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DEPARTMENT OF THE AIR FORCE
DIRECTORATE OF [redacted]

14 Jun 72

REPLY TO ATTN OF: [redacted]

SUBJECT: CORONA Mission Summary

TO: DNRO (Dr. McLucas)

Attached is the summary for Mission 1117.

[redacted]

Atch
Summary Mission 1117

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MISSION BRIEF

I. Mission 1117 was successfully launched from Vandenberg AFB at 1841Z on 25 May 1972.

II. 1117-1 and 1117-2 were both successfully air recovered on 27 May and 31 May 1972, respectively.

III. [redacted] were carried as additional payloads. Performance was satisfactory.

IV. Mission duration was reduced from 19 to 6 days due to flight vehicle anomalies.

V. This was the final CORONA mission.

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S U M M A R Y

MISSION 1117

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CORONA

Mission Number:	1117
FV/Booster/Payload:	1663/71-170/CR-8
IRON:	6371
Launch Date:	1841Z, 25 May 1972
Launch Facility:	SLC-3, West Pad, Vandenberg AFB, California
Recovery:	1117-1, Rev 34, 2143Z, 27 May 1972, Aerial Recovery
	1117-2, Rev 98, 2045Z, 31 May 1972, Aerial Recovery
Film Take:	1117-1, 16,454 feet
	1117-2, 15,911 feet

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MISSION HISTORY AND PERFORMANCE

I. PREFLIGHT

A. Mission Scheduling

[redacted] message [redacted] dated 25 April 1972 scheduled Mission 1117 for 23 May 1972. This date was changed to 25 May 1972 by [redacted] to permit further evaluation of the Program [redacted] failure and to complete additional confidence checks of the flight vehicle.

B. Payload/CR-8

Payload CR-8 arrived at Vandenberg AFB on 16 May 1972. Payload mating and confidence checks were accomplished satisfactorily. The pan camera load consisted of type 3414 film.

C. Booster/THORAD/71-170

Booster 71-170 arrived at Vandenberg AFB on 6 October 1970 and was placed in storage. The booster was transferred to the launch pad and was erected 21 April 1972. Prelaunch testing was normal and completed as scheduled.

D. FV 1663 completed manufacturing and systems test on 18 August 1970 and was shipped to Vandenberg AFB on 16 August 1971. Prelaunch testing was normal and completed as scheduled. During prelaunch testing the following discrepancies were identified and corrected:

1. The Link I and II Channel 12 commutator was replaced due to excessive noise on the telemetry data output caused by excessive commutator segment dwell time. A second replacement was made after the commutator failed to start which was attributed to loose epoxy material jamming the armature.

2. The Interface Switch (IS) Box was replaced twice due to blown fuses. One blown fuse resulted from the failed power supply inverter in the tape recorder (see Item 3), and a second blown fuse resulted from a technician inadvertantly shorting a test lead to the vehicle structure.

3. The tape recorder was replaced due to a failed power supply inverter caused by a shorted transformer in the inverter and subsequent failure of two output transistors.

4. The nitrogen pressure regulator was replaced due to malfunctioning pressure relief valves caused by metallic particle contamination and resultant galling and mechanical interference of the valves.

II. COUNTDOWN AND LAUNCH

A. The countdown was initiated at 1037Z on 25 May 1972 and proceeded normally to liftoff at 1841Z, 25 May 1972. Two holds were imposed for 25 minutes to correct a pressure relief valve in the oxidizer transfer system and to permit railroad traffic to clear the range safety area.

B. The performance of the THORAD booster and Agena vehicle was satisfactory. All systems functioned properly.

III. ORBIT

A. Injection Parameters

	Predicted	Actual
Period	89.00 Min	88.91 Min
Perigee	84.8 NM	87.7 NM
Apogee	163.0 NM	159.3 NM
Inclination	96.40 Deg	96.35 Deg

B. Mission Performance

1. During Rev 0 immediately following injection, the solar array did not deploy which limited mission life to approximately eight days due to battery power constraints and no solar array output. After the first DMU firing on Rev 2, usage of attitude control gas became abnormally high such that a first opportunity recovery became mandatory. On Rev 7 a second DMU was fired in an attempt to reduce control gas usage. A reduction in gas usage was observed which permitted first recovery to be made on day 2. Control gas usage further declined following recovery permitting extension of mission life to six days. The solar array anomaly is attributed to a misaligned hold down clamp which did not release properly, thus restraining the array in the stowed position. Actions have been initiated to re-emphasize disciplines in inspection procedure and discrepancy reporting to other programs. The excessive control gas usage is attributed to a high pressure leak in the attitude control system. Investigation of both anomalies is continuing.

2. One DMU was fired for period control and to adjust perigee location. One DMU was fired in an attempt to reduce the control gas usage rate. Both firings were successful and orbit adjustments were within predicted limits.

[redacted]

C. Post Mission Events

1. Research payloads [redacted] were deployed and activated. Performance was satisfactory; however, the [redacted] payload data was apparently unusable. This was attributed to payload sensitivity adjustments.

2. One DMU was fired in an unsuccessful attempt to release the solar array.

3. The back-up recovery system (Lifeboat) electronics was successfully exercised in the U-1 mode.

4. Primary control gas and electrical power were depleted on Rev 137 and 139, respectively. The flight vehicle and payload re-entered on Rev 166, impacting at approximately 2332Z, 4 June 1972.

IV. RECOVERY

A. 1117-1 and 1117-2 were both successfully air recovered at 2143Z, 27 May 1972 and 2045Z, 31 May 1972, respectively.

B. Recovery Location

	Rev	Predicted	Actual
Recovery #1	34	24-36 N 161-24 W	24-53 N 161-23 W
Recovery #2	98	19-00 N 148-12 W	19-32 N 147-51 W