6595TH AEROSPACE TEST WING, VANDENBERG AFB, CALIF. VWZD

TO: SPACE SYSTEMS DIV. LOSA, CALIF.

SUBJECT: EIGHT-HOUR FLASH REPORT

I. SUMMARY 26-4-1963

'A VEHICLE CONSISTING OF SLV-2 BOOSTER NO. 372 AND S-01A ORBITAL STAGE NO. 1411 WAS LAUNCHED ON THE SECOND ATTEMPT FROM VAFB COMPLEX 75-1, PAD 1, AT 1212:57:07 PST, ON 26 APRIL 1963. THE PRIMARY LAUNCH OBJECTIVE, TO PLACE THE S-01A SATELLITE WITH PAYLOAD IN A NEAR POLAR ORBIT, WAS NOT ACCOMPLISHED. THE VTS RADAR TRACK BOARD INDICATED THE FOLLOWING APPROXIMATE CONDITIONS AT S-01A ENGINE SHUTDOWN: ALTITUDE 213 STATUTORY M., PAG REFERENCED VELOCITY, 25,200 FPS; ELEVATION FLIGHT PATH ANGLE, APPROXIMATELY PLUS 2.5 DEG; SOUTH FLIGHT PATH ANGLE, APPROXIMATELY 174 DEG.

DATE 26
MONTH Apr.
YEAR 1963

C. S. WALLER, LT. COL., USAF

PHONE 866-3771
SECURITY CLASSIFICATION

DD FORM 173 REPLACES DD FORM 173, 1 OCT 45. THIS IS THE ONLY FORM TO USE UNTIL EXHAUSTED
COMPUTATIONS BASED ON THESE NUMBERS INDICATE THAT THE PROBABILITY OF ATTAINING ORBIT WAS MARGINAL.
NEGATIVE ACQUISITION ON THE SCHEDULED FIRST AND SECOND PASSES INDICATE THAT ORBIT WAS NOT ATTAINED. THE DEVIATION FROM NOMINAL IN TRAJECTORY CONDITIONS AT 6-O1A ENGINE SHUTDOWN APPEARS TO BE ASSOCIATED WITH 5-O1A GUIDANCE ERRORS WHICH ARE ATTRIBUTED TO AN IMPROPER HORIZON SENSOR BIAS ANGLE DURING THE ASCENT.

II. SIGNIFICANT EVENTS:
PRELIMINARY VALUES OF SIGNIFICANT LAUNCH EVENTS ARE:

<table>
<thead>
<tr>
<th>EVENT</th>
<th>SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFTOFF (12/16:57:07 PST)</td>
<td>0</td>
</tr>
<tr>
<td>STEERING INITIATED</td>
<td>91.93</td>
</tr>
<tr>
<td>MECO (91)</td>
<td>146.14</td>
</tr>
<tr>
<td>VECO</td>
<td>153.36</td>
</tr>
<tr>
<td>ENABLE D1 AND D2 (82)</td>
<td>150.43</td>
</tr>
<tr>
<td>D1 ON</td>
<td>152.85</td>
</tr>
<tr>
<td>D1 OFF</td>
<td>154.27</td>
</tr>
<tr>
<td>D2 ON</td>
<td>154.42</td>
</tr>
<tr>
<td>D2 OFF</td>
<td>159.69</td>
</tr>
<tr>
<td>SEPARATION COMMAND (53)</td>
<td>160.28</td>
</tr>
<tr>
<td>SEPARATION COMPLETE</td>
<td>162.5</td>
</tr>
</tbody>
</table>

DD: 1/66 173-1
III. SLY-1 PERFORMANCE

ALL SLY-1 SUB-SYSTEMS PERFORMED ADEQUATELY FOR ACHIEVEMENT OF THE PRIMARY TEST OBJECTIVE.

QUICK-LOOK DATA INDICATE THAT ACCEPTABLE BOOSTER COAST APOGEE CONDITIONS WERE ATTAINED AND APPROPRIATE COMMANDS WERE PROVIDED TO THE S-01A.

THE TENTATIVE EVALUATION OF COAST APOGEE VELOCITY WAS 8977 FPS (NOMINAL: 8939 FPS) AND ALTITUDE WAS 154.38 NM (NOMINAL: 154.69 NM).

IV. S-01A PERFORMANCE

A GUIDANCE ERROR ASSOCIATED WITH THE S-01A VEHICLE RESULTED IN TRAJECTORY CONDITIONS AT EARTH SHUTDOWN WHICH WERE SIGNIFICANTLY DIFFERENT THAN NOMINAL.
EXCEPT FOR THIS PROBLEM ALL 5-01A VEHICLE BUS-SYSTEMS PERFORMED SATISFACTORIALLY DURING LAUNCH.

EXAMINATION OF RADAR TRACKING DATA AND GROUND GUIDANCE QUICK-LOOK DATA INDICATE THAT THE TRAJECTORY ERROR AT ENGINE SHUTDOWN WAS ASSOCIATED WITH THE 5-01A VEHICLE.

THE MOST SIGNIFICANT TRAJECTORY DEVIATIONS WERE APPROXIMATELY PLUS 2.5 DEG IN ELEVATION FLIGHT PATH ANGLE AND PLUS 24 STATUTE MILES IN ALTITUDE. THESE DEVIATIONS INDICATE THAT THE THRUST VECTOR WAS MISDIRECTED BY MORE THAN THREE DEGREES. EXAMINATION OF TELEMETRY DATA INDICATES THAT THE HORIZON SENSOR MECHANICAL BIASED ANGLE DURING ASCENT WAS IN ERROR BY AT LEAST 1 DEGREE. THE MISDIRECTED THUST AND RESULTANT GUIDANCE ERROR IS ATTRIBUTED TO AN IMPROPER ADJUSTMENT OF THE HORIZON SENSOR BIASES.

AT THE TIME OF TELEMETRY SIGNALİYE AT 175556.3, THE ORBITAL TIMER WAS SET AT 5439 SEC (STEP) IN THE RESET-ON POSITION, IN THE INCREASE MODE, AND IN THE INCREASE MODE, AND INRE-ENTRY DISABLE STATE.
V. SPACE-GROUND COMMUNICATIONS

Telemetry data from all links were satisfactorily received and recorded.

V.1. SATELLITE

Veriloy radar tracking performance was satisfactory.

VI. COUNTDOWN

Launch was accomplished on the second attempt. The final countdown was initiated at 1340 PST on 26 April 1965 and proceeded to liftoff with two holds imposed for a total of 25 min by range safety because of trains. Hold No. 1, 25 min duration was imposed at T-15 min (1130 PST), Hold No. 2, 5 min duration, was imposed at T-5 min (1205 PST). Due to a 15-min advance in the scheduled launch window the countdown clock was advanced 15 min in task 13.

The countdown proceeded without incident except for a minor adjustment of the thrust arm mast oxidizer regulator and the IMEC helium-valve umbilical, both hung on hold. Minor adjustment during central-stage pressureization. No delay was caused.

The first countdown was initiated at 1354 PST on 26 April 1965 and was cancelled at 1356 PST.
INABILITY TO ACTIVATE THE S-51 VEHICLE LIFEBOAT.
SOLENOID VALVE - EVALUATION INDICATED AN ELECTRICAL
INCOMPATIBILITY BETWEEN THE VEHICLE AND ARG° RESULTING
IN THE SOLENOID VALVE NOT BEING ELECTRICALLY GROUNDED.
THERE WAS INSUFFICIENT TIME TO CORRECT THE PROBLEM
AND LAUNCH WITHIN THE SCHEDULED TIME.

ADDITIONAL PROBLEMS ENCOUNTERED DURING THE
FIRST COUNTDOWN WERE AS FOLLOWS:
A. AN IMTC 400 ELECTRICAL PATCHING NETWORK WAS
MODIFIED.
B. AN OIL LEAK OCCURRED IN THE HYDRAULIC SYSTEM
OF A PERSONNEL HIGH LIFT. IT WAS REPLACED WITH
ONE FROM ANOTHER PAD.
C. A DAS AE Q 226, 4 232 CHECKS MALFUNCTIONED AND WAS REPLACED.
D. THE LIFTOFF SYSTEM CIRCUITRY AT THE EAST BUILDING
WAS MISWIRLED RESULTING IN FAILURE TO RECEIVE THE
SIGNAL AT THE YTS AND IMTC MAB. THE CIRCUITRY WAS
REPAIRED BEFORE THE SECOND COUNTDOWN.

DD: 173-1
VII. AEROSPACE GROUND EQUIPMENT (AGE)

THE AGE FUNCTIONED SATISFACTORILY TO SUPPORT CHECKOUT AND LAUNCH OF THE VEHICLE WITH THE FOLLOWING EXCEPTIONS:

1. AN OIL LEAK OCCURRED IN THE HYDRAULIC SYSTEM OF G-38718065.

A LMIC PERSONNEL HIGH LIFT. A SUBSTITUTE HIGH LIFT WAS USED.

2. ELECTRICAL PATCHING CIRCUITRY IN THE BLOCKHOUSE WAS MODIFIED DURING THE FIRST COUNTDOWN TO ACCOMODATE CHECKOUT.

3. A D&A AGE DESTRUCT TEST METER WAS MENTIONED AND WAS REPLACED.

4. INCOMPATIBILITY BETWEEN AGE AND VEHICLE CIRCUITRY RESULTED IN A FAILURE TO PROVIDE A NEEDED ELECTRICAL GROUND FOR THE VEHICLE HEATSOAT SOLENOID VALVE. COMPATIBILITY WAS ESTABLISHED PRIOR TO FINAL COUNTDOWN.

VIII. PAD DAMAGE

PAD DAMAGE WAS NO GREATER THAN NORMAL AND THE TURNAROUND SCHEDULE CAN BE MAINTAINED.