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8 January 1969

QUARTERLY PROGRESS REPORT

SATELLITE SYSTEMS

I. CORONA PROGRAM

A. J-1 System Status

1. J-50 Summary

On 12 December 1968 J-50 was successfully launched. Higher than normal temperatures (approximately 105 degrees average) were present for both instruments during this mission. The combined effect of launch late in the window (higher BETA angle), condition of thermal coating surface, and proximity of sun to earth during winter months account for partial rise of temperature. Other contributing factors are under investigation. The effects of high temperatures on the operation of the instruments are being examined.

On Rev 41 one of six Agena batteries failed; on Rev 69 a second battery failed. These two failures resulted in the abbreviation of the mission from sixteen to eleven days. Lockheed Sunnyvale is investigating.

On Rev 69 T/M indicated that the payload V/H programmer failed, thus preventing automatic match between vehicle motion and height and camera speed. The maximum mismatch of 19.5% occurred on Rev 83. On Revs 75 and 78 Drag Make Up rockets were used to circularize the orbit and permit more optimum V/H match by real time commanding. From Rev 84 to the completion of the mission, the mismatch was less than 4%.

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A general out-of-focus condition existed throughout both halves of Mission 1049, although the condition was more noticeable in the second half. The Payload Evaluation Team (PET) will meet for this mission in early January 1969 to discuss necessary corrective action.

2. J-1 Modifications

As a result of the recent failure, stall of one instrument, (Mission 1048, J-49, September 1968), development was started on a power cutoff circuit. This would minimize the effect of a failure of either of the main instruments by eliminating the power drain. This mod will be incorporated in all future J-1 systems.

B. J-3 System Status

1. CR-5 Summary

On 3 November 1968 CR-5, Mission 1105, was successfully launched. A delay of four days from the scheduled launch date of 30 October resulted from premature retraction of the umbilical mast on the launch pad. Miswiring in the associated ground equipment was discovered and corrected.

The Agena tape recorder did not readout properly during the first three days of the mission. This anomaly resulted in temporary loss of temperature and attitude data. No operational restriction resulted.

CR-5 was the first system to use a full load of ultra-thin base film (UTB) with a 500 foot tag end of SO-121 (color film). On Rev 283 the aft-looking camera jammed. The jam resulted when the tail end of the film passed through the system. This type of failure is characteristic of the instrument, and is not considered a major payload problem; however, it did cause a battery power drain. To eliminate the adverse effects of the jam, a power shut-off circuit has been incorporated in future J-3 systems.

A variable out-of-focus condition existed throughout the mission. This was attributed to the characteristics of the ultra-thin base film in conjunction with the mechanical alignment of the J-3 system. A UTB Task Team has initiated a program to learn the characteristics of UTB film. Tests and possible modifications are being studied

to provide proper mechanical support for the UTB. In the meantime, CR-6 and CR-7 will be converted to standard base film (STB) and CR-6 will be launched using STB. CR-7 will be used as a back-up to the next UTB flight; therefore, CR-7 can be launched either with STB or UTB film as is necessary.

2. Proposals and Future Changes

(a) Glass Filters - CR-14 and up will use glass filters.

(b) Film

(1) SO-380 (ultra thin base film)

The next system to fly with UTB film will be CR-8 in July 1969.

(2) Splices

A/P will conduct a test program for ultrasonic film splices. These would provide less rigid splices and therefore be more acceptable for the J-3 systems.

(c) A constant tension device is being incorporated in future J-3 systems. This mod should reduce tension transients during operation.

(d) Linear cams for slit width control are being designed. These would permit a set of cams to be manufactured that could be used for a wide variety of lighting conditions. This would reduce the reaction time for back-up J-3 systems for future missions.

(e) Itek Boston is developing a double slit test that would provide an indication of smear and its measurement in both the scan and cross track direction. The results could give valuable information concerning film flatness and relative motion in the platten area.

(f) CASCADE Command System - [redacted] - The new command system is fully operative, and will be used with CR-6 (Mission 1106) in early February.

C. CORONA Systems Remaining

There exist only three J-1 systems; two of these will be used by the end of fiscal year 1969; the last will be used in September 1969. Eight J-3 systems remain in house, one of the above J-3 systems will be used in February 1969. Itek Boston will deliver four additional J-3 systems by end of fiscal year 1970. The last CORONA flight is scheduled for the end of fiscal year 1971.

D. Deliveries to A/P

1. SRV deliveries

821/822 - October 1968
739R/740R - November 1968
823/824 - December 1968

2. DISIC Deliveries

DISIC S/N 13 - October 1968
DISIC S/N 2R - December 1968

E. Missions Completed During This Quarter

Mission No.	1105	1049
Booster No.	515	527
Agena No.	1646	1648
Payload No.	CR-5	J-50
Instrument No.	310/311	224/225
SI No.	--	D-113/114
DISIC No.	None	--
DRCG No.	601	609
Film Type	46033 ft. - SO-380 490 ft. - SO-121	230/230
Flight Date	3 November 1968	12 December 1968
Feet Payload Flown	46530	32424
Feet Payload Recovered	46522	32424
Recovery Dates	12/21 November 1968	18/23 December 1968

F. Missions Planned for Next Quarter

Date	5 February 1969	19 March 1969
Mission	1106	1050
Payload	CR-6	J-43

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G. Meetings and Briefings

1. PET Meeting for Mission 1048 was held at NPIC on 15 and 16 October 1968.

2. Payload Managers' Meeting was held at Itek, Boston, on 21 and 22 November 1968.

3. PET Meeting for Mission 1105 was held at NPIC on 3, 4 and 5 December 1968.

4. UTB Task Team Meeting at A/P on 19 and 20 December 1968. Summary of data from past UTB flights and tests at A/P, Itek Boston were presented.

   Note to Headquarters: Add [redacted] comments concerning this.

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