



Space Shuttle Mission 2007



Designed By: Michael Swannick

Mission Checklist

STS-122

Crew Members

Commander - Stephen Frick | Pilot - Alan Poindexter

Mission Specialist

Leland Melvin | Rex Walheim | Hans Schlegel | Stanley Love | Leopold Eyharts

Mission Highlights

Carried out by Atlantis on February 07, 2008. The launch was scrubbed twice due to problems with the ECO sensors. Mission was extended by two days, because of medical issues with astronaut Hans Schlegel that delayed EVA-1 by 24 hours, and to allow for additional time to activate the Columbus research module. Astronaut Leopold Eyharts replaced expedition 16 Flight Engineer Daniel Tani who returned to Earth onboard Atlantis.

Payload

European Columbus Laboratory Module.

Nitrogen Tank Assembly (NTA). A currently installed NTA on the P1 truss will be replaced by a new one and returned to Earth.

External airlock with Androgynous Peripheral Docking system (APDS). The external airlock, with docking system, provides an airtight tunnel between the two spacecraft after docking.

Integrated Cargo Carrier (ICC) Lite. A smaller version of the large ICC used for smaller payloads.

Control Moment Gyroscope (CMG). A replaced gyro from the Z1 truss segment will be returned to Earth.

European Technology Exposure Facility (EuTEF). An external experiment that will be installed on the outside of Columbus.

SOLAR. An external experiment for studying the Sun with unprecedented accuracy that will be installed on the outside of Columbus.

Flight Summary

Launchpad: Kennedy Space Center (KSC) 39A | Orbit: 122NM | Inclination: 51.6 | Orbits: 219

Duration: 11 Days, 19 Hours, 29 Minutes, 0 Seconds | Landing: Kennedy Space Center



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PRE-LAUNCH CHECKLIST

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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 Overhead Aft Panel Center Panel	R2 O14 O16 C3	* Check BOILER CNTLR/HTR (1/2/3) Are On - A * Set BOILER N2 Supply (1/2/3) To ON * Set L OMS ENG VLV Is ON * Set R OMS ENG VLV Is ON * Set OMS ENG (LEFT & RIGHT) Are Set To ARM/PRESS	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	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 * Set 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



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
25	T-00:00:01:40				Liquid Hydrogen External Tanks Closed
25	T-00:00:01:20				Go For Launch Announcement
25	T-00:00:01:00				One Minute Countdown Announcement
25	T-00:00:00:30				Thirty Seconds Countdown Announcement
26	T-00:00:00:15				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 T+00:00:01:05				Main Engines Throttle Down To 65% Main Engines Throttle Up To 104%
28	T+00:00:02:00 T+00:00:02:05	Front Center Panel	F7	* Check Pressure Pc<50 (MFD / CRT 1)	Standby For SRB Separation SRB Separation
600	T+00:00:02:10				An OMS Assist Burn Is Now Performed To Add Additional Boost
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
601	T+00:00:05:19				The Shuttle Performs A Roll-To-Heads-Up
30	T+00:00:06:56				Single Engine Press To MECO
31	Mission Dep.	Front Center Panel	F7	* Check MAIN ENGINE STATUS Lights (Left/CTR/Right) Are Red	Engines Throttle Down In Preparation For Main Engine Cutoff (MECO)
32	Mission Dep.			* Check MAIN ENGINE STATUS Lights (Left/CTR/Right) Are Red	External Tank Separation
34	Mission Dep.	Left Panel Center Panel Right Panel Front Left Panel Front Right Panel Center Panel	L1 L2 C3 R1 F6 F8 C3	* Set FLASH EVAP CONTROLLER PRI A & PRI B To ON * Set FLASH EVAP FEEDLINE HTR A SUPPLY & B SUPPLY To 1 * Set BFC CRT DISPLAY To OFF * Set AC BUS SNSR (1/2/3) To AUTO TRIP * Set O2 TK 1 (B) & O2 TK 2 (B) HEATERS To AUTO * Set H2 TK 1 (B) & H2 TK 2 (B) HEATERS To AUTO * Check FLT CNTLR POWER Is OFF * Check FLT CNTLR POWER Is OFF * Check ORBIRAL DAP - CONTROL Is Set To AUTO	Remaining MPS Propellants Are Dumped Automatically. Main Engines Are Gimballed Down During The Dump
35	Mission Dep.	Center Panel	C3	* Enter OPS 105 PRO (Use Left Keypad)	Prepare To Circularize Orbit
36	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C3 C2 O14 O16 C3	* Confirm DAP (Digital Auto Pilot) Switches Are Set To AUTO * Enter ITEM 22 EXEC (Use Right Keypad) * Enter ITEM 27 EXEC (Use Right Keypad) * Enter ITEM 23 EXEC (Use Right Keypad) * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Confirm OMS ENG (LEFT & RIGHT) Are Set To ARM/PRESS	Circularize Orbit
37	Mission Dep.	Right Panel	R2 R4	* Set 6 ENGINE POWER Switches (LEFT/CTR/RIGHT) To OFF * Set He ISOL A (LEFT/CTR/RIGHT) To GPC * Set He ISOL B (LEFT/CTR/RIGHT) To GPC * Set PNEUMATICS He ISOL To GPC * Set H2 PRESS LINE VENT To OPEN	Propellant Dump Complete
38	Mission Dep.	Right Panel	R2 R4	* Set ET UMBILICAL DOOR - MODE GPC To GPC/MAN * Set CENTERLINE LATCH To STOW * 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 * Set H2 PRESS LINE VENT To GND	Close & Latch The ET Umbilical Doors. APU Shutdown
39	Mission Dep.	Center Panel	C2	* Press EXEC - Confirms ready for OMS burn (Use Right Keypad)	Confirm OMS Burn
40	Mission Dep.	Right Panel Center Panel	R4 C3	* Set PROPELLANT FILL/DRAIN LH 2 OUTBD & INBD To OPEN * Set OMS ENG LEFT & RIGHT To OFF	Liquid He Manual Dump
41	Mission Dep.	Overhead Aft Panel Right Panel	O17 R4	* Set ATVC (1/2/3/4) To OFF * Set Engine Interface Units - EIU (L-C / C-R / R-L) To OFF * Set MEC (1 & 2) To OFF * Set MPS/TVC ISOL VLV - (SYS 1, SYS 2, SYS 3) To CLOSE	Turn Off Main Engine Controllers
42	Mission Dep.	Right Panel Center Panel Front Left Panel	R4 C3 F6	* Set PROPELLANT FILL/DRAIN - LH2 OUTBD To GND * Check PROPELLANT FILL/DRAIN - LH2 INBD To OPEN * ORBITAL DAP/MANUAL MODE - ROTATION YAW, VERN=ON * Set FLIGHT CNTLR POWER To ON * Rotate The Shuttle To Zero Attitude (Pitch/Roll) (Joystick - RHC)	Set Liquid H2 Outboard Fill & Drain Valve To Ground Control Set Attitude Manually Enable Vernier RCS Enable Manual Control Of The RCS Align All ADI Needles
43	Mission Dep.	Right Panel Aft Right Panel	R4 A12	* Set HYDRAULICS - BRAKE HEATERS (A/B/C) To AUTO * 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 * Set HYDRAULIC HEATER - BODY FLAP To A AUTO * Set HYDRAULIC HEATER - ELEVON To A AUTO * Set HYDRAULIC HEATER - AFT FUSELAGE To A AUTO	Thermal Condition The Shuttle
44	Mission Dep.	Aft Left Panel	A14	* Set RCS/OMS HEATERS - FWD RCS To A AUTO * Set RCS/OMS HEATERS - LEFT POD To A AUTO * Set RCS/OMS HEATERS - RIGHT POD To A AUTO * Set RCS/OMS HEATERS - FWD RCS JET (1/2/3/4/5) To AUTO	Activate Various Heater Systems



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44	Mission Dep.	Aft Left Panel Left Panel	A14 A8L L1	* 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 * Set TOPPING EVAP HEATER - DUCT Selector To A/B * Set HI LOAD EVAP - HI LOAD DUCT HTR Selector To A/B	Activate Various Heater Systems
45	Mission Dep.	Left Panel Overhead Aft Panel	L2 L1 O14 O15 O16 O15	* Set O2 SYS 2 SUPPLY To CLOSE * Set N2 SYS 2 SUPPLY To CLOSE * Set N2 SYS 2 REG INLET To CLOSE * Set H2O LOOP 2 BYPASS - MODE To AUTO * Set H2O PUMP - LOOP 1 To OFF H2O PUMP - LOOP 2 To GPC * Set RGA 1 To OFF * Set RGA 2 & 4 To OFF * Set RGA 3 To OFF * Set ACCEL 3 To OFF * Set ACCEL 4 To OFF	
46	Mission Dep.	Overhead Left Panel Right Aft Panel Overhead Left Panel	O6 R11L O6	* 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) * Set GENERAL PURPOSE COMPUTER - MODE 3 To HALT	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 GPC 5 Retains The Backup Flight System
47	Mission Dep.	Left Panel	L1 L2	* Set RAD CONTROLLER - (LOOP 1 & LOOP 2) To AUTO A * Set RAD CONTROLLER - BYPASS MODE (1 & 2) To AUTO * Set FREON LOOP ISOLATION - MODE To AUTO	Activate Radiator Cooling
48	Mission Dep.	Right Aft Panel	R11L R13L	* Confirm MAJOR FUNC Is Set To SM * Enter OPS 202 PRO (AFT Keypad) * Enter ITEM 3 EXEC * Enter ITEM 1 EXEC * Set PL BAY DOOR (SYS 1 & SYS 2) To ENABLE * Set PL BAY DOOR To OPEN * Confirm PL BAY DOOR Talkbacks Show DEP	Open Payload Doors PL BAY DOOR SPEC Display Enable Auto Mode Enable AC Power 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 R11L	* 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 * Enter ITEM 2 EXEC (AFT Keypad)	Disable All Power To PL Doors And Radiators. Disable AC Power To The Doors
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 Left Panel	R11L L1	* Enter SPEC 69 PRO (AFT Keypad) * Enter SPEC 88 PRO (AFT Keypad) * Set FLASH EVAP CONTROLLER (PRI A & PRI B) To OFF * Set FLASH EVAP CONTROLLER - SEC To OFF * Set HILOAD EVAP To OFF	Check Purge Process On The SPEC Display Check Coolant Loops Secure The Flash Evaporator
53	Mission Dep.	Overhead Left Panel Right Aft Panel	O6 R11L	* 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 * Set MAJ FUNC To GNC * Enter SPEC 22 PRO (AFT Keypad) * Enter ITEM 3 EXEC (AFT Keypad) * Enter ITEM 4 EXEC (AFT Keypad)	Deploy & Activate The Star Trackers Indicating The ST Doors Are Open
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 * Set GPS 3 POWER To ON * Set GPS 3 PRE AMPL UPPER To ON * Set GPS 3 PRE AMPL LOWER To ON	Activate Global Positioning System (GPS) Activate GPS 1 Activate GPS 2 Activate GPS 3



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
55	Mission Dep.	Right Aft Panel	R11L	* Set DUMP ISOL VLV To OPEN	
59	Mission Dep.	Right Aft Panel Aft Right Panel Right Aft Panel	R11L R13L AIU R11L	* Check MAJ FUNC To GNC * Enter SPEC 25 PRO (AFT Keypad) * Set KU ANTENNA To DEPLOY * Check KU ANTENNA Talkback For DEP * Set KU ANTENNA To GND * Set KU BAND POWER To STBY * Check MAJ FUNC To GNC * Enter SPEC 33 PRO (AFT Keypad) * Enter ITEM 2 EXEC (AFT Keypad)	Deploy KU Antenna Indicates Status For All THC/RHC (Joysticks). KU Antenna Deployment Takes 15 Seconds Indicates KU Antenna Is Deployed Enable KU Antenna
60	Mission Dep.				Shuttle Is Configured & Ready For Mission

Commence On-Orbit Mission



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STS-122 MISSION CHECKLIST

COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1100	Mission Dep.				The RMS Is Powered Up And Checked Next Event
1101	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
1102	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
1103	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
1104	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
1105	Mission Dep.	Aft Right Panel	A6U	* Set FLT CNTLR POWER To ON	Gain Manual RMS RHC/THC Control
1106	Mission Dep.	Aft Left Panel Front Left Panel	A8L A8U F6	* Set RMS POWER To OFF * Set RMS BRAKES To ON * Set FLT CNTLR POWER To ON	Turn Off RMS Power For Later Use.
1107	Mission Dep.				This Ends The Activation And Checkout Of The RMS. Next Event
1115	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 C3 O14 O16 C2	* Set MAJOR FUNC To GNC For CRT #2 * 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	The First NC-1 Burn Is Performed
1116	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Burn Complete - Disable OMS Next Event
1120	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 C3 O14 O16 C2	* Set MAJOR FUNC To GNC For CRT #2 * 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	The First NC-2 Burn Is Performed
1121	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Burn Complete - Disable OMS
1122	Mission Dep.	Front Left Panel	F6	* Rotate Shuttle To Proper Attitude (Pitch/Roll) Joystick - RHC)	Maneuver Shuttle To Correct Attitude Target Attitude: Roll=0, Pitch=0, Yaw=90
1123	Mission Dep.	Aft Left Panel Aft Right Panel Aft Left Panel	A8L A6U A8U	* Set RMS POWER To PRIMARY * Set RMS SELECT To STBD * Set The STARBOARD RMS DEPLOY To DEPLOY * Set The STARBOARD RMS DEPLOY To OFF * Set RMS To PORT * Set RMS BRAKES To OFF * Set FLT CNTLR POWER To ON * Set END EFFECTOR MODE To AUTO	Begin Shuttle Inspection With The OBSS. Gain Manual Control Of The RMS.
1124	Mission Dep.	Aft Left Panel	A8L	* Set END EFFECTOR MODE To AUTO * Use The RMS To Grapple The OBSS	You Have Full Manual Control Of The RMS Arm. Align The End Effector With The OBSS Forward End Grapple Fixture. When The RMS Is In Position Press Enter POSITION - P Y R P: -090.0 Y: 000.0 R: 000.0 POSITION - X Y Z X: 0550 Y: 0099 Z: 0465 JOINT ANGLE YAW: -085.9 SHOULDER: 092.9 ELBOW: -131.4 WRIST PITCH: -051.5 WRIST YAW: 000.0 WRIST ROLL: 086.0





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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1125	Mission Dep.	Aft Left Panel	A8L	* Set RMS SELECT To STBD * Set The STARBOARD RMS Latch To RELEASE	Unlatch The OBSS
1126	Mission Dep.	Aft Left Panel	A8L	* Set The STARBOARD RMS Latch To OFF * Set RMS SELECT To PORT	Disable Latches & Regain RMS Control.
1127	Mission Dep.	Aft Right Panel	A8L	* Use The RMS To Inspect The Shuttle's Tiles	The Far End On The OBSS Contains A Laser Dynamic Range Imager (LDRI), A Laser Camera system (LCS), And An Intensified Television Camera (ITVC). Move The OBSS End Below The Shuttle And Thoroughly Inspect The Underside For Damage To The Heat Shield.
1128	Mission Dep.	Aft Right Panel	A8L	* Use The RMS To Return The OBSS To Its Latched Position.	The Tile Inspection Takes A Lot Of Time. To Keep Things Simple, We Consider The Tile Inspection Complete. Return The OBSS Back To Its Latched Position. Use The Same Coordinates As COMM 1124
1129	Mission Dep.	Aft Right Panel	A8L	* Set RMS SELECT To STBD * Set The STARBOARD RMS Latch To LATCH	The OBSS Is In The Latch Position, Latch The OBSS.
1130	Mission Dep.	Aft Right Panel	A8L	* Set The STARBOARD RMS Latch To OFF * Set RMS SELECT To PORT * Release The OBSS - Press Backspace	Set The Starboard RMS Latch To Off. Release The OBSS
1131	Mission Dep.	Aft Right Panel	A8L	* Stow The RMS	Return The RMS To Its Latched Position.
1132	Mission Dep.	Aft Right Panel Front Left Panel	A8L F6	* Set RMS POWER To OFF * Set RMS BRAKES To ON * Set FLT CNTLR POWER To ON	Heatshield Inspection Complete
1133	Mission Dep.	Aft Right Panel	A6L	* SYSTEM POWER (MN A & MN B) To ON * PSU POWER (MN A & MN B) To ON	Power Up The APDS
1134	Mission Dep.	Aft Right Panel	A7L	* Set CONTROL PANEL POWER (A - B - C) To ON * Set HEATERS DCU POWER (H1 - H2/DCU - H3/DCU) To ON * Set APDS POWER (ABS - BDS - CDS) To ON	Activate APDS Power Panel
1135	Mission Dep.	Aft Right Panel	A7L	* APDS Control Commands Press POWER ON * APDS Control Commands Press APDS CIRC PROT OFF * APDS Control Commands Press RING OUT	Extend APDS Capture Ring
1136	Mission Dep.	Center Panel	C2 C3 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	Perform NC Burn
1137	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	NC Burn Complete. Next Event
1140	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+1 EXEC (Aft Keypad) * Enter ITEM 12+1 EXEC (Aft Keypad)	Activate Star Trackers Target = International Space Station (ISS)
1141	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
1142	Mission Dep.	Right Aft Panel	R11L	* Press RESUME (Aft Keypad)	Star Trackers Are Configured Resume Closes Star Tracker Display Next Event
1145	Mission Dep.	Center Panel	C2 C3 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	Perform Final NC Burn
1146	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Burn Complete - Disable OMS Next Event
1147	Mission Dep.	Center Panel	C2 C3 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	Perform Terminal Initiation (TI) Burn
1148	Mission Dep.	Center Panel Front Left Panel	C3 F6	* Set OMS ENG (Left & Right) To OFF * Rotate Shuttle To Proper Attitude (Pitch/Roll) Joystick - RHC)	Burn Complete - Disable OMS <u>Maneuver Shuttle To Correct Attitude</u> Target Attitude: Roll=0, Pitch=0, Yaw=90
1149	Mission Dep.	Aft Right Panel	A2	* Use RCS Thrusters To Close On The ISS	The ISS 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 If You Are Impatient, Use Next Event



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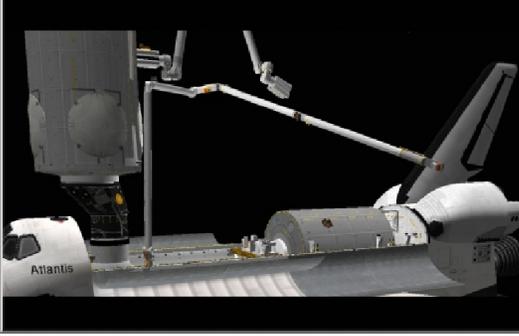
COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1150	Mission Dep.	Aft Right Panel	A2	* Use RCS Thrusters To Position The Shuttle	The ISS Is In Visual Range. Bring The Shuttle In Front Of, And About 600ft From ISS. The Shuttle Will Now Perform A Back Flip Maneuver That Allows ISS To Take Images Of The Shuttle's Heat Shield.
1151	Mission Dep.	Aft Right Panel	A2	* Use RCS Thrusters To Set The Closing Rate To Zero	Bring The Closing Rate Between The Shuttle And The ISS To Zero.
1152	Mission Dep.	Front Left Panel	F6	* Use RCS Thrusters To Pitch The Shuttle Up To 180 Degrees	Slowly Pitch The Shuttle Up To 180 Degrees Pitch Angle. The Correct Attitude Roll ROLL=180 PITCH=180 YAW=90
1153	Mission Dep.	Front Left Panel	F6	* Use RCS Thrusters To Pitch The Shuttle Up	Continue To Pitch The Shuttle Up Until You Complete The 180 Degree Maneuver. Digital Images Are Being Taken By The ISS Crew For Later Inspection By Ground Control. The Correct Alignment ROLL=0 PITCH=0 YAW=90
1160	Mission Dep.	Aft Left Panel Aft Right Panel	A7U A6U	* Set VIDEO INPUT To PL 1 * Set VIDEO OUTPUT To MON 1 * Set PAYLOAD BAY FLOOD DOCKING To BRIGHT * Set FLT CNTLR POWER To ON * Set SENSE To -Z * Set MANUAL MODE TRANSLATION To Y (LOW Z)	Carefully Translate The Shuttle Below The Destiny Lab And Dock With The PMA. Docking Will Be Fully Automatic Once The Shuttle's APDS Gets Close To Unity
1161	Mission Dep.				Contact, Active Damping Is Performed
1162	Mission Dep.				The Ring Aligned Command Is Issued & The Electromechanical Dampers Are Deactivated. An Automatic Ring In Command Activates The Fixers To Rigidize The System.
1163	Mission Dep.	Aft Left Panel	A7L	* APDS Control Commands Press POWER OFF * Set CONTROL PANEL POWER (A - B - C) To OFF * Set HEATERS DCU POWER (H1 - H2/DCU - H3/DCU) To OFF * Set APDS POWER (ABS - BDS - CDS) To OFF	Docking Complete, Disable The APDS
1164	Mission Dep.				After ODS Preparation, The Hatches Are Opened & The ISS And Shuttle Crews Finally Meet. Next Event
1170	Mission Dep.				The ISS/RMS will Now Move In And Capture The Center OBSS Grapple Fixture.
1171	Mission Dep.				The ISS/RMS Is Now Rigidizing.
1172	Mission Dep.	Aft Left Panel	A8L	* Set RMS POWER To PRIMARY * Set RMS SELECT To STBD * Set The STARBOARD RMS Latch To RELEASE	Power Up The Shuttle RMS And Unlatch The OBSS.
1173	Mission Dep.	Aft Left Panel	A8L	* Set The STARBOARD RMS Latch To OFF * Set RMS SELECT To PORT	Disable Latches And Gain RMS Control.
1174	Mission Dep.				The ISS/RMS Will Move The OBSS Into The Hand Over Position.
1175	Mission Dep.	Aft Right Panel Aft Left Panel	A6U A8U A8L	* Set FLT CNTLR POWER To ON * Set RMS BRAKE To OFF * Set RMS POWER To PRIMARY	Use The Shuttle RMS To Grapple The OBSS End Grapple Fixture. When The RMS Is In Position Press Enter
				<p><u>Use The RMS To Grapple The OBSS</u></p> 	<p>POSITION - P Y R P: -004.2 Y: 002.2 R: 094.4</p> <p>POSITION - X Y Z X: 0887 Y: -0255 Z: 0722</p> <p>JOINT ANGLE YAW: 026.1 SHOULDER: 081.4 ELBOW: -076.9 WRIST PITCH: -009.0 WRIST YAW: -023.8 WRIST ROLL: 096.6</p>



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1176	Mission Dep.	Aft Right Panel	A8L	* Use The RMS To Position The OBSS 	The OBSS Will Be Used To Keep An Eye On Columbus During Its Transfer To The Harmony Node. Mode The OBSS To The Designated Point Facing The Columbus Module. POSITION - P Y R P: 010.4 Y: -025.4 R: -106.7 POSITION - X Y Z X: 0713 Y: 0206 Z: 0694 JOINT ANGLE YAW: -066.0 SHOULDER: 084.4 ELBOW: -090.2 WRIST PITCH: 018.0 WRIST YAW: 039.5 WRIST ROLL: 094.2
1177	Mission Dep.				Everything Is Now Prepared For Tomorrow's Spacewalk. Next Event
1180	Mission Dep.	Right Aft Panel	R13L	* Set KU ANTENNA To STOW * Set KU ANTENNA To GND	Before The Columbus Module Is Moved To The ISS Attachment Point, The KU Antenna Must Be Stowed.
1181	Mission Dep.			* EV1	EV1 Emerges From The Airlock. Move EV1 To The Columbus Module To Remove The PCBM Seal Covers And Set Up The Power Data Grapple Fixture.
1182	Mission Dep.			* EV1 & EV2	EV2 Emerges From The Airlock. Move EV2 To The P1 Truss Segment To Prepare The Nitrogen Tank Assembly For Replacement.
1183	Mission Dep.			* EV1 & EV2	EV2 Begins Disconnecting The Nitrogen Lines On The Nitrogen Tank Assembly (NTA). Move EV1 To The NTA To Assist EV2.
1184	Mission Dep.			* EV1 & EV2	While EV1 And EV2 Complete The NTA Removal, The ISS/RMS Grapples Columbus.
1185	Mission Dep.			* EV1 & EV2	ISS/RMS Is Now Ridgizing
1186	Mission Dep.	Center Panel Aft Right Panel	C3 A6U	* PAYLOAD SAFING Switches (1-2-3-4-5) To NORM * PAYLOAD RETENTION LOGIC POWER (SYS 1) To ON	Now Release The Columbus Module From The Payload Bay.
1186	Mission Dep.	Aft Right Panel	A6U	* PAYLOAD SELECT Rotary Switch To 2 * PAYLOAD RETENSION LATCHES (1-2-3-4-5) To RELEASE	Now Release The Columbus Module From The Payload Bay.
1187	Mission Dep.	Aft Right Panel	A6U	* PAYLOAD RETENSION LATCHES (1-2-3-4-5) To OFF * PAYLOAD RETENTION LOGIC POWER (SYS 1) To OFF	Set All Retention Latches To Off.
1188	Mission Dep.			* EV1 & EV2	Columbus Is Ready For Mating With The ISS. Meanwhile EV1 & EV2 Disconnected The NTA Tank From The P1 Truss. Move EV2 To The ISS Airlock
1189	Mission Dep.			* EV1	Move EV1 To The ISS Airlock.
1190	Mission Dep.				The ISS/RMS Will Now Transfer And Mate The Columbus Module With The Harmony Module.
1191	Mission Dep.				Both Modules Are Joined And Secured. This Completes The First Spacewalk. Next Event
1195	Mission Dep.				Columbus Is Now Attached To Harmony And The ISS/RMS Will Now release Columbus And Move Away.
1196	Mission Dep.				Columbus Is Now ready For Operations. Next Event
1200	Mission Dep.			* EV1	EV1 Emerges From The Airlock. Move EV1 To The ISS/RMS End Effector To Mount A Foot Restraint.
1201	Mission Dep.			* EV1 & EV2	While EV1 Attaches The Foot Restraint, EV2 Emerges From The Airlock. Move EV1 And EV2 To The P1 Truss Where they Temporarily Stow The Old NTA On A CETA Cart.
1202	Mission Dep.			* EV1 & EV2	Move EV2 Down To The Payload Bay To Prepare The New NTA For Installation. The NTA Is Mounted Under The ICC Lite Cargo Carrier.
1204	Mission Dep.			* EV1 & EV2	ISS/RMS Moves EV1 To The Payload Bay To Grab The Replacement NTA.
1205	Mission Dep.			* EV1 & EV2	EV1 & EV2 Prepare The NTA For Transfer, EV1 Will then Carry The NTA To The P1 Truss.



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1206	Mission Dep.			* EV1 & EV2	Move EV2 To The P1 Truss To Assist EV1 With The Installation Of The New NTA.
1207	Mission Dep.			* EV1 & EV2	EV1 & EV2 Now Replace The NTA.
1208	Mission Dep.			* EV1 & EV2	EV1 Carries The Old NTA Back To The Shuttle Bay.
1209	Mission Dep.			* EV1 & EV2	Move EV2 To The Shuttle Payload Bay To Assist EV1 With The Attachment Of The Old NTA.
1210	Mission Dep.			* EV1 & EV2	EV1 & EV2 Finish Attaching The NTA To The Shuttle Payload Bay.
1211	Mission Dep.			* EV1 & EV2	EV1 Unmounts From The ISS/RMS. Move EV2 To The ISS Airlock.
1212	Mission Dep.			* EV1	Move EV1 To The ISS Airlock.
1213	Mission Dep.				The ISS/RMS Is Now Moved To A Parked Position.
1214	Mission Dep.				This Concludes The Second Spacewalk. Next Event
1220	Mission Dep.			* EV1	EV1 Emerges From The Airlock. The First Task For EVA-3 Is To Mount The SOLAR Experiment Pallet On The Columbus Module. Move EV1 To The SOLAR Pallet In The Shuttle Payload Bay.
1221	Mission Dep.			* EV1 & EV2	EV2 Emerges From The Airlock, Move EV2 To The Payload Bay To Assist EV1 With The Detachment Of The SOLAR Pallet.
1222	Mission Dep.			* EV1 & EV2	The SOLAR Pallet Is Now Detached From The Cargo Carrier.
1223	Mission Dep.			* EV1 & EV2	Move EV2 To The Aft External Experiment Platform On The Columbus Module To Receive The SOLAR Pallet.
1224	Mission Dep.			* EV1 & EV2	Move EV1, Carrying The SOLAR Pallet, To EV2 For Mounting.
1225	Mission Dep.			* EV1 & EV2	EV1 & EV2 Are Attaching And Connecting The SOLAR Pallet.
1230	Mission Dep.			* EV1 & EV2	Next Task Is To Move A Replaced Control Moment Gyroscope (CMG) From The ISS External Storage Platform, Located On The Z1 Truss To The Shuttle Bay. Move EV1 To The CMG On The ESP.
1231	Mission Dep.			* EV1 & EV2	Move EV2 To EV1 To Assist With The CMG Removal.
1232	Mission Dep.			* EV1 & EV2	Both Astronauts Detach The CMG From The Stowage Platform.
1233	Mission Dep.			* EV1 & EV2	Move EV2 To The Shuttle Payload Bay Where The CMG Will Be Placed On The Cargo Carrier.
1234	Mission Dep.			* EV1 & EV2	Move EV1, Carrying The CMG, To EV2 For Attachment To The Cargo Carrier
1235	Mission Dep.			* EV1 & EV2	Both Astronauts Attach The CMG To The Cargo Carrier.
1236	Mission Dep.			* EV1 & EV2	Move EV1 & EV1 To The EuTEF Pallet
1237	Mission Dep.			* EV1 & EV2	EV1 & EV2 Detach The EuTEF Pallet From The Cargo Carrier.
1238	Mission Dep.			* EV1 & EV2	Move EV2 To The Aft External Experiment Platform On Columbus To Receive The EuTFF Pallet.
1239	Mission Dep.			* EV1 & EV2	Move EV1, Carrying The EuTEF Pallet, To EV2 For Attachment To The Columbus Experiment Platform.
1240	Mission Dep.			* EV1 & EV2	Both Astronauts Attach The EuTEF Pallet To The Columbus Experiment Platform.
1241	Mission Dep.			* EV1 & EV2	This Concludes The STS-122 Mission. Move EV1 To The ISS Airlock.
1242	Mission Dep.			* EV2	Move EV2 To The ISS Airlock.
1243	Mission Dep.				The Final Spacewalk Is Now Complete. After Material And Oxygen Transfer, Sleep Period And Exchange Of ISS Personnel, The Shuttle Will Prepare For Undocking. Next Event
1250	Mission Dep.	Right Aft Panel	R13L	* Set KU ANTENNA To DEPLOY * Set KU ANTENNA To GND	Deploying The KU Antenna When The Talkback Indicates DEP, Set KU Antenna To GND



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	PANEL AREA & NOTES
1260	Mission Dep.	Aft Right Panel Aft Left Panel	A6L A7L	*VESTIBULE DEPRESS VALVE (SYS 1) VENT ISOL To OPEN *VESTIBULE DEPRESS VALVE (SYS 2) VENT ISOL To OPEN *VESTIBULE DEPRESS VALVE (SYS 1) VENT To OPEN *VESTIBULE DEPRESS VALVE (SYS 2) VENT To OPEN * Set CONTROL PANEL POWER (A - B - C) To ON * Set HEATERS CDU POWER (H1 - H2/DCU - H3/DCU) To ON * Set APDS POWER (ABS - BDS - CDS) To ON * APDS Control Commands Press POWER ON * APDS Control Commands Press APDS CIRC PROT OFF	After Closure Of All Hatches, The Docking Vestibule Is Depressurized.
1261	Mission Dep.	Aft Left Panel	A7L	* APDS STATUS Press UNDOCK COMPLETE (Lower Left)	Initiate Undock Sequence
1262	Mission Dep.	Aft Left Panel Front Left Panel Aft Left Panel Aft Right Panel	A8L F6 A7L A6L	* Set RMS POWER To OFF * Set FLT CNTLR POWER To ON * APDS Control Commands Press POWER OFF * Set CONTROL PANEL POWER (A - B - C) = OFF * Set HEATERS CDU POWER (H1 - H2/DCU - H3/DCU) = OFF * Set APDS POWER (ABS - BDS - CDS) = OFF * Docking System Power System Power (MN A & MN B) = OFF * Docking System Power PSU Power (MN A & MN B) = OFF	Disable RMS And Enable RCS Controls Deactivate APDS
1263	Mission Dep.	Center Panel Overhead Aft Panel Center Panel	C2 C3 O14 O16 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 * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Perform An OMS Separation Burn
1264	Mission Dep.	Center Panel	C3	* Set OMS ENG (Left & Right) To OFF	Burn Complete - Disable OMS
1269	Mission Dep.	Aft Left Panel Aft Right Panel	A8L A8U A6U	* Set RMS POWER To PRIMARY * Set RMS BRAKES To OFF * Set FLT CNTLR POWER To ON	A Final Heat Shield Inspection Is Performed Using The OBSS. Gain Manual Control Of The RMS.
1270	Mission Dep.	Aft Left Panel	A8L	* Use The RMS To Return The OBSS To Its Latched Position. Note: Use COMM 1124 For Correct Coordinates	The Tile Inspection Takes A Lot Of Time. To Keep Things Simple, We Consider The Tile Inspection Complete. Return The OBSS Back To Its Latched Position.
1271	Mission Dep.	Aft Left Panel	A8L	* Set RMS SELECT To STBD * Set The STARBOARD RMS Latch To LATCH	The OBSS Is In The Latch Position, Latch The OBSS.
1272	Mission Dep.	Aft Left Panel	A8L	* Set The STARBOARD RMS Latch To OFF * Set RMS SELECT To PORT * Release The OBSS - Press Backspace	Set The Starboard RMS Latch To Off. Release The OBSS
1274	Mission Dep.	Aft Left Panel	A8L	* Stow The RMS	Return The RMS To Its Latched Position.
1275	Mission Dep.	Aft Left Panel Front Left Panel	A8L F6	* Set RMS POWER To OFF * Set RMS BRAKES To ON * Set FLT CNTLR POWER To ON	That Completes The Heat Shield Checkout That Concludes STS-122 On Orbit Mission Next Event

Commence Deorbit & Landing



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DEORBIT & LANDING CHECKLIST

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
1000	Mission Dep.	Left Panel	L1	<ul style="list-style-type: none"> * 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 A1U R13L R11L	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	A8L A6U A8U	<ul style="list-style-type: none"> * Set RMS POWER To PRIMARY * Set RMS SELECT To PORT * Set FLT CNTLR POWER To ON * Set RMS BRAKES To OFF * 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.
1092	Mission Dep.	Aft Left Panel Front Left Panel	A8L F6	<ul style="list-style-type: none"> * 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 	Latch The RMS Wait Until Talkbacks Indicate (LAT) Wait Until Talkbacks Indicate (STO)
1093	Mission Dep.	Aft Left Panel	A7U	<ul style="list-style-type: none"> * Set All PAYLOAD BAY FLOOD Lights To OFF 	Turn Off All Payload Bay Flood Lights
1006	Mission Dep.	Right Aft Panel	R11L R13L R11L	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * 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	<ul style="list-style-type: none"> * Check HYDRAULICS BRAKE HEATER (A/B/C) Set To AUTO 	Final Switch Configuration Check



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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
1010	Mission Dep.	Overhead Aft Panel Center Panel Left Panel Aft Right Panel	O15 O14 O16 C3 L2 L1 L2 A12	* Set BRAKES MN B To ON * Set BRAKES MN A To ON * Set BRAKES MN C To ON * ORBITAL DAP / MANUAL MODE / ROTATION - ROLL To PRI * Check ORBITAL DAP / CONTROL To AUTO * Confirm ANTI SKID - Set To ON * Confirm NOSE WHEEL STEERING - Set To 1 * Confirm ENTRY MODE - Set To AUTO * Set FLASH EVAP CONTROLLER (PRI A & PRI B) To GPC * Set FLASH EVAP CONTROLLER SEC To GPC * 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 * 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	Final Switch Configuration Check
1012	Mission Dep.	Right Panel	R2	* Set He ISOLATION A LEFT/CENTER/RIGHT To OPEN * 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	Main Propulsion System / Helium Release
1013	Mission Dep.	Right Aft Panel	R11L	* Confirm MAJ FUNC Set To GNC * Enter SPEC 21 PRO (AFT Keypad) * Enter ITEM 16 EXEC	Final IMU Alignment
1014	Mission Dep.	Center Panel Right Panel Center Panel	C2 R2 C2	* Enter ITEM 34 EXEC (Right Keypad) * 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 * Confirm GIMBAL CK 34 On CRT 2 Is Complete (No Asterisk) * Enter OPS 302 PRO (Right Keypad)	Perform OMS Gimbal 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.
1015	Mission Dep.	Center Panel	C2	* Confirm (CRT 1, CRT 3, CRT 2) Are Set To MAJ FUNC GNC * Enter SPEC 50 PRO (Left Keypad) * Enter SPEC 51 PRO (Right Keypad) * Enter ITEM 44 EXEC (Right Keypad)	Horizontal Situation & Override Displays
1016	Mission Dep.	Center Panel Right Panel	C2 R2	* Press RESUME (Right Keypad) * Set APU OPERATE - START/RUN For APU 1	
1017	Mission Dep.	Center Panel Overhead Aft Center Panel	F7 C2 O14 O16 C3 C2	* Check CRT 1 Confirm Display Of OPS MODE 3021 * ITEM 22 EXEC (Right Keypad) * ITEM 27 EXEC (Right Keypad) * ITEM 23 EXEC (Right Keypad) * Confirm L OMS ENG VLV Is ON * Confirm R OMS ENG VLV Is ON * Set OMS ENG (LEFT & RIGHT) To ARM/PRESS * Press EXEC - (Right Keypad) Confirms ready for OMS burn	Perform Deorbit Burn
1018	Mission Dep.	Center Panel Overhead Aft Panel	C3 O14 O16	* Set OMS ENG (LEFT & RIGHT) To OFF * Set L OMS ENG VLV To OFF * Set R OMS ENG VLV To OFF	Deorbit Burn Complete
1020	Mission Dep.	Center Panel Front Left Panel	C2 F6	* Enter OPS 303 PRO (Right Keypad) * Position The Shuttle To The Correct Attitude	<u>Correct Attitude Hint</u> Align All ADI Needles
1022	Mission Dep.	Center Panel Right Panel Overhead Aft Panel Right Panel Center Panel	C2 R2 O17 R1 C2	* Enter ITEM 36 EXEC (Right Keypad) * Enter ITEM 37 EXEC (Right Keypad) * Set APU OPERATE - START/RUN For APU (2 & 3) * Set HYD MAIN PUMP PRESS (1/2/3) To NORM * Set ATVC - (1/2/3/4) To ON * Set AC BUS SNSR (1/2/3) To MONITOR * Enter ITEM 39 EXEC (Right Keypad)	Dump RCS Propellant Pressure Should Rise To 3000 psi
1023	Mission Dep.	Center Panel Overhead Right Panel Center Panel	C2 O8 C2	* Enter ITEM 38 EXEC (Right Keypad) * Enter ITEM 40 EXEC (Right Keypad) * Set FWD RCS - He PRESS (A & B) To CLOSE * Set TANK ISOLATION (1/2 & 3/4/5) To CLOSE * Set MANIFOLD ISOLATION (1/2/3/4/5) To CLOSE * Enter OPS 304 PRO (Right Keypad)	Wait Until The Cycle Completes



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DEORBIT & LANDING CHECKLIST

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COMM	MET	PANEL SECTION	PANEL	PROCEDURE	NOTES
1024	Mission Dep.	Front Left Panel Front Right Panel	F6 F8	* Set Commander ATTITUDE INRTL To LVLH * Set Pilot ATTITUDE INRTL To LVLH	
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	
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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SHUTDOWN CHECKLIST

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

