FM 6595 AEROSPACE TEST W[redacted] VANDENBERG AFB CAL

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FM 6595 AEROSPACE TEST VG VANDENBERG AFB CALIF
TO SSD LOSA
BT
~~/S E C R E T/~~VWZD-29-2-129-S
SUBJECT: PROGRAM 622A 8-HOUR LAUNCH FLASH REPORT
1. A PROGRAM 622A SATELLITE VEHICLE CONSISTING OF THOR BOOSTER NO. 336 AND AGENA B ORBITAL STAGE NO. 1128 WAS LAUNCHED ON THE SECOND ATTEMPT FROM VAFB COMPLES 75-1 PAD 1 AT 1700:04.03 PDT ON 29 MAY 1962. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE AGENA SATELLITE WITH PAYLOAD IN A NEAR -- POLAR ORBIT, WAS ACCOMPLISHED. READINGS FROM VTS RADAR PLOTTING BOARD GAVE AN INJECTION ALTITUDE OF 135 STATUTE MILES, AN INJECTION PAD REFERENCED VELOCITY OF APPROXIMATELY 25,388 FPS, AN

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INJECTION FLIGHT PATH ANGLE OF APPROXIMATELY ZERO DEG. AND AN INITIAL DEPARTURE FLIGHT AZIMUTH OF APPROXIMATELY 172 DEG. THE INFLIGHT YAW LEFT MANEUVER DURING THE LATTER PART OF THOR BOOST APPEARS TO HAVE BEEN SUCCESSFULLY ACCOMPLISHED. KODIAK TRACKING STATION HAS CONFIRMED ORBITAL STATUS THROUGH RECPTION OF TELEMETRY AND RADAR BEACON SIGNALS ON THE FIRST ORBITAL PASS. THE PRBITAL PERIOD ATTAINED APPEARS TO BE APPROXIMATELY ONE MINUTE LESS THAN PREDICTED.
A LIST OF SIGNIFICANT LAUNCH EVENTS FOLLOWS:

LIFTOFF (1700:04.03 PDT)	ZERO SEC	
STEERING INITIATED	90.47 SEC	
MECO (PROPELLANT DEPLETION)	147.48 SEC	
VECO	156.37 SEC	
ENABLE E D1 AND D2 -,$ S2 (S2)		152.57 SEC
D1 ON	155.29 SEC	
D1 OFF	157.38 SEC	
D2 ON	157.64 SEC	
D2 OFF	161.85 SEC	

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CLASSIFICATION CHANGED TO [redacted] BY AUTHORITY OF AFR 205-2 1 APR 1966

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SEPARATION COMMAND (83)	162.34 SEC
AGENA IGNITION(90 PER CENT PC)	191.7 SEC
AGENA BURNOUT (75 PER CENT PC)	438.9 SEC
VTS VERLORT RADAR FADE	433 SEC
VTS ACQUISITION BEACON FADE	451 SEC
VTS TELEMETRY FADE (LINK 1)	461 SEC

II. PRELIMINARY EVALUATION INDICATES THAT LAUNCH TEST OBJECTIVES WERE ACHIEVED AS FOLLOWS: (REF. DETAILED TEST OBJECTIVES, LMSC A446484, SECTION 2).
A. THOR BOOSTER - OBJECTIVE ACHIEVED
BOOSTER IGNITION AND LIFTOFF WERE SATISFACTORY THE THOR ROLL PROGRAM AND PITCH PROGRAM APPEAR TO HAVE BEEN PROPERLY EXECUTED. THE PROGRAMMED YAW-LEFT MANEUVER DURING THOR MID-BOOST WAS SATISFACTORILY ACCOMPLISHED. AT MAIN ENGINE CUTOFF, VEHICLE POSITION WAS WITHIN A SPHERE OF 5 NM RADIUS, FLIGHT PATH ANGLE WAS WITHIN PLUS OR MINUS 4 DEG, AND VELOCITY WAS WITHIN 300FPS OF THE NOMINAL VALUE.

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BOOSTER STEERING AND EVENT COMMANDS WERE GENERATED AND TRANSMITTED SATISFACTORILY BY THE GROUND GUIDANCE SYSTEM AND VEHICLE RESPOSSE TO THE COMMANDS APPEARS TO HAVE BEEN PROPER. MECO OCCURRED AT 147.48 SEC AS A RESULT OF PROPELLANT DEPLETION, APPROXIMATELY 8.36 SEC BEFORE THE GROUND GUIDANCE COMMAND WAS RECEIVED BY THE VEHICLE. VERNIER ENGINE SOLO OPERATION LASTED 8.89 SEC WITH VECO OCCURING AT 156.37 SEC. SEPARATION WAS INITIATED BY A GROUND GUIDANCE COMMAND AT 162.34 SEC. GROUND GUIDANCE SYSTEM DATA INDICATE THE BOOSTER COAST APOGEE ALTITUDE WAS 166.2 NM (NOMINAL: 167.4 NM) AND THE BOOSTER COAST APOGEE VELOCITY WAS 9683 FPS (NOMINAL: 9977 FPS).
B. AGENA SATELLITE VEHICLE- OBJECTIVES ACHIEVED
1. AGENA AIRFRAME AND ADAPTER
STRUCTURAL INTEGRITY WAS MAINTAINED AND NO EXCESS LOADS WERE APPLIED. THE USUAL 18-25 CPS VEHICLE LONGITUDINAL OSCILLATIONS WERE PRESENT DURING THE THOR BOOST PERIOD. ALL PYROTECHNIC FUNCTIONS OCCURRED AT APPROXIMATELY NOMINAL TIMES. THE RETRO-

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59 dup 1
59 MDEC
5 dup 1

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ROCKETS SATISFACTORILY PROVIDED THE THRUST NECESSARY
FOR POWERED SEPARATION AT 164.34 SEC

ULLAGE ROCKET IGNITION WAS SATISFACTORY.
AGENA ENGINE IGNITION OCCURRED IN A NORMAL MANNER AT
198.5 SEC AND 90 PER CENT CHAMBER PRESSURE WAS ACHIEVED
WITHIN 1.2 SEC. THE ENGINE OPERATED SATISFACTORILY
FOR 2394.2 SEC AND ENGINE SHUTDOWN OCCURRED AT 458.9 SEC
ON INTEGRATOR COMMAND. THE INTEGRATOR DATA SHOW
A SENSIBLE VELOCITY GAIN OF 15,878 FPS DURING ORBITAL
STAGE BOOST. THE IMPULSE PROVIDED BY THE AGENA
ENGINE WAS SUFFICIENT TO GIVE THE VEHICLE ORBITAL
VELOCITY AT THE FLIGHT INJECTION ALTUTUDE.
3. AGENA ELECTRICAL POWER SYSTEM
NO EVIDENCE OF AGENA ELECTRICAL POWER SYSTEM
PROBLEMS HAS BEEN NOTED.
4. AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM.
THE AGENA GUIDANCE AND FLIGHT CONTROL SYSTEM
PROPERLY RESPONDED TO A 5.4 SEC TIME-TO-FIRE
CORRECTION AND A 266FPS VELOCITY TO-BE-GAINED AD
JUSTMENT COMMANDED THROUGH THE FIRST STAGE GROUND

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GUIDANCE SYSTEM. THE ASCENT TIMER PROPERL
PLS GIVE NEW SET
SET NE 12 RPT 2 12 12 KC NOW NOW NOW NOWFIVER LAST GOOD LINE
PROPERLY RESPONDED TO A 5.4 SEC TIME-TO-FIRE
PONDED TO A 5.4 SEC TIME-TO-FIRE
CORRECTION AND A 266FPS VELOCITY TO-BE-GAINED AD
JUSTMENT COMMANDED THROUGH THE FIRST STAGE GROUND

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GUIDANCE SYSTEM. THE ASCENT TIMER PROPERLY CONTROLLED THE TIME AND SUQUENCE OF ALL CRITICAL EVENTS
AFTER SEPARATION. THE ATTITUDE CONTROL SYSTEM WAS
ACTIVATED AS PLANNED AFTER THE COMPLETEION OF SEP-
ARATION AND IN CONJUNCTION WITH INERTIAL REFERENCE
GYROS AND HORIZON SCANNER WAS SUCCESSFUL IN ATTAINING
AND MAINTAINING THE PROPER ATTITUDE DURING THE COAST
AND ORBITAL BOOST PHASES. THE CONTROL GAS EXPENDITURE
DURING LAUNCH(COMPUTED TO BE APPROXIMATELY 16 LBS)
WAS SLIGHTLY GREATER THAN NORMAL. ENGINE SHUTDOWN
WAS COMMANDED BY THE INTEGRATOR AFTER AN ADEQUATE
VELOCITY INCREMENT HAD BEEN ATTAINED. HYDRAULIC
SYSTEM PERFORMANCE WAS ADEQUATE.
5. AGENA SPACE COMMUNICATIONS SYSTEM
OPERATION OF THE ACQUISITION BEACON AND THE RADAR
BEACON WAS SATISFACTORY. VTS TRACKED THE ACQUISITION
BEACON FROM LIFTOFF TO 481 SEC AND THE RADAR BEACON
FROM LIFTOFF TO 453 SEC. AT 481 SEC, THE TIME OF LINK
1 TELEMETRY DATA FADE FOR VTS, ALL TELEMETRY CHA-
NNELS WERE OPERATING. AT THIS TIME THE ORBITAL TIMER

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WAS SET AT 5439 SEC (STEP 19), IN THE RESET-ON POSITION, IN THE INCREASE MODE, AND ALTERNATE RE-ENTRY DISARM STATE. NO GROUND COMMANDS WERE SENT DURING THE ASCENT PHASE. TRACKING STATION COMMUNICATIONS DURING THE LAUNCH OPERATION WERE ADEQUATE.
C. 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. LANDLINE MEASUREMENTS OF AGENA OXIDIZER PRESSURE AND NITROGEN TEMPERATURE BECAME INOPERATIVE DURING COUNTDOWN.
2. AGENA AIR CONDITIONING QD DISENGAGED DURING VEHICLE ERECTION.
3. TWO CIRCUIT BREAKERS IN DAC PAD CONTROL BOX FOR VEHICLE ERECTION DISENGAGED DURING VEHICLE ERECTION.
4. A SLIGHT LEAK OCCURRED IN AGENA OXIDIZER FILL UMBILICAL.
D. COUNTDOWN

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THIS VEHICLE WAS LAUNCHED ON THE SECOND ATTEMPT THE FINAL COUNTDOWN WAS INITIATED AT 0930 PDT, 29 MAY 1962 AND PROGRESSED TO LIFTOFF WITH NO HOLDS. THE FOLLOWING PROBLEMS WERE ENCOUNTERED:
TASK 3 (VEHICLE ERECTION AND PREPARATION) WAS 48 MINUTES LONGER THAN SCHEDULED DUE TO CIRCUIT BREAKERS DISENGAGING IN THE THOR ERECTION CONTROL BOX. THE AGENA AIR CONDITIONING QD ALSO BECAME DISENGAGED DURING VEHICLE ERECTION. ALSO DURING TASK 3 THE LANDLINE MEASUREMENTS OF AGENA OXIDIZER TANK PRESSURE AND NITROGEN GAS TEMPERATURE BECAME INOPERATIVE.
IN TASK 7 IT WAS NECESSARY TO REPEAT ITEMS 95 AND 96 (VERIFY RTCA AND RTCB COMMANDS).
IN TASK 15 THE AGENA AGE UMBILICAL LINE DEVELOPED A SLIGHT LEAK IN THE REGION WHERE THE FLEX PORTION OF THE LINE JOINS THE HARDLINE FITTING ON THE QUICK DISCONNECT AND DROPS OF ACID FELL ONTO THE SKIN OF THE THOR VEHICLE. WHEN THE LINE WAS DEPRESSURIZED THE LEAK STOPPED.
THE FIRST COUNTDOWN, INITIATED ON 28 MAY WAS TER-

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MINATED DURING TASK 3 WHEN A PROBLEM WAS ENCOUNTERED WITH THE HORIZON SCANNER. EVALUATION INDICATED A NEED FOR A REPLACEMENT OF THE HORIZON SCANNER. THE LAUNCH WAS RESCHEDULED FOR THE FOLLOWING DAY.
2. PAD DAMAGE
DAMAGE TO THE PAD EQUIPMENT AND FACILITIES WAS LESS THAN USUAL, AND THE REHABILITATION WORK IS EXPECTED TO BE SIMILAR TO THAT AFTER PREVIOUS LAUNCHES FROM THIS PAD.
CCC LINE 16 PAGE TWO
ENABLE D1 AND D2 (S2)
ST
30/0748Z MAY VAFB

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