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~~HEXAGON CORONA~~BYE-110839-71
Copy // of 15
1 October 1971

MEMORANDUM FOR: Director of Special Projects

SUBJECT : Photo Reconnaissance Systems Report No. 112

I. CORONAA. Accomplishments

CR-15 (Mission 1115) B SRV was successfully recovered in air on 29 September 1971. The material was offloaded at LMSC and transported to Westover AFB for processing. The B tape recorder data appears to be normal.

B. Problems

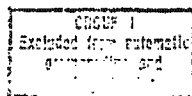
The secure command for recovery enable on Mission 1115-2 was not functioning properly. Normal commanding on Rev 307 was unsuccessful and backup lifeboat mode 2 was utilized on Rev 308. The primary timer and primary attitude control systems were successfully commanded by lifeboat mode 2 and recovery completed without further incident.

C. Projected Status

1. CR-16. R-25 backup.
2. CR-8. Storage preps.

II. HEXAGONA. General

1. The RV-3 recovery operation is proceeding on schedule. There was a seven-hour practice dive by the Trieste on 29 December. Some difficulty was experienced in recovering

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the practice RV with the hook. It had not been fabricated to print and is being modified on board the White Sands (the Trieste support ship). A second practice dive is scheduled for Sunday. The De Steiger will sail from Honolulu on Monday, 4 October, to begin the search operations. A status report will be radioed into San Diego about every other day.

2. On Tuesday, PE presented a preliminary plan for testing color film in the follow-on systems (P7-12). It does not appear that color can be inserted in the test flow until P8 at the earliest, and this is somewhat doubtful because of core shortages and the fact that there may not be sufficient test data to warrant putting in color film without making system changes. PE cannot yet define any changes because of insufficient test data.

3. The E Model twister was examined following the recent color tests and found to have more powder than the crossover. According to PE, there was general dusting across the air bar and considerable powdering on the edges. Additional testing on the E Model is planned to commence 20 October. The E Model is now being inspected and fitted with the breadboard FEV.

B. Advanced Planning & Management Support Activities

1. D/PRS was advised of an NRO-directed and funded SPD study to assess the potential of the proposed space transportation system for use with the HEXAGON system. SVIC will serve as the integrating contractor for the study.

PE is to perform a study relating to the impact on the present sensor subsystem and will work under the cognizance of D/PRS.

A preliminary PE work statement was drafted by PE, but is being revised to reflect the funds available for the study.

Ostensibly, a study plan is due to SVIC 6 October and the final report is due 31 December 1971.

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Special security measures at PE will be instituted by SS/OSP.

2. The draft of the work statement for the Advanced HEXAGON studies was completed and is being reviewed within OSP. Coordination with D/NRO and SPD relative to the approach and the scope of the effort will be effected by D/PRS by the end of next week.

3. A request was received from the NRO for fiscal year costs (FY-72 through FY-78) based on two specific launch date schedules. PRS will coordinate this effort with the Air Force and submit the budget to the NRO by 1 November 1971. An internal schedule was established for preparation and coordination purposes.

C. Engineering

1. On Monday, PE presented to the Project Office their system analysis program aimed at isolating the optical bar defocus and tilt problems associated with thermal cycling of ULE. Personnel from "Z" attended. PE advised that they were meeting with Corning later in the week to notify them of the above phenomena. PE also prepared a relaxation of their bubble specification to Corning and had requested bids for two additional glass configurations--cored ULE and cored fused silica. A comparison of the bids is shown below:

<u>Heraeus</u>		<u>Corning</u>
\$24,725/set	Fused Silica	\$29,750/set
---	Cored ULE	33,500
---	Egg Crate ULE	54,300

However, the spec which relaxed the bubble spec somewhat also called for a delta alpha (coefficient of expansion) of 0.002, which Corning is not likely to agree with. The above bids were submitted prior to receiving the spec; therefore, the prices may change.

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2. Corning met with PE on Wednesday and heard the same analysis briefing that was given to the Project Office. Corning explained their measurement techniques which while giving accuracies of 10^{-9} in coefficient of expansion measurements on small sample pieces, do not provide an alpha distribution throughout the glass. A wide variance in alpha would account for the tilt that has been observed. Corning is to contact PE within a week and comment on the new spec. Meanwhile, PE is procuring four additional glass sets from Heraeus in view of the ULE performance seen to date (of four ULE sets, two would not meet spec). PE has notified the Project Office that the glass for P-13 - 18 should be procured by 15 October for normal production run. The Project Office desires to see the new configuration Heraeus performance before making that decision. The first data should be available in early December.

3. Brush motors testing has run into some difficulty. It appears that the brushes received were not made of the correct material. In addition, there has been significant vibration in the take-up test fixture which has resulted in excessive brush wear and has rendered the brushes unusable. The motor portion of the drive capstan brush motor being tested has exhibited higher than expected arcing at brush make and brake. The tachometer portion is apparently working without difficulty. The correct brush material should be in-house in two weeks. The test fixture vibration problem has been corrected. The impact of the drive capstan arcing problem is being assessed. If the arcing problem causes serious difficulties, it may still be possible to incorporate a brush tachometer and eliminate three optical encoders.

D. Operations & Systems Analysis

The Post-Flight Analysis Report for Mission 1201 has been written and is going through final review at SPPF this week. Delivery will be Wednesday, 6 October.

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E. West Coast Project Office

A meeting was held at the STC on 30 September to discuss methods of implementing shorter lead times and shorter load intervals for on-orbit command loads. The objective is to improve clear weather take percentage by reducing average age of data. Tentatively, it was agreed that loading in the area of interest would be at two-rev intervals with one additional backup rev (vice three revs with two additional backup revs as used on Mission 1201). Weather lead time will be reduced as appropriate to meet command generation/checking timelines with the desire to reduce it to 85 minutes (vice 150 min. on 1201).

F. Model Status1. SDV-III (Development Model)

No PE activity and none expected until the third week in October.

2. SV-2 (MS SN-002)

Forward section buildup and tracking tests were successfully completed, during which 5600 feet of film was spooled onto each take-up. A short special tracking test was also finished. The supply will be removed on Friday, 1 October, for flight loading. Subsequent to the supply loading, the A-2 Chamber test will be run. The chamber modification is currently three days behind schedule.

3. SV-3 (MS SN-004)

The vehicle has completed the post reinstallation ECS checks satisfactorily. During the next week, the vehicle is scheduled to undergo acoustic test (12-13 October).

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4. SV-4 (MS SN-005)

The supply reload is still in process. The problem encountered with the SUTS (Supply Test Station) during the past week has been resolved and the reinstallation of the SU into the vehicle will begin on Friday, 1 October.

5. SV-5 (MS SN-006)

SN-006 is currently being retested in Chamber A. The retest, due to calibration problems with the LSFS on the original test, is scheduled to be completed on or about 1 October. The processing and evaluation of the material will take place during the following week. PE will present their analysis to the Acceptance Team at a meeting tentatively scheduled for 8 October.

6. SV-6 (MS SN-007)

Final alignment and preparation for initial tracking tests (MFN 3.05) are about to begin.

III. Meetings Requiring Participation of Headquarters PersonnelHQ

6 Oct Block II Discussions with
Mr. Inlow

6 Oct Space Transportation System
Study Briefing by
SAFSP

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~~HEXAGON CORONA~~**SUBJECT: Photo Reconnaissance Systems Report No. 112**PE7 Oct (tent.) SN-006 Acceptance Meeting SAFSP7 Oct Block II Studies Coordination;
HEXAGON Launch Schedule
Options Coordination
D/PRS/OSP**Distribution:**

Cy 1 - D/OSP
Cy 2 - DD/OSP
Cy 3 - D/PRS/OSP
Cy 4 - SA/IS/OSP
Cy 5 - C/CS/OSP
Cy 6 - C/PAD/OSP
Cy 7 - AC/SB/OSP
Cy 8 - C/SS/OSP
Cy 9 - C/PPBB/OSP
Cy 10 - DC/D&AD/OSP
Cy 11 - RB/OSP
Cy 12 - PRS file
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