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~~CORONA~~ ~~HEXAGON~~

HEX-10751-69
Copy 10 of 14
7 November 1969

MEMORANDUM FOR: Director of Special Projects

SUBJECT: Photo Reconnaissance Systems Report No. 13

I. CORONA

A. Accomplishments

1. CR-10 post-HIVOS evaluation indicates that the 1200 feet of SO-242 color film which passed through the aft looking instrument demonstrated the capability of the J-3 system to satisfactorily perform with SO-242. No pressure sweeps were made, but indications are that, while operating with the PMU, corona markings, if any, will not degrade the photography. Approximately 60 cycles of 3404 film displayed 2-pi corona markings. These markings occurred in the 10 to 36 micron pressure range. The necessity for a CR-10 HIVOS rerun has not yet been established.

2. Negotiations at Itek for CR-8 refurbishment were completed on 3 November 1969.

B. Problems

Evaluation of out-of-spec take-up flanges is continuing. A sufficient number of in-spec flanges are available at the AP to preclude any impact on system testing.

C. Projected Status

1. CR-9. Flight Preps - scheduled for launch 26 November 1969.

2. CR-10. Block Preps.

3. CR-11. HIVOS Preps.

4. CR-12. System Tests.

5. CR-13. Acceptance Test.

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II. HEXAGON

A. General

1. [redacted] and Mr. Fitzgerald will be in Sunnyvale on 10-11 November to review Lockheed's recommendations for the consolidation of the CORONA Program into Building 156. A complete layout and program plan will be ready for Mr. Patterson's review on the afternoon of 12 November. The consolidation of the computer requirements for CORONA and HEXAGON with the resultant savings is now being completed and will be reviewed with Mr. Crowley today. The computer program usage has now been reviewed by OCS, [redacted] and Mr. Dirks. A final report will be prepared during the week of 10 November.

2. WCPO move to Building 156 will be completed on 21 November, with phone availability the pacing item. All furniture has arrived and should be in place during the week of 10 November.

3. SSC/SETS and the Project Office met at Headquarters on 6 November to review two SSC proposals for "system improvements". These were for simplification or elimination of the supply caging device and for incorporation of a large capacity buffer, or "super looper". The proposals are notable in that the experimental and analytical approaches planned are more comprehensive than utilized on the basic program. A decision has not as yet been made on whether the proposals will be approved in whole, or in part.

4. Headquarters comments to the SSC Qualification Test Program (PM-1188-X) are being sent to P.E. today. SSC has been preparing a suggested replacement for the Qualification Test Requirements (Appendix F) of the revised performance specification. Similarly, SETS has been preparing an outline of significant factors for inclusion in this portion of the revised specification. A working meeting with SSC and SETS to derive the revised requirements will be held at Headquarters 19 November.

5. The HEXAGON Sensor Subsystem Operation Program (HSSOP) has been received and is undergoing intensive SSPO-wide review.

HSSOP will describe the sensor to the operational software contractor and is considered a document of extreme importance to the successful operation of the sensor by the Air Force Satellite Test Center. Comments will be assembled and discussed at Sunnyvale on 18-19 November, and the final version for release to the SPO will then be drafted.

6. An SSTC Theory of Operation Course is being conducted at SBAC on 10-23 November 1969, primarily for P.E. West Coast field personnel, who are responsible for operating SSTC's 3, 4 and 5. Also, two OTD Systems Test engineers and a maximum of two SETS engineers will attend. Two AC Electronics engineers/instructors will conduct the course. The second part of the course, Maintenance and Operation of the SSTC, will be conducted by the same two AC Electronics instructors at OTD on 8-19 December 1969. Six P.E. West Coast field engineers and eight OTD Systems Test engineers will participate.

7. Arrangements were made with General King to establish a task group employing personnel from the Project Offices, Aerospace and SETS to examine areas for cost reduction and system improvement. Preliminary discussions have been carried out with Messrs. Ames and Mayhew of SETS with regard to their participation in this effort and it is planned to have them meet with their Aerospace counterparts on 10 November to outline the general areas in which they consider such efforts should be directed. It is expected later to meet with Col. Buzard and General King to lay out a program for the analysis and evaluation of all of the proposals as well as to include a time schedule for the completion of such studies.

B. Engineering Model

The high leak rate of the film path was not corrected and a meaningful film sticking test cannot be conducted. The model is in the ready room for a functional check with a planned installation date in Chamber "A" of 11 November and a test start date of 17 November.

C. Development Model

The Development Model has encountered additional major problems this week. The 2A1 platen servo boxes have to be returned to Radiation

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for rework. It is predicted that this will cause at least 11 days schedule slip. The Development Model #1 take-up at RCA has encountered problems and is running a week behind the 15 November delivery. If EMC tests are required, this will be an additional slip.

D. Flight Article No. 1

1. TCA assembly completion is minus 3 to a 2 December need. Both optical bar B and platen A are pacing.

2. Flight Article No. 1 requires the SBA simulator from the Development Model on 1 December. Further Development Model slips will impact on the flight article.

III. Administrative

Meetings Requiring Participation by Project Personnel

Date	Subject	Attendees
LMSC		
12 Nov	Thermal Sub-Group Meeting	
12 Nov	HSSOP Informal Review with and TRW	
12-13 Nov	A&T IFWG	Burks
13 Nov	Operations IFWG	
13-14 Nov	RV IFWG	
13-14 Nov	Structural/Mechanical IFWG	
14 Nov	Schedule IFWG	

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Date	Subject	Attendees
AP Facility		
13 Nov	"C" Program Managers' Meeting	Patterson, [redacted]
14 Nov	Review CR-9 Test Data	Burks
SAMSO		
13 Nov	TT&C IFWG	[redacted]
RADINC		
12 Nov	Electronics CDR	[redacted]
SETS		
10 Nov	HSSOP Review	[redacted]

[redacted]
PMO/PRS/OSP

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cy 10 - OSP/RB
cy 11 - OSP/PRS file
cy 12 - OSP/PRS chrono
cy 13 - [redacted]
cy 14 - [redacted]

DDS&T/OSP/PRS/JWL:ncc/X5725 (7 November 1969)

HEXAGON CORONA

HEX-10794-69
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14 November 1969

MEMORANDUM FOR: Director of Special Projects

SUBJECT: Photo Reconnaissance Systems Report No. 14

I. CORONA

A. Accomplishments

1. CR-10 instrument #320 stopped during transport in the HIVOS chamber at a silver mylar manufacturing splice. The failsafe mode was activated by the splice hang-up and instrument power automatically shut off. When the splice came off the supply during operation, pieces of emulsion from the succeeding wrap stuck to the emulsion side of the splice due to adhesive bleeding. As the splice transported over the exit roller at the end of the platen, hang-up occurred on the platen extension plate, evidenced by a piece of splice jammed in that vicinity. As a result of this failure, Eastman-Kodak was directed to use only permacel splices on all future film loads. It should be noted that the silver mylar splice has a history of adhesive bleeding, whereas no adhesive bleeding has been experienced with permacel splices.

2. The CORONA Program managers meeting was held on 13 November at the A/P.

B. Problems

1. Constant tension assembly tests are continuing on CR-11 using CR-9's supply cassette.

2. Since there was corona marking on the 3404 film on the aft looking instrument, a second HIVOS test for CR-10 is planned for early 1970, in time to meet R-15 status for CR-11 flight. Decision to postpone

re-HIVOS and to keep CR-10 at R-15 status through December 1970 was predicated on an examination of possible PMU flight failure modes which revealed only a slight risk. With normal PMU operation (50-60 microns), no corona would be expected. With complete PMU failure, the pressure level is expected to be below the pressure level range during which corona was experienced in HIVOS. Mechanically and electrically the system has no known problems.

3. Evaluation of out-of-spec T/U changes is continuing.

C. Projected Status

1. CR-9. Flight Preps.

2. CR-10. Block Preps.

3. CR-11. Retracking.

4. CR-12. Tracking.

5. CR-13. Acceptance Testing.

II. HEXAGON

A. General

1. The integrated thermal tests using the Engineering Model, scheduled to start 20 November and continue through 24 December, will encompass essentially all of the planned testing, except for the film sticking tests which cannot be conducted because of the excessive leak rates in the film path. The SPO and LMSC representatives concurred in the sequence of the tests at a meeting held at Perkin-Elmer on 12 November.

2. The Project Office, SSC, and SETS are currently involved in a concentrated effort to finalize the HSSOP inputs to the HEXAGON Software Contractor, in view of the fact that TRW is conducting CDR's on certain phases of their software designs over the next six to eight week period.

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3. The film specification has been completed and transmitted to Eastman-Kodak. A film spooling problem which can potentially impact on the Development Model supply testing has resulted from E.K.'s delays in approaching the solution to the 500 psi pressure at the core requirement. Since the "D" model supply assembly with a full stack of film is being used for qual testing, the core itself cannot initially have any residual deformations from just the high pressures resulting from the spooling.

B. Engineering Model

1. Format illumination testing indicates excessive light levels available in the platen assembly area. The "A" platen assembly has access holes for fiber optic bundles not installed in this Engineering Model assembly. Consequently, some difficulty is anticipated in fully evaluating the engineering model film from Chamber A testing. However, with the placement of the three test collimators across the format, it is anticipated that these difficulties will be minimized.

2. Thermal blankets and all sensors are being installed in the midsection, and the midsection is being readied to be put into Chamber A. Without additional delays being encountered, the Chamber A in-air operational baseline should be started late this week (by 14 or 15 November).

C. Development Model

1. The status of the Development Model take-up #1 is such that test equipment incompatibilities are, at this point, delaying further acceptance testing. The TU acceptance test is being proposed to be shortened to 11 days and, pending resolution of the compatibility problems, it is believed that the acceptance testing (without further problems) should be completed on 19-20 November.

2. Both platen assemblies have been removed from the Development Model optical bars. In addition to design logic problems within the 2A1 boxes, the "A" assembly mechanical stops have not yet been repaired. The "B" assembly is experiencing a torque reversal problem which is caused by miswiring and is undergoing test after rewiring.

D. First Flight Model

Optical Bar "B" is in final test stages at the 93°F level in Chamber D. Following acquisition of the interferometric data at this temperature, the chamber must be pressurized and the equipment failures of the albedo simulator repaired prior to continuation of optical testing on this Optical Bar.

III. ADMINISTRATIVE

A. Personnel

Mr. [redacted] will depart for the West Coast this weekend. He will report for duty no later than 1 December 1969. He is assigned to the West Coast Project Office Assembly and Test Group, replacing [redacted]

B. Meetings Requiring Participation of Headquarters Personnel

Date	Subject	Attendees
PERKIN-ELMER		
18 Nov (AM)	Class I and II Changes	[redacted]
18 Nov (2 PM)	Schedule Review	
18 Nov	TFE Spares and LN_2 Handling Charges	McDonald, [redacted]
19 Nov	Film Requirements	[redacted]
RCA		
19 Nov	DM-1 Core Binding Meeting	[redacted]

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Date	Subject	Attendees
SPO		
20 Nov	OOPS Meeting	[redacted]
LMSC		
17 Nov	Catastrophic Failures	Burks
17 Nov	HSSOP Pre-Meeting	[redacted]
17 Nov	Command Constraints	Webb
18-19 Nov	HSSOP	[redacted] Webb, Burks
18-19 Nov	SSTC Discussions	Burks, [redacted]
18-19 Nov	TT&C CDR	[redacted]
19 Nov	NPIC Visit to A/P	[redacted] Burks
20 Nov	Managers Meeting	Patterson
20 Nov	R-Day Countdown Meeting	[redacted]
HEADQUARTERS		
17 Nov	H Program Discussions with Maguire	Patterson
17 Nov	RFP Draft Review	[redacted]
18 Nov	Pre-CCB	Kohler
19 Nov	Qual Test Requirements	[redacted]
19-20 Nov	Quarterly CCB	Kohler

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Date	Subject	Attendees
NPIC		
21 Nov	Color Task Force	Kohler

[redacted]
PMO/PRS/OSP

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Cy 13 - [redacted]
Cy 14 - [redacted]

DD/S&T/OSP/PRS/JWL:ncc/x5725 (14 November 1969)