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No. [redacted]

14 November 1967

TO: [redacted]
C. Murphy
A. Johnson

THRU: [redacted]

FROM: [redacted]

SUBJECT: MISSION 1040-1 and 1040-2 FINAL REPORT

Enclosed is the Final Performance Evaluation Report for Mission 1040-1 and 1040-2.

[redacted] Manager
Advanced Projects

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C [redacted]

Copy No. [redacted]

CORONA J

PERFORMANCE EVALUATION REPORT

MISSION 1040-1 and 1040-2

FTV 1636...J-35

5 October 1967

Approved: [redacted]
Manager
Advanced Projects

Approved: [redacted] for
Program Mgr.

[redacted]

[redacted]

FOREWORD

This report details the performance of the payload system during the operational phase of the Program [redacted] flight Test Vehicle U636.

Lockheed Missiles and Space Company has the responsibility for evaluating payload performance under the Level-of-Effort and "J" System contracts.

This document is the final payload test and performance evaluation report for Missions 1010-1 and 1010-2 which was launched on 30 March 1967.

[redacted]

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[redacted]

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INTRODUCTION

This report presents the final performance evaluation of Missions 1040-1 and 1040-2 of the Corona Program. The purpose of this report is to define the performance characteristics of the J-35 payload system and to identify the source of in-flight anomalies.

The performance evaluation was jointly conducted by representatives of Lockheed Missiles and Space Company (LMSC) and ITEK at the facilities of NPIC and AFSPPF. The off-line evaluation using Corona engineering photography acquired over the United States was performed at the individual contractors plants.

The quantitative data used for this report is obtained from government organizations. The diffuse density data, and MTF/AIM resolution are produced by AFSPPF. The vehicle attitude error values, frame correlation times are made at NPIC who also supply the Processing Summary reports published by [redacted]

Computer programs developed by A/P are utilized to calculate and plot the frequency distribution of the various contributors to image smear to permit analysis and correlation of the conditions of photography to the information content and quality of the acquired pictures. Computer analysis of the exposure, processing and illumination data provides the necessary data to analyze the exposure criteria selected for the mission.

SECTION 1

SYSTEM PERFORMANCE

A. MISSION OBJECTIVES

The payload section of Mission 1040, placed into orbit by Flight Test Vehicle #1636 and LV-2A booster #501, consisted of two panoramic cameras, two Stellar-Index cameras, two Mark 5A recovery capsules and a space structure to enclose the cameras and provide mounting surfaces for all equipments. Figure 1-1 presents an inboard profile of the J-35 payload system. This Corona "J" system is designed to acquire search and reconnaissance photography of selected areas of the earth from orbital altitudes. The planned mission was two, 5 day photographic periods with no deactivate period. The vehicle was flown nose forward.

B. MISSION DESCRIPTION

The payload was launched from Vandenberg Air Force Base (VAFB) at 1854 Z (1054 PST) on 30 March 1967. Ascent and injection were normal and the achieved orbit was within nominal tolerances. Tracking and command support was effected by the Air Force Satellite Control Facility consisting of tracking and command stations at [redacted] under central control of the Satellite Test Center at Sunnyvale, California. Mission 1040-1 consisted of a 5 day operation and was completed by air recovery on 4 April 1967. Mission 1040-2 was completed with an air recovery on 8 April 1967 following a 4 day photographic operation.

The comparison of the planned and actual orbit parameters is tabulated as follows:

[redacted]

ORBITAL PARAMETERS

Parameter	REV-1 Predicted	REV-42 Actuals	REV-110 Actuals
Period (Min.)	90.30	90.265	90.091
Perigee (N.M.)	99.85	99.668	100.603
Apogee (N.M.)	214.77	214.130	210.450
Inclination (Deg.)	85.00	85.054	85.054
Perigee Latitude (Deg. N.)	20.37	28.271	45.391
Eccentricity	0.01597	0.01591	0.01529

C. PANORAMIC CAMERAS

The image quality was rated better than Mission 1038 and comparable to Mission 1039. This was a nose forward flight.

D. STELLAR-INDEX CAMERAS

Both units produced good photography for vehicle orientation data reduction. The Stellar images were point type.

E. OTHER SUB-SYSTEMS

The clock, instrumentation, command, thermal control pressure make-up and recovery subsystems performed satisfactorily.

SCHEMATIC INBOARD PROFILE - CORONA J SYSTEM

J-35
MISSION 1040

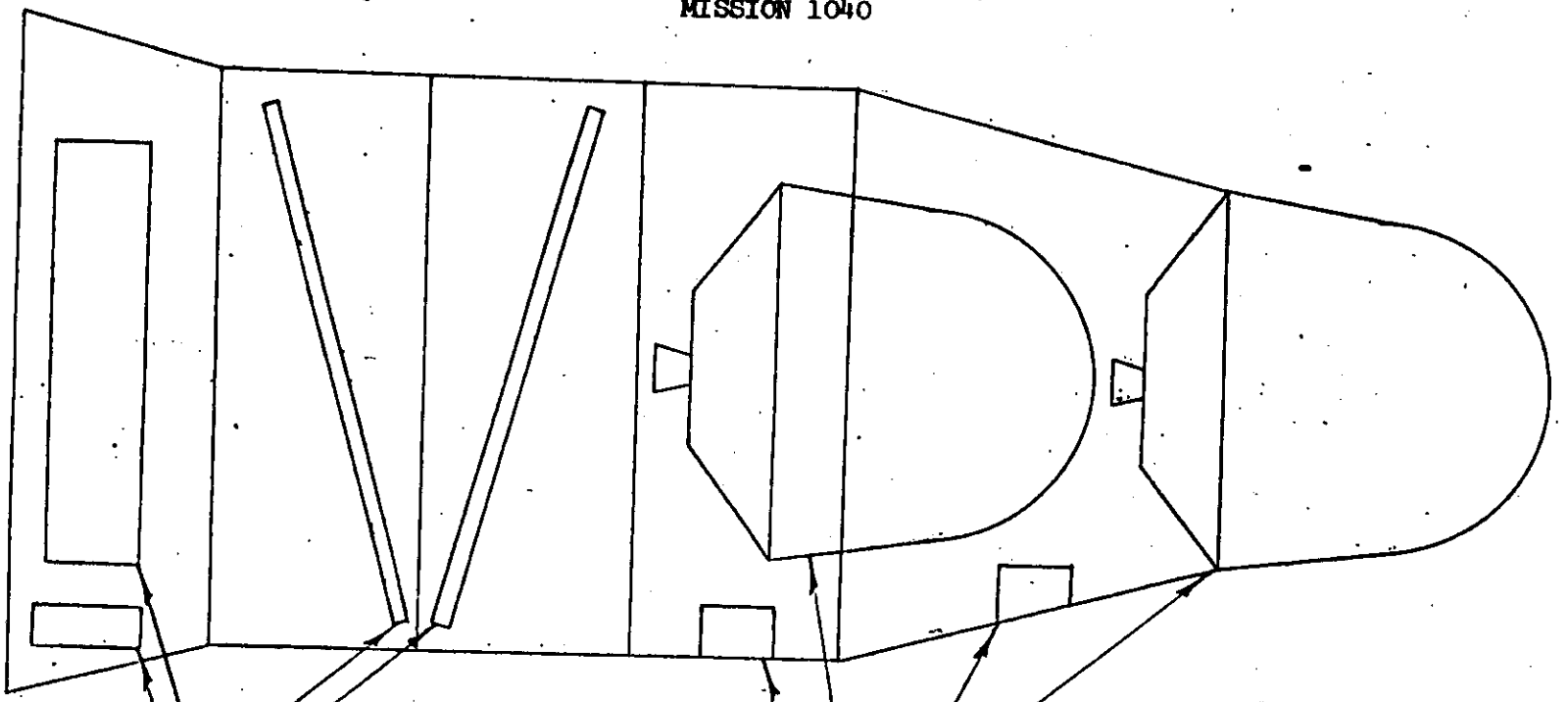

FIGURE 1-1

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SECTION 2

PRE-FLIGHT SYSTEMS TESTS

A. ENVIRONMENTAL TESTING

1. Test Objective

As a standard procedure, the J payload systems are subjected to thermal/altitude environmental testing which simulates orbital environment. One of the purposes of this test is to demonstrate the system susceptibility to corona discharge. Such discharge fogs the film thus degrading the operational photography.

2. Test Summary

The J-35 payload system was subjected to an environmental HIVOS chamber test from 30 March through 6 April 1966. A total of 5542 cycles was operated in the master instrument and 5579 cycles in the slave. The internal camera pressures experienced during this test were 0.7 to 80 microns.

The pan instruments operated satisfactorily except for the random occurrence of light or absent horizon fiducials, camera serial number and binary index imagery. This condition was checked and it was determined to be caused by voltage irregularities in the HIVOS cabling.

The only Corona observed was random occurrences of low density start-up Corona.

Payload scratching was at a minimum. Slight scan head scratches were confined to the start of scan.

The cut and wrap function was normal.

The operations of S/I D-78 and D-92 were entirely acceptable for the 425 frames cycled in each unit.

B. RESOLUTION TEST

Resolution and theodolite tests were performed on 18 April 1966. Results of the thru-focus resolution tests of pan instruments 196 and 197 show the following characteristics:

Master Pan Instrument No. 196

Maximum high contrast resolution 169 lines/mm at -0.001 focal position.

Maximum low contrast resolution 110 lines/mm at -.001 focal position.

Slave Instrument No. 197

Maximum high contrast resolution 167 lines/mm at +0.001 focal position.

Maximum low contrast resolution 116 lines/mm at 0.00 focal position.

Both instruments met the system requirements specification.

C. LIGHT LEAK TEST

The system was rated acceptable for flight and placed in storage. On removal from storage the space structure was disassembled and a new recovery barrel was integrated to the system. The second light leak test indicated an excessive leak from the master camera drum seals. The seals were adjusted and checked out for flight acceptability.

D. FLIGHT READINESS

The Flight Readiness test of Panoramic Instrument #196 and 197 was completed without incident on 20 March 1967. Examination of the processed 3404 type film exhibits from Instrument #196 and 197 revealed acceptable camera performance including tracking, normal rail scratches, horizon camera performance including tracking, normal rail scratches, horizon fiducials and shutter function, time track, serial number, binary index marks, binary word, shrinkage markers, and uniformity of fogged format.

Processed film exhibits from the Post Storage Baseline test from Stellar/Index cameras D-78 and D-92 demonstrated acceptable performance. Reseau, fiducial, and correlation lamp imagery, produced on film type 3401 by both stellar cameras, were rated good. Reseau and correlation lamp imagery produced on film type 3400 by both index cameras was acceptable.

Flight film spools were placed in the supply cassette without incident on 21 March 1967.

The J-35 system pre-flight acceptance run was initiated on 22 March 1967. Film transport was terminated when the field flattener rollers on Master camera #196 appeared to exhibit abnormal operation. The field flattener rollers were changed using those from J-40 system. Subsequent film operations on the morning of 23 March 1967 revealed normal J-35 system performance.

The J-35 system was accepted for flight.

Customer review and final J-35 system buy off was concluded on the afternoon of 23 March 1967.

[redacted]

SECTION 3

FLIGHT OPERATIONS

A. SUMMARY

All launch, ascent, and injection events occurred as programmed. The orbit achieved was within the 3 sigma dispersions.

Both panoramic cameras operated satisfactorily throughout the flight. Average cycle rates for both cameras deviated from the pre-flight calibrated values by less than 2.0 per cent.

Both the -1 and -2 Stellar/Index cameras, the clock system, and the instrumentation and command systems operated satisfactorily throughout the flight.

The on-orbit internal temperature environment was comparable to the pre-flight predictions.

The on-orbit sine function generator performed normally for the duration of the mission.

Kik-Zorro 38 (early A to B switchover) was performed on Rev 72 by the [redacted] Tracking Station and all transfer functions were normal.

Both recovery systems operated normally throughout the flight.

This vehicle was used as a test agena for in-flight testing of the new UNCLE Command System. Numerous tests were performed with the UNCLE system at all tracking stations. Preliminary evaluation of the UNCLE Command System, as derived from real-time Auggie data is included in Paragraph H. Complete analysis of the UNCLE Command System is continuing.

The analog command system (S-BAND) failed to respond to commands on Rev 43. The cause of this failure was attributed to a failure of the type XI decoder. Command capability returned briefly on Rev 54, 55, and 56. The command system remained inoperative until Rev 113. The command system then functioned properly throughout the remainder of the mission. Payload system commanding was accomplished utilizing the VHF command system from Rev 43 through the remainder of the flight except for the isolated revs in which the analog command system was functioning.

[redacted]

This payload system was flown with the new gold-epoxy recovery barrel in place of the normal vacuum deposited gold finish on the recovery barrel. The remainder of the J-35 payload system conformed to the standard J-1 configuration.

B. PANORAMIC-CAMERA PERFORMANCE

Both panoramic cameras opereted normally throughout the mission. Cycle period data for the engineering passes monitored are tabulated in Table 3-1. Camera system dynamic operation, 99/101 clutch operation, start-up, shut-down, and transport functions were normal for all passes monitored. The cut and wrap operation and transfer to the r2 system occurred as programmed utilizing the Kik-Zorro 38 command (early A to B switchover).

The panoramic film was exhausted on Rev 136 Frame No. 61 on the Master (Aft Looking) and Rev 143 Frame No. 13 on the Slave (FWD Looking).

Panoramic Film Consumption (Frames)

	Actual	
	Master	Slave
Sample Off-Spooling	19	19
Pre-Launch	150	148
-1 Mission	2780	2734
-2 Mission	3113	3161
Total	6062	6062

FMC Match

The V/h ramp to orbit match was acceptable throughout the flight. The following settings 6, 8, and 10 were utilized to obtain the optimum FMC match during the flight:

	RTC Commands			Remarks
	6	8	10	
RTC Positions	6	5	6	Launch thru Rev 4
	6	5	7	Rev 4 thru the end of the mission

[redacted]

C. STELLAR/INDEX CAMERA PERFORMANCE

Both the -1 and -2 Stellar/Index cameras operated satisfactorily on all monitored engineering passes.

D. INSTRUMENTATION AND COMMAND SYSTEM PERFORMANCE

The instrumentation and command systems operated properly throughout the flight except for an intermittent vehicle command system failure on the S-Band Link which resulted in the loss of the primary payload command system. Subsequent to this failure, all payload commands were issued by the secondary command system (VHF Link) except for a few revs in which the S-Band command system was operative.

E. CLOCK SYSTEM PERFORMANCE

Clock system operation was normal for the duration of the flight. Satisfactory time correlation between the flight clock and [redacted] Tracking Station time was obtained. Table 3-2 contains the correlation data.

F. PRESSURE MAKE-UP SYSTEM PERFORMANCE

Pressure make-up system performance was normal throughout the flight. Average gas consumption was approximately 8.7 psi/min for the 234 minutes of total operate time. The system had a surplus of 360 PSIA at the end of the mission.

G. THERMAL ENVIRONMENT

Temperature data for the [redacted] acquisitions are included in Table 3-3. The average instrument temperatures ranged from a high of 80°F on the Master and 77°F on the Slave to a low of 68°F on the Master and 65°F on the Slave.

The thermal control paint pattern on the payload system and on the gold-epoxy R-Barrel were modified for this flight. This modification produced temperature predictions of 75°F ± 5°F on the Master and 70°F ± 5°F on the Slave.

[redacted]

H. UNCLE COMMAND SYSTEM FLIGHT TEST

FLIGHT OBSERVATIONS (Based on AUGIE data and real-time microwave records from 13 [redacted] passes)

1. UNCLE System will accept "clear" and "special" execute commands at 20 and 1000 Bits/Second.

   The [redacted] microwave data indicates however that periodic command failures will occur during a repetitive sequence, the incidence of failures being significantly higher at low elevations (weak signal strengths).

2. In no observed case did a "false" command execute.

   Testing included "long" and "short" commands, parity errors, simultaneous bits, false address as well as a false KIK UNCLE 40 (secure execute) command.

3. Antenna point error is not critical.

   The command antenna drive was stopped in a number of cases while commanding in a repetitive mode. Commands continued to be accepted for up to two minutes in these cases.

4. UNCLE somewhat succeptible to "turn on" and random bits at low signal strength.

   Under certain conditions the UNCLE receiver appears to accept (or generate) a significant number of data bits. These bits are accepted by the decoder and load the shift register. No spurious decoder command outputs were observed but a probability study is recommended.

[redacted]

5. Effective command horizon requires further investigation.

   The effective, reliable UNCLE commanding horizon appears somewhat limited (UNCLE commanding being negated by noise, etc., during periods of relatively high elevation). This command horizon should be established by further analysis of data from passes where repetitive commanding was performed near acquisition and fade.

6. 84 task accomplishments by Satellite Control Facility (in spite of "unscheduled" requirement to use ZEKE system extensively) will provide ample data for analysis.

J-35 FLIGHT

REV. MODE	OP R	RAMP A	TUR SECS	SYSTEM CALIB.	ACTUAL	UNIT DEV.	SYSTEM DEV.	ACTUAL	UNIT DEV.	SYSTEM DEV.	196/197 DIFF.
				INST. 196			INST. 197				
008	A	6 5	80	3.887	3.809	1.75F	2.02F	3.832	1.70F	1.43F	0.60
016	A	6 5	1705	2.248	2.242	0.30S	0.25F	2.273	0.59S	1.18S	1.38
047	A	6 5	1793	2.221	2.250	1.77S	1.30S	2.250	0.75S	1.30S	0.0
079	B	6 5	1781	2.224	2.225	0.61S	0.05S	2.250	0.63S	1.18S	1.12
111	B	6 5	1999	2.215	2.225	0.70S	0.45S	2.243	0.34S	1.27S	0.81
127	B	6 5	2054	2.222	2.235	1.08S	0.57S	2.250	0.69S	1.24S	0.67

DEV. AND DIFF. ARE IN PERCENT
THE (-) SIGN INDICATES THAT INST 1 IS SLOWER THAN INST 2
F=FAST AND S=SLOW

TABLE 3-1

[redacted]

CLOCK CORRELATION SUMMARY.

ORDER FIT ONE

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
0.234034610 05	0.264803656D 06	0.2340348620 05	-0.0052	8	[redacted]
0.685006778D 05	0.309986965D 06	0.6850678860 05	-0.0106	16	
0.237174830 05	0.351517662D 06	0.2371747940 05	0.0036	24	
0.687286730D 05	0.396528917D 06	0.6872872770 05	0.0023	32	
0.239957610 05	0.438195952D 06	0.2399575660 05	0.0044	40	
0.636092980 05	0.477809499D 06	0.6360929770 05	0.0003	47	
0.242340920 05	0.524834294D 06	0.2423406570 05	0.0063	56	
0.638284780 05	0.275577760D 05	0.6382847390 05	0.0041	63	
0.244788860 05	0.746081940D 05	0.2447888490 05	0.0011	72	
0.640137930 05	0.114143106D 06	0.6401379100 05	0.0020	79	
0.246063030 05	0.161135623D 06	0.2460630110 05	0.0019	88	
0.641149100 05	0.200644236D 06	0.6411490820 05	0.0018	95	
0.247245470 05	0.247653881D 06	0.2472454630 05	0.0007	104	
0.642217210 05	0.287151066D 06	0.6422172540 05	-0.0044	111	
0.248058290 05	0.334135181D 06	0.2480583350 05	-0.0045	120	
0.642793380 05	0.373608700D 06	0.6427934660 05	-0.0086	127	
0.194847350 05	0.415214099D 06	0.1948473940 05	-0.0044	135	
0.642978530 05	0.460027210D 06	0.6429784380 05	0.0092	143	

A0=-0.24140013050 06 A1= 0.9999998516690 00
SIGMA=0.00494 NO. POINTS= 18
RATIO OF CLOCK TIME TO SYS TIME= 0.10000001461300 01

ORDER FIT TWO

SYS TIME I/P	CL TIME I/P	COMP SYS TM	DELTA ST	REV	STA
0.234034610 05	0.264803656D 06	0.2340348290 05	-0.0019	8	[redacted]
0.685006778D 05	0.309906965D 06	0.6850678640 05	-0.0084	16	
0.237174830 05	0.351517062D 06	0.2371747830 05	0.0047	24	
0.687287300 05	0.396528917D 06	0.6872872750 05	0.0025	32	
0.239957610 05	0.438195952D 06	0.2399575710 05	0.0039	40	
0.636092980 05	0.477809499D 06	0.6360929870 05	-0.0007	47	
0.242340920 05	0.524834294D 06	0.2423408730 05	0.0047	56	
0.638284780 05	0.275577760D 05	0.6382847570 05	0.0023	63	
0.244788860 05	0.746081940D 05	0.2447888690 05	-0.0009	72	
0.640137930 05	0.114143106D 06	0.6401379300 05	-0.0000	79	
0.246063030 05	0.161135623D 06	0.2460630290 05	0.0001	88	
0.641149100 05	0.200644236D 06	0.6411490960 05	0.0002	95	
0.247245470 05	0.247653881D 06	0.2472454730 05	-0.0003	104	
0.642217210 05	0.287151066D 06	0.6422172590 05	-0.0049	111	
0.248058290 05	0.334135181D 06	0.2480583310 05	-0.0041	120	
0.642793380 05	0.373608700D 06	0.6427934550 05	-0.0075	127	
0.194847350 05	0.415214099D 06	0.1948473730 05	-0.0023	135	
0.642978530 05	0.460027210D 06	0.6429784050 05	0.0125	143	

A0=-0.24140014440 06 A1= 0.9999999020060 00
A2=-0.39709291206480-13

TABLE 3-2

[redacted]

TABLE 3-3

J-35 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																	
										A	B							
Master Camera	8	16	24	32	40	47	56	63	72	79	88	99	104	111	120	127	135	143
3	72	63	65	63	68	63	69	63	67	63	63	58	63	59	63	60	63	59
4	80	69	73	68	73	70	74	68	74	68	72	66	72	67	71	67	72	67
5	81	72	76	72	78	73	78	72	77	73	74	70	74	72	74	72	75	71
6	82	75	78	75	79	77	80	76	79	77	77	73	78	75	78	76	79	76
7	80	73	78	74	78	75	78	74	78	75	74	70	74	71	74	72	75	72
8	83	73	80	73	79	74	79	74	79	74	77	71	77	72	77	73	77	71
9	84	74	82	74	81	75	81	75	75	76	79	73	79	74	79	75	80	74
11	78	68	74	68	75	67	75	71	75	67	72	72	73	62	73	66	74	69
12	80	68	77	68	75	68	76	68	74	68	71	64	71	66	71	66	71	65
13	79	71	73	71	75	71	76	72	75	71	72	67	72	68	72	69	74	70
AVG	80	74	78	74	76	71	77	71	76	71	73	68	73	69	73	70	74	70
Slave Camera																		
3	76	67	70	67	75	69	76	69	76	71	73	66	72	68	74	69	76	70
4	80	71	76	72	80	75	80	73	80	75	77	70	77	72	78	73	79	73
5	76	67	77	68	72	69	75	69	72	69	70	73	69	65	70	66	70	65
6	75	67	70	68	72	70	74	68	71	68	66	62	66	63	66	64	67	64
7	77	69	73	69	74	71	75	70	73	70	69	64	68	66	68	66	70	66
8	79	71	75	72	78	73	78	73	77	72	74	67	73	69	74	69	74	69
9	76	67	72	68	72	69	74	67	72	68	69	62	68	64	69	64	69	63
11	68	62	68	62	65	65	67	63	65	65	61	61	59	63	61	63	61	58
12	78	68	74	69	77	71	79	70	77	71	75	67	75	68	76	70	76	70
13	74	67	71	68	70	69	73	68	70	69	66	63	64	65	64	65	65	63
AVG	77	69	74	66	73	70	75	69	73	70	70	66	69	66	70	67	71	66
Supply Spool																		
1	64	59	58	60	64	62	65	62	65	56	60	57	60	58	60	59	62	59
2	66	62	64	62	68	64	69	64	69	65	65	61	64	62	64	62	66	62

TABLE 3-3

J-35 TEMPERATURE SUMMARY

SENSOR	ORBITS ACQUIRED																	
										A	B							
Fair ("A") Barrel #1 ("B")	8	16	24	32	40	47	56	63	72	79	88	95	104	111	120	127	135	143
1	29	98	23	68	29	74	29	71	22	77	14	27	18	27	14	27	18	30
2	15	22	20	9	12	9	12	9	9	9	57	39	54	39	51	39	48	39
3	-2	02	-2	-2	-2	2	-2	2	-9	5	65	80	65	83	65	83	60	109
4	39	45	27	42	39	45	36	45	33	45	46	76	49	79	49	82	46	102
5	50	75	32	12	47	81	44	81	44	84	35	53	98	56	38	59	38	59
6	37	107	27	89	37	92	37	95	37	104	--	--	--	--	--	--	--	--
Barrel #2																		
1	43	46	28	46	39	49	46	52	43	55	33	55	36	58	36	61	36	58
2	42	67	27	58	39	61	48	64	42	73	42	67	42	70	43	73	42	94
3	70	109	37	82	67	88	70	85	64	94	64	79	64	82	64	82	58	109
4	64	55	36	46	64	49	64	46	58	43	52	37	52	40	46	40	46	37
5	59	52	33	56	56	56	56	56	49	52	31	37	34	37	34	43	31	40
Conic Adapter																		
1	42	57	30	57	45	63	45	63	45	69	35	69	38	75	35	78	38	78
Clock																		
1	68	62	36	64	72	66	68	64	68	64	58	56	60	58	58	60	60	58
2	63	59	53	59	63	61	65	59	63	59	53	51	55	53	57	55	53	53
Thrust Cone "A" to "B" SRV																		
1	42	32	36	31	34	31	37	30	33	30	55	52	56	53	54	54	56	53
2	61	49	43	48	53	48	53	48	52	69	71	67	71	69	71	69	72	69
R Barrel																		
1	57	101	32	85	57	88	51	88	54	94	54	88	57	94	54	94	51	119
2	50	47	31	31	44	31	44	31	38	31	35	28	38	28	35	28	35	31
Recovery Battery "B" SRV																		
1	64	58	57	57	57	56	57	57	57	57	80	76	82	74	75	78	77	81
Master Cassette "A" SRV																		
2	68	63	64	66	67	67	66	65	65	64	--	--	--	--	--	--	--	--

SECTION 4

MISSION 1040-1 RECOVERY SYSTEM

SRV #721 was received at A/P on 24 November 1965. The receiving weight was 149.95 pounds. After modifications and incorporation of outstanding E.O.'s, the SRV was delivered to Systems Test for incorporation into the J-35 system.

The capsule was shipped to VAFB on 26 March 1967.

The -1 recovery capsule was successfully recovered by air catch Rev 81 at 1517 PST on 4 April 1967. All re-entry events appeared normal and occurred within tolerance. The capsule impact point was approximately 8 N.M. south of the predicted impact point.

	Latitude	Longitude
Predicted	25° 45.2' N	156° 37.4' W
Actual	25° 36.8' N	156° 36.6' W

The re-entry sequence of events is contained in Table 4-1.

MISSION 1040-1

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal
*Arm	76.71	77.0 ± 1.0
*Transfer	1.98	2.0 ± 0.25
Electrical Disconnect	0.86	0.900 $^{+0.430}_{-0.400}$
Separation	---	---
**Spin	3.40	3.4 ± 0.30
Retro	7.49	7.55 ± 0.45
Despin	10.67	10.75 ± 0.59
T/C Separation	1.51	1.5 ± 0.15
***"G" Switch Open	493.37	493.4
Parachute Cover Off	33.39	34.0 ± 1.5
Drogue Chute Deployed	0.68	0.63 ± 0.08
Main Chute Bag Separate	10.82	10.0 $^{+3.0}_{-2.2}$
Main Chute Deployed	0.52	0.52 ± 0.13
Main Chute Disreef	4.88	4.5 ± 0.80

* From Separation
** From Electrical Disconnect
*** From Retro

TABLE 4-1

SECTION 5

MISSION 1040-2 RECOVERY SYSTEM

SRV #722 was received at A/P on 24 November 1965. The receiving weight was 152.00 pounds. After modifications and incorporation of outstanding E.O.'s the unit was delivered to Systems Test for mating to the J-35 system.

The capsule was shipped to VAFB on 26 March 1967.

The -2 recovery capsule was successfully recovered by air-catch on Rev 145 at 1524 PST on 8 April 1967. All re-entry events appeared normal and occurred within tolerance. The capsule impact point was slightly south of the predicted impact point.

	Latitude	Longitude
Predicted	26° 02.6' N	164° 48.4' W
Actual	25° 58.4' N	164° 47.4' W

The re-entry sequence of events is contained in Table 5-1.

MISSION 1040-2

RECOVERY SEQUENCE OF EVENTS

Event	Delta Time (Seconds) Actual	Nominal
*Arm	76.83	77.0 ± 1.0
*Transfer	2.0	2.0 ± 0.25
Electrical Disconnect	0.88	0.900 + 0.430 - 0.400
Separation	---	---
**Spin	3.40	3.4 ± 0.30
Retro	7.55	7.55 ± 0.45
Despin	10.60	10.75 ± 0.59
T/C Separation	1.50	1.5 ± 0.15
***"G" Switch Open	511.80	514.1
Parachute Cover Off	33.47	34.0 ± 1.5
Drogue Chute Deployed	0.65	0.63 ± 0.08
Main Chute Bag Separate	10.19	10.0 + 3.0 - 2.2
Main Chute Deployed	0.54	0.52 ± 0.13
Main Chute Disreef	4.63	4.5 ± 0.80

* From Separation
** From Electrical Disconnect
*** From Retro

TABLE 5-1

SECTION 6

J-35 PANORAMIC CAMERAS

A. COMPONENT ASSIGNMENT

Component	Master (AFT) Serial Number	Slave (FWD) Serial Number
Main Camera	196	197
Main Camera Lens	1952435	1972435
Supply Horizon Camera	299-G6H	293-G6H
Supply Horizon Camera Lens	E12851	E12901
Take-up Horizon Camera	298-G5H	294-G5H
Take-up Horizon Camera Lens	E12847	E12884
Supply Cassette	SC-47	SC-47

B. CAMERA DATA AND FLIGHT SETTINGS

Main Camera:		
Lens	24"f/3.5	24"f/3.5
Slit Width	0.175"	0.225"
Filter Type	Wratten 21	Wratten 234
Film Type (Eastman)	3404	3404
Supply Horizon Cameras:		
	Starboard	Port
Lens	55 mm f/6.3	55 mm f/6.3
Aperture Setting	f/6.3	f/8.0
Exposure Time	1/100 second	1/100 second
Filter Type	Wratten 25	Wratten 25
Take-up Horizon Cameras:		
	Port	Starboard
Lens	55 mm f/6.3	55 mm f/6.3
Aperture Setting	f/8.0	f/6.3
Exposure Time	1/100 second	1/100 second
Filter Type	Wratten 25	Wratten 25