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10 July 1968

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QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

I. CORONA PROGRAM

A. J-1 System Status

1. J-47 Summary

During the period of 20 June through 5 July 1968, J-47 (Mission 1047) was successfully launched, operated and recovered.

Major Area of Interest:

a. Pan Cameras (218 and 219) functioned normally throughout the Mission; however, some soft spots were reported on 1047-1. An MIP rating of 85 was given to both portions of this Mission.

b. Stellar Index Cameras (D117 and D118). D117 functioned normally throughout the Mission. The stellar camera of instrument D118 had an apparent hung shutter which produced grossly overexposed frames past frame 78 of Mission 1047-2.

c. The film used in both pan cameras was type 3404.

d. The "A" and "B" SRV's functioned normally.

e. A short burn in the booster (long tank Thor) and Agena combined to produce a shorter than normal period (90.23 vs. 90.44 minutes). All five drag make-up rockets were used by rev. 15 to make up the period. The shorter than normal period resulted in a gradual shift that placed the orbit more than 600 miles east of nominal ground tracks at end of Mission.

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f. Agena/Payload interface for Mission 1047 was the first time a J-1 payload was used in conjunction with a "universal" (J-3 and J-1) configured Agena. This necessitated minor modifications to the interface circuitry. Shortly after launch, absence of payload temperature TM readouts indicated improper interface wiring. Lockheed Sunnyvale and Lockheed A/P conducted an investigation that uncovered one other instance of interface miswiring. Fortunately, neither of the above problems adversely affected the Mission.

Both Lockheed organizations are conducting a complete review of interface drawings and procedures. Modifications are underway for future systems.

2. Future Changes

The 3/4 speed H-timer is scheduled to be incorporated in J-49, with a September 1968 launch date. The 3/4 speed H-timer will enable this Mission to be operational for 16 days (versus 15 for previous J-1 missions).

B. J-3 System Status

1. CR-3 Summary

During the period of 1 through 15 May 1968, CR-3 (Mission 1103) was successfully launched, operated and recovered.

Major Areas of Interest:

a. Pan Cameras (306 and 307) functioned normally throughout the Mission. Soft spots (out-of-focus areas) were noted throughout this Mission. The size and location of the soft spots, peculiar to this mission, produced slight image degradation on a small percentage of the frames. An MIP of 95 was assigned.

b. DISIC. Both the stellar and the terrain cameras functioned normally throughout the Mission. The modified stellar baffles did not vignette nor flare the format as did previous less optimum baffle designs. It was therefore decided to use this design for future missions. The reduced aperture (F 6.3 versus F 4.5) of the terrain lens resulted in better image quality. DISIC #9 and up have the F 6.3 lens.

c. SRV's (807 and 808) functioned normally during the mission.

d. FILM. A split load of 3404 (14,800 feet) and SO-380 (ultra-thin base UTB with 3404 emulsion). No problems were encountered with the use of the SO-380. The Payload Evaluation Team report stated "UTB gave as good a product as 3404 type film."

e. FILTERS. Wratten 24, 12, and 21 and an SF05 filters were used for this mission. The SF05 used in conjunction with the Wratten 25 was used extensively for operational bi-spectral photography. The new thermal taping on the main camera lens systems proved effective in reducing the thermal gradients across the lens systems from approximately 20 to less than 5 degrees.

2. Proposals and Future Changes

a. The 3/4 speed H-timer is scheduled to be incorporated in CR-5 with an October 1968 launch date. This H-timer will give the J-3 systems up to 18 day operational capability (versus 15 days for present J-3 systems).

b. Filters. Itek continues their endeavors to obtain glass filters that would be satisfactory for primary use in the CORONA Program. Itek has subcontracted the development of the substrate to [redacted] of Nashua, N. H. The coating has been subcontracted to [redacted] of California. Itek will perform complete acceptance testing on all filters prior to delivery to CORONA Program. The two filters presently underdevelopment have similar characteristics to those of the Wratten 21 and 25. The substrate developed will have a tolerance of (±) 1/10000 inch. Therefore, the filters will be interchangeable, (i.e., no resulting focus shift when filters are replaced). The surface quality is within 1/15 wave in transmission. The earliest date set by Itek for implementation of glass filters in the CORONA Program is early 1969 with system CR-14.

c. CASCADE Command System.

The development of the CASCADE Command System has progressed at a rate compatible with the present flight schedule. During the past quarter the payload-simulator was completed and delivered for system tests. The qual box construction has been completed and has started a series of tests. The first two flight units have started system testing with CR-6 and CR-7. Seventy percent of the checkout was completed on the AGE consoles. At the present rate of development, there exists little doubt that the CASCADE Command System will be ready for operation with the CR-6 mission scheduled for early December 1968.

C. Deliveries to A/P

1. Instrument Deliveries

CR-7 10 May 1968

2. SRV Deliveries

815/816 16 April 1968
817/818 11 June 1968

3. DISIC Deliveries

S/N 8 23 April 1968
S/N 9 23 April 1968
S/N 10 18 June 1968
S/N 12 4 June 1968

D. Missions Completed During This Quarter

Mission No.	1103	1047	
Booster No.	511	517	
Agena No.	1643	1645	
Payload No.	CR-3	J-47	
Instrument No.	306/307	218/219	
SI No.	--	117/118	
DISIC No.	5	--	
DRCG No.	621	604	
Flight Date	1 May 1968	20 June 1968	
Feet Payload Flown	32,427	32,298	
Feet Payload Recovered	32,427	32,298	
Recovery Dates	1103-1	1047-1	
	1103-2	1047-2	5 July 1968

E. Missions Planned For Next Quarter

Date	7 August 1968	18 September 1968
Mission	1104	1048
Payload	CR-4	J-49

F. Meetings and Briefings

1. PET Meeting for Mission 1046 (J-46) was held at [redacted] on 30 April to 1 May 1968.

2. CORONA Photographic Experiments Evaluation Committee (Ad Hoc Committee) met on 2 May 1968 at [redacted] The following topics were discussed at the meeting:

   a. Bi-spectral photography summary and plans for Mission 1103 (CR-3).

   b. Polarizer Experiments

   c. Exposure Report

   d. Possible flight plan for Mission 1104 (CR-4) in connection with film types SO-180, SO-340, 3400 and 3404.

3. Payload Information Meeting was held at A/P on 7-8 May 1968.

4. CORONA Managers' Meeting was held at A/P on 7 June 1968. Discussed at this meeting were the following:

   a. Scheduling of future missions.

   b. High efficiency amplifiers - compatibility with present hardware.

   c. Mission 1103 (CR-3) anomalies.

5. CORONA Photographic Experiments Evaluation Committee (Ad Hoc Committee) meeting was held at [redacted] on 10 June 1968. Discussions included:

   a. Bi-spectral photography from Mission 1103 (CR-3) and more efficient exploitation of bi-spectral photography.

   b. SO-230 film from Missions 1102 (CR-2) and 1046 (J-46).

   c. Wratten 12 filter experiments from Mission 1103 (CR-3).

   d. SO-380 type film (3404 emulsion of ultra-thin base).

   e. Flight plan for Mission 1104 (CR-4).

   f. Use of Polarizers with color films, presented by [redacted]