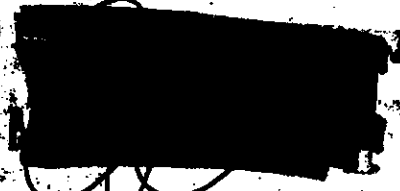


XXXVII



WG001  
 140400Z  
 M 6595 AEROSPACE TEST WG VANDENBERG AFB CALIF  
 O SSD LOSA CALIF  
 594 AEROSPACE TEST WG SUNNYVALE CALIF  
 MSC SUNNYVALE CALIF  
 EN/LMSC VANDENBERG AFB CALIF  
 EN/DOUGLAS ACFT CO VANDENBERG AFB CALIF  
 INFO ZEN/ISTRATAD VANDENBERG AFB CALIF  
 555 AEROSPACE TEST WING PATRICK AFB FLA  
 FLC WRIGHT PATTERSON AFB OHIO  
 SAMA NORTON AFB CALIF  
 AFLO VANDENBERG AFB CALIF  
 WCMR VANDENBERG AFB CALIF

CLASSIFICATION CHANGED TO  
 [Redacted]  
 By Authority of [Signature]  
 AF 205-2  
 8 APR 1966

FROM VWZD-13-1-3-S. SECTION I OF II.  
 INFO FLAS. SSD FOR SSZD SEMCLN 6594TW  
 OR COL MOORE SEMCLN LMSC/SUNNYVALE FOR TWRCA-3 /H.J. DREI/USS/  
 SEMCLN LMSC/VAFB FOR DEP 65-44 SEMCLN DAC/VAFB FOR MR HECKMAN. INFO  
 IN ISTRATAEROSPAVEDIV FOR COMMAND POST AND WDOPO SEMCLN AFLCSG/VAFB  
 OR MR YOUNG SEMCLN 6551W FOR COL WIGNALL SEMCLN SBAMA/NORTON AFB  
 OR SBVP SEMCLN AFLC/WRIGHT PATTERSON AFB FOR MCGO. SUBJECT CLN  
 LASH REPORT ON THE LAUNCHING OF DISCOVERER 37.  
 DISCOVERER 37 CONSISTING OF THOR BOOSTER NO. 327 AND AGENA B ORBITAL  
 STAGE NO. 1120 WAS LAUNCHED FROM VAFB COMPLEX 75-3 PAD 4 AT 1341:02.5  
 ST ON 13 JANUARY 1962. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE

THE TWO VAFB  
 DISCOVERER SATELLITE WITH PAYLOAD IN A NEAR POLAR ORBIT, WAS NOT  
 COMPLETED. FAILURE TO ATTAIN ORBIT RESULTED FROM AN INTERRUPTION  
 POWER TO THE IRP GYRO WHEELS AT THE TIME OF SEPARATION. THIS LOSS  
 GYRO WHEEL EXCITATION DID NOT PERMIT NORMAL ATTITUDE CONTROL TO  
 EXERCISED FOLLOWING AGENA IGNITION. AFTER IGNITION VIOLENT TUMBLING  
 CURRED AND RESULTED IN A PREMATURE SHUTDOWN AFTER ONLY APPROXIMATELY  
 SEC OF THRUST. THE OCCURRENCE OF AN ELECTRICAL SHORT DURING  
 SEPARATION IS STRONGLY INDICATED BY A COMPLETE LOSS OF LINK 2 TELEMETRY  
 SIGNAL, A 0.1 SEC DROUPOUT IN LINK 1 TELEMETRY, THE BEHAVIOR OF THE  
 CONTINUOUS MEASUREMENTS, AND THE AUXILIARY POWER SYSTEM VOLTAGE TRAN-  
 SIENTS. 2. PRELIMINARY EVALUATION INDICATES THAT LAUNCH TEST OBJECTIVES  
 WERE ACHIEVED AS FOLLOWS.. /REF. DETAILED TEST OBJECTIVES, LMSD 446404,  
 SECTION 2/.

DISCOVERER BOOSTER - OBJECTIVE ACHIEVED  
 BOOSTER CUTOFF VEHICLE POSITION WAS WITHIN A SPHERE OF 5 NM RADIUS,  
 LIGHT PATH ANGLE WAS WITH PLUS OR MINUS 4 DEG, AND VELOCITY WAS WITHIN  
 10 FPS OF THE NOMINAL VALUE. BOOSTER STEERING AND EVENT COMMANDS WERE  
 GENERATED AND TRANSMITTED SATISFACTORILY BY THE GROUND GUIDANCE SYSTEM  
 VEHICLE RESPONSE TO THE COMMANDS APPEARS TO HAVE BEEN PROPER.  
 NO OCCURRED AT T PLUS 144.2 SEC AS A RESULT OF COMMAND FROM GROUND  
 GUIDANCE SYSTEM. VERNIER ENGINE SOLO OPERATION LASTED 8.9 SEC WITH  
 NO OCCURRING AT T PLUS 153.1 SEC. SEPARATION WAS INITIATED BY A  
 GROUND GUIDANCE COMMAND AT T PLUS 158.8 SEC. GROUND GUIDANCE SYSTEM DATA

PAGE THREE VAFB

INDICATE THE BOOSTER COAST APOGEE ALTITUDE WAS 108.2 NM /NOMINAL:108.3NM/  
AND THE BOOSTER COAST APOGEE VELOCITY WAS 9750 FPS /NOMINAL: 9,726  
FPS/.

B. AGENA AIRFRAME AND ADAPTER - OBJECTIVE ACHIEVED  
NO EVIDENCE OF STRUCTURAL PROBLEMS IN AGENA AIRFRAME OR ADAPTER HAS  
BEEN NOTED, ALTHOUGH ABNORMAL LOADS WERE APPLIED DUE TO TUMBLING  
OF THE VEHICLE AFTER AGENA IGNITION. THE RETRO-ROCKET SATISFACTORILY  
PROVIDED THE THRUST NECESSARY FOR SEPARATION BY T PLUS 161.15 SEC.  
DURATION OF THE SEPARATION PROCESS WAS NORMAL.

C. AGENA PROPULSION SYSTEM - OBJECTIVE NOT ACHIEVED  
AGENA ENGINE IGNITION OCCURRED IN A NORMAL MANNER AT T PLUS 193.32  
SEC AND THE ENGINE OPERATED SATISFACTORILY FOR 10.58 SEC. PREMATURE  
ENGINE SHUTDOWN OCCURRED AT T PLUS 203.90 SEC AND RESULTED FROM VEHICLE  
TUMBLING. THE ENGINE OPERATED WITHOUT THRUST VECTOR CONTROL AND BEGAN  
TO ROTATE ABOUT THE PITCH AND YAW AXES AS SOON AS THRUST ATTAINMENT  
WAS REACHED.

D. AGENA ELECTRICAL POWER SYSTEM - OBJECTIVE PARTIALLY ACHIEVED  
THE AGENA ELECTRICAL POWER SUPPLY SUBSYSTEM PERFORMANCE WAS NORMAL  
UP TO THE START OF SEPARATION. AT THIS TIME THERE WAS A 0.1 SEC  
TELEMETRY DROPOUT ON ALL CHANNELS. RECOVERG  
SET ME 02 IMI 02K

DE NAFB GA  
DE SSB KC

TELEMETRY DROPOUT ON ALL CHANNELS. RECOVERY FROM THE DROPOUT OCCURRED  
AT T PLUS 158.98 SEC, AT WHICH TIME THE IRP P ASE-AB VOLTAGE FUSE

PAGE FOUR VAFB

MONITOR RECORDED A DROOP IN LEVEL. IT THEREAFTER REMAINED AT  
APPROXIMATELY HALF ITS NORMAL VALUE AND IS BELIEVED TO BE INDICATIVE  
OF A BLOWN FUSE. BETWEEN 159.0 SEC AND 159.1 SEC THE 400 CYCLE 1 PHASE  
VOLTAGE, AND THE 2000 CYCLE 1 PHASE VOLTAGE ALL SHOWED DROPS OF FROM  
10 TO 15 VOLTS, HOWEVER COMPLETE RECOVERY OCCURRED WITHIN 0.1 SEC  
BY THE TIME OF THE NEXT COMMUNICATION CYCLE.

E. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM - OBJECTIVE NOT ACHIEVED  
THE AGENA GUIDANCE SYSTEM RESPONDED PROPERLY TO A 5.40 SEC TIME-TO-  
FIRE CORRECTION AND A 2.97 SEC VELOCITY-TO-BE-GAINED CORRECTION COMMANDED  
BY THE GROUND GUIDANCE SYSTEM. VEHICLE ATTITUDE APPEARS TO HAVE BEEN  
CONTROLLED SATISFACTORILY DURING THE INITIAL PART OF THE COAST PHASE.  
HOWEVER, DURING THE ULLAGE INTERVAL AND AT IGNITION THE TELEMETERED  
GYRO OUTPUTS INDICATED THAT THE GYROS WERE NOT RESPONDING TO THE  
NORMALLY EXPECTED VEHICLE ATTITUDE TRANSIENTS. SUBSEQUENT TO IGNITION  
THE ATTITUDE GYROS OUTPUTS SLOWLY DRIFTED OUT OF BAND WHILE LONG-  
ITUDIAL ACCELEROMETER DATA INDICATED THAT THE VEHICLE STARTED TUMBLING  
AT A HIGH RATE SHORTLY AFTER IGNITION. HYDRAULIC PRESSURE APPEARED  
TO BE NORMAL DURING THE THRUST INTERVAL. CONTROL GAS CONSUMPTION  
APPEARED NORMAL UNTIL APPROXIMATELY 202 SEC WHEN THE SUPPLY PRESSURE

PAGE FIVE VAFB  
BEGAN TO DECAY RAPIDLY. THIS RAPID DECAY RESULTED FROM THE GAS JETS  
RESPONDING TO LARGE SIGNALS FROM THE IN-OPERATIVE GYROS.  
EXAMINATION OF POWER MONITOR DATA INDICATED THAT THE AB PHASE  
EXCITATION TO THE GYRO WHEELS WAS LOST AT SEPARATION - APPARENTLY DUE TO  
A BLOWN FUSE. THIS LOSS OF EXCITATION TO THE GYRO WHEELS RESULTED  
IN THE DECAY OF WHEEL SPEED OVER THE SUBSEQUENT 30 SEC AFTER WHICH THE  
GYROS COULD NOT RESPOND PROPERLY TO VEHICLE ATTITUDE TRANSIENTS. THE LOSS  
OF CONTROL WAS COMPLETE AT ENGINE IGNITION AFTER WHICH THE VEHICLE BEGAN  
TO TUMBLE VIOLENTLY WHEN THE HYDRAULIC SERVOS RESPONDED TO THE OUTPUTS  
ASSUMED BY THE INOPERATIVE GYROS.

F. AGENA SPACE COMMUNICATIONS SYSTEM-OBJECTIVE PARTIALLY ACHIEVED  
OPERATION OF THE ACQUISITION BEACON AND THE RADAR BEACON WAS SATISFACTORY.  
VTS TRACKED THE ACQUISITION BEACON FROM LIFTOFF TO T PLUS 002 SEC AND  
THE RADAR BEACON FROM LIFTOFF TO T PLUS 480 SEC. AT T PLUS 002 SEC,  
THE TIME OF LINK 1 TELEMETRY FADE FOR VTS, ALL TELEMETRY CHANNELS  
WERE OPERATING, HOWEVER A SHARP 1 CPS CYCLE RATE BEGAN AT T PLUS  
196 SEC AND LASTED TILL SIGNAL FADE. AGENA LINK 2 TELEMETRY SIGNAL WAS  
RECEIVED FROM LIFTOFF UNTIL PREMATURE LOSS AT SEPARATION. AT THIS TIME  
THE ORBITAL TIMER WAS SET AT STEP 20, IN THE RESET-ON POSITION, IN  
THE INCREASE MODE, AND ALTERNATE RE-ENTRY DISARM STATE. NO GROUNDS  
COMMANDS WERE SENT DURING THE ASCENT PHASE. SCP-4.

BT  
140500Z JAN 68 VAFB



NNN

TWG002

O 140400Z

FM 6599 AEROSPACE TEST WG VANDENBERG AFB CALIF

TO SSD LUSA CALIF

6594 AEROSPACE TEST WG SUNNYVALE CALIF

LMSC SUNNYVALE CALIF

ZEN/LMSC VANDENBERG AFB CALIF

ZEN/DOUGLAS ACFT CO VANDENBERG AFB CALIF

INFO ZEN/ISTRATAD VANDENBERG AFB CALIF

6599 AEROSPACE TEST WING PATRICK AFB FLA

AFLC WRIGHT PATTERSON AFB OHIO

SBAMA NORFOLK AFB CALIF

ZEN/DET 1 AFLC VANDENBERG AFB CALIF

ZEN/CSD 1 WCMR VANDENBERG AFB CALIF

BT

~~S E R E T~~ FROM VVZD-13-1-5. SECTION II OF II.

AEROSPACE GROUND EQUIPMENT - OBJECTIVE ACHIEVED

BOOSTER AND ORBITAL STAGE CHECKOUT WAS SATISFACTORILY ACCOMPLISHED DURING THE PRE-LAUNCH COUNTDOWN BY THE AEROSPACE GROUND EQUIPMENT, HOWEVER THE FOLLOWING

PROBLEMS WERE ENCOUNTERED:

/1/ THE AGENA AGE FULL CHILLER VALVE FAILED TO OPEN ON COMMAND.

EVALUATION INDICATED AN ELECTRICAL PLUG IN THE LINE WHICH SUPPLIES POWER TO THE VALVE HAD BECOME DISENGAGED.

/2/ WORK ON THE AGENA TANKING OPERATION WAS DELAYED FOR 20 MIN DUE TO RESOLUTION OF A MISSILE FLIGHT SAFETY PROBLEM.

PAGE TWO VAFB

3/ A PIN SECURING A GEAR ON THE SIDE OF THE THOR AGE FUEL FLOW METER FAILED DURING THE THOR FUEL LOADING, IT WAS REPLACED WITH A SUBSTITUTE PIN.

1. DISCOVERER SYSTEM FACILITIES - OBJECTIVE ACHIEVED  
THE AGENA LINK 1 TELEMETRY SIGNAL WAS RECEIVED AND RECORDED BY VIS FROM LIFTOFF TO T PLUS 502 SEC AND GOOD FLIGHT DATA WERE DERIVED FROM THE PERIOD FROM LIFTOFF TO T PLUS 490 SEC. LINK 2 WAS PREMATURELY LOST AT T PLUS 159 SEC. THE VIS VERLOR, RADAR PRODUCED GOOD ANALOG AND DIGITAL DATA RECORDS FOR THE PERIOD FROM LIFTOFF TO LOSS OF TRACK AT T PLUS 480 SEC. STATION COMMUNICATIONS DURING THE LAUNCH OPERATION WERE ADEQUATE.

2. PRE-LAUNCH COUNTDOWN

THE COUNTDOWN STARTED AT 0330 PSI ON 15 JANUARY 1962 AND PROGRESSED TO LIFTOFF WITH THREE HOLDS TOTALING 2 HOURS 11 MINUTES.

1/ HOLD NO. 1 WAS IMPOSED FROM 1030 /T-50MIN/ TO 1120 FOR RANGE CLEARANCE DUE TO TRAIN SCHEDULES.

2/ HOLD NO. 2 WAS IMPOSED FROM 1215 /T-8 MIN 59 SEC/ TO 1332 DUE TO A MALFUNCTION IN THE THOR AGE FUEL FLOW METER. FLOW METER WAS REPAIRED, THE THOR DEFUELED, THE COUNTDOWN CLOCK RECYCLED TO T-15 MIN

AND THE ENTIRE TERMINAL COUNTDOWN WAS REPEATED.

3/ HOLD NO. 3 WAS IMPOSED AT T -1 MIN 37 SEC WHEN THE THOR TANK PRESSURE FAILED TO DECAY TO 3 PSIG DUE TO A CHILLDOWN OF THE VEHICLE



PAGE THREE

BY THE PREVIOUS LUX LOADING. WHEN THE PRESSURE DROPPED BELOW 3 PSIG, THE COUNTDOWN WAS RECYCLED AND PHASE V WAS REPEATED. THIS WAS A MOMENTARY HOLD.

1. PAD DAMAGE.

DAMAGE TO THE PAD EQUIPMENT AND FACILITIES WAS LESS THAN NORMAL

CP-4.

14/0520Z JAN. 62 VAFB

*Handwritten signature or initials, possibly "J. J. T. J."*