

AIRCRAFT AND SIMULATOR SETUP

1. Time / Weather / A/C Position **As Chosen**
 --- IF FLYING ON IVAO ---
 - a. A/C Position **Free of other traffic**
 - b. IVAO Pilot Client **Connect**
2. EFB > Home > Flight Details **Import Simbrief Flight Plan**
3. EFB > Ground Operations **Initiate Boarding**
4. Sidestick, Throttle, Rudders, External Monitor **Connected**
5. MSFS Pop-Out Panel Manager **As Desired, Start Pop-Out**

ELECTRICAL POWER UP

1. Battery **On**
2. C1 & C2 ELEC Hydraulic Pumps **Verify OFF**
3. Hydraulic Demand Pumps **Verify OFF**
4. Wipers **OFF**
5. LDG Gear **DOWN & Synchronized**
6. ALTN Flaps **OFF**
 --- Establish Electrical Power ---
7. L & R BUS TIE **AUTO**
 --- IF EXT PWR AVAIL ---
 - a. PRIMARY & SECONDARY EXT PWR **ON**
 - b. APU **ON****--- IF NO EXT PWR AVAIL ---**
 - c. APU **ON, then START**
8. PARKING BRAKE **SET**

OUTSIDE INSPECTION

1. Tires **Check Condition**
2. Brake Pins **Check not flush with boundary**
 --- IF MAINTANANCE REQUIRED ---
 - a. EFB > Ground Operations > Ground Maintenance **Perform**

PRELIMINARY PREFLIGHT PROCEDURE

1. Electrical Power Up **Completed**
2. ADIRU **ON**
3. EMER LIGHTS **Guard Closed**
4. LOWER EICAS Display **STAT page**
 - a. Hydraulic Quantities **Verify Sufficient (no RF)**
 - b. APU Oil QTY **Verify Sufficient (no RF)**
 - c. Messages **Only Expected**
5. LOWER EICAS Display **ENG page**
 - a. Oil QTY **Verify Sufficient**
 - b. Flight < 6h: ≥ 17
 - c. Flight > 6h: ≥ 20
6. UPPER EICAS **Only expected messages**
7. Oxygen **Test**
8. PREFLIGHT CHECKLIST **Completed**

FMC Setup

1. Menu > FMC > IDENT **Check Information Correct**
 - a. A/C Type
 - b. Engine Type
 - c. NAV DATA Cycle
2. POS INIT **Copy GPS Pos into Inertial Pos**
3. ROUTE > Route Request **Select desired route**
 - a. SET PAYLOAD
 - b. SET FUEL
4. SELECT RTE **Wait for Uplink**
 - a. ROUTE UPLINK **Load (Takes some time)**
 - b. ACTIVATE > EXEC
5. FS Actions **Set Desired PAX and CARGO**
6. DEP ARR **Enter Departure and Arrival**
 - a. Trans **LEGS > PREV PAGE until DISCONTINUITY, Last WP of route**
7. RTE **RTE COPY**
8. LEGS **Verify DEP, Route, and ARR correct**
 - a. SPEED CSTR without ALT CSTR will be missing from procedures
 - b. XYZ180/25 = From Waypoint XYZ on Radial 180 for 25 NM
9. LEGS > RTE DATA (ND not PLAN mode) **WIND DATA LOAD, then EXEC**
10. FMC COMM > UPLINK DES FORECAST **LOAD**
11. PROG **Compare shown ground distance to planned distance**
12. RTE page > NEXT PAGE **Compare Uplinked route to flight plan**
13. NAV RAD **Frequencies as desired**
14. FIX **Draw visual helpers**
 - a. MSA around aerodrome
 - b. Others according to procedures
15. VNAV **Check TA**
16. INIT REF > PERF INIT > PERF INIT DATA **ACCEPT**
 - a. Uplinks Reserves, Cruise Level, and Cost Index
 - b. Min Fuel Temp **Verify (JetA1 -44 C, JetA -37 C)**
 - c. CRZ CG can be left at 7.5% or set to 30%

COCKPIT PREPARATION

1. BROADBAND SYSTEM SWITCH	Guarded
2. ADIRU Switch	ON
3. THRUST ASYM COMP	AUTO
4. PRIMARY FLIGHT COMPUTERS	Guarded & OFF light extinguished
5. BATTERY	ON
6. IFE/PASS Switches	ON
7. APU GEN	ON
8. APU Switch	ON & OFF light extinguished
9. L & R BUS TIE	AUTO
10. EXT PWR	As Needed
11. GEN	ALL ON
a. DRIVE DISC Switches	Guarded & up
12. VOICE RECORDER	ON
13. EMER LIGHTS	Armed & Guarded
14. SERV ITPH	OFF
15. WINDOW HEAT	ON
16. RAM AUR Turbine SW	Guarded
17. HYD ENG PUMPS L & R	ON
a. Remaining Pumps	OFF
18. NO SMOKING / NO ELECTRONICS	AUTO
-- AFTER REFUELING COMPLETED --	
19. SEAT BELTS	ON
20. Flight Deck lights	As Needed
21. LANDING Lights	OFF
22. CARGO FIRE SW	Not Armed
a. DISC SW	Guarded
23. ENGINE EEC MODE	Norm & Guarded
24. START PANEL	Norm for both engines
a. AUTOSTART SW	ON
25. FUEL JETTISON NOZZLES	OFF & Guarded
a. FUEL TO REMAIN	Pushed In
b. ARM SW	Disarm

COCKPIT PREPARATION - CONTINUED

26. Fuel Pumps	OFF
a. CROSSFEED	OFF
b. L FWD pump feeds APU	
27. ANTI-ICE	AUTO
28. OUTSIDE Lights	
--- DAYLIGHT ---	
a. NAV	ON
b. IND LTS	BRT
--- NIGHT ---	
c. NAV & LOGO	ON
d. IND LTS	DIM
29. Other EXT lights	OFF
30. EQUIP COOLING	AUTO
31. GASPER	ON
32. RECIRC FANS	ON
33. FLT deck temp	As Desired
34. CABIN TEMP	12 o'clock position
35. L & R PACK SW	AUTO
36. TRIM AIR	ON
37. BLEED AIR ISOL VALVES	AUTO
38. L & R ENG BLEED	ON
39. APU BLEED	AUTO
40. PRESS OUTFLOW VALVES	AUTO
41. LANDING ALT SELECTOR	Pushed In
42. QNH	Set Local
43. ND	10 NM
44. TFC	Press
45. VOR / ADF	Displayed as needed
46. ARPT	Press
47. F/D	Both ON
48. A/T ARM	Both UP
--- DO NOT YET SET SPD, HDG, ALT ---	
49. BANK ANGLE SEL	AUTO

COCKPIT PREPARATION - CONTINUED

50. A/P DISENGAGE Bar	Up
51. ALT SELECTOR	AUTO
52. Display	CAPT DOORS, F/O CAMS (inop)
53. FWD PANEL BRIGHTNESS	all AUTO
54. SOURCE SELECT PANELS	all OFF
55. INBOARD DSPL	MFD
56. HDG REF	NORM
57. STBY Instrument	Set QNH
58. GND PROX	OFF & Guarded
59. ALT GEAR EXT	Guarded
60. GEAR LVR	DN
61. AUTOBRAKE	RTO
62. FMC Selector	AUTO
63. F/O INBOARD DSPL	MFD
64. DSPL CTRL SW	OFF
65. PARKING BREAK	Set
66. SPEED BRAKE	DOWN Detent
67. ALTN PITCH TRIM SW	Middle Position
68. STAB CUTOFF SW	Guarded
69. L & R FUEL CONTROL	CUTOFF
70. FLAP Selector	Matches FLAP Position
71. ALTN FLAPS	OFF & Guarded
72. Frequencies	As Required
a. L & R VHF	Turn On
b. L VHF	MIC
c. GAIN SW	12 o'clock position
73. Center Radio	Verify DATA active
74. ENG FIRE DISC SW	Both Pushed In
75. Center CDU	MENU > CAB INT or MENU > FS ACTIONS
76. AILERON & RUDDER Trim	Neutral

COCKPIT PREPARATION - CONTINUED

77. Transponder	ABV on both sides
a. Source Selector	NORM
b. XPNDR Selector	L
c. Squawk	Set
d. XPNDR Mode	STBY
78. EVAC COMMAND	Guarded
a. HORN SHUTOFF	Pushed In

TAKEOFF PERFORMANCE CALCULATION

1. Weather Information	Up To Date
a. LOWER EICAS > COMM > Flight Information > TWIP Request	
2. ZFW & TO CG	Up To Date
a. MENU > FS ACTIONS > PAYLOAD	
3. TO Performance	Calculate
a. EFB > Performance Tool > Take Off	
b. RWY Length	Verify Correct
4. FMC > THRUST LIM	Set
a. RTG (Take Off Rating)	Select
b. Sel Temp	Enter
c. D-TO N1	Check close to %N1 from Perf. Calc.
d. CLB Rating will match N1 (keep default selection)	
e. (CLB 1 = 10% reduction -> for 90% or more)	
5. PERF	Enter GR WT and ZFW
6. TAKEOFF	Enter Flaps & TO CG
a. V Speeds	Verify and Enter (EFB has precedence)
b. GR WT	Crosscheck
c. NEXT PAGE	Verify ACCEL HT
7. CAPT TAKEOFF page, F/O LEGS page	

BEFORE START

1. APU **Verify Running**
2. EXT PWR **Disconnect & Remove**
3. PARKING BRAKE **Verify Set**
4. Chocks **Removed**
5. GND Equipment & Vehicles **Released**
6. Doors **Closed & Armed**
7. MCP **Enter V2, RWY HDG, INIT CLIMB**
- IF ROUTING CAN BE FLOWN COMPLETELY VIA FMC ---**
- a. LNAV & VNAV **Activate**
8. GND Crew clear of aircraft **Pressurize Aircraft**
- a. R ELEC Demand Pump **AUTO**
- ONCE FAULT LIGHT EXTINGUISHED ---**
- b. Remaining Demand Pumps **ON**
- c. C1 & C2 ELEC Pumps **On**
9. FUEL PUMPS **ON**
- a. CENTER PUMPS only if EICAS message "FUEL in CTR"
10. TRIM **Set**
11. Transponder **XPNDR**
12. BEFORE START CHECKLIST **Completed**
13. Push and Start Clearance **As Required / Obtained**
14. Beacon **ON**
15. Off-Block Time **Noted**

PUSHBACK AND ENGINE START

1. Pushback **Follow Instructions**
2. LOWER EICAS **ENG page**
3. Engine L & R **Start**
- a. ENG START Selector **START**
- b. FUEL CUTOFF SW **RUN**
- c. Start Completed Once Red EGT Line Disappears

BEFORE TAXI

1. APU	OFF
2. ENG ANTI-ICE	As Required / ON
3. Flaps	TO
4. Flight Controls	Checked
5. BEFORE TAXI CHECKLIST	Completed
6. TAXI Lights	ON
7. RUNWAY TURNOFF Lights	ON
8. Taxi Clearance	As Required / Obtained
9. Brakes	Checked

--- AT HOLDING POINT ---

10. STROBE Light	ON
11. WXR & TERR	CAP & F/O
12. Transponder	TCAS TA/RA

--- IF FYLING ON IVAO ---

a. IVAO Pilot Client TCAS	ON & ALL
b. IVAO Pilot Client XPDR	Verify ALT & Squawk Correct
13. BEFORE TAKEOFF CHECKLIST	Completed
14. TAXI & TURNOFF Lights	OFF
15. Landing Lights	ON

-- CLEARED FOR TAKEOFF --

16. Start Time	Noted
17. Chronometer	ON

TAKEOFF

1. N1 **55% (extension of EGT gauge)**
--- ONCE ENGINES STABILIZED ---
2. TOGA **Push**
3. Forward column pressure until 80 kts
4. Rotate at around 2 - 2.5 degr (one stripe) per second until 15 degr pitch
5. Autopilot at 200ft AGL
 - a. 80 kts **HOLD**
 - b. 50 ft **LNAV**
 - c. 400 ft **VNAV**
6. LANDING GEAR (at positive rate of climb) **UP**

AFTER TAKEOFF

1. Flaps **Up according to speed**
2. ENG & WING Anti-Ice **AUTO**
3. AFTER TAKEOFF CHECKLIST **Completed**
4. Once TO Thrust Over **CHRONO Off**

CLIMB

1. VNAV page **Open**
2. HDG Bug **Synchronize**
--- ON PASSING TA ---
3. QNH **STD**
--- AT FL 100 ---
4. LANDING, RUNWAY TURNOFF, TAXI Lights **OFF**
5. SEATBELT Signs **AUTO**
6. 3000 ft to Climb **VS < 3000 ft/min**
 - a. 2000 ft < 2000 ft/min
 - b. 1000 ft < 1000 ft/min

CRUISE

1. TCAS **BLW**
2. Fuel Checks (at least every 60 min) **Perform**
 - a. current time inflight / fuel / fuel used (PROG page)
 - b. compare to nav log
 - c. compare totalizer & calculated at PROG page 2
3. Alternate Airports **Plan**
 - a. ALTN in FIX page results in special marking
4. STEP Climbs **Monitor / Perform**
 - a. VNAV page has step climb altitude and distance
 - b. keep distance of 700 - 1000 ft from MAX FL
 - c. OPT & MAX FL increase by 100 ft every 10-13 min
 - d. step climb based on RCMD FL
 - e. forecasted fuel might be inaccurate
 - f. step climb constrained: e.g. 370S will make fuel pred accurate again
5. Draw time marker on ND
 - a. FIX > ETA-ALT > TimeZ
6. Get time to WP
 - a. PROG > enter WP into DEST
7. Required Time At (RTA)
 - a. PROG > NEXT PAGE > NEXT PAGE > Enter WP > Enter RTA
8. SLOP
9. DIRECT TO on given course
 - a. ENTER WP as DIRECT > bottom right INTC CRS TO > enter course
10. TOD **Monitor**
 - a. BEFORE DESCEND
11. RECALL **Check for EICAS messages**
12. CHKL **Check for Notes**
13. DEST Weather **Check**
14. QNH **Preselect DEST QNH**
15. Arrival **Enter / Verify**

CRUISE - CONTINUED

16. Descend Wind Forecast	Request
a. FMC COMM > DES Forecast > Forecast Request	
b. TRL	Crosscheck
c. LOAD forecast uplink	
17. NAV AIDS	Enter / Confirm
18. Active Flight Plan	Copy to Secondary
a. RTE > PREV PAGE > RTE COPY	
19. Draw Markers for Arrival	As Required
20. Landing Weight	Calculate
a. PROG page, GW - (current fuel - predicted fuel at destination)	
21. Landing Speeds	Obtain
a. enter calculated landing weight (GW) at INIT REF page	
b. VREF add: half steady headwind + full gust	
22. Landing Performance	Calculate
23. AUTOBREAK	Set accordingly
24. Approach Minima	Get from Chart
a. B777-300ER is category D	
25. Approach Briefing	Perform
26. DESCEND CHECKLIST	Completed
27. MCP ALT	Set to descend target

DESCEND

1. VNAV Mode **Confirm VNAV PATH / as required**
 - a. VNAV page provides required descend rate
 - b. VNAV > OFFPATH descend blue idle PWR to RWY, white with S/B

--- ON PASSING FL 250 ---
2. SEATBELT Signs **ON**

--- ON PASSING FL 100 ---
3. Speed Brakes **Use to Decelerate to 250 kt**
4. LANDING, RUNWAY TURNOFF, TAXI Lights **ON**

--- ON PASSING TRL ---
5. QNH **Set Local**
6. APPROACH CHECKLIST **Completed**

ILS APPROACH

1. MCP Speed **Open and manual speed select**
2. Vicinity of Airport **Identify NAV AIDS**
3. 12 NM prior to RWY with 3000 ft, 200 kt

--- ON INTERCEPTING GS ---
4. Flaps **5**

--- AT 2500 FT ABOVE RWY THRESHOLD ---
5. LANDING GEAR **DOWN**
6. Flaps **20**
7. Speed Brake **Arm**
8. LANDING CHECKLIST **Completed**

--- CLEARED FOR APPROACH ---
9. APP mode **Activate**
10. On GS capture **Set Missed Approach Altitude**

RNAV APPROACH (using VNAV)

1. Database and Charts **Compare**
2. QNH **Verify Local**
3. Minimums **Verify**
4. APPROACH Mode **Activate**
 - a. via Flaps 1
 - b. When activated, MCP Speed Open will keep VNAV PATH mode active
--- AT 2 NM BEFORE FAF ---
5. MCP ALT **Set to Minimums**
--- ONCE 300 FT BELOW MISSED APPROACH ALTITUDE ---
6. MCP ALT **Set Missed Approach Altitude**
 - a. A/C will continue to descend
--- ONCE RWY IN SIGHT ---
7. A/P **OFF**
--- IF NO RW POINT IN FMC ---
 - a. FD **OFF**

LANDING

1. Stable approach at 1000 ft AGL
 - a. Speed (**VRef - 10, VRef + 10**)
 - b. LOC **Within 1 dot of deviation**
 - c. GS **Within 1 dot of deviation**
 - d. THRUST **At reasonable level**
 - e. Aircraft **In landing config**
--- AT 30 FT ---
2. Flare up 2-3 deg

AFTER LANDING

1. Speed Brake	Retracted
2. APU	Start
3. Anti-ICE	As Needed
4. LANDING & Strobe Lights	OFF
5. WXR & TERR	OFF
6. Autobreak	OFF
7. Flaps	UP
8. Transponder	XPNDR
9. Single Engine Taxi:	
a. 3 min after landing passed and 36% N1 or less	
b. Shutdown one engine	

--- ON ENTERING GATE AREA ---

10. TAXI and RUNWAY TURNOFF Lights	OFF
11. PARKING BRAKE	Set

SHUTDOWN

1. PARKING BRAKE	Verify Set
2. FUEL CONTROLS	CUTOFF
3. SEATBELT Signs	OFF
4. HYDRAULIC System	OFF
a. Shut down RIGHT side LAST	
5. Fuel Pumps	OFF
--- ONCE ENGINES BELOW 20% N2 ---	
6. BEACON Light	OFF
7. FD	OFF
8. Transponder	STBY
9. SHUTDOWN CHECKLIST	Completed
10. EICAS messages that do not disappear after 3 minutes	Note
11. EFB Ground Operations	Deboard
a. Doors	Disarm All, then Open