MIT/IL SOFTWARE ANOMALY REPORT

1.1 ORIGINATOR:	1.2 ORGANIZATION:	1.3 DATE:	1.4 ORIGINATOR CONTROL NO.	MIT REPORT NO. LNY54
G.W. CHERRY	MIT/IL	3/26/69		PROGRAM LUMINARY
				PROGRAM REVISION Rev. 69

1.5 DESCRIPTION OF ANOMALY:

1301 Alarm (argument of ARCCOS function too large) occurs in R65 because of numerical inaccuracy in computation of angle between LM Z-axis and LOS to CSM.

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1.6 DESCRIPTION OF RUN:

LMS, MIT hybrid and all-digital runs.

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- MIT ANALYSIS -

2.1 CAUSE:

Computation of argument of ARCCOS has numerical inaccuracies - principally in unit ($\underline{R}_{CSM} - \underline{R}_{LM}$).

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2.2 RECOGNITION:

Program alarm light. V05N09 shows 1301.

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2.3 MISSION EFFECT:

Interference with timeline because astronaut must key V05N09 to determine alarm.

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2.4 AVOIDANCE PROCEDURE:

Manual tracking of Z-axis deliberately off LOS vector.

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2.5 RECOVERY PROCEDURE:

When it occurs, move Z-axis away from LOS with one manual minimum impulse command input. Reset Alarm.

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2.6 PROGRAM CORRECTION:

Do not compute ARCCOS. Compare COS directly with COS (angle limit).

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

Already fixed in LUMINARY 1A.

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2.8 RECOMMENDED RE-TESTING:

Try to determine frequency of occurrence in order to evaluate extent of problem.

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2.9 MIT/IL SIGNATURE:	2.10 DATE:
G.W. Cherry	

3.1 NASA DIRECTION:	4.1 CLOSING ACTION TAKEN:
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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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