~~SECRET~~

~~CORONA~~ ~~HEXAGON~~

BYE-7235-70
Copy 10 of 14
16 January 1970

MEMORANDUM FOR: Director of Special Projects

SUBJECT: Photo Reconnaissance Systems Report No. 23

I. CORONA

A. Accomplishments

1. The UTB Evaluation meeting was held at Headquarters on 9 January. UTB will be flown on CR-11. LMSC and Itek will attempt to hold the camera temperature between 70 and 80 degrees F. The launch time may have to be held within close limits to insure an orbit that will provide this temperature range.

2. CR-10 completed HIVOS testing with no major problems. The data is now in evaluation.

3. The PET meeting on Mission 1108 was held at NPIC on 13-14 January 1970.

B. Problems

1. A minor tracking problem has been experienced with CR-13. The nature of the problem is not unusual; that is, getting the film to pass through the cutter so a clean cut will result during the cut and wrap sequence. It is called a minor problem on CR-13 because the RV and instrument alignment in the integrated system is causing more aggravation than usual.

2. A meeting at the AP is planned for 16 January to determine the optimum thermal paint pattern for CR-11 and the necessity for supply cassette heaters. Launch window considerations will also be discussed.

~~SECRET~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

SUBJECT: Photo Reconnaissance Systems Report No. 23

C. Projected Status

1. CR-10. Storage Preps.

2. CR-11. Flight Preps.

3. CR-12. Block Preps.

4. CR-13. Tracking Test.

5. QR-2. Boston modifications being accomplished.

II. HEXAGON

A. General

1. Headquarters, SETS, and SSC met to derive a test/test procedure schedule reporting format which will be viable and will be used as a guide for scheduling test procedure reviews, attendance at selected tests, and the conduct of acceptance/qualification certification meetings. Ironically, this type of information existed in several different groups within SSC, but the groups were not communicating to provide the consolidated picture.

2. SSC is about to release the revised Qualification Test Plan (PM-1188-X-A), the Development Model Test Plan (TL-0087A), and the P-1 Model Test Plan (TL-0105). These plans have been delayed because of uncertainties resulting from the incorporation of certain qualification tests in the P-1 Model. The dynamic nature of the test program because of technical, policy and schedule problems creates significant problems in test planning as well as test documentation.

3. The upcoming AP move and installation of the 360/65 computer was negotiated with LMSC on 14 January. A detailed report will be made in the Monday Staff Meeting.

SUBJECT: Photo Reconnaissance Systems Report No. 23

4. The RV IFWG was held on 13 January at Lockheed. The last major controversial item was resolved with the signing of the RV/SS and RV/SBA Active Thermal changes to the Thermal ICD's. The SPO has initiated a system with Lockheed and McDonnell in which an ROM is to be presented before the signing of any ICD or IRN. As a result, five minor IRN's, which were agreed upon, were not signed. Considerable negotiation between the SPO and the contractors also took place in the meeting. McDonnell reported a weight increase of 255 lbs. over the maximum ICD weight. Taking this in conjunction with the weight contingency of 236 lbs. in the sensor system over the ICD maximum SS weight, the total system weight problem is apparently becoming more serious. However, the contingency that SSC reports is unrealistic as they are carrying large subcomponents as calculated weights (which permits a large contingency to be carried) when they have actually been weighed. This will be corrected in the February weight report.

5. Eastman-Kodak was requested to send 1,200 ft. of SO-242 to WPAFB for initial testing. A test program will be outlined later this month at WPAFB to include air bar sticking, outgassing rate, and other physical characteristics tests.

6. An informal review was held at Perkin-Elmer on the operational characteristics of the GFE in the Danbury photo lab. It appears that the Project Office has been getting somewhat erroneous information regarding the amount of maintenance which has been required by the machines. The machines are working satisfactorily, and all four are in operation. Effort is underway at Perkin-Elmer to produce a master calibration tool (density wedge and focus target) which will be used to correlate the automatic microdensitometer and the Mark 2 microdensitometer.

7. It appears from some of the curves that have been produced so far in the evaluation program that the present modified versamat B processing chemistry will penalize system resolution in the neighborhood of 40 or 50 lines/mm. The new 641 chemistry, which is being considered as an alternate, reportedly will give better resolution. A presentation on the comparison of the two chemistries will be given at Perkin-Elmer by

~~CORONA~~ ~~HEXAGON~~
~~SECRET~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

SUBJECT: Photo Reconnaissance Systems Report No. 23

Kodak on 20 January. However, there is a possible problem that the versamats cannot handle the 641 because of its higher gamma. Currently the versamats operate in the neighborhood of 18 to 22 feet per minute and the processing lab at Perkin-Elmer has managed to control the gamma very well indeed, but if the higher gamma 641 causes an increase in machine speed over 22 feet per minute, this is beyond the capability of versamats.

8. A contamination problem has become evident in the beryllium supply cores occurring above serial numbers 20. Perkin-Elmer has received to date 32 supply cores. The vendor, American Beryllium, is at Perkin-Elmer today to investigate this problem. It is suspected that some sort of contamination is leaking out of the vent holes of the compliant layer and causing a corrosive type build-up on the face of the core. The source of this problem is suspected to be the vendor's cleaning process. Prior to core serial number 20, American Beryllium had an outside vendor do this cleaning. It is thought that, from number 20 on, they performed this cleaning process in-house. Of the total order of 36 supply cores, 14 have been subjected by E.K. to overpressure conditions beyond the yield point of beryllium, which means that they are unsuitable for flight use. In addition, 6 of these 14 and two more were improperly heat treated in manufacture, making a total of 16 not flightworthy. They all can, however, be used for ground test, provided they are not overstressed again. A meeting is being held at Kodak on 21 January to examine the data on their new film spooling parameters in an effort to decide what parameters will be used from now on such that no further overpressure conditions will occur.

9. A cursory review of film requirements at Perkin-Elmer indicates that they are going to ask for six 26,000 foot rolls per model test as opposed to the original two. In addition, they are expected to increase their requirements for forward section build-up film needed on the West Coast.

B. Development Model

1. Difficulties were experienced during the week with the sequencer and film tracking. The sequencer was sent to RadInc for fault isolation,

but as of this time RadInc has not been successful. Testing is continuing, using the velocity test box, but the sequencer will become the pacing item over the weekend. P.E. is playing a shell game with the Qual, Engineering, Development, and Flight sequencers to solve this problem. The alignment problem has been traced to misalignment between the film drive and crossover and between the two rollers in the film drive portion of the twister. The film drive-to-crossover alignment was improved with marked decrease in film lateral oscillations, and a pair of yokes was installed on the film drive twister rollers. If these yokes improve the film tracking during testing to be conducted today, they will be incorporated into the reference design and installed on all units. They will be installed on both film paths of the "D" Model prior to qual vibration.

2. DM #2 take-up has completed vibration testing in all three axes. The encoder survived, even though it had previously been reported that this encoder was not epoxied to the shaft as required. Previously experienced problems occurred again, i.e., micro switches shifted, and the builder roller cage mechanism jammed. While not impacting on the DM #2 delivery slip themselves, the necessity to expend considerably more effort on curing these problems on subsequent take-ups is emphasized.

C. Flight Article #1

1. Camera B was run at Vx/h increasing from .018 to .054 at 120° scan in the recycle mode. A loss of tension occurs at Vx/h of approximately .048. The tension loss is thought to be due to a lack of torque capability of the Camera B metering capstan. It is planned to replace the metering capstan during the TCA retrofit cycle. The commutation track on the B-side platen encoder is out. As a result, the platen is nonoperative.

2. An operator error during test resulted in a high tension on the B-side film path. One roller was fractured and a number of others have brinelled bearings. The fractured roller was replaced and the system is working again. The film path will be checked in detail during the retrofit cycle.

~~CORONA~~ ~~HEXAGON~~

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

SUBJECT: Photo Reconnaissance Systems Report No. 23

3. Camera A film drive has been completed and mounted on the TCA. Camera A coarse film path and platen are working. The fine film path is being tested.

4. The supply assembly is proceeding well. Supply completion is now scheduled for 4 February versus an 11 February need.

5. SBAC has defined the schedule for the structural modifications of the midsection as a result of the SPO decision not to have a controlled shutdown of the first stage. They have indicated it will take 10 days (24 hours per day) starting on 28 January. P.E. is replanning their midsection work to be compatible with the defined SBAC requirement. The midsection is the critical path. The midsection modification will result in an additional schedule delay of the delivery of the flight article sensor to the SBAC facility, beyond the 11 May date previously agreed on.

III. Administrative

Meetings Requiring Participation of Headquarters Personnel

Date	Subject	Attendees
LMSC		
19 Jan	Building 156 and A/P Tour	[redacted] Lundahl, Cain
TRW		
19-21 Jan	MPE/MPR CDR's	Webb, [redacted] Johnson
PERKIN-ELMER		
20 Jan	Processing Chemistry Meeting	[redacted]
BOLLER & CHIVENS		
22 Jan (AM)	Facility Review	[redacted]

~~SECRET~~

SUBJECT: Photo Reconnaissance Systems Report No. 23

Date	Subject	Attendees
P.E. AEROSPACE		
22-23 Jan	P.E. Aerospace Production Capability Review	Crowley, Patterson, [redacted]
ITEK		
22 Jan	"Special Studies" Contract Review	[redacted]
23 Jan	SI Camera Payload Information Meeting (PIM)	Kohler
SAMSO		
22 Jan	Managers' Meeting	Patterson
EASTMAN-KODAK		
21 Jan	Film Spooling Meeting	[redacted]
RCA		
20 Jan	DM-2 Buy-Off	[redacted]
UNIVERSITY OF ARIZONA		
19 Jan	Photo Performance Briefing	Kohler

[redacted]
PMO/PRS/OSP

[redacted] SECRET HEXAGON

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY

~~SECRET~~

~~CORONA~~ ~~HEXAGON~~

SUBJECT: Photo Reconnaissance Systems Report No. 23

Distribution:
cy 1 - D/OSP
cy 2 - DD/OSP
cy 3 - D/PRS/OSP
cy 4 - EO/OSP
cy 5 - C/D&AD/OSP
cy 6 - CB/OSP
cy 7 - C/PAD/OSP
cy 8 - C/SB/OSP
cy 9 - C/SS/OSP
cy 10 - OSP/RB
cy 11 - OSP/PRS/File
cy 12 - OSP/PRS/Chrono
cy 13 -
cy 14 -

DD/S&T/OSP/PRS /X5725 (16 January 1970)

HANDLE VIA BYEMAN
CONTROL SYSTEM ONLY