

06-16-2011
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OMI S0007.200 A23
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SHUTTLE COUNTDOWN - (LPS)

Element/End Item: **OV-103/104/105**
Flow/Usage: **ALL**
Facility: **PAD A**
Design Center Concurrence: **JSC/KSC/MSFC**
Category: **A**
OPR: **TCO**
TTL ORG: **OC**

**This document contains
HAZARDOUS operations.**

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1.0 INFORMATION

NOTE

Calibration Data Is Detected

A keyword search performed on this WAD indicates it may contain calibration data recordings. This keyword search is limited and variations other than the USA Writer's Handbook (USA008777) approved format for calibration data recording may not be detected. Calibration data recordings in deviations, attachments, or Pen & Inks will not be detected.

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1.1 Objective

See S0007.100 for Objective of all S0007 Dot Books.

1.3 Operations List

Operation		Shop/ Cntl Rm Console	OPR	Haz (Y/N)	Duration (Hrs)	Page No.
No.	Title					
13	Task Team Readiness	NTD / OTC/ ALL	NTD/ OTC	N	0.5	1
14	Shuttle Countdown Control Sequence (T-43 Hours through T- 11 Hours)	NTD / OTC/ ALL	NTD/ OTC	Y	48.0	39
15	Shuttle Countdown Control Sequence (T-11 Hours through T- 6 Hours)	NTD / OTC/ ALL	NTD/ OTC	Y	5.0	697
16	Shuttle Final Countdown Control Sequence (T-6 Hours through T- 0)	NTD / OTC/ ALL	NTD/ OTC	Y	9.5	917
17	Post-Launch Securing/RTLS Contingency	NTD / OTC/ ALL	NTD/ OTC	Y	3.0	1323
18	Recycle Control Sequence	NTD / OTC/ ALL	NTD/ OTC	Y	1.0	1473
19	Orbiter Recycle	OTD/ ALL	OTC	Y	0.5	1525
20	SRB Recycle	TBC/ ALL	TBC	Y	0.5	1557
21	ET Recycle	TBC/ ALL	TBC	Y	0.5	1573
22	Support Recycle	SUPOP/ ALL	STM	Y	1.5	1579
23	MCCH Recycle	*FLT/ NA	*FLT	N	0.5	1593

24	Reserved	/				1603
25	Reserved	/				1605
26	Reserved	/				1607
27	Late Cabin Vent Contingency Option	ECS/ C6	PVD	N	0.5	1609
28	Hold Option No. 1 - Unplanned Long Duration Between T-9 Minutes and T-5 Minutes	NTD / OTC/ ALL	NTD/ OTC	Y	1.0	1613

2.0 SAFETY INFORMATION

2.2 Safety Requirements

	Operation
Safety requirements pertinent to this TOP are contained in the Operations Instructions.	All

2.4 Reference Safety Documentation

Number	Rev	Title
KNPR 8715.3	LI	KSC Safety Practices Procedural Requirements
FSOP 6100	LI	USA Florida Safety Operating Plan

3.0 STAGING REQUIREMENTS

3.1 Required Engineering Documentation

3.1.2 Documents

OPERATION 14

Document No.	Rev	Title
JOB PLAN M3011.001	(LI)	Operational Check of Pad Let Down Station
JOB PLAN M3011.002	(LI)	Operational Check on Primary GN2 Regulation PNL, S72-0694-02
JOB PLAN M3131.001	(LI)	Operational Check on Main GHe Panel, S72-0697-01
JOB PLAN M3054.001	(LI)	Operational Check on HAZ and Camera Purge Panel
JOB PLAN M3197.009	(LI)	MLP Primary GN2 Panel Contingency Pressure Adjustment
JOB PLAN M3197.010	(LI)	MLP GN2 Tertiary Panel Contingency Pressure Adjustment
JOB PLAN M3197.003	(LI)	Operational Check on MLP Purge Panel S72-1107-08
JOB PLAN M3067.001	(LI)	Operational Checks for Breathing Air System at Pads
JOB PLAN M3067.002	(LI)	Configure the Cabin Air Panel for Launch Support
JOB PLAN M3022.002	(LI)	Service Pad Air Compressors
JOB PLAN M3067.005	(LI)	Disconnect BAIR Tube Bank and Connect Full Tube Bank
JOB PLAN M3079.07	(LI)	MLP Pressurization at Pads
JOB PLAN M3034.03	(LI)	FSS, RSS Machine Room Pressurization
JOB PLAN S0007.200/PWRA	(LI)	ODMS Configuration for Launch and V LA support
M3703	(LI)	Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor

M3704	(LI)	HPGHe/GN2 and LPGN2 Valve Positioning Cross-country Lines, LC-39, KSC
JOB PLAN M3034.06	(LI)	PTCR ECS Pressurization
JOB PLAN M3034.01	(LI)	East/West Flame Cells Pressurization
JOB PLAN M3034.04	(LI)	PTCR ECS Depressurization
JOB PLAN M3189.130	(LI)	On Net Briefing for LCD SS MLP Line and Tank Fill Operations
JOB PLAN M3189.140-190	(LI)	LCD Line and Tank Fill
JOB PLAN M3189.160-210	(LI)	MLP Line Topoff using Elevated Tank Water and Tank Topoff
JOB PLAN M3020.001	(LI)	Operational Checks for GH2 System
JOB PLAN M3097.001	(LI)	Operational Check on GO2 System
JOB PLAN M3197.012	(LI)	Install Flexhoses to MLP OTV Cameras
M3011.002	(LI)	Operational Check on Primary GN2 Regulation Pnl, S72-0694-02
JOB PLAN M3067.003	(LI)	Cabin Air Panel Ops Check and Contingency Press. Adjustment
JOB PLAN M3190.210	(LI)	Pad and MLP Safety Shower/Eyewash Closeout
JOB PLAN M3006.01	(LI)	Pad A Chiller Rotation
JOB PLAN 3FLIPS STSA	(LI)	Operation of the 50-1/50-2 Triple Flips
JOB PLAN M3703	(LI)	Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor
JOB PLAN M3034.15	(LI)	Operational AC Checks (T-13)
JOB PLAN WSSA_PURGE_C HK	(LI)	Water Systems Pad Purge Verifications
JOB PLAN EV/PURGE	(LI)	Pad Elevators Purge Systems
JOB PLAN M3054.009	(LI)	Verify GH2 Area and FSS 175-ft Level Purges

JOB PLAN M3067.004	(LI)	Configure BAIR/Cabin Air Storage Battery for Launch Support
JOB PLAN M3189.420	(LI)	Reactivation of Sound Suppression SSME Hole Trickle Fill for LCD Support following a Securing of Less Than 24 Hours
JOB PLAN M3189.430	(LI)	Reactivation of Sound Suppression SSME Hole Trickle Fill for LCD Support following a Securing of Greater Than 24 Hours
JOB PLAN M3197.005	(LI)	Operational Check on LPGN2 System at Pad and MLP
JOB PLAN M3190.220	(LI)	PTCR Water System Closeout
JOB PLAN M3190.230-240	(LI)	Washdown System Pad and PTCR Closeouts
JOB PLAN M3022.004	(LI)	Pad Compressor Closeout
JOB PLAN Q3018.2	(LI)	Configure Active Pad Elevators for Launch
JOB PLAN M3034.13	(LI)	PTCR ECS Final Closeout Pressurization
JOB PLAN M3190.250	(LI)	MLP Hosereel and Orbiter Skin Spray Nozzle Closeout
JOB PLAN M3189.200	(LI)	SS Valve Complex LCD Closeout

OPERATION 15

Document No.	Rev	Title
JOB PLAN Q3018.2	(LI)	Configure Active Pad Elevators for Launch
JOB PLAN M3123.001	(LI)	Closeout Valve Positioning for FRF, Launch, or Tanking Test
JOB PLAN M3034.13	(LI)	PTCR ECS Final Closeout Pressurization
JOB PLAN M3022.004	(LI)	Pad Compressor Closeout
JOB PLAN M3189.210	(LI)	SS Elevated Tank LCD Topoff without Field Support
JOB PLAN M3006.01	(LI)	Pad A Chiller Rotation
JOB PLAN M3034.18	(LI)	Pad Ops Bldg and Logistics Bldg Configure for Launch

OPERATION 16

Document No.	Rev	Title
JOB PLAN Q3018.5	(LI)	Pad Contingency Plan

JOB PLAN M3189.210	(LI)	SS Elevated Tank LCD Topoff without Field Support
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OPERATION 17

Document No.	Rev	Title
JOB PLAN M3190.260	(LI)	Remote Washdown Flow Pad A - CCS Control Launch Countdown
JOB PLAN M3190.270	(LI)	Post Launch LH2 Washdown Water Flow - Launch Pad Support
JOB PLAN M3190.280	(LI)	Post Launch GH2 Washdown Water Flow - Launch Pad Support
JOB PLAN M3190.290	(LI)	Post Launch LH2 Washdown Water Flows - Non-Launch Pad Support
JOB PLAN M3190.300	(LI)	Post Launch GH2 Washdown Water Flows - Non-Launch Pad Support
JOB PLAN M3034.19 M3703	(LI)	Pad Ops Bldg and Logistics Bldg Configure for Normal Ops Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor
JOB PLAN M3189.230	(LI)	Post Launch SS Dry Cycle Ops of Six 48" Valves and MLP V31
JOB PLAN Q3018.4	(LI)	Post Launch Damage Assessment
JOB PLAN M3022.005	(LI)	Pad Compressor Post Launch Inspection
JOB PLAN M3034.04	(LI)	PTCR ECS Depressurization
JOB PLAN 17504	(LI)	Post Launch Re-Entry ODMS Check and Reset
JOB PLAN M3079.08	(LI)	MLP Depressurization at Pads
JOB PLAN M3034.02	(LI)	FSS, RSS Machine Room Depressurization
JOB PLAN M3079.10	(LI)	Chill Water Startup at Pad; Re-entry
JOB PLAN M3123.002	(LI)	Post Launch/FRF/Tanking Test Valve Positioning

OPERATION 22

Document No.	Rev	Title
JOB PLAN M3189.240	(LI)	LCD Recycle - Sound Suppression Reconfiguration
JOB PLAN M3189.250	(LI)	LCD SS Recycle - Elevated Tank Refill without Field Support

3.2 Parts, Materials, Equipment, and Special Tools

3.2.1 Flight Parts

OPERATION 14

Part No./Find No.	Nomenclature	Qty
SKD16101897- 301 SKD16101897- 301	combined wicket assembly	1
SED33102379- 315 SED33102379- 315	wicket safety cap single control bus power main	2

3.2.8 Personal Protective Equipment

OPERATION 14	Nomenclature
	hard hats
	safety shoes/boots
	rubber aprons
	industrial goggles
	hyper compatible polyvinyl chloride (PVC) Pylox gloves
	face shield
	supplied air respirators
	clean flame retardant, non-static producing coveralls
	non-porous, non-sparking conductive footwear
	safety glasses
	face shields
	work gloves
	safety harness
	lanyard
	life line

clean flame retardant, non-static
producing coveralls .

temperature protective/welders gloves
industrial goggles .

industrial goggles ,
loose fitting temperature
protective/welders gloves
clean flame retardant, non-static
producing coveralls or shop coat
blue-collar flame retardant coveralls
industrial goggles and face shield
wrist stats
short tether

OPERATION 15

Nomenclature

industrial goggles ,
face shield
loose fitting temperature
protective/welders gloves
non-porous, non-sparking conductive
footwear
clean flame retardant, non-static
producing coveralls or shop coat
temperature protective/welders gloves
clean flame retardant, non-static
producing coveralls
safety harness
lanyard
life line

OPERATION 16

Nomenclature

safety harness
lanyard
life line

OPERATION 17

Nomenclature

leather gloves , flame retardant coveralls
and hard hat
safety shoes/boots
safety harness
lanyard
life line

|

4.0 PLANNING REQUIREMENTS

OIR Required Yes [X], No []

The OIR review for S0007.200 will cover S0007.100, S0007.300, S0007.400, S0007.500 and S0007.600.

Mandatory Attendees are as follows:

SYSTEM	CONTRACTOR	NASA
TPS	Required	Required
Boeing T/C	Required	Required
SRB HYD	Required	Required
SRB ORD	Required	Required
SRM	Required	Required
ET/SRB EPD	Required	Required
ET LH2	Required	Required
ET ORD	Required	Required
ETM	Required	Required
ETE	Required	Required
GSP	Required	Required
RSS	Required	Required
OHE	Required	Required
PEL	Required	Required
CCE	Required	Required
VITT	Required	Not Required
P/L PE	Required	Required
LPS (GEN)	Required	Required
GSS/GLS (LPS)	Required	Required
OBS	Required	Required
EPD	Required	Required
OEL	Required	Required
INS	Required	Required
HWS	Required	Required
COM	Required	Required
NAV	Required	Required
DPS	Required	Required
GNC	Required	Required
APU	Required	Required
HYD	Required	Required
ECL	Required	Required
FCP	Required	Required
MPS	Required	Required

SSME	Required	Required
DPSME	Required	Required
Rocketdyne	Required	Required
MEQ	Required	Required
STR	Required	Required
PYR	Required	Required
PVD/ECS	Required	Required
LAA	Required	Required
ARMS	Required	Required
PLM	Required	Required
PLET	Required	Required
PLEC	Required	Required
OMS/RCS	Required	Required
TCS	Required	Required
EFC	Required	Required
TPE/SE	Required	Required
STM	Required	Not Required
NTD	Not Required	Required
GSS Site Mgr	Required	Not Required
GSS Planning Sched Mgr	Required	Not Required
GSS Mech Fluid Sys Mgr	Required	Not Required
GSS Power Sys Mgr	Required	Not Required
GSS Calibrations Mgr	Required	Not Required
GSS Crane Ops Mgr	Required	Not Required
GSS Tech Shops Mgr	Required	Not Required
FCS	Required	Required
ET/LO2	Required	Required
OTC/OPR	Required	Not Required
ETP	Required	Required
ET/SRB INST	Required	Required

Predecessors:

None

Successors:

None

Configuration Required:

None

4.1 Critical Skill Requirements

Number	Course Title	Operation
640	PAD/VAB ORBITER/GSE HYPERGOLIC OPERATIONS MONITORING	14
643	PAD/VAB SRB/GSE HYPERGOLIC OPERATIONS MONITORING	14

4.4 Support Services, Commodities, and Equipment

4.4.8 Support

GSS Organization	Operation/Step
CWSS	13-68
STSA	13-92
CDPD	13-92
GIFM	13-92
PWR	13-92
PNSA	13-92
CPNS	13-92
HVAA	13-92
CWSS	13-92
WSSA	13-92
CWSS	13-92
WSSA	13-92
HESA	13-92
CDPA	13-92
CPNS	14-3
PNSA	14-4
STSA	14-19
STSA	14-20
STSA	14-21
HESA	14-22
HESA	14-67
HESA	14-68
HESA	14-69
HESA	14-73
HESA	14-74
HESA	14-75

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HESA	14-76
HESA	14-77
PNSA	14-170
CPNS	14-171
PNSA	14-197
PNSA	14-198
PNSA	14-199
PNSA	14-206
PNSA	14-208
PNSA	14-209
PNSA	14-211
PNSA	14-216
STSA	14-219
PNSA	14-223
PNSA	14-224
PNSA	14-225
PNSA	14-226
PNSA	14-228
PNSA	14-229
PNSA	14-230
PNSA	14-232
PNSA	14-234
PNSA	14-235
PNSA	14-237
PNSA	14-238
PNSA	14-239
HESA	14-242
PNSA	14-259
PNSA	14-260
PNSA	14-261
CPNS	14-282
CPNS	14-284
CPNS	14-285
PNSA	14-286
PNSA	14-340
CPNS	14-341
HVAA	14-366
CDPD	14-367
HVAA	14-368
HVAA	14-369
HVAA	14-389
STSA	14-430
STSA	14-431
PWRA	14-436
PWR	14-436

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PWRA	14-437
PWR	14-437
CPNS	14-467
HVAA	14-602
HVAA	14-623
HVAA	14-624
HVAA	14-634
HVAA	14-635
HVAA	14-708
HVAA	14-710
HVAA	14-725
STSA	14-735
STSA	14-736
HVAA	14-739
STSA	14-769
STSA	14-770
WSSA	14-774
CWSS	14-775
WSSA	14-776
CWSS	14-776
CWSS	14-777
CWSS	14-779
WSSA	14-780
CWSS	14-780
WSSA	14-781
CWSS	14-781
PNSA	14-807
PNSA	14-810
CWSS	14-855
PNSA	14-858
PNSA	14-859
PNSA	14-860
PNSA	14-862
PNSA	14-863
PNSA	14-864
PNSA	14-865
PNSA	14-866
PNSA	14-867
PNSA	14-868
PNSA	14-869
PNSA	14-870
PNSA	14-871
PNSA	14-872
PNSA	14-873
PNSA	14-874

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PNSA	14-876
PNSA	14-878
PNSA	14-879
PNSA	14-881
PNSA	14-882
PNSA	14-883
PNSA	14-885
PNSA	14-886
PNSA	14-887
PNSA	14-889
PNSA	14-890
PNSA	14-892
PNSA	14-893
PNSA	14-894
PNSA	14-895
PNSA	14-896
PNSA	14-897
PNSA	14-898
PNSA	14-899
CWSS	14-921
WSSA	14-922
CWSS	14-923
WSSA	14-924
CWSS	14-924
CPNS	14-953
PNSA	14-966
HESA	14-970
HESA	14-971
HESA	14-972
HESA	14-974
HESA	14-975
HESA	14-976
HESA	14-977
HESA	14-978
HESA	14-979
STSA	14-980
HESA	14-980
HESA	14-1044
CWSS	14-1045
WSSA	14-1045
HESA	14-1045
HESA	14-1046
HESA	14-1048
HESA	14-1049
HESA	14-1050

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HESA	14-1051
HESA	14-1052
HESA	14-1053
CWSS	14-1054
PNSA	14-1055
PNSA	14-1056
PNSA	14-1058
CPNS	14-1059
HESD	14-1066
GIFM	14-1074
HVAA	14-1084
STSA	14-1085
STSA	14-1089
STSA	14-1090
STSA	14-1091
PWRA	14-1092
PWR	14-1092
PWR	14-1096
PNSA	14-1113
HVAA	14-1131
STSA	14-1133
STSA	14-1138
STSA	14-1143
STSA	14-1148
STSA	14-1149
PNSA	14-1166
WSSA	14-1166
CDPD	14-1166
PWRA	14-1232
PWR	14-1232
PWRA	14-1233
WSSA	14-1235
CWSS	14-1235
PWRB	14-1237
CPNS	14-1247
STSA	14-1254
PNSA	14-1255
PNSA	14-1256
CPNS	14-1257
GIFM	14-1284
STSA	14-1287
HESA	14-1288
HESA	14-1289
HESA	14-1291
HESA	14-1292

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HESA	14-1293
HESA	14-1294
HESA	14-1295
HESA	14-1296
HESA	14-1297
STSA	14-1298
HESA	14-1299
HESA	14-1300
HESA	14-1302
HESA	14-1303
HESA	14-1304
HESA	14-1305
HESA	14-1306
HESA	14-1307
HESA	14-1308
HESD	14-1309
PNSA	14-1367
CPNS	14-1368
HESA	14-1370
STSA	14-1370
HESA	14-1378
HESA	14-1380
HESA	14-1382
HESA	14-1383
HESA	14-1384
HESA	14-1385
HESA	14-1386
HESA	14-1387
HESA	14-1388
STSA	14-1394
STSA	14-1398
STSA	14-1399
STSA	14-1400
STSA	14-1401
STSA	14-1404
STSA	14-1405
STSA	14-1407
STSA	14-1408
STSA	14-1409
STSA	14-1410
STSA	14-1411
STSA	14-1412
STSA	14-1413
HESA	14-1429
HESA	14-1431

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HESA	14-1433
HESA	14-1434
HESA	14-1435
HESA	14-1436
HESA	14-1437
HESA	14-1438
CWSS	14-1439
WSSA	14-1439
CWSS	14-1440
STSA	14-1480
PNSA	14-1489
GIFM	14-1495
PNSA	14-1524
CPNS	14-1595
PNSA	14-1616
PNSA	14-1617
CPNS	14-1618
PNSA	14-1621
STSA	14-1638
STSA	14-1639
WSSA	14-1650
CWSS	14-1652
HESD	14-1685
STSA	14-1689
PWRB	14-1689
PNSA	14-1689
CDPA	14-1689
HESD	14-1689
PNSA	14-1696
HESD	14-1697
STSA	14-1703
WSSA	14-1703
PNSA	14-1703
STSA	14-1708
PNSA	14-1708
PWR	14-1708
STSA	14-1714
STSA	14-1718
STSA	14-1721
STSA	14-1722
STSA	14-1723
PNSA	14-1725
STSA	14-1726
STSA	14-1727
CWSS	14-1729

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WSSA	14-1729
CWSS	14-1730
STSA	14-1752
STSA	14-1753
STSA	14-1754
PWRB	14-1757
PWR	14-1757
PWRB	14-1758
PNSA	14-1759
PNSA	14-1760
PNSA	14-1761
CDPD	14-1762
HESA	14-1772
STSA	14-1773
STSA	14-1774
HESA	14-1776
HESA	14-1777
HESA	14-1780
HESA	14-1781
HESA	14-1782
HESA	14-1783
HESA	14-1784
STSA	14-1785
STSA	14-1786
STSA	14-1787
HESD	14-1788
HESD	14-1789
HESD	14-1790
PWRA	14-1793
PWR	14-1793
PWRA	14-1795
PWR	14-1795
STSA	14-1796
STSA	14-1806
STSA	14-1807
PNSA	14-1812
PNSA	14-1813
CWSS	14-1817
CDPA	14-1820
CDPA	14-1821
HVAA	14-1825
STSA	14-1836
STSA	14-1838
STSA	14-1842
STSA	14-1843

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STSA	14-1844
GIFM	14-1845
GIFM	14-1846
HVAA	14-1847
HVAA	14-1850
HVAA	14-1851
HVAA	14-1852
STSA	14-1854
WSSA	14-1855
WSSA	14-1856
CDPD	14-1857
CWSS	14-1861
WSSA	14-1863
CWSS	14-1863
CWSS	14-1864
HVAA	15-7
CDPD	15-10
CDPD	15-11
CDPD	15-12
PNSA	15-45
PNSA	15-46
STSA	15-53
HVAA	15-55
STSA	15-59
CDPD	15-61
CDPD	15-62
CDPD	15-63
CPNS	15-64
CWSS	15-91
CWSS	15-92
HVAA	15-93
HVAA	15-94
HVAA	15-95
STSA	15-97
STSA	15-121
CWSS	15-123
CWSS	15-124
CWSS	15-126
CWSS	15-127
CWSS	15-129
CWSS	15-130
CWSS	15-131
CWSS	15-132
CWSS	15-135
CWSS	15-138

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CWSS	15-139
CWSS	15-140
CWSS	15-141
CWSS	15-142
CWSS	15-143
PNSA	15-173
STSA	15-174
HVAA	15-176
CPNS	15-176
WSSA	15-177
PWRA	15-177
PWRB	15-177
HVAA	15-177
PNSA	15-177
STSA	15-177
HESA	15-177
CDPD	15-177
PNSA	15-182
HVAA	15-193
HVAA	15-195
HVAA	15-196
PWR	15-198
HVAA	15-198
PWRB	15-198
PWRA	15-198
PNSA	15-198
CDPD	15-198
WSSA	15-198
HESA	15-198
STSA	15-198
PWR	15-204
PWR	15-263
CWSS	15-409
CWSS	15-415
CWSS	15-452
CWSS	15-453
GIFM	15-454
CWSS	15-682
GIFM	16-6
GIFM	16-17
GIFM	16-21
GIFM	16-24
GIFM	16-26
GIFM	16-32
GIFM	16-39

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GIFM	16-42
GIFM	16-45
GIFM	16-46
HESA	16-73
GIFM	16-80
GIFM	16-127
GIFM	16-128
GIFM	16-148
CDPD	16-190
PWR	16-203
PWR	16-204
PWR	16-206
CWSS	16-510
CWSS	16-547
CWSS	16-553
STSA	16-553
PWR	16-577
PWR	16-656
CDPA	16-667
PWR	16-680
WSSA	16-786
CDPA	16-792
CDPD	16-923
CDPD	16-927
CWSS	16-929
CWSS	16-962
GIFM	16-1001
CWSS	16-1011
CWSS	16-1137
CWSS	16-1138
PWR	16-1140
HVAA	16-1191
GIFM	16-1192
CWSS	16-1212
CWSS	16-1234
CWSS	16-1234
CWSS	16-1235
CWSS	16-1235
HVAA	17-4
CPNS	17-5
CWSS	17-18
CWSS	17-20
CWSS	17-22
PWR	17-27
PWR	17-28

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CWSS	17-36
PWR	17-50
PWRC	17-50
PWRA	17-50
CWSS	17-58
HVAA	17-59
GIFM	17-69
WSSA	17-70
CWSS	17-96
CWSS	17-98
CWSS	17-112
GIFM	17-119
CPNS	17-132
CPNS	17-135
CWSS	17-143
CWSS	17-144
CWSS	17-146
CWSS	17-167
HVAA	17-174
CDPA	17-203
PWR	17-219
PWRC	17-219
PWRA	17-219
CWSS	17-229
CWSS	17-230
CWSS	17-231
CWSS	17-232
CDPD	17-237
PWR	17-260
PWRC	17-260
PWRA	17-260
HESA	17-265
PNSA	17-276
PNSA	17-277
HVAA	17-280
HVAA	17-281
HVAA	17-287
HVAA	17-288
CWSS	17-289
PWR	17-290
PWRA	17-293
STSA	17-298
HESA	17-298
HESD	17-299
HESD	17-300

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PNSA	17-311
PNSA	17-312
PNSA	17-313
STSA	17-320
STSA	17-320
STSA	17-320
HVAA	17-321
HVAA	17-323
HVAA	17-325
STSA	17-328
STSA	17-329
HESA	17-335
HESA	17-336
HESA	17-338
HESA	17-340
HESA	17-341
HESA	17-342
HESA	17-343
HESD	17-344
STSA	17-348
HESA	17-349
HESA	17-351
HESA	17-353
HESA	17-354
HESA	17-355
HESA	17-356
HESA	17-357
PWR	17-358
PWRA	17-359
PWR	17-359
PWR	17-360
HVAA	17-364
STSA	17-368
CPNS	17-383
CPNS	17-384
HVAA	17-387
STSA	17-403
STSA	17-404
PNSA	17-409
CWSS	17-413
PNSA	17-420
HVAA	17-420
CWSS	17-420
STSA	17-420
PWR	17-420

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GIFM	17-420
CWSS	22-1
CWSS	22-2
CWSS	22-3
CWSS	22-4
HVAA	22-5
GIFM	22-6
GIFM	22-7
GIFM	22-8
CWSS	22-15
CWSS	22-16
CWSS	22-17
CWSS	22-18
CWSS	22-19
CWSS	22-20
CWSS	22-22
CWSS	22-23
CWSS	22-25
CWSS	22-26
CWSS	22-27
CWSS	22-28

ISC Organization

Operation/Step

ELEC	13-92
PNU	13-92
AC	13-92
LS	13-92
JSTC	13-92
QA	13-92
RGR	13-92
FA	13-92
PN	13-92
ELEC	13-96
LS	14-115
LS	14-123
LS	14-307
LS	14-315
PN	14-339
QA	14-339
ELEC	14-371
ELEC	14-372
PNU	14-397
LS	14-411
LS	14-424
PNU	14-515

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PNU	14-516
JSTC	14-519
PNU	14-519
PNU	14-587
PNU	14-588
PNU	14-589
PN	14-610
PN	14-615
PNU	14-622
PN	14-627
JSTC	14-651
PN	14-670
PN	14-671
JSTC	14-672
PN	14-689
PN	14-700
PN	14-701
JSTC	14-702
PNU	14-711
PNU	14-722
PNU	14-760
JSTC	14-761
PNU	14-788
PNU	14-789
PN	14-858
PN	14-888
LS	14-909
LS	14-920
JSTC	14-1115
PNU	14-1115
PNU	14-1116
PNU	14-1124
ELEC	14-1130
LS	14-1202
PN	14-1258
PN	14-1261
LS	14-1263
MECH	14-1454
RGR	14-1481
RGR	14-1482
MECH	14-1483
FA	14-1486
FA	14-1487
LS	14-1488
FA	14-1615

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PNU	14-1619
JSTC	14-1648
PNU	14-1648
PNU	14-1649
LS	14-1677
PNU	14-1678
LS	14-1678
RGR	14-1687
JSTC	14-1689
RGR	14-1698
JSTC	14-1708
LS	14-1791
LS	14-1792
PNU	14-1799
PNU	15-46
ELEC	15-58
LS	15-66
LS	15-102
LS	15-103
LS	15-104
PNU	15-113
PNU	15-122
PNU	15-173
LS	15-175
ELEC	15-176
JSTC	15-198
ELEC	15-198
FA	15-198
PNU	15-199
WRCK	15-228
PNU	15-240
PN	15-240
ELEC	15-241
AC	15-277
LS	15-364
LS	15-408
JSTC	15-436
LS	15-437
LS	15-438
WRCK	15-610
JSTC	15-682
LS	15-684
JSTC	16-24
PNU	16-24
WW	16-24

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HEQ	16-24
LS	16-24
PN	16-24
ELEC	16-24
AC	16-24
FA	16-24
LOG	16-24
PNU	16-30
LS	16-53
LS	16-69
LS	16-183
ELEC	16-538
JSTC	16-553
PNU	16-574
JSTC	16-575
JSTC	16-656
SLF	16-656
PNU	16-763
JSTC	16-786
FA	16-786
LS	16-786
ELEC	16-786
PNU	16-902
JSTC	16-925
FA	16-1139
JSTC	16-1140
SLF	16-1140
FA	16-1193
PNU	17-30
JSTC	17-43
SLF	17-43
HEQ	17-73
WRCK	17-73
FA	17-77
FA	17-78
ELEC	17-119
AC	17-119
PNU	17-119
PN	17-119
FA	17-119
WW	17-119
RGR	17-119
LOG	17-119
JSTC	17-120
ELEC	17-120

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LS	17-120
FA	17-120
JSTC	17-126
PNU	17-126
JSTC	17-127
PNU	17-209
SLF	17-213
PNU	17-274
FA	17-407
LS	17-408
FA	17-418
JSTC	17-420
ELEC	17-422
PNU	17-422
AC	17-422
MECH	17-422
QA	17-422
RGR	17-422
LS	17-422
HEQ	17-422
LOG	17-422
PN	17-422

COMM Organization

Operation/Step

COMM	13-92
TCD	13-92
PHOT	13-92
PHOT	14-10
OISD	14-13
VCE	14-14
ATEL	14-15
OTV	14-18
OISD	14-170
OISD	14-172
VCE	14-243
ATEL	14-244
ATEL	14-262
OTV	14-273
WB	14-362
TCD	14-435
OISD	14-441
ATEL	14-442
COMM	14-475
VCE	14-476
VCE	14-477

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OISD	14-477
OTV	14-481
COMM	14-585
WB	14-606
KNET	14-734
OTV	14-750
ATEL	14-762
OISD	14-765
ATEL	14-766
ATEL	14-767
OTV	14-850
OTV	14-853
ATEL	14-967
ATEL	14-1036
OISD	14-1055
OISD	14-1057
OISD	14-1058
OISD	14-1060
WB	14-1080
VCE	14-1081
TCD	14-1093
COMM	14-1100
WB	14-1127
TCD	14-1153
COMM	14-1167
TCD	14-1199
TCD	14-1231
PHOT	14-1234
OISD	14-1281
OISD	14-1283
ATEL	14-1285
ATEL	14-1286
OISD	14-1367
OISD	14-1369
OISD	14-1390
OISD	14-1428
OISD	14-1441
VCE	14-1457
VCE	14-1459
WB	14-1469
OTV	14-1469
OTV	14-1470
OTV	14-1471
WB	14-1471
OTV	14-1472

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COMM	14-1473
OTV	14-1474
WB	14-1474
OTV	14-1476
PHOT	14-1478
PHOT	14-1479
OISD	14-1489
CBL	14-1490
VCE	14-1503
VCE	14-1620
OISD	14-1676
COMM	14-1689
OISD	14-1696
OTV	14-1719
OTV	14-1748
OTV	14-1756
OISD	14-1812
OISD	14-1812
OISD	14-1813
ATEL	14-1814
ATEL	14-1822
OISD	14-1823
OISD	14-1824
PHOT	14-1826
PHOT	14-1827
TCD	14-1828
ATEL	14-1853
WB	15-17
OTV	15-44
COMM	15-177
OTV	15-245
OTV	15-262
OTV	15-266
OISD	15-273
OISD	15-317
COMM	15-436
OTV	15-621
WB	15-621
OTV	15-622
OTV	15-623
OISD	15-626
OISD	15-627
OTV	15-702
WB	15-702
OTV	16-3

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OTV	16-5
OISD	16-8
OISD	16-12
COMM	16-24
VCE	16-70
VCE	16-71
OTV	16-72
PHOT	16-72
VCE	16-75
OTV	16-100
PHOT	16-100
OISD	16-114
OISD	16-115
OTV	16-126
OTV	16-196
OTV	16-197
OTV	16-222
OTV	16-314
WB	16-314
OTV	16-315
OTV	16-316
WB	16-316
OTV	16-317
COMM	16-318
OTV	16-319
WB	16-319
OISD	16-320
COMM	16-477
VCE	16-478
COMM	16-479
COMM	16-480
COMM	16-485
OTV	16-505
OTV	16-509
PHOT	16-511
PHOT	16-512
PHOT	16-514
PHOT	16-515
OTV	16-532
OTV	16-535
PHOT	16-537
VCE	16-553
OTV	16-574
PHOT	16-574
COMM	16-575

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OTV	16-618
PHOT	16-656
OISD	16-656
VCE	16-656
TCD	16-673
TCD	16-674
TCD	16-675
TCD	16-677
COMM	16-786
OISD	16-787
OTV	16-788
OISD	16-788
OISD	16-789
TCD	16-814
TCD	16-815
TCD	16-816
TCD	16-817
TCD	16-818
OTV	16-902
PHOT	16-902
OISD	16-928
OTV	16-958
OTV	16-1066
OISD	16-1067
OISD	16-1068
OTV	16-1070
OISD	16-1079
PHOT	16-1097
PHOT	16-1140
OTV	16-1152
OTV	16-1153
VCE	16-1159
COMM	16-1160
OTV	16-1164
OTV	16-1165
OTV	16-1213
OTV	17-27
OTV	17-28
TCD	17-31
OTV	17-34
OTV	17-35
OTV	17-36
OTV	17-37
PHOT	17-43
VCE	17-76

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VCE	17-79
VCE	17-80
VCE	17-81
VCE	17-82
VCE	17-83
VCE	17-84
VCE	17-85
OTV	17-110
OTV	17-112
OISD	17-113
COMM	17-114
OISD	17-119
OTV	17-119
ATEL	17-119
OISD	17-124
PHOT	17-126
OTV	17-126
OTV	17-128
PHOT	17-128
OTV	17-170
TCOM	17-198
VCE	17-201
VCE	17-202
OTV	17-205
PHOT	17-213
VCE	17-213
OTV	17-226
OTV	17-243
VCE	17-246
VCE	17-247
VCE	17-248
VCE	17-249
VCE	17-250
VCE	17-251
VCE	17-252
VCE	17-253
VCE	17-254
COMM	17-255
OISD	17-263
OTV	17-264
TCD	17-266
OISD	17-267
OISD	17-268
OTV	17-271
PHOT	17-273

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OISD	17-302
TCOM	17-367
CBL	17-367
COMM	17-399
KNET	17-402
OISD	17-416
VCE	17-423
OISD	17-423
OTV	17-423
PHOT	17-423
ATEL	17-423
TCD	17-423
TCOM	17-423
OTV	22-10

MESC Organization

Operation/Step

EH	13-92
EH	16-24
MED	16-539
EH	16-786
EH	17-120
EH	17-422

NPS Organization

Operation/Step

FIRE	13-92
SEC	13-92
SEC	13-95
FIRE	13-95
FIRE	14-5
FI	14-26
FIRE	14-196
FIRE	14-200
FIRE	14-231
FIRE	14-241
FIRE	14-364
FIRE	14-390
FIRE	14-483
SEC	14-522
SEC	14-523
SEC	14-524
SEC	14-527
FIRE	14-545
SEC	14-563
SEC	14-564
FIRE	14-573

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FIRE	14-590
FIRE	14-604
SEC	14-741
FIRE	14-821
FIRE	14-858
FIRE	14-860
FIRE	14-871
FIRE	14-886
SEC	14-1450
SEC	14-1451
SEC	14-1452
SEC	14-1453
FI	14-1484
FI	14-1485
FI	14-1614
FI	14-1829
SEC	14-1865
FI	15-8
SEC	15-171
SEC	15-187
FIRE	15-197
SEC	15-229
FIRE	15-242
FIRE	15-243
FIRE	15-270
SEC	15-271
SEC	15-276
SEC	15-316
FIRE	15-412
SEC	15-435
FIRE	15-448
SEC	15-560
FIRE	15-609
SEC	15-640
FIRE	15-683
FIRE	16-31
FIRE	16-74
SEC	16-100
FIRE	16-101
FIRE	16-116
FIRE	16-117
FIRE	16-195
SEC	16-195
SEC	16-198
SEC	16-363

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SEC	16-534
SEC	16-542
SEC	16-543
SEC	16-544
FIRE	16-554
FIRE	16-574
SEC	16-574
SEC	16-609
SEC	16-615
SEC	16-626
FIRE	16-656
SEC	16-656
SEC	16-683
SEC	16-727
SEC	16-728
SEC	16-763
SEC	16-786
FIRE	16-902
SEC	16-902
SEC	16-911
SEC	16-937
SEC	16-938
FIRE	16-957
FIRE	16-1140
SEC	16-1140
SEC	16-1161
FIRE	16-1193
SEC	16-1202
FIRE	17-21
FIRE	17-23
SEC	17-67
SEC	17-88
FIRE	17-89
SEC	17-92
SEC	17-95
FIRE	17-97
FIRE	17-98
FIRE	17-99
FIRE	17-101
SEC	17-118
SEC	17-119
FIRE	17-126
SEC	17-126
SEC	17-204
FIRE	17-213

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SEC	17-213
FIRE	17-225
FIRE	17-242
SEC	17-295
SEC	17-296
FIRE	17-325
FIRE	17-331
FIRE	17-363
FIRE	17-388
SEC	17-397
SEC	17-398
FIRE	17-407
SEC	17-412
SEC	17-422
FIRE	17-422

4.5 Supporting Subtasks

Subtask Number	Haz Ind	Subtask Title / Function to be Performed	Calling Op / Step
D3012		INTER-CENTER END-TO-END COMM CHECK	14-14
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	14-37
V9001.105		ORBITER POWER UP/DOWN - OPF - ECL OPTIONS	14-140
S9001.105		SHUTTLE POWER UP/DOWN - VAB/PAD - ECL OPTIONS	14-140
V9001VL2		ORBITER POWER UP/POWER DOWN, DPS OPTIONS (LPS)	14-165
V33-00012		MCDS OTV CAMERA/BACKET REMOVAL	14-176
S9001.108		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - COMM OPTIONS	14-178
G6304.001		LOX HAZARD PROOF PURGE VERIFICATION	14-190
G6304.002		LH2 HAZARDOUS PROOF PURGE VERIFICATION	14-190
G6304.003		FSS HAZARD PROOF PURGE VERIFICATION	14-190
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	14-191
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M3020	HAZ	HIGH-PRESSURE GASEOUS HYDROGEN FACILITY	14-197
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-203 14-215
M3020	HAZ	HIGH-PRESSURE GASEOUS HYDROGEN FACILITY	14-216 14-216
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-221
M3097	HAZ	HIGH PURITY GASEOUS OXYGEN SYSTEM	14-238
V1123.250		IMU PRE-POWER DATA DUMP	14-251
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V80-95904		DOOR 59-04, OMS ENGINE RH SERVICE ACCESS, INSTALLATION	14-252
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	14-253
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-265
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V1123.050		CONTROLLERS TEST	14-337
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B5150		MLP GSE REMOVAL AND INSTALLATION	14-432
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-447
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-464
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-485
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	14-500 14-578 14-583
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-607
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V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-630
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	14-639
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-641
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-644 14-656
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V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-665
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-666 14-666 14-666
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-669
V1040.300	HAZ	FUEL CELL PRSD LAUNCH HOLD/RECYCLE/SCRUB CONTINGENCY OPERATIONS	14-676

V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-679
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-686 14-689
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-694
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	14-711 14-713 14-726
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-740
S9001.105		SHUTTLE POWER UP/DOWN - VAB/PAD - ECL OPTIONS	14-754
V9001VL2		ORBITER POWER UP/POWER DOWN, DPS OPTIONS (LPS)	14-757
V9018.001	HAZ	MPS/SSME PREPS FOR PROPELLANT LOADING (LPS)	14-786
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	14-787
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	14-791
T5401		H2 LEAK DETECTION EQUIPMENT INSTALLATION (LD 54 AND LD 55)	14-801
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-804
V9001.106		ORBITER POWER UP/DOWN - OPF - ISL OPTIONS	14-806
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-827
V3541		PAD/MLP REMOTE HYDROGEN LEAK DETECTION SYS (S70-1502) OPNL SUPT (LPS)	14-829
V3538.002	HAZ	OMBUU DEMATE FROM THE ORBITER	14-830 14-838
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-841
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D6121		KSC OTV SYSTEM PREVENTIVE MAINTENANCE	14-850

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V3538.002	HAZ	OMBUU DEMATE FROM THE ORBITER	14-851
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			14-896
V6029.204	HAZ	FRCS THRUSTER RAIN COVERS	14-914
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	14-933
			14-937
V9018.001	HAZ	MPS/SSME PREPS FOR PROPELLANT LOADING (LPS)	14-946
V9058.002		SSME CONTROLLER NORMAL POWER UP AND DOWN	14-946
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	14-947
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	14-1012
V2160		HYDRAULIC CHARGING UNIT (HCU) LPS SUPPORT OPERATIONS	14-1021
V2153		ORBITER ACCESS ARM (OAA) LPS SUPPORT OPERATION	14-1022
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	14-1023
V9018.001	HAZ	MPS/SSME PREPS FOR PROPELLANT LOADING (LPS)	14-1040
			14-1041
V3529		RSS PREPARATIONS FOR MOVE TO MATE/PARK POSITION (PLACARD)	14-1066
V2160		HYDRAULIC CHARGING UNIT (HCU) LPS SUPPORT OPERATIONS	14-1068
V9018.001	HAZ	MPS/SSME PREPS FOR PROPELLANT LOADING (LPS)	14-1073
A2700		GROUND SUPPORT COMMUNICATION SYSTEM VALIDATION	14-1080
			14-1081
V2153		ORBITER ACCESS ARM (OAA) LPS SUPPORT OPERATION	14-1087
V3517.002	HAZ	LH2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1094
V3518.002	HAZ	LO2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1095
V2243		MLP GLMS CHECKOUT	14-1106
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	14-1114
			14-1123

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T6446	HAZ	EXTERNAL TANK (ET) PRE-CRYOLOAD/PAD TPS INSPECTION	14-1133 14-1146 14-1147
M3169.005	HAZ	ET/ORBITER ACCESS PLATFORM OPERATIONS AT PAD-A DURING S0007 ACTIVITIES	14-1148
M3169.006	HAZ	ET/ORBITER ACCESS PLATFORM OPERATIONS AT PAD-B DURING S0007 ACTIVITIES	14-1148
M3169.005	HAZ	ET/ORBITER ACCESS PLATFORM OPERATIONS AT PAD-A DURING S0007 ACTIVITIES	14-1149
M3169.006	HAZ	ET/ORBITER ACCESS PLATFORM OPERATIONS AT PAD-B DURING S0007 ACTIVITIES	14-1149
V3518.002	HAZ	LO2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1161
V3517.002	HAZ	LH2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1162
D3008		PURGE/PRESSURIZATION AND LOCKOUT PROCEDURES FOR COMM ENCLOSURES	14-1167
D6121		KSC OTV SYSTEM PREVENTIVE MAINTENANCE	14-1167
V3517.002	HAZ	LH2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1200
V3518.002	HAZ	LO2 TSM CLOSEOUTS FOR LAUNCH OPERATIONS	14-1200
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	14-1210 14-1219
V2270.002	HAZ	ORBITER ENGINE SERVICE PLATFORM (ESP) LOWERING OPERATIONS	14-1246
M3134	HAZ	PAD OPERATIONS, PADS A/B,C-39,KSC	14-1254
V1123.120		GNC SYSTEM POWER UP	14-1311
V1123.130		SYSTEM SELF TEST	14-1329
V1123.260		IMU POWER UP	14-1330
V1123.320		STAR TRACKER POWER UP	14-1331 14-1331
V1123.330		STAR TRACKER POWER DOWN	14-1331
V1122.003		PAD ECS LOCAL CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1359 14-1361 14-1362
V2274.002	HAZ	ORBITER/SRB ESP PLATFORM TRANSPORTER OPERATIONS MOVING SOUTH	14-1377

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M3169.008	HAZ	RETRACTING OWP OPERATIONS	14-1400 14-1410
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	14-1414 14-1417
V9018.001	HAZ	MPS/SSME PREPS FOR PROPELLANT LOADING (LPS)	14-1449
V1117	HAZ	COMMUNICATIONS LAUNCH CONFIGURATION CHECKOUT (LPS)	14-1465
S6444.001		PRE-LAUNCH WALKDOWN	14-1475
S6444.002	HAZ	SSV ICE AND DEBRIS ASSESSMENT	14-1476
S6444.001		PRE-LAUNCH WALKDOWN	14-1477
M3029	HAZ	SLIDEWIRE EMERGENCY EGRESS SYSTEM OPERATIONS	14-1480
T6446	HAZ	EXTERNAL TANK (ET) PRE-CRYOLOAD/PAD TPS INSPECTION	14-1492
V1117	HAZ	COMMUNICATIONS LAUNCH CONFIGURATION CHECKOUT (LPS)	14-1506 14-1517
V1122.003		PAD ECS LOCAL CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1530
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-1576
V1091.001		ACTIVATE FUEL CELL MONITOR SYSTEM (FCMS)	14-1581
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	14-1594
V9001.106		ORBITER POWER UP/DOWN - OPF - ISL OPTIONS	14-1598
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	14-1622 14-1631
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	14-1640 14-1642
V66-90002		EMERGENCY ALARMS AND LIGHTING, CREW COMPARTMENT, REMOVAL	14-1655
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	14-1657
G3155	HAZ	LOX SYSTEM LAUNCH SCRUB/TURNAROUND	14-1657

G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	14-1661
A2203.002	HAZ	RSS MOVES TO PARK POSITION WITH VEHICLE ON MLP	14-1688 14-1689 14-1710 14-1721 14-1724
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	14-1731 14-1743
M3134	HAZ	PAD OPERATIONS, PADS A/B,C-39,KSC	14-1752
M3083	HAZ	MLP COMPOSITE STRUCTURE	14-1773
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	14-1798 14-1805
M3083	HAZ	MLP COMPOSITE STRUCTURE	14-1807
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1809
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	14-1809
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1810
V1122.003		PAD ECS LOCAL CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1832
M3134	HAZ	PAD OPERATIONS, PADS A/B,C-39,KSC	14-1836 14-1844
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	14-1866 14-1872
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	14-1874
G3255	HAZ	LH2 SYSTEM SCRUB-TURNAROUND	15-18
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	15-41
G3255	HAZ	LH2 SYSTEM SCRUB-TURNAROUND	15-47
M3083	HAZ	MLP COMPOSITE STRUCTURE	15-53
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	15-80
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	15-82
V1122.004		PAD ECS FR CONSOLE MONITORING AND	

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		ROUTINE ADJUSTMENTS	15-98
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	15-114
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	15-162
V1117	HAZ	COMMUNICATIONS LAUNCH CONFIGURATION CHECKOUT (LPS)	15-189
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	15-202
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	15-206
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	15-208
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	15-225
G3255	HAZ	LH2 SYSTEM SCRUB-TURNAROUND	15-225
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	15-244
G3155	HAZ	LOX SYSTEM LAUNCH SCRUB/TURNAROUND	15-244
G3151	HAZ	LOX SYSTEM PREPARATIONS FOR VEHICLE LOADING	15-251
G3155	HAZ	LOX SYSTEM LAUNCH SCRUB/TURNAROUND	15-251
G3251	HAZ	LH2 SYSTEM PREPARATIONS FOR VEHICLE LOADING (LPS)	15-259
G3255	HAZ	LH2 SYSTEM SCRUB-TURNAROUND	15-259
S9002.016		INTEGRATED DATA REQUIREMENTS FOR S0007.200, LAUNCH COUNTDOWN	15-345
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	15-410
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	15-413
V1123.270		IMU OPERATE	15-419
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	15-428 15-429
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	15-434
A5204		ASTRONAUT CREW SUPPORT AND TRANSFER	15-436
S1003	HAZ	MPS LOX SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS	15-449 15-451
V1122.004		PAD ECS FR CONSOLE MONITORING AND	

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		ROUTINE ADJUSTMENTS	15-486
V1123.290		IMU PREFLIGHT ALIGNMENT	15-499
V1040.220	HAZ	PRSD CRYO LOAD AND FUEL CELL ACTIVATION	15-696
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	15-698
S6444.002	HAZ	SSV ICE AND DEBRIS ASSESSMENT	16-2 16-16
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	16-16
S1003	HAZ	MPS LOX SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS	16-19
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	16-20
V1123.280		IMU PREFLIGHT CALIBRATION	16-38
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	16-142
S6444.002	HAZ	SSV ICE AND DEBRIS ASSESSMENT	16-200
V9001.106		ORBITER POWER UP/DOWN - OPF - ISL OPTIONS	16-248
V1123.280		IMU PREFLIGHT CALIBRATION	16-306
V1123.290		IMU PREFLIGHT ALIGNMENT	16-307
S5018		INSERTION/REMOVAL OF SRB/SRSS AND GSE/SRSS GROUND STATION FLIGHT CODES	16-313
S0018.100	HAZ	ADVERSE ENVIRONMENT AND LIGHTNING MONITORING AT LC-39	16-473
V2160		HYDRAULIC CHARGING UNIT (HCU) LPS SUPPORT OPERATIONS	16-475
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	16-601
V1123.290		IMU PREFLIGHT ALIGNMENT	16-621
S9002.016		INTEGRATED DATA REQUIREMENTS FOR S0007.200, LAUNCH COUNTDOWN	16-829
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	16-935
V2160		HYDRAULIC CHARGING UNIT (HCU) LPS SUPPORT OPERATIONS	16-1030
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	16-1088
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	16-1123

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S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	16-1234 16-1235
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	17-29
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	17-140
V2153		ORBITER ACCESS ARM (OAA) LPS SUPPORT OPERATION	17-151
V2160		HYDRAULIC CHARGING UNIT (HCU) LPS SUPPORT OPERATIONS	17-151
S5018		INSERTION/REMOVAL OF SRB/SRSS AND GSE/SRSS GROUND STATION FLIGHT CODES	17-161
V3540		HGDS 2000 (U72-1136) HUMS (C72-1502-01) AND RLDS (S70-1502) S0007 OPER	17-211
V1040.230	HAZ	POST LAUNCH FCSS	17-220
S6444.004	HAZ	INERTING/SECURING/POWERDOWN POST LAUNCH SSV ICE AND DEBRIS ASSESSMENT	17-235 17-262
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	17-282
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	17-285
V1040.230	HAZ	POST LAUNCH FCSS	17-310
M3020	HAZ	INERTING/SECURING/POWERDOWN HIGH-PRESSURE GASEOUS HYDROGEN FACILITY	17-312
M3097	HAZ	HIGH PURITY GASEOUS OXYGEN SYSTEM	17-313
S9002.016		INTEGRATED DATA REQUIREMENTS FOR S0007.200, LAUNCH COUNTDOWN	17-314
V1122.301		PAD ECS POST LAUNCH OPERATIONS	17-322
V1122.005		DOCK SEAL INSPECTION AND REPAIR	17-322
S2005	HAZ	POST LAUNCH SECURING	17-331
M3083	HAZ	MLP COMPOSITE STRUCTURE	17-348
G3254	HAZ	LH2 SYSTEM SECURING AFTER LAUNCH	17-375
T5448	HAZ	ET GH2 VENT UMBILICAL RETRACT SYSTEM	17-382
V1040.230	HAZ	ORDNANCE/GUCP REMOVAL POST LAUNCH FCSS	17-385
S2005	HAZ	INERTING/SECURING/POWERDOWN POST LAUNCH SECURING	17-400 17-414

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G3254	HAZ	LH2 SYSTEM SECURING AFTER LAUNCH	17-417
G3153	HAZ	LOX SYSTEM SECURING AFTER LAUNCH (LPS)	17-417
S2005	HAZ	POST LAUNCH SECURING	17-417
S9001.104		SHUTTLE POWER UP/POWER DOWN - VAB/PAD - EPD OPTIONS	18-65 18-66
S1003	HAZ	MPS LOX SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS	18-89
V1123.290		IMU PREFLIGHT ALIGNMENT	18-132
S1003	HAZ	MPS LOX SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS	19-2
S1004	HAZ	MPS LH2 SYSTEM AUTOMATIC LOAD AND DRAIN OPERATIONS (LPS)	19-2
V1040.300		FUEL CELL PRSD LAUNCH	
	HAZ	HOLD/RECYCLE/SCRUB CONTINGENCY OPERATIONS	19-60
G2158	HAZ	GOX VENT ARM (GVA) LPS SUPPORT OPERATIONS	21-4
V1122.004		PAD ECS FR CONSOLE MONITORING AND ROUTINE ADJUSTMENTS	27-4
V1122.203	HAZ	PAD ECS GN2 SUPPORT OPERATIONS (LPS)	27-6

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5.0 CONFIGURATION ACCOUNTING AND VERIFICATION

5.1 Specific OMRS Requirements Satisfied by this TOP

OMRS NO.	NOMENCLATURE/ EFFECTIVITY	SEQ-STEP (CAP)
P095DB.030	PRELAUNCH ACTIVE COOLING	14-755
	L01 PSHM;C PRDM;C	
P095DB.035	MODULE COOLING - PRELAUNCH	16-351
	L01 PRDM;C	
S00000.643 (1R)	SRB RGA POSITIVE/NEGATIVE TORQUE TEST	16-523
	L01 SAF1-999;C	
S00E00.012 (1)	GH2 REDLINES	21-001
	L01 SAF;C	
S00E00.050	PVD RECYCLE CONFIGURATION	19-042 (SLPG2)
	L01 VAF;C	
S00E00.070 (1)	SSME SHUTDN VERIFICATION	19-042 (SLPG2)
	L01 VAF;C	
S00E00.112 (1)	CONDITIONS FOR LO2 TANK VENTING	21-008
	L04 TCN117-999;C	
S00E00.130 (1)	PERFORM/VERIFY LH2 TANK VENTING	21-003
	L01 TAF;C	
S00E00.137 (1)	HEAT SHIELD WATER ACT. POST ABORT	16-1235
	L01 VAF;C	
S00E00.150 (1R)	INITIATE/VERIFY SSME PURGE SEQ 3	19-042 (SLPG2)
	L01 VAF;C	
S00E00.160 (1)	INITIATE/VERIFY SSME GN2 PURGE	19-028 19-042 (SLPG2)
	L03 V02FR12;C V03FR15;C V04FR11;C V05F;C	

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S00E00.161 (1)	L02	ACTIVATE SSME GN2 PURGE HEATER POWER V02FR12;C V03FR12;C V04FR8;C V05F;C	19-029
S00E00.205	L01	PERFORM/VERIFY LH2 PREVLS CLOSED VAF;C	19-042 (SLPG2)
S00E00.305	L01	ACTIVATE/VERIFY SSME MFVA HTR PWR ON VAF;C	19-042 (SLPG2)
S00E00.460	L01	TERMINATE ET LO2 PRE-PRESS VAF;C	19-042 (SLPG2)
S00E00.490 (1)	L01	VERIFY ET INTERTANK COMPARTMENT TEMP TAF;C	21-002 21-003
S00E00.500 (1)	L01	REINSTALL NOSE CONE GO2 VENT HOOD VAF;C	21-005
S00E00.540 (1)	L02	MAINTAIN ET LH2 ULLAGE PRESS TCN54-999;C	21-002
S00E00.710 (1R)	L01	VERIFY APU'S SHUTDOWN VAF;C	19-010
S00E00.720	L01	HPU SHUTDOWN SEQ (PRE AFT MDM LOCKOUT) BAF;C	19-042 (SLPG2)
S00E00.721-A (1)	L01	HPU SHUTDOWN SEQ (A, B, C, D) BAF;C	19-042 (SLPG2, SLPA1)
S00E00.721-B (1)	L01	FUEL ISOLATION VALVE CYCLE (E) BAF;C	20-039
S00E00.740	L02	ENABLE RSRM JOINT HEATER SYSTEM BCN099-999;C	20-008
S00E00.742	L02	ENABLE RSRM IGNITER HEATER SYSTEM BCN099-999;C	20-008 28-013
S00E00.750 (1)	L01	SRM IGNITER S&A SAFING BAF;C	19-042 (SLPG2)
S00E00.751 (1)	L01	SRB RSS S&A SAFING BAF;C	19-042 (SLPG2)

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S00E00.760	SRB RSS INHIBIT RESET FOR RECYCLE	19-042 (SLPG2)
(1R)	L01 BAF;C	
S00E00.790	INHIB LCA PIC FIRE CMDS FOR RECYCL	19-042 (SLPG2)
(1R)	L01 VAF;C	
S00E00.800	SRM PIC CAP DISCHARGED VERIF	19-042 (SLPG2)
(1R)	L01 BAF;C	
S00E00.810	ET VENT ARM PIC CAPS DISCHARGED	19-042 (SLPG2)
(1R)	L01 SAF;C	
S00E00.811	ORB MADS DEACTIVATION	23-009
	L01 VAF;C	
S00E00.820	T-0 UMB PIC CAPS DISCHARGED	19-042 (SLPG2)
(1R)	L01 SAF;C	
S00E00.830	SRB HOLDDOWN PIC CAPS DISCHARGED	19-042 (SLPG2)
(1R)	L01 SAF;C	
S00E00.840	ACT HYD CIRC PUMPS FOR SSME WARM FLOW	18-013
(1R)	L01 VAF;C	
S00E00.870	REACTIVATE GROUND COOLING FLOW	19-042 (SLPG2)
(1R)	L01 VAF;C	
S00E00.880-A	CONFIGURE PASS FOR PRELAUNCH	18-060
(1R)	L01 VAF;C	
S00E00.880-B	CONFIGURE BFS FOR PRELAUNCH	18-060
(1R)	L01 VAF;C	
S00E00.894	ACTR INITIALIZATION MODE 1	19-020
(1R)	L01 SAF;C	
S00E00.915	BFS ONE SHOT DATA XFER	18-150
(1R)	L01 VAF;C	
S00E00.920	ONBOARD C/D CLOCK STOPPED VERIF	28-002
(1)	L01 VAF;C	
S00E00.930	SRB FWD MDM'S UNLOCK	19-042 (SLPG2)
(1R)	L01 BAF;C	
S00E00.940	ONBD C/D CLOCK RECYCLED & STOPPED	19-042 (SLPG2)

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(1)	L01	VAF;C	
S00E00.950		SRB AFT MDM'S UNLOCK	19-042 (SLPG2)
(1R)	L01	BAF;C	
S00E00.960		VERIFICATION OF ORBITER GMTLO	16-1040
(1)	L01	VAF;C	
S00E00.976		SOLID STATE RECORDER TERMINATION	23-025
	L01	VAF;C	
S00E00.980		CMD DCDRS POWER ACTIVATION	19-042 (SLPG2)
(1R)	L01	VAF;C	
S00E00.991		ET BIPOD HTRS REACTIVATION	18-098
	L01	TAF;C	
S00E00.993		REACTIVATE BELLOWS HTR	18-102
	L01	TCN117-999;C	
S00E00.A20		ET CAMERA SYSTEM RECYCLE	18-104
	L01	TCN117-120,122-999	19-042 (SLPG2)
S00E00.A25		SRB CAMERA SYSTEM RECYCLE	19-042 (SLPG2)
	L01	B124-999	
S00E00.B40		PFM/VFY DE-ARMING OF SSW CMD BUS	19-034
(1)	L01	VAF;C	
S00E00.B50		SECURE SSW SYSTEM	19-042 (SLPG2)
(1)	L01	VAF;C	
S00E00.B60		VERIFY/ACTIVATE SSME FIRE DETECTORS	19-042 (SLPG2)
(1)	L01	VAF;C	
S00E00.B70		DISARM H2 BURN SYSTEM	19-042 (SLPG2)
	L01	VAF;C	
S00E00.B80		RE-EXTEND & LOCK OAA/CCAA	19-042 (SLPG2)
	L01	VAF;C	
S00E00.B85		LO2 SAFING AFTER TERM COUNT BREAKOUT	19-042 (SLPG2)
	L01	V02FE27;C	
	L02	LO2 SAFING AFTER TERM COUNT BREAKOUT	
		V02FR28;C	
		V05FR18;C	

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		V04FR25;C V03FR31;C	
S00E00.B90		ANTI GEYSER RQMTS AFTER ENG SHUTDOWN	19-042 (SLPG2)
(1)	L02	V03FR31;C V05FR18;C V04FR25;C	
S00FA0.015		PIC RESISTANCE TEST (GO MODE)	16-095
(1)	L02	V03F25-90 V04F21-90 V05F14-90	
S00FA0.223		AFT, MIDBODY AND PLB HELIUM CONC TEST	14-699
(1)	L01	VAF;C	
S00FA0.365		VFY FUEL CELL INSTRUMENTATION (PNL F9)	16-344
(1R)	L01	VAF1-90	
S00FA0.435		HGDS OPERAT DURING TANKING/DETANK	16-011
	L01	VAF1-90	
S00FA0.510		RSS STATUS CHECK	15-494
(1)	L04	B130-999	
S00FA0.600		RSRM PMBT	16-004
(1)	L01	B025,027-999;C	
S00FA0.610		RSRM SEGMENT JOINT HEATER SYSTEM	15-164
(1R)	L02	B099-999	
S00FA0.620		RSRM IGNITER HEATER SYSTEM	14-1445
(1R)	L03	B099-999	15-165 28-013
S00FA0.630		VERIFY SRB SRGA BACKUP PWR SOURCE	15-088
	L01	VAF1-90	
S00FA0.770		FLT CNTL SRB TVC POWER UP	15-299
	L01	VAF1-90	
S00FA0.776		RSRM NOZZLE FLEX BEARING TEMP LIMIT	16-028
(1)	L04	B068-999	
S00FA0.777		RSRM NOZZLE TO CASE TEMPERATURE LIMIT	16-028
(1R)	L02	B062-999	
S00FA0.820		VERIFY CREW ESC ROUTE TEMP/H2 SENSORS	15-376
	L01	SAF1-999	16-141
S00FA0.850		SRB T-0 UMBILICAL PURGE	14-1275
	L01	B038-039,042-999	
S00FA0.870		SOUND SUPPRESSION SYS INSP - WATER BAGS	14-1807

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	L01	V02F11-90 V03F11-90 V04F7-90 V05F1-90	
S00FA0.960	L01	RSRM IGNITER HEATER SYS CURRENT VERIF B032-999	14-1445 15-165 20-008
S00FA0.970	L01	RSRM FLD JNT HEATER SYS CURRENT VERIF B025,027,028 B032-999	15-164 20-008
S00FA0.980	L01	DEACTIVATE RSRM IGNITER HEATER SYSTEM B030-999	16-1156 28-025
S00FB0.011	L01	CLOSEOUT AIR SAMPLE VAF1-90	16-332
S00FB0.050 (1)	L02	VFY ORB FWD/PLB/AFT PURGED WITH GN2 V03F23-90 V04F19-90 V05F12-90	16-015
S00FB0.350 (1)	L01	MONITOR GO2 VENT HOOD VAF1-90	16-016
S00FB0.370	L02	VFY RSS/RCVY BATTERY AMP-HR B082-999	15-603 20-014
S00FB0.380	L01	VFY C-BAND CONTROLLER BATTERY AMP-HR B107-999	15-603 20-014
S00FB0.390	L01	VFY SRB CAMERA SYSTEM BATTERY CAPACITY B124-999	15-603 20-014
S00FD0.095-B	L01	SSME GN2 PURGE TEMPERATURE VAF1-90	16-1205
S00FD0.100	L01	FEEDLINE BELLOWS HEATER ACTIVATION T117-999	16-043
S00FE0.185 (1R)	L02	SRB MDM PRELAUNCH VERIF V03F20-90 V04F14-90 V05F9-90	16-608
S00FE0.190 (1R)	L01	PRELAUNCH MDM DISCRETES OUTPUT VERIF VAF1-90	16-167 (VAS94)
S00FE0.210	L01	ACTR INITIALIZATION MODE 1 VAF1-90	16-296
S00FE0.225-A		MDM LL1 POWER SEPARATION	16-608

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(1R)	L01	B075-999	
S00FE0.225-B		MDM LR1 POWER SEPARATION	16-608
(1R)	L01	B075-999	
S00FE0.230-A		MDM LL2 POWER SEPARATION	16-608
(1R)	L02	B070-999	
S00FE0.230-B		MDM LR2 POWER SEPARATION	16-608
(1R)	L02	B070-999	
S00FE0.250		SRBTS POWER UP WITH CBC	16-573
(1)	L01	B107-999	
S00FF0.095		PERFORM/VERIFY ET BIPOD HTRS PWR ON	16-084
	L05	T117-118,120,122-9	
S00FF0.170		SRB HPU GAS GENERATOR BED HEATERS	16-664
	L02	B139-999	16-965
			(SGPW2)
	L01	B137-138	
S00FF0.215		SRB RATE GYRO POWER ACTIVATION	16-522
(1R)	L03	V03F21-90	
		V04F14-90	
		V05F9-90	
S00FF0.230		SRB RGA TORQUE TEST	16-523
(1R)	L01	SAF1-999	
S00FF0.235		VERIFY/ARM RCS DRIVERS	16-646
(1R)	L01	VAF1-90	
S00FF0.250-A		MCCH TRANSMIT DAY OF LAUNCH I-LOAD	16-744
	L01	VAF;C	
S00FF0.250-B		PERFORM DOWNLIST DUMP OF PASS GPC PITCH	16-759
	L01	VAF;C	
S00FG0.050		PERFORM MCC AIR-TO-GND VOICE CHECK	16-722
(1R)	L01	VAF1-90	
S00FH0.031		ACTIVATE AND VFY RANGE SAFETY SYS	16-842
(1)	L05	B082-129	
		ACTIVATE AND VFY RANGE SAFETY SYS	
	L06	B130-999	
S00FJ0.015		WSB N2 SUPPLY CONFIGURE FOR LAUNCH	16-922
	L01	V03F19-90	
		V04F13-90	
		V05F7-90	
S00FK0.025-A		TRANSITION REDUNDANT SET TO FLT	16-1035
(1R)	L01	VAF1-90	

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S00FK0.025-B (1R)	DUMP AND VERIFY OPS-1 LOAD L01 VAF1-90	16-1084
S00FK0.030 (1R)	CONFIGURE BFS GPC FOR FLIGHT L01 VAF1-90	16-1048
S00FK0.080 (1)	MPS HE ISO VLV XFER CONTROL TO ORB L01 VAF1-90	16-1055
S00FM0.020 (1)	GMT, GMTLO AND CDT SYNCHRONIZATION L01 VAF1-90	16-965 (SLP07)
S00FM0.040	DEACTIVATE SSME MFVA HTR PWR L01 VAF1-90	16-965 (SGPT2)
S00FM0.110 (1R)	SPBK & RUDDER GRAVITY POS L01 VAF1-90	14-1337 (SWB02)
S00FM0.210 (1)	ARM SRB S&A DEVICES L01 SAF1-999	16-965 (SGPT2)
S00FM0.250 (1)	ISSUE SSME PURGE SEQ NO. 4 L01 VAF1-90	16-965 (SGPT2)
S00FM0.270 (1)	AEROSURFACE PROFILE L01 VAF1-90	16-965 (SSPS1)
S00FM0.280 (1)	BODY FLAP & SPBK LAUNCH POS L01 VAF1-90	16-965 (SGPU2)
S00FM0.290 (1R)	BODY FLAP COMMAND OUTPUTS L01 VAF1-90	16-965 (SGPU2)
S00FM0.300 (1R)	MPS GIMBAL PROFILE CHECK L01 VAF1-90	16-965 (SSPS1)
S00FM0.310 (1)	MPS ENGINES TO START POSITION L01 VAF1-90	16-965 (SGPU2)
S00FM0.345	ET CAMERA ACTIVATION FOR LAUNCH L01 T117-120,122-999	16-965 (SGPV2)
S00FM0.350	PERFORM/VERIFY SSME GN2 PURGE OFF	16-965 (SGPU2)

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(1)	L01	VAF1-90	
S00FM0.360		TERMINATE GO2 VENT HOOD PURGE	16-965 (SLPJ0)
(1)	L01	VAF1-90	
S00FM0.385		SRB CAMERA ACTIVATION FOR LAUNCH	16-965 (SGPV2)
	L01	B124-999	
S00FM0.430		SRB AFT SKIRT INERTING PURGE	16-1060
(1)	L02	B133-999	
S00FN0.040		PERFORM SRB FWD MDM LOCKOUT	16-965 (SGPW2)
(1R)	L01	B052-999	
S00FN0.825		DEACTIVATE RSRM JOINT HEATER SYSTEM	16-965 (SGPW2)
	L01	B124-999	
S00FN0.840		INTG VEHICLE GSE PWR REMOVAL	16-965 (SGPW2)
(1)	L01	V02F15-90 V03F18-90 V04F13-90 V05F5-90	
S00FP0.030		ET BIPOD HEATERS OFF	16-965 (SGPW2)
(1)	L02	V03F31-90 V04F27-90 V05F20-90	
S00FP0.050		CLOSE MPS LO2/LH2 OUTBD F/D VLVS	16-965 (SGPW2)
(1)	L01	VAF1-90	
S00FP0.060		INTG VEH GSE PWR OFF CMD REMOVAL VER	16-965 (SGPW2)
(1)	L01	V02F15-90 V03F18-90 V04F13-90 V05F5-90	
S00FP0.070		FEEDLINE BELLOWS HEATER OFF	16-965 (SGPS2)
(1)	L01	T117-999	
S00FR0.010		REDUNDANT SET AUTO SEQ START	16-965 (SGPW2)
	L01	VAF1-90	
S00FR0.070		START SRB HPU	16-965 (SGPW2)

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(1)	L02	B038-999	
S00FS0.020		PERFORM GROUND COOLING SHUTDOWN	16-965 (SLP26)
	L01	VAF1-90	
S00FS0.030		SRB GIMBAL TEST	16-965 (SSPS1)
(1)	L01	SAF1-999	
S00FS0.080		ORDNANCE ARMED VERIFICATION	16-965 (SLP26)
(1R)	L01	VAF1-90	
S00FS0.090		PERFORM SRB AFT MDM LOCKOUT	16-965 (SLP26)
(1R)	L02	B052-999	
S00FT0.020		REMOVE RSS INHIBITS	16-965 (SLP26)
(1R)	L01	SAF1-999	
S00FT0.040		TERMINATE MPS HE TANK FILL	16-965 (SLP26)
(1)	L01	VAF1-90	
S00FT0.050		DEACTIVATE MPS LH2 RECIRC SYS	16-965 (SLP26)
(1)	L01	VAF1-90	
S00FT0.100		LPS ISSUE GO FOR SSME START	16-965 (SLP26)
	L01	VAF1-90	
S00FT0.110		ACTIVATE SSME FREE H2 BURN SYSTEM	16-965 (SLP26)
	L01	VAF1-90	
S00FT0.120		ACTIVATE SOUND SUPPRESSION WATER	16-965 (SLP26)
	L01	VAF1-90	
S00L00.030		ET TANKING WIND VELOCITY LIMIT	15-232
	L01	SAF1-999	
S00L00.080		ET PROP LOADING LIGHTNING CONSTRAINTS	15-232
	L01	SAF1-999	
S00L00.085		WIND PREDICTION - SRB RETRIEVAL AREA	15-704
	L01	B072-999	16-1021 16-322 16-914
V05AG0.060-C		GN2 PURGE INITIATION TIME	15-562
	L06	V03F37-90	

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	V04F31-90		
	V05F24-90		
V05AH0.050-C	GN2 PURGE INITIATION TIME		15-562
L07	V03F33-90		
	V04F28-90		
	V05F21-90		
V05AH0.050-D	REDUCED PAYLOAD BAY PURGE RATE		16-1125
L07	V03F33-90		
	V04F28-90		
	V05F21-90		
V05AI0.060-C	PURGE PARAMETERS FOR ET LOADING - GN2		15-562
L05	V03F31-90		
	V04F27-90		
	V05F19-90		
V09AH0.090 (1)	RSI - PCR SEAL/INTERFACE		14-1360
L03	V03F22-90		14-1531
	V04F18-90		
	V05F12-90		
V30C00.010	PLBD MOISTURE CONDITIONING		14-1690
L01	V02F25-26E26;C		
	V03F25-27E27;C		
	V04F21E21;C		
	V05F13-14E14;C		
	PLBD MOISTURE CONDITIONING		
L02	V02F27-90R27;C		
	V03F28-90R28;C		
	V04F22-90R22;C		
	V05F15-90R15;C		
V42BF0.130	VFY CLOSURE OF RCS XFEED VALVES (LCD)		16-494
L01	V03F22-90		
	V04F17-90		
	V05F12-90		
V43CF0.120	PERFORM OMS ENGINE ACTIVATION (LCD)		16-918
	(VWD72/VWD73)		
L01	V02F20-90		
	V03F22-90		
	V04F17-90		
	V05F12-90		
V43CF0.130	VFY CLOSURE OF OMS XFEED VLVS (LCD)		16-494
L01	V02F20-90		
	V03F22-90		
	V04F17-90		
	V05F12-90		
V45CG0.040-A	FCP 1 C&W VERIF		16-470
L02	V03F15-90		
	V04F11-90		

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	V05F1-90	
V45CG0.040-B	FCP 2 C&W VERIF	16-470
L02	V03F15-90	
	V04F11-90	
	V05F1-90	
V45CG0.040-C	FCP 3 C&W VERIF	16-470
L02	V03F15-90	
	V04F11-90	
	V05F1-90	
V45CH0.050	PERFORM FCP PRELAUNCH CONDITIONING	16-1073
L02	V03F28-90	
	V04F22-90	
	V05F15-90	
V51AF0.245 (1R)	WEIGHT-ON-WHEELS PROXIMITY SWITCHES	14-1314
L01	V02F22-90	
	V03F23-90	
	V04F19-90	
	V05F12-90	
V51AF0.250	REDUNDANT WEIGHT ON WHEELS DETECTOR	14-1314
L01	V02F22-90	
	V03F23-90	
	V04F19-90	
	V05F12-90	
V51AG0.075-A	LH NLG TPDMS LONG TERM DECAY RATE	15-695
L05	V03F22-90R22;C	
	V04F18-90R18;C	
	V05F12-90R12;C	
V51AG0.075-B	RH NLG TPDMS LONG TERM DECAY RATE	15-695
L05	V03F22-90R22;C	
	V04F18-90R18;C	
	V05F12-90R12;C	
V51AG0.075-C	LH INBD TPDMS LONG TERM DECAY RATE	15-695
L05	V03F22-90R22;C	
	V04F18-90R18;C	
	V05F12-90R12;C	
V51AG0.075-D	LH OUTBD TPDMS LONG TERM DECAY RATE	15-695
L05	V03F22-90R22;C	
	V04F18-90R18;C	
	V05F12-90R12;C	
V51AG0.075-E	RH INBD TPDMS LONG TERM DECAY RATE	15-695
L05	V03F22-90R22;C	
	V04F18-90R18;C	
	V05F12-90R12;C	
V51AG0.075-F	RH OUTBD TPDMS LONG TERM DECAY RATE	15-695

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	L05	V03F22-90R22;C V04F18-90R18;C V05F12-90R12;C	
V62AG0.018		SUPPLY H2O TARGETED LIFTOFF QNTY VERIF	16-1118
	L01	V02F27-90 V03F29-90 V04F24-90 V05F16-90	
V62AG0.050		FUEL CELL WATER LINE VERIFICATION	16-287 (VWR05)
(1R)	L02	V02F21-90 V03F22-90 V04F18-90 V05F12-90	
V63A00.031		ATCS PRIOR TO LAUNCH	14-136
(1R)	L02	V03F14-90 V04F11-90 V05F1-90	
V63AR0.025		ATCS PLUGS FINAL REMOVAL	14-1028
	L02	V02F21-90 V03F22-90 V04F18-90 V05F12-90	
V71AD0.050		IMU GYROCOMPASS ALIGNMENT CHECK	16-780
(1R)	L02	V02F22-90 V03F23-90 V04F19-90 V05F12-90	
V72CA0.060-A		BFS ONE SHOT TRANSFER PREPS	16-910
	L01	V03F23-90 V04F19-90 V05F12-90	
V72CA0.060-B		BFS ONE SHOT DATA TRANSFER	16-944
	L01	V03F23-90 V04F19-90 V05F12-90	
V72CA0.070		POWER DOWN CMD DECODERS	16-965 (SLP26)
	L01	V03F23-90 V04F19-90 V05F12-90	

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V74P00.011		GPS FINAL POWER UP - LAUNCH DAY	16-384
	L01	V03F34-90;C V04F29-90;C	
V74PP0.011-A		GPS1 FINAL POWER UP	16-424
(1R)	L01	V05F20-90;C	
V74PP0.011-B		GPS2 FINAL POWER UP	16-426
(1R)	L01	V05F20-90;C	
V74PP0.011-C		GPS3 FINAL POWER UP	16-428
(1R)	L01	V05F20-90;C	
V75AP0.010		CONFIGURE OI PCMMU FOR LCD (GND CNTR)	14-1548
(1R)	L01	V02F22-90 V03F23-90 V04F19-90 V05F12-90	
V75AP0.040		OI PCMMU CONFIG FOR PNL CONTROL	16-337
(1R)	L01	V02F22-90 V03F23-90 V04F19-90 V05F12-90	18-141
V79AS0.012		FWD RCS SINGLE CMD TEST	15-337
			(VSB53)
(1)	L01	VAF1-90;C	
V79AS0.013		FWD RCS SINGLE CMD TEST	15-337
			(VSB53)
(1)	L01	VAF1-90;C	
V79AS0.062		AFT LEFT RCS SINGLE CMD TEST	15-337
			(VSB53)
(1R)	L01	VAF1-90;C	
V79AS0.063		AFT LEFT RCS SINGLE CMD TEST	15-337
			(VSB53)
(1)	L01	VAF1-90;C	
V79AS0.110		AFT RIGHT RCS SINGLE CMD TEST	15-337
			(VSB53)
(1)	L01	VAF1-90;C	
V79AZ0.090		OMS ACTUATOR STOW POSITION FOR LAUNCH	15-362
			(SWB02)
	L01	V03F22-90 V04F18-90 V05F12-90	

5.1.1 OMRS References

OMRS No.	Nomenclature	Ops/Step
G51FLHPA0.001	ET VENT LINE INERT VERIFICATION	14-202
G61FLHPA0.001	ET VENT LINE INERT VERIFICATION	14-202
GLUFGDM10.004-1R	HGDS 2000 - SYSTEM A GAS ANALYSIS	14-657
GLUFGDM10.004-1R	HGDS 2000 - SYSTEM A GAS ANALYSIS	15-699
GLUFGDM30.004-1R	HGDS 2000 - SYSTEM B GAS ANALYSIS	14-657
GLUFGDM30.004-1R	HGDS 2000 - SYSTEM B GAS ANALYSIS	15-699
GLUGGDMF0.004	HUMS GAS ANALYSIS	14-657
GLUGGDMF0.004	HUMS GAS ANALYSIS	15-699
GLVFGDM10.004-1R	HGDS 2000 - SYSTEM A GAS ANALYSIS	14-657
GLVFGDM10.004-1R	HGDS 2000 - SYSTEM A GAS ANALYSIS	15-699
GLVFGDM30.004-1R	HGDS 2000 - SYSTEM B GAS ANALYSIS	14-657
GLVFGDM30.004-1R	HGDS 2000 - SYSTEM B GAS ANALYSIS	15-699
GLVGGDMF0.004	HUMS GAS ANALYSIS	14-657
GLVGGDMF0.004	HUMS GAS ANALYSIS	15-699
GRVFEVRA1.005-1S	PAD A FSS ELEVATOR#1 OPERATIONAL CHECK	15-11
GRVFEVRA2.005-1S	PAD A FSS ELEVATOR #2 OPERATIONAL CHK	15-11
S00E00.137-1	HEAT SHIELD WATER ACT. POST ABORT	16-1234
S00E00.670	PRSD TRANSFER TO EXTERNAL REACTANTS	19-61
S00E00.811	ORB MADS DEACTIVATION	28-11
S00E00.890-1R	IMU TO GYROCOMPASS MODE	18-132
S00E00.976	SOLID STATE RECORDER TERMINATION	28-11
S00E00.A00	RECONNECT GSE PWR	18-79
S00E00.B90-1	ANTI GEYSER RQMTS AFTER ENG SHUTDOWN	16-1234
S00E00.B90-1	ANTI GEYSER RQMTS AFTER ENG SHUTDOWN	16-1235

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S00E00.B95-1	LH2 TOPPING LINE DRAIN BACK	16-1234
S00E00.B95-1	LH2 TOPPING LINE DRAIN BACK	16-1235
S00FA0.090-A	LH FORWARD SKIRT CAMERA (X30A1)	14-1638
S00FA0.090-B	RH FORWARD SKIRT CAMERA (X30A1)	14-1638
S00FA0.090-C	LH ETA RING CAMERA (X13A2)	14-1391
S00FA0.090-D	RH ETA RING CAMERA (X13A2)	14-1391
S00FA0.090-E	LH ET OBSERVATION CAMERA (X31A56)	14-1638
S00FA0.090-F	RH ET OBSERVATION CAMERA (X31A56)	14-1638
S00FA0.116-1	ET LO2 LOW RANGE ULLAGE PRESS XDCR CK	15-447
S00FA0.120-1	LO2 VENT/RELIEF VLV ACTUATION LINE PGE	15-447
S00FA0.130-1	LH2 VENT/RELIEF VLV ACTUATION LINE PGE	14-785
S00FA0.140-A-1	ET LO2 ULLAGE PRESS VERIF	15-233
S00FA0.140-B-1	ET LH2 ULLAGE PRESS VERIF	15-233
S00FA0.141-1	VERIFY ET LO2 LOW RANGE PRESSURES	15-447
S00FA0.213-A-1	PERFORM AND VERIFY SSMEC POWER ON	14-1163
S00FA0.213-C-1	EXECUTE SENSOR AND SPARK IGNITER C/O	14-1163
S00FA0.213-D-1	EXECUTE COMMANDED CONTROLLER CHECKOUT	14-1163
S00FA0.213-E-1	EXECUTE PNEU COMPONENT CHECKOUT	14-1163
S00FA0.213-F-1	VERIFY SSME FLIGHT ACTIVE	14-1163
S00FA0.213-G-1	ISSUE SSME PSN 3 COMMAND (REF. C-6)	14-1163
S00FA0.213-H-1	ISSUE SSME CONT RESET CMD	14-1163
S00FA0.213-I-1	ISSUE SSME PSN1 COMMAND (REF. R-1)	14-1163
S00FA0.213-J-1	VERIFY ACTUATOR COMMAND/POSITION	14-1163
S00FA0.213-K-1	AHM VERIFY SOFTWARE	14-1163
S00FA0.221-1	PRESSURIZE MPS HE TANKS TO FLT PRESS	15-99
S00FA0.223-1	AFT, MIDBODY AND PLB HELIUM CONC TEST	15-99
S00FA0.225	PERF/VFY INIT LH2 ORB/ET DISC CAV PURG	15-99

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S00FA0.301-1R	LOAD/VFY FINAL PCM AND PDI FORMATS	14-155
S00FA0.370-A-1R	COMSEC 1 LOAD VERIFICATION	14-193
S00FA0.370-B-1R	COMSEC 2 LOAD VERIFICATION	14-193
S00FA0.372-A	S-BAND PM STRING 1 STDN HI	15-377
S00FA0.372-C	AUDIO CENTER 1 & 2 VERIFICATION	14-1512
S00FA0.372-D	COMSEC 1 & 2 OPERATION	15-377
S00FA0.372-E	FM 1 & 2 OPERATION	14-1512
S00FA0.372-F	UHF OPERATION	14-1512
S00FA0.372-H	S-BAND PM STRING 1 MODES	15-377
S00FA0.372-I	TRANSMIT P/L INTRG SWEEP WIDE CMD	15-377
S00FA0.650	VERIFY ET/ORB SEP CAMERAS-HTR/PWR ON	15-236
S00FA0.776-1	RSRM NOZZLE FLEX BEARING TEMP LIMIT	14-519
S00FA0.776-1	RSRM NOZZLE FLEX BEARING TEMP LIMIT	14-1192
S00FA0.810-A	LO2 17-INCH DISC AND LATCH POSITIONING	14-1666
S00FA0.810-B	LH2 17-INCH DISC AND LATCH POSITIONING	14-1632
S00FA0.900	PRELAUNCH WEATHER BRIEFING (L-1 DAY)	14-1475
S00FA0.940-1R	PITCH/ROLL/YAW CSS MODE COMMAND CHK	14-358
S00FB0.005-1	ET TPS SURFACE MONITORING	17-162
S00FB0.070-1R	VFY MPS HE SYS CONFIG	15-631
S00FB0.082-1R	SSME REG MONITORING REQUIREMENTS	15-631
S00FB0.083	PNEU REG MONITORING REQUIREMENTS	15-631
S00FB0.090-A-1	MPS LO2 VLV PRELOADING CONFIGURATION	17-62
S00FB0.090-A-1	MPS LO2 VLV PRELOADING CONFIGURATION	21-11
S00FB0.090-B-1	MPS LH2 VLV PRELOADING CONFIGURATION	15-631
S00FB0.230-1R	VERIFY ORB/LPS LDB REDUNDANCY	15-355
S00FB0.281-A-1R	S-BAND PM STRING 2 STDN HI	15-377
S00FB0.281-B-1R	S-BAND PM STRING 2 MODES	15-377
S00FB0.281-C-1R	FRAME SYNC THRESHOLD COMPARE	15-377

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S00FB0.281-D-1R	AGC LCC VERIFICATION	15-377
S00FB0.290-1	INITIATE ET INTERTANK PURGE	15-631
S00FB0.300-1	PERFORM/VERIFY SSME OXID PURGE	17-62
S00FB0.300-1	PERFORM/VERIFY SSME OXID PURGE	21-11
S00FB0.310-1	ISSUE SSME PURGE SEQ NO. 2	17-62
S00FB0.310-1	ISSUE SSME PURGE SEQ NO. 2	21-11
S00FB0.320-1	ISSUE SSME PURGE SEQ NO. 3	17-62
S00FB0.320-1	ISSUE SSME PURGE SEQ NO. 3	21-11
S00FB0.330	INITIATE ET NOSE CONE PURGE & CONTROL	15-447
S00FB0.340-1	MPS LO2 PREVLV OPEN RESPONSE TIME	17-62
S00FB0.340-1	MPS LO2 PREVLV OPEN RESPONSE TIME	21-11
S00FB0.350-1	MONITOR GO2 VENT HOOD	17-162
S00FC0.070-1R	PFM HYD SYS CONFIG FOR CRYO LOAD	15-22
S00FC0.072-1R	PFM LDG GR SYS FINAL FILL	15-23
S00FC0.080-1	INITIATE LO2 ORB/ET DISCONNECT PURGE	17-62
S00FC0.080-1	INITIATE LO2 ORB/ET DISCONNECT PURGE	21-11
S00FC0.090-1	INSTL GO2 VENT HOOD & INITIATE PURGE	15-430
S00FC0.100-1	VERIFY LO2 T-0 UMB CARR PLATE PURGE	17-62
S00FC0.100-1	VERIFY LO2 T-0 UMB CARR PLATE PURGE	21-11
S00FC0.110	INITIATE HELIUM INJECT FLOW	17-62
S00FC0.110	INITIATE HELIUM INJECT FLOW	21-11
S00FC0.120-1	ACTIVATE LO2 PRE-PRESS ANTI- ICING PURGE	17-62
S00FC0.120-1	ACTIVATE LO2 PRE-PRESS ANTI- ICING PURGE	21-11
S00FD0.062-1	PERFORM ORB/ET LO2 CHILLDOWN	17-62
S00FD0.062-1	PERFORM ORB/ET LO2 CHILLDOWN	21-11
S00FD0.073-1	PERFORM LO2 SLOW FILL	17-62
S00FD0.073-1	PERFORM LO2 SLOW FILL	21-11
S00FD0.091	LO2 TEMP LIMITS VERSUS HEAD PRESSURE	17-62
S00FD0.091	LO2 TEMP LIMITS VERSUS HEAD	21-11

	PRESSURE	
S00FD0.094-1	PERFORM LO2 FAST FILL FROM 2 TO 98 PCT	17-62
S00FD0.094-1	PERFORM LO2 FAST FILL FROM 2 TO 98 PCT	21-11
S00FD0.095-A	TURN SSME GN2 HEATER OFF	17-62
S00FD0.095-A	TURN SSME GN2 HEATER OFF	21-11
S00FD0.121-A-1R	MPS LO2 ECO SENSORS IND WET	17-62
S00FD0.121-A-1R	MPS LO2 ECO SENSORS IND WET	21-11
S00FD0.121-B-1R	MPS LH2 LOW LVL SENSORS IND WET	16-46
S00FE0.020-1	ACTIVATE LH2 T-0 UMB PLATE HE PURGE	15-99
S00FE0.040-1	ACTIVATE TSM AND TUNNEL PURGES	15-631
S00FE0.050-1	VFY ET GUCP LH2 VENT DISC CAVITY PURGE	15-631
S00FE0.100-1	ACTIVATE LH2 PREPRESS ANTI- ICING PURGE	16-46
S00FE0.111-1	ORB MPS LH2 CHILLDOWN & FILL TO 5%	16-46
S00FF0.011-1	PERFORM LH2 FAST FILL TO 85 PERCENT	16-80
S00FF0.030-1	LH2 RECIRC PUMP ACTIVATION/PREVLV CLOSE	16-80
S00FF0.081-1	PERFORM LH2 REDUCED FAST FILL TO 98 PCT	16-80
S00FF0.082-1	PERFORM LH2 TOPPING TO 100 PCT	16-125
S00FF0.091-1	PERFORM LH2 REPLENISH FLOW AT 100 PCT	16-128
S00FF0.101-1	PFM LO2 TOPPING (FROM 98 TO 100 PCT)	17-62
S00FF0.101-1	PFM LO2 TOPPING (FROM 98 TO 100 PCT)	21-11
S00FF0.145-1	PERFORM LO2 REPLENISH FLOW AT 100 PCT	17-62
S00FF0.145-1	PERFORM LO2 REPLENISH FLOW AT 100 PCT	21-11
S00FF0.161-1R	RSRM CHAMBER PRESS XDUCER CALIB	16-732
S00FF0.180-1R	RSRM CHAMBER PRESS BIAS AND CAL CHECK	16-732
S00FF0.190-1	CLOSE LH2 INBD FILL & DRAIN VLV	16-80

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S00FF0.200-1R	DEPLT SENSOR CONFIDENCE C/O - REPLENISH	16-146
S00FF0.204-1R	LO2 & LH2 LIQ LVL SENSOR CONT VFY - REPL	16-627
S00FG0.085	GPC - MTU CHAN 1 GMT/MET UPDATE	16-648
S00FM0.043-1	TERMINATE LO2 REPLENISH	17-62
S00FM0.043-1	TERMINATE LO2 REPLENISH	21-11
S00FM0.050-1	CLOSE LO2 INBD FILL AND DRAIN VALVE	17-62
S00FM0.050-1	CLOSE LO2 INBD FILL AND DRAIN VALVE	21-11
S00FM0.060-1	INITIATE LO2 TSM DRAIN	17-62
S00FM0.060-1	INITIATE LO2 TSM DRAIN	21-11
S00FM0.175-1R	PERFORM HYD SYS APU-POST START	16-1183
S00FM0.321-1	TERMINATE ET HELIUM INJECT FLOW	17-62
S00FM0.321-1	TERMINATE ET HELIUM INJECT FLOW	21-11
S00FM0.330	TERMINATE LO2 PREPRESS ANTI- ICING PURGE	17-62
S00FM0.330	TERMINATE LO2 PREPRESS ANTI- ICING PURGE	21-11
S00FM0.342-1	CLOSE ET LO2 VENT VLV & PREPRESS TANK	17-62
S00FM0.342-1	CLOSE ET LO2 VENT VLV & PREPRESS TANK	21-11
S00FM0.350-1	PERFORM/VERIFY SSME GN2 PURGE OFF	16-1204
S00FM0.380-1	TERMINATE ET LH2 TANK REPLENISH	16-1214
S00FM0.380-1	TERMINATE ET LH2 TANK REPLENISH	17-64
S00FM0.390	TERM LH2 PREPRESS ANTI-ICING PURGE	16-1214
S00FM0.390	TERM LH2 PREPRESS ANTI-ICING PURGE	17-64
S00FM0.400-1	CL ET LH2 VENT VLV & INIT PREPRESS	16-1214
S00FM0.400-1	CL ET LH2 VENT VLV & INIT PREPRESS	17-64
S00FM0.440-1	TERMINATE NOSE CONE PURGE	17-62
S00FM0.440-1	TERMINATE NOSE CONE PURGE	21-11
S00FM0.450-1	TERMINATE ET INTERTANK HIGH	16-1214

	FLOW PURGE	
S00FM0.450-1	TERMINATE ET INTERTANK HIGH	17-64
	FLOW PURGE	
S00FM0.500-1R	REMOVE DEPLETION SENSOR SIM	16-1115
	CMDS	
S00FS0.110-1	REMOVE ET I/T TEMP POWER	17-64
S00FS0.120-1	REMOVE LO2 ET TEMP/PRESS	17-62
	POWER	
S00L00.051-A-1	LH2 TANK PRESSURE (WIND	14-813
	CONDITION)	
S00L00.051-A-1	LH2 TANK PRESSURE (WIND	14-1623
	CONDITION)	
S00L00.051-B-1	LO2 TANK PRESSURE (WIND	15-447
	CONDITION)	
S00U00.010-A-1	PERFORM INSPECTION	17-419
S00U00.010-B-1	OBTAIN PHOTOGRAPHS OF GN2	17-419
	PURGE PROBE	
S00U00.020-A-1	ENGINEERING PAD INSPECTION	16-504
S00U00.020-C-1	INSPECT ORBITER AFT ENGINE	16-504
S00U00.020-D-1	INFRARED SURVEILLANCE	16-504
S00U00.030-1	PRELAUNCH SHUTTLE/PAD AREA	14-1538
	INSPECTION	
T09QAL.030-1	ET TPS INSPECTION ON PAD	14-1683
V00I00.030	ORB CONFIG FOR LAUNCH	14-1584
V00I00.030	ORB CONFIG FOR LAUNCH	16-890
V05AG0.060-C	GN2 PURGE INITIATION TIME	15-352
V05AG0.060-C	GN2 PURGE INITIATION TIME	16-211
V43CF0.110-A	LEFT POD TANKS	15-679
V43CF0.110-B	RIGHT POD TANKS	15-679
V45CG0.040-A	FCP 1 C&W VERIF	14-1578
V45CG0.040-A	FCP 1 C&W VERIF	14-1579
V45CG0.040-B	FCP 2 C&W VERIF	14-1578
V45CG0.040-B	FCP 2 C&W VERIF	14-1579
V45CG0.040-C	FCP 3 C&W VERIF	14-1578
V45CG0.040-C	FCP 3 C&W VERIF	14-1579
V45CH0.020-1R	PERFORM FUEL CELL	15-491
	CALIBRATION	
V45CH0.020-1R	PERFORM FUEL CELL	15-628
	CALIBRATION	
V45CH0.030-1	PERFORM PRSD SYSTEM	15-491
	INTEGRITY CHECK	
V45CH0.030-1	PERFORM PRSD SYSTEM	15-628
	INTEGRITY CHECK	
V45CH0.040	PERFORM PURGE OF FCP 1, 2 AND	16-686

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V61AQ0.010-1R	2 PSID CABIN INTEGRITY TEST	16-948
V62AM0.020-B-1R	WASTE WATER TANK LIFTOFF QUANTITY	14-145
V70CA0.010-A-1	PWR U/L CRIT FORMAT IN IDP1	14-91
V70CA0.010-B-1	PWR U/L CRIT FORMAT IN IDP2	14-91
V70CA0.010-C-1	PWR U/L CRIT FORMAT IN IDP3	14-148
V70CA0.010-D-1	PWR U/L CRIT FORMAT IN IDP4	14-91
V72CA0.020-1R	PRELAUNCH BFC/ENGAGE VERIFICATION	14-89
V72CA0.030-1R	PRELAUNCH BFC/CRT VERIFICATION	14-89
V72CA0.051-A	REDUNDANT SET ACTIVATION	14-451
V72CA0.051-B	BFS ACTIVATION	14-148
V72CA0.051-C	BFS DUMP & COMPARE	14-148
V74AB0.102-1R	BLANKING AT PAD	14-392
V74AB0.190-1R	TACAN GROUND STATION INTERFACE	14-392
V74AC0.011-1R	RADAR ALT. POWER ON VERIFICATION	14-392
V74AC0.020-1R	RADAR ALTIMETER SELF TEST	14-392
V75AP0.010-1R	CONFIGURE OI PCMMU FOR LCD (GND CNTR)	14-374
V75AP0.030-1R	MTU OSC FREQ VERIFY	14-250
V75AR0.120	SSR 1 AND 2 CONFIG FOR TERMINAL COUNT	14-955
V78GA0.010	VERIFY MTU MADS TIMING SIGNALS	14-256
V78GA0.020	CONFIGURE MADS FOR TERMINAL COUNT	14-957
V78GA0.030	MADS PCM AND WB DATA STAT CK	14-256

5.2 General OMRS Requirements Applicable to this TOP

OMRS NO.	NOMENCLATURE/ EFFECTIVITY	SEQ-STEP (CAP)
B42GEN.040	AFT SKIRT TEMPERATURE	-
	L01 BAF;G	
B55GEN.030	SRBTS GENERAL REQUIREMENTS	-
	L01 BAF;G	
V30GEN.020	PLBD MOISTURE CONDITIONING GENERAL REQ	-
	L01 V02FE26;G	
	V03FE27;G	
	V04FE21;G	
	V05FE14;G	
	PLBD MOISTURE CONDITIONING GENERAL REQ	
	L02 V02FR27;G	
	V03FR28;G	
	V04FR22;G	
	V05FR15;G	
V42GEN.090	SYS CMPNT SECT - THRUSTERS	-
	L05 FR03FR23;G	
	FR04FR17;G	
	FR05FR12;G	
	LP01FR26;G	
	LP03FR21;G	
	LP04FR19;G	
	RP01FR24;G	
	RP03FR24;G	
	RP04FR17;G	
V79GEN.100	ACTUATOR/HYD ACTIVATION CONSTRAINTS	-
	L01 VAF;G	
V79GEN.300	REACTION JET DRIVER TRICKLE CURNT TSTNG	-
	L01 VAF;G	
V79GEN.400	RCS COMMAND STATUS TEST	-
	L01 VAF;G	

5.3 Configuration Verification Recording

NOTE

The following verifications are valid only for KSC vehicle processing after Ferry Flight from a non-KSC Landing site and are not applicable after a KSC Landing.

Doc No.	Rev/EO	Manifest	Type	Remarks	Step
M072-661074-018	C	V072-300055		Removal (HUD covers)	16-694
M072-710700-004	A	V072-300055	Partial	Removal (Switch Guards)	16-694

NOTE

The following verifications are valid for each flight.

Doc No.	Rev/EO	Manifest	Type	Remarks	Step
SJD32100953-____	____	SGD3210____	Partial	Install combined wicket and switch retention devices only	14-1600
SJD32107434-____	____	SGD3210____	Partial	Install in-use LIOHs only	16-328

5.5 List of References

OPERATION 14

Reference No.	Rev	Title
OMI V3578.002	(LI)	EMDS Monitoring System Deactivation
OMI V6K01	(LI)	Humidity Monitoring Sensor Removal
ISC DOC PPS-I-0060	(LI)	S0007 MLP MPS Securing

OPERATION 17

Reference No.	Rev	Title
M3175	(LI)	Operation Of Holding Tank Industrial Wastewater System

OPERATION 13 Task Team Readiness

Shop: NTD / OTC
Cntrl Rm Console: ALL
OPR: NTD/OTC
Zone: NA
Hazard (Y/N): N
Duration (Hrs): 0.5

NOTE

The following figures are referenced for this entire document:

Figure 13-1 - Exclusive Usage Camera Matrix (3 pages)

Figure 13-2 - Specified KSC (CX-39) SLF COMM Requirements

Figure 13-3 - RSLS (On board) S/W and GLS (Gnd) S/W Interaction:
T-38 Sec to T-0

Figure 13-4 - Launch Countdown Flow

Figure 13-5 - PLBD Moisture Conditioning Requirement for Ground Processing
Flow Schedule

Figure 13-6 - LC-39 Control Areas and Roadblocks

Figure 13-7 - LDA Manloading

Figure 13-8 - SLF Controlled Area

Figure 13-9 - Allowable Wind Conditions for Pad LH₂ and GH₂ Washdowns

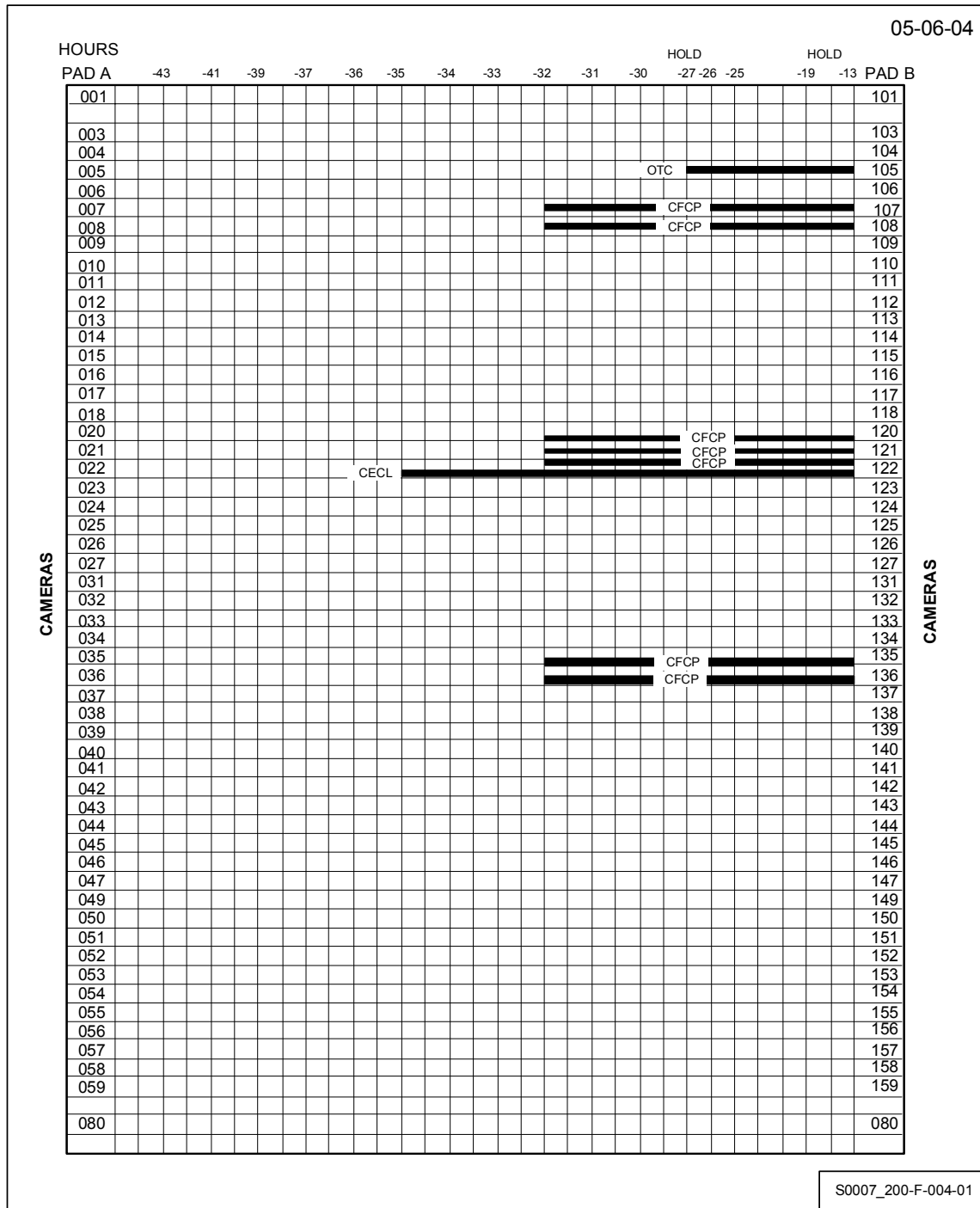


Figure 13-1 - Exclusive Usage Camera Matrix (Page 1 of 3)
(For Reference Only)

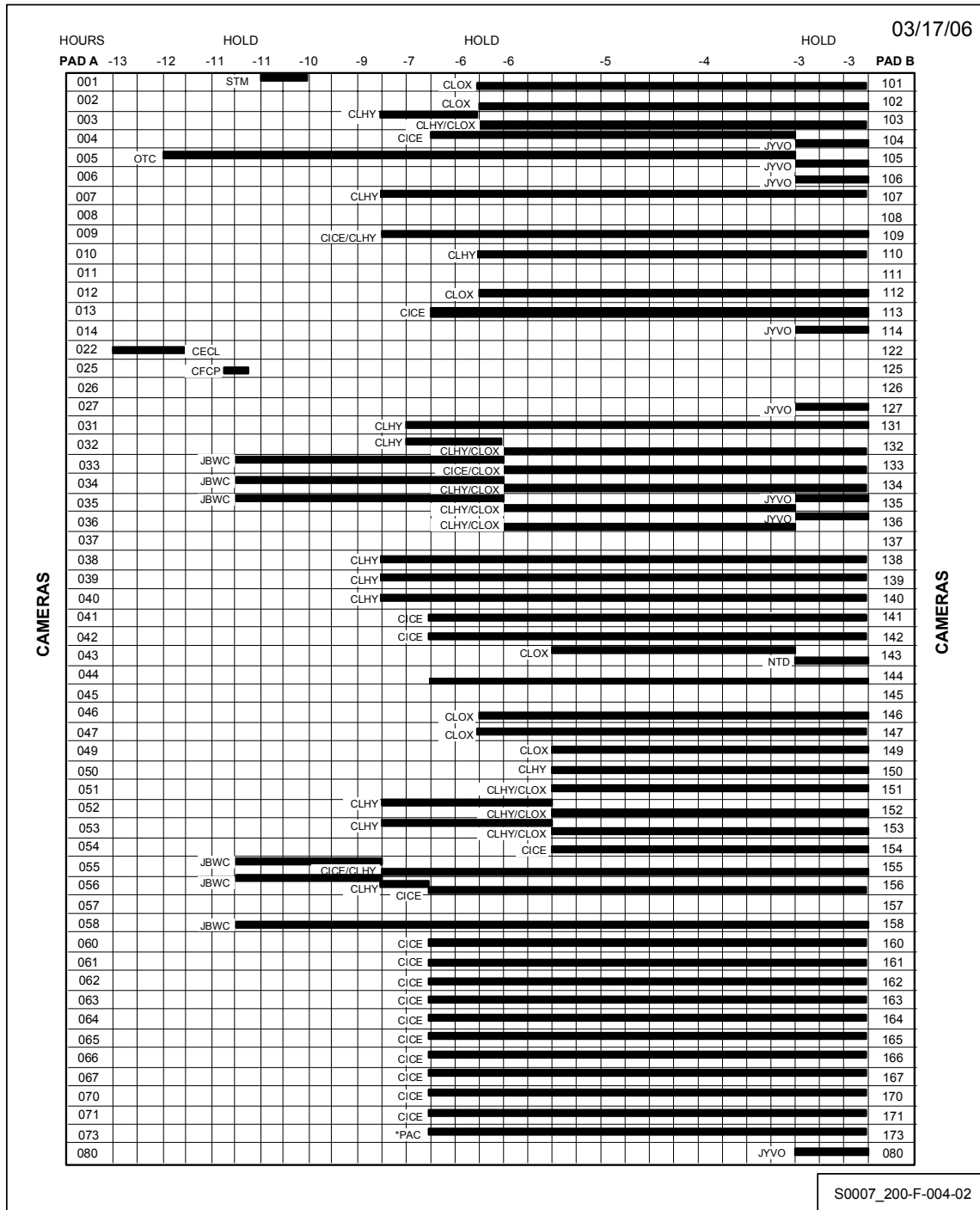
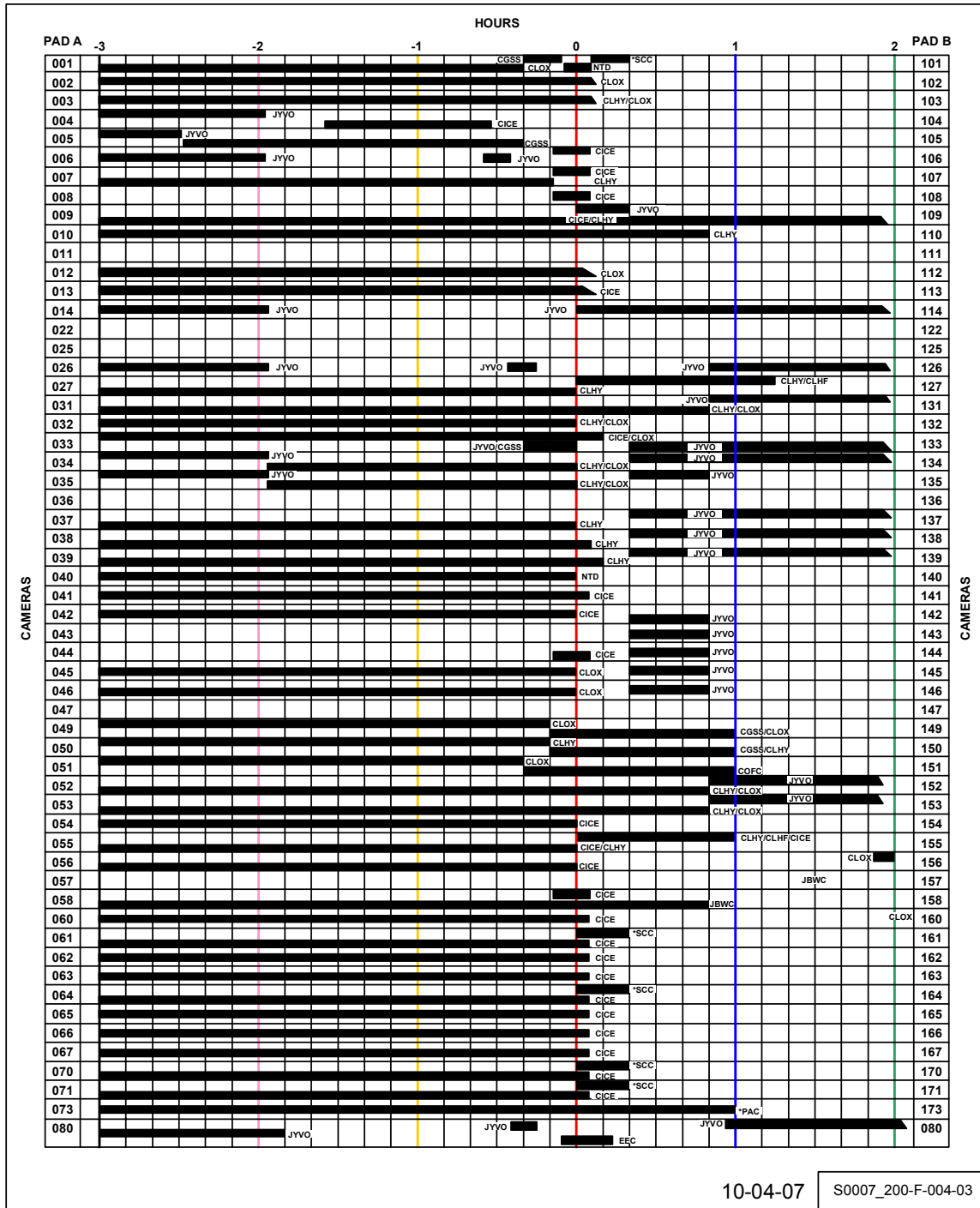


Figure 13-1 - Exclusive Usage Camera Matrix (Page 2 of 3)
(For Reference Only)



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Figure 13-1 - Exclusive Usage Camera Matrix (Page 3 of 3)
(For Reference Only)

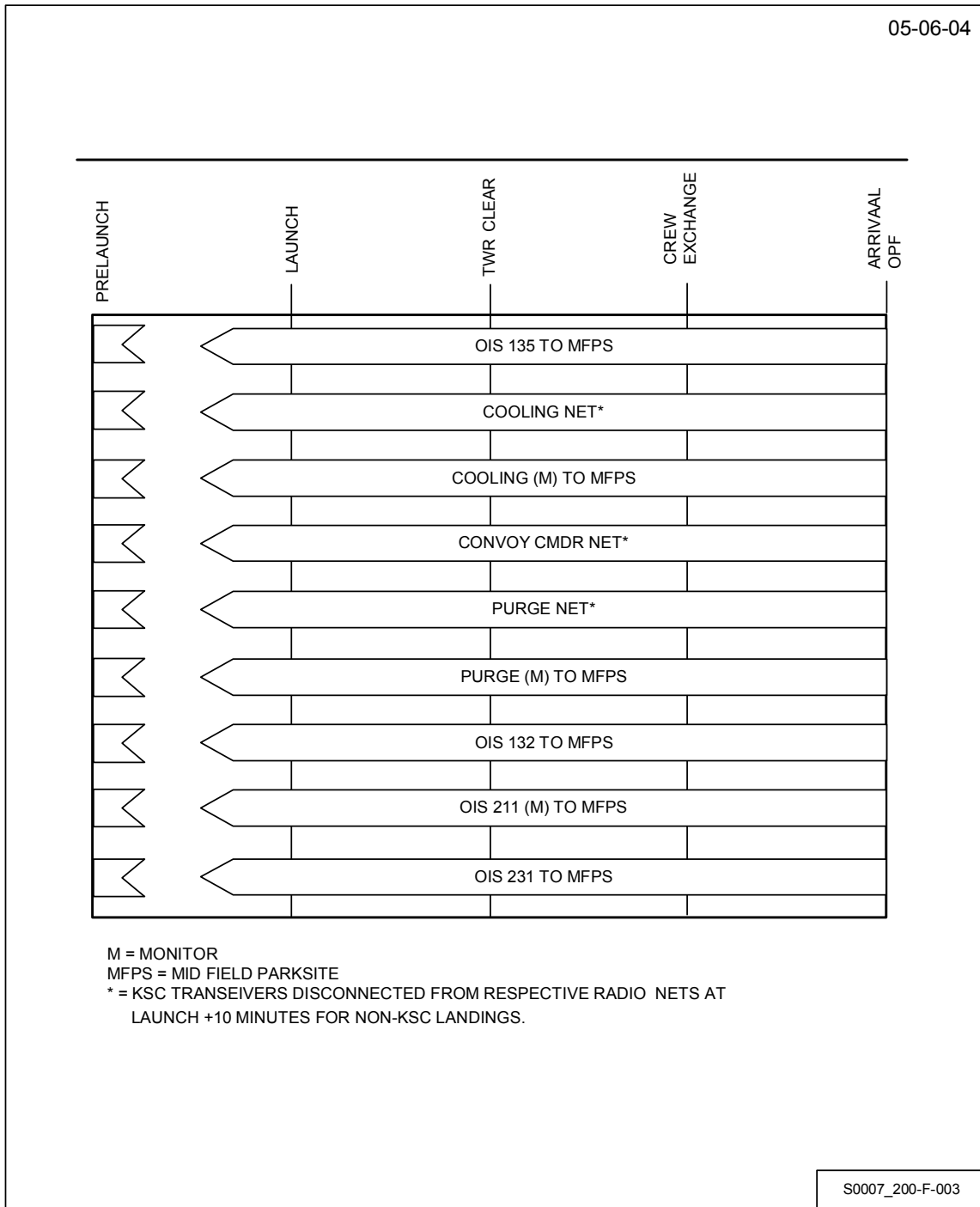


Figure 13-2 - Specified KSC (CX-39) SLF COMM Requirements
 (For Reference Only)

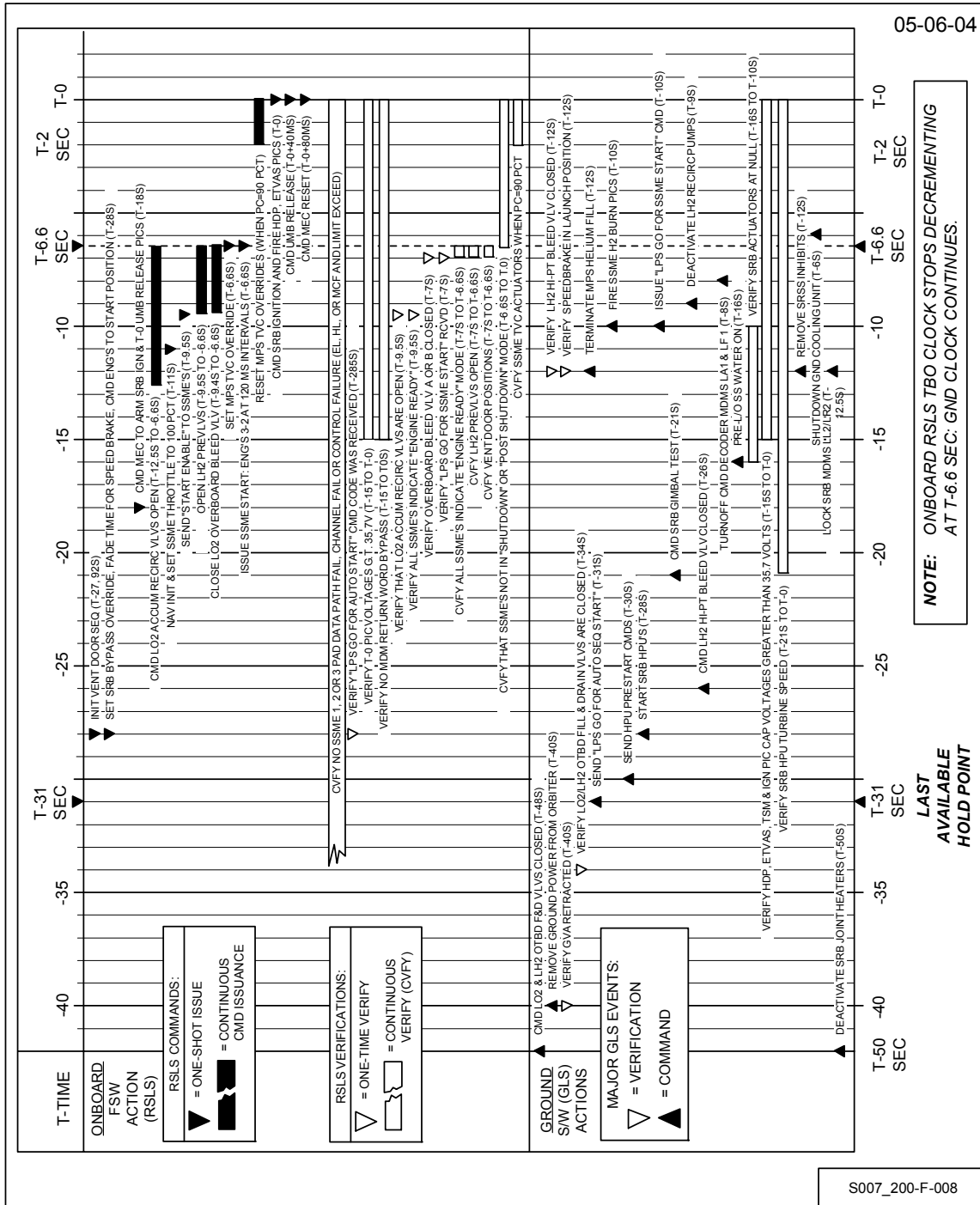


Figure 13-3 - RSLs (On Board) S/W and GLS (Gnd) S/W Interaction: T-38 Sec to T-0
(For Reference Only)

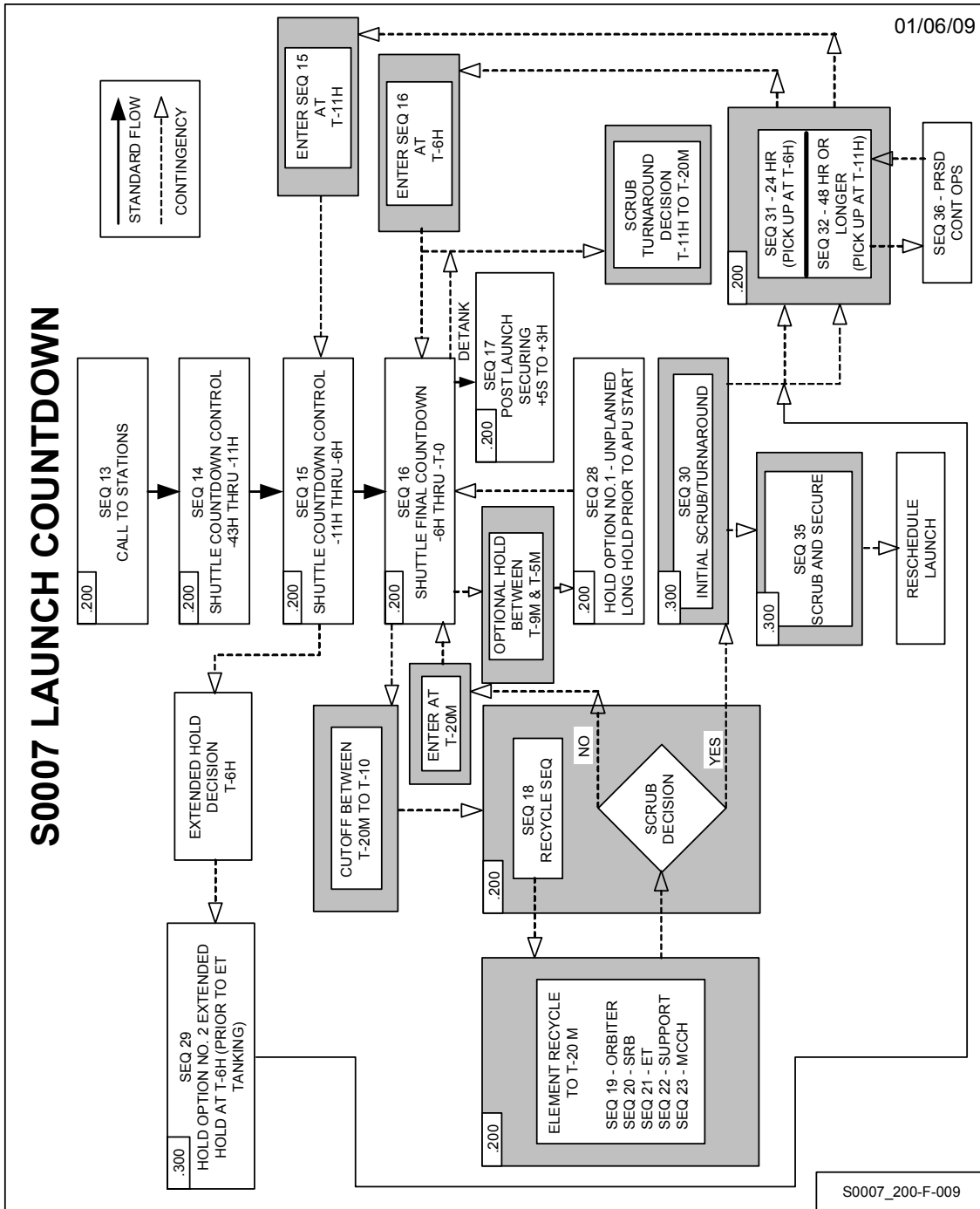
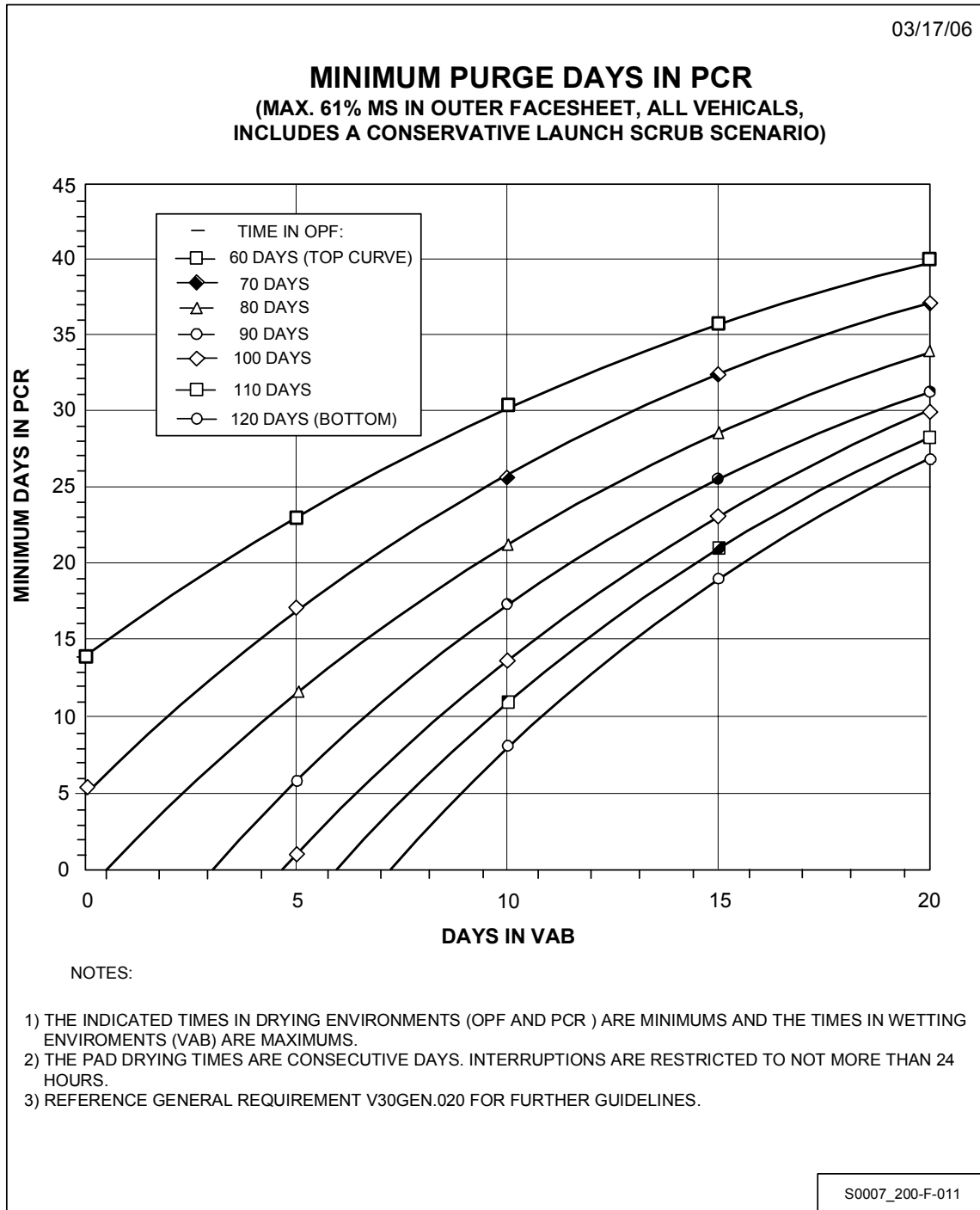
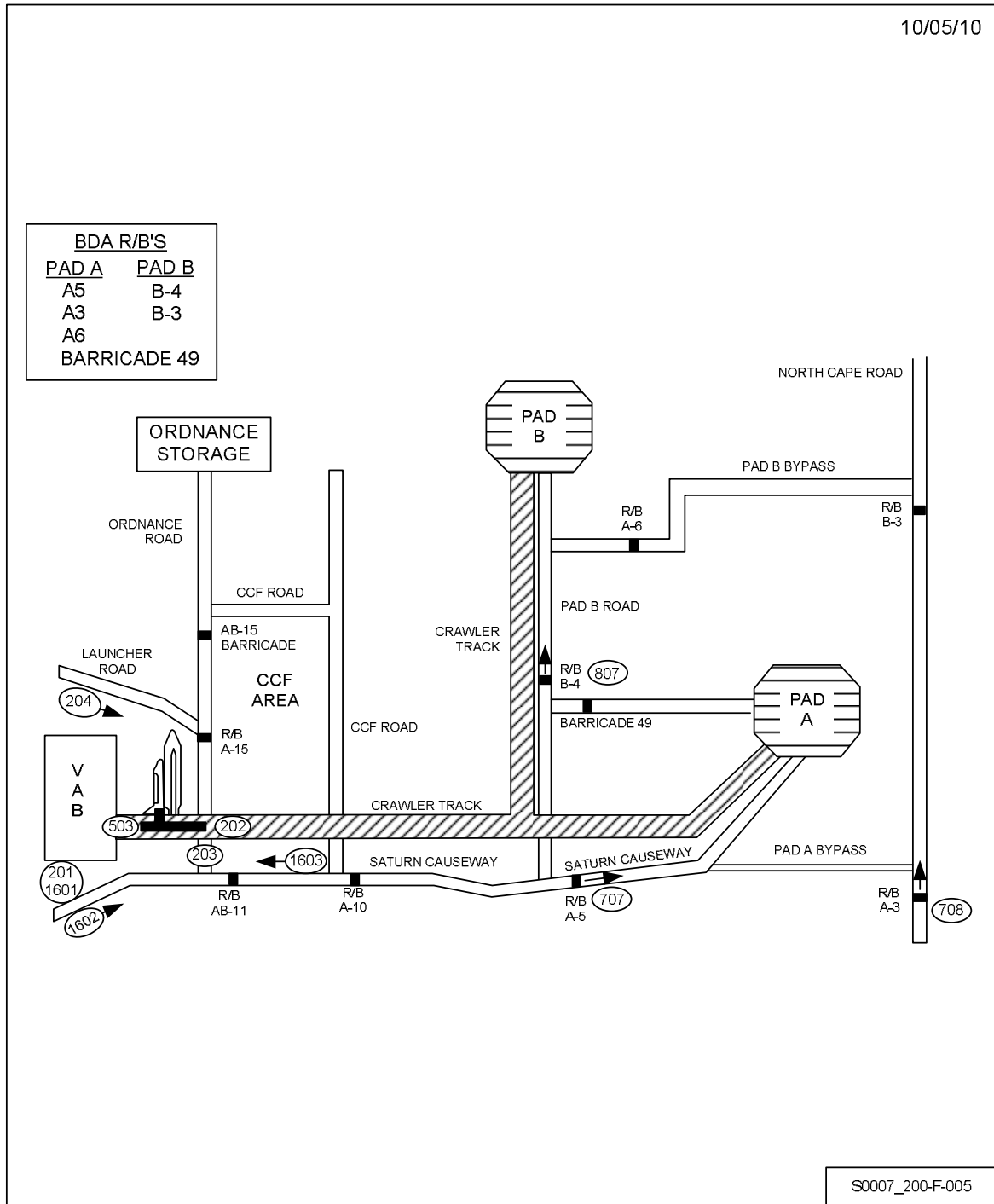


Figure 13-4 - Launch Countdown Flow
(For Reference Only)



**Figure 13-5 - PLBD Moisture Conditioning Requirement for Ground Processing Flow Schedule
 (For Reference Only)**



**Figure 13-6 - LC-39 Control Areas and Roadblocks
 (For Reference Only)**

03-27-09					
KSC PAD A LDA ESSENTIAL PERSONNEL					
ORGANIZATION	FUNCTION	#LDA PERSONNEL	SUPPORT SITE	TIME ON STATION	ACCESS THRU ROADBLOCK
NPSC	SECURITY	2	UCS-3	T-6:00	GATE 6
	SECURITY	1	UCS-10	T-6:00	GATE 6T
	FIRE/RESCUE	14	A/B-5 (PAD A)	T-3:30	A/B-11
ISC	CCF	17	K7-468/CCF	T-3:30	A/B-11
IMCS	KSC-TV	2	UCS-15	T-5:00	A/B-14
	KSC-TV	2	K8-741 (SOUTH BEACH IFLOT)	T-5:00	CAPELIDE
CSR	PHOTO	2	UCS-17	T-2:45	A/B-11
	PHOTO/TV	6	UCS-8*	T-2:45	CAPELIDE
	PHOTO	3	PB DOAMS (UCS-10)	T-2:45	A/B-19
IMCS	PHOTO	2	UCS-11	T-2:45	A/B-11
	PHOTO	3	UCS-15	T-2:45	CAPELIDE
	PHOTO	0	UCS-9	T-2:45	
	PHOTO	3	K8-741 (SOUTH BEACH IFLOT)	T-2:45	CAPELIDE
	PHOTO	3	UCS-16	T-2:45	A/B-18
	PHOTO	3	UCS-8*	T-2:45	CAPELIDE
	PHOTO	0	UCS-3	T-2:45	
	PHOTO	3	UCS-4	T-2:45	CAPELIDE
	NPSC	SECURITY	0	UCS-17	T-6:00
CCAFS	SECURITY	5	SCAPE BASE	T-3:00	HELO
	ETR	2	UCS-8	T-2:45	CAPELIDE
TOTAL		73			
KSC PAD B LDA ESSENTIAL PERSONNEL					
ORGANIZATION	FUNCTION	#LDA PERSONNEL	SUPPORT SITE	TIME ON STATION	ACCESS THRU ROADBLOCK
NPSC	SECURITY	2	UCS-3	T-6:00	GATE 6
	SECURITY	1	UCS-10	T-3:00	A/B-19
	FIRE/RESCUE	14	A/B-4 (PAD B)	T-3:30	A/B-11
ISC	CCF	17	K7-468/CCF	T-3:30	A/B-11
IMCS	KSC-TV	2	K7-89	T-5:00	A/B-11, AB-10
	KSC-TV	2	J8-1821 (NORTH BEACH IFLOT)	T-5:00	A/B-11, AB-10
CSR	PHOTO	1	UCS-5	T-2:45	A/B-19
	PHOTO/TV	6	UCS-8*	T-2:45	CAPELIDE
	PHOTO	3	PB DOAMS (UCS-10)	T-2:45	A/B-19
IMCS	PHOTO	2	UCS-15 (PAD B)	T-2:45	A/B-13
	PHOTO	2	J8-1821 (NORTH BEACH IFLOT)	T-2:45	CAPELIDE
	PHOTO	2	UCS-17	T-2:45	CAPELIDE
	PHOTO	2	UCS-3	T-2:45	CAPELIDE
	PHOTO	2	UCS-5	T-2:45	CAPELIDE
	PHOTO	5	UCS-9	T-2:45	CAPELIDE
	NPSC	SECURITY	5	SCAPE BASE	T-3:00
CCAFS	ETR	2	UCS-8	T-2:45	CAPELIDE
TOTAL		70			
* LOCATED ON CCAFS		NOTE			
<p>THE ESSENTIAL PERSONNEL TABLES ABOVE REFLECT THE PERSONNEL THAT ARE AUTHORIZED TO REMAIN INSIDE THE LDA THROUGH T-0. ALL OTHER PERSONNEL THAT ARE REQUIRED TO WORK INSIDE THE LDA DURING TERMINAL COUNT WILL BE VERIFIED CLEAR OF THE LDA BY THEIR RESPONSIBLE TEST CONDUCTORS AT T-40 MINUTES. THE ESSENTIAL PERSONNEL LIST CAN BE ALTERED IN REAL TIME TO MEET SPECIFIC LAUNCH REQUIREMENTS WITH THE APPROVAL OF THE NTD AND CONCURRENCE FROM SAFETY. ANY CHANGES TO THE ESSENTIAL PERSONNEL LIST MUST BE APPROVED BY THE NTD.</p> <p>AT T-4 HR, RESPONSIBLE TEST CONDUCTORS (STM, JSTC, SRO) WILL FAX A LIST OF THE NAMES OF PERSONNEL WHO WILL BE MANNING THE SITES THROUGH T-0. AT T-40 MINUTES, THE RESPONSIBLE TEST CONDUCTORS WILL VERIFY THAT ALL THEIR PERSONNEL NOT CALLED OUT ON THE ESSENTIAL PERSONNEL LIST ARE CLEAR OF THE LDA AND REPORT IF THERE ARE ANY CHANGES TO THE NAMES PROVIDED AT T-4.</p>					
					S0007_200-F-007

**Figure 13-7 - LDA Manloading
(For Reference Only)**

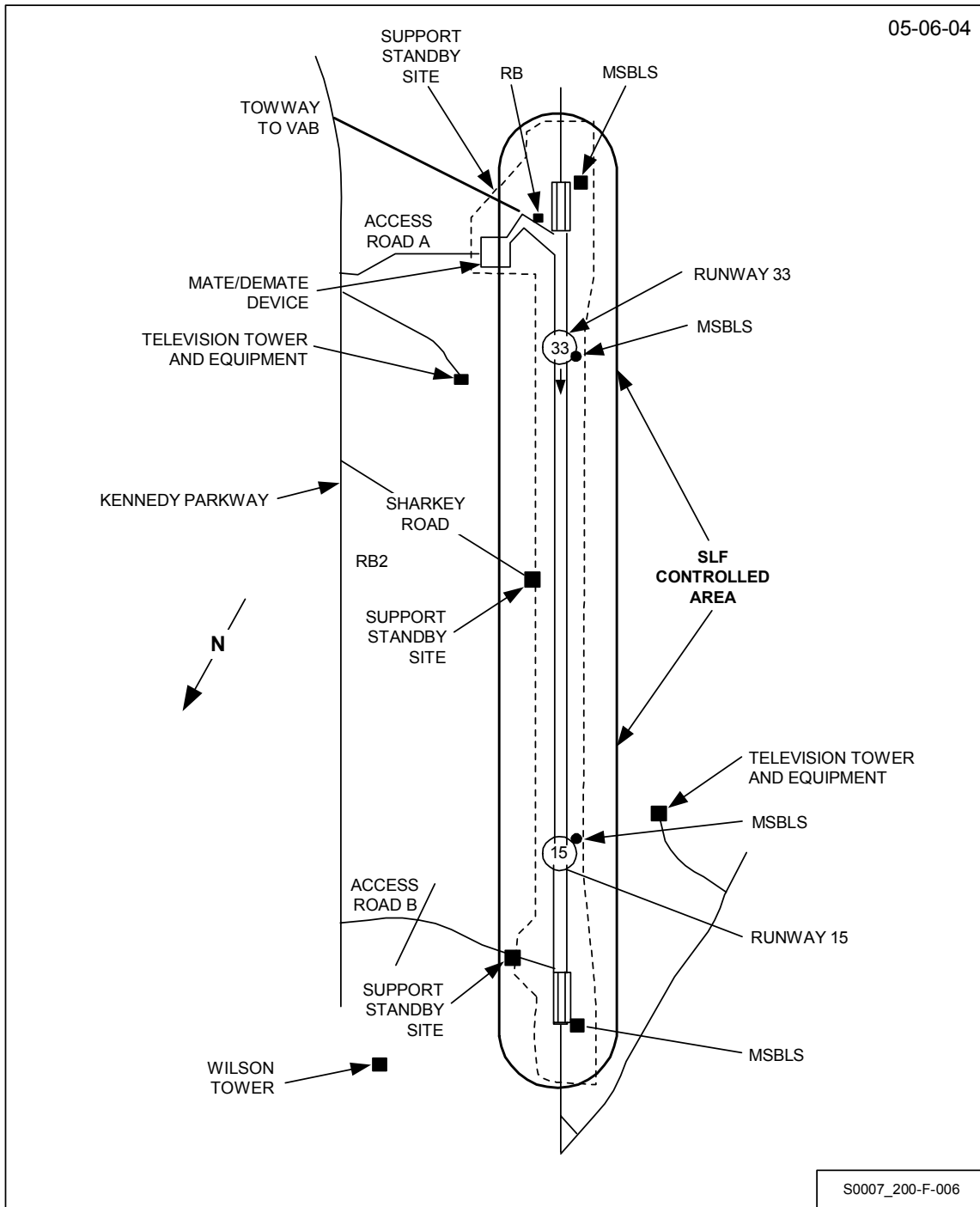
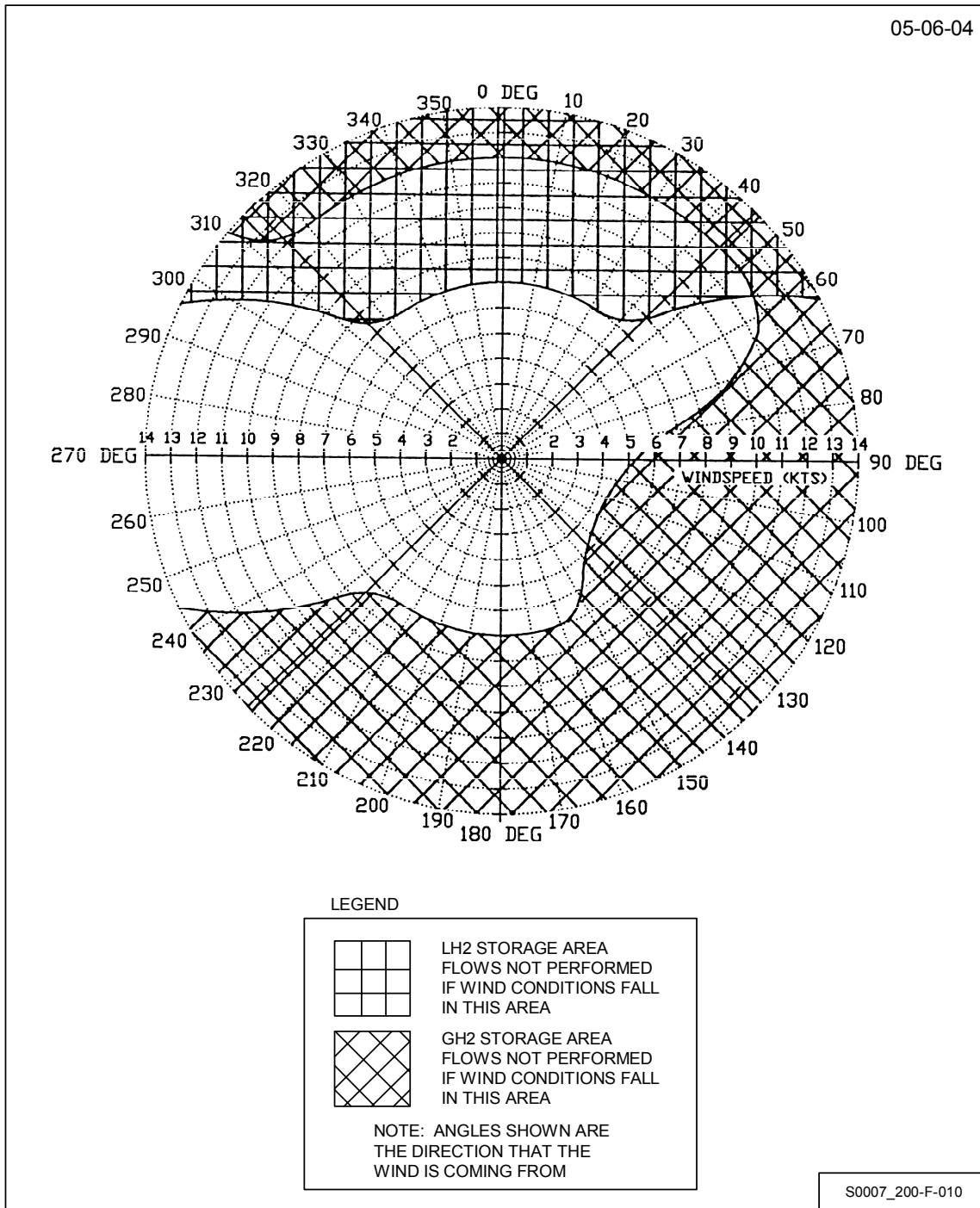


Figure 13-8 - SLF Controlled Area
(For Reference Only)



*Figure 13-9 - Allowable Wind Conditions for Pad LH₂ and GH₂ Washdowns
(For Reference Only)*

Prerequisite Operations Summary

Support Prerequisite Operations Summary Sheet

13-1 **Verify** Operation 1 - Support Preparations complete.

STM: _____

13-2 **Verify** Operation 2 - Launch Status and Hold Time Remaining Clocks complete.

STM: _____

<p>NOTE Prerequisite Operations 3 through 9 are not a constraint to Call to Stations.</p>
--

13-3 **Verify** Operation 3 - PRSD LO₂/LH₂ Tanker Preps complete.

STM: _____

13-4 **Verify** Operation 4 - Activate/Boresite Xenon Lights complete.

STM: _____

13-5 **Verify** Operation 5 - Communication Support complete.

STM: _____

13-6 **Verify** Operation 6 - Pole CES Assembly Lift to 195-ft Level of FSS complete.

(FAC) Qv: _____

Not Performed: _____

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13-7 **Verify** Operation 7 - SRB Flame Deflector Move to Launch Position complete.

STM:_____

13-8 **Verify** Operation 8 - MLP/Pad SS Interface Connections and Water Bag Installation/Fill complete.

STM:_____

13-9 **Verify** Operation 9 - Washdowns complete.

STM:_____

13-10 **CMQC** **STM** **111**

Support Prerequisite Operations Summary Sheet complete.

Qv:_____

***** End of Support Prerequisite Operations Summary Sheet *****

Orbiter Prerequisite Operations Summary Sheet

13-11 **Verify** Operation 200 - Engineering Walkdown complete.

*PAD: _____

13-12 **Verify** Operation 201 - OLSA Wideband Patching for MADS FDM,
FCMS, and SSR1 complete.

LPS: _____

<p>NOTE Prerequisite Operation 202 is not a constraint to Call to Stations.</p>
--

13-13 **Verify** Operation 202 - Cabin Hatch Seal Unit Preps complete.

*PAD: _____

13-14 **Verify** Operation 203 - Wastewater Drain Hose and Potable Water Drain
Hose Assembly complete.

*PAD: _____

13-15 **Verify** Operation 204 - C70-1226 Cabin Pressurization Panel Preps
complete.

*PAD: _____

13-16 **Verify** Operation 205 - S70-1203 Adjust complete.

ECL: _____

13-17 **Verify** Operation 206 - NH3 Evacuation Backfill complete.

Not Performed: _____

T: _____

NOTE

Prerequisite Operations 207 through 217, 220 and 221, 224, 226 through 228 are not a constraint to Call to Stations.

13-18 **Verify** Operation 207 - Launch Accessories System TSM Initial Preps (OMIs V3517.001/V3518.001) complete.

***PAD:** _____

13-19 **Verify** Operation 208 - ECS Local Operations (OMI V1122) complete.

***PAD:** _____

13-20 **Verify** Operation 209 - Preliminary Inspection of Crew Module Interior (Flight Deck/Middeck) complete.

***PAD:** _____

13-21 **Verify** Operation 210 - GSE Purge Verification (OMI V5052) complete.

***PAD:** _____

13-22 **Verify** Operation 211 - Window Cover Removal, Cleaning and Inspection complete.

***PAD:** _____

13-34 **Verify** Operation 225 - I/E Hatch Handle Removal and Lower Carrier Panel Installation complete.

***PAD:** _____

Not Performed: _____

13-35 **Verify** Operation 226 - LPS 19dB Attenuator Removal complete.

LPS: _____

13-36 **Verify** Operation 227 - Multifunction Display Unit Screen Cleaning complete.

T: _____

13-37 **Verify** Operation 228 - INCS FSS GSE System Pre-launch Securing complete.

***PAD:** _____

13-38 **CMQC OTC 132**

Orbiter Prerequisite Operations Summary Sheet complete.

Qv: _____

***** End of Orbiter Prerequisite Operations Summary Sheet *****

ET Prerequisite Operations Summary Sheet

13-39 **Verify** Operation 300 - ET Heater and ET Camera Ground Power Preparations complete.

***PAD:** _____

<p>NOTE Prerequisite Operations 301 through 305 are not a constraint to Call to Stations.</p>
--

13-40 **Verify** Operation 301 - Hydrogen Sample Line Fit Check complete.

***PAD:** _____

Not Performed: _____

13-41 **Verify** Operation 302 - HWS Remote Leak Detector System Pretest Verification complete.

CHGD: _____

Not Performed: _____

13-42 **Verify** Operation 303 - HWS Remote Leak Detector Calibration Gas Cylinder and Valve Checks complete.

***PAD:** _____

Not Performed: _____

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13-43 **Verify** Operation 305 - HGDS Final Setups complete.

***PAD:_____**

Not Performed:_____

13-44 **CMQC TBC 136**

ET Prerequisite Operations Summary Sheet complete.

Qv:_____

***** End of ET Prerequisite Operations Summary Sheet *****

SRB Prerequisite Operations Summary Sheet

13-45 **Verify** Operation 400 - Joint Heater Disconnect Switch Configuration complete.
***PAD:** _____

NOTE Prerequisite Operations 401 through 406 are not a constraint to Call to Stations.
--

13-46 **Verify** Operation 401 - SRB Quality Inspection complete.
***PAD:** _____

13-47 **Verify** Operation 402 - SRB ESP Operations complete.
***PAD:** _____

Not Performed: _____

13-48 **Verify** Operation 403 - ER Circuit Patching complete.
VPDS: _____

Not Performed: _____

13-49 **Verify** Operation 404 - SRB AFT Skirt GN₂ Purge Skid Activation complete.
CHPU: _____

Not Performed: _____

13-50 **Verify** Operation 405 - Cantilever/Jib Hoist Configuration complete.

BHT1: _____

Not Performed: _____

13-51 **IF** performed prior to Call to Stations,

THEN verify Operation 406 - SRB HPU Exhaust Duct Plugs and
Overboard Drain Line Scrubber Removals complete.

BHT1: _____

Not Performed: _____

13-52 **CMQC TBC 136**

SRB Prerequisite Operations Summary Sheet complete.

Qv: _____

***** End of SRB Prerequisite Operations Summary Sheet *****

Integrated Prerequisite Operations Summary Sheet

13-53 **Verify** Operation 500 - Safety/Facility/Fire Walkdown complete.

***PAD:** _____

13-54 **Verify** Operation 501 - Safety Preps complete.

***SCC:** _____

13-55 **Verify** Operation 502 - SYS Integrity and Launch FOD I.D. Walkdown complete.

***PAD:** _____

***** End of Integrated Prerequisite Operations Summary Sheet *****

Call to Stations

13-56
L-1D19H00M
T-43H00M
(HOLDING)

NTD

[SU72007](#)

Perform Shuttle Countdown Call to Stations.

13-57

NTD

PA

All personnel supporting OMI S0007, Shuttle Countdown:

Report on station for test status check.

13-58

NTD

CMQC

232

Report OMI S0007 constraint status.

Qv: _____

13-59

NTD

CMQC

232

Verify Integrated Prerequisite Operation 500 - Safety/Facility/Fire Walkdown, Integrated Prerequisite Operation 501 - Safety Preps, and Integrated Prerequisite Operation 502 - System Integrity and Launch FOD I.D. Walkdown are complete.

Qv: _____

13-60
L-1D19H00M
T-43H00M
(HOLDING)

NTD

STM

232

Verify voice recordings as scheduled for OMI S0007.

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13-61

NTD

232

Annotate voice tape:

Date _____

Time _____ GMT

Vehicle _____

Location _____

STS - _____

13-62 NTD OTC 232
 TBC
 STM
 *SCC
 PTC
 LPS

Perform OMI S0007 Call to Station and report test readiness status.
Following is current revision level and date for effective OMI S0007
books for this Launch.

Verify all your active systems have correct revision available.

S0007.100 (Prerequisite Operations) Rev _____ Date _____

S0007.200 (Control Operations) Rev _____ Date _____

S0007.300 (Recycle Operations) Rev _____ Date _____

S0007.400 (System Operations) Rev _____ Date _____

S0007.500 (Contingency Operations) Rev _____ Date _____

S0007.600 (Emergency Instructions) Rev _____ Date _____

13-63 NTD *SCC 232

Verify all Safety preps complete and ready to support OMI S0007.

13-64 LPS JSDC 127

Verify following:

1. SDC personnel and equipment ready to support OMI S0007.
2. PCGOAL to Launch Firing Room restricted to OMI S0007 data only.

Set Countdown Clock

13-70 **NTD** **CGLS** **232**
L-1D19H00M
T-43H00M
(HOLDING)

Set Countdown Clock to:

_____ days _____ hours _____ minutes _____ seconds,

and commence counting at:

_____ GMT

13-71 **CGLS**

HOME CMD KEY - PRESS
CDTS - ____ : ____ / ____
 DD HHMM SS

XMIT CMD KEY - PRESS

13-72 **CGLS**

HOME CMD KEY - PRESS
CDTC ____ ____ / ____ .000
 HH MM SS

XMIT CMD KEY - PRESS

13-73 **CGLS** **NTD** **232**

The Countdown Clock is at:

_____ days _____ hours _____ minutes _____ seconds and holding

***** End of Set Countdown Clock *****

Automatic RCL Transfer Activation/Monitor Inhibit

13-74 OTC CTPE 132

Perform Automatic RCL RSYS Transfer Activation/Monitor Inhibit.

13-75 CTPE

PF1
SAP27 PF1 - PRESS

13-76 CTPE

IF SAP27 PF1 DISPLAYS "ACT AUTO RCL XFER,"

THEN PERFORM THE FOLLOWING TO ACTIVATE AUTOMATIC
RCL RSYS TRANSFER:

SAP27
PF1 (ACT AUTO RCL XFER) - PRESS

Not Performed:_____

13-77 CTPE

VERIFY SAP27 PF1 DISPLAYS "INH AUTO RCL XFER."

13-78 CTPE

CURSOR CNTL (SAP27 PG-B)
FCL HEADS-UP MONITOR
SELECT INHIBIT
XMIT CURSOR KEY - PRESS

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APPROVED

13-79

CTPE

USING PFK'S ON VAG59 PG-A AT THE INTG CONSOLE,
INHIBIT ECLSS ORBITER EMONS.

13-80

CTPE

OTC

132

Automatic RCL RSYS Transfer Activation/Monitor Inhibit complete.

***** End of Automatic RCL Transfer Activation/Monitor Inhibit *****

Orbiter

13-81 OTC CMQC 132 SU72031

Verify Orbiter Prerequisite Operation Summary Sheet complete for all
constraining operations.

Qv: _____

13-82 OTC 132
L-1D19H00M
T-43H00M
(HOLDING)

All Orbiter personnel supporting OMI S0007, Shuttle Countdown:
Report test readiness status:

- CEPD** LCC FR Electrical Power System Lead,
Reports for QPDS, PPDS
- CISL** LCC FR Orbiter Instrumentation System Lead,
Reports for JISE
- CECL** LCC FR Environmental Control Lead,
Reports for PGCU, Pad Ground Coolant Unit Tech
- CDPS** LCC FR Orbiter Data Processing System Engineer
- *PAD** Pad Leader
- CMQC** LCC FR Quality Control (System Engineer Coverage)
Reports for PQCG - Pad Quality Control General
- CDR** Commander (Orbiter Left Seat)
- CTPE** LCC FR Test Project Engineer

13-83 OTC CEPD 132

Verify following programs inactive, and remain inactive for duration of this OMI:

VWC12 - MEC Critical Command
VWC13 - Ground PICS

13-84 OTC NTD 232

Orbiter ready for OMI S0007.

Payload Programs

13-85 NTD PTC 232

Verify payload systems and personnel are ready to support Launch Countdown operations.

13-86 NTD PTC 232

Verify C1 Console software configured to support Launch Countdown operations.

13-87 PTC SLES 134

IF C1 Console will be active or monitoring at Call to Stations,

THEN

Verify C1 CONSOLE PROGRAMS ARE ACTIVE:

RW0017

RS0002

EA0013

Not Performed: _____

13-88 PTC SLES 134

IF C1 Console will **not** be active or monitoring at Call to Stations,

THEN

Verify C1 CONSOLE PROGRAMS ARE INACTIVE:

RW0017

RS0002

EA0013

Not Performed:_____

13-89 PTC NTD 232

Payload elements and Firing Room C1 Console software ready for OMI S0007.

External Tank/SRB

13-90 TBC CMQC 136 [SU72047](#)
L-1D19H00M
T-43H00M
(HOLDING)

Verify External Tank and SRB Prerequisite Operation Summary Sheets complete for all constraining operations.

Qv:_____

13-91 TBC NTD 232

ET/SRB ready for OMI S0007.

13-93 NTD STM 232

Verify Support Prerequisite Operation Summary Sheet complete for all
constraining operations.

13-94 STM NTD 232

Support ready for OMI S0007.

Safety

13-95 *SCC *PSE NET 105
 *SEC
 JFIR

Report test readiness status on Radio Net 105.

Support: [SEC](#)
Support: [FIRE](#)

13-96 NTD STM 232
 JSTC 111
 JSEP 114

Verify FPL CILC inhibited.

Support: [ELEC](#)

13-97 NTD OTC 232 [SU72007](#)
 TBC
 *SCC
 STM
 LPS
 PTC

Verify ready to proceed with control operations.

NOTE

Holds - (stopping the Countdown Clock) prior to T-20 minutes.

A Hold may be requested by:

LD - Launch Director

OTC - Orbiter Test Conductor

TBC - Tank/Booster Test Conductor

PTC - Payload Test Conductor

PTD - NASA Payload Test Director

CSPE - Shuttle Project Engineer

STM - Support Test Manager

*SCC - Safety Manager LCC

SRO - Superintendent of Range Operations

*FLT - Flight Director

*MIL - MILA

LPS - LPS Test Conductor

Request for a hold will be made to the NASA Test Director (NTD) on OIS Channel 232. The NTD will evaluate the request and will hold the clock at the most advantageous time.

NOTE

SRB OI power up for instrumentation scans will be per OMI S9001.104, Option B only. SRSS vehicle power shall not be activated before T-50 minutes.

*** End of Operation 13 ***

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OPERATION 14 Shuttle Countdown Control Sequence (T-43 Hours through T-11 Hours)

Shop: **NTD / OTC**
Cntrl Rm Console: **ALL**
OPR: **NTD/OTC**
Zone: **NA**
Hazard (Y/N): **Y**
Duration (Hrs): **48.0**

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE

Reference the following two figures for this operation:

Figure 14-1 - Sections P-1, P-2, P-3, P-4 and P-5

Figure 14-2 - Section P-6: Caution and Warning Software Changes (Ascent Switches)

08-09-04

P-1: PANEL F7	DATE/TIME	SEQ	STEP
O2 PRESS	H2 PRESS	FUEL CELL REACT	FUEL CELL STACK TEMP
CABIN ATM	O2 HEATER TEMP	MAIN BUS UNDERVOLT	AC VOLTAGE
FREON LOOP	AV BAY / CABIN AIR	IMU	FWD RCS
H2O LOOP	RGA / ACCEL	AIR DATA	LEFT RCS
SPARE	LEFT RHC	RIGHT / AFT RHC	RIGHT RCS
PAYLOAD WARNING	GPC	FCS SATURATION	LEFT OMS
PAYLOAD CAUTION	PRIMARY C/W	FCS CHANNEL	RIGHT OMS
BACKUP C/W ALARM	APU TEMP	APU OVERSPEED	OMS KIT
			OMS TVC
			MPS
			SPARE
			APU UNDERSPEED
			HYD PRESS

NO LIGHTS ON F7

P-2	ENABLED SEQ STEP									
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-3	INHIBITED SEQ STEP									
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-4	TRIPPED SEQ STEP									
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-5	MEMORY TRIPPED SEQ STEP									
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

S0007_200-F-017

Figure 14-1 - Sections P-1, P-2, P-3, P-4 and P-5
(For Reference Only)

06-16-2011
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14-1 CGLS NTD 232

The Countdown Clock started at _____ GMT.

14-2 NTD PA
232

Launch Countdown is now in progress.

Facility GO₂/GH₂ Support

14-3 STM JBPN 111
T-43H00M

Perform following:

Support: [CPNS](#)

1. **Verify** GH₂ fire and leak detectors are not in Alarm and within acceptable limits at C1 Console.
2. **Verify** Pad A GH₂ auto fire monitor program Off at this time.

Initial High Pressure Gas Panel Operational Check

14-4 NTD STM 232
 STM JBPN 111
T-43H00M

Perform operational check on the following support panels and adjust pressures as specified in system Job Plans (2 hours).

Support: [PNSA](#)

1. 6000/3000 psig regulation panel - HP gas storage battery per [Doc: JOB PLAN M3011.001 \(LI\) Operational Check of Pad Let Down Station](#) .
2. GN₂ primary regulation panel- FSS 175-ft level per [Doc: JOB PLAN M3011.002 \(LI\) Operational Check on Primary GN2 Regulation PNL, S72-0694-02](#)
3. GHe primary regulation panel - FSS 175-ft level per [Doc: JOB PLAN M3131.001 \(LI\) Operational Check on Main GHe Panel, S72-0697-01](#) .
4. Pad GN₂ purge panel - FSS 175-ft level per [Doc: JOB PLAN M3054.001 \(LI\) Operational Check on HAZ and Camera Purge Panel](#) .
5. MLP GN₂ Regulation panel - Compartment 1B per [Doc: JOB PLAN M3197.009 \(LI\) MLP Primary GN2 Panel Contingency Pressure Adjustment](#)
6. MLP GN₂ Tertiary panel - Compartment 1B per [Doc: JOB PLAN M3197.010 \(LI\) MLP GN2 Tertiary Panel Contingency Pressure Adjustment](#)
7. MLP GN₂ purge panel - Compartment 44A per [Doc: JOB PLAN M3197.003 \(LI\) Operational Check on MLP Purge Panel S72-1107-08](#) .

Pad and MLP Camera Setup

14-10	STM	GYCC	111	SU72063
	GYCC	JPHO	117	SU72416

Perform film camera setup on MLP/FSS and Pad perimeter (to be completed prior to T-9 hours 15 minutes).

Support: [PHOT](#)

Activate Pad Warning Lights

14-11	NTD	*SCC	232	SU72075
	*SCC	*PSE	NET 105	

T-43H00M

Set Pad warning lights at B, E and F Roads, high pressure gas battery and PTCR N&S stairwell to FLASHING AMBER.

14-12	*PSE	*SCC	NET 105	SU72075
	*SCC	NTD	232	

Warning lights at B, E and F Roads, high pressure gas battery and PTCR N&S stairwell are FLASHING AMBER.

Inhibit Admin Paging

14-13	NTD	STM	232	SU72067
	STM	GYCC	111	
	GYCC	JYCD	117	

T-43H00M

Inhibit Admin Paging to Pad A.

Support: [OISD](#)

Intercenter Voice Checks

NOTE

The next two steps require access to Firing Room Consoles.

Perform the next two steps per bar chart.

14-14	NTD	STM	232	SU72201
	STM	GYCC	111	
		*MIL		
T-43H00M	GYCC	GYCJ	117	

Perform intercenter end-to-end voice checks per OMI [D3012](#) for following locations (8 hours):

Support: [VCE](#)

1. CCAS (tone and voice)
2. MILA
3. JSC
4. MSFC-HOSC
5. DFRC
6. TAL sites (tone and voice)
7. SLF OIS-Q
8. GSFC

14-15	NTD	STM	232
	STM	GYCC	111
	GYCC	GYAT	117

Perform end-to-end voice checks per MWO _____ for KSC/ROCC Hot Dial voice checks (8 hours).

Support: [ATEL](#)

Configure NMAJORTEST Pseudo

14-16 LPS

Issue NMAJORTEST pseudo to value of 0007 hexadecimal (7 decimal).

MMU Compare Tape/File Check-In

14-17 OTC CVFS 132 SU72033
LPS

T-43H00M

Perform OMI S0007.100, Operation 256 - Memory Compare Tape/File Check-In (15 minutes).

OTV Camera Usage

14-18 NTD OTC 232
TBC
STM
*SCC
STM JYVO 138

OTV camera usage assignments for Countdown are per Figure 13-1, (pages 1 thru 3).

Support: [OTV](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-21 QBSE STM NET 104

[SU72126](#)

Report tank depths.
Record:

East tank depth _____

West tank depth _____

Perc pond Depth _____

Support: [STSA](#)

***** End of Pump Holding Tank *****

14-22 STM GBHE NET 104

Install all Pad surface grating.

Report completion.

Support: [HESA](#)

14-26	NTD	OTC	232
		STM	
		*SCC	
		NPM	
	OTC	*PAD	132
	*SCC	*PSE	NET 105
	STM	JSTC	111
		PSTM	NET 104
	JSTC	JFIR	114

Have walkdown participants meet with Pad Leader at FSS elevators on Pad surface at this time.

Support: [FI](#)

PARTICIPANTS:

Pad Management Rep
GSS Facility Site Coordinator
SPOC Safety
Launch Operations Quality Control (QC)
NASA Pad Manager (NPM)
Fire Inspector
Site Test Coordinator (TTL)

14-27 NTD PA

Attention on Pad A:

All personnel supporting Safety/Facility/Fire Walkdown meet with Pad Leader at FSS elevators on Pad surface at this time.

14-31 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

14-32 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - CLEAR, RELEASE
MEMORY SW - READ, HOLD

REPORT MATRIX LIGHTS ON

RECORD IN FIGURE 14-1, SECTION P-4

14-33 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

14-34 CISL CDR 145

PANEL F7
REPORT ANNUNCIATOR ON LIGHTS

RECORD IN FIGURE 14-1 SECTION P-1

14-35 CISL 145

Perform Caution and Warning software updates to match the C&W Status Log previously recorded (Ref. V9001.106 Operations).

14-36 CISL OTC 132

SU72B51

Caution and Warning status complete.

***** End of Caution and Warning Status *****

MEC Critical Command Status

14-40 OTC CEPD 132 [SU72013](#)

Verify MEC Critical Commands disabled.

14-41 CEPD

CRT (SWC02)

MEC CRIT CMD DSBL

14-42 CEPD OTC 132

MEC Critical Commands disabled.

14-43 OTC CEPD 132
 NTD 232
NTD *SCC
 TBC

MEC Critical Commands disabled and shall remain disabled for remainder of test.

14-44 CDPS OTC 132 [SU72010](#)

OMI S0007.100, Operation 272 - DPS Launch Support Configuration, complete.

14-45 CVFS OTC 132 [SU72033](#)

OMI S0007.100, Operation 256 - Memory Compare Tape/File Check-in complete.

Main Bus Power Supply Transfer Complete

14-46 CEPD OTC 132 [SU72035](#)

Orbiter Main Bus power supply transfer to local sense completed.

NOTE

Do not perform BFC (Backup Flight Controller) test until Main Bus power supply transfer is complete.

BFC Test

14-47 **OTC** **NTD** **232** [SU72002](#)
 NTD **TBC**

PTC
 LPS
 OTC **ALL** **132**
T-42H45M

DPS will be configured to OPS 0 Downlist Format 20 with MDMs FF1, FF2 and FF3 powered Off. LDB silence is required during test (approx 1 hour). GMT and MET update will be performed upon test completion.

14-48 **OTC** **CDPS** **132** [SU72016](#)
T-42H45M

Perform Orbiter Backup Flight Controller Test per OMI S0007.400 (Operation 49, Option 1) (55 minutes).

14-49 **TBC** ***PAD** **136** [SU72052](#)
 ***PAD** **PLO4**
T-42H30M

LOX Dump Basin

A253 (vent line S/O) VLV - Open (CCW)
Install chain and lock.
Report completion.

T: _____

Pre-Flight Volts Adjust

14-50
T-42H30M

OTC CEPD 132

SU72037

Adjust Pre-Flight voltage to reduce Pre-Flight to ESS Bus load

14-51

CEPD

CRT (VWC17)
PF1 (1D500) ITCU VOLTAGE _____
PF1 (1D500) ITCU CURRENT _____
PF2 (1D600) ITCU VOLTAGE _____
PF2 (1D600) ITCU CURRENT _____

14-52

CEPD

IF PRE-FLIGHT VOLTAGES ARE NOT BETWEEN 29.0 AND
29.5 VDC,

THEN PERFORM:

CURSOR CNTL (VWC17)
USING UP/DOWN ADJUST CURSORS,
ADJUST PF1 AND PF2 ITCU VOLTS TO BETWEEN 29.0 AND
29.5 VDC

CRT (VWC17)
ADJUSTED VOLTS AND AMPS
PF1 (1D500) ITCU VOLTAGE _____
PF1 (1D500) ITCU CURRENT _____
PF2 (1D600) ITCU VOLTAGE _____
PF2 (1D600) ITCU CURRENT _____

Not Performed: _____

1D500 Battery Backup Enable

14-53 CEPD QPDS 151

IF LISTED CB'S ARE NOT IN INDICATED POSITION,
THEN PERFORM:

PANEL L24 (COMPT 9A)
 CKT 17
 CB 17 - ON
 CKT 25
 CB 25 - ON

Not Performed:_____

T:_____

14-54 CEPD QPDS 151

RACK 6840 (COMPT 9A)
BATTERY CHARGER (PANEL A3)
 MAIN CB - ON

CONTROL AND MONITOR PANEL (A4)
 INTERRUPT/NORMAL SW - NORMAL

T:_____

14-55 CEPD QPDS

IF equalize light on battery charger is lit,
THEN toggle equalize/float switch. **Verify** equalize light is Off.

Not Performed:_____

T:_____

14-56 CEPD QPDS

IF Hi-Tap voltage is greater than 30.0 VDC (Hi-Tap meter),

THEN slowly adjust float control on battery charger for a reading of
between 27.5 to 29.0 VDC.

Not Performed: _____

T: _____

14-57 CEPD

CRT (VWC16)
PREFLT ITCU 1 VOLTAGE _____ VDC BD

CRT (VWC01)
BATTERY BACKUP
1D500 HI-TP V _____ VDC BD

1D600 Battery Backup Enable

14-58 CEPD QPDS 151

IF LISTED CB'S ARE NOT IN INDICATED POSITION,
THEN PERFORM:

PANEL L24 (COMPT 9A)
 CKT 19
 CB 19 - ON
 CKT 26
 CB 26 - ON

Not Performed:_____

T:_____

14-59 CEPD QPDS 151

RACK 6841 (COMPT 9A)
BATTERY CHARGER (PANEL A3)
 MAIN CB - ON

CONTROL AND MONITOR PANEL (A4)
 INTERRUPT/NORMAL SW - NORMAL

T:_____

14-60 CEPD QPDS

IF equalize light on battery charger is lit,

THEN toggle equalize/float switch. **Verify** equalize light is Off.

Not Performed:_____

T:_____

14-61 CEPD QPDS

IF Hi-Tap voltage is greater than 30.0 VDC (Hi-Tap meter),

THEN slowly adjust float control on battery charger for a reading of
between 27.5 to 29.0 VDC.

Not Performed: _____

T: _____

14-62 CEPD

CRT (VWC16)
PREFLT ITCU 2 VOLTAGE _____ VDC BD

CRT (VWC01)
BATTERY BACKUP
1D600 HI-TP V _____ VDC BD

14-63 CEPD OTC 132

Pre-Flight Battery Backup Enable complete.

14-70 STM PA

Attention on Pad A:

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around MPPU for lift from zero level to Pad surface.

14-71 **GBHE STM NET 104**
 STM NTD 232
 NTD *SCC

25-ft control area has been established around MPPU for lift from zero level to Pad surface. Barriers and danger signs posted.

Request Safety concurrence to proceed.

14-72 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to proceed with MPPU lifting operations.

14-73 STM GBHE NET 104

Brief personnel on the hazards and applicable Emergency Operations.

Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

The suspended load may fall during hoisting, rotation, raising or lowering.
Personnel impacted by falling or moving hardware may suffer serious injury and/or loss of life.

Wear **hard hats** and **safety shoes/boots** .

WCLH003 09-11-2009

NOTE

Hazardous steps follow due to lifting operations.

14-74

GBHE

Perform the following:

1. **Remove** MPPU (S83-0804-05) and CPU (S70-1239) from zero level MLP.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE

Hazardous operations complete.

14-75

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open MPPU control area for controlled work.

Support: [HESA](#)

14-76

*SCC	NTD	232
NTD	STM	
STM	GBHE	NET 104

You have Safety concurrence to open MPPU control area for controlled work. **Remove** barriers and danger signs.

Support: [HESA](#)

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14-77 GBHE STM NET 104 [SU72A90](#)
STM NTD
NTD *SCC

Barriers and safety danger signs have been removed.

Support: [HESA](#)

***** End of Mini Purge Equipment Transport and Lift *****

LPS Console Setups

14-78
T-42H00M

NTD LPS 232

[SU72071](#)

Perform Master Console setups.

<p>NOTE</p>

<p>Next step takes approx 10 minutes to complete.</p>

14-79

LPS C4MC

Perform \$FEPCPR, Reinit and demand update all active FEPS.
Term \$FEPCPR at completion of demand update.

14-80

LPS C4MC

Verify active programs at Master Console:

\$HWMON (TCB1)
AA008/AWP02 (TCB2)
AA009/AWP01 (TCB4)

14-81

LPS C4MC

Verify via AWP02 (PG-B) Fote Dual Power Monitors indicate On.

BFS Load Dump/Compare

14-94	OTC	CDPS CVFS LPS	132	SU72006
-------	-----	---------------------	-----	---------

Load, dump and compare BFS program in GPC 5 per "DPS Systems"
(OMI S0007.400, Operation 49, Options 4 and 5) on Channel 152
(45 minutes).

14-95	OTC	CVFS LPS	132
-------	-----	-------------	-----

IF BFS Dump and Compare (alternate method) using LPS retrieval
method is required due to a DAP140 anomaly,

THEN perform BFS Retrieval and Compare using LPS per "DPS
Systems" (OMI S0007.400, Operation 49, Option 7) on Channel 152
(30 minutes).

Not Performed: _____

FRCS UTPA Removal, Flight Rain Cover Installation and Vernier Thruster Cover Removal

14-96 OTC CMQC 132

Verify S0007.100 Orbiter Prerequisite Operation 216 complete.

Qv: _____

14-97 OTC *PAD 132
 *PAD OMTO

SU72290

Perform OMI S0007.100, Operation 270 - Part A - FRCS UTPA Removal, Flight Rain Cover Installation and Vernier Thruster Cover Removal.

FSS TVS Power Up

NOTE
Perform this option if FSS TVS is not already active.

FSS TVS Power Up Not Performed: _____

14-98	OMTO	*PAD	132
		OTC	
	OTC	NTD	232
	NTD	*SCC	

Ready to proceed with FSS TVS power up for FRCS UTPA and Vernier Cover removal and Tyvek rain cover installation.

14-99	OMTO	*PAD	132	SU72B23
		OTC		
	OTC	NTD	232	
	NTD	*SCC		

Request SPOC Safety concurrence to establish clears on the FSS 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

14-107 TTL

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-108	OMTO	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

CSR-640

Nonessential personnel have been cleared from 10 ft spherical control areas for FRCS thruster cover removals. Essential personnel are properly attired in rubber aprons, goggles and hyper compatible gloves.

Request Safety concurrence to proceed.

TTL: _____

14-109	*SCC	NTD	232
	NTD	OTC	
	OTC	*PAD	132
		OMTO	

You have SPOC Safety concurrence to proceed with FRCS Thruster Purge Deactivation and UTPA removal (2 Hrs).

14-110 OTC OMTO 132

Brief personnel on hazards present and applicable Emergency Instructions.
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Fuel (MMH) vapor is flammable. Fuel is toxic, an irritant and may cause cancer. Oxidizer (NO₂) vapor is a severe irritant.

Exposure to eyes, skin and respiratory system may cause severe irritation and/or permanent damage. The Exposure Limit is 1.0 PPM oxidizer and 10 PPB fuel.

Wear **rubber aprons** and **industrial goggles** .

Wear **hyper compatible polyvinyl chloride (PVC) Pylox gloves** .

Wear a **face shield** over goggles when work is at eye level or above.

WT003 12-06-2005

14-111	OMTO	*PAD	132	SU72B21
		OTC		SU72B22
	OTC	NTD	232	
	NTD	*SCC		

FRCS Thruster Purge Deactivation and UTPA removal complete. Toxic checks of all FRCS Primary Thrusters are acceptable. Ready to proceed with FRCS Vernier Thruster Cover Removals.

TTL: _____

***** End of FRCS Thruster Purge Deactivation and UTPA Removal *****

14-119 OTC OMTO 132

Brief personnel on hazards present and applicable Emergency Instructions.
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Oxidizer (NO₂) vapor is a severe irritant.
Exposure may cause eye, skin and respiratory system irritation and/or permanent damage. The Exposure Limit is 1.0 PPM.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **industrial goggles** .
Wear a **face shield** over goggles when work is at eye level or above.

WT001 12-06-2005

WARNING

Fuel (MMH/N₂H₄) vapor is toxic, flammable and may cause cancer.
Exposure may cause permanent damage to the skin, eyes and lungs. The Exposure Limit is 1000 PPB.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **supplied air respirators** .

WT005 07-19-2007

14-120 **OMTO** **OTC** **132**
 OTC **NTD** **232**
 NTD ***SCC**

CSR-640

Orbiter FRCS Vernier thruster cover removal complete. Toxic checks of all FRCS thrusters were acceptable.

Request Safety concurrence to open control areas for controlled work.

TTL: _____

14-121	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132

You have Safety concurrence to open FRCS thruster control area for controlled work.

14-122	OMTO	OTC	132	SU72B24
	OTC	NTD	232	
	NTD	*SCC		

Barriers and danger signs are removed and hazardous operations control area is open for controlled work.

NOTE FRCS hazardous operations complete.
--

***** End of FRCS Vernier Thruster Cover Removals *****

14-123	OMTO	OTC	132	SU72302
		*PAD		
	OTC	NTD	232	
	NTD	STM		
	STM	JSTC	111	
	JSTC	*SCB	NET 104	

SAR requirement for FRCS Thruster Cover Configuration complete. Life Support may be released at this time.

Support: [LS](#)

FSS TVS Power Down

NOTE

Perform this option to power down the FSS TVS if directed by Test Team.

FSS TVS Power Down Not Performed: _____

14-124	OMTO	OTC	132	SU72B25
		*PAD		
	OTC	NTD	232	
	NTD	*SCC		

[CSR-640](#)

Request SPOC Safety concurrence to power down the FSS _____ (Oxid/Fuel) Scrubber and, based on acceptable TVCs, terminate clears on FSS 275-ft level and above including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA.

14-125	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132
		*PAD	

You have SPOC Safety concurrence to power down the FSS _____ (Oxid/Fuel) Scrubber and, if TVCs are acceptable (0.0 PPM), terminate clears on 275-ft level and above including the GVA at a point 8 ft from hood and FSS Side 4 Stairwell leading to GVA.

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OMI S0007.200 A23
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14-126	OMTO	OTC *PAD	132
	OTC NTD	NTD *SCC	232

CSR-640

Toxic vapor checks on the 275-ft level including GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA complete.

Verify acceptable (0.0 PPM) levels and control area open for controlled work..

TTL: _____

***** End of FSS TVS Power Down *****

NOTE

FRCS TVS hazardous operations complete.

14-127	OTC	OMTO *PAD
--------	-----	--------------

Perform FRCS Tyvek Launch Cover Installation and Engineering Inspection per OMI S0007.100, Operation 270, Part A (V6029.204).

Configure Cooling

14-128 OTC CECL 132 [SU72044](#)

Perform GSE/Orbiter Cooling Reconfiguration

14-129 CECL CDR 143

PANEL ML86B
ROW B
 MN A
 WASTE H2O TK 1 VLV CB - CLOSE
 MN B
 WASTE H2O TK 1 DRAIN CB - CLOSE

14-130 CECL CDR 143

PANEL ML31C
WASTE H2O
 TK 1 VLV SW - OPEN (15 SEC MAX) UNTIL TB OP,
 RELEASE
 TK 1 DRAIN VLV SW - OPEN (15 SEC MAX) UNTIL
 TB OP, RELEASE

14-131 CECL

CRT (VAG31, PG-B)
VERIFY
TK 1 VLV
POP ON
TK 1 DRAIN
POP ON

14-132 CECL OTC 132
 OTC CTPE

Terminate VAG60 at BKUP Console.

14-133

CTPE

BKUP CONSOLE
PFP (VAG60)
PFPK1 (VAG60 TERMINATE) - PRESS

14-134

CECL

IF VAG60 IS ACTIVE AND IN AUTO MODE,

THEN

VAG60
AUTO
XMIT CURSOR KEY - PRESS

VERIFY VAG60 IN MANUAL MODE

Not Performed: _____

14-135

CECL

IF VAG60 IS NOT ACTIVE AT C5 CONSOLE,

THEN

CONSOLE KYBD
VAG60
PERFORM PGM KEY - PRESS

CURSOR CNTL (VAG60 PG-B)
SELECT CONSOLE LOCATION C5
XMIT CURSOR KEY - PRESS

Not Performed: _____

14-136

CECL

CRT (VAG59 PG-B)

FREON LOOP 1

ACCUM QTY _____ PCT 25 TO 37

PUMP IN PR _____ PSIA 92 TO 117

FREON LOOP 2

ACCUM QTY _____ PCT 25 TO 37

PUMP IN PR _____ PSIA 77 TO 100

OMRSD [V63A00.031-1R](#)

14-137

CECL

IF payload has unique temp requirements,

THEN **maintain** RAD IN temp less than following temperatures when in RAD flow (excursions above maximum specified value acceptable providing excursions do not exceed 45 minutes in 3 hours).

- OMRS_ _____ (____ deg F)
- OMRS_ _____ (____ deg F)
- OMRS_ _____ (____ deg F)
- OMRS_ _____ (____ deg F)
- OMRS_ _____ (____ deg F)
- OMRS_ _____ (____ deg F)

ECLSS Engineer _____

Not Performed: _____

14-138

CECL

IF payload has unique temperature requirements that require Radiator Flow Control Assy (RFCA) to remain in Bypass (BYP) configuration,

THEN **maintain** RFCA in BYP for duration of Countdown. RAD flow is acceptable during the RAD flow check (See V63AD0.071), provided check does not exceed 30 minutes.

Record applicable OMRS:

- OMRS_ _____
- OMRS_ _____
- OMRS_ _____

ECLSS Engineer _____

Date _____

Not Performed: _____

14-139 CECL OTC 132
 OTC CTPE
 CISL
 CDR

The following step will reconfigure cooling.
 Console and Master Alarms will be generated.

14-140
 T-41H15M

CECL

Perform GSE/Orbiter Cooling Activation or Reconfiguration per following table per OMI [V9001.105](#) / [S9001.105](#) on Channel 143 (30 minutes).

Configuration Table	
GcUs as required	
FCL 1 Pump A (Cabin SW)	
FCL 2 Pump A (Cabin SW)	
WCL 1 Pump A (Cabin SW)	
AV Bay 1 Fan A (Cabin SW)	
AV Bay 2 Fan B (Cabin SW)	
AV Bay 3 Fan A (Cabin SW)	
Humidity Sep A	
Cabin Fan B (Cabin SW)	
IMU Fan A (Cabin SW)	
<table border="1"> <tr> <td> <p>NOTE</p> <p>Allow Fan A to run independently for 2 minutes minimum prior to performing Fan C - On to verify ability to support Countdown operations.</p> </td> </tr> </table>	<p>NOTE</p> <p>Allow Fan A to run independently for 2 minutes minimum prior to performing Fan C - On to verify ability to support Countdown operations.</p>
<p>NOTE</p> <p>Allow Fan A to run independently for 2 minutes minimum prior to performing Fan C - On to verify ability to support Countdown operations.</p>	
IMU Fan C (Cabin SW)	

14-141

CECL

CURSOR CNTL (VAG60)
 AUTO
 XMIT CURSOR KEY - PRESS

CRT
VERIFY VAG60 IN AUTO MODE

14-142 CECL

CONSOLE KYBD
SET V61K2866NL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

SET N61IV011E OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

14-143 CECL OTC 132 SU72044

GSE/Orbiter cooling activation/reconfiguration complete.

***** End of Configure Cooling *****

14-144 CFCP OTC 132 SU72040
OTC NTD 232 SU72072
NTD STM
STM WLTK

T-41H00M

Orbiter Potable (L-3 Day) Water Samples and Tank A Quantity Adjust complete (OMI S0007.400, Operation 74). Samples en route to Wiltech for analysis (phone 861-2255).

Waste Tank Quantity Adjust (Contingency)

NOTE

Access to WCS is required to support waste tank quantity adjust.

14-145 OTC CFCP 132 SU72045
T-41H00M

IF waste tank quantity adjust is required as part of Countdown,

THEN perform Waste Tank Quantity Adjust per OMI S0007.400 (Operation 75), to ensure enough ullage to accept humidity separator water to meet targeted lift-off quantity for this mission (1 hour).

OMRSR [V62AM0.020-B-1R](#)

Not Performed: _____

TPS Debris Walkdown - Complete

14-146	*PAD	OTC	132	SU72119
	OTC	NTD	232	SU72A91

T-32H00M

OMI S0007.100 Operation 551 - Initial TPS Engineering Debris Walkdown complete.

ET Bipod Heater Verification

14-147	TBC	CPWR	136	SU72048
--------	-----	------	-----	-------------------------

T-41H00M

Perform ET Bipod Heater Verification per OMI S0007.400 (Operation 72) (15 minutes).

BFS GPC Load/Dump and Compare - Complete

14-148	CVFS	OTC	132	SU72006
--------	------	-----	-----	-------------------------

T-40H40M

BFS GPC Load/Dump and Compare complete (OMI S0007.400, Operation 49).

OMRSR [V72CA0.051-B](#)
OMRSR [V72CA0.051-C](#)
OMRSR [V70CA0.010-C-1](#)

TFL/PDI Loads for Flight

14-149	OTC NTD	NTD TBC PTC LPS	232	SU72014
--------	------------	--------------------------	-----	---------

Brief loss of OI PCM downlink/downlist data will be occurring during TFL loads. Downlist frame count errors may occur.

14-150	OTC NTD	NTD JRPS	232	
--------	------------	-------------	-----	--

T-40H25M

Support CISL on OIS Channel 152 for OMI S0007.400, Operation 49.

14-151	OTC	CDPS CISL JISE CDR	132	
--------	-----	-----------------------------	-----	--

Perform Final TFL/PDI Loads for Flight per OMI S0007.400 (Operation 49, Option 8) on Channel 152 (30 minutes).

Waste Tank Quantity Adjust - Complete (Contingency)

14-152	CFCP	OTC	132	SU72045
--------	------	-----	-----	---------

T-40H00M

IF Waste Tank Quantity Adjust performed as part of Countdown,

THEN report Waste Tank Quantity Adjust complete (OMI S0007.400, Operation 75).

Not Performed: _____

Transport COMSEC Unit to Orbiter

NOTE
Do not perform this option if COMSEC load already performed.

Transport COMSEC Unit to Orbiter Not Performed: _____

NOTE
Do not zeroize KYK-26 units unless required to prohibit compromising loaded units. (Zeroizing may be accomplished by holding device selector (mode) switch to Z ALL position and press INITIATE/INCREMENT pushbutton switch).

14-153	OTC	NTD	232	SU72136
	NTD	STM		
	STM	JYVJ		

T-40H00M

Request COMSEC personnel transport loaded KYK-26 unit from LCC to Orbiter middeck at Pad in secure transportation case. Personnel to report to Pad leader for Crew Compartment entry. If GPS encryption load required, transport encryption key (phone 7-7670 / 7-7679 / 7-7687).

14-154	OTC	*PAD	132
	*PAD	CDR	

COMSEC personnel are bringing COMSEC unit to Pad and will require Crew Compartment entry.

Verify certified SCO will be in Crew Compartment for unit turnover and loading.

***** End of Transport COMSEC Unit to Orbiter *****

TFL/PDI Loads for Flight - Complete

14-155 CDPS OTC 132 SU72014
T-39H55M

Final TFL/PDI Loads for Flight complete (OMI S0007.400).

OMRSR [S00FA0.301-1R](#)

NOTE

BFC Test must be complete prior to performing ET O/I Power Up.

ET O/I Power Up

NOTE

Do not perform this option if ET O/I already powered up.

ET O/I Power Up Not Performed: _____

14-156 NTD TBC 232 SU72053
T-41H45M

Proceed with ET O/I Power up.

14-157 TBC CMPS 136

Perform ET O/I Power up.

14-158 CMPS

IF SAE12 NOT ACTIVE:

THEN

CONSOLE KYBD

SAE12

PERF PGM KEY - PRESS

Not Performed: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-159

CMPL

IF SAE02 NOT ACTIVE:

THEN

CONSOLE KYBD
SAE02
PERF PGM KEY - PRESS

Not Performed: _____

14-160

CMPS

PFP (SAE12)
PFPK1 ET PT SENS MENU - PRESS
PFPK4 TURN ON ET PWR - PRESS

CRT
VERIFY ET OI PWR ON

14-161

CMPL

IF NO LONGER REQUIRED,

THEN

SAE02 TERMINATE
PFK15 PRESS TWICE

Not Performed: _____

14-162

CMPS

IF NO LONGER REQUIRED,

THEN

SAE12 TERMINATE
PFK15 PRESS TWICE

Not Performed: _____

**06-16-2011
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**OMI S0007.200 A23
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14-163	CMPS	TBC	136	SU72053
	TBC	NTD	232	

T-41H45M

ET O/I Power Up complete.

***** End of ET O/I Power Up *****

Downlink Format Change (Optional)

NOTE

Perform this option to activate the Launch Downlink Format if Launch Downlink Format is not 129.

Downlink Format Change (Optional) Not Performed: _____

14-164	OTC	NTD	232	SU72017
	NTD	TBC		SU72004
		LPS		
		PTC		

Launch Downlink Format _____ will be activated.

14-165	OTC	CDPS	132	
--------	-----	------	-----	--

Activate Launch Downlink Format per OMI [V9001VL2](#) (Special Instructions).

14-166		CDPS		
--------	--	------	--	--

CRT (VAS59 PG-B)

VERIFY LAUNCH OI FMT ACTIVE

14-167	CDPS	OTC	132	
	OTC	NTD	232	
	NTD	PTC		

Launch Downlink Format _____ activated.

***** End of Downlink Format Change (Optional) *****

14-168 OTC CMQC 132

OMI S0007.100, Orbiter Prerequisite Operation 227 - Multifunction Display Unit Screen Cleaning complete.

HUD Power Up and Self Test

14-169 OTC CDPS 132 [SU72024](#)
T-39H50M

Perform HUD Power Up and Self Test per OMI S0007.400 (Operation 49, Option 9) (15 minutes).

Remove Portable OIS Units

NOTE

Perform next step when SRB ESP Ops complete.

NOTE

IMCS/GSS Technicians meet at base of FSS elevator.

14-170 NTD STM 232 [SU72062](#)
 STM GYCC 111
 JBPB
T-39H30M GYCC JYCD 117

IMCS **remove** four of the six portable OIS units from zero level of MLP, inboard and outboard of SRB flame holes. (One unit to remain outboard of each SRB flame hole (total two) until completion of SRB HPU turbine exhaust duct plug and vent drain line scrubber removal operations.)

Install caps on gooseneck cable connectors and tighten wrench-tight with pipe wrench (30 minutes).

GSS **remove** purge flexhoses on MLP.

Support: [OISD](#)
Support: [PNSA](#)

14-171 JBPN STM 111

Purge flexhose disconnected for removal of four OIS boxes on MLP.

Support: [CPNS](#)

MLP Zero Level OIS Units Removed

14-172 JYCD GYCC 117 [SU72062](#)
 GYCC STM 111
 STM NTD 232

T-39H00M

Four of the six portable OIS units on zero level of MLP inboard and outboard of SRB flame holes have been removed. Caps installed on gooseneck cable connectors and tightened wrench-tight with pipe wrench.

Support: [OISD](#)

T: _____

14-173 CPWR TBC 136 [SU72048](#)
T-39H00M

ET Bipod Heater Verification complete (OMI S0007.400, Operation 72).

ET LO₂ Feedline Bellows Heater Functional Test

14-174 TBC CPWR 136 [SU72A75](#)

Perform ET LO₂ Feedline Bellows Heater Functional Test per OMI S0007.400 (Operation 71) (15 minutes).

14-175 CPWR TBC 136 [SU72A75](#)

ET LO₂ Feedline Bellows Heater Functional Test complete (OMI S0007.400, Operation 71).

MEDS OTV Camera Removal

14-176 OTC *PAD 132 SU72041
 *PAD OMTO

T-39H00M

IF MEDS Camera installed,

THEN perform MEDS OTV camera removal from Orbiter Crew Module per JC [V33-00012](#) MEDS OTV Camera/Bracket Removal (30 minutes).

Not Performed: _____

COMSEC Unit Load

NOTE

Perform following option if COMSEC Load not already performed.

COMSEC Unit Load Not Performed: _____

14-177 CDR OTC 132 SU72136

KYK-26 unit has arrived at Orbiter Crew Module.

14-178 OTC CCSE 132 SU72110
 CDR

T-39H00M

Perform COMSEC 1 and 2 unit loading per OMI [S9001.108](#) COMM options (20 minutes).

RT OMI Log No. _____

***** End of COMSEC Unit Load *****

14-179 OTC CNSE 132 SU72124

IF GPS encryption load is required,

THEN perform GPS Encryption Key Load per S0007.400 (Operation 37, Option 3 for OV-103/OV-104 or Option 4 for OV-105) on OIS Channel 173.

Not Performed: _____

PRSD Load Contingency Lighting

14-180 OTC *PAD 132
 *PAD PMTG

IF PRSD Load to occur at night,

THEN verify portable facility lighting in place for PRSD load.

Not Performed: _____

Hydrogen Fire Detector Test Verification

14-181 CHGD OTC 132 SU72026
T-39H00M

Performing Hydrogen Fire Detector Test Verification. Fire detectors will be activated momentarily.

Report any anomalies.

_____ GMT

NOTE

Perform the next step for each hydrogen fire detector system:

HWW14 = PADFD (LH₂ HFDS)

HWW15 = MLPFD (LH₂ HFDS)

HWW16 = EEFDS (EGR HFDS)

HWW20 = FCPFD (FCP HFDS)

14-182

CHGD

CRT (SAW01/HWW14/HWW15/HWW16/HWW20)

VERIFY "CONF" INDICATION ON FOR EACH FIRE
DETECTOR PRIMARY AND SECONDARY.

CURSOR CNTL

PERFORM SELF TEST COMMAND ON FOR EACH FIRE
DETECTOR:

STC

XMIT CURSOR KEY - PRESS

CRT

VERIFY "ALRM" AND "SELF" INDICATION ON FOR EACH
FIRE DETECTOR PRIMARY AND SECONDARY.

CURSOR CNTL

PERFORM SELF TEST COMMAND OFF FOR EACH FIRE
DETECTOR:

STC

XMIT CURSOR KEY - PRESS

CRT

VERIFY "ALRM" AND "SELF"
INDICATION OFF FOR EACH FIRE DETECTOR PRIMARY AND
SECONDARY.

14-183

CHGD

OTC

132

[SU72026](#)

Hydrogen Fire Detector Test Verification complete.

_____ GMT

HGDS ET/IT Isolation for PRSD Loading

14-184 CHGD QHGD 177

MLP COMPT 7A RACK 6867

ET/IT ISOLATION VALVE 1A - CLOSE (NO FLOW)

NOTE

When verifying transport line pressures, HGDSA and HGDSB should be selected on the same line. This applies to the AFT, Midbody and Payload Bay transport lines.

14-185 CHGD

HGDS 2000 System Page

1. **Verify** ET/IT transport line flow 0.00 (-0.5 to +0.5) SLPM
2. **Verify** AFT, Midbody and Payload Bay Transport Line Flow > 6.00 SLPM
3. **Verify** AFT, Midbody and Payload Bay Transport Line Pressure > 350 TORR
4. **Verify** Transport Plenum Pressure < 275 TORR

***** End of HGDS ET/IT Isolation For PRSD Loading *****

HUD Power and Self Test - Complete

14-186
T-38H50M

CDPS OTC 132

[SU72024](#)

HUD Power Up and Self Test complete (OMI S0007.400, Operation 49).

14-187

OTC CDPS 132

[SU72B48](#)

Perform MEDS system activation per OMI S0007.400
(Operation 49, Option 10) (45 minutes).

MEDS OTV Camera Removal - Complete

14-188 **OMTO** ***PAD** **132** [SU72041](#)
***PAD** **OTC**

T-38H30M

IF MEDS Camera was removed,

THEN report MEDS OTV camera and associated bracket and cables removal from Orbiter Crew Module complete (JC V33-00012).

Not Performed: _____

14-189 **CDPS** **OTC** **132** [SU72B48](#)
T-38H20M

MEDS System Activation complete.

14-190 **TBC** ***PAD** **136** [SU72057](#)
***PAD** **PLO4**
PLH4
PME4

T-38H00M

Perform all operations of OMI [G6304.001](#) (LO₂) and OMI [G6304.002](#) (LH₂), and OMI [G6304.003](#) Hazardous Proof Purge Verification.

LH₂ System Prerequisite Operations

14-191 TBC PLHY 136 SU72058
 *PAD

Perform the following prerequisite operations per OMI [G3251](#) :

- 10 - Local OMRS Verification
- 20 - LH₂ Storage Area Preps
- 30 - MLP Mechanical Preps
- 40 - FSS Standby Configuration
- 50 - MLP Electrical Preps
- 60 - Pad Electrical Preps

COMSEC Unit Load - Complete

14-192 CCSE OTC 132 SU72110
T-38H00M

IF COMSEC load was required,

THEN report COMSEC unit loading per OMI S9001.108 complete.

Not Performed: _____

14-193 OTC CCSE 132

Verify COMSEC load in support of OMI S0007 with mission keys is complete.

OMRSR [S00FA0.370-A-1R](#)

OMRSR [S00FA0.370-B-1R](#)

14-194 CNSE OTC 132 SU72124

IF GPS encryption key load was required,

THEN report GPS encryption key load is complete.

Not Performed: _____

Disconnect OMS Trickle Purge

14-195 OTC *PAD 132 SU72032
 *PAD OMTO

Disconnect OMS trickle purge per OMI [V9021.203](#) and
OMI [V9021.204](#) (3 hours).

14-196 STM JSTC 111
 JSTC JFIR 114

30-minute notification for Fire/Rescue/EMS support in-district for
GO₂/GH₂ Cross-country line pressurization.

Support: [FIRE](#)

GH₂ Cross-country Line Pressurization

NOTE

Do not perform this option if GH₂ Cross-country lines remained pressurized from previous operations.

GH₂ Cross-country Line Pressurization Not Performed: _____

14-197	NTD	OTC	232	SU72B67
		STM		
		*SCC		
	STM	JBPN	111	
	JBPN	GBPN	NET 104	

Perform preps for GH₂ Cross-Country Line Pressurization per OMI [M3020](#)

Support: [PNSA](#)

14-198	NTD	OTC	232	
		STM		
		*SCC		
	STM	JBPN	111	
	JBPN	GBPN	NET 104	

Verify ready to clear control area for GH₂ battery pressurization.

Support: [PNSA](#)

14-199	GBPN	JBPN	NET 104	
	JBPN	STM	111	
	STM	NTD	232	
	NTD	*SCC		

T-37H00M

Ready to clear for Cross-country line pressurization.

Support: [PNSA](#)

14-200	NTD	JFIR	232	SU72068
		*SCC		
	JFIR	JSTC	114	

Verify Fire/Rescue and Emergency Medical Services on standby in-district for GH₂ battery operations.

Support: FIRE

PRSD Preps for GH₂ Cross-country Line Pressurization

14-201	OTC	CMQC	132	SU72112
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Verify OMI S0007.100, Orbiter Prerequisite Operation 214 - PRSD Loading Preps, complete.

Qv: _____

14-202	PLHY	TBC	136	SU72059
	TBC	OTC	132	
	OTC	CFCP		

ET vent line configured to accept reactant gas. ET LH₂ vent line purged within 48 hours per OMI G6204.010.

OMRSR [G51FLHPA0.001](#)
OMRSR [G61FLHPA0.001](#)

14-203	OTC	CFCP	132	SU72009
--------	-----	------	-----	---------

Perform PRSD preps for GH₂ Cross-country line pressurization per OMI [V1040.220](#) .

14-204	CFCP	OTC	132	SU72009
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PRSD preps for GH₂ Cross-country line pressurization complete.

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OMI S0007.200 A23
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14-205 OTC CHGD 132

Perform LH₂ HLDS/HFDS (HWW20) monitoring.

Report out-of-tolerance conditions to CFCP on OIS Channel 153:

HLDS = 10,000 ppm above baseline

HFDS = alarm on indication

Clear for GH₂ Cross-country Line Purge Pressurization

NOTE

Pneumatics will set up rope/chains on the east and west perimeter road, 200 ft from GH₂ storage battery, while performing the next step.

14-206 NTD *SCC 232 [SU72012](#)
 OTC
 STM
 *SCC *PSE NET 105
 STM JBPN 111
 JBPN GBPN NET 104

T-37H00M

Clear following control areas of personnel:

Nonessential personnel clear:

- 200 ft from GH₂ Batteries

All personnel clear:

- 50 ft from GH₂ Flare Stack
- 50 ft from GH₂ Cross-country lines

Verify essential personnel attired in non-static producing, flame retardant coveralls and non-sparking footwear.

Support: [PNSA](#)

Essential Personnel		
GH₂ Facility	GSS	NASA
Engineer	1	1
Technician	4	
Quality	1	

14-210 *SCC NTD 232
 NTD STM
 STM JBPN 111
 JBPN GBPN NET 104

You have Safety concurrence to proceed with GH₂ Cross-country Line Purge / Pressurization.

14-211 STM JBPN 111
 JBPN GBPN NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions. **Verify** personnel are certified, equipped and ready to proceed.

Support: [PNSA](#)

TTL: _____

14-212 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Request Safety clear nonessential personnel 5-ft radius from S72-0699-01 Panel, FSS 75-ft level.

Verify essential personnel attired in non-static producing, flame-retardant coveralls and non sparking footwear.

Essential Personnel		
	SPOC	NASA
Technician	2	
Engineer	2	1
Safety	1	1

14-213 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 OTC CFCP 132

5-ft radius clear of S72-0699-01 panel, FSS 75-ft level complete.

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OMI S0007.200 A23
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14-214 OTC CFCP 132

Perform Test Team briefing on hazards involved and applicable
Emergency Instructions (OMI S0007.600).

14-215 OTC CFCP 132

Assist JBPN/GBPN with GH₂ Cross-country line pressurization per
OMI [V1040.220](#) on OIS Channel 122.

WARNING

Personnel may be exposed to hydrogen gas, (GH₂) is extremely flammable, burns with an almost invisible flame, and is an asphyxiant.

Personnel may suffer serious bodily injury or death.

Wear **clean flame retardant, non-static producing coveralls** , and **non-porous, non-sparking conductive footwear** .

Provide adequate ventilation and eliminate all potential ignition sources.

WT038.a 12-06-2005

WARNING

Pressurized system venting may occur.

Exposure to a sudden release of pressure may result in bodily injury.

Wear **safety glasses** , **face shields** and **work gloves** when working with or near high-pressure systems.

WHP069 02-17-04

NOTE

Hazardous steps follow due to GH₂ Reactant Purge.

GH₂ Cross-country Line Purge Press

14-216	NTD	STM	232	SU72015
	STM	JBPN	111	SU72065
	JBPN	GBPN	NET 104	

T-36H30M

Perform following:

Support: [PNSA](#)

1. **IF** GH₂ cross country line has a GHe blanket pressure,

THEN perform GH₂ cross-country line pressurization per operation instructions of OMI [M3020](#) . Coordinate with CFCP on OIS Channel 122 (2 hours).

Report completion.

Not Performed: _____
SS1

2. IF GH₂ Cross-country line has a GH₂ blanket pressure of 500 psig max,

THEN perform GH₂ cross-country line pressurization per operation instructions of OMI M3020 .
Report completion.

Not Performed: _____
SS2

*** End of GH₂ Cross-country Line Pressurization ***

14-217	STM	CMQC	111
		NTD	232
	NTD	TBC	

IF not verified prior to CTS,

THEN report OMI S0007.100 Support Prerequisite Operation 7 - SRB Flame Deflector Move to Launch Position, complete.

Not Performed: _____

14-218	STM	CMQC	232
		NTD	

IF not verified prior to CTS,

THEN report OMI S0007.100 Support Prerequisite Operation 8 - MLP/Pad Sound Suppression I/F Connection and Water Bag Installation/Fill, complete.

Not Performed: _____

GH₂ Cross-country Line Purge/Pressurization - Complete

NOTE

Do not perform this option if Cross-country lines remained pressurized from previous operations.

GH₂ Cross-country Line Purge/Pressurization - Complete Not Performed: _____

14-223	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
	NTD	*SCC	

T-36H00M

GH₂ Cross-country Line Purge/Pressurization complete.

Request Safety concurrence to reduce 200 ft clear to 25 ft clear at the GH₂ Storage area for controlled work.

Support: [PNSA](#)

14-224	*SCC	NTD	232
	NTD	STM	
	STM	JBPN	111
	JBPN	GBPN	NET 104

T-36H00M

You have Safety concurrence to reduce to a 25 ft clear at the GH₂ Storage area for controlled work.

Support: [PNSA](#)

14-225	CFCP	OTC	132	SU72085
	OTC	NTD	232	
	NTD	STM		
		*SCC		
	*SCC	*PSE	NET 105	
	STM	JBPN	111	
	JBPN	GBPN	NET 104	

GH₂ Cross-country Line Purge/Pressurization complete. GH₂ venting to LH₂ flare stack has terminated.

Support: [PNSA](#)

1. Following areas may be opened for controlled work:
 - A. LH₂ flare stack
 - B. Perimeter Road at GH₂ battery
2. Following controls remain in effect:
 - A. Nonessential personnel clear:
 - GH₂ battery
 - S72-0699-1 Panel
 - FSS 75-ft level (5 ft)
 - B. All personnel clear:
 - 50 ft from GH₂ Cross-country lines

14-226	GBPN	JBPN	NET 104	SU72065
	JBPN	STM	111	
	STM	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

GH₂ flare stack and perimeter road at GH₂ battery are open for controlled work.

Support: [PNSA](#)

***** End of GH₂ Cross-country Line Purge/Pressurization - Complete *****

14-227	NTD	OTC	232
	OTC	*PAD	132
	*PAD	PSOM	
		PUOD	

Verify inlet valve Closed on GO₂ panel:

S70-0830-1 FSS 75-ft level - A88560

14-228	*PAD	OTC	132
	OTC	NTD	232
	NTD	STM	
	STM	JBPN	111
	JBPN	GBPN	NET 104

Inlet valves are Closed on GO₂ panel.

Support: [PNSA](#)

GO₂ Cross-country Line Pressurization

NOTE

Do not perform this option if GO₂ Cross-country lines remained pressurized from previous operations.

GO₂ Cross-country Line Pressurization Not Performed: _____

14-229	NTD	OTC	232	SU72076
		STM		SU72B20
		*SCC		SU72B68
	STM	JBPN	111	
	JBPN	GBPN	NET 104	

Verify ready to clear control area for GO₂ panel and Cross-country line pressurization.

Support: [PNSA](#)

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14-230	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
	NTD	*SCC	

T-36H00M

Ready to clear for GO₂ Cross-country Line Pressurization.

Support: [PNSA](#)

14-231	NTD	STM	232	SU72068
	STM	JSTC	111	
	JSTC	JFIR	114	

Verify Fire/Rescue and Emergency Medical Services on standby in-district for GO₂ Cross-country line pressurization.

Support: [FIRE](#)

Clear for GO₂ Cross-country Line Purge Pressurization

14-232 NTD *SCC 232
 OTC
 STM
 *SCC *PSE NET 105
 STM JBPN 111
 JBPN GBPN NET 104

Clear following control areas of personnel:

Nonessential personnel clear:

- 25 ft from GO₂ batteries

All personnel clear:

- 25 ft from GO₂ cross-county lines

Verify essential personnel attired in non-static producing, flame-retardant coveralls and non-sparking footwear.

Support: [PNSA](#)

Essential Personnel			
	ORB	NASA	SPOC
Engineer/Supv	1	1	
Technician	4		
Quality	2	1	
Safety		1	1
*PAD	1		
*SCO	2		

GO₂ Facility	GSS	NASA
Engineer	1	1
Technician	4	
Quality	1	

14-237 **STM JBPN 111**
 JBPN GBPN NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [PNSA](#)

TTL: _____

WARNING

Oxygen vigorously supports combustion and is a mild irritant.

Usage near heat, sparks or open flame may result in fire. Exposure may cause respiratory system irritation.

Wear **clean flame retardant, non-static producing coveralls** and **non-porous, non-sparking conductive footwear** .

WT051 12-06-2005

WARNING

Pressurized system venting may occur.

Exposure to a sudden release of pressure may result in bodily injury.

Wear **safety glasses** , **face shields** and **work gloves** when working with or near high-pressure systems.

WHP069 02-17-04

NOTE

Hazardous steps follow due to GO₂ Cross-country Line Pressurization.

GO₂ Cross-country Line Purge Pressurization

14-238 **NTD STM 232**
 STM JBPN 111
 JBPN GBPN NET 104

Perform GO₂ Cross-country Line Pressurization per OMI [M3097](#) operation instructions.

Support: [PNSA](#)

GO₂ Cross-country Line Pressurization - Complete

NOTE

Do not perform this option if GO₂ Cross-country lines remained pressurized from previous operations.

GO₂ Cross-country Line Pressurization - Complete Not Performed: _____

14-239	GBPN	JBPN	NET 104	SU72B20
	JBPN	STM	111	SU72B68
	STM	NTD	232	
		*SCC		
	NTD	OTC		
	OTC	CFCP	132	

GO₂ Cross-country Line Pressurization complete.

Request SPOC Safety concurrence to release Fire and EMS from GO₂/GH₂ battery operations.

Support: [PNSA](#)

14-240	*SCC	NTD	232	
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You have Safety concurrence to release Fire and EMS from GO₂/GH₂ battery operations.

14-241	NTD	JFIR	232	SU72068
		*SCC		
	JFIR	JSTC	114	

Fire/Rescue and EMS released from GO₂/GH₂ battery operations.

Support: [FIRE](#)

***** End of GO₂ Cross-country Line Pressurization - Complete *****

***** End of GO₂ Cross-country Line Purge and Pressurization *****

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14-242	GBHE	STM	NET 104
	STM	CMQC	111

IF not verified prior to Call to Stations,

THEN report S0007.100 Support Prerequisite Operation 6 - Pole CES
Assembly Lift to 195-ft Level, complete.

Support: [HESA](#)

Not Performed: _____

Intercenter Voice Checks - Complete

14-243	GYCJ	GYCC	117	SU72201
	GYCC	STM	111	
	STM	NTD	232	

T-35H00M

Intercenter end-to-end voice checks per OMI D3012 to following locations complete and COMM circuits operational:

Support: [VCE](#)

1. CCAS (tone and voice)
2. MILA
3. JSC
4. MSFC-HOSC
5. DFRC (Monitor only from DFRC except ALT CNVY CMDR)
6. TAL sites (tone and voice)
7. SLF OIS-Q
8. GSFC

14-244	GYAT	GYCC	117
	GYCC	STM	111
	STM	NTD	232

End-to-End voice checks per MWO_____ for KSC/ROCC Hot Dials complete and circuits operational.

Support: [ATEL](#)

14-245 COOS OTC 132

IF OMS quantity gaging checks required,

THEN report OMI S0007.100 Orbiter Prerequisite Operation 212 - OMS Quantity Gaging Checks complete.

Not Performed: _____

14-246 OMTO *PAD 132 SU72023
 *PAD OTC

OMI S0007.100 Operation 251 - Orbiter Structural Panel Configuration For Tanking and Launch, Part A, complete.

MET Initialization

14-247 OTC CEPD 132 SU72039
 CDR

T-35H00M

Perform Orbiter MET (Mission Event Timer) Initialization and Switch/Circuit Breaker Configuration per OMI S0007.400 (Operation 50) on OIS Channel 151 (15 minutes).

14-248 CEPD OTC 132 SU72039

Orbiter MET Initialization and Switch/Circuit Breaker Configuration complete.

MTU Frequency Read

NOTE MTU must be powered up 12 hours prior to next step.
--

14-249	OTC	CISL	132	SU72042
		JRPS		

T-34H15M

Perform MTU Frequency Read per OMI S0007.400
(Operation 38) on OIS Channel 145 (15 minutes).

14-250	CISL	OTC	132	SU72042
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MTU Frequency Read complete.

OMRSR [V75AP0.030-1R](#)

ET LO₂ Loading Preps

14-253	NTD	TBC	232	SU72055
	TBC	PLOX	136	
		*PAD		

T-34H00M

Perform Operations 20 through 40 of LO₂ system preps for vehicle load per OMI [G3151](#) .

IMU Checkpoint Data Read - Complete

14-254	CGNC	OTC	132	SU72114
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IF referenced test has been performed on this run,

THEN report IMU Checkpoint Data Read complete.

Not Performed: _____

MADS FDM/PCM Test

14-255	OTC	CISL	132	SU72088
		NTD	232	
	NTD	JRPS		

T-33H30M

Perform Orbiter MADS FDM/PCM Test per OMI S0007.400 (Operation 38) on OIS Channel 145 (30 minutes).

MADS FDM/PCM Test - Complete

14-256	CISL	OTC	132	SU72088
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T-33H00M

Orbiter MADS FDM/PCM Test complete.

OMRSR [V78GA0.010](#)

OMRSR [V78GA0.030](#)

Pressurize Cabin Air System

14-257	OTC	CECL	132
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T-33H00M

Verify ready to pressurize cabin air system.

14-258	OTC	*PAD	132	SU72107
	*PAD	OMTO		

Verify valve A501543 on C70-1226-3 Panel (in W/R) is Closed.

T:_____

14-259 STM JBPN 111 SU72134

Maintain breathing air tube bank and breathing air supply panel C70-1226-1 in HP Storage Area per [Doc: JOB PLAN M3067.001 \(LI\) Operational Checks for Breathing Air System at Pads](#) (1 hour).

Support: [PNSA](#)

Breathing Air Sample

14-260 OTC NTD 232
 NTD STM
 STM JBPN 111

Verify breathing air sampled per OMI M3067 meets SE-S-0073 Table 6.3-29 standards. Provide copy for ECLSS review.

Record acceptable sample: storage bottles

Sample No. _____

Tubebank No. _____

Tubebank sample No. _____

Support: [PNSA](#)

14-261 OTC NTD 232 SU72128
 NTD STM
 STM JBPN 111

Valve A501543 on C70-1226-3 is Closed (in W/R).
Configure cabin air system to pressurize C70-1226-3 with 125 to 130 psig breathing air from C70-1226-2 215-ft level O₂/N₂ system per operation instructions of [Doc: JOB PLAN M3067.002 \(LI\) Configure the Cabin Air Panel for Launch Support](#) (1 hour 30 minutes).

Support: [PNSA](#)

NOTE

Prior to performance of the next step, NTD contact Payload Ops to ensure that PCR phones are not in use for support of critical payload operations.

Secure Telephones

14-262	NTD	STM	232	SU72141
	STM	GYCC	111	
	GYCC	GYAT	117	
		GYQC	NET 107	

T-33H00M

Lock out Pad A PCR telephones. **Perform** Command File run in CD&SC. **Verify** in Room 204 PTCR Telframe that no dial tone is present for PCR phones.

Report completion.

Support: [ATEL](#)

T: _____ Qw: _____

Flight Deck Platform Removal - Complete

14-263	OTC	CMQC	132	SU72036
--------	-----	------	-----	---------

Verify OMI S0007.100 Operation 217 - AFT Flight Deck Platform Removal complete.

Qv: _____

T-37 Hour FCS Stowage

14-264	OTC	OOCs	132	SU72115
--------	-----	------	-----	---------

Perform T-37 Hour Flight Crew System Stowage Operations per FCS TPS _____ (9 hours).

PRSD Engineering Walk Through

14-265 OTC PRSE 132 [SU72083](#)

Perform PRSD Engineering Walk Through for Cryo Load per OMI [V1040.220](#) . Add any applicable discrepancies to OMI S0007.400, Operation 899, Walkdown Discrepancy List, and notify NVM.

Waste Management Station Inspection

14-266 OTC *PAD 132 [SU72028](#)

CFCP
CECL
PQCG

T-33H00M

Perform OMI S0007.100, Operation 259 - Waste Management Station Inspection/Closeout Switchlist (1 hour).

14-267 *PAD OTC 132 [SU72028](#)

OMI S0007.100 Operation 259 - Waste Management Station Inspection/Closeout Switchlist complete.

***** End of Waste Management Station Inspection *****

14-268 OMTO *PAD [SU72290](#)
*PAD OTC 132

S0007.100 Op 270, Part A - FRCS UTPA Removal, Vernier Thruster Cover Removal, Flight Rain Cover Installation complete.

PRSD Engineering Walk Through - Complete

14-269 PRSE OTC 132 [SU72083](#)

PRSD Engineering Walk Through for Cryo Load complete per OMI [V1040.220](#).

NOTE

Three String GPS Activation and Almanac Collection must be completed prior to transition to Downlist Format 42. Single String GPS Activation and Almanac Collection can be performed in Format 42.

NOTE

GPS Activation, Almanac Collection and NAVAIDS Activation and Self Test may be performed in parallel.

GPS Activation and Almanac Collection

14-270
T-32H00M

OTC CMQC 132

Verify OMI S0007.100, Orbiter Prerequisite Operation 213 - Antenna Coupler Installation is complete.

Qv: _____

14-271
T-32H00M

NTD OTC 232
OTC CNSE 132

[SU72151](#)
[SU72B52](#)

IF GPS almanac collection has not been performed within 30 days,
OR per Engineering direction,

THEN perform GPS Activation and Almanac Collection on OIS Channel 173 per one of the following two substeps:

1. IF for OV-103/104,

THEN perform OMI S0007.400, Operation 37, Option 1

Sub Step 1 Not Performed: _____

2. IF for OV-105,

THEN perform OMI S0007.400, Operation 37, Option 2

Sub Step 2 Not Performed: _____

**Preps for Orbiter/PRSD Cryo Servicing and Sampling
(OMI V1040.220)**

14-272	CFCP	OTC	132
	OTC	NTD	232

T-32H00M

Ready to proceed with Orbiter/PRSD Cryo Servicing and Sampling Preps per OMI V1040.220.

14-273	CFCP	JYVO	138
		JYVR	

[SU72264](#)

Position and start recording of:

OTV Cameras 008 and 036.

Pan Camera 008 to LO₂ LP skid.

Pan Camera 036 to tanker I/F.

OTV Cameras 007 and 035.

Pan Camera 007 to LH₂ LP skid.

Pan Camera 035 to tanker I/F.

OTV Cameras 020, 021, 022 for V1040.220.

Pan Camera 020 to FSS/RSS Crossover Flexhoses.

Pan Camera 021 to OMBUU Carrier Plate/Vehicle I/F

Pan Camera 022 to LO₂/LH₂ HP skid.

(See CFCP Figure 13-1, (pages 1 thru 3))

Support: [OTV](#)

14-275

NTD

PA

Attention on Pad A:

All nonessential personnel clear the following areas for PRSD O₂/H₂ servicing and sampling preps:

- S72-0699-1 Panel/MLP Interface, 75-ft Level (5 ft)
- FSS 155-ft Level and Crossover
- OMBUU
- S72-0686-1 Panel, MLP Side 1 (5 ft)
- GO₂/GH₂ Storage Batteries
- North Bridge

All personnel clear from the following areas for PRSD O₂/H₂ servicing and sampling preps:

- GH₂ Cross-country Lines (50 ft)
- LH₂ Flare Stack
- LO₂ Dump Basin

14-279 OTC CHGD 132

Verify systems ready to support PRSD loading preps.

14-280 OTC CHGD 132

Perform LH₂ and FCP HLDS/HFDS (HWW20) monitoring.

Report out-of-tolerance conditions to JBPN on OIS Channel 122:

HLDS = 10,000 ppm above baseline

HFDS = alarm on indication

LD29 = 10,000 ppm above baseline

LD30 = 10,000 ppm above baseline

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-281	*PSE	*SCC	NET 105	SU72082
	*SCC	NTD	232	SU72B53
	NTD	OTC		SU72B87
	OTC	CFCP	132	

All nonessential personnel cleared from control areas. Personnel properly attired. You have Safety concurrence to proceed with Orbiter/PRSD O₂/H₂ Servicing and Sampling Preps (OMI V1040.220).

All personnel cleared from:

- GH₂ Cross-country Lines (50 ft)
- LH₂ Flare Stack
- LO₂ Dump Basin

All nonessential personnel cleared from:

- S72-0699-1 Panel/MLP I/F 75-ft Level (5 ft)
- FSS 155-ft Level and Crossover
- OMBUU
- S72-0686-1 Panel (5 ft MLP Side 1)
- GO₂/GH₂ Storage Batteries
- North Bridge

14-282	NTD	STM	232
	STM	JBPN	111

Orbiter PRSD Cryo Servicing and Sampling Preps in work (GO₂/GH₂).

Support: CPNS

WARNING

Hydrogen gas (GH₂) and/or Oxygen gas (GO₂) may be present in the MLP lines. (GH₂) is extremely flammable and is an asphyxiant. (GO₂) will vigorously support combustion.

Personnel may suffer bodily injury or death. Provide adequate ventilation, and eliminate all potential ignition sources.

Wear **clean flame retardant, non-static producing coveralls** and **non-porous, non-sparking conductive footwear**

WT053 12-06-2005

NOTE

Hazardous steps follow due to presence of GO₂/GH₂.

14-283 OTC CFCP 132

Brief personnel on hazards that will be present and applicable Emergency Instructions. **Verify** personnel are certified, equipped and ready to proceed.

TTL: _____

Cabin Air System - Pressurized

14-284 JBPN STM 111 [SU72128](#)
 STM NTD 232
 NTD OTC
 OTC CECL 132

T-31H30M

Cabin Air C70-1226-2 Panel pressurized.

Support: [CPNS](#)

14-285 JBPN STM 111 [SU72134](#)
T-31H30M

Supply Panel C70-1226-1 and breathing air tube bank have been maintained.

Support: [CPNS](#)

Service Pad Air Compressors

14-286 STM JBPN 111 SU72139

Service Pad Air compressors per [Doc: JOB PLAN M3022.002 \(LI\) Service Pad Air Compressors](#) (2 hours).

Support: [PNSA](#)

NOTE

Master Alarm may occur during ECLSS Cooling Reconfiguration to Support Switchlist.

ECLSS Cooling Reconfiguration to Support Switchlist

14-287 OTC CECL 132 SU72116
T-31H00M

Perform Orbiter ECLSS Cooling Reconfiguration to Support Ascent Switchlist per OMI S0007.400 (Operation 45, Option A) on OIS Channel 143 (2 hours).

OMS Flight Panel Installation - Complete

14-288 OMTO *PAD 132 SU72086
T-31H00M *PAD OTC

OMS Flight Panel Installation complete (JC V80-95903 and JC V80-95904).

ARCS UTPA Removal, Vernier Thruster Cover Removal and Flight Rain Cover Installation

14-289 OTC *PAD 132 SU72B27
 *PAD OMTO SU72281

Perform S0007.100, Operation 270 Part B - ARCS UTPA Removal, Flight Rain Cover Installation and Vernier Thruster Cover Removal.

FSS TVS Power Up

NOTE
Perform this option if FSS TVS is not already active.

FSS TVS Power Up Not Performed: _____

14-290	OMTO	*PAD	132
		OTC	
	OTC	NTD	232
	NTD	*SCC	

Ready to proceed with FSS TVS power up for ARCS UTPA removal and rain cover installation.

14-291	OMTO	OTC	132	SU72B28
		*PAD		SU72B29
	OTC	NTD		
	NTD	*SCC		

Request SPOC Safety concurrence to establish clears on the FSS 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

14-292	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132

[CSR-640](#)

You have SPOC Safety concurrence to establish safety clears on the FSS 275-ft level, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA, and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

14-293 NTD PA

Attention on Pad A:

All personnel clear the 275-ft level and above, including GVA, for hazardous venting operations.

14-294 OMTO

Task Team Leader/Designated Floor Leader

Perform Safety inspection of the local control area and verify no discrepancies which affect the operation.

TTL: _____

14-295	OMTO	OTC	132	SU72B28
		*PAD		SU72B29
	OTC	NTD	232	
	NTD	*SCC		

The FSS 275-ft level and above, including the GVA, has been cleared.

Barriers and danger signs installed.

The FSS _____ (Oxid/Fuel) Scrubber is powered up and stable.

***** End of FSS TVS Power Up *****

14-299

TTL

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-300

OMTO	OTC	132
	*PAD	
OTC	NTD	232
NTD	*SCC	

CSR-640

Nonessential personnel have been cleared from control areas for ARCS thruster cover removals. Essential personnel are properly attired in rubber aprons, goggles and hyper-compatible gloves.

Request Safety concurrence to proceed.

TTL: _____

14-301

*SCC	NTD	232
NTD	OTC	
OTC	*PAD	132
	OMTO	

You have SPOC Safety concurrence to proceed with ARCS UTPA Removal (2 Hrs).

14-302

OTC	OMTO	132
-----	------	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions. **Verify** personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Fuel (MMH) vapor is flammable. Fuel is toxic, an irritant and may cause cancer. Oxidizer (NO₂) vapor is a severe irritant.

Exposure to eyes, skin and respiratory system may cause severe irritation and/or permanent damage. The Exposure Limit is 1.0 PPM oxidizer and 10 PPB fuel.

Wear **rubber aprons** and **industrial goggles** .

Wear **hyper compatible polyvinyl chloride (PVC) Pylox gloves** .

Wear a **face shield** over goggles when work is at eye level or above.

WT003 12-06-2005

14-303	OMTO	*PAD	132	SU72B30
		OTC		SU72B31
	OTC	NTD	232	
	NTD	*SCC		

ARCS UTPA removal complete. Final TVC's acceptable, continue with ARCS Vernier thruster cover removal.

TTL:_____

***** End of ARCS UTPA Removal *****

ARCS Vernier Thruster Cover Removals

14-304 OMTO *PAD 132
 OTC
 OTC NTD 232
 NTD *SCC

Ready to proceed with ARCS Vernier thruster cover removal.

14-305 OMTO *OTC 132 SU72B32
 *PAD SU72B33
 OTC NTD 232
 NTD *SCC

CSR-640

Request Safety concurrence to expand clear of all nonessential personnel to 20-ft spherical radius around Vernier thrusters on RSS 107-ft level.
Verify essential personnel attired in modified Class "C".
TTL **perform** breathing zone checks during Vernier thruster cover removals.

TTL: _____

Essential Personnel		
	SPOC	NASA
Engineer	1	1
Technician	3	
Quality	1	1
Safety	1	1

14-306 NTD PA

Attention on Pad A:

Nonessential personnel clear from 20-ft spherical radius around Vernier thrusters on RSS 107-ft level for ARCS Vernier thruster cover removal operations.

14-311 OTC OMTO 132

Brief personnel on hazards that will be present and applicable Emergency Instructions. **Verify** personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Oxidizer (NO₂) vapor is a severe irritant.
Exposure may cause eye, skin and respiratory system irritation and/or permanent damage. The Exposure Limit is 1.0 PPM.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **industrial goggles** .
Wear a **face shield** over goggles when work is at eye level or above.

WT001 12-06-2005

WARNING

Fuel (MMH/N₂H₄) vapor is toxic, flammable and may cause cancer.
Exposure may cause permanent damage to the skin, eyes and lungs. The Exposure Limit is 1000 PPB.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **supplied air respirators** .

WT005 07-19-2007

14-312 OMTO OTC 132
 OTC NTD 232
 NTD *SCC

CSR-640

Orbiter ARCS Thruster UTPA and Vernier Thruster Cover Removal complete. Toxic checks of all ARCS thrusters were acceptable.
Request Safety concurrence to open control areas for controlled work.

TTL: _____

14-313	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132

You have Safety concurrence to open ARCS thruster control area for controlled work.

14-314	OMTO	OTC	132	SU72B32
	OTC	NTD	232	SU72B33
	NTD	*SCC		

Barriers and danger signs are removed and hazardous operations control area is open for controlled work.

NOTE ARCS hazardous operations complete.
--

***** End of ARCS Vernier Thruster Cover Removals *****

14-315	OMTO	OTC	132	SU72B80
		*PAD		
	OTC	NTD	232	
	NTD	STM		
	STM	JSTC	111	
	JSTC	*SCB	NET 104	

Breathing air lines no longer required for ARCS operations on the 107-ft level (OMI S0007.100, Operation 270). Life Support can be released.

Support: [LS](#)

FSS TVS Power Down

NOTE

Perform this option to power down the FSS TVS if directed by Test Team.

FSS TVS Power Down Not Performed: _____

14-316	OMTO	OTC	132	SU72B34 SU72B35
		*PAD		
	OTC	NTD	232	
	NTD	*SCC		

[CSR-640](#)

Request SPOC Safety concurrence to power down the FSS _____ (Oxid/Fuel) Scrubber and, based on acceptable TVCs, terminate clears on FSS 275-ft level and above including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA.

14-317	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132
		*PAD	

You have SPOC Safety concurrence to power down the FSS _____ (Oxid/Fuel) Scrubber and, if TVCs are acceptable (0.0 PPM), terminate clears on 275-ft level and above including the GVA at a point 8 ft from hood and FSS Side 4 Stairwell leading to GVA.

14-318	OMTO	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

CSR-640

Toxic vapor checks on the 275-ft level including GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA complete.

Verify acceptable (0.0 PPM) levels and control area open for controlled work.

TTL: _____

*** End of FSS TVS Power Down ***

NOTE

FSS TVS hazardous operations complete.

14-319	OMTO	OTC	132
		*PAD	

Orbiter ARCS Thruster UTPA and Vernier Cover Removal complete. Continuing with ARCS Thruster Rain Cover Installation (S0007.100, Operation 270, Part B).

14-320	OMTO	*PAD	
	*PAD	OTC	132

SU72281

S0007.100 Op 270 Part B - ARCS UTPA Removal, Vernier Thruster Cover Removal and Rain Cover Installation complete.

TTL: _____

GPS Activation and Almanac Collection - Complete

14-321	CNSE	OTC	132	SU72151
	OTC	NTD	232	SU72B52

T-29H15M

IF GPS Activation and Almanac Collection were performed,

THEN report GPS Activation and Almanac Collection complete.

Not Performed: _____

DPS to Downlist Format 42

14-322	OTC	NTD	232	SU72090
	NTD	TBC		
		PTC		
	TBC	ALL	136	
	PTC	ALL	134	

T-30H45M

Verify ready for transition to Downlist Format 42.

14-323	TBC	NTD	232
	PTC		
	NTD	OTC	

Ready to support transition to Downlist Format 42.

14-324	OTC	ALL	132
--------	-----	-----	-----

DPS switching to GNC9, Downlist Format 42

14-325	OTC	CDPS	132
--------	-----	------	-----

Configure Orbiter DPS to Downlist Format 42.

14-326

CDPS

CURSOR CNTL (SAS01 PG-B)
FMT 42
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

14-327

CDPS

CRT (VAS59 PG-B)
FMT 42 ACTIVE

14-328

CDPS	OTC	132
OTC	NTD	232
NTD	TBC	
	PTC	
TBC	ALL	136
PTC	ALL	134

DPS configured to Downlist Format 42.

Mechanisms Status Checks

NOTE

Mechanisms Status Checks require Downlist Format 42.

14-329

OTC **CAFM** **132**

[SU72095](#)

Perform Mechanisms Status Checks (15 minutes).

14-330 CAFM CDR 142

PANEL MA73C

ROW A

MCA LOGIC

MN A

FWD 1 SW - ON

MID 1 SW - ON

MN B

FWD 2 SW - ON

MID 1 SW - ON

MID 2 SW - ON

MN C

FWD 3 SW - ON

MID 2 SW - ON

ROW B

MCA LOGIC

MN A

AFT 1 SW - ON

MID 3 SW - ON

MN B

AFT 2 SW - ON

MID 3 SW - ON

MID 4 SW - ON

MN C

AFT 3 SW - ON

MID 4 SW - ON

14-331 CAFM OTC 132

Verify Format 129/42 or 166/42 for Mechanisms Status Checks.

14-332 CAFM CDR 142

PANEL L4
ROW P
AC2
LG SNSR 2
PH A CB - CLOSE
AC3
LG SNSR 1
PH A CB - CLOSE

14-333 OTC CAFM 132

Proceed with status checks.

14-334 CAFM

CRT (VAK20)
PERFORM MECHANISMS STATUS CHECKS.

14-335 CAFM

PROGRAM VAK20
USING PROGRAM - STATUS MECH SYSTEMS
(ALL OPERATIONAL STATUS UP ARROWS).

IF ANY OPER STAT ARROWS NOT UP,

THEN HAVE OTC POLL OTHER USERS OF MCA OP STAT'S
FOR ANY ACTIVITY (HARD COPY)
XMIT CURSOR FOR MCA SNAPSHOT.
VERIFY ALL UP ARROWS.

Not Performed:_____

14-336 CAFM OTC 132

SU72095

Mechanism Status Checks complete. Format 129/42 or 166/42 no longer required for mechanisms.

Controller and Switch Tests

NOTE

Controller and Switch Tests are required only one time prior to Launch, making repeat of tests optional for a recycle Launch Countdown.

Do not perform these tests if they have been performed in previous Countdown, unless there is concern over activity in the general LRU area, or concern over possible trend data, or concern over the time elapsed since last test.

The following are independent operations and may be performed in any order.

DDU 1, 2 and 3 power is required for the Controller Test.

Downlist Format 42 is required for both Controller and the RHC Panel Switch Tests. The Abort Switch Test is independent of Format (LDB reads).

Controller and Switch Tests Not Performed: _____

14-337
T-30H30M

OTC COFC 132

[SU72092](#)

Perform Controller and Switch Tests per OMI [V1123.050](#) and OMI [V1123.080](#) .

1. Controller Test (30 minutes) (CDR) (OMI V1123.050).

RT OMI Log No. _____

2. Abort/RHC Panel Switch Test (20 minutes) (CDR) (OMI V1123.080).

RT OMI Log No. _____

***** End of Controller and Switch Tests *****

OI Snapshot

14-338 NTD JRPS 232 SU72097
T-30H30M

Perform OI snapshot (Route hardcopy to ESA and upload file to RPS Web).

Configure Tube Bank

NOTE

Perform this option if cabin air tube bank below 1100 psi.

Configure Tube Bank Not Performed: _____

14-339 STM JSTC 111 SU72130
T-30H30M JSTC GSPS NET 104

Provide full tube bank breathing air to cabin air battery.

Remove depleted tube bank.

Support: PN
Support: QA

Qv: _____

14-340 STM JBPN 111

Disconnect/Connect tube bank at O₂/N₂ cabin air battery per operation instructions of [Doc: JOB PLAN M3067.005 \(LI\) Disconnect BAIR Tube Bank and Connect Full Tube Bank](#) .

Support: PNSA

***** End of Configure Tube Bank *****

Pad Air Compressor Servicing - Complete

14-341 JBPN STM 111 SU72139
T-31H00M

Pad air compressors have been serviced.

Support: CPNS

GN₂ Preps

NOTE

Payload bay purge will be interrupted intermittently for ECS equipment verifications.

14-342 OTC CMQC 132 SU72018

Verify OMI S0007.100 Orbiter Prerequisite Operation 208 - ECS Local Operations, complete.

Qv: _____

14-343 OTC CPVD 132 SU72104
CPVD PPVM 172

Perform GN₂ Preps per following: (2 hours)

1. **Transfer** ECS Room control to Firing Room (remote) per OMI [V1122.004](#)
2. **Perform** GN₂ preps per OMI [V1122.203](#) , Operation 10 - Initial Preps for Air to GN₂ Changeover.

RT OMI Log No. _____

NAVAIDS Activation Clearing

NOTE

Do not perform NAVAIDS Activation Clearing if vehicle is in a 3-string GPS configuration (OV-105).

NAVAIDS Activation Clearing Not Performed: _____

14-346	CNSE	OTC	132	SU72099
		*PAD		SU72150
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Ready to proceed with NAVAIDS Activation/Self Test.

Request Safety clear all personnel 2 ft from Orbiter NAVAIDS antennas on RSS 207-ft level. Post barriers and RF signs.

14-347	OTC	*PAD	132
	*PAD	PCST	

T-30H30M

IF monitor required in FRCS room,

THEN request antenna monitor report on station in FRCS room to support NAVAIDS Activation.

Not Performed: _____

14-348	NTD	PA
T-30H00M		

Attention on Pad A:

All personnel stand 2 ft clear of Orbiter NAVAIDS antennas on RSS 207-ft level.

14-349 *PSE *SCC NET 105 SU72099
 *SCC NTD 232
 NTD OTC

T-30H00M

Barriers and RF signs posted; 2 ft control area established on 207 ft level.
All personnel clear of NAVAIDS antennas (or) monitor on station. You
have Safety concurrence to proceed with NAVAIDS activation.

WARNING

RF Radiation is harmful.
Exposure may cause burns and cell, tissue, or organ structure damage.
WM011 02-16-2006

NOTE

Hazardous steps follow due to RF radiation from NAVAIDS antennas.

***** End of NAVAIDS Activation Clearing *****

14-350 OTC CNSE 132 SU72101
 CDPS

T-30H00M

Perform Activation/Self Test and Deactivation of NAVAIDS
Components per OMI S0007.400 (Operation 37, Option 1 for
OV-103/104 or Option 2 for OV-105) on OIS Channel 173 (2 hours).

***** End of NAVAIDS Activation/Self Test *****

14-351 JRPS NTD 232 SU72097
 NTD OTC
 OTC CISL 132

T-30H00M

OI Snapshot complete.

C & T Station Setup

14-352 OTC RCRT 132 SU72102

IF C & T Station No. 1 (Bay 1 & 2) is supporting Launch Countdown,

THEN perform OMI [V3528.001](#) (Operation 120 - C&T STA/MILA Initial (Pad option)). Report completion.

RT OMI Log No. _____

Not Performed: _____

T: _____

14-353 OTC RCRT 132

IF C & T Station No. 2 (Bay 3) is supporting Launch Countdown,

THEN perform OMI [V3528.002](#) (Operation 110 - C&T STA/MILA Initial (Pad option)). Report completion.

RT OMI Log No. _____

Not Performed: _____

T: _____

14-354 OTC RCRT 132

Perform OMI [V3528.002](#) (Operation 240 - Range Safety).

Report completion.

RT OMI Log No. _____

T: _____

C & T Station/MILA COMSEC Keys Loaded

14-355 OTC NTD 232
 NTD STM
 STM JYVJ

T-30H00M

Verify Orbiter compatible COMSEC keys have been loaded in C&T Station 1/2 as scheduled and MILA COMSEC boxes, per OMI S0007.100, Support Prerequisite Operation 5 - Communication Support (phone 867-7670).

Record C&T Station loaded: _____

14-356 OTC RCRT 132 [SU72102](#)

Perform COMSEC Load Verification per OMI [V3528.001](#) or OMI [V3528.002](#) .
Report completion.

RT OMI Log No. _____

T: _____

14-357 *PAD TBC 136 [SU72057](#)

LOX/LH2/FSS Systems Purge Verifications complete per:

- G6304.001 LOX Hazard Proof Purge Verification (PLO4)
- G6304.002 LH2 Hazard Proof Purge Verification (PLH4)
- G6304.003 FSS Hazard Proof Purge Verification (PME4)

Controller and Switch Test - Complete

14-358
T-29H40M

COFC OTC 132

SU72092

IF referenced tests have been performed on this run,

THEN report Controller and Switch Test complete.

OMRSR [S00FA0.940-1R](#)

Not Performed: _____

NWS Verification for Countdown

NOTE

The NWS Test is required one time prior to Launch, making the repeat of the test optional for a recycle Launch Countdown.

Do not perform this test if it has been performed in the previous Countdown unless there is concern over activity in the general LRU area, or concern over possible trend data, or concern over time elapsed since last test.

NWS Verification for Countdown Not Performed: _____

NOTE

Next step requires DDU2 Power and Downlist Format 42.

14-359
T-29H40M

OTC COFC 132

SU72094

Perform NWS Verification for Countdown per OMI [V1123.160](#)
(25 min - CDR).

RT OMI Log No. _____

***** End of NWS Verification for Countdown *****

Inspection of Middeck - Complete

14-360 PQCG *PAD 132 SU72109
*PAD OTC

T-29H30M

Inspection of Crew Module Interior Middeck per OMI S0007.100,
Orbiter Prerequisite Operation 209, complete.

NWS Verification - Complete

14-361 COFC OTC 132 SU72094

T-29H15M

IF the referenced test has been performed on this run,

THEN report NWS Verification for Countdown complete.

Not Performed: _____

14-362 CHGD OTC 132
OTC NTD 232
NTD STM
STM GYCC 111
GYCC GYVW PTP

T-29H00M

(ATXS) Wideband Console for HGDS Circuits between
Pad A and the LCC, FR3 and FR4 perform:

Pad A IM-COM-I-0180
(2 hours)

Support: [WB](#)

MLP Pressurization

NOTE

Do not perform this option if MLP pressurization remains in effect from previous operations.

MLP Pressurization Not Performed: _____

14-363
T-29H00M

NTD

PA

Attention on MLP:

1. MLP will be pressurized with air.
2. All personnel entering or exiting MLP must use airlock at Side 2, B Level.
3. Utilize caution when entering or exiting through airlock.

14-364

NTD

JFIR

232

JFIR

JSTC

114

MLP is being pressurized.

Support: [FIRE](#)

14-365

NTD

OTC

232

TBC

***SCC**

OTC

***PAD**

132

MLP being pressurized. All personnel entering or exiting MLP must exercise caution and use B Level, Side 2 airlocks.

14-369 STM JBAC 111

C-2:

Verify following are pressurized with air:

FSS Elev Mach Room
RSS Elev and Hoist Mach Room
(Job Plan M3034.03 - FSS, RSS Machine Room Pressurization)

Support: [HVAA](#)

Activate Xenon Lights

WARNING

High intensity lights are an eye hazard.

Looking directly into high intensity light source may cause eye damage or blindness.

WM013 06-30-04

NOTE

Xenon Light Activation is required if night time walkdowns are scheduled.

Activate Xenon Lights Not Performed: _____

14-370
T-29H00M

NTD PA

Attention on Pad A:

Xenon Lights will be turned on.

Avoid looking into lights. Eye damage may result.

14-371

NTD STM 232
STM JSTC 111

[SU72A71](#)
[SU72A72](#)

Turn on Xenon lights for walkdown operations.

Support: [ELEC](#)

14-372 NTD STM 232
 STM JSTC 111

De-activate Xenon lights and top off generator fuel tanks. Walkdown operations complete.

Support: [ELEC](#)

***** End of Activate Xenon Lights *****

OI PCM to GSE Control

14-373 OTC CISL 132 [SU72091](#)

Perform OI PCM to GSE Control per OMI S0007.400 (Operation 38) (5 minutes).

14-374 CISL OTC 132 [SU72091](#)

OI PCM to GSE Control complete.

OMRSR [V75AP0.010-1R](#)

14-375 COOS OTC 132 [SU72098](#)

IF OME GN₂ Reg Out Adjustment was performed,

THEN report OMI S0007.100, Orbiter Prerequisite Operation 220 - OME GN₂ Reg Out Adjustment, complete.

Not Performed: _____

ECLSS Cooling Reconfiguration - Complete

14-376 CECL OTC 132 [SU72116](#)

ECLSS Cooling Reconfiguration to Support Ingress Switch list
(OMI S0007.400, Operation 45) complete.

Configure AC Bus Sensors

14-377 OTC PLT 132 [SU72171](#)
T-28H45M

IF AC BUS SENSORS ARE NOT ALREADY IN MONITOR,

THEN PERFORM:

PANEL R1
POWER DISTRIBUTION
AC BUS SNSR
1 SW - OFF, 1 SEC THEN MONITOR
2 SW - OFF, 1 SEC THEN MONITOR
3 SW - OFF, 1 SEC THEN MONITOR

Not Performed: _____

PIC Rack CB Configuration

14-378 OTC CEPD 132 [SU72096](#)

Perform PIC Rack CB Configuration.

14-379 **CEPD** **QPDS** **151**

MLP-2 **or** MLP-3

MLP - COMPARTMENT 7A

REMOTE DISTRIBUTOR 66100

CB 5 - **ON/CLOSE (UP)** (Launch Release Sys A)

CB 6 - **ON/CLOSE (UP)** (H2 Burn Sys A)

REMOTE DISTRIBUTOR 66101

CB 5 - **ON/CLOSE (UP)** (Launch Release Sys B)

CB 6 - **ON/CLOSE (UP)** (H2 Burn Sys B)

T:_____

14-380 **OTC** **CEPD** **132**

[SU72100](#)

Clear all PDS Technicians from MLP and PTCR.

14-381 **CEPD** **OTC** **132**
 OTC **NTD** **232**

PDS Technicians are clearing MLP and PTCR.

14-382 **CPVD** **OTC** **132**

[SU72104](#)

OMI V1122.203, Operation 10 - Initial Preps for Air to GN₂ Changeover complete (hand valves closed).

14-383 **OTC** **CPVD** **132**

Transfer ECS Room control to Pad (Local) per OMI [V1122.004](#) .

Operations/Facility Walkdown Part B - LC-39 Periphery Walkdown

14-384	NTD	OTC	232	SU72120
	OTC	*PAD	132	SU72132

Perform OMI S0007.100, Operation 550 - Safety/Facility/Fire Walkdown Part B - LC-39 Periphery Walkdown.

14-385	NTD	NPM	232
		STM	
	OTC	OTC	
	OTC	*PAD	132

Have Integrated Walkdown participants meet with *PAD at FSS elevators on Pad surface under direction of Pad Leader in 30 minutes.

NASA Pad Manager (NPM)
GSS Facility Site Coordinator
Site Test Conductor (TTL)
Launch Operations Quality Conductor (QC)

14-386	NTD	PA
--------	-----	----

IF Part A and B walkdowns will not be performed at the same time,

THEN perform:

Attention on Pad A:

All personnel supporting LC-39 Periphery Walkdown meet with Pad Leader at FSS elevators on Pad surface in 30 minutes.

Not Performed: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

Completion of T-37 Hour FCS Stowage Post MD/FD Platform Removal

14-387 OOCS OTC 132 SU72115
T-28H00M

T-37 Hour FCS Stowage Post MD/FD Platform Removal complete.

GTOE Headset Delivery and Installation

NOTE

Perform the next step after Flight Crew Systems has installed cables and HIUs per Mission Specific FCS TPS.

14-388 OTC CDR 132 SU72087
T-28H00M

IF not already installed,

THEN Perform OMI S0007.100, Operation 260 - GTOE Headset Delivery and Installation (30 minutes).

Not Performed: _____

MLP Pressurization - Complete

NOTE
Do not perform this option if MLP previously pressurized.

MLP Pressurization - Complete Not Performed: _____

14-389 **JBAC** **STM** **111** [SU72135](#)
 STM **NTD** **232**
 NTD ***SCC**

T-28H00M

MLP pressurized for PRSD Cryo Load and "pressurized" signs posted.

Support: [HVAA](#)

14-390 **NTD** **JFIR** **232**
 JFIR **JSTC** **114**

MLP Pressurization complete.

Support: [FIRE](#)

14-391 **NTD** **PA**

Attention on MLP Pad A:

MLP Pressurization complete.

***** End of MLP Pressurization - Complete *****

NAVAIDS Clear Opening

NOTE Perform NAVAIDS Clear Opening for OV-103 or OV-104.
--

NAVAIDS Clear Opening Not Performed: _____

NOTE Hazardous operation - NAVAIDS Radiation complete.
--

14-395	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Request Safety open RSS 207-ft level for controlled work.

14-396	*PSE	*SCC	NET 105	SU72099
	*SCC	NTD	232	SU72150
	NTD	OTC		
	OTC	*PAD	132	
		CNSE		

RSS 207-ft level open for controlled work.

***** End of NAVAIDS Clear Opening *****

***** End of NAVAIDS Activation/Self Test - Complete *****

Verify Facilities Pressurized

14-399 ***SCC** **NTD** **232**
NTD **STM**

T-28H00M

Verify MLP, FSS - EMR, RSS - HMR and EMR are pressurized with air.

14-400 ***SCC** **NTD** **232**
NTD **OTC**
OTC **PPVM** **132**

Verify PCR pressurized with air.

14-401 **STM** **NTD** **232**
NTD ***SCC**

MLP, FSS-EMR, RSS-HMR and EMR are pressurized with air.

14-402 **OTC** **NTD** **232**
NTD ***SCC**

PCR pressurized with air.

FSS TVS Power Up

NOTE
Perform this option if FSS TVS is not already active.

FSS TVS Power Up Not Performed: _____

14-404	BHT_	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Request SPOC Safety concurrence to establish clears on the FSS 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA, and power up the Fuel Scrubber for hazardous venting operations.

14-405	*SCC	NTD	232
	NTD	TBC	
	TBC	BHT_	136

You have SPOC Safety concurrence to establish Safety clears on the FSS 275-ft level, including the GVA at a point 8 ft from hood, and FSS Side 4 stairwell leading to GVA, and power up the Fuel Scrubber for hazardous venting operations.

14-406	NTD	PA
--------	-----	----

Attention on Pad A:

All personnel clear the FSS 275-ft level and above, including the GVA, for hazardous venting operations.

14-407

BHT_

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and verify no discrepancies which affect the operation.

TTL: _____

14-408

BHT_	TBC	136
	*PAD	
TBC	NTD	232
NTD	*SCC	

The FSS 275-ft level and above, including the GVA, has been cleared.

Barriers and danger sign installed.

The FSS Fuel Scrubber is powered up and stable.

***** End of FSS TVS Power Up *****

**Establish Clears and Perform SRB HPU Exhaust Duct Plugs and
Overboard Drain Line Scrubber Removals**

14-409	BHT_	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Ready to proceed with SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubber Removals.

14-410	TBC	BHT_	136
	CHPU		
	TBC	NTD	232
	NTD	*SCC	

SRB AFT Skirt GN₂ Purge verified not active.

14-411	NTD	STM	232	SU72360
	STM	JSTC	111	

Verify Life Support configured and available to support SAR with 2 breathing air lines with masks and COMM on MLP Zero level left and right SRB AFT Skirt area.

Support: [LS](#)

14-412	BHT_	TBC	136	SU72341
	TBC	NTD	232	
	NTD	*SCC		

Request concurrence to establish clears 20 ft around SRB Left/Right AFT Skirts for SRB HPU Exhaust Duct Plug removal.

14-416 TBC BHT_ 136

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-417 BHT_ TBC 136
 TBC NTD 232
 NTD *SCC

All nonessential personnel on MLP zero level cleared from 20-ft spherical radius around SRB Left/Right HPU turbine exhaust ducts.

Personnel properly attired in SAR, rubber aprons, and hyper compatible gloves. Barriers and danger signs posted.

Request Safety concurrence to proceed with SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubber Removals.

14-418 *SCC NTD 232
 NTD TBC
 TBC BHT_ 136

You have Safety concurrence to proceed with hazardous SRB HPU exhaust duct plugs and overboard drain line scrubber removals.

14-419 TBC BHT_ 136

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Fuel (MMH/N₂H₄) vapor is toxic, flammable and may cause cancer.

Exposure may cause permanent damage to the skin, eyes and lungs. The Exposure Limit is 1000 PPB.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **supplied air respirators** .

WT005 07-19-2007

WARNING

Personnel may fall from unprotected heights if fall protection is not used.

Personnel may suffer bodily injury or death.

Wear a **safety harness** with a **lanyard** when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed **life line** .

WM006 07-08-2005

NOTE

Hazardous operation follows due to possible exposure to Hydrazine vapors only.

Do not stand directly behind plugs during removals.

BHT_ shall monitor breathing zone for N₂H₄ toxic levels. If TLV is exceeded, evacuate personnel to outside breathing zone and only re-enter after TLV is determined to be satisfactory.

14-420

TBC

BHT_

136

Perform OMI S0007.100 Operation 406 - SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubber Removals.

14-421	BHT_	TBC	136	SU72381
	TBC	NTD	232	SU72341
	NTD	*SCC		

CSR-643

SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubbers Removal complete. O₂ Level Check and Toxic Vapor Check of SRB HPU Turbine Exhaust Ducts complete and acceptable.

Request SPOC Safety concurrence to open area around SRB HPU Exhaust Ducts.

14-422	*SCC	NTD	232	
	NTD	TBC		
	TBC	BHT_	136	

You have concurrence to open SRB HPU exhaust duct controlled area for controlled work.

14-423	BHT_	TBC	136	
	TBC	NTD	232	
	NTD	*SCC		

SRB HPU exhaust duct controlled area open for controlled work.

14-424	BHT_	TBC	136	
		*PAD		
	TBC	NTD	232	
	NTD	STM		
	STM	JSTC	111	
JSTC	*SCB	NET 104		

SAR requirement for SRB AFT Skirt Duct Plug and Scrubber Removal complete. Life Support and equipment may be released at this time.

Support: [LS](#)

***** End of Establish Clears and Perform SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubber Removals *****

FSS TVS Power Down

NOTE
Perform this option to power down the FSS TVS if directed by Test Team.

FSS TVS Power Down Not Performed: _____

14-425	BHT_	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

CSR-643

Request SPOC Safety concurrence to power down the FSS Fuel Scrubber and, based on acceptable TVC's, terminate clears on the FSS 275-ft level and above including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA.

14-426	*SCC	NTD	232
	NTD	TBC	
	TBC	BHT_	136
		*PAD	

You have SPOC Safety concurrence to power down the FSS Fuel Scrubber and, if TVC's are acceptable (0.0 ppm), terminate clears on the 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 stairwell leading to GVA.

14-427	BHT_	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

CSR-643

Toxic vapor checks on the 275-ft level including GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA complete.

Verify acceptable (0.0 PPM) levels and control area open for controlled work.

TTL: _____

***** End of FSS TVS Power Down *****

14-428	*PAD	TBC
	TBC	CMQC

Verify OMI S0007.100, Operation 406 - SRB HPU Exhaust Duct Plugs and Overboard Drain Line Scrubber Removals complete.

TTL: _____

***** End of SRB HPU Exhaust Duct Plug and Overboard Drain Line Scrubber Removals *****

NOTE

Hazardous steps due to SRB HPU exhaust duct plugs and overboard drain scrubbers removal complete.

Cantilever/Jib Hoist Configuration

14-429 TBC *PAD 136 SU72122
 *PAD BHT1

IF not verified prior to CTS,

THEN report OMI S0007.100 SRB Prerequisite Operation 405 -
Cantilever/Jib Hoist Configuration complete.

Not Performed: _____

14-430 STM QBSE NET 104

Pick up any loose items/debris from SRB haunch areas following removal
of haunch access ladders and handrails.

Support: STSA

Qw: _____ N: _____

14-431 OTC NTD 232
 NTD STM
 STM QBSE NET 104

Remove SRB haunch access ladders and haunch handrails per
OMI M3083 .

Support: STSA

Qw: _____

14-432 BHT1

Perform Blast Cover Assembly Installation per RT OMI B5150 .
Report completion (2 Hrs).

RT OMI Log No. _____

Secure Pad Surface OIC Monitor Shack

14-433	NTD	OTC	232	SU72103
	OTC	*PAD	132	
	*PAD	*ACM	NET 110	

T-28H00M

Disconnect power plug from facility power at ACM Monitor Shack on Pad surface and tag plug 'Do Not Use'.

Report completion.

MPS Final Preps - Complete

14-434 CMPS OTC 132
T-28H00M

MPS final preps per OMI V9018.001 complete.

Hold Time Remaining Clock Management

14-435 NTD STM 232
 STM GYCC 111
 GYCC JTCR 117
T-28H00M

Program "Hold Time Remaining Clock" (Timer #5) for following times:

1. T-27 Hour Hold ____ hrs ____ min ____ sec
2. T-19 Hour Hold ____ hrs ____ min ____ sec
3. T-11 Hour Hold ____ hrs ____ min ____ sec
4. T-6 Hour Hold ____ hrs ____ min ____ sec

NOTE
Data for T-3 Hour Hold will be 2 hours nominal.

5. T-3 Hour Hold ____ hrs ____ min ____ sec

Not Performed: _____
SS5

6. T-20 Minute Hold ____ hrs ____ min ____ sec
7. T-9 Minute Hold ____ hrs ____ min ____ sec

Clock should stop at Zero for T-27 Hour, T-19 Hour, T-11 Hour, T-6 Hour, and T-3 Hour Holds. Clock should continue plus count for T-20 Minute and T-9 Minute Holds. NTD will notify JTCR on OIS Channel 178 for adjustments from T-9 Minute Hold if required. GYCC to verify values back to STM and JTCR.

Support: [TCD](#)

14-436 NTD STM 232
 STM JBEP 111

IF AFT closed for Flight
AND not already performed,

THEN **configure** Pad Orbiter AFT oxygen analyzer for Launch
per [Doc: JOB PLAN S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA support](#) .

Report completion.

Support: [PWRA](#)
Support: [PWR](#)

Not Performed: _____

14-437 NTD STM 232
 STM JBEP 111

Perform inspection of WR/Crew Cabin and Orbiter AFT ODMS
enclosures.

Verify enclosure doors securely closed for Launch.

Support: [PWRA](#)
Support: [PWR](#)

Operations/Safety/Facility Walkdown (Part A) - Complete

14-438 *PAD OTC 132 [SU72118](#)
 OTC NTD 232 [SU72127](#)
 STM
 *SCC

T-28H00M

OMI S0007.100, Operation 550 (Part A) - PRSD Load
Safety/Facility/Fire Walkdown, complete.

14-439	*PAD	OTC	132
	OTC	NTD	232
	NTD	STM	
		*SCC	
	*SCC	*PSE	NET 105

AFT Closeout complete.

NOTE

The following three steps must be worked prior to start of PRSD load.

14-440	NTD	OTC	232
	OTC	*PAD	132
	*PAD	*ACM	NET 110

Disconnect power plug from facility power at OIC monitor shack on RSS 135-ft level and tag plug “Do Not Use”.

Report completion.

14-441	STM	GYCC	111
	GYCC	JYCD	117

Perform EI reset to OIC Station 119-2B

Verify OIC Station 119-2B channel positions are cleared, (no channels displayed).

Disconnect OIS-D interface cables at OIC monitor shack on RSS 135-ft level.

Install cap on FSS cable and store cables in monitor shack.

Secure dust cap to OIS-D portable jack interface 119-2B-P.

Report completion.

Support: [OISD](#)

T: _____

14-442	NTD	STM	232	SU72142
	STM	GYCC	111	
	GYCC	GYAT	117	
		GYQC		

Disconnect telephone interface cable and store in monitor shack.
Lock out Pad surface and the RSS 135 ft OIC Monitor shack admin telephones.
Perform Command File Run in CD&SC.
Verify in Room 204 PTCR on Tel Frame that no dial tone is present.

Pad A - Pad Surface 861-1151 & RSS 135 ft 861-5868

Report completion.

Support: [ATEL](#)

T: _____ Qw: _____

PRSD Orbiter GH₂ T-0 Reactant Pressurization

14-443	CFCP	OTC	132	SU72113
	OTC	NTD	232	SU72152

Ready to proceed with Orbiter GH₂ T-0 Reactant Pressurization.

Request all personnel clear from following areas and Safety concurrence to proceed:

1. LH₂ TSM
2. Orbiter AFT & Midbody

DPS to Redundant Set

NOTE

In next three steps, Downlist Format will be 60 if required for payload support and 44 for all other support (ref OMI S0007.100, Operation 272).

14-449	NTD	OTC	232	SU72084
		TBC		
		LPS		
	OTC	ALL	132	
	TBC	ALL	136	

T-27H30M

DPS switching to G9 redundant set Downlist ____ (44 or 60). During Redundant Set Formation, Downlist Data and LDB polling will be invalid for approximately 15 minutes. Momentary zero-filled data may appear in the downlist during transition.

14-450	NTD	OTC	232
	OTC	CDPS	132
		CDR	

Form G9/Redundant Set Downlist Format ____ (44 or 60) per OMI S0007.400 (Operation 49 Option 11) (30 minutes).

DPS in G9 Redundant Set

14-451	CDPS	OTC	132	SU72084
	OTC	NTD	232	
	NTD	TBC		
	TBC	ALL	136	

Transition to G9/Redundant Set Downlist Format ____ (44 or 60) complete (OMI S0007.400, Operation 49).

OMRSR [V72CA0.051-A](#)

**Operations/Facility Walkdown Part B - LC-39 Periphery Walkdown -
Complete**

14-452	*PAD	OTC	132	SU72120
	OTC	NTD	232	SU72132
		STM		
		*SCC		

OMI S0007.100, Operation 550 (Part B) - Operations/Facility Walkdown complete.

Set Countdown Clock for Hold

14-453	NTD	CGLS	232
--------	-----	------	-----

Hold Countdown Clock at T-27 hours 00 minutes 00 seconds.

14-454	CGLS
--------	------

HOME CMD KEY - PRESS
CDTH -01:0300/00
XMIT CMD KEY - PRESS

14-455	CGLS	NTD	232
--------	------	-----	-----

Countdown Clock will hold at T-27 hours 00 minutes 00 seconds.

Close Payload Bay Doors - Complete

14-456	OTC	NTD	232
--------	-----	-----	-----

T-27H15M

IF Payload Bay Doors not previously closed for flight,

THEN report Payload Bay door closure complete.

Not Performed: _____

Window Cover Removal, Cleaning and Inspection - Complete

14-457 **OMTO** ***PAD** 132 [SU72089](#)
 ***PAD** **OTC**

OMI S0007.100, Orbiter Prerequisite Operation 211 - Window Cover Removal, Cleaning and Inspection, complete.

14-458 **CHGD** **TBC** 136
 TBC **CMQC**

IF the HWS Remote Leak Detector System Pretest Verification was performed,

THEN report OMI S0007.100, ET Prerequisite Operation 302 - HWS Remote Leak Detector System Pretest Verification, complete.

Not Performed: _____

14-459 **CHGD** **TBC** 136
 TBC **CMQC**

OMI S0007.100, ET Prerequisite Operation 303 - HWS Remote Leak Detector Calibration Gas Cylinder and Valve Checks complete.

14-460 **CHGD** **TBC** 136 [SU72574](#)
 TBC **CMQC**

IF the HGDS Final Setups was performed,

THEN report OMI S0007.100, ET Prerequisite Operation 305 - HGDS Final Setups, complete.

Not Performed: _____

6292 Cabinet Purge Initiation

14-461 OTC *PAD 132
 *PAD CHGD
 PETG

RSS OMBUU Roof-6292 Cabinet

1. GN₂ purge valve A505975 - Open (CCW)
2. Verify audible purge.

T: _____

PRSD Cryo Preps - Complete

14-462 CFCP OTC 132 SU72082
 OTC NTD 232
 NTD STM

T-27H00M

Orbiter PRSD Cryo Flow Preps are complete. Ready to clear all nonessential personnel from Pad for LO₂/LH₂ loading operations.

LO₂ Vehicle Load Prerequisite Operations - Complete

14-468 PLOX TBC 136 SU72055
 TBC NTD 232
T-27H00M

Operations 20 through 40 of OMI G3151 - LO₂ System Preps for Vehicle Load, complete.

Hold Countdown Clock

14-469 NTD OTC PA SU72162
 TBC 232
 PTC
 *MIL
 STM
 *SCC
 LPS
T-27H00M
(HOLDING)

Countdown Clock holding at T-27 hours.

NOTE
Perform next three steps after Countdown Clock is holding.

14-470 NTD CGLS 232

Set Countdown Clock to start counting at _____ hours, _____ minutes,
_____ seconds GMT.

14-471 CGLS

HOME CMD KEY - PRESS
CDTC _____/____.000
 HHMM SS
XMIT CMD KEY - PRESS

14-472 CGLS NTD 232

Countdown Clock will start counting at _____ hour, _____ minutes,
_____ seconds GMT.

Crew Compartment Interior (Flight Deck) Inspection and Cleaning - Complete

14-473 PQCG *PAD 132 SU72117
 *PAD OTC

T-27H00M
(HOLDING)

Inspection of Crew Module interior flight deck per OMI S0007.100,
Orbiter Prerequisite Operation 209 complete.

14-474 OTC *PAD 132
 *PAD QMTG

Perform inspection of MLP valve skid and **verify** the following
(coveralls required for inspection):

1. Threaded rods holding the dresser coupler on the LO₂ main fill valve (A86461), MLP Side 1, are tight enough not to be moved by hand.
2. LO₂ replenish valve (A86460), MLP Side 1, has purge tube directed at valve stem.
3. Tape used during system leak checks removed from all flanges on Sides 1, 2 and 4.

T: _____

126.65 MHz Weather Circuit COMM Checks

14-475 STM GYCC 111 SU72733

Call SLF Control Tower (1-1305) and **verify** 126.65 MHz Weather Circuit is clear of traffic and available for COMM checks.

Advise SLF tower when COMM checks complete.

Support: [COMM](#)

14-476 GYCC GY CJ 117
T-27H00M
(HOLDING)

Perform COMM checks for VHF weather radio circuit to ICOM-B. At Tech Control place 3W SW33 in MSN 1/3/4. On local control Panel RM131 cons 1707/1709 activate I/C-B.

Perform voice transmission on VHF Weather CH 9900 and verify RX on OIS Channel 215. After completion, deactivate Panel and place 3W SW33 in position I.

Report completion.

Support: [VCE](#)

14-477 GYCC GY CJ 117
 JYCD

COMM check VHF weather (2RAC534) and Weather back-up (2RAC1534) circuits to following locations:

Support: [VCE](#)
Support: [OISD](#)

1. JSC to SLF control tower.
2. GY CJ to Firing Room 3 consoles AB8, AA5 and AA6, or Firing Room 4 consoles A19, A3 and A5.

14-482 CECL OTC 132

Partial pressure of oxygen in Crew Compartment satisfactory.

Fire/Rescue EMS PIC Test Preps

14-483 NTD JFIR 232 SU72202
*SCC
JFIR JSTC 114

IF PIC resistance test will be performed,

THEN Fire/Rescue and EMS required on Standby in district in
30 minutes to support PIC test.

Support: FIRE

Not Performed:_____

14-484 OTC CMQC 132

Verify S0007.100 Orbiter Prerequisite Operation 210 - GSE Purge
Verification (OMI V5052) is complete.

Qv:_____

ECS Control STA Transfer

14-485 OTC CPVD 132 SU72179

Transfer ECS room control to Firing Room (remote) per
OMI V1122.004 .

ECS Control Station Transfer - Complete

14-486 CPVD OTC 132 SU72179
T-27H00M
(HOLDING)

ECS Control Station transfer - Pad to Firing Room complete
(OMI V1122.004).

Configure Panel MA73C for Vent Door Operations

14-487 OTC CPVD 132 SU72169

PFP PANEL (VAM09A)
STATUS VENT DOOR COMMAND FD'S
PFPK-4 - PRESS ONCE
VERIFY ALL COMMANDS OFF

14-488 OTC CDR 132

PANEL O6
STAR TRACKER
DOOR CONTROL
SYS 1 SW - OFF (VERIFY)
SYS 2 SW - OFF (VERIFY)
POWER
-Y SW - OFF (VERIFY)
-Z SW - OFF (VERIFY)

14-489 OTC CDR 132

PANEL C3
AIR DATA
 PROBE STOW
 LEFT SW - INHIBIT (VERIFY)
 RIGHT SW - INHIBIT (VERIFY)
AIR DATA PROBE
 LEFT SW - STOW (VERIFY)
 RIGHT SW - STOW (VERIFY)

14-490 OTC CDR 132

PANEL R13L
PL BAY MECH PWR
 SYS 1 SW - OFF (VERIFY)
 SYS 2 SW - OFF (VERIFY)
PL BAY DOOR SW - STOP (VERIFY)
PL BAY DOOR ENABLE/DISABLE
 SYS 1 SW - DISABLE (VERIFY)
 SYS 2 SW - DISABLE (VERIFY)

14-491 OTC CDR 132

PANEL R2
ET UMB DOOR
 MODE SW - GPC (VERIFY)

14-492 OTC CDR 132

PANEL MA73C

ROW A

 MCA LOGIC

 MN A

 FWD 1 SW - ON (VERIFY)

 MID 1 SW - ON (VERIFY)

 MN B

 FWD 2 SW - ON (VERIFY)

 MID 1 SW - ON (VERIFY)

 MID 2 SW - ON (VERIFY)

 MN C

 FWD 3 SW - ON (VERIFY)

 MID 2 SW - ON (VERIFY)

ROW B

 MCA LOGIC

 MN A

 AFT 1 SW - ON (VERIFY)

 MID 3 SW - ON (VERIFY)

 MN B

 AFT 2 SW - ON (VERIFY)

 MID 3 SW - ON (VERIFY)

 MID 4 SW - ON (VERIFY)

 MN C

 AFT 3 SW - ON (VERIFY)

 MID 4 SW - ON (VERIFY)

ROW C

MCA POWER AC1 3 PH
FWD 1 CB - CLOSE
MID 1 CB - CLOSE

MCA POWER AC2 3 PH
FWD 2 CB - CLOSE
MID 1 CB - CLOSE
MID 2 CB - CLOSE

MCA POWER AC3 3 PH
FWD 3 CB - CLOSE
MID 2 CB - CLOSE

ROW D

MCA POWER AC1 3 PH
AFT 1 CB - CLOSE
MID 3 CB - CLOSE

MCA POWER AC2 3 PH
AFT 2 CB - CLOSE
MID 3 CB - CLOSE
MID 4 CB - CLOSE

MCA POWER AC3 3 PH
AFT 3 CB - CLOSE
MID 4 CB - CLOSE

14-493 OTC CPVD 132 [SU72169](#)

Panel MA73C configured for Vent Door operations.

NOTE

Exposure of open vent doors to rain intrusion should be avoided.

There is a potential for water inside the Vehicle if the RSS is not extended around the Vehicle and if it is raining at the Pad. This operation should be delayed until rain stops.

**Panel MA73C 3-Phase Breaker Integrity Test and Vent Door
Positioning to Normal Purge Configuration**

14-494 OTC CPVD 132 [SU72177](#)
T-27H00M
(HOLDING)

Perform Panel MA73C 3-Phase Breaker Integrity Test and Vent Door
Positioning to Normal Purge Configuration.

NOTE

In the following two steps, each vent door will be cycled to verify 3-phase integrity of two breakers on panel MA73C.

For each vent door, all substeps must be completed, in sequence, prior to moving the next vent door.

14-495
T-27H00M
(HOLDING)

CPVD

CURSOR CNTL (VAM65A)

1. **MOVE** EACH VENT DOOR LISTED IN THE FOLLOWING TABLE, ONE AT A TIME, TO THE OPEN POSITION.
2. **VERIFY** 3-PHASE INTEGRITY AFTER CYCLE TO OPEN (USE PCGOAL DATA PLOT OF AC BUS AMPERAGE TO VERIFY THAT THE AMPERAGE INCREASED DURING THE VENT DOOR MOVEMENT) .
3. **MOVE** THE VENT DOOR TO PURGE POSITION PRIOR TO OPERATING THE NEXT VENT DOOR.

Vent Doors Cycled and AC Busses Checked		Final Position for Normal Purge Configuration
L/H 1 & 2	AC2 & AC3	Purge
R/H 1 & 2	AC1 & AC2	Purge
L/H 8 & 9	AC1 & AC2	Purge
R/H 8 & 9	AC2 & AC3	Purge

14-496
T-27H00M
(HOLDING)

CPVD

CURSOR CNTL (VAM65A)

1. **MOVE** EACH VENT DOOR LISTED IN THE FOLLOWING TABLE, ONE AT A TIME, TO THE OPEN POSITION.
2. **VERIFY** 3-PHASE INTEGRITY ON EACH CYCLE (BOTH AC CURRENT ARROWS UP/GREEN) .
3. **MOVE** THE VENT DOOR TO CLOSED POSITION PRIOR TO OPERATING THE NEXT VENT DOOR.

Vent Doors Cycled and AC Busses Checked		Final Position for Normal Purge Configuration
L/H 3	AC2 & AC3	Closed
R/H 3	AC1 & AC3	Closed
L/H 5	AC1 & AC2	Closed
R/H 6	AC1 & AC2	Closed

14-497
T-27H00M
(HOLDING)

CPVD

CURSOR CNTL (VAM65A)

VERIFY VENT DOORS ARE CONFIGURED TO NORMAL PURGE CONFIGURATION.

Vent Doors Cycled	Final Position for Normal Purge Configuration
L/H & R/H 1 & 2	Purge
L/H & R/H 3	Closed
L/H & R/H 5	Closed
L/H & R/H 6	Closed
L/H & R/H 8 & 9	Purge

14-498 CPVD OTC 132 SU72177
CAFM
OTC NTD 232

PANEL MA73C 3-PHASE BREAKER INTEGRITY TEST AND
VENT DOOR POSITIONING TO NORMAL PURGE
CONFIGURATION COMPLETE.

- ORBITER VENT DOORS POSITIONED TO NORMAL PURGE
CONFIGURATION
- INTEGRITY TEST COMPLETE FOR MA73C CB1 THROUGH
CB7 AND CB9 THROUGH CB14.

Vent Doors	AC Bus-(Breaker)	AC Bus-(Breaker)
L/H 1 & 2	AC3-FWD3 (CB11)	AC2-FWD2 (CB5)
R/H 1 & 2	AC1-FWD1 (CB1)	AC2-FWD2 (CB5)
L/H 3	AC3-MID2 (CB12)	AC2-MID2 (CB7)
R/H 3	AC1-MID1 (CB2)	AC3-MID4 (CB13)
L/H 5	AC1-MID3 (CB3)	AC2-MID1 (CB6)
R/H 6	AC1-MID1 (CB2)	AC2-MID4 (CB9)
L/H 8 & 9	AC1-AFT1 (CB4)	AC2-AFT2 (CB10)
R/H 8 & 9	AC3-AFT3 (CB14)	AC2-AFT2 (CB10)

***** End of Panel MA73C 3-phase Breaker Integrity Test and Vent Door Positioning
to Normal Purge Configuration *****

SRB Power Up

14-499 NTD OTC 232
 OTC CDPS 132

Verify Vehicle is in redundant set.

14-500 NTD TBC 232 SU72180
 TBC CPWR 136

T-27H00M
(HOLDING)

Vehicle in Redundant Set (DPS).

Proceed with SRB power up per OMI S9001.104 (Option A).

RT OMI Log No. _____

14-501 CPWR TBC 136 SU72180
 TBC NTD 232
 NTD OTC

SRB Power Activation complete.

SRB Power Up - Complete

14-502 OTC CEPD 132

Perform MEC Pre-Flight BITE Evaluation.

14-503 CEPD

Perform SDC QLDB Retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

14-504 CEPD OTC 132
 OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

14-510 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

14-511 CISL CDR 145

PANEL F7
REPORT C/W ANNUNCIATORS ON LIGHTS

RECORD IN FIGURE 14-1 SECTION P-1

14-512 CISL CDR 145

PANEL C3
CAUTION/WARNING
MODE SW - ACK

14-513 CISL OTC 132

[SU72173](#)

C/W status and memory clear complete.

14-514 OTC CDR 132

[SU72181](#)

*ACM
NTD 232
NTD *SCC

Egress Crew Module/Whiteroom and proceed to Roadblock A-5 (Pad A).

CCF LPGN₂ Preps - PRSD Load

NOTE

Do not perform this option if CCF LPGN₂ preps previously performed.

CCF LPGN₂ Preps - PRSD Load Not Performed: _____

14-515	STM	JSTC	111	SU72204
	JSTC	GSPN	114	

Start CCF industrial LPGN₂ preps per [Doc: M3703 \(LI\) Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor](#) for Air to GN₂ Changeover supporting PRSD Load (2 hours).

Support: PNU

14-516	STM	JSTC	111	SU72203
	JSTC	GSPN	114	

Start HPGHe/GN₂ and LPGN₂ valve positioning per [Doc: M3704 \(LI\) HPGHe/GN₂ and LPGN₂ Valve Positioning Cross-country Lines, LC-39, KSC](#) for Air to GN₂ Changeover supporting PRSD Load (2 hours).

Support: PNU

***** End of CCF LPGN₂ Preps - PRSD Load *****

SRB AFT Skirt GN₂ Purge Thermal Conditioning

NOTE

The following two steps are to be worked by HPU. TPE can work these steps if prior coordination with HPU occurred.

14-517

**CHPU
CTPE**

Perform the following:

1. **Record** present time and date:

Time _____ GMT

Date _____ mmddyy

2. **Request** ESA execute data file SRBFB (graphics plots) from the start of S0007 to the resume count from the 4hr BIH at T-27h (ref only phone 1-1508/1509). (Deliver to C8 Console or Integration if no CHPU is available.)

3. From the four graphic plots:
Record the average flex bearing temperatures:

B06T7087A Avg: _____ deg F	B06T8087A Avg: _____ deg F
B06T7088A Avg: _____ deg F	B06T8088A Avg: _____ deg F
B06T7089A Avg: _____ deg F	B06T8089A Avg: _____ deg F
B06T7090A Avg: _____ deg F	B06T8090A Avg: _____ deg F

14-518

CTPE

IF one or more of the eight flex bearing average temperatures is less than 60 deg F from the start of S0007 until resume count from the 4hr BIH at T-27h,

THEN contact APU Engineering.

Not Performed: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-519	TBC	CHPU	136	SU72198
		STM		SU72213
	STM	JSTC	111	
	JSTC	GSPN	114	

IF in previous step, one or more of the eight flex bearing average temperatures is less than 60 deg F from the start of S0007 until resume count from the 4hr BIH at T-27h,

THEN activate SRB GN₂ AFT skirt purge per OMI S0007.100, Operation 453 - SRB AFT Skirt GN₂ Purge Activation/Deactivation.
Report completion.

OMRSR [S00FA0.776-1](#)

Support: JSTC
Support: PNU

Not Performed: _____

14-520	NTD	CMQC	232	SU72A76
--------	-----	------	-----	---------

Verify OMI S0007.400, Operation 899 - Walkdown Discrepancy List items constraining PRSD load, complete.

14-521	CMQC	NTD	232	
--------	------	-----	-----	--

OMI S0007.400, Operation 899 - Walkdown Discrepancy List items constraining PRSD load, complete.

Qv: _____

NOTE

The Shuttle PIC resistance test and SRB Ignition S&A Device Verification is to be performed only after final Orbiter AFT, ET/IT and SRB FWD skirt close-outs are complete.

Shuttle PIC Resistance Test and SRB Ignition S&A Device Verification

14-522	NTD	OTC	232	SU72183
		TBC		SU72215
		PTC		
		STM		
		*SCC		
		*SEC		
	*SCC	*PSE	NET 105	
	*SEC	JSTC	114	

Verify ready to clear all personnel from Blast Danger Area.

Support: [SEC](#)

14-523	NTD	*SCC	232	SU72153
		*SEC		

Move road blocks from gate to Pad A Blast Danger Area.

Support: [SEC](#)

14-524	NTD	*SCC	232	
		*SEC		
	*SCC	*PSE	NET 105	

Start clearing all personnel from Pad A and Blast Danger Area.

Turn on Pad A, A-5, B-4 and Roadblock A/B-11 area warning lights to FLASHING AMBER.

Support: [SEC](#)

Range Safety AGC Confidence Check

NOTE

If required this flow then perform Range Safety AGC Confidence Check.

The Range Safety AGC Confidence Check requires a Downlist 44 and trunking radio clears for Pad surface and above. Mobile radios secured at the gate. This test does not require a BDA clear.

Range Safety AGC Confidence Check Not Performed: _____

14-529	NTD	TBC	232	SU72B94
	TBC	CBRS	136	

Perform Range Safety AGC Confidence Check.

14-530	NTD	OTC	232
	OTC	CDPS	132

Verify Downlist Format 44.

14-531	CBRS	TBC	136
	TBC	NTD	232
	NTD	STM	

Verify Frequency clear at 416.5 MHz closed loop with protection.

SRSS GSE Power Up

14-532	TBC	CBRS	136
--------	-----	------	-----

Perform Range Safety GSE Power Up.

14-533

CBRS

CURSOR CNTL (SWRB3)
BSR01
XMIT CURSOR KEY - PRESS

POWER ON SYS A&B A PRIME
XMIT CURSOR KEY - PRESS

14-534

CBRS TBC 136

SRSS GSE Power Up complete.

14-535

CBRS

CRT (SWRB2)
LH SRB SYS A INHIBIT ON
LH SRB SYS B INHIBIT ON
RH SRB SYS A INHIBIT ON
RH SRB SYS B INHIBIT ON

LH AND RH S&A SAFE ON
ARM OFF

14-536

CBRS

CURSOR CNTL
LH SRB SYSTEM A CRD POWER - ON
XMIT CURSOR KEY - PRESS

LH SRB SYSTEM B CRD POWER - ON
XMIT CURSOR KEY - PRESS

RH SRB SYSTEM A CRD POWER - ON
XMIT CURSOR KEY - PRESS

RH SRB SYSTEM B CRD POWER - ON
XMIT CURSOR KEY - PRESS

14-537 **CBRS**

CRT (SWRB2)

RECORD (SYSTEM A GSE) :

LH SYSTEM A CRD AGC _____

LH SYSTEM B CRD AGC _____

RH SYSTEM A CRD AGC _____

RH SYSTEM B CRD AGC _____

14-538 **CBRS**

CURSOR CNTL (BWR10)

SYSTEM SELECT

XMIT CURSOR KEY - PRESS

VERIFY SYSTEM B SELECTED

14-539 **CBRS**

CRT (SWRB2)

RECORD (SYSTEM B GSE) :

LH SYSTEM A CRD AGC _____

LH SYSTEM B CRD AGC _____

RH SYSTEM A CRD AGC _____

RH SYSTEM B CRD AGC _____

14-540 CBRS

CURSOR CNTL
LH SRB SYSTEM A CRD POWER - OFF
XMIT CURSOR KEY - PRESS

LH SRB SYSTEM B CRD POWER - OFF
XMIT CURSOR KEY - PRESS

RH SRB SYSTEM A CRD POWER - OFF
XMIT CURSOR KEY - PRESS

RH SRB SYSTEM B CRD POWER - OFF
XMIT CURSOR KEY - PRESS

14-541 CBRS

CURSOR CNTL (BWR10)
SYSTEM SELECT
XMIT CURSOR KEY - PRESS

VERIFY SYSTEM A SELECTED

14-542 CBRS

CURSOR CNTL (SWRB3)
BSR01
XMIT CURSOR KEY - PRESS

POWER OFF SYS A&B
XMIT CURSOR KEY - PRESS

14-543 CBRS TBC 136
TBC NTD 232

Range Safety AGC Confidence Check complete.

***** End of Range Safety AGC Confidence Check *****

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-544 NTD *SCC 232
 *SCC *PSE NET 105

Request Safety concurrence to perform PIC resistance test and SRB Ignition S&A rotation verification.

14-545 NTD JFIR 232 SU72200
 *SCC

Verify Fire/Rescue and EMS on standby in district for PIC resistance test.

Support: FIRE

14-546 *PSE *SCC NET 105 SU72183
 *SCC NTD 232 SU72215
 NTD OTC

All personnel clear of Blast Danger Area. Pad A, A-5, B-4 and Roadblock A/B-11 area warning lights are FLASHING AMBER. You have Safety concurrence to perform PIC resistance test and Ignition S&A rotation verification.

Switch to Format 42

NOTE

Downlist Format 42 is required for SRB Ignition S&A Device Verification. If not in Format 42, perform this option. If Downlist Format 42 is not available, do not perform SRB Ignition S&A Device Verification.

Switch to Format 42 Not Performed: _____

14-547	OTC	NTD	232	SU72164
	NTD	TBC		
		PTC		
	TBC	ALL	136	
	PTC	ALL	134	

Verify ready for transition to Downlist Format 42.

14-548	TBC	NTD	232
	PTC		
	NTD	OTC	

Ready to support transition to Downlist Format 42.

14-549	OTC	ALL	132
---------------	------------	------------	------------

DPS switching to GNC9, Downlist Format 42

14-550 OTC CDPS 132

Configure Orbiter DPS to Downlist Format 42.

14-551 CDPS

CURSOR CNTL (SAS01 PG-B)
FMT 42
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

14-552 CDPS

CRT (VAS59 PG-B)
FMT 42 ACTIVE

14-553 CDPS OTC 132
 OTC NTD 232
 NTD TBC
 PTC
 TBC ALL 136
 PTC ALL 134

DPS configured to Downlist Format 42.

***** End of Switch to Format 42 *****

WARNING

If Shuttle ordnance is connected, ordnance detonation may occur due to inadvertent PIC-LPS commands.

Personnel may suffer serious bodily injury or death

WPYR026 04-08-04

NOTE

Hazardous steps follow due to PIC resistance test and SRB S&A rotation

Orbiter/GSE PIC Resistance Test

14-554 NTD OTC 232 [SU72184](#)

Proceed with Orbiter/GSE PIC Resistance Test.

14-555 OTC CEPD 132

Power up GSE PIC racks and perform Orbiter/GSE PIC Resistance Test per OMI S0007.400, Operation 52 on OIS Channel 151.

SRB Ignition S&A Device Verification

NOTE

Do not perform S&A Device Rotation during a Phase 1 Lightning Advisory or a Phase 2 Lightning Warning.

Downlist Format 42 is required for SRB Ignition S&A Device Verification. Do not perform this option if Format 42 unavailable.

SRB Ignition S&A Device Verification Not Performed: _____

WARNING

Controlled switching: No flight vehicle/element or GSE commands issued, no switches, or circuit breakers operated on the Flight Element or GSE electrically connected to the Flight Elements.

The only exceptions are those commands and switch/circuit breaker operations directed by the WAD (and subtasks) requiring controlled switching.

WLTC002 01-31-01

WARNING

If Shuttle ordnance is connected, ordnance detonation may occur due to inadvertent PIC-LPS commands.

Personnel may suffer serious bodily injury or death

WPYR026 04-08-04

WARNING

Lightning radiates energy that may cause ordnance items to explode.

Personnel may suffer bodily injury or death.

Adhere to strict lightning policy during all work or operations involving ordnance devices.

WPYR010 04-07-04

Set Up Badge Board for HAZ Badges (PRSD Cryo Load)

NOTE

The next step will be scheduled real time so that the badge board is set up prior to shift change.

14-566 **NTD** **OTC** **232** SU72111
 OTC ***PAD** **132**
 ***PAD** ***ACM** **NET 110**

Set up badge board at Pad A gate for PRSD tanker placement, ECS Air to GN₂ changeover and Orbiter PRSD loading.

Essential Personnel (HAZ Badge) (Tanker Placement/Cryo Load)			
	SPOC	NASA	ISC
Engineer	2	1	2
Technician	6		4
Quality	4		2
Safety	1	1	

Essential Personnel (HAZ Badge) (Air to GN₂ Changeover)		
	SPOC	NASA
Engineer	1	1
ECS Technician	4	
Quality		
Safety	1	1

Essential Personnel (HAZ Badge) (PTCR/ECS Room Pressurization)			
	GSS	NASA	SPOC
Safety		1	1
Supr/Engineer	2		
Technician	2		
Quality	1		

Essential Personnel (HAZ Badge) (Crew Module & Whiteroom)	
	SPOC
SCO	2

14-567 *ACM *PAD NET 110 SU72111
 *PAD OTC 132
 OTC NTD 232
 NTD *SCC

Badge Board set-up complete to support air to GN₂ changeover and Cryo Load.

NOTE

Blue collar coveralls will be required for Ingress if PRSD tanker placement and connect is performed in parallel with MEC power down.

14-568 OTC *PAD 132 SU72192
 *PAD CDR

Ready to ingress Crew Module for post PIC test safing.

Request SCO report to Whiteroom.

14-569 OTC NTD 232 SU72191
 NTD *SCC
 *SCC *PSE NET 105

Request Safety verify O₂ levels acceptable for Orbiter access.

14-570 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC

Crew Module O₂ levels acceptable. You have Safety concurrence to access Crew Module.

14-571 OTC CDR 132

Ingress Crew Module.

14-572 NTD *SCC 232
 *SCC *PSE NET 105

IF Shuttle PIC Resistance Test was performed,

THEN request SPOC Safety allow essential personnel access to Pad for Air to GN₂ Changeover and PRSD Cryo Load.

Post safety warning sign at ECS door three.

Not Performed: _____

14-573 NTD JFIR 232 SU72200
 JFIR JSTC 114

Fire/Rescue and EMS on standby support released from PIC Resistance Test.

Support: FIRE

DPS to Downlist Format 44/60 (Post PIC Test)

NOTE

Perform this option if currently in Downlist Format 42.

In next four steps, Downlist Format will be 60 if required for payload support and 44 for all other support (ref OMI S0007.100, Operation 272).

DPS to Downlist Format 44/60 (Post PIC Test) Not Performed: _____

14-574 OTC NTD 232 SU72165
 OTC ALL 132
 NTD TBC 232
 PTC
 TBC ALL 136
 PTC ALL 134

Verify ready to support Format _____ (44 or 60).

14-575 **NTD** **OTC** **232**
 OTC **CDPS** **132**

Transition back to Downlist Format _____ (44 or 60).

14-576 **CDPS**

CURSOR CNTL (SAS01 PG-B)
FMT _____ (44 OR 60)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
VERIFY
SELECTED DL FMT ACTIVE

14-577 **CDPS** **OTC** **132** **SU72165**
 OTC **NTD** **232**
 NTD **TBC**
 PTC

Transition to Downlist Format _____ (44 or 60) complete.

***** End of DPS to Downlist Format 44/60 (Post PIC Test) *****

14-578 **TBC** **CPWR** **136** **SU72188**
 CBDP

Perform SRB Power Down per OMI [S9001.104](#) .

RT OMI Log No. _____

14-579 **CPWR** **TBC** **136** **SU72188**
 TBC **NTD** **232**

SRB Power Down complete.

14-580 OTC CEPD 132 SU72189

Perform MEC Pre-Flight BITE Evaluation.

14-581 CEPD

Perform SDC QLDB Retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures

14-582 CEPD OTC 132
 OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

14-583 NTD OTC 232 SU72193
 OTC CEPD 132

Perform MEC Power Down per OMI S9001.104 .

RT OMI Log No. _____

14-584 CEPD OTC 132 SU72193
 OTC NTD 232

MEC Power Down complete.

14-585 STM GYCC 111

IF not verified prior to CTS,

THEN verify OMI S0007.100, Support Prerequisite Operation 5 -
Communication Support complete.

Support: COMM

Not Performed: _____

14-586 STM CMQC 111
 NTD 232

IF previous step performed,

THEN report OMI S0007.100, Support Prerequisite Operation 5 -
Communication Support complete.

Not Performed: _____

HP GHe/GN₂/LPGN₂ Valve Positioning - Complete

NOTE

Do not perform this option if previously performed.

HP GHe/GN₂/LPGN₂ Valve Positioning - Complete

Not Performed: _____

14-587 GSPN JSTC 114 [SU72203](#)
 JSTC STM 111

HP GHe/GN₂ and LPGN₂ Valve Positioning complete.

Support: [PNU](#)

14-588 GSPN JSTC 114 [SU72204](#)
 JSTC STM 111

CCF Industrial LPGN₂ Preps complete.

Support: [PNU](#)

*** End of HP GHe/GN₂/LPGN₂ Valve Positioning - Complete ***

CCF-39 Configured for LPGN₂ Flow - PRSD Load

14-589	GSPN	JSTC	114	SU72176
	JSTC	STM	111	SU72210
	STM	NTD	232	

T-27H00M
(HOLDING)

CCF-39 GN₂ production plant ready to support PRSD load.

Support: [PNU](#)

14-590	NTD	JFIR	232	SU72205
		*SCC		

Fire/Rescue and EMS required on Standby in district in 30 minutes to support PRSD load.

Support: [FIRE](#)

14-591	NTD	OTC	PA
		TBC	232
		*MIL	
		STM	
		PTC	
		*SCC	
		LPS	

T-27H00M
(HOLDING)

Countdown Clock will start counting at T-27 hours in 5 minutes.

14-592	NTD	ALL	PA
			232

T-27H00M
(COUNTING)

Countdown Clock at T-27 hours and counting.

14-593 OTC CECL 132 SU72167

IF Dual Mode Cooling will be required this Launch,

THEN configure freon loops to RAD flow per OMI S0007.100, Operation 257.

Report completion.

Not Performed: _____

14-594 OTC CECL 132

Perform LCC Monitor Activation per OMI S0007.400, (Operation 45, Option E). **Report** completion.

14-595 OTC CDR 132 SU72154

IF personnel have not already cleared Crew Module and Whiteroom,

THEN egress Crew Module and Whiteroom. Padlock Whiteroom when leaving. Have personnel report to fall back area.

Not Performed: _____

WARNING

LH₂ and LO₂ are cryogenic liquids. Valves, lines and connections are extremely cold during PRSD tank connection and venting.

Exposure or contact by unprotected tissue may result in pain, frostbite and/or severe cryogenic burn injury.

Wear **clean flame retardant, non-static producing coveralls .**

Wear **temperature protective/welders gloves and industrial goggles .**

Wear **non-porous, non-sparking conductive footwear and face shield .**

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NOTE

Hazardous operations - PRSD LO₂/LH₂ Loading and Air to GN₂ Changeover follow.

14-596 **OTC** **NTD** **232**
 NTD ***SCC**

IF Shuttle PIC Resistance Test was performed,

THEN verify Pad A remains cleared to perimeter fence for PRSD Tanker Placement, ECS Air to GN₂ Changeover and Orbiter PRSD Loading.

Not Performed: _____

Nonessential Personnel Safety Clears

NOTE

Do not perform this option if Shuttle PIC Resistance Test was performed.

Nonessential Personnel Safety Clears Not Performed: _____

14-597 **NTD** **OTC** **232**
 TBC
 STM
 ***SCC**
 PTC

T-27H00M

Verify ready to clear all nonessential personnel to perimeter fence for PRSD Tanker Placement, ECS Air to GN₂ Changeover and Orbiter PRSD Loading.

14-598 **NTD** ***SCC** **232**
 ***SCC** ***PSE** **NET 105**

Turn on Pad A, A-5, B-4 and Roadblock A/B-11 area warning lights to FLASHING AMBER.

14-599 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**

Pad A, A-5, B-4 and Roadblock A/B-11 area warning lights are FLASHING AMBER.

14-600 **NTD** ***SCC** **232**
 ***SCC** ***PSE** **NET 105**

T-27H00M

Request SPOC Safety clear nonessential personnel from Pad to perimeter fence for Air to GN₂ Changeover and PRSD Cryo Load.

Post danger signs at ECS door three.

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APPROVED**

14-601	NTD	OTC	PA
		TBC	232
		STM	
		*SCC	
		PTC	

T-27H00M

Attention on Pad A:

All nonessential personnel clear the Pad to perimeter fence for PRSD Tanker Placement, ECS Air to GN₂ Changeover and PRSD LO₂ and LH₂ Loading Operations.

***** End of Nonessential Personnel Safety Clears *****

14-606	GYVW	GYCC	PTP
	GYCC	STM	111
	STM	NTD	232
	NTD	OTC	
	OTC	CHGD	132

HGDS ATM is fully operational to Pad A.

Support: [WB](#)

NOTE

Perform the next step no later than 1.5 hours prior to PRSD Cryo LO₂ Loading.

14-607 OTC CHGD 132 [SU72194](#)

Perform RT OMI [V3540](#) HGDSA, HGDSB and HUMS Activations per Operation - PRSD Load Preps.

Operation No. _____ Run No. _____

RT OMI Log No. _____

14-608 CHGD OTC 132

The HGDSA, HGDSB and HUMS Activations performed per V3540 Operation - PRSD Load Preps are complete.

14-609 OTC CMQC 132

Verify S0007.100 Support Prerequisite Operation 3 - PRSD LO₂/LH₂ Tanker Preps complete.

Qv: _____

Tanker Status (PRSD Loading OPS)

14-610 STM JSTC 111
 JSTC GSPS NET 104

Verify tankers are ready to support OMI V1040.220 - PRSD Cryo Load. Safety concurrence for tanker placement required. NTD will give Go for tankers to proceed to Pad.

Support: [PN](#)

14-611 NTD *SCC 232 [SU72212](#)
 *SCC *PSE NET 105 [SU72274](#)
T-27H00M

Position danger signs for Air to GN₂ Changeover at areas listed below and report complete.

Request Safety concurrence to proceed with Air to GN₂ Standby mode.

NOTE

Place signs close to Vehicle to allow work space on RSS platforms in substeps 6 and 7.

PTCR blast doors must be closed by GSS prior to performance of substep 2.

1. PTCR ECS Room doors (3)
2. PTCR Pad blast doors
3. MLP A, B, Zero, east and west access platform stairs (Sides 2 and 4)
4. LOX and LH₂ TSMs
5. FRCS Room - 193-ft level
6. Orbiter door 44 - if not closed for flight
7. Orbiter 50-1, 50-2 doors access platform - clear AFT fuselage - if not closed for flight.
8. PCR Room
9. OAA

14-612 NTD *SCC 232
 *SCC *PSE NET 105

Verify one 10-minute ELSA available for each person in ECS Room.

PRSD LO₂/LH₂ Tanker Placement

NOTE
LH₂/LO₂ Tanker Placement may be performed in parallel with Pad Clear/Air to GN₂ Changeover and MEC Power Down Operations.

14-613 NTD *SCC 232 [SU72217](#)
 *SCC *PSE NET 105

T-27H00M

Verify Safety concurrence for tanker placement on Pad surface.

14-614 *PSE *SCC NET 105
 *SCC NTD 232

You have Safety concurrence to position tankers on Pad surface.

14-615 NTD STM 232 [SU72206](#)
 STM JSTC 111 [SU72170](#)
 JSTC GSPS NET 104

Perform LO₂/LH₂ Tanker Placement per OMI S0007.100, Operations 152 and 153.

Support: [PN](#)

14-616 CFCP OTC 132
 OTC *PAD
 *PAD PPHM
 PPOM

Request essential personnel report on station for PRSD Tanker Placement/Cryo Load.

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.

Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

Hazardous steps follow due to Air to GN₂ Changeover - Standby Mode.

14-621	NTD	OTC	232
	OTC	CPVD	132

T-26H30M

Proceed to ECS GN₂ Standby mode by performing OMI [V1122.203](#) ,
Operation 30 - Air/GN₂ Standby Configuration (Hand Valves Open)
(15 minutes).

RT OMI Log No. _____

Air to GN₂ Changeover

14-622	NTD	STM	232	SU72257
	STM	JSTC	111	
	JSTC	GSPN	114	

Support Air to LPGN₂ Changeover per operation instructions of
[Doc: M3703 \(LI\) Low-pressure Gaseous Nitrogen and High-pressure
Gaseous Nitrogen Systems, Industrial Gas Supply Interface,
Converter/Compressor](#) . GSPN coordinate with CPVD on OIS
Channel 172.

Support: [PNU](#)

PTCR/ECS Room Pressurization Preps - Complete

14-623 JBAC STM 111 SU72207
T-26H30M
PTCR/ECS Room Pressurization Preps complete.
Support: HVAA

East and West Flame Cell Closeout - Complete

14-624 JBAC STM 111 SU72208
East and West Flame Cell Pressurization complete.
Support: HVAA

14-625 JSTC STM 111
STM NTD 232
NTD *SCC
*SCC *PSE NET 105

Establish 50-ft clear area around LO₂/LH₂ tankers per OMI S0007.100, Operations 152 and 153.

14-626 *PSE *SCC NET 105
*SCC NTD 232
NTD STM
STM JSTC 111

50-ft clear area around LO₂/LH₂ tankers verified.

LH₂/LO₂ Tanker Placement - Complete

14-627 GSPS JSTC NET 104 SU72170
JSTC STM 111 SU72206
STM NTD 232
NTD OTC
OTC CFCP 132

LH₂/LO₂ Tanker Placement per OMI S0007.100, Operations 152 and 153 complete.

Support: PN

LH₂/LO₂ Tanker Connection

14-628	CFCP	OTC	132	SU72222
	OTC	NTD	232	
	NTD	*SCC		

Ready to proceed with LH₂/LO₂ Tanker Connection.
Request Safety concurrence to proceed.

14-629	*SCC	*PSE	NET 105
--------	------	------	---------

Verify all nonessential personnel cleared from Pad slope and above.

Verify all personnel involved with flow of LO₂ and LH₂ wear clean flame retardant cotton coveralls. Upon initiation of Cryo Flow, personnel operating hand valves, making or breaking lines, shall wear faceshields, Safety approved leather gloves, and non-porous, non sparking leather or rubber footwear.

Verify flare stack warning lights On.

14-630	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	CFCP	132

Essential personnel properly attired. Pad slope and above clear of all nonessential personnel. Barriers and danger signs posted and flare stack warning lights ON. You have Safety concurrence to proceed with Tanker Connection and Inert Purge per OMI [V1040.220](#) .

Standby GN₂ Mode - Complete

14-631	CPVD	OTC	132	SU72168
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-26H15M

OMI V1122.203, Operation 30 - Air/GN₂ Standby Configuration (Hand Valves Open) complete. ECS Room/PVD personnel clearing control area.

14-637 *PSE *SCC NET 105

Danger Sign posted at ground level PTCR and ECS personnel doors.

Pad Clear - Complete

14-638 *PSE *SCC NET 105 SU72178
 *SCC NTD 232

T-26H00M

All nonessential personnel (including ECS/PVD personnel) have been cleared to Pad perimeter fence for PRSD loading and Air to GN₂ Changeover Operations. You have Safety concurrence to proceed with ECS Air to GN₂ Changeover.

WARNING
GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.
Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.
Do not enter prior to ventilation.
Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.
WCS006.c 06-09-2005

NOTE
GN ₂ will flow into Orbiter FWD Payload Bay and AFT fuselage.

14-639 NTD OTC 232 SU72224
 OTC CPVD 132
 CHGD

T-26H00M

Perform ECS Air to GN₂ Changeover per OMI [V1122.203](#)
Operation 40 - Air/GN₂ Changeover.
Coordinate with GSPN on OIS Channel 172.

RT OMI Log No. _____

14-640 STM JBEP 111

Air to GN₂ Changeover in progress. Possibility of low level O₂ alarms.
Advise STM if alarms occur.

14-641 OTC NTD 232
 PTC
 CPVD 132

IF flow rate is not at 230 lbs/min (219 to 241),
AND increasing will not cause a payload OMRS violation,

THEN increase PLB flow rate to 230 lbs/min (219 to 241) per
OMI [V1122.004](#) (maintain PLB I/F temperature within payload
OMRS limits.).

Not Performed: _____

14-642 CPVD OTC 132
 OTC CHGD

IF previous step performed,

THEN ECS PLB circuit GN₂ purge is configured for high flow rate
(OMI [V1122.004](#)).

Not Performed: _____

14-643 CPVD OTC 132 [SU72224](#)
 CHGD
 OTC NTD 232
 NTD *SCC
 PTC

T-25H00M

ECS Air to GN₂ Changeover complete (OMI [V1122.203](#)). Orbiter being
purged with GN₂ at _____ (record time).

PRSD Load Orbiter GN₂ Purge Oxygen Decay Profile

NOTE

The following step will perform oxygen decay data collection after Orbiter Air to GN₂ with PC2 at high flow and PC2 transition to nominal flow for PRSD load. This data will be used as a baseline for ET load Orbiter GN₂ purge Oxygen decay profile prior to PRSD Performance Calibration and System Integrity Check. The desired target Midbody and Payload Bay Oxygen concentration is 25 ppm prior to starting PRSD LO₂ load. Oxygen decay rates will vary due to Payload configuration, and will require HGDS Engineering analysis to proceed with PRSD LO₂ load.

14-644 OTC CHGD 132 SU72B76

Perform RT OMI V3540 “PRSD Load Orbiter GN₂ Purge Oxygen Decay Profile” per Operation - PRSD Load Preps.

Operation No. _____ Run No. _____

RT OMI Log No. _____

14-645 CHGD OTC 132

“PRSD Load Orbiter GN₂ Purge Oxygen Decay Profile” performed per OMI V3540 Operation - PRSD Load Preps is complete.

***** End of PRSD Load Orbiter GN₂ Purge Oxygen Decay Profile *****

Open Orbiter Vent Doors 1 & 2 (Contingency)

NOTE

Perform this option if O₂ concentration in OAA Whiteroom becomes less than 20 percent as indicated on Whiteroom O₂ meter (OTV Camera 005). The next two steps will open Leeward Vent Doors 1 & 2.

Open Orbiter Vent Doors 1 & 2 (Contingency) Not Performed: _____

14-646 **NTD** **OTC** **232** [SU72227](#)
 OTC **CPVD** **132**

O₂ concentrations in Whiteroom are less than 20 percent. Open Orbiter Vent Doors 1 & 2 on Leeward side.

14-647
T-25H00M

CPVD

CURSOR CNTL (VAM31A/VAM09A)
VENT DOORS 1&2 (LEEWARD) - OPEN TARGET

CRT (VAM09A)

VERIFY LEEWARD VENT DOOR 1 & 2 ARE OPEN.

14-648 **CPVD** **OTC** **132**
 OTC **NTD** **232**
 NTD ***SCC**

Orbiter Vent Doors 1 & 2 opening complete.

***** End of Open Orbiter Vent Doors 1 & 2 (Contingency) *****

LH₂ Tanker Vent Line O₂ Check

14-649	CFCP	OTC	132	SU72226
	OTC	NTD	232	SU72275
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Perform O₂ level check of tanker vent line. Verify concentration less than 1 percent.

14-650	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	CFCP	132

O₂ level check complete and verified less than 1 percent concentration.

PRSD LH₂/LO₂ Tanker Connections - Complete

14-651	CFCP	OTC	132	SU72222
	OTC	NTD	232	
	NTD	STM		
	STM	JSTC	111	

LH₂/LO₂ Tanker Connections, Leak Checks and Inert Purge complete.
Ready to perform LO₂ Servicing.

Support: [JSTC](#)

Terminate VARAI

14-652 **CFCP** **OTC** **132**
OTC **CTPE**

CFCP will monitor PRSD tank heater status for remainder of Countdown.

Terminate VARAI (CL inhibited, EM active).

14-653 **CTPE**

CRT (VARAI PG-A)
PFK1 - PRESS TWO TIMES
PFK2 - PRESS

VERIFY TERMINATION MSG

14-654 **CTPE** **OTC** **132**
OTC **CFCP**

VARAI is terminated.

14-655 **CFCP** **OTC** **132**
OTC **CTPE**

Transfer RSYS to C6 for RSYS Group 48 FC/PRSD RCL FDs via
Integration RSYS Transfer software (SAP30).

Report completion.

Orbiter Cryo LO₂ Servicing and Sampling (OMI V1040.220)

HGDS Confidence Checks

NOTE

The following step will perform HGDSA, HGDSB and HUMS autocals and confidence checks contained within RT OMI V3540, Operation - PRSD Load.

14-656 OTC CHGD 132 [SU72225](#)

Perform RT OMI [V3540](#) Operation PRSD Load for “PRSD LOX Load Support”, which contains HGDSA, HGDSB and HUMS remote autocals and confidence checks.

Operaton No. _____ Run No. _____

RT OMI Log No. _____

Start Time _____ GMT

14-657

CHGD

HGDSA, HGDSB and HUMS Confidence Checks per RT OMI V3540 Complete.

Stop Time: _____ GMT

OMRSR [GLVFGDM10.004-1R](#) (MLP-2)
OMRSR [GLUFGDM10.004-1R](#) (MLP-3)
OMRSR [GLVFGDM30.004-1R](#) (MLP-2)
OMRSR [GLUFGDM30.004-1R](#) (MLP-3)
OMRSR [GLVGGDMF0.004](#) (MLP-2)
OMRSR [GLUGGDMF0.004](#) (MLP-3)

14-658

NTD	OTC	232
OTC	CHGD	132

Verify systems ready to support PRSD LO₂ Cryo Load.

14-659

OTC	CHGD	132
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Perform HGDS monitoring on Orbiter Midbody. Orbiter Payload Bay and AFT may be updated at Engineering direction .

Report out-of-tolerance conditions to CFCP on OIS Channel 153:

O₂ = increase above baseline

14-660 OTC CHGD 132

Verify Midbody O₂ less than 10,000 ppm.

14-661 CHGD OTC 132
 OTC CPVD

IF O₂ levels in the Payload Bay, Midbody and AFT compartments are acceptable per HGDS operations and PLB circuit was increased to expedite the Payload Bay/Midbody inerting for PRSD load,

THEN restore ECS PLB circuit GN₂ purge to previously recorded flow rate and tolerance values per OMI V1122.004 (maintain PLB Interface temperature within Payload OMRS limits).

Not Performed: _____

14-662 CPVD OTC 132
 OTC CHGD

IF previous step performed,

THEN ECS PLB circuit GN₂ purge is reconfigured to nominal GN₂ flow rate (OMI V1122.004).

Not Performed: _____

14-663 OTC NTD 232
 NTD *SCC

T-25H00M

Systems configured and ready to support PRSD Cryo Load.

Verify concurrence to flow Liquid Oxygen to Orbiter PRSD tanks.

14-664 *SCC NTD 232

Safety verifies concurrence to proceed with Orbiter PRSD Servicing and Sampling (OMI V1040.220).

WARNING

LH₂ and LO₂ are cryogenic liquids. Valves, lines and connections are extremely cold during PRSD tank connection and venting.

Exposure or contact by unprotected tissue may result in pain, frostbite and/or severe cryogenic burn injury.

Wear **clean flame retardant, non-static producing coveralls .**

Wear **temperature protective/welders gloves and industrial goggles .**

Wear **non-porous, non-sparking conductive footwear and face shield .**

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NOTE

Hazardous steps follow due to LO₂/LH₂ Cryo Load operations.

14-665

NTD

OTC

232

[SU72228](#)

OTC

CFCP

132

Proceed with Orbiter LO₂ tank servicing and sampling per OMI [V1040.220](#)

NOTE

LO₂ flow will be initiated to OMBUU and Orbiter tanks.

ECS AFT Circuit High Flow Rate Check

14-666
T-23H30M

OTC CPVD 132

Perform ECS AFT Circuit High Flow Rate Check.

1. Record AFT flow set point and tolerance _____ lb/min
2. Adjust AFT GN₂ flow rate to 110 lbs/min (105 to 115) per OMI [V1122.004](#)
3. Record AFT GN₂ flow rate (BD) _____ lbs/min
4. Record PLB flow set point and tolerance (BD) _____ lbs/min
5. IF not adjusted,

THEN adjust PLB flow rate to 170 lbs/min (160 to 180) per OMI [V1122.004](#)

Not Performed: _____
SS5

6. Record PLB flow rate and I/F pressure (BD).

Flow Rate _____ lbs/min
I/F pressure _____ in. H₂O

Record values in Console Engineering Log.

7. Adjust AFT and PLB flow set point and tolerance recorded on substeps 1 and 4 respectively, per OMI [V1122.004](#) .

14-667

CPVD OTC 132

ECS AFT Circuit High Flow Rate Check complete.

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14-668	CFCP	OTC	132	SU72229
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-23H30M

LO₂ Cryo Flow complete and LO₂ tanker fill line inerted.

Request Safety concurrence to perform LO₂ Tanker Disconnect.

14-669	*PSE	*SCC	NET 105	SU72265
	*SCC	NTD	232	
	NTD	OTC		
		STM		
	OTC	CFCP	132	
	CFCP	PRSE		
	STM	JSTC	111	

You have NTD/SPOC Safety concurrence to proceed.

Perform LO₂ Tanker Disconnect per OMI [V1040.220](#)

14-670	CFCP	OTC	132	SU72265
	OTC	NTD	232	SU72B39
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-23H00M

LO₂ Tanker Disconnect complete.

Request Safety concurrence to remove LO₂ tanker from Pad via E Road and West Perimeter Road.

Safety verify O₂ concentration acceptable for LO₂ tanker removal.

Support: [PN](#)

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APPROVED

14-671	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
		STM	
	STM	JSTC	111
	JSTC	GSPS	NET 104

O₂ concentration acceptable for LO₂ tanker removal. You have NTD/Safety concurrence to proceed. LO₂ tanker may be removed from Pad surface via E Road and West Perimeter Road.

Support: [PN](#)

14-672	*PSE	*SCC	NET 105	SU72229
	*SCC	NTD	232	SU72B39
	NTD	OTC		
		STM		
	STM	JSTC	111	

LO₂ tanker clear of Pad surface.

Support: [JSTC](#)

Excessive Decay in O₂ Vent Line Sample System

NOTE

CFCP will perform this option if excessive decay occurs in O₂ vent line sample system.

Excessive Decay in O₂ Vent Line Sample System Not Performed: _____

14-673 **CFCP** **OTC** **132**
 OTC **NTD** **232**
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

Perform following:

1. **Request** NTD/SPOC Safety concurrence for personnel to return to LO₂ high pressure sample Panel on OMBUU to close primary and backup sample hoke bottle inlet and outlet valves to prevent loss of O₂ vent line samples. O₂ vent line sample hokes will not be removed at this time.
 Request Safety verify O₂ content acceptable on OMBUU.

2. **Verify** Technicians wear blue collar coveralls, faceshields and leather loose fitting gloves.

Personnel Required	
Safety	1
GSE Technician	1
Quality	1

14-674 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**
 NTD **OTC**

Personnel properly attired. O₂ content acceptable. You have Safety concurrence for personnel to return to LO₂ sample panel on OMBUU.

14-675 OTC CFCP 132

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

14-676 OTC CFCP 132

Close O₂ sample hoke valves per OMI [V1040.300](#) .

14-677 CFCP OTC 132
 OTC NTD 232
 NTD *SCC

Personnel requested to close O₂ sample hoke valves are now leaving OMBUU.

14-678 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 OTC CFCP 132

Personnel required to close O₂ sample hoke valves have cleared to perimeter fence.

***** End of Excessive Decay in O₂ Vent Line Sample System *****

PRSD LH₂ Servicing and Sampling (OMI V1040.220)

14-679 OTC CHGD 132

Perform RT OMI [V3540](#) “PRSD LH₂ Load Support” per Operation -
PRSD Load.

Operation No. _____ Run No. _____

RT OMI Log No. _____

14-680 CHGD OTC 132

“PRSD LH₂ Load Support” performed per RT OMI V3540 Operation -
PRSD Load is complete.

14-681 OTC CHGD 132

Verify systems ready to support PRSD LH₂ Cryo Load.

14-682 OTC CHGD 132

Perform HGDS monitoring in Orbiter Midbody. Orbiter Payload Bay
and AFT may be updated at Engineering direction.

Report out-of-tolerance conditions to CFCP on OIS Channel 153.

H₂ = increase above baseline

O₂ = increase above baseline

14-683 OTC CHGD 132

Perform LH₂ and FCP HLDS/HFDS monitoring.

Report out-of-tolerance conditions to CFCP on OIS Channel 153:

HLDS = 10,000 ppm above baseline

HFDS = alarm on indication

6292 RLDS = 30,000 ppm above baseline

LD29 = 10,000 ppm above baseline

LD30 = 10,000 ppm above baseline

14-684 CFCP OTC 132
 OTC NTD 232
 NTD *SCC

[SU72228](#)

T-22H30M

LO₂ Servicing and Sampling complete. Ready to proceed with LH₂ Servicing and Sampling.

Request NTD/SPOC Safety concurrence to proceed.

14-685 *SCC NTD 232

You have Safety concurrence to flow LH₂ to Orbiter PRSD tanks.

14-686 NTD OTC 232
 OTC CFCP 132

[SU72230](#)

T-22H30M

You have NTD/SPOC Safety concurrence to proceed.

Perform PRSD Orbiter LH₂ Servicing and Sampling per OMI [V1040.220](#)

Notify NTD of any fire or leaks above 1 percent.

LH₂ Tanker Vent Line H₂ Check

14-687	CFCP	OTC	132	SU72231
	OTC	NTD	232	SU72276
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-21H00M

LH₂ Cryo Flow complete and LH₂ tanker fill line inerted.

Perform H₂ Concentration Vapor Check on H₂ vent hose using portable H₂ detector.

Verify H₂ concentration less than 1 percent.

14-688	*PSE	*SCC	NET 105
	*SCC	NTD	232

H₂ Vent Concentration Check complete. H₂ concentration less than 1 percent. You have Safety concurrence to disconnect LH₂ tanker.

PRSD LH₂ Tanker Disconnect/Removal

14-689	NTD	STM	232	SU72232
		OTC		
	STM	JSTC	111	
	OTC	CFCP	132	
	CFCP	PRSE	153	

Perform LH₂ Tanker Disconnect per OMI [V1040.220](#)

Support: PN

14-693

CMPS
CTPE

IF NO LONGER REQUIRED ACTIVE,

THEN

CONSOLE KYBD (VAE18B)

PFPK 15 - PRESS TWICE

VERIFY PROGRAM TERMINATES

Not Performed: _____

NOTE

Following step will perform a final background check of both the Payload Bay and the Midbody per RT OMI V3540. This information will be used as a reference point for the PRSD Integrity Check performed just prior to ET Cryo Tanking, later during OMI S0007. (Test time is approximately 45 minutes.)

14-694

OTC

CHGD

132

SU72B77

Perform RT OMI V3540 Operation - PRSD System Background Check.

Operation No. _____ Run No. _____

RT OMI Log No. _____

14-695

CHGD

OTC

132

The PRSD System Background Check performed per OMI V3540 is complete.

NOTE

Low level transient indications of O₂ in the Midbody have been observed by the HGDS system during PRSD Load and are attributed to gas intrusion from the OMBUU Carrier Plate into the Midbody. Any GO₂ transient indications will be reported to PRSD Engineering for post load evaluation and signoff.

NOTE

Perform the following two steps if GO₂ transients above baseline observed by the HGDS system during PRSD Loading.

14-696 CHGD

Record any GO₂ Midbody transients observed during PRSD Load:

<u>Start Time (GMT)</u>	<u>Max PPM above baseline</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Not Performed: _____

14-697 CFCP

Verify GO₂ transients observed during PRSD Loading are acceptable.

USA PRSD Engineering: _____

NASA PRSD Engineering: _____

Boeing PRSD Engineering: _____

Not Performed: _____

14-698 OTC CHGD 132

Record stabilized Aft Fuselage, Midbody and Payload Bay helium concentrations.

Verify helium concentration in each area is 1000 PPM or less.

AFT Fuselage: _____ PPM (1000 PPM max)

Midbody: _____ PPM (1000 PPM max)

Payload Bay: _____ PPM (1000 PPM max)

OMRS S00FA0.223-1

14-699 Noted requirement is complete:

OMRSD [S00FA0.223-1](#)

14-700 CFCP OTC 132
 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

T-20H30M

LH₂ Tanker Disconnect complete.

Request Safety verify clears are down around tanker and give concurrence to release tanker.

Support: [PN](#)

14-701 *PSE *SCC NET 105 [SU72267](#)
 *SCC NTD 232
 NTD OTC
 STM
 STM JSTC 111
 JSTC GSPS NET 104

Clears around tanker down, you have Safety concurrence to remove LH₂ tanker from Pad.

Support: [PN](#)

14-702	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	
	STM	JSTC	111

LH₂ tanker has cleared Pad gate.

Support: [JSTC](#)

14-703	CFCP	OTC	132	SU72230
	OTC	NTD	232	
	NTD	*SCC		

T-20H00M

LH₂ PRSD Servicing and Sampling complete.

14-704	CHGD	OTC	132	SU72233
	OTC	NTD	232	
	NTD	*SCC		

T-20H00M

HGDS/HLDS/HFDS Sensor Status complete. No anomalies noted.

PRSD GSE Inert Purge/Sample Bottle Isolation

14-705 CFCP OTC 132 SU72235
 OTC NTD 232 SU72277
 NTD *SCC
 *SCC *PSE NET 105

T-20H00M

Request Safety escort essential personnel from Pad gate to FSS 155-ft level/OMBUU for PRSD GSE Inerting/Sample Bottle Isolation.

Remove Safety controls on FSS 155-ft level and perform O₂/H₂ Level Checks at OMBUU.

Verify personnel properly attired and establish 25 ft clear around OMBUU for PRSD GSE Inerting/Sample Bottle Operation Removal.
Post barriers and danger signs.

Essential Personnel (HAZ Badge)		
	SPOC	NASA
Technician	4	
Quality	1	
Safety	1	1

14-706 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC

FSS 155-ft level safety controls removed and 25-ft OMBUU control area established. O₂/H₂ Level Checks complete and acceptable, and essential personnel properly attired. Barriers and danger signs posted. You have Safety concurrence to proceed with PRSD GSE Inerting/Sample Bottle Isolation.

14-707 OTC CFCP 132 SU72236

You have Safety concurrence to proceed with GSE Inerting/Sample Bottle Isolation.

Brief personnel on hazards and applicable Emergency Instructions.
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

Assemble ECS Support Personnel

14-708	NTD	STM	232	SU72B38
		OTC		
	STM	JBAC	111	
	OTC	*PAD	132	
	*PAD	PPVM		

Assemble HVAC Technicians, ECS Crew, and SPOC Sampling personnel at Pad gate.

Support: [HVAA](#)

14-709	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Request Safety support essential personnel return to ECS Room for GN₂ to Air Changeover (close and lock manual GN₂ hand valve).

14-710	NTD	*SCC	232
		STM	
	*SCC	*PSE	105
	STM	JBAC	111

Once ECS support personnel are assembled:

Report to ECS Room.

Support: [HVAA](#)

14-714 CPVD OTC 132 SU72237
CHGD
OTC NTD 232
PTC
NTD *SCC
*SCC *PSE NET 105

OMI V1122.203, Operation 50 - GN₂ to Air Changeover, Option A -
Orbiter Support accomplished. Orbiter being purged with air at
_____ (record time).

Orbiter Vent Door Configuration

NOTE

Perform this option if Vent Doors 1 & 2 either side were opened to increase O₂
in Whiteroom during PRSD Load.

Orbiter Vent Door Configuration Not Performed: _____

14-715 OTC CPVD 132 SU72A77

Configure Vent Doors 1 & 2 both sides to purge position.

14-716 CPVD

CURSOR CNTL (VAM31A/VAM09A)
COMMAND VENT DOOR 1 & 2 BOTH SIDES TO PURGE.

14-717 CPVD OTC 132

Vent Doors 1 & 2 both sides in purge position.

***** End of Orbiter Vent Door Configuration *****

14-721 CPVD OTC 132 [SU72239](#)
 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

ECS GN₂ to Air Changeover complete. Ready ECS personnel to enter ECS room to close purge GN₂ isolation valves (OMI V1122.203).

14-722 NTD STM 232
 STM JSTC 111
 JSTC GSPN 114

T-20H00M

PRSD LPGN₂ support no longer required.
Notify GN₂ production plant.
 Release personnel. Report completeion.

Support: [PNU](#)

ECS Personnel Return to ECS Room

14-723 OTC NTD 232 [SU72240](#)
 NTD *SCC
 *SCC *PSE NET 105

T-20H00M

Verify O₂ content in ECS Room acceptable (using outside display) and remove danger signs.

Request Safety concurrence to enter ECS Room.

Essential Personnel (HAZ Badge)			
	SPOC	NASA	GSS
System Engineer	1		2
System Technician	1		2
Quality	1		
Safety	1	1	

14-724	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
		STM	
	OTC	*PAD	132
		CPVD	

T-20H00M

O₂ content of ECS Room acceptable, danger signs removed, Safety concurs with essential personnel returning to ECS Room.

14-725	NTD	STM	232	SU72259
	STM	JBAC	111	

Open South ECS Room door and restrain in Open position.

Support: [HVAA](#)

Termination of ECS Hazardous Purge GN₂ Operations (OMI V1122.203)

NOTE

When ECS personnel have been cleared to enter ECS Room, perform following step.

14-726	NTD	OTC	232	SU72242
	OTC	CPVD	132	

T-20H00M

Perform OMI [V1122.203](#) , Operation 60 - Termination of ECS Hazardous Purge Operations (close and lock manual GN₂ ISO hand valves).

RT OMI Log No. _____

GN₂ Hand Valves Secured

14-729	CPVD	OTC	132	SU72242
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-19H30M

ECS purge GN₂ isolation valves closed and locked. ECS hazardous GN₂ purge operations complete (OMI V1122.203).

14-730	NTD	*SCC	232	SU72243
	*SCC	*PSE	NET 105	

T-19H30M

Request SPOC Safety perform O₂ check and verify O₂ levels acceptable in following areas:

1. MLP Levels A and B
2. LOX and LH₂ TSM (LOX/LH₂ TSM to remain controlled)
3. OAA Whiteroom
4. Crew Module
5. Orbiter AFT Compartment - if not closed for flight
6. PCR
7. Orbiter Mid body - if not closed for flight
8. FRCS Room - 193 ft level
9. PTCR
10. OMBUU

14-731 NTD *SCC 232
 *SCC *PSE NET 105

Remove danger signs from following areas and request Safety concurrence to open areas for controlled work.

1. MLP Zero, East and West access platform stairs (Sides 2 and 4)
2. FRCS Room - 193-ft level
3. Orbiter Door 44 - if not closed for flight
4. Orbiter 50-1, 50-2 doors access platform - if not closed for flight

14-732 *PSE *SCC NET 105 [SU72274](#)
 *SCC NTD 232
 NTD OTC
 PTC
 TBC
 STM

Safety verifies O₂ levels acceptable for entry, danger signs have been removed and you have concurrence to open control areas for controlled work in following areas:

1. MLP Levels A and B
2. OAA Whiteroom
3. FRCS Room - 193-ft level
4. PCR
5. PTCR
6. OMBUU

14-733	NTD	OTC	232
	OTC	*PAD	132
	*PAD	*ACM	NET 110

Route FSS ACM to station at base of FSS.

NOTE

Wireless Access Points (WAPS) must be deactivated prior to COMM Activation.

14-734	NTD	STM	232	SU72B93
	STM	GYCC	111	
	GYCC	GNCC	PTP	

IF Wireless Access Points (WAPS) are active,

THEN deactivate Wireless Access Points (WAPS) in Pad A Perimeter for Shuttle Countdown. **Report** completion.

Support: [KNET](#)

Not Performed: _____

14-735	NTD	STM	232
	STM	QBSE	NET 104

IF Wireless Holding Tank Sensor System is active,

THEN deactivate Wireless Holding Tank Sensors and Holding Tank Wireless Gateway in Pad A Perimeter for Shuttle Countdown.
Report completion.

Support: [STSA](#)

Not Performed: _____

NOTE

Wing Leading Edge and Main Engine Instrumentation programming laptops are exempt from the following restriction on wireless devices and will be worked per Barchart.

14-738	NTD	OTC	232
	OTC	*PAD	132
	*PAD	*ACM	NET 110

Display/Verify Wireless LAN Caution sign at ACM Monitor Shack on Pad Surface, OIC station in White Room, and OIC station in PCR. Pad Surface ACM start screening for wireless devices (laptops, tablets, PDAs, etc.).

NOTE

Hazardous steps complete. ECS GN₂ has been terminated.

Depressurize PTCR/ECS Room

14-739	STM	JBAC	111	SU72241 SU72260
--------	-----	------	-----	--------------------

Continue PTCR/ECS Room depressurization per [Doc: JOB PLAN M3034.04 \(LI\) PTCR ECS Depressurization](#)

Support: [HVAA](#)

Transfer ECS Control to Pad

14-740 T-19H30M	OTC	CPVD	132	SU72244
--------------------	-----	------	-----	---------

Transfer ECS Room control to Pad (local) per OMI [V1122.004](#) .

Report completion.

WARNING

LH₂ and LO₂ are cryogenic liquids. Valves, lines and connections are extremely cold during PRSD tank connection and venting.

Exposure or contact by unprotected tissue may result in pain, frostbite and/or severe cryogenic burn injury.

Wear **clean flame retardant, non-static producing coveralls .**

Wear **temperature protective/welders gloves and industrial goggles .**

Wear **non-porous, non-sparking conductive footwear and face shield .**

WT060 07-18-2006

NOTE

PRSD Tanks will continue venting through TSMs, MLP Side 1 (Veranda), and FSS 75-ft level until Fuel Cell activation (T-9H00M).

The following areas will remain controlled. Access will be for Essential Personnel only.

MLP Side 1 around S70-0686-1 Panel (5 ft clear area)

FSS 75-ft level. GH₂ 699-1 Panel (5 ft)

The following areas will remain cleared:

Orbiter Midbody

Orbiter AFT

LO₂/LH₂ TSM

The only exception is Final Ordnance and TSM Closeout for Launch.

14-741	*PSE	*SCC	NET 105	SU72250
	*SCC	NTD	232	
	NTD	OTC		
		TBC		
		PTC		
		STM		
		*SEC		
	*SEC	JSTC	114	

You have Safety concurrence to open Pad for controlled work.

Support: [SEC](#)

14-742	NTD	OTC	232
	OTC	*PAD	132
	*PAD	*ACM	NET 110

HAZ badging no longer required for Orbiter PRSD Loading and Air to GN₂ Changeover.

Terminate hazardous badge board at this time.

NOTE

PRSD closeout operations will commence at this time.

T-19 Hour Hold Announcement

14-743	NTD	CGLS	232
--------	-----	------	-----

Hold Countdown Clock at T-19 hours 00 minutes 00 seconds.

14-744	CGLS
--------	------

HOME CMD KEY - PRESS
CDTH -1900/00
XMIT CMD KEY - PRESS

14-745	CGLS	NTD	232
--------	------	-----	-----

Countdown Clock will hold at T-19 hours 00 minutes 00 seconds.

Ingress Crew Compartment

14-746 NTD *SCC 232
 *SCC *PSE NET 105

Verify Crew Module O₂ levels acceptable for entry.

14-747 *PSE *SCC NET 105
 *SCC NTD
 NTD OTC 232

Crew Module O₂ levels acceptable for entry.

14-748 OTC OMTO

Whiteroom Ceiling

1. **Verify** ECS Crew Module Purge damper A122817 Open and air flowing through ECS duct into Crew Compartment.
2. **Verify** ECS Whiteroom Ceiling Chamber damper (A122818) is Closed.

T: _____

14-749 OTC CDR 132
T-19H30M

[SU72245](#)

Ingress Crew Compartment.

14-750 OTC JYVR 138

Stop video recording of OTV Camera 005.

Support: [OTV](#)

14-751 OTC PLT 132

PANEL R1
POWER DISTRIBUTION
AC BUS SNSR
1 SW - OFF, 1 SEC THEN AUTO TRIP
2 SW - OFF, 1 SEC THEN AUTO TRIP
3 SW - OFF, 1 SEC THEN AUTO TRIP

14-752 OTC CDR 132

PANEL C3
CAUTION/WARNING
MODE SW - NORMAL

14-753 OTC CECL 132

IF dual mode cooling is active,

THEN configure freon loops to bypass flow per OMI S0007.100,
Operation 257.

Report completion.

Not Performed: _____

ECLSS GSE Cooling Reconfigure

14-754 OTC CECL 132

[SU72253](#)

IF S70-1203 is in chilled water,

THEN reconfigure GSE cooling from Chilled Water to REFR Mode per
OMI [S9001.105](#)

Not Performed: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-755

CECL

IF for SpaceHab flight,
AND SpaceHab powered up,

THEN maintain FCL1 interchanger inlet temp below 50 deg F.
Excursions above 50 deg F acceptable provided excursions do not exceed
45 minutes in a 3 hour period.

OMRSD [P095DB.030](#)

Not Performed: _____

Downlink Format Change (Optional)

NOTE

Perform this option if liftoff Downlink is other than 129 and liftoff format is not already active.

Downlink Format Change (Optional) Not Performed: _____

14-756	OTC	NTD	232	SU72223
	NTD	TBC		SU72252
		LPS		
		PTC		

Launch Downlink Format _____ will be activated.

14-757	OTC	CDPS	132
--------	-----	------	-----

Activate Launch Downlink Format per OMI [V9001VL2](#) (Special Instructions).

14-758		CDPS	
--------	--	------	--

CRT (VAS59 PG-B)

VERIFY LAUNCH OI FORMAT ACTIVE.

14-759	CDPS	OTC	132
	OTC	NTD	232
	NTD	PTC	

Launch Downlink Format _____ activated.

***** End of Downlink Format Change (Optional) *****

GN₂ to Air Changeover - Complete

14-760 GSPN JSTC 114 SU72261
 JSTC STM 111
 STM NTD 232

T-19H00M

CCF-39 GN₂ production plant has been notified.

Support: PNU

14-761 STM JSTC 111 SU72262

Start Pad Perimeter Bus service.

Support: JSTC

14-762 NTD STM 232 SU72266
 STM GYCC 111
 GYCC GYAT 117

T-19H00M

IF phone service in PCR required for Payload Operations,

THEN restore Pad A locked-out PCR telephones to service.

Perform Command File Run at CD&SC.

Report completion.

Support: ATEL

Not Performed: _____

T: _____

14-763 OTC *PAD 132 SU72251
 *PAD *ACM NET 110

IF monitor shack is present,

THEN remove "Do Not Use" tag and restore power at OIC Monitor
Shack on Pad surface.

Report completion.

Not Performed: _____

14-764 OTC *PAD 132
 *PAD *ACM NET 110

IF Aft closeout not complete,

THEN remove "Do Not Use" tag and restore power at OIC monitor shack
on RSS 135-ft level.

Report completion.

Not Performed: _____

14-765 OTC STM 132
 STM GYCC 111
 GYCC JYCD 117

IF RSS 135-ft level OIC monitor shack is restored,

THEN install OIS-D interface cables.

Report completion.

Support: OISD

Not Performed: _____

T: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-766	NTD	STM	232	SU72256
	STM	GYCC	111	SU72270
	GYCC	GYAT	117	

Install telephone interface cable.
Activate Pad surface OIC Monitor Shack Admin telephones.
Perform Command File Run in CD&SC.

Pad A - Pad Surface - 861-1151

Report completion.

Support: [ATEL](#)

T: _____

14-767	NTD	STM	232
	STM	GYCC	111
	GYCC	GYAT	117

IF RSS 135-ft level OIC monitor shack is restored,

THEN install telephone interface cable and **activate** Admin telephone.
Perform Command File Run in CD & SC.

Pad A - RSS 135-ft - 861-5868

Report completion.

Support: [ATEL](#)

Not Performed: _____

T: _____

T-19 Hour Hold

14-768 NTD OTC PA
 TBC 232
 PTC
 *MIL
 STM
 *SCC
 LPS

T-19H00M
(HOLDING)

Countdown Clock holding at T-19 hours.

14-769 STM QBSE NET 104 [SU72268](#)

Position east and west holding tank gates to allow water to enter holding tanks and to prevent water from entering drainage ditches (OMI M3175).

Support: [STSA](#)

14-770 STM QBSE NET 104

Remove hand cranks and screw covers from holding tank gates.

Support: [STSA](#)

NOTE

Verify holding tank gates positioned to allow water to enter tanks before initiating flow.

14-771 QBSE STM NET 104 [SU72268](#)

East and west holding tank gates positioned to allow water to enter tanks for sound suppression flow. Gates will remain open through Launch.

Clear for Sound Suppression Lines and Tank Fill

NOTE
Do not perform this option for Scrub Turnaround if tank remains full.

Clear for Sound Suppression Lines and Tank Fill Not Performed: _____

14-772 **STM** **NTD** **232** SU72382
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

Request SPOC Safety clear the following areas for Sound Suppression Line and Tank Fill. Post barriers and danger signs.

1. Flame trench
2. SRB and SSME ESPs

Essential Personnel			
	GSS	SPOC	NASA
Supervisor/Engineer	2		
System Technicians	7		
Quality	1		
Safety		1	1

14-773 **NTD** **PA**

Attention on Pad A:

All nonessential personnel clear Flame Trench, SSME and SRB ESPs for Sound Suppression Line and Tank Fill.

14-774 STM JBWC 111

Conduct on Net COMM check with all Sound Suppression Line and Tank Fill Observers/Operators per [Doc: JOB PLAN M3189.130 \(LI\) On Net Briefing for LCD SS MLP Line and Tank Fill Operations](#)

Brief personnel on hazards that are present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [WSSA](#)

TTL: _____

NOTE

MLP zero level may remain open for access when Sound Suppression hydraulic valve locks are On and CCS SS LOCKOUT is On.

14-775 JBWC STM 111

Sound Suppression on net briefing complete.

Support: [CWSS](#)

14-776 NTD STM 232
STM JBWC 111

Verify Sound Suppression hydraulic valve locks are On, CCS SS LOCKOUT issued and GN₂ pressure to close actuators.

Support: [WSSA](#)
Support: [CWSS](#)

14-777 JBWC STM 111
STM NTD 232
NTD *SCC

Sound Suppression hydraulic valve locks On, CCS SS LOCKOUT On, and GN₂ pressure to closed actuators.

Support: [CWSS](#)

NOTE

Do not begin Sound Suppression Tank/MLP Line Fill if ESP or Transporter operations in progress at flame holes.

14-778 *PSE *SCC NET 105
 *SCC NTD 232

Clears have been established. Barriers and danger signs posted. You have Safety concurrence to begin Sound Suppression Tank Fill.

WARNING

Large volumes of water might be inadvertently released above the 105 foot level if the hydraulic valves are open during sound suppression line fill operations.

Personnel may suffer serious bodily harm or death.

WM109.a 02-19-04

NOTE

Hazardous steps follow due to Sound Suppression Tank Fill Operations.

14-779 NTD STM 232
 STM JBWC 111

Verify Sound Suppression TANK LEVEL OVERRIDE indicators Off.

Support: [CWSS](#)

14-780 NTD STM 232 [SU72369](#)
 STM JBWC 111

Fill MLP Sound Suppression lines and tank per [Doc: JOB PLAN M3189.140-190 \(LI\) LCD Line and Tank Fill](#) .

Replenish as required to maintain water level (2 hours 15 minutes).

Support: [WSSA](#)

Support: [CWSS](#)

***** End of Clear for Sound Suppression Lines and Tank Fill *****

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

Scrub Turnaround Sound Suppression MLP Lines and Elevated Tank Topoff

14-781 STM JBWC 111

IF MLP Sound Suppression elevated tank has remained filled and MLP lines have leaked down,

THEN perform the following per [Doc: JOB PLAN M3189.160-210 \(LI\) MLP Line Topoff using Elevated Tank Water and Tank Topoff](#) .

MLP Line Fill for Scrub Turnaround and SS LCD Elevated Tank Fill.

Support: [WSSA](#)
Support: [CWSS](#)

Not Performed:_____

NOTE
Perform next three steps after Countdown Clock is holding.

14-782 NTD CGLS 232

Set Countdown Clock to start counting at:

_____ hour _____ minutes _____ seconds GMT

14-783 CGLS

HOME CMD KEY - PRESS

CDTC _____ / ____ .000
 HHMM SS

XMIT CMD KEY - PRESS

14-784 CGLS NTD 232

Countdown Clock will start counting at:

_____ hour _____ minutes _____ seconds GMT

LH₂ System Prerequisite Operation Setups - Complete

14-785 PLHY TBC 136 SU72058

ET Prerequisite Operation Summary per OMI G3251 complete.

OMRSR [S00FA0.130-1](#)

2000 psi GSE Activation and Set Point

14-786 OTC CMPS 132 SU72283

Go to Channel 168 and perform 2000 psi GSE activation and Set Point per OMI [V9018.001](#)

ET LH₂ Loading Preps

14-787 TBC CLHY 136 SU72295

Perform following operations per OMI [G3251](#)

1. LH₂ System LPS Powerup
2. LH₂ Storage Area Valve Torquing
3. LH₂ MLP Valve Torquing
4. **IF** Auto Cycling was not previously performed
AND it is required,

THEN perform Auto Cycling and Hardwire Test

Not Performed: _____
SS4

5. Pad Mechanical Preparations for Loading
6. LH₂ MLP Mechanical Preparations for Loading
7. FSS Mechanical Preparations for Loading

14-788	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	
	STM	JSTC	111
	JSTC	GSPN	114

Verify facility LPGN₂ C/C pipeline pressure at 150 psig (140 to 150 psig).

Support: [PNU](#)

14-789	GSPN	JSTC	114
	JSTC	STM	111
	STM	NTD	232
	NTD	TBC	
	TBC	CLHY	136

Facility LPGN₂ C/C pipeline pressure at 150 psig (140 to 150 psig).

Support: [PNU](#)

LH₂ System LPS Powerup - Complete

14-790	CLHY	TBC	136
---------------	-------------	------------	------------

LH₂ System LPS Powerup per OMI G3251 complete.

ET LO₂ Preps for Vehicle Load

14-791 TBC CLOX 136 [SU72294](#)

Perform following per OMI [G3151](#)

1. Task Team Readiness
2. System Initialization (if applicable)
3. LPS/Power Preparations and A126/A127 Motor Runs
4. MLP Preparations
5. FSS Pneumatic Panel Preparations
6. Final Manual Preparations for Loading
7. LO₂ System Engineering Walkdown

PRSD Sample Bottle Removal - Complete

14-792 CFCP OTC 132 [SU72247](#)
T-19H00M
(HOLDING)

PRSD Sample Bottle Removal complete.

HGDS/HWS System Securing

14-793 CHGD OTC 132

RLDS 6292 verified less than 10,000 ppm in OMBUU plate cavity.

14-794 CHGD

CURSOR CNTL (SAW01/HWW21)
PUMP 1 - OFF
PUMP 3 - OFF
MFC POWER - OFF
XMIT CURSOR KEY - PRESS

14-795 CHGD OTC 132

RLDS 6292 cabinet secured.

14-796 CHGD OTC 132

All systems secured from PRSD Cryo Load Support. No anomalies noted.

14-797 OTC CHGD 132

CHGD support no longer required.

14-798 OTC CFCP 132

Monitor leak and fire detectors (VWQ03).

GH₂/GO₂ Sample Analysis

14-799	CFCP	OTC	132	SU72248
	OTC	NTD	232	SU72299
	NTD	STM		
	STM	WLTK		

T-19H00M
(HOLDING)

Notify Wiltech that GH₂/GO₂ samples are en route for analysis.
(phone 1-2255)

Need by _____ hours.

Sample No. _____ (PRI GH₂)

Sample No. _____ (B/U GH₂)

Sample No. _____ (PRI GO₂)

Sample No. _____ (B/U GO₂)

NOTE

When verifying transport line pressures, HGDSA and HGDSB should not be selected on any line.

14-803

CHGD

HGDS 2000 SYSTEM PAGE

1. **VERIFY** ET/IT TRANSPORT LINE FLOW
6.00 SLPM (5.0 TO 7.0 SLPM)
2. **VERIFY** ET/IT TRANSPORT LINE PRESSURE
450 TORR (400 TO 500 TORR)
3. **VERIFY** AFT, MIDBODY AND PAYLOAD BAY TRANSPORT
LINE FLOW > 6.00 SLPM
4. **VERIFY** AFT, MIDBODY AND PAYLOAD BAY TRANSPORT
LINE PRESSURE 450 TORR (400 TO 500 TORR)
5. **VERIFY** TRANSPORT PLENUM PRESSURE < 275 TORR

***** End of HGDS ET/IT Configuration Post PRSD Loading *****

PRSD C&W Enable

NOTE

Master Alarm may occur during PRSD C&W Enable.

14-804

OTC

CFCP
CDR

132

[SU72249](#)

T-19H00M
(HOLDING)

Perform PRSD C&W Enable per OMI [V1040.220](#) on OIS Channel 153
(30 minutes).

14-805

CFCP

OTC

132

[SU72249](#)

T-19H00M
(HOLDING)

PRSD C&W Enable per OMI [V1040.220](#) complete.

14-806 OTC CISL 132

Perform C&W GOAL Software Update for PRSD Parameters per
OMI [V9001.106](#) .

14-807 OTC NTD 232
 NTD STM
 STM JBPN 111
 JBPN GBPN NET 104

T-19H00M
(HOLDING)

PRSD Cryo Servicing complete.

Maintain facility GH₂ and GO₂ systems for normal support per
[Doc: JOB PLAN M3020.001 \(LI\) Operational Checks for GH2 System](#)
and [Doc: JOB PLAN M3097.001 \(LI\) Operational Check on GO2 System](#) .

Support: [PNSA](#)

LH₂ GSE Valve Torquing - Complete

14-808 CLHY TBC 136
 TBC NTD 232

LH₂ Storage Area Valve Torquing per OMI G3251 complete.

14-809 CLHY TBC 136
 TBC NTD 232

LH₂ MLP Valve Torquing per OMI G3251 complete.

14-810 NTD STM 232
 STM JBPN 111

Install Flexhoses to MLP OTV cameras per [Doc: JOB PLAN M3197.012 \(LI\) Install Flexhoses to MLP OTV Cameras](#)

Support: [PNSA](#)

LH₂ Auto Cycling and Hardwire Test

NOTE

Perform this option if LH₂ Auto Cycling and Hardwire Test to be performed.

LH₂ Auto Cycling and Hardwire Test Not Performed: _____

14-811	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

The ET LH₂ vent disconnect cavity purge will operate momentarily.

LH₂ Hardwire Test

14-812	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	

Verify wind speed forecast at 60-ft level of Launch Pad Weather Tower will not exceed 47 knots for next hour.

14-813	STM	NTD	232
	NTD	TBC	
	TBC	CLHY	136

Forecasted wind speed at 60-ft level of Launch Pad Weather Tower is not expected to exceed 47 knots for next hour.

OMRSR [S00L00.051-A-1](#)

14-814	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

GHe will be vented to LH₂ flare stacks.

***** End of LH₂ Auto Cycling and Hardwire Test *****

PRSD Offload Option

NOTE

Perform this option only if PRSD offload is scheduled.

PRSD Offload Option Not Performed: _____

14-815	CFCP	OTC		SU72305
	OTC	NTD	232	SU72297
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Ready to perform O₂ Cryo Tank Offload.

1. **Request** NTD/SPOC Safety concurrence to proceed. LO₂ dump basin and OMBUU to remain clear of all nonessential personnel.
2. **Verify** personnel properly attired in long sleeve, blue collar flame-retardant coveralls, leather gauntlet gloves and faceshields.
Post barriers and danger signs.

14-816	*PSE	*SCC	105
	*SCC	NTD	232
	NTD	OTC	

OMBUU and O₂ dump basin control areas cleared of nonessential personnel. Barriers and danger signs posted. You have NTD/SPOC Safety concurrence to proceed.

WARNING

Liquid Oxygen (LO₂) is an extremely cold cryogenic and is an irritant that vigorously promotes combustion. Combustibles in contact with LO₂ may explode or burn due to impact or due to an ignition source.

Contact with unprotected tissue may cause pain, frostbite and/or cryogenic burn injuries. Exposure by inhalation of cold vapor concentrations may cause respiratory and nervous system irritation.

Wear **industrial goggles , face shield .**

Wear **loose fitting temperature protective/welders gloves .**

Wear **non-porous, non-sparking conductive footwear .**

Wear **clean flame retardant, non-static producing coveralls or shop coat .**

WT018 07-14-2006

NOTE

Hazardous steps follow due to LO₂ offload operations.

14-817 OTC CFCP 132

Perform O₂ Cryo Tank Offload.

14-818 CFCP OTC 132
OTC NTD 232

LO₂ Offload complete. Ready to proceed with LO₂ System Securing.

14-819 CFCP OTC 132
OTC NTD 232

[SU72305](#)

LO₂ Offload and Securing complete.

***** End of PRSD Offload Option *****

Start PRSD Closeout Operations

NOTE

PRSD load and, if required, offload must be complete prior to performance of PRSD Closeout Operations.

OMBUU Closeout Operations

Release of Fire and EMS

NOTE

Do not perform this option if Fire and EMS already released.

Release of Fire and EMS Not Performed: _____

14-820	NTD	*SCC	232
	*SCC	*PSE	NET 105

Request SPOC Safety concurrence to release Fire and Medical from PRSD support.

14-821	*PSE	*SCC	NET 105	SU72197
	*SCC	NTD	232	
	NTD	JFIR		
	JFIR	JSTC	114	

You have Safety concurrence to release Fire/Rescue and EMS from standby support for PRSD operations.

Support: [FIRE](#)

***** End of Release of Fire and EMS *****

14-822 NTD *SCC 232
 *SCC *PSE NET 105

Turn Pad A, Barricade 49 or A/B-5 and Roadblock A/B-11 Flashing Amber lights Off.

14-823 CFCP OTC 132 [SU72284](#)
 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Ready to proceed with Midbody Umbilical Operations.

Request Safety concurrence to proceed (OMI V3538.002, Operation 10).

14-824 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC

You have Safety concurrence to proceed with OMBUU demate preps.

14-825 NTD *SCC 232 [SU72297](#)
 *SCC *PSE NET 105

Request Safety open LO₂ dump basin for controlled work upon completion of O₂ checks.

14-826 *PSE *SCC NET 105
 *SCC NTD 232

O₂ checks complete. LO₂ dump basin open for controlled work.

14-827 OTC CFCP 132

Perform PRSD preps for Midbody Umbilical Demate per OMI [V1040.220](#)

6292 Cabinet Purge Termination

14-828 **CFCP** **PUOD** **153**

RSS OMBUU Roof - 6292 Cabinet

GN₂ purge valve A505975 - Close (CW)

T: _____

14-829 **OTC** **CHGD** **132**
CHGD **PUOD** **177**

IF Cabinet 6292 Calibration Bottles required to be closed per CHGD direction,

THEN

RSS OMBUU Roof - Cal Gas Cabinet for 6292

Deactivate Cal Gas Cylinders per RT OMI [V3541](#) Cal Gas Cylinder Securing.

Operation No. _____ Run No. _____

RT OMI Log No. _____

Not Performed: _____

14-830 **CFCP** **OTC** **132** [SU72284](#)

PRSD preps for OMBUU demate complete. Ready to support Midbody Umbilical Carrier Plate Demate AHC Flight Cap Installation per OMI [V3538.002](#) (Operation 10).

14-831 **PGSS** **OTC** **132**
OTC **NTD** **232**
NTD ***SCC**

Ready to proceed with OMBUU Carrier Plate Demate Operations per OMI [V3538.002](#) (Operation 10).

14-832

OTC

PGSS

132

[SU72289](#)

Establish 10-ft radius clear around OMBUU area for demate operations.

Post barriers and danger signs.

Verify essential personnel attired in blue collar flame retardant coveralls.

Essential Personnel (HAZ Badge)		
	SPOC	NASA
Engineer/Supervisor	1	
Technician	4	
Quality	2	
Safety	1	1

WARNING

Hydrogen gas (GH₂) and/or Oxygen gas (GO₂) may be present in the MLP lines. (GH₂) is extremely flammable and is an asphyxiant. (GO₂) will vigorously support combustion.

Personnel may suffer bodily injury or death. Provide adequate ventilation, and eliminate all potential ignition sources.

Wear **clean flame retardant, non-static producing coveralls** and **non-porous, non-sparking conductive footwear**

WT053 12-06-2005

WARNING

Helium is an asphyxiant and displaces oxygen.

Exposure may result in dizziness, unconsciousness, and could cause death.

Use only in a well ventilated area.

WCS005.a 03-11-03

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.

Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

The following step is hazardous because personnel could be exposed to hydrogen, oxygen, nitrogen and/or helium gas.

14-838

OTC

PGSS

132

SU72286

Perform Midbody Umbilical Demate and PRSD AHC Flight Cap Installation per OMI [V3538.002](#) (Operation 10) on OIS Channel 153.

14-839	PGSS	*PAD	132	SU72286
	*PAD	OTC		
	OTC	CFCP	232	
		NTD		

Midbody Umbilical Demate and PRSD AHC Flight Cap Installation complete. Ready for AHC Flight Cap Leak Checks.

14-840	NTD	*SCC	232
	*SCC	*PSE	NET 105

Orbiter Midbody Umbilical Demate complete.

Request Safety support on OMBUU with portable O₂/H₂ leak detector for PRSD AHC Flight Cap Leak Checks.

NOTE

Hazardous operation - Midbody Umbilical Demate complete.

PRSD AHC Flight Caps Leak Check (OMI V1040.220)

14-841	OTC	CFCP	132	SU72287
--------	-----	------	-----	---------

Perform leak check of PRSD AHC flight caps per OMI V1040.220 on OIS Channel 153.

14-842	CFCP	OTC	132	SU72306
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

PRSD Flight Cap Leak Checks complete.

Request Safety to verify O₂/H₂ checks are complete and acceptable.
Request Safety to open the OMBUU area for controlled work.

14-843 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC

O₂/H₂ final checks are acceptable. OMBUU area is open for controlled work.

NOTE
Hazardous operations - PRSD Flight Cap Leak Check complete.

14-844 CFCP OTC 132 [SU72288](#)
 OTC NTD 232

Ready for closeout of Midbody Umbilical Door 45.

14-845 NTD PTC 232

Request concurrence for 1 hr Payload Bay Purge Outage to support Door 45 installation.

14-846 NTD OTC 232
 OTC *PAD 132
 *PAD OMTO

Perform Orbiter Door 45 Installation, Pre-Flight Umbilical Mid Fuselage per:

JC [V80-94500](#) -Door 45, Pre-Flight Umbilical Panel Access, Installation.

14-847 OMTO *PAD 132
 *PAD OTC
 OTC NTD 232
 NTD PTC

Orbiter door 45 installation complete.

14-848 OTC *PAD 132 SU72464
 *PAD OMTO

Start verification of Orbiter Door Panel Configuration for Tanking and Launch per OMI S0007.100, Operation 251. Part B must be complete by T-11H00M.

14-849 CFCP OTC 132 SU72248

PRSD sample results are satisfactory.

NOTE OTV Camera pressure checks to be performed after PRSD Loading (~T-19Hrs).
--

14-850 STM GYCC 111 SU72B37
 GYCC JYVO PTP

Perform pressurization checks on OTV cameras and associated equipment in Class I Div 2 Hazardous Locations at Pad per OMI [D6121](#)

Report Date/Time verified _____ / _____

Support: [OTV](#)

T: _____

**OMBUU Roof Extensible Platform Retraction/Midlevel Extensible
Platform Retraction**

14-851 OTC *PAD 132 SU72322
 *PAD PGSS

Perform OMBUU Securing per OMI V3538.002 (Operation 20).

14-852 PGSS *PAD 132
 *PAD OTC
 OTC NTD 232

OMBUU Securing complete.

14-853 CFCP JYVR 138 SU72264

Stop video recording of OTV Cameras 007, 008, 020, 021, 022, 035, 036
for OMI V1040.220 (see CFCP Figure 13-1, (pages 1 thru 3).

Support: OTV

***** End of PRSD Closeout Operations *****

14-854 CLHY TBC 136
 TBC NTD 232

IF LH₂ Auto Cycling and Hardwire Test performed,

THEN report Auto Cycling and Hardwire Test per OMI G3251
complete.

Not Performed: _____

Open SSME/SRB ESP Areas and Flame Trench

NOTE

Do not perform this option for Scrub Turnaround if tank remains full.

Open SSME/SRB ESP Areas and Flame Trench Not Performed: _____

14-855 **JBWC STM 111**
 STM NTD 232

MLP Sound Suppression line is filled to 105-ft level and 48 inch bypass valves are closed. SSME/SRB ESP areas and flame trench may be opened for controlled work.

Support: [CWSS](#)

14-856 **NTD *SCC 232**
 ***SCC *PSE NET 105**

Sound Suppression tank fill to 105-ft level is complete.

Request Safety open SSME/SRB ESP areas and flame trench for controlled work.

14-857 ***PSE *SCC NET 105**
 ***SCC NTD 232**
 NTD OTC
 STM

SSME/SRB ESP areas and flame trench open for controlled work.

***** End of Open SSME/SRB ESP Areas and Flame Trench *****

GO₂ Recharge Option

NOTE

Perform this option if GO₂ storage pressure is 4400 psig or below, or as required to support contingency operations.

GO₂ Recharge Option Not Performed: _____

14-858	JBPN	STM	111	SU72350
	STM	JSTC		
	JSTC	JFIR	114	
		GSPS	NET 104	

GO₂ recharge required.

Request GO₂ recharger and Fire/Rescue/EMS support in-district in 30 minutes.

Support: PN
Support: PNSA
Support: FIRE

14-859	JBPN	STM	111	SU72B58
	STM	JSTC		
	STM	NTD	232	
	NTD	*SCC	232	

Ready to proceed with Facility GO₂ Recharge operations per OMI M3097.

Request essential personnel report on station.

Notify Safety that hazardous GO₂ recharge operations are about to commence.

Support: PNSA

14-862 JBPB GBPN NET 104

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

Support: [PNSA](#)

TTL: _____

14-863 GBPN JBPB NET 104
 JBPB STM 111
 STM JSTC
 STM NTD 232
 NTD *SCC

All nonessential personnel have been cleared from control area.

Personnel are properly attired.

Request Safety concurrence to proceed.

Support: [PNSA](#)

14-864 *SCC NTD 232
 NTD STM
 STM JBPB 111
 JSTC
 JBPB GBPN NET 104

You have Safety concurrence to proceed with GO₂ Recharge operation (OMI M3097).

Support: [PNSA](#)

14-865 STM JBPB 111
 JBPB GBPN NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [PNSA](#)

TTL: _____

WARNING

A gaseous oxygen (GO₂) enriched atmosphere may exist. Oxygen vigorously supports combustion.

Usage near heat, sparks or open flame may result in fire. Exposure to fire and intense heat may result in burns, serious injury or death.

Wear **blue-collar flame retardant coveralls** .

WCS011 04-19-2005

WARNING

Pneumatic Lines/test ports may contain residual pressure.

Exposure to a sudden release of pressure may result in eye and/or skin injury.

Wear **industrial goggles and face shield** when disconnecting/loosening lines or ports.

WHP004 03-04-04

WARNING

Liquid Oxygen (LO₂) is an extremely cold cryogenic and is an irritant that vigorously promotes combustion. Combustibles in contact with LO₂ may explode or burn due to impact or due to an ignition source.

Contact with unprotected tissue may cause pain, frostbite and/or cryogenic burn injuries. Exposure by inhalation of cold vapor concentrations may cause respiratory and nervous system irritation.

Wear **industrial goggles , face shield** .

Wear **loose fitting temperature protective/welders gloves** .

Wear **non-porous, non-sparking conductive footwear** .

Wear **clean flame retardant, non-static producing coveralls or shop coat** .

WT018 07-14-2006

NOTE Hazardous operations follow due to presence of GO ₂ flow.

14-866	JBPN	STM	111
	STM	NTD	232
	NTD	OTC	
	OTC	CFCP	132
		CECL	

GO₂ supply valve A538881 will be Closed. GO₂ supply will not be available to PRSD systems until GO₂ recharge operation complete (8 hours).

Support: [PNSA](#)

14-867	JBPN	GBPN	NET 104
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Panel S70-0826-1

Close Valve A538881 (CW)

Support: [PNSA](#)

14-868	GBPN	JBPN	NET 104
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Valve A538881 Closed.

Support: [PNSA](#)

14-869	STM	JBPN	111
	JBPN	GBPN	NET 104

Proceed with GO₂ recharge operations per OMI M3097.
Report when secure.

Support: [PNSA](#)

14-870	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

GO₂ recharge operations secured. Proceeding with sampling operations.
Request concurrence to reduce controls to 25 ft around GO₂ area, and
release Fire/Rescue to in-station support during Sampling.

Support: [PNSA](#)

14-871	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	
	STM	JBPN	111
	JBPN	GBPN	NET 104
	STM	JSTC	111
	JSTC	JFIR	114

You have Safety concurrence to reduce controls to 25-ft around GO₂ area
(OMI M3097).

Support: [FIRE](#)
Support: [PNSA](#)

14-872	GBPN	JPBN	NET 104
	JBPN	STM	111
	STM	NTD	
	NTD	*SCC	232
	*SCC	*PSE	NET 105

GO₂ area controls reduced from 150 ft to 25 ft for Sampling operations.

Support: [PNSA](#)

14-873	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
	NTD	OTC	
	OTC	CFCP	132

GO₂ recharge operations complete. Sample results pass GO₂ specification SE-S-0073, Table 6.3-4 Oxygen.

Request concurrence to proceed with GO₂ line pressurization.

Request CFCP isolate S70-0830-1 Panel to support GO₂ Cross-country line pressurization and leak checks.

Support: [PNSA](#)

14-874	STM	JBPN	111
--------	-----	------	-----

Provide a copy of acceptable sample results to CFCP.

Support: [PNSA](#)

14-875	CFCP	PSOM	153
--------	------	------	-----

S70-0830-1 PANEL
A88560 MV - CLOSE (CW)

T: _____

14-876	CFCP	OTC	132
	OTC	STM	111
	STM	JBPN	
	JBPN	GBPN	NET 104

GO₂ inlet valve in the T-0 panel is closed.

Support: [PNSA](#)

14-877 STM NTD 232
 NTD *SCC

Ready to perform GO₂ Line Pressurization.

14-878 JBPN GBPN

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

Support: [PNSA](#)

TTL: _____

14-879 GBPN JBPN NET 104
 JBPN STM 111
 STM NTD 232
 NTD *SCC

All nonessential personnel are clear from the control area. Personnel are properly attired. Fire Support is in-district and Emergency Medical on Standby.

Request Safety concurrence to proceed.

Support: [PNSA](#)

14-880 *SCC NTD 232
 NTD STM 232
 OTC
 OTC CFCP 132

You have Safety concurrence to proceed with GO₂ line pressurization.

14-881	OTC	CFCP	132
		STM	
	STM	JBPN	111
	JBPN	GBPN	NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel certified, equipped and ready to proceed.

Support: [PNSA](#)

TTL: _____

<p style="text-align: center;">WARNING</p> <p>A gaseous oxygen (GO₂) enriched atmosphere may exist. Oxygen vigorously supports combustion.</p> <p>Usage near heat, sparks or open flame may result in fire. Exposure to fire and intense heat may result in burns, serious injury or death.</p> <p>Wear blue-collar flame retardant coveralls .</p> <p style="text-align: right;">WCS011 04-19-2005</p>
--

<p style="text-align: center;">WARNING</p> <p>Pneumatic Lines/test ports may contain residual pressure.</p> <p>Exposure to a sudden release of pressure may result in eye and/or skin injury.</p> <p>Wear industrial goggles and face shield when disconnecting/loosening lines or ports.</p> <p style="text-align: right;">WHP004 03-04-04</p>

<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Following step hazardous due to GO₂ line pressurization.</p>

14-882	STM	JBPN	111
	JBPN	GBPN	NET 104

Perform GO₂ line pressurization per OMI [M3097](#) .

Support: [PNSA](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-883	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
		CMQC	111
	NTD	OTC	232
	OTC	CFCP	132

Facility GO₂ line pressurization complete. GO₂ supply in support.

Support: [PNSA](#)

14-884 CFCP PSOM 153

S70-0830-1 PANEL
A88560 MV - SLOWLY OPEN (CCW)

T: _____

14-885	GBPN	JBPN	NET 104
	JBPN	STM	111
	STM	NTD	232
	NTD	*SCC	

Request Safety concurrence to open control area around GO₂ storage battery.

Request concurrence to release standby Fire and Emergency Medical support.

Support: [PNSA](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-886	*SCC	NTD	232	SU72B58
	NTD	STM		
	STM	JSTC	111	
	JSTC	JFIR	114	
	STM	JBPN	111	
	JBPN	GBPN	NET 104	

You have Safety concurrence to open control area around GO₂ storage battery for controlled work.

Release Fire and Emergency Medical support.

Support: FIRE
Support: PNSA

14-887	GBPN	JBPN	NET 104	SU72350
	JBPN	STM	111	
	STM	NTD	232	
	NTD	*SCC		

Control area around GO₂ storage battery is open for controlled work.

Support: PNSA

NOTE

Hazardous operations due to GO₂ line pressurization complete.

***** End of GO₂ Recharge Option *****

GO₂ System Topoff Option

NOTE

Perform this option upon request of Pneumatics Engineering, utilizing a compressed gas trailer as GO₂ source.

GO₂ System Topoff Option Not Performed: _____

14-888 **STM** **JSTC** **111** [SU72375](#)
 JSTC **GSPS** **NET 104**

Deliver 6000 psi GO₂ tube bank to Pad A HPG battery.

Support: [PN](#)

14-889 **GBPN** **JBPN** **NET 104**
 JBPN **STM** **111**
 STM **NTD** **232**
 NTD ***SCC**

Ready to proceed with Facility GO₂ Topoff Operations per OMI M3097.

Request essential personnel report on station.

Notify Safety that hazardous GO₂ Topoff operations are about to commence.

Support: [PNSA](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-893	GBPN	JBPN	NET 104
	JBPN	STM	
	STM	NTD	232
	NTD	*SCC	

All nonessential personnel have been cleared from the control area.
Personnel are properly attired. Barriers and danger signs posted.

Request Safety concurrence to proceed.

Support: [PNSA](#)

14-894	*SCC	NTD	232
	NTD	STM	
	STM	JBPN	111
	JBPN	GBPN	NET 104

You have Safety concurrence to proceed with GO₂ Line Topoff.

Support: [PNSA](#)

14-895	STM	JBPN	111
	JBPN	GBPN	NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [PNSA](#)

TTL: _____

WARNING

A gaseous oxygen (GO₂) enriched atmosphere may exist. Oxygen vigorously supports combustion.

Usage near heat, sparks or open flame may result in fire. Exposure to fire and intense heat may result in burns, serious injury or death.

Wear **blue-collar flame retardant coveralls** .

WCS011 04-19-2005

WARNING

Pneumatic Lines/test ports may contain residual pressure.

Exposure to a sudden release of pressure may result in eye and/or skin injury.

Wear **industrial goggles and face shield** when disconnecting/loosening lines or ports.

WHP004 03-04-04

NOTE

Hazardous operations follow due to high pressure pneumatics and possible Oxygen rich atmosphere.

14-896

STM	JBPN	111
JBPN	GBPN	NET 104

Perform GO₂ System Topoff per OMI [M3097](#)

Support: [PNSA](#)

NOTE

Hazardous steps complete.

14-897 **GBPN JBPN NET 104** [SU72375](#)
JBPN STM 111
STM NTD 232
NTD *SCC
***SCC *PSE NET 105**

GO₂ System Topoff operation complete.

Request Safety concurrence to open control area around GO₂ storage battery.

Support: [PNSA](#)

14-898 ***PSE *SCC NET 105**
***SCC NTD 232**
NTD STM
STM JBPN 111
JBPN GBPN NET 104

You have Safety concurrence to open control area around GO₂ storage battery for controlled work.

Support: [PNSA](#)

14-899 **GBPN JBPN NET 104**
JBPN STM 111
STM NTD 232
NTD *SCC
***SCC *PSE NET 105**

Control area around GO₂ storage battery is open for controlled work.

Support: [PNSA](#)

***** End of GO₂ System Topoff Option *****

GSE Preps for Fuel Cell Activation

NOTE
GO₂ recharge operations must be completed prior to next step (if performed).

14-900 **NTD** **OTC** **232** [SU72320](#)
 OTC **CFCP** **132**

Perform final GSE preps for Fuel Cell Activation.

14-901 **CFCP** **OTC** **132**

Final GSE preps for Fuel Cell Activation complete (OMI V1040.220).

***** End of GSE Preps for Fuel Cell Activation *****

14-902 **OTC** **CMQC** **132**

Verify Orbiter Prerequisite Operation 202 - Cabin Hatch Seal Unit Preps is complete.

Qv: _____

NOTE
Perform the following two steps (15 to 6 hours) prior to RSS Retract.

14-903 **OTC** ***PAD** **132** [SU72B26](#)
 ***PAD** **OMTO**

Perform OMI S0007.100, Operation 270 - Part D - FRCS Launch Cover Final Inspection (V6029.204).

14-904 **OMTO** ***PAD** [SU72B26](#)
 ***PAD** **OTC** **132**

OMI S0007.100, Operation 270 - Part D - FRCS Launch Cover Final Inspection complete.

FRCS Thruster Prep & Cover Installation of Individual Covers (Contingency)

NOTE

Perform this option if FRCS Thruster Prep and Cover Installation of Individual Covers is required per Test Team direction.

FRCS Thruster Prep & Cover Installation of Individual Covers (Contingency)

Not Performed: _____

14-905	OMTO	OTC	132
	OTC	NTD	232
	NTD	*SCC	

Ready to proceed with FSS TVS Power Up for FRCS Thruster Prep and Cover Installation of Individual Covers.

Request SPOC Safety concurrence to establish clears on the FSS 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA, and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

14-906	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132

CSR-640

You have SPOC Safety concurrence to establish safety clears on the FSS 275-ft level, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA, and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

14-907 OTC OMTO 132 SU72A70
SU72A79
CSR-640

Clear all personnel from 275-ft level and above including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA, and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

Clear all nonessential personnel 10-ft radius around FRCS on RSS 207-ft level.

Verify essential personnel properly attired in goggles, rubber apron, and hypergolic compatible gloves. TTL perform breathing zone checks during FRCS thruster cover removals. For Vernier thrusters, clear will be expanded to 20-ft radius, and SAR will be required.

Post barriers and danger signs.

Essential Personnel			
	SPOC	NASA	ISC
Engineer	1	1	
Technician	3		
Quality	1	1	
Safety	1	1	
Life Support			1

14-908 NTD PA

Attention on Pad A:

All personnel clear FSS 275-ft level and above (including GVA) and nonessential personnel clear a 10-ft radius of FWD RCS for thruster cover removal.

06-16-2011
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OMI S0007.200 A23
APPROVED

14-909 NTD STM 232 SU72B89
 STM JSTC 111
 JSTC *SCB NET 104

Verify Life Support on site and three each breathing air lines with mask and COMM at 207-ft for FRCS thruster cover configuration.

Support: LS

14-910 OTC OMTO 132

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-911 OMTO OTC 132 SU72B56
 OTC NTD 232
 NTD *SCC

Nonessential personnel have been cleared from control areas for FRCS thruster cover removals. TVS powered up and stable. Barriers and danger signs posted.

Request Safety concurrence to proceed.

TTL: _____

14-912 *SCC NTD 232
 NTD OTC
 OTC OMTO 132

You have SPOC Safety concurrence to proceed with FRCS Thruster Cover operations.

14-913 OTC OMTO 132

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel certified, equipped and ready to proceed.

TTL: _____

WARNING

Oxidizer (NO₂) vapor is a severe irritant.

Exposure may cause eye, skin and respiratory system irritation and/or permanent damage. The Exposure Limit is 1.0 PPM.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **industrial goggles** .

Wear a **face shield** over goggles when work is at eye level or above.

WT001 12-06-2005

WARNING

Fuel (MMH/N₂H₄) vapor is flammable. Fuel is toxic and may cause cancer.

Exposure to skin, eyes and respiratory system may cause permanent damage. The Exposure Limit is 10 PPB.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **industrial goggles** .

Wear a **face shield** over goggles when work is at eye level or above.

WT002 12-06-2005

WARNING

Fuel (MMH/N₂H₄) vapor is toxic, flammable and may cause cancer.

Exposure may cause permanent damage to the skin, eyes and lungs. The Exposure Limit is 1000 PPB.

Wear **rubber aprons** , **hyper compatible polyvinyl chloride (PVC) Pylox gloves** and **supplied air respirators** .

WT005 07-19-2007

NOTE

Hazardous steps follow due to possible exposure to N₂O₄ and MMH. TTL shall monitor breathing zone for toxic levels and if TLV is exceeded, evacuate personnel and do not enter area without SPOC Safety concurrence.

14-914 OTC OMTO 132

Perform OMI V6029.204 "Cover Removal, Contingency (1 hour)" .

14-915 OMTO *PAD 132
 *PAD OTC
 OTC NTD 232
 NTD *SCC

FRCS thruster cover removals complete per OMI V6029.204.

14-916 OMTO OTC 132
 OTC NTD 232
 NTD *SCC

N₂O₄ and MMH toxic vapor checks complete and levels acceptable.
Request Safety concurrence to open FRCS Thruster control area for controlled work.

14-917 *SCC NTD 232 SU72A70
 NTD OTC SU72B56
 OTC OMTO 132

You have Safety concurrence to open FRCS Thruster control area for controlled work.

NOTE

FRCS hazardous operations complete.

06-16-2011
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OMI S0007.200 A23
APPROVED

14-918 OMTO OTC 132

Continuing with FRCS Installation of Individual Covers per OMI V6029.204.

14-919 *PAD OTC 132 [SU72A79](#)

OMI V6029.204 FRCS Installation of Individual Covers complete.

***** End of FRCS Thruster Prep and Cover Installation of Individual Covers
(Contingency) *****

14-920 *PAD OTC 132 [SU72B89](#)
 OTC NTD 232
 NTD STM
 STM JSTC 111
 JSTC *SCB NET 104

Breathing air lines no longer required in the FRCS room (RSS 207-ft) for OMI S0007.100, Operation 270 or OMI V6029.204.

Support: [LS](#)

14-923 STM JBWC 111

Record Sound Suppression elevated tank level for each level sensor:

Primary Level Sensor _____ ft

Redundant Level Sensor _____ ft

Support: [CWSS](#)

**Scrub Turnaround Sound Suppression MLP Lines and Elevated Tank
Topoff - Complete**

14-924 STM JBWC 111

IF Sound Suppression MLP lines and elevated tank required Scrub
Turnaround topoffs,

THEN Topoff of MLP Sound Suppression lines and elevated tank
complete.

Support: [WSSA](#)
Support: [CWSS](#)

Not Performed: _____

Resume Countdown Clock

14-925	NTD	OTC TBC *MIL STM *SCC LPS PTC	232
--------	-----	---	-----

T-19H00M
(HOLDING)

Countdown Clock will start counting at T-19 hours in 5 minutes.

14-926	NTD	ALL	232 PA
--------	-----	-----	-----------

T-19H00M
(COUNTING)

Countdown Clock at T-19 hours and counting.

LH₂ Pad Mechanical Preps - Complete

14-927	CLHY	TBC	136
--------	------	-----	-----

Pad Mechanical Preparations for Loading per OMI G3251 complete.

2000 psi GSE Activation and Set Point - Complete

14-928	CMPS	OTC	132	SU72283
--------	------	-----	-----	-------------------------

2000 psi GSE Activation and Set Point per OMI V9018.001 complete.

14-929	CECL	OTC	132	SU72253
--------	------	-----	-----	-------------------------

GSE Cooling Reconfigure from Chilled Water to REFR Mode complete.

Orbiter/ET Disconnect Cavity Purge

LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear

NOTE

Perform "LH₂ 17 Inch Orbiter/Et Disconnect (ET Side) Clear" if the OWP is extended.

LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear Not Performed: _____

14-930	CLHY	TBC	136
	TBC	NTD	232
		*PAD	
	NTD	*SCC	
	*SCC	*PSE	NET 105

Clear all personnel 10 ft from LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) for purge activation. **Install** barriers and danger signs.

Request Safety concurrence to proceed.

14-931	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

All personnel stand 10 ft clear of LH₂ 17 Inch Orbiter/ET Disconnect for purge activation.

14-932	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136

All personnel cleared from ET LH₂ Disconnect. Barriers and danger signs posted. You have Safety concurrence to proceed with LH₂ Orbiter/ET Cavity Purge Activation.

***** End of LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear *****

Clear AFT Fuselage

NOTE

Do not perform this option if AFT fuselage closed.

Clear AFT Fuselage Not Performed: _____

14-933 CLHY TBC 136

Ready to activate Orbiter/ET disconnect cavity purge.

Verify all personnel cleared from inside of AFT fuselage and Safety concurrence to proceed per OMI [G3251](#) .

14-934 TBC NTD 232
 NTD *SCC
 OTC
 *SCC *PSE NET 105
 OTC *ACM 132

Request SPOC Safety clear all personnel from inside of AFT fuselage for hazardous Orbiter/ET purge operations. (*ACM) AFT Control Monitor will be stationed at AFT fuselage entrance.

Post danger signs at entrances to AFT fuselage.

Request SPOC Safety concurrence to proceed.

14-935 NTD PA

Attention on Pad A:

All personnel clear AFT fuselage for purge activation.

14-936	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136

AFT fuselage cleared of all personnel and you have Safety concurrence to activate Orbiter/ET Disconnect Cavity Purge per OMI G3251.

***** End of Clear AFT Fuselage *****

WARNING
Helium is an asphyxiant and displaces oxygen.
Exposure may cause dizziness, unconsciousness, and can result in death.
Do not enter prior to ventilation.
Do not enter unless adequate oxygen levels are maintained.
WCS005.c 08-11-04

NOTE
Following operation is hazardous due to activation of Orbiter/ET Disconnect Cavity Purge.

14-937	CLHY	TBC	136
	TBC	NTD	232
	NTD	OTC	

Orbiter/ET Disconnect Cavity Purge will be initiated at this time per OMI [G3251](#) .

Open AFT Fuselage for Access

NOTE

Do not perform this option if AFT fuselage closed out for flight or no AFT access required.

Open AFT Fuselage for Access Not Performed: _____

14-938 CLHY TBC 136

Orbiter/ET Disconnect Cavity Purge is terminated. Ready to open AFT fuselage.

14-939 TBC NTD 232
NTD *SCC
OTC
***SCC *PSE NET 105**

Orbiter/ET Disconnect Cavity Purge has been terminated. Ready to open AFT.

Verify O₂ level acceptable for personnel entry.
Request Safety concurrence to open AFT fuselage for controlled work.
Remove danger signs.

14-940 *PSE *SCC NET 105
***SCC NTD 232**
NTD OTC

O₂ level in AFT acceptable. You have Safety concurrence to open AFT fuselage for controlled work. Danger signs removed.

NOTE

Hazardous steps due to Orbiter/ET Disconnect Cavity Purge are complete.

***** End of Open AFT Fuselage for Access *****

Remove LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear

NOTE

Perform "Remove LH₂ 17 Inch Orbiter/Et Disconnect (ET Side) Clear" if the OWP is extended and clears were put in place.

Remove LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear Not Performed: _____

14-941	CLHY	TBC	136
	TBC	NTD	232
		*SCC	
	*SCC	*PSE	NET 105

Verify the O₂ level in the LH₂ Orbiter/ET Umbilical area (ET Side) is reading acceptable oxygen content and open up 10 ft area around LH₂ Orbiter/ET Umbilical for controlled work.

14-942	*PSE	*SCC	NET 105
	*SCC	NTD	232

O₂ level in LH₂ Orbiter/ET Umbilical area is acceptable. You have Safety concurrence to open area for controlled work. Barriers and danger signs removed.

14-943	NTD	TBC	232
	TBC	CLHY	136
		*PAD	

10 ft area around LH₂ Orbiter/ET Umbilical is opened for controlled work.

***** End of Remove LH₂ 17 Inch Orbiter/ET Disconnect (ET Side) Clear *****

***** End of Orbiter/ET Disconnect Cavity Purge *****

ECLSS Plug Set Removal

14-951 OTC CECL 132 [SU72332](#)
 *PAD *PAD
 *PAD OMTO

T-18H00M

Perform OMI S0007.100, Operation 252 - ECLSS FES, NH₃ and O₂/N₂ Plug Sets Removal.

Essential Personnel		
	ORB	NASA
Technician	1	
Quality	1	1

ARCS Final Paper Cover Inspection

14-952 OTC *PAD 132 [SU72315](#)
 *PAD OMTO

T-18H00M

Perform OMI S0007.100, Operation 270, Part C - ARCS Paper Cover Final Inspection (1 hour).

14-953 JBPN STM 111

GH₂/GO₂ systems have been maintained.

Support: [CPNS](#)

SSR1 and SSR2 Configure for LCD

14-954 OTC CISL 132 SU72313
T-17H30M
Perform SSR1 and SSR2 Configure for LCD per OMI S0007.400
(Operation 38) (15 minutes).

14-955 CISL OTC 132
SSR1 and SSR2 Configure for LCD complete.
OMRSR [V75AR0.120](#)

MADS Configure for LCD

NOTE MEC Activation must be complete prior to the next step (OV-103 only).
--

14-956 OTC CISL 132
NTD 232
NTD JRPS
Perform MADS Configure for LCD per OMI S0007.400 (Operation 38)
(15 min).

MADS Configure for LCD - Complete

14-957 CISL OTC 132 SU72313
MADS Configure for LCD complete.
OMRSR [V78GA0.020](#)

NOTE

In order to proceed with SSME Final Preps, the AFT must be closed out for flight and MPS functional checks complete per OMIs V9018.001 and S1287.

Orbiter LH₂ Feed System Venting (Ref OMI V9018)

NOTE

Do not perform this option if RSS is rolled back (Park Position) and LH₂ TSM is closed out for flight.

Orbiter LH₂ Feed System Venting (Ref OMI V9018) Not Performed: _____

14-961	CMPS	OTC	132
	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Loud helium venting will occur from MPS LH₂ RTLS dump port.

Request Safety notify personnel working in LH₂ TSM/T-0 carrier plate loud venting will occur momentarily.

Request Safety verify no personnel in line of LH₂ RTLS dump port exit, located near 50-1 door, and notify all personnel in vicinity of dump port that loud venting will occur.

Request Safety remain on station until venting is complete.

14-962	CMPS	OTC	132
	OTC	NTD	232
	NTD		PA

Request PA announcement

Attention on Pad A:

Helium will be vented from MPS RTLS dump port. Flow will be audible.

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14-963	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	CMPS	132

Personnel have been notified and are no longer in vicinity of LH₂ RTLS dump port. You have Safety concurrence to proceed.

14-964	CMPS	OTC	132
	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Helium venting from LH₂ RTLS dump port near Orbiter 50-1 door complete. Safety may be released at this time.

*** End of Orbiter LH₂ Feed System Venting (Ref OMI V9018) ***

WWMS Preps For Switchlist

14-965	OTC	CFCP	132	SU72311
--------	-----	------	-----	-------------------------

Perform WWMS Preps for Switchlist per OMI S0007.400 (Operation 73) on OIS Channel 153.

Report completion.

14-966 NTD STM 232 SU72A99
 STM JBPN 111
T-17H30M

Perform operational checks on the following support panels and adjust pressures as specified in system Job Plans (2 hours).

Support: [PNSA](#)

1. GN₂ Primary Regulation panel - FSS 175-ft Level per
[Doc: M3011.002 \(LI\) Operational Check on Primary GN2 Regulation Pnl, S72-0694-02](#)
2. GHe Primary Regulation panel - FSS 175-ft Level per [Doc: JOB PLAN M3131.001 \(LI\) Operational Check on Main GHe Panel, S72-0697-01](#)
3. GN₂ purge panel - FSS 175-ft Level per [Doc: JOB PLAN M3054.001 \(LI\) Operational Check on HAZ and Camera Purge Panel](#)
4. MLP GN₂ Regulation panel - Compt 1B per [Doc: JOB PLAN M3197.009 \(LI\) MLP Primary GN2 Panel Contingency Pressure Adjustment](#)
5. MLP GN₂ Tertiary panel - Compt 1B per [Doc: JOB PLAN M3197.010 \(LI\) MLP GN2 Tertiary Panel Contingency Pressure Adjustment](#)
6. MLP GN₂ Regulation panel - Compt 44A per [Doc: JOB PLAN M3197.003 \(LI\) Operational Check on MLP Purge Panel S72-1107-08](#)
7. 6000/3000 psi Regulation panel - HP gas storage battery per
[Doc: JOB PLAN M3011.001 \(LI\) Operational Check of Pad Let Down Station](#)
8. Cabin Air Panel FSS 215-ft level per [Doc: JOB PLAN M3067.003 \(LI\) Cabin Air Panel Ops Check and Contingency Press. Adjustment](#)

Miscellaneous Equipment Lift

14-971 GBHE STM NET 104
 STM NTD 232
 NTD *SCC

Ready to proceed with miscellaneous equipment lifting operations.

Support: [HESA](#)

14-972 STM GBHE NET 104

Perform the following:

1. **Establish** a 25-ft control area around miscellaneous equipment path of travel for lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
 Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-973 STM PA

Attention on Pad A:

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for miscellaneous equipment lift from MLP zero level.

14-974 GBHE STM NET 104
 STM NTD 232
 NTD *SCC

25-ft control area has been established and barriers and danger signs posted.

Request Safety concurrence to proceed with miscellaneous equipment lifting operations from zero level.

Support: [HESA](#)

14-975 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to proceed with miscellaneous equipment lifting operations.

Support: [HESA](#)

14-976 STM GBHE NET 104

Brief personnel on the hazards and applicable Emergency Operations.
Verify all personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

The suspended load may fall during hoisting, rotation, raising or lowering.
Personnel impacted by falling or moving hardware may suffer serious injury and/or loss of life.

Wear **hard hats** and **safety shoes/boots** .

WCLH003 09-11-2009

NOTE

Hazardous steps follow due to lifting operations.

14-977

GBHE

Perform the following:

1. **Remove** miscellaneous equipment from zero level MLP.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE

Hazardous operations complete.

14-978

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open miscellaneous equipment control area for controlled work.

Remove barriers and danger signs.

Support: [HESA](#)

14-979 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to open miscellaneous equipment control area for controlled work.

Support: [HESA](#)

***** End of Miscellaneous Equipment Lift *****

NOTE
Perform the next step after "A" frame hoist is removed from MLP zero level.

14-980 STM QBSE NET 104

Lower "A" frame hoist safety stops for Launch.
Replace all MLP hatch lifting rings (4 per hatch) with set screw plugs (4 per hatch).
Store lifting rings in storage box on "A" frame hoist (OMI M3083).

Support: [STSA](#)
Support: [HESA](#)

LH₂ MLP Mechanical Preps - Complete

14-981 CLHY TBC 136
 TBC NTD 232

LH₂ MLP Mechanical Preparations for Loading per OMI G3251 complete.

14-982 OMTO *PAD [SU72315](#)
 *PAD OTC 132

T-17H00M

OMI S0007.100 Operation 270, Part C - ARCS Paper Cover Final Inspection, complete.

14-985 OTC TTL 132

CSR-640

Clear all nonessential personnel from 10-ft radius of the Left OME nozzle.

Install barriers and danger signs.

Verify essential personnel are properly attired in rubber aprons, faceshields and hypergolic compatible gauntlet gloves.

Perform toxic vapor checks during removal of OMS engine cover and throat plug.

Essential Personnel		
	SPOC	NASA
System Engineer	1	1
Orbiter Technician	4	
Safety	1	
Quality	1	1

14-986 OTC TTL 132

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

Report completion.

TTL: _____

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14-987	TTL	OTC	132	SU72B52
	OTC	NTD	232	
	NTD	*SCC		

Nonessential personnel have been cleared from 10-ft radius around Left OME nozzle for hazardous hypergolic (dual commodity) operations. Essential personnel properly attired. Barriers and danger signs posted.

Request Safety concurrence to proceed.

TTL: _____

14-988	*SCC	NTD	232
	NTD	OTC	
	OTC	TTL	132
		*PAD	

You have Safety concurrence to proceed with hazardous hypergolic (dual commodity) operations.

14-989	OTC	TTL	132
--------	-----	-----	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Fuel (MMH) vapor is flammable. Fuel is toxic, an irritant and may cause cancer. Oxidizer (NO₂) vapor is a severe irritant.

Exposure to eyes, skin and respiratory system may cause severe irritation and/or permanent damage. The Exposure Limit is 1.0 PPM oxidizer and 10 PPB fuel.

Wear **rubber aprons** and **industrial goggles** .

Wear **hyper compatible polyvinyl chloride (PVC) Pylox gloves** .

Wear a **face shield** over goggles when work is at eye level or above.

WT003 12-06-2005

WARNING

Oxygen deficient atmosphere may be present in confined space.

Exposure may result in dizziness, unconsciousness, and in extreme cases could cause death.

Do not enter prior to ventilation

Do not enter unless monitoring for oxygen and /or toxic vapor levels exist and adequate oxygen levels are maintained.

WCS001 06-09-2005

CAUTION

Caution must be exercised when removing the exit cover to verify that the OME plug is still installed. The possibility exists that the plug is dislodged and is lying on the inside of the exit cover. If the plug falls out, damage may occur to the OME and other equipment.

NOTE

Hazardous steps follow due to possible exposure to hypergolic vapor and possible lack of oxygen.

NOTE

Throat plug desiccant bag may be contaminated. OMTO shall monitor operations for toxic vapor levels.

14-990	TTL	OTC	132
	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Left OME Nozzle

Perform O₂ and Toxic Vapor Checks in Left OME nozzle.

14-991	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	*PAD	
		TTL	

O₂ and toxic vapor levels acceptable for Throat Plug Removal.

14-992	TTL	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

LOME end cover and throat plug removal complete.

Verify toxic vapor checks within the control area are within acceptable levels (LT 0.01 PPM fuel and/or LT 1.0 PPM oxidizer).

Request Safety concurrence to open LOME control area for controlled work.

14-993	*SCC	NTD	232
	NTD	OTC	
	OTC	TTL	132

You have Safety concurrence to open LOME control area for controlled work.

14-994	TTL	OTC	132	SU72B52
		*PAD		
	OTC	NTD	232	
	NTD	*SCC		

LOME hazardous operation complete and clears are down. Area open for controlled work.

NOTE Hazardous steps complete.
--

***** End of Left OME Exit Cover and Throat Plug Removal *****

Right OME Exit Cover and Throat Plug Removal

14-995	TTL	*PAD	132
		OTC	
	OTC	NTD	232
	NTD	*SCC	

Ready to proceed with Right OME exit cover and throat plug hazardous operations.

14-996 OTC TTL 132

CSR-640

Clear all nonessential personnel from 10-ft radius of the Right OME nozzle.

Install barriers and danger signs.

Verify essential personnel are properly attired in rubber aprons, faceshields and hypergolic compatible gauntlet gloves. **Perform** toxic vapor checks during removal of OMS engine cover and throat plug.

Essential Personnel		
	SPOC	NASA
System Engineer	1	1
Orbiter Technician	4	
Safety	1	
Quality	1	1

14-997 OTC TTL 132

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

Report completion.

TTL: _____

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14-998	TTL	OTC	132	SU72B55
	OTC	NTD	232	
	NTD	*SCC		

Nonessential personnel have been cleared from 10-ft radius around Right OME nozzle for hazardous hypergolic (dual commodity) operations. Essential personnel properly attired. Barriers and danger signs posted.

Request Safety concurrence to proceed.

TTL: _____

14-999	*SCC	NTD	232
	NTD	OTC	
	OTC	TTL	132
		*PAD	

You have Safety concurrence to proceed with hazardous hypergolic (dual commodity) operations.

14-1000	OTC	TTL	132
---------	-----	-----	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Fuel (MMH) vapor is flammable. Fuel is toxic, an irritant and may cause cancer. Oxidizer (NO₂) vapor is a severe irritant.

Exposure to eyes, skin and respiratory system may cause severe irritation and/or permanent damage. The Exposure Limit is 1.0 PPM oxidizer and 10 PPB fuel.

Wear **rubber aprons** and **industrial goggles** .

Wear **hyper compatible polyvinyl chloride (PVC) Pylox gloves** .

Wear a **face shield** over goggles when work is at eye level or above.

WT003 12-06-2005

WARNING

Oxygen deficient atmosphere may be present in confined space.

Exposure may result in dizziness, unconsciousness, and in extreme cases could cause death.

Do not enter prior to ventilation

Do not enter unless monitoring for oxygen and /or toxic vapor levels exist and adequate oxygen levels are maintained.

WCS001 06-09-2005

CAUTION

Caution must be exercised when removing the exit cover to verify that the OME plug is still installed. The possibility exists that the plug is dislodged and is lying on the inside of the exit cover. If the plug falls out, damage may occur to the OME and other equipment.

NOTE

Hazardous steps follow due to possible exposure to hypergolic vapor and possible lack of oxygen.

NOTE

Throat plug desiccant bag may be contaminated. OMTO shall monitor operations for toxic vapor levels.

14-1001	TTL	OTC	132
	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Right OME Nozzle

Perform O₂ and Toxic Vapor Checks in Right OME nozzle.

14-1002	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	TTL	132
		*PAD	

O₂ and toxic vapor levels acceptable for Throat Plug Removal.

14-1003	TTL	OTC	132
	OTC	NTD	232
	NTD	*SCC	

ROME end cover and throat plug removal complete.

Verify toxic vapor checks within the control area are within acceptable levels (LT 0.01 PPM fuel and/or LT 1.0 PPM oxidizer).

Request Safety concurrence to open ROME control area for controlled work.

14-1004	*SCC	NTD	232
	NTD	OTC	
	OTC	TTL	132

You have Safety concurrence to open ROME control area for controlled work.

14-1005	TTL	OTC	132	SU72B55
	OTC	*PAD		
		NTD	232	
	NTD	*SCC		

ROME hazardous operation complete and clears are down. Area open for controlled work.

NOTE
Hazardous steps complete.

***** End of Right OME Exit Cover and Throat Plug Removal *****

NOTE
The following step will be performed after other work within 5 feet of the OME nozzles is complete.

14-1006	OTC	*PAD	132
	*PAD	OMTO	

Verify the following:

1. All work except for OME side cover removals is complete on the 107-ft level within 5 feet of the OMS engines.
2. All Aft thruster UTPAs are removed and rain covers installed.
3. All PIC boards on the 107-ft level side are removed.
4. Diving board step up platforms are removed.
5. No work scheduled within 5 feet of OME nozzle.

14-1007	OMTO	*PAD	132
	*PAD	OTC	

Request concurrence to proceed with OME side cover removals.

14-1008	OMTO	*PAD	132	SU72336
	*PAD	OTC		
	OTC	NTD	232	

OMI S0007.100, Operation 268 - OMS Engine Covers and Throat Plug Removal, complete.

***** End of Remove OMS Engine Covers and Throat Plugs *****

Orbiter/ET Disconnect Cavity Purge Verification

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.
Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.
Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

Hazardous steps follow due to GN₂ flow through the Aft.

Aft Clear

NOTE

Perform Aft Clear if the AFT is occupied and/or has not been closed for flight.

Aft Clear Not Performed: _____

14-1009	CLOX	TBC	136
	TBC	NTD	232
	NTD	OTC	
	OTC	*ACM	132

T-17H00M

IF AFT not cleared,

THEN obtain time estimate as to when AFT will be cleared and inform CLOX.

Not Performed: _____

14-1010 NTD *SCC 232
 *SCC *PSE NET 105

Verify Orbiter AFT fuselage cleared of all personnel.

14-1011 *PSE *SCC NET 105
 *SCC NTD 232
 NTD TBC
 TBC CLOX 136

AFT fuselage clear of all personnel.

***** End of Aft Clear *****

14-1012 CLOX TBC 136
 TBC NTD 232
 NTD OTC

Orbiter/ET LO₂ Disconnect Cavity Purge will be initiated at this time per
OMI [G3151](#) .

NOTE Hazardous steps complete.
--

***** End of Orbiter/ET Disconnect Cavity Purge Verification *****

14-1013 CLHY TBC 136
 TBC CLOX

IF the LO₂ Anti-Ice Purge Test was required,

THEN report OMI G3251 Operation - Configuration for LOX Anti-Ice
Purge Test complete.

Not Performed: _____

ET Nose Cone GN₂ Anti-Ice Purge Setup

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.
Exposure may cause asphyxiation, and in extreme cases could cause death.

Use only in a well ventilated area.

WCS006.a 03-04-03

NOTE

The following steps are hazardous due to ET Nose Cone purge.

GOX Vent Arm Clear

NOTE

Perform this option if GOX Vent Arm is extended.

GOX Vent Arm Clear Not Performed: _____

14-1014	CLOX	TBC	136	SU72310
	TBC	CMEC		

GN₂ Nose Cone Purge Activation will begin momentarily.
Verify GOX Vent Arm is clear of all personnel.

14-1015	CMEC	TBC	136
	TBC	CLOX	

GOX Vent Arm is clear of personnel. OK for ET Nose Cone GN₂ Purge Activation.

14-1016	TBC	NTD	232
	NTD	*SCC	

ET Nose Cone GN₂ Purge Activation will be initiated momentarily. GOX Vent Arm is clear of personnel.

***** End of GOX Vent Arm Clear *****

14-1017 TBC CLOX 136 SU72296

Proceed with GN₂ Nose Cone Purge Activation.

GOX Vent Arm Clear Removal

NOTE
Perform this option if GOX Vent Arm is extended.

GOX Vent Arm Clear Removal Not Performed: _____

14-1018 CLOX TBC 136
 TBC CMEC

ET Nose Cone GN₂ Purge Flow complete. You have an OK to resume operations on GOX Vent Arm.

14-1019 TBC NTD 232 SU72310
 NTD *SCC

GOX Vent Arm is open for controlled work.

***** End of GOX Vent Arm Clear Removal *****

14-1020 CLOX TBC 136 SU72296
 TBC NTD 232
 NTD *SCC

ET Nose Cone GN₂ Purge Flow complete.

***** End of ET Nose Cose GN₂ Anti-Ice Purge Setup *****

OAA/HCU Preps

14-1021 OTC *PAD 132 SU72333
 *PAD PHCU

T-17H00M

Perform HCU Preparations per Operation 10 of OMI [V2160](#) .

14-1022 OTC *PAD 132
 *PAD POAA

Perform OAA Preparations per Operation 10 of OMI [V2153](#) .

GVA Preps

14-1023 TBC *PAD 136 SU72343
 *PAD PME4

Perform GVA Preparations per Operation 10 of OMI [G2158](#) .

14-1024 OMTO *PAD 132
 *PAD OTC
 OTC NTD 232
 NTD STM

Topping and Hi-Load FES duct plug removed. OK to retract left triple flip platform.

NOTE
Noted requirement is satisfied by the following steps annotated with OMRS code.
 OMRS V63AR0.025

14-1025 CECL CDR 143

PANEL L1
TOPPING EVAPORATOR HEATER
NOZZLE
 L SW - A AUTO
 R SW - A AUTO
 DUCT
 SELECT SW - A

HI LOAD DUCT HTR SW - A

OMRS V63AR0.025

14-1026

CECL

CRT (VAG28 PG-B)

LH NOZ HTR

A - SON ON

RH NOZ HTR

A - SON ON

TOPPING DUCT HTR

A SON ON

HI-LD DUCT HTR

A SON ON

NOTE

O₂/N₂ plug removal will be completed after OMBUU 45 Door Closeout is completed.

14-1027

OMTO

*PAD
OTC
CECL

132

[SU72332](#)

S0007.100 Operation 252 - ECLSS FES, NH₃ and O₂/N₂ Plug Set Removal complete.

OMRS V63AR0.025

14-1028

Noted requirement complete.

OMRSD [V63AR0.025](#)

ET/IT Purge Readiness Test

14-1029 CLHY TBC 136

Verify ET intertank flight door installed and intertank access arm retracted.

14-1030 TBC CLHY 136 SU72B69
 CLHY PLHY 166 SU72B70

Clear all personnel from RSS 207 ft Level access to RSS +Y auxiliary platform.

Post danger sign(s) across access to platform.

WARNING

Oxygen deficient atmosphere may be present in confined space.

Exposure may result in dizziness, unconsciousness, and in extreme cases could cause death.

Do not enter prior to ventilation

Do not enter unless monitoring for oxygen and /or toxic vapor levels exist and adequate oxygen levels are maintained.

WCS001 06-09-2005

NOTE

Following operation is hazardous due to activation of ET/IT GN₂ purge.

14-1031 PLHY CLHY 166
 CLHY TBC 136
 TBC NTD 232
 *PAD
 NTD *SCC

All personnel clear from RSS 207 ft Level access to RSS +Y auxiliary platform.

Danger sign(s) posted.

Request Safety concurrence to proceed.

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14-1032	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136
	CLHY	PLHY	166

You have Safety concurrence to proceed with ET/IT GN₂ Purge.

14-1033	CLHY	TBC	136
---------	------	-----	-----

ET/IT GN₂ Purge will be initiated momentarily.

14-1034	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

All personnel clear RSS 207-ft level access to RSS +Y auxiliary platform for ET Intertank Purge. ET Intertank Purge will be operated intermittently for next hour.

14-1035	CCME	OTC	132	SU72326
	OTC	NTD	232	
	NTD	LPS		

SSME Controller Power-up and Avionics Checks complete. Ready for SSME 750 Activation and Pneumatic Checkout.

14-1036	GYAT	GYCC	117	SU72364
	GYCC	GYQC	NET 107	
		STM	111	
	STM	NTD	232	

T-17H00M

FSS elevator telephones have been configured to Hot Dial Mode and COMM checked with NTD Console AB-6/10496A15. Phones have been tagged for Hot Dial Mode with Firing Room 3/4.

Support: [ATEL](#)

T: _____ Qw: _____

SSME 750 Pneumatics Activation

SSME ESP Clears

NOTE

Perform this option if SSME ESP not cleared.

SSME ESP Clears Not Performed: _____

14-1037	CMPS	OTC	132	SU72379
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-16H25M

Request SPOC Safety clear all personnel from SSME ESP.

Post danger signs.

Request Safety concurrence to proceed with SSME 750 psi Pneumatics Activation and Pneumatic Checkout.

14-1038	NTD	PA
---------	-----	----

Attention on Pad A:

SSME helium system will be pressurized and SSME purges will be activated.

14-1039	*PSE	*SCC	NET 105
	*SCC	NTD	232

SSME ESP cleared of all personnel and danger signs installed. You have Safety concurrence to proceed with SSME 750 psi Pneumatics Activation and Pneumatic Checkout.

***** End of SSME ESP Clears *****

WARNING

Helium is an asphyxiant and displaces oxygen when venting from vent lines.
Exposure may cause dizziness, unconsciousness and may result in death.

Do not inhale helium originating from a low pressure/low volume GHe purge.

WCS005.b 03-11-03

NOTE

Hazardous steps follow due to SSME 750 pneumatics activation.

14-1040	NTD	OTC	232
	OTC	CMPS	132

Perform SSME 750 pneumatics activation per OMI [V9018.001](#) (AFT fuselage closed for flight).

SSME Pneumatic Checkout

14-1041	NTD	OTC	232	SU72329
	OTC	CSME	132	

T-16H20M

Perform SSME Pneumatic Checkout per OMI [V9018.001](#)
(ESP cleared and AFT fuselage closed for flight) (30 minutes).

NOTE

Hazardous steps complete.

Safety Shower Removal

NOTE

SRB HPU turbine exhaust duct plugs and overboard drain line scrubber removal must be completed prior to performance of next step.

14-1042 **STM** **NTD** **232**
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

Request Safety concurrence to remove safety showers and eyewash fountains from MLP.

14-1043 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**
 NTD **STM**

You have Safety concurrence to remove safety showers and eyewash fountains from MLP.

14-1044 **STM** **GBHE** **NET 104** [SU72353](#)

Provide trucks and mobile crane for removal of safety showers and eyewash fountains from MLP.

Support: [HESA](#)

14-1045 **STM** **JBFX** **111** [SU72363](#)
 GBHE **NET 104**

Remove safety showers and eyewash fountains from East Pad surface and MLP per [Doc: JOB PLAN M3190.210 \(LI\) Pad and MLP Safety Shower/Eyewash Closeout](#) (4 hours).

Report completion.

Support: [CWSS](#)
Support: [WSSA](#)
Support: [HESA](#)

Safety Shower and Eyewash Lift

14-1046 STM GBHE NET 104

Perform the following:

1. **Establish** a 25-ft control area around safety shower and eyewash path of travel for lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-1047 STM PA

Attention on Pad A

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for safety shower and eyewash lift from MLP zero level.

14-1048 GBHE STM NET 104 [SU72376](#)
STM NTD 232
NTD *SCC

25-ft control area has been established. Barriers and danger signs posted.
Request Safety concurrence to proceed with safety showers and eyewash fountains removal from zero level.

Support: [HESA](#)

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14-1052 GBHE STM NET 104
 STM NTD 232
 NTD *SCC

Hazardous lifting operations complete.

Request Safety concurrence to open lifting control area for controlled work.

Remove ropes, barriers and danger signs.

Support: [HESA](#)

14-1053 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to open lift control area for controlled work.

Support: [HESA](#)

Safety Shower and Eyewash Removal - Complete

14-1054 JBFX STM 111 [SU72363](#)

Safety showers and eyewash fountains removal complete.

Support: [CWSS](#)

***** End of Safety Shower and Eyewash Lift *****

Removal of MLP Zero Level OIS Units

NOTE
Perform this option if equipment (OIS units/purge flexhoses) installed.

Removal of MLP Zero Level OIS Units Not Performed: _____

NOTE
IMCS/GSS Technicians meet at base of FSS elevator.

14-1055	TBC	NTD	232
	NTD	STM	
	STM	GYCC	111
		JBPN	
T-16H00M	GYCC	JYCD	117

SRB personnel ready for OIS unit removal.

IMCS: **remove** two portable OIS units outboard of SRB flame holes on MLP zero level.

Install caps on gooseneck cable connectors and tighten wrench-tight with pipe wrench (10 minutes).

GSS: **remove** purge flexhoses.

Support: [OISD](#)
Support: [PNSA](#)

T: _____

14-1056	JBPN	STM	111
---------	-------------	------------	------------

Purge flexhose disconnected for removal of two OIS boxes on MLP.

Support: [PNSA](#)

14-1057	JYCD	GYCC	117
	GYCC	STM	111
	STM	NTD	232

Two portable OIS units on MLP zero level, outboard of SRB flame holes, have been removed. Caps installed on gooseneck cable connectors and tightened wrench-tight with pipe wrench.

Support: OISD

T: _____

*** End of Removal of MLP Zero Level OIS Unit ***

Remove Portable OIS Unit(s) - RSS 130-ft Level

NOTE
IMCS/GSS Techs meet at base of FSS elevator.

14-1058	STM	GYCC	111	SU72303
		JBPN		
	GYCC	JYCD	117	

T-16H00M

IF portable OIS unit(s) adjacent to AFT fuselage 50-1/50-2 door not previously removed from RSS 130-ft level,

THEN IMCS:

remove portable OIS unit(s) adjacent to AFT fuselage 50-1/50-2 door from RSS 130-ft level.

Remove or secure cable with blast tape (30 minutes).

GSS: Disconnect purge flexhose(s) on RSS 130-ft level and secure to structure with metal tie wraps.

Support: OISD

Support: PNSA

Not Performed: _____

OIS Unit(s) Removal Status

NOTE

Perform this option if OIS unit(s) adjacent to AFT fuselage 50-1/50-2 door was not previously removed from RSS 130-ft level.

OIS Unit(s) Removal Status Not Performed: _____

14-1059 JBPN STM 111

Purge flexhose(s) disconnected for removal of OIS unit(s) from RSS 130-ft level has been removed.

Support: CPNS

14-1060 JYCD GYCC 117 SU72303
GYCC STM 111

Portable OIS unit(s) adjacent to AFT fuselage 50-1/50-2 door(s) has been removed from RSS 130-ft level, and disconnected cables removed or secured.

Support: OISD

T: _____

***** End of OIS Unit(s) Removal Status *****

14-1061 CLHY TBC 136 SU72B69

ET/IT Purge Readiness Test complete.

Notify CLHY if Intertank entry required so Intertank Purge can be secured.

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14-1062	CLHY	TBC	136	SU72B70
	TBC	NTD	232	
	NTD	*SCC		

ET Intertank Purge operations complete. Danger sign(s) removed and area open for controlled work on RSS +Y auxiliary platform.

<p style="text-align: center;">NOTE Hazardous steps complete.</p>
--

LH₂ FSS Mechanical Preps - Complete

14-1063	CLHY	TBC	136	SU72295
---------	------	-----	-----	---------

FSS Mechanical Preparations For Loading per OMI G3251 complete.

OAA/HCU Preps - Complete

14-1064	POAA	*PAD	132	SU72333
	*PAD	OTC		
	OTC	NTD	232	

OAA/HCU Preps per OMI V2153 and OMI V2160 complete.

GVA Preps - Complete

14-1065	PME4	*PAD	136	SU72343
	*PAD	TBC		
	TBC	NTD	232	

GVA Preps per OMI G2158 complete.

14-1066	OTC	*PAD	132	SU72362
		NTD	232	SU72298
	NTD	STM		
	STM	GBHE	NET 104	
	*PAD	PMTG		

Remove PIC boards and retract 107-ft level diving boards per OMI V3529 (2 hours) (Spider 50).
Report completion.

Support: [HESD](#)

14-1067	OTC	*PAD	132
	*PAD	QESP	

Verify SSME ESP configured for lowering.

Activate HCU

14-1068 T-16H00M	OTC	CGSS	132	SU72334
---------------------	-----	------	-----	---------

Activate HCU and pressurize FSS hydraulic system per OMI V2160 .

SSME Pneumatic Checkout - Complete

14-1069	CSME	OTC	132	SU72329
	OTC	NTD	232	SU72330
	NTD	*SCC		

T-15H40M

SSME Pneumatic Checkout complete.
Request concurrence to proceed with SSME GN₂ Purge Checkout.

Maintain controls on ESP for GN₂ flow.

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause asphyxiation, and in extreme cases could cause death.

Use only in a well ventilated area.

WCS006.a 03-04-03

NOTE

Hazardous operation - SSME GN₂ Purge Checkout follows.

14-1073

NTD

OTC

232

[SU72331](#)

OTC

CSME

132

Proceed with SSME GN₂ Purge Checkout per OMI [V9018.001](#)
(1 hour 40 minutes).

Instrumentation Measurement Support

14-1074
T-15H30M

STM JCFM 111

SU72356

Verify the following substeps performed:

1. **Record** MLP Zero Level rain gage.
Report to JCFM
Remove MLP Zero Level rain gage.
2. **Remove** LCD assembly from North CWLIS Site.
3. **Record** NE and NW holding tank rain gage.
Report to JCFM
Remove NE and NW holding tank rain gage.
4. **Verify** hail monitors removed from Pad perimeter.
5. **Remove** LOX TSM Magnetic Field Sensor

Support: GIFM

14-1075

JCFM STM 111
STM NTD 232
NTD *SCC 232
OTC
*SCC *PSE NET 105

JCFM personnel on MLP Zero Level ready to access LOX TSM for field sensor equipment removal.

Request Safety take O₂ readings, verify proper PPE and conduct briefing on the hazards (Fuel cell vent path/Ordinance/working at heights).

14-1076

*PSE *SCC NET 105
*SCC NTD 232
NTD STM 232
STM JCFM 111

LOX TSM O₂ levels are acceptable, personnel in proper PPE, briefing as to TSM hazards complete.

GO to enter LOX TSM for equipment removal.

14-1077	JCFM	STM	111
	STM	NTD	232
	NTD	*SCC	232
		OTC	
	*SCC	*PSE	NET 105

JCFM complete with equipment removal from the LOX TSM, personnel departing the area. PSE to post hazardous control signs at LOX TSM entry.

14-1078	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	232
		OTC	

Personnel out of LOX TSM, area controlled with hazardous control signs.

Ground Support COMM System Validation (OMI A2700)

14-1079	NTD	*MIL	232	SU72368
---------	-----	------	-----	-------------------------

Verify MILA ready to support OMI A2700.

14-1080	STM	GYCC	111
		*MIL	
	GYCC	GYVW	PTP

Perform Validation of Multi-Burst Video Test Signal per OMI [A2700](#) (1 hour).

Support: [WB](#)

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14-1085 STM QBSE NET 104

Inspect and clean under main flame deflector. Then close and dog door to under main flame deflector.

Support: [STSA](#)

HCU Activation - Complete

14-1086 CGSS OTC 132 [SU72334](#)
 OTC NTD 232

T-15H00M

FSS Hydraulic System pressurized per OMI V2160.

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14-1091	QBSE	STM	NET 104	SU72359
	STM	NTD	232	
	NTD	OTC		
		*SCC		

RSS Triple Flip Platform Retractions complete.

Support: STSA

14-1092	NTD	STM	232	SU72355
	STM	JBEP	111	

Special Power Techs (1-0702):

Remove ODMS remote digital displays at MLP LH₂ and LO₂ TSMs
per [Doc: JOB PLAN S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA Support](#)

Coveralls required.

Report completion.

Support: PWRA

Support: PWR

14-1093	STM	GYCC	111
	GYCC	JTCR	

Route personnel to LO₂/LH₂ TSM to support Camera Purge Verification.

Support: TCD

TSM Pre-Arm Preps

WARNING

Pyrotechnic devices may explode during handling or testing.

Personnel may suffer bodily injury or death.

Wear **wrist stats** during mating, demating, handling or testing of pyrotechnic devices and/or connectors.

WPYR003 10-11-2005

CAUTION

Do not perform LO₂ and LH₂ TSM Pre-arming Preps until Triple Flips are retracted to preclude damage to T-0 Carrier Plate.

NOTE

Drop weight separation pyro bolt and bonnet pyro thruster are installed in the TSM interior.

14-1094 OTC *PAD 132
***PAD QHSM**

Perform LH₂ TSM Pre-Arming Preps per OMI [V3517.002](#) .

14-1095 OTC *PAD 132
***PAD QOSM**

Perform LO₂ TSM Pre-Arming Preps per OMI [V3518.002](#) .

14-1096	OTC	NTD	232	SU72316
	NTD	STM		
	STM	JBEP	111	
	JBEP	STM		
	STM	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Obtain fixed O₂ readings of LO₂ and LH₂ TSMs for personnel entry.

LO₂_____

LH₂_____

Request Safety concurrence for personnel entry to LO₂ and LH₂ TSMs.

Support: [PWR](#)

14-1097	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Establish a GH₂ baseline reading (LEL scale) outside LH₂ TSM, with portable meter.

Verify no increase of GH₂ above baseline inside LH₂ TSM.

14-1098	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	QHSM	132
		QOSM	

O₂ and H₂ readings acceptable. You have Safety concurrence for personnel entry to LO₂ and LH₂ TSMs.

Verify Frequency Clearance

14-1099 OTC NTD 232 [SU72352](#)
 NTD STM
 STM ENDO 111

T-15H00M

Verify protected open loop frequency clearance for S-band through negative AOA (ENDO 853-2436/5941).

S-Band PM	S-Band FM
2041.9 MHz	2250.0 MHz
2106.4 MHz	2272.5 MHz
2217.5 MHz	
2287.5 MHz	

Frequency Clearance No. _____

Ground Support COMM System Validation - Complete

14-1100 *MIL STM 111 [SU72368](#)
 GYCC
 STM NTD 232

Multi-burst Video Test Signal Validation per OMI A2700 complete.

Support: [COMM](#)

14-1101 STM NTD 232

LPS/MILA Circuit Validation per OMI A2700 complete.

T-14 Hour FCS Stowage Prior to COMM Activation

14-1102 OTC OOCS 132 [SU72337](#)

Perform T-14 Hour FCS Stowage Prior to COMM Activation per FCS TPS _____.

NOTE

The following four steps will be performed at NTD direction and may be worked no later than 1 hour prior to Ascent Switchlist.

14-1103 NTD OTC 232
 STM
 JCFM 111

Perform GLMS Software Deactivation for the Crew Module per appropriate Maximo Work Order.
Report completion.

Time _____ Date _____

14-1104 OTC CEPD 132 [SU72B65](#)
 OETO

Perform Lightning Monitoring Deactivation and Removal per C72-1512-_____-_____-_____ Lightning Monitoring Pad Flow -- FWD.
Report completion.

14-1105 NTD OTC 232
 STM
 JCFM 111

Perform GLMS Software Deactivation for the MLP ITCU Current Probes per appropriate Maximo Work Order.
Report completion.

Time _____ Date _____

14-1106 OTC CEPD 132 [SU72B92](#)
 QETG

Perform Lightning Monitoring Deactivation and Removal per OMI [V2243 MLP GLMS Checkout](#) .
Report completion.

SSME GN₂ Purge Checkout - Complete

14-1107 CSME OTC 132 SU72A68
SU72331

T-14H00M

SSME GN₂ Purge Checkout complete (OMI V9018.001).
Proceeding with SSME AHM memory checks (3 hours)

NOTE

Hazardous operation (SSME GN₂ purge) complete.

Open SSME ESP Area

NOTE

Perform this option if SSME ESP area is required to be opened.

Open SSME ESP Area Not Performed: _____

14-1108 OTC NTD 232 SU72331
NTD *SCC
*SCC *PSE NET 105

SSME GN₂ purge checkout complete.

Verify O₂ levels acceptable on SSME ESP.

Request Safety concurrence to open SSME ESP area for controlled work and to remove signs.

14-1109 *PSE *SCC NET 105 SU72379
*SCC NTD 232
NTD OTC
OTC CSME 132

O₂ levels are acceptable on SSME ESP. You have Safety concurrence to open SSME ESP area for controlled work. Signs have been removed.

***** End of Open SSME ESP Area *****

14-1117	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Ready to initiate GN₂ flow to the GOX Vent Hood.

14-1118	CMEC	PME4	186
---------	------	------	-----

FSS 265-ft Level
Seal Access Platform

Clear all personnel from the Seal Access Platform for GN₂ flow to hood.
Install "DANGER - Hazardous Control Area" sign at entrance to Seal Access Platform.

14-1119	CMEC	TBC	136
	TBC	NTD	232
	NTD		PA

Request following PA announcement:

Attention at Pad A:

GOX Vent Hood heated purge will be activated momentarily. All personnel clear Seal Access Platform.

14-1120	PME4	CMEC	186
	CMEC	TBC	136
	TBC	NTD	232
	NTD	*SCC	

All personnel cleared from Seal Access Platform. Danger signs posted.
Request Safety concurrence to proceed with GN₂ flow to GOX vent hood.

14-1121	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to proceed with GN₂ flow to GOX Vent Hood.

14-1122	TBC	CMEC	136
---------	-----	------	-----

Brief personnel on hazards that will be present and applicable operations of Emergency Instructions (OMI G2158). **Verify** personnel are certified, equipped and ready to proceed.

TTL: _____

<p style="text-align: center;">WARNING</p> <p>GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen if inhaled. Exposure may cause headache, drowsiness, or unconsciousness and in extreme cases, death.</p> <p>Do not open hood access doors/windows or enter hood access platform during GN₂ flow.</p> <p style="text-align: right;">WCS016 09-14-2005</p>

<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Hazardous step follows due to GN₂ flow.</p>
--

14-1123	TBC	CMEC	136
---------	-----	------	-----

Proceed with GN₂ Flow to GOX Vent Hood per OMI [G2158](#)

<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Hazardous GN₂ operations complete.</p>

14-1124	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	
		STM	
	STM	JSTC	111
JSTC	GSPN	114	

Hazardous GN₂ flow operations to the GOX Vent Hood are complete.
Request Safety concurrence to open Seal Access Platform for controlled work and to remove Danger sign.

Support: [PNU](#)

14-1125	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to open Seal Access Platform for controlled work and to remove the Danger sign.

14-1126	CMEC	TBC	136
---------	------	-----	-----

GOX Vent Hood Seal Ironout complete.

***** End of GOX Vent Hood Seal Ironout (Contingency) *****

14-1127	CHGD	OTC	132
	OTC	NTD	232
	NTD	STM	
	STM	GYCC	111
	GYCC	GYVW	PTP

T-13H00M

(ATXS) Wideband Console for HGDS circuits between Pad A and the LCC, FR3 and FR4 perform:

Pad A IM-COM-I-0180

(2 hours)

Support: [WB](#)

GOX Vent Arm Initial Activation

14-1128 TBC CMEC 136 SU72348
T-13H00M

Perform GOX Vent Arm Initial Activation per OMI [G2158](#) .

14-1129 CMEC TBC 136 SU72263
*PAD
*PAD PQCG

Assemble ET TPS Inspection Team (Ref T6446 Footprint Inspection).
Required on station in 1 hour at FSS level 255.

Configure Electrical Equipment

14-1130 STM JSTC 111 SU72365
JSTC JSEP 114

Verify power at Radar 19:14 (FPQ-14).

Support: [ELEC](#)

14-1131 STM JBAC 111

Verify the following listed buildings systems are operational per
[Doc: JOB PLAN M3034.15 \(LI\) Operational AC Checks \(T-13\)](#)

M6-138 CD & SC
K6-1193 VABR

Support: [HVAA](#)

ET Pre-Cryo Load Inspections Kick-Off

NOTE

All ET Pre-Cryo Load Inspections except the GOX vent seal footprint inspection should be performed during daylight hours when possible. Inspections shall be performed as close to loss of access as possible.

ET LO₂ Feedline Support Bracket Inspection is performed from the +Y ET access platform and may require use of access platform inboard flip once sufficiently AFT of the Bipod struts to allow for flip rotation/lowering.

All ET Pre-Cryo Load Inspections are required prior to initial loading. Subsequent inspections utilizing the +Y/-Y OWP's (including the ET LO₂ Feedline Support Bracket Inspection) are required in 72-hour (or less) Scrub Turnaround scenarios only when access is provided and a period of open work has elapsed.

14-1132	STM	NTD	232
	NTD	TBC	
	TBC	CLHY	136
		CLOX	

IF not previously accomplished by schedule/other document,

THEN verify no active purge from ET intertank.

Not Performed: _____

14-1133	NTD	TBC	232	SU72354
		STM		SU72B42
	TBC	PTIF	136	SU72B57
		*PAD		
	*PAD	PQCG		
	STM	QBSE	NET 104	

T-13H00M

Perform ET LO₂ Feedline Support Bracket Inspection and Camera Cleaning per OMI T6446 (Op 20) from +Y ET access platform (OMI M3169.005 or OMI M3169.006).

Support: STSA

14-1134 **NTD** **STM** **232**
 STM **QBSE** **116**

Clear all personnel from the 20-foot radius area directly under the +Y ET/Orbiter Access Platform. **Install** barriers and **post** Danger signs.

14-1135 **NTD** **PA**

Attention on Pad A:

All personnel clear a 20-foot radius under the +Y ET/Orbiter Access Platform and travel path for hoisting operations and a suspended load.

14-1136 **QBSE** **STM** **116**
 STM **NTD** **232**
 NTD ***SCC**

All personnel cleared from the 20-foot radius under the +Y ET/Orbiter Access Platform. Barriers and Danger signs posted.

Request concurrence to proceed with movement of the +Y ET/Orbiter Access Platform.

14-1137 ***SCC** **NTD** **232**
 NTD **STM**
 STM **QBSE** **116**

You have Safety concurrence to proceed with movement of the +Y ET/Orbiter Access Platform.

ET Flip Extension

NOTE

Perform this option if an anomaly is noted during the feedline inspection which requires ET access platform flip extension.

ET Flip Extension Not Performed: _____

14-1138	QBSE	STM	116
	STM	NTD	232

Request NTD concurrence to use the ET access platform flip extension.

Support: [STSA](#)

14-1139	NTD	STM	232
		TBC	
		*SCC	

Verify the following:

1. Wind forecast at Pad 60-ft tower not expected to exceed 30 knots steady state.
2. ET Mechanical Engineer on site concurrence:

ETM _____

3. Full time platform monitor on station.

14-1140	NTD	STM	232
		TBC	
	STM	QBSE	116

You have concurrence to perform ET Flip Extension.

***** End of ET Flip Extension *****

Reposition RSS ET Access Platforms

14-1141	PQCG	*PAD	136	SU72354
	*PAD	TBC		SU72B57
	TBC	NTD	232	SU72B42
	NTD	STM		SU72B90
	STM	QBSE	NET 104	

T-13H00M

ET LO₂ Feedline Support Bracket Inspection and Camera Cleaning per OMI T6446 (Op 20) complete. **Reposition** RSS ET access platforms to stowed position.

14-1142	QBSE	STM	116	SU72269
	STM	NTD	232	

IF ET access platform flip extension was used in support of LO₂ feedline inspection,

THEN Flip Extension Stow is complete. No contact with ET noted.

Not Performed: _____

14-1143	NTD	STM	232	SU72370
	STM	QBSE	116	

Verify RSS ET/Orbiter access platforms are positioned in stow position to support RSS rotation.

Support: [STSA](#)

14-1144	QBSE	STM	116	
	STM	NTD	232	
	NTD	*SCC		

Hazardous +Y ET/Orbiter Access Platform operations are complete.

Request Safety concurrence to open the 20-foot radius cleared area under the +Y ET/Orbiter Access Platform for controlled work.

14-1145 *SCC NTD 232 [SU72B90](#)
 NTD STM
 STM QBSE 116

You have Safety concurrence to open the 20-foot radius cleared area under the +Y ET/Orbiter Access Platform for controlled work.
Remove barriers and Danger signs.

14-1146 TBC *PAD 136 [SU72383](#)
 *PAD PQCG

Perform ET Pre-Cryo Load Inspection from FSS per OMI [T6446](#) .

14-1147 TBC *PAD 136 [SU72346](#)
 *PAD PQCG

Perform ET Pre-Cryo Load Inspection from +Y/-Y OWP's and RSS per OMI [T6446](#) .

14-1148 STM QBSE 116 [SU72B100](#)

IF RSS Side 2 +Y ET guide rails are not stowed,

THEN reposition the RSS Side 2 +Y ET guide rails to Stow position per OMI [M3169.005](#) or OMI [M3169.006](#)

Support: [STSA](#)

Not Performed:_____

14-1149 STM QBSE 116 [SU72372](#)

IF RSS Side 4 -Y ET guide rails are not stowed,

THEN reposition RSS Side 4 -Y ET guide rails to Stow position per OMI [M3169.005](#) or OMI [M3169.006](#) .

Support: [STSA](#)

Not Performed:_____

TSM Pre-Arming Preps - Complete

14-1150
T-13H00M

QOSM OTC 132

LO₂ TSM Pre-Arming Preps per OMI V3518.002 complete.

14-1151

QHSM OTC 132

LH₂ TSM Pre-Arming Preps per OMI V3517.002 complete.

14-1152

OTC NTD 232
 *PAD 132

[SU72316](#)

LO₂ and LH₂ TSM Pre-Arming Preps complete.

14-1153

STM GYCC 111
GYCC JTCR

Verify personnel on site at LO₂/LH₂ TSM to support Camera Purge Verification.

Support: [TCD](#)

TSM Final Preps

WARNING

Pyrotechnic devices may explode during handling or testing.
 Personnel may suffer bodily injury or death.

Wear **wrist stats** during mating, demating, handling or testing of pyrotechnic devices and/or connectors.

WPYR003 10-11-2005

CAUTION

Do not perform LOX and LH₂ TSM Final Preps until Triple Flips retracted to preclude damage to T-0 Carrier Plate.

NOTE

Drop weight separation pyro bolt and bonnet pyro thruster are installed in the TSM interior.

14-1154	QOSM QHSM OTC NTD *SCC	OTC NTD *SCC *PSE	132 232 NET 105	SU72318 SU72380
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T-13H00M

Ready to proceed with TSM final preps.

Request SPOC Safety clear nonessential personnel from interior and 10-ft radius of LO₂ and LH₂ TSM doors for final preps.

Essential Personnel		
	SPOC	NASA
Ordnance Technician	2	
Ordnance Engineer	1	1
Quality Control	1	1
Safety	1	1

14-1155
T-13H00M

NTD PA

Attention on MLP ____:

All nonessential personnel clear interior of LH₂ and LO₂ TSMs for TSM Final Preps.

14-1156
T-13H00M

NTD TBC 232
TBC CLHY 136

Verify LO₂/LH₂ TSM GN₂ Purges not activated.

14-1157

CLHY CLH2 166

CRT (GAH51 TRANSFER LINE - MLP
PURGES DISPLAY)

VERIFY

PF (A129758 LH2 TSM/TUNNEL PGE) OFF
PG (A129756 LH2 EMER TSM PGE) OFF
PH (A129760 LO2 TSM/TUNNEL PGE) OFF

14-1158

CLHY TBC 136
TBC NTD 232
NTD OTC
*SCC
*SCC *PSE NET 105

LO₂/LH₂ TSM GN₂ Purges not activated.

14-1159

*PSE *SCC NET 105
*SCC NTD 232
NTD OTC

Interior and 10-ft radius of LH₂ and LO₂ TSM doors cleared of nonessential personnel. You have Safety concurrence to proceed with LO₂ and LH₂ TSM Final Preps.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1163 CCME OTC 132 SU72A68
 OTC NTD 232

SSME Final Preps per OMI V9018.001 complete.

OMRSR S00FA0.213-A-1
OMRSR S00FA0.213-C-1
OMRSR S00FA0.213-D-1
OMRSR S00FA0.213-E-1
OMRSR S00FA0.213-F-1
OMRSR S00FA0.213-G-1
OMRSR S00FA0.213-H-1
OMRSR S00FA0.213-I-1
OMRSR S00FA0.213-J-1
OMRSR S00FA0.213-K-1

Activate EPD Exception Monitoring

14-1164 OTC CEPD 132
T-12H30M

ACTIVATE EXCEPTION MONITORING FOR LCC REDLINES.

CURSOR CNTL (SWC02)
LCC EMON - ACT
XMIT CURSOR KEY - PRESS

CONSOLE KYBD

A SX G76X0589E OFF
XMIT CMD KEY - PRESS

A SX G76X0689E OFF
XMIT CMD KEY - PRESS

14-1165 CEPD OTC 132
T-12H30M

EPDC LCC Exception Monitoring complete.

APU Exhaust Duct/WSB Steam Vent

14-1168	OMTO	*PAD	132	SU72317
	*PAD	OTC		
	OTC	NTD	232	
	NTD	*SCC		

Ready to Perform Operation 273 - APU Exhaust Duct Pressure Plug/Cover Removal and WSB Steam Vent Configuration.

14-1169	OMTO	*PAD	132
		OTC	
	OTC	NTD	232
	NTD	*SCC	

Ready to proceed with FSS TVS power up for APU Exhaust Duct Plug/Cover Removal.

FSS TVS Power Up

NOTE

Perform this option if FSS TVS is not already active.

FSS TVS Power Up Not Performed: _____

14-1170	OMTO	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

Request SPOC Safety concurrence to establish clears on the FSS 275-ft level and above, including the GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA and power up the _____ (Oxid/Fuel) Scrubber for hazardous venting operations.

WARNING

Ammonia may be present. Ammonia is corrosive and is a severe irritant
Exposure may cause eye, skin and respiratory system irritation, burns and pain.
WT016.c 04-22-04

NOTE

Hazardous steps follow. Some ammonia odor may be present during APU Plug Removal.

14-1181
T-12H00M

OTC OMTO 132

Perform OMI S0007.100 Operation 273 - APU Exhaust Duct Plug/Cover Removal.

14-1182

OMTO OTC 132
OTC NTD 232
NTD *SCC

[CSR-640](#)

Orbiter APU Exhaust Duct Plug/Cover removal complete. Toxic checks of all APU Exhaust Duct Plugs are acceptable.
Request Safety concurrence to open control areas for controlled work.

14-1183

***SCC NTD 232**
NTD OTC
OTC OMTO 132

[SU72378](#)

You have Safety concurrence to open APU Exhaust Duct Plug control area for controlled work.

**06-16-2011
APPROVED**

**OMI S0007.200 A23
APPROVED**

14-1184	OMTO	OTC	132
	OTC	NTD	232
	NTD	*SCC	

Barriers and danger signs are removed and hazardous operations control area is open for controlled work.

NOTE

APU Exhaust Duct Plug removal hazardous operations complete.

***** End of APU Exhaust Duct Plug/Cover Removal *****

FSS TVS Power Down

NOTE

Perform this option to power down the FSS TVS if directed by Test Team.

FSS TVS Power Down Not Performed: _____

14-1185	OMTO	OTC	132
		*PAD	
	OTC	NTD	232
	NTD	*SCC	

CSR-640

Request SPOC Safety concurrence to power down the FSS _____
(Oxid/Fuel) Scrubber and, based on acceptable TVCs, terminate clears on
FSS 275-ft level and above including the GVA at a point 8 ft from hood,
and FSS Side 4 Stairwell leading to GVA.

14-1186	*SCC	NTD	232
	NTD	OTC	
	OTC	OMTO	132
		*PAD	

You have SPOC Safety concurrence to power down the FSS _____
(Oxid/Fuel) Scrubber and, if TVCs are acceptable (0.0 PPM), terminate
clears on 275-ft level and above including the GVA at a point 8 ft from
hood and FSS Side 4 Stairwell leading to GVA.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1187	OMTO	OTC *PAD	132
	OTC NTD	NTD *SCC	232

CSR-640

Toxic vapor checks on the 275-ft level including GVA at a point 8 ft from hood, and FSS Side 4 Stairwell leading to GVA complete.

Verify acceptable (0.0 PPM) levels and control area open for controlled work.

TTL: _____

*** End of FSS TVS Power Down ***

NOTE

FSS TVS hazardous operations complete.

14-1188	OMTO	OTC *PAD	132
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Continuing with Operation 273 - WSB Steam Vent Configuration.

NOTE

The following three steps are to be worked by HPU. TPE can work these steps if prior coordination with HPU occurred.

14-1189 OTC CHPU
 CTPE

Perform the following:

1. **Record** present time and date:

Time _____ GMT

Date _____ mmddyy

2. **Request** ESA execute data file SRBFB (graphics plots) with a start time of L-54h to L-30h (ref only phone 1-1508/1509). (Should be delivered to C8 Console/Integration if no CHPU available.)

3. From the four graphic plots:
Determine left and right SRB lowest average flex bearing temperature and record:

Left Avg Temp: _____ deg F

Right Avg Temp: _____ deg F

14-1190

**CHPU
CTPE**

CRT (BAT04) OR PCGOAL BAT04

AFT SKIRT GN2 PURGE

1. T (BLOCK)
XMIT CURSOR KEY - PRESS
(CRT BAT04 ONLY)

2. **RECORD** FLEX BEARING TEMPERATURES
(CRT OR PCGOAL BAT04):

<u>LEFT</u>	<u>RIGHT</u>
_____ B06T7087A	_____ B06T8087A
_____ B06T7088A	_____ B06T8088A
_____ B06T7089A	_____ B06T8089A
_____ B06T7090A	_____ B06T8090A

3. T (BLOCK)
XMIT CURSOR KEY - PRESS
(CRT BAT04 ONLY)

14-1191

CTPE

IF in the previous two steps, one or more of the eight flex bearing 24-hour average temperatures is less than 60 deg F form L-54 to L-30 hours,
OR one or more of the current functioning flex bearing temperatures is 60 deg F or less or is expected to decrease to less than 60 deg F after L-29 hours,

THEN contact APU Engineering.

Not Performed: _____

14-1195 OTC NTD 232
 NTD TBC

T-12H00M

Verify TSM purge system not activated. (Purge caps will be removed at this time.)

14-1196 TBC CLHY 136

Verify LO₂/LH₂ TSM GN₂ purges not activated.

14-1197 CLHY CLH2 166

CRT (GAH51 TRANSFER LINE - MLP
PURGES DISPLAY)

VERIFY

PF (A129758 LH2 TSM/TUNNEL PGE) OFF
PG (A129756 LH2 EMER TSM PGE) OFF
PH (A129760 LO2 TSM/TUNNEL PGE) OFF

14-1198 CLHY TBC 136
 TBC NTD 232
 NTD OTC
 *SCC

TSM purges not activated at this time.

14-1199 STM GYCC 111
 GYCC JTCR

Verify TSM camera purge activation during LH₂ and LO₂ TSM closeout.
Report completion.

Support: [TCD](#)

14-1200 OTC QHSM 132
 QOSM

[SU72319](#)

T-12H00M

TSM purge system not activated, proceed with TSM Closeout per
OMI [V3517.002](#) and OMI [V3518.002](#) .

APU Cover Removal and WSB Steam Vent Configuration - Complete

14-1201	OMTO	*PAD	132	SU72317
	*PAD	OTC		
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T-11H00M

OMI S0007.100, Operation 273 - APU Exhaust Duct Pressure Plug/Cover Removal and WSB Steam Vent Configuration, complete.

14-1202	*PAD	OTC	132	
	OTC	NTD		
	TBC		232	
	NTD	STM		
	STM	JSTC	111	
	JSTC	*SCB	NET 104	

All breathing air requirements for Orbiter and SRB complete. Life support personnel released.

Support: [LS](#)

14-1203	OTC	VITT	132	SU72011
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Perform slidewire bunker communications verification of Hot Dial circuit Pad A - 826-1006/826-1047 between NTD console and Flight Crew helmet.

Notify RSS OIC monitor (Pad A 1-1151) before and after to reseal bunker.

Verify completion.

Lower GOX Vent Hood

14-1204	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Ready to lower GOX Vent Hood.

14-1205	CMEC	PME4	186
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FSS 265-ft level
Seal Access Platform

1. **Clear** all personnel from Seal Access Platform.
2. **Verify** no obstructions to GOX Vent Hood rotation path.
3. **Install** "DANGER - Hazardous Control Area" sign at entrance to Seal Access Platform.

14-1206	CMEC	TBC	136
	TBC	NTD	
	NTD		PA

Request following PA announcement:

Attention on Pad A

GOX Vent Hood will be lowered momentarily. All personnel clear Seal Access Platform.

14-1207	PME4	CMEC	186
	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Seal Access Platform clear of all personnel and “DANGER - Hazardous Control Area” sign has been posted at entrance.

Request Safety concurrence to lower GOX Vent Hood.

14-1208	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to lower GOX Vent Hood.

14-1209	TBC	CMEC	136
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Brief personnel of hazards present and applicable operations of Emergency Instructions (OMI G2158).

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

<p style="text-align: center;">WARNING</p> <p>GOX Vent Hood may impact personnel during lowering operations over the Seal Access Platform.</p> <p>Personnel may suffer crushing injuries, loss of limbs or death.</p> <p>Stand clear of GOX vent hood path of motion.</p> <p style="text-align: right;">WCLH052 03-08-2007</p>
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<p style="text-align: center;">NOTE</p> <p>Hazardous operation follows due to GOX Vent Hood lowering.</p>
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14-1210	TBC	CMEC	136
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Proceed with GOX Vent Hood lowering per OMI [G2158](#)

<p style="text-align: center;">NOTE</p> <p>Hazardous operation due to GOX Vent Hood lowering complete.</p>

14-1211	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

GOX Vent Hood lowering complete. **Request** Safety concurrence to open Seal Access Platform for controlled work and to remove the Danger sign.

14-1212	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to open the Seal Access Platform for controlled work and to remove the Danger sign.

Extend GVA

14-1213	CMEC	TBC	136	SU72377
		*PAD		
	TBC	NTD	232	
	NTD	*SCC		

Ready to extend GOX Vent Arm.

14-1214	CMEC	PME4	186
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FSS 265-ft level
GOX Vent Arm

1. **Clear** all personnel and secure or remove all loose equipment from GOX Vent Arm, Hood, Seal Access Platform, Arm latchback platform, upper and lower hinge access platforms.
2. **Remove** all temporary tie downs between GOX Vent Arm and Hood and FSS.
3. **Raise** and **latch** GOX Vent Arm safety gate.
4. **Verify** extend lock pin stowed to gate with quick-release pin.
5. **Verify** no obstructions in GOX Vent Arm swing path.
6. **Install** "DANGER - Hazardous Control Area" signs at entrance to GOX Vent Arm and Seal Access Platform.

14-1215	CMEC	TBC	136
	TBC	NTD	232
	NTD		PA

Request following PA announcement:

Attention on Pad A:

GOX Vent Arm will be extended momentarily. All personnel clear GOX Vent Arm and Seal Access Platform.

14-1216	PME4	CMEC	186
	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

GOX Vent Arm clear of all personnel and loose equipment. Danger sign posted.

Request concurrence to extend GOX Vent Arm.

14-1217	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to extend GOX Vent Arm.

14-1218	TBC	CMEC	136
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Brief personnel of hazards present and applicable operations of Emergency Instructions (OMI G2158).

Verify all personnel certified, equipped and ready to proceed.

TTL: _____

14-1222 OTC *PAD 132 SU72B72
 *PAD OMTO

Perform [Ref: OMI V3578.002 \(LI\) EMDS Monitoring System Deactivation](#)

14-1223 OMTO *PAD 132 SU72B72
 *PAD OTC

OMI V3578.002 (Ref) - EMDS Monitoring System Deactivation complete.

14-1224 OTC *PAD 132 SU72B71
 *PAD OMTO

Perform [Ref: OMI V6K01 \(LI\) Humidity Monitoring Sensor Removal](#)

14-1225 OMTO *PAD 132 SU72B71
 *PAD OTC

OMI V6K01 (Ref) - Humidity Monitoring Sensor Removal complete.

LO₂ Preps for Load - Complete

14-1226 CLOX TBC 136 SU72294
 TBC NTD 232

T-12H00M

All operations of LO₂ Preps complete per OMI G3151 except ET Preps for Loading, Storage Tank Pressurization and Suction Line Chilldown.

14-1227 OOCS OTC 132 SU72337

T-14 Hour FCS Stowage Prior to COMM Activation per FCS TPS - _____ complete.

14-1228 QHSM OTC 132 SU72319
 OTC *PAD SU72380
 NTD 232
 NTD *SCC

T-11H30M

LH₂ TSM Closeout per OMI V3517.002 and Camera Purge Activities complete.

14-1229 QOSM OTC 132
 OTC *PAD
 NTD 232
 NTD *SCC

T-11H30M

LO₂ TSM Closeout per OMI V3518.002 and Camera Purge Activities complete.

14-1230 NTD STM 232

TSM and AFT Closeout complete.

Configure ODMS for Launch.

14-1231 JTCR GYCC
 GYCC STM 111

LO₂/LH₂ TSM Camera Purge Verification is complete.

Support: TCD

14-1232 STM JBEP 111

Notify Special Power Techs (1-0702) to configure MLP LH₂ and
LO₂ TSM ODMS for Launch per [Doc: JOB PLAN
S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA
Support](#) .

Report completion.

Support: PWRA
Support: PWR

14-1233 STM JBEP 111

IF not previously accomplished,

THEN notify Special Power Techs (1-0702) to configure Pad Orbiter
AFT ODMS for Launch per [Doc: JOB PLAN
S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA
Support](#) .

Report completion.

Support: PWRA

Not Performed: _____

CAUTION

All items must be tethered when around Flight Hardware. Use care when working on or near Flight Hardware as not to cause any damage.

NOTE

The following step (photos) will be performed for Baseline Configuration Imagery (BCI).

NOTE

Recording of large areas is to be with sequential overlapping images to capture the entire area.

14-1234	STM	GYCC	111	SU72A81
	GYCC	JPHO	117	SU72A96

IMCS to obtain photos of the Orbiter Forward Nose Cap areas. Photos taken by IMCS will be downloaded to the Mirrored Server.

IMCS will notify KSC Advanced Visualization Environments (KAVE) when the photos are ready to be downloaded into the SIMS Database.

Support: [PHOT](#)

14-1235	OTC	NTD	232	SU72411
	NTD	STM		
	STM	JBWC	111	

IF SSME ESP Lowering is scheduled to follow sound suppression tank fill,

THEN secure Sound Suppression SSME Hole Trickle Fill from LCD Support.

1. In compartment 2B, Close (CW) SSME hole trickle fill isolation valve V-115.12 (A514690).
2. Set pseudo valve 115.12 “close” (Screen SSA), and verify valve 115.12 “CL” indication.

Report completion.

Support: [WSSA](#)
Support: [CWSS](#)

Not Performed: _____

Lower SSME ESP to Transporter

NOTE

Delay this option if Sound Suppression tank/MLP line fill to 105-ft level in work (48-inch Sound Suppression bypass valves open).

14-1236 **OTC** ***PAD** **132** [SU721086](#)
 ***PAD** **PMTG**

Verify RSS 107-ft level diving boards retracted and flips configured for SSME ESP Lowering.

14-1237 **STM** **JBEP** **111**

IF ESP Lowering is to be performed in hours of darkness,

THEN install light banks on east and west side flame trench on Pad surface to support ESP Lowering.

Support: [PWRB](#)

Not Performed: _____

14-1238 **QESP** **OTC** **132** [SU72402](#)
 ***PAD**
OTC **NTD** **232**
NTD ***SCC**

Ready to proceed with SSME ESP Lowering operation per OMI V2270.002.

14-1239 OTC QESP 132 SU72419
 QESP QMTG

Clear all personnel from ESP and all nonessential personnel from inside MLP ESP winches area and 25-ft radius of platform transporter.

Essential Personnel		
	SPOC	NASA
Engineer	1	1
Technician	8	
Quality	1	
Safety	1	1

14-1240
T-11H30M

NTD PA

Attention on Pad A:

All personnel clear ESP for ESP operations. All nonessential personnel clear the following control areas for ESP operations:

1. 25-ft radius of platform transporter.
2. Inside MLP ESP winch area.

14-1241 OTC QESP

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-1242	QMTG	QESP	132
	QESP	OTC	
		*PAD	232
	OTC	NTD	
NTD	*SCC		

All personnel clear from ESP. Nonessential personnel clear from inside MLP ESP winches area and 25-ft radius of platform transporter.
Request Safety concurrence to proceed with SSME ESP Lowering operation.

14-1243	*SCC	NTD	232
	NTD	OTC	

You have Safety concurrence to proceed with SSME ESP Lowering.

14-1244	OTC	QESP	132
---------	-----	------	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions.
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

<p style="text-align: center;">WARNING</p> <p>Heavy objects or equipment could fall and impact personnel. Personnel may suffer serious bodily injury and/or loss of limbs or life.</p> <p>Wear safety shoes/boots where a potential for injury exists.</p> <p style="text-align: right;">WCLH024 06-22-2005</p>
--

<p style="text-align: center;">NOTE</p> <p>Hazardous steps follow due to movement of Engine Service Platform (ESP).</p>
--

14-1245	OTC	QESP	132
---------	-----	------	-----

Verify handrails or temporary ropes in place around Main Engine Blast Hole (OMI V2270.002).

T: _____

Configure T-11 Hour Countdown Hold

14-1249
T-11H20M

NTD CGLS 232

Hold Countdown Clock at T-11 hours for an ____ hour ____ minute
Hold.

14-1250
T-11H20M

CGLS

HOME CMD KEY - PRESS
CDTH -1100/00
XMIT CMD KEY - PRESS

14-1251
T-11H20M

CGLS NTD 232

Countdown Clock will hold at T-11 hours.

14-1252

NTD OTC PA
 TBC 232
 PTC
 SRO
 STM
 *FLT
 *MIL
 *SCC
 LPS

T-11H20M

Countdown Clock will hold at T-11 hours.

14-1253
T-11H15M

OTC *PAD 132
*PAD PQCV

Remove integrity control seal and sign from the 9099 I/F tower access
platform door.

Report completion.

Qv: _____

Pad Structures Closeout for Launch

14-1254 STM QBSE NET 104 SU72515
SU72338

Perform Pad Miscellaneous Closing Operation - Launch per
OMI M3134 .

Report completion in Operation 15.

- 9099 Interface
- ECS Tower
- East Stair Tower
- West Stair/Elevator Tower
- Pneumatic Tower
- North Bridge/Disconnect Towers

Support: STSA

14-1255 STM JBPN 111 SU72508

Close O₂N₂ breathing air supply valve A138340 on RSS 130-ft level.

Support: PNSA

T:_____

14-1268

CPWR

CURSOR CNTL (BDE11)
LH IGN SEC SEL
XMIT CURSOR KEY - PRESS

CRT
VERIFY
LH IGN SEC SEL SEC

REPEAT FOR:
RH IGN SEC SEL
LH FWD SEC SEL
RH FWD SEC SEL
LH MID SEC SEL
RH MID SEC SEL
LH AFT SEC SEL
RH AFT SEC SEL

14-1269

CPWR

CURSOR CNTL (BDE11)
AUTO SEQ - ALL
XMIT CURSOR KEY - PRESS

CRT
VERIFY ALL SEC HEATERS OPERATING NOMINALLY

14-1270

CPWR

CURSOR CNTL (BDE11)
AUTO SEQ - ALL
XMIT CURSOR KEY - PRESS

CRT
VERIFY ALL SEC HTR PWR OFF

14-1271

CPWR

CONSOLE KYBD (BWE11)
PFK15 KEY - PRESS

CRT

VERIFY

BWE11 TERMINATES AND SDC01 IS DISPLAYED.

14-1272

CPWR

CURSOR CNTL (SDC01 EPDC SYS MENU DISPLAY)
SRB OPTIONS JOINT HEATER
XMIT CURSOR KEY - PRESS

CRT

VERIFY

SWC01 TERMINATES AND IS REPLACED BY BWE11

14-1273

CPWR

CRT (BDE11)

VERIFY

AC POWER PRI AND SEC INDICATE OFF
ALL HEATER SEC SEL INDICATE PRI

***** End of SRB Joint Heater Configuration Checks *****

14-1274

BHT1

*PAD

136

[SU72345](#)

TBC

T-11H00M

SRB T-0 umbilical seal GN₂ purge activated.

OMRS S00FA0.850

14-1275

Noted requirement is complete.

OMRSD [S00FA0.850](#)

T-11 Hour Hold

14-1276
T-11H00M
(HOLDING)

CGLS NTD 232

SU72386

Countdown Clock held at $\frac{\quad}{\text{HHMM}} / \frac{\quad}{\text{SS}}$ GMT

<p>NOTE Perform the next step after Countdown Clock is holding.</p>
--

14-1277
T-11H00M
(HOLDING)

CGLS

HOME CMD KEY - PRESS

CDTC $\frac{\quad}{\text{HHMM}} / \frac{\quad}{\text{SS}}.000$

(GMT OF CDC RESUME)

XMIT CMD KEY - PRESS

Announce Hold

14-1278 NTD OTC PA SU72386
 TBC 232
 *FLT
 *MIL
 STM
 PTC
 *SCC
 LPS

T-11H00M
(HOLDING)

Countdown Clock holding at T-11 hours.
Duration of Hold will be _____ hours _____ minutes.

14-1279 CGLS NTD 232
T-11H00M
(HOLDING)

_____ Hour _____ Minute Hold terminates and Countdown Clock will
resume at _____ / _____ GMT
 HHMM SS

NOTE Performance of the next two steps will be scheduled realtime by Test Team.

14-1280 NTD CTC 232

Verify ready to activate OIS-D Launch Support Permission Configuration
for Firing Room 2.

14-1281 NTD STM 232 SU72479
 STM GYCC 111
 GYCC JYCD 117

Activate OIS-D Launch Support Permission Configuration for Firing
Room 2 (ref KICS schedule).
Report completion.

Support: OISD

Secure ACM Monitor Shacks

14-1282	STM	OTC	232	SU72366
	OTC	*PAD	132	
	*PAD	*ACM	NET 110	

IF ACM Monitor Shacks are installed on Pad Surface or 130/135-ft Level,

THEN perform following:

1. At ACM monitor shack on Pad surface:
Disconnect plug from facility power and stow cable inside ACM shack.

Report completion.

Sub Step 1 Not Performed: _____

2. At ACM monitor shack on 130/135-ft level:
Disconnect plug from facility power and stow cable inside ACM shack.

Report completion.

Sub Step 2 Not Performed: _____

14-1283 STM GYCC 111
 GYCC JYCD 117

IF ACM Monitor Shacks are installed on 130/135-ft Level,

THEN **disconnect** OIS-D interface at ACM monitor shack on 130/135-ft level and leave cord coiled in shack. **Report** completion.

Support: [OISD](#)

Not Performed: _____

T: _____

14-1284 STM JCFM 111 [SU72B81](#)

Perform the following:

1. **Remove** the FSS 195-ft Magnetic Field Sensor and associated hardware located on the FSS 195-ft level on the ET Vent Arm structure in TD 18901.
2. **Remove** the PCR Magnetic Field Sensor and associated hardware located on Side 4 Level 2 of the PCR.
3. **Remove** the AFT Magnetic Field Sensors hardware located on the RSS 135-ft “Triple Flip Area” in TD 18902.
4. **Remove** the Orbiter Utility Outlet Digitizer UPS located in TD 18900 on the FSS 195-ft level behind the elevators.
5. **Verify** RSS 135-ft optics head removed.
6. **Verify** Orbiter Aft Magnetic Field Sensors removed.

Support: [GIFM](#)

14-1285 STM GYCC 111 SU72B54
 GYCC GYAT 117
 GYQC NET 107

IF ACM Monitor shack is installed on Pad surface,

THEN **perform** the following:

1. **Disconnect** telephone interface at Pad surface ACM monitor shack and leave cord coiled in shack.
2. **Lock out** Pad Surface ACM Monitor shack and Slidewire Bunker Admin telephones.
3. **Perform** Command File Run in CD&SC.
4. **Verify** in Room 204 PTCR on Tel Frame that no dial tone is present.

Pad A - Pad Surface - 861-1151
Pad A Slidewire Bunker - 861-4874 (outside bunker)

5. **Attach** placard to Slidewire Bunker phone:
Locked Out Per S0007.200.
6. **Report** completion.

Support: [ATEL](#)

Not Performed: _____

T: _____ **Qw:** _____

14-1286 STM GYCC 111
 GYCC GYAT 117
 GYQC

IF RSS 135-ft level ACM monitor shack Admin phones were activated,

THEN disconnect telephone interface cable and store in Monitor Shack.
Lockout Admin telephones.

Perform Command File Run in CD & SC.

Verify in Room 204 PTCR on Tele Frame that no dial tone is present.

Pad A - RSS 135-ft level - 861-5868

Support: [ATEL](#)

Not Performed: _____

T: _____ **Qw:** _____

***** End of Secure ACM Monitor Shacks *****

135-ft ACM Monitor Shack Removal

14-1287 STM QBSE NET 104

IF ACM Monitor Shack removal from 135-ft Level is required,

THEN remove structure tie-downs from ACM monitor shack on 135-ft level. **Report** completion.

Support: [STSA](#)

Not Performed: _____

14-1288 **GBHE** **STM** **NET 104**
 STM **NTD** **232**
 NTD ***SCC**

Ready to proceed with monitor shack removal from RSS 130-ft level.

Support: [HESA](#)

14-1289 **STM** **GBHE** **NET 104**

Perform the following:

1. **Establish** a 25-ft control area around monitor shack and path of travel for lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
 Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-1290 STM PA

Attention on Pad A

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for monitor shack lift.

14-1291 **GBHE STM NET 104**
STM NTD 232
NTD *SCC

25-ft control area has been established around monitor shack and path of travel. Barriers and danger signs posted.

Request Safety concurrence to proceed with monitor shack lift from 130-ft level.

Support: [HESA](#)

14-1292 *SCC NTD 232
NTD STM
STM GBHE NET 104

You have Safety concurrence to proceed with monitor shack lifting operations.

Support: [HESA](#)

14-1293 STM GBHE NET 104

Brief personnel on the hazards and applicable Emergency Operations.

Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

Hydraulic operated movement may occur.
Personnel may suffer serious bodily injury, severed extremities and/or death.

Keep all body parts clear of moving surfaces and path of movement.

WHP018 02-12-04

NOTE

Hazardous steps follow due to lifting operations.

14-1294

GBHE

Perform the following:

1. **Remove** monitor shack from RSS 135-ft level.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE

Hazardous operations complete.

14-1295

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open monitor shack lift control area for controlled work. Remove barriers and danger signs.

Support: [HESA](#)

14-1296

*SCC	NTD	232
NTD	STM	
STM	GBHE	NET 104

You have Safety concurrence to open monitor shack lift control area for controlled work.

Support: [HESA](#)

14-1297	GBHE	STM	NET 104
	STM	NTD	232
	NTD	OTC	
		*SCC	
	OTC	*PAD	132
	*SCC	*PSE	NET 105

Monitor Shack Removal from 135-ft level complete. Clears are down.

Support: [HESA](#)

*** End of 135-ft ACM Monitor Shack Removal ***

Pad Surface ACM Monitor Shack Removal

14-1298	STM	QBSE	NET 104
---------	-----	------	---------

IF Pad Surface ACM Monitor Shack removal is required,

THEN **unbolt** ACM monitor shack on Pad surface.

Support: [STSA](#)

Not Performed: _____

14-1299	GBHE	STM	NET 104
	STM	NTD	232
	NTD	*SCC	

Ready to proceed with monitor shack removal from Pad surface.

Support: [HESA](#)

14-1300 STM GBHE NET 104

Perform the following:

1. **Establish** a 25-ft control area around monitor shack and path of travel for lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-1301 STM PA

Attention on Pad A

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for monitor shack lift.

14-1302 GBHE STM NET 104
STM NTD 232
NTD *SCC

25-ft control area has been established around monitor shack and path of travel. Barriers and danger signs posted.

Request Safety concurrence to proceed with monitor shack lift from Pad surface.

Support: [HESA](#)

14-1303 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to proceed with monitor shack lifting operations.

Support: [HESA](#)

14-1304 STM GBHE NET 104

Brief personnel on the hazards and applicable Emergency Operations.
Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

Hydraulic operated movement may occur.
Personnel may suffer serious bodily injury, severed extremities and/or death.

Keep all body parts clear of moving surfaces and path of movement.

WHP018 02-12-04

NOTE

Hazardous steps follow due to lifting operations.

14-1305 GBHE

Perform the following:

1. **Remove** monitor shack from Pad surface.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE Hazardous operations complete.

14-1306	GBHE	STM	NET 104
	STM	NTD	232
	NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open monitor shack lift control area for controlled work. **Remove** barriers and danger signs.

Support: [HESA](#)

14-1307	*SCC	NTD	232
	NTD	STM	
	STM	GBHE	NET 104

You have Safety concurrence to open monitor shack lift control area for controlled work.

Support: [HESA](#)

14-1308	GBHE	STM	NET 104
	STM	NTD	232
	NTD	OTC	
		*SCC	
	OTC	*PAD	132
	*SCC	*PSE	NET 105

Monitor Shack Removal from Pad surface complete. Clears down.

Support: [HESA](#)

14-1309 STM GBHE NET 104

Perform the following:

1. **Remove** temporary tie off on the FSS 255-ft level at Side 1 on left side of camera position 25E.
2. **Remove** temporary platform on the FSS 255-ft level at 1 ft elevation (approximately 1 ft x 2 ft) located at Side 1 on the left side of camera position 25E.

Support: [HESD](#)

T: _____

NOTE

Hazard steps for monitor shack lifting complete.

***** End of Pad Surface ACM Monitor Shack Removal *****

14-1310 OTC CMQC

Verify S0007.100 Operation 228 - INCS FSS GSE System Pre-launch Securing complete.

Qv: _____

**Orbiter GN&C Power Up and Switch Configuration
(L-28 Hours 00 Minutes)**

NOTE

Following step performs a systematic panel-by-panel switch configuration of the following GN&C systems:

AA, ADTA, ASA, ATVC, Brakes, Controllers, NWS, RJD Logic, RGA, Star Tracker, Fit Control Switches, No WOW Checks and Redundant Weight on Wheels (RWOW) Status..

GOAL Software VWB37 verifies RWOW & Null Fail Status in Downlist 42.

NOTE

The following step will require an I/O reset. DPS can expect I/O errors to occur for items not powered up at this time.

NOTE

Noted requirements are satisfied by the following series of steps.

OMRS V51AF0.245-1R

OMRS V51AF0.250

14-1311

OTC

COFC
CGNC
CDPS

132

SU72393

T-11H00M
(HOLDING)

Perform GN&C System Power Up per OMI [V1123.120](#) (30 minutes CDR).

RT OMI Log No. _____

Redundant Weight on Wheels (RWOW) Status

NOTE

Perform Redundant Weight on Wheels (RWOW) Status if Downlist Format is 60.

Redundant Weight on Wheels (RWOW) Status Not Performed: _____

NOTE

Next step performs on LDB Read to obtain RWOW discrete.
RWOW discrettes are not available in Downlist Format 60.

14-1312

COFC

APPL PG (VWB37 PG-B)
PFK5 KEY - PRESS (LDB READ)

14-1313

COFC

CRT (VWB37 PG-B)
BRAKES STATUS AND TEST SELECT

LANDING GEAR STATUS

VERIFY "RWOW" STATUS = ON/UP ARROW (U)

R NO WOW	1U	2U	3U	4U
NULL FAIL	1U	2U	3U	4U

*****End of Redundant Weight on Wheels (RWOW) Status *****

14-1314

COFC
CGNC

OTC

132

[SU72393](#)

GN&C System Power Up complete.

OMRSD [V51AF0.245-1R](#)
OMRSD [V51AF0.250](#)

14-1315 **COFC**

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS

14-1316 **COFC**

CURSOR CNTL (SAB23/VSB100)
AEROSURFACE DRIVER CHECKS
XMIT CURSOR KEY - PRESS

14-1317 **COFC**

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

14-1318 **COFC**

CRT (SAB23/VSB100)
VERIFY
AEROSURFACE DRIVER CHECKS SUCCESSFUL

NOTE

Pre-launch MPS actuator position checks perform a “reasonableness check” of the SSME TVC positions. The limits specified in GOAL program VSB100 are arbitrary and are based upon nominal time line for SSME TVC null lock removal and typical actuator drift rates. If locks are removed earlier than normal, Launch is delayed or scrubbed, or drift rates are higher than typical, VSB100 may indicate “PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL”. The OMRS allows drift rates up to 0.578 deg/30 minutes.

14-1319 **COFC**

CURSOR CNTL (SAB23/VSB100)
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS
XMIT CURSOR KEY - PRESS

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1320

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

NOTE

Perform next step for nominal SSME TVC actuator drift.

14-1321

COFC

CRT (SAB21/VSB100)
VERIFY
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS SUCCESSFUL

Not Performed:_____

NOTE

Perform next three steps if VSB100 indicates "PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL".

14-1322

COFC

IF Pre-Launch MPS Actuator Position Checks unsuccessful,

THEN perform the following:

1. **Verify** MSG:
VSB100-035 PRE-LAUNCH MPS ACTR POSN CHECKS
UNSUCCESSFUL
 SELECT PFK 3 - RETRY
 PFK 9 - TERMINATE TASK AND RETURN TO
 MENU
 PFK 15 - TERMINATE PROGRAM

2. CURSOR CNTL
 PFK 9 - PRESS

Not Performed: _____

14-1323

COFC

CRT (SAB21/VWB03)

VERIFY THE FOLLOWING:

- (1) SSME 1 PITCH POSN = -10.48 DEG TO +10.94 DEG
- (2) SSME 1 YAW POSN = -1.81 DEG TO +2.19 DEG
- (3) SSME 2 PITCH POSN = -1.68 DEG TO +10.48 DEG
- (4) SSME 2 YAW POSN = -4.31 DEG TO +8.48 DEG
- (5) SSME 3 PITCH POSN = -2.32 DEG TO +10.94 DEG
- (6) SSME 3 YAW POSN = -8.86 DEG TO +4.69 DEG

Not Performed: _____

14-1324 COFC

For those SSME TVC positions that failed the VSB100 "Reasonableness checks", use data retrievals to verify that the current positions are the result of SSME drift and not that of a step function shift.

Not Performed: _____

14-1325 COFC

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS

IDP 3 to Console C11

NOTE

IDP is required for the RCS Single Command Test only and is not a prerequisite for any other GNC/EFC System Activation.

14-1326 COFC OTC 132
OTC CDPS

Change responsible console for IDP 3 to Console C11.

14-1327 CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
ISSU N72IV102D #B00B
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C11
XMIT CMD KEY - PRESS

14-1328 CDPS OTC 132
OTC COFC

Responsible console for IDP No. 3 now assigned to C11.

GN&C System Self Tests (L-27 Hours 30 Minutes)

NOTE

The following are independent operations and may be performed in parallel, in any order, and in conjunction with IMU or Star Tracker Operations.

NOTE

Downlist Format 42 not required for Countdown RJD Single Command Test. Do not change to Format 42 (per OMI V1123) unless this test must be used to verify RJD driver out discretes.

14-1329

OTC

COFC
CGNC

132

SU72397

Perform GN&C System Self Tests per OMI [V1123.130](#) :

1. ADTA Self Test (5 minutes).
2. Orbiter RGA Turnaround Null/Self Test (ground test) (10 minutes).
3. AA Turnaround Self Test (10 minutes).
4. RCS trickle current single command test (normal jets only) (15 minutes).

RT OMI Log No. _____

IMU Warm-Up/Standby (L-27 Hours 30 Minutes)

NOTE

IMU Warm-Up/Standby shall occur no later than L-15 hours 20 minutes.

The following step will require ECL to activate one IMU fan to support IMU operations for remainder of this OMI.

IMU and Star Tracker are independent operations and may be performed in parallel.

14-1330

OTC

CGNC

132

SU72399

Perform Orbiter IMU Power Up/ Standby Operations per
OMI [V1123.260](#) (30 minutes) (5 minutes W/CDR).

RT OMI Log No. _____

Star Tracker Functional Checkout (L-27 Hours 30 Minutes)

NOTE

The Star Tracker Checkout is required one time prior to Launch, making the repeat of the test optional for a Recycle Launch Countdown. Do not perform this test if it has been performed in the previous Countdown unless there is concern over activity in the general LRU area, or concern over possible trend data, or concern over time elapsed since last test.

Star Tracker Functional Checkout Not Performed: _____

NOTE

Star Tracker Checkout can be performed before or after, but not in parallel with, the switchlist part of GNC system power up. Switch positions are incompatible for both operations.

NOTE

The following step will require an I/O reset. DPS can expect I/O errors to occur for items not powered up at this time.

14-1331

OTC

CGNC

132

[SU72395](#)

Perform Star Tracker Functional Checkout:

1. Star Tracker Power Up per OMI [V1123.320](#) (20 minutes)
(5 min W/CDR).
2. Star Tracker Self Test per OMI [V1123.320](#) (5 minutes).
3. Star Tracker Power Down per OMI [V1123.330](#) (5 minutes) (CDR).

RT OMI Log No. _____

IMU Power Up/Standby - Complete (L-27 Hours)

14-1332 CGNC OTC 132 [SU72399](#)

IMU Power Up/Standby complete.

Star Tracker Checkout - Complete (L-27 Hours)

14-1333 CGNC OTC 132 [SU72395](#)

IF Star Tracker Checkout is performed this run,

THEN report Star Tracker Checkout complete.

Not Performed: _____

GN&C System Self Tests - Complete (L-26 Hours 50 Minutes)

14-1334 COFC OTC 132 [SU72397](#)
CGNC

GN&C System Self Tests complete.

IDP 3 Return to C12

14-1335 COFC

CONSOLE KYBD
ISSU N72IV102D 0
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS

14-1336 COFC OTC 132
CDPS

Responsible console for IDP 3 is now C12.

GNC LCC Monitor Activation

NOTE

Perform the next step after completion of GN&C System Power Up, GN&C System Self Tests and IMU Power Up.

NOTE

Allow 1 to 2 minutes for next step to complete.

NOTE

Activation of the GN&C LCC monitor satisfies the listed requirement by the absence of a LCC GNC-26 failure annunciation.

14-1337

COFC

CURSOR CONTROL (SAB20/VSB79 PG-B)
ACTIVATE LCC MONITOR
XMIT CURSOR KEY - PRESS

OMRSD [S00FM0.110-1R \(SWB02\)](#)

NOTE

The following step will change the EMON limit for the speedbrake channel 1 position feedback from the default limit of 5 +/- 1 deg, to an adjusted limit of 3.5 deg to 6.0 deg. This is to account for a known bias of approximately -0.75 deg in the OV-105 speedbrake channel 1 position.

Perform the next step for OV-105 only and only after LCC Monitor Activation has been completed.

14-1338

COFC

IF for OV-105 and after LCC Monitor Activation is complete,

THEN

CONSOLE KYBD
C EL V57H0201C1 3.5 6.0
XMIT CMD KEY - PRESS

Not Performed: _____

Activate IMU Power Up LCC EMON

14-1339

CGNC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

14-1340

CGNC

CURSOR CONTROL (SAB20/SWB02 PG-A)
A-IMU PWR UP
XMIT CURSOR KEY - PRESS

14-1341

CGNC

APPL PG-A (SAB20/SWB02)
PFK13 KEY - PRESS (DEACT EMON SETUP)

Clear GNC LCC Disk Files

14-1342

COFC

APPL PG-B (SAB20/SWB02)
PFK3 KEY - PRESS (PARAM ACT/INH PG)

NOTE

“CLEAR ALL BYPASSES” will turn magenta while LCC parameters are cleared (Approx. 1 minute), then go back to cyan.

14-1343

COFC

CURSOR CNTL (SAB20/SWB02 PG-B)
CLEAR ALL BYPASSES
XMIT CURSOR KEY - PRESS

14-1344

COFC

APPL PG-B (SAB20/SWB02)
PFK5 KEY - PRESS (LCC MONITOR ACTIVITY PG)

GNC OPS101 Profile Monitor Setup

14-1345

COFC

CURSOR CNTL (SAB19/SWB01 PG-B)
COUNTDOWN - DETAIL
XMIT CURSOR KEY - PRESS

14-1346

COFC

APPL PAGE (VWB05 PG-B)
PFK8 KEY - PRESS (CLEAR ALL BYPASSES)
PFK15 KEY - PRESS (TERMINATE)

NAVAIDS Circuit Breaker Closing

NOTE

Perform NAVAIDS Circuit Breaker Closing if NAVAIDS Activation and Self Test (in OMI S0007.400) will not be performed during this run of OMI S0007 or if the current NAVAIDS switch/circuit breaker configuration does not match the Ascent Switch List Requirements.

NAVAIDS Circuit Breaker Closing will be performed by CGNC if NAVAIDS Engineering is not on station.

NAVAIDS Circuit Breaker Closing Not Performed: _____

14-1347

CNSE CDR 173

PANEL O8
MLS 1,2,3 SW - OFF

14-1348

CNSE CDR 173

PANEL O8
RADAR ALTIMETER 1,2 SW - OFF

Radar Altimeter CB

14-1349 **CNSE** **CDR** **173**

PANEL O14
ROW E
MNA
RADAR ALTM 1 CB - CLOSE (GUARDED)

PANEL O15
ROW E
MNB
RADAR ALTM 2 CB - CLOSE (GUARDED)

14-1350 **CNSE** **CDR** **173**

PANEL O14
ROW E
MNA
MLS 1 CB - CLOSE (GUARDED)

PANEL O15
ROW E
MNB
MLS 2 CB - CLOSE (GUARDED)

PANEL O16
ROW E
MNC
MLS 3 CB - CLOSE (GUARDED)

Single String GPS Option

NOTE
Perform Single String GPS Option if vehicle is OV-103 or OV-104.

Single String GPS Option Not Performed: _____

14-1351 CNSE CDR 173

PANEL O7
TACAN 1
 MODE SW - OFF
TACAN 2
 MODE SW - OFF
TACAN 3
 MODE SW - OFF

14-1352 CNSE CDR 173

PANEL O14
ROW C
 MNA
 TACAN 1 CB - CLOSE

PANEL O15
ROW C (ROW E - OV-104)
 MNB
 TACAN 2 CB - CLOSE

PANEL O16
ROW C
 MNC
 TACAN 3 CB - CLOSE

14-1353 CNSE CDR 173

IF FOR OV-104,

THEN

PANEL O15

ROW C

 MN B

 GPS 2

 PRE AMPL

 UPPER CB - CLOSE

ROW D

 MN B

 GPS 2

 PRE AMPL

 LOWER CB - CLOSE

Not Performed: _____

14-1354 CNSE CDR 173

IF FOR OV-103,

THEN

PANEL O14

ROW D

 MN A

 GPS

 PRE AMPL

 UC CB - OPEN

 LC CB - OPEN

Not Performed: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1355 CNSE CDR 173

IF FOR OV-103,

THEN

PANEL O16

ROW D

 MN C

 GPS

 PRE AMPL

 UC CB - CLOSE

 LC CB - CLOSE

Not Performed: _____

*** End of Single String GPS Option ***

Three String GPS Option

NOTE
Perform Three String GPS Option if vehicle is OV-105.

Three String GPS Option Not Performed: _____

14-1356 CNSE CDR 173

PANEL O14
ROW D
 MN A
 GPS 1
 PRE AMPL
 UC CB - CLOSE
 LC CB - CLOSE

14-1357 CNSE CDR 173

PANEL O15
ROW C
 MN B
 GPS 2
 PRE AMPL
 UPPER CB - CLOSE
ROW D
 MN B
 GPS 2
 PRE AMPL
 LOWER CB - CLOSE

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1358 CNSE CDR 173

PANEL O16
ROW D
MN C
GPS 3
PRE AMPL
UPPER CB - CLOSE
LOWER CB - CLOSE

***** End of Three String GPS Option *****

***** End of NAVAIDS Circuit Breaker Closing *****

Deflate Dock Seals and Inspect

NOTE

Perform Tile Inspection approximately 8 hours prior to RSS move.

14-1359 *PAD OTC 132 SU72392
OTC PPVM

Deflate dock seals per OMI [V1122.003](#) .

Report completion.

14-1360

OTC

PQC4

132

SU72394

Visually inspect PCR Seal/TPS Interface Orbiter area:

approximately 1 foot inboard and outboard from center line
(coordinate) of seal contact;

across upper forward fuselage L/H to R/H side from Z=402.75 at
X=564.5;

across upper AFT fuselage L/H to R/H side from Z=402.75 at X=1323;

along Mid fuselage L/H and R/H sides from X=564.5 to X=1323 and
at Z=402.75.

Document evidence of broken tiles or apparent tile degradation.

Inspect FI OML surface and visible edges for cuts, tears, frayed areas,
and broken quilting stitches in excess of specification allowables.

Inspect ceramic coating for flaking, missing coating and evidence of
contamination and/or discoloration.

Inspect for evidence of blanket joint gaps opening or out-of-tolerance
steps developing.

Report complete.

Document evidence of unacceptable cracked coating, butt joint
separation, abnormal discoloration, embrittlement, tears, cuts or rips in
FRSI material.

Upper Forward Fuselage

T: _____ Qw: _____ N: _____

Upper AFT Fuselage

T: _____ Qw: _____ N: _____

R/H Mid Fuselage

T: _____ Qw: _____ N: _____

L/H Mid Fuselage

T: _____ Qw: _____ N: _____

OMRSD [V09AH0.090-1](#)

14-1361 OTC *PAD 132
 PPVM

IF winds are high enough to cause flapping of dock seals and damage to TPS/tile,

THEN re-inflate dock seals per OMI [V1122.003](#) .

Report completion.

Not Performed: _____

14-1362 OTC PPVM 132

Thermal condition PCR to 73-75 deg F per OMI [V1122.003](#)

T: _____

14-1363 PMTG *PAD 132
 *PAD OTC

[SU72415](#)

Hyper Securing Complete per OMI S0007.100, Operation 271.

14-1364 OTC *PAD 132
 *PAD QMTG

[SU72389](#)

Perform OMI S0007.100, Operation 276 - MLP Interior Securing (8 hours).

Bird Deterrent Removal

14-1365	NTD	OTC	232
	OTC	*PAD	132
	*PAD	*ACM	NET 110

Remove and store Terror-Eyes Balloons and water hoses.
(ref S0018.100).

Relocate to LCC to monitor OTV cameras for any bird activity until released by NTD.

Report completion.

Transporter to Launch Position

14-1366	QESP	OTC	132	SU72402
		*PAD		SU72419
	OTC	NTD	232	
	NTD	*SCC		
		STM		

T-11H00M
(HOLDING)

SSME ESP Lower to Transporter per OMI V2270 complete. Ready for ESP Transporter Move to Launch position.

NOTE

Perform the next three steps when SSME ESP OPS complete.

NOTE

IMCS/GSS Techs meet at base of FSS elevator.

14-1367	NTD	STM	232
	STM	GYCC	111
		JBPN	
	GYCC	JYCD	117

IMCS:

Remove two portable OIS units positioned 30 to 40 ft out from FSS in Crawlerway, one unit on east Pad surface and one unit on west Pad surface.

Install caps on cable connectors.

GSS: **remove** purge flexhoses from units.

Support: [PNSA](#)
Support: [OISD](#)

14-1368	JBPN	STM	111
---------	------	-----	-----

Purge flexhoses disconnected for removal of two OIS boxes on east/west Pad surface.

Support: [CPNS](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1369	JYCD	GYCC	117
	GYCC	STM	111
	STM	NTD	232

Two portable OIS units on east and west Pad surface have been removed.
Caps installed on cable connectors.

Support: [OISD](#)

T: _____

14-1370	NTD	STM	232
	STM	GBHE	NET 104
		QBSE	

Provide tow vehicles, mobile crane and personnel to support Engine
Service Platform move to Launch position, and Skyjack Mini-Manlift
Removal from the ESP.

Support: [HESA](#)
Support: [STSA](#)

ESP Transporter Move Clears

NOTE

Delay this option if Sound Suppression Tank/MLP Line Fill to 105-ft level in work (48 inch Sound Suppression bypass valves open).

14-1371 OTC PMTG NET 110 SU72420

Clear all nonessential personnel from area 25 ft each flame trench tracks.

Essential Personnel			
	SPOC	GSS	NASA
System Engineer	1		1
Technician	4	5	
Quality	1	1	
Safety	1		1

14-1372 NTD PA

Attention on Pad A:

All nonessential personnel clear 25 ft from each side of flame trench tracks for ESP Transporter Move.

14-1373 TTL

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area (OMI V2274).

TTL: _____

14-1374 PMTG OTC NET 110
 *PAD
 OTC NTD 232
 NTD STM
 *SCC

25 ft control area set up around ESP transporter.
Request Safety concurrence to proceed with ESP Transporter Move to Launch Position.

14-1375 *SCC NTD 232
 NTD STM
 OTC
 OTC *PAD
 *PAD PMTG NET 110

You have Safety concurrence to proceed with ESP Transporter move to Launch position.

14-1376 OTC PMTG NET 110

Brief personnel on hazards that will be present and applicable Emergency Instructions.
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Heavy objects or equipment could fall and impact personnel.

Personnel may suffer serious bodily injury and/or loss of limbs or life.

Wear **safety shoes/boots** where a potential for injury exists.

WCLH024 06-22-2005

NOTE

Hazardous step follows due to moving of large heavy equipment.

14-1377

OTC

PMTG
*PAD

NET 110

SU72404
SU72409

Perform ESP Transporter Move to Launch Position per OMI [V2274.002](#)

***** End of ESP Transporter Move Clears *****

Skyjack Mini-Manlift Hoist from SSME ESP

NOTE

Perform this option if required for Skyjack Mini-Manlift Removal on the Pad surface.

Skyjack Mini-Manlift Hoist from SSME ESP Not Performed: _____

14-1378	PMTG	OTC	NET 110
		*PAD	
	OTC	NTD	232
	NTD	STM	
	STM	GBHE	NET 104

Stop transporter on Pad surface to allow removal of Skyjack Mini-Manlift.

Support: [HESA](#)

14-1379	PMTG	OTC	NET 110
		*PAD	
	OTC	NTD	232
	NTD	STM	
		*SCC	

Ready for Skyjack Mini-Manlift Hoist from SSME ESP. ESP control area will be maintained.

14-1380 STM GBHE NET 104

Perform the following:

1. **Establish** a 25-ft control area around Manlift path of travel for lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-1381 STM PA

Attention on Pad A

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for Manlift hoist from SSME ESP.

14-1382 **GBHE** **STM** **NET 104**
 STM **NTD** **232**
 NTD ***SCC**

25-ft control area has been established around Manlift and path of travel.
Barriers and danger signs posted.
Request Safety concurrence to proceed with Manlift hoist from SSME
ESP.

Support: [HESA](#)

14-1383 ***SCC** **NTD** **232**
 NTD **STM**
 STM **GBHE** **NET 104**

You have Safety concurrence to proceed with Manlift hoist from SSME
ESP.

Support: [HESA](#)

14-1384 **STM** **GBHE** **NET 104**

Brief personnel on the hazards and applicable Emergency Operations.
Verify all personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

The suspended load may fall during hoisting, rotation, raising or lowering.
Personnel impacted by falling or moving hardware may suffer serious injury and/or loss of life.

Wear **hard hats** and **safety shoes/boots** .

WCLH003 09-11-2009

NOTE

Hazardous steps follow due to lifting operations.

14-1385

GBHE

Perform the following:

1. **Remove** Manlift from SSME ESP.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE

Hazardous operations complete.

14-1386

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open Manlift control area for controlled work.

Remove barriers and danger signs.

Support: [HESA](#)

14-1387

*SCC	NTD	232
NTD	STM	
STM	GBHE	NET 104

You have Safety concurrence to open Manlift control area for controlled work.

Support: [HESA](#)

14-1388 GBHE STM NET 104 SU72420
 STM NTD 232
 OTC
 NTD *SCC
 OTC PMTG NET 110

Skyjack Mini-Manlift Hoisting Operations complete.

Proceed with ESP move to Launch Position.

Support: [HESA](#)

***** End of Skyjack Mini-Manlift Hoist from SSME ESP *****

NOTE

The time for the COMM check will be coordinated with LCC VITT (1-9224) to ensure all parties will be available to accomplish the COMM check.

14-1389 VITT

Perform COMM check on OIS-D Channel 6228:

1. LCC VITT COMM Check with O&C ACQ.
2. LCC VITT COMM Check with Firing Room 3 OSR Console A19 (NASA FCOD).

Or

LCC VITT COMM Check with Firing Room 4 OSR Console A20 (NASA FCOD).

3. Firing Room 3 OSR Console A19 (NASA FCOD) COMM Check with O&C ACQ.

Or

Firing Room 4 OSR Console A20 (NASA FCOD) COMM Check with O&C ACQ.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1390 STM GYCC 111
 GYCC JYCD 117

Remove paging and area warning system pivot speakers Nos. 8-17 and 8-18 on east stairwell at MLP zero level.

Store cables in box provided (completion 30 min prior to end of Hold).

Support: [OISD](#)

SRB ETA Ring Camera Window Final Cleaning & Inspection

NOTE

Next step requires OWP extended.

14-1391 TBC *PAD 136 [SU72A80](#)
 *PAD PBOL
 PBOL BMT1

Perform OMI S0007.100, Operation 454 - SRB ETA Ring Camera Window Final Cleaning and Inspection.

OMRSR [S00FA0.090-C](#)

OMRSR [S00FA0.090-D](#)

***** End of SRB ETA Ring Camera Window Final Cleaning and Inspection *****

14-1396 STM QBSE 116

Task Team Leader/Designated Floor Leader:

Perform safety inspection of the local control area and egress route(s) from control area.

Verify no discrepancies which affect the operation and/or safe egress from the control area.

TTL: _____

14-1397 QBSE STM 116 SU72410
 STM NTD 232
 NTD OTC
 *SCC

Nonessential personnel cleared from 25-ft radius under Side 2 +Y curtain wall for Retract Operation.

Request Safety concurrence to proceed with +Y OWP Retract per OMI M3169.008 (45 minutes).

14-1398 *SCC NTD 232
 NTD STM
 STM QBSE 116

You have Safety concurrence to proceed with +Y OWP Retraction per OMI M3169.008.

Support: [STSA](#)

14-1399 STM QBSE 116

Brief personnel on all hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [STSA](#)

TTL: _____

WARNING

Personnel may be crushed between moving and fixed structure.
Personnel may suffer injuries ranging from lacerations and broken bones to loss of limbs or life

WCLH005 09-29-2005

WARNING

Personnel may fall from unprotected heights if fall protection is not used.
Personnel may suffer bodily injury or death.

Wear a **safety harness** with a **lanyard** when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed **life line** .

WM006 07-08-2005

NOTE

Hazardous steps follow due to OWP move.

14-1400 STM QBSE 116

Proceed with +Y OWP Retraction per OMI [M3169.008](#) .

Support: [STSA](#)

14-1401 QBSE STM 116
STM NTD 232
NTD OTC
***SCC**
OTC *PAD 132

[SU72410](#)

+Y Weather Protection Panel Retraction complete.

Request Safety concurrence to open +Y OWP control area open for controlled work.

Support: [STSA](#)

14-1402	*SCC	NTD	232
	NTD	OTC	
		STM	
	STM	QBSE	116
	OTC	*PAD	132

You have Safety concurrence to open +Y OWP control area for controlled work.

NOTE Hazardous operations due to +Y Weather Protection Panel Retraction complete.

ET/Orbiter Disc Instrumentation Install Verification

14-1403	CTIF	TBC	136	SU72344
---------	------	-----	-----	-------------------------

Verify hydrogen leak detector installation and Channelization complete per OMI T5401.

Reposition of -Y Weather Protection Panels

14-1404	QBSE	STM	116	SU72421
	STM	NTD	232	
	NTD	OTC		
		*SCC		
	OTC	*PAD	132	

Ready to proceed with -Y OWP Retraction per OMI M3169.008.

Support: [STSA](#)

14-1409 STM QBSE 116

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel certified, equipped and ready to proceed.

Support: [STSA](#)

TTL: _____

WARNING

Personnel may be crushed between moving and fixed structure.

Personnel may suffer injuries ranging from lacerations and broken bones to loss of limbs or life

WCLH005 09-29-2005

WARNING

Personnel may fall from unprotected heights if fall protection is not used.

Personnel may suffer bodily injury or death.

Wear a [safety harness](#) with a [lanyard](#) when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed [life line](#) .

WM006 07-08-2005

NOTE

Hazardous steps follow due to OWP move.

14-1410 STM QBSE 116

Proceed with -Y OWP Retraction per OMI [M3169.008](#) .

Support: [STSA](#)

NOTE
Hazardous operations due to -Y Weather Protection Panel Retraction complete.

14-1411	QBSE	STM	116
	STM	NTD	232
	NTD	OTC	
	OTC	*SCC	
	OTC	*PAD	132

-Y Weather Protection Panel Retraction complete.

Request Safety concurrence to open -Y OWP control area for controlled work.

Support: [STSA](#)

14-1412	*SCC	NTD	232
	NTD	OTC	
		STM	
	STM	QBSE	116
	OTC	*PAD	132

You have Safety concurrence to open -Y OWP control area for controlled work.

Support: [STSA](#)

NOTE
Perform the following step only after the -Y OWP Curtain Wall is retracted for Launch.

14-1413	QBSE	STM	111
	STM	JCFM	

IF -Y OWP Curtain Wall Vibration Transducers are installed,

THEN connect OWP Transducer cables per MWO_____
Report completion.

Support: [STSA](#)

Not Performed:_____

14-1419 OTC CEPD 132

Perform MEC Pre-Flight BITE Evaluation.

14-1420 CEPD

Perform SDC QLDB Retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

14-1421 CEPD OTC 132
 OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

***** End of SRB OI Power Up for Measurement Snapshot *****

Firing Room 2 Configuration

14-1422 NTD CTC 232

Verify ready to activate Firing Room 2 LPS Launch Support Configuration.

14-1423 NTD LPS 232 SU72405
T-11H00M
(HOLDING)

Perform OMI S0007.100, Operation 154 - FR2 Launch Support Configuration - LPS T-11 Hour Built-in Hold to T+1 Hour 30 Minutes (3 hours).

14-1424 NTD LPS 232

IF not previously performed for payload support,

THEN perform OMI S0007.100, Operation 155 - FR2 Payload Support Configuration.

Not Performed: _____

14-1425 LPS JSDC 127

Configure PCGOAL for Firing Room 2 to OMI S0007 data only.

14-1426 LPS JRPS

Verify KMTS 505A1 (A1, A2, A3, A7, A8, A9) bit syncs on Manual Mode, Source 1, 60KB rate.

Verify Firing Room Consumables

14-1427
T-11H00M
(HOLDING)

LPS

Verify Firing Room consumables.

NOTE

Perform the next step on first shift.

14-1428

STM	GYCC	111
GYCC	JYCD	117

Verify VIP Paging System operational (1 hour).

Support: [OISD](#)

ESP Transporter Secure for Launch - Complete

NOTE
Hazardous steps complete.

14-1429	GBHE	STM	NET 104	SU72404
	STM	NTD	232	SU72409
	NTD	OTC		
		*SCC		
	OTC	*PAD	132	

T-11H00M
(HOLDING)

ESP Transporter positioned for Launch per OMI V2274.
Request Safety concurrence to open control area for controlled work.

Support: [HESA](#)

14-1430	*SCC	NTD	232	SU72420
	NTD	OTC		
		STM		
	STM	GBHE	NET 104	
	OTC	*PAD	132	

You have Safety concurrence to open 25-ft control area around ESP Transporter.

14-1433 GBHE STM NET 104
 STM NTD 232
 NTD *SCC

25-ft control area has been established and barriers and danger signs posted.

Request Safety concurrence to proceed with mini-Manlift lift from SSME ESP at Launch Position.

Support: [HESA](#)

14-1434 *SCC NTD 232
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to proceed with Skyjack Mini-Manlift lift from SSME ESP at Launch Position.

Support: [HESA](#)

14-1435 STM GBHE NET 104

Brief personnel on the hazards and applicable Emergency Operations.
Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

The suspended load may fall during hoisting, rotation, raising or lowering.
Personnel impacted by falling or moving hardware may suffer serious injury and/or loss of life.

Wear **hard hats** and **safety shoes/boots** .

WCLH003 09-11-2009

NOTE

Hazardous steps follow due to lifting operations.

14-1436

GBHE

Perform the following:

1. **Remove** Skyjack Mini-Manlift from SSME ESP.
2. **Utilize** tag lines.

Support: [HESA](#)

NOTE

Hazardous operations complete.

14-1437

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	

Hazardous lifting operations complete.

Request Safety concurrence to open Mini-Manlift control area for controlled work. Remove barriers and danger signs.

Support: [HESA](#)

14-1438

*SCC	NTD	232
NTD	STM	
STM	GBHE	NET 104

You have Safety concurrence to open Mini-Manlift control area for controlled work.

Support: [HESA](#)

***** End of Remove Skyjack Mini-Manlift at SSME ESP *****

Reactivate Sound Suppression Trickle Fill for LCD Support

14-1439 STM JBWC 111 SU72414

IF the Sound Suppression Trickle Fill was secured for SSME ESP lowering
OR if this operation is performed following a Scrub Turnaround and the Sound Suppression Trickle Fill System was secured,

THEN reactivate Sound Suppression SSME Hole Trickle Fill for LCD Support per [Doc: JOB PLAN M3189.420 \(LI\) Reactivation of Sound Suppression SSME Hole Trickle Fill for LCD Support following a Securing of Less Than 24 Hours / Doc: JOB PLAN M3189.430 \(LI\) Reactivation of Sound Suppression SSME Hole Trickle Fill for LCD Support following a Securing of Greater Than 24 Hours \(1 hour\).](#)

Support: [CWSS](#)
Support: [WSSA](#)

Not Performed: _____

Sound Suppression Trickle Fill System Activation - Complete

14-1440 JBWC STM 111 SU72414

IF Sound Suppression Trickle Fill was activated,

THEN report activation of Sound Suppression Trickle Fill System is complete.

Support: [CWSS](#)

Not Performed: _____

14-1441 JYCD GYCC 117
 GYCC STM 111

VIP Paging System operational.

Support: [OISD](#)

SRB Igniter Heater Activation

NOTE

Perform SRB Igniter Heater Activation no later than L-18 hours 00 minutes if ambient control temperature is less than 55 deg F, or forecast to drop below 55 deg F before T-08 hours 00 minutes. If control temperature drops below 55 deg F, then the Igniter Heaters are to be activated immediately.

SRB Igniter Heater Activation Not Performed: _____

14-1442 **NTD** **TBC** **232** [SU72469](#)
 TBC **CPWR** **136**

T-11H00M
(HOLDING)

Perform SRB Igniter Heater Power Application.

CAUTION

RSRM Igniter Heater temperatures shall not exceed 125 deg F and Current shall not exceed 4.9 amps AC or proper seal capabilities of all ignition system seals may not occur.

14-1443

CPWR

CURSOR CNTL (SDC01)
SRB OPTIONS JOINT HEATERS
XMIT CURSOR KEY - PRESS

CRT
VERIFY DISPLAY SKELETON BDE11 DISPLAYED

14-1444

CPWR

CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS

14-1445

CPWR

CRT (BDE11)

VERIFY

LH/RH IGN HEATER POWER ON

LH/RH IGN HEATER AUTO SEQ ACT

OMRSD [S00FA0.620-1R](#)

OMRSD [S00FA0.960](#)

NOTE

Program BWE11 must remain active from L-18 hours through T-0.

14-1446

CPWR

TBC

136

[SU72469](#)

TBC

NTD

232

SRB Igniter Heater Power Application complete.

***** End of SRB Igniter Heater Activation *****

14-1447

OTC

*PAD

132

[SU72396](#)

*PAD

PQCG

Perform OMI S0007.100, Operation 250 - MPS/SSME MLP Patch Rack
- Distributor Panel Integrity Verifications.

14-1448

PQCG

*PAD

132

[SU72396](#)

*PAD

OTC

OMI S0007.100, Operation 250 - MPS/SSME MLP Patch Rack -
Distributor Panel Integrity Verification, complete.

Terminate Tour Bus Route to Pad

NOTE
Perform the next two steps 24 hours prior to Launch or as directed by NTD.

14-1452	NTD	STM	232	SU72443
	STM	JSTC	111	
	JSTC	*SEC	114	

Terminate Tour Bus route past Pad-_____ via North Beach and Pad-_____ Access Road.

Support: [SEC](#)

14-1453	*SEC	JSTC	114
	JSTC	STM	111
	STM	NTD	232

Tour Bus route to Pad-_____ terminated.

Support: [SEC](#)

14-1454	STM	JSTC	111	SU72412
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Verify parking lot at OSB II fenced off for Red Crew parking.

Support: [MECH](#)

MILA/GSFC/JSC Interface Test

NOTE

MILA will support JSC with data and command capabilities through LOS.

MILA Telemetry COMSEC Unit loading must be completed prior to performance of MILA/JSC Interface Test.

14-1455 NTD *FLT 232 [SU72384](#)
 *MIL

T-11H00M
(HOLDING)

Configure for JSC Commanding and conduct MILA/GSFC/JSC Interface Test (2 hours).

14-1456 OTC CCSE [SU72B36](#)

Perform COM Engineering Coupler Walkdown per S0007.100, Operation 224. **Report** completion.

OIS COMM Check with JSC

NOTE

Perform the next step 1 hour after MILA/GSFC/JSC Interface Test begins.

14-1457 NTD STM 232 [SU72385](#)
 *MIL

STM GYCC 111
GYCC GOIS 117
 GYCL

T-11H00M
(HOLDING)

Perform COMM checks (tone/voice) with JSC on OIS Channel 211 (UHF), 212 (A/G 1) and 213 (A/G 2) (1 hour).

Support: [VCE](#)

MILA/GSFC/JSC Interface Test - Complete

14-1458 *FLT NTD 232 SU72384
 *MIL

T-11H00M
(HOLDING)

MILA/GSFC/JSC Interface Test complete.

OIS COMM Check with JSC - Complete

14-1459 GOIS GYCC 117
 GYCL
 GYCC STM 111
 STM NTD 232
 *MIL

T-11H00M
(HOLDING)

COMM checks with JSC on OIS Channel 211 (UHF), 212 (A/G 1) and 213 (A/G 2) complete.

Support: VCE

14-1460 OTC CMQC 132

Verify OMI S0007.100, Orbiter prerequisite Operations 211, 213, 215 and 224 complete.

Qv: _____

Preparations for COMM System Activation

14-1461 RCRT OTC 132 SU72388

IF C & T Station No. 1 (Bay 1/2) is supporting Launch Countdown,

THEN report Operation 120 of OMI V3528.001 C & T Station Initialization (Pad Option) complete.

Not Performed: _____

14-1462 RCRT OTC 132

IF C & T Station No. 2 (Bay 3) is supporting Launch Countdown,

THEN report Operation 110 of OMI V3528.002 C & T station initialization (Pad option) complete.

Not Performed: _____

14-1463 OTC RCRT 132

Verify COMSEC Load Verification per OMI V3528.001 or OMI V3528.002 complete.

T: _____

<p>NOTE Perform the following step just prior to COMM Switchlist Verification.</p>

14-1464 OTC CDR 132

PANEL MO39M
MIDDECK COMM CCU PWR SW - OFF

Connect cable SED36126942-311 to Panel MO39M MHA jack.

Connect cable SED36126942 - 311 to HIU SED36130206-303.

Connect HIU to Headset SED36122033-303.

Record

Cable S/N _____, HIU S/N _____, HDST S/N _____

COMM Switchlist Configuration

14-1465 OTC CCSE 132 SU72398
CDR

Perform COMM Switchlist Configuration per OMI V1117 (1 hour).

RT OMI Log No. _____

COMM Switch Configuration - Complete

14-1466 CCSE OTC 132
T-11H00M
(HOLDING)

COMM Switchlist Configuration complete.

L-24H Weather Update - Temperature Prediction

NOTE

The next two steps to be performed at approximately L-24H.

14-1467 NTD STM 232
 STM *WEA 231

Request current forecast for (high and low) temperatures for duration of Countdown.

14-1468 *WEA STM 231
 STM NTD 232
 NTD OTC
 TBC
 STM
 *SCC
 PTC

Temperature prediction (at Launch Pad) remainder of Launch Countdown.

Advise all systems.

Forecast time _____

High temp _____ deg F will occur at _____ Z.

Low temp _____ deg F will occur at _____ Z.

L-1 Day Flight Crew Weather Briefing

NOTE

The next step to be performed at _____ on L-1 Day. Weather briefing audio to be on OIS Channel 231.

14-1469	*FLT	NTD	232	SU72323
	NTD	STM		
	STM	GYCC	111	
		JYVO	138	
	GYCC	GYVW	PTP	
		GYVO		

T-11H00M
(HOLDING)

Implement televised weather briefing and display to the following locations at _____ on L-1 Day (time to be provided by LCC VITT, 1-9224).

Support: [WB](#)
Support: [OTV](#)

1. Flight Crew Quarters, O&C Room 3267, Monitors 2033 & 2034 (Circuit Nos. 6TVM2080 and 6TVM2087).
2. ER/ROCC Forecast Facility Room 146 (Circuit Nos. either 6TVC2079 or 6TVC2083).
3. Firing Room 3 OSR (SW1 Input 187 to Output 383).
Firing Room 4 OSR - Select MISC 187

14-1470 **STM** **JYVO** **138**

Verify JSC Weather briefing feed on OTV Switcher Source 187.

Support: [OTV](#)

14-1471 GYVO GYCC PTP
 GYVW

Video for Weather briefing in Crew Quarters and to ER ready.

Support: OTV
Support: WB

14-1472 JYVO GYCC PTP

Video for weather briefing to Firing Room 3 OSR ready.
Firing Room 4 OSR selects input MISC 187.

Support: OTV

14-1473 GYCC STM 111
 STM NTD 232
 NTD *FLT
 LD

Video system ready for Flight Crew Weather briefing.

Support: COMM

14-1474 *FLT NTD 232
 NTD STM
 STM JYVO 138
 GYCC 111
 GYCC GYVW PTP
 GYVO

Weather briefing complete. Support released.

Support: OTV
Support: WB

CAUTION

All items must be tethered when around Flight Hardware. Use care when working on or near Flight Hardware as not to cause any damage.

NOTE

The following two steps (photos) will be performed for Baseline Configuration Imagery (BCI).

NOTE

Recording of large areas is to be with sequential overlapping images to capture the entire area. Upon completion of photos, BCI will deliver photos to NASA Engineering (NE-M7).

14-1478	STM	GYCC	111	SU72A82
	GYCC	JPHO	117	SU72A98

IMCS to obtain photos of the Orbiter Wing Leading Edge areas. (Left & Right sides) Photos taken by IMCS will be downloaded to the Mirrored Server.

IMCS will notify KSC Advanced Visualization Environments (KAVE) when the photos are ready to be downloaded into the SIMS Database.

Support: [PHOT](#)

14-1479	STM	GYCC	111	SU72B73
	GYCC	JPHO	117	SU72B74

IMCS to obtain photos of the BCI FRCS areas. (Left & Right sides) Photos taken by IMCS will be downloaded to the Mirrored Server.

IMCS will notify KSC Advanced Visualization Environments (KAVE) when the photos are ready to be downloaded into the SIMS Database.

Support: [PHOT](#)

14-1480	STM	QBSE	NET 104
---------	-----	------	---------

Inspect Slidewire Landing Area per OMI [M3029](#) .

Support: [STSA](#)

14-1483 JSTC JSDY 114

Remove mission banner from Pad gate on L-1 day.

Support: [MECH](#)

Configure Equipment (JFIR)

14-1484 STM JSTC 111
 JSTC JFIR 114

T-11H00M
(HOLDING)

Remove fire extinguishers from FSS, RSS and MLP zero level (1 hour).

Support: [FI](#)

14-1485 STM JSTC 111
 JSTC JFIR 114

[SU72B04](#)

Place two fire extinguishers in each FSS elevator (1 hour).

Support: [FI](#)

14-1486 JSTC JFIR 114

[SU72B75](#)

Verify MLP Halon System is in automatic mode. **Report** completion.

Support: [FA](#)

Remove Zero Level Fire Alarm Stations

14-1487 STM JSTC 111
 JSTC JFIR 114

[SU72361](#)

T-11H00M
(HOLDING)

Remove MLP zero level fire alarm pull stations (4 on stanchions) and fire alarm speaker (1 hour).

Secure remaining MLP zero level pull station cover (Doghouse Door) using three large size plastic tie wraps ([Ref: ISC DOC PPS-I-0060 \(LI\) S0007 MLP MPS Securing](#)). Tie wraps shall be two vertically and one horizontally between hinges and through aluminum handle (30 minutes).

Support: [FA](#)

Life Support in Fallback Area

14-1488 *SCB JSTC NET 104 SU72304
 JSTC STM 111
 STM NTD 232

T-11H00M
(HOLDING)

Life support equipment in Fallback Area Landing Support Complex (LSC) operational and all communications functional.

Support: LS

Remove OIS Units - Pad Surface

NOTE
IMCS/GSS Technicians meet at base of FSS elevator.

14-1489 STM GYCC 111 SU72413
 JBPB
 GYCC JYCD 117

T-11H00M
(HOLDING)

IMCS:

Remove following OIS units from Launch Pad in use.

Secure cable ends with blast tape and store in pull boxes.

GSS:

Secure disconnected purge lines in place with blast tape (complete by T-08 hours 00 minutes).

Pad A Surface,

- STA 116-0A LO₂ Tower 75-ft level northwest corner of stairwell
- 117-73 LH₂ Tower 75-ft level northwest corner of stairwell
- 116-73 Pneumatic Tower top level
- 116-45 East Pad Slope at Pedestal LH₂ lines
- 118-72 East side
- 119-69 Industrial Water Platform

Support: OISD
Support: PNSA

Essential Personnel		
	IMCS	GSS
Technician	6	2

14-1490 STM GYCC 111
 GYCC GYCS NET 107

Verify cable air dryers are operational at Pad A.

Verify K-bottles connected to air dryers contain at least 100 cubic feet of compressed air. Report completion (2 hours).

Verify all TTC and Phone enclosures on Pad A are secure.

Support: [CBL](#)

Essential Personnel	
	IMCS
Technician	2

GOX Vent Arm System Initial Activation - Complete

14-1491 CMEC TBC 136 [SU72348](#)
T-11H00M
(HOLDING)

GOX Vent Arm System Initial Activation per OMI G2158 complete.

NOTE
GVA must be extended for GOX Vent Seal Footprint Inspection.

14-1492 CMEC TBC 136 SU72347
 TBC *PAD
 *PAD PQCG

Inspect ET TPS at +Y/-Y GOX Vent Seal Footprint per OMI T6446 .
Verify no visible damage per OMI T6446.

14-1493 PQCG *PAD 136 SU72347
 *PAD TBC
 TBC CMEC

Inspection of ET TPS at +Y/-Y GOX Vent Seal Footprint complete per OMI T6446.

Launch Pad Tours

NOTE
Perform next step at L-24 Hours. Tours may be permitted above Pad slope after this time at the direction of the NTD.

14-1494 NTD *ACM NET 110 SU72408
 OTC 232
 OTC *PAD 132

Discontinue all tours above Pad slope. NTD may approve exceptions as directed by Launch Director.

14-1495 STM JCFM 111

IF measurements are not in spec,

THEN Instrumentation personnel proceed to Launch Pad for Final Measurement Setup.

Support: GIFM

Not Performed: _____

Clear for COMM Activation

14-1496 OTC CCSE 132
 *PAD

Ready to clear for COMM Activation per OMI V1117.

14-1497 OTC NTD 232 SU72400
 *SCC SU72424
 *SCC *PSE NET 105

Clear all personnel 5 ft from S-band and UHF antennas.
Post barriers and RF sign on 193-ft level.
Request Safety concurrence to proceed with COMM activation.

14-1498 NTD PA

Attention on Pad A:

All personnel stand 5 ft clear of Orbiter COMM system antennas for hazardous RF Radiation.

14-1499 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC

All personnel cleared 5 ft from S-Band and UHF antennas on 193 ft level. Barriers and RF sign posted. You have Safety concurrence for COMM activation.

Verify Flight Control Team Status and Data Links

14-1500 **NTD** ***FLT** **232** [SU72387](#)
T-11H00M
(HOLDING)

Verify Flight Control Team on station.

14-1501 **NTD** **LPS** **232**

Verify 128KB PCMMU data on 6TVM1730/8TVM4647 to MILA.

14-1502 **NTD** ***FLT** **232**
T-11H00M
(HOLDING)

Verify hardline data being received at JSC.

Orbiter COMM System Activation (MCCH)

14-1503 **NTD** ***FLT** **232**
 ***MIL**
 STM
STM **GYCC** **111**
GYCC **GOIS** **117**
GOIS **KFRL** **777**

T-11H00M
(HOLDING)

Verify ready to support COMM Activation on OIS Channel 214
(OMI V1117).

Support: [VCE](#)

14-1504	NTD	STM	232
	STM	GEMA	111

Initiate Launch & Landing site RF Surveillance

Monitoring Locations: VAB, Pad A, EML

Frequency Range: 225-325 MHz (UHF)
416-417 MHz (SRSS)
960-1215 MHz (TACAN - OV-103/104 only)
2-2.4 GHz (S-Band)
5.6-5.9 GHz (SRBTS)

GEMA report RF interference to Flight Systems only at request of
CCSE/CNSE/CBRS.

GEMA coordinate mitigation of any media S-band incursions from the
KSC Press Site with the KSC Spectrum Manager via telephone.

14-1505	NTD	OTC	232
	OTC	CCSE	132

Call GEMA on OIS Ch 111 to initiate any RF interference investigation.

WARNING

RF Radiation is harmful.
Exposure may cause burns and cell, tissue, or organ structure damage.

WM011 02-16-2006

NOTE

Hazardous steps follow due to Open Loop RF Radiation.

NOTE

Frequency clearance is verified by STM at T-15H.

14-1506	NTD	OTC	232	SU72401
		LPS		
		JRPS		
	OTC	CCSE	132	
		RCRE		
		CDR		

T-11H00M
(HOLDING)

Perform COMM System Activation for MCCH Option per OMI [V1117](#) on OIS Channel 214 (1-1/2 hours).

RT OMI Log No. _____

14-1507	OTC	CCSE	132
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Report when activation requiring multiple crew personnel complete.

14-1508 CCSE OTC 132

ASTRO COMM - OIS INTERFACE PANEL

POWER SW - ON
VERIFY POWER LIGHT ON

ICOM A SW - ACTIVE
VERIFY ACTIVE LIGHT ON AND READY LIGHT ON

ICOM B SW - ACTIVE
VERIFY ACTIVE LIGHT ON AND READY LIGHT ON

A/G 1 SW - ACTIVE
VERIFY ACTIVE LIGHT ON AND READY LIGHT ON

A/G 2 SW - ACTIVE
VERIFY ACTIVE LIGHT ON AND READY LIGHT ON

UHF SW - MONITOR
VERIFY MONITOR LIGHT ON AND READY LIGHT ON

NOTE

The following step configures ASTRO COMM for Launch. Perform this step after multiple crew member voice checks are complete.

14-1509 CCSE OTC 132

ASTRO COMM - OIS INTERFACE PANEL

A/G 1 SW - ACTIVE
VERIFY A/G 1 ACTIVE LIGHT ON

A/G 2 SW - MONITOR
VERIFY A/G 2 MONITOR LIGHT ON

UHF SW - MONITOR
VERIFY UHF MONITOR LIGHT ON

ICOM A SW - OFF
VERIFY ICOM A ACTIVE AND MONITOR LIGHTS OFF

ICOM B SW - OFF
VERIFY ICOM B ACTIVE AND MONITOR LIGHTS OFF

14-1510 CCSE OTC 132 SU72403
 OTC NTD 232

Perform 2-Way Voice Checks (Non-OISD) with ASP (or SCO) using the following Audio PBs individually on Console 10496A13-FR4 (or 0696A11-FR3).

- A/G 1
- A/G 2
- ICOM A
- ICOM B
- UHF

Verify D/L Voice on A/G 1, A/G 2, ICOM A, ICOM B and UHF.

NOTE Notification in next step will allow access to begin FCE time critical stow.

14-1511 CCSE OTC 132 SU72422

COMM Activation requiring multiple crew personnel complete.

Orbiter COMM System Activation - Complete

14-1512 CCSE OTC 132 SU72401
 OTC NTD 232

T-11H00M
(HOLDING)

COMM System Activation per OMI V1117 complete.

OMRSR [S00FA0.372-C](#)
OMRSR [S00FA0.372-E](#)
OMRSR [S00FA0.372-F](#)

14-1513 OTC CDR 132

PANEL MO39M
MIDDECK COMM CCU PWR SW - OFF

Disconnect Middeck Headset, HIU and cable from Middeck MHA and route to Orbiter White Room for CCSE pickup. **Do not** disconnect cable between MHA and MO39M.

COMM System RF Radiation - Complete

NOTE
Delay the next four steps until COMM Activation complete.

14-1514 **OTC** **CCSE** **132**
T-11H00M
(HOLDING)

CRT (VWA40)
VERIFY

PM SYSTEM
XPNDR
XMIT/RCV - RCV
FM SYSTEM
XMTR - OFF

NOTE
Hazardous steps for COMM System RF Radiation complete.

14-1515 **CCSE** **OTC** **132**
OTC ***PAD**
NTD **232**
***SCC** ***SCC**
***SCC** ***PSE** **NET 105**

RF Radiation has terminated. Ready to remove antenna couplers and open area for controlled work.

14-1516 ***PSE** ***SCC** **NET 105** [SU72424](#)
***SCC** **NTD** **232**
NTD **OTC**
OTC **CCSE** **132**

RF Radiation control area open for controlled work.

NOTE

The following PA is to be made each shift starting 24 hours prior to Launch.

14-1522

STM

PA

SU72425

Launch of STS-_____ is scheduled for _____ (date and time).
All Employees should be aware that a potential for deposition of solid
rocket motor exhaust exists under certain meteorological conditions.
Please take appropriate action to protect your property and avoid contact
with exhaust cloud products.

Record date and time of PA:

Run 1 _____

Run 2 _____

Run 3 _____

High Pressure Gas Panel Operational Check

NOTE

The high pressure gas check should be performed approximately 24 hours prior to expected T-0 to ensure regulators are set for the same ambient T-0 conditions.

14-1523 **STM** **NTD** **232**
 NTD **OTC**
 TBC

Pneumatics will be adjusting facility GHe and GN₂ panels. Pressure fluctuations will occur. These activities will last approx 2 hours.

14-1524 **NTD** **STM** **232** [SU72B78](#)
 STM **JBPN** **111**

T-11H00M
(HOLDING)

Perform operational check on the following support panels and, if required, adjust pressures as specified in system Job Plans (2 hours).

Support: [PNSA](#)

1. 6000/3000 psig Regulator Panel - HP gas storage battery per [Doc: JOB PLAN M3011.001 \(LI\) Operational Check of Pad Let Down Station](#)
2. GN₂ Primary Regulator Panel- FSS 175-ft level per [Doc: JOB PLAN M3011.002 \(LI\) Operational Check on Primary GN2 Regulation PNL, S72-0694-02](#)
3. GHe Primary Regulator Panel- FSS 175-ft level per [Doc: JOB PLAN M3131.001 \(LI\) Operational Check on Main GHe Panel, S72-0697-01](#)
4. Pad GN₂ Purge Panel - FSS 175-ft level per [Doc: JOB PLAN M3054.001 \(LI\) Operational Check on HAZ and Camera Purge Panel](#)
5. MLP GN₂ Regulator Panel- Compartment 1B per [Doc: JOB PLAN M3197.009 \(LI\) MLP Primary GN2 Panel Contingency Pressure Adjustment](#)

6. MLP GN₂ Purge Panel - Compartment 44A per [Doc: JOB PLAN M3197.003 \(LI\) Operational Check on MLP Purge Panel S72-1107-08](#)
7. MLP LPGN₂ Supply per [Doc: JOB PLAN M3197.005 \(LI\) Operational Check on LPGN2 System at Pad and MLP](#)
8. MLP GN₂ Tertiary Panel - Compartment 1B per [Doc: JOB PLAN M3197.010 \(LI\) MLP GN2 Tertiary Panel Contingency Pressure Adjustment](#)
9. Cabin Air Panel - FSS 215-ft Level per [Doc: JOB PLAN M3067.003 \(LI\) Cabin Air Panel Ops Check and Contingency Press. Adjustment](#)

NOTE

The next step should be performed at least 2 hours prior to RSS move and must be verified complete prior to rotation.

The following items are not a constraint to RSS move and will be closed out during Side Hatch Cabin and Environmental Chamber Closeout (OMI S0007.100, Operation 267):

1. Rain gutter above hatch.
2. Side hatch window cover.
3. Hatch seal protector.

14-1525 **OTC** ***PAD** 132 [SU72465](#)
 ***PAD** **PQCG**

Begin External Orbiter TIRR Log Closeout.

14-1526 **OTC** **CMQC** 132
 CMQC **PQCG**

Review Orbiter External TIRR Log for any open items, and report open items to OTC.

14-1527 **OMTO** ***PAD** 132 [SU72292](#)
 ***PAD** **OTC**

OMI S0007.100, Operation 261, Part A - Crew Compartment Final Cleaning and Inspection, complete.

Soft Window Cover Removal

14-1528 **OTC** ***PAD** 132 [SU72450](#)
 ***PAD** **OMTO**

T-11H00M
(HOLDING)

Perform OMI S0007.100, Operation 258 - Window Cover Removal for Flight (2 hours).

Window Cover Removal - Complete

14-1529 **OMTO** ***PAD** 132 [SU72450](#)
 ***PAD** **OTC**

OMI S0007.100, Operation 258 - Window Cover Removal for Flight complete.

Deflate Dock Seals and Inspect

NOTE

Perform this option if dock seals were re-inflated after TPS inspection due to winds.

Deflate Dock Seals and Inspect Not Performed: _____

14-1530 ***PAD** **OTC** 132
 OTC **PPVM**

Deflate Dock Seals per OMI [V1122.003](#) .

Report completion.

14-1531 OTC PQC4 132

Visually inspect PCR seal/TPS interface Orbiter area

approximately 1 foot inboard and outboard from center line
(coordinate) of seal contact;

across upper forward fuselage L/H to R/H side from Z=402.75 at
X=564.5;

across upper AFT fuselage L/H to R/H side from Z=402.75 at X=1323;

along Mid fuselage L/H and R/H sides from X=564.5 to X=1323 at
Z=402.75.

Document evidence of broken tiles or apparent tile degradation.

Inspect FI OML surface and visible edges for cuts, tears, frayed areas,
and broken quilting stitches in excess of specification allowables.

Inspect ceramic coating for flaking, missing coating and for evidence of
contamination and/or discoloration.

Inspect for evidence of blanket joint gaps opening or out-of-tolerance
steps developing.

Report complete.

Document evidence of unacceptable cracked coating, butt joint
separation, abnormal discoloration, embrittlement, tears, cuts or rips in
FRSI material.

Upper Forward Fuselage

T: _____ Qw: _____ N: _____

Upper AFT Fuselage

T: _____ Qw: _____ N: _____

R/H Mid Fuselage

T: _____ Qw: _____ N: _____

L/H Mid Fuselage

T: _____ Qw: _____ N: _____

OMRSD [V09AH0.090-1](#)

***** End of Deflate Dock Seals and Inspect *****

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1532 QMTG *PAD SU72389
 *PAD OTC 132

MLP Interior Securing per OMI S0007.100, Operation 276, complete.

NOTE

The following step must be partially performed to support the Middeck IVTs.

T-11 Hour FCS Time Critical Stowage

14-1533 OTC OOCS 132 SU72477
T-11H00M
(HOLDING)

Perform installation of T-11 Hour FCS time critical items per

FCS TPS-_____.

Payload Power Switchover and IVTs

NOTE
Perform this option if Middeck IVTs are required.

Payload Power Switchover and IVTs Not Performed: _____

NOTE
The next step contains activities that are time critical.

14-1534 PTC NTD 232

Following experiments will be installed at referenced L-times. After installation, power switchover and IVTs will be performed per OMI S0007.400 (Operation 53).

Experiment	Locker Location	Installation L-time

14-1535 PTC NTD 232

All Middeck experiment IVTs complete.

***** End of Payload Power Switchover and IVTs *****

OI PCM to GSE Control

NOTE

Do not perform this option if PCMMU is already configured to GSE control.

OI PCM to GSE Control Not Performed: _____

NOTE

Steps involving CRIT 1, 1R and/or 1S items are contained in the following operation.

NOTE

Nominal Launch configuration for OI PCMMU is 1. The following steps will configure the OI PCMMU to GSE control assuming this nominal configuration.

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS V75AP0.010-1R

14-1542 **OTC** **CISL** **132**

Configure OI PCM to GSE control.

14-1543 **CISL**

CRT (SAQ04/VWQ11)

VERIFY

OI DATA VALID (UP ARROW)

PCMMU

PCM1 - ON (RPC'S ACTIVE)

SW SCAN - 1

COMMAND - OFF

14-1544

CISL

CURSOR CNTL (SAQ04/VWQ11)
PCM CONTROL
PCMMU 1 - ON
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

14-1545

CISL

CRT (SAQ04/VWQ11)
VERIFY

PCMMU
COMMAND - ON

14-1546

CISL

CDR

132

PANEL C3

OI PCMMU
POWER SW - OFF
FORMAT SW - GPC

14-1547

CISL

CRT (SAQ04/VWQ11)
VERIFY

OI DATA VALID (UP ARROW)

PCMMU
PCM1 - ON (RPC'S ACTIVE)
SW SCAN - OFF
COMMAND - ON
FORMAT
SW SCAN - GPC
BITE
1 POWER - GOOD
2 MTU - GOOD

06-16-2011
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OMI S0007.200 A23
APPROVED

14-1548 Noted requirement complete.

OMRSD [V75AP0.010-1R](#)

14-1549 **OTC CISL 132**

OI PCM to GSE control complete.

***** End of OI PCM to GSE Control *****

14-1550 **CISL CDR 132**

PANEL O6

MASTER TIMING UNIT SW - AUTO

OMS/RCS Configuration for Ascent Switchlist

14-1553 OTC COOS 132

Perform OMS/RCS Switch Configuration per OMI S0007.400,
(Operation 40) (15 minutes).

14-1554 COOS OTC 132

OMS/RCS Switch Configuration complete.

Hydraulic Configuration for Ascent Switchlist

14-1555 OTC CHYD 132
 CDR

T-11H00M
(HOLDING)

Perform Hydraulic System Configuration for Ascent Switchlist.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1556 CHYD CDR 171

PANEL L4

ROW O

AC1

BLR HYD BYPASS 1B

PH A CB - CLOSE

HYD QTY 1

PH B CB - CLOSE

BLR HYD BYPASS 3A

PH C CB - CLOSE

AC2

BLR HYD BYPASS 1A

PH A CB - CLOSE

HYD QTY 2

PH B CB - CLOSE

BLR HYD BYPASS 2B

PH C CB - CLOSE

AC3

BLR HYD BYPASS 2A

PH A CB - CLOSE

HYD QTY 3

PH B CB - CLOSE

BLR HYD BYPASS 3B

PH C CB - CLOSE

14-1557 CHYD PLT 171

PANEL R2

APU/HYD

HYD MAIN PUMP PRESS

1 SW - NORM

2 SW - NORM

3 SW - NORM

HYD CIRC PUMP

1 SW - GPC (GUARDED IF INSTALLED)

2 SW - GPC (GUARDED IF INSTALLED)

3 SW - GPC (GUARDED IF INSTALLED)

BOILER CNTLR HTR

1 SW - A

2 SW - A

3 SW - A

BOILER PWR

1 SW - OFF

2 SW - OFF

3 SW - OFF

BOILER N2 SUPPLY

1 SW - OFF

2 SW - OFF

3 SW - OFF

14-1558 CHYD PLT 171

PANEL R4

HYDRAULICS

BRAKE HEATER

A SW - OFF

B SW - OFF

C SW - OFF

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1559 CHYD ASP 171

PANEL A12
HYDRAULIC HEATER
RUDDER SPD BK
A SW - OFF
B SW - AUTO
BODY FLAP
A SW - AUTO
B SW - OFF
ELEVON
A SW - AUTO
B SW - OFF
AFT FUSELAGE
A SW - AUTO
B SW - OFF
HYD CIRC PUMP POWER
1 SW - MN A
2 SW - MN B
3 SW - MN C

14-1560 CHYD ASP 171

PANEL MA73C
ROW F
AC 1
OPS INST HYD ACTR
PH C CB - CLOSE
AC 2
OPS INST HYD ACTR
PH C CB - CLOSE

14-1561 CHYD OTC 132

Hydraulic System Configuration for Ascent Switchlist complete.

MECH Configuration for Ascent Switchlist

NOTE

Perform this option prior to MCA Configure.

14-1567
T-11H00M
(HOLDING)

OTC CDR 132

Perform MECH System Configuration for Ascent Switchlist.

14-1568

OTC CDR 132

PANEL O6
STAR TRACKER
DOOR CONTROL
 SYS 1 SW - OFF
 SYS 2 SW - OFF
POWER
 -Y SW - OFF
 -Z SW - OFF

14-1569

OTC CDR 132

PANEL C3
AIR DATA
 PROBE STOW
 LEFT SW - INHIBIT
 RIGHT SW - INHIBIT
AIR DATA PROBE
 LEFT SW - STOW
 RIGHT SW - STOW

06-16-2011
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OMI S0007.200 A23
APPROVED

14-1570 OTC CDR 132

PANEL R13L
PL BAY MECH PWR
SYS 1 SW - OFF
SYS 2 SW - OFF
PL BAY DOOR SW - STOP
PL BAY DOOR ENABLE/DISABLE
SYS 1 SW - DISABLE
SYS 2 SW - DISABLE

14-1571 OTC CDR 132

PANEL R2
ET UMB DOOR
MODE SW - GPC

***** End of MECH Configuration for Ascent Switchlist *****

MCA Configuration for Ascent Switchlist

14-1572 OTC MS1 132 SU72436

PANEL MA73C

ROW A

MCA LOGIC

MN A

FWD 1 SW - ON MA73CS001

MID 1 SW - ON MA73CS002

MN B

FWD 2 SW - ON MA73CS005

MID 1 SW - ON MA73CS006

MID 2 SW - ON MA73CS007

MN C

FWD 3 SW - ON MA73CS011

MID 2 SW - ON MA73CS012

ROW B

MCA LOGIC

MN A

AFT 1 SW - ON MA73CS004

MID 3 SW - ON MA73CS003

MN B

AFT 2 SW - ON MA73CS010

MID 3 SW - ON MA73CS008

MID 4 SW - ON MA73CS009

MN C

AFT 3 SW - ON MA73CS014

MID 4 SW - ON MA73CS013

ROW C

MCA POWER AC1 3 PH

FWD 1 CB - CLOSE MA73CC001

MID 1 CB - CLOSE MA73CC002

MCA POWER AC2 3 PH

FWD 2 CB - CLOSE MA73CC005

MID 1 CB - CLOSE MA73CC006

MID 2 CB - CLOSE MA73CC007

MCA POWER AC3 3 PH

FWD 3 CB - CLOSE MA73CC011

MID 2 CB - CLOSE MA73CC012

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

ROW D

MCA POWER AC1 3 PH	
AFT 1 CB - CLOSE	MA73CC004
MID 3 CB - CLOSE	MA73CC003
MCA POWER AC2 3 PH	
AFT 2 CB - CLOSE	MA73CC010
MID 3 CB - CLOSE	MA73CC008
MID 4 CB - CLOSE	MA73CC009
MCA POWER AC3 3 PH	
AFT 3 CB - CLOSE	MA73CC014
MID 4 CB - CLOSE	MA73CC013

NOTE

The next step must be completed prior to performing Ascent Switchlist.

14-1573 **OMTO** ***PAD** 132 [SU72438](#)
 ***PAD** **OTC**

OMI S0007.100, Operation 274 - Unlock Hatch Jettison "T" Handle Box complete.

Seat O₂ Samples (ECLSS)

14-1574 **OTC** **CECL** 132 [SU72564](#)
 CDR

Perform ECLSS O₂ Sample for Suited Crew Ingress per OMI S0007.400, (Operation 45 Option C) on OIS Channel 143 (30 minutes).

ECLSS O₂ Sample for Crew Ingress - Complete

14-1575 **CECL** **OTC** 132 [SU72564](#)

IF seat O₂ samples were taken,

THEN report ECLSS O₂ Sample for Crew Ingress complete (OMI S0007.400, Operation 45).

Not Performed: _____

Fuel Cell Cabin Preps

NOTE

Master alarms will occur in next step (advise CISL). Master alarms will be reset per OMI V1040.220.

14-1576 OTC CFCP 132 SU72462
 CISL

T-11H00M

Perform Remote Fuel Cell Activation Cabin Preps per OMI V1040.220 on OIS Channel 153.

Fuel Cell Activation Preps - Complete

14-1577 CFCP OTC 132 SU72462
 CECL
 OTC CISL

Remote Fuel Cell Activation Cabin Preps complete (OMI V1040.220).

Request CISL perform Caution & Warning Memory Read and Clear.

14-1578 CISL CDR 145 SU72467

PANEL R13U
CAUTION/WARNING
MEMORY SW - READ (HOLD)
REPORT MATRIX LIGHTS ON:

RECORD IN FIGURE 14-1, SECTION P-5

VERIFY FOLLOWING MATRIX LIGHTS ON:

062 072 082
092 102 112

OMRSR V45CG0.040-A
OMRSR V45CG0.040-B
OMRSR V45CG0.040-C

14-1579 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - CLEAR AND RELEASE
MEMORY SW - READ (HOLD)
REPORT MATRIX LIGHTS ON:

RECORD IN FIGURE 14-1, SECTION P-4

VERIFY FOLLOWING MATRIX LIGHTS ON:

062	072	082
092	102	112

OMRSR [V45CG0.040-A](#)
OMRSR [V45CG0.040-B](#)
OMRSR [V45CG0.040-C](#)

14-1580 CISL CDR 145

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

Ascent Switchlist

NOTE

All other scheduled operations in Crew Module are required to be completed prior to start of Ascent Switchlist. Any exceptions must be approved by NTD.

Ascent Switchlist (OMI S0007.400, Operation 76) is divided into two sections. First section contains Flight Deck Panels and Caution and Warning setups. Second section contains Middeck and AFT Flight Deck Panels, Airlock and Waste Management System.

From initiation of Ascent Switchlist until completion of Flight Crew Ingress Operations, ASP shall perform switch/circuit breaker actions in Crew Compartment.

14-1587
T-11H00M
(HOLDING)

OTC ALL 132

[SU72463](#)

All Orbiter Systems Engineers in Firing Room verify ready to support Ascent Switchlist.

Report any known changes in configuration.

CCSE	CFCP	COFC
CNSE	COOS	CGNC
CAFM	CAPU	CDPS
CPLE	CHYD	CODS
CMPS	CISL	CCME
CECL	CEPD	CTPE

NOTE

If no SLES on station, OTC shall notify PTC of any switch configuration changes.

14-1588 OTC PTC 132

Request SLES support for Ascent Flight Deck Switchlist.

14-1589 OTC ALL 132

Systems Engineers monitor:

1. OIS Channel 161 for Middeck/AFT Flight Deck/Airlock/WMS Switchlist
2. OIS Channel 131 for Flight Deck Caution & Warning Setups Switchlist
3. All Orbiter/OTC traffic other than Switchlist on OIS Channel 132

14-1590 OTC CDR 132
 PLT
 CMQC

Standby for Ascent Switchlist.

Middeck/AFT Flight Deck/Airlock/WMS will be on OIS Channel 161.
Flight Deck/Caution & Warning setups will be on OIS Channel 131.

Ascent Switchlist will be performed per OMI S0007.400 (Operation 76).

14-1591 OTC ALL 132

Perform Ascent Switchlist (OMI S0007.400, Operation 76). All Systems Engineers monitor switchlist callouts (2 hours).

14-1592 OTC CTPE 132

IF Middeck/WMS Switchlist will be delayed for an extended period to accommodate late Middeck stowage,

THEN **activate** "Any Change Switch Scan" monitor program (STP05).

Report complete.

Not Performed: _____

14-1593 OTC CTPE 132

IF "Any Change Switch Scan" was activated due to late Middeck stowage,

THEN prior to picking up switchlist, **terminate** "Any Change Switch Scan."

Not Performed: _____

Fuel Cell Flow Through/Pulse Purge

NOTE

Minimize time between initiation of Fuel Cell Reactant purge and Fuel Cell start.

14-1594	NTD	OTC	232	SU72446
		STM		
	OTC	CFCP	132	

T-11H00M
(HOLDING)

Perform Fuel Cell Flow Through/Pulse Purge per OMI [V1040.220](#) on OIS Channel 153 (1 hour 15 minutes).

14-1595 **STM** **JBPN** **111**

Monitor GO₂ and GH₂ systems for excessive system decay during Fuel Cell Flow Through/Pulse Purge through T-0.

Support: [CPNS](#)

***** End of Fuel Cell Flow Through/Pulse Purge *****

Vacuum Vent Line Inerting

14-1596 OTC CECL 132 [SU72449](#)

Initiate Vacuum Vent Line Duct GN₂ Inerting per OMI S0007.100, Operation 254 (1 hour). **Report** completion.

Ascent Switchlist - Complete

14-1597 OTC NTD 232 [SU72463](#)
T-11H00M
(HOLDING)

Orbiter Ascent Switchlist complete (OMI S0007.400, Operation 76).

NOTE

Perform the following step immediately after completion of Caution & Warning setups in the Ascent Switchlist.

14-1598 OTC CISL 132

Perform C & W GOAL Software Update For Ascent Switchlist per OMI [V9001.106](#) .

Enter S/W changes in Figure 14-2, (Section P-6) (15 minutes).

NOTE

Perform the following step after ascent switchlist is completed. AFT/FWD Manifold 5 Vernier Heater switches should have been in Auto from switchlist. Following step will verify Vernier thruster heater function, which could be mandatory for Flight based on the Mission unique MEL.

14-1599

COOS

CRT VWD84

Verify all six Manifold 5 Vernier thrusters show a minimum increase of 10 degrees higher than ambient temperature as referenced to the primary thruster injector temperatures.

14-1600

NTD	OTC	232
OTC	OOCS	132

IF FCS Late Stow not completed prior to Ascent Switchlist,

THEN continue with FCS Late Stow.

Not Performed: _____

NOTE

The purpose of the following step is to perform a check of the Vehicle switches using the ASCENT SWITCH SCAN software. This is for system engineer evaluation only and any deltas between the ASCENT Switch List and the ASCENT Switch Scan will be evaluated and understood.

14-1601

OTC	CTPE	132
------------	-------------	------------

[SU72555](#)

Perform Ascent Switch Scan per STP08.

14-1605 OTC CTPE 132

IF "Any Change Switch Scan" not previously activated,
THEN activate "Any Change Switch Scan" monitor program (STP05).
Report complete.

Not Performed: _____

NOTE The next step will be verified shortly after completion of Ascent Switchlist.
--

14-1606 CDR OTC 132 [SU72460](#)

OMI S0007.100, Operation 264 - Removal/Identification of Switchguards complete.

Fuel Cell Flow Through Purge - Complete; Continue with Pulse Purge

NOTE Do not perform this option if Fuel Cells are powered up (Scrub/Recycle) or until Ascent Switchlist (FD, AFD, MD portions) is reported complete.
--

Fuel Cell Flow Through Purge - Complete; Continue with Pulse Purge
Not Performed: _____

14-1607 CFCP OTC 132 [SU72540](#)
 OTC CECL 232 [SU72446](#)
 NTD

Fuel Cell Flow Through Purge complete. Continuing with Fuel Cell Pulse Purge (45 minutes).

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14-1608	CFCP	OTC	132
	OTC	ASP	
		CISL	

Master alarms will occur for Fuel Cell Reactant Valve Closure.

Request ASP Reset.

***** End of Fuel Cell Flow Through Purge - Complete; Continue with Pulse
Purge *****

OI Snapshot

NOTE

OI Snapshot should be performed after completion of Ascent Switchlist.

CTPE shall call Data Coordinator for pickup and delivery (OI Snapshots) to CISL for next step.

14-1609 **NTD** **JRPS** **232** [SU72545](#)
T-11H00M
(HOLDING)

Perform OI Snapshot (Route hardcopy to ESA and upload file to RPS web).

14-1610 **JRPS** **NTD** **232**
NTD **OTC**
OTC **CTPE** **132**

OI Snapshot complete.

APU BITE Test

14-1611 **OTC** **CAPU** **132** [SU72547](#)
T-11H00M
(HOLDING)

Perform APU BITE Test per OMI S0007.400 (Operation 42) (15 minutes).

14-1612 **CAPU** **OTC** **132**

APU BITE Test complete (OMI S0007.400, Operation 42).

Caution & Warning and LCC EMON Activation

14-1613 OTC CECL 132 [SU72552](#)
 CMPS
 COOS
 CTPE

T-11H00M
(HOLDING)

Activate Caution & Warning and LCC EMON for your system per OMI S0007.400, Operation 39 Caution & Warning and LCC EMON Activation. TPE support RSYS Xfer with COOS on Channel 157.

Report completion and Not Performed steps (15 minutes).

CECL _____

CMPS _____

COOS _____

Equipment Configured (JFIR) - Complete

14-1614 JFIR JSTC 114
 JSTC STM 111
 STM NTD 232
 NTD OTC
 *SCC

T-11H00M
(HOLDING)

Fire extinguishers removed from FSS, RSS and MLP zero level. Two fire extinguishers placed in each elevator.

Support: [FI](#)

14-1615 JFIR JSTC 114 [SU72361](#)
 JSTC STM 111

T-11H00M
(HOLDING)

MLP zero level fire alarm pull stations and alarm speaker removed.
MLP zero level pull station cover secured.

Support: [FA](#)

2 Hours 30 Minutes to End of Hold

14-1616
T-11H00M
(HOLDING)

STM JBPN 111

Remove barricades from around GO₂ Supply Panel and storage bottles
(1 hour).

Support: [PNSA](#)

14-1617

STM JBPN 111

In HP Gas Storage Battery:

Close door to Pneumatics Terminal Distribution Box (7829A1) and
secure with rope.

Report completion.

Support: [PNSA](#)

14-1618

JBPN STM 111

Barricades removed from around GO₂ storage bottles and panel.

Support: [CPNS](#)

2 Hours 20 Minutes to End of T-11 Hour Hold

CCF-39 GN₂ Production Plant LPGN₂ Notification

NOTE
LN₂ pumps required in 4 hours for High Flow Rate and Air to GN₂ Changeover (OMI V1122).

14-1619 **STM** **JSTC** **111** [SU72493](#)
 JSTC **GSPN** **114**

T-11H00M
(HOLDING)

CCF-39 GN₂ production plant 4 hour notification.

Support: [PNU](#)

Terminate Voice Checks

14-1620 **STM** **GYCC** **111**
 GYCC **GYCR** **PTP**

T-11H00M
(HOLDING)

Do not perform voice checks for remainder of Launch Countdown.

Support: [VCE](#)

NOTE
If MLP OTV cameras are adjusted after final checks, JYVO shall notify STM/JBPN on OIS Channel 111 and status camera number(s) and location(s).

14-1621 **STM** **JBPN** **111** [SU72487](#)

Verify MLP and Pad OTV camera flexhoses securely attached per Job Plan M3197.006 - Operational Check of OTV Camera Flexhoses.

Support: [PNSA](#)

Safety Notification for Helium Venting

NOTE

Do not perform this option if RSS is rolled back (Park position) and LH₂ TSM closed out for flight.

Safety Notification for Helium Venting Not Performed: _____

14-1625	CMPS	OTC	132	SU72522
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Loud helium venting will occur from MPS LH₂ RTLS dump port.

Request Safety notify personnel working in LH₂ TSM/T-0 carrier plate loud venting will occur momentarily.

Request Safety verify no personnel in line of LH₂ RTLS dump port exit, located near 50-1 door, and notify all personnel in vicinity of dump port that loud venting will occur.

Request Safety remain on station until venting is complete.

14-1626	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
	OTC	CMPS	132

Personnel have been notified and no longer in vicinity of LH₂ RTLS dump port. You have Safety concurrence to proceed.

WARNING

Helium is an asphyxiant and displaces oxygen when venting from vent lines.
Exposure may cause dizziness, unconsciousness and may result in death.

Do not inhale helium originating from a low pressure/low volume GHe purge.

WCS005.b 03-11-03

14-1627	CMPS	OTC	132
	OTC	NTD	232
	NTD		PA

Attention on Pad A:

Helium will be vented through RTLS dump port in area of 50-1 door.

14-1628	CMPS	OTC	132
	OTC	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Helium venting from LH₂ RTLS dump port near Orbiter 50-1 door complete. Safety may be released at this time.

***** End of Safety Notification for Helium Venting *****

14-1629	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

ET LH₂ tank will be vented to LH₂ flare stacks.

Open LH₂ 17 in. Disconnect

14-1630	CMPS	OTC	132
	OTC	NTD	232
	NTD	TBC	

Request no TCS PGM active (other than MPS) during LH₂ 17-in. Disconnect Valve Cycle to Open and Latch to Lock.

14-1631	NTD	OTC	232
	OTC	CMPS	132

Proceed with LH₂ 17-in. Disconnect Valve and Latch Cycling per OMI [G3251](#) .

14-1632	CMPS	OTC	132
	OTC	NTD	232
	NTD	TBC	

LH₂ 17-in. disconnect is open and latch is in locked position per OMI G3251. TCS PGM activity may resume.

OMRSR [S00FA0.810-B](#)

14-1633	CLHY	TBC	136	SU72457
	TBC	NTD	232	

OMI G3251, Operation - Depressurization and Repressurization of ET LH₂ Tank and MPS Feed and Recirc Disconnect Valve Opening, complete.

***** End of MPS LH₂ Feed and Recirc Disconnect Configure for Load *****

HGDS 2000 and HUMS Activation

NOTE
One of three systems is required to support MPS Helium Tank Pressurization.

14-1640 CHGD OTC 132

Performing RT OMI [V3540](#) “HGDSA, HGDSB and HUMS Activations” per Operation - ET Load Preps.

Operation No. _____ Run No. _____

RT OMI Log No. _____

14-1641 CHGD OTC 132

“HGDSA, HGDSB and HUMS Activations” per RT OMI [V3540](#),
Operation - ET Load Preps are complete.

RLDS 6145, 6407 and 6660 Activation and Confidence Checks

14-1642 CHGD TBC 136 SU72470
 CLHY
 CFCP

Performing RLDS 6145, 6407 and 6660 Activation and Confidence Checks per RT OMI V3540 Operation - ET Load Preps.

Ignore RLDS 6145, 6407 and 6660 leak detector indications until completion.

Operation No. _____ Run No. _____

RT OMI Log No. _____

Start Time _____ GMT

NOTE

The following step must be performed before CHGD proceeds with RT OMI V3540 Operation - ET Load Preps for the RLDS 6145 Activation and/or Confidence checks.

14-1643 CHGD PETG 177

FSS 195-ft Level - 6145 Cabinet

1. GN₂ purge valve A152873 - Open (CCW)
2. **Verify** audible purge.

T: _____

14-1644 CHGD TBC 136 SU72470
 CLHY
 CFCP

RLDS 6145, 6407 and 6660 Activation and Confidence Checks complete.
No anomalies noted.

Stop Time _____ GMT

HAZ Warning Monitor Transfer

14-1645 CHGD CLHY 166

LH₂ leak and fire detectors ready to support ET LH₂ Loading operations.

14-1646 CLHY CLH2 166

CURSOR CNTL (GAH51 LEAK AND FIRE DISPLAY)

GAW02 INIT - ON (INITIATES GAW02)

14-1647 CLHY TBC 136
 CHGD
 CFCP

HAZ Warning Monitor Transfer complete.

ET GOX Vent Hood Purge Preps

NOTE

Next step will be performed 1 hour 40 minutes prior to coming out of T-11 Hour Hold.

14-1648 NTD STM 232 SU72503
 STM JSTC 111
 JSTC GSPN 114

T-11H00M
(HOLDING)

Perform Doc: M3703 (LI) Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor preps to support OMI G2158, ET GOX Vent Hood GN₂ Purge. (2 Hours)

Support: JSTC
Support: PNU

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14-1649	GSPN	JSTC	114	SU72503
	JSTC	STM	111	
	STM	NTD	232	
	NTD	TBC		
	TBC	CMEC	136	

T-11H00M
(HOLDING)

OMI M3703 preps to support OMI G2158, ET GOX Vent Hood GN₂
Purge complete.

Support: PNU

PTCR Water System Closeout

14-1650	STM	JBFX	111
---------	-----	------	-----

T-11H00M
(HOLDING)

IF system has not remained configured from previous run of OMI S0007,

THEN perform PTCR Room 210 Water Closeout per [Doc: JOB PLAN M3190.220 \(LI\) PTCR Water System Closeout](#) (1 hour).

Support: WSSA

Not Performed: _____

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Hydraulic Walkdown - Complete

14-1651 *PAD OTC 132 SU72407
T-11H00M
(HOLDING)

OMI S0007.100, Operation 275 - Hydraulic Pre-Launch Walkdown complete.

PTCR Water Closeout - Complete

14-1652 JBFX STM 111 SU72497
T-11H00M
(HOLDING)

IF system has not remained configured from previous run of OMI S0007,
THEN report Water System PTCR Closeout complete.

Support: CWSS

Not Performed: _____

Activate Slidewire Bunker TLV Detectors

14-1653 NTD *SCC 232
 *SCC *PSE NET 105

T-11H00M
(HOLDING)

Locate portable O₂ concentration meter MMH TLV detector S70-0547, and N₂O₄ TLV detector, S70-0548, with battery charger cables in slidewire bunker.

Plug in battery chargers, turn on equipment, and zero meters.

14-1654 *PSE *SCC NET 105
 *SCC NTD

O₂ meter, MMH TLV detector and N₂O₄ TLV detector located and battery chargers have been turned on. Meters have been zeroed.

14-1655 OTC *PAD 132
 *PAD OMTO

Perform Crew Module Emergency Lighting Removal per JC [V66-90002](#) - Emergency Alarms and Lighting, Crew Compartment, Removal.

14-1656 OMTO *PAD 132
 *PAD OTC

Crew Module Emergency Lighting Removal complete.

ET LO₂ Venting and Opening of PD1 (MPS LO₂ 17-in. Disconnect)

14-1657 TBC CLOX 136 [SU72454](#)

Perform the following per OMI [G3151](#) (or OMI [G3155](#) if performing Scrub Turnaround).

1. ET Preparations for Loading.
2. **Open** MPS LO₂ 17-in. Feed Disconnect Valve (PD1).

14-1658 CLOX TBC 136
T-11H00M
(HOLDING)

Verify wind speed forecast for 60-ft level at Pad weather tower will not exceed 60 knots for next hour.

14-1659 CLOX TBC 136
 TBC OTC 132

Request CMPL switch to OIS Channel 156 to support OMI G3151 or OMI G3155 ET Preps for Loading.

Report to CLOX.

14-1660 CMPL OTC 132
 OTC NTD 232
 NTD TBC

Request no TCS PGM active (other than MPS) during LO₂ 17-in. Disconnect Valve and Latch Cycling.

Notify personnel in AFT that LO₂ 17-in. disconnect valve and latch cycling will be audible.

14-1661	NTD	OTC	232
	OTC	CMPL	132

Only MPS TCS programs will be active at this time.

Proceed with LO₂ 17-in. Disconnect Valve and Latch Cycling per OMI [G3151](#) .

Safety Clear for GOX Vent Arm

NOTE
Perform this option if GOX Vent Arm not retracted.

Safety Clear for GOX Vent Arm Not Performed: _____

14-1662	CLOX	TBC	136	SU72520
	TBC	CMEC		

ET LO₂ tank will be vented momentarily.

Verify GOX Vent Arm clear of personnel.

14-1663	CMEC	TBC	136
	TBC	CLOX	

GOX Vent Arm clear of personnel. OK to vent ET LO₂ tank.

14-1664	TBC	NTD	232
	NTD	*SCC	

ET LO₂ tank will be vented momentarily. GOX Vent Arm clear of personnel.

***** End of Safety Clear for GOX Vent Arm *****

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14-1668 TBC NTD 232
 NTD *SCC

ET LOX Tank Venting Operations are complete. GOX Vent Arm is open for controlled work.

***** End of GOX Vent Arm Clear Removal *****

<p style="text-align: center;">NOTE Hazardous GN₂ Venting operations complete.</p>
--

ET LO₂ Tank Pressurization

NOTE

This option may be repeated as required to support ET LO₂ tank pressurization maintenance.

ET LO₂ Tank Pressurization Not Performed: _____

14-1669	CLOX	TBC	136
	TBC	NTD	232
	NTD	OTC	
	OTC	*ACM	132

IF the AFT fuselage is occupied,

THEN perform the following:

ET LO₂ tank will be pressurized momentarily.

Notify personnel in AFT fuselage that audible GHe flow will be heard in LO₂ prepress lines.

Not Performed: _____

14-1670	*ACM	OTC	132
	OTC	NTD	232
	NTD	TBC	
	TBC	CLOX	136

IF the previous step was performed,

THEN verify personnel in AFT fuselage have been notified that audible GHe flow will be heard in LO₂ prepress lines. You have concurrence to proceed.

Not Performed: _____

NOTE The next step may be repeated for ET LO ₂ tank pressure maintenance.
--

14-1671 **CLOX TBC 136**
 TBC NTD 232
 NTD PA

Attention on Pad A:

ET LO₂ tank will be pressurized. Audible GHe flow will be heard in LO₂ prepress lines.

Run 1		Run 2	
Run 3		Run 4	
Run 5		Run 6	
Run 7		Run 8	
Run 9		Run 10	

***** End of ET LO₂ Tank Pressurization *****

14-1672 **CLOX TBC 136** [SU72342](#)

ET Preparations for Loading and all operations of LO₂ Preps complete per OMI G3151 (or OMI G3155 if performing Scrub Turnaround) except Storage Tank Pressurization and Suction Line Chilldown.

Firing Room 2 Configuration - Complete

14-1673 **LPS** **NTD** **232**
T-11H00M
(HOLDING)

OMI S0007.100, Operation 154 - FR2 Launch Support Configuration -
LPS T-11H Built-in Hold to T+1 Hour 30 Minutes complete.

14-1674 **LPS** **NTD** **232**

IF not previously performed for Payload support,

THEN report OMI S0007.100, Operation 155 - FR2 Payload Support
Configuration complete.

Not Performed: _____

14-1675 **LPS** **JSDC** **127**

Verify PCGOAL to Firing Room 2 restricted to OMI S0007 data only.

14-1676 **JYCD** **GYCC** **117**
GYCC **STM** **111**

Speakers No. 8-17 and 8-18 on East stairwell at Pad surface have been
removed. Cables have been stored in box provided.

Support: [OISD](#)

T: _____

00 Hours 30 Minutes to End of Hold

Life Support Equipment - Complete

14-1677 *SCB JSTC NET 104 SU72511
 JSTC STM 111

The following is complete:

Support: LS

1. Loose life support equipment removed from RSS and MLP.
2. Remaining breathing air lines from 130-ft level (50-1/2), zero level MLP, and 107-ft, 120-ft, and 207-ft levels of RSS have been removed.
3. Breathing air panel removed from RSS.
4. Breathing air panel at Slidewire Bunker connected to K-bottle manifold and pressurized to minimum 2200 psig.

14-1678 JSTC GSPN 114
 *SCB NET 104
 STM 111

IF slidewire bunker breathing air manifold has less than 2200 psi,

THEN:

1. **Replace** with 2400 psi 20 K-bottle breathing air manifold filled to maximum pressure.
2. **Connect** breathing air panel to manifold.
Set to 80 psig (80 to 100) and perform a 5 minute purge.

Support: PNU

Support: LS

Not Performed: _____

Start Issue of Prep and Hazardous Badges

NOTE

The next step will be scheduled per the S0007 Bar Chart so that the Badge Board is set up prior to shift change.

14-1679	NTD	OTC	232	SU72475
	OTC	*PAD	132	
	*PAD	*ACM	NET 110	

Set up Badge Board at Pad A gate for final close outs.

14-1680	*ACM	*PAD	NET 110
	*PAD	OTC	132
	OTC	NTD	232
		*SCC	

Badge Board set up at Pad A gate.

14-1681 T-11H00M (HOLDING)	NTD	*ACM	NET 110
----------------------------------	-----	------	---------

Start issuing hazardous badges at Pad gate for the following tasks:

1. LH₂ Final Preps
2. LO₂ Final Preps
3. Crew Module and Whiteroom Closeout
4. Final Operations/Safety Walkdown
5. PTCR/ECS Room Pressurization
6. Remove Sound Suppression Valve Locks
7. GVA Final Activation

Seal SRB Tunnel Drain Holes - Complete

14-1684 BHT1 *PAD SU72474
 *PAD TBC 136

T-11H00M
(HOLDING)

Sealing of SRB Drain Holes per OMI S0007.100, Operation 450 complete.

14-1685 TBC NTD 232 SU72426
 NTD STM

Remove lifelines installed for SRB HPU Exhaust Duct Plugs Removal, SRB ESP Lowering, and Sealing of SRB Drain Holes.

Report completion.

Support: [HESD](#)

RSS Move Operations

<p>NOTE Refer to OMI S0007 Bar Chart for actual timeline of activities.</p>
--

RSS Preps for Move to Park Position

<p>NOTE This option will be performed 5 hours prior to RSS rotation.</p>

14-1686 STM NTD 232
 NTD CMQC
 *SCC
 OTC
 TBC

Verify personnel available and ready to support OMI A2203.002.

14-1690 OTC OAFM 132

Perform the following:

1. **Verify** cumulative average relative humidity during OPF flow and within Payload Bay interstitial area during time RSS has been positioned with PCR dock seals inflated does not exceed 45 percent average.

OMRS (general) [V30GEN.020](#)

2. **Reference** OMI S0007.200 Figure 13-5.
Review OPF, VAB, and PCR days to verify Payload Bay Door moisture content less than 61 percent saturation.

SPOC Airframe/Structures Engineer _____

OMRSD [V30C00.010](#)

14-1695 OTC CMQC 132 SU72464

Verify OMI S0007.100, Operation 251, Part A and B, complete prior to RSS Rotation.

Qv: _____

OIS Unit Removal Status

14-1696	JYCD	GYCC	117
	GYCC	STM	111
	STM	JBPN	
		NTD	232

T-11H00M
(HOLDING)

All listed OIS units have been removed from Pad surface and disconnected cables secured with blast tape and stored in pull boxes. All disconnected OIS box purge lines have been removed or secured by GSS.

Pad A surface,

STA 116-0A LO₂ Tower 75-ft Level northwest Corner of Stairwell
117-73 LH₂ Tower 75-ft Level northwest Corner of Stairwell
116-73 Pneumatic Tower Top Level
116-45 East Pad Slope at Pedestal LH₂ Lines
118-72 East Side
119-69 Industrial Water Platform

Support: OISD
Support: PNSA

IMCS: _____

GSS: _____

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14-1697 STM GBHE NET 104

Install lifelines required to support MLP Handrail Removal from around SRB Flame Holes (Spider 50).

Support: [HESD](#)

14-1698 WCRG JSTC 201 [SU72358](#)
JSTC STM 111

Two Lodals removed from Pad surface and two Lodals removed from PTCR area to west end of parking lot adjacent to PTCR area.

Support: [RGR](#)

RSS Pre-Rotation Walkdown

NOTE
Perform the next three steps 2 hours prior to RSS Rotation.

14-1699 NTD OTC 232

Verify OAA in full extended position for RSS Rotation.

14-1700 NTD PA

Attention on Pad A:

All personnel supporting RSS Engineering Pre-Rotation Walkdown report to GSS Site Coordinator at base of FSS in _____ minutes.

14-1701 STM NTD 232 SU72491
PSTM NET 104
QBSE
NTD OTC 232
TBC
***SCC**

Have walkdown personnel report to GSS Site Coordinator at base of FSS for Engineering Pre-Rotation Walkdown in _____ minutes.

NOTE
Perform the next five steps 1 hour prior to RSS Move First Motion.

14-1702 NTD OTC 232
STM PA

T-11H00M
(HOLDING)

Attention on Pad A:

All RSS Observers supporting RSS Move report in on OIS Channel 116 in 30 minutes for RSS Pre-Move Briefing and Observer COMM Check.

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14-1703	STM	NTD	232	SU72448
		JBFX		SU72485
		JBPN		
		QBSE	NET 104	
	NTD	OTC	232	

Have all RSS Rotation Observers report on station on OIS Channel 116 in 30 minutes for COMM Check and Briefing per OMI A2203.002.

Support: [STSA](#)
Support: [WSSA](#)
Support: [PNSA](#)

14-1704	OTC	*PAD	132	SU72447
	*PAD	TILE		
		TECH		

Verify Tile Repair Technicians and Engineer on site with appropriate repair materials for Tile Repair during RSS move.

RSS Move Weather Briefing

CAUTION

Weather conditions must be considered before moving RSS as SSV will be exposed to environment after rotation.

14-1705 **NTD** **STM** **232**
T-11H00M
(HOLDING)

Request current weather and forecast for RSS Move.

14-1706 **STM** ***WEA** **231**
 STM **NTD** **232**
 NTD ***SCC**
 OTC
 TBC

Time of forecast: _____

Probability of precipitation: _____

Probability of lightning within 5 NM: _____

Probability of steady-state 60-ft Pad winds

greater than 40 knots: _____

60-ft Pad wind forecast:

Direction _____; Speed _____; Peak _____

Temperature _____

Constraints:

1. Steady-state wind greater than 40 knots
2. Lightning within 5 NM
3. Forecast lightning within 5 NM > 20%

RSS Preps for Move to Park Position - Complete

14-1707	OMTO	*PAD	132	SU72B47
	PMTG			
	*PAD	OTC		
		TBC	136	
	OTC	NTD	232	
	STM			

RSS Preps for Move complete.

14-1708	QBSE	STM	116	SU72484
	JSTC			
	JBEP			
	JBPN		111	
	STM	NTD	232	

RSS Preps for Move to Park Position complete.

Support: [STSA](#)
Support: [JSTC](#)
Support: [PNSA](#)
Support: [PWR](#)

14-1709	NTD	OPE	232
		CTPE	

Verify RSS rollback OMRS constraints letter has been received at Integration Console and that there are no constraints to RSS Move to Park position.

Log letter with CMQC for documentation purposes.

14-1710	NTD	STM	232
---------	-----	-----	-----

Perform Call to Stations for RSS Move to Park Position per OMI [A2203.002](#) .

14-1711	OTC	CCSE	132
---------	-----	------	-----

RSS Move is commencing. Momentary signal loss may occur.

RSS Move Clear

NOTE

SPOC Safety signs will be removed only (by SPOC Safety) if GN₂ is not flowing and air purge is ON. Removal is to gain access for the RSS move.

Safety signs must be installed on RSS if rotation to Park Position occurs during GN₂ flow to the Orbiter.

14-1712 NTD OTC 232 [SU72445](#)
 TBC [SU72524](#)
 PTC
 STM

T-11H00M
(HOLDING)

Verify ready to proceed with RSS Move to Park position.

14-1713 STM NTD 232
 NTD *SCC

Ready to proceed with RSS Rotation.

14-1714 STM QBSE 116
 T-11H00M
(HOLDING)

Clear nonessential personnel from area under and around RSS and RSS move path for RSS Rotate to Park position.
Post barriers and danger signs.

Support: [STSA](#)

Essential Personnel		
	SPOC	NASA
Supervisor/Engineer	8	4
Technician	67	
Quality	2	1
Safety	3	1
Photo		4

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14-1719 **STM** **JYVR** **138**
T-11H00M
(HOLDING)

Start video recording of OTV Cameras 001 and 043
(see STM Figure 13-1, (pages 1 thru 3).

Support: [OTV](#)

14-1720 **STM** **NTD** **232**
 PSTM **NET 104**
NTD **OTC** **232**
 TBC

Request all testing in vicinity of RSS be deferred during critical rotation
around Launch Vehicle (especially testing that produces loud noises).

WARNING

TSMs are armed. Contact with the TSM drop weight lanyards may cause pyrotechnic devices to possibly detonate.

Personnel may suffer bodily injury or death.

Wear **short tether** to **safety harness** to prevent contact with the TSM dropweight lanyards.

Use extreme care and remain clear.

WPYR025 09-14-2005

WARNING

RSS may pinch or crush personnel in its path during rotation movement.

Personnel may suffer serious bodily injury and/or loss of limbs or life

Remain clear of crush and pinch points while the RSS is in motion.

WCLH055 08-21-2009

NOTE

RSS Rotation to Park will be interrupted for cleaning top of TSMs, removing inertial reels, and TPS inspection. Cleaning and TPS observers will command QBSE to stop and start rotation on Channel 116 as RSS clears TSMs.

NOTE

Hazardous steps follow due to movement of RSS.

14-1721	NTD	STM	232	SU72489
	STM	QBSE	116	SU72452
				SU72453
				SU72486

T-11H00M
(HOLDING)

You have Safety concurrence to rotate RSS to Park Position per OMI [A2203.002](#) (1 hour).

Support: [STSA](#)

RSS Move to Park - Complete

14-1722	QBSE	STM	116	SU72492
	STM	NTD	232	SU72452
	NTD	OTC		
		*SCC		
		TBC		

T-11H00M
(HOLDING)

RSS is in Park Position, locking devices are being installed, and reconfiguring for normal access is in progress (OMI A2203.002).

Support: [STSA](#)

14-1723	QBSE	STM	116
---------	------	-----	-----

RSS is configured for normal work.

Support: [STSA](#)

1. Safety handrails and chains are in place.
2. RSS and associated operational area inspected. Equipment and area have been secured.
3. Barriers and danger signs removed.
4. Locks and grounds installed.
5. Walkways and platforms configured to normal per OMI M3094.

14-1724	STM	NTD	232
	NTD	OTC	
	OTC	*PAD	132
	*PAD	BHT1	
		PMTG	

Perform Post Operation Instruction 1 - RSS Move to Park Position per OMI [A2203.002](#)

WARNING

Pressurized system venting may occur.

Exposure to a sudden release of pressure may result in bodily injury.

Wear **safety glasses**, **face shields** and **work gloves** when working with or near high-pressure systems.

WHP069 02-17-04

Close RSS GHe Isolation Valves

14-1725	STM	JBPN	111
---------	-----	------	-----

Close Crossover No. 5 FSS 175-ft level GHe Isolation Valves.
Report completion.

Support: [PNSA](#)

1. A103127 (3000 psi)
2. A103128 (6000 psi)
3. A103129 (750 psi)

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14-1726	QBSE	STM	116	SU72524
	STM	NTD	232	
	NTD	*SCC		

Post Operation inspection complete.

Request Safety concurrence to open RSS rotation control areas for controlled work.

Support: [STSA](#)

14-1727	*SCC	NTD	232
	NTD	STM	
	STM	QBSE	116

You have Safety concurrence to open RSS control area for controlled work.

Support: [STSA](#)

NOTE

The following step is to be worked after RSS Rotation and must be complete 2 hours prior to ET LOAD Safety/Facility/Fire walkdown as shown on the Bar Chart.

14-1728 OTC *PAD 132
***PAD ALL**

Remove FOD Control Cones at the following locations.
Return cones to respective shop storage areas.

Report completion.

- South Pad surface adjacent to elevator T: _____
- 75-ft level FSS adjacent to elevator T: _____
- 95-ft level FSS adjacent to elevator T: _____
- 115-ft level FSS adjacent to elevator T: _____
- 135-ft level FSS adjacent to elevator T: _____
- 155-ft level FSS adjacent to elevator T: _____
- 175-ft level FSS adjacent to elevator T: _____
- 195-ft level FSS adjacent to elevator T: _____
- 215-ft level FSS adjacent to elevator T: _____
- 255-ft level FSS adjacent to elevator T: _____
- 207-ft level RSS near crossover entrance T: _____
- 135-ft level RSS near crossover entrance T: _____
- 107-ft level RSS near crossover entrance T: _____

GOX Vent Arm Partial Retraction

NOTE

Perform this option if GOX Vent Arm adjustment is required.

GOX Vent Arm Partial Retraction Not Performed: _____

14-1732	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Ready to partially retract GOX Vent Arm.

14-1733	CMEC	PME4	186
---------	------	------	-----

FSS 255-ft level

1. **Verify** no loose equipment on GOX Vent Arm/Hood.
2. **Verify** all personnel cleared from GOX Vent Arm/Hood.
3. **Verify** GOX Vent Arm safety gate raised and latched with extend lock pin stowed to gate with quick-release pin.
4. **Verify** no obstructions in GOX Vent Arm swing path.
5. **Install** "DANGER - Hazardous Control Area" sign at entrance to GOX Vent Arm.

14-1734	CMEC	TBC	136
	TBC	NTD	232
	NTD		PA

Request following PA announcement:

Attention on Pad A:
GOX Vent Arm will be partially retracted momentarily. All personnel clear GOX Vent Arm.

14-1735	PME4	CMEC	186
	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

GOX Vent Arm clear of all personnel and loose equipment. Safety gate raised and latched. Danger sign posted.

Request Safety concurrence to partially retract GOX Vent Arm.

14-1736	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to partially retract GOX Vent Arm.

14-1737	TBC	CMEC	136
---------	-----	------	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

Personnel may be pinched or crushed during Arm Extend/Retract operations.

Personnel may suffer injuries ranging from lacerations and broken bones to loss of limbs or life

Remain clear of Arm path of rotation.

WCLH014 04-25-03

NOTE

Hazardous steps follow due to GOX Vent Arm retraction.

14-1738	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

Ready to fully extend GOX Vent Arm. Clear areas are still in effect.

14-1739	CMEC	TBC	136
	TBC	NTD	232
	NTD		PA

Request following PA announcement:

Attention on Pad A:
GOX Vent Arm will be extended momentarily. All personnel clear GOX Vent Arm.

14-1740	PME4	CMEC	186
	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

GOX Vent Arm clear of all personnel and loose equipment. Safety gate raised and latched. Danger sign posted.

Request Safety concurrence to extend GOX Vent Arm.

14-1741	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to extend GOX Vent Arm.

14-1742	TBC	CMEC	136
---------	-----	------	-----

Brief personnel on hazards that will be present and applicable Emergency Instructions (OMI G2158).

Verify personnel are certified, equipped and ready to proceed.

TTL: _____

<p style="text-align: center;">WARNING</p> <p>Personnel may be pinched or crushed during Arm Extend/Retract operations.</p> <p>Personnel may suffer injuries ranging from lacerations and broken bones to loss of limbs or life</p> <p>Remain clear of Arm path of rotation.</p> <p style="text-align: right;">WCLH014 04-25-03</p>

<p style="text-align: center;">NOTE</p> <p style="text-align: center;">Hazardous steps follow due to GOX Vent Arm extension.</p>

14-1743	TBC	CMEC	136
---------	-----	------	-----

Extend GOX Vent Arm per OMI [G2158](#) .

14-1744	CMEC	TBC	136
		*PAD	
	TBC	NTD	232
	NTD	*SCC	

GOX Vent Arm extend complete.

Request Safety concurrence to open GOX Vent Arm areas for controlled work and to remove Danger signs.

14-1745	*SCC	NTD	232
	NTD	TBC	
	TBC	CMEC	136

You have Safety concurrence to open GOX Vent Arm for controlled work and to remove Danger signs.

NOTE Hazardous GOX Vent Arm extension steps complete.

***** End of GOX Vent Arm Partial Retraction *****

ET Camera RF Open Loop Functional Test

NOTE Perform this option after RSS move to Park Position.

14-1746	CPWR	TBC	136	SU72428
	TBC	NTD	232	
	NTD	STM		
	STM	ENDO	111	

Verify RF open loop frequency clearance for S-band for duration of ET Observation Camera Signal Verification. All frequencies are in MHz.

S-Band FM
2272.5

Record Number _____

14-1747	CPWR	TBC	136
	TBC	NTD	232
	NTD	*MIL	

Verify MILA is ready to support Shuttle Observation Camera Signal Verification and is properly configured.

14-1748	CPWR	TBC	136
	TBC	STM	
	STM	JYVO	138
		JYVR	

Verify OTV configured to support ET Camera Functional Test.

Record OTV CH _____

Support: [OTV](#)

14-1749	TBC	CPWR	136
---------	-----	------	-----

Perform S0007.400, Operation 82 - ET Camera Functional Test on CH 176.

14-1750	CPWR	TBC	136	SU72428
	TBC	NTD	232	

S0007.400, Operation 82 - ET Camera Functional Test complete.

*** End of ET Camera RF Open Loop Functional Test ***

14-1751	STM	NTD	232
	NTD	OTC	
	OTC	*PAD	132
	*PAD	PMTG	

Install hypergolic hinge column flexhose containment tie-downs.
Report completion.

T: _____

14-1752 STM QBSE NET 104

Perform RSS closing operation for Launch per OMI [M3134](#) .
Report completion.

- RSS Traction Drive
- RSS Platforms
- RSS Handrails, Ladders, Safety Chains
- RSS Walkway Flipdowns and Cable Tray Covers
- Signs

Support: [STSA](#)

14-1753 STM QBSE NET 104

Verify that all 7 slidewire emergency egress baskets are active.

Support: [STSA](#)

14-1754 STM QBSE NET 104

Verify that all 7 deceleration nets are installed and in place in the
Slidewire Landing Area.

Support: [STSA](#)

14-1758 STM JBEP 111

Verify the following equipment is properly secured with all the bolts/door hooks tightened down:

- Panel L14N (FSS 255' LVL)
- Panel L11AN (FSS 235' LVL)
- Panel L14B (FSS 195' LVL)
- Panel L14AN (FSS 175' LVL)
- Panel L7N (FSS 135' LVL)
- Panel L5N (FSS 135' LVL)
- Panel OTV (FSS 115' LVL)
- Panel PJ (West Pad Surface)
- Panel LPA (West Pad Surface)
- Panel PG (Cooling Tower Power Pedestal)
- Panel PG-1 (Cooling Tower Power Pedestal)
- Panel FL2 (High Pressure Gas Battery)
- Panel PB (High Pressure Gas Battery)
- Panel LB (High Pressure Gas Battery)
- Panel L6O (Next to USS-926)
- Panel PM (Flame Deflector Pedestal)
- Panel LPD (Flame Deflector Pedestal)

Support: [PWRB](#)

14-1759 STM JBPN 111

IF pneumatic purge flexhose installed,

THEN Remove pneumatic purge flexhoses from temporary lights on the FRCS Room Roof.

Support: [PNSA](#)

Not Performed: _____

T: _____

06-16-2011
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14-1760 STM JBPN 111

IF pneumatic flexhoses are connected to temporary equipment on the zero level,

THEN remove pneumatic purge flexhoses from temporary equipment on MLP zero level.

Support: [PNSA](#)

Not Performed: _____

T: _____

Air Compressor Closeout

14-1761 STM JBPN 111 [SU72587](#)

Perform Air Compressor Closeout per [Doc: JOB PLAN M3022.004 \(LI\) Pad Compressor Closeout](#) (1 hr).

Support: [PNSA](#)

14-1762 STM VEEE NET 104

Secure power to RSS Elevator per [Doc: JOB PLAN Q3018.2 \(LI\) Configure Active Pad Elevators for Launch Report](#) completion.

Support: [CDPD](#)

14-1768 OTC *PAD 132
 *PAD *ACM NET 110

Verify ACM on MLP zero level to coordinate MLP zero level access with Safety.

14-1769 NTD *SCC 232
 *SCC *PSE NET 105

Install danger sign at FSS 95-ft/ MLP zero level crossover and brief ACM of hazard.

14-1770 NTD OTC 232
 TBC PA
 STM

Attention on Pad A:

All protective barriers are being removed from Flame Holes of MLP. Caution should be exercised and all personnel must stand at least 6 ft clear of Flame Holes and unprotected edges, or have fall protection.

14-1771 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 TBC
 STM

Danger sign installed at FSS 95-ft/MLP zero level crossover and ACM has been briefed. Safety concurrence required for all personnel going onto MLP zero level.

14-1772 STM GBHE NET 104

Provide truck and mobile crane for removal of MLP handrails

Support: [HESA](#)

14-1773 STM QBSE NET 104

Remove the following MLP removable handrails per OMI [M3083](#) .

- Zero Deck Perimeter Handrails
- SRB/Orbiter Engine Well Perimeter Handrails
- Temporary Handrail Posts and Chains

Support: [STSA](#)

Qw: _____

14-1774 STM QBSE NET 104

Perform FOD inspection and cleanup following removal of following MLP removable handrails.

- Zero Deck Perimeter Handrails
- SRB/Orbiter Engine Well Perimeter Handrails
- Temporary Handrail Posts and Chains

Support: [STSA](#)

Qw: _____ N: _____

14-1775 QBSE STM NET 104

Removal of MLP Zero Deck removable handrails, FOD inspection and cleanup complete. Ready for Heavy Equipment to lift handrails from MLP Zero deck.

***** End of MLP Handrail Removal *****

MLP Handrail Lowering Mobile Crane Operation

NOTE

Perform this option if zero level handrails are to be lowered to the Pad surface using a mobile crane.

MLP Handrail Lowering Mobile Crane Operation Not Performed: _____

14-1776 **GBHE STM NET 104**
STM NTD 232
NTD *SCC

Ready to proceed with MLP handrail lifting operation.

Support: [HESA](#)

14-1777 **STM GBHE NET 104**

Perform the following:

1. **Establish** a 25-ft control area around crane path of travel for MLP handrail removal lifting operations.
2. **Install** barriers and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

14-1778 STM PA

Attention on Pad A

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around _____ for crane path of travel for MLP handrail removal lifting operations.

14-1779 **GBHE STM NET 104**
STM NTD 232
NTD *SCC

25-ft control area has been established and barriers and danger signs posted.

Request Safety concurrence to proceed with MLP handrail lifting operations.

14-1780 ***SCC NTD 232**
NTD STM
STM GBHE NET 104

You have Safety concurrence to proceed with MLP handrail lifting operations.

Support: [HESA](#)

14-1781 **STM GBHE NET 104**

Brief personnel on the hazards and applicable Emergency Operations.

Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

WARNING

Heavy objects or equipment could fall and impact personnel.
Personnel may suffer serious bodily injury and/or loss of limbs or life.

Wear **safety shoes/boots** where a potential for injury exists.

WCLH024 06-22-2005

NOTE

Hazardous steps follow due to lifting operations.

14-1782	NTD	STM	232	SU72513
	STM	GBHE	NET 104	SU72514

Perform the following:

Support: [HESA](#)

1. Lower handrails from MLP to flatbed on Pad surface.
2. Utilize tag lines if required.

T: _____

NOTE

Hazardous operations complete.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

14-1783 GBHE STM NET 104
 STM NTD 232
 NTD *SCC

Hazardous lifting operations complete.

Request Safety concurrence to open MLP handrail control area for controlled work. Remove barriers and danger signs.

Support: [HESA](#)

14-1784 *SCC NTD 232 [SU72513](#)
 NTD STM
 STM GBHE NET 104

You have Safety concurrence to open MLP handrail control area for controlled work.

Support: [HESA](#)

***** End of MLP Handrail Lowering Mobile Crane Operation *****

Handrail Transport to Pad Surface (Contingency)

NOTE

Perform this option if handrails could not be removed from MLP using mobile crane due to weather and hydraulic elevator #2 will be used to hand carry handrails to Pad surface.

Handrail Transport to Pad Surface (Contingency) Not Performed: _____

14-1785	STM	NTD	232
		QBSE	NET 104
	NTD	*SCC	232
	*SCC	*PSE	NET 105

Unable to remove handrails from MLP using mobile crane. **Carry** handrails to Pad surface using hydraulic elevator and place on flatbed trailer.

Support: [STSA](#)

14-1786	QBSE	STM	NET 104
---------	------	-----	---------

Handrails removed from MLP zero level and placed on flatbed on Pad surface.

Support: [STSA](#)

***** End of Handrail Transport to Pad Surface (Contingency) *****

WARNING

Personnel may fall from unprotected heights if fall protection is not used.
Personnel may suffer bodily injury or death.

Wear a **safety harness** with a **lanyard** when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed **life line** .

WM006 07-08-2005

14-1787 STM QBSE NET 104 SU72478

SRB Flame Hole Haunch Inspection

1. **Verify** personnel working at unprotected heights are wearing safety harnesses with lanyards secured to approved tie-off point.

2. **Perform** inspection of SRB Flame Hole Haunch Area for debris and remove any loose items.

Route any/all retrieved items to Quality Inspection for entry into the FOD/Processing Debris Database.

Support: [STSA](#)

T: _____ Qw: _____ N: _____

14-1788 STM GBHE NET 104 SU72B91

Remove 2 fall protection/fall restraint lifelines that were installed for removal and reinstallation of Side 1 MLP zero level handrails for RSS rotation.

Support: [HESD](#)

14-1793 STM JBEP 111 SU72498

Notify Special Power Technicians (1-0702) to configure Pad Whiteroom/Crew Cabin ODMS for Launch per [Doc: JOB PLAN S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA Support](#) .

Report completion.

Support: [PWRA](#)
Support: [PWR](#)

14-1794 STM NTD 232
 NTD OTC
 *SCC

Special Power Technicians to configure Pad Whiteroom/Crew Cabin ODMS for Launch.

14-1795 STM JBEP 111

IF MLP LO₂ and LH₂ TSM ODMS units were reactivated for Scrub Turnaround,

THEN Special Power Technicians configure MLP_____ LH₂ and LO₂ TSM ODMS for Launch per [Doc: JOB PLAN S0007.200/PWRA \(LI\) ODMS Configuration for Launch and V LA Support](#) .

Report completion.

Support: [PWRA](#)
Support: [PWR](#)

Not Performed: _____

Holding Tank Configuration for Launch

14-1796 STM QBSE NET 104 [SU72507](#)

Obtain holding tank depth measurements (OMI M3175).

Report data.

East Tank Depth _____ in. BD

Available Capacity _____ gal

Date _____ Time _____

West Tank Depth _____ in. BD

Available Capacity _____ gal

Date _____ Time _____

Support: [STSA](#)

GOX Vent Hood/ET Align - Complete

14-1797	CMEC	TBC	136	SU72466
	TBC	NTD	232	

GOX Vent Hood/ET Alignment complete.

NOTE

Perform the next step after GOX Vent Hood/ET Alignment complete.
--

GOX Vent System Final Activation

14-1798	NTD	TBC	232	SU72571
	TBC	CMEC		

T-11H00M

Perform GOX Vent System Final Activation for LO₂ Loading per OMI [G2158](#) .

GVA Hood GN₂ Flow

14-1799	CMEC	TBC	136
	TBC	*PAD	136
		NTD	232
	NTD	*SCC	
		STM	
	STM	JSTC	111
	JSTC	GSPN	114

Ready to proceed with GN₂ Flow to GOX Vent Hood per OMI G2158.

Support: [PNU](#)

14-1800 CMEC PME4 186

Clear all nonessential personnel from GVA for GN₂ Flow to Hood.

Essential Personnel		
	SPOC	LSS
Technician	2	
Swing Arm Engineer	1	1
Safety	1	

14-1801 CMEC TBC 136
TBC NTD 232
NTD PA

Request the following PA Announcement:

Attention on Pad A:

GOX Vent Arm heated purge will be activated momentarily.
Nonessential personnel clear GOX Vent Arm.

14-1802 PME4 CMEC 186
CMEC TBC 136
TBC *PAD
NTD 232
NTD *SCC
STM

[SU72607](#)

All nonessential personnel cleared from GVA for GN₂ Flow to Hood.
Danger signs posted.
Request Safety concurrence to begin GN₂ flow.

14-1803 *SCC NTD 232
NTD TBC
TBC CMEC 136

You have Safety concurrence to proceed with GN₂ flow to GOX Vent Hood.

14-1804 TBC CMEC 136

Brief personnel on hazards that will be present and applicable operations of Emergency Instructions (OMI G2158).
Verify personnel are certified, equipped and ready to proceed.

TTL: _____

WARNING

GN2 (Gaseous Nitrogen) is an asphyxiant and displaces oxygen if inhaled.

Exposure may cause headache, drowsiness, or unconsciousness and in extreme cases, death.

Do not open hood access doors/windows or enter hood access platform during GN2 flow.

WCS016 09-14-2005

NOTE

Hazardous steps follow due to GN₂ flow to Hood.

14-1805 TBC CMEC 136

Proceed with GN₂ Flow to GOX Vent Hood per OMI [G2158](#)

14-1806 STM QBSE NET 104

Verify North Perimeter Road culvert valve(s) Open.

Support: [STSA](#)

Top Off Water Bags

14-1807
T-11H00M
(HOLDING)

STM QBSE NET 104

SU72510

Perform Water Bag Inspection per OMI [M3083](#) :

1. **Inspect** water bags on MLP.
2. **IF** the fill level of one or more bags is below required fill level,
THEN perform Leak Inspection to determine location and extent of leakage.

Not Performed: _____
SS2

3. **Replace** any water bag that appears to have a significant leak.
4. **Top off** all water bags.

OMRSD [S00FA0.870](#)

Support: [STSA](#)

Qw: _____

Remove OIS Units - MLP, FSS and RSS Pivot

NOTE
Perform next two steps upon completion of TSM Closeout, RSS Retract Operations, and SRB Drain Line/Plug Removals.

NOTE
IMCS/GSS Technicians meet at base of FSS elevator.

14-1812	NTD	STM	232	SU72502
	STM	GYCC	111	
		JBPN		
	GYCC	JYCD	117	

T-11H00M
(HOLDING)

Perform the following:

1. IMCS:
Remove all portable OIS units from MLP zero level.

Install caps on gooseneck cable connectors and tighten wrench-tight with pipe wrench (30 minutes).

GSS:
remove purge flexhoses on MLP.

GSS: _____
SS1
2. **Tighten** caps on all 16 gooseneck connectors on MLP zero level, wrench-tight with pipe wrench.

3. IMCS:
Remove the following OIS stations from Launch Pad in use and secure cables with blast tape and store in pull boxes.

GSS:
Secure flexhoses on FSS and RSS pivot upon removal of OIS boxes.

Pad A:

STA 116-4A FSS 95-ft level
117-0E FSS 95-ft level
118-60 FSS 115-ft level
117-03 FSS 115-ft level (access via 95-ft level)
116-29 FSS 135-ft level
118-48 FSS 135-ft level
117-4F RSS Pivot (Pad A surface)

GSS: _____
SS3

4. IMCS:
Remove the following OIS units from Launch Pad in use and ensure disconnected cables are secured to structure with blast tape.

GSS:
Secure the disconnected purge lines firmly in place with blast tape (30 minutes).

RSS 130-ft level

Pad A

STA 119-2A
119-64

GSS: _____
SS4

5. IMCS:
Voice check and adjust volume levels on the following headset extender jack box for the Launch Pad in use:

Pad A

STA 117-27-2 FSS 95-ft level
(fed from STA 117-27 FSS 135-ft level)

Support: [OISD](#)

6. IMCS:
Verify on the Master Tech Console that the headset is connected on the Active Pad:

Pad A

STA 117-27-2 FSS 95-ft level
(fed from STA 117-27 FSS 135-ft level)

Support: [OISD](#)
Support: [PNSA](#)

OIS Unit Removal Status

14-1813	JYCD	GYCC	117	SU72502
	GYCC	STM	111	
	JBPN	STM		
	STM	NTD	232	

OIS units/stations have been removed at Launch Pad in use from following locations:

1. All units on MLP zero level have been removed and caps installed on gooseneck cable connectors and tightened wrench-tight with pipe wrench.

IMCS: _____
SS1

2. All 16 caps on gooseneck connectors on MLP zero level have been tightened wrench-tight with pipe wrench.

IMCS: _____
SS2

3. GSS has disconnected and removed purge flexhose from portable OIS locations on MLP and RSS pivot and secured to structure with blast tape on FSS OIS locations.

Pad A

STA 116-4A FSS 95-ft level
117-0E FSS 95-ft level
118-60 FSS 115-ft level
117-03 FSS 115-ft level
116-29 FSS 135-ft level
118-48 FSS 135-ft level
117-4F RSS Pivot (Pad A surface)

IMCS: _____
SS3

GSS: _____
SS3

4. IMCS:
STA cables have been secured with blast tape or placed in pull boxes.

GSS:
Purge lines secured with Blast Tape.

Pad A
STA 119-2A
119-64

IMCS: _____
SS4

GSS: _____
SS4

5. Headset extender jack box has been voice checked and volume adjusted to audible level.
Verify headset is connected to station on active Pad.

Pad A
STA 117-27-2

Date Verified _____

IMCS: _____
SS5

Support: OISD
Support: PNSA

Final TPS Debris Walkdown

14-1816	NTD	OTC	232
		STM	
		*SCC	
	OTC	*PAD	132
	STM	PSTM	NET 104
	*SCC	*PSE	NET 105

T-11H00M
(HOLDING)

Perform OMI S0007.100, Operation 552 - Final TPS Debris Walkdown.

Report on station at Pad A in 30 minutes.

14-1817	NTD	STM	232
	STM	JBWC	111

T-11H00M
(HOLDING)

IF Debris Walkdown is scheduled during Sound Suppression Tank Fill,

THEN verify Sound Suppression locks installed, GN₂ pressure to close actuators and CCS SS LOCKOUT On.

Support: [CWSS](#)

Not Performed: _____

14-1818	NTD	*SCC	232
	*SCC	*PSE	NET 105

IF Debris Walkdown is scheduled during Sound Suppression Tank Fill,

THEN report Sound Suppression locks are installed. TPS walkdown personnel may enter Flame Trench.

Not Performed: _____

14-1819	*SCC	NTD	232	SU72459
	NTD	OTC		
	OTC	*PAD	132	

You have concurrence to proceed with Debris Walkdown.

Perform OMI S0007.100, Operation 552 - Final TPS Debris Walkdown (2 hours).

RSS Air Hoists Securing

14-1820	STM	PCMP	111	SU72494
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Perform the following:

1. **Tag out** 1-ton air hoists on RSS 130-ft level.

Secure hoists with clamps and lanyard.

Install protective cover on hoists.

T: _____
SS1

2. **Tag out** 1/2-ton and 1-ton air hoists on RSS 107-ft level.

Install protective cover on air manifolds.

Date _____

T: _____
SS2

Support: [CDPA](#)

Emergency Camera Control

14-1826 STM GYCC 111 SU72599
 GYCC JPHO 117

T-11H00M

Place emergency camera control system mode selector in Mode II position and verify.

Support: [PHOT](#)

Verify MLP/Pad Cameras Ready

14-1827 STM GYCC 111 SU72416
 GYCC JPHO 117

Verify MLP and Pad cameras installed and Photo Optical Control System (POCS) ready to support.

Support: [PHOT](#)

Securing/Purge - Camera Enclosures

14-1828 STM JTCR 111

Verify MLP and Pad camera enclosures secured and purged.

Support: [TCD](#)

ET Load Safety/Facility/Fire Walkdown

NOTE
MLP signs shall not be removed until Safety verifies total Pad clear.

NOTE
If possible, ET Load Walkdown should be performed during daylight hours following RSS to Park. Bar Chart shall reflect scheduled time.

14-1829	NTD	OTC	232	SU72456	
		TBC		SU72506	
		STM			
		*SCC			
		NPM			
		*SCC	*PSE	NET 105	
		OTC	*PAD	132	
		STM	JSTC	111	
		JSTC	JFIR	114	

Perform OMI S0007.100, Operation 554 - ET Load Safety/Facility/Fire Walkdown (2 hours).

Have walkdown participants meet with Pad Leader at _____ (record location) in 30 minutes.

PARTICIPANTS:

- Pad Management Rep
- GSS Facility Site Coordinator
- SPOC Safety
- Launch Operations Quality Control (QC)
- Fire Inspector
- Site Test Conductor
- NASA Safety (optional)
- NASA Pad Manager (NPM)

Support: [FI](#)

14-1830 NTD PA

Attention on Pad A.

All personnel supporting ET Load Safety/Facility/Fire Walkdown meet with Pad Leader at _____ (record location) in 30 minutes.

Safety/Facility/Fire Walkdown Personnel			
	NASA	SPOC	NPSC
*PAD		1	
Safety	1	1	
Quality		1	
GSE Ops		1	
PSTM		1	
Fire Inspector			1

14-1831 NTD *SCC 232 SU72455
 *SCC *PSE NET 105 SU72506

Perform OMI S0007.100 Operation 553 - Emergency Egress Route Walkdown.

Document any discrepancies on OMI S0007.400, Operation 899 - Walkdown Discrepancy List and notify *PAD (1 hour).

Inflate Dock Seals

14-1832 OTC PPVM 132 SU72461

Inflate dock seals for Launch per OMI [V1122.003](#) .

Report completion.

***** End of RSS Move Operations *****

RSS Side 4 Door Securing

NOTE

Perform this option if RSS Side 4 PCR emergency egress doors require securing.

RSS Side 4 Door Securing Not Performed: _____

14-1833 NTD *SCC 232
 *SCC *PSE NET 105

T-11H00M
(HOLDING)

Request concurrence to close and bolt RSS Side 4 PCR emergency egress doors.

14-1834 *SCC NTD 232

Verify no hazardous tasks being performed in PCR and personnel access is being controlled.

14-1835 *PSE *SCC NET 105
 *SCC NTD 232

Safety **verify** concurrence to close and bolt RSS Side 4 PCR emergency egress doors.

14-1836 NTD STM 232 [SU72488](#)
 STM QBSE NET 104

Perform RSS door closing operation for Launch (includes RSS Side 4 PCR emergency egress doors) per OMI [M3134](#)

Support: [STSA](#)

14-1837 NTD OTC 232

All RSS Side 4 PCR emergency egress doors will be bolted closed.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

RSS Side 4 PCR Doors Locked

14-1838 QBSE STM NET 104 SU72488
 STM NTD 232

RSS Side 4 PCR emergency egress doors closed and bolted.

Support: [STSA](#)

***** End of RSS Side 4 Door Securing *****

Rope/Sign/Temporary Handrail Removal

NOTE
Perform this option if temporary handrails installed.

Rope/Sign/Temporary Handrail Removal Not Performed: _____

14-1839	STM	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

Verify concurrence to remove ropes and signs from around Flame Trench. Safety will ensure all personnel working within 6 ft of Flame Trench are wearing safety harness with lanyard secured to permanent structure.

14-1840	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	

You have Safety concurrence to proceed with rope and sign removal.

14-1841	NTD	PA
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Attention on Pad A:

All protective barriers are being removed from around Flame Trench. Caution should be exercised and all personnel must stand at least 6 ft clear of Flame Trench unprotected edges.

14-1842 STM QBSE NET 104

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [STSA](#)

TTL: _____

WARNING
Personnel may fall from unprotected heights if fall protection is not used. Personnel may suffer bodily injury or death.
Wear a safety harness with a lanyard when working at heights 4 feet or greater and within 6 feet of an unprotected edge.
Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed life line .
WM006 07-08-2005

14-1843 QBSE STM NET 104

Personnel working at unprotected heights are wearing safety harness with lanyard properly secured.

Support: [STSA](#)

14-1844 STM QBSE NET 104 [SU72500](#)

Perform FSS and Flame Trench Launch Closeout per OMI [M3134](#)

- Structure and Equipment Securing
- Side Flame Deflectors
- Flame Trench Closeout

Support: [STSA](#)

Essential Personnel	
	GSS
Supervisor/Engineer	2
Technician	5

*** End of Rope/Sign/Temporary Handrail Removal ***

NOTE

Perform the following two steps if Flame Trench Instrumentation measurements are active.

14-1845 **NTD** **STM** **232** [SU72B49](#)
 STM **JCFM** **111**

Open K-bottle to Arm Purge System in the _____ (East / West) Catacombs.

Open Water Supply Valve in the _____ (East / West) Catacombs.

Support: [GIFM](#)

Not Performed: _____

NOTE

K-Bottle Valve Configuration complete. Safety escort required for further entry to Catacombs.

14-1846 **JCFM** **STM** **111** [SU72B49](#)
 STM **NTD** **232** [SU72B50](#)
 NTD ***SCC** **232**
 ***SCC** ***PSE** **NET 105**

Request Safety post signs at the _____ (East / West) Catacombs.
Report completion.

Support: [GIFM](#)

Not Performed: _____

East and West Flame Cell Closeout/Pressurization

NOTE
Do not perform this option if flame cells remain pressurized.

East and West Flame Cell Closeout/Pressurization Not Performed: _____

14-1847 **JBAC** **STM** [SU72521](#)

Personnel on site for Flame Cell Closeout and Pressurization.

Request Safety clear nonessential personnel at this time and meet HVAC personnel at entrance to west side of tunnel at Pad A.

Support: [HVAA](#)

14-1848 **STM** **NTD** **232**
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

Request SPOC Safety clear nonessential personnel from east and west catacombs, east-west pipe tunnel and north-south cable tunnel for Closeout/Pressurization of east and west Flame Cells.

Install Safety barriers and danger signs.

Request Safety concurrence to proceed.

Essential Personnel			
	GSS	SPOC	NASA
Technician	2		
Engineer	1		
Safety		1	1

14-1849 *PSE *SCC NET 105
 *SCC NTD 232
 NTD STM

All nonessential personnel clear of east and west catacombs, east-west pipe tunnel and north-south cable tunnel. Barriers and danger signs have been installed. You have Safety concurrence to proceed with Flame Cell Closeout and Pressurization.

14-1850 TTL

Brief personnel on hazards that will be present and applicable Emergency Instructions.

Verify personnel are certified, equipped and ready to proceed.

Support: [HVAA](#)

TTL: _____

WARNING

Pressurized system venting may occur.

Exposure to a sudden release of pressure may result in bodily injury.

Wear **safety glasses** , **face shields** and **work gloves** when working with or near high-pressure systems.

WHP069 02-17-04

NOTE

The following step is hazardous due to closeout/pressurization of east and west Flame Cell.

Closeout Flame Cells/Pipe Tunnel

14-1851 STM JBAC 111

Perform Closeout/Pressurization of East and West Flame Cell per
Doc: [JOB PLAN M3034.01 \(LI\) East/West Flame Cell Pressurization](#) .

Support: [HVAA](#)

East and West Flame Cells Closeout - Complete

14-1852 JBAC STM 111 [SU72521](#)
 STM NTD 232

East and west Flame Cells Closeout/Pressurization complete.

Support: [HVAA](#)

***** End of East and West Flame Cell Closeout/Pressurization *****

NOTE

Hazardous steps for Flame Cell Closeout and Pressurization complete.

Explosion-Proof Phones Secured

14-1853 GYAT GYCC 117 SU72495
 GYCC STM 111

T-11H00M
(HOLDING)

Explosion-proof telephones on FSS and RSS have been secured.

Support: [ATEL](#)

T: _____

14-1854 QBSE STM NET 104 SU72510
 STM NTD 232

Water bags inspected and top off complete.

Support: [STSA](#)

14-1855 STM JBFX 111 SU72505

Remove MLP Side 2 and Side 4 deck mounted Firex hose reels per
[Doc: JOB PLAN M3190.250 \(LI\) MLP Hosereel and Orbiter Skin Spray
Nozzle Closeout](#)

Support: [WSSA](#)

14-1856 STM JBFX 111

Remove Orbiter skin spray nozzle protection per [Doc: JOB PLAN
M3190.250 \(LI\) MLP Hosereel and Orbiter Skin Spray Nozzle Closeout](#)

Support: [WSSA](#)

TPS Debris Walkdown - Complete

14-1859 *PAD OTC 132 [SU72459](#)
 OTC NTD 232

OMI S0007.100, Operation 552 - Final TPS Debris Walkdown, complete.

14-1860 *PSE *SCC NET 105 [SU72455](#)
 *SCC NTD 232

OMI S0007.100, Operation 553 - Emergency Egress Route Walkdown, complete.

14-1861 JBFX STM 111 [SU72505](#)

Orbiter skin spray nozzle portection and MLP Side 2 and Side 4 deck mounted hose reels have been removed.

Support: [CWSS](#)

Open Sound Suppression Locking Valves

14-1862 NTD OTC 232
 TBC
 STM
 *SCC

Opening of Sound Suppression locking valves will occur momentarily. With the exception of planned walkdowns, verify MLP zero level access is no longer required.

LH₂ Storage Tank Vent Valve - Open and Flare Stack Preparations

NOTE

Perform next two steps a minimum of 4 hours prior to planned start of LH₂ Loading.

14-1866	NTD	TBC	232	SU72572
	TBC	CLHY	136	SU72518

T-11H00M
(HOLDING)

Perform OMI [G3251](#) , Operation - LH₂ Flare Stack Preparations and A3306 (Storage Tank Vent) Valve Opening (30 minutes).

14-1867	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	PA
	STM	JBPN	111

Attention on Pad A:

LH₂ venting to flare stack will occur momentarily.

14-1868	CLHY	TBC	136
	TBC	NTD	232

T-11H00M
(HOLDING)

OMI [G3251](#), Operation - LH₂ Flare Stack Preparations and A3306 (Storage Tank Vent) Valve Opening, complete.

***** End of LH₂ Storage Tank Vent Valve - Open and LH₂ Flare Stack Preparations *****

Vent Door Reconfiguration

NOTE

Perform this option if vent doors are in adverse weather purge configuration.

Vent Door Reconfiguration Not Performed: _____

14-1869 OTC CPVD 132 SU72559

Position vent doors to Normal Purge Configuration.

14-1870 CPVD

CURSOR CNTL (VAM31A/VAM09A)

COMMAND VENT DOORS TO NORMAL PURGE CONFIGURATION.

14-1871 CPVD OTC 132

Orbiter vent doors in Normal Purge Configuration.

***** End of Vent Door Reconfiguration *****

MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disc Cavity Purge Activation

14-1872 NTD TBC 232 SU72800
 TBC CLHY 136

Perform OMI [G3251](#) , Operation - MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disc Cavity Purge Activation (2 hours 30 minutes).

14-1873	CLHY	TBC	136
	TBC	OTC	132
	OTC	CMPS	
		CHGD	

Request CHGD and CMPS support on Channel 166 for AFT GHe Background Check during MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disc Cavity Purge Activation.

14-1874	CLHY	TBC	136
	TBC	OTC	132
	OTC	CPVD	

Perform the following in support of GHe Background Check during MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disc Cavity Purge Activation.

1. **Record** AFT purge (PC3) flow set point and tolerance
_____ lbs/min BD
2. **PPVM**
Adjust AFT purge flow rate to 105-110 lbs/min per OMI [V1122.004](#)
3. **Record** AFT purge flow rate:
_____ lbs/min BD
4. **Record** Payload Bay Purge (PC2) flow rate:
_____ lbs/min BD
5. **CPVD**

Verify Orbiter Aft Vent doors 8 and 9 left and 8 and 9 right are in Purge Position.

Pre-Load Delta Pressure Transducer Evaluation

NOTE

Perform this option if required to evaluate pre-load plate gap pressure transducers or per MPS Engineering direction.

Pre-Load Delta Pressure Transducer Evaluation Not Performed: _____

14-1875 CMPS OTC 132 [SU72B01](#)

Verify the following:

1. No rain at Pad.
2. RSS is retracted.
3. OMI S0007 Ascent Switchlist complete.

14-1876 OTC CMPS 132

Go to Channel 168 with CPVD and perform the pre-load evaluation of the plate gap pressure transducers in OMI G3251.

14-1877 CMPS OTC 132

Pre-Load ET/Orbiter Plate Gap Delta Pressure Transducer is complete.

***** End of Pre-load Delta Pressure Transducer Evaluation *****

***** End of Operation 14 *****

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OPERATION 15 Shuttle Countdown Control Sequence (T-11 Hours through T-6 Hours)

Shop: NTD / OTC
Cntrl Rm Console: ALL
OPR: NTD/OTC
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 5.0

NOTE

This operation may commence prior to Operation 14 completion at NTD/OTC direction.

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

GLMS Middeck Disconnect

NOTE

Next two steps must be performed in order.

These steps provide GLMS removal for entry into S0007.200 beyond the T-11H hold.

Perform only if GLMS was installed for Scrub Turnaround.

15-5	NTD	OTC	232
	STM	JCFM	111

Perform GLMS Software Deactivation for the Crew Module per C72-1512-____-____-____.
Report completion.

Time_____ Date_____

Not Performed:_____

15-6	JCFM	STM	111
	STM	NTD	232
	NTD	OTC	232
	OTC	CEPD	132
		OETO	

Perform Lightning Monitoring Deactivation and Removal per C72-1512-____-____-____ Lightning Monitoring Pad Flow - FWD.
Report completion.

Not Performed:_____

OPF Hyper Exhaust Fan Verification

15-7	NTD	CTC	232
		STM	
	STM	JBAC	111

Verify OPF 1, 2, and 3 hyper exhaust fans will not be activated remotely except for an emergency beginning with T-11 hours (counting) and continuing through T-0 of OMI S0007.

Support: [HVAA](#)

ET Load Safety/Facility/Fire Walkdown (Part B)

15-8	NTD	*SCC	232	SU72570
		TBC		SU72585
		STM		
		NPM		
	TBC	*PAD	136	
	STM	JSTC	111	
	JSTC	JFIR	114	
	*SCC	*PSE	NET 105	

Perform OMI S0007.100, Operation 554 - ET Load Safety/Facility/Fire Walkdown (Part B, MLP zero level).

Support: [FI](#)

15-9	STM	PSTM
	PSTM	LCSI

Verify LCSI Representative on Standby at MLP zero level with vacuum to support OMI S0007.100, Operation 554 Walkdown (Part B).

Configure Elevators

15-10
T-11H00M

STM VEEE NET 104

SU72598

Configure FSS elevators per Doc: [JOB PLAN Q3018.2 \(LI\) Configure Active Pad Elevators for Launch](#) .

Support: CDPD

Essential Personnel	
	GSS
Supervisor/Engineer	1
Technician	3
FAC QC	1

NOTE

Next step must be performed at Launch Pad to meet OMRS File VI requirements.

15-11

STM VEEE NET 104

Perform the following:

Operational check on FSS elevators 1 and 2 in Rescue Mode from the Pad surface to the 195-ft level and back to the Pad surface.

Support: CDPD

FSS 1
OMRSR [GRVFEVRA1.005-1S](#)

T: _____ Qw: _____

FSS 2
OMRSR [GRVFEVRA2.005-1S](#)

T: _____ Qw: _____

15-12

STM VEEE NET 104

Unlock escape hatch in FSS elevators 1 and 2.

Support: CDPD

T: _____ Qw: _____

Hydrogen Fire Detector Test Verification

15-13	CHGD	OTC	132	SU72468
		CGSS		
		CMPL		
	OTC	NTD	232	
	NTD	TBC		
	TBC	CLHY	136	
		CLOX		

T-11H00M

Performing Hydrogen Fire Detector Test Verification. Fire detectors will be activated momentarily; EMONs will occur on fire detector function designators.

Start Time _____ GMT

NOTE

Perform the next step for each Hydrogen Fire Detector System:

HW14 = PADFD (LH₂ HFDS)

HW15 = MLPFD (LH₂ HFDS)

HW16 = EEFDS (EGR HFDS)

15-14

CHGD

CURSOR CNTL (SAW01/HW14/HW15/HW16)
GROUP SELF TEST
XMIT CURSOR KEY - PRESS

CRT

VERIFY "ALRM", "CONF", AND "SELF"

INDICATION ON FOR EACH FIRE DETECTOR PRIMARY AND SECONDARY.

CURSOR CNTL
GROUP COMMAND OFF
XMIT CURSOR KEY - PRESS

CRT

VERIFY "ALRM" AND "SELF" INDICATION OFF FOR EACH FIRE DETECTOR PRIMARY AND SECONDARY.

REPORT ANY ANOMALIES.

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15-15	CHGD	OTC	132
		CGSS	
		CMPL	
	OTC	NTD	232
	NTD	TBC	
	TBC	CLHY	136
		CLOX	

Hydrogen Fire Detector Test Verification complete.

Stop Time _____ GMT

EEFDS Confidence Indication EMON Activation

15-16 CHGD

CURSOR CNTL (SAW01/HWW10)
EMON
XMIT CURSOR KEY - PRESS AT LEAST TWICE TO
 SYNCHRONIZE PSEUDO

CRT
VERIFY "EMON" INVERTED GREEN

15-17	GYVW	GYCC	PTP
	GYCC	STM	111
	STM	NTD	232
	NTD	OTC	
	OTC	CHGD	132

HGDS ATM is fully operational.

Support: [WB](#)

**LH₂ Storage Tank Vent Valve - Open and LH₂ Flare Stack Preps
(Scrub Turnaround)**

NOTE
Perform this option if supporting a Scrub Turnaround.

**LH₂ Storage Tank Vent Valve - Open and LH₂ Flare Stack Preps
(Scrub Turnaround) Not Performed: _____**

NOTE
Perform next step a minimum of 4 hours prior to planned start of LH₂ loading.

15-18	NTD	TBC	232
	TBC	CLHY	136

Perform OMI [G3255](#) Operation - A3306 (Storage Tank Vent) Valve Opening.

15-19	CLHY	TBC	136
	TBC	NTD	232
	NTD		PA

Attention on Pad A:

LH₂ venting to flare stacks will occur momentarily.

15-20	CLHY	TBC	136
	TBC	NTD	232

T-10H30M

OMI G3255 Operation - A3306 (Storage Tank Vent) Valve Opening complete.

***** End of LH₂ Storage Tank Vent Valve - Open and LH₂ Flare Stack Preps (Scrub Turnaround) *****

400 Hz Power Activation

NOTE

In Rack 6800 Operations, CB nomenclature is listed for reference only.
Nomenclature is not visible when indicator lights Off.

15-27
T-10H30M

CEPD QPDS 151

ALL MLPs:

C72-0818 (400 HZ GROUND POWER)

RACK 6800 (COMPT 21A)

4 CB'S - ON (CLOSED)
(1T110, 1T111, 1T112, 1T113 POWER)

4 CB'S - ON (CLOSED)
(1T210, 1T211, 1T212, 1T213 POWER)

T:_____

NOTE

The following two steps will reference the different Launchers and their circuit breakers.

15-28
T-10H30M

CEPD QPDS 151

IF FOR MLP-2,

THEN

PANEL P11A (COMPT 21A FAC AC)
1T100 CB16 - ON (CLOSED)

PANEL K (COMPT 15A FAC AC)
1T200 CB10 - ON (CLOSED)

Not Performed:_____

T:_____

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OMI S0007.200 A23
APPROVED

15-29 CEPD QPDS 151
T-10H30M

IF FOR MLP-3 ,

THEN

PANEL P11A (COMPT 21A FAC AC)
1T100 CB21 - ON (CLOSED)

PANEL K (COMPT 16A FAC AC)
1T200 CB10 - ON (CLOSED)

Not Performed: _____

T: _____

NOTE

The following two steps will reference the different Launchers and their circuit breakers.

15-30 CEPD QPDS 151

IF FOR MLP-2 ,

THEN

(COMPT 9A, DISCONNECT LOCATED ON WALL)
1T100 FED FROM Panel P11A C16 - ON (CLOSED)
1T200 FED FROM Panel K C10 - ON (CLOSED)

Not Performed: _____

T: _____

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15-31 CEPD QPDS 151

IF FOR MLP-3,

THEN

COMPT 9A (On the wall behind the 1D500/600
battery racks)

1T100 (6824)

Disconnect Switch DS 3 - **ON (CLOSED)**

1T200 (6825)

Disconnect Switch DS 3A - **ON (CLOSED)**

Not Performed:_____

T:_____

15-32

CEPD

CURSOR CNTL (VWC01)
1T100 ON/OFF
XMIT CURSOR KEY - PRESS

CRT (VWC01)
VERIFY
1T100 ON/OFF IND ON
1T100 VOLTS PH A 111 to 118 VAC
1T100 VOLTS PH B 111 to 118 VAC
1T100 VOLTS PH C 111 to 118 VAC

15-33

CMPS

CONSOLE KYBD
SET_GASK0154E_ON
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

15-34

CEPD

CRT (VWC01)
1T100 BUS IND ON

15-35

CEPD

CURSOR CNTL (VWC01)
1T200 ON/OFF
XMIT CURSOR KEY - PRESS

CRT (VWC01)
VERIFY
1T200 ON/OFF IND ON
1T200 VOLTS PH A 111 to 118 VAC
1T200 VOLTS PH B 111 to 118 VAC
1T200 VOLTS PH C 111 to 118 VAC

15-36

CEPD

OTC

132

[SU72548](#)

PIC Rack CB Verification and 400 Hz Systems Activation complete.

15-37

OTC

CMPL

132

SSME Water Panel (C3)

Verify LH₂ recirc pump primary light On.

Clear QPDS and PPDS

15-38

T-10H30M

OTC

CEPD

132

[SU72604](#)

Clear all PDS Technicians from MLP and Pad.

15-39

CEPD

OTC

132

OTC

NTD

232

PDS Technicians clearing MLP and Pad.

ECS Preps for Air to GN₂ Changeover - Complete (Hand Valves Closed)

15-40 CPVD OTC 132 SU72544
OTC NTD 232

T-10H30M

OMI V1122.203, Operation 10 - Initial Preps for Air to GN₂ Changeover complete (hand valves closed).

Final Preps for Air to GN₂ Changeover

15-41 OTC CPVD 132 SU72546

Perform OMI [V1122.203](#) , Operation 20 - Final Preps for Air/GN₂ Changeover (Hand Valves Closed) (5 minutes).

RT OMI Log No. _____

Activate Xenon Lights

WARNING High intensity lights are an eye hazard. Looking directly into high intensity light source may cause eye damage or blindness. WM013 06-30-04
--

15-42 STM NTD 232 SU72519
NTD PA SU72509

T-10H30M

Attention on Pad A:

Xenon lights will be turned on.

Avoid looking into lights. Eye damage may result.

15-48	CLHY	TBC	136
	TBC	OTC	132
	OTC	CHGD	
		CMPS	

Request CHGD and CMPS support on Channel 166 for AFT GHe Background Check during Orbiter/ET disc cavity purge initiation.

15-49	CLHY	TBC	136
	TBC	OTC	132
	OTC	CPVD	

Perform the following in support of GHe Background Check (during Orbiter/ET disc cavity purge initiation):

1. **Record** AFT purge (PC3) flow set point and tolerance:
_____ lbs/min. BD
2. **Adjust** AFT purge flow rate to 105-110 lbs/min per OMI V1122.004.
3. **Record** AFT purge flow rate:
_____ lbs/min. (105-110)
4. **Record** payload bay purge (PC2) flow rate:
_____ lbs/min. BD
5. **Verify** Orbiter AFT vent doors 8 & 9 left and 8 & 9 right are in Purge Position.

15-50	CLHY	TBC	136
	TBC	OTC	132
	OTC	CPVD	

GHe Background Check complete. AFT purge high flow no longer required.

Request PVD adjust AFT purge flow set point to previous value per ongoing OMI V1122.004.

15-51 CLHY TBC 136
 TBC NTD 232

OMI G3255 Operation - Activation of Helium Purges after Temporary Securing complete.

*** End of Helium Purge Activation for Scrub Turnaround ***

Clear for Standby GN₂ Mode

15-52 NTD OTC 232
 TBC
 PTC
 STM
 *SCC

Verify no further requirement for MLP interior access.

15-53 NTD *SCC 232 SU72556
 STM SU72604
 *SCC *PSE NET 105 SU72B08
 STM QBSE NET 104

T-10H15M

Request SPOC Safety clear all personnel from MLP A and B levels, LOX TSM and LH₂ TSM for ECS Air to “Standby GN₂ Mode” (hand valve open) operations. GSS Technicians to accompany Safety to perform MLP Closeout - Dog MLP Doors per OMI [M3083](#) after inspection is complete.

Support: [STSA](#)

15-54 NTD PA

Attention on Pad A:

All personnel clear MLP interior, LOX TSM, LH₂ TSM and PTCR for ECS Air to “Standby GN₂ Mode (Hand Valves Open).” All nonessential personnel clear the ECS Room.

15-55	NTD	*SCC	232	SU72B09
		STM		
	*SCC	*PSE	NET 105	
	STM	JBAC	111	

Perform the following:

Support: [HVAA](#)

1. **Request** SPOC Safety clear all personnel from PTCR.
2. GSS Technicians to accompany Safety.
Close upper and lower PTCR blast doors.
Install GSS signs per [Doc: JOB PLAN M3034.13 \(LI\) PTCR ECS Final Closeout Pressurization](#) .
3. GSS Technicians:
Stand by for PTCR/ECS room pressurization command step.

NOTE
Hazardous steps follow due to presence of GN₂.

NOTE
If Pad clearing for Launch is in progress, Safety warning signs may not require posting at direction of SPOC Safety.

15-57 **NTD** ***SCC** **232**
 ***SCC** ***PSE** **NET 105**
T-10H15M

IF Safety signs required,

THEN verify Safety signs installed at:

1. PTCR and ECS Room Doors (three).
2. PTCR South Tunnel Entrance.
3. MLP "B" Level Airlock. (Sign shall be removed upon final clearing for Launch.)
4. ECS Room South Outside Entrance. (Safety warning sign shall be posted upon final ECS Room clearing.)
5. ECS Room to PTCR Room 105 Entrance (Sign posted after clearing through PTCR to ECS Room.)

Not Performed: _____

15-58 **NTD** **STM** **232**
 ***SCC**
STM **JSTC** **111**

IF night time Launch and Xenon 22-Hour run-time will not be sufficient to cover night time activities,

THEN top-off Xenon Fuel Tanks and re-set timers.
Safety will brief personnel prior to departure.

Support: [ELEC](#)

Not Performed: _____

RSS Post Rollback Securing - Complete

15-59 QBSE STM NET 104

RSS Post Rollback Securing complete.

Support: [STSA](#)

15-60 *PAD OTC 132
 OTC NTD 232

RSS platforms have been secured for Launch. Post RSS move operation per OMI A2203.002 complete.

Elevator Configuration Status

15-61 VEEE STM NET 104 [SU72490](#)
T-10H00M

Hydraulic elevator No. 2 and No. 3 are configured and have been secured per Job Plan Q3018.2 - Configure Active Pad Elevators for Launch.

Support: [CDPD](#)

15-62 VEEE STM NET 104 [SU72598](#)
T-10H00M

FSS and RSS Elevators are Configured per Job Plan Q3018.2 - Configure Active Pad Elevators for Launch.

Support: [CDPD](#)

15-63 VEEE STM NET 104

Functional Check of Pad A Elevators complete per Job Plan Q3018.2 - Configure Active Pad Elevators for Launch.

Support: [CDPD](#)

T:_____

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15-64 JBPB STM 111 SU72587

Air compressors serviced and metal retaining bars secured on building doors per [Doc: JOB PLAN M3022.004 \(LI\) Pad Compressor Closeout](#) .

Support: CPNS

15-65 TBC CMQC 136 SU72575

IF supporting first Launch attempt,

THEN verify OMI S0007.100, SRB Prerequisite Operation 403 - ER Circuit Patching complete.

Not Performed: _____

Qv: _____

Air Packs to Pad Gate

15-66 STM JSTC 111
 JSTC *SCB NET 104

T-10H00M

Position Air Pack Van with sixteen 30- or 60-minute air packs and Technician at Pad A gate from T-9 hours 30 minutes to T-6 hours 30 minutes.

Return to OSB II (30 minutes).

Support: LS

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.
Exposure may cause asphyxiation, and in extreme cases could cause death.

Use only in a well ventilated area.

WCS006.a 03-04-03

NOTE

Reinstallation of SRB ESP or access to SRB AFT skirt area requires verification that AFT skirt GN₂ purge is terminated.

15-67	TBC	CHPU	136	SU72577
		NTD	232	SU72603
	NTD	*SCC		

IF temperatures require,

THEN activate SRB GN₂ AFT Skirt GN₂ Purge per OMI S0007.100, Operation 453 - SRB AFT Skirt GN₂ Purge Activation/Deactivation.
Report completion.

OMRS (general) [B42GEN.040](#)

Not Performed: _____

NOTE

Seat switches will be activated and ventilation fan power will be cycled in the next four steps. Notify CEPD.

CDR/PLT Seat Adjustment

15-68	ASP	OTC	132	SU72560
-------	-----	-----	-----	---------

Proceeding with positioning of CDR and PLT seats.

15-69	ASP	OTC	132	
-------	-----	-----	-----	--

CDR/PLT seat adjustment complete.

O₂ Flow Verification

15-70 ASP OTC 132

LEH O₂ supply valves will be opened and O₂ flow verified.

15-71 ASP OTC 132

O₂ Flow Verification complete.

Fuel Cell Pulse Purge - Complete

15-72 CFCP OTC 132
 OTC NTD 232

SU72540

T-10H00M

IF Fuel Cells are not powered up and running (Scrub/Recycle),

THEN report Fuel Cell Pulse Purge complete (OMI V1040.220).

Not Performed: _____

Fuel Cell Activation

NOTE

Do not perform this option if Fuel Cells are powered up and running (Scrub/Recycle).

Fuel Cell Activation Not Performed: _____

NOTE

Do not activate Fuel Cells until hydraulic circulation pumps are verified running. Pump loads are required to provide adequate loads for Fuel Cell performance calibration.

15-73 **OTC CECL 132**

Verify Airlock Vacuum Vent Duct GN₂ Inerting established for 30 minutes minimum and ready to support Fuel Cell Activation.

15-74 **JRPS OTC 132**
 OTC NTD 232
 CFCP 132

Dewetron configuration from FCP Pump Motor Event and Neutrometer monitoring at C6/C10 per S0007.400 complete. Configuration reports available for review. Data stream is being provided to consoles C6 and C10.

Ready to support FCP activation.

15-75 **NTD OTC 232**
 OTC CFCP 132
 CEPD

Verify data stream active and configuration report is acceptable.

15-76 OTC JRPS 132

Start archive of EPDC measurements for FCP Pump Motor event.
Report completion.

15-77 NTD OTC 232 [SU72619](#)
T-10H00M

Proceed with Fuel Cell Activation (2 hours 30 minutes).

Report completion for each Fuel Cell.

FC1 _____ GMT

FC2 _____ GMT

FC3 _____ GMT

15-78 OTC CEPD 132

Terminate local sense voltage control.

15-79 CEPD

PFP (VSC07)
DISENGAGE PGM - PRESS
TERMINATE PGM - PRESS

MAINTAIN ORBITER BUS VOLTAGES MANUALLY UNTIL FUEL
CELL ACTIVATION.

15-80 OTC CEPD 132
T-10H00M

Support Orbiter Fuel Cell Activation and Fuel Cell Application to Main
Busses per OMI [S9001.104](#) on OIS Channel 151.

RT OMI Log No. _____

PTCR Closeout Preps - Complete

15-93 JBAC STM 111 SU72499
 STM NTD 232

T-10H00M

All PTCR Closeout Preps complete.

Support: HVAA

NOTE Momentary elevated chilled water temperatures can occur when cycling chillers.

15-94 STM JBAC 111

IF HVAC Engineer determines it is required,

THEN configure Pad A PTCR HVAC System Water Chiller(s) with WC-1 and/or WC-2 on line and operating, depending on system load, with WC-3 in Standby, per HVAC Supervision/Engineering direction, and per [Doc: JOB PLAN M3006.01 \(LI\) Pad A Chiller Rotation](#) .

Support: HVAA

Not Performed: _____

15-95 STM JBAC 111

IF HVAC Engineer determines it is required,

THEN close RSS manual isolation valves and secure pump P-8 and P-9.

Support: HVAA

Not Performed: _____

T: _____

ET Load Safety/Facility/Fire Walkdown (Part B) - Complete

15-96	*PAD	TBC	136	SU72570
	TBC	NTD	232	
	NTD	*SCC		

OMI S0007.100, Operation 554 - ET Load Safety/Facility/ Fire Walkdown (Part B), complete.

Pad Structures Launch Closeout - Complete

15-97	QBSE	STM	NET 104	SU72515
-------	------	-----	---------	---------

Pad Structures Launch Closeout complete (OMIs M3134/M3083).

Support: STSA

MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disconnect Cavity Purge Activation - Complete

NOTE Perform this option if for an initial Launch attempt.
--

MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disconnect Cavity Purge Activation - Complete

Not Performed: _____

15-98	CLHY	TBC	136
	TBC	OTC	132
	OTC	CPVD	

GHe Background Check complete. AFT purge high flow no longer required.

Request PVD adjust AFT purge flow set point to previous value per ongoing OMI [V1122.004](#)

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15-99 CLHY TBC 136 SU72800
 TBC NTD 232

OMI G3251, Operation - MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge, and LH₂ Orbiter/ET Disc Cavity Purge Activation, complete.

OMRSR [S00FA0.221-1](#)
OMRSR [S00FA0.223-1](#)
OMRSR [S00FA0.225](#)
OMRSR [S00FE0.020-1](#)

***** End of MPS Helium Set Point Verification at Flight Pressure, T-0 Umbilical Purge and LH₂ Orbiter/ET Disconnect Cavity Purge Activation - Complete *****

FCS Time Critical Stowage - Complete

15-100 OOCS OTC 132

IF supporting Scrub Turnaround of OMI S0007,

THEN FCS Time Critical Items Installation per FCS-TPS-_____ complete.

Not Performed: _____

Terminate Vacuum Vent Duct Inerting

15-101 CFCP OTC 132
 OTC CECL

A Fuel Cell has been started.

Terminate Vacuum Vent Duct Inerting (S0007.100, Operation 254).

30-Minute Air Packs at Pad Gate

15-102 *SCB JSTC NET 104 SU72591

Sixteen 30-minute air packs positioned with Vehicle and Technician at Pad A gate.

Support: LS

15-103 *SCB JSTC NET 104 SU72512
 JSTC STM 111 SU72517

The following is complete:

Support: LS

1. ELSA boxes removed from FSS/RSS, except for box adjacent to elevators on 195-ft level.
2. ELSA box removed from East Pad Apron.
3. Life Support equipment in FSS Whiteroom verified.
4. Snap halyards fastened to ELSA box latches on RSS, MLP, and FSS 195-ft level.

Pad Clearing Status (MLP/LOX TSM/LH₂ TSM/PTCR/ECS Room)

15-107 *PSE *SCC NET 105 SU72556
 *SCC NTD 232
 NTD OTC

T-09H30M

All personnel are clear from MLP interior, LOX TSM, LH₂ TSM and PTCR. All nonessential personnel have cleared ECS Room.

15-108 OTC NTD 232
 NTD *SCC

All Orbiter compartments have been closed out except for Crew Compartment.

Final Preps for Air/GN₂ Changeover - Complete

15-109 CPVD OTC 132 SU72546
 OTC NTD 232

OMI V1122.203, Operation 20 - Final Preps for Air/GN₂ Changeover (Hand Valves Closed) complete.

15-110 NTD *SCC 232
 *SCC *PSE NET 105

Verify concurrence to proceed with ECS System OMI V1122.203, Operation 30 - Air/GN₂ Standby Configuration (Hand Valves Open).

15-111 *PSE *SCC NET 105
 *SCC NTD 232

Safety concurs to proceed with OMI V1122.203, Operation 30 - Air/GN₂ Standby Configuration (Hand Valves Open). All nonessential personnel are clear and 10-minute ELSAs available. Danger signs have been installed, ECS room personnel have required ear protection and continuous O₂ monitoring is in effect.

Establish Clears for Air-to-GN₂ Changeover

NOTE

Perform next three steps 30 minutes prior to Air to GN₂ Changeover.

15-115	NTD	OTC TBC STM LPS PTC	232
---------------	------------	--	------------

Verify all personnel are clear of the following areas for Air to GN₂ Changeover. Any exception must be approved by NTD and *SCC.

1. PTCR/ECS Room interior
2. MLP interior and MLP zero level
3. LO2 TSM
4. ECS Stub tower 9099 interface

15-116	NTD *SCC	*SCC *PSE	232 NET 105
---------------	---------------------------	----------------------------	------------------------------

Clear the following areas of all personnel for Air-to-GN₂ Changeover:

1. PTCR/ECS Room interior
2. PTCR Level 1 and 2 interior
3. MLP interior and MLP zero level
4. LO2 TSM
5. ECS stub tower 9099 interface

Establish the following safety controls for Air-to-GN₂ Changeover:

1. PTCR ECS Room doors
2. PTCR Pad blast doors
3. MLP A and B interior; MLP zero level; MLP east and west access platforms stairs (Sides 1, 2 and 4)
4. LO2 TSM
5. ECS stub tower 9099 interface

15-117 NTD PA

Attention on Pad A:

All personnel clear the following areas for Air-to-GN₂ Changeover:

1. PTCR/ECS Room interior
2. MLP interior and MLP zero level
3. LO2 TSM
4. ECS stub tower 9099 interface

15-118 *SCC NTD 232
 NTD OTC
 OTC *PAD 132
 *PAD *ACM NET 110

Release ACM from stations at Whiteroom, 95-ft level, and base of FSS.
Remove security tags from the following areas while exiting the Tower:

- Five (5) Equipment Gates behind elevators on Pad Surface.
- 95-ft level Gate to North Bridge
- Emergency Gate at base of East MLP stairs
- Emergency Gate above RSS drive truck
- _____ Total (8) _____

Report completion.

15-119 NTD STM 232

ACM clear of FSS.

15-120 *ACM *PAD NET 110
 *PAD OTC 132
 OTC NTD 232

ACM clear to HAZ Badge Board.

15-121 STM QBSE NET 104

Secure the following security gates in the corresponding configuration using chains/wire ropes and hooks/shackles:

1. West gates to the West Stair Tower - Open position (2 each)
2. Gate between the FSS and North Bridge - Open position (1 each)
3. 75 ft level gate to 9099 Interface - Closed position (1 each)

Support: [STSA](#)

15-122 STM JSTC 111
 JSTC GSPN 114

Maintain GHe and GN₂ system pressures at maximum levels for remainder of Countdown.

Notify CCF-39 GN₂ production plant to raise minimum pipeline pressure to 6500 psig.

Support: [PNU](#)

Replenish Sound Suppression Water - Complete

15-123 JBWC STM 111

IF Sound Suppression water tank top off was performed,

THEN report Sound Suppression elevated tank top off complete.

Support: [CWSS](#)

Not Performed: _____

Transfer Control of Orbiter Firex System - CCC to Firing Room

NOTE

Perform this option for initial control transfer and to support any Turnaround that has transferred Orbiter Firex from Firing Room to CCC.

Transfer Control of Orbiter Firex System - CCC to Firing Room

Not Performed: _____

15-124 **STM** **JBFX** **111** [SU72589](#)
T-09H15M

Verify FSS and MLP Firex system has been configured to support.

Support: [CWSS](#)

15-125 **STM** **NTD** **232**
T-09H15M
NTD **OTC**
OTC **CMPL** **132**

CCC ready to transfer control of Orbiter Firex to Firing Room.

Request CMPL contact JBFX on Channel 123.

15-126 **STM** **JBFX** **111**

Transfer control of Orbiter Firex Water System to Firing Room control (15 minutes).

Support: [CWSS](#)

15-127 **JBFX** **CMPL** **123**

Verify ready for control transfer.

Support: [CWSS](#)

15-128

CMPL

CRT (SAE02) SSME WATER SPRAY SYSTEM (PG-A)

VERIFY

NO ARM/OPEN COMMANDS APPLIED

CPRO

PVO GWDKLU27E <XMIT CMD> - VERIFY OFF

PVO GWDKLU28E <XMIT CMD> - VERIFY OFF

PVO GWDKLU30E <XMIT CMD> - VERIFY OFF

PVO GWDKLU32E <XMIT CMD> - VERIFY OFF

PVO GWDKLU33E <XMIT CMD> - VERIFY OFF

PVO GWDKLU34E <XMIT CMD> - VERIFY OFF

15-129

CMPL

JBFX

123

Ready for transfer of Orbiter Firex System to Firing Room.

Support: [CWSS](#)

15-130

JBFX

CMPL

123

Stand by for control transfer.

Support: [CWSS](#)

NOTE

CCC will transfer control of Orbiter Firex systems to Firing Room by performing next step.

15-131

JBFX

PERFORM THE FOLLOWING (SCREEN P2A/P2B) :

1. **VERIFY**) :

<u>INDICATOR</u>	<u>STATE</u>
FX CCC ENABLE	ON
FX FR-OFF/CCC-ON	ON
FX FR ENABLE	OFF
FX FR-ON/CCC-OFF	OFF

2. ISSUE FX CONTROL TRANSFER CCC TO FR COMMAND

3. **VERIFY** :

<u>INDICATOR</u>	<u>STATE</u>
FX CCC ENABLE	OFF
FX FR-OFF/CCC-ON	OFF
FX FR ENABLE	ON
FX FR-ON/CCC-OFF	ON

Support: [CWSS](#)

			<u>CMD</u>	<u>MEAS</u>
11.	PRE L/O VLVS OPEN CMD IND	OFF		-
12.	PRE L/O VLVS CLOSE CMD IND	ON	- -	X -
13.	POST L/O VENT VLV OPEN CMD	OFF		- -
14.	POST L/O VLVS OPEN CMD IND	OFF	- -	-
15.	POST L/O VLVS CLOSE CMD IND	ON	- -	X -
16.	VV5,6,7,8,9,10 GRAPHIC BLOCKS - SOLID GREEN			
17.	PREV25,26,27 AND POST V28,29,30 BLOCKS - SOLID GREEN			
18.	STATUS ARROW - CYCLING			

15-138 STM JBWC 111

Transfer control of Sound Suppression Water System to Firing Room control.

Support: [CWSS](#)

15-139 JBWC CGSS 123

Verify ready for control transfer.

Support: [CWSS](#)

15-140 CGSS JBWC

Ready for transfer of Sound Suppression control to Firing Room.

Support: [CWSS](#)

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15-144
T-09H15M

CGSS

Verify Sound Suppression control transfer complete by observing VAJ14 skeleton status as follows:

CONTROL
CCC OFF
FR ON

15-145

CGSS OTC 132
OTC NTD 232

SU72589

Transfer of Sound Suppression System CCC to Firing Room complete.

***** End of Transfer Control of Sound Suppression System - CCC to Firing Room *****

Emergency Egress Flame Detection System Initiation

15-146

CGSS

SU72550

CURSOR CNTL (VAJ14)
VAJ15 - ON

15-147

CGSS

CRT (VAJ15)

VERIFY
ALL TEMPERATURE DETECTORS LESS THAN 120 DEG F.

ALL FLAME DETECTORS OFF.

15-148 CGSS OTC 132
 OTC NTD 232

Emergency Egress Flame Detection System monitoring activated.

15-149 OTC CGSS 132

Monitor Sound Suppression and Emergency Egress Flame Detection System per OMI S0007.100, Operation 265 - Sound Suppression/Emergency Egress Flame Detection Monitor.

PCR Pressure Verification

15-150 OTC CPVD 132
T-09H15M

Verify positive air pressure in PCR.

Crew Compartment Checks

15-151 NTD OTC 232
 *SCC
 *SCC *PSE NET 105
T-09H15M

Verify continuous monitoring of O₂ in Cabin. Buddy System required.

Verify the following respiratory equipment available for use:

One ELSA per Flight Crew Member

Record No. _____

15-152 OTC CECL 132

Verify continuous monitoring of O₂ in Cabin.

ET TIR Log

15-153 TBC CMQC 136 SU72339
 CMQC PQCG

Verify all ET TIR log items closed.

Qv: _____

SRB TIR Log

15-154 TBC CMQC 136 SU72340
 CMQC PQCG

Verify all SRB TIR log items closed.

Qv: _____

SRB Call to Stations

NOTE Reference OMI S0007.100 Support Prerequisite Operation 1 for clearance number.

15-155 TBC NTD 132
 NTD STM

Verify frequency clearance for 416.5, closed loop, without protection.

Record number: _____

15-156 TBC CPWR 136 SU72579
T-09H00M

Verify programs BSE03 and BSE07 inactive and will not be called up during this OMI.

15-157 TBC CBRS 136

Verify programs SSRB1, SSRB2, SSRB3, and SSRB5 inactive and will not be called up during this OMI.

SRSS GSE Power Up

15-158 TBC CBRS 136 SU72581

Perform Range Safety GSE Power Up.

15-159 CBRS

CURSOR CNTL (SWRB3)
BSR01
XMIT CURSOR KEY - PRESS

POWER ON SYS A&B _____ PRIME (RECORD A OR B)
XMIT CURSOR KEY - PRESS

15-160 CBRS

CURSOR CNTL (BWR10)
HOLDFIRE EMON ACT
XMIT CURSOR KEY - PRESS

15-161 CBRS TBC 136

SRSS GSE Power Up complete.

SRB Power Up

15-162	NTD	TBC	232	SU72583
	TBC	CPWR	136	
		CBDP		

Perform SRB OI Bus A and B Power Application and MDM Initialization per OMI [S9001.104](#) using Option A on Channel 176.

RT OMI Log No. _____

SRB Joint Heater Activation

<p style="text-align: center;">NOTE Perform SRB Joint Heater Activation no later than T-8 hours.</p>

15-163	TBC	CPWR	136	SU72643
--------	-----	------	-----	-------------------------

Perform SRB Joint Heater Power Application.

CAUTION

RSRM Igniter Heater temperatures shall not exceed 125 degrees F and current shall not exceed 4.9 amps AC or proper seal capabilities of all ignition system seals may not occur.

Field Joint Heater temperatures shall not exceed 123 degrees F and current shall not exceed 19.5 amps AC or proper seal capabilities of all field joint o-ring seals may not occur.

15-164

CPWR

CURSOR CNTL (BDE11)
AUTO SEQ - ALL
XMIT CURSOR KEY - PRESS

CRT (BDE11)
VERIFY

ALL HTR PWR ON
ALL AUTO SEQ ACT

OMRSD [S00FA0.610-1R](#)
OMRSD [S00FA0.970](#)

15-165

CPWR

IF igniter heaters were not powered up prior to, or at, L-18 hours
00 minutes,

THEN the previous step satisfies the following OMRS requirements.

OMRSD [S00FA0.620-1R](#)
OMRSD [S00FA0.960](#)

Not Performed: _____

15-166

CPWR	TBC	136
TBC	NTD	232

[SU72643](#)

SRB Field Joint Heater Power Application complete.

15-171	NTD	STM	232	SU72558
		*SCC		
	STM	JSTC	111	
	JSTC	*SEC	114	

K-9 Specialist perform the following:

1. **Proceed** to top of Pad and standby for Safety concurrence to sweep Pad Apron.
2. **Perform** sweep of Pad Apron.

Support: SEC

15-172	NTD	OTC	232
	OTC	*PAD	132

Remove COPV warning signs from base of FSS and Pad gate.
Report completion.

Pad Closeout Valve Positioning - Complete

15-173	JBPN	STM	111	SU72662
	STM	JSTC		
	JSTC	GSPN	114	

Pad Closeout Valve Positioning complete.

Record Pad B Storage Battery Pressure for GN₂ and GHe.

GN₂_____

GHe_____

Support: PNSA

Support: PNU

15-174	QBSE	STM	NET 104	SU72500
	STM	NTD	232	

Wire ropes and signs at Flame Trench South and temporary ropes and signs around Flame Trench North have been removed.

Support: STSA

PAV Delivery to Slidewire Bunker - Complete

15-175	*SCB	JSTC	NET 104
	JSTC	STM	111
	STM	NTD	232

Verify the following:

1. All Portable Air Ventilators not required by Flight Crew delivered to Pad Slidewire Bunker.
2. All ISI Breathing Air Masks in Slidewire Bunker re-verified and sealed with integrity seal.

Support: [LS](#)

15-176	STM	JBFX	111
		JBEP	
		JBAC	
		JBPN	
		JSTC	
	JSTC	JSEP	114

Review all Pad A/B KCCS console screens. Verify all Pad systems are in required Launch Support Configuration prior to tanking.

Support: [ELEC](#)
Support: [HVAA](#)
Support: [CPNS](#)

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15-177	STM	GYCC JBFX JBEP JBAC JBPB JSTC QBSE GBHE VEEE	111 NET 104
--------	-----	--	--

Verify all work items, except PTCR/ECS Room closure and Xenon light activation, requiring Pad access have been completed.

Support: [COMM](#)
Support: [WSSA](#)
Support: [PWRA](#)
Support: [PWRB](#)
Support: [HVAA](#)
Support: [PNSA](#)
Support: [STSA](#)
Support: [HESA](#)
Support: [CDPD](#)

Clear Pad for ET Loading

15-178	NTD	CMQC		SU72553
--------	-----	------	--	-------------------------

Verify all OMI S0007.400, Operation 899 - Walkdown Discrepancy List items have cleared.

Qv: _____

15-179	NTD	OTC TBC STM *SCC	232	SU72608 SU72B59
T-09H00M	*SCC	*PSE	NET 105	

Clear all personnel not HAZ badged from Pad A for LO₂/LH₂ Loading.

15-180
 T-09H00M

NTD

PA

Attention on Pad A:

All personnel not manloaded with HAZ badge clear Pad A to Roadblock A/B-11 for LO₂/LH₂ Loading.

NOTE

NPM personnel may enter other HAZ badge areas as required for situational management.

Essential Personnel LH₂ Final Prep Crew (HAZ Badge)			
	SPOC	NASA	NPSC
Engineer	2	1	
Technician	4		
Safety	1	1	
Fire			4

Essential Personnel LO₂ Final Prep Crew (HAZ Badge)			
	SPOC	NASA	NPSC
Engineer	2	1	
Technician	4		
Safety	1	1	
Fire			4

Essential Personnel (HAZ Badge) Crew Module and Whiteroom Crew		
	NASA	SPOC
Technician		4
Quality	1	1
ASP/VITT	2	1
Safety	1	1

Essential Personnel (HAZ Badge) BDA Final Clear OPS/Safety Walkdown			
	NASA	SPOC	NPSC
NPM	3		
Safety	1	2	
Security			12*
Debris Engineer	1		
Pad Technician		1	
MLP Technician		1	

*Security personnel manloaded for BDA Clear Ops only,
 They do not support Walkdown

Essential Personnel (HAZ Badge) PTCR/ECS Room Pressurization			
	GSS	NASA	SPOC
Supr/Engineer	2	1	
Quality	1		
Technician	2		4
Safety		1	1

Essential Personnel (HAZ Badge) GVA Final Activation		
	SPOC	NASA
Engineer	2	
Technician	3	
Safety	1	1

Essential Personnel (HAZ Badge) Sound Suppression Locks		
	NASA	SPOC
Technician		2
Quality (PSOQ)		1
NASA Quality	1	

Essential Personnel (HAZ Badge) Handrail Removal, Water Bag Topoff, Elevator Config		
	NASA	SPOC
Quality (PSOQ/QSOQ)		2

15-181 NTD *ACM NET 110

Perform communications check via radio Net 110 with Badge Board *ACM.
Non-standard HAZ badge requests must be approved by NTD/Safety.

NOTE
The next six steps are for Non-Launch Pad.

15-182 NTD STM 232
 STM JBPN 111
 JBPN GBPN NET 104

Verify Non-Launch Pad valve reconfigurations complete.

Support: [PNSA](#)

15-183 NTD CTC 232 [SU72566](#)
 STM [SU72602](#)
 *SCC

Non-Launch Pad will be cleared momentarily.

Verify personnel complete with all operations at Non-Launch Pad.

15-184 *SCC *PSE NET 105

Clear Non-Launch Pad of all personnel.

15-185 NTD PA

Attention on Pad A:

All personnel at Pad A clear to Roadblock A/B-11 for LO₂/LH₂ Loading.

15-186 *PSE *SCC NET 105
 *SCC NTD 232

Non-Launch Pad clear of all personnel.

15-187	NTD	STM	232	SU72590
		*SCC		
	STM	JSTC	111	
	JSTC	*SEC	114	

Go hard down at Pad screening roadblocks for Non-Launch Pad B-3, B-4 (Pad B); A-3, A-5, A-6, Barricade 49 (Pad A).

Support: SEC

Remove Non-Flight Items from Crew Compartment

15-188 T-09H00M	OTC	CDR	132	SU72561
--------------------	-----	-----	-----	---------

Remove all non-flight items (such as ensolite pads, drop lights, emergency lights and alarms) except those recorded in TIR system (such as RHC covers, airlock soft covers, A15 soft cover, Middeck floor covers, and bumper pad assembly on escape pole).

Report completion.

T: _____

COMM Command to Launch Configuration - MCCH

NOTE Delay next step until RSS is in Park Position.

15-189	NTD	*FLT	232	SU72568
		*MIL		
		JRPS		
		LPS		
		OTC		
	OTC	CCSE	132	
		RCRE		

T-09H00M

Perform COMM Command to Launch Configuration (NASA MCCH Option) per OMI V1117 on OIS Channel 214 (2 hours).

RT OMI Log No. _____

Standby GN₂ (Hand Valve Open) Operations - Complete

15-190 CPVD OTC 132 [SU72549](#)
 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

T-09H00M

OMI V1122.203, Operation 30 - Air/GN₂ Standby Configuration (Hand Valves Open) complete. ECS personnel clearing Pad ECS Room to Roadblock A/B-11.

15-191 NTD *SCC 232
 *SCC *PSE NET 105

T-09H00M

Clear all personnel from ECS Room.
Install Safety warning signs across ECS South Door and PTCR Ground Level Door after doors closed and secured.

15-192 *PSE *SCC NET 105
 *SCC NTD 232

All personnel clear of ECS Room. You have Safety concurrence to pressurize PTCR and ECS Room.

Pressurize PTCR/ECS Room

NOTE

PTCR/ECS Room will be pressurized with air when ECS ground level doors are closed.

15-193 **NTD** **STM** **232** [SU72551](#)
 STM **JBAC** **111** [SU72593](#)

T-09H00M

Pressurize PTCR and ECS Room per [Doc: JOB PLAN M3034.13 \(LI\) PTCR ECS Pressurization for Final Closeout](#) (30 minutes).

Support: [HVAA](#)

Essential Personnel (HAZ Badge)			
	GSS	NASA	SPOC
Supervisor/Engineer	2	1	
Quality	1		
Technician	4		
Safety		1	1

15-194 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**

All Safety signs installed at ECS South Door at PTCR Ground Level Door.

15-195 **JBAC** **STM** **111**
 STM **NTD** **232**

PTCR and ECS Room pressurized.

Support: [HVAA](#)

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15-196 STM JBAC 111

Verify the following:

Pad A Operations and Logistics buildings HVAC systems are configured for Launch per [Doc: JOB PLAN M3034.18 \(LI\) Pad Ops Bldg and Logistics Bldg Configure for Launch](#)

Support: [HVAA](#)

15-197
T-08H45M

NTD JFIR 232

[SU72594](#)

Fire/Rescue support required on site in 45 minutes at LO₂ Facility and LH₂ Facility for LO₂ and LH₂ final preps. EMS on standby in-district.

Support: [FIRE](#)

Contingency Crew Verifications

15-198 STM JSTC 111
 JBEP
 JBAC
 JBFX
 JBPN
 VEEE
 PSTM NET 104
 QBSE

Verify the following personnel available for Contingency Crew Operations. Air-Pack certifications required.

Time effectivity: T-8 hours 45 minutes to T-6 hours and counting

- Support: JSTC
- Support: PWR
- Support: HVAA
- Support: PWRB
- Support: PWRA
- Support: PNSA
- Support: CDPD
- Support: WSSA
- Support: HESA
- Support: STSA
- Support: ELEC
- Support: FA

Group	Supervisors /Engineers	Technicians
HVAC	1	2
Low Voltage Electrical	1	1
Special Power		1
Pneumatics	2	4
Elevators	1	2
SS & FX Water	1	3
Facility Quality		2
Heavy Equipment	1	6
Facility Structures	1	3
ISC 60 Hz Power		2
ISC Fire Alarms		2

Air to GN₂ Changeover (LPS)

15-199	NTD	STM	232
	STM	JSTC	111
	JSTC	GSPN	114

Support Orbiter ECS Air to GN₂ Changeover. GSPN contact CPVD on Channel 172 to coordinate changeover per operation instructions of ISC OMI M3703.

Support: [PNU](#)

15-200	NTD	*SCC	232
	*SCC	*PSE	NET 105

T-08H30M

Verify Safety concurrence to proceed with Air to GN₂ Changeover.

15-201	*PSE	*SCC	NET 105	SU72537
	*SCC	NTD	232	SU72609
	NTD	STM		
		OTC		
		TBC		
	PTC			

The following areas are clear of all personnel for Air-to-GN₂ Changeover:

1. PTCR/ECS Room interior
2. PTCR Level 1 and 2 interior
3. MLP interior and MLP zero level
4. LO2 TSM
5. ECS stub tower 9099 interface

All safety controls for Air-to-GN₂ Changeover are verified in place.

You have Safety concurrence to proceed with Air-to-GN₂ Changeover.

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.

Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

Hazardous step follow due to presence of GN₂.

15-202
T-08H30M

OTC CPVD 132

[SU72535](#)

Proceed with ECS Air to GN₂ Changeover per OMI [V1122.203](#)
Operation 40 - Air/GN₂ Changeover. (30 minutes)

Coordinate with GSPN on OIS Channel 172.

RT OMI Log No. _____

15-203
T-08H30M

NTD PA

Attention on Pad A:

Orbiter Air to GN₂ Purge Changeover will begin momentarily. GN₂ purge will be applied to AFT fuselage, Payload Bay and FWD plenum fuselage.

15-204	NTD	STM	232
	STM	JBEP	111

Air to GN₂ Changeover in progress. Possibility of low level O₂ alarm.
Advise STM if alarms occur.

Support: [PWR](#)

NOTE

The minimum time for GN₂ Purge prior to ET Cryogenic Loading is 30 minutes. Verified by CPVD later in this operation.

NOTE

MID Fuselage/Payload Bay/AFT purge inerted and maintained at less than 1 percent O₂. Verified by CHGD later in this operation and just prior to ET Load in Operation 16.

NOTE

Purge moisture content is less than 5 grains/lb prior to Orbiter MPS Chilldown. (Estimate 1-1/2 hours from the initial start of ECS GN₂ Purge). Verified by CPVD in Operation 16, prior to ET LO₂/LH₂ Loading.

15-205	CPVD	OTC	132	SU72535
	OTC	CHGD		
		NTD	232	
	NTD	*SCC PTC		

ECS Air/GN₂ Changeover complete per OMI V1122.203 (Operation 40).

Orbiter being purged with GN₂ at _____ (record time).

Increase Payload Bay Flow Rate

NOTE

Perform this option if flow rate is not at 230 lbs/min (219 to 241), and increasing will not cause a Payload OMRS violation.

Increase Payload Bay Flow Rate Not Performed: _____

15-206	OTC	CPVD	132	SU72B82
		NTD	232	
	NTD	PTC		

Increase Payload Bay flow rate to 230 lbs/min (219 to 241) per OMI [V1122.004](#) (maintain Payload Bay I/F temperature within Payload OMRS limits).

15-207	CPVD	OTC	132	SU72B82
	OTC	CHGD		

ECS Payload Bay circuit GN₂ purge is configured for high flow rate.

***** End of Increase Payload Bay Flow Rate *****

ET Load Orbiter GN₂ Purge Oxygen Decay Profile

NOTE

The following step will record oxygen decay collection after Orbiter Air to GN₂ with PC2 at high flow and PC2 transition to nominal flow for ET load. This data will be compared to the PRSD Load Orbiter GN₂ Purge Oxygen Decay Profile prior to PRSD Performance Calibration and System Integrity Check.

The desired target Midbody and Payload Bay Oxygen Concentration is 25 ppm prior to starting PRSD LO₂ Load. Oxygen decay rates will vary due to Payload configuration, and will require HGDS Engineering analysis to proceed with PRSD Performance Calibration and System Integrity Check.

15-208 OTC CHGD 132

Perform RT OMI [V3540](#) "ET Load Orbiter GN₂ Purge Oxygen Decay Profile" per Operation - ET Load Preps.

Operation No. _____ Run No. _____

RT OMI Log No. _____

15-209 CHGD OTC 132

"ET Load Orbiter GN₂ Purge Oxygen Decay Profile" performed per RT OMI V3540 Operation - ET Load Preps is complete.

***** End of ET Load Orbiter GN₂ Purge Oxygen Decay Profile *****

15-210 CPWR TBC 136 SU72583
 TBC NTD 232
 NTD OTC

T-08H30M

SRB OI Bus A&B power application complete.

15-211 OTC CEPD 132 SU72586

Perform MEC Pre-Flight BITE Evaluation.

15-212 CEPD

Perform SDC QLDB Retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

15-213 CEPD OTC 132 SU72586
 OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

Separate MDM Power Supplies

15-214 TBC CDPS 136

Separate MDM power supplies for SRB HPU BITE test.

15-215 CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
SRB MANUAL TEST SEL
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

15-216

CDPS

CURSOR CNTL (BSM06 PG-B)
SEPARATE MDM P/S
XMIT CURSOR KEY - PRESS

CRT (BSM06 PG-B)

ALL MDM P/S SEP SWITCHES ON

15-217

CDPS

PFP (BSM06)
TERMINATE - PRESS

15-218

CDPS TBC 136

MDM power supplies separated.

SRB HPU BITE Test and HPU Fuel Pump Bearing Seal Soak

15-219

CHPU TBC 136
TBC NTD 232
NTD *SCC
*SCC *PSE NET 105

[SU72584](#)

[SU72606](#)

Request SPOC Safety clear all personnel from control area 25-ft radius around HPU exhaust ducts on MLP zero level and verify concurrence to proceed.

15-220

NTD PA

Attention on Pad A:

SRB HPU BITE test will be performed. All personnel clear area 25-ft radius of SRB HPU exhaust ducts on MLP zero level.

15-221 *PSE *SCC NET 105
 *SCC NTD 232
 NTD TBC

HPU exhaust duct control area cleared and you have Safety concurrence to proceed.

WARNING

Hypergolic propellant liquid and/or vapors may be released at high pressures in the event of a component leakage or failure during propellant tank pressurization. Hypergolic vapors are toxic and are severe irritants.

Exposure may cause severe eye, skin and respiratory system irritation and permanent damage. Sudden release of pressure may cause bodily injury.

WT013 12-07-2005

NOTE

Hazardous step follow due to SRB HPU BITE test.

15-222 TBC CHPU 136

Control area cleared.

Perform SRB HPU BITE Test and HPU fuel pump bearing seal soak per OMI S0007.100, Operation 452.

ET OI Instrumentation and ET Level Sensor Checks

15-223 TBC OTC 132 [SU72576](#)
 OTC CISL
 CMPS
 CMPL

Request CMPS, CMPL and CISL support on OIS Channel 136.

15-224 TBC CISL 136
 CMPS
 CMPL

Perform ET OI Instrumentation Checks on Channel 145 per OMI S0007.400, (Operation 38) (20 minutes).

LH₂ Firing Room Configuration for Loading

15-225 TBC CLHY 136

Perform Firing Room Configuration for Loading per OMI [G3251](#) (or OMI [G3255](#)).

Non-Hazard Badged Personnel Clear

15-226 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 TBC
 STM

All non-hazard badged personnel cleared from Pad A for LO₂/LH₂ Loading Operations.

Verify Firing Room Consumables

15-227
T-08H30M

LPS

Verify Firing Room consumables.

30-Minute Notice for Wrecker at Pad Gate

15-228
T-08H30M

JSTC WGSA NET 104

[SU72595](#)
[SU72663](#)

Provide wrecker at Pad gate (T-8 hours to T-6 hours) (7-4905).

Verify when on site.

Support: [WRCK](#)

15-229

JSTC *SEC 114

Security report when wrecker on site at Pad gate.

Support: [SEC](#)

LH₂ Firing Room Configuration for Loading - Complete

15-230

CLHY TBC 136
TBC NTD 232

[SU72578](#)

Firing Room Configuration for Loading per OMI G3251 (or OMI G3255) complete.

Weather Update - ET Tanking Preps

15-231
T-08H15M

STM *WEA 231

[SU72580](#)

Request current weather information for Launch Pad.

Advise and update weather advisories and warnings as received.

15-232

*WEA STM 231
STM NTD 232
NTD *SCC
TBC TBC
CLOX 136
CLHY

Weather information for ET Tanking/Detanking:

1. Forecast time _____
2. Forecast valid _____
3. Probability of precipitation _____
4. Probability of lightning/electrical storms within 5 nautical miles of Pad A. (Verify that no electrical storms are within 5 nautical miles of the Launch Pad, and that no more than 20 percent probability exists for potential electrical storm activity during the first hour of Tanking.)
5. Relative humidity _____
6. Winds SS/gusts _____
Direction _____
(No winds > 42 knots at 60-ft level during Tanking/Detanking)
7. Temperature _____

OMRSD [S00L00.030](#)

OMRSD [S00L00.080](#)

ET OI Instrumentation Checks - Complete

15-233 CISL TBC 136 [SU72576](#)
T-08H10M

ET OI Instrumentation Checks complete.

OMRSR [S00FA0.140-A-1](#)

OMRSR [S00FA0.140-B-1](#)

SRM Case Temp EMON Activation

15-234 TBC CISL 136

Perform SRM Case Temp EMON Activation (5 minutes).
Report completion.

SEP Camera Heater Activation

15-235 OTC CISL 132 [SU72565](#)

Perform SEP Camera Heater Activation per OMI S0007.400,
(Operation 38) (5 minutes).

15-236 CISL OTC 132

SEP Camera Heater Activation complete.

OMRSR [S00FA0.650](#)

***** End of SEP Camera Heater Activation *****

ET Level Sensor Checks

15-237 TBC CMPS 136 SU72582
T-08H10M

Perform ET Level Sensor Checks on Channel 168 per OMI S0007.400 (Operation 41) (10 minutes).

15-238 CMPS TBC 136
CLOX
CLHY
CISL

Level Sensor Checkout will be performed at this time. Momentary loss of power to ET OI level sensors, ullage pressures and vent valve indicators will occur.

15-239 CMPS TBC 136
CLOX
CLHY

T-08H00M

ET Level Sensor Checks complete. ET level sensor, ullage pressure transducer and vent valve position indicators are now valid.

15-240 STM JSTC 111
JSTC GSPN 114
GSPS NET 104

T-08H00M

Place and connect GN₂ recharger(s) and LN₂ tankers to CCF-39 recharger manifold by T-6 hours.

Support: PNU
Support: PN

15-241 JSDY JSTC 114
JSTC STM 111

T-08H00M

Xenon Lights Activation completed.

Support: ELEC

Verify Support (Fire Rescue/EMS/Safety)

15-242 NTD JFIR 232 [SU72A69](#)
 *SCC

T-08H00M

Verify Fire/Rescue Crews on site at LO₂ and LH₂ facilities to support LO₂/LH₂ final preps for Cryo Load. Emergency Medical Services on Standby in district. Have Fire/Rescue perform COMM check with NTD.

Support: [FIRE](#)

15-243 JFIR NTD 232
 NTD *SCC

Fire Support on site to support final preps for Cryo Load. Emergency Medical Services on Standby in district. COMM checks completed and good.

Support: [FIRE](#)

LO₂ Final Preps

NOTE

GVA Alignment must be complete and area clear of personnel prior to next step.

15-244 **NTD** **TBC** **232** [SU72647](#)
 TBC **CLOX** **136**

T-08H00M

Perform LO₂ Storage Tank Pressurization and Suction Line Chilldown per OMI [G3151](#) (or OMI [G3155](#) for Scrub Turnaround).

15-245 **TBC** **JYVR** **138**

Start video recording of OTV cameras for LO₂/LH₂ final preps (OMI [G3151](#) and [G3251](#)) (see CLHY and CLOX, Figure 13-1, (pages 1 thru 3)).

Cameras 038, 039, 040, 046, 047

Support: [OTV](#)

15-246 **CLOX** **TBC** **136** [SU72680](#)
 TBC **NTD** **232**
 NTD ***SCC**

Ready to clear LO₂ control area for OMI [G3151](#) (or OMI [G3155](#)) hazardous operations - Storage Tank Pressurization.

15-247	NTD	*SCC	232
		TBC	
	TBC	CLOX	136
	CLOX	PLOX	156

Perform the following:

1. **Clear** nonessential personnel 150-ft radius from storage area and post barriers and danger signs for OMI G3151 or OMI G3155 operations.
2. **Verify** Fire/Rescue support on site at Pad and Emergency Medical on Standby in district. PLOX perform COMM Check with Fire Support and *SCC on radio Net 105/205.

Verify LO₂ Storage Area Warning Lights On, FLASHING AMBER.

3. Coveralls, faceshields, non-sparking footwear, and gloves required for manual LO₂ Valve Operators. All others require coveralls.

Essential Personnel LO₂ Final Prep Crew (HAZ Badge)			
	SPOC	NASA	NPSC
Engineer	2	1	
Technician	4		
Safety	1	1	
Fire			4

WARNING

Liquid Oxygen (LO₂) is an extremely cold cryogenic and is an irritant that vigorously promotes combustion. Combustibles in contact with LO₂ may explode or burn due to impact or due to an ignition source.

Contact with unprotected tissue may cause pain, frostbite and/or cryogenic burn injuries. Exposure by inhalation of cold vapor concentrations may cause respiratory and nervous system irritation.

Wear **industrial goggles , face shield .**

Wear **loose fitting temperature protective/welders gloves .**

Wear **non-porous, non-sparking conductive footwear .**

Wear **clean flame retardant, non-static producing coveralls or shop coat .**

WT018 07-14-2006

NOTE

Hazardous steps follow due to LO₂ final preps.

15-251	NTD	TBC	232
	TBC	CLOX	136
	CLOX	PLOX	156

Proceed with LO₂ Storage Tank Pressurization and Suction Line
Chilldown per OMIs [G3151](#) / [G3155](#) .

ET LH₂ Preps - Complete

15-252	CLHY	TBC	136	SU72652
	TBC	NTD	232	

ET LH₂ Preps per OMI G3251 (or OMI G3255 if performing Scrub
Turnaround) complete.

LH₂ Final Preps

15-253 CLHY TBC 136 SU72651
 TBC NTD 232
 NTD *SCC

Ready to clear control area for OMI G3251 (or OMI G3255, if performing Scrub Turnaround) LH₂ Final Preps for Loading, hazardous operations.

15-254 NTD TBC 232 SU72681
 *SCC
 TBC CLHY 136
 CLHY PLHY 166

Perform following:

1. **Clear** nonessential personnel 200-ft radius from storage area and post barriers and danger signs for OMI G3251 or OMI G3255 operations.
2. **Verify** Fire/Rescue on-site at LH₂ Storage Area and EMS on Standby in district. Warning lights On, FLASHING AMBER.
3. Coveralls, faceshields, non-sparking footwear, and gloves required for manual LH₂ valve operators. All others require blue collar coveralls.

Essential Personnel LH₂ Final Prep Crew (HAZ Badge)			
	SPOC	NASA	NPSC
Engineer	2	1	
Technician	4		
Safety	1	1	
Fire			4

15-255	PLHY	CLHY	166
	CLHY	TBC	136
	TBC	NTD	
	NTD	*SCC	232

Verify Emergency Medical Services on Standby in district and Fire Rescue on site at LH₂ Storage Area.

15-256	NTD	PA
--------	-----	----

Attention on Pad A:

All nonessential personnel clear 200-ft radius of LH₂ Storage Area for hazardous operations.

15-257	PLHY	CLHY	166
	CLHY	TBC	136
	TBC	NTD	232
	NTD	*SCC	

Control area established and warning lights On, FLASHING AMBER. Nonessential personnel clear and essential personnel properly attired. Fire Support on site and Emergency Medical on Standby. Barriers and danger signs posted.

Request Safety concurrence to proceed with Final Preps.

15-258	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136

You have Safety concurrence to proceed with Final Preps.

WARNING

Liquid hydrogen is an extremely flammable cryogenic, hydrogen gas is an asphyxiant.

Exposure may cause frostbite and severe cryogenic burns.

Wear **temperature protective/welders gloves** , **clean flame retardant, non-static producing coveralls** , **face shield** and **non-porous, non-sparking conductive footwear** .

Provide adequate ventilation, and eliminate all potential ignition sources.

WT038.b 07-18-2006

NOTE

Hazardous steps follow due to LH₂ final preps.

15-259 **NTD** **TBC** **232**
 TBC **CLHY** **136**

Perform LH₂ Final Preps for Vehicle Loading per OMI [G3251](#)
(or OMI [G3255](#)).

Configure Crew Compartment and Whiteroom

15-260 **OTC** **ASP** **132**

IF BUS SENSORS NOT ALREADY IN MONITOR POSITION,

THEN

PANEL R1

POWER DISTRIBUTION

AC BUS SNSR

1 SW - OFF, 1 SEC, MONITOR

2 SW - OFF, 1 SEC, MONITOR

3 SW - OFF, 1 SEC, MONITOR

Not Performed: _____

Configure Minicams

NOTE

Perform this option if the minicams are to be used for strap-in.

Configure Minicams Not Performed: _____

15-261 OTC ASP 132

Verify minicams connect to J4 and J5 at OTV interface in OAA ceiling.

15-262 OTC STM 132
 STM JYVO 138

Verify acceptable video signal from OAA interface from Pad A.

Verify video signal is patched to OTV switcher as sources 068/168 and 069/169.

Support: [OTV](#)

***** End of Configure Minicams *****

15-263 NTD STM 232
 STM JBEP 111

Verify Pad Whiteroom O₂ analyzer readouts normal at C3 Console.

Support: [PWR](#)

Configure Portable O₂ Meter

NOTE

Perform this option if fixed O₂ System in Crew Compartment is not verified installed and operational.

Configure Portable O₂ Meter Not Performed: _____

15-264 **NTD** ***SCC** **232**
 ***SCC** ***PSE** **NET 105**
T-08H00M

Verify Portable O₂ Meter in Whiteroom configured for viewing on OTV.

15-265 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**

Portable O₂ Meter has been installed in Whiteroom and verified readable by OTC.

***** End of Configure Portable O₂ Meter *****

15-266 **OTC** **JYVR** **138** [SU72664](#)

Start video recording of OTV Camera 005.

Support: [OTV](#)

15-267 **OTC** **OMTO** **132** [SU72637](#)
T-08H00M

Whiteroom ceiling:

- 1.** **Verify** ECS Crew Module Purge damper (A122817) is in the Mark Position and air is flowing through ECS duct into Crew Compartment.
- 2.** **Verify** ECS Whiteroom Ceiling Chamber damper (A122818) is Open..

T: _____

15-268 OTC OMTO 132

Verify ECS exhaust louvers operate freely by manually pushing them outboard to Open, then releasing them to Close.

T: _____

15-269 OTC CECL 132

Verify partial pressure of Oxygen in Crew Compartment satisfactory.

MLP Halon System to Manual

15-270 JSTC JFIR 114
T-08H00M

Place MLP Halon System to Manual from 2P10 (remotely).

Report completion.

Support: FIRE

15-271 *SEC JSTC 114
JSTC STM 111

K-9 sweep of Pad Apron complete.

Support: SEC

Hard Copy \$HWMON Errors

15-272 LPS C4MC 127

Hard copy all \$HWMON errors and HIM status for baseline reference.

Configure Consoles OIS-D to Multi-Channel Transmit

15-273 STM GYCC 111
 GYCC JYCD 117

T-08H00M

Configure OIS-D communications in Prime Firing Room _____
Consoles to multi-channel transmit capability (30 minutes).

Support: [OISD](#)

FR-3			FR-4		
AA-5	107-21	LD	10496A3	104-55	ALD
AA-6	104-41	ALD	10496A5	107-56	LD
AB-5	106-61	NTD	10496A13	107-36/106-75	NTD
AB-6	107-61	ANTD	10496A15	105-14	ANTD
AB-7	104-02	CNTD	10496A17	104-75/106-01	CNTD
AB-8	105-02	LRD	10496A19	105-54	LRD

15-274 STM NTD 232

OIS-D will be configured to multi-channel transmit mode on Consoles AB-5, AA-5, AA-6, AB-6, AB-7 and AB-8 for FR-3 or Consoles A13, A15, A17, A19, A5 and A3 for FR-4.

Safety Sign Removal List

1. MLP A & B Side 1,2 & 4 and Zero Level
2. Perimeter Road and F Road Intersection
3. LO₂ and LH₂ TSMs
4. PTCR Pad Surface North and South Blast Doors.
5. FSS 75-foot Level
6. ECS Stub Tower at the 9099 interface

15-276	NTD	STM	232
	STM	JSTC	111
	JSTC	*SEC	114

Verify Security is Harddown at Screening Roadblocks of Launching Pad A. No access granted unless Hazardous Badged or cleared by NTD.

Support: [SEC](#)

Water Chiller Operations

15-277 JSTC JSAC 114 [SU72597](#)
 JSTC STM 111

T-08H00M

Verify Utility Annex Refrigeration Plant ready to support per OMI I3067.

Support: [AC](#)

SRB HPU BITE Test and HPU Fuel Pump Bear Seal Soak - Complete

15-278 CHPU TBC 136

T-07H45M

SRB HPU BITE Test and HPU Fuel Pump Bearing Seal Soak complete per OMI S0007.100, Operation 452.

15-279 TBC NTD 232 [SU72584](#)
 NTD *SCC
 *SCC *PSE NET 105

SRB HPU BITE Test and HPU Fuel Pump Bearing Seal Soak per OMI S0007.100, Operation 452 complete.
Request SPOC Safety open control area around HPU exhaust ducts.

15-280 *PSE *SCC NET 105 [SU72606](#)
 *SCC NTD 232
 NTD TBC

HPU exhaust duct control area open for controlled work.

15-281

CHPU

CRT (BAT04)
RECORD PRESENT TIME AND DATE

TIME _____ GMT

DATE _____ (MMDDYY)

CRT (BAT04)
SRB AFT SKIRT GN2 PURGE

CURSOR CNTL
T (BLOCK)
XMIT CURSOR KEY - PRESS

CRT

NOTE DISPLAY OF FLEX BEARING TEMPERATURES AND
NOZZLE TO CASE JOINT TEMPERATURES .

RECORD FLEX BEARING TEMPERATURES

_____ B _____ DEG F BD

_____ B _____ DEG F BD

_____ B _____ DEG F BD

_____ B _____ DEG F BD

RECORD NOZZLE CASE JOINT TEMPERATURES

_____ N _____ DEG F BD

_____ N _____ DEG F BD

_____ N _____ DEG F BD

CURSOR CNTL
T (BLOCK)
XMIT CURSOR KEY - PRESS

NOTE DISPLAY OF PURGE SCHEMATIC

15-282 TBC CHPU 136

IF purge is not already activated

And

IF any one or more of previous six nozzle-to-case joint temperatures was less than 78 deg F,

THEN activate SRB GN₂ AFT Skirt Purge per OMI S0007.100, Operation 453 - SRB AFT Skirt GN₂ Purge Activation/Deactivation.

Report completion.

Not Performed: _____

SRB TVC Power Up

15-283 TBC CAFC 136
T-07H45M

[SU72644](#)

Perform SRB TVC Power Up.

15-284 TBC CPWR 136
CPWR CEPD

Transfer MEC RSYS to C11 to support SRB TVC Power Up.

15-285 CEPD

CONSOLE KYBD
C CO MEC1 C11
XMIT CMD KEY - PRESS

C CO MEC2 C11
XMIT CMD KEY - PRESS

15-286 CEPD CPWR
CPWR TBC 136
TBC CAFC

MEC1 and MEC2 RSYS transferred to C11.

15-287

CAFC

CURSOR CNTL (SAB19/SWB01)
ATVC - OPS MAN
XMIT CURSOR KEY - PRESS

15-288

CAFC

CURSOR CNTL (SAB22/VWB35)
SRB TVC PWR UP
XMIT CURSOR KEY - PRESS

15-289

CAFC

CURSOR CNTL (SAB22/VWB35)
START TEST
XMIT CURSOR KEY - PRESS

15-290

CAFC

CRT (SAB22/VSB31)
VERIFY INITIAL GNC SYSTEMS STATUS

15-291

CAFC

APPL PG (SAB22/VSB31)
PFK1 KEY - PRESS (CONTINUE)

15-292

CAFC

CRT (SAB22/VTB01)
VERIFY FINAL GNC SYSTEM STATUS DISPLAYED

15-293

CAFC

APPL PG (SAB22/VTB01)
PFK1 KEY - PRESS (PERFORM POST POWER-UP TEST)

NOTE

Noted requirement is satisfied by the following steps annotated with OMRS code.

OMRS S00FA0.770

15-294

CAFC

CRT (SAB22/VWB35)
VERIFY SRB TVC POWER UP COMPLETE WITHOUT ANOMALY

OMRS S00FA0.770 (VTB01)

AI Mode 1 with SRB

15-295

COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS

15-296

COFC

CURSOR CNTL (SAB23/VSB100)
ORBITER/SRB AI MODE 1
XMIT CURSOR KEY - PRESS

15-297

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

15-298

COFC

CRT (SAB23/VSB100)
VERIFY
AI MODE 1 REQUEST COMPLETE.

OMRS S00FA0.770

15-299

CAFC

Noted requirement is complete.

OMRSD [S00FA0.770](#)

15-300

COFC

CURSOR CNTL (SAB23/VSB100)
SRB TVC POSITION TO DRIVER CHECKS
XMIT CURSOR KEY - PRESS

15-301

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

15-302

COFC

CRT (SAB23/VSB100)
VERIFY
SRB TVC POSITION TO DRIVER CHECKS COMPLETE

Activate SRB TVC LCC EMON

15-303

CAFC

APPL PAGE A (SAB20/SWB02)
PFK-13 KEY - PRESS (ACT EMON SETUP)

15-304

CAFC

CURSOR CNTL (SAB20/SWB02 PG-A)
A - SRB TVC
XMIT CURSOR KEY - PRESS

15-305

CAFC

APPL PAGE A (SAB20/SWB02)
PFK-13 KEY - PRESS (DEACT EMON SETUP)

15-306

CAFC

CONSOLE KYBD
C CO MEC1 C10
XMIT CMD KEY - PRESS
C CO MEC2 C10
XMIT CMD KEY - PRESS

15-307

CAFC	TBC	136
TBC	OTC	132
OTC	CEPD	

MEC RSYS has been reassigned to C10.

15-308

CAFC	TBC	136
TBC	NTD	232

[SU72644](#)

SRB TVC Power Up, Functional Check and LCC Activation complete.

E1Y OPS 101 Command

NOTE

The following four steps are performed to reduce E1Y actuator drift from the OPS 101 transition command of +0.2 deg. The position must be maintained within 2.0 deg of this command at APU start.

15-309

COFC

CURSOR CNTL (SAB23/VSB100)
E1Y NULL COMMANDING
XMIT CURSOR KEY - PRESS

15-310

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

15-311

COFC

CRT (SAB23/VSB100)
VERIFY
E1Y NULL COMMANDING SUCCESSFUL

15-312

COFC

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS

15-313

OTC

CEPD

132

[SU72645](#)

Perform MEC Pre-Flight BITE Evaluation.

15-314

CEPD

Perform SDC QLDB Retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

15-315 **CEPD** **OTC** **132**
 OTC **NTD** **232**

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

15-316 **NTD** ***SEC** **232**

Identify GSA vehicles at Pad Ops Building to be moved for Launch. If driver and/or keys not available, request wrecker for removal from Pad gate.

Support: [SEC](#)

Consoles OIS-D Configuration to Multi-Channel Transmit - Complete

15-317 **JYCD** **GYCC** **117**
 GYCC **STM** **111**
 STM **NTD** **232**

Consoles in Prime Firing Room _____ have been configured to multi-Channel transmit capability.

Support: [OISD](#)

15-318 **BRD** **NTD**
T-7H00M

Record weather status for retrieval forces. 7-3904 (recorded phone) (FR4)
Weather conditions are:

Sea State _____

Sea Temp _____

Air Temp _____

Winds _____

Visibility _____

15-319 **NTD** **LD** **232**

Initial status indicates retrieval forces/weather Go for Launch.

Check GS2A FEP Data Slots

15-320	TBC	NTD	232
	NTD	LPS	
	LPS	C4SE	127

T-07H30M

Dump GS2A FEP and verify at least 14 available 100 sample-per-second slots.

Retain output on station (compare with previous dump).

15-321	LPS	NTD	232
	NTD	TBC	
		CTPE	
	TBC	CLOX	136
		CLHY	

T-07H30M

GS2A FEP Dump complete. FEP contains _____ available 100 sample-per-second slots.

C&T Lab RSS Antenna Patch Verification

15-322

NTD TBC 232
TBC RSRT 136

SU72634

PERFORM FUNCTIONAL RF TEST OF RSS RACK 8234 TO
SUPPORT RANGE SAFETY OPEN LOOP CHECKOUT.

1. RACK 8234 PANEL A8
PATCH/VERIFY THE FOLLOWING:

J2 - J18
J3 - J19
J4 - J20
J5 - J21
J6 - J22
J7 - J23
J8 - J24
J10 - J26
J11 - J27
J12 - J28
J13 - J29
J14 - J30
J15 - J31
J16 - J32
50 OHM LOAD J1 AND J17

2. RACK 8234 PANEL A12
(Circuit Breakers)

CB 1 - ON
CB 2 - ON
CB 3 - ON
CB 4 - ON
CB 6 - ON

3. RACK 8234 PANEL A1 (AUDIO PANEL)

POWER 1 and 2 - ON
LINE SELECTOR 1 and 2 - POSITION 1
VOLUME 1 and 2 - 9 O'CLOCK (AS REQUIRED)

4. RACK 8234 PANEL A2A and A2B (Digital Recorders)
POWER - ON
Load recorders with Digital Tapes
5. RACK 8234 PANEL A9 & A11 (IRD PANELS)

IRD PWR - ON
6. RF SIGNAL GENERATOR SETUP
(EXTERNAL TEST EQUIPMENT)

FREQUENCY - 416.5 MHZ
MODULATION - NONE
OUTPUT LEVEL - (-70 DBM)
CAL NO. _____
7. RACK 8229 PANEL A7
REMOVE/VERIFY U-LINE J14 TO J15 PATCH.
8. **CONNECT** RF OUTPUT OF SIGNAL GENERATOR TO
8229A7J15
9. RACK 8234
RECORD AGC METER READINGS

PANEL A9 IRD AGC _____V (Greater than 2 Volts)

PANEL A11 IRD AGC _____V (Greater than 2 Volts)
10. RACK 8229 PANEL A7
DISCONNECT RF OUTPUT OF SIGNAL GENERATOR FROM
8229A7J15.
11. **PATCH** U-LINE BETWEEN J14 AND J15
12. RACK 8234 PANEL A4
NICOLET RECORDER:

DOUBLE CLICK VISION ICON.
VERIFY MONITORING SOFTWARE STARTS.

T: _____

IDP 3 to Console C11

NOTE

IDP is required for the RCS Single Command Tests and the OMS Gimbal Profile.

15-325 COFC OTC 132
 OTC CDPS

Change responsible Console for IDP 3 to Console C11.

15-326 CDPS

CONSOLE KYBD
HOME CMD KEY - PRESS
ISSU N72IV102D #B00B
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C11
XMIT CMD KEY - PRESS

15-327 CDPS OTC 132
 OTC COFC

Responsible Console for IDP No. 3 now assigned to C11.

RCS Vernier Single Command Test Preps

15-328

COFC

CURSOR CNTL (SAB19/SWB01)
RCS - OPS MANAGER
XMIT CURSOR KEY - PRESS

15-329

COFC

CURSOR CNTL (VABM6/VWB29)
SINGLE COMMAND TEST
XMIT CURSOR KEY - PRESS

15-330

COFC

APPL PG (VABM6/VSB53)
PFK3 - PRESS (DEU NUMBER)

RCS Vernier Single Command Test

NOTE

A minimum clear of 25 ft around the FWD, Left and Right PODs is required for all personnel for the Vernier Single Command Test. Test duration is approx 50 seconds.

15-331 COFC OTC 132 SU72627
 OTC NTD 232

Ready for RCS Vernier Single Command Test.

15-332 NTD *SCC 232 SU72684
 *SCC *PSE NET 105

Verify all personnel clear from 25-ft radius around FWD, Left and Right POD Vernier Thrusters for RCS Single Command Test.

Verify Safety concurrence to proceed.

15-333 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 OTC COFC 132

All personnel cleared. You have Safety concurrence to proceed with RCS Vernier Single Command Test.

OMRS (general) [V79GEN.300](#)

15-334 COFC

CURSOR CNTL (VABM6/VSB53)
ALL VERNIER THRUSTERS
XMIT CURSOR KEY - PRESS

15-335 COFC

CURSOR CNTL (VABM6/VSB53)
END SELECTIONS/PERF PGM
XMIT CURSOR KEY - PRESS

15-336 COFC

APPL PG (VABM6/VSB53)
PFK1 KEY - PRESS (CONTINUE - 25-FT CLEAR
ESTABLISHED)

15-337 COFC

RCS VERNIER SINGLE COMMAND TEST COMPLETE
WITHOUT ANOMALY.

OMRSD V79AS0.012-1 (VSB53) (F5L/F5R)
OMRSD V79AS0.013-1 (VSB53) (F5L/F5R)
OMRSD V79AS0.062-1R (VSB53) (L5D/L5R)
OMRSD V79AS0.063-1 (VSB53) (L5D/L5R)
OMRSD V79AS0.110-1 (VSB53) (R5R/R5D)

15-338 COFC OTC 132

RCS Vernier Single Command Test complete.

15-339 OTC NTD 232
NTD *SCC
*SCC *PSE NET 105

RCS Vernier Single Command Test complete. Safety clears no longer
required.

15-340 COFC

APPL PG (VABM6/VSB53)
PFK15 KEY - PRESS (TERM VSB53)

15-341 COFC

APPL PG (VABM6/VWB29)
PFK15 KEY - PRESS (TERM VABM6)

RCS Manifold 5 Isolation Valve Reconfiguration

NOTE

The following switches are reconfigured open for Launch after the RCS Vernier Single Command Test.

15-342 COFC ASP

PANEL O7
AFT LEFT RCS
MANIFOLD ISOLATION
5 SW - OPEN
5 TB OP
5 SW - GPC (RELEASE)

AFT RIGHT RCS
MANIFOLD ISOLATION
5 SW - OPEN
5 TB OP
5 SW - GPC (RELEASE)

PANEL O8
FWD RCS
MANIFOLD ISOLATION
5 SW - OPEN
5 TB OP
5 SW - GPC (RELEASE)

15-343 OTC COOS

Using OTV Camera numbers 150 (LRCS) and 070 (RRCS),
perform visual inspection of all FRCS Tyvek rain covers.
Verify no cover detached from a thruster lip or a pocket detached from
cover.

OMRS (general) [V42GEN.090](#)

15-344 COOS OTC

FRCS Tyvek rain cover inspection complete.

OMS Gimbal Profile

NOTE

OMS Gimbal Profile is only required one time prior to Launch, making the repeat of the test optional for a recycle Launch Countdown. Do not perform this test if it has been performed in the previous Countdown unless there is concern over activity in the general LRU area, or concern over possible trend data, or concern over the time elapsed since the last test.

In order to avoid any possible conflict between onboard IMU operations and onboard ECP execution, do not perform OMS Gimbal Profile during IMU ATT DET, Pre-Flight Cal or alignments. OMS Gimbal Test generates ECPs which have a higher priority than IMU operations in the GPCs.

To ensure all personnel and equipment are out of the nozzle envelope, the ESPs should be lowered prior to OMS Gimballing.

OMS Gimbal Profile Not Performed: _____

15-345	COFC	OTC	132	SU72625
	OTC	NTD	232	
	NTD	LPS		
	LPS	C2MC	127	

T-07H30M

Set P/P 1 Unit 6 on line for COFC per OMI [S9002.016](#)
Report completion.

15-346	COFC	OTC	132
	OTC	NTD	232
	NTD	*FLT	

OMS Gimbal Profile will begin in _____ minutes.
Verify MCC ready for OMS Gimbal Profile.

15-347	*FLT	NTD	232
	NTD	OTC	

MCC ready for OMS Gimbal Profile.

15-348 OTC COFC 132

Perform OMS Gimbal Profile per OMI S0007.400 (Operation 43)
(30 minutes).

*** End of OMS Gimbal Profile ***

Open Orbiter Leeward Vent Doors 1 & 2 (Contingency)

NOTE

Perform this option to open Leeward Vent Doors 1 & 2 if O₂ concentration in OAA Whiteroom becomes less than 20 percent as indicated on Whiteroom O₂ meter (OTV Camera 005).

Open Orbiter Leeward Vent Doors 1 & 2 (Contingency) Not Performed: _____

15-349 NTD OTC 232 [SU72539](#)
 OTC CPVD 132

T-07H15M

O₂ concentration within Whiteroom less than 20 percent, open Orbiter Vent Doors 1 & 2 on Leeward side.

15-350 CPVD

CURSOR CNTL (VAM31A/VAM09A)
VENT DOORS 1&2 (LEEWARD)
OPEN TARGET
XMIT CURSOR

15-351 CPVD OTC 132
 OTC NTD 232
 NTD *SCC

Leeward Vent Door opening complete.

*** End of Open Orbiter Leeward Vent Doors 1 & 2 (Contingency) ***

DPS LCC Monitor Activation/LDB Redundancy Check

NOTE
LDB switching will occur in next step.

15-355
T-07H15M

OTC CDPS 132

[SU72617](#)

Activate DPS LCC monitor and perform LDB Redundancy Check per OMI S0007.400 (Operation 49, Option 12) (15 minutes).

Report completion.

OMRSR [S00FB0.230-1R](#)

NOTE
The following step should be performed no later than 30 minutes prior to Crew Module Clear for Tanking.

15-356

OTC ASP 132

Perform Final Switch Verification prior to Pad Clear for Tanking.

OMS Gimbal Profile Complete

NOTE

Perform this option if the referenced test was performed on this run.

OMS Gimbal Profile Complete Not Performed: _____

15-357 **COFC** **OTC** **132** [SU72625](#)
T-07H00M

OMS Gimbal Profile complete.

15-358 **COFC** **OTC** **132**
 OTC **NTD** **232**
 NTD **LPS**
 LPS **C2MC** **127**

Set PP 1 unit 6 off line.

Remove data for Data Coordinator.

***** End of OMS Gimbal Profile Complete *****

IDP 3 Return to C12

15-359 **COFC**

CONSOLE KYBD
ISSU N72IV102D 0
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS

15-360 **COFC** **OTC** **132**
 CDPS

Responsible Console for IDP 3 is now C12.

Activate OMS TVC LCC Monitoring

15-361

COFC

APPL PAGE A (SAB20/SWB02)
PFK13 KEY - PRESS (ACT EMON SETUP)

15-362

COFC

CURSOR CNTL (SAB20/SWB02 PG-A)
A-OMS TVC
XMIT CURSOR KEY - PRESS

OMRSD [V79AZ0.090 \(SWB02\)](#)

15-363

COFC

APPL PAGE A (SAB20/SWB02)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

15-364

STM	JSTC	111
JSTC	*SCB	NET 104

Deliver 12 LAPs with COMM (3 configured with Tank Driver Mask) to Fire Station No. 2.

Support: [LS](#)

Red Crew Assembled

15-365	NTD	OTC	232	SU72633
	OTC	*PAD	132	

T-07H00M

Verify Red Crew assembled and ready to support.

Verify the following groups are available to support Contingency/Red Crew Operations as required per Red Crew requirements and fallback list:

- Ground Coolant
- Propellants
- ECS
- Power
- MLP
- Orbiter
- ET
- SRB
- Payload

Egress Operational Checks

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00FA0.820

15-366	NTD	OTC	232
	OTC	CHGD	132

T-07H00M

Emergency Egress System (SAW01/HWW16)

Verify EGR HFDS Operational Checks for Primary and Secondary
HIMs:

ALRM = OFF

CONF = ON

SELF = OFF

Verify EGR EETD Operational Checks for Primary and Secondary
HIMs:

Ambient +/- 15 deg Fahrenheit

15-367	CHGD	OTC	132
	OTC	CGSS	

Emergency Egress System Fire Detector Self Test will be performed
momentarily. Ignore ALARMS and EMONS.

15-368

CHGD

CURSOR CNTL (SAW01/HWW16)
GROUP SELF TEST
XMIT CURSOR KEY - PRESS

CRT
VERIFY "ALRM", "CONF", AND "SELF" INDICATION ON
FOR EACH FIRE DETECTOR PRIMARY AND SECONDARY.

CURSOR CNTL (SAW01/HWW16)
GROUP COMMAND OFF
XMIT CURSOR KEY - PRESS

CRT
VERIFY "ALRM" AND "SELF" INDICATION OFF AND "CONF"
INDICATION ON FOR EACH FIRE DETECTOR PRIMARY AND
SECONDARY.
REPORT ANY ANOMALIES.

NOTE

For purposes of verifying EGR FDX operational, operational is defined as being that the FDX successfully responded to operator initiated self-test command issued in previous step and that confidence indication remains on.

15-369

CHGD

WHITEROOM ARRAY
VERIFY 2 OF 3 OPERATIONAL:

EGR FD1
EGR TD1
EGR TD2

15-370

CHGD

OAA ARRAY
VERIFY 2 OF 4 OPERATIONAL:

EGR FD2
EGR FD3
EGR TD3
EGR TD7

15-371

CHGD

FSS ARRAY
VERIFY 3 OF 5 OPERATIONAL:

EGR FD7
EGR FD11
EGR FD12
EGR FD13
EGR FD14

15-372

CHGD

175 FOOT LEVEL ARRAY
VERIFY 4 OF 6 OPERATIONAL:

EGR FD8
EGR FD9
EGR FD10
EGR TD8
EGR TD9
EGR TD10

15-373

CHGD

195 FOOT LEVEL ARRAY
VERIFY 4 OF 6 OPERATIONAL:

EGR FD4
EGR FD5
EGR FD6
EGR TD4
EGR TD5
EGR TD6

15-374

CHGD **OTC** 132
OTC **CGSS**

Emergency Egress System Fire Detector Self Test is complete. Report all ALARMS and EMONS.

15-375

CHGD **OTC**

Emergency Egress Operational Checks complete. No anomalies noticed.

15-376

Noted requirement is complete.

OMRSD [S00FA0.820](#)

COMM Command to Launch Configuration - Complete

15-377 CCSE OTC 132 SU72568
 OTC NTD 232

T-07H00M

COMM Command to Launch Configuration-MCCH complete
(OMI V1117).

OMRSR S00FA0.372-A
OMRSR S00FA0.372-D
OMRSR S00FA0.372-H
OMRSR S00FA0.372-I
OMRSR S00FB0.281-A-1R
OMRSR S00FB0.281-B-1R
OMRSR S00FB0.281-C-1R
OMRSR S00FB0.281-D-1R

15-378 NTD LPS 232

VIA AWP01 **CONFIGURE** OIA, OIS, GPCA, GPCS AND PLDA
FEPS TO PEND S2, 192 KB, AND PLDS FEP TO PROCESS
S2, 192 KB.

15-379 LPS C4MC 127

AWP01 (PG-B) **SELECT** SET S2 PENDING.
XMIT CURSOR

15-380 LPS C4MC 127

AWP01 (PG-B) **SELECT** SWITCH PLDS TO S2.
XMIT CURSOR

NOTE

Perform next step after completion of COMM Command to Launch Configuration and Ascent Switchlist.

15-381
T-07H00M

OTC CCSE 132

CRT (VWA40)

VERIFY:

PM SYSTEM

CONTROL - CMD

ANTENNA SW - 2 ON

SW BEAM ASSY - 2 ON

QUAD ANT - ULA

QUAD SW SCAN - GPC

HEMI ANT - UPR

HEMI SW SCAN - GPC

XPNDR - 2 ON

MODE - STDN LO

FREQ _____ (HIGH OR LOW)

_____ KHZ LOOP (BD)

_____ CNT AGC (BD)

_____ WATTS (BD)

NSP - 2 ON

SYNC - BIT + FRAME

BITE - GO

PRE AMP - OFF

HEATER -1 ON, -2 ON

PWR AMP - OFF

STANDBY -1 OFF, -2 OFF

COMSEC

ENCRYPT - RCV

FRM SYNC - LOCKED

15-382	CCSE	OTC	132
	OTC	NTD	232
	NTD	LPS	

Deadface the uplink FEP signal for the NSP T-0 on 6LPM1208 Pad A.

15-383	CCSE	OTC	132
	OTC	NTD	232
	NTD	LPS	

Deadface the PSP IN signal for the PSP T-0 on 6LPM1211 Pad A.
Report completion.

15-384		LPS	
--------	--	-----	--

Disconnect the UPLK FEP signal from FR _____ to Pad A NSP IN (H/L) at 158A2 patch panel.

15-385		LPS	
--------	--	-----	--

Verify the PSP IN to Pad A has no patch cords installed.

15-386	LPS	NTD	232
	NTD	OTC	
	OTC	CCSE	132

Deadface of the uplink FEP signal for the NSP T-0 is complete.

15-387	LPS	NTD	232
	NTD	OTC	
	OTC	CCSE	132

Deadface of the PSP IN signal is complete.

MCCH Abort Advisory Check

NOTE

Delay Abort Advisory Check until COMM Command to Launch Configuration is complete.

15-388 **NTD** **OTC** **232** [SU72618](#)
 OTC **ASP** **132**
 CISL

T-07H00M

Stand by for Abort Advisory Checks on OIS Channel 212.

15-389 **NTD** ***FLT** **232**

Verify system armed and ready to perform check on OIS Channel 212.

15-390 **NTD** ***FLT** **232**
T-07H00M

Perform Flight Abort Advisory Checks.

NOTE

The next 12 steps verify the MCC Flight Director Console. ASP should report Abort Light On or Off regardless of light intensity.

15-391 ***FLT**

Transmit DSM 4054 (abort A/B On) via FD Console hardware PBI.

15-392 **ASP**

PANEL F6
ABORT INDICATOR LIGHT ON

15-393 ***FLT**

Transmit DSM 4053 (Abort B Off).

15-394 ASP

PANEL F6
ABORT INDICATOR LIGHT ON

15-395 *FLT

Transmit DSM 4051 (Abort A Off).

15-396 ASP

PANEL F6
ABORT INDICATOR LIGHT OFF

15-397 *FLT

Transmit DSM 4054 (Abort A/B On) via FD Console software PBI.

15-398 ASP

PANEL F6
ABORT INDICATOR LIGHT ON

15-399 *FLT

Transmit DSM 4051 (Abort A Off).

15-400 ASP

PANEL F6
ABORT INDICATOR LIGHT ON

15-401 *FLT

Transmit DSM 4053 (Abort B Off).

15-402 ASP

PANEL F6
ABORT INDICATOR LIGHT OFF

NOTE

The next four steps verify the MCC Flight Dynamics Officer Console. ASP should report Abort Light On or Off regardless of light intensity.

15-403 *FLT

Transmit DSM 4054 (Abort A/B On) via FDO Console hardware PBI.

15-404 ASP

PANEL F6
ABORT INDICATOR LIGHT ON

15-405 *FLT

Transmit both DSM 4051 (Abort A Off) and DSM 4053 (Abort B Off).

15-406 ASP

PANEL F6
ABORT INDICATOR LIGHT OFF

15-407 *FLT NTD 232 SU72618
NTD OTC

Abort Advisory Checks complete.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

15-408 NTD STM 232 SU72668
 STM JSTC 111
 JSTC *SCB NET 104

T-07H00M

Deliver forty ELSAs and sixteen 30-or 60-minute air packs (located in air pack van) to OSB II after released by Safety (30 minutes).

Support: [LS](#)

Top Off Sound Suppression System

15-409 STM JBWC 111 SU72671

Top off elevated Sound Suppression Water Tank per
[Doc: JOB PLAN M3189.210 \(LI\) SS Elevated Tank LCD Topoff without Field Support](#)

Support: [CWSS](#)

GOX Hood Purge to Operating Parameters

15-410 TBC CMEC 136 SU72655
T-07H00M

Perform GOX Vent Hood Purge Temperature Return to Operating Parameters per OMI [G2158](#)

LH₂ Final Preps - Complete

15-411 CLHY TBC 136 SU72651
 TBC NTD 232
 NTD *SCC

T-07H00M

LH₂ Final Preps for Vehicle Loading per OMI G3251 (or OMI G3255) complete. Personnel clearing to Fallback Area. LH₂ storage area road barriers removed and warning lights configured to FLASHING RED.

15-412 NTD JFIR 232 SU72673

LH₂ Storage Area Fire/Rescue released to Pad A gate.

Support: [FIRE](#)

ET/IT GN₂ Purge Initiated

15-422	CLHY	TBC	136	SU72657
	TBC	CLOX		
		CHGD		
		NTD	232	

T-06H45M

ET/IT GN₂ Purge has been initiated.

_____ GMT

ET/IT Purge Status

NOTE

Perform the next step after O₂ concentration less than 10,000 PPM after ET/IT purge has been initiated (up to 30 minutes). This step does not constrain operations.

15-423	CLHY	TBC	136
	TBC	CHGD	

Verify O₂ Concentration in ET/IT less than 10,000 ppm O₂ and decreasing.

15-424	CHGD	TBC	136
	TBC	CLHY	
		CLOX	

O₂ Concentration in ET/IT less than 10,000 ppm and decreasing.

_____ GMT

LH₂ and LO₂ TSM GN₂ Purges Initiated

15-425 CLHY TBC 136 [SU72658](#)
 TBC CHGD

LH₂ and LO₂ TSM GN₂ Purges have been initiated.

_____ GMT

LH₂ TSM GN₂ Purge Status

15-426 CLHY TBC 136
 TBC CHGD

Verify O₂ Concentration in MLP LH₂ TSM decreasing.

15-427 CHGD TBC 136
 TBC CLHY

O₂ Concentration in MLP LH₂ TSM decreasing.

_____ GMT

GOX Hood Purge to Operating Parameters - Complete

15-428 CMEC TBC 136 [SU72655](#)
T-06H40M

GOX Vent Hood purge temperature returned to operating parameters per OMI [G2158](#) .

15-429 TBC CMEC 136
T-06H40M

Terminate GAG02 Program and transfer GOX Vent Arm system monitoring and control to VAJ14 Program per OMI [G2158](#) .

15-430 CMEC TBC 136
T-06H40M

GAG02 Program terminated and GOX vent system monitoring and control transferred to VAJ14 Program per OMI G2158.

OMRSR [S00FC0.090-1](#)

BDA Final Operations/Safety Sweep - Complete

15-431 NPM NTD NET 110
 NTD *SCC 232
T-06H30M

S0007.100 Operation 555 - BDA final Operations/Safety Sweep complete. Discrepancies identified:

NPM will document all discrepancies in OMI S0007.400, Operation 899 - "FOD Identified in the BDA Final Clear OPS Safety Sweep Walkdown and Final Inspection at T-3 hours".

NOTE
Debris identified during the BDA Final Clear OPS Safety Sweep Walkdown must be assessed and dispositioned by the SPE/OPE and, if identified, the responsible system representatives.

15-432 NTD STM 232
 CSPE
 STM PSTM NET 104

BDA Clear Final Operations/Safety Sweep complete. Disposition of FOD must be completed by start of T-3 hour Hold.

Safety Sign Removal Status

15-433	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
		TBC	
		STM	
		PTC	

All danger signs have been removed with following exceptions:

1. PTCR - South Tunnel Entrance
2. ECS Doors (two)
3. PTCR Door (Ground Level)
4. Pad Catacomb Doors
5. Pad Tunnel - East and West Entrances

Increase AFT Flow (OMI V1122.004)

CAUTION

To prevent possible over pressurization of AFT compartment, Air to GN₂ Changeover must be performed prior to next step.

15-434
T-06H30M

OTC CPVD 132

[SU72622](#)

1. **Verify** ECS GN₂ Purge to Orbiter has stabilized.
2. **Increase** Cryo Load AFT flow rate to 110 lb/min (105 to 115 lb) and raise AFT interface temp to 105 deg F (95 to 110 deg F) per OMI [V1122.004](#)

Egress via E Road

NOTE

Normal Egress Route is via E Road over top of Pad surface. If E Road is controlled for hazardous operations in the LO₂ dump basin or on the Pad surface, egress will be through LH₂ Storage Area.

Perform the following option if egress via E Road over top of Pad surface is required.

Egress via E Road Not Performed: _____

15-440	CLOX	TBC	136
	TBC	NTD	232
	NTD	*SCC	

Request concurrence to egress LO₂ Final Preps Team and Fire Support via E Road over top of Pad surface.

15-441	*SCC	NTD	232
	NTD	TBC	
	TBC	CLOX	136
	CLOX	PLOX	156

You have Safety concurrence to egress LO₂ Final Preps Team and Fire Support via E Road over top of Pad surface.

***** End of Egress via E Road *****

Egress through LH₂ Storage Area

NOTE

Perform following option if egress through LH₂ Storage Area is required.

Egress through LH₂ Storage Area Not Performed: _____

15-442 **CLOX TBC 136**
 TBC CLHY

Verify LH₂ Preps are complete.

Request concurrence for LO₂ Final Preps Team and Fire Support to egress Pad through LH₂ Storage Area.

15-443 **CLHY TBC 136**

LH₂ Final Preps complete. No known leaks or problems exist. You have CLHY concurrence to egress LO₂ Final Preps Team and Fire Support through LH₂ Storage Area.

15-444 **TBC NTD 232**
 NTD *SCC

LH₂ Final Preps complete and no known leaks or problems exist in LH₂ Storage Area.

Request Safety concurrence for LO₂ Final Preps Team and Fire Support to egress Pad through LH₂ Storage Area.

15-445 ***SCC NTD 232**
 NTD TBC
 TBC CLOX 136
 CLOX PLOX 156

You have Safety concurrence for LO₂ Final Preps Team and Fire Support to egress Pad through LH₂ Storage Area.

***** End of Egress Through LH₂ Storage Area *****

15-446 CLOX TBC 136 SU72647
 TBC NTD 232
T-06H30M

1. LO₂ System Final Preps for Vehicle Loading per OMI G3151 (or OMI G3155 if performing Scrub Turnaround) complete.
2. Ready to initiate MPS and LO₂ Loading preliminaries and SSME Purges per OMI S1003.

15-447
T-06H30M

CLOX

Completion of OMI G3151 or OMI G3155 operations in previous step satisfies noted OMRS requirements.

OMRSR [S00FA0.116-1](#)
OMRSR [S00FA0.120-1](#)
OMRSR [S00FA0.141-1](#)
OMRSR [S00FB0.330](#)
OMRSR [S00L00.051-B-1](#)

15-448 NTD JFIR 232 SU72675

LO₂ Storage Area Fire/Rescue released to Fire Station.

Support: [FIRE](#)

LO₂ Loading Preliminaries

15-449 NTD TBC 232 SU72648
 TBC CLOX 136
 CLOX CMPL 156
T-06H30M

Perform LO₂ and MPS Loading Preliminaries per OMI [S1003](#)

15-450
T-06H30M

TBC OTC 132
OTC CMPL

CMPL support required for MPS LO₂ Loading Preliminaries on Channel 156.

Initiate SSME Purging

15-451 CLOX TBC 136 SU72653
 TBC OTC 132
 OTC CSME
 CCME

T-06H30M

Initiate SSME Purging per OMI [S1003](#) on OIS Channel 156.

JBFX to 136 and JCFM to 158 Monitor

15-452 NTD JBFX 232
T-06H30M

Remain active on OIS Channel 232 and monitor Channel 136 from now through T-20 minutes.

Perform COMM Check with CLOX, CLHY and TBC on Channel 136.

Flow Firex water if directed by CLOX or CLHY.

Report your action on OIS Channel 136, then to NTD on 232.

Support: [CWSS](#)

15-453 TBC JBFX 136
 CLOX
 CLHY

Perform COMM Check on Channel 136. JBFX return to Channel 232 active and Channel 136 monitor through T-20 minutes.

Support: [CWSS](#)

15-454	CLOX	TBC	136
	TBC	NTD	232
	NTD	STM	
	STM	JCFM	111

JCFM requested on OIS Channel 158 to:

1. **Support** CLOX with LO₂ pump instrumentation recording requests (OMI S1003).
2. **Perform** COMM check with CLO3.

Support: [GIFM](#)

15-455	CLOX	TBC	136
	TBC	CMEC	

Verify GOX Vent Arm system ready to support LO₂ Loading.

Report any out of tolerance or abnormal condition to CLOX.

Pseudo Init

15-456	CGLS
--------	-------------

VERIFY 1 AVAILABLE CONCURRENCY.

HOME CMD KEY - PRESS
SLPP1
PERF PGM KEY - PRESS

(KSCA OR KSCB)
XMIT RESP KEY - PRESS

CURSOR CNTL
PSEUDO INIT
XMIT CURSOR KEY - PRESS

POSITION CURSOR TO ALL PSEUDOS
XMIT CURSOR KEY - PRESS

Cryo Safing Pseudo Init

NOTE

Perform this option if Page B Message indicates: "See Page A For Operator Input".

Cryo Safing Pseudo Init Not Performed: _____

15-457

CGLS

CRT

VERIFY PAGE A MSG:

(N03IS511E) CRYO SAFING ENABLED IS ON. THIS INDICATES SCRUB/CRYO DRAIN IN PROGRESS.

15-458

CGLS
OTC

OTC
CLHY

132

Verify with LH₂ Engineer scrub/boiloff is complete and ready to reactivate SLP50 RCL RSYS Xfer.

15-459

CGLS

CONSOLE KYBD

ENTER "1" IF CRYO SAFING SUPPORT COMPLETED AND SLP50 NOT ACTIVE TO INITIALIZE (N03IS511E) TO OFF.

ENTER "2" TO LEAVE (N03IS511E) UNCHANGED

_____ (1 OR 2)

XMIT RESPONSE KEY - PRESS

CRT

VERIFY MSG INDICATING PSEUDO STATE

***** End of Cryo Safing Pseudo Init *****

15-460

CGLS

VERIFY ALL SELECTED BLOCKS INVERTED AND NO
EXCEPTIONS PAGE A
TERMINATE
XMIT CURSOR KEY - PRESS
TERMINATE
XMIT CURSOR KEY - PRESS

15-461

CGLS LPS 127

GLS Pseudo Init is complete.

Note in the LPS logs for future SLP50 configuration.

CL RSYS Monitor Activation

NOTE

GLS Pseudo Init must be complete prior to SLP50 activation.

15-462

CGLS NTD 232

Ready for SLP50 activation.

15-463

NTD LPS 232

[SU72639](#)

Activate SLP50/SA001.

SLP50 Recycle

NOTE

Perform this option if SLP50 is active due to Scrub/LH₂ Boil Off Operations.

SLP50 Recycle Not Performed: _____

NOTE

From T-6 hours through initial scrub operations, any SLP50/SA001 messages should be relayed to CGLS on Channel 162.

15-464 LPS C4MC 127

VERIFY 1 ADDITIONAL CONCURRENCY AVAILABLE
PFP (SLP50)
PFP2 KEY - RECYCLE COMPLT - PRESS

CRT (SLP50 PG-A)

VERIFY MESSAGE
RECYCLE FUNCTION COMPLETE
AUTO RESPONSE TO ALL CONSOLE FAILURES RESUMED
MANUAL RSYS XFER/SAFING CAPABILITY ACTIVE

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

15-465 LPS C4MC 127

IF PGM SA001 NOT AUTOMATICALLY INITIALIZED,

THEN PERFORM:

CRT (SLP50 PG-A)

VERIFY MESSAGE

PSEUDO NLHK0706X IS ON, INDICATING SA001 ALREADY
ACTIVE, SPECIFY WHETHER TO PROCEED:

- 1 - ACTIVE SA001
- 2 - DO NOT ACT SA001 NOW

CONSOLE KYBD

1

XMIT RESP KEY - PRESS

CRT

VERIFY PGM SA001 ACTIVE

VERIFY MESSAGE

CRYOGENIC RECOVERY FUNCTION WILL BE HANDLED BY
SA001.

CRYO SAFING RESPONSE DISABLED.

Not Performed: _____

***** End of SLP50 Recycle *****

SLP50 Activation

NOTE
Perform this option if SLP50 is not active.

SLP50 Activation Not Performed: _____

NOTE
From T-6 hours through initial scrub operations, any SLP50/SA001 messages should be relayed to CGLS on Channel 162.

NOTE
CONC 1 through 4 must be occupied and CONC 5 and 6 available.

15-466 LPS C4MC 127

IF CONC allocation is needed,

THEN perform
\$T - Perf PGM

Not Performed: _____

15-467 LPS C4MC 127

Verify next program will come up in CONC 5.

15-468 LPS C4MC 127

PVO <FD>
XMIT CMD KEY - PRESS
N03IS510E
RECORD VALUE _____

N03IS511E
RECORD VALUE _____

NLHK0706X
RECORD VALUE _____

15-469 LPS C4MC 127

Verify pseudo values are Off.

15-470 LPS C4MC 127

HOME CMD KEY - PRESS
SLP50 - PERF PGM KEY - PRESS

15-471 LPS C4MC 127

Verify CONC 6 available for SA001 activation.

15-472 LPS C4MC 127

CRT (SLP50, PG-A)
VERIFY PROMPTS:

- 1 - FOR TERMINAL COUNT
- 2 - CRYO DRAIN SUPPORT

15-473 LPS C4MC 127

CONSOLE KYBD
1 - XMIT RESP - PRESS
VERIFY - SELECTED TERMINAL COUNT

***** End of SLP50 Activation *****

15-474 LPS C4MC 127

Verify SA001 active in CONC 6.

15-475 C4MC LPS 127

Programs active at Master:

SLP50
SA001

15-476 LPS CTPE 127

SLP50 is active at Master.
Inhibit automatic RCL RSYS transfer.

15-477 CTPE

PFP
SAP27 PFPK - PRESS

NOTE

Perform the next step to inhibit automatic RCL RSYS transfer if SAP27 PFPK1 displays "INH AUTO RCL XFER".

15-478 CTPE

SAP27
PFPK1 (INH AUTO RCL XFER) - PRESS

Not Performed: _____

15-479 CTPE

VERIFY SAP27 PFPK1 DISPLAYS
"ACT AUTO RCL XFER."

15-480 CTPE LPS 127

Automatic RCL RSYS transfer has been inhibited.

Inhibit HIMs

15-485 LPS C4MC 127

Inhibit pre-selected RSS HIMS/LCGs on ground data Bus 2/22 from polling by GS3A FEP via AWP01.

Reconfigure ECS Payload Bay Circuit GN₂ Purge

NOTE

Perform this option when O₂ levels in the Payload Bay, Midbody and AFT compartments are acceptable per HGDS operations and Payload Bay circuit was increased to expedite the Payload Bay/Midbody inerting for ET Load.

Reconfigure ECS Payload Bay Circuit GN₂ Purge Not Performed: _____

15-486 CHGD OTC 132
 OTC CPVD

Restore ECS Payload Bay circuit GN₂ purge to previously recorded flow rate and tolerance values per OMI [V1122.004](#) (maintain Payload Bay Interface temperature within payload OMRS limits).

15-487 CPVD OTC 132
 OTC CHGD

ECS Payload bay circuit GN₂ purge is reconfigured to nominal GN₂ flow rate.

***** End of Reconfigure ECS Payload Bay Circuit GN₂ Purge *****

Fuel Cell Activation - Complete

NOTE
Perform next step if Fuel Cells were activated this run.

15-488	CFCP	OTC	132	SU72619
	OTC	NTD	232	

Orbiter Fuel Cell Activation and Configure to Main Bus Load Sharing complete.

Not Performed: _____

Glacier Middeck Status Check

NOTE
Perform this option if Glacier Middeck was activated this run.

Glacier Middeck Status Check Not Performed: _____

15-489	PTC	NTD	232	SU72B64
	NTD	OTC	232	
	OTC	ASP	132	

Verify Glacier display first line is displaying Home and is not blinking.

Record: Current Temp _____ (Deg C) BD

15-490	PTC	NTD	232
	NTD	OTC	232
	OTC	ASP	132

IF Glacier display is blinking or display toggles "ERROR PENDING",

THEN report findings to NTD and perform Glacier Error Reset per OMI S0007.500 (Operation 127).

Not Performed: _____

*** End of Glacier Middeck Status Check ***

Fuel Cell Performance Calibration and PRSD System Integrity Check

NOTE
Perform this option if Fuel Cells were activated this run.

Fuel Cell Performance Calibration and PRSD System Integrity Check
Not Performed: _____

15-491	OTC	CFCP	132	SU72615
		CEPD		SU72630
		CHGD		

Perform Fuel Cell Performance Calibration and System Integrity Check per OMI S0007.400 (Operation 69).

OMRSR [V45CH0.020-1R](#)
OMRSR [V45CH0.030-1](#)

15-492	OTC	CECL	132
--------	-----	------	-----

Monitor heat load impact during Fuel Cell Performance Calibration.

15-493	CFCP	CHGD	153	SU72669
		OTC	142	

PRSD Integrity Check has been terminated.

***** End of Fuel Cell Performance Calibration & PRSD System Integrity Check *****

SRSS Status

15-494 TBC CBRS 136 [SU72649](#)

Verify Range Safety System status:

SRB: (Left and Right)

S&A Safe - On, Arm - Off
Battery A Volts - 31.6 VDC Min.
Battery B Volts - 30.0 to 35.9 VDC
Battery Curr A \leq 0.01 Amp
Battery Curr B \leq 0.04 Amp
Battery Temp RCVY 34.6 to 103.4
Inhibit A - On
Inhibit B - On

OMRSD [S00FA0.510-1](#)

IMU Operate/ATT DET - Complete

15-495 CGNC OTC 132 [SU72620](#)
T-06H21M

IMU Operate/ATT DET complete.

Activate IMU Operate LCC EMON

15-496 CGNC

APPL PG (SAB20/SWB02, PG-A)
PFK13 KEY - PRESS (ACT EMON SETUP)

15-497

CGNC

CURSOR CNTL (SAB20/SWB02, PG-A)
A-IMU OPERATE
XMIT CURSOR KEY - PRESS

15-498

CGNC

APPL PG (SAB20/SWB02, PG-A)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

IMU Post Operate Gyrocompass Align

NOTE

Perform the following step if operations permit (i.e., no TCS Sequences/ECPs running). OMS Repress operations are not compatible with IMU Gyrocompass Alignment. Also, if time permits, include 2 GA-1 Align periods to accommodate JSC data analysis (an additional 16 minutes).

NOTE

IMUs will remain in Term/Idle if following step is not performed.

15-499
T-06H21M

OTC CGNC 132

[SU72623](#)

IF operations/time permit,

THEN Perform IMU Gyrocompass Align per OMI [V1123.290](#)
(58 minutes).

RT OMI Log No. _____

Not Performed: _____

15-500

OTC CECL 132

IF Dual Mode Cooling is active,

THEN verify freon coolant loop radiator inlet temps acceptable to support Pad clear operations.

Not Performed: _____

Reduce Lighting/Remove Crew Compartment OIS

NOTE

Performance of the next three steps will be scheduled real time.

15-501 **OTC** **ASP** **132** [SU72569](#)

Reduce all panel and instrument lighting on Flight Deck to minimum levels.

15-502 **OTC** **ASP** **132** [SU72635](#)
 CDR

Remove OIS unit and associated cable from Orbiter Crew Compartment (15 minutes).

15-503 **OTC** **CDR** **132**

When departing Pad:
Transport Crew Compartment OIS units and associated cables to OSB II for IMCS pickup.

***** End of Reduce Lighting/Remove Crew Compartment OIS *****

Clear Whiteroom and Crew Compartment

NOTE

Verify all Crew Compartment work complete prior to clearing Whiteroom and Crew Compartment.

15-504 OTC CDR 132 [SU72636](#)

Verify ready to clear Whiteroom and Crew Compartment.

15-505 OTC NTD 232

Ready to clear Whiteroom and Crew Compartment.

15-506 NTD *FLT 232
 PTC
 TBC

Verify no requirements for personnel support from Crew Module or Whiteroom.

15-507 NTD OTC 232

Clear all personnel from Whiteroom and Crew Compartment to Roadblock A/B-11.

RPS Instrumentation Work Around Setup

15-512 OTC NTD 232
 NTD JRPS

Request JRPS on OIS Channel 145 to support CISL.

15-513 OTC CISL 132
 CISL JRPS 145

IF first run of S0007.200
OR RPS is not configured for Instrumentation LCC Workaround,

THEN Perform OMI S0007.100, Operation 255 - RPS Instrumentation
LCC Work Around setup.

Not Performed: _____

15-514 OTC CISL 132
 CISL JRPS 145

Start display recorder for OI-128, OI-64, and FCMS DECOM lock status
(10 minutes).

Verify DECOM lock on OI-128, OI-64 and FCMS data.

Console Software Configuration

NOTE

The following console program assignments are minimum for tanking. These assignments are to assign concurrency priorities.

15-515 NTD OTC 232 SU72624
 TBC
 PTC
 LPS

T-06H20M

Verify Firing Room Console software activation configured properly for
T-6 hours.

Payload Programs

NOTE

Perform the following step if C1 Console will be active or monitoring at T-6 Hours.

15-516 **PTC** **SLES** **134**
T-06H20M

VERIFY C1 CONSOLE PROGRAMS ACTIVE:

RW0017
RS0002
EA0013

Not Performed: _____

15-517 **PTC** **NTD** **232**

Firing Room C1 Console software configured.

Orbiter Programs

15-518 OTC CCSE 132

VERIFY PROGRAM
VWA40 ACTIVE IN C2

15-519 OTC CPLE 132

VERIFY PROGRAM
OVERVIEW 2 ACTIVE AT C5

15-520 OTC CAFM 132

VERIFY PROGRAMS
VAK20 ACTIVE IN C5
VAK21 ACTIVE IN C5

15-521 OTC CMPL 132

VERIFY PROGRAM
SAE02 ACTIVE IN C3

15-522 OTC CSME 132

VERIFY PROGRAM
VAE38A ACTIVE IN C3

15-523 OTC CMPS 132

VERIFY PROGRAMS
VAE18B ACTIVE IN C4
SAE12 ACTIVE IN C4

15-524 OTC CECL 132

VERIFY PROGRAMS
 VAG59 ACTIVE IN C5
 VAG28 ACTIVE IN C5
 VAG29 ACTIVE IN C5
 VAG60 ACTIVE IN C5 (AUTO)

15-525 OTC CPVD 132

VERIFY PROGRAMS
 VAM01A ACTIVE IN C6
 VAM31A ACTIVE IN C6

15-526 OTC CFCP 132

VERIFY PROGRAMS
 VWR05 ACTIVE IN C6
 VWR70 ACTIVE IN C6
 VWR04 ACTIVE IN C6

15-527 OTC CGSS 132

VERIFY PROGRAMS
 VAJ02 ACTIVE IN C7
 VAJ14 ACTIVE IN C7

15-528 OTC COOS 132

VERIFY PROGRAMS
 VADL7 ACTIVE IN C7
 VADL8 ACTIVE IN C7
 VADL9 ACTIVE IN C7
 VADL0 ACTIVE IN C7

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15-529 OTC CHYD 132

VERIFY PROGRAMS
VWF19 ACTIVE IN C8
VWF61 ACTIVE IN C8

15-530 OTC CAPU 132

VERIFY PROGRAMS
VWF48 ACTIVE IN C8
VWF57 ACTIVE IN C8
VWF62 ACTIVE IN C8

15-531 OTC CISL 132

VERIFY PROGRAMS
SAQ04 ACTIVE IN C9
VAQ29 ACTIVE IN C9

15-532 OTC CHGD 132
T-06H20M

VERIFY PROGRAM
SAW01/HWW10 ACTIVE IN C9

15-533 OTC CEPD 132

VERIFY PROGRAMS
SWC02 ACTIVE IN C10
VWC17 ACTIVE IN C10
VWC10 ACTIVE IN C10

15-534 OTC COFC 132

VERIFY PROGRAMS
SAB19 ACTIVE IN C11
SAB20 ACTIVE IN C11
SAB21 ACTIVE IN C11
VABM1 ACTIVE IN C11

15-535 OTC CDPS 132

VERIFY PROGRAMS
SAS01 ACTIVE IN C12
VASP9 ACTIVE IN C12
VAS59 ACTIVE IN C12
VAS97 OR VWS25 ACTIVE IN C12
VASB9 ACTIVE IN C12

15-536 OTC CCME 132

VERIFY PROGRAM
VWE01 ACTIVE IN C12

15-537 OTC CTPE 132

VERIFY PROGRAMS
SAP10 ACTIVE IN INTG
SAP27 ACTIVE IN INTG
SAP29 ACTIVE IN INTG
SAP28 ACTIVE IN INTG

15-538 OTC CTPE 132

VERIFY PROGRAMS
SEP03 ACTIVE IN B/U
SEP03 ACTIVE IN B/U
SEP03 ACTIVE IN B/U
SEP03 ACTIVE IN B/U

15-539 OTC NTD 232

Firing Room Console software activation configured for T-6 hours.

SRB and ET Programs

15-540 TBC CLOX 136

VERIFY PROGRAMS
GAL01 ACTIVE IN C3
GAL02 ACTIVE IN C3

15-541 TBC CLHY 136

VERIFY PROGRAMS
GAH01 ACTIVE IN C4
GAH02 ACTIVE IN C4
GAW02 ACTIVE IN C4

15-542 TBC CBRS 136

VERIFY PROGRAMS
SARB4 ACTIVE IN C2
SWRB2 ACTIVE IN C2

15-543 TBC CHPU 136

VERIFY PROGRAM
BAT04 ACTIVE IN C8

15-544 TBC CPWR 136

VERIFY PROGRAMS
BWE08 ACTIVE IN C10
BWE11 ACTIVE IN C10
TW495 ACTIVE IN C10

15-545 TBC NTD 232

Firing Room Console software activation configured for T-6 hours.

Master Console Programs

15-546 LPS NTD 232

PROGRAMS ACTIVE IN MASTER:
\$HWMON (TCB1)
AA008/AWP02 (TCB2)
AA009/AWP01 (TCB4)
SLP50 (TCB5)
SA001 (TCB6)

Fault SUMM Page Clear

15-547 OTC CDPS 132

Perform Fault Summary Page Review and clear.

15-548 CDPS

CURSOR CNTL (SAS01 PG-B)
FAULT SUMMARY PAGE DISPLAY (VASE2)
XMIT CURSOR KEY - PRESS

CRT (SAS01 PG-B)
VERIFY NO UNEXPLAINED FAULT MESSAGES

APPL PAGE (SAS01 PG-B)
PFK2 KEY - PRESS

15-549

CDPS

CONSOLE KYBD
DEUE DEST,GN,1,LDBA
XMIT CMD KEY - PRESS

DEUE SPEC 99 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
CRT 1 DISP ID = 990

15-550

CDPS

CONSOLE KYBD
DEUE RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

NOTE

BT4 Snapshot may be performed during Orbiter/SRB/ET PIC Resistance Test provided SRB Ignition S&A Device Verification will not be performed.

15-551

NTD **OTC** **232**
OTC **CDPS** **132**

[SU72631](#)

T-06H20M

Perform BT4 Snapshot on all DPS MDMs.

15-552

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

MDM DISCRETE OUTPUT CHECK (VAS94)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

15-553

CDPS

CURSOR CNTL (VAS94 PG-B)
T-3HR SNAPSHOT
XMIT CURSOR KEY - PRESS

NOTE

Perform the next step upon receipt of original copy.

15-554

CDPS

APPL PAGE (VAS94 PG-B)
PFK15 KEY - PRESS

15-555

CDPS

Retrieve BT4 original copy from Console printer.

Annotate page numbers on copy and deliver to CTPE at INTG Console.

15-556

CDPS	OTC	132
OTC	NTD	232

T-6 hour Snapshot prior to tanking complete.

15-557

OTC **PA (LCC only)**

T-6 hour BT4 Snapshot complete. All systems please review. Verbal OK must be received prior to Tanking.

15-558 OTC CTPE 132

BT4 to be distributed to all systems as follows:

- C2/10 - 2 copies for CCSE, CEPD
- C3/4 - 1 copy for CMPS (if Loading Preliminaries were complete)
- C5/6 - 5 copies for CPVD, CECL, CFCP, CAFM, CPLE
- C7/8 - 3 copies for COOS, CHYD, CAPU
- C9- 1 copy for CISL
- C11/12 - 4 copies for COFC, CGNC, CDPS, CCME
- INTG - 1 copy for CTPE

CTPE will produce 17 copies and distribute.

Report complete.

15-559 OTC ALL 132 [SU72631](#)

All systems listed below to review MDM discrete output. Verbal OK must be received before start of Tanking.

CCSE _____	CAPU _____
CAFM _____	CISL _____
CPLE _____	CEPD _____
CECL _____	CGNC _____
CPVD _____	COFC _____
CFCP _____	CCME _____
COOS _____	CDPS _____
CHYD _____	CMPS _____ (N/A if Loading Preliminaries still in work)

Start Clearing - Launch Danger Area (LDA)

NOTE

Non-LDA badged personnel at the CCF and NDTL facilities may remain until L-05 hours 00 minutes.

Trunking radio restrictions for Shuttle Countdown.

1. All vehicle mounted trunking radios within the BDA must remain Off.
2. Hand held trunking radios may be used inside the BDA but outside of the Pad perimeter.
3. Only DRS radios may be used inside the Pad perimeter.

15-560	NTD	STM	232	SU72638
	STM	JSTC	111	SU72661
	JSTC	*SEC	114	SU72685

T-06H20M

Start clearing Launch Danger Area of all nonessential personnel for Launch.

Establish Roadblocks A/B-10 and A/B-11 control points limiting ingress to LDA/LDA Relief badged personnel only. Security to verify that all vehicle mounted Trunking radios entering the control area are turned off and drivers briefed to leave them off for the duration of the Shuttle Countdown.

Support: [SEC](#)

15-561 **NTD** **PA**

Attention on Pad A, Operation and Logistics Buildings:

All personnel clear to LDA in support of S0007.

NOTE

The following step supports satisfaction of the noted requirement.

OMRS S00FB0.050-1

Verify ECS Status

15-562 **OTC** **CPVD** **132**

Verify ECS system on GN₂ for 30 minutes minimum, prior to T-6 hours.

OMRSD [V05AG0.060-C](#)

OMRSD [V05AH0.050-C](#)

OMRSD [V05AI0.060-C](#)

15-563 Support for satisfaction of noted requirement complete. Reference Operation 16 - Shuttle Final Countdown Control Sequence (T-6 Hours through T-0), Option “Verify ECS Status”.

OMRS S00FB0.050-1

15-564 **OTC** **CHGD** **132**
T-06H20M

Verify Oxygen indication less than 10,000 ppm and decreasing in the following areas:

Orbiter Payload Bay

Orbiter Midbody

Orbiter AFT

Verify Safing Panel Configuration

15-565 CGLS LPS 127

Report current LDB FEP configuration.

FEP _____ = LDB-A

FEP _____ = LDB-B

15-566 CGLS

HOME CMD KEY - PRESS
\$SYS
PERF PGM KEY - PRESS
LDBA
XMIT CURSOR KEY - PRESS
HARD COPY KEY - PRESS

CRT (\$SYS, OC)

DETERMINE CONFIGURATION OF THE FOLLOWING SAFING
SEQUENCES: 0, 2-14, 16, 18, 20-24
(GREEN UP ARROW = LOADED)

LDBA FEP REF DES _____
LDB CMD ENABLE SWITCH MUST BE IN _____ POSITION
FOR THIS TEST.

ON INTEGRATION SAFING PANEL
DETERMINE CURRENT LDB CMD ENABLE SWITCH POSITION

15-567 CGLS NTD 232

LDB Safing Sequences are (loaded / not loaded).
LDB Command Enable Switch is (Enabled / Off).

15-572 NTD LPS 232
T-06H20M

At LDBA and LDBS FEPs:
Press reset switch on Vehicle Safing Interrupt Panel.

Verify Lights 0-31 Off.

Reinitialize Safing Lights

NOTE
Perform this option if any lights remain On.

Reinitialize Safing Lights Not Performed: _____

15-573 LPS NTD 232
 NTD OTC
 OTC CDPS 132

Verify no TCS sequences running.

15-574 CDPS

CRT (VAS59, PG-B)
VERIFY TCS STATUS INACTIVE.

15-575 LPS NTD 232

LDB FEP will be momentarily inhibited to reset safing lights.
Notify Test Team that LDB commanding will not be available and that I/O errors will be generated when LDB FEP data acquisition is momentarily inhibited.

Request permission to proceed.

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15-576	NTD	OTC	232
		TBC	
		PTC	
	OTC	ALL	132
	TBC	ALL	136
	PTC	ALL	134

LDB FEP data acquisition and commanding will be momentarily inhibited.
LDB commanding will not be available. I/O errors will be generated.

15-577
T-06H20M

LPS C4MC

CONSOLE KYBD

I DA LDBA - XMIT CMD/EXEC CMD

A DA LDBA - XMIT CMD/EXEC CMD

AT LDBA AND LDBS FEPS -

PRESS RESET SWITCH ON VEHICLE SAFING INTERRUPT
PANEL.

VERIFY LIGHTS 0-31 ARE OFF

***** End of Reinitialize Safing Lights *****

15-578	LPS	NTD	232
	NTD	OTC	
		TBC	

LDB Safing Reset complete. Ready to perform LDB FEP Safing Load.

LDB FEP Safing Load

NOTE

Perform this option if the LDB safing sequences are not loaded.

LDB FEB Safing Load Not Performed: _____

15-579
T-06H15M

OTC CGLS 132

[SU72626](#)

Perform LDB Safing Load (15 minutes).

NOTE

The switch position for the following step is the active LDB FEP. The position is recorded in option "Verify Safing Panel Configuration".

LDB Safing Switch Position Check

15-580

CGLS NTD 232

LDB Command Enable will go to Enable on my mark:

5-4-3-2-1 Mark.

NOTE

If any lights are found On in next step, do not proceed without NTD/SPE concurrence.

15-581

LPS C4SE 127

Verify Lights 0-31 Off at LDB FEP Safing Interrupt panels and no unexpected system messages at Master Console.

15-582 LPS C4SE 127

IF any of lights 0-31 are On at LDB FEP Safing Interrupt Panels
AND NTD/SPE concurrence has been given,

THEN **press** reset switch on Vehicle Safing Interrupt Panel at LDBA and
LDBS FEPs.

Not Performed: _____

15-583 LPS NTD 232
 NTD CGLS

Place LDB Command Enable Switch to disabled position (Off).

15-584 CGLS

SLPP1
PERF PGM KEY - PRESS
(KSCA OR KSCB)
XMIT RESP KEY - PRESS

VERIFY SLPP1 ACTIVE
SELECT APP PG-B FOR SLPP1

CRT
VERIFY INTEGRATED MENU

15-585 CGLS

CURSOR CNTL
HARDWIRE SAFING
XMIT CURSOR - PRESS

CRT
VERIFY LOAD LDB-FEP SAFING SEQUENCES

NOTE

The following Safing Sequences shall be loaded:

Command LS Hold/Recycle	(0)
All HYD Safing Sequences	(2, 3)
All MPS LOX Safing Sequences	(4, 5, 6, 7)
All MPS LH ₂ Safing Sequences	(8, 9, 10, 11, 12, 13)
All EPDC Safing Sequences	(14, 16, 18)
All Orbiter Vent Doors Safing Sequences	(20, 21, 22)
All MPS LOX Safing Sequences (Cont)	(23, 24)

15-586

CGLS

CURSOR CNTL
SELECT ALL SEQ'S
XMIT CURSOR KEY - PRESS

PFP
SLPP1 KEY - PRESS
PFP (SLPP1)
PFPK1 (EXECUTE) - PRESS

CRT
VERIFY CURSOR BLOCK SOLID GREEN FOR ALL
SELECTIONS MADE

CURSOR CNTL
HARD COPY KEY - PRESS

TERMINATE
XMIT CURSOR KEY - PRESS
TERMINATE
XMIT CURSOR KEY - PRESS

VERIFY SLPP1 INACTIVE

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OMI S0007.200 A23
APPROVED

15-587

CGLS

OC PG (\$SYS)
CURSOR CNTL
LDBA
XMIT CURSOR KEY - PRESS

VERIFY GREEN UP ARROWS FOR ALL SEQ SELECTED
HARD COPY KEY - PRESS

TERMINATE
XMIT CURSOR KEY - PRESS

***** End of LDB FEP Safing Load *****

LDB Safing Command Enable

NOTE
Perform this option if the LDB Safing Switch is not set to the active LDB FEP.

LDB Safing Command Enable Not Performed: _____

NOTE
The next step will enable all LDB Safing Switches. Failure to perform the next step correctly can result in inability to Safe the Vehicle in Emergency Operations.

NOTE
The switch position for the following step is the active LDB FEP. The position is recorded in option "Verify Safing Panel Configuration".

15-588

CGLS

ON INTEGRATION SAFING PANEL
POSITION CMD ENABLE SWITCH TO - _____ (LDB-A OR
LDB-B)

***** End of LDB Safing Command Enable *****

NOTE
If a change occurs resulting in a switch of active LDB FEPs, LPS must notify CGLS of new active FEP and new switch position.

15-589

CGLS	OTC	132
OTC	NTD	232
	ALL	132
NTD	TBC	232
	PTC	
TBC	ALL	136
PTC	ALL	134

[SU72626](#)

LDB FEP Safing Sequences loaded and all safing switches enabled.

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OMI S0007.200 A23
APPROVED

15-596

CGLS

PFPK4 (T-6H RCL STATUS) - PRESS
VERIFY BOTH PFPK LIGHTS ARE LIT,
THEN CONTINUE

RETRIEVE OUTPUT FROM CONSOLE PRINTER AND REVIEW
FOR PROPER CONFIGURATION.

15-597

CGLS

TERMINATE SAP92
PFK15 - PRESS

15-598

CGLS

OTC

132

[SU72640](#)

Completed implementation of SAP92.

SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification

15-599 **TBC** **CPWR** **136** [SU72646](#)

Perform SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification.

15-600 **CPWR**

Perform SDC TAC (Time and Cycle) Retrieval for RSS/Recovery/C-Band Battery Amp-Hours.

15-601 **CPWR**

VERIFY AMP-HRS REMAINING EXCEEDS AMP-HRS REQUIRED FOR LAUNCH (AHRL) FOR ALL BATTERIES.

15-602 **CPWR**

Perform SDC Data Retrievals on the following FDs and verify less than 75 minutes of ON time.

N78IB001E, N78IB003E, N78IB005E, N78IB007E

15-603 **CPWR** **TBC** **136**

SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification complete.

OMRSD [S00FB0.370](#)

OMRSD [S00FB0.380](#)

OMRSD [S00FB0.390](#)

15-604 **CAPU** **OTC** **132**
T-6H15M

APU Heater Activation complete.

15-605
T-6H15M

CAPU OTC 132

[SU72621](#)

APU System Switch SCAN complete.

Verify APU/RCS Heaters On

15-606
T-06H15M

OTC CAPU 132

Verify APU heaters On from ground command for all three APUs:

1. Gas gen/fuel heater - A
2. Lube oil line heater - A
3. Tank and line heater - B

15-607

OTC COOS 132

CRT (VWD73)
VERIFY HEATERS ON.

CROSSFEED HEATERS
A AUTO
B AUTO

AFT RCS JETS
1 AUTO
2 AUTO
3 AUTO
4 AUTO
5 AUTO

FWD RCS JETS
1 AUTO
2 AUTO
3 AUTO
4 AUTO
5 AUTO

NOTE

The following step verifies Vernier thruster heater performance. Vernier thruster heater performance can be mandatory for Flight based on the Mission unique, Mission Equipment List (MEL).

15-608

COOS

CRT VWD84

Verify all six Manifold 5 Vernier thrusters show a minimum increase of 10 degrees higher than ambient temperature as referenced to the primary thruster injector temperatures.

Fire Crew Fallback

15-609

***SCC
NTD**

**NTD
JFIR**

232

[SU72667](#)

T-06H10M

All Fire/Rescue from Pad A are to fallback to Roadblock A-5 (Pad A Launch).

Support: [FIRE](#)

15-610

***SEC
JSTC**

**JSTC
WGSA**

**114
NET 104**

All GSA vehicles at Pad Operations Building have been moved. Wrecker released to Fallback Area (Bldg K6-2496).

Support: [WRCK](#)

15-611

NTD

CTC

The Pad A Emergency Evacuation Warbler will be activated momentarily (7-2282).

15-612 NTD *SCC 232
 *SCC *PSE NET 105

Verify all personnel have cleared Pad Area. Safety concurrence to sound emergency evacuation warbler.

Verify RSS strobe light functioning and configure B Road safety warning light to RED.

NOTE

Safety will wait for 5 minutes after warbler has sounded, before departing Pad.

15-613 *PSE *SCC NET 105
 *SCC NTD 232

All personnel have cleared Pad Area. You have Safety concurrence to sound emergency evacuation warbler.

15-614 NTD

Sound emergency evacuation warbler for 30 seconds.

15-615 *PSE *SCC NET 105
 *SCC NTD 232

RSS strobe light functioning and B Road safety warning light is RED.

15-616 NTD *SCC 232
 *SCC *PSE NET 105

Configure warning lights at Roadblocks A/B-5 and A/B-11 to RED when evacuating Pad.

15-617 *PSE *SCC NET 105
 *SCC NTD 232

Warning lights at Roadblocks A/B-5 and A/B-11 are configured to RED.

Configure for MMT/LD Weather Briefing

15-618 NTD STM 232
 STM *WEA 231

T-06H10M

Request Range Weather support briefing for ET Load.

15-619 NTD *FLT 232
 LD

[SU72660](#)

MMT/LD Weather briefing will occur in 10 minutes in LCC Room 4P10.

15-620 NTD STM 232
T-06H10M

[SU72677](#)

Verify when ready to support MMT/LD televised weather briefing in LCC Room 4P10.

NOTE

Video for Weather Briefing available via remote key pad selection as follows:

1. Source 187-JSC MMT/LD Weather Briefing
2. Source 176-CCFF Weather TV
3. Source 099-CCFF Weather Vision.

Weather Briefing in LCC Room 4P10

NOTE

Perform this option if Weather Briefing is in LCC Room 4P10.

Weather Briefing in LCC Room 4P10 Not Performed: _____

15-621	STM	GYCC	111
	GYCC	GYVW	PTP
		JYVO	PTP

Verify OTV receiving JSC Weather Briefing feed on 6TVC2050 (Prime) or 6TVM4755 (Backup).

Support: [OTV](#)
Support: [WB](#)

15-622	STM	JYVO	138
---------------	------------	-------------	------------

Verify JSC Weather Briefing feed on OTV switcher source 187 and ready for display in LCC Room 4P10.

Support: [OTV](#)

15-623	JYVO	STM	138
	STM	NTD	232

JSC Weather Briefing feed is on source 187. Video for MMT/LD Weather Briefing in LCC Room 4P10 ready.

Support: [OTV](#)

***** End of Weather Briefing in LCC Room 4P10 *****

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Hold Countdown Clock

15-624 **NTD** **CGLS** **232**
T-06H05M

Hold Countdown Clock at T-6 hours 00 minutes 00 seconds.

15-625 **CGLS**

HOME CMD KEY - PRESS
CDTH -0600/00
XMIT CMD KEY - PRESS

Disable Pad OIS

15-626 NTD STM 232 [SU72674](#)
 STM GYCC 111
 GYCC JYCD 117

T-06H05M

Pad cleared - disable Pad A OIS-D (5 minutes).

Support: [OISD](#)

15-627 JYCD GYCC 117
 GYCC STM 111
 STM NTD 212

OIS-D deactivated to Pad.

Support: [OISD](#)

Fuel Cell Performance Calibration - Complete

NOTE Do not perform the next two steps if Fuel Cells remained Active during Recycle.
--

15-628 CFCP OTC 132 [SU72615](#)
 CECL [SU72630](#)
 CEPD
 CHGD

Fuel Cell Performance Calibration and PRSD System Integrity Check per OMI S0007.400 complete.

OMRSR [V45CH0.020-1R](#)
OMRSR [V45CH0.030-1](#)

Not Performed: _____

15-629 CFCP OTC 132
 OTC JRPS

Recording of EPDC measurements for FCP Pump Motor event is no longer required.

Not Performed: _____

LO₂/MPS Loading Preliminaries - Complete

15-630	CLOX	TBC	136	SU72650
	TBC	NTD	232	SU72648
	NTD	OTC		

T-06H00M

SSME Purge Sequence 3 initiated. LO₂ ET and MPS LO₂ Loading Preliminaries complete. Ready for LO₂ Loading.

LH₂ Pre-chilldown Operations - Complete

15-631	CLHY	TBC	136	SU72654
	TBC	NTD	232	SU72650
	NTD	*SCC		

T-06H00M

ET LH₂ Pre-Chilldown Operations per OMI S1004 complete. Ready to proceed with Facility Orbiter Chilldown and LH₂ Flow.

OMRSR [S00FB0.090-B-1](#)
OMRSR [S00FB0.290-1](#)
OMRSR [S00FB0.070-1R](#)
OMRSR [S00FB0.082-1R](#)
OMRSR [S00FB0.083](#)
OMRSR [S00FE0.040-1](#)
OMRSR [S00FE0.050-1](#)

15-632	NTD	GOIS	232	SU72659
--------	-----	------	-----	---------

Record the status of all camera installations and verify their support of Launch.

NOTE

Perform next step upon receipt of original copy and copy 1.

15-636

CDPS

APPL PAGE (VAS94 PG-B)
PFK15 KEY - PRESS

15-637

CDPS	OTC	132
OTC	NTD	232

T-6H Snapshot prior to tanking for MPS complete. Ready for CMPS review.

15-638

CTPE

BT4 to be distributed to following systems as follows:

C3/4 - 1 copy for CMPS
INTG - 1 copy for CTPE

15-639

OTC	CMPS	132
------------	-------------	------------

[SU72632](#)

MPS review MDM discrete output. Verbal OK must be received prior to start of Tanking.

***** End of BT4 Snapshot - MPS System *****

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BDA Clear - Complete Pad A

15-640 *SEC NTD 232 SU72641
 NTD *SCC
 *SCC *PSE NET 105

T-06H00M

Roadblock A-5 is clear of all Pad A BDA personnel. Roadblocks established at A-3, B-4, A-5, A-6, A/B-10, A/B-11 and A/B-15 with signal lights on FLASHING RED.

Support: SEC

***** End of BDA Clear *****

Orbiter and SRB PIC Resistance Tests

15-641 *PSE *SCC NET 105 SU72683
 *SCC NTD 232
 NTD OTC
 TBC

All personnel clear of Blast Danger Area. You have Safety concurrence to perform PIC Resistance Test.

WARNING

If Shuttle ordnance is connected, ordnance detonation may occur due to inadvertent PIC-LPS commands.

Personnel may suffer serious bodily injury or death

WPYR026 04-08-04

NOTE

Hazardous steps follow due to PIC Resistance Test. All personnel must be clear of BDA before proceeding.

NOTE

Orbiter and SRB PIC Resistance Tests can be run in parallel.

Orbiter PIC Resistance Test

15-642 NTD OTC 232 SU72629

Proceed with Orbiter/GSE PIC Resistance Test.

15-643 OTC CEPD 132

All personnel clear of Blast Danger Area.

Power up GSE PIC racks and perform Orbiter/GSE PIC Resistance Test per OMI S0007.400 (Operation 52) on OIS Channel 151.

PIC Rack Power Down

15-644 OTC CEPD 132

CURSOR CNTL (VWC10)
GRD SYS - OFF
XMIT CURSOR KEY - PRESS

CRT (VWC10)
VERIFY GND AND CPA VOLTAGES ARE LL

15-645 CEPD OTC 132
OTC NTD 232

Orbiter/GSE PIC Resistance Test complete.

15-646 OTC CEPD 132

Perform MEC Pre-Flight BITE Evaluation.

15-647 CEPD

Perform SDC QLDB retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

15-648 CEPD OTC 132
OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

***** End of Orbiter PIC Resistance Test *****

SRB PIC Resistance Test

15-649 NTD TBC 232

Proceed with SRB PIC Resistance Test per OMI S0007.400 (Operation 48) (10 minutes).

15-650 TBC CPWR 136

All personnel clear of Blast Danger Area.

Perform SRB PIC Resistance Test per OMI S0007.400 (Operation 48) on OIS Channel 176.

15-651 CPWR TBC 136
TBC NTD 232
NTD OTC

SRB PIC Resistance Test complete.

<p>NOTE Hazardous steps complete.</p>
--

***** End of SRB PIC Resistance Test *****

SRB Ignition S&A Device Verification Contingency

NOTE

Perform this option to support SRB Ignition S&A Device Verification.

Downlist Format 42 is required for SRB Ignition S&A Device Verification. Coordinate format change with CGNC. IMUs should remain in Gyrocompass Align -1 during Format 42 operations unless Term/Idle is required for OMS Repressurization. Also coordinate with CLOX and CLHY so as not to impact tanking preparations. If Format 42 conflicts with IMUs, do not perform SRB Ignition S&A Device Verification.

The SRB Ignition S&A Verification will be performed if SRB FWD skirt was accessed after the T-27 hour PIC and S&A Test, or the S&A Verification was not performed at T-27 hours.

SRB Ignition S&A Device Verification Contingency Not Performed: _____

15-652	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
		TBC	

All personnel clear of Blast Danger Area. You have Safety concurrence to perform SRB Ignition S&A Device Verification.

15-653	OTC	NTD	232
		ALL	132
		CGNC	
	NTD	TBC	232
	TBC	ALL	136
		CLOX CLHY	

Verify ready for switch to Downlist Format 42 to support SRB S&A Device Verification.

15-654	NTD	OTC	232
	OTC	CDPS	132

Switch to Downlist Format 42.

15-655 CDPS

CURSOR CNTL (SAS01 PG-B)
FMT 42
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
FMT 42 ACTIVE

15-656	CDPS	OTC	132
	OTC	NTD	232
		ALL	132
	NTD	TBC	232
	TBC	ALL	136

Transition to Downlist Format 42 complete.

WARNING

Controlled switching: No flight vehicle/element or GSE commands issued, no switches, or circuit breakers operated on the Flight Element or GSE electrically connected to the Flight Elements.

The only exceptions are those commands and switch/circuit breaker operations directed by the WAD (and subtasks) requiring controlled switching.

WLTC002 01-31-01

WARNING

If Shuttle ordnance is connected, ordnance detonation may occur due to inadvertent PIC-LPS commands.

Personnel may suffer serious bodily injury or death

WPYR026 04-08-04

WARNING

Lightning radiates energy that may cause ordnance items to explode.

Personnel may suffer bodily injury or death.

Adhere to strict lightning policy during all work or operations involving ordnance devices.

WPYR010 04-07-04

NOTE

Hazardous steps follow due to SRB Ignition S&A Rotation. BDA clear remains in effect.

NOTE

Do not perform this test during a Phase 1 Lightning Advisory or a Phase 2 Lightning Warning.

15-657

NTD

ALL

PA

SRB Ignition S&A Device Verification Test will start momentarily.
Controlled switching and controlled LPS commanding in effect.

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15-658	NTD	TBC	232
	TBC	CPWR	136

Proceed with SRB Ignition S&A Device Verification per OMI S0007.400 (Operation 61) on Channel 176.

15-659	CPWR	TBC	136	SU72629
	TBC	NTD	232	
	NTD	OTC		

SRB Ignition S&A Device Verification complete.

<p style="text-align: center;">NOTE Hazardous steps complete.</p>
--

***** End of SRB Ignition S&A Device Verification - Contingency *****

MEC Pre-Flight BITE

15-660 **OTC** **CEPD** **132**

Check MEC Pre-Flight BITE.

15-661 **CEPD**

CURSOR CNTL (MEC/PIC AUTO TEST MENU)
LAUNCH PREFLT BITE
XMIT CURSOR KEY - PRESS

15-662 **CEPD**

PFP (VSC24)
CONTINUE - PRESS

CRT (VSC24)
PORT 1 SUCCESSFUL
PORT 3 SUCCESSFUL
HARDCOPY

15-663 **CEPD**

PFP (VSC24)
TERMINATE - PRESS

15-664 **CEPD**

Verify no MEC failures.

15-665 **CEPD** **OTC** **132**
OTC **NTD** **232**

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

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15-673	CDPS	OTC	132
	OTC	NTD	232
	NTD	TBC	
		PTC	

Transition to Downlist Format _____ (44 or 60) complete.

***** End of DPS to Downlist Format 44/60 (Post S&A Device Test) *****

15-674	*SCC	NTD	232
--------	------	-----	-----

All personnel cleared of Blast Danger Area. You have concurrence to proceed with ET LO₂ and LH₂ Loading.

OMS Prop Tank Repress

NOTE

This operation is performed only after Pad is cleared for Cryo Loading. Verify all personnel are cleared from the Pad perimeter until OMS Repress complete. Nonessential LDB traffic will degrade TCS performance. This sequence is not compatible with IMU calibrations. Term/Idle must be verified prior to OMS Repressurization. If not in Format 44, 45 or 60, then verify via Variable Downlist.

15-675 OTC CGNC 132 SU72713
SU72715

T-06H00M

IF the IMU Gyrocompass Alignment sequence is running (per V1123.290),

THEN Take IMUs to Term/Idle per IMU Gyrocompass Alignment Sequence of OMI V1123.290.

Report completion (3 minutes).

Not Performed: _____

15-676 OTC NTD 232
NTD *SCC

Ready to perform OMS REPRESS.
Verify Pad perimeter is clear of all personnel.

15-677 *SCC NTD 232 SU72B83
NTD OTC

Pad perimeter cleared of all personnel.
Perform OMS REPRESS.

Launch Commit Criteria Verification

NOTE

This verification includes:

- A review of all valid system parameters for failures/unfavorable trends.
- A review of all system logs and open paper to verify no constraints.
- A verification of all system OMRS.

15-681	NTD	OTC	232	SU72614
		TBC		SU72628
		PTC		
		STM		
		*MIL		
		LPS		
		CSPE		

T-06H00M

Verify required Launch Commit Criteria valid for start of Tanking at T-6 hours.

SPE record:

NSTS 16007 Rev _____

Amendment _____

Directives _____

15-682	STM	JBFX	111
		JSTC	

Verify required Launch Commit Criteria requirements for start of Tanking.

Support: [CWSS](#)
Support: [JSTC](#)

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15-683 JSTC JFIR 114

Verify required Launch Commit Criteria valid for start of Tanking.

Support: [FIRE](#)

**15-684 *SCB JSTC NET 104
JSTC STM 111
STM NTD 232**

Air pack van located at OSB II Red Crew parking lot.
40 ELSA's and 16 30 or 60 minute air packs delivered.

Support: [LS](#)

NOTE

If the oxid and fuel OMS propellant tanks exceed the LCC limit (15 psid max) prior to OMS propellant tank repress, it is not a constraint to LCC verification for COOS. OMS repress will occur after Pad clear for Cryo Tanking and values are expected to meet criteria.

15-685 OTC ALL 132

Verify your system meets Launch Commit Criteria requirements for start of Tanking phase at T-6 hours.

CCSE _____ CPVD _____ CEPD _____

CAFM _____ CFCP _____ COFC _____

CPLE _____ CGSS _____ CAFC _____

CMPL _____ COOS _____ CGNC _____

CMPS _____ CAPU _____ CCME _____

CSME _____ CHYD _____ CODS _____

CECL _____ CHGD _____ CDPS _____

CISL _____

15-686 PTC SLES 134

Verify your system meets Launch Commit Criteria for start of Tanking.

15-687 TBC ALL 136

Verify your system meets Launch Commit Criteria requirements for start of Tanking phase at T-6 hours.

CLOX _____ CHPU _____

CLHY _____ CISL _____

CMEC _____ CBRS _____

CPWR _____

Report Launch Commit Criteria Status

15-688 OTC NTD 232
TBC
PTC
STM
*MIL
LPS

T-06H00M

No Launch Commit Criteria violations for Cryo Tanking.

15-689 NTD CSPE 232

Verify no Launch Commit Criteria violations which constrain Cryo Propellant Loading.

15-690 NTD LD 232

T-06H00M

Verify Go for LO₂ and LH₂ Tanking.

TPDMS Monitor Complete

15-695 OTC CAFM 132

Obtain tire pressure report by the following procedure:

NOTE
Reference DAP 138 instructions.

1. **Log on** to USA intranet via console workstation.
2. **Navigate** to following webpage:

 <http://sdcproapp/dap/>
 Select: DAP 138 Time and Cycle
 Select: Tire Reports Menu (Read only)
3. @ Time and Cycle (tac_menu) page, **select:**
 Tires -- > Leak Rate Calculations
4. @ Leak Rate Trending Report pop up, **enter:**

 Mission: _____ (STS No.)

 Tire: _____ ('ALL' for 6 locations) (leave S/N blank if 'ALL')

 Select: Submit
5. @ Leak Rate Trending Report window,
 Select: CALCULATE
 Then, when Summary Report displayed, **select:** PRINT
6. @ Print dialog window
 Enter: printer ID (lcc1ptrb / lcc3ptrc / fr4bw2)
 Select: print
7. **Close** Windows,
 @ (tac_menu) page
 Select: Exit

8. **Verify** tire pressure decay rates are not greater than 0.3 psi/day and projected end of mission tire pressures are greater than:

365 psig Main
310 psig Nose

9. **Record** projected end of mission pressures (Primary Sensor):

LH NLG $\frac{\quad}{310 \text{ min}}$ psig RH NLG $\frac{\quad}{310 \text{ min}}$ psig

LH INBD $\frac{\quad}{365 \text{ min}}$ psig RH INBD $\frac{\quad}{365 \text{ min}}$ psig

LH OTBD $\frac{\quad}{365 \text{ min}}$ psig RH OTBD $\frac{\quad}{365 \text{ min}}$ psig

10. **Attach** hard copy of tire pressure report to this OMI.

OMRSD [V51AG0.075-A](#)
OMRSD [V51AG0.075-B](#)
OMRSD [V51AG0.075-C](#)
OMRSD [V51AG0.075-D](#)
OMRSD [V51AG0.075-E](#)
OMRSD [V51AG0.075-F](#)

Fuel Cell Operational Purge

NOTE
Perform this option if Recycle has not occurred.

Fuel Cell Operational Purge Not Performed: _____

NOTE
Perform the following step at the completion of Fuel Cell performance calibration.

15-696
T-06H00M
(HOLDING)

OTC CFCP 132

[SU72616](#)

Perform Fuel Cell 2-Hour Operational Purge on OIS Channel 153 per OMI [V1040.220](#) (15 minutes).

15-697

CFCP OTC 132
OTC NTD 232

Fuel Cell 2-Hour Operational Purge complete.

***** End of Fuel Cell Operational Purge *****

Resume Countdown Clock

15-700	NTD	OTC	232
		TBC	
		*MIL	
		STM	
		PTC	
		*SCC	
		LPS	

T-06H00M
(HOLDING)

Countdown Clock will start counting at T-6 hours in 5 minutes.

15-701	NTD	ALL	232
			PA

T-06H00M
(COUNTING)

The STS-_____ Countdown Clock is at T-6 hours and counting.

15-702	NTD	STM	232
	STM	JYVO	138
		GYCC	111
	GYCC	GYVW	PTP
		GYVO	

Weather Briefing complete. Support released.

Support: [OTV](#)
Support: [WB](#)

15-703	NTD	STM	232
	STM	*WEA	231

Request forecast of steady state surface wind speed in SRB retrieval area at time of Launch.

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15-704	*WEA	STM	231
	STM	NTD	232
	NTD	LD	

Time of Forecast: _____

Predicted Winds: _____ knots

Gusting to: _____ knots

Direction: _____ deg

OMRSD [S00L00.085](#)

*** End of Operation 15 ***

**06-16-2011
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OPERATION 16 Shuttle Final Countdown Control Sequence (T-6 Hours through T-0)

Shop: NTD / OTC
Cntrl Rm Console: ALL
OPR: NTD/OTC
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 9.5

NOTE

This is also Countdown re-entry point for 24-hour Scrub/Turnaround Operations.

NOTE

This operation may commence prior to Operation 15 completion at NTD/OTC direction.

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

NOTE

Reference the following two figures for this operation:

Figure 16-1 - Sections P-1, P-2, P-3, P-4 and P-5

Figure 16-2 - Section P-6: Caution and Warning Software Changes (Ascent Switches)

08-09-04

P-1: PANEL F7	DATE/TIME	SEQ	STEP
O2 PRESS	H2 PRESS	FUEL CELL REACT	FUEL CELL STACK TEMP
CABIN ATM	O2 HEATER TEMP	MAIN BUS UNDERVOLT	AC VOLTAGE
FREON LOOP	AV BAY / CABIN AIR	IMU	FWD RCS
H2O LOOP	RGA / ACCEL	AIR DATA	LEFT RCS
SPARE	LEFT RHC	RIGHT / AFT RHC	RIGHT RCS
PAYLOAD WARNING	GPC	FCS SATURATION	LEFT OMS
PAYLOAD CAUTION	PRIMARY C/W	FCS CHANNEL	RIGHT OMS
BACKUP C/W ALARM	APU TEMP	APU OVERSPEED	OMS KIT
			OMS TVC
			MPS
			SPARE
			APU UNDERSPEED
			HYD PRESS

NO LIGHTS ON F7

P-2	ENABLED SEQ									STEP
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-3	INHIBITED SEQ									STEP
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-4	TRIPPED SEQ									STEP
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

P-5	MEMORY TRIPPED SEQ									STEP
	0	1	2	3	4	5	6	7	8	9
00	000	001	002	003	004	005	006	007	008	009
01	010	011	012	013	014	015	016	017	018	019
02	020	021	022	023	024	025	026	027	028	029
03	030	031	032	033	034	035	036	037	038	039
04	040	041	042	043	044	045	046	047	048	049
05	050	051	052	053	054	055	056	057	058	059
06	060	061	062	063	064	065	066	067	068	069
07	070	071	072	073	074	075	076	077	078	079
08	080	081	082	083	084	085	086	087	088	089
09	090	091	092	093	094	095	096	097	098	099
10	100	101	102	103	104	105	106	107	108	109
11	110	111	112	113	114	115	116	117	118	119

S0007_200-F-017

Figure 16-1 - Sections P-1, P-2, P-3, P-4 and P-5
(For Reference Only)

16-1 CTIF TBC 136
T-06H00M

Set initial configuration for ice/frost monitoring and debris per OMI S6444.002 complete.

16-2 TBC CTIF 136

Perform ET TPS Ice/Frost and Debris Evaluation per OMI [S6444.002](#) on Channels 222, 223, 224 and 225.

16-3 CTIF JYVO 138

[SU72656](#)
[SU72672](#)

Record OTV Cameras 004, 013, 033, 041, 062, 064, 065, 066, 067, 068/168, and 069/169 for ET TPS Ice/Frost Inspection per OMI S6444.002 on Channels 222, 223, 224 and 225 (see CICE Figure 13-1, (pages 1 thru 3). CTIF will contact JYVO when ready for camera movement.

Support: [OTV](#)

Propellant Mean Bulk Temperature

16-4 TBC CTIF 136

Record (deg F) predicted RSRM L-1 Propellant Mean Bulk Temperature (PMBT) as provided by the RSRM contractor.

Verify L-1 PMBT is predicted to be 44 to 86 deg F at time of Launch.

RSRM L-1 PMBT _____ deg F

OMRSD [S00FA0.600-1](#)

16-5 STM JYVR 138

Start video recording as follows:

Support: [OTV](#)

1. Digital Betacam Recorders

 Cameras 001, 009, 049, 050, 054, 055, 056, 060, 061, 063

2. S-VHS recorders

 Cameras 002, 003, 010, 011, 019, 030, 031, 032, 034, 052, 053, 072,
 STI-RSS Roof, STI-C/S2

 (OMIs S1003 and S1004, and Engineering Analysis)

NOTE

Perform the next step at LOX Transfer Line Chill Down.

16-6 STM JCFM 111

Perform the following:

1. **Initiate** continuous data recording operations.
2. **Initiate** "Pre-Chilldown" data run.
3. **Report** completion.

Support: [GIFM](#)

NOTE

The completion of MEC Pre-Flight BITE Evaluation is not a constraint to External Tank ready for LO₂/LH₂ Loading.

16-7 **TBC** **NTD** **232**

External tank ready for LO₂/LH₂ Loading.

Disable External Paging to Firing Rooms

16-8 **NTD** **STM** **232**
STM **GYCC** **111**
GYCC **JYCD** **117**

Disable external paging to active and backup firing rooms for OMI S0007 (30 minutes).

Support: [OISD](#)

16-9 **OTC** **CHGD** **132**
T-06H00M

Verify no increase above baseline for H₂ and O₂ concentration prior to start of LO₂/LH₂ Loading in following vehicle compartments:

- Orbiter Payload Bay
- Orbiter Midbody
- Orbiter AFT Fuselage

16-10 **CHGD** **OTC** **132**
OTC **NTD** **232**

HGDS system is ready to support ET Cryo Load.

Time _____ GMT

HGDS Monitoring

16-11 OTC CHGD 132 SU72A86
T-06H00M

Monitor HGDS for remainder of Countdown in all Vehicle Compartment areas.

Report any H₂ or O₂ indications on Command Channel 132.

Sample each vehicle area at least every 30 minutes.

OMRSD [S00FA0.435](#)

16-12 JYCD GYCC 117
GYCC STM 111
STM NTD 232

External paging has been disabled to active and backup firing rooms for OMI S0007.

Support: [OISD](#)

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00FB0.050-1

Verify ECS Status

16-13 OTC CPVD 132

Verify Orbiter GN₂ purge moisture content less than 5 grains/lb prior to Orbiter MPS Chillo down and record:

GN₂ purge moisture _____ grains/lb (5 max)

Ready for ET LO₂/LH₂ Loading

NOTE

The completion of MEC Pre-Flight BITE Evaluation is not a constraint to Orbiter ready for LO₂/LH₂ Loading.

16-17	OTC	NTD	232	SU72B41
	NTD	STM		
	STM	JCFM	111	

Orbiter ready for LO₂/LH₂ Loading.

Support: [GIFM](#)

16-18	NTD	LPS	232
	LPS	JSDC	

Perform Monoball 15 minute snapshots using SDC Monoball tool and upon completion, deliver hardcopy to the Firing Room 4 TPE (Integration Console-10455). Data recording start time of "Current GMT" minus 15 minutes.

ET LO₂/LH₂ Loading

NOTE

LO₂ Loading may start prior to LH₂ Loading as long as LH₂ is in Slow Fill when LO₂ reaches 40 percent of the projected load. If not, LO₂ Loading must stop until LH₂ is in Slow Fill.

LH₂ Loading may be done prior to the start of LO₂ Loading.

16-19	NTD	TBC	232
	TBC	CLOX	136

T-06H00M

Proceed with ET LO₂ Load to Replenish per OMI [S1003](#) on OIS Channel 156.

Report completion of significant milestones.

16-20	NTD	TBC	232
	TBC	CLHY	136

Proceed with ET LH₂ Load to Replenish per OMI [S1004](#) on OIS Channel 166.

Report completion of significant milestones.

LO₂ Transfer Line Chilldown (OMI S1003)

NOTE

Performance of LO₂ Transfer Line Chilldown prior to completion of "pre chilldown" instrumentation data run will result in loss of baseline data.

16-21	CLOX	TBC	136	SU72693
	TBC	NTD	232	
	NTD	STM		
	STM	JCFM	111	

T-06H00M

Initiating LO₂ Transfer Line Chilldown.

GMT _____

Support: [GIFM](#)

LH₂ Chilldown

16-22	CLHY	TBC	136
	TBC	NTD	232
	NTD	OTC	
	OTC	CPVD	132

Notify CLHY if loss of Orbiter AFT fuselage purge or Payload Bay purge detected during LH₂ loading from T-6 hours to T-1 minute 57 seconds.

16-23	CLHY	TBC	136	SU72703
	TBC	NTD	232	
		CHGD	136	

T-06H00M

Initiating LH₂ Facility/Orbiter Chilldown.

Support Fallback Configuration (OMI S0007.100, Operation 151)

16-24	STM	GYCC	111	SU72752
		JSTC		
		JCFM		
		PSTM	NET 104	
		LPS	127	
	JSTC	GSPN	114	
		JSEP		
		JSAC		
		GSFA		
		JSWC	NET 104	
		GSHE		
		*SCB		
		GSPS		
		PMEH		
		GSUP		

T-06H00M

Perform OMI S0007.100 Operation 151 - Fallback Configuration -
Support Red Crew T-6 hours through T-0.

Support: [COMM](#)
Support: [JSTC](#)
Support: [PNU](#)
Support: [WW](#)
Support: [HEQ](#)
Support: [LS](#)
Support: [PN](#)
Support: [ELEC](#)
Support: [AC](#)
Support: [FA](#)
Support: [EH](#)
Support: [LOG](#)
Support: [GIFM](#)

16-25
T-06H00M

STM

Verify protective clothing mobile van parked at OSB II (1-6999).

**06-16-2011
APPROVED**

**OMI S0007.200 A23
APPROVED**

16-26	NTD	STM	232
	STM	JCFM	111

T-06H00M

Perform "Pre-Cryo Load" operations on GMS-II and CDAS.

Support: [GIFM](#)

16-27	JCFM	STM	111
	STM	NTD	232

"Pre-Cryo Load" operations complete.

16-28
T-06H00M

TBC CHPU 136

VERIFY SRB NOZZLE FLEX BEARING AND SRB NOZZLE TO
CASE JOINT MEET OMRS TEMPERATURE REQUIREMENTS.

CRT (BAT04)

VERIFY SRB AFT SKIRT GN₂ PURGE

CURSOR CNTL

T (BLOCK)

XMIT CURSOR KEY - PRESS

CRT (BAT04)

NOTE DISPLAY OF FLEX BEARING TEMPERATURES

RECORD FLEX BEARING TEMPERATURES

_____ B _____	60 to 115 DEG F
_____ B _____	60 to 115 DEG F
_____ B _____	60 to 115 DEG F
_____ B _____	60 to 115 DEG F

OMRSD [S00FA0.776-1](#)

CRT (BAT04)

NOTE DISPLAY OF NOZZLE TO CASE JOINT TEMPERATURES

RECORD NOZZLE TO CASE JOINT TEMPERATURES

_____ N _____	75 to 115 DEG F
_____ N _____	75 to 115 DEG F
_____ N _____	75 to 115 DEG F

OMRSD [S00FA0.777-1R](#)

CURSOR CNTL (BAT04)

SRB AFT SKIRT GN₂ PURGE T (BLOCK)

XMIT CURSOR KEY - PRESS

NOTE DISPLAY OF PURGE SCHEMATIC

NOTE Notify TBC and GSPN when GN ₂ flow is to be initiated.
--

16-29
T-06H00M

TBC CHPU 136

IF temperatures require,

THEN perform OMI S0007.100, Operation 453 - SRB AFT Skirt GN₂ Purge Activation/Deactivation.

Report completion.

Not Performed: _____

GN₂ Rechargers/LN₂ Tanker - Complete

16-30
T-06H00M

GSPN JSTC 114
JSTC STM 111

GN₂ recharger(s) and LN₂ tankers placed and connected to CCF-39 recharge manifold.

Support: [PNU](#)

16-31
T-06H00M

NTD JFIR 232

[SU72676](#)

Verify Pad Rescue Team standing by in Fire Station No. 2.

Support: [FIRE](#)

LH₂ to Slow Fill (OMI S1004)

16-32

T-05H50M

CLHY TBC 136
TBC NTD 232
NTD STM
STM JCFM 111

[SU72705](#)

[SU72703](#)

LH₂ Facility/Orbiter Chilldown complete. Initiating ET LH₂ Slow Fill to 5 percent sensor wet.

Support: [GIFM](#)

ET Bipod Heater Power Activation

NOTE

Noted requirement is satisfied by the following steps annotated with OMRS code.

OMRS S00FF0.095

16-33

CPWR

SU72692

CRT (TW495)
VERIFY MESSAGE
PLC PID LOOPS NOW ACTIVE

OMRS S00FF0.095

16-34

CPWR

CRT (TW495)

VERIFY
TANKING STATE - TANKING

16-35

CPWR TBC 136

ET Bipod Heaters Power Activation complete.

***** End of ET Bipod Heater Power Activation *****

Orbiter MPS Chardown (OMI S1003)

16-36	CLOX	TBC	136	SU72693
	TBC	NTD	232	SU72695

T-05H50M

LO₂ Transfer Line Chardown complete. Starting Orbiter MPS Chardown.

IMU Pre-Flight Calibration

NOTE

The following step verifies the OMS Tank Repress is complete. This needs to be verified prior to beginning the IMU Pre-Flight Calibration due to the incompatibility of the OMS Tank Repress operation and the IMU Calibration.

16-37	CGNC	OTC	132
--------------	-------------	------------	------------

T-05H22M

Verify OMS Tank Repress complete.

16-38	OTC	CGNC	132	SU72717
--------------	------------	-------------	------------	-------------------------

T-05H22M

Perform IMU Pre-Flight Calibration per OMI [V1123.280](#)
(2 hours 45 minutes).

RT OMI Log No. _____

LOX Slow Fill (OMI S1003)

16-39	CLOX	TBC	136	SU72695
	TBC	NTD	232	SU72697
	NTD	STM		
	STM	JCFM	111	

T-05H20M

Orbiter MPS Chillydown complete. Beginning Slow Fill.
LOX Slow Fill start

GMT _____

Support: [GIFM](#)

16-40	CLHY	TBC	136	SU72709
-------	-------------	------------	------------	-------------------------

T-05H15M

ET LH₂ ECO Sensors wet at:

GMT _____.

16-41	COOS	OTC	132
	OTC	CPVD	

T-05H15M

Request FWD purge circuit increase to counteract cooling from Cryo load.

Record Present Temp _____ degrees F BD

Change to _____ degrees F BD

LOX Fast Fill (OMI S1003)

16-42	CLOX	TBC	136	SU72697
	TBC	NTD	232	SU72698
		CPWR	136	
	NTD	*SCC	232	
		STM		
T-05H10M	STM	JCFM	111	

LOX transition to Fast Fill complete. Now in Fast Fill to 98 percent.

Support: [GIFM](#)

ET LO₂ Feedline Bellows Heater Activation

16-43 CPWR SU72691

CRT (BWE08)

VERIFY

BELLOWS HEATERS

CURRA = 2.4 +/- 0.2

CURRB = 2.4 +/- 0.2

ET BELLOWS ACTIVATION COMPLETE

OMRSD [S00FD0.100](#)

16-44	CPWR	TBC	136
	TBC	CLOX	
		NTD	232

ET LO₂ Feedline Bellows Heater Activation complete.

***** End of ET LO₂ Feedline Bellows Heater Activation *****

LH₂ Fast Fill (OMI S1004)

16-45	CLHY	TBC	136
	TBC	CISL	136
		NTD	232
	NTD	STM	
	STM	JCFM	111

ET LH₂ 5 percent sensor wet.

GMT _____

Support: [GIFM](#)

16-46	CLHY	TBC	136	SU72705
	TBC	NTD	232	SU72707
	NTD	STM		
	STM	JCFM	111	

T-05H00M

ET LH₂ Slow Fill to 5 percent complete. Initiating ET LH₂ Fast Fill to 98 percent.

Support: [GIFM](#)

OMRSR [S00FE0.100-1](#)
OMRSR [S00FE0.111-1](#)
OMRSR [S00FD0.121-B-1R](#)

MPS LH₂ Recirc Pump Activation (OMI S1004)

NOTE

LH₂ Recirc will normally be activated 15 minutes after LH₂ transitions into Fast Fill. Times may vary if LH₂ Fast Fill is interrupted or delayed.

16-47 **CMPS** **OTC** **132**
T-05H00M

LH₂ Recirc pumps will be activated momentarily.

NOTE

Perform the next step prior to Recirc Pump Activation.

16-48 **CEPD** **OTC** **132**
 OTC **CMPS**

CURSOR CNTL (VWC01)
AC S/R HI
XMIT CURSOR KEY - PRESS

CRT (VWC01)
1T100/200 VOLT SAMPLE RATE CHANGED TO 100/SEC

REPORT COMPLETE

16-49 **OTC** **CHGD** **132**

Monitor AFT compartment during Recirc Pump Operations for significant changes in H₂ concentration.

16-50 **TBC** **CBHY** **136**
T-05H00M

Configure BAT04 for Launch Countdown.

16-51

CBHY

CRT (BAT04)
VEHICLE
LEFT/RIGHT
ACTUATOR
POSITN

VERIFY

LEFT A	-0.3 to -0.8 INCHES	B58H1150C1
LEFT B	-0.3 to -0.8 INCHES	B58H1151C1
RGHT A	-0.3 to -0.8 INCHES	B58H2150C1
RGHT B	-0.3 to -0.8 INCHES	B58H2151C1

16-52

CBHY

CURSOR CNTL (BAT04)
C/D MDE
XMIT CURSOR UNTIL - LNH

LAPs Delivery

16-53

STM JSTC 111
JSTC *SCB NET 104

SU72754

T-04H50M

Deliver the following at T-4 hours in sequence:

Support: [LS](#)

1. **Deliver** 16 ea LAPs with COMM to Fire Station No. 2 by T-4 hours.
2. **Deliver** 9 ea LAPs with COMM (7 plus 2 spares) to the Closeout Crew Van parked at OSB II Red Crew assembly area at T-4 hours.
3. **Deliver** 1 ea (Flight Crew size) portable air ventilator per Flight Crew Member to the Closeout Crew Van parked at the OSB II Red Crew assembly area at T-4 hours for Astronaut Closeout Crew.
4. **Deliver** 1 ea LAP to Air Pack Van at OSB II (Closeout Crew spares).
5. **Deliver** 1 ea Portable Air Ventilator per Flight Crew Member plus one to O&C cul-de-sac, Astro Van at T-4 hours.

MPS LH₂ Recirc Pump Activation - Complete

16-54 CMPS OTC 132
T-04H40M

LH₂ Recirc Pump Activation complete.

PASS Pre-Flight RCS Quantity Uplink

NOTE

Perform this option if Scrub Turnaround was not performed and RCS quantity correction uplink is required.

PASS Pre-Flight RCS Quantity Uplink Not Performed: _____

16-55 NTD *FLT 232

Perform PASS Pre-Flight RCS Quantity Correction Uplink.

16-56 *FLT NTD 232
NTD OTC
OTC CVFS 132

PASS Pre-Flight RCS Quantity Correction Uplink complete.

***** End of PASS Pre-Flight RCS Quantity Uplink *****

MILA Antenna Alignment

16-57	NTD	*FLT	232	SU72718
		*MIL		
		OTC		
		LPS		
		JRPS		
	OTC	CCSE	132	
		RCRT		

T-04H30M

1. **Perform** MILA Antenna Alignment on OIS Channel 232 (1 hour).
2. MILA select 128KB hardline TM for transmission to MCC-H and KFRL. Loss of 192KB data to LPS and JRPS will occur.

NOTE

Air to Ground (A/G) voice links and Uplink commands will be interrupted during MILA Antenna Alignment. If false lock occurs, MILA will remove Uplink modulation, reacquire carrier lock and re-apply modulation. MCC command will be sent via GNC major function.

16-58 NTD *FLT 232

Transmit DSM _____
(Xpndr Freq High DSM 4741 or Xpndr Freq Low DSM 4740)

V74K3111

16-59 CCSE

CRT (VWA40)
VERIFY
PM SYSTEM
XPNDR
FREQ - _____ (HIGH OR LOW)

16-63 NTD *MIL 232

Xpndr Freq Switch complete.

Perform secondary antenna alignment (30 minutes).

MILA Switch to Secondary Antenna

16-64 *MIL NTD 232
T-04H00M

Secondary antenna alignment complete. S-band will be momentarily interrupted while switching antennas.

16-65 NTD *MIL 232

Proceed with antenna switching.

Obtain valid 2-way lock.

16-66 *MIL NTD 232

Antenna Switch complete; 2-way lock obtained.

16-67 NTD CCSE 232

CRT (VWA40)
VERIFY
PM SYSTEM
NSP
SYNC - BIT + FRAME

16-68 NTD *MIL 232
T-04H00M

Proceed with Primary antenna alignment.

LAPs Delivery - Complete

16-69 *SCB JSTC NET 104 SU72754
 JSTC STM 111
T-04H00M

LAPs delivered as follows:

Support: [LS](#)

1. Sixteen each LAPs with COMM to Fire Station No. 2 by T-4 hours.
2. Nine each LAPs with COMM (7 plus 2 spares) to the Closeout Crew Van parked at OSB II Red Crew assembly area at T-4 hours.
3. One each LAP to Air Pack Van at OSB II (Closeout Crew spares).

Activate Radio Talk Groups

NOTE

STM perform the next two steps by Countdown Clock at T-4 hours.

16-70 STM GYCC 111
 GYCC GYCJ 117
T-04H00M

Verify COMM configured for Convoy Commander, Purge and Cooling Talk Groups at KSC.

Support: [VCE](#)

16-71 LRD STM 135
 STM GYCC 111
 GYCC GYCJ 117

IF DFRC or WSSH is designated alternate Landing site,

THEN activate 2RAM131 (9131) Alt Convoy Commander Net to _____ (DFRC {GKSC-61803}/WSSH {GKSC-62110}).

Support: [VCE](#)

Not Performed: _____

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OMI S0007.200 A23
APPROVED

16-80	CLHY	TBC	136	SU72707
	TBC	NTD	232	SU72710
	NTD	STM		
	STM	JCFM	111	

T-03H45M

ET LH₂ Fast Fill to 98 percent complete. Initiating ET LH₂ topping to 100 percent (OMI S1004).

Support: [GIFM](#)

OMRSR [S00FF0.011-1](#)
OMRSR [S00FF0.081-1](#)
OMRSR [S00FF0.030-1](#)
OMRSR [S00FF0.190-1](#)

16-81	CLHY	TBC	136
	TBC	CPWR	

ET LH₂ 98 percent sensors wet at:

Time _____ GMT

16-82	CLHY	TBC	136	SU72712
	TBC	NTD	232	

LH₂ in topping and ET LH₂ tank vented and vent valve cycling terminated. Ready for Orbiter and SRB PIC resistance tests.

ET Bipod Heaters in Steady State

16-83

CPWR

CRT (TW495)

VERIFY

TANKING STATE - STEADY STATE

16-84

Noted requirement is complete.

OMRSD [S00FF0.095](#)

16-85

CPWR

TBC

136

[SU72701](#)

ET Bipod Heaters in Steady State.

***** End of ET Bipod Heaters in Steady State *****

WARNING

If Shuttle ordnance is connected, ordnance detonation may occur due to inadvertent PIC-LPS commands.

Personnel may suffer serious bodily injury or death

WPYR026 04-08-04

NOTE

Hazardous steps follow due to PIC Resistance Test. All personnel must be clear of BDA before proceeding.

PIC Resistance Tests

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00FA0.015-1

16-86 NTD OTC 232

Proceed with Orbiter/GSE PIC Resistance Test.

16-87 OTC CEPD 132

Power up GSE PIC racks and perform Orbiter/GSE PIC Resistance Test per OMI S0007.400, Operation 52 on Channel 151.

16-88 CEPD OTC 132
OTC NTD 232

Orbiter/GSE PIC Resistance Test complete. GSE PIC racks will remain powered up.

16-89 OTC CEPD 132

Perform MEC Pre-Flight BITE Evaluation.

16-90 CEPD

CURSOR CNTL (VWC10)
MEC BITE PREFLT
XMIT CURSOR KEY - PRESS

CRT (SA PAGE)
VERIFY NO MEC FAILURES

16-91 CEPD

Perform SDC QLDB retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

16-92 CEPD OTC 132
 OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

SRB PIC Resistance Test

16-93 NTD TBC 232
 TBC CPWR 136

Proceed with SRB PIC Resistance Test per OMI S0007.400
(Operation 48) on Channel 176 (15 minutes).

16-94 CPWR TBC 136
 TBC NTD 232
 *SCC

[SU72712](#)

SRB PIC Resistance Test complete.

NOTE
Hazardous steps complete.

16-95 Noted requirement is complete.

 OMRSD [S00FA0.015-1](#)

Assemble Final Inspection Team and Closeout Crew

16-96	NTD	CICE	232
		TBC	
		*SCC	
	*SCC	*PSE	DIR 7
	TBC	CTIF	136

Assemble and brief Final Inspection Team for Pad entry.

Proceed to OSB II and report when ready.

16-97	NTD	OTC	232	SU72720
				SU72736

Assemble Closeout Crew at OSB II.

NOTE

OTC will verify LO₂ Load at 90 percent. When assembled at OSB II, Closeout Crew Leader (OVCC) will perform DIR 7 COMM check with OTC.

Closeout Crew will carry spare portable radio and portable O₂ detector for continuous monitoring of O₂ in Whiteroom.

16-98 OTC *PAD 132
 *PAD OVCC

T-03H45M

Assemble Closeout Crew at OSB II and prepare for Pad re-entry.

Verify ASP has switchguard key.

Verify Closeout Crew has received 6 LAPs and 8 ELSAs from Life Support.

16-99 NTD *SCC 232
T-03H45M

Go to OIS Channel 221 and determine preferred triage site for Final Inspection Team and Closeout Crew use.

Report site_____.

NOTE

Upon arrival at their assigned location, personnel within LDA will report on OIS or radio net to their respective lead (NTD, SRO, STM, or BEK1) for COMM check. Lead personnel will then verify to NTD the status of their responsible personnel. For road block location see Figure 13-6.

For personnel locations/maximum manloading, see Figure 13-7.

NOTE

ELSAs will be available for pickup at life support Air Pack Van at OSB II.

16-100	NTD	STM	232
		*SEC	
	STM	GYCC	111
		JSTC	
	GYCC	WYVF	PTP
		JPHO	117

T-03H40M

Have personnel report to assigned FWD observer sites.

Brief personnel that they shall not penetrate BDA while en route to sites (info JSTC).

Support: OTV
Support: SEC
Support: PHOT

Xpndr Switch to Launch Frequency

16-102
T-03H30M

*MIL NTD 232

MILA antenna align complete. Ready for xpndr switch to launch frequency.

16-103

NTD *FLT 232

Transmit DSM _____
(Xpndr Freq - Low DSM 4740 or Xpndr Freq High DSM 4741)

V74K3112

16-104

CCSE

CRT (VWA40)
VERIFY
PM SYSTEM
XPNDR
FREQ - _____ (LOW OR HIGH)

16-105

NTD *MIL 232

Acquire 2-way lock on S-band _____ (high or low) freq (Mode 25S coding) at 200 watts.

16-106

CCSE

CRT (VWA40)
VERIFY
PM SYSTEM
NSP
SYNC - BIT + FRAME

16-111 NTD *FLT 232 SU72718
 *MIL
 RCRT
 CCSE
 OTC

MILA Antenna Alignment complete.

16-112 OTC CCSE 132

ACTIVATE COUNTDOWN EMONS

PROGRAMMABLE FUNCTION PANEL
VWA40 PFPK - PRESS

VERIFY EMONS DISPLAYED

EMONS PFPK - PRESS
ACT CNT-DN EMON PFPK - PRESS

CRT (VWA40 PG-B)
VERIFY MSG
CNT-DN EMON ACTIVATED

PROGRAMMABLE FUNCTION PANEL
EXIT EMON OPTIONS PFPK - PRESS
PFPK7 - PRESS

16-113 CCSE

CURSOR CNTL (VWA40)
NSP F/S MONITOR
XMIT CURSOR KEY - PRESS

CRT
VERIFY
NSP F/S MONITOR INVERTED

16-124 CGLS NTD 232

Countdown Clock set to hold at T-3 hours 00 minutes.

Start LH₂ Replenish (OMI S1004)

16-125 CLHY TBC 136 SU72710
TBC NTD 232
NTD STM

T-03H05M

ET LH₂ topping to 100 percent complete. Initiating replenish operations.

OMRSR [S00FF0.082-1](#)

16-126 NTD *SCC 232 SU72689
STM STM
STM JYVO 138

Perform OTV SCAN of Pad areas per *SCC direction.

Utilize Cameras 001, 014, 036, 060 as primary; 027, 073 as backup.

Report status.

Support: [OTV](#)

LO₂ in Stable Replenish

16-127 CLOX TBC 136 SU72700
TBC NTD 232
CPWR 136
NTD STM 232
LPS
STM JCFM 111

T-03H05M

LO₂ in Stable Replenish.

Record GMT _____

Support: [GIFM](#)

LH₂ in Stable Replenish (OMI S1004)

16-128	CLHY	TBC	136	SU72702
	TBC	NTD	232	SU72799
	NTD	STM		
		LPS		
T-03H05M	STM	JCFM	111	

LH₂ in Stable Replenish Mode.

Record GMT _____

Support: [GIFM](#)

OMRSR [S00FF0.091-1](#)

16-129	NTD	LPS	
	LPS	JSDC	

Perform Monoball 15 minute snapshots using SDC Monoball tool and upon completion, deliver hardcopy to the Firing Room 4 TPE (Integration Console-10455). Data recording start time of “Current GMT” minus 15 minutes.

NOTE

Perform next step after LO₂ and LH₂ in Stable Replenish.

16-130	LPS	C4MC	127
--------	-----	------	-----

Perform \$FEPCPR, demand update for all FEPs.

Terminate \$FEPCPR at completion of demand update.

Egress Operational Checks

NOTE Perform next step after LO ₂ and LH ₂ in Stable Replenish.

NOTE Noted requirement is satisfied by the following series of steps. OMRS S00FA0.820
--

16-131	NTD	OTC	232
	OTC	CHGD	132

Emergency Egress System (SAW01/HWW16)

Verify EGR HFDS Operational Checks for Primary and Secondary HIMs/LCGs:

ALRM = OFF
CONF = ON
SELF = OFF

Verify EGR EETD Operational Checks for Primary and Secondary HIMs/LCGs:

Ambient +/-15 deg Fahrenheit

16-132	CHGD	OTC	132
	OTC	CGSS	

Emergency Egress System Fire Detector Self Test will be performed momentarily. Ignore ALARMS and EMONS.

16-133

CHGD

CURSOR CNTL (SAW01/HWW16)
GROUP SELF TEST
XMIT CURSOR KEY - PRESS

CRT
VERIFY "ALRM", "CONF", AND "SELF" INDICATION ON
FOR EACH FIRE DETECTOR PRIMARY AND SECONDARY.

CURSOR CNTL (SAW01/HWW16)
GROUP COMMAND OFF
XMIT CURSOR KEY - PRESS

CRT
VERIFY "ALRM" AND "SELF" INDICATION OFF AND
"CONF" INDICATION ON FOR EACH FIRE DETECTOR
PRIMARY AND SECONDARY.
REPORT ANY ANOMALIES.

NOTE

For purposes of verifying EGR FDX operational, operational is defined as being that the FDX successfully responded to operator initiated self-test command issued in previous step and that confidence indication remains on.

16-134

CHGD

WHITEROOM ARRAY
VERIFY 2 OF 3 OPERATIONAL:

EGR FD1
EGR TD1
EGR TD2

16-135

CHGD

OAA ARRAY
VERIFY 2 OF 4 OPERATIONAL:

EGR FD2
EGR FD3
EGR TD3
EGR TD7

16-136

CHGD

FSS ARRAY
VERIFY 3 OF 5 OPERATIONAL:

EGR FD7
EGR FD11
EGR FD12
EGR FD13
EGR FD14

16-137

CHGD

175 FOOT LEVEL ARRAY
VERIFY 4 OF 6 OPERATIONAL:

EGR FD8
EGR FD9
EGR FD10
EGR TD8
EGR TD9
EGR TD10

16-138

CHGD

195 FOOT LEVEL ARRAY
VERIFY 4 OF 6 OPERATIONAL:

EGR FD4
EGR FD5
EGR FD6
EGR TD4
EGR TD5
EGR TD6

16-139

CHGD **OTC** **132**
OTC **CGSS**

Emergency Egress System Fire Detector Self Test is complete. Report all ALARMS and EMONS.

16-140

CHGD **OTC** **132**
OTC **NTD** **232**

Emergency Egress Operational Checks complete. No anomalies noticed.

16-141

Noted requirement is complete.

OMRSD [S00FA0.820](#)

Depletion Sensor Confidence Checkout During Replenish

NOTE

LOX and LH₂ must both be in Stable Replenish before depletion sensor confidence check can be run (ECO Confidence C/O).

16-142	NTD	OTC	232	SU72812
		TBC		
	OTC	CMPS	212	
	TBC	CLOX	136	
		CLHY		

T-03H00M

Perform Depletion Sensor Confidence Checkout During Replenish per OMI [S1004](#) (15 minutes).

Controlled Switching in Effect

16-147	NTD	*SCC	232
		OTC	
		TBC	
		PTC	
		STM	

T-03H00M

LO₂ and LH₂ Tanking in Stabilized Replenish Mode. Controlled switching in effect

16-148	NTD	STM	232
	STM	JCFM	111

Perform "Post Cryo Load" load estimate operations or CDAS and GMS-II.

Support: [GIFM](#)

16-149	JCFM	STM	111
	STM	NTD	232

"Post Cryo Load" operations complete.

Variable Ascent Parameter Uplink Load

16-150	NTD	*FLT	232
--------	-----	------	-----

IF requested by *FLT,

THEN Proceed with transmission of variable ascent parameters.

Not Performed: _____

Reset Orbiter Vent Door Commands

16-151 OTC CPVD 132
T-03H00M

Reset Orbiter vent door commands - Off

16-152 CPVD

PERFORM THE FOLLOWING:

1. **PRESS** PFPK-7
 VERIFY VAM01A AND VAM31A (ACTIVE)
2. **PRESS** PFPK-X NEXT TO VAM31A ONCE.
 VERIFY PFP6 INDICATES "VENT DOOR"
3. **PRESS** PFPK-6
 VERIFY PFP1 INDICATES "VENT CMD RESET"
4. **PRESS** PFPK-1 "VENT CMD RESET" ONCE
 CRT
 VERIFY MESSAGE "VENT CMD RESET" INDICATED
5. CRT
 VERIFY (AFTER APPROX 30 SEC. DELAY) MESSAGE
 "VENT CMD RESET COMPLETE"
6. PFPK7 - PRESS

16-153 CPVD OTC 132

Orbiter vent door commands reset - Off

MDM Discrete Read Check

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00FE0.190-1R

16-154
T-03H00M

OTC CDPS 132

[SU72727](#)

Perform T-3 hour BT4 Snapshot on Command Decoder, Flight Critical and Payload MDMs to status discrete outputs.

16-155
T-03H00M

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

MDM DISCRETE OUTPUT CHK (VAS94)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

16-156

CDPS

CURSOR CNTL (VAS94 PG-B)
T-3HR SNAPSHOT
XMIT CURSOR KEY - PRESS

NOTE

Perform the next step upon receipt of original copy.

16-157
T-03H00M

CDPS

CONSOLE KYBD (VAS94 PG-B)
PFK-15 KEY - PRESS

16-158

CDPS

Retrieve BT4 original copy with T-3 hour miscompares from Console Printer.

Annotate page numbers on copy and deliver to CTPE at INTG Console.

16-159

CDPS
OTC

OTC
CTPE

132

T-3 hour Snapshot on Command Decoder, Flight Critical and Payload MDMs complete.

16-160

CTPE

BT4 to be distributed to all systems as follows:

C2/10 - 2 copies for CCSE, CEPD to review

C3/4 - 1 copy for CMPS to review

C5/6 - 5 copies for CPVD, CECL, CFCP, CPLE, CAFM to review

C7/8 - 3 copies for COOS, CHYD and CAPU to review

C9 - 1 copy for CISL to review

C11/12 - 4 copies for COFC, CGNC, CDPS and CCME to review

INTG - 1 copy for CTPE to review

CTPE will produce 17 copies and distribute.

16-161 OTC ALL 132 SU72727

All systems listed below to review MDM discrete outputs and miscompares in listing delivered to them. All miscompares must be evaluated and explained. Verbal OK on MDM discrete configuration must be received from each system by end of hold at T-3 hours. CTPE will attach T-3 hour miscompare to this OMI.

CPLE _____	CAPU _____
CCSE _____	CISL _____
CAFM _____	CEPD _____
CMPS _____	CGNC _____
CECL _____	COFC _____
CPVD _____	CCME _____
CFCP _____	CDPS _____
COOS _____	CHYD _____

16-162 CTPE

Communicate BT4 Deltas to JSC MOD DPS representative via OIS or FAX to FAX number (281) 483-3663.

16-163 CTPE OTC 132
 OTC NTD 232

BT4 Deltas have been communicated to JSC.

16-164 *FLT

Review transmitted BT4 Deltas. **Coordinate** any issues with responsible JSC Engineering and KSC OPE/TPE.

16-165 *FLT NTD 232
 NTD OTC

*FLT review of MDM BT4 data is complete.

NOTE

Perform next step if analysis of MDM discrete output shows FDs that are not in correct state for T-3 hours (i.e., there are FDs listed as mismatches on the VAS94 printout).

16-166 **CTPE** **ALL**

IF review of the MDM discrete output reveals any T-3 hour mismatches,

THEN list mismatches below and (if necessary) **Set** commands to proper state via system GOAL software or Console Command Processor using the syntax: Set (FD) (On or Off) - XMIT CMD/EXEC CMD):

MSID	Nomen	System	State	State Commanded To

All mismatches must be understood and explained. Any unexplained mismatches must be documented in PRACA. If any mismatches must be set or reset, this may be done after obtaining concurrence from the owner system, SPE and FLT. Such changes to FDs are documented by listing the new state in the “State Commanded To” column. For mismatches that are understood and acceptable for Launch/Ascent as-is, enter “N/R” (Not Required) in the “State Commanded To” column for that FD.

Not Performed: _____

16-167 Noted requirement is complete.

OMRSD [S00FE0.190-1R \(VAS94\)](#)

CRT Countdown Timer Setup and LDB Redundancy Check

16-168
T-03H00M

OTC CDPS 132

SU72726

Set up onboard Countdown timer and perform LDB Redundancy Check.

16-169

CDPS

CONSOLE KYBD
DEUE DEST GNC 1 LDBA
XMIT CMD KEY - PRESS
DEUE SPEC 2 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
CRT 1 DISP ID 0020

NOTE

Anticipated GMT of Liftoff will be entered in the next step.

16-170

CDPS

CONSOLE KYBD
DEUE ITEM 17 +__ +__ +__ EXEC
 HH MM SS
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

16-171

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
MDM BSR READ PROGRAM (VAS93)
XMIT CURSOR KEY - PRESS

PFK-2 KEY - PRESS

16-172

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 1
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK-5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

NOTE

LDB Switching in following steps will cause annunciation of LCC LPS-17.

16-173

CDPS

CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS

16-174

CDPS

CURSOR CNTL (\$GM)
POLL GSE ON LDB NO. 2
XMIT CURSOR KEY - PRESS

PFK-1 KEY - PRESS

16-175

CDPS

CRT (VAS59 PG-B)
LDB 2 POLLING ACTIVE

16-176

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 2
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK-5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

16-177

CDPS

APPL PAGE (VAS93 PG-B)
PFK-15 KEY - PRESS

16-178

CDPS

CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS

16-179

CDPS

CURSOR CNTL (\$GM)
POLL GSE ON LDB NO. 1
XMIT CURSOR KEY - PRESS

PFK-1 KEY - PRESS

**06-16-2011
APPROVED**

**OMI S0007.200 A23
APPROVED**

16-180

CDPS

CRT (VAS59 PG-B)
LDB 1 POLLING ACTIVE

16-181

CDPS

CURSOR CNTL (VASP9 PG-B)
LAUNCH DATA BUS ANOMALY
XMIT CURSOR KEY - PRESS

CRT (VASP9 PG-B)
MESSAGE CLEARED

16-182

CDPS

OTC

132

CRT Countdown Timer Setup and LDB Redundancy Check complete.

***** End of CRT Countdown Timer Setup and LDB Redundancy Check *****

16-188 PSTM STM NET 104
STM
CSPE NTD 232

IF FOD documented during OMI S0007.100 Operation 555 - BDA Final Clear OPS/Safety Sweep was entered in OMI S0007.400 Operation 899 - FOD Identified in Final Operations/Safety Walkdown and Final Inspection, at T-3 hours data sheet,

THEN report FOD has been dispositioned and (is / is not) a constraint to Launch.

Not Performed: _____

Firing Room Configuration for Pad Entry

16-189 NTD OTC 232
TBC
STM
PTC

T-03H00M
(HOLDING)

Implement and verify the following configurations during total time personnel inside Blast Danger Area:

1. No LPS test program authorized except those required to monitor and maintain Vehicle and GSE in Safe Configuration.
2. Controlled switching in effect.
3. PICs and S&A devices not armed.
4. Vehicle and GSE HAZ gas detection system operating and indicating Safe Condition.
5. **Advise** NTD of any hazardous gas detection system unsafe indications.

16-190 STM VEEE NET 104

Verify Final Inspection Team and Closeout Crew have been briefed on contingency operations of the Pad FSS elevators per [Doc: JOB PLAN Q3018.5 \(LI\) Pad Contingency Plan](#) .

Support: [CDPD](#)

16-191 NTD *SCC 232
 *SCC *PSE DIR 7

T-03H00M
 (HOLDING)

Request Safety concurrence to clear Closeout Crew, Final Inspection Team and M113 Bunker Crew into Pad. Crews properly attired in non-static producing, flame retardant coveralls. Breathing air is available.

Essential Personnel in Closeout Crew	
Closeout Crew Leader	1
ASP	2*
Suit Technician	1
NASA Quality Control	1
Orbiter MECH Technician	2

*Second ASP will go to Pad to assist with Crew Compartment activities if:

1. Crew Compartment was unable to be configured for Flight Crew arrival prior to clearing for ET Load.

AND

2. There is not sufficient time available after ET load for one ASP to complete configuration prior to Crew Ingress. Second ASP will accompany Closeout Crew to Pad and will depart Pad in Astro Van when Flight Crew arrives.

Closeout Crew Vehicles - 2

Essential Personnel for Final Inspection			
(SSV, FSS, MLP)	ET	NASA	SPOC
Engineer	1	4	2
Safety			1

Final Inspection Team Vehicles - 2

Essential Personnel at Bunker	
Pad Rescue	3

Pad Rescue Vehicles - 1

Second ASP Required at Pad for Crew Compartment Configuration

NOTE
Perform this option if second ASP required at Pad for Crew Compartment Configuration.

Second ASP Required at Pad for Crew Compartment Configuration Not Performed: _____

16-192	VITT	NTD	232
	NTD	*SCC	
	*SCC	*PSE	DIR 7

Request concurrence for second ASP to accompany Closeout Crew to Pad to support Crew Compartment Configuration.

16-193	*PSE	*SCC	DIR 7
	*SCC	NTD	232
	NTD	VITT	

You have Safety concurrence for second ASP to accompany Closeout Crew to Pad.

*** End of Second ASP Required at Pad for Crew Compartment Configuration ***

16-194	*PSE	*SCC	DIR 7
	*SCC	NTD	232

T-03H00M
(HOLDING)

You have Safety concurrence to allow Closeout Crew Final Inspection Team and M113 Bunker Crews to the Pad.

16-195 NTD *SEC 232 SU72756
 JFIR
 *PRL DIR 7

Perform the following:

1. **Send** Pad Rescue personnel to armored vehicle at Slidewire Bunker for Closeout Crew and Final Inspection Team entry.
2. Rescue Crew to remain in bunker until Closeout Crew egresses Pad.
3. **Perform** armored vehicle COMM check on DIR 7 with NTD.

Support: FIRE
Support: SEC

16-196 NTD STM 232
 STM JYVO 138

Provide video tracking and recording of Closeout Crew and Final Inspection Team from Roadblock A/B-11 to Pad (see JYVO Figure 13-1, (pages 1 thru 3), and Armored Vehicle Bunker Crew from A/B-5 (Pad A). (Select OTV Camera OBSV-181 for Closeout Crew; OBSV-182 for Final Inspection Crew)

Support: OTV

16-197 STM JYVR 138

Start video recording of OTV Camera 073 (see STM Figure 13-1, pages 1 thru 3).

Support: OTV

16-198 NTD *SEC 232

Clear Closeout Crew and Final Inspection Team through Roadblock A/B-11 for Ingress to Pad.

Support: SEC

16-199 NTD OVCC DIR 7

Proceed to Launch Pad for closeout operations and report in on OIS Channel 132.

Verify authorized personnel have combination for window cover removal (if installed).

WARNING

Personnel may fall from unprotected heights if fall protection is not used.
Personnel may suffer bodily injury or death.

Wear a **safety harness** with a **lanyard** when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed **life line** .

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16-200 NTD *FIT DIR 7 [SU72729](#)

Perform Final Inspection per OMI S0007.400 (Operation 57) and OMI [S6444.002](#)

16-201 NTD *PAC 232 [SU72748](#)
 *SCC

Final Inspection Team and Closeout Crew released and proceeding to Pad.

16-202 OVCC NTD DIR 7 [SU72725](#)
T-03H00M
(HOLDING)

Closeout Crew approaching elevator.
Request permission to proceed to Whiteroom.

16-203 NTD STM 232
 STM JBEP 111

Verify O₂ concentration in Whiteroom acceptable for Crew Ingress.

Support: [PWR](#)

Closeout Crew to Whiteroom

O₂ Concentration Level - Acceptable

NOTE

Perform this option if fixed O₂ meter in Whiteroom can verify O₂ concentration acceptable.

O₂ Concentration Level - Acceptable Not Performed: _____

16-204	JBEP	STM	111
	STM	NTD	232

O₂ concentration acceptable in Whiteroom.

Support: [PWR](#)

16-205	NTD	OVCC	DIR 7
--------	-----	------	-------

OVCC proceed to Whiteroom and report to OTC on OIS Channel 132.

*** End of O₂ Concentration Level - Acceptable ***

O₂ Concentration Levels - Not Acceptable

NOTE

Perform this option if O₂ concentration cannot be verified acceptable by fixed O₂ meter in Whiteroom.

O₂ Concentration Levels - Not Acceptable Not Performed: _____

16-206	JBEP	STM	111
	STM	NTD	232

O₂ concentration in Whiteroom cannot be verified acceptable by fixed O₂ monitoring system.

Support: [PWR](#)

16-207 NTD OVCC DIR 7
 OVCC OTC 132

Proceed to Whiteroom and perform O₂ concentration check prior to Whiteroom entry.
Report completion.

***** End of O₂ Concentration Levels - Not Acceptable *****

Open Orbiter Leeward Vent Doors 1 & 2 (Contingency)

NOTE

Perform this option to open Leeward Vent Doors 1 & 2 if O₂ concentration in OAA Whiteroom becomes less than 20 percent as indicated on Whiteroom O₂ meter (OTV Camera 005).

Open Orbiter Leeward Vent Doors 1 & 2 (Contingency) Not Performed: _____

16-208 NTD OTC 232 SU72A84
 OTC CPVD 132

O₂ concentration within Whiteroom less than 20 percent, open Orbiter Vent Doors 1 & 2 on Leeward side.

16-209 CPVD

CURSOR CNTL (VAM31A/VAM09A)
VENT DOORS 1&2 (LEEWARD)
OPEN TARGET
XMIT CURSOR KEY PRESS

16-210 CPVD OTC 132
 OTC NTD 232
 NTD *SCC

Leeward vent door opening complete.

***** End of Open Orbiter Leeward Vent Doors 1 & 2 (Contingency) *****

Open Windward Vent Doors 1 & 2 (Contingency)

NOTE

If previous three steps do not solve less than 20 percent O₂ concentration problem, perform this option to open Windward Vent Doors 1 & 2 only if wind condition is less than 18 knots and no rain expected.

Refer to OMRS listed below if unable to meet these conditions.

Open Windward Vent Doors 1 & 2 (Contingency) Not Performed: _____

16-211	NTD	OTC	232
	OTC	CPVD	132

Open Windward Vent Doors 1 & 2.

OMRSR [V05AG0.060-C](#)

16-212	CPVD		
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CURSOR CNTL (VAM31A/VAM09A)
VENT DOORS 1 & 2 (WINDWARD)
OPEN TARGET
XMIT CURSOR KEY - PRESS

16-213	CPVD	OTC	132
	OTC	NTD	232
	NTD	*SCC	

Windward vent door opening complete.

***** End of Open Windward Vent Doors 1 & 2 (Contingency) *****

Whiteroom O₂ Indications Less than 19.5 Percent

NOTE

Perform this option if Whiteroom O₂ indications less than 19.5 percent.

Whiteroom O₂ Indications Less than 19.5 Percent Not Performed: _____

16-214	NTD	OTC	232
		*SCC	
	OTC	OVCC	132

Perform interior O₂ level checks prior to Whiteroom/Crew Module entry.

16-215	OVCC	OTC	132
	OTC	NTD	232
	NTD	*SCC	

O₂ level check in Whiteroom/Crew Module acceptable.

Verify Safety concurrence for personnel entry.

***** End of Whiteroom O₂ Indications Less than 19.5 Percent *****

16-216 OVCC OTC 132

Closeout Crew ready to enter Orbiter.

16-217 CECL OTC 132

Partial pressure of oxygen in Crew Compartment satisfactory.

16-218 OTC OVCC 132

Perform O₂ level check prior to Cabin entry.

16-219 OVCC OTC 132
 OTC NTD 232

[SU72725](#)

O₂ level check in Cabin/Whiteroom acceptable for Crew Ingress.

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.

Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

Hazardous steps follow due to GN₂ buildup around Orbiter hatch; personnel shall not linger in hatch opening.

16-220	NTD	OTC	232
	OTC	OVCC	132

Proceed with Ingress of Crew Compartment.

Provide two unwrapped ELSAs for ASP and NST.

16-221	OVCC	OTC	132	SU72728
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ASP and NST entering Crew Module at this time.

16-222	NTD	STM	232
	STM	JYVO	138
		JYVR	

T-03H00M
(HOLDING)

Stop video track and recording of Closeout Crew (OBSV-181) (see JYVO Figure 13-1, pages 1 thru 3).

Support: [OTV](#)

Go for Flight Crew Wake Up

16-223 **VITT** **NTD** **232**
T-03H00M
(HOLDING)

Verify Go For Crew Wake Up.
7-3904 (recorded phone) (FR4)

16-224 **VITT** **NTD** **232**

Verify Crew Egress System satisfactory.

16-225 **NTD** **OTC** **232**

Crew Wake Up starting.

Configure COMM

16-226 **ASP**
T-03H00M
(HOLDING)

PANEL MO42F
MID DECK SPEAKER AUDIO
SPKR PWR SW - SPKR

16-227 **ASP**

PANEL R14
ROW A
MN B
AUDIO MID DECK SPKR CB - OPEN

16-228 **ASP**

PANEL L15
DON COMM HEADSET PREVIOUSLY CONNECTED.
PS COMM CCU PWR SW - ON

Configure COMM (Contingency)

NOTE
Perform this option only in support of a 24-hour Scrub Turnaround operation.

Configure COMM (Contingency) Not Performed: _____

16-229	OTC	CCSE	132
	NTD	*MIL	232

T-03H00M
(HOLDING)

Proceed with configuration of COMM on OIS Channel 214.

16-230	CCSE	*MIL	155
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T-03H00M
(HOLDING)

Configure for S-Band and UHF ASTRO COMM.

ASTRO COMM Panel Activation

16-231
T-03H00M
(HOLDING)

CCSE OTC 132

ASTRO COMM - OIS INTERFACE PANEL

POWER SW - ON
VERIFY POWER LIGHT ON

ICOM A SW - ACTIVE
VERIFY ACTIVE LIGHT ON

ICOM B SW - ACTIVE
VERIFY ACTIVE LIGHT ON

A/G 1 SW - ACTIVE
VERIFY ACTIVE LIGHT ON

A/G 2 SW - ACTIVE
VERIFY ACTIVE LIGHT ON

UHF SW - ACTIVE
VERIFY ACTIVE LIGHT ON

16-232
T-03H00M
(HOLDING)

CCSE

Perform 2-way COMM checks with ASP on:

OIS 214 (ICOM A)
OIS 215 (ICOM B)
OIS 212 (A/G 1)
OIS 213 (A/G 2)
OIS 6311 (FR4-A/A) or
6331 (FR3-A/A)

16-233

OTC

Perform 2-way COMM checks with ASP on Console 10496A11-FR4
(or 0696A10-FR3):

A/G 1
A/G 2
ICOM A
ICOM B

16-234
T-03H00M
(HOLDING)

CCSE OTC 132

ASTRO COMM - OIS INTERFACE PANEL

ICOM A SW - OFF
VERIFY ACTIVE LIGHT OFF

ICOM B SW - OFF
VERIFY ACTIVE LIGHT OFF

A/G 2 SW - MONITOR
VERIFY MONITOR LIGHT ON

UHF SW - MONITOR
VERIFY MONITOR LIGHT ON

16-235

CCSE OTC 132
OTC NTD 232

Configure COMM (Contingency) complete.

***** End of Configure COMM (Contingency) *****

NOTE Perform next three steps after Voice Checks are complete.
--

16-240	NTD	*FLT	232	SU72B61
		*MIL		
		CCSE		

T-03H00M
(HOLDING)

Perform PDL Station Interface Checks (loss of UHF to the vehicle will occur.)

16-241	*MIL	NTD	232
	NTD	*FLT	232
		CCSE	

PDL Station Interface Checks complete.

16-242	CCSE	NTD	232	SU72B62
	NTD	*FLT		
		*MIL		
		GOIS		

Verify all intercenter and support site communication network interface checks affecting Flight Crew communications or voice checks are complete, validated and configured to support Launch Countdown.

Immediately report any network disruption to NTD or CCSE upon detection.

Reset Lower Caution and Warning Limits

NOTE

The following steps will reset the Lower Caution and Warning Limits for the LOMS/ROMS OX/FU Propellant Tank Ullage Pressure Transducers to the original value of 2.9 volts (232 psia).

16-243 OTC ASP 212

PANEL R13

CAUTION/WARNING

PARAM SEL PB'S - 007

(OMS TK P OX-L)

LIMIT SET

VALUE PB'S - 2.90

LIMIT SW - LOWER

FUNC SW - SET/THEN READ

VERIFY 007 = 2.90

16-244 OTC ASP 212

PANEL R13

CAUTION/WARNING

PARAM SEL PB'S - 017

(OMS TK P FU-L)

LIMIT SET

VALUE PB'S - 2.90

FUNC SW - SET/THEN READ

VERIFY 017 = 2.90

16-245 OTC ASP 212

PANEL R13

CAUTION/WARNING

PARAM SEL PB'S - 037

(OMS TK P OX-R)

LIMIT SET

VALUE PB'S - 2.90

FUNC SW - SET/THEN READ

VERIFY 037 = 2.90

16-246 OTC ASP 212

PANEL R13

CAUTION/WARNING

PARAM SEL PB'S - 047

(OMS TK P FU-R)

LIMIT SET

VALUE PB'S - 2.90

FUNC SW - SET/THEN READ

VERIFY 047 = 2.90

16-247 OTC ASP 212

PANEL R13

CAUTION/WARNING

PARAM SEL PB'S - 120

LIMIT SET

VALUE PB'S - 0.00

16-248 OTC CISL 132

Perform Caution and Warning Parameter Limit Change - SW per
OMI [V9001.106](#) (Operation 170) for above limits to parameters 7, 17, 37
and 47. **Report** completion.

***** End of Reset Lower Caution and Warning Limits *****

FCO Abort Advisory Checks

16-249	NTD	OTC *FLT	232	SU72740
	OTC	ASP CISL	132	

Stand by for FCO Abort Advisory Checks on OIS Channel 212.

16-250	NTD	*FLT SRO	232
--------	-----	-------------	-----

Verify system Armed and ready to perform check on OIS Channel 212.

16-251	NTD	SRO	232
--------	-----	-----	-----

Perform FCO Abort Advisory checks.

NOTE

The following steps verify the ROCC Flight Control Console. ASP will report abort light On or Off regardless of light intensity.

16-252	FCO
--------	-----

Transmit DSM 4054 (Abort A/B On) via FCO Console left hardware PBI.

16-253	ASP
--------	-----

PANEL F6
ABORT INDICATOR LIGHT ON

16-254	*FLT
--------	------

Transmit both DSM 4051 (Abort A Off) and DSM 4053 (Abort B Off).

16-255

ASP

PANEL F6
ABORT INDICATOR LIGHT OFF

16-256

*FLT

Transmit DSM 4054 (Abort A/B On) via FCO Console right hardware
PBI.

16-257

ASP

PANEL F6
ABORT INDICATOR LIGHT ON

16-258

*FLT

Transmit both DSM 4051 (Abort A Off) and DSM 4053 (Abort B Off).

16-259

ASP

PANEL F6
ABORT INDICATOR LIGHT OFF

16-260

SRO **NTD** **232**
 ***FLT**
NTD **OTC**

[SU72740](#)

FCO Abort Advisory Checks complete.

Switch OIS Command Channel (Orbiter)

16-261
T-03H00M
(HOLDING)

NTD **OTC** **232**

All Orbiter Test Team personnel switch to Command Channel 212 active.

16-262 OTC ALL 132 [SU72735](#)

All Orbiter personnel:
Switch to Command Channel 212 and standby for COMM check.

Continue to sidetone Channel 132 for duration of count.

Orbiter OIS COMM Check

16-263
T-03H00M
(HOLDING)

OTC 212

Perform COMM check on OIS Channel 212.

CPLD _____ CHGD _____

CCSE _____ CISL _____

CNSE _____ CEPD _____

CAFM _____ CGNC _____

CMPL _____ COFC _____

CMPS _____ CCME _____

CSME _____ CODS _____

CECL _____ CDPS _____

CPVD _____ CVFS _____

CFCP _____ CGLS _____

CGSS _____ CTPE _____

COOS _____ CMQC _____

CHYD _____ OVCC _____

CAPU _____

16-269 **CBRS SFCO 175**

SFCO PANEL
PROCEED/HOLD SW - PROCEED

16-270 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify PROCEED indication.

16-271 **CBRS FCO 175**

FCO PANEL
PROCEED/HOLD SW - HOLD

16-272 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify HOLD indication.

16-273 **CBRS FCO 175**

FCO PANEL
PROCEED/HOLD SW - PROCEED

16-274 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify PROCEED indication.

16-275 **CBRS SRO 175**

SRO PANEL
PROCEED/HOLD SW - HOLD

16-276 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify HOLD indication.

16-277 **CBRS SRO 175**

SRO PANEL
PROCEED/HOLD SW - PROCEED

16-278 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify PROCEED indication.

16-279 **CBRS**

SRSS HOLDFIRE PANEL
PROCEED/HOLD SW - HOLD

16-280 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify HOLD indication.

16-281 **CBRS**

SRSS HOLDFIRE PANEL
PROCEED/HOLD SW - PROCEED

16-282 **CBRS SFCO 175**
 FCO
 SRO
 CBRS

Verify PROCEED indication.

16-283 **CBRS**

SRSS HOLDFIRE PANEL
S2 - BYPASS

16-284 **CBRS SRO 175** [SU72704](#)
 SRO NTD 232
 NTD TBC

Range Safety Holdfire Checks complete.

Crew Module Configuration and Inspect for Ingress

16-285 **OTC ASP [SU72730](#)**
 NST

Inspect and prepare seats for Flight Crew Ingress.

Remove from Crew Module any items not required for Crew Ingress and Crew Module Closeout.

16-286 OTC CECL 212 SU72734

IF dual mode cooling is active,

THEN configure freon loops to bypass flow per OMI S0007.100,
Operation 257.

Report completion.

Not Performed: _____

Fuel Cell Water Line Verification

16-287 CFCP

CRT (VWR05)

VERIFY

WATER TANK QUANTITY INCREASE CONSISTENT WITH
CALCULATED FUEL CELL WATER PRODUCTION (+/- 10 PCT
OF CALCULATED DELTA QUANTITY) .

OMRSD V62AG0.050-1R (VWR05)

Potable/Supply Water Quantity Adjustment

NOTE

Perform this option if required to ensure targeted liftoff quantity will be met as
specified by Flight Operations.

Potable/Supply Water Quantity Adjustment Not Performed: _____

16-288 OTC CFCP 212 SU72731

ASP
OMTO

T-03H00M
(HOLDING)

Perform Potable/Supply Water Tank A Drain per OMI S0007.400
(Operation 54) on OIS Channel 153.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-289

CFCP

OTC

212

[SU72731](#)

Potable/Supply Water Tank A Drain complete.

***** End of Potable/Supply Water Quantity Adjustment *****

IMU Pre-Flight Calibration - Complete

16-290
T-03H00M
(HOLDING)

CGNC OTC 212

SU72717

IMU Pre-Flight Calibration complete.

Initiate IMU ATT DET and PFA Auto Sequence

NOTE

The next two steps will initiate an auto sequence start for the following:

IMU PPOS at T-2 hours 04 minutes

IMU ATT DET at T-1 hour 57 minutes

IMU PFA at T-1 hour 47 minutes

PFK 14B (VABM1/VWB19) will de-activate auto sequence.

PFK 14B is available anytime after auto sequence is activated.

These steps shall be performed any time after Pre-Flight cal, but prior to T-2 hours 06 minutes.

16-291

CGNC

APPL PAGE (VABM1/VWB19 PG-A)
PFK4 KEY - PRESS (DISK FILES SECT 4)
PFK8 KEY - PRESS (CLEAR DISK FILE SECTOR)
PFK9 KEY - PRESS (INHIBIT WRITE/CLEAR PAGE)

16-292

CGNC

CURSOR CNTL (VABM1/VWB19 PG-B)
ATT DET/PFA AUTO SEQ
XMIT CURSOR KEY - PRESS

ECP AI Mode 1: Match Commands to Position

NOTE

Perform next ten steps after IMU Pre-Flight cal is complete and before IMU Pre-Flight contingency cal or gyrocompass align is started.

16-293

COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS

16-294

COFC

CURSOR CNTL (SAB23/VSB100)
ORBITER/SRB AI MODE 1
XMIT CURSOR KEY - PRESS

16-295

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

16-296

COFC

CRT (SAB23/VSB100)
VERIFY
AI MODE 1 REQUEST COMPLETE.

OMRSD [S00FE0.210](#)

NOTE

Pre-Launch MPS actuator position checks perform a “reasonableness check” of the SSME TVC positions. The limits specified in GOAL program VSB100 are arbitrary and are based upon nominal time line for SSME TVC null lock removal and typical actuator drift rates. If locks are removed earlier than normal, Launch is delayed or scrubbed, or drift rates are higher than typical, VSB100 may indicate “PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL”. The OMRS allows drift rates up to 0.578 deg/30 minutes.

16-297

COFC

CURSOR CNTL (SAB23/VSB100)
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS
XMIT CURSOR KEY - PRESS

16-298

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

NOTE

Perform next step for nominal SSME TVC actuator drift.

16-299

COFC

CRT (SAB21/VSB100)
VERIFY
PRE-LAUNCH MPS ACTUATOR POSITION CHECKS
SUCCESSFUL

Not Performed: _____

NOTE

Perform the next three steps if VSB100 indicates "PRE-LAUNCH MPS POSN CHECKS UNSUCCESSFUL".

16-300

COFC

IF Pre-Launch MPS Actuator Position Checks unsuccessful,

THEN perform the following:

1. **Verify** MSG:
VSB100-035 PRE-LAUNCH MPS ACTR POSN CHECKS
UNSUCCESSFUL
 SELECT PFK 3 - RETRY
 PFK 9 - TERMINATE TASK AND RETURN TO
 MENU
 PFK 15 - TERMINATE PROGRAM

2. CURSOR CNTL
 PFK 9 - PRESS

Not Performed:_____

16-301

COFC

CRT (SAB21/VWB03)

VERIFY THE FOLLOWING:

- (1) SSME 1 PITCH POSN = -10.48 DEG TO +10.94 DEG
- (2) SSME 1 YAW POSN = -1.81 DEG TO +2.19 DEG
- (3) SSME 2 PITCH POSN = -1.68 DEG TO +10.48 DEG
- (4) SSME 2 YAW POSN = -4.31 DEG TO +8.48 DEG
- (5) SSME 3 PITCH POSN = -2.32 DEG TO +10.94 DEG
- (6) SSME 3 YAW POSN = -8.86 DEG TO +4.69 DEG

Not Performed:_____

16-302

COFC

For those SSME TVC positions that failed the VSB100 "Reasonableness checks", use data retrievals to verify that the current positions are the result of SSME drift and not that of a step function shift.

Not Performed: _____

NOTE

The following three steps are performed to reduce Main Engine 1 yaw drift from the OPS 101 transition command of +0.2 deg. The position must be maintained within 2.0 deg of this command at APU start.

16-303

COFC

CURSOR CNTL (SAB23/VSB100)
E1Y NULL COMMANDING
XMIT CURSOR KEY - PRESS

16-304

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

16-305

COFC

CRT (SAB23/VSB100)
VERIFY
E1Y NULL COMMANDING SUCCESSFUL

ER Open Loop Checks with OPF

16-309 NTD OTC 232 SU72706
 OTC RCRT 132

SUPPORT ER OPEN LOOP CHECKS ON OIS CH 175 AND
PERFORM FOLLOWING PREPS.

RACK 8234

PANEL A2A (DIGITAL RECORDER) - PRESS RECORD AND
PLAY SIMULTANEOUSLY

PANEL A2B (DIGITAL RECORDER) - PRESS RECORD AND
PLAY SIMULTANEOUSLY

T:_____

16-310 NTD SRO 232
T-03H00M
(HOLDING)
L-4H30M

Perform ER Open Loop Check with OPF and XMTR site per ER A2811
on OIS Channel 175. KSC personnel ready to support.

ER Open Loop Checks with OPF - Complete

16-311 SRO NTD 232
T-03H00M
(HOLDING)

ER Open Loop Checks with OPF complete.

BFS TMBU Tag Up

16-312	NTD	*FLT	232
	OTC	CVFS	212

IF TMBU required,

THEN JSC/DPS perform:

1. Fax TMBU uplink parameter list to KSC at 321-861-2580 (FR2) and 321-861-7089 (FR4).
2. Notify KSC/VFS and Boeing/BFS on OIS Channel 152 that fax has been sent.

Not Performed: _____

SRSS Flight Code Insertion

<p style="text-align: center;">NOTE SPOC Quality needed at C & T Lab for Code Load.</p>
--

<p style="text-align: center;">NOTE Delay the next step until ER Open Loop Checks are complete.</p>
--

16-313	NTD	TBC	232	SU72708
	TBC	CBRS	136	
		RCRE		

Load SRSS flight code in OPF ground station per OMI [S5018](#) .

Jimsphere Release

<p style="text-align: center;">NOTE</p> <p>Any problems occurring with 4-hour 15-minute Jimsphere, the 2-hour Jimsphere, or the 70-minute Jimsphere will immediately be reported to the NTD by the SRO. All nominal balloon releases and data transfers to JSC will be coordinated between Houston winds and Cape winds.</p>

Flight Crew Weather Briefing

16-314	*FLT	NTD	232	SU72737
	NTD	STM		SU72738
	STM	GYCC	111	
		JYVO	138	
	GYCC	GYVW	PTP	
		GYVO		

T-03H00M
(HOLDING)

Implement televised weather briefing and display to following locations.
Weather briefing audio to be on OIS Channel 231.

Support: [OTV](#)
Support: [WB](#)

1. Flight Crew Quarters, O&C Room 3267, Monitors 2033 and 2034
(Circuit Nos. 6TVM2080 and 6TVM2087).
2. ER/ROCC Forecast Facility, Room 146
(Circuit Nos. either 6TVC2079 or 6TVC2083).
3. Firing Room 3/4 OSR (SW 1 input 187 to output 383).

16-315 STM JYVO 138

Verify JSC weather briefing feed on OTV switcher source 187.

Support: [OTV](#)

16-316 GYVO GYCC PTP
GYVW

Video for weather briefing in Crew Quarters and to ER ready.

Support: [OTV](#)
Support: [WB](#)

16-317 JYVO GYCC PTP

Video for weather briefing to Firing Room 3/4 OSR ready.

Support: OTV

16-318 GYCC STM 111
 STM NTD 232
 NTD *FLT
 LD

Video system ready for Flight Crew weather briefing.

Support: COMM

16-319 *FLT NTD 232
 NTD STM
 STM JYVO 138
 GYCC 111
 GYCC GYVW PTP
 GYVO

SU72737

Weather briefing complete. Support released.

Support: OTV
Support: WB

16-320 STM GYCC 111
 GYCC JYCD 117

IF a Scrub Turnaround has occurred and OIS units have been configured to normal mode,

THEN configure LD, NTD and LRD Consoles AA-5, AA-6, AB-5, AB-6, AB-7 and AB-8 for FR3 to multi-Channel transmit capability or Consoles A13, A15, A17, A19, A5 and A3 for FR 4.

Report completion.

Support: OISD

Not Performed: _____

16-321 NTD *SEC 232 SU72665

Perform initial clear of CCF and NDTL.

Clear all personnel without LDA/LDA Relief badges.

16-322 LRD *WEA 231

Record Forecast for time of Launch at SRB Retrieval area:

Predicted winds: _____ knots

Gusting to: _____ knots

Direction: _____ deg

Verify LD is aware of the forecasted conditions in the SRB Retrieval area.

OMRSD [S00L00.085](#)

LIOH Canister Installation

NOTE

During LIOH Canister installation, master alarm and light will come on due to low cabin fan dP.

16-323 OVCC OTC 212 SU72741
 OTC CECL

T-03H00M
(HOLDING)

Ready to install LIOH canisters.

16-324 OTC CECL 212

IF VAG60 ACTIVE,

THEN

CRT (VAG60)

TERMINATE PROGRAM

Not Performed: _____

16-325

CECL

CONSOLE KYBD
SET V61K2866NL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

SET N61IV011E OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CAUTION

During LIOH canister installation, Cabin fan must not be shutdown for more than 5 minutes or damage to air cooled equipment will occur (Ref. Table V61000.000).

16-326

OTC

ASP

212

Turning off Cabin Fan A per the next step, will result in a master alarm and Caution and Warning light related to the decrease in cabin pressure.

16-327

OTC

ASP

212

PANEL L1
CABIN FAN
A SW - OFF

OTC **RECORD** TIME: _____

PANEL F2
RESET MASTER ALARM

16-328 OTC OVCC 212
 ASP

Open ARS Door by disengaging door latches.

Depress release knob on handle at each receptacle and rotate lid to full open.

Remove flight wrapper and the anulus tape cover from each LiOH canister (by using pull tabs).

Discard locally.

Install two P/N SV755510-4 LiOH canisters into the ARS receptacles and push until each canister snaps into place.

LiOH No. 1 Position A CMID _____

LiOH No. 2 Position B CMID _____

Close receptacle lids.

Return release knobs to locked position.

Close ARS door securely by ensuring locking latches are engaged.

Report when complete.

16-329 OVCC OTC 212
 CECL
 CEPD

LiOH canisters installed, ready to activate Cabin Fan A.

16-330 OTC ASP 212

PANEL L1
CABIN FAN
A SW - ON

OTC **RECORD** TIME: _____

16-331 CECL

Using PCGOAL:
Verify Cabin Fan delta press increased (from previous fan On baseline)
after LiOH Canister Installation.

Air Sample - Crew Module

16-332 ASP

Perform closeout air sample of Crew Module.

OMRSD [S00FB0.011](#)

Pre-Ingress Switch Reconfiguration

16-333 ASP OTC 212 [SU72742](#)
T-03H00M
(HOLDING)

Ready to proceed with Pre-Ingress Switch Reconfiguration.

16-334 OTC CISL 212

PCMMU switch will be changed to 1.
PCMMU BITE bits 5, 12, 13 and, possibly, 8 and 11 may show failed due
to BFS auto load of TFL 102 to 64KB Formatter.

16-335 OTC ASP 212

PANEL C3
OI PCMMU
PWR SW-1

OI PCM Configure for Panel Control

16-336 OTC CISL 212

Remove GSE Control from PCM.

16-337 CISL

CRT (SAQ04/VWQ11)

VERIFY

PCMMU

SW SCAN 1

CURSOR CNTL (SAQ04/VWQ11)

PCM CONTROL

COMMAND - OFF

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT (SAQ04/VWQ11)

VERIFY

PCMMU

COMMAND OFF

BITE

1 POWER GOOD

2 MTU GOOD

OI DATA VALID

OMRSD [V75AP0.040-1R](#)

16-338 CISL OTC 212

OI PCM Configure for Panel Control complete.

MADS Command Configuration

16-339

CISL

```
CURSOR CNTL (SAQ04/VWQ14)
CONTROL
  MADS
    PCM PWR - OFF
    XMIT CURSOR KEY - PRESS
    EXEC CMD KEY - PRESS
  WB/ACIP PWR - OFF
    XMIT CURSOR KEY - PRESS
    EXEC CMD KEY - PRESS
```

16-340

CISL

```
CRT (SAQ04/VWQ14)
VERIFY

STATUS
  PCM BITE - FAIL

  FDM 1 MUX 1 BITE - FAIL
  FDM 1 MUX 2 BITE - FAIL
  FDM 1 MUX 3 BITE - FAIL
  FDM 1 MUX 4 BITE - FAIL
  FDM 2 MUX 1 BITE - FAIL
  FDM 2 MUX 2 BITE - FAIL
  FDM 2 MUX 3 BITE - FAIL
  FDM 2 MUX 4 BITE - FAIL

*** End of MADS Command Configuration ***
```

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-341 OTC ASP 212
T-03H00M
(HOLDING)

PANEL R1
POWER DISTRIBUTION
ESS BUS SOURCE
FC 1 SW - ON
FC 2 SW - ON
FC 3 SW - ON

AC BUS SNSR ALL (THREE) - OFF,
1 SEC, THEN AUTO TRIP

VERIFY FC TB'S

FUEL CELL READY FOR LOAD

1 TB GRAY	R1A02DS011
2 TB GRAY	R1A02DS012
3 TB GRAY	R1A02DS013

FUEL CELL COOLANT PUMP DELTA P

1 TB GRAY	R1A02DS014
2 TB GRAY	R1A02DS015
3 TB GRAY	R1A02DS016

16-342 OTC CEPD 212

CRT (SWC02/VWC17)
ESS
1BC SRC 1 GREEN
2CA SRC 2 GREEN
3AB SRC 3 GREEN

CRT (VWC16)
AC BUS SENSOR
AC 1 AUTO
AC 2 AUTO
AC 3 AUTO

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-343 OTC ASP 212

PANEL R2
APU FU TK VLV ENA
1A CB - CLOSED
1B CB - CLOSED
2A CB - CLOSED
2B CB - CLOSED
3A CB - CLOSED
3B CB - CLOSED

16-345 OTC ASP 212

PANEL R1
POWER DISTRIBUTION
 ESS BUS SOURCE
 FC 1 SW - OFF
 FC 2 SW - OFF
 FC 3 SW - OFF

 AC BUS SENSOR
 1 SW - OFF (1 SEC) THEN MONITOR
 2 SW - OFF (1 SEC) THEN MONITOR
 3 SW - OFF (1 SEC) THEN MONITOR

16-346 OTC CEPD 212

CRT (SWC02/VWC17)
ESS
 1BC SRC 1 RED
 2CA SRC 2 RED
 3AB SRC 3 RED

CRT (VWC16)
AC BUS SENSOR
 AC 1 MON
 AC 2 MON
 AC 3 MON

16-347 OTC ASP 212

PANEL O13
ROW A
 ESS 1BC
 MN A CONTR CB - CLOSE

ROW C
 ESS 2CA
 MN B CONTR CB - CLOSE

ROW E
 ESS 3AB
 MN C CONTR CB - CLOSE

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-348 OTC ASP 212

PANEL O14
ROW B
MN A
MN C CONTR CB - CLOSE

16-349 OTC ASP 212

PANEL O15
ROW B
MN B
MN A CONTR CB - CLOSE

16-350 OTC ASP 212

PANEL O16
ROW B
MN C
MN B CONTR CB - CLOSE

16-353

CECL

CRT (VAG59 PG-B)

VERIFY

FC LOOP 1 VALVE POSN PAYLD
FCL1 FLOW RATE MEET LCC REQUIREMENTS.

16-354

CECL ASP 212

PANEL L1A2
FLOW PROP VLV LOOP 1 SW - INTCHGR UNTIL
(15 SEC MAX)
FLOW PROP LOOP 1 TB ICH

16-355

CECL

CRT (VAG59 PG-B)

VERIFY

FC LOOP 1 VALVE POSN INTCH
FCL1 FLOW RATE MEET LCC REQUIREMENTS.

16-356

CECL ASP 212

PANEL L1A2
FLOW PROP VLV LOOP 2 SW - PAYLOAD HX UNTIL
(15 SEC MAX)
FLOW PROP LOOP 2 TB PL

16-357

CECL

CRT (VAG59 PG-B)

VERIFY

FC LOOP 2 VALVE POSN PAYLD
FCL1 FLOW RATE MEET LCC REQUIREMENTS.

16-358 CECL ASP 212

PANEL L1A2
FLOW PROP VLV LOOP 2 SW - INTCHGR UNTIL
(15 SEC MAX)
FLOW PROP LOOP 2 TB ICH

16-359 CECL SU72743

CRT (VAG59 PG-B)
VERIFY

FC LOOP 2 VALVE POSN INTCH
FCL1 FLOW RATE MEET LCC REQUIREMENTS.

16-360 OTC CECL 212

Verify ECLSS configured for H₂O loop 1A/2 CB opening.

16-361 OTC ASP 212

PANEL L4
ROW F
AC1
H₂O LOOP PUMP 1A/2
PH A CB - OPEN
PH B CB - OPEN
PH C CB - OPEN

SRSS Flight Code Load Insertion - Complete

16-362 CBRS TBC 136 SU72708
 TBC NTD 232

SRSS flight Code Load Insertion complete per OMI S5018.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-363 SRO NTD 232 SU72763
 NTD *SEC

IF SRBTS is installed for this flight,

THEN ER Beacon Readout (FCA) van departing for UCS-15 to support SRBTS checkout.

Request Security allow ER Beacon Readout (FCA) van access through Roadblock A/B-13.

Support: SEC

Not Performed: _____

Deselect GPS Satellite ID

16-364 *FLT NTD 232
 NTD OTC
 OTC CNSE 212

IF any decommissioned or unusable GPS satellites have been identified for deselection in the Flight Software and are not to be used by the Orbiter MAGR GPS receiver,

THEN record:

GPS Satellite(s)

SV Number(s) to be deselected _____

Item entry (slot) Nos. _____

Not Performed: _____

*** End of Deselect GPS Satellite ID ***

OV-103/OV-104 NAVAIDS Activation

NOTE
Perform OV-103/OV-104 NAVAIDS Activation for OV-103/OV-104 only.

OV-103/OV-104 NAVAIDS Activation Not Performed: _____

NOTE

Switching of the TACAN ground station transponder will result in momentary signal dropout. The TACAN ground station operator is to notify STM on OIS Channel 111 if switching occurs or becomes necessary.

Redundant TACAN transponder capability is mandatory for entry. This requirement can be satisfied by one ground station with Dual String (DS) transponders or by two ground stations with Single String (SS) transponder capability.

16-365	NTD	STM	232	SU72745
	STM	FTAC	111	SU72757

Verify TACAN status at KSC.

16-366	FTAC	STM	111
	STM	NTD	232
	NTD	OTC	
	OTC	CNSE	212

T-03H00M
(HOLDING)

Verify the following:

1. TACAN station at KSC _____ (is / is not) supporting.
2. Transponder status: _____(DS/SS/NONE)

16-367 LRD ESCO 135

Verify TACAN at PAFB supporting. (PAFB OPS 494-2222)

16-368 ESCO LRD 135
LRD NTD 232
NTD OTC
OTC CNSE 212

TACAN station at PAFB_____ (is / is not) supporting.
Transponder status is Single String.

WARNING
RF Radiation is harmful.
Exposure may cause burns and cell, tissue, or organ structure damage.
WM011 02-16-2006

16-369 NTD OTC 232
OTC CNSE 212

T-03H00M
(HOLDING)

Required TACAN stations ready to support NAVAIDS Activation.

16-370 NTD OTC 232
OTC CNSE 212

Call GEMA on OIS Channel 111 to initiate any RF Interference investigation.

Orbiter NAVAIDS Activation

16-371 **NTD** **OTC** **232**
 OTC **CNSE** **212**

T-03H00M
(HOLDING)
L-4H00M

Perform NAVAIDS activation on Channel 212.

16-372 **CNSE** **OTC** **212**
 OTC **CDPS**

Change responsible console for an IDP (DEU) to Console C2. DPS can also expect I/O errors during GPS Power Up.

16-373 **CDPS**

CONSOLE KYBD
HOME CMD KEY - PRESS

ISSU N72IV102D #B002
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C2
XMIT CMD KEY - PRESS

16-374 **CDPS** **OTC** **212**
 OTC **CNSE**

Responsible console for IDP No. 3 now assigned to C2.

16-375

CNSE

HOME CMD KEY - PRESS
CONSOLE KYBD
VAA40
PERF PGM KEY - PRESS

PFP

VAA40 KEY - PRESS

WARM START KEY - PRESS

VWN42 KEY - PRESS (For Single String
Configuration)

SELECT APPL PG-B

HOME CMD KEY - PRESS
CONSOLE KYBD
VSN59
PERF PGM KEY - PRESS

SELECT APPL PG-B

TACAN Power Up

16-376 CNSE ASP 212

PANEL O7
TACAN 1
MODE SW - GPC
CHANNEL TW - 059Y
ANT SEL SW - AUTO

TACAN 2
MODE SW - GPC
CHANNEL TW - 059Y
ANT SEL SW - AUTO

TACAN 3
MODE SW - GPC
CHANNEL TW - 059Y
ANT SEL SW - AUTO

GMT _____

16-377 CNSE

CRT (VWN42)
VERIFY
TACAN
1 SW/PWR ON/ON
2 SW/PWR ON/ON
3 SW/PWR ON/ON

16-378 CNSE ASP 212

PANEL O8
MLS
CHANNEL
1 TW - 6
2 TW - 6
3 TW - 6

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-379 CNSE ASP 212

PANEL O8
RADAR ALTIMETER
1 SW - ON
2 SW - ON

GMT _____

16-380 CNSE

CRT (VWN42)
RALT
1 SW ST ON
2 SW ST ON

1 READY GO
2 READY GO

RECORD

RALT
1 ALT _____ BD
2 ALT _____ BD

GPS Activation for Flight

16-381 CNSE ASP 212

IF VEHICLE IS OV-103,

THEN

PANEL A13
GPS
PRE AMPL
UC SW - MN C
LC SW - MN C

Not Performed: _____

16-382 CNSE ASP 212

IF VEHICLE IS OV-104,

THEN

PANEL A13

GPS

PRE AMPL

UC SW - ON

LC SW - ON

Not Performed: _____

NOTE

Program will monitor for receiver to power up and then mode from Self Test to NAV. Moding will take approximately 30 seconds to complete.

16-383 CNSE ASP 212

PANEL A13

GPS

POWER SW - ON

16-384 CNSE

CRT (VWN42 PG-B)

GPS (RCVR STAT) - OFF

V74X8500E

OMRSD [V74P00.011](#)

NOTE

Prior to establishing 1-way I/O, wait approximately 1 minute after the receiver has been powered on. This is to give time for the receiver to complete its power-on self-test and then transition to NAV mode. This transition can be monitored by watching the receiver status measurement.

16-385

CNSE

CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+1
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
PFKXB KEY - PRESS
(WHERE X = IDP ASSIGNED TO C2)

NOTE

GPS will automatically mode to INIT when the ITEM 10+2 is executed.

16-386

CNSE

CURSOR CNTL (VSN59)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-387

CNSE

CRT (VSN59 PG-B)
VERIFY GPS IN INIT MODE
(HDR WD = XEEEE)

16-388

CNSE

CURSOR CNTL (VSN59)
NAV GPS 2 - ITEM 18
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-389 CNSE

CRT (VWN42 PG-B)
VERIFY GPS IN NAV MODE

16-390 CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK7 - PRESS (TERMINATE NAV MONITOR)

GPS Satellite Deselect

NOTE

Perform this option in order to deselect any GPS satellite that is inoperable or decommissioned.

GPS Satellite Deselect Not Performed: _____

NOTE

Sending the deselect command for a satellite that has already been deselected will result in an illegal entry.

16-391 CNSE

CURSOR CNTL (VSN59 PG-B)
SATELLITE DESELECT
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-392 CNSE

CRT (VSN59 PG-B)
CONSOLE KYBD
HOME CMD KEY - PRESS
ENTER THE DESIRED SLOT NUMBER (43-50)
XMIT RESP KEY - PRESS

16-393

CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK1B - SLOT IS CORRECT - CONTINUE - PRESS

16-394

CNSE

CRT (VSN59 PG-B)
CONSOLE KYBD
HOME CMD KEY - PRESS
ENTER SV# FOR DESELECT (+1 TO +63)
XMIT RESP KEY - PRESS

16-395

CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK1B - SV# IS CORRECT - CONTINUE - PRESS

16-396

CNSE

CONSOLE KYBD (VSN59 PG-B)
PFK1B - ITEM XX +YY EXEC [SEND COMMAND] - PRESS

Where XX = Desired Slot and YY = Satellite to be
Deselected

16-397

CNSE

IF VSN59 PROMPTS,

THEN

CONSOLE KYBD (VSN59 PG-B)
PFK1B - SPEC 55 IS ON DESIRED CRT - PRESS

Not Performed: _____

16-398

CNSE

CRT (VSN59 PG-B)

Verify message:

SPEC 55 ITEM XX +YY EXEC Issued to CRT Z
Satellite Deselect Sequence Complete
Satellite Deselect Can Only Be Verified in Ops 1
Downlist Format 21

WHERE XX = Desired Slot

YY = Satellite To Be Deselected

Z = CRT assigned to C2

16-399

CNSE	OTC	212
OTC	NTD	232
NTD	*FLT	

GPS Satellite Deselect complete.

***** End of GPS Satellite Deselect *****

16-400

CNSE

CURSOR CNTL (VSN59)

SPEC RESUME

XMIT CURSOR KEY - PRESS

START TEST

XMIT CURSOR KEY - PRESS

16-401

CNSE

CRT (VSN59 PG-B)

VERIFY

RESUME COMPLETE

CRT 3 DSPY 9011

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-402

CNSE

CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

PLACE CURSOR AT END OF LINE
C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV102D 0000
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

16-403

CNSE OTC 212
OTC CDPS

CRT HAS BEEN RETURNED TO C12

16-404

CNSE

CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS

***** End of GPS Activation for Flight *****

16-405

CNSE

IF TACAN 1 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

TACAN 1 CONTROL WORD ISSUE

XMIT CURSOR KEY - PRESS

FOLLOW SOFTWARE PROMPTS TO SELECT Y MODE, TR AND
CHANNEL 59, SELF TEST OFF

EXEC CMD KEY - PRESS

PFK1 - PRESS

ANTENNA CMD - LOWER

Not Performed: _____

NOTE

TACANs may exhibit multipath behavior. If multipath behavior is observed, TACANs may be taken to upper or lower antenna at CNSE discretion. Final antenna selection will be recorded. The following step may be left open until the T-20 minute Hold.

16-406

CNSE

IF TACAN 1 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

UPR/LWR ANT- _____

Not Performed: _____

16-407

CNSE

IF TACAN 2 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

TACAN 2 CONTROL WORD ISSUE

XMIT CURSOR KEY - PRESS

FOLLOW SOFTWARE PROMPTS TO SELECT Y MODE, TR AND

CHANNEL 59, SELF TEST OFF

EXEC CMD KEY - PRESS

PFK1 - PRESS

ANTENNA CMD - LOWER

Not Performed: _____

NOTE

TACANs may exhibit multipath behavior. If multipath behavior is observed, TACANs may be taken to upper or lower antenna at CNSE discretion. Final antenna selection will be recorded. The following step may be left open until the T-20 minute Hold.

16-408

CNSE

IF TACAN 2 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

UPR/LWR ANT- _____

Not Performed: _____

16-409

CNSE

IF TACAN 3 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

TACAN 3 CONTROL WORD ISSUE

XMIT CURSOR KEY - PRESS

FOLLOW SOFTWARE PROMPTS TO SELECT Y MODE, TR AND

CHANNEL 59, SELF TEST OFF

EXEC CMD KEY - PRESS

PFK1 - PRESS

ANTENNA CMD - LOWER

Not Performed:_____

NOTE

TACANs may exhibit multipath behavior. If multipath behavior is observed, TACANs may be taken to upper or lower antenna at CNSE discretion. Final antenna selection will be recorded. The following step may be left open until the T-20 minute Hold.

16-410

CNSE

IF TACAN 3 does not lock in Range or Bearing,

THEN

CURSOR CNTL (VWN42)

UPR/LWR ANT-_____

Not Performed:_____

16-411

CNSE

CRT (VWN42)

VERIFY

TACAN

1 RNG VALID GO

2 RNG VALID GO

3 RNG VALID GO

1 BRG VALID GO

2 BRG VALID GO

3 BRG VALID GO

***** End of TACAN Power Up *****

16-412

CNSE OTC 212

[SU72745](#)

OTC NTD 232

NTD STM

NAVAIDS Activation complete.

16-413

STM FTAC 111

IF for OV-103/OV-104,

THEN provide TACAN support for RTLS/AOA.

Not Performed:_____

***** End of Orbiter NAVAIDS Activation *****

***** End of OV-103/OV-104 NAVAIDS Activation *****

OV-105 NAVAIDS Activation

NOTE
Perform OV-105 NAVAIDS Activation for OV-105 only.

OV-105 NAVAIDS Activation Not Performed: _____

16-414 **NTD** **OTC** **232**
 OTC **CNSE** **212**
T-03H00M
(HOLDING)
L-4H00M

Perform NAVAIDS activation on Channel 212.

16-415 **CNSE** **OTC** **212**
 OTC **CDPS**

Change responsible console for an IDP (DEU) to Console C2.

16-416 **CDPS**

CONSOLE KYBD
HOME CMD KEY - PRESS

ISSU N72IV102D #B002
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

HOME CMD KEY - PRESS
C CO _DEU3G LDBA C2
XMIT CMD KEY - PRESS

16-417 **CDPS** **OTC** **212**
 OTC **CNSE**

Responsible console for IDP No. 3 now assigned to C2.

16-418

CNSE

HOME CMD KEY - PRESS
CONSOLE KYBD
VAA40
PERF PGM KEY - PRESS

PFP
VAA40 KEY - PRESS

WARM START KEY - PRESS
VWN43 KEY - PRESS (For Three String
Configuration)

SELECT APPL PG-B
HOME CMD KEY - PRESS
CONSOLE KYBD
VSN59
PERF PGM KEY - PRESS

SELECT APPL PG-B

16-419

CNSE ASP 212

PANEL O8
MLS
CHANNEL
1 TW - 6
2 TW - 6
3 TW - 6

16-420

CNSE ASP 212

PANEL O8
RADAR ALTIMETER
1 SW - ON
2 SW - ON

GMT _____

16-421

CNSE

CRT (VWN42)

RALT

1 SW ST ON

2 SW ST ON

1 READY GO

2 READY GO

RECORD

RALT

1 ALT _____ BD

2 ALT _____ BD

GPS Activation for Flight

16-422

CNSE

ASP

PANEL O7

GPS 1

PRE AMPL

UPPER SW - ON

LOWER SW - ON

GPS 2

PRE AMPL

UPPER SW - ON

LOWER SW - ON

GPS 3

PRE AMPL

UPPER SW - ON

LOWER SW - ON

NOTE
GPS receiver mode will transition from Self-Test/INIT to NAV upon power-up.

16-423 **CNSE** **ASP**

PANEL O7
GPS 1
POWER SW - ON

16-424 **CNSE**

CRT (VWN43 PG-B)
VERIFY
GPS 1
RPC A - ON V74X8491E
PAMP U - ON V74S0140E
PAML L - ON V74S8492E

OMRSD [V74PP0.011-A-1R](#)

16-425 **CNSE** **ASP**

PANEL O7
GPS 2
POWER SW - ON

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-426

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS 2

RPC B - ON

V74X8501E

PAMP U - ON

V74S0150E

PAML L - ON

V74S8502E

OMRSD [V74PP0.011-B-1R](#)

16-427

CNSE

ASP

PANEL 07

GPS 3

POWER SW - ON

16-428

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS 3

RPC C - ON

V74X8521E

PAMP U - ON

V74S0160E

PAML L - ON

V74S8522E

OMRSD [V74PP0.011-C-1R](#)

NOTE

Prior to establishing 1-way I/O, wait approximately 1 minute after the last receiver has been powered on. This is to give time for the receiver to complete its power-on self-test and then transition to NAV mode. This transition can be monitored by watching the Receiver Status measurement.

16-429

CNSE

CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+1
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS
PFK XB KEY - PRESS (WHERE X = IDP ASSIGNED TO C2)

NOTE

GPS will automatically mode to INIT when the ITEM 10+2 is executed.

16-430

CNSE

CURSOR CNTL (VSN59 PG-B)
I/O ITEM 10+2
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-431

CNSE

CRT (VSN59 PG-B)
GPS X (X = 1, 2 & 3)
RCVR MODE - INIT
HDR WD - EEEE

16-432

CNSE

CURSOR CNTL (VSN59 PG-B)
NAV - ALL
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-433

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS 1

MDE - NAV

HDR - FFFF

RPU - OFF

BAT - OFF

16-434

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS 2

MDE - NAV

HDR - FFFF

RPU - OFF

BAT - OFF

16-435

CNSE

CRT (VWN43 PG-B)

VERIFY

GPS 3

MDE - NAV

HDR - FFFF

RPU - OFF

BAT - OFF

16-436

CNSE

CRT (VSN59 PG-B)

PFK 7 KEY - PRESS (TERM NAV MONITORING)

GPS Satellite Deselect

NOTE

Perform this option in order to deselect any GPS satellite that is inoperable or decommissioned.

GPS Satellite Deselect Not Performed: _____

NOTE

Sending the deselect command for a satellite that has already been deselected will result in an illegal entry.

16-437

CNSE

CURSOR CNTL (VSN59 PG-B)
SATELLITE DESELECT
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-438

CNSE

CRT (VSN59 PG-B)
CONSOLE KYBD
HOME CMD KEY - PRESS
ENTER THE DESIRED SLOT NUMBER (43-50)
XMIT RESP KEY - PRESS

16-439

CNSE

CONSOLE KYBD (VSN59 PG-B)
PKF1B - SLOT IS CORRECT - CONTINUE - PRESS

16-440

CNSE

CRT (VSN59 PG-B)
CONSOLE KYBD
HOME CMD KEY - PRESS
ENTER SV# FOR DESELECT (+1 TO +63)
XMIT RESP KEY - PRESS

16-441

CNSE

CONSOLE KYBD (VSN59 PG-B)
PKF1B - SV# IS CORRECT - CONTINUE - PRESS

16-442

CNSE

CONSOLE KYBD (VSN59 PG-B)
PKF1B - ITEM XX +YY EXEC [SEND COMMAND] - PRESS

Where XX = Desired Slot and YY = Satellite to be
Deselected

16-443

CNSE

IF VSN59 PROMPTS,

THEN

CONSOLE KYBD (VSN59 PG-B)
PKF1B - SPEC 55 IS ON DESIRED CRT - PRESS

Not Performed: _____

16-444

CNSE

CRT (VSN59 PG-B)

Verify message:

SPEC 55 ITEM XX +YY EXEC Issued to CRT Z
Satellite Deselect Sequence Complete
Satellite Deselect Can Only Be Verified In Ops 1
Downlist Format 21

WHERE XX = Desired Slot

YY = Satellite To Be Deselected

Z = CRT assigned to C2

16-445

CNSE	OTC	212
OTC	NTD	232
NTD	*FLT	

GPS Satellite Deselect complete.

***** End of GPS Satellite Deselect *****

16-446

CNSE

CURSOR CNTL (VSN59)
SPEC RESUME
XMIT CURSOR KEY - PRESS
START TEST
XMIT CURSOR KEY - PRESS

16-447

CNSE

CRT (VSN59 PG-B)
VERIFY
RESUME COMPLETE
CRT 3 DSPY 9011

16-448

CNSE

CURSOR CNTL (VSN59)
CRT RETURN TO DPS
XMIT CURSOR KEY - PRESS

PLACE CURSOR AT END OF LINE
C CO _DEU3G LDBA C12
XMIT CMD KEY - PRESS

HOME CMD KEY - PRESS
ISSU N72IV102D 0000
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-449 CNSE OTC 212
 OTC CDPS

CRT HAS BEEN RETURNED TO C12

16-450 CNSE

CURSOR CNTL (VSN59)
TERMINATE
XMIT CURSOR KEY - PRESS

***** End of GPS Activation for Flight *****

16-451 CNSE OTC 212 SU72745
 OTC NTD 232
 NTD STM

NAVAIDS Activation complete.

***** End of OV-105 NAVAIDS Activation *****

PRLA Status Verification

NOTE

Perform this option for missions when payload select switch will not be in Monitor for Launch.

PRLA Status Verification Not Performed: _____

16-452 OTC CPLE 212 [SU72749](#)
 ASP

Perform PRLA Status Verification and configure PRLA payload select switch for flight.

16-453 CPLE

PCGOAL DISPLAY (OVERVIEW2)
VERIFY PRLA SYSTEM MEETS LCC REQUIREMENTS

PRLA STATUS
MON - ON

LAT/REL SWITCHES

	<u>LAT</u>	<u>REL</u>
1	OFF	OFF
2	OFF	OFF
3	OFF	OFF
4	OFF	OFF
5	OFF	OFF

LOGIC PWR SYS 1 SW - OFF
LOGIC PWR SYS 2 SW - OFF

PRLA STATUS

SEL 1 OFF

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	ON	ON	OFF	OFF	ON	ON
2	ON	ON	OFF	OFF	ON	ON
3	ON	ON	OFF	OFF	ON	ON
4	ON	ON	OFF	OFF	ON	ON
5	ON	ON	OFF	OFF	ON	ON

SEL 2 OFF

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	OFF	OFF

SEL 3 OFF

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	OFF	OFF

16-454

CPL

IF Select Switch will be reconfigured for Launch,

THEN circle the position that the Select Switch will be repositioned to:

Select 1

Select 2

Select 3

Not Performed: _____

PRLA Switch Reposition to Select 1 Position

NOTE

Perform this option if Select Switch will be in Select 1 Position for Launch.

PRLA Switch Reposition to Select 1 Position Not Performed: _____

16-455 CPLE ASP 212

PANEL A6U
PAYLOAD RETENTION
PAYLOAD SELECT SW - 1

PAYLOAD RETENTION LATCHES

- 1 TB LAT
- 2 TB LAT
- 3 TB LAT
- 4 TB LAT
- 5 TB LAT

READY TO LATCH

- 1 TB GRAY
- 2 TB GRAY
- 3 TB GRAY
- 4 TB GRAY
- 5 TB GRAY

16-456

CPLE

PCGOAL DISPLAY (OVERVIEW2)

VERIFY

PRLA STATUS

SEL 1 ON

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	ON	ON	OFF	OFF	ON	ON
2	ON	ON	OFF	OFF	ON	ON
3	ON	ON	OFF	OFF	ON	ON
4	ON	ON	OFF	OFF	ON	ON
5	ON	ON	OFF	OFF	ON	ON

***** End of PRLA Switch Reposition to Select 1 Position *****

PRLA Switch Reposition to Select 2 Position

NOTE

Perform this option if Select Switch will be in Select 2 Position for Launch.

PRLA Switch Reposition to Select 2 Position Not Performed: _____

16-457 CPLE ASP 212

PANEL A6U
PAYLOAD RETENTION
PAYLOAD SELECT SW - 2

PAYLOAD RETENTION LATCHES

- 1 TB BP
- 2 TB BP
- 3 TB BP
- 4 TB BP
- 5 TB BP

READY TO LATCH

- 1 TB BP
- 2 TB BP
- 3 TB BP
- 4 TB BP
- 5 TB BP

16-458

CPLE

PCGOAL DISPLAY (OVERVIEW2)

VERIFY

PRLA STATUS

SEL 2 ON

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	OFF	OFF	OFF
3	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	OFF	OFF	OFF	OFF
5	OFF	OFF	OFF	OFF	OFF	OFF

***** End of PRLA Switch Reposition to Select 2 Position *****

PRLA Switch Reposition to Select 3 Position

NOTE

Perform this option if Select Switch will be in Select 3 Position for Launch.

PRLA Switch Reposition to Select 3 Position Not Performed: _____

16-459 CPLE ASP 212

PANEL A6U
PAYLOAD RETENTION
PAYLOAD SELECT SW - 3

PAYLOAD RETENTION LATCHES

- 1 TB LAT
- 2 TB LAT
- 3 TB LAT
- 4 TB LAT
- 5 TB LAT

READY TO LATCH

- 1 TB GRAY
- 2 TB GRAY
- 3 TB GRAY
- 4 TB GRAY
- 5 TB GRAY

16-460

CPLE

PCGOAL DISPLAY (OVERVIEW2)

VERIFY

PRLA STATUS

SEL 3 ON

	LAT		REL		RTL	
	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>	<u>S1</u>	<u>S2</u>
1	ON	ON	OFF	OFF	ON	ON
2	ON	ON	OFF	OFF	ON	ON
3	ON	ON	OFF	OFF	ON	ON
4	ON	ON	OFF	OFF	ON	ON
5	ON	ON	OFF	OFF	ON	ON

***** End of PRLA Switch Reposition to Select 3 Position *****

16-461

CPLE

OTC
ASP

212

[SU72749](#)

PRLA system status verification and switch configuration for flight complete.

***** End of PRLA Status Verification *****

BFS MET Selection

16-462 OTC ASP 212

AFT KYBD (BFS KYBD)
SPEC 0
PRO

CRT 4
BFS MEMORY

16-463 OTC ASP 212

AFT KYBD (BFS KYBD)
ITEM 40
EXEC

CRT 4
MET 40 *

16-464 OTC ASP 212

AFT KYBD (BFS KYBD)
SPEC 99
PRO
RESUME

Clear Caution & Warning Memory

16-465 OTC ASP 212 [SU72746](#)
 CISL

PANEL R13U
CAUTION/WARNING
PARAMETER STATUS SW - INHIBITED, HOLD.

RECORD MATRIX LIGHTS ON.

RECORD IN FIGURE 16-1, SECTION P-3

16-466 OTC ASP 212

PANEL R13U
CAUTION/WARNING
PARAMETER STATUS SW - RELEASE

16-467 OTC ASP 212

PANEL R13U
CAUTION/WARNING
MEMORY SW - READ, HOLD

RECORD MATRIX LIGHTS ON.

RECORD IN FIGURE 16-1, SECTION P-5

16-468 OTC ASP 212

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

16-469 OTC ASP 212

PANEL R13U
CAUTION/WARNING
MEMORY SW - CLEAR, RELEASE
MEMORY SW - READ, HOLD

RECORD MATRIX LIGHTS ON.

RECORD IN FIGURE 16-1, SECTION P-4

16-470 OTC CMQC 212

Absence of parameters 062, 072, 082, 092, 102, 112 in preceding step satisfies noted OMRS requirements.

OMRSD [V45CG0.040-A](#)
OMRSD [V45CG0.040-B](#)
OMRSD [V45CG0.040-C](#)

16-471 OTC ASP 212

PANEL R13U
CAUTION/WARNING
MEMORY SW - RELEASE

16-472 OTC ASP 212

[SU72746](#)

PANEL F7
REPORT ANNUNCIATOR ON LIGHTS.

RECORD IN FIGURE 16-1, SECTION P-1

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-473 OTC CISL
 CTPE

IF the MADS PCM and/or FDM are powered up per OMI S0018.100,
Operation 10,

THEN power down the MADS PCM and/or FDM per OMI [S0018.100](#) ,
Operation 10.

Not Performed: _____

16-474 OTC ASP 212

PANEL A6L
MADS
RECORDER
POWER SW - PCM/WB ENA

16-475 OTC CGSS 212 [SU72719](#)

Start one HCU pump per OMI [V2160](#) .

LRD COMM Checks

NOTE

Perform COMM Checks immediately following Flight Crew weather briefing.

16-476
T-03H00M
(HOLDING)

LRD LSO LF1

KSC ready to configure for Convoy COMM Checks.

16-477

LRD STM 135
STM GYCC 111

Verify ready for Convoy COMM Checks on UHF 259.7 MHz, Convoy Commander and cooling nets.

Support: [COMM](#)

16-478

GYCC GYRM NET 107

Verify technician on Standby with Convoy Commander Vehicle to support COMM Checks.

Support: [VCE](#)

16-479

GYCC *VCE
***VCT**
***VCE *GC**
***GC *MIL**

Verify UHF, Convoy Commander and cooling nets configured for Convoy COMM Checks.

Support: [COMM](#)

16-480

GYCC STM 111
STM LRD 135

Ready to support LRD COMM Checks.

Support: [COMM](#)

16-481 LRD NTD 232 SU72687
 NTD OTC
 OTC ASP 212

Ready for Convoy COMM Checks.

Request concurrence for NIB COMM Checks on Orbiter
UHF 259.7 MHz.

16-482 LRD LSO LF1

Ready to perform Convoy COMM Checks on UHF with Houston COMM
Technician (*VCT) and on Convoy Commander and cooling nets with
Houston Voice (*VCE).

16-483 LRD *VCT UHF
 NCC

Perform UHF/Omni voice checks on 259.7 MHz.

16-484 LRD *VCE CCN
 NCC

Perform KSC Convoy Commander and cooling net COMM checks.

16-485 LRD LSO LF1
 LRD STM 135
 STM GYCC 111

Convoy radio checks on UHF, Convoy Commander and Cooling Nets
with JSC are complete.

Support: [COMM](#)

NOTE Perform the next two steps 3 hours 5 minutes prior to Launch.
--

16-486 LRD *SLF 135

Verify Search 1 ready to perform NIB voice checks on VHF SAR loop 138.45 MHz (radio Net 138).

16-487 LRD SCH1 138.45 MHZ

Perform NIB voice checks on 138.45 MHz.

16-488 LRD NCC (ALS CCN) [SU72687](#)

IF 2RAM131 (9131) Alternate Commander Net activated to _____
(DFRC {GKSC-61803}/WSSH {GKSC-62110}),

THEN perform COMM check on 2RAM131 (9131) Alternate Commander Net.

Not Performed: _____

Configure OMS/RCS Crossfeed Valves for Flight

16-489 OTC COOS 212 [SU72881](#)

Configure OMS/RCS Crossfeed for Flight.

16-490 **COOS**

IF C4 CROSSFEED IS OPEN,

THEN

CURSOR CNTL (VWD42)

C4 - CLOSE

CRT

VERIFY OMS XFD VALVE CLOSED

Not Performed: _____

16-491 **COOS**

IF C4 CROSSFEED IS OPEN,

THEN

CURSOR CNTL (VWD41)

C4 - CLOSE

CRT

VERIFY OMS XFD VALVE CLOSED

Not Performed: _____

16-492 COOS

VWD73
SWITCH SCAN
VERIFY SWITCH POSITIONS FOR LAUNCH

16-493 COOS

VADL7
VERIFY VALVES CONFIGURED FOR FLIGHT

16-494 COOS OTC 212

OMS/RCS Crossfeed Valves Configured for Flight.

OMRSD [V42BF0.130](#)
OMRSD [V43CF0.130](#)

Load Command Files at GLS Consoles

NOTE

Perform this option if one or more command files exists for this mission.
Repeat this option once for each unique command file.
Perform only for those consoles where the files may be needed.

Load Command Files at GLS Consoles Not Performed: _____

16-495 CGLS

Perform S0007.500 Operation 124 “Load Command File” at the
Integration Console.

Not Performed: _____

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16-496

CGLS

Perform S0007.500 Operation 124 “Load Command File” at the Backup Console.

Not Performed:_____

16-497

CGLS

Perform S0007.500 Operation 124 “Load Command File” at the Master Console.

Not Performed:_____

16-498

CGLS

Perform S0007.500 Operation 124 “Load Command File” at the Hot Spare Console.

Not Performed:_____

***** End of Load Command Files at GLS Consoles *****

Final Inspection - Complete

16-504 *FIT NTD 232 SU72748
 NTD OTC
 *SCC
 OTC OVCC 212
 NTD *PRL DIR 7

Final Inspection complete. Team leaving Pad (OMI S0007.400, Operation 57, and OMI S6444.002).

OMRSR [S00U00.020-A-1](#)
OMRSR [S00U00.020-C-1](#)
OMRSR [S00U00.020-D-1](#)

16-505 NTD STM 232
 STM JYVO 138
 JYVR

T-03H00M

Provide video tracking and recording of Final Inspection Team from Pad to Roadblock A/B-11 (OBSV-182) (see JYVO Figure 13-1, (pages 1 thru 3).

Support: [OTV](#)

16-506 *FIT
 CSPE NTD 232

IF FOD documented during OMI S0007.400 Operation 57 - Final Inspection was entered in OMI S0007.400 Operation 899 - FOD Identified in Final Operations/Safety Walkdown and Final Inspection at T-3 Hours data sheet,

THEN report FOD has been dispositioned and (is / is not) a constraint to Launch.

Not Performed: _____

16-507 NTD *SCC 232
 *SCC *PSE DIR 7

Verify Final Inspection Team back to Roadblock A/B-11.

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OMI S0007.200 A23
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16-508	*PSE	*SCC	DIR 7
	*SCC	NTD	232
		*PAC	

Final Inspection Team at Roadblock A/B-11.

16-509	NTD	STM	232
	STM	JYVO	138
		JYVR	

Stop video track and recording of Final Inspection Team (OBSV-182).

Support: [OTV](#)

Top Off Sound Suppression System

16-510 T-03H00M	STM	JBWC	111
--------------------	-----	------	-----

IF Sound Suppression water tank requires top off,

THEN perform Top Off Elevated Sound Suppression Water Tank per
[Doc: JOB PLAN M3189.210 \(LI\) SS Elevated Tank LCD Topoff without
Field Support](#)

Support: [CWSS](#)

Not Performed: _____

MILA Azimuth/Elevation Readout

16-511 STM GYCC 111
 GYCC JPHO 117

Verify ready to proceed with MILA Azimuth/Elevation Readout.

Support: PHOT

16-512 STM *MIL 111
 JPHO

Verify which system pointing data being taken from:

System 1 _____ or System 2 _____

Support: PHOT

16-513 STM *MIL 111

Verify pointing data for Pad A being transmitted to SLF TV Towers 1 and 2 as specified below:

Pad	TV Tower	Azimuth	Elevation
A	1 (South)	89 deg.	1 deg.
	2 (North)	99 deg.	1 deg.
(All readings +/- 2 deg.)			

16-514 STM JPHO 111

South Tower (Tower 1) give FOL data:
Read out pointing data

Azimuth _____ deg

Elevation _____ deg

Support: [PHOT](#)

16-515 STM JPHO 111

North Tower (Tower 2) give FOL data:
Read out pointing data

Azimuth _____ deg

Elevation _____ deg

Support: [PHOT](#)

16-516 STM *MIL 111

Verify readouts.

16-517 STM NTD 232

MILA Azimuth/Elevation Readout complete.

SRB RGA Power Up and Torque Test

16-518
T-03H00M

TBC CAFC 136

[SU72802](#)

Perform SRB RGA Power Up and Torque Test.

16-519

CAFC

CURSOR CNTL (SAB19/SWB01)
SRB RGA - OPS MAN
XMIT CURSOR KEY - PRESS

16-520

CAFC

CURSOR CNTL (BAF05/BWF01)
SRGA POWER UP WITH TQ
ALL SRGA'S
XMIT CURSOR KEY - PRESS

16-521

CAFC

CURSOR CNTL (BAF05/BWF01)
START TEST
XMIT CURSOR KEY - PRESS

NOTE

SRGA torque test is delayed approximately 5 minutes from time last SRGA is turned on.

16-522

CAFC

CRT (BAF05/BWF01)
VERIFY ALL SRB RGA'S POWERED UP WITHOUT ERROR.

OMRSD [S00FF0.215-1R](#)

16-523

CAFC

CRT (BAF05/BWF01)
VERIFY SRB RGA TORQUE TEST COMPLETE WITHOUT ERROR.

OMRSD [S00FF0.230-1R](#)

OMRSD [S00000.643-1R](#)

Activate SRB RGA LCC EMON

16-524

CAFC

APPL PAGE A (SAB20/SWB02)
PFK-13 KEY - PRESS (ACT EMON SETUP)

16-525

CAFC

CURSOR CNTL (SAB20/SWB02 PG-A)
A - SRB RGA
XMIT CURSOR KEY - PRESS

16-526

CAFC

APPL PAGE A (SAB20/SWB02)
PFK-13 KEY - PRESS (DEACT EMON SETUP)

16-527

CAFC

TBC

136

[SU72802](#)

SRB RGA Power Up, Torque Test and LCC Activation complete.

ER Initial Command Open Loop Checks - Complete

16-528

SRO

NTD

232

ER Initial Command Open Loop Checks complete.

RF Clearance for ER Final Command Open Loop Checks

16-529 **SRO** **NTD** **232** [SU72797](#)
T-02H55M

Request RF clearance for ER Final Command Open Loop Checks.
(1 Hour 20 Minutes)

Crew Ingress Weather Update

16-530 **STM** ***WEA** **231** [SU72773](#)
T-02H55M

Verify no electrical storm within 5 NM of Launch Pad.

16-531 **STM** **NTD** **232**

Electrical storm within 5 NM of Launch Pad.

_____ (Yes/No)

16-532 **STM** **JYVO** **138**

Verify PAO video feed 6TVM2092 from O&C is available for video tracking for Flight Crew Departure, (Source 157).

Support: [OTV](#)

16-537 STM GYCC 111
 GYCC JPHO 117

Flight Crew departing O&C en route to Pad.

Stand by to photograph Flight Crew upon arrival at Whiteroom.

Support: [PHOT](#)

16-538 JSTC JSEP 114

IF night Launch,

THEN verify generator with light bank and operator at Multi-Function Facility (L-3 Hours).

Support: [ELEC](#)

Not Performed: _____

16-539 STM JSTC 111
 JSTC WMED
 STM NTD 232
 NTD *EMS

Verify medical personnel on site at Multi-Function Facility for Flight Crew/Ground Support personnel medical care (phone 1-1321).

Support: [MED](#)

Clear Astro Van Through Roadblock A/B-11

16-540 **NTD** ***SCC** **232**
T-02H45M

Verify no constraints to clearing Astro Van through Roadblock A/B-11 to base of FSS and Security escort to Pad main gate.

16-541 ***SCC** **NTD** **232**

No constraints for Astro Van going to the base of FSS. Safety concurrence to proceed.

16-542 **NTD** ***SEC** **232**
T-02H45M

Clear Security escort with Astro Van through Roadblock A/B-11 to Pad.

Support: [SEC](#)

Essential Personnel in Astro Van			
	JSC	GSS	SEC
Prime Crew	XX		
Suit Technician	1		
Driver		1	
Escort			2 NASA 2 NPSC
XX = As Required to Support Mission			

Essential Personnel in Security Escort Vehicle	
	NPSC
Driver and Escort	2

16-543 **NTD** ***AVN** **DIR 7**

Flight Crew is cleared through Roadblock A/B-11 to base of FSS with escort vehicle to gate.

Support: [SEC](#)

16-544	*SEC NTD	NTD *SCC OTC *PAC	232
	OTC	OVCC	212

Astro Van has passed through Roadblock A/B-11.

Support: [SEC](#)

Final Inspection Report

NOTE

CICE will report any OMRS violations, IPR conditions or detrimental environmental conditions on command channel.

16-545 T-02H45M	CICE	NTD	232	SU72762
--------------------	------	-----	-----	-------------------------

Notify Launch Director and Launch Managers that Final Inspection Team ready to give ice/debris report.

16-546	CICE	NTD	232
--------	------	-----	-----

Detailed Engineering report of Final Inspection will now be given on Channel 161.

Top Off Sound Suppression System - Complete

16-547 T-02H45M	JBWC	STM	111
--------------------	------	-----	-----

IF Sound Suppression water tank required top off,

THEN report Sound Suppression elevated tank top off complete.

Support: [CWSS](#)

Not Performed: _____

Launch Commit Criteria Verification

NOTE

This verification includes:

- A review of all valid system parameters for failures/unfavorable trends.
- A review of all system logs and open paper to verify no constraints.
- A verification of all system OMRS.

16-548 **NTD** **OTC** **232** [SU72806](#)

TBC
PTC
STM
***FLT**
***MIL**
SRO
LPS
CSPE

T-02H45M

Verify no violation of Launch Commit Criteria.

Payload Launch Commit Criteria

16-549 **PTC** **SLES** **134**

T-02H45M

Verify your system meets Launch Commit Criteria.

Orbiter Launch Commit Criteria

16-550
T-02H45M

OTC ALL 212

Verify your system meets Launch Commit Criteria requirements for crew boarding phase at T-2 hours 30 minutes.

CCSE _____ CHYD _____

CNSE _____ CAPU _____

CMPS _____ CHGD _____

CMPL _____ CISL _____

CSME _____ CEPD _____

CPLE _____ CAFC _____

CAFM _____ COFC _____

CECL _____ CGNC _____

CPVD _____ CDPS _____

CFCP _____ CODS _____

CGSS _____ CCME _____

COOS _____

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16-554	JSTC	JFIR	114
	JSTC	STM	111

Verify required Launch Commit Criteria valid.

Support: [FIRE](#)

Report LCC Status

16-555	OTC	NTD	232	SU72806
	TBC			
	STM			
	LPS			
	*FLT			
	*MIL			
	SRO			
	CSPE			
	PTC			

T-02H40M

No Launch Commit Criteria violations.

16-556	SRO	NTD	232	SU72763
--------	-----	-----	-----	-------------------------

ER Beacon Readout (FCA) van ready to support SRBTS checkout.

16-557	NTD	TBC	232
	TBC	CBRS	

Call GEMA on OIS Channel 111 to initiate any RF Interference investigation.

16-562

CBRS

CURSOR CNTL (SWRB2)
LH TRANSPONDER
INST ON AND TRAN ON
XMIT CURSOR KEY - PRESS
RH TRANSPONDER
INST ON AND TRAN ON
XMIT CURSOR KEY - PRESS

16-563

CBRS

CRT (SWRB2)

LH AND RH TRANSPONDER VOLT BETWEEN 24 TO 38.4 V

LH AND RH TRANSPONDER CURRENT HAS INCREASED
0.5 AMPS (0.3 TO 0.7) FROM PRE-POWER ON VALUE.

RECORD

LH TRANSPONDER CURRENT _____ AMPS
RH TRANSPONDER CURRENT _____ AMPS

16-564

CBRS

Allow 3 minutes warm up prior to range interrogation.

OMRS (general) [B55GEN.030](#)

16-565

CBRS	TBC	136	SU72764
TBC	NTD	232	SU72711
NTD	SRO		

SRBTS power up complete. Ready for ER Beacon Readout (FCA) van checkout of SRBTS. CBRS request SRO support on OIS Channel 175.

16-566

SRO	CBRS	175
------------	-------------	------------

LH SRBTS interrogation has started and vehicle responding.

16-567

CBRS

CRT (SWRB2)

VERIFY LH TRANSPONDER CURRENT LESS THAN 1.1 AMP

16-568

SRO

CBRS

175

LH SRBTS interrogation complete. RH SRBTS interrogation has started and vehicle responding.

16-569

CBRS

CRT (SWRB2)

VERIFY RH TRANSPONDER CURRENT LESS THAN 1.1 AMP

16-570

SRO

CBRS

175

RH SRBTS interrogation complete. Faxing data to Firing Room 3/4 (861-0471/861-0472).

16-571

CBRS

Record transponder data

	<u>LH DATA</u>	<u>RH DATA</u>
Van/Radar Used	_____	_____
Van Location	_____	_____
Power Output (XX)	_____	_____
Sensitivity (XX)	_____	_____
ANT POL	_____	_____
Pulse Upper (X)	_____	_____
Lower (X)	_____	_____
Pulse Code (XX)	_____	_____
Delay (XX)	_____	_____
Jitter	_____	_____
Recovery Time (XX)	_____	_____
Pulse Width (XX)	_____	_____
High 1000 Proof Interr Freq (X)	_____	_____
High 1000 Proof Trans Freq (X)	_____	_____
Low 160 Proof Interr Freq (X)	_____	_____
Low 160 Proof Trans Freq (X)	_____	_____
Time	_____	_____
Compatibility	_____	_____

Landing Aids Activation

NOTE

Perform next two steps at L-5 hours.

16-576 **LRD** **STM** **135**
 STM **FMLS** **111**

Initiate MSBLS power up on Runway 15 and Runway 33.

16-577 **LRD** **STM** **135**
 STM **JBEP** **111**

Activate PAPI and Ball/Bar lighting systems.

Support: [PWR](#)

Crew Compartment Ready for Ingress

16-578 **ASP** **OTC** **212**
T-02H40M

Crew Compartment ready for Crew Ingress.

16-579 **LPS** **JRPS** **127**

Configure 192KB KFRL RF data to KMTS B System.

16-580 **LPS** **NTD** **232**

VSB FEP Data may be momentarily inhibited during VSB Source Swap.
Notify Test Team that VSB FEP Data Acquisition may be momentarily inhibited and LDB H/W Safing lights may flash OFF/ON.
Request permission to proceed.

16-581	NTD	OTC	232
		TBC	
		PTC	
	OTC	ALL	212
		TBC	136
		PTC	134

VSB FEP Data Acquisition may be momentarily inhibited and LDB H/W Safing Lights may flash OFF/ON.

16-582	LPS	JRPS	127
--------	-----	------	-----

Verify KMTS 0505A2 (A5, KMTS B link) reading 192KB and locked on signal.

16-583	LPS	C4SE	127
--------	-----	------	-----

Configure VSB to Source 2 High Rate.
Verify FR LED is On.
Return to Source 1 Low rate.
Verify FR LED is On.

16-584	LPS		
--------	-----	--	--

Verify RPS playback configured to supply 60KB RF Data to Source 2 of ME 1/2/3 and signal present on ME FEPs scopes.

PDL Playback to MSFC

NOTE

Perform this option if PDL Playback required by MSFC.

PDL Playback to MSFC Not Performed: _____

16-585 LPS NTD 232
NTD *MIL

Support PDL Playback with LPS and JRPS on OIS Channel 127.

16-586 LPS JRPS 127

Configure KMTS 0505A1 (A7, A8, A9) bit syncs to Source 2 for PDL checkout (Source 2, Manual Mode, 60KB).

16-587 LPS

Verify MSFC complete with PDL Playback.

16-588 LPS JRPS 127

PDL checkout complete.

Configure KMTS 0505A1 (A7, A8, A9) bit syncs to Source 1 (Source 1, Manual Mode, 60KB).

***** End of PDL Playback to MFSC *****

Re-boot SPA/Clear Spooler

16-589	LPS	NTD	232
	NTD	OTC	
		TBC	
		PTC	PA

SPA will be re-booted to clear spooler. SPA will be out of operation for approximately 3 minutes.

Verify ready for SPA Reboot.

16-590	OTC	NTD	232
	TBC		
	PTC		

Ready to support SPA Re-boot.

16-591	NTD	LPS	232
	LPS	CPDR	127

Perform spooler clear operation.

SPA Spooler Clear is Complete

16-592	LPS	NTD	232
	NTD	OTC	PA
		TBC	
		PTC	

SPA spooler clear complete. SPA is available for normal retrieval operations.

16-598 CGLS

PFPK6 (T-2H5M RCL STATUS) - PRESS

RETRIEVE OUTPUT FROM CONSOLE PRINTER AND REVIEW FOR PROPER CONFIGURATION.

16-599 CGLS

TERMINATE SAP92
PFK15 - PRESS

16-600 CGLS OTC 212
OTC NTD 232

Completed implementation of SAP92.

ET Liquid Level Sensor Checks During Replenish

NOTE
LOX and LH ₂ must both be in Stable Replenish and Spa Spooler complete before liquid level sensor check can be run.

16-601 NTD OTC 232 [SU72B64](#)
TBC
OTC CMPS 212
TBC CLOX 136
CLHY

T-02H30M

Perform ET Liquid Level Sensor Checks During Replenish per OMI [S1004](#) (15 minutes).

SRB MDM Countdown Verification

NOTE

Do not proceed with SRB MDM Countdown Verification until after resuming the Countdown at T-3 hours 00 minutes. In addition, the SRB MDM Countdown Verification should not be performed in parallel with SRB RGA Power Up and Torque Test.

NOTE

Noted requirements are satisfied by the following series of steps.

OMRS S00FE0.185-1R
OMRS S00FE0.225-A-1R
OMRS S00FE0.225-B-1R
OMRS S00FE0.230-A-1R
OMRS S00FE0.230-B-1R

16-602	NTD	TBC	232	SU72814
	TBC	CBDP	136	

T-02H30M

Perform SRB MDM Countdown Verification (15 minutes).

NOTE

SRB MDM I/O errors can occur during MDM P/S separation.

16-603

CBDP

CURSOR CNTL (SAS05 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS05 PG-B)
SRB MANUAL TEST SEL
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

16-604

CBDP

CURSOR CNTL (BSM06 PG-B)
COUNTDOWN TEST
XMIT CURSOR KEY - PRESS

CRT (BSM06 PG-B)

VERIFY ALL ENTRIES TO TEST STATUS DISPLAY 'OK'
GREEN

16-605

CBDP

PFP (BSM06)
PFPK6 KEY - PRESS (SYSTEM STATUS)

CRT (BSM06 PG-B)
ALL MDM P/S SEP SWITCHES - ON

16-606

CBDP

PFP (BSM06)
PFPK1 KEY - PRESS (TERMINATE)

16-607

CBDP **TBC** **136**
TBC **NTD** **232**

[SU72814](#)

SRB MDM Countdown Verification complete.

16-608

Noted requirements are complete.

OMRSD [S00FE0.185-1R](#)
OMRSD [S00FE0.225-A-1R](#)
OMRSD [S00FE0.225-B-1R](#)
OMRSD [S00FE0.230-A-1R](#)
OMRSD [S00FE0.230-B-1R](#)

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Astro Van at Pad

16-609 *AVN NTD DIR 7 SU72777
 NTD OTC 232
 *SCC
 *PAC

T-02H30M

Astro Van at Pad surface. Escort vehicle returning to Roadblock A/B-11.

Support: SEC

Flight Crew at FSS

16-610 FLT SU72779
 CREW
 NST

Flight Crew and Suit Technician proceed to FSS 195-ft level.

16-611 OTC NTD 232

Request concurrence to proceed with Crew Ingress.

16-612 NTD OTC 232
 OTC OVCC 212

T-02H30M

Proceed with Crew Ingress operations when Crew arrives.

Acid Deposition Weather Briefing

16-613 STM CBSE 163 SU72815
 *SCC 221

T-02H25M

Verify ready for acid deposition weather briefing on OIS Channel 131 and OTV _____.

16-614 STM EEC 131

Perform acid deposition weather briefing.

Astro Van - Depart Pad

16-615 *AVN NTD DIR 7
 *SCC 232
 STM

T-02H25M

Astro Van cleared Pad surface, proceeding to Roadblock A/B-11.

Support: SEC

Flight Crew Ingress

16-616 OVCC OTC 212 SU72781
T-02H25M

Flight Crew has arrived at Orbiter, Crew Ingress in work at this time.

16-617 OTC ALL 212

Flight Crew Ingress proceeding at this time.

Monitor console displays.

06-16-2011
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OMI S0007.200 A23
APPROVED

16-618	NTD	STM	232
	STM	JYVO	138
		JYVR	

Terminate video tracking and recording of Flight Crew, (OBSV-181).
OTV cameras and video recorders released to previously assigned usage.
OTV Camera 005 to monitor crew hatch (see JYVO Figure 13-1,
(pages 1 thru 3).

Support: [OTV](#)

Flight Crew Aided Ingress

CAUTION

Prior to connecting helmet COMM lead to HIU, COMM CCU power to MO39M or A11 must be verified Off or damage to equipment may occur.

NOTE

During Ingress, suit fans will be powered up, COMM switches on L5 and R6 will be turned On, seats will be adjusted and COMM checks will be performed with OTC, NTD, and *FLT.

16-619
T-02H25M

OTC

Record Ingress time for applicable Crew Members:

CDR _____ GMT

PLT _____ GMT

MS1 _____ GMT

MS2 _____ GMT

MS3 _____ GMT

MS4 _____ GMT

MS5 _____ GMT

IMU Pre-Flight Calibration Contingency - Complete

16-620 CGNC OTC 132 SU72714
T-02H25M

IF IMU Pre-Flight Calibration Contingency was required,

THEN report IMU Pre-Flight Calibration Contingency complete.

Not Performed: _____

IMUs to Term Idle

16-621 OTC CGNC 212 SU72816
T-02H25M

IF IMU in GC Align 1,

THEN take IMUs to Term/Idle per IMU Gyrocompass Alignment
sequence of OMI [V1123.290](#) .

Report completion (3 minutes).

RT OMI Log No. _____

Not Performed: _____

IRAMS Activation for IMU Gyrocompass Alignment

16-622 OTC CGNC 212 SU72817
T-02H20M

Perform IRAMS PAPAS Invocation.

16-623 CGNC

Activate IRAMS on SDC.

GMT and MET Delta Adjustment

16-624 CGNC OTC 212

Ready for GMT Delta Adjustment

NOTE

OIS FEP may give a "No-Go" indication for 1-2 seconds during Delta Adjustment.

GMT adjustment must not be done while IMU Pre-Flight Calibration, ATT DET or Pre-Flight Align are in work. IMUs must be in Term/Idle for GMT Adjustment.

16-625 OTC CDPS 212 SU72818
CISL

T-02H20M

Perform GMT and MET adjustment per OMI S0007.400
(Operation 49, Option 16) on Channel 152 (10 minutes).

Verify Astro Van Position

16-626 *AVN NTD DIR 7
NTD *SCC 232

T-02H15M

Astro Van and Security Escort have cleared back to Roadblock A/B-11.

Support: [SEC](#)

ET Liquid Level Sensor Checks - Complete

16-627	CMPS	OTC	212	SU72B64
	OTC	NTD	232	
	NTD	TBC		
	TBC	CLHY	136	
		CLOX		

T-02H15M

ET Liquid Level Sensor Checks during Replenish complete per OMI S1004.

OMRSR [S00FF0.204-1R](#)

NOTE

Middeck Flight Crew seat aided Ingress proceeds in parallel with Post Ingress Switch reconfiguration.

Post Ingress Switch Reconfiguration

CAUTION

Next three steps must be complete before proceeding with RJD driver switch activation or RCS firing during driver activation may occur.

NOTE

Noted requirement is satisfied by the following steps annotated with OMRS code.

OMRS S00FF0.235-1R

RCS Command Status Test

16-628
T-02H15M

COFC

CURSOR CNTL (SAB23/VSB100)
RJD COMMAND STATUS CHECKS
XMIT CURSOR KEY - PRESS

16-629
T-02H15M

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

16-630

COFC

CRT (SAB23/VSB100)
VERIFY
RJD COMMAND STATUS CHECKS REQUEST COMPLETE.

OMRS (general) [V79GEN.300](#)
OMRS (general) [V79GEN.400](#)
OMRS S00FF0.235-1R

16-631
T-02H10M

COFC OTC 212

Proceed with Post Ingress Switch Reconfiguration.

NOTE

CDR/PLT seat aided ingress and initial Comm checks must be complete before proceeding with next step.

Middeck Flight Crew seat aided ingress proceeds in parallel with post ingress SW reconfiguration.

16-632
T-02H10M

ASP OTC

Proceeding with Post INGRESS Switch Reconfiguration and Switchguard Removal per the checklist.

16-633

ASP

PANEL O14
ROW F
RJDA 1A
L2/R2 MANF
DRIVER SW - ON
RJDA 2A
L4/R4 MANF
DRIVER SW - ON
RJDF 1B
F1 MANF
DRIVER SW - ON

L OMS ENG VLV SW - ON

16-634

ASP

PANEL O15
ROW F
RJDA 1B
L1/R1 MANF
DRIVER SW - ON
RJDF 1A
F2 MANF
DRIVER SW - ON

NOTE

RJD Manifold L5/F5/R5 driver switch to "On" will be performed "On-Orbit".

16-635 ASP

Remove RJD Manifold L5/F5/R5 driver switchguard.

16-636 ASP

PANEL O16
ROW F
RJDA 2B
L3/R3 MANF
DRIVER SW - ON
RJDF 2A
F3 MANF
DRIVER SW - ON
RJDF 2B
F4 MANF
DRIVER SW - ON

R OMS ENG VALVE SW - ON

16-637 ASP

PANEL O6
GPC 5 OUTPUT SW - BACKUP

16-638 ASP

PANEL A7U

REMOVE TV CAMERA POWER AND TV CONTROL POWER
SWITCHGUARDS (KEY REQUIRED)

16-639 ASP OTC 212
OTC CISL

T-02H10M

Post Ingress Switch Reconfiguration complete. Caution and warning alarm volume will be adjusted and master alarm will be intentionally tripped (Param 099).

Caution and Warning Volume Adjustment

NOTE

Perform this option for first Launch attempt.

Caution and Warning Volume Adjustment Not Performed: _____

NOTE

Crew will adjust COMM volume as required for satisfactory COMM/Master alarm level.

16-640 ASP

[SU72783](#)

PANEL R13U

CAUTION/WARNING

PARAM SEL T/W'S - 099

PARAM SW - INHIBIT, REL

PARAM SW - ENABLE, REL

VERIFY C&W MASTER ALARM

16-641 FLT
CREW

HIU:

Adjust COMM volume as required for satisfactory COMM/Master alarm level.

16-642

CDR
ASP

PANEL F2
MASTER ALARM PB - PRESS, REL
VERIFY MASTER ALARM LIGHT - OFF

PANEL R13U
CAUTION/WARNING
PARAMETER SELECT TW'S - 120

16-643

ASP OTC 212
OTC CISL

Caution and Warning Volume Adjustment complete.

***** End of Caution and Warning Volume Adjustment *****

Activate RJD Driver LCC EMON

16-644

COFC

APPL PAGE A (SAB20/SWB02)
PFK13 KEY - PRESS(ACT EMON SETUP)

16-645

COFC

CURSOR CONTROL (SAB20/SWB02 PG-A)
A-RJD DRIVER
XMIT CURSOR KEY - PRESS

OMRS S00FF0.235-1R (SWB02)

16-646

Noted requirement is complete.

OMRSD [S00FF0.235-1R](#)

16-647

COFC

APPL PAGE A (SAB20/SWB02)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

GMT and MET Delta Adjustment - Complete

16-648
T-02H10M

CDPS OTC 212

SU72818

GMT and MET Adjustment complete. Ready for IMU platform positioning.

OMRSR [S00FG0.085](#)

IMU Platform Positioning for Gyrocompass Alignment

16-649
T-02H04M

CGNC

SU72820

CRT (VABM1/VSB78 PG-B)
VERIFY PLATFORM POSITIONING IN PROGRESS

GLS Initialization

16-650
T-02H00M

OTC CGLS 212

SU72821

Perform GLS Initialization per OMI S0007.400, Operation 62 on OIS Channel 162.

16-651

CGLS OTC 212

FEP dual interrupt notification will be activated momentarily and may cause reannunciation of error messages at systems consoles for interrupt monitored parameters currently out of GLS limits.

16-652

CGLS

CURSOR CNTL (SAP10)
TERM
XMIT CURSOR KEY - PRESS
SYS TERM (LEAVING SW SCAN ACT)
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY SAP10 AND SAP27 TERMINATE

16-653

CHPU

Monitor the following FDs for Bearing and Nozzle
Temps using PCGOAL12 or program BAT91 (ESA) for
the remainder of the count:

Nozzle-to-Case-Joint Temps

LH	RH
B06T7091A	B06T8091A
B06T7092A	B06T9092A
B06T7093A	B06T8093A

Flex Bearing Aft End Ring

LH	RH
B06T7087A	B06T8087A
B06T7088A	B06T9088A
B06T7089A	B06T8089A
B06T7090A	B06T8090A

Retrieval Area - Status Check

16-654 LRD BRD 135
 EMS
 *WEA 231
T-02H00M

Report status in retrieval area:

1. Ships on station
2. SRB impact area clear of other vessels
3. Weather status

Weather status in retrieval area is as follows:

Sea state _____

Sea temp _____

Air temp _____

Winds _____

Visibility _____

16-655 LRD ESCO 135
T-02H00M

SRB impact area clear (or not clear) of vessels other than required retrieval ships.

RTLS Runway

16-656	LSO	LRD	LF1
	LRD	STM	135
		*SLF	
		*SCC	
		EMS	
		ROC	NET 205
	STM	JSTC	111
		GYCC	
		FTAC	(OV-103/104 only)
		FMLS	
		JBEP	
	JSTC	FSTC	114
		FSAM	
		JFIR	
		*SEC	
	GYCC	JPHO	117
	GYCJ		
	JYCD		

T-02H00M

In event of RTLS, Landing will be on Runway _____ (15 or 33).

AOA Site Selection is _____ (KSC, DFRC, or WSSH).

Support: **JSTC**
Support: **SLF**
Support: **FIRE**
Support: **SEC**
Support: **PHOT**
Support: **PWR**
Support: **OISD**
Support: **VCE**

16-657 **LRD** **NCC** **CCN**

In event of RTLS Abort, Landing will be on Runway _____ (15 or 33).

AOA Site Selection is _____ (KSC, DFRC, or WSSH).

16-658 OTC AOTC [SU72788](#)

Configure OISD for purge net (9033) and perform COMM Check with OPS at SLF.

OAA Accumulator Forced Charge

16-659 OTC CGSS 212 [SU72822](#)
T-02H00M

Perform OAA Accumulator Forced Charge.

16-660
T-02H00M

CGSS

PFP (VAJ02)
PFPK-3 VAJ07 OAA ACCUM - PRESS
PFPK-5 OAA ACCUM EXECUTE - PRESS
VERIFY OAA ACCUM TOP AND BOTTOM LIGHTS ON, THEN OFF.

16-661 CGSS OTC 212

OAA Accumulator Forced Charge complete.

SRB HPU Gas Generator Heater On

16-662 TBC CHPU 136 [SU72823](#)
T-02H00M

Turn on SRB HPU gas generator heaters.

16-663
T-02H00M

CHPU

CURSOR CNTL
VEHCLE
GAS GENRTR - AUT

16-664
T-02H00M

CHPU

CRT (BAT04)

VEHICLE

GAS GENRTR

P TEMP

VERIFY ALL FOUR GAS GENERATOR BED TEMPERATURES
ARE INCREASING. (MINIMUM OF 2.0 DEG F/MINUTE
AVERAGE RISE IN 1 HOUR.)

OMRSD [S00FF0.170](#)

16-665

CHPU	TBC	136
TBC	NTD	232

SRB HPU gas generator heaters On.

16-666
T-02H00M

TBC	CHPU	136
-----	------	-----

During remainder of count until T-1 minute,
Monitor and adjust all gas generator temp(s) at 190 to 248 deg F by
On/Off HTR CMD 1 (CURSOR CNTL)
and/or
On/Off HTR CMD 2 (CURSOR CNTL)
and/or
High/Low software limit adjustments.

Close VAB High Bay and Transfer Aisle Doors

16-667
T-02H00M

STM	VCMP	111
-----	------	-----

Close all VAB high bay and transfer aisle doors (OMI Q3011 or
OMI Q3016) (1 hour).

Support: [CDPA](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-668 OTC CBSE 212

IF data available,

THEN verify reception of Bio Med data.

V67V0100
V67V0200

Not Performed: _____

16-669 OTC RSRT 132
T-02H00M

Load new digital tapes for Range Safety monitor station Rack 8234 to support Terminal Countdown. Ensure Digital Recorders are set to record.

T: _____

SRM Chamber Pressure Verification

16-670 TBC CISL 136 [SU72819](#)

Perform SRM chamber pressure verification per OMI S0007.400 (Operation 38) on OIS Channel 145 (35 minutes).

First Motion (Simulated) Signal Test

16-671 STM SRO 111 [SU72824](#)
T-02H00M

Verify ready to receive first motion (simulated) signal at T-1 hour 55 minutes by Countdown Clock.

16-677 STM GYCC 111
 GYCC JTCR 117

Release (simulated) first motion signal and reconfigure first motion distribution system to relay signal from the Pad.

Support: [TCD](#)

16-678 STM NTD 232

First motion (simulated) signal test complete.

SLF NAVAIDS/Landing Aids Status

16-679 STM FMLS 111
 FTAC

Verify KSC MSBLS/TACAN have been validated and are ready to support. (TACAN not required for OV-105).

16-680 JBEP STM 111

PAPI and Ball/Bar lighting systems operational and ready to support.

Support: [PWR](#)

16-681 STM LRD 135
 LRD NCC CCN
 LRD LSO LF1

MSBLS, TACAN (KSC), PAPI and Ball/Bar activated and ready to support. (TACAN not required for OV-105).

LRD Checks

16-682 **LRD** **EMS** **135**
 ***JTF**
 STM
 ROC **NET 205**

T-01H55M

Verify you are ready to support RTLS Rescue/Medical Operations.
(STM info only)

S0028 CTS _____

Pre-deploy Briefing _____

Convoy Deploy _____

Triage Site Helipad _____

RTLS Runway _____

16-683 **SRO** **NTD** **232**
 NTD ***SEC**

T-01H50M

ER Beacon Readout (FCA) van ready to exit UCS-15. Have Security
allow access through Roadblock A/B-13.

Support: [SEC](#)

IMU Gyrocompass Alignment

NOTE

Delay IMU gyrocompass alignment until DPS GMT/MET delta adjust is complete.

16-684 **OTC** **CGNC** **212** [SU72827](#)
T-01H47M
CRT (VABM1/VSB35 PG-B)
VERIFY
IMU GYROCOMPASS ALIGN IN PROGRESS

Fuel Cell Purge

16-685 **OTC** **CFCP** **212** [SU72828](#)
T-01H40M
Perform Fuel Cell Purge per OMI S0007.400 (Operation 47) on
OIS Channel 153.

16-686 **CFCP** **OTC** **212**
Fuel Cell Purge complete.
OMRSR [V45CH0.040](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-687
T-01H35M

COOS

CRT (VWD73)

VERIFY

LOMS ENG VLV ON

V43S4575E

ROMS ENG VLV ON

V43S5575E

Ascent Mini Camera Power Up for Flight Deck

NOTE

Perform following two steps if ascent mini camera is installed on the Flight Deck.

Ascent Mini Camera Power Up for Flight Deck Not Performed: _____

16-688
T-01H35M

ASP OTC

Ready for Ascent Camera Power Up.

16-689
T-01H35M

OTC ASP

PANEL O19

TV PWR SW - ON

***** End of Ascent Mini Camera Power Up for Flight Deck *****

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

Ascent Mini Camera Power Up for Middeck

NOTE

Perform following two steps if ascent mini camera is installed on the Middeck.

Ascent Mini Camera Power Up for Middeck Not Performed: _____

16-690
T-01H35M

ASP OTC

Ready for Ascent Camera Power Up.

16-691
T-01H35M

OTC ASP

PANEL MO58F
TV PWR SW - ON

***** End of Ascent Mini Camera Power Up for Middeck *****

Crew Module Closeout Operations

16-692
T-01H35M

ASP OTC

Ready for Crew Module Closeout.

16-693
T-01H35M

OTC ALL 212

[SU72785](#)

Verify all systems ready for Crew Module Closeout.

16-694
T-01H35M

OTC ASP 212
OVCC

Close out Crew Module for Flight per your checklist.

Inspect Crew Module for any non-flight items.

Remove and report additional items found.

All Orbiters

Flight Deck TIR Items

1. CDR/PLT HUD covers (2) (G070-011260-001)
(should be removed during Crew Module setup)
2. CDR/PLT RHC covers (2)
3. CDR L4 panel protective covers (3)
4. RCS driver and OMS engine switchguards (5) and RCS and OMS engine locks (4)
5. A-11 red metal protective covers (2 pieces, may be connected together by a cable)
6. A-15 red metal protective cover (1)
7. Large AFT Flight deck soft cover (1) shop aid
8. CCTV monitor cover (1) G070-011312-004
9. W9 and W10 stand on covers (1 EA)

10. RMS RHC cover (1)
11. MDU covers (10) G070-300306-001 and (1) SA-2K7-021 place in protective container.

Middeck TIR Items

12. Bumper pad assembly (1) on escape pole magazine
13. Emergency Life Support Apparatus (ELSA) (12) check Whiteroom wall locker (should be 12 ea)
14. Middeck Hard Covers (5)
(P/N G070-011231-001 Lower LH section WMC)
(P/N G070-011232-001 Upper RH section WMC)
(P/N G070-011233-012 MA75J access door)
(P/N G070-011233-015 Lower AV Bay 3B)
(P/N G070-011350-001 MA73C panel)
15. Ditch stand-on platform (1) G076-300019-002
16. Locker bracket assembly (2) STBD side G076-300030-001
17. Locker beam assembly (short) STBD side G076-500304-005 or (long) STBD side G076-500304-001
18. Flight ladder support leg assemblies (2) G076-500308-001

ASP Non Flight Items

19. ASP strap in camera bag with inventory list
20. Grandson of ASP bag with inventory list
21. ASP VLHS headset (1)
22. ASP HIU headset and cables
23. Foam camera wedges (2)

Suit Technician Non-Flight Items

- 24. Flight data file plastic stowage bags (1 per Crew Member)
- 25. PRC-112 radio (1) JSC Suit Technician
- 26. Suit Technician strap-in checklist (wrist 2 ea)
- 27. Teflon cookie sheets (2) (suit Tech Aid)

T: _____ N: _____

16-695

ASP

OTC

212

SU72785

Crew Module/Middeck inspection complete. All non-flight items have been removed.

16-702

OTC

ASTRO COMM-OIS INTERFACE PANEL

A/G 2 SW - MONITOR

VERIFY A/G 2 MONITOR LIGHT ON

ICOM A SW - ACTIVE

VERIFY ICOM A ACTIVE LIGHT ON

16-703

OTC

214

Perform 2-way COMM check with each member of Flight Crew on ICOM A (OIS Channel 214).

16-704

OTC

ASTRO COMM-OIS INTERFACE PANEL

ICOM A SW - OFF

VERIFY ICOM A ACTIVE LIGHT OFF

ICOM B SW - ACTIVE

VERIFY ICOM B ACTIVE LIGHT ON

16-705

OTC

215

Perform 2-way COMM check with each member of Flight Crew on ICOM B (OIS Channel 215).

16-706

OTC

ASTRO COMM-OIS INTERFACE PANEL

ICOM-B SW - OFF

VERIFY ICOM-B ACTIVE LIGHT OFF

UHF SW - ACTIVE

VERIFY UHF ACTIVE LIGHT ON

**06-16-2011
APPROVED**

**OMI S0007.200 A23
APPROVED**

16-707

OTC

Perform 2-way COMM check with each member of Flight Crew on A/A (OIS 6311-FR4 or 6331-FR3).

16-708

OTC

ASTRO COMM OIS INTERFACE PANEL

UHF SW - MONITOR

VERIFY UHF MONITOR LIGHT ON

16-709

OTC

CDR

212

OTC

NTD

232

T-01H30M

ASTRO COMM checks complete. All personnel stand by for air-to-ground voice checks.

MCC Air-to-Ground (A/G) Voice Checks

16-710
T-01H30M

NTD *FLT 232

[SU72787](#)

Conduct MCC A/G Voice Checks.

16-711

*FLT CDR A/G 1
 PLT

Configure for A/G 1 Voice Check.

16-712

CDR
PLT

PANEL O5
LEFT AUDIO
 A/G
 2 SW - OFF
 A/A SW - OFF

PANEL O9
RIGHT AUDIO
 A/G
 2 SW - OFF
 A/A SW - OFF

16-713

*FLT A/G 1

Perform 2-Way COMM Check with CDR and PLT on A/G 1.

16-714

*FLT CDR A/G 1
 PLT

Configure for A/G 2 Voice Check.

16-715

**CDR
PLT**

PANEL O5
LEFT AUDIO
A/G
2 SW - T/R
1 SW - OFF

PANEL O9
RIGHT AUDIO
A/G
2 SW - T/R
1 SW - OFF

16-716

***FLT A/G 2**

Perform 2-Way COMM Check with CDR, PLT on A/G 2.

16-717

***FLT CDR A/G 2
 PLT**

Configure for A/A Voice Check.

16-718

**CDR
PLT**

PANEL O5
LEFT AUDIO
A/A SW - T/R
A/G
2 SW - OFF

PANEL O9
RIGHT AUDIO
A/A SW - T/R
A/G
2 SW - OFF

16-724 NTD OTC 232 SU72786
 OTC ALL

ASTRO COMM Voice Checks complete. OIS Channel 212 is available for normal use.

Controllability Light Test

16-725 NTD SRO 232 SU72829
 *FLT

T-01H30M

Perform Controllability Light Test.

16-726 SRO NTD 232

Controllability Light Test completed satisfactorily.

Clear SLF

16-727 LRD *SEC 135 SU72830
T-01H30M

Commence clearing of SLF (see Figure 13-8) (1 hour).

Support: SEC

16-728 *SEC LRD 135
T-01H30M

SLF clear of nonessential personnel.

Support: SEC

ASP/NST1 - Egress from Crew Module

NOTE

The next step will terminate COMM between ASP and Firing Room.

16-729

ASP

PANEL A15
PS COMM CCU PWR SW - OFF

DISCONNECT COMM CABLE FROM PANEL A15

16-730
T-01H25M

OTC OVCC 212

Egress Crew Module.

Verify ready for hatch closure.

16-731

OTC NTD 232

Ready for hatch closure.

16-732

CISL TBC 136

[SU72819](#)

SRM chamber pressure verification (OMI S0007.400, Operation 38)
complete.

OMRSR [S00FF0.161-1R](#) (VSQ11)

OMRSR [S00FF0.180-1R](#) (VSQ11)

KSC Convoy Prep

16-733
T-01H20M

NCC LRD CCN

KSC Convoy ready to proceed with Landing/Convoy operations (OMI S0028).

16-734

LRD NCC CCN

RTLS Rescue/Medical Operations ready to support Landing. Security cleared SLF of all nonessential personnel.

NOTE

Perform the following step at L-2 hours.

16-735

LRD EMS 135
 STM
 ROC NET 205
STM RSTM NET 104

Verify Landing Personnel will be on site in 30 minutes to support pre-deployment briefing.

Launch Target Uplink

16-745 NTD *FLT 232

Proceed with transmission of Launch target commands.

16-746 *FLT NTD 232

Launch Target Uplink complete.

***** End of Launch Target Uplink *****

16-747 NTD *FLT 232

Reconfigure for two-stage command auto compare and execute.

NOTE Noted requirement is satisfied by the following series of steps. OMRS S00FF0.250-B
--

16-748 NTD *FLT 232

D/L Dump to begin momentarily.

Verify ready to receive dump data.

16-749 CVFS NTD 232
NTD OTC
TBC
PTC
LPS

A momentary loss of downlist will occur.

Verify ready for downlist loss.

16-750 CVFS NTD 232
NTD OTC
OTC CGNC 132

IF IMU ATT DET or Pre-Flight alignment is in progress,

THEN perform the following to get GNC concurrence prior to initiating GPC downlist dump:

Verify ready for GPC downlist dump. Downlist data will be lost for 2 to 3 seconds.

Not Performed: _____

16-751 NTD CVFS 232

Proceed with GPC downlist dump.

NOTE
Annunciation of LCC DPS-29 is expected during DL Dump.

16-752

CVFS

CURSOR CNTL (VWS14)
GUIDANCE POLYNOMIAL OR LAUNCH TARGETING
XMIT CURSOR KEY - PRESS

16-753

CVFS

APPLICATION PAGE (VWS14 PG-B)
PFK7 KEY - PRESS (DOWNLIST DUMP)

16-754

CVFS

PPF (VWS14)
START DUMP KEY - PRESS

16-755

CVFS NTD 232

Downlist dump complete.

16-756

NTD *FLT 232

Verify downlist dump data received.

NOTE
MCCH I-Load and Target Load verifications may take several minutes.

16-757

***FLT NTD 232**
NTD CVFS

MCCH I-Load and Target Load verifications complete.

NOTE

Perform the following step and reperform the previous four steps if *FLT cannot verify the DOLILU downlist dump data.

16-758

CVFS

PFP (VWS14)
DOWNLIST DUMP KEY - PRESS

Not Performed: _____

16-759

Noted requirement is complete.

OMRSD [S00FF0.250-B](#)

16-760

CVFS

PFP (VWS14)
RETURN KEY - PRESS

16-761

CVFS

APPLICATION PAGE (VWS14 PG-B)
PFK15 KEY - PRESS (TERMINATE)

16-762

CVFS

SU72831

APPLICATION PAGE (SAS10 PG-B)
PFK2 KEY - PRESS

***** End of G9 Launch Polynomial/Target Update *****

16-763

NTD

*SEC

232

SU72832

STM

SU72796

STM

JSTC

111

JSTC

GSPN

114

T-01H20M

Perform final CCF sweep and secure Roadblock A/B-10.

Support: SEC
Support: PNU

Status Orbiter Vent Doors

16-764

OTC

CPVD

Record present position of Leeward Vent Doors 1 & 2.

Position_____

Open Leeward Vent Doors 1 & 2 for Hatch Closure

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.
Exposure may cause asphyxiation, and in extreme cases could cause death.

Use only in a well ventilated area.

WCS006.a 03-04-03

NOTE

Leeward Vent Doors 1 & 2 **MUST** be open at this time to minimize intrusion of GN₂ into the hatch area during hatch closure.

Perform this option if Leeward Vent Doors 1 & 2 are not open as recorded in previous step.

Open Leeward Vent Doors 1 & 2 Not Performed: _____

16-765 OTC CGLS 212

Orbiter vent doors will be moved momentarily.

16-766 OTC CPVD 212

Open Orbiter Vent Doors 1 & 2 on Leeward side.

16-767 CPVD

CURSOR CNTL (VAM31A/VAM09A)
VENT DOORS 1 & 2 (LEEWARD)
OPEN TARGET
XMIT CURSOR KEY - PRESS

16-768 CPVD OTC 212
OTC OVCC

Leeward vent door opening complete.

***** End of Open Leeward Vent Doors 1 & 2 for Hatch Closure *****

Hatch Closure

16-769 OTC OVCC 212 SU72789
 CAFM

T-01H20M

Close and latch Ingress/Egress Hatch for Flight per OMI S0007.100,
Operation 267 (10 minutes).

ER Final Command Open Loop Checks - Complete

16-770 SRO NTD 232
T-1H10M

ER Final Command Open Loop Checks complete. RF clearance no
longer required.

Clearance for ER Command Closed Loop Checks

16-771 SRO NTD 232 SU72826
T-01H10M

Request clearance for ER Command SRSS Closed Loop Verification Test (approx 15 minutes).

ER Holdfire Indication Checks

16-772 NTD RSR 232 SU72834
T-01H10M

Perform ER Holdfire Indication Checks per OMI A2811.

Report completion.

Final COLA Update

16-773 NTD SRO 232 SU72835
T-01H10M

Provide final COLA update for Launch.

COLA 1 _____ Z to _____ Z

COLA 2 _____ Z to _____ Z

COLA 3 _____ Z to _____ Z

Hatch - Closed

16-774	OVCC	OTC	212	SU72789
	OTC	CECL		
		CMQC		
		NTD	232	
	NTD	*PRL	DIR 7	

T-01H10M

Hatch closed and latched for Flight (OMI S0007.100, Operation 267).

Cabin Leak Check

16-775	OTC	CDR	212	SU72790
		CECL		

T-01H10M

Stand by to perform Cabin Leak Check. Master alarm and light will come on as a function of high cabin pressure (CDR should notify CECL of cabin pressure master alarm). Cabin klaxon/master alarm will also sound due to high cabin decay rate (during cap installation).

Reset master alarms.

16-776	OTC	CDR	212
--------	-----	-----	-----

Perform Cabin Leak Check per your checklist.

16-777	CECL
--------	------

CRT (VAG29 PG-B)

VERIFY

CAB VENT - PCL ISOL - POP

V61X2045E1

NOTE

During Orbiter Cabin Leak Check, master alarm and light will come on as a function of high cabin pressure (CDR should notify CECL of cabin pressure master alarm). Cabin klaxon/master alarm will also sound due to high cabin decay rate (during cap installation); reset master alarms. Master alarms may also occur if either PPO₂ sensor A or B goes above 3.6 psia. CECL will verify cause of master alarms.

16-778 **OTC CECL 212**
 CECL OMTO 143

Perform Crew Module Pressurization and Initial Cabin 2 psid Leak Check per OMI S0007.400 (Operation 45, Option D) on OIS Channel 143.

NOTE

During Orbiter Cabin Leak Check, Cabin Air Supply Panel C70-1226-2 at 215-ft level will show pressure drop for approximately 10 minutes.

16-779 **OTC NTD 232**
 NTD STM
 STM JBPN 111

Crew Module O₂N₂ Pressurization and Initial Cabin Leak Check will begin at this time.

IMU Gyrocompass Alignment - Complete

16-780 **CGNC OTC 212** [SU72827](#)
 OTC NTD 232

T-01H05M

IMU Gyrocompass Alignment complete. IMUs in Alignment Maintenance Mode.

OMRSD [V71AD0.050-1R](#)

GLS Initialization - Complete

16-781 CGLS OTC 212 SU72821
 LPS 127

T-01H00M

GLS Initialization complete.

16-782 LPS C4MC 127

Perform \$FEPCPR, demand update on all active FEPs.
Terminate \$FEPCPR at completion of update.

16-783 NTD *SCC 232
 *SCC *PSE DIR 7

T-01H00M

Verify EOD personnel on site at Roadblock A/B-11.

16-784 *PSE *SCC DIR 7
 *SCC NTD 232

EOD personnel on site at Roadblock A/B-11.

16-785 NTD STM 232
 STM JSTC 111

Establish controls at East and West MLP Park sites (North of OPF-3) as follows and report completion.

1. **IF** an MLP is at park site,

THEN clear all nonessential personnel from MLP. Establish controls at MLP access points and around pedestals. Nonessential personnel are defined as those personnel not assigned to perform normal work activities.

Not Performed: _____
SS1

2. IF no MLP is at park site,

THEN establish controls around pedestals. No personnel allowed access.

Not Performed: _____
SS2

16-786	STM	JSTC	111
		GYCC	
		PSTM	NET 104
	JSTC	JFIR	114
		PMEH	
		JSEP	
		*SEC	
		*SCB	NET 104

T-01H00M

Support personnel for Post-Launch Inspection/Safing will assemble at OSB II by T-30 minutes (30 minutes).

Support: JSTC
Support: COMM
Support: WSSA
Support: FA
Support: EH
Support: SEC
Support: LS
Support: ELEC

OIS Support Crew

16-787	GYCC	JYCD	117
--------	------	------	-----

Dispatch 2 OIS Technicians to OSB II Rm 1014 for Post-Launch Support (all Technicians must have current Red Crew certification).

Support: OISD

Hazardous Fallout Announcement

16-788 GYCC JYCD 117
 WYVF

Provide "Hazardous Fallout" announcement to all areas on "All Area" paging system from NASA PAO Commentator.
(WYVF at 7-7814)

Support: [OTV](#)
Support: [OISD](#)

16-789 JYCD GYCC 117

"Hazardous Fallout" announcement complete.

Support: [OISD](#)

16-790 LSO LRD LF1
T-01H00M

RTLS Landing will be on Runway _____ (15 or 33).

16-791 LRD *WEA 231
T-01H00M

Request 8-hour weather forecast for SLF.

Wx Timeframe _____
Rain _____ PCT
Lightning _____ PCT
Wind Dir _____ Deg
Speed _____ Kts
Temp High _____ Deg F
Temp Low _____ Deg F

16-792 VCMP STM 111
STM NTD 232

All VAB High Bay and transfer aisle doors closed.

Support: [CDPA](#)

16-793 NCC LRD CCN

Report surface wind direction, wind velocity, and dew point.

_____ degrees
_____ knots
_____ Temperature

NOTE

All time callouts in this OMI will be in minutes and seconds from this point on in the procedure.

NOTE

Flight Crew functions will be initiated by call from OTC to Crew. Flight Crew will report completion of function.

S-Band System High Power/FM Activation

NOTE

PLDS FEP may go No-Go during High Power/FM Activation.

16-794 NTD CCSE 232 SU72801
 RCRT

Support S-Band to high power on Channel 232.

16-795 NTD *FLT 232
 *MIL

T-55M00S

Perform S-Band system to High Power/FM Activation.

16-796 NTD *FLT 232
 CCSE

TRANSMIT DSM 4752
(PWR AMP STBY 2 - ON)

CRT (VWA40)

VERIFY

PM SYSTEM

PWR AMP

STANDBY-1 OFF, 2 ON

16-808 LPS C4MC 127

AWP01 (PG-B) **SELECT** SET ME S2 PENDING.
XMIT CURSOR

16-809 LPS JRPS 127

Configure 505A1 (A1, A2, A3) bit syncs to Source 2 Manual Mode,
Source 2, 60KB.

ER Command Closed Loop Checks - Complete

16-810 SRO NTD 232
NTD TBC

[SU72826](#)

T-55M00S

ER Command Closed Loop Checks complete.

L-1 Hour 30 Minute Window Update

NOTE
Perform this option for variable window missions requiring
L-1 hour 30 minute window update.

L-1 Hour 30 Minute Window Update Not Performed: _____

16-811 *FLT NTD 232
 NTD CGLS
 SRO
 LRD

Launch window information update:

Window opens _____ GMT

Pane 1 in plane _____ GMT

Preferred Launch _____ GMT

Window close _____ GMT

Launch T-0 at preferred Launch time:

Preferred Pane 1 close _____ GMT

Preferred Pane 2 open _____ GMT

Pane 2 in plane _____ GMT

Preferred LO₂ drainback _____ min _____ sec

Launch T-0 at window open time:

Window open Pane 1 close _____ GMT

Window open Pane 2 open _____ GMT

Pane 2 in plane _____ GMT

Window open LO₂ drainback _____ min _____ sec

16-812 LRD ESCO 135

Preferred Launch time is _____ GMT.

***** End of L-1 Hour 30 Minute Window Update *****

16-813 *FLT NTD 232
 NTD SRO

The weather balloon system is no longer mandatory.

Timer Configuration

Timer No. 1 Window Remaining

NOTE

Timer No. 1 is set to the value of the window.

16-814 CGLS JTCR 178

Set up window remaining Timer No. 1 to the following time
(phone 1-2290):

_____ : _____ : _____ (window open)
HH MM SS

_____ : _____ : _____ (preferred)
HH MM SS

Support: [TCD](#)

16-815

JTCR

For Timer No. 1, at the T-9 minute holding point:

Active Ovrld switch - On
Counthold switch - Off

When Timer No. 5 decrements to Zero:

Activate counthold switch - Auto

Support: [TCD](#)

NOTE

Timer No. 1 will decrement when Holds occur after the planned hold at T-9/00 hours has been exhausted.

Timer No. 2 LO₂ Drain Back Elapsed Hold Time

16-816

CGLS JTCR 178

Set LO₂ drain back hold Timer No. 2 to +0:00.

Support: [TCD](#)

NOTE

Timer No. 2 counts at any Hold after T-5 minutes and counting.

16-817

CGLS JTCR 178

Verify Timer No. 2 in Remote and in Counting Up Mode.

Support: [TCD](#)

Timer No. 5 Hold Time Remaining

NOTE

The times are to reflect the planned Hold duration. After T-9 minute planned Hold expires, Timer No. 5 will accumulate time at any additional Hold.

16-818 CGLS JTCR 178

Verify Hold time remaining (Timer No. 5) set to following times:

T-20 minute Hold $\frac{\quad}{\text{HH}} : \frac{\quad}{\text{MM}} : \frac{\quad}{\text{SS}}$ (hold time remaining)

T-9 minute Hold time remaining:

$\frac{\quad}{\text{HH}} : \frac{\quad}{\text{MM}} : \frac{\quad}{\text{SS}}$ (window open)

$\frac{\quad}{\text{HH}} : \frac{\quad}{\text{MM}} : \frac{\quad}{\text{SS}}$ (preferred)

Support: [TCD](#)

Activate Command Issuance for Hold Timer

16-819 CGLS

```
CONSOLE KYBD
HOME CMD KEY - PRESS
A CM TMDS
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
```

16-820 CGLS

```
CONSOLE KYBD
HOME CMD KEY - PRESS
A CM GCDKTIM2E
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS
```


16-823 *FLT NTD 232 SU72B84
 NTD CCSE
 LPS
 JRPS

Ready to proceed with JSC/MILA best source select. JSC OD (SKR) data dropouts may occur on the KFRL PM1 line during best source select configuration.

Terminal Count SRSS Closed Loop Test

NOTE
ER carrier must be Off prior to performing Terminal Count Closed Loop Test.

16-824 TBC NTD 232 SU72805
 NTD LPS
T-50M00S

Request LPS on OIS Channel 175 to support CBRS.

16-825 NTD STM 232
 STM GEMA 111

Initiate Launch & Landing site RF Surveillance
Monitoring Locations: VAB, Pad A, EML
Frequency Range: 416-417 MHz (SRSS)
Report RF Interference only at request of CRBS

16-826 NTD SRO 232
 RSR

Verify ready to support Terminal Count Closed Loop Test.

16-827 NTD TBC 232
 TBC CBRS 136

Perform Terminal Count SRSS Closed Loop Test (SSRB4).

16-828 CBRS RSRT 175

Range Safety Remote Technician support required through SRB separation. RSRT will support as follows and report any violation to CBRS on Channel 175.

1. **Monitor** Range Safety RF signal strength on Rack 8234. Signal should be 0.2V +/- 0.1V during Range Safety Terminal Count Closed Loop Test. When range carrier applied, level should be greater than 2.1V and remain constant till T-0. After Liftoff, signal level will vary with vehicle tracking.
2. **Monitor** Range Safety Rack 8234 to ensure Arm and Fire lights Off through SRB separation.
3. **Monitor** Range Safety audio and report any type of modulation.
4. **Verify** Digital Recorders operational through SRB separation.

T: _____

16-829 CBRS LPS 175
 LPS C2MC 127

Place P/P2, Units 1 and 2 on line per OMI [S9002.016](#)

16-830 CBRS LPS 175

SPA support required for Range Safety retrieval.

16-831 **CBRS TBC 136**
 TBC NTD 232
 NTD PA

Attention in FR_____:

All console operators are requested to refrain from calling up SPA retrievals until Range Safety checks are reported complete.

16-832 **CBRS LPS 175**
 LPS CPDR 127

Request three TCBs available in SPA to support Terminal Count Closed Loop Test.

16-833 **CBRS**

CURSOR CNTL (SWRB2)
ACTIVATE PRINTER/PLOTTERS
XMIT CURSOR KEY - PRESS

16-834 **CBRS**

CRT (SWRB2)
VERIFY MAJOR TEST PSEUDO S0007

16-835 **CBRS**

CURSOR CNTL (SWRB3)
SSRB4
XMIT CURSOR KEY - PRESS
SPA ON
XMIT CURSOR KEY - PRESS

16-836 **CBRS CBP1 175**

Verify reception of Arm commands (should be 4 pulses).

16-837 CBRS CBP1 175

Verify reception of Fire commands (should be 4 pulses).

SRSS Data Retrieval

16-838 CBRS LPS 175
 LPS CLDB 127

IF Arm and Fire commands have not been verified on printer plotters,

THEN perform SRSS data retrieval on LDBM system for time duration provided by CBRS.

Report completion.

Arm start _____

Fire stop _____

Not Performed: _____

ER Carrier On

NOTE

Delay activation of the ER Range Safety carrier until requested by CBRS.

NOTE

The next two steps are to be performed no later than T-30 minutes 00 seconds.

16-839 CBRS TBC 136
 TBC NTD 232
 NTD SRO

[SU72807](#)

T-45M00S

Request ER bring up Range Safety carrier.

16-846 LPS C4MC 127

AWP01 (PG-B) SELECT SWITCH PLDS TO S3,
XMIT CURSOR
VERIFY PLDS S3, GO MODE

SELECT SWITCH PLDS TO S2,
XMIT CURSOR
VERIFY PLDS S2, GO MODE

PLDS FEP Table Reload

NOTE

Perform the next eight steps after JSC OD data checkout complete.

16-847 NTD LPS 232

Inhibit data activation on PLDS FEP.

Reload with \$FEPCPR tables.

Report completion.

16-848 LPS C4MC 127

I RS PLDA

16-849 LPS C4MC 127

I DA PLDS

16-850 LPS C4MC 127

\$FLAI PLDS FEP with check pointed tables
(\$FLAI PLDS,,CKPT).

16-851 LPS C4MC 127

AWP01 (PG-B) **SELECT** PLDS TO S2.
XMIT CURSOR

16-852 LPS C4MC 127

A DA PLDS

16-853 LPS C4MC 127

A RS PLDA

16-854 LPS C4MC 127

AWP01 (PG-B) **SELECT** LOCKOUT,
XMIT CURSOR

16-855 LPS NTD 232

[SU72845](#)

Data processing has resumed. PLDS FEP reloaded with check-pointed
tables and returned to RF source.

16-856 LPS JRPS 127

Disconnect OI hard line data from MER circuit and connect 192KB
MILA Antenna Data from KFRL (6VDC20039).

16-857 LPS JRPS 127

Verify KMTS 0505A2 (A6) bit sync indicating 192KB and locked on
signal.

GLS Mainline Activation

16-858
T-45M00S

OTC CGLS 212

[SU72809](#)

Perform GLS Mainline Activation.

Report when complete.

16-859

CGLS

CONSOLE KYBD
SELECT APP PG 3B - PRESS

CRT
MS/ML DISPLAY

16-860

CGLS

CURSOR CNTL
INITIATE MAINLINE
XMIT CURSOR KEY - PRESS

16-861

CGLS

IF REQUIRED,

THEN SELECT GLS PRESEQUENCER BYPASSES (AS APPLICABLE) FROM THE FOLLOWING LIST,

SELECT APP PG-4B

CRT

SELECT GLS FUNCTIONS TO BYPASS

CONSOLE KYBD (SGPO2)

XMIT CURSOR KEY - PRESS

FUNCTION	BYPASS
BRS LIMIT CHANGE	
ONE SHOT DATA TRANSFER	
T-20 MINUTE AUTO HOLD	
OPS TRANSITION	
SEND GMTLO	
GPC DUMP AND COMPARE	
SLPA0, SLPA1 PERFORMS	
RF SWITCH SELECT	X
SINGLE SHOT VERIFY	
T-9 MINUTE AUTO HOLD	
BYPASS ALL	

Not Performed: _____

16-862 CGLS

CONSOLE KYBD (SGPO2)
PFPK7 - PRESS
PFPK4 - (SGPO2) - PRESS
PFPK2 (PROCEED) - PRESS

CRT (SPGO2)
GLS MAINLINE ACTIVE MESSAGE

16-863 CGLS

PFPK7 - PRESS
VERIFY - SGPO2 ACTIVE IN TASK 4

16-864 CGLS OTC 212

GLS Mainline Activation complete.

Initial Cabin Leak Check - Complete

16-865 CECL OTC 212 SU72790
T-45M00S

Crew Module Pressurization and Initial Cabin Integrity Check complete.

Proceed with Cabin Vent Redundancy Configuration.

16-866 OTC NTD 232
NTD STM
STM JBPN 111

Crew Module Pressurization and Initial Cabin Integrity Check complete.
Cabin Air Supply Panel C70-1226-2 (215-ft level) should show normal readings at this time.

16-871

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
MDM BSR READ PROGRAM (VAS93)
XMIT CURSOR KEY - PRESS

PFK-2 KEY - PRESS

16-872

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 1
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK-5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

NOTE

LDB Switching in following steps will cause annunciation of LCC LPS-17.

16-873

CDPS

CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS

16-874

CDPS

CURSOR CNTL (\$GM)
POLL GSE ON LDB NO. 2
XMIT CURSOR KEY - PRESS

PFK-1 KEY - PRESS

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-875

CDPS

CRT (VAS59 PG-B)
LDB 2 POLLING ACTIVE

16-876

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 2
XMIT CURSOR KEY - PRESS

APPL PAGE (VAS93 PG-B)
PFK-5 KEY - PRESS

CRT (VAS93 PG-B)
NO UNEXPLAINED BSR'S

16-877

CDPS

APPL PAGE (VAS93 PG-B)
PFK-15 KEY - PRESS

16-878

CDPS

CONSOLE KYBD
GPCC LDBC
XMIT CMD KEY - PRESS

16-879

CDPS

CURSOR CNTL (\$GM)
POLL GSE ON LDB NO. 1
XMIT CURSOR KEY - PRESS

PFK-1 KEY - PRESS

16-880

CDPS

CRT (VAS59 PG-B)
LDB 1 POLLING ACTIVE

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-881

CDPS

CURSOR CNTL (VASP9 PG-B)
LAUNCH DATA BUS ANOMALY
XMIT CURSOR KEY - PRESS

CRT (VASP9 PG-B)
MESSAGE CLEARED

16-882

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS INIT DISPLAY (SAS01)
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
TERMINATE OPS MGR 5 (SAS25)
XMIT CURSOR KEY - PRESS
PFK2 KEY - PRESS

16-883

CDPS

CONSOLE KYBD
VASJ6
PERF PGM KEY - PRESS

16-884

CDPS

CRT (VASJ6 PG-B)

VERIFY ALL FC AND PL BSR'S ARE ZERO.
(LCC SSID DPS-19)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-885

CDPS

APPL PAGE (VASJ6 PG-B)
PFK-1 - PRESS (BSR READ CONTINUE)
PFK-1 - PRESS (NO NBAT UPDATE)

CRT (VASJ6 PG-B)

VERIFY MSG
"WAITING FOR GO FOR ONESHOT"

16-886

CDPS

OTC

212

[SU72811](#)

DPS Launch Countdown Sequence Activation complete.

GLS Pre-Sequencing Start

16-887
T-40M00S

CGLS

PFPK7 - PRESS
VERIFY SGPR2 ACTIVE IN TASK 5

Triage Site Determination

16-888
T-40M00S

NTD CBSE 232

Determine preferred triage site for remainder of Launch period and report determination.

Site	Location
2	Roadblock A/B-5
8	Roadblock B-4
3	Pad A Parking Lot
4	Pad B Parking Lot
9	NW of Pad B
5	Beach Road North of Pad B
6	Beach Road South of Pad A

Final Cabin Leak Check - Complete

16-889
T-40M00S

CECL OTC 212

Cabin Vent Redundancy Check and Final Cabin Integrity Check complete.

16-890

OTC CMQC 212

[SU72791](#)

Verify OMI S0007.100, Operation 251, Part C, complete (Orbiter Structural Configuration for Launch).

OMRSR [V00I00.030](#)

Qv: _____

Cabin Vent

16-891 OTC CECL 212

CRT (VAG29 PG-B)

RECORD

DP/DT $\frac{\quad}{(BD \ +/- \ 0.01)}$ PSI/MIN.

NOTE

High oxygen and argon concentration will be recorded in Midbody, Payload Bay, and AFT once cabin is vented. It takes approximately 30 minutes for oxygen and argon concentrations to return to baseline values previous to cabin venting. During this time, HGDS interpretation of data for measuring trends will be used to verify system integrity.

16-892 CECL OTC 212 [SU72793](#)
 OTC CHGD 232
 NTD

T-40M00S

Ready for cabin vent; air will be venting into Orbiter Payload Bay and AFT.

NOTE

Klaxon and master alarm may occur in the next step due to high cabin decay rate. Reset master alarm.

16-893 OTC CDR 212
T-40M00S

Perform Cabin Vent per your checklist.

16-894 CDR

PANEL L2A1

VENT ISOL SW - OPEN UNTIL
VENT ISOL TB OP

L2A1S3
L2A1DS3

16-895

CECL

CRT (VAG29 PG-B)
CABIN VENT - POP ISOL - POP

V61X2005E1

16-896

CDR

PANEL 01
VERIFY CABIN PRESS DECREASING

16-897

CDR OTC 212

Cabin vent open.

16-898

OTC CECL 212

Stand by to give pro words "Close Cabin Vents" on Channel 212 if decrease in PPO₂ below baseline observed on CRT PG-B (VAG29).

NOTE

Perform next step if Cabin Vent began after L-35 minutes.

16-899

NTD OTC 232

Perform OMI S0007.200, Operation 27, Late Cabin Vent Contingency.

Not Performed: _____

PASS/BFS Transfer Preparations

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS V72CA0.060-A

16-904
T-32M00S

OTC CDR 212

[SU72813](#)

Perform PASS/BFS Transfer Preparations per your checklist.

16-905

CDR

PANEL C2
LEFT CRT SEL SW - 3
L KYBD
RESUME

CRT 3
GPC MEMORY

16-906

CDR

PANEL O6
GENERAL PURPOSE COMPUTER
MODE
5 SW - STBY
5 TB RUN

PANEL C3
BFC CRT
DISPLAY SW - ON
SELECT SW - 3+1

CRT 3 (BFS)
BFS MEMORY

16-907

CDR

L KYBD
ITEM 25
EXEC

CRT 3
25*

PANEL C2
L CRT SEL SW - 1

16-908

CDR

OTC

212

[SU72813](#)

PASS/BFS Transfer Preparations complete.

16-909

CDPS

CRT (VASJ6 PG-B)
"ONE SHOT ENABLED"
MILESTONE - INVERT GREEN

16-910

Noted requirement is complete.

OMRSD [V72CA0.060-A](#)

16-911

NTD

*SEC

232

Report when all nonessential personnel have cleared Launch Danger Area.

Support: [SEC](#)

16-912

*FLT
NTD

NTD
CCSE
LPS
JRPS

232

[SU72B84](#)

JSC/MILA best source select is complete.

NOTE
Perform the next step 1 hour prior to T-0 if SRB retrieval ships have been deployed and are in the retrieval area.

16-913 **BRD** **LRD** **135**
 LRD ***WEA** **231**
T-30M00S

Observed retrieval area weather conditions are as follows:
(reference only)

SS winds _____ knots

Peak winds _____ knots

Direction _____ deg

Sea state _____

Air temp _____ deg F

Barometer _____ in HG

Visibility _____ miles

Other weather conditions _____

Not Performed: _____

16-914 LRD *WEA 231

Record Forecast for time of Launch at SRB Retrieval area:

Predicted winds _____ knots

Gusting to _____ knots

Wind direction _____ deg

Verify LD is aware of the forecasted conditions in the SRB Retrieval area.

OMRSD [S00L00.085](#)

OMS GN₂ Pressurization

16-915 OTC CDR 212 [SU72772](#)
T-30M00S

Perform OMS GN₂ Pressurization (per checklist).

16-916 CDR
T-30M00S

PANEL C3
OMS ENG
LEFT SW - ARM/PRESS C3A01S001
RIGHT SW - ARM/PRESS C3A01S002

16-917 CDR OTC 212

OMS GN₂ pressurization complete.

16-918

COOS

CRT (VWD72/VWD73)

VERIFY

LOMS ENG VLV ON

ROMS ENG VLV ON

LOME ARM/PR1 A/P

LOME ARM/PR2 A/P

ROME ARM/PR1 A/P

ROME ARM/PR2 A/P

LOME ARM VALVE (1AL) OPEN

ROME ARM VALVE (1AR) OPEN

PURGE VALVES (LP1,LP2) CLOSED

PURGE VALVES (RP1,RP2) CLOSED

LEFT OMS ENG REG OUT PRESS

330 TO 375 PSIA

V43P4549C1

RIGHT OMS ENG REG OUT PRESS

330 TO 375 PSIA

V43P5549C1

VERIFY NO UNEXPLAINED DOWNSTREAM

PRESSURE CHANGE

LOME BI-PROP VLV 1 POSN < 5%

LOME BI-PROP VLV 2 POSN < 5%

ROME BI-PROP VLV 1 POSN < 5%

ROME BI-PROP VLV 2 POSN < 5%

OMRSD [V43CF0.120 \(VWD72/VWD73\)](#)

WSB GN₂ Supply Activation

16-919 OTC PLT 212 [SU72774](#)

Perform WSB GN₂ Supply Activation per your check list.

16-920 PLT

PANEL R2
APU/HYD
BOILER N2 SUPPLY
 1 SW - ON
 2 SW - ON
 3 SW - ON

16-921 PLT OTC 212

WSB GN₂ Supply Activation complete.

16-922 CHYD

CRT (VWF19)
VERIFY WSB GN2 REG OUT PRESS 1-2-3: 39 TO 44 PSIA

CRT (VWF43)
VERIFY N₂ SUPPLY OFF 1-2-3: OFF

OMRSD [S00FJ0.015](#)

Assemble Post-Launch Inspection/Safing Teams

16-923 **NTD** **PA** **SU72776**
T-30M00S

Post-Launch Inspection/Safing Teams report to assembly area at OSB II.

Support: **CDPD**

16-924 **OTC** ***PAD** **132**
T-30M00S

Notify Post-Launch Inspection/Safing Personnel to assemble at OSB II.

16-925 **PSTM** **STM** **NET 104**
T-30M00S **JSTC** **111**

All support personnel required for Post-Launch Safing/Inspection assembled at OSB II.

Support: **JSTC**

16-926 **NTD** **OTC** **232**
 TBC
 STM
 ***SCC**
 ***SCC** ***PSE** **NET 105**
 OTC ***PAD** **132**

Pad Safety:
Brief Inspection and Safing Teams at Fallback Area on hazards that will be present and applicable Emergency Instructions (OMI S0007.600).

16-927 **STM** **VEEE** **NET 104**
T-30M00S

Deliver FSS elevator lock and cover to Pad Safety at OSB II (5 minutes).
Report completion.

Support: **CDPD**

T: _____

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-928 STM GYCC 111
 GYCC JYCD 117

Inhibit paging to E3-1133 NASA Debris Radar Site.

Support: [OISD](#)

Top Off Sound Suppression System

16-929 STM JBWC 111
T-30M00S

IF Sound Suppression water tank requires top off
OR level transmitters have failed,

THEN top off elevated Sound Suppression water tank per
[Doc: JOB PLAN M3189.210 \(LI\) SS Elevated Tank LCD Topoff without Field Support](#)

Support: [CWSS](#)

Not Performed: _____

MEC Pre-Flight BITE

16-930 OTC CEPD 212
T-29M00S

Check MEC Pre-Flight BITE.

16-931 CEPD

CURSOR CNTL (MEC/PIC AUTO TEST MENU)
LAUNCH PREFLT BITE
XMIT CURSOR KEY - PRESS

16-932

CEPD

PFP (VSC24)
CONTINUE - PRESS

CRT (VSC24)
PORT 1 SUCCESSFUL
PORT 3 SUCCESSFUL

NOTE

Make hardcopy before next terminating step clears screen.

16-933

CEPD

PFP (VSC24)
TERMINATE - PRESS

16-934

CEPD	OTC	132
OTC	NTD	232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

SIMO A/G Voice Check and Ascent Crew Data Update

16-939
T-25M00S

OTC CDR 212

Stand by to perform SIMO A/G Voice Check.

16-940
T-25M00S

NTD *FLT 232

Perform SIMO Voice Checks and Ascent Crew Data Update.

16-941

***FLT ALL 212**

SIMO A/G Voice Checks and Ascent Crew Data Update complete.

16-942

***FLT CDR 212**
PLT

Reading out RTLS and TAL ALT setting and runway.

PASS - BFS Transfer

16-943
T-22M00S

CGLS

CRT (PG 5A)
ONE-SHOT DATA XFER
COMM SENT TO DPS

16-944

CDPS

CRT (VASJ6 PG-B)
VERIFY ONE-SHOT COMPLETE
MILESTONE IN INVERT GREEN
VERIFY MSG:
WAITING FOR GO TO TRANSITION

OMRSD [V72CA0.060-B](#)

16-945

CGLS

CRT
VERIFY ONE-SHOT XFER COMPLETE

Announce T-20 Minute Hold

16-946

NTD

PA
232
212

T-22M00S

The Countdown Clock will hold at T-20 minutes.

Record Cabin Pressurization

16-947
T-22M00S

CECL OTC 212

Cabin vent complete. Ready for cabin pressurization reading.

16-948

CECL

CRT (VAG29 PG-B)

RECORD

CABIN PRESS _____ 15.2 PSIA MAX V61P2405A1

OMRSR [V61AQ0.010-1R](#) (VAG29)

16-949

OTC CDR 212

REPORT CABIN PRESSURIZATION PER YOUR CHECKLIST.

CRT READING _____ PSIA

PANEL O1A1 _____ PSIA

PANEL C2

LEFT CRT SELECT SW - 3

CRT 3

MAJ FUNCT SW - SM

LEFT KYBD (BFS)

SYS SUMM

CRT 3

BFS SM SYS SUMM 1

CRT 3

RESTORE GNC BFS OPS DISPLAY.

(BFS MEMORY DISPLAY IF PRE-OPS 1,

BFS LAUNCH TRAJ1 DISPLAY IF POST OPS 1)

PANEL C2

CRT3

MAJ FUNC SW - GNC

LEFT CRT SELECT SW - 1

CRT 3

BFS MEMORY (IF OPS 0)

LAUNCH TRAJ (IF OPS 1)

Close Vent Valves

NOTE

Vent valve closing may occur earlier or later at CECL direction.

16-950 OTC CDR 212 [SU72794](#)

Close cabin vent valves (per checklist).

16-951 CDR

PANEL L2A1

CABIN VENT

VENT ISOL SW - CLOSE UNTIL L2A1S3

VENT ISOL TB CL L2A1DS3

VENT SW - CLOSE UNTIL L2A1S4

VENT TB CL L2A1DS4

16-952

CECL

CRT (VAG29 PG-A)

VERIFY CAB VT AND CAB VT ISOL DISCRETES ARE
DISPLAYED CLOSED

16-953

CDR OTC 212

Vent valves closed.

16-954

OVCC OTC 212
OTC NTD 232

Whiteroom configuration for closeout complete. Final closeout verification
in work.

Clear Closeout Crew from Pad

16-955

OVCC OTC 212
OTC NTD 232
NTD *SCC
 *PAC

[SU72778](#)

[SU72795](#)

T-20M00S

Whiteroom secured per OMI S0007.100, Operation 267. All personnel
clearing back to roadblock. Flight Crew rescue locker equipment replaced
and locker secured (latched and pinned). Slidewire baskets in position.
All Closeout Crew tools accounted for.

Deliver OIS boxes to OSB II.

16-956 NTD OTC 232 SU72784
 OTC OVCC 212

T-20M00S

Perform clearing of Closeout Crew from FSS.

1. **Position** both elevators at Pad surface.
2. **Push** the Rescue button.
3. **Depress** the Stop button only after the doors are fully open.
4. **Remove** elevator ELSAs.
5. A red indicator light will illuminate from both the Stop and Rescue buttons. Elevators are now properly configured for Launch.

16-957 NTD JFIR 232 SU72780
 JFIR *HT3 DIR 7 SU72782
 *EGN

T-20M00S

Closeout Crew departing Pad.
HT____, after verifying slidewire basket deceleration nets in place, you are cleared to leave Pad and return to A-5 (Pad A).
ENG A-5 (Pad A) proceed with Closeout Crew to Roadblock A/B-11.

Support: [FIRE](#)

16-958 NTD STM 232
 STM JYVO 138
 JYVR

T-20M00S

Provide video tracking and recording of 3 Bunker Crew personnel to Roadblock A-5 (Pad A) (OBSV-182) and Closeout Crew Pad to Roadblock A/B-11 (OBSV-181) (see JYVO Figure 13-1, (pages 1 thru 3).

Support: [OTV](#)

Configure Orbiter Vent Doors 1 & 2 to Normal Purge Position

16-959 OTC CPVD 212
T-20M00S

Environmental chamber cleared of personnel, reconfigure
Vent Doors 1 & 2 to Purge position (5 minutes).

16-960 CPVD

CURSOR CNTL (VAM09A)
VENT DR 1&2 PURGE TARGET-
XMIT CURSOR KEY - PRESS

CRT (VAM09A)
VERIFY ALL VENT DOORS ARE IN NORMAL PURGE
CONFIGURATION AND V99J8836C1 IS 000F0000.

16-961 CPVD OTC 212
 OTC NTD 232

All vent doors in Normal Purge configuration.

Top Off Sound Suppression System - Complete

16-962 JBWC STM 111
T-20M00S

IF Sound Suppression water tank required top off,

THEN report Sound Suppression elevated tank top off complete.

Support: [CWSS](#)

Not Performed: _____

GLS Software Requirements

NOTE

The following OMRS requirements will be automatically performed by GLS software in the last 20 minutes of Launch Countdown. All listed requirements will be met by T-0 (ref KLO-82-0071, Appendix A).

GLS events are not annunciated during final count unless specified in OMI.

GLS software may be masked as required to support Launch. Details of GLS masks and bypasses are specified as data sheets attached to OMI S0007.400, Operation 62.

16-965

CGLS

Verify GLS software configured to perform OMRS functions referenced below.

Minus Time	Nomenclature	OMRS
-09M00S & counting	Initiate Term Count	S00FM0.020-1
-08M50S	ET LO ₂ Feedline Bellows Heater Off	S00FP0.070-1
-05M00S	Arm SRB S & A Devices	S00FM0.210-1R
-04M30S	SSME MFV Heaters Off	S00FM0.040
-04M00S	SSME Purge Sequence 4	S00FM0.250-1
-03M55S	Aerosurface Profile	S00FM0.270-1
-03M30S	MPS Gimbal Profile Check	S00FM0.300-1R
-03M20S	Verify Body Flap Discretes	S00FM0.290-1R
-03M03S	Verify SSMEs in Start Position	S00FM0.310-1
-03M03S	Verify Body Flap Positions	S00FM0.280-1
-02M55S	Term SSME GN ₂ Purge	S00FM0.350-1
-02M50S	Term GOX Vent Hood Purge	S00FM0.360-1
-02M35S	Activate ET Camera	S00FM0.345

Minus Time	Nomenclature	OMRS
-01M57S	Activate SRB Cameras	S00FM0.385
-01M52S	ET Bipod Heaters Off	S00FP0.030-1
-00M55S	Lock SRB MDM LL1/LR1	S00FN0.040-1R
-00M50S	GSE Power Removal	S00FN0.840
-00M50S	Deact SRB Joint Heaters	S00FN0.825
-00M48S	Close LH ₂ /LO ₂ OTBD Fill Valves	S00FP0.050-1
-00M40S	GSE Power Removal Verification	S00FP0.060-1
-00M31S	RSLs Auto Sequence Start	S00FR0.010
-00M30S	SRB HPU Gas Gen Bed Heaters	S00FF0.170
-00M28S	Start SRB HPUs	S00FR0.070-1
-00M21S	SRB Gimbal Test	S00FS0.030-1
-00M16S	Verify HDP, TSM & ETVAS Ordnance Armed	S00FS0.080-1R
-00M16S	Activate SS Water	S00FT0.120
-00M16S	Verify Speedbrake Launch Position	S00FM0.280-1
-00M13S	Lockout AFT SRB MDMs	S00FS0.090-1R
-00M12S	Terminate MPS He Fill	S00FT0.040-1
-00M10S	Activate H ₂ Burn Pyros	S00FT0.110
-00M10S	Remove SRSS Inhibits	S00FT0.020-1R
-00M10S	Power Down MDMs LA1/LF1/LM1	V72CA0.070
-00M10S	Issue Go For SSME Start	S00FT0.100
-00M08S	Deactivate MPS LH ₂ Recirc System & Close Recirc Valves	S00FT0.050-1
-00M08S	Shutdown GCUs	S00FS0.020

OMRSD S00FF0.170 (SGPW2)
OMRSD S00FM0.020-1 (SLP07)
OMRSD S00FM0.210-1 (SGPT2)
OMRSD S00FM0.040 (SGPT2)
OMRSD S00FM0.250-1 (SGPT2)
OMRSD S00FM0.270-1 (SSPS1)
OMRSD S00FM0.300-1R (SSPS1)
OMRSD S00FM0.310-1 (SGPU2)
OMRSD S00FM0.280-1 (SGPU2)
OMRSD S00FM0.290-1R (SGPU2)
OMRSD S00FM0.350-1 (SGPU2)
OMRSD S00FM0.360-1 (SLPJ0)
OMRSD S00FM0.345 (SGPV2)
OMRSD S00FM0.385 (SGPV2)
OMRSD S00FN0.040-1R (SGPW2)
OMRSD S00FN0.825 (SGPW2)
OMRSD S00FN0.840-1 (SGPW2)
OMRSD S00FP0.050-1 (SGPW2)
OMRSD S00FP0.060-1 (SGPW2)
OMRSD S00FP0.030-1 (SGPW2)
OMRSD S00FR0.010 (SGPW2)
OMRSD S00FR0.070-1 (SGPW2)
OMRSD S00FS0.030-1 (SSPS1)
OMRSD S00FS0.080-1R (SLP26)
OMRSD S00FS0.090-1R (SLP26)
OMRSD S00FT0.040-1 (SLP26)
OMRSD S00FT0.020-1R (SLP26)
OMRSD S00FT0.120 (SLP26)
OMRSD S00FT0.110 (SLP26)
OMRSD V72CA0.070 (SLP26)
OMRSD S00FT0.100 (SLP26)
OMRSD S00FT0.050-1 (SLP26)
OMRSD S00FS0.020 (SLP26)
OMRSD S00FP0.070-1 (SGPS2)

Set Countdown Clock Start Time

16-966 CGLS NTD 232
T-20M00S
(HOLDING)

Countdown Clock to start at: _____/_____
HHMM SS

16-967 NCC LRD CCN

Convoy preparing to move to deployment location.

16-968 OTC JRPS 212

Configure the MTU test set as follows:

- Active OSC
- Samples = 100
- Interval = 0
- Locked on Launch Vehicle

Record changes in the "MTU Test Set Change Log"

Console Program Assignments

16-969 NTD OTC 232 SU72843
TBC
PTC
LPS

T-20M00S
(HOLDING)

Verify FR Console software configured properly for T-20 minutes. Only programs listed may be active.

Orbiter Programs

16-970 OTC ALL 212

All Orbiter systems verify program software.

Report only if any discrepancies.

16-971 CSME

VERIFY PROGRAM
VAE38A ACTIVE IN C3

16-972 CMPL

VERIFY PROGRAM
SAE02 ACTIVE IN C3

16-973 CMPS

VERIFY PROGRAMS
VAE18B ACTIVE IN C4
SAE12 ACTIVE IN C4

16-974 CCSE

VERIFY PROGRAM
VWA40 ACTIVE IN C2

16-975 CNSE

VERIFY PROGRAMS
VAA40 ACTIVE IN C2
VAA41 ACTIVE IN C2

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OMI S0007.200 A23
APPROVED

16-976

CPLE

VERIFY PCGOAL PROGRAM
OVERVIEW 2 ACTIVE AT C5

16-977

CPVD

VERIFY PROGRAMS
VAM01A ACTIVE IN C6
VAM31A ACTIVE IN C6

16-978

CECL

VERIFY PROGRAMS
VAG59 ACTIVE IN C5
VAG28 ACTIVE IN C5
VAG29 ACTIVE IN C5

16-979

CFCP

VERIFY PROGRAMS
VWR05 ACTIVE IN C6
VWR70 ACTIVE IN C6
VWR04 ACTIVE IN C6

16-980

CGSS

VERIFY PROGRAMS
VAJ02 ACTIVE IN C7
VAJ14 ACTIVE IN C7

16-981

CAFM

VERIFY PROGRAMS
VAK20 ACTIVE IN C5
VAK21 ACTIVE IN C5

16-982

COOS

VERIFY PROGRAMS
VADL7 ACTIVE IN C7
VADL8 ACTIVE IN C7
VADL9 ACTIVE IN C7
VADL0 ACTIVE IN C7

16-983

CHYD

VERIFY PROGRAMS
VWF19 ACTIVE IN C8
VWF61 ACTIVE IN C8

16-984

CAPU

VERIFY PROGRAMS
VWF48 ACTIVE IN C8
VWF57 ACTIVE IN C8
VWF62 ACTIVE IN C8

16-985

CISL

VERIFY PROGRAMS
SAQ04 ACTIVE IN C9
VAQ29 ACTIVE IN C9

16-986

CHGD

VERIFY PROGRAMS
SAW01/HWW10 ACTIVE IN C9

16-987

CEPD

VERIFY PROGRAMS
SWC02 ACTIVE IN C10
VWC17 ACTIVE IN C10
VWC10 ACTIVE IN C10

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OMI S0007.200 A23
APPROVED

16-988

COFC

VERIFY PROGRAMS

SAB19 ACTIVE IN C11
SAB20 ACTIVE IN C11
SAB21 ACTIVE IN C11
VABM1 ACTIVE IN C11

16-989

CDPS

VERIFY PROGRAMS

SAS01 ACTIVE IN C12
VASP9 ACTIVE IN C12
VAS59 ACTIVE IN C12
VASJ6 ACTIVE IN C12
VASB9 ACTIVE IN C12

16-990

CCME

VERIFY PROGRAM

VWE01A ACTIVE IN C12

NOTE

Term all OC tasks and GLS lookups at INTG before Countdown Clock is resumed.

NOTE

Verify one of following two groups of programs based on RDM/SpaceHab mission requirements.

16-991

CGLS

IF NOT IN RDM/SPACEHAB,

Verify

THEN VERIFY PROGRAMS

SLP03 ACTIVE IN INTG
SLP02 ACTIVE IN INTG
SLP01 ACTIVE IN INTG
SGPO2 ACTIVE IN INTG
SGPR2 ACTIVE IN INTG

ELSE VERIFY PROGRAMS

SLP81 ACTIVE IN INTG
SLP02 ACTIVE IN INTG
SLP01 ACTIVE IN INTG
SGPO2 ACTIVE IN INTG
SGPR2 ACTIVE IN INTG

16-992

CTPE

VERIFY 2 AVAILABLE CONCURRENCIES IN B/U

VERIFY PROGRAMS

SLPBO ACTIVE IN B/U
SLPCO ACTIVE IN B/U
SEP03 ACTIVE IN B/U
SEP03 ACTIVE IN B/U

LPS Programs

16-993 LPS

VERIFY PROGRAMS
\$HWMON (TCB1) ACTIVE IN MSTR
AA008/AWP02 (TCB2) ACTIVE IN MSTR
AA009/AWP01 (TCB4) ACTIVE IN MSTR
SLP50 (TCB5) ACTIVE IN MSTR
SA001 (TCB6) ACTIVE IN MSTR

SRB/ET Programs

16-994 TBC ALL 136

All SRB/ET systems verify program software.
Report only if any discrepancies.

16-995 CLOX
T-20M00S
(HOLDING)

VERIFY THE FOLLOWING:

1. PROGRAMS
GAL01 ACTIVE IN C3
GAL02 ACTIVE IN C3
2. SSL03 ACTIVE IN LOX REPLENISH CONTROL LOOP
READY TO RECEIVE GLS INTERRUPTS.

16-996 CLHY

VERIFY THE FOLLOWING:

1. PROGRAMS
GAH01 ACTIVE IN C4
GAH02 ACTIVE IN C4
GAW02 ACTIVE IN C4
2. SSH03 ACTIVE (LH₂ S/W CONFIGURE TO ACCEPT GLS
INTERRUPT)

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OMI S0007.200 A23
APPROVED

16-997
T-20M00S
(HOLDING)

CBRS

VERIFY PROGRAMS
SARB4 ACTIVE IN C2
SWRB2 ACTIVE IN C2

16-998

CHPU

VERIFY PROGRAM
BAT04 ACTIVE IN C8

16-999

CPWR

VERIFY PROGRAMS
BWE08 ACTIVE IN C10
BWE11 ACTIVE IN C10
TW495 ACTIVE IN C10

16-1000

TBC CMEC 136

Verify ready to pick up at T-20 minutes.

16-1001

CLOX	TBC	136
TBC	NTD	232
NTD	STM	
STM	JCFM	111

JCFM no longer required on OIS Channel 156 for LO₂ pump instrumentation recording. Support released.

Support: [GIFM](#)

Payload Programs

16-1002
T-20M00S
(HOLDING)

PTC SLES 134

VERIFY C1 CONSOLE PROGRAMS ACTIVE

RW0017

RS0002

EA0013

16-1003

PTC NTD 232

FR C1 console software configured.

16-1004
T-20M00S
(HOLDING)

CDPS

Verify two consecutive OC task concurrencies available to perform GPC dump.

Extend Hold Time (Contingency)

NOTE
Perform this option if Hold must be extended.

Extend Hold Time (Contingency) Not Performed: _____

16-1005 NTD CGLS 232

Cancel pending.

**16-1006 NTD 232
 PA**

Hold will be extended.

16-1007 CGLS

SELECT APP PG-3B
CURSOR CNTL
SELECT - CANCEL PENDING CDC REQUESTS - PRESS

***** End of Extend Hold Time (Contingency) *****

Tape Switch PDR Sub-system

16-1012 **LPS** **CPDR** **127**
T-20M00S
(HOLDING)

IF a normal tape switch has not occurred within previous 30 minutes,

THEN perform Tape Switch at PDR Sub-system .

Not Performed: _____

PSP Deactivation

NOTE

Perform this option if Payload Signal Processor (PSP) is powered up. Powering down PSP is required to be performed in GNC9.

PSP Deactivation Not Performed: _____

16-1013 **OTC** **CDR** **212**
 CDPS

PSP will be powered down. Alert will occur.

16-1014 **NTD** **OTC** **232**
 ***FLT**
 PTC
OTC **CCSE** **212**

Support PSP deactivation on Channel 232.

NOTE

Landing sites and Landing Aids status to be updated once every 24 hours during the mission.

- Weather conditions
- Landing constraints and runway status.
- Convoy and GSE status
- Verify landing sites pre-operations are on schedule to support Lift-Off Time.

16-1019 LRD BRD 135

Verify booster retrieval forces on station and ready for Launch and give status of SRB impact area.

16-1020 LRD ESCO 135

Booster retrieval forces ready for Launch and SRB impact area clear (or not clear) of nonessential vessels.

16-1021 LRD *WEA 231

IF SRB retrieval ships have been deployed and are in the retrieval area or there is no change in weather,

THEN at the T-20 minute Hold,

Record forecast for time of Launch at SRB retrieval area:

Predicted winds _____ knots

Gusting to _____ knots

Wind direction _____ deg

Verify LD is aware of the forecasted conditions in the SRB Retrieval area.

OMRSD [S00L00.085](#)

Not Performed: _____

T-20 Minute Briefing

16-1022

NTD

232

SU72851

212

T-20M00S
(HOLDING)

Perform following:

1. The Launch window:

Opens at _____ GMT

Closes at _____ GMT

LO₂ drainback hold time is _____ M _____ S

and is based on _____
(Engine performance, engine start box temperatures, ET certification requirements)

The Launch window and LO₂ drainback hold times will be updated and provided to the team during the T-9 minute Hold.

There is/is not a Launch window cutout within the Launch window.

There are/are no Collision Avoidance timeframes within the Launch window.

2. PLT:
At T-5 minutes, perform APU start upon command of OTC only.

3. CDR:
The Pad Egress system is/is not in nominal configuration.

The evacuation helipad is _____.

4. Firing Room Launch Team:
After T-20 minutes, all problems or trends that require a Countdown Clock Hold will be reported to the NTD on Channel 212, together with a recommendation.

For all manual Holds after T-5 minutes, the Countdown Clock will continue until T-31 seconds unless the recommendation to hold at the next milestone is necessary.

After T-31 seconds, only Cutoff is available and will result in a Recycle to T-20 minutes. For a Cutoff, prowords "CGLS Give Cutoff" will be used.

5. The GLS milestones are:

T-9M00S	GLS Sequence Start
T-7M30S	OAA Retract
T-5M00S	APU Start
T-4M00S	Purge Sequence 4
T-2M55S	LO ₂ Pressurization
T-1M57S	LH ₂ Term Replenish
T-31S	Go for Auto Sequence Start

6. SPE:
Any comments for Crew.

***** End of T-20 Minute Briefing *****

NOTE

The next six steps may be performed anytime during T-20 minute Hold and are independent operations where the RH SBTC check (LDB reads) must be complete prior to OPS 101 transition.

Return IDP 2 to C12

16-1023

CGNC

CURSOR CNTL (VABM1/VSB90 PG-B)
DEU RETURN
XMIT CURSOR KEY - PRESS
DEU 2
XMIT CURSOR KEY - PRESS

C CO _DEU2G LDBA C12
XMIT CMD KEY - PRESS

16-1024

CGNC

**OTC
CDPS**

212

Responsible console for IDP 2 is now C12.

Activate Profile Monitor

16-1025

COFC

CURSOR CONTROL (SAB19/SWB01)
COUNTDOWN - DETAIL
EXEC CMD KEY - PRESS

16-1026

COFC

APPL PG-B (SAB21/VWB05)
PFK1 KEY - PRESS (START)

Resume Count

NOTE

CGLS will monitor LPS and GPC Countdown time. If a delta of greater than 2 seconds develops, CGLS will notify NTD and CDPS.

16-1032
T-20M00S
(HOLDING)

CGLS 212

Countdown Clock will start on my mark:
3-2-1 Mark

16-1033
T-20M00S
(COUNTING)

NTD PA

[SU72855](#)

T-20 minutes and counting

_____ GMT

OPS Transition (T-20 Minutes 00 Seconds and Counting)

NOTE

Elevons will move to Launch position after OPS 101 transition.

If body flap position is not within +/- 1.5 degrees of commanded position (0 degrees) upon entry to OPS 101, a body flap fail indication will be displayed to Crew. Upon hydraulic pressurization, body flap will be automatically driven by flight software back within +/- 0.7 degrees of commanded position and fail indication will be automatically reset.

16-1034
T-20M00S
COUNTING

CDPS

CRT (VASJ6 PG-B)

VERIFY

"TRANSITION CPLT"

MILESTONE - INVERT GREEN

16-1035

CDPS
OTC
NTD

OTC
NTD
ALL

212

[SU72861](#)

PASS OPS transition complete. DPS ready for BFS transition to OPS 101.

OMRSD [S00FK0.025-A-1R](#)

BFS to OPS 1

16-1036 **OTC** **CDR** **212** [SU72863](#)
T-18M00S

Clear PASS Fault SUMM (SPEC 99 Pro) and take BFS to OPS 1 per your checklist.

16-1037 **CDR**

PANEL 06
GPC MODE SW - RUN
GPC MODE 5 TB RUN

16-1038 **CGLS**
T-18M00S

Verify SLPA0 and SLPA1 active in Backup Console.

16-1039 **CDR** **OTC** **212**
T-17M00S

BFS OPS 1 Transition complete.

16-1040 **CGLS**

Verify downlisted GMTLO TB0 <V90W8380C1> is +/- 2 seconds of planned Lift-Off Time.

OMRSD [S00E00.960-1](#)

Horizontal Situation Configuration

16-1044 **OTC** **PLT** **212** [SU72871](#)
T-16M30S

Perform Horizontal Situation Configuration per your checklist
(Note: Can take up to 2 minutes).

16-1045 **PLT** **OTC** **212**

Horizontal Situation Configuration complete.

Contingency Abort Yaw Steer (PASS)

16-1046 **OTC** **CDR** **212** [SU72873](#)
T-16M30S

Configure Contingency Abort Yaw Steer per your checklist.

16-1047 **CDR** **OTC** **212**

Contingency Abort Yaw Steer Configuration complete.

Ready for BFS Uplink

16-1048 **CVFS**
T-16M00S

CRT (VASB9 PG-B)
BFS TRACKING PASS
FC STRG 1-4 CYAN
NSP STAT GOOD

OMRSD [S00FK0.030-1R](#)

16-1049 **CVFS** **NTD** **212**

Ready for BFS uplink.

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OMI S0007.200 A23
APPROVED

16-1055
T-15M00S

CMPS

CRT (VAE18B PG-B)
VERIFY THE FOLLOWING OPEN POWERS ARE ON,
SWITCH SCANS INDICATE OPEN:

ENG 1,2,3 REG ISOL A&B
MPS REG ISOL 1 AND 2

OMRSD [S00FK0.080-1](#)

SRB AFT Skirt GN₂ Purge Activation

16-1056
T-15M00S

TBC CHPU 136

[SU72883](#)

Initiate SRB AFT skirt GN₂ purge for both left and right SRBs.

16-1057

CHPU

CONSOLE KEYBOARD C-8

TYPE C_RA_GHYP8014A_10
PRESS XMIT CMD

TYPE C_RA_GHYP8015A_10
PRESS XMIT CMD

NOTE

Either high or low flow may be used to satisfy the inerting purge requirement. High flow is preferred. Low flow is acceptable if high flow is unavailable. Nominal flow pressure for high flow configuration is 90 psig minimum. Nominal flow pressure for low flow configuration is 30 psig minimum.

16-1058

CHPU

IF SRB AFT SKIRT HIGH FLOW PURGE IS AVAILABLE
AND PURGE IS NOT CURRENTLY ACTIVE IN LOW FLOW,

THEN PERFORM:

CURSOR CNTL (BAT04)

SRB AFT SKIRT GN2 PURGE

DC PWR PRI - ON

DC PWR SEC - ON

VERIFY GN2 SUP OPN

MAIN VALVE (OUTER) PRI - OPN

MAIN VALVE (OUTER) SEC - OPN

ADJUST SET POINT TO 70 +/-5

HEATER CMD - ON

DELAY FOR CONTROLLER SELF CHECK

ADJUST SET POINT TO 95 +/-10

Not Performed: _____

16-1059

CHPU

IF SRB AFT SKIRT HIGH FLOW PURGE IS UNAVAILABLE
AND PURGE IS NOT CURRENTLY ACTIVE IN LOW FLOW,

THEN PERFORM:

CURSOR CNTL (BAT04)

SRB AFT SKIRT GN2 PURGE

DC PWR PRI - ON

DC PWR SEC - ON

VERIFY GN2 SUP OPN

LOW VALVE (INNER) PRI - OPN

LOW VALVE (INNER) SEC - OPN

ADJUST SET POINT TO 70 +/-5

HEATER CMD - ON

DELAY FOR CONTROLLER SELF CHECK

ADJUST SET POINT TO 95 +/-10

Not Performed:_____

16-1060

CHPU

CURSOR CNTL (BAT04)

SRB AFT SKIRT GN2 PURGE

RECORD FLOW CONFIGURATION _____ (HIGH/LOW)

RECORD UPPER FLOW PRESS _____ PSIG

RECORD LOWER FLOW PRESS _____ PSIG

VERIFY HEATER SET POINT 95 +/-10

VERIFY FLOW PRESS IS 30 PSIG MINIMUM (EITHER
UPPER OR LOWER MAY BE USED TO SATISFY THE
REQUIREMENT)

OMRSD [S00FM0.430-1](#)

16-1061 CHPU TBC 136

SRB AFT Skirt GN₂ Purge Activation complete.

***** End of SRB AFT Skirt GN₂ Purge Activation *****

Configure BAT04 for LCD

16-1062
T-15M00S

CHPU

Configure BAT04 for Launch Countdown.

16-1063

CHPU

CURSOR CNTL (BAT04)
C/D MDE
(BLOCK)
XMIT CURSOR UNTIL - LNH

Launch Area Clear Verification (T-15 Minutes)

16-1064 OVCC NTD DIR 7 SU72784
 NTD *PAC 212
 *SCC

Closeout Crew at AB-11.

16-1065 *SCC NTD 212

All nonessential personnel have cleared Launch Danger Area except those personnel located by specific list at forward observer sites.

16-1066 NTD STM 212
 STM JYVO 138
 JYVR

T-15M00S

Terminate video tracking and recording of Closeout Crew, (OBSV-181) and Bunker Crew (OBSV-182).

Support: OTV

BSR Read

16-1077
T-10M00S

CCME

READ EIU BSR'S
VWE01
PFP
READ EIU GPC BSR - PRESS

16-1078

CCME

IF CCME IS NOT AT C12 BECAUSE OF A CONSOLE CRASH
AND VWE01 IS NOT AVAILABLE AT BACKUP OR MASTER
CONSOLE,

THEN PERFORM THE FOLLOWING:

READ EIU BSR'S
CBTU RBSR EIU
XMIT CMD
EXEC CMD
(WHERE X = 1, 2, 3 FOR EIU 1, 2, 3)

Not Performed: _____

16-1079

JYCD	GYCC	117
GYCC	STM	111
STM	NTD	212

[SU72887](#)

T-10M00S

OIS-D deactivated to Pad.

Support: [OISD](#)

16-1080

OTC	ALL	212
------------	------------	------------

Discontinue all non-mandatory LDB traffic for remainder of Count.

Single Shot Verify

16-1081
T-09M30S

CGLS

SU72897

(SELECT APPL PG-6B)

CRT

VERIFY SINGLE SHOT FAILURES DISPLAY

16-1082

CGLS

IF SINGLE SHOT VERIFY FAILURES OCCUR,

THEN PERFORM

APPL PAGE 6B

HARD COPY KEY - PRESS

PFK15 KEY - PRESS

REPEAT PREVIOUS STEP UNTIL MSG 'VERIFY CYCLE
COMPLETE' APPEARS ON PG-6B

PFK

TERM VFY'S - PRESS

CRT

VERIFY INTEGRATED MENU

Not Performed:_____

T-9 Minute Hold

16-1083

NTD

PA

212

T-09M00S
(HOLDING)

T-9 Minutes and holding

T-20 Minute GPC Dump - Complete

16-1084

CVFS

NTD

212

[SU72865](#)

NTD **OTC**

T-09M00S
(HOLDING)

T-20 Minute GPC Dump complete.

OMRSD [S00FK0.025-B-1R](#)

16-1085

CDPS

IF EXPECTED MISCOMPARES OCCUR,

THEN PERFORM

CONSOLE KYBD (VASJ6 PG-B)

PFK3 KEY - PRESS

Not Performed:_____

16-1086

CDPS

IF UNEXPECTED MISCOMPARES OCCUR,

THEN PERFORM

CONSOLE KYBD (VASJ6 PG-B)

PFK2 KEY - PRESS

Not Performed:_____

16-1087

CDPS

CURSOR CNTL (SAS01 PG-B)
DPS INIT DISPLAY
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
ACTIVATE OPS MGR 5 (SAS25)
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

Depletion Sensor Simulated Command Removal and Final Checkout

NOTE

The following step will authorize MPS to remove the simulated depletion sensor commands and perform an automated checkout to allow the sensors to return to the WET state to support Flight.

16-1088

NTD
OTC

OTC
CMPS
CLOX
CLHY

212

[SU72A88](#)

T-09M00S
(Holding)

Perform Depletion Sensor Simulated Command Removal and Final
Checkout per OMI [S1004](#)

Final Launch Window Determination

NOTE

Perform this option at L-39 minutes for rendezvous mission with short duration window.

Final Launch Window Determination Not Performed: _____

16-1089 **NTD** ***FLT** **212** **SU72901**
T-09M00S
(HOLDING)

Ready for window determination discussion with LD on OIS Channel 231.

16-1090 **LD** **NTD** **231**
T-09M00S
(HOLDING) ***FLT**

Launch time opening will be _____
(Window open or preferred Launch time)

16-1091 **NTD** ***FLT** **212**

Provide update to LO₂ drainback hold time and Launch/RTLS weather constraints.

LO₂ drainback hold time (performance): _____ minutes _____ seconds

16-1092 NTD OTC 212
 TBC
 PTC
 LPS
 *MIL
 STM
 *SCC
 CSPE
 LRD
 SRO
 CDR
 CGLS

T-09M00S
(HOLDING)
L-37M00S

Final Launch window opening will be _____GMT and will close
at _____GMT. LO₂ drainback hold time is _____min _____sec
and based on engine (startbox/performance/GO₂ certification.)

16-1093 NTD CGLS 212

Set Countdown Clock to resume at _____:_____/_____
DD: HHMM/SS

Update Timer No. 1 window remaining;
Update Timer No. 5 Hold time remaining.

16-1094 LRD ESCO 135

IF preferred Launch time has been selected, **Verify**

THEN **report** preferred Launch time selected.
Updated change from in-plane time:

(-) _____Min _____Sec

ELSE **report** Window Open Launch time selected.
Updated change from window open time:

(-) _____Min _____Sec

*** End of Final Launch Window Determination ***

16-1095

CGLS

SELECT APP PG-3B (SLP07)
CDC CONTROL
XMIT CURSOR KEY - PRESS
TERM LOX REPL TIME
XMIT CURSOR KEY - PRESS

16-1096

CGLS

_____ (MM/SS)
XMIT RESP KEY - PRESS
VERIFY CORRECT TERM LOX REPL TIME SET
RETURN TO MS/ML
XMIT CURSOR KEY - PRESS

16-1097

JPHO GOIS 117
GOIS NTD 212

SU72A89

Ground cameras ready to support Launch.

Record the number of views available for each camera category:

Long Range North (Min 3) _____
Long Range South (Min 3) _____
Medium Range North (Min 3) _____
Medium Range South (Min 3) _____
Medium Range West (Min 3) _____
Short Range (Min 3) _____

Support: **PHOT**

16-1098

NTD

Evaluate avian radar and/or cameras for bird density and consistency.
Determine low (0-3), moderate (4-8), or high (9+) bird day.
Evaluate threat in zone of interest around and above vehicle.

16-1099

NTD LD 212

The Ground Camera System is verified to be ready to support Launch.

16-1100

GOIS

Record the cameras currently supporting by marking in the matrix below:

Long Range North Cameras		
Site	HD	35mm
UCS-11 (AF)		
KSC DOAMS		
Apollo Beach		
Ponce Inlet		

Long Range South Cameras		
Site	HD	35mm
UCS-23 (AF)		
Patrick (AF)		
D5R67		
NOTU BERM		

Medium Range North Cameras		
Site	HD	35mm
UCS-4		
UCS-16		
KSC DOAMS		

Medium Range South Cameras		
Site	HD	35mm
South Beach		
UCS-8		
UCS-12		

Medium Range West Cameras		
Site	HD	35mm
UCS-8		
UCS-15		
UCS-16		

Short Range Cameras		
Site	HD	35mm X2
CS - 1		
CS - 2		
CS - 6		

POCS		
	System A	System B
Fixed Film		

PASS G1 Launch Target Uplink Loading

NOTE

Perform this option if PASS Launch Target Uplink Loading is required.

PASS G1 Launch Target Uplink Loading Not Performed: _____

16-1101 *FLT NTD 212

PASS G1 Launch Target Uplink Loading is required.

16-1102 NTD *FLT 212

Perform PASS Target Uplink Loading.

16-1103 *FLT NTD 212
CVFS

PASS Target Uplink Loading complete.

***** End of PASS G1 Launch Target Uplink Loading *****

Extend Hold

NOTE
Perform this option in event that Hold must be extended.

Extend Hold Not Performed: _____

16-1109
T-09M00S
(HOLDING)

NTD CGLS 212

Hold will be extended. Cancel pending.

16-1110

NTD 212
PA

The Hold will be extended.

16-1111
T-09M00S
(HOLDING)

CGLS

SELECT APP PG-3B
CURSOR CNTL
SELECT CANCEL PENDING CDC REQUESTS

16-1112

JRPS

Stop BMU Display recorder. Resume at pick up of Count.

***** End of Extend Hold *****

Ascent Data Crew Update (T-09 Minutes)

NOTE
Perform the next step if *FLT determines RTLS ALT setting/ascent data or runway requires updating.

16-1117	*FLT	CDR	212
		PLT	
		NTD	
	NTD	OTC	
		STM	

T-09M00S
(HOLDING)

Read out RTLS ALT setting/ascent data and runway.

Not Performed: _____

Supply Water Tank Quantity Verification

16-1118 CFCP

Verify supply water tank quantities meet targeted liftoff quantities as defined by Flight Operations.

OMRSD [V62AG0.018](#)

16-1124 CPVD

Verify Vent Door 6 left hand and right hand closed.

16-1125 CPVD

Verify Payload Bay flow rate stabilizes at 180 lb/min maximum.

OMRSD [V05AH0.050-D](#)

16-1126 CPVD OTC 212

Payload Bay purge flow rate set for Launch.

Launch Status Check

16-1127 NTD OTC 212 [SU72909](#)

TBC
PTC
LPS
*FLT
*MIL
STM
*SCC
CSPE
LRD
SRO
CDR

T-09M00S
(HOLDING)

Verify ready to resume Count and Go for Launch.

16-1128 NTD LD 212

Launch Team ready to proceed.

Space Shuttle Operations Manager Launch Readiness Check

16-1129 *OM MMT SSPO

Verify ready to resume Count and Go for Launch:

Lockheed Martin Space Systems Company
Manager, ET Project
ATK Launch Systems, Inc
Manager, RSRB Project
Pratt & Whitney-Rocketdyne
Manager, SSME Project
Director, Engineering (MSFC)
Deputy Manager SSP, MSFC
Program Director, Hamilton Sundstrand
Manager, EVA Office
United Space Alliance
Director, Engineering (JSC)
Manager, Orbiter Project
Director, Mission Operations (at JSC)
Director, Space Life Sciences
Director, Flight Crew Operations
Manager, ISS Program
Commander, 45th Space Wing
Director, Engineering (KSC)
Director, Shuttle Processing
Manager, Space Shuttle Systems Engineering and Integration Office
Manager, Space Shuttle Flight Operations and Integration
Manager, Space Shuttle Safety and Mission Assurance

16-1130 LD 212

Verify KSC Chief Processing Engineer's Team (FR2/ESA) has no constraint to Launch.

16-1131 LD SF 212

Verify KSC Shuttle Safety and Mission Assurance has no constraint to Launch.

16-1132 LD PLM 212

Verify KSC Payload Launch Manager has no constraint to Launch.

16-1133 LD *WEA

Verify range weather forecast meets Launch weather criteria.

16-1134 LD *OM

Verify NSTS Operation Manager's concurrence to proceed with Launch.

16-1135 LD NTD

Proceed with Countdown.

Countdown Re-Entry Point for Integration Console Failure Between T-9 Minutes and T-5 Minutes

Clock Start in 4 Minutes

16-1136 **NTD** **ALL** **212**
T-09M00S
(HOLDING)
L-13M00S

The Countdown Clock will start in 4 minutes.

Firex Pumps to OPS Pressurization

16-1137 **STM** **JBFX** **111** [SU72842](#)
T-09M00S
(HOLDING)

Bring up any two pump station diesel driven Firex water pumps.

Support: [CWSS](#)

16-1138 **JBFX** **STM** **111** [SU72842](#)
T-09M00S
(HOLDING)

Two diesel engines have started and Firex water pumps are supporting.

Support: [CWSS](#)

16-1139 **STM** **JSTC** **111**
JSTC **GSFA** **114**
JFIR **114**

Configure MLP Fire Detection System to Launch Mode at T-6M.
Report completion.

Support: [FA](#)

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16-1140	LSO	LRD	LF1
	LRD	STM	135
		*SLF	
	LRD	NCC	CCN
	STM	JSTC	111
		FSTM	
		GYCC	
		FTAC	(for OV-103/104 only)
		FMLS	
		JBEP	
	JSTC	FSTC	NET 104
		JFIR	114
		*SEC	
GYCC	JPHO	117	

T-09M00S
(HOLDING)
L-13M00S

IF runway designation for RTLS or the AOA site selection has changed from initial call,

THEN in event of RTLS abort, Landing will be on Runway _____ (15 or 33).

AOA Site Selection is _____ (KSC, DFRC, or WSSH).

Support: JSTC
Support: SLF
Support: FIRE
Support: SEC
Support: PHOT
Support: PWR

Not Performed: _____

16-1141 LRD SRO 135
 *SLF

IF KSC is the prime AOA site,

THEN once negative RTLS is declared, air space will be released. In the event of an AOA, air space will be cleared for an Orbiter Landing at KSC.

Not Performed: _____

HGDSA, HGDSB and HUMS Confidence Checks - Complete

16-1142 CHGD OTC 212 [SU72852](#)

HGDSA, HDGSB and HUMS Confidence Checks complete. No anomalies noted.

16-1143 CHGD

CONSOLE KYBD
CONSOLE STOPWATCH STOP AND RESET .

16-1144 CGLS

Terminate all OC tasks and GLS lookups at INTG before Countdown Clock is resumed.

16-1145 CGLS

CONSOLE KYBD (INTG)
HOME CMD KEY - PRESS
A SH
XMIT CMD KEY - PRESS

16-1146

CGLS

CONSOLE KYBD (BKUP)
HOME CMD KEY - PRESS
A SH
XMIT CMD KEY - PRESS

16-1147

CGLS

Take printer off line (for INTG Console).

16-1148

CGLS

Take printer off line (for Backup Console).

16-1149

CGLS

Verify Term LO₂ Replenish time has been set before Countdown Clock resume.

Clock Start in 3 Minutes

16-1150
T-09M00S
(HOLDING)

NTD ALL 212

Countdown Clock will pick up in 3 minutes.

Mark.

16-1151
T-09M00S
(HOLDING)
L-11M00S

NTD ALL 212

Countdown Clock will start in 2 minutes.

Mark.

Start Video Recording

NOTE

Perform next two steps 1 minute prior to pickup of Count.

16-1152 **JYVS** **JYVO** **138**
T-09M00S
(HOLDING)

Contact EEC personnel at 853-8279/8242 for initial positioning of VAB roof OTV Camera 080.

Transmit video to CDSC via 6TVM4100 (Switch 1 Output 382).

Support: [OTV](#)

NOTE

Coverage will be formation and development of ignition cloud that forms northeast of Pad. EEC personnel will observe OTV Camera 080 in the MOC. COMM will extend circuit to the MOC .

16-1153 **JYVO** **JYVR** **138**
T-09M00S
(HOLDING)

Start video recording of OTV Camera 080 (see EEC Figure 13-1, (pages 1 thru 3)).

Support: [OTV](#)

Clock Start in 1 Minute

16-1154 **NTD** **ALL** **212**
T-09M00S
(HOLDING)
L-10M00S

The Countdown Clock will start in 1 minute.

Mark.

Igniter Heater Power Removal

16-1155 **TBC** **CPWR** **136** [SU72844](#)
T-09M00S
(HOLDING)
L-10M00S

Perform SRB Igniter Heater Power Removal.

16-1156 **CPWR**

CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS

CRT
VERIFY LH/RH IGN HTR CURRENT <0.5 AMP AC

OMRSD [S00FA0.980](#)

16-1157 **CPWR** **TBC** **136**

Igniter Heater Power Removal complete.

Countdown Clock Start

16-1158 **NTD** **ALL** **212** [SU72846](#)
PA

T-09M00S
(COUNTING)

T-9 minutes and counting.

16-1159 **GYCC** **GYCJ** **117**

Activate landing field, Weather observer and aircraft Orbiter circuits to
TAL sites supporting this mission.

Support: [VCE](#)

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16-1160 GYCC *VCE

Landing field, Weather observer and aircraft Orbiter circuits activated to TAL sites supporting this mission.

Support: [COMM](#)

16-1161 JSTC *SEC 114

Security Roving Beach Patrol:
Respond to assigned bunker areas at this time.

Support: [SEC](#)

16-1162 NTD

IF Extended Hold required between T-9 minutes and T-5 minutes,

THEN perform Hold option No. 1 (OMI S0007.200, Operation 28) for extended Hold between T-9 minutes and T-5 minutes (prior to APU Start).

Not Performed: _____

GLS Auto Sequence Start

16-1163
T-09M00S
COUNTING

CGLS ALL 212

[SU72848](#)

GLS AUTO SEQUENCE HAS BEEN INITIATED.

16-1164 STM JYVR 138
T-09M00S

Start video recording as follows:

Support: [OTV](#)

1. Digital Betacam recorders

Camera 102 (CS-1), 141 (CS-2), 048 (CS-6), 051, 070, 071, TV-2,
TV-4A, TV-5, TV-11, TV-21 A

2. S-VHS recorders

Camera 043
(Engineering analysis)

16-1165 STM JYVR 138

Start continuous recording of CICE OTV Debris cameras 006, 007, 008,
044, 058, and 064.

Support: [OTV](#)

16-1166 LPS C2MC 127

[SU72854](#)

Place all PP1 and PP2 units on line.

Stored Program Pre-Launch Commands

NOTE

If Hold occurs after transmittal of BFS SPC LOAD, *FLT will transmit SPC Buffer Clear and new BFS SPC LOAD based on updated Liftoff Time if required.

16-1167
T-08M00S

*FLT

[SU72856](#)

Transmit stored Program Pre-Launch Commands (BFS SPC LOAD).

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OMI S0007.200 A23
APPROVED

Fuel Cell/Essential Bus Source On

16-1168 OTC PLT 212 SU72857
T-08M00S

Connect Essential Busses to Fuel Cells per your checklist.

16-1169 PLT

PANEL R1
POWER DISTRIBUTION
ESS BUS SOURCE
FC 1 SW - ON
FC 2 SW - ON
FC 3 SW - ON

Orbiter Access Arm Retraction

16-1170 CGLS ALL 212 SU72858
T-07M30S

GLS GO FOR ORBITER ACCESS ARM RETRACT (AUTO) .

16-1171 OTC JRPS 212 SU72862
T-06M20S

Start APU Display Recorders.

APU Pre-Start

CAUTION

During the period of energization of fuel tank isolation valves, CAPU is to continuously monitor valve temperatures. APU fuel tank isolation valve temperatures shall not exceed 220 deg F or damage to APU will occur.

16-1172
T-06M15S

OTC PLT 212

SU72864

Perform APU Pre-Start.

16-1173
T-06M15S

PLT

PANEL R2

APU/HYD

BOILER N₂ SUPPLY (VERIFY)

1 SW ON

2 SW ON

3 SW ON

BOILER PWR (VERIFY)

1 SW ON

2 SW ON

3 SW ON

BOILER CNTLR/HTR (VERIFY)

1 SW A

2 SW A

3 SW A

HYD CIRC PUMP (VERIFY)

1 SW GPC

2 SW GPC

3 SW GPC

APU FU TK VLV ENA (VERIFY)

1A CB - CLOSE

1B CB - CLOSE

2A CB - CLOSE

2B CB - CLOSE

3A CB - CLOSE

3B CB - CLOSE

APU FUEL TK VLV (VERIFY)

1 SW CLOSE

2 SW CLOSE

3 SW CLOSE

APU AUTO SHUT DOWN (VERIFY)
1 SW ENABLE
2 SW ENABLE
3 SW ENABLE
APU SPEED SELECT (VERIFY)
1 SW NORM
2 SW NORM
3 SW NORM
APU OPERATE (VERIFY)
1 SW OFF
2 SW OFF
3 SW OFF
HYD MAIN PUMP PRESS
1 SW - LOW
2 SW - LOW
3 SW - LOW
APU CNTLR PWR
1 SW - ON
2 SW - ON
3 SW - ON
APU FUEL TK VLV
1 SW - OPEN
2 SW - OPEN
3 SW - OPEN
READY TO START (VERIFY)
1 TB GRAY
2 TB GRAY
3 TB GRAY

16-1174 PLT OTC 212

APUs configured for start.

16-1180

PLT

MDU DISPLAY
VERIFY
HYD PRESS 1,2,3 IND LO GREEN

PANEL R2
VERIFY
APU/HYD
READY TO START
1 TB BP
2 TB BP
3 TB BP
HYD MAIN PUMP PRESS
1 SW NORM
2 SW NORM
3 SW NORM

MDU DISPLAY
VERIFY
HYDRAULIC PRESSURE
1,2,3 IND HI GREEN

16-1181

PLT

PANEL R2
APU/HYD
HYD CIRC PUMP
1 SW - OFF
2 SW - OFF
3 SW - OFF

PANEL F7
VERIFY
HYD PRESS LIGHT OFF

16-1182

PLT

OTC

212

APU Start complete.

Hydraulic Post-APU Start Checks (T-5 Minutes)

16-1183

CHYD

Perform Hydraulic Post-APU Start checks per OMI S0007.400 (Operation 46).

OMRSR [S00FM0.175-1R](#)

16-1184

CAPU

[SU72874](#)

Perform APU Post-Start Checks per OMI S0007.400 (Operation 42).

Heater Reconfiguration

16-1185
T-05M00S

OTC

CDR

212

[SU72876](#)

Reconfigure heaters.

16-1186
T-05M00S

CDR

PANEL L2A1

FLASH EVAP

FEEDLINE HTR

A SUPPLY SW - OFF

L2A1S23

B SUPPLY SW - OFF

L2A1S24

16-1187

CECL

CRT PAGE A (VAG29)

FES FL HTR A/B - FF/FF

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OMI S0007.200 A23
APPROVED

16-1188 CDR OTC 212

Heater Reconfiguration complete.

16-1189 CDR

PANEL C2
LEFT CRT SEL SW - 3
LT KYBD
SYS SUMM

BFS CRT 3
SM SYS SUMM 1

16-1190 *SCC ALL NET 105 [SU72878](#)
T-05M00S

Maintain silence on Net 105 until negative RTLS verified.

16-1191 STM JBAC 111 [SU72860](#)

Activate cooling tower spray system.

Support: [HVAA](#)

16-1192 STM JCFM 111
T-05M00S

Start Launch data recording.

Support: [GIFM](#)

16-1193 GSFA JSTC 114
JSTC STM 111

MLP Fire Detection System configuration is in Launch Mode.

Support: [FIRE](#)
Support: [FA](#)

SRB Joint Heater Alarm/LCC Inhibit

16-1194
T-05M00S

CPWR

PFP (BWE11)
PFPK 5 KEY - PRESS

LED 5
VERIFY
ALARM INH

PFPK 3 KEY - PRESS

LED 3
VERIFY
LCC MONITOR INH

Terminate LOX Replenish

16-1195
T-04M55S

CGLS

SU72880

TERMINATE LOX REPLENISH.

NOTE

Perform the next step 55 seconds (for Hold at T-4 minutes), 2 minutes (for Hold at T-2 minutes 55 seconds) or 4 minutes 24 seconds (for Hold at T-31 seconds) before resuming from the Hold so that LOX Terminate Replenish occurs at proper L-time.

16-1196

CGLS

IF TERM LOX REPLENISH IS SKIPPED,

THEN PERFORM

PFP (SLP01)
PFPK3 (CONTINGENCY LEDS) - PRESS
PFPK1 (TERM LOX REPL) - PRESS
PFPK6 (EXEC TERM LOX REPL) - PRESS

Not Performed: _____

16-1197 LPS

Verify SA001 terminated after term LO₂ sent.

16-1198 CSME

CRT (VAE38)
VERIFY E-1, E-2 AND E-3 MFV CURRENT INDICATES 0.

<p>NOTE Perform next two steps if the T-9 Minute Hold was extended or the Countdown Clock was held after T-9 minutes.</p>
--

16-1199 NTD *FLT 212

Provide update to LO₂ drainback hold time (performance)

_____ min _____ sec

Not Performed: _____

16-1200 NTD ALL 212

Hold time remaining is:

_____ min _____ sec

Not Performed: _____

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OMI S0007.200 A23
APPROVED

SSME Purge Sequence 4

16-1201 CGLS ALL 212 SU72882
T-04M00S
GLS GO FOR SSME PURGE SEQUENCE 4 (AUTO)

16-1202 JSTC *SEC 114
T-03M00S
Security Helo Crew take cover in M113 at Barricade 49 until after Launch.
Support: SEC

LO₂ Pressurization

16-1203 CGLS ALL 212 SU72892
T-02M55S
GLS GO FOR ET LO₂ PRESSURIZATION (AUTO) .

SSME GN₂ Purge Termination

16-1204 CSME
CRT (VAE38)
VERIFY GN₂ PURGE TERMINATES
OMRSR S00FM0.350-1

16-1205 CSME
CRT (VAE38A)
VERIFY GN₂ HEATER PANEL OUTLET TEMP AMBIENT (LESS
THEN 90 DEG F) FOR PRECEDING 2.5 HOURS MINIMUM.
OMRSD S00FD0.095-B

Clear Caution and Warning Memory

16-1206
T-02M30S

OTC PLT 212

[SU72896](#)

Clear Caution and Warning memory.

Verify no unexpected errors.

16-1207

PLT

PANEL C2
CRT 3 MAJ FUNC SW - GNC

R KYBD (BFS)
FAULT SUMM

R KYBD (BFS)
SPEC 99

PRO (CLEAR FSP)

RESUME
SYS SUMM

CRT 3
GNC SYS SUMM 1 (BFS)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

16-1208
T-02M30S

PLT

PANEL C2A2
R CRT SEL SW - 2

R KYBD
FAULT SUMM

R KYBD

SPEC 99
PRO (CLEAR FSP)

RESUME

CRT 2
GNC SYS SUMM 1

PANEL C2
R CRT SEL SW - 3

16-1209
T-02M30S

PLT

PANEL C3
CAUTION/WARNING
MEMORY SW - CLEAR

16-1210
T-02M30S

PLT OTC 212

Caution and Warning Clear complete.

Close Visors

16-1211
T-02M10S

OTC FLT 212
CREW

SU72898

Close and lock your visors and initiate O₂ flow.

16-1212
T-02M00S

JBWC

Call up screen LFA/LFB and display through T-0.

Support: [CWSS](#)

16-1213

STM JYVR 138

Start continuous recording of CICE OTV Debris cameras 576 and 577.

Support: [OTV](#)

LH₂ Tank Pressurization

16-1214
T-01M57S

CGLS ALL 212

[SU72900](#)

GLS GO FOR ET LH₂ PRESSURIZATION (AUTO) .

OMRSR [S00FM0.400-1](#) (SSH03)

OMRSR [S00FM0.380-1](#) (SSH03)

OMRSR [S00FM0.390](#) (SSH03)

OMRSR [S00FM0.450-1](#) (SSH03)

16-1215

STM JCFM 111

IF Flame Trench Instrumentation is installed,

THEN Activate Catacomb H₂O Cooling and GN₂ Purge.

Not Performed: _____

16-1216
T-01M30S

NTD ALL 212

1 minute 30 seconds.

16-1217
T-01M00S

NTD ALL 212

1 minute.

16-1218 NTD LD
T-01M00S

Recommend _____ (Hold or No-Hold) based on bird conditions in zone of interest.

NOTE

Console stopwatch will be started at T-31 seconds in the event of a LCC violation (HAZ 03/04) or Hold at T-31 seconds so that the elapsed time for ET or AFT compartment leak evaluations can be accurately tracked.

16-1219 **CHGD**

CONSOLE KYBD
CONSOLE STOPWATCH START WHEN COUNTDOWN CLOCK
REACHES T-31 SECONDS.

GLS Go for Auto Sequence Start

16-1220 CGLS ALL 212 [SU72904](#)
T-00M31S

GLS GO FOR AUTO SEQ START (AUTO) .

Arm Cutoff

16-1221 **CGLS**
T-00M31S

PFPK3 (SLP01) - PRESS
PFPK5 (CUTOFF) - PRESS
VERIFY CUTOFF ARMED

Orbiter Vent Door Sequence Start

16-1222
T-00M28S

CPVD

Orbiter Vent Doors Launch Configuration sequencing start.

16-1223
T-00M25S

NTD ALL 212

Twenty five

16-1224
T-00M20S

NTD ALL 212

Twenty

16-1225
T-00M15S

NTD ALL 212

Fifteen

16-1226
T-00M10S

NTD ALL 212

Ten

GLS Go for Main Engine Start

16-1227
T-00M10S

CGLS ALL 212

GLS GO FOR MAIN ENGINE START.

Main Engine Start

NOTE

If PC is less than 90 percent at 4.60 seconds after start command, or if any main engine status light is AMBER prior to SRB ignition, sequential shutdown occurs.

16-1228

CSME

SU72908

T-00M06.60S
T-00M06.48S
T-00M06.36S

MAIN ENGINE 3 START CMD (AUTO)
MAIN ENGINE 2 START CMD (AUTO)
MAIN ENGINE 1 START CMD (AUTO)

16-1229

PLT

T-00M06S

MDU DISPLAY
MPS PRESS PC (3) INCREASING TO >90 PCT

SRB Ignition/Liftoff

16-1230
00M00S

NTD ALL 212

SU72910

T-0 SRB ignition.

NOTE

At umbilical disconnect, the Firing Room will be auto-switched to RF data - a momentary data loss may occur. The LDBA and LDBS FEPs will go to No-Go mode.

Deselect KSC Uplink

NOTE

Perform the next step at SRB Ignition.

16-1231

***MIL**

Deselect KSC Uplink on ASTRO COMM UHF, A/G 1, A/G 2.

16-1232

***MIL**

NTD

212

KSC Uplink Deselect on ASTRO COMM UHF, A/G 1 and A/G 2 is complete.

16-1233

NTD

ALL

212

All Test Team personnel return to your normal command and operating channels. JBFX continue to monitor Channel 232. Test Team monitor A/G COMM on Channel 217/218.

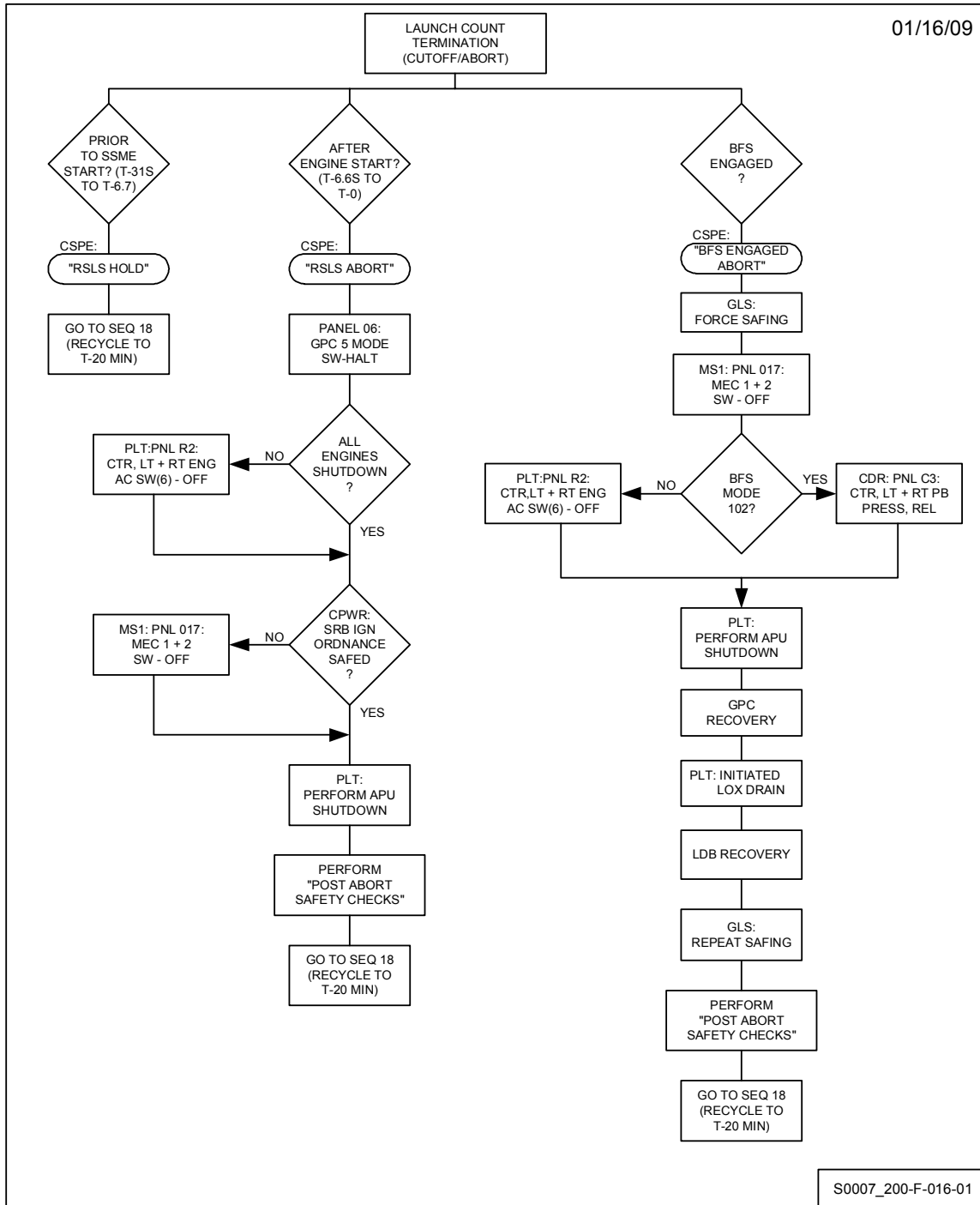


Figure 16-3 - Abort Flow Chart
(For reference only)

RSLs Abort Safing

NOTE

Perform RSLs Abort Safing anytime after SSME 3 start command is issued (T-6.6 seconds) by the RSLs and a RSLs Abort occurs.

RSLs Abort Safing Not Performed: _____

NOTE

RSLs Abort Criteria:

- (A) Cutoff after engine start sequence initiated, and prior to SRB ignition.
- (B) PASS GPCs in MM 101
- (C) LDB integrity/polling maintained
- (D) BFS not engaged (but may have moded to 102)

16-1234

NTD

PERFORM RSLs ABORT SAFING OPERATIONS AS FOLLOWS:

1. **CGLS NTD 212**
CUTOFF

THE RSLs ABORT FLAG IS ON

GLS SAFING (IN PROGRESS/NOT RUNNING)

2. **CGLS NTD 212**
IF INVALID DATA/COMMAND PATH FAILURE IS DETECTED,

THEN REPORT

(PASS) / (BFS) / (OI) INVALID (LDB DOWN)

Not Performed: _____
SS2

3. **CGLS NTD 212**

BFS _____ PASS _____ LDB _____

4. CSPE NTD 212
PERFORM RSLs ABORT.

GLS SAFING _____
(IN PROGRESS/NOT RUNNING)

NOTE

Perform next three substeps if the GLS is not running and vehicle has not lifted off.

5. CSPE CGLS 212
FORCE ABORT SAFING TO CONTINUE.

Not Performed: _____
SS5

6. CGLS
PFPK5 (RS ABORT SAFING) - PRESS
PFPK6 (EXEC RS ABORT SFNG) - PRESS

Not Performed: _____
SS6

7. CGLS NTD 212
GLS SAFING IS/IS NOT IN PROGRESS.

Not Performed: _____
SS7

NOTE

Perform next substep as soon as possible after an RSLs Abort has been declared.

8. JBFX
VERIFY ALL LAUNCH COOLING SPRAY VALVES OPENED AND
ISSUE CLOSE ALL COMMAND (SCREEN LFA/LFB) TO
TERMINATE MLP SIDE 1 LAUNCH COOLING SPRAY AND FSS
LAUNCH COOLING SPRAYS. VERIFY VALVES CLOSED.

Support: CWSS

SSME Command Path Failure

NOTE

Perform next five substeps for main engine command path failure.

Conditions indicating a command path failure:

Engine phase - mainstage
OTV - engine running
or
EIU PRI and SEC port - bypassed
OTV - engine running

17. **CSME NTD 212**
 CCME
 NTD PLT

THERE HAS BEEN AN SSME COMMAND PATH FAILURE.
HAVE PLT PERFORM (E-1 CENTER, E-2 LEFT, OR
E-3 RIGHT) ENGINE CONTROLLER SHUTDOWN.

- A. CENTER ENGINE 1 POWERDOWN
PANEL R2
MPS
ENGINE PWR
CTR AC1 SW - OFF
CTR AC2 SW - OFF

Not Performed: _____
SS17A

DELAY 2 SECONDS.

- B. LEFT ENGINE 2 POWERDOWN
PANEL R2
MPS
ENGINE PWR
LEFT AC2 SW - OFF
LEFT AC3 SW - OFF

Not Performed: _____
SS17B

DELAY 2 SECONDS.

C. RIGHT ENGINE 3 POWERDOWN
PANEL R2
MPS
ENGINE PWR
RIGHT AC3 SW - OFF
RIGHT AC1 SW - OFF

Not Performed: _____
SS17C

Entire Substep Not Performed: _____
SS17

18. CSME NTD 212
ALL ENGINES ARE SHUT DOWN.
HYDRAULICS NO LONGER REQUIRED.

Not Performed: _____
SS18

19. NTD CGLS 212
ALL ENGINES ARE SHUT DOWN,
GLS FORCE ENGINE SAFING.

Not Performed: _____
SS19

20. CGLS
PFPK5 (FORCE ENG SAFING) - PRESS

Not Performed: _____
SS20

21. CGLS NTD 212
GLS SAFING IS/IS NOT IN PROGRESS

Not Performed: _____
SS21

*** End of SSME Command Path Failure ***

22. **CLOX**
 CLHY
IF GLS POST ENGINE SHUTDOWN SAFING IS NOT IN
PROGRESS,

THEN INITIATE BREAKOUT AT C3/C4 CONSOLES AFTER
CSME VERIFIES ENGINE SHUTDOWN.

Not Performed: _____
SS22

23. **CGLS** **NTD** **212**
SRB IGNITION/SEP PIC'S SAFED/CHARGED (NOT SAFED) .
(PIC CAP VOLTS 0 +/- 1.5 V)

NOTE Perform next two substeps if SRB ignition PICS are charged (not Safed), or present state is unknown due to invalid data.
--

24. **NTD** **MS1** **212**
PERFORM SRB SAFING
PANEL O17
ROW D
 MEC
 1 SW - OFF
 2 SW - OFF

Not Performed: _____
SS24

25. **MS1** **NTD** **212**
MEC POWER DOWN COMPLETE .

Not Performed: _____
SS25

26. **CGLS** **NTD** **212**
GLS - GO FOR APU SHUTDOWN .

27. **NTD** **PLT** **212**
PERFORM APU SHUTDOWN

28. **PLT NTD 212**
APU SHUTDOWN COMPLETE.

29. **LPS**
VERIFY GS (1,2,3) FEP DATA VALIDITY.

NOTE For a loss of OI data, LO ₂ will proceed directly to Drain following Terminal Count Safing.

30. **CLOX NTD 212**
INITIATING LOX DRAIN.

Not Performed: _____
SS30

Data and Ground Command Availability Checklist

NOTE Perform next three substeps for a suspected command/data path integrity failure.

31. **NTD LPS 212**
REPORT FEP DATA VALIDITY.

OI _____
GPC _____
LDB _____
GS (1,2,3) _____

Not Performed: _____
SS31

32. **NTD CDPS 212**
REPORT GPC DOWNLIST/LDB STATUS.

Not Performed: _____
SS32

33. **NTD CISL 212**
REPORT PCMMU STATUS, SWITCH POSITION, AND COMMAND STATUS.

Not Performed: _____
SS33

SSME Heat Shield Water Activation

NOTE

GLS initiates SSME H/S Firex Water during primary Post Abort Safing. Next step is performed to back up GLS and ready the system for valve closure.

37.

CMPL

PFP (SAE02)

1. SAE02 - PRESS
2. SSME HEAT SHIELD - PRESS
3. SSME HS OPEN - PRESS
4. **VERIFY** BOTH SSME HS OPEN PFPK LIGHTS ON

OMRSR [S00E00.137-1](#)

38.

JBFX NTD 212

ALL LAUNCH COOLING SPRAYS TERMINATED.

Support: [CWSS](#)

39.

NTD CMPL 212

CLOX

VERIFY LO₂ BLEED PATH WAS ESTABLISHED (WITHIN 2 MIN OF ENGINE SHUTDOWN) OR LO₂ DRAIN WAS INITIATED (WITHIN 9 MINUTES).

40.

CMPS

START LH2 TOPPING LINE DRAIN PER OMI [S1004](#) POST IGNITION SAFING.

41. **NTD CMPL 212**
FIRE DETECTOR STATUS
(TRIPPED/NOT TRIPPED) :

NO.

44 PRI (LH₂ DISC) _____
44 SEC (LH₂ DISC) _____
45 PRI (LH₂ DISC) _____
45 SEC (LH₂ DISC) _____

42. **CGLS NTD 212**
FIRE DETECTOR STATUS
(TRIPPED/NOT TRIPPED) :

NO.

35 PRI (LH₂ TSM) _____
35 SEC (LH₂ TSM) _____
36 PRI (LT AFT) _____
36 SEC (LT AFT) _____
37 PRI (RT AFT) _____
37 SEC (RT AFT) _____
38 PRI (HT SHIELD) _____
38 SEC (HT SHIELD) _____
39 PRI (HT SHIELD) _____
39 SEC (HT SHIELD) _____

43. **NTD CMPL 212**
REPORT WATER DELUGE STATUS :

HEAT SHIELD _____ (ON/OFF)

SKIN _____ (ON/OFF)

T-0 _____ (ON/OFF)

44. **CGLS NTD 212**
GLS PRIMARY SAFING COMPLETE. READY TO TRANSITION
TO G9.

45. **CHGD**
CONTINUE MONITORING AFT FUSELAGE UNTIL LO₂/LH₂
DRAIN COMPLETE
46. **NTD CLHY 212**
REPORT LEAK DETECTION STATUS
(REPORT ANY MAJOR LEAKS)
47. **CSME NTD 212**
CCME
NTD PLT
POWER UP ANY SSME THAT WAS POWERED DOWN TO EFFECT
SHUTDOWN. **HAVE** PLT PERFORM (E-1 CENTER, E-2
LEFT, OR E-3 RIGHT) ENGINE CONTROLLER POWER UP.
- A. CENTER ENGINE 1 POWER UP
PANEL R2
MPS
ENGINE PWR
CTR AC1 SW - ON
CTR AC2 SW - ON
- Not Performed:** _____
SS47A
- B. LEFT ENGINE 2 POWER UP
PANEL R2
MPS
ENGINE PWR
LEFT AC2 SW - ON
LEFT AC3 SW - ON
- Not Performed:** _____
SS47B
- C. RIGHT ENGINE 3 POWER UP
PANEL R2
MPS
ENGINE PWR
RIGHT AC3 SW - ON
RIGHT AC1 SW - ON
- Not Performed:** _____
SS47C
- Entire Substep Not Performed:** _____
SS47

48. **CPRP NTD 212**
CRITICAL MPS SAFING COMPLETE.
LH₂ ET TANK VENTED TO AMBIENT PER OMI S1004.

MPS LH₂ TOPPING LINE DRAIN IS COMPLETE

MPS LO₂ BLEED PATH HAS BEEN ESTABLISHED
OR LO₂ DRAIN INITIATED

OMRSR [S00E00.B90-1](#)
OMRSR [S00E00.B95-1](#)
49. **NTD CGSS 212**
VERIFY ORBITER ACCESS ARM EXTENDED AND LOCKED.

REPORT STATUS OF EMERGENCY EGRESS TEMPERATURE AND
FLAME DETECTORS.
50. **CMPL NTD 212**
MPS/SSME PARAMETERS INDICATE THAT NO PROPELLANT
LEAKAGE/FIRE EXISTS.

REQUEST CONCURRENCE TO TERMINATE SSME HEAT SHIELD
FIREX WATER FLOW.
51. **CMPL**
PFP (SAE02)

1. SSME HS CLOSED - PRESS

2. **VERIFY** ALL PFPK LIGHTS OFF.
52. **CMPL NTD 212**
POST ABORT SSME HEAT SHIELD FIREX WATER FLOW HAS
BEEN TERMINATED.
53. **NTD ALL 212**
AN RSLs ABORT HAS OCCURRED. PRELIMINARY SAFING
IS COMPLETE. ALL SYSTEMS STANDBY FOR POST ABORT
SAFETY CHECKS PAGE _____.

***** End of RSLs Abort Safing *****

BFS Engage Abort Safing

NOTE

Perform this option if a GLS Go for ET LOX Press (T-2 min 55 sec) and a BFS Engage occurs.

BFS Engage Abort Safing Not Performed: _____

WARNING

BFS may initiate SRB separation at T-0 Plus 100 seconds when BFS is in Major Mode 102, and MEC 1 or MEC 2 power is ON.

Personnel may suffer serious injury or death.

WM135 06-20-2005

NOTE

BFS Engage Abort Criteria:

- (A) PASS GPCs in S/W halt
- (B) TSMs remain connected
- (C) GPC/LDB polling has terminated
- (D) BFS may have moded to MM102

16-1235

NTD

PERFORM BFS ENGAGE ABORT SAFING OPERATIONS AS FOLLOWS :

1. **CGLS NTD 212**
CUTOFF

BFS ENGAGE INDICATION.

BFS IN _____, PASS AND LDB INVALID.

GLS SAFING NOT RUNNING.

2. **CSPE NTD 212**
 PERFORM BFS ENGAGE ABORT.
 GLS SAFING PASS DOWNLIST DATA AND LDB COMMANDING
 ARE NOT AVAILABLE.

3. **CSPE CGLS 212**
 FORCE ABORT SAFING

4. **CGLS 212**
 PFPK5 RS ABORT SAFING
 PFPK6 EXEC RS ABORT SFNG

5. **CGLS NTD 212**
 GLS SAFING IS/IS NOT IN PROGRESS.

6. **NTD MS1 212**
 PERFORM SRB SAFING

PANEL O17
ROW D
 MEC
 1 SW - OFF
 2 SW - OFF

NOTE

Perform next substep as soon as possible after a BFS Engage Abort has been declared.

7. **JBFX**
 VERIFY ALL LAUNCH COOLING SPRAY VALVES OPENED AND
 ISSUE CLOSE ALL COMMAND (SCREEN LFA/LFB) TO
 TERMINATE MLP SIDE 1 LAUNCH COOLING SPRAY AND FSS
 LAUNCH COOLING SPRAYS. **VERIFY** VALVES CLOSED.

Support: [CWSS](#)

12. NTD CDR 212

IF BFS MODE IS 102,

THEN PERFORM

PANEL C3

MAIN ENGINE

SHUTDOWN

CTR PB - PRESS, RELEASE

(**DELAY** 2 SECONDS)

LEFT PB - PRESS, RELEASE

(**DELAY** 2 SECONDS)

RIGHT PB - PRESS, RELEASE

VERIFY THREE ENGINE STATUS LIGHTS RED

Not Performed: _____
SS12

SSME Command Path Failure

NOTE

Perform next substep if BFS mode is 101 or any engine is running.

Conditions indicating a command path failure:

Engine phase - Mainstage

OTV - Engine running

or

EIU BFS PRI and SEC port - Bypassed

OTV - Engine running

13. **CSME NTD 212**
 CCME
 NTD PLT

THERE HAS BEEN AN SSME COMMAND PATH FAILURE.

HAVE PLT PERFORM (E-1 CENTER, E-2 LEFT OR E-3 RIGHT) ENGINE CONTROLLER SHUTDOWN:

- A.** CENTER ENGINE 1 POWERDOWN:

PANEL R2

MPS

ENGINE PWR

CTR AC1 SW - OFF

CTR AC2 SW - OFF

Not Performed: _____
SS13A

DELAY 2 SECONDS.

- B.** LEFT ENGINE 2 POWERDOWN:

PANEL R2

MPS

ENGINE PWR

LEFT AC2 SW - OFF

LEFT AC3 SW - OFF

Not Performed: _____
SS13B

DELAY 2 SECONDS.

C. RIGHT ENGINE 3 POWERDOWN:

PANEL R2

MPS

ENGINE PWR

RIGHT AC3 SW - OFF

RIGHT AC1 SW - OFF

Not Performed: _____
SS13C

Entire Substep Not Performed: _____
SS13

14. CSME NTD 212

ALL SSME'S ARE SHUT DOWN.
HYDRAULICS ARE NO LONGER REQUIRED.

15. NTD CGLS 212

ALL ENGINES ARE SHUT DOWN. GLS FORCE ENGINE
SAFING.

16. CGLS

PFPK5 (FORCE ENG SAFING) - PRESS

17. CGLS NTD 212

GLS SAFING IS/IS NOT IN PROGRESS.

18. CLOX
CLHY

IF GLS POST ENGINE SHUTDOWN SAFING IS NOT IN
PROGRESS,

THEN INITIATE BREAKOUT AT C3/C4 CONSOLES AFTER
CSME VERIFIES ENGINE SHUTDOWN.

Not Performed: _____
SS18

19. CGLS NTD 212

GLS IS GO FOR APU SHUTDOWN.

20. NTD PLT 212

PERFORM APU SHUTDOWN.

21. PLT NTD 212

APU SHUTDOWN COMPLETE.

22. NTD CLOX 212

INITIATE LOX DRAIN PREPS.

23. NTD CISL 212

REPORT PCMMU STATUS, SWITCH POSITION, AND COMMAND STATUS.

PCMMU Data Recovery

NOTE

Perform the next three substeps for a suspected PCMMU failure.

24. CISL NTD 212

READY FOR SWITCH TO ALTERNATE PCMMU.

Not Performed: _____
SS24

25. NTD CDR 212

PANEL C3
OI PCMMU
POWER SW - 1 OR 2 (ALTERNATE PCMMU)

Not Performed: _____
SS25

26. NTD CISL 212

REPORT PCMMU/OI STATUS.

Not Performed: _____
SS26

SSME Heat Shield Water Activation

NOTE

GLS initiates SSME H/S Firex water during primary Post Abort Safing. Next step is performed to back up GLS and ready the system for valve closure.

27. CMPL

PPF (SAE02)

- A. SAE02 - PRESS
- B. SSME HEAT SHIELD - PRESS
- C. SSME HS OPEN - PRESS
- D. **VERIFY** BOTH SSME HS OPEN
PPFK LIGHTS ON

OMRSD [S00E00.137-1](#)

28. JBFX NTD 212

ALL LAUNCH COOLING SPRAYS HAVE BEEN TERMINATED.

Support: [CWSS](#)

GPC Recovery

29. NTD CDPS 212
 CDPS CDR

PERFORM GPC RECOVERY.

PANEL C3
BFC CRT
 DISPLAY SW - OFF

PANEL O6
IPL SOURCE SW - MMU 1
GENERAL PURPOSE COMPUTER
 MODE
 1-5 SWITCHES - HALT
 POWER
 1-5 SWITCHES - OFF
 POWER
 1 SW - ON

 INITIAL PROGRAM LOAD
 1 PB - PRESS, REL
 MODE
 1 TB IPL, THEN BP
 MODE
 1 SW - STBY
 1 TB RUN (WITHIN 2 MINUTES)
 MODE
 1 SW - RUN
 IPL SOURCE SW - OFF

30. CDPS NTD 212
 GPC RECOVERY COMPLETE.

31. CGLS NTD 212
 GLS GROUND SYSTEMS SAFING COMPLETE.

32. **CLOX NTD 212**
 LO₂ SYSTEM CONFIGURED FOR DRAIN INITIATION.

NOTE

LO₂ fill and drain valve cycling does not need to hold for completion of GPC Recovery.

NOTE

LO₂ outboard fill and drain valve (PV9) will be opened before the inboard fill and drain valve (PV10) to preclude pressure surges and possible water hammer damage to Flight and GSE hardware.

33. **CMPL NTD 212**
 NTD PLT
 PANEL R4
 PROPELLANT FILL/DRAIN
 LO₂ OUTBD SW - OPEN
- DELAY** 10 SECONDS TO ALLOW VALVE TO OPEN.

PANEL R4
PROPELLANT FILL/DRAIN
LO₂ INBD SW - OPEN

34. **CLOX NTD 212**
 LO₂ DRAIN INITIATED. CONTINUE WITH LDB RECOVERY.

LDB Recovery

35. **NTD CDPS 212**
 CONTINUE WITH LDB RECOVERY.

36. **CDPS CDR 212**
 CRT 1 (PASS OPS 0)
 SPEC 1 PRO (CALL DPS UTILITY)
 ITEM 50 EXEC (GSE POLL ENA)

37. **CDPS CDR 212**
 GROUND WILL CONFIGURE G9 NBAT AND PERFORM OPS9
 TRANSITION VIA DEU EQUIVALENT.

38. **CDPS**
CONSOLE KYBD
DEUE DEST,GN,1,LDBA
XMIT CMD KEY - PRESS
DEUE RESUME
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
CRT 1 DISP ID = 1

39. **CDPS**
CONSOLE KYBD
DEUE ITEM 1 +9 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE ITEM 3 +0 +0 +0 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE ITEM 8 +1 +1 +1 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE ITEM 17 +1 +1 +1 EXEC
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

DEUE OPS 901 PRO
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CRT (VAS59 PG-B)
GPC1, GNC9, DL FMT 44 ACTIVE
ALL FC, PL & LDB BUSSES COMMANDED
LDB POLLING ACTIVE

40. **CDPS NTD 212**
GPC 1 IN G9 AND LDB POLLING ENABLED.

46. **NTD CMPL 212**
MPS FIRE DETECTOR STATUS:
(TRIPPED/NOT TRIPPED)

NO.

44 PRI (LH₂ DISC) _____
44 SEC (LH₂ DISC) _____
45 PRI (LH₂ DISC) _____
45 SEC (LH₂ DISC) _____

47. **CGLS NTD 212**
MPS FIRE DETECTOR STATUS:
(TRIPPED/NOT TRIPPED)

NO.

35 PRI (LH₂ TSM) _____
35 SEC (LH₂ TSM) _____
36 PRI (LT AFT) _____
36 SEC (LT AFT) _____
37 PRI (RT AFT) _____
37 SEC (RT AFT) _____
38 PRI (HT SHIELD) _____
38 SEC (HT SHIELD) _____
39 PRI (HT SHIELD) _____
39 SEC (HT SHIELD) _____

48. **CMPL NTD 212**
REPORT WATER DELUGE STATUS:

HEAT SHIELD _____ (ON/OFF)

SKIN _____ (ON/OFF)

T-0 _____ (ON/OFF)

49. **CGLS NTD 212**
GLS PRIMARY SAFING COMPLETE (SECOND PASS).

50. **CMPS**
START LH2 TOPPING LINE DRAIN PER OMI **S1004** - POST
IGNITION SAFING.

51. **NTD CLHY 212**
LEAK DETECTOR AND FIRE DETECTOR STATUS
(REPORT ANY MAJOR LEAKS DETECTED)
52. **CHGD**
CONTINUE MONITORING AFT FUSELAGE UNTIL LO₂/LH₂
DRAIN COMPLETE.
53. **CSME NTD 212**
CCME
NTD PLT
POWER UP ANY SSME THAT WAS POWERED DOWN TO EFFECT
SHUTDOWN. **HAVE** PLT PERFORM (E-1 CENTER, E-2
LEFT, OR E-3 RIGHT) ENGINE CONTROLLER POWER UP.
- A. CENTER ENGINE 1 POWER UP
 PANEL R2
 MPS
 ENGINE PWR
 CTR AC1 SW - ON
 CTR AC2 SW - ON
- Not Performed:** _____
SS53A
- B. LEFT ENGINE 2 POWER UP
 PANEL R2
 MPS
 ENGINE PWR
 LEFT AC2 SW - ON
 LEFT AC3 SW - ON
- Not Performed:** _____
SS53B
- C. RIGHT ENGINE 3 POWER UP
 PANEL R2
 MPS
 ENGINE PWR
 RIGHT AC3 SW - ON
 RIGHT AC1 SW - ON
- Not Performed:** _____
SS53C

Entire Substep Not Performed: _____
SS53

54. **CPRP NTD 212**
CRITICAL MPS SAFING COMPLETE. LH₂ ET TANK VENTED TO AMBIENT PER OMI S1004.

MPS LH₂ TOPPING LINE DRAIN IS COMPLETE.

LO₂ DRAIN INITIATED.

OMRSR [S00E00.B90-1](#)
OMRSR [S00E00.B95-1](#)
55. **NTD CGSS 212**
VERIFY ORBITER ACCESS ARM EXTEND AND LOCKED.

REPORT STATUS OF EMERGENCY EGRESS TEMPERATURE AND FLAME DETECTORS.
56. **CMPL NTD 212**
MPS/SSME PARAMETERS INDICATE THAT NO PROPELLANT LEAKAGE/FIRE EXISTS.

REQUEST CONCURRENCE TO TERMINATE SSME HEAT SHIELD FIREX WATER FLOW.
57. **CMPL**
PFP (SAE02)
A. SSME HS CLOSED - PRESS

B. **VERIFY** ALL PFPK LIGHTS OFF.
58. **CMPL NTD 212**
POST ABORT SSME HEAT SHIELD FIREX WATER FLOW HAS BEEN TERMINATED.
59. **NTD ALL 212**
A BFS ENGAGE ABORT HAS OCCURRED. PRELIMINARY SAFING COMPLETE. ALL SYSTEMS STAND BY FOR POST ABORT SAFETY CHECKS PAGE _____.

***** End of BFS Engage Abort Safing *****

5. CGLS NTD 212
BFS _____ PASS _____ LDB _____

6. CSPE NTD 212
WE HAVE AN LPS/RSLs HOLD

GLS SAFING _____ (IN PROGRESS/NOT RUNNING)

NOTE Perform the next three substeps if GLS is not running
--

7. CSPE CGLS 212
FORCE HOLD SAFING TO CONTINUE.

Not Performed: _____
SS7

8. CGLS
PFPK3 (RS HOLD SAFING) - PRESS
PFPK6 (EXEC RS HOLD SFNG) - PRESS

Not Performed: _____
SS8

9. CGLS NTD 212
GLS SAFING IS/IS NOT IN PROGRESS.

Not Performed: _____
SS9

NOTE

Perform the next two substeps if SRB ignition PICs are Charged (not Safed), or if present state is unknown due to invalid data.

15. **NTD MS1 212**

PERFORM SRB SAFING

PANEL O17

ROW D

MEC

1 SW - OFF

2 SW - OFF

Not Performed: _____
SS15

16. **MS1 NTD 212**

MEC POWER DOWN COMPLETE.

Not Performed: _____
SS16

16-1237 **NTD ALL 212**

PERFORM OPERATION 18.

***** End of LPS/RSLs Hold Safing *****

Post Abort Safety Checks

NOTE

Perform Post Abort Safety Checks following the Abort Safing for:

1. RSLs Abort
2. BFS Engage Abort

Post Abort Safety Checks Not Performed: _____

16-1238

NTD

Perform Post Abort Safety Checks.

1. **NTD CISL 212**
 Verify Orbiter OI PCM data valid.
2. **NTD CDPS 212**
 Verify Orbiter downlist data valid.
 Verify LDB polling active.
3. **NTD CCME 212**
 Verify engine data valid and engine command paths good.
4. **NTD CSME 212**
 Verify all engine pressures and temperatures appear normal.
5. **NTD CSME 212**
 Verify no engine leak indications.
6. **NTD CMPL 212**
 Verify no indication of fire on FD 36, 37, 38, 39 at AFT Orbiter area.
7. **NTD CMPL 212**
 Verify LO₂ bleed path established or LO₂ Drain initiated.

8. **NTD CLHY 212**
 Verify no unexpected fire detectors tripped.

9. **NTD CLHY 212**
 Verify no significant leaks on MLP, cross country lines, TSM, storage area or ET vent system.

10. **NTD CLHY 212**
 Verify LH₂ tank pressure stable.

11. **NTD CLOX 212**
 Verify OTV indicates no fire or leaks on cross-country lines, storage area, MLP or TSM.

12. **NTD CLOX 212**
 Verify ET LO₂ tank pressure stable.

13. **NTD CPVD 212**
 Verify GN₂ purge interface pressures are nominal and vent doors in Normal Purge configuration.

14. **NTD CHGD 212**
 Verify no indication of hydrogen leaks in AFT fuselage.

15. **NTD CHGD 212**
 Verify no indication of oxygen leaks in AFT fuselage.

16. **NTD CHGD 212**
 Verify ET/IT O₂ concentration less than 10,000 ppm.

17. **NTD CGSS 212**
 Verify no indications of fire on Crew escape route.

18. **NTD CAPU 212**
 Verify APUs are shutdown and no leakage indications.

19. **NTD CHPU 212**
 Verify HPUs are shutdown and no leakage indications. HPU run time not to exceed 160 seconds.

20. **NTD CPWR 212**
 Verify SRB ignition S&As Safe.

21. **NTD CEPD 212**
 If Cutoff occurred, verify ground PIC rack powered down.

22. **NTD COOS 212**
 Verify all Oxidizer/Fuel tank pressures and temps stable.

23. **NTD CBRS 212**
 Verify Range Safety Inhibits On.

24. **NTD ALL 212**
 Abort safety checks complete. Proceed to "Recycle - Control Sequence"
 (Operation 18).

***** End of Post Abort Safety Checks *****

***** End of Operation 16 *****

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OPERATION 17 Post-Launch Securing/RTLS Contingency

Shop: **NTD / OTC**

Cntrl Rm Console: **ALL**

OPR: **NTD/OTC**

Zone: **NA**

Hazard (Y/N): **Y**

Duration (Hrs): **3.0**

NOTE

Do not perform this operation if Abort/Recycle occurs that results in a 24 hour or longer Turnaround.

Operation Not Performed: _____

Manual Post Liftoff Safing

NOTE

Perform this option if GLS Post Liftoff Safing is not in progress.

Manual Post Liftoff Safing Not Performed: _____

17-1 CGLS NTD 232

GLS Post Liftoff Safing is not in progress.

17-2 NTD OTC 232
 TBC

GLS Post Liftoff Safing is not in progress.

Notify systems and perform Manual Post Liftoff Safing.

17-3 OTC CEPD 212
 CECL
 CMPS
 CGSS
TBC CLOX 136
 CLHY

GLS Post Liftoff Safing is not in progress.

Perform Manual Post Liftoff Safing.

***** End of Manual Post Liftoff Safing *****

NOTE

The next step requires 2 OC TCBs for execution. The step is armed (YELLOW) after GLS verifies umbilical disconnect.

17-7
T+00M20S

LPS

CONSOLE KYBD
CURSOR CNTL (AWP01 PG-B) TO
I DA LDBA & UPLK TARGET -
XMIT CURSOR KEY - PRESS

17-8

LPS CLDB 127

Terminate recording on LDBMS.

17-9
T+00M30S

LPS C4MC 127

[SU72930](#)

AWP01 (PG-B) **SELECT** A RS TARGET,
XMIT CURSOR

17-10

JRPS

Perform the following:

1. **Disconnect** OI hardline data from KMTS A link and patch 192KB JSC OD data.
2. **Switch** KMTS B 0505A1 (A7, A8, A9) to Source 2 (Manual Mode, Source 2, 60KB).
3. **Maintain** recording and monitor of KFRL U/L command verify until AOA option has expired.

17-11 LPS

Verify JSC OD signal presence on OIA/S, GPCA/S, PLDA/S FEP scopes, Source 3.

17-12 LPS C4MC 127 [SU72932](#)

AWP01 (PG-B), **SELECT** SWITCH PCM FEPS TO S3 TRANSMIT CURSOR.

17-13 LPS C4SE 127

Switch VSB FEP to Source 3, High Rate.

Verify FR LED is On.

RTLS Notification

NOTE

Perform this option in event of an RTLS.

RTLS Notification Not Performed: _____

17-14 LSO LRD LF1 [SU72927](#)

RTLS has been called.

Stand by for Orbiter Landing at KSC.

17-15 LRD ALL 212

Attention all personnel: an RTLS has been called and the Orbiter is returning for a Landing at KSC.

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17-16	LRD	NTD	232
		SRO	
	LRD	NCC	CCN
		*JTF	135
		*DCD	
		*MIL	
		EMS	
		STM	
		*SLF	
		*SCC	
		ROC	NET 205

This is an RTLS Abort.

Prepare for an Orbiter Landing at KSC on Runway _____ (15 or 33).

17-17 *SCC ALL NET 205

Maintain radio silence on Net 205.

Contact *SCC on Net 105.

Monitor both 105 and 205 Nets.

***** End of RTLS Notification *****

CCC Sound Suppression and Firex Transfer Verification

17-18
T+00M44S

JBWC

SU72972

Verify transfer action complete (Screen P2A or P2B)

Support: CWSS

Indicator	State
Fx CCC Enable	On
Fx FR - Off/CCC - On	On
Fx FR Enable	Off
Fx FR - On/CCC - Off	Off
SS CCC Enable	On
SS FR - Off/CCC - On	On
SS FR Enable	Off
SS FR - On/CCC - Off	Off

17-19
T+01M00S

JBFX

Issue Close All Command (Screen LFA/LFB) to terminate MLP Side 1 Launch cooling spray and FSS Launch cooling sprays.

17-20

JBFX

Record Launch Pad wind speed and direction using OTV switcher input source 189.

Speed _____

Direction _____

Support: CWSS

***** End of CCC Sound Suppression and Firex Transfer Verification *****

Launch Pad Washdowns Initiation

NOTE

Performance of next step must be completed prior to washdowns of LH₂/GH₂ areas.

17-21	JBFX	STM	111
	STM	JSTC	
	JSTC	JFIR	114

IF washdowns are to be performed on LH₂/GH₂ areas,

THEN activate waterflow switches to bypass. **Report** completion.

Support: [FIRE](#)

Not Performed: _____

NOTE

One Pad structural cycle (all sequences of Automatic Washdown System) requires 40 minutes at Pad A.

Do not perform any Washdown Water Flow that has been determined to cause an environmental impact. Wind speed and direction, rainfall prior to Launch, and ground water saturation will be considered (ref Figure 13-9 - Allowable Wind Conditions for Pad LH₂ and GH₂ Washdowns).

NOTE

Sequential order and run times for the following substeps are nominal and may be adjusted as necessary by Test Team to meet operational/area access considerations.

17-22
T+01M00S

JBFX

SU72973

Perform Launch Pad Washdown according to following sequence of water flows:

Support: CWSS

1. **Perform** Pad structure per [Doc: JOB PLAN M3190.260 \(LI\) Remote Washdown Flow Pad A - CCS Control Launch Countdown](#) (normally one cycle)
2. **IF** no environmental impact,

THEN perform LH₂ Storage Facility per [Doc: JOB PLAN M3190.270 \(LI\) Post Launch LH2 Washdown Water Flow - Launch Pad Support](#) (one 5-minute run)

Not Performed: _____
SS2

3. IF no environmental impact,

THEN perform GH₂ Storage Facility Doc: JOB PLAN
M3190.280 (LI) Post Launch GH₂ Washdown Water Flow - Launch
Pad Support (one 5-minute run)

Not Performed: _____
SS3

17-23	JBFX	STM	111
	STM	JSTC	
	JSTC	JFIR	114

Washdowns of LH₂/GH₂ areas are complete.
Deactivate waterflow switches from Bypass Mode.

Support: FIRE

17-24
T+01M00S

CGSS

SU72934

CURSOR CNTL (VAJ14)
HCU
PUMP 1 - OFF
PUMP 2 - OFF

NOTE

Momentary loss of downlist/downlink data will occur during MILA to PDL
switchover.

17-25
T+01M00S

***MIL**

SU72936

Handover uplink carrier to PDL.

17-26

***MIL**

IF valid PDL data is available,

THEN switch FM ME data (6TVM1729/6TVM4650) input to LCC from
MILA data to PDL data.

Not Performed: _____

Erroneous Fire Indicator Detection

NOTE

After night launches, broken stadium halogen lamp lenses cause false fire detector indications. Perform this option at Test Team direction.

Erroneous Fire Indicator Detection Not Performed: _____

17-27	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	
	STM	JYVO	138
		JBEP	111

Numerous fire indications occurring at Pad.

Have stadium lights secured temporarily.
(JYVO controls A, B & C. JBEP controls D & E)

Report completion.

Support: [OTV](#)
Support: [PWR](#)

17-28	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	
	STM	JYVO	138
		JBEP	111

Erroneous fire indications noted. Stadium lights may be reactivated.
(JYVO controls A, B & C. JBEP controls D & E)

Report when complete.

Support: [OTV](#)
Support: [PWR](#)

***** End of Erroneous Fire Indicator Detection *****

NOTE

Momentary loss of downlist/downlink data will occur during PDL to MILA switchover.

17-33
T+02M30S

***MIL**

[SU72942](#)

Receive uplink carrier handover from PDL.

17-34
T+03M00S

JYVR

[SU72976](#)

Stop video recording as follows:

Support: [OTV](#)

1. Digital Betacam recorders

Cameras 001, 102 (CS-1), 009, 141 (CS-2), 048 (CS-6), 049, 050, 051, 054, 055, 056, 060, 061, 063, 070, 071, TV-2, TV-4A, TV-5, TV-11, TV-21A, TV-7A, TV-13

2. S-VHS recorders

Cameras 002, 005, 006, 007, 008, 032, 043, 044, 058, 064, STI-RSS ROOF, STI-C/S2

3. Quvis Recorders

Cameras 576 and 577

OTV Scan - Pad/Launch Area

NOTE
OTV scans will take approximately 16 minutes to complete.

17-35

JYVO
JYVR

T+03M00S

Provide dedicated OTV support for *SCC OTV Scan assessment on OIS Channel 221 as follows:

View	Camera
1. Overview of Pad area from North to East to Southwest	001
2. Overview of Pad area from Southwest to West to North	071
3. Pad surface, West side	067
4. Pad surface, East side	060
5. MLP, Side 1	070
6. FSS and RSS	060
7. MLP, Zero Level	009

Switch above cameras to Monitors 183 and 202 (Firing Room 3) or 129 and 132 (Firing Room 4).

Video record inputs.

Support: [OTV](#)

Negative RTLS Announcement

NOTE
Perform this option if RTLS has not been declared.

Negative RTLS Announcement Not Performed: _____

17-42
T+04M30S

LSO LRD LF1

Negative RTLS.

17-43

LRD	NTD	232	SU72948
	SRO		SU72925
NTD	*SCC		
	STM		
LRD	*SLF	135	
	NCC	CCN	
*SCC	*PSE	NET 105	
STM	FSTM	111	
	JSTC		
	GYCC		
JSTC	FSTC	NET 104	
GYCC	JPHO	117	

T+04M30S

RTLS is no longer an option. RTLS air space released. Personnel released to support Pad safing/inspection operations.

Support: [JSTC](#)
Support: [PHOT](#)
Support: [SLF](#)

17-44

LRD *DCD 135
***JTF**

DOD support less Bravo Alert Aircraft no longer required.

***** End of Negative RTLS Announcement *****

17-52 *SCC *PSE NET 105

EOD personnel may be released at this time.

17-53 STM JSTC 111

Open East and West MLP Park sites for controlled work.
Report completion.

17-54 *SCC ALL NET 205

IF RTLS has not been declared,

THEN Radio Net 205 no longer required for RTLS.

Not Performed: _____

17-55 NTD CBSE 232

CBSE personnel may be released at this time.

17-56 *SCC NTD 232 [SU72949](#)
NTD STM

SRM acid cloud formation _____ (will/will not) affect LC-39 facilities.

17-57 STM ALL PA

IF the SRM acid cloud formation will affect LC-39 facilities

THEN announce the following:

_____ (light patch, moderate, heavy) residue deposition is expected to occur in the LC-39 area, approximately _____ minutes following Launch. The deposition is mildly irritating to the skin and contact should be avoided. Due to the acidic nature of the residue, if you observe it on your vehicle, it should be washed off as soon as possible.

Not Performed: _____

17-62

CLOX

Completion of ET LO₂ Tanking from LO₂/MPS preliminaries through T-10 seconds satisfies the noted OMRS requirements. Details of LO₂ Tanking are specified in OMI S1003.

- OMRSR S00FB0.090-A-1
- OMRSR S00FB0.300-1
- OMRSR S00FB0.310-1
- OMRSR S00FB0.320-1
- OMRSR S00FB0.340-1
- OMRSR S00FC0.080-1
- OMRSR S00FC0.100-1
- OMRSR S00FC0.110
- OMRSR S00FC0.120-1
- OMRSR S00FD0.062-1
- OMRSR S00FD0.073-1
- OMRSR S00FD0.091
- OMRSR S00FD0.094-1
- OMRSR S00FD0.095-A
- OMRSR S00FD0.121-A-1R
- OMRSR S00FF0.101-1
- OMRSR S00FF0.145-1
- OMRSR S00FM0.043-1
- OMRSR S00FM0.050-1
- OMRSR S00FM0.060-1
- OMRSR S00FM0.321-1
- OMRSR S00FM0.330
- OMRSR S00FM0.342-1
- OMRSR S00FM0.440-1
- OMRSR S00FS0.120-1

17-63

CLOX	TBC	136
TBC	CPWR	

Verify 22D100, 23D100 and backup battery power supplies are supporting.

17-64 CLHY

Completion of ET LH₂ Terminal Count operations satisfies the noted OMRS requirements. Details of LH₂ tanking are specified in OMI S1004.

- OMRSR S00FM0.380-1
- OMRSR S00FM0.390
- OMRSR S00FM0.400-1
- OMRSR S00FM0.450-1
- OMRSR S00FS0.110-1

17-65 NTD LD 232
CSPE

Identify any issues or anomalies that may require configuration preservation for investigation or analysis.

17-66 NTD OTC 232
TBC
STM
*SCC
LPS
OTC *PAD 132
*SCC *PSE NET 105

IF required to preserve system configuration for investigation,
THEN the following areas will be secured for anomaly investigation:

Identify any tasks that are scheduled to be accomplished in secured areas during Post-Launch Re-Entry or Securing.

Not Performed: _____

17-67 NTD *SEC 232

Allow Inspection and Safing Team Convoy to proceed through Launch Danger Area Roadblock AB-11 and stage at Roadblock AB-10.

Support: [SEC](#)

17-68 NTD *SCC 232
 *SCC *PSE NET 105

T+05M00S

Verify inspection and safing team personnel have been briefed on hazards that will be present and applicable emergency instructions (OMI S0007.600).

Verify all personnel are certified, equipped and ready to proceed.

17-69 STM JCFM 111

Stop GMS-II Launch data recording.
Stop CDAS Launch Data recording.

Support: [GIFM](#)

NOTE

All personnel in the Post Launch Inspection and Safing teams shall wear the following acidic deposit protection gear and shall not remove without the concurrence of SPOC Safety:

- Coveralls (blue collar/flame retardant)
- Hardhats
- An Emergency Life Support Apparatus (ELSA) shall be carried by each member of the inspection team. ELSAs will be worn as directed by Environmental Health/SPOC Safety
- ELSAs shall be worn by the Safing/Securing teams if hydrochloric gas is detected. If an area is contaminated with HCL, only work required to Safe and Secure an area will be performed.
- Rain suits are available at Pad gate and shall be worn if required for Pad entry by SPOC Safety.

17-70	NTD	*SCC	232
		OTC	
		TBC	
		STM	
	*SCC	*PSE	NET 105
	OTC	*PAD	132

Verify Inspection and Safing Teams ready to proceed to Blast Danger Area roadblock.

Support: [WSSA](#)

Safety Inspection Team (Placards Only)

SF (*PSE)	6	SPOC Safety: 2 at Pad Gate 4 Inspection Team
SF (NASA)	3	NASA Safety
NPSC	7	Security: 3 Pad Gate 4 BDA Roadblocks
VT	1	Site Manager (at Pad Gate)
GSS	2	Electrical Engineer/Technician
MESC	7	Environmental Health: 2 at Pad Gate 5 Inspection Team
ET	2	LO ₂ /LH ₂
GSS	3	2 Engineer/MECH (GO ₂ /GH ₂ & Water)
GSS	3	2 Engineer/MECH (Pneu & Water)
NPSC	9	Fire/Combat (at Pad Gate)
ORB	1	Pad Ops Engineer (GSE): Bldg J8-2009 (Pad A Only)
ORB	2	Engineer/Technician

Inspection Teams

NOTE

Inspection Teams shall be formed into 4 groups as indicated below.

Team 1 - East Perimeter	
1	SPOC-SF
1	EH
1	ET LH ₂
2	GSS
1	Facility Water

Team 2 - West Perimeter	
1	SPOC-SF
1	EH
1	LOX Engineer
1	Hyper Tech

Team 3 - West Pad Surface/FSS	
1	SPOC-SF
1	Facility Elect Engineer
1	EH
2	GSS
1	Orbiter
1	Facility Water

Team 4 - East Pad Surface/RSS	
1	SPOC-SF
1	EH
1	Orbiter GSE Tech

Safing Team

ET (4+3)	7	LO ₂ (Includes 1 - *PSE)
ET (7+6)	13	LH ₂ (Includes 2 - *PSE)
GSS	4	GH ₂ /GO ₂
SPOC-SF	1	GH ₂ /GO ₂
GSS	1	GH ₂ /GO ₂
EH	1	PTCR Depress
GSS	3	PTCR Depress
ORB	1	PTCR Depress (ECS GN ₂ Valves)
SPOC-SF	1	PTCR Depress
GSS	1	PTCR/MLP Depress
GSS	8	MLP Depress (Floor Panel Replacement)
SPOC-SF	1	MLP Depress
EH	1	MLP Depress
GSS	1	GSS Facility Site Coordinator
GSS	2	Mobile Supply (Rain suits, etc) (*Remain outside Pad Gate)
ISC	1	L/S Van (ELSAs/SCBAs) (*Remain outside Pad Gate)
ET	7	Ordnance Removal
ORB	10	Ordnance Removal
GSS	16	Handrail Installation
GSS	5	(H/E) Handrail Transport and Installation
GSS	1	Handrail Installation
GSS		Slidewire Secure (Included in MLP Depress)
GSS	3	Special Power Technicians and Engineer to reset MLP ODMS
GSS	2	Low Voltage Electrician and Engineer for Electrical System Safing
ISC	2	Reset/Secure PTCR/MLP fire alarms
NPSC	3	Pad Gate Contingency (Sec)
ISC	4	Electrical System Safing
EH	2	HCL Monitors
GSS	4	Elev
GSS	1	Elev
SPOC	1	(PSHL) GSE Technician
	1	(PSHD) GSE Technician
	1	(PSOM) GSE Technician
	1	(PSOD) GSE Technician

Post Launch Engineering Walkdown and Debris Collection Team

3	NASA *ICE Engr
2	SPOC ETM Engr
2	Boeing LSS
2	SPOC Quality
2	SPOC Safety
2	SPOC Operations
1	Pad Mgmt Rep
1	SRB
1	Thiokol LSS

17-71
T+08M00S

LRD *DCD 135

IF TAL Landing has not been declared,

THEN Bravo Alert Aircraft supporting RRT deployment to TAL site no longer required.

Not Performed: _____

17-72

LRD *DCD 135

IF TAL Landing is declared,

THEN request Bravo Alert Aircraft for RRT deployment to _____ (TAL site).

Not Performed: _____

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17-73	LRD	STM	135
	STM	JSTC	111
	JSTC	GSHE	NET 201
		WGSA	

IF TAL Landing is declared,

THEN request bus and flatbed trailer to transport RRT personnel and luggage to SLF.

Support: [HEQ](#)
Support: [WRCK](#)

Not Performed: _____

17-74
T+08M00S

CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

SET NUPONORBIT ON
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

17-75

CGLS

CONSOLE KYBD
HOME CMD KEY - PRESS

SET N03IS080E OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

Landing COMM Circuits to DFRC/WSSH

NOTE

Perform this option if RTLS has not occurred or a decision has not been announced for a TAL.

Landing COMM Circuits to DFRC/WSSH Not Performed: _____

NOTE

Perform the next step if:

1. Alternate Landing Site Convoy Commander Net is activated, and
2. Either DFRC or WSSH is designated prime AOA Landing site for this mission.

17-79	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

Reconfigure 2RAM131 (9131) Alternate Commander Net from _____ (DFRC {GKSC-61803}/WSSH {GKSC-62110}) to KSC.

Support: [VCE](#)

Not Performed: _____

NOTE

Perform the next three steps if DFRC is designated prime AOA landing site for this mission.

17-80	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

T+10M00S

Perform the following:

1. **Deactivate/Block** KSC Cooling, Convoy, Purge Talk groups to OIS-D Audio and Keying.
2. **Activate** DFRC Cooling Net (GKSC-61703) T/R to KSC Cooling Net (9038), on OIS-D only.
3. **Activate** DFRC Convoy Commander (GKSC-61803) to KSC Convoy Commander Net (9031) on OIS-D only.
4. **Activate** DFRC Purge Net (GKSC-61702) to KSC Purge Net (9033) on OIS-D only.
5. **Verify** OIS Channel 135 to DFRC.
6. **Verify** OIS Channel 161 to DFRC.

Support: [VCE](#)

Not Performed: _____

17-81	GYCC	GYCJ	117
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Perform voice checks on OIS Channels and radio nets configured for DFRC landing.

Support: [VCE](#)

Not Performed: _____

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17-82	GYCJ	GYCC	117
	GYCC	STM	111
	STM	LRD	135

COMM circuits configured and voice checked for DFRC Landing.

Support: [VCE](#)

Not Performed: _____

NOTE

Perform next three steps if WSSH is designated prime AOA Landing site for this mission.

17-83	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

T+10M00S

Perform the following:

1. **Deactivate/Block** KSC Convoy Commander Talk Group.
2. **Activate** WSSH Prime Convoy Commander Net (GKSC-62110) T/R to KSC Convoy Commander Net (9031) on OIS-D only.

Support: [VCE](#)

Not Performed: _____

17-84 GYCC GYCJ 117

Perform voice checks on Convoy Commander Net and Purge Net configured for WSSH Landing.

Support: [VCE](#)

Not Performed: _____

17-85 GYCJ GYCC 117
 GYCC STM 111
 STM LRD 135

COMM circuits configured and voice checked for WSSH Landing.

Support: [VCE](#)

Not Performed: _____

***** End of Landing COMM Circuits to DFRC/WSSH *****

NOTE

*SCC will determine if acid cloud is projected to impact Non-Launch Pad.

17-86 NTD *SCC 232 [SU72924](#)
 *SCC *PSE NET 105

Assess if SRM acid cloud is projected to impact Non-Launch Pad.

17-87 *SCC NTD 232 [SU72961](#)

SRM acid cloud _____ (is/is not) projected to impact Non-Launch Pad.

Inspection and Safing Teams to Pad Gate

17-88
T+10M00S

NTD *SEC 232

Allow Inspection and Safing Team Convoy to proceed through Roadblock AB-10.

Support: SEC

17-89

NTD JFIR 232

Send two Fire/Rescue Teams and Command Officer from Roadblock AB-11 to Launch Pad A gate with Safety escorted convoy.

Establish base just inside Pad gate.

Perform COMM check with NTD and *PSE on Net 105.

Stand by to support Pad Entry Operations.

Support: FIRE

No Acid Cloud Impact

NOTE

Perform this option if SRM acid cloud is not projected to impact Non-Launch Pad.

No Acid Cloud Impact Not Performed: _____

17-90	NTD	OTC	232	SU72926
		TBC		SU72929
		STM		
		*SCC		
	*SCC	*PSE	NET 105	

T+10M00S

Inspection and Safing Teams proceed to Launch Pad BDA Roadblock A-5 (Pad A) or Roadblock A/B-4 (Pad-B) with Safety-escorted convoy. SPOC Safety and Environmental Health proceed to Pad gate and perform acid and hyper TVCs.

17-91	*PSE	*SCC	NET 105	SU72931
	*SCC	NTD	232	

Pad gate acid and hyper TVCs are complete and are:

17-92	NTD	*SCC	232	SU72933
		*SEC		
	*SCC	*PSE	NET 105	

Inspection and Safing Teams proceed to Pad gate and prepare for Pad Securing.

Support: [SEC](#)

***** End of No Acid Cloud Impact *****

Acid Cloud Impact

NOTE
Perform this option if SRM acid cloud is projected to impact Non-Launch Pad.

Acid Cloud Impact Not Performed: _____

NOTE
Inspection and Safing Team Convoy will include Safety and Security vehicles to support environmental assessment at the Non-Launch Pad. These vehicles will split from the convoy at the Roadblock A-5 and proceed to the Non-Launch Pad. SPOC Safety and Environmental Health will perform TVCs at both the Launch and Non-Launch Pads in parallel.

17-93	NTD	OTC	232	SU72963
		TBC		SU72965
		STM		SU72960
		*SCC		
	*SCC	*PSE	NET 105	
	OTC	*PAD	NET 110	

T+10M00S

Inspection and Safing Teams proceed to Launch Pad BDA Roadblock A-5 (Pad A) or Roadblock A/B-4 (Pad B) with Safety-escorted convoy. SPOC Safety and Environmental Health will proceed to Pad A and B gates and perform acid and hyper TVCs.

17-94	*PSE	*SCC	NET 105
	*SCC	NTD	232

Launch Pad gate acid and hyper TVCs are complete and are:

NOTE

Performance of next step must be completed prior to washdowns of Non-Launch Pad LH₂/GH₂ areas.

17-97	JBFX	STM	111
	STM	JSTC	
	JSTC	JFIR	114

IF washdowns are to be performed on Non-Launch Pad LH₂/GH₂ areas,
THEN activate waterflow switches to bypass. **Report** completion.

Support: [FIRE](#)

Not Performed: _____

NOTE

Do not perform any Washdown Water Flow that has been determined to cause an environmental impact. Wind speed and direction, rainfall prior to Launch, and ground water saturation will be considered (ref Figure 13-9 - Allowable Wind Conditions for Pad LH₂ and GH₂ Washdowns).

17-98	NTD	STM	232	SU72962
	STM	JBFX	111	

Proceed with following Non-Launch Pad Storage Area Washdowns :

- IF** determined not to have an environmental impact,
THEN perform LH₂ area per [Doc: JOB PLAN M3190.290 \(LI\) Post Launch LH2 Washdown Water Flows - Non-Launch Pad Support](#)

Not Performed: _____
SS1

2. IF determined not to have an environmental impact,

THEN perform GH₂ area per [Doc: JOB PLAN M3190.300 \(LI\) Post Launch GH₂ Washdown Water Flows - Non-Launch Pad Support](#)

Not Performed: _____
SS2

Support: [FIRE](#)
Support: [CWSS](#)

17-99	JBFX	STM	111
	STM	JSTC	
	JSTC	JFIR	114

Washdowns of Non-Launch Pad LH₂/GH₂ areas are complete.
Deactivate waterflow switches from Bypass Mode.

Support: [FIRE](#)

17-100	*PSE	*SCC	NET 105	SU72967
	*SCC	NTD	232	SU72965

Non-Launch Pad Acid and hyper TVCs are complete and are:

***** End of Acid Cloud Impact *****

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17-101	*SCC	NTD	232	SU72977
	NTD	STM		
	STM	JSTC	111	
	JSTC	JFIR	114	

Release Pad Rescue (armored vehicle) Team at A-5 or Roadblock
Barricade 49 after Inspection and Safing Team has arrived at appropriate
roadblock.

Support: [FIRE](#)

17-102 T+10M30S	LPS	CPDR	127
	IF RTLS has not been declared, THEN force PDR tape switch, perform #INRC T(X)		

Not Performed: _____

17-103	LPS	CPDR	127
Perform \$\$\$POOL RESET ASSIGN RP.			

17-104 T+15M00S	SRO	NTD	232
Post-Launch indicates no apparent Launch impact limit line anomalies.			

GNC/EFC LCD EMON Deactivation

17-105 **COFC**

APPL PG (SWB01 PG-A)
PFK13 KEY PRESS (ACT EMON SETUP)

17-106 **COFC**

CURSOR CNTL (SWB01 PG-A)
(ON ITEMS BELOW)
XMIT CURSOR KEY - PRESS

1. I - IMU PWR UP
2. I - IMU OPERATE
3. I - OMS TVC
4. I - SRB TVC
5. I - RJD DRIVER
6. I - SRB RGA
7. I - CIRC PUMPS
8. I - NON PREREQUISITE

17-107 **COFC**

APPL PG (SWB01 PG-A)
PFK13 KEY - PRESS (DE-ACT EMON SETUP)

***** End of GNC/EFC LCD EMON Deactivation *****

17-108 **OTC** **CECL** **132**

Verify S70-1203 system and refrigeration units powered down or identify support required to power them down.

17-109 **CLHY** **TBC** **136**
TBC **NTD** **232**

OTV SCAN of LH₂ Storage Area, Cross-country lines, MLP and FSS complete.
Report status.

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17-110 TBC JYVR 138

Stop video recordings of OTV cameras for Cryo Loading (OMIs S1003 and S1004):

Cameras:

003, 010, 011, 019, 030, 031, 034, 038, 039, 040, 046, 047, 052, 053, 072

Support: [OTV](#)

17-111 *SCC NTD 232
 *SCC *PSE NET 105

T+19M00S

OTV Scan of Pad and Launch areas verified complete.

Report status.

17-112 NTD STM 232 [SU72946](#)
 STM JYVO 138
 JYVR
 JBFX 111

T+19M00S

OTV Scan of Pad and Launch areas complete.

Switch above cameras to Monitors 183 and 202 (Firing Room 3), or 129 and 132 (Firing Room 4).

Support: [OTV](#)
Support: [CWSS](#)

17-113 STM GYCC 111 SU72978
 GYCC JYCD 117

Activate OIS-D to Pad A.

Support: OISD

17-114 GYCC STM 111
 STM NTD 232

Pad A OIS-D activated.

Support: COMM

Payload Console Software Termination

NOTE

Perform this option if payload console software termination is required.

Payload Console Software Termination Not Performed: _____

17-115 PTC DLES 144
 DLES DSWF

Terminate GOAL programs that were required to support testing.

17-116 DLES DCOI 144

C1 Console

Terminate all DMONs.

17-117 DSWF DLES 144
 DLES PTC

Payload Console Software Termination complete.

***** End of Payload Console Software Termination *****

Establish Blast Danger Area (BDA) Roadblocks

NOTE

BDA roadblocks shall be established after completion of acid and hyper TVCs at applicable Pad(s).

17-118 NTD *SEC 232 [SU72935](#)
 *SCC [SU72981](#)
 *SEC JSTC 114 [SU72966](#)

Establish BDA Roadblocks A-1, B-1, A-3, Barricade 49, A-5, A-6 (Pad A Launch).

Drop Roadblocks A/B-11 and A/B-15 when BDA roadblocks established.

Open areas outside BDA for normal work.

Turn off amber lights at AB-11.

Remove POV signs.

Support: [SEC](#)

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17-119	NTD	STM	232
		LPS	
	STM	JSTC	111
		JCFM	
		GYCC	
		PSTM	NET 104
	JSTC	JSAC	114
		GSPN	
		GSPS	
		JSWC	
		*SEC	
		JSEP	
		GSFA	
		WGSA	
		WCRG	NET 201
		GSHE	NET 104
	GYCC	JYCD	PTP
		JYVO	
		GYAT	

Personnel supporting OMI S0007.100, Operation 151 - Fallback
Configuration, are released.

Support: [ELEC](#)
Support: [AC](#)
Support: [PNU](#)
Support: [PN](#)
Support: [FA](#)
Support: [WW](#)
Support: [SEC](#)
Support: [RGR](#)
Support: [OISD](#)
Support: [OTV](#)
Support: [ATEL](#)
Support: [GIFM](#)
Support: [LOG](#)

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17-120	NTD	STM	232
	STM	JSTC	111
		PTSM	NET 104
	JSTC	JSEP	114
		GSFA	
		*SCB	NET 104
		PMEH	

Personnel supporting Red Crew for Support Operations are released.

Support: [EH](#)
Support: [JSTC](#)
Support: [ELEC](#)
Support: [LS](#)
Support: [FA](#)

EPDC Post-Launch Securing

17-121	OTC	CEPD	132
--------	-----	------	-----

Perform Post-Launch Securing per OMI S0007.400 (Operation 59).

NOTE

The next step lists results of resistance tests (Go indications) and verifies the following:

- T-0 command is reset.
- All ground PIC cap voltages are less than 1.5 VDC.
- Ground PIC racks are powered down.

17-122	CEPD	OTC	132	SU72937
	OTC	NTD	232	SU72954
	NTD	*SCC		
		TBC		

Ground PIC Resistance Test (OMI S0007.400, Operation 59) for ETVAS, TSM and H₂ Burn verified complete and results are as follows (record any resistance test "G" indications from Operation 59):

17-123	CEPD	OTC	132	SU72955
	OTC	NTD	232	
	NTD	*SCC		

Post-Launch Securing (OMI S0007.400, Operation 59 - Ground Power Shutdown) complete.

***** End of EPDC Post Launch Securing *****

NOTE Delay the next step until Post-Launch VIP Speech is complete.
--

17-124	NTD	STM	232
	STM	GYCC	111
	GYCC	JYCD	117

T+20M00S

Enable external paging to active and backup firing rooms for OMI S0007.

Report completion.

Support: [OISD](#)

17-125	*SEC	NTD	232
--------	-------------	------------	------------

[SU72982](#)
[SU72983](#)
[SU72980](#)

BDA roadblocks established. Launch Danger Area (LDA) roadblocks dropped. Areas outside BDA open for controlled work.

Verify Personnel Status

17-126	*SCC	NTD	232
	NTD	STM	
	STM	JSTC	111
		GYCC	
	JSTC	JFIR	114
		*SEC	
		GSPN	
	GYCC	WYVF	PTP
	JPHO	117	

T+22M00S

Verify status of all personnel located within Impact Limit Lines and Launch Danger Area.

Support: [PHOT](#)
Support: [JSTC](#)
Support: [OTV](#)
Support: [FIRE](#)
Support: [SEC](#)
Support: [PNU](#)

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17-127 JSTC STM 111
 STM NTD 232

All ISC, Security, and Fire Service personnel within Launch Danger Area are safe.

Support: JSTC

17-128 WYVF GYCC PTP
 JPHO 117
 GYCC STM 111
 STM NTD 232

Television camera operators and photo personnel within Launch Danger Area are safe.

Support: OTV
Support: PHOT

17-129 NTD *SCC 232
T+22M00S

All personnel located within Impact Limit Lines and Launch Danger Area are safe.

*** End of Verify Personnel Status ***

17-130 NTD SRO 232

SRO is released from Launch Support.

Maintain landing support posture if KSC is prime AOA until released by LRD.

Leak and Fire Sensor Systems Status

17-131 *SCC NTD 232 [SU72940](#)
 NTD OTC
 STM
 TBC

T+22M00S

Status LH₂ leak and fire sensors (MPS) (GH₂ facility).

17-132 STM JBPN 111

Status GH₂ facility leak and fire sensors (skeleton H2A for Pad A).

Support: [CPNS](#)

17-133 OTC CMPL 132

Report status of MPS leak and fire detectors.

17-134 TBC CLHY 136

Report status of LH₂ leak and fire detectors.

NOTE

Numerous fire indications following a Launch with stadium lights on could be the result of broken UV filters. This can be verified by STM cycling the stadium lights Off, then On.

17-135 JBPN STM 111
 STM NTD 232

GH₂ facility leak and fire detectors show no problem (or state actual status).

Support: [CPNS](#)

ET Mechanical Securing

CAUTION

Loss of 28 VDC power (23D100 Bus) will cause GVA to unlatch, extend and flow low pressure GN₂ to GOX Vent Hood.

NOTE

Programs will be reperformed and GVA Post-Launch Securing accomplished per OMI S2005.

17-140 TBC CMEC 136 [SU72956](#)

Perform Post-Launch Program Termination per OMI [G2158](#)

17-141 CMEC TBC 136

Post-Launch Program Termination complete.

17-142 CMEC TBC 136
 TBC OTC 132
 CEPD
 *PAD

Verify 23D100 power supply will remain activated until GOX Vent Arm Post Launch Securing is complete.

***** End of ET Mechanical Securing *****

Sound Suppression Control Transfer

NOTE

Perform this option if sound suppression control did not transfer to CCC automatically.

Sound Suppression Control Transfer Not Performed: _____

17-143 **CGSS OTC 132**
 OTC NTD 232
 NTD STM
 STM JBWC 111

Ready to recycle sound suppression system control.

Request JBWC contact CGSS on OIS Channel 123.

Support: [CWSS](#)

17-144 **JBWC CGSS 123**

Ready for Sound Suppression Control Transfer from Firing Room to CCC.

Support: [CWSS](#)

17-145 **CGSS**

CURSOR CNTL (VAJ14)
CCC ENB - ON (TWICE)

CRT
VERIFY
CONTROL
CCC ON
FR OFF

17-146 **CGSS JBWC 123**
 OTC 132
 OTC NTD 232
 NTD STM

Sound Suppression System Control Transfer to CCC complete.

Support: [CWSS](#)

17-152 CGSS OTC 132

OAA and HCU Firing Room Securing complete.

***** End of OAA/HCU Firing Room Securing *****

SRSS GSE Powerdown

17-153 TBC CBRS 136 [SU72958](#)

Perform SRSS MLP GSE Powerdown.

17-154 CBRS

CURSOR CNTL (SWRB3)
BSR01 - XMIT CURSOR
POWER OFF SYSTEM A&B - XMIT CURSOR

17-155 CBRS

CURSOR CNTL (BWR10)
HOLDFIRE EMON INH
XMIT CURSOR KEY - PRESS

17-156 CBRS

CURSOR CNTL (SWRB3)
BSR01
XMIT CURSOR KEY - PRESS
POWER ON SYS A&B A PRIME
XMIT CURSOR KEY - PRESS

17-157

CBRS

CURSOR CNTL (SWRB3)
BSR01
XMIT CURSOR KEY PRESS
POWER OFF SYSTEM A&B
XMIT CURSOR KEY - PRESS

17-158

CBRS

CURSOR CNTL (SWRB2)
DCDR IND I
XMIT CURSOR KEY - PRESS
AGC VOLT I
XMIT CURSOR KEY - PRESS

17-159

CBRS

CURSOR CNTL (SWRB1)
EMON INH
XMIT CURSOR KEY - PRESS

17-160

CBRS TBC 136

SRSS GSE Powerdown complete.

***** End of SRSS GSE Powerdown *****

17-161

TBC CBRS 136

[SU72957](#)

Perform Range Safety Test Code Load per OMI [S5018](#) .

17-162

CTIF TBC 136

GO₂ Vent Hood and ET TPS Ice/Frost and Debris Monitoring complete
(OMI S6444.002).

OMRSR [S00FB0.005-1](#)
OMRSR [S00FB0.350-1](#)

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17-163
T+25M00S

CLOX TBC 136

LO₂ Transfer Line Purge has been initiated.

17-164

CLHY TBC 136

LH₂ Transfer Line Purge has been initiated.

17-165

TBC NTD 232
NTD *SCC
***SCC *PSE NET 105**

[SU72952](#)

LO₂ and LH₂ Transfer Line Purges have been initiated.

17-166

CPVD OTC 132
***PAD**
OTC NTD 232
NTD *SCC
***SCC *PSE NET 105**

[SU72943](#)

OMI V1122.203, Operation 50 - GN₂ to Air Changeover, Option B - Post Launch Operations complete. Awaiting ECS personnel to enter ECS Room.

Launch Pad LH₂/GH₂ Washdown Operations - Complete

17-167	JBFX	STM	111	SU72A42
	STM	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	221	

IF Launch Pad washdowns were required,

THEN report Launch Pad LH₂/GH₂ Storage Areas washdown flows complete.

Support: [CWSS](#)

Not Performed: _____

17-168	NTD	LPS	232
--------	------------	------------	------------

Inhibit processing for FDs V67V0100A1 and V67V0200A1, and keep them inhibited for duration of mission (I PR V67V0_00A1).

17-169	*PSE	*SCC	NET 105	SU72933
	*SCC	NTD	232	

T+25M00S

Inspection and Safing Teams at Pad gate.

17-170	NTD	STM	232
	STM	JYVO	138
		JYVR	

T+25M00S

Start video tracking and video record Safety Inspection Walkdown Team.

Position OTV cameras in sequence to track East Side Inspection Team.

Position OTV cameras in sequence to track West Side Inspection Team.

Support: [OTV](#)

17-171
T+25M00S

*SCC NTD 232

[SU72992](#)

Verify the following items before proceeding with inspection.

1. OTV Scan of Pad and Launch areas complete.

(ref Step No. _____)

2. Ground PIC Resistance Test completed and GND PIC racks powered down.

(ref Step No. _____)

3. Leak and Fire detector status checks complete.

(ref Step No. _____)

4. LO₂ residual purging and 30-minute LH₂ transfer line purges - initiated.

(ref Step No. _____)

5. GN₂ to Air Changeover complete.

(ref Step No. _____)

17-172

NTD *SCC 232
*SCC *PSE NET 105

The five items listed in previous step have been completed.

Proceed with Pad inspection.

3. West side facilities
 - A. Hyper fuel Storage Area (toxic vapor checks)
 - B. LO₂ Storage Area (O₂ visual leak checks)
 - C. LO₂ Storage Area:
Establish 150-ft radius control area and
Establish control area at bottom of E Road
 - D. Electrical sub-station (visual inspection)
 - E. Pad tunnel area (verify) TVCs
 - F. PTCR/ECS room
4. Pad surface areas
 - A. East and west sides of flame trench
 - B. MLP Side 1 inspection (inspection will be performed from Pad surface) visual
 - C. **Post** ropes/signs to close off E Road north of Pad surface

17-174 STM JBAC 111

Verify the following:

Pad A Operations and Logistics buildings HVAC system are configured for normal operations per [Doc: JOB PLAN M3034.19 \(LI\) Pad Ops Bldg and Logistics Bldg Configure for Normal Ops](#)

Support: [HVAA](#)

ET/SRB CPWR Securing

17-175
T+25M00S

TBC CPWR 136

[SU72959](#)

Perform ET/SRB CPWR Securing.

17-176

CPWR

IF LED 6 READS "INH AUTO ET OPS".

THEN PERFORM:

PFP (TW495)
INH AUTO ET OPS - PRESS

VERIFY

LED 6 - ACT AUTO ET OPS

Not Performed: _____

17-177

CPWR

PFP (TW495)
HTR MOD P-DN - PRESS
EXEC HTR MOD P-DN - PRESS

CRT (TD490)

VERIFY

23D120 BUS OFF
23D120X BUS OFF

17-178
T+25M00S

CPWR

CONSOLE KYBD (TW495)
PFK15 KEY - PRESS

17-179
T+25M00S

CPWR

CONSOLE KYBD (BWE08)
PFK15 KEY - PRESS

17-180
T+25M00S

CPWR

CONSOLE KYBD (BWE11)
PFK15 KEY - PRESS

17-181

CPWR

IF BWE11 DID NOT TERMINATE IN PREVIOUS STEP DUE
TO HEATERS BEING ACTIVE,

THEN PERFORM:

CONSOLE KYBD (BWE11)
PFK15 KEY - PRESS

Not Performed: _____

17-182

CPWR TBC 136

ET/SRB CPWR Securing complete.

***** End of ET/SRB CPWR Securing *****

17-183

CBRS TBC 136

Range Safety Test Code Load per OMI S5018 complete.

GLS Securing

17-184

CGLS

CURSOR CNTL
PSEUDO INIT
XMIT CURSOR
ALL PSEUDOS AND DISK FILES
XMIT CURSOR

17-185

CGLS

IF PAGE B MESSAGE INDICATES "SEE PAGE A FOR
OPERATOR INPUT",

THEN PERFORM:

CONSOLE KYBD (SLP02 PG-B)
CRT

VERIFY PAGE A MSG:

(N03IS511E) CRYO SAFING ENABLED IS ON. THIS
INDICATES SCRUB/CRYO DRAIN IN PROGRESS.

CONSOLE KYBD (SLP02 PG-A)

ENTER "1" IF CRYO SAFING SUPPORT COMPLETED AND
SLP50 NOT ACTIVE TO INITIALIZE (N03IS511E) TO
OFF.

ENTER "2" TO LEAVE (N03IS511E) UNCHANGED

_____ (1 OR 2)
XMIT RESPONSE KEY - PRESS

CRT

VERIFY MSG INDICATING PSEUDO STATE

Not Performed: _____

17-186

CGLS

VERIFY ALL BLOCKS CYAN
TERMINATE
XMIT CURSOR

17-187 CGLS LPS 127

PFP (SLP50)
PFPK1 (TERMINATE) - PRESS
PFPK6 (EXEC TERM PROGRAM) - PRESS

VERIFY PROGRAM SLP50 HAS TERMINATED

17-188 CGLS

INTEGRATION SAFING PANEL
ENABLE SW - OFF

17-189 CGLS

CONSOLE KYBD (INTG)
HOME CMD KEY - PRESS
I SH
XMIT CMD KEY - PRESS

17-190 CGLS

CONSOLE KYBD (BKUP)
HOME CMD KEY - PRESS
I SH
XMIT CMD KEY - PRESS

17-191 CGLS

TERMINATE GLS SOFTWARE.

***** End of GLS Securing *****

SSME GSE Securing

17-192

CSME

SU72944

CURSOR CNTL (VAE38A PG-B)
MFV HTR DISPLAY
ALL HTR OFF - ISSUE
VERIFY ALL CMDS REMOVED

17-193

CSME

CURSOR CNTL (VAE38A PG-B)
GN₂ DISPLAY
PRI VENT - CLOSED (OPEN OVERRIDE OFF)
SEC VENT - CLOSED (OPEN OVERRIDE OFF)
CONT VALVE PRI - OPEN
CONT VALVE SEC - OPEN
PRI REG OUT - OPEN
SEC REG OUT - OPEN
VERIFY STABLE PRESSURE
CONT VALVE PRI - CLOSE
VERIFY GN₂ OUTLET PRESSURE DOES NOT INDICATE
EXCESSIVE LEAKAGE THROUGH T-0 QD PORT
PRI CONT VALVE - OPEN

VERIFY ALL CMDS REMOVED

17-194

CSME

CONSOLE KYBD (C3)

ADJUST SCR1 and SCR2 temperature set point and
drive current settings to minimum:

APPLY_GGNK1095A_4.0 (XMIT CMD) (EXEC CMD)
APPLY_GGNK1096A_0.0 (XMIT CMD) (EXEC CMD)
APPLY_GGNK1196A_0.0 (XMIT CMD) (EXEC CMD)
APPLY_GGNK1195A_4.0 (XMIT CMD) (EXEC CMD)

17-195

CSME

PFP (VAE38A)
PFP6 (TERMINATE) KEY - PRESS

***** End of SSME GSE Securing *****

MPS S72-0685-1 Safing (LPS)

17-196

CMPS

SU72945

CURSOR CNTL (VAE18B)

1. A74935/A74937 PRIMARY/SECONDARY REG SOV OPEN
CMD OVERRIDES - OFF
2. **VERIFY** A74935/A74937 PRIMARY/SECONDARY REG
SOV'S REMAIN CLOSED.
3. A74936 PRIMARY/SECONDARY GHE SOV CLOSE
COMMANDS - OFF
4. **VERIFY** A74936 GHE SOV OPENS.
5. **VERIFY** 4500 PANEL OUT PRESSURE INDICATES
AMBIENT.
6. A74989/A75026 PRIMARY/SECONDARY LINE VENT OPEN
COMMANDS - OFF
7. **VERIFY** A74989/A75026 PRIMARY/SECONDARY LINE
VENTS CLOSE.
8. **VERIFY** A74933/A74939 PRIMARY/SECONDARY REG
VENTS ARE CLOSED.

17-197

CMPS

CONSOLE KYBD (C4)
VAE35
PERF PGM KEY - PRESS

2
XMIT RESP KEY - PRESS

CRT
VERIFY VAE35 TERMINATES WITH NO ERROR MESSAGE

***** End of MPS S72-0685-1 Safing *****

2. IF RTLS or AOA to KSC has been announced,

THEN wire frames listed below are to remain in "closed access" mode.

- A. USB (MILA) - Frame 11
- B. BRRS - Frame 9
- C. CD&SC - Frames 1, 40 and WT
- D. LACB - Frames 66 and 74
- E. VABR - Frame 50
- F. TEL 4 - Frame 7
- G. SO REP - Frame 6
- H. LCC - Frames 51, 65, 65A
- I. DLTR#3 - FOT

Not Performed: _____
SS2

3. IF TAL or AOA to DFRC or WSSH has been announced,

THEN wire frames listed below are to remain in "closed access" mode.

- A. USB (MILA) - Frame 11
- B. BRRS - Frame 9
- C. CD&SC - Frames 1, 40 and WT
- D. VABR - Frame 50
- E. LCC - Frame 51, 65, 65A
- F. DLTR#3 - FOT

All other frames may be opened for normal work.

Not Performed: _____
SS3

17-199	LRD	NTD	232
		SRO	
	LRD	NCC	CCN
		*JTF	135
		*DCD	
		*MIL	
		EMS	
		*SLF	
		ROC	NET 205
	NTD	OTC	232
		STM	
		*SCC	
	*SCC	*PSE	NET 205

IF AOA is declared,

THEN announce: This is an AOA Abort.

Activate air space for an Orbiter Landing approximately 1 hour and 50 minutes from Launch time. Firing Room personnel should monitor Orbiter systems and stand by for an Orbiter Landing on Runway _____ (15 or 33).

Not Performed: _____

Contingency Operations Briefing Configuration

NOTE

Perform this option if Contingency Operations Briefing is required due to TAL, AOA (to DFRC or WSSH), ECAL (East Coast Abort Landing) or Mode VIII.

NOTE

Perform 30 minutes minimum after unscheduled landing.

Contingency Operations Briefing Configuration Not Performed: _____

17-200	LRD	*LSO	LF1
		GOM	

OIS Channel 135 and TAL Landing Field (for TAL landing only) will be reconfigured to OIS Channel 227 in support of contingency operations briefing.

17-201	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

Configure and verify circuits for contingency operations briefing as follows:

Support: [VCE](#)

1. **IF** for TAL, ECL or Mode VIII,

THEN configure TAL Landing Field circuit to GSFC to OIS Channel 227.

Not Performed: _____
SS1

2. **IF** for TAL, AOA (to DFRC or WSSH), ECAL or Mode VIII,

THEN configure OIS Channel 135 to GSFC and JSC to OIS Channel 227.

Not Performed: _____
SS2

17-202	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

Reconfigure TAL Landing Field (TAL Landing only) and OIS Channel 135 to normal Launch Configuration upon completion of contingency operations briefing.

Support: [VCE](#)

***** End of Contingency Operations Briefing Configuration *****

NOTE

Perform the next step based on SRM acid cloud formation and weather conditions.

17-203 ***SCC** **NTD** **232** [SU72A00](#)
 NTD **STM** [SU72A44](#)
 STM **VCMP** **111**

T+35M00S

VAB high bay and transfer aisle doors released to normal weather configuration.

Support: [CDPA](#)

17-204 **NTD** **STM** **232**
 STM **JSTC** **111**
 JSTC ***SEC** **114**

Reconfigure First and Fourth Floor VAB/LCC turnstiles to Normal Access.

Support: [SEC](#)

17-205 **EEC** **JYVR** **138**
T+40M00S

Stop video recording of OTV Camera 080 (see EEC Figure 13-1, (pages 1 thru 3)).

Support: [OTV](#)

17-206 ***PSE** ***SCC** **NET 105** [SU72998](#)
 ***SCC** **NTD** **232**

East and west Pad surface inspection complete. Inspection teams returning to Pad Gate. Top of E Road controlled.

17-207 ***PSE** ***SCC** **NET 105**
 ***SCC** **NTD** **232**

T+55M00S

MLP Side 1 visual inspection from Pad surface complete.

150 psig GN₂ Secure

17-208	CLHY	TBC	136
	TBC	NTD	232
	NTD	STM	

150 psig GN₂ for LH₂/LO₂ TSM purge panel no longer required.

17-209	STM	JSTC	111	SU72A25
	JSTC	GSPN	114	SU72A45

T+45M00S

150 psig GN₂ for LH₂/LO₂ TSM purge panel no longer required.

1. **Secure** control station per operation instructions of [Doc: M3703 \(LI\) Low-pressure Gaseous Nitrogen and High-pressure Gaseous Nitrogen Systems, Industrial Gas Supply Interface, Converter/Compressor](#) .
2. **Release** Pneumatic Personnel at CCF.
3. **Release** GN₂ production plant to normal support.

Support: [PNU](#)

***** End of 150 psig GN₂ Secure *****

17-210	CLHY	TBC	136
	TBC	CHGD	

CHGD support no longer required.

Perform systems securing.

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HAZ Gas Systems Securing

17-211 CHGD TBC 136 SU72A09

Perform RT OMI V3540 Operation - Terminal Count to implement
RLDS, HGDSA/B and HUMS securing.

Operation No. _____ Run No. _____

RT OMI Log No. _____

17-212 CHGD TBC 136
 TBC OTC 132

HAZ Gas Systems Securing complete.

***** End of HAZ Gas Systems Securing *****

KSC AOA Support Release

NOTE

Perform this option if KSC is the AOA site selection and AOA option has expired.

KSC AOA Support Release Not Performed: _____

17-213	LSO	LRD	LF1
	LRD	NCC	CCN
		SRO	135
		EMS	
		*SLF	
		STM	
		ROC	NET 205
	STM	FSTM	111
		GYCC	
		FMLS	
		JSTC	
	JSTC	JFIR	114
		*SEC	
		FSTC	NET 104
	GYCC	JPHO	117
	GYCJ		
	KFRL		

T+45M00S

AOA Landing Support is released. Potential for AOA air space controls no longer exist.

Support: [PHOT](#)
Support: [FIRE](#)
Support: [SEC](#)
Support: [SLF](#)
Support: [VCE](#)

17-214 OTC JRPS 132

Terminate recording and monitor of KFRL uplink command verify.

17-215 NTD STM 232
 STM GEMA 111

Terminate all Launch and Landing site RF surveillance.
RF surveillance support is released.

NAVAIDS and Visual Landing Aids Securing

NOTE

Perform this option if KSC is not first day PLS (Primary Landing Site).

NAVAIDS and Visual Landing Aids Securing Not Performed: _____

17-216 LRD *SLF 135

Verify STA no longer utilizing Orbiter NAVAIDS and Visual Landing Aids.

17-217 LRD STM 135

KSC SLF NAVAIDS and Visual Landing Aids are released from OMI S0007 support.

Support KSC Landing opportunities per the Mission Unique Orbit Opportunities Schedule.

17-218 STM FTAC 111
 FMLS

Secure MSBLS systems and return TACAN to normal operational status supporting SLF aircraft. (TACAN not required for OV-105)

Support KSC Landing opportunities per the Mission Unique Orbit Opportunities Schedule.

17-219 STM JBEP 111

Secure PAPI and Ball/Bar systems and backup generators supporting TACAN, PAPI and Ball/Bars. (TACAN not required for OV-105)

Support KSC Landing opportunities per the Mission Unique Orbit Opportunities Schedule.

Support: PWR
Support: PWRC
Support: PWRA

*** End of NAVAIDS and Visual Landing Aids Securing ***

*** End of KSC AOA Support Release ***

17-220 OTC CFCP 132 SU72A11
T+55M00S

Perform PRSD T-0 System Inerting per OMI V1040.230 on OIS Channel 153.

17-221 CFCP OTC 132
OTC NTD 232
NTD JRPS 132

Dewetron support for FCP Pump Motor Event and Neutrometer monitoring to C6/C10 no longer required. JRPS can terminate data recording and distribution.

17-222 *PSE *SCC NET 105 SU72994
*SCC NTD 232
NTD TBC
TBC CLOX 136

West perimeter inspection of Fuel Farm and LO₂ Storage Area complete. LO₂ Storage Area and bottom of E Road controls established. Ready to support LO₂ Safing Team entry.

LO₂ System Safing Initiation

17-223	CLOX	TBC	136	SU72A28
	TBC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	221	

LO₂ system ready for storage area safing teams to be cleared into LO₂ area. LO₂ Safing Crew is properly attired with clean non-static producing flame-retardant coveralls, non-porous footwear and SF-approved leather gloves.

Safing Crew consists of:

PLOX	PLO2
PLO4	PLO5
PLO6	*PSE
PLO7	PNLO

17-224	*PSE	*SCC	221
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLOX	136

Pad clear for LO₂ Safing Crew entry. Safing Crew personnel properly attired. You have Safety concurrence to enter Pad.

17-225	NTD	JFIR	232	SU72A46
		*SCC		

T+55M00S

Fire/Rescue proceed to LO₂ Storage Area for safing operations.

Support: [FIRE](#)

17-226	NTD	TBC	232
		STM	
	STM	JYVO	138
		JYVR	

T+55M00S

Position OTV cameras, in sequence, to track LO₂ Safing Crew during Pad safing and LO₂ Securing Crew during Pad securing.

Start video recording.

Support: [OTV](#)

17-227	CLOX	TBC	136
	TBC	NTD	232
	NTD	*SCC	

LO₂ Safing Crew at LO₂ Storage Area. Control areas have been established. Fire on site.

PLOX **perform** communication checks with Fire Support and *SCC on Radio Net 105/205.

Request Safety concurrence to proceed with LO₂ System Safing.

17-228	*SCC	NTD	232	SU72A22
	NTD	TBC		SU72A55
	TBC	CLOX	136	

You have Safety concurrence to proceed with LO₂ System Safing.

17-229 **JBFX** **STM** **111** [SU72A13](#)
 STM **NTD** **232**
 NTD ***SCC**
 ***SCC** ***PSE** **221**

Launch Pad Structure Automatic Washdown System Flows complete.

Support: [CWSS](#)

17-230 **JBFX** **STM** **111**
 STM **NTD** **232**

IF Non-Launch Pad washdowns were performed,

THEN report Non-Launch Pad Storage Area Washdowns complete.

Support: [CWSS](#)

Not Performed: _____

NOTE

Delay next step until all washdown water flows are complete.

17-231 **STM** **JBFX** **111** [SU72A47](#)
T+55M00S

Stop Firex pumps.

Support: [CWSS](#)

17-232 **STM** **JBWC** **111**

Perform Post-Launch Sound Suppression pneumatic dry cycle operations of six 48-inch valves and MLP V31 per [Doc: JOB PLAN M3189.230 \(LI\) Post Launch SS Dry Cycle Ops of Six 48" Valves and MLP V31](#) .

Support: [CWSS](#)

FSS/RSS Inspection

17-233 NTD *SCC 232 SU72A15
 *SCC *PSE 221
T+55M00S

Perform on-Pad Inspection Team functions as specified below:

1. FSS/RSS areas
 - A. **Divide** Inspection Team into 2 groups.
 - B. **Inspect** FSS and RSS in parallel.
2. RSS
 - A. All levels RSS (visual inspection)
 - B. MLP zero level (visual inspection)
 - C. Elevator machine room (207-ft level) (toxic vapor/O₂ checks)
 - D. Payload changeout room (toxic vapor/O₂ checks) (or post signs at ante room and airlock doors)
 - E. 90-ton hoist room (toxic vapor/O₂ checks)
 - F. RSS 95-ft crossover flexhoses (toxic vapor check)
 - G. 107-ft fuel/oxid skids (toxic vapor checks)
 - H. 207-ft fuel/oxid skids (toxic vapor checks)
3. FSS
 - A. All levels of FSS (visual inspection)
 - B. FSS elevator machine room (toxic vapor/O₂ checks)
 - C. Hyper scrubbers (75-ft level) (toxic vapor checks)

Post Launch Engineering Walkdown and Debris Collection - East Pad Surface

NOTE

The east Pad surface Post Launch Engineering Walkdown (S6444.004 Op 10) and Post Launch Debris Collection (S6444.004 Op 15) will operationally be performed together following the completion of the Launch Pad Structure Automatic Washdowns and concurrently with the Safety inspections of the FSS/RSS.

17-234 *PSE *SCC NET 105
 *SCC NTD 232

You have Safety concurrence to perform the Post Launch Engineering Walkdown and Debris Collection may begin on the east Pad surface only per S6444.004, Operations 10 and 15.

17-235 NTD *ICE NET 110 [SU72B44](#)

Perform the Post Launch Engineering Walkdown and Post Launch Debris Collection of the east Pad surface only per [S6444.004](#) , Operations 10 and 15. **Report** completion.

17-236 *PSE *SCC 221
 *SCC NTD 232

FSS elevator control cover and lock installed.

NOTE

Elevator Inspection/Repair task completion will occur in OMI S2005

17-237 *PSE *SCC 221 [SU72A49](#)
 *SCC NTD 232
 NTD STM
 STM VEEE NET 104

T+55M00S

Perform Elevator Inspection/Repair and Activation per [Doc: JOB PLAN Q3018.4 \(LI\) Post Launch Damage Assessment](#) .

Support: [CDPD](#)

LH₂ System Safing Initiation

17-238 CLHY TBC 136 SU72A29
 TBC NTD 232

T+01H00M

Post-Launch operations complete per OMI S1004. Ready to perform initial LH₂ System Safing per OMI G3254.

17-239 *PSE *SCC NET 105 SU72A05
 *SCC NTD
 NTD TBC 232

East Pad perimeter inspection of Hyper Oxidizer Farm and LH₂ Storage Area complete. LH₂/GH₂ storage controls established. Ready for Safing Crew entry to LH₂ storage and flare stack area. East Pad perimeter inspection continues.

17-240 CLHY TBC 136 SU72A28
 TBC NTD 232
 NTD *SCC 232
 *SCC *PSE NET 105

LH₂ system ready for storage area and flare stack safing teams to be cleared into LH₂ area.

Request SPOC Safety concurrence for LH₂ Safing Teams to enter LH₂ area.

Verify all personnel attired in flame retardant blue collar coveralls and non porous non-sparking shoes.

Safing Crew consists of:

PLHY PLH6
PLH4 PLH7
PLH5 PNLH
*PSE

17-241 *PSE *SCC NET 105
 *SCC NTD 232
 NTD TBC
 TBC CLHY 136

T+01H00M

Personnel properly attired. You have SPOC Safety concurrence for Safing Team to enter LH₂ Storage Area and Flare Stack Area.

17-242 NTD JFIR 232 SU72A46
 *SCC

Fire/Rescue proceed to LH₂ Storage Area for Safing operations.

Support: FIRE

17-243 NTD TBC 232
 STM
 STM JYVO 138
 JYVR

T+01H00M

Position OTV cameras in sequence to track LH₂ Safing Crew during Pad Safing and LH₂ Securing Crew during Pad securing.

Start video recording.

Support: OTV

17-244 PLHY CLHY 166 SU72A31
 CLHY TBC 136 SU72A56
 TBC NTD 232
 NTD *SCC

Safety has established a 200-ft control area at GH₂ and LH₂ Storage Facilities. **Request** Safety concurrence to proceed with initial LH₂ System Safing per OMI G3254.

17-245	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136
	CLHY	PLHY	166

You have Safety concurrence to proceed with LH₂ System Safing per OMI G3254.

NOTE

Perform the next step if:

1. KSC is designated AOA and
2. AOA option to KSC has expired and
3. Either DFRC or WSSH is designated EOM site.

17-246	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

IF alternate Convoy Commander Net activated,

THEN Deactivate 2RAM131 (9131) alternate Convoy Commander Net from _____ (DFRC {GKSC-61803}/WSSH {GKSC-62110}).

Support: [VCE](#)

Not Performed: _____

Configure COMM Circuits for DFRC

NOTE
Perform this option for scheduled EOM at DFRC.

Configure COMM Circuits for DFRC Not Performed: _____

17-247	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCL	117

T+01H00M

Perform the following:

1. **IF** COMM circuits were patched to WSSH as prime AOA Landing site for this mission,

THEN unpatch KSC Convoy Commander Net 2RAM131 (9031) from WSSH.

Not Performed: _____
SS1

2. **Activate** 2RAM038 (9038) DFRC Cooling Net T/R to KSC Cooling Net.
3. **Activate** 2RAM031 (9031) DFRC Convoy Commander Net T/R to KSC Convoy Commander Net.
4. **Activate** 2RAM033 (9033) DFRC Purge Net T/R to KSC Purge Net.
5. **Verify** OIS Channel 135 to DFRC SPA.
6. **Verify** OIS Channel 161 to DFRC SPA.

Support: [VCE](#)

17-248	GYCC	GYCJ	117
--------	-------------	-------------	------------

Perform voice checks on OIS Channels and Radio Talk Groups, configured for DFRC Landing.

Support: [VCE](#)

17-249	GYCJ	GYCC	117
	GYCC	STM	111
	STM	LRD	135

COMM circuits configured and voice checked for DFRC Landing.

Support: [VCE](#)

*** End of Configure COMM Circuits for DFRC ***

Configure COMM Circuits for WSSH

NOTE

Perform this option for scheduled EOM at WSSH.
--

Configure COMM Circuits for WSSH Not Performed: _____

17-250	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

T+01H00M

Perform the following:

1. **IF** COMM circuits were patched to DFRC as prime AOA Landing site for this mission,

THEN unpatch 2RAM031 (9031) KSC Convoy Commander Net from DFRC.

Not Performed: _____
SS1

2. **Activate** 2RAM031 (9031) Convoy Commander Net T/R to WSSH.

Support: [VCE](#)

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17-251 GYCC GYCJ 117

Perform voice checks on COMM circuits configured for WSSH Landing.

Support: [VCE](#)

17-252 GYCJ GYCC 117
 GYCC STM 111
 STM LRD 135

COMM circuits configured and voice checked for WSSH Landing.

Support: [VCE](#)

***** End of Configure COMM Circuits for WSSH *****

COMM System Reconfigured for KSC Landing

NOTE

Perform this option if KSC is scheduled EOM or an AOA/ELS to KSC has been announced.

Do not perform this option if AOA or ELS to DFRC or WSSH has occurred.

COMM System Reconfigured for KSC Landing Not Performed: _____

17-253	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

T+01H00M

IF previously patched,

THEN

Configure COMM for KSC Landing:

Remove 2RAM033 (9033) Purge Net, 2RAM031 (9031) Convoy Commander Net and 2RAM038 (9038) Cooling Net patches from DFRC and 2RAM031 (9031) Convoy Commander Net patch from WSSH.

Support: [VCE](#)

Not Performed: _____

17-254	LRD	STM	135
	STM	GYCC	111
	GYCC	GYCJ	117

Verify 2RAM031 (9031) Convoy Commander Net, 2RAM038 (9038) Cooling Net and 2RAM033 (9033) Purge Net T/R configured to KSC.

Support: [VCE](#)

17-255 GYCC STM 111
 STM LRD 135

COMM circuits configured for KSC Landing.

Support: [COMM](#)

*** End of COMM System Reconfigured for KSC Landing ***

Configure KSC for First Day Primary Landing Site (PLS)

NOTE
Perform this option if KSC is first day PLS.

Configure KSC for First Day Primary Landing Site (PLS) Not Performed: _____

17-256 LSO LRD LF1
 LRD NCC CCN

Good On-Orbit Ops are verified and KSC Landing Support is released.

Support future landing opportunities per Mission Unique Orbit Opportunities Schedule.

17-257 LRD *SLF 135

Verify STA no longer utilizing Orbiter NAVAIDS and Visual Landing Aids.

17-258 LRD STM 135

KSC SLF NAVAIDS and Visual Landing Aids are released from OMI S0007 support.

Support KSC Landing opportunities per the Mission Unique Orbit Opportunities Schedule.

WARNING

Loose, unstable, hot/smoldering, and/or sharp-edged debris or objects may be present at pad following a launch.

Personnel may suffer serious bodily injuries or death from being struck by falling debris or from contact with sharp edges. Contact with hot, smoldering or ignited material may cause severe burns

Wear **leather gloves , flame retardant coveralls and hard hat** .

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NOTE

The Post Launch Engineering Walkdown (S6444.004 Op 10) and Post Launch Debris Collection (S6444.004 Op 15) will operationally be performed together. The teams will initially be divided into 2 groups containing members from each operation to perform the MLP Zero Level and upper levels of the FSS concurrently.

17-262

NTD

*ICE

NET 110

SU72A57
SU72A10

Perform the Post-Launch Engineering Walkdown and Post Launch Debris Collection per OMI **S6444.004** Operations 10 and 15.

Report completion for each Pad level or location, and obtain NTD and Safety concurrence before continuing to next Pad level or location:

1. MLP Zero Level/FSS/RSS.
2. West Pad Surface/Apron/SSME Flame Trench.
3. SRB Flame Trench/Pad Perimeter (via west perimeter road - LH₂ storage area controls remain in effect).
4. Pad Infield (perimeter to apron) excluding the LH₂/LO₂/GH₂/GO₂ facilities. Requires daylight.

17-263 **NTD STM 232** [SU72A50](#)
 STM GYCC 111
 GYCC JYCD 117

T+01H00M

Activate admin paging to Pad. **Report** completion.

Support: [OISD](#)

17-264 **STM JYVO 138**

Stop video recording of OTV Camera 073.

Support: [OTV](#)

17-265 **STM GBHE NET 104** [SU72B85](#)

Provide JLG and operator at Pad B SCAPE base to load bird radar.

Coordinate support times with DeTect personnel at COF Bird Radar console (phone 861-1521/1520).

Support: [HESA](#)

17-266 **NTD STM 232**
 STM GYCC 111
 GYCC JTCR 117

T+01H00M

Switch from LPS count to local generator No. 1.

Support: [TCD](#)

17-267 **STM GYCC 111**
 GYCC JYCD 117

Configure OIS-D communications in Prime Firing Room _____
 Consoles to single channel transmit capability (30 minutes).

Support: [OISD](#)

FR-3			FR-4		
AA-5	107-21	LD	10496A3	104-55	ALD
AA-6	104-41	ALD	10496A5	107-56	LD
AB-5	106-61	NTD	10496A13	107-36/106-75	NTD
AB-6	107-61	ANTD	10496A15	105-14	ANTD
AB-7	104-02	CNTD	10496A17	104-75/106-01	CNTD
AB-8	105-02	LRD	10496A19	105-54	LRD

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17-268 STM GYCC 111
 GYCC JYCD 117

Restore paging to E3-1133 NASA Debris Radar Site.

Support: [OISD](#)

East/West Pad Perimeter Inspections - Complete

17-269 *PSE *SCC NET 105 [SU72995](#)
 *SCC NTD 232 [SU72993](#)
 NTD OTC
 STM

T+01H05M

West Pad perimeter inspection complete and inspection team has returned to Pad gate. Sending Safing Crew to PTCR for toxic vapor checks and locking of ECS GN₂ valves.

17-270 *PSE *SCC NET 105 [SU72A04](#)
 *SCC NTD 232
 NTD TBC
 OTC
 STM

T+01H05M

East Pad Perimeter Inspection complete and inspection team has returned to Pad gate.

17-271 STM JYVR 138
 JYVO

T+01H10M

Terminate video tracking and recording of Safety Perimeter Inspection Team.

Support: [OTV](#)

17-272	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	
		TBC	
		STM	
		PTC	

O₂ and/or toxic vapor checks complete for the following areas and area is either: C = controlled

O = open for controlled work

1. RSS 95-ft crossover flexhoses _____
2. RSS 107-ft hyper skids _____
3. Payload Changeout Room _____
4. 207-ft hyper skids _____
5. 207-ft level Elev Mach Room _____
6. 207-ft level 90-ton Hoist Room _____
7. FSS scrubbers _____
8. FSS Elev Mach Room _____
9. Hypergolic Fuel Farm _____
10. Hypergolic Oxidizer Farm _____
11. Pad Catacombs (east and west) _____

17-273	STM	GYCC	111
	GYCC	JPHO	117

Perform Post-Launch Film Retrieval on FSS and Pad perimeter.

Support: [PHOT](#)

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17-274 GSPN JSTC 114 SU72A51
 JSTC STM 111
 STM NTD 232

T+01H10M

LPGN₂ Securing completed. CCF-39 GN₂ production plant high flow
LPGN₂ support terminated.

Support: PNU

17-275 CFCP OTC 132 SU72A11
 OTC NTD 232
 NTD TBC
 *SCC
 *SCC *PSE NET 105

PRSD T-0 System Inerting per OMI V1040.230 complete.

17-276 STM JBPN 111

Perform Post-Launch Inspection of Air Compressors per [Doc: JOB PLAN M3022.005 \(LI\) Pad Compressor Post Launch Inspection](#)

Report completion (1 hour)

Support: PNSA

17-277 STM JBPN 111

IF camera purge was activated,

THEN close purge supply valves to Cameras 070 and 071 (Pad A).

Record supply pressures

070 _____ psi BD

071 _____ psi BD

Support: PNSA

Not Performed: _____

PTCR/ECS Securing

17-278 *PSE *SCC NET 105 SU72995
 *SCC NTD 232 SU72996

All required personnel on site at PTCR/ECS room to perform toxic vapor/O₂ checks, GN₂ valve securing and depressurization operations.

17-279 *SCC *PSE NET 105

Perform O₂ check using digital readout unit prior to ECS door opening.

17-280 NTD STM 232 SU72B14
 STM JBAC 111

T+01H20M

Perform the following:

Support: HVAA

1. **Depressurize** PTCR/ECS rooms by opening ECS Room door and restraining in open position.

T: _____
SS1

2. **IF** previously opened,

THEN close RSS/MLP Auto drain valves from C2 Console.

Not Performed: _____
SS2

17-281 *PSE *SCC NET 105
 *SCC NTD 232
 NTD STM

PTCR/ECS Room door opened. O₂ and toxic vapor check acceptable.

Support: HVAA

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17-282 NTD OTC 232 SU72997
 *SCC
 OTC CPVD 132
 *SCC *PSE NET 105

T+01H20M

Secure the ECS GN₂ manual isolation valves per OMI V1122.203 ,
Operation 60 - Termination of ECS Hazardous Purge Operations.

RT OMI Log No. _____

17-283 *PSE *SCC NET 105
 *SCC NTD 232

T+01H30M

ECS GN₂ hand valves locked. Continuing with upper and lower PTCR
O₂ checks.

17-284 CPVD OTC 132 SU72997
 OTC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

T+01H30M

ECS Room GN₂ valves closed and locked. Ready to continue with
control station transfer to Pad.

17-285 OTC CPVD 132 SU72A02
T+01H30M

Transfer ECS Room control to Pad (local) per OMI V1122.004 .

17-286 *PSE *SCC NET 105 SU72999
 *SCC NTD 232
 NTD STM 111

T+01H30M

Upper and lower PTCR O₂ checks complete and acceptable.

NOTE

The following two steps to enter and complete PTCR/ECS depressurization must not occur until GN₂ hand valve is closed and Safety completes the upper and lower PTCR O₂ checks.

17-287 **NTD** **STM** **232** [SU72A01](#)
 STM **JBAC** **111** [SU72B12](#)

T+01H30M

Complete PTCR/ECS Room depressurization and remove PTCR exhaust Fans 1 and 2 blast covers per [Doc: JOB PLAN M3034.04 \(LI\) PTCR ECS Depressurization](#) .

Support: [HVAA](#)

17-288 **STM** **JBAC** **111**

Close RSS/MLP manual drain valves in PTCR, Room 105.

Support: [HVAA](#)

T:_____

***** End of PTCR/ECS Securing *****

17-289 **JBWC** **STM** **111**

Post-Launch dry cycles of Sound Suppression valves complete.

Support: [CWSS](#)

Start MLP O₂ Checks

17-290	JBEP	STM	111	SU72A03
	STM	NTD	232	
T+01H30M	NTD	OTC		
		TBC		
		*SCC		
	*SCC	*PSE	NET 105	

O₂ analyzers indicate acceptable O₂ levels in MLP.

Record any MLP compartments indicating low O₂ levels or trouble mode:

Support: PWR

17-291	NTD	ALL	232
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IF low O₂ conditions recorded requiring MLP re-entry,

THEN proceed to OMI S0007.500, Operation 120.

Not Performed: _____

WARNING

GN₂ (Gaseous Nitrogen) is an asphyxiant and displaces oxygen.

Exposure may cause dizziness, unconsciousness, and in extreme cases can result in death.

Do not enter prior to ventilation.

Do not enter unless monitoring for oxygen and adequate oxygen levels are maintained.

WCS006.c 06-09-2005

NOTE

No access into MLP allowed until GN₂ hand valve closed and locked.

17-292 NTD *SCC 232 SU72A06
 *SCC *PSE NET 105

T+01H30M

Proceed with MLP interior O₂ and toxic vapor checks.

17-293 NTD STM 232 SU72A67
 STM JBEP 111

Have Special Powers Crews (2 Engineers, 2 Technicians) report to MLP B Level airlock and standby to support MLP ODMS checks/resets. No entry allowed without Safety approval.

Support: [PWRA](#)

Drop BDA Roadblocks

17-294 *PSE *SCC NET 105 SU72A07
 *SCC NTD 232
T+01H30M

All Safing Teams have entered Pad.

Drop BDA roadblocks. Access to Pad and clothing requirements will be controlled by Pad Site Manager and SPOC Safety.

17-295 NTD *SEC 232
 STM
STM JSTC 111

Drop Roadblocks A-3, A-5, Barricade 49, A-6 (Pad A Launch)

Support: SEC

17-296 *SEC NTD 232
 NTD OTC 232
 TBC
 STM
 *SCC
*SCC *PSE NET 105
STM JSTC 111
OTC *PAD 132

Roadblocks A-3, A-5, Barricade 49, A-6 (Pad A Launch) dropped. BDA clears reduced to Pad A gate.

Support: SEC

***** End of Drop BDA Roadblocks *****

17-297 NTD SU72A64
T+01H30M

Contact PAO (7-7819) to allow film retrieval personnel to proceed to Pad gate.

Stand by at Pad gate for access to Pad perimeter camera sites.

17-301 **CLOX** **TBC** **136**
 TBC **NTD** **232**

T+01H30M

Residual LO₂ purging after Launch complete per OMI G3153.
Continuing with LO₂ System safing.

17-302 **JYCD** **GYCC** **117**
 GYCC **STM** **111**
 STM **NTD** **232**

Consoles in Prime Firing Room have been configured to single channel transmit capability. For FR-3 Consoles AA-5, AA-6, AB-5, AB-6, AB-7 and AB-8 or for FR-4 Consoles A13, A15, A17, A19, A5 and A3.

Support: [OISD](#)

17-303 **PLHY** **CLHY** **166**
 CLHY **TBC** **136**
 TBC **NTD** **232**
 NTD ***SCC**

[SU72A31](#)
[SU72B63](#)

T+01H35M

LH₂ initial system safing complete and A3401 transfer line shut-off block valve closed.

LH₂ MLP Safing Initiation

17-304	CLHY	TBC	136	SU72A35
	TBC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

MLP purge initiated.

Request Safety concurrence for Safing Teams to proceed from LH₂ shop to MLP Side 1 and from LH₂ Storage Area to LH₂ Flare Stacks.

17-305	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136
	CLHY	PLHY	166

T+01H35M

You have SPOC Safety concurrence for LH₂ Team to proceed to MLP Side 1 and Flare Stack Team to proceed to LH₂ Flare Stacks.

Use access ladder on either side of MLP pedestal or stairway.

17-306	TBC	CLHY	136
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Perform LH₂ MLP Safing.

17-307	*PSE	*SCC	NET 105	SU72A15
	*SCC	NTD	232	
	NTD	OTC		
		STM		

T+01H35M

FSS & RSS Initial and Toxic Inspection complete. Safety signs installed.

GO₂/GH₂ Cross-country Line Securing

17-308	CFCP	OTC	132	SU72A63
	OTC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Ready to start GO₂/GH₂ Cross-country Line Securing.

Request Safety concurrence to proceed.

17-309	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	OTC	

Control area remains clear. You have Safety concurrence to proceed with GO₂/GH₂ Cross-country Line Securing.

17-310	OTC	CFCP	132
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Close PRSD GO₂ panel isolation valve (830-1 Panel on 75-ft level) to support JBPN for GO₂/GH₂ Cross-country Line Securing per OMI [V1040.230](#) .

17-311	CFCP	OTC	132
	OTC	NTD	232
	NTD	STM	
	STM	JBPN	111

T+01H15M

PRSD GO₂ panel isolation valve closed. CFCP ready to support JBPN for GO₂/GH₂ Cross-country Line Securing on OIS Channel 122.

Support: [PNSA](#)

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17-312 NTD STM 232 SU73193
 STM JBPN 111

T+01H15M

Perform GH₂ Cross-country Line Securing per post operation instructions of OMI [M3020](#) .

Support: [PNSA](#)

17-313 NTD STM 232 SU72A52
 STM JBPN 111

Perform GO₂ Cross-country Line Securing per post operation instructions of OMI [M3097](#) .

Support: [PNSA](#)

***** End of GO₂/GH₂ Cross-Country Line Securing *****

KSC Reconfiguration of FR2 and FR3

NOTE

The following six steps should only be worked after NTD verification that JSC has given the Crew the “Go for on Orbit Ops” call signifying that the vehicle is committed to stay on Orbit for at least one day.

17-314 NTD LPS 232
T+01H30M

Release Firing Room 2 from OMI S0007 support and reconfigure for normal support.

Continue Post-Launch Data Retrieval per OMI [S9002.016](#)

17-315 LPS JSDC 127

Restore PCGOAL to normal configuration in Firing Room 4, Firing Room 2, and Firing Room 3.

17-316 LPS JRPS 127

Configure KMTS 0505A1 (A1, A2, A3, A7, A8, A9) bit syncs to Source 1. (Manual Mode, Source 1, 60KB)

17-317 NTD LPS 232
 LPS C2MC 127

Place PP1 and PP2 plotters off line and remove data for Data Coordinator pickup.

17-318 NTD LPS 232

Reinitialize PP2 subsystem.

17-319 LPS C4MC 127

\$TERM and **\$CLAI** PP2 subsystem.

***** End of KSC Reconfiguration of FR2 and FR3 *****

17-320 STM QBSE NET 104
T+01H40M

Perform the following:

1. **Install** posts and ropes at south end of flame trench and along sides of flame trench.

Support: [STSA](#)

2. **Raise** safety stops for “A” frame hoist and replace set screw plugs (4 per hatch) on Hatch No. 7 with lifting rings (4 per hatch).

Store set screw plugs in storage box on “A” frame hoist (OMI M3083).

Support: [STSA](#)

T: _____
SS2

3. **Install** structure tie-downs on access monitor shack 135-ft level RSS and secure guard shack on Pad surface. **Report** completion.

Support: [STSA](#)

T: _____
SS3

17-321 CPVD OTC 132 [SU72A02](#)
 OTC NTD 232
 NTD STM
 STM JBAC 111

Transfer of ECS Room to local control complete. Support for OMI's V1122.003, V1122.004 and V1122.007 no longer required.

Support: [HVAA](#)

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17-322 CPVD PPVM 172

Perform Post-Launch Securing (local) including Main Blower Changeover Operations" per OMI [V1122.301](#) and Dock Seal Inspection per RT OMI [V1122.005](#) (completion verification not required).

RT OMI Log No. _____

17-323 JBAC STM 111 SU72A01
STM NTD 232
NTD *SCC
*SCC *PSE NET 105

T+01H50M

PTCR/ECS Room Depressurization complete. Upper and lower blast doors open.

Support: [HVAA](#)

Initial LO₂ Safing - Complete

17-324 CLOX TBC 136 SU72A24
TBC NTD 232 SU72A22
NTD *SCC

LO₂ System Safing complete.

Request Safety concurrence to open LO₂ Storage Area Control Area for controlled work.

17-325 *PSE *SCC 221 SU72A48
*SCC NTD 232
NTD JFIR

LO₂ Fire/Rescue Crew proceeding to bunker for systems safing on M113.

Support: [HVAA](#)
Support: [FIRE](#)

17-326 *SCC NTD 232
 NTD TBC
 TBC CLOX 136

You have Safety concurrence to open LO₂ Storage Area Control Area for controlled work. E Road will remain closed until LO₂ Dump Basin Boiloff is complete.

17-327 CLOX TBC 136
 TBC NTD 232
 NTD *SCC

LO₂ storage is open for controlled work. E Road will remain closed until LO₂ Dump Basin Boiloff is complete. Proceeding with LO₂ area securing.

Holding Tanks Depth and PH Measurements

17-328 STM QBSE NET 104

Obtain holding tank depth measurements ([Ref: M3175 \(LI\) Operation Of Holding Tank Industrial Wastewater System](#))

East Tank Depth_____in.

Date_____ Time_____

West Tank Depth_____in.

Date_____ Time_____

Support: [STSA](#)

17-329 STM QBSE NET 104

Monitor holding tank depths. **Verify** capacity available to support washdown operations until Pad surface and Pad structure washdowns are complete.

Support: [STSA](#)

17-330 STM WLTk

Perform initial neutralization and treatment on holding tanks.
Obtain samples to verify PH.

East Tank Sample No. _____

West Tank Sample No. _____

***** End of Holding Tanks Depth and PH Measurements *****

17-331 NTD JFIR 232

Fire/Rescue at LO₂ Storage Area may be released back to Fire Station No. 3 to support continued Pad Post-Launch Safing/Securing operations. Fire/Rescue Crew at LH₂ Storage Area to remain at LH₂ Storage Area for continued Post-Launch Securing operations per OMI [S2005](#) .

Support: [FIRE](#)

17-332 CLHY TBC 136 [SU72A12](#)
 TBC NTD 232 [SU72A35](#)
 NTD *SCC [SU72B46](#)
 *SCC *PSE NET 105

MLP Safing complete. Less than 1 percent GH₂ verified on MLP Side 1.

17-333 CLHY TBC 136 [SU72A36](#)
 TBC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Verify SPOC Safety concurrence for ET LH₂ safing personnel to proceed to FSS to perform FSS Securing on 195 and 203-ft levels.

17-334	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLHY	136
	CLHY	PLHY	166

T+02H00M

You have Safety concurrence for ET LH₂ safing personnel to proceed to FSS and perform FSS Safing and Securing on 195 and 203-ft levels.

MLP Handrail Lift and Installation

NOTE

Verification of less than 1 percent GH₂ on MLP Side 1 must be complete prior to handrail lifting and installation operations.

17-335 STM GBHE NET 104 [SU72A53](#)

Move flatbed truck with handrails and mobile crane from Pad gate to Pad surface East side and prepare for lifting operations. Do not lift handrails over Cryo lines until GH₂ is verified less than 1 percent at MLP Side 1.

Support: [HESA](#)

17-336 STM GBHE NET 104 SU72B45

Perform the following:

1. **Establish** a 25-ft control area around crane path of travel for lifting operations.
2. **Install** ropes, stanchions and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
 Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

17-337 STM PA

Attention on Pad A:

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around east Pad surface for MLP Handrail lifting to the zero level.

WARNING

Heavy objects or equipment could fall and impact personnel.
Personnel may suffer serious bodily injury and/or loss of limbs or life.

Wear **safety shoes/boots** where a potential for injury exists.

WCLH024 06-22-2005

NOTE

Hazardous steps follow due to lifting operations.

17-338	GBHE	STM	NET 104	SU72A59
	STM	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

25-ft control area has been established on east Pad surface for MLP
Handrail lift to the zero level.
Request Safety concurrence to proceed.

Support: [HESA](#)

17-339	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	

You have Safety concurrence to proceed with MLP Handrail lift.

17-340	STM	GBHE	NET 104
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Brief personnel on the hazards and applicable Emergency Operations.
Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

17-341

GBHE

Perform the following:

Support: [HESA](#)

1. **Lift** handrails on zero level MLP.

T: _____
SS1

2. **Utilize** tag lines.

NOTE

Hazardous operations complete.

17-342

GBHE	STM	NET 104
STM	NTD	232
NTD	*SCC	
*SCC	*PSE	NET 105

Hazardous lifting operations complete.

Request Safety concurrence to open area for controlled work.

Support: [HESA](#)

17-343

*PSE	*SCC	NET 105
*SCC	NTD	232
NTD	STM	
STM	GBHE	NET 104

You have Safety concurrence to open area for controlled work.

Remove ropes, stanchions and danger signs.

Support: [HESA](#)

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17-344 GBHE STM NET 104
 STM QBSE

Verify lifelines installed for MLP Handrail Installation.

Support: [HESD](#)

T: _____

17-345 STM NTD 232
 NTD *SCC

T+02H00M

Request Safety concurrence to perform MLP Handrail Installation.

17-346 *SCC *PSE NET 105

T+02H00M

Verify all personnel working within 6 ft of SSME/SRB flame holes are wearing safety harness/belt with lanyard secured to approved tie-off point.

17-347 *PSE *SCC NET 105
 *SCC NTD 232

T+02H00M

[SU72A14](#)

You have Safety concurrence to proceed with MLP Handrail Installation.

WARNING

Personnel may fall from unprotected heights if fall protection is not used.

Personnel may suffer bodily injury or death.

Wear a **safety harness** with a **lanyard** when working at heights 4 feet or greater and within 6 feet of an unprotected edge.

Secure safety harness and lanyard to an approved tie off point, substantial structural member (no handrails) or a properly installed **life line** .

WM006 07-08-2005

17-348

NTD
STM

STM
QBSE

232
NET 104

SU72B45

Perform the following:

1. **Install** MLP handrails per OMI [M3083](#)
2. **Install** ladders to provide access to left and right SRB AFT skirt GN₂ purge near HDP No. 2 and HDP No. 6.

Support: [STSA](#)

NOTE

Handrail installation work will continue and be completed per OMI S2005.

***** End of MLP Handrail Lift and Installation *****

Monitor Shack Installation

17-349 STM GBHE NET 104 [SU72A53](#)

Perform the following:

1. **Establish** a 25-ft control area around crane path of travel for lifting operations for installation of the monitor shack on the 135-ft level and Pad surface.
2. **Install** ropes, stanchions and danger signs for lifting operations.
3. **Perform** safety inspection of the local control area and egress route(s) from control area.
Verify no discrepancies, which affect the operation and/or safe egress from the control area.

Support: [HESA](#)

Essential Personnel	
	SPOC
Heavy Equipment Personnel	6
MLP Technicians	5

17-350 STM PA

Attention on Pad A:

Lifting operations are about to commence. All nonessential personnel clear a 25-ft area around west Pad surface for MLP Handrail lifting to the 135-ft level and Pad surface.

WARNING

Heavy objects or equipment could fall and impact personnel.
Personnel may suffer serious bodily injury and/or loss of limbs or life.

Wear **safety shoes/boots** where a potential for injury exists.

WCLH024 06-22-2005

NOTE

Hazardous steps follow due to lifting operations.

17-351	GBHE	STM	NET 104
	STM	NTD	232
	NTD	*SCC	
	*SCC	*PSE	NET 105

25-ft control area has been established on west Pad surface for monitor shack lift to the 135-ft level and Pad surface.

Request Safety concurrence to proceed.

Support: [HESA](#)

17-352	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	

You have Safety concurrence to proceed with monitor shack lifts.

17-353	STM	GBHE	NET 104
--------	------------	-------------	----------------

Brief personnel on the hazards and applicable Emergency Operations.

Verify personnel are certified, equipped and ready to proceed.

Support: [HESA](#)

TTL: _____

17-354 STM GBHE NET 104

Position monitor shacks on 135-ft level RSS and Pad surface and position tether station on Pad surface.

Support: [HESA](#)

17-355 GBHE

Perform the following:

Support: [HESA](#)

1. **Install** monitor shack on 135-ft level.

T: _____
SS1

2. **Utilize** tag lines.

3. **Install** monitor shack on Pad surface.

T: _____
SS3

NOTE

Hazardous monitor shack lifting operations complete.

17-356 GBHE STM NET 104
 STM NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Hazardous lifting operations on west Pad surface complete.

Request Safety concurrence to open area for controlled work.

Support: [HESA](#)

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17-357	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	STM	
	STM	GBHE	NET 104

You have Safety concurrence to open area for controlled work.
Remove ropes, stanchions and danger signs.

Support: [HESA](#)

***** End of Monitor Shack Installation *****

MLP O₂ Analyzer Resets

NOTE

No MLP entry will be allowed until Safety has completed Post-Launch Safety Sweep and Special Powers Teams have performed O₂ analyzer local checks/resets.

For any MLP compartments in which ODMS cannot be reset and made functional, OMI S0007 safing/securing operations may resume with Safety concurrence after portable O₂ monitor is installed.

17-358	*PSE	*SCC	NET 105	SU72A06
	*SCC	NTD	232	SU72A43
	NTD	STM		
	STM	JBEP	111	

T+02H00M

Initial Safety MLP interior sweep and toxic vapor checks complete.
Ready for Special Powers Teams to enter MLP to verify or reset
O₂ analyzers requiring reset as listed below:

Support: [PWR](#)

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17-362	NTD	TBC	232	SU72A65
		OTC		
		STM		
		*SCC		
	*SCC	*PSE	NET 105	
	TBC	CLOX	136	
		CLHY		

T+02H20M

MLP interior O₂ and toxic vapor checks completed. Oxygen analyzer system resets complete. Oxygen monitoring system operational. MLP open for OMI S0007 securing operations only.

***** End of MLP O₂ Analyzer Resets *****

6. **Inspect** RSS/FSS for CHW piping and AHU damage/leakage.

Report to JBAC.

7. **IF** valves previously closed,

THEN open RSS manual isolation valves.

Not Performed: _____
SS7

8. **Lower** prime and ventilation air ducts blast shields.

Support: [HVAA](#)

17-365	CLOX	TBC	136	SU72A26
	TBC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

T+02H20M

Verify SPOC Safety concurrence for LO₂ Securing Crew to enter MLP.

Securing Crew consists of:

QLOX MLP, LO₂ Lead Engineer, Roving
QLO4 MLP, LO₂ Technician
QLO5 MLP, LO₂ Technician
*PSE SPOC Safety Engineer
PNLO Pad, LO₂ Engineer (NASA)

17-366	*PSE	*SCC	NET 105	SU72A27
	*SCC	NTD	232	
	NTD	TBC		
	TBC	CLOX	136	

You have Safety concurrence for LO₂ Securing Crew to enter MLP.

LH₂ Storage Area Safing and Securing Initiation

17-373	CLHY	TBC	136	SU72A38
	TBC	NTD	232	SU72A39
	NTD	*SCC		

LH₂ flare stack support for FSS safing and securing no longer required.
Flare stack area cleared.

Request concurrence to perform LH₂ Storage Area Safing and Securing per OMI G3254.

17-374	CLHY	TBC	136	SU72A36
	TBC	NTD	232	
	NTD	*SCC		

FSS Safing and Securing per OMI G3254 complete.

17-375	*SCC	NTD	232	
	NTD	TBC		
	TBC	CLHY	136	

You have concurrence to perform LH₂ Storage Area Safing and Securing per OMI [G3254](#) .

17-376	CLHY	TBC	136	
	TBC	NTD	232	
	NTD		PA	

Attention on Pad A:

LH₂ vaporizers will be vented to LH₂ Facility Flare Stack for 1 hour. All personnel remain clear of 150-ft radius around LH₂ Flare Stack base.

FSS 215 LO₂ Securing

NOTE

LO₂ securing may be performed in parallel with ETVAS ordnance Operations.

17-377	CLOX	TBC	136	SU72A30
	TBC	NTD	232	
	NTD	*SCC		
	*SCC	*PSE	NET 105	

Verify FSS 215-ft level opened for LO₂ Securing Crew entry.

Securing Crew consists of:

PLOX Pad Lead LO₂ Engineer
PLO4 Pad LO₂ Technician
PLO5 Pad LO₂ Technician
*PSE SPOC Safety Engineer
PNLO Pad LO₂ Engineer (NASA)

17-378	*PSE	*SCC	NET 105
	*SCC	NTD	232
	NTD	TBC	
	TBC	CLOX	136

FSS 215-ft level opened for LO₂ Securing Crew entry. You have Safety concurrence to proceed.

***** End of FSS 215 LO₂ Securing *****

ETVAS Ordnance Operations

17-379 TBC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Request Safety concurrence for ETVAS ordnance safing and T-0 lock ordnance Safing Teams to proceed to FSS to perform FSS Securing and Ordnance Removal on FSS 215 and 186-ft levels.

17-380 TBC NTD 232
 NTD *SCC
 *SCC *PSE NET 105

Request Safety establish 25-ft clear on FSS 215 and 186-ft levels for ETVAS ordnance and T-0 lock ordnance removal per OMI T5448.

17-381 *PSE *SCC NET 105
 *SCC NTD 232
 NTD TBC
 TBC *PAD 136

Safety verifies 25-ft controls established on 215 and 186-ft levels, personal protective equipment verified and concurrence to proceed with ETVAS ordnance and T-0 lock ordnance removal per OMI T5448.

17-382 TBC PME4 136 SU72A32
T+02H30M

Perform fire line disconnections and expended Pyro separator assemblies removal per OMI T5448 on Channel 186.

***** End of ETVAS Ordnance Operations *****

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17-383 **JBPN** **STM** **111** [SU72A52](#)
 STM **NTD** **232**
 OTC
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

T+02H45M

GO₂ Cross-country Line Securing per OMI M3097 complete.

Support: [CPNS](#)

17-384 **JBPN** **STM** **111** [SU72A64](#)
 STM **NTD** **232**
 OTC
 NTD ***SCC**
 ***SCC** ***PSE** **NET 105**

T+02H45M

GH₂ Cross-country Line Securing per OMI M3020 complete.

Support: [CPNS](#)

17-385 **NTD** **OTC** **232** [SU72A08](#)
 OTC **CFCP** **132**

Perform PRSD FCSS Secure and Powerdown per OMI [V1040.230](#) .

17-386 **NTD** **OTC** **232**
 OTC ***PAD** **132**
 ***PAD** **PGCU**

FSS 75-ft Level

Close GCU isolation valves A87806 and A87809.

T:_____

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17-387	JBAC	STM	111	SU72A18
	STM	NTD	232	SU72B10
	NTD	OTC		
		TBC		
		*SCC		
	*SCC	*PSE	NET 105	
	OTC	*PAD	132	

T+02H55M

MLP depressurized.

Support: [HVAA](#)

17-388	NTD	JFIR	232
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MLP Depressurization complete.

Support: [FIRE](#)

17-389	NTD		PA
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Attention on MLP Pad A

MLP Depressurization complete.

17-390	CFCP	OTC	132	SU72A08
	OTC	NTD	232	

PRSD FCSS Secure and Powerdown complete.

17-391 *PSE *SCC NET 105
 *SCC NTD 232
 NTD OTC
 TBC
 STM

Verify items listed below complete before opening Pad for controlled work. Record status of areas listed below as either Open or Controlled. If all items not complete, portions of Pad can be opened only with NTD and *SCC concurrence.

AREA	REF STEP	STATUS (Open/Controlled)
LH ₂		
LO ₂		
MLP Zero Level		
West Pad Perimeter		
East Pad Perimeter		
ECS Room		
PTCR		
ECS GN ₂ Hand Valves closed and locked		
LH ₂ Transfer line block valves		
FSS/RSS initial Pad inspection		
MLP Side 1 less than 1 percent GH ₂		
MLP interior O ₂ /TVC Check		
155-ft/203-ft facility/ET vent lines less than 1 percent GH ₂		

17-392 NTD *SCC 232
 OTC
 TBC
 STM
 PTC
 *SCC *PSE NET 105
 T+03H15M

Verify ready to open Pad for controlled work.

17-393 *ICE NTD NET 110 SU72B44
 *NTD *SCC 232 SU72A19
 *SCC *PSE NET 105 SU72A57

The Post Launch Engineering Walkdown and Post Launch Debris Collection of the following Pad structures (less the Pad infield) are complete per OMI S6444.004 Operations 10 and 15.

1. East Pad Surface

Inspection Location	Team(s)	Completed
East Pad Surface	1, 2	

2. MLP/FSS/RSS

Inspection Location	Team(s)	Completed
MLP Zero Level	1	
FSS 95-ft Level	2	
FSS 275-ft Level	2	
FSS 255-ft Level	2	
FSS 235-ft Level	2	
FSS 215-ft Level	1, 2	
FSS 195-ft Level	1, 2	
FSS 175-ft Level	1, 2	
FSS 155-ft Level	1, 2	
FSS 135-ft Level	1, 2	
FSS 115-ft Level	1, 2	

3. West Pad Surface/Apron

Inspection Location	Team(s)	Completed
SSME Flame Trench	1, 2	
West Pad Surface	1 or 2	

4. Debris Van

Inspection Location	Team(s)	Completed
SRB Flame Trench	1, 2	
Perimeter	1, 2	

When all Pad structure inspections are complete, then there are no longer any engineering walkdown or debris collection constraints to FSS, MLP, and Pad Apron Washdown operation per OMI S2005.

17-394 NTD *ICE NET 110

Verify ready to open Pad for controlled work. If the Post Launch Engineering Walkdown and Debris Inspection are not complete, set up operational controls in required areas.

List controlled areas: _____

17-395 NTD OTC 232
 OTC *PAD 132
 *PAD *ACM NET 110

Route ACM to Pad gate and perform Comm Check with NTD on Net 110.

Open Pad for Controlled Work

17-396 *ACM *PAD NET 110
 *PAD OTC 132
 OTC NTD 232
 *SCC

ACM on station. NTD Comm Check on Net 110 complete.

17-397 NTD *SEC 232

Open Pad A gate for controlled work. Unlock turnstiles.

Report completion.

Support: [SEC](#)

17-398 NTD *SEC 232

Pad A gate security can now be released.

Support: [SEC](#)

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17-399	NTD	OTC	232	SU72A20
		TBC		SU72A61
		STM		
		*SCC		
		PTC		
	STM	JSTC	111	
		GYCC		
	*SCC	*PSE	NET 105	
	OTC	*PAD	132	

Pad A open for controlled work.

Support: [COMM](#)

NOTE

Post-Launch securing per OMI S2005 may commence prior to completion of Post-Launch entry portion of OMI S0007 by personnel already inside Pad gate.

17-400	NTD	CTC	232
		OTC	
		STM	

Perform OMI [S2005](#) Call to Stations. CTC resumes direction of Test Team at the end of the shift.

17-401	NTD	PA
--------	-----	----

Attention in the area:

Personnel supporting Pad A operations:
Report to your supervisor for work assignments.

***** End of Open Pad for Controlled Work *****

NOTE

Wireless Access Points (WAPS) may be re-activated Post-Launch.

17-402 **NTD** **STM** **232** [SU72B65](#)
 STM **GYCC** **111**
 GYCC **GNCC** **PTP**

IF Wireless Access Points (WAPS) are de-activated,

THEN re-activate Wireless Access Points (WAPS) in Pad A Perimeter.
Report completion.

Support: [KNET](#)

Not Performed: _____

17-403 **NTD** **STM** **232**
 STM **QBSE** **NET 104**

IF wireless Holding Tank Sensor System is inactive,

THEN activate Wireless Holding Tank Sensors and Holding Tank
Wireless Gateway in Pad A Perimeter. **Report** completion.

Support: [STSA](#)

Not Performed: _____

17-404 NTD STM 232
 STM QBSE NET 104

IF KEE Handrails are NOT installed at the Holding Tanks,

THEN install KEE Handrails:

2 (ea) at each tank. One handrail on each side of the access ladder to the tank. **Report** completion.

Support: [STSA](#)

Not Performed: _____

17-405 NTD PA

Attention on Pad A:

Wireless LAN at Pad A will be re-activated shortly. Approved wireless devices may be utilized.

Not Performed: _____

17-406 NTD OTC 232
 OTC *PAD 132
 *PAD *ACM NET 110

Remove/Verify removal of Wireless LAN Caution signs at ACM Monitor Shack on Pad surface, OIC station in White Room, and OIC station in PCR.

17-407 NTD STM 232
 STM JSTC 111
 JSTC JFIR 114

Perform the following after MLP Depressurization is complete and Pad open for controlled work:

1. **Verify** technicians in MLP standing by Halon panel.
2. **Place** key-switch in MLP to Manual (Local). MLP to remain in Manual.
3. **Switch** Halon to Auto (PSCC Console). **Verify** Halon Panel in Auto Mode (Remote)
4. **Place** MLP Halon smoke detection system in “Occupied” sensitivity mode (PSCC Console)
Report completion.

Support: [FIRE](#)
Support: [FA](#)

17-408 JSTC *SCB NET 104

Life support airpack truck released.

Pick up PAVs at Slidewire Bunker.
Report completion.

Support: [LS](#)

17-409 STM JBPN 111
T+03H30M

Configure HPGN₂ and HPGHe Storage Facilities Pad A/B and VAB isolation/bypass valves to normal configuration per [Doc: JOB PLAN M3123.002 \(LI\) Post Launch/FRF/Tanking Test Valve Positioning](#) (2 hours).

Support: [PNSA](#)

17-410 LPS

Issue NMAJORTEST Pseudo to value 0000 hexadecimal (0 decimal).

17-411 NTD LPS 232

Activate RSS HIMs/LCGs on ground Data Bus 2/22 for polling by GS3A FEP.

17-412 NTD STM 232
 STM JSTC 111
 JSTC *SEC 114

T+03H30M

Tour buses may resume Pad tour route.

Support: [SEC](#)

17-413 NTD STM 232
 STM JBFX 111

T+03H30M

JBFX released from monitoring OIS Channel 232.

Support: [CWSS](#)

<p>NOTE Remainder of OMI S2005 will commence per next step.</p>
--

17-414 NTD CTC 232
 OTC
 TBC
 STM
 *SCC
 LPS
 OTC *PAD 132

[SU72A34](#)

T+03H30M

Post-Launch portion of OMI S0007 complete.

Continue with Post-Launch Securing per OMI [S2005](#) .

17-415 NTD CTC 232

Verify ready to activate OIS-D on-orbit and normal operations permission configuration for Firing Room 2.

17-416 NTD STM 232
 STM GYCC 111
 GYCC JYCD 117

Activate OIS-D flight support permissions configuration for Prime Firing Room and normal operations permissions for Firing Room 2.

Report completion.

Support: [OISD](#)

17-417 TBC CLOX 136
 CLHY
 CMEC

T+03H30M

Continue with Post-Launch Securing per OMI [G3254](#) , OMI [G3153](#) , and OMI [S2005](#) .

17-418 JSTC JFIR 114

Return LCC fire alarm bypass in PSCC (OMI S0007) to Normal configuration.

Support: [FA](#)

NOTE

The Post Launch Engineering Walkdown and Debris Collection of the Pad Infield requires daylight conditions. Completion of both Pad structures (MLP, FSS, RSS, Pad Apron, Flame Trench) and Pad Infield Post-Launch Debris Inspections satisfies noted OMRS requirement.

17-419 *ICE NTD 232 SU72A10
 NTD OTC
 TBC
 STM

The Post-Launch Engineering Walkdown and Debris collection of the Pad Infield per OMI S6444.004 is complete.

OMRSR [S00U00.010-A-1](#)

OMRSR [S00U00.010-B-1](#)

NOTE

Do not release Fire, Emergency Medical, Environmental Health and Security, and Safety Support required for OMI S2005 Post-Launch Securing.

17-420 STM JSTC 111
 JCFM
 JOCC
 JBEP
 JBPN
 JBAC
 JBFX
 JBWC
 QBSE NET 104

T+03H30M

Post-Launch entry portion of OMI S0007 complete.

Support Post-Launch (OMI S2005) or return to normal support.

Support: [JSTC](#)
Support: [PNSA](#)
Support: [HVAA](#)
Support: [CWSS](#)
Support: [STSA](#)
Support: [PWR](#)
Support: [GIFM](#)

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17-421 OTC *PAD
 *PAD OMTO

Perform S0007.400, Operation 94 - Equipment Return.
Report completion.

17-422 JSTC JSEP 114
 GSPN
 *SEC
 JFIR
 JSAC
 JSDY
 WCRG
 *SCB
 GSHE NET 201
 PMEH
 GSUP
 GSPS

Post-Launch entry portion of OMI S0007 complete.

Support Post-Launch Securing (OMI S2005) or return to normal support.

Support: [ELEC](#)
Support: [PNU](#)
Support: [AC](#)
Support: [MECH](#)
Support: [QA](#)
Support: [RGR](#)
Support: [LS](#)
Support: [SEC](#)
Support: [FIRE](#)
Support: [HEQ](#)
Support: [EH](#)
Support: [LOG](#)
Support: [PN](#)

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17-423	STM	GYCC	111
	GYCC	GYCR	117
		JYCD	
		JTCR	
		GYAT	
		GYQC	
		GYCB	
		GYCJ	
		JPHO	
		JYVO	PTP

T+03H30M

Terminate voice recording for OMI S0007. Test complete.

Support Post-Launch Securing (OMI S2005).

Support: [VCE](#)
Support: [OISD](#)
Support: [OTV](#)
Support: [PHOT](#)
Support: [ATEL](#)
Support: [TCD](#)
Support: [TCOM](#)

*** End of Operation 17 ***

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OPERATION 18 Recycle Control Sequence

Shop: **NTD / OTC**
Cntrl Rm Console: **ALL**
OPR: **NTD/OTC**
Zone: **NA**
Hazard (Y/N): **Y**
Duration (Hrs): **1.0**

NOTE

This is a contingency operation. Perform only if Recycle is required.

Operation Not Performed: _____

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

**Recycle to T-20 Minutes from Hold or Cutoff Between T-20 Minutes
(OPS 101 Transition) and T-0 (SRB Ignition)**

NOTE

The following critical recycle operations must be complete prior to performing non-critical recycle actions.

1. GLS Safing
2. MCC-H Recycle
3. APU Shutdown
4. ECL Heater Reconfiguration
5. Cutoff Safing Switchlist
6. OAA Extend and Lock
7. Payload Safing (if required)
8. G1 to G9 Transition
9. Post Cutoff Safety Checks
10. S&A Safing
11. PCMMU to Remote
12. Reconfigure Cabin and MPS/HYD Switches
13. Scrub/Recycle Decision
14. ET Drain/Recovery Decision

GLS Safing

NOTE

Perform the next three steps only after GLS initialized.

Perform the next two steps if GLS Safing is not in progress.

18-1 **NTD** **CGLS** **212**

 PFPK5 (CUTOFF) - PRESS
 VERIFY PFPK5 LIGHT YELLOW

Not Performed: _____

18-2 **CGLS**

 PFPK6 (EXECUTE CUTOFF) - PRESS
 VERIFY SAFING IN PROGRESS

Not Performed: _____

NOTE

GLS Safing will automatically be initiated at Cutoff. Specific operations are dependent upon Cutoff time and are delineated at the end of this operation.

18-3 **CGLS** **NTD** **212**

 GLS Safing has started (monitor for errors) (PG-3B).

18-8 **PLT**

CRT
SYS SUMM 2
APU 1 SPEED < 5 PCT
APU 2 SPEED < 5 PCT
APU 3 SPEED < 5 PCT

18-9 **PLT**

PANEL R2
APU/HYD
APU FUEL TANK VLV
1 SW - CLOSE
2 SW - CLOSE
3 SW - CLOSE

18-10 **PLT**

PANEL R2
APU/HYD
APU CNTRL PWR
1 SW - OFF
2 SW - OFF
3 SW - OFF

18-11 **PLT**

PANEL R2
APU/HYD
HYD MAIN PUMP PRESS
1 SW - NORM
2 SW - NORM
3 SW - NORM

CAUTION

Elapsed time from APU shutdown to circ pump start shall not exceed 15 minutes or damage to SSME components may occur.

18-12

PLT

PANEL R2
APU/HYD
HYD CIRC PUMP
1 SW - GPC
2 SW - GPC
3 SW - GPC

18-13

CHYD

CRT (VWF19)
VERIFY

HYD CIRC PUMPS 1-2-3 RESTARTED
HYD CIRC PRESS 1-2-3 100 TO 600 PSIA
ME PR LN TEMP 1-2-3 60 DEG F (MIN)

CRT (VAF30)
VERIFY

1 CIRC AUTO A ON
2 CIRC AUTO B ON
3 CIRC AUTO C ON

OMRSD [S00E00.840-1R](#)

18-14

CAPU

CRT (VWF57)

VERIFY

APU READY

APU 1 - OFF V46X0125E1

APU 2 - OFF V46X0225E1

APU 3 - OFF V46X0325E1

APU OPERATE

APU 1 - OFF V46S0126E1

V46S1127E1

APU 2 - OFF V46S0226E1

V46S1227E1

APU 3 - OFF V46S0326E1

V46S1327E1

ISO VLVS

1A/2A/3A - CB CYAN V46X0115E1

1B/2B/3B - CB CYAN V46X0134E1

V46X0215E1

V46X0234E1

V46X0315E1

V46X0334E1

TURBINE SPEED

APU 1 - 0 PCT V46R0135A1

APU 2 - 0 PCT V46R0235A1

APU 3 - 0 PCT V46R0335A1

CNTRLR PWR

APU 1 - OFF V46S0124E1

APU 2 - OFF V46S0224E1

APU 3 - OFF V46S0324E1

18-15

CAPU

Record APU run time:

_____ (Record time)
(End APU Shutdown)

18-16

PLT OTC 212

OTC NTD

APU Shutdown complete.

***** End of APU Shutdown *****

NOTE For a loss of OI data after LO ₂ Term Replenish, LO ₂ will proceed directly to Drain following Terminal Count Safing.
--

18-17 CLOX NTD 212

Initiate LO₂ Drain.

Not Performed: _____

Data and Ground Command Availability Checklist

18-18 NTD LPS 212

Report FEP data validity.

OI _____

GPC _____

LDB _____

GS (1, 2, 3) _____

18-19 NTD CDPS 212

Report GPC downlist/LDB status.

18-20 NTD CISL 212

Verify PCMMU data is good.

PCMMU Recovery

NOTE

Perform PCMMU Recovery if the OI or GPC data is BAD during previous step.

PCMMU Recovery Not Performed: _____

18-21 CISL NTD 212

Recommend PCMMU swap.

18-22 CISL

CURSOR CNTL (SAQ04/VWQ11)
PCM CONTROL
PCMMU - OFF
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

18-23 CISL

CRT (SAQ04/VWQ11)
VERIFY
PCMMU
COMMAND - OFF

18-24 CISL NTD 212

Ready for switch to PCMMU 2.

18-25 NTD CDR 212

PANEL C3
OI PCMMU
POWER SW - 2

18-26

CISL

CURSOR CNTL (SAQ04/VWQ11)
PCM CONTROL
PCMMU 2 - ON
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

18-27

CISL

CRT (SAQ04/VWQ11)
VERIFY
PCMMU
COMMAND - ON

18-28

CISL NTD 212

PCMMU status is as follows:

PCMMU SWITCH POSITION: _____ (1 / OFF / 2)

PCMMU COMMAND: _____ (ON / OFF)

ISL can cannot verify the integrity of OI and GPC data.

***** End of PCMMU Recovery *****

18-29

OTC CAPU 212

IF APU heater ground commands were removed (T-10 seconds),

THEN perform APU Heater Activation per OMI S0007.400,
Operation 42.

Not Performed: _____

APU Pre-start Securing

NOTE

Perform this option if APU Pre-Start only was performed.

APU Pre-start Securing Not Performed:_____

18-30 OTC PLT 212

IF APU FUEL TANK ISOLATION VALVES WERE OPENED,

THEN PERFORM:

PANEL R2

APU/HYD

APU FUEL TANK VALVE

1 SW - CLOSE

2 SW - CLOSE

3 SW - CLOSE

Not Performed:_____

18-31 OTC PLT 212

PANEL R2

APU/HYD

APU CNTRL PWR

1 SW - OFF

2 SW - OFF

3 SW - OFF

18-32 OTC PLT 212

PANEL R2

APU/HYD

HYD MAIN PUMP PRESS

1 SW - NORM

2 SW - NORM

3 SW - NORM

***** End of APU Pre-start Securing *****

ECL Heater Reconfiguration

NOTE

Perform this option if Countdown proceeded past T-5 minutes.

ECL Heater Reconfiguration Not Performed: _____

18-33 OTC CDR 212

Reconfigure heaters.

18-34 CDR

PANEL L2
FLASH EVAPR
 FEEDLINE HTR
 A SUPPLY SW - 2
 B SUPPLY SW - 2

18-35 CDR OTC 212
OTC NTD

Heater Reconfiguration complete.

***** End of ECL Heater Reconfiguration *****

Cutoff Safing Switchlist

18-36 **OTC** **CDR** **212**

PANEL F6
FLT CNTLR PWR SW - OFF

18-37 **OTC** **PLT** **212**

PANEL R1
POWER DISTRIBUTION
ESS BUS SOURCE
FC 1 SW - OFF
FC 2 SW - OFF
FC 3 SW - OFF

18-38 **OTC** **PLT** **212**

PANEL F8
FLT CNTLR PWR SW - OFF

18-39 **OTC** **CGSS** **212**

Verify OAA is extended, locked, and configured for Retract.

PCMMU Configuration Determination

18-40 OTC CGLS 212

Confirm GLS command active PCMMU 1 or 2 to GSE power control successful.

PCMMU Reconfiguration

NOTE

Perform this option if GLS did not command PCMMU to GSE control or valid OI cannot be verified.

PCMMU Reconfiguration Not Performed: _____

18-41 OTC CISL 212

PCMMU not configured for remote by GLS.

Configure OI system for remote operations.

18-42 CISL

CRT (SAQ04/VWQ11)

VERIFY

OI DATA VALID

PCMMU

SW SCAN _____

18-43

CISL

CRT (SAQ04/VWQ11)
CURSOR CNTL
PCM CNTL
PCM _____ (1 OR 2) CMD ON
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT (SAQ04/VWQ11)
VERIFY

PCMMU
COMMAND ON
BITE
1 POWER GOOD
2 MTU GOOD
OI DATA VALID

18-44

CISL

OTC

212

PCMMU Reconfiguration is complete.

***** End of PCMMU Reconfiguration *****

NOTE

Perform next two steps after PCMMU reconfiguration is complete.

18-45

OTC

CDR

212

PANEL C3
OI PCMMU
POWER SW - OFF

18-46

CISL

CRT (SAQ04/VWQ11)

VERIFY

PCMMU

COMMAND ON

BITE

1 POWER GOOD

2 MTU GOOD

OI DATA VALID

G1 to G9 Transition

NOTE

Perform this option if PASS not in G9.

G1 to G9 Transition Not Performed: _____

18-47

CGLS

OTC

212

OTC

NTD

GLS primary safing complete. Ready for G9 transition.

18-48

***FLT**

NTD

212

BFS SPC buffer clear. Ready for G9 transition.

CAUTION

If LO₂ drain is in progress, G1 to G9 Transition will not occur until stable drain has been achieved and CLOX selects drain using low range XDCRS per OMI S1003 or CLOX will lose visibility of ET LO₂ tank pressure.

18-49

NTD

CMPL

212

CLOX

CLHY

Verify configured for G1 to G9 GPC OPS transition.

18-50 NTD ALL 212

Console operators discontinue all LDB commands and reads during PASS OPS Transition.

18-51 CHPU

IF GAS GENERATOR HEATER CONTROL IS NOT IN MANUAL MODE,

THEN PERFORM
CURSOR CNTL (BAT04)
GAS GENRTR - MAN

CRT
VERIFY

AUTO - OPEN BLOCK
MAN - CLOSED BLOCK

Not Performed: _____

18-52 NTD OTC 212
 OTC CDPS

Perform PASS Transition to GNC9.

18-53 CDPS

CURSOR CNTL (VASP9, PG-B)
RETURN TO HOST
XMIT CURSOR KEY - PRESS

CURSOR CNTL (VASP9, PG-B)
INHIBIT LCC MONITORING
XMIT CURSOR KEY - PRESS

18-54 CDPS

IF BFS is in OPS 101 or Run Mode and Crew is unavailable to support transition,

THEN secure BFS using Option 9, "Remote BFS Deactivation", Operation 111 of OMI S0007.500 prior to G9 Recycle.

Not Performed: _____

NOTE Perform next two steps if VASJ6 is not active.

18-55 CDPS

CURSOR CNTL (SAS01 PG-B)
DPS INIT DISPLAY (SAS01)
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS01 PG-B)
TERMINATE OPS MGR 5 (SAS25)
XMIT CURSOR KEY - PRESS
PFK2 KEY - PRESS

Not Performed: _____

18-56 CDPS

CONSOLE KYBD
VASJ6
PERF PGM KEY - PRESS

Not Performed: _____

NOTE

G9 Recycle is performed by Sequencer VASJ6. If BFS is active in OPS 101, VASJ6 will first prompt CDR to perform a BFS Recycle to OPS 0 Standby.

Once BFS Recycle is complete, program will transition PASS to G9 via IDP equivalent. PASS G9 transition takes approximately 90 seconds.

NOTE

Noted requirements are satisfied by the following series of steps.

OMRS S00E00.880-A-1R

OMRS S00E00.880-B-1R

18-57

CDPS

PFP (VASJ6)
COUNTDOWN RECYCLE - PRESS

18-58

CDPS

CRT (VASJ6 PG-B)
FOLLOW COUNTDOWN RECYCLE PROMPTS

18-59

CDPS

CONSOLE CRT (VASJ6 PG-B)
VERIFY MSG: RECYCLE COMPLETE

18-60

Noted requirements are complete.

OMRSD [S00E00.880-A-1R](#)

OMRSD [S00E00.880-B-1R](#)

18-61 CDPS OTC 212

DPS is configured to GNC9 Downlist Format _____ (44 or 60).

18-62 OTC NTD 212
 NTD TBC
 ALL

PASS OPS Transition to G9 complete.

***** End of G1 to G9 Transition *****

<p>NOTE Perform following step if a subsequent Launch attempt will occur.</p>
--

18-63 **CHPU**

CURSOR CNTL (BAT04)
GAS GENRTR - AUTO

CRT
VERIFY

AUTO - CLOSED BLOCK
MAN - OPEN BLOCK

Not Performed:_____

Post Cutoff Safety Checks

NOTE

Do not perform this option if previously performed for an Abort.

Perform this option anytime a Cutoff occurs after APU Start.

Post Cutoff Safety Checks Not Performed: _____

18-64 NTD ALL 212

Perform Post Cutoff Safety Checks.

1. **NTD CISL**
Verify Orbiter OI PCM data valid.
2. **NTD CDPS**
Verify Orbiter downlist data valid.
Verify LDB polling active.
3. **NTD CCME**
Verify engine data valid and engine command paths good.
4. **NTD CSME**
Verify all engines shutdown and all engine pressures and temperatures appear normal.
5. **NTD CSME**
Verify no engine leak indications.
6. **NTD CMPL**
Verify no indication of fire at AFT Orbiter area (FD 36, 37, 38, 39).
7. **NTD CMPL**
Verify LO₂ bleed path established or LO₂ Drain initiated per OMI S1003.
8. **NTD CLHY**
Verify no unexpected fire detectors tripped.

9. **NTD CLHY**
Verify no significant leaks on MLP, cross-country lines, TSM, storage area or ET vent lines.
10. **NTD CLHY**
Verify ET LH₂ tank pressure stable.
11. **NTD CLOX**
Verify OTV indicates no fire or leaks on cross-country lines, storage area, MLP or TSM.
12. **NTD CLOX**
Verify ET LO₂ tank pressure stable.
13. **NTD CPVD**
Verify GN₂ purge interface pressures are nominal and vent doors in Normal Purge configuration.
14. **NTD CHGD**
Verify no indication of hydrogen leaks in AFT fuselage.
15. **NTD CHGD**
Verify no indication of oxygen leaks in AFT fuselage.
16. **NTD CHGD**
Verify ET/IT O₂ concentration less than 10,000 ppm.
17. **NTD CGSS**
Verify no indications of fire on Crew Escape Route.
18. **NTD CAPU**
Verify APUs are shut down and no leakage indications.
19. **NTD CHPU**
Verify HPUs are shut down and no leakage indications.
20. **NTD CPWR**
Verify SRB ignition S&As safe.
21. **NTD CEPD**
If Cutoff occurred after T-21 seconds, verify ground PIC rack powered down.

- 22. NTD COOS**
Verify all Oxidizer/Fuel tank pressures and temps stable.
- 23. NTD CBRS**
Verify Range Safety inhibits are on.
- 24. NTD ALL**
Post Cutoff Safety Checks are complete.

***** End of Post Cutoff Safety Checks *****

NOTE Perform the next six steps if SRB Ignition S&As are armed.

18-68 NTD CPWR 212

Perform Ignition S&A Safing.

Not Performed: _____

18-69 CPWR

CURSOR CNTL (SDC01)
SRB OPTION IGN SAF/ARM
XMIT CURSOR KEY - PRESS

CRT
VERIFY SWC01 TERMINATED AND BDE07 IS DISPLAYED.

Not Performed: _____

18-70 CPWR

CURSOR CNTL (BDE07)
SAFE LEFT AND RIGHT
XMIT CURSOR KEY - PRESS

CRT
VERIFY BSE06 GPC FORMAT OR VALIDITY FREQ ERROR.

Not Performed: _____

18-71 CPWR

PFP (BSE06)
CONTINUE - PRESS

Not Performed: _____

18-72 CPWR

CONSOLE KYBD (BWE07)
PFK15 - PRESS

CRT
VERIFY BWE07 TERMINATES AND SDC01 IS DISPLAYED.

Not Performed: _____

18-73 CPWR NTD 212

Ignition S&A Safing complete.

Not Performed: _____

***** End of S&A Post Cutoff Safety Contingency *****

RSS S&A Safing

NOTE

Perform this option if Countdown passed T-5 minutes.

RSS S&A Safing Not Performed: _____

18-74 NTD RSR 212

Post Cutoff Safety Checks complete. Fire and leak detector status satisfactory.

Request concurrence to proceed with SRB S&A Safing.

18-75 NTD OTC 212

Perform SRB RSS S&A Safing (post G9 Recycle).

18-76 OTC CDPS 212
 CEPD

DEU equivalents and MEC critical commands will be issued momentarily.

18-77 OTC CGLS 212

Perform SRB RSS S&A Safing (post G9 Recycle).

18-78 CGLS OTC 212
 OTC NTD

SRB RSS S&As Safed and MEC critical commands disabled.

***** End of RSS S&A Safing *****

18-79 OTC CEPD 212
 CFCP

IF Fuel Cell loads have been adjusted to high range,

THEN perform Ground Power Connect and FC Load Share Adjust per OMI S0007.400, Operation 55.

Report completion.

OMRSR [S00E00.A00](#)

Not Performed: _____

18-80 OTC CREW 212

IF Countdown passed T-2 minutes,

THEN open LEH visors.

Not Performed: _____

18-81 OTC PLT 212

PERFORM MPS HELIUM RECONFIGURATION PER YOUR
CHECKLIST.

PANEL R2

MPS

HE ISOLATION A

LEFT SW - GPC

CTR SW - GPC

RIGHT SW - GPC

HE ISOLATION B

LEFT SW - GPC

CTR SW - GPC

RIGHT SW - GPC

PNEUMATICS

HE ISOL SW - GPC

18-82 PLT OTC 212

MPS Helium Reconfiguration complete.

Reconfigure from PLT Initiated Drain

NOTE

Perform this option if reconfigure from PLT initiated drain after GPC/LDB recovery is required.

Reconfigure from PLT Initiated Drain Not Performed: _____

NOTE

LO₂ fill and drain valve (PV9/10) open commands will be reapplied and switches will be repositioned to GND to provide LPS control of the valves during the remainder of Drain.

18-83 **NTD** **OTC** **212**
 OTC **CMPL**

Reconfigure for normal LO₂ Drain.

18-84 **CMPL**

CRT (SAE02)
VERIFY

PV9 OUTBOARD FILL AND DRAIN VALVE OPEN
PV10 INBOARD FILL AND DRAIN VALVE OPEN

18-85 **CMPL**

CONSOLE KYBD

SET_V41K1518XL_ON (PV9 OP CMD)
SET_V41K1518NL_ON (PV9 GRND OP CMD)
SET_V41K1501XL_ON (PV10 OP CMD A)
SET_V41K1502XL_ON (PV10 OP CMD B)
SET_V41K1503NL_ON (PV10 GRND OP CMD)
SET_V41K1515XL_OFF (PV9 CLSD CMD)
SET_V41K1512XL_OFF (PV10 CLSD CMD)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

18-86

CMPL

CONSOLE KYBD

CBTU_BT4_V41K1515XL,1
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

(BT4MASK 0080)

VERIFY V41K1515XL OFF

CBTU_BT4_V41K1512XL,1
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

(BT4 MASK 0200)

VERIFY V41K1512XL OFF

18-87

CMPL OTC 212
OTC PLT

PANEL R4
PROPELLANT FILL/DRAIN
 LO₂ OUTBD SW - GND
 LO₂ INBD SW - GND

18-88

CMPL OTC 212
CLOX
OTC NTD

MPS is configured for normal LO₂ Drain.

***** End of Reconfigure from PLT Initiated Drain *****

MEC Pre-Flight BITE Evaluation

NOTE

Perform this option if a Launch Scrub occurred at T-5 minutes or later.

MEC Pre-Flight BITE Evaluation Not Performed: _____

18-93 OTC CEPD 212

Perform MEC Pre-Flight BITE Evaluation.

18-94 CEPD

Perform SDC QLDB retrieval on FDs <MEC1> and <MEC2>.

Verify no MEC failures.

18-95 CEPD OTC 132
OTC NTD 232

MEC Pre-Flight BITE Evaluation complete. No MEC failures.

***** End of MEC Pre-Flight BITE Evaluation *****

ET Bipod Heater Reactivation

NOTE

Perform this option as soon as practical after Hold/Abort if ET Bipod heaters have been powered down.

ET Bipod Heater Reactivation Not Performed: _____

18-96 TBC CPWR 136

Reactivate Bipod Heaters.

18-97 CPWR

CURSOR CNTL (TD490)

IF AC1 AND AC2 POWER IS NOT ACTIVE (ON) ,

THEN :

AC1

 XMIT CURSOR KEY - PRESS

AC2

 XMIT CURSOR KEY - PRESS

CRT (TD490)

VERIFY

 AC1 - ON

 AC2 - ON

DELAY 20 SECONDS FOR PS INITIALIZATION BEFORE
POWERING UP THE BIPOD HEATERS IN THE NEXT STEP.

Not Performed: _____

18-98

CPWR

PFP (TW495)
BP HTR P-UP - PRESS
EXEC BP HTR P-UP - PRESS

CRT (TD490)
VERIFY

ALL HEATERS POWERED UP

OMRSD [S00E00.991](#)

18-99

CPWR TBC 136

ET Bipod heaters have been reactivated.

***** End of ET Bipod Heater Reactivation *****

ET Bellows Heater Reactivation

NOTE

Perform this option as soon as practical after Hold/Abort if ET Bellows Heater has been powered down.

ET Bellows Heater Reactivation Not Performed: _____

18-100

TBC CPWR 136

Reactivate ET Bellows Heater.

18-101

CPWR

CURSOR CNTL (BWE08)

INT
XMIT CURSOR KEY - PRESS

VERIFY
INT - GREEN

18-102

CPWR

PFP (BWE08)

PFP KEY 1 (ET BELLOWS ON) - PRESS
PFP KEY 5 (EXEC ET BELLOWS ON) - PRESS

VERIFY
BELLOWS HEATERS
CURRA = 2.2 - 2.6
CURRB = 2.2 - 2.6

OMRSD [S00E00.993](#)

18-103

CPWR TBC 136

ET Bellows Heater has been reactivated.

***** End of ET Bellows Heater Reactivation *****

ET Camera Deactivation Verification

NOTE
Perform the following option if ET Camera was activated.

ET Camera Deactivation Verification Not Performed: _____

18-104

CPWR

OTV
Verify no ET camera video present.

SDC
Perform Data Retrieval and **Record** Verification Time

ET Camera Off Time _____ GMT

OMRSD [S00E00.A20](#)

18-105

CPWR TBC 136

ET Camera verified deactivated.

***** End of ET Camera Deactivation Verification *****

SRBTS Powerdown

NOTE
Perform this option if SRBTS is powered up.

SRBTS Powerdown Not Performed: _____

18-106

TBC CBRS 136

Power down SRB tracking system.

18-107

CBRS

CURSOR CNTL (SWRB2)
LH TRANSPONDER
INST ON AND TRAN OFF
XMIT CURSOR KEY - PRESS
RH TRANSPONDER
INST ON AND TRAN OFF
XMIT CURSOR KEY - PRESS

18-108

CBRS

CRT (SWRB2)
LH AND RH TRANSPONDER VOLT BETWEEN 24 TO 38.4 V
LH AND RH TRANSPONDER CURRENT LESS THAN 0.2 AMP

18-109

CBRS

CURSOR CNTL (SWRB2)
LH TRANSPONDER
INST OFF AND TRAN OFF
XMIT CURSOR KEY - PRESS
RH TRANSPONDER
INST OFF AND TRAN OFF
XMIT CURSOR KEY - PRESS

18-110

CBRS

CRT (SWRB2)
RECORD
LH TRANSPONDER CURRENT _____ <0.04 AMPS
RH TRANSPONDER CURRENT _____ <0.04 AMPS

18-111

CBRS	TBC	136
TBC	NTD	212
NTD	*SCC	
	SRO	

SRBTS Powerdown complete.

***** End of SRBTS Powerdown *****

LCC Parameter Inhibit

18-112

COFC

APPL PAGE (SAB20/SWB02 PG-B)

PFK3 KEY - PRESS (ACT PARAM INH/ACT PG)

NOTE

Repeat the following two steps as required for the listed measurements.

Table No.	FD
16	V73X3001X1 - LH DDU PWR SPLY A GOOD
16	V73X3002X1 - LH DDU PWR SPLY B GOOD
16	V73X3003X1 - LH DDU PWR SPLY C GOOD
17	V73X3011X1 - RH DDU PWR SPLY A GOOD
17	V73X3012X1 - RH DDU PWR SPLY B GOOD
17	V73X3013X1 - RH DDU PWR SPLY C GOOD

18-113

COFC

CURSOR CNTL (SAB20/SWB02 PG-B)

PAGE AHEAD

XMIT CURSOR KEY - PRESS

REPEAT UNTIL PAGE = TABLE NO.

18-114

COFC

CURSOR CNTL (SAB20/SWB02 PG-B)

(FD)

XMIT CURSOR KEY - PRESS

(INVERT MEASUREMENT)

REPEAT FOR EACH FD LISTED

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OMI S0007.200 A23
APPROVED

18-115

COFC

APPL PAGE (SAB20/SWB02 PG-B)

PFK11 KEY - PRESS (CLEAR FAILURES)

***** End of LCC Parameter Inhibit *****

Scrub Decision Point

NOTE
Perform this option if subsequent Terminal Countdown run will be performed.

Scrub Decision Point Not Performed: _____

18-116	NTD	OTC TBC LPS CSPE STM *SCC *FLT PTC CDR SRO LRD *MIL LD	212
---------------	------------	---	------------

New T-0 will be _____ GMT.

Countdown Clock will pick up at T-20 minutes and counting at:

_____ GMT

18-117	LRD	NCC LSO GOMS *JTF *DCD EMS *SLF ROC	CCN LF1 135 NET 205
---------------	------------	--	---

New T-0 will be _____ GMT.

Countdown Clock will pick up at T-20 minutes and counting at:

_____ GMT

***** End of Scrub Decision Point *****

Element Recycle

NOTE

If Scrub decision has been made, NTD may elect to proceed with Operation 30 (OMI S0007.300) to initiate LO₂ Drain prior to completion of steps in Operation 18.

18-118	NTD	OTC	212
		TBC	
		STM	
		LPS	
		JRPS	
		PTC	

Perform recycle to T-20 minute status per the following operations:

Orbiter	Operation 19
SRB	Operation 20
ET	Operation 21
Support	Operation 22
MCCH	Operation 23

All Test Team personnel return to your normal command channel.
Orbiter personnel remain on OIS Channel 212. NTD to OIS Channel 232.

NOTE

Perform one of the following two steps if subsequent Terminal Countdown runs will be performed (no Scrub declared).

18-119 **NTD** **TBC** **232**
 TBC **CLOX** **136**
 CLHY

IF Countdown Clock was stopped at T-01 minute 57 seconds or earlier,

THEN re-establish ET LO₂ Replenish and verify LH₂ in Replenish.

Not Performed: _____

18-120 **NTD** **TBC** **232**
 TBC **CLOX** **136**
 CLHY

IF Countdown Clock was stopped after T-01 minute 57 seconds,

THEN re-establish ET LO₂ Replenish and perform LH₂ recovery to Topping/Replenish.

Not Performed: _____

18-121 **OTC** **NTD** **232**

Orbiter Recycle (Operation 19) complete.

18-122 **TBC** **NTD** **232**

SRB and ET Recycle (Operations 20 and 21) complete.

18-123 **STM** **NTD** **232**

Support Recycle (Operation 22) complete.

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APPROVED

18-124	NTD	OTC	232
		TBC	
		LPS	
		CSPE	
		STM	
		*SCC	
		*FLT	
		PTC	
		CDR	
		SRO	
		LRD	
		*MIL	
		LD	

IF Scrub decision has been announced,

THEN proceed to Operation 30 (OMI S0007.300).

Not Performed: _____

Preps to Resume at T-20 Minutes

NOTE
Perform this option if decision to Scrub has not been announced.

Preps to Resume at T-20 Minutes Not Performed: _____

IMU Pre-Flight Alignment Rerun Decision

NOTE
CGNC is backup to JSC/MER for IMU performance.

18-125	NTD	*FLT OTC CGNC	232
--------	-----	---------------------	-----

Verify if IMU performance requires Pre-Flight alignment or IMUs can remain in GC Align 1 or Inertial.

IMU Pre-Flight Alignment Rerun

NOTE
Perform this option if Pre-Flight alignment required.

IMU Pre-Flight Alignment Rerun Not Performed: _____

IMU Pre-Flight Alignment Preparations

18-126	NTD	OTC	232
	OTC	CGNC	212

Perform IMU Alignment Preparations. Do not start IMU Pre-Flight alignment until directed.

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

18-127

CGNC

CURSOR CNTL (VABM1/VWB19 PG-B)
TERM IDLE (ITEM 27)
XMIT CURSOR KEY - PRESS

START
XMIT CURSOR KEY - PRESS

18-128

CGNC

CRT (VSB35 PG-B)
DEPRESS PFK2 TO ISSUE SPEC 104 TO CRT 2

18-129

CGNC

APPL PAGE (VSB35 PG-B)
PFK2 KEY - PRESS (CRT 2)

18-130

CGNC

CRT (VSB35 PG-A OR VWB19 PG-B)
VERIFY IMUS IN TERM IDLE

Flight Controller Power - On

18-134 OTC CDR 212

PANEL F6
FLT CNTLR PWR SW - ON

18-135 OTC PLT 212

PANEL F8
FLT CNTLR PWR SW - ON

Clear GNC LCC Disk Files

18-136 COFC

APPL PG-B (SAB20/SWB02)
PFK3 KEY - PRESS (PARAM ACT/INH PG)

NOTE

“CLEAR ALL BYPASSES” will turn magenta while LCC parameters are cleared (Approx. 1 minute), then go back to cyan.

18-137 COFC

CURSOR CNTL (SAB20/SWB02 PG-B)
CLEAR ALL BYPASSES
XMIT CURSOR KEY - PRESS

18-138 COFC

APPL PG-B (SAB20/SWB02)
PFK5 KEY - PRESS (LCC MONITOR ACTIVITY PG)

PCMMU to Panel Control

18-139 OTC CISL 212

PCMMU switch will be changed to 1. PCMMU BITE bits 5, 12, 13 and possibly 8 and 11 may show failed due to BFS auto load of TFL 102 to 64KB formatter.

18-140 OTC CDR 212

PANEL C3
OI PCMMU
POWER SW - 1

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APPROVED

OMI S0007.200 A23
APPROVED

18-141 OTC CISL 212

CRT (SAQ04/VWQ11)

VERIFY

PCMMU

SW SCAN 1

CURSOR CNTL (SAQ04/VWQ11)

PCM CONTROL

COMMAND - OFF

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT (SAQ04/VWQ11)

VERIFY

PCMMU

COMMAND OFF

BITE

1 POWER GOOD

2 MTU GOOD

OI DATA VALID

OMRSD [V75AP0.040-1R](#)

SRB GEI Sample Rate Reset

18-142 TBC CISL 136

Perform sample rate increase of selected SRB GEI temperature measurements.

18-143 CISL

C9 CONSOLE KYBD

C RATE B06T7007A 1
XMIT CMD KEY - PRESS

REPEAT FOR THE FOLLOWING FD'S:

B06T7010A
B06T7011A
B06T7013A
B06T7018A
B06T7021A

18-144 CISL TBC 136

SRB GEI temperature measurement sample rate increase is complete.

18-145 NTD OTC 232
 OTC CVFS 212

Report status of Launch Polynomial Updates.

PASS/BFS One-Shot Data Transfer

NOTE

A BFS one-shot data transfer must be performed only in the event any of the following have occurred since Recycle to G9:

1. Launch Polynomial Update.
2. SRM Chamber Pressure Calibration Update.
3. IMU Pre-Flight Calibration.
4. Reload of BFS GPC
5. OMS B Crossfeed Bypass

If none of the above criteria are met, do not perform PASS/BFS One-Shot Data Transfer.

PASS/BFS One-Shot Data Transfer should be started approximately 12 minutes prior to OPS 101 Transition.

PASS/BFS One-Shot Data Transfer Not Performed: _____

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00E00.915-1R

18-146
L-42M

OTC CDR 212

Perform PASS/BFS Transfer Preps per your checklist (ref T-32 minutes).

18-147

CDPS

CRT (VASJ6 PG-B)
ONE SHOT ENABLED - INVERT GREEN

18-148

CDPS

PFP (VASJ6)
PFPK1 - PRESS (ONE-SHOT SELECT)

18-149

CDPS

CRT (VASJ6 PG-B)
ONE-SHOT COMPLETE
MILESTONE IN INVERT GREEN

18-150

Noted requirement is complete.

OMRSD [S00E00.915-1R](#)

***** End of PASS/BFS One-Shot Data Transfer *****

NOTE

Return to OMI control sequence at T-20 minute recycle entry point.

***** End of Preps to Resume at T-20 Minutes *****

***** End of Operation 18 *****

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

OPERATION 19 Orbiter Recycle

Shop: **OTD**

Cntrl Rm Console: **ALL**

OPR: **OTC**

Zone: **NA**

Hazard (Y/N): **Y**

Duration (Hrs): **0.5**

NOTE

This is a contingency operation. Perform only if Recycle is required.

Operation Not Performed: _____

19-7 CMPS OTC 212

Recycle per OMI S1004 complete.

19-8 CMPL OTC 212

Recycle per OMI S1003 complete.

19-9 CDPS OTC 212

Recycle to T-20 Minute Configuration complete.

NOTE

Perform next step if Cutoff occurred after APU start (T-5 minutes).

19-10 CAPU OTC 212

APU Cool down complete. Recycle to T-20 Minute Configuration complete.

OMRSD [S00E00.710-1R](#)

Not Performed: _____

19-11 CECL OTC 212

Recycle to T-20 Minute Configuration complete.

NOTE

Perform next step only if Fuel Cells have been transferred to internal reactants (T-2 minutes 35 seconds) and Hold is sufficient to require transfer to external reactants.

19-12 CFCP OTC 212

Transfer to External Reactants complete.

Not Performed: _____

19-13 CFCP OTC 212

Recycle to T-20 Minute Configuration complete.

19-14 CEPD OTC 212

Recycle to T-20 Minute Configuration complete.

19-15 CGLS OTC 212

IF another Launch attempt will occur in the same day,

THEN report Recycle to T-20 Minute Configuration complete.

Not Performed: _____

19-16 OTC NTD 232

Orbiter Recycle to T-20 Minute Configuration complete.

NOTE

Return to Recycle Control Operation 18.

Section 2 - Orbiter Subsystem Recycle

Flight Control Recycle

ECP AI Mode 1: Match Commands to Position

19-17

COFC

CURSOR CNTL (SAB19/SWB01)
COUNTDOWN - OPS MANAGER
XMIT CURSOR KEY - PRESS

19-18

COFC

CURSOR CNTL (SAB23/VSB100)
ORBITER/SRB AI MODE 1
XMIT CURSOR KEY - PRESS

19-19

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

19-20

COFC

CRT (SAB23/VSB100)
VERIFY
ORBITER/SRB AI MODE 1 SUCCESSFUL

OMRSD [S00E00.894-1R](#)

E1Y OPS 101 Command

NOTE

The following step is performed to reduce E1Y actuator drift from the OPS 101 transition command of +0.2 deg. The position must be maintained within 2.0 deg of this command at APU Start.

19-21

COFC

CURSOR CNTL (SAB23/VSB100)
E1Y NULL COMMANDING
XMIT CURSOR KEY - PRESS

19-22

COFC

CURSOR CNTL (SAB23/VSB100)
START TEST
XMIT CURSOR KEY - PRESS

19-23

COFC

CRT (SAB23/VSB100)
VERIFY
E1Y NULL COMMANDING SUCCESSFUL

19-24

COFC

CONSOLE KYBD (SAB23/VSB100)
PFK15 KEY - PRESS

Deactivate Profile Monitor

19-25 COFC

APPL PG-B (SAB21/VWB05)
PFK6 KEY - PRESS (ACTIVATE BYPASS PG)
PFK8 KEY - PRESS (CLEAR ALL BYPASSES)
PFK15 KEY - PRESS (TERMINATE)

19-26 COFC OTC 212

Flight Control Recycle to T-20 Minute Configuration complete.

SSME Recycle

NOTE

SSME GN₂ Purge will remain active for 12 hours minimum. Purge will be secured per OMI V9018.002.

19-27 CSME

CURSOR CNTL (VAE38A)
GN₂ DISPLAY

1. PRIMARY & SECONDARY CONTROL OVERRIDES - OFF
2. PRIMARY & SECONDARY VENT OVERRIDES - OFF

19-28 CSME

(VAE38A)
VERIFY GN₂ PURGE PRESSURE 573 TO 690 PSIG.

OMRSD [S00E00.160-1](#)

06-16-2011
APPROVED

OMI S0007.200 A23
APPROVED

19-29

CSME

IF SSME IGNITION OCCURRED OR IF SCRUB/DETANK IS
REQUIRED,

THEN PERFORM:

CURSOR CNTL (VAE38A PG-B)

TURN HEATER POWER ON USING SCR1 OR SCR2

SCR _____ ENB - ON

SCR _____ HTR - ON

INDICATE IF SCR1 OR SCR2 USED

VERIFY PANEL OUT PRI TEMP STABLE AT
130 DEG F (120 to 140 DEG F).

RECORD GMT _____

OMRSD [S00E00.161-1](#)

Not Performed: _____

CCME Recycle to T-20 Minutes

NOTE

Perform next two steps if GLS has reset the Countdown Clock back to T-20 minutes.

CCME Recycle to T-20 Minutes Not Performed:_____

19-30

CCME

PFPK (VWE01A)
TERMINATE - PRESS

19-31

CCME

CURSOR CNTL (SAS13)
VWE01A
XMIT CURSOR KEY - PRESS

***** End of CCME Recycle to T-20 Minutes *****

19-32

CSME OTC 212

Recycle to T-20 Minute Configuration complete.

Sound Suppression System Recycle (CGSS)

19-33 OTC CGSS 212

Perform Sound Suppression System Recycle.

19-34 CGSS

IF SOUND SUPPRESSION FR COMMAND BUS IS ON,

THEN :

CURSOR CNTL (VAJ14)

CMD BUS

XMIT CURSOR KEY - PRESS (TWICE)

OMRSD [S00E00.B40-1](#)

Not Performed: _____

19-35 OTC CGSS 212

IF Countdown went past 28 seconds,

THEN support Sound Suppression System Recycle (Operation 22) on Channel 123.

Not Performed: _____

19-36 CGSS OTC 212

Sound Suppression System Recycle (CGSS) complete.

Increase Payload Bay Flow Rate

NOTE
Perform this option to support payload requirements.

Increase Payload Bay Flow Rate Not Performed: _____

19-37 OTC CPVD 212

Increase Payload Bay flow rate.

Report completion.

19-38 CPVD

CURSOR CNTL (VAM31A)
INCREASE PLB FLOW RATE TO:
PREVIOUS PLB PURGE FLOW RATE REQ.

RECORD FLOW RATE:

_____ LBS/MIN

19-39 CPVD OTC 212
OTC NTD 232
NTD PTC

Payload Bay flow rate increased.

***** End of Increase Payload Bay Flow Rate *****

GLS Recycle

NOTE

Perform this option only if a second Launch attempt is made the same day.

GLS Recycle Not Performed: _____

19-40 OTC CGLS 212

Recycle GLS to T-20 Minute Configuration per OMI S0007.400,
Operation 65.

19-41 CGLS OTC 212

GLS Recycle to T-20 Minute Configuration complete.

***** End of GLS Recycle *****

19-42

CGLS

Verify GLS software executed Safing commands/verifications as listed below. Post-test data retrievals may be utilized to determine not-performs for Cutoff time, site, or event dependent actions.

GLS Safing Action	OMRS No.	NP Opt Reqd
1. Stop Ground/Vehicle Clocks	S00E00.940	
2. CMD Decoders Power On	S00E00.980-1R	
3. Unlock SRB FWD MDMs	S00E00.930-1R	
4. Safe SRB Ignition S/A	S00E00.750-1	
5. Term LO ₂ Prepress	S00E00.460	
6. GCU Cooling Reconfiguration	S00E00.870-1R	
7. Disarm H ₂ Burn System	S00E00.B70	
8. Inhibit SRB RSS	S00E00.760-1R	
9. Unlock SRB AFT MDMs	S00E00.950-1R	
10. SRB APU Turbine Overspeed S/D C.L.	S00E00.720	
11. HPU Shutdown Sequence	S00E00.721-A-1	
12. Close LO ₂ POGO Valves	S00E00.B85	
13. Open LO ₂ Overboard Bleed Valves	S00E00.B90-1	

GLS Safing Action	OMRS No.	NP Opt Reqd
14. Open LO ₂ Overboard Bleed Valves	S00E00.B85	
15. Start MPS GN ₂ Purge	S00E00.160-1	
16. Initiate Purge Sequence 3	S00E00.150-1R	
17. MFV Heaters On	S00E00.305	
18. Safe SRB RSS S&A	S00E00.751-1	
19. Verify SRB Ignition PIC Cap Discharged	S00E00.800-1R	
20. OAA Emergency Extend	S00E00.B80	
21. SSME S/D Verification	S00E00.070-1	
22. Close LO ₂ Prevalves	S00E00.B90-1	
23. Close POGO Valves after Abort	S00E00.B90-1	
24. Close LH ₂ Prevalves	S00E00.205-1	
25. Fire Detectors On	S00E00.B60-1	
26. Verify/Position Vent Doors	S00E00.050	
27. Fire Inhibit Commands On	S00E00.790-1R	
28. SS Water System Securing	S00E00.B50-1	
29. ET Vent Arm PIC Caps Discharged	S00E00.810-1R	

GLS Safing Action	OMRS No.	NP Opt Reqd
30. T-0 Umb PIC Caps Discharged	S00E00.820-1R	
31. SRB Holddown Post PIC Caps Discharged	S00E00.830-1R	
32. Deactivate ET Camera	S00E00.A20	
33. Deactivate SRB Cameras	S00E00.A25	

- OMRSD [S00E00.940-1 \(SLPG2\)](#)
- OMRSD [S00E00.980-1R \(SLPG2\)](#)
- OMRSD [S00E00.930-1R \(SLPG2\)](#)
- OMRSD [S00E00.750-1 \(SLPG2\)](#)
- OMRSD [S00E00.460 \(SLPG2\)](#)
- OMRSD [S00E00.870-1R \(SLPG2\)](#)
- OMRSD [S00E00.B70 \(SLPG2\)](#)
- OMRSD [S00E00.760-1R \(SLPG2\)](#)
- OMRSD [S00E00.950-1R \(SLPG2\)](#)
- OMRSD [S00E00.720 \(SLPG2\)](#)
- OMRSD [S00E00.721-A-1 \(SLPG2, SLPA1\)](#)
- OMRSD [S00E00.B85 \(SLPG2\)](#)
- OMRSD [S00E00.B90-1 \(SLPG2\)](#)
- OMRSD [S00E00.160-1 \(SLPG2\)](#)
- OMRSD [S00E00.150-1R \(SLPG2\)](#)
- OMRSD [S00E00.305 \(SLPG2\)](#)
- OMRSD [S00E00.751-1 \(SLPG2\)](#)
- OMRSD [S00E00.800-1R \(SLPG2\)](#)
- OMRSD [S00E00.B80 \(SLPG2\)](#)
- OMRSD [S00E00.070-1 \(SLPG2\)](#)
- OMRSD [S00E00.205 \(SLPG2\)](#)
- OMRSD [S00E00.B60-1 \(SLPG2\)](#)
- OMRSD [S00E00.050 \(SLPG2\)](#)
- OMRSD [S00E00.790-1R \(SLPG2\)](#)
- OMRSD [S00E00.B50-1 \(SLPG2\)](#)
- OMRSD [S00E00.810-1R \(SLPG2\)](#)
- OMRSD [S00E00.820-1R \(SLPG2\)](#)
- OMRSD [S00E00.830-1R \(SLPG2\)](#)
- OMRSD [S00E00.A20 \(SLPG2\)](#)
- OMRSD [S00E00.A25 \(SLPG2\)](#)

DPS Recycle

19-43 CDPS

```
CONSOLE KYBD  
HOME CMD KEY - PRESS  
ISSU N72IV101D #B00B  
XMIT CMD KEY - PRESS  
EXEC CMD KEY - PRESS  
HOME CMD KEY - PRESS  
C CO _DEU2G LDBA C11  
XMIT CMD KEY - PRESS
```

NOTE

LDB switching will occur during Command Decoder BSR read.

19-44 CDPS

```
CRT (VAS59 PG-B)  
LA1 ON  
LF1 ON
```

19-45 CDPS

```
CURSOR CNTL (SAS01 PG-B)  
DPS  
XMIT CURSOR KEY - PRESS  
  
CURSOR CNTL (SAS01 PG-B)  
MDM BSR READ PROGRAM (VAS93)  
XMIT CURSOR KEY - PRESS  
  
PFK2 KEY - PRESS
```

NOTE

Power transient bit (BSR=X8000) may be set in BSR if Countdown went past T-10 seconds.

19-46

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 1
XMIT CURSOR KEY - PRESS

PFK5 KEY - PRESS
(FOLLOW PROGRAM PROMPTS)

19-47

CDPS

HOME CMD KEY - PRESS
GPCC LDBC
XMIT CMD KEY - PRESS

CURSOR CNTL (\$GM)
POLL GSE ON LDB # 2
XMIT CURSOR KEY - PRESS

PFK1 KEY - PRESS

19-48

CDPS

CURSOR CNTL (VAS93 PG-B)
PORT 2
XMIT CURSOR KEY - PRESS

PFK5 KEY - PRESS
(FOLLOW PROGRAM PROMPTS)

19-49

CDPS

APPL PAGE (VAS93, PG-B)
PFK15 KEY - PRESS

ECLSS Recycle

19-55

CECL

CONSOLE KYBD
SET V61K2711YL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

CONSOLE KYBD (VAG60)
PERF PGM KEY - PRESS

CURSOR CNTL
C5
XMIT CURSOR KEY - PRESS

AUTO
XMIT CURSOR KEY - PRESS

CRT
VERIFY

VAG60 ACTIVE IN AUTO MODE.

19-56

CECL

CONSOLE KYBD
SET V61K2866NL OFF
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

EPDC Recycle

Ground PIC Rack Power Up

NOTE

Perform this option if GLS powered PIC racks down (after T-21 seconds) and another Launch attempt will be made.

Ground PIC Rack Power Up Not Performed: _____

19-57

CEPD

CURSOR CNTL (VWC10)
GND SYS - ON
XMIT CURSOR KEY - PRESS

CRT (VWC10)
VERIFY

GND AND CPA VOLTAGES FOR H₂ BURN AND LAUNCH
RELEASE SYSTEMS ARE GREATER THAN 26 VDC.

19-58

CEPD

CRT (VWC10)
VERIFY

ALL SRB IGN, TSM, HDP LANYARD AND ETVAS PIC CAP
VOLTS LESS THAN 1.5 VDC.

***** End of Ground PIC Rack Power Up *****

19-59

CEPD OTC 212

Recycle to T-20 Minute Configuration complete.

FC/PRSD Recycle

NOTE

Perform this option only if Fuel Cells have been transferred to internal reactants (T-02 minutes 35 seconds) and hold is sufficient to require transfer to external reactants.

FC/PRSD Recycle Not Performed: _____

19-60

CFCP

Transfer to external reactants per OMI [V1040.300](#) on
OIS Channel 153.

19-61

CFCP

OTC

212

Transfer to External Reactants complete.

OMRSR [S00E00.670](#)

***** End of FC/PRSD Recycle *****

PRSD Cryo Heater and VAC-ION Pump Activation

NOTE

Perform this option if Cutoff occurred after T-10 seconds.

PRSD Cryo Heater and VAC-ION Pump Activation Not Performed: _____

NOTE

The following steps reinitiate tank heater LPS auto commands by cycling Off (to reset auto command pseudos) then to Auto (issuing auto commands).

19-62

CFCP

CURSOR CNTL (VWR70, PG-B)
LH₂ TK1 HTR CNTL
AB OFF BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUTO CYAN

CURSOR CNTL
AB AUT BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUT INV CYAN

CURSOR CNTL
LH₂ TK2 HTR CNTL
AB OFF BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

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CRT
VERIFY AUTO CYAN

CURSOR CNTL
AB AUT BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUT INV CYAN

19-63

CFCP

IF TK3 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)
LH₂ TK3 HTR CNTL
AB OFF BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUTO CYAN

CURSOR CNTL
AB AUT BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUT INV CYAN

Not Performed: _____

19-64

CFCP

IF TK4 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)

LH₂ TK4 HTR CNTL

AB OFF BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUTO CYAN

CURSOR CNTL

AB AUT BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUT INV CYAN

Not Performed:_____

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APPROVED

19-65

CFCP

IF TK5 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)

LH₂ TK5 HTR CNTL

AB OFF BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUTO CYAN

CURSOR CNTL

AB AUT BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUT INV CYAN

Not Performed:_____

19-66

CFCP

CURSOR CNTL (VWR70, PG-B)
LO₂ TK1 HTR CNTL
AB OFF BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUTO CYAN

CURSOR CNTL
AB AUT BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUT INV CYAN

CURSOR CNTL
LO₂ TK2 HTR CNTL
AB OFF BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUTO CYAN

CURSOR CNTL
AB AUT BLK
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

CRT
VERIFY AUT INV CYAN

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19-67

CFCP

IF TK3 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)

LO₂ TK3 HTR CNTL

AB OFF BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUTO CYAN

CURSOR CNTL

AB AUT BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUT INV CYAN

Not Performed:_____

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APPROVED

19-68

CFCP

IF TK4 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)

LO₂ TK4 HTR CNTL

AB OFF BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUTO CYAN

CURSOR CNTL

AB AUT BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUT INV CYAN

Not Performed:_____

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OMI S0007.200 A23
APPROVED

19-69

CFCP

IF TK5 IS INSTALLED,

THEN PERFORM:

CURSOR CNTL (VWR70, PG-B)

LO₂ TK5 HTR CNTL

AB OFF BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUTO CYAN

CURSOR CNTL

AB AUT BLK

XMIT CURSOR KEY - PRESS

EXEC CMD KEY - PRESS

CRT

VERIFY AUT INV CYAN

Not Performed:_____

NOTE

Perform the next three steps to reinitiate tank VAC-ION commands.
VAC-ION pump commands will be issued by initiation of VARAI.

19-70 CFCP

CRT (VWR70, PG-B)

VERIFY TRANSFER TO EXTERNAL REACTANTS COMPLETE
AND ALL TANK HTR EVENTS ARE OFF.

19-71 CFCP

CONSOLE KYBD
VARAI
PERFORM PROGRAM KEY - PRESS
VERIFY TANK HTR MONITOR PGM ACTIVE

NOTE

The next step terminates VARAI with both heater control logic and EMON
notification inhibited.

19-72 CFCP

CONSOLE KYBD (VARAI)
PFK1 KEY - PRESS 3 TIMES

***** End of PRSD Cryo Heater and VAC-ION Pump Activation *****

19-73 CFCP OTC 212

Recycle to T-20 Minutes complete.

APU Recycle

NOTE

Perform this option if Cutoff occurred after APU Start (T-5 minutes).

APU Recycle Not Performed: _____

19-74 CAPU

Perform APU Cooldown per OMI S0007.400 (Operation 42). Report when complete.

19-75 CAPU OTC 212

APU Cooldown complete. APU Reconfigure to T-20 Minute Configuration complete.

***** End of APU Recycle *****

Orbiter Recycle - Complete

19-76 OTC NTD 232

Orbiter Recycle to T-20 Minute Configuration complete.

***** End of Operation 19 *****

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OPERATION 20 SRB Recycle

Shop: **TBC**

Cntrl Rm Console: **ALL**

OPR: **TBC**

Zone: **NA**

Hazard (Y/N): **Y**

Duration (Hrs): **0.5**

NOTE

This is a contingency operation. Perform only if Recycle is required.

Operation Not Performed: _____

NOTE

Steps involving Crit 1, 1R and/or 1S items are contained in the following operation.

20-1 NTD TBC 232

Perform SRB T-20 Minute Recycle on OIS Channel 136.

20-2 CPWR TBC 136

CRT (BWE08)

ALL PIC VOLTS 0 +/- 1.5 VDC
LH/RH IGN S&A SAFE

20-3 CPWR

CURSOR CNTL (BWE01)
EMON OPTIONS
XMIT CURSOR KEY - PRESS

20-4 CPWR

CURSOR CNTL (BKE03)
A ALL EMONS
XMIT CURSOR KEY - PRESS

CRT
VERIFY ALL EMONS ARE ACTIVE

20-5 CPWR

PFP (BKE03)
PFK15 KEY - PRESS

SRB Joint Heater Reactivation

CAUTION

RSRM igniter heater temperatures shall not exceed 125 deg F and current shall not exceed 4.9 amps AC or proper seal capabilities of all ignition system seals may not occur.

Field joint heater temperatures shall not exceed 123 deg F and current shall not exceed 19.5 amps AC or proper seal capabilities of all field joint o-ring seals may not occur.

NOTE

Perform this option only if SRB joint heaters have been turned off.

Do not perform this option if Launch scrubbed for 24 hours or more.

SRB Joint Heater Reactivation Not Performed: _____

20-6 TBC CPWR 136

Reactivate SRB field joint and igniter heaters.

20-7 CPWR

CURSOR CNTL (BDE11)
AUTO SEQUENCING - ALL
XMIT CURSOR KEY - PRESS

20-8

CPWR

CRT (BDE11)

VERIFY

ALL HTR PWR INDICATIONS ON

ALL AUTO SEQ ACT

NO FAILURE MESSAGES DISPLAYED

OMRSD [S00E00.740](#)

OMRSD [S00E00.742](#)

OMRSD [S00FA0.960](#)

OMRSD [S00FA0.970](#)

NOTE

Program BWE11 must remain active through T-0.

20-9

CPWR

TBC

136

SRB field joint and igniter heaters activated.

***** End of SRB Joint Heater Reactivation *****

SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification

20-10 TBC CPWR 136

Perform SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification.

20-11 CPWR 136

Perform SDC TAC (Time and Cycle) Retrieval for RSS/Recovery/C-Band Battery Amp-Hours.

20-12 CPWR

VERIFY AMP-HRS REMAINING EXCEED AMP-HRS REQUIRED FOR LAUNCH (AHRL) FOR ALL BATTERIES.

20-13 CPWR 136

Perform SDC Data Retrievals on the following FDs and verify less than 75 minutes of ON time:

N78IB001E, N78IB003E, N78IB005E, N78IB007E

20-14 CPWR TBC 136

SRB RSS/Recovery/C-Band/SSVR Battery Amp-Hour Verification complete.

OMRSD [S00FB0.370](#)

OMRSD [S00FB0.380](#)

OMRSD [S00FB0.390](#)

SRB MDM Recycle

20-15 TBC CBDP 136

Perform SRB MDM Recycle.

NOTE

LL1 and LR1 active port BSR will = X3000 if Countdown went below T-55 seconds.

LL2 and LR2 active port BSR will = X3000 if Countdown went below T-13 seconds.

If GLS Recycle results in unlock command issued to an IOM that was not locked, the active port BSR will = X0000 for MDM, or X1000 for an EMDM.

20-16

CBDP

CURSOR CNTL (SAS05 PG-B)
DPS
XMIT CURSOR KEY - PRESS

CURSOR CNTL (SAS05 PG-B)
SRB MANUAL TEST SEL
XMIT CURSOR KEY - PRESS

PFK2 KEY - PRESS

20-17

CBDP

CURSOR CNTL (BSM06 PG-B)
BSR READ PORT 1&2
XMIT CURSOR KEY - PRESS

CRT (BSM06 PG-B)
VERIFY BSR'S NOMINAL

20-18

CBDP

PFP (BSM06)
PFPK5 (CONTINUE) - PRESS

20-19

CBDP

CURSOR CNTL (BSM06 PG-B)
LOCK STATUS TEST
XMIT CURSOR KEY - PRESS

VERIFY ALL MDMS UNLOCKED

20-20

CBDP

APPL PAGE (BSM06 PG-B)
PFK-5 - PRESS

20-21

CBDP

PFP (BSM06)
PFPK1 (TERMINATE) - PRESS

20-22

CBDP TBC 136

SRB MDM Recycle complete.

20-23 TBC CHPU 136

IF SRB AFT skirt GN₂ purge is On
AND thermal conditioning is not required,

THEN terminate SRB AFT skirt GN₂ purge.
Report completion.

Not Performed: _____

20-24 CHPU

IF PREVIOUS STEP PERFORMED,

THEN PERFORM:

CURSOR CNTL (BAT04)
SRB AFT SKIRT GN₂ PURGE
(HEATER)
CMD - OF
(VALVING)
(MAIN)
PRI - CL
SEC - CL
LOW
PRI - CL
SEC - CL
DC PWR
PRI - OF
SEC - OF

CRT (BAT04)
SRB AFT SKIRT GN₂ PURGE
PURGE OFF

Not Performed: _____

20-25 TBC CHPU 136

IF thermal conditioning is required,

THEN **configure** SRB AFT skirt GN₂ purge to low flow rate.

Report completion.

Not Performed: _____

20-26 CHPU

IF PREVIOUS STEP PERFORMED,

THEN PERFORM:

CURSOR CNTL (BAT04)
SRB AFT SKIRT GN₂ PURGE
(VALVING)
(LOW)
PRI - OP
SEC - OP
(MAIN)
PRI - CL
SEC - CL
(HEATER)
CMD - ON

CRT
SRB AFT SKIRT GN₂ PURGE
(TEMPERATURE/PRESSURE)
PRG
ON

Not Performed: _____

20-27 CHPU

CONSOLE KEYBOARD C-8

TYPE C_RA_GHYP8014A
PRESS XMIT CMD

TYPE C_RA_GHYP8015A
PRESS XMIT CMD

SRB APU N₂H₄ Manifold Refill and Bearing Soak

NOTE

Perform this option if any SRB APU hotfire occurred in OMI S0007, and if same day Launch Recycle to T-20 minutes is in work.

SRB APU N₂H₄ Manifold Refill and Bearing Soak Not Performed: _____

NOTE

Do not remove SRB OI power until SRB APU N₂H₄ manifold refill is complete.

During FIV cycles, gas generator bed temperatures shall be monitored for any rise in temperature (shall not increase more than 20 degrees).

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00E00.721-B

20-28 TBC CHPU 136

Perform N₂H₄ Manifold Refill and Bearing Soak.

20-29 TBC CHPU 136

CRT (BAT04)

VERIFY

VEHICLE

GAS GENRTR

TEMP

LEFT A (LESS THAN 220 DEG F)

LEFT B (LESS THAN 220 DEG F)

RIGHT A (LESS THAN 220 DEG F)

RIGHT B (LESS THAN 220 DEG F)

20-30

CHPU

CRT (BAT04)
READ AND RECORD (STARTING TEMPERATURES)

VEHICLE
GAS GENRTR
TEMP

RECORD :

LEFT A _____ BD
(ROCK)

LEFT B _____ BD
(TILT)

RIGHT A _____ BD
(ROCK)

RIGHT B _____ BD
(TILT)

20-31

CHPU

CURSOR CNTL (BAT04)
VEHICLE
UPDT (BLOCK)
XMIT CURSOR KEY - PRESS

NOTE DISCRETE DATA UPDATE

20-32

CHPU

CRT (BAT04)
VEHCLE
FUEL SUPPLY MODULE

SEC VLV
LEFT A (CL) GREEN

CURSOR CNTL
ISO VLV
LEFT A - OP
WAIT 10 SEC MINIMUM THEN
LEFT A - CL

20-33

CHPU

CRT (BAT04)
VEHCLE
FUEL SUPPLY MODULE

SEC VLV
LEFT B (CL) GREEN

CURSOR CNTL
ISO VLV
LEFT B - OP
WAIT 10 SEC MINIMUM, THEN
LEFT B - CL

20-34

CHPU

CRT (BAT04)
VEHICLE
FUEL SUPPLY MODULE

SEC VLV
RIGHT A (CL) GREEN

CURSOR CNTL
ISO VLV
RIGHT A - OP
WAIT 10 SEC MINIMUM, THEN
RIGHT A - CL

20-35

CHPU

CRT (BAT04)
VEHICLE
FUEL SUPPLY MODULE

SEC VLV
RIGHT B (CL) GREEN

CURSOR CNTL
ISO VLV
RIGHT B - OP
WAIT 10 SEC MINIMUM, THEN
RIGHT B - CL

20-36

CHPU

CRT (BAT04)
READ AND RECORD (ENDING TEMPERATURES)

VEHICLE
GAS GENRTR
TEMP

RECORD:

LEFT A _____ BD
(ROCK)

LEFT B _____ BD
(TILT)

RIGHT A _____ BD
(ROCK)

RIGHT B _____ BD
(TILT)

20-37

CHPU

Verify ending temperatures did not increase more than 20 degrees from starting temperatures for left rock, left tilt, right rock and right tilt.

20-38

CHPU TBC 136

N₂H₄ Manifold Refill and Bearing Soak complete.

20-39

Noted requirement is complete.

OMRSD [S00E00.721-B-1](#)

SRB HPU Heater Power

NOTE

Perform this option if any SRB APU hotfire occurred in OMI S0007 and if same day Launch Recycle to T-20 minutes is in work.

SRB HPU Heater Power Not Performed: _____

20-40 TBC CHPU 136

Perform SRB HPU Gas Generator Heater Power On.

20-41 CHPU

CURSOR CNTL (BAT04)
VEHICLE
GAS GENRTR
AUT (BLOCK)
XMIT CURSOR KEY - PRESS

20-42 CHPU TBC 136

SRB HPU gas generator heater power On.

***** End of SRB HPU Heater Power *****

***** End of SRB APU N₂H₄ Manifold Refill and Bearing Soak *****

SRB Recycle - Complete

20-43 TBC NTD 232

SRB Recycle to T-20 minutes complete.

***** End of Operation 20 *****

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OPERATION 21 ET Recycle

Shop: **TBC**

Cntrl Rm Console: **ALL**

OPR: **TBC**

Zone: **NA**

Hazard (Y/N): **Y**

Duration (Hrs): **0.5**

NOTE

This is a contingency operation. Perform only if Recycle is required.

Operation Not Performed:_____

21-1 CLHY CLHF 166

Monitor GH₂ leakage in the following places (GAW02):

LD23 - ET ground umbilical car PL, less than 40,000 ppm	GLHR7047A
LD25 - ET ground umbilical car PL, less than 40,000 ppm	GLHR7049A
LD28 - T-0 umbilical LH ₂ TSM, less than 40,000 ppm	GLHR7057A
LD32 - T-0 umbilical LH ₂ TSM, less than 40,000 ppm	GLHR7067A
LD56 - LH ₂ fill in purge box, less than 40,000 ppm	GLHR7078A
LD57 - LH ₂ fill in purge box, less than 40,000 ppm	GLHR7079A
LD29 - LH ₂ TSM, bottom, less than 10,000 ppm	GLHR7058A
LD30 - LH ₂ TSM, top, less than 10,000 ppm	GLHR7059A

OMRSD [S00E00.012-1](#)

21-2 CLHY TBC 136

IF Countdown Clock stopped between T-01 minute 57 seconds and SSME Start (T-0 minutes 6.6 seconds)

THEN report LH₂ Terminal Count Safing (Pre-SSME Ignition) complete.

OMRSD [S00E00.490-1](#)

OMRSD [S00E00.540-1](#)

Not Performed: _____

21-3 CLHY TBC 136

IF Countdown Clock stopped after SSME Start
(T-0 minutes 6.6 seconds),

THEN report LH₂ Terminal Count Safing (post SSME Ignition)
complete.

OMRSD [S00E00.490-1](#)

OMRSD [S00E00.130-1](#)

Not Performed: _____

21-4 TBC CMEC 136

IF not extended,

THEN extend GVA and configure to support per OMI [G2158](#) .

Report complete.

Not Performed: _____

21-5 TBC CMEC 136

IF the GOX Vent Hood purge was previously terminated,

THEN verify GOX Vent Hood installed and purge reinitiated.

OMRSD [S00E00.500-1](#)

Not Performed: _____

LH₂/LO₂ to Flight Levels

NOTE

Perform this option if subsequent Terminal Countdown runs will be performed (no Scrub declared).

LH₂/LO₂ to Flight Levels Not Performed: _____

21-6 CLHY TBC 136

Recovery from Terminal Count to Replenish complete.

21-7 CLHY TBC 136

LH₂ at Flight level.

21-8 CLOX TBC 136

Recovery from Terminal Count to Replenish is complete.

OMRSD [S00E00.112-1](#)

21-9 CLOX TBC 136

LO₂ at Flight level per OMI S1003.

21-10 TBC NTD 232

ET LO₂ and LH₂ at Flight level. ET ready to resume Count at T-20 minutes. ET Recycle complete.

***** End of LH₂/LO₂ to Flight Levels *****

LO₂ Tanking OMRS Buy-Off List

21-11

CLOX

IF a Scrub has been declared (no subsequent Terminal Countdown runs will be performed),

THEN completion of ET LO₂ Tanking from LO₂/MPS preliminaries through listed time frames satisfies the noted OMRS requirements. Details of LO₂ Tanking are specified in OMI S1003.

1. For all Scrubs report completion of following requirements:

OMRSR [S00FB0.090-A-1](#)
OMRSR [S00FB0.300-1](#)
OMRSR [S00FB0.310-1](#)
OMRSR [S00FB0.320-1](#)
OMRSR [S00FB0.340-1](#)
OMRSR [S00FC0.080-1](#)
OMRSR [S00FC0.100-1](#)
OMRSR [S00FC0.110](#)
OMRSR [S00FC0.120-1](#)
OMRSR [S00FD0.062-1](#)
OMRSR [S00FD0.073-1](#)
OMRSR [S00FD0.091](#)
OMRSR [S00FD0.094-1](#)
OMRSR [S00FD0.095-A](#)
OMRSR [S00FD0.121-A-1R](#)
OMRSR [S00FF0.101-1](#)
OMRSR [S00FF0.145-1](#)

2. IF Scrub occurs after T-5 minutes,

THEN report completion of following requirements:

OMRSR S00FM0.043-1

OMRSR S00FM0.050-1

OMRSR S00FM0.060-1

OMRSR S00FM0.321-1

OMRSR S00FM0.330

OMRSR S00FM0.342-1

OMRSR S00FM0.440-1

Not Performed: _____
SS2

Entire Step Not Performed: _____

*** End of Operation 21 ***

06-16-2011
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OMI S0007.200 A23
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OPERATION 22 Support Recycle

Shop: **SUPOP**

Cntrl Rm Console: **ALL**

OPR: **STM**

Zone: **NA**

Hazard (Y/N): **Y**

Duration (Hrs): **1.5**

NOTE

This is a contingency operation. Perform only if Recycle is required.

Operation Not Performed: _____

22-1 STM JBFX 111

IF Launch cooling sprays are activated,

THEN **secure** Firex Water Launch Cooling Sprays of FSS/GO₂ and MLP.

Support: [CWSS](#)

Not Performed: _____

22-2 JBFX STM 111
 STM NTD 232

IF previous step was performed,

THEN **report** all Firex Water Launch Cooling Sprays secured.

Support: [CWSS](#)

Not Performed: _____

22-3 NTD STM 232
 STM JBFX 111

IF Firex pump(s) running,

THEN **stop** Firex pump(s).

Support: [CWSS](#)

Not Performed: _____

22-4 **JBFX STM 111**
 STM NTD 232

IF previous step was performed,
THEN report all Firex pumps have stopped.

Support: [CWSS](#)

Not Performed: _____

22-5 **STM JBAC 111**

IF Count went past T-5 minutes,
THEN secure cooling tower spray system.

Support: [HVAA](#)

Not Performed: _____

22-6 **STM JCFM 111**

IF recycle was declared after T-5 minutes,
THEN stop CDAS/GMS-II Launch Recorders.

Support: [GIFM](#)

Not Performed: _____

22-7 **STM JCFM 111**

IF recycle was declared before Cryo load,
THEN stop CDAS/GMS-II tanking recorders.

Support: [GIFM](#)

Not Performed: _____

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22-8 STM JCFM 111

IF recycle was declared after Cryo load,

THEN support detanking operations with CDAS/GMS-II.

Support: [GIFM](#)

Not Performed: _____

22-9 **JRPS**

Stop all display recorders except Inst LOS Display.

22-10 EEC JYVR 138

Stop video recording of OTV Camera 080.

Support: [OTV](#)

FEP Pending Cancel

NOTE

Do not perform following option for a 24 hour Scrub/Turnaround.

FEP Pending Cancel Not Performed: _____

22-11 LPS

Cancel pending for all FEPs.

22-12 LPS C4MC 127

CONSOLE KYBD
CURSOR CNTL (AWP01 PG-B) TO
T-20M RECYCLE TARGET
XMIT CURSOR KEY - PRESS
EXEC CMD KEY - PRESS

22-13 LPS

Verify FEP pending cancelled for following FEPs:

PLDA
GPCA
OIA
ME1
ME2
ME3
GPCS
OIS

***** End of FEP Pending Cancel *****

**22-14 JRPS LPS 127
LPS STM 111**

Recycle to T-20 Minute Configuration complete.

Sound Suppression System Reconfiguration Operations

NOTE

Perform this option if Sound Suppression control was transferred from Firing Room to CCC.

Sound Suppression System Reconfiguration Operations Not Performed: _____

22-15 STM JBWC 111

VERIFY SS CONTROL TRANSFER - FR TO CCC - COMPLETE AS FOLLOWS:

VERIFY (SCREEN P2A/P2B)

Support: [CWSS](#)

INDICATOR	STATE
SS CCC ENABLE	ON
SS FR - OFF/CCC - ON	ON
SS FR ENABLE	OFF
SS FR - ON/CCC - OFF	OFF

22-16 JBWC STM 111

CCC has Sound Suppression system control.

Support: [CWSS](#)

LCD Recycle - Sound Suppression Reconfiguration

NOTE

Perform this option if Sound Suppression elevated tank was not drained or if commands were issued.

LCD Recycle - Sound Suppression Reconfiguration Not Performed: _____

22-17 STM JBWC 111

Perform LCD Recycle - Sound Suppression Reconfiguration per
[Doc: JOB PLAN M3189.240 \(LI\) LCD Recycle - Sound Suppression Reconfiguration](#)

Support: [CWSS](#)

22-18 JBWC STM 111

LCD Recycle - Sound Suppression Reconfiguration complete.

Support: [CWSS](#)

***** End of LCD Recycle - Sound Suppression Reconfiguration *****

***** End of Sound Suppression System Reconfiguration Operations *****

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22-19	NTD	STM	232
	STM	JBWC	111

IF Cutoff occurred after T-16 seconds
OR Recycle to T-20 minutes is to follow,

THEN verify Sound Suppression CCS SS LOCKOUT On.

Perform LCD Sound Suppression Recycle - Elevated Tank Fill without Field Support per [Doc: JOB PLAN M3189.250 \(LI\) LCD SS Recycle - Elevated Tank Refill without Field Support](#) (1 hour 30 minutes).

Support: [CWSS](#)

Not Performed: _____

Transfer Control of Sound Suppression System - CCC to Firing Room

NOTE

Perform this option if Sound Suppression Control was transferred to the CCC and is to be returned to the Firing Room. Control transfer may be performed in conjunction with elevated tank fill.

Transfer Control of Sound Suppression System - CCC to Firing Room Not Performed: _____

22-20 STM JBWC 111

Verify Sound Suppression water system has been configured to Support.

Support: [CWSS](#)

22-21 STM NTD 232
 NTD OTC
 OTC CGSS 132

CCC ready to transfer control of Sound Suppression water to Firing Room.

Request CGSS contact JBWC on Channel 123.

22-22 STM JBWC 111

Transfer control of Sound Suppression water system to Firing Room control.

Support: [CWSS](#)

22-23 JBWC CGSS 123

Verify ready for control transfer.

Support: [CWSS](#)

22-24

CGSS

CURSOR CNTL (VAJ14)
 VAJ12 - ON
VERIFY

- | | | | | | |
|-----|--|-----|-----|------------|-------------|
| 1. | TANK LEVEL GREATER THAN OR EQUAL TO 258.2 FT | | | | |
| 2. | GN ₂ PRESS | | | | |
| | PT 1 GREATER THAN 1200 PSI, LESS THAN 1700 PSI | | | | |
| | PT 2 GREATER THAN 1200 PSI, LESS THAN 1700 PSI | | | | |
| | | | | <u>CMD</u> | <u>MEAS</u> |
| 3. | CCC LOCKOUT | ON | ___ | ___ | X ___ |
| 4. | CCC ENABLE CMD | OFF | | | X ___ |
| 5. | CCC ENABLED IND | ON | ___ | ___ | X ___ |
| 6. | FR ENABLED IND | OFF | ___ | ___ | ___ |
| 7. | SS SOL PWR BUS
ON CMD | OFF | | | X X |
| 8. | SS SOL PWR BUS
OFF CMD | OFF | | | ___ ___ |
| 9. | SS FR CMD BUS
PWR ON CMD | OFF | | | |
| 10. | PRE L/O VENT VLV
OPEN CMD | OFF | | | ___ ___ |
| 11. | PRE L/O VLVS OPEN
CMD IND | OFF | | | ___ |
| 12. | PRE L/O VLVS CLOSE
CMD IND | ON | ___ | ___ | X ___ |

					<u>CMD</u>	<u>MEAS</u>
13.	POST L/O VENT VLV OPEN CMD	OFF				— —
14.	POST L/O VLVS OPEN CMD IND	OFF			— —	—
15.	POST L/O VLVS CLOSE CMD IND	ON			— —	X —
16.	VV5, 6, 7, 8, 9, 10 GRAPHIC BLOCKS - GREEN					
17.	PREV25, 26, 27, POST V28, 29, 30 BLOCKS - SOLID GREEN					
18.	STATUS ARROW - CYCLING					

22-25 CGSS JBWC 123

Ready for transfer of Sound Suppression control to Firing Room.

Support: [CWSS](#)

22-26 JBWC CGSS 123

Stand by for control transfer.

Support: [CWSS](#)

NOTE

CCC will transfer control of Sound Suppression System to Firing Room by performing next step.

22-27

JBWC

PERFORM THE FOLLOWING (SCREEN P2A/P2B)

1. VERIFY

INDICATOR	STATE
SS CCC ENABLE	ON
SS FR-OFF/CCC-ON	ON
SS FR ENABLE	OFF
SS FR-ON/CCC-OFF	OFF

2. ISSUE SS CONTROL TRANSFER CCC TO FR COMMAND

3. VERIFY

INDICATOR	STATE
SS CCC ENABLE	OFF
SS FR-OFF/CCC-ON	OFF
SS FR ENABLE	ON
SS FR-ON/CCC-OFF	ON

Support: [CWSS](#)

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OPERATION 23 MCCH Recycle

Shop: *FLT

Cntrl Rm Console: NA

OPR: *FLT

Zone: NA

Hazard (Y/N): N

Duration (Hrs): **0.5**

NOTE

Perform this T-20 minute Recycle contingency operation if Countdown has progressed past T-9 minutes, or Instrumentation Recorders have been activated.

Operation Not Performed: _____

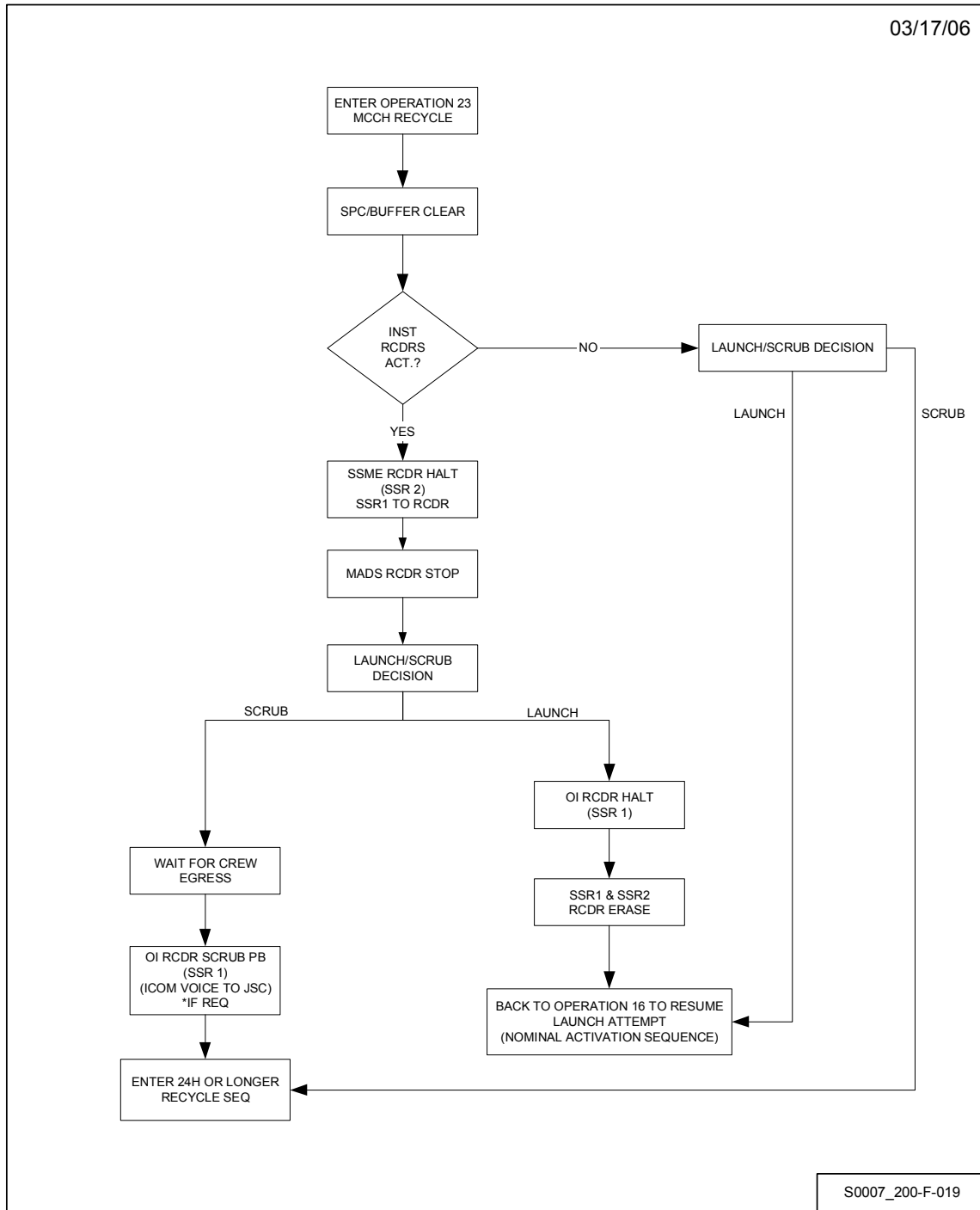


Figure 23-1 - Operation 23 Flow Chart
(For Reference Only)

NOTE

JSC INCO shall give callout and time mark during all transmit commands.

23-1

***FLT**

IF BFS SPC LOAD has occurred
AND GPC-5 mode switch not in "Halt",

THEN Transmit DSM 4063 (BFS SPC Buffer Clear)

Not Performed: _____

MCCH Recorder Recycle

NOTE

Perform this option if Instrumentation Recorders have been activated.

MCCH Recorder Recycle Not Performed: _____

23-2

***FLT CISL 212**

Request CISL concurrence to continue with MCCH Recycle.

NOTE

Noted requirement is satisfied by the following steps annotated with OMRS code.

OMRS S00E00.976 (Solid State Recorder Termination)

23-3

***FLT**

Transmit DSM 9352 (SSR 2 HALT)

OMRS S00E00.976

23-4

CISL

VERIFY SWQ01A - INS OVERVIEW DISPLAY
SSR 2
MODE - STBY

OMRS S00E00.976 (SSR 2 STBY)

23-5

***FLT**

Transmit DSM 9236 (SSR 1 STOP PAR RCD)

23-6

CISL

VERIFY SWQ01A - INS OVERVIEW DISPLAY
SSR 1
MODE - RCDA

NOTE

Noted requirement is satisfied by the following series of steps.

OMRS S00E00.811 (Orbiter MADS Deactivation)

23-7

***FLT**

145

Perform the following:

1. **Transmit** DSM 4618 (MADS RCDR PWR ON)
2. **Transmit** DSM 4600 (MADS SYS OFF)
3. **Verify** MADS Recorder tape motion Off
4. **Transmit** DSM 4619 (MADS RCDR PWR OFF)

23-25 Noted requirement is complete.

OMRSD [S00E00.976](#)

Configure for Launch Reattempt

NOTE

Perform this option if a Launch Reattempt has been declared.

Configure for Launch Reattempt Not Performed: _____

23-26 *FLT

Perform SSR 1 Erase per the following:

1. **Transmit** DSM 9244 (SSR 1 ERASE ENABLE)
2. **Transmit** DSM 9245 (SSR 1 ERASE EXECUTE)

23-27 **CISL**

VERIFY SWQ01A - INS OVERVIEW DISPLAY

SSR 1

MODE - ERASE (APPROX 5 SECONDS)

MODE - STBY

CBF - GOOD

NCBF - GOOD

SLOT CNT - 0

CMD REJ - GOOD

AUTO STOP - INHIBIT

PAR PROT - UNPROT

POS - 162

23-28

*FLT

Perform SSR 2 Erase per the following:

1. **Transmit** DSM 9344 (SSR 2 ERASE ENABLE)
2. **Transmit** DSM 9345 (SSR 2 ERASE EXECUTE)

23-29

CISL

VERIFY SWQ01A - INS OVERVIEW DISPLAY
SSR 2

MODE - ERASE (APPROX 5 SECONDS)

MODE - STBY

CBF - GOOD

NCBF - GOOD

SLOT CNT - 0

CMD REJ - GOOD

AUTO STOP - INHIBIT

PAR PROT - UNPROT

POS - 162

***** End of Configure for Launch Reattempt *****

***** End of MCCH Recorder Recycle *****

23-30

*FLT

NTD

212

MCCH Recycle is complete.

***** End of Operation 23 *****

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OPERATION 24 Reserved

Shop:
Cntrl Rm Console:
OPR:
Zone:
Hazard (Y/N):
Duration (Hrs):

***** End of Operation 24 *****

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OPERATION 25 Reserved

Shop:
Cntrl Rm Console:
OPR:
Zone:
Hazard (Y/N):
Duration (Hrs):

***** End of Operation 25 *****

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OPERATION 26 Reserved

Shop:
Cntrl Rm Console:
OPR:
Zone:
Hazard (Y/N):
Duration (Hrs):

***** End of Operation 26 *****

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OPERATION 27 Late Cabin Vent Contingency Option

Shop: **ECS**

Cntrl Rm Console: **C6**

OPR: **PVD**

Zone: **N/A**

Hazard (Y/N): **N**

Duration (Hrs): **0.5**

NOTE

Perform this operation only if estimate for AFT Oxygen to 500 ppm is later than L-14 minutes.

Operation Not Performed: _____

27-1 OTC CHGD 212

Provide estimate for AFT O₂ value to be less than 500 ppm (5 minutes).

27-2 CHGD OTC 212
 OTC NTD 232

Estimate AFT O₂ value will be less than 500 ppm in _____ minutes.

27-3 NTD PTC 232

Payload Bay Flow Rate will be increased to 230 lbs/min to support Late Cabin Venting.

27-4 NTD OTC 232
 OTC CPVD 212

Late Cabin Venting is required.

Increase PLB flow rate to 230 lbs/min. tolerance 11 lbs/min per OMI [V1122.004](#)

(Maintain PLB I/F temperature within payload OMRS limits.)

Late Cabin Vent Max Flow Rate Contingency

NOTE
Perform this option only if estimate for AFT Oxygen to 500 ppm is later than L-14 minutes.

Late Cabin Vent Max Flow Rate Contingency Not Performed: _____

27-5	NTD	PTC	232
	PTC	NTD	

Request concurrence to increase Payload Bay Flow Rate to between 280-300 lbs/min. **Record** response below:

Record: _____ (YES) _____ (NO)

27-6	NTD	OTC	232
	OTC	CPVD	212

IF concurrence given to increase flow rate to 300 lbs/min maximum, (will not cause a payload OMRS violation)

THEN increase PLB flow rate to 280-300 lbs/min maximum per OMI [V1122.203](#) "Do Not Exceed 300 lbs/min" and "110 inch H₂O at I/F pressure (GECP5P07A)".

(Maintain PLB I/F temperature within payload OMRS limits).

Not Performed: _____

27-7 NTD CGLS 232

IF concurrence given to increase flow rate to 300 lbs/min maximum,

THEN Orbiter PLB purge may exceed LCC maximum limits (GSE-03).
Pressures will return to nominal values after PLB flow rate is reduced for
Launch.

- GECP5P07A Orb PLB I/F Press Ind. (86 inch H₂O max.).
- GECP8P03A Orb PLB Duct Press Ind. (90 inch H₂O max.).

Not Performed: _____

***** End of Late Cabin Vent Max Flow Rate Contingency *****

***** End of Operation 27 *****

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**OPERATION 28 Hold Option No. 1 - Unplanned Long Duration
Between T-9 Minutes and T-5 Minutes**

Shop: NTD / OTC
Cntrl Rm Console: ALL
OPR: NTD/OTC
Zone: NA
Hazard (Y/N): Y
Duration (Hrs): 1.0

NOTE

This is a contingency operation. Perform if required between T-9 minutes (GLS Auto Seq Initialization) and T-5 minutes (prior to APU start).

Operation Not Performed: _____

28-1 NTD ALL 212

T-___minutes and holding.

Configure for long duration hold at this point.

28-2 CGLS

Verify onboard Countdown Clock stopped in response to hold flag.

V90W8380C1

OMRSD [S00E00.920-1](#)

Extend Orbiter Access Arm

NOTE

Perform this option if Orbiter Access Arm Extension will be performed.

Extend Orbiter Access Arm Not Performed: _____

28-3 NTD CGSS 212

Extend Orbiter Access Arm.

28-4 CGSS

PFP (VAJ02)
PFPK-1 VAJ04 CRIT EXT - PRESS
PFPK-5 CRIT EXT EXECUTE - PRESS

28-5 CGSS NTD 212

Orbiter Access Arm extended and locked.

28-6 CGSS

PFP (VAJ02)
PFPK-6 - PRESS
PFPK-3 VAJ07 OAA ACCUM - PRESS
PFPK-5 OAA ACCUM EXEC - PRESS

28-7 CGSS

CONSOLE KYBD
SET GGOR1101E OFF (WHITEROOM O₂ PUMP)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

***** End of Extend Orbiter Access Arm *****

Close Isolation Valves

NOTE

Perform next step to close APU isolation valves as directed by CAPU.

28-8 OTC PLT 212

PANEL R2
APU FUEL TK VLV
1 SW - CLOSE
2 SW - CLOSE
3 SW - CLOSE

Not Performed:_____

***FLT Commands**

NOTE
Perform next step if BFS SPC Buffer is loaded.

28-9 NTD *FLT 212

Transmit DSM 4063 (BFS SPC Buffer clear)

Not Performed:_____

28-10 NTD *FLT 212
CISL
JRPS

Perform SSR and MADS Deactivation for Hold Option No. 1 per OMI S0007.400, Operation 38.

28-11 CISL NTD 212

SSR and MADS Deactivation for Hold Option No. 1 complete (OMI S0007.400, Operation 38).

OMRSR [S00E00.976](#)
OMRSR [S00E00.811](#)

28-12 OTC MS2 212

IF PPOV CAMERA IS INSTALLED AND IS TO BE POWERED DOWN DURING HOLD,

THEN PERFORM:
PANEL O19
TV
TV POWER SW - OFF

Not Performed:_____

Igniter Heater Activation

CAUTION

RSRM igniter heater temperatures shall not exceed 125 deg F and current shall not exceed 4.9 amps AC or proper seal capabilities of all ignition system seals may not occur.

28-13

CPWR

IF DETERMINED BY CPWR, NTD AND LAUNCH DIRECTOR TO MAINTAIN IGNITER HEATER CONTROL SETTINGS AT 100 DEG F (99 TO 101 DEG F) FOR START OF T-5 MINUTE COUNT,

THEN PERFORM:

CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS

CRT

VERIFY

LH/RH IGN HTR POWER ON
LH/RH IGN AUTO SEQ ACT

OMRSD [S00E00.742](#)
OMRSD [S00FA0.620-1R](#)

Not Performed: _____

Configure to Resume Countdown

NOTE

Delay at this point until ready to resume Countdown.

If holding due to Integration Console failure, return to Countdown re-entry point in T-9 minute Hold.

Do not perform this option if Scrub or Recycle is called while holding at T-5 minutes.

Configure to Resume Countdown Not Performed: _____

28-14 NTD CGLS 212

Set Countdown Clock to start counting at _____ GMT.

28-15 NTD OTC 212
TBC
STM
***FLT**
PTC
***MIL**
LPS
SRO

Configure to resume Countdown at _____ GMT.

***** End of Configure to Resume Countdown *****

28-20 CGSS

CONSOLE KYBD
SET GGOR1101E ON (WHITEROOM O₂ PUMP OFF)
XMIT CMD KEY - PRESS
EXEC CMD KEY - PRESS

28-21 CGSS NTD 212

OAA retracted and reconfigured for extend.

***** End of OAA Retract *****

Clock Start in 4 Minutes

28-22 NTD ALL 212
232

T-05M00S
(HOLDING)
L-09M00S

Countdown Clock will start in 4 minutes.

Recorder Activation

28-23 NTD *FLT 212
CISL
JRPS

T-05M00S
(HOLDING)
L-09M00S

Perform SSR and MADS Activation for Hold Option No. 1 per
OMI S0007.400, Operation 38.

28-24 CISL NTD 212

SSR and MADS Activation for Hold Option No. 1 complete.

Igniter Heater Deactivation

NOTE
Heaters must be deactivated prior to resuming Countdown at T-5 minutes.

28-25

CPWR

IF HEATERS ARE ACTIVATED,

THEN PERFORM:

CURSOR CNTL (BDE11)
AUTO SEQ - IGN
XMIT CURSOR KEY - PRESS

CRT
VERIFY

LH/RH IGN HTR CURRENT <0.5 AMP AC

OMRSD [S00FA0.980](#)

Not Performed: _____

28-26

OTC MS2 212

IF PPOV CAMERA IS INSTALLED AND WAS POWERED DOWN
DURING HOLD,

THEN PERFORM:

PANEL O19
TV
TV POWER SW - ON

Not Performed: _____

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NOTE

Return to Shuttle Final Control Sequence (Operation 16) at T-5 minute point of departure.

NOTE

Emergency Instructions are located in OMI S0007.600.

***** End of Operation 28 *****

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Approval Record

SHUTTLE COUNTDOWN - (LPS)

Role:	Signed by:	Date (GMT): Reason for signing:
NTD-NASA	Spaulding Jeffrey G Nasa Ksc Mail: Phone: Documentum User Name : Spaulding Jeffrey G	06/21/2011 12:19: Concur with approval
TCO-TC	Gross George W United Space Alliance LLC 93540 Mail:USK-023 Phone:321/861-7438 Documentum User Name : grossgw	06/21/2011 12:20:48 Concur with approval
OMD	Klos Elizabeth C United Space Alliance LLC 93250 Mail:USK-187 Phone:321/861-3352 Documentum User Name : klosec	06/21/2011 12:28:02 Concur with approval
SPE-NASA	Greenwell Shawn M Nasa Ksc NE-O-A Mail: Phone: Documentum User Name : Greenwell Shawn M	06/21/2011 13:09:21 Concur with approval
TSM-GSS	Dorn Deborah L United Space Alliance LLC 95620 Mail:USK-043 Phone:321/861-4484 Documentum User Name : dorndl	06/21/2011 13:45:35 Concur with approval
SFP-SF	Ross Jerome United Space Alliance LLC 92331 Mail:USK-291 Phone:321/861-6285 Documentum User Name : rossj	06/21/2011 13:53:29 Concur with approval
RPE	Owen Kathy L United Space Alliance LLC 93220 Mail:USK-246 Phone:321/861-3180 Documentum User Name : owenkl	06/21/2011 17:02:49 Concur with approval
TCO-CTC	Wyrick Roberta United Space Alliance LLC 93010 Mail:USK-229 Phone:321/861-5121 Documentum User Name : Wyrick Roberta	06/21/2011 19:03:16 Concur with approval