OPTIONAL FORM NO. 10 MAY 1982 EDITION GSA FFMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT Memorandum

Pavelor MIA

NASA Manned Spacecraft Center

TO : See list below

DATE: June 9, 1969 69-FM-T-88

FROM : FM/Deputy Chief

SUBJECT: June 5th Apollo Spacecraft Software Configuration Control Board (ASSCCB) meeting

On June 5 we had another nice ASSCCB meeting. A large number of rather small changes were approved to make the job of the crew and ground controllers somewhat easier - good things to do, but by no means mandatory for a lunar landing mission. There were a couple of changes, though, which I thought were quite significant. This memo is to bring them to your attention.

PCR 815 - This PCR changes the command module digital autopilot to provide a convenient way of setting up automatic GNCS attitude control for the cislunar passive thermal control and for orbit rate torquing around the moon.

<u>PCR 780</u> - This PCR will provide a means of reading out raw rendezvous radar range and range rate data on the DSKY while in the rendezvous navigation program P22. This request has been made several times in the past but was always turned down due to schedule problems. It really is a good improvement. Furthermore, it takes care of the problem which occurred on F when the first readout of range rate by P22, after turning on the rendezvous radar, gave us a gigantic ΔR , ΔV alarm.

The externally targeted Lambert prethrust program (P31) is being dropped from LUMINARY since we never use it and we need the storage to make all the other changes.

One thing I recommend somebody look into is the possibility of using the landing radar data in the PGNCS navigation even if the antenna position is unknown or it is known to be wrong. Currently the antenna position alarm locks out the data, although it is not clear that using it would not be a good thing to do. Clark Hackler (G&CD) has proposed this in the past but it has never been thoroughly investigated.

Another suggestion which George Cherry made to me was the possibility of including known terrain slope in the PGNCS processing of the landing radar data. He points out that a simple program change could be made to compensate the landing radar altitude measurement for a known difference in lunar radius under the approach trajectory from that of the landing site.



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to you people feel this is worthwhile, or even feasible?

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Howard W. Tindall, Jr.

Enclosures 2 PCR's 815 and 780

Addressees: FM/J. P. Mayer C. R. Huss D. H. Owen R. H. Brown FM13/R. P. Parten FM2/C. A. Graves FM4/E. R. Scheisser FM5/R. E. Ernull H. D. Beck FM6/R. R. Regelbrugge K. A. Young FM7/S. P. Mann R. O. Nobles FM/Branch Chiefs TRW/Houston/R. J. Boudreau MIT/IL/M. W. Johnston NR/Downey/B. C. Johnson, AB46

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tible with other nouns.

b. Callable by V16 or V06.

- c. If data good is not present turn on tracker fail light but no other alarms.
- d. R04 cannot be called during P20 and P25 when these programs are reading the rendezvous radar.

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REMARKS:

It was noted in Apollo 11 that the first reading of the RR following its turn-on resulted in a maximum reading from the RR shift register being shifted into the LGC. This is characteristic of the RR hardware. This reading resulted in a FLV06N49 to which the astronaut responded with a V32E to reject the bad mark. In implementing this PCR, we will arrange to have R61/R65 read the RR once before R22 so that the first R22 reading of the radar will not result in a bad reading.

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EMARKS:

