This Flight Crew Training Manual is an essential tool to learn the ATR standard operating procedures. It has been conceived as the standard baseline for all ATR flight crew training. To facilitate the learning process, procedures are presented in a pedagogical and user-friendly way, with, when necessary, a visualization of cockpit flows and schematics of flight patterns.

This manual is a comprehensive document that efficiently complements FCOM procedures.

In the Normal Procedures part, procedures are presented with detailed task sharing and include standard call outs. Additional procedures relating to specific operations and to equipments uses are part of this manual.

In the Emergency & Abnormal Procedures part, the general management of abnormal situations is explained. Then, a detailed presentation of the procedures to apply per specific situation is made.

NB: Should you find any discrepancy in the emergency procedures between the FCTM and the AFM, please follow the AFM procedures.

The Training and Flight Operations support team.
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4. One head up at all times
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6. Practice task sharing and back up each other
7. Respect Stabilisation Criteria in Approach
8. Monitor navigation accuracy
9. No major reprogramming below FL 100
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   2.3. Defence
   2.4. Procedures
      2.4.1. Take-off procedure
      2.4.2. Approach procedure
      2.4.3. Reporting procedure

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   3.1. Description
   3.2. Detection
   3.3. Procedures
      3.3.1. Stall procedure
      3.3.2. Stick pusher procedure
      3.3.3. Procedure at lift-off
      3.3.4. Reporting procedure

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      4.1.1. Description
      4.1.2. Defence
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      4.2.2. Nose Up
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   1. On ground engine fire
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   3. Engine flame out at take-off
   4. Single Engine Non Precision Approach
   5. Single Engine Go-around
1. Crew

CM1 is the Captain, sat in the left hand seat and CM2 is the first officer, in the right hand seat.

PF is the Pilot Flying. PM is the Pilot Monitoring.

2. Procedure

Each flight phase is associated with a specific list of action designated as “procedure” and performed by crew from memory.

A procedure is triggered by “XXX procedure” callout. It is performed before the relevant checklist.

Example: Before take-off procedure

3. Checklist

Normal checklists are used to check main actions were correctly performed.

NOTE: Procedures and checklists contained in this manual comply with all relevant sections of AFM, FCOM and QRH.

4. Emergency & abnormal situation

4.1. Emergency situation

ICAO definition
A condition of being threatened by serious and/or imminent danger and requiring immediate assistance.

It’s generally triggered by Master Warning + Continuous Repetitive Chime + red light on CAP, and refers to an Emergency C/L (red).

Example: Engine fire, Smoke

4.2. Abnormal situation

ICAO definition
A condition involving an aircraft or other vehicle safety, or some onboard or insight person but not requiring immediate assistance.

It’s generally triggered by Master Caution + Single Chime + amber light on CAP, and refer to a Following failure C/L (amber). If no immediate action is required, PF may delay crew actions or C/L, if necessary.

Example: Pack valve fault
### 4.3. Standard communication

<table>
<thead>
<tr>
<th>Distress (Emergency) message</th>
<th>Urgency (Abnormal) message</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) MAYDAY; MAYDAY; MAYDAY;</td>
<td>(a) PAN PAN; PAN PAN; PAN PAN;</td>
</tr>
<tr>
<td>(b) Addressed station identification (when appropriate, with permitting time and circumstances);</td>
<td></td>
</tr>
<tr>
<td>(c) Callsign;</td>
<td></td>
</tr>
<tr>
<td>(d) Type of aircraft;</td>
<td></td>
</tr>
<tr>
<td>(e) Nature of problem;</td>
<td></td>
</tr>
<tr>
<td>(f) In-charge crew member intentions.</td>
<td></td>
</tr>
</tbody>
</table>
1. Task sharing

Final decision always belongs to Captain.

When it comes to procedures, general task sharing as stated below is applicable:

<table>
<thead>
<tr>
<th>PF is in charge of:</th>
<th>PM is in charge of:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Flight Path</td>
<td>• Flight path, navigation &amp; systems monitoring</td>
</tr>
<tr>
<td>• Navigation</td>
<td>• Communication</td>
</tr>
<tr>
<td>• Aircraft configuration</td>
<td>• Checklist reading</td>
</tr>
<tr>
<td>• Procedure initiation</td>
<td></td>
</tr>
</tbody>
</table>

During Emergency or abnormal C/L, PF is in charge of communication

2. Function assignment

<table>
<thead>
<tr>
<th>FLIGHT PHASES</th>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON THE GROUND &lt; 70Kt</td>
<td>PF(1)</td>
<td>PM</td>
</tr>
<tr>
<td>ON THE GROUND &gt; 70Kt or IN FLIGHT</td>
<td>1st situation(2)</td>
<td>PF</td>
</tr>
<tr>
<td></td>
<td>2nd situation(2)</td>
<td>PM</td>
</tr>
</tbody>
</table>

(1) Captain is PF for any action, except engine start which is performed by CM2.
(2) CM1 & CM2 take turns for PF & PM, as decided in the Captain’s briefing.

IMPORTANT: Pilot actually flying keeps his function throughout emergency and/or abnormal procedures. Following emergency or abnormal events, PF assesses the situation then suggests a decision, ratified by the Captain.

Transferring flight controls

PF function may be transferred, due to external factors, with the following callout:

“YOUR CONTROL” or “YOU HAVE CONTROL”

Pilot being assigned PF functions calls back:

“MY CONTROL” or “I HAVE CONTROL”

Following PF / PM functions transfer, crew must reassign and check AFCS’s coupling side to the new PF.

Whenever possible and prior to transfer, PF must call back main flight path parameters to PM.
3. Safety recommendations

3.1. Executing given commands

Crew members must keep each other informed of any performed action. PF commands, PM performs and calls completed action.

3.2. Collision avoidance

Crew must always avoid distractions, paper work (logging flight related forms...) and FMS inputs between ground and Flight Level 100 (except for noting and acknowledging ATC clearances).

Crew members are both held responsible of anti collision monitoring tasks (outside by appropriate and specific visual scans and inside by permanently listening and monitoring ATC frequencies and TCAS displays).

3.3. Communicating in the cockpit

Unnecessary chats must be banned while requests and call outs must be limited to pertinent and relevant technical communications between ground and Flight Level 100.

3.4. Headset operations

Crew members must wear headsets:
- Before engine start up to FL 100.
- From FL 100 to engine shut down.
- On any necessary occasion, following Captain's decision.

3.5. Safety belts and harnesses

(a) Crew members

1. During take-off and landing, and whenever deemed necessary by the commander in the interest of safety, each crew member shall be properly secured by all safety belts and harnesses provided.

2. During other phases of the flight each flight crew member on the flight deck shall keep his/her safety belt fastened while at his/her station.
3.6. Cabin crew

Pilots must inform cabin crew of all significant flight phase initiation.
- Take-off
- Starting in-flight service
- Entering turbulence area
- Descent
- Before landing
- Technical problem(s) influencing cabin procedures

Following appropriate announcement, cabin crew must:
- Secure loose servicing materials, and stay on service seat
- Start a technical or commercial action
- Apply a specific procedure

4. Cross control

Cross check is a key safety factor.

Any pilot action which influences flight parameters (flight path, speed or a system status) must be called out loud by any pilot and cross-checked by the other one.

To allow an efficient cross check:
- Each pilot must be familiar with the other crew member procedures.
- Procedures must be entirely and accurately followed.

If an indication is not in compliance with a performed action, crew members must check that involved system is correctly set and/or take any necessary action to correct the applicable discrepancy.

PM can be temporarily busy (ATC message, listening to weather, reading operating manuals, performing related procedure action, etc). Any significant status change (AFCS, FMA, systems...) must be reported to PM when his attention is restored.
1. AFM, FCOM and QRH

AFM

Procedures are developed in the Aircraft Flight Manual, which takes precedence as the only certified manual.

FCOM

Flight Crew Operating Manual provides developed information relevant to related procedures. Once QRH procedure is completed, if required, on workload basis, it can be used in flight.

QRH

Quick Reference Handbook is used in flight and only deals with procedures and checklists.
2. Preconditions

- Preconditions are highlighted through black squares. PM will question “YES or NO?” following related item, to know whether related precondition applies to relevant scenario.

  If PF answers “YES”, apply following actions.

  If answer is “NO”, skip to following black square.

- Black dots are more dealing with “when” do the relevant actions must be applied.

<table>
<thead>
<tr>
<th>NO NH DURING START</th>
</tr>
</thead>
<tbody>
<tr>
<td>Note: On BAT only, OIL PRESS IND is not available.</td>
</tr>
<tr>
<td>ENG START ROTARY SELECTOR.................START A or START B</td>
</tr>
<tr>
<td>START PB .................................................................ON</td>
</tr>
</tbody>
</table>

- **After 10 seconds**
  - If OIL pressure increases
    - CL .................................................................FTR
    - Continue START procedure, being informed NH indicator is inoperative.
  - If OIL pressure does not increase
    - ENG START ROTARY SELECTOR .......OFF / START ABORT
    - Suspect starter motor failure. Maintenance action is due.
3. Memory items

They are flow of actions known by heart that must be performed by crew. Memory items are boxed inside relevant checklists. They need to be read back when related checklists are performed.

As soon as aircraft and flight path are under control, when emergency and/or abnormal statuses are entailed, PF commands “xxx MEMO ITEMS”.

<table>
<thead>
<tr>
<th>LO PITCH IN FLIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL affected side .......................................... Fl</td>
</tr>
<tr>
<td>CL affected side ............................................. FTR THEN FUEL SO</td>
</tr>
</tbody>
</table>

SINGLE ENG OPERATION procedure (2.04) ......................... APPLY

<table>
<thead>
<tr>
<th>MEMORY ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM</td>
</tr>
<tr>
<td>Act and crosscheck accordingly by memory</td>
</tr>
<tr>
<td>After completion of all items</td>
</tr>
<tr>
<td>CALL</td>
</tr>
<tr>
<td>“XXX MEMO ITEMS COMPLETE”</td>
</tr>
<tr>
<td>PF</td>
</tr>
<tr>
<td>Act and crosscheck accordingly by memory</td>
</tr>
<tr>
<td>Following event confirmation:</td>
</tr>
<tr>
<td>CALL</td>
</tr>
<tr>
<td>“XXX MEMO ITEMS”</td>
</tr>
<tr>
<td>CALL</td>
</tr>
<tr>
<td>“XXX CHECKLIST”</td>
</tr>
<tr>
<td>Following title crosscheck, continues reading back boxed items and performs relevant checklist.</td>
</tr>
</tbody>
</table>
1. Dark cockpit philosophy

During normal operations, all lights, excepting blue or green ones for transients, are extinguished.

<table>
<thead>
<tr>
<th>Lights</th>
<th>Philosophy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dark (no light)</td>
<td>normal operation</td>
</tr>
<tr>
<td>Amber</td>
<td>caution</td>
</tr>
<tr>
<td>Red</td>
<td>emergency</td>
</tr>
<tr>
<td>White</td>
<td>System is OFF</td>
</tr>
<tr>
<td>Blue</td>
<td>status (switched temporary ON by crew)</td>
</tr>
<tr>
<td>Green</td>
<td>backup (switched temporary ON by system)</td>
</tr>
</tbody>
</table>

2. Checklist priorities

Procedures in QRH are classified in three parts: Emergency, Normal and following failures (Abnormal).

While performing procedures, crew will comply with the following hierarchy:

- EMERGENCY
- NORMAL
- ABNORMAL

3. Normal Procedures

3.1. Initiating Procedures

On the ground

Procedures are triggered by CM1 or a specific event.

In flight

Procedures are triggered by PF or a specific flight event.
3.2. Procedures methodology

A procedure always stands before a checklist, regarding the corresponding flight phase. Every pilot must know the other pilot’s procedure items.

Example: Approach procedure

PF and PM task sharing must comply with the following commands and callouts:

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO AN ALTITUDE OR PASSING TRANSITION LEVEL</td>
<td>COMMAND &amp; DO “SET QNH”</td>
</tr>
<tr>
<td>▶ DO &amp; CALL “XXX SET” Captain also checks standby altimeter setting.</td>
<td>▶ CALL “PASSING XXX FT, NOW!”</td>
</tr>
<tr>
<td>▶ CALL “CHECK” or “PLUS OR MINUS XXX FT” If deviation &gt;50 ft, check altimeter setting. If deviation &lt;50 ft, altimeter setting is correct.</td>
<td></td>
</tr>
</tbody>
</table>

**APPROACH PROCEDURE COMPLETE**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>▶ CALL &amp; READ “APPROACH CHECKLIST” Refer to QRH 6.01</td>
<td>▶ REQUIRE “APPROACH CHECKLIST”</td>
</tr>
<tr>
<td>▶ CALL “APPROACH CHECKLIST COMPLETE”</td>
<td></td>
</tr>
</tbody>
</table>

**SCANS** enables panel’s PB, switches & lights checks. They are performed from memory, following a typical flow pattern.

Example: Preliminary cockpit preparation

**FLOW PATTERNS** enable a predetermined sequence of actions. They are performed from memory, following specific patterns. Flow pattern is a reminder of a given task sequence.

Example: Before Landing flow pattern
3.3. Checklist methodology

**On the ground**
- C/L is requested by **CM1**
- C/L is read by **CM2**

**In flight**
- C/L is requested by **PF**
- C/L is read by **PM**

**CHALLENGE AND RESPONSE**

Concept: After procedure completion, PF calls C/L, PM reads C/L, PF answers.

PM announces C/L title, reads the C/L, asking questions.

The PF answer must be in compliance with the C/L and the present situation.

PM must receive the correct answer before reading the next item. If not, PM must repeat the same item.

When C/L is completed, PM calls “**XXX C/L COMPLETE**”

If a checklist is interrupted, reading must be resumed one step before the last read item.

PF and PM task sharing must comply with following orders and callouts:

**Flight events**

<table>
<thead>
<tr>
<th>Event</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>APPROACH PROCEDURE COMPLETE</strong></td>
<td>CALL &amp; READ “APPROACH CHECKLIST”</td>
<td>REQUIRE “APPROACH CHECKLIST”</td>
</tr>
<tr>
<td></td>
<td>READ</td>
<td></td>
</tr>
<tr>
<td>Approach checklist 6.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“SEAT BELTS”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“ALTIMETERS”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“CABIN ALTITUDE”</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>APPROACH CHECKLIST COMPLETE</strong></td>
<td>CALL “APPROACH CHECKLIST COMPLETE”</td>
<td></td>
</tr>
</tbody>
</table>
3.4. Procedures chronology

For a normal flight, here are the achieved normal course of events, corresponding procedures and co-related task sharing:

<table>
<thead>
<tr>
<th>FLIGHT EVENTS</th>
<th>PROCEDURES</th>
<th>CHECKLIST</th>
<th>TRIGGERED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival at the dispatch</td>
<td>Flight preparation procedure</td>
<td>CM1 / CM2</td>
<td></td>
</tr>
<tr>
<td>Arrival at the aircraft</td>
<td>External inspection procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Arrival at the aircraft</td>
<td>Preliminary cockpit preparation procedure</td>
<td>CM2</td>
<td></td>
</tr>
<tr>
<td>Preliminary cockpit preparation procedure complete</td>
<td>Preliminary cockpit preparation checklist</td>
<td>CM1 / CM2</td>
<td></td>
</tr>
<tr>
<td>Preliminary cockpit preparation C/L complete</td>
<td>Final cockpit preparation procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Final cockpit preparation procedure complete</td>
<td>Final cockpit preparation checklist</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Ready to start engine 2 in Hotel mode</td>
<td>Before propeller rotation procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Before propeller rotation procedure complete</td>
<td>Before propeller rotation checklist</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Start up clearance received</td>
<td>Before taxi procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Before taxi procedure complete</td>
<td>Before taxi checklist</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Taxi clearance received</td>
<td>Taxi procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Taxi procedure complete</td>
<td>Taxi checklist</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Approaching holding point and <em>cabin ok</em> received</td>
<td>Before take-off procedure</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Before take-off procedure complete</td>
<td>Before take-off checklist</td>
<td>CM1</td>
<td></td>
</tr>
<tr>
<td>Passing acceleration altitude</td>
<td>Climb procedure</td>
<td>PF</td>
<td></td>
</tr>
<tr>
<td>After altimeter standard setting</td>
<td>After take-off checklist</td>
<td>PF</td>
<td></td>
</tr>
<tr>
<td>FLIGHT EVENTS</td>
<td>PROCEDURES</td>
<td>CHECKLIST</td>
<td>TRIGGERED BY</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Climbing through FL 100</td>
<td>Climbing through FL 100 procedure</td>
<td>No C/L</td>
<td>PF</td>
</tr>
<tr>
<td>Approaching cruise FL</td>
<td>Cruise procedure</td>
<td>No C/L</td>
<td>PF</td>
</tr>
<tr>
<td>Landing data available</td>
<td>Before descent procedure</td>
<td></td>
<td>PF</td>
</tr>
<tr>
<td>Arrival briefing complete</td>
<td></td>
<td>Descent checklist</td>
<td>PF</td>
</tr>
<tr>
<td>Descending through FL 100</td>
<td>Descending through FL 100 procedure</td>
<td>No C/L</td>
<td>PF</td>
</tr>
<tr>
<td>Cleared to an altitude or passing transition level</td>
<td>Approach procedure</td>
<td></td>
<td>PF</td>
</tr>
<tr>
<td>Approach procedure complete</td>
<td></td>
<td>Approach checklist</td>
<td>PF</td>
</tr>
<tr>
<td>Cleared for approach</td>
<td>Before landing procedure</td>
<td></td>
<td>PF</td>
</tr>
<tr>
<td>Aircraft stabilized</td>
<td></td>
<td>Before landing checklist</td>
<td>PF</td>
</tr>
<tr>
<td>Runway vacated</td>
<td>After landing procedure</td>
<td></td>
<td>CM1</td>
</tr>
<tr>
<td>Engine 1 shut down</td>
<td>After landing procedure</td>
<td></td>
<td>CM1</td>
</tr>
<tr>
<td>Marshaller in sight</td>
<td>Parking procedure</td>
<td></td>
<td>CM1</td>
</tr>
<tr>
<td>Parking procedure complete</td>
<td></td>
<td>Parking checklist</td>
<td>CM1</td>
</tr>
<tr>
<td>All documentation filled</td>
<td>Leaving the aircraft procedure</td>
<td></td>
<td>CM1</td>
</tr>
<tr>
<td>Leaving the aircraft procedure complete</td>
<td></td>
<td>Leaving the aircraft checklist</td>
<td>CM1</td>
</tr>
</tbody>
</table>

**NOTE:** During some flight phases, procedures are triggered by events and are organized in a chronological sequence. It is not necessary to call for the procedure because all actions are already completed. PF will directly call for relevant checklist.

*Example:*
- Approach procedure is triggered by altimeters setting and checking.
- Before landing procedure is triggered by setting flaps for landing.
4. Abnormal and emergency procedures

**IMPORTANT:** Never rush up, take all necessary time to analyse situation before acting. No actions (except memo items), no checklists to be performed before acceleration altitude is reached.

### 4.1. Failure identification

In case of CCAS or MFC notification, crew must clearly and undoubtedly identify involved or failed systems.

#### 1 - CREW ALERTING

| WARNING |
| CAUTION |

- **CRC** (Continuous repetitive chime)
- **SC** (Single chime)

#### 2 - SYSTEM IDENTIFICATION

- **QRH** Following Failures
- **AIR**

#### 3 - ISOLATION

**LOCAL ALERT**

- **PACK VALVE FAULT**

The crew refers to the relevant subsection.

Local alert notifies crew on relevant checklist to be performed.

---

**PM**

- PM checks involved flasher and illuminated CAP legend.
- **CALL** "MASTER XXX, XXX ON CAP"

- PM cancels flashing **WARNING** and / or **CAUTION**, then checks lit local alert and:
- **CALL** "XXX FAULT (OR TYPE OF EVENT)"

---

**PF**

- **CALL** "CHECK"
- PF acknowledges failure or event identification and when able:
- **COMMAND** "CHECK SYSTEM"
4.2. Failure analysis: system check

Six checks must be performed for failure confirmation. They are triggered by PF, calling “SYSTEM CHECK” and executed by PM:

Control
Is the system control in a relevant position?

Indicator
Is the indication relevant? Is the indication in compliance with the control?

Supply
Are the supply source(s) available?

Circuit breakers
Flight Crew may reengage a tripped circuit breaker only if he/she judges it necessary for a safe continuation of the flight. In this case only one reengagement should be attempted. If the failure alert disappears, continue normal operation and record the event in the maintenance log. If not, apply the associated failure procedure.

On the ground, a pilot may re-engage a tripped circuit breaker provided the action is coordinated with the maintenance team.

Lighting
Are the bulb(s), digit(s) working?

Reset
At PF discretion, one reset of a push button of a failed system, associated with an amber caution, may be performed by selecting system related push button OFF for 3 seconds and then ON.

EXCEPTIONS: BLEED LEAKS, LO LEVEL, EEC, PEC, BUS, CAB PRESS MAN, DC GEN, ACW GEN.

4.3. Checklist methodology

Red tab: Emergency
Contained in this section are all emergency procedures and checklists.

Amber tab: Following Failures
Contained in this section are all abnormal procedures and checklists linked either to amber or red alarms. An illuminated CAP label depicts either origin of failure or an abnormal configuration.
Before executing checklist crew must **confirm** it is the appropriate one:

### READ AND DO, CROSSCHECKS

**Concept:** PM reads out the item loudly and performs the required action **AFTER** PF confirmation.

**PM**
- PM reading the C/L.
- **READ AND CALL**
  - "PACK VALVE AFFECTED….OFF"
  - PM points out the PACK VALVE PB.
- **CALL**
  - "PACK VALVE 2?"

**PF**
- **CALL**
  - "PACK VALVE 2?"

After PF confirmation, PM depresses PACK VALVE 2 PB.
- **CALL**
  - "OFF"

**EXCEPTION:** Once on the ground, with aircraft stopped and parking brake set, CM1 performs required actions as stated in the emergency procedure. No crosscheck procedure is required. Once all procedures are completed, CM1 calls out checklist. In this case, **Challenge and response** methodology is used (refer to 01.04 p5).

Once checklist is completed, PM calls out:

**PM**
- After checklist completion:
  - **CALL**
    - "PACK VALVE FAULT C/L COMPLETE"

**PF**
- **CHECK AND CALL**
  - "CONFIRMED"

**NOTE:**
- When a C/L refers to another one, the first one is only completed when the second is all done.
- When checklists are completed, all CAP lights status are checked, and then PM clears the CAP.
4.4. Assessments / decision / information

4.4.1. Assessment

Once checklist is completed, PF summarizes the situation, taking into account the three following aspects: T-O-C

• Technical assessment: consider consequences of related failure on systems by scanning the overhead panel (fuel, DC/AC, anti-/de-icing, ACW, hydraulic, air).

• Operational assessment: consider possibility to land at destination, divert / alternate, depending on failure, operational limitations, weather conditions, fuel status.

• Commercial assessment: consider passengers or crew casualties (e.g.: depressurization) and in case of diversion, possibility to allow passengers to proceed to destination airport (transportation, feeding, lodging accommodations...), in accordance with operator policy.

4.4.2. Decision

Once assessment is performed, PF is able to suggest a decision, endorsed by Captain.

Crew must settle a consensus before making a decision.

4.4.3. Information

PF and PM plan together the consequences of failures encountered. Then PM informs, if necessary:

• ATC
• Flight attendant
• Passengers
• Dispatch
4.5. Example

Follows a PACK VALVE FAULT troubleshooting example:

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MC + SC + AIR ON CAP + PACK VALVE FAULT (LOCAL ALERT)</strong></td>
<td>CALL AND DO</td>
<td>“MASTER CAUTION, AIR ON CAP” MASTER CAUTION PB…….. DEPRESS</td>
</tr>
<tr>
<td><strong>AFTER ASSOCIATED PANEL CHECK</strong></td>
<td>CALL</td>
<td>“PACK VALVE 2 FAULT”</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>“CHECK”</td>
</tr>
<tr>
<td></td>
<td>DO</td>
<td>PACK VALVE PB.. CHECK DEPRESSED SUPPLY………………….ENG OK CIRCUIT BREAKER…………..CHECK LIGHTING…………………….OK</td>
</tr>
<tr>
<td><strong>IF NO ABNORMAL CONDITION IS NOTED</strong></td>
<td>CALL</td>
<td>“PACK VALVE 2 RESET?”</td>
</tr>
<tr>
<td></td>
<td>DO AND CALL</td>
<td>PACK VALVE 2…………..POINTED AT WITH FINGER “PACK VALVE 2?”</td>
</tr>
<tr>
<td></td>
<td>DO AND CALL</td>
<td>PACK VALVE 2…………..OFF (for 3 sec) ON “OFF”</td>
</tr>
<tr>
<td><strong>PACK VALVE 2 FAULT CONFIRMED</strong></td>
<td>CALL</td>
<td>“SYSTEMS CHECKED, PACK VALVE 2 FAILURE CONFIRMED”</td>
</tr>
<tr>
<td></td>
<td>DO AND CALL</td>
<td>PACK VALVE FAULT C/L… POINTING AT TITLE WITH FINGER “PACK VALVE FAULT C/L?”</td>
</tr>
<tr>
<td><strong>PM EXECUTES C/L UNDER PF CONTROL</strong></td>
<td>READ, DO AND CALL</td>
<td>“PACK VALVE AFFECTED SIDE OFF” PACK VALVE 2……………..POINTED AT WITH FINGER “PACK VALVE 2?”</td>
</tr>
<tr>
<td></td>
<td>DO AND CALL</td>
<td>PACK VALVE 2…………….. OFF “OFF”</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>“MAXIMUM FLIGHT LEVEL 200/MEA”</td>
</tr>
<tr>
<td><strong>Failure Identification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Failure Analysis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Failure Confirmation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Checklist Completion</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Flight events

PM EXECUTES C/L UNDER PF CONTROL (CONT’D)

- Call
  "AVOID LARGE & QUICK POWER CHANGES AT HIGH ALTITUDES"

- Call
  "PACK VALVE FAULT C/L COMPLETED"

- DO AND CALL
  CLR PB ......................... DEPRESS
  "CAP CLEARED"

 WHEN ABLE, PF ASSESSES THE SITUATION

- Call
  "GO AHEAD"

- Call
  "READY FOR ASSESSMENT?"

- Call
  "TECHNICAL"
  "WE HAVE A PACK VALVE 2 FAILURE. FUEL OK, DC/AC OK, HYD OK. AIR: REMAINING ONLY LEFT SIDE CIRCUIT."
  "OPERATIONAL"
  "FL LEVEL IS LIMITED, LARGE & QUICK POWER CHANGES AVOIDED. DESTINATION AIRPORT IS MAINTAINED."
  "COMMERCIAL"
  "TEMPERATURE CABIN MAY INCREASE"

PF SUGGESTS A DECISION TO CM1

- Call
  "I SUGGEST THAT WE CONTINUE TO DESTINATION AND WRITE IT DOWN IN MAINTENANCE LOG."

- "NOBODY NEEDS TO BE INFORMED EXCEPT COMPANY, IF YOU AGREE. CONTACT DISPATCH TO INFORM ABOUT MALFUNCTION."

CAPTAIN

- Call
  "I AGREE"

- Call
  "RADIO LEFT SIDE"
5. Flows

During their mission, crew members have several sequences of tasks to perform. These sequences are defined by the manufacturer to:

- Fit the design of the aircraft,
- Prioritize the tasks,
- Organize the workload on board.

When a sequence of tasks is necessary to complete the requirements of a flight phase, they are organized in Standard Operational Procedures (SOPs).

*Example: Before Take-Off Procedure*

In order to achieve the procedures, the SOPs tasks are organized in an ergonomic and logical order with regard to the instruments and the systems the pilots have to use. The physical progression to achieve this procedure is called “Flow”.

The completion of these flows facilitates the pilot activity and the memorization of the procedures.

*Example: Please refer to the Preliminary Cockpit Preparation flow described in 02.02.04.*
1. Fly

2. Navigate

3. Understand problem before acting & assess situation

4. One head up at all times

5. Know and understand your FMA at all times

6. Practice task sharing and back up each other

7. Respect Stabilisation Criteria in Approach

8. Monitor navigation accuracy

9. No major reprogramming below FL 100

10. Use the proper level of automation

11. Respect checklists priority

12. Use team resources to build up decisions
1. Auto Flight Control System (AFCS)

1.1. General

1.1.1. Advisory Display Unit (ADU)

Mode selection is achieved by acting on the corresponding PB on the AFCS control panel except for ALT SEL and GO AROUND modes.

Simultaneously armed modes are limited to one lateral mode and two vertical modes. Therefore vertical armed modes are working in the following priority sequence:
1. ILS GS ARMED
2. ALT SEL ARMED
Climb or descent action must be done with the entire following sequence:

1) Adjust ALT SEL
2) Select and adjust vertical mode; usually IAS for climb and VS for descent(1)
3) Adjust power as required.
4) Change altimeter setting and crosscheck
5) Adjust speed bug.

(1) IAS mode must be used during climb for stall protection. VS mode must be used during descent (except in emergency descent & Drift Down for which IAS mode is used). The basic pitch mode may be used in accordance with current operator’s policy.

NAV (VOR, LOC and LNAV) and APP modes must be associated with High Bank speeds.

1.1.3. Task Sharing

**AP engaged**
PF acts on AFCS...

**AP disengaged**
PM acts on AFCS on PF request...

...with the following phraseology:

PF commands relevant action, starting callout with “SET...”

PF informs PM, upon selection completion, ending callout with “...SET”

Following FMA’s crosscheck, PM calls “CHECK”

PM informs PF, upon selection completion, ending callout with “...SET”

Following FMA’s crosscheck, PF calls “CHECK”

Any ADU mode status change from armed condition (white) to captured one (star) or from a captured condition (star) to tracking one (green) must trigger a crew crosscheck on Flight Mode Annouciator (FMA); any FMA status change must be called out.

Modes status are displayed on FMA.
1.2. Flight modes arming sequence

1.2.1 Climb mode

(1) When AP is OFF, the 2 arrows are extinguished.
# AP ON

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| **CLEARED TO FL 180** | | ▶ **DO**
| | ALT SEL............................... 18000
| | IAS .................................... 170 (160)
| | TQ / NP............................. CHECK CLIMB SETTING
| | ▶ **CALL**
| | “FL 180, IAS 170 (160), ALT WHITE SET”
| | ▶ **CALL**
| | “CHECK”
| **ALT STAR** | | ▶ **CALL**
| | “CHECK”
| **ALT GREEN** | | ▶ **CALL**
| | “CHECK”

**NOTE:** In a simultaneous setting situation, only one call-out can be made.

# AP OFF

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| **CLEARED TO FL 180** | | ▶ **COMMAND**
| | “SET FL 180, IAS 170 (160)”
| | ▶ **CALL**
| | “CHECK”
| **ALT STAR** | | ▶ **CALL**
| | “ALT STAR”
| **ALT GREEN** | | ▶ **CALL**
| | “ALT GREEN”

(1) **ALT white appears only when a vertical mode is armed and the aircraft is climbing or descending towards the preselected altitude / FL.**
1.2.2. Descent mode

(1) When AP is OFF, the 2 arrows are extinguished.
AP ON

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO 6000 FT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ DO</td>
<td>ALT SEL.......................... 6000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VS ...................................... -1500</td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“6000 FT, VS -1500, ALT WHITE SET”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALT STAR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“CHECK”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“ALT STAR”</td>
<td></td>
</tr>
<tr>
<td>ALT GREEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“CHECK”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“ALT GREEN”</td>
<td></td>
</tr>
</tbody>
</table>

AP OFF

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO 6000 FT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ DO</td>
<td>ALT SEL.......................... 6000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>VS ...................................... -1500</td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“6000 FT, VS -1500, ALT WHITE SET”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALT STAR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“CHECK”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“ALT STAR”</td>
<td></td>
</tr>
<tr>
<td>ALT GREEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▶ CALL</td>
<td>“CHECK”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“ALT GREEN”</td>
<td></td>
</tr>
</tbody>
</table>
1.2.3. NAV mode

(1) When AP is OFF, the 2 arrows are extinguished.
AP ON

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO INTERCEPT RADIAL 270 INBOUND</td>
<td>► CALL “CHECK”</td>
<td>► DO HDG BUG.............................. SET 045</td>
</tr>
<tr>
<td></td>
<td></td>
<td>► CALL “HDG BUG LEFT 045 SET”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTABLISHED ON INTERCEPTION HEADING</td>
<td>► CALL “CHECK”</td>
<td>► DO NAV MODE.............................. ENGAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>► CALL “NAV MODE SET, VOR WHITE”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOR STAR</td>
<td>► CALL “CHECK”</td>
<td>► CALL “VOR STAR”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOR GREEN</td>
<td>► CALL “CHECK”</td>
<td>► CALL “VOR GREEN”</td>
</tr>
</tbody>
</table>

AP OFF

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO INTERCEPT RADIAL 270 INBOUND</td>
<td>► DO HDG BUG.............................. SET 045</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► CALL “HEADING BUG 045 SET”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESTABLISHED ON INTERCEPTION HEADING</td>
<td>► DO NAV MODE.............................. ENGAGE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► CALL “NAV MODE SET, VOR WHITE”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>► CALL “CHECK”</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOR STAR</td>
<td>► CALL “CHECK”</td>
<td>► CALL “VOR STAR”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOR GREEN</td>
<td>► CALL “CHECK”</td>
<td>► CALL “VOR GREEN”</td>
</tr>
</tbody>
</table>
1.2.4. HDG mode

When AP is OFF, the 2 arrows are extinguished.
### AP ON

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO HEADING 130</td>
<td></td>
<td>➤ <strong>DO</strong> HDG MODE………………………………SELECT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “HDG MODE, LO (OR HI) BANK SET”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “CHECK”</td>
</tr>
<tr>
<td>HEADING SELECTION</td>
<td></td>
<td>➤ <strong>DO</strong> HDG BUG………………………………SELECT 130</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “HDG BUG RIGHT 130 SET”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “CHECK”</td>
</tr>
</tbody>
</table>

### AP OFF

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED TO HEADING 130</td>
<td></td>
<td>➤ <strong>COMMAND</strong> “SET HEADING MODE”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “CHECK”</td>
</tr>
<tr>
<td>HEADING SELECTION</td>
<td></td>
<td>➤ <strong>COMMAND</strong> “SET HEADING BUG RIGHT 130”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>➤ <strong>CALL</strong> “CHECK”</td>
</tr>
</tbody>
</table>

(1) HI or LO according to speeds.
1.2.5. APP mode

(1) When AP is OFF, the 2 arrows are extinguished.
### AP ON

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| **CLEARED TO PERFORM AN ILS APPROACH** | ▶ DO  APP MODE.......................... ENGAGE  
▶ CALL  "APPROACH MODE SET, LOC AND GS WHITE" | |
| **LOC STAR** | ▶ CALL  "CHECK" | ▶ CALL  "LOC STAR" |
| **LOC GREEN** | ▶ CALL  "CHECK" | ▶ CALL  "LOC GREEN" |
| **GS STAR** | ▶ CALL  "CHECK" | ▶ CALL  "GS STAR" |
| **GS GREEN** | ▶ CALL  "CHECK" | ▶ CALL  "GS GREEN" |

### AP OFF

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| **CLEARED TO PERFORM AN ILS APPROACH** | ▶ DO  APP MODE.......................... ENGAGE  
▶ CALL  "APPROACH MODE SET, LOC AND GS WHITE" | |
| **LOC STAR** | ▶ CALL  "CHECK" | ▶ CALL  "LOC STAR" |
| **LOC GREEN** | ▶ CALL  "CHECK" | ▶ CALL  "LOC GREEN" |
| **GS STAR** | ▶ CALL  "CHECK" | ▶ CALL  "GS STAR" |
| **GS GREEN** | ▶ CALL  "CHECK" | ▶ CALL  "GS GREEN" |
1.2.6. GA mode

When GA PB depressed, autopilot is automatically disconnected.

When AP is OFF, the 2 arrows are extinguished.

For the associated task sharing, please refer to 02.02.19. Go-around.
2. Flaps operation

**ATR 72**

For system use in normal operations, any setting change must be performed through the cross control concept:

PF: orders system action.

PM: performs the action and announces the configuration when the setting is in compliance with the system indicator.

Flaps manoeuvres are always performed by the PM under PF order. PM checks the speed before each configuration change then performs the task and announces the new configuration.

**Example:**

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FLAPS EXTENSION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ CALL</td>
<td>&quot;SPEED CHECK&quot;</td>
<td></td>
</tr>
<tr>
<td>☐ DO</td>
<td>FLAPS .................. 15°</td>
<td></td>
</tr>
<tr>
<td><strong>FLAPS 15° INDICATED</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ CALL</td>
<td>&quot;FLAPS 15&quot;</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** During deceleration, select new speed only when the new configuration is obtained.

**ATR 42**
## 3. Landing gear operation

For system use in normal operations, any setting change must be performed through the cross control concept:

- **PF:** orders system action.
- **PM:** performs the action and announces the configuration when the setting is in compliance with the system indicator

Gear manoeuvres are always performed by the PM under PF order. PM checks the speed before each configuration change then performs the task and announces the new configuration.

### Example:

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>LANDING GEAR EXTENSION</td>
<td>CALL “SPEED CHECK”</td>
<td>COMMAND “GEAR DOWN”</td>
</tr>
<tr>
<td></td>
<td>CALL LANDING GEAR DOWN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CALL PWR MGT TO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CALL TAXI &amp; T.O LIGHTS ON</td>
<td></td>
</tr>
<tr>
<td>LDG GEAR 3 GREEN LIGHTS</td>
<td>CALL “GEAR DOWN”</td>
<td>CALL “CHECK”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4. Altimeter and radioaltimeter management

4.1. Altimeter setting

PF and PM altimeter settings must be identical. Any change must be performed with a specific call and cross control.

Example: cleared down to an altitude with QNH 1015

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>QNH SETTING</td>
<td>![DO] QNH 1015.........................SET</td>
<td>![COMMAND] “SET QNH”</td>
</tr>
<tr>
<td></td>
<td>![CALL] “1015 SET”</td>
<td>![DO] QNH 1015.........................SET</td>
</tr>
<tr>
<td>DESIRED ALTITUDE</td>
<td>![CALL] “CHECK”</td>
<td></td>
</tr>
</tbody>
</table>

- If difference less than 50 ft or “± XX FT”
- If difference more than 50 ft

The altimeter value is:
- expressed in feet for QNH setting.
- expressed in Flight Level for standard setting.

For each flight phase, the altimeter setting must be in compliance with the following table.

<table>
<thead>
<tr>
<th>FLIGHT PHASE</th>
<th>CAPTAIN</th>
<th>STANDBY</th>
<th>FIRST OFFICER</th>
</tr>
</thead>
<tbody>
<tr>
<td>From ground until cleared to FL</td>
<td>QNH (departure airport)</td>
<td>QNH (departure airport)</td>
<td>QNH (departure airport)</td>
</tr>
<tr>
<td>From climb to cruise FL until cleared down to altitude</td>
<td>STANDARD</td>
<td>QNH (departure airport)</td>
<td>STANDARD</td>
</tr>
<tr>
<td>Cleared to altitude</td>
<td>QNH (arrival airport)</td>
<td>QNH (arrival airport)</td>
<td>QNH (arrival airport)</td>
</tr>
</tbody>
</table>

4.2. Radioaltimeter setting

**DH policy**

Used for CAT II approach only.
5. Speed bugs policy

Fixed bugs

The PF and PM speed bug settings must be identical.

Any setting change must be performed with a specific call out and cross control.

Example: After filling the landing data card, ready to set speed bug.

Flight events

LANDING DATA CARD

PROCEEDING

PM

▶ DO
YELLOW BUG…………………………SELECT
▶ CALL
"116 SET"
▶ DO
WHITE BUG………………………………SELECT
▶ CALL
"139 SET"
▶ DO
RED BUG………………………………SELECT
▶ CALL
"165 SET"

PF

▶ CALL
"VGA 116"
▶ DO
YELLOW BUG…………………………SELECT
▶ CALL
"WHITE BUG 139"
▶ DO
WHITE BUG………………………………SELECT
▶ CALL
"RED BUG 165"
▶ DO
RED BUG………………………………SELECT

Speed bug

When aircraft configuration is obtained, PF orders new speed bug setting according to flight phase, on both sides. Speed bug manages Fast / Slow EADI speed scale and must be considered also as a cross-check tool.

Example:

Flight events

ACCELERATING TO
170 (160) KT

PM

▶ DO
SPEED BUG ……………………………170 (160)
▶ CALL
"170 (160) SET"

PF

▶ CALL
"SET SPEED BUG 170 (160)"
▶ DO
SPEED BUG ……………………………170 (160)
5.1 Take-off speed bugs

**Normal Conditions**
- White Bug (flaps 0°)
  - Final Take-Off Speed (VFTO)
  - Flaps retraction speed
  - Low Bank manoeuvre
  - Best climb gradient speed
  - Single engine climb speed

**ICING CONDITIONS**
- White Bug (flaps 15°)
  - Final Take-Off Speed (VFTO)
  - Low Bank manoeuvre
  - Single engine climb speed

- Icing Bug
  - VmLB\(^{(1)}\) flaps 0°
    - High Bank manoeuvre
    - Best climb rate speed
  - VmHB\(^{(2)}\) flaps 15°
    - High Bank manoeuvre

---

\(^{(1)}\) VmLB: minimum speed LOW BANK (HDG SEL LO on ADU)
\(^{(2)}\) VmHB: minimum speed HIGH BANK (HDG SEL HI on ADU)
5.2. Cruise speed bugs

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Drift Down Speed</th>
<th>Mini En Route Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMAL CONDITIONS</td>
<td>VmaxLB flaps 0°</td>
<td>VmaxLB flaps 0°</td>
</tr>
<tr>
<td>ICING CONDITIONS</td>
<td>VmaxLB flaps 15°</td>
<td>VmaxLB flaps 0°</td>
</tr>
</tbody>
</table>

### Speed Bug Chart

<table>
<thead>
<tr>
<th>Speed Bug</th>
<th>White Bug</th>
<th>Icing Bug</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cruise Speed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Speed Bug Table

<table>
<thead>
<tr>
<th>Flight Level</th>
<th>V1 = VR</th>
<th>V2</th>
<th>Vmax</th>
<th>VmaxLB</th>
<th>VminLB</th>
<th>VEA</th>
<th>VY</th>
<th>VM</th>
<th>VMHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>84.3</td>
<td>26.4</td>
<td>76.5</td>
<td>57.8</td>
<td>94.1</td>
<td>64.6</td>
<td>77.9</td>
<td>60.6</td>
<td>45.0</td>
</tr>
<tr>
<td>0</td>
<td>84.3</td>
<td>26.4</td>
<td>76.5</td>
<td>57.8</td>
<td>94.1</td>
<td>64.6</td>
<td>77.9</td>
<td>60.6</td>
<td>45.0</td>
</tr>
<tr>
<td>+10</td>
<td>72.1</td>
<td>29.6</td>
<td>69.0</td>
<td>50.5</td>
<td>90.2</td>
<td>61.3</td>
<td>75.1</td>
<td>57.1</td>
<td>40.0</td>
</tr>
<tr>
<td>+20</td>
<td>68.5</td>
<td>31.9</td>
<td>64.7</td>
<td>47.5</td>
<td>87.6</td>
<td>59.2</td>
<td>73.2</td>
<td>53.7</td>
<td>37.0</td>
</tr>
<tr>
<td>+30</td>
<td>64.4</td>
<td>34.0</td>
<td>61.7</td>
<td>44.6</td>
<td>85.1</td>
<td>57.1</td>
<td>71.5</td>
<td>51.1</td>
<td>35.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flight Level</th>
<th>VM</th>
<th>VMHB</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>54.0</td>
<td>45.0</td>
</tr>
<tr>
<td>0</td>
<td>54.0</td>
<td>45.0</td>
</tr>
<tr>
<td>+10</td>
<td>46.8</td>
<td>39.0</td>
</tr>
<tr>
<td>+20</td>
<td>44.3</td>
<td>36.3</td>
</tr>
<tr>
<td>+30</td>
<td>42.1</td>
<td>35.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flight Level</th>
<th>V1 = VR</th>
<th>V2</th>
<th>Vmax</th>
<th>VmaxLB</th>
<th>VminLB</th>
<th>VEA</th>
<th>VY</th>
<th>VM</th>
<th>VMHB</th>
</tr>
</thead>
<tbody>
<tr>
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<td>51.1</td>
<td>35.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flight Level</th>
<th>V1 = VR</th>
<th>V2</th>
<th>Vmax</th>
<th>VmaxLB</th>
<th>VminLB</th>
<th>VEA</th>
<th>VY</th>
<th>VM</th>
<th>VMHB</th>
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</thead>
<tbody>
<tr>
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<td>64.6</td>
<td>77.9</td>
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</tr>
<tr>
<td>0</td>
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<td>26.4</td>
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<td>64.6</td>
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</tr>
<tr>
<td>+10</td>
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<td>29.6</td>
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<td>90.2</td>
<td>61.3</td>
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</tr>
<tr>
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<td>64.7</td>
<td>47.5</td>
<td>87.6</td>
<td>59.2</td>
<td>73.2</td>
<td>53.7</td>
<td>37.0</td>
</tr>
<tr>
<td>+30</td>
<td>64.4</td>
<td>34.0</td>
<td>61.7</td>
<td>44.6</td>
<td>85.1</td>
<td>57.1</td>
<td>71.5</td>
<td>51.1</td>
<td>35.0</td>
</tr>
</tbody>
</table>
### 5.3. Approach speed bugs

#### VGA
Max \( V_{mHB}^{(1)} \) flaps 30 (35) + 5kt
\( 1.1 \) VMCA

#### VAPP
VmHB flaps 30 (35) + wind factor

#### NORMAL CONDITIONS

- **White Bug** (flaps 0°)
  - Final Take-Off Speed (VFTO)
  - Flaps retraction speed for go-around
  - Low Bank manoeuvre
  - Best climb **gradient** speed
  - Single engine climb speed

- **VmHB** flaps 0°
  - High Bank manoeuvre
  - Best climb **rate** speed

#### ICING CONDITIONS

- **White Bug** (flaps 15°)
  - Max \( V_{mHB}^{(2)} \) flaps 15°
  - Final Take-Off Speed (VFTO)
  - Drift down speed
  - Low Bank manoeuvre
  - Single engine climb speed

- **VmHB** flaps 15°
  - High Bank manoeuvre

---

\( V_{mLB}^{(1)} \): minimum speed LOW BANK (HDG SEL LO on ADU)

\( V_{mHB}^{(2)} \): minimum speed HIGH BANK (HDG SEL HI on ADU)

Wind factor = max \( \{ 1/3 \) Head Wind component or full gust \} limited to 15 Kt.

---

### PW127F / PW127M

<table>
<thead>
<tr>
<th>DAT.C</th>
<th>C10</th>
<th>C15</th>
<th>C20</th>
<th>C25</th>
<th>C30</th>
<th>C35</th>
<th>C40</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>111</td>
<td>110</td>
<td>100</td>
<td>108</td>
<td>107</td>
<td>106</td>
<td>106</td>
</tr>
<tr>
<td>200</td>
<td>109</td>
<td>106</td>
<td>105</td>
<td>104</td>
<td>103</td>
<td>102</td>
<td>102</td>
</tr>
<tr>
<td>400</td>
<td>109</td>
<td>107</td>
<td>106</td>
<td>105</td>
<td>104</td>
<td>103</td>
<td>103</td>
</tr>
</tbody>
</table>

\*Conservative values calculated for the maximum landing weight.
6. Torque bugs policy

6.1. Take-off torque bugs

The take-off and reserve take-off torques are read in the QRH, Ops Data part.
6.2. Cruise torque bugs

The cruise torque is read in the QRH, Ops Data part.

![Cruise torque bug diagram]

- Cruise torque bug manually set
- Cruise torque bug automatically computed by FDAU
6.3. Final approach torque bugs

The go-around torque is read in the QRH, Ops Data part.
6.4. Torque preset

For the following conditions, this table shows the best torque presets.

Precise torque values will vary depending on aircraft weight and outside conditions but differences will be very minimal.

Do not forget that Np modifies the torque for a given PL angle.

<table>
<thead>
<tr>
<th>NP = 82%</th>
<th>Level flight</th>
<th>Approach 3° (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (kt)</td>
<td>180 160 140 120 VAPP</td>
<td></td>
</tr>
<tr>
<td>Gear</td>
<td>UP UP DOWN DOWN DOWN</td>
<td></td>
</tr>
<tr>
<td>Flaps</td>
<td>42 PEC</td>
<td>0 0 15 30 30</td>
</tr>
<tr>
<td></td>
<td>72 PEC</td>
<td>0 0 15 35 35</td>
</tr>
<tr>
<td>Torque (%)</td>
<td>All engines</td>
<td>50 40 40 50 25</td>
</tr>
<tr>
<td>Pitch (°)</td>
<td>42 PEC</td>
<td>+1 +4 0 0 –1</td>
</tr>
<tr>
<td></td>
<td>72 PEC</td>
<td>+1 +4 +1 0 –3</td>
</tr>
<tr>
<td>Torque (%)</td>
<td>Single engine</td>
<td>90 75 75 90 50</td>
</tr>
<tr>
<td>Pitch (°)</td>
<td>42 PEC</td>
<td>+1 +4 0 0 –1</td>
</tr>
<tr>
<td></td>
<td>72 PEC</td>
<td>+1 +4 +1 0 –3</td>
</tr>
</tbody>
</table>

(1) For flight profiles other than standard 3° approach, use following corrections to maintain the required flight path angle:

±3% TQ <=> ±1% slope
±5% TQ <=> ±1° slope
±5% TQ <=> ±10 Kt wind component
7. Data cards processing

7.1. Take-off data card

CM2 fills in take-off data card:

- during *Final Cockpit Preparation* procedure: purple labels
- prior to *Before Propeller Rotation* procedure: green labels

All operational data shall be crosschecked by crew using relevant documentation (QRH, Take-off limitations chart (e.g. FOS), Load & Trim sheet...). Information from the take-off data card will help the crew members to prepare departure and take-off briefings.

---

**Filling Data Card (CM2)**

1. **FLT N°**
   
   Write down flight number.

2. **FROM / TO**
   
   Write down departure & destination airports’ ICAO codes.

3. **DATE**
   
   Write down current date.

4. **ATIS**
   
   Copy down ATIS or airport weather information.

---

**Proceeding Data Card (PF)**

1. Call out flight number and store it in the FDEP or/and MCDU.

2. Call out departure & destination airports ICAO codes.

3. Call out current date.

Review airport weather information and:
- Match RVR/Visibility versus airport minima.
- discuss possibility to fly back to departure airport in case of engine contingency.
- check and call out take-off wind limitations and Hotel mode implications.
- set altimeter setting on the 3 altimeters and cross-check indications consistency
- check temperature and moisture to anticipate take-off conditions (normal, icing)
ICING
Tick the box when icing conditions prevail at take-off. If the box is ticked, remember icing conditions prevail for take-off.

W LIM
Write down lowest weight limitation between structural and operational limitations. Call out relevant weight limitation.

OBJ TQ / RTO TQ
Write down Objective / RTO torques as read in QRH 4.11 / 4.12 versus actual Outside Air Temperature and Pressure Altitude and Air Cond. selection. Call out Objective torque and set white bugs on both torque indicators. Call out RTO torque and check amber bugs consistency.

ACC
Write down take-off acceleration altitude (400ft AAL minimum.) Call out take-off acceleration altitude.

SINGLE ENGINE PROCEDURE
Draw single engine procedure's first segments to be flown (heading, altitude, turns...). Confirm single engine procedure according to weather conditions.

RWY
Write down runway in use for take-off. Check intended runway matches ATIS runway in use.

Once Load and Trim sheet processing is completed:

A TOW
Write down TOW from Load & Trim sheet and match it versus W LIM for consistency (TOW ≤ W LIM) Check TOW is less than or equal to W LIM.

B C D V1 / VR / V2
Copy down V1 / VR / V2 as read in FOS chart. If the conditions are NL, V1 / VR / V2 are read from the QRH, matching conservative actual TOW. Call out V1 / VR / V2, set green / yellow / amber bugs on both airspeed indicators and crosscheck. NOTE: If V1 = VR, only use yellow bugs. Stow green bug to 12 o’clock position.

E WHITE BUG
Write down final take-off speed’s value as read from QRH according to prevailing normal (VmLB0) or icing conditions (VmLB15). Call out final take-off speed, set white bug on both airspeed indicators and crosscheck.

ICING BUG
Write down VmLB0 icing’s value as read from QRH. Call out relevant value, set icing bug accordingly on both airspeed indicators and crosscheck.

F CG / TRIM SCALE
Copy down CG %MAC as read from Load & Trim sheet and get corresponding trim setting. Set elevator’s pitch trim accordingly and check that pointer stands within green arc.

Example: “Flight number 9617, from LFBO to LFBD, 1st July 2011. Information Delta, recorded at 08.00 UTC, runway 32R in use, wind from 320/15 kt, ceiling 1500 ft and visibility 2000 m, temperature is +25°, QNH is 1015 hPa set on the 3 altimeters, normal conditions, W LIM is 22.3 tons, OBJ TQ is 90%, RTO TQ is 100%, acceleration altitude is 1000 ft and single engine procedure is runway heading until 1000 ft then right turn tracking TOE climbing to 4000 ft”. Once Load and Trim sheet processing is completed: “TOW is 22 tons, V1 & VR are 111 kt, V2 is 114 kt, white bug is 139 kt, icing bug is 165 kt. Pitch trim is +1.2.”
7.2. Landing data card

PM fills-in and PF proceeds Landing data card prior *Before Descent procedure* is initiated.

All operational data shall be crosschecked by crew using relevant documentation (QRH, Landing limitations chart (e.g. FOS)...).

Informations from landing data card will help crew members to prepare arrival briefing.

### Filling Data Card (PM)

1. **FLT N°**
   - Write down flight number.

2. **DEST / ELEV**
   - Write down destination airport’s ICAO code and elevation.

3. **ALTERN**
   - Write down alternate airport’s ICAO code.

4. **ATIS**
   - Copy down ATIS or airport weather information.

5. **ICING**
   - Tick the box when icing conditions prevail at landing.

6. **W LIM**
   - Write down limiting weight for landing.

7. **GA TQ**
   - Write down GA torques as read from QRH 4.13 versus Outside Air Temperature and Pressure Altitude.

### Proceeding Data Card (PF)

1. **FLT N°**
   - Call out flight number.

2. **DEST / ELEV**
   - Call out destination airport’s ICAO code, elevation and set landing elevation in AUTO PRESS.

3. **ALTERN**
   - Call out alternate airport’s ICAO code.

4. **ATIS**
   - Review airport weather information and:
     - Match RVR/Visibility versus airport minima.
     - set QNH on standby altimeter
     - check temperature and moisture to anticipate landing conditions (normal, icing)
     - call out instrument approach in use
     - check out landing wind limitations

5. **ICING**
   - If the box is ticked, remember icing conditions prevail for landing, thus icing speeds must be used.

6. **W LIM**
   - Call out weight limitation.

7. **GA TQ**
   - Call out GA torque and set white bugs accordingly on both torque indicators.
9. **1.1 VMCA**
Write down speed as read from QRH 4.64 versus Outside Air Temperature and Pressure Altitude. Call out 1.1 VMCA’s value.

10. **LW**
Write down computed landing weight and check consistency versus W LIM (LW ≤ W LIM.) Check out LW is less than or equal to W LIM.

11. **FLAPS**
Write down flaps setting. Call out landing flaps setting.

12. **VAPP no wind**
Write down final approach speed, VmHB, as read from QRH versus actual LW. Call out VAPP no wind’s value.

13. **VGA**
Write down VGA, as highest value between 1.1 VMCA and VAPP no wind + 5kt. Call out VGA, set yellow bug on both airspeed indicators and crosscheck.

14. **VAPP**
Write down computed VAPP = VAPP no wind + wind factor. Call out VAPP.

*NOTE:* Wind factor = max \( \frac{1}{3} \) Head Wind component or full gust limited to 15 Kt.

15. **WHITE BUG**
Write down the highest value between Final take-off and Drift-down speed, according to prevailing normal (VmLB0) or icing conditions (VmLB15). Call out final take-off speed, set white bug on both airspeed indicators and crosscheck.

16. **ICING BUG**
Write down VmLB0 icing’s value as read from QRH. Call out Icing bug’s value, set red bug on both airspeed indicators and crosscheck.

17. **ACC**
Write the missed-approach procedure’s acceleration altitude, {1000 ft AAL, or published altitude}. Call out missed-approach acceleration altitude.

18. **MISSED APPROACH PROCEDURE**
Draw missed approach procedure’s first segments to be flown (heading, altitude, turns...). Confirm missed approach procedure according to weather conditions.

19. **RWY**
Write down runway in use for landing. Check intended runway matches ATIS runway in use.

*Example:*
“We’ll be landing at LFBD, elevation 166 ft, alternate is LFBA. Information Golf recorded at 09.00 UTC, runway in use 23, wind from 200/10 kt, ceiling 2000 ft and visibility 3000m, temperature is + 20°, QNH is 1020 hPa set on the 3 altimeters, non icing conditions, W LIM is 22 tons, LW is 21.6 tons, GA TQ 100% set, VGA is 114 kt, white bug is 138 kt, Icing bug is 163 kt. Landing flaps 30°, VAPP will be 112 kt. Missed approach procedure is climb straight ahead D4 outbound, then turn right heading 042 following published track up to 4000 ft, and acceleration altitude is 1000 ft.”
8. Briefings

8.1. Departure briefing

1. All departure settings must be ready before PF performs the briefing.

2. General Conditions
   - Actual and expected weather for departure, cruise and arrival. Hazardous phenomena (icing, thunderstorm, turbulence...)
   - NOTAMs
   - Aircraft status: daily check, documentation, MEL items...

3. Taxi
   - Taxi out description
   - Restrictions: contamination, closed Taxiway...
   - Runway in use and expected holding point
   - Anticipate de-icing holdover times.

4. Take-off Performance
   - Limitations, bleeds ON or OFF, power setting (Boost, RTO).

Departure chart

5. Jeppesen chart n° and date

6. Departure procedure name

7. MSA

8. Flight path description: routing, 1st altitude or FL, climb gradient

9. NAVAIDS settings:
   - Active frequencies & associated courses
   - Standby frequencies (if necessary)
   - DME hold (if necessary)
   - RMI: VOR
   - EHSI: ADF

10. GNSS setting: Check SID inserted in FPL for cross check operation

11. Single engine flight path description: routing, acceleration altitude, return to departure airport and expected approach, or diversion to take-off alternate.

12. Open questions
Example: CM2 is PF.

1. "ARE YOU READY FOR THE DEPARTURE BRIEFING?"

2. "VISIBILITY IS 2000M, CEILING AT 1500FT, WIND FROM 320/15 KT, QNH 1012, NORMAL CONDITIONS. NO MEL, NO NOTAM."

3. "WE’LL TAXI OUT VIA PAPA, HOLDING POINT N1, FOR RUNWAY 32R."

4. "TAKE-OFF WITH BLEEDS ON, ANTI-ICING OFF."

5. "CHART 10-3B, VALID FROM JUNE 27TH."

6. "EXPECTED DEPARTURE IS AFRIC5B."

7. "MSA IS 3000 FT, 2500 FT WITHIN 10NM."

8. "324 INBOUND TO TOU THEN RIGHT TURN TO HEADING 117 TO INTERCEPT 087 OUTBOUND RADIAL FROM TOU TO FINOT. THEN INTERCEPT 085 OUTBOUND RADIAL TO TOU TO AFRIC. CLIMB GRADIENT IS 11% UP TO 3000FT, WHICH WE CAN COMPLY ON BOTH ENGINES."

9. "NAV 2: TOU, CRS 324, STBY ILS
NAV 1: TOU, CRS 087, STBY GAI
ADF1 & 2: TOE
KEYS: RMI ON VOR AND EHSI ON ADF."

10. "FINOT SID IS SET IN THE GNSS...
VNAV PAGE CHECKED, AND PROG PAGE CHECKED."

11. "IN CASE OF ENGINE FAILURE, PROCEED STRAIGHT AHEAD CLIMBING 3000 AND REPORT ATC."

12. "ANY QUESTIONS? DEPARTURE BRIEFING COMPLETE."

8.2. Departure clearance

When departure clearance is obtained from ATC, you must check its consistence and compliance with expected SID:
- Is cleared SID in compliance with prepared one?
- Altitude clearance selected and crosschecked on ADU.
- Set transponder code.

If no clearance amendment is received, PF calls: "NO CHANGE"
If clearance is amended, reorganize NAVAIDS and perform new briefing.

8.3. Take-off briefing

1. PF calls: "ARE YOU READY FOR TAKE-OFF BRIEFING?"

2. Take-off parameters: runway QFU reminder, TOW, V1

3. Procedure in case of failure: take-off abort & continuation description

4. Open questions
Example: CM2 is PF.

1. “ARE YOU READY FOR TAKE-OFF BRIEFING?”

2. “TAKE-OFF RUNWAY 32R, WEIGHT 22 TONS, V1 111 KT, NORMAL CONDITIONS.”

3. “ANY FAILURE BEFORE V1, YOU CALL “STOP” AND STOP AIRCRAFT. IF FAILURE AT OR AFTER V1, WE CONTINUE TAKE-OFF, RUNWAY HEADING TO 3000 FT, THEN RIGHT TURN TRACKING TOE CLIMBING TO 4000 FT, ACCELERATION ALTITUDE IS 1000 FT, MSA IS 3000 FT.”

4. “ANY QUESTIONS? TAKE-OFF BRIEFING COMPLETE.”

8.4. Arrival briefing

1. All settings must be performed before PF’s arrival briefing.

2. Top Of Descent (TOD)
   - Expected remaining distance and MSA

3. Approach conditions
   - Actual and forecast weather, normal or icing atmospheric conditions
   - Aircraft status: MEL items, En-route failure(s)
   - NOTAMs / ATIS: airport equipments failures, anticipate runway assignments changes & unexpected closure.
   - Landing weight, runway in use: landing limitation and approach climb limitation if any.

4. Alternate & Holding time
   - Quote holding time before diversion. For computation details refer to 2.01.08 p5 Holding Time.

Approach chart

5. Actual and forecast weather at destination: visibility / RVR compared to minima

6. Jeppesen chart n° and date

7. Type of approach procedure

8. MSA according to inbound sector
Flight path description

Final Approach Segment: procedure minimum altitude, distance and stabilization point

Minima

Missed approach procedure, and acceleration altitude

NAVAIDS settings:
- Active frequencies & associated courses
- Standby frequencies (if necessary)
- DME hold (if necessary)
- RMI: VOR
- EHSI: ADF

Taxi
- Taxi in description

Open questions

Example: CM2 is PF.

1. “ARE YOU READY FOR ARRIVAL BRIEFING?”

2. “TOP OF DESCENT IS 50 NM DME FROM BMC, MEA IS 5000 FT.”

3. “LANDING IN BORDEAUX IN NORMAL CONDITIONS, APPROACH LIGHTS ARE INOPERATIVE.”

4. “20 MN HOLDING TIME BEFORE DIVERTING TO LFBA”

5. “RWY IN USE 23, LANDING WEIGHT 20 T, NO LIMITATION, REGARDING WEATHER ILS 23 IS SUITABLE.”

6. “CHART 11-1, VALID APRIL 2nd, EFFECTIVE 8th.”

7. “MSA IS 2100FT WITHIN 25 NM OF BMC.”

8. “FROM LIBRU, STAR DOWN TO 3000 FT & INTERCEPT LOCALIZER.”

9. “WE LEAVE 3000 FT AT D9 TO CROSS D4 AT 1420 FT. STABILIZATION ALTITUDE IS 1200 FT.”

13. “DECISION ALTITUDE IS 360 FT. SET ON BOTH SIDES.”
“IN CASE OF A GO-AROUND WE CLIMB STRAIGHT AHEAD D4 INBOUND / OUTBOUND DB, THEN TURN RIGHT HEADING 042 FOLLOWING PUBLISHED TRACK UP TO 4000 FT. ACCELERATION ALTITUDE IS 1000 FT”

“NAV 2: BD, CRS 228, STBY BMC
NAV 1: BMC, CRS 228, STBY BD
ADF 1&2: BD
KEYS: RMI ON VOR AND EHSI ON ADF.”

“AFTER LANDING WE VACATE SECOND LEFT.”

“ANY QUESTIONS? ARRIVAL BRIEFING COMPLETE.”

8.5. Holding time

• Fuel Used versus distance

\[
\text{FU vs. Dist} = \text{FF} / \text{GS} \quad \text{(in Kg/Nm)}
\]

• Fuel to destination

\[
\text{Fuel to Dest} = \text{actual FU} + \text{Distance to go} \times \text{FU vs. Dist} \quad \text{(in Kg)}
\]

• Remaining Fuel at Destination

\[
\text{RF} = \text{FOB (Fuel On Board)} - \text{Fuel to Dest} \quad \text{(in Kg)}
\]

• Holding Fuel

\[
\text{HF} = \text{RF} - \text{(Alternate + Final Reserve Fuel)} \quad \text{(in Kg)}
\]

• Estimated maxi Holding time

\[
\text{HT} = \text{HF/10} \quad \text{(in min)}
\]

(1) Assuming fuel consumption is 600 kg/h. Exact value must be checked in FCOM 3.06.
9. Stabilization policy

9.1. Introduction

Worldwide Flight Safety Community studies show that 50% of public transport accidents:
- Occur during approach or landing phase
- Are direct or indirect consequence of an unstabilized approach

ATR Training Centre established procedures to ensure each approach letdown to an airport is accomplished using stabilized approaches, matching industry standard criteria.

9.2. Stabilization criteria

Approaches must be stabilized:
- 1000 ft AAL in IMC conditions
- 500 ft AAL in VMC conditions
- 300 ft AAL following circle-to-land

An approach is considered stabilized when all of the following criteria are met:
- Lateral path (Loc, Radial or RNAV path) is tracked
- Landing configuration is established
- Energy management:
  - Vertical path (Glide, Altitude versus Distance or RNAV path) is tracked
  - Power setting is consistent with appropriate aircraft weight, Head/Tail wind component and vertical guidance requirements
  - Speed and pitch attitude are relevant to actual conditions
- Briefing and checklists are completed

9.3. Deviations

Only small deviations are allowed if immediately called out and corrected:
- Altitude during initial approach: ± 100 ft
- Lateral guidance on final approach segment: half LOC scale deviation for precision or ± 5° on radial on non precision approach
- Vertical path on final approach segment: half GS scale deviation or + 200/–0 ft for non precision approaches
- Altitude deviation at DA or MDA: 0 ft
- Speed +5/–0 kt

Only small adjustments in pitch and/or heading are allowed to stay on track:
- Maximum sink rate is 1000 ft per minute
- Maximum rate of descent adjustments are ±300 ft per minute from target rate
- Bank angles are no more than 15°
- Localizer guidance adjustments are done within heading bug width
- GS guidance adjustments must be within ±2° of pitch change
All deviations must be called out loud by PM or PF (whoever identifies deviation first) using the following Call-outs:

- "SPEED"
- "LOC"
- "GLIDE"
- "VERTICAL SPEED"

After immediate correction, PF must answer "CORRECTING ..."

<table>
<thead>
<tr>
<th>Flight events</th>
<th>Situation</th>
<th>PM call outs</th>
<th>PF orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000 FT AAL IMC</td>
<td>STABILIZED</td>
<td>&quot;1000 FT, STABILIZED&quot;(1)</td>
<td>&quot;WE CONTINUE&quot;</td>
</tr>
<tr>
<td></td>
<td>UNSTABILIZED</td>
<td>&quot;1000 FT, GO AROUND&quot;(1)</td>
<td>&quot;GO-AROUND, SET POWER, FLAPS ONE NOTCH&quot;</td>
</tr>
<tr>
<td>500 FT AAL VMC</td>
<td>STABILIZED</td>
<td>&quot;500 FT, STABILIZED&quot;(1)</td>
<td>&quot;WE CONTINUE&quot;</td>
</tr>
<tr>
<td></td>
<td>UNSTABILIZED</td>
<td>&quot;500 FT, GO AROUND&quot;(1)</td>
<td>&quot;GO-AROUND, SET POWER, FLAPS ONE NOTCH&quot;</td>
</tr>
<tr>
<td>300 FT AAL CIRCLE-TO-</td>
<td>STABILIZED</td>
<td>&quot;300 FT, STABILIZED&quot;(1)</td>
<td>&quot;WE CONTINUE&quot;</td>
</tr>
<tr>
<td>LAND</td>
<td>UNSTABILIZED</td>
<td>&quot;300 FT, GO AROUND&quot;(1)</td>
<td>&quot;GO-AROUND, SET POWER, FLAPS ONE NOTCH&quot;</td>
</tr>
</tbody>
</table>

(1) This value is read on the altimeter when passing 1000/500/300 ft AAL.
10. Conventional radio-navigation policy

10.1. Task sharing

CM2 initiates power up, set up and verifications of the navigation equipments during the Preliminary Cockpit Preparation procedure.

PF performs flight plan and performance data insertion in GNSS, and VOR, DME, ADF settings during Final Cockpit Preparation procedure. Crosscheck is performed during departure briefing.

PF shall perform every new navigation entries, waypoints selection applying cross check procedure.

PF is responsible for the selection of the appropriate sources (RNAV or VOR/LOC) and the application of the navigation display policy (MAP or ARC/ROSE) for each flight phase.

10.2. Methodology

VOR or ADF frequency setting requires flight crew callouts to identify:

- Radio navigation station Name and Frequency,
- Course selected (VOR and ILS).

Radio identification listening is conducted by PM after each new frequency setting.

**IMPORTANT:** The VOR mode can be engaged only when High Bank speeds are reached. Indeed, in VOR mode, the bank angle order (within a 30° limit) is computed independently from the current speed of the aircraft.

**On ground or preparing approach**

*Example: AFRIB5B SID from LFBO.*

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| ![CALL]("CHECK") | ![DO & CALL](NAV 1 ................................................ TOU
COURSE 1 ........................................ 087°
NAV 1 ........................................... STBY FRQ GAI
NAV 2 ........................................ TOU
COURSE 2 ........................................ 324°
NAV 2 ..................................STBY FRQ ILS
ADF ....................................................TOE
ADF ..................................... STBY FRQ BE
EHSI KEYS ................................. ADF/ ADF
RMI KEYS .................................. VOR/ VOR) |
An example of NAVAIDS settings is the following:

**NAV control box**

![NAV control box](image1)

**EHSI**

![EHSI](image2)

**ADF control box**

![ADF control box](image3)

**RMI**

![RMI](image4)
11. APM management

The APM is an onboard system for detecting ice effects on aircraft, developed to enhance the aircraft safety and protection. It acquires the aircraft performance parameters in real time and compares them to the expected values. The monitored performance parameters are the IAS and the drag. Any abnormal increase on one of those parameters leads to an alarm to alert the flight crew. There are three different levels of alarms, depending on the severity of the discrepancy found.

11.1. APM cockpit interface

The interface is composed of:
- a twelve position rotary selector
- 3 indicators placed in front of the captain and co-pilot to display the performance degradation information
- a FAULT/OFF pushbutton to inform the crew of a problem with APM or to select the APM OFF
- a Push To Test button to test the APM indicators
11.2. Normal procedures

11.2.1. Take-off weight selection

To determine the aircraft theoretical and “in flight” performance, the aircraft weight must be known.

The crew must enter the take-off weight value in the system with a twelve-position rotary selector.

To take into account the new take-off weight value:
- the rotary selector must be moved (even if actual weight is the same as the previous flight) to the minimum TO weight and then back to the nearest TO weight
- the selection must be done before the IAS reaches 30 kt
- the selection must be done with both engines running. Indeed, some micro cuts can occur on the DC EMER BUS during the start phase.

**IMPORTANT:** If the selected weight is higher than the real one, spurious alerts may be triggered at speeds higher than necessary. Inversely, if a lower weight is selected, alerts may be hidden, and more specifically, cases of severe icing may be not detected.

**NOTE:** Any change of the rotary selector in flight will have no effect

If the crew does not select the take-off weight before take-off with the rotactor, the APM will perform its own take-off weight computation. Computation is performed during the first minutes of the flight and before the APM begins the drag analysis.

APM calculation is less accurate than the flight crew manual selection: analyses of several hundreds of revenue flight have shown that the APM maximum deviation is around ±1500kg for take-off weight computation.

11.2.2. APM Testing

APM testing is activated by the crew daily, to check all APM components work properly.
12. Radio-communication

PM is responsible for radio-communication.

Radio-communication may be transferred to PF (if available), on PM request:

*Example: CM2 is PF.*

- **REQUEST**
  - "MONITOR VHF 1 WITH TOULOUSE CONTROL"

- **ANNOUNCE**
  - "RADIO IS RIGHT SIDE"
  - "COMING BACK, I HAVE VHF 1"
  - "WE ARE NOW WITH PARIS CONTROL INBOUND TO XXX, RADIO IS LEFT SIDE"

Listen before transmitting, write down the newly assigned frequency.

### VHF receivers standard setting

<table>
<thead>
<tr>
<th>VHF 1</th>
<th>VHF 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIVE</strong></td>
<td>ATC FREQUENCY</td>
</tr>
<tr>
<td><strong>STBY</strong></td>
<td>NEXT ATC FREQUENCY</td>
</tr>
</tbody>
</table>

### Audio control panel policy

**Headset not used**
- VHF 1 key depressed, volume adjusted.
- VHF 2 volume adjusted on request.

<table>
<thead>
<tr>
<th>LOUDSPEAKER knob: 3 o’clock.</th>
<th>INT / RAD switch in neutral position.</th>
<th>Handmike used to transmit.</th>
</tr>
</thead>
</table>

**Headset used**
- LOUDSPEAKER knob: minimum.
- INT / RAD switch in INT position.
- Boomset used: to transmit, press PTT on control wheel or select INT / RAD switch on RAD position.
- INT key must remain in up position.

For training only
13. Exterior lights management

**NAV**  
Airplane electrically supplied.

**WINGS**  
Engine 2 running in hotel mode.

**BEACON**  
Propeller rotating.

**TAXI & T.O.**  
Airplane taxiing.

**LAND**  
Line up to FL 100.

FL 100 to runway vacated.

**STROBES**  
Lining up and flight up to runway vacated.

**LOGO**  
Company advertisement.
1. Flight preparation

Crew members shall check or perform the following items, before accessing to the aircraft:

- Aircraft condition
- NOTAMs
- Weather briefing
- Particularities
- Flight planning, including fuel planning
- Flight attendant briefing
2. Long and short transit

It is the Captain’s responsibility to determine whether to perform long or short transit regarding the criteria described hereafter:

- **Flight crew change**
  - YES
  - Communication between leaving crew and new crew
  - NO
  - **LONG TRANSIT**
  - YES
  - **SHORT TRANSIT**
  - NO

Crew has left the aircraft

Only the *Preliminary Cockpit Preparation* will differ whether the transit is long or short, and whether a GPU is connected, or the Hotel Mode is used. In the following, the GPU is assumed to be connected. For Hotel Mode procedures, refer to 02.03.01. *Hotel Mode operations.*

**NOTE:** For the first flight of the day, perform the Long Transit procedure.
3. External inspection

During this inspection, the CM1 must perform and check the following:

- Cabin inspection (safety devices, emergency exits, holds, smoke detectors, doors).
- Overall condition of the aircraft.
- Visible components.
- Flight equipment.
- Aircraft clear of frost, ice, and snow.
- Memorization of surfaces position to compare with command levers position.
- Hydraulic, oil or fuel leaks (check for puddles on the ground).
- Tires condition, brakes and shock absorbers.
- Access doors closed and latched.

Upon completion of inspection, CM1 returns to the cockpit.
1 – Main left landing gear and fairing

Parking brake accumulator pressure: check above 1600 PSI

5 maintenance doors: closed

Gear doors: check, fixed, no impact

Hydraulic lines: check, no leak

Landing gear structure: check, no crack, no oil

Wheels and tires: condition, no crack, inflation

Brake wear detectors: check indicator out of bolt

Brake temperature sensors: check plugging in

Uplock box: open

Wheel well: condition, no leak

Safety pin: removed

Free fall assister: check the red marker of the pressure indicator is not visible
Beacon: condition, glass not broken and flashing if selected ON

Landing light: condition, glass not broken

Pack ram air inlet: check unobstructed

Magnetic fuel level: in

TAT probe: check

2 – Left wing trailing edge

Flaps rail seal: check unobstructed and not damaged

Exhaust nozzle: unobstructed

Flaps position: check the position in accordance with the flaps lever

Flaps: condition, fixed, no impact
3 – Left wing leading edge

- NAV and strobe lights: condition, glass not broken and NAV illuminated if ON
- Horn: condition
- Magnetic fuel level in, wing de-icing boots: no tear, no blister, no peeling
- Fuel vent NACA inlet: clear, unobstructed
- Ice detector: check, in place
- Wing de-icing boots: no tear, no blister, no peeling, varnish

4 - Left engine

- Left cowlings: 4 latches closed and latched
- Engine de-icing boots: no tear, no oil
- Engine air intake: clear, unobstructed
Oil cooling flaps: clear, unobstructed

Propeller: feathered, condition, free rotation, no impact, no oil, de-icer condition

Spinner: secure, spinner indicator aligned with propeller indicator, no impact

Inner wing leading edge and fairing: condition

5 – Left forward fuselage

Emergency exit: check closed

Emergency light: condition, glass not broken

Wing light: condition, glass not broken

Avionics vent overboard valve: open

Antennas: check in place, no impact

Cargo door: closed, latched
## Cargo door operating panel: closed

## Bottle overboard discharge indicator: green in normal status

## Cockpit communication hatch: closed/open

## Angle of attack probe: condition

## Pitot probes and covers: check, removed

## Icing evidence probe: condition

## Static ports: clear

### 6 – Nose

## Wipers: condition, in place, position

## Static dischargers: check

## Radome and latches: check, fixed, no impact

## Nose wheel steering: condition

## Nose gear doors: 2 closed, fixed, no impact

## Nose gear wheels and tires: condition, no crack, inflation

## Nose gear structure: check, no crack
Taxi & T.O. lights: condition, glass not broken
Wheel well: condition, no leak
Safety pin: removed
Hydraulic lines: condition, no leak

7 – Right forward fuselage

Angle of attack probe: condition
Pitot probe and cover: check, removed
Static ports: clear

Ext DC and AC electrical power access doors: check

Emergency exit: check closed
Emergency light: check, glass not broken
Wing light: condition, glass not broken

8 – Right engine

Same checks as left engine

9 – Right wing leading edge

Refuelling point access door: closed
Wing de-icing boots: no tear, no blister, no peeling, varnish
**Fuel vent NACA inlet:** clear, unobstructed
**Magnetic fuel level:** in

**Horn:** condition
**NAV and strobe lights:** condition, glass not broken, and NAV illuminated if ON

---

**10 – Right wing trailing edge**

Same checks as left wing trailing edge.

---

**11 – Main right landing gear and fairing**

**Refuelling control panel access door**

**Pack ram air inlet:** check unobstructed

**Landing light:** condition, glass not broken

**Air conditionning ground connection:** check

**Magnetic fuel level:** in

**TAT probe:** check

**Refuelling point access door:** closed
Wheel and tires: condition, no creek, inflation

Gear doors: check, fixed, no impact

Hydraulic lines: check, no leak

Uplock box: open

Wheel well: condition, no leak

Free fall assister: check the red marker of the pressure indicator is not visible

Safety pin: removed

Brake temperature sensor: check plugging in

Brake wear detector: check indicator out of bolt

12 – Right aft fuselage

VHF antennas: check in place

Service door: closed/secured open, no impact

Emergency exit light: condition, glass not broken
2 outflow valves: unobstructed

Tail skid: check
Tail prop: check

13 – Tail

Flight controls access door: closed

Horns: condition
Stabilizers, elevators and trim tabs: check, no impact
Logo lights: condition, glass not broken

8 static dischargers: check, in place, no break, no burn

Stabilizer de-icing boots: condition, no tear, no blister, no peeling, varnish

5 static dischargers, fin, rudder, tab: check, no impact

VOR antennas: check in place, no impact

2 static dischargers, NAV and strobe lights: condition, glass not broken

Vortex generators: check no impact

14 – Left aft fuselage

Toilet service door: closed

Cabin door: check
Entry emergency light: condition, glass not broken

Water service door: closed
4. Preliminary cockpit preparation

Scan on Overhead Panel

Scan on Central Panel

Scan on Pedestal

Scan on Glareshield

Scan on Left Instrument Panel

Scan on Right Instrument Panel

Scan on Left Switching Panel

Scan on Right Switching Panel

Scan on Left Lateral Panel

Scan on Right Lateral Panel
This procedure (different for long or short transit) is done by CM2 while CM1 is performing the external inspection. In the following, GPU is assumed connected.\(^{(1)}\)

The main approach is to extinguish all white lights, to test all systems and to prepare the cockpit for the flight.

\(^{(1)}\) In case of Preliminary Cockpit Preparation done with Engine 2 in Hotel mode, apply the procedure detailed in 02.03.01.Hotel Mode operations.

### 4.1. Long transit

**EMERGENCY EQUIPMENS CHECK**
FCOM 2.03.06 p1

**MFC AUTOTEST CHECK**
MFC1A/2A fault lights check flashing then extinguished.
MFC1B/2B fault lights check flashing then extinguished.

**NOTE:** If cargo door control panel is opened, the MFC1A/2A auto test is automatically done, in this case, check that MFC1A/2A fault lights are extinguished.

**DC EXT PWR ON**
FCOM 2.03.06 p2

---

**CM2**

- EMER EQUIPMENS .................................. CHECK
- GEAR PINS & COVERS .................................. ON BOARD
- DOCUMENTATION ..................................... ON BOARD
- CB LAT & OVHD PANELS .......................... CHECK
- PL 1 & 2 ........................................... CHECK GI
- GUST LOCK ........................................... CHECK ON
- CL 1 & 2 ........................................... CHECK FUEL S.O.
- FLAPS LEVER & INDICATOR ..... CHECK CONSISTENCY
- LANDING GEAR LEVER ......................... CHECK DOWN
- EEC 1 & 2 ......................................... CHECK DEPRESSED IN/NO LIGHT
- WIPERS .............................................. OFF
- STBY HORIZON ERECTION KNOB .............. PULL
- BATTERY ............................................ OFF
- STBY HORIZON ERECTION KNOB ... RELEASE / CHECK
- NO FLAG
- MFC AUTOTEST ...................................... CHECK
- EMER & ESS BUS SUPPLY IND ........... CHECK ARROWS
- UNDV ............................................. CHECK NO LIGHT
- DC EXT PWR ........................................ ON
ANNUNCIATOR LIGHT TEST
Check all lights are illuminated, except for fuel LO LEVEL and engine gauges.

FUEL PUMPS & X-FEED TEST
FCOM 2.03.06 p2 & p3

DOORS TEST
FCOM 2.03.06 p3

ENG FIRE PROTECTION TEST
FCOM 2.03.06 p3

PROP BRK ON
Check the PROP BRK blue light is illuminated. If not, depress HYD AUX PUMP P3 on the pedestal. When the READY green light illuminates, select PROP BRK ON. Check the UNLK red light is extinguished.

CVR & DFDR RECORDERS TEST
FCOM 2.03.06 p4

HYD PWR CHECK
Blue and green PUMP LO PR illuminated and no other light.

OXYGEN PANEL CHECK
Check oxygen high pressure indication. Check the oxygen duration chart in FCOM 2.01.05 to determine if there is sufficient quantity for the scheduled flight. Select MAIN SUPPLY ON: check no light. Check PAX SUPPLY OFF.

COMPT SMK TEST
FCOM 2.03.06 p5

SCAN ON OVERHEAD PANEL

DO

ANNUNCIATOR LIGHT..........................TEST
DOME LIGHT........................CHECK / AS RQRD
STANDBY COMPASS LIGHT..................CHECK / OFF
STORM LIGHT..............................CHECK / OFF
CALL & SELCAL (if installed)............CHECK NO LIGHT
MIN CAB LIGHT............................OFF
FUEL PUMPS & X-FEED......................TEST
FUEL PUMPS..................................CHECK ON
DOORS...........................................TEST
SPOILERS.....................................CHECK NO LIGHT
LDG GEAR INDICATOR ......................CHECK 3 GREEN / NO RED LIGHTS
TLU ............................................CHECK AUTO
SELCAL (if installed)......................CHECK CODE
FLT CTL FAULT..............................CHECK NO LIGHT
ENG 1 FIRE....................................TEST
EXTerior LIGHTS.........................AS RQRD
NAV lights must be ON any time the aircraft is electrically powered.
PROP BRK.................................CHECK ON / LOCKED
ENG ROTARY SELECTOR ..................OFF & START
MAIN ELEC PWR.........................CHECK NO AMBER LIGHT
Except DC GEN FAULT lights.
CVR & DFDR.................................TEST
SIGNS PANEL (NO SMKG & SEAT BELTS)..........................ON
Check also the memo panel.
EMER EXIT LT TOGGLE SW ..................ARM
EMER EXIT LT DISARM ....................CHECK NO LIGHT
DE-ANTI-ICING.............................CHECK NO LIGHT
Except AFR AIR BLEED amber light illuminated.
PROBES HEATING .........................CHECK OFF
To avoid any injury to ground staff.
WINDSHIELD HEATING .....................CHECK ON
AC WILD ELEC PWR ......................CHECK
NO WHITE LIGHT
HYD PWR ....................................CHECK
EMER LOC XMTR..........................CHECK GUARDED
AUTO / NO LIGHT
ANNUNCIATOR LIGHT SWITCH ..........AS RQRD
AIR BLEED/ COMPT TEMP ................NO WHITE LIGHT
OVD VALVE SWITCH .........................GUARDED AUTO
AVIONICS VENT FAULT .................CHECK NO LIGHT
OXYGEN PANEL ............................CHECK
COMPT SMK .................................TEST
AVIONICS VENT EXHAUST MODE ........RESET
To restart the extract fan.
ENG 2 FIRE ..................................TEST
**ATPCS STATIC TEST**
FCOM 2.03.06 p5 & p6

**PITCH, ROLL AND YAW TRIMS TEST**
FCOM 2.03.06 p6

**IDLE GATE CHECK PULLED**
No IDLE GATE FAIL amber light, and red band on the lever visible.

**PARKING BRAKE ON**
Check ACCU BRAKE pressure & use HYD AUX PUMP PB if required.

**EFIS CONTROL PANELS TEST**
FCOM 2.03.06 p7

**COCKPIT DOOR LOCKING SYSTEM DAILY TEST**
FCOM 2.03.24 p2

---

**SCAN ON PEDESTAL**

**X**

**SCAN ON CENTRAL PANEL**

**FD BARS** ..................................................... ON
**NAV 1 & 2** ................................................... TEST / ON
**ADU BRT** ..................................................... ADJUST

---

**CM2**

---

**DO**

**SCAN ON PEDESTAL**

**ATPCS ................................................... STATIC TEST
TCAS ..................................................... STBY / TEST
TRIMS ....................................... TEST / SET NEUTRAL
FDEP OR MCDU ................. FLIGHT NUMBER + DATE**

Check FDU time base, adjust if necessary.

**VHF 1 & 2 ................................................... ON / TEST
ADF 1 & 2 ................................................... ON / TEST**

**TRANSPONDER ................................................... STBY**

**System 1 on odd days & system 2 on even days**

**X**

**DO**

**SCAN ON CENTRAL PANEL**

**FUEL QTY ........................................... TEST / CHECK**
**CAP .......................................................... CLEAR**
**PEC 1 & 2 ................................................... DEPRESSED IN / NO LIGHT**
**BOOST (if installed) ............................................ CHECK**
**PWR MGT .......................................................... TO**

**ENGINE INDICATORS CHECK**

**STBY INSTRUMENTS ........................................... CHECK NO FLAG**
**FUEL USED .......................................................... RESET**
**ENG INDICATORS ........................................... CHECK**
**EEC 1 & 2 ................................................... DEPRESSED IN/ NO LIGHT**

**ATPCS ................................................... DEPRESSED IN / NO LIGHT**

**MEMO PANEL ........................................... CHECK**

**CAB PRESS PANEL ........................................... CHECK**

**AUTO PRESS ........................................... TEST / LDG ELEVATION**

**CAB PRESS INDICATORS ........................................... CHECK**

**STICK PUSHER ........................................... CHECK NO LIGHT**
**RUD TLU ................................................... CHECK NO LIGHT**
**LO SPD ILLUMINATED ........................................... CHECK NO LIGHT**
**FLAPS ASYM ........................................... CHECK NO LIGHT**
**PITCH TRIM ASYM ........................................... CHECK NO LIGHT**
**BRK TEMP HOT ........................................... CHECK NO LIGHT**
**ANTISKID ........................................... DEPRESSED IN / NO LIGHT**
**HYD SYST ........................................... CHECK**
**LDG GEAR INDICATOR ........................................... CHECK 3 GREEN / NO RED LIGHTS**

---

**CM2**

---

**DO**

**SCAN ON GLARESHEILD**

**NAV 1 & 2 ................................................... TEST / ON**
**ADU BRT ..................................................... ADJUST**
STICK PUSHER / SHAKER DAILY TEST  
FCOM 2.03.24 p1

OXYGEN MASK DAILY TEST  
FCOM 2.03.06 p9 /p10

SWITCHING PANEL SCAN  
Reset PBs and check no light.

AIRSPEED INDICATOR CHECK  
No flag, airspeed pointer to zero, VMO pointer to 250 kt.

RMI/EHSI CHECK  
RMI set VOR bearing, EHSI set ADF bearing (can be adjusted if needed).

EGPWS TEST  
FCOM 2.03.06 p11

VSI CHECK  
No flag and pointer to zero.

APM DAILY TEST  
FCOM 2.03.24 p3

SCAN ON LEFT LATERAL PANEL
COCKPIT COM HATCH: OPEN  
Kept open until ENG1 start to avoid pressurization bumps.
STICK PUSHER / SHAKER: DAILY TEST
ROTARY SELECTOR: NORMAL FLIGHT
NW STEERING: CHECK GUARDED ON
OXYGEN MASK: DAILY TEST

SCAN ON LEFT SWITCHING PANEL
MRK: LO  
AUDIO 1 SEL: CHECK NO LIGHT
AHRS 1: CHECK NO LIGHT
ATT/HDG, VOR/ILS, EFIS SG: CHECK NO LIGHT
EGPWS: CHECK GUARDED NORM
EGPWS ASSOCIATED LIGHT: CHECK NO LIGHT
TERR: CHECK GUARDED / NO LIGHT
STEEP APP (if installed): CHECK

SCAN ON LEFT INSTRUMENT PANEL
CLOCK: SET
ASI: CHECK
RMI/EHSI: CHECK ATTITUDE
EADI: CHECK ATTITUDE
VSI: CHECK
TAT / SAT / TAS PANEL: CHECK
ADC SWITCH: SET
Display Sel: CHECK

Once completed, refer to QRH 3.01 & 3.02.

SCAN ON RIGHT LATERAL PANEL
EXTRACT AIR FLOW: OPEN
OXYGEN MASK: DAILY TEST

SCAN ON RIGHT SWITCHING PANEL
ATT/HDG, VOR/ILS, EFIS SG: CHECK NO LIGHT
AUDIO 2 SEL: CHECK NO LIGHT
AHRS 2: CHECK NO LIGHT

SCAN ON RIGHT INSTRUMENT PANEL
APM: DAILY TEST
GPWS G/S PB: CHECK NO LIGHT
ALTIMETER: CHECK NO FLAG
VSI: CHECK
DSP SEL: CHECK
RMI/EHSI: CHECK ATTITUDE
EADI: CHECK ATTITUDE
ASI: CHECK
CLOCK: SET

Once completed, refer to QRH 3.01 & 3.02.
4.2. Short transit

**CM1**

- **DO**: Cockpit CDM hatch ...................... open
  - Kept open until ENG1 start to avoid pressurization bumps
  - External inspection ...................... perform

**CM2**

- **DO**: ENG 1 fire .............................. test
  - ENG 2 fire .............................. test
  - ATPCS .............................. static test
  - FDEP or MCDU ...................... flight number & date
  - Check FDAU time base, adjust if necessary.
  - Fuel qty .............................. test / check
  - Fuel used .............................. reset
  - Autopress .............................. test / LDG elevation

---

**ENG Fire Protection Test**
FCOM 2.03.06 p3

**ATPCS Static Test**
FCOM 2.03.06 p5 & p6

**Fuel Quantity Panel Test**
FCOM 2.03.06 p8

**Auto Press Test**
FCOM 2.03.06 p8
5. Final cockpit preparation

**Flight events**

- **CM1**
  - **PRELIMINARY COCKPIT PREPARATION COMPLETE**
    - **CALL**
      - "FINAL COCKPIT PREPARATION PROCEDURE"
    - **DO**
      - FUEL QTY .................. CHECK / BALANCED
      - QNH ............... SET OWN + STBY / CHECK
      - PARKING BRAKE .......... ON / PRESS CHECK

- **CM2**
  - **DO**
    - ATIS............................... OBTAIN
    - TAKE-OFF DATA CARD......... FILL 1ST PART
    - QNH ........................... SET / CHECK

- **PM**
  - **DO**
    - NAVAIDS & GNSS................. SET
    - VHF 1 & 2 ........................... SET

- **PF**
  - **DO**
    - CREW READY FOR DATA CARD 1ST PART PROCEEDING
    - **READ & DO**
      - TAKE-OFF DATA CARD... 1ST PART PROCEED
      - DEPARTURE BRIEFING......... PERFORM
      - SEAT, SEAT BELTS, HARNESS, RUDDER PEDALS .................... ADJUST
    - **CALL**
      - "FINAL COCKPIT PREPARATION PROCEDURE COMPLETE"

- **CM1**
  - **FINAL COCKPIT PREPARATION PROCEDURE COMPLETE**
    - **REPLY & REQUIRE**
      - "FINAL COCKPIT PREPARATION CHECKLIST"

- **CM2**
  - **CALL & READ**
    - "FINAL COCKPIT PREPARATION CHECKLIST"
    - Refer to QRH 6.01
    - "FINAL COCKPIT PREPARATION CHECKLIST COMPLETE"

---

(1) Refer to 02.01.07.1. Take-off data card.
(2) Refer to 02.01.08.1. Departure Briefing.
6. Before propeller rotation

**IMPORTANT**: Engine 2 start in Hotel mode is decided in accordance with operational requirements and limitations. Before starting Engine 2 in Hotel mode, the Preliminary Cockpit Preparation Procedure for short or long transit must at least be completed.

**Flight events**

<table>
<thead>
<tr>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>READY TO START ENG 2 IN HOTEL MODE</strong></td>
<td><strong>OVERHEAD PANEL CHECK</strong></td>
</tr>
<tr>
<td>⚫ CALL</td>
<td>⚫ DO</td>
</tr>
<tr>
<td>“GROUND FROM COCKPIT READY TO START ENG 2 IN HOTEL MODE, CONFIRM SERVICE DOOR CLOSED AND AREA CLEAR”</td>
<td>OVERHEAD PANEL ...................... CHECK(1)</td>
</tr>
<tr>
<td></td>
<td>Check tailwind below 10 kt.</td>
</tr>
<tr>
<td><strong>AFTER OUTSIDE VISUAL CHECK</strong></td>
<td><strong>DO &amp; CALL</strong></td>
</tr>
<tr>
<td>⚫ REPLY</td>
<td>ENG START ......................... AS RQRD</td>
</tr>
<tr>
<td>“I AM READY”</td>
<td>A &amp; B for the 1st flight of the day, then A for odd days &amp; B for even days, to detect ignition system hidden failure.</td>
</tr>
<tr>
<td></td>
<td>START 2 ......................... DEPRESS / CHECK ON</td>
</tr>
<tr>
<td></td>
<td>“STARTER ON”</td>
</tr>
<tr>
<td><strong>NH=10%</strong></td>
<td><strong>CALL</strong></td>
</tr>
<tr>
<td>For engine start in hot environment, refer to FCOM 2.03.09</td>
<td>“IGNITION”</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>⚫ DO</td>
<td>⚫ DO &amp; CALL</td>
</tr>
<tr>
<td>ENGINE PARAMETERS............... MONITOR</td>
<td>CL2 ............................... FEATHER</td>
</tr>
<tr>
<td></td>
<td>TIMING........................................... START</td>
</tr>
<tr>
<td></td>
<td>Ignition must occur within 10 s otherwise FUEL S.O.</td>
</tr>
<tr>
<td></td>
<td>“FUEL OPEN”</td>
</tr>
<tr>
<td><strong>ITT INCREASING</strong></td>
<td>⚫ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td>ENGINE PARAMETERS............. MONITOR</td>
</tr>
<tr>
<td>⚫ DO</td>
<td>OIL PRESS</td>
</tr>
<tr>
<td>ENGINE PARAMETERS............. MONITOR</td>
<td>“OIL PRESS”</td>
</tr>
<tr>
<td><strong>OIL PRESS INCREASING</strong></td>
<td><strong>CALL</strong></td>
</tr>
<tr>
<td>⚫ DO</td>
<td>“45%”</td>
</tr>
<tr>
<td>ENGINE PARAMETERS............. MONITOR</td>
<td></td>
</tr>
<tr>
<td><strong>NH=45%</strong></td>
<td><strong>CALL</strong></td>
</tr>
<tr>
<td>⚫ DO &amp; CALL</td>
<td>ITT MAX............................ CHECK(2)</td>
</tr>
<tr>
<td>START 2............................ CHECK NO LIGHT</td>
<td>“ITT XXX °C”</td>
</tr>
<tr>
<td>“STARTER OFF”</td>
<td></td>
</tr>
<tr>
<td>TIMING............................ STOP</td>
<td></td>
</tr>
</tbody>
</table>

(1) **OVERHEAD PANEL CHECK**
- Service door: closed, no UNLK amber light
- Fuel Pump 2: RUN, no FEED LO PR
- Wing lights: ON, to visually inform that Hotel Mode started.
- Propeller brake: ON and PROP BRK blue light
If Prop brake is OFF, press HYD AUX PUMP, in order to get the READY green light, then place the Prop brake switch to ON.

(2) **ITT MAX CHECK**
- if ITT > 960°
- if 840° < ITT < 960° for more than 5s
- if 800° < ITT < 840° for more than 20s
CL ……………………………………… Fuel SO
### Flight events

**CM1**

- **NH=61.5%**

- **PARAMETERS STABILIZED**
  - **DO** DC GEN 2 VOLTAGE ......... CHECK
  - **CALL** "GROUND FROM COCKPIT, YOU CAN DISCONNECT GPU"

- **LOAD & TRIM SHEET ON BOARD**
  - **DO & CALL** LOAD & TRIM SHEET ......... CHECK
  - **DO** TO SPEEDS & TRIM ............ CROSSCHECK

- **PM**

- **PF**

- **CAPTAIN**

- **CM2**

  - **CALL** "PARAMETERS STABILIZED"

  - **DO** ENG START .......... OFF & START ABORT
  - **DO** DC GEN 2 FAULT ......... CHECK NO LIGHT

  - **DO** TAKE-OFF DATA CARD ...... FILL 2ND PART(1)

**Notes:**

- (1) Refer to 2.01.07.1. Take-off data card.

---

**NORMAL PROCEDURES**

**STANDARD OPERATING PROCEDURES**

**02.02.06**

**Page 2**

**SEP 12**

**42 PEC / 72 PEC**
### 7. Before taxi

#### Flight events

<table>
<thead>
<tr>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>START UP CLEARANCE RECEIVED</strong></td>
<td><strong>REPLY</strong></td>
</tr>
<tr>
<td>▶ COMMAND “BEFORE TAXI PROCEDURE”</td>
<td>“RIGHT SIDE CLEAR?”</td>
</tr>
<tr>
<td>▶ CALL “GROUND FROM COCKPIT PARKING BRAKE IS ON, READY TO RELEASE PROPELLER BRAKE, CONFIRM CHOCKS ON, AREA CLEAR”</td>
<td><strong>CALL</strong> (after visual check)</td>
</tr>
<tr>
<td>▶ CALL “RIGHT SIDE CLEAR?”</td>
<td>“ROTATION”</td>
</tr>
<tr>
<td>▶ DO HYD AUX PUMP ................ DEPRESS PROP BRAKE ...... CHECK READY LIGHT ON</td>
<td>▶ DO NP .................. CHECK STABILIZED</td>
</tr>
<tr>
<td>▶ DO PROP BRAKE ........................ OFF PROP BRAKE ...... CHECK NO BLUE LIGHT UNLOCK extinguished after 15 s max.</td>
<td>▶ DO &amp; CALL CL 2 ........................................... AUTO PEC SGL CH AUTO TEST ................ CHECK LO PITCH ....................... ILLUMINATED “SINGLE CHANNEL, LOW PITCH”</td>
</tr>
<tr>
<td>▶ COMMAND “CL 2 AUTO”</td>
<td>▶ DO ACW GEN 2 FAULT ........ CHECK NO LIGHT ACW BTC ..................... CHECK CLOSED HYD PWR .................. CHECK NO LIGHT HYD SYST ...................... 3X3000 PSI PROBES HEATING ..................... ON ANTI ICING .......................... AS RQRD ANTISKID ..................................... TEST ICE DETECTOR .......................... TEST FLAPS ................................... 15°</td>
</tr>
<tr>
<td><strong>NP STABILIZED AROUND 71%</strong></td>
<td>▶ DO OVERHEAD PANEL .................. CHECK</td>
</tr>
<tr>
<td><strong>READY TO START ENG 1</strong></td>
<td><strong>AFTER OUTSIDE VISUAL CHECK</strong></td>
</tr>
<tr>
<td>▶ CALL “GROUND FROM COCKPIT PARKING BRAKE IS ON, READY TO START ENG 1”</td>
<td>ENG 1 start procedure is the same as ENG 2. Refer to 2.02.06. Before Propeller Rotation.</td>
</tr>
</tbody>
</table>

---

**ANTI SKID TEST**
FCOM 2.03.11 p1

**ICE DETECTOR TEST**
Push To Test for 3 seconds.
Check ICING amber flashes and MC + SC + ICING on CAP.
<table>
<thead>
<tr>
<th>Flight events</th>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>NH=61.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARAMETERS STABILIZED</td>
<td></td>
<td>CALL “PARAMETERS STABILIZED”</td>
</tr>
<tr>
<td></td>
<td>COMMAND</td>
<td>“CL1 AUTO”</td>
</tr>
<tr>
<td></td>
<td>DO</td>
<td>ENG START ............ OFF &amp; START ABORT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC GEN 1 FAULT......................NO LIGHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC BTC...............................CHECK NO LIGHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLEED / PACKS / X VALVE .... CHECK NO LIGHT</td>
</tr>
<tr>
<td></td>
<td>DO &amp; CALL</td>
<td>CL 1 ............................ AUTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEC SGL CH AUTO TEST...............CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LO PITCH .......................... ILLUMINATED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“SINGLE CHANNEL, LOW PITCH”</td>
</tr>
<tr>
<td>WHEN NP STABILIZED AROUND 71%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DO</td>
<td>COCKPIT COM HATCH..................CLOSE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NW STEERING .......................... ON</td>
</tr>
<tr>
<td>BEFORE TAXI PROCEDURE COMPLETE</td>
<td></td>
<td>CALL “BEFORE TAXI PROCEDURE COMPLETE”</td>
</tr>
<tr>
<td></td>
<td>REQUIRE</td>
<td>“BEFORE TAXI CHECKLIST”</td>
</tr>
<tr>
<td></td>
<td>CALL &amp; READ</td>
<td>“BEFORE TAXI CHECKLIST”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to QRH 6.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“BEFORE TAXI CHECKLIST COMPLETE”</td>
</tr>
</tbody>
</table>
8. Taxi

**Flight events**

**CM1**

**READY TO TAXI**

- **CALL**
  
  "GROUND FROM COCKPIT READY TO TAXI, YOU CAN REMOVE CHOCKS AND DISCONNECT"

**CM2**

**READY TO TAXI**

- **COMMAND**
  
  "REQUEST TAXI CLEARANCE"

**WHEN GROUND STAFF IN SIGHT**

- **DO & CALL**
  
  BLOCK TIME......................... CALL OUT
  LEFT SIDE AREA.................. CHECK CLEAR
  "LEFT SIDE CLEAR"
  
  TAXI & T.O. LIGHTS............... ON
  BRAKES................................ CHECK

- **DO**
  
  TAXI CLEARANCE.......................... OBTAIN

**ON TAXIWAY**

- **COMMAND**
  
  "TAXI PROCEDURE"

**PF AND PM READY**

- **DO**
  
  HEADING MODE....................... ENGAGE
  LO BANK................................ SELECT
  IAS MODE............................. ENGAGE
  IAS................................. V2+5 KT SET
  COUPLING............................. PF SIDE
  TO CONFIG................................ TEST

- **DO**

  ATC CLEARANCE.......................... OBTAIN
  ALT SEL................................. SET
  NAVAIDS SETTING (if necessary)...... REVISE
  
  Confirm that ATC clearance matches with GNSS & VOR/ADF settings.

**CAPTAIN**

**DO**

- CABIN CREW REPORT............... RECEIVE

**CM1**

**TAXI PROCEDURE COMPLETE**

- **REQUIRE**
  
  "TAXI CHECKLIST"

**CM2**

- **CALL**
  
  "TAXI PROCEDURE COMPLETE"

- **CALL & READ**
  
  "TAXI CHECKLIST"
  
  Refer to QRH 6.01 "TAXI CHECKLIST COMPLETE"

---

*(ii) Refer to 02.01.08.3. Take-off Briefing.*
### 9. Before take-off

**Flight events**

<table>
<thead>
<tr>
<th>APPROACHING HOLDING POINT AND CABIN OK RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CM1</strong></td>
</tr>
<tr>
<td>► COMMAND</td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>“BEFORE TAKE-OFF PROCEDURE”</td>
</tr>
<tr>
<td>FLT CTL..................................CHECK RUDDER</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>CCAS ................................................RCL</td>
</tr>
<tr>
<td>RCL must done before TO INHI to make sure</td>
</tr>
<tr>
<td>there are no degraded systems for take-off.</td>
</tr>
<tr>
<td>TO INHI.........................................DEPRESS</td>
</tr>
<tr>
<td>OVERHEAD PANEL..................................CHECK</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>GUST LOCK...........................................RELEASE</td>
</tr>
<tr>
<td>“FLIGHT CONTROLS?”</td>
</tr>
<tr>
<td>FLT CTL..................................CHECK ROLL &amp; PITCH</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Check full travel and freedom movement in</td>
</tr>
<tr>
<td>pitch, roll and yaw. For roll, check</td>
</tr>
<tr>
<td>spoiler light illuminated.</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>TCAS ........................................AUTO</td>
</tr>
<tr>
<td>TA ONLY appears on VSI on ground.</td>
</tr>
<tr>
<td>XPDR........................................ALT</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>WEATHER RADAR .................................STBY OR WX</td>
</tr>
<tr>
<td>To activate the EGPWS terrain clearance floor</td>
</tr>
<tr>
<td>mode.</td>
</tr>
<tr>
<td>APM ROTARY SELECTOR ............................TOW</td>
</tr>
<tr>
<td>AIR FLOW .......................................NORM</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>LAND LIGHTS &amp; STROBE.........................ON</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>BLEED VALVES .............................AS RQRD</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>RUDDER CAM.................................CENTER</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► DO</td>
</tr>
<tr>
<td>LATERAL FD BARS...........................CENTER</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► CALL</td>
</tr>
<tr>
<td>“BEFORE TAKE OFF PROCEDURE COMPLETE”</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>► CALL &amp; READ</td>
</tr>
<tr>
<td>“BEFORE TAKE OFF CHECKLIST”</td>
</tr>
<tr>
<td>Refer to QRH 6.01</td>
</tr>
<tr>
<td>“BEFORE TAKE OFF CHECKLIST COMPLETE”</td>
</tr>
</tbody>
</table>

**APM ROTARY SELECTOR: TAKE-OFF WEIGHT**

Set rotator to TOW, once both engines are running.

**NOTE:** Even if the correct value is already selected, the rotator must be reset before re-selecting the current weight.
10. Take-off

<table>
<thead>
<tr>
<th>Flight events</th>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEARED FOR TAKE-OFF</td>
<td>▶ CALL</td>
<td>“TAKE-OFF AT XX.XX, V1 XXX KT”</td>
</tr>
<tr>
<td></td>
<td>▶ DO</td>
<td>TIMING…………………………. START</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FUEL USED………………………CHECK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NW STEERING……………………HANDLE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BRAKES…………………………. RELEASE</td>
</tr>
<tr>
<td></td>
<td>▶ DO &amp; CALL</td>
<td>PLA 1 &amp; 2 …………………….. IN THE NOTCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“POWER LEVERS SET”</td>
</tr>
<tr>
<td>REACHING 70KT</td>
<td>▶ CALL &amp; DO</td>
<td>“CHECK”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NW STEERING……………………..RELEASE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“YOUR CONTROL” only if PM</td>
</tr>
<tr>
<td>REACHING V1</td>
<td>▶ CALL</td>
<td>“V1”</td>
</tr>
<tr>
<td></td>
<td>▶ DO</td>
<td>PLA 1 &amp; 2 ……………………..RELEASE</td>
</tr>
<tr>
<td>REACHING VR</td>
<td>▶ CALL</td>
<td>“ROTATE”</td>
</tr>
<tr>
<td>POSITIVE RATE</td>
<td>▶ CALL</td>
<td>“POSITIVE RATE”</td>
</tr>
<tr>
<td></td>
<td>▶ DO</td>
<td>LANDING GEAR…………………….UP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YAW DAMPER…………………….ENGAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check white arrows illuminated,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TAXI &amp; T.O. LIGHTS……………….OFF</td>
</tr>
<tr>
<td>ALL LDG GEAR LIGHTS EXTINGUISHED</td>
<td>▶ CALL</td>
<td>“GEAR UP”</td>
</tr>
</tbody>
</table>

PM

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>REACHING V1</td>
<td>▶ CALL</td>
</tr>
<tr>
<td>REACHING VR</td>
<td>▶ CALL</td>
</tr>
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</table>

PF

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>REACHING V1</td>
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</tr>
<tr>
<td>REACHING VR</td>
<td>▶ CALL</td>
</tr>
<tr>
<td>POSITIVE RATE</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td>ALL LDG GEAR LIGHTS EXTINGUISHED</td>
<td>▶ CALL</td>
</tr>
</tbody>
</table>

▶ CALL "MY CONTROL" |
Control through rudder pedals and control wheel & column.
## 11. After take-off

### Flight events

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PASSING ACCELERATION ALTITUDE</strong>&lt;br&gt;(mini 400 ft AAL or higher if requested)</td>
<td>✅ CALL&lt;br&gt;“ACCELERATION ALTITUDE”</td>
<td>✅ DO&lt;br&gt;PL 1 &amp; 2 in the notch&lt;sup&gt;(1)&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>✅ DO &amp; CALL&lt;br&gt;IAS...................... 170 (160)&lt;sup&gt;(2)&lt;/sup&gt;&lt;br&gt;PL 1 &amp; 2 ..................... CHECK IN THE NOTCH&lt;br&gt;PWR MGT........................... CLB&lt;br&gt;TQ / NP.................... CHECK CLIMB SETTING&lt;br&gt;BLEEDS.......................... CHECK ON&lt;br&gt;“CLIMB PROCEDURE COMPLETE”</td>
<td>✅ CALL &amp; DO&lt;br&gt;“SET SPEED BUG 170 (160)”&lt;br&gt;SPEED BUG ..................... 170 (160)</td>
</tr>
<tr>
<td></td>
<td>✅ DO &amp; CALL&lt;br&gt;SPEED BUG ..................... 170 (160)&lt;br&gt;“170 (160) SET”</td>
<td>✅ DO&lt;br&gt;FLAPS.................................. 0°</td>
</tr>
<tr>
<td></td>
<td>✅ CALL&lt;br&gt;“WHITE BUG” Normal conditions&lt;br&gt;“ICING BUG” Icing conditions</td>
<td>✅ COMMAND&lt;br&gt;“SET HIGH BANK”</td>
</tr>
<tr>
<td><strong>REACHING WHITE OR ICING BUG</strong></td>
<td>✅ CALL&lt;br&gt;“WHITE BUG” Normal conditions&lt;br&gt;“ICING BUG” Icing conditions</td>
<td>✅ DO&lt;br&gt;FLAPS.................................. 0°</td>
</tr>
<tr>
<td></td>
<td>✅ COMMAND&lt;br&gt;“FLAPS 0”</td>
<td>✅ COMMAND&lt;br&gt;“SET HIGH BANK”</td>
</tr>
<tr>
<td><strong>FLAPS 0° INDICATED</strong></td>
<td>✅ CALL&lt;br&gt;“FLAPS 0”</td>
<td>✅ CALL&lt;br&gt;“CHECK”</td>
</tr>
<tr>
<td><strong>REACHING WHITE OR ICING BUG +10</strong></td>
<td>✅ CALL&lt;br&gt;“WHITE BUG + 10” Normal conditions&lt;br&gt;“ICING BUG +10” Icing conditions</td>
<td>✅ COMMAND&lt;br&gt;“SET HIGH BANK”</td>
</tr>
<tr>
<td></td>
<td>✅ DO &amp; CALL&lt;br&gt;HI BANK.................................. SET&lt;br&gt;“HIGH BANK SET”</td>
<td>✅ DO&lt;br&gt;ALTIMETER.................................. SET STANDARD&lt;br&gt;“STANDARD SET”</td>
</tr>
<tr>
<td><strong>CLEARED TO A FLIGHT LEVEL OR PASSING TRANSITION ALTITUDE</strong></td>
<td>✅ DO &amp; CALL&lt;br&gt;ALTIMETER.......................... SET STANDARD&lt;br&gt;“STANDARD SET”</td>
<td>✅ COMMAND&lt;br&gt;“SET ALTIMETER STANDARD”&lt;br&gt;DO&lt;br&gt;ALTIMETER.......................... SET STANDARD</td>
</tr>
<tr>
<td></td>
<td>✅ CALL&lt;br&gt;“CHECK”&lt;br&gt;or&lt;br&gt;“PLUS OR MINUS XXX FT”</td>
<td>✅ REQUIRE&lt;br&gt;“AFTER TAKE-OFF CHECKLIST”</td>
</tr>
<tr>
<td><strong>AFTER ALTIMETER STANDARD SETTING</strong>&lt;sup&gt;(3)&lt;/sup&gt;</td>
<td>✅ CALL &amp; READ&lt;br&gt;“AFTER TAKE-OFF CHECKLIST”&lt;br&gt;Refer to QRH 6.01&lt;br&gt;“AFTER TAKE-OFF CHECKLIST COMPLETE”</td>
<td></td>
</tr>
</tbody>
</table>

---

<sup>(1)</sup> To prevent overtorques, PF checks PL are in the notch before moving the PWR MGT. This is to standardize with the go-around procedure, and the optional 100% TQ take-off.

<sup>(2)</sup> 170 (160) kt or Icing Bug + 10 (in icing conditions), whichever is higher.

<sup>(3)</sup> In case of high transition altitude, perform the After Take-off checklist except the last action concerning the altimeters setting. Once the transition altitude is passed, set the altimeters to finalize the procedure and the checklist.
12. Climbing through FL100

**Flight events**

**CLIMBING THROUGH FL 100**

**PM**

- **DO**
  - LANDING LIGHTS OFF
  - PRESSURIZATION CHECK
  - Cabin ALT, RATE and ΔP.

**PF**

- **COMMAND**
  - "FL 100"
  - No C/L for FL 100.

**CAPTAIN**

- **DO**
  - SEAT BELTS AS RQRD
### 13. Cruise

**Flight events**

<table>
<thead>
<tr>
<th>APPROACHING CRUISE FL</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DO</strong></td>
<td>SAT…………………………………………..CHECK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>DELTA ISA………………………………..COMPUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CRUISE PARAMETERS…………. DETERMINE</td>
<td></td>
</tr>
<tr>
<td><strong>COMMAND</strong></td>
<td>“COMPUTE CRUISE PARAMETERS”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALT®</th>
<th>CALL</th>
<th>“CHECK”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CALL</strong></td>
<td>“ALT STAR”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALT GREEN</th>
<th>CALL</th>
<th>“CHECK”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CALL</strong></td>
<td>“ALT GREEN”</td>
<td></td>
</tr>
<tr>
<td><strong>COMMAND</strong></td>
<td>“SET CRUISE PARAMETERS”&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REACHING CRUISE SPEED</th>
<th>CALL</th>
<th>“CRUISE PROCEDURE COMPLETE”</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DO</strong></td>
<td>CRUZ PWR MGT……………………………….. CRZ</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CRUISE PARAMETERS…………..CHECK</td>
<td></td>
</tr>
<tr>
<td><strong>CALL</strong></td>
<td>“CRUISE PROCEDURE”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DURING CRUISE</th>
<th><strong>DO</strong></th>
<th>“CRUISE PROCEDURE COMPLETE”</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FLIGHT LOG………………………………..FILL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SYSTEMS/FUEL…………………………..MONITOR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WAYPOINTS EXPECTED TIME………COMPUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMAINING FUEL &amp; HOLDING TIME…………..COMPUTE&lt;sup&gt;(2)&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EXPECTED LANDING WEIGHT….COMPUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOP OF DESCENT…………..COMPUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMAINING FUEL &amp; HOLDING TIME…………………………..CHECK</td>
<td></td>
</tr>
</tbody>
</table>

<sup>(1)</sup> Refer to 02.01.05.2. Cruise speed bugs and 02.01.06.2. Cruise torque bugs.

<sup>(2)</sup> Refer to 02.01.08.5. Holding time.
14. Before descent

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LANDING DATA AVAILABLE</strong>&lt;br&gt;(approx. 10 min before TOD)</td>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
<tr>
<td><img src="image3" alt="Diagram" /></td>
<td><img src="image4" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td><img src="image7" alt="Diagram" /></td>
<td><img src="image8" alt="Diagram" /></td>
<td></td>
</tr>
<tr>
<td><img src="image9" alt="Diagram" /></td>
<td><img src="image10" alt="Diagram" /></td>
<td></td>
</tr>
</tbody>
</table>

**CAPTAIN**

- CABIN CREW........................................... ADVISE

**BEFORE DESCENT**<br>(approx. 5 min before TOD)

- ![Diagram](image11) **DO**
  - ATIS.......................................................OBTAIN
  - LANDING DATA CARD...................... FILL**(i)**
  - LANDING ELEVATION......................CHECK

**APPROACHING TOD**

- ![Diagram](image12) **DO**
  - DESCENT CLEARANCE......................OBTAIN

**CALL & READ**

- ![Diagram](image13) "DESCENT CHECKLIST"
  - Refer to QRH 6.01
  - "DESCENT CHECKLIST COMPLETE"

- ![Diagram](image14) **DO**
  - ASSIGNED ALTITUDE............... SELECT
  - VS MODE................................. ENGAGE

**REQUIRE**

- ![Diagram](image15) "DESCENT CHECKLIST"

---

**(i)** Refer to 2.01.07.2. Landing data card.

**(ii)** Refer to 2.01.08.4. Arrival Briefing.
15. Descending through FL 100

**PM**

- **DO**
  - LANDING LIGHTS .................................. ON
  - PRESSURIZATION .................................. CHECK
  - Cabin ALT, RATE and ΔP.

**PF**

- **COMMAND**
  - "FL 100"
    - No C/L for FL 100.

**CAPTAIN**

- **DO**
  - SEAT BELTS ...................................... ON
# 16. Approach

**Flight events**

<table>
<thead>
<tr>
<th><strong>PM</strong></th>
<th><strong>PF</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>✅ <strong>DO &amp; CALL</strong>&lt;br&gt;ALTIMETER .................. SET QNH&lt;br&gt;And standby altimeter setting.&lt;br&gt;“XXXX SET”</td>
<td>✅ <strong>COMMAND</strong>&lt;br&gt;“SET QNH”&lt;br&gt; ✅ <strong>DO</strong>&lt;br&gt;ALTIMETER .................. SET QNH</td>
</tr>
<tr>
<td>✅ <strong>CALL</strong>&lt;br&gt;“CHECK”&lt;br&gt;or&lt;br&gt;“PLUS OR MINUS XXX FT”&lt;br&gt; ✅ <strong>DO</strong>&lt;br&gt;PRESSURIZATION.................. CHECK</td>
<td>✅ <strong>CALL</strong>&lt;br&gt;“PASSING XXXX FT, NOW!”</td>
</tr>
</tbody>
</table>

**CAPTAIN**

<table>
<thead>
<tr>
<th>✅ <strong>APPROACH PROCEDURE COMPLETE</strong></th>
<th>✅ <strong>REQUIRE</strong>&lt;br&gt;“APPROACH CHECKLIST”</th>
</tr>
</thead>
<tbody>
<tr>
<td>✅ <strong>CALL &amp; READ</strong>&lt;br&gt;“APPROACH CHECKLIST”&lt;br&gt;Refer to QRH 6.01&lt;br&gt;“APPROACH CHECKLIST COMPLETE”</td>
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</table>
### 17. Before landing

#### 17.1. ILS Precision Approach

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<thead>
<tr>
<th>Flight events</th>
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</thead>
<tbody>
<tr>
<td>CLEARED FOR APPROACH</td>
<td><img src="#" alt="Command &amp; Do" /></td>
<td><img src="#" alt="Command &amp; Do" /></td>
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<tr>
<td><img src="#" alt="Do &amp; Call" /></td>
<td><img src="#" alt="Command &amp; Do" /></td>
<td></td>
</tr>
<tr>
<td>PEED BUG (\cdots 170)</td>
<td>“SET SPEED BUG 170”(^{(1)})</td>
<td>“SET SPEED BUG WHITE BUG + 10”(^{(2)})</td>
</tr>
<tr>
<td>“170 SET”</td>
<td>SPEED BUG (\cdots 170)</td>
<td>SPEED BUG (\cdots WHITE BUG + 10)</td>
</tr>
<tr>
<td><img src="#" alt="Do" /></td>
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</tr>
<tr>
<td>NAV SOURCE (\cdots) IDENTIFY</td>
<td>ENGAGE</td>
<td></td>
</tr>
<tr>
<td><img src="#" alt="Call" /></td>
<td><img src="#" alt="Call" /></td>
<td></td>
</tr>
<tr>
<td>“CHECK”</td>
<td>“APPROACH MODE SET, LOC WHITE, GS WHITE”</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VOR ALIVE</th>
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<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“VOR ALIVE”</td>
<td>“LOC STAR”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LOC(^{(2)})</th>
<th><img src="#" alt="Call" /></th>
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<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“RWY AXIS CONFIRMED”(^{(2)})</td>
<td>“SET HEADING, DUAL ILS”</td>
</tr>
<tr>
<td><img src="#" alt="Do &amp; Call" /></td>
<td><img src="#" alt="Command" /></td>
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</tr>
<tr>
<td>HDG (\cdots) SET</td>
<td>“LOC STAR”</td>
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</tr>
<tr>
<td>DUAL ILS (\cdots) SET</td>
<td>“LOC STAR”</td>
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</tr>
<tr>
<td>“HEADING, DUAL ILS SET”</td>
<td>“LOC STAR”</td>
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<table>
<thead>
<tr>
<th>LOC GREEN</th>
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<th><img src="#" alt="Call" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“CHECK”</td>
<td>“LOC GREEN”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>G/S ALIVE</th>
<th><img src="#" alt="Call" /></th>
<th><img src="#" alt="Command" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“GLIDE SLOPE ALIVE”</td>
<td>“FLAPS 15”</td>
</tr>
<tr>
<td><img src="#" alt="Call &amp; Do" /></td>
<td><img src="#" alt="Command" /></td>
<td></td>
</tr>
<tr>
<td>“SPEED CHECK”</td>
<td>“FLAPS 15”</td>
<td></td>
</tr>
<tr>
<td>FLAPS (\cdots) (15°)</td>
<td><img src="#" alt="Call" /></td>
<td><img src="#" alt="Command &amp; Do" /></td>
</tr>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“FLAPS 15”</td>
<td>“SET SPEED BUG WHITE BUG + 10”(^{(3)})</td>
</tr>
<tr>
<td><img src="#" alt="Do &amp; Call" /></td>
<td><img src="#" alt="Command &amp; Do" /></td>
<td></td>
</tr>
<tr>
<td>SPEED BUG (\cdots) WHITE BUG +10</td>
<td>“FLAPS 15”</td>
<td>SPEED BUG (\cdots) WHITE BUG +10</td>
</tr>
<tr>
<td>“WHITE BUG + 10 SET”</td>
<td>“FLAPS 15”</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLAPS 15° INDICATED</th>
<th><img src="#" alt="Command" /></th>
<th><img src="#" alt="Command" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“ONE DOT”</td>
<td>“GEAR DOWN”</td>
</tr>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“SPEED CHECK”</td>
<td></td>
</tr>
<tr>
<td><img src="#" alt="Do" /></td>
<td><img src="#" alt="Do" /></td>
<td></td>
</tr>
<tr>
<td>LANDING GEAR (\cdots) DOWN</td>
<td>“GEAR DOWN”</td>
<td></td>
</tr>
<tr>
<td>PWR MGT (\cdots) TO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAXI &amp; T.O. LIGHTS (\cdots) ON</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>G/S ONE DOT</th>
<th><img src="#" alt="Call" /></th>
<th><img src="#" alt="Command" /></th>
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<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“ONE DOT”</td>
<td>“GEAR DOWN”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LDG GEAR 3 GREEN LIGHTS</th>
<th><img src="#" alt="Call" /></th>
<th><img src="#" alt="Call" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Call" /></td>
<td>“GEAR DOWN”</td>
<td>“GEAR DOWN”</td>
</tr>
</tbody>
</table>

---

\(^{(1)}\) 170 or Icing Bug + 10 (in icing conditions), whichever is higher.

\(^{(2)}\) Runway axis is confirmed when VOR is centered and / or RMI pointer on final CRS.

\(^{(3)}\) White Bug+10 is conservative for High Bank with flaps 15°, in normal and icing conditions.
<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAPS 25° INDICATED</td>
<td>CALL</td>
<td>“FLAPS 25”</td>
</tr>
<tr>
<td></td>
<td>CALL &amp; DO</td>
<td>“SPEED CHECK” FLAPS …………………………………… 25°</td>
</tr>
<tr>
<td>G/S HALF DOT</td>
<td>CALL</td>
<td>“HALF DOT”</td>
</tr>
<tr>
<td></td>
<td>CALL &amp; DO</td>
<td>“SPEED CHECK” FLAPS …………………………………… 30° (35°)</td>
</tr>
<tr>
<td>FLAPS 30° (35°) INDICATED</td>
<td>CALL</td>
<td>“FLAPS 30 (35)”</td>
</tr>
<tr>
<td></td>
<td>DO &amp; CALL</td>
<td>“SPEED BUG” …………………………………… VAPP “XXX SET”</td>
</tr>
<tr>
<td>G/S°</td>
<td>CALL</td>
<td>“CHECK”</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>“TOP OF DESCENT XX DME, CHECK”</td>
</tr>
<tr>
<td></td>
<td>DO &amp; CALL</td>
<td>“GA ALTITUDE” …………………………………… SET “XXXX FT SET”</td>
</tr>
<tr>
<td>AIRCRAFT STABILIZED</td>
<td>CALL &amp; READ</td>
<td>“BEFORE LANDING CHECKLIST” Refer to QRH 6.01 “BEFORE LANDING CHECKLIST COMPLETE”</td>
</tr>
<tr>
<td></td>
<td>REQUIRE</td>
<td>“BEFORE LANDING CHECKLIST”</td>
</tr>
<tr>
<td>G/S GREEN</td>
<td>CALL</td>
<td>“CHECK”</td>
</tr>
<tr>
<td>1000 FT AAL IMC STABILIZED</td>
<td>CALL</td>
<td>“1000 FT, STABILIZED”</td>
</tr>
<tr>
<td>1000 FT AAL IMC UNSTABILIZED</td>
<td>CALL</td>
<td>“1000 FT, GO-AROUND”</td>
</tr>
<tr>
<td>REACHING DA+500 FT</td>
<td>CALL</td>
<td>“FIVE HUNDRED ABOVE”</td>
</tr>
<tr>
<td>REACHING DA+100 FT</td>
<td>CALL</td>
<td>“ONE HUNDRED ABOVE”</td>
</tr>
<tr>
<td>REACHING DA</td>
<td>CALL</td>
<td>“MINIMUM”</td>
</tr>
<tr>
<td></td>
<td>CALL</td>
<td>“LAND” Continue with Landing procedure, or “GO-AROUND, SET POWER, FLAPS ONE NOTCH” Continue with Go-around procedure.</td>
</tr>
</tbody>
</table>
17.2. Non Precision Approach

There are different types of Non Precision Approaches: LOC, LOC/DME, VOR, VOR/DME, RNAV, ADF.
Lateral guidance is done via NAV mode for LOC, VOR, RNAV and via HDG mode for ADF.
Vertical guidance is done via the Vertical Speed mode.

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLEARED FOR APPROACH</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► DO &amp; CALL SPEED BUG 170</td>
<td></td>
<td>► COMMAND &amp; DO “SET SPEED BUG 170”</td>
</tr>
<tr>
<td>► DO NAV SOURCE IDENTIFY</td>
<td></td>
<td>► DO NAV MODE (OR HDG MODE) ENGAGE</td>
</tr>
<tr>
<td>► CALL “CHECK”</td>
<td></td>
<td>► CALL “NAV MODE SET LOC WHITE (OR VOR WHITE)”</td>
</tr>
<tr>
<td><strong>VOR ALIVE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► CALL “VOR ALIVE”</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LOC°</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► DO &amp; CALL HEADING SET</td>
<td></td>
<td>► CALL “LOC STAR (OR VOR STAR)”</td>
</tr>
<tr>
<td>► COMMAND &amp; DO “SET HEADING”</td>
<td></td>
<td>► COMMAND “SET HEADING”</td>
</tr>
<tr>
<td><strong>LOC GREEN</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► CALL “CHECK”</td>
<td></td>
<td>► CALL “LOC GREEN (OR VOR GREEN)”</td>
</tr>
<tr>
<td><strong>4 NM BEFORE FAP/FAF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► CALL &amp; DO “SPEED CHECK”</td>
<td></td>
<td>► COMMAND “FLAPS 15”</td>
</tr>
<tr>
<td>► DO FLAPS 15° INDICATED</td>
<td></td>
<td>► COMMAND &amp; DO “SET SPEED BUG WHITE BUG+10”</td>
</tr>
<tr>
<td>► CALL “FLAPS 15”</td>
<td></td>
<td>► COMMAND &amp; DO “SET SPEED BUG WHITE BUG+10”</td>
</tr>
<tr>
<td><strong>1 NM BEFORE FAP/FAF</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>► CALL “SPEED CHECK”</td>
<td></td>
<td>► COMMAND “GEAR DOWN”</td>
</tr>
<tr>
<td>► DO LANDING GEAR DOWN PWR MGT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► CALL &amp; DO “SPEED CHECK”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>► COMMAND “FLAPS 25”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) 170 or Icing Bug+10 (in icing conditions), whichever is higher.
(2) White Bug+10 is conservative for High Bank with flaps 15°, in normal and icing conditions.
### Flight events

#### FLAPS 25° Indicated

**PM**

> CALL
> "FLAPS 25"

**PF**

> COMMAND
> "FLAPS 30 (35)"

**CALL & DO**

> "SPEED CHECK"
> FLAPS ........................................30° (35°)

#### FLAPS 30° (35°) Indicated

**PM**

> CALL
> "FLAPS 30 (35)"

**PF**

> COMMAND & DO
> "SET SPEED BUG V APPROACH"
> SPEED BUG ........................................... VAPP

**COMMAND**

> "SET GO-AROUND ALTITUDE"

**CALL**

> "CHECK"

**PM**

> COMMAND
> "SET VS 0 FT/MIN"

**PF**

> CALL
> "CHECK"

**DO & CALL**

> GA ALTITUDE ..................................... SET
> "XXXX FT SET"(*)

**PM**

> DO & CALL
> VS .........................................................0
> "VS 0 FT/MIN SET"

**PF**

> CALL & READ
> "BEFORE LANDING CHECKLIST"
> Refer to QRH 6.01

> "BEFORE LANDING CHECKLIST COMPLETE"

#### 0.3 NM Before FAP/FAF

**PM**

> DO & CALL
> VS ..........................................................-XXX
> "VS -XXX SET, TOP OF DESCENT"

**PF**

> COMMAND
> "SET VS -XXX"

> CALL
> "CHECK"

#### Starting Descent

**PM**

> DO
> TIMING............................................ START
> FLIGHT PATH....................................MONITOR

**PF**

> DO
> TIMING............................................ START
> FLIGHT PATH....................................MONITOR(**)

**PM**

> CALL & READ
> "BEFORE LANDING CHECKLIST"

**PF**

> REQUIRE
> "BEFORE LANDING CHECKLIST"

#### 1000 FT AAL IMC Stabilized

**PM**

> CALL
> "1000 FT, STABILIZED"

**PF**

> COMMAND
> "WE CONTINUE"

#### 1000 FT AAL IMC Unstabilized

**PM**

> CALL
> "1000 FT, GO-AROUND"

**PF**

> COMMAND
> "GO-AROUND, SET POWER, FLAPS ONE NOTCH"

**PM**

> CALL
> "FIVE HUNDRED ABOVE"

**PF**

> COMMAND
> "GO-AROUND, SET POWER, FLAPS ONE NOTCH"

#### Reaching MDA +500 FT

**PM**

> CALL
> "ONE HUNDRED ABOVE"

**PF**

> CALL
> "LAND"

**PM**

> CALL
> "LAND"

**PF**

> CALL
> "LAND"

**PM**

> CALL
> "LAND"

**PF**

- Set only if present altitude below GA altitude. If not set present altitude +300 ft to avoid ALT*. Set GA altitude when passing GA alt –300 ft.
- PM calls out altitude versus distance, and altitude deviation above or below the desired one. PF corrects by adjusting VS.

**NOTE:** When PF has the runway in sight and calls out “LAND”, PM does not perform anymore the minima call-outs.
## 17.3. Circle-to-land

For initial configuration, refer to 02.02.17.2. Non Precision Approach, or 02.02.17.1. ILS Precision Approach and then proceed as described below:

- Flaps remain at 15°
- Speed is maintained to White Bug+10\(^{(1)}\)
- Before landing C/L must be initiated during descent with flaps 15° and completed when flaps 30° (35°)
- Go-around altitude must be set during descent with flaps 15°

\(^{(1)}\) White Bug+10 is conservative for High Bank with flaps 15°, in normal and icing conditions.

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REACHING MDA</strong></td>
<td>▶ CALL *<strong>CHECK</strong>*</td>
<td>▶ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ALT MODE.................. ENGAGE *<strong>ALT SET, ALT GREEN</strong>*</td>
</tr>
<tr>
<td><strong>LEVEL OFF</strong></td>
<td>▶ CALL *<strong>CHECK</strong>*</td>
<td>▶ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td>TIMING.................. START</td>
<td>AROUND 40% ENGAGE *<strong>HEADING, HIGH BANK, HEADING XXX SET</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>START TIMING</td>
</tr>
<tr>
<td><strong>AFTER 30 SEC</strong></td>
<td>▶ CALL *<strong>CHECK</strong>*</td>
<td>▶ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DOWNWIND ENGAGE *<strong>HEADING XXX SET</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>START TIMING</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>HEADING XXX SET</strong></td>
</tr>
<tr>
<td><strong>ABEAM THRESHOLD</strong></td>
<td>▶ DO</td>
<td>▶ CALL &amp; DO</td>
</tr>
<tr>
<td></td>
<td>TIMING.................. START</td>
<td>*<strong>START TIMING</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>START TIMING</strong></td>
</tr>
<tr>
<td><strong>ABEAM THRESHOLD</strong></td>
<td>▶ DO</td>
<td>▶ CALL &amp; DO</td>
</tr>
<tr>
<td></td>
<td>TIMING.................. START</td>
<td>*<strong>FLAPS 25, START TIMING</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>START TIMING</td>
</tr>
<tr>
<td><strong>FLAPS 25° INDICATED</strong></td>
<td>▶ CALL *<strong>FLAPS 25</strong>*</td>
<td>▶ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HDG .................. *<strong>SET</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VS .................. *<strong>-XXX FT/MIN</strong>*</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>HEADING XXX, VS-XXX SET</strong>*</td>
</tr>
<tr>
<td><strong>REACHING OUTBOUND TIME</strong>(^{(2)})</td>
<td>▶ CALL *<strong>CHECK</strong>*</td>
<td>▶ COMMAND *<strong>FLAPS 30 (35)</strong></td>
</tr>
<tr>
<td><strong>ON FINAL</strong></td>
<td>▶ CALL &amp; DO *<strong>SPEED CHECK</strong>*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FLAPS .................. 30° (35°)</td>
<td></td>
</tr>
</tbody>
</table>

\(^{(2)}\) Outbound time (in sec) = $\frac{\text{Height}}{20} \pm 1 \text{ sec/1 kt head/tailwind}$
**17.4. Standard traffic pattern**

From take-off to 1500 ft AAL, refer to SOPs until After Take-off procedure. In the following procedure, AP is set OFF, and FD is ON.
<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MID RUNWAY</strong></td>
<td>▶ CALL &amp; DO</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>“SPEED CHECK”</td>
<td>“GEAR DOWN”</td>
</tr>
<tr>
<td></td>
<td>LANDING GEAR………………………………… DOWN</td>
<td></td>
</tr>
<tr>
<td><strong>LDG GEAR 3 GREEN LIGHTS</strong></td>
<td>▶ CALL</td>
<td>▶ CALL &amp; DO</td>
</tr>
<tr>
<td></td>
<td>“GEAR DOWN”</td>
<td>“START TIMING”</td>
</tr>
<tr>
<td><strong>ABEAM THRESHOLD</strong></td>
<td>▶ DO</td>
<td>▶ CALL &amp; DO</td>
</tr>
<tr>
<td></td>
<td>TIMING……………………………………… START</td>
<td>TIMING……………………………………… START</td>
</tr>
<tr>
<td><strong>ABEAM THRESHOLD</strong></td>
<td>▶ DO &amp; CALL</td>
<td>▶ CALL &amp; DO</td>
</tr>
<tr>
<td></td>
<td>TIMING……………………………………… START</td>
<td>“FLAPS 25&quot;</td>
</tr>
<tr>
<td></td>
<td>FLAPS……………………………………… 25°</td>
<td>TIMING……………………………………… START</td>
</tr>
<tr>
<td><strong>FLAPS 25° INDICATED</strong></td>
<td>▶ CALL</td>
<td>▶ CALL</td>
</tr>
<tr>
<td></td>
<td>“FLAPS 25”</td>
<td>“FLAPS 25”</td>
</tr>
<tr>
<td><strong>REACHING OUTBOUND TIME</strong></td>
<td>▶ DO &amp; CALL</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>HEADING BUG……………………………….. SET</td>
<td>“SET HEADING XXX, VS –700”</td>
</tr>
<tr>
<td></td>
<td>VS………………………………………….. –700</td>
<td>“HEADING XXX, VS –700 SET”</td>
</tr>
<tr>
<td><strong>BASE TURN / LEG</strong></td>
<td>▶ DO</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>ADU………………………………………… STANDBY</td>
<td>“SET ADU STANDBY”</td>
</tr>
<tr>
<td><strong>ON FINAL</strong></td>
<td>▶ CALL &amp; DO</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>“SPEED CHECK”</td>
<td>“FLAPS 30 (35)”</td>
</tr>
<tr>
<td></td>
<td>FLAPS………………………………………. 30° (35°)</td>
<td></td>
</tr>
<tr>
<td><strong>FLAPS 30° (35°) INDICATED</strong></td>
<td>▶ CALL</td>
<td>▶ COMMAND &amp; DO</td>
</tr>
<tr>
<td></td>
<td>“FLAPS 30 (35)”</td>
<td>“SET SPEED BUG V APPROACH”</td>
</tr>
<tr>
<td></td>
<td>SPEED BUG ………………………………… VAPP</td>
<td>SPEED BUG ………………………………… VAPP</td>
</tr>
<tr>
<td></td>
<td>“XXX SET”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>▶ CALL &amp; READ</td>
<td>▶ REQUIRE</td>
</tr>
<tr>
<td></td>
<td>“BEFORE LANDING CHECKLIST”</td>
<td>“BEFORE LANDING CHECKLIST”</td>
</tr>
<tr>
<td></td>
<td>Refer to QRH 6.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“BEFORE LANDING CHECKLIST COMPLETE”</td>
<td></td>
</tr>
<tr>
<td><strong>500 FT AAL STABILIZED</strong></td>
<td>▶ CALL</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>“500 FT, STABILIZED”</td>
<td>“LAND”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continue with Landing procedure.</td>
</tr>
<tr>
<td><strong>500 FT AAL UNSTABILIZED</strong></td>
<td>▶ CALL</td>
<td>▶ COMMAND</td>
</tr>
<tr>
<td></td>
<td>“500 FT, GO-AROUND”</td>
<td>“GO-AROUND, SET POWER, FLAPS ONE NOTCH”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Continue with Go-around procedure.</td>
</tr>
</tbody>
</table>

(1) Outbound time (in sec) = \( \frac{\text{Height}}{20} \) 1 sec / 1 kt head/tailwind

**NOTE:** When performing a visual pattern below 1500 ft AAL flaps have to be kept extended at 15° after take-off.
18. Landing

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PF</strong> DISCONNECTS AP AT DA/MDA</td>
<td><strong>CALL &amp; DO</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;AUTOPILOT OFF&quot; CAVALRY CHARGE...........CANCEL</td>
</tr>
<tr>
<td>RA CALL-OUTS</td>
<td><strong>DO</strong></td>
</tr>
<tr>
<td></td>
<td><em>(at 20 ft)</em></td>
</tr>
<tr>
<td></td>
<td>PL 1 &amp; 2 .............................................................. FL</td>
</tr>
<tr>
<td>ON GROUND, TWO LOW PITCH ILLUMINATED</td>
<td><strong>DO &amp; CALL</strong></td>
</tr>
<tr>
<td></td>
<td>LOW PITCH ..... CHECK BOTH ILLUMINATED &quot;2 LOW PITCH&quot;</td>
</tr>
<tr>
<td>REACHING 70 KT</td>
<td><strong>CALL</strong></td>
</tr>
<tr>
<td></td>
<td>&quot;70 KT&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CALL</strong></td>
<td><strong>DO</strong></td>
</tr>
<tr>
<td>&quot;MY CONTROL&quot;</td>
<td>CONTROL WHEEL.............. HOLD</td>
</tr>
<tr>
<td></td>
<td>BRAKES..................................... AS RQRD</td>
</tr>
</tbody>
</table>

**Reverse policy**

<table>
<thead>
<tr>
<th>ENGINE STATUS</th>
<th>LO PITCH LIGHTS</th>
<th>PM CALLS</th>
<th>PF ACTION ON REVERSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ENGINES</td>
<td>TWO ILLUMINATED</td>
<td>&quot;TWO LOW PITCH&quot;</td>
<td>NORMAL USE</td>
</tr>
<tr>
<td></td>
<td>ONLY ONE ILLUMINATED</td>
<td>&quot;NO REVERSE&quot;</td>
<td>NO USE, MAXI YAW EFFECT</td>
</tr>
<tr>
<td>1 ENGINE</td>
<td>ONE ILLUMINATED</td>
<td>&quot;ONE LOW PITCH&quot;</td>
<td>USE WITH CARE, YAW EFFECT</td>
</tr>
</tbody>
</table>

*(1) Use reverse at high speeds and prefer use of brakes at low speeds. It is recommended to return to GI position at 40 kt to avoid flight control shaking.*
### 19. Go-around

**Flight events**

<table>
<thead>
<tr>
<th>DA/MDA +30</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUNWAY OR APPROACH LIGHTS NOT IN SIGHT OR ANY OTHER UNEXPECTED EVENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL</td>
<td>“MINIMUM”</td>
<td>CALL &amp; DO</td>
</tr>
<tr>
<td>”GO-AROUND, SET POWER, FLAPS ONE NOTCH”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLAPS ........................................ 15° (25°)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL 1 &amp; 2 ..................................... ADJUST GA TQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL &amp; DO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“GO-AROUND, SET POWER, FLAPS ONE NOTCH”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GA PB ON PL ......................... DEPRESS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PITCH ................................. ROTATE TO +8° NOSE UP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL 1 &amp; 2 ................................. ADVANCE TO RAMP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAVALRY CHARGE ............................................. CANCEL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| FLAPS 15° (25°) INDICATED |
| CALL | “POWER SET, FLAPS 15 (25)” |

| POSITIVE RATE |
| CALL | “POSITIVE RATE” |
| DO & CALL |
| LANDING GEAR ........................................ UP |
| YAW DAMPER ........................................ ENGAGE |
| Check white arrows illuminated. |
| TAXI & T.O. LIGHTS ..................................... OFF |
| HEADING MODE ......................................... ENGAGE |
| LOW BANK ......................................... SET |
| IAS ................................................. VGA |
| “HEADING LOW, IAS XXX SET” |
| DO & CALL |
| SPEED BUG ........................................ VGA |
| “XXX SET” |

| ALL LDG GEAR LIGHTS EXTINQUISHED |
| CALL | “GEAR UP” |

| PASSING ACCELERATION ALTITUDE  |
| CALL | “ACCELERATION ALTITUDE” |
| DO & CALL |
| IAS ............................................. 170 (160) |
| PL 1 & 2 ................................ CHECK IN THE NOTCH |
| PWR MGT ......................................... CLB |
| TQ / NP ................................ CHECK CLIMB SETTING |
| “CLIMB PROCEDURE COMPLETE” |
| DO & CALL |
| SPEED BUG ........................................ 170 (160) |
| “170 (160) SET” |

| REACHING WHITE BUG OR VGA +15, WHICHEVER LOWER |
| CALL | “WHITE BUG / VGA +15” |
| DO |
| FLAPS ............................................. 15° |

| FLAPS 15° INDICATED |
| CALL | “FLAPS 15” |

Continue with “Reaching white or icing bug” event of After Take-off procedure.
20. After landing

**Flight events**

<table>
<thead>
<tr>
<th>RUNWAY VACATED</th>
<th>CM1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMAND &amp; DO</td>
<td>&quot;AFTER LANDING PROCEDURE&quot;</td>
</tr>
<tr>
<td>LANDING LIGHT &amp; STROBES</td>
<td>OFF</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
</tr>
<tr>
<td>GUST LOCK</td>
</tr>
<tr>
<td>Pull control column backwards to lock ailerons and elevator.</td>
</tr>
<tr>
<td>FLIGHT CONTROLS</td>
</tr>
<tr>
<td>TRIMS</td>
</tr>
<tr>
<td>TCAS</td>
</tr>
<tr>
<td>XPDR</td>
</tr>
<tr>
<td>FLAPS</td>
</tr>
<tr>
<td>WEATHER RADAR</td>
</tr>
<tr>
<td>ADU</td>
</tr>
</tbody>
</table>
| PROBES/WINDSHIELD HEATING | OFF |}

<table>
<thead>
<tr>
<th>IPCS ..................</th>
<th>DAILY DYNAMIC TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not perform while taxiing.</td>
<td></td>
</tr>
<tr>
<td>&quot;ATPCS TEST PERFORMED&quot;</td>
<td></td>
</tr>
</tbody>
</table>

| CALL |
| "AFTER LANDING PROCEDURE COMPLETE" |

<table>
<thead>
<tr>
<th>IF LAST FLIGHT OF THE DAY</th>
<th>CM1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMAND</td>
<td>&quot;ATPCS TEST&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO &amp; CALL</td>
</tr>
<tr>
<td>ATPCS</td>
</tr>
<tr>
<td>Do not perform while taxiing.</td>
</tr>
<tr>
<td>&quot;ATPCS TEST PERFORMED&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AFTER 1 MIN IN GROUND IDLE</th>
<th>CM1</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMAND</td>
<td>&quot;CL1 FEATHER&quot;</td>
</tr>
<tr>
<td>Wait 20 seconds in feather for last flight of the day (for maintenance oil level check).</td>
<td></td>
</tr>
<tr>
<td>COMMAND</td>
<td>&quot;FUEL SHUT-OFF&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>DO</td>
</tr>
<tr>
<td>CL1</td>
</tr>
</tbody>
</table>

| DO |
| CL1 | FUEL S.O. |
| ACW BTC | CHECK CLOSED |

<table>
<thead>
<tr>
<th>ENG 1 SHUT DOWN</th>
<th>CM1</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUIRE</td>
<td>&quot;AFTER LANDING CHECKLIST&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL &amp; READ</td>
</tr>
<tr>
<td>&quot;AFTER LANDING CHECKLIST&quot;</td>
</tr>
<tr>
<td>Refer to QRH 6.01</td>
</tr>
<tr>
<td>&quot;AFTER LANDING CHECKLIST COMPLETE&quot;</td>
</tr>
</tbody>
</table>

**ATPCS DAILY DYNAMIC TEST**

FCOM 2.03.21 p1 & p2

(1) After landing checklist is performed as a do-list: CM2 reads loudly and acts without CM1 confirmation.
## 21. Parking

### Flight events

<table>
<thead>
<tr>
<th>MARSHALLER IN SIGHT</th>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DO</strong></td>
<td>TAXI &amp; T.O. LIGHTS ....................... OFF</td>
<td><strong>DO &amp; CALL</strong></td>
</tr>
<tr>
<td></td>
<td>“HYDRAULIC PRESSURE CHECK”</td>
<td></td>
</tr>
<tr>
<td><strong>DO &amp; CALL</strong></td>
<td>PARKING BRAKE ......................... ON</td>
<td><strong>CALL</strong></td>
</tr>
<tr>
<td></td>
<td>“PARKING BRAKE SET”</td>
<td></td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>CL2 ........................................ FEATHER</td>
<td><strong>DO &amp; CALL</strong></td>
</tr>
<tr>
<td></td>
<td>Wait 20 seconds in feather for last flight of the day</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(for maintenance oil level check).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROP BRAKE ............ CHECK READY LIGHT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROP BRAKE ......................... ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unlock illuminated then extinguished.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROP BRAKE ............ CHECK ILLUMINATED</td>
<td></td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>BEACON ................................ OFF</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>DO</strong></td>
<td></td>
</tr>
</tbody>
</table>

### CAPTAIN

**DO**

- SEAT BELTS ...................................... OFF
- CABIN CREW REPORT ................ RECEIVE

Check tail prop installed for ATR 72.

### GPU AVAILABLE

**DO**

- DC EXT PWR ............................. DEPRESS
- CL2 ......................................... FUEL S.O.

### ENG 2 SHUT DOWN

**REQUIRE**

- “PARKING CHECKLIST”

**CALL & READ**

- “PARKING CHECKLIST COMPLETE”

Refer to QRH 6.01
## 22. Leaving the aircraft

<table>
<thead>
<tr>
<th>Flight events</th>
<th>CM1</th>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALL DOCUMENTATION FILLED</td>
<td>▶ COMMAND</td>
<td>▶ DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td>“LEAVING THE AIRCRAFT PROCEDURE”</td>
<td>OXYGEN MAIN SUPPLY................. OFF</td>
</tr>
<tr>
<td>LEAVING THE AIRCRAFT PROCEDURE COMPLETE</td>
<td>▶ REQUIRE</td>
<td>DE- /ANTI-ICING.......................... OFF</td>
</tr>
<tr>
<td></td>
<td>“LEAVING THE AIRCRAFT CHECKLIST”</td>
<td>EXTERIOR LIGHTS...................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMER EXIT LT TOGGLE SW........ DISARM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FUEL PUMPS............................. OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WEATHER RADAR........................ OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EFIS..................................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CDLS.................................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NAVAIDS................................. OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMS.................................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XPDR....................................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TCAS.................................... OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DC EXT PWR............................ OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BATTERY.................................. OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“LEAVING THE AIRCRAFT PROCEDURE COMPLETE”</td>
</tr>
<tr>
<td></td>
<td>CALL &amp; READ</td>
<td>“LEAVING THE AIRCRAFT CHECKLIST”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to QRH 6.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“LEAVING THE AIRCRAFT CHECKLIST COMPLETE”</td>
</tr>
</tbody>
</table>
1. Hotel Mode Operations

1.1. Preliminary Cockpit Preparation

In the following, no GPU is available. The start of Engine 2 in Hotel mode is done with the flight crew in the cockpit then, the Preliminary Cockpit Preparation procedure (different for long or short transit) is done by CM2 while CM1 is performing the external inspection (refer to 02.02.03. External inspection). When Hotel mode is running, at least one crew member must remain in the cockpit.

The main approach is to extinguish all white lights, to test all systems and to prepare the cockpit for the flight.

Refuelling in Hotel mode is prohibited.

1.1.1. Long transit in Hotel mode

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
</table>

**EMERGENCY EQUIPMENTS CHECK**
FCOM 2.03.07 p1

**MFC AUTOTEST CHECK**
MFC 1A, 2A flashing (only if cargo door control panel is closed), then MFC 1B, 2B.

**ENG FIRE PROTECTION TEST**
FCOM 2.03.07 p2 / p6

**ATPCS STATIC TEST**
FCOM 2.03.07 p2

**PROP BRK ON**
Check the PROP BRK blue light is illuminated.
If not, depress HYD AUX PUMP PB on the pedestal.
When the READY green light illuminates, select PROP BRK ON.
Check the UNLK red light is extinguished.

- EMER EQUIPMENTS .................. CHECK
  - GEAR PINS & COVERS ............... ON BOARD
  - DOCUMENTATION .................. ON BOARD
  - CB LAT & OVHD PANELS .......... CHECK
  - PL 1 & 2 .......................... CHECK GI
  - GUST LOCK ........................ CHECK ON
  - CL 1 & 2 .......................... CHECK FUEL S.O
  - FLAPS LEVER & INDICATOR ... CHECK CONSISTENCY
  - LANDING GEAR LEVER .......... CHECK DOWN
  - EEC 1 & 2 ....................... CHECK DEPRESSED IN / NO LIGHT
  - WIPERS .......................... OFF
  - STBY HORIZON ERECTION KNOB .... PULL
  - BATTERY .......................... ON
  - STBY HORIZON ERECTION
  - KNOB ......................... RELEASE / CHECK NO FLAG
  - MFC AUTOTEST ................. CHECK
  - EMER & ESS BUS SUPPLY
  - IND .......................... CHECK ARROWS ILLUMINATED
  - UNDV .......................... CHECK NO LIGHT
  - ENG 2 FIRE .......................... TEST
  - PROP BRAKE ....................... ON / LOCKED
  - VHF1 .......................... ON

Once completed, refer to QRH 3.01.A
Flight events

**READY TO START ENG 2 IN HOTEL MODE**

- **CALL**
  
  “GROUND FROM COCKPIT READY TO START ENG 2 IN HOTEL MODE, CONFIRM SERVICE DOOR CLOSED AND AREA CLEAR”

- **DO**
  
  OVERHEAD PANEL ..................... CHECK

**AFTER OUTSIDE VISUAL CHECK**

- **REPLY**
  
  “I AM READY”

- **DO**
  
  TIMING__________________________ START

  To monitor starter limitation.

  **NH=10%**

  For engine start in hot environment, refer to FCOM 2.03.09

  - **DO**
    
    ENGINE PARAMETERS............. MONITOR

  **ITT INCREASING**

  - **DO**
    
    ENGINE PARAMETERS............. MONITOR

  **NH=45%**

  - **DO & CALL**
    
    START 2............................. CHECK NO LIGHT

    “STARTER OFF”

    TIMING__________________________ STOP

  **CALL & DO**

  “IGNITION”

  TIMING__________________________ STOP

  **NH=61.5%**

  **PARAMETERS STABILIZED**

  - **CALL**
    
    “PARAMETERS STABILIZED”

    Check FF and oil press indicators.

  - **DO**
    
    ENG START ................. OFF & START ABORT

    DC GEN 2 FAULT............. CHECK NO LIGHT

    DC BTC.......................... CHECK CLOSED

    BLEED / PACKS / X VALVE........ OPEN

**OVERHEAD PANEL CHECK**

- Service door: closed, no UNLK amber light
- Fuel Pump 2: RUN, no FEED LO PR
- Wing lights: ON, to visually inform that Hotel Mode started.
- Propeller brake: ON and PROP BRK blue light
  If Prop brake is OFF, press HYD AUX PUMP, in order to get the READY green light, then place the Prop brake switch to ON.

For the rest of the procedure, refer to 02.02.04. *Preliminary Cockpit Preparation (Long transit)*—starting from **Scan on overhead panel**—except for actions concerning Engine 2 fire test, Propeller brake and Fuel pump 2, which are already performed.
### 1.1.2. Short transit in Hotel mode

Refer to 02.02.04, *Preliminary Cockpit Preparation (Short Transit)* except that:

- service door remains closed

- during the ATPCS Static test, CM1 liaises with CM2 and monitor Propeller 2 from the outside. CM2 has to make sure that PL2 is in Ground Idle position during the test.

### 1.2. Leaving the aircraft procedure

This procedure follows the Parking procedure in case no GPU is available at the stand.

#### Flight events

<table>
<thead>
<tr>
<th>ALL DOCUMENTATION FILLED</th>
<th>CM1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COMMAND</td>
</tr>
<tr>
<td></td>
<td>DO &amp; CALL</td>
</tr>
<tr>
<td></td>
<td>CALL &amp; READ</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RECODE</td>
</tr>
<tr>
<td>CALL &amp; READ</td>
</tr>
</tbody>
</table>

- OXYGEN MAIN SUPPLY.................OFF
- DE- I/ANTI-ICING..........................OFF
- EXTERIOR LIGHTS............................OFF
- EMER EXIT LT TOGGLE SW..............DISARM
- WEATHER RADAR.........................OFF
- EFIS........................................OFF
- CDLS.......................................OFF
- NAVAIDS................................OFF
- COMS......................................OFF
- XPDR........................................OFF
- TCAS........................................OFF
- CL2.........................................FUEL S.O.
- FUEL PUMPS................................OFF
- BATTERY.................................OFF
- "LEAVING THE AIRCRAFT PROCEDURE COMPLETE"
2. Power back and push-back operations

2.1. Power back

Before power back, both propellers are running and are unfeathered. Power back is done after ATC clearance has been received. Ground staff area is checked clear before and during power back by using conventional signs and/or headphones. Safety glasses have to be used by the ground staff, because of the possibility of projection during power back operation. Nose wheel steering remains ON.

To avoid moving forward, apply slight power back just before releasing parking brake. Each crew member keeps his feet on the floor. Never uses brakes during power back (to avoid tail strike). Power back is performed at low speed. Use Ground Idle or positive power to decrease speed and stop.

**IMPORTANT**: NAC OVHT and ENG FIRE can be triggered, if a prolonged power-back is maintained with a tail wind greater than 10kts. Avoid orientating aircraft in the tailwind direction.

2.2. Push-back with tug

Push-back is done after ATC clearance. Ground staff remains connected with the aircraft by using conventional signs and/or headphones.

Parking brake is released and steering OFF. Each crew member keeps his feet on the floor. Never uses brakes during push-back (to avoid tail strike and/or strain on towing system).

**IMPORTANT**: Wait for disconnection of the tow bar before switching the steering ON.

**IMPORTANT**: NAC OVHT and ENG FIRE can be triggered during push-back in Hotel mode, with a tail wind greater than 10kts. Avoid orientating aircraft in the tailwind direction. If the tail wind is above this limit, the push-back has to be done with the propeller(s) running and unfeathered.

The following phraseology is used:

<table>
<thead>
<tr>
<th>Flight events</th>
<th>CM1</th>
<th>GROUND STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLEARED FOR PUSH-BACK</strong></td>
<td>✈️DO NW STEERING…………………………. OFF PARKING BRAKE …………………... OFF</td>
<td>✈️CALL “GROUND FROM COCKPIT, I CONFIRM CLEAR TO PUSH, FACING XXX, PARKING BRAKE IS RELEASED, NOSE WHEEL STEERING IS OFF”</td>
</tr>
<tr>
<td><strong>PUSH-BACK COMPLETE</strong></td>
<td>✈️DO &amp; CALL PARKING BRAKE ………………………. ON “GROUND FROM COCKPIT, PARKING BRAKE ON”</td>
<td>✈️CALL “COCKPIT FROM GROUND, PUSH-BACK COMPLETE, PARKING BRAKE ON”</td>
</tr>
<tr>
<td><strong>TOW BAR DISCONNECTED AND VISUALLY CONFIRMED BY CREW</strong></td>
<td>✈️DO &amp; CALL NW STEERING…………………………. ON “YOU CAN DISCONNECT, GOOD BYE”</td>
<td>✈️CALL “TOW BAR IS DISCONNECTED”</td>
</tr>
</tbody>
</table>

| CM2 | TAXI CLEARANCE…………………………. OBTAIN |
3. Noise abatement procedures

The noise abatements procedures contained in ICAO PANS-OPS (Vol 1 Part I section 7) have been designed for application to turbojet aeroplanes only.

Even if not required for turbopropeller aeroplanes, ATR recommends the following procedures for noise reduction on the ground.

– Do not use reverse while taxiing
– Minimize the use of reverse at landing

No particular noise abatement procedures are recommended in flight.

Local aerodrome procedures: Refer to published airport manuals (In Jeppesen charts, the Noise Abatement page is usually in chapter 10-4).
4. Operations in icing conditions

Please refer to **Cold Weather Operations** guide.
5. Wet and contaminated runways operations

Please refer to the Performance guide.
6. Low visibility operations

Please refer to the All Weather Operations guide.
7. Performance Based Navigation operations

Performance Based Navigation guide under development.
1. Wake Turbulence

1.1. Description

Wake turbulence is the leading cause of aircraft upsets.

Vortex Generation

The phenomenon that creates wake turbulence results from the forces that lift airplanes. High-pressure air from the lower surface of the wings flows around the wingtips to the lower pressure region above the wings. A pair of counter rotating vortices is thus shed from the wings: the right wing vortex rotates counterclockwise, and the left wing vortex rotates clockwise. The region of rotating air behind the airplane is where wake turbulence occurs.

Vortex Strength

The strength of the turbulence is determined predominantly by the weight, wingspan, and speed of the airplane. The greatest vortex strength occurs when the generating aircraft is heavy-clean-slow.

Generally, vortices descend at an initial rate of about 300 to 500 ft/min for about 30 sec. The descent rate decreases and eventually approaches zero between 500 and 900 ft below the flight path. Flying at or above the flight path provides the best method for avoidance. Maintaining a vertical separation of at least 1000-ft when crossing below the preceding aircraft may be considered safe.
Induced Roll

An encounter with wake turbulence usually results in induced rolling or pitch moments; however, in rare instances an encounter could cause structural damage to the airplane. In more than one instance, pilots have described an encounter to be like “hitting a wall.” The dynamic forces of the vortex can exceed the roll or pitch capability of the airplane to overcome these forces. During test programs, the wake was approached from all directions to evaluate the effect of encounter direction on response. One item was common to all encounters: without a concerted effort by the pilot to check the wake, the airplane would be expelled from the wake and an airplane upset could occur.

1.2. ICAO recommendations

ICAO Aircraft Category

ICAO has classified the aircraft in three Wake Turbulence categories. Refer to ICAO Doc 4444 Air Traffic Management, §4.9 Wake Turbulence Categories. ATR aircraft are classified as “Medium”.

<table>
<thead>
<tr>
<th>MTOW</th>
<th>Wake Turbulence Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;136 tons</td>
<td>Heavy</td>
</tr>
<tr>
<td>7 tons &lt; MTOW &lt; 136 tons</td>
<td>Medium</td>
</tr>
<tr>
<td>&lt;7 tons</td>
<td>Light</td>
</tr>
</tbody>
</table>
ICAO separation minima

ICAO has specified wake turbulence separation minima - the main ones are reminded below. Refer to ICAO Doc 4444 Air Traffic Management, §5.8 Time-Based Wake Turbulence Longitudinal Separation Minima for additional information.

<table>
<thead>
<tr>
<th>ATR behind...</th>
<th>Departing</th>
<th>Arriving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy</td>
<td>3 min reduced to 2 min (under specific circumstances)</td>
<td>2 min</td>
</tr>
</tbody>
</table>

In case of ATS surveillance systems, the following minima apply. Refer to ICAO Doc 4444 Air Traffic Management, §8.7.3 Separation minima based on ATS surveillance systems.

<table>
<thead>
<tr>
<th>ATR behind...</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy</td>
<td>5 Nm</td>
</tr>
<tr>
<td>Light / medium</td>
<td>3 Nm reduced to 2.5 (under specific circumstances)</td>
</tr>
</tbody>
</table>

**NOTE:** For additional information regarding good practices to avoid wake turbulence, you may refer to FAA publication AC 90-23F Aircraft Wake turbulence (2002).

### 1.3. Reporting procedure

If significant wake turbulence is encountered, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
2. Windshear

**NOTE:** ATR operational documentation reference is FCOM 2.02.08 p22.

### 2.1. Description

Windshear is a notable change in wind direction and/or speed over a short distance.

**NOTE:** The air moves downwards until it hits ground level and then spreads outward in all directions.

Windshear can be encountered in the vicinity of thunderstorms, into rain showers (even without thunderstorms), during a frontal passage or on airports situated near large areas of water (sea breeze fronts).

Severe windshear encountered above 1000 feet, whilst unpleasant, can generally be negotiated safely. However if it is encountered below 500 feet on take off or approach/landing it is potentially dangerous. If a slow moving airplane passes through windshear, the winds can cause it to lose control and plunge toward the ground.

Here is an example of the windshear effects during approach:
2.2. Detection

The following are indications that the aircraft is encountering windshear conditions.

On ground

• Unusual lack of speed acceleration during rolling phase
• Unusual time to reach V1/VR

In flight

Unacceptable flight path deviations recognized as uncontrolled changes from normal steady state flight conditions below 1,000 feet AGL:

• Indicated airspeed variations in excess of 15 kts;
• Groundspeed variations (decreasing head wind or increasing tail wind, or a shift from head wind to tail wind);
• Vertical-speed excursions of 500 ft/mn or more;
• Pitch attitude excursions of 5° or more;
• Glide slope deviation of one dot or more;
• Heading variations of 10° or more; and,
• Unusual Power Lever activity or unusual Power Lever position for a significant period of time;
• Or a combination of all these effects.

2.3. Defence

Effective defence against windshear is performed by:

• Forecasting, recognizing and avoiding windshear,
• Correctly reacting to windshear encountered during the takeoff, initial climb, approach and landing.

2.4. Procedures

2.4.1. Take-off procedure

If a windshear is forecasted or reported, delay the take off.

If a risk of a low-level windshear is expected:

• Calculate VR, V2 for the maximum limiting take-off weight for the day
• Closely monitor the airspeed and airspeed trend during the take-off roll to detect any evidence of impending windshear.

If a windshear is experienced before V1, the take-off must be rejected if unacceptable airspeed variations occur (not exceeding the target V1) and if there is sufficient runway remaining to stop the aircraft.

If a windshear is experienced after lift-off,

PM

Verify power setting.
Verify all required actions have been completed and call any omissions.
Monitor vertical speed and altitude.

PF

Increase pitch to 10°(1), disregarding FD indication.
Apply maximum power.(2)
Do not change the configuration until out of windshear condition.(3)
When positively climbing, retract the gear and return to normal climb profile.(4)
2.4.2. Approach procedure

If a windshear is forecasted or reported, delay the approach.

If a windshear is experienced, abort approach:

<table>
<thead>
<tr>
<th><strong>PM</strong></th>
<th><strong>PF</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify power setting.</td>
<td></td>
</tr>
<tr>
<td>Verify all required actions have been completed and call any omissions.</td>
<td></td>
</tr>
<tr>
<td>Monitor vertical speed and altitude.</td>
<td></td>
</tr>
<tr>
<td>Increase pitch to 10°(^{(1)}), disregarding FD indication.</td>
<td></td>
</tr>
<tr>
<td>Apply maximum power. (^{(2)})</td>
<td></td>
</tr>
<tr>
<td>Do not change the configuration until out of windshear condition. (^{(3)})</td>
<td></td>
</tr>
<tr>
<td>When positively climbing, retract flaps one notch and landing gear then return to normal climb profile. (^{(4)})</td>
<td></td>
</tr>
</tbody>
</table>

\(^{(1)}\) Microburst reduces airspeed and lift at normal attitude which results in a pitch down tendency to regain airspeed. Flight path must be controlled with pitch attitude. 10° pitch attitude is the best compromise, making it to ensure a climbing slope while respecting acceptable high value of AOA. If necessary, increase power to the ramp and increase pitch up to the limit of stick shaker activation.

\(^{(2)}\) Advance the Power Levers to the Ramp, or to the Wall if necessary.

\(^{(3)}\) Leaving the gear down until the climb is established will allow absorbing some energy impact, should a microburst exceed the aircraft capability to climb.

\(^{(4)}\) Positive rate of climb must be verified on at least two instruments.

**NOTE:** For additional information regarding good practices to cope with windshear, you may refer to FAA publication AC 00-54 Pilot Windshear Guide (1988).

2.4.3. Reporting procedure

If significant windshear is encountered, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
3. Approach to stall and stall recovery

**NOTE:** ATR operational documentation references are AFM 4.05 p7 and FCOM 2.02.12 p3.

### 3.1. Description

Stall occurs when the wing’s critical angle of attack is exceeded and lift is reduced substantially due to the airflow separation over the upper surface of the wing.

The secondary stall is a premature increase in angle of attack that results in another stall event during stall recovery, prior to establishing stable flight conditions.

When approaching the stall, there is no noticeable change in the ATR behavior; that is the reason why the aircraft is equipped with two “artificial” devices -stick shaker and stick pusher- based on the angle of attack measurement to detect the approach to stall.

### 3.2. Detection

Natural or artificial clues may be detected as a consequence of an approaching or imminent stall:
- buffet
- reduced roll stability and aileron effectiveness
- low airspeed visual or aural indications
- reduced elevator (pitch) authority
- inability to maintain altitude or rate of descent
- stick shaker that warns the pilot on approaching the stall
- stick pusher if angle of attack continues increasing despite stick shaker alerts

### 3.3. Procedures

#### 3.3.1. Stall procedure

At the first indication of stall (see detection clues above) or in case of effective stall, during any flight phases (except at lift-off), immediately apply the following:
3.3.2. Stick pusher procedure

If angle of attack continues increasing up to the stick pusher angle of attack threshold, the control column is suddenly and abruptly pushed forward. This initiates the stall recovery.

Apply the stall procedure previously described.

Never counteract the stick pusher action.

3.3.3. Procedure at lift-off

Incursion in stick shaker range during lift-off can be generated by:
- Excessive pitch up during rotation
- Excessive rate of pitch rotation
- Turbulences
- Windshear situation

In this case, maintain 10° pitch and when out of the stall warning, follow FD bars.

3.3.4. Reporting procedure

If stall is experienced, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
4. Unusual attitude recovery

4.1. Bounce landing

4.1.1. Description
Bounce landing results from either too much speed or too high slope, or both of them, on final approach.

4.1.2. Defence
To avoid bounce landing, decide to go-around if the plane is not stabilized. Refer to 02.01.09. Stabilization policy for detailed stabilization criteria.

4.1.3 Procedure
- Apply an immediate go-around
- Never try to land
- Never push the control column forward

4.2. Upset

4.2.1 Description
An upset is generally defined as unintentionally exceeding the following conditions:
- pitch attitude greater than 25° nose up, or
- pitch attitude greater than 10° nose down,
- bank angle greater than 45°,
- or within the above parameters but flying at airspeeds inappropriate for the conditions,
- or a combination of the above events,
- or a spatial disorientation.

IMPORTANT: Crew members have to recover from an upset anytime the aircraft is diverging from what it was expected to do.

Such situations rarely occur, but may be encountered when flying into a large aircraft wake vortex, a rotor downwind of a mountain, severe turbulence or mechanical failure...

The following procedures give a logical process to recover the aircraft. They are guidelines that have to be considered and used depending on the situation.

Roll may be controlled through a careful use of the rudder only if the wing roll control is inefficient and the aircraft not stalled.

IMPORTANT: Excessive use of rudder may worsen an upset situation or may result in a loss of control and/or high structural loads.

If the aircraft is stalled, recovery from the stall must be performed at first. Refer to 03.01.03. Approach to stall and stall recovery.
4.2.2. Nose Up

Detection
Steep nose up and possible high bank
Speed reducing rapidly

Eyebrow: guidance to nose down

Procedure

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONITOR ATTITUDE, AIRSPEED AND ALTITUDE THROUGHOUT THE RECOVERY. VERIFY ALL REQUIRED ACTIONS HAVE BEEN COMPLETED AND CALL ANY OMISSIONS.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHEN NOSE IS BELOW THE HORIZON</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL COLUMN .................................. PUSH FOLLOW EYEBROW IF IT APPEARS</td>
</tr>
<tr>
<td>PL .................................. ADVANCE TO RAMP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL WHEEL ...... ROLL TO WINGS LEVEL STOP DESCENT</td>
</tr>
<tr>
<td>PL .................................................. ADJUST</td>
</tr>
</tbody>
</table>

4.2.3. Nose Down

Detection
Steep nose down and possible high bank
Speed increasing rapidly

Eyebrow: guidance to nose up
### Procedure

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONITOR ATTITUDE, AIRSPEED AND ALTITUDE THROUGHOUT THE RECOVERY. VERIFY ALL REQUIRED ACTIONS HAVE BEEN COMPLETED AND CALL ANY OMISSIONS.</td>
<td></td>
<td>FLIGHT IDLE CONTROL WHEEL.......ROLL TO WINGS LEVEL</td>
</tr>
<tr>
<td>WHEN NOSE IS ON THE HORIZON</td>
<td></td>
<td>PULL BACK SMOOTHLY FOLLOWING EYEBROW IF IT APPEARS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STABILIZE THE TRAJECTORY</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PL.................................................... ADJUST</td>
</tr>
</tbody>
</table>

#### 4.3. Reporting procedure

If unusual attitude is experienced, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
5. Crew member incapacitation

5.1. Description

Crew member incapacitation is defined as any condition which affects the health of a crew member during the flight phase and which decreases his skill for the assigned tasks.

Incapacitation is a real air safety hazard, which occurs more frequently than many of the other emergencies, which is the subject of routine training. Incapacitation can occur in many forms varying from obvious sudden death to subtle, partial loss of function. It occurs in all age groups and during all phases of flight and may not be preceded by any warning.

5.2. Detection

The critical operational problem is early recognition of the incapacitation. The keys for immediate recognition of incapacitation are:

- Routine monitoring and cross-checking of flight instruments, particularly during critical phases of flight, such as take-off, climb out, descent, approach, landing and go-around.

- If a crew member does not respond appropriately to two verbal communications, or if a crew member does not respond to a verbal communication associated with a significant deviation from a standard flight profile.

Other symptoms of the beginning of an active incapacitation are:

- incoherent speech
- strange behaviour
- irregular breathing
- pale fixed facial expression
- jerky motions that are either delayed or too rapid

NOTE: If a crew member feels sick, he must inform the other crew member and transfer the flying task.

5.3. Procedure

The recovery from any detected incapacitation of a crew member shall follow the following sequence.

Flight

The remaining pilot must ensure the control and resume the aircraft to a safe flight path. He has to call “MY CONTROL” and use Autopilot and headset.

Incapacitation

The remaining pilot must ensure that the incapacitated pilot cannot interfere with the aircraft control. He must call a cabin crew to lock the sick pilot on his flight crew seat. If the cockpit door is locked, the assisting cabin crew will apply the relevant procedure to unlock the system, and provide first aid.
Organization and communication

**REMAINING PILOT**

- AP ON
- Coupling on remaining pilot
- Resume to a safe flight path
- Headset ON
- Flight attendant call
- Message “MAYDAY” to ATC
- Situation assessment
- Decision
- Report decision to ATC

The remaining pilot must land as soon as possible on an suitable airport, taking into account incapacitated pilot state of health, airport equipments (prefer airport with ILS approach), weather and runway conditions, knowledge of airport by the remaining pilot (...), and request medical assistance:

“MAYDAY, MAYDAY, MAYDAY, (CALL SIGN) EXPERIENCING CREW INCAPACITATION, REQUEST MEDICAL ASSISTANCE ON LANDING”

The remaining pilot must:
- perform PF and PM tasks
- verify and calls loudly all actions
- perform all checklists loudly
6. Rudder Use

6.1. General

On February 8th, 2002, the National Transportation Safety Board (NTSB), in cooperation with the French “Bureau Enquêtes Analyse” (BEA), issued recommendations for aircraft manufacturers to re-emphasize the structural certification requirements of the rudder and vertical stabilizer, showing some maneuvers which can result in exceeding design limits and even lead to structural failures.

In this perspective, AFM 2.03 p1 and FCOM 2.01.03 p1 now states:

“Caution: Rapidly alternating large pedal applications in combination with large sideslip angles may result in structural failure at any speed”.

6.2. Rudder good practices

The rudder may be used:

- In normal operations, for directional control:
  - During the take-off roll, when on ground, especially in crosswind conditions.
  - During the landing flare with crosswind, for de-crab maneuver.
  - During the landing roll, when on the ground.
  - The rudder may be used for turn coordination, as deemed necessary, to prevent excessive sideslip.

- In some other abnormal situations:
  - Full rudder deflection can be used to offset the yawing moment of an asymmetric thrust.
  - Runaway rudder trims: the rudder pedals may be used to move the rudder to the neutral position.
  - Aileron jam: the rudder may be used to smoothly control the roll.
  - Landing with unsafe indication: the rudder may be used to establish sideslip in an attempt to lock the landing gear down by aerodynamic side forces.
  - Landing gear not locked down: the rudder can be used for directional control on the ground.

For the above mentioned maneuvers proper rudder usage will not affect the aircraft structural integrity.

The rudder must not be used:
- To induce roll, except for aileron jam.
- To counteract turbulence.
- During stall recovery as it can worsen the situation.
7. Managing TAWS

On the ATR, the Terrain Awareness Warning System (TAWS) is called the Enhanced Ground Proximity Warning System (EGPWS).

A pilot must never fly in a situation which may put his aircraft in jeopardy. An immediate reaction against activation of terrain avoidance alarm is vital regarding flight safety. Air disaster analysis shows that crew involved did not trust the terrain avoidance warnings and as a consequence did not take the proper action.

NOTE: Only when flying in daylight VMC, a warning may be ignored if due to specific terrain configuration and in sight of obstacles. The warning can be considered as a caution and the approach can be continued.

IMPORTANT: At night, in IMC or in daylight VMC if obstacles location is unknown, an immediate go-around must be initiated.

To have the details of the existing TAWS alerts and the associated procedures, refer to ATR operational documentation: AFM 3.07 p1 & p2 and FCOM 2.02.16 p1.

Reporting procedure

If a TAWS warning is experienced, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
8. Managing TCAS warnings

NOTE: ATR operational documentation references are AFM 7.01.04 and FCOM 2.01.06.

Traffic alert and Collision Avoidance System is used for detecting and tracking aircraft in the vicinity of your aircraft. By interrogating their transponders, it analyzes the replies to determine range, bearing, and if reporting altitude, the relative altitude of the intruder. When the TCAS processor determines that a possible collision hazard exists, it issues visual and aural advisories to the crew for appropriate vertical avoidance maneuvers.

There are two types of cockpit displays:

• Traffic Advisory (TA)
• Resolution Advisory (RA)

NOTE: TCAS is unable to detect any intruding aircraft without an operating transponder or in case of transponder failure. In case of TCAS resolution, ATC is not responsible for aircraft separation until resuming the initial clearance.

8.1. Traffic Advisory

8.1.1. Description

Traffic Advisory informs the pilot of any surrounding traffic. The TA display shows the intruding aircraft’s relative position and altitude with the trend arrow indicating if it is climbing or descending at a rate greater than 500 ft/mn. The TA display identifies the relative threat of each intruder by using various symbols and colors and provides appropriate synthetic voice call-outs.

**Non-threat traffic advisory**
Information about any non-threatening traffic in the vicinity.

**Proximity intruder traffic advisory**
Information about any traffic in the proximity.

**“TRAFFIC TRAFFIC”**
Information about intruding aircraft considered potentially hazardous. The crew should attempt to establish visual contact with the intruder and assess the potential collision risk.
### 8.1.2. Procedure

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;TRAFFIC, TRAFFIC&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;TCAS, MY (YOUR) CONTROL&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CALL</td>
<td>DO &amp; CALL</td>
<td></td>
</tr>
<tr>
<td>&quot;TRAFFIC IN SIGHT&quot; or &quot;NO VISUAL&quot;</td>
<td>VSI ........................................ CHECK</td>
<td></td>
</tr>
<tr>
<td>&quot;3 O’CLOCK, 500 FT BELOW&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DO</td>
<td>SEAT BELTS ............................... ON</td>
<td></td>
</tr>
</tbody>
</table>

**IMPORTANT:** At this step, the crew must take no evasive action, have to remain on the same route, maintain the autopilot ON, even if the opposite traffic is in sight.

**NOTE:** Traffic advisory may become a RA within 15 seconds.
If the intruder is Non-Altitude Reporting the traffic symbol appears without an altitude number or trend arrow. The type of symbol selected by TCAS is based on the intruder location and closing rate.

**IMPORTANT:** The crew must not turn his overall attention to establish the visual contact with the intruder. The crew must be available for a potential RA.

### 8.2. Resolution Advisory

#### 8.2.1. Description

Resolution Advisory warns the pilot on the vertical maneuver to carry on to avoid collision with the surrounding traffic. Red and green areas are displayed around the VSI dial to indicate the required rate, or limitation of climb or descent to avoid a possible collision.

Resolution Advisories can be preventive or corrective:
- Preventive advisories require that NO action be taken to alter the flight path of the aircraft. Vertical Speed has to remain outside the red arc.
- Corrective advisories require the crew to act following the green arc indication on the VSI and escaping the red arc (when Vertical Speed is currently in the red arc).

Combined with the Resolution Advisory, the TCAS triggers an aural synthetic voice call-out describing the avoidance maneuver required.
### Resolution Advisory Commands

<table>
<thead>
<tr>
<th>Resolution Advisory</th>
<th>Downward</th>
<th>Upward</th>
<th>Vertical Speed Required (VS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Preventive RA</td>
<td>&quot;Monitor Vertical Speed&quot;</td>
<td>&quot;Monitor Vertical Speed&quot;</td>
<td>0</td>
</tr>
<tr>
<td>Corrective RA</td>
<td>&quot;Descend, Descend&quot;</td>
<td>&quot;Climb, Climb&quot;</td>
<td>Monitor</td>
</tr>
<tr>
<td>Any Strengthening of AN RA</td>
<td>&quot;Increase Descent, Increase Descent&quot;</td>
<td>&quot;Increase Climb, Increase Climb&quot;</td>
<td>±2500 ft/min</td>
</tr>
<tr>
<td>Any Weakening or Softening of AN RA</td>
<td>&quot;Adjust Vertical Speed, Adjust&quot;</td>
<td>&quot;Adjust Vertical Speed, Adjust&quot;</td>
<td>±1500 ft/min</td>
</tr>
<tr>
<td>Opposite RA</td>
<td>&quot;Descend, Descend Now&quot;</td>
<td>&quot;Climb, Climb Now&quot;</td>
<td>Adjust</td>
</tr>
<tr>
<td>Crossover RA</td>
<td>&quot;Descend, Crossing, Descend, Descend, Crossing, Descend&quot;</td>
<td>&quot;Climb, Crossing Climb, Climb, Crossing Climb&quot;</td>
<td>±2500 ft/min</td>
</tr>
<tr>
<td>Maintain Existing Vertical Speed RA</td>
<td>&quot;Maintain Vertical Speed, Maintain&quot;</td>
<td>&quot;Maintain Vertical Speed, Maintain&quot;</td>
<td>±1500 ft/min</td>
</tr>
<tr>
<td>Maintain Existing Vertical Speed While Crossing Threat's Altitude</td>
<td>&quot;Maintain Vertical Speed, Crossing Maintain&quot;</td>
<td>&quot;Maintain Vertical Speed, Crossing Maintain&quot;</td>
<td>Maintain ±4400 ft/min &gt;Vs &gt; ±1500 ft/min</td>
</tr>
<tr>
<td>Vertical Speed Restricted</td>
<td>&quot;Adjust Vertical Speed, Adjust&quot;</td>
<td>&quot;Adjust Vertical Speed, Adjust&quot;</td>
<td>Adjust</td>
</tr>
<tr>
<td>End of RA</td>
<td>&quot;Clear of Conflict&quot;</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**Important:** Resolution Advisories commands are based on aircraft performance assumed within a flight envelope defined during the TCAS certification. When the current conditions are outside the flight envelope, the RA commands may not be appropriate. In any case, stall warning must take precedence above before RAs commands.

**8.2.2. Procedure**

In response to the Resolution Advisory, PF must maneuver the aircraft promptly (within 5 seconds) and smoothly. **The autopilot must be disconnected before responding to the RA.**
Flight events

RA COMMAND TRIGGERED

▶ DO & CALL
ATC ............................................ CALL
“XXX CONTROL, CALL SIGN”
“TCAS RESOLUTION”
or “TCAS RA”

if climb
▶ DO
PWR MGT ........................................ MCT
▶ DO
SEAT BELTS ....................................... ON

CLEAR OF CONFLICT

▶ DO & CALL
ATC ............................................ CALL
“XXX CONTROL, CALL SIGN, CLEAR OF
CONFLICT, RESUMING TO FL/ALT”

▶ DO
PWR MGT ....................................................... MCT
▶ DO
SEAT BELTS ........................................ ON

▶ DO & CALL
ATC ............................................ CALL
“XXX CONTROL, CALL SIGN”
“TCAS RESOLUTION”
or “TCAS RA”

▶ DO
PITCH .......................................... INITIALLY ±3°
then
VSI ........................................ FOLLOW GREEN ARC
PL ........................................ AS RQRD

▶ DO
FLIGHT PATH RESUME TO INITIAL FL/ALT (1)
AP ...................................................... ON

(1) If initially in level flight, promptly but smoothly return to the previously assigned altitude unless otherwise directed by ATC.
If previously climbing or descending resume the planned climb or descent unless otherwise directed by ATC.

IMPORTANT:

Do not follow the Flight Director and do not change the altitude selected on AFCS. Control the aircraft only with a pitch attitude to obtain the commanded vertical speed.

Average pitch attitudes are:
• ±5° for climb or descent orders
• ±8° for increase climb or increase descent orders
• ±1° for adjust vertical speed orders (following climb or descent initial orders)
• for all other cases follow green arc indication

Do not over react to a Resolution Advisory.

Two TCAS equipped aircraft will coordinate their Resolution Advisories using a Mode S transponder air-to-air data link. The coordination ensures that complementary advisories are issued in each aircraft. Since maneuvers are coordinated, the crew must never maneuver in the opposite direction of the advisory. TCAS resolution has absolute priority over ATC orders.

8.3. Reporting procedure

If a TCAS warning is experienced, it must be reported to Air Traffic Control immediately and an air safety report must be completed after the flight.
9. Managing APM advisories

The Aircraft Performance Monitoring (APM) function is to monitor the aircraft drag in icing conditions in order to alert the crew of a risk of severe icing conditions. The speed in cruise will be also monitored to alert the crew of an abnormal speed decrease in icing conditions. The APM will check also that the Minimum Severe Icing Speed (MSIS) is respected.

The APM allows improved ice accretion monitoring. Icing drastically decreases the aircraft performance: an abnormal increase in drag can be due to ice accretion on the aerodynamical surfaces of the aircraft. Monitoring the aircraft performance is thus an efficient means of ice detection.

The APM enables to compare the aircraft theoretical drag with the in-flight drag computed with the measured parameters, and therefore to detect if an abnormal loss of aircraft performance occurs.

The APM is activated in icing conditions, i.e. when ICING AOA is illuminated, or if the airframe deicing is activated, or if ice accretion has been detected, and aims at alerting the crew of a risk of severe icing conditions, through three different levels of alert:

- CRUISE SPEED LOW
- DEGRADED PERF.
- INCREASE SPEED

The associated C/L are found in the QRH, under MPC normal and following failures procedures.

The APM analysis is conducted if the aircraft is in icing conditions, that is to say if the ICING AOA is illuminated and/ or if the airframe de-icing is selected ON and/ or if ice accretion has been detected.

The APM is deactivated when gears and flaps are extended, if one engine is failed, or if the Outside Air Temperature is above 10°C.

To have more details on the alerts activation conditions, refer to the operational documentation: AFM 7.01.15 and FCOM 2.02.21 p5 to 13.
1. On ground engine fire

The procedure below starts at the controls transfer. For the beginning of the take-off procedure, please refer to 02.02.10. Take-off.

**Flight events**

**PM**

- CALL
  
  "MY CONTROL"

  Control through rudder pedals and control wheel & column.

**PF**

- CALL
  
  "ENGINE FIRE"

**Flight events**

**CM1**

- CALL
  
  "STOP!"

- DO
  
  PL 1 & 2 .................... GI/REV AS RQRD
  
  BRAKES .................... APPLY AS RQRD

  If possible, stop the aircraft to get the engine on fire headwind or to leeward.

**CM2**

- DO
  
  MASTER WARNING .................. CANCEL

  CONTROL COLUMN .......... HOLD AS RQRD

- TRANSMIT on VH1
  
  "MAYDAY, MAYDAY, MAYDAY, (CALLSIGN), ENGINE FIRE, ABORTED TAKE OFF"

- CALL on Public Address
  
  "PLEASE, REMAIN SEATED, CABIN CREW AT STATION"
**Flight events**

**CM1**

- **AIRCRAFT STOPPED**
  - **DO**
    - PARKING BRAKE ....................... ON
  - **CALL & DO**
    - "ON GROUND ENG FIRE OR SEVERE MECHANICAL DAMAGE MEMO ITEMS"
      - CL 1 & 2 ..................... FTR THEN FUEL S.O.
      - FIRE HANDLE affected side .......... PULL
      - AGENT 1 affected side .......... DISCHARGE
      - TIMING .......................... START
  - **IF FIRE AFTER FURTHER 30 SECONDS**
    - AGENT 2 affected side .......... DISCHARGE
  - **CALL & REQUIRE**
    - "MEMO ITEM COMPLETE, ON GROUND ENG FIRE OR SEVERE MECHANICAL DAMAGE CHECKLIST"

- **DO & CALL**
  - C/L POINTED AT BY CM2 .......... CHECK
    - "CONFIRM"

**CM2**

- **DO**
  - QRH ..... OPEN to ON GROUND ENG FIRE C/L
  - TIMING .......................... START

- **CALL & READ**
  - "ON GROUND ENG FIRE OR SEVERE MECHANICAL DAMAGE C/L?"
  - Refer to QRH 1.02

- **DO, CALL & READ**
  - "YES OR NO?"

**EVACUATION NOT REQUIRED**

- **REPLY**
  - "NO"

**EVACUATION REQUIRED**

- **REPLY & REQUIRE**
  - "YES, ON GROUND EMERGENCY EVACUATION CHECKLIST"

- **DO & CALL**
  - C/L POINTED AT BY CM2 .......... CHECK
    - "CONFIRM"

**CAPTAIN**

- **CALL**
  - "WE EVACUATE"
  - Then, on Public Address
    - "EVACUATION, EVACUATION, EVACUATION"

- **DO & CALL**
  - BATTERY .......................... OFF
    - "BATTERY OFF"

- **READ**
  - BAT: .......................... OFF

- **CALL**
  - "ON GROUND EMERGENCY EVACUATION CHECKLIST COMPLETE"
2. Engine fire at take-off

In the following, PF is seated on the right side. The procedure below starts at the controls transfer. For the beginning of the take-off procedure, please refer to 02.02.10. Take-off.

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>

**REACHING V1**

- CALL “V1”
- CM1

- CALL
- CM1

**REACHING VR**

- CALL “ROTATE”

- CALL
- CM1

**POSITIVE RATE**

- CALL “POSITIVE RATE”

- COMMAND “GEAR UP”

- CALL
- CM1

**ENGINE FIRE**

- CALL “ENGINE FIRE”

- COMMAND “CHECK”

- CALL
- CM1

**ALL LDG GEAR LIGHTS EXTINQUISHED**

- CALL “GEAR UP”

For training only
In case of high published acceleration altitude, Captain may decide to start Memory Items before reaching it but never below 400 ft AAL.

**CALL**

"ACCELERATION ALTITUDE"

**DO & CALL**

PWR MGT ............................ MCT
TQ / NP ............................ CHECK / ADJUST
"MCT SET"

**DO & CALL**

IAS ...................... INCREASE TO WHITE BUG
"IAS XXX SET"

**DO & CALL**

SPEED BUG .............................. WHITE BUG
"WHITE BUG SET"

**COMMAND**

"SET MCT"

**COMMAND**

"INCREASE IAS TO WHITE BUG"

**COMMAND & DO**

"SET SPEED BUG WHITE BUG"
SPEED BUG .............................. WHITE BUG

**REACHING WHITE BUG**

**CALL**

"WHITE BUG"

**DO**

FLAPS .............................. AS RQRD

**COMMAND**

"NORMAL CONDITIONS, FLAPS 0"
or
"ICING CONDITIONS, MAINTAIN FLAPS 15"

**FLAPS 0°/15° ON INDICATOR**

**CALL**

"FLAPS 0" Normal conditions
"MAINTAIN FLAPS 15" Icing conditions

**DO**

PL POINTED AT BY PF ...................... CHECK
"CONFIRM"

**DO & CALL**

CL 1 (or 2) ............................ POINT
"CL 1 (OR 2)?"

**DO & CALL**

CL 1 (or 2) ............................ FTR then FUEL S.O.
"FEATHER, FUEL SHUT-OFF"
Shut-off step by step. Stay 1 sec in FTR position before setting CL to Fuel S.O.

**DO & CALL**

FIRE HANDLE 1 (or 2) ................. POINT
"FIRE HANDLE 1 (OR 2)?"

**DO & CALL**

FIRE HANDLE 1 (or 2) ....................... PULL
"PULLED"
TIMING ................................. START

**DO & CALL**

PL 1 (or 2) ............................ POINT
"PL 1 (OR 2)?"

**DO & CALL**

CL 1 (or 2) ............................ POINT
"FLIGHT IDLE"

**DO & CALL**

CL POINTED AT BY PM ..................... CHECK
"CONFIRM"

**DO & CALL**

FIRE HANDLE POINTED AT BY PM ............... CHECK
"CONFIRM"
**Flight events**

### 10 SEC AFTER FIRE HANDLE PULLED

- **PM**
  - Do & Call
    - Agent 1: "10 SECONDS, AGENT 1?"
  - Do
    - Agent 1: DISCHARGE

### 1ST DISCH AMBER LIGHT ON FIRE PANEL

- **PM**
  - Call
    - "DISCHARGED"
  - Monitor
    - Time: MONITOR 30"

### IF FIRE REMAINS AFTER 30 SEC

- **PM**
  - Do & Call
    - Agent 2: "30 SECONDS, AGENT 2?"
  - Do & Call
    - Agent 2: DISCHARGE
  - Call
    - "BLEED ENGINE ALIVE OFF, YES OR NO?"

### 2ND DISCH AMBER LIGHT ON FIRE PANEL

- **PM**
  - Call
    - "MEMO ITEMS COMPLETE"

### ENGINE FIRE AT TAKE-OFF CHECKLIST COMPLETE

- **PM**
  - Do & Call
    - Cap: "CAP CLEARED"
  - Call & Read
    - "AFTER TAKE-OFF CHECKLIST"
      - Refer to QRH 6.01
    - "AFTER TAKE-OFF CHECKLIST COMPLETE"

- **PF**
  - Do & Call
    - Agent pointed at by PM: CHECK "CONFIRM"
  - Request
    - "RADIO RIGHT SIDE"
  - Transmit on VH1: "MAYDAY, MAYDAY, MAYDAY, (CALL SIGN), ENGINE FIRE, I'LL CALL YOU BACK"

- **PM**
  - Do & Call
    - Agent pointed at by PM: CHECK "CONFIRM"

- **PF**
  - Do & Call
    - Bleed pointed at by PM: CHECK "NO" (or "YES")

- **PM**
  - Do, Call & Read
    - Eng Fire at To C/L: "ENG FIRE AT TAKE-OFF CHECKLIST?"
      - Refer to QRH 1.02A
    - Call
      - "ENG FIRE AT TAKE-OFF CHECKLIST COMPLETE"

Any pilot shall call "FIRE STOPPED" as soon as the red light disappears on CAP/FIRE HANDLE.

### REQUIREMENTS

- **PM**
  - Do & Call
    - Cap: "CAP CLEARED"
  - Call & Read
    - "AFTER TAKE-OFF CHECKLIST"
      - Refer to QRH 6.01
    - "AFTER TAKE-OFF CHECKLIST COMPLETE"

- **PF**
  - Do & Call
    - Cap: "CLEAR CAP"
  - Request
    - "AFTER TAKE-OFF CHECKLIST"
  - Require
    - "SINGLE ENG OPERATION CHECKLIST"
      - Continue with Single Engine operation.
3. Engine Flame Out at take-off

In the following, PF is seated on the right side. The procedure below starts at the controls transfer. For the beginning of the take-off procedure, please refer to 02.02.10. Take-off.

**Flight events**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "MY CONTROL"
Control through rudder pedals and control wheel & column. |

**REACHING V1**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "V1"
CM1 |
| "DO" | PL 1 & 2 .......................... RELEASE |

**REACHING VR**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "ROTATE"
|
| "DO" | PITCH ............................. ROTATE TO 8°
FD BARS ............................. FOLLOW |

**ENGINE FLAME OUT**

First CM who detects the engine failure calls loudly "ENGINE FAILURE"
The detection clues are:
- **PF**: Unexpected roll and dissymmetric handling
- **PM**: abnormal engine parameters (TQ decrease, rapid ITT decrease)
And the other CM acknowledges with "CHECK"

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "ORDER" | "ENGINE FLAME OUT AT TAKE-OFF MEMO ITEMS"
|

**POSITIVE RATE**

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "POSITIVE RATE"
|
| "DO & CALL" | LANDING GEAR.......................... UP
TAXI & T.O. LIGHTS .......................... OFF
UPTRIM GREEN LIGHT ENG 2 (or 1) CHECK
AUTOFEATHER ENG 1 (or 2) ........... CHECK
BLEEDS FAULT............................... CHECK
ILLUMINATED "UPTRIM, AUTOFEATHER, BLEEDS FAULT LIT"
|

**PASSING ACCELERATION ALTITUDE**

(mini 400 ft AAL or higher if requested)

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "ACCELERATION ALTITUDE"
|
| "DO & CALL" | ALT.............................. ENGAGE
"ALT GREEN"
|
| "DO & CALL" | SPEED BUG .......................... WHITE BUG
"WHITE BUG SET"
|

**ORDER**

"ENGINE FLAME OUT AT TAKE-OFF MEMO ITEMS"

**COMMAND**

"GEAR UP"

If no UPTRIM, PF orders PL 1 & 2 to the ramp.
If bleed fault not illuminated, order BLEED 1 (or 2) OFF.

<table>
<thead>
<tr>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
</table>
| "CALL" | "RADIO RIGHT SIDE"
|
| "TRANSMIT" | "MAYDAY, MAYDAY, MAYDAY, (CALL SIGN), ENGINE FLAME OUT, I'LL CALL YOU BACK"

**COMMAND & DO**

"SET SPEED BUG WHITE BUG"

SPEED BUG .......................... WHITE BUG

FOR TRAINING ONLY
Flight events

**REACHING WHITE BUG**

- **CALL**
  - "WHITE BUG"

- **DO & CALL**
  - PL 1 & 2 ............... CHECK IN THE NOTCH
  - PWR MGT ................. MCT
  - TO / NP .................. CHECK / ADJUST
  - **"MCT SET"**

- **DO & CALL**
  - IAS MODE .................. ENGAGE
  - **"IAS XXX SET"**

- **DO**
  - FLAPS .................. AS RQRD

**FLAPS 0°/15° ON INDICATOR**

- **CALL**
  - "FLAPS 0°" Normal conditions
  - **"MAINTAIN FLAPS 15°" Icing conditions**

**FLIGHT PATH STABILIZED**

- **DO & CALL**
  - PL POINTED AT BY PF ......... CHECK
  - **"CONFIRM"**

- **DO & CALL**
  - CL 1(or 2) .................. POINT
  - **"CL 1 (OR 2)?"**

- **DO & CALL**
  - CL 1 (or 2) ............... RETARD GENTLY TO FI "FLIGHT IDLE"

- **CALL**
  - "MEMO ITEMS COMPLETE"

- **DO, CALL & READ**
  - ENG FLAME OUT AT TO C/L .......... POINT
  - **"ENGINE FLAME OUT AT TAKE-OFF CHECKLIST?"**

  Refer to QRH 1.03

- **CALL**
  - " ENG FLAME OUT AT TAKE-OFF CHECKLIST COMPLETE"

**ENGINE FLAME OUT AT TAKE-OFF CHECKLIST COMPLETE**

- **DO & CALL**
  - CAP .................. CLEAR
  - **"CAP CLEARED"**

- **CALL & READ**
  - "AFTER TAKE-OFF CHECKLIST"
  - Refer to QRH 6.01
  - **"AFTER TAKE-OFF CHECKLIST COMPLETE"**

**PF**

- **DO, CALL & COMMAND**
  - PL 1 & 2 ............... CHECK IN THE NOTCH
  - **"PL IN THE NOTCH, SET MCT"**

- **COMMAND**
  - "SET IAS"

- **COMMAND**
  - "NORMAL CONDITIONS, FLAPS 0°"
  - or "ICING CONDITIONS, MAINTAIN FLAPS 15°"

- **DO & CALL**
  - PL POINTED AT BY PF ......... POINT
  - **"PL 1 (OR 2)?"**

- **DO & CALL**
  - PL 1 (or 2) ......... RETARD GENTLY TO FI "FLIGHT IDLE"

- **DO & CALL**
  - CL POINTED AT BY PM .......... CHECK
  - **"CONFIRM"**

- **REQUIRE**
  - "ENGINE FLAME OUT AT TAKE-OFF CHECKLIST"

- **DO & CALL**
  - C/L POINTED AT BY PM .......... CHECK
  - **"CONFIRM"**

- **DO & CALL**
  - CAP .......... CROSS-CHECK WITH LOCAL ALERTS
  - **"CLEAR CAP"**

- **REQUIRE**
  - "AFTER TAKE-OFF CHECKLIST"

- **REQUIRE**
  - "SINGLE ENG OPERATION CHECKLIST"

  Continue with Single Engine operation.

---

FOR TRAINING ONLY
4. Single Engine Operation

In the following, PF is seated on the right side.

**Single Engine Operation C/L ........... POINT “SINGLE ENGINE OPERATION CHECKLIST?”**

- **Q Rh 2.04**
  - LAND ASAP
  - PWR MGT .......... TO if necessary then MCT
  - FUEL PUMP affected side .................. OFF
  - FUEL PUMP 1 (or 2) ....................... POINT “FUEL PUMP 1 (OR 2)?”
  - FUEL PUMP 1 (or 2) ...................... OFF “OFF”
  - DC GEN affected side ...................... OFF
  - DC GEN 1 (or 2) ............................ POINT “DC GEN 1 (OR 2)?”
  - DC GEN 1 (or 2) ............................ OFF “OFF”
  - ACW GEN affected side ..................... OFF
  - ACW GEN 1 (or 2) ............................ POINT “ACW GEN 1 (OR 2)?”
  - ACW GEN 1 (or 2) ............................ OFF “OFF”
  - PACK affected side .......................... OFF
  - PACK 1 (or 2) ............................... POINT “PACK 1 (OR 2)?”
  - PACK 1 (or 2) ............................... OFF “OFF”
  - BLEED affected side ......................... OFF
  - BLEED 1 (or 2) ............................... POINT “BLEED 1 (OR 2)?”
  - BLEED 1 (or 2) ............................... OFF “OFF”
  - APM .......................................... OFF “APM OFF”
  - TCAS ......................................... TA ONLY “TCAS TA ONLY”
  - OIL PRESSURE ON FAILED ENGINE ........... MONITOR

**REQUIRE “SINGLE ENGINE OPERATION CHECKLIST”**

**DO & CALL**
- C/L POINTED AT BY PM ...................... CHECK “CONFIRM”

**DO & CALL**
- FUEL PUMP POINTED AT BY PM .... CHECK “CONFIRM”

**DO & CALL**
- DC GEN POINTED AT BY PM ............ CHECK “CONFIRM”

**DO & CALL**
- ACW GEN POINTED AT BY PM .......... CHECK “CONFIRM”

**DO & CALL**
- PACK POINTED AT BY PM .............. CHECK “CONFIRM”

**DO & CALL**
- BLEED POINTED AT BY PM .......... CHECK “CONFIRM”
NOTE: Refer to QRH 2.04.

- If FUEL CROSSFIELD is required
  "YES OR NO?"

**APPROACH IS INITIATED (OR BEFORE, ON CAPTAIN’S DECISION)**

- CALL, READ & DO
  - For approach
    BLEEP not affected.......................... OFF
    BLEEP 2 (or 1)................................. POINT
    "BLEED 1 (OR 2)?"

  - BLEEP 2 (or 1)................................. OFF
    "OFF"
  - CL live engine ............................. 100% OVRD
  - VAPP .......................... NOT LESS THAN 1.1 VMCA
  "SINGLE ENGINE OPERATION CHECKLIST COMPLETE"

**SINGLE ENGINE OPERATION CHECKLIST COMPLETE**

- CALL
  "RADIO RIGHT SIDE"

- DO & CALL
  FUEL UNBALANCE ......................... CHECK
  "NO"
If Yes, follow checklist, using the methodology detailed previously.

- DO & CALL
  BLEEP POINTED AT BY PM ................. CHECK
  "CONFIRM"

- DO
  RECALL ......................................... PRESS
  SITUATION .................................. ASSESS
  Refer to 01.04.04. Assessment / Decision / Information

- CALL
  "RADIO LEFT SIDE"
5. Single Engine Go-around

<table>
<thead>
<tr>
<th>Flight events</th>
<th>PM</th>
<th>PF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DA/ MDA +30</strong></td>
<td>▶ CALL &quot;MINIMUM&quot;</td>
<td>▶ CALL &amp; DO GO-AROUND, SET POWER, FLAPS ONE NOTCH</td>
</tr>
<tr>
<td>RUNWAY OR APPROACH LIGHTS NOT IN SIGHT OR ANY OTHER UNEXPECTED EVENTS</td>
<td>▶ DO FLAPS ................................. 15° (25°) TQ .......................... CHECK / ADJUST GA</td>
<td>GA PB ON PL .......................... DEPRESS PITCH .......................... ROTATE TO +8° NOSE UP PL .......................... ADVANCE TO RAMP CAVALRY CHARGE .......................... CANCEL</td>
</tr>
<tr>
<td><strong>FLAPS 15° (25°) ON INDICATOR</strong></td>
<td>▶ CALL &quot;POWER SET, FLAPS 15 (25)&quot;</td>
<td>▶ COMMAND GEAR UP, HEADING LOW BANK, IAS VGA</td>
</tr>
<tr>
<td>POSITIVE RATE</td>
<td>▶ CALL &quot;POSITIVE RATE&quot;</td>
<td>▶ CALL &quot;CHECK&quot;</td>
</tr>
</tbody>
</table>
| ▶ DO & CALL LANDING GEAR ......................... UP  HEADING MODE ....................... ENGAGE  LOW BANK ......................... ENGAGE  IAS ...................................... VGA  TAXI & T.O. LIGHTS ....................... OFF "HDG LOW, IAS XXX SET" | ▶ COMMAND & DO SET SPEED BUG VGA  
SPEED BUG ...................................... VGA |
| ▶ DO & CALL SPEED BUG ................................... VGA  "XXX SET" | ▶ COMMAND & DO SET SPEED BUG WHITE BUG  
SPEED BUG ...................................... VGA |
| **ALL LDG GEAR LIGHTS EXTINGUISHED**            | ▶ CALL "GEAR UP"                        | ▶ COMMAND "SET ALT"                     |
| ▶ CALL "ACCELERATION ALTITUDE"                 | ▶ CALL "CHECK"                          | ▶ CALL "CHECK"                          |
| (mini 1000ft AAL or higher if requested)       | ▶ DO ALT ..................................... ENGAGE "ALT GREEN" | ▶ COMMAND "SET ALT"                     |
| **REACHING WHITE BUG OR VGA +15, WHICHEVER LOWER** | ▶ CALL "WHITE BUG / VGA +15"            | ▶ COMMAND "FLAPS 15"                    |
| ▶ DO FLAPS ......................................... 15° | ▶ COMMAND & DO SET SPEED BUG WHITE BUG  
SPEED BUG ...................................... WHITE BUG |
| **FLAPS 15° ON INDICATOR**                      | ▶ CALL "FLAPS 15"                       | ▶ COMMAND & DO SET SPEED BUG WHITE BUG  
SPEED BUG ...................................... WHITE BUG |
| ▶ DO & CALL SPEED BUG ................................... WHITE BUG "WHITE BUG SET" | ▶ COMMAND & DO SET SPEED BUG WHITE BUG  
SPEED BUG ...................................... WHITE BUG |

FOR TRAINING ONLY
Flight events

REACHING WHITE BUG

▶ CALL
  "WHITE BUG"

▶ DO & CALL
  PL 1 & 2 ............... CHECK IN THE NOTCH
  PWR MGT ........................................ MCT
  TQ / NP ...................... CHECK / ADJUST
  "MCT SET"

▶ DO & CALL
  IAS MODE ......................... ENGAGE
  "IAS XXX SET"

▶ DO
  FLAPS ................................ AS RQRD

FLAPS 0°/15° ON INDICATOR

▶ CALL
  "FLAPS 0" Normal conditions
  "MAINTAIN FLAPS 15" Icing conditions

Continue with after take-off checklist.
6. Emergency Descent

In the following, PF is seated on the right side.

**Flight events**

<table>
<thead>
<tr>
<th>Event</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOSS OF PRESSURIZATION OR STRUCTURAL DAMAGE</td>
<td></td>
</tr>
<tr>
<td><strong>DO &amp; CALL</strong></td>
<td>OXYGEN MASK ………………………. WEAR</td>
</tr>
<tr>
<td>Autopilot remains engaged.</td>
<td></td>
</tr>
<tr>
<td>GOGGLES (IF NECESSARY) …………. WEAR</td>
<td></td>
</tr>
<tr>
<td>CREW COMMUNICATION ………… ESTABLISH</td>
<td></td>
</tr>
<tr>
<td>“OXYGEN ON”</td>
<td></td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>OXYGEN PAX SUPPLY ………………….. ON</td>
</tr>
<tr>
<td>SEAT BELTS …………………….. ON</td>
<td></td>
</tr>
<tr>
<td>XPDR …………………….. 7700</td>
<td></td>
</tr>
<tr>
<td><strong>CALL</strong></td>
<td>on Public Address</td>
</tr>
<tr>
<td>“EMERGENCY DESCENT, REMAIN SEATED”</td>
<td></td>
</tr>
<tr>
<td><strong>TRANSMIT</strong></td>
<td>on VH1</td>
</tr>
<tr>
<td>“MAYDAY, MAYDAY, MAYDAY, (CALLSIGN), EMERGENCY DESCENT, CONFIRM MSA”</td>
<td></td>
</tr>
<tr>
<td><strong>DO &amp; CALL</strong></td>
<td>MINIMUM SAFE ALTITUDE …………… CHECK</td>
</tr>
<tr>
<td>ALT SEL ………………………. MSA</td>
<td></td>
</tr>
<tr>
<td>“MEMO ITEMS COMPLETE”</td>
<td></td>
</tr>
<tr>
<td><strong>COMMAND</strong></td>
<td>“EMERGENCY DESCENT MEMO ITEMS”</td>
</tr>
<tr>
<td>Autopilot remains engaged.</td>
<td></td>
</tr>
<tr>
<td><strong>DO &amp; CALL</strong></td>
<td>OXYGEN MASK ………………………. WEAR</td>
</tr>
<tr>
<td>GOGGLES (IF NECESSARY) …………. WEAR</td>
<td></td>
</tr>
<tr>
<td>CREW COMMUNICATION ………… ESTABLISH</td>
<td></td>
</tr>
<tr>
<td>“OXYGEN ON”</td>
<td></td>
</tr>
<tr>
<td>ALT SEL …………………….. LOWEST ALTITUDE</td>
<td></td>
</tr>
<tr>
<td>IAS MODE …………………….. 180/240</td>
<td></td>
</tr>
<tr>
<td>According to potential structural damages.</td>
<td></td>
</tr>
<tr>
<td>HEADING MODE ………………. ENGAGE</td>
<td></td>
</tr>
<tr>
<td>HEADING KNOB …………….. TURN ± 45°</td>
<td></td>
</tr>
<tr>
<td>PL 1 &amp; 2 …………………….. Fi</td>
<td></td>
</tr>
<tr>
<td>Cl 1 &amp; 2 …………………….. 100% OVRD</td>
<td></td>
</tr>
<tr>
<td><strong>CALL</strong></td>
<td>on Public Address</td>
</tr>
<tr>
<td>“YOU CAN REMOVE OXYGEN MASK”</td>
<td></td>
</tr>
<tr>
<td><strong>PASSING FL100</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>OXYGEN MASK …………………….. REMOVE</td>
</tr>
<tr>
<td>OXYGEN HATCH ……………………. CLOSE</td>
<td></td>
</tr>
<tr>
<td>OXYGEN TEST PB …………………. DEPRESS</td>
<td></td>
</tr>
<tr>
<td>Enables normal headset use.</td>
<td></td>
</tr>
<tr>
<td><strong>UNPRESSURIZED FLIGHT RATE OF DESCENT REACHED</strong></td>
<td></td>
</tr>
<tr>
<td><strong>CAPTAIN</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>CABIN ATTENDANT REPORT…….. RECEIVE</td>
</tr>
<tr>
<td><strong>DO</strong></td>
<td>SITUATION …………………….. ASSESS</td>
</tr>
</tbody>
</table>
**Aircraft configuration management**

The aircraft configuration (flaps and gears position) in approach is detailed in the following for normal and single engine operations.

<table>
<thead>
<tr>
<th></th>
<th>Normal procedures</th>
<th>Single engine procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ILS</strong></td>
<td>Glide Slope alive → Flaps 15</td>
<td>Glide Slope alive → Flaps 15</td>
</tr>
<tr>
<td></td>
<td>1 dot → Gear down</td>
<td>Glide Slope Star → Gear down</td>
</tr>
<tr>
<td></td>
<td>½ dot → Flaps 30 (35)</td>
<td>Established in descent → Flaps 30 (35)</td>
</tr>
<tr>
<td><strong>Non Precision</strong></td>
<td>4 Nm / 2 mn before FAP/FAF → Flaps 15</td>
<td>4 Nm / 2 mn before FAP/FAF → Flaps 15</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td>1 Nm before FAP/FAF → Flaps 30 (35)</td>
<td>1 Nm before FAP/FAF → Gear down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Established in descent → Flaps 30 (35)</td>
</tr>
<tr>
<td><strong>Circle to Land</strong></td>
<td>Flaps 15 + Gear down</td>
<td>Flaps 15 → Refer to ILS or NPA sequence</td>
</tr>
<tr>
<td></td>
<td>→ Refer to ILS or NPA sequence</td>
<td>End of Downwind → Gear down</td>
</tr>
<tr>
<td></td>
<td>Read “Before landing C/L”</td>
<td>Read “Before landing C/L”</td>
</tr>
<tr>
<td></td>
<td>Aligned on final RWY → Flaps 30 (35)</td>
<td>Aligned on final RWY → Flaps 30 (35)</td>
</tr>
</tbody>
</table>
1. Take-off

**PM ACTIONS DURING CLimb Procedure:**
- Set Speed Bug 170 (160)
- Set IAS 170 KTS (Pitch Wheel)
- Set PWR MGT On Climb
- Bleed Valves Set On (If Off)

**PM ACTIONS AT LANDING GEAR RETRACTION:**
- Set L/G Lever Up
- Set Yaw Damper On
- Set Taxi And T/O Light Off

**ATPCS Armed Power Set 70 Kts V1 Rotate**

**PM ACTIONS AT CLIMB PROCEDURE COMPLETE:**
- White Bug +10
  - Normal Conditions
- ICING Bug +10
  - Icing Conditions

**Set Altimeter Standard**

**PM ACTIONS AFTER T/O COMPLETE:**
- Check List
- Set High Bank
- Flaps 0
- Hi Bank Set
- Check After T/O

**Call-Outs During a Normal Take-Off**
- PF Call-Outs
- PM Call-Outs
2. ILS Precision Approach

CALL-OUTS

DURING AN ILS PRECISION APPROACH

PF \( \text{CALL-OUTS} \)

PM \( \text{CALL-OUTS} \)

APPROACH MODE SET LOC ALIVE, GO WHITE

SET SPEED BUG 170

VOR ALIVE

170 SET

LOC STAR

LOC GREEN

SET SPEED BUG 170

TOP OF DESCENT, XX DME, CHECK

SPEED CHECK FLAPS 25

GO AROUND SET POWER FLAPS ONE NOTCH

FLAPS 30 (35)

SPEED CHECK FLAPS 30 (35)

HALF DOT

ONE DOT

WHITE BUG +10

SPEED CHECK FLAPS 15 (10)

TOP OF DESCENT, XX DME, CHECK

SET SPEED BUG 170

FLAPS 25

42 PEC

72 PEC

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3. Non Precision Approach

Call-Outs During a Non Precision Approach VOR-DME (co-located)

- Set speed bug 170
- VOR alive
- Set heading flaps 15
- Speed check ... flaps 15
- White bug +10 set
- Speed check ... gear down
- Set speed bug white bug +10
- Set speed bug V approach
- Flaps 30 (35)
- Set vs 0 ft/min
- Vs minus XXX set, top of descent
- XXX set
- Vs minus XXX set, top of descent
- Before landing C/L
- We continue
- Go around
- Set power
- Flaps one notch
- 42 pec
- 42 pec
- Set vs minus XXX set, top of descent
- Vs 0 ft/min set
- Vs minus XXX set, top of descent
- Before landing C/L complete
- 1000 ft stabilized
- 500 above
- 100 above
- Minimum 80
- Auto pilot off
- Land
- MDA +30
- PM monitors flight path
- 20
- 50
- 20
- 20
- 50
- 100
- 500
- 100
- 50
- 20
- 20
- 50
- 100
- 500
- 1000
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- Vs 0 ft/min set
- Vs minus XXX set, top of descent
- Before landing C/L complete
- 1000 ft stabilized
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- 100 above
- Minimum 80
- Auto pilot off
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- MDA +30
- PM monitors flight path
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4. Circle-to-Land

**AIRCRAFT CONFIGURATION:**
- FLAPS 15°
- L/G DOWN
- SPEED: WHITE BUG +10
- BEFORE LANDING C/L COMPLETE EXCEPT FLAPS 30 (35)

**HDG, HIGH BANK, HDG XXX SET**

**START TIMING**

**OUTBOUND TIME (IN SEC):**
MDA/20 ±1S/KT OF HEAD/TAIL WIND ABEOAM THRESHOLD

**FLAPS 30 (35) SPEED**

**BEFORE LANDING C/L COMPLETE 300 FT STABILIZED TWO LOW PITCH**

**AUTOPILOT OFF**

**CALL-OUTS DURING A CIRCLE-TO-LAND (AP ON)**

**PF CALL-OUTS**

**PM CALL-OUTS**

**42 PEC FOR TRAINING ONLY**
5. Go-around

PF ACTIONS AT GO-AROUND:
1) PRESS GO AROUND PBs ON PLs
2) ROTATE
3) ADVANCE PLs TO THE RAMP

PF ACTION AT ACC ALTITUDE:
RETARD PLS IN THE NOTCH

PF CALL-OUTS DURING GO-AROUND
2 ENGINES

PF ACTIONS AT GO-AROUND:
1) PRESS GO AROUND PBs ON PLs
2) ROTATE
3) ADVANCE PLs TO THE RAMP

PF ACTION AT ACC ALTITUDE:
RETARD PLS IN THE NOTCH

PF CALL-OUTS DURING GO-AROUND
2 ENGINES
6. Standard traffic pattern (1500 ft AAL)

AIRCRAFT CONFIGURATION IN DOWNWIND:
- FLAPS 15°
- L/G DOWN
- SPEED: WHITE BUG +10

SET ADU STBY
SET HEADING XXX, VS -700

OUTBOUND TIME (IN SEC):
MDA/20 ± 1S / KT  OF HEAD/TAIL WIND

SET SPEED
BUG V APP

FLAPS 30 (35) BEFORE LANDING C/L

LAND XXX
SET

SPEED CHECK
FLAPS 30 (35) BEFORE
LANDING C/L
COMPLETE 500FT,
STABILIZED
80 50 20

HEADING XXX,
VS -700 SET

SPEED CHECK
FLAPS 25

START TIMING
GEAR DOWN

SPEED CHECK
FLAPS 0

GEAR UP

YELLOW BUG XXX, TQ
BUG XXX%

SET

WHITE BUG
+10 SET

SPEED CHECK
FLAPS 15

HDG XXX SET

CLIMB
PROCEDURE

FLAPS 0

SET SPEED
BUG 170

ACC. ALT.
(400FT MINIMUM)

SET HIGH
BANK

AFTER TO C/L

COMPLETE
HIGH
BANK
SET

WHITE BUG +10

GEAR UP

V1
ROTATE

SET HDG XXX

ALT

STAR …ALT
GREEN

SET SPEED
BUG

WHITE BUG +10

FLAPS 15 SET

YELLOW BUG

VGA, TQ
BUG XXX%

ABEAM
THRESHOLD

OUTBOUND TIME (IN SEC):
OF HEAD/TAIL WIND

PF CALL-OUTS
PM CALL-OUTS

CALL-OUTS
DURING A STANDARD VISUAL PATTERN

PF CALL-OUTS
PM CALL-OUTS

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FOR TRAINING ONLY
CALL-OUTS
DURING ON GROUND ENGINE FIRE

CM1 ACTIONS
PL 1 & 2 ...................................... GI BRAKES .......... APPLY AS REQUIRED
REVERSE............. USED AS REQUIRED
WHEN A/C STOPPED:
PARKING BRAKE ................. ON

MEMO ITEM COMPLETE,
ON GROUND ENGINE FIRE
OR SEVERE MECHANICAL
DAMAGE C/L

WE EVACUATE
ON PUBLIC ADDRESS:
EVACUATION,
EVACUATION,
EVACUATION

YES, ON GROUND
EMER EVACUATION C/L

BATTERY OFF

CM2 ACTIONS
PRESS MASTER WARNING
HOLD FIRMLY CONTROL WHEEL

TO ATC: MAYDAY MAYDAY
MAYDAY (CALLSIGN) ENGINE FIRE –
ABORTED TAKE OFF

ON PUBLIC ADDRESS: PLEASE REMAIN
SEATED – CABIN CREW AT STATION

READ:
ON GROUND ENGINE FIRE OR
SEVERE MECHANICAL
DAMAGE C/L,

IF EVACUATION REQUIRED:
YES OR NO?

READ:
ON GROUND EMER EVACUATION C/L,

INITIATE BAT
OFF

ON GROUND EMER EVACUATION
C/L COMPLETE
2. Engine fire at take-off

- **Normal Conditions**: Flaps 0 or icing conditions
- **Confirm**: Maintain flaps 15
- **Increase IAS to white bug**
- **Set speed bug**: White bug
- **Set MCT**
- **Acceleration altitude** (400ft minimum)
- **Eng fire at takeoff**

**Memo Items**
- **Gear up**
- (Pl 1 or 2?)
- **Flight idle**
- **Radio message**: Mayday!
- **No** or **Yes**
- **Eng fire at take-off?**

**Single engine operation**

**Cl 1 or 2?**

- **Feather, fuel shut off**
- **Fire handle 1 (or 2)?** Pulled 10s
- **Agent 1?** Discharged 30s
- **Agent 2?** Discharged
- **Bleed engine alive off: Yes or no?**

**Complete engine fire at to C/L**

**Cap cleared after takeoff**

**Single engine operation complete**

**Ready**

**Note**: AP is set at discretion when the aircraft is properly trimmed.

**PF call-outs**

**PM call-outs**

**Call-outs during an engine fire at take-off**

**For training only**
3. Engine flame out at take-off

NOTE: AP is set at discretion when the aircraft is properly trimmed.

GEAR UP
RADIO RIGHT SIDE
+ RADIO MESSAGE: MAYDAY!
ACC. ALT. (400FT MIN)
SET ALT
SET SPEED BUG WHITE BUG
SET ALTS
ENGINE FLAME OUT AT TAKE-OFF MEMO ITEMS
GEAR UP, UPTRIMMED AUTOFEATHERED BLEED FAULT LIT
ACCELERATION ALTITUDE
ACC. ALT. (400FT MIN)
MCT SET IAS xxx SET
FLAPS 0 or MAINTAIN FLAPS 15 CL 1 (OR 2)?
FEATHER, FUEL SHUT OFF
BLEED ENGINE ALIVE OFF: YES OR NO?
MEMO ITEMS COMPLETE
RADIO LEFT SIDE READY FOR ASSESSMENT
SINGLE ENGINE OPERATION C/L CLEAR CAP AFTER TAKE-OFF C/L
ENGINE FLAME OUT AT TAKE-OFF C/L
CAP CLEAR
SINGLE ENG. OPERATION COMPLETE
ENGINE FLAME OUT AT TAKE-OFF C/L COMPLETE
NOTE: AP is set at discretion when the aircraft is properly trimmed.
4. Single Engine Non Precision Approach

CALL-OUTS

DURING A SINGLE ENGINE NON PRECISION APPROACH NDB

PF CALL-OUTS
PM CALL-OUTS

CHECK

170 SET
SET HEADING
HEADING SET

SPEED CHECK...
...FLAPS 15

SPEED CHECK...
...FLAPS 15

SPEED CHECK...
...FLAPS 15

SPEED CHECK...
...FLAPS 30

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SPEED CHECK...
...FLAPS 30
5. Single Engine Go-around

PF ACTIONS AT GO-AROUND:
1) PRESS GO-AROUND PBs ON PLS
2) ROTATE
3) ADVANCE PLS TO THE RAMP & SIMULTANEOUSLY APPLY FORCE ON RUDDER PEDAL (LIVE ENGINE SIDE)

PF ACTION AT ACC ALTITUDE:
SET PLS IN NOTCH GO-AROUND, SET POWER, FLAPS ONE NOTCH GEAR UP HEADING, LOW BANK, IAS VGA SET SPEED

AFTER TAKE-OFF
C/L COMPLETE
NORMAL CONDITIONS FLAPS 0
ACC. ALTITUDE, FLAPS 0
VHF: (CALL SIGN) IS GOING AROUND GEAR UP

CALL-OUTS DURING A SINGLE ENGINE GO-AROUND

NOTE: AP is set at discretion when the aircraft is properly trimmed

CALL-OUTS
PF CALL-OUTS
PM CALL-OUTS
FOR TRAINING ONLY
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Yours faithfully

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