

LX XII

65-46-63-4949

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JOINT MESSAGEFORM

LX XII

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PRIORITY	TYPE MSG (Check)	ACCOUNTING SYMBOL	ORIG. OR REFERS TO	CATEGORY OF REFERENCE
	BOOK MULTI SINGLE			

FROM: 655TH AIRSPACE TEST WING
VANDENBERG AFB, CALIFORNIA, VVZD

TO: SPACE SYSTEMS DIVISION, LOSA, CALIFORNIA

SUBJECT: EIGHT HOUR FLASH REPORT, VEHICLE
SLY-1/66-01A/499/1171

SPECIAL INSTRUCTIONS

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

BRIEF SUMMARY

VEHICLE SLY-1/66-01A/499/1171 WAS LAUNCHED ON THE FIRST ATTEMPT FROM VAFB COMPLEX 75-1, PAD 2, AT 1247:34.5Z NOV. ON 9 NOVEMBER 1961. THE PRIMARY LAUNCH OBJECTIVE TO PLACE THE 66-01A SATELLITE WITH PAYLOAD IN A NEAR-POLAR ORBIT, WAS NOT ACCOMPLISHED.

THE LAUNCH PROCEEDED SMOOTHLY WITH TWO HOLDS IMPOSED, FOR A TOTAL OF EIGHT MINUTES, FOR TRAINING. *BASED ON DATA REVIEWED AT THIS TIME*

THE FLIGHT TERMINATED AT APPROXIMATELY 134 SEC. DUE TO COMPLETE LOSS OF ATTITUDE CONTROL BY THE BOOSTER. THIS LOSS WAS PRECIPITATED BY A GRADUAL DETERIORATION OF THE BOOSTER FLIGHT CONTROL SYSTEM PERFORMANCE AS A RESULT OF AN APPARENT ELECTRICAL MALFUNCTION.

DATE	TIME
9	
MONTH	YEAR
11	63

TYPED NAME AND TITLE (Signature, if required)

Walter W. [redacted] MAJ. USAF

SECURITY [redacted]

NR. OF PAGES

TYPED (or stamped) NAME AND TITLE

[redacted]

6545-63-4949



FROM:

ASSOCIATED WITH THE CONTROL SYSTEM DC POWER SUPPLY. IT APPEARS THAT THE STATUS OF THE SE-OLA WAS NORMAL THROUGH FLIGHT TERMINATION; HOWEVER, SEPARATION AND SUBSEQUENT SE-OLA EVENTS DID NOT OCCUR DUE TO LACK OF THE 2-TIMER START AND SEPARATION ARMING SIGNALS FROM THE SLV-2.



II. SIGNIFICANT EVENTS

PROXIMATE VALUES OF SIGNIFICANT EVENTS REFERENCED FROM LISTING AT ILLUSTRATION ARE:

- STRONG/INITIATED 91.5 SEC
- NO EVIDENCE OF DEVIATION IN ACTUATOR POT VOLTAGE 95 TO 100 SEC
- SLV-2 GUIDANCE REACHES SIGNIFICANT LEVEL OF PITCH 111 SEC
- PITCH AND YAW RATE GIBBS REACH TELEMETRY RANGE 129.5 SEC
- ACTUATOR POT NEGATIVE REACHES TELEMETRY RANGE (-10 V) ACTUATOR POT POSITIVE READS +19.5 V AT THIS TIME 132 SEC
- COMPLETE LOSS OF CONTROL AS EVIDENCED BY SHARP YAW RIGHT AND PITCH UP 134 SEC
- MEOS AND YEOS OCCUR SIMULTANEOUSLY AS A RESULT OF VOLUNTARY MANEUVER 137.5 SEC
- LOSS OF SLV-2 TELEMETRY SIGNAL



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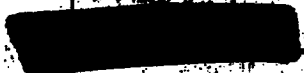
LOSS OF 4-0A TELEMETRY SIGNAL AT
TTS (LINK 1)

378 SEC

III. RLV-3 VEHICLE PERFORMANCE

RLV-3 PERFORMANCE WAS UNSATISFACTORY IN THAT A LOSS OF ATTITUDE CONTROL RESULTED IN FLIGHT TERMINATION APPROXIMATELY 10 SEC PRIOR TO ANTICIPATED MISC. DETERIORATION OF CONTROL BEGAN GRADUALLY AT ABOUT 10 SEC, AS EVIDENCED BY LACK OF NORMAL RESPONSE OF THE VEHICLE TO GROUND GUIDANCE STEERING COMMANDS. BY 130 SEC, PITCH AND YAW RATE GYROs HAD REACHED TELEMETRY RANGES (PLUS OR MINUS 2 DEG PER SEC) AND AT 134 SEC THE VEHICLE BEGAN A SHARP YAW RIGHT AND PITCH UP MANEUVER WHICH RESULTED IN THE SIMULTANEOUS CUTOFF OF THE MAIN ENGINE AND BOTH VERNIERS AT 137.4 SEC. THE MODE OF ENGINE CUTOFF IS ASSUMED TO HAVE RESULTED FROM THE DISRUPTION OF ELECTRICAL POWER, CAUSED BY THE VIOLENT MANEUVER AND CONFIRMED BY MISSILE BATTERY VOLTAGE DROP TO ZERO AT THIS TIME.

THE LOSS OF ATTITUDE CONTROL APPEARS TO BE ASSOCIATED WITH AN ELECTRICAL MALFUNCTION WHICH CAUSED A DEVIATION IN ACTUATOR POTENTIOMETER



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EXCITATION VOLTAGES BEGINNING AT APPROXIMATELY 100 SEC. THE SHIFT IN POT VOLTAGES BEGAN GRADUALLY, THEN INCREASED TO A SIGNIFICANT ERROR JUST PRIOR TO THE COMPLETE LOSS OF CONTROL. THE ACTUATOR POTENTIOMETER EXCITATION VOLTAGES ARE DERIVED FROM A CONTROL SYSTEM DC POWER SUPPLY WHICH RECTIFIES 400 AC TO OBTAIN THE PLUS AND MINUS 165 VDC REQUIRED FOR THE FLIGHT CONTROL DC AMPLIFIERS. THE 400 CPS INVERTER OUTPUT WAS CONFIRMED TO HAVE BEEN NORMAL UNTIL LOSS OF AIRCRAFT BATTERY BUS VOLTAGE AT THE TIME OF IMCO.

NO OTHER ABNORMALITIES WERE NOTED IN THE OTHER SLV-1 SUBSYSTEMS WHICH APPEAR TO BE RELATED TO THE CONTROL PROBLEM.

SLV-2 LOSS OF ATTITUDE CONTROL DID NOT CAUSE THE VEHICLE TO VIOLATE FLIGHT SAFETY DESTRUCT CRITERIA AND NO DESTRUCT COMMANDS WERE ISSUED. TRAJECTORY DATA INDICATE VEHICLE IMPACT OCCURRED APPROXIMATELY 368 NAUTICAL MILES DOWNRANGE.

IV. COMMAND GUIDANCE

PERFORMANCE OF THE COMMAND GUIDANCE SYSTEM WAS SATISFACTORY.

SYMBOL FIRST CHANGE INDICATOR OF VEHICLE NUMBER

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FROM:

WAS AT 11 TO 124 SEC WHEN A LARGE QUANTITY OF PITCH-
 DOWN STEERING WAS ORDERED. TELEMETRY DATA REVEALS
 THAT A Sizable PITCH UP MANEUVER STARTED AT 110.5 SEC
 DURING AN ABSENCE OF GUIDANCE PITCH STEERING ORDERS.
 THE VEHICLE RESPONDED TO GUIDANCE STEERING ORDERS
 FOR 10 MORE SECONDS IN A SLUGGISH MANNER. THEREAFTER
 YAW AND PITCH RATE GYRO TRACES HAD LITTLE IF ANY
 CORRELATION WITH STEERING ORDERS. GUIDANCE SENSED
 THE VEHICLE DECELERATION AT MECO AND TRANSMITTED
 THE S1 COMMAND WHICH IS ESSENTIAL BEFORE GOING TO S2
 SEPARATION COMMAND. ALTHOUGH S2 AND STEERING
 ORDERS FOR THE SS-9A WERE TRANSMITTED, THEY WERE
 NOT EFFECTIVE BECAUSE ARMING HAD NOT BEEN EFFECTED.
 GUIDANCE TRACKING DATA INDICATES THAT IMPACT
 OCCURRED AT AN ALTITUDE OF APPROXIMATELY 172 DEG
 AND AT A RANGE SOMEWHAT IN EXCESS OF 350 NM.

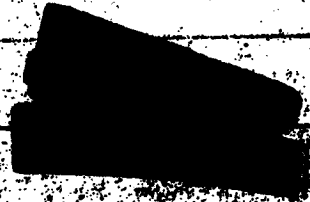
V. SS-9A VEHICLE PERFORMANCE

REVIEW OF PERFORMANT DATA INDICATES THAT THE STATUS
 OF THE VEHICLE SUBSYSTEMS WAS NORMAL THROUGH
 FLIGHT TERMINATION AND THAT THE SS-9A REMAINED
 INTACT SUBSEQUENT TO THE DIVERGENT MANEUVER OF THE

SYNOPSIS 2. IT ALSO APPEARS THAT SEPARATION AND

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ENVIRONMENT ON-GLA EVENTS DID NOT OCCUR BECAUSE THE AB-
NORMAL NATURE OF MDSO AND VEOB DID NOT PERMIT
EITHER 3-TIME START OR THE ARISING OF THE SEPARATION
SEQUENCE.

TEL SPACE - GROUND COMMUNICATIONS

TELEMETRY DATA FROM ALL LINES WERE SAFELY AND FULLY
RECEIVED AND RECORDED.

TEL COUNTDOWN

THE COUNTDOWN WAS INITIATED AT 1440 PST AND PRO-
CEEDED TO 10-TOPS WITH TWO HOLDS IMPOSED. HOLD
NO. 1 WAS IMPOSED AT 1436 PST (T-24 MIN) TO PREPARE FOR
STARTING THE TERMINAL COUNT AHEAD OF SCHEDULE
BECAUSE OF REPORTED INTERFERENCE FROM TRAINS
DURING THE EARLY PORTION OF THE SCHEDULED LAUNCH
WINDOW. THE COUNTDOWN CLOCK WAS RECYCLED TO
T-11 MINUTES AND THE COUNTDOWN RESUMED AT 1435 PST.
HOLD NO. 2 WAS IMPOSED AT 1421 PST (T-1 MIN 50-SEC) TO
AWAIT EXIT OF TRAINS FROM THE HAZARD AREA. THE
COUNTDOWN WAS RECYCLED TO T-4 MIN AT 1416 PST.
THE CLOCK WAS THEN ALLOWED TO RUN TO T-3 MIN
(START OF PHASE V) BEFORE RELEASE OF THE HOLD.



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LIFTOFF OCCURRED AT 12:27:00 P. PST.
 ADDITIONAL PROBLEMS AND DELAYS ENCOUNTERED WERE:
 TASKS 3, 4, 5, 6, AND 7 WERE CONDUCTED PRIOR TO TASK 2
 BECAUSE OF ANTICIPATED INTERFERENCE FROM ANOTHER
 OPERATION. THIS CAUSED A DELAY OF APPROXIMATELY
 30 MINUTES.

1 JAN 1968

1 APR 1968

IN TASK 6, THE SS-GIA T/M MEASUREMENT 16-1-03 (LOW
 RANGE GUIDANCE GAS PRESSURE) WAS FOUND TO BE MANUAL
 BUT WAS WAIVED BY THE AIR FORCE.

AT APPROXIMATELY 0900 ^{177 K545} A TECHNICIAN WAS INJURED IN A
 FALL FROM AN ELEVATED CAMERA PLATFORM.
 DURING SS-GIA TANKING, IT WAS NECESSARY TO SEND PER-
 SONNEL TO THE PAD TO ADJUST AN LMSG GAS PRESSURE
 REGULATOR.

VEL. AIRSPACE GROUND EQUIPMENT

THE ACE FUNCTIONED SATISFACTORILY TO SUPPORT
 CHECKOUT AND LAUNCH OF THE VEHICLE. THE ONLY
 PROBLEM REPORTED WAS AN ADJUSTMENT OF A GAS
 PRESSURE REGULATOR DURING SS-GIA TANKING.

XL. PAD DAMAGE

PAD DAMAGE WAS NORMAL AND THE REHABILITATION

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