Massachusetts Institute of Technology
C. S. Draper Laboratory
DG Memo No. 1682

TO: Distribution

FROM: S. Drake

DATE: 7 December 1970

SUBJECT: Post FSRR LM Mission Procedural Verification for Apollo 14 using the MIT hybrid computer facility

Summary: Primary emphasis will be placed on completing several of the normal MPV tasks that were not completed prior to FSRR. After that has been accomplished emphasis will be placed on stress testing and special tests for the landing abort, ascent rendezvous and docked burn procedures.

Uncompleted MPV tasks: Basically three tasks remain to be completed:

1) Long Rendezvous (CSI, CDH, TPI, MCC_1, MCC_2)
2) LM Jettison, using erasable burn program
3) Docked DPS abort burn.

It is expected that these tasks will be completed no later than two weeks from date.

Landings: Terrain data decks have been prepared which shift the terrain model plus and minus 20,000 ft. horizontally along the flight path in order to provide a more realistic case for N69 landing site corrections. Terrain data decks that tilt the terrain model plus and minus one degree have also been prepared. More stringent use of the ACA redesignations during P64 will also be tested.

In addition to the above, Landing will be attempted with 20% T-Loss and with PDI accurring at 30,000 and 70,000 ft. attitude. Also ROD take-overs will be attempted at higher attitudes than 600 ft. with more translation change in the touchdown point being attempted. The manual throttle mode will be attempted.

Aborts: It is desired that the sequence of aborts from PDI +x minutes be completed such that there is an abort from every minute after PDI. These will be continued after insertion to target the CSI maneuver with the date supplied with the timeline. Several of these aborts will be attempted with 20% T-Loss. It is also desired to try the aborts from other than the normal attitude and landing profile.

Ascent: An attempt will be made to rectify our problem with the slightly higher than normla apogee (approximately 2 to 3 nm high). Ascents will be tried with 20% T-Loss and a run will be made to simulate an engine cutoff at approximately 4500 fps inertial velocity leaving 1000 fps to be added via the RCS propulsion system.

Rendezvous: In addition running tests at 20% T-Loss several long rendezvous will be attempted in sequence to the aborts.

Docked Burns: In addition to the nominal Docked DPS TEI abort burn we will attempt docked burns with DPS-CM, APS-CSM, and APS-CM configurations providing that the hybrid simulator can be so configured.