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24 OCT 1967

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

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Distribution:

Copies [redacted]

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QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

1 July 1967 through 30 September 1967

I. CORONA PROGRAM

A. Major Events

1. J-3 System Progress

The following milestones were passed during the period:

CR-1 successfully launched, operated, and recovered;
CR-2 in HIVOS in preparation for November launch;
CR-3 delivered and in acceptance tests;
DISIC S/N 4 in HIVOS with CR-2;
DISIC S/N 5 delivered and ready for system functional tests with CR-3;

CR-2 is presently scheduled for a late November launch.

2. Program Managers' Meetings

Meetings were held at AP on 19 July and 22 August 1967. An informal Managers' Meeting was held at VAFB on 14 September 1967. Four additional J-3 systems have been ordered.

3. Special Briefings

[redacted] of [redacted] and ROTS discussed on 27 July at AP the tumbling of the SRV of 1042-2. [redacted] was

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given a CORONA briefing and AP tour on 17 August. ROTS, AP, STC, VAFB, and [redacted] personnel attended J-3 Operations Commanding Briefing at AP on 29 August.

B. Camera

1. The 400 HZ power supply system problem for the CR-1 and QR-2 systems was solved by using an inductor rather than a resistor power supply. Distortion was reduced to between 2 to 5%.

2. Both QR-2 and CR-1 had excessive CORONA markings on the pan cameras when the units went to HIVOS. These marking problems were solved by adjusting the pressure roller tensions, cleaning the rollers, careful use of anti-stat, and raising the PMU pressure in the vehicle from 20 to 50 microns.

3. A thermal gradient problem in the lens assembly caused by radiative transfer from the H.O. boots while the camera is in "stow" position is under study and experimental observation. CR-1 had reflective thermal shielding placed on one camera and its H.O. boots during HIVOS test, and thermal shields were provided for both cameras in flight.

4. Excellent resolution results have come from Itek on the development of a new lens-filter combination for the J-3 system. The resolution has improved from 140 l/mm low-contrast, dynamic for the normal J-3 lens to 160 l/mm low-contrast, dynamic for the improved lens. This lens will be incorporated in CR-4 and up.

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5. Glass filters were planned for the CR-1 flight. However, resolution testing of the system at AP showed marked degradation from that obtained from the original gelatin filters. The glass filters were returned to Itek for study, and CR-1 was flown with gelatin filters. The use of glass or quartz filters was suggested because of the known inherent stability of the mechanical base. The coating problem is associated with the thickness of filter substrate being used.

6. Tests continued with SO 380 (UTB). CR-3 is scheduled to fly with an end strip for test purposes. Tests at Itek reveal that a roller problem has been encountered with UTB that will require relocating and adding to the number of rollers on the CR drum. This was necessitated by the problem of mechanical standing waves being set up in the film base.

C. DISIC

1. The DISIC system has exhibited a CORONA problem with the stellar film. After much experimentation and tests in HIVOS, the CORONA problem was reduced to an acceptable level for flight of S/N 3 in CR-1. In preparing for the flight, careful attention was given to platen pressures, roller cleaning, and roller alignment. Grounding straps were incorporated between DISIC components and the main structural frame as well as between individual rollers. Applying these same measures to S/N 4 (due to fly in CR-2) has not resulted in the same degree of success.

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S/N 4 on the first HIVOS run with CR-2 produced out of specification CORONA marking. A further test program is underway in New York at the contractor's facility and plans are underway for meeting between Itek and Fairchild to allow transfer of information gained on the Itek DFD units.

D. SRV

1. SRV's 801 through 812 have been bought off and delivered to AP. The Operational Matrix, Vol. 1, has been delivered. CR-1 through CR-4 will have tape recorders incorporated in all SRV's. The Operational Matrix takes into account this loading configuration. The SRV's on CR-1 were successfully operated and recovered.

E. Shift Register

1. The 32 bit Shift Register Command System has been started and final design and breadboarding are scheduled for completion in October. The schedule has experienced several slips due to the allocation of efforts towards keeping CR-1 and CR-2 to their respective schedules. At present the Shift Register should be ready on schedule for systems test in early February 1968.

2. AP and STC representatives have met to discuss the method of commanding the Shift Register. The ultimate method would be core to core commanding, i.e., from the [redacted] computer to the 32 bit register with no intermediate handling. This method has the disadvantage of being subject to interference and not allowing positive control should there be any error. At present the best method appears to be the use of computer typewriter or pre-programmed card at the tracking station to feed in the command as received over the TTY circuit from the [redacted] and STC.

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F. Operations

1. Mission Summary

a. Mission 1043 (J-42)

Mission 1043 was successfully launched into a tail first 80° 11 day synchronous orbit. Air recovery was successful for the "A" capsule on the seventh day followed by a successful recovery "B" capsule on the fifteenth day.

b. Mission 1043-2 suffered an anomaly when the payload slowed and finally pulled out of the guide rails of Main Instrument No. 200 on pass 228D. Analysis has suggested several probable causes, but cannot definitely pinpoint the main cause. No specific corrective action can be recommended.

2. Mission Details

Mission No.	1043	1101
Booster No.	510	512
Agena No.	1637	1641
Payload No.	J-42 (PG-3)	CR-1
Instrument Nos.	200/201	302/303
SI Nos.	D107/D112	S/N 3
DRCG No.	608	616
SRV Nos.	735/736	803/804
Flight Date	8/7/67	9/15/67

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Pounds Payload Flown	80.0/80.1	79.8/79.2
Pounds Payload Trans.	79.5/73.7	79.8/79.2
Recovery Dates	8/14/67 8/22/67	9/21/67 9/28/67

3. Fourth Quarter Flight Schedule

J-41 is scheduled for launch on 25 October and CR-2 on 29 November.

NOTICE OF REMOVED PAGES

Pages 8 through 27 are not provided because their full text does not contain CORONA, ARGON, LANYARD programmatic information.