MIT/IL SOFTWARE ANOMALY REPORT

1.1 ORIGINATOR:	1.2 ORGANIZATION:	1.3 DATE:	1.4 ORIGINATOR CONTROL NO.	SEC REPORT NO: LNY62
C. SCHULENBERG	MIT/IL	4/28/69		PROGRAM: LUMINARY
				PROGRAM REVISION: 69, 97

1.5 DESCRIPTION OF ANOMALY:

If P70 is selected at a point late enough in the landing so that the DPS fuel is depleted before the injection conditions are attained, P70 will, of course, issue a flashing V97N63 indicating engine failure. If the astronaut then keys in ENTER, he will be given a flashing V99N63. If P71 is selected at any point up to this time, operation is normal. But if the astronaut then keys in ENTER to the flashing V99N63, the autopilot deadband is restored to...

CONTINUED ON PAGE 2

1.6 DESCRIPTION OF RUN:

Visual inspection of program.

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- MIT ANALYSIS -

2.1 CAUSE:

Abort programs do not alter current autopilot deadband.

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2.2 RECOGNITION:

See Section 1.5.

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2.3 MISSION EFFECT:

If the avoidance procedure is not used, the effect would be that P71 would...

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2.4 AVOIDANCE PROCEDURE:

If a flashing V97N63 occurs in P70 and a display of residuals is desired...

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2.5 RECOVERY PROCEDURE:

If P71 is selected with the wrong deadband key in V21N01E01346E00554E

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2.6 PROGRAM CORRECTION:

Make the abort programs set deadband to 1 degree.

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2.7 RECOMMENDED DISPOSITION (Fix, Work-around, etc):

Use avoidance procedure for LUMINARY Rev 97 and fix in subsequent releases.

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2.8 RECOMMENDED RE-TESTING:

None needed.

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2.9 MIT/IL SIGNATURE:	2.10 DATE:
James F. Kernan	5-1-69

3.1 NASA DIRECTION:

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4.1 CLOSING ACTION TAKEN:

FIXED
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:

MSC Form 1409 (Rev May 68)

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1.5 Description of Anomaly, cont'd.

...whatever valve was last specified in R03 (V48); i.e., either .3 degrees or 5 degrees. If P71 is selected now, it will run with one of these deadbands rather than the nominal 1 degree. The ENTER response, of course, brings up a flashing V16N63 on the DSKY. A PROCEED to this display causes a flashing V16N85 to be displayed and the autopilot deadband to be set to .3 degrees. If P71 is selected at this point it will operate with the .3 degree deadband. Thus the anomaly is that if the astronaut uses the above-mentioned procedure to obtain a display of his residuals (Noun 85), a subsequent selection of P71 will cause the abort program to execute with an off-nominal deadband.

2.3 Mission Effect, cont'd.

...probably either have a greater-than-nominal RCS fuel expenditure, if the .3 degree deadband is specified, or greater-than-nominal cutoff errors, if the 5 degree deadband is specified.

2.4 Avoidance Procedure, cont'd.

...simply key in V16N85E and look at the residuals directly. If the residuals are too large, select P71 without ever answering the flashing V97N63. If the residuals are small, use the procedure outlined in Section 1.5 to enter the trimming mode of P70.