Massachusetts Institute of Technology
C. S. Draper Laboratory
Cambridge, Massachusetts

LUMINARY Memo #161

To: Distribution
From: D. Eyles
Date: 17 July 1970
Subject: ZERLINA 31

Since tapes of ZERLINA revision 31 are going out to all the simulators, now is a good time for a quick status report.

This revision improves on revision 18 (the previous off-line "release") by adding to the Variable Guidance Period (PCR 1024) a rewritten Landing Analog Displays (R10) routine (PCR 1058). This new routine reduces the maximum cross-pointer errors from 6 bits (at .5571 f/s/bit) to one bit -- and even less near zero. It also eliminates the periodic "lurch" in altitude-rate on the tape meter and improves the DSKY display of forward velocity in noun 60. The new routine starts displaying at TIG -30 seconds instead of waiting for ignition, it makes cross-pointer displays available during ascent and aborts (by eliminating R10FLAG), and it issues tape meter outputs with twice the frequency of the old version. Fixed and erasable storage are saved, but nearly 1% execution time is added. For a fuller description see forthcoming Luminary memo #162.

The erasable initialization for ZERLINA revision 31 is exactly the same as for revision 18 except for LRWH1 which has moved from ECADR 3756 to ECADR 3742. Particularly if your simulator has the newer, faster, correct DPS throttle-response-time constants you can improve P66 stability by using the value .16 for LAG/TAU.

ZERLINA revision 31 requires the following patch:

loc.	is	should be
21, 2001	00233	00466

Future work in ZERLINA will include some work on P66, especially the addition of a sort of LPD capability with which, as a desirable landing spot crosses a DSKY displayed LPD angle, the astronaut can "mark" by switching from attitude-hold to auto in order to have P66 Auto land him there. For this to perform adequately it must be made possible to execute the P66 Auto equation more often than every Servicer cycle. This entails at least some reorganization of this phase.