

S3 Countdown Checklist

T -1:39:00

Turn on commanders comm (Panel O5)

- Set XMIT ICOM MODE switches to VOX/VOX
- Set A/G (air to ground) 1 and 2
- Set A/A (air to air) to T/R (transmit and receive)
- Set ICOM (intercom) 1 and 2
- Set POWER to AUD/TONE

T -1:34:00

Turn on pilots comm (Panel O9)

- Set XMIT ICOM MODE switches to VOX/VOX
- Set A/G (air to ground) 1 and 2
- Set A/A (air to air) to T/R (transmit and receive)
- Set ICOM (intercom) 1 and 2
- Set POWER to AUD/TONE

T -1:20:00

Abort light on for 8 seconds (Panel F6)

T -1:10:00

Side hatch secured

T -1:05:00

Cabin leak check (Panel L2)

- Flip VENT ISOL Close
- Flip VENT Close

T -0:50:00

Pilot confirms IMU(InertialMeasurmentUnits) alignment

T -0:49:00

Boiler Checks (Panel R2)

- + BOILER POWER 1/2/3 ON
- + BOILER N2 1/2/3 ON
- + BOILER CNTLR/HTR 1/2/3 position A
- + WSB (WaterSprayBoilers) has been prestarted at T-8 hours

T -0:31:00

Backup flight control (Panel C3)

- BFC CRT DISPLAY to ON
- + BFC CRT SELECT to 3+1
- Key in ITEM 25 EXEC

T -0:30:00

OPS (Panel C3)

- Key in OPS 9 PRO

Cabin Vent (Panel L2)

- Flip VENT ISOL to Open
- Flip VENT to Open

T -0:25:00

Voice Check

T -0:21:00

Cabin Vent (Panel L2)

- Flip VENT ISOL to Close
- Flip VENT to Close

T -0:20:00

Load OPS 1 (Panel O3) Keypad

- Key in SPEC 99 PRO
- Key in OPS 101 PRO

T -0:16:00

Helium pressure of MPS (Panel R2)

- Set He ISOLATION A LEFT/CTR/RIGHT to OPEN
- Set He ISOLATION B LEFT/CTR/RIGHT to OPEN
- Set PNEUMATICS He ISOL to OPEN
- Set all six ENGINE POWER to ON

T -0:14:00

Abort light on for 8 seconds (Panel F6)

T -0:09:00

Hold Timer set (Panel C3)

- Set thumbwheel to 0900
- Flip TIMER to SET
- EVENT TIMER MODE DOWN
- Flip EVENT TIMER CONTROL to START

T -0:07:00

APU prestart checks (Panel R2)

- + APU FUEL TK VLV 1/2/3 CLOSED
- + APU AUTO SHUT DOWN 1/2/3 ENABLE
- + HYD MAIN PUMP PRESS 1/2/3 LOW
- + APU SPEED SELECT 1/2/3 NORM
- + HYD CIRC PUMP 1/2/3 GPC
- Set APU CNTLR PWR 1/2/3 ON

T -0:05:00

Start APU (Panel R2)

- Set APU FUEL TK VLV 1/2/3 OPEN
- Set HYD CIRC PUMP 1/2/3 OFF
- + APU/HYD READY TO START indicators GRAY
- Set APU OPERATE 1/2/3 START/RUN

MFD Display check (Panel F7)

- + HYD/APU MFD2 Meter 900psi

Raise hydraulic pressure 3000psi (Panel R2)

- HYD MAIN PUMP PRESS 1/2/3 NORM

T -0:04:30

External power disconnect

T -0:03:45

Gimbal check

T -0:02:50

External tank liquid oxygen vent closed

T -0:02:00

APU auto shut down inhibit (Panel R2)

- Set APU AUTO SHUT DOWN 1/2/3 to INHIBIT

Bus (Panel R1)

- Set AC BUS SNSR 1/2/3 to MONITOR

T -0:00:00

Lift off mission event timer begins

Mission Readiness Checklist

T+00:02:07

SRB separation (Panel F7) OPS CRT display

- + SRB combustion chamber pressure < 50psi

T+00:04:30

Negative return

T+00:08:41

MECO (Panel F7)

- + Main engine status lights are red

RCS Activation (Panel O8)

- FWD RCS He PRESS A/B to OPEN
- TANK ISOL. 1-2 / 3-4-5 to OPEN
- MANIFOLD ISOL. 1/2/3/4/5 to OPEN

T+00:09:00

External tank separation (Panel C3) normally automatic

- ET may be separated manually
- Shuttle is translated from the tank automatically
- MPS propellants is dumped automatically

T +ET Sep to OMS Burn

Prepare for the OMS burn

- Key in OPS 105 PRO
- Key in ITEM 22 EXEC
- + CSS buttons to AUTO (F6 or F8)
- + DAP to AUTO (C3)
- Key in ITEM 27 EXEC
- Set OMS ENG LEFT/RIGHT to ARM/PRESS (C3U)
- Set L OMS ENG VLV to ON (O14)
- Set the R OMS ENG VLV to ON (O16)

T +ET Sep to OMS Burn

Prepare for the OMS burn

- MNVR 27 clears off the CRT when manuever is finished
- Key in ITEM 23 EXEC (burn countdown)
- Body flap indicators turn off (F4 and F2)
- Set six ENGINE POWER to OFF (R2)
- He ISOLATION A LEFT/CTR/RIGHT to GPC
- He ISOLATION B LEFT/CTR/RIGHT to GPC
- PNEUMATIC He ISOL to GPC
- H2 PRESS LINE VENT to OPEN (R4)

Shut down the APUs

- + External tank umbilical doors are closed (R4)
- Set HYD MAIN PUMP PRESS 1/2/3 to LOW (R2)
- Set APU OPERATE 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 switches to OFF
- Set BOILER N2 SUPPLY 1/2/3 to OFF
- Set HYD CIRC PUMP 1/2/3 switches to GPC
- Set H2 PRESS LINE VENT to GND (R4)

OMS burn

- Press EXEC (C3 pilots keypad) to confirm the burn
- Pilots CRT2 [flashing exec]

T + After OMS Burn completed

Manual dump of the liquid hydrogen

- Set LH2 OUTBOARD valves to OPEN (R4)
- Set LH2 INBOARD FILL AND DRAIN valves to OPEN
- Set AC BUS SENSOR 1/2/3 to AUTO TRIP (R1R)

Lock down OMS

- Set OMS ENG LEFT/RIGHT to OFF. (C3U)
- Set L OMS ENG VLV to OFF(O14)
- Set R OMS ENG VLV to OFF (O16)

Turn off all main engine controllers

- Set ATVC 1/2/3/4 to OFF (O17)
- Set EIU LC/CR/RL to OFF
- Set MEC 1/2 to OFF
- Set MPS/TVC ISOL VLV SYS 1/2/3 to CLOSE (R4)

Terminate vacuum inerting of hydrogen

- Set LH2 OUTBOARD FILL AND DRAIN valve to GND (R4)

Orbiter manual control

- Set FLIGHT CNTRLR POWER to ON (F6L or F8L)

Rotate orbiter upright

- Roll orbiter 180 degrees (RotationalHandController)

Thermal conditioning of the orbiter

- Set BRAKE HEATERS A/B/C to ON (R4U)
- Set GAS GEN/FUEL PUMP 1/2/3 to A AUTO (A12)
- Set LUBE OIL LINE 1/2/3 to A AUTO
- Set TANK/FUEL LINE/H2O SYS 1/2/3 to A AUTO
- Set HYDRAULIC HEATERS RUDDER SPD BRK to A AUTO
- Set HYDRAULIC HEATERS BODY FLAP to A AUTO
- Set HYDRAULIC HEATERS ELEVON to A AUTO
- Set HYDRAULIC HEATERS AFT FUSELAGE to A AUTO
- Set FWD RCS to A AUTO (A14)
- Set LEFT OMS POD and RIGHT OMS POD to A AUTO
- Set OMS XFEED LINES to A AUTO

- Set FWD RCS JET 1/2/3/4/5 to AUTO
- Set AFT RCS JET 1/2/3/4/5 to AUTO
- One RMS HEATER for the port RMS arm (A8L)
- Set TOPPING EVAP NOZZLE HEATERS L/R to A AUTO (L2)
- Set DUCT and HILOAD DUCT heater knob to A/B

Backup flight control off (Panel C3)

- Set BFC CRT DISPLAY to OFF

Environmental system 2 close

- Set O2 SYS2 to CLOSE (L4L)
- Set N2 SYS2 to CLOSE
- Set N2 SYS2 REG INLET to CLOSE
- Set H2O LOOP 2 BYPASS MODE to AUTO

Rate Gyro Assembly (Panels O14U,O15U,O16U)

- Set RGA 1, RGA 2-3 and RGA 4 to OFF
- Set the DUMP ISOL VLV to OPEN (AFT R11L)

Initialize the on orbit phase of the mission

- Key in OPS 201 PRO (C3 keypad)

Enable the Star Trackers (O6U)

- Set STAR TRACKER POWER -Y/-Z to ON
- Set DOOR CONTROL SYS1/SYS2 to OPEN
- Indicators shows OP
- Set DOOR CTRL SYS 1/2 to OFF

Payload bay doors

- Key in OPS 202 PRO (RIGHT AFT R11L CRT)
- Set MAJ FUNC to SM
- Key in ITEM 3 EXEC [enable auto mode]
- Key in ITEM 1 EXEC [enable AC power]
- Set PL BAYDOOR SYS1/SYS2 to ENABLE (R13L)
- Set PL BAY DOOR to OPEN
- + Door indicator

Deploy cooling radiators

- Set PL BAY MECH POWER SYS1/SYS2 to ON (RIGHT AFTR13L)
- Set two RADIATOR LATCH SYSA/SYSB to release
- + When indicators REL
- Set two RADIATOR CONTROL SYSA/SYSB to DEPLOY

Deploy the Ku band antenna

- Set KU ANTENNA to DEPLOY (RIGHT AFT R13L)

Lock down

- Set all RADIATOR CONTROL to OFF (AFT R13L)
- Set all LATCH CONTROL to OFF
- Set PAYLOAD DOOR to STOP
- Set two PL BAY MECH POWER SYS1/SYS2 to OFF
- Set two PL BAYDOOR SYS1/SYS2 to DISABLE
- Key in ITEM 2 EXEC [disable AC power to the doors]
- Key in OPS 201 PRO [reenable on orbit mode]

Mission readiness complete

- Select MISSION COMMS on the ACTION menu