Space Shuttle Mission 2007

Designed By: Michael Swannick

Mission Checklist
STS-41C

Crew Members

Commander - Robert L. Crippen | Pilot - Frances R. Scobee
Mission Specialist
George D. Nelson | James D. A. Van Hoften | Terry J. Hart

Mission Highlights

Carried out by Challenger on April 6, 1984. Primary payload, Long Duration Exposure Facility, containing 57 scientific applications and technology experiments that will be put into Earth orbit for a period of almost one year. A spectacular repair effort by two astronauts will be performed. Planned landing at Kennedy space Center (KSC) was scrubbed. Mission extended one revolution to facilitate landing at Edwards Air Force base. First mission to utilize direct insertion, which eliminates the use of a first OMS burn.

Payload

Long Duration Exposure Facility (LDEF). Will be placed on orbit using the RMS arm.

Flight Support System (FSS). Will be used for Solar Maximum Satellite repairs.

Manned Maneuvering Unit (MMU). MMU 2 will be used to grapple the Solar Max Satellite. One spare MMU is also carried in the payload bay.

Two MMU Flight support stations that will be used for MMU egress/ingress.

Trunnion Pin Acquisition Device (TPAD). A device used on an EVA to attach a grapple to a satellite latch trunnion. It will be used on Solar Max satellite.

One 70mm IMAX motion picture camera will be stowed in the middeck with several lenses, two loaded film magazines, and five rolls of reload film.

A Cinema 360 camera will be carried aboard the Challenger to provide motion picture photography for a unique format designed especially for planetarium viewing. The camera will be located in a canister in the payload bay.

Shuttle Student Involvement Program (SSIP). A colony of honey bees, about 3,300 in all, will be aboard the Shuttle on flight 41-C. The purpose of the experiment is to compare quantitatively the size, shape, volume and wall structure of the honeycomb structures.

Flight Summary

Launchpad: Kennedy Space Center (KSC) 39A | Orbit: 280NM | Inclination: 28.5 | Orbits: 108
Duration: 6 Days, 23 Hours, 40 Minutes, 7 Seconds | Landing: Edwards Air Force Base

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1	T-00:01:50:00				Astronauts Enter The Shuttle
2	T-00:01:40:00	Overhead Left Panel	O5	* Set Left Audio XMIT/ICOM MODE To VOX/VOX * Set Left Audio A/G (1 & 2) To T/R * Set Left Audio A/A To T/R * Set Left Audio ICOM (A & B) To T/R * Set Left Audio (AUD) Power Switch To AUD/TONE	Activates Commander Communications
3	T-00:01:35:00	Overhead Right Panel	O9	* Set Right Audio XMIT/ICOM MODE To VOX/VOX * Set Right Audio A/G (1 & 2) To T/R * Set Right Audio A/A To T/R * Set Right Audio ICOM (A & B) To T/R * Set Right Audio (AUD) Power Switch To AUD/TONE	Activates Pilot Communications
5	T-00:01:20:00	Front Left Panel	F6	* Check ABORT Light (DIM/BRIGHT/DIM) For 8 Seconds	Abort Advisory Check
6	T-00:01:10:00				Flight Control Confirms With Commander That The Side Hatch Is Closed & Locked
7	T-00:01:05:10	Left Panel Front Left Panel	L2 F2	* Set CABIN VENT ISOL To CLOSE * Set CABIN VENT To CLOSE * Press MASTER ALARM	Cabin Leak Check Cancel Master Alarm Sound
8	T-00:00:51:00				Pilot Confirms IMU Alignment
9	T-00:00:50:00	Right Panel	R2	* Check BOILER PWR (1/2/3) Are ON * Check BOILER CNTLR/HTR (1/2/3) Are On - A * Set BOILER N2 Supply (1/2/3) To ON	Confirm Boiler Power On
10	T-00:00:45:00	Left Panel	L2	* Set CABIN VENT/VENT To OPEN	Open Cabin Vent
11	T-00:00:42:00	Center Panel Center Panel	C3 C2	* Set BFC CRT DISPLAY To ON * Confirm BFC CRT SELECT Is At (3+1) * Enter ITEM 25 EXEC (Use Left Keypad)	Enable Backup Flight System (BFS) And Execute Computer Data Transfer To BFS Copy Primary Avionics SW To BFS
12	T-00:00:36:40	Left Panel Overhead Low Panel	L2 O1	* Set CABIN VENT To CLOSE * Set CABIN VENT ISOL To OPEN * Check CABIN dP/dT Gauge For Possible Depressurization	Cabin Leak Check - Continued
13	T-00:00:33:20	Left Panel	L2	* Set CABIN VENT ISOL To Close * Check CABIN VENT Is CLOSED	Cabin Pressurization Check Complete
14	T-00:00:30:00	Center Panel	C2	* Enter OPS 101 PRO (Use Right Keypad) * Enter SPEC 99 PRO (Use Right Keypad) * Press RESUME (Use Right Keypad)	Load OPS 1 - Planned 10 Minute Hold Load First Stage SW Into Primary Avionics System
15	T-00:00:29:00	Center Panel	C2	* Enter OPS 101 PRO (Use Left Keypad)	Load OPS 1 Into The BFS
16	T-00:00:26:00	Right Panel	R2	* Set He ISOLATION A (LEFT/CRT/RIGHT) To Open * Set He ISOLATION B (LEFT/CRT/RIGHT) To Open * Set PNEUMATICS He ISOL To Open * Set 6 ENGINE POWER Switches (LEFT/CTR/RIGHT) To ON	Begin The Main Propulsion System (MPS) Helium (He) Pressurization
17	T-00:00:15:00	Front Left Panel Center Panel	F6 C3	* Check ABORT Light ON/OFF For 8 Seconds * Set CAUTION/WARNING MEMORY To CLEAR	Final Test Of The ABORT System Clear C/W Memory
18	T-00:00:09:00	Center Panel	C3	* Set Timer Thumbwheels To 0900 * Set TIMER Switch To SET * Check EVENT TIMER MODE Is DOWN	Enable Countdown From Nine (9) Minutes
605	T-00:00:09:00	Center Panel Front Center Panel	C3 F7	* Set EVENT TIMER CONTROL To START * Confirm EVENT TIMER Display Continues The Countdown	Start The Nine (9) Minute Countdown
19	T-00:00:08:00	Right Panel	R1 R2	* Set ESS BUS SOURCE (MN B/C, MN C/A, MN A/B) To ON * Check APU FUEL TK VLV (1/2/3) Are CLOSED * Check APU AUTO SHUT DOWN (1/2/3) Are Enable * Check HYD MAIN PUMP PRESS (1/2/3) Are LOW * Check APU SPEED SELECT (1/2/3) Are NORM * Check HYD CIRC PUMP (1/2/3) Set To GPC * Set APU CNTLR PWR (1/2/3) To ON	Enable Fuel Cells The Crew Access Arm Is Retracting APU Prestart Check Is Underway
20	T-00:00:05:10	Right Panel Front Center Panel Right Panel Front Center Panel Front Left Panel Right Panel	R2 F7 R2 F7 F2 R2	* Set APU FUEL TK VLV (1/2/3) To Open * Check APU/HYD READY TO START (1/2/3) Repeaters-(White) * Set APU OPERATE (1/2/3) To START/RUN * Check HYDRAULIC (APU) Pressure 900psi (Use MFD #2) * Set HYD MAIN PUMP PRESS (1/2/3) To NORM * Check HYDRAULIC (APU) Pressure 3000psi (Use MFD #2) * Press MASTER ALARM (If Required) * Set HYD CIRC PUMP (1/2/3) Set To OFF	APU Start The Master Alarm May Sound Until APU Pressure Reaches 3000 PSI. (Silence Alarm)
21	T-00:00:04:30 T-00:00:04:10	Left Panel	L2	* Set FLASH EVAP FEEDLINE HTR A & B SUPPLY To OFF	The Shuttle Is On Internal Power. Turn Off Flash Evaporator Feed Line & Heater Supply APU Check Complete
22	T-00:00:03:45 T-00:00:03:05				Start Hydraulic Check, Aero Surfaces Are Moved, A Gimbal Check Is Performed Hydraulic Check Complete
23	T-00:00:02:55				External Tank Liquid Oxygen (LOX) Vents Are Closing & The External Tank Begins To Pressurize. External Tank Cap Is Retracted.
24	T-00:00:02:00	Right Panel Center Panel	R2 R1 C3	* Set APU AUTO SHUT DOWN (1/2/3) To INHIBIT * Set AC BUS SNSR (1/2/3) To MONITOR * Set CAUTION/WARNING MEMORY To CLEAR	APU Power - Inhibit
25	T-00:00:01:40 T-00:00:01:20				Liquid Hydrogen External Tanks Close. Go For Launch Announcement.

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25	T-00:00:01:00 T-00:00:00:30				One Minute Countdown Announcement Thirty Seconds Countdown Announcement
26	T-00:00:00:15				Begin Countdown To Liftoff The Shuttles Main Engines Will Ignite At T-00:00:00:05. A Staggered Start Of The Main Engines Will Commence In 120 millisecond Intervals. The Two SRB's Will Ignite At T-00:00:00:00, Followed By An Almost Instantaneous Liftoff. Once The Shuttle Clears The Tower, It Will Complete A Roll Maneuver.
26	T-00:00:00:00				Shuttle Liftoff

Commence Ascent Checklist

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
27	T+00:00:00:30				Main Engines Throttle Down To 65%
	T+00:00:01:05				Main Engines Throttle Up To 104%
28	T+00:00:02:00	Front Center Panel	F7	* Check Pressure Pc<50 (MFD / CRT 1)	Standby For SRB Separation
	T+00:00:02:05				SRB Separation
602	T+00:00:03:00	Overhead Low Panel	O1	* Check FREON - EVAP OUT TEMP Gauge Shows Below 60 Degrees	Check Flash Evaporator Is Operational
29	T+00:00:04:20				Negative Return
30	T+00:00:06:56				Single Engine Press To MECO
31	Mission Dep.				Engines Throttle Down In Preparation For Main Engine Cutoff (MECO) MECO
32	Mission Dep.	Front Center Panel	F7	* Check MAIN ENGINE STATUS Lights (Left/CTR/Right) Are Red	Confirm Main Engine Shutdown External Tank Separation
34	Mission Dep.	Left Panel	L1	* Set FLASH EVAP CONTROLLER PRI A & PRI B To ON	Remaining MPS Propellants Are Dumped Automatically.
			L2	* Set FLASH EVAP FEEDLINE HTR A SUPPLY & B SUPPLY To 1	
		Center Panel	C3	* Set BFC CRT DISPLAY To OFF	
		Right Panel	R1	* Set AC BUS SNSR (1/2/3) To AUTO TRIP	Main Engines Are Gimbaled Down During The Dump
				* Set O2 TK 1 (B) & O2 TK 2 (B) HEATERS To AUTO	
				* Set H2 TK 1 (B) & H2 TK 2 (B) HEATERS To AUTO	
		Front Left Panel	F6	* Check FLT CNTLR POWER Is OFF	
		Front Right Panel	F8	* Check FLT CNTLR POWER Is OFF	
		Center Panel	C3	* Check ORBIRAL DAP - CONTROL Is Set To AUTO	
35	Mission Dep.	Center Panel	C3	* Enter OPS 105 PRO (Use Left Keypad)	Prepare To Circularize Orbit
36	Mission Dep.	Center Panel	C3	* Check ORBIRAL DAP - CONTROL Is Set To AUTO	Circularize Orbit
			C2	* Enter ITEM 22 EXEC (Use Right Keypad)	
				* Enter ITEM 27 EXEC (Use Right Keypad)	
				* Enter ITEM 23 EXEC (Use Right Keypad)	
		Overhead Aft Panel	O14	* Set L OMS ENG VLV Is ON	
			O16	* Set R OMS ENG VLV Is ON	
		Center Panel	C3	* Set OMS ENG (LEFT & RIGHT) Are Set To ARM/PRESS	
37	Mission Dep.	Right Panel	R2	* Set 6 ENGINE POWER Switches (LEFT/CTR/RIGHT) To OFF	Propellant Dump Complete
				* Set He ISOL A (LEFT/CTR/RIGHT) To GPC	
				* Set He ISOL B (LEFT/CTR/RIGHT) To GPC	
				* Set PNEUMATICS He ISOL To GPC	
			R4	* Set H2 PRESS LINE VENT To OPEN	
38	Mission Dep.	Right Panel	R2	* Set ET UMBILICAL DOOR - MODE GPC To GPC/MAN	Close & Latch The ET Umbilical Doors.
				* Set CENTERLINE LATCH To STOW	APU Shutdown
				* Set LEFT & RIGHT Door To CLOSE	
				* Check Talkback Shows CLOSE	
				* Set LEFT & RIGHT LATCH To LATCH	
				* Check Talkback Shows CLOSED & LATCHED	
				* Set LEFT & RIGHT DOOR To OFF	
				* Set LEFT & RIGHT LATCH To OFF	
				* Set HYD MAIN PUMP PRESS (1/2/3) To LOW	
				* Set APU OPERATE - START/RUN (1/2/3) To OFF	
				* Set APU FUEL TK VLV (1/2/3) To CLOSE	
				* Set APU CNTLR PWR (1/2/3) To OFF	
				* Set BOILER PWR (1/2/3) To OFF	
				* Set BOILER N2 SUPPLY (1/2/3) To OFF	
				* Set HYD CIRC PUMP (1/2/3) To GPC	
			R4	* Set H2 PRESS LINE VENT To GND	
39	Mission Dep.	Center Panel	C2	* Press EXEC - Confirms ready for OMS burn (Use Right Keypad)	Confirm OMS Burn
40	Mission Dep.	Right Panel	R4	* Set PROPELLANT FILL/DRAIN LH 2 OUTBD & INBD To OPEN	Liquid He Manual Dump
		Center Panel	C3	* Set OMS ENG LEFT & RIGHT To OFF	
41	Mission Dep.	Overhead Aft Panel	O17	* Set ATVC (1/2/3/4) To OFF	Turn Off Main Engine Controllers
				* Set Engine Interface Units - EIU (L-C / C-R / R-L) To OFF	
				* Set MEC (1 & 2) To OFF	
		Right Panel	R4	* Set MPS/TVC ISOL VLV - (SYS 1, SYS 2, SYS 3) To CLOSE	
42	Mission Dep.	Right Panel	R4	* Set PROPELLANT FILL/DRAIN - LH2 OUTBD To GND	Set Liquid H2 Outboard Fill And Drain Valve To Ground Control.
				* Check PROPELLANT FILL/DRAIN - LH2 INBD To OPEN	
		Center Panel	C3	* ORBITAL DAP/MANUAL MODE - ROTATION YAW, VERN=ON	
		Front Left Panel	F6	* Set FLIGHT CNTLR POWER To ON	Enable Manual Control Of The RCS Align All ADI Needles
				* Rotate The Shuttle To Zero Attitude (Pitch/Roll)	(Joystick - RHC)	
43	Mission Dep.	Right Panel	R4	* Set HYDRAULICS - BRAKE HEATERS (A/B/C) To AUTO	Thermal Condition The Shuttle
		Aft Left Panel	A12	* Set APU HEATER - GAS GEN/FUEL PUMPS (1/2/3) To A AUTO	
				* Set APU HEATER - LUBE OIL LINES (1/2/3) To A AUTO	
				* Set TANK/FUEL LINE/H2O (SYS 1A, SYS 2A, SYS 3A) To AUTO	
				* Set HYDRAULIC HEATER - RUDDER SPD BRK To A AUTO	
		Right Panel	R4	* Set HYDRAULICS - BRAKE HEATERS (A/B/C) To AUTO	
		Aft Left Panel	A12	* Set APU HEATER - GAS GEN/FUEL PUMPS (1/2/3) To A AUTO	
				* Set APU HEATER - LUBE OIL LINES (1/2/3) To A AUTO	
				* Set TANK/FUEL LINE/H2O (SYS 1A, SYS 2A, SYS 3A) To AUTO	
				* Set HYDRAULIC HEATER - RUDDER SPD BRK To A AUTO	
44	Mission Dep.	Aft Right Panel	A14	*Set RCS/OMS HEATERS - FWD RCS To A AUTO	
				* Set RCS/OMS HEATERS - LEFT POD To A AUTO	

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44	Mission Dep.	Aft Right Panel	A14	* Set RCS/OMS HEATERS - RIGHT POD To A AUTO * Set RCS/OMS HEATERS - FWD RCS JET (1/2/3/4/5) To AUTO * Set RCS/OMS HEATERS - AFT RCS JET (1/2/3/4/5) To AUTO * Set RCS/OMS HEATERS - OMS CRSFD LINES To A AUTO * Set PORT RMS HEATER To AUTO A * Set TOPPING EVAP HEATER - NOZZLE (L & R) To A AUTO	
			A8L	* Set TOPPING EVAP HEATER - DUCT Selector To A/B	
		Left Panel	L1	* Set HI LOAD EVAP - HI LOAD DUCT HTR Selector To A/B	
45	Mission Dep.	Left Panel	L2	* Set O2 SYS 2 SUPPLY To CLOSE * Set N2 SYS 2 SUPPLY To CLOSE * Set N2 SYS 2 REG INLET To CLOSE	
			L1	* Set H2O LOOP 2 BYPASS - MODE To AUTO * Set H2O PUMP - LOOP 1 To OFF | H2O PUMP - LOOP 2 To GPC	
		Overhead Aft Panel	O14	* Set RGA 1 To OFF	
			O15	* Set RGA 2 & 4 To OFF	
			O16	* Set RGA 3 To OFF	
				* Set ACCEL 3 To OFF	
			O15	* Set ACCEL 4 To OFF	
46	Mission Dep.	Overhead Left Panel Right Aft Panel	O6 R11L	* Set GENERAL PURPOSE COMPUTER - MODE 5 To HALT * Check MAJ FUNC Set To GNC * Enter OPS 201 PRO (AFT Keypad) * Set MAJ FUNC To SM * Press GPC/CRT (AFT Keypad) * Enter 4 EXEC (AFT Keypad) * Enter OPS 201 PRO (AFT Keypad)	Configure Computers For Orbit Switch To On-Orbit SW Mode Load GPC 1/2/3 With GNC SW GPC 3 Preserves Independent Source Data GPC 4 Contains System Management Data
		Overhead Left Panel	O6	* Set GENERAL PURPOSE COMPUTER - MODE 3 To HALT	GPC 5 Retains The Backup Flight System
47	Mission Dep.	Left Panel	L1	* Set RAD CONTROLLER - (LOOP 1 & LOOP 2) To AUTO A * Set RAD CONTROLLER - BYPASS MODE (1 & 2) To AUTO	Activate Radiator Cooling
			L2	* Set FREON LOOP ISOLATION - MODE To AUTO	
48	Mission Dep.	Right Aft Panel	R11L	* Confirm MAJOR FUNC Is Set To SM * Enter OPS 202 PRO (AFT Keypad) * Enter ITEM 3 EXEC * Enter ITEM 1 EXEC	Open Payload Doors PL BAY DOOR SPEC Display Enable Auto Mode Enable AC Power
			R13L	* Set PL BAY DOOR (SYS 1 & SYS 2) To ENABLE * Set PL BAY DOOR To OPEN * Confirm PL BAY DOOR Talkbacks Show DEP	Opening Both PL Doors Takes 3 Minutes Indicating Both PL Doors Are Open
49	Mission Dep.	Right Aft Panel	R13L	* Set PL BAY MECH PWR (SYS 1 & SYS 2) To ON * Set RADIATOR LATCH (SYS A & SYS B) To RELEASE * Check RADIATOR LATCH SYS Talkbacks Indicate REL * Set RADIATOR CONTROL (SYS A & SYS B) To DEPLOY * Check RADIATOR CONTROL SYS Talkbacks Indicate DEP	Deploy Radiators Indicating That The Radiators Are Ready For DEP. Deploying Both Radiators Takes 30 Seconds. Indicating Both Radiators Are Deployed.
50	Mission Dep.	Right Aft Panel	R13L	* Set RADIATOR LATCH (SYS A & SYS B) To OFF * Set RADIATOR CONTROL (SYS A & SYS B) To OFF * Set PL BAY DOOR To STOP * Set PL BAY MECH PWR (SYS 1 & SYS 2) To OFF * Set PL BAY DOOR (SYS 1 & SYS 2) To DISABLE	Disable All Power To PL Doors And Radiators. Disable AC Power To The Doors
			R11L	* Enter ITEM 2 EXEC (AFT Keypad)	
51	Mission Dep.	Right Aft Panel	R11U	* Set FUEL CELL - PURGE HEATER To GPC * Set H2O LINE HTR & H2O RELIEF HTR To A AUTO * Confirm PURGE VALVES (1/2/3) Are On GPC * Confirm STARTUP HEATER (1/2/3) Are Set To ENABLE * Set GPC PURGE SEQ To START - Press START For 3 Seconds * Confirm GPC PURGE SEQ START Talkback Is WHITE	Initiate Fuel Cell Purge
52	Mission Dep.	Right Aft Panel	R11L	* Confirm MAJOR FUNC Is Set To SM * Enter SPEC 69 PRO (AFT Keypad) * Enter SPEC 88 PRO (AFT Keypad)	Check Purge Process On The SPEC Display Check Coolant Loops
		Left Panel	L1	* Set FLASH EVAP CONTROLLER (PRI A & PRI B) To OFF * Set FLASH EVAP CONTROLLER - SEC To OFF * Set HILOAD EVAP To OFF	Secure The Flash Evaporator
53	Mission Dep.	Overhead Left Panel	O6	* Set STAR TRACKER POWER (-Y & -Z) To ON * Set DOOR CONTROL (SYS 1 & SYS 2) To OPEN * Check DOOR CONTROL (SYS 1 & SYS 2) Talkbacks Are OP * Set DOOR CONTROL (SYS 1 & SYS 2) To OFF	Deploy & Activate The Star Trackers Indicating The ST Doors Are Open
		Right Aft Panel	R11L	* Set MAJ FUNC To GNC * Enter SPEC 22 PRO (AFT Keypad) * Enter ITEM 3 EXEC (AFT Keypad) * Enter ITEM 4 EXEC (AFT Keypad)	
54	Mission Dep.	Right Aft Panel	R11L	* Check MAJ FUNC To GNC * Enter SPEC 21 PRO (AFT Keypad) * Enter ITEM 16 EXEC (AFT Keypad)	Initiate IMU Alignment
55	Mission Dep.	Overhead Center Panel	O7	* Set GPS 1 POWER To ON * Set GPS 1 PRE AMPL UPPER To ON * Set GPS 1 PRE AMPL LOWER To ON * Set GPS 2 POWER To ON * Set GPS 2 PRE AMPL UPPER To ON * Set GPS 2 PRE AMPL LOWER To ON	Activate Global Positioning System (GPS) Activate GPS 1 Activate GPS 2 Activate GPS 3

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55	Mission Dep.	Overhead Center Panel	O7	* Set GPS 3 POWER To ON	Activate Global Positioning System (GPS)
				* Set GPS 3 PRE AMPL UPPER To ON	
				* Set GPS 3 PRE AMPL LOWER To ON	
		Right Aft Panel	R11L	* Set DUMP ISOL VLV To OPEN	
59	Mission Dep.	Right Aft Panel	R11L	* Check MAJ FUNC To GNC	Deploy KU Antenna
				* Enter SPEC 25 PRO (AFT Keypad)	Indicates Status For All THC/RHC
			R13L	* Set KU ANTENNA To DEPLOY	(Joysticks).
				* Check KU ANTENNA Talkback For DEP	KU Antenna Deployment Takes 15 Seconds
				* Set KU ANTENNA To GND	Indicates KU Antenna Is Deployed
		Aft Right Panel	A1U	* Set KU BAND POWER To STBY	
		Right Aft Panel	R11L	* Check MAJ FUNC To GNC	
				* Enter SPEC 33 PRO (AFT Keypad)	
				* Enter ITEM 2 EXEC (AFT Keypad)	Enable KU Antenna
60	Mission Dep.				Shuttle Is Configured & Ready For Mission

Commence On-Orbit Mission
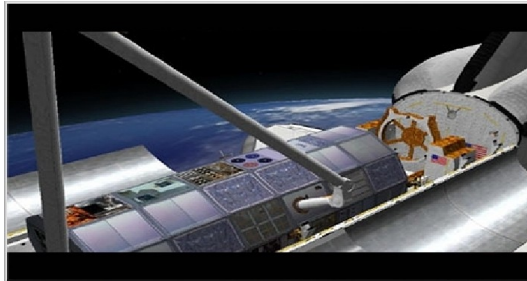
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1100	Mission Dep.				Nominal Correction Burns - Designed to achieve deployment orbit for the LDEF-1 Next Event
1101	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 O14 O16 C2	* Enter OPS 202 PRO (Right Keypad) * Enter ITEM 22 EXEC (Right Keypad) * Enter ITEM 27 EXEC (Right Keypad) * Enter ITEM 23 EXEC (Right Keypad) * Set OMS ENG (Left & Right) To ARM/PRESS * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Orbit Adjustment Burn Master Alarm May Sound (Silence Alarm)
1102	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Disable OMS Next Event
1105	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 O14 O16 C2	* Enter OPS 202 PRO (Right Keypad) - If Not Already Entered * Enter ITEM 22 EXEC (Left Keypad) * Enter ITEM 27 EXEC (Left Keypad) * Enter ITEM 23 EXEC (Left Keypad) * Set OMS ENG (Left & Right) To ARM/PRESS * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Orbit Adjustment Burn
1106	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Disable OMS Next Event
1110	Mission Dep.	Aft Left Panel	A8L	* Set RMS POWER To PRIMARY * Set RMS SELECT To PORT * Set The PORT RMS DEPLOY To DEPLOY	Power Up & Deploy The RMS
1111	Mission Dep.	Aft Left Panel	A8L	* Set The PORT RMS DEPLOY To OFF * Set The PORT RMS Latch To RELEASE * Set The PORT RMS Latch To OFF * Hold The RMS SHOULDER BRACE RELEASE Toward PORT	RMS Deployed Wait Until Talkback Indicates REL Press Until Talkback Indicator Turns White
1112	Mission Dep.	Right Aft Panel Aft Left Panel	R11L A8U	* Set MAJ FUNC To SM * Enter SPEC 94 PRO (Aft Keypad) * Set MODE Rotary Switch To SINGLE * Press ENTER Just Below The MODE Rotary Switch * Set BRAKES Switch To OFF	Continue RMS Preparation
1113	Mission Dep.	Aft Left Panel	A8U	* Set The PARAMETER Rotary Switch To JOINT ANGLE * Set The JOINT Rotary Switch To SHOULDER/PITCH * Press & Hold The SINGLE DIRECT DRIVE In The + Position * Set The JOINT Rotary Switch To ELBOW * Press & Hold The SINGLE DIRECT DRIVE In The - Position * Set The MODE Rotary Switch To MANUAL ORB UNL * Press ENTER Just Below The MODE Rotary Switch	Move RMS Out Of Reach Limit Confirm Digital Readout Indicates +3 Degrees Confirm Digital Readout Indicates -3 Degrees
1114	Mission Dep.	Aft Right Panel	A6U	* Set FLT CNTLR POWER To ON	Assign RHC/THC Control To The RMS
1115	Mission Dep.	Aft Left Panel	A8U A8L	* Set END EFFECTOR | MODE To AUTO * Grapple The LDEF-1 Using The Port Fixture 	When The RMS Is In Position Press Enter POSITION - P Y R P: -090.0 | Y: -060.0 | R: 000.0 POSITION - X Y Z X: 782 | Y: -077 | Z: 462 JOINT ANGLE YAW: 004.0 SHOULDER: 078.0 ELBOW: -123.3 WRIST PITCH: -051.7 WRIST YAW: -059.7 WRIST ROLL: -008.0
1116	Mission Dep.	Aft Left Panel	A8L	* Release The LDEF-1 - Press Backspace	LDEF-1 Power Is Now Activated Through The RMS Grapple Interface. Release The Grapple.
1117	Mission Dep.	Aft Left Panel	A8L	* Grapple The LDEF-1 Using The Starboard Fixture 	When The RMS Is In Position Press Enter POSITION - P Y R P: -090.0 | Y: 030.0 | R: 000.0 POSITION - X Y Z X: 782 | Y: 035 | Z: 492 JOINT ANGLE YAW: -034.7 SHOULDER: 074.1 ELBOW: -105.3 WRIST PITCH: -077.0 WRIST YAW: 024.2 WRIST ROLL: 038.7

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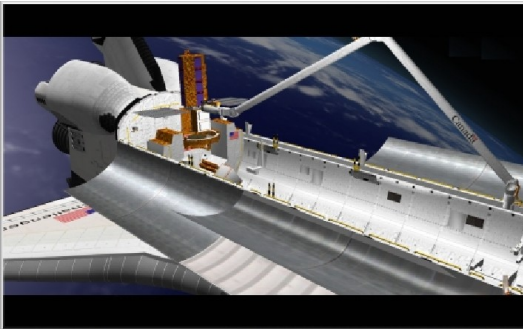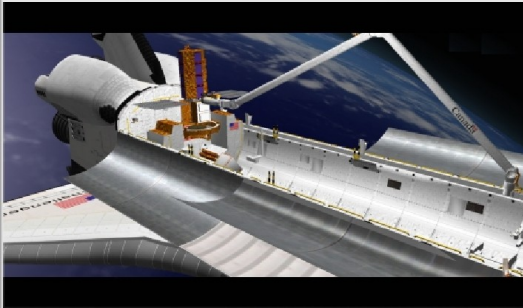| COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1120	Mission Dep.	Center Panel Aft Left Panel	C3 A6U	* PAYLOAD SAFING Switches (1-2-3-4-5) To NORM * PAYLOAD RETENTION | LOGIC POWER (SYS 1) To ON * PAYLOAD SELECT Rotary Switch To 1 * PAYLOAD RETENSION LATCHES (1-2-3-4-5) To RELEASE * PAYLOAD RETENSION LATCHES (1-2-3-4-5) To OFF * PAYLOAD RETENTION | LOGIC POWER (SYS 1) To OFF	Unlatch The LDEF-1 Confirm Talkbacks Indicate REL
1123	Mission Dep.	Aft Left Panel	A8L	* Use The RMS Controls	Remove LDEF-1 From The Cargo Bay To A High Hover Position Over The Cargo Bay.
1124	Mission Dep.	Aft Left Panel	A8L	* Use The RMS Controls	Rotate The LDEF-1 So Its Port/Left Side Is Toward The Shuttle Bay. With The Grapple Facing Along The Left Wing. Move The LDEF-1 As High Above The Cargo Bay As Possible.
1125	Mission Dep.	Aft Left Panel	A8L	* Release The LDEF-1 - Press Backspace * Use RMS Controls To Stow The RMS	Release The LDEF-1 When The End Effector Talkbacks indicate Derigid & Extend, Stow The RMS.
1126	Mission Dep.	Aft Left Panel Front Left Panel	A8L F6	* Set RMS POWER To OFF * Set FLT CNTLR POWER To ON	Gain RCS Control
1127	Mission Dep.	Front Left Panel	F6	* Use RCS Bursts To Move Away From The LDEF-1	Move The Shuttle Away From The LDEF-1 By Translating Forward Using Short Forward Bursts.
1128	Mission Dep.				Shuttle Stands by While The Ground Crew Conducts Various Tests. Next Event
1130	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 O14 O16 C2	* Enter OPS 202 PRO (Right Keypad) - If Not Already Entered * Enter ITEM 22 EXEC (Right Keypad) * Enter ITEM 27 EXEC (Right Keypad) * Enter ITEM 23 EXEC (Right Keypad) * Set OMS ENG (Left & Right) To ARM/PRESS * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Press EXEC - (Right Keypad) Confirms ready for OMS burn	First Rendezvous NC Burn For Solar Max
1131	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	NC Burn Complete - Disable OMS Next Event
1135	Mission Dep.	Right Aft Panel	R11L	* Set MAJOR FUNC To GNC * Enter SPEC 22 PRO (Aft Keypad) * Enter ITEM 5 EXEC (Aft Keypad) * Enter ITEM 6 EXEC (Aft Keypad) * Enter ITEM 11+2 EXEC (Aft Keypad) * Enter ITEM 12+2 EXEC (Aft Keypad)	Activate Star Trackers Target = Solar Max
1136	Mission Dep.	Right Aft Panel Center Panel	R11L C2	* Press RESUME (Aft Keypad) * Set MAJOR FUNC To GNC For CRT #2 * Enter OPS 202 PRO (Right Keypad) - If Not Already Entered * Enter ITEM 22 EXEC (Right Keypad) * Enter ITEM 27 EXEC (Right Keypad) * Enter ITEM 23 EXEC (Right Keypad) * Set OMS ENG (Left & Right) To ARM/PRESS * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Star Trackers Are Configured Resume Closes Star Tracker Display Second Rendezvous NC Burn For Solar Max
1141	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	NC Burn Complete - Disable OMS
1142	Mission Dep.	Aft Right Panel Right Aft Panel	A1U R11L	* Set KU BAND | POWER To ON * Set KU BAND | Rotary Switch To AUTO TRACK * Enter SPEC 33 PRO (Aft Keypad) * Enter ITEM 1 EXEC (Aft Keypad)	Activate KU Band Radar REL NAV Display Mode Rendezvous Radar Data
1145	Mission Dep.	Center Panel	C2	* Enter ITEM 22 EXEC (Right Keypad) * Enter ITEM 27 EXEC (Right Keypad) * Enter ITEM 23 EXEC (Right Keypad) * Set OMS ENG (Left & Right) To ARM/PRESS * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Final Rendezvous Burn For Solar Max
1146	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Burn Complete - Disable OMS Next Event
1147	Mission Dep.	Aft Right Panel	A2	* Use RCS Thrusters To Close On The Solar Max	The Solar Max Is Approximately 45,000 Feet Away. Use The RCS Thrusters To Translate The Shuttle Up/Down Until The Yellow Reticules Overlap The White Cross Hairs. Always Maintain The Following Attitude ROLL=0 PITCH=0 YAW=90 When The Reticules Are Centered, The Solar Max Is Right In Front Of The Shuttle. If You Are Impatient, Use Next Event
1150	Mission Dep.	Aft Right Panel	A2	* Use RCS Thrusters To Rendezvous With The Solar Max	Solar Max Should Be Within Visual Range. Use Short Transitional RCS Bursts To Close On The Solar Max. Close Until Your Within 300 Feet. Once Within 300 Feet, Decrease The Shuttles Translation Motion Until Relative To That Of The Solar Max (ZERO).

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1151	Mission Dep.			* Done The Manned Maneuvering Unit (MMU)	EV1
1152	Mission Dep.			* Use The MMU Thrusters	Use The MMU Thrusters To Rendezvous With The Solar Max. Once There, Attach The Grapple To The Trunion Pin. The Trunion Pin Extends From The Smaller Transition Ring In The Middle Of The SSM.
1155	Mission Dep.			* Use The MMU Thrusters	Solar Max Grappled. MMU Zeroes The Rotation Of The Solar Max. TPAD Is Released From The Attached Grapple. Return The MMU To The Support Structure In The Pay-load Bay For Ingress.
1156	Mission Dep.			* Secure/Remove The MMU - Return To the Airlock	End EV1
1158	Mission Dep.	Front Left Panel Aft Left Panel Aft Right Panel Aft Left Panel	F6 A8L A8U A6U A8U	* Use The Shuttles RCS Thrusters To Get Within Grapple Distance Of The Solar Max. * Set RMS POWER To PRIMARY * Set BRAKES Switch To OFF * Set FLT CNTLR POWER To ON * Set END EFFECTOR | MODE To AUTO	Position The Shuttle Within RMS Grapple Distance. Then Decrease The Shuttles Translation Motion Until Relative To That Of The Solar Max (ZERO). Now Grapple The Solar Max Satellite
1160	Mission Dep.	Left Aft Panel	L12	* Set The STANDARD SWITCH PANEL | FSS POWER To ON * Set The STANDARD SWITCH PANEL | FSS To DEPLOY	Power Up The Flight Support Structure (FSS) And Rotate The Tilt Table To A Horizontal Attitude.
1161	Mission Dep.	Aft Left Panel	A8L	* Use The RMS And Place The Solar Max On The FSS Table 	The Solar Max Solar Panels Must Be Precisely Aligned With The Shuttles Wings To Avoid Contact With The Shuttle. **FSS Table Coordinates** **POSITION - P Y R** P: -001.7 | Y: -000.1 | R: 000.3 **POSITION - X Y Z** X: 1030 | Y: -0007 | Z: 496 **JOINT ANGLE** YAW: -012.8 SHOULDER: 041.2 ELBOW: -068.5 WRIST PITCH: 025.5 WRIST YAW: 012.6 WRIST ROLL: 000.0
1162	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | Set FSS LATCHES To LAT	Secure The Solar Max To The FSS Table
1163	Mission Dep.	Aft Left Panel	A8L	* Un-Grapple The Solar Max - Press Backspace * Move The RMS Away From The Solar Max	Remove Grapple - Clear The RMS From The Solar Max
1164	Mission Dep.				Solar Max Ready For Repair Next Event
1170	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | Set FSS TILT To ON	Tilt The FSS Table In Preparation To Repair The Solar Max
1172	Mission Dep.			* EV2 * EV1	Move EV2 Towards The Solar Max Move EV1 Onto The RMS Foot Restraint
1173	Mission Dep.	Aft Left Panel	A8L	* Move The RMS Towards EV1	Move The RMS Close EV1 To Attach The Foot Restraint.
1174	Mission Dep.	Aft Left Panel	A8L	* Move The RMS With EV1 Towards The Solar Max	Move The RMS With EV1 To A Location In Front And Above EV2.
1175	Mission Dep.			* EV1 & EV2 Now Perform Various Repairs	Next Event
1180	Mission Dep.	Aft Left Panel	A8L	* Move The RMS With EV1 Towards The Foot Restraint Wall	Stow Foot Restraint
1181	Mission Dep.			* Move EV1 Back To The Airlock	EV1 Complete
1182	Mission Dep.			* Move EV2 Back To The Airlock	EV2 Complete
1183	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | Set FSS TILT To OFF	Return The FSS Table To Its Upright Position
1184	Mission Dep.	Aft Left Panel	A8L	* Use The RMS To Grapple The Solar Max 	**Grapple The Solar Max** **POSITION - P Y R** P: 000.1 | Y: 000.0 | R: 000.0 **POSITION - X Y Z** X: 1031 | Y: -003 | Z: 494 **JOINT ANGLE** YAW: -013.3 SHOULDER: 040.3 ELBOW: -067.9 WRIST PITCH: 027.4 WRIST YAW: 013.3 WRIST ROLL: 000.0
1185	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | FSS LATCHES To RELEASE	Unlatch The Solar Max

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STS-41C MISSION CHECKLIST

COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1186	Mission Dep.	Aft Left Panel	A8L	* Use The RMS To Remove The Solar Max From The Cargo Bay	Remove The Solar Max From The FSS Table To A High Hover Above The Cargo Bay.
1187	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | Set FSS TILT To STOW	Stow The FSS
1188	Mission Dep.	Left Aft Panel	L12	* STANDARD SWITCH PANEL | Set FSS POWER To OFF	Turn Off FSS Power
1189	Mission Dep.				The Solar Max Will Be Tested By Ground Crew. Next Event
1190	Mission Dep.	Aft Left Panel	A8L	* Release The Solar Max - Press Backspace * Stow The RMS	Solar Max Released
1191	Mission Dep.	Aft Left Panel Aft Right Panel Front Left Panel	A8L A6U F6	* Set RMS POWER To OFF * Set FLT CNTLR POWER To ON * Use RCS Bursts To Move Away From The Solar Max	Gain RCS Control Move The Shuttle Away From The Solar Max By Translating Backwards Using Short Backward Bursts.
1192	Mission Dep.				The Shuttle Will Hold Station With The Solar Max Before Deorbiting. Next Event

Commence Deorbit & Landing

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
1000	Mission Dep.	Left Panel	L1	* Set RAD CONTROLLER - OUT TEMP To HIGH * Set RAD CONTROLLER (LOOP 1 & LOOP 2) To OFF * Set RAD CONTROLLER - BYPASS MODE (1 & 2) To MAN * Confirm RAD FLOW BYPASS VALVE Talkbacks Display (BYP) * Confirm The HI LOAD EVAP ENABLE Is Set To OFF * Set FLASH EVAP CONTROLLER (PRI A & PRI B) To ON * Set FLASH EVAP CONTROLLER - SEC | GPC To ON	Trap Cold Freon In The Bay Radiators If The Rad Bypass Valve Talkbacks Do Not Display (BYP), Set The Manual Rad Flow Bypass Switches 1 & 2 To Bypass.
1001	Mission Dep.	Right Aft Panel Aft Right Panel Right Aft Panel R11L	R11L A1U R13L R11L	* Set The MAJ FUNC Switch To GNC * Enter SPEC 33 PRO (AFT Keypad) * Enter ITEM 2 EXEC (AFT Keypad) * Enter ITEM 1 EXEC (AFT Keypad) * Set KU BAND POWER To OFF * Set KU Antenna To STOW * When KU Antenna Talkback Shows STO, Set KU Antenna To GND * Enter SPEC 22 PRO (Aft Keypad) * Enter ITEM 9 EXEC (Aft Keypad) * Enter ITEM 10 EXEC (Aft Keypad)	Deactivate & Stow The KU Antenna NOTE: Rendezvous Navigation Has Been Used It Must Be Disabled. Confirm On CRT 4 There Are No Asterisks Besides The Following Entries. RNDZ NAV ENA 1 KU ANT ENA 2
1002	Mission Dep.	Right Aft Panel	R13L	* Set PL BAY MECH PWR (SYS 1 & SYS 2) To ON * Set RADIATOR CONTROL (SYS A & SYS B) To STOW * Set LATCH CONTROL (SYS A & SYS B) To LATCH * Set LATCH CONTROL (SYS A & SYS B) To OFF * Set RADIATOR CONTROL (SYS A & SYS B) To OFF * Set PL BAY MECH PWR (SYS 1 & SYS 2) To OFF	Stow The Radiators Wait Until The RADIATOR CONTROL Talkbacks Show STO Before Setting The LATCH CONTROLS SYS 1 & SYS 2 To LATCH. Wait Until Latch Control Talkbacks Show LAT Before Turning Off ALL Radiators.
1003	Mission Dep.	Overhead Left Panel Center Panel Right Panel	O6 C3 R2	* Set GENERAL PURPOSE COMPUTER - MODE 5 To STBY * Set The BFC/CRT - Display To ON * Confirm The BFC/CRT SELECT Is Set To (3+1) * Confirm BOILER CNTLR/HTR Switches (1/2/3) Are ON * Set HYD CIRC PUMP Switches (1/2/3) To OFF	Activate Backup Flight System
1004	Mission Dep.	Overhead Aft Panel Right Aft Panel	O14 O15 O16 O15 R11L	* Set RGA 1 To ON * Set RGA (2 & 4) To ON * Set RGA 3 To ON * Set ACCEL 3 To ON * Set ACCEL 4 To ON * Set SUPPLY H2O - Crossover Valve To OPEN	Gyro Assemblies & Accelerators
1090	Mission Dep.	Aft Left Panel	A8L	* Set RMS POWER To PRIMARY * Set RMS SELECT To STBD * Set STARBOARD RMS (DEPLOY/OFF/STOW) To STOW * Set STARBOARD RMS (DEPLOY/OFF/STOW) To OFF	Stow The OBSS Boom Wait Until Talkbacks Indicate (STO)
1091	Mission Dep.	Aft Left Panel Aft Right Panel Aft Left Panel	A8L A8U A6U A8U	* Confirm/Set RMS POWER To PRIMARY * Set RMS SELECT To PORT * Set BRAKES Switch To OFF * Set FLT CNTLR POWER To ON * Set The MODE Rotary Selector To SINGLE * Press ENTER Just Below The MODE Rotary Selector * Set The PARAMETER Rotary Selector To JOINT ANGLE * Set The JOINT Rotary Selector As Required * Depress The SINGLE/DIRECT DRIVE (+-) Spring Switch	Stow The RMS Return All Joint Angles To Their Stowed Position. By Returning All Joint Angles To Zero, You Will Eventually Reach The RMS Latch Position. Latch The RMS
1092	Mission Dep.	Aft Left Panel Front Left Panel	A8L F6	* Port RMS | Retention Latches | Ready For Latch Talkbacks (White) * Set PORT RMS (RELEASE/OFF/LATCH) To LATCH * Set PORT RMS (RELEASE/OFF/LATCH) To OFF * Set PORT RMS (DEPLOY/OFF/STOW) To STOW * Set PORT RMS (DEPLOY/OFF/STOW) To OFF * Set RMS POWER To OFF * Set FLT CNTLR POWER To ON	Wait Until Talkbacks Indicate (LAT) Wait Until Talkbacks Indicate (STO)
1093	Mission Dep.	Aft Left Panel	A7U	* Set All PAYLOAD BAY FLOOD Lights To OFF (If Required)	Turn Off All Payload Bay Flood Lights
1006	Mission Dep.	Right Aft Panel R13L R11L	R11L R13L R11L	* Set MAJ FUNC Switch To SM * If Required, Enter OPS 202 PRO (AFT Keypad) * Enter ITEM 1 EXEC (AFT Keypad) * If Not Already Enabled, Enter ITEM 3 EXEC (AFT Keypad) * Set PL BAY DOOR (SYS 1 & SYS 2) To ENABLE * Set PL BAY DOOR To CLOSE * Set PL BAY DOOR To STOP * Set PL BAY DOOR (SYS 1 & SYS 2) To DISABLE * Enter ITEM 2 EXEC (AFT Keypad)	Close Payload Bay Doors Wait Until The PL BAY DOOR Talkback Shows CL.
1008	Mission Dep.	Right Aft Panel Overhead Left Panel Right Aft Panel	R11L O6 R11L	* Set MAJ FUNC To GNC * Press GPC/CRT (AFT Keypad) * Enter 4 EXEC (AFT Keypad) * Enter OPS 201 PRO (AFT Keypad) * Set GENERAL PURPOSE COMPUTER - MODE 3 To RUN * Enter OPS 301 PRO (AFT Keypad)	Reconfigure GNC's For Deorbit
1009	Mission Dep.	Overhead Left Panel	O6	* STAR TRACKER DOOR CONTROL (SYS 1 & SYS 2) To CLOSE * STAR TRACKER DOOR CONTROL (SYS 1 & SYS 2) To OFF * Set The STAR TRACKER POWER Switches (-Y & -Z) To OFF	Close Star Tracker Doors Wait Until STAR TRACKER DOOR POSITION Talkback Shows CL.
1010	Mission Dep.	Right Panel	R4	* Check HYDRAULICS BRAKE HEATER (A/B/C) Set To AUTO	Final Switch Configuration Check

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DEORBIT & LANDING CHECKLIST

COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
1010	Mission Dep.	Overhead Aft Panel	O15	* Set BRAKES MN B To ON	Final Switch Configuration Check
			O14	* Set BRAKES MN A To ON	
			O16	* Set BRAKES MN C To ON	
		Center Panel	C3	* ORBITAL DAP / MANUAL MODE / ROTATION - ROLL To PRI	
				* Check ORBITAL DAP / CONTROL To AUTO	
		Left Panel	L2	* Confirm ANTI SKID - Set To ON	
				* Confirm NOSE WHEEL STEERING - Set To 1	
				* Confirm ENTRY MODE - Set To AUTO	
			L1	* Set FLASH EVAP CONTROLLER (PRI A & PRI B) To GPC	
				* Set FLASH EVAP CONTROLLER SEC To GPC	
			L2	* FREON LOOP ISOLATION - MODE To OFF	
				* Set O2 SYS 2 SUPPLY To OPEN	
				* Set N2 SYS 2 SUPPLY To OPEN	
				* Set N2 SYS 2 REG INLET To OPEN	
				* Set O2/N2 CNTLR VLV SYS 1 To OPEN	
		Aft Right Panel	A12	* Set APU HEATER - GAS GEN/FUEL PUMP (1/2/3) To OFF	
				* Set APU HEATER - LUBE OIL LINE (1/2/3) To OFF	
				* Set All TANK/FUEL LINE/H2O SYS Switches To OFF	
				* HYDRAULIC HEATER - RUDDER SPD BRK (A &B) To OFF	
				* HYDRAULIC HEATER - BODY FLAP (A & B) To OFF	
				* HYDRAULIC HEATER - ELEVON (A & B) To OFF	
				* HYDRAULIC HEATER - AFT FUSELAGE (A & B) To OFF	
1012	Mission Dep.	Right Panel	R2	* Set He ISOLATION A LEFT/CENTER/RIGHT To OPEN	Main Propulsion System / Helium Release
				* Set He ISOLATION B LEFT/CENTER/RIGHT To OPEN	
				* Set PNEUMATICS L ENG He XOVR To OPEN	
				* Set PNEUMATICS He ISOL To OPEN	
				* Set LEFT He INTERCONNECT To - IN OPEN	
				* Set CENTER & RIGHT INTERCONNECT To - OUT OPEN	
1013	Mission Dep.	Right Aft Panel	R11L	* Confirm MAJ FUNC Set To GNC	Final IMU Alignment
				* Enter SPEC 21 PRO (AFT Keypad)	
				* Enter ITEM 16 EXEC	
1014	Mission Dep.	Center Panel	C2	* Enter ITEM 34 EXEC (Right Keypad)	Perform OMS Gimbal
		Right Panel	R2	* Set BOILER N2 SUPPLY (1/2/3) To ON	
				* Set BOILER PWR (1/2/3) To ON	
				* Set APU FUEL TK VLV (1/2/3) To OPEN	
				* Set APU CNTLR PWR (1/2/3) To ON	
				* Set APU AUTO SHUT DOWN (1/2/3) Set To INHIBIT	
				* Confirm HYD MAIN PUMP PRESS (1/2/3) Set To LOW	
				* Confirm APU SPEED SELECT Set To NORM	
				* Confirm APU/HYD Ready To Start Talkbacks Are WHITE	
		Center Panel	C2	* Confirm GIMBAL CK 34 On CRT 2 Is Complete (No Asterisk)	If there's an asterisk next to GMBL CK 34 It means the gimbal check is incomplete. You must wait for the asterisk to Disappear.
				* Enter OPS 302 PRO (Right Keypad)	
1015	Mission Dep.	Center Panel	C2	* Confirm (CRT 1, CRT 3, CRT 2) Are Set To MAJ FUNC GNC	Horizontal Situation & Override Displays
				* Enter SPEC 50 PRO (Left Keypad)	
				* Enter SPEC 51 PRO (Right Keypad)	
				* Enter ITEM 44 EXEC (Right Keypad)	
1016	Mission Dep.	Center Panel	C2	* Press RESUME (Right Keypad)	
		Right Panel	R2	* Set APU OPERATE - START/RUN For APU 1	
1017	Mission Dep.	Center Panel	F7	* Check CRT 1 Confirm Display Of OPS MODE 3021	Perform Deorbit Burn
			C2	* ITEM 22 EXEC (Right Keypad)	
				* ITEM 27 EXEC (Right Keypad)	
				* ITEM 23 EXEC (Right Keypad)	
		Overhead Aft	O14	* Confirm L OMS ENG VLV Is ON	
			O16	* Confirm R OMS ENG VLV Is ON	
		Center Panel	C3	* Set OMS ENG (LEFT & RIGHT) To ARM/PRESS	
			C2	* Press EXEC - (Right Keypad) Confirms ready for OMS burn	
1018	Mission Dep.	Center Panel	C3	* Set OMS ENG (LEFT & RIGHT) To OFF	Deorbit Burn Complete
		Overhead Aft Panel	O14	* Set L OMS ENG VLV To OFF	
			O16	* Set R OMS ENG VLV To OFF	
1020	Mission Dep.	Center Panel	C2	* Enter OPS 303 PRO (Right Keypad)	Correct Attitude Hint
		Front Left Panel	F6	* Position The Shuttle To The Correct Attitude	Align All ADI Needles
1022	Mission Dep.	Center Panel	C2	* Enter ITEM 36 EXEC (Right Keypad)	Dump RCS Propellant
				* Enter ITEM 37 EXEC (Right Keypad)	
		Right Panel	R2	* Set APU OPERATE - START/RUN For APU (2 & 3)	
				* Set HYD MAIN PUMP PRESS (1/2/3) To NORM	Pressure Should Rise To 3000 psi
		Overhead Aft Panel	O17	* Set ATVC - (1/2/3/4) To ON	
		Right Panel	R1	* Set AC BUS SNSR (1/2/3) To MONITOR	
		Center Panel	C2	* Enter ITEM 39 EXEC (Right Keypad)	
1025	Mission Dep.	Front Right Panel	F4	* Check PITCH & ROLL/YAW Set To AUTO	
1026	Mission Dep.				The Shuttle Will Perform Roll Reversals
1027	Mission Dep.	Left Panel	L1	* Set RAD CONTROLLER - OUT TEMP To NORM	
				* Set RAD CONTROLLER (LOOP 1 & LOOP 2) To AUTO A	
				* Set RAD CONTROLLER - BYPASS MODE (1 & 2) To AUTO	

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1080	Mission Dep.	Right Panel Left Panel	R4 L1	* Set MPS/TVC/ISOL/VLV (SYS1, SYS2, SYS3) To OPEN * Set NH3 BOILER - NH3 CONTROLLER (A & B) To PRI/GPC	Hydraulics / Brake Heater
1028	Mission Dep.	Center Panel Front Left Panel Front Right Panel Overhead Right Panel	C3 F6 F8 O8	* Set AIR DATA PROBE (Left & Right) To DEPLOY HEAT * Set AIR DATA To LEFT * Set AIR DATA To RIGHT * Set RADAR ALTIMETERS (1 & 2) To ON	Deploy Air Data Probes
1029	Mission Dep.	Front Left Panel Front Right Panel Front Left Panel	F3 F3 F2	* Set HUD POWER To ON (Commander) * Set HUD POWER To ON (Pilot) * Set PITCH & ROLL/YAW To CSS (Commander)	Commander & Pilot HUD Power
1031	Mission Dep.	Overhead Right Panel	O8	* Set MLS (1/2/3) Switches To ON * Set MLS Thumbwheel To (111)	Auto Software Transition To OPS 305 Microwave Scan Beam Landing System
1033	Mission Dep.	HUD Display Window		* Press LANDING GEAR ARM (Twice)	Arm The Landing Gear
1034	Mission Dep.	HUD Display Window		* Press LANDING GEAR DOWN (Twice)	Deploy Landing Gear
1035	Mission Dep.	HUD Display Window		* Press SHUTE ARM (Twice) * Press DEPLOY SHUTE (Twice) * Press CHUTE JETT (Twice)	Touchdown: Gently Push The Nose Down Until The Nose Wheel Touches The Runway. Use The Rudder To Steer. Apply Wheel Brakes.
1036	Mission Dep.	HUD Display Window		* Press CHUTE JETT (Twice)	Release Brake Shute
1037	Mission Dep.				End Of Mission

Commence Shutdown

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
	Mission Dep.	Left Panel	L2	* SPD BK - MAN (Full FWD)	
				* NWS - OFF	
		Right Panel	R2	* APU Auto Shutdown (1/2/3) - ENABLE	
				* APU Speed Select (1/2/3) - NORM	
			R1	* AC BUS SNSR (1/2/3) - AUTO TRIP	
		Front Left Panel	F6	* Commander FLT CNTLR POWER - OFF	
		Front Right Panel	F8	* Pilot FLT CNTLR POWER - OFF	
		Front Left Panel	F3	* Commander HUD POWER - OFF	
		Front Right Panel	F3	* Pilot HUD POWER - OFF	
	Mission Dep.			(PERFORMED IF ELS)	Note: MCC Will Report Go/No-Go To
		Center Panel	C3	* MSTR MADS - OFF (DoD ELS, MCC call DoD OSC on NCC)	DOFF Suits. (Post Safety Assessment)
	Mission Dep.	Center Panel	C3	* OMS ENG (Left & Right) - OFF	RMS OMS Safing (RDJs)
		Overhead Aft Panel	O14	* RJDA 1A DRIVER (L2/R2 MANF) - OFF	
				* RJDA 2A DRIVER (L4/R4 MANF) - OFF	
				* RJDF 1B DRIVER (F1 MANF) - OFF	
			O15	* RJDA 1B DRIVER (L1/R1 MANF) - OFF	
				* RJDF 1A DRIVER (F2 MANF) - OFF	
			O16	* RJDA 2B DRIVER (L1/R1 MANF - OFF	
				* RJDF 2A DRIVER (F1 MANF) - OFF	
				* RJDF 2B DRIVER (F1 MANF) - OFF	
			O14	* RJDA 1A LOGIC (L2/R2 MANF) - OFF	
				* RJDA 2A LOGIC (L4/R4 MANF) - OFF	
				* RJDF 1B LOGIC (F1 MANF) - OFF	
			O15	* RJDA 1B LOGIC (L1/R1 MANF) - OFF	
				* RJDF 1A LOGIC (F2 MANF) - OFF	
			O16	* RJDA 2B LOGIC (L1/R1 MANF - OFF	
				* RJDF 2A LOGIC (F1 MANF) - OFF	
				* RJDF 2B LOGIC (F1 MANF) - OFF	
			O14	* L OMS ENG VLV - OFF	
			O16	* R OMS ENG VLV - OFF	
	Mission Dep.	Overhead Aft Panel		(NOT PERFORMED IF ELS)	Drag Chute Safing
			O15	* MNB - DRAG CHUTE SYS 2 - op	
			O16	* MNC - DRAG CHUTE SYS 1 - op	
			F2	* DRAG SHUTE - LT OFF	
			F3	* DRAG SHUTE - LT OFF	
			F4	* DRAG SHUTE - LT OFF	
	Mission Dep.	Center Panel	C3	* AIR DATA PROBE (Left & Right) - DEPLOY	Deactivate Air Data Probe HTRS
	Mission Dep.			(NOT PERFORMED IF ELS)	Landing Gear Safing
		Right Aft Panel	R14	* ESS 1BC LDG GEAR / ARM/DN - RESET CL	
		Aft Right Panel	A12	* LG ARM/DN RESET - Set Switch To The RESET Position	
		Front Left Panel	F6	* LDG GEAR - LT OFF	
		Front Right Panel	F8	* LDG GEAR - LT OFF	
		Aft Right Panel	A12	* LG ARM/DN RESET - Set Switch To The Down Position	
		Right Aft Panel	R14	* ESS 1BC LDG GEAR / ARM/DN - RESET OP	
	Mission Dep.	Right Panel	R2	* ET UMBILICAT DOOR / MODE - GCP/MAN	ET Umbilical Door Opening
				* ET UMBILICAT DOOR / RIGHT LATCH - RELEASE	
				* ET UMBILICAT DOOR / RIGHT LATCH - OFF	
				* ET UMBILICAT DOOR / LEFT LATCH - RELEASE	
				* ET UMBILICAT DOOR / LEFT LATCH - OFF	
				* ET UMBILICAL DOOR / MODE - GCP	
	Mission Dep.	Front Right Panel	F4	* BODY FLAP - MAN	Hydraulic Load Test
		Front Left Panel	F8	* FLT CNTLR PWR - ON	
		Right Panel	R2	* HYD MAIN PUMP PRESS #1 - LO	A Minimum Of Two Operating Hydraulic
		Center Panel	C3	* Run Full Load Test	Systems Are Required For This Test
			R2	* HYD MAIN PUMP PRESS #1 - NORM	
				* HYD MAIN PUMP PRESS #3 - LO	
				* Repeat Load Test	
				* HYD MAIN PUMP PRESS #3 - NORM	
	Mission Dep.	Center Panel	C3	* BFC CRT DISPLAY - ON	DPS Transition GNC 9 (If Pass)
			C2	* Enter Item OPS 000 PRO (Right Keypad)	
				* Enter Item OPS 901 PRO (Right Keypad)	
		Front Right Panel	F4	* BODY FLAP - MAN	
		Center Panel	C3	* BODY FLAP - DOWN	
		Right Panel	R4	* HYDRAULICS - MPS/TVC ISOL VLV (SYS 1, SYS 2, SYS 3) OPEN	
		Center Panel	C2	* Enter ITEM 8 EXEC (Right Keypad)	
				* Enter ITEM 1 +0 2 EXEC (Right Keypad)	
				* Enter ITEM 5 EXEC (Right Keypad)	
		Right Panel	R4	* HYDRAULICS - MPS/TVC ISOL VLV (SYS 1, SYS 2, SYS 3) CLOSE	
		Center Panel	C2	* Enter ITEM 23 EXEC (Right Keypad)	
				* Enter ITEM 1 EXEC (Right Keypad)	
				* Enter ITEM 29+1 EXEC (Right Keypad)	
				* Enter ITEM 30+8 EXEC (Right Keypad)	
				* Enter ITEM 31 EXEC (Right Keypad)	
				* Enter ITEM 32 EXEC (Right Keypad)	

Space Shuttle Mission 2007

Designed By: Michael Swannick

COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
	Mission Dep.	Overhead Left Panel Left Panel	O1 L1	* Confirm FREON EVAP OUT TEMP >40 degrees * RADIATORS / RAD CONTROLLER - OUT TEMP - HI * H2O PUMP LOOP 1 - ON	Radiator Reconfiguration
	Mission Dep.	Right Panel	R4 R2	* HYDRAULICS - MPS/TVC ISOL VLV (SYS 1, SYS 2, SYS 3) CLOSE * BOILER PWR (1/2/3) - OFF * BOILER N2 SUPPLY (1/2/3) - OFF * APU OPERATE (1/2/3) - OFF * APU FUEL TK VLV (1/2/3) - CLOSE * APU CNTLR PWR (1/2/3) - OFF	APU/HYD Shutdown
	Mission Dep.	Right Panel	R2	* He ISOLATION (A & B) - CLOSE * PNEUMATICS / L ENG He XOVR - CLOSE	Post Landing MPS Reconfiguration
	Mission Dep.	Left Panel	L2	* Set O2 SYS SUPPLY 1 - CLOSE * Set O2 SYS SUPPLY 2 - CLOSE * Confirm O2 EMER Talkback Indicates CL	PCS Deactivation
	Mission Dep.	Aft Left Panel Overhead Center Panel	A13 O7	* GPS POWER (1 & 2) - OFF * GPS PRE AMPL UN - OFF * GPS PRE AMPL LC - OFF * GPS POWER (GPS 1, GPS 2, GPS 3) - OFF * GPS PRE AMPL UPPER (GPS 1, GPS 2, GPS 3) - OFF * GPS PRE AMPL LOWER (GPS 1, GPS 2, GPS 3) - OFF	GPS Power Down
	Mission Dep.	Center Panel	O2	* Enter ITEM 8 EXEC (Right Keypad) * Enter ITEM 1+03 EXEC (Right Keypad) * Enter ITEM 2 EXEC (Right Keypad) * Enter ITEM 5 EXEC (Right Keypad)	Vent Door Purge Positioning (PASS)
	Mission Dep.	Overhead Center Panel	O7 O8 O7	* MASTER RCS CROSSFEED - OFF * LEFT OMS / He PRESS/VAPOR ISOL (A & B) - GPC * RIGHT OMS / He PRESS/VAPOR ISOL (A & B) - GPC * LEFT OMS CROSSFEED (A & B) - OPEN/CLOSE * RIGHT OMS CROSSFEED (A & B) - OPEN/CLOSE * LEFT OMS TANK ISOLATION (A & B) - CLOSE/OPEN/GPC * RIGHT OMS TANK ISOLATION (A & B) - CLOSE/OPEN/GPC * LEFT OMS CROSSFEED (A & B) - OPEN/GPC * FWD RCS / He PRESS (A & B) - CLOSE/GPC * FWD RCS TANK ISOLATION (1/2 & 3/4/5) - CLOSE * FWD RCS MANIFOLD ISOLATION (1/2/3/4/5) - CLOSE * FWD RCS MANIFOLD ISOLATION (1/2/3/4/5) - OPEN/GPC * LEFT OMS / He PRESS/VAPOR ISOL (A & B) - CLOSE/GPC * RIGHT OMS / He PRESS/VAPOR ISOL (A & B) - CLOSE/GPC * LEFT MANIFOLD ISOLATION (1/2/3/4/5) - CLOSE * RIGHT MANIFOLD ISOLATION (1/2/3/4/5) - CLOSE * LEFT MANIFOLD ISOLATION (1/2/3/4/5) - OPEN/GPC * RIGHT MANIFOLD ISOLATION (1/2/3/4/5) - OPEN/GPC * LEFT RCS TANK ISOLATION (1/2 & A 3/4/5 B) - CLOSE * RIGHT RCS TANK ISOLATION (1/2 & A 3/4/5 B) - CLOSE * LEFT & RIGHT RCS CROSSFEED - OPEN/CLOSE/GPC	RCS, OMS Valve Test Open, Then Close Open, Then Close Close, Then Open, Then GPC Close, Then Open, Then GPC Open, Then GPC Close, Then GPC Open, Then GPC Close, Then GPC Close, Then GPC Open, Then GPC Open, Then GPC Open, Then Close, Then GPC
	Mission Dep.	Overhead Center Panel	O7	* LEFT RCS TANK ISOLATION (1/2 & A 3/4/5 B) - OPEN/GPC * RIGHT RCS TANK ISOLATION (1/2 & A 3/4/5 B) - OPEN/GPC	Open, Then GPC Open, Then GPC
	Mission Dep.	Overhead Left Panel	O6	* GPC MODE (1/2/3/4/5) - STBY/HALT	STBY, Then Halt
	Mission Dep.			IF LANDING AT (KSC, EDW, NOR) HATCH OPENING PROCEDURE * Pull G SUIT Controller Clip - (If Inflated) * Lap Belt & Chute - Release * Egress Seat - (Helmet Required If ELS) * Unstow - 'Return To Houston' Bags - (Except ELS)	Hatch Opening
	Mission Dep.			IF YOU ARE NOT LANDING AT (KSC, EDW, NOR) HATCH OPENING PROCEDURE * Tabs/Visor - CLOSE * Green Apple - PULL * Open Hatch/Deploy Slide Per Decal	Hatch Opening
	Mission Dep.			ORBITER UNAIDED EGRESS * Egress Orbiter * Hand Carry Landing Site Data Book * If ELS - (Reference ELS POST LANDING Procedures)	Orbiter Egress