LASCO/EIT

COMMISSIONING PROCEDURE

TO TURN ON POWER

AND

RELEASE LAUNCH LOCKS

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Part I. INTRODUCTION

This document provides the detailed commands and contingencies for the first two days of LASCO/EIT instrument operations. The instrument power will be turned on during day of mission 5 according to the current planning.

The first day of LASCO/EIT operations will be devoted to the initial electronics power on, firing the COB, Fabry-Perot launch locks, the EIT pressure release valve, booting up all processors and opening the LASCO doors. To verify the LASCO door opening, images can be taken of C2 and C3 cameras to see some small differences in the images. For C1, the FP optical control channels can be used to verify that the door has opened slightly.

The second day will be devoted to peripheral checkouts, mechanism checkouts, releasing the EIT door launch lock, opening the EIT door and powering on the EIT camera heater. Some mechanism and peripheral checkouts might be completed the first day. An objective is to get the EIT camera heater on early in the NRT session, so as to be able to monitor the temperature for the remainder of the real time pass.

It is estimated that the entire sequence will take two days of about 6 hours each day. These activities are BLOCKS 1.1 and 1.2 in Piet Marten's scheduling format.

The first two days commissioning plan is the following:

- Verify non-operational temperatures are within operational limits
- Power to LEB, inhibit automatic boot
- Configure relays for both instrument controller boards
- Turn experiment power on
- Boot both instrument controller boards
- Release EIT pressure release valve
- Release COB launch lock
- Adjust pointing of COB if necessary
- Release FP launch lock
- Turn experiment power off
- Reconfigure relays for nominal operation
- Manually boot all processors
- Take dark image from all cameras
- Check out all calibration lamps
- Release EIT pressure release valve
- Open C2 door slightly, taking C2 stimulus calibration lamp images before after
- Open C3 door slightly, taking normal images before after
- Open C1 door slightly, monitoring FP OCCs before after
- Checkout C1, C2, C3 and EIT wheel mechanisms
- Fire EIT door launch lock using TSTOL procedure
- Open EIT door slightly

- Checkout EIT camera
- Checkout EIT camera low and high wattage heaters
- Turn on EIT camera high wattage heater
- Checkout Fabry-Perot
- Checkout C2 camera
- Checkout C3 camera
- Checkout C1 camera

After the above checkouts, maintenance level commanding will be necessary each day to keep the EIT heater at the appropriate level. Once the temperature of the COB and EIT have equilibrated due to the operational power dissipation, the COB and EIT zone heaters will be turned on to raise the temperature of the COB to help the out-gassing of the COB and EIT.

Part II. DETAILED COMMANDS

SECTION 1. PREPARATION FOR LEB TURN ON

OBJECTIVE: Verify that the non-operational temperatures are within operational limits.

1.1	Record the non-op LEB Nominal temperature	DEG _____
1.2	Record the non-op LEB Redundant temperature	DEG _____
1.3	Record the non-op COB Nominal temperature	DEG _____
1.4	Record the non-op COB Redundant temperature	DEG _____
1.5	Record the non-op EIT Nominal temperature	DEG _____
1.6	Record the non-op EIT Redundant temperature	DEG _____
1.7	Completion of Section	TIME _____

Contingencies:

C1.1 COB not within 10-30 C
C1.2 LEB over 30 C
C1.3 EIT not within 10-30 C

SECTION 2. ESTABLISH TELEMETRY SESSION WITH ECS

OBJECTIVE: Establish a telemetry session between the ECS and the LASCO workstations.

2.1	Start up DACS, DDIS and LADS on LASCO workstation	OK _____
2.2	Request telemetry distribution from ECS	TIME _____
2.3	Verify that null telemetry is being received	OK _____
2.4	Completion of Section	TIME _____

Contingencies:

C2.1 Telemetry session cannot be established

SECTION 3. SWITCH POWER ON TO THE LEB

OBJECTIVE: Perform the standard procedure to apply power to the LEB, boot the PCE and TCE and then inhibit the automatic boot cycle.

3.1	Execute FOT procedure, 1 lebpwron	TIME _____
3.2	Record the time that the LCL command is sent	TIME _____
3.3	Record the S/C measured current at start	AMPS _____
3.4	Record the time HK starts being received	TIME _____
3.5	Record the LASCO current monitor	AMPS _____
3.6	Verify that the Manual Boot command is received	OK _____
3.7	Record the end time of the procedure	TIME _____
3.8	Record the s/c measured current at end	AMPS _____
3.9	Completion of Section	TIME _____

Contingencies:

C3.1: Relay indicating A on does not indicate properly
C3.2: After LCL command, current does not increase
C3.3: HK does not appear
C3.4: Manual Boot command not received

SECTION 4. LOBT DISTRIBUTION TO LASCO

OBJECTIVE: Send the ON-BOARD TIME command from the spacecraft on-board software to the LASCO to update the LOBT within the LEB.

4.1	Request LOBT to be distributed to LASCO	OK _____
4.2	Verify that the LOBT command received by LEB on LADS command display	TIME _____
4.3	Record the system time from LADS display	TIME _____
4.4	Record the Spacecraft time from LADS display	TIME _____
4.5	Completion of Section	TIME _____

Contingencies:

C4.1 LOBT command not received

C4.2 Spacecraft time not correct

SECTION 5. ESTABLISH NRT COMMAND SESSION

OBJECTIVE: The checkout of the LASCO/EIT will take place using Near Real-Time commands in which commands are sent out by the LASCO IWS to the ECS, for forwarding to the POCC.

5.1	Bring up ECS command displays	OK _____
5.2	Start LOCS	OK _____
5.3	Request NRT command session from SOC/ECS operator	OK _____
5.4	Record the start time of the session	TIME _____
5.5	Completion of Section	TIME _____

Contingencies:

C5.1: Cannot establish NRT command session

SECTION 6. CONFIGURE RELAYS FOR BOTH ICB-A AND ICB-B

OBJECTIVE: Configure the LEB relays so that both instrument controller boards are on and available for the COB launch lock firing. Other than the ICB relays, all other relays will be left in their nominal configuration.

6.1	Record command sequence number	VALUE _____
6.2	Send scenario file, icbabon.sce	TIME _____
6.3	Wait 30 seconds	OK _____
6.4	Record command sequence number	VALUE _____
6.5	Verify C1 on	STATUS _____
6.6	Verify C2 on	STATUS _____
6.7	Verify C3 on	STATUS _____
6.8	Verify EIT on	STATUS _____
6.9	Verify FP on	STATUS _____
6.10	Verify PES on	STATUS _____
6.11	Verify M1 on	STATUS _____
6.12	Verify ICB-A on	STATUS _____
6.13	Verify ICB-B on	STATUS _____
6.14	Verify bias heater off	STATUS _____
6.15	Verify C1 MU off	STATUS _____
6.16	Verify C2 MU off	STATUS _____
6.17	Verify C3 MU off	STATUS _____
6.18	Verify FP MU off	STATUS _____
6.19	Completion of Section	TIME _____

Contingencies:

C6.1: All commands not received after sending scenario file, icbabon.sce

C6.2: Relay configuration not verified

SECTION 7. BIAS HEATERS ON

OBJECTIVE: If the temperature of the COB is not high enough, then additional heater power will be applied to raise the temperature.

7.1	Record the COB temperature (Nominal)	DEG _____
7.2	Record the COB temperature (Redundant)	DEG _____
7.3	If a COB temperature is < 15 C then	
7.3.1	Send command, Bias Heater Relay ON	TIME _____
7.3.2	Wait 30 seconds	OK _____
7.3.3	Verify bias heater ON	STATUS _____
7.4	Completion of Section	TIME _____

Contingencies:

C7.1: Bias heater doesn't indicate ON

SECTION 8. SWITCH ON EXPERIMENT POWER

OBJECTIVE: Switch on power to the ICB, and all of the peripherals.

8.1	Send command Experiment Power ON, 31V OFF	TIME
8.2	Wait 30 seconds	TIME
8.3	Verify Experiment Power ON	TIME
8.4	Verify 31V OFF	TIME
8.5	Take a snap shot of Voltage-Temperature page	TIME
8.6	Record current monitor	AMPS
8.7	Completion of Section	TIME

Contingencies:

C8.1: Experiment power voltages don't indicate properly

SECTION 9. BOOT UP INSTRUMENT CONTROLLER CARD, A

OBJECTIVE: Boot the ICE software on the ICB-A.

9.1	Send command Select IC-A	TIME
9.2	Send command Reset IC-A	TIME
9.3	Wait 30 seconds	TIME
9.4	Verify IC-A is ON and running boot code	TIME
9.5	Send command Boot ICE-A from EEPROM	TIME
9.6	Wait 90 seconds	TIME
9.7	Verify HK is back and ICE-A is running from EEPROM	TIME
9.8	Record current monitor	AMPS
9.9	Completion of Section	TIME

Contingencies:

C9.1: ICB-A does not reset properly
C9.2: ICB-A does not boot ICE
C9.3: HK does not return after boot

SECTION 10. BOOT UP INSTRUMENT CONTROLLER CARD, B

OBJECTIVE: Boot the ICE software on the ICB-B.

10.1	Send command Select IC-B	TIME
10.2	Send command Reset IC-B	TIME
10.3	Wait 30 seconds	TIME
10.4	Verify IC-B is ON and running boot code	TIME
10.5	Send command Boot ICE-B from EEPROM	TIME
10.6	Wait 90 seconds	TIME
10.7	Verify HK is back	TIME
10.8	Verify ICE-B is running from EEPROM	TIME
10.9	Completion of Section	TIME

Contingencies

C10.1: ICB-B does not reset properly

C10.2: ICB-B does not boot ICE

C10.3: HK does not return after boot

SECTION 11. TURN ON 31 V

OBJECTIVE: Turn on the 31 V power.

11.1	Send command Experiment Power ON, 31V ON	TIME
11.2	Wait 30 seconds	TIME
11.3	Record value of 31 V	VOLT
11.4	Record current monitor	AMPS
11.5	Completion of Section	TIME

Contingencies:

C11.1: 31 Volts not at nominal value

C11.2: 31 Volt relay does not indicate ON

SECTION 12. FINISH BOOT SEQUENCE OF ICE

OBJECTIVE: The mechanism tables must be initialized and the zone heaters turned off. This is also an opportunity to measure the boresighter status.

12.1	Send command Select IC-A	TIME
12.2	Send command Side A Select	TIME
12.3	Wait until ICE completes (motor table valid)	TIME
12.4	Record current monitor	AMPS
12.5	Send scenario file, zonesoff.sce	TIME
12.6	Wait 30 seconds	TIME
12.7	Record current monitor	AMPS
12.8	Record boresight X-value	VALUE
12.9	Record boresight Y-value	VALUE
12.10	Completion of Section	TIME

Contingencies:

C12.1: Side Select doesn't finish
C12.2: Mechanism table values not valid
C12.3: Boresighter values not proper

SECTION 13. OPEN EIT PRESSURE RELEASE VALVE

OBJECTIVE: The EIT pressure release valve is opened here to permit the evacuation of the EIT telescope. The door will be opened at least 4 hours after the valve is opened.

13.1	Set Mechanism Command Display to ICE-A	OK _____
13.2	Record command sequence number	VALUE _____
13.3	Send Command to fire EIT PRV (from ICE-A) for 8 seconds (arm)	OK _____
13.4	Send Command to fire EIT PRV (from ICE-A) for 8 seconds (execute)	TIME _____
13.5	Record command sequence number	VALUE _____
13.6	Verify that two commands have been sent	OK _____
13.7	Bring down the Voltage-Temperature LADS display	OK _____
13.8	Verify that the Valve PA indicates it has been fired	OK _____
13.9	Completion of Section	TIME _____

Contingencies:

C13.1: Both EIT PRV commands not received

SECTION 14. UNLOCK COB LAUNCH LOCK

OBJECTIVE: Unlock the COB launch lock. The launch lock encoder starts at a value of 4. When the launch lock is fully extended it is a value of 6. The 31V power should be cut off when the encoder is a value of 7. When the paraffin has heated up just enough to permit some small motion, the encoder will read a value of 5. At 20C, the first motion will occur (with one heater on) at about 1 minute. The time that the paraffin heater should be left on depends upon the temperature.

14.1	Record the COB Temperatures	DEG
14.2	Determine the length of time to fire the PA LENGTH OF TIME (sec) =	OK
14.3	Set up the relay configuration command display to be able to quickly send Expt Pwr ON, 31V OFF	OK
14.4	Set length of time into command display	OK
14.5	Send Command to read COB LL encoder	TIME
14.6	Wait 15 seconds	TIME
14.7	Record status	VALUE
14.8	Set Mechanism Command Display to ICE-B	OK
14.9	Record command sequence number	VALUE
14.10	Send Command to fire COB LL from ICE-B (arm)	OK
14.11	Send Command to fire COB LL from ICE-B (exec)	TIME
14.12	Wait 30 seconds	TIME
14.13	Record command sequence number	VALUE
14.14	Record LASCO current value	AMP _____
14.15	Verify that two commands have been sent	OK _____
14.16	Set Mechanism Command Display to ICE-A	OK _____
14.17	Send Command to read COB LL encoder (#1)	TIME _____
14.18	Wait 15 seconds	TIME
14.19	Record LASCO current value	AMP
14.20	Send Command to read COB LL encoder (#2)	TIME
14.21	Wait 15 seconds	TIME
14.22	Record status	VALUE
14.23	Record LASCO current value (first motion at 20C)	AMP
14.24	Decision point to continue with one heater	AMP
14.25	Send Command to read COB LL encoder (#3)	TIME
14.26	Wait 15 seconds	TIME
14.27	Record status	VALUE
14.28	Record LASCO current value	AMP
14.29	Send Command to read COB LL encoder (#4)	TIME
14.30	Wait 15 seconds	TIME
14.31	Record status	VALUE
14.32	Record LASCO current value	AMP

SECTION 14 (Contd..)

14.33	Send Command to read COB LL encoder (#5)	TIME
14.34	Wait 15 seconds	TIME
14.35	Record status	VALUE
14.36	Record LASCO current value	AMP
14.37	Send Command to read COB LL encoder (#6)	TIME
14.38	Wait 15 seconds	TIME
14.39	Record status	VALUE
14.40	Record LASCO current value	AMP
14.41	Send Command to read COB LL encoder (#7)	TIME
14.42	Wait 15 seconds	TIME
14.43	Record status	VALUE
14.44	Record LASCO current value	AMP
14.45	Send Command to read COB LL encoder (#8)	TIME
14.46	Wait 15 seconds	TIME
14.47	Record status	VALUE
14.48	Record LASCO current value	AMP
14.49	Send Command Experiment Power ON, 31V OFF	TIME
14.50	Wait for the remaining time on the PA to expire	TIME
14.51	Send Command Experiment Power ON, 31V ON	TIME
14.52	Wait 30 seconds	TIME
14.53	Verify Experiment Power ON	TIME
14.54	Verify 31 V ON	TIME
14.55	Send Command to read COB LL encoder	TIME
14.56	Wait 30 seconds	TIME
14.57	Record status	VALUE
14.58	Completion of Section	TIME

Contingencies:

C14.1: Two COB-LL commands not received

C14.2: Next to COB-LL final position not reached

C14.3: Final COB-LL position not reached

SECTION 15. ADJUST POINTING OF COB TO SUN CENTER

OBJECTIVE: This is optional. The pointing of the COB may be improved by commanding the legs to move. Since the doors are not to be opened, the pointing adjustment is only for thermal considerations.

15.1 Record boresight X-value	VALUE _____
15.2 Record boresight Y-value	VALUE _____
15.3 Determine number of steps to send to Leg 1	OK _____
Number = Direction =	
15.4 Determine number of steps to send to Leg 2	OK _____
Number = Direction =	
15.5 Set up Leg #1 steps and direction in command	OK _____
15.6 Send Command to move Leg #1	TIME _____
15.7 Wait 30 seconds	OK _____
15.8 Record boresight X-value	VALUE _____
15.9 Record boresight Y-value	VALUE _____
15.10 Set up Leg #2 steps and direction in command	OK _____
15.11 Send Command to move Leg #2	TIME _____
15.12 Wait 30 seconds	OK _____
15.13 Record boresight X-value	VALUE _____
15.14 Record boresight Y-value	VALUE _____
15.15 Completion of Section	TIME _____

Contingencies:

C15.1 Boresighter encoder does not indicate zero after leg motion

C15.1 Boresighter encoder indicates the same after leg motion

SECTION 16. TURN OFF EXPERIMENT POWER AND 31V

OBJECTIVE: Send the commands to turn off experiment power and 31 V to get set to change the instrument configuration relays.

16.1	Send Command Exp Power OFF and 31 V ON	TIME _____
16.2	Wait 30 seconds	OK _____
16.3	Verify Experiment Power OFF	TIME _____
16.4	Send Command Exp Power OFF and 31 V OFF	TIME _____
16.5	Wait 30 seconds	OK _____
16.6	Verify Experiment Power OFF	TIME _____
16.7	Verify 31 V OFF	TIME _____
16.8	Completion of Section	TIME _____

Contingencies:

C16.1: Experiment power doesn't turn off

C16.2: 31 V power doesn't turn off

SECTION 17. RECONFIGURE RELAYS FOR NORMAL OPERATIONS

17.1 Send scenario file, relays a.sce	TIME _____
17.2 Wait 30 seconds	OK _____
17.3 Verify C1 relay ON	STATUS _____
17.4 Verify C2 relay ON	STATUS _____
17.5 Verify C3 relay ON	STATUS _____
17.6 Verify EIT relay ON	STATUS _____
17.7 Verify FP relay ON	STATUS _____
17.8 Verify BS relay ON	STATUS _____
17.9 Verify PES-A relay ON	STATUS _____
17.10 Verify ICB-A relay ON	STATUS _____
17.11 Verify M1 relay ON	STATUS _____
17.12 Verify Bias relay OFF	STATUS _____
17.13 Verify C1 MU Heater relay OFF	STATUS _____
17.14 Verify C2 MU Heater relay OFF	STATUS _____
17.15 Verify C3 MU Heater relay OFF	STATUS _____
17.16 Verify FP MU Heater relay OFF	STATUS _____
17.17 Completion of Section	TIME _____

SECTION 18. SWITCH ON EXPERIMENT POWER

OBJECTIVE: Send command to switch on experiment power to all instruments

18.1	Send command Experiment Power ON, 31V OFF	TIME _____
18.2	Wait 30 seconds	TIME _____
18.3	Verify Experiment Power ON	TIME _____
18.4	Verify 31V OFF	TIME _____
18.5	Take a snap shot of Voltage-Temperature page	TIME _____
18.6	Record current monitor	AMPS _____
18.7	Completion of Section	TIME _____

Contingencies:

C18.1: Experiment power voltages don't indicate properly

SECTION 19. BOOT OBE

OBJECTIVE: Send the commands to boot OBE from PROM. Verify that pad data is being received in Science Telemetry.

19.1	Send command to boot OBE from Bipolar	TIME _____
19.2	Verify command received by TCE	TIME _____
19.3	Verify HK stops	TIME _____
19.4	Wait about 8 minutes	OK _____
19.5	Verify HK valid	TIME _____
19.6	Verify science TM is pad data	OK _____
19.7	Section completed	TIME _____

Contingencies:

C19.1: Boot command not received
C19.2: Boot failure at start
C19.3: OBE fails to boot
C19.4: HK fails to return after boot

SECTION 20. BOOT ICE-A

OBJECTIVE: Send the commands to boot ICE code on instrument controller A.

20.1	Send command Select IC-A	TIME _____
20.2	Send command Reset IC-A	TIME _____
20.3	Wait 30 seconds	TIME _____
20.4	Verify IC-A is ON and running boot code	TIME _____
20.5	Send command Boot ICE-A from EEPROM	TIME _____
20.6	Wait 90 seconds	TIME _____
20.7	Verify HK is valid	TIME _____
20.8	Verify ICE-A is running from EEPROM	TIME _____
20.9	Record current monitor	AMPS _____
20.10	Completion of Section	TIME _____

Contingencies:

C20.1: ICB-A does not reset properly
C20.2: ICB-A does not boot ICE
C20.3: HK does not return after boot

SECTION 21. TURN ON 31 V

OBJECTIVE: Send the command to turn the 31 V power on to power the encoders, motor coils and heaters as necessary.

21.1	Send command Experiment Power ON, 31V ON	TIME _____
21.2	Wait 30 seconds	TIME _____
21.3	Record value of 31 V	VOLT _____
21.4	Record current monitor	AMPS _____
21.5	Completion of Section	TIME _____

Contingencies:

C21.1: 31 Volts not at nominal value

C21.2: 31 Volt relay does not indicate ON

SECTION 22. FINISH BOOT SEQUENCE OF ICE

OBJECTIVE: Now that 31 V is on, we may complete the boot sequence of ICE, by sending the commands to set the mechanism driver table and to turn off the zone heaters. At the completion of this section, ICE is ready for normal operations. The motors will still need to be tested to determine the proper operating parameters.

22.1	Send command Select IC-A	TIME _____
22.2	Send command Side A Select	TIME _____
22.3	Wait until ICE completes (motor table valid)	TIME _____
22.4	Record current monitor	AMPS _____
22.5	Send scenario file, zonesoff.sce	TIME _____
22.6	Wait 30 seconds	TIME _____
22.7	Record current monitor	AMPS _____
22.8	Completion of Section	TIME _____

Contingencies:

C22.1: Side Select doesn't finish
C22.2: Mechanism table values not valid
C22.3: Boresighter values not proper

SECTION 23. BOOT CAMERA AND FP CODE FROM EEPROM TO OBE

OBJECTIVES: Send the commands to boot (transfer) camera and FP code from EEPROM to OBE.

23.1	Send command to boot camera code from EEPROM	TIME _____
23.2	Verify command received by TCE	TIME _____
23.3	Verify HK stops	TIME _____
23.4	Wait about 1.5 minutes	OK _____
23.5	Verify HK valid	TIME _____
23.6	Send command to boot FP code from EEPROM	TIME _____
23.7	Verify command received by TCE	TIME _____
23.8	Verify HK stops	TIME _____
23.9	Wait about 1.5 minutes	OK _____
23.10	Verify HK valid	TIME _____
23.11	Completion of Section	TIME _____

Contingencies:

C23.1: Boot command not received

C23.2: Boot failure at start

SECTION 24. TURN OFF PCE POWER

OBJECTIVE: Send the command to turn off power to the PROM card board. When the EEPROMs are not powered, they are not as susceptible to radiation damage.

24.1	Record LASCO current monitor	AMPS _____
24.2	Send command to turn off PCE power	TIME _____
24.3	Verify command received by TCE	TIME _____
24.4	Verify PCE power is off on configuration display	TIME _____
24.5	Record LASCO current monitor	AMPS _____
24.6	Completion of Section	TIME _____

Contingencies:

C24.1: PCE Power off command not received

C24.2: Current does not decrease after PCE power off

SECTION 25. RESET ALL CAMERAS

OBJECTIVE: Send the commands to perform the camera reset on C1, C2, C3, and EIT cameras. This command starts up various internal camera checks. The results of the checks are passed down the HK telemetry channel.

25.1	Record LASCO current monitor	AMPS _____
25.2	Pull down all camera ROM status displays	OK _____
25.3	Send command to reset C1 camera	TIME _____
25.4	Wait 30 seconds	OK _____
25.5	Verify command received by TCE	OK _____
25.6	Verify C1 ROM reset checks all passed	OK _____
25.7	Send command to reset C2 camera	TIME _____
25.8	Wait 30 seconds	OK _____
25.9	Verify command received by TCE	OK _____
25.10	Verify C2 ROM reset checks all passed	OK _____
25.11	Send command to reset C3 camera	TIME _____
25.12	Wait 30 seconds	OK _____
25.13	Verify command received by TCE	OK _____
25.14	Verify C3 ROM reset checks all passed	OK _____
25.15	Send command to reset EIT camera	TIME _____
25.16	Wait 30 seconds	OK _____
25.17	Verify command received by TCE	OK _____
25.18	Verify EIT ROM reset checks all passed	OK _____
25.19	Record LASCO current monitor	AMPS _____
25.20	Remove camera ROM status displays	OK _____
25.21	Completion of Section	TIME _____

Contingencies:

C25.1: Camera reset command does not reset camera

C25.2: Camera does not pass power up tests

SECTION 26. RESET FABRY-PEROT

OBJECTIVE: Perform the peripheral reset of the Fabry-Perot. The FP will start executing out of ROM and will report status in that mode. It is able to operate in a reduced capability in this mode.

26.1	Record LASCO current monitor	AMPS _____
26.2	Start up FP Status Screen Process	OK _____
26.3	Send command to reset FPE	TIME _____
26.4	Wait 30 seconds	OK _____
26.5	Verify command received by TCE	OK _____
26.6	Verify FP ROM status all OK.	OK _____
26.7	Record LASCO current monitor	AMPS _____
26.8	Completion of Section	TIME _____

Contingencies:

C26.1: FP reset command does not indicate reset

C26.2: FP status not normal

SECTION 27. LOAD CAMERA CODE TO ALL CAMERAS FROM OBE

OBJECTIVE: Load the camera software from OBE to all cameras. At the completion of the load to each camera, the status request command is sent from OBE to the camera.

27.1	Pull down all camera status displays	OK _____
27.2	Record command sequence counter	VALUE _____
27.3	Send command to boot C1 camera	TIME _____
27.4	Wait 30 seconds	OK _____
27.5	Verify command received by TCE	OK _____
27.6	Verify OBE performing C1 peripheral load	TIME _____
27.7	Wait about 90 seconds	OK _____
27.8	Verify C1 status OK	TIME _____
27.9	Send command to boot C2 camera	TIME _____
27.10	Wait 30 seconds	OK _____
27.11	Verify command received by TCE	OK _____
27.12	Verify OBE performing C2 peripheral load	TIME _____
27.13	Wait about 90 seconds	OK _____
27.14	Verify C2 status OK	TIME _____
27.15	Send command to boot C3 camera	TIME _____
27.16	Wait 30 seconds	OK _____
27.17	Verify command received by TCE	OK _____
27.18	Verify OBE performing C3 peripheral load	TIME _____
27.19	Wait about 90 seconds	OK _____
27.20	Verify C3 status OK	TIME _____
27.21	Send command to boot EIT camera	TIME _____
27.22	Wait 30 seconds	OK _____
27.23	Verify command received by TCE	OK _____
27.24	Verify OBE performing EIT peripheral load	OK _____
27.25	Wait about 90 seconds	OK _____
27.26	Verify EIT status OK	TIME _____
27.27	Record command sequence counter	VALUE _____
27.28	Record LASCO current monitor	AMPS _____
27.29	Completion of Section	TIME _____

Contingencies:

C27.1: Camera errors during code upload

C27.2: Camera status errors after upload

SECTION 28. LOAD FP CODE TO FPE FROM OBE

OBJECTIVE: Load FP software from OBE. At the completion of the load, the status request is issued.

28.1	Verify FP status screen receiving TM	OK _____
28.2	Send command to boot Fabry-Perot	TIME _____
28.3	Wait 30 seconds	OK _____
28.4	Verify command received by TCE	OK _____
28.5	Verify OBE performing FP peripheral load	TIME _____
28.6	Wait about 8 minutes	OK _____
28.7	Verify FP status OK	TIME _____
28.8	Record command sequence counter	VALUE _____
28.9	Record LASCO current monitor	AMPS _____
28.10	Completion of Section	TIME _____

Contingencies:

C28.1: FP errors during code upload

C28.2: FP status errors after upload

SECTION 29. LOBT DISTRIBUTION TO LASCO

OBJECTIVE: Update the local on-board time kept by LASCO in both TCE and OBE. A time correlation needs to be performed to obtain the offsets in time in TCE and also in OBE. The offsets will be different in the two modules.

29.1	Request LOBT to be distributed to LASCO	TIME _____
29.2	Verify that the LOBT command received by LEB on LADS command display	TIME _____
29.3	Record the system time from LADS display	TIME _____
29.4	Record the Spacecraft time from LADS display	TIME _____
29.5	Completion of Section	TIME _____

Contingencies:

C29.1 LOBT command not received

C29.2 Spacecraft time not correct

SECTION 30. TAKE DARK IMAGE FROM C1, C2, C3, EIT

OBJECTIVE: Perform a dark image sequence from each of the cameras. The primary default parameter table will be loaded with a full image, 2x2 sums, port A. The processing table will be loaded with Rice compression, no occulter or ROI table.

30.1	Send scenario file, dptfull.sce	TIME _____
30.2	Send scenario file, riceonly.sce	TIME _____
30.3	Send command to take 0 sec dark image from C1	TIME _____
30.4	Wait for image to finish processing by LEB	OK _____
30.5	Send command to take 60 sec dark image from C1	TIME _____
30.6	Wait for image to finish processing by LEB	OK _____
30.7	Send command to take 0 sec dark image from C2	TIME _____
30.8	Wait for image to finish processing by LEB	OK _____
30.9	Send command to take 60 sec dark image from C2	TIME _____
30.10	Wait for image to finish processing by LEB	OK _____
30.11	Send command to take 0 sec dark image from C3	TIME _____
30.12	Wait for image to finish processing by LEB	OK _____
30.13	Send command to take 60 sec dark image from C3	TIME _____
30.14	Wait for image to finish processing by LEB	OK _____
30.15	Send command to take 0 sec dark image from EIT	TIME _____
30.16	Wait for image to finish processing by LEB	OK _____
30.17	Send command to take 60 sec dark image from EIT	TIME _____
30.18	Section completed	TIME _____

Contingencies:

C30.1: Dark image LP does not start to execute

C30.2: Dark image LP terminates early, before sending down image

SECTION 31. CHECK OUT CALIBRATION LAMPS

OBJECTIVE: Check out all calibration lamps on all of the telescopes to verify their proper functioning prior to taking calibration lamp images.

31.1	Select ICB-A on LOCS mechanism command display	OK _____
31.2	Bring down LADS Voltage-temperature display	OK _____
31.3	Record LASCO current monitor	AMPS _____
31.4	Send command to turn C1 door calibration lamp ON	TIME _____
31.5	Wait 30 seconds	OK _____
31.6	Record LASCO current monitor	AMPS _____
31.7	Send command to turn C1 door calibration lamp OFF	TIME _____
31.8	Wait 30 seconds	OK _____
31.9	Record LASCO current monitor	AMPS _____
31.10	Send command to turn C2 door calibration lamp ON	TIME _____
31.11	Wait 30 seconds	OK _____
31.12	Record LASCO current monitor	AMPS _____
31.13	Send command to turn C2 door calibration lamp OFF	TIME _____
31.14	Wait 30 seconds	OK _____
31.15	Record LASCO current monitor	AMPS _____
31.16	Send command to turn C2 shutter calibration lamp ON	TIME _____
31.17	Wait 30 seconds	OK _____
31.18	Record LASCO current monitor	AMPS _____
31.19	Send command to turn C2 shutter calibration lamp OFF	TIME _____
31.20	Wait 30 seconds	OK _____
31.21	Record LASCO current monitor	AMPS _____
31.22	Send command to turn C3 shutter calibration lamp ON	TIME _____
31.23	Wait 30 seconds	OK _____
31.24	Record LASCO current monitor	AMPS _____
31.25	Send command to turn C3 shutter calibration lamp OFF	TIME _____
31.26	Wait 30 seconds	OK _____
31.27	Record LASCO current monitor	AMPS _____
31.28	Send command to turn EIT shutter calibration lamp ON	TIME _____
31.29	Wait 30 seconds	OK _____
31.30	Record LASCO current monitor	AMPS _____
31.31	Send command to turn EIT shutter calibration lamp OFF	TIME _____
31.32	Wait 30 seconds	OK _____
31.33	Record LASCO current monitor	AMPS _____
31.34	Section complete	TIME _____

Contingencies:

C31.1: Calibration lamp does not increase the current reading.

SECTION 32. OPEN C2 DOOR SLIGHTLY

OBJECTIVE: Open the C2 door to permit better outgassing. The scenario file, c2dooropenstep.sce, will open the door 250 steps at a time. This file will be sent three times to open the door a total of 750 steps from the super-closed position. Before and after the door motion, record the status of the C2 door fiducial marks to determine if the launch vibration moved the door at all. The image must be full resolution, rice compressed.

32.1	Move the C2 filter wheel to lens position	TIME _____
32.2	Wait 30 seconds	OK _____
32.3	Verify that the filter wheel is in lens position	OK _____
32.4	Verify that the C2 polarizer is in the clear position	OK _____
32.5	Send command to set exposure time to 20 seconds	OK _____
32.6	Send command to set dpt to full resolution	OK _____
32.7	Send command to take cal lamp exposure on C2	TIME _____
32.8	Pull down LADS mechanism display	TIME _____
32.9	Record C2 door encoder position	VALUE _____
32.10	Send scenario file, c2dooropenstep.sce	TIME _____
32.11	Wait 30 seconds	OK _____
32.12	Record C2 door encoder position	VALUE _____
32.13	Send scenario file, c2dooropenstep.sce	TIME _____
32.14	Wait 30 seconds	OK _____
32.15	Record C2 door encoder position	VALUE _____
32.16	Send scenario file, c2dooropenstep.sce	TIME _____
32.17	Wait 30 seconds	OK _____
32.18	Record C2 door encoder position	VALUE _____
32.19	Send command to take cal lamp exposure on C2	TIME _____
32.20	Section completed	TIME _____

Contingencies:

C32.1: LP aborts before taking image.
C32.2: Image processing aborts before sending image down.
C32.3: ICE does not reach filter or polarizer wheel positions.
C32.1: Door encoder always indicates CLOSED.
C32.2: Door encoder does not indicate IN TRAVEL

SECTION 33. OPEN C3 DOOR SLIGHTLY

OBJECTIVE: Open the C3 door slightly, to permit better outgassing. The scenario file, c3dooropenstep.sce, commands the door to open 250 steps. The file will be sent three times, which will open the door 750 steps from the super-closed position. A normal image will be taken before and after the door motion to verify that the door has opened slightly.

33.1	Send exposure time table to C3 to take 30 second exposure.	OK _____
33.2	Send command to set dpt to full resolution	OK _____
33.3	Send command to take normal image from C3	TIME _____
33.4	Wait for LEB to start processing image	TIME _____
33.5	Pull down LADS mechanism display	TIME _____
33.6	Record C3 door encoder position	VALUE _____
33.7	Send scenario file, c3dooropenstep.sce	TIME _____
33.8	Wait 30 seconds	OK _____
33.9	Record C3 door encoder position	VALUE _____
33.10	Send scenario file, c3dooropenstep.sce	TIME _____
33.11	Wait 30 seconds	OK _____
33.12	Record C3 door encoder position	VALUE _____
33.13	Send scenario file, c3dooropenstep.sce	TIME _____
33.14	Wait 30 seconds	OK _____
33.15	Record C3 door encoder position	VALUE _____
33.16	Send command to take normal image on C3	TIME _____
33.17	Section completed	TIME _____

Contingencies:

C33.1: Door encoder always indicates CLOSED.
C33.2: Door encoder does not indicate IN TRAVEL
C33.3: Normal LP does not start to execute
C33.4: Normal LP aborts before sending image down
C33.5: ICE does not reach filter or polarizer wheel positions

SECTION 34. MOVE FP LAUNCH LOCK TO UNLOCK

OBJECTIVE: Unlock the FP launch lock. This is accomplished by setting the FP to reduced capability mode and then commanding the PZTs to 0V. At that point, the FPE is no longer controlling the PZT and the launch lock may be unlocked.

34.1	Bring the fp status screen to the front of a display	OK _____
34.2	Send the scenario file, redcap.sce	TIME _____
34.3	Verify the FP is in reduced mode	OK _____
34.4	Send the scenario file, zeropzt.sce	TIME _____
34.5	Verify that the PZT voltages are all 0	OK _____
34.6	Send the scenario file, fpllul.sce	TIME _____
34.7	Wait 30 seconds	OK _____
34.8	Record the value of the FP Launch Lock encoder	VALUE _____
34.9	Send the scenario file, fullcap.sce	TIME _____
34.10	Verify the FP is in full capability mode	OK _____
34.11	Verify the FP has seated	OK _____
34.12	Section Completed	TIME _____

Contingencies:

C34.1 FP motor fails to unlock.

C34.2 FP fails to seat.

SECTION 35. OPEN C1 DOOR SLIGHTLY

OBJECTIVE: Open the C1 door slightly to permit better outgassing. Use the optical control channels to indicate that the door has moved open.

35.1	Record the values of the OCCs OCC#1 OCC#2 OCC#3	TIME _____
35.2	Pull down LADS mechanism display	TIME _____
35.3	Record C1 door encoder position	VALUE _____
35.4	Send scenario file, c1dooropenstep.sce	TIME _____
35.5	Wait 30 seconds	OK _____
35.6	Record C1 door encoder position	VALUE _____
35.7	Record the values of the OCCs OCC#1 OCC#2 OCC#3	TIME _____
35.8	Send scenario file, c1dooropenstep.sce	TIME _____
35.9	Wait 30 seconds	OK _____
35.10	Record C1 door encoder position	VALUE _____
35.11	Record the values of the OCCs OCC#1 OCC#2 OCC#3	TIME _____
35.12	Send scenario file, c1dooropenstep.sce	TIME _____
35.13	Wait 30 seconds	OK _____
35.14	Record C1 door encoder position	VALUE _____
35.15	Record the values of the OCCs OCC#1 OCC#2 OCC#3	TIME
35.16	Section completed	TIME _____

Contingencies:

C35.1: OCC values are not normal.

C35.2: OCC values do not change when door opens

SECTION 36. CHECK OUT C1 MECHANISMS

OBJECTIVE: Check out the C1 wheel mechanisms, to determine the proper operating characteristics, which may have changed due to the launch vibrations. Vibration might change the amount of preloading on springs in the motors, causing the wheels to oscillate during stepping.

36.1	Bring down LADS mechanism status display	OK _____
36.2	Send command to move C1 FW to position 0	TIME _____
36.3	Wait 30 seconds	OK _____
36.4	Record encoder position and motor phase	OK _____
36.5	Send command to move C1 FW to position 1	TIME _____
36.6	Wait 30 seconds	OK _____
36.7	Record encoder position and motor phase	OK _____
36.8	Send command to move C1 FW to position 2	TIME _____
36.9	Wait 30 seconds	OK _____
36.10	Record encoder position and motor phase	OK _____
36.11	Send command to move C1 FW to position 3	TIME _____
36.12	Wait 30 seconds	OK _____
36.13	Record encoder position and motor phase	OK _____
36.14	Send command to move C1 FW to position 4	TIME _____
36.15	Wait 30 seconds	OK _____
36.16	Record encoder position and motor phase	OK _____
36.17	Send command to move C1 FW to position 0	TIME _____
36.18	Wait 30 seconds	OK _____
36.19	Record encoder position and motor phase	OK _____
36.20	Send command to move C1 PW to position 0	TIME _____
36.21	Wait 30 seconds	OK _____
36.22	Record encoder position and motor phase	OK _____
36.23	Send command to move C1 PW to position 1	TIME _____
36.24	Wait 30 seconds	OK _____
36.25	Record encoder position and motor phase	OK _____
36.26	Send command to move C1 PW to position 2	TIME _____
36.27	Wait 30 seconds	OK _____
36.28	Record encoder position and motor phase	OK _____
36.29	Send command to move C1 PW to position 3	TIME _____
36.30	Wait 30 seconds	OK _____
36.31	Record encoder position and motor phase	OK _____
36.32	Send command to move C1 PW to position 4	TIME _____
36.33	Wait 30 seconds	OK _____
36.34	Record encoder position and motor phase	OK _____
36.35	Send command to move C1 PW to position 0	TIME _____
36.36	Wait 30 seconds	OK _____
36.37	Record encoder position and motor phase	OK _____

SECTION 36 (Contd.)

36.38	Send command to move C1 shutter to open, no LED	TIME _____
36.39	Wait 30 seconds	OK _____
36.40	Send command to read C1 shutter position	OK _____
36.41	Wait 30 seconds	OK _____
36.42	Record encoder position and motor phase	OK _____
36.43	Send command to move C1 shutter to close, no LED	TIME _____
36.44	Wait 30 seconds	OK _____
36.45	Send command to read C1 shutter position	OK _____
36.46	Wait 30 seconds	OK _____
36.47	Record encoder position and motor phase	OK _____
36.48	Section completed	TIME _____

Contingencies:

C36.1: Filter or polarizer wheel fails to reach position

C36.2: Shutter fails to reach position

SECTION 37. CHECK OUT C2 MECHANISMS

OBJECTIVE: Check out the C2 wheel mechanisms, to determine the proper operating characteristics, which may have changed due to the launch vibrations. Vibration might change the amount of preloading on springs in the motors, causing the wheels to oscillate during stepping.

37.1	Bring down LADS mechanism status display	OK _____
37.2	Send command to move C2 FW to position 0	TIME _____
37.3	Wait 30 seconds	OK _____
37.4	Record encoder position and motor phase	OK _____
37.5	Send command to move C2 FW to position 1	TIME _____
37.6	Wait 30 seconds	OK _____
37.7	Record encoder position and motor phase	OK _____
37.8	Send command to move C2 FW to position 2	TIME _____
37.9	Wait 30 seconds	OK _____
37.10	Record encoder position and motor phase	OK _____
37.11	Send command to move C2 FW to position 3	TIME _____
37.12	Wait 30 seconds	OK _____
37.13	Record encoder position and motor phase	OK _____
37.14	Send command to move C2 FW to position 4	TIME _____
37.15	Wait 30 seconds	OK _____
37.16	Record encoder position and motor phase	OK _____
37.17	Send command to move C2 FW to position 0	TIME _____
37.18	Wait 30 seconds	OK _____
37.19	Record encoder position and motor phase	OK _____
37.20	Send command to move C2 PW to position 0	TIME _____
37.21	Wait 30 seconds	OK _____
37.22	Record encoder position and motor phase	OK _____
37.23	Send command to move C2 PW to position 1	TIME _____
37.24	Wait 30 seconds	OK _____
37.25	Record encoder position and motor phase	OK _____
37.26	Send command to move C2 PW to position 2	TIME _____
37.27	Wait 30 seconds	OK _____
37.28	Record encoder position and motor phase	OK _____
37.29	Send command to move C2 PW to position 3	TIME _____
37.30	Wait 30 seconds	OK _____
37.31	Record encoder position and motor phase	OK _____
37.32	Send command to move C2 PW to position 4	TIME _____
37.33	Wait 30 seconds	OK _____
37.34	Record encoder position and motor phase	OK _____
37.35	Send command to move C2 PW to position 0	TIME _____
37.36	Wait 30 seconds	OK _____
37.37	Record encoder position and motor phase	OK _____

SECTION 37 (Contd.)

37.38	Send command to move C2 shutter to open, no LED	TIME _____
37.39	Wait 30 seconds	OK _____
37.40	Send command to read C2 shutter position	OK _____
37.41	Wait 30 seconds	OK _____
37.42	Record encoder position and motor phase	OK _____
37.43	Send command to move C2 shutter to close, no LED	TIME _____
37.44	Wait 30 seconds	OK _____
37.45	Send command to read C2 shutter position	OK _____
37.46	Wait 30 seconds	OK _____
37.47	Record encoder position and motor phase	OK _____
37.48	Section completed	TIME _____

Contingencies:

C37.1: Filter or polarizer wheel fails to reach position

C37.2: Shutter fails to reach position

SECTION 38. CHECK OUT C3 MECHANISMS

OBJECTIVE: Check out the C3 wheel mechanisms, to determine the proper operating characteristics, which may have changed due to the launch vibrations. Vibration might change the amount of preloading on springs in the motors, causing the wheels to oscillate during stepping.

38.1	Bring down LADS mechanism status display	OK _____
38.2	Send command to move C3 FW to position 0	TIME _____
38.3	Wait 30 seconds	OK _____
38.4	Record encoder position and motor phase	OK _____
38.5	Send command to move C3 FW to position 1	TIME _____
38.6	Wait 30 seconds	OK _____
38.7	Record encoder position and motor phase	OK _____
38.8	Send command to move C3 FW to position 2	TIME _____
38.9	Wait 30 seconds	OK _____
38.10	Record encoder position and motor phase	OK _____
38.11	Send command to move C3 FW to position 3	TIME _____
38.12	Wait 30 seconds	OK _____
38.13	Record encoder position and motor phase	OK _____
38.14	Send command to move C3 FW to position 4	TIME _____
38.15	Wait 30 seconds	OK _____
38.16	Record encoder position and motor phase	OK _____
38.17	Send command to move C3 FW to position 0	TIME _____
38.18	Wait 30 seconds	OK _____
38.19	Record encoder position and motor phase	OK _____
38.20	Send command to move C3 PW to position 0	TIME _____
38.21	Wait 30 seconds	OK _____
38.22	Record encoder position and motor phase	OK _____
38.23	Send command to move C3 PW to position 1	TIME _____
38.24	Wait 30 seconds	OK _____
38.25	Record encoder position and motor phase	OK _____
38.26	Send command to move C3 PW to position 2	TIME _____
38.27	Wait 30 seconds	OK _____
38.28	Record encoder position and motor phase	OK _____
38.29	Send command to move C3 PW to position 3	TIME _____
38.30	Wait 30 seconds	OK _____
38.31	Record encoder position and motor phase	OK _____
38.32	Send command to move C3 PW to position 4	TIME _____
38.33	Wait 30 seconds	OK _____
38.34	Record encoder position and motor phase	OK _____
38.35	Send command to move C3 PW to position 0	TIME _____
38.36	Wait 30 seconds	OK _____
38.37	Record encoder position and motor phase	OK _____

SECTION 38 (Contd.)

38.38	Send command to move C3 shutter to open, no LED	TIME _____
38.39	Wait 30 seconds	OK _____
38.40	Send command to read C3 shutter position	OK _____
38.41	Wait 30 seconds	OK _____
38.42	Record encoder position and motor phase	OK _____
38.43	Send command to move C3 shutter to close, no LED	TIME _____
38.44	Wait 30 seconds	OK _____
38.45	Send command to read C3 shutter position	OK _____
38.46	Wait 30 seconds	OK _____
38.47	Record encoder position and motor phase	OK _____
38.48	Section completed	TIME _____

Contingencies:

C38.1: Filter or polarizer wheel fails to reach position

C38.2: Shutter fails to reach position

SECTION 39. CHECK OUT EIT MECHANISMS

OBJECTIVE: Check out the EIT wheel mechanisms, to determine the proper operating characteristics, which may have changed due to the launch vibrations. Vibration might change the amount of preloading on springs in the motors, causing the wheels to oscillate during stepping.

39.1	Bring down LADS mechanism status display	OK _____
39.2	Send command to move EIT FW to position 0	TIME _____
39.3	Wait 30 seconds	OK _____
39.4	Record encoder position and motor phase	OK _____
39.5	Send command to move EIT FW to position 1	TIME _____
39.6	Wait 30 seconds	OK _____
39.7	Record encoder position and motor phase	OK _____
39.8	Send command to move EIT FW to position 2	TIME _____
39.9	Wait 30 seconds	OK _____
39.10	Record encoder position and motor phase	OK _____
39.11	Send command to move EIT FW to position 3	TIME _____
39.12	Wait 30 seconds	OK _____
39.13	Record encoder position and motor phase	OK _____
39.14	Send command to move EIT FW to position 4	TIME _____
39.15	Wait 30 seconds	OK _____
39.16	Record encoder position and motor phase	OK _____
39.17	Send command to move EIT FW to position 0	TIME _____
39.18	Wait 30 seconds	OK _____
39.19	Record encoder position and motor phase	OK _____
39.20	Send command to move EIT SW to position 0	TIME _____
39.21	Wait 30 seconds	OK _____
39.22	Record encoder position and motor phase	OK _____
39.23	Send command to move EIT SW to position 1	TIME _____
39.24	Wait 30 seconds	OK _____
39.25	Record encoder position and motor phase	OK _____
39.26	Send command to move EIT SW to position 2	TIME _____
39.27	Wait 30 seconds	OK _____
39.28	Record encoder position and motor phase	OK _____
39.29	Send command to move EIT SW to position 3	TIME _____
39.30	Wait 30 seconds	OK _____
39.31	Record encoder position and motor phase	OK _____
39.32	Send command to move EIT SW to position 0	TIME _____
39.33	Wait 30 seconds	OK _____
39.34	Record encoder position and motor phase	OK _____
39.35	Send command to move EIT shutter to open, no LED	TIME _____
39.36	Wait 30 seconds	OK _____
39.37	Send command to read EIT shutter position	OK _____

SECTION 39 (Contd.)

39.38	Wait 30 seconds	OK _____
39.39	Record encoder position and motor phase	OK _____
39.40	Send command to move EIT shutter to close, no LED	TIME _____
39.41	Wait 30 seconds	OK _____
39.42	Send command to read EIT shutter position	OK _____
39.43	Wait 30 seconds	OK _____
39.44	Record encoder position and motor phase	OK _____
39.45	Section completed	TIME _____

Contingencies:

C39.1: Filter or sector wheel fails to reach position

C39.2: Shutter fails to reach position

SECTION 40. OPEN EIT DOOR

OBJECTIVE: Fire the EIT door launch lock paraffin actuator and open the EIT door slightly to permit better outgassing.

40.1	Execute FOT procedure to fire EIT door launch lock PA	TIME _____
40.2	Establish NRT session with ECS	TIME _____
40.3	Send scenario file, eitdooropenstep.sce	TIME _____
40.4	Wait 30 seconds	OK _____
40.5	Record EIT door status	VALUE _____
40.6	Send scenario file, eitdooropenstep.sce	TIME _____
40.7	Wait 30 seconds	OK _____
40.8	Record EIT door status	VALUE _____
40.9	Send scenario file, eitdooropenstep.sce	TIME _____
40.10	Wait 30 seconds	OK _____
40.11	Record EIT door status	VALUE _____
40.12	Section completed	TIME _____

Contingencies:

C40.1 EIT door launch lock command gives error.

C40.2 EIT door does not move from closed position.

SECTION 41. CHECKOUT EIT CAMERA

OBJECTIVE: Perform the standard checkout of the camera. Take full resolution, 64x1024 images of the underscan region through each readout port to obtain noise estimates. Take a 2x2 sum dark and cal lamp images through all ports. Take a 300 second dark image at full resolution with underscan and overscan pixels.

41.1	Record the command sequence number	VALUE _____
41.2	Send command to set dpt to 64x1024, no sum, A, B/S	TIME _____
41.3	Send command to set IP table 10 to no compression	TIME _____
41.4	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
41.5	Wait until processing completed	OK _____
41.6	Send command to set dpt to 64x1024, no sum, B, B/S	TIME _____
41.7	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
41.8	Wait until processing completed	OK _____
41.9	Send command to set dpt to 64x1024, no sum, C, B/S	TIME _____
41.10	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
41.11	Wait until processing completed	OK _____
41.12	Send command to set dpt to 64x1024, no sum, D, B/S	TIME _____
41.13	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
41.14	Wait until processing completed	OK _____
41.15	Send command to set dpt to 1024x1024, 2x2 sum, A, B/S	TIME _____
41.16	Send command to set IP table 19 to Rice	TIME _____
41.17	Send command to set exp table to 10 sec	TIME _____
41.18	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, sw0	TIME _____
41.19	Wait until processing completed	OK _____
41.20	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
41.21	Wait until processing completed	OK _____
41.22	Send command to set dpt to 1024x1024, 2x2 sum, B, B/S	TIME _____
41.23	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, sw0	TIME _____
41.24	Wait until processing completed	OK _____
41.25	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
41.26	Wait until processing completed	OK _____
41.27	Send command to set dpt to 1024x1024, 2x2 sum, C, B/S	TIME _____
41.28	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, sw0	TIME _____
41.29	Wait until processing completed	OK _____
41.30	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
41.31	Wait until processing completed	OK _____
41.32	Send command to set dpt to 1024x1024, 2x2 sum, D, B/S	TIME _____
41.33	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, sw0	TIME _____
41.34	Wait until processing completed	OK _____
41.35	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
41.36	Wait until processing completed	OK _____
41.37	Send command to set dpt to 1152x1024, no sum, A	TIME _____

SECTION 41 (Contd)

41.38	Send command to take 300 sec dark image, IP19, DPT1	TIME _____
41.39	Record the command sequence number	VALUE _____
41.40	Section completed	TIME _____

Contingencies:

C41.1: Dark image LP aborts before sending image down.

C41.2: Cal lamp image LP aborts before sending image down.

SECTION 42. CHECKOUT EIT CAMERA HEATERS

OBJECTIVE: Checkout both the high and low wattage EIT camera heaters and then turn the high wattage heater on.

42.1	Record the LEB current monitor	AMPS _____
42.2	Record the EIT camera temperature	DEG _____
42.3	Record the EIT cold finger temperature	VOLTS _____
42.4	Send command to set high wattage heater ON	TIME _____
42.5	Wait 120 seconds	OK _____
42.6	Record the LEB current monitor	AMPS _____
42.7	Record the EIT camera temperature	DEG _____
42.8	Record the EIT cold finger temperature	VOLTS _____
42.9	Send command to set high wattage heater OFF	TIME _____
42.10	Record the LEB current monitor	AMPS _____
42.11	Send command to set low wattage heater to value 90	TIME _____
42.12	Wait 120 seconds	OK _____
42.13	Record the LEB current monitor	AMPS _____
42.14	Record the EIT camera temperature	DEG _____
42.15	Record the EIT cold finger temperature	VOLTS _____
42.16	Send command to set low wattage heater to value 255	TIME _____
42.17	Send command to set high wattage heater ON	TIME _____
42.18	Wait 30 seconds	OK _____
42.19	Record the LEB current monitor	AMPS _____
42.20	Record the EIT camera temperature	DEG _____
42.21	Record the EIT cold finger temperature	VOLTS _____
42.22	Section completed	TIME _____

Contingencies:

C42.1: Low wattage heater fails to increase current
C42.2: High wattage heater fails to increase current
C42.3: Low wattage heater fails to turn off
C42.4: High wattage heater fails to turn off

SECTION 43. CHECKOUT FABRY-PEROT

OBJECTIVE: Perform a preliminary checkout of the Fabry-Perot.

43.1 TBD

SECTION 44. CHECKOUT C2 CAMERA

OBJECTIVE: Perform the standard checkout of the C2 camera. Take full resolution, 64x1024 images of the underscan region through each readout port to obtain noise estimates. Take a 2x2 sum dark and cal lamp images through all ports at the orange filter. Take a 300 second full resolution dark image with underscan and overscan pixels. Exposure times may need to be adjusted.

44.1	Record the command sequence number	VALUE _____
44.2	Send command to set dpt to 64x1024, no sum, A	TIME _____
44.3	Send command to set IP table 10 to no compression	TIME _____
44.4	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
44.5	Wait until processing completed	OK _____
44.6	Send command to set dpt to 64x1024, no sum, B	TIME _____
44.7	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
44.8	Wait until processing completed	OK _____
44.9	Send command to set dpt to 64x1024, no sum, C	TIME _____
44.10	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
44.11	Wait until processing completed	OK _____
44.12	Send command to set dpt to 64x1024, no sum, D	TIME _____
44.13	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
44.14	Wait until processing completed	OK _____
44.15	Send command to set dpt to 1024x1024, 2x2 sum, A	TIME _____
44.16	Send command to set IP table 19 to Rice	TIME _____
44.17	Send command to set exp table to 10 sec	TIME _____
44.18	Send cmd to take cal lamp image, IP19 , DPT1 ,fw3, pw0	TIME _____
44.19	Wait until processing completed	OK _____
44.20	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
44.21	Wait until processing completed	OK _____
44.22	Send command to set dpt to 1024x1024, 2x2 sum, B	TIME _____
44.23	Send cmd to take cal lamp image, IP19 , DPT1 ,fw3, pw0	TIME _____
44.24	Wait until processing completed	OK _____
44.25	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
44.26	Wait until processing completed	OK _____
44.27	Send command to set dpt to 1024x1024, 2x2 sum, C	TIME _____
44.28	Send cmd to take cal lamp image, IP19 , DPT1 ,fw3, pw0	TIME _____
44.29	Wait until processing completed	OK _____
44.30	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
44.31	Wait until processing completed	OK _____
44.32	Send command to set dpt to 1024x1024, 2x2 sum, D	TIME _____
44.33	Send cmd to take cal lamp image, IP19 , DPT1 ,fw3, pw0	TIME _____
44.34	Wait until processing completed	OK _____
44.35	Send command to take 10 sec dark image, IP19, DPT1	TIME _____
44.36	Wait until processing completed	OK _____

SECTION 44 (Contd)

44.37	Send command to set dpt to 1152x1024, no sum, A	TIME _____
44.38	Send command to take 300 sec dark image, IP19, DPT1	TIME _____
44.39	Record the command sequence number	VALUE _____
44.40	Section completed	TIME _____

SECTION 45. CHECKOUT C3 CAMERA

OBJECTIVE: Perform the standard checkout of the C3 camera. Take full resolution, 64x1024 images of the underscan region through each readout port to obtain noise estimates. Take a 2x2 sum dark and cal lamp images through all ports through the clear filter. Take a 300 second full resolution dark image with underscan and overscan pixels. Exposure times may need to be adjusted.

45.1	Record the command sequence number	VALUE _____
45.2	Send command to set dpt to 64x1024, no sum, A	TIME _____
45.3	Send command to set IP table 10 to no compression	TIME _____
45.4	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
45.5	Wait until processing completed	OK _____
45.6	Send command to set dpt to 64x1024, no sum, B	TIME _____
45.7	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
45.8	Wait until processing completed	OK _____
45.9	Send command to set dpt to 64x1024, no sum, C	TIME _____
45.10	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
45.11	Wait until processing completed	OK _____
45.12	Send command to set dpt to 64x1024, no sum, D	TIME _____
45.13	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
45.14	Wait until processing completed	OK _____
45.15	Send command to set dpt to 1024x1024, 2x2 sum, A	TIME _____
45.16	Send command to set IP table 19 to Rice	TIME _____
45.17	Send command to set exp table to 20 sec	TIME _____
45.18	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
45.19	Wait until processing completed	OK _____
45.20	Send command to take 20 sec dark image, IP19, DPT1	TIME _____
45.21	Wait until processing completed	OK _____
45.22	Send command to set dpt to 1024x1024, 2x2 sum, B	TIME _____
45.23	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
45.24	Wait until processing completed	OK _____
45.25	Send command to take 20 sec dark image, IP19, DPT1	TIME _____
45.26	Wait until processing completed	OK _____
45.27	Send command to set dpt to 1024x1024, 2x2 sum, C	TIME _____
45.28	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
45.29	Wait until processing completed	OK _____
45.30	Send command to take 20 sec dark image, IP19, DPT1	TIME _____
45.31	Wait until processing completed	OK _____
45.32	Send command to set dpt to 1024x1024, 2x2 sum, D	TIME _____
45.33	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
45.34	Wait until processing completed	OK _____
45.35	Send command to take 20 sec dark image, IP19, DPT1	TIME _____
45.36	Wait until processing completed	OK _____

SECTION 45 (Contd)

45.37	Send command to set dpt to 1152x1024, no sum, A	TIME _____
45.38	Send command to take 300 sec dark image, IP19, DPT1	TIME _____
45.39	Record the command sequence number	VALUE _____
45.40	Section completed	TIME _____

SECTION 46. CHECKOUT C1 CAMERA

OBJECTIVE: Perform the standard checkout of the C1 camera. FP is set to TBD wavelength. Take full resolution, 64x1024 images of the underscan region through each readout port to obtain noise estimates. Take a 2x2 sum dark and cal lamp images through all ports through the orange filter. Take a 300 second full resolution dark image with underscan and overscan pixels. Exposure times may need to be adjusted.

46.1	Record the command sequence number	VALUE _____
46.2	Send command to set dpt to 64x1024, no sum, A	TIME _____
46.3	Send command to set IP table 10 to no compression	TIME _____
46.4	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
46.5	Wait until processing completed	OK _____
46.6	Send command to set dpt to 64x1024, no sum, B	TIME _____
46.7	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
46.8	Wait until processing completed	OK _____
46.9	Send command to set dpt to 64x1024, no sum, C	TIME _____
46.10	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
46.11	Wait until processing completed	OK _____
46.12	Send command to set dpt to 64x1024, no sum, D	TIME _____
46.13	Send command to take 0 sec dark image, IP10, DPT1	TIME _____
46.14	Wait until processing completed	OK _____
46.15	Send command to set dpt to 1024x1024, 2x2 sum, A	TIME _____
46.16	Send command to set IP table 19 to Rice	TIME _____
46.17	Send command to set exp table to 10 sec	TIME _____
46.18	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
46.19	Wait until processing completed	OK _____
46.20	Send command to take 0 sec dark image, IP19, DPT1	TIME _____
46.21	Wait until processing completed	OK _____
46.22	Send command to set dpt to 1024x1024, 2x2 sum, B	TIME _____
46.23	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
46.24	Wait until processing completed	OK _____
46.25	Send command to take 0 sec dark image, IP19, DPT1	TIME _____
46.26	Wait until processing completed	OK _____
46.27	Send command to set dpt to 1024x1024, 2x2 sum, C	TIME _____
46.28	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
46.29	Wait until processing completed	OK _____
46.30	Send command to take 0 sec dark image, IP19, DPT1	TIME _____
46.31	Wait until processing completed	OK _____
46.32	Send command to set dpt to 1024x1024, 2x2 sum, D	TIME _____
46.33	Send cmd to take cal lamp image, IP19 , DPT1 ,fw0, pw0	TIME _____
46.34	Wait until processing completed	OK _____
46.35	Send command to take 0 sec dark image, IP19, DPT1	TIME _____
46.36	Wait until processing completed	OK _____

SECTION 46 (Contd)

46.37	Send command to set dpt to 1152x1024, no sum, A	TIME _____
46.38	Send command to take 300 sec dark image, IP19, DPT1	TIME _____
46.39	Record the command sequence number	VALUE _____
46.40	Section completed	TIME _____

PART III. CONTINGENCIES

C1.1: COB not within 10-30 C

1. Raise non-operational heater power to COB

C1.2: LEB over 30 C

1. Be careful in bringing up power!!! May need to turn peripherals off in order to keep temperature of PC low enough.

C1.3: EIT not within 10-30 C

1. Raise non-operational heater power to EIT

C2.1: Telemetry session cannot be established

1. Use a different workstation.
2. If the problem is with ECS then abort until TM session can be established.

C3.1: Relay indicating LEB-A on does not indicate properly

1. Retry the command, using redundant command unit
2. If still not indicating properly, proceed with LCL turn on, to see if problem is with the encoder.

C3.2: After LCL command, current does not increase

1. If relay not indicating properly then must be the primary/redundant LEB relay sticking
2. Switch to redundant LEB?

C3.3: HK does not appear

1. Reboot by cycling power using LCL relay

C3.4: Manual Boot command not received

1. Determine if command is lost, received by LEB with no toggle bit error or received by LEB with a toggle bit error.
2. If command was lost, shut off power using LCL and retry the TSTOL procedure
3. If command was received without toggle bit error, then do the same as #2.
4. If the command was received with toggle bit error, let autoboot after another power cycling.

C4.1: LOBT command not received

1. Determine if command is lost, received by LEB with no toggle bit error or received by LEB with a toggle bit error.
2. If command was lost, then send the same command again.
3. If command did not create toggle bit error, and no error reported by LEB, then send the same command again.
4. If command did create toggle bit error, determine error as reported by LEB, then send

the same command again.

C4.2: Spacecraft time not correct
1. Not critical.

C5.1: Cannot establish NRT command session
1. If the problem is with the LASCO IWS, use a different work station.
2. If the problem is with the ECS, then abort procedure until the problem is corrected.

C6.1: All commands not received after sending scenario file, icbabon.sce
1. Determine command problem: lost, received no error, received with error
2. Resend entire scenario file

C6.2: Relay configuration not verified
1. Determine if a command problem
2. Send command again.

C7.1: Bias heater doesn't indicate ON
1. Determine if a command problem
2. Send command again and check.
3. Proceed if still doesn't respond.

C8.1: Experiment power doesn't indicate properly
1. Shut off experiment power and diagnose problem
2. If experiment power doesn't respond then shut off main power by LCL

C9.1: ICB-A does not reset properly
1. Verify that the commands were received by LEB correctly
2. Send command: ICA-select
3. Send command: ICA-reset

C9.2: ICB-A does not boot ICE
1. Reset ICB-A
2. Boot ICE-A from bipolar

C9.3: HK does not return after boot
1. Reboot by cycling power using LCL relay
2. When HK appears, reboot TCE using different source (ie EEPROM)
3. If this still doesn't work, repeat, but reboot with different PCE source

C10.1: ICB-B does not reset properly
1. Verify that the commands were received by LEB correctly
2. Send command: ICB-B-select

3. Send command: ICB-B-reset

C10.2: ICB-B does not boot ICE
1. Reset ICB-B
2. Boot ICE-B from bipolar

C10.3: HK does not return after boot
1. Reboot by cycling power using LCL relay
2. When HK appears, reboot TCE using different source (ie EEPROM)
3. If this still doesn't work, repeat, but reboot with different PCE source

C11.1: 31 Volts not at nominal value
1. Determine spacecraft bus voltage.
2. If 1 volt less than spacecraft buss voltage, then proceed

C11.2: 31 Volt relay does not indicate ON
1. If no command error, then TCE must be busy doing something. This is a software monitor.

C12.1: Side Select doesn't finish
1. If TCE is reporting that it is not communicating with ICE, then send the command to reset ICE-A. TCE might hold this command because it is still waiting for ICE. After a timeout period, TCE might execute the command.
2. Another possibility is to turn 31V and Expt Pwr off. But TCE might hold these commands also.

C12.2: Mechanism table values not valid
1. Is 31V on? If not send the command to put it on and repeat the side select command.
2. If some values are valid and others not, then the mechanism might not be on an encoder position. Send the commands to put the questioned mechanisms into a valid position.

C12.3: Boresighter values not proper
1. Determine if the pointing of the spacecraft is OK.
2. If OK, then the COB must be off pointed. Move the legs to put the COB in a sun-pointing direction.

C13.1: Both EIT PRV commands not received
1. Determine if command problem.
2. If it is then resend one command.
3. If it is not, then resend one command.

C14.1: Two COB-LL commands not received
1. Determine if command problem.

2. If it is then resend one command.
3. If it is not, then resend one command.

C14.2: Next to COB-LL final position not reached
1. If the final position is reached, then OK
2. Check the temperatures of the COB
3. If the temperatures are cool, then consider using both ICB's to fire the PA.
4. Resend both PA commands.

C14.3: Final COB-LL position not reached
1. Check the temperatures of the COB
2. If the temperatures are cool, then consider using both ICB's to fire the PA.
3. Resend both PA commands.

C15.1 Boresighter encoder does not indicate zero after leg motion
1. Recompute amounts to drive and send the commands again.

C15.1 Boresighter encoder indicates the same after leg motion
1. Was the time of driving greater than 15 seconds? If so, check the current to see if the current increased during the driving time.
2. Did the encoder change?
3. Switch to ICE-B?

C16.1: Experiment power doesn't turn off
1. Send LEB power off through LCL relays and reboot.

C16.2: 31 V power doesn't turn off
1. Send LEB power off through LCL relays and reboot.

C18.1: Experiment power voltages don't indicate properly
1. This should not occur, because TCE is monitoring the TM and will take an action if it does. The action is to turn off experiment power (and 31V) reset peripheral relays and turn power back on. It then reloads ICE. OBE would reload any peripheral after a timeout trying to status the peripheral.

C19.1: Boot command not received
1. Determine if command problem
2. Determine if HK was being received at the time of the command. TCE may have been rebooting something and would not have acknowledged the command.
3. Resend the boot command.

C19.2: Boot failure at start
1. Verify that PROM card power is up. If not send PROM card power on and resend the boot command.

2. Bad checksum. Boot from different source. This should not happen since we are booting OBE from bipolar, which doesn't check the checksum.

C19.3: OBE fails to boot
1. Cycle power and start over using a different source for OBE.

C19.4: HK fails to return after boot
1. Cycle power and start over using a different source for OBE.

C20.1: ICB-A does not reset properly
1. Send Select ICB-A
2. Resend the ICB-A reset command

C20.2: ICB-A does not boot ICE
1. Resend Select ICB-A
2. Resend the ICB-A reset command
3. Verify that ICB-A is reset
4. Resend the boot ICB-A (perhaps from bipolar)

C20.3: HK does not return after boot
1. Send reboot of TCE
2. If that is successful then bring up ICB-A again.
3. Indicate to TCE that OBE is up.
4. If unsuccessful then cycle power to LEB and start over.

C21.1: 31 Volts not at nominal value
1. Determine spacecraft bus voltage.
2. If 1 volt less than spacecraft buss voltage, then proceed

C21.2: 31 Volt relay does not indicate ON
1. If no command error, then TCE must be busy doing something. This is a software monitor so if 31V monitor is OK then a software problem.

C22.1: Side Select doesn't finish
1. Reset ICE-A
2. Reboot ICE-A

C22.2: Mechanism table values not valid
1. Is 31V on?

C22.3: Boresighter values not proper
1. Were they proper earlier?
2. If so, has the s/c moved slightly?

C23.1: Boot command not received
1. Resend command

C23.2: Boot failure at start
1.

C24.1: PCE Power off command not received
C24.2: Current does not decrease after PCE power off
1. Verify that PCE configuration status indicates that power is off
2. Turn PCE power back on
3. Verify that PCE configuration status is on
4. Send PCE status request
5. Turn PCE power off
6. Verify PCE configuration status and current level

C25.1: Camera reset command does not reset camera
1. Verify camera ROM status page is pulled down.
2. Send reset command again.

C25.2: Camera does not pass power up tests
1. Send reset command again
2. Try to boot anyway, but may fail.

C26.1: FP reset command does not indicate reset
1. Verify FP status page is open.
2. Send the reset command again.

C26.2: FP status not normal

C27.1: Camera errors during code upload
1. Is the COB/LEB too hot?
2. Reset the camera
3. Resend the code upload.

C27.2: Camera status errors after upload
1. Reset the camera
2. Resend the code upload

C28.1: FP errors during code upload
1. Reset the camera
2. Resend the code upload

C28.2: FP status errors after upload
1. Reset the camera

2. Resend the code upload

C29.1 LOBT command not received
1. Determine if command is lost, received by LEB with no toggle bit error or received by LEB with a toggle bit error.
2. If command was lost, then send the same command again.
3. If command did not create toggle bit error, and no error reported by LEB, then send the same command again.
4. If command did create toggle bit error, determine error as reported by LEB, then send the same command again.

C29.2 Spacecraft time not correct
1. Software error

C30.1: Dark image LP does not start to execute
1. Did the OBE alerts indicate that Operator was scheduled a task?
2. If not then resend command

C30.2: Dark image LP terminates early, before sending down image
1. Determine failure code.

C31.1: Calibration lamp does not increase the current reading.
1. Is 31V on?

C32.1: LP aborts before taking image.
1. Determine failure code

C32.2: Image processing aborts before sending image down.
1. Determine failure code

C32.3: ICE does not reach filter or polarizer wheel positions.
1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C32.1: Door encoder always indicates CLOSED.
C32.2: Door encoder does not indicate IN TRAVEL
C33.1: Door encoder always indicates CLOSED.
C33.2: Door encoder does not indicate IN TRAVEL

C33.3: Normal LP does not start to execute
1. Did the OBE alerts indicate that Operator was scheduled a task?
2. If not then resend command

C33.4: Normal LP aborts before sending image down

1. Determine the failure code

C33.5: ICE does not reach filter or polarizer wheel positions

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C34.1: FP motor fails to unlock.

1. Is 31V on?
2. Send command to unlock FP again

C34.2: FP fails to seat.

1. Leave for several days and postpone further testing.

C35.1: OCC values are not normal.

C35.2: OCC values do not change when door opens

1. Drive door open up to 2000 steps

C36.1: Filter or polarizer wheel fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C36.2: Shutter fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C37.1: Filter or polarizer wheel fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C37.2: Shutter fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C38.1: Filter or polarizer wheel fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C38.2: Shutter fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C39.1: Filter or sector wheel fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C39.2: Shutter fails to reach position

1. Perform mechanism checkout to determine better mechanism parameters
2. Set mechanism to desired position.
3. Modify ICE and upload new version

C40.1 EIT door launch lock command gives error.

1. Use redundant command

C40.2 EIT door does not move from closed position.

1. Send additional open commands up to 2000 steps

C41.1: Dark image LP aborts before sending image down.

1. Determine failure code

C41.2: Cal lamp image LP aborts before sending image down.

1. Determine failure code

C42.1: Low wattage heater fails to increase current

1. Verify set point
2. Resend command with set point at 0

C42.2: High wattage heater fails to increase current

1. TBD

C42.3: Low wattage heater fails to turn off

1. Verify set point
2. Resend command with set point at 255

C42.4: High wattage heater fails to turn off

PART IV. SCENARIO FILES

icbabon.sce	Configures all relays with both ICB on
zonesoff.sce	Turns the zones heaters off.
relays a.sce	Sets all relays to normal A-side operation
dptfull.sce	Sets up all the camera parameter tables to full readout, no summing, 10 fast clears, heaters off, readout port A
riceonly.sce	Sets up Image Processing table #19 to do Rice compression only, (ie. do not use the occulter table nor the ROI table)
nocomp.sce	Sets up Image Processing table #10 to perform no blocking and no compression.
c1dooropenstep.sce	Opens the C1 door by 250 steps
c2dooropenstep.sce	Opens the C2 door by 250 steps
c3dooropenstep.sce	Opens the C3 door by 250 steps
eitdooropenstep.sce	Opens the EIT door by 250 steps
redcap.sce	Puts the FPE into reduced capability mode (manual control of PZT)
zeropzt.sce	Puts the FP PZT voltages to zero
fpllul.sce	Unlocks the FP launch lock using the alternate mech command
fullcap.sce	Puts the FPE to full capability mode (controlling PZT)