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QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

I. CORONA PROGRAM

A. Open Items From Last Quarter

DSR - CR-6 Anomalies

It has been determined that the DSR malfunction which occurred during Mission 1106 on Rev 9 [redacted] and Rev 22 [redacted] is not a design deficiency. The contractor analysis indicates no circuit changes are required and no hardware changes are being made. The DSR assigned to Mission 1107 has been subjected to special tests to recognize the anomaly if it occurred and to establish flight ready confidence. Over 800 command loads have been initiated successfully during these tests. Software changes have been made so that in-flight command loads will be generated with other than a "200" word in the first position, to more easily identify the anomaly if it should occur. Retransmission of the load can then be accomplished to obtain correct operations.

B. J-1 System Status

J-44 Flight Summary

1. On 2 May 1969 J-44 (Mission 1051) was successfully launched. This mission was only the second in the CORONA series that was flown using a low inclination orbit and permitting ascending and descending photography. This type of orbit provided saturation type coverage of specific denied areas.

2. The Mission lasted a total of 17 days (one day longer than nominal). This extra day was available due to an

[redacted]

unexpected bonus from the Agena batteries. During the Mission the only hardware anomaly which occurred was that the A/O failed to operate for 20 frames during Rev 7. It is believed that a particle of dirt caused a relay to fail for this short period - no action was recommended.

3. Photographically, this system did not produce the results that were expected. The PEIR reported that the photography "exhibits extreme image variability with overall quality of forward camera being poorer than an average J-1 Mission. The overall image quality of the aft-looking camera is somewhat better than the forward and exhibits examples of imagery comparable to an average J-1 Mission. In general, the imagery of both pan cameras is soft and lacks crispness and overall edge sharpness.

   The PI comment on suitability for 1051-1 ranges from good to poor with the majority in the fair to poor category. The suitability of 1051-2 ranges from good to poor with the majority in the fair category. Weather is considered a major degrading factor, hindering the readout".

   As there exist only a single J-1 system remaining, efforts were directed to testing and evaluation of the dynamic film behavior of J-46. This, it is believed, will reduce the probability of similar results from J-46.

C. Ultra Thin Base Film - Testing

1. Since CR-5 (Mission 1105) Itek conducted studies of UTB handling characteristics. A brief description of these tests and results is given below:

   (a) Random flatness errors appear similar for 3404 and SO-380 films.

   (b) Average lift increases in vacuum from ambient levels (a larger increase for SO-380).

   (c) The increase in average lift seems to be larger the first two days, when the moisture content of the film is highest.

   (d) No definite relation of magnitude of random flatness errors is observed between ambient and vacuum conditions.

(e) Average lift is characteristic of a particular instrument.

(f) Higher tensions tend to stabilize the SO-380 film during the first two days while drying is occurring.

2. Itek, West Coast, has also begun a series of film thermal/vacuum tests. The purpose of this test series is to study the tension - curl relationship, sensitivity, and moisture characteristics of certain types of film as a function of tension, temperature and vacuum using interferometry to quantitatively measure the film distortion. The second group of tests will study the effects of environment on film speed and granularity. The last test will study the change in moisture content of the film under specified environmental conditions using a microwave detector to measure the moisture content. These tests are underway and are scheduled to be completed in early August.

3. CR-8 will be subjected to a Dr. "A" test during its environmental test in the HIVOS chamber. If results are acceptable, the system will fly with SO-380 in late October 1969.

D. Proposals and Future Changes

1. Glass Filters - CR-14 and up will use glass filters.

2. Splices - Ultrasonic splices tested thus far have proved satisfactory. Testing will continue this summer with a decision to be made sometime this fall.

E. Itek had delivered the final J-3 systems and has shut down their manufacturing and test facility in Boston. The Program direction and engineering support will be located in the Palo Alto Directorate and A/P on the West Coast. The photoscience group will be maintained in Lexington providing support to the CORONA Program.

General Electric has delivered the final order of buckets with only 17 forebodies remaining to be manufactured and delivered to A/P. G.E. is maintaining engineering and management support in Philadelphia with two persons in the field at A/P.

F. Deliveries to A/P

Main Instrument Deliveries

330/331 = 20 May 1969
332/333 = 11 April 1969
300/301 = 9 May 1969

G. Mission Completed This Quarter

Mission No.	1051
Booster No.	69-037
Agena No.	1649
Payload No.	J-44
Instrument No.	212/213
SI No.	D-115/122
DRCG No.	617
Film Type	3404
Flight Date	2 May 1969
Feet Payload Flown	32600 feet
Feet Payload Recovered	32600 feet
Recovery dates	9 May 1969 18 May 1969

H. Missions Planned for Next Quarter

Date	23 July 1969	3 September 1969
Mission	1107	1052
Payload	CR-7	J-46

I. Meetings and Briefings

1. Dr. McLucas was given a CORONA briefing and tour of A/P on 22 April.

2. Mission 1051 PET Meeting was held 4 through 6 June 1969.