

Instrumentation Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

U. Egle

To: Distribution
From: K. W. Greene
Date: 17 November 1969
Subject: Notes on the 33rd SCB Meeting Held at MSC on 13 November 1969

All Action Items from the previous meeting were closed at this meeting. These items were as follows:

| <u>Item</u> | <u>Action</u> |
|----------------|--|
| <u>PCR 961</u> | CMC Start of TB6 (E-memory Routine) |
| Action: | Flight Software Branch (FSB). Determine the future disposition of backup initiating the S-IVB Timebase 6. That is, should the ground capability be retained (MSFC IU software change) or should the CMC capability be retained in E-memory or moved to fixed memory. |
| Closed: | By approval of PCR 973 for incorporation of T6JOB into fixed memory. |
| <u>PCR 869</u> | Rate Aided Optics Drive. |
| Action: | MIT/IL, FSB. Determine downlink changes and their impact to the RTCC. |
| Closed: | Dialogue on this change is continuing. MIT was asked to coordinate this change with MPAD (W. Tindall). |
| <u>PCR 954</u> | Revised Manual Booster. |
| Action: | Guidance and Control Division (D. C. Cheatham). Determine effect on MSFC. |
| Closed: | ASPO is to send MSFC a memo stating the PCR 954 is being implemented. |

PCR 857

Action:

Save 300 Performance Test Words.

MIT/IL. Minimize impacts on KSC's Test and Checkout Procedures (TCPs) and provide early coordination with KSC and Guidance and Control Division on the changes to the TCPs.

Closed:

Coordination with KSC is being conducted.

PCR 285

Action:

Remove Check of Auto Throttle Discrete.

MIT/IL. Determine the difficulties in display Guidance Thrust Command on the DSKY.

Closed:

By approval of PCR 285 (Rev 1).

The following action was taken on the COLOSSUS PCRs.

| <u>PCR No.</u> | <u>Effectivity</u> | <u>Title</u> | <u>Action</u> | <u>Comments</u> |
|----------------|--------------------|---|---------------|---|
| 288 | 2E | Final phase reference table change. | Approved | |
| 289 | 2E | Addition of MIN IMP from RHC. | Approved | This PCR was modified to replace the acceleration command mode by the MIN IMP mode. |
| 290 | 2D | Modification of R53. | Approved | This PCR was changed to modify R21 and R23, not R53 as originally stated. The desired change is to modify PINBALL to allow updating of N45 while V51 is flashing. (See TRW comments on PCRs for SCB Meeting #33 for more details.) |
| 906.1 | 2E | R00 Initialization. | Disapproved | |
| 929 | 2E | Colossus POODOOs Terminate Guidance. | Pending | MIT/IL should prepare specific reasons on why this PCR should be disapproved. |
| 954 | 2E | Revised Manual Booster Backup Guidance. | Approved | MIT/IL should look at the possibility of computer overload caused by this change. It was reported that computer overloads had been seen on simulation at MSC with the current program during this phase. ASPO is to send a letter to MSFC informing them that this change is being incorporated into Colossus 2E. |

| <u>PCR No.</u> | <u>Effectivity</u> | <u>Title</u> | <u>Action</u> | <u>Comments</u> |
|----------------|--------------------|---|-----------------------------|--|
| 956 | 2E | Time of Longitude. | Approved | |
| 967 | 2E | CALGTA Fix for 90° ΔMGA. | Disapproved | MIT/IL is studying better method. |
| 291.1 | 2E | Fourth Order Potential Model. | Approved for Detailed Eval. | MIT/IL should continue analysis of this change; this PCR is to be discussed at the next SCB. |
| 973 | 2E | Move T6JOB to Fixed Memory. | Approved | This change should be re-start protected. |
| 974 | 2E | Reset RENDWFLAG during Pointing Vector Routine. | Approved | |
| 970.1 | 2E | Modify Gyro-torquing Routine. | Pending | G&C wanted to look at this change. |
| 292 | 2E | Add Time Display to V79. | Pending | This was a walk-on. It is pending to allow for MIT/IL review. |
| --- | | Change Ephemeris to '70-'71. | Pending | A PCR is to be written for Colossus 2E and Luminary 1D to change the Ephemeris to '70-'71. This PCR was given tentative approval and will be approved formally when written at the next SCB meeting. |
| 833 | 2C | SWTOVER Check. | Approved | |
| 849 | 2C | Fix for COM16 Anom. | Approved | This PCR was accomplished in the GSOP for Colossus 2C, but did not completely fix COM16, hence COM31 was written against 2D and PCR 974 was prepared to fix 2E. |
| 965 | 2D | Define POOFLAG. | Approved | |
| 962 | 2D | Describe Error Check in P23. | | MIT/IL should resubmit. |

| <u>PCR No.</u> | <u>Effectivity</u> | <u>Title</u> | <u>Action</u> | <u>Comments</u> |
|----------------|--------------------|----------------------------------|---------------|-------------------------|
| 865 | 2E | Rate Damping in V46E. | | MIT/IL should resubmit. |
| 915 | 2D | Extra on-board Desired REFSMMAT. | | Replaced by PCR 952. |

The following action was taken on the Luminary PCRs.

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|----------|----|--|-----------------------------|--|
| 286 | 1D | Format Change to Landing Site Update. | Approved | |
| 287 | 1D | Removal of 526 Alarm in P22. | Approved | This PCR was modified to also include the changing of P20. |
| 906.2 | 1D | R00 Initialization | Disapproved | |
| 942 | 1D | LR Update Cutoff | Approved | This is to be an automatic V58. |
| 291.2 | 1D | Fourth Order Potential Model. | Approved for Detailed Eval. | MIT/IL is to continue analysis of this change. This PCR will be an agenda item for the next meeting. |
| 970.2 | 1D | Modify Gyro Torquing Routine. | Pending | G&C is looking at this change. |
| 294 | 1D | Update Fixed Memory Mass Properties. | Pending | This PCR is to be rewritten by FSB and resubmitted at the next meeting. |
| 284 | 1B | VGTIG on C/A List. | Approved | |
| 824 | 1A | Section 2 GSOP Change. | Approved | |
| 846 (Rev | 1C | More Accurate ΔT -Tailoff for P70. | Approved | |
| 971 | 1C | Change Fix Memory Constant (APS) ΔT -Tailoff. | Approved | |
| 972 | 1C | Display Polarity of Sighting Angle Difference in R54. | Approved | |
| 834 | 1A | Descent Guidance Corrections | Approved | |
| 842 | 1B | Mod. of Criteria Used to Determine DAP Phase Plane Parabola Intercept. | Approved | |

MIT/IL was directed to continue development of Δ -Guidance, Landing Radar Prefilter and Lunar Terrain Model on an off-line assembly. A technical review meeting of these changes is planned for December 1969. At that time, it will be decided as to which program revision should contain these changes. (Apollo 16 is considered to be the candidate for block changes.)

Results of stress testing Luminary 116 to the point of failure by increasing the T-LOSS was presented by R. Larson. R. Larson and W. Tindall were to give this information to P. Conrad after the meeting. It was suggested that these results should be published by MIT/IL.

The release dates for COLOSSUS 2E and LUMINARY 1D still remain as February 2, 1970 and March 5, 1970, respectively.

KWG:jds

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