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LUMINARY Memo #142

To: Distribution
From: Dana Densmore
Date: 18 March 1970
Subject: LUMINARY Revisions 144-147

The following changes were incorporated into Revisions 144-147:

1) (PCR 898)

The definition of the flag READVEL was deleted. The coding that used it was deleted with the implementation of the rest of PCR 898.

2) (PCR 286)

(a) RLS had formerly been moved to share with W-matrix so it could be contiguous with TLAND (PCR 286). But RLS is used in the computation of apogee and perigee which is done during rendezvous, and so it would overwrite the W-matrix. To correct this, RLS and TLAND had to be moved elsewhere. This involved considerable shifting of erasables.

	before Rev 144	after Rev 144
E4	AGSK E4, 1420 (2) DLAND E4, 1422 (6)	RLS E4, 1420 (6) TLAND E4, 1426 (2)
E5	RLS E5, 1400 (6) TLAND E5, 1406 (2)	VELBIAS E5, 1400 (2) DLAND E5, 1634 (6)
E6	VELBIAS E6, 1771 (2)	AGSK E6, 1771 (2)

(b) Since TLAND was moved to EBANK 4, the EBANK register had to be set to E4 before it was used and reset to E5 afterwards in OPT4 in P52, and EBANK = cards went in before and after for the assembler.

3) (PCR 287)

A bug in the N54 calculation done for the implementation of PCR 287 was fixed. VELLOS, which is in reference coordinates, was substituted for LOSVEL, which is in stable member coordinates.

4) (PCR 287)

Coding was put in to limit the range display in N54 to 999.99 n.m. If R > 999.99 n.m., 999.99 will be displayed on the DSKY.

5) (Anomaly L-1B-11)

The fix that was put in for this anomaly didn't work. It would take more words than it was worth unless we do it in interpretive which would take time from Servicer. Until a decision is made on the fix, the coding was put back the way it originally was. (Mass Computation lost accuracy.)

6) (PCR 982)

Implementation of this PCR was corrected by picking up the time before calling PLANET.

7) (PCR 991.2)

(a) A flagbit was defined as a liftoff indicator to be reset at liftoff, to enable summing of uplink data before launch but not after. Bit 11 of flagword 3 was assigned to this.

NOTE: As originally implemented the flag was called "SYSTFLAG". Later it was changed to "NODOP07" as specified by PCR 996.

(b) Coding was added to the UPRUPT routine to sum uplink data and keep a count of the number of uplink characters if it is before earth launch.

NOTE: This was implemented incorrectly and fixed later.

8) (PCR 988)

A flagbit was defined that will be used by the Auto P66 coding. The flag (P66PROFL) is bit 1 of flagword 0. It is set to indicate "continue P66 horizontal velocity nulling."

9) (PCR 1015)

R36 was modified to turn on the operator error light and exit R36 if average G is on to prevent a POODOO abort in P12. Originally this

was done at R36 itself, but we couldn't call ALM/END with a BANKCALL because of SUPERBANK problems. So it is now done at V90PERF, where it can be done with one word fewer (no BANKCALL at all). Later (Rev. 148) it was rewritten to save another word and use a BZF instead of a CCS.

Changes to the LUMINARY GSOP:

Section 2 should reflect the changes described above in: (1), (2), (7), (8).

Section 4 should reflect the changes described above in: (3), (4), (6), (9).

Section 5 should reflect the changes described above in: (3), (4), (5), (6), (7), (9).