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BYE-7957-70
Copy 16 of 14
13 February 1970

MEMORANDUM FOR: Director of Special Projects

SUBJECT : Photo Reconnaissance Systems Report No. 27

I. CORONA

A. Accomplishments

1. Final preparations and checkout of CR-11 were completed. The system was shipped to VAFB on 12 February. Planned launch is 18 February.

2. General King visited A/P on 6 February for a briefing on the possible impact of the recent GAMBIT CUBED failure on future CORONA missions. G.E. analysis concludes that the failure probably resulted from conditions applicable only to the GAMBIT CUBED system and will have no effect on CORONA performance. No modification of existing CORONA recovery equipment is recommended. A copy of the briefing charts were forwarded to Headquarters on 10 February.

3. CR-10 slip problem was corrected by installation of new slit control drive motor. Replacement of a High Efficiency Amplifier corrected the ramp up problem.

4. R -7 Meeting for Mission 1109 was held at VAFB on 11 February. No problems in vehicle, booster, or payload that would indicate a slip in launch date were evident.

5. The Managers' Meeting was held at A/P on 12 February. CR-11 history and readiness status were reviewed. System status, move to Buildings 156 and 152, and proposed configuration management plan were also discussed.

B. Problems

1. No outstanding problems were encountered during this reporting period.

[redacted]

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C. Projected Status

1. CR-11. Flight operations.

2. CR-10. Resolution tests.

3. CR-12. Storage preps.

4. CR-13. Functional tests.

5. QR-2. Subsystem/component testing.

6. CR-14. Receiving/acceptance.

II. HEXAGON

A. General

1. The second Development Model RV arrived at SBAC on 11 February.

2. The Operations IFWG met at SBAC on 12 February. Separate minutes will be promulgated.

3. The DM #4 take-up drastically failed qualification testing. The core broke into two parts during shock tests. The failure appears to be due to a sharp corner in the beryllium part which had a 5 mil. radius instead of the specification requirement of 28 mils.

4. A briefing was presented to the PSAC by the HEXAGON Project Office on 10 February. There was very little discussion of the program by the Committee, with the principal questions being directed towards the decision which was made for active thermal control of the reentry vehicles and the film sticking problems encountered by the sensor. Dr. Land questioned what other solutions had been looked at other than the rather orthodox solution of going directly to active control. Some



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of the areas that had been investigated were discussed briefly, including the use of a large capacity buffer to eliminate entirely the camera rewind problem after each operation. Dr. Land indicated that he would like to go into this particular area in more depth at some time in the future. Some concern was expressed by the fact that the present weight exceeds the total booster capability; however, it was pointed out that the present weight includes weights of secondary payloads of about 2,300 pounds with no plan at the present to fly secondary payloads other than P-11, whose weight would be 420 pounds.

5. Mr. Froehlke and Dr. McLucas are planning to visit the West Coast SAFSP area on 16 and 17 February and plan to spend approximately two hours at the A/P and some time in Building 156. This coincides with several other activities on the West Coast during the early part of the week which are: R -1 Meeting, scheduled for 17 February at Vandenberg; and the PIM Meeting, scheduled for 17 and 18 February at the A/P and Vandenberg, respectively.

6. A technical directive twx was prepared on 30 January that directed P.E. to proceed with a technical interface that has previously been defined between SSTC's #3 and #4 and the IBM 360/65 computer at 156. This twx has not been released; instead, a verbal agreement between Contracts Branch and Mr. Maguire acknowledges that P.E. will proceed with the interface work and to our agreed upon specification. [redacted] has advised that work is proceeding; however, it is doubtful that a minor modification to SSTC #4 can be completed prior to its delivery if the present ship date is maintained. In any event, SSTC #3 must be retrofitted with this modification in the field.

7. Perkin-Elmer's sequencer utilization plans were presented at the 11 February Schedule Meeting. Perkin-Elmer is planning to use the Development Model sequencer, which has been dormant for two weeks, in the Development Model. Eight ECO's are not in the Development Model sequencer. Six of the eight require hardware changes. The Development Model sequencer will be made compatible with the Development Model by adding a number of supporting boxes to the system. The above, if successful, will relieve the one sequencer/two model problem. Flight hardware will have these changes in the sequencer.



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8. SETS presented their failure mode analysis of the Supply Servo during the week. This study was prompted by recognizing the number of failure modes associated with the system servos which had been pointed out in the P.E. failure mode study. In essence, SETS said that little can be done to reduce the failure modes short of significant servo redesign. They did recommend one operational fix which could be used in the event of a certain failure. SETS identified 63 failure modes in this particular servo, 18 of which they consider as highly probable ($1 \times 10^{-4}$). No further in-depth analysis at this time will be conducted by SETS on any other system servos.

9. On Thursday, a review of the Wright-Patterson AFB film test program was conducted and was, in general, satisfactory. Wright-Patterson is in better shape than we had realized, primarily because their learning curve is building up very well. The following is a brief summary of their tests:

1) Film storage tests completed.

2) Outgassing constituents test. Only water has been detected so far. Another test will be conducted to confirm this.

3) "Take-up" tests completed.

4) Modulus of elasticity tests completed. The first series was conducted as a function of pressure. Additional tests have been requested to check modulus as a function of temperature and RH.

5) Film weight loss tests - most troublesome to date and are in process. Test matrix was worked up at the meeting.

6) Air bar tests. First series completed but data highly questionable. To be rerun.

New tests on SO-242 color film are requested and will be phased into the test program. Based on these new inputs at the meeting, [redacted] the WPAFB Project Engineer, is working up revised schedules.



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10. The pressure on the two cores used in P.E.'s Supply Qual test program was finally determined during the week. Pressure on one roll was 360 psi and 530 psi on the other with a 15% inaccuracy tolerance. Pressure should not exceed 550 psi.

11. Eastman Kodak plans to completely respool the "Abbreviated Film Path Roll" in order to provide us with a practically new roll. Samples of this roll will undergo sensitometric tests next week. The Project Office will then decide where to use this roll. If the emulsion is good, it can be used with the P-1 or Development Model backup. If the emulsion is bad (the roll is a year old), we can chop it up into 10,000 feet lengths and send it to RCA. Eastman Kodak is still planning on a 1 March delivery of the second P-1 roll. No problems have been encountered to date.

12. The Project Office officially received P.E.'s new film requirements during the week showing a significant increase, particularly in FY 1971. FY 1970 new requirements can be handled by juggling the currently ordered rolls around and watching the backup requirements closely. About the only requirement that may be difficult to meet is the 140,000 ft. for RCA (need mid-March). Since P.E. has only given us thirty days lead time, we have informed them that this may be tight. However, partial delivery can be sent to RCA, and, if they turn around the shipping container hardware quickly enough, we should be able to keep them supplied such as it will not impact their take-up test program and delivery schedule.

13. The two full 40% RH rolls were delivered to P.E. from the West Coast this week. P.E.'s need date for these rolls is 19 February.

14. Eastman Kodak has advised the Project Office that the UTB version of SO-349 is SO-236. This film does not have the mysterious volatile DMF in it.



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B. Development Model

The Development Model has been reassembled and Side A is now running at low velocity. Side B will be operated following Side A and a diagnostic baseline (MFN 305) will be conducted prior to conducting the EMC test.

C. Flight Article #1

1. It appears that TCA Ready Room "B" tests cannot be completed before 5 March vs a 20 February schedule need. The completed mid-section less the TCA should clearly be ready for the TCA at that time. Midsection Ready Room A tests scheduled to start on 5 March cannot start until the TCA has been installed and TCA/midsection interface cables have been checked.

2. TCA tests which must be completed before start of system assembly on 5 March include:

1) Platen (A and B) Acceptance Vibration.
2) Horizontal Baseline in Ready Room "B".
3) TCA Acceptance Vibration and Acoustic.
4) Post-Vibration Baseline Test in Ready Room "B".

III. Administrative

Meetings Requiring Participation of Headquarters Personnel

| Date | Subject | Attendees |
|---|---|---|
| WCPO | | |
| 16-17 Feb | Pre-EMI Meeting | [redacted] |
| A/P | | |
| 17 Feb | CORONA PIM | Patterson, Kohler [redacted] |

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| Date | Subject | Attendees |
|---|---|---|
| **VAFB** | | |
| 17 Feb | R -1 Meeting | [redacted] |
| 18 Feb | CORONA PIM | Patterson, [redacted] Burke, Kohler, [redacted] |
| 18 Feb | CR-11 Launch | Patterson, [redacted] Burke, [redacted] |
| **LMSC** | | |
| 19 Feb | Managers' Meeting | Patterson |
| **P.E.** | | |
| 18 Feb (tentative) | Metering Capstan Task Force | [redacted] |
| **E.K.** | | |
| 20 Feb | Core Winding Pressure Meeting | [redacted] |

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