12 pages

TOP SECRET SPECIAL HANDLING

NO. [redacted]

T9-5-025

LAUNCH REQUIREMENTS- J21 VEHICLE 1615

11 MAY 1965

ATTACHED IS THE LAUNCH REQUIREMENTS AND LIMITATIONS FOR PAYLOAD J21 VEHICLE 1615.

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CHIEF
PAYLOAD INTERATION

DISTRIBUTION

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AUDIT BOOK
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1.0 SCOPE

1.1 GENERAL.

THE FOLLOWING REQUIREMENTS GOVERN THE CONDITIONS UNDER WHICH THE VEHICLE WILL BE LAUNCHED WITH THE A/P PAYLOAD SYSTEM. ANY DEVIATION FROM THE PRESCRIBED LIMITS SHALL BE CAUSE FOR HOLD. ANY STATUS CHANGES MUST BE REPORTED TO PAYLOAD INTREGRATION IMMEDIATELY AFTER OCCURRENCE FOR EVALUATION. ALL DISCREPANCIES AND DEVIATIONS MUST BE CORRECTED PRIOR TO RESUMPTION OF VEHICLE LAUNCH COUNT-DOWN.

1.2 DESIRED OBJECTIVE

ALL CAMERA OPERATIONS AFTER MATING SHALL BE CALLED 'ALPHA CHECKS' AND SHALL BE MICROWAVED TO STC. VAFB-AP SHALL BE RESPONSIBLE FOR IMPLEMENTING THIS OBJECTIVE.

2.0 PAYLOAD INTERNAL TEMPERATURE.

65 +/- 10 DEG. F. FROM MATING TO T-4 HOURS.
65 +/- 5 DEG. F. FROM T-4 THROUGH LAUNCH.

TEMPERATURE OF PAYLOAD SYSTEM SHALL BE MONITORED AND LOGGED EVERY ONE-HALF HOUR FROM MATING TO LAUNCH

3.0 RELATIVE HUMIDITY.

50 PERCENT OR LESS AT ALL TIMES.

4.0 N2 PRESSURE.

THE N2 MUST BE CONNECTED AND FLOWING WHEN THE SYSTEM IS ON THE LAUNCH PAD. MAXIMUM OFF TIME IS ONE-HALF HOUR PER DAY.

5.0 SRV TRANSMISSION FREQUENCY

RECOVERY TLM	228.2 +/- 0.1 MC
RECOVERY BEACON	235.0 +/- 0.1 MC

6.0 POWER.

POWER MUST BE APPLIED TO THE PAYLOAD INTERFACE WHENEVER THE PAYLOAD IS RAISED OR LOWERED.

7.0 THERMAL BLANKET

THERMAL BLANKET MUST REMAIN ON THE PAYLOAD FROM MATING UNTIL LAUNCH.

8.0 PRIMARY TELEMETRY READOUTS.

PAYLOAD CHECKOUT (MUST BE VERIFIED THROUGH VEHICLE TELEMETRY)

8.1 LENS ROTATION, HORIZON IDLER, AND CENTER OF FORMAT INSTRUMENT 1 CHANNEL 09, LINK I. NO BACK UP CHANNEL IS AVAILABLE.

8.2 LENS ROTATION, HORIZON IDLER, AND CENTER OF FORMAT INSTRUMENT 2 CHANNEL 10, LINK I. NO BACK UP CHANNEL IS AVAILABLE.

8.3 RING A CUMMUTATOR (.4 X 60) CHANNEL 13, LINK I AND POINTS LISTED BELOW. THE PRIMARY COMMUTATED POINTS MUST BE VERIFIED DURING PAYLOAD CONFIDENCE AFTER MATING AND CHECKOUT TASKS RUNS.

MONITOR FUNCTION	VERIFICATION PRIMARY CH-LK-PT	VOLTS	TOL.	ALTERNATE CH-LK-PT	VOLTS	TOL.
INSTR. 1 DOOR EJECT	13-1-10	1.3	+/-.2	NONE	---	---
INSTR. 2 DOOR EJECT	13-1-16	1.3	+/-.2	NONE	---	---
FAIRING SEPARATION	13-1-19	1.3	+/-.2	NONE	---	---
INSTR.1 CYCLE COUNT 1	13-1-22	0.55 STEP	+/-.15	13-1-25	4.05 OR GREATER	4.05 OR GREATER
INSTR.1 CYCLE COUNT 10	13-1-23	0.55 STEP	+/-.15	13-1-25	4.05 OR GREATER	4.05 OR GREATER
INSTR.1 CYCLE COUNT 100	13-1-24	0.55 STEP	+/-.15	13-1-25	4.05 OR GREATER	4.05 OR GREATER
FOOTAGE POT INSTR. 1	13-1-25	4.05 OR GREATER	4.05 OR GREATER	8-2-56	4.05 OR GREATER	4.05 OR GREATER
INSTR.2 CYCLE COUNT 1	13-1-27	0.55 STEP	+/-.15	13-1-31	0.9 OR LESS	0.9 OR LESS
INSTR.2 CYCLE COUNT 10	13-1-28	0.55 STEP	+/-.15	13-1-31	0.9 OR LESS	0.9 OR LESS
INSTR.2 CYCLE COUNT 100	13-1-29	0.55 STEP	+0-.15	13-1-31	0.9 OR LESS	0.9 OR LESS
CALIBRATE PLUS	13-1-30	5.0	--	13-1-07	5.0	---
CALIBRATE PLUS	13-1-30	5.0	--	13-1-14	5.0	---

FOOTAGE POT INSTR. 2	13-1-31	0.9 OR LESS	0.9 OR LESS	8-2-47	0.9 OR LESS	0.9 OR LESS
MODE MONITOR REC1/REC2	13-1-36	1.0	+/-.2	NONE	---	---
N2 BOTTLE PRESSURE	13-1-37	3.0 OR GREATER	---	11-1-11	3.0 OR GREATER	---
SEPARATION MON. SRV 2	13-1-46	1.3	+/-.2	NONE	---	---
FILM DOOR CLOSURE	13-1-47	4.7	+/-.2	NONE	---	---
CONTINUITY LOOP SRV-1	13-1-51	5.38	+/-.2	NONE	---	---
SEPARATION MON. SRV 1	13-1-52	0.28	+/-.1	16-1-25	0.28	+/-.1
RECOVERY BATTERY SRV-1	13-1-53	0.0	+/-.2	NONE	---	---
CONTINUITY LOOP SRV-2	13-1-54	5.38	+/-.2	NONE	---	---
RECOVERY BATTERY SRV-2	13-1-55	0.0	+/-.2	NONE		
CALIBRATE ZERO	13-1-57	0.0	---	13-1-04	0.0	---
SYC. PULSE	13-1-58	5.5	+/-.2	13-1-59	5.5	+/-.2
SYC. PULSE	13-1-58	5.5	+/-.2	13-1-60	5.5	+/-.2

ALL COMMAND SELECTOR POINTS AS LISTED PER LAUNCH REQUIREMENTS LIST IN APPENDIX I.

9.0 HOMING OF CAMERA SCAN ARMS.

9.1 BOTH CAMERA SCAN ARMS MUST BE PROPERLY HOMED PRIOR TO TERMINAL COUNT.

10.0 LAUNCH REQUIREMENTS COMMAND SETTINGS.

10.1 ALL STEPPING SWITCHES MUST BE POSITIONED IN ACCORDANCE WITH THE COMMAND SETTINGS LIST IN APPENDIX I PRIOR TO TERMINAL COUNT.

11.0 FILM CONSUMPTION PRIOR TO LAUNCH.

11.1 MINIMUM FILM CONSUMPTION PRIOR TO LAUNCH SHALL BE 100 CYCLES ON EACH INSTRUMENT.

11.2 SHOULD THE PAYLOAD SYSTEM STAY IN A LOADED CONDITION FOR AN EXTENDED PERIOD, THE SYSTEM SHALL BE OPERATED FOR 10 CYCLES EVERY FOUR DAYS.

12.0 RESPONSIBILITY.

12.1 IT SHALL BE THE RESPONSIBILITY OF THE SENIOR A/P PAYLOAD ENGINEER TO ENSURE THE IMPLEMENTATION OF THE RESTRICTIONS AND REQUIREMENTS LISTED HEREIN. IN ADDITION, HE IS CHARGED WITH THE RESPONSIBILITY OF SUPPLYING THE FOLLOWING SYSTEM INFORMATION IMMEDIATELY PRIOR TO LAUNCH TO FLIGHT OPERATIONS AND COMPUTER SERVICES BY TELEPHONE.

12.1.1 FINAL FLIGHT SYSTEM WEIGHTS

12.1.1.1 TOTAL SYSTEM WEIGHT, IN POUNDS. .....

	A SRV S/N	B SRV S/N ....
12.1.1.2 TOTAL SRV OR NOSE CONE WEIGHT, LBS.	.....	.....
12.1.1.3 RECOVERY VEHICLE WEIGHT, LBS.	.....	.....
12.1.1.4 SUSPENDED CAPSULE WEIGHT, LBS.	.....	.....
12.1.1.5 DUMMY PAYLOAD WEIGHTS		
A. NUMBER 1, LBS.	.....	.....
B. NUMBER 2, LBS.	.....	.....
C. NUMBER 3, LBS.	.....	.....
D. NUMBER 4, LBS.	.....	.....
12.1.1.6 RETRO ROCKET WEIGHT, LBS.	.....	.....
12.1.1.7 PARACHUTE WEIGHT, LBS.	.....	.....

12.1.2 AT THE TIME THE FLIGHT FILM IS FIRST SPLICED TO THE SYSTEM, RECORD THE CYCLE COUNTER READINGS, CASSETTE FOOTAGE POT VOLTAGE AND LENGTH OF TAKE-UP CASSETTE LEADER ON EACH INSTRUMENT.

	MASTER	SLAVE
A. CYCLE COUNTERS, CYCLES	.....	.....
B. FOOTAGE POT VOLTAGE, VOLTS	.....	.....
C. TOTAL SYSTEM LEADER, FT.	.....	.....

12.1.3 IF ANY OFF-SPOOLING IS PERFORMED, THE FOLLOWING IS REQUIRED AT THE TIME THE FINAL SPLICE IS MADE BETWEEN THE FLIGHT FILM AND THE TAKE-UP LEADER. RECORD THE CYCLE COUNTER READINGS, CASSETTE FOOTAGE POT VOLTAGES, AND REMAINING LENGTH OF LEADER IN THE TAKE-UP CASSETTES.

	MASTER	SLAVE
A. CYCLE COUNTERS, CYCLES	.....	.....
B. FOOTAGE POT VOLTAGE, VOLTS	.....	.....
C. REMAINING TAKE-UP LEADER, FT.	.....	.....

12.1.4 CYCLE COUNTER AND FILM FOOTAGE POT READINGS FOR EACH INSTRUMENT, AT LAUNCH.

	MASTER	SLAVE
A. CYCLE COUNTERS, CYCLES	.....	.....
B. FOOTAGE POT VOLTAGE, VOLTS	.....	.....

12.1.5 CLOCK ERROR, STATIC RUN, IN MICROSECONDS .....

12.1.6 TOTAL LENGTH OF FLIGHT FILM OFF-SPOOLED FROM EACH SUPPLY SPOOL INCLUDING ALL CONTROL STRIPS AND SAMPLES.

A. MASTER ..... FT.

B. SLAVE ..... FT.

12.1.7 TOTAL LENGTH OF FILM OFF-SPOOLED FROM EACH S/I INSTRUMENT.

A. S/I A STELLAR ..... FT.

A INDEX ..... FT.

B. S/I B STELLAR ..... FT.

B INDEX ..... FT.

12.1.8 DOOR POSITION MONITORS.

		TLM VOLTAGE		
A. INSTR. 1 MAIN DOOR	ON		OFF	
B. INSTR. 2 MAIN DOOR	ON		OFF	
C. FILM LIGHT DOOR	OPEN		CLOSED	

12.1.9 SRV SEPARATION MONITORS

	CONDITIONS			TLM VOLTAGE
	SRV-1	SRV-2	P-29 SW-OVER	
A.	MATED	MATED	MATED 1ST. REC.	.....
B.	SEP.	MATED	MATED 1ST. REC.	.....
C.	SEP.	SEP.	MATED 1ST. REC.	.....
D.	MATED	SEP.	MATED 1ST. REC.	.....
E.	SEP.	MATED	SEP. 2ND. REC.	.....
F.	SEP.	SEP.	SEP. 2ND. REC.	.....

12.1.10 FAIRING SEPARATION MONITORS

	CONDITION	TLM VOLTAGE
A.	MATED	.....
B.	SEPARATED	.....

12.1.11 CONITUNITY LOOP MONITOR CALIBRATIONS

	CONDITIONS			TLM VOLTAGE		
	CONTINUITY LOOP	S/I SEAL	MAIN SEAL	NOMINAL +/-5PCT	SRV-A	SRV-B
A.	CLOSED	CLOSED	CLOSED	1.84	.....	.....
B.	CLOSED	CLOSED	OPEN	4.30	.....	.....
C.	CLOSED	OPEN	OPEN	5.38	.....	.....
D.	OPEN	OPEN	OPEN	4.57	.....	.....
E.	OPEN	OPEN	CLOSED	2.16	.....	.....
F.	OPEN	CLOSED	CLOSED	0.75	.....	.....
G.	OPEN	CLOSED	OPEN	3.42	.....	.....
H.	CLOSED	OPEN	CLOSED	3.12	.....	.....

APPENDIX I PAYLOAD LAUNCH REQUIREMENT LETTER

LAUNCH REQUIREMENT- COMMAND SETTINGS

THE FOLLOWING COMMAND SETTINGS ARE SPECIFIED FOR J21 PAYLOAD 1615 VEHICLE. DATE OF ISSUE .....

		COMMAND SELECTOR	VERIFICATION PRIMARY		VERIFICATION SECONDARY	
NO.	FUNCTION	POSITION	CH-LK-PT	VOLTS TOL	CH-LK-PT	VOLTS TOL
6	V/H RAMP LEVEL	7	13-1-02 13-1-03	2.0 ±.10 3.0 ±.15	8-2-24 8-2-26	2.0 ± .10 3.0 ± .15
8	V/H RAMP AMPLITUDE	6	13-1-05 13-1-06	2.0 ± .10 2.0 ± .10	8-2-28 8-2-30	2.0 ± .10 2.0 ± .10
9	PROGRAM	4	13-1-08 13-1-09	1.0 ± .05 4.0 ± .20	8-2-32 8-2-34	1.0 ± .05 4.0 ± .20
10	V/H RAMP DELAY	6	13-1-11 13-1-12	2.0 ± .10 2.0 ± .10	8-2-44 8-2-45	2.0 ± .10 2.0 ± .10
11	INSTR. MODE	1	13-1-14 13-1-15	1.0 ± .05 1.0 ± .05	8-2-48 8-2-50	1.0 ± .05 1.0 ± .05
12	INTERMIX POSITION	11	13-1-17 13-1-18	4.0 ± .20 4.0 ± .20	8-2-52 8-2-53	4.0 ± .20 4.0 ± .20
15	INTERMIX MODE	4	13-1-20	4.0 ± .20	8-2-55	4.0 ± .20

LAUNCH REQUIREMENTS- CAMERA SYSTEM

LOADING MONITORS- THE FOLLOWING REPRESENTATIVES HAVE BEEN DESIGNATED RESPONSIBLE DURING LOADING OF THE FLIGHT SYSTEM

* CUSTOMER- PRIME
ALTERNATE R. BURKS

AP- PRIM
ALTERNAT

BOSTON- PRIME R. WARDELL
ALTERNATE H. ROCHETTE

* OR DESIGNATED REPRESENTATIVE.

THE FOLLOWING SETTINGS/REQUIREMENTS ARE SPECIFIED FOR THE J21 PAYLOAD 1615 VEHICLE.

PANORAMIC LENS SETTINGS-

	INSTRUMENT 1 (MASTER)	INSTRUMENT 2 (SLAVE)
SLIT DIMENSIONS	.175	.250
FILTER TYPE	WRATTEN 21	WRATTEN 25

NOTE- SLIT DIMENSIONS MUST BE MEASURED PRIOR TO INSTALLATION.

MEASURED BY .....

VERIFIED BY .....

HORIZON OPTICS SETTINGS -

	INSTRUMENT 1 (MASTER)	INSTRUMENT 2 (SLAVE)
SUPPLY HORIZONS-		
APERTURE	F 6.8	F 8.0
SPEED	1/100 SEC	1/100 SEC
FILTER	WRATTEN 25	WRATTEN 25
TAKE-UP HORIZONS-		
APERTURE	F 8.0	F 6.8
SPEED	1/100 SEC	1/100 SEC
FILTER	WRATTEN 25	WRATTEN 25

STELLAR INDEX OPTICS SETTINGS-

	STELLAR INDEX A	STELLAR INDEX B
STELLAR LENS-		
APERTURE	F 1.8	F 1.8
SPEED	2.0 SEC	2.0 SEC
FILTER	NONE	NONE

INDEX LENS-

APERTURE	F4.5	F4.5
SPEED	1/500 SEC	1/500 SEC
FILTER	WRATTEN 21	WRATTEN 21

FILM NOMENCLATURE-

PANORAMIC INSTRUMENTS

	INSTRUMENT 1 (MASTER)	INSTRUMENT 2 (SLAVE)
PRIMARY		
TYPE	7J-40-16000	7J-40-16000
EMUL. DATA	95-10-3-4-1-5	95-4-1-5
WT. AND SPOOL NO.	89.0-78.7-48-11T	88.2-78.9-55-80B
BOX NO.	46	46
SECONDARY		
TYPE	7J-40-16000	7J-40-16000
EMUL. DATA	81-2-1-5	81-2-7-1-5
WT. AND SPOOL NO.	87.4-77.9-55-135T	88.0-78.5-55-134B
BOX NO.	13	13

STELLAR INDEX-

	STELLAR INDEX A		STELLAR INDEX B	
	STELLAR	INDEX	STELLAR	INDEX
PRIMARY-				
TYPE	3J-34	7J-33	3J-34	7J-33
EMUL. DATA	51-10-12-4	37-1-12-4	51-10-12-4	37-1-12-4
SECONDARY				
TYPE. DATE	3J-34	7J-33	3J-34	7J-33
EMUL. DATA	51-10-12-4	37-1-12-4	51-10-12-4	37-1-12-4

PANORAMIC OFFSPOOLING REQUIREMENTS-

	MASTER	SLAVE
ORINGINAL LENGTH-FT.	16000	16000
LENGTH OF OFF SPOOL-FT.	0 +/-10	0 +/-10
LENGTH TO LOAD-FT.	16000	16000

STELLAR INDEX FILM OFFSPOOLING REQUIREMENTS

	STELLAR INDEX A		STELLAR INDEX B	
	STELLAR	INDEX	STELLAR	INDEX
ORGINAL LENGTH-FT.	75	135	75	135
LENGTH TO OFF SPOOL-FT.	30 +1 -0	45 +1 -0	30 +1 -0	45 +1 -0
LENGTH TO LOAD-FT.	45	90	45	90

CYCLE RATIO STELLAR INDEX TO PANORAMIC 1 TO 1

STELLAR BAFFLE TYPE-

STELLAR A	STELLAR B
5.000	5.000

LAUNCH WINDOW 1900 TO 1900Z

APPROVED BY

OPERATIONS AND ANALYSIS [redacted] DATE 5-10-65

PROGRAM INTERGRATION [redacted] DATE 5-10-65

RESIDENT OFFICER [redacted] DATE 5-10-65

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LAUNCH REQUIREMENTS- J2I VEHICLE 1615

12 MAY 1965

ATTACHED IS THE LAUNCH REQUIREMENTS AND LIMITATIONS FOR PAYLOAD J2I VEHICLE 1615.

REVISION A: PAGE 9 CHANGED

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INDEX LENS-

APERTURE	F 4.5	F 4.5
SPEED	1/500 SEC	1/500 SEC
FILTER	WRATTEN 21	WRATTEN 21

FILM NOMENCLATURE-

PANORAMIC INSTRUMENTS

	INSTRUMENT 1 (MASTER)	INSTRUMENT 2 (SLAVE)
PRIMARY		
TYPE	7J-40-16000	7J-40-16000
EMUL. DATA	81-2-1-5	81-2-7-1-5
WT. AND SPOOL NO.	87.4-77.9-5S-135T	88.0-78.5-5S-134E
BOX NO.	13	13
SECONDARY		
TYPE	7J-40-16000	7J-40-16000
EMUL. DATA	85-52-1-5	85-52-1-5
WT. AND SPCOL NO.	88.8-79.0-2S-113T	88.2-78.8-4S-8B
BOX NO.	10	10

STELLAR INDEX-

	STELLAR INDEX A STELLAR	STELLAR INDEX A INDEX	STELLAR INDEX B STELLAR	STELLAR INDEX B INDEX
PRIMARY-				
TYPE	3J-34	7J-33	3J-34	7J-33
EMUL. DATA	51-10-12-4	37-1-12-4	51-10-12-4	37-1-12-4
SECONDARY				
TYPE. DATE	3J-34	7J-33	3J-34	7J-33
EMUL. DATA	51-10-12-4	37-1-12-4	51-10-12-4	37-1-12-4

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