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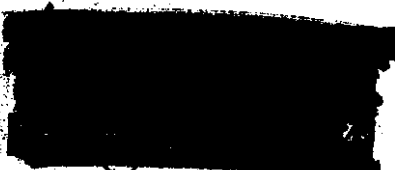
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FM 6595 AEROSPACE TEST VANDENBERG AFB CALIF
TO SSD LOSA

BT

/S E G R E T/VWZD-89-5-129-8

SUBJECT: PROGRAM 622A 8-HOUR LAUNCH FLASH REPORT
I. 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 COMPLEX
78-1 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-POLEAR ORBIT, WAS ACCOMPLISHED.~~
READINGS FROM VTS RADAR PLOTTING BOARD GAVE AN IN-
JECTION ALTITUDE OF 138 STATUTE MILES, AN INJECTION PAD
REFERENCED VELOCITY OF APPROXIMATELY 25,308 FPS, AN



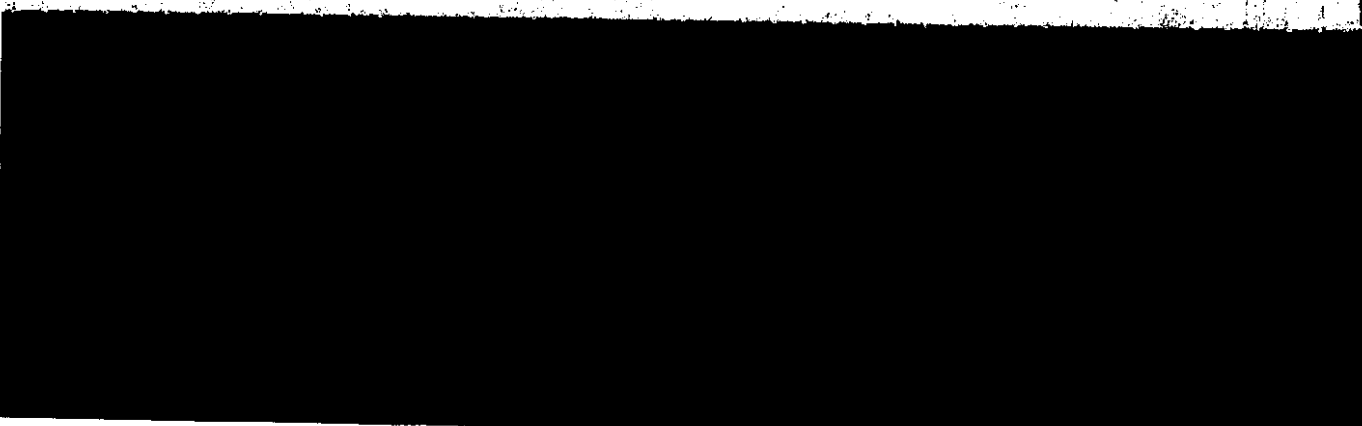
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INJECTION FLIGHT PATH ANGLE OF APPROXIMATELY ZERO DEG.
AND AN INITIAL DEPARTURE FLIGHT AZIMUTH OF APPROX-
IMATELY 172 DEG. THE INFLIGHT YAW LEFT MANEUVER
DURING THE LATTER PART OF THOR BOOST APPEARS TO HAVE
BEEN SUCCESSFULLY ACCOMPLISHED. KODIAK TRACKING
STATION HAS CONFIRMED ORBITAL STATUS THROUGH
RECEPTION OF TELEMETRY AND RADAR BEACON SIGNALS ON
THE FIRST ORBITAL PASS. THE ORBITAL 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	-0.5 SEC (82)		152.57 SEC
D1 ON	155.29	SEC	
D1 OFF	157.38	SEC	
D2 ON	157.64	SEC	
D2 OFF	161.85	SEC	

CLASSIFICATION CHANGED TO
SECRET
7 APR 1966



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SEPARATION COMMAND (83)

162.34 SEC

AGENA IGNITION (98 PER
CENT FC)

191.7 SEC

AGENA BURNOUT (79 PER
CENT FC)

438.9 SEC

VTS WENLOTT RADAR FADE

453 SEC

VTS ACQUISITION BEACON FADE

481 SEC

VTS TELEMETRY FADE (LINK 1)

481 SEC

II. PRELIMINARY EVALUATION INDICATES THAT LAUNCH
TEST OBJECTIVES WERE ACHIEVED AS FOLLOWS: (REF.
DETAILED TEST OBJECTIVES, LN5C 446484, SECTION 2).

A. THOR BOOSTER - OBJECTIVE ACHIEVED

BOOSTER IGNITION AND LIPTOFF 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 SATISFAC-

TORILY 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 500FPS OF THE NOMINAL VALUE.

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BOOSTER STEERING AND EVENT COMMANDS WERE GEN-

ERATED AND TRANSMITTED SATISFACTORILY BY THE

GROUND GUIDANCE SYSTEM AND VEHICLE RESPONSE TO THE

COMMANDS APPEARS TO HAVE BEEN PROPER. WECO

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

WECO OCCURRING 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 186.2 NM (NOMINAL: 187.4 NM) AND THE BOOSTER

COAST APOGEE VELOCITY WAS 9883 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 18-28 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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ROCKETS SATISFACTORILY PROVIDED THE THRUST NECESSARY

FOR SEPARATION AND BURNOUT AT 162.34 SEC.

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59-200-1
59-200-2
59-200-3

ULLAGE ROCKET IGNITION WAS SATISFACTORY.
AGENA ENGINE IGNITION OCCURRED IN A NORMAL MANNER AT
198.5 SEC AND 98 PER CENT CHAMBER PRESSURE WAS ACHIEVED
WITHIN 1.2 SEC. THE ENGINE OPERATED SATISFACTORYLY
FOR 239.2 SEC AND ENGINE SHUTDOWN OCCURRED AT 438.9 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 ALTITUDE.

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 280FPS 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 ME 12 RPT 2 12 12 KC NOV NOV NOV NOV FIVER 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 280FPS VELOCITY TO-BE-GAINED AD
~~JUSTMENT COMMANDED THROUGH THE FIRST STAGE GROUND~~



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GUIDANCE SYSTEM, THE ASCENT TIMER PROPERLY CONT-
ROLLED THE TIME AND SQUENCE OF ALL CRITICAL EVENTS
AFTER SEPARATION. THE ATTITUDE CONTROL SYSTEM WAS
ACTIVATED AS PLANNED AFTER THE COMPLETION 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.

3. 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 1968 AND PROCEEDED 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 RTOS 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-

DOWNGRADED AT 3 YEAR INTERVALS,
CLASSIFIED AFTER 12 YEARS
DD FORM 1300, 10

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MINATED DURING TASK 3 WHEN A PROBLEM WAS ENCOUNTERED WITH THE MORISON SCANNER. EVALUATION INDICATED A NEED FOR A REPLACEMENT OF THE MORISON SCANNER. THE LAUNCH WAS RESCHEDULED FOR THE FOLLOWING DAY.

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.

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ENABLE D1 AND D2 (S2)
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