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4 April 1968

QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

[redacted]

I. CORONA PROGRAM

A. J-1 System Status

1. J-45 Summary

During the period 24 January through 7 February 1968 J-45 (Mission 1045) was successfully launched, operated and recovered.

a. Major Areas of Interest:

(1) Pan Cameras (214 and 215) functioned normally throughout the mission. A maximum ground resolution rating of 7-8 feet was recorded and an MIP rating of 90 was given for this mission.

(2) Stellar Index Cameras (D109 and D108) functioned normally throughout the mission.

(3) The film used in both Pan Cameras was Type 3404.

(4) The SRV's for both portions of the mission functioned normally.

(5) In the Agena, a T/M circuit relay malfunctioned causing Link I T/M to become inoperative and some monitors on the back-up T/M Link, Link II, to be off. Due to this anomaly, the selector positions could be checked only once per day. Thus commanding was performed in the blind. This anomaly dictated an early recovery of the first bucket resulting in a loss of approximately 200 cycles (total cycles on normal mission is 12,400 cycles).

2. J-48 Summary

During the period 14 through 29 March 1968, J-48 was successfully launched, operated and recovered.

[redacted]

a. Major Areas of Interest

(1) Pan Cameras (220 and 221) functioned normally throughout Mission 1046-1. An MIP of 90 was given to this part of the Mission. For 1046-2 an apparent film dynamics problem resulted in an MIP of 85; this anomaly is under investigation.

(2) Stellar Index Cameras (D119 and D120) functioned normally throughout the mission.

(3) A special load of SO-230, a high speed black and white film, was used in both cameras. Processing of this load is being completed and a detailed evaluation will be made by various groups. Preliminary evaluation indicates that SO-230 film gives good image quality and is comparable to Type 3404.

3. New Proposals

The 20 day (3/4 speed) H-timer is being considered for future flights. Present indications favor early approval of this modification since costs of incorporation are minimal.

B. J-3 System Status:

1. QR-2 Evaluation of Special HIVOS Testing

QR-2 was used in HIVOS testing as a test bed for evaluation of three special payloads under environmental conditions. This test was also used to qualify the DISIC subsystem and special modifications incorporated on QR-2 to handle UTB film.

a. SO-380 Film. A full load of ultra thin base (UTB) film was used in QR-2 during the aforementioned HIVOS test. Corona markings on this special film were slight. No major mechanical problems resulted from the use of UTB; therefore, within the scope of the tests, use of UTB film in the J-3 payload was considered acceptable.

b. SO-340 Film. A 500 foot section of SO-340 film was used during the QR-2 HIVOS testing. The speed of this film is 250 compared to a speed of 1.6 for 3404 and is to be used for the night detection experiment. Heavy Corona markings occurred during testing; it is not optimistic that these markings can be overcome. Alternately, use of Type 3400 film for "night detection" is being considered if successful use of this film is demonstrated on another program. Further testing on this film is being conducted on CR-4.

c. SO-180 Film. A 500 foot section of camouflage detection film was used in QR-2 during its HIVOS tests. Heavy corona markings occurred on this film also; however, with further tests on CR-4, it is hopeful that the marking can be eliminated or reduced to a level where the product can be considered useable.

2. J-3 Payload Proposals and Future Changes

a. The 20 day (3/4 speed) H-timer is being considered for CR flights in the future.

b. Filters. In an endeavor to obtain glass filters, Itek has initiated a two-fold program to provide the CORONA program with acceptable glass filters. The first effort is to obtain good substrate. The second effort is a complete review of all empirical test data. The result of this review will be establishment of specifications for mission and substrate coating and determination of filter characteristics which degrade performance.

c. CASCADE Command System. During this past quarter, various problems have resulted in some slips in the design and manufacture of the Digital Shift Register (DSR) and the Command Box associated with the CASCADE Command System.

Major problems occurred in the following areas:

(1) Qual-Box Circuits - The original layout of the circuit exhibited electronic interference between the various circuit elements. The redesign has been completed and testing is underway. Relays in these circuits have shown certain problems; however, these seemed to have been a result of poor handling during fabrication.

(2) DSR Payload Simulator - The redesign of the payload simulator, from a J-1 configuration to a J-3 configuration, required extensive work. This work has been started and the simulator is scheduled for completion on 1 May 1968.

(3) Output Hybrid Circuits - The original sub-contractor for these units was unable to produce an acceptable product. The contract was given to a new contractor and thus far circuits for the first two flight units have been received at Sunnyvale and are undergoing Qual testing.

Barring any unforeseen developments, the CASCADE Command System should be available for operational use effective with CR-6 flight now scheduled for November 1968.

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d. Elastromeric Shield Material - The use of Elastromeric Shield Material is being considered for future forebodies. It is possible that this material should give almost unlimited shelf life, potential weight saving and ease of repair, where required.

3. Deliveries to AP

a. Instrument Deliveries

CR-5 - 2 February 1968
CR-6 - 26 March 1968

b. SRV

#751/752 - 23 January 1968
#817/818 - 31 January 1968
#819/820 - 21 February 1968

C. Missions Completed During This Quarter

Mission No.	1045	1046
Booster No.	511	516
Agena No.	1640	1638
Payload No.	J-45	J-48
Instrument No.	214/215	200/221
SI No.	D109/D108	D120/D119
DRCG No.	612	608
SRV No.	741/742	747/748
Flight Date	24 January 1968	14 March 1968
Feet Payload Flown	32,600	32,243
Feet Payload Transferred	31,148	32,243
Recovery Dates	1045-1 - 31 January 1968 1045-2 - 7 February 1968	1048-1 - 21 March 1968 1048-2 - 29 March 1968

D. Missions Planned for Next Quarter

Date	1 May 1968	19 June 1968
Mission	1103	1047
Payload	CR-3	J-47

E. Meetings and Briefings

1. CORONA Payload Managers' meeting was held at AP on 20 February 1968.

2. CORONA Photographic Experiments Evaluation Committee meeting (ad hoc meeting) was held at [redacted] on 11 January 1968. Topics discussed at the meeting were:

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a. Bi-Spectral photography in connection with CR-3 flight.

b. Use of SO-340 for CR-4 flight.

c. Tests being conducted by [redacted] concerning the effect of the SF05 (bi-spectral filter) on image quality.

d. Glass filter progress and evaluation.

3. CORONA Photographic Experiments Evaluation Committee meeting (ad hoc meeting) was held at [redacted] on 6 March 1968. The following topics were discussed at the meeting:

a. Bi-spectral photography

b. Kodachrome-II and SO-121 uses

c. CR-3 engineering plan

d. SO180, SO380, and SO-340 tests results to date

e. SO-121 requirements.

4. PET Meetings

The PET meeting for Mission 1102 was held at [redacted] on 9-10 January 1968. The PET meeting for Mission 1045 was held at [redacted] on 27 and 28 February 1968.