



Standard Operating Procedures Boeing B73C



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About This Manual

This manual, the Air Inuit Standard Operating Procedures (SOP) for the B73C aircraft, integrates key information from the Boeing B73C FCOM/FCTM and the Canadian Air Regulations (CARS), as well as content that is specific to Air Inuit.

Flight crews are reminded to refer to the Boeing B73C FCOM, FCTM, and AFM supplements as necessary to have a complete understanding of the SOP.

SOPs are designed to permit the safe and efficient operation of the aircraft during a normal flight. They allow crew members to operate together in a highly complex environment with the understanding that each crew member has specific tasks that are accomplished in a known manner. Although strict adherence to SOPs is required, it must be understood that SOPs cannot be developed to cover all situations. Crew members may be faced with situations requiring a deviation from SOPs in order to attain a higher level of safety. In these circumstances, deviations are acceptable as long as they are properly briefed and understood by both crew members.

Related Documents

The SOP supplements and expands on the information contained in the following publications:

- Boeing FCOM, FCTM, and AFM
- Air Inuit Flight Operations Manual (FOM) ([AILO-0026](#))
- Air Inuit Standard Operating Procedures - General (SOP General) ([AILO-0022.1](#))
- Air Inuit B73C Quick Reference Handbook (QRH) ([AILO-0902](#))
- Canadian Aviation Regulations (CARs)
- AFM Supplements: R-1000_G 737-800 AFMS, 11926 Rev A AFMS, K1010-102-001-014.1 AFMS, 7568-CW-23030-030 REV IR AFMS.

Official Version of this Manual

The electronic version of this manual is the official reference version. It is stored in the [Master Filing Index](#) (MFI) on the Air Inuit intranet (AI-CONNECT).

Distribution of Electronic Version and Paper Copies

Pilots have access to the electronic version of this manual on their Electronic Flight Bags (EFB) where it is updated regularly and automatically. Pilots can also access this manual on the MFI using their password-protected user account.

Pilots who obtain or print a paper copy of a manual should be aware that the paper copy is considered an uncontrolled version of the manual. Air Inuit is not responsible for the currency of paper copies.

Upon termination of their employment, pilots shall return their EFBs and any paper copies of this manual.

Updates to this Manual

Changes to this manual will be made as required. Changes will be incorporated directly into the manual and will be indicated by change bars in the margin. The updated manual will be published on the Pilot EFB and on the MFI.

Reporting Issues in this Manual

If flight crew members observe deviations from the SOP that are made routinely or a procedure that negatively affects safety, they must complete an IMS report ([AII-0003](#)) (Yellow Sheet) and email it to:

- B737@airinuit.com
- support.sms@airinuit.com

Reporting issues will ensure that they are brought to the attention of the Chief Pilot, the Assistant Chief Pilots, or the Regulatory and Compliance Manager who will review the issues and make any necessary changes.

Revision History

Revision	Date	Description
Amendment 2	December 15, 2025	Combi Aircraft Implementation.
Amendment 1	July 15, 2025	Reissue. Extensive changes.
Original	December 12, 2023	First version of the SOP for the Boeing B73C aircraft.

Summary of Changes in Current Amendment

This summary lists the changes since the last version of the SOP B73C. It is intended to make readers aware of the changes and to allow them to view the changed pages easily. This summary is a complement to the [List of Effective Pages \(LEP\)](#) (Appendix A).

Section	Page	Description of Change
1.1.3	13	Normal Checklists . Edited text for clarity.
1.1.4	14	System Monitoring . Edited text for clarity and added ACMS information.
1.2.1	17	Exterior Inspection and Main Cargo Door Preflight Check . Edited text for clarity
1.2.2	18	SpaceX Starlink Aviation System Installation . New section added.
1.2.3	18	Setup . Edited text for clarity
1.2.4	20	Cockpit Safety Inspection (Stand-Up Checklist) . Multiple updates throughout section to include Combi Aircraft operation.
1.3.2	29	Cockpit Check Procedure . Multiple updates throughout section to include Combi Aircraft operation.
1.3.4	40	Takeoff Performance . Updated text.
1.3.6	41	FMC Final Data and Verification . Added item (Autothrottle – ARM) to procedure.
1.3.7	44	Takeoff Briefing . Edited text for clarity and update to the Takeoff Briefing.
1.4.2	48	Before Start Procedure . Updated text.
1.4.4	52	Engine Start Procedure . Added procedure APU Insufficient Bleed Air on Ground .
1.5.2	59	Change of Departure Clearance (Runway/SID) . Procedure Update.
1.5.4	61	Before Takeoff Procedure . Procedure Update.
1.9.1	72	Cruise Procedure . Procedure Update.
1.10.1	73	Landing Performance . Updated text.

Section	Page	Description of Change
1.10.2	73	Approach and Landing Speeds . Updated text for SFP operations guidance.
1.10.3	74	Approaches in Cold Temperature . Edited text.
1.10.5	78	Approach Briefing . Edited text for clarity and update to Approach Briefing.
1.13.9	100	Missed Approach . Updated text and added Rejected Landing and Balked Landing guidance.
2.19	124	Go-Around . Revised heading (previously was: Missed Approach).

Conventions Used in this Manual

Notes, Cautions and Warnings

Notes, cautions and warnings draw the reader's attention to significant information, such as an operating or maintenance procedure, practice, technique, or a condition.

NOTE: A Note is inserted before or after the information that is intended to emphasize or expand on.



A Caution is inserted before information which, if not carefully followed, could result in the destruction of or damage to equipment, or financial loss.



A Warning is inserted before information which, if not carefully followed, could result in the death, injury, or hazard to the health of personnel.

SECTION 1 Normal Procedures

This section contains normal procedures, as routinely performed. Associated standard calls can be found in [SECTION 2](#). Associated diagrams can be found in [SECTION 3](#).

1.1 General Information

1.1.1 Crew Coordination

Allocation of duties, where required, is indicated as follows:

- **PIC** Pilot-in-Command
- **SIC** Second-in-Command
- **PF** Pilot Flying
- **PM** Pilot Monitoring

Crew coordination and workload management are essential parts of every successful flight. It is the responsibility of all crew members to be familiar with their responsibilities and execute them in a professional and timely manner. Each member of the crew must also be familiar with the responsibilities of other crew members.

1.1.2 Sterile Cockpit

Crew are to adhere to the Sterile Cockpit concept whenever the aircraft is below 10,000 feet ASL.

Normal and QRH Non-Normal Checklists (except memory items and drills) should not be completed within 1,000 feet of any cleared/selected altitude.

It is recommended that the After Takeoff Checklist be delayed until established on an enroute direction and/or clear of busy airspace above 3000 feet AAE.

1.1.3 Normal Checklists

Normal Checklists are meant to complement Normal Procedures. They are organized by phase of flight and are used to verify that certain critical procedural steps or items have been accomplished. Checklists only include items that, if omitted, would have a direct and adverse impact on the safety of normal operations. Dashed lines define logical hold points that allow partial completion of the checklist until further action is appropriate.

Normal checklists are either accomplished by Challenge and Response or Read and Verify.

Challenge and Response checklists are accomplished by both pilots and are safety measures intended to bring to light any highly critical item which otherwise may have been overlooked. Checklist items in bold characters must be confirmed (answered) by both pilots.

With the exception of the Before Start checklist, checklist items that are marked with an asterisk (*) are completed by the PM by Read and Verify. Read and Verify checklists are accomplished by the PM who will read both the action and the response which allows the PF to become aware of system reconfigurations without having to take their attention away from the task of handling the aircraft.

Usually, no action is necessary and no controls are adjusted while the PM is reading the checklist. However, if good operating practice dictates that an action is necessary, the action should be completed at the same time as the challenge.

The PIC normally calls for the required checklist on the ground, and the PF normally calls for the required checklist in flight. While it is the PIC's responsibility to determine that each checklist is accomplished at the proper time, the SIC must be aware of the status of the checklists and advise the PIC if a checklist is not accomplished at the proper time.

All checklists must be announced as completed by the challenging crew member in the case of a challenge/response checklist, or by the executing crew member in the case of a read and verify checklist.

1.1.4 System Monitoring

As a general rule, when the aircraft is in motion, all system controls and switches (other than those needed by the PF in his duties) should be actioned by the PM. This will facilitate continuous aircraft control by the PF and proper system/switch identification by the PM.

During accomplishment of procedures, when an action is taken and associated indications are provided, it is the crew member's responsibility to ensure proper system response.

The Master Caution System alerts the crew of any caution condition that may exist outside their normal field of view. The effective use of this system keeps these lights extinguished as much as possible.

If a caution condition occurs while airborne, the PM shall take note of the affected system by announcing the caution aloud ("**Master Caution:**_____"), confirm

with the PF, then press the Master Caution Reset light to reset the system for the next caution. As needed, the PF will direct the PM to ensure the response to the event is appropriate.

If a caution condition occurs while on the ground, the SIC shall take note of the affected system by announcing the caution aloud ("**Master Caution: _____**") and shall then press the Master Caution Reset light to reset the system for the next caution. As needed, the PIC will direct for the applicable response to the event when the aircraft is stopped and safe to do so.

The 737NG aircraft is equipped with an Aircraft Condition Monitoring System (ACMS) which monitors most of the aircraft systems, records system status, and helps Maintenance to troubleshoot any related defects. When a system malfunction is observed, it is highly recommended that the crew do not attempt a system reset unless directed by an NNC, or a Maintenance procedure guided by Maintenance personnel. Acting otherwise has the potential to clear crucial information and impact the safety of the flight.

1.1.5 Circuit Breakers

Boeing recommends that flight crews not reset circuit breakers. Circuit breakers related to fuel pumps should never be reset in flight. Consider the relative importance of the inoperative component to the remainder of the flight, as well as other indications (e.g. other tripped circuit breakers, etc.), prior to resetting the associated circuit breaker. Any time a circuit breaker trips or is cycled, a logbook write-up is required.

1.1.6 Fuel Balancing and Crossfeed

Fuel Crossfeed and Fuel Balancing should only be accomplished when directed by a QRH checklist or when the IMBAL alert is shown and completed via the applicable checklist.

1.1.7 Communications

Maintain a listening watch on appropriate company frequency when applicable. Above FL180, 121.5 should be monitored.

All non-ATC communications will normally be carried out by the PM. This ensures the PF is alert for any immediate ATC instructions. The PM will advise the PF before ceasing ATC communications watch and when returning to ATC communications.

1.1.8 Flight Management Computer (FMC)

Initial loading of the FMC is done by the PF. Roles can be reversed at the PIC's discretion. Afterwards, in-flight manipulations are done by the PM. Any change done to the lateral and vertical navigation portion of the FMC must be confirmed by the other pilot.

1.1.9 Use of Automation

Autopilot operation is dependent on the active Flight Director and programmed FMC. Ensure proper Flight Director mode selection any time they are on and/or when using the autopilot.

Pilots must include scanning of the Flight Mode Annunciator, Selected Target Windows (Speed/Altitude/Heading) and the Navigation Display (ND) as part of their normal instrument scan, and more importantly, when automation and/or FMC changes occur.

The VNAV function may be used during all phases of flight from Takeoff to Landing. It is highly recommended that the VNAV function not be used for Takeoff and Initial Climb when Windshear conditions are reported or have a potential to exist.

1.1.10 Aircraft Journey Logbook and Aircraft Defects

After each flight, a member of the crew will make the entry for the flight in the Aircraft Journey Logbook. Either crew member can make the entry. The PIC will review the entry to ensure all required information has been entered and will sign the entry.

Note fuel remaining on the Journey Logbook page to allow the next crew to calculate fuel uplift.

Any new defects should be relayed to Dispatch at Top of Descent while enroute or relayed through station personnel for advice/discussion of developing snag(s). Ensure Dispatch is advised whenever Maintenance is required at a non-maintenance station.

1.2 Preflight

1.2.1 Exterior Inspection and Main Cargo Door Preflight Check

Refer to the Boeing FCOM and the AEI AFM Supplement (R-1000_G 737-800 AFMS – STC ST02690LA).

- Boeing Flight Crew Operations Manual:
 - Normal Procedures
 - Amplified Procedures
 - Exterior Inspection.
- AEI AFM Supplement (R-1000_G 737-800 AFMS – STC ST02690LA).
 - Section 3 – Normal Procedures
 - 3.1 – Main Cargo Door
 - Preflight Check
 - To Open Main Cargo Door (ground operations only)
 - To Close Main Cargo Door (ground operations only)

NOTE: A daily Main Cargo Door normal operation check must be carried out prior to the first flight of the day. This operational check does not require opening the main cargo door completely. Open the main cargo approximately one or two feet from the lower jamb.

NOTE: Observe the hydraulic pump duty cycle of one (1) minute ON / one (1) minute OFF to prevent pump overheating.

1.2.2 SpaceX Starlink Aviation System Installation

Refer to the Citadel Completions AFM Supplement 7568-CW-23030-030 REV IR.

The Starlink system is expected to be ON all the time.

CAUTION

The Aero Terminal is an RF transmitting device and radio frequency fields may exceed the FCC General Population exposure limits. While operating, ensure personnel maintain a separation distance of 0.6m (2ft) around the antenna surface. If personnel are in the RF exposure zones, Turn off the Starlink System using the STARLINK or IFE/PASS SEAT switch.

1.2.3 Setup

The standard separation of tasks during flight preparation is as follows.

Pilot Flying

- Perform the Cockpit Safety Inspection (Stand-Up Checklist).
- Get the ATIS or departure station weather.
- Initialize and perform the FMC Preflight.
- Perform his area of responsibility of the Cockpit Preparation Procedure.
- Calculate or crosscheck the Weight and Balance, Engine Rating, and Takeoff Flaps and Speeds.
- Perform the COM – NAV – FMC (update) – SETTING setup.

Pilot Monitoring

- Perform the Exterior Walkaround and Main Cargo Door Preflight Check.
- Ensure coordination with ground personnel for cargo loading and any other operational considerations.
- Perform his area of responsibility of the Cockpit Preparation Procedure
- Calculate or crosscheck the Weight and Balance, Engine Rating, and Takeoff Flaps and Speeds.
- Verify and crosscheck the COM – NAV – FMC – SETTING setup.

IFR clearance should be obtained by the SIC and monitored by both pilots together. |

1.2.4 Cockpit Safety Inspection (Stand-Up Checklist)

The Stand-Up Checklist includes the items required for the safe application of electrical power.

Stand-Up Checklist	
Parking brake or Chocks	As needed
Set the parking brake if the brake wear indicators are to be checked during the exterior inspection.	
Maintenance documents.....	Check
Verify maintenance status acceptable for intended flight.	
BATTERY	ON – Guarded closed
NOTE: Do not move the airplane until Integrated Standby Flight Display (ISFD) alignment is complete.	
STANDBY POWER.....	Guarded Closed
ALTERNATE FLAPS	Guarded Closed
ELECTRIC HYDRAULIC PUMPS	OFF
NOTE: Both Pumps must be OFF before energizing the aircraft AC electrical system. Once the AC electrical system is available, ELEC 1 (B) pump may be used momentarily to pressurize the Parking Brake.	
CAUTION Do not operate the Electric Hydraulic pumps when ground personnel are in close proximity of the Landing Gear, Nose and Main Wheel Wells and hydraulically operated Flight Controls Do not operate the Electric Hydraulic pumps with the flight deck unattended.	
Windshield WIPER.....	PARK

Stand-Up Checklist

LANDING GEAR lever..... DN

- Verify that the green landing gear indicator lights are illuminated.
- Verify that the red landing gear indicator lights are extinguished.

FLAP lever Check position

If external power is needed:

Verify that the GRD POWER AVAILABLE light is illuminated.

GRD POWER ON

- Verify that the SOURCE OFF lights are extinguished.
- Verify that the TRANSFER BUS OFF lights are extinguished.
- Verify that the STANDBY PWR OFF light is extinguished.

If APU power is needed:

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

Alert ground personnel before the following test is accomplished.

Overheat and fire protection panel Check

OVERHEAT DETECTOR 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 operate the APU if the APU DET INOP light fails to illuminate.

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.

Stand-Up Checklist

- Verify that the fire warning bell cancels.

Verify that 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.

NOTE: The WHEEL WELL fire warning light on the overheat and fire protection panel may or may not illuminate when testing on DC electrical power only. For accurate testing, do the wheel well fire detection system test after AC electrical power is established.

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..... Start

NOTE: If extended APU operation is needed on the ground and the aircraft busses are powered by AC electrical power, position an AC-powered fuel pump ON. This will extend the service life of the APU fuel control unit.

NOTE: 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 500 kg.

Stand-Up Checklist

CAUTION

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

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.

Verify that the STANDBY PWR OFF light is extinguished.

Verify that the APU LOW OIL PRESSURE light is extinguished.

Verify that the HIGH OIL TEMP light is extinguished.

Verify that the APU OVERSPEED light is extinguished.

Wheel well fire warning system Test

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.
- Verify that the WHEEL WELL light is illuminated.
- Fire warning BELL CUTOUT Push
- Verify that the master FIRE WARN lights are extinguished.
- Verify that the fire warning bell cancels.
- Verify that the WHEEL WELL light stays illuminated.

Stand-Up Checklist

Lower CARGO FIRE panel Check
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 green EXTINGUISHER test lights is illuminated.
- Verify that the FWD and AFT cargo fire warning lights are illuminated.
- Verify that the DETECTOR FAULT lights are extinguished.
- Verify that the DISCH light is illuminated.

C-FTUZ – Freighter Aircraft

MAIN DECK CARGO COMPARTMENT AIR SHUTOFF Pre-Flight..... Complete
Air Conditioning PACK switches (both) OFF
RECIRC FAN switches (both) OFF
CARGO COMPARTMENT AIR SHUTOFF switch PUSH

- Verify switch FWD CLSD and AFT CLSD light illuminated.

CARGO COMPARTEMENT AIR SHUTOFF switch..... PUSH

- Verify switch FWD CLSD and AFT CLSD light extinguished.

C-FTUW & **C-FTUY** – Combi Aircraft

MAIN DECK CARGO MAIN and AIR VALVE Pre-Flight Complete
MAIN DECK CARGO SMOKE/FIRE ARM switch PUSH

- Verify MAIN light is illuminated.
- Verify AIR VALVE CLOSED light is illuminated.

NOTE: AIR VALVE CLOSED light takes up to 5 seconds to illuminate.

MAIN DECK CARGO SMOKE/FIRE ARM switch PUSH

- Verify MAIN and AIR VALVE CLOSED lights are extinguished.

NOTE: AIR VALVE CLOSED light takes up to 5 seconds to extinguish.

Stand-Up Checklist

Weather Radar TEST and NDs OFF

- Verify that Mode Selector Switch on Weather Radar Panel is in TEST position.
- Verify that both WXR buttons on EFIS Control Panels are selected OFF.
- Verify that Weather Radar indications are not shown on the NDs.

Flight deck access system Test/Check

Flight Deck Access System (FDAS) switch..... NORM (guard closed)

Carry out system test:

- Flight compartment door..... Open
- FLT DK DOOR rotary switch AUTO
- Access code Enter in keypad
- ENT key Press

Verify chime module sounds appropriately.

Verify AUTO UNLK light illuminates.

- FLT DK DOOR switch DENY

Verify AUTO UNLK light extinguishes.

- FDAS switch..... OFF

Verify LOCK FAIL light illuminates.

- FDAS switch..... NORM

Manual gear extension door..... Closed

Emergency equipment Check

Fire extinguisher Checked/stowed

Crash axe..... Stowed

Escape ropes Stowed

First Aid Kit Stowed

Smoke goggles Stowed

PBE..... Stowed

Circuit breakers (P6, P18, and control stand)..... Check

Stand-Up Checklist

ELT switch Guard closed

- Verify that the ELT light is extinguished.

IRS mode selectors OFF, then NAV

- A full IRS alignment is recommended before each flight.
- 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.

GPS – ILS – GLS lights..... Verify extinguished

PSEU light Verify extinguished

STARLINK pushbutton As needed

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.

Landing gear indicator lights Verify illuminated

FLIGHT RECORDER Guard closed

- Verify that the OFF light is illuminated.

Stand-Up Checklist

MACH AIRSPEED WARNING TEST Push, one at a time

- Verify that the clacker sounds.

STALL WARNING TEST Push and hold, one at a time

- Verify that each column vibrates when respective switch is pushed.

NOTE: The stall warning test requires that AC transfer busses are powered for up to 4 minutes.

NOTE: With hydraulic power off, the leading-edge flaps can droop enough to cause an asymmetry signal, resulting in a failure of the stall warning system test. If this occurs, obtain a clearance to pressurize the hydraulic system, place the "B" system electric pump 1 to ON and retract the flaps. When flaps are retracted, repeat the test. At completion of the test, turn the "B" system electric pump 1 OFF.

CVR Test

CVR TEST push button PUSH AND HOLD FOR 2 SECONDS

NOTE: Speak clearly with a very loud voice during the test.

- Verify that the PASS/FAIL LED is flashing green rapidly.
- Verify that the PASS/FAIL LED is steady green for a minimum of two (2) seconds
- Verify that the PASS/FAIL LED is extinguished.

CAB – IFE power switches As needed

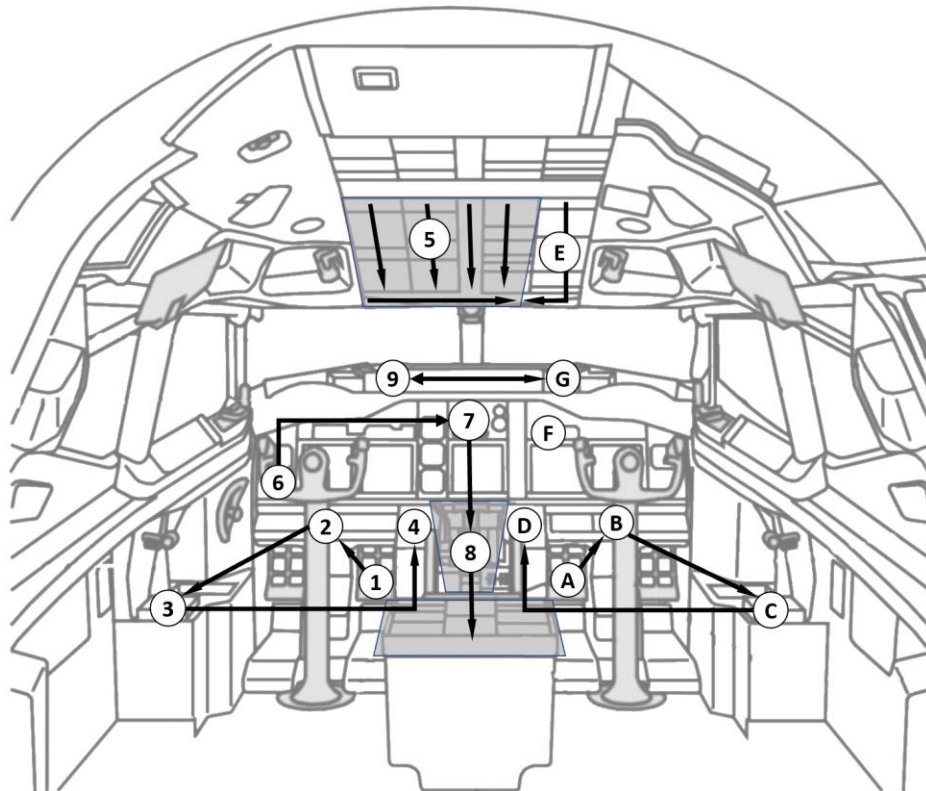
Engine Instruments Check

- Verify that engine indications show existing conditions.
- Verify that no exceedance is shown.
- Verify that the Hydraulic and Engine Oil quantities are sufficient for flight.

NOTE: Do not press the QTY TEST switch when the aircraft is being fueled.

1.3 Cockpit Preparation

1.3.1 Cockpit Check Flow



Pilot-in-command	Second-in-command
1. SEAT & RUDDER PEDALS	A. SEAT & RUDDER PEDALS
2. DISPLAY BRIGHTNESS CONTROL	B. DISPLAY BRIGHTNESS CONTROL
3. OXYGEN PANEL	C. OXYGEN PANEL
4. **FMC Preflight	D. **FMC Preflight
5. FORWARD OVERHEAD PANEL	E. FORWARD OVERHEAD PANEL
6. LEFT FORWARD PANEL	F. RIGHT FORWARD PANEL
7. CENTER INSTRUMENT PANEL	
8. CNTRL STAND & AFT ELEC PANEL	
9. EFIS CONTROL PANEL & **MODE CONTROL PANEL	G. EFIS CONTROL PANEL & **MODE CONTROL PANEL

**Completed by Pilot Flying

1.3.2 Cockpit Check Procedure

NOTE: All overhead panel lights are considered to be extinguished, unless specifically stated otherwise.

Pilot-in-command	Second-in-command
SEAT and RUDDER PEDALS Adjust Verify pedals are adjusted to permit full rudder deflection and brake application. Circuit breakers on rudder pedals pedestal Check	
Display Brightness Controls Set	
OXYGEN/INTERPHONE ON, 100%/Check Oxy-Boom microphone switch MASK • With speaker on, volume up, press PTT switch to test interphone and then PA position • Verify transmission Oxy-Boom microphone switch BOOM	
OXYGEN PRESSURE DROP Test Note the crew oxygen pressure. Oxygen mask Stowed and doors closed TEST/RESET 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.	

Pilot-in-command	Second-in-command
Verify that the crew oxygen pressure does not decrease more than 100 psig. If the oxygen cylinder valve is not in the fully open position, pressure can: - decrease rapidly, or - decrease more than 100 psi, or - increase slowly back to normal Release the RESET/TEST switch and the EMERGENCY/Test selector. Verify that the cross does not show in the flow indicator. Normal/100% selector 100% Crew oxygen pressure..... Check Verify that the pressure is sufficient for dispatch.	
FMC Preflight Complete ATIS.....Obtain Initial Data Set [IDENT] Page - Verify that the MODEL & ENG RATING are correct. - Verify that the navigation data base ACTIVE data range is current. [POS INIT] - Enter REF Airport. - Enter present position on the SET IRS POS line. Use the most accurate latitude and longitude (POS INIT page 2 – GPS, L or R). Navigation Data Insert [ROUTE] - Enter ORIGIN / DESTINATION. - Enter FLIGHT NUMBER. - Select ROUTE page 2 and enter route as indicated on the OFP.	

Pilot-in-command	Second-in-command
[DEP] / [ARR] - Select the runway and departure routing (SID). - Select the APPROACH and STAR as indicated on the OFP. - Select ROUTE page 2, ACTIVATE & EXECUTE. Performance Data..... Set [PERF INIT] - Enter COST INDEX. - Enter RESERVES. - Enter CRZ ALT. - Enter CRZ WIND. - Enter T/C OAT.	
FLIGHT Control Panel Check • Verify all 5 switch-guards down. • Flight control LOW PRESSURE lights illuminated. YAW DAMPER ON ALTERNATE FLAPS position switch OFF	AIR CONDITIONING Set TRIM AIR..... ON • Set Temperature selectors as desired. • RAM DOOR FULL OPEN Lights illuminated RECIRC FAN..... As needed Air conditioning PACKs.....as needed • Run both PACKs on APU. • Select both PACKs to OFF when Ground Conditioned Air is connected. ISOLATION VALVE OPEN Engine BLEED air OFF
NAVIGATION Panel Set • VHF NAV transfer NORMAL • IRS transfer NORMAL	

Pilot-in-command	Second-in-command
DISPLAYS Panel..... Set • SOURCE selector..... AUTO • CONTROL PANEL select NORMAL	
FUEL SYSTEM..... Pumps ON then OFF • Check all pumps and LOW PRESSURE lights and leave #1 FWD pump ON if APU running. • If fuel is loaded in the center tank and exceeds 500 kg, position the left center tank fuel pump ON to prevent a fuel imbalance before takeoff. NOTE: If center tank contains 1500 kg or less, center tank pumps should be off for takeoff until 10,000 ft checks to avoid nuisance master cautions on departure. • ENGINE VALVE CLOSED lights illuminated dim. • SPAR VALVE CLOSED lights illuminated dim. CROSSFEED.....Cycle & Closed • VALVE OPEN light illuminates bright → dim → bright → extinguishes. • Verify the total quantity of fuel in all tanks meets dispatch requirements.  CAUTION If a Fuel Pump light does not extinguish shortly after the switch is turned on, this may indicate a locked fuel pump rotor. Place the switch to off to prevent damage to the pump. Call Maintenance.	PRESSURIZATION SYSTEM Set • FLIGHT ALTITUDE Indicator Final cruise altitude • LANDING ALTITUDE Indicator Destination field elevation • Pressurization Mode Selector AUTO

Pilot-in-command	Second-in-command
ELECTRICAL SYSTEM..... Set • AC Selector As required • DC Selector Check BAT and TRs • CAB/UTIL switch ON • STANDBY POWER Guard closed • Generator Drive DISCONNECT Guard closed and safe-tied • DRIVE lights illuminated. • BUS TRANSFER Guard closed • GEN OFF BUS lights illuminated.	
SUPPLY & EXHAUST switches NORM	
EMERGENCY EXIT LIGHTS Guard closed	
PASSENGER SIGNS Set • NO SMOKING ON • FASTEN BELTS ON When refueling with passengers or supernumeraries on board, the FASTEN BELTS switch shall remain OFF until refueling is complete.	
WINDOW HEAT ON • Position switches ON at least 10 mins before takeoff. • OVERHEAT Lights extinguished and ON Lights illuminated, except at high ambient temperature.	
PROBE HEAT AUTO • All lights illuminated.	
ENGINE ANTI-ICE OFF	

Pilot-in-command	Second-in-command
WING ANTI-ICE OFF	
Hydraulic Panel Set - ENGINE HYDRAULIC PUMPS ON - LOW PRESSURE lights illuminated. NOTE: ENG 1 HYD PUMP switch should only be turned OFF just prior to pushback if an engine(s) will be started on pushback. This will prolong life of blocking valve solenoid. - ELEC HYDRAULIC PUMPS OFF NOTE: ELEC 1 (B) HYD PUMP may be used momentarily to pressurize the Parking Brake. - LOW PRESSURE lights illuminated.	
Pressurization indicators Check - Cabin Differential Zero - Cabin Altitude Field elevation - Cabin Rate of Climb Zero	
LANDING, RUNWAY TURNOFF and TAXI lights OFF	Exterior Lights As needed - POSITION STEADY - ANTI COLLISION OFF
Ignition select switch IGN L or R - Select IGN R for originating flight out of maintenance base. - Alternate ignition switch position on subsequent starts. ENGINE START switches OFF	
NOSE WHEEL STEERING Guard closed	

Pilot-in-command	Second-in-command
Display select Panel..... Set	
MAIN PANEL DISPLAY UNITS NORM	
LOWER DISPLAY UNIT NORM	
Disengage light TEST..... Complete 1 & 2	
TEST..... Hold 1	
• A/P illuminated steady red • A/T illuminated steady amber • FMC illuminated steady amber	
TEST..... Hold 2	
• A/P illuminated steady red • A/T illuminated steady amber • FMC illuminated steady amber	
TAKEOFF CONFIG Extinguished	
CABIN ALTITUDE Extinguished	
SPEED BRAKE DO NOT ARM... Extinguished	
STAB OUT OF TRIM Extinguished	

Pilot-in-command	Second-in-command
MCD LIGHTS/LIGHT TEST..... Check - Verify/test the amber CARGO DOOR ARMED and the two red CARGO DOOR warning lights on both Forward Panels and the Center Instrument Panel. - LIGHT TEST switch.....TEST C-FTUZ – Freighter Aircraft only, the Master FIRE WARN lights will illuminate and fire bell will sound. - FIRE WARN light PUSH This will silence the fire bell. - Use scan flow to verify that all system annunciator panel lights and cockpit lights are flashing or illuminated. Use individual test switches or push to test features to check lights which do not illuminate during the light test. LIGHT TEST switch..... As Needed	
Engine Display Control Panel Set N1 SET..... AUTO SPEED REFERENCE AUTO FUEL FLOW RATE Move switch to RESET, then RATE.	
AUTO BRAKE..... RTO	

Pilot-in-command	Second-in-command
ISFD Set • Approach mode display is blank. • Altimeter set or local altimeter setting. • Verify that flight instruments indications are correct.	GROUND PROXIMITY panel Check FLAP INHIBIT Guard closed GEAR INHIBIT Guard closed TERRAIN INHIBIT Guard closed SYS TEST Press
SPEED BRAKE lever DOWN detent	
Reverse thrust levers DOWN	
Thrust levers CLOSED	
STABILIZER TRIM cutout NORMAL	
Engine Start Levers Check & CUTOFF • Engine Start Levers IDLE NOTE: Leave the Engine Start Levers in the IDLE position for at least 10 seconds. NOTE: It is normal for the ENG VALVE CLOSED indication lights on the OVERHEAD PANEL to transition from DIM to BRIGHT and stay BRIGHT. • Engine Start Levers CUTOFF • Verify the SPAR VALVE CLOSED indication lights on the OVERHEAD PANEL change from OFF to BRIGHT then DIM. NOTE: If any SPAR VALVE CLOSED indication light on the OVERHEAD PANEL fails to illuminate to BRIGHT during the test, contact Maintenance before next flight.	

Pilot-in-command	Second-in-command
MAIN DECK CARGO SMOKE/FIRE TEST switch PUSH/HOLD NOTE: For C-FTUZ – Freighter Aircraft only, push and hold for 1 second. • Verify that Fire Warning sounds. • Verify that glareshield FIRE WARN lights illuminates. • Verify DETECTOR lights (7 – 14) illuminates. (C-FTUW – C-FTUY) • Verify EXT BTL 1 and EXT BTL 2 lights illuminate. • Verify AIR VALVE CLOSED light illuminates. NOTE: AIR VALVE CLOSED light takes up to 5 seconds to illuminate. MAIN DECK CARGO SMOKE/FIRE TEST switch RELEASE • Verify that Fire Warning Bell cancels. • Verify that glareshield FIRE WARN lights extinguish. • Verify DETECTOR lights 7 – 14 extinguish. (C-FTUW – C-FTUY) • Verify EXT BTL 1 and EXT BTL 2 lights extinguish. • Verify AIR VALVE CLOSED light extinguish. NOTE: AIR VALVE CLOSED light takes up to 5 seconds to extinguish.	

Pilot-in-command	Second-in-command
Audio Control Panels Set - Receiver Switches As needed Ensure that HF2 Receiver Switch (SATPHONE) is selected and that volume is sufficiently adjusted. - Speaker Switch..... As needed - MASK-BOOM Switch BOOM - Alternate-Normal Switch NORM	
Transponder Panel Set - ATC Code Indicator..... 0000 - ATC Selector 1 - ALT Selector..... PF Altimeter - Transponder Mode Selector..... Test momentarily then STBY	
Weather Radar Test as needed Refer to Honeywell IntuVue RDR-4000 Weather Radar Pilot's Guide.	
STABILIZER TRIM override switches..... Guard closed	
Trims..... Check - Check each trim for freedom of movement. - Pitch trim..... 5.0 units - Aileron trim..... 0 units - Rudder trim..... 0 units	

1.3.3 Weight and Balance

Weight and Balance calculations are to be carried out as per the section on Weight and Balance Control in the FOM ([AILO-0026](#)). When completed, both pilots will review the weight and balance result (via the OPT application or the Load and Trim sheet) before departure.

1.3.4 Takeoff Performance

Performance Data must be calculated by both pilots via the OPT application.

Aircraft performance for takeoff (Bleed Air, Flaps, Engine Fixed Derate, Assumed Temperature and Improved Climb) will be based on safety and engine wear.

The No Engine Bleed Takeoff configuration will normally be used for takeoff unless Wing Anti-Ice is planned to be ON below 3000 feet AAE or if the De-icing/Anti-icing Checklist has been completed and the Packs and Bleed Air have been configured accordingly.

Ensure that the OAT temperature in the [N1 LIMIT] page is properly updated to the latest reported temperature via ATIS or CARS/UNICOM.

The TAKEOFF DATA item of the BEFORE START checklist requires the PIC to verify the values of V_1 and V_2 on the PFD, the N1 value on the Upper Display Unit and the Flap value on the FMC. The SIC will verify these values via the OPT/TLR as the PIC reads them.

1.3.5 Fuel Uplift

Once refueling is complete, the fuel will be checked by comparing the fuel on board with the sum of fuel remaining + uplift.

1.3.6 FMC Final Data and Verification



DO NOT enter the ZFW in the GW boxes. The FMC will calculate performance data with significant errors.

Once the Final Data (W&B and Performance Data) and ATC clearance has been received, the PF sets the COM and NAV radios, enters the Final Data in the FMC and sets the EFIS Control Panel and MCP for departure.

The PM will verify the data entered on the CDU RTE page, the PERF INIT page, the N1 LIMIT page and the TAKEOFF page.

The total trip distance [PROG] between FMC and OFP should be crosschecked for gross navigational error.

N1 % takeoff setting, flaps selection and V-Speeds shall be crosschecked with the OPT results.

Pilot Flying	Pilot Monitoring
COM Radios As needed	
NAV Radios..... As needed	
FMC Final Data Complete Performance Data..... Set [PERF INIT] - Enter ZFW. - Verify that the FUEL on the CDU, the OFP and the fuel quantity indicators agree. - Verify that CDU GROSS WEIGHT is within 100 kilograms of Weight and Balance calculations.	

Pilot Flying	Pilot Monitoring
[N1 LIMIT] - Enter assumed temperature and correct OAT. - Select Fixed Derate Thrust. [TAKEOFF REF] - Enter TO Flaps. - Enter the CG. - Set Pitch Trim from CDU. - Enter V-Speeds. [TAKEOFF REF] page 2/2 - Verify or enter acceleration and thrust reduction heights.	
EFIS Control Panel Set MINIMUMS reference selector BARO EFIS BARO DA selector Set FRA BAROMETRIC selector..... Local altimeter setting Mode selector..... MAP TRAFFIC ON	

Pilot Flying	Pilot Monitoring
MCP.....Set FLIGHT DIRECTORs ON • Move the switch for the PF first. COURSE selectors.....EODP initial Course AUTOTHROTTLE ARM IAS/MACH selector Set V ₂ VNAV As needed HEADING Set Runway Heading Bank angle selector As needed LNAV..... As needed ALTITUDE selector... Set SID/Initial Altitude DISENGAGE bar Up	COM - NAV - FMC - SETTING.... Review

1.3.7 Takeoff Briefing

Operational briefings are an integral element of the Threat and Error Management process and are accomplished with the help of their associated Briefing Cards.

The briefings follow the Threat – Plan – Considerations (T-P-C) model and are meant to focus on identification of threats and their applicable mitigation, as well as identifying significant differences or deviations from routine operations.

At the end of the briefing, the crew should have a shared mental model of intended operations, identified threats, threat mitigations, and deviations from routine operations. The operational briefing will also provide the PM with an expected monitoring framework.

The Takeoff Briefing will be carried out before every flight and will involve both pilots. The only exception is the Takeoff Emergency Daily Review which is only required on the first flight of the day for the same two crew members.

The Takeoff Briefing is complementary to the SOP. It is not meant to be a repetition of SOP items nor a checklist to complete the cockpit preparation.

Both pilots will verify the Build & Bugs of the FMC and MCP, and review all pertinent information and Notes pertaining to the cleared and/or planned departure (Weather, Aerodrome & Taxi Charts, and Departure Charts) prior initiating the Briefing

TAKEOFF BRIEFING		
THREAT	Threat and Error Management The Threat and Error Management portion of the briefing is initiated by both pilots with an open discussion where potential threats are identified and threat mitigation options are agreed upon. It is followed by the Takeoff Emergency Daily Review when needed. • Threat and Mitigation Discussion (What are our threats?) • Takeoff Emergency Daily Review* (when needed)	
	*Takeoff Emergency Daily Review (when needed)	Pilot-in-command For any malfunction before V ₁ : I will call "REJECT" or "CONTINUE". If REJECT, I will: • Close thrust levers and disengage the AUTO-THROTTLE • Ensure maximum braking • Raise the SPEED BRAKES • Reverse thrust as needed to a full Stop • Set the parking brake
		Second-in-command • I will monitor state of autobrakes • Call state of speedbrakes and reverse thrust. • Call 60 knots • Select Flaps to 40 • Call ATC
		Pilot Flying At 400 feet we will: • Ensure HDG SEL, ("BANK 15" only if needed), confirm the malfunction and complete the applicable DRILL. • Standby ATC – Standby Cabin Above FRA: • If TOGA mode is active: Set UP Speed • Retract the flaps on speed schedule With flaps up and no lights: • Engage LVL CHG • Confirm MCP speed (and "BANK 30" only if applicable) • Set MCT • WHERE TO – Proceed with the appropriate Non-Normal Checklist.

TAKEOFF BRIEFING (continued)	
PLAN	Plan This portion of the briefing is meant to outline the planned departure and ensure that both pilots are on the same page and know what to expect of each other. It should include a minimum of the following items but can be expanded as needed. • Takeoff Runway (Intersection as needed) • SID name and SID notes as needed; or Departure plan • Automation Modes (Read FMA from PFD) • Thrust Reduction and Acceleration Altitude(s) • First Target Altitude (Selected)
CONSIDERATIONS	Considerations This portion complements the briefing with details of interest that are worth taking into consideration as needed. They only need to be mentioned when the crew deems necessary. • Complex Engine Out SID • Bleed Air Configuration – Use of Anti-Ice • Supplemental Procedures (Run Up, MEL 'O' Action, etc.) – SOP deviations • Jumpseat/observer safety briefing and duties • Miscellaneous item as needed

1.4 Engine Start

1.4.1 Before Start Flow

Pilot-in-command	
Request the Before Start Checklist to the line	
1. PARKING BRAKE	ON
2. FUEL PANEL	SET
3. HYDRAULIC A PUMPS	AS NEEDED
4. HYDRAULIC B PUMPS	ON

Second-in-command	
1. APU BLEED	ON
2. PACKs (Both)	ON
Carry out the Before Start Checklist to the line	

Pilot-in-command	
Request the Before Start Checklist below the line	
1. WINDOW	CLOSED
2. DEFOGS	RECEIVED

Second-in-command	
1. WINDOW / DOORS / MCD (3)	CLOSED / LIGHTS OUT
2. ANTI-COLLISION LIGHT	ON
3. TRANSPONDER	ALT OFF
Carry out the Before Start Checklist below the line	

1.4.2 Before Start Procedure

The Before Start checklist includes items that must be checked during the first flight of the day. For any subsequent flights, only items marked with an asterisk (*) need to be covered.

Start the APU at the PIC's discretion, keeping in mind passenger comfort. Run the APU for at least two minutes and ensure that the Ground Conditioned Air is disconnected before selecting the APU bleed air and both PACKs to ON.

Complete the Before Start checklist "To the Line" only when:

- Fueling is complete.
- Weight & Balance is complete.
- Ground Conditioned Air is disconnected.

Perform the "below the line" items when start and/or pushback clearance has been received and just before pushback. Start engines when pushback is complete and Parking Brake is set.

Before Start Procedure

Pilot-in-command	Second-in-command
Request the Before Start Checklist to the line.	
Parking Brake..... ON	APU Bleed ON
Fuel Panel..... Set	Air Conditioning
If the center tank fuel quantity exceeds 1500 kg:	PACKs (Both)..... ON
L & R CTR	
FUEL PUMPS.....ON	
• If the LOW PRESSURE light stays illuminated, turn off the CTR FUEL PUMPS.	

Pilot-in-command	Second-in-command
If the center tank fuel quantity is between 500 kg and 1500 kg: L & R CTR FUEL PUMPS..... ON then OFF - Select the CTR FUEL PUMPS to OFF after the respective LOW PRESSURE lights extinguish. AFT and FWD FUEL PUMPS ON Hydraulic Panel..... Set Hydraulic A PUMPS As needed - Select both Hydraulic A PUMPS to OFF if a tow bar is connected to the aircraft. Hydraulic B PUMPS ON	Read the items to the line and announce when the checklist is complete.
When Ready for Start or once the Pushback Clearance has been received, request the Before Start Checklist below the line. Side Window Closed & Secure DEFOCS Received	Side Window Closed & Secure Doors / MCD (3) Lights out ANTI COLLISION ON Transponder.....ALT OFF Read the items below the line and announce when the checklist is complete.

For standard calls, refer to [Section 2.5 - Before Start](#).

1.4.3 Pushback Procedure

CAUTION

- **Do not make any electrical or hydraulic power changes with tow bar connected. Any change to electrical power may cause momentary pressurization of the nose wheel steering actuators causing unwanted tow bar movement. Failure of the "A" pump solenoid will cause the "A" system to pressurize even with the pumps selected off. Ensure tow bar is disconnected prior to turning system "A" pumps on.**
- **If an engine is to be started at the gate for any reason, the tow bar must not be connected at the nose wheel end. After engine start and after aircraft generators are on, the ground crew will confirm with the flight deck crew that the "A" hydraulic system pressure is zero before reconnecting the tow bar.**
- **In the event that interphone communication is lost during pushback, continuous flashing of any light will indicate that the tug operator must immediately stop the pushback.**
- **Set or release the parking brake as directed by ground handling personnel.**

Pushback Procedure

Pilot-in-command	Second-in-command
Establish interphone contact with the ground crew to determine when they are ready for pushback and whether the steering by-pass pin is fitted or not.	
When pushback clearance has been received (if required): advise Flight Attendants to prepare for departure (as needed), complete the below the line portion of the Before Start Checklist, and advise the ground crew.	Monitor ATC Comms and ramp area. Confirm Hydraulic System A PUMPS (both) OFF
	Consider leaving PACKS ON for as long as possible for passenger comfort.
When the ground crew advises: "SET PARK BRAKE", set parking brakes and advise the ground crew when brakes are set.	
A member of the ground crew will go into position to receive the "READY TO TAXI" cue.	

For standard calls, refer to [Section 2.6 - Pushback](#).

1.4.4 Engine Start Procedure

Engine starts are normally accomplished by the flight crew in communication with ground personnel. If the Interphone is not available, Standard Hand Signals will be used. Obtain start clearance from ATC and ground crew as appropriate and accomplish the following items.

Engine starts are normally accomplished by the PIC but may be accomplished by the SIC at the PIC's discretion. In this case, the duties outlined below will be reversed.

CAUTION

- **Advancing engine start lever prematurely can cause a "hot" start.**
- **Keep hand on engine start lever while observing N1, N2, EGT, and fuel flow until stabilized.**
- **If fuel is shut off inadvertently (by closing the engine start lever), do not reopen the engine start lever in an attempt to restart engine.**

APU Insufficient Bleed Air on Ground

If the APU starts but does not provide sufficient bleed air in cold temperatures with high humidity and visible moisture and/or active precipitation, complete the following steps.

1. Verify the APU Bleed Air Switch is selected to ON.
2. Verify the Pack, Isolation Valve, and Wing Anti-Ice valve switch positions are in the appropriate position for engine start.
3. If the engine start fails when operating in the above defined weather conditions with no flight deck indications:
 - (a) Shut down the APU for 3-5 minutes.
 - (b) Allow APU thermal soak back to melt IGV ice buildup.
 - (c) Restart APU using normal procedures.
 - (d) Reattempt engine start using normal procedures.

If normal bleed air pressure returns, continue with normal operations. If not, flight crews should coordinate with dispatch to determine the proper course of action.

Engine Start Procedure

Pilot-in-command			Second-in-command	
Request to select PACKs to OFF and to check system pressure.			Both PACKs OFF DUCT PRESS..... Verify Announce that air pressure is available.	
Announce engine start sequence. Normal starting sequence is 2, 1.			Monitor ground crew and ramp area during start.	
Request START ENGINE 2 or 1			Select appropriate engine start switch to GRD. Start clock.	
Verify increase in N2.			Verify and announce increase in oil pressure at first indication.	
Position Engine Start Lever to IDLE when N1 rotation is seen and 25% N2 or maximum motoring, whichever is reached first. (20% N2 is minimum required for start)			Monitor engine start and ramp area.	
Start clock with Start Lever to IDLE.				
Announce when N2 reaches 56%.			At 56% N2, check ENGINE START switch moves to OFF. If not, move the ENGINE START switch to OFF. Announce starter cutout.	
Monitor N1, N2, EGT, fuel flow and oil pressure as engine accelerates and stabilizes at idle (see Table below).				
Verify START VALVE OPEN light extinguishes.				
Inform Ground Crew after two stable starts.				
Engine	N1 (%)	EGT (°C)	N2 (%)	FUEL FLOW (PPH)
CFM 56-7	20	320-520	59	600

For standard calls, refer to [Section 2.7 - Engine Start](#).

1.4.5 Before Taxi Flow

Pilot-in-command	
Request appropriate flaps setting and Before Taxi Checklist	
1. ENGINE PARAMETERS	CHECK
2. GENERATORS	ON
3. PROBE HEAT	ON
4. ANTI-ICE	As needed
5. HYDRAULIC PUMPS	ON
6. ENGINE START Switches	CONT
7. RECALL	PRESS
8. RUDDERS	CHECK
9. SYS Page / Lower DU	CHECK/BLANK

Second-in-command	
1. FLAPS	SET
2. AIR CONDITIONING	SET
3. FLIGHT CONTROLS	CHECK
4. STAB TRIM	SET
Carry out the Before Taxi Checklist	

1.4.6 Before Taxi Procedure

Pilot-in-command	Second-in-command
Request appropriate Flaps setting and call for Before Taxi checklist. In icing conditions before de-icing, leave flaps retracted and complete the rest of the flow and checks excluding Flight Control Checks. Engine Parameters Check Generator 1 and 2 ON PROBE HEAT ON Engine Anti-Ice As needed HYDRAULIC PUMPS (all) ON ENGINE START switches CONT Recall Press Verify that all system annunciator panel lights illuminate and then extinguish.	Flap lever Select Air Conditioning Panel Set If Using APU Bleed for T/O: • Right PACK AUTO • ISOLATION VALVE CLOSE • Left PACK AUTO • No. 1 BLEED OFF • APU BLEED ON • No. 2 BLEED OFF If Using Engine Bleed for T/O: • PACKS (Both) AUTO • ISOLATION VALVE AUTO • APU BLEED OFF NOTE: The WING ANTI-ICE must remain OFF until the engine BLEED air switches are repositioned to ON and the ISOLATION VALVE is repositioned to AUTO.
Flight Controls Check Make slow and deliberate inputs, one direction at a time. SIC moves the control wheel and control column to full travel in both directions and verifies: • Freedom of movement • Controls return to center Hold the nose wheel steering during the rudder check to prevent nose wheel movement. PIC moves the rudder pedals to full travel in both directions and verifies: • Freedom of movement • Rudder pedals return to center	

Pilot-in-command	Second-in-command
SYS page..... Check • Check for proper Hydraulic PRESS and quantity. MFD (Lower DU) Blank	Stab Trim..... Set __ units • Check in T/O range.
	Carry out Before Taxi Checklist and announce when completed.

For standard calls, refer to [Section 2.8 - Before Taxi](#).

1.5 Taxi

The following is applicable to taxi out for departure as well as taxi in after landing. Refer to [Section 1.16 - Taxi In and Shutdown](#).

Engine Out Taxi is only permitted for taxi in and with the APU Generator online. Engine Out Taxi on contaminated surfaces is prohibited.

Always follow the taxiway center line.

Turning considerations:

- Boeing recommends 10 kts maximum in a turn.
- Turns should be executed with as large a radius as possible.
- Minimum radius turns result in heavy side loads and unnecessary scrubbing of tires.

Speed considerations:

- Boeing recommends approximately 20 kts taxi speed.
- Do not ride the brakes. Riding the brakes can cause high brake temperatures.

Cargo Door considerations:

- Following a turn, the aircraft should be taxied in a straight line of at least 30 feet to relieve any residual loads or stress to the airframe before opening the main cargo door.

Crew coordination:

- The SIC will read back all ATC taxi instructions.
- The PIC will confirm understanding of the taxi clearance by repeating all taxi instructions to the SIC (including taxi route, runway crossings, hold short, to position, cleared for takeoff, etc.)
- If the PIC does not repeat the instructions or does not repeat them correctly, the SIC will challenge the PIC and/or confirm the clearance with ATC.
- Both pilots shall verify that there is no conflicting traffic at these times:
 - when crossing taxiways and all runways
 - prior to taxiing into position for departure on an active runway

Engine warm up recommendations:

- Run the engines for at least 2 minutes at normal taxi thrust setting.

1.5.1 Taxi Out Procedure

Pilot-in-command	Second-in-command
Ensure the entire ground crew is clear before requesting taxi clearance.	
Request TAXI.	Call ATC for taxi clearance.
Discuss given taxi route with SIC before releasing brakes.	
Switch TAXI light ON.	
When aircraft is moving, smoothly apply brakes to avoid Flight Attendant discomfort.	
OUTBOARD LANDING LIGHTS EXTEND Outboard Landing lights can be extended as a reminder that cabin is secure.	Receive "CABIN SECURE" from Flight Attendants before taking position on the active runway.

For standard calls, refer to [Section 2.9 - Taxi Out](#).

1.5.2 Change of Departure Clearance (Runway/SID)

In the event of a change of Departure Runway and/or SID while taxiing, the crew should stop the aircraft and must review the following via the CHANGE of TAKEOFF CLEARANCE (RWY/SID) Checklist.

- **Takeoff Performance** - Compute
- **COM – NAV – FMC – Setting**
 - **COM** Radios – As needed
 - **NAV** Radios – As needed
 - **FMC** – Review
 - [DEP] / [ARR]
 - Select the runway and departure routing (SID).
 - [N1 LIMIT]
 - Enter assumed temperature and OAT.
 - Select Fixed Derate thrust.
 - [TAKEOFF REF]
 - Enter TO Flaps.
 - Enter V-Speeds.
 - [TAKEOFF REF] page 2/2
 - Verify or enter acceleration and thrust reduction altitude.
 - **Settings** – Review
 - EFIS BARO DA – FRA
 - COURSE(s) – As needed
 - AUTOTHROTTLE - ARM
 - IAS/MACH selector – V₂
 - HEADING selector – Runway Heading
 - ALTITUDE selector – SID/Initial Altitude
- **Takeoff Briefing** – Review

1.5.3 Before Takeoff Flow

Pilot-in-command	
When cleared into position on the active runway, request the Before Takeoff Checklist	
1. RUNWAY TURN OFF LIGHTS	ON
2. RUNWAY HEADING	CHECK
When takeoff clearance has been received	
3. LANDING LIGHTS	ON



Second-in-command	
When cleared into position on the active runway	
1. ATTEND BUTTON	PRESS X2
2. STROBES	ON
3. TRANSPONDER	TA/RA
Carry out the Before Takeoff Checklist	

1.5.4 Before Takeoff Procedure

Pilot-in-command	Second-in-command
When cleared into position on the active runway: RUNWAY TURN OFF LIGHTS ON - Request the Before Takeoff Checklist to the line. - Verify that the aircraft heading agrees with the assigned runway heading.	Press the ATTEND button 2 times to alert the Flight Attendants that takeoff is imminent. POSITION STROBE & STEADY Transponder TA/RA Read the checklist to the line.
When takeoff clearance has been received: LANDING LIGHTS ON TAXI LIGHT OFF NOTE: For extended service life of inboard landing lights, it is recommended to limit operation to 5 minutes continuous while on ground, due to heat buildup.	

For standard calls, refer to [Section 2.10 - Before Takeoff](#).

1.6 Takeoff

A rolling takeoff is recommended.

Before entering the departure runway, verify that the runway and runway entry point are correct.

When the aircraft is aligned with the runway for takeoff, verify that the heading agrees with the takeoff runway heading and set initial thrust (40% N1). It is not necessary to hold the brakes as initial thrust is set.

CAUTION

Engine Stabilization prior selecting Takeoff Thrust is critical for symmetrical engine spool up and to ensure adequate directional control during takeoff.

Once the engines have stabilized, set Takeoff Thrust by pressing either TOGA switch once.

The PM should monitor the engine instruments and confirm that N1 corresponds with N1 on the FMC Takeoff Page. PM should then continue to monitor and crosscheck all instruments during the takeoff roll.

Rejecting the takeoff solely for an amber Master Caution Light, once Takeoff Thrust has been set and the 80-knot call has been made, is not recommended.

As airspeed approaches 80 knots, the control column is moved to neutral or slightly aft of neutral. At V_R , rotate the aircraft smoothly. The recommended rate is 2-3 degrees per second.

Liftoff

The landing gear should be retracted when a positive rate of climb is indicated on the altimeter.

1.6.1 SID Departure

For flights following a SID Departure, ensure that the Flight Director is receiving the FMC/MCP navigation input by no later than 400 ft AGL by selecting the appropriate roll mode.

1.6.2 Takeoff Profiles

NADP 1

Takeoff to 1,000 ft (AAE) or minimum Flap Retraction Altitude, whichever is higher:

- Takeoff thrust
- Takeoff flaps
- Climb at V_2+15 to 25 KIAS following either TOGA or VNAV SPD active modes.

At 1,000 ft (AAE):

- Ensure thrust reduction to not less than climb thrust.

From 1,000 to 3,000 ft (AAE):

- Climb at V_2+15 to 25 KIAS following either TOGA or VNAV SPD active modes.

At 3,000 ft (AAE):

- If TOGA mode is active, select LVL CHG and initially set UP Speed.
- If VNAV SPD is active, accelerate smoothly following automatic speed bug cue.
- Retract flaps on schedule, once flaps are up with no lights, continue accelerating to climb speed.

See **NOTE** below.

NOTE: Refer to FCOM (Normal Procedures/Amplified Procedures/Takeoff Flap Retraction Speed Schedule).

NADP 2

Takeoff to 1,000 ft (AAE) or minimum flap retraction altitude, whichever is higher:

- Takeoff thrust
- Takeoff flaps
- Climb at V_2+15 to 25 KIAS following either TOGA or VNAV SPD active modes.

At 1,000 ft (AAE) or minimum Flap Retraction Altitude, whichever is higher, maintaining a positive rate of climb:

- Ensure thrust reduction to not less than climb thrust.
- If TOGA mode is active, select LVL CHG and initially set UP Speed.
- If VNAV SPD is active, accelerate smoothly following automatic speed bug cue.
- Retract flaps on schedule, once flaps are up with no lights, continue accelerating to climb speed.

NOTE: Refer to FCOM (Normal Procedures/Amplified Procedures/Takeoff Flap Retraction Speed Schedule).

1.6.3 Takeoff Procedure

Pilot Flying	Pilot Monitoring
Announce runway and indicated heading.	Observe that all engine indications are normal.
Advance the Thrust Levers and allow the engines to stabilize at approximately 40% N1.	CLOCK E.T. Push
CLOCK E.T. Push	
Allowing the engines to stabilize will ensure a symmetrical spool up as the Thrust Levers are advanced to takeoff N1.	
Advance the Thrust Levers by pressing TOGA and request that the PM set takeoff thrust.	
Verify and announce FMA.	
	When requested, ensure that Thrust Levers are set to attain takeoff N1 prior to 60 kts.
	Verify and announce when N1 reaches target N1.
	Monitor the engine and flight instruments and announce reaching 80 knots.
The PIC will guard the Thrust Levers until V ₁ .	
Hold light forward pressure on the control column until 80 knots, maintain directional control, and verify and respond to the 80 knots call.	
	Monitor Auto Callout or announce reaching V ₁ .
Monitor airspeed and remove hand from Thrust Levers at V ₁ .	
	Announce reaching V _R .

Pilot Flying	Pilot Monitoring
Smoothly rotate the aircraft toward 15°, at a rate of 2-3° per second.	
	Announce when the altimeter shows a positive rate of climb.
Verify a positive rate of climb on the altimeter and request gear up.	Select Gear Lever to UP.

For standard calls, refer to [Section 2.11 - Takeoff](#).

For profile, refer to [Section 3.1 - Takeoff and Initial Climb](#).

1.7 Initial Climb

1.7.1 Initial Climb Procedures

Pilot Flying	Pilot Monitoring
At 400 feet: Call or verify for appropriate roll and/or pitch mode as needed.	Engage or verify required roll and/or pitch mode.
At thrust reduction altitude, call for or verify that climb thrust is set.	
At Flap Retraction Altitude: If VNAV is not used, request LVL CHG and 'UP Speed'. Request flaps retraction on speed schedule.	Select LVL CHG as needed. Set UP Speed on MCP as needed. Position FLAP lever as directed and monitor flaps and slats retraction.

For standard calls, refer to [Section 2.12 - Initial Climb](#).

For profile, refer to [Section 3.1 - Takeoff and Initial Climb](#).

Takeoff Flap Retraction Speed Schedule

At Speed:	Select Flap Lever to:
V ₂ + 15 (White Bug)*	Next flap setting
[-15]	5
[-5]	1
[-1]	UP
Limit bank angle to 15° until reaching V ₂ + 15. *When using Flaps 1 for takeoff, select Flaps UP at [-1] speed.	

1.7.2 After Takeoff Flow

Pilot Flying

Request the After Takeoff Checklist

Pilot Monitoring

1. LANDING GEAR	OFF
2. FLAPS	UP NO LIGHT
3. AUTO BRAKE	OFF
4. AIR CONDITIONING	SET
5. START switches	As needed
6. OUTBOARD Lights	RETRACT

Carry out the After Takeoff Checklist

1.7.3 After Takeoff Procedure

Pilot Flying	Pilot Monitoring
Once on an on-route heading, request the After Takeoff Checklist.	Landing Gear OFF Flaps. UP, no lights AUTO BRAKE OFF AIR CONDITIONING panel Set If APU Bleed used for T/O: No. 2 BLEED ON APU BLEED OFF No. 1 BLEED ON ISOLATION VALVE..... AUTO NOTE: If engine failure occurs, do not position engine BLEED air ON until reaching 1500 feet or until obstacle clearance height has been attained. Start Switches As needed Outboard Landing Lights..... RETRACT Announce when the checklist is complete.

NOTE: The After Takeoff checklist is a silent checklist performed by the PM. After completing the After Takeoff flow, the PM reads the checklist silently to confirm that all items are covered. This avoids distracting the PF during a critical phase.

1.8 Climb

1.8.1 Climb Flow

Pilot Flying	
At 10,000 (ASL)	
1. Call passing altitude and cleared altitude	
At Transition Altitude	
2. ALTIMETERS	STD

Pilot Monitoring	
At 10,000 (ASL)	
1. INBOARD/TURNOFF Lights	OFF
2. SEAT BELT SIGN	As needed
3. PRESSURIZATION	CHECK
4. AIR CONDITIONING PANEL	CHECK
5. APU	OFF
6. UPPER DU / FOB	CHECK
7. FUEL PANEL	As needed
At Transition Altitude	
8. ALTIMETERS	STD

1.8.2 Climb Procedure

Pilot Flying	Pilot Monitoring
At 10,000 feet (ASL): Call passing altitude and cleared Altitude/Flight Level.	INBOARD/TURNOFF lights..... OFF SEAT BELT SIGN As needed PRESSURIZATION Check AIR CONDITIONING Panel..... Check APU..... OFF UPPER DU / FOB..... Check CTR TANK PUMPS As needed
At transition altitude: Announce passing transition level. ALTIMETERS.....press STD	ALTIMETERS..... press STD

For standard calls, refer to [Section 2.13 - Climb](#).

NOTE: If the center tank fuel pump switches were OFF for takeoff and the center tank contains fuel, set both center tank fuel pumps ON above 10,000 feet or after pitch attitude has been reduced towards 250 knots or greater.

1.9 Cruise

1.9.1 Cruise Procedure

At the discretion of the PF, the cruise procedure can be done by either crew member.

Pilot Flying	Pilot Monitoring
Cockpit scan Accomplish Rudder trim Adjust Refer to FCTM (General Information/ Recommended Rudder Trim Technique).	FMC Update • Modify the active route for the anticipated approach. • Insert enroute Winds. • Program the Descent and insert Descent Winds in Descent Forecast Page. FUEL Check • Check fuel at top of climb and thereafter once every hour. Weather..... Monitor • Obtain updated forecasts and METARS for destination, alternate and diversion airport.

NOTE: 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.

1.10 Approach Planning

1.10.1 Landing Performance

Prior to the beginning of any approach to landing, both crew members shall review and discuss the landing performance based on the revised landing weight, aircraft state, runway landing distance available, and latest Runway Surface Condition report.

The OPT application will be used to verify the feasibility of the landing and to identify Landing Flaps and Autobrake selection.

The OPT calculation assumes a 1000 feet air distance (from threshold crossing at a height of 50 feet to the touchdown point following the flare). Ensure that the calculated V_{APP} in OPT is representative of the selected (on the PFD/FMC) and flown airspeed at threshold crossing.

1.10.2 Approach and Landing Speeds

When the Autothrottle is planned to be disconnected above 50 feet AGL, the Approach Speed equals V_{REF} plus half the reported headwind component and all the gust. The minimum Approach Speed is $V_{REF} + 5$ kts and the maximum Approach Speed is $V_{REF} + 15$ kts or placard landing flap speed minus 5 knots.

When the Autothrottle is planned to be used down to 50 feet AGL, select an Approach Speed of $V_{REF} + 5$ kts. Sufficient wind and gust protection are normally available through the Autothrottle system. The speed additive may be adjusted at the PF's discretion to ensure adequate energy management and avoid airspeed variations below V_{REF} , but it should never be selected below $V_{REF} + 5$ kts.

If the Autothrottle is disconnected or is planned to be disconnected prior to 50 feet AGL, maintain V_{REF} plus any wind additive until approaching the start of the flare maneuver (50 feet AGL).

With proper flare technique and thrust management, the 5-knot correction and/or steady wind additive may be bled off prior to touchdown.

Plan to maintain gust additive until very close to touchdown. Touchdown should occur at no less than $V_{REF} - 5$ knots and with a negative energy trend.

1.10.3 Approaches in Cold Temperature

Cold Temperature Corrections

Temperature corrections during approach must be applied to all operational altitudes (e.g. DH/MDA, FAF crossing) when the operating at cold temperatures as per the following table or by use of the E6B iPad application.

ATC vectoring altitudes do not require additional corrections as they are already corrected by the ATS.

Waypoints in the navigation database from the FAF onward may not be modified except to add a cold temperature correction, when appropriate, to the FAF waypoint altitude constraint only. When this is accomplished, the corrected altitude shall be entered with an "AT OR ABOVE" coding (e.g. 1640**A**).

Crew members should not modify the IAF and IF(s) crossing altitudes in the FMC as this may negatively impact vertical navigation during the approach.

Altitude Corrections Based on Aerodrome Cold Temperatures

Aerodrome Temperature °C	Height above the elevation of the altimeter setting sources (feet)													
	200	300	400	500	600	700	800	900	1 000	1 500	2 000	3 000	4 000	5 000
+10									20	30	40	60	80	100
0	20	20	30	30	40	40	50	50	60	90	120	170	230	290
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	430	570	710
-30	40	60	80	100	120	130	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1 210
-50	60	90	120	150	180	210	240	270	300	450	600	890	1 190	1 500

- The corrections have been rounded up to the next 10-ft increment.
- Values should be added to published minimum IFR altitudes.
- Temperature values from the reporting station nearest to the position of the aircraft should be used. This is normally the aerodrome.

Approach Using BARO VNAV

For approach using BARO VNAV, low and, possibly, high temperature limits published on the charted procedure must be adhered to.

When cold weather temperatures exist, crew members shall check the instrument approach procedure chart to determine the limiting temperature for the use of LNAV/VNAV minima and BARO VNAV capability without cold temperature correction. If no TLim is published (e.g. LOC only approach), the minimum temperature to use BARO VNAV without any FMS cold temperature correction is 0°C.

When the temperature is outside the published TLim, crew members shall not fly an RNAV approach to LNAV/VNAV minima.

When the temperature is outside the published TLim, the BARO VNAV function of the autopilot may only be used when cold temperature correction is applied to the FMC FAF altitude constraint and verified by both pilots.

The VS function of the autopilot may also be used in conjunction with the advisory VNAV information on the ND if the FMC FAF altitude has been corrected for cold temperature.

1.10.4 Approach Setup

The PM normally performs the approach setup. Roles can be reversed at the PF's discretion. It is imperative that both pilots crosscheck the FMS and any tuned/Active ILS or Channel ID with the approach charts.

The setup is based on the principle of Build, Bug, and Brief. According to this principle, the PM loads the procedure and crosschecks the FMC database routing and restrictions against the appropriate charts, and sets bugs as required.

The PF then transfers control and checks the setup, including the FMC database routing and restrictions against the appropriate charts, before briefing the approach.

This technique allows both pilots to independently validate the FMC routing and restrictions against the published plates.



CAUTION

The vertical path defined by BARO VNAV is affected by altimeter setting errors. For this reason, BARO VNAV is not authorized unless a local field altimeter setting is available.

Flight crew members should make altimeter settings at appropriate times or locations, and use a current altimeter setting, particularly at times when pressure is reported or is expected to be rapidly decreasing.

Approach Setup

Pilot Flying	Pilot Monitoring
	ATIS..... Obtain NAV Radios Tune COURSE Selectors Set FMC Preparation..... Complete [ARR] • Select the APPROACH and TRANSITION. • Select the STAR and TRANSITION. [LEGS] • Verify or modify waypoints and constraints as needed. [DES] • Adjust Descent Target Speeds as needed. • Insert Descent Forecast winds, QNH and ISA Temperature Deviation. [APPROACH REF] • Adjust Landing Weight • Select desired Landing Flaps and V_{REF} Speed. • Insert Approach Speed Correction. AUTOBRAKE Select EFIS control panel Set EFIS BARO DA selector Set DA BAROMETRIC selector Set Local Altimeter setting

Pilot Flying	Pilot Monitoring
NAV Radios Review	
FMC.....Review or Modify as needed	
EFIS Control Panel Set	
EFIS BARO DA selector..... Set DA	
BAROMETRIC selector Set Local Altimeter Setting	
Approach Briefing Complete	

1.10.5 Approach Briefing

The Approach Briefing uses the same T-P-C format as the [Takeoff Briefing](#) and focuses on the same Threat and Error Management goals.

The Approach Briefing will be carried out before any approach type with the help of its associated Briefing Card.

The Approach Briefing is complementary to the SOP. It is not meant to be a repetition of SOP items nor a checklist to complete the cockpit preparation.

Both pilots will verify the Build & Bugs of the FMC and MCP, and will review all pertinent information and Notes pertaining to the cleared and/or planned arrival (Weather, Aerodrome & Taxi Charts, and Arrival/Approach Charts) prior initiating the Briefing.

APPROACH BRIEFING	
THREAT	Threat and Error Management The Threat and Error Management portion of the briefing is initiated by both pilots as an open discussion where potential threats are identified and mitigation options to these threats are agreed upon. • Threat and Mitigation Discussion (What are our threats?)
PLAN	Plan The Plan portion of the briefing is meant to outline the planned arrival and/or approach procedure, and ensure that both pilots are on the same page and know what to expect from each other. It should include a minimum of the following items but can be expanded as needed. • STAR name and STAR notes as needed ○ Any pertinent restrictions and/or pilot modified waypoints as needed • Approach name and Approach Notes ○ Minimum Safe Altitudes as needed • Landing Distance Available and Runway Surface Condition • Decision Altitude (Cold Weather and/or Dip corrections as needed) • Landing Flaps – Speed Increment Corrections • Use of Autobrakes • Use of Thrust Reversers • Planned Exit Taxiway

APPROACH BRIEFING (continued)
CONSIDERATIONS
Considerations

This portion complements the briefing with details of interest that are worth taking into consideration; they only need to be mentioned when necessary.

- PMA briefing as needed.
- SCDA (using VS) briefing as needed.
- Go-Around Procedure and/or complex Missed Approach trajectory.
- Use of Automation.
- Use of Anti-Ice
- Fuel Management and/or MIN DIV.
- Supplemental Procedures (MEL "O" Action) and/or SOP deviations.
- Jumpseat/observer safety briefing and duties.
- Miscellaneous item as needed.

1.11 Descent

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

1.11.1 Descent Flow

Pilot Flying

Approaching top of descent, request the descent checklist.

Pilot monitoring

1. PRESSURIZATION	SET
2. RECALL	PRESS
Carry out the Descent Checklist	

1.11.2 Descent Procedure

Pilot Flying	Pilot Monitoring
Approaching the top of descent.	PRESSURIZATION Set RECALL.....PRESS
Request the Descent Checklist	Carry out Descent Checklist and announce when completed.

For standard calls, refer to [Section 2.14 - Descent](#).

NOTE: Turn all center tank fuel pump switches OFF without delay anytime the Master Caution and FUEL system annunciator illuminate.

1.11.3 Approach Flow



1.11.4 Approach Procedure

Pilot Flying	Pilot Monitoring
Announce passing transition level or FL180, if transition level is different from FL180.	INBOARD/TURNOFF Lights ON SEAT BELT Sign ON NAV IDENT and FAC.....Verify • Verify Approach Ident and Final Approach Course against Approach Chart.
At transition level: Announce passing transition level. ALTIMETERS SET QNH	ALTIMETERS SET QNH
Request the Approach Checklist.	Carry out Approach Checklist and announce when completed.

For standard calls, refer to [Section 2.16 - Approach and Landing](#).

1.12 Holding

Whenever a Holding Clearance is anticipated or received, the crew will ensure that sufficient fuel is available for the duration of the hold in regard to the planned approach, alternate and reserves.

If the MIN DIV fuel is anticipated to be reached prior to the expected further clearance or approach time, ATC must be advised as soon as possible and advised with crew intentions.

Avoid holding in icing conditions.

Upon reception of a Holding Clearance, both crew members must review and brief at least the following holding parameters:

- Cleared Inbound Track (or Selected Radial)
- Selected Speed

NOTE: Notify ATC if selected airspeed is superior to any published limit.

- Cleared Altitude
- Expected Further Clearance or Approach Time
- Fuel Management

A simple review of the FMC HOLD page by both crew members will normally cover the aforementioned requirements.

1.13 Approach

1.13.1 Stabilized Approach and Landing Criteria

The stabilized approach and landing criteria for the B73C are progressive.

Approach Configuration	> 1500 feet AAE
Stabilized Approach Envelope	≤ 500 feet AAE
Stabilized Landing Envelope	≤ 200 feet AAE

These gates and envelopes are valid and identical for all approaches: IMC or VMC, day or night.

In addition to the Stabilized Approach/Landing and No Fault/No Blame Go-Around Policy defined in the FOM, pilots are to adhere to the three-stage concept: Plan, Report, Reject.

PLAN

Plan to have a minimum of Flaps 5° selected prior the Final Approach Glide Path interception. A flap selection higher than 5° may be required when a tailwind is encountered on approach.

Plan to be configured with gear down and Flaps 15° by 1500' AAE.

Plan to meet all other stabilized criteria prior 500' AAE (Stabilized Approach Envelope).

REPORT

Whenever a Deviation is observed, the PM calls the Deviation and repeats it in a timely manner until the situation is corrected or a Recovery/Go-Around Maneuver is initiated by either pilot.

****The Pilot Flying shall immediately acknowledge a Deviation call & respond appropriately with his intention.**

*****In gusty conditions, when runway surface conditions and landing distance available permits, airspeed deviation tolerance may be adapted at PIC discretion, but not to exceed the Gust Factor. (e.g. winds 20G32 = an acceptable Tolerance of $V_{APP} + 12$)**

Below 500 feet AAE (Stabilized Approach Envelope) a Go-Around is not mandatory, but highly recommended if any Deviation is maintained (not positively corrected); or two or more criteria are exceeded.

REJECT

If the aircraft does not meet the Stabilized Landing criteria below the 200' AAE, a go-around is mandatory.

Stabilized Approach and Landing Criteria

PLAN	REPORT (DEVIATION CALLS)	REJECT "UNSTABLE"
<u>Glide Path Interception:</u> Select Flaps 5° or 10°	**The PF must respond promptly to any Deviation call by PM Flaps Maneuvering Speeds -10 knots	
<u>Above 1500 feet AAE:</u> - Select Gear Down - Select Flaps 15°		
<u>Above 1000 feet AAE:</u> - Configure for Final Landing Configuration - Complete Landing Checklist - Speed trend towards V_{APP}		
500 feet AAE - STABILIZED APPROACH ENVELOPE		
<u>On any type of Approach:</u> - Configured for Landing - Landing Checklist Completed - Missed Approach Altitude set in MCP Altitude Window - Speed within ***V_{APP} Bracket Tolerance [V_{APP} +10 knots / V_{REF}] - On Lateral & Vertical Approach Profile	- Aircraft not configured for landing - Checklist not completed ***V_{APP} +10 knots (or Gust Factor) / V_{REF} - Lateral & Vertical Deviation Bar ±1 Dot (1/2 scale) 3 RED or WHITE Lights on VGSI - Calculated crossing altitude ±40' - Sustained VS >1000 FPM	
200 feet AAE - STABILIZED LANDING ENVELOPE		
<u>Below DA and/or in VMC the following also apply:</u> - Aligned with Landing Runway - On a Constant Descent Angle of approximately 3 degrees, leading to a desired touch down point between 500 feet and 1100 feet beyond the Runway Threshold.	PM calls "UNSTABLE" if aircraft reaches any UNSTABLE criteria.	PF will immediately initiate "Go Around – Flaps – Set Thrust"
	UNSTABLE criteria: - Landing cannot be completed safely - Aircraft not configured for Landing / Checklist not completed ***Speed > V_{APP} +10 (or Gust Factor) or < V_{REF} -5 knots - Not Aligned with Landing Runway - TAWS alert - Landing outside of Desired Touch Down Zone	

1.13.2 Landing Configuration Flow



1.13.3 Landing Configuration Procedure

Pilot Flying	Pilot Monitoring
Request flap extension according to Flap Speed Schedule. Ensure aircraft is configured with a minimum of Flaps 5 before initiating the final descent to landing.	Position FLAP lever as directed and monitor flap and slat extension.
Above 1500 AAE and on approach descent path Request landing gear down, Flaps 15, and landing checklist. Speedbrake ARM	Landing Gear DOWN Flaps 15 ATTENDANT switch Press X2 Alert the Flight Attendants that landing is imminent. ENGINE START switches CONT Read the Landing Checklist and announce when at the Line.
Above 1000 ft AAE Request final flaps.	Flaps As directed Read the Landing Checklist and announce when completed.

For standard calls, refer to [Section 2.16 - Approach and Landing](#).

1.13.4 Approach Using APP

This procedure contains recommendations that are specific to Precision ILS and LPV types of approach.

ILS or LPV Approach

When on localizer/track intercept heading:

- Verify that LOC and G/S or NPS pointers appear.



The MCP course must be set to the inbound course for the approach, or the aircraft will deviate from the approach path.

Pilot Flying	Pilot Monitoring
When cleared to intercept the Final Approach Course: VOR/LOC Select	
When cleared for the Approach: APP Select	OUTBOARD Lights EXTEND
NOTE: When using LNAV to intercept the ILS or LPV approach course, use caution, as LNAV might parallel the localizer / track without capturing it.	
Verify that the localizer / track is captured.	
Approaching the glideslope Ensure aircraft is configured with a minimum of Flaps 5.	

Pilot Flying	Pilot Monitoring
Above 1500 feet AAE Request landing gear down, Flaps 15, and landing checklist. Speedbrake ARM	Landing Gear DOWN Flaps 15 ATTENDANT button Press X2 ENGINE START switches CONT Read the Landing Checklist and announce when at the Line.
Above 1000 feet AAE Request final flaps.	Flaps As directed Read the Landing Checklist and announce when completed.
At the final approach fix verify the crossing altitude.	
	When aircraft is stabilized Announce that aircraft is stable and verify that the Missed Approach Altitude is set in the MCP Altitude window.
Plan to meet the Stabilized Approach and Landing Criteria by 500' AAE.	
	When cleared to land OUTBOARD Lights ON
	Announce when the required visual reference is established.

For standard calls, refer to [Section 2.16 - Approach and Landing](#).

For profile, refer to [Section 3.3 - Approach Using APP](#).

1.13.5 Approach Using BARO VNAV

This procedure contains recommendations that are specific to Non-Precision Approaches using BARO VNAV.

The recommended roll modes for the final approach are:

- RNAV or GPS approach use LNAV
- LOC-BC, VOR or NDB approach use LNAV
- LOC, SDF or LDA approach use LNAV or VOR/LOC

VNAV shall only be used for approaches that have one of the following features:

- a published GP angle on the LEGS page for the final approach segment
- an RWxx waypoint at the approach end of the runway
- a missed approach waypoint before the approach end of the runway (for example, MApp).

This procedure is not authorized using QFE.

This procedure is not authorized when the temperature is outside published TLim with no FMC FAF Altitude Cold Temperature correction.

Pilot Flying	Pilot Monitoring
When on the final approach course intercept heading for LOC, SDF or LDA approaches: • Verify that the localizer is tuned and identified. • Verify that the anticipation cue or LOC pointer is shown.	
When cleared to intercept the Final Approach Course: VOR/LOC or LNAV Select	
 WARNING When using LNAV to intercept the LOC approach course, use caution, as LNAV might parallel the localizer without capturing it. The airplane can then descend on the VNAV path with the localizer not captured.	
Verify LNAV on FMA or that VOR/LOC is captured.	
When cleared for the approach: Approximately 2 NM before the Descent Point (or when cleared for the approach with VNAV already engaged): ALTITUDE selector ... Set lower altitude • If the DA/MDA does not end in zero (00) (for example, 1820), set the MCP ALTITUDE window to the closest 100-foot increment above the DA/MDA. VNAV Verify or Select • Verify VNAV mode on FMA. SPEED INTV As needed	OUTBOARD Lights.....EXTEND

Approaching the glidepath: Ensure aircraft is configured with a minimum of Flaps 5.	
Above 1500 feet AAE: Request landing gear down, Flaps 15, and Landing Checklist. Speedbrake ARM	Landing Gear DOWN Flaps 15 ATTENDANT button Press X2 ENGINE START switches CONT Read the Landing Checklist and announce when at the Line.
Above 1000 feet AAE: Request final flaps.	Flaps As directed Read the Landing Checklist and announce when completed.
At the final approach fix, verify the crossing altitude.	
When <u>at least</u> 300 feet below the missed approach altitude, set the missed approach altitude on the MCP.	
	When Aircraft is Stabilized Announce that aircraft is stable and verify that the Missed Approach Altitude is set in the MCP Altitude window.
Plan to meet the Stabilized Approach and Landing criteria by 500' AAE.	
	When Cleared to Land OUTBOARD Lights ON
	Announce when the required visual reference is established.

For standard calls, refer to:

- [Section 2.16 - Approach and Landing](#)

For profiles, refer to:

- [Section 3.5 - Approach Using BARO VNAV - All Engines Operating](#)
- [Section 3.6 - Approach Using BARO VNAV –](#)

1.13.6 Approach Using Vertical Speed (VS)

This procedure contains recommendations that are specific to Non-Precision Approaches without vertical guidance using SCDA concept.

The recommended roll modes for the final approach are:

- For LOC-BC, VOR or NDB: Use LNAV or HDG SEL
- For LOC: Use VOR/LOC or LNAV

Vertical Speed will be used for pitch mode.

All Non-Precision approaches will be carried out using the SCDA technique.

- Determine a Descent Point (DP) using the published approach chart.
- Initiate the final descent at 0.3 miles prior to the Descent Point.
- Where multiple step-downs/intermediate altitudes exist, ensure that the planned descent profile (Path Angle) respects all intermediate altitude constraints. Approximately two miles prior to the Descent Point, set the Altitude Pre-Select to a lower altitude in the MCP as needed.
- Set the missed approach altitude in the MCP once the aircraft altitude is at least 300 feet below the missed approach altitude.

NOTE 1: For all non-precision approaches using VS, a DA will be selected by adding 50 ft to the published MDA.

NOTE 2: For non-precision approaches using VS, cycle both FDs OFF then ON when transitioning for landing. This recycling prevents unwanted FD commands while still providing FD commands following an overshoot.

Pilot Flying	Pilot Monitoring
When on the final approach course intercept heading for LOC, SDF or LDA approaches: • Verify that the localizer is tuned and identified. • Verify that the anticipation cue or LOC pointer is shown.	
When cleared to intercept the Final Approach Course: VOR/LOC or LNAV Select	
NOTE: When using LNAV to intercept the Localizer approach course, use caution, as LNAV might parallel the localizer / track without capturing it.	
Verify that the localizer / track is captured.	
	When cleared for the approach: OUTBOARD Lights EXTEND
Approximately 2 NM before the Descent Point: ALTITUDE selector ... Set lower altitude • If the DA/MDA does not end in zero (00) (for example, 1820), set the MCP ALTITUDE window to the closest 100-foot increment above the DA/MDA. Request landing gear down, Flaps 15, and Landing Checklist. Speedbrake ARM	Landing Gear DOWN Flaps 15 ATTENDANT button..... Press X2 ENGINE START switches CONT Read the Landing Checklist and announce when at the Line.

Pilot Flying	Pilot Monitoring
0.3 NM from Descent Point: Request final flaps. VS..... As needed	Flaps As directed Read the Landing Checklist and announce when completed.
At the final approach fix verify the crossing altitude.	
When <u>at least</u> 300 feet below the missed approach altitude, set the missed approach altitude on the MCP.	
	When aircraft is stabilized: Announce that aircraft is stable and verify that the Missed Approach Altitude is set in the MCP Altitude window.
Plan to meet the Stabilized Approach & Landing criteria by 500' AAE.	
	When cleared to land: OUTBOARD Lights ON
	Announce when the required visual reference is established.

For standard calls, refer to:

- [Section 2.16 - Approach and Landing](#)

1.13.7 Visual Approach

Pilot Flying	Pilot Monitoring
For Straight-In Visual Approaches, the APP, BARO VNAV or VS Procedures may be used at pilot's discretion. Visual Circuit is normally completed at 1500 feet AAE or above.	
Plan to intercept runway extended centerline at least 2 NM prior to touchdown.	When cleared for the approach: OUTBOARD Lights EXTEND
Entering downwind leg: Ensure aircraft is configured with a minimum of Flaps 5. Above 1500 AAE or prior to base leg: Request landing gear down, Flaps 15, and Landing Checklist. Speedbrake ARM	Landing Gear DOWN Flaps 15 ATTENDANT button..... Press X2 ENGINE START switches CONT Read the Landing Checklist and announce when at the line.
Above 1000 AAE: Request final flaps.	Flaps As directed Read the Landing Checklist and announce when completed.
	When aircraft is stabilized: Announce that aircraft is stable and verify that Missed Approach Altitude is set in the MCP Altitude window.
Plan to meet the Stabilized Approach and Landing Criteria by 500' AAE.	
	When cleared to land: OUTBOARD Lights ON

For standard calls, refer to [Section 2.16 - Approach and Landing](#).
For profile, refer to [Section 3.9 - Visual Approach](#).

1.13.8 Pilot Monitored Approach

At PIC discretion, a Pilot Monitored Approach may be briefed and used with the following guidelines.

The descent and approach will normally be flown by the SIC acting as PF and PIC acting as PM.

When approaching or at Decision Altitude, in addition to the usual approach standard calls, the PIC will announce one of the following:

- **"No Contact"**, to which the SIC will immediately respond with **"Go Around – Flaps – Set Thrust"** and initiate the Missed Approach Procedure
- **"Continue"**, to which the SIC will remain as PF and continue to descend on the approach profile
- **"I Have Control"**, to which the PIC will assume the PF role to land the aircraft. The SIC will respond **"You Have Control"**, will assume the PM role, and will maintain 'heads down' flight instrument scanning until taxi speed.

Whoever is PF when a Missed Approach Procedure is initiated, shall remain PF until the procedure is complete and the After Takeoff Checklist is completed at a safe altitude.

1.13.9 Missed Approach

Any time the crew considers that a safe landing cannot be made, an immediate Missed Approach, Rejected Landing or Balked Landing shall be carried out as per the IMS No Fault Policy.

If a Rejected Landing is initiated before touchdown and a touchdown occurs, continue with normal go-around procedures.

If a Balked Landing is initiated after touchdown, but before thrust reverser selection, Auto Speed Brake retracts and Autobrakes disarm as thrust levers are advanced.

Once reverse thrust is initiated following touchdown, a full-stop landing must be made.

WARNING

Do not attempt to go around after initiating engine reversers as the reversers may not fully stow and lock. Return reverse lever down if an engine fails to reverse. Thrust increases when the lever is raised to the mechanical interlock with the engine reverser failed.

CAUTION

Selection of Go-Around Flaps, from Landing Flaps, should only be initiated when the airspeed is at or above V_{REF} .

Pilot Flying	Pilot Monitoring
Simultaneously press TOGA, move thrust levers forward and announce the Go-Around. NOTE: Announce Flaps and Thrust adjustment only when airspeed is at or above V_{REF} .	Select flaps as needed.
Verify that thrust increases.	
	Adjust thrust as required. Verify and announce when N1 reaches target N1.
Verify the rotation towards go-around attitude. Request gear up and to confirm missed approach altitude.	Monitor flap retraction. Announce when the Altimeter shows a positive rate of climb. Set the landing gear lever to UP. Confirm Missed Approach ALT
Above 400 ft: Call for appropriate roll and pitch mode as needed. Verify and announce FMA.	Engage or verify required roll and pitch mode.
Request Autothrottle arm.	Arm the Autothrottle.
At thrust reduction altitude, verify that climb thrust is set.	
At Flap Retraction Altitude: Verify speed and speed trend, and request flap retraction on speed schedule. Engage LVL CHG as needed.	Position FLAP lever as directed and monitor flaps and slats retraction.
Ensure After Takeoff Checklist is complete.	

For standard calls, refer to [Section 2.19 - Go-Around](#).

For profiles, refer to:

- [Section 3.10 - Missed Approach](#)
- [Section 3.11 - Missed Approach – One Engine](#) Inoperative

1.14 Landing

1.14.1 Landing Roll Procedure

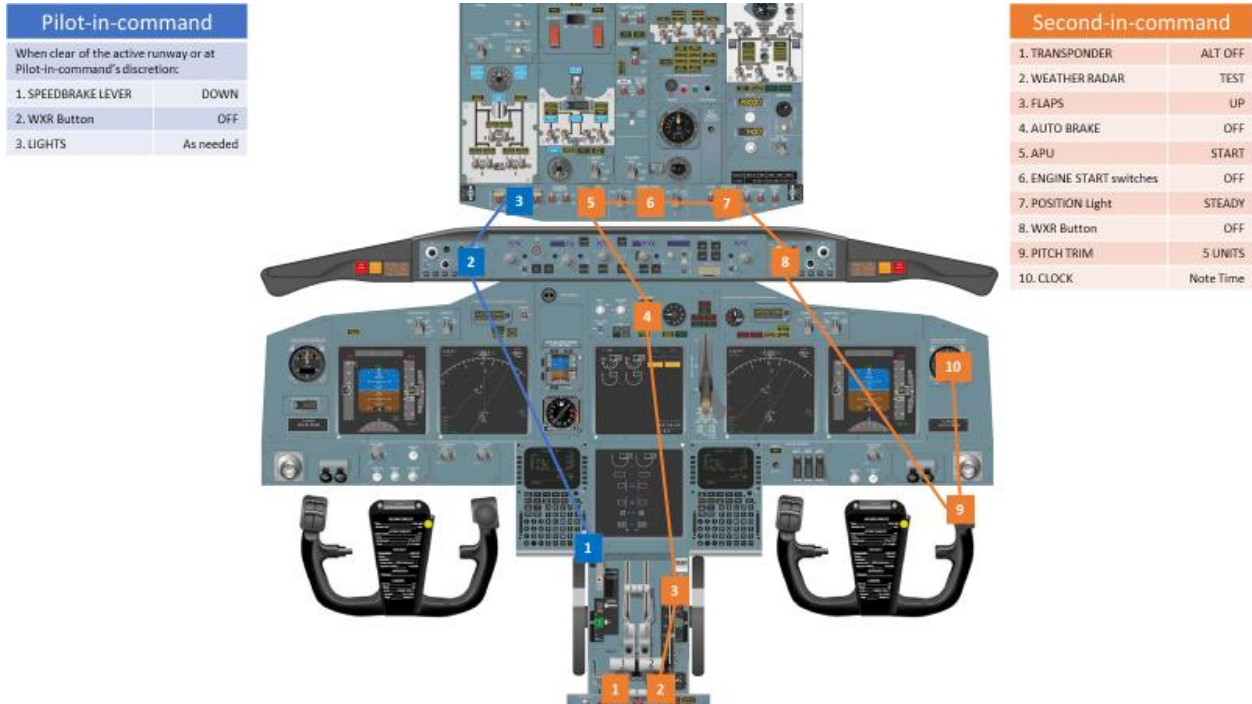
Pilot Flying	Pilot Monitoring
Verify that the thrust levers are closed. Verify that the SPEEDBRAKE lever is UP. * Without delay, move the reverse thrust levers to the interlocks and hold light pressure until the interlocks release. Without delay, fly the nose wheel smoothly onto the runway.	Monitor and announce SPEEDBRAKE lever.
* If manual operation of the Speedbrake is required, the PIC will raise the SPEEDBRAKE lever to the UP position regardless of which pilot is flying.	
Select reverse thrust as soon as possible after main gear touchdown. Do not wait for nose wheel touchdown.	
Monitor the rollout progress.	
Verify correct autobrake operation.	
Apply reverse thrust as needed.	Monitor and announce reverse indications.
By 60 KIAS, start movement of the reverse thrust levers to be at the reverse idle detent before taxi speed.	Announce passing 60 knots.
At taxi speed (below 30 knots), disarm the Autobrake by stowing the Speedbrake. Use manual braking as needed. After the engines are at reverse idle, move the reverse thrust levers full down. **	

Pilot Flying	Pilot Monitoring
When the SIC is the PF and conditions permit, it is recommended that the PIC assume control of the aircraft at approximately normal taxi speed. **During slippery surface conditions, it is highly recommended that the Thrust Reversers be only stowed by the PIC once he has assumed control of the aircraft at low taxi speed and directional control is assured.	

For standard calls, refer to [Section 2.20 - Landing Roll](#).

1.15 After Landing

1.15.1 After Landing Flow



1.15.2 After Landing Procedure

Pilot-in-command	Second-in-command
When clear of the active runway or at the PIC's discretion: SPEEDBRAKE lever DOWN EFIS Control Panel WXR BUTTON OFF LANDING/TAXI Lights As needed	When clear of the active runway and/or when the PIC stows the Speedbrake, carry out the After Landing procedure as follows: Transponder.....ALT OFF Weather Radar TEST Flap Lever..... UP Autobrake.....OFF APU START ENGINE START switches.....OFF POSITION Light STEADY EFIS Control Panel WXR Button OFF Pitch trim.....5 units Clock Note time

NOTE: The normal procedure is to raise flaps completely after landing. If contamination of the flap mechanism is suspected, at the PIC's discretion, do not retract Flaps beyond 15 until an exterior inspection is completed.

1.16 Taxi In and Shutdown

CAUTION

Taxi In is a critical phase of flight. Both crew members are required to maintain exterior lookout and a high degree of situational awareness at all times until the aircraft is stopped and the parking brake is set. Non-essential tasks shall not be accomplished during this phase.

CAUTION

When removing the shoulder harness, hold both straps before releasing and then allow the straps to retract slowly to the stowed position. This will prevent the harness buckles from snapping back and inadvertently pulling circuit breakers.

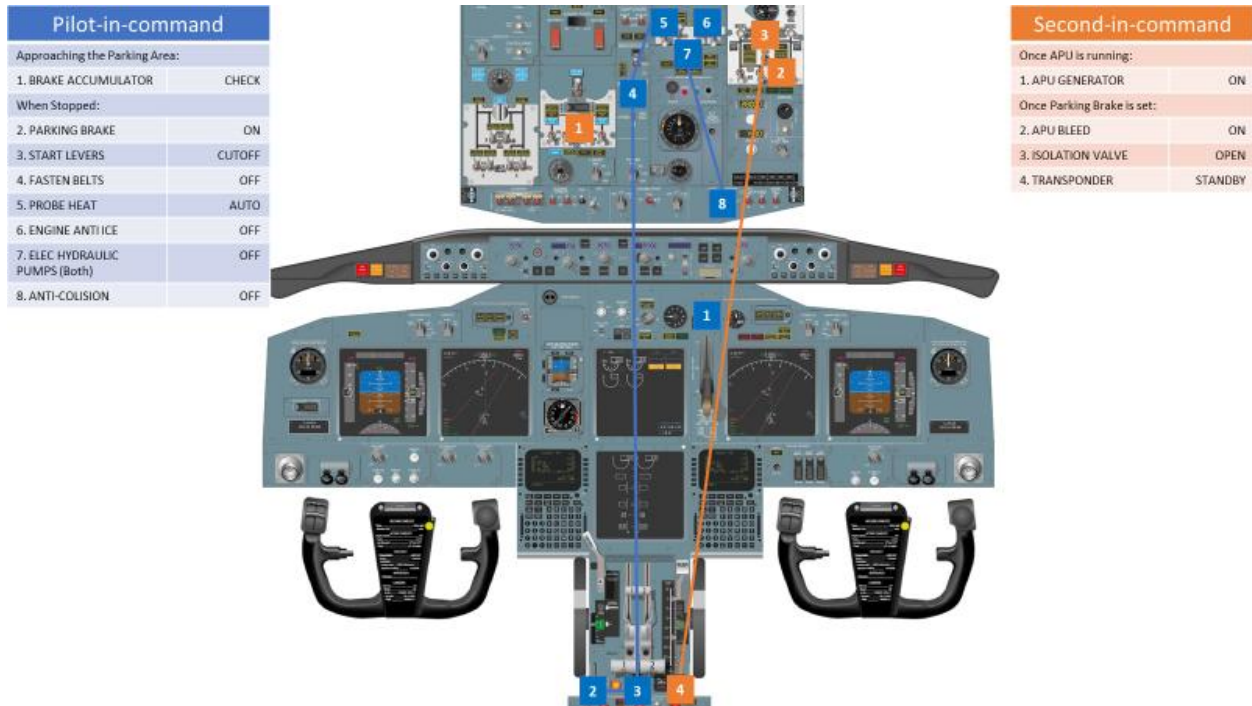
1.16.1 Engine Out Taxi In

Engine Out Taxi is only permitted for taxi in and with the APU Generator online. Engine Out Taxi on contaminated surfaces is prohibited. Limit Taxi speed to less than 20 knots.

Potential risks associated with EOT operations should be mitigated by addressing at least these key factors:

- Aircraft weight
- Airport and ramp layout (opposing turns, tight or congested ramp, etc.)
- Crew workload (unfamiliar airports, ATC instructions or complicated taxi clearances, etc.)
- Loss of aircraft systems (MEL, loss of redundancy, braking or steering capability, etc.)

1.16.2 Shutdown Flow



1.16.3 Taxi In and Shutdown Procedure

Pilot-in-command	Second-in-command
Approaching the parking area, check that Brake Accumulator Pressure is normal. Taxi into gate/parking area slowly.	Once APU is running: APU Generator Switches (both).....ON Monitor gate/parking area for hazards or obstructions.
Parking Brake.....Set Check if External Power or APU is powering the aircraft. Start levers..... CUTOFF FASTEN BELTS OFF PROBE HEAT AUTO ENGINE ANTI-ICE OFF ELEC HYDRAULIC PUMPS OFF NOTE: ELEC 1 (B) HYD PUMP may be used momentarily to pressurize the Parking Brake. ANTI-COLLISION OFF	Verify Parking Brake is set. APU Bleed switch.....ON ISOLATION VALVE OPEN Transponder Standby

For taxi guidance, refer to [Section 1.5 - Taxi.](#)

For standard calls, refer to [Section 2.21 - Taxi-In and Shutdown.](#)

SECTION 2 Standard Calls

2.1 Flight Mode Annunciator (FMA) and Target Windows

All mode changes in the FMA (including Autothrottle modes and Flight Guidance status) and all target changes (Speed/Altitude/Heading) in the appropriate Target Windows, will be called out by the PF. If not, the PM will do the call.

Standby Modes in white need only be called in the approach phase.

Mode	Condition	Call
AUTOTHROTTLE		
N1 Green	Active	"N1"
MCP SPD Green	Active	"MCP Speed"
FMC SPD Green	Active	"FMC Speed"
GA Green	Active	"Go Around"
RETARD Green	Active	-----
THR HLD Green	Active	-----
ARM White	Armed	-----
ROLL		
HDG SEL Green	Active	"Heading Select"
LNAV Green	Active	"LNAV"
LNAV White	Armed	"LNAV White"
VOR/LOC Green	Active	"VORLOC"
VOR/LOC White	Armed	"VORLOC White"

PITCH		
TO/GA Green	Active	"TOGA"
MCP SPEED Green	Active	"MCP Speed"
VNAV SPD Green	Active	"VNAV Speed"
VNAV PTH Green	Active	"VNAV PATH"
VNAV ALT Green	Active	"VNAV ALT"
ALT ACQ Green	Active	"ALT ACQUIRE"
ALT HOLD Green	Active	"ALT HOLD"
ALT Green	Active	"ALT"
VS Green	Active	"VS"
VS White	Armed	-----
GS Green	Active	"Glide Slope"
GS White	Armed	"Glide Slope White"
AUTOPILOT STATUS		
FD Green	Active	"FD"
CMD Green	Active	"Command"
CWS R and/or CWS P Amber	Active	"Control Wheel Steering"
SINGLE CH Amber	Active	-----
SELECTED TARGET WINDOW		
Magenta Target SPEED	Selected	"Speed (---)" or "MACH (.--)"
Magenta Target ALTITUDE	Selected	"(----) Feet" or "Flight Level (---)"
Magenta Target HEADING	Selected	"Heading (---)"

2.2 Mode Control Panel (MCP)

With the autopilot engaged, the MCP will be manipulated by the PF.

With the autopilot disengaged, the MCP will be manipulated by the PM at the direction of the PF. ATC Authorization or Instructions that are read back by the PM do not require direction from the PF to initiate the manipulation by the PM.

The Autopilot COMMAND may be engaged by the PF at any time as needed.

Autopilot Disengaged

Window	Pilot Flying	Pilot Monitoring
Altitude/Heading/ Speed/Course selection	"Set (...)" <i>Examples:</i> "Set Speed 210" "Set 5000 feet"	Carry out action.
Any mode engagement	"Engage (...)" <i>Example:</i> "Engage LNAV"	Carry out action.

2.3 Flight Management Computer (FMC)

In flight, all FMC entries shall be done by the PM.

FMC	Pilot Flying	Pilot Monitoring
Any modification to Lateral or Vertical navigation	"EXECUTE"	"Confirm"
Direct To	"EXECUTE"	"Confirm ..." "LNAV available"

2.4 Flight Parameters in Climb/Cruise/Descent

Climb/Cruise/Descent	Pilot Flying	Pilot Monitoring
Airspeed ± 10 knots of target or -10 knots of Flaps Maneuvering Speed	"CORRECTING"	"SPEED"
Bank angle in excess of 30°	"CORRECTING"	"BANK"
Altitude ± 100 feet	"CORRECTING"	"ALTITUDE"
Course deviation in excess of 1 dot (ILS/VOR/LNAV) or 10° (RMI)	"CORRECTING"	"TRACK"
1,000 feet above/below assigned altitude/flight level	"FL___ for FL___" or "___ft for ___ft"	"CHECK"

2.5 Before Start

Before Start	Pilot-in-command	Second-in-command
All doors are closed and the Clear signal is received from ground crew.	"FLIGHT ATTENDANTS, PREPARE FOR DEPARTURE"	

For the procedure, refer to [Section 1.4.2 - Before Start Procedure](#).

2.6 Pushback

Pushback	Pilot-in-command	Second-in-command
Pushback clearance has been received and flight is ready for pushback.	"NOSE GEAR DEPRESSURIZED, PARK BRAKE RELEASED, CLEARED TO PUSH BACK AT YOUR DISCRETION"	
Ground crew advises "SET PARK BRAKE".	"PARK BRAKE SET, CLEARED TO DISCONNECT TOW BAR, SHOW ME THE BYPASS PIN"	

For the procedure, refer to [Section 1.4.3 - Pushback Procedure](#).

2.7 Engine Start

Engine Start	Pilot-in-command	Second-in-command
Ready to start Engine 2 or Engine 1	"PACKS OFF, START PRESSURE" "START ENGINE # __"	"OFF, CHECK"
Increase in N2 RPM	"CHECK"	"OIL PRESSURE"
By N2 56%	"N2 56"	"STARTER CUTOUT"
After both engines start	"TWO STABLE STARTS, CLEARED TO DISCONNECT, REVERT TO HAND SIGNALS"	

For the procedure, refer to [Section 1.4.4 - Engine Start Procedure](#).

2.8 Before Taxi

Before Taxi	Pilot-in-command	Second-in-command
Engines are running and ground crew have cleared the area	"FLAPS__ BEFORE TAXI CHECKLIST"	
When checklist completed		"BEFORE TAXI CHECKLIST COMPLETE"

For the procedure, refer to [Section 1.4.6 - Before Taxi Procedure](#).

2.9 Taxi Out

Taxi Out	Pilot-in-command	Second-in-command
Prior to releasing brakes for taxi	"CLEAR LEFT"	"CLEAR RIGHT"
During taxi	"BRAKE CHECK"	

For the procedure, refer to [Section 1.5.1 - Taxi Out Procedure](#).

2.10 Before Takeoff

Before Takeoff	Pilot-in-command	Second-in-command
Approaching the runway with Cabin Secure	"BEFORE TAKEOFF CHECKLIST TO THE LINE"	
Takeoff clearance has been received	"BELOW THE LINE"	
When checklist completed		"BEFORE TAKEOFF CHECKLIST COMPLETED"

For the procedure, refer to [Section 1.5.4 - Before Takeoff Procedure](#).

2.11 Takeoff

Takeoff	Pilot Flying	Pilot Monitoring
Entering Departure Runway	"RUNWAY ____ HEADING ____"	
TOGA switch pressed	"SET THRUST"	
N1 coincides with N1 from the FMC Takeoff Page.		"THRUST SET"
Speed = 80 Knots	"CHECK"	"80 KNOTS"
Speed = V_1		Monitor Auto-Callout or call "V1"
Speed = V_R		"ROTATE"
Altimeter shows a positive rate of climb	"GEAR UP"	"POSITIVE RATE"
Pitch angle in excess of 25° nose up after liftoff	"CORRECTING"	"PITCH"

For the procedure, refer to [Section 1.6.3 - Takeoff Procedure](#).

For profile, refer to [Section 3.1 - Takeoff and Initial Climb](#).

2.12 Initial Climb

Initial Climb	Pilot Flying	Pilot Monitoring
At 400 feet	"ENGAGE LNAV" "ENGAGE VNAV" "ENGAGE LNAV – VNAV"	
At 1000 feet or thrust reduction height, whichever is higher (if VNAV is not used)	"ENGAGE LVL CHANGE" "SET UP SPEED"	
According to Flap Retraction Speed Schedule	"FLAPS ____"	
After Flap Lever is positioned as directed by PF		"FLAPS____/ GREEN LIGHT"
When requesting Flaps Up	"FLAPS UP"	
Flaps are up and lights are out		"FLAPS UP, NO LIGHTS"
When established on an enroute direction and cleared of busy airspace	"AFTER TAKEOFF CHECKLIST"	
When checklist completed		"AFTER TAKEOFF CHECKLIST COMPLETE"

For the procedure, refer to [Section 1.7.1 - Initial Climb Procedure](#).

For profile, refer to [Section 3.1 - Takeoff and Initial Climb](#).

2.13 Climb

Climb	Pilot Flying	Pilot Monitoring
At 10,000 feet	"10,000 for ____"	
At Transition Altitude	"SET STANDARD" "PASSING FL ____"	"STANDARD SET"

For the procedure, refer to [Section 1.8.2 - Climb Procedure](#).

2.14 Descent

Descent	Pilot Flying	Pilot Monitoring
Approaching top of descent	"DESCENT CHECKLIST"	
When checklist completed		"DESCENT CHECKLIST COMPLETED"

For the procedure, refer to [Section 1.11.2 - Descent Procedure](#).

2.15 Transition

Transition	Pilot Flying	Pilot Monitoring
At transition level	"SET QNH ____ (in/mb)"	"____ (in/mb) SET"
At transition level or FL180	"APPROACH CHECKLIST"	
When checklist completed		"APPROACH CHECKLIST COMPLETED"

For the procedure, refer to [Section 1.11.4 - Approach Procedure](#).

2.16 Approach and Landing

Approach and Landing	Pilot Flying	Pilot Monitoring
According to Flap Extension Speed Schedule	"FLAPS__"	"FLAPS__, GREEN LIGHT"
Approaching the Final Descent Point and/or above 1500' AAE	"GEAR DOWN, FLAPS 15, LANDING CHECKLIST"	
When ready for final landing flaps (above 1000' AAE)	"FLAPS ____ "	
When Landing Flaps are indicated	"(- -) GREEN LIGHT"	"FLAPS?" "LANDING CHECKLIST COMPLETED"
At or above 500' AAE, as soon as the Stabilized Approach and Landing Criteria are met	"(----) FEET SET"	"STABLE"
100 feet above minimum	"HUNDRED ABOVE" (silent if Auto-Callout)	
Reaching minimum with required visual reference	"MINIMUM" (silent if Auto-Callout)	"RUNWAY LIGHTS" or "RUNWAY IN SIGHT" For PMA at PIC discretion: "CONTINUE"
Reaching minimum with no required visual reference	"MINIMUM" (silent if Auto-Callout) "GO AROUND – FLAPS, SET THRUST"	"NO CONTACT"
During PMA when landing is assured	(SIC) "You have Control"	(PIC) "I HAVE CONTROL"

For procedures, refer to the following sections:

- [1.13.3 - Landing Configuration Procedure](#)
- [1.13.4 - Approach Using APP](#)
- [1.13.5 - Approach Using BARO VNAV](#)
- [1.13.6 - Approach Using Vertical Speed \(VS\)](#)
- [1.13.7 - Visual Approach](#)
- [1.13.8 - Pilot Monitored Approach](#)

2.17 Flight Parameters During Approach

Approach	Pilot Flying	Pilot Monitoring
Minimum Maneuvering Speed -10 knots +10 knots of V_{APP} (or V_{APP} +Gust Factor) or at V_{REF}	"CORRECTING"	"SPEED"
Bank angle in excess of 30°	"CORRECTING"	"BANK"
Altitude ± 40 feet of calculated crossing altitude or -1 feet below any MDA	"CORRECTING"	"ALTITUDE"
Localizer or course deviation of one dot (ILS/VOR) or 5° (ADF)	"CORRECTING"	"LOCALIZER" or "TRACK"
Glideslope or Vertical NPS deviation of one dot	"CORRECTING"	"GLIDEPATH"
VASI/PAPI or visual glide path indication 3 lights high or low	"CORRECTING"	"GLIDEPATH"
Rate of descent in excess of Stable Approach Criteria.	"CORRECTING"	"SINK RATE"
Engines not spooled up below 500 feet AAE	"CORRECTING"	"THRUST"

2.18 Flight Parameters Below Go-Around Gate

Landing	Pilot Flying	Pilot Monitoring
Pitch angle approaching 7° nose up	"CORRECTING" (Adjust pitch to 7° or less)	"PITCH"
Localizer or course deviation of one dot (ILS/VOR) or 5° (ADF)	"CORRECTING"	"LOCALIZER" or "TRACK"
Glideslope or Vertical NPS deviation of one dot	"CORRECTING"	"GLIDEPATH"
VASI/PAPI or visual glide path indication 3 lights high or low	"CORRECTING"	"GLIDE PATH"
Stabilized approach and landing criteria exceeded below 200' AAE • Landing cannot be completed safely • Loss of Required Visual References • Aircraft not configured for Landing • Checklist not completed • Speed > VAPP +10 (or Gust Factor) / < VREF -5 • Not aligned with landing runway • 4 RED or WHITE lights on VGSI • TAWS Alert • Landing outside of Desired Touchdown Zone	"GO AROUND – FLAPS, SET THRUST"	"UNSTABLE"

2.19 Go-Around

Go Around	Pilot Flying	Pilot Monitoring
At decision to Go-Around	"GO-AROUND – FLAPS, SET THRUST"	
N1 reaches target N1		"THRUST SET"
Altimeter shows a positive rate of climb	"GEAR UP"	"POSITIVE RATE"
Above 400 feet	"ENGAGE HDG" or "LNAV" "ENGAGE VNAV" "ARM AUTOTHROTTLE"	
According to Flap Retraction Speed Schedule	"FLAPS ____"	
After Flap Lever is positioned as directed by PF		"FLAPS____, GREEN LIGHT"
When requesting Flaps Up	"FLAPS UP"	
Flaps are up and lights out		"FLAPS UP, NO LIGHTS"
Established on an enroute direction and cleared of busy airspace	"AFTER TAKEOFF CHECKLIST"	
When checklist completed		"AFTER TAKEOFF CHECKLIST COMPLETE"

For the procedure, refer to:

- [Section 1.13.9 - Missed Approach](#)

For profiles, refer to:

- [Section 3.10 - Missed Approach](#)
- [Section 3.11 - Missed Approach – One Engine Inoperative](#)

2.20 Landing Roll

Landing Roll Procedure	Pilot Flying	Pilot Monitoring
After touchdown		Monitor Braking and if using Autobrakes and system not engaged or disengaged, call: "NO AUTOBRAKES" Monitor Speedbrake Lever and call: "SPEEDBRAKES UP" If not up: "NO SPEEDBRAKES" Monitor Reverse indications and call "REVERSERS NORMAL". If non-normal reverse indications, call: "NO REVERSER # _____"
Speed = 60 knots		"60 KNOTS"
Speed = taxi speed after landing completed by SIC	"I HAVE CONTROL"	"YOU HAVE CONTROL"

For the procedure, refer to [Section 1.14.1 - Landing Roll Procedure](#).

2.21 Taxi-In and Shutdown

Taxi in and Shutdown	Pilot Flying	Pilot Monitoring
Anti-collision lights OFF	"SHUTDOWN CHECKLIST" If last flight of the day, call: "SHUTDOWN AND TERMINATING CHECKLIST"	

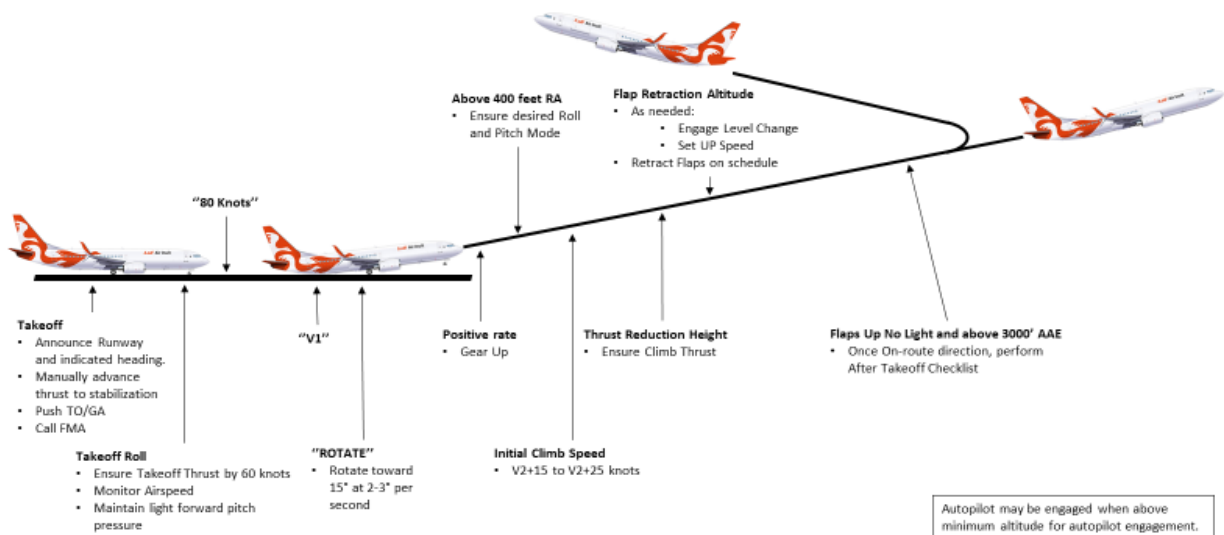
For the procedure, refer to [Section 1.16.1 - Engine Out Taxi In.](#)

SECTION 3 Diagrams

3.1 Takeoff and Initial Climb

Takeoff and Initial Climb

For an immediate turn after takeoff, maintain initial climb speed with takeoff flaps while maneuvering. Follow AFDS bank limits.



For procedures, refer to:

- [Section 1.6.3 - Takeoff Procedure](#)
- [Section 1.7.1 - Initial Climb Procedure](#)

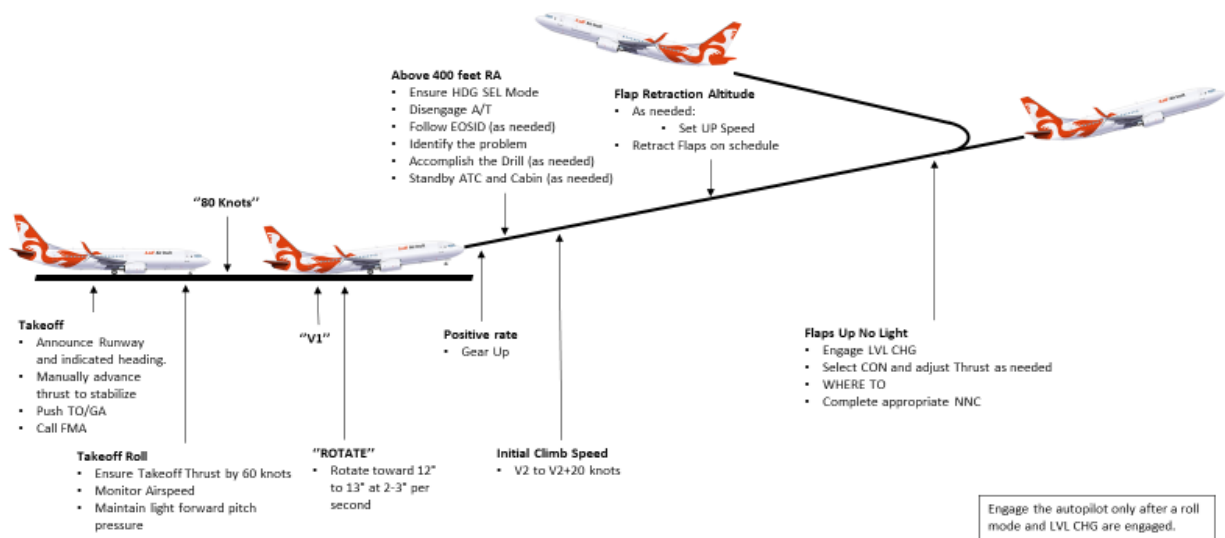
For standard calls, refer to:

- [Section 2.11 - Takeoff](#)
- [Section 2.12 - Initial Climb](#)

3.2 Takeoff - Engine Failure

Takeoff – Engine Failure

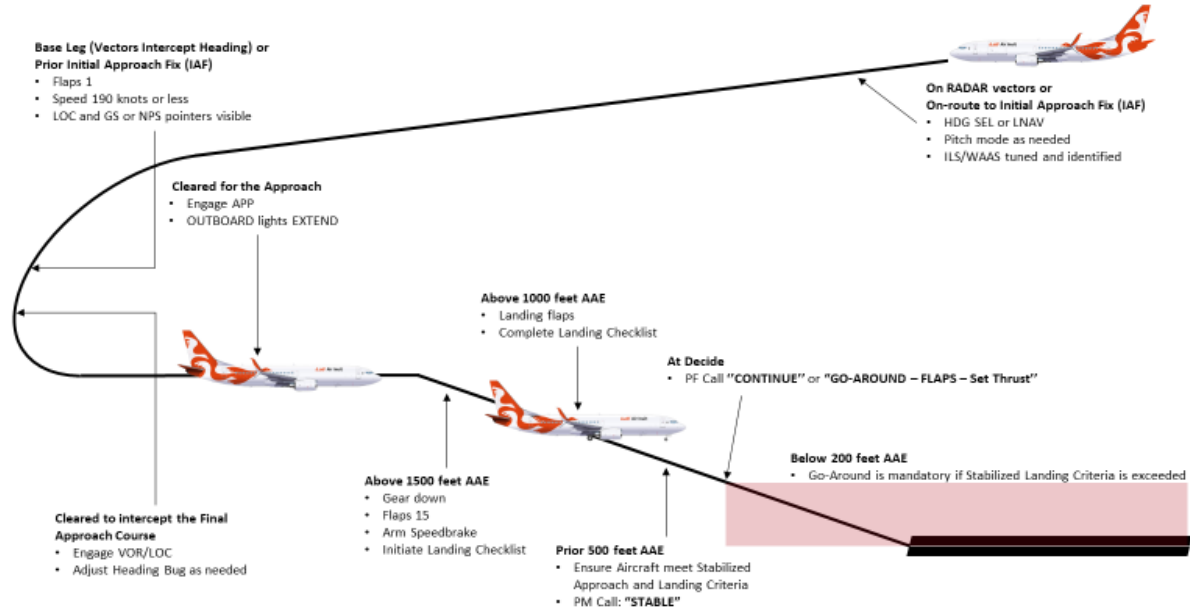
For an immediate turn after takeoff, limit bank angle to 15° until reaching V2+15



For the non-normal procedure, refer to [Section 4.3 - Takeoff - Engine Failure](#).

3.3 Approach Using APP - All Engines Operating

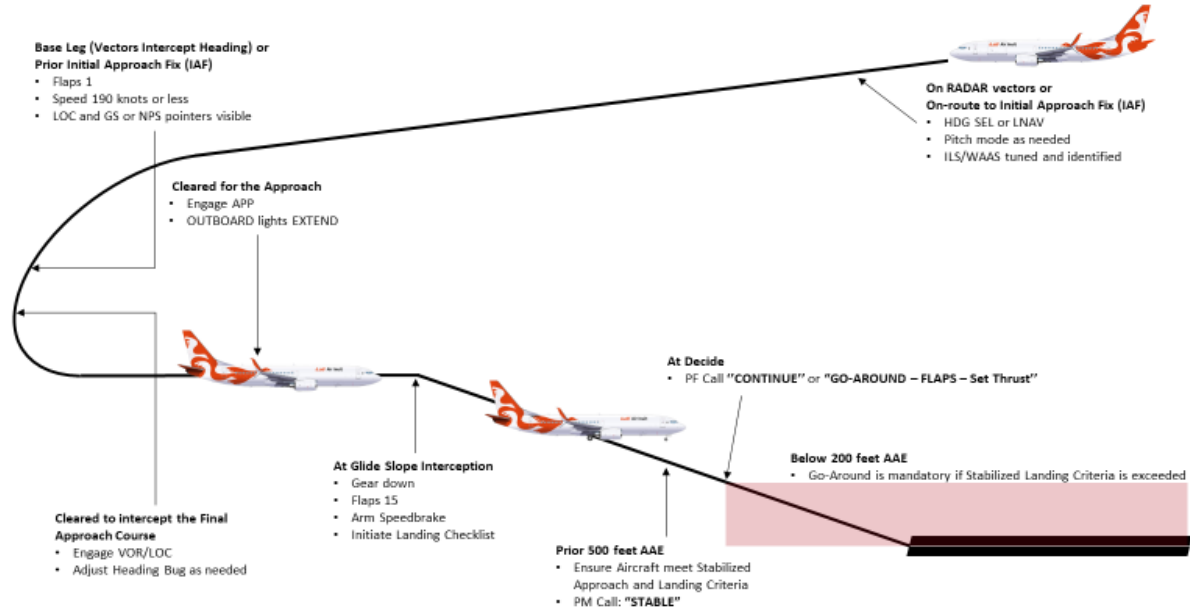
Approach Using APP – All Engines Operating



For the procedure, refer to [Section 1.13.4 - Approach Using APP](#).

3.4 Approach Using APP – One Engine Inoperative

Approach Using APP – One Engine Inoperative

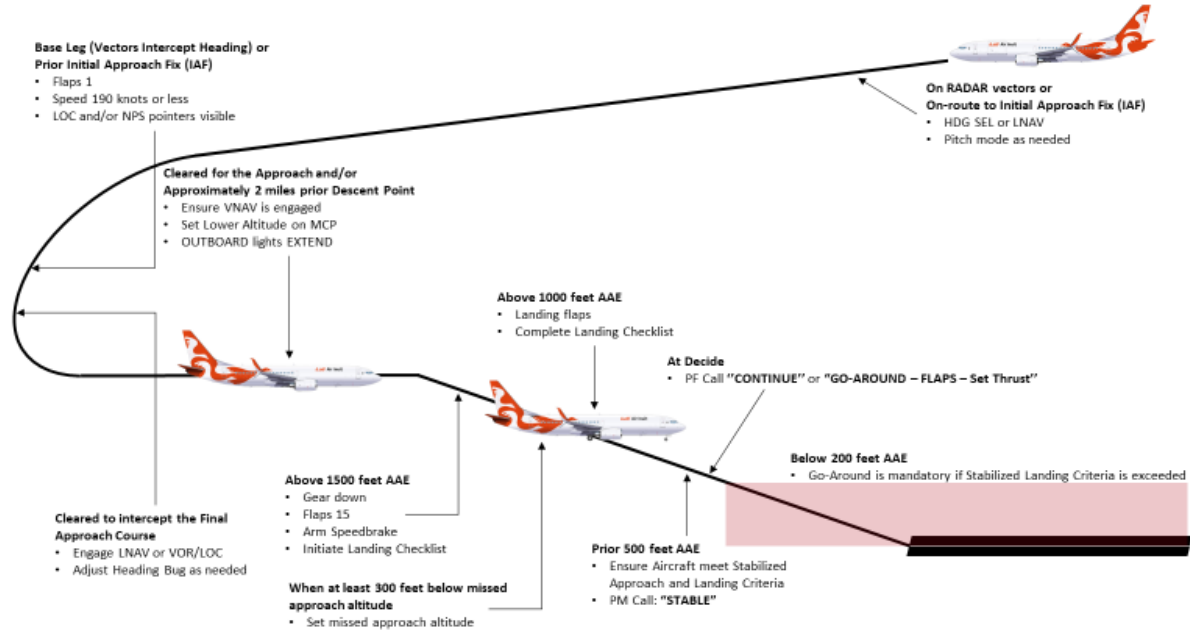


For the procedure, refer to [Section 1.13.4 - Approach Using APP](#).

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3.5 Approach Using BARO VNAV - All Engines Operating

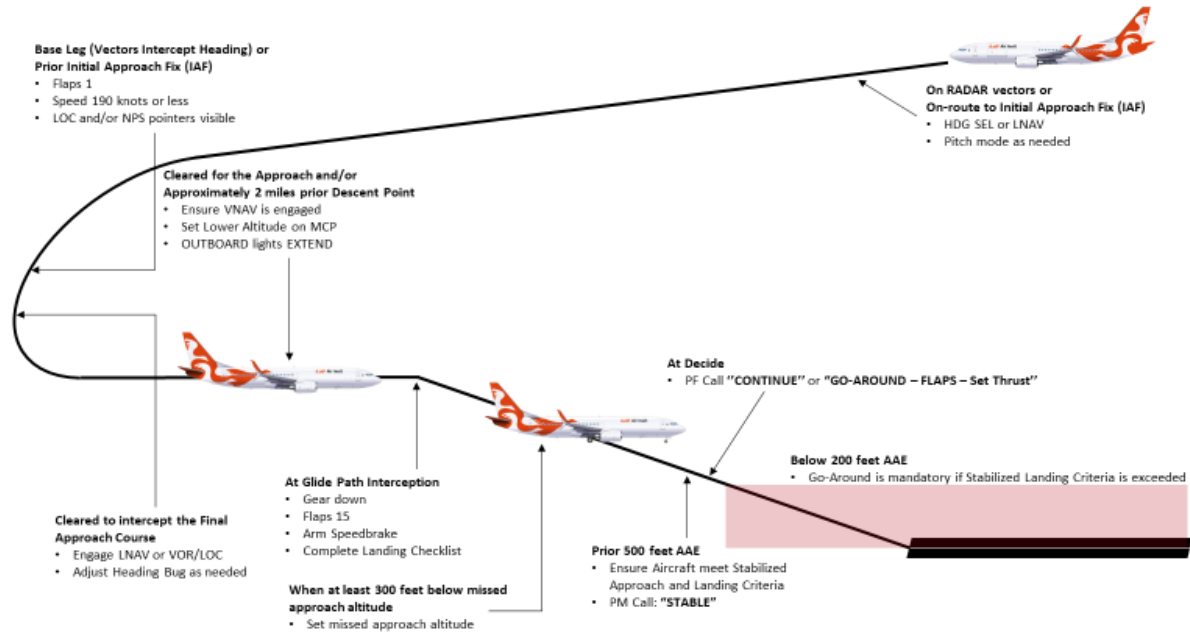
Approach Using BARO VNAV – All Engines Operating



For the procedure, refer to [Section 1.13.5 - Approach Using BARO VNAV](#).

3.6 Approach Using BARO VNAV – One Engine Inoperative

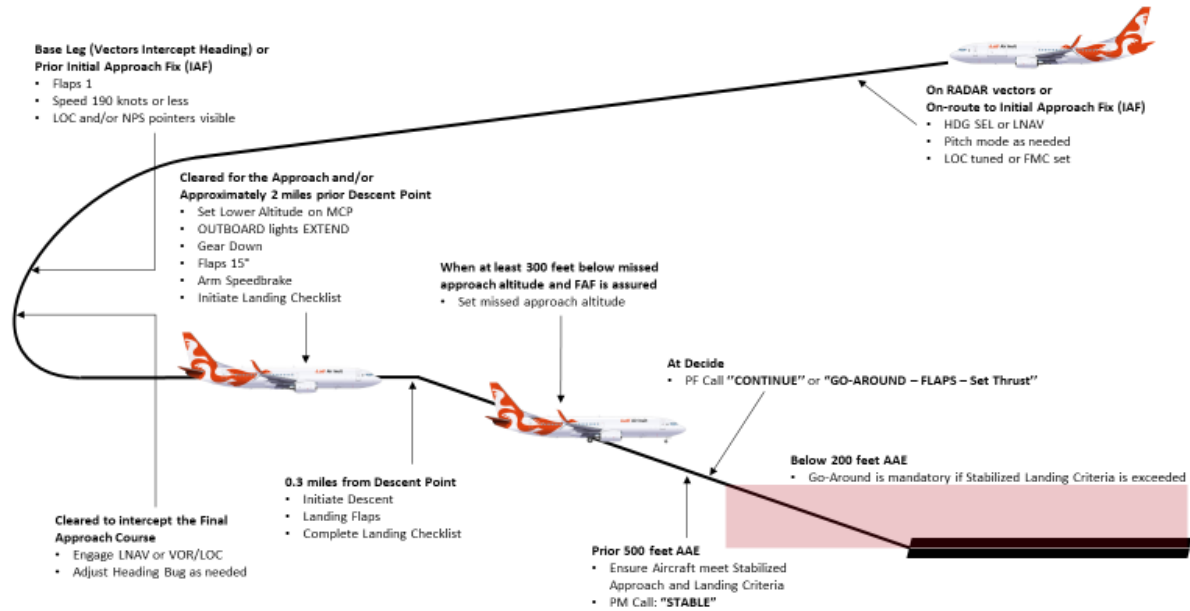
Approach Using BARO VNAV – One Engine Inoperative



For the procedure, refer to [Section 1.13.5 - Approach Using BARO VNAV](#).

3.7 Approach Using Vertical Speed - All Engines Operating

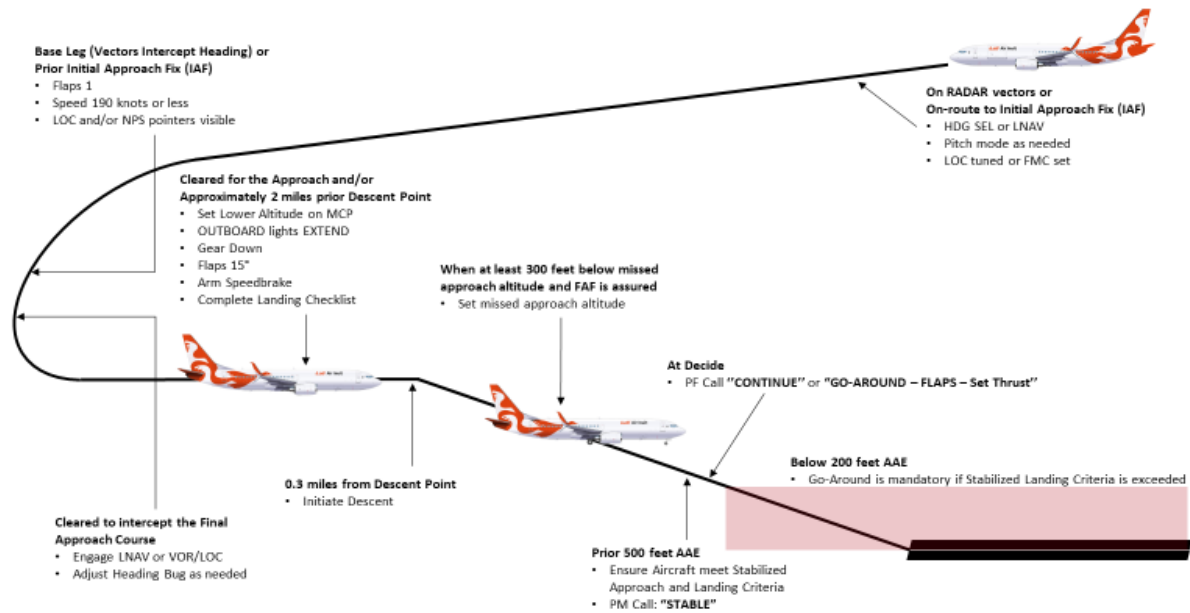
Approach Using Vertical Speed – All Engines Operating



For the procedure, refer to [Section 1.13.6 - Approach Using Vertical Speed](#).

3.8 Approach Using Vertical Speed – One Engine Inoperative

Approach Using Vertical Speed – One Engine Inoperative

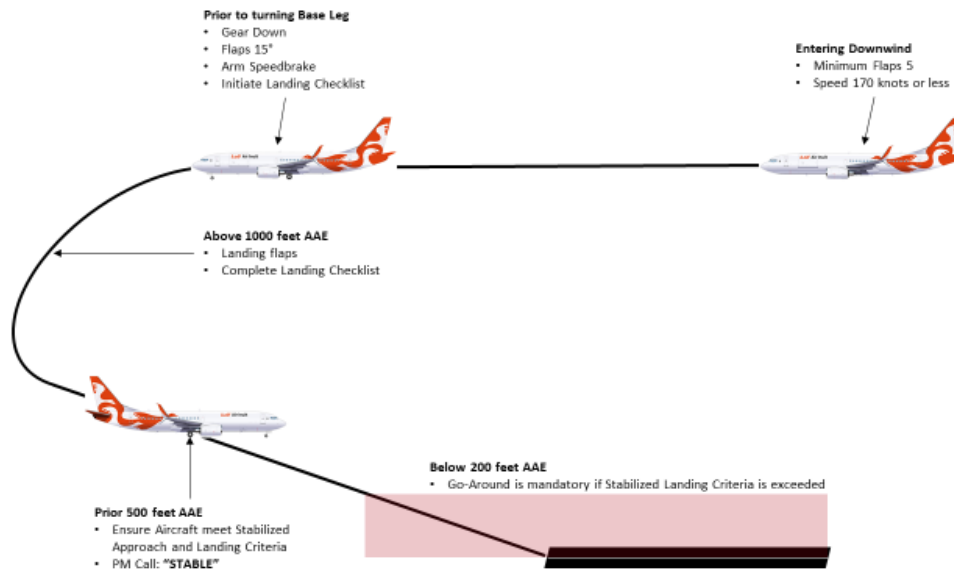


For the procedure, refer to [Section 1.13.6 - Approach Using Vertical Speed](#).

3.9 Visual Approach

Visual approach

Visual Circuit is normally completed at 1500 feet AAE or above



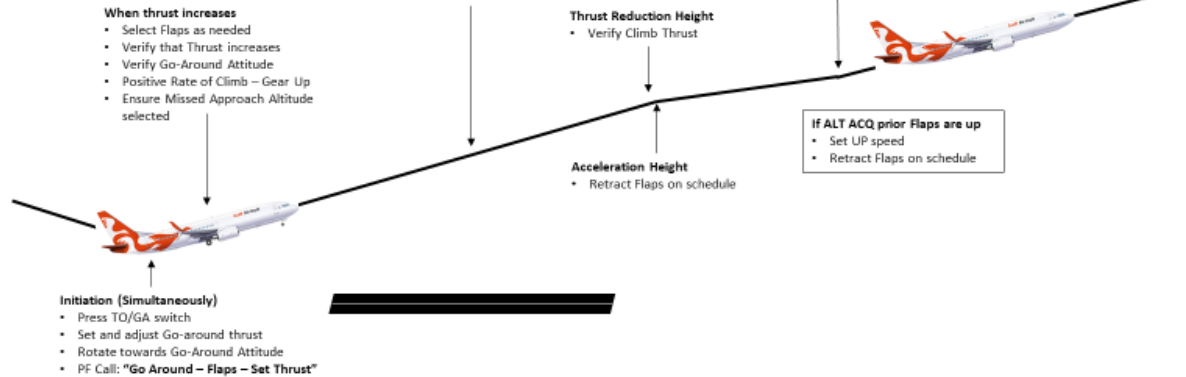
For the procedure, refer to [Section 1.13.7 - Visual Approach](#).

3.10 Missed Approach

Missed Approach – All Engines Operating

Below 200 feet AAE, a Go-Around is mandatory for the following reasons:

- Landing cannot be completed safely
- Loss of Required Visual References
- Aircraft not configured for Landing
- Checklist not completed
- $V_{APP} +10$ (or Gust Factor) / $V_{ATZ} -5$
- Not Aligned with Landing Runway
- 4 RED or WHITE lights on VGS
- TAWS Alert
- Landing Outside of Desired Touch Down Zone



For the procedure, refer to [Section 1.13.9 - Missed Approach](#).

For standard calls, refer to [Section 2.19 - Go-Around](#).

3.11 Missed Approach – One Engine Inoperative

Missed Approach – One Engine Inoperative

Below 200 feet AAE, a Go-Around is mandatory for the following reasons:

- Landing cannot be completed safely
- Loss of Required Visual References
- Aircraft not configured for Landing
- Checklist not completed
- $V_{APP} +10$ (or Gust Factor) / $V_{REF} -5$
- Not Aligned with Landing Runway
- 4 RED or WHITE lights on VGS
- TAWS Alert
- Landing Outside of Desired Touch Down Zone

- When thrust increases**
- Select Flaps as needed
 - Verify that Thrust increases
 - Verify Go-Around Attitude
 - Positive Rate of Climb – Gear Up
 - Ensure Missed Approach Altitude selected

Initiation (Simultaneously)

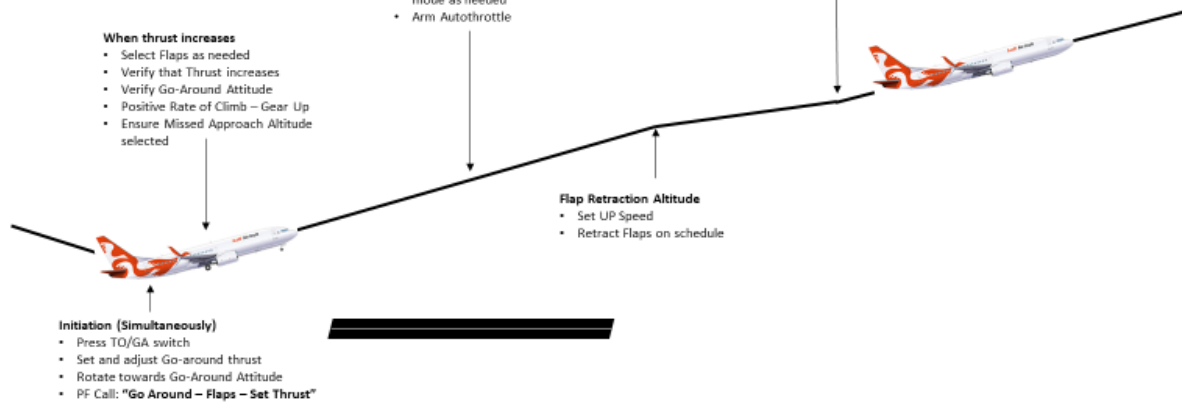
- Press TO/GA switch
- Set and adjust Go-around thrust
- Rotate towards Go-Around Attitude
- PF Call: "Go Around – Flaps – Set Thrust"

- Above 400 feet RA**
- Select Roll and Pitch mode as needed
 - Arm Autothrottle

- Flap Retraction Altitude**
- Set UP Speed
 - Retract Flaps on schedule

Flaps Up No Light

- Engage LVL CHG and/or verify Altitude Capture
- Select CON and adjust Thrust as needed
- WHERE TO
- Complete appropriate NNC or After Takeoff Checklist as needed

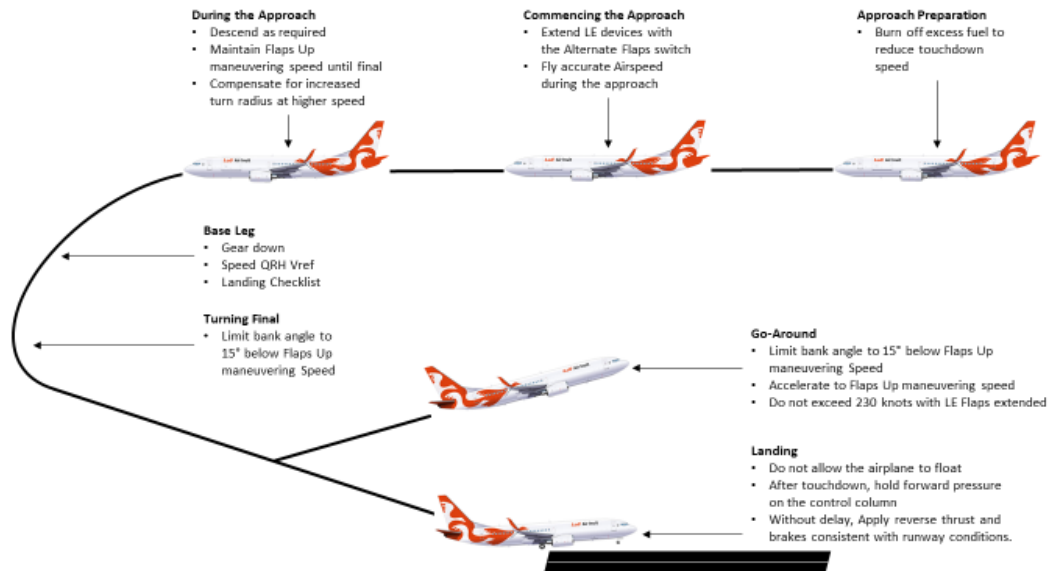


For the procedure, refer to [Section 1.13.9 - Missed Approach](#).

For standard calls, refer to [Section 2.19 - Go-Around](#).

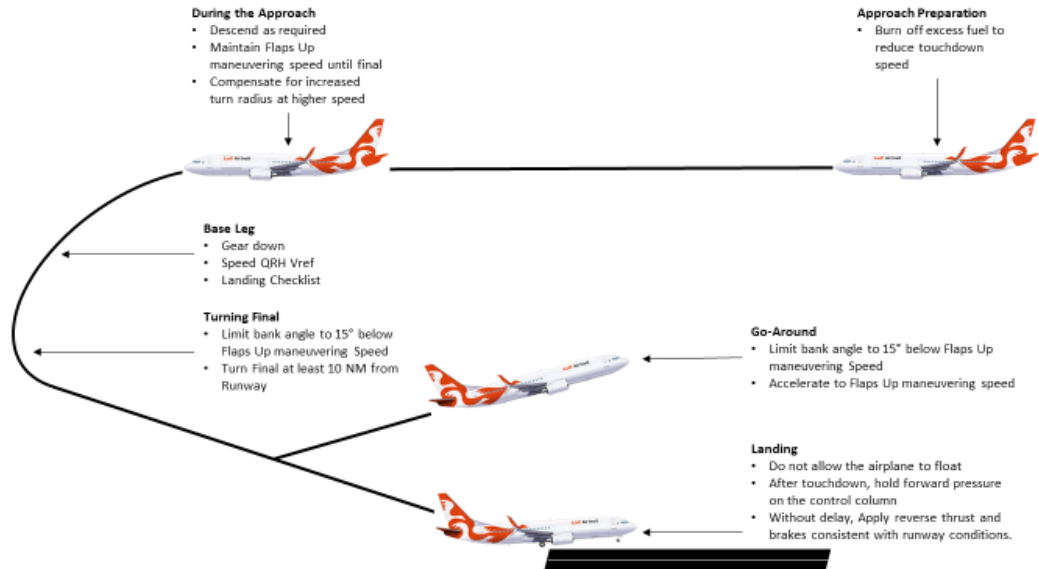
3.12 Trailing Edge Flaps Up Landing

Trailing Edge Flaps Up Landing



3.13 All Flaps Up Landing

All Flaps Up Landing



SECTION 4 **Non-Normal Procedures**

These non-normal procedures comply with the memory items and Non-Normal Checklists (NNC) contained in the B73C QRH ([AILO-0902](#)). For detailed information on the use and coordination of these checklists, refer to the Checklist Instructions section of the QRH.

No two emergencies are exactly the same and their handling will vary according to the stage of flight. These procedures must be followed to the maximum extent possible. They were developed to ensure the safety of the aircraft under the most demanding operating conditions.

Aural warnings should be silenced and the master caution cancelled when the cause of the warning or caution has been recognized. Do not indicate the side of the failure with the first call.

The first priority for the PF is to fly and direct the aircraft in a safe manner. It is good practice for the PF to verify the status of the automation and call out the actual FMA, Selected Targets, and request any change as needed.

Drills are normally initiated without delay above 400 feet AAE.

Any time an Engine Malfunction is identified, the Autothrottle will be disengaged by the PF at a minimum of 400 feet AAE with the aircraft under control.

NNC are initiated once the aircraft is in clean configuration, thrust is at or below MCT, and a "WHERE TO" has been established.

The PF shall call "**IDENTIFY**" to prompt the PM to identify the situation. Following the PM's response, the PF will call for the appropriate drill or NNC as needed.

With the aircraft under control and when time permits prior to or after completion of a drill or NNC, ATC should be advised to "**STANDBY**" until you are able to provide more information. Advise ATC if you will be flying a procedure that differs from ATC clearance or instructions, e.g. engine-out procedure with a turn, high altitude drift down or emergency descent.

Normally, the PM will complete the emergency drill and/or NNC, monitored by the PF.

When an NNC is initiated, it is the PIC's responsibility to ensure that the correct memory and reference items are accomplished.

Any time a drill or an NNC is completed, the PM will advise " **DRILL COMPLETE**" or " **CHECKLIST COMPLETE**".

4.1 Emergency Action Guidelines (EAG)

The purpose of the Emergency Action Guidelines ([AILO-0955](#)) is to guide the crew in handling most non-normal situations. It is a Crew Resource Management tool meant to take all parameters into consideration, to facilitate decision-making and communication, and to safely complete the flight. The EAG is not a checklist.

The PF should normally call for the EAG when:

- QRH checklist has been completed (****).
- QRH checklist has been completed up to the **Deferred Items**.
- QRH checklist is redirected (►►Go to) to either of these checklists:
 - **One Engine Inoperative Landing**
 - **Engine In-Flight Start**

EMERGENCY ACTION GUIDELINES				
WHERE TO [Notify/Standby *ATC* - Standby Cabin]				
→ QRH ←				
• QRH until either → **** → DEFERRED ITEMS → ENGINE IN FLIGHT START → ONE ENGINE INOPERATIVE LANDING • AFTER TAKEOFF CHECKLIST				
EVALUATE SITUATION - DECISION				
AS NEEDED	Complete *One Engine Inoperative Landing* until DEFERRED ITEMS or *Engine in Flight Start*			
• Aircraft State – Affected Systems – Circuit Breakers • Adequate airport – RCAM – PERFORMANCE INFLIGHT – Weather – Approaches • Fuel Management – Equipment & Airspace requirement (RNP – RVSM) • MEL Applicability • Air Inuit Dispatch Maintenance Commercial				
COMMUNICATE (Normally done by PIC)				
ATC PAN PAN / MAYDAY • Intentions / Destination • # Souls on Board • FOB / Endurance • DG's (UN# & location) • Medical Assistance • Emergency Equipment	TESTRA • Type of Situation • Evacuation - NO: No Cabin Prep. - YES: LAND or DITCH • Signals: STD / ALTN • Time to Land/Ditch • Relocation • Announcement Questions?	OPERATIONS • Ground Handling • Gate – Air stairs • Assistance – TUG • Air Start		
BUILD – BUG – BRIEF				
EMERGENCY SERVICES READY		FA READY		
→ DEFERRED ITEMS (or DESCENT CHECKLIST) ←				
Signals Review as needed: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> - Intercept / 10nm Final: - 1000 feet AGL: - At a Full Stop: - Evacuation: </td> <td style="width: 50%; vertical-align: top;"> 2 Chimes - PA "BRACE, BRACE, BRACE" or 5 chimes - PA "REMAIN SEATED, REMAIN SEATED, REMAIN SEATED" - PA "EVACUATE, EVACUATE, EVACUATE" </td> </tr> </table>			- Intercept / 10nm Final: - 1000 feet AGL: - At a Full Stop: - Evacuation:	2 Chimes - PA "BRACE, BRACE, BRACE" or 5 chimes - PA "REMAIN SEATED, REMAIN SEATED, REMAIN SEATED" - PA "EVACUATE, EVACUATE, EVACUATE"
- Intercept / 10nm Final: - 1000 feet AGL: - At a Full Stop: - Evacuation:	2 Chimes - PA "BRACE, BRACE, BRACE" or 5 chimes - PA "REMAIN SEATED, REMAIN SEATED, REMAIN SEATED" - PA "EVACUATE, EVACUATE, EVACUATE"			

AILO-0955 (2025-03)

4.1.1 WHERE TO Section of the EAG

WHERE TO [Notify/Standby *ATC* - Standby Cabin]
--

Any time an emergency or non-normal situation occurs, ensure that the following conditions are met before initiating the Non-Normal Checklist (NNC):

- Any Vital Actions and/or Drills are complete.
- The aircraft is in clean configuration and thrust is set at or below MCT.
- 'WHERE TO' is established.

The "WHERE TO" is an initial short-term tactical decision about where to direct the flight in order to complete any NNC/procedure, gather all considerations and options, and communicate and prepare for landing.

As gaining altitude usually offers a better range and/or options, it is highly recommended not to level off at lower altitudes and remain close to the departure airport (i.e. busy airspace), but rather choose to climb to a reasonable altitude and proceed on-route towards destination or alternate, unless a time-sensitive condition exists.

ATC/CARS/FSS shall be advised and Emergency Services shall be requested if required.

The Cabin Crew should also be advised and put on standby when the situation warrants.

4.1.2 QRH Section of the EAG

→ QRH ←	
• QRH until:	→ OR
	→ DEFERRED ITEMS OR
	→ ENGINE IN-FLIGHT START OR
	→ ONE ENGINE INOPERATIVE LANDING
• AFTER TAKEOFF CHECKLIST	

Ensure that the applicable NNC in the QRH (including all Memory Items) has been completed, or has been accomplished up to the Deferred Items, or has you redirected to the One Engine Inoperative NNC or to the Engine Inflight Start NNC.

Complete the AFTER TAKEOFF Checklist as needed.

4.1.3 EVALUATE SITUATION – DECISION Section of the EAG

EVALUATE SITUATION - DECISION	
AS NEEDED	Complete *One Engine Inoperative Landing* until DEFERRED ITEMS or *Engine in Flight Start*
	• Aircraft State – Affected Systems – Circuit Breakers • Adequate airport – RCAM – PERFORMANCE INFLIGHT – Weather - Approaches • Fuel Management – Equipment & Airspace requirement (RNP – RVSM) • MEL Applicability • Air Inuit Dispatch Maintenance Commercial

This section of the EAG helps the crew evaluate and plan the course of action to be taken for flight termination.

If applicable, complete the One Engine Inoperative Landing NNC until its Deferred Items or the Engine In-Flight Start NNC as needed. This action will allow the crew to calculate the required landing distance associated with the malfunction and help choose an adequate runway for the situation.

Evaluate the state of the aircraft with regard to the originating and associated malfunction. After the memory items and/or checklist are completed, review the

Master Caution and ensure any outstanding items are actioned and understood. The Master Caution should then be cancelled allowing future messages to be easily detected.

Evaluate Adequate Airport options, Runway Surface Condition reports, weather and approach requirements and capabilities.

Evaluate range and possible cruise altitudes based on equipment and airspace requirements (RNP – RVSM). Verify Fuel Balance and/or cross-feed configuration as needed.

Verify the MEL for any pertinent information (possible release at destination). Check for any popped circuit breakers.

If needed, Dispatch and/or Maintenance may be contacted in order to make a proper decision. When the situation is not critical, the crew should decide with the Company where it is most suitable to land, especially if the aircraft will be grounded upon landing. In all cases, Dispatch should be advised of any abnormal situation and the final decision.

4.1.4 COMMUNICATE Section of the EAG

COMMUNICATE (Normally done by PIC)		
ATC PAN PAN / MAYDAY • Intentions / Destination • # Souls on Board • FOB / Endurance • DG's (UN# & location) • Medical Assistance • Emergency Equipment	TESTRA • Type of Situation • Evacuation • NO: No Cabin Prep. • YES: LAND or DITCH - Signals: STD / ALTN - Time to Land/Ditch - Relocation - Announcement Questions?	OPERATIONS • Ground Handling • Gate – Air stairs • Assistance – TUG • Air Start

Communicate any decision to Dispatch and coordinate with ATC and with the Flight Attendants through a TESTRA.

When in range, coordinate any requirements with the ground handler for gate information and any special needs or equipment.

4.1.5 BUILD – BUG – BRIEF Section of the EAG

BUILD – BUG - BRIEF	
EMERGENCY SERVICES READY	FA READY

When appropriate, accomplish the approach setup and briefing as per normal SOP.

Ensure that the Emergency Services are ready and standing by, and that the Cabin/Flight Attendants are ready for landing.

4.1.6 DEFERRED ITEMS Section of the EAG

→ DEFERRED ITEMS (or DESCENT CHECKLIST) ←	
<u>Signals Review as needed:</u>	
• Intercept / 10nm Final:	2 Chimes
• 1000 feet AGL:	PA " BRACE, BRACE, BRACE " or 5 chimes
• At a Full Stop:	PA " REMAIN SEATED, REMAIN SEATED, REMAIN SEATED "
• Evacuation:	PA " EVACUATE, EVACUATE, EVACUATE "

Perform the DEFERRED ITEMS part of the QRH checklist or the DESCENT Checklist, as needed, as per normal SOP.

4.2 On-Ground Emergencies

For any on-ground emergencies, the first priority is to stop the aircraft and set the parking brake. Communicate/coordinate with ATC as soon as possible.

The PIC will standby the cabin crew over the public address by stating **"REMAIN SEATED"** three times.

After assessing the situation, the PIC will call for any drill or non-normal checklist.

When a non-normal checklist is needed, the SIC will read the reference items and the desired action, then either pilot will accomplish the item and respond with the appropriate answer as indicated in the QRH.

After any unplanned immobilization of the aircraft, the PIC will always coordinate with the cabin crew before moving the aircraft.

4.2.1 Rejected Takeoff

The PIC has the sole responsibility for the decision to reject the takeoff. The decision must be made in time to start the rejected takeoff manoeuvre by V_1 . If the decision is to reject the takeoff, the PIC must clearly announce **"REJECT"**, immediately start the rejected takeoff manoeuvre, and assume control of the aircraft. If the SIC is making the takeoff, the SIC must maintain control of the aircraft until the PIC makes a positive input to the controls.

If a flight crew member calls out a non-normal situation and a reject is not justified, the PIC will call **"CONTINUE"**.

Prior to 80 knots, the takeoff should be rejected for any of the following:

- activation of the Master Caution System
- activation of the Main Cargo Door Warning
- system failure(s)
- unusual noise or vibration
- tire failure
- abnormally slow acceleration
- takeoff configuration warning
- fire or fire warning
- engine failure
- predictive windshear
- a side window opens
- the airplane is unsafe or unable to fly

Above 80 knots and prior to V_1 , the takeoff should be rejected for any of the following:

- fire or fire warning
- activation of the Main Cargo Door Warning
- engine failure
- predictive windshear
- the airplane is unsafe or unable to fly

During the takeoff, the crew member observing the non-normal situation will immediately call it out as clearly as possible.

When a Rejected Takeoff is initiated in the following conditions:

- Speed above 100 knots
- Gross Takeoff Weight above Maximum Landing Weight
- Outside Temperatures above 20°C

the aircraft should be stopped and remain on the runway until the Brake Cooling Schedule has been reviewed or Emergency Services have evaluated the aircraft brake temperature. In these conditions, it is acceptable to coordinate with ATC to make a short taxi off the runway onto an adjacent highspeed taxiway if the manoeuvre does not require a sharp turn.

Pilot-in-command	Second-in-command
Announce: "REJECT"	
Without delay: • Simultaneously close the thrust levers, disengage the autothrottle and apply maximum manual wheel brakes or verify operation of RTO autobrake. If RTO autobrake is selected, monitor system performance and apply manual wheel brakes if the AUTO BRAKE DISARM light illuminates or deceleration is not adequate. • Raise the SPEED BRAKE lever. • Apply reverse thrust up to the maximum amount consistent with conditions. • Continue maximum braking until certain the airplane will stop on the runway.	Verify actions as follows: • Thrust levers closed Autothrottle disengaged Maximum Braking/Autobrakes RTO or call: "NO AUTOBRAKES" • Verify Speedbrake lever UP and call: "SPEEDBRAKES UP". If Speedbrake lever not UP, call: "NO SPEEDBRAKES". • Reverse thrust applied. Call: "REVERSER NORMAL" or "NO REVERSER ENGINE # " (Engine number indicating Reverse not operating) • Call out any omitted action items.
When stopping is assured: Start movement of the reverse thrust levers to reach the reverse idle detent before taxi speed. After the engines are at reverse idle, move the reverse thrust levers to full down.	• Call out 60 knots. • Select flaps to 40. • Communicate the reject decision to ATC.

Pilot-in-command	Second-in-command
When the airplane is stopped: Parking brake.....Set Advise cabin "REMAIN SEATED" (x3) Use all means available to evaluate the situation.	
Call for the appropriate drill and/or checklist as required.	Carry out the drill and/or checklist as requested.
No Evacuation Situation: Ensure the appropriate drill is complete and continue to evaluate the situation to determine if an evacuation is necessary. Establish communication with the cabin.	
Communicate with ATC or other aircraft to obtain any information regarding the condition of the airplane (presence of external fire). Review Brake Cooling Schedule.	
Evacuation Situation: Call: "EVACUATION CHECKLIST".	Do the Evacuation Checklist.

Refer to the FCTM (Takeoff and Initial Climb/Rejected Takeoff Decision).

4.2.2 Aircraft Fire on the Ground

If a fire warning, reported fire or smoke is indicated while on the ground, the PIC will immediately close the thrust levers, stop the aircraft if taxiing, and set the parking brake ON.

Pilot-in-command	Second-in-command
	Identify the appropriate FIRE WARNING and state: "ENGINE FIRE" or "APU FIRE" or "CARGO FIRE"
Thrust Levers (both) IDLE Parking Brake.....Set Advise Cabin "Remain seated" (x3)	
Call for the APU FIRE drill, the ENGINE FIRE ON THE GROUND Checklist or the CARGO FIRE Checklist, as required.	Carry out the drill and/or checklist as requested.
Advise ATC and obtain any information possible regarding the condition of the aircraft, i.e. presence of external fire. • If evacuation is needed, use the Evacuation Checklist. • If evacuation is not needed, advise the cabin and ATC.	

4.3 Takeoff - Engine Failure

Regardless of who is flying the aircraft, the PIC is ultimately responsible for the safety of the flight. The PF must confirm that the proper thrust lever, fuel control switch, or engine fire switch is identified prior to the PM moving it, as directed in a memory item or checklist.

Normally with the indication of an Engine Fire, Severe Damage or Separation on takeoff, the memory items will be initiated at 400 feet AGL with the aircraft under control. Excessive vibration, high EGT or abnormal RPM may indicate severe damage.

Pilot Flying	Pilot Monitoring
Maintain directional control. Rotate to takeoff attitude at V_R .	Call: "ENGINE FIRE" or "ENGINE FAILURE" . If applicable, cancel the Fire Warning bell. At V_R , call: "ROTATE" .
	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.
Climb between V_2 and $V_2 + 20$. Limit bank angle to 15° below $V_2 + 15$ knots.	Monitor flight path.
Retract the landing gear after a positive rate of climb is indicated on the altimeter. The initial climb attitude should be adjusted to maintain a minimum of V_2 . If an engine fails at an airspeed between V_2 and $V_2 + 20$ knots, climb at the airspeed at which the failure occurred. If engine failure occurs above $V_2 + 20$ knots, increase pitch to reduce airspeed to $V_2 + 20$ knots and maintain $V_2 + 20$ knots until reaching acceleration height. If a deviation from standard departure procedure is required, advise ATC as soon as practicable.	

Pilot Flying	Pilot Monitoring
Above 400 feet AAE: Confirm or request HDG mode. Confirm or request desired BANK mode as needed. Disengage Auto Throttle	Engage HDG mode as requested. Select desired BANK mode if needed.
Call: "IDENTIFY".	Identify the problem and call: "ENGINE FIRE #__" or "ENGINE FAILURE #__" or "ENGINE SEVERE DAMAGE #__"
IF ENGINE FIRE OR SEVERE DAMAGE: Call for the appropriate drill.	Accomplish the appropriate memory items in coordination with the PF. After completing the memory items, advise the PF: "ENGINE FIRE or Engine Severe Damage or Separation DRILL COMPLETE".
Advise ATC.	
At Flap Retraction Altitude, if TOGA mode is active, call: "SET UP SPEED" If VNAV SPD mode is active, monitor Speed Bug increase. Accelerate to flaps up manoeuvring speed and retract flaps on speed schedule. NOTE: The Flight Director commands a near level or a slight climb (0-200 fpm) flap retraction segment.	Set airspeed as directed.

Pilot Flying	Pilot Monitoring
After the flaps are retracted, call: "Engage LEVEL CHANGE" Confirm and request BANK mode to 30 as needed. "SET MAX CONTINUOUS THRUST"	Select Level Change and verify airspeed. Select BANK mode to 30 if needed. Select CON on the [N1] page and adjust thrust as directed.
Engage autopilot in CMD (as required). Remain at flaps up manoeuvre speed until all obstructions are cleared, then select the engine-out schedule from the CDU CLB page (depending on the next course of action).	
Determine the next course of action. (WHERE TO) Direct the PM to obtain appropriate information and clearance from ATC.	Obtain appropriate information and clearance as needed.
Call for: "ENGINE FIRE, SEVERE DAMAGE, OR SEPARATION CHECKLIST" or "ENGINE FAILURE OR SHUTDOWN CHECKLIST" as appropriate.	Do the appropriate checklist.

For profile, refer to [Section 3.2 - Takeoff - Engine Failure](#).

4.4 ENGINE FIRE or Engine Severe Damage or Separation

Pilot Flying	Pilot Monitoring
	Disengage the Autothrottle
Visually ensure the PM has the correct Thrust Lever and call: "CONFIRMED" .	Hold the # Thrust Lever and call: "THRUST LEVER #___CONFIRM" Close the #___ Thrust Lever and call: "CLOSED" .
Visually ensure that the PM has the correct Engine Start lever and call: "CONFIRMED" .	Hold the # Engine Start lever and call: "ENGINE START LEVER #___CONFIRM" . Position the #___ Start Lever to CUTOFF and call: "CUTOFF" .
Visually ensure that the PM has the correct Engine Fire Switch and call: "CONFIRMED" .	Hold the # Engine Fire Switch and call: "ENGINE FIRE SWITCH #___CONFIRM" . Pull the # Engine Fire Switch, and call: "PULLED" . If the warning light remains illuminated, rotate the Engine Fire Switch and visually verify a Bottle Discharge light illuminates, and call: "BOTTLE DISCHARGED" .
	Call: "ENGINE FIRE DRILL COMPLETE"

4.5 Engine Inoperative Climb/Cruise/Driftdown

Pilot Flying	Pilot Monitoring
A/T.....Disconnect Operating engine Set MCT (N1 line) As needed Rudder..... Trim MCP Altitude ..Set MAX ALT - 1000 feet (or lower altitude as required) NOTE: If in Level Flight at an altitude at least 1000 feet below the MAX ALT, do not reset the MCP Altitude and maintain Level Flight. LVL CHG..... As needed MCP Speed Set Engine Inoperative Speed as needed Heading As needed	Call: "ENGINE FIRE" or "ENGINE FAILURE" . If applicable, cancel the Fire Warning bell. Select the ENG OUT prompt on the CRZ page.
WARNING In determining heading, ensure traffic separation, then follow appropriate route on terrain escape procedure.	
	ATC..... Advise Transponder/TCAS 7700/TA
Call for the appropriate drill and/or checklist(s).	Do the appropriate drill and/or checklist(s).

4.6 CABIN ALTITUDE WARNING or RAPID DEPRESSURIZATION

Regardless of who is flying the aircraft prior to the emergency, at the first sign of any loss of pressurization, the PIC, if seated, will immediately take control. If the PIC decides that a rapid descent is required, the PIC will advise the SIC and then perform the descent.

Pilot-in-command	Second-in-command
"I HAVE CONTROL, RAPID DEPRESSURIZATION DRILL"	
- Don Oxygen Mask, turn on speaker, and select BOOM/MASK switch to MASK. - Use the lower (INT) position on the control column MIC switch or INT on the audio control panel.	
Call: "PILOT-IN-COMMAND ON OXYGEN" to establish communication.	Respond: "SECOND-IN-COMMAND ON OXYGEN" to establish communication.
FASTEN BELTS sign ON	Pressurization Mode Selector MAN Outflow Valve switch..... Hold in CLOSE position until outflow valve shows fully closed.
Assess the situation, placing emphasis on obvious evidence of a complete decompression: Outflow Valve position and Cabin Differential; Bleed Switch configuration and APU status; L/R Duct pressures and PACK status.	
If cabin altitude is controllable: - Continue manual operation to maintain correct cabin altitude. - When cabin altitude is at or below 10,000 feet, oxygen masks may be removed.	
If cabin altitude is uncontrollable: "EMERGENCY DESCENT DRILL"	"NO CONTROL" If the cabin altitude exceeds or is expected to exceed 14,000 feet, select the Passenger Oxygen switch to ON.

4.7 EMERGENCY DESCENT

The rapid descent procedure will normally be performed by the PIC. However, the SIC will perform this procedure if the PIC is not seated or is incapacitated.

Pilot-in-command	Second-in-command
"EMERGENCY DESCENT DRILL"	Advise ATC: "PAN PAN AIR INUIT _____ EMERGENCY DESCENT, REQUEST ALTIMETER SETTING"
Over the PA, command: "EMERGENCY DESCENT REMAIN SEATED" (3 times) Passenger signs..... ON	Set transponder code to 7700.
ENGINE START switches CONT MCP Altitude LOWER ALT LVL CHG..... Select Thrust levers..... Close Speedbrake FLIGHT DETENT MCP Speed MMO/VMO	
• If structural integrity is in doubt, limit speed as much as possible and avoid high manoeuvring loads. • If turbulence is encountered, maintain Turbulence Penetration speed. • Adjust speed and level off altitude on MCP.	
Continue descent towards lowest safe altitude or 10,000 feet (whichever is higher).	Silently review QRH checklist memory items and complete any missed items.

Pilot-in-command	Second-in-command
Reduce Airspeed. Smoothly lower the SPEEDBRAKE lever to the DOWN detent and level off. Add thrust and stabilize on altitude and airspeed.	When approaching the level off altitude, call: "2000 ABOVE" Call: "1000 ABOVE" Continue the QRH checklist.
DO NOT REMOVE OXYGEN MASKS UNTIL CABIN ALTITUDE IS AT OR BELOW 10,000'.	
Assess cause and determine subsequent course of action. The new course of action is based on weather, oxygen, fuel remaining and available airports.	Advise ATC and obtain appropriate clearance.
Continue descent when appropriate (cabin rate of descent should not exceed 500'/minute where possible).	
Below 10,000 feet, PA: "Ladies and gentlemen, this is your captain speaking, you may remove your masks and breathe normally. Remain seated with your seatbelts fastened. Flight attendant, contact flight deck".	

4.8 Main Deck Cargo Fire

Regardless of who is flying the aircraft prior to the emergency, the PIC, if seated, will immediately take control and initiate the Main Deck Cargo Fire Drill. However, the SIC will perform this procedure if the PIC is not seated or is incapacitated.

Pilot-in-command	Second-in-command
"I HAVE CONTROL; CARGO FIRE DRILL"	
• Don Oxygen Mask, turn on speaker, and select BOOM/MASK switch to MASK. • Use the lower (INT) position on the control column MIC switch or INT on the audio control panel.	
Call: "PILOT-IN-COMMAND ON OXYGEN" to establish communication.	Respond: "SECOND-IN-COMMAND ON OXYGEN" to establish communication.
Over the PA, command: "CARGO FIRE REMAIN SEATED; USE GREEN OXYGEN" (3 times) Passenger signs..... ON	
Direct the aircraft towards the nearest suitable airport for an immediate landing.	Advise ATC: "MAYDAY MAYDAY AIR INUIT _____ CARGO FIRE, DESCENDING TO FL200 AND PROCEEDING TO _____" Set transponder code to 7700.
Call for: "CARGO FIRE CHECKLIST"	

4.9 Engine Failure During Go-Around and Missed Approach

Pilot Flying	Pilot Monitoring
	Call: "ENGINE FIRE" or "ENGINE FAILURE" If applicable, cancel the Fire Warning bell.
Follow the published missed approach procedure or, if desired, request a climb out straight ahead.	
During the climb to acceleration height, ensure that the PM has declared an emergency and coordinate any amendments to the missed approach procedure, as needed.	Declare an emergency and obtain clearance as requested by PIC.
Above 400 feet AAE: Confirm or request desired lateral mode as needed. Confirm or request desired BANK mode as needed. Disengage Auto Throttle Call: "IDENTIFY"	Engage lateral mode as requested. Select desired BANK mode if needed. Identify the problem and call: "ENGINE FIRE #__" or "ENGINE FAILURE #__" or "ENGINE SEVERE DAMAGE #__"
If ENGINE FIRE OR SEVERE DAMAGE: Call for the appropriate drill.	Accomplish the appropriate memory items in coordination with the PF. After completing the memory items, advise the PF: "ENGINE FIRE or Engine Severe Damage or Separation DRILL COMPLETE"
Advise ATC.	

Pilot Flying	Pilot Monitoring
At Flap Retraction Altitude, call: "SET UP SPEED" then accelerate to flaps up manoeuvring speed and retract flaps on speed schedule. NOTE: The Flight Director commands a near level or a slight climb (0-200 fpm) flap retraction segment.	Set airspeed as directed.
After the flaps are retracted, call: "Engage LEVEL CHANGE, UP SPEED" (as required for takeoff weight) Confirm and request BANK mode to 30 as needed. "SET MAX CONTINUOUS THRUST"	Select Level Change and set airspeed as directed. Select BANK mode to 30 if needed. Set maximum continuous thrust (CON).
Engage autopilot in CMD (as required). Remain at flaps up manoeuvre speed until all obstructions are cleared, then select the engine-out schedule from the CDU CLB page (depending on the next course of action).	
Direct the PM to obtain appropriate information and clearance from ATC. Determine the next course of action.	Obtain appropriate information and clearance. Advise ATC of intentions and set up navigation radios as required.
Call for the appropriate checklist: "ENGINE FIRE, SEVERE DAMAGE, OR SEPARATION CHECKLIST" or "ENGINE FAILURE OR SHUTDOWN CHECKLIST"	Do the appropriate checklist.

4.10 Non-Normal and Emergency Standard Calls

Condition	Pilot Flying	Pilot Monitoring
Any Engine Malfunction, Caution Light or Master Warning Light	(Verify the status of the automation and call out the actual FMA, Selected Targets and request any change as needed.)	
When GPWS warning requires an avoidance maneuver	"PULL UP MAX THRUST"	
When a Windshear condition is encountered	"WINDSHEAR MAX THRUST"	
When the Stall warning is activated	"STALL, I HAVE CONTROL"	
When a TCAS TA or RA warning occurs	"TCAS, I HAVE CONTROL"	
When the CABIN ALTITUDE warning or a Rapid Depressurization occurs	"I HAVE CONTROL, RAPID DEPRESSURIZATION DRILL"	
Emergency Descent is required	"EMERGENCY DESCENT DRILL"	
When an Engine Failure occurs in flight or prior to closing a Thrust Lever	"DRIFT DOWN DRILL"	
When a Main Deck Cargo Fire is detected or suspected	"I HAVE CONTROL, CARGO FIRE DRILL"	
When an Unreliable Airspeed indication is suspected	"UNRELIABLE AIRSPEED"	
When the decision to reject the Takeoff has been made by the Pilot in Command	"REJECT"	

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Limitations and Operational Information – B73C

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Introduction

This document contains:

- Airplane Flight Manual (AFM) Limitations
- Supplemental Type Certificate (STC) AFM Supplement (AFMS) Limitations
- AFM, AFMS and Non-AFM Operational Information

Limitations and operational information are included if they are:

- Operationally significant
- Required by FAA Airworthiness Directive
- Required by another regulatory requirement

Limitations and operational information are not included if they are:

- Incorporated into SOP or FCOM normal, supplementary, or non-normal procedures, with a few exceptions
- Shown on a placard, display, or other marking.

AFMS limitations take precedence over basic AFM limitations. To simplify this document, where AFMS limitations exist, the basic AFM limitation will not be included.

For example, the basic AFM Minimum Flight Weight is 36,651 KG and must not use gaugeable fuel. However, the AFMS for STC No. ST02690LA, as installed on C-FTUZ, increases Minimum Flight Weight to 41,730 KG and includes flight crew, passengers, reserve fuel and any ballast/freight required to maintain the minimum flight weight. In this example, the basic AFM limitation of 36,561 KG is not included in this document as it does not apply to the specific aircraft configuration.

Whenever conflicting information exists between this document and the AFM, or AFMS exists, the AFM or AMFS shall take precedence.

In order to maintain a visual standard with the Boeing FCOM, limitations and operational information listed in this document that must be memorized (memory items) are marked with a (#) symbol. They meet the following criterion – flight crew access by reference cannot assure timely compliance, e.g., Maximum Takeoff and Landing Tailwind Component. They need only be memorized to the extent that compliance is assured. Knowing the exact wording of the limitation is not required.

Assuming the remaining items are available to the flight crew by reference, they do not need to be memorized.

Airplane General

AFM Limitations

Applicable to: C-FTUZ

Operational Limits

Runway slope	+/- 2%
# Maximum Takeoff and Landing Tailwind Component	10 knots.
Maximum speeds	Observe gear and flap placards
Maximum Operating Altitude	41,000 feet pressure altitude
Maximum Takeoff and Landing Altitude	8,400 feet pressure altitude

Maximum Operating Limit Speed

The maximum operating limit speed shall not be deliberately exceeded in any regime of flight.

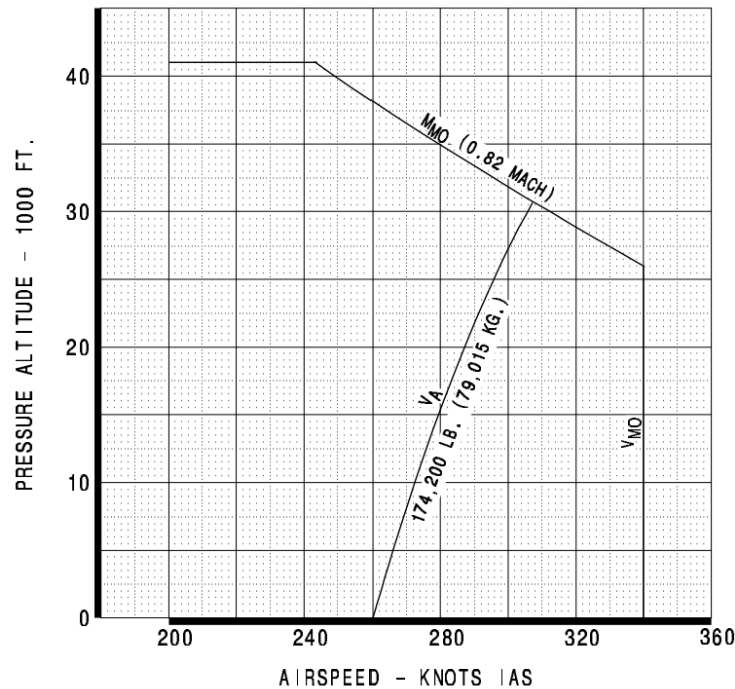
- NOTE:
1. All instrument markings and placards in the airplane are shown as indicated (IAS, M) values and are not corrected for instrument error. VMO is indicated by the red arc on the airspeed indicator or by the upper barber pole on the speed tape.
 2. VA is defined as the speed above which maneuvers involving full application of rudder, ailerons or elevator, or maneuvers involving angles of attack near stall, should be avoided.

Maximum Airspeed Limits

FLAP PLACARD SPEEDS	
FLAP POSITION	VFE - KIAS
1	250 [1]
2	250 [1]
5	250 [1]
10	210
15	200
25	190
30	175
40	162

[1] DO NOT EXCEED 230 KNOTS IAS WHEN FLAPS ARE EXTENDED USING THE ALTERNATE (STANDBY) SYSTEM

LANDING GEAR PLACARD SPEEDS	
RETRACT	VLO = 235
EXTEND	VLO/MLO = 270/0.82
EXTENDED	VLE/MLE = 320/0.82



Performance Configuration

The airplane configuration as presented under Performance Configuration, AFM Section 4, must be observed.

Kind of Airplane Operations

The airplane is approved for the following kinds of flight and operation, both day and night, when the required equipment is installed and approved in accordance with the applicable Federal Aviation Regulations.

- Visual (VFR)
- Instrument (IFR)
- Icing Conditions
- Extended Over-Water

Flight Maneuvering and Load Acceleration Limits

Flaps Up +2.5g to -1.0g

Flaps Down +2.0g to 0.0g

Required Crew

Required flight crew: Two pilots

Holding in Icing Conditions

Holding in icing conditions with flaps extended is prohibited

Configuration Deviation List

When operation is scheduled with certain secondary airframe and engine parts missing, the airplane must be operated in accordance with the limitations specified in the basic Airplane Flight Manual, and as amended by the CDL Appendix.

Cold Soaked Fuel Frost

Takeoff with cold soaked fuel frost on the wing tank upper surfaces is not permitted if any of the following conditions are present:

- The ambient air temperature is below +4°C (+39°F).
- The tank fuel temperature is below -16°C (+3°F).
- There is cold soaked fuel frost on the wing tank upper surfaces that is beyond the lines defining the permissible cold soaked fuel frost area.
- There is precipitation or visible moisture (rain, snow, drizzle, or fog with less than 1 mile visibility).

AFM Appendix 17 – Operation to Transport Canada Requirements Limitations

Applicable to: C-FTUZ

RETURN AIRPLANE TO SERVICE AFTER PROLONGED ON GROUND COLD SOAK EVENT

To return airplane to service after overnight or extended parking (airplane unattended) at ambient temperatures below -15°C , maintenance personnel shall accomplish appropriate procedures using Boeing Maintenance Manual Extreme Cold Weather Maintenance Servicing, (1) Overnight or Extended Parking (Airplane Unattended) at Temperatures Below -15°C , and (2) Return the Airplane to Service After Overnight or Extended Parking at Temperatures below -15°C .

AFM Operational Information

Applicable to: C-FTUZ

Severe Turbulence

Severe Turbulent Air Penetration speed is 280 KIAS / .76M, whichever is lower. Applicable to Climb and Descent only. During Cruise, refer to FCOM SP.16, Severe Turbulence Supplementary Procedure.

Weight Limitations

AFM Limitations

Applicable to: C-FTUZ

Aircraft Registration	Taxi	Takeoff	Landing	Zero Fuel
C-FTUZ	79,242 KG	79,015 KG	66,360 KG	62,731 KG

The maximum weight limits may be less as limited by center of gravity charts (on page [8](#) of this document). Refer to the applicable Weight and Balance Manual for additional specific airplane loading limitations.

STC Limitations – ST02690LA

Applicable to: C-FTUZ

Minimum Flight Weight

Minimum Flight Weight (MFW) for the freighter aircraft is 41,730 KG.

This weight includes flight crew, passengers, reserve fuel and any ballast/freight required to maintain the minimum flight weight.

The Minimum Flight Weight limit may be higher as limited by center of gravity charts (on page [8](#) of this document), or performance data (AFM Section 4 - Performance). Refer to R-1006-WBM_U 737-800-737-800 Weight and Balance Manual for additional specific airplane loading limitations.

Takeoff Weight Below 50,802 KG

For aircraft takeoff weights below 50,802 KG, including reserve fuel, pallets must be loaded only in positions 5 through 7.

This restriction is only applicable when payload is to be carried in the main deck cargo compartment.

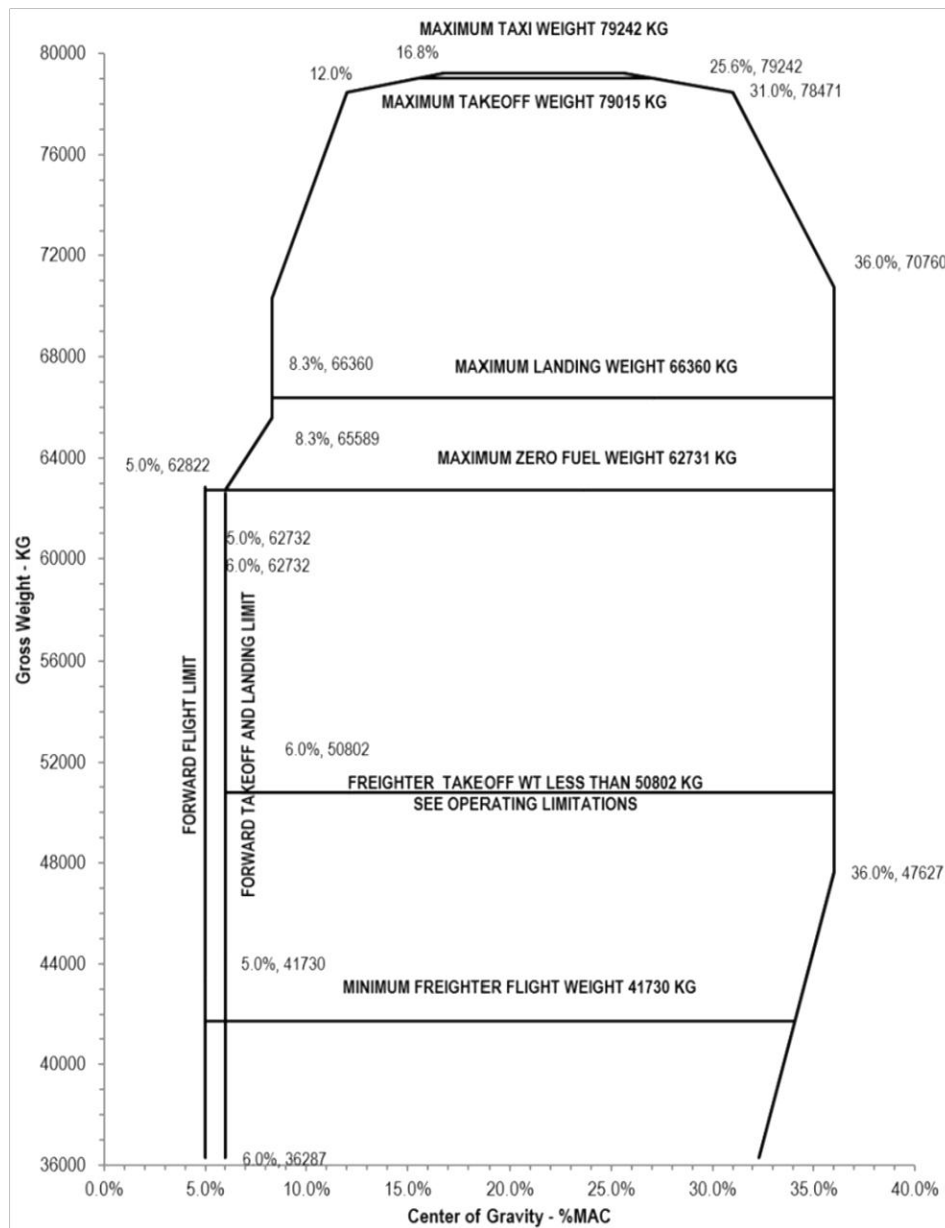
Center of Gravity Limitations

STC Limitations – ST02690LA

Applicable to: C-FTUZ

AEI 7237-900 FREIGHTER – CONFIGURATION H

The following diagram represents the certified Center of Gravity Limits in Metric units:



Emergency Equipment, Doors, Windows

AFM Limitations

Applicable to: C-FTUZ

Reinforced Flight Deck Door

Verify that an operational check of the flight deck door access system has been accomplished according to approved procedures once each flight day.

Passenger Evacuation

Installation of handle covers on the overwing exits must be verified prior to departure whenever passengers are carried.

Cabin phones and/or handsets (if installed) must be stowed, and the cabin prepared to satisfy direct view requirements by lowering the passenger seat headrests and opening the viewing window (where applicable) prior to taxi, takeoff, and landing whenever passengers are carried.

STC ST02690LA Cargo Door and Class "E" Cargo Compartment Installation Limitations

Applicable to: C-FTUZ

Passengers known as "supernumeraries" may be carried in the area between the flight deck and the 9G cargo barrier subject to the limitations described in the FOM.

Non-AFM Operational Information

Applicable to: C-FTUZ

On flights with passengers or supernumeraries on board, the escape slide retention bar (girt bar) must be installed during taxi, takeoff and landing.

Air Systems

AFM Limitations

Applicable to: C-FTUZ

System Safety Relief Differential Pressure. Maximum 9.10 psi Maximum allowable cabin pressure differential for takeoff and landing is 0.125 psi (236 feet below airport pressure altitude).

STC ST02690LA Cargo Door and Class "E" Cargo Compartment Installation Limitations

Applicable to: C-FTUZ

Main Deck Cargo Compartment Air Supply Shutoff

Pre-flight operational test of the Main Deck Cargo Compartment Air Shutoff Valves is required prior to each flight, or each series of flights by the same crew on the same day.

Non-AFM Operational Information

Applicable to: C-FTUZ

With either one or both engine bleed air switches ON, do not operate the air conditioning packs in HIGH for takeoff, approach, or landing.

NOTE: The fire protection non-normal procedures take precedence over the statement regarding no air conditioning packs in HIGH during takeoff, approach, or landing. The CARGO FIRE and SMOKE/FUMES REMOVAL checklists require the Operating PACK switch(es) HIGH. Switch(es) need to be placed in HIGH in order to increase ventilation for smoke removal.

Anti-Ice, Rain

AFM Limitations

Applicable to: C-FTUZ

Engine Anti-Ice system

The engine anti-ice system must be ON during all ground and flight operations when Icing Conditions exist or are anticipated, except during climb and cruise when the temperature is below -40°C SAT. Engine anti-ice must be on prior to and during descent in all Icing Conditions, including temperatures below -40°C SAT.

NOTE: Icing Conditions exist when the OAT on the ground and for takeoff, or TAT inflight is 10°C or below, and visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet and ice crystals).

Icing conditions also exist when the OAT on the ground and for takeoff is 10°C or below when operating on ramps, taxiways or runways where surface snow, ice, standing water, or slush may be ingested by the engines or freeze on engines or nacelles.

Do not rely on airframe visual icing cues or illumination of the ICING light (if installed) to turn engine anti-ice on. Delaying the use of engine anti-ice until ice buildup is visible from the cockpit may result in severe engine damage.

Wing Thermal Anti-Ice System (Ground Operation)

Do not use wing anti-ice as a substitute for ground de-icing/anti-icing and inspection procedures which are necessary to comply with operating rules.

Do not operate wing anti-ice on the ground when the OAT is above 10°C (50°F).

Autopilot/Flight Director System

AFM Limitations

Applicable to: C-FTUZ

- # Use of aileron trim with the autopilot engaged is prohibited
- # Do not engage the autopilot for takeoff below 400 feet AGL.
- # For single channel operation during approach, the autopilot shall not remain engaged below 50 feet AGL.

Automatic Landing

Maximum allowable wind speeds when landing weather minima are predicated on autoland operations:

- Headwind 25 knots
- Tailwind 10 knots
- Crosswind 20 knots

Maximum and minimum glideslope angles are 3.25 degrees and 2.5 degrees respectively.

Autoland capability may only be used with flaps 30 and 40 with both engines operative.

Autoland capability may only be used for operations into runways at or below 8,400 ft pressure altitude.

Non-AFM Operational Information

Applicable to: C-FTUZ

- # Do not use LVL CHG on final approach below 1000 feet AFE.

Communications

STC O-LSA24-053/D Latitude Skynode S200 Flight Following / SATCOM System Limitations

Applicable to: C-FTUZ

Composing an e-mail message using the controller must not be done by the pilot flying the aircraft.

The Skynode S200 system for voice communication, text or email messaging is not to be used during takeoff and landing phases of flight.

Communication predicated on use of the Skynode S200 system is not authorized. The Skynode S200 system does not replace the required VHF communications transceivers.

Non-AFM Operational Information

Applicable to: C-FTUZ

Do not operate HF radios during refueling operations.

Electrical

AFM Limitations

Applicable to: C-FTUZ

Single Generator Operation

On the ground, limit one generator (engine driven) operation to a maximum of 75 KVA (215 amps).

Engines and APU

AFM Limitations

Applicable to: C-FTUZ

Engine Instrument Markings

- Maximum limits are marked by a red line.
- Cautionary range is marked by an amber arc.
- Normal operating range is marked by a white arc.
- Minimum limits are marked by a red line.

Engine RPM

The maximum operational limits are:

N1 – Low Pressure Compressor Rotor.....	104.7% (20 seconds)
	104.0% (continuous)
N2 – High Pressure Compressor Rotor.....	105.0% (continuous)

Engine EGT

<u>Operating Condition</u>	<u>Temperature Limits</u>	<u>Time Limit</u>
Takeoff	950°C	5 minutes
Maximum Continuous	925°C	No Limit
Starting	725°C	No Limit

Electronic Engine Control (EEC)

The following limitations apply for takeoff with the EECs in Alternate (ALTN) Mode:

- Derate or Assumed Temperature Reduced Takeoff Thrust is not allowed.
- Both EECs must be selected Alternate.
- Do not use the FMC Takeoff N1 or V speed values.
- Use of Autothrottle for Takeoff is prohibited.

Engine Fuel System

The approved fuel is designated in the CFM56-7 Series Installation Manual, as revised. Fuel conforming to Jet A or Jet A1, as specified in commercial jet fuel specification ASTM-D-1655 is authorized for unlimited use in this engine. Fuels conforming to JP-5, as specified in MIL-DTL-5624G, or to JP-8 as specified in MIL-DTL-83133, are acceptable alternatives. The use of Wide Cut Fuels per Class B of GE Specification D50TF2, JP-4 or Jet B, is prohibited. The engines will operate satisfactorily with any of the approved fuels or any mixture thereof.

The maximum tank fuel temperature is 49°C (120°F).

Tank fuel temperature prior to takeoff and inflight must not be less than -43°C (-45°F) or 3°C (5°F) above the fuel freezing point temperature, whichever is higher. The use of Fuel System Icing Inhibitor additives does not change the minimum fuel tank temperature limit.

Engine Oil System

Minimum oil pressure is 13 psi. If engine oil pressure is in the yellow band with takeoff thrust set, do not takeoff. Maximum oil temperature limit for continuous operation is 140°C. Maximum oil temperature is 155°C. Operation between 140°C and 155°C is limited to 45 minutes.

Engine Ignition

Engine Ignition must be on for takeoff, landing, operation in heavy rain and anti-ice operation.

Engine Thrust

Takeoffs utilizing assumed temperature reduced takeoff thrust are not authorized:

- On runways contaminated with standing water, snow, slush, or ice and are not authorized on wet runways unless suitable performance accountability is made for the increased stopping distance on the wet surface.
- When the antiskid system, if installed, is inoperative.

As a condition to the use of reduced or derated thrust procedures, operators must establish a periodic check system to ensure that the engines are capable of producing full takeoff thrust without exceeding any engine operating limits.

Application of reduced takeoff thrust in service is always at the discretion of the pilot.

When conducting a takeoff using reduced takeoff thrust, takeoff thrust may be selected at any time during the takeoff operation.

Reverse Thrust

Use for ground operation only.

Intentional selection of reverse thrust in flight is prohibited.

Do not attempt go-around after thrust reverser deployment on landing.

APU

Maximum Altitude for APU bleed + electrical load is 10,000 feet.

Maximum Altitude for APU bleed is 17,000 feet.

Maximum Altitude for APU electrical load is 41,000 feet.

AFM Appendix 2 – Model 737-800 Engine Derate Operation at CFM56-7B22 Thrust Limitations

Applicable to: C-FTUZ

The 7B22 thrust is used on both engines. All thrust settings are determined by using the 7B22 N1 thrust setting in AFM-DPI.

AFM Appendix 24 – Model 737-800 Engine Derate Operation at CFM56-7B24 Thrust Limitations

Applicable to: C-FTUZ

The 7B24 derate thrust is used on both engines. All thrust settings are determined by using the 7B24 derate N1 thrust setting in AFM-DPI.

Non-AFM Operational Information

Applicable to: C-FTUZ

APU bleed valve must be closed when:

- Ground air connected and isolation valve open
- Engine no. 1 bleed valve open
- Isolation valve and engine no. 2 bleed valves open.

APU bleed valve may be open during engine start but avoid engine power above idle.

After three consecutive aborted start attempts, a fifteen-minute cooling period is required.

Run the APU for two full minutes before using it as a bleed air source.

Flight Controls

AFM Limitations

Applicable to: C-FTUZ

The maximum altitude with flaps extended is 20,000 feet.

Holding in icing conditions with flaps extended is prohibited.

Avoid rapid and large alternating control inputs, especially in combination with large changes in pitch, roll or yaw (e.g. large side slip angles) as they may result in structural failure at any speed, including below VA.

In flight, do not extend the speed brake lever beyond the FLIGHT detent.

Non-AFM Operational Information

Applicable to: C-FTUZ

Do not deploy the speedbrakes in flight at radio altitudes less than 1,000 feet.

Alternate flap duty cycle:

- When extending or retracting flaps with the ALTERNATE FLAPS position switch, allow 15 seconds after releasing the ALTERNATE FLAPS position switch before moving the switch again to avoid damage to the alternate flap motor clutch
- After a complete extend/retract cycle, i.e., 0 to 15 and back to 0, allow 5 minutes cooling before attempting another extension.

Flight Instruments, Displays

AFM Limitations

Applicable to: C-FTUZ

Common Display system

The following is applicable only if configured with CDS BP15 and FMC U12 or later. Do not select the following runways in the FMC ARRIVALS page, as it may result in blanking of all six display units:

82V	RW26	Pine Bluffs, Wyoming, USA
KBJJ	RW28	Wayne County, Ohio, USA
KCIU	RW28	Chippewa County, Michigan, USA
KCNM	RW26	Cavern City, New Mexico, USA
PABR	RW25	Barrow, Alaska, USA
SKLM	RW28	La Mina, La Guajira, Colombia
SYCJ	RW29	Cheddi Jagan, Georgetown, Guyana

Non-AFM Operational Information

Applicable to: C-FTUZ

Altitude Display Limits for RVSM Operations

Standby altimeters do not meet altimeter accuracy requirements of RVSM airspace.

The maximum allowable in-flight difference between Captain and First Officer altitude displays for RVSM operations is 200 feet.

The maximum allowable on-the-ground altitude display differences for RVSM operations are:

Field Elevation	Max Difference Between Captain & F/O	Max Difference Between Captain & F/O & Field Elevation
Sea Level to 5,000 feet	50 feet	75 feet
5,0001 to 10,000 feet	60 feet	75 feet

Flight Management, Navigation

AFM Limitations

Applicable to: C-FTUZ

Flight Management Computer System (FMCS) Calculated Takeoff or Landing Speeds with Alternate Forward Center of Gravity

When operating at an alternate forward center of gravity limit for takeoff, disregard FMCS calculated takeoff speeds, if displayed.

When operating at an alternate forward center of gravity limit for landing, disregard FMCS calculated landing speeds, if displayed. Determine the appropriate speeds from Airplane Flight Manual – Digital Performance Information (AFM-DPI).

Inertial Reference System (IRS)

ADIRU alignment must not be attempted at latitudes greater than 78 degrees 15 minutes.

Maximum flight operating latitude -- 82 degrees North and 82 degrees South, except for the region between 80 degrees West and 170 degrees West longitude, the maximum flight operating latitude is 73 degrees North, and the region between 120 degrees East and 160 degrees East longitude, the maximum flight operating latitude is 60 degrees South.

All flight operations based on magnetic heading or magnetic track angle are prohibited in geographic areas where the installed IRS MagVar table errors are greater than 5 degrees. **

For “Fail-Operational Autopilot” the following applies:

All autopilot/flight director ILS (and GLS if installed) approach and landing operations that use magnetic north referenced courses or bearings are prohibited in geographic areas where the installed IRS MagVar table errors are greater than 3 degrees. **

** See Normal Procedures/Inertial Reference System section for procedures to determine the geographic areas and magnitude of MagVar errors for the specific MagVar table installed in the IRS and if any of these limitations apply.

Ground Proximity Warning System

Do not use the terrain display for navigation.

The use of look-ahead terrain alerting and terrain display functions are prohibited within 15 nm of takeoff, approach or landing at an airport or runway not contained in the GPWS terrain database. Refer to Honeywell Document 060-4267-000 for airports and runways contained in the installed GPWS terrain database.

If GPS is not installed:

- The use of look-ahead terrain alerting and terrain display functions are prohibited during QFE operations.
- Look-ahead terrain alerting and terrain display functions must be inhibited by selecting the TERR INHIBIT switch to INHIBIT if operating outside the United States National Airspace and the FMS database and charts are not referenced to the WGS-84 reference datum, unless the FMS has been found to be suitable for navigation in that airspace.
- Look-ahead terrain alerting and terrain display functions must be inhibited by selecting the TERR INHIBIT switch to INHIBIT if the FMS is operating in IRS NAV ONLY.
- For takeoff and if FMS position updating is not accomplished, verify actual runway position by ensuring that, with the 5 or 10 nm range selected on the EFIS control panel, the aircraft symbol is displayed at the appropriate point on the runway symbol.

AFM Appendix 17 – Operation to Transport Canada Requirements Limitations

Applicable to: C-FTUZ

Flight Management Computer System

VNAV system information is not temperature compensated. FMS generated altitudes and V-paths are not corrected for non-ISA conditions.

STC L782091 Dual CMC SBAS Landing System Limitations

Applicable to: C-FTUZ

The GLS System must be operated with a navigation database prepared in accordance to DO-200A. Database Interface Requirements for the CMA-5024, CMC document 414-A15116-001, specifies the characteristics of the navigation database that are necessary for compatibility with the GLS System, and is part of the type design approval of the CMA-5024. The document supports the production of DO-200A compliant databases and is used by CMC Electronics to build databases for its customers.

A compatible and current SBAS approach database must be installed when navigation is predicated on the SBAS system.

The installed TSO-C145 equipment may be subject to limitations when planning GNSS based approaches to alternate airports. Refer to the operating regulations of the responsible airworthiness authority.

The SBAS approach must be discontinued if the “LP/V” annunciator is not illuminated prior to crossing the final approach fix.

For LPV approaches, distance to go is required to be displayed to the pilots.

STC L782092 Dual Rockwell Collins ATC Transponder System with ADS-B OUT Limitations

Applicable to: C-FTUZ

ADS-B squitters can only be disabled by turning the ATC transponder to STBY.

NOTE: Turning OFF the ATC transponder will also disable the following functions:

- All ATC Transponder modes (Modes A/C/S/ELS/EHS)
- TCAS

Non-AFM Operational Information

Applicable to: C-FTUZ

Avoid weather radar operation in a hangar.

Avoid weather radar operation when personnel are within the area normally enclosed by the aircraft nose radome.

NOTE: The hangar recommendation does not apply to the weather radar test mode.

Fuel System

AFM Limitations

Applicable to: C-FTUZ

Maximum tank fuel temperature is 49°C.

Minimum tank fuel temperature prior to takeoff and inflight is -43°C, or 3°C above the fuel freezing point temperature, whichever is higher.

Note: The use of Fuel System Icing Inhibitor additives does not change the minimum fuel tank temperature limit.

Usable Fuel Tank Quantities

Tank	Volume (US Gallons)	Weight (KG)
1 or 2	1,288	4,147
Center	4,299	13,843

Fuel Loading

Fuel Density 0.7549 TO 0.8507 KG/Liter

Fuel tanks may be loaded individually, simultaneously, or in any sequence. Load main tanks equally to the desired fuel quantity or until full. Main wing tanks must be scheduled to be full if the center wing tank contains more than 453 kilograms of fuel. With 453 kilograms or less of center wing tank fuel, partial main wing tank fuel may be loaded provided the effects of balance have been considered. Fuel must always be used in accordance with FUEL USAGE, below.

Lateral Fuel Imbalance

The lateral fuel imbalance between main wing tanks must be scheduled to be zero. Random fuel imbalance between main wing tanks for taxi, takeoff, flight or landing must not exceed 453 kilograms.

Fuel Usage

With no center tank fuel, use main tank-to-engine fuel feed with all operable main tank boost pumps on, center tank boost pumps off and the crossfeed valve closed [1].

With center tank fuel, use center tank fuel for all operations with all operable boost pumps on and the crossfeed valve closed [1] until center tank fuel is depleted (however, a maximum of 453 kilograms may be retained in the center wing tank provided the effects of balance have been considered). Then continue flight using main tank-to-engine fuel feed with all operable main tank boost pumps on and the crossfeed valve closed [1].

[1] The crossfeed valve is open for minimum fuel operation and may be opened to correct fuel imbalance.

Center Tank Pumps

Intentional dry running of a center tank fuel pump (low pressure light illuminated) is prohibited.

Landing Gear

Non-AFM Operational Information

Applicable to: C-FTUZ

Do not apply brakes until after touchdown.