROGRAM. THE MODIFICATION CONSISTS OF WIRING

CHANGES TO THE INBOARD ARMAMENT PYLONS AND AERO-38 LAUNCHERS FOR

MISSILE TELEMETRY CONTROL, ALSO A MINOR WIRING CHANGE TO THE

AIRCRAFT FOR UTILIZATION OF THE UHF TONE GENERATOR WHICH IS

REQUIRED FOR RANGE INSTRUMENTATION TIMING. THE DRAWING PACKAGE

DEPICITING THE ABOVE MODIFICATIONS HAS BEEN SENT TO ASZM-1, MR.

G. ARNOLD; CONEEA, MR. D. BROWN AND T/C/CTE, MAJ B. FICKEL.

BT

#4355

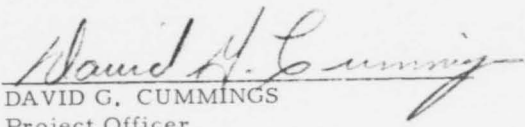

SEA 1-46
Cubit 78
27 March 1969

MDL

6668

27
MAR 1969

1-46
R MDN

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE WLDC Rocket Impact Tests (Concrete Sky, Phases IV, V, VIa, and VII)				AFR R-16
				2. PROJECT NO. AFMDC 1597 MR-3
				3. OSD PROGRAM ELEMENT NO. 64212F
4. PROJECT OFFICE AFMDC (MDT)		5. MANAGEMENT ORGANIZATION AFWL (WLDC)		6. RESPONSIBLE COMMAND
7. TYPE OF REPORT				8. DATE PREPARED
<input checked="" type="checkbox"/> STATUS	<input type="checkbox"/> SPECIAL	<input type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	27 March 1969
9. NARRATIVE				
<p>a. The purpose of this Management Report is to report progress on the WLDC Rocket Impact Test program. One profile test to obtain actual test parameters was conducted on 10 May 1968 prior to starting the impact series. Eighteen (18) impact tests under Phases IV and V were completed between 3 June and 16 August 1968. Seven (7) impact tests under Phase VIa were completed between 8 October and 10 October 1968. Twenty-four (24) impact tests under Phase VII were completed between 27 November 1968 and 17 January 1969. Two (2) other tests were conducted on 18 November and 4 December 1968, however, these two tests did not render impact information because on each sled run the warhead detonated before reaching the impact area. On one test, the warhead detonated when it hit a bird during sled acceleration. On the other test, the warhead and rocket motor left the sled assembly and detonated before reaching the impact area. Both detonations caused excessive track rail and girder damage, thereby creating a two week delay in the test schedule for track repairs. Two other tests under Phase VII were aborted due to inclement weather conditions.</p> <p>b. It is anticipated that AFWL (WLDC) will request additional tests in FY 70. Therefore, this test program will be inactive until AFWL (WLDC) requests additional tests or terminates the program. AFWL (WLDC) has promised AFMDC (MDT) a decision on program status by July 1969.</p>				
SUBMITTED BY:				
 DAVID G. CUMMINGS Project Officer Operations Office				
DATE: <u>27 March 1969</u>				
				
Page 1 of 1.				

NNNRTTEZYUW RUVAHA0795 0851451-EEEE-RUMTDOA.

ZNY EEEEE

R 261441Z MAR 69

FM ASD WPAFB OHIO

TO RUMTFJA/ATC/ATISD/ATOSE/ATXRG/COL FRAZER/

RUMJAAA/TACDDETT/COL MARTIN/

RUMJAAA/4441ST CCTV WILLIAMS AFB ARIZ

INFO RUMJBOA/APPRO NORTHROP CORP HAWTHORNE CALIF

RLEOPUA/CO FRANKFORD ARSENAL/J5100/PHILA PA

RUMTDHA/SAAMA/SANEV/SANAT/KELLY AFB TEX

RUMJNTA/6911 TEST GP/FINEM/NAVAL AIR PAC/EL CENTRO CALIF

RUMTDOA/AFMDC/MDTO/HOLLOWAN AFB NM

BT

UNCLAS E F T O ASZJ/ASNNYJ MAR 69

APPRO PASS TO NORAIR DIV. SUBJ: F-5/T-38 EGRESS SYSTEM EVALUATION.

1. THE F-5/T-38 IMPROVED EGRESS SYSTEM DEVELOPMENT PROGRAM WAS PREDICATED, IN PART, UPON CONCURRENT DEVELOPMENT AND QUAL OF F-104 SEAT DROGUE CHUTE. AT BEGINNING OF F-5/T-38 DEVELOPMENT, F-104 DROGUE CHUTE REQUIRED 250 CU IN; HOWEVER, IT HAS SINCE GROWN TO 350 CU IN. CHUTE CONTAINER LOCATED AT LEFT SHOULDER, ORIGINALLY SATISFACTORY, PRESENTLY OBSTRUCTS

PAGE 2 RUVAHA0795 UNCLAS E F T O

IP VISION IN T-38 WITH FRONT SEAT FULL UP, PARTIALLY OBSTRUCTS F5 OVER THE SHOULDER VISION.

2. NORAIR HAS MODIFIED 350 CU IN BOX TO REDUCE IMPACT ON VISIBILITY.

3. REQUEST MINIMUM OF TWO (2) F-5/T-38 QUALIFIED PILOTS FOR EACH COMMAND REPRESENTING SAFETY AND STAN/EVAL TO EVALUATE PROPOSED CONFIGURATION OF DROGUE CHUTE BOX THURS, 3 APR 69, 1000 HRS TO 1200 HRS, AT NORAIR PALMDALE FACILITY. AT PRESENT, SLED TEST PROGRAM AT AFMDC HAS BEEN STOPPED PENDING EVALUATION OF REVISED CONFIGURATION. ON THE SPOT APPROVAL OR REJECTION WILL BE REQUIRED. ASD WILL BE REPRESENTED BY MR. ED LEISY OF APPRO.

BT

#0795

26 MAR 69 17 43Z

50A
1-46
26 MAR 69
MDT

MDNH 1-46

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MISSILE DEVELOPMENT CENTER (AFSC)
HOLLOMAN AIR FORCE BASE, NEW MEXICO 88330



REPLY TO
ATTN OF: MDOP-2

26 Mar 1969

SUBJECT: CORONA HARVEST Report for the 1954-1964 Time Period in SEA

TO: See Distribution

1. References and directives:

a. SCLAP ltr, subject: "CORONA HARVEST Report for the 1954-1964 Time Period in SEA," dated 17 Mar 1969 (see Atch #1).

b. Letter from General Ferguson, subject: "AFSC Studies for Project CORONA HARVEST," dated 4 Oct 1968 (see Atch #2).

c. AFR 55-15, dated 22 May 1968.

d. AFSC Sup 1 to AFR 55-15, dated 18 Sep 1968.

e. CHOI (CORONA HARVEST Operating Instruction) 4, dated 1 Nov 1968 (see Atch #3).

f. CHOI 8, dated 1 Nov 1968 (see Atch #4).

2. Instructions for the implementation of Project CORONA HARVEST are included in the references listed in paragraph 1. As outlined in Atch #1 (ref 1a above), the project has entered the first time period of Documentation Phase (ref CHOI 4, Atch #3).

3. Request each addressee undertake the document search outlined in paragraph 2 of Atch #1. The results of your search should be reported to MDOP-2/Lt Col Roswurm via CH Form 8 (submitted in triplicate) in accordance with CHOI 8 (Atch #4) no later than 1 April 1969. Negative replies, if applicable, are requested. Local reproduction of CH Forms 8 is authorized.

Richard C. Roswurm

RICHARD C. ROSWURM, Lt Col, USAF 4 Atchs
CORONA HARVEST Project Officer As stated

Distribution: MDBC
MDBP
MDE
MDF
MDGC
MDI
MDL
MDM
MDMKN
MDMM
MDMS
MDNH
MDO
MDOO
MDOR
MDR
MDS
MDT
ARL
AVNI
AVRO
CMTA
MDOP
MDOP-1
MDOP-2 (5 cy)
MDOP-3

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE SYSTEMS COMMAND
ANDREWS AIR FORCE BASE, WASHINGTON, D.C. 20331



REPLY TO
ATTN OF: SCLAP

17 March 1969

SUBJECT: CORONA HARVEST Report for the 1954 - 1964 Time Period
in SEA

TO: AFMDC (MDOP-2)

1. The examination of airpower applications for Project CORONA HARVEST in SEA has been divided into four time periods: 1954 - 61, 1962 - 64, 1965 - 31 March 1968, and 1 April 1968 - 19XX. A special task force at Maxwell AFB is being set up to prepare the input for the 1954 - 64 time frame.
2. We have been requested to initiate a special search within AFSC to identify any documents which record USAF R&D actions in, and related to, SEA during the period 1954 - 1964 and to report these documents to the Maxwell Project Office. As CORONA HARVEST point of contact, you are requested to undertake this search within your organization and report the documents in accordance with CHOI 8, Identification and Annotation of CORONA HARVEST documents. (CORONA HARVEST Operating Instructions are being sent to you under separate cover.) It is suggested that you conduct your search in two phases. In phase one, review official files and appeal to individuals to screen their personal files, bibliographies, and memories. The second phase would be periodic reminders, put out through command media, to keep people on the look-out for candidate documents for possible use by the 1954 - 64 task force. Organization historians are being alerted to this need through command historian channels and should be prepared to offer assistance in the search.
3. The AFSC target date for completion of the initial search is 15 April 1969. You are requested to submit your completed CORONA HARVEST Document Identification Forms (CH Form 8) in two copies to AFSC (SCLAP) to arrive not later than 9 April 1969 for review, consolidation, and transmittal to the CORONA HARVEST Project Office. Questions concerning this program should be addressed to AFSC (SCLAP), Lt Col J. O. Spencer, ext 2652.

FOR THE COMMANDER

William W. Gilbert
WILLIAM W. GILBERT, Colonel, USAF
Director of Analysis
DCS/Development Plans

FORGING MILITARY SPACEPOWER

DEPARTMENT OF THE AIR FORCE
 HEADQUARTERS AIR FORCE SYSTEMS COMMAND
 ANDREWS AIR FORCE BASE, WASHINGTON, D.C. 20331



4 OCT 1968

REPLY TO
 ATTN OF:

SCG

SUBJECT:

AFSC Studies for Project CORONA HARVEST

TO: AFSC Divisions, Centers, Ranges, Laboratories, and SAMSO

1. The Chief of Staff of the United States Air Force has directed the Air University to assume responsibility for the conduct of Project CORONA HARVEST, a program to determine the effectiveness of airpower in Southeast Asia. The Air Force Systems Command will participate in the project by evaluating the research and development support provided the SEA operations. The Commander of the Air University has requested that AFSC conduct the four studies listed below. Studies will be conducted using available resources.

2. The title, office of primary responsibility (OPR), and schedule for each study to be conducted by AFSC are as follows:

<u>Study</u>	<u>OPR</u>	<u>Starting Date</u>	<u>Completion Date</u>
R&D Reaction Time to Operational Needs	SCS	15 Sep 68	15 Feb 69
Demands for New Research Efforts	SCT	1 Dec 68	31 Mar 69
Impact of Funding for Short-Term Programs Upon Long-Term Efforts	SCC	1 Dec 68	31 Mar 69
Special R&D Management Procedures	SCS	1 Jan 69	1 May 69

3. The magnitude and scope of the studies are such that many elements of this command will be involved. All addressees are requested to assist the OPRs if called upon.

4. SCL has been designated OPR for Project CORONA HARVEST in AFSC, and will issue guidance and instructions, as appropriate, on the review and coordination of the study efforts. Questions on Project CORONA HARVEST should be addressed to the Project Officer, Lt Col J. O. Spencer, at AFSC (SCLAP), ext. 2652.

James Ferguson
 JAMES FERGUSON, Colonel, USAF
 Commander

Copies forwarded for info 22 Nov 68 to:
 MDL MDS
 MDM MDT
 MDC MDEC

CR

FORGING MILITARY SPIRITPOWER

DEPARTMENT OF THE AIR FORCE
Detachment 1 (CORONA HARVEST)
Aerospace Studies Institute (AU)
Maxwell Air Force Base AL 36112

CORONA HARVEST
OPERATING INSTRUCTION 4

1 November 1968

DOCUMENTATION PHASE OF PROJECT CORONA HARVEST

This operating instruction defines the Documentation Phase of Project CORONA HARVEST.

1. Applicability. This operating instruction applies to all Air Force agencies participating in Project CORONA HARVEST.

2. General:

a. As outlined in the Concept of Operations for Project CORONA HARVEST (CHOI 3), Documentation is one of the four phases of accomplishment of the project objectives; moreover, it is prerequisite to accomplishing the other phases, i.e., Analysis, Evaluation, and Publication. This operating instruction further defines the tasks involved in the Documentation Phase.

b. The Documentation Phase involves identifying, collecting, annotating, indexing, storing, and retrieving information and data relevant to an evaluation of the role and effectiveness of airpower and to document the conduct of the air war in Southeast Asia.

c. Pursuant to AFR 55-15 all information and data relevant to Project CORONA HARVEST will be considered as historical source materials and handled in accordance with AFR 210-3 and AFM 210-1. This information and data will be derived from many sources, collected and recorded in various forms, and stored in a number of Air Force repositories, for example:

(1) Field reports submitted in digital form will be stored at designated computer centers at the major commands and the Air Staff.

(2) Photos and motion pictures will be stored at established Air Force film libraries.

OPR: ASD-1
DISTRIBUTION: X

CHOI 4

(3) Books, periodicals, staff studies, research reports, and other bound documents will be stored at the Air University Library.

(4) Unit histories with supporting documentation, End-of-Tour reports, Oral History interviews, and other historical data will be stored at the Air Force Archives.

(5) Papers, memoranda and miscellaneous data will be stored throughout the Air Force.

d. The variety and magnitude of the data base for Project CORONA HARVEST necessitates structuring the information and data to perform meaningful analysis efficiently, provide for thorough and objective evaluation, and assure validation and substantiation of findings and recommendations. Therefore, special management arrangements and procedural instructions are required to accomplish the Documentation Phase of Project CORONA HARVEST. These arrangements and procedures are generally outlined in this operating instruction and more specific instructions are set forth in separate operating instructions on particular aspects of the Documentation Phase.

3. Responsibilities:

a. The CORONA HARVEST Project Office (Det 1, ASI) will:

(1) Issue procedures for accomplishing the Documentation Phase of the project.

(2) Publish a CORONA HARVEST Data Base Reference Guide (see CHOI 9).

(3) Maintain an inventory of the CORONA HARVEST data base (see CHOI 11).

(4) Provide a central reference service for agencies participating in Project CORONA HARVEST (see CHOI 9).

(5) Establish and manage a CORONA HARVEST End-of-Tour Report Program (see CHOI 14).

(6) Coordinate and conduct a CORONA HARVEST Oral History Program (see CHOI 15).

(7) Establish requirements for data automation in support of Project CORONA HARVEST.

CHOI 4

b. The Air Force Archives and Air University Library will (see CHOI 12 and CHOI 13):

- (1) Serve as the principal repositories for documentation relevant to Project CORONA HARVEST.
- (2) Provide bibliographic and documentation service to Air Force agencies participating in the project.
- (3) Annotate, index, and store documents identified for Project CORONA HARVEST.
- (4) Furnish the CORONA HARVEST Project Office (Det 1, ASI) with a periodic inventory and status report of CORONA HARVEST documentation.

c. Other Air Force repositories designated in support of Project CORONA HARVEST will (see CHOI 10):

- (1) Serve as supplementary repositories for CORONA HARVEST documentation.
- (2) Provide specialized documentation service upon request.
- (3) Annotate, index, and store applicable CORONA HARVEST documentation.

d. The Project CHECO office, PACAF/7th Air Force will establish a special microfilm collection program in support of Project CORONA HARVEST in accordance with Air Staff direction and PACAF-AU Memorandum of Agreement.

e. All Air Force agencies will:

- (1) Assist in identifying information and data relevant to Project CORONA HARVEST.
- (2) Implement applicable procedures within their organization for accomplishment of the Documentation Phase of the project.

4. Procedures:

a. Identification and Collection:

- (1) All information and data relevant to Project CORONA HARVEST (see AFR 55-15) will be identified by the completion of a CORONA HARVEST Document Identification Form (see CHOI 8). The DIF will be forwarded to

CHOI 4

the CORONA HARVEST Project Office (Det 1, ASI). Upon receipt of the DIF the CORONA HARVEST Project Office (Det 1, ASI) will determine if the document is in the data base inventory and will respond with appropriate disposition instructions.

(2) Following receipt of a DIF on the initial document of a series (such as recurring reports, unit histories, or continuing studies or analyses), the CORONA HARVEST Project Office (Det 1, ASI) will arrange for automatic disposition of subsequent issues to a Designated CORONA HARVEST Repository, where they will be indexed, stored, and included on the periodic inventory.

(3) Personnel to participate in the CORONA HARVEST End-of-Tour Report Program will be identified by the Colonel's Assignment Group, Hq USAF, and AC/S, Personnel, PACAF, based on a register of key positions furnished by the CORONA HARVEST Project Office (Det 1, ASI) (see CHOI 14).

(4) Personnel to participate in the CORONA HARVEST Oral History Program will be identified by the CORONA HARVEST Project Office (Det 1, ASI) based on a CORONA HARVEST Oral History questionnaire (see CHOI 15).

(5) Information and data relevant to Project CORONA HARVEST not otherwise entering established reporting systems in Southeast Asia will be identified and collected on microfilm by special teams in accordance with procedures established by PACAF/7th Air Force Project CHECO office. After processing, the microfilm will be forwarded to the Air Force Archives where it will be annotated, indexed, and stored in the semi-automated Miracode system.

b. Annotation. All information and data identified and collected for Project CORONA HARVEST will be marked with a standard CORONA HARVEST stamp and will be assigned a CORONA HARVEST control number (see CHOI 8).

c. Index and Storage:

(1) All documents relevant to Project CORONA HARVEST on hand and received at the Air University Library will be indexed on the Termatrex system.

(2) All information and data relevant to Project CORONA HARVEST on hand and received at the Air Force Archives will be microfilmed and, along with microfilm received from Southeast Asia, will be indexed on the Miracode system.

CHOI 4

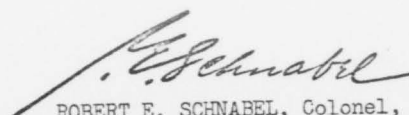
d. Reference Service:

(1) Each Air Force repository of Project CORONA HARVEST documentation will establish and disseminate local procedures for obtaining reference service, including indexes, bibliographies, and reproduction of documents.

(2) A central reference service will be provided on a request basis by the CORONA HARVEST Project Office (Det 1, ASI). In this connection, the CORONA HARVEST Project Office (Det 1, ASI) will publish a Data Base Reference Guide which will identify the categories of data held at various repositories and procedures for retrieval.

e. Data Base Inventory. An inventory of the data will be accomplished periodically to (1) assess the adequacy of documentation of various subjects of interest to the project; (2) measure progress in collecting and indexing relevant documentation; and (3) determine the degree to which relevant information and data have been used in performing the Analysis and Evaluation Phases of the project. It is anticipated that the inventory with particular status information will be computer-based, thus permitting management analysis of the CORONA HARVEST documentation relative to all phases of the project and for any subsequent inquiry and research (see CHOI 11).

5. Special Category Documents. The CORONA HARVEST Project Office (Det 1, ASI) will establish and disseminate on a need-to-know basis appropriate procedures for handling of Special Category Documents for the project (see CHOI 19).


ROBERT E. SCHNABEL, Colonel, USAF
Chief, Project CORONA HARVEST

DEPARTMENT OF THE AIR FORCE
Detachment 1 (CORONA HARVEST)
Aerospace Studies Institute (AU)
Maxwell Air Force Base AL 36112

CORONA HARVEST
OPERATING INSTRUCTION 8

1 November 1968

IDENTIFICATION AND ANNOTATION OF CORONA HARVEST DOCUMENTS

This operating instruction prescribes the responsibilities and procedures for identifying and annotating documents for Project CORONA HARVEST.

1. Applicability. This operating instruction applies to all Air Force agencies participating in Project CORONA HARVEST.
2. General. The documentation necessary for Project CORONA HARVEST is located throughout the Air Force and is stored in a variety of formats and data banks. It is recognized that the collection and storage of all pertinent data in a single repository is not feasible at this time. Yet, it must all be identified for use in the Analysis and Evaluation Phases of the project. The validity and credibility of CORONA HARVEST findings depend on the completeness of the supporting data.
3. Responsibilities:
 - a. Effective upon receipt of this operating instruction, CORONA HARVEST project officers will identify documentation pertinent to Project CORONA HARVEST by completing a CORONA HARVEST Document Identification Form (DIF) (Atch 1) and forwarding this form to the CORONA HARVEST Project Office (Det 1, ASI). The CORONA HARVEST Document Review Questionnaire (DRQ) will no longer be used for this purpose, but a DIF is not required for documents previously identified to the CORONA HARVEST Project Office (Det 1, ASI) by DRQ.
 - b. The CORONA HARVEST Project Office (Det 1, ASI) will acknowledge receipt of all DIFs and provide instructions (Atch 2) for annotation and disposition of the document.
 - c. Designated CORONA HARVEST Repositories (see CHOI 10) will not use the DIF for document identification. CORONA HARVEST Operating Instruction 11 provides special instructions to these repositories for providing data base inventory information and annotating selected documents.

OPR: ASD-1
DISTRIBUTION: X

CHOI 8

4. Procedures:

a. The DIF is intended to identify clearly a document so that the CORONA HARVEST Project Office (Det 1, ASI) can determine whether or not the document is already in the CORONA HARVEST Data Base. The form is self-explanatory and should be filled in completely. The "Remarks" section should be used to provide any additional information which will facilitate document identification.

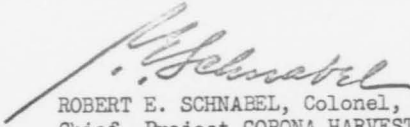
b. The project officer will complete and forward a DIF for each document pertinent to Project CORONA HARVEST. Normally, recurring reports will require only one DIF, unless the purpose, scope, or format of the report is changed.

c. The CORONA HARVEST Project Office (Det 1, ASI) will acknowledge receipt of each DIF and provide the project officer with the CORONA HARVEST Control Number assigned to that document and document disposition instructions.

d. Upon receipt of notification that the document is not already in the CORONA HARVEST data base, the project officer will (1) stamp the document in a prominent place using the CORONA HARVEST rubber stamp (Atch 3); (2) enter the assigned control number; and (3) comply with the disposition instructions.

5. SUPPLY OF FORMS. CORONA HARVEST FORM & WILL BE
REPRODUCED LOCALLY AS SHOWN IN ATCH 1.

SEE CH 1 TO CHOI &
DATED 20 DEC 68


ROBERT E. SCHNABEL, Colonel, USAF
Chief, Project CORONA HARVEST

3 Attachments
1. Document Identification Form
2. CORONA HARVEST Form Letter
3. CORONA HARVEST Rubber Stamp
Imprint

THIS PAGE IS DECLASSIFIED IAW EO 13526

UNITED STATES AIR FORCE
OFFICIAL BUSINESS

POSTAGE AND FEES PAID
DEPARTMENT OF THE AIR FORCE

ASI (MED-12)
Maxwell AFB AL 36112

THIS PAGE IS DECLASSIFIED IAW EO 13526

0433

20 December 1968

S A M P L E
DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR UNIVERSITY
MAXWELL AIR FORCE BASE, ALABAMA 36112

CHOI 8 (CI)



REPLY TO
ATTN OF: ASD-1R

SUBJECT: CORONA HARVEST Document Identification Form

TO:

1. Thank you for your effort in behalf of Project CORONA HARVEST.

2. The document you identified (_____
Document Title
_____) --
and Date of Publication

a. Is in the CORONA HARVEST Data Base. For your information and possible further reference, the CORONA HARVEST Control Number for this document is _____. Dispose of your copies in accordance with your own needs.

b. Is not now in the CORONA HARVEST Data Base. See paragraphs 3 and 4 below.

3. This document should be incorporated into the CORONA HARVEST Data Base. Please annotate a copy with the CORONA HARVEST stamp in a prominent place and assign it CORONA HARVEST Control Number _____.

4. Please forward _____ annotated copy(s) to the following Designated CORONA HARVEST Repository: AU Library _____; AF Archives _____; Other _____.
Additional copies are not required. Disposition of other copies should be in accordance with your own needs.

FOR THE COMMANDER

4

Attachment 2

STRENGTH through KNOWLEDGE

CORONA HARVEST RUBBER STAMP IMPRINT

PROJECT CORONA HARVEST DO NOT DESTROY No _____
--

DEPARTMENT OF THE AIR FORCE
Detachment 1 (CORONA HARVEST)
Aerospace Studies Institute (AU)
Maxwell Air Force Base AL 36112

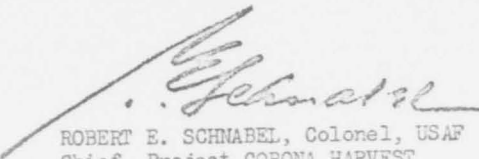
CHANGE 1
CHOI 8

20 December 1968

IDENTIFICATION AND ANNOTATION OF CORONA HARVEST DOCUMENTS

CHOI 8, 1 November 1968, is changed as follows:

- ✓ 5. Supply of Forms. CORONA HARVEST Form 8 will be reproduced locally as shown in Attachment 1.
- ✓ Attachment 2. Remove page 4 (undated) and insert page 4, 20 December 1968.


ROBERT E. SCHNABEL, Colonel, USAF
Chief, Project CORONA HARVEST

DISTRIBUTION: X

SEA 1-46

6/1/6

25 March 69

PTILEYV RHELDAC835 OR1G39-UUNU--RUMDQ ✓
ZNR UUNU
P 251447Z MAR 69
FM WEAFA/AFSC SPC
TO RUMDQ/AFSC SPC
INFO RUMDQ/AFSC SPC
RUMDQ/AFSC SPC
RUMDQ/AFSC SPC
RUMDQ/AFSC SPC
RUMDQ/AFSC SPC
BT
UNCLAS WEAFA
SUBJ: AIR-GE F-4C II DEVELOPMENT PROGRAM /OSAP/AFSC SPC
PR12015Z MAR 69/
1. THE F-4 TAC HAS AGREED TO FURNISH FOR THE SUBJECT TEST PROGRAM
WILL BE UTILIZED ON A SIX /G/ DAY PER WEEK BASIS IN ACCORDANCE
WITH SAID TEST PROGRAM.
2. REQUEST THAT TAC IDENTIFY THE ORGANIZATION THAT WILL PROVIDE
THE F-4 IN ORDER THAT CLASS 1B WGS RECEIVED FOR THE SUBJECT
TEST PROGRAM CAN BE SCHEDULED AND ACCOMPLISHED PRIOR TO 7 APR 69.
3. REQUEST THAT TAC PROVIDE THE F-4 AT AFSC ON 7 APRIL 69 TO
COMMENCE THE SUBJECT TEST PROGRAM
BT
#6335

UNCLAS E F T O
 RUMJBOA1169 2235-EEEE--RUMTDOA.
 ZNY EEEEE
 R 040230Z MAR 69
 FM AFTR NORTHROP CORP HAWTHORNE CA
 TO RUMAAKA/ASD ASEJ WPAFB
 INFO RUMTDOA/AFMOC WOTO HOLLOWAN AFB
 BT

5154
 1-46
 25 March 1969
 11111

25 MAR 69 01 42Z

UNCLAS E F T O CORNE
 INITIATED BY CONTRACTOR ORGN 3400/32
 SLDJ: ECP 231713/741P EGRESS SYSTEM TEST
 1. THIS MESSAGE IS A SUMMARY OF THE DISCUSSIONS HELD BETWEEN
 NORTHROP AND ASD AT KELLY AFB 19 MARCH 1969.
 2. TWO STATIC FIRINGS AND TWO DYNAMIC SLED RUNS AT 100 AND 150 KNOTS
 HAVE BEEN COMPLETED PER ECP 231/741. FOUR ADDITIONAL DYNAMIC RUNS
 WITH EIGHT SEAT EJECTIONS ARE SCHEDULED. ALL THE ABOVE TESTS WERE
 SCHEDULED TO USE A DECELERATION/RETARDATION/DROGUE/CHUTE LOCATED
 IN A CONTAINER ABOVE AND BEHIND THE LH SHOULDER OF THE PILOT AS
 ORIGINALLY PROPOSED.
 3. THE ORIGINAL PROPOSAL WAS BASED UPON THE SR-71 DROGUE CHUTE
 TO BE INSTALLED IN A 250 CU. INCH CONTAINER. SUBSEQUENT DEVELOP-
 MENT OF THE CHUTE FOR HIGHER AERODYNAMIC LOADS-550 KEAS-REQUIRED
 FOR THE F-104 AND T-38/F-5 SYSTEM AND FIELD PACKING CONSIDERATIONS

PAGE 2 RUMJBOA1169 UNCLAS E F T O
 REQUIRED ADDITIONAL STORAGE VOLUME RESULTING IN A 350 CU. INCH CON-
 TAINER.
 4. THE 350 CU. INCH CONTAINER BEING TESTED HAS RESTRICTED PILOT VISION
 AS FOLLOWS: A. T-38 AFT PILOT'S VIEW THRU LH STUDENT WINDSCREEN IS
 RESTRICTED WITH FRONT SEAT FULLUP. NO RESTRICTION WITH SEAT IN MID-
 POSITION. B. T-38/F-5 LOOK AROUND VISION RESTRICTED. WITH OUTBOARD
 CORNER OF BOX CHAMFERED LOOK AROUND GREATLY IMPROVED.
 5. NORTHROP HAS MADE A STUDY OF A CHUTE CONTAINER LOCATED ON THE CENTER-
 LINE OF THE SEAT BEHIND THE HEAD REST. WHILE STUDY IS NOT COMPLETED, IT
 APPEARS FEASIBLE FROM A VOLUME CONSIDERATION ON THE T-38 FRONT SEAT AND
 THE F-5A IF THE HEAD REST IS MOVED ONE INCH FORWARD. THE BACK SEAT OF
 THE T-38 IS QUESTIONABLE AT THIS TIME AND MAY STILL REQUIRE A LH SHOULDER
 INSTALLATION. THE CENTERLINE INSTALLATION IS RESULT IN IMPROVED VISI-
 BILITY AND AESTHETICS FOR THE SEAT MODIFICATION.
 6. DISCUSSIONS WITH THE DROGUE CHUTE WINDOR INDICATE THAT THE PRESENT
 CHUTE CONFIGURATION WOULD BE THE SAME, HOWEVER, A SLEEVE DEPLOYMENT
 RATHER THAN BIG DEPLOYMENT MIGHT BE MORE DESIRABLE FOR CENTERLINE IN-
 STALLATION.
 7. THE CONTRACTOR RECOMMENDS THAT THE REMAINING SLED TESTS BE DEFERRED
 UNTIL THE CENTERLINE CHUTE STUDY CAN BE COMPLETED. IF IT IS DESIRABLE

PAGE 3 RUMJBOA1169 UNCLAS E F T O
 TO INCORPORATE A CENTERLINE INSTALLATION, THE REMAINDER OF THE SLED
 TESTS CAN BE USED TO TEST THE CENTERLINE CONFIGURATION.
 AFMOC COMMENT: THE ABOVE IS CONTINGENT ON THE OUTCOME OF THE
 ASD TELECON REQUEST FOR A MOCK-UP EVALUATION BY ATC AND TAC.
 THIS SCHEDULED FOR 3 APR 1969 AT PALMDALE FOR AN F-5A AND
 T-38 WITH A RIGHT HAND INSTALLATION. IF THE CENTERLINE INSTALLA-
 TION IS REQUIRED, DELAY IN THE TOTAL PROGRAM OF APPROXIMATELY
 SIX MONTHS IS EXPECTED BASED ON DISCUSSIONS WITH THE CONTRACTOR.

SEA

MON 1-46

Directorate of Test Track
24 March 1969

OPERATIONS PLAN 27R-A

SUBJECT: Project 921C, Picatinny 30mm Rain Erosion Tests

AUTHORITY: USAF - ESP Number 921C-69031

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

U.S. Army, Picatinny Arsenal, Dover, New Jersey
Dynalectron Corporation

1. Test Objective and Description:

a. Objective: The objective of this program is to evaluate sensitivity on XM579 fuze assembly by subjecting them to a controlled rain environment.

b. Description:

(1) A single shot, fixed gun will be used. The test items are live 30mm projectiles loaded with 28 grams of HMX. Twenty-five (25) rounds will be fired through a 400 ft rain field, with a 400 ft distance (no rain) between gun and entry to the rain field. An additional twenty-five (25) will be fired through an 800 ft rain field, with distance between gun and entry to the rain field tentatively set at 10 to 20 ft. After exit from the rain field, projectiles will strike a 24" x 24" 16 gauge steel target.

(2) In sequence following the rain field are a 24" x 24" 16 gauge steel target, an 8' x 8' steel plate of 3/4 or 1 inch thickness, and a log bunker. Projectiles are not expected to detonate in the rain field, but should detonate upon striking the target. The steel plate is used as a burster screen for added assurance that projectiles will detonate before striking the bunker, thus avoiding the trouble of digging live projectiles from the bunker.

(3) If any projectiles detonate in the rain field, testing will halt until corrections have been made.

(4) All personnel (including the gun crew) will be behind a protective bunker.

c. Recovery of Projectiles: An 8 ft x 8 ft steel plate of 3/4 or 1 inch thickness is placed behind the target to burst any projectiles that fail to detonate at the target. As a result, it is not expected that any projectiles will be recovered.

d. Reasons for Cancellation: Tests will be cancelled by the Project Officer because of:

- (1) Inclement weather
- (2) Unsafe conditions
- (3) Operational interferences

e. Countdown L-1 Day: Position guns and prepare hardware and set system for L-Day.

f. Time Accounting: C9031

2. Tasks for Supporting Agencies:

a. Functional Support: All supporting Divisions/Offices will provide personnel and equipment to comply with provisions of DOI 55-1, Subject: "Programming and Conduct of Tests."

b. Reports:

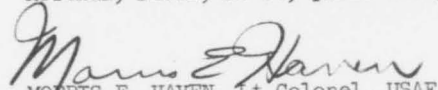
(1) Test Event Reports: A Test Event Report will be prepared by the Project Officer after each day's effort.

(2) Division Summaries: All supporting Divisions/Offices will provide a summary report to the Project Officer within ten working days after completion of the test series.

3. Key Personnel:

a. Track Project Officer: 2d Lt Larry W. Pennell, ext 5-2163

b. Customer Test Representative: Mr. R. M. Watts, Picatinny Arsenal, Dover, N. J., phone no. 328-3109.


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Track Optical Instr.
"C" - Complex Safety
"D" - Engineering
"E" - Technology N/A
"F" - Propulsion N/A
"G" - AFMDC Ammunition Area
"H" - Test Support
"I" - J. H. Thompson Const. Co.

ANNEX "A" TO OPLAN 27R-A
Instrumentation Division

1. No electronic or optical instrumentation is anticipated for this test series.
2. Communications: Provide intercom at firing position.
3. Firing Circuit Requirements: None

ANNEX "B" TO OPLAN 27R-A
Track Optical Instrumentation

1. No optical instrumentation is anticipated for this test series.
2. Documentation/Engineering Requirements:
 - a. Still Requirements: 4x5 color and B/W pre and post test coverage
 - b. Motion Picture Requirements: 16mm color, pre and post test coverage as requested by the Project Officer.
3. Film/Data Processing Requirements:
 - a. All still and motion picture film will be processed immediately following each test and delivered to the Track.
 - b. Still print requirements will be stated on the work order.

A-1
B-1

ANNEX "C" TO OPLAN 27R-A
Complex Safety

1. Prior to loading and firing of the weapon, all personnel not required for the actual loading will move at least 200 ft EAST of the firing point. The Project Officer will insure that the area in front of the weapon is clear for at least 5000 ft.
2. The weapon firing team will be protected by a pill box (be inside the pill box) to fire the projectile if they are within 35 ft of the weapon to fire it.
3. The Project Officer will determine when the area is clear to allow necessary personnel back into the area to replace targets, etc.

C-1

ANNEX "D" TO OPLAN 27R-A
Engineering Division

1. Design and fabricate burster screen.
2. Check contractor design for target holding fixture.
3. Provide other engineering support as required.

ANNEX "F" TO OPLAN 27R-A
AFMDC Ammunition Area

1. Provide vehicle and crew to obtain ammunition from bomb dump on day of firings and position vehicle at about T.S. 24,000 on the west side of the track.
2. Return vehicle with remaining ammunition to bomb dump following each series of firings.
3. Rounds required (type and number) will be specified by the Project Officer.
4. Alert EOD personnel for possible night duty and provide the Project Officer with a name to contact each day.

ANNEX "G" TO OPLAN 27R-A
Test Support Division

1. Provide Heavy Equipment with personnel, equipment and supplies as required during the test. This also includes positioning pill boxes and burster screen.
2. Portable lights will be required in firing range as specified by the Project Officer.
3. Provide additional support as required.

D-1
E-N/A
F-1
G-1

ANNEX "H" TO OPLAN 27R-A
J. H. Thompson Construction Company

1. Operate and maintain rain system.
2. Calibrate rain as required by customer.

H-1

61-46
Giant 78p
(SEA)
212mel69

ROTIWUW RUMUNATOWE OSORIS-ULSU-RUMDOA.

ZNR UNCLAS
P 210000Z MAR 69
FM COMNAV HILL AFB UTAH
TO SACLANTA/COMNA WINGS ROBINSON AFB GA
INFO RUMUNATA/AFSC MONTA
RUMTODCA/AFSC WILDE WELLSMAN AFB MI NY
BT

UNCLAS COMNA

SMEL ATN-SC END GAVE II DEVELOPMENT PROGRAM SUPPORT.

REF WANTS UNCLAS OSORIS FOR 69 WHICH REQUESTED TWO KITS BE MADE AVAILABLE TO MODIFY F-4D OR F-4E AIRCRAFT TO CARRY AIM-9 MISSILES AND WANTED LETTER 1 FEB 1969 WHICH PROVIDED COMNA WITH AUDIO SIGNAL LEVEL DATA FROM AIM-9 MISSILES OPERATING ON AERO-38 LAUNCHERS.

1. COMNA HAS REQUESTED TWO KITS TO BE MADE AND REQUEST. KITS WILL BE MAILED TO AFSC WILDE WITH LT FUGER WELLSMAN AFB MI MARKED FOR ATN-SC END GIVE SUPPORT ON 24 FEB 1969.
2. THE PLAN TO LAUNCHER CABLE ASSEMBLIES IN THE KITS HAVE BEEN MODIFIED TO PROVIDE THE MISSILE TONE SIGNAL LEVEL TO THE AIRCRAFT. IT IS REQUESTED THAT THIS MODIFICATION BE EVALUATED AS PART OF THE TEST SORTIE. THE FOLLOWING INFORMATION IS REQUESTED AS SOON AS IT HAS BEEN DETERMINED TO COMPLETE OUR REVISION EFFORTS

A. IS SIGNAL LEVEL TO AIRCRAFT READINGS TOO HIGH OR TOO LOW AT
PAGE 2 RUMUNATOWE UNCLAS
MAX VOLUME LEVEL.

B. DOES MISSILE TONE CONTROL ON AUXILIARY ARMAMENT CONTROL

PANEL PROVIDE SATISFACTORY LEVEL CONTROL OF MISSILE TONE.

C. WHAT CLOCK POSITION OF VOLUME CONTROL PROVIDES NOMINAL LEVEL DESIRED BY AIRCRAFT.

D. WHICH ICE WAS INSTALLED, LS-800B/IC OR LS-800B/MIC.

3. WHEN INSTALLING THE KITS ON F-4D AIRCRAFT PER TOAF-4D-936 AND ON F-4E PER TO AF-4E-911 HELDIC WORK REFERRED IN PARAGRAPH C. J. OF EACH TO. INSTALLATION OF GROUND SHORTING PLUG IS NOT REQUIRED WHEN USING THE MODIFIED CABLE ASSEMBLIES.

4. IF ANY DIFFICULTIES ARE ENCOUNTERED WITH THE MISSILE TONE AND ITS CONTROL IMMEDIATELY CONTACT COMNA NR BRONX EXT 7293.

BT

#7078

SEA
MDN 1-46
R

Directorate of Test Track
21 March 1969

OPERATIONS PLAN 9I-D

SUBJECT: Project 319A, ASD Impact Tests

AUTHORITY: AFMDC Management Report dated 28 January 1969 titled
ASD Impact Tests

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Aeronautical Systems Division (ASZHT/Major Wittevrongel)
MDLP, Holloman AFB, New Mexico
Dynalectron Corporation (Land-Air Division)
Hughes Aircraft Company, Holloman AFB, New Mexico, and
Canoga Park, California
Physical Science Laboratory, NMSU
MDRC, Holloman AFB, New Mexico

1. Test Objectives and Description:

a. Objectives: To determine the crushup characteristics of the
ASD missile nose section and to measure impact parameters.

b. Description: One 14 DS 1000 booster pushing a sledborne 30°
steel wedge target will be impacted against a suspended missile nose cone
positioned off the north end of the Test Track. The suspended missile
nose cone will be positioned about 10 to 12 feet north of the EAST rail.
Impact data will be hardlined to the north end bunker.

2. Basic Information:

a. General Information:

(1)	30° Steel Wedge:	Hughes furnished
(2)	Target Sled Assembly:	AFMDC furnished
(3)	Propulsion:	One 14 DS 1000
(4)	Weights (lbs):	
	(a) Sled, payload and spent motor:	719
	(b) Payload:	565
	(c) Propellant:	71
	(d) Launch weight:	790

b. Estimated Performance:

- | | |
|---------------------------|-------------|
| (1) Maximum velocity: | 425 ft/sec |
| (2) Maximum acceleration: | 1.3 g's |
| (3) Impact velocity: | 425 ft/sec |
| (4) Launch point: | T.S. 32,100 |

c. Instrumentation:

- (1) Sledborne: None
- (2) Trackside:
 - (a) Breaksticks for velocity measurements.
 - (b) Two Leach recorders and associated equipment at the north end bunker for recording impact data.
- (3) Communications, timing and programming are required.
- (4) Optical instrumentation includes FX, TM, and Ribbon Frame units.

d. Recovery: No braking is required. The monorail vehicle with target will be impacted against the suspended nose cone. All impact debris will be recovered after each impact test.

e. Reasons for Holding or Cancelling:

(1) A HOLD will be called in the event test preparations are not on schedule; weather conditions temporarily unfavorable for satisfactory data; any extraneous occurrences which directly affect test preparations or countdown schedule.

(2) A run will be cancelled if continuing inclement weather conditions prevent acceptable optical coverage or power loss to cameras providing prime optical data; malfunction in equipment which prevents completion of the run.

f. Countdown: Pre-run support will be in accordance with the Master Countdown.

g. Job Order Number: 319A5

h. Project Code: 319A

i. Security: The external and internal views of the missile nose cone and all raw data including sled profile data are unclassified.

3. Task for Supporting Organizations:

a. Functional Support: All Divisions and Offices will provide personnel and equipment to comply with provisions of DOI 55-1, Subject: "Programming and Conduct of Tests."

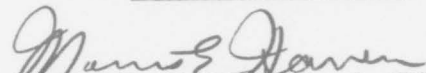
b. Reports:

(1) Test Event Report by Track Project Officer.

(2) Division/Office Summaries: All supporting Division/Office Chiefs will provide a Summary Report to the Project Officer within ten working days after completion of the test series for inclusion in the Final Report.

4. Key Personnel:

a. <u>Track Project Officer:</u>	David G. Cummings, ext 5-2163
b. <u>Sled Responsible Officer:</u>	Lt W. Hill, ext 5-2469
c. <u>Track Instrumentation Engineer:</u>	Mr. J. Doherty, ext 5-2038
d. <u>Customer Test Coordinator:</u>	Mr. Ray Miller, ext 7292
e. <u>Maverick Test Director:</u>	Capt R. Smith, Jr., ext 7552


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Track Optical Inst.
"C" - Complex Safety
"D" - Engineering
"E" - Technology N/A
"F" - Propulsion
"G" - Test Support
"H" - PSL
"I" - Computation Div. MDRC

ANNEX "A" TO OPLAN 9I-D
Instrumentation Division

1. Sled Instrumentation Branch:

a. Trackside Recorder Instrumentation:

(1) MDTIS will install and operate two 14 track Leach recorders. All signals (22 max.) will be provided by the test item contractor. The recorders and systems are in Track's north end bunker.

(2) The contractor will be responsible for all signal conditioning and calibration of information to be recorded by MDTIS.

(3) No sledborne or blockhouse instrumentation items required.

b. Trackside Recorder Channel Assignments: Two Leach tape recorders will be used to record impact information. Tape recorder identification and track assignments are as follows:

(1) Recorder Nr 1

<u>Track Nr.</u>	<u>Interface Pin</u>	<u>Record Mode</u>	<u>Assignment</u>
1	Midway	54 KHz + 40%	IRIG-B timebase
-	12	--	Ground for all signals
2	9	54	Sensor 13-16
3	1	108	Trigger switch
4	2	108	Skin/can
5	3	108	Sensor 61
6	4	108	Zero time
7, 8	-	Direct	100 KHz reference
9	5	108	Sensor 1-4
10	6	108	Sensor 5-8
11	7	108	Sensor 9-12
12	8	108	Sensor 62
13	10	54	Sensor 13-20
14	11	54	Sensor 21-24

A-1

(2) Recorder Nr 2

<u>Track Nr.</u>	<u>Interface Pin</u>	<u>Record Mode</u>	<u>Assignment</u>
2	Midway	54 KHz + 40%	IRIG-B timebase
-	12	--	Ground for all signals
1	9	54	Sensor 53-56
3	1	108	Sensor 25-28
4	2	108	Sensor 29-32
5	3	108	Sensor 33-36
6	4	108	Sensor 37-40
7, 8	-	Direct	100 KHz reference
9	5	54	Sensor 41-44
10	6	54	Sensor 45-48
11	7	108	Zero time
12	8	54	Sensor 49-52
13	10	108	Temblor switch
14	11	54	Sensor 57-60

2. Data Acquisition Branch (MDTID):

a. Telemetry: No RF transmission will be utilized.

b. Oscillograph Requirements: Quick-look oscillographs will be required to be made from the two Leach one-inch tapes. Paper speed will be 1 ips, 1 inch total deflection on all traces. The number of oscillographs and tracks per oscillograph is as follows:

- (1) Oscillograph Nr 1: Leach tracks 1 through 5 from tape Nr 1.
- (2) Oscillograph Nr 2: Leach tracks 1, 6, 7, 8, 9 and 14 from tape Nr 1.
- (3) Oscillograph Nr 3: Leach tracks 1, 10, 11, 12, and 13 from tape Nr 1.
- (4) Oscillograph Nr 4: Leach tracks 1 through 5 from tape Nr 2.
- (5) Oscillograph Nr 5: Leach tracks 2, 6, 7, 9, and 14 from tape Nr 2.
- (6) Oscillograph Nr 6: Leach tracks 2, 10, 11, 12, and 13 from tape Nr 2.

c. Timing and Trackside Instrumentation:

- (1) Provide AC power to bunker located on west side of north end of track.
- (2) Provide seven pairs of wires from Blockhouse Coco to the bunker (pit) located on west side of north end of track for instrumentation.
- (3) Provide clean IRIG-B to the same location.
- (4) Provide X pair of wires for the contractor remote control.
- (5) Provide programming to optical units according to the PIP. Camera locations are shown in the PIP.
- (6) Provide GX timing (5 KHz) to ribbon frame units and FX units. See PIP for layout.
- (7) Provide a programmed firing at T-0. The mobile launch console will be used.

d. Communications:

- (1) Launch control trailer communication loops will be utilized. Communications at the launch pad is also requested.
- (2) Provide launch control loops to Blockhouse Coco.
- (3) Provide an isolated communication loop from Blockhouse Coco to west pit at north end of track.
- (4) Provide communication loops to TM tracking locations. See PIP.
- (5) Provide Loop 6 between mobile launch and Blockhouse Coco. —

e. Firing Circuit Requirements: Provide a firing circuit for one solid propulsion motor at T.S. 32,100. Use the mobile launch trailer for launch control. The mobile launch trailer will be located at about T.S. 29,000, the intersection of road 4 and the track road (east).

f. Screen Boxes: Not required.

g. First Motion: First motion is required.

h. Spot Velocity: Spot velocities are required at the following track locations (stop points are 100 feet north of start).

1. 32,500	8. 34,600
2. 33,000	9. 34,800
3. 33,400	10. 35,000
4. 33,800	11. 35,100
5. 34,000	12. 35,200
6. 34,200	13. 35,300
7. 34,400	14. 35,400
	*15. 35,500

*The stop location will be at T.S. 35,560

3. Distribution of Data:

- a. One complete set of oscillographs and one data booklet to MDTIA, Mr. Doherty.
- b. Leach tapes to the Project Officer with four data booklets.

ANNEX "B" TO OPLAN 9I-D
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Units: Place camera START breaksticks on EAST rail. See PIP for layout. Twelve ribbon frames, six FX's, and one tracking are required. All FX coverage will have GX timing (5 KHz).

2. Aerial Instrumentation/Engineering Data: Not required.

3. Documentary/Engineering Optical Requirements:

a. Still Requirements:

- (1) 4x5 B/W - Pre and post runs.
- * (2) 4x5 Color Negative - Pre and post runs.
- (3) 35mm Color of pre and post runs - 2 originals of each item shot.

*May be deleted after proper coverage.

A-4
B-1

- b. Motion Picture Requirements: Pre and post-run coverage.
4. Film/Data Processing Requirements:
- a. All films will require processing.
 - b. 4x5 B/W film will require three each 8x10 glossy on initial order.
 - c. All films will be returned to the Track, except ribbon frame coverage.
 - d. All films are unclassified.
5. Additional Information:
- a. The centerline of the sled is 9.75 inches above the rail. Total sled system is about 100 inches long and 16 inches in diameter.
 - b. The sled will be on the EAST rail.
 - c. Coordinate surveying of optical units, positioning of desired bunkers and light boxes or mirror setup with Track Optical (Mr. Bush).

ANNEX "C" TO OPLAN 9I-D
Complex Safety (Reference MDTOI 127-1 and AFMDCR 127-2)

1. The hazard area is from Road #4 to 5,000 feet north of Coco Pad. It will be evacuated prior to T-45 minutes by non-participating personnel. The final track clearance will be completed prior to T-20 minutes. Track Control will control all personnel in the hazard area after this time.
2. The post-fire condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.
3. Post-fire: After the sled vehicle(s) have been declared safe by MDTP personnel, roads will be opened as directed by Track Control after clearance is received from the Project Officer.

B-2
C-1

ANNEX "D" TO OPLAN 9I-D
Engineering Division

1. Provide drawings, work orders, technical assistance and shop coordination for all runs.
2. Provide required profiles, including plot distance and time versus velocity.

ANNEX "F" TO OPLAN 9I-D
Propulsion Division

1. Sleds: IMS 6871 series.
2. Propulsion: One 1/4 DS 1000 motor.
3. Firing Point: T.S. 32,100 (east rail).
4. Screen Boxes: Not required.
5. Primacord: Not required.

ANNEX "G" TO OPLAN 9I-D
Test Support Division

1. Track Readiness Branch:
 - a. Provide a generator at mobile launch near the intersection of Road 4 and the track road (east) at T.S. 29,000. The launch point of the sled is T.S. 32,100.
 - b. Provide 80 sand bags at the north end of track so that the contractor can cover 80 feet of wire from the nose cone to the pit.
 - c. Insure track is ready for run (no braking).

D-1
E-N/A
F-1
G-1

2. Technical Measurements Branch:

- a. Mark camera locations according to Track Optical (Mr. Bush) or Project Officer instructions.
- b. Mark locations for contractor's concrete platform used for nose cone.
- c. Provide technical measurements of the suspended nose cone for the contractor prior to a run. This will have to be accomplished on L-1 day.

3. Heavy Equipment:

- a. Place concrete bunker for camera protection according to Track Optical (Mr. Bush) or Project Officer instructions.
- b. Position concrete platform for contractor at north end of track.
- c. Position mobile launch trailer at the intersection of Road 4 and the EAST track road, off to the shoulder of the road. This should be done by 0800 hours on L-1 day. The mobile launch trailer should be pointed toward the north when in position.

ANNEX "H" TO OPLAN 9I-D
Physical Science Laboratory

1. The four copies of data reduction report giving tabular and graph data of distance, velocity, and acceleration versus time are required. Send reports to D. G. Cummings, MDTO (ext 5-2163).
2. Zero time will be first motion.

ANNEX "I" TO OPLAN 9I-D
Computation Division (MDRC)

Expanded oscillogram records will be provided by MDRCP from Leach tapes furnished by MDTO of each ASD impact test. There are two Leach tapes per test. Oscillogram records will be forwarded to Mr. Cummings, Track Project Officer, MDTO.

G-2
H-1
I-1

MDN 1-46
 SEM
 J. P. [Signature]

Directorate of Test Track
 19 March 1969

OPERATIONS PLAN 18R-F

SUBJECT: Project 921B, NWC Rain Erosion Test

AUTHORITY: AFSC ESP, titled Naval Weapons Center Corona Labs dated 16 October 1967

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Naval Weapons Center, Corona Labs, Corona, California
 General Dynamics, Pomona, California
 Dynallectron Corporation (Land-Air Division)
 Physical Science Laboratory, NMSU, Las Cruces, New Mexico

1. Test Objective and Description:

a. Objective: The primary objective of this test program is to determine the erosion of radome samples moving through an artificial rain environment at velocities near 2500 feet per second.

b. Description: A 13 1/2 inch diameter, ogive shaped cone will be mounted to an M-58 (IMS 6709, Rain Duck-3) rain erosion sled. M-58's will be used for sustainers. A Nike pusher will be used to obtain the test velocities.

2. Basic Information:

a. General Information:

(1) Sleds: 18R-F
 (a) Forebody: IMS 6709
 (b) 1st Stage: PMS 6714

(2) Propulsion:
 (a) 1st Stager: 1 Nike
 (b) Sustainer: 3 M-58's

(3) Weights (lbs):

	<u>Forebody:</u>	<u>1st Stage:</u>
	IMS 6709	PMS 6714
(a) Basic Sled:	313	235
(b) Empty Cases:	98	443

	Forebody IMS 6709	1st Stage PMS 6714
(c) Payload:	86	---
(d) Burnout:	497	678
(e) Propellant:	93	759
(f) Ballast:	42	---
(g) Loaded Weight:	632	1423
(h) Forward Stages:	---	632
(i) Launch:	632	2060

b. Trajectory and Performance:

Event	Dist (Ft)	T. S.	Vel (ft/s)	Acc (G's)	Time (Sec)
(1) Launch	---	30,140	---	---	3
(2) Max. Acc.	2,277	27,913	1,901	27.7	2.54
(3) Sustainer Stage Ign.	4,084	26,056	2,453	2.3	3.37
(4) Max. Velocity	8,188	21,952	2,619	0.6	5.00
(5) Rain Entrance	3,438	26,700	2,375	23.6	3.1
(6) Rain Exit	9,438	20,700	2,401	15.9	5.5
(7) Pusher Stop	22,138	8,000	---	---	25
(8) Forebody Stop	29,138	1,000	---	---	60

c. Instrumentation:

- (1) Telemetry: None
- (2) Strobos: None
- (3) Trackside: Breaksticks for spot velocity measurement.
- (4) Timing: IMC cameras will require GX timing and programmed start and stop.

d. Rain Requirements: The full length of the rain field will be utilized with a rain rate of 2 1/2 inches per hour (approximately).

e. Recovery: Water bags and trays.

f. Reasons for HOLD or Cancellation: HOLDS will be called at the discretion of the Project Officer.

g. Countdown L-1 Day: Fit Checks

h. Mission Workload Code: B-8028

i. Project Code: 121 B.

3. Tasks for Supporting Organizations:

a. Functional Support: All supporting Divisions/Offices will provide personnel and equipment to comply with provisions of DCI 35-1, Subject: "Programming and Conduct of Tests".

b. Reports:

- (1) Test Event Reports: A Test Event Report will be prepared by the Project Officer after each run in the series.
- (2) Division Summaries: All supporting Divisions/Offices will provide a summary report to the Project Officer within ten working days after completion of the test series for inclusion in the Final Report.
- (3) Final Report: A Final Report will be published within 30 working days after completion of the test series. This report will be prepared by the Project Officer.

4. Key Personnel:

- a. Track Project Officer: Lt Michael F. Hess, ext 5-2108
- b. Sled Responsible Engineer: Lt William Hill, ext 5-2469
- c. Contractor Test Coordinator: Mr. Charles Borough, (714) 736-5259

Wm H. Boss

WILLIAM H. BOSS, Capt, USAF
Operations Office

ANNEXES: "A" - Instrumentation
"B" - Optical Instr.
"C" - Complex Safety
"D" - Engineering
"E" - Technology N/A
"F" - Propulsion
"G" - Test Support
"H" - J. H. Thompson
Construction Co.

ANNEX "A" TO OPLAN 18R-F
Instrumentation Division

1. Data Acquisition Branch:

a. Telemetry: N/A

b. Timing and Trackside Instrumentation: Provide GX Timing and Programmed START/STOP as per PIP to the following cameras for all runs:

<u>UNIT</u>	<u>LOCATION</u>	<u>FUNCTION</u>
IMC 1	T. S. 26 750 W	View nose cone
IMC 2	T. S. 26 600 E	" " "
IMC 3	T. S. 26 500 W	" " "
IMC 4	T. S. 26 400 E	" " "
IMC 5	T. S. 26 300 W	" " "
IMC 6	T. S. 26 200 E	" " "
IMC 7	T. S. 25 650 W	" " "
IMC 8	T. S. 25 100 E	" " "
IMC 9	T. S. 24 550 W	" " "
IMC 10	T. S. 24 000 E	" " "
IMC 11	T. S. 23 450 W	" " "
IMC 12	T. S. 23 900 E	" " "
IMC 13	T. S. 22 350 W	" " "
IMC 14	T. S. 22 600 E	" " "
IMC 15	T. S. 21 050 W	" " "
IMC 16	T. S. 20 500 E	" " "

c. Communications:

- (1) Normal blockhouse communications at Coco will be required.
- (2) Insure DuKanes are in the pumphouse and in the metal building at Fox 949.

d. Firing Circuit Requirements:

- (1) Coco blockhouse will be used to fire the first stage Nike motor at T. S. 30, 140 W.
- (2) A firing circuit will be required in Coco to fire a Birdcatcher or Primacord at T. S. 30, 000.

e. Screen Boxes: Arming of screen boxes will be required for staging M-58 motors at T. S. 26, 056.

A-1

f. First Motion: Required

g. Spot Velocity Measurements: This will be the only velocity measurement system used on the tests. Use breaksticks on the west rail.

<u>Nr</u>	<u>Start T. S.</u>	<u>Stop T. S.</u>	<u>Nr</u>	<u>Start T. S.</u>	<u>Stop T. S.</u>
1	28,700	28,600	10	23,000	22,900
2	27,700	27,600	11	22,500	22,400
3	26,700	26,600	12	22,000	21,900
4	26,100	26,000	13	21,500	21,400
5	25,500	25,400	14	21,000	20,900
6	25,000	24,900	15	20,500	20,400
7	24,500	24,400	16	15,000	14,900
8	24,000	23,900	17	10,020	10,000
9	23,500	23,400	18	3,020	3,000

3. Distribution of Data: Deliver three copies of the Data Collection reports to the Project Officer at MDTT after each run.

ANNEX "B" TO OPLAN 18R-F
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Data:

a. Ribbon Frame Data Units: Not Required.

b. Fixed Trackside Optical Data Units: Not Required

c. Image Motion Units: (See PIP) for all IMC's. Land-Air will cover the necessary rain nozzles for protection against camera damage. The following IMC units are required:

<u>UNIT</u>	<u>LOCATION</u>	<u>FUNCTION</u>
IMC 1	T.S. 26,750 W	View Nose Cone
IMC 2	T.S. 26,600 E	" " "
IMC 3	T.S. 26,500 W	" " "
IMC 4	T.S. 26,400 E	" " "
IMC 5	T.S. 26,300 W	" " "
IMC 6	T.S. 26,200 E	" " "

A-2
B-1

<u>UNIT</u>	<u>LOCATION</u>	<u>FUNCTION</u>
IMC 7	T. S. 25. 650 W	View Nose Cone
IMC 8	T. S. 25. 100 E	" " "
IMC 9	T. S. 24. 550 W	" " "
IMC 10	T. S. 24. 000 E	" " "
IMC 11	T. S. 23. 450 W	" " "
IMC 12	T. S. 23. 900 E	" " "
IMC 13	T. S. 22. 350 W	" " "
IMC 14	T. S. 22. 600 E	" " "
IMC 15	T. S. 21. 050 W	" " "
IMC 16	T. S. 20. 500 E	" " "

- d. Optical Instrumentation/Engineering Tracking Units: Not Required
2. Aerial Instrumentation/Engineering Data: Not Required.
3. Documentation/Engineering Optical Requirements:
- (1) 4x5 Black & White - Pre/Post run coverage. (Approximately 6 shots)
- (2) 4x5 Color Negatives - Pre/Post run coverage. (Approximately 10 shots).
- b. Motion Picture Requirements: Not Required.
4. Film/Data Processing Requirements:
- a. All film will be processed immediately after each test and delivered to the track.
- b. Still print requirements: Six of each color and black and white negatives unless stated otherwise on the work order.
5. Other Information: The nose cone is ogive shaped with a diameter of 13 1/2 inches, length of 33 inches, and the centerline is located 16 inches above the rail.

ANNEX "C" TO OPLAN 18R-F (NWC Rain Test)
Complex Safety (Reference MDTCI 127-1 and AFMDCR 127-2)

1. The hazard area is from Coco Pad to South Arroyo Road. It will be evacuated prior to T-1 hour, 30 minutes by non-participating personnel.

B-2

C-1

The final track clearance will be completed prior to T-45 minutes. Track Control will control all personnel in the hazard area after this time.

2. The post-fire condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.
3. Post-fires: After the sled vehicle(s) have been declared safe by MDTP personnel, roads will be opened as directed by Track Control after clearance is received from the Project Officer.

ANNEX "D" TO OPLAN 18R-F
Engineering Division

1. Design and monitor fabrication of the sleds used in this program.
2. Provide evaluation and approval of contractor hardware.
3. Provide technical assistance and shop coordination for mating and installation of test item on the sled, minor repair and redesign as required during the program.
4. Monitor interference check of staging knives, screen boxes and motors to insure proper matching of parts.
5. Provide theoretical run profiles.

ANNEX "F" TO OPLAN 18R-F
Propulsion Division

1. Conduct interference check with sleds, motors and screen boxes
2. Screen Boxes: A 12 inch screen box is required for staging at T. S. 26, 056. The screen boxes will be covered with polyethylene bags.
3. Propulsion:
 - a. Provide and install a birdcatcher or primacord as required by the launch order.
 - b. Provide and install the Nike motor and 3 M-58's.
4. Launch Point: T. S. 30, 140.

C-2
D-1
E-N/A
F-1

5. Assist with Fit Checks on L-1 day.
6. Provide Bldg 1169 on L-1 day for booster storage.

ANNEX "G" TO OPLAN 18R-F
Test Support Division

1. Provide 2 lighting carts at the launch area.
2. Provide 500 feet of 7 inch water bags in the track side steel trays from T. S. 8700 to T. S. 8200.
3. Provide 700 feet of double 3 inch water bags on the west rail from T. S. 3000 to T. S. 2300.
4. Provide manpower and equipment for heavy equipment operations.
5. Provide a pillbox (opening facing west) 250 feet west of the track at T. S. 30140.
6. Provide 1 extension cord to reach from the lighting carts to the track.

ANNEX "H" TO OPLAN 18R-F
J. H. Thompson Construction Co.

1. Provide manpower and equipment for the checkout and operation of the rain erosion facility.
2. Ensure 6,000 feet of rain field at 9 PSI nozzle pressure and 65° nozzle tilt.

F-2
G-1
H-1

MDNH 1-96

ENGINEERING SERVICE PROJECT PLAN			REPORTS CONTROL SYMBOL SYS-D16																															
1. TITLE F-105 Static Seat Test			2. NUMBER 921A- -69025																															
3. DATE PREPARED 17 Mar 1969	4. ESTIMATED STARTING DATE Apr 1969	5. EST. COMPLETION DATE Jun 1969	6. PROGRAM ELEMENT																															
7. PERFORMING AGENCY AFMDC (MDT)	8. PARTICIPATING AGENCIES SMAMA (SMNEM)	9. SECURITY OF PROJECT Unclassified	10. AFSC PRIORITY (For AFSC use only) 81P																															
11. REQUESTING AGENCY AND JUSTIFICATION Sacramento Air Materiel Area (SMAMA). SMAMA TWX dtd 21 Jan 1969. Subj: Minutes of Meeting, F-105 Static Test																																		
12. ESTIMATED COSTS			13. RESOURCES STATUS																															
<table border="1"> <thead> <tr> <th></th> <th>A. MAN YEARS</th> <th>B. CURRENT FY</th> <th>C. NEXT FY</th> </tr> </thead> <tbody> <tr> <td>MANPOWER</td> <td></td> <td></td> <td></td> </tr> <tr> <td> MILITARY</td> <td>0.20</td> <td>-</td> <td>0</td> </tr> <tr> <td> CIVILIAN</td> <td>0.48</td> <td>-</td> <td>0</td> </tr> <tr> <td>FUNDS</td> <td></td> <td>\$5,552</td> <td>0</td> </tr> <tr> <td>TOTALS</td> <td>0.68</td> <td>\$5,552</td> <td>0</td> </tr> </tbody> </table>				A. MAN YEARS	B. CURRENT FY	C. NEXT FY	MANPOWER				MILITARY	0.20	-	0	CIVILIAN	0.48	-	0	FUNDS		\$5,552	0	TOTALS	0.68	\$5,552	0	<table border="1"> <thead> <tr> <th>MANPOWER</th> <th>FUNDS</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/> AVAILABLE</td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td><input type="checkbox"/> REQUESTED</td> <td><input type="checkbox"/></td> </tr> </tbody> </table>		MANPOWER	FUNDS	<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>	<input type="checkbox"/> REQUESTED	<input type="checkbox"/>
	A. MAN YEARS	B. CURRENT FY	C. NEXT FY																															
MANPOWER																																		
MILITARY	0.20	-	0																															
CIVILIAN	0.48	-	0																															
FUNDS		\$5,552	0																															
TOTALS	0.68	\$5,552	0																															
MANPOWER	FUNDS																																	
<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>																																	
<input type="checkbox"/> REQUESTED	<input type="checkbox"/>																																	
14. REIMBURSEMENT <input type="checkbox"/> NONE <input checked="" type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE																																		
15. DESCRIPTION OF REQUIREMENT This test program will be conducted on the AFMDC Track under Track Operations Plan 18E for the Sacramento Air Materiel Area. One test is planned in this program to evaluate a dual seat 0-0 escape systems test.																																		
16. DESCRIPTION OF EFFORT <p>a. <u>Introduction and Planning:</u> This test will be made using the F-105 forebody sled. Fairchild-Hiller (Republic Aviation Division), will be prime contractor on the test.</p> <p>b. <u>Objective for Accomplishing the Overall Project:</u> Evaluation of the ejection sequence under static conditions is the primary objective of this test.</p> <p>c. <u>Schedule:</u> (1) This test is planned for late April.</p>																																		
17. PERFORMING AGENCY APPROVAL Kenneth L. Lueke KENNETH L. LUEKE, Colonel, USAF Chief, Plans and Requirements Office			18. AFSC APPROVAL																															

(2) SMAMA will establish complete and firm requirements with the track Project Officer prior to preparation of the Track Operations Plan. If requirements or hardware, etc., must be changed after issue of the Operations Plan, an Oplan Amendment will be required prior to conducting the test. SMAMA must recognize that any change in requirement, hardware, etc., may result in program delays.

d. Resources:

(1) Flying: Not required

(2) Facilities: The Directorate of Test Track and other support normal to Track Operations will be used to support this test program.

(3) Manpower: Estimated AFMDC manpower requirements are as follows:

	<u>MDT</u>	<u>FY 69</u> <u>MDR</u>	<u>MDM</u>	<u>TOTAL</u>
Military	0.2	0	*	.20
Civilian	0.3	0	.01	.31
Contractor	0	.17	0	.17
TOTAL	0.5	.17	.01	.68

(4) Funds:

(a) Statement: FY-69 funds available are sufficient to provide support. Reimbursement is available from SMAMA, SMT 12 377.

(b) Total fund estimate of charges to customer:

	<u>MDT</u>	<u>FY 69</u> <u>MDR</u>	<u>MDM</u>	<u>TOTAL</u>
Civ O/T Pay	100	-	-	100
Instrumentation	850	-	-	850
Optical coverage	-	2,572	-	2,572
Optical data reduction	-	1,200	-	1,200
Data reduction	-	60	-	60
Equipment, Supplies	200	-	-	200
TOTAL	1,150	3,832	0	4,982

Page 3 of 5
921A- -69025, F-105 Static Test

(c) Total fund estimate of free services to customer:

	<u>MDT</u>	<u>FY 69</u> <u>MDM</u>	<u>MDR</u>	<u>TOTAL</u>
Civilian Pay	\$360	40	-	400
Military Pay	160	10	-	170
TOTAL	\$520	50	0	570

e. Test and Participating Agencies: A list of participating agencies with respective responsibilities is as follows:

(1) AFMDC will provide the following:

- (a) Test vehicle (F-105)
- (b) Canopies (2) for the F-105. SMAMA will provide means to recover the canopies without damage.
- (c) Trackside optical instrumentation, including tracking camera and metric photographic coverage.
- (d) Sledborne and documentary camera coverage.
- (e) Metric photographic data reduction services.
- (f) Instrumentation support, including sledborne telemetry and trackside communications.
- (g) Telemetry records.
- (h) Engineering and minor shop support as required.
- (i) Office and work facilities for contractor personnel.
- (j) Operations Plan and Master Countdown.

(2) SMAMA/Contractors will provide the following:

- (a) Ejection seats, dummies, and other related equipment.
- (b) Equipment to insure safe recovery of fore and aft cockpit canopies used on the test.

Page 4 of 5
921A- -69025, F-105 Static Test

(c) Responsibility for test items, test item handling, including installation, removal, repair, modifications, etc.

(d) Evaluation of test results in addition to data provided by AFMDC.

(e) Adequate personnel to support the tests.

(f) Transportation to and from AFMDC for all test items for this program. All hardware must be on station two weeks prior to the test. Shipments should be coordinated with Detachment 3, Contract Management Division, and/or the Track Project Officer.

(3) Detachment 3, Contract Management Division, Holloman AFB, will provide assistance to the contractor contingent upon assignment of secondary contract administration and receipt of applicable contracts. All base-funded supply and equipment issues to contractors will be on a reimbursable basis and funds must be provided by SMAMA prior to issuance.

f. Safety:

(1) All operations and activities will be conducted in accordance with the Air Force Safety and Accident Prevention Program, applicable to Ground/Explosives/Flight and Missile Safety. All range activities will be conducted in accordance with applicable WSMR regulations.

(2) Prior to the beginning of any operation or project, the Project Officer will assure that the Safety Office (MDI) is provided with a safety plan that outlines general safety procedures, specific explosive and payload data, checklists, and operational procedures.

g. Security: All aspects are Unclassified.

h. Reports:

(1) All costs will be accounted for on a monthly basis by the MDT funds manager and certified by the MDT Project Officer.

(2) This document has been prepared and coordinated by MDO. When approved and authenticated, initial planning is complete and, in accordance with AFMDC Regulation 80-3, the responsibility for all further documentation is transferred to MDTO for the duration of the test program.

Page 5 of 5
921A- -69025, F-105 Static Test

i. Project Personnel:

<u>AGENCY</u>	<u>NAME & POSITION</u>	<u>OFC SYM & ADRS</u>	<u>PHONE</u>
SMAMA	Lt Robert Newbegin	SMAMA (SMNEM) McClellan AFB CA	633-2700
Fairchild	Mr. Bob Frank	Fairchild-Hiller (RAD) Farmingdale NY	516-531-0105 Ext 2721
AFMDC	Capt G. M. Palmgren Project Officer	AFMDC (MDTO) Holloman AFB NM 88330	Ext 5-2165
AFMDC	Mr. J. M. Dickerson Plans Officer	AFMDC (MDOP-2) Holloman AFB NM 88330	505-473-6511 Ext 4441

SUBMITTED BY:

George M. Palmgren
GEORGE M. PALMGREN, Capt, USAF

APPROVED BY:

Tyler A. Redfield
TYLER A. REDFIELD, Colonel, USAF

COORDINATED BY:

James M. Dickerson
JAMES M. DICKERSON
Plans Officer, Plans Division (MDOP-2)
Plans and Requirements Office



1 Atch
Coordination Sheet

COORDINATION SHEET

921A- -69025, F-105 Static Seat Test

17 March 1969

MDi	<i>Viddy Spradling, MSgt</i>	DATE:	<i>7 April 1969</i>
MDM	<i>B. E. Janson</i>	DATE:	<i>8 April 69</i>
MDMM	<i>Frank A. Meehan</i>	DATE:	<i>7 April 69</i>
MDR	<i>H. K. Johnson</i>	DATE:	<i>7 April 69</i>
MDBCA	<i>B. M. Nelson</i>	DATE:	<i>7 April 69</i>
MDBCB	<i>John E. Wilks</i>	DATE:	<i>7 April 1969</i>
SCOM-25	<i>He Pack</i>	DATE:	<i>7 April 69</i>

James M. Dickerson
Mr. Dickerson

MDOP-2

Ext 4441

17 Mar 69


Atch #1

1-46
MDNH

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE F-100 Escape Mechanism Tests Short Title: F-100 Escape System		2. PROJECT NO. MR 921A-9351-69016 -1		
4. PROJECT OFFICE AFMDC - MDTO		5. MANAGEMENT ORGANIZATION SMAMA	6. RESPONSIBLE COMMAND AFSC	
7. TYPE OF REPORT				8. DATE PREPARED
<input checked="" type="checkbox"/> STATUS	<input type="checkbox"/> SPECIAL	<input type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	14 March 1969
9. NARRATIVE				
<p>This Management Report is being written to report some changes to the Engineering Service Project Plan titled, "F-100 Escape Mechanism Tests," dated 14 January 1969.</p> <p>a. Referring to paragraph 15 of the ESP: The AFSC priority established for this program is 31A and not 08B.</p> <p>b. Paragraph 16.d.(4)(a) of the ESP should read:</p> <p>"In accordance with controlling regulations AFSCM 170-1 and AFMDCR 170-2, SMAMA will reimburse AFMDC for civilian overtime pay, travel if any, contract operation and/or maintenance of equipment, and all Base-funded supplies and equipment. SMAMA will provide an initial funding document in total amount as shown in subparagraph (b) below, and will provide supplementary funding documents for scope increases or unforeseen items which fall in the reimbursable category. On completion of program, however, all unused portions of reimbursement funds will revert to SMAMA. SMAMA will reimburse AFMDC for repair or replacement of telemetry systems in dummies if injured."</p> <p>SUBMITTED BY:</p> <p><u>Thomas F. Wilson</u> THOMAS F. WILSON, 2d Lt, USAF Project Officer Operations Office</p> <p>DATE: <u>14 MARCH 1969</u></p> <p style="text-align: right;">18 March 69</p>				

SRK

MDNH
1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL
1. TITLE Tucson Rain Erosion Tests				2. PROJECT NO. AFMDC MR-3 921A-67059
				3. OSD PROGRAM ELEMENT NO.
4. PROJECT OFFICE AFMDC/MDTO		5. MANAGEMENT ORGANIZATION WRAMA/WRNEBG		6. RESPONSIBLE COMMAND AFSC
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	SPECIAL <input checked="" type="checkbox"/>	ACTION	OTHER	11 March 1969
9. NARRATIVE				
<p>The purpose of this management report is to terminate the track test program documented under ESP No. 921A-67059, dated 18 May 1967, as modified by MR-1, dated 19 September 1967.</p> <p>a. <u>Tests</u>: Nineteen of the additional forty tests documented under MR-1 were completed between 19 September 1967 and 20 November 1967. Since that time the Directorate of Test Track has been waiting word from WRAMA on proposed follow-on tests at higher velocities. In a telecon with Mr. Sheaff, WRAMA, on 24 February 1969, MDTO was advised that no funds were available for the higher performance tests and that the current documentation should be terminated.</p> <p>b. <u>Funds</u>: A total of \$38,831.11 and 4,923 manhours were expended on this program by MDT. Funds in the amount of \$1,168.89 were returned to the sponsor.</p>				
<p><i>Morris E. Haven</i> MORRIS E. HAVEN, Lt Col, USAF Chief, Operations Office Directorate of Test Track</p> <p>DATE: <i>11 March 1969</i></p>				
				
Page 1 of 1.				

NNNRTEZYUW RUEBBA7310 0662230-EEEE--RUWTD0A.
NY EEEEE
072218Z MAR 69
FM AFSC
TO AFMDC MDOO HOLLOMAN AFB NMEX

0112Z

BT
UNCLAS E F T O SC00A
REF YOUR UNCLAS MDOO 272204Z FEB 69 AND TELECON LTCOL CURTIS AND
LTCOL POWERLL, THIS HQS. FLIGHT AND KILL AUTHORIZATION IN REF MSG
IS BEING HELD IN ABEYANCE. REQUEST CLARIFICATION. PLAN CALLS FOR
23 LIVE FIRING PASSES VERSUS 40 DRONE FLIGHTS REQUESTED. REQUEST
EXPLANATION OF DIFFERENCE. ADDITIONALLY, BASED ON THE PAST AIM-9E
EXPERIENCE REQUEST EXPLANATION OF THE REQUIREMENTS FOR 10 KILLS.
IT IS OUR UNDERSTANDING THAT POTS WILL BE WING-TIP MOUNTED, THERE-
FORE, 25 PCT KILL PROBABILITY IS QUESTIONED. WHEN SUITABLE ANSWERS
TO THE ABOVE QUESTIONS HAVE BEEN MADE AVAILABLE FOR ANALYSIS,
FLIGHTS AND KILL AUTHORIZATIONS WILL BE PROVIDED.
BT
07310

Cont'd 20p
(SFA)
1-46
P. 11-46

MDNH 1-46

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL	
1. TITLE Picatinny 30mm Rain Erosion Tests Local Title: 30mm Rain				SYS-D16	
2. NUMBER 921C-69031				6. PROGRAM ELEMENT N/A	
3. DATE PREPARED 7 March 1969		4. ESTIMATED STARTING DATE Late March 1969		5. EST. COMPLETION DATE April 1969	
7. PERFORMING AGENCY AFMDC (MDT)		8. PARTICIPATING AGENCIES Picatinny & AVCO		9. SECURITY OF PROJECT	
10. AFSC PRIORITY (For AFSC use only)					
11. REQUESTING AGENCY AND JUSTIFICATION Picatinny Arsenal Informal request at Holloman conference, 5 Feb 1969					
12. ESTIMATED COSTS				13. RESOURCES STATUS	
				14. REIMBURSEMENT	
				<input type="checkbox"/> NONE	
				<input checked="" type="checkbox"/> PARTIAL	
				<input type="checkbox"/> COMPLETE	
				<input type="checkbox"/> REQUESTED	
				<input type="checkbox"/> AVAILABLE	
				<input type="checkbox"/> FUNDS	
				<input checked="" type="checkbox"/> MANPOWER	
				<input type="checkbox"/> NEXT FY	
				<input type="checkbox"/> CURRENT FY	
				<input type="checkbox"/> MILITARY	
				<input type="checkbox"/> CIVILIAN	
				<input type="checkbox"/> FUNDS	
				<input type="checkbox"/> TOTALS	
				<input type="checkbox"/> \$ 100	
				<input type="checkbox"/> 850	
				<input type="checkbox"/> 1,380	
				<input type="checkbox"/> \$2,330	
15. DESCRIPTION OF REQUIREMENT The 30mm projectile requires high velocity firing through a rain field for the objective shown below. The work is in support of SEA; has an AFSC priority of 81P and an AFMDC priority of M75. AVCO is the contractor under Picatinny.					
16. DESCRIPTION OF EFFORT a. <u>Introduction and Planning:</u> Fifty (50) 30mm projectiles will be fired through the ballistic rain field. (1) Description of Test Item: The test item is the live 30mm projectile. It is loaded with 28 grams of HMX. (2) Test Parameters: (a) Twenty-five (25) rounds will be fired through a 400-ft rain field with a 400-ft distance (non-rain) between gun and rain field entry. Twenty-five (25) additional rounds will be fired through an 800-ft rainfield with distance between gun and rain field entry tentatively set at 10 to 20 feet. (b) It is planned to use the large rain nozzles (large rain-drop size). However, small nozzles, providing an average drop size of about 1.5 to 2.0 mm diameter (about 4 to 7 inches per hour density) can be used if desired.					
17. PERFORMING AGENCY APPROVAL <i>Kenneth L. Lueke</i> KENNETH L. LUEKE, Colonel, USAF Chief, Plans and Requirements Office DATE: 10 Mar 1969				18. AFSC APPROVAL	

(c) In sequence following the rain-field are a 24" x 24" sixteen gauge steel target; a 6 ft x 6 ft or 4 ft x 8 ft steel plate of 3/4 in. or 1 in. thickness; a log bunker. Projectiles are not expected to detonate in the rain-field, but should detonate upon striking the target. The steel plate is used as a burster screen for added assurance that projectiles will detonate before striking the bunker; this avoids the trouble of digging out still-live projectiles.

(d) If one or two projectiles detonate in the rain-field, Picatinny plans to stop the tests.

(e) There is a possibility of fragmentation damage to rain-field plumbing. Such damage will be reimbursed by Picatinny.

(f) It is tentatively planned to use a Frankford Arsenal gun mount, now at Holloman, to mount the Picatinny gun.

(g) Personnel behind a protective bunker will hear the detonation when it occurs. Whether the detonation occurred in the rain-field, at the target, or at the burster screen will be apparent upon inspection of the target and burster screen following the firing of each round.

b. Objective:

To determine if detonation will occur when a 30mm projectile is fired from a fixed gun, through a rain-field.

c. Schedule: March through April 1969

Not more than two test periods are anticipated; in fact it is possible that all 50 rounds may be fired in a single test period. Important factors in meeting the above schedule will be the time required to coordinate on stand designs and accomplishment of fabrication of stands for target and burster screen; also the time required for Picatinny to adapt their gun to the Frankford gun mount, or other mount, as the case may be. NOTE: AFMDC (MDT) policy requires that all test hardware be at the test site and ready for tests approximately two weeks prior to the first test date.

d. Resources:

(1) Facilities: Test track; Test Track Directorates buildings, equipment and instrumentation; Test Track shops. A commensurate amount of office and working space will be provided to Picatinny/AVCO personnel assigned to Holloman during period of test.

(2) Aircraft: None required.

(3) Manpower (MY):

	<u>FY 69</u>			<u>TOTAL</u>
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	
Military Personnel			.01	.01
Civilian Personnel	.004		.05	.054
Contractor Personnel				
Total	<u>.004</u>	<u>—</u>	<u>.06</u>	<u>.064</u>

(4) Funds:

(a) In accordance with controlling regulations AFSCM 170-1 and AFMDCR 170-2, Picatinny Arsenal will reimburse AFMDC for all expenditures except military pay. Picatinny will provide an initial funding document in total amount as shown in 16, d(4)(b) below and will provide supplementary funding documents for scope increases or unforeseen items which fall into the reimbursable category. (Damage to MDT equipment or facility caused by Picatinny/Contractor-furnished-or-operated equipment will require reimbursement).

(b) Total fund estimate of charges to customer:

	<u>FY 69</u>			<u>TOTAL</u>
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	
Civilian regular pay plus 29%	\$50		\$600	\$650
Civilian overtime pay			\$200	\$200
Rain-field supplies			\$600	\$600
Other supplies			\$200	\$200
Targets & burster screens	\$250			\$250
Contract operation (documentary photography)		\$100		\$100
Other Contract Services (Rain Field)			\$230	\$230
TOTAL	<u>\$300</u>	<u>\$100</u>	<u>\$1,830</u>	<u>\$2,230</u>

(c) Total fund estimate of cost of free services to customer:

Page 4 of 6
921C-69031, 30mm Rain

	<u>FY69</u>			
	<u>MDM</u>	<u>MDR</u>	<u>MDT</u>	<u>TOTAL</u>
			\$100	\$100
Military Pay				

e. Test and Participating Agencies:

(1) Picatinny Arsenal, themselves or through their contractor AVCO will do as follows:

(a) Send TWX to Holloman formally requesting test support, verifying project priority, and providing statement of funding.

(b) Prepare a design for a stand and holding fixture for the 24" x 24", 16 gauge, steel targets. Send this immediately to AFMDC (MDT) for review and fabrication.

(c) Obtain approval from Frankford Arsenal for use of the Frankford gun mount, or arrange for some other gun mount as the case requires.

(d) Provide design instructions for adapting the Frankford gun mount (if applicable) to the Picatinny gun.

(e) Arrange for a gun crew who will be completely responsible for all aspects of gun operation.

(f) Assign a representative at the test site during period of testing to work with the AFMDC project officer in planning for and conducting the tests.

(g) Furnish specifications for projectiles, including handling and storage requirements.

(h) Coordinate with the AFMDC project officer prior to shipment of any test hardware or projectiles.

(i) Obtain SECRET security clearances for all Picatinny/Contractor personnel who will be at the test site.

(2) Det 3, Hq AF Contract Management Division (CMTA), Holloman AFB NM, ph 4577, will provide assistance to the contractor in accordance with the base support clause (if any) in the contract, if assigned secondary contract management authority and given a copy of the contract. All base funded supply and equipment issues to the contractor will be on a reimbursable basis and funds must be provided by Picatinny or other responsible agency prior

Page 5 of 6
921C-69031, 30mm Rain

to issuance. No guarantee is given that all requested items will be immediately available or obtainable in time for use during the test period.

(3) AFMDC directorates will do as follows:

(a) MDM will:

- 1 Fabricate stands to support targets and burster screen.
- 2 Provide minor shop support for adapting Picatinny gun to Frankford gun mount or other gun mount.
- 3 Provide storage and handling of projectiles.
- 4 Provide EOD support for removal of projectiles from bunker if any get through the burster screen without detonating.

(b) MDR will, through contract services, provide documentary photography.

(c) MDT will:

- 1 Provide the AFMDC Project Officer
- 2 Check Picatinny/AVCO design for target holding fixture
- 3 Design a stand to support the steel burster screen.

Coordinate this design with Picatinny.

- 4 Prepare an Operations Plan
- 5 Provide rain-field equipment
- 6 Provide portable steel bunker for use at firing pad.

f. Safety:

Track safety regulations will govern the operations of the work crews and observing personnel during these tests, as well as other aspects of the test. Personnel in the area during the firing must be completely behind a protective bunker, which is in turn behind the gun. Any observation of the rain-field during the firing will be by periscopic mirror from behind the bunker. AFMDC reserves the right to halt testing at any time because of safety considerations or undue risk to MDT facilities or equipment.

g. Security:

Certain details concerning the 30mm projectile are classified, Confidential; accordingly, the projectiles will require Confidential classified storage. Track tests will be unclassified.

Page 6 of 6
921C-69031, 30mm Rain

h. Project Personnel:

<u>AGENCY</u>	<u>NAME</u>	<u>OFC SYM & ADRS</u>	<u>PHONE</u>
Picatinny	Mr. R. M. Watts Project Contact	Picatinny Arsenal Dover NJ	328-3109
AVCO	Unknown		
AFMDC	Lt L. W. Pennell Project Officer	AFMDC (MDTO) Holloman AFB NM 88330	5-2163
AFMDC	Mr. Val C. Ogden Plans Officer	AFMDC (MDOP-2) Holloman AFB NM 88330	4441

i. Reports:

(1) All costs will be accounted for on a monthly basis by the MDT Resources Management Office.

(2) This document has been prepared and coordinated by MDO. Now that it is approved and authenticated, initial planning is considered complete, and, in accordance with AFMDCR 80-3, further documentation and coordination is transferred to MDT for duration of the test program.

SUBMITTED BY:

APPROVED BY:

Val C. Ogden
VAL C. OGDEN
Plans Officer, MDOP-2
Plans & Requirements Office

Tyler A. Redfield
TYLER A. REDFIELD, Colonel, USAF
Director of Test Track

DATE: 7 Mar 1969

7 Mar 1969



- 3 Atch
- 1. AFSC Fm 103
- 2. AFSC Fm 103
- 3. Coordination Sheet

COORDINATION SHEET

921C-69031

30 mm Rain

CMTA James Gu DATE: 7 Mar 69

MDBC Earl H. Strickling DATE: 7 March 1969

MDI Boyd Clark DATE: 7 Mar 1969

MDM Earl H. Strickling DATE: 7 March 1969

MDR H. K. Johnson DATE: 7 May 69

MDTC Marvin E. Haven DATE: 7 March 69

SCOM-25 He Back DATE: 7 March 1969

MDBSM John D. Bell DATE: 7 Mar 1969

Val C. Ogden, 7 Mar 1969

Val C. Ogden

Ext 4441

7 March 1969

MDOP-2

Oct 1963

SCA 1-46
6276

MEMORANDUM

5 Mar 1969

SUBJECT: Sled Trajectories for Rain Erosion Tests

TO: MDT (Colonel Redfield)

1. The fact that we currently are the only test facility which can produce rain erosion test results on a large scale and that rain tests are a major portion of our mission workload should motivate us not to conform to the minimum requirements asked by the least demanding customers, but to bring our capabilities up to the highest level currently in demand or postulated by the most demanding track users. Current efforts to upgrade quality and validity of rain erosion test results necessitate not only improvements in our capability to provide a specified rain environment and to verify it by appropriate calibrations and measurements, but also advances in our ability to provide and reproduce meaningful sled trajectories through the rain field.
2. Evidently coast trajectories will be useful for the evaluation of specific hardware in cases where the full scale vehicle, components of which are tested, will experience a similar coast environment during its mission. Such a coast trajectory will, however, provide meaningful data only if it is tailored towards duplicating the mission trajectory of the vehicle under consideration, and does not lend itself for interpolation of data to different test conditions.
3. Considerable scientific talent is being invested in efforts to develop meaningful mathematical models to correlate rain test data and to develop test standards for the evaluation of hardware items which are subjected to specified combinations of rain field properties and flight trajectory parameters. The ideal trajectory for this application will be one which sustains a constant speed along the total length of the rain field. This kind of a trajectory is rarely achieved during sled runs. It can be approached by operating a sled-propulsion combination which is at its terminal velocity in the rain field. It may reasonably well be provided for instance by a combination of sustain rocket motors and drag plates. For example, rain erosion sleds with M58 sustain packages lend themselves for this purpose, provided sufficient care is taken in trajectory layout. The repeatability of such a trajectory depends only on the deviations in performance of the individual rocket motors used, and to a limited extent on the daily variations in ambient air density. The sustain velocity in the rain field can be specified within rather narrow tolerances.

4. At speeds above approximately 4000 ft/sec, it becomes increasingly uneconomical to approach a constant sustain speed. This does not mean that such a trajectory is not feasible in the higher speed ranges, if the mission need outweighs the economic considerations. The terminal velocity of a Gila 4 motor, for instance, can be approached closely by operating a 9" diameter rain sled with an aerodynamic drag brake of specified size. A compromise towards economy is a trajectory which peaks out in the rain field but ascertains that the sled velocity in the rain field stays within a specified speed bracket with clearly defined maximum and minimum levels. As a rule rain field entry and exit velocities should be as closely equal to each other as can be achieved.

5. For the comparative evaluation of rain damage in the regime above 4000 ft/sec, the condition that the sled velocity in the rain field must not deviate by more than $\pm 5\%$ from a specified nominal value V , is arbitrarily used at this time. This condition appears stringent at first glance in the light of current operational practice at the track; it may, however, prove too loose as the knowledge on rain effects deepens. If, for example, the assumption is made that a fifth power model holds for rain damages, i. e., that rain damage is proportional to the fifth power of the sled velocity, as was recently postulated by one customer, this specification still allows a 65% change of the fifth power function for an allowable change of the nominal sled velocity by $\pm 5\%$.

$$\left(\frac{V + 5\%}{V - 5\%}\right)^5 = \left(\frac{1.05}{0.95}\right)^5 = \frac{1.276}{0.774} = 1.649$$

6. It is proposed, unless a customer explicitly specifies other requirements because of particular mission needs, to make it a rule,

a. To approach sustain trajectories for rain erosion runs wherever possible, for instance, for all runs in the speed regime below approximately 3,500 ft/sec, even if the customer does not specifically require high standards.

b. To approach trajectories with a maximum deviation of $\pm 5\%$ from a specified nominal velocity in all other cases.

c. To assess the extent to which these conditions were approached during a specific run. For this purpose it is suggested that the following data be recorded in each test event report pertaining to a rain test sled run:


V_{entry}	t_{entry}	s_{entry}
V_{peak}	t_{peak}	s_{peak}
V_{exit}	t_{exit}	s_{exit}

where V ft/sec sled velocity
 t sec time from first motion
 s ft sled position along the track

7. The condition that entrance and exit velocity should be equal can be approached by proper choice of launch and staging points, which in turn involves the requirement for accurate and detailed drag coefficient data both during "dry" run conditions and in the rain environments. It is therefore necessary to collect the maximum amount of data which can be obtained during routine runs and to evaluate and store these data for all sled and test item configurations currently in use. The additional efforts involved in collecting, evaluating and storing drag data and in refining trajectories require improvements in flexibility and efficiency of trajectory calculation efforts and cannot be approached with the attitude that "nobody wants so much accuracy in routine missions." It must be considered an investment in the future of track testing and is considered prerequisite to promote interest in the track as a serious test facility for this kind of work.

8. Selection of lower stage propulsion for rain erosion tests. The condition that the nominal sustain speed, or at least the lower limit of the sustain speed bracket, must be reached within the distance constraints imposed by the location of the current rain field along the track, imposes serious engineering and cost effectiveness problems in selecting the best suited propulsion combination and in the choice and design of lower stage pusher sleds. It is considered necessary to investigate in detail the various possible approaches to lower stage pusher sleds for achieving the capability goals outlined in Table 1 in the most cost effective manner. In the long run it is likely to be much more economical to design new and unconventional lower stage pusher sleds, if low cost propulsion can be used in the lower stages to the maximum possible extent. A systematic

stage combination and propulsion selection study for the cases listed in Table 1 needs to be conducted as a basis for lower stage pusher sled selection and design. The results are to be presented in the form of a working paper. It is proposed that MDTE (Mr. Ellis in close consultation with Mr. Krupovage and Mr. Mixon) perform this study and submit the final draft not later than 30 April 1969.


HANS J. RASMUSSEN
Technical Director

Cy to: MDTO (Lt Col Haven)
MDTO (Mr. Rethmel)
MDTO (All Project Officers)
MDTE (Mr. Mapes)
MDTE (Mr. Krupovage)
MDTE (Mr. Ellis)
MDTT (Major Frazier)
MDTT (Mr. Mixon)
MDTP (Mr. Weber)
MDTP (Major Wilkins)

Table 1. Near Term High Speed Capability Needs									Responsible Division									
No	Payload					Performance		Target Date	Operability with payload nose section	Compliance with volume requirement	Operability with aero drag brakes	Demonstration of roll stability	Meas. of payload vibr. environment	Re-usability	Fabrication time	Turn-around time	Fabrication cost	Turn-around cost
	Nose Section		Internal		Total	Sustain	for											
	Dia	Wt	Len. 1)	Wt	Wt	V ± 5%												
Inch	Lbs	Inch	Lbs	Lbs	ft/sec	ft												
1	9	35	18	30	65	6000	4000	May 69	E	E	T	E	I	E				
2	5	15	13	10	25	6250	4000	May 69	E	E		E	I	E				
3	9	35	18	30	65	6250	4000	Jul 69	E	E	E	E	I	E				
4	9	2)	15	2)	50	6500	4000	Jul 69	T	T	T	T	I	T				
5	16	125	18	40	165	6250	6000	Oct 69	E	E	E	E	I	E				
6	9	3)	3)	3)	3)	8000-impact		Oct 69	T	T		T	T					
7	9	2)	2)	2)	20	7000	4000	Jan 70	T	T	T	T		T				

- 1) Net unobstructed internal length of instrumentation compartment
- 2) External and internal payload combined not to exceed value given for total payload
- 3) As per AFWL requirement

SEA
 Originally set of Beam 6 mm - 69
 1-46
 because haven't sure we could
 this type of test, more find
 our doubts. Resolved it
 feasibility test. Could we do
 low?
 Beam recommended for each
 of casing, need all aspects
 practical. Only one paper
 we want side of beam. so get
 for we had to do 2 things
 (1) put 1100' of paper on
 and side of beam. ~~to~~ then
 roughness of beam approx 1000
 (2) seal edges like per
 regulations
 and then from 6 to 8 with
 first used for testing (26 K
 first test) & determined
 if that used every material
 for added test

.....

(a) panel test was made
and taken place
was established, & because
of degree & results of
analysis had varying times
that it was possible to track
& identify a bagged sample
and

actually found in poultry
when needed to be put around
soil test and in time they
decided not to use that
testing procedure, but used a
panel of samples from your
firm.

also all for identified by
red flag (primary purpose)
on next test bagged soil
2 or 3 things worth
mentioning.

- 11) Several lengths 800'
(2000' in all)
- 12) wiggly rail 2' to
account. very cutting
trajectory
- 13) find complex of them
with a lot of study given
no other light or any
one can be with in a
with a 2 hours flight
- 14) several eye play some
broken - some of them quite
pleat of clack off into
20" in diameter to become
having pattern. most they only
speaking of that time
- 15) now find - perpendicular
to track so that perpendicular
relative position to Huger line
- 16) Killif George into dead
- 17) just occur. this found
imphore some 5 miles

11/11/71 10:00 AM

To remove fog problem,

subject

(1) shell steel top with
polyurethane backing (chord
under patel top) also fog
exp. - flared + not flared
in fresh water

(2) no solid polyurethane

(3) but one - fl + base will
multiple metal surface. also
flared with another
padding

Protective

(4) shell cross-section under
shell with size, material

(5) flared area of top of top

for so far with the wire
to some of the wire. develop a
fog so internal corrosion
but vent a rough to detail
important. we do of some of the
more (1/2" flared to 1/4" flared)

11/11/11
 2 books
 revised for review
 [Signature]
 copy
 2
 pretty review
 contact pulled to [unclear]
 [unclear] only
 for [unclear]
 HDL also in
 [unclear] with [unclear]
 [unclear]
 big advantage: [unclear]
 [unclear] to [unclear]
 not believe [unclear]
 [unclear] [unclear]
 the [unclear] [unclear]
 [unclear] [unclear]
 get [unclear] [unclear]
 [unclear] [unclear]
 [unclear] [unclear]

100-1-100000-100000

March 29

my co. putting to COMSEC, 1320092
7-1-68
my co. putting to COMSEC, 1320092
7-1-68

PAR-1, 9210-0000-100000
putting to COMSEC (add)
10/1/68
putting to COMSEC (add)
10/1/68

putting to COMSEC (add)
10/1/68

PAR-2, 9210-0000-100000
putting to COMSEC (add)
10/1/68
putting to COMSEC (add)
10/1/68
putting to COMSEC (add)
10/1/68
putting to COMSEC (add)
10/1/68

Mr. [unclear]

CV68-004H
404I
404S

on hands

center equity point
by [unclear] [unclear] were
[unclear] [unclear] [unclear]
[unclear]

[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]

put 100 pages into [unclear] put into
into [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear]

advantage in part used at
 night (months + 5 feet)
 but daylight shot and see
 photo flash process. (months
 ± 1 ft)

some night and ^{months}
 daylight tests for about
 month
 while on gages observed
 + light bright and will
 be necessary of system
 at night of light + night
 time between + on night days
 night daylight. top of out up
 into 2 to 3 feet eye + blue.

DEFENSE DEPARTMENT
HEADQUARTERS
WASHINGTON FIELD OFFICE
WASHINGTON FIELD OFFICE
WASHINGTON FIELD OFFICE

SEA 1-46

HDBCB

4 March 1969

Obligations in Support of SEA Operations, RCS: HAF-XDD-C34

AFSC(GCCFR)

Transmitted is subject report for month of February 1969.

FOR THE COMMANDER

EARL H. STRIBLING
Chief, Budget Branch
Comptroller Division

2 Atchs
1. Obligs in Spt of SEA Ops
2. SEA Narrative

MDN (Mr. Cornett)

OBLIGATIONS IN SUPPORT OF SEA OPERATIONS

HOLLOWAY AIR FORCE BASE, NEW MEXICO

(In Thousands of Dollars)

RCS: HAF-KDD-C34
As of 28 February 1969

<u>P.E./DOD</u>	<u>FY 1969 Estimated Obligs</u>	<u>FY 1969 App Obligs</u>	<u>Current Mo Obligs</u>	<u>Cumulative Obligs</u>
<u>65303F</u>				
15 Supplies and Materials	\$ 165	0	\$ 3 credit	\$ 94
16 Equipment	50	0	4	50
04 Civilian Pay	64	0	1	45
05 Travel & Transportation of Persons	33	0	1	27
	<u> </u>	<u> </u>	<u> </u>	<u> </u>
TOTAL	\$ 312	0	\$ 3	\$ 216

Month of February 1969

SEA NARRATIVE

Civilian Pay - DOD 04 - \$1,062.00
 Supplies and Material - DOD -15 - (\$2,644.00)
 Equipment - DOD - 16 - \$3,615.90
 Travel - DOD - 05 - \$877.93

Civilian Pay shown is in support of the following:

Project 140A, SRAM	59 M/H	\$ 236
Project 420L - T-38/F-5 Escape System	105 M/H	420
Project 6263 - Electro-Optical Tech for Recon	36 M/H	342
Project 304A - AGM-78 A/B Standard Arm	9 M/H	32
Project 319A - AGM-65A Maverick	3 M/H	32
	<hr/>	<hr/>
TOTAL	266 M/H	\$1,062

Travel Performed by: 1 Officer - no project
 1 Airman - Project Palace Dog

Atch 2

Page 2 of 5
Picatinny Arsenal 40 mm Rain Tests
921C-0000-69033

b. Test Objective and Description:

(1) Test Objectives: To determine the sensitivity and performance of 40 mm projectiles when fired through a rain environment.

(2) Description: An indeterminate number of tests will be conducted on 40 mm ammunition. The actual number of tests will be dependent upon the technical adequacy of the data being accumulated by each test while the series of tests are in progress. The best information available, regarding the number of rounds of ammunition to be fired, is based on experience with several similar series of tests which were recently conducted. No test vehicle runs on the MDT Track are involved. It is proposed to mount a 40 mm weapon at one end of the rain erosion gun firing test section and to position a large rectangular plywood box filled with chunks of styrofoam 200 feet from the gun to stop the projectiles. Approximately 200 feet of simulated rain will be used for these tests.

c. Test Schedule: This test series will be conducted during a one-year period. Firings will be planned on the basis of customer readiness, preparations, track schedule flexibility, weather and etc. All hardware must be at AFMDC a minimum of two weeks prior to a schedule test date. If rescheduling prohibits the performance of these tests during normal duty hours, tests may have to be performed on an overtime basis, utilizing civilian labor only.

d. Test Resources:

(1) Flying: Not required.

(2) Facilities: The Directorate of Test Track will be made available as well as any necessary Base Support required to accomplish the program. In addition to the Track, it is not anticipated that any other Base activities will have a significant input.

(3) AFMDC will provide the following:

- (a) Communications and Timing/Programming, if required
- (b) Heavy equipment support (required cranes and lifting devices)
- (c) Engineering services if required
- (d) Technical Measurements

Page 3 of 5

Picatinny Arsenal 40 mm Rain Tests

921C-0000-69033

- (e) Photographic services (still documentary)
- (f) Safety and scheduling
- (g) EOD support as required
- (h) Rain erosion facilities and support
- (i) Fabrication of plywood targets and plywood box filled with granulated styrofoam.

(4) Picatinny Arsenal will provide the following:

- (a) Candidate 40 mm ammunition
- (b) 40 mm test weapon with suitable mounts
- (c) Test personnel, test equipment, tools and etc.
- (d) Furnish information on the order of detonation involved with live fuzes and safety procedure for review and approval by cognizant AFMDC personnel.

(5) Manpower (M/Y):

	FY 69			
	MDM	MDR	MDT	TOTAL
Military	.01	-0-	.02	.03
Civilian	.02	-0-	.06	.08
Total	.03	-0-	.08	.11

	FY 70			
	MDM	MDR	MDT	TOTAL
Military	.01	-0-	.02	.03
Civilian	.02	-0-	.06	.08
Total	.03	-0-	.08	.11

It is estimated that it will require .16 manyears in FY 69 and FY 70 to complete the program. These are available from within the support facilities. No additional spaces are required.

Page 4 of 5
 Picatinny Arsenal 40 mm Rain Tests
 921C-0000-69033

(6) Funds:

Total Fund Estimate of Reimbursement

	<u>FY 69</u>	<u>FY 70</u>	<u>TOTAL</u>
Civilian Personnel	\$ 700	\$ 700	\$1,400
Overtime	150	150	300
Contract Services (MDR)	50	50	100
Contract Services (MDT)	50	50	100
Supplies and Materials	50	50	100
Total	\$1,000	\$1,000	\$2,000

The above funds were based on two days of testing, eight hours per day during each FY with minimum personnel support.

Total Fund Estimate of Free Services

	<u>FY 69</u>	<u>FY 70</u>	<u>TOTAL</u>
Military Personnel	\$160	\$160	\$ 320

e. Photo-Optical Requirements: The only Photo-Optical support for this program will be still documentary coverage at the request of Picatinny Arsenal through the MDT Project Office. The coverage will be minimal.

f. Security: All classification security of 40 mm ammunition, from arrival of ammunition at AFMDC to conclusion of test, and disposal of classified items will be the responsibility of Picatinny Arsenal.

g. Safety: Picatinny Arsenal will furnish to AFMDC (MDT) the specifications for the fuses to be used in the tests. Picatinny will also furnish a written procedure applicable to handling and storage of test items, including safety procedures. MDT reserves the right to halt the tests at any time it appears that undue risk is encountered.

h. Test and Participating Agency Responsibilities:

(1) Picatinny Arsenal will have personnel at the test site during the test who will work with the MDT project officer in all phases of preparing for and conducting the test program.

Page 5 of 5
 Picatinny Arsenal 40 mm Rain Test's
 921C-0000-69033

(2) Picatinny will furnish funds in the amount of \$2,000 for support of the program. Any funds not expended by AFMDC will be returned at the completion of the program.

i. Project Personnel:

<u>Agency</u>	<u>Name</u>	<u>Office Symbol and Address</u>	<u>Telephone</u>
Picatinny Arsenal	Mr. W. R. Schneider	Picatinny Arsenal Dover, New Jersey	(201) 328-2968
AFMDC	Mr. David G. Cummings Principal Project Officer	MDTO Holloman AFB New Mexico 88330	473-6511 ext 5-2163
AFMDC	Mr. James M. Dickerson Plans Officer	MDOP-2 Holloman AFB New Mexico 88330	473-6511 ext 4441

SUBMITTED BY:

David G. Cummings
 DAVID G. CUMMINGS
 Track Project Officer

DATE: 27 Feb 1969

APPROVED BY:

Tyler A. Redfield
 TYLER A. REDFIELD, Colonel, USAF
 Director, Test Track

DATE: 3 March 1969

COORDINATED BY:

James M. Dickerson
 JAMES M. DICKERSON
 Plans Officer, MDOP-2

DATE: 10 March 69



4 Atch

1. AFSC Form 103
2. AFSC Form 59
3. AFSC Form 59A
4. Coordination Sheet

"FORGING MILITARY SPACEPOWER"

PROGRAM SCHEDULE		SYSTEM (Project) NUMBER		SUBSYSTEM		TYPE OF SCHEDULE		AS OF DATE																																		
		921C-0000-69033						27 February 1969																																		
LINE	DESCRIPTION	PRIOR SCHEDULE DATES	FY 1969												FY 1970												COMPLETION DATES	LINE														
			CY 1969						CY 1970						19				19				19																			
			J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	1	2	3	4	1	2	3	4	1	2	3	4				
1	Contractor Hardware Delivery																																								1	
2	Tests																																									2
3																																									3	
4																																									4	
5																																									5	
6																																									6	
7																																									7	
8																																									8	
9																																									9	
10																																									10	
11																																									11	
12																																									12	
13																																									13	
14																																									14	
15																																									15	
16																																									16	
17																																									17	
18																																									18	
19																																									19	
20																																									20	
21																																									21	
22																																									22	
23																																									23	
24																																									24	
25																																									25	
26																																									26	
27																																									27	
28																																									28	
29																																									29	
30																																									30	
31																																									31	
32																																									32	
33																																									33	
34																																									34	
35																																									35	
36																																									36	
AUTHENTICATION																																										

Atch # 1

"FORGING MILITARY SPACEPOWER"

MANPOWER REQUIREMENTS FORECAST										DATE PREPARED							
TITLE (System/Project/Job) 40 mm Rain Tests 921C-0000-69033										REQUIREMENTS FOR (Division/Center/Region) AFMDC				27 February 1969			
FUNCTION CODE	FUNCTION TITLE / POSITION DESCRIPTION	MIL GRADE / CIV BUDGET PROJECT	AFSC	QUARTERLY BY FISCAL YEARS								END OF YEAR					
				1/	2/	3/69	4/69	1/70	2/70	3/70	4/	4/	4/	4/			
6000	Aerospace Engr	690	2855A			*	*				*						
	Clerk Typist	690	70250			*	*				*						
	Crane Operator	690	53150			*	*				*						
	Generator Operator	690	54550A			*	*				*						
	Generator Operator	690	53550A			*	*				*						
	Film Editor	690	23351			*	*				*						
	Still Photo	690	23390			*	*				*						
	Elect Engr	690	2825A			*	*				*						
	Missile Maint Tech	A1C	44370			*	*				*						
	Instr Tech	SSgt	31370			*	*				*						
	Mun Spec	SSgt	46170			*	*				*						
	Weapons Mech	SSgt	46250			*	*				*						
	Instr Sys Mod	SSgt	31370			*	*				*						

Atch #2

"FORGING MILITARY SPACEPOWER"

MANPOWER RECAPITULATION										DATE PREPARED 27 February 1969	
TITLE (System/Project/Job) 921C-0000-69033						REQUIREMENTS FOR (Division/Center/Region) AFMDC					
40 mm Rain Tests											
TYPE	QUARTERLY BY FISCAL YEARS								END OF YEAR		
	1/	2/	3/69	4/69	1/70	2/70	3/70	4/	4/	4/	4/
GENERAL							*				
COLONEL											
LT COLONEL											
MAJOR											
CAPTAIN											
LIEUTENANT											
TOTAL OFFICERS											
CMS											
SMS											
MSG											
TSG											
SSG			*	*			*				
A1C			*	*			*				
A2C											
A3C											
TOTAL ARMEN			.01	.01			.02				
TOTAL CIVILIANS			.03	.03			.06				
AGG			.04	.04			.08				
NOTE: The above represents manyears of effort only. * Represents less than .05 manyears of effort.											
REQUIREMENTS EXTENDING BEYOND NORMAL PROGRAMMING CYCLE											
TYPE	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/	4/
OFFICERS											
ARMEN											
CIVILIANS											
AGG											

COORDINATION SHEET

921C-69033, 40mm Rain Test

27 Feb 69

MDI Byrd C. Short DATE: 10 Mar 69
MDM S. E. Hanson DATE: 18 Mar 69
MDR H. K. Jackson DATE: 11 March 69
MDBCA R. W. Nelson DATE: 12 March 69
MDBCB J. E. Dike DATE: 12 March 69
SCOM-25 A. E. Park DATE: 12 March 69
MDMM L. M. ... DATE: 19 Mar 69


Mr. Dickerson

MDOP-2

4441

7 Mar 69

Atch #4

SEA (ROM)
1-46
20 Feb 69

201-1321 132

INFORM 12104 547 7045 051204-0000-00000000.
ZNY
R 00000Z FEB 69
FM CG 12104 12104 0000 0000 0000 0000
TO RUVAAM/0000 0000 0000 0000
INFO RUVAAM/0000 0000 0000 0000
RUEFHOM/0000 0000 0000 0000
BT

INCLAS AND COM-FEE-10-00 FOR A FTI AND A FOC, INFO COPY FOR NOLAF,
AF, DERT AND MAJ TO A I AM, AFSC AIR MANAGEMENT OFFICE
SUBJ: CONTINUATION OF AIR FORCE RAY PROGRAM
1. ON 14 FEB 69 THE CONTRACTOR NO. 1710 THE ARMY MISSILE CO. AND
CONTRACTOR NO. 1710 THE ARMY MISSILE CO. AND
FOR THE RAY PROGRAM WILL HAVE BEEN EXPANDED AS OF 0000 0000 0000 0000. THE
CONTRACTOR ENVISIONS THE PROGRAM CAN BE COMPLETED BY 30 APR 69 WITH
AN ADDITIONAL COST OF \$49,000.00, THEREBY INCREASING THE TOTAL PROGRAM
COST TO \$486,000.00 PLUS FEE. CONTRACTOR JUSTIFICATION FOR PROGRAM
EXTENSION IS NEEDED. FLIGHT SCHEDULE DELAYS, ADDITIONAL
BOMBABLE REPAIRS, ETC. TO BE FULLY REVEALED WITH
THIS AIRCRAFT.

2. REQUEST SUBMISSION TO THIS OFFICE NL. COM 25 FEB 69 AND AIR
FORCE STATEMENT AS TO WHETHER OR NO ADDITIONAL FUNDS WILL BE

PAGE RUCR 0045 735 INCLAS
FORTHCOMING
BT
#5 735

SEA 1-46
194-269
MVL

15100 / 442

RTTZYU RUMWAG055 01225 10-2222--RUMWAG.
ZNY 0000 207 RUMWAG REROUTE OF RUMWAG055
R 15100Z FEB 59
FM AED WPAFB OHIO
TO RUMWAG/AFD/CDR/MLP HOLLOWAY AFB WEX
RUMWAG/AFD/CDR/MLP HOLLOWAY AFB WEX
INFO RUEBBA/AFPO/CSAC
BT
UNCLAS E F T O ASZNF FEB 59.
SUBJECT: TEST RANGE SUPPORT FOR AGM-69A PROGRAM
1. THE 31 DECEMBER 1958 ISSUE OF "INDEX OF USAF RAC PROJECTS"
SHOWS AGM-69A PRIORITY AS 31A VERSUS PREVIOUS PRIORITY OF 16AK
REQUEST YOU PROVIDE QUALITATIVE AND QUANTITATIVE ASSESSMENT
OF PROBABLE IMPACT OF LOWER PRIORITY ON YOUR SUPPORT TO THE
AGM-69A PROGRAM ON PRESENT SCHEDULE.
2. THE ASSESSMENT SHOULD INCLUDE IDENTIFICATION OF THE CON-
FLICTING PROGRAMS, PRIORITY OF THE PROGRAMS, SPECIFIC POINT
OF IMPACT, I.E. TRACK TIME, RANGE TIME, PERSONNEL REASSIGN-
MENTS, AIRCRAFT DIVERSIONS, LOSS OF FACILITIES, THE POINT ON
THE AGM-69A SCHEDULE THAT THE CONFLICT OCCURS AND AN ESTIMATE
OF THE SCHEDULE DELAY IN EACH CASE AS WELL AS THE TOTAL DELAY.
3. REQUEST REPLY BY 10 MARCH 1959 IN ORDER TO EXPEDITE RECLAMA

PAGE 2 RUMWAG055 UNCLAS E F T O
ACTION TO AFSC
5
#3065

NNN

SEA 1-46
187-269

18 FEB 69 20 41Z

RITLZYU R120P0019 042021-ULUU-2W.DCA.

ZR ULUU

R 180015Z FEB 69

FM COFA PHLA TA

TO RUEBAA/0 USA TECOM ABERDEEN MD AFIN: AYS E-FA MR BUCCI
INFO RUMDCA/0 HOLLOWAY AFB TEX AFIN: AFVDC/OTO MR J "PA" BROWN
RUEBAA/0 ARI MD AFIN: STEAR-4D-00 MR RAYGAY
RUMTPOA/0 USA ARTILLERY BORDO FT SILL OMLA AF IN: S EBA-1D

BT
UNCLAS FROM S/LVA J6100 FT MOT SOC WARESKI
SUBJ: TEST OF M100, M5622 FIRE IN WAFB'S RAINFIELD. TFR-FA-J6000-69-42
1. CONFIRMING TELECOM BETWEEN MR J "PA" BROWN OF WAFB AND MR J F
SIPRA OF FA ON THIS DATE. IT IS PLANNED TO FIRE ONE HUNDRED (100)
M100, M5622 FIRES FROM THE 60M GUN. THIS TEST IS TENTATIVELY SCHEDULED
FOR THE WK OF 3 MAR 69. ALL SUPPORT PERSONNEL MUST ARRIVE IN ALAMA
BORDO, NEW MEXICO ON THE EVENING OF 2 MAR 69 IN ORDER TO COMPLETE
THE TEST BY 6 MAR 69. THE WEAPON AND ALL AMMO ARE AT WAFB, READY FOR
THE TEST. ALL RDS ARE TO BE FIRED THROUGH 1200 FT OF THE HEAVY RAIN
(4 TO 6" NOZZLES) FOR IMPACT ON FLYWOOD SCREENS WITH PHOTOGRAPHIC
COVERAGE.
2. THIS IT WILL BE CONSIDERED TFR-FAJ6000-69-42. PROGRAM AUTHORIZATION
HAS ALREADY BEEN ESTABLISHED AT WAFB.

PAGE TWO RUMTPOA019 UNCLAS
3. CONFIRMING TELECOM BETWEEN MR R BUCCI OF USAECOM AND MR J F SIPRA
ON THIS DATE IT IS REQUESTED THAT USAECOM PROVIDE A SUB TREN AND ONE
ARTILLERY REPAIRMAN TO SUPPORT THIS TEST. THIS TEST WILL BE CONDUCTED
IN THE PREVAILING WINDS.
BT
#0019

RTTEZYU P UVAAPAS 834 0400A-2222--CW.DCA.

ZNY 00000

R 130000Z FEB 69

FM AFD WPAFB OHIO

TO AFMDC HOLLAMAN AFB NY

BT

UNCLAS E FT O A02M FEB 69

FOR INFO: NYLTY CRT BR 118

SUBJECT: AND IMPACT TEST

CONFIRMATION OF TELECOM WITH LT. FATHER TO FEB 69. ACT-CA

STO ASSUMES RESPONSIBILITY FOR PAYMENT OF ADDITIONAL DATA

REDUCTION COSTS. THIS AUTHORIZATION IS ONLY TO PRECLUDE

SCHEDULE DELAY. THEREFORE, DISCUSSION SHOULD NOT BE HELD

WITH THE CONTRACTOR REGARDING THE PROVISIONS OF HIS WIFE

BEING REVENUE INCOME OF "BASE SUPPORT" PROVISIONS OF THE

CONTRACT.

BT

#5-34

SEA 1-46

147-2-9

147-2-9

2-12

1-46
SEA
147-269

147-269

RTTUZYU RWL 03996 05032-UUUU--RW BDA.
ZNR UUUUJ
R 130144Z FEB 69
FM STAFF MOLELLAN AFB CALIF
TO AFPO/CDIC/MULLOYAN AFB NEW MEXICO
BT
UNCLAS RNNBY
FOR: MR. R. A. REYNOLDS. SUBJECT: F-105 STATIC ESCAPE SYSTEM TEST.
THE SUBJECT TEST WILL BE DELAYED FOR APPROXIMATELY ONE MONTH DUE
TO DIFFICULTY IN OBTAINING GFE ITEMS FOR THE TEST. ANTICIPATED
TEST DATE IS NOW THE LAST WEEK OF MARCH 1969.
BT
#9596

1-46

Valley
CR 44
137-469
110

137-469-312

0. RITEZYUW RLVAAWAS 697 OIA MCH-DEER--RUMDOA.
ZNY EEEEE
R 131556Z FEB 69
FM AFD WAFB
TO RUEBBAW/AFSCY/SCAC
INFO RUEBBAW/AFSCY/SCDA
RUEFHAW/CAF/AFRDA
RUMDOA/AFMCC/DOO/MULLOYAN AFB WEX
BT

UNCLAS E F T O ACZFY FEB 69
SUBJ: VALLEY PRODUCT IMPROVEMENT FLIGHT TESTING
1. REFERENCE IS MADE TO:
A. COMBAT EAGLE REPORT, TAC OPLAN 102, DTD JAN 62.
B. AFD/ASST MSG 317012Z JAN 69 TO SCAC (NO AL)
C. PROECONS AMONG COL CURTIS (GOOD), LT COL KITCHENS
AND MR. MOLLIN (ASST) AND LT COL COULAND (SCAC) ON
6, 11, AND 12 FEB 69.
2. REF PROECONS DISCUSSED HIGHER PRIORITY TEST PROGRAM WHICH
MAY IMPACT THE SUBJECT VALLEY TESTING AT AFMCC BY REDUCING
AFD/AF-4D SUPPORT. PRODUCT IMPROVEMENT TESTING HAS ALREADY
BEEN DELAYED SEVERAL MONTHS, AND THE USE OF ONE OF OUR TEST
AIRCRAFT BY OTHER PROGRAMS HAS CONTRIBUTED TO THIS DELAY. SUBJEC

10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30

PAGE 2. RLVAAWAS 697 UNCLAS E F T O
TESTING IS IN SUPPORT OF IMPROVEMENT REQUIREMENTS CITED BY
REFERENCED COMBAT EAGLE REPORT. TESTING CURRENTLY PROGRAMMED
TO JUNE/JULY TIME PERIOD EXPECTED TO EXTEND TO THE OCT/NOV TIME
PERIOD IF ONE OF THE TEST AIRCRAFT IS WITHDRAWN FROM THIS PROGRAM.
3. OUR CAPABILITY TO ESTABLISH RATIONAL RETROFIT RECOMMENDATIONS
FOR THE VALLEY WEAPON IS DIRECTLY DEPENDENT UPON SUCCESSFUL
COMPLETION OF THESE FLIGHT TESTS.
BT
15697

NNNNRTT LZYLW RWI DAGS47 042 B30-UUUU--RW DGA.

ZNR UUUU

R 11420Z FEB 69

FM WRA TA ROBINS AFB GA

TO AF/DQ/MDIO/DOP-2/HOLLOWAY AFB TX

BT

UNCLAS WRWFT

SUBJECT: SIDEWINDER TRACK TEST PROGRAM.

REFERENCE: A. MINUTES OF MEETING OF SUBJECT PROGRAM, 4 APR 68.

B. TELECONS BETWEEN MR. JONES (GRIFTS) AND L. WILSON (COTO).

ITEM 15. SCHEDULE OF REF A. SINCE THE THREE TO SIX TRACK TESTS
ORIGINALLY SCHEDULED IN THE PERIOD 1 APR TO 20 SEP 68 WAS

ELIMINATED DUE TO UNAVAILABILITY OF THE WKS MOD 5 TELEMETRY

SYSTEMS, AND SINCE SUPPORT OF THESE SYSTEMS WILL NOT BE AVAIL-

ABLE UNTIL 1 MAR 69, THIS PART OF THE SCHEDULE IS CANCELLED.

THE THREE TO SIX PERIOD 1 APR TO 16 MAY 69 IS

STILL A FIRM REQUIREMENT.

BT

#047


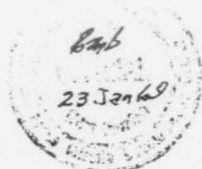
SEA 1-46

11 FEB 69

17 21z

SEA XF 4V

1-46
MDNH

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL AF-R16
1. TITLE Project Seek Eagle				2. PROJECT NO. 5221
				3. OSD PROGRAM ELEMENT NO. 64212F
4. PROJECT OFFICE AFMDC (MDOP-2)		5. MANAGEMENT ORGANIZATION ASD		6. RESPONSIBLE COMMAND AFSC (SCSM)
7. TYPE OF REPORT				8. DATE PREPARED
STATUS	<input checked="" type="checkbox"/> SPECIAL	<input type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	20 Jan 1969
9. NARRATIVE				
<p>a. The purpose of this management report is to document the use of 165 AFMDC manhours in support of this project. The project is now complete at AFMDC.</p> <p>b. Project Personnel:</p> <p>Mr. F. W. Grefe, AFMDC (MDOP-2), Holloman AFB NM, Ext 4441 Plans Officer</p>				
SUBMITTED BY:				
 FRED W. GREFE Plans Officer, Project Plans Plans and Requirements Office Date: <u>20 Jan. 1969</u>				
				
Page 1 of 1				

1-46

29 January 1969

Directorate of Test Track, Test Event Report, "(T-38/F-5 Escape System) Run 16E-A2,"
Mission Nr: 4705, 29 January 1969.

Directorate of Test Track, Test Event Report, "(T-38/F-5 Escape System) Run 16E-A1,"
Mission Nr: 4699/446, 21 January 1969.

Directorate of Test Track, Operations Plan 16E-A, "Project 420L, T-38/F-5 Escape
System," 6 January 1969.

-unclassified-

All of the above are filed in Track Projects (MDNH 3-6-3).

1-46

Directorate of Test Track
10 February 1969

OPERATIONS PLAN 16E-B, C

SUBJECT: Project 420L, T-38/F-5 Escape System

AUTHORITY: AFSC ESP titled T-38/F-5 Escape System, dated 26 September 1968

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

F-5/T-38 System Program Office (ASD/ASNYYJ), Wright-Patterson AFB, Ohio
Frankford Arsenal, Philadelphia, Pa.
Northrop-Norair, Hawthorne, Calif.
Dynalectron Corp. (Land-Air Division)
Physical Science Laboratory, NMSU, Las Cruces, N.M.
Computation Division (MDRC)

1. Test Objective and Description:

a. Objective: To evaluate an improved T-38/F-5 escape system developed by Northrop-Norair.

b. Description: These tests will be dual ejections at nominal speeds of 100 (16E-B) and 150 (16E-C) KEAS. All tests will be made running North to South.

2. Basic Information:

16E-B

16E-C

a. General:

(1) <u>Sled:</u>		IDS 6881	
(2) <u>Propulsion</u> (1st Stage):	1 - 2.2 KS	11,000	2 - 2.2 KS11,000
	1 - HVAR		
(3) <u>Weights</u> (lbs):			
<u>Initial:</u>	4727		4941
<u>Burnout:</u>	4552		4649
(4) <u>Launch Point</u> (T.S.):	16,786		17,288
(5) <u>Ejection T.S.</u> 1st:	16,500		16,500
2nd:	16,333		16,243
(6) <u>Stop T.S.:</u>	12,886		9,988
(7) <u>Sled Length</u> (ft):	23		23

b. Estimated Performance:

	<u>16E-B</u>	<u>16E-C</u>
(1) <u>Velocity (fps):</u>		
Maximum	190 @ 16,556	309 @ 16,949
1st Ejection	188 @ 16,500	290 @ 16,500
2nd Ejection	182 @ 16,333	280 @ 16,243
(2) <u>Acceleration (g's):</u>		
Maximum	3.7	4.6
Ejection	0.2	0.4
(3) <u>Run Distance (ft):</u>	3,900	7,300

c. Instrumentation: Three 800 MHz TM packages will be used; one sledborne and one on each dummy. VMS will be transmitted. Breakwires will be used for quick-look velocity information.

d. Recovery: 16E-B, C - The sled will coast to a stop.

e. Reasons for Hold or Cancellations: Holds will be called at the discretion of the Track Project Officer. Failure of test equipment or prime data sources, or adverse weather conditions are causes for cancellations.

f. Countdown, L-1 Day: An L-1 Day count is required.

g. Job Order Number: 420L0

3. Tasks for Supporting Organizations:

a. Functional Support: All Divisions/Offices will provide personnel and equipment to comply with provisions of MDTOI 55-1, Subject: Programming and Conduct of Tests.

b. Reports: Reports shall be prepared in accordance with MDTOI 174-1 "Preparation of Reports." Project summary reports will be prepared by all Divisions/Offices, and submitted to the Track Project Officer within ten working days after written request.

4. Key Personnel:

a. Project Officer: Capt. George M. Palmgren, 5-2165.

b. Project Engineer: Lt. William A. Hill, 5-2469.

c. Instrumentation Engineer: Mr. Jim M. Doherty, X5-2038.

d. Customer Test Representatives:

ASD, W-PAFB, Mr. Victor Yancey, 5-5783.
Northrop/Norair, Mr. William Shirreffs, X5-2832
(1173)

Morris E. Haven
MORRIS E. HAVEN, Lt Col, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Optical Instrumentation
"C" - Complex Safety
"D" - Engineering
"E" - N/A
"F" - Propulsion
"G" - Test Support
"H" - PSL
"I" - MDRC

ANNEX A TO OPLAN 16E-B, C
Instrumentation Division:

1. Sled Instrumentation Branch:

a. Telemetry Instrumentation: The installation, operation, and maintenance of the telemetry equipment are the responsibility of MDTI. System signals will be provided by Norair and MDTI. Telemetry channel assignments will be in accordance with paragraph 2.a.(3) and (4), Telemetry Assignments.

b. Space/Time: MDTI will install and operate equipment to provide one channel of Space/Time to be telemetered on the 165 KHz SCO of RF 'A'.

c. Engine and Sledborne Recorders: Not required.

2. Data Acquisition Branch:

a. Telemetry:

(1) Three RF links will be operated and are identified as follows:

<u>Link</u>	<u>Frequency</u>	<u>Modulation</u>	<u>Antenna</u>	<u>Source</u>
RF 'A'	800 MHz Band	FM/FM	Horizontal	Sled
RF 'B'	"	FM/FM	Horizontal	Five percentile dummy
RF 'C'	"	FM/FM	Horizontal	Ninety-five percentile dummy

(2) Three 1/2" telemetry tape recorders will be used with the following track assignments:

<u>Track</u>	<u>Data</u>
1	Blank
2	RF 'A' with 240 KHz
3	RF 'B' with 240 KHz
4	*Midway data complex
5	RF 'C' with 240 KHz
6	Blank
7	G-X time base recorded on 108 KHz ± 40%

*Midway data complex

*Midway Data Complex

<u>Subcarrier (KHz)</u>	<u>Identification</u>
100	Tape speed compensation
70	Guidance time base and comp zero
40	IRIG-B
22	Voice annotation
17	Tape speed lock
10.5	1 pps + F.M.
7.35	First motion
5.4	Signal strength RF 'A'
3.9	Signal strength RF 'B'
3.0	Signal strength RF 'C'

(3) Telemetry Assignments, RF 'A' (sled):

<u>Subcarrier (KHz)</u>	<u>IRIG</u>	<u>Filter (Hz)</u>	<u>Data</u>
165	H	STD	Space/Time
70	E	"	Neck load aft dummy
40	C	"	Neck load forward "
22	A	"	Forward seat motion
14.5	13	"	Aft seat motion
10.5	12	"	Aft screen box
7.35	11	"	Forward screen box

(4) Telemetry Assignments, RF 'B' and 'C' (dummy):

<u>Subcarrier (KHz)</u>	<u>IRIG</u>	<u>Filter (Hz)</u>	<u>Data</u>
165	H	STD	X accelerometer
70	E	"	Z accelerometer
40	C	"	Z accelerometer seat
22	A	"	*Chest pressure, psig
14.5	13	"	Pitch rate gyro
10.5	12	"	Seat actuator load force
7.35	11	"	Seat load force #4
5.4	10	"	Seat load force #3
3.9	9	"	Seat load force #2
3.0	8	"	Seat load force #1
2.3	7	"	Man/seat sequence and stabilization chute slug

*May be replaced by catapult rocket motor pressure. Transducer to be installed by Frankford Arsenal.

(5) Oscillograph Requirements:

Oscillograph #1 Speeds: Cal: 0.4 ips
 Paper size: 12" Run: 10 ips

<u>Trace</u>	<u>Link</u>	<u>Center Frequency (KHz)</u>	<u>Deflections (in)</u>
1	A	70	+ 1/2
2	A	40	+ 1/2
3	A	22	+ 3/4
4	A	14.5	+ 3/4
5	A	10.5	+ 3/4
6	A	7.35	+ 3/4
7	A	165	+ 3/4
8	-	IRIG-B	+ 3/4
9	-	1 pps + F.M.	+ 1/4

NOTE: Space/Time is on the 165 KHz SCO and is recorded on trace 7.
 No separate oscillograph is needed.

Oscillograph #2, #3 Speeds: Cal: 0.4 ips
 Paper size: 12" Run: 10 ips

Oscillograph #2 will record Link B, and oscillograph #3 will record Link C.

<u>Trace</u>	<u>Center Frequency (KHz)</u>	<u>Deflection (in. total)</u>
1	165	0.8
2	70	0.8
3	40	0.8
4	22	0.8
5	14.5	0.8
6	10.5	0.8
7	7.35	0.8
8	5.4	0.8
9	3.9	0.8
10	3.0	0.8
11	2.3	0.8
12	IRIG-B	0.8
13	1 pps + F.M.	0.4

b. Timing and Trackside Instrumentation:

(1) Provide programmed start/stop and timing as required to Trackside Optical units. See PIP

A-3

(2) Provide the following for the Midway Complex:

- (a) Guidance time base
- (b) 100 KHz
- (c) IRIG-B
- (d) G-X timing
- (e) 1 pps + F.M.
- (f) Comp zero (see Master Countdown for time)
- (g) First Motion

c. Communications:

- (1) Provide communications between firing console and launch pad.
- (2) Special intercoms are required. See PIP for locations.

d. Blockhouse Requirements:

- (1) The Mobile Launch Trailer will be used.

Location: 16E-B 250 ft E of T.S. 16,786
 16E-C 250 ft E of T.S. 17,288

- (2) The "large" umbilical cable and pullaway are required.

e. Screen Boxes: Arm installed screen boxes at the following locations:

	<u>Nr</u>	<u>Track Station</u>	<u>Event</u>
16E-B	1	16,500	Aft seat ejection
	2	16,333	Forward seat ejection
16E-C	1	16,500	Aft seat ejection
	2	16,243	Forward seat ejection

f. First Motion: First motion is required.

g. Spot Velocity and Time Recording: Spot velocities are required at the following track stations:

	<u>Nr</u>	<u>Start</u>	<u>Stop</u>
16E-B	1	16,520	16,500
	2	16,320	16,300
16E-C	1	16,920	16,900
	2	16,520	16,500
	3	16,220	16,200

3. Distribution of Data: All MDTI sections will deliver raw data to MDTID for distribution. The following data is required as soon as possible after each run.

a. Data Collection Booklets:

- | | | |
|-----|--------------------------------|----------|
| (1) | MDTO (Capt Palmgren) | 3 copies |
| (2) | MDTIA (Mr. Doherty) | 1 copy |
| (3) | MDTE (Lt Hill) | 1 copy |
| (4) | MDRC - two copies (with tapes) | |
| (5) | PSL (Mr. Finch, 1173) | 1 copy |

b. Oscillograph Records:

- | | | |
|-----|----------------------|--------|
| (1) | MDTO (Capt Palmgren) | 1 set |
| (2) | MDTIA (Mr. Doherty) | 2 sets |

c. Magnetic Tapes:

- | | |
|-----|---------------------------|
| (1) | MDRC - 2 (data reduction) |
| (2) | MDTID - 1 (file) |

ANNEX B TO OPLAN 16E-B, C
Track Optical Instrumentation

1. Optical Instrumentation/Engineering Data: See PTP

2. Aerial Instrumentation/Engineering Data:

16E-B: One aerial tracker required. Location is 1000 ft west of T.S. 16,000 at altitude of 200 - 300 ft. Film: 16mm color at 250 fps. Lens size: 4 in. Track second seat/dummy ejection.

16E-C: One aerial tracker required. Location is 1000 ft west of T.S. 16,250 at altitude of 200 - 300 ft. Film: 16mm color at 250 fps. Lens size: 4 in. Track first seat/dummy ejection.

3. Documentary/Engineering Optical/Requirements:

a. Still:

- (1) 4x5 B/W pre/post ejection coverage
- (2) 4x5 color negative
- (3) 35mm color slides
- (4) Polaroid (emergency coverage only)

b. Motion Picture: 16mm color pre-run, run, and post-run coverage as coordinated.

c. Hulcher: One Hulcher is required to track each event (two per test). Use 70mm B/W film at 20 fps and 10 in lens. Tracking to be done from Camera Pad Road.

	<u>Location</u>	<u>Coverage</u>
16E-B, C:	#1 T.S. 16,250	1st ejection (rear cockpit)
	#2 T.S. 16,000	2nd ejection (front cockpit)

4. Film/Data Processing Requirements:

- a. All film will be processed as soon as possible after each test.
- b. All 70mm and ribbon frame metric camera film will be sent to PSL for data reduction.
- c. All other film to be delivered to the track as soon as possible.

5. Print Requirements:

- a. Instrumentation/Engineering Coverage: Provide one color master and three color prints each.

B-1

b. Documentary Coverage:

- (1) Movie: Provide one color master and three color prints.
- (2) Still: Provide duplicate negatives and three 8x10 prints of each photo. Color requirements will be coordinated by Project Officer.

6. Additional Information:

- a. Test vehicle length: 23 ft.
- b. All film is unclassified.

B-2

ANNEX "C" TO OPLAN 16E-B & C T-38 F/5 Escape System
Complex Safety (Reference MDTOI 127-1 and AFMDCR 127-2)

1. The hazard area is from T.S. 20,000 to T.S. 4,000. It will be evacuated prior to T-80 minutes by non-participating personnel. The final track clearance will be completed prior to T-40 minutes. Track Control will control all personnel in the hazard area after this time.
2. The post-fire condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.
3. Post-fire: After the sled vehicle(s) have been declared safe by MDTF personnel, roads will be opened as directed by Track Control after clearance is received from the Project Officer.

C-1

ANNEX D TO OPLAN 16E-B, C
Engineering Division

1. Prepare sleds and hardware for conducting this test program.
2. Provide sled velocity and braking profiles as required.
3. Furnish other engineering support as required.

ANNEX F TO OPLAN 16E-B, C
Propulsion Division

1. Rocket Motors:

16E-B: 1 - 2.2 KS 11,000, 1 - HVAR in 2.2 KS case
16E-C: 2 - 2.2 KS 11,000

2. Screen Boxes: Screen boxes are required for seat ejection functions (no staging required).

<u>OPLAN</u>	<u>Nr</u>	<u>Track Station</u>	<u>Function</u>
16E-B	1	16,500	Aft Seat Ejection
	2	16,333	Forward Seat Ejection
16E-C	1	16,500	Aft Seat Ejection
	2	16,243	Forward Seat Ejection

3. The forebody front slipper beam will be placed on the track at the launch track station indicated:

16E-B: 16,786
16E-C: 17,288

4. Northrop personnel will arm the seat ejection system prior to clearing the launch pad for ignitor and booster installations.
5. In the event of a malfunction, customer personnel will disarm the seat ejection system after the sled has been disarmed.
6. Provide bracket and bolt at T.S. 15,250 for Land-Air camera shut off (both tests).

D-1
E-N/A
F-1

ANNEX G TO OPLAN 16E-B, C
Test Support Division

1. Provide the mobile launch trailer and generator to be located approximately 250 ft east of the launch point.

16E-B: T.S. 16,786
16E-C: T.S. 17,288

2. Braking: Not required for this OPLAN series. The sleds will coast to a stop.
3. Provide a pillbox at the launch point for pullaway protection.
4. Make pre-run track inspection. See Master Countdown for complete time.
5. Check space/time interrupter alignment prior to each run.
6. Provide other test support as required.

ANNEX H TO OPLAN 16E-B, C
Physical Science Laboratory, NMSU

1. Data reduction from metric camera coverage is required. Two seats will be ejected on each test.
2. Provide the following data in both tabular and graphic form for each ejection.
 - a. 'X', 'Y' and 'Z' axis displacement vs time for both dummy and seat.
 - b. 'X' and 'Z' axis displacement vs 'X' axis for dummy and seat.
 - c. 'X', 'Y' and 'Z' axis velocity vs time for dummy and seat.
 - d. Dummy-seat miss distance.
 - e. 16E-B only: Add to a. and b. above displacement vs time and distance for forward canopy.
 - f. Pitch angle of dummy and seat from ejection to seat dummy separation.
3. Reference to center of cross beneath each cockpit.
4. Zero time will be provided by Project Officer.
5. Use standard data format.

G-1
H-1

6. Distances will be referenced to the center of the seat or dummy.
7. Distribution of Data: Send six (6) copies of the data book to the Track Project Officer, Capt G. M. Palmgren, AFMDC/MDTO. It is required that one copy have the data plotted on reproducible paper.

ANNEX I TO OPLAN 16E-B, C
Computation Division (MDRC)

1. Provide two copies of processed oscillogram records of TM data to the Track Project Officer, Capt G. M. Palmgren, for distribution to Northrop.
2. Space/Time (VMS) Data:
 - a. Provide four copies of the VMS data book to the Project Officer. One copy should have the distances, velocity, and acceleration curves plotted on reproducible paper.
 - b. Provide one copy each of the VMS data book to MDTE and MDTI.
 - c. One copy each of the raw and reduced data printout is required. Send to MDTO (Capt Palmgren).

H-2
I-1

DEPARTMENT OF THE AIR FORCE

OFFICE OF THE COMPTROLLER OF THE AIR FORCE
HEADQUARTERS, AIR FORCE DISTRICT, WASHINGTON, D. C.

1-46

NDSCB


5 February 1969

Obligations in Support of SEA Operations, RCS: HAF-XDD-C34

AFSC(SCCRS)

Transmitted in subject report for month of January 1969.

FOR THE COMMANDER


EARL H. STAIRLING
Chief, Budget Branch
Comptroller Division

2 Atchs
1. Obligor in Spt of SEA Ops
2. SEA Narrative

NDN (Mr. Cornett)

OBIGATIONS IN SUPPORT OF SEA OPERATIONS
Holloman Air Force Base, New Mexico
(In Thousands of Dollars)

RCS: HAF-XDD-C34
As of 31 January 1969

<u>F/F/D/D</u>	<u>FY 1969</u> <u>Estimated Obligs</u>	<u>FY 1969</u> <u>App Obligs</u>	<u>Current</u> <u>No Obligs</u>	<u>Cumulative</u> <u>Obligs</u>
65903P				
15 Supplies & Materials	\$ 165	0	\$ 20	\$ 97
16 Equipment	50	0	2	46
04 Civilian Pay	54	0	1	44
05 Travel & Transportation of Persons	33	0	4	26
TOTAL	\$ 312	0	\$ 27	\$ 213

Month of January 1969

SFA NARRATIVE

SUPPLIES & MATERIAL - DOD 15 - \$19,514.57

Directed shipment of excesses

EQUIPMENT - DOD 15 - \$1,330.00

CIVILIAN PAY - DOD 04 - \$450.00

Amount shown is in support of the following:

Project 140A, SRAM	6	M/H	\$ 24
Project 6253 - Electro-Optical Tech for Recon	9	M/H	36
Project 3679, Control Mechanics	4	M/H	16
Project 921A-9032, F-106 SST	43	M/H	192
Project 912A-92001, 87A-94A	30	M/H	120
Project 921C-97061, Picatinny Gain Extension	5	M/H	32
	<u>105</u>	<u>M/H</u>	<u>\$420</u>

TRAVEL - DOD 03 - \$4,032.73

Three Officers (Project not available for Officers)

Two Airmen - Project Red Horse

Four Airmen - Project Palace Dog

MDN
1-46

Directorate of Test Track
20 January 1969

OPERATIONS PLAN 24R-C

SUBJECT: Project 921C, Picatinny Rain Erosion Phase III

AUTHORITY: US Army Test Program request 1WX dated 13 July 1968 and USAF JMR Nr. 3 dated 17 July 1968.

PARTICIPATING ORGANIZATIONS OUTSIDE MDT:

Picatinny Arsenal, Dover, New Jersey 07801
Dynalectron Corporation (Land-Air Division)
PSL, WSMR Contractor, NMSU, Las Cruces, New Mexico

1. Test Objectives and Description:

a. Objective: The objective of this profile is to evaluate sensitivity of Navy Fuzes being developed by Picatinny by subjecting them to a controlled rain environment.

b. Description: These fuzes will be mounted (4 at a time) on a nose plate which will attach to a suitable sled vehicle to give desired velocities utilizing solid rocket motors.

2. Basic Information:

a. Sledborne instrumentation is not required.

b. Sled Details:

- (1) Sled: IMS 6629, PMS 6720
- (2) Velocity: Rain Entry 4,360 fps
- (3) Propulsion: One Gila IV and 2 HVARs
- (4) Total Weight: 725 pounds
- (5) Launch Point: T.S. 29,580
- (6) Stop Point: (Max) T.S. 1,000

c. Rain Requirements: Special nozzles will be used for these tests. They will be installed, calibrated, removed after testing as required, and the system returned to prior condition by contract.

d. Recovery: Three thousand feet of double 3 inch water bags will be used to stop the sled.

e. Reasons for HOLD or Cancellation: HOLDS will be called at the discretion of the Project Officer. The following are reasons for cancellation.

- (1) Major sled structural deficiencies.
- (2) Inclement weather.
- (3) A continuing safety hazard.

f. Countdown L-1 Day: Not required.

g. Time Accounting: MWC C 7061

3. Tasks for Supporting Organizations:

a. Functional Support: All supporting Divisions/Offices will provide personnel and equipment to comply with provisions of DOI 55-1, Subject: "Programming and Conduct of Tests."

b. Reports:

(1) Test Event Reports: A Test Event Report will be prepared by the Project Officer after each run in the series.

(2) Division Summaries: All supporting Divisions/Offices will provide a summary report to the Project Officer within ten working days after completion of the test series for inclusion in the Final Report.

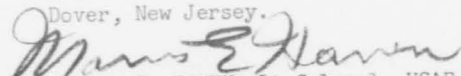
(3) Final Report: A Final Report will be published within 30 days after completion of the test series. This report will be prepared by the Project Officer. Previous tests were conducted for Picatinny under other OPLANS. They were 11R-A, B, C, D, E, and F. Division/Office summaries have been submitted for profiles A-D, so future ones should begin with 11R-F and be known as "Picatinny Rain Sled Tests - 11R- Phase III." All 24R series will be known as "Picatinny Rain Sled Tests - 24R - Phase III - MT XM 577."

4. Key Personnel:

a. Track Project Officer: Mr. J. Pat Brown, ext 5-2161.

b. Sled Responsible Engineer: Lt. William DuBourg, ext 5-2426.

c. Customer Test Representatives: Mr. James Tworkoski, Mr. E. M. Ivankoe, and Mr. Steve Kosanoki, Technical Services Laboratory, Picatinny Arsenal, Dover, New Jersey.


MORRIS E. HAVEN, Lt Colonel, USAF
Chief, Operations Office

ANNEXES: "A" - Instrumentation
"B" - Optical
Instrumentation
"C" - Complex Safety
"D" - Engineering
"E" - Technology N/A
"F" - Propulsion
"G" - Test Support
"H" - J. H. Thompson
Construction Co.
"I" - PSL/AMSU/WBmt

ANNEX "A" TO OPLAN 24R-C
Instrumentation Division

20 January 1969

1. Sled Instrumentation Branch: Not Required.
2. Data Acquisition Branch:
 - a. Telemetry: Not Required.
 - b. Timing and Trackside Instrumentation:

Provide GX timing and programming to photo units located on the track per Dynallectron PIP Plan 24R-X.

<u>UNIT</u>	<u>LOCATION (T.S.)</u>	<u>VELOCITY</u>
IMC-1	26,800	4,360 fps
IMC-2	24,600	3,700 fps
SG-1	26,750	4,360 fps

c. Communications:

- (1) Normal blockhouse communications will be required.
- (2) Provide intercom between the blockhouse, launch pad, F-950 and pumphouse.
- (3) Provide intercom at TM 950, 952, and 954 on the Camera Pad Road.

d. Firing Circuit Requirements: A firing circuit for solid boosters is required. Coco Blockhouse will be used as the control point. Launch point is T.S. 29,580W.

e. Blockhouse Recorders: Not required.

f. Screen Boxes: Screen boxes for second staging will be required at T.S. 29,330W.

g. First Motion: First motion circuitry is required at the launch point.

h. Spot Velocity Measurements: Stop points are given below. For start points add 100 feet.

<u>NR</u>	<u>STOP POINT (T.S.)</u>	<u>NR</u>	<u>STOP POINT (T.S.)</u>
1	27,000	8	23,500
2	26,700	9	23,000
3	26,000	10	22,500
4	25,500	11	18,000
5	25,000	12	14,000
6	24,500	13	10,000
7	24,000	14	5,000

3. Distribution of Data: Deliver to the Track Project Officer three Data Collection Reports.

A-1

ANNEX "B" TO OPLAN 24R-C
Track Optical Instrumentation

20 January 1969

1. Optical Instrumentation/Engineering Data:

a. Ribbon Frame Data Units: From T.S. 27,000 to T.S. 24,000 synchronized together to determine position of fuze functioning.*#

* If the tests are conducted at night, shoot calibration film in daylight either immediately pre or post each test and deliver to PSL, WSMR.

Delete unless specified on launch order.

b. Fixed Trackside Optical Data Units: Not required.

c. Image Motion Units: The positions of coverage will be the same for all OPLANS in Phase III 24R series. The angle of coverage and distance of the cameras from the track will vary with the sled velocity. Exact locations are specified in the Dynalectron Photo Instrumentation Plan (PIP).

<u>UNIT</u>	<u>COVERAGE LOCATION</u>	<u>SLED VELOCITY (fps)</u>
IMC-1	T.S. 26,800	4,360
IMC-2	T.S. 24,600	3,700
SG-1	T.S. 26,750	4,360

d. Optical Instrumentation/Engineering Tracking Units: Not required.

2. Aerial Instrumentation/Engineering Data: Not required.

3. Documentation/Engineering Optical Requirements:

a. Still Requirements:

- (1) 4 x 5 color negative - pre/post run coverage.
- (2) 35mm color slides - 3 copies of each item shot.

b. Motion Picture Requirements: 16mm color, pre and post run coverage as requested by Project Officer. Also record run during test from a position perpendicular to rain field.

4. Film/Data Processing Requirements:

a. All film to be processed immediately after each test and delivered to the track other than ribbon frame.

b. Still print requirements will be stated on the work order.

c. Deliver all ribbon frame film to PSL, WSMR for reduction.

B-1

ANNEX "C" TO OPLAN 24R-C 20 January 1969
Complex Safety (Reference MDTOI 127-1 and AFMDCR 127-2)

1. The hazard area is from Coco blockhouse to the South Arroyo Road. It will be evacuated prior to T-60 minutes by non-participating personnel. The final track clearance will be completed prior to T-45 minutes. Track Control will control all personnel in the hazard area after this time.
2. Post-fire, after the sled vehicle (s) have been declared safe by MDTP personnel, roads will be opened as directed by Track Control after clearance is received from the Project Officer.
3. The post-fire condition of the test vehicle will be reported by code to Track Control by the Sled Launch Chief as soon as possible.

C-1

ANNEX "D" TO OPLAN 24R-C
Engineering Division

20 January 1969

The Engineering Division is responsible for the following:

- a. Provide technical assistance and shop coordination for all test runs.
- b. Insure that the necessary sled knife blades are available to stage boosters if required on future profiles.
- c. Provide theoretical run profiles.
- d. Mate and match hardware for:

PMS 6720; IMS 6629 and the four (4) prong test fixtures with the 1 5/8 inch fuze retainer with the 2 1/2" adapter.

ANNEX "F" TO OPLAN 24R-C
Propulsion Division

20 January 1969

1. Screen Boxes: Screen boxes for second staging will be required at T.S. 29,330 W.
2. Propulsion: Provide and install boosters as follows:
One (1) Gila IV and two (2) HVARs.
3. Launch Point: T.S. 29,580 W.

ANNEX "G" TO OPLAN 24R-C
Test Support Division

20 January 1969

1. Provide double 3 inch water sausage bags on the west rail from T.S. 5,000 to T.S. 2,000.
2. Provide night lights as required by the Project Officer at the launch point.

ANNEX "H" TO OPLAN 24R-C
J. H. Thompson Construction Company

20 January 1969

1. Provide support for checkout and operation of the rain erosion system.
2. Rain Requirements: Two thousand feet of rain T.S. 26,700 to T.S. 24,700; line pressure - 5 psi; with large nozzles supplied by Picatinny Arsenal.

D-1
E-N/A
F-1
G-1
H-1

ANNEX "I" TO OPLAN 24R-C
PSL-WSMR

20 January 1969

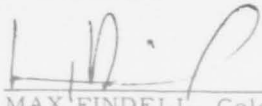
1. If used, analyze ribbon frame film to determine position of fuze functioning denoted by a photo flash burst. Accuracy should be within ± 10 feet or less.

I-1

MEMO ROUTING SLIP		<i>Never Use for Approvals, Disapprovals, Concurrences, or Similar Actions</i>		ACTION	
1	TO MDNH	INITIALS	CIRCULATE		
		DATE	COORDINATION		
2			FILE		
			INFORMATION		
3			NOTE AND RETURN		
			PER CONVERSATION		
4			SEE ME		
			SIGNATURE		
REMARKS					
<p>This page replaces page 1 of ESP 921C-9366-69042 dated 13 Dec 68, distributed to your office approximately 13 May 69.</p>					
FROM		DATE			
MDOP-2		23 Jun 69			
		PHONE		4441	

DD FORM 95 1 OCT 60 Replaces DD Form 94, 1 Feb 50, and DD Form 95, 1 Feb 50, which will be used until exhausted. * GPO : 1966 O - 235-658

1-46 MDN H
~~WEDDIE C~~ 13 Dec 68

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL	
1. TITLE Frankford Arsenal M564 Fuze Tests				SYS - D16	
2. NUMBER 921C- 9366 -69042					
3. DATE PREPARED 13 December 1968	4. ESTIMATED STARTING DATE April 1969	5. EST. COMPLETION DATE 30 June 1970	6. PROGRAM ELEMENT		
7. PERFORMING AGENCY AFMDC/MDTO	8. PARTICIPATING AGENCIES Frankford Arsenal	9. SECURITY OF PROJECT Unclassified	10. AFSC PRIORITY (For AFSC use only.) 81P		
11. REQUESTING AGENCY AND JUSTIFICATION U.S. Army Frankford Arsenal TWX dtd 9 December 1968 and MDT Meeting dated 7 November 1968.					
12. ESTIMATED COSTS			13. RESOURCES STATUS		14. REIMBURSEMENT
	A. MAN YEARS	B. CURRENT FY	C. NEXT FY	MANPOWER	FUNDS
MAN-POWER	MILITARY	5.2	\$23.4 k	\$23.4 k	<input type="checkbox"/> NONE
	CIVILIAN	9.1	55.1 k	55.1 k	<input checked="" type="checkbox"/> PARTIAL
	FUNDS		10.2 k	10.2 k	<input type="checkbox"/> COMPLETE
TOTALS	14.3	\$88.7 k	\$88.7 k	<input type="checkbox"/> REQUESTED	<input type="checkbox"/>
15. DESCRIPTION OF REQUIREMENT The purpose of this ESP is to update and replace ESP 921-0000-68041, MR-1, MR-2, and MR-3, same title. This program was established to conduct rain sensitivity testing of the M564 Artillery Shell Fuzes. Test results have caused modifications and subsequent re-testing. The program is currently extended to test the multi-purpose M564 Fuze, and 20mm Fuzes.					
16. DESCRIPTION OF EFFORT a. <u>Objective</u> : To determine the effectiveness of fuze operation when fired in a rain environment by sled testing and ballistic firing in the AFMDC simulated rainfields. (1) <u>Sled tests</u> : Thirty-eight sled tests are required. Initial testing will commence at a velocity of 3000 fps and may be varied as the program progresses depending on initial results. Two thousand feet of special large nozzle simulated rain will be provided on some tests, and some will use the 6000 ft standard rain field. The test fixture used will be the four probe (1-1/5" diameter) type. (2) <u>Ballistic Tests</u> : Approximately six days of 90mm ballistic firings will be required. The number of rounds to be fired will probably not exceed 300. b. <u>Schedule</u> : These tests will commence in January 1969 and will be completed by the end of the second quarter FY 1970.					
17. PERFORMING AGENCY APPROVAL			18. AFSC APPROVAL		
 MAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office Date: _____					

Page 2 of 4
Frankford Arsenal M564 Tests
921C- -69042

c. Resources:

(1) Facilities: The Directorate of Test Track is available as well as any other necessary base support normal to track operation, such as: Base Fire Dept., Civil Engineering, Field Maintenance, EOD, etc. Sufficient space is allocated at the launch complex for the checkout and operation of data systems prior to launch. WSMR aircraft, as required are requested for safety surveillance, engineering photo coverage, and documentary photo coverage. This aircraft support is provided under National Range Document 36901.

(2) Materials and Supplies:

(a) General Supplies: AFMDC is supplying expendable materials and supplies on a reimbursable basis.

(b) Sled Test Propulsion:

16 - Lacrosse Solid Rockets or Little John Rockets
*16 - Nike Solid Rockets
80 - M58A2 Solid Rockets or HVAR Rockets

*To be furnished by Frankford Arsenal

(3) Test and Participating Agencies: MDR will:

(a) Provide photo optical sled test coverage consisting of Image Motion Cameras (IMC), Shadow Graphs (SG), Ribbon Frame Cameras (RF), Documentary Motion Pictures and pre/post color and/or black and white still photos.

(b) Provide Photo Optical Ballistic Test Coverage consisting of K38 cameras, 16mm documentary film, and color and/or black and white still photos.

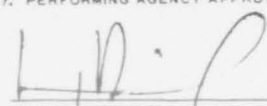
(4) Operations: AFMDC will provide operations normal to the performance of track tests, including installation, arming and initiation of propulsion operations and control. Frankford Arsenal will support any or all of these operations as requested by AFMDC project personnel. Frankford Arsenal is responsible for fuze installation on nose plate, and for the complete nose plate installation on the sled prior to countdown for launching.

(5) Instrumentation: Sledborne instrumentation will be provided. Velocity measurement will be by spot velocity breaktapes for profiles. TM requirements will be to transmit and record five channels of information on each sled test.

MEMO ROUTING SLIP		<i>Never Use for Approvals, Disapprovals, Concurrences, or Similar Actions</i>		ACTION	
1	TO MDN	SEA	INITIALS	CIRCULATE	
			DATE	COORDINATION	
2			FILE		
			INFORMATION		
3			NOTE AND RETURN		
			PER CONVERSATION		
4			SEE ME		
			SIGNATURE		
REMARKS					
<p>This page replaces page 1 of ESP 921C-9366-69042 dated 13 Dec 68, distributed to your office approximately 13 May 69.</p>					
FROM			DATE		
MDOP-2			23 Jun 69		
			PHONE		
			4441		

DD FORM 95 1 OCT 60 Replaces DD Form 84, 1 Feb 50, and DD Form 95, 1 Feb 50, which will be used until exhausted. © GPO : 1968 O - 295-658

1-46 13 Dec 68
~~MDOT~~ C MON

ENGINEERING SERVICE PROJECT PLAN					REPORTS CONTROL SYMBOL	
1. TITLE Frankford Arsenal M564 Fuze Tests					SYS - D16	
2. NUMBER 921C- 9366 -69042						
3. DATE PREPARED 13 December 1968		4. ESTIMATED STARTING DATE April 1969		5. EST. COMPLETION DATE 30 June 1970		6. PROGRAM ELEMENT
7. PERFORMING AGENCY AFMDC/MDTO		8. PARTICIPATING AGENCIES Frankford Arsenal		9. SECURITY OF PROJECT Unclassified		10. AFSC PRIORITY (For AFSC use only.) 81P
11. REQUESTING AGENCY AND JUSTIFICATION U.S. Army Frankford Arsenal TWX dtd 9 December 1968 and MDT Meeting dated 7 November 1968.						
12. ESTIMATED COSTS				13. RESOURCES STATUS		14. REIMBURSEMENT
		A. MAN YEARS	B. CURRENT FY	C. NEXT FY		<input type="checkbox"/> NONE
MAN-POWER	MILITARY	5.2	\$23.4 k	\$23.4 k		<input type="checkbox"/> PARTIAL
	CIVILIAN	9.1	55.1 k	55.1 k		<input checked="" type="checkbox"/> COMPLETE
FUNDS			10.2 k	10.2 k		
TOTALS		14.3	\$88.7 k	\$88.7 k		
15. DESCRIPTION OF REQUIREMENT The purpose of this ESP is to update and replace ESP 921-0000-68041, MR-1, MR-2, and MR-3, same title. This program was established to conduct rain sensitivity testing of the M564 Artillery Shell Fuzes. Test results have caused modifications and subsequent re-testing. The program is currently extended to test the multi-purpose M564 Fuze, and 20mm Fuzes.						
16. DESCRIPTION OF EFFORT a. <u>Objective</u> : To determine the effectiveness of fuze operation when fired in a rain environment by sled testing and ballistic firing in the AFMDC simulated rainfields. (1) <u>Sled tests</u> : Thirty-eight sled tests are required. Initial testing will commence at a velocity of 3000 fps and may be varied as the program progresses depending on initial results. Two thousand feet of special large nozzle simulated rain will be provided on some tests, and some will use the 6000 ft standard rain field. The test fixture used will be the four probe (1-1/5" diameter) type. (2) <u>Ballistic Tests</u> : Approximately six days of 90mm ballistic firings will be required. The number of rounds to be fired will probably not exceed 300. b. <u>Schedule</u> : These tests will commence in January 1969 and will be completed by the end of the second quarter FY 1970.						
17. PERFORMING AGENCY APPROVAL  MAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office Date: _____				18. AFSC APPROVAL		

Page 2 of 4
Frankford Arsenal M564 Tests
921C- -69042

c. Resources:

(1) Facilities: The Directorate of Test Track is available as well as any other necessary base support normal to track operation, such as: Base Fire Dept., Civil Engineering, Field Maintenance, ECD, etc. Sufficient space is allocated at the launch complex for the checkout and operation of data systems prior to launch. WSMR aircraft, as required are requested for safety surveillance, engineering photo coverage, and documentary photo coverage. This aircraft support is provided under National Range Document 36901.

(2) Materials and Supplies:

(a) General Supplies: AFMDC is supplying expendable materials and supplies on a reimbursable basis.

(b) Sled Test Propulsion:

16 - Lacrosse Solid Rockets or Little John Rockets
*16 - Nike Solid Rockets
80 - M58A2 Solid Rockets or HVAR Rockets

*To be furnished by Frankford Arsenal

(3) Test and Participating Agencies: MDR will:

(a) Provide photo optical sled test coverage consisting of Image Motion Cameras (IMC), Shadow Graphs (SG), Ribbon Frame Cameras (RF), Documentary Motion Pictures and pre/post color and/or black and white still photos.

(b) Provide Photo Optical Ballistic Test Coverage consisting of K38 cameras, 16mm documentary film, and color and/or black and white still photos.

(4) Operations: AFMDC will provide operations normal to the performance of track tests, including installation, arming and initiation of propulsion operations and control. Frankford Arsenal will support any or all of these operations as requested by AFMDC project personnel. Frankford Arsenal is responsible for fuze installation on nose plate, and for the complete nose plate installation on the sled prior to countdown for launching.

(5) Instrumentation: Sledborne instrumentation will be provided. Velocity measurement will be by spot velocity breaktapes for profiles. TM requirements will be to transmit and record five channels of information on each sled test.

MDNH 1-46

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL	
1. TITLE Frankford Arsenal M564 Fuze Tests				SYS - D16	
2. NUMBER 921C- 69042					
3. DATE PREPARED 13 December 1968	4. ESTIMATED STARTING DATE April 1969	5. EST. COMPLETION DATE 30 June 1970	6. PROGRAM ELEMENT		
7. PERFORMING AGENCY AFMDC/MDTO	8. PARTICIPATING AGENCIES Frankford Arsenal	9. SECURITY OF PROJECT Unclassified	10. AFSC PRIORITY (For AFSC use only) 81P		
11. REQUESTING AGENCY AND JUSTIFICATION U.S. Army Frankford Arsenal TWX dtd 9 December 1968 and MDT Meeting dated 7 November 1968.					
12. ESTIMATED COSTS				13. RESOURCES STATUS	
	A. MAN YEARS	B. CURRENT FY	C. NEXT FY	MANPOWER	FUNDS
MILITARY	5.2	\$ 23.4 k	\$ 23.4 k	<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>
CIVILIAN	9.1	54.6 k	54.6 k	<input type="checkbox"/> REQUESTED	<input type="checkbox"/>
FUNDS		\$ 78.0 k	\$ 78.0 k		
TOTALS	14.3	\$ 78.0 k	\$ 78.0 k		
14. REIMBURSEMENT <input type="checkbox"/> NONE <input checked="" type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE					
15. DESCRIPTION OF REQUIREMENT The purpose of this ESP is to update and replace ESP 921-0000-68041, MR-1, MR-2, and MR-3, same title. This program was established to conduct rain sensitivity testing of the M564 Artillery Shell Fuzes. Test results have caused modifications and subsequent re-testing. The program is currently extended to test the multi-purpose M564 Fuze, and 20mm Fuzes.					
16. DESCRIPTION OF EFFORT a. <u>Objective:</u> To determine the effectiveness of fuze operation when fired in a rain environment by sled testing and ballistic firing in the AFMDC simulated rainfields. (1) <u>Sled tests:</u> Thirty-eight sled tests are required. Initial testing will commence at a velocity of 3000 fps and may be varied as the program progresses depending on initial results. Two thousand feet of special large nozzle simulated rain will be provided on some tests, and some will use the 6000 ft standard rain field. The test fixture used will be the four probe (1-1/5" diameter) type. (2) <u>Ballistic Tests:</u> Approximately six days of 90mm ballistic firings will be required. The number of rounds to be fired will probably not exceed 300. b. <u>Schedule:</u> These tests will commence in January 1969 and will be completed by the end of the second quarter FY 1970.					
17. PERFORMING AGENCY APPROVAL MAX FINDELL, Colonel, USAF Chief, Plans and Requirements Office Date: _____				18. AFSC APPROVAL	

Page 2 of 4
Frankford Arsenal M564 Tests
921C- -60042

c. Resources:

(1) Facilities: The Directorate of Test Track is available as well as any other necessary base support normal to track operation, such as: Base Fire Dept., Civil Engineering, Field Maintenance, ECD, etc. Sufficient space is allocated at the launch complex for the checkout and operation of data systems prior to launch. WSMR aircraft, as required are requested for safety surveillance, engineering photo coverage, and documentary photo coverage. This aircraft support is provided under National Range Document 36901.

(2) Materials and Supplies:

(a) General Supplies: AFMDC is supplying expendable materials and supplies on a reimbursable basis.

(b) Sled Test Propulsion:

16 - Lacrosse Solid Rockets or Little John Rockets
*16 - Nike Solid Rockets
80 - M58A2 Solid Rockets or IFAR Rockets

*To be furnished by Frankford Arsenal

(3) Test and Participating Agencies: MDR will:

(a) Provide photo optical sled test coverage consisting of Image Motion Cameras (IMC), Shadow Graphs (SG), Ribbon Frame Cameras (RF), Documentary Motion Pictures and pre/post color and/or black and white still photos.

(b) Provide Photo Optical Ballistic Test Coverage consisting of K38 cameras, 16mm documentary film, and color and/or black and white still photos.

(4) Operations: AFMDC will provide operations normal to the performance of track tests, including installation, arming and initiation of propulsion operations and control. Frankford Arsenal will support any or all of these operations as requested by AFMDC project personnel. Frankford Arsenal is responsible for fuze installation on nose plate, and for the complete nose plate installation on the sled prior to countdown for launching.

(5) Instrumentation: Sledborne instrumentation will be provided. Velocity measurement will be by spot velocity breaktapes for profiles. TM requirements will be to transmit and record five channels of information on each sled test.

Page 3 of 4
 Frankford Arsenal M564 Fuze Tests
 9210- -69042

(6) Manpower:

	FY 69				FY 70			
	MDT	MDM	MDR	TOTAL	MDT	MDM	MDR	TOTAL
Military	2.25	0.35	-	2.60	2.25	0.35	-	2.60
Civilian	3.75	0.8	-	4.55	3.75	0.8	-	4.55
Contractor	-	-	0.19	0.19	-	-	0.19	0.19
Total	6.00	1.15	0.19	7.34	6.00	1.15	0.19	7.34

Total Manyears = 14.68

(7) Funds:

Total Fund Estimate of Reimbursement

	FY 69	FY 70	TOTAL
Civilian Personnel	54,600	54,600	109,200
Overtime	500	500	1,000
Contract Services	5,000	5,000	10,000
Supplies and Materials	5,160	5,160	10,320
Total	65,260	65,260	130,520

Frankford Arsenal MIPR J6000-002-69 \$20,000 plus Frankford Arsenal Funds remaining at AFMDC from the beginning of this program.

Total Fund Estimate of Free Services

	FY 69	FY 70	TOTAL
Military Personnel	23,400	23,400	46,800

d. Security: No aspect of the proposed tests will require a security classification.

e. Safety: Frankford Arsenal will furnish to AFMDC (MDT) the specifications for the fuzes to be used in the tests. Frankford will also furnish a written procedure applicable to handling and storage of test items, including procedure to be followed in approaching the test vehicle following a test run (recognizing the possibility of live fuzes on a sled). Frankford Arsenal personnel will handle, mount, and remove the test items from the test vehicle. If the fuze functions during the test, there will be no flying fragments. There will only be a relatively slow burning of the photoflash spotting charge. MDT reserves the right to halt the tests at any time it appears that undue risk is encountered.

Page 4 of 4
 Frankford Arsenal M564 Fuze Tests
 9210- 59042

f. Test and Participating Agency Responsibilities:

Frankford Arsenal will have personnel at the test site during the test who will work with the MDT project officer in all phases of preparing for and conducting the test program.

g. Project Personnel:

<u>Agency</u>	<u>Name</u>	<u>Office Symbol and Address</u>	<u>Phone</u>
Frankford Arsenal	Mr. John Sikra	Timing Devices Lab J-6000-220-3	AV 234-1800 Ext: 21230
Frankford Arsenal	Mr. John Fazio	Timing Devices Lab J-6000-220-3	AV 234-1800 Ext: 21230
AFMDC	Mr. J. Pat Brown Project Officer	MDTO HAFB, NM 88330	473-6511 Ext: 5-2163
AFMDC	Mr. James M. Dickerson Plans Officer	MDOP-2 HAFB, NM 88330	473-6511

SUBMITTED BY:

APPROVED BY:

J. Pat Brown

J. PAT BROWN
 Project Officer
 Operations Office

DATE: 10 Jan 69

Tyler A. Redfield

TYLER A. REDFIELD, Colonel, USAF
 Director, Test Track

DATE: 10 Jan 1969



"FORGING MILITARY SPACEPOWER"

MANPOWER REQUIREMENTS FORECAST IN MANYEARS										DATE PREPARED 13 December 1968									
TITLE (System/Project/Job) Frankford Arsenal M564 Fuze Tests				REQUIREMENTS FOR (Division/Center/Range) AFMDC															
FUNCTION CODE	FUNCTION TITLE / POSITION DESCRIPTION	MIL GRADE / CIV BUDGET PROJECT	AFSC	QUARTERLY BY FISCAL YEARS								END OF YEAR							
				1/	2/	3/69	4/69	1/70	2/70	3/	4/	4/	4/	4/					
6000	Missile Maintenance Technician	MSgt	44370			0.25	*	0.25	*										
	Missile Maintenance Technician	TSgt	44370			0.2	0.1	0.2	0.1										
	Instrumentation Mechanic	SSgt	31350			0.2	0.1	0.2	0.1										
	Instrumentation Technician	SSgt	31370			0.2	0.1	0.2	0.1										
	Missile Mechanic	SSgt	44350			0.2	0.1	0.2	0.1										
	Weapons Maintenance Supervisor	SSgt	46270			0.2	0.1	0.2	0.1										
	Draftsman	A1C	22350			*	*	*	*										
	Missile Mechanic	A1C	44350			0.2	0.1	0.2	0.1										
	Weapons Mechanic	A2C	46250			0.2	*	0.2	*										
	Mathematician	690	2626			0.3	0.1	0.3	0.1										
	Mechanical Engineer	690	2831			0.3	0.1	0.3	0.1										
	General Engineer	690	2835B			0.3	0.25	0.3	0.25										
	Draftsman	690	22350			*	0.1	*	0.1										
	Instrumentation Mechanic	690	31390			0.3	0.1	0.3	0.1										
	Instrumentation Superintendent	690	31390			0.3	0.1	0.3	0.1										
	Metals Processing Specialist	690	53250			*	0.1	*	0.1										
	Sheet Metal Worker	690	54250			0.3	0.1	0.3	0.1										
	Construction Equipment Operator (Semi-Skill)	690	55131			0.3	0.1	0.3	0.1										
	Construction Equipment Operator	690	55151			0.3	0.1	0.3	0.1										
	Painter	690	55251			*	0.1	*	0.1										
Clerk-Typist	690	70250			*	0.1	*	0.1											
MDM	Munitions Maintenance Spec	SSgt	461X0			*	*	*	*										
	Inventory Management Spec	TSgt	654X0			*	*	*	*										
	Material Facilities Spec	A1C	647X0			*	*	*	*										

"FORGING MILITARY SPACEPOWER"

MANPOWER RECAPITULATION										DATE PREPARED		
TITLE (System/Project/Job) Frankford Arsenal M564 Fuze Tests										13 December 1968		
REQUIREMENTS FOR (Division/Center/Region) AFMDC												
TYPE	QUARTERLY BY FISCAL YEARS								END OF YEAR			
	1/	2/	3/69	4/ 69	1/ 70	2/70	3/	4/	4/	4/	4/	
GENERAL												
COLONEL			*	*	*	*						
LT COLONEL			*	*	*	*						
MAJOR			*	*	*	*						
CAPTAIN			*	*	*	*						
LIEUTENANT			*	*	*	*						
TOTAL OFFICERS			.2	.2	.2	.2						
CMS			*	*	*	*						
SMS			*	*	*	*						
MSG			*	*	*	*						
TSG			.25	.25	.25	.25						
SSG			.25	.25	.25	.25						
A1C			.15	.15	.15	.15						
A2C			*	*	*	*						
A3C			*	*	*	*						
TOTAL AIRMEN			1.10	1.10	1.10	1.10						
TOTAL CIVILIANS			2.28	2.27	2.28	2.27						
AGG			3.58	3.57	3.58	3.57						
NOTE: The above represents manyears of effort only. No spaces are subject to reprogramming action. *Represents less than .05 years of effort.												
REQUIREMENTS EXTENDING BEYOND NORMAL PROGRAMMING CYCLE												
TYPE	4/		4/		4/		4/		4/		4/	
OFFICERS												
AIRMEN												
CIVILIANS												
AGG												

COORDINATION SHEET

FRANKFORD ARSENAL M564 FUZE TESTS
13 December 1968

MDI	<u>Ray C. Hat</u>	DATE	<u>14 April 69</u>
MDE		DATE	
MDM	<u>B. Whring</u>	DATE	<u>16 April 69</u>
MDR	<u>David Wilson</u>	DATE	<u>11 Feb 69</u>
MDECA	<u>BM Nelson</u>	DATE	<u>18 April 69</u>
MDECB	<u>J. Wilson</u>	DATE	<u>21 April 69</u>
MDMM	<u>P. A. Wilson</u>	DATE	<u>15 April 69</u>
SGOM-25	<u>He Pack</u>	DATE	<u>23 April 69</u>

James M. Dickerson
James M. Dickerson

MDOP-2

13 Dec 68

4441

SEA

1-46
1968

PALACE COBRA

A summary of the eleven page letter received yesterday on the subject "Palace Cobra" is as follows:

1. By 22 May 68, Headquarters Systems Command will identify by name, one hundred and eighty (180) Flying Status Code 1 and 3 pilots in the grade of Lt Colonel who are SEA eligible and will be filling rated requirements within the next year in SEA.
2. Purpose of the program is to delay involuntary second SEA tours within the pilot resources. The integral part of this objective, however, is the impact of a fourth wave program within the command.
3. Upon receipt of name listings by 22 May 68, CBPOs will place each officer identified into assignment availability Code 39 through the Remote System. This will be accomplished as soon as possible, but not later than 30 May 68.
4. Headquarters Systems Command will make normal withdrawals from each base as required, through the Remote System and by means of using Personnel Transaction Identifier 052 (available for reassignment). If individual aircraft assignments are preferred by the officer or officers selected for withdrawal, these individuals should forward their preferences to Headquarters Systems Command by the fifth working day preceding the last Monday of the available for reassignment reporting month so that such information would arrive SCAPDPC on schedule.

PURPOSE OF PALACE COBRA: Provides for a more orderly and systematic withdrawal of pilots from COMUS commands for SEA and delays second SEA tours by preserving the remaining critical pilot resources for SEA assignments. This program is not an attempt to program all withdrawals of pilots, but is a planned instrument for filling SEA Replacement Training Unit and Combat Crew Training requirements.

AS OF 15 MAY 1968

VACANCIES PROJECTED THROUGH DEC 1968

*June
Spons
Process
Reliefs*

OFF THE SHOULDER	ACCOMMODATION NUMBER	ORIGIN CODE	VACANT OR PROJECTED VACANCY	SAPSC	GRADE	PRESENT INCUMBENT	GRADE	SAPSC	LOSS, EXPIRA OR DOS
✓XDF	024369	DXJ	Vacant	2316	Major				
✓DR	027324	DXF	/ Vacant	0076	LtCol				
✓DIB	026074	RHA	/ Vacant	6746	Capt				
✓DIP	026072	RHA	✓ Vacant	2895D	Capt	McCawley, Thomas H	Capt		15 Jun 68
MDL	026068	R4H	✓ Jun 68	2025C	Major				
✓MDMT	026191	RHI	✓ Sep 68	F1045F	Capt	Meyer, Ward A.	Major		15 Sep 68
✓MEL	026185	RHI	✓ Vacant	1045A	Capt				
✓MEL	026175	RHI	✓ Sep 68	1416	LtCol	Myers, Charlie C.	LtCol		31 Aug 68
✓MEL	026166	RHI	✓ Vacant	1045F	Capt				
✓MEL	026159	RHI	✓ Aug 68	1045F	Capt	Lantz, Richard M.	Major	1045F	15 Aug 68
✓MEL	026140	RHI	✓ Vacant	1045F	Capt				
✓MEL	026139	RHI	✓ Sep 68	14357	Major	Conn, Richard D.	Major		31 Aug 68
✓MEL	026135	RHI	✓ Vacant	1115B	Capt				
✓MEL	026202	RHI	✓ Vacant	1045F	Lt				
✓MEL	026215	RHI	✓ Vacant	2865B	Lt				
✓MEL	026211	RHI	✓ Vacant	14352	Lt				
MDL	026194	R4H	✓ Vacant	(value) 1045C	Lt				
✓MEL	026289	RHI	✓ Jul 68	2716	LtCol	Sugerman, Leonard R.	LtCol	2716	Jul 68

✓	010116	RMDA	✓	2845D	Capt	✓	Russell, James F.	Major	2845D	Aug 68
✓	010334	RPOC	✓	2845D	Capt	✓	Hubbard, Mont, Jr.	Capt		15 Jun 68
✓	010337	RPOC	✓	2845D	Capt	✓				
✓	010339	RPOC		2845D	Lt	✓	Brook, Larry D.	Lt		30 Sep 68
✓	010348	RMDA		2845D	Capt	✓				
✓	010349	RFA		2845D	Capt	✓				
✓	010350	RMDA		2845A	Lt	✓	Wetterstroem, Albert III	1stLt		20 Aug 68
✓	010366	RFA		2825A	Lt	✓				
✓	010443	RPOC		2825C	Capt	✓	Deane, Robert E. (Pos was 2845D)	Major		31 Jul 68
✓	010450	RPOC		2845D	Capt	✓				
✓	010456	RPOC		2825C	Capt	✓	Bowmer, William	1stLt	2845A	15 Aug 68
✓	010537	RPOC		2845D	Capt	✓	Welp, David W.	Capt	2845D	31 Aug 68
✓	025852	RCC		2845D	Major	✓	Watts, George	Capt	2845D	15 Aug 68
✓	010985	RCPB		2845C	Capt	✓	Huerick, Norman F.	Capt	2845C	15 Oct 68
✓	024917	EBF		E2845A	Capt	✓	Schulte, Richard J. (Dept)	Capt	E2845A	31 May 68
✓	024941	EJA		8824	Capt	✓	Feichtinger, Duane C.	Major	8824	15 Jun 68
✓	027007	MIL		6424A	Capt	✓	Bencher, Emuel	CWO	6424A	15 Jul 68
✓	024947	JMI	✓	6616	Major	✓				
✓	025880	JMI	✓	4316	Major	✓	Clancy, Roland C.	Capt	4311	5 Aug 68
✓	026570	AA		4316	Major	✓				
✓	027157	MTE		6416	Major	✓				
✓	029410	EC		8924	Lt	✓				
✓	010344	AX		8028	1stCol	✓				

MO/DA	SSN	GR	Status	Grade	Rank	Name	Rank	Date
	024711	NN	Vacant	9745	Capt			
✓	024715	NN	Vacant	9758A	Lt ✓			
✓	024723	NN	Vacant	9751	Lt ✓	Wasilak, Susan E.	2nd Lt	26 Aug 68
MDH	024721	NN	Aug 68	9754	Lt			
✓	024722	NN	Nov 68	9754	Lt ✓	Fenn, Sharon E.	1st Lt	10 Nov 68
✓	02-897	NN	Aug 68	9758	1st Lt ✓	Kumansky, Neil	Capt	19 Aug 68
MDH	024698	NN	Jul 68	9416	Maj ✓	Badger, William E.	Capt	11 Jul 68
✓	02-899	NN	Jul 68	9406	Major ✓	New Position (Auth 1/69)		
✓	02-700	NN	Jul 68	9550	Major ✓	New Position (Auth)		
MDH	024714	NN	Sep 68	9754	Capt ✓	Evans, Mary K.	Capt	15 Sep 68
✓	02-706	NN	Jul 68	9186	Lt ✓	New Position (Auth 1/69)		
✓	02-630	NN	Oct 68	9856	Lt ✓	Rutherford, William C.	Lt	6 Oct 68
✓	02-627	NN	Jul 68	9850	1st Lt	New Position (Auth 1/69)		
✓	02-658	NN	Vacant	9846	Major ✓			
✓	02-655	NN	Sep 68	9800	Capt	Hutchinson, William W.	Capt	24 Sep 68
✓	024655	NN	Vacant	9856	Capt			
✓	024656	NN	Aug 68	9820	Capt ✓	Harad, Larry M.	Capt	2 Aug 68
MDH	024662	NN	Sep 68	9156	Capt ✓			
MDH	024732	NN	Aug 68	9754	1st Lt ✓	Bishop, Elaine R.	1st Lt	18 Aug 68

As of 1 May 1968

AFSC DATA TABLE

DIRECTION	MAY	AFSC MAY			AFSC NOV			AFSC NOV			TOTAL		TOTAL		AFSC NOV	AFSC NOV
		AFSC MAY	AFSC MAY	AFSC MAY	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV	AFSC NOV			
MDC	MAY	0	0	0	2	2	100	3	2	67	5	4	80	4	4	
	NOV	0	0	0	2	2	100	3	3	100	5	5	100	4	5	
MDY	MAY	0	0	0	1	1	100	4	4	100	5	5	100	4	5	
	NOV	0	0	0	1	1	100	4	3	75	5	4	80	4	4	
MDL	MAY	0	0	0	4	4	100	42	34	81	46	38	83	32	38	
	NOV	0	0	0	4	4	100	43	40	93	47	44	94	33	44	
MDS	MAY	2	2	100	1	1	100	53	39	74	56	42	75	39	42	
	NOV	2	2	100	3	3	100	51	42	82	56	47	83	39	47	
MDT	MAY	0	0	0	1	1	100	17	17	100	18	18	100	13	18	
	NOV	0	0	0	1	1	100	16	16	100	17	17	100	12	17	
MDR	MAY	6	4	67	1	1	100	11	9	82	18	14	78	13	14	
	NOV	6	6	100	1	1	100	11	12	109	18	19	106	13	19	
TOTAL	MAY	8	6	75	10	10	100	130	105	81	148	121	82	105	121	
	NOV	8	8	100	12	12	100	128	116	91	148	136	91	105	136	
AFSC MA																
AFSC MA																

This report includes all known losses and gains as of 1 May 1968.

15 May 68

Position Number	Effective Date	Grade	Authorized AFSC	DAFSC	Origin	Name	Grade	AR
024954.	468-999	Maj	01416	1416	MDOC	Hopwood, David P.	LtCol	
024960.	468-999	LtCol	01416	1416	MDOO	Cerny, Louis C.	LtCol	AB
024961.	468-999	Maj	01416	1416	MDOO	Curtis, John P.	LtCol	
024903.	468-999	Maj	01916	1916	MDI	Harman, Kenneth E.	Maj	AB
024904.	468-999	Capt	01925	1925	MDI	Gregory, Robert	Maj.	
024905.	468-999	Capt	01945	1945	MDI	Gallinger, Billy E.	Capt.	
023666.	468-999	Maj	01435Z	1435Z	MDBO	Calkins, Radford C.	LtCol	
026175.	468-999	LtCol	01416	1416	MDLT	Myers, Charlie C. (DOS:31Aug68)	LtCol	AB
026176.	468-999	LtCol	01416	1416	MDLT	James, Charles M.	LtCol	AB
026177.	468-999	Maj	01416	1416	MDLT	Pugh, Stanley, Jr.	LtCol	AB
026178.	468-999	Maj	01416	1416	MDLT	Tibbitts, Therice E.	Maj	
026179.	468-999	Maj	01435C	1435C	MDLT	Maddox, Roy L.	LtCol	
026180.	468-999	Maj	01435E	1435E	MDLT	Hobart, Donald W.	Maj	AB
026182.	468-999	Maj	1616	1611	MDLT	McHatton, Thomas E., Jr.	Maj	
026199.	468-999	Capt	01435Z	1435Z	MDLT	Conn, Richard D. (DOS:31Aug68)	Maj	AB
026200.	468-999	Capt	01435Z	1431Z	MDLT	Allbright, London K.	Capt	
026211.	468-999	Lt	01435Z		MDLT			
026212.	468-999	Lt	01435Z	1435Z	MDLT	Devilliers, Donald J.	Maj	
026213.	468-999	Lt	01634B	1631B	MDLT	Stivers, John R.	1stLt	
026214.	468-999	Lt	01634B	1631B	MDLT	Clark, John H.	1stLt	

MDBO KENT FREDERICK (As-15 Aug 68) MRS.

THIS PAGE IS DECLASSIFIED IAW EO 13526

Position Number	Effective Date	Grade	Authorized		Orign	Name	Grade	AR
			AFSC	DAFSC				
026183.	468-999	Capt	01025E	1025E	MDLT	Lethbridge, Harrison B.	Maj	
026184.	468-999	Capt	01025E	1025E	MDLT	O'Mara, Oliver E.	Capt	
026185.	468-999	Capt	01045A		MDLT			
026186.	468-468	Capt	01045A	1045A	MDLT	Haffeman, Gordon J.	Maj	
026187.	468-999	Capt	01045F	1045F	MDLT	Kelly, Thomas C.	Capt	
026188.	468-999	Capt	01045F		MDLT			
026189.	468-999	Capt	01045F	1045F	MDLT	Lantz, Richard M. (PCS:15Aug68)	Maj	---
026190.	468-999	Capt	01045F		MDLT			
026191.	468-999	Capt	F01045F	F1045F	MDLT	Meyer, Ward A. (PCS:15Sep68)	Maj	---
026192.	468-999	Capt	01045J	1045J	MDLT	Swanson, Alan C.	Capt	---
026193.	468-999	Capt	01045J	1045J	MDLT	Collard, Joseph W., Jr.	Capt	
026194.	169-999	Capt	01045J		MDLT			
026195.	468-999	Capt	01115B		MDLT			
026196.	468-999	Capt	01115F	1111F	MDLT	Gifford, George E.	Capt	
026197.	468-999	Capt	01125F	1125F	MDLT	Myers, George F.	Maj	
026198.	468-999	Capt	01125F	1125F	MDLT	Mayfield, Richard A. (PCS 20Aug67)	Maj	---
026201.	468-999	Lt	01025D	1021D	MDLT	Campbell, Ellsworth M.	Capt	
026202.	468-999	Lt	01045F		MDLT			
026203.	468-999	Lt	01045J	1045J	MDLT	Moye, Russell D. (EDCSA:20Aug68)	LtCol	
026204.	468-999	Lt	01045J	1045J	MDLT	Weiman, Milward J.	Maj	
026205.	468-999	Lt	01045J	1045J	MDLT	Gleason, John P. (DOS:1Jun69)	Capt	
026206.	468-999	Lt	01115B	1111B	MDLT	Youngblood, Adrian B.	Maj	
026207.	468-999	Lt	01115B	1115B	MDLT	Myers, Gus E.	Capt	
026208.	468-999	Lt	01115B	1115B	MDLT	McFeeters, James R.	Maj	---
026209.	468-999	Lt	01115F	1115F	MDLT	Eckes, Harry J.	Maj	---
026210.	468-999	Lt	01115F	1111F	MDLT	Smith, Robert E., Jr.	Capt	
				1115E	MDLT	Stout, Kenneth E. (PCS:15Jun68)	Maj	

THIS PAGE IS DECLASSIFIED IAW EO 13526

SEA Oct 68
1-46

UNITED STATES AIR FORCE

68-13



U. S. AIR FORCE • GUNSHIPS

**BACKGROUND
INFORMATION**

SECRETARY OF THE AIR FORCE • OFFICE OF INFORMATION
INTERNAL INFORMATION DIVISION • WASHINGTON, D. C. 20330

FOREWORD

United States Air Force gunships have added a new dimension to tactical warfare. This Background Information pamphlet describes the development of gunship aircraft and their accomplishments in Southeast Asia.

The primary purpose of the U.S. Air Force Background Information series is to help provide information officers with factual, cleared material on various Air Force subjects. As a source of basic reference material, the Background Information pamphlet may be used to prepare local speeches, base newspaper features and fillers, radio and television programs and spot announcements, local news releases, and Commander's Call programs.

Information contained in this pamphlet is current as of the publication date. The Consolidated Index to Air Force Information Materials can help the IO keep up with minor changes in the information presented.

In addition to their primary purpose, Background Information pamphlets may also be of value for reference in recruiting stations and in base libraries. In all cases, the use will be determined by the subject matter and the audience's needs, after evaluating information materials available.

CONTENTS

	<u>Page</u>
INTRODUCTION	1
GUNSHIP EVOLUTION	1
AC-47	2
AC-130	4
AC-119	4

INTRODUCTION

The war in Southeast Asia accelerated the development of many new concepts in aerial warfare. One of these is the side-firing U.S. Air Force gunship.

This concept was first applied to the C-47 Skytrain. Modified to a gunship configuration, the C-47 was redesignated AC-47 and nicknamed "Dragonship." The concept has since been extended to the C-130 Hercules and C-119 Packet.

GUNSHIP EVOLUTION

The idea of making a gunship of the slow-flying C-47 was conceived by an Air Force officer who had served a tour of duty in South America. He had noted that mail and vital supplies were sometimes lowered to remote villages in a bucket tied to the end of a long rope suspended from the cargo door of a slow-flying aircraft. As the plane circled in a steep pylon turn, the bucket tended to orbit in one spot over the ground.

The officer envisioned a line of fire in place of the line of rope. Side-firing guns in the transport could be aimed by the pilot and kept bearing on a ground target as long as the plane orbited in a steep bank overhead.

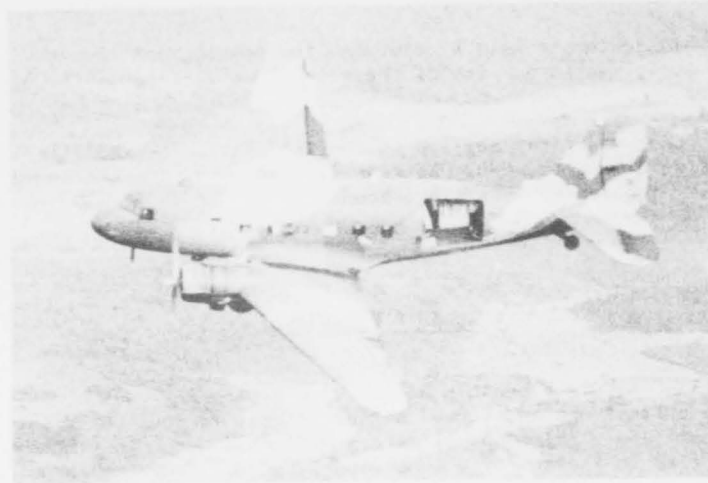
In first tests of this principle, the modified C-47 used ten .30 caliber machineguns protruding from the passenger windows and cargo door on the left side of the aircraft. In later modifications, the machineguns were replaced by three 7.62mm miniguns firing up to 18,000 rounds per minute.

Air Force Maj. Ronald W. Terry, Chief of Gunship II Project Branch of Aeronautical Systems Div., Wright-Patterson AFB, Ohio, is credited with much of the groundwork and study in gunship development. His first contact with the unique problems in Southeast Asia came during a visit there in 1963 as a member of a U.S. Air Force Systems Command team studying requirements for a limited war plan.

Studies of earlier reports on lateral sighting techniques had a direct effect on development of the AC-47 into the first Air Force gunship.

Subsequent testing in a converted Convair C-131 led to shipment of three conversion kits to Bien Hoa AB, South Vietnam, where two C-47s were reconfigured and tested in a combat environment. Successful tests in Southeast Asia resulted in assignment of the first operational AC-47 unit in combat in 1965.

AC-47



Known commonly by its unofficial nickname "Gooney Bird," the C-47 is the military version of the DC-3 commercial airliner and the oldest of all active Air Force aircraft.

It was first flown in 1935. More than 10,000 C-47s were manufactured before production was stopped in 1944. The aircraft saw extensive service in World War II.

The AC-47 was originally nicknamed "Puff the Magic Dragon" by its aircrews. The name came from Vietnamese forces being supported by Dragonships. On one of the first combat missions, the guns of an AC-47 were loaded with continuous rounds of tracers. When they spewed out into the night, the Vietnamese were quick to imagine tongues of flame from a flying dragon -- thus, the "Puff" nickname. The AC-47 is also unofficially referred to as "Spooky."

The AC-47 was originally slated for use in support of Army Special Forces camps and isolated outposts under Viet Cong attack.

Operating primarily during hours of darkness, Dragonships have broadened their operation to include close support of ground troops, and night reconnaissance missions.

AC-47s are used mostly at night because of their vulnerability to ground fire. They stay above 3,000 feet, out of the range of most small arms fire.

In addition to the miniguns, Dragonships carry flares of 2-million candlepower, with burning times of two to three minutes. Flares are used to light the target area before a strike.

The men who fly "Spooky" are called on for many different types of missions, but they receive their highest praise from the ground troops they support.

"We witnessed about every facet of the war in two hours," said Capt. Robert J. Cowlshaw, an AC-47 navigator, following a mission in support of troops in contact at Dak Pek in the Vietnamese Central Highlands.

The Dragonship crew, commanded by Lt. Col. Joseph W. Lentine of Flight B, 4th Air Commando Squadron at Pleiku AB, was called to aid the ground forces during the early morning hours. When they arrived, they first fired their 7.62mm miniguns into enemy positions, from which rockets were being fired into a U.S. base camp. Then they provided illumination for a medical evacuation, for two Army helicopter gunships, and for four resupply helicopters.

Before a forward air controller got into the area, the Dragonship crew handled FAC duties. When the FAC arrived, the crew helped direct a fighter strike.

They continued firing into the enemy positions until the attack was broken and they were replaced with another Dragonship crew from Pleiku AB.

In another instance, an Army captain was reported to have said: *"To have a Dragonship arrive on target is like having a battalion move in."*

A message from General William C. Westmoreland, former commander of U.S. Forces in Vietnam and presently the U.S. Army Chief of Staff, read in part: *"AC-47 crew members and support personnel have provided sustained and outstanding support of ground operations during the past year. Their actions in defense of bases, camps and outposts have repeatedly cost the enemy heavy casualties and saved many lives on our side.... Performance of all concerned has been exceptional. My hearty congratulations."*

SPECIFICATIONS

Prime Contractor: Douglas Aircraft Co
Modification Contractor (AC-47): Air International, Miami
Power Plant/Manufacturer: Two Pratt & Whitney R-1830-90s (piston)
Horsepower: 1,200 hp each
Dimensions: Span 95'; length 66'11"; height 16'11"
Speed: 230 mph
Ceiling: Above 24,000 feet
Range: Beyond 2,000 miles
Load: 7,500 lbs
Armament: Three 7.62mm miniguns
Crew: Seven
Maximum Gross Takeoff Weight: 33,000 lbs
Status: Operational

AC-130



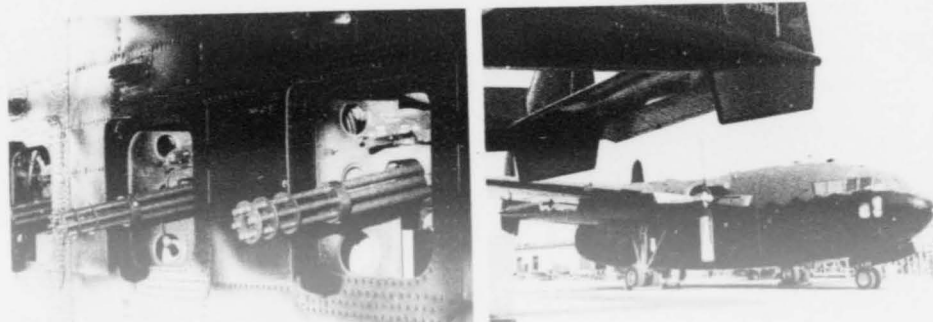
The AC-47 proved the feasibility of gunships. An AC-130 prototype was then sent to Southeast Asia. It was armed with four 7.62mm miniguns and four 20mm cannons. The success of this aircraft led to a contract to modify more C-130s to the gunship configuration.

The AC-130 will further increase the U.S. Air Force's ability to acquire targets under adverse conditions and strike with heavy firepower.

SPECIFICATIONS

Prime Contractor: Lockheed Aircraft Corp
Modification Contractor (AC-130): Ling Temco Vought Electrosystems
Power Plant/Manufacturer: Four Allison T56-A-9s
Horsepower: 3,750 equivalent-shaft hp each
Dimensions: Span 132'7"; length 97'9"; height 38'4"
Speed: 330 mph
Ceiling: Above 30,000 feet
Range: Beyond 2,000 miles
Load: 36,000 lbs
Armament: Four 7.62mm miniguns and four 20mm cannons
Crew: Ten
Maximum Gross Takeoff Weight: 124,200 lbs
Status: Modification under contract

AC-119



In an effort to further increase gunship capability, C-119 Packets were recalled from Air Force Reserve duty. The C-119s are being modified in two versions, one carrying two reciprocating engines, and the other carrying a pair of jet booster engines in addition to the two reciprocating engines.

Those equipped with jet engines are designated AC-119Ks while those without jets will be AC-119Gs.

The AC-119Gs will be outfitted with four miniguns, and the AC-119Ks, in addition to the four miniguns, will have two 20mm cannons.

The C-119s are of 1947 vintage, but those being converted to gunships are 1952 and 1953 models. The Packets have been in continuous use since first coming into service and were used effectively during the Korean War for airdrops and troop movements. Their important role in support operations included paradropping tractors, trucks and other equipment for construction of the DEW Line.

SPECIFICATIONS

Prime Contractor: Fairchild Hiller Corp
Modification Contractor (AC-119): Fairchild Hiller Corp
Power Plant/Manufacturer: Two Wright R-3350-89s and two General Electric J-85s (J-85s on AC-119K only)
Horsepower: 3,500 hp (takeoff) each reciprocating
2,850 lbs thrust each jet
Dimensions: Span 109'4"; length 86'6"; height 27'6"
Speed: 250 mph
Ceiling: Above 20,000 feet
Range: Beyond 2,000 miles
Load: 21,000 lbs
Armament: Four 7.62mm miniguns (Also two 20mm cannons, AC-119K)
Crew: Seven (AC-119G)
Ten (AC-119K)
Maximum Gross Takeoff Weight: * 63,000 lbs (AC-119G)
* 80,400 lbs (AC-119K)
Status: Modification under contract

*Maximum gross takeoff weight varies with changes in temperature, humidity and altitude.

THIS PAGE IS DECLASSIFIED IAW EO 13526



THIS PAGE IS DECLASSIFIED IAW EO 13526

3. Boosters:

- a. 1st Stage: 1 Lacrosse
- b. 2nd Stage: 1 Genie
- c. 3rd Stage: 4 M-58A2's plus 3 inerts (empty)

4. Launch Pc'nt: (Front slipper)

- a. 1st Stage: T.S. 35,074W (1 Lacrosse)
- b. 2nd Stage: T.S. 33,174W (1 Genie) (Screen Box)
- c. 3rd Stage: T.S. 26,712W (4 M-58A2's plus 3 inerts) (Screen Box)

ANNEX "G" TO OPLAN 21R-B
Test Support Division

23 September 1968

Braking Requirements:

- a. 2nd Stage Recovery: To be called out on the launch order.
- b. 3rd Stage Recovery: 500 feet of double 3" bags from T.S. 1500 to T.S. 1000.

ANNEX "H" TO OPLAN 21R-B
J. H. Thompson Construction Co.

23 September 1968

Provide personnel and equipment to operate the 6000 ft rainfield. Use 1.5mm (small) nozzles.

F-2
G-1
H-1

1-46

SEK

22 APR 1968

MDE

Target Maintenance for F4C Laser Bombing System Test
(Project No. 1709) (Your ltr 14 Apr 68)

MDL

1. Your letter requesting MDE support for the F4C Laser Bombing System Test has been reviewed and discussed with the Chairman of the Facilities Utilization Board. I feel that with the austere funding situation and extensive workload currently imposed on my organization I am in no position to support this test.
2. It is recommended that this work be accomplished by the SPO, using project funds.

SIGNED

R. C. REYNOLDS, Major, USAF
Director of Civil Engineering

Copy to: MDGP
MDGV *from*

44601		GLASS EYE		May 68
<u>Schul</u>	<u>Flour</u>	<u>cruller</u>	<u>Reacht</u>	1-46
May 68 morning	caplet	✓	regal Equip	
9 May 68	"	0615-1130		
19 May 68	"	1200-1600		
20 May 68	"	0730-1325		

SEA

12 lumber originally planned
8 m - first sheet hit over the water
14 NOV 67 - unrec'd
6 Dec 67 - 1st successful load
mid - Aug 68

completion date storage
1592 - 1 Aug 68
176 - 1 Oct 68

contract method used ship
from 21 Dec 67 to 6 March 68

Receipt
24 April ✓
19 June ✓
11 Sept ✓

3 April ✓
17 July ✓

Receipt
22 May ✓

16 Oct

12 Dec

19 Dec

6 Nov

13 Dec. air sent
for Royal Gt

13 NOV - about

14 NOV - Receipt

6 Dec - Receipt

2 about - 13 NOV 67
12 Dec 68

6 Receipt

6 Dec 67

17 Jan 68

3 March 68

10 April 24 April 68

19 June 68

11 Sept 68

6 Receipt

17 NOV 67

6 March 68

22 May "

16 Oct "

12 Dec "

19 Dec "

00001
Capt Blakely, 19 March
1969

not a question of fact

- (1) not a question of fact
- (2) 41C per lab note
p. 5.

file number
delayed report changed.
layer range.
(10 miles further)
slab off

1112
 (propul (missile))
 XIGM-70¹⁹⁶⁸
 1-46
 needed more reliable guidance system
 intelligence (W-9 camera not reliable)
 launch vehicle 1 unit - 3 way spot
 failure during flight tests
 and missile 200-2A
 fully of low accuracy 6.3 3 way but
 failed flight - 16-17 3 way
 to check out camera system, guidance
 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

1117

... ..

... ..

... ..

125 out sample

127 " "

1 out unsample

2 " "

x3 " " - and on
" " present

3 " "

5 " "

x7 out sample

x7 " "

x9 " "

42 Sept, 22 Oct, 23 Nov
16 sample

4 Dec 67
SEA
XAGM-80A
1-46

40 Dec 67

RTTZYUW RUEDTAA7395 3551909-EEEE--RUMTDOA.
ZNY EEEEE
R 041532Z DEC 67
FM AFSC
TO RUEFHQW/SAF/AFRDC
RUMTDOA/AFMDC/AMDOO HOLLOWAN AFB NEW MEX
DIVO RUIFGA/ASD/ASST/MR. FRANZ WP AFB OHIO

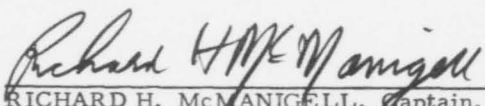

MDO

BT
UNCLAS E F T O 0000
SUBJ. F-4 AIRCRAFT SUPPORT FOR XAGM-80A. RE: TELECON COL CURTISS
(MDOO) AND MR. SLEAMAN (000A) 30 NOV 67. TIS MSG IN TWO PARTS.
-ART I. FOR MDOO: THIS MSG CONFIRMS JOINT DECISION AFMDC/AFSC
TO SUPPORT CONDUCT OF XAGM-80A TESTING, AT HOLLOWAN AFB, N.M., ON
F-4D S/N 65-673. AIRCRAFT WILL REMAIN IN CODE EH AND RECORDING
OF TEST SUPPORT TIME FOR XAGM-80A FLIGHTS IS AUTHORIZED IN CODE
EH. -ART II. FOR AFRDC: THIS CANCELS OUR REQUEST FOR AN
INDIVIDUAL F-4D TO SUPPORT SUBJECT PROGRAM.
BT

SEP

MONTH

1-46

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL AF-R16
1. TITLE XAGM-80A		2. PROJECT NO. AFMDC 3853 MR-3		3. OSD PROGRAM ELEMENT NO. 6 44 15 14 F
4. PROJECT OFFICE AFMDC (MDLW)	5. MANAGEMENT ORGANIZATION ASD (ASZTM)	6. RESPONSIBLE COMMAND AFSC		
7. TYPE OF REPORT				8. DATE PREPARED 21 Jun 68
<input type="checkbox"/> STATUS	<input type="checkbox"/> SPECIAL	<input checked="" type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	
9. NARRATIVE				
The purpose of this management report is to modify certain data given in MR-1 and MR-2.				
a. Launch aircraft to be used for this project is F4D SN 650670.				
b. An up-to-date table of responsible project personnel is as follows:				
<u>AGENCY</u>	<u>NAME</u>	<u>OFC SYM & ADD</u>	<u>PHONE</u>	
ASD	Capt Eric P. Taylor AGM Program Mgr	ASZTM WPAFB OH	55018	
ASD	Mr. L. M. Frantz Test Mgr	ASZTM WPAFB OH	55018	
AFMDC	Maj F. Belinne Project Officer	MDLWF Holloman AFB NM	3005	
AFMDC	Capt R. H. McManigell Asst Proj Officer	MDLWF Holloman AFB NM	3005	
AFMDC	Maj D. E. Tonini Project Engineer	MDLWF Holloman AFB NM	3005	
AFMDC	Mr. Val C. Ogden Plans Officer	MDOP-2 Holloman AFB NM	4441	
Contractor	Mr. John P. Meade	Chrysler Corp, Missile Div (CCMD) Box 2628 Detroit, MI	313-939-2000 Ext 2056, 2057, 2058	
SUBMITTED BY				
 RICHARD H. McMANIGELL, Captain, USAF Asst Project Officer, Aircraft Systems Div Directorate of Aircraft & Missile Test Date: <u>21 JUN 1968</u>				
				

SEA 1/24/68
1-46
XACAPRA ✓


1968 JAN 24 11 10
MEMORANDUM FOR THE DIRECTOR, FBI
SUBJECT: [Illegible]

[Handwritten initials]

- 1. [Illegible]
 - 2. [Illegible]
- AT WASHINGTON, D.C., BUILDING 519, OFFICE OF THE DIRECTOR, FBI, JANUARY 24, 1968.

11/11

MDOP 2

RESEARCH AND DEVELOPMENT MANAGEMENT REPORT				REPORT CONTROL SYMBOL	
1. TITLE XAGM-80A				REPORT CONTROL SYMBOL AF-R16	
				2. PROJECT NO. 3853	AFMDC MR-4
				3. OSD PROGRAM ELEMENT NO. 6 47 05 F	
4. PROJECT OFFICE AFMDC (MDLW)		5. MANAGEMENT ORGANIZATION ASD (ASZTM)		6. RESPONSIBLE COMMAND AFSC	
7. TYPE OF REPORT				8. DATE PREPARED	
<input checked="" type="checkbox"/> STATUS	<input type="checkbox"/> SPECIAL	<input type="checkbox"/> ACTION	<input type="checkbox"/> OTHER	9 Sep 68	
9. NARRATIVE					
<p>The purpose of this Management Report is to:</p> <ul style="list-style-type: none"> a. Extend completion date to 31 Oct 68. b. Substitute Capt R. H. McManigell as AFMDC Project Officer vice Major F. Belinne. 					
SUBMITTED BY:					
<p><i>Richard H. McManigell</i> RICHARD H. McMAMIGELL, Capt, USAF XAGM-80A Project Officer</p>					
					

SEA 1-46
(XACA-23)
10/12

2508/1903

----- SYSTEMS ENGINEERING 2501330-2500-00000A.

ZNY
R 0512AM OCT 68
FM ACD
TO DIRECTOR/ASST/SECDEF
INFO DIRECTOR/ASST/AFTRDA/ASST/AFTRDA
RUM/ASST/ASST/AFTRDA
RUM/ASST/ASST/AFTRDA
RUM/ASST/ASST/AFTRDA
BT

UNCLAS E F T O ACD

- SUBJ: XACA-23 PROGRAM STATUS REPORT
1. CRUISE I FLIGHT TESTING COMPLETED ON 9 OCT 68 WITH THE LAUNCH OF MISSILE #12 A TOTAL OF FOUR MISSILES WERE LAUNCHED IN THE PERIOD OF 7-9 OCT 68.
 2. TO DATE TOTAL DATA HAS NOT BEEN RECEIVED ON LAUNCHES #11 & AND SUBSEQUENT. INITIAL EVALUATION OF SYSTEM PERFORMANCE IS PRESENTLY UNDERWAY BUT IS LIMITED DUE TO THE NON AVAILABILITY OF THE CONTINUED LIFE DATA ON THE LAST FIVE LAUNCHES.
 3. PRESENT PLANS CALL FOR ALL DATA TO BE AVAILABLE BY 1 NOV 68. A FLIGHT TEST REVIEW MEETING WITH AFTRDA IS SCHEDULED AT ACD ON 12 NOV 68 AND THEN A MEETING AT CHRYSLER CORP 14-15 NOV 68. THIS

PAGE 2 UNCLAS E F T O


MEETING WILL PROVIDE THE BASIS FOR ESTABLISHING APPROPRIATE POSITIONS ON SYSTEM CAPABILITIES AND LIMITATIONS. IT IS EXPECTED THAT TOTAL EVALUATION AND ANALYSIS WILL NOT BE COMPLETED UNTIL MID DECEMBER.

4. IT SHOULD BE NOTED AT THIS TIME THAT ANY ESTIMATIONS OF SYSTEM CAPABILITIES IS BASED ON THE MINIMUM OF DATA AND COULD RADICALLY CHANGE BY THE TIME THE EVALUATION IS COMPLETED. IT IS ACD'S INTENTION TO HAVE A FIRM TECHNICAL POSITION BY 1 JAN 69. IN ADDITION FOLLOW ON PLANS AND COST ESTIMATES WILL BE AVAILABLE SO THAT TOTAL PROGRAM COSTS AND CAPABILITIES CAN BE EVALUATED.

BT
#4223

WUN

MDNH 1-46

ENGINEERING SERVICE PROJECT PLAN				REPORTS CONTROL SYMBOL		
1. TITLE AGM-78A/Navy				2. NUMBER 921B-0000-68053		
3. DATE PREPARED 11 July 1968		4. ESTIMATED STARTING DATE In Progress		5. EST. COMPLETION DATE March 1969		
7. PERFORMING AGENCY AFMDC/MDOP-2		8. PARTICIPATING AGENCIES WSMR - NAVMISCEN		9. SECURITY OF PROJECT <u>Secret</u>		
10. AFSC PRIORITY (For AFSC use only) 07M						
11. REQUESTING AGENCY AND JUSTIFICATION NAVAIRSYSCOM, NAVMISCEN, Point Mugu, Calif. CSAF message AFRDQRT 94813 March 1967.						
12. ESTIMATED COSTS						
		A. MAN YEARS	B. CURRENT FY	C. NEXT FY	13. RESOURCES STATUS	
MAN-POWER	MILITARY	Trace	Trace	Trace	MANPOWER	FUNDS
CIVILIAN		Trace	Trace	Trace	<input checked="" type="checkbox"/> AVAILABLE	<input checked="" type="checkbox"/>
FUNDS			\$13,980	--	<input type="checkbox"/> REQUESTED	<input type="checkbox"/>
TOTALS		Trace	\$13,980	--		
14. REIMBURSEMENT <input type="checkbox"/> NONE <input checked="" type="checkbox"/> PARTIAL <input type="checkbox"/> COMPLETE						
15. DESCRIPTION OF REQUIREMENT The Navy's objectives are to evaluate and demonstrate the capability of the missile system in terms of design objectives. Establishment of the compatibility of the missile system with the A6A and F-4 aircraft is a part of the requirement. Detailed test requirements are classified.						
16. DESCRIPTION OF EFFORT The purpose of this ESP is to document the level of support effort required from AFMDC. a. <u>Introduction and Planning:</u> (1) AFMDC will provide chase aircraft and base support. Chase aircraft will be provided as outlined in WSMR National Range Documentation #821 as a range service and is not reimbursable. Approximately 30 flying hours by chase aircraft are involved. (2) Base support will consist of missile assembly space, office space, explosive storage, common use supplies and services and is partially reimbursable.						
17. PERFORMING AGENCY APPROVAL				18. AFSC APPROVAL		
 LEE L. PETERSON, Colonel, USAF Chief, Plans and Requirements Office				CLASSIFIED BY _____ DECLASSIFICATION _____ REVIEWED AT TWO YEAR _____ ON DECLASSIFY _____ 1976		

Page 2

921B-0000-68053, AGM-78A/Navy

b. Objective: To demonstrate the feasibility and operability of AGM-78A air launch and the capability of the guidance system in accordance with design objectives.

c. Schedule: Flight tests of the Mod 1 and 2 versions of the system will begin in October 1968 and continue thru March 1969.

d. Resources:

(1) Aircraft: Approximately 30 hours of chase aircraft are involved.

	FY 69						Total
	Jan	Feb	Mar	Apr	May	Jun	
F-100	4	4	4	4	4	--	20
F-4	2	2	2	2	2	--	<u>10</u>
							30

(2) Facilities: Missile assembly space in Bldg 887, office space for Navy personnel in Bldg 819 and office space in Bldg 817 for contractor personnel. Additional space for temporary duty personnel will be assigned as available and needed.

(3) Manpower: Effect on AFMDC manpower will be negligible; only a trace is involved since the Navy furnishes their own crews.

(4) Funds: Total costs to AFMDC have been estimated as \$13,980 of which \$1000 are reimbursable. Navy MIPR-8-2007 has been received by the AFMDC Comptroller.

<u>Non-reimbursable</u>	FY 69	
Chase Aircraft	\$12,680	
Pilots	300	
		<u>\$12,980</u>
<u>Reimbursable</u>		
Services	\$ 300	
Supplies	700	
		<u>\$ 1,000</u>
		<u><u>\$13,980</u></u>
TOTAL		\$13,980

e. Test and Participating Agencies:

The NAVMICEN will be the agency conducting the test work with AFMDC providing base support and emergency backup.

Page 3
921B-0000-68053, AGM-78A/Navy

f. Project Personnel

<u>AGENCY</u>	<u>NAME</u>	<u>OFC SYM & ADRS</u>	<u>PHONE</u>
Navy	LCDR R. P. Blount	NAVMISCEN (Code 5214) P. O. Box 12 Naval Missile Center Point Mugu CA 93041	Autovon 898-1750
Navy	Cdr E. M. Tollgaard Naval Liaison Officer	NLO Holloman AFB NM 88330	7562
Navy	Mr. L. Tsubakihara Project Officer	NLO Holloman AFB NM 88330	7562
AFMDC	Mr. F. W. Grefe Plans Officer	MDOP-2 Holloman AFB NM 88330	4441

SUBMITTED BY:

Fred W. Grefe

FRED W. GREFE
Plans Officer, MDOP-2
Plans and Requirements Office
Date:



AGM-78A/Navy
921B-0000-68053
17 April 1968

C.R. Cordry MDBC DATE: 17 April 68 ^{End} 15 Jul 68
Bill Martin Col USAF MDMM DATE: 17-4-68
W. W. V. D. MDR DATE: 25 Apr 68
W. Landre MDL DATE: 18 June 68
Ralph Lee MDOP-3 DATE: 18 June 68
S. E. Dawson MDM DATE: 15 July 68
John Smith MD00 DATE: 15 July 68

Mr. F. W. Grefe

MDOP-2

Ext 4444

17 Apr 68

NAVY STANDARD ARM PROGRAM		Test#	Hours Sched	Hours used
Hot Firings				
814 Standard Arm				
Oct 1968	1	7	21.4	18.4
Nov 1968	-	8	28.0	15.5
Dec 1968	3	14	59.0	44.1
			<u>108.4</u>	<u>78.0</u>

81404

- ✓1 Oct Ground check
- ✓2 Oct Captive (was supposed to be launch)
- ✓5 Oct Captive
- ✓12 Nov- abort
- ✓23 Nov-captive-cancelled
- ✓25 Nov- ground check-abort
- ✓28 ec-captive
- ✓3 ec-launch
- ✓4 ec-captive-cancelled-higher priority msn
- ✓5 ec-ground check-
- ✓6 ec-captive-cancelled-project equip
- 82102-
- ✓26 Nov-captive cancelled wx
- ✓27 Nov-captive
- ✓29 Nov-captive
- ✓29 Nov-captive
- ✓2 ec-captive
- ✓3 ec ETV drop-cancelled
- ✓4 ec-captive
- ✓4 ec-captive-cancelled higher priority msn
- ✓9 Dec-captive
- ✓10 ec-captive
- ✓11 ec-captive
- ✓11 ec-launch-can proj eval of status
- ✓12 ec- captive
- ✓13 Dec-captive-cancelled F-105 spt acct
- ✓13 ec-captive-can-project equip
- ✓13 ec-launch
- ✓14 ec-launch-can-proj equip
- ✓16 Dec- captive-can-msn not needed
- ✓16 ec-captive
- ✓17 Dec- captive-can-poj equip
- ✓17 ec-launch-can -proj resched
- ✓17 ec- ETV drop
- ✓18 ec- captive
- ✓18 ec-captive
- ✓19 ec-ground check
- ✓20 ec- captive
- ✓20 Dec-captive-can-project equip
- ✓20 Dec-captive-

81403

- ✓11 Oct captive
- ✓14 Oct- captive
- ✓16 Oct- captive-cancelled
- ✓23 Oct- captive-cancelled
- ✓28 Oct-captive
- ✓31 Oct-captive
- ✓1 Nov- captive-cancelled
- ✓4 Nov- captive
- ✓6 Nov-Captive
- ✓7 Nov- Captive
- ✓8 Nov- captive
- ✓13 Nov- captive
- ✓15 Nov- captive
- ✓16 Nov-captive
- ✓19 Nov- captive-cancelled
- ✓22 Nov-captive-cancelled
- ✓23 Nov- TM check
- ✓3 ec-captive
- ✓3 Dec-captive
- ✓9 ec-captive-can=proj equip
- ✓10 ec- captive
- ✓13 Dec-captive-can- proj equ
- ✓13 ec- capt-can-proj equip
- ✓16 ec- captive-can-proj equip
- ✓20 Dec- captive
- ✓20 Dec- captive
- ✓21 Dec- captive-cancelled
- ✓22 Dec- captive-

82103

✓20 Nov- captive-cancelled

✓20 Nov- captive-cancelled

	S	C
81403-	6	4
81404-	4	4

Month	<u>81403</u>			<u>81404</u>			<u>8 2102</u>			<u>8 2103</u>		
	S	C	L	S	C	L	S	C	L	S	C	L
October	6	4	1*	4	4	-	-	-	-	-	-	-
November	14	8	0	5	0	0	8	5	100	2	0	0
December	11	5	0	15	11	2000	23	13	30000	-	-	-

+ 5 October
 xv days on 25 Nov
 xiv 3, 10, 11 are
 xiv (17 days)
 1 month (17 days)

SEK 1-46

MEMORANDUM

27 March 1968

Subject: Bullpup Missile Test Program Meeting

1. An informal discussion was held with Mr. Robert D. Kimsey, Mr. Frank Brennan, and Mr. Lawrence Smith, U. S. Naval Missile Center, Point Mugu, California, on 21 March 1968. The discussion was primarily concerned with instrumentation, although some other general aspects were also covered. A prior conference on this subject was held on 12 March 1968, and is covered in minutes of meeting, dated 19 March 1968.

2. The tolerance on the time for the acceleration phase in the test profile has been widened, and the time period is now three to eight seconds. MDT will prepare new computer run profiles, based on a lesser time, and will coordinate with NMC to determine acceptability. It will probably not be necessary to use a 5KS 4500 motor as a first stage, as previously planned, and some hardware fabrication will thus be eliminated.

3. Mr. Kimsey submitted a change to minutes of meeting dated 19 March 1968. He recommends that the first sentence of paragraph 10. a. read as follows: a. "Phase II: The payload mount will be designed by the contractor and will be fabricated by either NMC or the contractor."

4. The main topic of discussion was on the possibility of MDT furnishing, installing, and operating telemetry for Phase I testing. If NMC desires this support, a specific request for such support will be made to MDT following the selection of a contractor for track testing. This selection is expected to be made during the week of 24 March 1968.

a. There was some question as to the necessity for pressure transducers and a telephone discussion was held with Boeing representatives in Seattle, during the conference, as to the validity of this requirement. Boeing stated that the pressure transducer measurements were not essential to these tests but that the data to be obtained was desirable from a general information standpoint.

b. If NMC decision is to request instrumentation support from MDT, a listing of all data channels, together with range and other

Specifications of and instruments required will need to be determined prior to MDT decisions as to whether instrumentation requirements can be supported. NMC may require the contractor to furnish and install all transducers, in order to save lead time.

5. During the conference, telephone discussion was held with Capt Eric Taylor, ASZTM, Wright-Patterson AFB. Capt Taylor is the SPO for the project and his organization will fund the program if track tests are conducted. During the conversation with Capt Taylor, he stated that he was ready to send a PD for \$30,000 to AFMDC (MDT) to cover the possibility of damage to the DASA outtrigger sled in Phase II testing. Capt Taylor was informed that there has been no final decision to do Phase II testing or to use the outtrigger sled if Phase II tests are conducted, and that we will be in touch with him when planning is further along.

6. Most of the planning at this conference, as for the conference on 12 March, was concerned with preparations for Phase I testing. One of the potential contractors for this program favors the use of monorail vehicles in both Phase I and Phase II testing, and there has been no final decision to use a dual rail test vehicle in Phase II. The possibility of some additional tests, following the initial testing in Phase I, was discussed. The purpose of these tests would be to check out the nose cap, which is considered to be structurally weak, and to determine the behavior of the nose cone in the event the nose cap is lost. Two possibilities were briefly considered. One possibility would be for the nose cap to be removed at the start of the run, leaving a four inch diameter opening at the forward end of the nozzle. Another possibility would be to start the test run with the nose cap in place, but to eject the nose cap, using an-hered pyrotechnics and a pulse from a screen box, after test velocity was reached. Initial testing along this line would probably be at less than maximum test velocity. In any event, such tests would only be conducted after the testing already planned for Phase I was complete.

7. The interior of the nose section may be security classified (Confidential). The exterior configuration is definitely not classified. The nose cone, while inside the beaded shipping container (unopened), may be stored without security classification. After container is opened classified storage is required.

3. A schedule for action, and target dates, applicable to Phase I testing was discussed and is attached hereto. Mr. Kimsey will inform Mr. Rethmel during the week of 24 March as to whether NMC wishes to pursue this schedule and preparation of Phase I testing. If so, AFMDC (MDT) will initiate engineering design work, shop work, and other work effort upon receipt of TWX from NMC, requesting test support, together with program funding.

Robert C. Rethmel

ROBERT C. RETHMEL
Operations Office

Cy to: Mr. Kimsey (3)
MDT
MDTI (Mr. Sanders)
MDTI (Mr. Folan)
MDTO (Capt Palmgren)
MDTE (Mr. Mapes)
SPO (Capt Taylor)

NOTE: If it is decided to proceed with planning and preparation for Phase I testing, following is an outline of major action items and target dates. AFMDC (MDT) makes no commitment that these dates will be met, but a sincere effort will be made to do so.

PROPOSED SCHEDULE FOR ACTION (Target Dates)

<u>Due Date</u>	<u>Action Item</u>
1 April	Contractor ships interface plugs and wiring diagram for telemetry to AFMDC. This shall include range and other specifications for all transducers.
5 April	MDT Instrumentation Division starts telemetry design and layout.
15 April	MDT Engineering Division designs hardware (brackets and pallets for telemetry, etc.), followed by hardware fabrication.
1 May	MDT fabrication of hardware complete.
*1 May	Contractor hardware arrives at AFMDC, together with two contractor engineers who will work with MDT engineers in hardware installation and other test preparations.
	MDT mates MDT hardware and contractor hardware.
	Installation, checkout and calibration of telemetry.
15 May	All hardware and instrumentation installed, checked out and ready for test.
27 May (week of)	First test date.

*Note: It is stressed that 1 May is latest arrival date at AFMDC, rather than shipping date from contractor's plant.

30 Sep 67
1-46

(4) The construction program requirements for Heavy Draw were submitted to the Hq AFSC Facilities Utilization Board and were approved. F-341 projects were approved in the amount of \$563,700.00. O&M projects totaling \$166,500.00 were submitted but no funds have been received to date. Military construction requirements were submitted for FY 68 emergency funds to construct a BOQ with a capacity of 80 men, and to construct dormitories to provide for 600 men. FY 69 Military Construction Program late starter items were submitted on one additional BOQ to house 40 men. Family Housing was requested for 562 families. Emergency item to rework our substations and electrical distribution systems was also submitted.

(5) The approval of the SRAM test program for Holloman AFB required emergency construction using F-341 funds in the amount of \$339,000.00. The Heavy Draw program created a requirement for urgent work that could not be satisfied by construction contracts, these projects will be accomplished with Civil Engineering forces. Projects are as follows:

- (a) Shop addition to Bldg 902, requiring 2086 manhours.
- (b) Firefly, Bldgs 821 and 902, requiring 1122 manhours.
- (c) Relocate the Contract Management Office and modify Bldg 812, requiring 558 manhours.
- (d) Relocate the Guidance Lab from Bldg 1080 and modify Bldg 822 requiring 1112 manhours.
- (e) Modification of Bldg 1080 for ADC, requiring 770 manhours.
- (f) Relocation of the Graphic Illustration Section from Bldg 85 and modify Bldg 218, requiring 2427 manhours.

8.

*Taken from:
Directorate of Civil Engineering,
"Historical Report,"*

(g) Relocation of Programs Division (NDOP) from Bldg 819 and modify Bldg 85, requiring 851 manhours.

(h) Modification of Bldgs 1075 and 1081 for Paige Aviation Company, requiring 1024 manhours.

(6) In addition there was an urgent requirement to construct a classified communication vault at Bldg 855, which required 1842 manhours. This total of minor construction workload, in addition to our normal minor construction workload, has caused us to exceed a 5% in-house minor construction allowed by Air Force criteria. Mr. Davis of Hq AFSC was advised of this problem and he concurred in our exceeding the 5% limitation because of the new mission requirements.

SFAC(CIASS) 1-46

Class: The system arrived the afternoon of 25 Nov with four contractor people. It was set up and bench tested 26/27 Nov. Overall system performance was checked and found to be oprtl. Transponder sled mount compltd and ready for install. Forebody instrum and recording pallet compltd and installed. The interrogator antenna mounted on Midway tower and coax cable install (25 Nov -1 Dec, 4 Dec)

898DF, Thunderstick II

Still awaiting word from higher hds which will detail our test sched and indetify the test acct(source as above)

1-7 Dec(13 Dec) The CIASS system equip was moved to Midway and installed in prep for the RF tests and sled runs. Several tests were made of system with the transponder at various track stations with generally good results. The RF interference test was run on 6 Dec between 800 and 1000 hours. Range measurements were made at known track stations and a record of the interrogator AGC voltage was made with a visicorder to det position of any cutouts.

8-14 Dec(19 Dec) The RF interference check of the CIASS system was rerun on 11 Dec after correcting the survey data. Results were satis and plans were made to proceed with the first sled run on 20 Dec. Integrated checks of the sled forebody were compltd on 13 Dec.

16-20 Dec(27 Dec) First sled test sched for 20 Dec at 1300 hours. All computer programs for the reduction of CIASS data have been tested. Necessary refinements, if any, will be made after the first sled run.

29 Dec 68-4 Jan 69(8 Jan 69)

Invest being made on most feasible method for mounting the sledborne antenna. The antenna on the Midway mast has been raised 60 feet.

5-11 Jan 69(16 Jan) CIASS interrogator antenna, located at Midway, was raise 48 feet to improve signal reception. Another RF tow test was conducted on 7 Jan 69 to test the new antenna location. Tests results indicated an improvement in signal strnerth. Second CIASS sled test is sched for 14 Jan 69. The CIASS antenna moved to a new position 106.7 feet above the ground. Measurements made of system signal level by towing the forebody alongside the track. This was done on two occasions and the entire length of the track has been towed. The signal level is improved and would be high enough for conducting another sled run. Special arrangements were made to work on Saturday, 11 Jan, to try to det the cause of random system RF dropouts.

13-18 Jan(23 Jan) Sled run 22G-A2 made at 1250, 14 Jan. Run successful and good data obtnd. 23-24 Jan(29 Jan) The CIASS computer was returned to Hinton Industries for checkout. The remainder of the week was spent in preparing for sled run 22G-A3 sched for 30 Jan.

27 Jan-2 Feb(5 Feb) sled run 22G-A3 launched on 30 Jan 69. Run produced good data and the system was operational.

2-8 February(13 Feb) An invest into system range measurement drifts made to improve system perform and to explain errors in range found during sled run 22G-A3. As a result of this study, countdown procedures for system revised to try to elim range drifts and to provide more info on the temp environ of interrogator.

9-15 Feb(19 Feb) Sled run 22G-A4, the fourth in the series, sched for 18 Feb. Sled forebody has been wired to allow monitoring of the 1/2 second guid timing grid before launch. If the guid time grid signal is not useable from this run, a hold will be placed on future runs.

16-22 Feb(27 Feb) Sled run 22G-A4 on 18 Feb aborted due to a failure of the transponder during countdown. Contractor reps took transponder back to San Diego for repair.

23 Feb-1 March(6 Mar) repaired transponder returned on 26 Feb. System distrace tested on 27 Feb and is working. Next run is sched for 5 Mar.

3-9 March(12 March) sled run 22G-A5A launched on 5 Mar 69. System performed satis in range and range rate measurements. Next run sched for 21 Mar 69.