

Comments on Compatibility of Luminary 163 Program  
with MSC-approved PCRs 287 and 1038

- References: (a) Revision 163 of AGC Program Luminary, dated 29 April 1970, received 18 May 1970.
- (b) PCR 287, "Removal of 526 Alarm in P22 and P20," dated 25 September 1969.
- (c) PCR 1038, "Keep 526 Alarm in P20 (PCR 287)," dated 27 April 1970.

A review of reference (a) has revealed several incompatibilities between the performance of the program and that authorized by MSC via references (b) and (c). These include:

1. Addition of a lockout on P25 (Preferred Tracking Attitude Program) for ranges in excess of about 566 nmi (see anomaly LNY 48). If such a range is encountered, a non-display 526 alarm may be generated (depending on the "left-over" status of a flagword bit), and manual selection of N54 could reveal present range. When range gets below 400 nmi, an attempt will be made to start through the P20 program (creating, if radar not in Auto, a priority 514<sub>8</sub> alarm, for example). No mention of P25 was located in references (b) or (c).

2. Addition of a check before generation of the V16 N54 display in P22 that will cause "GOTOPOOH" to be entered (via V56 logic) if range rate is determined to be positive on first pass through the computations. No mention of such a check was located in references (b) or (c).

3. Incorporation of a "memory" bit (bit 10 of FLAGWRD0), also used by R26, that is not set for entrances to the logic that can occur outside of initial selection of P20/P22. In particular, it is not set for a PRO response (which might be done quite late compared to first lock-on) to the N80 display in R24, nor is it set for entrances to the logic from the "LPS20.1" routine, which is used by R61 and R65 (among others). As a result, depending on the status of the "memory bit" an indication to the crew of what is happening may or may not be provided.

Item 1 above is due to the deletion of a check on RNDVZFLG in "LPS20.1" that formerly avoided rescaling from B29 to B20 if the bit was zero. As mentioned, "LPS20.1" is used by R61 and R65 (and P25 uses R65, after first setting RNDVZFLG = 0). Items 2 and 3 should be self-evident from examination of the coding.

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