

MIT/IL SOFTWARE ANOMALY REPORT

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1.1 ORIGINATOR: R. D. GOSS		1.2 ORGANIZATION: MIT/IL		1.3 DATE: 5/14/69		1.4 ORIGINATOR CONTROL NO.	
1.5 DESCRIPTION OF ANOMALY: A spurious commanded firing of a downward forcing RCS jet in powered ascent.						MIT REPORT NO. LNY 69 PROGRAM LUMINARY PROGRAM REVISION 97	
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1.6 DESCRIPTION OF RUN: An off-nominal run, LAUNCH82, was made for powered ascent from surface of moon to ascent engine cutoff. An off-nominal c.g. displacement was simulated in which c.g. displacement from the ascent engine thrust axis increased from a small value to approximately 2.5" along the +Z-axis at cutoff.							
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- MIT ANALYSIS -							
2.1 CAUSE: Coding error in "ERRTEST" section of program. If the following conditions occur simultaneously about a control axis, then the LM DAP can enter the...							
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2.2 RECOGNITION: 1 or 2 Isolated firings (of 100 ms duration) of a downward forcing jet during period of normal single jet control for ascent vehicle.							
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2.3 MISSION EFFECT: For nominal mission anomaly will not occur. For off-nominal case 1 or 2 extra firings of a downward forcing jet may occur during 430-second powered ascent. For 2 extra 100 ms firings of a downward forcing jet, an...							
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2.4 AVOIDANCE PROCEDURE: None needed.							
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2.5 RECOVERY PROCEDURE: None.							
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2.6 PROGRAM CORRECTION: Change ERRTEST section of section. An increase of 2 words of coding is required.							
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2.7 RECOMMENDED DISPOSITION (Fix, Work-around, etc): Fix in next release.							
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2.8 RECOMMENDED RE-TESTING: Rerun test run.							
2.9 MIT/IL SIGNATURE: <i>[Signature]</i>				2.10 DATE: 5/15/69			
3.1 NASA DIRECTION:				4.1 CLOSING ACTION TAKEN: Fix in LUMINARY 1 B FIXED reorg in Chern MEMO 91			
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3.2 NASA/MSC SIGNATURE:		3.3 ORGANIZATION:		3.4 DATE:		4.2 SIGNATURE:	
						4.3 ORGANIZATION:	
						4.4 DATE:	

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PROGRAM LUMINARY								
PROGRAM REVISION 97								

2.1 Cause, cont'd.

... "MAXJETS" section of coding and command an unwanted 2 jet firing about the axis.

(1) $E = \pm 0$

(2) $FIREDB < 0$

Condition 2/ can occur only if $ABSAOS > 11.25^{\circ}/\text{sec}^2$ and EDOT and AOSU have the same sign.

2.3 Mission Effect, cont'd.

... additional ΔV penalty of .09 ft/sec may be incurred, or equivalently a fuel penalty of approximately .05 lbs of fuel may be incurred.