

X14

R & N-5-1

JOINT MESSAGEFORM

SECURITY CLASSIFICATION

SPACE BELOW RESERVED FOR COMBINATION CENTER

1961 APR 10 9 48

1961 APR 9 02 48/1099

File Ver 1106

PRECEDENCE <b>ACTION OPS IMMEDIATE</b>	TYPE MSG (Class) BOOK MULT: SINGLE X	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CLASSIFICATION OF REFERENCE
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FROM: 6565TESTWG VANDENBERG AFB CALIF

TO: AF SPACE SYSTEMS DIVISION LOS ANGELES CALIF

6594TESTWG /SATELLITE/ SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION SUNNYVALE CALIF

LOCKHEED MISSILES & SPACE DIVISION VANDENBERG AFB CALIF /COURIER/ ZEN

DOUGLAS AIRCRAFT COMPANY VANDENBERG AFB CALIF /COURIER/ ZEN

INFO: 1 MISSILE DIV VANDENBERG AFB CALIF /COURIER/ ZEN

6565TESTWG VANDENBERG AFB CALIF /COURIER/ ZEN

6555TESTWG PATRICK AFB FLORIDA

SPECIAL INSTRUCTIONS

1-210

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CLASSIFICATION CHANGED TO  
 SECRET  
 APR 10 1961  
 6-507

~~SECRET FROM VWZD-8-4-4-S.~~

LOSA FOR WDZY SEMCLN 6594 TW FOR COL MOORE SEMCLN

LMSD/SUNNYVALE FOR DEPT 61-44 /V. W. MARSH/ SEMCLN

LMSD/VAFB FOR DEPT 65-44 SEMCLN DAC/VAFB FOR MR.

HECKMAN. INFO CLN IMD FOR COMMAND POST AND DOOPS

TIME 8 1740
MONTH APR
YEAR 1961

SYMBOL: VWZD *Charles S. Waller*

SIGNATURE: *Charles S. Waller Maj*

TYPED NAME AND TITLE (Signature, if required)  
Major Charles S. Waller

TYPED (or stamped) NAME AND TITLE  
LUCIUS A. PERRY, JR., Col, USAF

PHONE 8-6734 PAGE 1 NR. OF PAGES 7

Deputy Commander for Space Systems

SECURITY CLASSIFICATION

Cy #1 of 7 copies

FROM:

6565 TW FOR VWZE

SEMCLN 6565 TW FOR VWZE /MR. FISCHER/ SEMCLN 6555

1961 APR 9 02

49/1697-1-210

TEST WG FOR COL WIGNALL. SUBJECT CLN FLASH REPORT

ON LAUNCHING OF DISCOVERER XXII /NIGHT-SHIFT PRESTO/.

6P 1-210

PG 2 OF 7 PGS

1. DISCOVERER XXII COMPRISED OF THOR BOOSTER NO. 307 AND AGENA B ORBITAL STAGE NO. 1106 WAS LAUNCHED FROM SM-75-31 PAD 5, AT 1121:8.5 PST ON 8 APRIL 1961. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE DISCOVERER SATELLITE WITH PAYLOAD INTO NEAR-POLAR ORBIT WAS ACCOMPLISHED, AND THE TRACKING STATIONS AT KODIAK VAEB, AND HAWAII HAVE RECEIVED THE RADAR BEACON AND TELEMETRY SIGNALS ON THE FIRST ORBIT PASS.

2. A PRELIMINARY EVALUATION OF LAUNCH TEST OBJECTIVE ACHIEVEMENT IS AS FOLLOWS. /REFERENCE DETAILED TEST OBJECTIVES, LMSD 446404, SECTION 2/.

DISCOVERER BOOSTER - OBJECTIVE ACHIEVED.

AT BOOSTER ENGINE BURNOUT, THE VEHICLE POSITION, FLIGHT PATH ANGLE, AND VELOCITY WERE WITHIN THE ESTABLISHED TOLERANCES OF 5 NAUTICAL MILES, 4 DEGREES, AND -500 FPS FROM THE NOMINAL VALUES, RESPECTIVELY. OPERATION OF THE BTL GUIDANCE SYSTEM IN PROVIDING THOR STEERING AND EVENT COMMANDS AND

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1961 APR 9 02 50 / 1967

VEHICLE RESPONSE TO THESE COMMANDS APPEAR TO HAVE BEEN SATISFACTORY. MEGO OCCURRED AT T+149.6 SECONDS AND EVENT TIME CORRELATION INDICATES THAT THE CUT-OFF WAS COMMANDED BY BTL GUIDANCE. VECO OCCURRED AT T+158.7 SECONDS. SEPARATION OF THE ORBITAL STAGE FROM THE BOOSTER STARTED AT T+165.7 SECONDS AND THIS EVENT ALSO APPEARS TO HAVE BEEN INITIATED BY BTL GUIDANCE COMMAND. 20 CPS OSCILLATIONS WERE NOTED IN THOR PROPELLANT PUMP INLET PRESSURES AND THE THOR AND AGENA ACCELEROMETER DATA BETWEEN T+138 SECONDS AND T+148 SECONDS.

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PG 3 OF 7 PGS

**B. AGENA AIRFRAME AND ADAPTER - OBJECTIVE ACHIEVED.**

NO EVIDENCE OF STRUCTURAL PROBLEMS IN THE AGENA AIRFRAME OR ADAPTER HAS BEEN NOTED.

**C. AGENA PROPULSION SYSTEM - OBJECTIVE ACHIEVED.**

THE THRUST NECESSARY TO EFFECT SEPARATION WAS PROVIDED BY THE RETRO-ROCKETS. OPERATION OF THE AGENA ENGINE WAS SATISFACTORILY INITIATED AT T+220.5 SECONDS AND THE OPERATING DURATION WAS 242.4 SECONDS. THE SENSIBLE VELOCITY GAIN DURING THE ORBITAL STAGE BOOST AS DETERMINED FROM INTEGRATOR DATA WAS

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17,023 FPS. AGENA ENGINE SHUTDOWN WAS COMMANDED BY THE INTEGRATOR AT T+462.9 SECONDS. THE IMPULSE PROVIDED BY THE AGENA ENGINE WAS SUFFICIENT TO GIVE THE VEHICLE ORBITAL VELOCITY AT THE INJECTION ALTITUDE.

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Pg. 4 of 7 Pts

D. AGENA ELECTRICAL POWER SYSTEM - OBJECTIVE ACHIEVED.

NO EVIDENCE OF ELECTRICAL POWER SYSTEM PROBLEMS HAS BEEN NOTED.

E. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM - OBJECTIVE ACHIEVED.

THE AGENA GUIDANCE SYSTEM PROPERLY RESPONDED TO A 7.64 SECOND TIME-TO-FIRE CORRECTION AND A 3.0 SECOND VELOCITY-TO-BE-GAINED CORRECTION AS COMMANDED BY THE REEL GUIDANCE SYSTEM. VEHICLE ATTITUDE WAS SATISFACTORILY CONTROLLED DURING THE COAST PHASE AND THE ORBITAL BOOST PHASE, AND CONTROL GAS EXPENDITURE WAS NORMAL. THE TIME AND SEQUENCE OF ALL PROGRAMMED EVENTS THROUGH THE START OF VEHICLE REORIENTATION AFTER INJECTION WERE PROPERLY CONTROLLED BY THE SYSTEM TIMER.

F. AGENA SPACE COMMUNICATIONS SYSTEM - OBJEC-

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FROM: 6565 TEST WING VANDENBERG AFB, CALIF

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TIVE ACHIEVED

ACQUISITION BEACON OPERATION WAS SATISFACTORY AND ITS SIGNAL WAS TRACKED FROM LIFT-OFF TO T+566 SECONDS BY THE VAFB AND PT MUGU TRACKING STATIONS. THE RADAR BEACON WAS TRACKED SATISFACTORILY FROM LIFT-OFF TO T+566 SECONDS BY THE VAFB AND PT MUGU VERLORT RADARS.

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G. GROUND SUPPORT EQUIPMENT - OBJECTIVE ACHIEVED.

BOOSTER AND ORBITAL STAGE CHECKOUT WAS SATISFACTORILY ACCOMPLISHED DURING THE COUNTDOWN BY THE GROUND SUPPORT EQUIPMENT. PROBLEMS WITH THE UMBILICAL MAST SUPPORT SADDLE, THE AGENA AIR CONDITIONING DUCT, AND THE THOR O<sub>2</sub> SUPPLY PRESSURE SWITCH WERE SATISFACTORILY RESOLVED DURING THE COUNTDOWN.

H. DISCOVERER SYSTEM FACILITIES - OBJECTIVE PARTIALLY ACHIEVED.

STATION COMMUNICATIONS WERE ADEQUATE. "HOT LINE" COMMUNICATIONS WERE LOST FOR A SHORT PERIOD DURING TERMINAL COUNTDOWN, BUT WERE RE-

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VWZD	5	7	[REDACTED]	[REDACTED]

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9 02 50

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GAINED BEFORE LAUNCH. THE AGENA TELEMETRY SIGNAL WAS RECEIVED AND RECORDED BY THE VAFB TRACKING STATION FROM LIFT-OFF TO T+566 SECONDS, AND GOOD FLIGHT DATA RECORDS HAVE BEEN PRODUCED. THE PT MUGU TRACKING STATION RECEIVED THE AGENA TELEMETRY SIGNAL FROM T+23 SECONDS TO T+566 SECONDS. THE PLOT-BOARD PRESENTATIONS OF THE VERLORT RADAR TRACKING DATA AT VTS WERE ERRATIC APPARENTLY BECAUSE OF NOISY DATA TRANSMISSION LINES. THIS CONDITION PREVENTED THE DETERMINATION OF ORBITAL INJECTION VELOCITY FROM THE PLOTS. A PROBLEM WITH THE DIGITAL TRACKING DATA HAS ALSO BEEN REPORTED.

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6P1-210  
PG 6 OF 7 PGS

3. PRE-LAUNCH COUNTDOWN

THREE HOLDS WITH A TOTAL DURATION OF 21 MINUTES WERE INCURRED DURING THE COUNTDOWN. HOLD NO. 1 WAS IMPOSED AT T-15 MINUTES TO AWAIT PASSAGE OF TRAINS THROUGH THE RANGE HAZARD AREA. DURATION OF THE HOLD WAS 10 MINUTES. HOLD NO. 2 WAS CALLED AT THE START OF PHASE 2 OF THE TERMINAL COUNTDOWN BECAUSE OF LACK OF AN INDICATION OF PROPER THOR GAS SUPPLY PRESSURE. CORRECT PRESSURE WAS CONFIRMED.

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AND THE COUNT RESUMED AFTER A 7 MINUTE HOLD. HOLD

NO. 3 WAS IMPOSED DURING PHASE 5 OF THE TERMINAL  
COUNTDOWN BECAUSE OF LOSS OF THE "HOT LINE" COMMUNI-  
CATIONS LINK AND BECAUSE OF A PROBLEM IN THE VAFB  
VERLORT RADAR DURING THE HOLD WHICH LASTED 4  
MINUTES THE THOR LOX SUPPLY WAS TOPPED OFF.

4. PAD DAMAGE

DAMAGE TO EQUIPMENT ON PAD 5 WAS LIGHT.

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