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28 JAN 1968

MEMORANDUM FOR: Director, CIA Reconnaissance Programs

SUBJECT : OSP's NRO Quarterly Report on NRP SATELLITE SYSTEMS

Attached for your consolidation into an overall CIA Reconnaissance Report is OSP's NRO Quarterly Progress Report. Two additional copies are attached for Dr. Flax and [redacted] and one copy each of CORONA and [redacted] is attached for forwarding to [redacted]

JOHN N. McMAHON
Acting Director of Special Projects

Attachment: As stated

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SUBJECT: OSP's NRO Quarterly Report on
NRP SATELLITE SYSTEMS

[redacted] (18 Jan 68)

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CORONA [redacted] TOP SECRET [redacted]

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QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

1 October 1967 through 31 December 1967

I. CORONA PROGRAM

A. J-1 System Status

1. J-43 Summary

J-43 (Mission 1044) was successfully launched, operated and recovered.

a. Major Areas of Interest

(1) Pan Cameras (202 and 203) functioned normally throughout the mission.

(2) Stellar Index Cameras (D-99, D-104) functioned normally throughout the mission.

(3) Film Type 3404 was used for both cameras during this mission. As a test for a new processing technique developed by E.K., selected lengths were processed by the humpback (dual gamma) method. This was compared to the film processed by the Trenton method. The PET and NPIC comparative analyses favored the dual gamma process.

(4) The life boat timer on the Agena side of the interface became activated (possibly by a loose ball of solder shorting a relay). This anomaly dictated an early recovery of the "B" bucket.

2. New Proposals

An extended capability of the H-timer (3/4 speed) is being considered for CR flights after 1 July 1968.

B. J-3 System Status

1. CR-1 Major Problem Areas

a. Low Temperature Throughout the Payload. This resulted in poor focus on all cameras. The thermal coating on future flights will be adjusted to overcome this. The problem was eliminated in CR-2.

b. Poor Back Focal Settings on the Main Cameras. The problem was eliminated in CR-2.

c. Transients in the RT Command Associated Circuitry Which Produced Command Restrictions. Circuits were modified to overcome this problem. The problem was eliminated in CR-2.

d. The binary data block was found missing on the last few frames of each operation. The fault was found in the circuit and was corrected in CR-2.

e. The DISIC Terrain Product was Soft. The DISIC stellar product evidenced considerable flare. A temporary baffling fix was installed in CR-2 to attempt to eliminate or reduce flare. Preliminary results were promising but detailed analysis has not been completed.

2. CR-2 Summary

CR-2 (Mission 1102) was successfully launched, operated, and recovered.

a. Major Areas of Interest

(1) Pan Cameras (304 and 305). Both cameras functioned normally during the entire mission. At a point near the end of the mission

(with both cameras still loaded with film) a test was run showing the effect of using the mono-mode for the camera system. No anomalies resulted from this test. An MIP of 100 was assigned to the product of both halves of this mission.

(2) DISIC (S/N 4). The DISIC unit performed normally throughout the mission until the last 200 or 300 frames at which time there seemed to be a malfunction in the capping assembly which resulted in short bursts of light reaching the film during transport. The DISIC (terrain lens) is capable of automatically switching between two different shutter speeds 1/500 sec. and 1/250 sec. This switching is controlled by timers correlated to solar elevation. However, before this mission it was decided to use only the 1/500 sec. shutter speed on the terrain lens--the 1/250 sec. shutter speed was in effect disabled. Further evaluation is being conducted on the malfunction.

(3) Filters. Two new filters were used during this flight. The preliminary results show clear negatives; however, a rigorous evaluation has not yet been conducted. The new filters used were the SF09, a polarizing filter, and a SF05 for multi-spectral photography.

(4) The five position exposure control (slit width) device for the main cameras worked satisfactorily throughout the flight.

(5) Film. A split load of 3404 and SO-230 was used in this mission. Results will be known early in the next quarter.

(6) Recoverable Tape Recorder. This unit performed satisfactorily throughout the mission, giving useful data both for the diagnostic and user (NPIC) purposes.

3. J-3 Payload Proposals and Future Changes

a. An extended capability of the H-timer (3/4 speed) is being considered for CR flights after 1 July 1968.

b. DISIC Intermix. This would provide a four operation selectivity for emergency operation of the main cameras and a real time control for the independent mode of operation of the DISIC camera subsystem, thus providing more selectability of independent operations of the DISIC payload.

c. SRV. It is planned to reuse the structural components (capsule, Capsule covers, etc.) on recovered J-3 SRV's for future flights. It is estimated that this would save the Government approximately $115,000 on SRV's for CR-13 through 16.

d. Filters. Glass filters are still under development. The coating on 0.005 inch quartz substrate has been solved. However, further development is necessary to insure correct optical properties of the completed filter.

e. NPIC has recommended continued use of the recoverable tape recorder in all J-3 flights because of manpower and time savings. The tape recorder was originally planned to be flown only on the first four J-3 flights. Sufficient spares were ordered to enable incorporation of the tape recorder on CR-5--this has been authorized. Studies are now under way to determine costs and concepts of incorporating tape recorders on all J-3 payloads.

f. UTB Tests. UTB tests on QR-2 started at AP on 6 November 1967. Since that time all modifications have been completed for both the main camera and the DISIC subsystem. Preliminary tracking tests have been run. Chamber tests will start on 15 January 1968. The expected date for completion of all UTB tests is 21 February 1968.

g. QR-2 Refurbishment. Upon completion of UTB testing on QR-2, the subsystems will be sent back to ITEK, FCIC, and G.E. for refurbishment.

h. Shift Register. The engineering design on the AGE items for the shift register has been completed. Electrical design has been completed; however, several of the breadboarded circuits were returned via FEDR because of incompatibility among the relays and associated circuits. The harness design is being incorporated into the CR-6 harness and will be ready for the system tests on 2 February 1968. The command box wiring is finished and is in functional tests. The qual unit is expected to be ready in Sunnyvale by 1 March 1968 and the first flight article will be ready by 15 March 1968. Barring unforeseen developments, the shift register should be available for operational use effective with the CR-6 flight now scheduled for November 1968.

4. Deliveries to AP

a. Instrument Deliveries

CR-4 - 14 November 1967

b. SRV Deliveries

SRV Nos. 749/750 - 27 October 1967
SRV Nos. 815/816 - 20 November 1967

c. DISIC Subsystem Deliveries

S/N 7 - 18 December 1967
S/N 6 - 19 December 1967

C. Missions Completed During This Quarter:

Mission No.	1044	1102
Booster No.	221	514
Agena No.	1639	1642
Payload No.	J-41	CR-2
Instrument No.	202/203	304/305

C. Missions Completed During This Quarter: (continued)

SI No.	D99/D104	-
DISIC No.	-	4
DRCG No.	606	626
SRV No.	733/734	805/806
Flight Date	11/1/67	12/9/67
Feet Payload Flown	16000/15972	16257/16258
Feet Payload Transferred	16000/15972	16267/16258
Recovery Dates	11/8/67 - 11/11/67	12/14/67 - 12/22/67

D. Missions Planned For Next Quarter:

Date	1/24/68	3/6/68
Mission	1045	1046
Payload	J-45	J-48

E. Meetings and Briefings

1. Program Managers' Meetings

CORONA Payload Managers' Meetings were held at AP on 16 October and 19 December 1967 to review J-1 and J-3 program progress and problems.

2. Agency Meetings (DISIC)

A briefing was conducted for SOC personnel at Headquarters on 12 December 1967 to explain the DISIC intermix proposal.

3. Ad Hoc Committee

The first meeting of the Ad Hoc Committee for J-3 CORONA payload capability evaluation met at NPIC on 12 December 1967 to review the experiments planned for the first four J-3 flights and to establish procedures for handling domestic and overflight product containing experimental footage.

4. PET Meetings

Mission 1101 PET Meeting was held at NPIC on 17 and 18 October 1967. The PET Meeting for Mission 1044 was held at NPIC on 28 and 29 November 1967.

NOTICE OF REMOVED PAGES

Pages 10 through 28 are not provided because their full text does not contain CORONA, ARGON, LANYARD programmatic information.