

MIT Management Development Plan Meeting #16 RECEIVED

Held on 30 January 1968

FEB 2 1968

J. L. NEVINS

I Colossus

- A. Due to conflicting job assignments of A. Engel in the Powered Flight and Autopilot areas the powered flight testing has slipped about a month. This slippage does not presently have an impact on the NASA FACI date of 6/19/68, but there is no slack left in the Powered Flight area.
- B. Group 23A is having difficulty meeting the verification data schedule because there is no one assigned to level 4 testing of Colossus in group 23B. To fulfill the verification data requirements requires a continual dialogue between 23A and 23B personnel.
- C. The Development Plan is presently being updated and should be distributed the latter part of this week.

II Sundance

- A. G. Cherry proposed that in addition to tracking the number of test points verified versus the total number of test points per test, that the following nine (9) milestones or some subset thereof be added to the development plan for level 4 testing.

Milestones:

1. Training of level 4 personnel.
2. Group 23A study of nominal time lines.
3. Group 23A and 23B joint identification of level 4 runs and data requirements.
4. Receive Verification Data from group 23A.
5. Group 23B completion of Hybrid Script preparation or digital initialization deck.

6. Running sequences all the way through on the simulator. No real effort to match or check data.
7. Group 23B providing 23A with new time-line experience in the running of sequences.
8. Group 23A providing new data to 23B to match the new time lines.
9. Matching of 23B results with 23A Verification data.

The above milestones or some subset will be added to the next update of the Development Plan.

- B. A verbal Sundance Level 4 Status using the above milestones was given as follows:

Milestone 5 - Complete
Milestone 6 - 13 runs
Milestone 7 - 7 runs
Milestone 8 - 2 new time lines

No test data points have been officially compared.

- C. Group 23B is adding an additional level 4 test to provide a long APS burn test similar to the Mission "D" requirements.
- D. Some alleged difficulty in Level 4 Hybrid testing was discussed. The primary problem areas presented were 1) that level 4 testing should have priority over other testing and 2) that some difficulty was experienced in not knowing the status of the program in the CRS. (i. e. whether patches exist or not)

Action Item : J. S. Miller is to investigate the Hybrid situation and report his findings at the next meeting.

- E. P. Volante is being re-assigned from his level 4 test responsibilities to some remaining problem areas in the level 3 testing of routines. R. Talayco will be assigned to the level 4 testing previously assigned to P. Volante.

- F. PCR #9 affecting R-60 was discussed. The R-60 priority displays are being reviewed in house for a better approach, the present suggested fix is prone to errors resulting from changes in other areas of the program. The subject of R-60 changes requires additional study by a technical committee for Colossus, Sundance and Luminary.

III Luminary

- A. The next scheduled update of the Luminary Development is 2/2/68. Level 3 Survey Sheet are being circulated for this update.
- B. MIT plans to deliver to NASA working programs for flight training as follows:

P63, P64 and P65 on March 1st.

P 66 on March 15th.

P67 on April 1st.

The above schedule is presently being paced by the coding and testing of FIND CDUD which is an interface subroutine between the guidance equation and the DAP. A. Klumpp has been recently assigned to the coding and testing of FIND CDUD.

- C. The Luminary GSOP Section 4 and 5 will have some of the PCR's for Luminary already in the initial distribution. A chart indicating the included PCR's and MDRB's will be added to the GSOP. Arrangements are being made with the affected divisions for the review of changes before publication.

IV General

- A. PCR/PCN Procedures were discussed. One of the main concerns was that all divisions needed to be aware of the proposed changes and that their respective inputs be considered. Procedures need to be developed for the holding of Mission Design Review Boards for all programs under development.

The definition of a PCN was questioned; the definition given was as follows: In the course of program development there will arise situations where the intent on literal interpretation of the GSOP cannot be executed in program code for technical or logical reasons. At such a point, further program development is held up; so a quick spec redesign and change cycle is initiated. A resolution of the problem is agreed to among the MIT design divisions and the MSC Flight Software Branch. The appropriate MDRB is convened to approve the draft GSOP change pages. Implementation of the changes is then started immediately. The PCN is then submitted to NASA/SCB for the approval. The PCN form is used for the above cycle and the only difference in the PCN form and the PCR form is that it is stamped PCN at the top to indicate that start of implementation may occur prior to receiving written direction from the NASA/SCB.


B. 360 Priorities - 360 turn around time in some cases is one day or more, which is causing delays in program development. The priority system seems to be breaking down in the following areas:

1. The 2 minute criteria is too short a time for any level 3 typing testing.
2. Computer hours assigned to non Apollo use is limiting the Apollo programmer's access to the computer. The period of 6 p.m. to 8 p.m. is one that would be very beneficial if available to Apollo.
3. Priorities should be reviewed to see that items on the priority list are indeed items that warrant priorities.
4. The H-1800 is shut down on Saturdays and Sundays.

Action Item - R. Battin is to examine computer utilization and recommend procedures and controls for improving turn around time.

- C. The question as to the meaning of the tags printed at the bottom of each page of programs and routines in Section 4 of the GSOP was discussed. Varied interpretations as to what these tags meant were evident. To clarify the meaning of these tags a memo is to be prepared and coordinated with the affected division describing the meaning of the tags.

Action Item - J. Nevins is to prepare and coordinate the memo on tagging of the GSOP Section 4.


R. C. Millard

RCM/KG/km

ATTENDEES

R. Ragan
L. Larson
G. Cherry
E. Copps
R. Battin
M. Johnston
K. Greene

R. Wieser
F. Martin
W. Marscher
P. Peck
J. Nevins
J. Vittek
R. Carl, NASA

R. Millard
N. Sears
A. Kosmala
J. Miller
D. Lickly
J. Dahlen
R. Spaulding, NASA

cc: Attendees

W. Kupfer
S. Copps
R. Werner
G. Levine
J. Henize
R. Morth

P. Felleman
C. Schulenberg
R. Scholten
L. Linehan
J. Sutherland
R. White
M. Hamilton

W. Widnall
F. Little
I. Johnson
A. Engel
J. Kernan
J. Saponaro
A. Laats