

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

SHUTTLE COUNTDOWN (LPS)

MAT COPY

DRAFT COPY

RECIPIENT(S) SHALL REVIEW THIS COPY AND SUBMIT INPUT TO:

SFOC OMD: _____ RM: _____ EXT: _____ DATE: _____

PRELIMINARY REVIEW COPY

RECIPIENTS SHALL REVIEW THIS COPY, COORDINATE INPUT WITH CUSTOMER
COUNTERPARTS AND BRING MARKED UP COPY OF JOINT FUNCTIONAL INPUT
TO THE REVIEW MEETING SCHEDULED FOR:

DATE: _____ TIME: _____ RM: _____

FINAL REVIEW SIGNOFF COPY

RECIPIENTS SHALL REVIEW THIS COPY, COORDINATE INPUT WITH CUSTOMER
COUNTERPARTS AND BRING MARKED UP COPY OF JOINT FUNCTIONAL INPUT
TO SIGNOFF REVIEW MEETING SCHEDULED FOR:

DATE: _____ TIME: _____ RM: _____

PAGE BREAK COPY

RECIPIENT(S) SHALL REVIEW THIS COPY AND SUBMIT INPUT TO:

SFOC OMD: _____ RM: _____ EXT: _____ DATE: _____

NOTE

IN EVENT OF A DISCREPANCY, THE
PUBLISHED OMI REVIEW MEETING SCHEDULE
TAKES PRECEDENCE OVER THIS SCHEDULE.

OMI TECHNICAL CONTACT: ROGER GILLETTE, 1-7437

OMI WRITER: PAM STIELER, 1-4958

DISTRIBUTION PER ATTACHED DISTRIBUTION LIST

THIS PROCEDURE CONTAINS HAZARDOUS OPERATIONS

UNITED SPACE ALLIANCE

```
*****  
*                                                                 *  
*           SHUTTLE COUNTDOWN - (LPS)                          *  
*                                                                 *  
*****  
* EFFECTIVITY           CATEGORY: A                             *  
*                                                                 *  
*                                                                 *  
*           HA-SVTBAMQDGCWZF                                     *  
*           +ER                                                  *  
* CENTER:      KSC                                             *  
*                                                                 *  
*           SYSTEM:      TCO                                    *  
* SITE: PAD A/B                                           *  
*                                                                 *  
* VEHICLE:     OV-102,103,104,105                             *  
*                                                                 *  
* FLOW: ALL                                             *  
*                                                                 *  
* DESIGN CENTER CONCURRENCE:      JSC & MSFC                 *  
*****
```

PREPARED BY:

SFOC TEST DOCUMENTATION

APPROVED BY:

CONTRACTOR

SFOC SAFETY ENGINEERING

THIS PROCEDURE CONTAINS HAZARDOUS OPERATIONS

```
*****  
*                                                                 *  
*              SHUTTLE COUNTDOWN - (LPS)                        *  
*                                                                 *  
*****  
* EFFECTIVITY              CATEGORY: A                            *  
*                                                                 *  
*                                                                 *  
*                                                                 *  
*          CENTER:      KSC                                       *  
*                                                                 *  
*          SYSTEM:      TCO                                       *  
*          SITE: PAD A/B                                       *  
*                                                                 *  
*          VEHICLE:     OV-102,103,104,105                       *  
*                                                                 *  
*          FLOW: ALL                                           *  
*                                                                 *  
*          DESIGN CENTER CONCURRENCE:      JSC & MSFC          *  
*****
```

UNITED SPACE ALLIANCE

```
*****  
*                                                                 *  
*           SHUTTLE COUNTDOWN - (LPS)                          *  
*                                                                 *  
*****  
* EFFECTIVITY           CATEGORY: A                             *  
*                                                                 *  
*                                                                 *  
*           HA-SVTBAMQDGCWZF                                     *  
*           +ER                                                  *  
* CENTER:      KSC                                             *  
*                                                                 *  
*           SYSTEM:      TCO                                    *  
* SITE: PAD A/B                                           *  
*                                                                 *  
* VEHICLE:     OV-102,103,104,105                             *  
*                                                                 *  
* FLOW: ALL                                             *  
*                                                                 *  
* DESIGN CENTER CONCURRENCE:      JSC & MSFC                 *  
*****
```

PREPARED BY:

SFOC TEST DOCUMENTATION

APPROVED BY:

CONTRACTOR

GOVERNMENT

ORBITER TEST DIRECTOR

NASA TEST DIRECTOR

SFOC SAFETY ENGINEERING

THIS PROCEDURE CONTAINS HAZARDOUS OPERATIONS

REVISION RECORD PAGE

REV-CHANGE	DATE	REASON	PAGES AFFECTED	EFFECTIVITY
W	: 03-14-98	: 70/USK217:	ALL	: ALL
W-1	: 05-16-98	: 71/USK023:	69,70,115-118,233,	: ALL
	:	:	234,251,252,259,260,	:
	:	:	351,352,911-920,925,	:
	:	:	926,935,936,947,948,	:
	:	:	953,954,1199,1200,	:
	:	:	1275,1276,1331,1332,	:
	:	:	1351,1352,1431-1434,	:
	:	:	1467,1468	:
X	: 10-08-98	: 72/USK217:	ALL	: ALL
Y	: 11-19-98	: 73/USK217:	ALL	: ALL
	:	: RCN	:	:
	:	: MBL3421	:	:
Z	: 05-06-99	: 74/USK206:	ALL	: STS-96&SUBS
	:	: 75/USK217:		:
Z-1	: 07-01-99	: 76/USK217:	151,152,173,191,243,	: STS-93&SUBS
	:	:	243.1,243.2,260,284,	:
	:	:	297,301-303,837,839,	:
	:	:	840,847,975,978,1222,	:
	:	:	1298,1417,1418,1426,	:
	:	:	1429,1492-1495,1503,	:
	:	:	1504,1524,1563,1564	:

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	CONTRACTOR -----	SIGNATURES
	CONTRACTOR/NASA -----		GOVERNMENT -----
SUPPORT -----			
TSMO	SFOC	_____	NA
TIMING/ COUNTDOWN	CSR	_____	NA
RPS	GTSI /NASA	_____	_____
CCMS/LPS	GTSI /NASA	_____	_____
ETR	PAA/SRO	_____	NA
MEASUREMENTS	GTSI /NASA	_____	_____
PHOTO	TGS	_____	NA
MILA	BFEC/GUSB	_____	NA

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM	AGENCY CONTRACTOR/NASA	CONTRACTOR	SIGNATURES GOVERNMENT
-----	-----	-----	-----
PAYLOAD			

TEST COND/ DIRECTOR	CONTR/NASA (ROR)	_____	_____
SAFETY	CONTR	_____	NA
MIDDECK EXP	CS-EED-1	NA	_____

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	SIGNATURES	
	CONTRACTOR/NASA -----	CONTRACTOR -----	GOVERNMENT -----
ORBITER -----			
NAVAIDS	SFOC/NASA	_____	_____
COMM	SFOC/NASA	_____	_____
INSTR	SFOC/NASA	_____	_____
HGDS	SFOC/NASA	_____	_____
PVD	SFOC/NASA	_____	_____
LAUNCH ACC	SFOC/NASA	_____	_____
EPD&C	SFOC/NASA	_____	_____
DPS	SFOC/NASA	_____	_____
DPSME	SFOC/NASA	_____	_____
QE	SFOC	_____	NA
SAFETY	SFOC	_____	NA
MPS	SFOC/NASA	_____	_____
SSME	SFOC/NASA	_____	_____
SSME	ROCKETDYNE	_____	NA
APU	SFOC/NASA	_____	_____
HYDRAULICS	SFOC/NASA	_____	_____

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	CONTRACTOR -----	SIGNATURES	
	CONTRACTOR/NASA -----		CONTRACTOR -----	GOVERNMENT -----
ORBITER (CONT) -----				
PRSD	SFOC/NASA		_____	_____
MECH/STRUC	SFOC/NASA		_____	_____
OMS/RCS	SFOC/NASA		_____	_____
ECLSS	SFOC/NASA		_____	_____
TPE/PEO	SFOC/NASA		_____	_____
VITT	NASA/JSC	NA		_____
JSC RESIDENT OFFICE	NASA/JSC	NA		_____
TPS	SFOC/NASA		_____	_____
FCS	SFOC/NASA		_____	_____
G&N	SFOC/NASA		_____	_____
FLT CNTLS	SFOC/NASA		_____	_____
ORB SOFTWARE	SFOC/NASA		_____	_____
JSC MISSION INTEGRATION	RI-LSS/JSC-TA		_____	_____

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	SIGNATURES	
	CONTRACTOR/NASA -----	CONTRACTOR -----	GOVERNMENT -----
ET/SRB -----			
TEST COND	SFOC (ROR)	_____	NA
PROJ ENGR	SFOC/NASA	_____	_____
EPD&C	SFOC/NASA	_____	_____
INSTR	SFOC/NASA	_____	_____
MECH (ET)	SFOC/NASA	_____	_____
STRUC	SFOC/NASA	_____	_____
ORDNANCE	SFOC/NASA	_____	_____
PNEUMATICS	SFOC/NASA	_____	_____
TPS	SFOC/NASA	_____	_____
PROPELLANTS/ LO2	SFOC/NASA	_____	_____
PROPELLANTS/ LH2	SFOC/NASA	_____	_____
MECH (SRB)	SFOC/NASA	_____	_____
SRSS	SFOC/NASA	_____	_____
FLT CNTLS	SFOC/NASA	_____	_____
DPS	SFOC/NASA	_____	_____
HYD	SFOC/NASA	_____	_____

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	CONTRACTOR -----	SIGNATURES	
	CONTRACTOR/NASA -----			NASA -----
PAYLOAD -----				
TEST CONDUCTOR	MDSSC			NA
P/L INTEG ENGR	MDSSC/CS-PPD-1			
ELECT INTEG	MDSSC/CS-PPD-32			NA
SOFTWARE	MDSSC/SC-PPD-33			NA
IUS	BAO/6555TH			
MIDDECK EXP	CS-EED-1	NA		
ULS	ESA			NA

DESIGN CENTER CONCURRENCE
 BACKUP SIGNATURE SHEET

OMI TITLE: SHUTTLE COUNTDOWN (LPS)

SYSTEM -----	AGENCY	SIGNATURES	
	CONTRACTOR/NASA -----	CONTRACTOR* -----	NASA -----
ORBITER	RI LSS LEVEL III	_____	NA
ORBITER	JSC LEVEL III	NA	_____
ET	MMC LSS	_____	NA
ET	MSFC LEVEL III	NA	_____
SRB	USBI LSS	_____	NA
SRB	MSFC LEVEL III	NA	_____
SSME	ROCKETDYNE LSS	_____	NA
SSME	MSFC LEVEL III	NA	_____
NSTS CARGO ENGR INTEG	RI LSS LEVEL II	_____	NA
NSTS INTEG OPS	CARGO LEVEL II	NA	_____
NSTS ENGR INTEG	JSC LEVEL II	NA	_____
VITT	TP-TMS-A	NA	_____
JSC MISSION INTEGRATION	RI-LSS/JSC-TA	_____	_____

TABLE OF CONTENTS

	PAGE

COVER PAGE	
APPROVAL PAGE/CHANGE RECORD PAGE	
TABLE OF CONTENTS	
OBJECTIVE/DESCRIPTION	NA
ILLUSTRATIONS	NA
HAZARDOUS MANLOADING	NA
BAR CHARTS	NA
 SECTION I - INFORMATION	
1.1 REFERENCED INSTRUCTIONS.....	1
1.2 COMPUTER SYSTEMS	NA
1.3 SPECIAL TOOLS, EQUIPMENT AND MATERIALS	NA
1.4 SUPPORT TOOLS, EQUIPMENT AND MATERIALS	NA
1.5 PERSONNEL REQUIREMENTS.....	5
1.6 SAFETY REQUIREMENTS	NA
1.7 SPECIAL INSTRUCTIONS	NA
1.8 OMRS REQUIREMENTS SATISFIED BY THIS TOP.....	6
 SECTION II - PRE-OPERATION SETUP INSTRUCTIONS	NA
 SECTION III - OPERATION SUPPORT SETUP INSTRUCTIONS	NA
 SECTION IV - OPERATION INSTRUCTIONS	
98-000 PREPLANNED CONTINGENCY PROCEDURES.....	9
98-001 ECS/PVD.....	9
98-002 VENT DOOR OVERRIDE OPERATION (CONTINGENCY)....	9
98-015 ORBITER VENT DOOR INDICATOR ANOMALY PREPLANNED CONTINGENCY PROCEDURE (CPVD).....	13
98-025 OPTION A - VENT DOOR OPEN INDICATOR ON SHOULD BE OFF.....	20
98-036 OPTION C - VENT DOOR PURGE INDICATOR ON SHOULD BE OFF.....	28
98-044 OPTION D - VENT DOOR PURGE INDICATOR OFF SHOULD BE ON.....	32
98-049 OPTION E - VENT DOOR CLOSE INDICATOR OFF SHOULD BE ON.....	35
98-055 OPTION F - VENT DOOR CLOSE INDICATOR OFF SHOULD BE ON.....	39

99-000	EPD (GSE).....	43
99-001	GROUND PIC PREMATURE ARM FAILURE.....	43
99-014	LAUNCH RELEASE PIC FIRE 1 ANOMALY (REF SSID GSE-25).....	48
100-000	LACC (GSE).....	53
100-001	OAA ACCUMULATOR RECHARGE FAILURE (LCC GSE-11)	53
100-004	OAA/GVA ARM POSITION VERIFICATION.....	54
100-006	OAA RETRACT RECONFIGURATION.....	54
100-007	OAA LPS EXTEND/RETRACT.....	54
100-008	OAA 2700 PSIG GN2 ADJUSTMENT.....	54
100-009	SOUND SUPPRESSION SOLENOID POWER BUS FAILURE..	54
100-012	SOUND SUPPRESSION FR CMD BUS FAILURE.....	56
101-000	BUHGDS REMOTE PMSC RESET AFTER TERMINAL KEYBOARD LOCKUP.....	57
101-012	HGDS TO BUHGDS SWITCH OVER AND RECOVERY CONTINGENCY.....	61
102-000	ET.....	67
102-001	ET LO2/LH2.....	67
102-002	ET NOSECONE PURGE TEMPERATURE (SWITCH TO HEATER OUTPUT CONTROL) (CIF) (REF LCC ET-01) (T-6 HR THRU T-1M15S).....	68
102-003	ET NOSECONE PURGE TERMINATION (CIF) (REF LCC ET-02) (T-1M15S).....	69
102-004	ET LO2 HELIUM INJECT TERMINATION (CIF) (REF LCC ET-03) (T-4M20S).....	70
102-005	ET LH2 ULLAGE PRESSURE SWITCHOUT (CIF) (REF LCC ET-05).....	71
102-006	ET LO2 ULLAGE PRESSURE FAILURE (CIF) (REF LCC ET-06).....	72
102-007	ET LO2 FLIGHT LEVEL MONITOR (CIF) (REF LCC ET-10) (T-19M THRU T-5M).....	73
102-008	ET LO2 DRAINBACK (CIF) (REF LCC MPS-09) (T-4M55S TO T-48S).....	74
102-009	ET INTERTANK TEMPERATURE (T-1 HOUR TO T-3 MIN) (ET-07).....	75
102-010	ET INTERTANK PURGE TERMINATION (T-1 MIN 15 SEC) (ET-08).....	76
102-011	ET LH2 FLIGHT LEVEL MONITOR (T-1 MIN 57 SEC) (ET-09).....	77
102-012	ET LH2 FILL LINE DRAIN (T-1 MIN 38 SEC TO T-48 SEC) (MPS-06).....	78
102-013	EXCESSIVE H2 CONCENTRATION IN LH2 TSM (FROM START OF LH2 LOADING TO T-1 MIN 57 SEC) (HAZ-10).....	79
102-014	T-0 UMBILICAL EXCESSIVE H2 CONCENTRATION AT 8 IN. FEEDLINE TORQUE BOX (FROM START OF LH2 LOADING TO T-1 MIN 57 SEC) (HAZ-11).....	80

102-015	EXCESSIVE H2 CONCENTRATION AT ET GROUND UMBILICAL (FROM START OF LH2 LOADING TO T-1 MIN 57 SEC) (HAZ-09).....	81
102-016	BIPOD HEATER TO ALTERNATE POWER.....	82
103-000	SRB.....	95
103-096	SRB RECOVERY SYSTEM PIC CAP VOLTAGE ANOMALY SSID:BREC-02.....	135
103-100	SRB IGNITION S & A CONTINGENCY PROCEDURE.....	136
104-000	MPS.....	141
105-000	SSME.....	143
105-001	SSME FUEL SYSTEM PURGE CONTINGENCY.....	143
105-006	SSME MOV/MFV HYDRAULIC TEMPERATURE CONTINGENCY	144
105-012	SSME LPOT DISCHARGE PRESSURE CONTINGENCY.....	145
105-024	SSMEC RE-INITIALIZATION OF ENGINE READY MONITORING AND FAILURE ID PARAMETER.....	148
105-031	SSME ANTIFLOOD VALVE DOWNSTREAM SKIN TEMP CONTINGENCY (REF LCC SSME-04).....	151
105-040	SSME HPOTP IMSL PURGE ANOMALY CONTINGENCY (REF LCC SSME-10).....	155
106-000	PRSD/FUEL CELL.....	159
106-001	PROBLEM: O2 TANK PRESS OR HTR CNTL PRESS LOW (SSID PRSD-01).....	160
106-002	PROBLEM: O2 TANK PRESS OR HTR CNTL PRESS HIGH (SSID PRSD-01).....	162
106-003	PROBLEM: O2 OR H2 MANIF ISO VLV INDICATES CLOSED (SSID PRSD-02).....	164
106-004	PROBLEM: FCP REACT VLV INDICATES CLOSED (SSID PRSD-03).....	165
106-005	PROBLEM: ONE O2 HTR CURRENT TRIP SNSR ON (SSID PRSD-04).....	167
106-006	PROBLEM: T-0 VLV INDICATES OPEN (SSID PRSD-05)	169
106-007	PROBLEM: H2 TANK PRESS OR HTR CNTL PRESS LOW (SSID PRSD-06).....	170
106-008	PROBLEM: H2 TANK PRESS OR HTR CNTL PRESS HIGH (SSID PRSD-06).....	172
106-009	PROBLEM: O2 TANK QUANTITY LOW, H2 TANK QUANTITY LOW (SSID PRSD-07/08).....	174
106-010	PROBLEM: O2 ECS VLV INDICATES CLOSED (SSID PRSD-09).....	175
106-011	PROBLEM: FCP VOLTS LOW (SSID FCP-01.....	176
106-012	PROBLEM: FCP CURRENT LOW (SSID FCP-01).....	177
106-013	PROBLEM: FCP TEMPS (STACK IN, STACK OUT, CONDENSER EXIT) HIGH OR LOW (SSID FCP-02)....	178
106-014	PROBLEM: SUBSTACK DELTA V NEAR 50 MV OR NEAR 0 MV (SSID FCP-03).....	179
106-015	PROBLEM: SUBSTACK DELTA V > 28MV CHANGE DURING LOAD ADJUST (SSID FCP-03).....	180
106-016	PROBLEM: SUBSTACK DELTA V > 18 MV CHANGE AT STEADY STATE LOADS (SSID FCP-03).....	181

106-017	PROBLEM: FCP COOLANT PRESS LOW/HIGH (SSID FCP-04).....	182
106-018	PROBLEM: FCP COOLANT PUMP INDICATES OFF (SSID FCP-04).....	183
106-019	PROBLEM: H2 PUMP MOTOR CONDITION HIGH OR LOW (SSID FCP-04).....	184
106-020	PROBLEM: PH SNSR ON > 5 MINUTES (SSID FCP-05)	185
106-021	FUEL CELL WATER PH SENSOR TEST AT GALLEY.....	186
106-039	PROBLEM: RLF NOZZLE TEMP HIGH OR LOW (A OR B) (SSID FCP-05).....	191
106-040	PROBLEM: RLF VLV TEMPS, RLF LINE TEMPS, ALT LINE TEMPS LOW (SSID FCP-06).....	192
107-000	OMS/RCS.....	193
107-001	RCS THRUST INJECTOR TEMPERATURE ANOMALY (RCS-06).....	194
107-002	RCS THRUST INJECTOR TEMPERATURE ANOMALY (RCS-06) (CONT'D).....	195
107-003	RCS THRUST INJECTOR TEMPERATURE ANOMALY (RCS-06) (CONT'D).....	196
107-004	RCS THRUST CHAMBER PRESSURE (RCS-08).....	197
107-005	RCS CHAMBER PRESSURE INDICATION ANOMALY.....	197
107-006	LEFT OMS CROSSFEED B VALVE ANOMALY (OMS 07)..	197
107-007	LOMS CROSSFEED B OXID OR FUEL VALVE PRESENCE OF OPEN VP1 OPTION.....	198
107-016	LOMS CROSSFEED B OXID OR FUEL VALVE LACK OF CLOSED VP1 OPTION.....	201
107-018	OMS GN2 ARM VALVE ANOMALY (OMS 10).....	203
107-020	OMS GN2 ARM VALVE ANOMALY (OMS 10) COMPLETE..	203
108-000	APU.....	205
109-000	HYD.....	247
109-001	LCC HY10 WSB OK ANOMALY.....	247
109-002	WSB "OK" AFTER T-30M N2 VALVE ACTIVATION.....	247
110-000	ECLSS.....	249
110-001	CABIN VENT.....	249
110-002	DUMP POTABLE WATER THRU THE OVERBOARD BLEED VALVE.....	249
110-003	VENT GN2 FROM THE GAS SIDE OF THE POTABLE WATER TANKS.....	249
110-004	CONFIRM HEATER STRING FAILURE.....	249
110-005	RECONFIGURE FES CONTROLLER.....	249
110-006	TRANSFER GCU SUPPORT TO BACKUP.....	249
110-007	LOSS OF ALL THREE SETS OF S70-0509/0510 REFR UNITS.....	250
110-008	S70-0510 RESTART (510 AMPERAGE LESS THAN 2....	251
110-009	S70-0509 RESTART (UNIT OFF).....	252
110-010	S70-0509 PROBLEM INDICATION RESET (FOR INFO ONLY AFTER T-6 HOURS).....	253
110-011	S70-1203 CRITICAL FAULT.....	254

110-012	S70-1203 PROBLEM INDICATION.....	255
110-013	GCU HARDWIRE SAFING PANEL OPERATION (REFRIGERATION OPERATIONS ONLY).....	255
111-000	DPS/BFS.....	257
111-001	1. PASS MCDS ANOMALY RECOVERY.....	258
111-011	2. GPC I-FAIL CONTINGENCY (CIF).....	262
111-018	3. G1 FC MDM BYPASS RECOVERY.....	264
111-036	4. G9 MDM BYPASS RECOVERY.....	268
111-051	6. BFS I/O ERROR PCM RECOVERY.....	272
111-066	7. MMU2 POSITION TAPE ERROR RECOVERY.....	277
111-088	8. BFS PL MDM BYPASS RECOVERY.....	280
111-106	9. BFS MCDS ANOMALY RECOVERY.....	283
111-117	10. DDU GOOD FAILURE RECOVERY (CIF).....	286
111-139	11. DDU POWER SUPPLY A, B, OR C ANOMALY (CIF)	294
111-152	12. G9 QUICK RECYCLE.....	297
111-193	13. REMOTE BFS DEACTIVATION.....	305
112-000	COMM AND TRACK.....	311
112-001	TACAN POWER STATUS PREPLANNED PROCEDURE (CT-01).....	311
112-002	TACAN BLANKING - TEST PREPLANNED PROCEDURE....	313
112-003	TACAN BLANKING - TEST PREPLANNED PROCEDURE....	315
112-004	TACAN BLANKING - TEST PREPLANNED PROCEDURE....	316
112-005	TACAN AGC (INTERFERENCE) PREPLANNED PROCEDURE	317
112-006	TACAN AGC (INTERFERENCE) PREPLANNED PROCEDURE	318
112-007	TACAN AGC (INTERFERENCE) PREPLANNED PROCEDURE	319
112-008	RADAR ALTIMETER READY STATUS PREPLANNED PROCEDURE (CT-08).....	320
112-009	TACAN VALIDITY PREPLANNED PROCEDURE.....	322
112-010	TACAN RECONFIGURE FOR A PRESSURE DROP.....	326
112-011	LCC PROCEDURE - AGC LOSS.....	327
112-012	LCC PROCEDURE - AGC PARTIAL LOSS.....	328
112-013	LCC PROCEDURE - GCIL INACTIVE.....	329
112-014	LCC PROCEDURE - NSP FRAME SYNC LOSS.....	330
112-015	LCC PROCEDURE - PA POWER OUTPUT LOSS.....	331
112-016	LCC SUB PROCEDURE - MILA OUTPUT VERIFY.....	332
112-017	COMM LCC SUB PROCEDURE - FRAME SYNC LOSS COMPARE.....	333
112-018	COMM LCC SUB PROCEDURE - CHECKOUT COMMANDS....	334
112-019	COMM LCC SUB PROCEDURE - CMD TO STRING 2.....	335
112-020	S-BAND/UHF UPLINK/DOWNLINK NETWORK.....	336
112-021	A/G ORBITER DOWNLINK NETWORK.....	337
112-022	A/G ORBITER UPLINK NETWORK.....	338
112-023	A/G BACKUP LANDLINES AND ALTERNATE VOICE PATHS	339
112-024	LCC PROCEDURE - NSP BITE FAILURE.....	340
112-025	LCC PROCEDURE - A/G1 LOSS.....	341
112-026	LCC SUB-PROCEDURE - KSC A/G1 PROBLEM.....	343
112-027	LCC SUB-PROCEDURE - KSC/MILA AG1 PROBLEM.....	346
112-028	LCC PROCEDURE - MILA/JSC/GSFC AG1 PROBLEM....	348

112-029	LCC PROCEDURE - ORBITER AG1 PROBLEM.....	349
112-030	LCC PROCEDURE - FIXED AG1 LINK.....	350
112-031	CDR PLT OR MS2 VOICE FAILURE.....	351
112-032	COMM LCC CONTINGENCY PROCEDURES.....	353
112-033	COMM SUB PROCEDURES - MILA OUTPUT VERIFY.....	353
112-038	AGC TOTAL LOSS CONTINGENCY.....	356
112-042	AGC PARTIAL LOSS CONTINGENCY.....	357
112-073	GCIL INACTIVE CONTINGENCY.....	365
112-128	FRAME SYNC LOSS CONTINGENCY.....	381
112-151	UHF A/A VOICE LOSS CONTINGENCY.....	387
112-165	PA POWER OUT LOSS CONTINGENCY.....	390
112-209	SWITCH FROM LOW TO HIGH FREQUENCY OPTION.....	400
112-219	SWITCH FROM HIGH TO LOW FREQUENCY OPTION.....	403
112-229	COMM LCC PROCEDURES COMPLETE.....	405
112-230	TACAN CHANNEL SELECT (59Y).....	405
112-236	TACAN MULTIPATH VERIFICATION (OPTIONAL).....	407
112-245	FLIGHT CREW LOSS OF COMMUNICATION.....	408
113-000	INST LCC WORKAROUNDS.....	411
113-001	GENERAL INSTRUCTIONS FOR INST LCC WORKAROUNDS	411
113-002	INS-01/PCM POWER STATUS.....	415
113-003	INS-01/PCM MTU BITE.....	416
113-004	INS-01/FETCH PROM PARITY.....	417
113-005	INS-01/128KB FORMATER.....	418
113-006	INS-01/INPUT DATA VALID.....	419
113-007	INS-01/RAM PARITY.....	420
113-008	INS-01/TOGGLE BUFFER PARITY.....	421
113-009	INS-01 PCMMU BITE BIT 14 - NO RESPONSE COMPUTER BUS V75X2134D.....	422
113-010	INS-02/OPS 1 BITE.....	423
113-011	INS-02/OPS 1 TEMP.....	424
113-012	INS-02/OPS 1 MOTION.....	425
113-013	INS-02/OPS 2 BITE.....	426
113-014	INS-02/OPS 2 TEMP.....	427
113-015	INS-02/OPS 2 MOTION.....	428
113-016	INS-02/OPS 1 & 2 BITE.....	429
113-017	INS-03/MTU AMP 1.....	430
113-018	INS-03/MTU AMP 2.....	431
113-019	INS-03/MTU FREQ DIFF.....	432
113-020	INS-03/MTU TEMP 1.....	433
113-021	INS-03/MTU TEMP 2.....	434
113-022	INS-03/MTU PS 1 VOLT.....	435
113-023	INS-03/MTU PS 2 VOLT.....	436
113-024	INS-03/MTU CMD CHAN A.....	437
113-025	INS-03/MTU CMD CHAN B.....	438
113-026	INS-03/MTU CMD CHAN C.....	439
113-027	INS-03/MTU IRIG-B.....	440
113-028	INS-03/MTU DIV 1.....	441
113-029	INS-03/MTU DIV 2.....	442

113-030	INS-03/MTU DIV 3.....	443
113-031	INS-04/DSC BITE FAIL.....	444
113-032	INS-05/MDM WRAP FAIL.....	445
113-033	INS-06/C/W FAILURE.....	446
113-034	LCC SRM-11 - SRM CASE ACREAGE TEMPERATURE ANOMALY.....	447
113-035	NON LCC/RCD START UNCOMMAND.....	448
113-036	NON LCC/RECORD MODE MUX FAIL.....	449
113-037	NON LCC/DSC-MDM CARD FAIL.....	450
113-038	NON LCC/CW LIGHT BULB FAIL.....	451
113-039	NON LCC/RECORDER RUNTIME.....	452
113-040	NON LCC/MADS ACTIVATION FAIL.....	453
113-041	NON LCC/OI DATA DROPOUT.....	454
113-042	NON LCC/GLS PCM TO GSE CNTL NOT PERFORMED....	455
113-043	NON LCC/GLS PCM TO GSE CNTL NOT CONFIRMED....	456
113-044	SCM FEEDBACK NOT FA OR 99.....	457
113-045	INSTRUMENTATION DETAILED WORKAROUND STEPS....	458
113-046	DETAIL A - PCM SWITCH TO ALTERNATE PCM.....	458
113-052	DETAIL B - TFL RELOAD FOR FLIGHT.....	461
113-068	DETAIL C - OPS 1 AND 2 BITE VERIFICATION.....	464
113-080	DETAIL D - PSP VERIFICATION.....	467
113-106	DETAIL E - FMSP 1 VERIFICATION.....	474
113-116	DETAIL F - FMSP 2 VERIFICATION.....	476
114-000	EPDC.....	479
114-001	FUEL CELL AND MAIN BUS VOLTAGE FAILURE (REF SSID EPDC-01).....	479
114-002	CONTROL BUS SOURCE FAILURE (REF SSID EPDC-02)	480
114-003	AC CURRENT MEASUREMENTS FAILURE (REF SSID EPDC-04).....	481
114-004	ESSENTIAL BUS SOURCE FAILURE (REF SSID EPDC-06).....	482
114-005	MEC CORE "B" POWER (REF SSID EPDC-08).....	483
115-000	GNC.....	485
115-001	FWD RHC COMMAND ANOMALY (GNC-01).....	485
115-002	ORBITER RATE GYRO POWER ANOMALY (GNC-08).....	486
115-003	ACCELEROMETER POWER ANOMALY (GNC-09).....	487
115-004	ACCELEROMETER POWER ANOMALY (GNC-09) CONT'D..	488
115-005	ACCELEROMETER POWER ANOMALY (GNC-09) CONT'D..	489
115-006	SRB BUS C POWER (GNC-10).....	490
115-007	PROCEDURE FOR LOSS FOR MEAS: V76X4393E1 LEFT SRB BUS C RPC C.....	490
115-008	PROCEDURE FOR LOSS FOR MEAS: V76X4394E1 RIGHT SRB BUS C RPC C.....	491
115-009	PROCEDURE FOR LOSS OF MEAS: V76X4399E1 LEFT SRB BUS C RPC A.....	492
115-010	PROCEDURE FOR LOSS OF MEAS: V76X4390E1 RIGHT SRB BUS C RPC A.....	493
115-011	ORBITER RATE GYRO FAIL (GNC-12).....	494

115-014	ACCELEROMETER FAIL (GNC-13).....	496
115-017	ELEVON ACTUATOR POSITION ANOMALY (GNC-22)....	498
115-018	ELEVON ACTUATOR POSITION ANOMALY (GNC-22) CONT	499
115-019	ELEVON SECONDARY DELTA PRESSURE ANOMALY (GNC-24).....	500
115-020	ELEVON AEROSURFACE PROFILE ANOMALY (GNC-25)..	502
115-021	RUDDER/SPEEDBRAKE POSITION ANOMALY (GNC-26)..	503
115-022	RUDDER/SPEEDBRAKE POSITION ANOMALY (GNC-26) (CONT).....	504
115-023	RUDDER/SPEEDBRAKE SECONDARY DELTA PRESSURE ANOMALY (GNC-27).....	505
115-024	RUDDER/SPEEDBRAKE SECONDARY DELTA PRESSURE ANOMALY (GNC-27) (CON'T).....	506
115-025	RUDDER AEROSURFACE PROFILE ANOMALY (GNC-28)..	507
115-026	SPEEDBRAKE AEROSURFACE PROFILE ANOMALY (GNC-28).....	508
115-027	ORBITER ASA POWER ANOMALY (GNC-32).....	509
115-028	FCS CHANNEL FAILURE (GNC-38).....	511
115-029	AERO SURFACE MSID REF (GNC-38).....	513
115-030	MPS TVC MSID REF (GNC-38).....	514
115-031	ORBITER ATVC POWER ANOMALY (GNC-39).....	515
115-032	MPS TVC ACTUATOR POSITION ANOMALY (GNC-40)....	516
115-033	MPS TVC SECONDARY DELTA PRESSURE ANOMALY (GNC-41).....	517
115-034	MPS TVC SECONDARY DELTA PRESSURE ANOMALY (GNC-41) (CON'T).....	518
115-035	OMS GIMBAL PROFILE ANOMALY (GNC-44).....	519
115-036	TABLE GNC-44.....	520
115-037	RCS JET CHAMBER PRESSURE INDICATION ANOMALY (GNC-45, RCS-08).....	521
115-038	RCS JET CHAMBER PRESSURE INDICATION ANOMALY (GNC-45, RCS-08) (CONT'D).....	523
115-039	RCS JET CHAMBER PRESSURE INDICATION ANOMALY (GNC-45, RCS-08) (CONT'D).....	524
115-040	RCS JET CHAMBER PRESSURE INDICATION ANOMALY (GNC-45, RCS-08) (CONT'D).....	525
115-041	RCS VERNIER DRIVER OUT FAILURE (GNC-46).....	526
115-042	MSID TABLE (GNC-46).....	527
115-043	RCS VERNIER LOGIC RPC FAILURE (GNC-47).....	528
115-044	MSID TABLE GNC-47.....	529
115-045	RCS DRIVER POWER FAILURE (GNC-48).....	530
115-046	RJD TRICKLE CURRENT ANOMALY (GNC-49).....	534
115-047	RJD TRICKLE CURRENT ANOMALY (GNC-49) CONT....	535
115-048	IMU HARDWARE BITE ANOMALY (GNC-56).....	536
115-049	ORBITER IMU POWER ANOMALY (GNC-57).....	537
115-050	IMU TEMPERATURE READY ANOMALY (GNC-58).....	538
115-051	IMU OVER TEMPERATURE INDICATOR (GNC-59).....	539
115-052	IMU SOFTWARE BITE ANOMALY (GNC-61).....	540

115-053	IMU GYROCOMPASS ANOMALY (GNC-62).....	541
115-054	IMU GYROCOMPASS 1 ALIGNMENT ANOMALY (GNC-63)..	542
115-055	IMU REQUIREMENTS WHEN IRAMS IN USE (GNC-64)..	543
115-056	IMU TRANSMISSION WORD FAILURE (GNC-66).....	544
115-057	IMU PRESSURE/COMMUNICATION ANOMALY (GNC-67)..	545
115-058	BRAKE PRESSURE ANOMALY (GNC-79).....	546
115-059	BRAKE POWER ANOMALY (GNC-80).....	547
115-060	PROCEDURE FOR LOSS OF MEASUREMENT: V76X5800E1 BRAKE/SKID SUB BUS C/A RPC PWR A.....	547
115-061	PROCEDURE FOR LOSS OF MEASUREMENT: V76X5805E1 BRAKE/SKID SUB BUS B/C RPC PWR B.....	548
115-062	PROCEDURE FOR LOSS OF MEASUREMENT: V76X5806E1 BRAKE/SKID SUB BUS B/C RPC PWR C.....	549
115-063	PROCEDURE FOR LOSS OF MEASUREMENT: V76X5811E1 BRAKE/SKID SUB BUS C/A RPC PWR C.....	550
115-064	LANDING GEAR ANTI-SKID ANOMALY (GNC-81).....	551
115-065	ANTI-SKID FAIL LIGHT ANOMALY (GNC-82).....	552
115-066	NOSEWHEEL ANOMALY (GNC-83).....	553
115-067	NOSEWHEEL ANOMALY (GNC-83) CONT'D.....	554
115-068	NOSEWHEEL ANOMALY (GNC-83) CONT'D.....	555
115-069	NOSEWHEEL ANOMALY (GNC-83) CONT'D.....	556
115-070	NOSE WHEEL POSITION SIGNAL PATH ANOMALY (GNC-84).....	557
116-000	MECHANISMS.....	559
116-001	ET UMBL DR CENTERLINE LATCH LOCKED INDICATION FAILED OFF S/B ON.....	559
116-046	ET UMBL DR CENTERLINE LATCH STOW INDICATION FAILED ON S/B OFF.....	574
116-075	ET UMBILICAL DOOR CLOSE INDICATION FAILED ON S/B OFF.....	585
116-087	ET UMBILICAL DOOR OPEN INDICATION FAILED OFF S/B ON.....	590
116-101	ET UMBL DR LATCH - LATCH INDICATION FAILED ON S/B OFF.....	595
116-119	ET UMBILICAL DR LATCH - RELEASES INDICATION FAILED OFF S/B ON.....	602
116-133	RADIATOR DEPLOY INDICATION FAILED ON S/B OFF..	608
116-140	RADIATOR STOW INDICATION FAILED OFF S/B ON....	613
116-150	RADIATOR LATCHES - LATCH INDICATION FAILED OFF S/B ON.....	618
116-172	RADIATOR LATCHES RELEASE INDICATION FAILED ON S/B OFF.....	628
116-179	PAYLOAD BAY DOOR OPEN INDICATION FAILED ON S/B OFF.....	631
116-199	PLB DR BKHD LCH "LATCH" INDICATION FAILED OFF S/B ON.....	638
116-224	PLB DR RT FWD BKHD LCH MOTOR 1 CHECK AC - ON..	646
116-230	PLB DR RT FWD BKHD LCH MOTOR 2 CHECK WITH AC - ON.....	647

116-252	PLB DR BKHD LCH "RELEASE" INDICATION FAILED ON S/B OFF.....	652
116-284	PLBD READY TO LATCH INDICATION FAILED OFF S/B ON.....	663
116-285	PLB DR CENTERLINE LCH "LATCH" INDICATION FAILED OFF S/B ON.....	663
116-290	PLB DR C/L LCH 1-4 MOTOR 1 CHECK AC - ON.....	667
116-337	PLB DR CENTER LINE LCH "RELEASE" INDICATION FAILED ON S/B OFF.....	678
116-369	LANDING GEAR/DOOR UNLOCK INDICATION FAILED OFF S/B ON.....	689
116-374	LANDING SHUTTLE VALVE INDICATION FAILED OFF S/B ON (SSID: AFM-11).....	692
116-394	PRMS SHOULDER STOW INDICATION FAILED OFF S/B ON.....	700
116-405	PORT RMS SHLD DEPLOY INDICATION FAILED ON S/B OFF.....	706
116-412	PORT RMS RETN LCH "RELEASE" INDICATION FAILED ON S/B OFF.....	709
116-419	PRMS LCH "LATCH" INDICATION FAILED OFF S/B ON	712
116-434	STAR TRACKER DOOR CLOSE INDICATION FAILED OFF S/B ON.....	718
116-448	STAR TRACKER DOOR OPEN INDICATION FAILED ON S/B OFF.....	722
116-459	ADP DOOR "STOW" INDICATION FAILED OFF S/B ON..	725
116-474	ADP DOOR "DEPLOY" INDICATION FAILED ON S/B OFF	730
116-498	FORWARD MOTOR CONTROL ASSEMBLY.....	736
116-505	CONCLUSION/RECOMMENDATION.....	738
116-506	MID MOTOR CONTROL ASSEMBLY OPERATIONAL STATUS ANOMALY (AFM-17).....	739
116-518	CONCLUSION/RECOMMENDATION.....	744
116-519	AFT MOTOR CONTROL ASSEMBLY OPERATIONAL STATUS ANOMALY (AFM-18).....	745
116-526	CONCLUSION/RECOMMENDATION.....	747
116-527	HATCH LEAK CHECK FAILURE (CONTINGENCY).....	763
116-579	LIMIT SWITCH VERIFICATION FAILURE (CONTINGENCY).....	783
116-656	HATCH ACTUATOR LOCKING LEVER OVERCENTER VERIFICATION FAILURE.....	809
116-675	HATCH ACTUATOR LOCKING LEVER OVERCENTER VERIFICATION FAILURE.....	814
116-689	HATCH PAWL FAILURE (CONTINGENCY).....	818
116-700	I/E HATCH HANDLE REMOVAL (CONTINGENCY).....	821
116-706	I/E HATCH CARRIER PANEL (CONTINGENCY)-3.....	823
117-000	LAUNCH POLYNOMIAL UPDATE OPTION.....	837
117-001	G1 LAUNCH POLYNOMIAL UPDATE OPTION.....	837

118-000	PAYLOAD RETENTION LATCHES.....	849
118-039	TABLE 1 - MID MCA OP STATUS.....	867
119-000	RANGE SAFETY AND SRB SECURING (POST G9 TRANSITION).....	927
120-000	INTEGRATED.....	929
120-001	CONTINGENCY/RED CREW DEVELOPMENT AND IMPLEMENTATION PROCESS.....	929
120-002	POST CRYOGENIC LOADING PAD ACCESS.....	930
120-033	CONTINGENCY CREW ENTRY AFTER ECS CONFIGURED TO GN2 FLOW MODE.....	941
120-062	MLP RE-ENTRY DURING POST LAUNCH SECURING.....	952
120-065	SECURE GN2 SUPPLY TO MLP.....	954
121-000	LPS.....	963
121-001	C1 CONSOLE RECOVERY PROCEDURE.....	964
121-019	C2 CONSOLE RECOVERY PROCEDURE.....	968
121-040	C3 CONSOLE RECOVERY PROCEDURE.....	973
121-063	C4 CONSOLE RECOVERY PROCEDURE.....	980
121-088	C5 CONSOLE RECOVERY PROCEDURE.....	989
121-108	C6 CONSOLE RECOVERY PROCEDURE.....	993
121-131	C7 CONSOLE RECOVERY PROCEDURE.....	999
121-149	C8 CONSOLE RECOVERY PROCEDURE.....	1003
121-167	C9 CONSOLE RECOVERY PROCEDURE.....	1007
121-181	C10 CONSOLE RECOVERY PROCEDURE.....	1012
121-197	C11 CONSOLE RECOVERY PROCEDURE.....	1018
121-198	C11 CONSOLE RECOVERY PROCEDURE.....	1019
121-225	C12 CONSOLE CRASH FLOWCHART (FIG 121-002) ..	1031
121-226	C12 CONSOLE CRASH RECOVERY PROCEDURE.....	1032
121-291	MSTR CONSOLE RECOVERY PROCEDURE.....	1047
121-315	INTG CONSOLE RECOVERY PROCEDURE.....	1061
121-335	INTEGRATION CRASH RECOVERY (T-0600/00 THRU T-0200/00).....	1066
121-336	INTEGRATION CRASH RECOVERY (T-0200/00 THRU T-0045/00).....	1067
121-337	INTEGRATION CRASH RECOVERY (T-0045/00 THRU T-0005/00).....	1068
121-338	INTEGRATION CRASH RECOVERY (T-0230/00 THRU T-0009/00).....	1072
121-347	INTEGRATION OR BACKUP CONSOLE CRASH RECOVERY (T-0200/00 THRU T-0005/00).....	1074
121-355	BKUP CONSOLE RECOVERY PROCEDURE.....	1076
121-369	BACKUP CRASH RECOVERY (T-0200/00 THRU T-0005/00).....	1080
121-370	GPCA FEP RECOVERY PROCEDURE.....	1083
121-384	GPCS FEP RECOVERY PROCEDURE.....	1085
121-396	OIA FEP RECOVERY PROCEDURE.....	1087
121-410	OIS FEP RECOVERY PROCEDURE.....	1089
121-422	LDB FEP RECOVERY PROCEDURE.....	1091
121-434	LDB TRANSMISSION SYSTEM RECOVERY PROCEDURE....	1093

121-444	LDB TRANSMISSION SYSTEM RECOVERY PROCEDURE (LCC LPS 4-17).....	1095
121-445	GS___ FEP RECOVERY PROCEDURE.....	1096
121-456	GOAL/SYSTEM SOFTWARE RECOVERY FOR TOTAL FEP LOSS.....	1098
121-468	PDR RECOVERY PROCEDURE.....	1102
121-471	RF DATA LOSS RECOVERY PROCEDURE.....	1103
121-475	HARDLINE DATA LOSS RECOVERY PROCEDURE.....	1104
121-480	RF DATA INTERRUPTION RECOVERY PROCEDURE.....	1105
121-490	HL DATA INTERRUPTION RECOVERY PROCEDURE.....	1107
122-000	HIM LOSS AFTER T-8 HOURS.....	1109
123-000	SRSS VEHICLE AGC LEVEL VERIFICATION (MULTIPATH INTERFERENCE).....	1187
124-000	GLS.....	1193
124-006	GLS REAL TIME MASK/RESET AND CONTINGENCY LAUNCH SEQUENCE COMMANDS.....	1194
125-000	LCC WORKAROUND FOR FIREX LOOP AND TANK T-3 PRESSURE ANOMALY - LCC EGR-03.....	1215
125-008	WORKAROUND FOR FIREX PUMP FAILURE - T-09 MINUTES TO T-31 SECONDS.....	1218
125-011	WORKAROUND FOR FIREX PUMP FAILURE - T-09 MINUTES TO T-31 SECONDS.....	1219
126-000	CRIM VISUAL ALARM RESET WORKSTEPS.....	1225
127-000	STL BLOWN FUSE REPLACEMENT.....	1229
128-000	LOSS OF FACILITY AIR COMPRESSOR.....	1231
129-000	ROEU HOOK ANOMALY (SSID ROEU-01).....	1233
130-000	ROEU RELAX ANOMALY (SSID: ROEU-02).....	1265
131-000	ROEU STOW ANOMALY (SSID: ROEU-03).....	1281

SECTION V - POST OPERATION INSTRUCTIONS NA

APPENDICES

A THRU Y	NA
Z	EMERGENCY INSTRUCTIONS	1297
132-000	EMERGENCY INSTRUCTIONS - INTEGRATED.....	1297
132-001	LOSS OF ORBITER GROUND COOLING.....	1297
132-002	INITIAL CONFIG FOR LOSS OF GROUND COOLING CONTROL SEQ.....	1299
132-024	SYSTEMS DEACTIVATION FOR LOSS OF GROUND COOLING CONTROL SEQ.....	1306
132-038	SYSTEMS DEACTIVATION FOR LOSS OF GROUND COOLING CONTROL SEQ.....	1309
132-122	TOTAL LOSS OF COOLING EXPEDITED POWER DOWN....	1330

132-140	FLIGHT AND GROUND CREW EMERGENCY EGRESS/ESCAPE	1334
132-158	RCS/OMS HELIUM REGULATOR LEAKAGE/FAILURE.....	1341
133-000	EMERGENCY INSTRUCTIONS - TEST SUPPORT.....	1343
133-001	EMERGENCY FIREX WATER FLOW.....	1343
133-004	GO2/GH2 EMERGENCY SHUTDOWN.....	1348
133-011	LOSS OF AIR LIQUIDE GN2 SUPPLY (HPGN2 AND LPGN2) DURING EXTERNAL TANK LOADING/DRAINING..	1349
133-027	FIRE ANNUNCIATIONS.....	1358
134-000	EMERGENCY INSTRUCTIONS - ORBITER.....	1417
134-001	EMERGENCY SHUTDOWN - ORBITER - ELECTRICAL POWER SYSTEM.....	1417
134-002	EMERG ORBITER POWER DOWN - LPS.....	1417
134-018	EMERGENCY MLP AND PAD P/S POWER DOWN - MANUAL - MLP/PAD.....	1421
134-026	ORBITER EMERGENCY POWER DOWN - SAFING PANEL..	1424
134-036	CONFIGURE PAYLOAD PRIMARY TO MAIN B.....	1426
134-049	RECONFIGURE PAYLOAD PRIMARY TO MAIN C.....	1429
134-063	FUEL CELL EMERGENCY PWR DOWN (MANUAL).....	1432
134-105	FUEL CELL EMERGENCY PWR DOWN (REMOTE).....	1444
134-174	POSSIBLE FIRE IN AV BAYS 1,2 OR 3A.....	1460
134-182	PREDETERMINED FIRE INDICATION IN CREW MODULE..	1463
134-188	FREON COOLANT LOOP UNDERTEMP EMERGENCY PROCEDURE.....	1467
135-000	EMERGENCY INSTRUCTIONS - MPS/LOX.....	1471
135-001	INADVERTENT OPENING OF A86462 TSM DRAIN VALVE DURING LOADING (OXYGEN 65).....	1471
135-004	PV10 INBD LOX F/D VALVE OR PV9 OUTBD LOX F/D VALVE AND PV19 LOX OVERBOARD BLEED VALVE FAILED CLOSED (OXYGEN 66).....	1472
135-008	LOSS OF BLEED FLOW FROM VEHICLE WITH NO LOSS OF DRAIN CAPABILITY (OXYGEN 67).....	1473
135-014	MAJOR OXYGEN LEAK (10,000 PPM OR GREATER) IN THE ORBITER AFT FUSELAGE (OXYGEN 68).....	1475
135-032	INADVERTENT ET GUCP SEPARATION (OXYGEN 69)....	1480
135-035	MAJOR LEAK/FIRE IN LOX STORAGE TANK PRESSURIZATION LINES (OXYGEN 70).....	1481
135-038	MAJOR LEAK/FIRE BETWEEN A141 AND A126 OR A126 LOCKUP/OUT OF CONTROL (OXYGEN 71).....	1481
135-041	MAJOR LEAK/FIRE BETWEEN A98 AND A127 OR A127 LOCKUP/OUT OF CONTROL (OXYGEN 72).....	1482
135-044	MAJOR LEAK/FIRE IN LOX STORAGE AREA (OXYGEN 73).....	1482
135-047	MAJOR LEAK/FIRE BETWEEN MLP VALVE SKID AND VEHICLE (OXYGEN 74).....	1482
135-050	INADVERTENT LO2 T-0 CARRIER PLATE SEPARATION (OXYGEN 75).....	1483
135-057	HARDWIRE SYSTEM SAFING (OXYGEN 76).....	1484

135-060	EMERGENCY PWR SHUTDOWN (LOX FACILITY) LPS (OXYGEN 77).....	1484
135-066	INITIATION/SAFING OF ORBITER PAD WATER SPRAY SYSTEM - LPS (OXYGEN 79).....	1488
135-071	LO2 ET VENT AREA FIRE DURING LOADING (OXYGEN 80).....	1491
135-073	DRAIN WITH LOX ET VENT AND RELIEF VALVE FAILED OPEN (OXYGEN 81).....	1491
135-075	EXCESSIVE GASEOUS OXYGEN CONCENTRATION IN ET INTERTANK (LCC PAGE HAZ-07) (OXYGEN 82).....	1492
135-090	ABRUPT TOTAL LOSS OF ORBITER POWER (OXYGEN 83)	1496
135-095	IMMINENT TOTAL LOSS OF ORBITER POWER (OXYGEN 84).....	1499
135-105	GRADUAL LOSS OF GN2 OR GHE (OXYGEN 86).....	1502
135-107	TOTAL LOSS OF GN2 (ANY AREA) (OXYGEN 87).....	1502
135-109	TOTAL LOSS OF GHE IN ANY AREA (OXYGEN 88)....	1502
135-112	LOSS OF POWER - MLP ONLY (OXYGEN 89).....	1502
135-114	LOSS OF GSE POWER - STORAGE AREA AND/OR PTCR (OXYGEN 90).....	1503
135-116	LARGE ACREAGE LOSS OF LOX ET TPS (OXYGEN 91)..	1503
135-118	LOSS OF HELIUM INJECT (OXYGEN 92).....	1503
135-120	GO2 VENT HOOD EMERGENCY/CONTINGENCY LIFT/ LOWER (OXYGEN 94).....	1503
135-125	SSME OPOV OR MOV LEAKAGE (OXYGEN 95).....	1504
135-130	LOSS OF GPC/OI LINES (OXYGEN 98).....	1504
136-000	EMERGENCY INSTRUCTIONS - MPS/LH2.....	1505
136-001	LEAK INDICATION IN LH2 TSM (LH2 106).....	1505
136-004	LEAK INDICATION ON T-0 UMBILICAL (LH2 107)....	1505
136-007	LEAK ON LH2 ET VENT UMBILICAL QD (LH2 108)....	1506
136-011	MAJOR HYDROGEN (10,000 PPM OR GREATER) LEAK IN THE ORBITER AFT FUSELAGE (HYDROGEN 109).....	1507
136-024	SSME LEAKAGE, MFV LEAKAGE AND HPFTP LIFT OFF SEAL LEAKAGE (LH2 110).....	1510
136-027	MAJOR LEAK/FIRE INDICATION AT ORBITER/ET LH2 DISCONNECT (FD44, FD45, LD54, LD55) (LH2 111)	1511
136-037	MAJOR LEAK/FIRE IN TANK PRESSURIZATION LINES BETWEEN VAPORIZER INLETS AND A3338 (PRE-CONDITION VENT) VLV (LH2 112).....	1514
136-040	MAJOR LEAK/FIRE BETWEEN A3301 (XFER LINE) VLV OR A3309 (XFER LINE CHILLDOWN) VLV AND MLP VLV SKID (LH2 113).....	1515
136-043	MAJOR LEAK/FIRE BETWEEN MLP VLV SKID AND T-0 UMBILICAL DISCONNECT (LH2 114).....	1516
136-046	MAJOR LEAK/FIRE IN MLP/FACILITY VENT (LH2 115)	1516
136-049	MAJOR LEAK/FIRE IN LH2 ET VENT SYSTEM (LH2 116).....	1517
136-052	INADVERTENT TSM T-0 LH2 CARRIER PLATE SEPARATION (LH2 117).....	1518
136-055	INADVERTENT I/T UMBILICAL RELEASE (LH2 118)..	1519

136-058	HARDWIRE SYSTEM SAFING (LH2 119).....	1519
136-061	MPS HARDWIRE DRAIN (LH2 120).....	1520
136-066	ET VENT VALVE FAILURE (VALVE FAILED OPEN) (LH2 121).....	1521
136-068	ET VENT VALVE FAILED CLOSED DURING FILL (VENT VALVE CYCLING ACTIVE) (LH2 123).....	1521
136-070	LOSS OF FEP GS1A (LH2 124).....	1521
136-072	LOSS OF FEP GS2A (LH2 125).....	1522
136-074	LOSS OF OI LINK (LH2 126).....	1522
136-076	LOSS OF GPC (LH2 127).....	1522
136-078	LOSS OF CRITICAL PURGES (LH2 128).....	1523
136-080	EXCESSIVE GASEOUS OXYGEN OR HYDROGEN CONCENTRATION IN ET/IT (LH2 129).....	1524
136-084	IMMINENT TOTAL LOSS OF ORBITER POWER (LH2130)	1525
136-092	GRADUAL LOSS OF GN2 OR GHE (ANY AREA) (LH2 131).....	1527
136-094	TOTAL LOSS OF STORAGE AREA GN2 (LH2 132).....	1528
136-096	TOTAL LOSS OF FSS GN2 (LH2 133).....	1528
136-098	TOTAL LOSS OF MLP GN2 (LH2 134).....	1528
136-100	TOTAL LOSS OF GN2 (ALL AREAS) (LH2 135).....	1528
136-102	TOTAL LOSS OF FSS GHE (LH2 136).....	1528
136-104	TOTAL LOSS OF MLP GHE (LH2 137).....	1528
136-106	TOTAL LOSS OF GHE (ALL AREAS) (LH2 138).....	1529
136-108	LOSS OF STORAGE AREA POWER (LH2 139).....	1529
136-110	LOSS OF FSS POWER (LH2 140).....	1529
136-112	LOSS OF MLP POWER (LH2 141).....	1529
136-114	LOSS OF ALL POWER (GSE) (LH2 142).....	1529
137-000	EMERGENCY INSTRUCTIONS - SRB.....	1531
137-001	INSTRUCTION 1 - IGNITION S&A DEVICE MANUAL SAFING.....	1531
137-008	INSTRUCTION 2 - POWER OFF.....	1535
137-019	INSTRUCTION 3 - SRSS S&A DEVICE MANUAL SAFING	1537
137-023	INSTRUCTION 4 - LEAK N2H4, SRB AFT SKIRT, SUSPECTED OR CONFIRMED.....	1539
138-000	EMERGENCY INSTRUCTIONS - LOSS OF FIRING ROOM CONTROL/VISIBILITY.....	1541
138-001	OPTION A - T-6 HOURS TO T-4 MINUTES.....	1541
138-026	OPTION B - T-4 MINUTES TO T-31 SECONDS.....	1546
138-057	OPTION C - T-31 SECONDS THRU SSME START.....	1552
139-000	EMERGENCY INSTRUCTIONS - PAYLOADS.....	1563
139-001	INSTRUCTION 1 - IUS EMERGENCY POWER DOWN.....	1563
140-000	P/L POWER DE-ACTIVATION.....	1565

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
				NOTE	-1
				DELETED	
105-031				DELETED	-1
105-032				DELETED	-1
105-033				DELETED	

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
105-034			DELETED		-1

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
106-008				PROBLEM: H2 TANK PRESS OR HTR	-1
CON'T				----- CNTL PRESS HIGH (SSID PRSD-06) (CONT)	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
106-009				PROBLEM: O2 TANK QUANTITY LOW, H2 ----- TANK QUANTITY LOW (SSID PRSD-07/08) -----	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
106-039				PROBLEM: RLF NOZZLE TEMP HIGH ----- OR LOW (A OR B) (SSID FCP-06) -----	-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
106-040				PROBLEM: RLF VLV TEMPS, RLF LINE ----- TEMPS, ALT LINE TEMPS LOW ----- (SSID FCP-06) -----	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE -1

APU-20 PERFORM THE NEXT STEP TO EVALUATE A POSSIBLE LEAK IN THE INJECTOR H2O COOLING TANK.

108-055

CAPU VWF57

1. RECORD INJECTOR H2O TANK PRESS
 _____ PSIA BD V46P0504A1
2. RECORD INJECTOR H2O TANK TEMP
 _____ DEG F V46T0500A1
3. RECORD INJECTOR H2O LINE TEMP 1
 _____ DEG F V46T0501A1
4. RECORD INJECTOR H2O LINE TEMP 2
 _____ DEG F V46T0502A1
5. RECORD INJECTOR H2O LINE TEMP 3
 _____ DEG F V46T0503A1
6. USING DATA RETRIEVAL, PLOT THE ABOVE PARAMETERS AND DETERMINE IF THE NOTED CHANGE IN PRESSURE CAN BE ATTRIBUTED TO A CHANGE IN TEMPERATURE, OR IF THERE EXISTS A SATISFACTORY EXPLANATION FOR THE PRESSURE CHANGE.

NOT PERFORMED _____

108-056

CAPU IF PERFORMED, EVALUATE THE RESULTS OF THE ABOVE TWO STEPS OF TROUBLE SHOOTING AND MAKE A RECOMMENDATION TO THE OTC AND NTD BASED ON LCC PAGE APU-20 INJECTOR COOLING SYSTEM PRESSURE ANOMALY.

NOT PERFORMED _____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
				APU FUEL TANK ISOLATION VALVE	-1
				----- ANOMALY APU-23 -----	
				NOTE	
				PERFORM THE NEXT FOUR STEPS AS REQUIRED TO TROUBLESHOOT A FUEL ISOLATION VALVE POWER INDICATOR FAILURE TO INDICATE ON FOLLOWING PRE-START. IF THE POWER INDICATOR CAN NOT BE USED DUE TO A FAILURE, FUEL ISO VLV TEMP MAY BE USED TO VERIFY THAT THE ISOLATION VALVE COIL IS ENERGENIZED. FUEL ISO VLV TEMP WILL INCREASE APPROXIMATELY 1 DEGREE FOR EVERY MINUTE IT IS OPEN WITH NO FUEL FLOW.	
108-056A		CAPU	CRT	VWF57	-1
			1.	RECORD WHICH APU HAS AN ANOMALOUS CONDITION. APU _____	
			2.	RECORD FUEL ISLN VLV A PWR _____ V46X0X15E1.	
			3.	RECORD FUEL ISLN VLV B PWR _____ V46X0X34E1.	
			4.	RECORD FUEL ISO VLV A TEMP 1 _____ DEG F V46T1X75A1.	
			5.	RECORD FUEL ISO VLV A TEMP 2 _____ DEG F V46T1X76A1.	
			6.	RECORD FUEL ISO VLV B TEMP 1 _____ DEG F V46T1X73A1.	
			7.	RECORD FUEL ISO VLV B TEMP 2 _____ DEG F V46T1X73A1.	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

PCA APU CONTROLLER RPC POWER ON

ANOMALY APU-24

NOTE

APU-24 PERFORM THE NEXT TWO
STEPS IF REQUIRED TO CONFIRM
INSTRUMENTATION FAILURE OF
V76X400XE1 PRIOR TO APU START.
THE APU AUTO BIT TEST VERIFIES
REDUNDANT POWER INTO THE
CONTROLLER.

108-057

CAPU VWF47

RECORD CONTROLLER PWR J1 RPC
_____ V76X400XE1 (X=1, 4 OR 8)

RECORD CONTROLLER PWR J2 RPC
_____ V76X400XE1 (X=2, 5 OR 7)

PFK10 KEY - PRESS

CRT
VERIFY GROUND COMMANDS ARE BEING
ISSUED FOR CORRECT APU

CURSOR CNTL
BITE INITIATE ON CMD
XMIT CURSOR KEY - PRESS V46K0X57NL

WAIT 60 SECONDS

HIGH SPEED A ON CMD
XMIT CURSOR KEY - PRESS V46K0X29NL

HIGH SPEED B ON CMD
XMIT CURSOR KEY - PRESS V46K0X49NL

PFK11 KEY - PRESS

CRT
VERIFY BITE COMPLETE ON

NOT PERFORMED _____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
111-003 CON'T	3.	CDPS		REVIEW MCDS PROGRAM NOTES, ITEM 15, (LOCATED AT END OF THIS SEQUENCE). VERIFY ANOMALY DUE TO OCCURRENCE OF A MCDS PROGRAM NOTE CONDITION. RECORD NOTE NO. _____	
NOTE					
IF "CRT BITE" FSM IS NOT EXPLAINED BY PROGRAM NOTE, HOLD COUNT, AND DO NOT PERFORM REMAINDER OF THIS OPTION.					
	4.	CDPS	CDR	___KYBD (FAILED DEU KYBD) ITEM E EXEC ITEM A EXEC	NOT PERFORMED _____ SS4
	5.	CDPS	CDR	PANEL C2 ___CRT SEL SW - ___ (ASSIGN TO GOOD CRT) NOT PERFORMED _____	SS5
	6.	CDPS	CDR	___KYBD (GOOD KYBD) GPC/CRT ___ (REASSIGN FAILED CRT) EXEC	NOT PERFORMED _____ SS6
ENTIRE STEP NOT PERFORMED _____					

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE

PERFORM NEXT STEP IF MCDS ANOMALY WAS PASS "I/O ERROR CRT" FAULT SUMMARY MESSAGE.

"I/O ERROR CRT" FSM WITH NO I/O ERROR LOG ENTRIES INDICATES A CHECKSUM MISCOMPARE.

111-004		CDPS		RECORD NUMBER OF I/O ERROR LOG ENTRIES ASSOCIATED WITH THIS I/O ERROR CRT FAULT SUM MSG: _____	
---------	--	------	--	--	--

NOT PERFORMED _____

NOTE

-1 |

HOLD COUNT IF ANOMALY IS "I/O ERROR CRT" FSM AND TWO OR MORE UNEXPLAINED I/O ERRORS HAVE BEEN LOGGED AGAINST THIS MCDS DURING COUNTDOWN.

IF HOLDING COUNT, DO NOT PERFORM THE REMAINDER OF THIS OPTION.

111-005		CDPS	CDR	CRT _____	
---------	--	------	-----	-----------	--

VERIFY GOOD DISPLAY WITH NO ANOMALIES OBSERVED (IE, NO BIG X, DISTORTED CHARACTERS, ETC.).

NOT PERFORMED _____

NOTE

IN NEXT STEP, ASSIGN KYBD TO FAILED DEU.

111-006		CDPS	CDR	PANEL C2 _____ CRT SEL SW - _____	
---------	--	------	-----	--------------------------------------	--

NOT PERFORMED _____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE

PERFORM NEXT OPTION IF BFS
MCDS ANOMALY OCCURS.

IF ANOMALY IS "I/O ERROR CRT"
AND GPC LOGGED MULTIPLE I/O
ERRORS AGAINST CRT, HOLD
COUNT AND DO NOT PERFORM
NEXT OPTION.

111-106

9. BFS MCDS ANOMALY RECOVERY

OPTION NOT PERFORMED

NOTE

DURING PROGRESSION OF THIS
OPTION, CDPS WILL RECORD
PERTINENT INFORMATION IN
ITEM 14 - DEU ANOMALY DATA
SHEET, LOCATED AT END OF THIS
SEQUENCE.

111-107

OTC CDPS PERFORM RECOVERY FOR MCDS ____ ANOMALY

NOTE

PERFORM NEXT TWO STEPS IF
MCDS ANOMALY WAS BFS "CRT
BITE" FSM.

111-108

CDPS REVIEW MCDS PROGRAM NOTES, ITEM 15
(LOCATED AT END OF THIS SEQUENCE).
VERIFY ANOMALY DUE TO RE-OCCURRENCE
OF MCDS PGM NOTE CONDITION.

RECORD PGM NOTE NO.: _____

NOT PERFORMED

111-109

CDPS CDR PANEL C2
CRT ____
POWER SW - OFF, THEN ON

NOT PERFORMED

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
				NOTE	-1
				PERFORM NEXT STEP IF MCDS ANOMALY WAS BFS "I/O ERROR CRT" FAULT SUMMARY MESSAGE.	
				"I/O ERROR CRT" FSM WITH NO I/O ERROR LOG ENTRIES INDICATES A CHECKSUM MISCOMPARE.	
111-110				CDPS RECORD NUMBER OF I/O ERROR LOG ENTRIES ASSOCIATED WITH THIS I/O ERROR CRT FAULT SUM MSG: _____	
				NOT PERFORMED	_____
				NOTE	-1
				HOLD COUNT IF ANOMALY IS "I/O ERROR CRT" FSM AND TWO OR MORE UNEXPLAINED I/O ERRORS HAVE BEEN LOGGED AGAINST THIS MCDS DURING COUNTDOWN.	
				IF HOLDING COUNT, DO NOT PERFORM THE REMAINDER OF THIS OPTION.	
111-111				CDPS CDR CRT _____	
				VERIFY GOOD DISPLAY WITH NO ANOMALIES OBSERVED (IE, NO BIG X, DISTORTED CHARACTERS, ETC.)	
				NOT PERFORMED	_____
				NOTE	
				IN NEXT STEP, ASSIGN KYBD TO FAILED DEU.	
111-112				CDPS CDR PANEL C2 _____ CRT SEL SW - _____	
				NOT PERFORMED	_____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE

FOLLOWING OPTION WILL TRANSITION
 DPS BACK TO G9 FROM T-9 MIN CNFG
 TO SUPPORT CONTINGENCY OPERATIONS,
 THEN TRANSITION BACK TO G1.
 REMAINING SHUTTLE SYSTEMS WILL
 MAINTAIN A T-9 MIN CNFG.

PERFORM G9 QUICK RECYCLE IF
 DPS QUICK G9 RECYCLE IS REQUIRED.

111-152				12. G9 QUICK RECYCLE	
---------	--	--	--	----------------------	--

OPTION NOT PERFORMED

111-153		NTD	OTC	DPS WILL BE TRANSITIONING TO G9 FOR CONTINGENCY OPERATIONS. VERIFY SPE READY TO PROCEED.	
		OTC	CGNC		
			CGLS		
		TBC	CLOX		
			CLHY		

NOTE

PERFORM NEXT STEP IF BFS STORED
 PROGRAM COMMANDS HAVE BEEN SENT
 BUT NOT CLEARED.

111-154		NTD	*FLT	CLEAR BFS SPC BUFFER. REPORT COMPLETION.	-1
---------	--	-----	------	---	----

NOT PERFORMED

111-155		NTD	OTC	PERFORM QUICK RECYCLE TO G9.	
		OTC	CDPS		

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
111-156		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		
111-157		CDPS	CURSOR CNTL (SAS01 PG-B) DPS INIT DISPLAY (SAS01) XMIT CURSOR KEY - PRESS		
			CURSOR CNTL (SAS01 PG-B) TERMINATE OPS MGR5 (SAS25) XMIT CURSOR KEY - PRESS		
			PFK 2 KEY - PRESS		
111-158		CDPS	CONSOLE KYBD VASJ6 PERF PGM KEY - PRESS		

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
G1 TRANSITION -----					
111-168		NTD OTC	OTC CDPS	TRANSITION BACK TO G1.	
				NOTE	-1
				BFS ONE SHOT DATA TRANSFER MUST BE REPERFORMED IF ANY OF THE FOLLOWING HAVE OCCURRED:	
				-BFS GPC RE-IPL -LAUNCH POLYNOMIAL UPDATE -SRM CHAMBER PRESSURE CAL UPDATE -IMU PREFLIGHT CAL	
				PERFORM NEXT THREE STEPS IF BFS ONE SHOT DATA TRANSFER REQUIRED.	
111-169		CDPS CDR		PERFORM PASS/BFS TRANSFER PREP PER YOUR CHECKLIST.	-1
				NOT PERFORMED	-----
111-170		CDPS	CRT (VASJ6 PG-B)	ONE SHOT ENABLED - INVERT GREEN	-1
				NOT PERFORMED	-----
111-171		CDPS	PFP (VASJ6)	PFPK1 KEY (ONE SHOT SELECT) - PRESS	-1
			CRT (VASJ6 PGB)	ONE SHOT COMPLETE MILESTONE IN INVERT GREEN	
				NOT PERFORMED	-----

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
111-172				DELETED	-1
111-173		CDPS	PFP (VASJ6)	PFPK3 KEY - PRESS (OPS 101 SELECT)	
			CRT (VASJ6)	VERIFY MESSAGES: "OPS TRANSITION IN PROGRESS" "PASS IN 101, ACTIVE DOWNLIST"	
111-174		CDPS OTC	OTC NTD	PASS G1 TRANSITION COMPLETE. DPS READY FOR BFS TRANSITION TO G1.	
111-175		OTC	CDR	TAKE BFS TO OPS 1 PER YOUR CHECKLIST.	
NOTE					
DUMP AND COMPARE WILL TAKE APPROXIMATELY TEN MINUTES.					
111-176		CDPS	PFP (VASJ6)	PFPK5 KEY - PRESS (T-20M D&C SELECT)	
111-177		CDPS OTC		G1 DUMP AND COMPARE IN PROGRESS.	
111-178		CDR	OTC	BFS OPS 1 TRANSITION COMPLETE.	
111-179		CVFS	CRT (VASB9)	VERIFY BFS TRACKING PASS ON FC 1-4 VERIFY NSP STAT GOOD	
111-180		CVFS NTD		READY FOR BFS UPLINK.	
111-181		NTD	*FLT	PERFORM BFS PREFLIGHT UPLINK LOADING. REPORT COMPLETION.	
111-182		OTC	PLT	CONFIGURE PASS AND BFS HORIZONTAL SITUATION DISPLAYS. REPORT COMPLETION.	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
111-183		OTC	CDR	CONFIGURE YAW STEERING PER YOUR CHECKLIST. REPORT COMPLETION.	
111-184		CVFS NTD	NTD OTC	T-20 MIN GPC DUMP IS COMPLETE.	

NOTE

PERFORM NEXT STEP IF EXPECTED MISCOMPARES OCCUR.

111-185		CDPS		APPL PAGE (VASJ6 PG-B) PFK 3 KEY - PRESS	
				NOT PERFORMED	_____

NOTE

PERFORM NEXT STEP IF UNEXPECTED MISCOMPARES OCCUR.

111-186		CDPS		APPL PAGE (VASJ6 PG-B) PFK 2 KEY - PRESS	
				NOT PERFORMED	_____

111-187		CDPS		CURSOR CNTL (SAS01 PGB) DPS INIT DISPLAY XMIT CURSOR KEY - PRESS	
				CURSOR CNTL (SAS01 PGB) ACTIVATE OPS MGR 5 (SAS25) XMIT CURSOR KEY - PRESS	
				PFK2 KEY - PRESS	

NOTE

PERFORM NEXT STEP IF BFS SPC BUFFER WAS CLEARED FOR QUICK RECYCLE OPTION.

-1 |

111-188		NTD	*FLT	TRANSMIT BFS STORED PROGRAM COMMANDS. REPORT COMPLETION.	
				NOT PERFORMED	_____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE

PERFORM NEXT TWO STEPS
TO CLEAR RSLs HOLD FLAG,
V90X8667X1, WHICH WILL HAVE
BEEN INITIALIZED TO ON BY
RSLs AT G9 TO G1 TRANSITION
AND WILL BE CLEARED UPON
INITIAL LAUNCH SEQUENCE
RESUME COMMAND.

111-189		CGLS		VERIFY MSRB MILESTONE INHIBITED DUE TO RSLs HOLD FLAG.	
111-190		CGLS		CONSOLE KYBD PFP (RESUME) PFPK1 - PRESS PFP (RESUME EXECUTE) PFPK6 - PRESS VFY GND AND ONBOARD CLOCKS RESUME AND RE ENTER HOLD AT T-9 MIN.	
111-191		OTC	CGLS	REVIEW EXPECTED HITS AND RESET AS REQUIRED.	
111-192				G9 QUICK RECYCLE COMPLETE. G9 QUICK RECYCLE COMPLETE -----	

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
114-004A				ESSENTIAL BUS SOURCE FAILURE ----- (REF SSID EPDC-07) -----	

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

THIS PAGE INTENTIONALLY BLANK

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
117-000				LAUNCH POLYNOMIAL UPDATE OPTION	
				NOTE	
				PERFORM G1 LAUNCH POLYNOMIAL UPDATE OPTION IF CURRENTLY IN G1 AND LAUNCH POLYNOMIAL UPDATE IS REQUIRED.	
117-001				G1 LAUNCH POLYNOMIAL UPDATE OPTION	
				NOT PERFORMED	
117-002		NTD	OTC	DPS WILL BE TRANSITIONING TO G9 FOR LAUNCH POLYNOMIAL I-LOAD UPDATE.	
			SPE	VERIFY READY TO PROCEED.	
		OTC	CGNC		
			CGLS		
		TBC	CLOX		
			CLHY		
				NOTE	
				PERFORM NEXT STEP IF BFS STORED PROGRAM COMMANDS HAVE BEEN SENT BUT NOT CLEARED.	
117-003		NTD	*FLT	CLEAR BFS SPC BUFFER. REPORT COMPLETION.	-1
				NOT PERFORMED	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
117-004		*FLT	NTD	STARTING ADDRESSES FOR CVFS DOWNLIST DUMP IS: GMT L/O: _____	
117-005		NTD OTC	OTC CDPS	PERFORM QUICK RECYCLE TO G9.	
117-006			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	
117-007			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 PFK 2 KEY - PRESS	
117-008			CDPS	CONSOLE KYBD VASJ6 PERF PGM KEY - PRESS	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
				NOTE	-1
				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 DEU EQUIVALENT. PASS G9 TRANSITION TAKES APPROXIMATELY 90 SECONDS.	
117-009		CDPS	PFP (VASJ6)	PFPK4 KEY - PRESS (COUNTDOWN RECYCLE) FOLLOW RECYCLE PROMPTS	
			CRT (VASJ6 PG-B)		
				VERIFY MSG: "RECYCLE COMPLETE"	
117-010		CVFS	CURSOR CNTL (SAS10 PGB)	FSW DISPLAY SELECT MENU (SDS13) XMIT CURSOR KEY - PRESS	
117-011		CVFS	CURSOR CNTL (SAS10 PGB)	UPLINK MONITOR (VWS14) XMIT CURSOR KEY - PRESS	
117-012		CDPS	OTC	TRANSITION TO G9 COMPLETE. READY FOR OTC NTD LAUNCH POLYNOMIAL UPDATE.	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

NOTE

NOTED REQUIREMENT IS SATISFIED
 BY COMPLETION OF TWO OF NEXT
 SEVEN STEPS. (REQUIREMENT WILL
 ONLY BE SATISFIED DURING S0007)

OMRS S00FF0.250-A

117-013		NTD	*FLT	CONFIGURE FOR TWO STAGE COMMAND MANUAL EXECUTE. PERFORM AND VERIFY LAUNCH POLYNOMIAL UPLINK.	
				OMRS S00FF0.250-A	
117-014		CDPS		CURSOR CNTL (VASP9 PG-B) ACTIVATE LCC MONITORING XMIT CURSOR KEY - PRESS	
				PFK 1 KEY - PRESS	
117-015		CDPS		APPL PAGE (VASJ6 PG-B) PFK1 KEY - PRESS (RECYCLE CMPLT CONTINUE) PFK1 KEY - PRESS (BSR CONTINUE) PFK1 KEY - PRESS (NBAT CONTINUE)	
117-016		CDPS	CDR	PERFORM PASS/BFS TRANSFER PREP PER YOUR CHECKLIST.	-1
117-017		CDPS		CRT (VASJ6 PG-B) ONE SHOT ENABLED - INVERT GREEN	-1
117-018				DELETED	
117-019		*FLT	NTD	LAUNCH POLYNOMIAL UPLINK COMPLETE.	
				OMRS S00FF0.250-A	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
117-064				COMPLETION OF PREVIOUS NINE STEPS SATISFIES NOTED OMRS REQUIREMENT WHEN PERFORMED DURING S0007. OMRSD S00FF0.250-B NOT PERFORMED	_____
117-065			CVFS PFP (VWS14) PFPK2 - PRESS (RETURN)		
117-066			CVFS APPLICATION PAGE (VWS14 PG-B) PFK15 KEY - PRESS (TERMINATE)		
117-067			CVFS APPLICATION PAGE (SAS10 PG-B) PFK2 KEY - PRESS		
117-068			CGLS REVIEW EXPECTED HITS AND RESET ACCORDINGLY.		
117-069			G1 LAUNCH POLYNOMIAL UPDATE OPTION COMPLETE.		
				NOTE	-1
				PERFORM NEXT STEP IF BFS SPC BUFFER WAS CLEARED FOR QUICK RECYCLE OPTION.	
117-070		NTD	*FLT	TRANSMIT BFS STORED PROGRAM COMMANDS. REPORT COMPLETION.	

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
-----	------	-----	------	-------------	--------

THIS PAGE INTENTIONALLY BLANK

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
121-046		CLOX 156	LPS	CRT (SLP50 PG-A) VERIFY LO2 SAFING PGM (SAL06) EXECUTING OR COMPLETE. VERIFY FOLLOWING MSGS: SAL06 - LOX CONSOLE IS NOT SUPPORTING SAL06 - LOX LOADING/DRAIN IN PROGRESS, SAFING COMMANDS ISSUED. LOX ET ULLAGE PRESS RSYS TRANSFERRED. NOT PERFORMED	
				LOX IN REVERT OR STOP DRAIN ----- CONFIGURATION COMPLETE -----	
				NOTE PERFORM NEXT STEP IF C3 CONSOLE FAILED DURING LOADING OR DRAIN AND CONSOLE RSYS TRANSFER NOT SUCCESSFUL.	
121-047		LPS 232 NTD	NTD	C3 CONSOLE TRANSFER WAS NOT SUCCESSFUL. PERFORM HARDWIRE SAFING PER S1003 OXYGEN 76.	-1
				NOT PERFORMED	
				LOX IN BACKUP REPLENISH -----	
				NOTE PERFORM NEXT TWO STEPS IF LOX IN BACKUP REPLENISH.	
121-048		CLOX 232 NTD	NTD LPS	PERFORMING SAFING PER S1003 OXYGEN 94 - CONSOLE C3 LOSS - LO2 IN BACKUP REPLENISH.	-1
				NOT PERFORMED	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
121-049		CLOX 156	LPS	LO2 BACKUP REPLENISH CONTROL HAS BEEN PERFORMED BY PGM SA001 AT MASTER CONSOLE. MONITOR FOR ANY EXCEPTION AND NOTIFY CLOX IMMEDIATELY.	
				NOT PERFORMED	_____
				LOX IN BACKUP REPLENISH COMPLETE	

				NOTE	
				DO NOT PERFORM NEXT TWO STEPS IS C3 CONSOLE FAILED IN PRE-CHILLDOWN, AFTER T-10 SEC OR IN POST LAUNCH.	
121-050			LPS	CRT (SLP50 PG-A)	
				VERIFY GREEN MESSAGE:	
				RSYS/SAFING FOR CONSOLE C3 TO BKUP COMPLETE.	
				NOT PERFORMED	_____
121-051		LPS 232	NTD	C3 RSYS TRANSFER TO BKUP CONSOLE CTPE COMPLETE.	
				NOT PERFORMED	_____
				HOT SPARE INITIALIZATION	

121-052		LPS	C1MC	PERFORM FOLLOWING AT MSTR CONSOLE KEYBOARD:	
				1. A_KU_HSP__(1, 2 OR 3)	
				2. C PP C3 _ _	
121-053		LPS	C1SE	AT HSP__(1, 2, OR 3) H/W	
				1. PERFORM \$BMAP C3	
				2. HALT HSP__	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
121-054		LPS	C1MC	AT BUFFER ENTER PWA LIMITS IN B/S ____,____; LL _____ UL _____.	
121-055		LPS	C1SE	BOOT CPU #0203	
121-056		LPS	NTD	C3 CONSOLE HOT SPARE INITIALIZATION NTD CLOX COMPLETE. HOT SPARE CONSOLE IS 232 Cmpl LOCATED IN CONSOLE_____.	

NOTE

DO NOT PERFORM NEXT STEP IF
 C3 CONSOLE FAILED IN PRE-
 CHILLDOWN, AFTER T-10 SEC OR
 IN POST LAUNCH.

121-057		LPS	CRT	(SLP50 PG-A) VERIFY GREEN MESSAGE: RSYS/SAFING FOR CONSOLE C3 TO C3 COMPLETE. NOT PERFORMED _____ HOT SPARE INITIALIZATION, LOX IN ----- REVERT OR STOP DRAIN CONFIGURATION -----	
---------	--	-----	-----	--	--

NOTE

PERFORM NEXT TWO STEPS IF
 LOX IN REVERT OR STOP DRAIN
 CONFIGURATION.

121-058		CLOX LPS 156	CRT	(SLP50 PG-A) WHEN HOT SPARE CONSOLE IS INITIALIZED VERIFY LO2 SAFING PGM (SAL06) EXECUTING OR COMPLETE. VERIFY FOLLOWING MSGS: SAL06 - LOX CONSOLE SUPPORTING SAL06 - LOX RSYS RETURNED TO LOX CONSOLE NOT PERFORMED _____	
---------	--	-----------------	-----	--	--

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
121-059		CLOX 232	NTD	SAFING PER OXYGEN 93 - CONSOLE C3 LOSS DURING LOAD OR DRAIN COMPLETE.	
				NOT PERFORMED	_____
				HOT SPARE INITIALIZATION, LOX IN ----- REVERT OR STOP DRAIN CONFIGURATION ----- COMPLETE -----	
				HOT SPARE CONSOLE INITIALIZATION, ----- LOX IN BACKUP REPLENISH -----	
				NOTE	
				PERFORM NEXT TWO STEPS IF LOX IN BACKUP REPLENISH.	
121-060		CLOX 232	NTD	LOX REPLENISH CONTROL HAS BEEN TRANSFERRED BACK TO C3 HOT SPARE CONSOLE. LOX SYSTEM IS IN STABLE REPLENISH.	-1
				NOT PERFORMED	_____
121-061		CLOX 232	NTD	SAFING PER OXYGEN 94 - CONSOLE C3 LOSS - LOX IN BACKUP REPLENISH COMPLETE.	-1
				NOT PERFORMED	_____
				HOT SPARE CONSOLE INITIALIZATION, ----- LOX IN BACKUP REPLENISH COMPLETE -----	

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.
125-016				JBFX ON NON-LAUNCH PAD FIREX HARDWIRE BACKUP PANEL, START FIREX BACKUP PUMP P-1 BY PERFORMING THE FOLLOWING:	CWSS
			1.	SWITCH ----- P1 START	POSITION ----- ON (UP)
			2.	INDICATOR ----- P1 RUNNING	STATE ----- ON (RED)
					NOT PERFORMED _____
125-017				JBFX DEACTIVATE NON-LAUNCH PAD FIREX HARDWAIRE BACKUP PANEL BY PERFORMING THE FOLLOWING:	CWSS
			1.	SWITCH ----- COMMAND POWER	POSITION ----- OFF (DOWN)
			2.	INDICATOR ----- COMMAND POWER	STATE ----- RED LAMP OFF
					NOT PERFORMED _____

OPERATION INSTRUCTIONS

SEQ	TIME	CMD	RESP	DESCRIPTION	VERIF.										
125-018				JBFX ON CONSOLE, NON-LAUNCH PAD SKELETON P2A/P2B, ACTIVATE FIREX COMMAND BUS BY PERFORMING THE FOLLOWING: 1. TAB CURSOR ONTO "NON-FHCP" COMMAND TARGET. 2. PRESS "XMIT CURSOR" KEY. 3. SELECT "PAD ___"/"RESTORE C1 CONFIG" STATE. 4. PRESS "EXEC CMD" KEY. 5. VERIFY: <table border="0"> <tr> <td>INDICATOR</td> <td>STATE</td> </tr> <tr> <td>-----</td> <td>-----</td> </tr> <tr> <td>CCS BUS A PWR</td> <td>ON (GREEN)</td> </tr> <tr> <td>CCS BUS B PWR</td> <td>ON (GREEN)</td> </tr> <tr> <td>CCS FIREX CMD BUS</td> <td>ON (GREEN)</td> </tr> </table>	INDICATOR	STATE	-----	-----	CCS BUS A PWR	ON (GREEN)	CCS BUS B PWR	ON (GREEN)	CCS FIREX CMD BUS	ON (GREEN)	-1 WSSA
INDICATOR	STATE														
-----	-----														
CCS BUS A PWR	ON (GREEN)														
CCS BUS B PWR	ON (GREEN)														
CCS FIREX CMD BUS	ON (GREEN)														
				NOT PERFORMED	_____										
				NOTE	-1										
				FOLLOWING STEP WILL BE PERFORMED IF BACKUP PUMP P-1 IS SUPPORTING.											
125-019		JBFX NTD 212		BACKUP PUMP P-1 IS ON LINE. RECOMMEND CONTINUE WITH COUNT.	WSSA										
				NOT PERFORMED	_____										
				OPTION A COMPLETE											

APPENDIX Z

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
-----	-----	-----	-----	-----
132-000			EMERGENCY INSTRUCTIONS - INTEGRATED -----	
132-001			LOSS OF ORBITER GROUND COOLING -----	

VOLUME 5 OF 5
DATE: 07-01-99

OMI NO. - S0007VL5
REV. - Z-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
-----	-----	------	-------------	--------

-1 |

FIGURE 132-001 - LOSS OF ALL THREE SETS OFS70-0509/0510 REFR UNITS

1298

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
134-000			EMERGENCY INSTRUCTIONS - ORBITER	
134-001			EMERGENCY SHUTDOWN - ORBITER - ELECTRICAL POWER SYSTEM	
NOTE				
ANY OR ALL OF THE FOLLOWING STEPS SHALL BE PERFORMED ONLY UPON DIRECTION OF OTC.				
134-002			EMERG ORBITER POWER DOWN - LPS	
CAUTION				
DELETED				
134-003	OTC 232	NTD TBC PTC	EMERGENCY POWER DOWN WILL BE PERFORMED.	

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
-----	-----	------	-------------	--------

NOTE

PERFORM NEXT STEP FOR IUS MISSIONS AND IF IUS IS POWERED UP AND TIME IS AVAILABLE FOR IUS POWER DOWN. (APPROX 20 MINUTES)

134-004	OTC		PERFORM IUS EMERGENCY POWER DOWN PER DOP.	
			NOT PERFORMED	_____
134-005	PTC	ICTC	PERFORM IUS POWER DOWN PER DOP D290-50020-27. REPORT COMPLETION.	-1
134-006	ICTC	PTC	IUS POWER DOWN PER DOP D290-50020-27 COMPLETE.	-1
134-007	PTC	NTD	IUS POWER DOWN COMPLETE.	
134-008	OTC	CEPD 132	PERFORM EMERGENCY ORBITER POWER DOWN.	

CAUTION

IN THE EVENT THE FUEL CELLS ARE SUPPLYING POWER TO THE ORBITER, VERIFY OR PERFORM THE FOLLOWING STEP PRIOR TO EXECUTING AN EMERGENCY POWER DOWN.

NOTE

PERFORM NEXT STEP IF CREW MODULE MANNED.

134-009	CEPD	PLT	PANEL R1 POWER DISTRIBUTION ESS BUS SOURCE FC 1 SW - OFF FC 2 SW - OFF FC 3 SW - OFF	
			NOT PERFORMED	_____

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
134-030	CEPD		ORBITER ELECTRICAL SAFING PANEL ORBITER MN A SW - OFF (MOM) MN B SW - OFF (MOM) MN C SW - OFF (MOM) ORBITER MN A OFF LITE ON (MOM) MN B OFF LITE ON (MOM) MN C OFF LITE ON (MOM) ITCU MN A SW - OFF MN B SW - OFF MN C SW - OFF ITCU MN A OFF LITE ON MN B OFF LITE ON MN C OFF LITE ON	
134-031	CEPD		ORBITER ELECTRICAL SAFING PANEL VOLT/AMPS SELECT SWITCH MN "A" LL MN "B" LL MN "C" LL	
134-032	CEPD		ORBITER ELECTRICAL SAFING PANEL ITCU PF 1 SW - OFF PF 2 SW - OFF ITCU PF 1 OFF LITE ON PF 2 OFF LITE ON	
134-033	CEPD		ORBITER ELECTRICAL SAFING PANEL VOLT/AMPS SELECT SWITCH PF-1 LL PF-2 LL	
134-034	CEPD	OTC 132	ORBITER EMERGENCY POWER DOWN COMPLETE.	
134-035	OTC	CDR CEPD CTPE	VERIFY ORBITER POWER HAS BEEN REMOVED.	

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
134-036			CONFIGURE PAYLOAD PRIMARY TO MAIN B	

CAUTION

-1 |

FOR IUS MISSIONS ONLY, PAYLOAD PRIMARY POWER MUST REMAIN ON FROM IUS POWER ON THRU LAUNCH. IF P/L PRI MN C IS LOST BEFORE L-20 MINUTES, IUS WILL POWER DOWN. IUS COUNTDOWN MUST BE REPEATED. AFTER L-20 MINUTES, IUS WILL SWITCH TO ASE BATTERIES AND WILL BE NO-GO FOR LAUNCH.

SHOULD ANY LOSS OF P/L PRI MN C OCCUR, NOTIFY PTC IMMEDIATELY. DO NOT REAPPLY P/L PRI POWER WITHOUT NOTIFYING PTC.

NOTE

FOLLOWING STEPS WILL BE RUN PER OTC DIRECTION IN EVENT OF LOSS OF MAIN C POWER FEED TO PAYLOAD PRIMARY BUS AFTER CLOSE OF PAYLOAD BAY DOORS.

ORBITER SWITCHES MAY BE CONFIGURED BY SCO, PLT, CDR AND MSI; AS DIRECTED BY ANY OF THE FOLLOWING ENGINEERS: OTC, CPLE, CEPD OR TPE.

WHILE ON GND PWR, ONLY ONE MAIN BUS SOURCE (MAIN B OR MAIN C) MAY BE TURNED ON WHEN APPLYING P/L PRI PWR.

134-037	PTC	NTD	PERFORM P/L PRIMARY MN C POWER DOWN.
	NTD	OTC	
	OTC	PLT	

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
134-049			RECONFIGURE PAYLOAD PRIMARY TO MAIN C	

CAUTION -1 |

FOR IUS MISSIONS ONLY, PAYLOAD PRIMARY POWER MUST REMAIN ON FROM IUS POWER ON THRU LAUNCH. IF P/L PRI MN C IS LOST BEFORE L-20 MINUTES, IUS WILL POWER DOWN. IUS COUNTDOWN MUST BE REPEATED. AFTER L-20 MINUTES, IUS WILL SWITCH TO ASE BATTERIES AND WILL BE NO-GO FOR LAUNCH.

SHOULD ANY LOSS OF P/L PRI MN C OCCUR, NOTIFY PTC IMMEDIATELY. DO NOT REAPPLY P/L PRI POWER WITHOUT NOTIFYING PTC.

NOTE

FOLLOWING STEPS WILL BE PER OTC DIRECTION IF PAYLOAD PRIMARY POWER HAS BEEN SWITCHED TO MAIN B. THEY WILL RECONFIGURE PAYLOAD PRIMARY POWER TO NORMAL MAIN C FEED FOR LAUNCH.

ORBITER SWITCHES MAY BE CONFIGURED BY SCO, PLT, CDR OR MSI; AS DIRECTED BY ANY OF FOLLOWING ENGINEERS: OTC, CPLE, CEPD OR TPE.

WHILE ON GND PWR, ONLY ONE MAIN BUS SOURCE (MAIN B OR MAIN C) MAY BE TURNED ON WHEN APPLYING P/L PRI PWR.

134-050	PTC	NTD	REQUEST CONCURRENCE TO RECONFIGURE PAYLOAD
	NTD	OTC	PRIMARY POWER TO MAIN C. PAYLOAD PRIMARY
	OTC	PLT	POWER WILL BE LOST MOMENTARILY.
134-051	OTC	PLT	PERFORM P/L PRIMARY MN B POWER DOWN.

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
-----	-----	------	-------------	--------

CAUTION

MN B CONTR CB WILL APPLY CONTROL POWER TO FUEL CELL NO. 2 MAIN BUS SWITCHES. CAUTION SHOULD BE USED IN POSITIONING FOLLOWING SWITCHES TO AVOID INADVERTANT FUEL CELL ACTIVATION.

134-052	OTC	PLT	PANEL O13 ROW C ESS 2CA MN C CONTR CB - CLOSE (NOTE IF VERIFIED OR CB CLOSURE REQUIRED)	
---------	-----	-----	--	--

134-053	OTC	PLT	PANEL R1 POWER DISTRIBUTION PAYLOAD PRI MN B SW - OFF (MOM)	
---------	-----	-----	--	--

VERIFY:
PRI MN B TB OFF

NOTE

PERFORM THE NEXT STEP IF CB WAS ORGINALLY OPEN.

134-054	OTC	PLT	PANEL O13 ROW C ESS 2CA MN B CONTR CB - OPEN	
---------	-----	-----	---	--

NOT PERFORMED _____

134-055	OTC	NTD	P/L PRIMARY MN B POWER DOWN IS COMPLETE.	
	NTD	PTC		

134-056	NTD	PTC	VERIFY READY FOR P/L PRI MAIN C PWR.	
---------	-----	-----	--------------------------------------	--

134-057	OTC	PLT	PERFORM P/L PRI MN C PWR UP	
---------	-----	-----	-----------------------------	--

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-071			LO2 ET VENT AREA FIRE DURING LOADING ----- (OXYGEN 80) -----	

WARNING

PAD PERSONNEL - IMMEDIATE
SAFETY HAZARD

THIS EMERGENCY MAY REQUIRE
IMMEDIATE FLIGHT CREW/
GROUND CREW EGRESS AND ESCAPE
PER SEQ 132 - EMERGENCY
INSTRUCTIONS - INTEGRATED,
AT DISCRETION OF NTD.

135-072	CLOX	NTD TBC	THERE HAS BEEN A FIRE IN LOX ET VENT AREA. STOP FLOW HAS BEEN INITIATED AND ET VENT VALVE HAS BEEN CLOSED (OXYGEN 80).	
---------	------	------------	--	--

135-073			DRAIN WITH LOX ET VENT AND RELIEF VALVE ----- FAILED OPEN (OXYGEN 81) -----	
---------	--	--	--	--

WARNING

THIS EMERGENCY MAY REQUIRE
IMMEDIATE FLIGHT CREW/
GROUND CREW EGRESS AND ESCAPE
PER SEQ 132 - EMERGENCY
INSTRUCTIONS - INTEGRATED,
AT DISCRETION OF NTD.

135-074	CLOX	NTD TBC	ET LOX DRAIN WITH VENT VALVE FAILED OPEN HAS BEEN INITIATED (OXYGEN 81).	
---------	------	------------	---	--

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-075			MAJOR PROPELLANT LEAK IN ET/IT (OXYGEN 82)	-1
			WARNING	-1
			PAD PERSONNEL - IMMEDIATE SAFETY HAZARD.	
			THIS EMERGENCY SEQUENCE MAY REQUIRE IMMEDIATE FLIGHT CREW/GROUND CREW EGRESS AND ESCAPE PER SEQ 132, EMERGENCY INSTRUCTIONS - INTEGRATED, AT THE DISCRETION OF THE NTD.	
135-076	CHGD	NTD	THERE IS A MAJOR PROPELLANT LEAK IN THE ET/IT (10,000 PPM OR GREATER O2 OR H2). EMERGENCY SAFING IS REQUIRED. CONDITION IS YELLOW.	-1
135-077	NTD TBC	TBC CLOX	PERFORM SAFING FOR MAJOR PROPELLANT LEAK IN ET/IT PER OXYGEN 82.	-1
135-078	CLOX	TBC NTD	ET LOX DRAIN HAS BEEN INITIATED.	-1
135-079	CLOX TBC	TBC NTD	SAFING PER OXYGEN 82 - MAJOR PROPELLANT LEAK IN ET/IT COMPLETE.	

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-080			DELETED	-1
			NOTE	-1
			DELETED	
135-081			DELETED	-1
135-082			DELETED	-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
			NOTE	-1
			DELETED	
135-083			DELETED	-1
135-084			DELETED	
135-085			DELETED	
135-086			DELETED	-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
			NOTE	-1
			DELETED	
135-087			DELETED	
135-088			DELETED	
135-089			DELETED	-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-090			ABRUPT TOTAL LOSS OF ORBITER POWER ----- (OXYGEN 83) -----	

WARNING

PAD PERSONNEL - IMMEDIATE
SAFETY HAZARD.

THIS EMERGENCY MAY REQUIRE
IMMEDIATE FLIGHT CREW/
GROUND CREW EGRESS AND ESCAPE
PER SEQ 132 - EMERGENCY
INSTRUCTIONS - INTEGRATED,
AT DISCRETION OF NTD.

CAUTION

THIS SEQUENCE COVERS LOSS OF
ALL THREE MAIN ORBITER POWER
BUSES DURING EACH PHASE OF
LOAD/DRAIN.

IN ALL PHASES, THE FOLLOWING
FUNCTIONS WILL BE LOST:

ET VENT VALVE CLOSED
INDICATOR

ET ULLAGE PRESSURE
(4K, 4L, 4M)

MPS VALVE POSITION IND

ET LIQUID LEVEL SENSORS
AND MPS ECO SENSORS

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-114			LOSS OF GSE POWER - STORAGE AREA AND/OR ----- PTCR (OXYGEN 90) -----	
135-115	CLOX TBC	NTD	THERE HAS BEEN LOSS OF POWER IN _____ AREA. REVERT/STOP DRAIN HAS BEEN INITIATED (OXYGEN 90).	
135-116			LARGE ACREAGE LOSS OF LOX ET TPS ----- (OXYGEN 91) -----	
135-117	CLOX TBC	NTD	THERE HAS BEEN A LARGE ACREAGE LOSS OF TPS ON LOX ET. STOP FLOW HAS BEEN INITIATED. PERFORMING DRAIN FROM STOP FLOW (OXYGEN 91).	
135-118			LOSS OF HELIUM INJECT (OXYGEN 92) -----	
135-119	CLOX TBC	NTD	SAFING PER OXYGEN 92 - LOSS OF HELIUM INJECT HAS BEEN PERFORMED.	
135-120			GO2 VENT HOOD EMERGENCY/CONTINGENCY LIFT/ ----- LOWER (OXYGEN 95) -----	-1
135-121	CMEC 136 TBC	TBC CLOX	GO2 VENT HOOD CONTINGENCY HOOD LIFT/LOWER WILL BE INITIATED. REQUEST LOX ET VENT VALVE BE CLOSED.	
135-122	CLOX 136 TBC	TBC CMEC	LOX ET VENT VALVE IS CLOSED.	
135-123	CMEC 136 TBC	TBC CLOX	GO2 VENT HOOD LIFT/LOWER COMPLETE. LOX ET VENT VALVE MAY BE RE-OPENED.	
135-124	CLOX 136 TBC	TBC NTD 232	GO2 EMERGENCY/CONTINGENCY HOOD LIFT/LOWER COMPLETE (OXYGEN 95).	-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
135-125			SSME OPOV OR MOV LEAKAGE (OXYGEN 96)	-1
135-126	CSME OTC	NTD	ME-___ LOX SUPPLY LINE TEMP HAS DECREASED BELOW LCC SSME-1 LIMIT. INITIATING SAFING PER OXYGEN 96.	
135-127	CLOX TBC	NTD	1. LO2 PREVALVES HAVE BEEN CLOSED TO ISOLATE SSME LEAKAGE. 2. STOP FLOW HAS BEEN INITIATED. REQUEST CONCURRENCE TO INITIATE DRAIN (IF ET LEVEL GREATER THAN 2 PCT).	
			NOT PERFORMED	_____ SS2
135-128	NTD TBC	CLOX	INITIATE LO2 DRAIN PER OMI S1003 (IF ET LO2 LEVEL GREATER THAN 2 PCT).	
			NOT PERFORMED	_____
135-129	CSME OTC	NTD	LO2 SAFING PER OXYGEN 96 IS COMPLETE. LO2 PREVALVES HAVE BEEN CLOSED AND LO2 DRAIN HAS BEEN INITIATED (IF ET LO2 LEVEL GREATER THAN 2 PCT). CURRENT TREND IS _____.	-1
135-130			LOSS OF GPC/OI LINES (OXYGEN 99)	-1
135-131	CLOX TBC	NTD	LOX SYSTEM STOP FLOW HAS BEEN INITIATED DUE TO LOSS OF GPC OR OI LINK. IF LINK IS NOT RESTORED LOX DRAIN (USING LOW RANGE XDUCERS IF GPC FAILED) WILL BE REQUIRED.	

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
136-078			LOSS OF CRITICAL PURGES (LH2 128)	

NOTE

IF IN DRAIN, CONTINUE IN DRAIN. ONE OF FOLLOWING PURGES HAS BEEN LOST:

1. ET/IT PGE
2. ORB AFT FUSELAGE GN2 PURGE AND PAYLOAD BAY PURGE
3. ET VENT DISC CAVITY PURGE
4. ORB/ET LH2 DISC CARRIER PL PGE
5. T-0 UMBILICAL CAVITY PURGE.

136-079 CLHY TBC ET CRITICAL PURGE _____ MALFUNCTIONED
NTD AND TERMINATED. LH2 SYSTEM IN REVERT AND DRAIN BEING INITIATED.

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
136-080			MAJOR PROPELLANT LEAK IN ET/IT (LH2 129)	-1
WARNING PAD PERSONNEL - IMMEDIATE SAFETY HAZARD. THIS EMERGENCY SEQUENCE MAY REQUIRE IMMEDIATE FLIGHT CREW/GROUND CREW EGRESS AND ESCAPE PER SEQ 132, EMERGENCY INSTRUCTIONS - INTEGRATED, AT THE DISCRETION OF THE NTD.				
NOTE				
SEVERE OXYGEN LEAKAGE INTO INTERTANK (SUCH AS RUPTURED LOX TANK) MAY WARRANT USE OF EMERGENCY DRAIN. REALTIME EVALUATION OF SYSTEM IS REQUIRED.				
136-081	CHGD	NTD	THERE IS A MAJOR PROPELLANT LEAK IN THE ET/IT (10,000 PPM OR GREATER O2 OR H2). EMERGENCY SAFING IS REQUIRED. CONDITION IS YELLOW.	
136-082	NTD	CLHY	PERFORM SAFING FOR MAJOR PROPELLANT LEAK IN ET/IT PER S1004 (SEQ 129).	-1
136-083	CLHY	NTD	ET LH2 DRAIN INITIATED.	-1

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
139-000			EMERGENCY INSTRUCTIONS - PAYLOADS	
139-001			INSTRUCTION 1 - IUS EMERGENCY POWER DOWN	

NOTE

IF IUS IS PERFORMING
 BATTERY CHECKS AND TVC
 CHECKS, WAIT UNTIL IUS
 RETURNS TO MAIN C.
 SCENARIO WILL TAKE
 APPROXIMATELY 2 MINUTES
 TO COMPLETE.

139-002	PTC 132	OTC	REQUIRE EITHER MS2 AND/OR CEPD SUPPORT ON OIS CHANNEL 134 FOR IUS EMERGENCY POWER DOWN.	
139-003	PTC 134	ICTC	PERFORM EMERGENCY POWER DOWN FOR IUS.	

NOTE

-1 |

PERFORM NEXT STEP IF FLIGHT
 CREW OR SCO IS PRESENT.

139-004	ICTC	MS2	PANEL L10-PCP PANEL POWER PRI CB - CLOSE ALT CB - CLOSE IUS CONV POWER PRI SW - OFF PRI TB BP ALT TB BP	L10CB1 L10CB2 L10S1 L10I1 L10I31
---------	------	-----	---	--

NOT PERFORMED

EMERGENCY INSTRUCTIONS

SEQ	CMD	RESP	DESCRIPTION	VERIF.
-----	-----	------	-------------	--------

NOTE

PERFORM NEXT TWO STEPS IF
FLIGHT CREW OR SCO IS NOT
PRESENT AND COS HAS CONTROL.

139-005	PTC	ICTC	POWER OFF IUS FROM THE COS.	
	134			
				NOT PERFORMED _____
139-006	ICTC	ICCL	COS CRT/KYBD PG, 189 TYPE: 10 (IUS CONV PWR - OFF) ENTER - PRESS	
				NOT PERFORMED _____
139-007	ICTC	PTC	IUS IS POWERED OFF.	
139-008	PTC	NTD	IUS IS POWERED DOWN.	-1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

JILL JAHNKOW.....2

FA-99
BOEING NORTH AMERICAN
MISSION SUPPORT ROOM
12214 LAKEWOOD BLVD
DOWNEY, CA 90241

CHRIS WEAVER.....8

PZ-L

TOTAL QTY: 287

FOR CHANGES TO THIS DISTRIBUTION LIST, CONTACT:

MARY M. HESTER , USK-187, (407) 861-3301 EXT
ELIZABETH C. KLOS , USK-187, (407) 861-3430 EXT

1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

AE70/J. HOWARTH

BOEING NORTH AMERICAN
12214 LAKEWOOD BLVD
DOWNEY, CA 90241
AFQA/LGQAB/P. MCDANIEL
BA/FC-50/W. BRAGG.....2
BA/FC-51/ELS DATA FILES
BA/FC-51/J. HAGOOD.....2
BA/FC-51/J. LEWIS.....2
BA/FC-51/N. BIHR.....3
BNA SPACEHAB/NANCY CRABTREE.....2
SPACEHAB, INC
620 MAGELLAN RD
CAPE CANAVERAL, FL 32920

C07A/J. LECHER

JSC, TX 77058
EC-B/DAVID SPACEK
EI-C-C/NSF CONSOLE
EI-C-C/NSF LC39 PROCEDURES
EI-C-C/PAC CONSOLE
EI-C-D/NASA VAB SAFETY

NASA/JSC.....5

C/O TRANSPORTATION OFFICE
BUILDING 420
HOUSTON, TX 77058
ATTN: DA82/MARY C. THOMAS
BLDG 30M, ROOM 235
NN-L/PAYLOAD ENGINEERING
NN-M1
NN-M2
NN-M3
THIO-LSS/BRIAN ST. AUBIN
USBI-LSS/LIBRARY
USK-078/CCC, C-1 PNEU
USK-078/CCC, C-1 WATER
USK-078/CCC, C-3 POWER
USK-078/CCC, INTEGRATION
USK-225/JODI SILLS
USK-391/SAFETY OPS (PAD B)
USK-550/VITT OFFICE.....2
ZA03/DAVID BARNES
BOEING NORTH AMERICAN

EI-C-F/NASA OPF SAFETY
 EP2/LIBRARY
 JSC, TX 77058
 ESMC-SEO/CAMPBELL
 LLOYD MUSTIN SSM
 MAIL STOP AE26
 BOEING NORTH AMERICAN
 SPACE SYSTEMS DIV.
 P.O. BOX 7009
 DOWNEY, CA 90241-7009
 MS-E68/R. BAKES
 THIOKOL CORP.
 P.O. BOX 707
 BRIGHAM CITY, UT 84302-0707
 MV2/D. STAMPER
 JSC, TX 77058
 MV3/KENNETH BROWN
 JSC, TX 77058

555 DISCOVERY DRIVE
 HUNTSVILLE, AL 35806
 3 SLS/DOOT/CAPT. G. FENTRESS
 3 SLS/MA/B. STRACENER....2
 45 SPACE WING/SESL/PAFB
 AIR-FORCE CCAFS
 N/A
 45 RANS/DOOB
 (CCAFS)
 PHILLIPS PARKWAY/10400
 PATRICK AFB, FL 32925
 CCC LIBRARY.....3
 USK-093
 MISSION SUPPORT
 SGS-347
 EG&G PROTECTIVESYSTEMS
 BOC-326

1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

SECTION NASANAVIDSSYSTEMS
 PK-F3
 SECTION NASACOMM/RFSYSTEMS
 PK-F3
 NASA-FLT ELECTR-SYS-SECT
 PK-F
 FLOW DIRECTOR-OFFICE
 PH-B2
 SECTION NASAECCLSSSYSTEM
 PK-G5
 BOEING P/L-TEST-CONDUCTOR.....3
 F214
 GUIDANCE-AND NAVIGATION
 USK-195
 GEL LCC-RM-3R18
 USK-542
 LAUNCH DIRECTOR.....2
 PH
 ORB MECHANISM
 PK-H5
 NASA QA-FR1
 USK-268
 OTC ORBTSTCONDUCTOR.....4
 USK-023
 SPC PAD-SAFETY
 USK-257
 TEST-OPS PAD-A
 USK-307
 TEST-OPS PAD-B
 USK-389
 BRANCH INSTRUM.&P/LSYS.....2

SFOC SAFETY-CONSOLE
 USK-399
 SUPV-SAFETY RELIABILITY-ENGR
 USK-291
 SRS-SSC OPERATIONS-SAFTEY
 MU6110
 TECHNICAL DOC-CTR.....50
 USK-038
 TSMO SITE-MGRS
 USK-299
 TSMO OMD
 USK-075
 USA INSTRUMENTATION.....2
 USK-194
 USA LAUNCH-OPERATIONS..2
 USK-C09
 VITT OFFICE
 F204
 O&C BLDG
 SWING ARMS-ENG'G
 USK-290
 ET MECHANICAL-ENG
 USK-251
 ET LH2PAD-A
 USK-174
 ET LH2PAD-B
 USK-390
 ET-LOX PAD-A
 USK-173
 ET-LOX PAD-B
 USK-316

PK-F3
PNEUMATICS ENGINEERING
USK-043
OFFICE NASAFIRE/RESCUE
IM-SPS-A
PAD SWING-ARMS-SHOP
USK-398

MEQ ORB-MECHANISMS-ENG
USK-408
OMS/RCS ENG-PADA
USK-484
OMS/RCS ENG-PADB
USK-347
CENTRL WRK-PKG-BLD
USK-409

1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

COMM CONTROL.....2	STEVE GODFREY
USK-145	USK-241
TSMO PAD-A	BILL NUTTER.....5
USK-076	USK-214
TSMO PAD-B	JANIENE L. PAPE
USK-404	USK-284
TSMO SUPV-STM.....3	PAUL L. QUANDT
USK-299	USK-356
ROBERT T. ROOK II	TODD M. GRACOM
USK-356	USK-195
FRANK A. DEBERNARDO	PAUL R. GRATSCHE.....2
USK-116	USK-195
NEAL R. GRIFFITH	MARK F. DEZENDORF
USK-112	USK-285
DON GARCEAU	EARL D. COOLEY
USK-109	USK-269
THOMAS E. JACOBS.....2	ERIC D. HENRY
USK-107	USK-225
JIM TOWNSEND	BOB DOUGERT.....2
USK-108	USK-356
SHOE SHOEMAKER	DEAN T. TYRE
USK-144	USK-421
PAT CHAPPELL	E HALL III.....3
USK-074	USK-420
DENNIS E. LOHAUS	STEVE VELLIGAN
USK-069	USK-213
RICHARD H. MURRAY.....2	RANDY DUNCAN.....2
USK-414	USK-196
ROBERT RODRIGUEZ.....2	DON GREEN
USK-198	USK-043
ED DICRISTINA	RTW/SECUR R. HOEFER
USK-305	USK-453
TOM WELLS.....2	PEGGY S. HATTAWAY
USK-420	USK-246
MARTIN L. CARLSON	GARY A. WOODS
USK-420	USK-281
JUDY HOOPER.....3	PAUL E. BRANDT
USK-247	USK-111

1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

OZZIE FISH USK-314	PHIL WEBER PK-H6
PAUL A. KRAUSE USK-214	PAT MARKEY PK-J
ANDY BUNDY PK-E3	RENEE HART USK-669
DAVID R. SCHECHTER PZ-C	DONALD G. SIMMONS USK-647
JIMBO BOLTON USBI-LSS	BOBBY E. ORR.....2 USK-607
BILL CLEVER II SK	OLAN J. BERTRAND CA4 HOUSTON, TX 77058
KATHLEEN A. CONWAY USK-669	KEN FORD USK-637
TERRI L. HERST PK-D	RICHARD MIZELL PK-F6
ED MANGO PK-D2	ERVIN G. WALKER JCI-VITC-2
SCOTT CHANDLER.....2 PK-E4	ANGELO PACE USK-682
MICHAEL GARSKE DF24 JSC, TX 77058	RANDY DAVIES CSR-3200 CAPE CANAVERAL AFS, FL 32899
STEVE SWICKOW PK-F6	RONALD W. WETMORE MMC-15
AL DIAZ PK-F	ERIC P. GARDZE ROC-OSB
BOB BELL PK-G3	HAROLD E. REED JJ-3-B
ANDY DIBBERN PK-G6	JEFF LEVITT F256
PATRICIA E. GLADNEY PK-G5	CHUCK GIVENS BOC-342
PETE CHITKO PK-H6	RAYMOND G. PREECE ZK-07
GREG KATNIK PK-H7	
JORGE E. RIVERA PK-H7	

1

DATE: 1999-07-02 15.25.06

S0007VL5

SHUTTLE COUNTDOWN - (LPS)

DISTRIBUTION F - FINAL

RAY W. NUSS
EV4

FERDINAND JONES
AC-58

JOHNSON SPACE CENTER	BOEING NORTH AMERICAN
HOUSTON, TX 77058	6633 CANOGA AVE
ROBERT B. LUECKING	CANOGA PARK, CA 91304
ZK-86	CALVIN J. CULBERTSON.....2
MATTHEW J. HOFMANN	FC-51
ROC-LSS	CCAS, FL 32899
JIM ALLAMON	LISA A. MALONE
ZK-21	PA-MSB
CANDICE F. NORMAN.....2	BRUCE D. BOUTON
BOC-349	8A-44
TOM HILL	BOEING DEFENSE & SPACE G
ASC/ERD-FL	P.O. BOX 3999
TAB CHOATE	SEATTLE, WA 98124-2499
SA21	K. GRANT
BOEING - ROCKETDYNE DIVI	USH-440X
MARSHALL SPACE FLIGHT CE	UNITED SPACE ALLIANCE
BLDG 4202, RM 405	600 GEMINI
HUNTSVILLE, AL 35812	HOUSTON, TX 77058
AL SOFGE	JERRY L. GREENWOOD
EC	3731
TONY IPPOLITO	MICHOUD ASSY FACILITY
MILA	LOCKHEED MARTIN
NEAL E. VANSYOC	P.O. BOX 29304
F224	NEW ORLEANS, LA 70189
JAMES B. PARKS	ALEX RODRIGUEZ.....3
PK-J-B	ZK-86
PHIL LINTEREUR.....2	DEBBIE HAHN
F264	NN-M2
RONALD L. ECKER	MEGAN MISCHKOT
BOC-327	N/A
PETE WILSON	MICHOUD ASSEMBLY FACILIT
ZK-07	P.O. BOX 29300
JAMES REED	NEW ORLEANS, LA 70189
EY-C	DEPT 4250
WHIT BARTLETT	
PK-D2	