

Pre-Launch Checklist

COM	TIME	PROCEDURE
1	T-00:05:00	<u>Launch HOLD</u> CABIN DOOR to LATCH ENVIRONMENTAL SYSTEM O ₂ SYS to OPEN ENVIRONMENTAL SYSTEM N ₂ SYS to OPEN ENVIRONMENTAL SYSTEM H ₂ O LOOP to OPEN Key in ITEM Select A Key in DPS Select 1 (OPS 1) Key in EXEC BOILER CNTRL POWER (1/2/3) to ON BOILER CNTRL HTR (1/2/3) to ON BOILER N ₂ SUPPLY (1/2/3) to OPEN Key in DPS Select 2 (OPS 2) Key in EXEC

1 cont.		<p>PNEUMATIC He ISOL (LEFT/CENTER/RIGHT) to OPEN</p> <p>APU FUEL TNK VLV (1/2/3) to CLOSE</p> <p>APU SHUTDWN to ENABLE</p> <p>HYD MAIN PUMP PRESSURE (1/2/3) to LOW</p> <p>APU SPEED SELECT (1/2/3) to NORMAL</p> <p>HYD CIRC PUMP (1/2/3) to GPC</p> <p>APU MAIN POWER to ON</p> <p>APU CNTRL POWER (1/2/3) to ON</p> <p>APU MSTR VLV to OPEN</p> <p>APU FUEL TNK VLV (1/2/3) to OPEN</p> <p>APU /HYDRAULICS (1/2/3) to RUN</p> <p>HYD MAIN PUMP PRESSURE (1/2/3) to NORMAL</p> <p>HYD CIRC PUMP (1/2/3) to OFF</p> <p>Confirm central HUD is on and in <u>Orbit Earth</u> Mode.</p> <ul style="list-style-type: none">• <i>If needed</i> Select 0 (toggle until <u>Orbit</u>
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1 cont.		<p><u>Earth</u> HUD is visible)</p> <p>STAR TRACKER to ON</p> <p><i>C - <u>Request Go/ No Go for launch</u></i></p> <p>Initiate Launch Clock Restart when <u>Go</u> order received</p> <p>MAIN ENGINE POWER (LEFT/CENTER/RIGHT) to ENABLE</p> <p>N₂ CNTRL LEFT VLV (1/2) to ENABLE</p> <p>N₂ CNTRL RIGHT VLV (1/2) to ENABLE</p>
2	T-00:04:00	<p>PRIMARY SYSTEM RADAR to ON</p> <p>RATE GYRO ASSEMBLY (RG1/ RG2-3/ RG4) to ON</p> <p>INTERNAL SHUTTLE SYSTEM PWR (BAT A / BAT B) to ON</p>

2 Cont.		INTERNAL SHUTTLE SYSTEM POWER - INT PWR TRANSFER to ON
3	T-00:03:00	Key in DPS Select 3 (OPS 3) GLOBAL POSITIONING SYSTEM (GPS- 1/GPS-2/GPS-3) to ON
4	T-00:02:00	APU SHUTDWN to INHIBIT <i>Verify</i> SRB JETTISON is GPC <i>Verify</i> EXT TANK JETTISON is GPC
5	T-00:01:00	AC BUS SENSOR to AUTO INTERNAL SHUTTLE SYSTEM POWER - EXT PWR DISCONNECT to ON
6	T-00:00:04	Key in EXEC
7	T-00:00:00	

Ascent Checklist

COM	MET	PROCEDURE
8	T+00:00:20	Switch Left MFD back to Surface Mode Key in 9
9	T+00:00:44	
10	T+00:01:10	
11	T+00:02:05	<i>SRB Separation</i> FREON LOOP to OPEN H2O HX to OPEN AIR HX to OPEN
12	T+00:03:00	
13	T+00:04:20	
14	T+00:05:00	INTERNAL SHUTTLE SYSTEM PWR (BAT A / BAT B) to STANDBY
15	T+00:08:00	
16	T+00:08:55	<i>Main Engine Cutoff (MECO)</i>

Orbit Insertion Checklist (Post MECO)

COM	MET	Procedure
17	T+00:09:00	<p>FWD RCS He TANK ISOL (A/B) to OPEN</p> <p>AFT RCS LEFT He TANK ISOL (A/B) to OPEN</p> <p>AFT RCS RIGHT He TANK ISOL (A/B) to OPEN</p>
18	T+00:09:20	<p><i>Confirm</i> N₂ CNTRL VLV LEFT (1/2) are ENABLEd</p> <p><i>Confirm</i> N₂ CNTRL VLV RIGHT (1/2) are ENABLEd</p>
19	T+00:09:30	<p>FLT CNTRL PWR to INHIBIT</p> <p>ENGINE DAP to AUTO</p>
20	T+00:09:45	<p>MAIN ENGINE POWER (LEFT/CENTER/RIGHT) to OFF</p>
21	T+00:10:00	<p>HYD MAIN PUMP PRESSURE (1/2/3) to LOW</p> <p>APU/HYDRAULICS (1/2/3) to OFF</p> <p>APU SHUTDWN to ENABLE</p> <p>APU FUEL TNK VLV (1/2/3) to CLOSE</p>

21 cont.		APU MSTR VLV to CLOSE APU CNTRL POWER (1/2/3) to OFF APU MAIN POWER to OFF HYD CIRC PUMP (1/2/3) to GPC
22	T+00:10:30	DUMP ISOL VLV to OPEN H2 RECIRC VLV to OPEN H2 INBOARD VLV to OPEN H2 OUTBOARD VLV to OPEN PNEUMATIC He ISOL (LEFT/CENTER/RIGHT) to GPC O ₂ VENT LINE to OPEN O ₂ INBOARD VLV to OPEN O ₂ OUTBOARD VLV to OPEN
23	T+00:11:00 <u>approximate</u>	<i>Advise Mission Control when OMS Burn Initiated</i> BOILER N ₂ SUPPLY (1/2/3) to CLOSE BOILER CNTRL HEATER (1/2/3) to OFF BOILER CNTRL POWER (1/2/3) to OFF

24	T+00:12:00 <u>approximate</u>	H ₂ RECIRC VLV to CLOSE H ₂ INBOARD VLV to CLOSE H ₂ OUTBOARD VLV to CLOSE O ₂ VENT LINE to CLOSE O ₂ INBOARD VLV to CLOSE O ₂ OUTBOARD VLV to CLOSE DUMP ISOL VLV to CLOSE
25	T+00:14:00 <u>approximate</u>	AIR HX to GPC H ₂ O HX to GPC FREON LOOP to GPC
26	T+00:15:10 <u>approximate</u>	<i>Advise Mission Control when OMS Burn Complete</i> N ₂ CNTRL VLV LEFT (1/2) to DISABLE N ₂ CNTRL VLV RIGHT (1/2) to DISABLE AC BUS SENSOR to MONITOR
27	Mission Dependent	Confirm central HUD is on and set to <u>Orbit Earth</u> mode. <ul style="list-style-type: none"> If needed Select 0 (toggle until <u>Orbit Earth</u> HUD is visible) H ₂ RECIRC VLV to GPC

27 Cont.		<p>H₂ OUTBOARD VLV to GPC</p> <p>H₂ INBOARD VLV to GPC</p> <p>O₂ VENT LINE to GPC</p> <p>O₂ OUTBOARD VLV to GPC</p> <p>O₂ INBOARD VLV to GPC</p> <p>ENGINE DAP to MANUAL</p> <p>FLT CNTRL POWER to ENABLE</p> <p>RATE GYRO ASSEMBLY (RG1/ RG2-3/ RG4) to OFF</p> <p>Orient the shuttle to a zero attitude while using the <u>Kill Rotation</u> command (blue key 4) to stabilize the maneuver.</p>
28	Mission Dependent	<p>PAYLOAD BAY POWER to ON</p> <p>PAYLOAD BAY DOOR to OPEN</p> <p>RADIATORS to DEPLOY</p> <p>Ku ANTENNA to DEPLOY</p>

28 Cont.		
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De-Orbit Checklist

COM	MET	Procedure
29	Mission Dependent	STAR TRACKER to OFF Ku ANTENNA to STOW RADIATORS to STOW PAYLOAD BAY DOOR to CLOSE PAYLOAD BAY POWER to OFF
30	Mission Dependent	BOILER CNTRL POWER (1/2/3) to ON BOILER CNTRL HEATER (1/2/3) to ON BOILER N ₂ SUPPLY (1/2/3) to OPEN
31	Mission Dependent	<i>Position The Shuttle to The Correct Attitude – Retrograde</i> Key in 6 – Retrograde
32	Mission Dependent	DUMP ISOL VLV to OPEN PNEUMATIC He ISOL (LEFT/CENTER/RIGHT) to OPEN

33	Mission Dependent	APU MAIN POWER to ON APU CNTRL POWER (1/2/3) to ON APU MSTR VLV to OPEN APU FUEL TNK VLV (1/2/3) to OPEN APU SHUTDOWN to INHIBIT APU/HYDRAULICS (1/2/3) to RUN HYD MAIN PUMP PRESSURE (1/2/3) to LOW APU SPEED SELECT (1/2/3) to NORMAL HYD CIRC PUMP (1/2/3) to OFF
34	Mission Dependent	PNEUMATIC He ISOL (LEFT/CENTER/RIGHT) to CLOSE DUMP ISOL VLV to CLOSE N ₂ CNTRL VLV LEFT (1/2) to ENABLE N ₂ CNTRL VLV RIGHT (1/2) to ENABLE Engine Throttle to Maximum

35	Mission Dependent	Engine Throttle to OFF N ₂ CNTRL VLV LEFT (1/2) to DISABLE N ₂ CNTRL VLV RIGHT (1/2) to DISABLE
36	Mission Dependent	<i>Position The Shuttle to The Correct Attitude – Prograde</i> Key in 7 – Prograde
37	Mission Dependent	RE-ENTRY SYS CHECK to ON HYD MAIN PUMP PRESSURE (1/2/3) to NORMAL
38	Mission Dependent	FWD RCS He TANK ISOL (A/B) to CLOSE AFT RCS LEFT He TANK ISOL (A/B) to CLOSE AFT RCS RIGHT He TANK ISOL (A/B) to CLOSE
39	Mission Dependent	

Landing Checklist

COM	Altitude	Procedure
40	35 k	<i>Disengage RCS mode</i> Key in D LANDING SYS to ARM LANDING SYS CHECK to ON LANDING SYSTEM RADAR to ON
41	28 k	<i>(Lift takes affect)</i>
42	25 k	<i>P – <u>Announce: Kennedy VOR is Acquired</u></i> <i>P – <u>Announce Runway 15/33 ILS is Acquired</u></i>
43	2.5 k	GEAR to DEPLOY
44	0.5 k (500 m)	SPEED BRAKE to DEPLOY
45	Touchdown	DROGUE CHUTE to DEPLOY
46		
47		<i>End of Mission</i>