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LUMINARY Memo #85

To: Distribution
From: J. Kernan
Date: 21 May 1969
Subject: LUMINARY Revision 99

Revision 99 was made to correct one anomaly (LNY70) and to implement PCR 775.

1) Anomaly 70.

This problem was evidenced by a few passes of erratic throttle behavior at the beginning of P65 or P66 (from P64) if there was Yaw RHC or redesignation activity at the time of transition.

A coding error allows the redesignation monitor to continue subsequent to P64 and since the redesignation erasables overlapped P65/P66 erasables, a conflict resulted.

The anomaly was corrected by moving the redesignation erasables to unshared memory. No coding was changed.

The change affected modules 1, 2 and 5.

2) PCR 775.

This change permits the doppler compensation of the landing radar slant range reading to be performed by R12 rather than the radar. Two pad loaded erasable quantities (3 registers) in unshared memory were created for the implementation of this PCR. These two quantities are called RADSKAL, which is double precision, and SKALSKAL, which is single precision. They are defined as follows:

$$\text{RADSKAL} = \text{SFR} \times \frac{2 T}{\lambda} \text{ scaled B-21}$$

where

$$\text{SFR} = \text{High Scale Factor/Low Scale Factor} = 5$$

$$T = 8 \text{ centiseconds}$$

$$\lambda = 10(.29979/.9580) \text{ meters}$$

$$\text{SKALSKAL} = 1/\text{SFR} = 0.2 \text{ scaled B-0.}$$

Thus, to have R12 perform the doppler compensation:

Name	Location	Decimal	Octal
RADSKAL	1354, 5	2558.3892 B-21	00023, 37462
SKALSKAL	1356	0.2	06315

If the landing radar is to perform the doppler compensation these three registers should be set to zero.

This change affected module 5.