

MIT/IL SOFTWARE ANOMALY REPORT

MIT REPORT NO.	LNY 79
PROGRAM	LUMINARY 1.
PROGRAM REVISION	99

1.1 ORIGINATOR: K. W. KRAUSE	1.2 ORGANIZATION: TRW (MPAD A-200)	1.3 DATE: 6-20-69	1.4 ORIGINATOR CONTROL NO. MPAD -2
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1.5 DESCRIPTION OF ANOMALY:

Crossplane vehicle oscillations during P64/P65. During the latter part of the visibility phase (P64) and throughout the vertical descent/phase (P65), a crossplane perturbation such as a lateral re-designation or 36 landing radar velocity noise will cause the LM to oscillate from side to side with an amplitude on the order of 10 deg. These perturbations were observed in two specific cases. One.

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1.6 DESCRIPTION OF RUN:

TRW 6-D Apollo Reference Mission Program descent runs for Landing Analysis Branch (FM-2) under TRW Task A-200.

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- MIT ANALYSIS -

2.1 CAUSE:

The attitude oscillations are mainly caused by a DAP deadband overshoot (see AG letter No. 347-69). However, the oscillations due

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2.2 RECOGNITION:

Vehicle and attitude error needle oscillations.

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2.3 MISSION EFFECT:

Small increase in RCS propellant consumption and LPD use degradation

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2.4 AVOIDANCE PROCEDURE:

Select P66 at 500 feet altitude or steer spacecraft manually.

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2.5 RECOVERY PROCEDURE:

Switch to P66 or wait until oscillations die out.

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2.6 PROGRAM CORRECTION:

See PCR 840.

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

Inform crew for LUMINARY 1A; implement PCR 840 for LUMINARY 1B.

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2.8 RECOMMENDED RE-TESTING:

Repeat noise probe tests in LUMINARY 1B.

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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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PROGRAM LUMINARY 1A				PROGRAM REVISION 99

1.5 Description of Anomaly:

was a 3 pulse lateral redesignation at TREDES = 40 secs (TTF = -72 secs) and the other incorporated a 7.5 fps lateral noise spike in the landing radar at TTF = -54 secs. Changing the deadband to 0.3 reduces the effect.

2.1 Cause:

to a noise spike are not so large as those observed on the TRW engineering simulator. Practically, no oscillations due to a site redesignation were observed at MIT.