

SECTION III - NORMAL PROCEDURES

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INTRODUCTION

GENERAL

The procedures described in this chapter are recommended by Airbus to achieve safe and efficient operation of the C-295 aircraft. As a result of the subsequent experience of both operators and manufacturer there may be modifications to these procedures. Any modifications will be reflected at the appropriate time by means of Revisions.

Like the rest of the Aircraft Operations Manual, these procedures have not been certified by Aviation Authorities. Although Airbus takes maximum care while preparing this manual, the operator is responsible for the adoption of Manual and its contents, as well as its adaptation to the operators modus operandi if convenient.

If any information or procedure as contained in this Aircraft Operations Manual contradicts the "C-295 Flight Manual", the latter shall take priority. There may be differences between each of them due either to the order in which particular steps are performed, or the addition of other steps or aspects, which while differing, are not contradictory.

It is assumed that the crew members have taken prior instruction and have understood and assimilated the "Description and Operation of the Aircraft and its Systems" as described in Volume I of this Aircraft Operations Manual.

The described operation is based on the assumption that all the systems are operating normally and the aircraft has been delivered to the crew by Maintenance - Flight Line after the Pre-flight Inspection as stated in the Aircraft Maintenance Manual.

Some normal non-routine or infrequent operations are described at "Systems Description", "Flight Characteristics" or "All-Weather Operations" chapters.

Whenever the aircraft is not delivered by Maintenance - Flight Line, Pre-flight inspection will be performed according to the Aircraft Maintenance Manual.

DOCUMENTS DESCRIPTION

The Normal Procedures are described in Section III and consist of a series of detailed actions, to be performed at each flight phase. From now on, they will be referred to as "Expanded Normal Procedures".

A "List of Normal Procedures" is derived from the "Expanded Normal Procedures". This is a procedures simplified list that flight crew can keep at hand in the cockpit. These are included in the booklet as the "Emergency Procedures" and the Quick Reference Data.

Finally, there is a safety "Checklist" that assigns to each flight phase a minimum series of points to be checked by the crew to ensure aircraft safety and efficiency.

PROCEDURE ACCOMPLISHMENT

The Normal Procedures will be applied by the crew in each flight phase.

The NORMAL PROCEDURES, or expanded procedures if proceeds, provide a detailed description on required steps to perform at each phase. This detailed description is required during familiarization and initial operation with the aircraft and may be used for further reference. It is therefore both training and reference documentation. This documentation will normally be used by the crew during familiarization and rarely during real flight.

As a basic guideline, every time the pilot selects any function, he must check the subsequent relevant system reaction. Specifically, when any AFCS mode/submode is selected or de-selected, the mode status must be PFD-confirmed by both pilots. The PF will call-out the selected modes PFD-displayed any time there is a change, to be confirmed by the PM.

The procedures are presented providing a GPU is available. Those STEPS THAT MUST NOT BE PERFORMED IF ONLY BATTERIES ARE AVAILABLE are enclosed in square brackets (for example [Internal/external lights.....PLT/ON]).

NOTE

For procedures purposes one engine running is equivalent to GPU available.

When more than one flight is made in a single day, ONLY THOSE STEPS MARKED WITH AN ASTERISK (*) MUST BE PERFORMED BETWEEN FLIGHTS.

Some procedures are divided with a line in two parts, the "Down to the line" part and the "Below the line" part. The aim of splitting the procedure into two parts is to get a better management of the workload. When the PM/PF completes the last item of the "down to the line" part, the PF calls the related checklist "___ C/L" and once completed the PM announces "DOWN TO THE LINE".

The procedure is resumed when the related event occurs, and once the last item of the "below to the line" part is completed, PF calls "BELOW THE LINE" to request the PM to complete the related checklist and finally to announce "___ C/L COMPLETE".

QUICK REFERENCE HANDBOOK

As an aid for procedures application there is a "List of Procedures". It gives a summary of the Expanded Normal Procedures without detailed comments. Its function is to be used by the crew as a cockpit reference guide until being familiar enough to perform them routinely from memory.

During External Inspection, Internal Inspection and Cockpit Preparation phases, a logical route is established across the panels (Scan-Flow) thus easing procedures performing without omitting any action (see "External Inspection" and "C/M-1 and C/M-2 Cockpit Preparation" figures).

While Cockpit Preparation is performed, procedures are applied (either memorized or referring to the list) on request of the Pilot Flying (PF) or Captain (for example, the PF calls-out "After Takeoff Procedure"). The Procedure Lists specify which crew member must perform each step. The Pilot-Monitoring (PM) performs each of the actions assigned to him/her, or he/she requires the PF to perform each action or state his/her decision on any point requiring so. Except for those points involving the other pilot, the procedure can be performed in silence. After that, the "Checklist" will be applied, on request of the PF.

CHECKLIST

Once the procedure has been completed the checklist is applied. The PM reads-out loud each point on the checklist literally. The process continues in challenge/response form. The actions should have been done before as described in the previous section. The concerned crew member answers as appropriate, if the action has been completed, or proceeds to complete the action before confirming it.

He/She, or other crew members, will cross-check the reply validity whenever possible. The crewmember reading the list will wait for each reply before "asking" for the next point on the list.

NOTE

STEPS THAT MUST NOT BE PERFORMED IF ONLY BATTERIES ARE AVAILABLE are also enclosed in square brackets [] on the checklist.

FLIGHT PREPARATION

GENERAL

The Captain, or the designated person, will calculate the maximum takeoff weight according to the operating conditions: takeoff and landing airport, obstacles, minimum en route level (normal and with engine failure). These data, and those for the actual takeoff and landing weights, will be used to fill-in the TakeOff and Landing Data Card (TOLD).

Checking of aircraft technical status, flight plan information, navigation aids, alternates and weather conditions will be completed according to operators normative.

TAKEOFF AND LANDING DATA CARD

The Takeoff and Landing Data Card (TOLD) is a card containing data as required for takeoff and landing.

Takeoff Data Card

The takeoff data card must be filled-in by C/M-2 before proceeding engine start-up. Contains the following data:

CASA 295 TAKE OFF			TQ		ITT
CALL SIGN	GND	TWR	V₁	V_R	
RWY	WIND	QNH	V₂		
ELEV.	OAT	QFE	V_{FTO}	V_{F0}	
SSR/IFF			V_{REF}		
NOTES			CG		ATOW

Figure 3-1 Takeoff Data Card

Landing Data Card

The landing data card must be filled in by C/M-2 while preparing to descend. Contains the following data:

CASA 295 LANDING			TQ		ITT	
CALL SIGN	RWY	WIND	V_{REF}			
QNH	ELEV	FUEL	ADD			
			+			
TR. LVL.	OAT	LW	V_2			
NOTES			VOR	ILS	NDB	
			ATIS	ATC	APP	
			TWR		GND	

Figure 3-2 Landing Data Card

PREFLIGHT INSPECTION

BEFORE INSPECTION

EXTERNAL SAFETY INSPECTION (C/M-2)

This procedure must be performed before boarding the aircraft, thus ensuring both the aircraft and/or its surroundings are not in clearly unsafe conditions for operation.

1. ChocksA.R.
2. Flaps and Propeller AreasCLEAR

Check the flaps position for subsequent checking with the flaps lever position while internal safety inspection is carried-out.

CARGO CABIN SAFETY INSPECTION (C/M-2)

1. Water heater and ovenOFF
2. First aid kit (1) CHECK

Check the first aid kit located inside a compartment of the rack at FR10.

3. Oxygen bottles (2)..... CHECK / GREEN BAND

Check the oxygen bottles located inside a compartment of the rack at FR10.

4. Oxygen masks (4)..... CHECK

Check the oxygen masks in the two tote bags located inside a compartment of the rack at FR10.

5. Toilet..... CLEAN / GOOD CONDITION

6. Cargo winch access..... CLOSED AND LATCHED

7. Oxygen bottles (2)..... CHECK / GREEN BAND

8. Oxygen masks (2)..... CHECK

Check the oxygen masks in the two tote bags.

9. Therapeutic masks (2) CHECK

Check the therapeutic masks in the two tote bags.

10. Halon extinguisher CHECK / GREEN BAND

11. Water extinguisher CHECK / SECURED

12. Life Vest CHECK

Check there is one life vest per cabin crewmember and passenger.

13. Emergency door pin..... REMOVE

14. Emergency door..... CHECK / HANDLE SECURED

15. Paratroop doors pins (2) REMOVE

Remove the pin of each paratroop door and check that the doors open and close correctly.

16. First aid kits (4).....ON BOARD / CHECK

17. EXIT lights (4) CHECK

18. Aisle lamps (5) CHECK

19. Cargo Ramp Cylinder ActuatorsA.R.

20. Attendant control panelA.R.

21. Ramp and cargo stored equipment CHECK AND SECURED

22. ELT GOOD CONDITION

Check there is no signs of leaking fluid produced by internal ELT battery in ELT equipment and surrounding area.

INTERNAL SAFETY INSPECTION (C/M-2)

This procedure must be performed before energizing the systems.

Its performance ensures the aircraft can be powered-up without causing material damage or personnel injuries.

1. GalleyCHECK / OFF

Check all the doors are locked and all the items are latched and disconnected.

2. WIPER SelectorsOFF

3. IFF Panel.....OFF

EMER and IDENT pushbuttons must be out to prevent the transmission on emergency when energized.

4. Landing Gear Lever DOWN / LOCKED

5. Flaps LeverA.R.

Check that the lever position corresponds to the actual flaps position as earlier observed.

6. GUST LOCK LeverLOCKED

7. Weather Radar.....OFF

8. Hydraulic Pumps MAN / OFF

Check all three PUMP pushbuttons are out and the AUTO/MAN selector is set to MAN.

PRELIMINARY COCKPIT PREPARATION (C/M-2)

The following procedures will activate those components that are operated and checked during Cockpit Preparation and External Inspection.

1. Circuit breakers CHECK

Check all three circuit breakers panels (overhead panel and panels behind of C/M-1 and C/M-2) and verify the circuit breakers are in or according to the aircraft systems status.

2. MISC Master Switches OFF

3. BAT & GEN Master Switches ON

4. Batteries ON / CHECK

Set both BAT 1 and BAT 2 switches to ON and check magnetic indicators going to the in-line position and their voltmeters showing at least 22 V.

NOTE

If the connection of the batteries is not done simultaneously or immediately one after another, the SWRS may be activated unintentionally.

NOTE

This cockpit preparation assumes that the engine start-up is to be performed by means of a DC GPU.

5. [GPU ON / CHECK]

[Press the GPU pushbutton and check that the ON light comes on and the BAT magnetic indicators go to the crossline position. Check that the voltage increases not beyond 29 V (green zone).]

6. B/U BAT Pushbuttons CHECK

Press and check that the pushbuttons light comes on (momentarily) to indicate the correct status at the avionics system auxiliary batteries.

7. [NAV lights ON]

8. WARNING and CAUTION Master Lights PRESS TO CANCEL

9. Parking Brake A.R.

NOTE

If brakes overheat is suspected, check temperature.

If the indicator brake temperature reads in the green zone, set the parking brake.

10. [Hydraulic SystemMAN / CHECK / OFF]

[With the mode selector at the MAN position for each pump, press the PUMP pushbutton and check the ON light comes on and that the pressure increases to 3000 PSI while no messages are displayed in the IEDS. Press it off and wait for the pressure to drop below 2800 PSI (decrease can be accelerated by operating the Normal Brakes).

Finally, leave all three pushbuttons out.

Check the hydraulic fluid quantity and note the actual quantity. This check must be done with the cargo door fully closed, because if it is opened, the HYD QTY indication can decrease by up to 50%, approximately. If possible, discharge brake accumulators.

In case of OAT below -10°C (14°F), HYD QTY indication can decrease by up to 55% below green range and if the accumulators are fully charged HYD QTY indication can decrease by up to 45% below green range.

Check the hydraulic fluid pressure in normal and emergency brakes (BKR and EMER BKR PRESS indicators) are in the green zone.]

EXTERIOR INSPECTION

The exterior inspection is visually performed by the flight crew to ensure that both aircraft general status and its externally visible equipment/components are in safe conditions for flight.

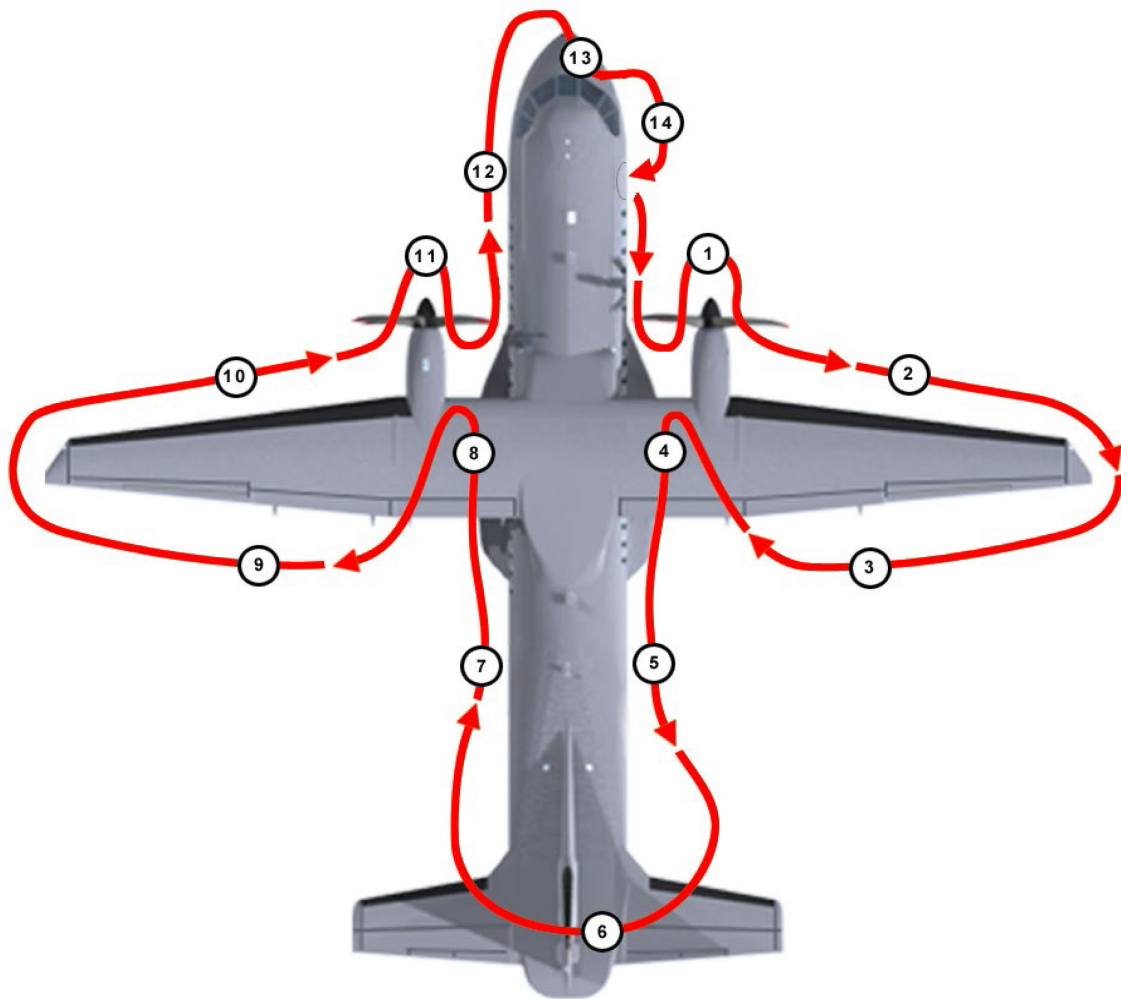


Figure 3-3 Exterior Inspection

Is mandatory to inspect fuselage, wings, tail and nacelles general status. All the access panels have to be checked as closed and latched.

1. RIGHT ENGINE AREA

* Emergency Light..... GOOD CONDITION
 Formation Lights GOOD CONDITION
 Landing Lights..... GOOD CONDITION
 Runway Turnaround Lights..... GOOD CONDITION
 Air Cond. Pack Heat-Exchanger (Inlet/Outlet)..... CLEAR
 A/C Pack Vent..... CLEAR
 Engine Inspection Doors..... CLOSED AND LATCHED
 Propeller..... TURNS CLOCKWISE FREELY/GOOD CONDITION/NO OIL LEAKS
 Engine Air Intake..... CLEAR/GOOD CONDITION
 * Engine Inlet De-Icing Boots..... GOOD CONDITION
 * Fuel and Oil Leaks..... NO VISIBLE
 Oil Cooler Inlet CLEAR / GOOD CONDITION
 Inertial Separator Outlet..... CLEAR / GOOD CONDITION

2. RH WING LEADING EDGE

* De-Icing Boots GOOD CONDITION
 NACA Fuel Vent..... CLEAR
 * [Navigation Lights ON]
 * Navigation Lights GOOD CONDITION
 Formation Lights GOOD CONDITION

3. RH WING TRAILING EDGE

Static Dischargers (6) GOOD CONDITION
 * Ailerons and Aileron Tabs GOOD CONDITION
 * Flaps and Flap Vanes Fairings..... GOOD CONDITION
 * Fuel and Hydraulic Leaks NO VISIBLE
 Engine Exhaust Nozzle CLEAR / NO LEAKS
 Oil Cooler Outlet CLEAR

4. RH MAIN LANDING GEAR

Battery Inspection Door CLOSED AND LATCHED

* Exterior AC Power Inspection Door CLOSED AND LATCHED

* L/G Pin REMOVED

* Landing Gear Door CLOSED AND LOCKED

* Wheels and Tires (visible part) GOOD CONDITION

* Fuel and Hydraulic Inspect. Doors CLOSED AND LATCHED

Hydraulic Fluid (on opposite side) NO LEAKS

5. RH REAR FUSELAGE

* Emergency light GOOD CONDITION

* Overpressure Rupture Discs (2) GREEN

* Paratroops Door A.R.

Ramp Exterior Operation Door CLOSED AND LATCHED

* Ramp and Cargo Door CLOSED / 4 "LOCKED"

Static Ports on Ramp CLEAN

Outflow Valve Outlets CLEAR

6. TAIL

* De-Icing Boots GOOD CONDITION

* HF Antenna GOOD CONDITION

* VOR / LOC Antennas GOOD CONDITION

* Anti-Collision Light GOOD CONDITION

Formation Lights GOOD CONDITION

* Stabilizers, Rudder, Elevators and Tabs GOOD CONDITION

Static Dischargers (16) GOOD CONDITION

* [Navigation Lights ON]

* Navigation Lights GOOD CONDITION

Loading Area Lamp GOOD CONDITION

7. LH REAR FUSELAGE

* ELT Antenna GOOD CONDITION

* Paratroops Door A.R.

* Emergency lights GOOD CONDITION

* Rear Ventral Antennas GOOD CONDITION

8. LH MAIN LANDING GEAR

Hydraulic Fluid (on opposite side)NO LEAKS
 * Oxygen Door..... CLOSED AND LATCHED
 * L/G Pin..... REMOVED
 * Landing Gear Door CLOSED AND SAFETIED
 * Wheels and Tires (visible part)..... GOOD CONDITION
 Battery Inspection Door CLOSED AND LATCHED

9. LH WING TRAILING EDGE

As in area 3, in the opposite sense.

10. LH LEADING EDGE

As in area 2, in the opposite sense.

11. LH ENGINE AREA

As in area 1, in the opposite sense.

12. LH FORWARD FUSELAGE

Emergency Door CLOSED AND SECURED
 * Ventral and Upper Antennas GOOD CONDITION
 * Anti-Collision Light..... GOOD CONDITION
 Wing Inspection Light..... GOOD CONDITION
 * LH AOA Sensor GOOD CONDITION
 Avionic Door..... CLOSED
 Avionics Compartment NACA Inlet..... CLEAR / GOOD CONDITION
 * Ice Detector GOOD CONDITION
 * LH Pitot Probe UNCOVERED / CLEAN
 Windshield Wiper GOOD CONDITION

13. NOSE LANDING GEAR AREA

* Radome GOOD CONDITION
 * Nose Zone Antennas..... GOOD CONDITION
 * N L/G Pin REMOVED
 * Wheels and Tires..... GOOD CONDITION
 * Damper GOOD CONDITION
 Taxi Lights..... GOOD CONDITION
 * Steering Pin IN PLACE
 * Gear Doors GOOD CONDITION
 * Exterior Temperature Sensors CLEAR / GOOD CONDITION

14. RH FORWARD FUSELAGE

* RH Pitots..... UNCOVERED / CLEAN
 Avionics Compartment NACA Inlet..... CLEAR / GOOD CONDITION
 * Exterior DC Power Source Inspection Door.....A.R.
 Hydraulic Accumulator Inspection Door CLOSED AND LOCKED
 Gaseous Oxygen Door CLOSED
 Oxygen Discharge Indicator CHECK / GREEN
 * RH AOA Sensor GOOD CONDITION
 Wing Inspection Light..... GOOD CONDITION
 Crew Door A.R. / CHECK

INTERNAL INSPECTION

C/M-2 COCKPIT PREPARATION

1. [Exterior lightsNAV ON / A.R.]
2. Emerg.Equip./Pins & Covers ... ON BOARD AND SECURED/REMOVED AND STORED
 Check that these items are correctly located at the cockpit and that both emergency equipment and mission equipments are in good condition. Check that every landing gear pin, door pin and pitot/AOA cover are on board. Check that oxygen bottles and portable extinguishers are in good condition.
3. Seat, Belts and Pedals.....ADJUST

CAUTION

Releasing the GUST LOCK without a positive control of the yoke will result in the control column slamming forward and possibly damaging the flight controls.

Sit down and adjust the seat using the corresponding levers so that both black and white reference balls on the left of the central window are aligned. Unlock the controls by setting the GUST LOCK lever to horizontal position. Adjust the pedals so maximum brake deflection can be reached with either pedal at full forward throw.

In windy environment, engage the GUST LOCK and check the flight controls are locked.

4. Window CHECK
 Check that the windshield is undamaged and that the window can be opened and closed correctly.

OVERHEAD PANEL

5. [AC INVERTERS Panel CHECK / MAIN ON]
 [Press the STBY pushbutton. Check that the ON light comes on and that the AC VOLTS voltmeter indicates approximately 115 V (green zone). Press the STBY pushbutton and check that the ON light goes off.
 Press the MAIN pushbutton. Check that the OFF light goes off, the FAIL light comes on momentarily, and that the AC VOLTS voltmeter indicates approximately 115 V (green zone)].
6. POWER GENERATION Panel CHECK / AUTO / GEN ON
 Check that the BAT-GEN magnetic indicators are in line and that the BAT BUS TIE selector is in the OFF position.
 Press the GEN BUS TIE pushbutton (under guard) and check that the ON light comes on and the tied status visual indicator displays.

Set the BAT BUS TIE to the ON position and check that its magnetic indicator goes to the in line position and the visual indicator on the GEN BUS TIE pushbutton indicating the tied status goes out. Set it to AUTO and verify that the magnetic indicator moves to the crossline position momentarily and that it goes back to the in line position.

Press the GEN BUS TIE pushbutton and check that the ON light goes off.

Set the TRU Selector to OFF.

Set the Generator Switches to ON.

Check the AC EXT POWER and set A.R.

CAUTION

Usage of AC external power supply is limited to 300A at the generator ammeter and is forbidden for engine starting.

7. FIRE Panel.....CHECK

Momentarily push both L and R discharge control lights and check that both READY and EMPTY lights come on. Release them and check that they go off.

Maintain the L TEST selector in the WARN position and check that:

- The 1 E/FIRE warning is displayed in the IEDS.
- The Master WARNING lights come on and the MASTER bell rings.
- The FIRE light on the LH fire handle comes on.
- The FIRE light after the LH FFL comes on.
- The acoustic fire warning rings.

Release the selector, check that the lights go off and repeat the test with the R TEST selector.

Hold the L TEST selector in the FAULT position and check that:

- The 1 FIRE DET caution is displayed in the IEDS.
- The Master CAUTION lights come on.

Release the selector and check that the signalling goes out. Repeat the test with the R TEST selector.

8. FLT DECK LT PanelA.R.

9. CVR (only first flight of the day) TEST

Press the TEST button during 0.5 sec. approx. and check that the STATUS light comes on during 1 sec. and an audio tone is emitted through the headphones during 2 seconds.

10. FEATHER / APR Panel.....OFF

Check that the pushbutton is out and check that the ARM and ON lights are off. Check that the TEST/OFF/RST switch is in the OFF/RST position.

11. HYDR UTILITY PanelA.R.

Check:

- The OPR SEL selector is in the PLT position.
- The ON light on the HYDR PRESS pushbutton is off.
- The RAMP CYL indicator is as required.

WARNING

In flight, prior to ramp operation, ensure RAMP CYL indicator is on.

- The OPEN/UNLKD lights are off.

Finally check that the guarded PROPELLER BRAKE pushbutton is out and that the lights are off.

CAUTION

Do not ground-operate the ramp from the cockpit if not ensured that the ramp area is clear.

12. AIR CONDITIONING PanelCHECK / OFF

Verify that both bleed switches are OFF and their magnetic indicators are in the crossline position. Check that the BLEED O.TEMP lights are off. Press the XFEED pushbutton and check that the ON light comes on and its horizontal line comes on. Press it out and check that both indications go out.

Check that both PCKG BLEED and both O.TEMP-MAN lights are off.

Set the TEMP AUTO CONT selectors to an intermediate position.

13. [AIR CONDITIONING PanelRECIRC FAN AVIONIC ON]

[Set the AVIONIC FAN switch to ON and verify that both recirculating fan switches are in OFF position].

14. [Avionics MASTER Switches ON / UNDER GUARD]

15. [LAMP AV PNL TEST and AURAL WARNING TEST (C/B panel).....CHECK]

[Press and hold the LAMP AV PNL TEST pushbutton and check that the MCDU warning 1 and 2 (FAIL, MSG, POS, OFST, EXEC and MENU) lights come on. Check the HSI SEL lights in the FGCP panels and also de DG, SLAVE, BASIC and ALIGN lights in both AHRS panels.

Press the AURAL WARNING TEST pushbutton momentarily and check that the automatic pilot disconnection, decision height and altitude preselection acoustic signals are audible in sequence.]

16. [ADC1 TEST and ADC2 TEST (C/B panel).....CHECK]

[Press and hold the ADC1 TEST pushbutton and check that pilot PFD and ND show the following air data. Altitude = 14360 ft; barosetting = 990 HPA; VSI = 0 ft/min; IAS = 285 kt. Check the VMO alert is emitted after 5 seconds.

Press and hold ADC2 TEST pushbutton and check that copilot PFD and ND show the same air data. Check that VMO alert is emitted after 5 seconds.]

17. INTERNAL LT Panel.....CHECK / A.R.

Set the EMER CABIN and EMER CKPT switches to ON position and check that the corresponding lights come on. Remove portable light from its base and check the light remains ON. Put back the portable light on its base. Set them to ARM and check that the cargo cabin lights remain on and that the cockpit light goes off. Set them to OFF and check that the MASTER CAUTION lights flash and that the "EMER LTS" caution message is displayed in the IEDS.

18. Pressurization Panel..... AUTO / ADJUST

Verify that the mode selector switch is set to AUTO position.

Set the LDG ALT indicator to destination airfield altitude using the A knob. If takeoff airfield altitude is above 6000 ft, set the LDG ALT indicator to takeoff airfield altitude.

Adjust the pressure to 29.92 with the B knob, and align the R knob point up with the triangle. Check that the FAULT light is off and if not, reset the system using the Pressurization Mode Selector.

NOTE

If the FAULT light remains on, automatic mode is faulty. It will be possible to operate the aircraft pressurization system in manual mode.

Observe:

- PRESS DUMP switch (under guard).
- Cockpit variometer to zero.
- Cockpit altimeter indicating the field pressure altitude.
- Differential pressure indicator to zero.

RH CONSOLE

19. OXYGEN.....CHECK / NORMAL / ON

- a. Connect the mask to its supply-socket and set the Oxygen Switch to ON.
- b. Set Oxygen Regulator to NORMAL: Breath several times. Observe that flow indicator becomes clear and oxygen is obtained on inhaling without difficulty.
- c. Set Oxygen Regulator to EMERGENCY: Observe that oxygen arrives, with pressure, at the mask.
- d. Set Oxygen Regulator to NORMAL, leave the mask in its place.

20. COM CTL Panel.....A.R.

- a. Press the V/UHF2 CTL pushbutton and check that the B/U light comes on.

21. Audio Panel..... PREPARE

Pull out the VUHF2, INTPH and SPKR selectors. Other settings as desired.

22. POWERPLANT MAINTENANCE Panel.....CHECK / LIGHTS OFF

Under guard, switches on the neutral position and press to check lights.

23. Brakes temperature TEST / CHECK / ON

Set the connection switch to TEST position and check that the OVHT light comes on and that, for each Wheel Selector position, the indicator needle goes to the red band. Finally left the Wheel Selector to MAX position.

Set the connection switch to OFF until OVHT light goes off and the needle goes below the green band. Leave it at ON.

INSTRUMENT PANELS AND GLARE SHIELD

24. FLT DECK LT PanelCHECK / A.R.

25. ClockADJUST

26. AOA Indicator..... CHECK

Check there are no FAIL warnings on the AOA indicator. Adjust V/V_S.

27. SWRS Panel CHECK

Check that the PSHR OFF light is on.

Press in the PSHR DSARM pushbutton and check that the PSHR DSRM light comes on (if not already on) on both SWRS panels (C/M-1 and C/M-2). Press it once again and check that it has gone off on both panels.

Check that the ON light on the SHIFT pushbutton is off. If it is on, press once again to turn it off.

28. BETA MODE / BETA UNLKD Lights CHECK

Press and hold the BETA MODE lights and check that they come on. Check that the BETA UNLKD light remains on.

29. [AP DSENG Light.....CHECK / OFF]

30. CAUTION and WARNING Master LightsOFF

31. V/UHF-STBY..... TEST / A.R.

Set the V/UHF-STBY to OFF, then to TEST. Wait for all the digits to be displayed. Set the Operational Modes Selector to TR+G. Adjust both frequency / channel and mode of operation as required.

Leave V/UHF CTL pushbutton in the right console as required.

32. [HF Light (SELCAL / ALE)OFF]

[Press and check that both SELCAL and ALE lights come on.]

33. [NAV XFR / AFCS LNAV CMD Panel.....A.R.]

[On the NAV XFR panel:

- RAD PRCSR selector to position 1
- PRESS selector as required
- AHRS and ADS selectors to NORMAL
- LNAV selector as required]

34. Flaps Indicator..... CHECK

Check that the indicator position matches the pedestal-located flaps lever position.

35. Landing Gear Lever and Visual IndicatorsDOWN AND LOCKED / THREE GREENS

Check that if all three visual indicators show a green strip and that if the lever is down and locked.

36. IEDS CHECK

a. Check screens change and message scrolling:

1. Use the SWP key and check that both upper and lower screens swaps.
2. Use the UP and DN keys. When pressed for more than 1 second the messages scroll up or down, towards the list beginning or end.

b. Check composite display:

1. Use the C key and check that composite display is shown on both screens.

c. Checking the TEST function:

1. Press the TST key.
2. The LYRE BIRD, CRICKET, HORN, FIRE BELL and MASTER acoustic warnings will be audible in sequence. The screen displays the CPU SW version together with both time and date. Check they are correct and if not, set them correctly from the Maintenance Menu. It also displays the BIT status.
3. If an error is detected, displayed message shall be: BIT FAILED.
4. In the test second phase the colours are inverted and both unsafe takeoff and "MASTER WARNING" acoustic signals are audible.
5. If any non-volatile memory record exceeds 80% of its capacity, the DOWNLOAD EEPROM message will be displayed.

d. Check the Remote IEDS Control Panel.

e. Set the fuel used (FUEL USED) to zero:

1. Hold keys 1 and 4 down simultaneously for 4 seconds and check that the maintenance is displayed on the upper screen.
2. Select the FUEL USED RESET option and set both LH and RH fuel used readings to zero.
3. Return to the screens normal selection.

PEDESTAL**37. ELT Panel TEST**

Hold TEST/RESET-ON switch in TEST position, and check the ON light flashes.
Release it and confirm that the ON light goes off.

NOTE

If the test has not been carried out for some days then the test may not give the pass results as indicated above. Normally the test will be successfully at the 2nd or 3rd attempt.

NOTE

It is important that the testing should be limited to one successful test per day.

38. CRYPTO ZEROIZE PanelA.R.**39. PLs CHECK / GI / GUST LOCK LOCKED****CAUTION**

Releasing the GUST LOCK without a positive control of the yoke will result in the control column slamming forward and possible damaging the flight controls.

If locked, unlock the flight controls by setting the GUST LOCK lever to horizontal position.

Retard the PLs simultaneously from GI to MAX REV. Move them forward one at each time to MAX MAN checking the DETENT. At MAX AUTO verify that the UNSAFE TAKEOFF acoustic warning is audible and check the MAX MAN stop. Retard the PL to FI and check its stop. Raise the trigger and retard the lever to GI.

In windy environment, engage the GUST LOCK and check the flight controls are locked.

Adjust the PLs friction as required.

40. FFLsCHECK / OFF

Check the FFLs move free along their entire travel and verify that from the START position, the fuel shut-off valves magnetic indicators are at in-line position. Leave them OFF set.

41. PRSTOGA / CHECK

With the PRS at TOGA position check that the TOGA indication is IEDS-displayed.

42. [Weather Radar..... STBY]

[Set the function selector on the WXR panel to STBY position. The unit will take 100 seconds to start.]

43. DMM CTL SelectorA.R.

44. Anti-SkidCHECK / ON

Set the ANTISKID switch to OFF and confirm that both A-SKD DGD and A-SKD FLD cautions are IEDS-displayed and the CAUTION master lights come on. Set it to ON and check if the lights go off.

45. FLT CONT DISC Panel.....CHECK / LIGHTS OFF

Press and hold the pushbuttons while checking that both FWD and REAR lights on the pushbuttons come on. Check that they go off when the pushbuttons are released.

46. LNDG GEAR Emergency GuardDOWN AND LOCKED

47. [Automatic Pilot (only first flight of the day)CHECK DISCONNECTIONS]

CAUTION

Releasing the GUST LOCK without positive control of the yoke will result in the control column slamming forward and possibly damaging the flight controls.

- a. [If locked, unlock the flight controls by setting the GUST LOCK lever to horizontal position.
- b. Move forward the control column, engage the autopilot and
- c. Centre the flight controls.
- d. Check that none of the Automatic Pilot modes is selected on the FGCP panel on the glare shield.
- e. Set the AP selector to the ENGAGED position and check that the AP and YD connection indications on the PFD, and the WING LVL and PITCH HOLD mode indications come on and after a few seconds WING LVL changes to HDG HOLD. Wait for the reverse video to change normal green letters before further action. After each disconnection wait for AP DISCONNECTED or equivalent text to disappear from PFD/ND before further action.
- f. Check that the Automatic Pilot (AP) and Yaw Damper (YD) disengage by means of the AP DISC or GA buttons on control wheels.
- g. Check that the Automatic Pilot (AP) disengages by means of the PITCH TRIM selector on control wheel.
- h. In windy environment, engage the GUST LOCK and check the flight controls are locked.]

48. [AHCP PanelCHECK]

[Check that the ALIGN light is off. Check that there is indication of heading on PFD and ND.]

49. [MCDU2CHECK]

[Check on MCDU MENU page that the selected FMS is as required by the C/M-2.]

50. [Trim Tab checkCHECK / GUARDED]

If C/M-1 and C/M-2 start the cockpit check jointly, it is advisable for C/M-1 to perform the trim tab check.

[Turn the RUDDER TRIM selector to the right and check that the needle moves to the right. Without releasing the RUDDER TRIM selector, remove the guard on the STBY TRIMS RUDDER switch with the right hand, check the needle stops and turn the switch to move the indicator needle to the left. Close the guard and check that the needle moves to the right. Finally, leave the trim to the green band.

Press in and move DN the PITCH TRIM selector on the pilots control wheel and confirm that the needle moves NOSE DN. Without releasing the PITCH TRIM selector, remove the guard on the STBY TRIMS ELEVATOR L, R switches with the right hand and check that the needle stops. Act on both L & R switches to move both indicator needles to NOSE UP. Close the guard and confirm the needle starts to go DN. Finally, leave the trim to the green band.

Press in and move the ROLL TRIM selector on the control wheel to the right, and confirm that the NORMAL AILERON indicator needle moves down. Without releasing the ROLL TRIM selector, remove the guard on the STBY TRIMS AILERON switch with the right hand and check that the NORMAL AILERON indicator needle stops. Move the STBY AILERON indicator needle a few units down turning the STBY TRIMS AILERON switch to L. Return it to zero. Close the guard and confirm that the NORMAL AILERON indicator needle moves down. Finally, leave it to zero.]

51. Cockpit ChecklistREQUEST

C/M-1 COCKPIT PREPARATION

- 1. Emergency Equipment..... CHECK
- 2. Seat, Belts and Pedals.....ADJUST

CAUTION

Releasing the GUST LOCK without positive control of the yoke will result on the control column slamming forward and possibly damaging the flight controls.

Sit down and adjust the seat using the corresponding levers so that both black and white reference balls at the right central window are aligned. Unlock the controls by setting the GUST LOCK lever to the horizontal position. Adjust the pedals so maximum brake deflection can be reached with either pedal at the full forward throw.

In windy environment, engage the GUST LOCK and check the flight controls are locked.

- 3. Window CHECK

Check that the windshield is undamaged and that the window can be both opened and closed correctly.

OVERHEAD PANEL

- 4. FUEL SYSTEM Panel..... CHECK
 - a. TEST switchesTEST

Check that the fuel quantity indicating system works correctly by setting the switches to TEST alternately and verifying that the IEDS displays 2350±120 lb in both MAIN and AUX boxes and the sum of both quantities in the TOTAL box. In case of fault, a broken line will be displayed in the corresponding box.

WARNING

Check the maximum fuel asymmetry before takeoff.

Check that the IEDS-readings match the refuelling data. Check that the AUX magnetic indicators indicate EMPTY, when empty, and black when containing fuel.

- b. GRAVITY XFR Pushbuttons.....CHECK / OFF

Press the pushbuttons and check that the ON lights come on and the horizontal visual indicators display. Press the pushbuttons and check that the ON lights go off and the horizontal visual indicators go out.

- c. PUMPS pushbuttonsCHECK / OFF

Press the pushbuttons and check that the OFF lights go off, the RUN lights come on, and the PRESS XFR magnetic indicators go to the in-line position. Press the pushbuttons again and check that the RUN lights go off, the OFF lights come on, and the PRESS XFR magnetic indicators display the "barbers sign" indication.

- d. XFEED Pushbutton.....CHECK / OFF

Press the pushbutton and check that the ON light, and its horizontal visual indicator as well, comes on. Press the pushbutton and check that the ON light goes off and its horizontal visual indicator goes out.

5. FLIGHT CONTROL PanelCHECK

- a. PLsBELOW FI

- b. VALVE TEST LightsCHECK / OFF

Press the light and check that both L OK and R OK lights come on. Release the light and check that both L OK and R OK lights go off.

- c. ACTR PushbuttonCHECK / STBY

Press the pushbutton and check that STBY light goes off and its OFF light comes on. Press once again and check that the OFF light goes off and the STBY light comes on.

CAUTION

Releasing the GUST LOCK without positive control of the yoke will result in the control slamming forward and possibly damaging the flight controls.

If locked, unlock the flight controls by setting the GUST LOCK lever to horizontal position.

Advance LH PL to FI, then, advance RH PL to FI, check that STBY light goes off once both PLs are in FI.

Advance LH PL to MAX AUTO and check that VALVE TEST L OK light comes on. Then, advance RH PL to MAX AUTO and check that VALVE TEST R OK light comes on.

Retard LH PL to GI and check that STBY light comes on. Retard RH PL to GI.

- d. ARTCS MAINT and ARTCS MAN lightsCHECK

Press both lights and check that they come on.

e. ARTCS CHECK / AUTO

Operate the rudder pedal fully to the right to perform the test. Adjust the ARTCS AIRSPEED SEL selector successively to the LOW, MED and HIGH positions and check that the MAN light comes on and that while at LOW position, the total pedal deflection is available, though travel-reduced while at MED and HIGH positions. Finally adjust the selector to AUTO and check that the MAN light goes off and that the total pedal deflection is available. In windy environment, engage the GUST LOCK and check the flight controls are locked.

f. Rudder Booster Heater CHECK

Check that the HEATER STBY pushbutton is out and the SEC light off. Press the HEATER AUTO/MON pushbutton and check that the MON light comes on. After a few moments the ON light also comes on. After a few moments, the ON light goes off. If the ON light remains on, press the TEST button and check that the ON light goes off. Press the HEATER STBY pushbutton, check that the SEC light comes on and the RUD HT caution is not displayed in the IEDS. Finally, press the HEATER STBY pushbutton and then the HEATER AUTO/MON pushbutton.

6. ELECTRONIC CONTROL / STATUS Panel CHECK

Check that the FI SEL pushbutton is off and under guard, and that its LOW light is off. Check that the PROPELLER L, R and ENGINE L, R pushbuttons are out and their lights off.

7. ENGINE START Panel CHECK OFF

Check that the start mode selector and engine selector are set to OFF and that the pushbuttons are out and their lights off.

8. SYSTEM TEST Panel CHECK

a. TOIL SMK DET Pushbutton CHECK

Press the pushbutton and check that both TOIL SMK pushbutton light and the LAV SMK IEDS-warning come on, the WARNING master lights flash and bell rings. Press it off again and check that the IEDS-warning goes out while the pushbutton light goes off.

b. CARGO SMK DETECT Pushbutton CHECK

Press the pushbutton and check that both CARGO SMK pushbutton light and the CARGO SMK IEDS-warning come on, the WARNING master lights flash and bell rings. Press it off again and check that the IEDS-warning goes out while the pushbutton light goes off.

c. LDG GR LAMP Button CHECK

Press the button and check that the landing gear lever red light flashes. Release it and confirm that it goes off.

d. TEST BAT TEMP SwitchTEST

Hold the switch at TEST position and confirm that the following indications are given: TEST GOOD is displayed flashing alternately in the battery temperature indicator (POWER GENERATION panel); the HOT and WARM lights on both sides of the indicator come on; the BAT HOT warning is IEDS-displayed; and the WARNING master lights flash and bell rings. If there is any problem or the test detects an error, "TEST ERR" will be displayed.

e. [SWRS (only first flight of the day).....TEST

CAUTION

Releasing the GUST LOCK without positive control of the yoke will result in the control column slamming forward and possibly damaging the flight controls.

If locked, unlock the flight controls by setting the GUST LOCK lever to horizontal position.

Check that the PSHR OFF lights are on and the PSHR DSARM lights are off on both panels (C/M-1 and C/M-2). Set the switch to TEST momentarily to start the test. Check that the 1, 2 SWRS warnings are IEDS-displayed, the master CAUTION lights flash, the FAIL indication appears on both AOA indicators and the following sequence takes place:

1. Both AOA indicators move from "0.0" to "1.0", the left control column Stick Shaker is activated and the stall acoustic warning is audible. Afterwards both indicators return to "0.0".
2. Now the same takes place, this time acting on the right control column Stick Shaker.
3. Both AOA indicators move from "0.0" to "1.0". When the indicators reach "0.8", the Stick Shakers of both columns are activated and the stall acoustic warning is audible, and when the indicators reach "0.9", the Stick Pusher will act on both columns, moving them forward. Finally, both AOA indicators return to "0.0".

Press the PSHR DSARM pushbutton while the pusher is actuating and confirm that its light goes on in both panels and that the pusher stops actuating. Press again before the sequence is complete and check that it acts again.

In windy environment, engage the GUST LOCK and check the flight controls are locked.]

LEFT CONSOLE**9. OXYGEN..... CHECK / NORMAL**

1. Connect the mask to its supply-socket.
2. Set Oxygen Regulator to NORMAL: Breathe several times. Observe that flow indicator becomes clear and oxygen is obtained on inhaling without difficulty.
3. Set Oxygen Regulator to EMERGENCY: Observe that oxygen arrives, with pressure, at the mask.
4. Set Oxygen Regulator to NORMAL, leave the mask in its place.

10. COM CTL Panel..... PREPARE

- a. EMCON PushbuttonOUT (MUTE light off)
- b. INPH PushbuttonA.R.

11. Audio Panel..... PREPARE

Pull out the VUHF2, INTPH and SPKR selectors. Other setting as desired.

12. FDR Panel (only first flight of the day).....CHECK / PREPARE

Press both STATUS DFDR and STATUS FDAU indicators momentarily and check that their lights come on. Press the SENS PARAM SUPPR pushbutton and check that its ON light comes on. Finally, press the SENS PARAM RST pushbutton and confirm that the ON light goes off.

13. WHL STEER Pushbutton..... IN

Check that the OFF light on the WHL STEER Pushbutton is off or turn it off by pressing the pushbutton.

INSTRUMENT PANEL AND GLARE SHIELD**14. FLT DECK LT PanelCHECK / A.R.****15. ClockADJUST****16. AOA Indicator..... CHECK**

Check there are no FAIL warnings on the AOA indicator. Adjust V/V_S .

17. SWRS Panel CHECK

Check that the PSHR OFF light is on.

Press the PSHR DSARM pushbutton and check that the PSHR DSRM light comes on (if not already on) on both SWRS panels. Press it once again and check that it has gone off on both panels.

Check that the ON light on the SHIFT pushbutton is off. If it is on, press to turn it off.

18. BETA MODE / BETA UNLKD Lights CHECK

Press and hold the BETA MODE lights and check that they come on. Check that the BETA UNLKD light remains on.

19. [AP DSENG Light.....CHECK / OFF]

20. [EGPWS..... TEST]

[Press the TEST pushbutton and check that:

- On PFD's, INOP GPWS TERR lights, in amber colour, come on.
- On ND's, TERR FAIL lights, in amber colour, come on.
- On PFD's, GPWS lights, in amber colour, come on.
- "GLIDESLOPE" message is announced.
- On PFD's, GPWS lights turn off.
- On EGPWS panels, CNCL legends of G/S CNCL pushbutton come on.
- On EGPWS panels, CNCL legends of G/S CNCL pushbutton turn off.
- On PFD's GPWS lights, in red colour, come on.
- "PULL UP" message is announced.
- "TERRAIN, TERRAIN PULL UP" message is announced.
- On ND's, the Terrain Display self-test pattern is displayed and TERR ON lights, in white colour, turn on.
- On PFD's, GPWS lights turn off.
- On ND's, the Terrain Display self test pattern turns off after several sweeps.]

21. CAUTION and WARNING Master LightsOFF

22. [IESI..... CHECK AND ADJUST]

[The unit performs a self-test during the start-up process. When powered on, the screen remains blank for approximately 7 seconds. Then, system name and L-3 logo, aircraft type, software version and firmware version is displayed during, approximately, 5 seconds. Following, ATT ALIGNING is displayed in one line and DO NOT TAXI on a second line, as aligning messages, and, a status bar with the percentage of alignment completed is shown. Once both self-test and alignment are completed (less than 3 minutes), the screen displays proper attitude information and flags related with attitude and air data are not in view. Adjust the screen brightness through the MENU. Adjust BARO according to the barometric pressure QNH, QFE.]

23. Accelerometer.....RESET

Press the adjustment button and confirm all three needles show "1" reading.

24. EXT DOORS Panel..... TEST

Press and hold the TEST button and check that the red lights that were not on, already come on. Release the button and watch that the open door lights remain on.

PEDESTAL

25. [MCDUs..... PREPARE]

[Performs the following MCDUs actions:

- Flight Plan Initialization
- RNAV and RCOM Frequencies Selection]

26. [FMS Data Bases.....CHECK / A.R.]

[Check on the related MCDU DATABASE page that the pilot data base and the tactical data base are correct]

27. [Automatic Pilot (only first flight of the day) CHECK DISCONNECTIONS]

CAUTION

Releasing the GUST LOCK without positive control of the yoke will result in the control column slamming forward and possibly damaging the flight controls.

- a. [If locked, unlock the flight controls by setting the GUST LOCK lever to horizontal position
- b. Move forward the control column, engage the autopilot
- c. Centre flight controls
- d. Check that none of the Automatic Pilot modes is FGCP-selected from the glare shield panel.
- e. Set AP selector to the ENGAGED position and check that both AP and YD connection indications on the PFD, as well as the WING LVL and PITCH HOLD mode indications come on and after a few seconds WING LVL changes to HDG HOLD. Wait for the reverse video to change normal green letters before further action. After each disconnection wait for AP DISCONNECTED or equivalent text to disappear from PFD/ND before further action.
- f. Check both Automatic Pilot (AP) and Yaw Damper (YD) disengage by means of:
 - 1) AP DISC or GA buttons on pilots control wheel.
 - 2) Acting on the pedals until the opposing force applied by the Automatic Pilot overcomes.
- g. Check that the Automatic Pilot (AP) disengages by means of:
 - 1) PITCH TRIM selector on control wheel.
 - 2) Raising the STBY TRIMS ELEVATOR L, R selector guard.
 - 3) Pushing or pulling on the control columns.
 - 4) Acting on the Roll Control Wheel.
 - 5) Engage the GUST LOCK and check the flight controls are locked.]

28. [AHCP Panel CHECK]

[Check that the ALIGN light is off. Check that there is indication of heading on PFD and ND.]

29. [DMM A.R.]

[If required:

- a. Set the CURSOR CTL SEL in PLT DMM.
- b. In the EFCP control panel, press several times the IMG pushbutton until the map is displayed in the ND.
- c. Roll the thumb controller and check the cursor moves properly in the display.
- d. Verify that a disclaimer box warning that DMM is not primary navigation display appears and press the SELECT pushbutton on IHC to select "OK".]

30. [Trim Tab check CHECK / GUARDED]

If C/M-1 and C/M-2 started the cockpit check jointly, it is advisable for C/M-1 to perform the trim tab check.

[Check the operation of all normal trims by moving them few units and back.

Turn the RUDDER TRIM selector to the right and check that the needle moves to the right. Without releasing the RUDDER TRIM selector, remove the guard on the STBY TRIMS RUDDER switch with the right hand, check the needle stops and turn the switch to move the indicator needle to the left. Close the guard and check that the needle moves to the right. Finally, leave the trim to the green band.

Press and move DN the PITCH TRIM selector on the pilots control wheel and confirm that the needle moves NOSE DN. Without releasing the PITCH TRIM selector, remove the guard on the STBY TRIMS ELEVATOR L, R switches with the right hand and check that the needle stops. Act on both L & R switches to move both indicator needles to NOSE UP. Close the guard and confirm the needle starts to go DN. Finally, leave the trim to the green band.

Press and move the ROLL TRIM selector on the control wheel to the right, and confirm that the NORMAL AILERON indicator needle moves down. Without releasing the ROLL TRIM selector, remove the guard on the STBY TRIMS AILERON switch with the right hand and check that the NORMAL AILERON indicator needle stops. Move the STBY AILERON indicator needle a few units down turning the STBY TRIMS AILERON switch to L. Return it to zero. Close the guard and confirm that the NORMAL AILERON indicator needle moves down. Finally, leave it to zero.]

31. Cockpit Checklist REQUEST

32. Takeoff Briefing PERFORM

The Takeoff Briefing will be given by the PIC.

The Briefing is intended to inform all the crew members of the sequence of actions that have to be performed under both normal conditions and in case of failure, so as to reinforce Crew Coordination aspects appropriately.

The Briefing must include the following points, although these can be expanded if appropriate:

- Who is to act as PF and PM in each departure phase.
- Normal Departure Procedure
- Task assignment in case of aborted takeoff or continued takeoff with failure.
- Departure or return procedure with engine failure.
- ATC communication of special engine failure procedure to ATC if necessary.
- Speeds and associated altitudes (V_1 , V_R , V_2 , V_{FO} , V_{FTO} , V_{APP} , V_{TH} , V_{GA} and Acceleration Altitude and Safety Altitude).

If the same crew are performing a series of flights in succession, the Takeoff Briefing may be summarized. For example: Standard takeoff and failure procedure with revised speeds and Specific Departure and Return procedure, if any.

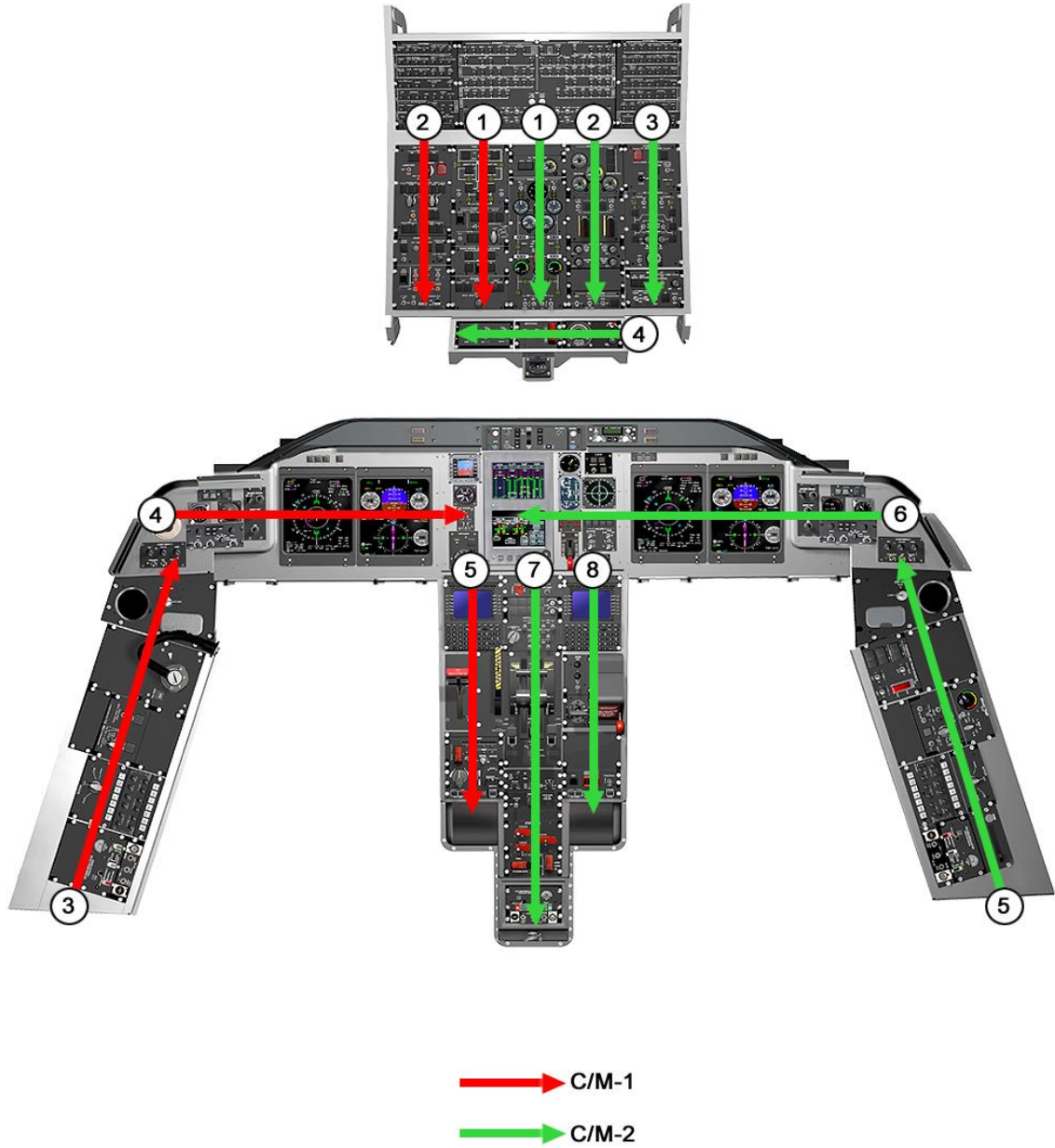


Figure 3-4 C/M-1 and C/M-2 Cockpit Preparation

ENGINES START-UP

BEFORE START

This procedure includes every action as required to prepare the aircraft for engine-starting.

- | | | | |
|-----|---|-----------|-----|
| 1. | Start Up Clearance | OBTAIN | 2 |
| 2. | Passenger/Cargo Cabin Report..... | OBTAIN | 1 |
| 3. | Parking Brake..... | SET | 1 |
| | If the brake is not set, pull back the lever and lock it. | | |
| 4. | PLs | GI | 1 |
| 5. | FFLs | OFF | 1 |
| 6. | MCDUs..... | MENU | 1/2 |
| 7. | Doors..... | A.R. | 1 |
| 8. | A-COLL TAIL Switch..... | ON | 1 |
| | Set the A-COLL TAIL switch to ON if it is not already (APU mode). | | |
| 9. | Fuel Pumps | ON | 1 |
| | Press both PUMPS pushbuttons and confirm that the OFF lights go off and the RUN lights come on. | | |
| 10. | Emergency Lights | ARM | 2 |
| 11. | [Avionic MASTER Switches | OFF] | 1/2 |
| 12. | Ground Communication | ESTABLISH | 1 |
| | Notify ground crew your intention to start-up the engines and confirm that the surrounding areas are as clear as required. Keep communications open or the marshall in sight. | | |

ENGINE START-UP

PW-127G engine has excellent start-up characteristics, even if the electrical power system (batteries or GPU) do not work fully efficient. There is no residual ITT limit to start-up the engines, and while performing it the ITTs peaks are generally well below the maximum limit. The start-up cycle is normally completed in approximately 15/20 seconds. The pilot may therefore limit himself/herself to monitor the starting sequence given below, proceeding to abort if any below mentioned conditions takes place:

CAUTION

Do not start-up the engines with tail winds above 30 kts.

1. ChronoSET TO ZERO 2
2. Start Mode (MODE SEL) SelectorA.R. 1
C/M-1 sets the start mode selector to GPU/X-START or BAT position, depending on whether the engine is to be started-up using the GPU/Cross-start or the aircrafts batteries.
3. ENGINE SEL Selector L / R 1
C/M-1 sets the ENGINE SEL selector to the position corresponding to the engine to be started-up and checks that the ARM light on the corresponding START pushbutton comes on.
4. IGN Pushbutton IN / ARM 1
C/M-1 presses on the IGN pushbutton and checks that the ARM light comes on.
5. ChronoSTART 2
6. START Pushbutton PRESS 1

C/M-1 momentarily presses the START pushbutton and calls-out the starting sequence:

- "NH"
- "10% NH FFL to START"

NOTE

If the residual ITT $\geq 250^{\circ}\text{C}$, the FFL is moved to START at 15% NH.

- "FUEL FLOW"
- "FAIL LIGHT OFF"
- "ITT INCREASING"
- "OIL PRESSURE INCREASING"
- "PROPELLER TURNING"
- Check that the NHs continue to increase and that the ITTs do not increase excessively. It is necessary to react before the ITT limit (950°C) is reached to avoid temperature exceedance.
- "ENGINE STABILIZED" (When $\text{NH}=66\pm 2\%$)
- "FAIL LIGHT OFF"
- "OIL PRESSURE STABILIZED"

- | | | | |
|-----|--|-------------|---|
| 7. | Chrono | SET TO ZERO | 2 |
| 8. | IGN pushbutton | PRESS | 1 |
| | C/M-1 presses the IGN pushbutton to disconnect the ignition and checks that the ARM light goes off. | | |
| 9. | ENGINE SEL Selector | OFF | 1 |
| | C/M-1 sets the ENGINE SEL selector to OFF position and checks that the ARM light on the corresponding START pushbutton goes off. | | |
| 10. | MODE SEL Selector (only if battery-started) | OFF | 1 |
| | Set the MODE SEL selector to OFF and check the generator input checking how its magnetic indicator goes to the in-line position. | | |

NOTE

If the engine has been battery-started, wait for the battery ammeters to decrease below 100A to start-up the other engine.

- | | | | |
|-----|---|------|---|
| 11. | MODE SEL Selector | A.R. | 1 |
| | C/M-1 sets the start mode selector to GPU/X-START or BAT position to start-up the other engine. | | |

CAUTION

In case of X-START, the BAT GEN magnetic indicator in the side of the engine running will go to crossline position and BUS UNTIE warning will be displayed in the IEDS.

- | | | | |
|-----|---|--------------------|---|
| 12. | ENGINE SEL Selector | TO OPPOSITE ENGINE | 1 |
| 13. | Steps 4 thru 9 will be repeated to start-up the other engine. | | |
| 14. | MODE SEL Selector | OFF | 1 |

CONDITIONS TO ABORT THE START-UP

- Failure of any starting sequence step.
- Hung start-up.
- No ignition within 10 seconds after advancing the FFL to START.
- No positive oil pressure indication by 45% NH.
- Engine not stabilized after 30 seconds.
- Abort signal from ground crew.
- 1, 2 EEC caution on.
- ITT limit (950°C) is anticipated to be exceeded.

WARNING

Do not attempt engine start-up again until NH has come to a complete stop.

CAUTION

The time required for the starter to cool must be observed before attempting engine start-up again (refer to SECTION I - OPERATING LIMITATIONS).

START-UP ABORTING PROCEDURE:

- | | | |
|-------------------------|-----------|---|
| 1. FFL | OFF | 1 |
| 2. IGN Pushbutton | PRESS OFF | 1 |

CAUTION

If the abort reason was high ITT, hung start-up or fire in the exhaust, C/M-1 will ventilate the engine (Maximum 25 seconds) by pressing the START pushbutton once the NHs has come to a complete stop.

AFTER START-UP

This procedure must be performed once both engines are stabilized and idling.

- | | | |
|------------------------|-------------|---|
| 1. Starting Panel..... | CHECK OFF | 1 |
| 2. [GPU..... | DISCONNECT] | 2 |

[Press the GPU pushbutton and check that the GPU ON light goes off and both 1, 2 DC GEN warnings on the IEDS go off, and while the ammeters indicate that the batteries are charging.

Ask the ground crew to disconnect the GPU. Check that the GPU light on the pushbutton goes off.]

- | | | |
|--|------------|---|
| 3. Generators (only first flight of the day) | CHECK / ON | 2 |
|--|------------|---|

Set the TEST switch on the LH generator to OVV momentarily (on even days; GF on odd days) and check that the following indications are given: the bell rings, the WARNING master light comes on, the 1 DC GEN warning is displayed in the IEDS, the generator magnetic indicator is crossed, and the BAT BUS TIE is in line. Pull the LH Generator switch and set it to RESET and then to ON. Check that the 1 DC GEN IEDS warning goes off, that the generator magnetic indicator goes in line and that the BAT BUS TIE magnetic indicator is crossed. Repeat the process with the RH generator, setting TEST to GF (OVV on odd days).

Confirm that all the magnetic indicators are in line except BAT BUS TIE.

- | | | |
|---|--------------|-----|
| 4. Avionic MASTER Switches/Pending Items (battery saving) | ON / PERFORM | 1/2 |
|---|--------------|-----|

If operating without the GPU, perform the actions and checks left pending during the Cockpit Preparations so as not to discharge the batteries.

5. Propeller Brake (if set)RELEASE 2

If the X-FEED pushbutton is in, press it off and set the LH Bleed Switch to OFF. Check that PL is at GI.

If the hydraulic pumps are not connected, set the AUTO/MAN selector to MAN and connect both no. 1 and no. 2 pumps, checking that the ON lights on the PUMPS pushbuttons come on.

Raise the guard and press the propeller brake control pushbutton. Check that the ON light goes off, the BRK light goes off, the UNLKD light comes on momentarily. Check propeller rotation.

Announce "PROPELLER BRAKE RELEASED".

WARNING

If the PROP BRK IEDS warning remains on for more than 15 seconds, stop the engine.

NOTE

Whenever it is required to apply the propeller braking, proceed as indicated in "Parking".

6. Bleeds ON 2

C/M-2 sets the Bleed switches to ON and confirms magnetic indicators go to in-line position.

7. Air Conditioning.....SET 2

Adjust the TEMP AUTO CONT selectors as required.

8. PressurizationRESET 2

Set the Pressurization Mode selector to MAN and then back to AUTO. Check that the FAULT light comes on momentarily and then goes off again. If the FAULT light does not light or remains on, there is an automatic control failure.

9. MCDUs.....CHECK / PREPARE 1/2

- a. C/M-1 and C/M-2 select the communication and navigation frequencies (and IFF) on his respective MCDU.
- b. Each C/M checks failure messages pages for RMS.
- c. C/M-1 checks sensor status.
- d. C/M-1 checks FPLN or performs the FPLN Init.
- e. C/M-2 checks / prepares the weight and performance data.
- f. Each C/M checks failure messages for RMS.

10. Index Control Panel (ICP).....	SET	1/2
Both C/Ms make the following settings:		
– Adjust the SPEED BUGS according to the speeds calculated for takeoff.		
– Adjust BARO SET according to the barometric pressure (QNH/QFE).		
– Set the DH required.		
11. Altimeters	SET IESI / X-CHECK	1/2
C/M-1 adjusts baro setting on IESI using the reported QNH/QFE, and C/M-1 and C/M-2 cross check altimeters reading.		
12. Electronic Flight Control Panel (EFCP)	SET	1/2
Set values and configuration as required.		
13. Flight Guidance Control Panel (FGCP)	CHECK / SET	1/2
a. Check the NAV SRCE selector acts on PFD and ND, and adjust to any position different from FMS1 and FMS2.		
b. Check the FGCP panel and set the HSI selector as required.		
c. Check that the COURSE selector acts on both PFD and ND, and adjust as required.		
d. Check that the HDG selector acts on both PFD and ND, and adjusts as required.		
e. Check that the selected altitude (ALT) acts on both PFD and ND, and adjust as required.		

TAXI

BEFORE TAXI

1. Chocks REMOVE 1
Be alert to ground crew signals.
2. Hydraulic Pumps AUTO / CHECK ON 2
3. Propellers UNFEATHER 1
 - a. Advance the left FFL to RUN.
 - b. Check that the Fail Light on the POWERPLANT MAINT comes on momentarily.
 - c. Monitor de IEDS to confirm that the NP reading increases, crossing the amber zone and stabilizing at around 71%.
 - d. Confirm that the corresponding BETA MODE lights on the pilots and copilots instrument panels come on.
 - e. Repeat for the right propeller.
4. PWP Maintenance Panel CHECK 2
5. Autofeather / APR (only first flight of the day) CHECK / ON 2
For the first flight of the day, with the system in OFF, the PLs at GI, both propellers unfeathered and the PRS selector on TOGA position, perform the following check:
 - a. Test Switch TEST 2
Check that if the test switch is set to TEST position the ARM light on the ARM/ON pushbutton comes on and that the torque indications on both engines increase to $78 \pm 3\%$ TQ.
 - b. ENG Switch L 2
Momentarily set the ENG switch to L position and release. Confirm that the ARM light on the ARM/ON pushbutton goes off, that the APR message is displayed at the top of the scale for the RH engine and that the left propeller is fully feathered (the propeller speed decreases to below 15% NP and the LH engine BETA MODE lights go off).

c.	Test Switch	OFF / RST	2
	Set the Test Switch to OFF/RST position and wait for the left propeller to unfeather (the LH engine NP increases and the BETA MODE lights come on). Check that both engines recover the same readings they had prior to the test.		
d.	RH engine	REPEAT STEPS a, b AND c	2
e.	ARM/ON Pushbutton	ON	2
	Press the ARM/ON pushbutton and confirm that the ON light comes on so as to leave the system connected prior to takeoff.		
6.	ICE PROTECTION Panel	CHECK / A.R.	1
a.	SOV Pushbutton	PRESS OFF / UNDER GUARD	
	Check that the SOV pushbutton is out (OFF light off) and under guard.		
b.	WING & TAIL	CHECK / MAN	
	Set the MODE SELECT de-icing selector to any of its HVY ICE or LT ICE positions and, with the de-icing supervision switch set to MON, check the boot inflate sequence (the ON lights on WING&TAIL de-icing pushbuttons come on in sequence). Finally, leave the MODE SELECT de-icing selector on MAN position.		
c.	ICE DET	CHECK / ON	
	Set the ICE DET switch to ON and check that the ICE FORM caution is not immediately displayed in the IEDS.		
d.	WINDSHIELD	CHECK / A.R.	
	Press both L & R WINDSHIELD pushbuttons and check ON lights come on. Leave them as required.		
NOTE			
If this check is performed above 25° Celsius OAT, WSHLD caution could be displayed on IEDS.			
e.	AOA.....	CHECK / ON	
	Press both L & R AOA pushbuttons and check OFF lights go off. Check also the ammeter reading increases.		
f.	PITOT.....	CHECK / ON	
	Press L, R and AUX PITOT pushbuttons, check OFF lights go off and 1 PITOT, 2 PITOT and AUX PITOT caution messages go off.		

- g. Propeller..... CHECK / A.R.

CAUTION

Perform this check in less than 2 minutes if the external temperature is above 15°C.

Press both L and R propeller de-icing pushbuttons, checking FAIL lights come on and that the 1 and 2 P/D-ICE cautions are displayed in the IEDS. After 10 seconds, all the cautions should then go off and the ON lights come on.

Finally, leave both L and R pushbuttons as required.

- h. AIR INLET CHECK / A.R.

Press both, L ENG and R ENG air inlet de-icing pushbuttons and check ON lights come on.

Finally, leave AIR INLET de-icing pushbuttons as required.

- | | | |
|-----|---|-----|
| 7. | BleedsOFF | 2 |
| | Set both bleed switches to OFF and confirm that their magnetic indicators move to the crossed position. | |
| 8. | MISC XFR Pushbutton.....CHECK OFF | 2 |
| | Check the ON green light, in the MISC XFR pushbutton, is off. | |
| 9. | MISC BusesON / CHECK | 2 |
| | Set MISC master switches to ON and check the OFF amber light, in both MISC master indicators, go off. | |
| 10. | Recirculation Fans ON | 1/2 |
| 11. | Bleeds ON | 2 |
| | Set both bleed switches to ON and confirm that their magnetic indicators move to the in-line position. | |
| 12. | Passenger Signs..... ON | 2 |
| 13. | Flaps..... T/OFF / B.I.T.E. | 2 |

Set the FLAPS lever to the T/OFF position and check the indicator until the needle reaches TO.

NOTE

For taking off with flaps at 15°, the lever is moved to the APPR position. The Unsafe Takeoff warning will sound when Takeoff Power is applied.

Once the flaps in T/OFF, press the FLAPS BITE pushbutton momentarily and confirm that when released both FLAPS BITE and FLAPS SEQ lights on the panel come on for a moment, both FLAP ASYM warning and FLAP FAIL caution message are IEDS-displayed, and the FLAPS BITE light remains on throughout the cycle.

Check that the flaps indicator oscillates slightly.

NOTE

If any light remains on, press RESET and repeat the test. If the fault persists, the flaps system is inoperative.

14. Weather Radar.....	CHECK / A.R.	2
<p>Test the weather radar before the first flight of the day. The unit will start 100 seconds after the function selector is set to STBY. The WX STBY message will be NDs-displayed in white instead of WX OFF. Select display in heading up mode on the NDs and a range of 80 NM on the EFCP. Set the function selector to TST position. A test template is NDs-displayed in a sector of 120° (±60° from the nose of the aircraft). The WX TEST legend (WX in white and TEST in yellow) displays at the NDs bottom LH corner. Move the function selector from the TST position to end the test and set it as required.</p>		
15. Communication, Navigation, IFF and TCAS.....	CHECK / SET	1/2
16. Altitude Selection	SET	1
<p>C/M-1 enters the first altitude to maintain.</p>		
17. SWRS Panel (AOA SHIFT)	OFF	1/2
18. Doors.....	CHECK CLOSED	1/2
19. Taxi Clearance	OBTAIN	2
<p>C/M-2 requests taxiing clearance and instructions.</p>		
20. FMS / RMS.....	CHECK NO MESSAGES	1/2
21. Exterior Lights	TAXI ON / A.R.	1

TAXI

Performance of this procedure ensures that the aircraft is both safely and properly configured for takeoff.

1. Block TimeWRITE DOWN 2
2. Side AreaCHECK CLEAR 1/2

Each C/M checks its aircraft side is clear.

3. Parking Brake.....RELEASE 1

Pull the trigger upwards and release the Parking Brake lever; let it move unaccompanied to its front end.

CAUTION

If the lever movement is smooth, residual pressure may be left in the brakes.

4. BrakesCHECK 1/2

When taxi initiates, C/M-1 checks with the normal brakes that braking is smooth and symmetrical. Then C/M-2 repeats the check.

5. Flight and Navigation InstrumentsCHECK 1/2

Both C/Ms confirm that the instrument readings are normal and that there are no fault warnings displayed.

They confirm that the headings are synchronized, that they reflect changes in the aircrafts heading, and that they indicate the correct heading.

6. Engine InstrumentsCHECK 2

Check that all the engine instruments readings are normal.

7. Takeoff BriefingCONFIRM (OR UPDATE) 1

8. Cabin ReportRECEIVE PIC

TAKEOFF

The takeoff can be performed following different techniques depending on the type of mission, weather conditions and runway status. Whichever the technique used, take into account the operating limitations shown in both Section I and the Emergency Procedures of Section IV.

BEFORE TAKEOFF

This procedure must be completed immediately before entering the operative runway.

- | | | |
|---|--------------|-----|
| 1. Windows..... | CHECK CLOSED | 1/2 |
| Check that the windows are closed and locked. | | |
| 2. Gust Lock | RELEASE | 2 |
| 3. Flight Controls | CHECK | 1/2 |

CAUTION

Releasing the GUST LOCK without a positive control of the yoke will result in the control column slamming forward and possibly damaging the flight controls.

C/M-1 asks for "FLIGHT CONTROL CHECK". C/M-2 pushes the Gust Lock lever locker and, while holding the column, pulls the lever slightly to release the locker and set up the lockdown device. The controls are required to be held firmly in case of strong wind.

C/M-1 announces "RUDDER: FULL LEFT, FULL RIGHT" and while holding the nose wheel centred, checks that the foot pedals move freely throughout their travel both left and right.

C/M-2 announces "AILERONS: FULL LEFT, FULL RIGHT" and checks that the control wheel moves freely by turning it fully to both left and right.

C/M-2 announces "ELEVATOR: FULL UP, FULL DOWN" and checks that the control column moves freely all the way both forward and backward.

- | | | |
|--|-------------------------|---|
| 4. ARTCS | AUTO / NO FAIL LIGHT | 2 |
| 5. Autofeather / APR | CHECK ON | 2 |
| 6. Flaps..... | CHECK T/OFF | 2 |
| 7. Trim Tabs | ZERO, ZERO, GREEN BANDS | 2 |
| C/M-2 adjusts the stabilizer for the calculated CG (within the green band) and checks that the rudder trim is in the green band and the aileron trims are at zero. | | |
| 8. PRS | TOGA | 2 |
| 9. IEDS Screen | NO LIGHT / NORMAL | 2 |
| Check that no warning or caution message is displayed. | | |

- | | | |
|---|---------------|---|
| 10. LINE UP / TAKEOFF Clearance..... | OBTAIN | 2 |
| 11. EGPWS | A.R. | 2 |
| 12. Weather Radar..... | A.R. | 2 |
| <p>If radar information is required for takeoff, C/M-2 sets the Mode selector to WX or WxA. Selects the desired range.</p> | | |
| 13. IFF / TCAS | TA/RA / ABOVE | 2 |
| <p>The TCAS must be set to TA/RA, and it is also recommended to set it in ABOVE.</p> <p>Nevertheless, it can be set only to TA ONLY during takeoff towards known nearby traffic which is in visual contact, and which could cause an unwanted RA during initial climb. The TA/RA mode should be selected as soon as practical after the potential for an unwanted RA ceases to exist.</p> | | |
| 14. Brake Temperature | GREEN BAND | 2 |
| 15. PWP Maintenance Panel | CHECK | 2 |
| 16. Bleeds | OFF | 2 |

Set both bleed switches to OFF one at each step.

CAUTION

In ice-formation conditions do not start takeoff if the engine oil temperature is below 45°C (white triangle on the vertical indicator scale). See Section V "All-Weather Operations".

TAKEOFF

- | | | |
|---|----------|-------|
| 1. Exterior lights | A.R. | PM |
| <p>If required by PF, PM sets the LANDING switches to ON.</p> <p>For aviation regulations purposes, if the stroboscopic anti-collision lights are used it is admitted not to use the landing lights during day-time operations.</p> | | |
| 2. Chrono | START | PF/PM |
| 3. Brakes | RELEASE | PF |
| 4. Directional Control | MAINTAIN | PF/PM |
- Rudder directional control starts to be effective around 40 kt. Nevertheless, C/M-1 will keep his left hand on the steering wheel until C/M-2 has announced "SEVENTY KNOTS" in case it is necessary to use it due to a wheel failure or power asymmetry. When the C/M-2 announces "SEVENTY KNOTS", the C/M-1 takes his hand off the steering wheel and puts it on the control column.

The C/M-2 holds the control column in a mid-forward position, to prevent the nose wheel from lifting off, and he compensates the wing up tendency, acting the control wheel into the wind to maintain wings level as required.

CAUTION

The C/M-1 must not operate the Nose Wheel Steering above 70 kt. It would delay the nose wheel auto-centred and may lead the wheel to hit the NLG housing during the retraction, being this condition susceptible for a wheel jamming or an abnormal indication of the NLG status.

5. PowerADJUST PF/PM

If crosswind is below 15 kt, a static takeoff can be initiated from a static start with the parking brake applied and maximum takeoff power reached before the brakes are released. However, when runway length is not a limiting factor, a rolling takeoff may be performed, with the aircraft both braked-off and lined- up on the runway with the brakes off, move the PLs forward gently until takeoff power is reached while rolling.

Under stronger crosswind conditions (crosswind above 15 kt) refer to the "SECTION II- FLIGHT CHARACTERISTICS" procedure.

PF moves PLs to FI until engine parameters are stable, then PF moves both PLs to MAX-AUTO position, Pilot will hold his hand on them until reaching V1.

NOTE

Bear in mind that there is a delay from the moment PLs are set in MAX AUTO position to engines reach the real torque value (around 8 second).

When the PLs are set to MAX-AUTO, PF announces "MAX AUTO". The BETA MODE lights go off and the autofeathering system ARM light will come on at 48% TQ.

PM checks that the torque indicators show the takeoff torque and continues monitoring the engine/propeller readings to ensure they are within green bands up to 70 kts.

6. Autofeather / APRCHECK PM

7. SpeedsANNOUNCE PM

PM announces "SEVENTY KNOTS", "V1" and "ROTATE" when each speed is reached.

After the "SEVENTY KNOTS" announced, C/M-1 releases the steering wheel to hold the control wheel with his left hand and announces "I HAVE CONTROL".

C/M-2 answers "YOU HAVE CONTROL" and releases the controls.

After V1 announce, PF releases PLs.

8. RotationCOMPLETE PF

At V_R, PF should rotate the aircraft to reach the initial climb pitch.

9. Landing gearRETRACT PM
- PM, with a radio altitude reading above 20ft, ensures that the aircraft has achieved a positive rate of climb and announces "POSITIVE CLIMB".
- PF checks on his variometer and requests "GEAR UP".
- PM acknowledges by repeating "GEAR UP", pulls the grip and raises the Landing Gear Lever to UP. When the landing gear three visual indicators show UP and the red light on the lever goes off, PM announces "THREE UP".
10. Taxi and T/OFF LightsOFF PM
11. Flaps.....UP PM
- At 400 ft AGL PM announces "ACCELERATION ALTITUDE". If a manoeuvre to clear obstacles makes it necessary to accelerate to another previously established altitude, PM will announce the new altitude.
- PF accelerates to flap-retraction speed and asks for "FLAPS UP".
- PM verifies that the retraction conditions have been met and acknowledges by saying "SPEED CHECKED". Move the FLAPS lever to UP position and watch the indicator. When the needle reaches up, PM announces "FLAPS UP".
12. SpeedACCELERATE TO V_{CL} PF
13. HDGSELECT REQUESTED PM
- PM selects the heading announced by the PF.
14. HDG (or LNAV) AND IAS FD MODES PRESS PM

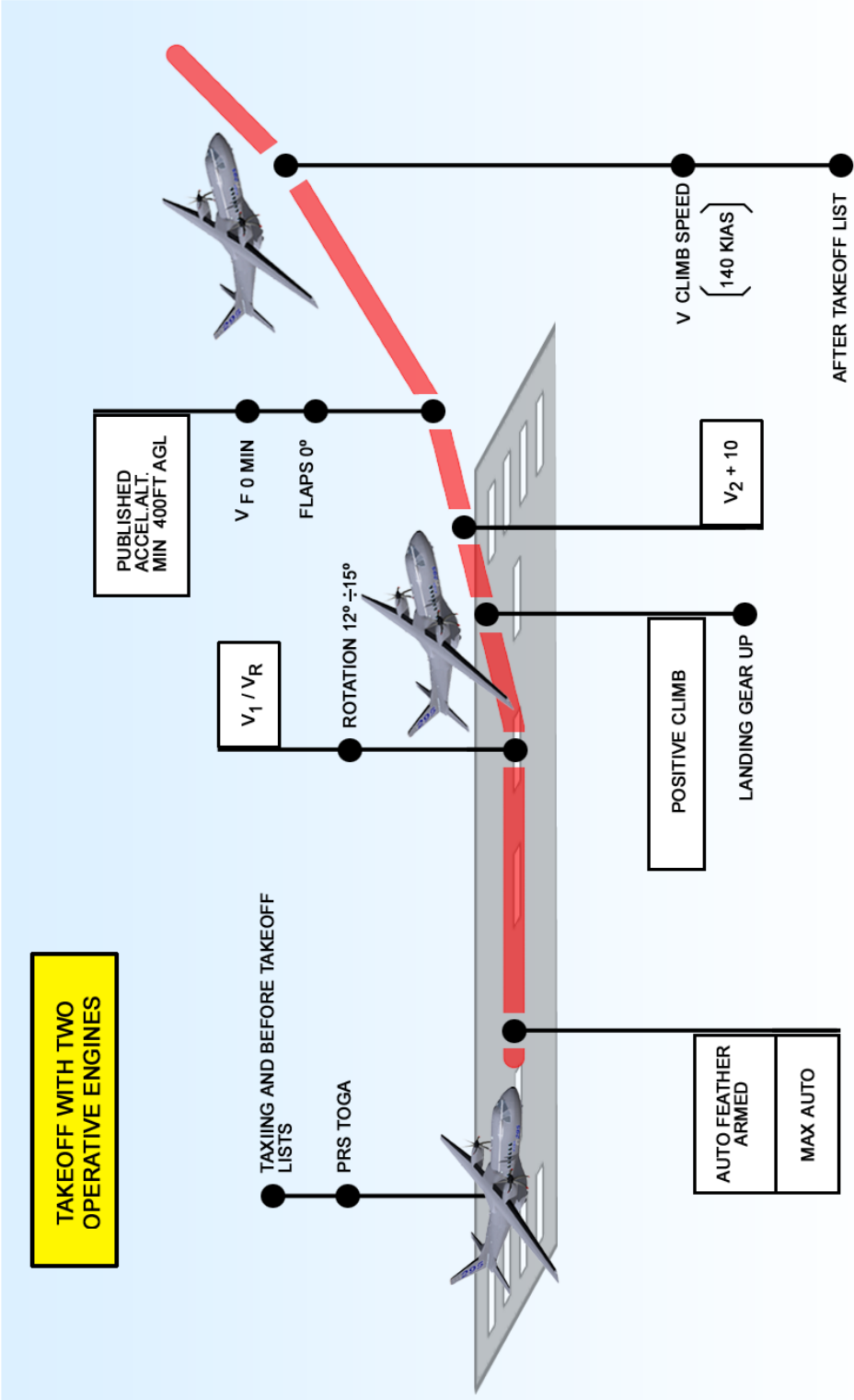


Figure 3-5 Takeoff

AFTER TAKEOFF

This procedure must be performed during the takeoff final phase. Completing this procedure ensures that the aircraft is correctly configured for the subsequent flight phase.

1. Landing GearCHECK UP PM
2. Flaps.....CHECK UP PM
3. PRSCLIMB PM

PF asks for "CLIMB POWER" and PM acknowledges by repeating "CLIMB POWER". Then sets the Power Selector to CLB, checks both bugs movement and the corresponding engine readings and reports-back "POWER ADJUSTED".

4. Autofeather / APRDISCONNECT PM

When PF asks for "CLIMB POWER", press ARM/ON pushbutton on FEATHER/APR panel and check that ARM light goes off disconnecting Autofeather system.

5. Bleeds ON PM

Set both bleed switches to ON and confirm that their magnetic indicators move to the in-line position.

6. Hydraulic PumpsA.R. PM

If the hydraulic power is not necessary immediately, it is recommended to disconnect the hydraulic pumps.

7. Exterior LightsA.R. PM

If a new touch is going to be performed next, continue with "BEFORE LANDING" procedure.

8. Anti-Icing and De-Icing.....A.R. PM

9. Air-Conditioning and PressurizationCHECK PM

Check both cabin temperatures and adjust them as appropriate.

Verify the cockpit rate of climb is below 600 fmp. If above, try to reduce it by using the R rate selector or following the manual pressurization control procedure.

-
10. AltimetersSET & X-CHECK PF/PM

While the transition altitude is crossed, if reached, PM announces "STANDARD SET" and "CROSSCHECK PASSING FL_ NOW". C/M-1 and C/M-2 adjust their altimeters to 1013 mb / 29.92 Hg and cross check their indications.

CLIMB AND CRUISE

CLIMB

1. PRS	CLB	PM
2. AFCS.....	A.R.	PF/PM
3. FD Lateral Mode	A.R.	PF/PM
4. FD Vertical Mode	IAS / SET	PF/PM
5. Weather Radar.....	A.R.	PM
6. Aircraft and Engine Systems	MONITOR	PM
<ul style="list-style-type: none"> – <i>Engines:</i> if workload do permit, check TQ, ITT, NP and NH to ensure that they are within normal operating limits. Confirm that the fuel flow is normal and both oil pressures and temperatures are normal. – <i>Fuel:</i> check that the RUN lights on the Fuel PUMP pushbuttons are off and that the asymmetry limits are not exceeded. If a precise reading of the fuel quantities is required, wait until level flight with no acceleration is achieved. – <i>Air-Conditioning and Pressurization:</i> check that the cabin rate of climb is normal and both cabin pressure and altitude differentials are normal. 		
7. Pre-Selected Altitude Capture	MONITOR	PF/PM
<p>A thousand feet before reaching the authorized altitude PM announces "ONE THOUSAND TO GO" and verifies both acoustic warning is audible and that the ALRT indication is PFDs-displayed in reverse video. At 200 feet from the selected altitude the ALRT indication displays normally again.</p>		
8. Cruise Data	CALCULATE	PM
9. Cruise Level	CAPTURE	PF
ABOVE 10000FT:		
10. Landing Lights.....	CHECK OFF	PM
11. Passengers Signs	A.R.	PM
12. Pressurization	CHECK	PM
13. NDs Configuration.....	A.R.	PF/PM

CRUISE

1.	AFCS.....	A.R.	PF/PM
2.	FD Lateral Mode	A.R.	PF/PM
3.	Cruise Speed	OBTAIN	PF
	Accelerate, using the climb power (CLB) until the planned cruise speed is reached.		
4.	PRS.....	CRZ 1 or CRZ 2	PM
	Once the aircraft is levelled, set the Power Selector to the desired cruise setting (CRZ1 or CRZ2). The EECs calculate the new torque cursor values and adjust the engine powers automatically.		
5.	Aircraft and Engine Systems	MONITOR	PM
	Following the normal sequence, monitor the aircraft and engine systems.		
6.	Engine Trend Monitoring.....	RECORD	PM
	Once the aircraft is cruising and both its speed and attitude have been stabilized, press both C and DN pushbuttons on the IEDS simultaneously for 2 seconds to record the parameters for subsequent downloading (Trend Monitoring).		
7.	Pressurization	CHECK	PF
	Confirm that the cabin rate of climb is zero and both cabin pressure and altitude differentials are normal.		

DESCENT AND CIRCUIT

The descent can be normal or fast.

The normal descent with two operative engines is configured with flaps up, landing gear retracted, and can be performed at 180 KIAS with a fixed descent vertical speed between 1200 and 1600 fpm (PRS in CRZ1 - 90% NP) or at 200 KIAS and at an idle selected power (FI) (PRS in CRZ1 - 90% NP). This last descent is the recommended one for minimum fuel consumption.

The fast descent with two operative engines is configured with flaps up, landing gear retracted, and can be performed at 200 KIAS and a low idle selected power (FI SEL pushbutton in, LOW light on) (PRS in CRZ1 - 90% NP). While at this type of descent, the descent vertical speed is within 2000 to 4000 fpm interval, depending on the aircraft actual weight.

DESCENT PREPARATION

1. Landing Airport Data	OBTAIN	PM
2. Fuel Quantity	CHECK	PF
Cross-check both fuel quantity and consumption readings.		
3. Descent Point	CALCULATE / CHECK	PF/PM
4. Minimum Safe Altitude (MSA)	REVIEW / CHECK	PF/PM
PF and PM determine and cross-check (by using the appropriate documentation) the minimum flight levels and altitudes for both descent and approach.		
5. MCDU	PREPARE / CHECK	PF/PM
6. Flight and Navigation Instruments	SET	PF
Both C/Ms cross-check that their flight and navigation instruments agree.		
7. Landing Speeds / DH / MDH	SET / CHECK	PF/PM
8. App / Landing Briefing	COMPLETE	PF
PF highlights the route minimum safe altitudes and the specific aspects concerning both envisaged approach and landing. The briefing should include at least:		
1. Summary of the approach manoeuvre to follow.		
2. Procedure for a missed approach.		
9. Pressurization	SET	PM
10. Circuit breakers	CHECK	PF/PM
11. Batteries	CHECK	PM
12. Descent Clearance	OBTAIN	PM
At request from PF, PM obtains ATC permission to descend.		

13. Altitude PreselectionSET PF

Enter the first ATC-assigned altitude for the descent.

If the flight is being performed manually, the PF focuses exclusively on controlling the aircraft and requests mode selection and altitude preselection from the PM.

14. DescentINITIATE PF

15. Reaching the Pre-Selected Altitude.....MONITOR PF/PM

A thousand feet before reaching the authorized altitude PM verifies that the acoustic warning is audible and that the ALRT indication is PFDS-displayed in reverse video. At 200 feet from the selected altitude the ALRT indication is again displayed normally.

16. Landing Lights.....CHECK ON PM

17. Passengers Signs ON PM

18. NDs Configuration.....A.R. PF/PM

APPROACH

NOTE

This procedure is applicable even with ramp and/or cargo door open.

1. Altimeters (at transition level)SET QNH 1/2
While transition level is crossed, C/M-1 and C/M-2 set their altimeters to QNH.

-
2. PRS TOGA PM
At PF request, PM sets the PRS selector to TOGA position.

3. Autofeather / APR ON PM
Check that the amber ON light on the switch-light comes on.

4. TAXI and T/OFF Lights ON / A.R. PF
Set the TAXI switch to ON and the T/OFF switch to the required position.

5. Landing DataCONFIRM PF/PM
Data include V_{REF} , operative runway and its condition, wind and landing weight.

6. NAV Accuracy CHECK PM

BEFORE LANDING:

7. Anti-Icing, De-Icing and AOA SHIFTA.R. PM

NOTE

If the surface de-icing system is disconnected, press SHIFT on the SWRS panel to turn off its ON light.

8. Hydraulic Pumps MAN/ON PM
PM confirms that the ON lights on the PUMP pushbuttons are on and that the pressure reaches 3000 PSI.

9. ARTCS CHECK PM
PM checks that the selector is set to AUTO and that the MAN light is off.

10. BleedsA.R. PM
Keep all the bleeds connected. When the Maximum Power + APR is limited by pressure/altitude and/or temperature, they are to be disconnected if a Go-Around is envisaged.

11. EGPWS Inhibitions CHECK PM

12. Exterior LightsA.R. PM

13. FlapsA.R. PM

14. Landing gear DOWN / THREE GREENS PM

PF asks for "GEAR DOWN". PM acknowledges by repeating "GEAR DOWN", pulls the grip and sets the Landing Gear Lever to DOWN. When the three visual indicators display in green, he announces "THREE GREENS".

15. AP / YD DISENGAGE PF

Before reaching 200 feet, PF disconnects the automatic pilot (or checks that it is disconnected).

Before touchdown, Yaw Damper must be disconnected.

LANDING

LANDING

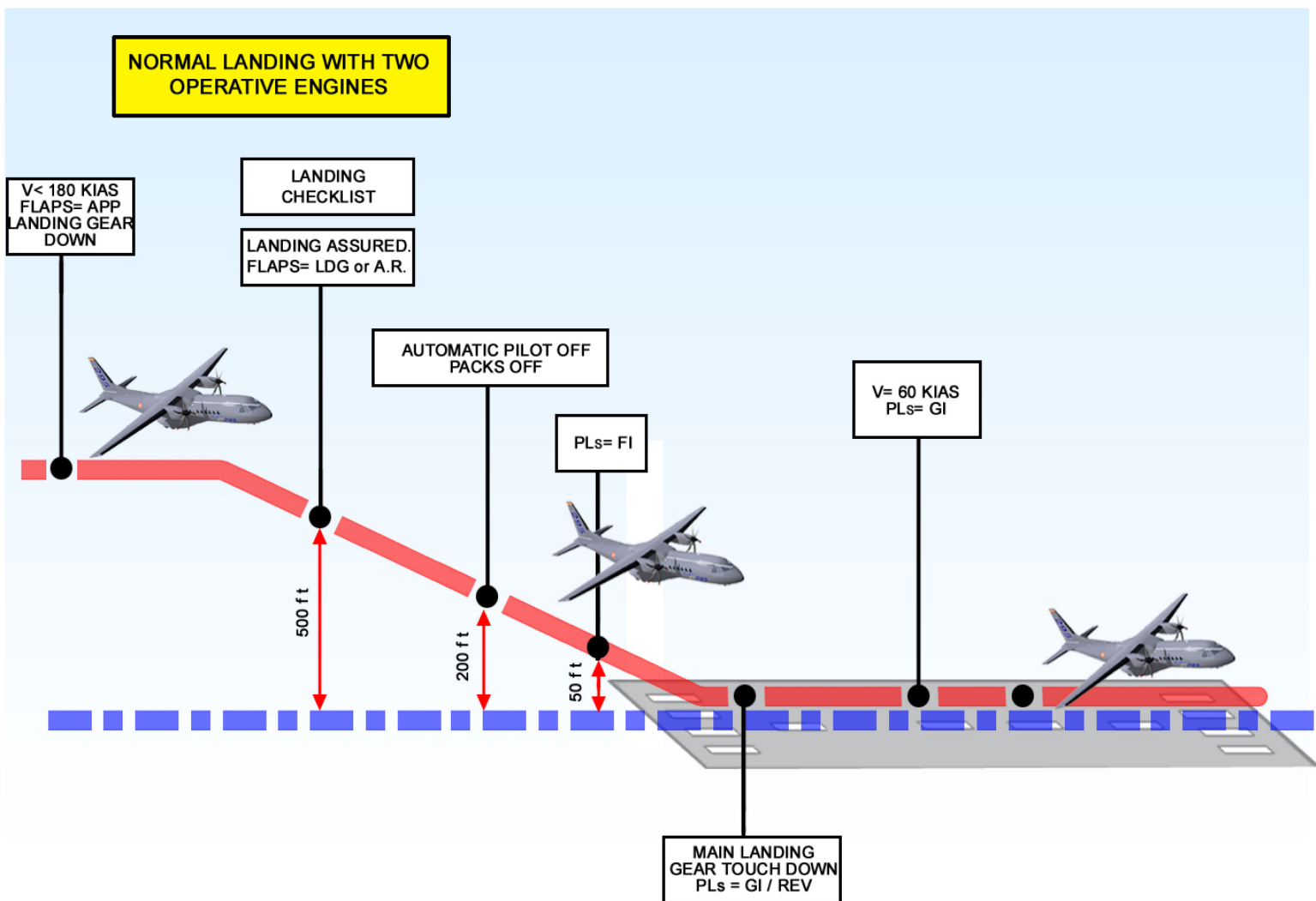
- | | | | |
|----|---|----------|----|
| 1. | PLs | FI | PF |
| 2. | Nose-Wheel Contact..... | OBTAIN | PF |
| | <p>As soon as the main landing gear is firmly on the runway, PF uses the elevators to bring the nose landing gear smoothly into runway contact. At this moment he announces "YOU HAVE CONTROL". C/M-2 holds the control wheel and announces "I HAVE CONTROL" holding the control column slightly forward and using the ailerons to keep the wings levelled. C/M-1 then places his left hand on the Nose Wheel Steering Control.</p> | | |
| 3. | Reverse Thrust..... | A.R. | PF |
| | <p>When the nose wheel touches down, PF raises the PLs triggers and retards PLs to GI and then to the required reverse power range position. Check BETA MODE lights are on at that time.</p> | | |
| 4. | Directional Control | MAINTAIN | PF |
| | <p>C/M-1 keeps directional control with the foot pedals up to around 40 kts. From that point on, he drives the aircraft acting on the NOSE WHEEL STEERING wheel.</p> | | |
| 5. | PLs | GI | PF |

CAUTION

Remaining at low speeds with maximum reverse thrust (MAX REV) can force the controls to shake strongly.

- | | | | |
|----|--|------|----|
| 6. | Brakes | A.R. | PF |
| | <p>PF operate the brakes smoothly and progressively as the speed drops, in order to achieve comfortable braking.</p> | | |

Figure 3-6 Normal Landing



GO-AROUND

If manoeuvre has to be interrupted while at approach phase, proceed as follows:

1. GO-AROUND.....ANNOUNCE 1
 PF announces "GO-AROUND" as soon as the decision is made.
2. GA Pushbutton..... PRESS 1
3. PLsMAX AUTO 1
 Simultaneously move both PLs forward until reaching MAX AUTO position.
 In case of performing an approach with one engine out, advance just the operative engine PL until reaching MAX AUTO position. Immediately, turn off the bleed switches.
4. Aircraft Control OBTAIN 1
 Rotate the airplane to an attitude no more than 15°.
5. Flaps.....APPR 2
 If the flaps are at LNDG set them to APPR.
6. Landing gearRETRACT 2
 Retract the landing gear as soon as a positive rate of climb is achieved.
7. Speed..... $V_{REF} + 12$ KIAS 1
 Establish a climb speed of at least $V_{REF} + 12$ KIAS. In case of airframe ice accretion, establish $V_{REF} + 15$ KIAS.
8. Continue operation as if performing a normal takeoff.

TOUCH AND GO

If several landings and takeoffs are being performed, the following procedure can be accomplished once the aircraft is grounded:

- | | | | |
|----|--|-------------------------|----|
| 1. | PLs | FI | PF |
| 2. | Nosewheel Contact..... | OBTAIN | PF |
| 3. | Directional Control | MANTAIN | PF |
| 4. | Flaps..... | T/OFF | PM |
| | <p>With the nosewheel on the ground or when the braking phase is complete, PF announces "TAKEOFF". PM sets the FLAPS lever to T/OFF position and checks the indicator.</p> | | |
| 5. | Trim Tabs..... | ZERO, ZERO, GREEN BANDS | PM |
| | <p>PM checks that the aileron trim tabs are set to zero and both rudder and elevator trim tabs are in the green zone or sets them to this position if they are not. When this configuration is achieved, PM announces "READY".</p> | | |
| 6. | PLs | MAX AUTO | PF |
| | <p>PF moves forward both PLs to MAX-AUTO position and keeps his right hand on both PLs until reaching V_1 (V_R).</p> | | |

AFTER LANDING AND PARKING

AFTER LANDING

This procedure must be performed once exiting the runway. It ensures that the aircraft is safe for ground operation after landing and prepares it for parking.

NOTE

If the brake OVHT red light is on, taxiing should be done with minimum use of the brakes.

1. Flaps.....	UP	PM
Set the FLAPS lever to UP and confirm that the indication is correct.		
2. Gust Lock Lever.....	ENGAGE	PM
3. Weather Radar / IFF / TCAS	OFF / STBY	PM
Set the Weather Radar to OFF position. Set also both, IFF and TCAS to STBY position.		
4. Autofeather / APR.....	OFF	PM
Press the ARM/ON pushbutton to disconnect the system and confirm that the ON light goes off.		
5. Air Conditioning.....	A.R.	PM
6. Pressurization	CHECK DIFFERENTIAL ZERO	PM
Verify that the differential pressure is zero.		
If significant residual pressure remains discharge it manually (MAN) with the Manual Altitude Selector set to UP. If the differential pressure is short (<0.2PSI), operate the PRESS DUMP switch.		
7. Flight Guidance Control Panel (FGCP)	ALL MODES OFF	PM
8. Communication / Navigation Equipment	A.R.	PM
PM disconnects unnecessary equipment.		
9. Anti-Icing and De-Icing.....	OFF / A.R.	PM
Disconnect both anti-icing and de-icing systems, the Pitot and AOA heating, and the ice-detector if no tactical stop over is going to be performed immediately.		
10. Exterior lights	A.R.	PM
PM sets the LANDING switches to OFF and both TAXI and TURN OFF switches as required.		

For tactical operations, when it is necessary to takeoff as soon as possible, it is recommended not to feather the propellers and go from "AFTER LANDING" to "TACTICAL STOPOVER" and "BEFORE TAKEOFF" after that.

PARKING

This procedure allows the aircraft to stop safely. If the aircraft is going to be used in Hotel mode, park the aircraft such that its direction relative to the wind minimizes both engine noise and interferences from the exhaust gases. The propeller brake must not be used with tail wind.

- | | | | |
|----|-----------------------|------|----|
| 1. | Exterior lights | A.R. | PF |
|----|-----------------------|------|----|

Adequate attention to the exterior lights configuration should be paid in order to avoid ground crew dazzling. Specifically, anticollision light could create the false impression that the propellers are not turning. If ground crew or any personnel are close to the aircraft set LOWER ANTI COLL light off and switch-on the wing inspection light as long as the engines are running.

Set the A-COLL LOWER switch to OFF.

- | | | | |
|----|-------------------------|-------|----|
| 2. | Brake Temperature | CHECK | PM |
|----|-------------------------|-------|----|

CAUTION

If the brake OVHT light is on, do not leave the parking brake set. Check that the brake unit is overheated and notify ground crew. Keep all personnel clear of the landing gear area for at least five minutes. Ensure that the chocks are in place before releasing the brakes. Bear in mind that the maximum brake temperature is attained a short while after brakes are operated.

- | | | | |
|----|------------------------------|-------|----|
| 3. | Parking Brake..... | SET | PF |
| 4. | Bleeds | OFF | 2 |
| 5. | MISC Buses | OFF | 2 |
| 6. | PLs | GI | 1 |
| 7. | FFLs (one at each time)..... | START | 2 |

C/M-2 retards the FFLs one at each time to START position.

C/M-1 will advise C/M-2 as to whether or not he is going to shut-down the engines. It is advisable not to shut-down the LH engine if the stopover is short and no GPU is available.

NOTE

Before retarding the FFLs to OFF, the engines must be stabilized for at least 20 seconds with the FFLs at START position.

A. If both engines are to be shut-down:

- | | | | |
|--|-------------------------------|--------------------|-----|
| 8. | MCDUs (both) | MENU | 1/2 |
| 9. | Avionic MASTER Switches | OFF / GUARD LIFTED | 1/2 |
| Each C/M raises the relevant guard at his MASTER Avionics switch and sets it to OFF. | | | |
| 10. | Inverters | OFF | 2 |

11. Hydraulic Pumps	OFF	2
12. RECIRC & AVIONIC Fans	OFF	2
13. Generators	OFF	2
14. FFLs	OFF / CHECK	2

NOTE

Check both IEDS screens. If the "NEW EXCEEDANCE" message is displayed in any of them, the airplane must be referred to maintenance.

15. Fuel Pumps	OFF	2
16. Cockpit Window	OPEN / A.R.	2
Open the cockpit window to release any residual cabin pressure. Leave it as required.		
17. A-COLL TAIL Light (with propellers stopped).....	OFF	1
18. Chocks	REQUEST	1
19. Passengers Signs	OFF	2
20. GPU.....	A.R.	2
B. <u>If LH engine is to be kept running:</u>		
8. RH Generator.....	OFF	2
9. RH FFL.....	OFF	2
10. RH Fuel Pump.....	OFF	2

11. Propeller BrakeA.R. 2

Before the propeller is braked, check that the RDY light on the brake control switch-light is on.

Check that after both UNKLD light on the panel and the PROP BRK warning come on momentarily, the BRK light on the panel comes on. If either UNLKD light or warning indication remains on, or if the propeller does not stop within 5 seconds, release the Propeller Brake by pressing the Propeller Brake pushbutton. Wait 1 minute for the engine to cool-down and shut it off. Enter the anomaly in the Fault Report.

Notify C/M-1 "PROPELLER BRAKED" when both UNKLD light and PROP BRK warning go-off, and check visually that the propeller has stopped.

CAUTION

Minimum time between propeller braking successive operations: 10 minutes.

Do not exceed 715°C ITT with the Propeller Brake engaged.

WARNING

In this mode of operation at least one C/M must remain at the cockpit to ensure that the propeller brake is engaged and monitor engine 1 parameters.

12. LH PLA.R. 2

If turbine refrigeration is required, advance LH PL until GUST LOCK limit.

13. Air Conditioning.....A.R. 2

If air-conditioning is required, adjust the LH PL, set the LH bleed switch to ON, and confirm that the magnetic indicator goes to in-line position. If required, press the XFEED pushbutton and confirm that both ON light and horizontal visual indicator come on. Adjust the PL again and lock it in place with the friction selector to avoid it from being moved inadvertently.

14. Passengers signs.....A.R. 2

TACTICAL STOP OVER

When the aircraft is to remain grounded only as necessary for cargo load / unload / or personnel embarkment purposes, it is advisable to leave the LH engine running and propeller-braked. It is also possible to leave both engines running.

In such cases it is not necessary to initiate a new Cockpit Preparation but start the new flight with the "AFTER START" procedure if the engines have not been shutdown, or the "BEFORE START" procedure and subsequent starting of engine 2 otherwise.

The full procedure comprises:

Once the "PARKING" list is completed:

1. Takeoff Data.....

PREPARE

1/2
- Both C/Ms prepare the new takeoff data and enter the new flight data on the MCDU.
2. Pressurization

PREPARE / RESET

2
- C/M-2 enters next destination airfield elevation on the pressurization panel and resets the pressurization system. Pressurization should be reset once all the doors have been closed
3. Passengers Signs

A.R.

2

NOTE

|

If it is necessary to start-up engine no. 2, it is recommended first to set both bleed switches to off, and propeller brake as well if the "CROSSOVER START" mode is going to be used.

Continue normal operation from "BEFORE START" or "AFTER START" procedure, as applicable.

For tactical operations, when it is necessary to take off as soon as possible, it is recommended not to feather the propellers and go from "AFTER LANDING" to "TACTICAL STOPOVER" and "BEFORE TAKEOFF" after that.

LEAVING THE AIRCRAFT

- | | | |
|--|------|-----|
| 1. BAT BUS TIE Switch | OFF | 2 |
| 2. OXYGEN Panel | OFF | 2 |
| 3. Brake Temperature | OFF | 2 |
| 4. EXTERNAL LT Panel..... | OFF | 1 |
| 5. FLT DECK LT Panel | OFF | 1/2 |
| Turn the three FLT DECK panel lights to OFF. | | |
| 6. Emergency Lights | OFF | 2 |
| 7. INTERNAL LT Panel..... | A.R. | 2 |
| 8. Batteries | OFF | 2 |
| 9. MSTR ELEC (BAT and GEN) Switches | OFF | 2 |

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