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ENGINEERING EVALUATION TEST PHASE PLAN FOR

SPACECRAFT 4434

FARRAH II

MISSION NO. 7347

IRON 4774

Prepared by:

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FOREWORD

This document has been prepared in accordance with the requirements of Contract Data Requirements List (CDRL) Item No. A039 (exhibit A to contract

The purpose of the Engineering Evaluation Test Phase (EETP) Plan is to identify specific events and exercises to occur during the EETP and to schedule specific events and exercises to occur during the first three days of orbit operations.

This plan supplements the information contained in the Systems Test Objectives (STO) for this flight (BIF003W/B-238079-84). During the EETP deviation from this plan will not be permitted without the prior approval of representatives of the Secretary of the Air Force for Special Projects who together

comprise the Evaluation Management Team, and the Chief Systems Engineer (CSE). Tasking changes recommended by may be made if the representative concurs.

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Section I GENERAL INFORMATION

- 1. The Engineering Evaluation Test Phase (EETP) for IRON 4774 will last until the objectives listed below are met and all spacecraft engineering exercises have been performed. During the EETP the following goals will be met:
 - a. The spacecraft will be stabilized at the desired spin rate (50 + 0.5 rpm) using the Spin Rate Control System (SRCS)..
 - The spacecraft will be stabilized in its operational attitude (Polar) using the Attitude Control System (ACS).
 - c. It will be established that the spacecraft can be safely operated by the Satellite Control Facility (SCF).
 - d. The operational status of the spacecraft and payload will be determined.
- 2. From lift-off through separation (Rev 13), the host program (IRON 1369) telemetry will be monitored at least once each rev to determine the FARRAH II subsatellite status. After separation, the nost telemetry will be checked one more time and a playback of the tape recorded separation sequence will be obtained from the host. No further realtime support from the host program will be required thereafter.

A host vehicle command load containing the FARRAH II subsatellite erection/separation sequence will normally be transmitted on Rev 12 GTS. The actual erection/separation time will be based on the latest tracking data available (Rev 8 VTS) prior to the generation of the command load.

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3. Normally separation from the nost will occur on Rev 13.4 descending (35°N, +7°, -20° Latitude), with erection starting 425 seconds prior to separation. Separation will occur after a 14.5° left yaw maneuver by the host. Once separated, the FARRAH II spacecraft will immediately be spin stabilized by spin rockets 1 and 2 (SPC-1). First burn (+Y rocket motor) and the firing of spin rockets 3 and 4 (SPC-2) are programmed for Rev 14.4 (at approximately 34°N Latitude). Second burn (-Y rocket motor) (SPC-3) is programmed for Rev 14.9 (at approximately 35°S Latitude).

The +Y 54 module sustaining solar arrays will next be deployed (SPCs 4 and 5). SPC-5 also enables the charge control system. Once the sustaining solar arrays are deployed, SPC-6 deploys both the +Y and -Y telemetry/command antennas and turns on Carrier 1 (unmodulated) to aid in first acquisition. All remaining deployments are accomplished by a sequence of realtime commands transmitted during subsequent station supports. Pyro power termination, selection of orbit mode Phase II telemetry monitors, and a command relay reset sequence complete the deployment command sequence.

4. In general, payload tasking will be developed by DMP/OPS using MPOSS. Special backside payload tasking (i.e., tasking outside an RTS acquisition circle) will be programmed as required to provide data for evaluation of spacecraft/payload performance. Special passes using Astrophysical Research Vehicle (ARV) emitters will be programmed for VTS Revs 23, 31, 38, and 45. These ARV cals will be programmed as readins only, with no downlink transmitters ON. Additional ARV calibration passes may be scheduled if required by the On-Orbit Calibration Plan (OCP).

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- 5. During the EETP maximum emphasis will be placed on the collection of sun and earth sensor data to determine spacecraft orientation and final spin rate. The SRCS will be activated on Rev 22 BOSS and remain ON until the desired spin rate is achieved (50 ± 0.5 rpm), if required. The first ACS maneuver will be started on Rev 47. This maneuver will take approximately 60 revs to complete.
- 6. During the first three or four days of operation, spacecraft exercises will be conducted to evaluate the performance of the electrical power system, SE-1, three of the four downlink transmitters, the three tape recorders, the KG-46 encryptors, the SCS, the ACS, the SRCS, PM narrow band (NB) operations, etc. Checkout of the OBPS will not be performed until after the completion of the initial ACS maneuver. Except as detailed in this plan, no redundant spacecraft equipment will be exercised during the EETP.
- 7. Special TM modes required to support the test objectives for each station support will be specified on the relevant pass plans.
- 8. The yaw angle and latitude of separation for Rev 4 contingency release of the FARRAH II spacecraft from the host vehicle will be specified prior to launch.
- 9. If the FARRAH II spacecraft is not released from the host by Rev 13, subsequent release will be planned for no later than Rev 30.
- 10. The SCS will not be programmed for payload tasking until the spacecraft electrical system has been approved for operational use by the CSE.
- 11. Prior to launch, SCS loads will be developed by DMP/OPS using MPOSS for the following cases:

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- a. Rev 13 separation with host vehicle yaw maneuver
- b. Rev 13 separation without host vehicle yaw maneuver
- c. Rev 4 separation with host vehicle yaw maneuver
- d. Rev 4 separation without host vehicle yaw maneuver.
- 12. Appendix A presents an EETP plan outline for six anomalous orbit cases.

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Section II

SPECIFIC GUIDELINES AND CONSTRAINTS

- 1. Supports will be scheduled to occur no more than six nours apart.
- Only passes of 10 degrees maximum elevation or higher should be scheduled for tape recorder readout. Passes of 5 degrees maximum elevation or higher may be scheduled for health check or command passes.
- 3. The criteria for readout will be as follows:
 - Antenna autotrack with decomm sync on the 8 kbps status link
 - Clean modulation on the wideband transmitters
 - All adjustments to tape recorders and ground equipment completed
 - For 4:1 mode readouts with ASGLS Rovr BW of 5 MHz: -92 dBm (60° ant)/-96 dBm (46° ant).
 - For 1:1 mode readouts: -89 dBm (60' ant)/-92 dBm (46' ant).
 - For PM NB transpond and readouts: -103 dBm (60' ant)/-107 dBm (46' ant).
- 4. Interruption of tape recorder readout is undesirable because of the complications thereby introduced into data processing. However, in cases where part of the readout may be lost if the readout is not stopped (i.e., a high elevation pass), splitting the readout is permissible.
- 5. Tasking may be placed on any recorder(s) in accordance with the following recommendations:
 - a. Each recorder should be read in to the fullest extent possible prior to readout to economize power and to reduce tape recorder cycles. This may be accomplished using either a single readin or multiple readins.

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- b. The cycles on all three tape recorders should be kept approximately equal.
- c. Tasking must not violate maximum depth-of-discharge limits.
- Spin-up and/or spin-down commands must <u>NOT</u> be sent while the SRCS is ON.
- 7. Horizon Sensor (H/S) 1 will be used as the primary H/S. H/S data (M-24) will be required as often as possible. It should be collected at the northern-most latitudes at VTS, HTS, GTS and IOS, and the southern-most latitudes at NHS and TTS. Normally about 60 seconds of data collection at any one station will be sufficient. However, longer collection periods may be requested by the Technical Advisor (TA) during the early deployment revs and before/after ACS maneuvers, therefore post pass playbacks may be required.
- 8. Solar Aspect Sensor (SAS) data (M-24) will be required on all scheduled passes during the EETP. Special emphasis on SAS data collection will be required immediately prior to, during, and following a planned ACS maneuver.
- 9. Redundant equipment will not be selected during the EETP except in response to failures. Redundant equipment will be selected only upon recommendation of the CSE and with the concurrence of
- 10. Commands will be sent via both uplink channels. Complementary/ alternate commands will also be exercised.
- 11. Mission termination commands will <u>NOT</u> be sent. TM Meas ID E691 (termination mode monitor) will be monitored at the acquisition of every pass. If at any time it reads other than "RESET", the reset command (01600) must be sent.

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- 12. Signal strength records with voice annotated ground station cals from the tracking stations will be required for all supports during the first seven days of vehicle operations; thereafter three passes within a five day period, once each month, will be required. Additionally, for early revs, the RTSs will be required to report what the signal strength was on each carrier (2 passes each) at 60 second increments (reports to be made postpass).
- 13. The configuration of the spacecraft will be examined from telemetry at each acquisition. If abnormal, or not as expected, with TA approval, the vehicle must be commanded back to the correct configuration prior to continuing the planned commanding on that pass. Postpass analysis of all available data should then be performed to determine the time and cause of the anomalous configuration.
- 14. The amount of tasking allowed per day will be as scheduled by MPOSS with power items in the MPOSS power data base set to conform with the power management criteria set forth by "Requirements for Power Management for AF-989 Spacecraft" (BIF003W/2-155012-82), Rev A. The TA will be responsible for management of the power budget within the guidelines set forth in the above document to assure that:

a. Batteries are maintained within allowable depths of discharge
b. Batteries are fully charged at prescribed intervals.

- 15. DSIS will be used to transmit all tape recorder readout digital data to Baker.
- 16. All 1:1 R/Os must be transmitted to Baker via MWL from VTS. IWBC will be required from selected stations during the EETP.
 - NOTE: Pad loads will be 1:1 data. The analog track will be locked out (due to rewind). Hence no IWBC or MWL will be needed for pad load R/Os.

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- 17. If a spacecraft anomaly occurs there will be no corrective action taken in realtime by the Mission Controller (MC), unless the proper coordination has been made with the CSE, TA, MD and
- 18. An SCS RAM error detection routine will be performed near the beginning of each station support.
- 19. RTC 02500 must be sent if any of the following flags is to be reset:
 - a. LVCO 1 or 2 flag

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- b. Batt 1, 2 or 3 charge OFF flag
- c. Recognizer flag
- 20. During the first three days of payload operation, seven TSG cals per day will be scheduled to aid in the evaluation of payload operations. The characteristics of these TSG cals are specified in a letter to entitled "F2 TSG

Requirements" dated 21 May 1984.

- 21. The OBPS will not be tasked earlier than Rev 107. However, the ASC "keep-alive" power will be turned ON and the OBPS program loaded and its memory dumped prior to Rev 107.
- 22. A Pad loads must be read out and proper recorder operation confirmed prior to programming a readin on any tape recorder.
- 23. During the first three days of orbit operations ship all station tapes per the T.O.O.
- 24. F-II is designed for relatively low operating temperatures, hence certain spacecraft components could approach their minimum operating temperatures during extended periods of no tasking. Therefore, a plan has been devised to use the RF transmitters as heaters to warm critical spacecraft components during extended periods of no tasking. This plan is specified in an Interdepartmental Communication from the CSE entitled "Use of Transmitters as Heaters to Warm U-34 Critical Equipment During Zero Tasking Periods", dated 24 May 1984.

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Section III

SPACECRAFT ENGINEERING EXERCISES WHICH WILL BE PERFORMED DURING THE ENGINEERING EVALUATION TEST PHASE

 Checkout of the following five TM/CMD receiver configurations, using RTCs and VSPCs:

TM Config	Command	Equipment ON		
1	00101 or 00121	Carrier 1, Rovr 1		
2	00103 or 00123	Carrier 1, Rcvr 1 Carrier 4		
3	00105 or 00125	Carrier 1, Rcvr 1 Carrier 5		
4	00107 or 00127	Carrier 1, Rovr 1 Carrier 4 Carrier 5		
5	00141 or 00161	Carrier 1, Rcvr 2		

- Verification of the proper functioning of the downlink OFF RTCs and VSPCs.
- 3. Verification of the capability to command tape recorder readout (all tape recorders).
- 4. Verification of the proper functioning of the DIU and KG ON controls.
- 5. Verification of the capability to go from R/O mode to B/A mode.
- 6. Selection of the -Y antenna via RTCs and VSPCs.

7. Selection of the +Y antenna via RTCs and VSPCs.

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8. Exercise of SRCS 1 and 2 as follows: (verified by telemetry)

Command	Function
00700	Spin up
00760	SRCS 182 on
00700	SRCS off

NOTE: Never command spin down.

9. Exercise of ACS commanding as follows: (verified by telemetry)

Command	Function
00714	Enable ACS No. 1 and No. 2 and ACS Reset
00716	ACS In-Plane
00715	ACS Negative Polarity
00714	ACS Reset
00700	Disable ACS No. 1 and 2

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10. Exercise of the ACS as follows:

- a. Enable ACS No. 1 and No. 2 in cross plane mode (00714).
- b. Program PE-4 for a delay of 16 seconds and CE-4 for a delay of 64 seconds. Once the system has been turned ON, allow it to cycle for approximately 500 seconds.
- c. Terminate the ACS exercise with a PE-3/CE-3, followed by a 00714 for ACS reset.
- d. Disable ACS No. 1 and No. 2 with a 00700.
- 11. Determination of the duration of SE-1 using two adjoining passes (888 seconds expected).

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12. Verification of the ability to fill each TR to R/I EOT and then R/O.

- Verification of the ability to use VSPCs to start and stop a readin (all tape recorders).
- 14. Verification of the capability to recover both 4:1 and 1:1 data from each TR.
- 15. Verification of the ability to use any of the 3 TRs as the second TR during a zero transition period (ZTP) R/I.
- 16. Exercise of the P/L in as many configurations as permitted by tasking, calibrations and special engineering inputs.
- Exercise of TSG cals with P/L in seven different configurations, six with inhibits on and one with inhibits off.
- Verification of the ability to readout a tape recorder and readin another tape recorder simultaneously.
- 19. Verification of the ability to conduct a transpond only and a transpond and record operation using OBPS and 256 kbps data as the transpond data. Verification of the ability to configure BBUs using both VSPCs and RTCs.
- 20. Verification of proper operation of the charge control system.
- 21. Battery capacity tests at three discharge rates. These tests will not be performed during the evaluation test phases. The first test will be performed during the first three months of operation and periodically thereafter.
- 22. Verification that magnitude commands 1, 2, 3, 4, 5, 6, and 7 perform their proper functions.

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- 23. Verification of the ability to conduct a pass using command receiver number 2.
- 24. Verification of the proper operation of CARR 4 and 5 in PM narrow band mode (transpond only).
- 25. Verification of the capability to read out and transpond simultaneously.
- 26. Verification of the ability to achieve main frame sync, subframe sync and IWG sync at Baker upon readout of pad load data (all recorders).
- 27. Verification of the proper operation of the KG-46 encryptors.
- 28. Verification of the capability to stop TRs and turn off DIUs.
- 29. Verification of the proper operation of the OBPS system by:
 - a. Loading the OBPS flight program
 - b. Dumping OBPS memory
 - c. Transmitting OBPS CMDS (hardware and software)
 - d. Conducting an OBPS transpond
 - e. Conducting an OBPS transpond and readin
 - f. Conducting a readout of OBPS data
- 30. Verification of the capability of the SCS to load, dump and execute payload memory and VSPCs at the desired times.
- 31. Verification of the proper content of an SCS memory load.
- 32. Verification of proper operation of the lockout timer CFs.
 - 33. Verification that CFs 1 and 2 lock out commands transmitted through Decoder 2.

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- 34. Verification that Command Receiver/Decoder No. 2 functions properly when magnitude commands 6 and 7 are being transmitted.
- 35. Verification of the proper operation of LVCO No. 1. On a subsequent rev verification of the proper operation of LVCO No. 2.
- 36. Verification of the proper operation of the realtime readin OFF command.
- 37. Verification of the proper operation of the EAT CLEAR function.



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Section IV ASTROPHYSICAL RESEARCH VEHICLE (ARV) SUPPORT

The ARV supports during the period from the first acquisition to the first ACS maneuver (Rev 47) will be performed to determine the initial payload condition.

Proper functioning of the pulse, CW, and TI systems will be functionally verified and it will be determined whether each band/antenna combination is functional.

After completion of the initial ACS maneuver, through the first 14 days of operation, the purpose of the ARV calibrations shifts to performance verification.

During the first 47 revs of operation, Revs 23, 31, 38 and 45 have been designated as ARV passes. All are to be conducted at Cook in the readin mode with all RF links OFF.

The tasking modes will be as follows:

Rev 23 - SPC 053 for DF bands 1, 2, 4, 5 \pm 7 and SPC 048 for Omni bands 4 \pm 7; Rev 31 - SPC 058 for DF bands 1, 2, 3, 4 \pm 8 and SPC 045 for Omni bands 1 \pm 8; Rev 38 - SPC 050 for DF bands 1, 2, 3, 4 \pm 6 and SPC 047 for Omni bands 3 \pm 6; Rev 45 - SPC 059 for DF bands 1, 2, 4, 5 \pm 8 and SPC 046 for Omni bands 2 \pm 5.

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Section V

DETAILED PASS-BY-PASS ENGINEERING EVALUATION TEST PHASE PLAN

Rev	<u>Station</u>	Elevation	<u>Time</u>		Planned Activity
Terminal	VTS		18462	•	Monitor the parent program
count,					voice line and telemetry in
lift-off					MCC-A and record the time of
and ascent	×.				all significant events. Review the subsatellite status
	· · · · ·				via the host telemetry mode on ascent (Mode 52, Block 1, Trigger 3).

(Host Acquisition Schedule)

1	IOS/TTS	4°/11°	1938/ 🛛	 From rev 1 through rev 13,
			20022	TA and CSE personnel will attend
2	TTS/HTS	10°/5°	2130/	the host program pre-pass brief-
			21472	ings for each pass, and then
3	TTS	15°	22572	monitor each pass in MCC-A. For
4	TTS/GTS	38°/42°	0025/	each pass, obtain a short seg-
			0046Z	ment of subsat data. This data
5	NHS/TTS	4°/34°	0146/	will be displayed on a printer
			01532	located in MCC-A using the par-
6	NHS/TTS	21°/9°	0313/	ent mode 11, block 5, trigger 4
			03222	or mode 42, block 2, trigger 3.
8	VTS/IOS	84°/59°	0608/	
			06462	
10	HTS	30°	09022	

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Rev	Station	Elevation	Time		Planned Activity
(Host	Acquisition	Schedule)			
12	GTS	7°	1159Z	•	Prior to rev 10, the duty TA is required to provide the host TAs with data for the separa- tion event which will normally occur on rev 13, and which will normally be loaded on rev 12.
(Host	Acquisition	Schedule)			
13	GTS/TTS	5°/3°	1327/ 13502	•	The PREP command should occur 100 sec prior to acq at TTS, thereby starting the erection/ separation sequence. Separa- tion is programmed to occur at 35, +7, -20 degrees north on rev 13.4 with erection starting 425 seconds prior to separation. Approximately 81 sec prior to separation, the host vehicle will initiate a 14.5 degree yaw maneuver. It will be completed 60 sec before separation.
				•	Monitor the parent TM mode 11, block 5, trigger 4 to confirm the status of the subsat just prior to start of the sequence.
				•	Space Track will confirm separation, spin up and orbit transfer.

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Rev	Station	Elevation	<u>Time</u>	Planned Activity
15.3	TTS	86° (838 sec)	16482	 First acquistion for spacecraft 4774.
				 Carrier 1 will have been turned ON via SPC-6.
				• Turn TLM ON (00111 with SE-1 disabled) approximately 60 sec after vehicle rise time (14 ft ant required).
				 Determine spacecraft status: L/O configuration Timer 1 & 2 ON

Battery voltage Temperatures Spin rate

Solar array output

SCS self-test failed.

TM M-24 for a minimum of 10

Reset LVCO flags (02500).

output (00500).

Select dual timer Section A

Load current Battery current +Y 54 S/A deployed TC-1, -2 deployed

seconds.

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Rev	Station	Elevation	Time	Planned Activity
15.3 (Cont)				 Reset SCS status word (B6660).
		•	·	 Select backup charge control circuit, normal charge mode ON, level control reference 1/2 enable/disable for V/T level 3, control electrode 1 for all 3 batteries, enable LVCOs 1&2, and B/U enable pyro events (00415, 01715, P01055).
				• Command ant switch as needed with SE-1 disabled. (Command ant switch as needed at all subsequent stations, noting the required state of SE-1.)
				• TM M-62
				• Enable deployment (00000).
				 Command deployment of A2/B2 & A3/B3; rotate B1/B4 (R00003). Time range: 10 to 90 sec; normal time: 22 to 36 sec.
				 Confirm 1) Antennas A2/B2 and A3/B3 deployment, and B1/B4 rotation by TM, 2) load current less than 3.0A and all three batt currents less than 2.7A.
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۲	Rev	Station	Elevation	Time		Planned Aclivity
	15.3 (Cont)			•	TM	M-10.
				•	Hot	handoff to Boss, rev 15.4.
				•	NOT	те :
•					1)	Due to high max elevation, loss of auto track should be anticipated.
					2)	SCS status will indicate self-test failure at acquisition.
					3)	Obtain a VARIAN plot of the S/A current (5 sec minimum duration). (Plot is acceptable from either Pogo, Boss or Cook, rev 15.)
					4)	Report S/S postpass.
					5)	P/B M-24 TOP ASAP.

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,	Rev	Station	Elevation	Time	Planned Activity	
	15.4	NHS	14° (676 sec)	16582	 Backup for rev 15 TTS; support TOP for tracking data. 	
					 Hot handoff from Pogo. 	
,					• Select -Y ant with SE-1	

- Cycle through TM M-24 and -62.
- Hot handoff to Cook.

disabled (00111).

- NOTE: NHS-B will be prim, ERTS will be secondary.
- Report S/S postpass.

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Rev	Station	Elevation	Time		Planned Activity
15.4	VTS	5° (503 sec)	17032	•	Backup for rev 15 TTS; support TOP for tracking data.
				٠	Hot handoff from Boss.

• Select proper ant and start SE-1 (001X0).

Terminate pass (00200).

Report S/S postpass.

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,	Rev	Station	Elevation	Time	Planned Activity
	16.0	IOS	23°	17582	 Turn on carrier 1 and start SE-1.
			(762 sec)		• Determine spacecraft status.
					• TM M-25 for 10 sec.

Terminate pass.

• NOTE: The primary purpose of this support is to obtain tracking data.

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• Report S/S postpass.

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Rev	Station	Elevation	<u>Time</u>	Planned Activity
16.4	VTS	84° (832 sec)	18392	 Turn on carrier 1 with SE-1 disabled.
				 Determine spacecraft status: Battery voltages Temperatures Verify A2B2/A3B3 deployment Verify B1/B4 rotation Load and battery currents SA current.
				• TM M-24 for 10 sec.
				● TM M-62.
				 Enable deployment (01600).
				 Command deployment of Cl/C4 and rotate Al/A4 (PR01660). Time range: 5 to 60 sec; normal time: 18 to 25 sec.
				 Confirm 1) antenna Cl/C4 deployment, Al/A4 rotation by TM, 2) load current less than 3.0A and all three batt currents less than 2.75A.
				Enable deployment (00000).

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Rev	Station	Elevation	<u>Time</u>	Planned Activity
16.4			•	Command unfurl Al dish (R00014)
(Cont)				(only if temp greater than
				-5°F); normal deployment time

Confirm

is 1 sec.

- 1) Al unfurled by TM,
- 2) load current less than 3.0A and all three batt currents less than 2.75A.
- TM M-24 for 20 sec.
- Start SE-1.
- Terminate pass.
- Report S/S postpass.
- P/B M-24 for entire pass ASAP.

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			* * * *	******* SECRET, ******	*	BIF003W/B-238591-84
9	Rev	<u>Station</u>	Elevation	Time		Planned Activity
	17.3	TTS	36° (801 sec)	2003Z	 Backu as re 	up to rev 16 VTS; support equired (do not start SE-1).

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Rev	<u>Station</u>	Elevation	Time	Planned Activity
17.4	HTS	25° (769 sec)	20222 • ●	Turn on carriers 1, 4 & 5 (WBs to be left on TOP for RF checks- freg/spectrum analysis) and start SE-1 (00107).
			•	 Determine spacecraft status: 1) Verify batt voltage greater than 23.3V, load current less than 8.0A, each batt current less than 6.5A and S/A current greater than 1.5A avg. 2) Verify Bl/B4 boom rotation.
			•	TM M-24 for 20 sec.
			•	Enable deployment (01600).
			•	Command unfurl Bl dish (PR01614) (only if temp greater than -5°F). Normal deployment time: 1 sec.
				 Confirm 1) Bl unfurled by TM, 2) load current less than 8.0A and all three batt currents less than 6.5A.
				• TM M-10.
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			10 - 10 10	SECRET	BIF003W/B-238591-84
			**	*****	
	Rev	<u>Stati</u> on	Elevation	Time	Planned Activity
V				- The second	
	17.4			4	Inhibit SCS time check (B6601).
	(Cont)				
				•	Enable TRG selection (R00040).
				•	Select TRG no. 1 at system time
					73560 (P01500). Verify restart
					by TM.
				•	Disable TRG selection and
					enable deployment (00000).
				G	Re-enable SCS time check
					(B6602).
				_	
				•	•
					· · ·
				•	Command solar array motors start
				- A.	(800000).
					For
					1) -Y+Z solar arrays deployment
					time range: 105 to 256 sec;
					normal time: 120 sec.
					2) +Y+Z solar arrays deployment
					time range: 122 to 316 sec;
					normal time: 140 sec.
					• -
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Rev	Station	Elevation	Time	Planned Activity
17.4 (Cont)			٠	Confirm full deployment of solar arrays by telemetry.
			•	Command solar array deployment motors off (R00501, R03276). NOTE: Motors must be commanded off prior to fade even if the arrays are not fully deployed. Backup cmd will be sent as well as primary cmd since current TM monitor resolution is insuffi- cient to detect motor shut off.
			•	 Determine the following: 1) Spin rate 2) Solar array output 3) Bus voltage, temp, batt current, etc.
			٠	TM M-24 for 20 sec.
			•	Terminate pass.
			•	 NOTE: 1) P/B M-24 for entire pass ASAP. 2) Loss of Comm for this rev: In addition to standard LOC- a) If the station has NOT sent the solar array deployment command, they are NOT to send it.
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)	Rev	Station	Elevation	Time		Planned Activity
	17.4 (Cont)				3)	 b) If the station has already sent the solar array deploy command, they are to send the solar array motor STOP command after 316 seconds or near fade (whichever occurs first). Obtain a VARIAN plot of the S(h current after field S(h)
						deployment (5 sec minimum duration).
)					4)	Report S/S on all carriers postpass.
					5)	

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Rev	<u>Station</u>	Elevation	Time	Planned Activity
18.4	HTS	_ 19° (727 sec)	22002 •	Turn on carriers 1 and 4 and start SE-1 (00103).
	а-		•	Determine spacecraft status.
				With normal vehicle status, command the following:
				 Turn payload data handler ON and configure BBU-1 for 1:1 R/O via carrier 4 (01106). Enable SCS selection (P00502). Select SCS A (P01500). Dump SCS pages 65 through 189 (B6688). Select M-62. Enable reset (01600). Pyro power off (R01603). Deployment logic reset (00000, 01600, 00000, 01600, 00000, 01600). Telemetry monitors from ascent mode to orbit mode (PR00600). R/O TR 1 pad load via BBU-1 (00301). Do not dump data. Turn OFF WB carrier after R/O (00202). TM M-24 for 20 sec (may be obtained busine D(0)
				obtained during R/O).

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Rev	<u>Station</u>	Elevation	<u>Time</u>	Planned Activity
18.4 (Cont)				 Verify SCS initialization on side A. Verify that the SCS passes its internally-performed "self-test".
			•	 Transmit all R/O data to Baker via DSIS.
			4	• Terminate pass.
			(• NOTE:
				 SPROTI Tape - ASAP post rev Start rev 15.0, span
				 CSE to provide first spin axis update.
				 Obtain a VARIAN plot of the S/A current (5 sec minimum
				duration) and a plot of tape recorder current for
				the first and last 30 sec of R/O.
				4) Report S/S postpass.5)
				6) Obtain M-75 P/B.
				•
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Rev	Station	Elevation	Time	Planned Activity
19.5	GTS	11° (648 sec)	23432	 Turn ON Carriers 1 and 4 and start SE-1 (00103).

- Determine spacecraft status.
- TM M-24 for 20 sec.
- Configure BBU-1 for 1:1 R/O via carrier 4 and R/O TR 2 pad load via BBU-1 (B8102). Do not dump data.
- Load VSPCs to turn TM OFF/ON/ OFF. The first OFF/ONs should be 8 sec apart. The ON/OFFs should be 64 sec apart. Let the first OFF/ON occur. After the vehicle turns back on and before the second OFF, clear the EAT (B6666). If the second OFF does not occur, then the EAT-clear function operates properly. Plan these events to occur sometime around mid pass, after R/O has been completed.
- Check vehicle status.
- If SCS executes VSPCs properly and power system is within tolerance, the SCS load may be started. Load the TSL and TIF first. Load in accordance with MPOSS scheduling.



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Rev	Station	Elevation	Time	Planned Activity
19.5 (Cont)			•	Terminate pass.
			•	Transmit all R/O data to Station Baker via DSIS.
			•	Obtain a Varian plot of tape recorder current for the first and last 30 sec of R/O.
				Report S/S postpass.

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Rev	<u>Station</u>	Elevation	Time	Planned Activity
	~ ***	250	01100	a fund ON second and 5 and
20.5	GIS	35*	01192	• Turn ON Carriers 1 and 5 and
		(/96 SeC)		start SE-1 (00105). (Note:
				Henceforth do not start SE-1
				unless specifically directed to
				do so.)
				• Determine spacecrait status.
			·	• TM M-11
				• Perform RAM error check (B6602).
				 Turn payload data handler ON
				for before-and-after data
				collection and configure BBU-2
				for 1:1 R/O via Carrier 5
				(01206).
				(
				• R/O TR 3 pad load via BBU-2
				(00340). Do not dump data.
				,
	·			 Select payload primary readin
				counter (R00010).
				• Send a tape recorder stop
				command (00300) after EOT for
				before-and-after mode. Collect
		-		IUU SEC OI B/A GACA.
				 If the batteries have topped-
				off, load the SCS in accordance
				with MPOSS scheduling.
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			**	******** SECRET, ******	** * BIF003W/B-238591-84
8	Rev	Station	Elevation	Time	Planned Activity
	20.5 (Cont)				Select M-24 for 20 sec.
				•	Terminate pass.
				•	Transmit all R/O data to Baker via DSIS.
				•	NOTE :
					 Baker must report the qual- ity of the R/O of each pad load and demonstrate the ability to maintain mainframe, subframe, and IWG sync prior to
•					commanding a R/I on any tape recorder. 2) Obtain a Varian plot of tape recorder current for
					the first and last 30 sec of R/O.
			and a second sec		 Report S/S postpass.
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Rev	<u>Station</u>	Elevation	<u>Time</u>		Planned Activity
21.1	NHS	54° (825 sec)	02252	•	Carrier 1 ON via VSPC.

Determine spacecraft status.

- TM M-11.
- Perform a RAM error check
 (B6602).
- Continue loading the SCS, if not already completed.
- Verify CFs 1 and 2 can be loaded and started as follows: Load and start a 48 sec CF (10002, 20002 and 02500). Immediately turn carrier 1 OFF to enable CFs (00200). Start sending carrier 1 ON cmds to verify lockout (00101, VBY, RC00). Continue cmding until decoder unlocks and carrier 1 comes back ON.
- If CFs function properly, load CFs for lockout until next scheduled support. Continue use of CFs, reloading on each support.

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Rev	Station	Elevation	<u>Time</u>	Planned Activity	
21.1				• Dump SCS memory (B6688). Run	
(Cont)				-3800 SCS comparison routine.	
				 Obtain M-24 for 20 secs. 	
				• Terminate pass.	

Report S/S postpass.



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Rev	Station	Elevation	Time		Planned Activity
22.1	NHS	16° (719 sec)	04042	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.

 Turn ON WB carrier(s) for R/O in accordance with MPOSS scheduling.

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- Turn payload handler ON for before-and-after data collection, and configure BBU(s) for R/O mode in accordance with MPOSS scheduling (01106).
- With criteria, R/O in accordance with MPOSS scheduling.
- Perform a RAM error check.

(Note: The RAM error check may be performed after the start of R/O on all subsequent R/O passes.)

- Send a tape recorder stop command (00300) after EOT for before-and-after mode. Collect 100 sec of B/A data.
- Obtain M-24.

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Rev	Station	Elevation	Time	Planned Activity
22.1			•	Perform exercise 8 (SRCS
(Cont)			•	Commanding).

- Upon successful completion of SRCS commanding exercise, turn ON SRCS 1 & 2, spin-up mode, if required.
- Turn OFF WB carrier(s) after
 R/O(s).
- Terminate pass.
- Transmit all R/O and before-and-after data to Baker; DSIS R/T and IWBC P/B from both T/Rs.

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	Rev	Station	Elevation	Time		Planned Activity
	23.1	VTS	44° (814 sec)	05402	•	Perform ARV R/I cal per OCP, with all RF links OFF.
					•	Station not required to support this ARV cal.

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Rev	Station	Elevation	Time	Planned Activity
23.2	TTS	14° (699 sec)	05532 (Carrier 1 ON via VSPC.
				Determine spacecraft status.
				• Turn ON WB carrier(s).
			•	• Configure BBU(s) for R/O mode.
			•	▶ R/O.
			•	• Obtain M-24.
				Turn OFF WB carrier(s).
			•	Terminate pass.
			4	Transmit all R/O data to Baker via DSIS.
			•	Report S/S postpass.
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Rev	Station	Elevation	Time	Planned Activity						
24.1	VTS	15°	07192 •	Carrier 1 ON via VSPC.						
		(706 sec)	•	Determine spacecraft status.						
				Turn ON WB carrier(s).						
				Configure BBU(s) for R/O mode						
				R/O.						
				• Obtain M-24.						
			•	• Turn OFF WB carrier(s).						
			•	• Terminate pass.						
				Transmit all R/O data to Baker						
				Via MWL.						
			•	Report S/S postpass.						

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Rev	Station	Elevation	Time		Planned Activity
25.1	HTS	73° ⁻ (835 sec)	08532	•	Carrier 1 ON via VSPC
				•	Determine spacecraft status.
				•	Turn ON WB carrier(s).
				•	Configure BBU(s) for R/O mode.
×				•	R/O.
				•	Obtain M-24.
				•	Turn OFF WB carrier(s).
				•	Terminate pass.
				•	Transmit all R/O data to Baker via DSIS.
				•	Post-pass Vector update - SPROTI, epoch to rev 250. Special RDEL - rev 15 to 25.

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Rev	Station	Elevatio	n <u>Time</u>		Planned Activity
26.3	TTS	10° (632 sec	10542	٠	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.
				•	Turn ON WB carrier(s).
				•	Configure BBU(s) for R/O mode
				•	R/O.
				•	Obtain M-24.
				•	Turn OFF WB carrier(s).
				•	Terminate pass.
				•	Transmit all R/O data to Baker via DSIS.
				۰	Report S/S postpass.

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Rev	Station	Elevation	Time		Planned Activity
27.0	GTS	38°	12092	•	Carrier 1 ON via VSPC.
		(807 Sec)		•	Determine spacecraft status.
				•	Turn ON WB carrier(s).
				•	Configure BBU(s) for R/O mode.
				•	R/O.
		÷.,		•	Obtain M-24.
				•	Turn OFF WB carrier(s).
				•	Terminate pass.
				•	Transmit all R/O data to Baker via OSIS.

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Rev	Station	Elevation	<u>Time</u>	Planned Activity
28.0	GTS	11°	1348Z (• Carrier 1 ON via VSPC.
		(604 SeC)	•	 Determine spacecraft status.
				• Turn ON WB carrier(s).
	•			 Configure BBU(s) for R/O mode
				• R/O.
				• Obtain M-24.

Turn OFF WB carrier(s).

Terminate pass.

Transmit all R/O data to Baker ● via DSIS R/T and IWBC P/B.

Report S/S postpass.

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		* : * *	******* SECRET ******	# BIF003W/B-238591-84
Rev	Station	Elevation	Time	Planned Activity
28 .3	TTS	31° (803 sec)	14122	 Carrier 1 ON via VSPC. Determine spacecraft status.
				 Turn ON SE-1 for duration verification.
			-	• Turn ON WB carrier(s).

- Configure BBU(s) for R/O mode.
- R/O.
- Obtain M-24.
- Prime SCS memory load; load in accordance with MPOSS scheduling.
- Turn off WB carrier(s).
- Fade with carrier 1 ON.

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Rev	Station	Elevation	Time		Planned Activity
28.4	NHS	19° (737 sec)	14222	٠	Carrier 1 will be ON at station rise.

Determine spacecraft status. ۲

Obtain M-24. ۲

• Determine SE-1 duration. It is expected to be 888 sec.

• Pass will be terminated by SE-1.

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5	Rev	Station	Elevation	Time		Planned Activity
	29.4	NHS	46° (813 sec)	16002	• (Carrier 1 ON via VSPC.
			(,		• 1	Determine spacecraft status.
					• '	Turn ON WB carrier(s).
					•	Configure BBU(s) for R/O mode.
					•	R/O.
					•	Obtain M-24.
					•	B/U SCS memory load.
					•	Turn OFF WB carrier(s).
					٠	Terminate pass.
					•	Transmit all R/O data to Baker via DSIS.

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Rev	<u>Station</u>	Elevation	Time	Planned Activity
30.4	VTS	20° (743 sec)	17422	• Carrier 1 ON via VSPC.
				 Determine spacecraft status.
				• Turn ON WB carriers(s).
				• Configure BBU(s) for R/O mode.
				• R/O.
		•		• Obtain M-24.
				• Turn OFF WB carrier(s).
				 Terminate pass.
				 Transmit all R/O data to Baker via DSIS.
/ ~ 4.				NOTE: Perform all commanding using backup commands.

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			*: *: *:	****** <u>SECRET</u> ******	BIF003W/B-238591-84
	Rev	Station	Elevation	Time	Planned Activity
	31.3	TTS	42° (811 sec)	19062	• Carrier 1 ON via VSPC.
					 Determine spacecraft status.
					• Turn ON WB carrier(s).
					• Configure BBU(s) for R/O mode.
					• R/O.
					• Obtain M-24.
					 Verify proper operation of LVCO no. 1 by disabling and then
					enabling LVCO no. 1. This will
					powered OFF by the LVCO
					ON via RTC. Check the status
					of the LVCO no. 1 back flag. Reset the flag by sending an

Terminate pass.

 Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
31.4	VTS	33° (790 sec)	19192 •	Perform ARV R/I cal per OCP, with all RF links OFF.

 Station not required to support this ARV cal.



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Rev	Station	Elevation	<u>Time</u>	Planned Activity
32.4	HTS	85° (831 sec)	21022	• Carrier 1 ON via VSPC.
				 Determine spacecraft status.
				 Turn ON WB carrier(s).
				 Configure BEU(s) for R/O mode.
				• R/O.
				 Obtain M-24. Verify proper operation of LVCO
				no. 2 by disabling and then enabling LVCO no. 2. This will
				cause the carriers to be powered OFF by the LVCO
				circuitry. Turn carrier 1 back ON via RTC. Check the status
				the flag by sending an RTC 02500.
				• Terminate pass.
				 Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
33.2	TTS	39° (806 sec)	22212	 Carrier 1 ON via VSPC. Determine spacecraft status.
				 Command using cmd rcvr 2 (i.e. uplink SGLS channel 14 and decoder B).
				 Select redundant ranging.
				• Turn ON WB carrier(s).
				• Configure BBU(s) for R/O mode.
				• R/O.
				● Obtain M-24.
				Turn OFF WB carrier(s).
				 Verify CFs 1 and 2 can be loaded, and started through cmd rcvr 2 as follows: Load and ftart a 48 sec CF. Immediately turn carrier 1 OFF to enable CFs. Start sending carrier 1 ON cmds to verify lockout. Continue commanding until decoder 2 unlocks and carrier 1 comes back ON.

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Rev	<u>Station</u>	Elevation	Time	Planned Activity
33.2 (Cont)		1	•	Terminate pass.
			٠	Transmit all R/O data to Baker
				via DSIS.

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		* * * - * *	****** SECRET, ******	BIF003W/B-238591-84
Rev	Station	Elevation	Time	Planned Activity
34.5	GTS	40° (808 sec)	00222	• Carrier 1 ON via VSPC.
				 Determine spacecraft status.
				● Obtain M-24.
				 Perform Exercise No. 9 (ACS commanding).
				• Terminate pass.

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				******* * - SECRET *******	BIF003W/B-238591-84
R	<u>ev</u>	Station	Elevation	Time	Planned Activity
3	5.1	NHS	16° (705 sec)	01292	• Carrier 1 ON via VSPC.
			(700 000)		 Determine spacecraft status.
					• Turn ON WB carrier(s).
					 Configure BBU(s) for R/O mode.
					• R/O.
					● Obtain M-24.
					• Turn OFF WB carrier(s).
					• Terminate pass.
					 Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	<u>Time</u>		Planned Activity
36.1	NHS	58° (832 sec)	03052	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.

- Turn ON WB carrier(s).
- Configure BBU(s) for R/O mode.

• R/O.

- Obtain M-24.
- Perform Exercise 10 (ACS cycling).
- Turn OFF WB carrier(s).
- Terminate pass.
- Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
37.1	VTS	11° (636 sec)	04452	• Carrier 1 ON via VSPC.

- Determine spacecraft status.
- Turn ON WB carrier(s).
- Configure BBU(s) for R/O mode.
- R/O.
- Obtain M-24.
- Turn OFF WB carrier(s).
- Terminate pass.
- Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time		Planned Activity
37.5	IOS	9°	05262	•	Carrier 1 ON via VSPC.
		(391 Sec)		٠	Determine spacecraft status.
				•	Turn ON WB carrier(s).

- Configure BBU(s) for R/O mode.
- R/O.
- Obtain M-24.
- Turn OFF WB carrier(s).
- Terminate pass.
- Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
38.1	VTS	64° (833 sec)	06202	 Perform ARV R/I cal per OCP, with all RF links OFF.

 Station not required to support this ARV cal.

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Rev	<u>Station</u>	Elevation	<u>Time</u>		Planned Activity
38.2	TTS	11° (657 sec)	0634Z	•	Carrier 1 ON via VSPC
				•	Determine spacecraft status.

• Turn ON WB carrier(s).

• Configure BBU(s) for R/O mode.

• R/O.

Obtain M-24.

• Turn OFF WB carrier(s).

Terminate pass.

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 Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	<u>Time</u>		Planned Activity
39.1	HTS	22° (753 sec)	07572	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.
				•	Turn ON WB carrier(s).

Configure BBU(s) for R/O mode.

• R/O.

- Obtain M-24.
- Turn OFF WB carrier(s).
- Terminate pass.
- Transmit all R/O data to Baker
 via DSIS.

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	Rev	Station	Elevation	Time		Planned Activity
	39.2	TTS	7°	0816Z	•	Carrier 1 ON via VSPC.
			(•	Determine spacecraft status.
					٠	Turn ON WB carrier(s).
	<u> </u>				•	Configure BBU(s) for R/O mode.
					•	R/O.
					•	Obtain M-24.
					•	Turn OFF WB carrier(s).
					٠	Terminate pass.
					•	Transmit all R/O data to Baker via DSIS.
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5	Rev	Station	Elevation	Time		Planned Activity
	40.1	HTS	22° (757 sec)	0934Z	•	Carrier 1 ON via VSPC.
					•	Determine spacecraft status.
					٠	Turn ON WB carrier(s).
					•	Configure BBU(s) for R/O mode.
					•	R/O.
					٠	Obtain M-24.
					•	Turn OFF WB carrier(s).
1					•	Terminate pass.
					•	Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
41.3	TTS	12°	1135z	• Carrier 1 ON via VSPC.
		(072 Sec)		 Determine spacecraft status.
				• Turn ON WB carrier(s).
				 Configure BBU(s) for R/O mode.
				• R/O.
				● Obtain M-24.
				• Turn OFF WB carrier(s).
				• Terminate pass.
				 Transmit all R/O data to Baker via DSIS.

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BIF003W/B-238591-84

Rev	Station	Elevation	Time	Planned Activity
42.3	TTS	21° (764 sec)	1314z e	Carrier 1 ON via VSPC.
				Determine spacecraft status.
			•	Turn ON WB carrier(s).
				Configure BBU(s) for R/O mode.
	-		•	R/O.
			•	Obtain M-24.

Turn OFF WB carrier(s).

Prime SCS memory load.

Terminate pass.

Transmit all R/O data to Baker
 via DSIS.



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Rev	Station	Elevation	Time	Planned Activity
43.4	NHS	47° (821 sec)	15022	• Carrier 1 ON via VSPC.
				 Determine spacecraft status.
				• Turn ON WB carrier(s).
			·	• Configure BBU(s) for R/O mode.
				• R/O.
				• Obtain M-24.
				• B/U SCS memory load.
				• Turn OFP WB carrier(s).
				• Terminate pass.
				 Transmit all R/O data to Baker
				VIA USIS.

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Rev	Station	Elevation	<u>Time</u>	Planned Activity
44.4	NHS	19° (727 sec)	16402	• Carrier 1 ON via VSPC.
				 Determine spacecraft status.
				● Obtain M-24.
				• Enable and load ACS, per profile.
				• Terminate pass.

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	Rev	Station	Elevation	<u>Time</u>		Planned Activity
	45.4	VTS	57° (826 sec)	18222	• Pe: wit	rform ARV R/I cal per OCP, th all RF links OFF.
					• Sta	ation not required to support

this ARV cal.

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		r r R r	38CR81 *****	BIF003W/B-238591-84
Rev	Station	Elevation	Time	Planned Activity
46.4	HTS	16° (713 sec)	20052	• Carrier 1 ON via VSPC.
	•			 Determine spacecraft status.
				• Turn ON WB carrier(s).
				• Configure BBU(s) for R/O mode.
				• R/O.
				• Obtain M-24.
				• B/U ACS load.
				• Turn OFF WB carrier(s).
				• Terminate pass.

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 Transmit all R/O data to Baker via DSIS.

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Rev	Station	Elevation	Time	Planned Activity
47.4	HTS	29°	21432	• Carrier 1 ON via VSPC.
		(/// sec)		 Determine spacecraft status.
				 Turn ON WB carrier(s).
				 Configure BBU(s) for R/O mode.
				• R/O.
				● Obtain M-24.
				 Turn OFF WB carrier(s).
				• Terminate pass.
				 Transmit all R/O data to Baker
				via DSIS.
				• Note: ACS maneuver in progress.

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Rev	Station	Elevation	Time	Planned Activity
49.5	GTS	56° (822 sec)	01022 •	Carrier 1 ON via VSPC.
			•	Determine spacecraft status.
			•	Turn ON WB carrier(s).
	•		•	Configure BBU(s) for R/O mode.
			•	R/O.
			•	Obtain M-24.
			•	Load ACS OFF, per profile.
			•	Turn OFF WB carrier(s).
			•	Terminate pass.
			•	Transmit all R/O data to Baker via DSIS.
			•	Note: ACS maneuver in progress.

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Rev	Station	Elevation	Time	Planned Activity
51.1	NHS	22°	03462	• Carrier 1 ON via VSPC.
		(Determine spacecraft status.
				• Turn ON WB carrier(s).
				 Configure BBU(s) for R/O mode.
				• R/O.
				● Obtain M-24.
				• B/U ACS OFF.
				• Turn OFP WB carrier(s).
				• Terminate pass.
				 Transmit all R/O data to Baker via DSIS.
				 Note: ACS maneuver in progress.

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Rev	Station	Elevation	Time		Planned Activity
52.1	VTS	30° (786 sec)	05232	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.
				•	Turn ON WB carrier(s).
				•	Configure BBU(s) for R/O mode

• R/O.

- Obtain M-24.
- Enable and load ACS, per profile.
- Turn OFF WB carrier(s).
- Terminate pass.
- Transmit all R/O data to Baker via DSIS. 1

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Note: ACS will be OFF TOP.

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Rev	Station	Elevation	<u>Time</u>		Planned Activity
52.2	TTS	15° (713 sec)	0536Z	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.
				•	Turn ON WB carrier(s).

- Configure BBU(s) for R/O mode.
- R/O.
- Obtain M-24.
- Turn OFF WB carrier(s).
- Terminate pass.

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Transmit all R/O data to Baker via DSIS.

Note: ACS will be OFF TOP.

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Rev	Station	Elevation	Time	Planned Activity
53.1	VTS	22° (761 sec)	07012	• Carrier 1 ON via VSPC.
		(Determine spacecraft status.
				• Turn ON WB carrier(s).
				 Configure BBU(s) for R/O mode.
				• R/O.
·				• Obtain M-24.
				• B/U ACS load.
				• Turn OFF WB carrier(s).
				• Terminate pass.
				 Transmit all R/O data to Baker via DSIS.
				• Note: ACS will be OFF TOP.

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Rev	Station	Elevation	<u>Time</u>		Planned Activity
54.1	HTS	73 ³ (833 sec)	08362	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.

• Configure BBU(s) for R/O mode.

Turn ON WB carrier(s).

• R/O.

- Obtain M-24.
- Turn OFF WB carrier(s).
- Terminate pass
- Transmit all R/O data to Baker
 via DSIS.
- Note: ACS maneuver in progress.

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•	Rev	Station	Elevation	Time	Planned Activity
	56.0	GTS	25°	1153Z	• Carrier 1 CN via VSPC.
			(707 Sec)		 Determine spacecraft status.
					• Turn ON WB carrier(s).
					• Configure BBU(s) for R/O mode.
					• R/O.
					• Obtain M-24.
					• Turn OFF WB carrier(s).
)					• Terminate pass.
,					 Transmit all R/O data to Baker via DSIS.
					 Note: ACS maneuver in progress.

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Rev	<u>Station</u>	Elevation	Time		Planned Activity
56.3	TTS	15° (713 sec)	12162	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.

Obtain M-24.

Terminate pass.

Note: ACS maneuver in progress.

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Rev	<u>Station</u>	Elevation	Time		Planned Activity
57.4	NHS	13°	14052	•	Carrier 1 ON via VSPC.
				•	Determine spacecraft status.

· .

Turn ON WB carrier(s).

• Configure BBU(s) for R/O mode.

• R/O.

Obtain M-24.

Enable and load ACS, per profile.

Prime SCS memory load.

Turn OFF WB carrier(s)

Terminate pass.

 Transmit all R/O data to Baker via DSIS.

Note: ACS maneuver in progress.

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Rev	Station	Elevation	Time	Planned Activity
58.4	NHS	66°	1543Z •	Carrier 1 ON vía VSPC.
		(827 sec)		

• Determine spacecraft status.

• Turn ON WB carrier(s),

• Configure BBU(s) for R/O mode.

• R/O.

Obtain M-24.

• B/U ACS load.

• B/U SCS memory load.

Turn OFF WB carrier(s).

Terminate pass.

Transmit all R/O data to Baker
 via DSIS.

Note: ACS maneuver in progress.

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Section VI

EXERCISE/PASS ASSIGNMENT MATRIX

	Engineering Ex. No.	Scheduled Rev No.	Performed Rev No.	Remarks	
and the second secon		and the second			
1.	a. TH CONF 1	15P			
	b. TM CONF 2	18H			
	c. TM CONF 3	20G			
	d. TM CONF 4	17H			
	e. TM CONF 5	33P			
2.	a. CAR 1 RTC	15P			
	b. CAR 4 RTC	18H		·····	
	c. CAR 5 RTC	20G		•	
	d. CAR 1 VSPC	22B			
	e. CAR 4 VSPC	POST REV 37			
	f. CAR 5 VSPC	POST REV 37			
3.	TR 1 R/O	18H			
	TR 2 R/O	19G			
	TR 3 R/O	20G			
4.	DIU/KGL ON	22B			
	DIU/KG2 ON	20G			
F					
э.	B/A CR4	22B			
	B/A CR5	20G			
6	CRT _V DMC	160			
٠.		230			
	2011 -1 ASK				
7.	SEL +Y RTC	15B (mid pass	.)		
-	SEL +Y VSPC	22B	•		
8.	EXERCISE				
	SRCS 182	22B			
9.	EXERCISE	34G			
	ACS (COMMANDING)				
	···· • • • • • • • • • • • • • • • • •				
10.	EXERCISE	36B			
	ACS (CYCLING)				
11.	SE-1 DUR	28B			SEC

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EX. No. Rev No. Rev No. Remarks 12. R/O FULL TR TR 1 25H TR 3 22B TR 3 22B 13. VSPC TR START TR 1 21 TR 3 22B 13. VSPC TR START TR 1 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 14. TR R/O 4:1 TR 2 27G TR 3 29B TR R/O 1:1 (Non-pad load) TR 1 26P TR 2 22B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCs 053 & 046 23C SPCs 059 & 046 SPCS 050 & 047 38C SPCs 059 & 046 31C SPCs 059 & 046 17. P/L TSGs 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O & R/I POST REV 37 SAME TIME		Engineering	Scheduled	Performed	
12. R/O FULL TR TR 1 25H TR 2 22B TR 3 22B 13. VSPC TR START TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 21 14. TR R/O 4:1 TR 2 27G TR 3 29B TR 3 29B TR 3 29B TR 2 22B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 22B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCS 053 & 046 45C 17. P/L TSGS 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O & R/I FOST REV 37 SAME TIME	ىنى مۇرىتىتىرىيى رو	Ex. No.	Rev No.	Rev No.	Remarks
TR 1 25H TR 2 22B TR 3 22B 13. VSPC TR START 21 TR 2 21 TR 3 21 VSPC TR STOP 21 TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP 21 TR 1 21 TR 2 21 TR 7 25H TR 1 25H TR 2 27G TR 3 29B TR 1 26P TR 2 22B 15. USE TR AS 2ND TR IN ZTP TR 1 TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 046 23C SPCs 059 & 046 45C 17. P/L TSGs 7 pe	12.	R/O FULL TR			
TR 2 22B TR 3 22B TR 3 22B 13. VSPC TR START TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR R/O 1:1 (Non-pad load) TR 1 26P TR 2 27G TR 3 29B TR R/O 1:1 (Non-pad load) TR 1 26P TR 2 22B TR 3 22B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCs 054 & 045 31C SPCs 059 & 046 45C 17. P/L TSGS 7 per 1600Z to 1600Z span, as scheduled by MPOSS 18. R/O & R/I FOST REV 37 SAME TIME		TR 1	258		
TR 3 22B 13. VSPC TR START I TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP 21 TR 1 21 TR 3 21 VSPC TR STOP 21 TR 1 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR 7 2 TR 1 26P TR 2 22B TR 3 22B 15. USE TR AS 22B SPCs 053 & 048 23C SPCs 055 & 047 38C SPCs 059 & 046 45C 17. P/L TSGs 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O & R/I POST REV 37		TR 2	2 2B		
13. VSPC TR START TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 2 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR R/O 1:1 (Non-pad load) TR 1 26P TR 2 22B TR 3 29B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 059 & 046 45C 17. P/L TSGs 7 per 1600Z to 1600Z span, as scheduled by MPOSS 18. R/O & R/I FOST REV 37 SAME TIME		TR 3	2 2B		
13. VSPC TR START TR 1 21 TR 2 21 TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR 3 29B TR 3 29B TR 3 29B 15. USE TR AS 2ND TR IN ZTP TR 2 22B 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCs 055 & 046 45C 17. P/L TSGs 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O & R/I FOST REV 37					
TR 1 21 TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR 70 1:1 (Non-pad load) TR 1 26P TR 2 22B TR 3 22B 15. USE TR AS 2ND TR IN ZTP TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCs 054 & 045 31C SPCs 059 & 046 45C 17. P/L TSGs 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O & R/I FOST REV 37 SAME TIME	13.	VSPC TR START			
TR 2 21 TR 3 21 VSPC TR STOP TR 1 21 TR 2 21 TR 2 21 TR 3 21 14. TR R/O 4:1 TR 1 25H TR 2 27G TR 3 29B TR R/O 1:1 (Non-pad load) TR 1 26P TR 2 22B TR 3 22B 15. USE TR AS 22D 15. USE TR AS 22D 16. CAL P/L MODES SPCs 053 \pounds 048 23C SPCs 053 \pounds 047 38C SPCs 059 \pounds 046 45C 17. P/L TSGs 7 per 16002 to 16002 span, as scheduled by MPOSS 18. R/O \pounds R/I FOST REV 37 SAME TIME		TR 1	21		
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15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 21 TR 3 21 16. CAL P/L MODES SPCs 053 \pounds 048 23C SPCs 058 \pounds 045 31C SPCs 050 \pounds 047 38C SPCs 059 \pounds 046 45C 17. P/L TSGs 7 per 1600Z to 1600Z span, as scheduled by MPOSS 18. R/O \pounds R/I POST REV 37 SAME TIME		TR 3	2 2B		
 15. USE TR AS 2ND TR IN ZTP TR 1 21 TR 2 21 16. CAL P/L MODES SPCs 053 & 048 23C SPCs 053 & 048 23C SPCs 058 & 045 31C SPCs 050 & 047 38C SPCs 059 & 046 45C 17. P/L TSGs 7 per 1600Z to 1600Z span, as scheduled by MPOSS 18. R/O & R/I POST REV 37 SAME TIME 					
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 17. P/L TSGs 7 per 1600Z to 1600Z span, as scheduled by MPOSS 18. R/O & R/I POST REV 37 SAME TIME 					
as scheduled by MPOSS 18. R/O & R/I POST REV 37 SAME TIME	17.	P/L TSGs	7 per 16002 t	o 16002 span,	
18. R/O & R/I POST REV 37 SAME TIME			as scheduled	by MPOSS	
SAME TIME	10	R/O & R/T	POST REV 37		
	τ 0 .	SAME TIME	⊊্যেয়েরে ১৯৯৯ মিলিটে আটেট		
		لىقد قىچ مەرىي			

85 ******* * - SECRET *******

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	Engineering	Scheduled	Performed	
-	Ex. No.	Rev No.	Rev No.	Remarks
10	TDANCOND			
72.	(256)			
		00Cm 021 37		
	VSPC	POST REV 37		
	RIC	POST REV 37		
	TRANS POND			
	& RECORD (256)			
	VSPC	POST REV 37		
	RTC	POST REV 37		
	TRANS POND			
	(OBPS)			
	VSPC	POST REV 58		
	RTC	POST REV 58		
	TRANSPOND			
	RECORD			
	(OBPS)			
	VSPC	POST REV 58		
	RTC	POST REV 58		
	100			
20.	CHG CONTROL	AS OBSERVED		
	TRICKLE CHG			
	a a sub trace to the sub-			ι.
21.	BATT DISCHG.	POST REV 58		
	TESTS			
22	MAGNITTIDE			
dig da 6	CMDC			
	0	150		
	1	218		
	± 2	210		
	2	268		
	A	368		
	т 5	368		
	5	305 194		
	7	Drive to Don J Tan	07	
	1	LETOR CO VEA 1	-	
23.	CMD RCVR 2	33P		

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Engineering		Scheduled	Performed	
	Ex. No.	Rev No.	Rev No.	Remarks
24.	CAR 4 FM CAR 5 PM (XFOND ONLY)	POST REV 37 POST REV 37		
25.	R/O TR & TRANSPOND AT SAME TIME	POST REV 37		
26.	R/O PAD LOADS TR 1 TR 2 TR 3	18H 19G 20G	-	
27.	KG-4G CK OUT NO. 1 NO. 2	18H 20G		
28.	VERIFY TR 1 OFF TR 2 OFF TR 3 OFF DIU 1 OFF DIU 2 OFF	18H 19G 20G 18H 20G		
29.	VERIFY OBPS BY a. LOADING b. DUMP c. CMDING d. XPONDING e. XPOND & R/I f. R/O DATA	POST REV 58 POST REV 58 POST REV 58 POST REV 58 POST REV 58 POST REV 58		
30.	VERIFY SCS BY a. LOADING b. DUMP c. TASKING d. VSPC EXECUTION	19G 18H 21 19G		

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÷# # 3808 P.M #

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ennengengingingingingingingingingingingingingin	Engineering Ex. No.	Scheduled Rev No.	Performed Rev No.	Remarks	lla (balla) (gran
31.	VERIFY SCS DUMI	2			
	CONTENTS	218			
32.	VERIFY				
	CF 1	21B			
	CF 2	21B			
33.	VERIFY CMD RCVI	R 2			
	CF 1	33P			
	CF 2	- 33P			
34.	RCVR/DECORDER	2			
	MC 6	33P			
	MC 7	POST REV 58			
35.	LVCO 1	31P			
	LVCO 2	32H			
36.	R/T R/I OFF	POST REV 58			
37.	EAT Clear	19G			

88 ******** *<u>SECRET</u>



APPENDIX A ENGINEERING EVALUATION TEST PHASE PLAN OUTLINE FOR SIX ANOMALOUS ORBIT CASES

Case	Description	Earliest Deployment Revs	Pad Load Readout Revs	Load Rev	B/U Rev	Gamma (deg)	Spin Axis*	TRG Start System Time**
Non- Anomalous	Rev 13 sep with YAW	15.3P, 16.4C, 17.4H	18.4H, 19.5G, 20.5G	20.5G	21.1B	87. 6	X=+0.033979 Y=+0.434989 Z=-0.899795	73650
1	Rev 13 sep without YAW	Same as non-anomalous case	Same as non-anomalous case	Same as non- anomalous case	Same as non anomalous case	91.1	X=+0.213025 Y=+0.366765 Z=-0.905596	Same as non anomalous case
2	Rev 4 sep with YAW	6.1B, 7.1C, 8.1C	9.1H, 10.1H, 11.0G	12.0G	13.4B	Same as non- anomalous case	Same as non- anomalous s case	23580
3	Rev 4 sep without YAW	Samé as case 2	Same as case 2	Same 45 Case 2	Same às case 2	Same as case l	Same as case l	Same as Case 2
4	Rev 13 sep with YAW but no burn	17.3P, 18.4H, 19.2P	20.2P, 21.2P, 22.1B	22.18	24.10	Same as non- anomalou case	Same as non- anomalous s case	81500
5	Rev 13 sep with YAW but no 1st burn (2nd burn only)	17.4H, 18.4H, 19.2H	20.5G, 21.1B, 22.1B	22.1B	23.2P	Same as non- anomalou case	Same as non- anomalous s case	82700
6	Rev 13 sep with YAM but no 2nd burn (1st burn only)	17.3P, 18.2P, 19.2P	20.2P, 21.1B, 22.1B	22.1B	23.10	Same as non- anomalou case	Same as non- anomalous s case	82730

Notes:

* For -Y ant/MPOSS convention ** TRG will be set to all zeros at start time

In general the non-anomalous Eng. Eval. Test Phase Plan will be followed as closely as possible, with times and revs displaced as necessary.

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