



# **QUICK REFERENCE HANDBOOK**

**DA 42**



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**SUMMARY**

**PAGE**

**INTENTIONALLY**

**LEFT**

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## 1. Limitations

### 1.1 Maximum masses

Minimum & Maximum weight	Weight
Minimum flight Weight	1250 kg
Maximum Ramp Weight	1793 kg
Maximum Take-Off Weight (MTOW)	1785 kg
Maximum Zero Fuel Weight (MZFW)	1650 kg
Maximum Landing Weight (see note below MLW)	1700 kg
Max. load in nose baggage compartment (in fuselage nose)	30 kg
Max. load in cockpit baggage compartment (behind rear seats)	45 kg
Max. load in baggage extension (behind cockpit baggage compartment)	18 kg
Max. load, cockpit baggage compartment and baggage extension together	45 kg

### 1.2 Airspeed limitations

Airspeed		IAS	Remarks
$V_A$	Manoeuvring speed	Above 1542 kg (3400 lb)	Do not make full or abrupt control surface movement above this speed
		Up to 1542 kg (2400 lb)	
$V_{FE}$	Max. flaps extended speed	LDG	Do not exceed these speeds with the given flap setting
		APP	
$V_{LO}$	Max. landing gear operating speed	Extension $V_{LOE}$ 194 KIAS	Do not operate the landing gear above this speed
		Retraction $V_{LOR}$ 156 KIAS	
$V_{LE}$	Max. landing gear extended speed	194 KIAS	Do not exceed this speed
$V_{MCA}$	Minimum control speed airborne	68 KIAS	With one engine inoperative, keep airspeed above this limit
$V_{NO}$	Max. structural cruising speed	155 KIAS	Do not exceed this speed except in smooth air, and then only with caution
$V_{NE}$	Never exceed speed	194 KIAS	Do not exceed this speed in any operation

### 1.3 Stall speeds

Flaps	Stall Speed <sup>(a)</sup> – kt -
0° (UP)	64 kt
APP	61 kt
LDG	57 kt

*(a) – At a mass of 1785 kg*

### 1.4 Crosswind limitations

The maximum demonstrated crosswind component is 20 kt. This maximum crosswind, demonstrated by the manufacturer must be considered an operational limitation (EPAG instructions).

The wind to be taken into account for this limitation is the average wind transmitted by tower. Gust factor is not taken into account for this limitation.

### 1.5 Tailwind limitations

Tailwind : maximum tail wind component is limited to 10 kt for take-off and landing. Provided the runway length is non-limitative, the manufacture's recommended final approach speed is 75 kt flaps LDG.

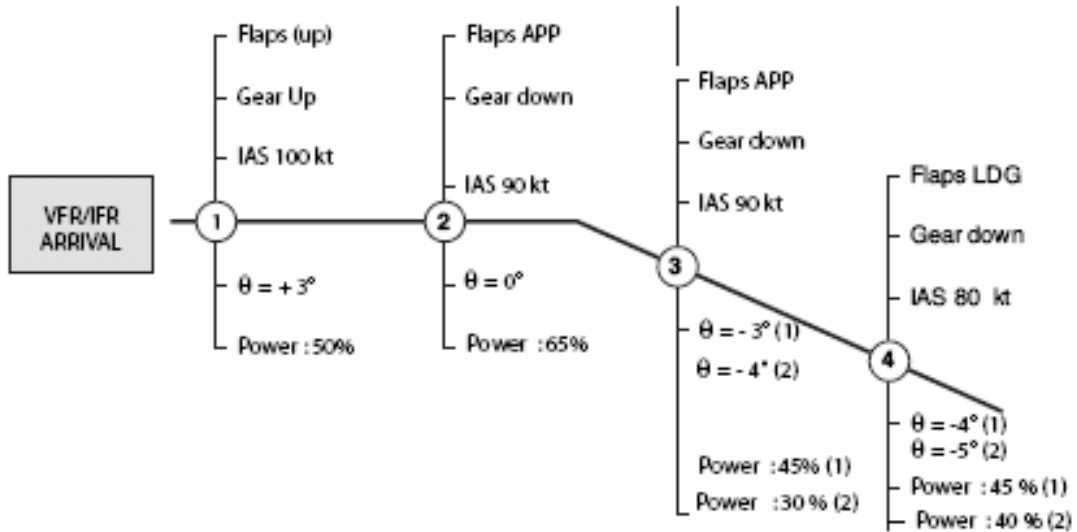
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	<b>NORMAL OPERATIONS</b>						September 15 <sup>th</sup> , 2010 Amendment n <sup>o</sup>	

## 2. Normal operations

### 2.1 Performance presetting table

	Pitch (* )	IAS kt	Power %	Gear	Flaps	V/V <sub>s</sub>	∅ Max	ROC/ROD ft/min
Take-off	+ 6°	75	100	DOWN	UP			
Normal climb	+ 8°	100	100	UP	UP			1000
Max. Rate of climb	+ 12°	79	100	UP	UP			1200
Max. climb angle	+ 12°	79	100	UP	UP			1200
Climb > Safety altitude	+ 7°	100	90	UP	UP			800
Cruise	70 %	+ 0.5°	131	70	UP	UP		
	75 %	+ 0.5°	137	75	UP	UP		
Normal descent 500 ft/min	- 2°	150	75	UP	UP			-500
Holding clean conf.	+3°	100	50	UP	UP			
Approach	0°	90	65	DOWN	APP			
Final approach Flaps APP	5 %	- 3°	90	45	DOWN	APP		
	6 %	- 4°	90	30				
Final approach Flaps LDG	5 %	- 4°	80	45	DOWN	LDG		
	6 %	- 5°	80	40				
Steep turn 45°		100 mini	100	UP	UP	1.54	45°	
Final Flaps UP	5 %	+ 1°	90	40	DOWN	UP		
	6 %	+ 1°	90	35				
Non standard procedure Holding – Gear down Flaps UP	+ 3°	100	65	DOWN	UP			
Final Approach circle to land 5 %	- 3°	90	45	DOWN	UP			

2.2 Simplified presettings



① Holding

② Approach configuration manoeuvres

③ Final flaps APP

④ Final flaps LDG

(1) Slope 5 %

(2) Slope 6 %

REMINDER

10% / 10 kt / 200 ft/min  
 - 1% for every 10 kg below maximum mass.



### 2.3 Guide and check-list summary table

This table mentions only the various guides executed throughout the flight. The execution of a check-list, where one exists, is always initiated by the completion of the actions of the corresponding guide. The ● symbol after the name of a guide shows that the guide is followed by a check-list

Guide	Call-outs	Initiated by
SAFETY INSPECTION		Arrival of aeroplane for commissioning flight
WALK-AROUND INSPECTION		End of safety inspection, for first flight of aeroplane only
COCKPIT PREPARATION ●		End of previous flight or beginning of next flight
BEFORE START ●	<b>“BEFORE START ACTIONS”</b>	Start-up clearance
AFTER START ●	<b>“AFTER START ACTIONS”</b>	End of start-up procedure
TAXIING ●	<b>“TAXI ACTIONS”</b>	Beginning of taxiing
RUN UP		End of taxiing, before lining up on the runway, on commissioning flight only
BEFORE TAKE-OFF ●	<b>“BEFORE TAKE-OFF ACTIONS”</b>	End of taxiing, before take-off on the runway
LINE-UP ●	<b>“LINE-UP ACTIONS”</b>	Clearance to line up on runway
TAKE-OFF		Take-off clearance when aeroplane is lined up on runway
1000 ft ●	<b>“1000 ft ACTIONS”</b>	Passing a height of 1000 ft after take-off
CRUISE	<b>“CRUISE ACTIONS”</b>	Capture of cruising altitude : 1000 ft before
BEFORE DESCENT ●	<b>“BEFORE DESCENT ACTIONS”</b>	Knowledge of weather conditions at airfield, shortly before descent
APPROACH ●	<b>“APPROACH ACTIONS”</b>	Change of altimeter setting
BEFORE LANDING ●	<b>“BEFORE LANDING ACTIONS”</b>	Preparation of aeroplane for landing
AFTER LANDING ●	<b>“AFTER LANDING ACTIONS”</b>	Aircraft vacating runway
PARKING ●	<b>“PARKING ACTIONS”</b>	Immobilisation of aeroplane in parking apron

### 2.3 Guides and check-lists

- **Pre-Flight**

☆ *Items preceded by a white star have to be carried out at first flight of the day or if the circumstances require it.*

- **SAFETY INSPECTION**

*The safety inspection is carried out on crew's arrival at the airplane. It is fulfilled :*

- Outside, to check the general appearance of the airplane, to ensure that all conditions which guarantee its safety have been observed.
- Inside, to check that the power ON will not cause damage.

*It's carried out by the Pilot or the first crew member arriving at the airplane for the transfer of responsibility and generally, each time the airplane has been left power OFF without crew monitoring.*

- **Exterior Safety Guide**

- Chocks in place ..... **Checked**
- Pitot covers ..... **Removed**
- Flaps environment ..... **Cleared**

- **Interior Safety Guide**

- Parking Brake ..... **Lock**
- Flight controls ..... **Released**
- Electric Master ..... **OFF**
- Key ..... **Removed out**
- All electrical switches ..... **OFF**
- Gear handle ..... **Down**

● **Pre-Flight Guide**

- **Electric Master** ..... ON
- **DE-ICE** ..... High
- **Pitot heat and stall heat** ..... ON
- **Position light**..... ON
- **Strobe lights** ..... ON
- **Flaps** ..... LDG

*The pilot checks visually for correct operation : position lights, strobe lights, pitot and stall heat.*

- **Position lights**..... OFF
- **Strobe lights** ..... OFF
- **Pitot heat and stall heat** ..... OFF
- **DE-ICE** ..... OFF
- **Landing light and taxi light**..... ON
- **ICE Light**..... ON

*The pilot checks visually for correct operation : landing light, taxi light, ice light.*

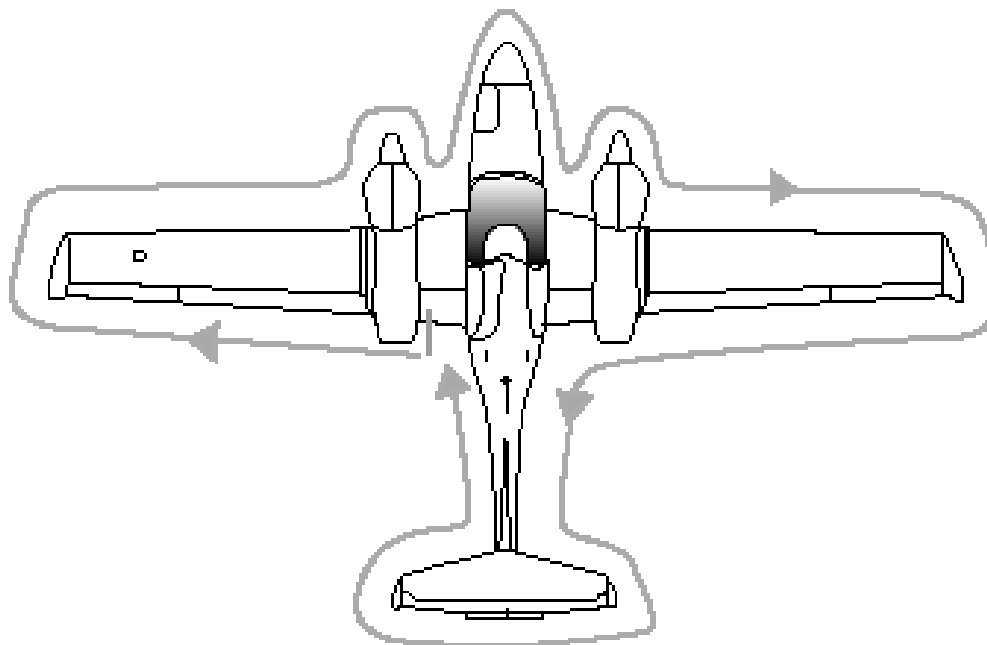
- **Landing light and taxi light**..... OFF
- **ICE light**..... OFF
- **Electric Master** ..... OFF

**Comments (1)** : carrying out these two checks separately will spare the battery : lights and heaters are high energy consumers.

*It is possible to fulfill these checks in pairs : the student in cockpit will set ON and OFF each system one by one, the other student checking.*

**Comments (2)** : DE-ICE check will be done.

● **Pre-Flight exterior walk around Guide**



**LEFT WING**

- **Upper wing surface** ..... **Checked**  
*Check there are no cracks or peeling of surface coating.*
- **Flaps** ..... **Checked**
- **Aileron** ..... **Deflection and play checked**
- **Static dischargers** ..... **Checked (2)**
- **Tip fairing and winglet** ..... **Condition, Checked**
- **Fuel tank cap** ..... **Checked, Closed**  
*Check the earth cable connection on fuel cap.*
- **Leading edge and under wing** ..... **Checked**
- **Leading edge TKS panel** ..... **Checked**  
*Check for presence of de-icing fluid (if test already carried out).  
Check for cleanliness, obstruction of micro-pores and panel integrity.*
- **Openings on under wing** ..... **Checked**  
*Check for traces of fuel, if the tanks are full then some may spill via the tank vent.*
- **Tank air outlet** ..... **Checked**
- **Tank drain** ..... **Done**

*LEFT ENGINE NACELLE*

- **Air intakes** ..... **Checked**  
*Check three intakes and two outlets.*
- **Engine oil level** ..... **Checked**
- **Gearbox oil level**..... **Checked**
- **Cowling** ..... **Checked**
- **Propeller**..... **Checked**  
*Check for presence of de-icing fluid if the test was made.*
- **Propeller cone assembly** ..... **Checked**
- **Exhaust** ..... **Checked**

*LEFT GEAR*

- **Tyre**..... **Checked**  
*Check overall condition*
- **Landing gear door** ..... **Checked**
- **Landing gear strut**..... **Checked**  
*(Typical visible length of bare piston : 4 cm).*
- **Brakes** ..... **Checked**  
*Check for leaks.*

*FUSELAGE, FRONT LEFT*

- **Canopy** ..... **Checked**  
*Check ant-ice system and deflector.*
- **Nose baggage compartment** ..... **Checked, Closed and locked**
- **Overall surface condition** ..... **Checked**  
*Check there are no cracks or peeling of surface coating*

*NOSE LANDING GEAR*

- **Tow bar**..... **Removed**
- **Tyre**..... **Checked**
- **Gear door and linkage**..... **Checked**
- **Landing gear strut** ..... **Checked**  
*(Typical visible length of bare piston : 15 cm).*

*FUSELAGE, FRONT RIGHT*

- **Nose baggage compartment** ..... **Checked, Closed and locked**
- **Canopy** ..... **Checked**
- **Surface condition** ..... **Checked**

*Check there are no cracks or peeling of surface coating.*

- **EPU connector** ..... **Checked**
- **OAT sensor** ..... **Checked**

*RIGHT GEAR*

- **Tyre** ..... **Checked**
- **Landing gear door** ..... **Checked**
- **Landing gear strut** ..... **Checked**

*(Typical visible length of bare piston : 4 cm).*

- **Brakes** ..... **Checked**

*Check for leaks.*

*RIGHT ENGINE NACELLE*

- **Air intakes** ..... **Checked**

*Checked three intakes and two outlets.*

- **Engine oil level** ..... **Checked**
- **Gearbox oil level** ..... **Checked**
- **Cowling** ..... **Checked**
- **Propeller** ..... **Checked**

*Check for presence of de-icing fluid if the test was made.*

- **Propeller cone** ..... **Checked**
- **Exhaust** ..... **Checked**

*RIGHT WING*

- **Upper wing surface** ..... **Checked**
- **Tank drain** ..... **Done**
- **Leading edge and under wing** ..... **Checked**

- **Leading edge TKS panel** ..... **Checked**  
*Check for presence of de-icing fluid (if test already carried out).*  
*Check for cleanliness, obstruction of micro-pores and panel integrity.*
- **Openings on under wing** ..... **Checked**  
*Check for traces of fuel, if the tanks are full then some may spill via the tank vent.*
- **Tank air outlet**..... **Checked**
- **Flaps**..... **Checked**
- **Aileron**..... **Deflection and play checked**
- **Static dischargers** ..... **Checked (2)**
- **Tip fairing and winglet** ..... **Condition, Checked**
- **Fuel tank cap** ..... **Checked, Closed**  
*Check the earth cable connection on fuel cap.*

*FUSELAGE RIGHT REAR*

- **Surface condition** ..... **Checked**  
*Check there are no cracks or peeling of surface coating.*
- **Antennas** ..... **Checked**
- **Hydraulic fluid under fuselage** ..... **Checked**  
*Check for absence of leak behind ADF antenna under fuselage.*
- **If trace > 30 cm --> NO GO**
- **If trace < 30 cm --> Inform maintenance staff**

*TAILPLANE*

- **Leading edge TKS panel**..... **Checked**  
*Check for presence of de-icing fluid (if test already carried out)*  
*Check for cleanliness, obstruction of micro-pores and panel integrity*
- **Trim tabs** ..... **Checked**
- **Elevator and rudder** ..... **Checked**
- **Tail skid**..... **Checked**
- **Static dischargers (3)** ..... **Checked**

*FUSELAGE LEFT REAR*

- **Surface condition** ..... **Checked**  
*Check there are no cracks or peeling of surface coating.*

- *Cockpit Preparation Guide*





This guide is used before every flight.

- **Parking brake**..... **Lock**
- **Chocks** .....**Removed**
- **Documentation** .....**On board**

*Check all legally required documents necessary for flight are on board.*

- + - **Life jackets** ..... **If necessary**
- + - **Extinguisher** .....**Checked**

*Check pressure gauge is in the green zone.  
Check fixtures.*

- **Emergency hand microphone** ..... **In place and disconnected**
- **Rudder pedals** ..... **Adjusted**
- **Emergency gear extension**.....**Pushed, In**
- **Electric Master** ..... **ON**

*The landing gear hydraulic pump may start up for 5 to 20 seconds. If the pump works continuously or periodically then the system is malfunctioning --> **NO GO.***

*It takes about 1' for the AHRS to line up*

- **Gear fire test** ..... **Tested**
- **Engine Master** ..... **Both OFF**
- **Pitot** ..... **OFF**
- **Emergency alternate static air** ..... **Checked, closed**

*- Closed : Tap is perpendicular to aircraft*

*- Open : Tap is in line with aircraft*

- **Alternator** ..... **Both ON**
- **ECU SWAP** ..... **Both auto**
- **Instrument rheostat**..... **OFF**
- **Flood rheostat** ..... **OFF**
- **Landing light**..... **OFF**
- **Taxi light**..... **OFF**
- **Position light**..... **OFF**
- **Strobes** ..... **OFF**
- **Emergency switch**..... **OFF, with fuses in place**
- **ASI** ..... **At zero**
- **Altimeters and AP baro**..... **Set**

*Once the parameters are known, all altimeters will be set to QNH (3).*

- **ELT** ..... **ARM**
- **Circuit breakers** .....**Checked**

- **DE-ICE annun test** ..... **Tested**

*Check on warning panel that DE-ICE LVL LO and DE-ICE PRES-LO are displayed (2 minutes later).*

- **Alternate air** ..... **Checked, Closed**

- **Rudder trim** ..... **Set 1/2 a point to right**

- **Cabin heat and defrost**..... **OFF**

- **Throttles** ..... **Set to 0 % (idle)**

- **Fuel control**..... **Both set to cross feed**

- **Elevator trim** ..... **Tested, set to T/O**

- **Flaps** ..... **LDG**

- **Variable elevator backstop** ..... **Checked**

- **Elevator held in full pitch up position**

- **Throttles** ..... **100 %**

- **Elevator** ..... **Deflection decreases**

- **Throttles** ..... **0 %**

- **Elevator** ..... **Deflection increases**

- **Flaps** ..... **UP**

- **GPS database on MFD** ..... **Checked**

*Check database validity, if expired GPS use is forbidden.*

- **MFD**..... **ENT**

*MAP mode is displayed except if on previous flight the PFD mode was left active. In this case the following action is not required.*

- **Backup display (if necessary)**..... **Pressed**

*PFD display will show on MFD.*

- **MFD**..... **Engine/System**

*Enables display of engine parameters.*

- *Electrical*

- *AMPS*

- *Engine*

- *Gearbox*

- *Coolant T°*

- *Oil T°*

- *Oil Bar*

- **DE-ICE fluid qty** ..... **Checked**

*Check and announce quantity on board.*

- **Fuel** ..... **Fuel/Rst Fuel**  
*Reset if tanks have been filled.  
Check coherence of fuel delivery note, gauges, indicated quantity.  
It is possible to update fuel and reset the Gal used item by using  
FUEL/DEC FUEL or INC FUEL.*
  
- **Fuel quantity** ..... **Noted**  
*Pilot announces fuel quantity on board and notes on log.*
  
- **MFD**..... **System**
- **ATIS (Com1)**..... **Listen and noted**  
*Pilot listens to ATIS or asks for parameters from ATC (can only be  
done with headset).*
  
- **Request start-up**..... **Requested**  
*Only for IFR flights.*

- *Cockpit Preparation Check-List*

- |                                    |                           |
|------------------------------------|---------------------------|
| - Chocks .....                     | Removed                   |
| - Tow bar .....                    | Removed                   |
| - Pitot covers .....               | Removed                   |
| - Parking Brake.....               | Locked                    |
| - Documentation.....               | On board, accessible      |
| + - Life jackets .....             | If necessary              |
| - Rudder pedals .....              | Set                       |
| - Emergency hand microphone.....   | In place and disconnected |
| - Gear lever .....                 | Down                      |
| - Emergency gear extension .....   | Pushed, in                |
| - Flaps .....                      | UP                        |
| - Variable elevator backstop ..... | Checked                   |
| - Alternate air .....              | Closed                    |
| - Fuel control .....               | Crossfeed                 |
| - ECU SWAP.....                    | Automatic                 |
| - Alternator.....                  | ON                        |
| - Altimeters .....                 | QNH xxx, compared         |
| - Fuel totaliser.....              | Set                       |
| - Fuel quantity.....               | xx. Gal, checked          |

- **Before START-UP**

- **Before Start-Up Guide**

The **before start-up** Guide is carried out before each flight with the call-out :  
« **BEFORE START-UP ACTIONS**».

- when the pilot is ready for VFR,
- when start-up clearance has been given for IFR.

- Avionic master ..... OFF
- Position lights ..... ON
- Rear door ..... Closed, Locked
- Front canopy ..... Position 1 or 2
- Surroundings ..... Clear

- **Before Start-up Check-List**

- Avionic master .....	OFF
- Rear door .....	Closed, Locked
- Front canopy .....	Position 1 or 2
- Position lights .....	ON

● **Engine Start-Up Guide**

Engine N °1 (left)

- **Left engine master** ..... **ON**

*The pilot checks on the PFD (warning window) that the corresponding white block is lit and calls-out : «LEFT GLOW ON». The block lights about 5s after the switch is set to on.*

- **Left engine** ..... **Start**

*Once the Left Engine Glow block has gone out (about 20s after being switched on), the pilot turns the keys to Start and checks on the PFD (warning window), that the corresponding red block is lit and calls-out «LEFT STARTER».*

*Once the engine has started the pressure on the key can be released.*

- **Left starter**..... **OFF**

*The pilot checks that the red Left Starter block has gone out.*

**Remarks :**

1) *If the red Left Starter block remains lit then the pilot calls-out : «LEFT ENGINE MASTER OFF» and sets the switch to OFF.*

2) *Wait 20 s between each attempt to start-up. After 6 tries, wait for 30 min.*

- **Oil pressure** ..... **Checked**

*Pilot checks oil pressure and calls-out : «OIL PRESSURE ESTABLISHED»*

*On a cold start, the pressure may rise to 6.5 bars for 20 seconds max.*

**Remarks :** *If the oil pressure does not leave the red zone after 3 seconds, the pilot calls-out : "LEFT ENGINE MASTER OFF" and sets the switch to OFF.*

- **Voltmeter** ..... **Checked**

*The pilot checks the voltage and calls-out: "XX VOLTS"*

*Minimum voltage is 28V.*

- **Charge** ..... **Checked**

*Pilot checks that the battery is charging and calls-out : "BATTERY CHARGING".*

- **Auxiliary ADI** ..... **Checked**

Engine N °2 (right)

**Identical actions carried out :** *replacing left by right.*

*Check that voltages are balanced.*

*Once the engines have started, the pilot calls-out «AFTER START-UP ACTIONS».*

● **After Start-Up Guide**

*NOTE : In the case of a cold start, keep the engines at 900 RPM for 2 minutes.*

- Avionic master ..... **ON**
- Speed bugs ..... **Set**

- Keys : TMR/REF
- Inner and outer rotary knobs on FMS

- Glide ..... OFF
- VR ..... 75 kt - ON : Rotation speed
- Vx ..... OFF : Initial climb speed
- Vy ..... 100 kt : ON
- VLE/VLO ..... OFF

- Radios COM and NAV ..... **Set**

*The pilot presets the radios for expected IFR departure (SID) or for a VFR fix. Radio navigation aids should be identified if possible.*

- Altimeters and AP baro ..... **Set**

- Alt select (2) ..... **Set**

*The pilot initially sets the published SID altitude or FL if specified. Otherwise the security altitude is set.*

- Stormscope ..... Set 50 NM/360°/Strike**

- Return to MAP mode (Display Backup)
- MAP : 3<sup>rd</sup> page
- Mode (strike) - View (360°)
- Range - 50 NM

- Display backup ..... Pressed**

*Pilot returns to double PFD mode.*

**- Auto-pilot ..... Tested**

The AP test will only be carried out on transfer of responsibility for the aircraft to the flight crew :

- Check that the heading bug is centred.
  - Engage auto-pilot.
  - Push on the control stick to ensure that AP is engaged.
  - Engage HDG mode.
  - Turn the HDG bug left then right and check that the ailerons and control stick move in the correct directions.
  - Request a pitch up movement (UP).
- Each button press = 100 ft/min. Set to 1000 ft.
- Check that the trim moves to pitch up (an 8 to 10s wait).
  - Press CWS : The elevator trim will stop moving.
  - Request pitch down movement (DOWN).
  - Press CWS : The elevator trim will stop moving
  - AP Disengaged

\* Audible warning

**- Electric trim..... Tested and set to T/O**

Test electric trim for pitch up and pitch down.  
 Test each trim "half-switch", the trim wheel should not move.  
 Test the trim with the AP disengage button pressed  
 the trim wheel should not move.

**- Fuel control..... ON**

**- Seat-belts .....Fastened**

● **After Start-up Check-List**

- Radios COM/NAV .....	Set
- Speed bugs.....	Set
- Fuel control .....	ON
- Auto-pilot and electric trim .....	Tested



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- **Departure Briefing**

The pilot describes the taxi route, the initial flight path and associated radio-navigation means (using the structure below) with the call-out : **"READY FOR DEPARTURE BRIEFING"**.

- Taxi route then
- **For VFR** : Expected flight path to first report point and the associated active radio-navigation means including the DME and navigation source (CDI)
- **For IFR** : Expected SID and the associated active radio-navigation means including the DME and navigation source (CDI)

**Notes :**

Read the text on the IFR charts and not just the diagram.

Give navigation aids their ICAO codes : **Charlie, Mike, Bravo (CMB)**

- *Describe using only radials or inbound radials*
- *Identify all possible navigation aids while still on the apron*
- *Describe only the active radio-navigation means set (don't include those on standby)*

- **Example of IFR briefing**

We will taxi to holding point runway 04 via TWY B5 and B1

Expected departure CMB 7 N, climb towards MVC on identified ADF to intercept inbound radial 313 to CMB, NAV 1 set to 133, non-identified, NAV 2 MTD, DME CMB, CDI on NAV 1

Any questions ? Briefing completed

- **Altimeter Setting and Checking**

On take-off or landing the altimeters should be set to the official QNH value.

After take-off, no change in altimeter setting (STD 1013.2 or 29.92) will be made before the gear and flaps are fully retracted.

When the departure ATC (APP) is different from the take-off airfield ATC (TWR), the pilot must ensure that he has a regional QNH before transfer to APP.

When the departure ATC (APP) is different from the destination airfield ATC (TWR), the pilot must ensure that he has a local QNH before transfer to TWR.

A change in altimeter setting can be made only to a value supplied by the ATS which is currently controlling the aircraft.

Instructors or (Air France controllers), may opt for height AGL when circuit training.

The pilot will convert this height to an altitude by rounding up.

The radio message will be given with the altitude followed by QNH setting and if necessary, the height above ground (example for an airfield at an altitude of 420 ft : "AF747, downwind at 1500 ft QNH" or "AF747 downwind 1500 ft QNH, 1000 ft AGL".

After listening to ATIS or VOLMET, the crew compares the QNH received with the QNH in the METAR from their met briefing file. If the METAR was not available before departure, the QNH should be verified by any other available means (regional QNH, calling ATC, etc...).

On arrival, having received the first altitude clearance, the crew should verify the coherence of the QNH given by ATC to that given by ATIS.

If ATC does not specify an altimeter setting, then the crew should request a confirmation of QNH from ATC.

- **Taxi, Take-Off and Climb**

- **Taxi Guide**

The **TAXI** guide is carried out once taxi clearance has been given. The pilot calls-out : «**TAXI ACTIONS** ».

- **Block time** ..... **Noted**

*Pilot notes time and calls-out : "Block at 08h03"*

- **Taxi Light**..... **ON**

*The systematic use of the taxi light is a means to ensure anti-collision and informs ground staff that the aircraft is about to move. In order to remember this action it should always be associated with the parking brake. The taxi light may be switched off at the holding point if the aircraft remains immobile for engine run up.*

- **Brakes**..... **Tested**

*Release parking brake.*

*Test braking efficiency at start of taxi.*

**Gyro instruments**..... **Checked**

**Note:** *having left the apron, check the gyro instruments with left and right turns (if the turns allow).*

- *EHSI - backup compass*
- *Ball on emergency ADI and PFD*
- *Turn route indicator*
- *ADI stability*

*Check coherence of EHSI and heading on a parallel taxiway.*

**- Flight controls..... Tested**

*Pilot checks full deflection of ailerons with left/right movement of control stick.*

*Pilot checks full deflection of elevator.*

**Note :** *The rudder deflection is only tested on aircraft where the nose-wheel is not linked to the rudder (e.g. CAP 10, transport aircraft).*

● **Taxi Check-List**

<b>- Block time.....</b>	<b>Noted</b>
<b>- Brakes.....</b>	<b>Tested</b>
<b>- Gyro instruments.....</b>	<b>Checked</b>
<b>- Flight controls.....</b>	<b>Tested</b>

● **Before TAKE-OFF**

- Parking brake..... **Lock**
- Taxi light ..... **OFF**
- Throttles ..... **Set 0%**
- Engine parameters ..... **Checked**

● **Engine Run-UP Guide**

*Engine N °1 (Left)*

- Ecu Test ..... **Press and hold**

*Warning : If the throttle is not at 0% then the tests will not function.*

- L Ecu A et L Ecu B light

*The pilot checks that the amber block lights in the warnings window.*

- L ECU A Fail
- L ECU B Fail

*and calls-out : "ECU A/B FAIL".*

*Pilot checks for increase in RPM then :*

- L ECU A Fail..... **Extinguished**
- L ECU B Fail..... **Stays on**
- RPM ..... **Decrease/Increase**
- L ECU B Fail..... **Extinguished**
- L ECU A Fail..... **Stays on**
- RPM ..... **Decrease/Increase**
- L ECU A Fail..... **Extinguished**
- ECU Test ..... **Released**
- L ECU SWAP ..... **ECU B**

*Pilot sets the switch to ECU B and check for correct engine operation.*

*There is a brief jolt as ECU B is selected.*

**Remark : If there is a prolonged decrease in engine RPM or engine stops --> NO GO**

- ECU SWAP ..... **Auto**

*Pilot sets switch to Auto.*

- Throttles ..... 100 % for 10 secondes
- Instruments ..... Operating normally
- Engines ..... Stable between 2240 and 2300 RPM
- Power indicator ..... Stable between 90 and 100 %
- Throttles ..... 0 %

*Engine N °2 (Right)*

- Identical to engine n° 1 expect that L is replaced by R.

● **Remark 1 :**

**Take-off forbidden with ECU SWAP selector on ECU B**

ECU SWAP selector on B is only for :

- testing the system
- an emergency situation in flight after execution of the corresponding emergency check-list

● **Remark 2 :**

**The full test procedure described must be completed with NO ERRORS. Any deviation from a nominal test, even if the engine appears to run correctly, implies a NO GO**

● **Remark 3 :**

**According to the strength and direction of the wind, engine check RPM may stabilise below the recommended values. If this is the case then the aircraft should be oriented into the wind and the tests recommenced**

● **Before TAKE-OFF Guide**

*The before take-off guide is only carried out once the engine checks have been completed with the call-out :  
«BEFORE TAKE-OFF ACTIONS».*

- ATC Clearance (IFR) ..... Requested
- Canopy ..... Closed, Locked
- Rear door ..... Closed, Locked
- Alternators ..... ON
- ECU SWAP ..... Auto
- Heading bug ..... Runway heading
- Alt select ..... Altitude/FL Set
- Altimeters ..... QNH...hPa.....Checked  
*The pilots checks that the difference between indicated altitude and runway threshold altitude does not exceed 80 ft.  
Call-out : «ALTIMETER QNH xxxx hPa, I READ xxx FEET, ON AUXILIARY ALTIMETER, I READ xxx FEET, DIFFERENCE COHERENT».*
- Flaps ..... UP
- Rudder trim ..... 1/2 pt to right
- Fuel control ..... ON
- Elevator trim ..... T/O
- Seat belts ..... Fastened  
*- When ATC clearance is received pilot checks that radio-navigation means conform to the clearance given before carrying out the take-off briefing. The means will be modified as necessary.*
- Take-off briefing ..... Completed  
*--> The pilot carries out the take-off briefing according to the template shown below by calling out : «READY FOR TAKE-OFF BRIEFING».*

● **TAKE-OFF Briefing Template**

**Flight path according to received clearance**

If identical to departure briefing then call-out : "Flight path as stated in initial briefing".

- Clearance Altitude/FL read on PFD/ $\Delta$ P Baro
- State the direction of first turn out
- Safety altitude
- Estimate to first report point
- Special conditions (icing, turbulence, windshear, noise abatement, max climb, etc...)
- SID then diversion or return to radio navigation aid
- Visual return to airfield
- ZAC

**- Example : Take-off briefing**

**VFR**

**A** [ - Take-off «Airfield» «Rwy» at a mass of xx kg, anti-ice xx, flaps xx°

$V_1 - V_R = 75$  kt

**B** [ - If no change to initial briefing then call-out "Flight path as stated in initial briefing", otherwise state the modified parameters.

**NOP** : Abeam Béthune 6' after take-off.

- Clearance Altitude/FL ---> climbing to xx ft, blue checked on AP Baro and PFD.
- State direction of first turn out
- Safety altitude
- Estimate to first report point
- Special conditions (icing, turbulence, windshear, noise abatement, max climb, etc...),
- In the case of engine failure on gear up or after, we will continue (describe flight path).

Any questions ? Take-off Briefing completed.

**IFR**

**A** [ - Take-off «Airfield» «Rwy» at a mass of xx kg, anti-ice xx, flaps xx°

$V_1 - V_R = 75$  kt

**B** [ - If no change to initial briefing then call-out "Flight path as stated in initial briefing", otherwise state the modified parameters.

- State direction of first turn out
- Safety altitude
- Estimate to first report point
- Special conditions (icing, turbulence, windshear, noise abatement, max climb, etc...),
- In the case of engine failure on gear up or after, we will continue (describe flight path).

Any questions ? Take-off Briefing completed.

**Note :**

- **Placing the engine failure item at the end of the briefing allows recall of short term memory.**

● **Before TAKE-OFF Check-List**

- **Annunciators.....Tested**
- **Alt select.....Altitude/FL Set**
- **Altimeters ..... QNH hPa ± 80 ft checked**
- **Flaps ..... UP**
- **Trims .....Set**
- **Canopy and rear door.....Closed, Locked**
- **Seat belts .....Fastened**
- **CDI source ..... Checked**
- **Take-off briefing.....Completed**



● **Line-UP Guide**

The line-up guide is carried out once the clearance to line-up has been given by ATC.

- Pilot calls-out «**LINE-UP ACTIONS**» and performs the actions while saying them out loud.

Before lining up the take-off time should be noted = 1 mn (the time needed to line-up), in order to reduce time spent on the runway.

Pilot checks that no aircraft are on approach or about to enter runway then carries out the following guide.

**Example : "NO INBOUND TRAFFIC ON FINAL, NO TRAFFIC ON OPPOSITE RUNWAY, OR ENTERING RUNWAY".**

- Fuel consumption ..... **Noted**
- Take-off time ..... **Noted**
- Pitot HEAT ..... **ON**
- Anti-ice ..... **As necessary**

*Set the anti-ice according to the weather conditions*

- NORM
- HIGH
- HIGH + MAX

- Strokes ..... **ON**

*Beware of the risk of dazzling other nearby aircraft*

- Taxi light, if on ..... **OFF**
- LDG light ..... **ON**

*Use of landing lights on the ground is not recommended*

- Transponder ..... **As necessary**

Line-up the aircraft precisely on the runway, taxiing at reduced speed. Except for a rolling take-off, stop the aircraft (do not use parking brake).

Backup compass (with respect to compass deviation) and EHSI heading are in conformity with the runway heading.

● **Take-off Sequence**

The Take-off flight path and the flying manoeuvres are described in the normal procedures synoptic section.

**- Take-off time ..... Called out**

On releasing the brakes the pilot calls out «**TAKE-OFF V<sub>1</sub> 75 kt**» and starts the stopwatch. The bug may be placed on the take-off time or the estimated first report point time.

**- Take-off power ..... Set**

Pilot sets 50% then releases brakes while increasing power up to take-off power and controlling the ground roll with the rudder (tendency to swing left).

The pilot monitors the engine parameters and calls-out «**POWER AVAILABLE**» if the parameters are consistent with the following values :

**- Power..... 100 %**

*At high temperatures and altitudes, indications below 90% are possible.*

**- RPM ..... 2300 RPM**

*At high temperatures and altitudes, indications below 90% are possible, RPM should stabilise between 2240 and 2300 RPM, otherwise abort take-off.*

**- Other instruments ..... Green**

**- ASI comparison ..... Compared**

At 60 kt pilot calls-out «**60 kt**», (this call-out enables any incapacity of a crew member or instrument incoherence to be detected). When reaching 75 kt the pilot calls-out «**V<sub>1</sub>, ROTATION**», and adopts an initial pitch of + 6°, which will then be adapted with respect to the climb speed required.

**- Gear ..... UP**

Once the aircraft has left the ground and a positive climb has been observed the pilot calls-out : «**POSITIVE CLIMB, GEAR UP**». He monitors the gear retraction and calls-out : «**GEAR UP AND LOCKED**».

● **After TAKE-OFF Guide**

The after take-off guide is carried out once the gear is up.

- **Engine instruments** ..... **Checked**

The pilot checks :

- . that engine limitations are respected
- . the symmetry of the various parameters.
- . the flight balance (symmetry).

*Climb speeds*

- |                        |                |
|------------------------|----------------|
| Normal climb :         | - IAS = 100 kt |
|                        | - Pitch + 8°   |
| Max ROC                | - IAS = 79 kt  |
|                        | - Pitch + 12°  |
| Climb at $\theta$ max. | - IAS = 79 kt  |
|                        | - Pitch + 12°  |

● **1000 Feet Guide**

The 1000 ft guide is carried out when height is greater than 1000 ft and as soon as the pilot is free enough to execute it with the call-out : «**1000 ft Actions**». This may be retarded according to the type of climb undertaken. The value of 1000 ft has been fixed by the training school to remind the pilot to carry out the following actions :

- **Altimeters** ..... **Set/Compared**

*According to clearance received, the pilot either maintains QNH or sets 1013.25 hPa.*

The pilot executes the change in altimeter setting to comply with the clearance. Call-out : «**ALTIMETER SET TO STANDARD AND CROSSCHECKED**».

**xxxx** = if altimeter set to STD --> call-out «37» and not 3700

**Note : There is no reason to compare altimeters if the setting has not been changed**

- **Auto-pilot functions** ..... **As necessary**

*The pilot engages, if necessary, altitude acquisition mode (ARM) and climb control.*

- **LDG light** ..... **As necessary**

*Lights may be left on for anti-collision. In IFR conditions, the lights will be switched off at the security altitude (or as soon as IMC conditions are met or if < Safety altitude.*

*Note : Monitor weather conditions during climb. If IMC conditions are met then call-out "IMC" will be made along with a temperature reading. Use anti-ice and de-ice systems as required. For training purposes a simulated IMC curtain may be used by the instructor. The student pilot should proceed as above.*

● **After TAKE-OFF Check-List**

- Gear .....	UP
- Flaps .....	UP
- Engine parameters.....	Checked
- Altimeters .....	Set/Compared

For circuit training or visual return to airfield after engine failure, a short check-list will be used with the call-out :

«**SHORT AFTER TAKE-OFF CHECK-LIST**» (There is no 1000 ft guide).

● **Short After TAKE-OFF Check-List**

- Gear.....	UP
- Flaps .....	UP

● **Climb**

At safety altitude :

If IMC conditions are met before safety altitude then lights may be switched off.

- **Power .....** 90 %

*This recommended power setting signifies passing the Safety altitude. The pilot may maintain 100 % for operational of control reasons in which case the call-out : "Maintain maximum power" will be made.*

- **Engine parameters .....** Monitored

- **Outside temperature .....** Monitored

Before going into IMC conditions, monitor temperature and use anti-ice or de-ice systems as required.

- **Noise Abatement**

RESERVED

- **Cruise**

- **Cruise Guide**

500 ft before the FL or cruise altitude the pilot calls-out «**500 ft BEFORE**». Altitude capture and return to level flight become a priority over other actions.

- **Cruise altitude ..... Captured**

Pilot captures altitude by respecting the accepted method of reducing rate of climb.

- rate of climb is reduced when the target cruise altitude is within 10% of climb rate. The pilot sets half the pitch attitude then limits climb rate to twice the difference remaining with respect to cruise altitude.

For example :

- Climb speed ..... 100 kt
- Climb rate ..... 900 ft/min

- Rate of climb will be reduced 90 ft before reaching altitude/FL.

- **Cruise parameters ..... Set**

Allow the aircraft to accelerate to cruise speed before setting engine parameters.

Be especially attentive to the overall trimming of the aircraft.

- **Power ..... 70%**

- **Other engine parameters ..... Checked**

Check coolant temperature, oil pressure and temperature, ammeters and voltmeters.

- **Headings ..... Checked**

Check conformity between EHSI and magnetic compass.

**- Outside Temperature (TAT, SAT) .....Called**

*Call-out temperature read on the sensor (TAT), useful for anti-ice, and after correction call-out static air temperature (SAT), useful for performance.*

$\Delta^\circ =$

$$\left[ \frac{TAS}{100} \right]^2 - \left[ \frac{1}{10} \left( \frac{TAS}{100} \right)^2 \right]$$

*Ex : 140 kt*

$$\left[ \frac{140}{100} \right]^2 - \left[ \frac{1}{10} \left( \frac{140}{100} \right)^2 \right] = 1,96 = \frac{1,96}{10} = 1,76 \approx 2^\circ$$

*The pilot will call-out the items checked :*

*Example :*    **«Cruise parameters set»**  
                  **«Headings checked»**  
                  **«Temperature TATxx, SATxx»**

- Once these actions are complete the pilot will :

**A - Confirm the wind with respect to weather reports and forecasts.**

**B - Update ETA and set stopwatch bugs to the next turning point and then calculate :**

- *ETA at IAF*
- *Fuel remaining at IAF*
- *Potential holding time (1<sup>st</sup> estimate)*
- *POD =  $\Delta FL/2^\circ$  ; deceleration ; 2 NM in level flight (3 NM in descent)*
- *TOD*
- *Time at which weather update will be made (about 10 minutes before TOD)*
- *Call-out these items (ETA, potential holding time, POD, TOD)*

*These items will be updated as the flight progresses.*

- **The potential holding time will be confirmed after the latest weather update.**

● **Before Descent Guide**

The before descent guide will be carried out shortly before the descent once the weather conditions at the destination airfield are known and that the airfield is accessible.

The call-out : «**BEFORE DESCENT ACTIONS** » is made :

Pilot calculates the items of approach :

- destination weather conditions,
- the expected approach type

Once ATIS or VOLMET has been received, **the pilot compares QNH to the QNH in the METAR** from the weather briefing. If the METAR was not available before departure then the QNH should be verified by any means available (regional QNH, ATC, etc...)

Before descent the following sequence should be respected :

- 1) **Setting altimeter and speed bugs**
- 2) **Radio-navigation means conform to CDI source**
- 3) **Briefing**

- **Headings** ..... **Checked**  
*Compare EHSI with magnetic compass.*

- **CDI Source** ..... **Checked**  
*Check radio-navigation source chosen Loc/VOR/GPS.*

- **Seat belts** ..... **Fastened**  
*Pilot checks that crew and passenger seat belt are fastened.*

- **Arrival briefing** ..... **Completed**  
*The arrival briefing consists of describing the flight path from descent to landing. Including the go-around procedure, in chronological order and emphasizing any special items.*

- **However, the briefing is not a priority and should not affect flight path monitoring or cause a late descent.** If the latest weather at destination is not known at the time of the briefing then the briefing should be done with the information known at the time and updated when more precise weather information is received.

**Example of arrival briefing** : see IR Manual



**Reminder of the chronological order of items before descent**

- Actions before descent
- Before descent check-list
- Request descent clearance
- Descent

**If descent is due to ATC :**

- Actions before descent
- Descent
- Descent check-list

● **Descent Check-List**

- Fuel selectors.....	<b>ON</b>
- Headings.....	<b>Checked</b>
- CDI source.....	<b>Checked</b>
- Speed bugs.....	<b>Set</b>
- Altimeter .....	<b>Set</b>
- Arrival briefing .....	<b>Completed</b>

The pilot requests descent and sets the FL/Altitude value on Alt Select and **arms it**.

The descent guide will be carried out throughout the descent.

**- Icing conditions..... Monitored**

The pilot monitors the icing conditions and engages the adequate de-icing/anti-icing means if OAT < 5°C and humidity is visible.

**- Descent pitch..... Adopted**

A normal descent is made at 2°. Adopt a pitch of 2° less than cruise pitch and trim aircraft.

**- VSI..... Controlled**

Once the initial pitch down has been adopted, the VSI indicates about 500 ft/min. As IAS increases, the ROD will decrease if the initial trim is maintained. The initial pitch value will have to be adapted and trimmed to maintain the 2° flight path.

**- Speed..... Controlled**

**- Power..... Adjusted**

Reduce power to remain below VNO.

**- Trim..... Set**

Refine trim once all parameters are stable.

- **Altitude/FL**.....**Captured**

500 ft before target altitude the pilot calls-out: "**500 ft BEFORE**". Returning the aircraft to level flight becomes the priority item over other actions.

The descent should be calibrated as far as possible with the aid of a DME. The aim is to maintain a ground flight path angle of 2°. The descent will cause an increase in IAS and therefore in rate of descent. Where possible, a ROD of 1000 ft/min should not be exceeded for passenger comfort.

● **Approach & Landing Preparation**

In the descent, the setting of the altimeter to QNH should entail an immediate verification of altimetry. As soon as possible afterwards the guide and check-lists should be executed.

● **Approach Guide**

Carried out as soon as the altimeters are set to QNH once the aircraft has been cleared to an altitude. The call-out : «**APPROACH ACTIONS**», is made. The pilot sets the altimeters to QNH and calls out «**ALTIMETERS SET TO QNH**».

- **Icing conditions**.....**Monitored**

The pilot monitors the icing conditions and engages the adequate de-icing/anti-icing means if TAT < 5°C and humidity is visible.

- **Altimeters** .....**QNH...hPa... compared**

As soon as the pilot is cleared to an altitude the altimeters are set to QNH.

The pilot makes the setting changes and comparisons according to the clearance received. The call-out : : «**ALTIMETERS SET AND CROSSCHECKED**»

On arrival, once the first clearance altitude has been received, the crew check that the QNH given by ATC is coherent with ATIS or METAR.

If ATC does not specify a QNH then the crew should request a confirmation of QNH.

- **LDG light** .....**ON**

Lights on (at night in IMC it may be better to leave them off to avoid dazzling).

Carry out approach check-list:

● **Approach Check-List**

- |                          |                      |
|--------------------------|----------------------|
| - Altimeter .....        | QNH...hPa...compared |
| - Anti-ice systems ..... | As necessary         |
| - LDG Light .....        | ON                   |

● **Before Landing Guide**

- **Configuration**.....Retained for landing

At the speeds retained for lowering flaps, the pilot calls- out «**SPEED....kt, Flaps xx**». He lowers flaps and checks the position with the call-out : «**FLAPS APP OR FLAPS LDG**».

At the speed retained for lowering gear the pilot in command calls-out : «**SPEED.... kt, GEAR DOWN**». He lowers the gear and checks that the gear is down and locked by calling out : «**GEAR DOWN, THREE GREENS**».

The pilot adjusts the power then prepares the aircraft for landing.

Execute Before Landing Check-List.

**Reminder** : Throughout this documentation, a stable final signifies :

- the aircraft is stable at the retained approach speed and on the correct approach path,
- the before landing guide and check-list are executed.

A successful landing depends mostly on the precision and quality of the final approach. It is important to stabilise and maintain all flight parameters.

Throughout the final approach, the pilot keeps his right hand on the throttles except for brief actions.

Do not use DE-ICE WINDSHIELD in the 30 seconds before landing

● **Before Landing Check-List**

- |               |                |
|---------------|----------------|
| - Gear.....   | Down, 3 greens |
| - Flaps ..... | APP or LDG     |

- **Post Landing**

- **After Landing Guide**

The After Landing guide is carried out once the runway is vacated. The call-out : «**AFTER LANDING ACTIONS**» is made. If these actions are carried out while taxiing the check-list is deferred until parked on the apron.

For training purposes the student may ask the instructor to take the controls.

The call-out will be made : «**YOU HAVE THE CONTROLS**», and the instructor will reply «**I HAVE THE CONTROLS**». The student can then carry out the necessary actions.

- De-ice..... OFF
- Ice light..... OFF
- Strobes ..... OFF
- Landing light..... OFF
- Taxi light..... ON
- Pitot heat ..... OFF
- Flaps ..... UP
- Alternate air ..... IN

*Execute After Landing Check-List*

- **After Landing Check-List**

<ul style="list-style-type: none"> <li>- De-ice ..... OFF</li> <li>- Ice light ..... OFF</li> <li>- Strobes ..... OFF</li> <li>- LDG light..... OFF</li> <li>- Taxi light ..... ON</li> <li>- Pitot heat ..... OFF</li> <li>- Flaps ..... UP</li> <li>- Alternate air ..... Closed</li> </ul>
---

● **Parking Guide**

- Parking brake..... Lock
- Taxi light ..... OFF
- Block time ..... Noted
- Fuel consumption ..... Noted
- RPM ..... 0% (idle) 2 mins
- Avionic master..... OFF
- Engine master..... OFF
- Position light..... OFF
- Electric master..... OFF

*After all on board electrical systems have been shut down, a crew member places the chocks and signals the pilot to release parking brake.  
Execute Parking Check-List*

● **Parking Check-List**

- Block time..... Noted
- Fuel consumption ..... Noted
- Avionic master ..... OFF
- Engine master ..... OFF
- All lights..... OFF
- Electric master ..... OFF
- Chocks..... In place
- Parking brake ..... Released

Be courteous and show good airmanship to other users by leaving the aircraft clean and tidy. A walk around should be carried out to detect any problems that may require the intervention of ground staff. **The tyres and propellers especially should be checked.**

● **Long Term Parking Guide**

- Chocks ..... In place
- Control locks ..... In place
- Pitot covers..... In place
- Tie down..... Completed
- Doors ..... Locked

### 3. Mass and Balance

#### 3.1 Mass and balance sheet

July 01, 2010

## LOADING MANIFEST

(All masses in kg)

### DA 42

DATE	AIRCRAFT	LEG	Prepared by

**CALCULATION OF MOMENTS** →

ITEMS	Mass en kg	Moment arm m	Moment kg x m
Basic Mass	⊕	For value see table	⊕
De-icing fluid (Max 33kg)	⊖	x 1	⊖
Corrected basic mass			
Nose baggage compartment (max 30 kg)	⊕	x 0,60 =	⊕
Passengers front	⊕	x 2,80 =	⊕
Passengers rear	⊕	x 3,25 =	⊕
Cockpit baggage compartment (Max 45 kg)	⊕	x 3,89 =	⊕
Extension Baggage compartment (Max 16 kg)	⊖	x 4,54 =	⊖
Zero Fuel Mass			
MZFM 1650 kg	⊕		⊕
Take-off fuel (Max 181kg)	⊕	x 2,68 =	⊕
Take-off mass	kg →	=	kg/m
MTOW 1785 kg		m	
Consumption	⊖	x 2,68 =	⊖
Landing mass	kg →	=	kg/m
MLW = 1700 kg		m	

Mass calculation

↓

**SUM OF MOMENTS**

Basic Mass (empty mass + Crew+ air+route kg).

**REMINDEURS :**

Reg.						
BASIC MASS in kg						
MOMENT ARM in m						
BASIC MOMENT in kgm						
POTENTIAL TRAFFIC Load Max						

■ FIXED MASS : Pilot = 85 kg (5kg of documentation included)

■ DENSITY KEROSENE : 0,84 kg/L    1 USG = 3,7855 L    Max FUEL : 200 L    Usable fuel : 192 L

NOTE : For any pilot mass above the fixed mass of 85 kg, the difference will be noted under real passenger mass of the front seat passenger. (The same principle may be applied for an inferior mass). The EPAG will use real masses for passengers, and documentation.

### 3.2 Permissible centre of gravity range

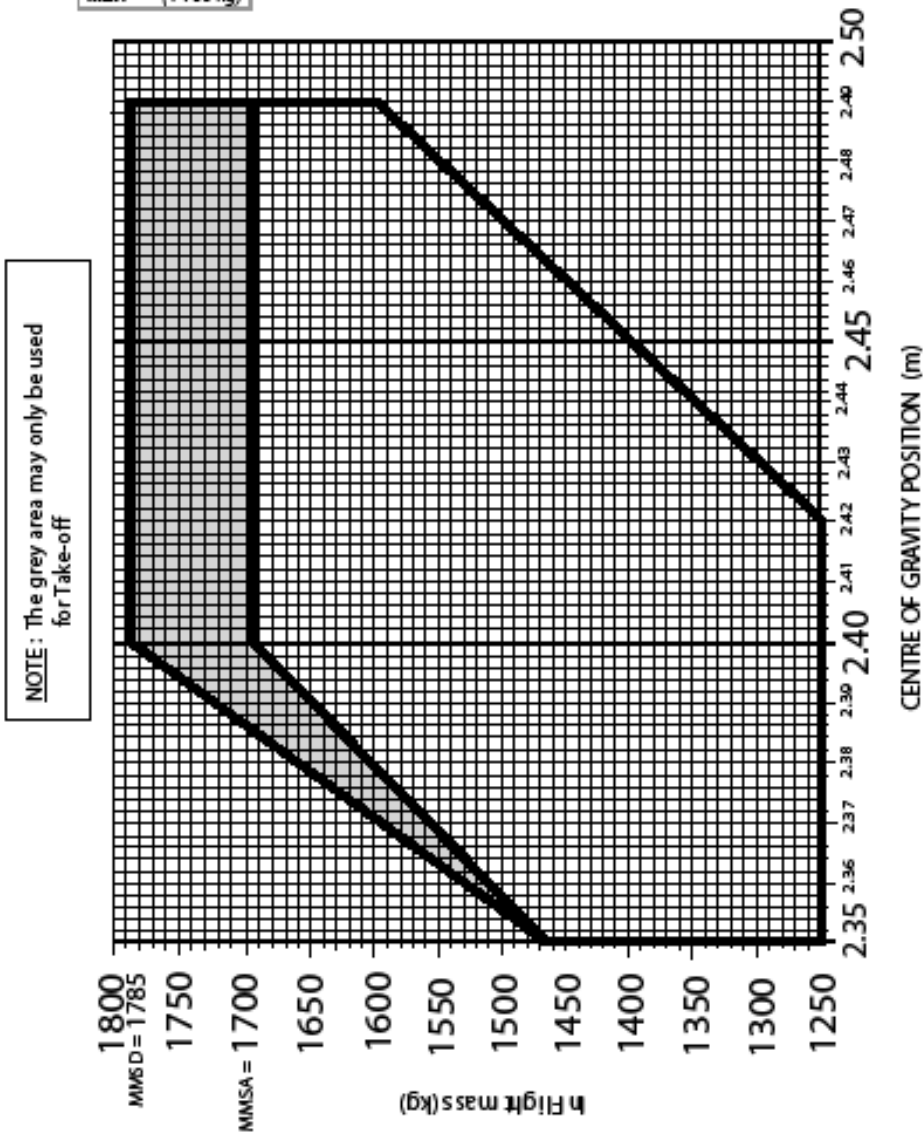
Version : July 1st, 2010

**PERMISSIBLE CENTRE OF GRAVITY RANGE**  
(All masses in kilos)  
**STANDARD TANK**

**DA 42**

**MTOW** (1 785 kg)

**MLW** (1 700 kg)



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