



Normal Procedures **Chapter NP**
Amplified Procedures **Section 21**

Preliminary Preflight Procedure – Captain or First Officer

The Preliminary Preflight Procedure assumes that the Electrical Power Up supplementary procedure is complete.

A full IRS alignment is recommended before each flight. If time does not allow a full alignment, do the Fast Realignment supplementary procedure.

IRS mode selectorsOFF, then NAV

Verify that the ON DC lights illuminate then extinguish.

Verify that the ALIGN lights are illuminated.

The UNABLE REQD NAV PERF-RNP message may show until IRS alignment is complete.

[Option]

VOICE RECORDER switchAs needed

Verify that the following are sufficient for flight:

- oxygen pressure
- hydraulic quantity
- engine oil quantity

Do the remaining actions after a crew change or maintenance action.

Maintenance documents Check

[Option]

FLIGHT DECK ACCESS SYSTEM switch Guard closed

Emergency equipment Check

Fire extinguisher – Checked and stowed

Crash axe – Stowed

Escape ropes – Stowed

Other needed equipment – Checked and stowed

PSEU light Verify extinguished

GPS light Verify extinguished

[Option - GLS]
ILS light Verify extinguished

[Option - GLS]
GLS light Verify extinguished

SERVICE INTERPHONE switch OFF

ENGINE panel Set

Verify that the REVERSER lights are extinguished.

Verify that the ENGINE CONTROL lights are extinguished.

EEC switches – ON

Oxygen panel Set

Note: PASSENGER OXYGEN switch activation causes deployment of the passenger oxygen masks.

PASSENGER OXYGEN switch - Guard closed

Verify that the PASS OXY ON light is extinguished.

Verify pressure meets dispatch requirements.

Landing gear indicator lights Verify illuminated

Flight recorder switch Guard closed

Circuit breakers (P6 panel) Check

Manual gear extension access door Closed

Circuit breakers (control stand, P18 panel) Check

Parking brake As needed

Set the parking brake if brake wear indicators will be checked during the exterior inspection.

CDU Preflight Procedure - Captain and First Officer

Start the CDU Preflight Procedure anytime after the Preliminary Preflight Procedure. The Initial Data and Navigation Data entries must be complete before the flight instrument check during the Preflight Procedure. The Performance Data entries must be complete before the Before Start Checklist.

The captain or first officer may make CDU entries. The other pilot must verify the entries.

Enter data in all the boxed items on the following CDU pages.

Enter data in the dashed items or modify small font items that are listed in this procedure. Enter or modify other items at pilot's discretion.

Failure to enter enroute winds can result in flight plan time and fuel burn errors.

Initial DataSet

IDENT page:

Verify that the MODEL is correct.

Verify that the ENG RATING is correct.

Verify that the navigation data base ACTIVE date range is current.

POS INIT page:

Verify that the time is correct.

Enter the present position on the SET IRS POS line. Use the most accurate latitude and longitude.

Navigation DataSet

ROUTE page:

Enter the ORIGIN.

Enter the route.

Enter the FLIGHT NUMBER.

Activate and execute the route.

DEPARTURES page:

Select the runway and departure routing.

Execute the runway and departure routing.

LEGS page:

Verify or enter the correct RNP for the departure.

Verify that the route is correct on the RTE pages. Check the LEGS pages as needed to ensure compliance with the flight plan.

Performance Data Set

PERF INIT page:

CAUTION: Do not enter the ZFW into the GW boxes. The FMC will calculate performance data with significant errors.

Enter the ZFW.

Verify that the FUEL on the CDU, the dispatch papers, and the fuel quantity indicators agree.

If refueling is not complete, enter the PLAN trip fuel as needed.

Verify that the fuel is sufficient for flight.

Verify that the gross weight and cruise CG (GW/CRZ CG) on the CDU and the dispatch papers agree.

Thrust mode display:

[Option - Aspirated TAT]

Verify that TO shows.

[Option - Non-aspirated TAT]

Verify that dashes are shown.

[Option - FMC U 10.1 and later]

N1 LIMIT page:

Select an assumed temperature, or a fixed derate takeoff, or both as needed.

Select a full or a derated climb thrust as needed.



[Option - FMC U 10.1 and later]

TAKEOFF REF page:

Make data entries on page 2/2 before page 1/2.

Enter the CG.

Verify that a trim value is shown.

Select or enter the takeoff V speeds.

[Option - FMC U10.8 and later, FCC Collins P4 and later or FCC Honeywell 710 and later, and CDS BP06 and later]

Verify or enter an acceleration height.

[Option - FMC U10.8 and later, FCC Collins P4 and later or FCC Honeywell 710 and later, and CDS BP06 and later]

Verify or enter an engine out acceleration height.

[Option – With automatic thrust reduction after takeoff]

Verify or enter a thrust reduction altitude.

Verify that the preflight is complete.

Exterior Inspection

Before each flight the captain, first officer, or maintenance crew must verify that the airplane is satisfactory for flight.

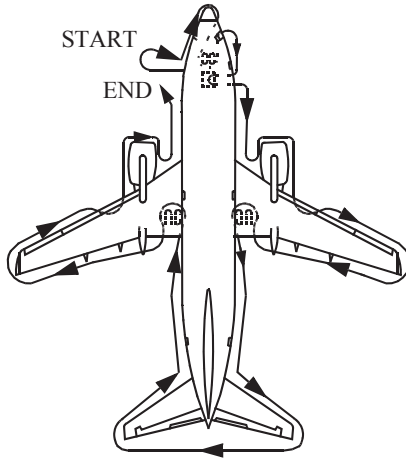
Items at each location may be checked in any sequence.

Use the detailed inspection route below to check that:

- the surfaces and structures are clear, not damaged, not missing parts and there are no fluid leaks
- the tires are not too worn, not damaged, and there is no tread separation
- the gear struts are not fully compressed
- the engine inlets and tailpipes are clear, the access panels are secured, the exterior is not damaged, and the reversers are stowed
- the doors and access panels that are not in use are latched
- the probes, vents, and static ports are clear and not damaged
- the skin area adjacent to the pitot probes and static ports is not wrinkled
- the antennas are not damaged
- the light lenses are clean and not damaged

For cold weather operations see the Supplementary Procedures.

Inspection Route



Left Forward Fuselage

- Probes, sensors, ports, vents, and drains (as applicable) Check
- Doors and access panels (not in use) Latched

Nose

- Radome Check
- Conductor straps - Secure
- Forward E and E door Secure

Nose Wheel Well

- Tires and wheels Check
- Exterior light Check
- Gear strut and doors Check
- Nose wheel steering assembly Check
- Nose gear steering lockout pin As needed
- Gear pin As needed

Nose wheel spin brake (snubbers) In place

Right Forward Fuselage

Probes, sensors, ports, vents, and drains (as applicable) Check

Oxygen pressure relief green disc In place

Doors and access panels (not in use) Latched

Right Wing Root, Pack, and Lower Fuselage

Ram air deflector door Extended

Pack and pneumatic access doors Secure

Probes, sensors, ports, vents, and drains (as applicable) Check

Exterior lights Check

Leading edge flaps Check

Number 2 Engine

Access panels Latched

Probes, sensors, ports, vents, and drains (as applicable) Check

Fan blades, probes, and spinner Check

Thrust reverser Stowed

Exhaust area and tailcone Check

Right Wing and Leading Edge

Access panels Latched

Leading edge flaps and slats Check

Fuel measuring sticks Flush and secure

Wing Surfaces Check

Fuel tank vent Check

Right Wing Tip and Trailing Edge

Position and strobe lights Check

Static discharge wicks Check

Aileron and trailing edge flaps Check

Right Main Gear

Tires, brakes and wheels Check

Verify that the wheel chocks are in place as needed.

If the parking brake is set, the brake wear indicator pins must extend out of the guides.

Gear strut, actuators, and doors Check

Hydraulic lines Secure

Gear pin As needed

Right Main Wheel Well

APU FIRE CONTROL handle Up

[Option]

NGS operability indicator light Check

Verify that the light is green.

Wheel well Check

Right Aft Fuselage

Doors and access panels (not in use) Latched

Negative pressure relief door Closed

Outflow valve Check

Probes, sensors, ports, vents, and drains (as applicable) Check

APU air inlet Open

Tail

Vertical stabilizer and rudder Check

Elevator feel probes Check

[737-800/900]

Tail skid Check

Verify that the tail skid is not damaged.

- Horizontal stabilizer and elevator Check
- Static discharge wicks Check
- Strobe light Check
- APU cooling air inlet and exhaust outlet Check

Left Aft Fuselage

- Doors and access panels (not in use) Latched
- Probes, sensors, ports, vents, and drains (as applicable) Check

Left Main Gear

- Tires, brakes and wheels Check
- Verify that the wheel chocks are in place as needed.
- If the parking brake is set, the brake wear indicator pins must extend out of the guides.

- Gear strut, actuators, and doors Check
- Hydraulic lines Secure
- Gear pin As needed

Left Main Wheel Well

- Wheel well Check
- Engine fire bottle pressure Check

Left Wing Tip and Trailing Edge

- Aileron and trailing edge flaps Check
- Static discharge wicks Check
- Position and strobe lights Check

Left Wing and Leading Edge

- Fuel tank vent Check
- Wing Surfaces Check

-
- Fuel measuring sticks Flush and secure
 - Leading edge flaps and slats Check
 - Access panels Latched

Number 1 Engine

- Exhaust area and tailcone Check
- Thrust reverser Stowed
- Fan blades, probes, and spinner Check
- Probes, sensors, ports, vents, and drains (as applicable) Check
- Access panels Latched

Left Wing Root, Pack, and Lower Fuselage

- Leading edge flaps Check
- Probes, sensors, ports, vents, and drains (as applicable) Check
- Exterior lights Check
- Pack and pneumatic access doors Secure
- Ram air deflector door Extended

Preflight Procedure – First Officer

The first officer normally does this procedure. The captain may do this procedure as needed.

- Flight control panel Check

FLIGHT CONTROL switches – Guards closed

Verify that the flight control LOW PRESSURE lights are illuminated.

Flight SPOILER switches – Guards closed

YAW DAMPER switch – ON

Verify that the YAW DAMPER light is extinguished.



Verify that the standby hydraulic LOW QUANTITY light is extinguished.

Verify that the standby hydraulic LOW PRESSURE light is extinguished.

[Option - RSEP airplanes]

Verify that the STBY RUD ON light is extinguished.

ALTERNATE FLAPS master switch – Guard closed

ALTERNATE FLAPS position switch – OFF

Verify that the FEEL DIFF PRESS light is extinguished.

Verify that the SPEED TRIM FAIL light is extinguished.

Verify that the MACH TRIM FAIL light is extinguished.

Verify that the AUTO SLAT FAIL light is extinguished.

NAVIGATION panelSet

VHF NAV transfer switch – NORMAL

IRS transfer switch – NORMAL

[Option]

FMC transfer switch – NORMAL

DISPLAYS panelSet

SOURCE selector – AUTO

CONTROL PANEL select switch – NORMAL

Fuel panelSet

Verify that the ENG VALVE CLOSED lights are illuminated dim.

Verify that the SPAR VALVE CLOSED lights are illuminated dim.

Verify that the FILTER BYPASS lights are extinguished.

CROSSFEED selector – Closed

Verify that the VALVE OPEN light is extinguished.

FUEL PUMP switches – OFF

Verify that the center tank fuel pump LOW PRESSURE lights are extinguished.

Verify that the main tank fuel pump LOW PRESSURE lights are illuminated.

Electrical panel Set

BATTERY switch – Guard closed

[Option]

CAB/UTIL power switch – ON

[Option]

IFE/PASS SEAT power switch – ON

STANDBY POWER switch – Guard closed

Verify that the STANDBY PWR OFF light is extinguished.

Verify that the BAT DISCHARGE light is extinguished.

Verify that the TR UNIT light is extinguished.

Verify that the ELEC light is extinguished.

Generator drive DISCONNECT switches – Guards closed

Verify that the DRIVE lights are illuminated.

BUS TRANSFER switch – Guard closed

Verify that the TRANSFER BUS OFF lights are extinguished.

Verify that the SOURCE OFF lights are extinguished.

Verify that the GEN OFF BUS lights are illuminated.

Overheat and fire protection panel Check

Do this check if the flight crew did not do the Electrical Power Up supplementary procedure. This check is needed once per flight day.

Verify that the engine No. 1, APU, and engine No. 2 fire switches are in.



Alert ground personnel before the following test is accomplished:

OVERHEAT DETECTOR switches – NORMAL

TEST switch – Hold to FAULT/INOP

Verify that the MASTER CAUTION lights are illuminated.

Verify that the OVHT/DET annunciator is illuminated.

Verify that the FAULT light is illuminated.

If the FAULT light fails to illuminate, the fault monitoring system is inoperative.

Verify that the APU DET INOP light is illuminated.

Do not run the APU if the APU DET INOP light does not illuminate.

Note: The fire warning light flashes and the horn sounds on the APU ground control panel when this test is done with the APU running. This can be mistaken by the ground crew as an APU fire.

TEST switch – Hold to OVHT/FIRE

Verify that the fire warning bell sounds.

Verify that the master FIRE WARN lights are illuminated.

Verify that the MASTER CAUTION lights are illuminated.

Verify that the OVHT/DET annunciator is illuminated.

Master FIRE WARN light – Push

Verify that the master FIRE WARN lights are extinguished.

Verify that the fire warning bell cancels.

Verify that the engine No. 1, APU and engine No. 2 fire switches stay illuminated.

Verify that the ENG 1 OVERHEAT and ENG 2 OVERHEAT lights stay illuminated.

Verify that the WHEEL WELL light stays illuminated.

EXTINGUISHER TEST switch – Check

TEST switch – Position to 1 and hold.

Verify that the three green extinguisher test lights are illuminated.

TEST switch – Release

Verify that the three green extinguisher test lights are extinguished.

Repeat for test position 2.

APU switch (as needed) START

Note: If extended APU operation is needed on the ground, position an AC operated fuel pump ON. If fuel is loaded in the center tank, position the left center tank fuel pump switch ON to prevent a fuel imbalance before takeoff.

CAUTION: Center tank fuel pump switches should be positioned ON only if the fuel quantity in the center tank exceeds 453kgs/1000 lbs.

CAUTION: Do not operate the center tank fuel pumps with the flight deck unattended.

[Option - Without DC Operated APU Fuel Pump]

Note: Whenever the APU is operating and AC electrical power is on the airplane busses, operate at least one fuel boost pump to supply fuel under pressure to the APU to extend the service life of the APU fuel control unit.

When the APU GEN OFF BUS light is illuminated:

APU GENERATOR bus switches – ON

Verify that the SOURCE OFF lights are extinguished.

Verify that the TRANSFER BUS OFF lights are extinguished.

[Option]

Lavatory SMOKE light Verify extinguished

EQUIPMENT COOLING switches NORM

Verify that the OFF lights are extinguished.

EMERGENCY EXIT LIGHTS switch.....Guard closed

Verify that the NOT ARMED light is extinguished.

Passenger signsSet

NO SMOKING switch – AUTO or ON

FASTEN BELTS switch – AUTO or ON

Windshield WIPER selectors PARK

Verify that the windshield wipers are stowed.

WINDOW HEAT switches ON

Position switches ON at least 10 minutes before takeoff.

Verify that the OVERHEAT lights are extinguished.

[Option]

Verify that the ON lights are illuminated (except at high ambient temperatures.)

[Option]

Verify that the OFF lights are extinguished (except at high ambient temperatures.)

PROBE HEAT switches OFF

Verify that all lights are illuminated.

WING ANTI-ICE switch OFF

Verify that the VALVE OPEN lights are extinguished.

[Option]

Verify that the ICE DETECTOR light is extinguished.

ENGINE ANTI-ICE switches OFF

Verify that the COWL ANTI-ICE lights are extinguished.

Verify that the COWL VALVE OPEN lights are extinguished.

Hydraulic panel.....Set

ENGINE HYDRAULIC PUMPS switches – ON

Verify that the LOW PRESSURE lights are illuminated.

ELECTRIC HYDRAULIC PUMPS switches – OFF

Verify that the OVERHEAT lights are extinguished.

Verify that the LOW PRESSURE lights are illuminated.

[Option]

High altitude landing switch As needed

Verify that the INOP light is extinguished

Air conditioning panel Set

AIR TEMPERATURE source selector – As needed

[737-800/900]

TRIM AIR switch – ON

[737-600/700]

Verify that the DUCT OVERHEAT lights are extinguished.

[737-800/900]

Verify that the ZONE TEMP lights are extinguished.

Temperature selectors – As needed

Verify that the RAM DOOR FULL OPEN lights are illuminated.

[737-600/700]

RECIRCULATION FAN switch – AUTO

[737-800/900]

RECIRCULATION FAN switches – AUTO

Air conditioning PACK switches – AUTO or HIGH

ISOLATION VALVE switch – OPEN

Engine BLEED air switches – ON

APU BLEED air switch – ON

Verify that the DUAL BLEED light is illuminated.

[737-600/700]

Verify that the PACK TRIP OFF lights are extinguished.

[737-800/900]

Verify that the PACK lights are extinguished.

Verify that the WING–BODY OVERHEAT lights are extinguished.

Verify that the BLEED TRIP OFF lights are extinguished.

Cabin pressurization panelSet

Verify that the AUTO FAIL light is extinguished.

Verify that the OFF SCHED DESCENT light is extinguished.

FLIGHT ALTITUDE indicator – Cruise altitude

LANDING ALTITUDE indicator – Destination field elevation

Pressurization mode selector – AUTO

Verify that the ALTN light is extinguished.

Verify that the MANUAL light is extinguished.

Lighting panelSet

LANDING light switches – RETRACT and OFF

RUNWAY TURNOFF light switches – OFF

TAXI light switch – OFF

Ignition select switch IGN L or R

Alternate the ignition select switch position on subsequent starts.

[Without automatic ignition]

ENGINE START switches OFF

[Automatic ignition]

ENGINE START switchesAUTO

Lighting panelSet

[Option]

LOGO light switch – As needed

POSITION light switch – As needed

ANTI-COLLISION light switch – OFF

WING illumination switch – As needed

WHEEL WELL light switch – As needed

Mode control panel Set

COURSE(S) – Set

FLIGHT DIRECTOR switch – ON

Move the switch for the pilot flying to ON first.

EFIS control panel Set

MINIMUMS reference selector – RADIO or BARO

MINIMUMS selector – Set decision height or altitude reference

[Option]

FLIGHT PATH VECTOR switch – As needed

METERS switch – As needed

BAROMETRIC reference selector – IN or HPA

BAROMETRIC selector – Set local altimeter setting

VOR/ADF switches – As needed

Mode selector – MAP

CENTER switch – As needed

Range selector – As needed

TRAFFIC switch – As needed

WEATHER RADAR – Off

Verify that the weather radar indications are not shown on the
MAP.

Map switches – As needed

Oxygen Test and set

[Chemical passenger oxygen]

Crew oxygen pressure – Check

Verify that the pressure is sufficient for dispatch.

Oxygen mask – Stowed and doors closed

RESET/TEST switch – Push and hold

Verify that the yellow cross shows momentarily in the flow indicator.

EMERGENCY/Test selector – Push and hold

Continue to hold the RESET/TEST switch down and push the EMERGENCY/Test selector for 5 seconds. Verify that the yellow cross shows continuously in the flow indicator.

Verify that the crew oxygen pressure does not decrease more than 100 psig.

If the oxygen cylinder valve is not in the full open position, pressure can:

- decrease rapidly, or
- decrease more than 100 psig, or
- increase slowly back to normal.

Release the RESET/TEST switch and the EMERGENCY/Test selector. Verify that the yellow does not show in the flow indicator.

Normal/100% switch – 100%

[Option - Electronic Flight Bag]

ELECTRONIC FLIGHT BAGSet

ClockSet

Display select panelSet

MAIN PANEL DISPLAY UNITS selector – NORM

LOWER DISPLAY UNIT selector – NORM

TAKEOFF CONFIG light

(if installed and operative) Verify extinguished

CABIN ALTITUDE light
(if installed and operative) Verify extinguished

Disengage light TEST switch Hold to 1

Verify that the A/P light is illuminated steady amber.

Verify that the A/T light is illuminated steady amber.

Verify that the FMC light is illuminated steady amber.

Disengage light TEST switch Hold to 2

Verify that the A/P light is illuminated steady red.

Verify that the A/T light is illuminated steady red.

Verify that the FMC light is illuminated steady amber.

Do the Initial Data and Navigation Data steps from the CDU Preflight Procedure and verify that the IRS alignment is complete before checking the flight instruments.

Flight instruments Check

Verify that the flight instrument indications are correct.

Verify that only these flags are shown:

- TCAS OFF
- NO VSPD until V-speeds are selected
- expected RMI flags

Verify that the flight mode annunciations are correct:

- autothrottle mode is blank
- roll mode is blank
- pitch mode is blank
- AFDS status is FD

Select the map mode.

[Option]
BRAKE TEMP light Verify extinguished

GROUND PROXIMITY panel Check



FLAP INHIBIT switch – Guard closed

GEAR INHIBIT switch – Guard closed

TERRAIN INHIBIT switch – Guard closed

Verify that the INOP light is extinguished.

Landing gear panelSet

LANDING GEAR lever – DN

Verify that the green landing gear indicator lights are illuminated.

Verify that the red landing gear indicator lights are extinguished.

AUTO BRAKE select switch RTO

Verify that the AUTO BRAKE DISARM light is extinguished

ANTISKID INOP light Verify extinguished

Engine display control panelSet

N1 SET selector – AUTO

SPEED REFERENCE selector – AUTO

FUEL FLOW switch – RATE

Move switch to RESET, then RATE.

Engine instruments Check

Verify that the primary and secondary engine indications show existing conditions.

Verify that no exceedance is shown.

[Option]

Verify that the hydraulic quantity indications do not show RF.

[Option - Fail Operational airplanes]

MFD Cancel/Recall switch – Push

Verify that the autoland status advisory messages are not shown.

CARGO FIRE panel Check

This check is needed once per flight day or following a flight crew change.

DETECTOR SELECT switches – NORM

TEST switch – Push

Verify that the fire warning bell sounds.

Verify that the master FIRE WARN lights are illuminated.

Master FIRE WARN light – Push

Verify that the master FIRE WARN lights are extinguished.

Verify that the fire warning bell cancels.

Verify that the FWD and AFT lights stay illuminated.

Verify that the DETECTOR FAULT light stays extinguished.

Verify that the green EXTINGUISHER test lights stay illuminated.

Verify that the DISCH light stays illuminated.

[Option]

HUD system As needed

[Option]

Radio tuning panel Set

**WARNING: Do not key HF radio while airplane is being fueled.
Injury to personnel or fire may result.**

Verify that the OFF light is extinguished.

[Option]

VHF communications radios Set

VHF NAVIGATION radios Set for departure

Audio control panel Set

ADF radios Set

WEATHER RADAR panel Set

Transponder panel Set

STABILIZER TRIM override switchGuard closed

WARNING: Do not put objects between the seat and the aisle stand. Injury can occur when the seat is adjusted.

Seat Adjust

Adjust the seat for optimum eye reference.

Verify a positive horizontal (fore and aft) seat lock.

Rudder pedals Adjust

Adjust the rudder pedals to allow full rudder pedal and brake pedal movement.

Seat belt and shoulder harness Adjust

Do the PREFLIGHT checklist on the captain's command.

Preflight Procedure – Captain

The captain normally does this procedure. The first officer may do this procedure if needed.

Lights Test

Master LIGHTS TEST and DIM switch – TEST

The fire warning lights are not checked during this test. Use individual test switches or push to test features to check lights which do not illuminate during the light test. Use scan flow to verify that all other lights are flashing or illuminated. Verify that all system annunciator panel lights are illuminated.

Master LIGHTS TEST and DIM switch – As needed

EFIS control panel Set

MINIMUMS reference selector – RADIO or BARO

MINIMUMS selector – Set decision height or altitude reference

[Option]

FLIGHT PATH VECTOR switch – As needed

METERS switch – As needed

BAROMETRIC reference selector – IN or HPA

BAROMETRIC selector – Set local altimeter setting

VOR/ADF switches – As needed

Mode selector – MAP

CENTER switch – As needed

Range selector – As needed

TRAFFIC switch – As needed

WEATHER RADAR – Off

Verify that the weather radar indications are not shown on the
MAP.

Map switches – As needed

Mode control panel Set

COURSE(S) – Set

FLIGHT DIRECTOR switch – ON

Move the switch for the pilot flying to ON first.

Bank angle selector – As needed

Autopilot DISENGAGE bar – UP

Oxygen Test and set

[\[Chemical passenger oxygen\]](#)

Crew oxygen pressure – Check

Verify that the pressure is sufficient for dispatch.

Oxygen mask – Stowed and doors closed

RESET/TEST switch – Push and hold

Verify that the yellow cross shows momentarily in the flow
indicator.

EMERGENCY/Test selector – Push and hold

Continue to hold the RESET/TEST switch down and push the EMERGENCY/Test selector for 5 seconds. Verify that the yellow cross shows continuously in the flow indicator.

Verify that the crew oxygen pressure does not decrease more than 100 psig.

If the oxygen cylinder valve is not in the full open position, pressure can:

- decrease rapidly, or
- decrease more than 100 psig, or
- increase slowly back to normal.

Release the RESET/TEST switch and the EMERGENCY/Test selector. Verify that the yellow does not show in the flow indicator.

Normal/100% switch – 100%

[\[Option - Electronic Flight Bag\]](#)

ELECTRONIC FLIGHT BAGSet

ClockSet

NOSE WHEEL STEERING switchGuard closed

Display select panelSet

MAIN PANEL DISPLAY UNITS selector – NORM

LOWER DISPLAY UNIT selector – NORM

TAKEOFF CONFIG light
(if installed and operative) Verify extinguished

CABIN ALTITUDE light
(if installed and operative) Verify extinguished

Disengage light TEST switchHold to 1

Verify that the A/P light is illuminated steady amber.

Verify that the A/T light is illuminated steady amber.

Verify that the FMC light is illuminated steady amber.

Disengage light TEST switchHold to 2

Verify that the A/P light is illuminated steady red.

Verify that the A/T light is illuminated steady red.

Verify that the FMC light is illuminated steady amber.

STAB OUT OF TRIM light Verify extinguished

Do the Initial Data and Navigation Data steps from the CDU Preflight Procedure and verify that the IRS alignment is complete before checking the flight instruments.

Flight instruments Check

Verify that the flight instrument indications are correct.

Verify that only these flags are shown:

- TCAS OFF
- NO VSPD until V-speeds are selected
- expected RMI flags

Verify that the flight mode annunciators are correct:

- autothrottle mode is blank
- roll mode is blank
- pitch mode is blank
- AFDS status is FD

Select the map mode.

[Option]

Standby instruments Check

Standby horizon – Set

Gyro caging control – Pull, then release

Approach mode selector – As needed

Verify that the flight instrument indications are correct.

Verify that no flags are shown.

Standby altimeter – Set

Verify that the flight instrument indications are correct.

Verify that no flags are shown.

[Option]
Integrated standby flight displaySet

Verify that the approach mode display is blank.

Set the altimeter.

Verify that the flight instrument indications are correct.

Verify that no flags or messages are shown.

[Option]
Standby RMISet

Select either VOR or ADF.

SPEED BRAKE leverDOWN detent

Verify that the SPEED BRAKE ARMED light is extinguished.

Verify that the SPEED BRAKE DO NOT ARM light is extinguished.

Verify that the SPEEDBRAKES EXTENDED light is extinguished.

Reverse thrust levers Down

Forward thrust leversClosed

FLAP leverSet

Set the flap lever to agree with the flap position.

[Option]

Verify that the FLAP LOAD RELIEF light is extinguished.

Parking brakeSet

Verify that the parking brake warning light is illuminated

Note: Do not assume that the parking brake will prevent airplane movement. Accumulator pressure can be insufficient.

Engine start levers CUTOFF

STABILIZER TRIM cutout switches NORMAL

[Option]
HUD system As needed

[Option]

Radio tuning panel Set

WARNING: Do not key the HF radio when the airplane is being refueled. Injury to personnel or fire can occur.

Verify that the OFF light is extinguished.

[Option]

VHF communications radios Set

VHF NAVIGATION radios Set for departure

Audio control panel Set

WARNING: Do not put objects between the seat and the aisle stand. Injury can occur when the seat is adjusted.

Seat Adjust

Adjust the seat for optimum eye reference.

Verify a positive horizontal (fore and aft) seat lock.

Rudder pedals Adjust

Adjust the rudder pedals to allow full rudder pedal and brake pedal movement.

Seat belt and shoulder harness Adjust

Call "PREFLIGHT CHECKLIST."

Before Start Procedure

Start the Before Start Procedure after papers are on board.

Flight deck door Closed and locked F/O

Verify that the LOCK FAIL light is extinguished.

Do the CDU Preflight Procedure – Performance Data steps before completing this procedure.

CDU display Set C, F/O

Normally the PF selects the TAKEOFF REF page.

Normally the PM selects the LEGS page.

N1 bugs Check C, F/O

Verify that the N1 reference bugs are correct.

IAS bugs Set C, F/O

[Option - EFIS/MAP]

Verify that the speed bugs are at V1, VR, V2 + 15, and flaps up maneuvering speed.

MCP Set C

AUTOTHROTTLE ARM switch – ARM

IAS/MACH selector – Set V2

Arm LNAV as needed

[Option - FMC U10.8 and later, FCC Collins P4 and later or FCC Honeywell 710 and later, and CDS BP06 and later]

Arm VNAV

Initial heading – Set

Initial altitude – Set

Taxi and Takeoff briefings Complete C, F/O

The pilot who will do the takeoff does the taxi and takeoff briefings.

As part of the takeoff briefing for the first flight of the day and following a change of either flight crew member, cabin altitude warning indications and memory item procedures must be briefed on airplanes in which the CABIN ALTITUDE and TAKEOFF CONFIG lights are not installed, or are installed but not activated. The briefing must contain the following information:

Whenever the intermittent warning horn sounds in flight:

1. Immediately, don oxygen masks and set regulators to 100%.
2. Establish crew communications.
3. Do the CABIN ALTITUDE WARNING or Rapid Depressurization non-normal checklist.

Both pilots must verify on the overhead Cabin Altitude Panel that the cabin altitude is stabilized at or below 10,000 feet before removing oxygen masks.

Exterior doors	Verify closed	F/O
Flight deck windows	Closed and locked	C, F/O
Start clearance	Obtain	C, F/O

Obtain a clearance to pressurize the hydraulic systems.

Obtain a clearance to start the engines.

If pushback is needed:

Verify that the nose gear steering lockout pin is installed, or, if the nose gear steering lockout pin is not used, depressurize hydraulic system A during the hydraulic panel set step C, F/O

Fuel panel	Set	F/O
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If the center tank fuel quantity exceeds 1,000 pounds/460 kilograms:

LEFT and RIGHT CENTER FUEL PUMPS switches – ON

Verify that the LOW PRESSURE lights illuminate momentarily and then extinguish.

If the LOW PRESSURE light stays illuminated turn off the CENTER FUEL PUMPS switch.

AFT and FORWARD FUEL PUMPS switches – ON

Verify that the LOW PRESSURE lights are extinguished.

Hydraulic panel	Set	F/O
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If pushback is needed and the nose gear steering lockout pin is not installed:

**WARNING: Do not pressurize hydraulic system A.
Unwanted tow bar movement can occur.**

System A HYDRAULIC PUMP switches – OFF

Verify that the system A pump LOW PRESSURE lights are illuminated.

System B electric HYDRAULIC PUMP switch – ON

Verify that the system B electric pump LOW PRESSURE light is extinguished.



Verify that the brake pressure is 2,800 psi minimum.

Verify that the system B pressure is 2,800 psi minimum.

If pushback is not needed, or if pushback is needed and the nose gear steering lockout pin is installed:

Electric HYDRAULIC PUMP switches – ON

Verify that the electric pump LOW PRESSURE lights are extinguished.

Verify that the brake pressure is 2,800 psi minimum.

Verify that the system A and B pressures are 2,800 psi minimum.

ANTI COLLISION light switch	ON	F/O
Trim	Set	C

Check each trim for freedom of movement.

Stabilizer trim – ___ UNITS

Set the trim for takeoff.

Verify that the trim is in the green band.

Aileron trim – 0 units

Rudder trim – 0 units

Call “BEFORE START CHECKLIST.” C

Do the BEFORE START checklist. F/O

Pushback or Towing Procedure

The Engine Start procedure may be done during pushback or towing.



Establish communications with ground handling personnel. C

CAUTION: Do not hold or turn the nose wheel steering wheel during pushback or towing. This can damage the nose gear or the tow bar.

CAUTION: Do not use airplane brakes to stop the airplane during pushback or towing. This can damage the nose gear or the tow bar.

Set or release the parking brake as directed by ground handling personnel. C or F/O

When pushback or towing is complete:

Verify that the tow bar is disconnected C

Verify that the nose gear steering lockout pin is removed C

System A HYDRAULIC PUMPS switches – ON F/O

Verify that the system A pump LOW PRESSURE lights are extinguished

Verify that the system A pressure is 2800 psi minimum.

Engine Start Procedure

[Option]

Select the secondary engine indications. F/O

Air conditioning PACK switchesOFF F/O

Start sequenceAnnounce C

Call “START ___ ENGINE” C

ENGINE START switchGRD F/O

Verify that the N2 RPM increases. C, F/O

When N1 rotation is seen and N2 is at 25%, or (if 25% N2 is not possible), at maximum motoring and a minimum of 20% N2:

Note: Maximum motoring occurs when N2 acceleration is less than 1% in approximately 5 seconds.

Engine start leverIDLE C

Monitor fuel flow and EGT indications. C, F/O

[Automatic ignition]

At 56% N2, verify that the ENGINE START switch moves to AUTO. If not, move the ENGINE START switch to AUTO. F/O

[Without automatic ignition]

At 56% N2, verify that the ENGINE START switch moves to OFF. If not, move the ENGINE START switch to OFF. F/O

[Automatic ignition]

Verify that the START VALVE OPEN alert extinguishes when the ENGINE START switch moves to AUTO. F/O

[Without automatic ignition]

Verify that the START VALVE OPEN alert extinguishes when the ENGINE START switch moves to OFF. F/O

Call “STARTER CUTOUT.” F/O

Monitor N1, N2, EGT, fuel flow and oil pressure for normal indications while the engine accelerates to a stable idle. C, F/O

After the engine is stable at idle, start the other engine.

Starter duty cycle:

- Do not exceed 2 minutes during each start attempt
- A minimum of 10 seconds is needed between start attempts

Normal engine start considerations:

- do not move an engine start lever to idle early or a hot start can occur
- keep a hand on the engine start lever while monitoring RPM, EGT and fuel flow until stable
- if fuel is shutoff accidentally (by closing the engine start lever) do not reopen the engine start lever in an attempt to restart the engine
- failure of the ENGINE START switch to stay in GRD until the starter cutout RPM can cause a hot start. Do not re-engage the ENGINE START switch until engine RPM is below 20% N2.



Do the ABORTED ENGINE START checklist for one or more of the following abort start conditions:

- the N1 or N2 does not increase or increases very slowly after the EGT increases
- there is no oil pressure indication by the time that the engine is stable at idle
- the EGT does not increase by 10 seconds after the engine start lever is moved to IDLE
- the EGT quickly nears or exceeds the start limit

Before Taxi Procedure

GENERATOR 1 and 2 switches	ON	F/O
PROBE HEAT switches	ON	F/O
WING ANTI-ICE switch	As needed	F/O
ENGINE ANTI-ICE switches	As needed	F/O
PACK switches	AUTO	F/O
ISOLATION VALVE switch	AUTO	F/O
APU BLEED air switch	OFF	F/O
APU switch	OFF	F/O
[Without automatic ignition] ENGINE START switches	CONT	F/O
Engine start levers	IDLE detent	C
Verify that the ground equipment is clear.		C, F/O
Call “FLAPS ___” as needed for takeoff.		C
Flap lever	Set takeoff flaps	F/O
Verify that the LE FLAPS EXT green light is illuminated.		
Flight controls	Check	C

Make slow and deliberate inputs, one direction at a time.

Move the control wheel and the control column to full travel in both directions and verify:

- freedom of movement
- that the controls return to center

Hold the nose wheel steering wheel during the rudder check to prevent nose wheel movement.

Move the rudder pedals to full travel in both directions and verify:

- freedom of movement
- that the rudder pedals return to center

[Option]

Blank the lower display unit. F/O

Transponder As needed F/O

At airports where ground tracking is not available, select STBY. At airports equipped to track airplanes on the ground, select an active transponder setting, but not a TCAS mode.

Recall Check C, F/O

Verify that all system annunciator panel lights illuminate and then extinguish.

[Option - Electronic Flight Bag]

EFB AIRPORT MAP application..... Select C, F/O

Select map as desired.

CAUTION: Do not use the Airport Map application as a primary navigation reference. The Airport Map application is designed to aid flight crew positional awareness only.

Update changes to the taxi briefing, as needed. C or PF

Call “BEFORE TAXI CHECKLIST.” C

Do the BEFORE TAXI checklist. F/O

Before Takeoff Procedure [AD 2002-19-52 and AD 2002-24-51]

Engine warm up requirement:

- verify an increase in engine oil temperature before takeoff.

Engine warm up recommendations:

- run the engines for at least 2 minutes
- use a thrust setting normally used for taxi operations.

Pilot Flying	Pilot Monitoring
	Check the center tank fuel quantity. Both center tank fuel pump switches must be OFF for takeoff if center tank fuel is less than 5000 pounds/2300 kilograms. Do not accomplish the CONFIG non-normal checklist with less than 5000 pounds/2300 kilograms in the center tank prior to takeoff.
	Notify the cabin crew to prepare for takeoff. Verify that the cabin is secure.
The pilot who will do the takeoff updates changes to the takeoff briefing as needed.	
Set the weather radar display as needed. [Option - with EGPWS] Set the terrain display as needed.	
Call “BEFORE TAKEOFF CHECKLIST.”	Do the BEFORE TAKEOFF checklist.

Before Takeoff Procedure [Alternate Method of Compliance (AMOC) to AD 2002-24-51]

Engine warm up requirement:

- verify an increase in engine oil temperature before takeoff.

Engine warm up recommendations:

- run the engines for at least 2 minutes
- use a thrust setting normally used for taxi operations.

Pilot Flying	Pilot Monitoring
	<p>Check the center tank fuel quantity. Both center tank fuel pump switches must be OFF for takeoff if center tank fuel is less than 5000 pounds/2300 kilograms.</p> <p>Do not accomplish the CONFIG non-normal checklist with less than 5000 pounds/2300 kilograms in the center tank prior to takeoff.</p>
	Notify the cabin crew to prepare for takeoff. Verify that the cabin is secure.
The pilot who will do the takeoff updates changes to the takeoff briefing as needed.	
Set the weather radar display as needed.	
<p style="color: blue;">[Option - with EGPWS]</p> Set the terrain display as needed.	
Call "BEFORE TAKEOFF CHECKLIST."	Do the BEFORE TAKEOFF checklist.

Before Takeoff Procedure [Alternate Method of Compliance (AMOC) to AD 2001-08-24 and AD 2002-24-51 for Airplanes with Master Caution System Logic Change and Automatic Shutoff]

Engine warm up requirement:

- verify an increase in engine oil temperature before takeoff.

Engine warm up recommendations:

- run the engines for at least 2 minutes
- use a thrust setting normally used for taxi operations.

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for takeoff. Verify that the cabin is secure.
The pilot who will do the takeoff updates changes to the takeoff briefing as needed.	
Set the weather radar display as needed. [Option - with EGPWS] Set the terrain display as needed.	
Call "BEFORE TAKEOFF CHECKLIST."	Do the BEFORE TAKEOFF checklist.

Takeoff Procedure

[Option - With auto T/O thrust reduction and with FMC U10.7 and earlier]

Pilot Flying	Pilot Monitoring
	<p>[Option - Runway position update (Runway Remaining) with TO/GA activation]</p> <p>Enter the RWY REMAIN on the CDU TAKEOFF REF page.</p> <p>[Option - Runway position update with the CDU only]</p> <p>Update the FMC position to the runway threshold on the CDU TAKEOFF REF page.</p>
	<p>When entering the departure runway, set the STROBE light switch to ON. Use other lights as needed.</p>
<p>Verify that the brakes are released. Align the airplane with the runway.</p>	<p>When cleared for takeoff, set the FIXED LANDING light switches to ON.</p> <p>Set the transponder mode selector to TA/RA.</p>
<p>Advance the thrust levers to approximately 40% N1.</p> <p>Allow the engines to stabilize.</p>	
<p>Push the TO/GA switch.</p>	
<p>Verify that the correct takeoff thrust is set.</p>	
	<p>Monitor the engine instruments during the takeoff. Call out any abnormal indications.</p> <p>Adjust takeoff thrust before 60 knots as needed.</p> <p>During strong headwinds, if the thrust levers do not advance to the planned takeoff thrust by 60 knots, manually advance the thrust levers.</p>
<p>After takeoff thrust is set, the captain's hand must be on the thrust levers until V1.</p>	

Pilot Flying	Pilot Monitoring
Monitor airspeed. Maintain light forward pressure on the control column.	Monitor airspeed and call out any abnormal indications.
Verify 80 knots and call "CHECK."	Call "80 KNOTS."
Verify V1 speed.	Verify the automatic V1 callout or call "V1."
At VR, rotate toward 15° pitch attitude. After liftoff, follow F/D commands.	At VR, call "ROTATE." Monitor airspeed and vertical speed.
Establish a positive rate of climb.	
	Verify a positive rate of climb on the altimeter and call "POSITIVE RATE."
Verify a positive rate of climb on the altimeter and call "GEAR UP."	
	Set the landing gear lever to UP.
Above 400 feet radio altitude, call for a roll mode as needed.	Select or verify the roll mode.
At thrust reduction height, verify that climb thrust is set.	
At acceleration height, call "SET FLAPS UP SPEED."	
	Set the flaps up maneuvering speed.
Verify acceleration. Call "FLAPS ___" according to the flap retraction schedule.	
	Set the FLAP lever as directed. Monitor flaps and slats retraction.
After flaps and slats retraction is complete, call "VNAV."	
	Push the VNAV switch.
Engage the autopilot when above the minimum altitude for autopilot engagement.	



Pilot Flying	Pilot Monitoring
	After flap retraction is complete: <ul style="list-style-type: none"> • Set or verify engine bleeds and air conditioning packs are operating [Without automatic ignition] <ul style="list-style-type: none"> • Set the engine start switches as needed • Set the AUTO BRAKE select switch to OFF • Set the landing gear lever to OFF after landing gear retraction is complete.
Call "AFTER TAKEOFF CHECKLIST."	
	Do the AFTER TAKEOFF checklist.

CAUTION: Do not allow the shoulder harness straps to retract quickly. Buckles can pull or damage circuit breakers.

Takeoff Procedure

[Option - With auto T/O thrust reduction and with FMC U10.8 and later, FCC Collins P4 and later or FCC Honeywell 710 and later and CDS BP06 and later]

Pilot Flying	Pilot Monitoring
	<p>[Option - Runway position update (Takeoff Shift) with TO/GA activation]</p> <p>Enter the runway offset on the CDU TAKEOFF REF page.</p>
	<p>When entering the departure runway, set the STROBE light switch to ON. Use other lights as needed.</p>
<p>Verify that the brakes are released. Align the airplane with the runway.</p>	<p>When cleared for takeoff, set the FIXED LANDING light switches to ON. Set the transponder mode selector to TA/RA.</p>
<p>Advance the thrust levers to approximately 40% N1. Allow the engines to stabilize.</p>	
<p>Push the TO/GA switch.</p>	
<p>Verify that the correct takeoff thrust is set.</p>	
	<p>Monitor the engine instruments during the takeoff. Call out any abnormal indications. Adjust takeoff thrust before 60 knots as needed. During strong headwinds, if the thrust levers do not advance to the planned takeoff thrust by 60 knots, manually advance the thrust levers.</p>
<p>After takeoff thrust is set, the captain's hand must be on the thrust levers until V1.</p>	
<p>Monitor airspeed. Maintain light forward pressure on the control column.</p>	<p>Monitor airspeed and call out any abnormal indications.</p>
<p>Verify 80 knots and call "CHECK."</p>	<p>Call "80 KNOTS."</p>

Pilot Flying	Pilot Monitoring
Verify V1 speed.	Verify the automatic V1 callout or call "V1."
At VR, rotate toward 15° pitch attitude. After liftoff, follow F/D commands.	At VR, call "ROTATE." Monitor airspeed and vertical speed.
Establish a positive rate of climb.	
	Verify a positive rate of climb on the altimeter and call "POSITIVE RATE."
Verify a positive rate of climb on the altimeter and call "GEAR UP."	
	Set the landing gear lever to UP.
Above 400 feet radio altitude, call for a roll mode as needed.	Select or verify the roll mode. Verify VNAV engaged.
At thrust reduction height, verify that climb thrust is set.	
Verify acceleration at the acceleration height. Call "FLAPS ___" according to the flap retraction schedule.	
	Set the FLAP lever as directed.
Engage the autopilot when above the minimum altitude for autopilot engagement.	
	After flap retraction is complete: <ul style="list-style-type: none"> • Set or verify engine bleeds and air conditioning packs are operating • Set the AUTO BRAKE select switch to OFF • Set the landing gear lever to OFF after landing gear retraction is complete.
Call "AFTER TAKEOFF CHECKLIST."	
	Do the AFTER TAKEOFF checklist.

CAUTION: Do not allow the shoulder harness straps to retract quickly. Buckles can pull or damage circuit breakers.

Takeoff Procedure

[Option - Without auto T/O thrust reduction and with FMC U10.7 and earlier]

Pilot Flying	Pilot Monitoring
	<p>[Option - Runway position update (Runway Remaining) with TO/GA activation]</p> <p>Enter the RWY REMAIN on the CDU TAKEOFF REF page.</p> <p>[Option - Runway position update with the CDU only]</p> <p>Update the FMC position to the runway threshold on the CDU TAKEOFF REF page.</p>
	<p>When entering the departure runway, set the STROBE light switch to ON. Use other lights as needed.</p>
<p>Verify that the brakes are released. Align the airplane with the runway.</p>	<p>When cleared for takeoff, set the FIXED LANDING light switches to ON.</p> <p>Set the transponder mode selector to TA/RA.</p>
<p>Advance the thrust levers to approximately 40% N1.</p> <p>Allow the engines to stabilize.</p>	
<p>Push the TO/GA switch.</p>	
<p>Verify that the correct takeoff thrust is set.</p>	
	<p>Monitor the engine instruments during the takeoff. Call out any abnormal indications.</p> <p>Adjust takeoff thrust before 60 knots as needed.</p> <p>During strong headwinds, if the thrust levers do not advance to the planned takeoff thrust by 60 knots, manually advance the thrust levers.</p>
<p>After takeoff thrust is set, the captain's hand must be on the thrust levers until V1.</p>	

Pilot Flying	Pilot Monitoring
Monitor airspeed. Maintain light forward pressure on the control column.	Monitor airspeed and call out any abnormal indications.
Verify 80 knots and call "CHECK."	Call "80 KNOTS."
Verify V1 speed.	Verify the automatic V1 callout or call "V1."
At VR, rotate toward 15° pitch attitude. After liftoff, follow F/D commands.	At VR, call "ROTATE." Monitor airspeed and vertical speed.
Establish a positive rate of climb.	
	Verify a positive rate of climb on the altimeter and call "POSITIVE RATE."
Verify a positive rate of climb on the altimeter and call "GEAR UP."	
	Set the landing gear lever to UP.
Above 400 feet radio altitude, call for a roll mode as needed.	Select or verify the roll mode.
At thrust reduction height, call "SET CLIMB THRUST."	
	Push the N1 switch.
Verify that climb thrust is set.	
At acceleration height, call "SET FLAPS UP SPEED."	
	Set the flaps up maneuvering speed.
Verify acceleration. Call "FLAPS ___" according to the flap retraction schedule.	
	Set the FLAP lever as directed. Monitor flaps and slats retraction.
After flaps and slats retraction is complete, call "VNAV."	
	Push the VNAV switch.
Engage the autopilot when above the minimum altitude for autopilot engagement.	

Pilot Flying	Pilot Monitoring
	After flap retraction is complete: <ul style="list-style-type: none"> • Set or verify engine bleeds and air conditioning packs are operating [Without automatic ignition] <ul style="list-style-type: none"> • Set the engine start switches as needed • Set the AUTO BRAKE select switch to OFF • Set the landing gear lever to OFF after landing gear retraction is complete.
Call "AFTER TAKEOFF CHECKLIST."	
	Do the AFTER TAKEOFF checklist.

CAUTION: Do not allow the shoulder harness straps to retract quickly. Buckles can pull or damage circuit breakers.

Takeoff Flap Retraction Speed Schedule

Takeoff Flaps	At Speed (display)	Select Flaps
25	V2 + 15 "15" "5" "1"	15 5 1 UP
15 or 10	V2 + 15 "5" "1"	5 1 UP
5	V2 + 15 "1"	1 UP
1	"1"	UP
Limit bank angle to 15° until reaching V2 + 15		

Climb and Cruise Procedure [AD 2002-19-52 and AD 2002-24-51]

Complete the After Takeoff Checklist before starting the Climb and Cruise Procedure.

Pilot Flying	Pilot Monitoring
	If the center tank fuel pump switches were OFF for takeoff and the center tank contains more than 1000 pounds/500 kilograms, set both center tank fuel pump switches ON above 10,000 feet or after the pitch attitude has been reduced to begin acceleration to a climb speed of 250 knots or greater.
	During climb, set both center tank fuel pump switches OFF when center tank fuel quantity reaches approximately 1000 pounds/500 kilograms.
	At or above 10,000 feet MSL, set the LANDING light switches to OFF.
	Set the passenger signs as needed.
At transition altitude, set and crosscheck the altimeters to standard.	
	When established in a level attitude at cruise, if the center tank contains more than 1000 pounds/500 kilograms and the center tank fuel pump switches are OFF, set the center tank fuel pump switches ON again. Set both center tank fuel pump switches OFF when center tank fuel quantity reaches approximately 1000 pounds/500 kilograms.
	During an ETOPS flight, additional steps must be done. See the ETOPS supplementary procedure in SP.1.
	Before the top of descent, modify the active route as needed for the arrival and approach. Verify or enter the correct RNP for arrival.

Climb and Cruise Procedure [Alternate Method of Compliance (AMOC) to AD 2002-24-51]

Complete the After Takeoff Checklist before starting the Climb and Cruise Procedure.

Pilot Flying	Pilot Monitoring
	If the center tank fuel pump switches were OFF for takeoff and the center tank contains more than 2000 pounds/950 kilograms, set both center tank fuel pump switches ON above 10,000 feet or after the pitch attitude has been reduced to begin acceleration to a climb speed of 250 knots or greater.
	At or above 10,000 feet MSL, set the LANDING light switches to OFF.
	Set the passenger signs as needed.
At transition altitude, set and crosscheck the altimeters to standard.	
	During climb or cruise, set one center tank fuel pump switch OFF when center tank fuel quantity reaches approximately 2000 pounds/950 kilograms. Open the crossfeed valve to minimize fuel imbalance. Set the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.
	During an ETOPS flight, additional steps must be done. See the ETOPS supplementary procedure in SP.1.
	Before the top of descent, modify the active route as needed for the arrival and approach. Verify or enter the correct RNP for arrival.

Climb and Cruise Procedure [Alternate Method of Compliance (AMOC) to AD 2001-08-24 and AD 2002-24-51 for Airplanes with Master Caution System Logic Change and Automatic Shutoff]

Complete the After Takeoff Checklist before starting the Climb and Cruise Procedure.

Pilot Flying	Pilot Monitoring
	At or above 10,000 feet MSL, set the LANDING light switches to OFF.
	Set the passenger signs as needed.
At transition altitude, set and crosscheck the altimeters to standard.	
	<p>During climb, set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>When established in a level flight attitude, if the center tank contains usable fuel and a center tank fuel pump switch(es) is OFF, set the center tank fuel pump switch(es) to ON again.</p> <p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	During an ETOPS flight, additional steps must be done. See the ETOPS supplementary procedure in SP.1.
	<p>Before the top of descent, modify the active route as needed for the arrival and approach.</p> <p>Verify or enter the correct RNP for arrival.</p>

Descent Procedure [AD 2002-19-52 and AD 2002-24-51]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	Set both center tank fuel pump switches OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Do not accomplish the CONFIG non-normal checklist.
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.
Set the RADIO/BARO minimums as needed for the approach.	
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call "DESCENT CHECKLIST."	Do the DESCENT checklist.

**Descent Procedure [Alternate Method of Compliance (AMOC)
to AD 2002-24-51]**

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	<p>Set one center tank fuel pump switch OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	<p>If established in level flight for an extended period of time prior to approach and landing with more than 2000 pounds/950 kilograms in the center tank and the center tank fuel pump switches OFF, one center tank fuel pump switch may be turned ON again. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.
Set the RADIO/BARO minimums as needed for the approach.	



Pilot Flying	Pilot Monitoring
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call “DESCENT CHECKLIST.”	Do the DESCENT checklist.

**Descent Procedure [Alternate Method of Compliance (AMOC)
to AD 2001-08-24 and AD 2002-24-51 for Airplanes with
Master Caution System Logic Change and Automatic Shutoff]**

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.



Pilot Flying	Pilot Monitoring
	<p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>If established in a level flight attitude, for an extended period of time with usable fuel in the center tank and a center tank fuel pump switch(es) OFF, set the center tank fuel pump switch(es) to ON again.</p> <p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.
Set the RADIO/BARO minimums as needed for the approach.	
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call “DESCENT CHECKLIST.”	Do the DESCENT checklist.

Descent Procedure - Airplanes with Fail Operational Autoland Capability [AD 2002-19-52 and AD 2002-24-51]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	Set both center tank fuel pump switches OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Do not accomplish the CONFIG non-normal checklist.
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
	Verify that the autoland advisory messages are not shown.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.
Set the RADIO/BARO minimums as needed for the approach.	
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call "DESCENT CHECKLIST."	Do the DESCENT checklist.

Descent Procedure - Airplanes with Fail Operational Autoland Capability [Alternate Method of Compliance (AMOC) to AD 2002-24-51]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	<p>Set one center tank fuel pump switch OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	<p>If established in level flight for an extended period of time prior to approach and landing with more than 2000 pounds/950 kilograms in the center tank and the center tank fuel pump switches OFF, one center tank fuel pump switch may be turned ON again. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
	Verify that the autoland advisory messages are not shown.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.

Pilot Flying	Pilot Monitoring
Set the RADIO/BARO minimums as needed for the approach.	
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call "DESCENT CHECKLIST."	Do the DESCENT checklist.

Descent Procedure - Airplanes with Fail Operational Autoland Capability [Alternate Method of Compliance (AMOC) to AD 2001-08-24 and AD 2002-24-51 for Airplanes with Master Caution System Logic Change and Automatic Shutoff]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	<p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>If established in a level flight attitude, for an extended period of time with usable fuel in the center tank and a center tank fuel pump switch(es) OFF, set the center tank fuel pump switch(es) to ON again.</p> <p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>Verify that pressurization is set to landing altitude.</p>
<p>Review the system annunciator lights.</p>	<p>Recall and review the system annunciator lights.</p>
	<p>Verify that the autoland advisory messages are not shown.</p>
<p>Verify VREF on the APPROACH REF page.</p>	<p>Enter VREF on the APPROACH REF page.</p>
<p>Set the RADIO/BARO minimums as needed for the approach.</p>	
<p>Set or verify the navigation radios and course for the approach.</p>	
	<p>Set the AUTO BRAKE select switch to the needed brake setting</p>
<p>Do the approach briefing.</p>	
<p>Call "DESCENT CHECKLIST."</p>	<p>Do the DESCENT checklist.</p>

Descent Procedure - Airplanes with IAN Capability [AD 2002-19-52 and AD 2002-24-51]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	Set both center tank fuel pump switches OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Do not accomplish the CONFIG non-normal checklist.
	Verify that pressurization is set to landing altitude.
Review the system annunciator lights.	Recall and review the system annunciator lights.
Verify VREF on the APPROACH REF page.	Enter VREF on the APPROACH REF page.
Set the RADIO/BARO minimums as needed for the approach.	
Select FMC approach procedure.	
Verify/set RNP as appropriate for procedure.	
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call "DESCENT CHECKLIST."	Do the DESCENT checklist.

Descent Procedure - Airplanes with IAN Capability [Alternate Method of Compliance (AMOC) to AD 2002-24-51]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	<p>Set one center tank fuel pump switch OFF when center tank fuel quantity reaches approximately 3000 pounds/1400 kilograms. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	<p>If established in level flight for an extended period of time prior to approach and landing with more than 2000 pounds/950 kilograms in the center tank and the center tank fuel pump switches OFF, one center tank fuel pump switch may be turned ON again. Open the crossfeed valve to minimize fuel imbalance.</p> <p>Turn the remaining center tank fuel pump switch OFF without delay and close the crossfeed valve when the Master Caution and FUEL system annunciator illuminate.</p>
	<p>Verify that pressurization is set to landing altitude.</p>
<p>Review the system annunciator lights.</p>	<p>Recall and review the system annunciator lights.</p>
<p>Verify VREF on the APPROACH REF page.</p>	<p>Enter VREF on the APPROACH REF page.</p>
<p>Set the RADIO/BARO minimums as needed for the approach.</p>	
<p>Select FMC approach procedure.</p>	
<p>Verify/set RNP as appropriate for procedure.</p>	



Pilot Flying	Pilot Monitoring
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call “DESCENT CHECKLIST.”	Do the DESCENT checklist.

Descent Procedure - Airplanes with IAN Capability [Alternate Method of Compliance (AMOC) to AD 2001-08-24 and AD 2002-24-51 for Airplanes with Master Caution System Logic Change and Automatic Shutoff]

Start the Descent Procedure before the airplane descends below the cruise altitude for arrival at destination.

Complete the Descent Procedure by 10,000 feet MSL.

Pilot Flying	Pilot Monitoring
	<p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>If established in a level flight attitude, for an extended period of time with usable fuel in the center tank and a center tank fuel pump switch(es) OFF, set the center tank fuel pump switch(es) to ON again.</p> <p>Set the affected center tank fuel pump switch to OFF when a center tank fuel pump LOW PRESSURE light illuminates.</p> <p>Set both center tank fuel pump switches to OFF when a center tank fuel pump LOW PRESSURE light illuminates if the center tank is empty.</p>
	<p>Verify that pressurization is set to landing altitude.</p>
<p>Review the system annunciator lights.</p>	<p>Recall and review the system annunciator lights.</p>
<p>Verify VREF on the APPROACH REF page.</p>	<p>Enter VREF on the APPROACH REF page.</p>
<p>Set the RADIO/BARO minimums as needed for the approach.</p>	
<p>Select FMC approach procedure.</p>	
<p>Verify/set RNP as appropriate for procedure.</p>	



Pilot Flying	Pilot Monitoring
Set or verify the navigation radios and course for the approach.	
	Set the AUTO BRAKE select switch to the needed brake setting
Do the approach briefing.	
Call “DESCENT CHECKLIST.”	Do the DESCENT checklist.

Approach Procedure

The Approach Procedure is normally started at transition level.

Complete the Approach Procedure before:

- the initial approach fix, or
- the start of radar vectors to the final approach course, or
- the start of a visual approach

[Option - GLS]

For a GLS approach, select the appropriate GLS channel. For an ILS, LOC, BCRS, SDF or LDA approach, select the appropriate localizer frequency.

For a BCRS approach, enter the front course in the Mode Control Panel COURSE window. Do not select VOR/LOC.

[FAA]

If a flaps 15 landing is needed because of performance:

GROUND PROXIMITY flap inhibit
switch FLAP INHIBIT F/O

Pilot Flying	Pilot Monitoring
	Set the passenger signs as needed.
	At or above 10,000 feet MSL, set the FIXED LANDING light switches to ON.
At transition level, set and crosscheck the altimeters.	
Update the arrival and approach procedures as needed. Update the RNP as needed.	
Update the approach briefing as needed.	
Call "APPROACH CHECKLIST."	Do the APPROACH checklist.

Approach Procedure - Airplanes with IAN Capability

The Approach Procedure is normally started at transition level.

Complete the Approach Procedure before:

- the initial approach fix, or
- the start of radar vectors to the final approach course, or
- the start of a visual approach

Select the approach procedure on the ARRIVALS page. Select the G/S prompt OFF if flying an ILS approach where the G/S transmitter is inoperative or when the G/S data is unreliable. Do not manually build the approach or add waypoints to the selected FMC procedure.

Note: Approaches other than ILS or GLS are not authorized using QFE.

For a GLS approach, select the appropriate GLS channel. For an ILS, LOC, BCRS, SDF or LDA approach, select the appropriate localizer frequency. For all other approaches, select a VOR frequency in both VHF control panels.

For a BCRS approach, enter the front course in the Mode Control Panel COURSE window. Do not select VOR/LOC.

Pilot Flying	Pilot Monitoring
	Set the passenger signs as needed.
	At or above 10,000 feet MSL, set the FIXED LANDING light switches to ON.
At transition level, set and crosscheck the altimeters.	
Update the arrival and approach procedures as needed. Update the RNP as needed.	
Update the approach briefing as needed.	
Call "APPROACH CHECKLIST."	Do the APPROACH checklist.

Flap Extension Schedule

Current Flap Position	At Speedtape "Display"	Select Flaps	Command Speed for Selected Flaps
UP	"UP"	1	"1"
1	"1"	5	"5"
5	"5"	15	"15"
15	"15"	30 or 40	(VREF30 or VREF40) + wind additives

Landing Procedure - ILS

[Option - Glideslope inhibited before Localizer capture]

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for landing. Verify that the cabin is secure.
Call "FLAPS ___" according to the flap extension schedule.	Set the flap lever as directed. Monitor flaps and slats extension.
When on localizer intercept heading: <ul style="list-style-type: none"> • verify that the ILS is tuned and identified • verify that the LOC and G/S pointers are shown 	
Arm the APP mode. Engage the other autopilot.	
Use HDG SEL to intercept the final approach course as needed.	
Verify that the localizer is captured.	
	Call "GLIDE SLOPE ALIVE."
At glide slope alive, call: <ul style="list-style-type: none"> • "GEAR DOWN" • "FLAPS 15" 	Set the landing gear lever to DN. Verify that the green landing gear indicator lights are illuminated. Set the flap lever to 15. [Without automatic ignition] Set the engine start switches to CONT.

Pilot Flying	Pilot Monitoring
Set the speed brake lever to ARM. Verify that the SPEED BRAKE ARMED light is illuminated.	
At glide slope capture, call “FLAPS ___” as needed for landing.	Set the flap lever as directed.
Set the missed approach altitude on the MCP.	
Call “LANDING CHECKLIST.”	Do the LANDING checklist.
At the final approach fix or OM, verify the crossing altitude.	
Monitor the approach. [Without Fail Operational Autoland capability] Verify the AFDS status at 500 feet radio altitude. [Fail Operational Autoland capability] Verify the autoland status at 500 feet radio altitude.	

Landing Procedure - ILS

[Option - No Glideslope inhibit before Localizer capture]

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for landing. Verify that the cabin is secure.
Call “FLAPS ___” according to the flap extension schedule.	Set the flap lever as directed. Monitor flaps and slats extension.
When on localizer intercept heading: <ul style="list-style-type: none"> • verify that the ILS is tuned and identified • verify that the LOC and G/S pointers are shown 	
Arm the APP mode. Engage the other autopilot.	
WARNING: When using LNAV to intercept the final approach course, LNAV might parallel the localizer without capturing it. The airplane can then descend on the glide slope with the localizer not captured.	
Use HDG SEL to intercept the final approach course as needed.	
Verify that the localizer is captured.	
	Call “GLIDE SLOPE ALIVE.”
At glide slope alive, call: <ul style="list-style-type: none"> • “GEAR DOWN” • “FLAPS 15” 	Set the landing gear lever to DN. Verify that the green landing gear indicator lights are illuminated. Set the flap lever to 15. [Without automatic ignition] Set the engine start switches to CONT.
Set the speed brake lever to ARM. Verify that the SPEED BRAKE ARMED light is illuminated.	
At glide slope capture, call “FLAPS ___” as needed for landing.	Set the flap lever as directed.
Set the missed approach altitude on the MCP.	
Call “LANDING CHECKLIST.”	Do the LANDING checklist.

Pilot Flying	Pilot Monitoring
At the final approach fix or OM, verify the crossing altitude.	
Monitor the approach. [Without Fail Operational Autoland capability] Verify the AFDS status at 500 feet radio altitude. [Airplanes with Fail Operational Autoland capability] Verify the autoland status at 500 feet radio altitude.	

Landing Procedure - ILS - Airplanes with IAN Capability

[Option - Glideslope inhibited before Localizer capture]

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for landing. Verify that the cabin is secure.
Call "FLAPS ___" according to the flap extension schedule.	Set the flap lever as directed. Monitor flaps and slats extension.
When on localizer/final approach course intercept heading: <ul style="list-style-type: none"> • verify that the navigation radios are tuned and identified (as needed) • verify that the deviation pointers are shown. 	
Arm the APP mode.	
Use HDG SEL to intercept the final approach course as needed.	
Verify that the localizer/final approach course is captured.	
	Call "GLIDE SLOPE/GLIDE PATH ALIVE."
At glide slope/glide path alive, call: <ul style="list-style-type: none"> • "GEAR DOWN" • "FLAPS 15" 	Set the landing gear lever to DN. Verify that the green landing gear indicator lights are illuminated. Set the flap lever to 15.
Set the speed brake lever to ARM. Verify that the SPEED BRAKE ARMED light is illuminated.	
At glide slope/glide path capture, call "FLAPS ___" as needed for landing.	Set the flap lever as directed.
Set the missed approach altitude on the MCP.	
Call "LANDING CHECKLIST."	Do the LANDING checklist.
At the final approach fix or OM, verify the crossing altitude.	
Monitor the approach.	

Landing Procedure - Instrument Approach using VNAV

[With VNAV ALT enabled]

Use the autopilot during the approach to give:

- autopilot alerts and mode fail indications
- more accurate course and glide path tracking
- lower RNP limits.

This procedure is not authorized using QFE.

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for landing. Verify that the cabin is secure.
Call “FLAPS ___” according to the flap extension schedule.	Set the flap lever as directed. Monitor flaps and slats extension.
<p>The recommended roll modes for the final approach are:</p> <ul style="list-style-type: none"> • for an RNAV or GPS approach use LNAV • for a LOC-BC, VOR or NDB approach use LNAV • for a LOC, SDF or LDA approach use LNAV or VOR/LOC. 	
	Verify that the VNAV glide path angle is shown on the final approach segment of the LEGS page.
<p>When on the final approach course intercept heading for LOC, LOC-BC, SDF or LDA approaches:</p> <ul style="list-style-type: none"> • verify that the localizer is tuned and identified • verify that the LOC pointer is shown. 	
Select LNAV or arm the VOR/LOC mode.	
<p>WARNING: When using LNAV to intercept the localizer, LNAV might parallel the localizer without capturing it. The airplane can then descend on the VNAV path with the localizer not captured.</p>	
Use LNAV or HDG SEL to intercept the final approach course as needed.	
Verify that LNAV is engaged or that VOR/LOC is captured.	
<p>Approximately 2 NM before the final approach fix and after ALT HOLD or VNAV PTH or VNAV ALT is annunciated:</p> <ul style="list-style-type: none"> • verify that the autopilot is engaged • set DA(H) or MDA(H) on the MCP • select or verify speed intervention • select or verify VNAV. 	Call “APPROACHING GLIDE PATH.”

Pilot Flying	Pilot Monitoring
Approaching glide path, call: <ul style="list-style-type: none"> • “GEAR DOWN” • “FLAPS 15.” 	Set the landing gear lever to DN. Verify that the green landing gear indicator lights are illuminated. Set the flap lever to 15. [Without automatic ignition] Set the engine start switches to CONT.
Set the speed brake lever to ARM. Verify that the SPEED BRAKE ARMED light is illuminated.	
Beginning the final approach descent, call “FLAPS ___” as needed for landing.	Set the flap lever as directed.
Call “LANDING CHECKLIST.”	Do the LANDING checklist.
When at least 300 feet below the missed approach altitude, set the missed approach altitude on the MCP.	
At the final approach fix, verify the crossing altitude and crosscheck the altimeters.	
Monitor the approach.	
If suitable visual reference is established at DA(H), MDA(H) or the missed approach point, disengage the autopilot and autothrottle. Maintain the glide path to landing.	

Landing Procedure - Instrument Approach using VNAV

[Without VNAV ALT enabled]

Use the autopilot during the approach to give:

- autopilot alerts and mode fail indications
- more accurate course and glide path tracking
- lower RNP limits.

This procedure is not authorized using QFE.

Pilot Flying	Pilot Monitoring
	Notify the cabin crew to prepare for landing. Verify that the cabin is secure.
Call “FLAPS ___” according to the flap extension schedule.	Set the flap lever as directed. Monitor flaps and slats extension.
<p>The recommended roll modes for the final approach are:</p> <ul style="list-style-type: none"> • for an RNAV or GPS approach use LNAV • for a LOC-BC, VOR or NDB approach use LNAV • for a LOC, SDF or LDA approach use LNAV or VOR/LOC. 	
	Verify that the VNAV glide path angle is shown on the final approach segment of the LEGS page.
<p>When on the final approach course intercept heading for LOC, LOC-BC, SDF or LDA approaches:</p> <ul style="list-style-type: none"> • verify that the localizer is tuned and identified • verify that the LOC pointer is shown. 	
Select LNAV or arm the VOR/LOC mode.	
<p>WARNING: When using LNAV to intercept the localizer, LNAV might parallel the localizer without capturing it. The airplane can then descend on the VNAV path with the localizer not captured.</p>	
Use LNAV or HDG SEL to intercept the final approach course as needed.	
Verify that LNAV is engaged or that VOR/LOC is captured.	
<p>Approximately 2 NM before the final approach fix and after ALT HOLD or VNAV PTH is annunciated:</p> <ul style="list-style-type: none"> • verify that the autopilot is engaged • set DA(H) or MDA(H) on the MCP • select or verify speed intervention • select or verify VNAV. 	Call “APPROACHING GLIDE PATH.”



Pilot Flying	Pilot Monitoring
Approaching glide path, call: <ul style="list-style-type: none"> • “GEAR DOWN” • “FLAPS 15.” 	Set the landing gear lever to DN. Verify that the green landing gear indicator lights are illuminated. Set the flap lever to 15. [Without automatic ignition] Set the engine start switches to CONT.
Set the speed brake lever to ARM. Verify that the SPEED BRAKE ARMED light is illuminated.	
Beginning the final approach descent, call “FLAPS ___” as needed for landing.	Set the flap lever as directed.
Call “LANDING CHECKLIST.”	Do the LANDING checklist.
When at least 300 feet below the missed approach altitude, set the missed approach altitude on the MCP.	
At the final approach fix, verify the crossing altitude and crosscheck the altimeters.	
Monitor the approach.	
If suitable visual reference is established at DA(H), MDA(H) or the missed approach point, disengage the autopilot and autothrottle. Maintain the glide path to landing.	

Go-Around and Missed Approach Procedure

Pilot Flying	Pilot Monitoring
At the same time: <ul style="list-style-type: none"> • push the TO/GA switch • call “FLAPS 15.” 	Position the FLAP lever to 15 and monitor flap retraction
Verify: <ul style="list-style-type: none"> • the rotation to go-around attitude • that the thrust increases. 	
	Verify that the thrust is sufficient for the go-around or adjust as needed.
Verify a positive rate of climb on the altimeter and call “GEAR UP.”	Verify a positive rate of climb on the altimeter and call “POSITIVE RATE.” Set the landing gear lever to UP.
	Verify that the missed approach altitude is set.
If the airspeed is below the top of the amber band, limit bank angle to 15°.	
Above 400 feet, verify LNAV or select HDG SEL as appropriate. Above 400 feet, select appropriate roll mode and verify proper mode annunciation.	Observe mode annunciation.
Verify that the missed approach route is tracked.	
At acceleration height, call “FLAPS ___” according to the flap retraction schedule.	Set the FLAP lever as directed. Monitor flaps and slats retraction.
After flap retraction to the planned flap setting, select LVL CHG. VNAV may be selected if the flaps are up.	
Verify that climb thrust is set.	
Verify that the missed approach altitude is captured.	
	Set the landing gear lever to OFF after landing gear retraction is complete. [Without automatic ignition] Set the engine start switches as needed.
Call “AFTER TAKEOFF CHECKLIST.”	Do the AFTER TAKEOFF checklist.

Landing Roll Procedure

[Option - Electronic Flight Bag]

Pilot Flying	Pilot Monitoring
Disengage the autopilot. Control the airplane manually.	
Verify that the thrust levers are closed. Verify that the SPEED BRAKE lever is UP. Without delay, fly the nose wheel smoothly onto the runway.	Verify that the SPEED BRAKE lever is UP. Call "SPEED BRAKES UP." If the SPEED BRAKE lever is not UP, call "SPEED BRAKES NOT UP." Monitor the rollout progress.
Verify correct autobrake operation.	
WARNING: After the reverse thrust levers are moved, a full stop landing must be made. If an engine stays in reverse, safe flight is not possible.	
Without delay, move the reverse thrust levers to the interlocks and hold light pressure until the interlocks release. Then apply reverse thrust as needed.	
By 60 knots, start movement of the reverse thrust levers to be at the reverse idle detent before taxi speed.	Call "60 KNOTS."
After the engines are at reverse idle, move the reverse thrust levers full down.	
Before taxi speed, disarm the autobrake. Use manual braking as needed.	
CAUTION: Do not use the Airport Map application as a primary navigation reference. The Airport Map application is designed to aid flight crew positional awareness only.	

Landing Roll Procedure - Airplanes with Fail Operational Autoland Capability

[Option - Electronic Flight Bag]

Pilot Flying	Pilot Monitoring
Verify that the thrust levers are closed. Verify that the SPEED BRAKE lever is UP.	Verify that the SPEED BRAKE lever is UP. Call "SPEED BRAKES UP." If the SPEED BRAKE lever is not UP, call "SPEED BRAKES NOT UP."
Monitor the rollout progress.	
Verify correct autobrake operation.	
WARNING: After the reverse thrust levers are moved, a full stop landing must be made. If an engine stays in reverse, safe flight is not possible.	
Without delay, move the reverse thrust levers to the interlocks and hold light pressure until the interlocks release. Then apply reverse thrust as needed.	
By 60 knots, start movement of the reverse thrust levers to be at the reverse idle detent before taxi speed.	Call "60 KNOTS."
After the engines are at reverse idle, move the reverse thrust levers full down.	
Before taxi speed, disarm the autobrake. Use manual braking as needed.	
Before turning off the runway, disconnect the autopilot.	
CAUTION: Do not use the Airport Map application as a primary navigation reference. The Airport Map application is designed to aid flight crew positional awareness only.	

After Landing Procedure

[Without automatic ignition]

Start the After Landing Procedure when clear of the active runway.

Engine cooldown recommendations:

- run the engines for at least 3 minutes
- use a thrust setting normally used for taxi operations
- routine cooldown times less than 3 minutes are not recommended.

Pilot Flying	Pilot Monitoring
The captain moves or verifies that the SPEED BRAKE lever is DOWN.	
	Start the APU, as needed.
	Set the PROBE HEAT switches to OFF.
	Set the exterior lights as needed.
	Set the ENGINE START switches to OFF.
Set the weather radar to OFF.	
	Set the AUTO BRAKE select switch to OFF.
	Set the flap lever to UP.
	Set the transponder mode selector as needed. At airports where ground tracking is not available, select STBY. At airports equipped to track airplanes on the ground, select an active transponder setting, but not a TCAS mode.

After Landing Procedure

[With automatic ignition]

Start the After Landing Procedure when clear of the active runway.

Engine cooldown recommendations:

- run the engines for at least 3 minutes
- use a thrust setting normally used for taxi operations
- routine cooldown times less than 3 minutes are not recommended.

Pilot Flying	Pilot Monitoring
The captain moves or verifies that the SPEED BRAKE lever is DOWN.	
	Start the APU, as needed.
	Set the PROBE HEAT switches to OFF.
	Set the exterior lights as needed.
Set the weather radar to OFF.	
	Set the AUTO BRAKE select switch to OFF.
	Set the flap lever to UP.
	Set the transponder mode selector as needed. At airports where ground tracking is not available, select STBY. At airports equipped to track airplanes on the ground, select an active transponder setting, but not a TCAS mode.

Shutdown Procedure

Start the Shutdown Procedure after taxi is complete.

Parking brakeSet C or F/O

Verify that the parking brake warning light is illuminated.

Electrical powerSet F/O

If APU power is needed:

Verify that the APU GENERATOR OFF BUS light is illuminated.

APU GENERATOR bus switches – ON

Verify that the SOURCE OFF lights are extinguished.

If external power is needed:

Verify that the GRD POWER AVAILABLE light is illuminated.

GRD POWER switch – ON

Verify that the SOURCE OFF lights are extinguished.

Engine start leversCUTOFF C

If possible, after high thrust operation, including reverse thrust, run the engines at or near idle for three minutes before shutdown to cool the engine hot sections. Time at or near idle, such as taxiing before shutdown, is applicable to this three minute period. If needed, the engines may be shut down with a one minute cooling period. Routine cool down times of less than three minutes before shutdown are not recommended.

If towing is needed:

Establish communications with ground handling personnel C

WARNING: If the nose gear steering lockout pin is not installed and hydraulic system A is pressurized, any change to electrical or hydraulic power with the tow bar connected may cause unwanted tow bar movement.

Verify that the nose gear steering lockout pin is installed, or, if the nose gear steering lockout pin is not used C

System A HYDRAULIC PUMP switches – OFF

Verify that the system A pump LOW PRESSURE lights are illuminated.

CAUTION: Do not hold or turn the nose wheel steering wheel during pushback or towing. This can damage the nose gear or the tow bar.

CAUTION: Do not use airplane brakes to stop the airplane during pushback or towing. This can damage the nose gear or the tow bar.

Set or release the parking brake as directed by ground handling personnel. C or F/O

FASTEN BELTS switch OFF F/O

ANTI COLLISION light switch OFF F/O

FUEL PUMP switches OFF F/O

CAUTION: Do not use the center tank fuel pumps with the flight deck unattended.

[Option]

CAB/UTIL power switchAs needed F/O

[Option]

IFE/PASS SEAT power switch	As needed	F/O
WING ANTI-ICE switch	OFF	F/O
ENGINE ANTI-ICE switches	OFF	F/O
Hydraulic panel	Set	F/O
ENGINE HYDRAULIC PUMPS switches - ON		
ELECTRIC HYDRAULIC PUMPS switches - OFF		

[737-600/700]

RECIRCULATION FAN switch	As needed	F/O
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[737-800/900]

RECIRCULATION FAN switches	As needed	F/O
Air conditioning PACK switches	AUTO	F/O
ISOLATION VALVE switch	OPEN	F/O
Engine BLEED air switches	ON	F/O
APU BLEED air switch	ON	F/O
Exterior lights switches	As needed	F/O
FLIGHT DIRECTOR switches	OFF	C, F/O
Transponder mode selector	STBY	F/O

[Option - Electronic Flight Bag]

EFB CLOSE FLIGHT	Select	C, F/O
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After the wheel chocks are in place:

Parking brake – Release		C or F/O
APU switch	As needed	F/O
Call “SHUTDOWN CHECKLIST.”		C
Do the SHUTDOWN checklist.		F/O

Secure Procedure

IRS mode selectors	OFF	F/O
EMERGENCY EXIT LIGHTS switch	OFF	F/O



DO NOT USE FOR FLIGHT
737 Flight Crew Operations Manual

Normal Procedures -
Amplified Procedures

WINDOW HEAT switches	OFF	F/O
Air conditioning PACK switches	OFF	F/O
[Option - Electronic Flight Bag]		
EFB POWER switch	Push	C, F/O
Call "SECURE CHECKLIST."		C

Do the SECURE checklist.

F/O