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LUMINARY Memo #127

To: Distribution
From: Bruce McCoy
Date: 3 December 1969
Subject: Re-release of LUMINARY 1C

A program bug was found in revision 130 of LUMINARY which could destroy some valuable erasable memory during an "early abort" from Descent. The severity of this bug caused MIT to recommend a release of LUMINARY revision 131 which has a fix to the problem. The problem was caused by adding one instruction to set a flagbit if the "late abort" targets are used.

As of today there is one known anomaly in Luminary which will probably not occur during Apollo 13. Extended Verb 59, which drives the LR to position 2 during coasting flight, works; but will leave the radar mode indicator (RADCADR) in an improper state. However, any V37 will clear up the state of RADCADR. It is to be fixed for Luminary 1D.

There are a couple of "other things" not quite right in Luminary 1C: to save words and recoding of the Landing Displays Routine, NOUN 60 was simply made to be FORVEL, already computed in this routine. However, it was overlooked that FORVEL is only computed when the MODE SELECT switch is in PGNCS position. To correct this oversight, FORVEL will be computed prior to checking the MODE SELECT switch position. Also, the conversion from bits to feet per second (0.5571) was typed wrong on the change card to be 0.5517. However, since by the time NOUN 60 is useful (500 ft. altitude) the forward velocity is too low to be affected, ~10 fps.

There are some corrections to Luminary Memo #121. For PCR 943, the pseudo addresses are 3371 and 3372; the erasable location for ELBIAS is 1356. A clarification for PCR 895; V59 during average G in P63 will assume the LR is stuck in position 2 and set up the matrix transformations accordingly; it does not actually position the antenna.