OPERATIONS MANUAL PART B



TECNAM

P2006T

F-ORCP

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1. GENERAL INFORMATION

1.1. UNITS OF MEASUREMENT

A/ Distances

EQUIVALENCE	UNITS	CONVERSION METHOD
1 ft = 0,3048 m	As m	X 3 et /10
1 m = 3,2802 ft	m in ft	X 3 + 1/10 the result
1 nm = 1,852 km	nm in km	X 2 – 1/10 the result
1 km = 0,5399 nm	km in nm	/ 2 + 1/10
1 nm = 6076 ft	nm in ft	X 6000
1 yard = 0,9144 m	yard in m	(yard) – 1/10
1 m = 1,0936 yard	m in yard	(asily) + 1/10
1 inch = 0,0254 m	inch in m	X 2+1/10(inch) et /100
1 m = 9,37 inch	m in inch	X 40 – 2% the result
1 cm = 0,3937 inch	cm in inch	X 4 and /10
1 inch = 2,54 cm	inch in cm	X 2 and ½(inch)

B/ Speed

EQUIVALENCE	UNITS	CONVERSION METHOD
1 km/h = 0,54kt	km/h in kt	/ 2 + 1/10 the result
1 kt = 1,852 km/h	as km/h	X 2 – 1/10 the result
1 m/s = 196,8 ft/mn	m/s in ft/mn	X 200
1 ft/mn = 5,08 10^{-3} m/s	ft/mn in m/s	/ 200
1 kt = 0,515 m/s	As m/s	/ 2
1 m/s = 1,94 kt	m/s in kt	X 2
1 mph = 1,609 km/h	mph in km/h	X 2 – 2/10 the result

C/ Masses

EQUIVALENCE	UNITS	CONVERSION METHOD
1 lbs = 0,4535 kg	lbs in kg	/ 2 – 10% the result
1 kg = 2,2046 lbs	kg in lbs	X 2 + 2% the result

D/ Pressures

EQUIVALENCE	UNITS	CONVERSION METHOD
1 in hg = 33,86 hPa	Mercury inch in hPa	X 30 + 1/10
1 hPa = 0,0295 in hg	hPa in mercury inch	X 30 and1/100
1 mb = 1 hPa	As hPa	X 1
1 Pa = 0,01 mb	Pa in mb	/ 100
1 bar = 14,5 psi	bar in psi	X 10 and ½ the result
1 psi = 0,0689 bar	psi in bar	X 7 and/100
1 psi = 70,28 g/cm^2	Psi in g/ cm^2	X 70

E/ Capacities

EQUIVALENCE	UNITS	CONVERSION METHOD
1 usg = 3,785 liter	as liter	X 4 – 20% (usg)
1 imp g = 4,456 liter	imp g in liter	X 4 + ½ (imp g)
1 litre = 0,2205 imp g	litre in imp g	(X 2 + 20% (l)) / 10

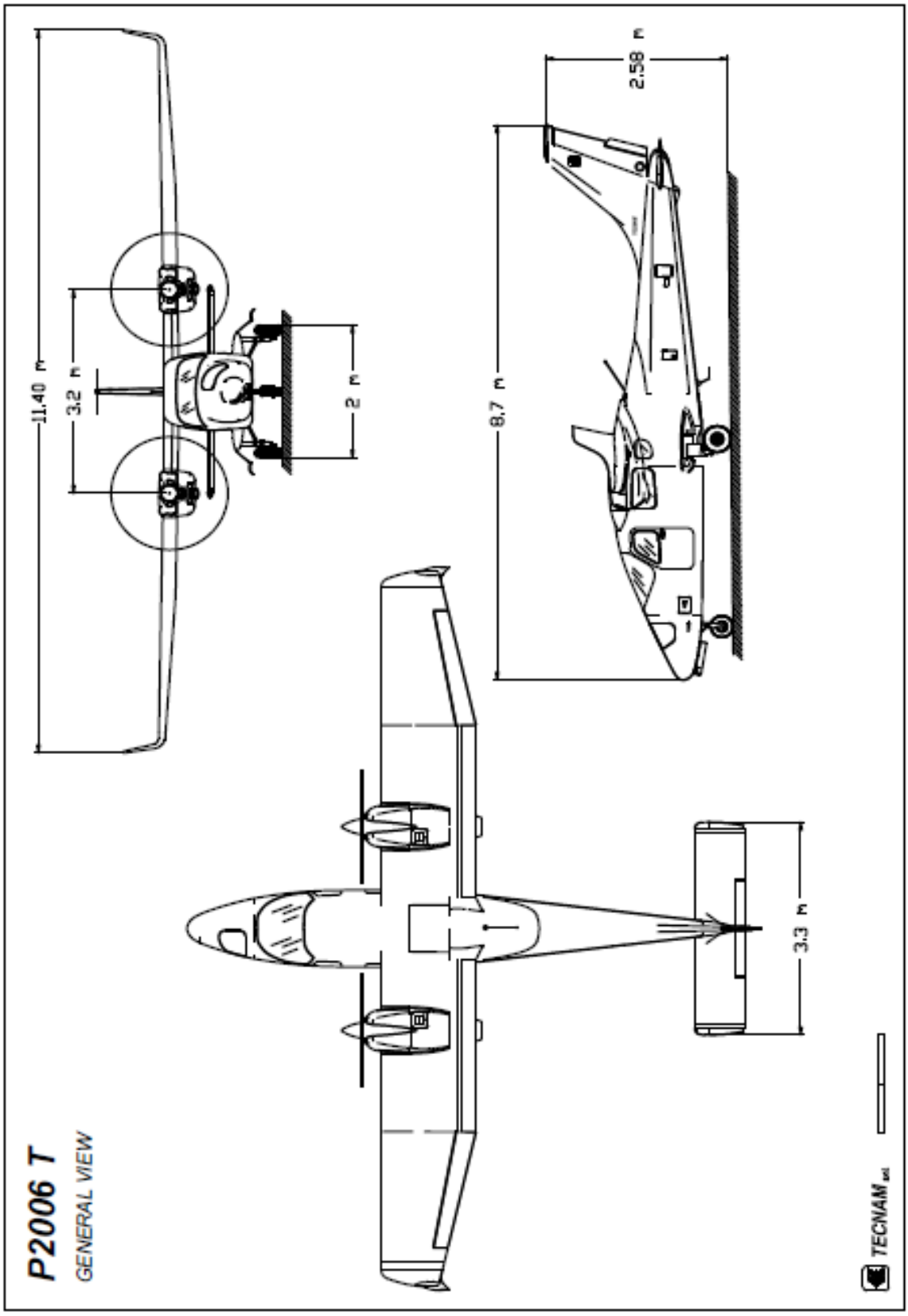
F/ Fuel

EQUIVALENCE	UNITS	CONVERSION METHOD
1 lbs = 0,630 liter	lbs in liter	X 6 /101 + 3% (liters)
1 litre = 1,587 lbs	litres in lbs	(liter) + 60% (liters)
1 litre = 0,84 kg	litres in kg	X 7 and/10
1 kg = 1,388 liters	kg in liter	(kg) + 4/10 kg

G/ Temperatures

EQUIVALENCE	UNITS	CONVERSION METHOD
°C = degrees Celsius	°C in °F	(°C X 9/5) + 32
°F = degrees Fahrenheit	°F in °C	(°F – 32) X 5/9
K = Kelvin	°C in K	(°C) + 273

1.2. DIMENSIONS OF THE PLANE:



Overall dimensions

Wingspan	11,4 m/37,4 ft
Length	8,7 m/28,5 ft
Overall height	2,58 m/8,46 ft

Wing

Wing surface	14,76 m^2/158,9 ft^2
Mean Geometric Chord	1,295 m/4,25 ft
Dihedral	1°
Aspect ratio	8,80

Main Landing Gear

Track	2.0 m
Wheelbase	2.9 m
Tire	6.00-6

Nose Landing Gear

Tire 5.00 – 5

1.3. CONTROL SURFACES TRAVEL LIMITS

Ailerons	Up 20° Down 17 ° (+/- 2°)
Stabilator (refer to Trailing Edge)	Up 15° Down 4° (+/- 2°)
Stabilator trim tab (refer to Trailing Edge)	Up 2°; Down 19° (+/- 2°)
Rudder	RH 26° LH 26° (+/- 2°)
Rudder trim tab	RH 20° LH 20° (+/- 2°)
Flaps	0°; 40° (- 2°)

1.4. ENGINE

Manufacturer	Bombardier-Rotax GmbH
Model	912 S3
Certification basis	FAR 33 - Amendment 15
Type Certificate	EASA TCDS no. E.121
Engine type	4 cylinders horizontally opposed with 1352 c.c. of overall displacement, liquid cooled cylinder heads, ram-air cooled cylinders, two carburetors, integrated reduction gear box with torsional shock absorber and overload clutch.
Maximum power (at declared rpm)	73.5 kW (98.6hp) @ 5800 rpm –5 minutes maximum.

1.5. PROPELLER

Manufacturer	MT Propeller
Type Certificate	LBA 32.130/086 (MTV-21 series)
Model	MTV-21-A-C-F/CF178-05
Blades/hub	2 wood/composite blades – aluminum hub
Diameter	1780 mm (no reduction allowed)
Type	Variable pitch - hydraulically controlled

1.6. FUEL

Approved fuel	MOGAS ASTM D4814 MOGAS EN 228 Super/Super plus AVGAS 100LL (ASTM D910)
Fuel tanks	Two integrated tanks (one in each wing) fitted with drainable sump and drain valve
Capacity of each wing tan	100 litres
Tanks overall capacity	200 litres
Overall usable fuel	194.4 litres
Overall unusable fuel	5.6 litres

1.7. LUBRICATION

Lubrication system	Forced type with external reservoir
Oil	Use only oil with API classification **"SG"** or higher. For additional info, refer to "Rotax Operators Manual" – last issue -, "Operating Media" Section.
Oil capacity	Max. 3.0 litres – min. 2.0 litres *(per tank)*

1.8. COOLING

Cooling system	Ram-air cooled cylinders, liquid cooled cylinder heads (closed and pressurized circuit)
Coolant liquid	Certified for Water/Coolant mixture. Make reference to "Rotax Operators Manual" – last issue
Overall circuit capacity	1410 cm3

2. LIMITATION

2.1. SPEED LIMITATIONS

The following table addresses the airspeed limitations and their operational significance:

SPEED			KIAS	REMARKS
V_{NE}	Never exceed speed		**171**	Do not exceed this speed in any operation.
V_{NO}	Maximum Structural Cruising Speed		**138**	Do not exceed this speed except in smooth air, and only with caution.
V_A	Design Manoeuvring speed		**122**	Do not make full or abrupt control movement above this speed, because under certain conditions the aircraft may be overstressed by full control movement.
V_{LE}	Maximum Landing Gear extended speed		**122**	Do not exceed this speed with the landing gear extended.
V_{LO}	Maximum Landing Gear operating speed		**122**	Do not exceed this speed when operating the landing gear.
V_{FE}	Maximum flaps extended speed	***FULL***	**93**	Do not exceed this speed for indicated flaps setting.
		T.O.	**122**	
V_{MCA}	Aircraft minimum control speed with one engine inoperative		**62**	Do not reduce speed below this value in event of one engine inoperative condition.

2.2. AIRSPEED INDICATOR MARKINGS

Airspeed indicator markings and their colour code are explained in the following table.

MARKING	KIAS	EXPLANATION
White arc	**53-93**	Lower limit is V_{SO}, upper limit is the maximum allowable speed with flaps extended in *FULL* position.
Red line	**62**	Minimum aircraft control speed with one engine inoperative and flaps set to T.O.
Green arc	**66-138**	Normal aircraft operating range (lower limit is V_{S1}, stall speed in "clean" configuration, and upper limit is the maximum structural cruise speed V_{NO}).
Blue line	**84**	Best rate-of-climb speed with one engine inoperative at sea level.
Yellow arc	**138-171**	Speed range where manoeuvres must be conducted with caution and only in smooth air.
Red line	**171**	Maximum speed for all operations.

2.3. POWERPLANT LIMITATIONS

Following table reports the operating limitations for both engines installed:

ENGINE MANUFACTURER: Bombardier Rotax GmbH.
ENGINE MODEL: 912 S3
MAXIMUM POWER:

	Max Power kW *(hp)*	Max rpm. Prop. rpm *(engine)*	Time max. (minutes)
Max. T.O.	73.5 *(98.6)*	2388 *(5800)*	5
Max. Cont.	69 *(92.5)*	2265 *(5500)*	-

Temperatures

Max CHT	135° C
Max CT	120° C
Min/Max Oil	50° C / 130° C
Oil normal operating range (approx.)	90° C / 110° C

Oil Pressure

Minimum	0.8 Bar / 12psi	(below 1400 rpm prop)
Normal	2 – 5 Bar / 29-73psi	(above 1400 rpm prop)
Maximum	7 Bar / 102 psi	(above 1400 rpm prop)

Engine starting: allowable temperature range

OAT Min	-25° C
OAT Max	+50° C

Fuel pressure

Minimum	2.2 psi (0.15 Bar)
Maximum	5.8 psi (0.40 Bar)

2.4. MAXIMUM OPERATING ALTITUDE

Maximum operating altitude is 14000 ft MSL.

2.5. WEIGHTS

CONDITION	WEIGHT	
Maximum takeoff weight	1230 kg	2712 lb
Maximum landing weight	1230 kg	2712 lb
Maximum zero wing fuel weight	1195 kg	2635 lb

2.6. CENTER OF GRAVITY RANGE

Datum	Vertical plane tangent to the wing leading edge (the aircraft must be levelled in the longitudinal plane)
Forward limit	0.221 m (16.5% MAC) aft of datum for all weights
Aft limit	0.415 m (31% MAC) aft of datum for all weights

2.7. APPROVED MANOEUVRES

The aircraft is certified in normal category in accordance with EASA CS-23 regulation.

Non aerobatic operations include:

- Any manoeuvre pertaining to “normal” flight
- Stalls (except whip stalls)
- Lazy eights
- Turns in which the angle of bank is not more than 60°
- Chandelle

Acrobatic manoeuvres, including spins and turns with angle of bank of more than 60°, are not approved for such a category. In addition, stall with one engine inoperative is forbidden.

2.8. LOAD FACTORS LIMIT

Load factors limit without flaps are as followed

Positive	**+3,8 g**
Negative	**-1,78 g**

Load factors limit with flaps extended are as followed

Positive	**+2 g**
Negative	**0 g**

2.9. FLIGHT CREW

Minimum crew:	1 pilot
Maximum number of occupants:	4 people (including the pilot)

2.10. FLIGHT CONDITION

The aircraft is equipped for following flight operations:

- VFR Day and Night
- IFR Day and Night including IMC

Flight into known icing conditions is strictly prohibited

3. NORMAL PROCEDURES

This section contains all the normal procedures to be followed during a flight from the walk around to the parking at the end of the leg.

3.1. NORMAL OPERATIONS RECOMMANDATION

The following points are brought to attention to pilot/instructor/operator concerning operations with the variable pitch propeller:

Propeller governor ground check

As prescribed by the propeller/governor manufacturer, a drop of 400/500 propeller RPM should be produced during this check. Its aim is to confirm the governor efficiency, not its complete feathering function.

Especially during the first cycle of propeller lever pulling, the governor tendency is to respond to the input with consistent delay, causing the pilot to continue moving back the propeller lever until an abrupt RPM change is observed. This causes an excessive drop in propeller speed that may reach up to 800 RPM in some cases and, consequently, a drop of up to 2000 engine shaft RPM. The long term result is a major wear of engine gearbox, bushings and pistons. In some cases, it may also result in detonation.

In order to avoid these long term adverse effects, the governor ground check should be performed by slowly and gently pulling the propeller lever. The purging cycle should be repeated 3 times, making sure that the governor closely and firmly controls the rpm.

The following recommendations have to be followed during the test:

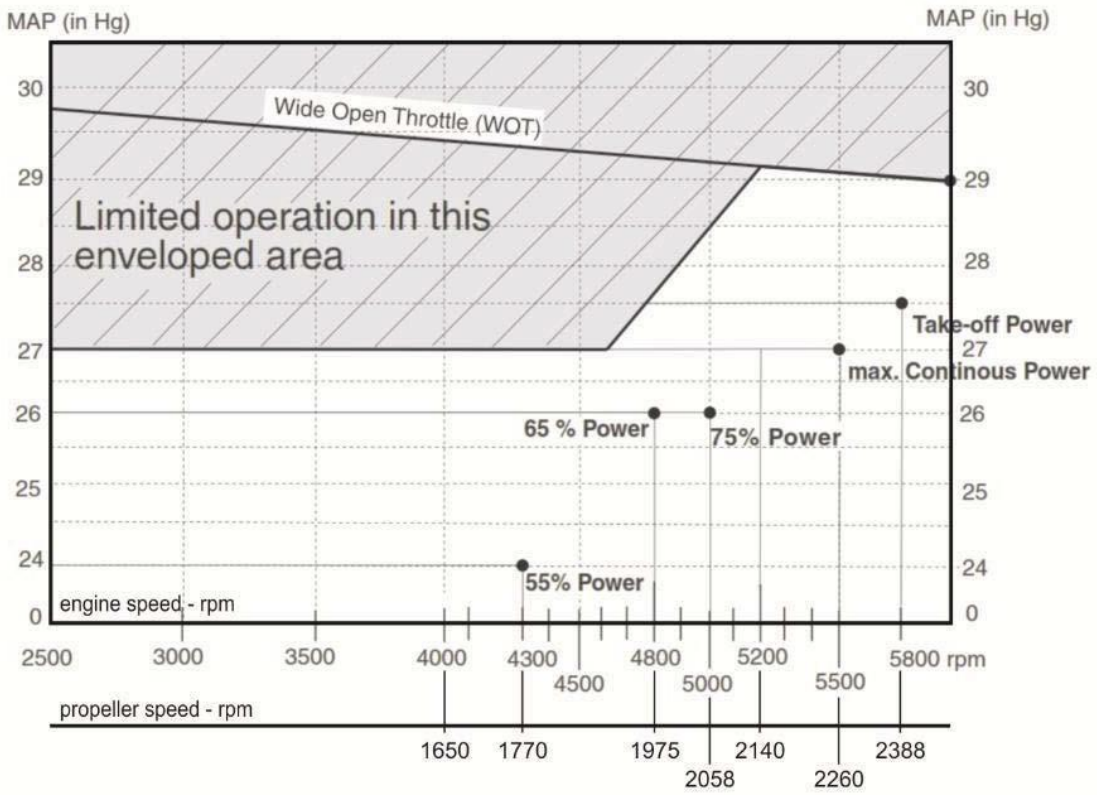
- *Propeller speed drops shall be of 400/500 propeller RPM*
- *The cycle shall be repeated 3 times*
- *The pilot shall be ready to push the propeller lever if a drop of >500 RPM is recorded*

Power changes

When power setting changes are required in any flight condition, remember the following correct procedure:

Power increase	**Propeller THEN Manifold Pressure increment**
Power reduction	**Manifold Pressure THEN Propeller reduction**

Useful guideline chart that could be used for best propeller/manifold combination is following reported:



3.2. AIRSPEEDS AND PRESETTINGS

FLIGHT PHASE			CONFIGURATION		ENGINE	
	PITCH	IAS	GEAR	FLAPS	MP	RPM
ROTATION	+5	65	DOWN	T/O	FULL (~29 inHg)	MAX (~2350 RPM)
INITIAL CLIMB	+7	90	UP	T/O	FULL	MAX
CLIMB	+7	100	UP	UP	28	2200
BEST RATE CLIMB	+12	84	UP	UP	FULL	MAX
BEST ANGLE CLIMB	+14	72	UP	UP	FULL	MAX
CRUISE	0	135	UP	UP	24	2200
DESCENT (VNO)	-2	138	UP	UP	23	2200
HOLDING	+5	100	UP	UP	20	2200
APPROACH	+4	90	DOWN	T/O	22	2200
FINAL APPROACH APP	-2	85	DOWN	T/O	16	2200
FINALE APPROACH LDG	-3	75	DOWN	LDN	20	MAX

3.3. DEFINITIONS

Guide:

This is the document that brings together actions to be performed by the pilot flying, from the handling of the aircraft until the end of the flight.

The purpose of the guide is to prepare the plane for the flight phase that follows. It is based on a standardized path (scanning), logical and as simple as possible of the various panels or equipment in the cockpit.

The actions of the guide are made at the most convenient moment chosen by the pilot in command, in general when the handling of the plane allows to do so.

The guide is primarily a flexible tool that should not lead to rigidity, the checklist coming next ensuring that critical actions were performed.

The recommended solution to memorize and perform all the actions is to proceed via the scanning process. Nevertheless, even if known by the pilot, the check-list will be performed by reading it, all the times.

Check-list :

This is the document on board the plane containing the list of checks to be performed during the flight according to each phase.

A checklist usually comes at the end of the accomplishment of a guide to ensure that the actions relevant to the safety of the flight were successfully completed.

The pilot always triggers the carrying-out of a guide by the following call-out :

Relevant guide followed by "ACTIONS ....."."

For guides that are not followed by a checklist, the pilot announces:

"ACTIONS COMPLETED"

The pilot always triggers the carrying-out of a checklist with the call-out:

Relevant checklist followed by "CHECK LIST ...".

3.4. CALL-OUTS

Chronological flight call-outs

CALL-OUT	TRIGGERED WHEN
"COCKPIT PREPARATION ACTIONS"	The pilot takes place on the pilot flying seat and begin preparing the cockpit for departure
"COCKPIT PREPARATION ACTIONS COMPLETED"	Completion of the cockpit preparation actions
"READY FOR DEPARTURE BRIEFING?"	The pilot is ready to brief for the departure (only if necessary)
"DEPARTURE BRIEFING COMPLETED"	The departure briefing is done
"BEFORE START ACTIONS"	The start-up clearance has been obtained if under IFR. This follows cockpit preparation actions otherwise.
"BEFORE START CHECK-LIST"	Completion of the before start actions
"BEFORE START CHECK-LIST COMPLETED"	Completion of the before start check-list
"[RIGHT/LEFT] ENGINE START UP, SAFETY CHECK"	The pilot proceeds to start the engine right or left, and check that outside safety is assured
"[RIGHT/LEFT] ENGINE START UP COMPLETED"	The right or left engine start up sequence is completed
"AFTER START UP ACTIONS"	Both engines has been started
"AFTER START UP CHECK-LIST"	Completion of after start up actions
"AFTER START UP CHECK-LIST COMPLETED"	Completion of after startup checklist
"BLOCK TIME XX:XX"	Just before taxiing. The pilot writes down the block time and then release the parking brake
"TAXIING ACTIONS"	At an appropriate time and clear from obstacles when taxiing, when the pilot is ready to perform the taxiing actions
"BRAKES CHECK"	Testing braking actions

CALL-OUT	TRIGGERED WHEN
"ADI CHECK"	Just before engaging on the first turn to test the AHRS
"TURNING [LEFT/RIGHT], HEADING [DECREASING/INCREASING], PITCH STABLE"	During turns when testing the AHRS
"TAXIING ACTIONS COMPLETED"	Completion of taxiing actions
"ENGINE RUN UP"	Start of the engine run up sequence
"ENGINE RUN UP COMPLETED"	End of the engine run up sequence
"BEFORE LINE UP ACTIONS"	This follows engine run up
"READY FOR TAKE OFF BRIEFING?"	Completion of before line up actions
"TAKE OFF BRIEFING COMPLETED"	The end of take-off briefing
"BEFORE LINE UP CHECKLIST"	This follows take-off briefing
"BEFORE LINE UP CHECKLIST COMPLETED"	Completion of before line up check-list
"LINE UP ACTIONS"	The line up clearance
"LINE UP ACTIONS COMPLETED"	Completion of line up actions
"SAFETY CHECK"	Just before entering the runway the pilot check the final axis **on both sides**
"HEADINGS CHECK, CAS ALARM CHECK"	Alignment complete
"TAKE OF AT XX:XX, V1 & VR XX KTS"	Just before applying take-off power, the pilot announces take-off time and remind V1 and VR (V1 = VR)
"TAKE-OFF POWER CHECK, SPEED ALIVE, PARAMETERS GREEN, NO ALARMS"	During take-off run the pilots check: • That take-off power is at the value expected • That the speedometer is responsive • That engine parameters (especially oil pressure & temp) are in the green range

CALL-OUT	TRIGGERED WHEN
	• That no alarms are shown on the annunciator panel
"POSITIVE CLIMB, BRAKES, GEAR UP"	After lift of when vertical speed indicator is positive, the pilots brakes the wheel and retract the landing gear
"GEAR UP AND LOCKED"	Amber transition light extinction
"AFTER TAKE OFF ACTIONS"	Passing through the safety altitude
"SPEED ABOVE xx KTS, FLAPS UP"	If flaps need to be retracted
"FLAPS UP"	Flaps are in up position
"AFTER TAKE OFF CHECKLIST"	Completion of after take-off actions
"AFTER TAKE OFF CHECKLIST COMPLETED"	Completion of after take-off checklist
"CLIMB ACTIONS"	Changing altimeters settings
"ALTIMETERS CHECK FL XX, TOP, [NO DIFFERENCE/XXX FT DIFFERENCE]"	Altimeters comparison
"CLIMB ACTIONS COMPLETED"	Completion of climb actions
"CRUISE ACTIONS"	The capture of the cruising altitude
"CRUISE CHECKLIST"	Completion of cruise actions
"CRUISE CHECKLIST COMPLETED"	Completion of cruise check-list
"READY FOR ARRIVAL BRIEFING?"	Knowledge of weather at destination
"ARRIVAL BRIEFING COMPLETED"	Completion of arrival briefing
"BEFORE DESCENT ACTIONS"	Start of before descent actions

CALL-OUT	TRIGGERED WHEN
"BEFORE DESCENT CHECK-LIST"	Completion of before descent actions
"BEFORE DESCENT CHECK-LIST COMPLETED"	Completion of before descent checklist
"APPROACH ACTIONS"	Altimeter change
"ALTIMETERS CHECK XXXX FT, TOP, [NO DIFFERENCE/XXX FT DIFFERENCE]"	Altimeters comparison
"APPROACH CHECKLIST"	Completion of approach actions
"APPROACH CHECKLIST COMPLETED"	Completion of approach checklist
"BEFORE LANDING ACTIONS"	Preparing the aircraft for landing
"SPEED BELOW xx KTS, FLAPS APPROACH"	Extending the flaps to approach
"FLAPS APPROACH"	Flaps are in approach position
"SPEED BELOW xx KTS, GEAR DOWN"	Extending landing gear
"GEAR DOWN, THREE GREENS"	The three green lights are on
"SPEED BELOW xx KTS, FLAPS LANDING"	Extending flaps to landing position
"FLAPS LANDING"	Flaps are in landing position
"BEFORE LANDING CHECK-LIST"	Completion of before landing actions
"BEFORE LANDING CHECK-LIST COMPLETED"	Completion of before landing check-list
"GEAR, FLAPS, MAX RPM, AP DISC"	100 ft AGL
"AFTER LANDING ACTIONS"	The vacation of the runway

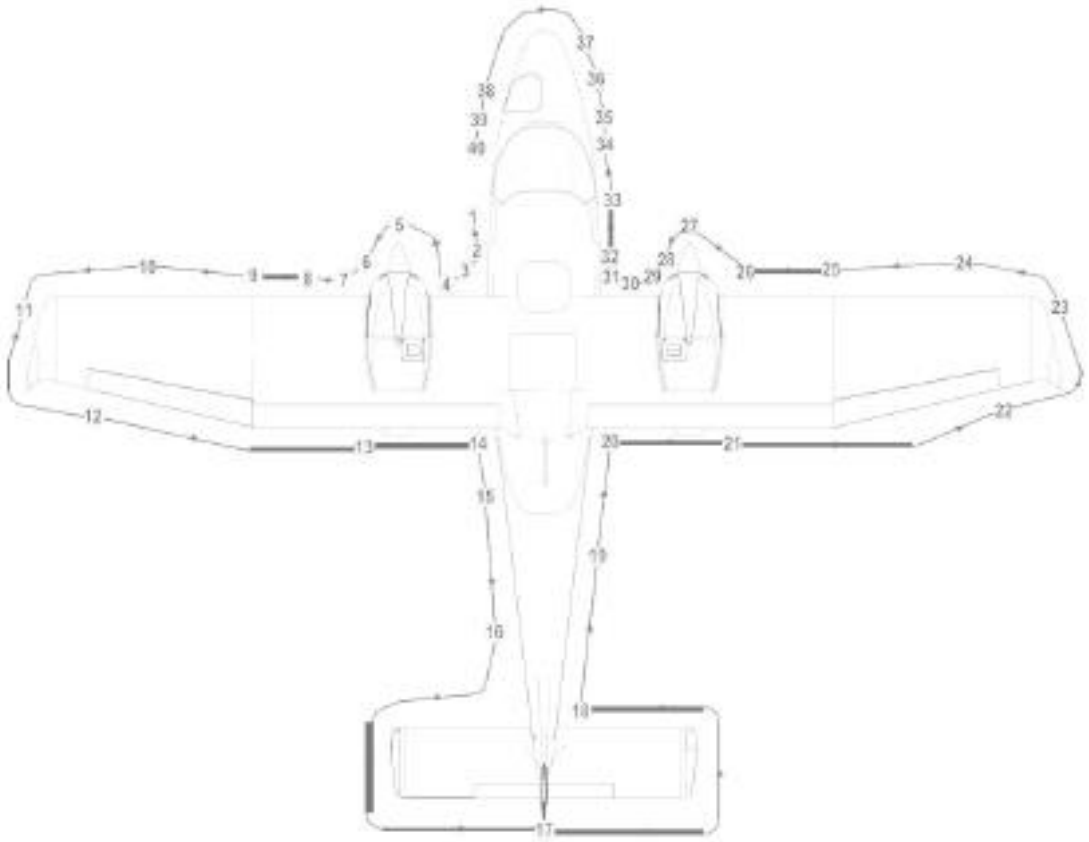
CALL-OUT	TRIGGERED WHEN
"AFTER LANDING CHECKLIST"	Completion of after landing actions
"AFTER LANDING CHECKLIST COMPLETED"	Completion of after landing check-list
"BLOCK TIME XX:XX"	The immobilization of the aircraft on the tarmac
"PARKING ACTIONS"	Engine are shutdown
"PARKING CHECK-LIST"	Completion of parking actions
"PARKING CHECK-LIST COMPLETED"	Completion of parking check-list

Other call-outs

CALL-OUT	TRIGGERED WHEN
"SAFETY CHECK"	Before initiating any turn
"GOING AROUND, FLAPS TAKE-OFF"	Initiating going around (no speed check)
"1000 FEET TO GO"	1000 ft before reaching an altitude
"200 FEET"	200 ft before reaching an altitude
"X HUNDRED FEET, STABILIZED"	Upon reaching stabilization height
"X HUNDRED FEET MINIMA"	This call-out should be performed 300 ft, 200 ft and 100 ft above minimas during IFR flights
"MINIMA"	At the minima, followed either by the go around call-out, or "CONTINUE"
"RUNWAY VISUAL"	When seeing part of the lightning system or part of the runway during an IFR approach
"AP [RELEVANT MODE] MODE"	Pressing AP button to engage automation system
"[RELEVANT MODE] [GREEN/BLUE/WHITE]"	Checking the mode is actually engaged on the FMA

3.5. WALK AROUND

To perform the aircraft walk-around, carry out the checklists according to the pattern shown in the Figure below.



If ignition switches are turned ON, a propeller movement can cause the engine starting with consequent hazard for people nearby

Visual inspection is defined as follows: check for defects, cracks, delamination, excessive play, unsafe or improper installation as well as for general condition, presence of foreign objects, slippage markers etc. For control surfaces, visual inspection also involves additional check for freedom of movement. Always check the ground in the area of the aircraft for evidence of fuel, oil or operating fluids leakages

1.	**Pilot door and cabin**	Check door for integrity. Turn ON the Master Switch and check Stall Warning switch for operation and condition; check lighting of Landing/Taxi/Nav/Strobe lights, then turn OFF the Master Switch.
2.	**Left main landing gear**	Check fuselage skin status, tire status (cuts, bruises, cracks and excessive wear), slippage markers integrity, gear structure and shock absorber, hoses, gear door attachments and gear micro-switches. There should be no sign of hydraulic fluid leakage.
3.	**Wheel chock**	Remove if employed
4.	**Propeller and spinner**	The propeller blades and spinner should be free of cracks, nicks, dents and other defects and should rotate freely. Check fixing and lack of play between blades and hub.
5.	**Left engine nacelle**	a) Perform following inspections: b) Check the surface conditions. c) Nacelle inlets and exhausts openings must be free of obstructions. If inlet and outlet plugs are installed, they should be removed. d) Check radiators. There should be no indication of leakage of fluid and they have to be free of obstructions. e) Only before the first flight of a day: (1) Verify coolant level in the expansion tank, replenish as required up to top (level must be at least 2/3 of the expansion tank). (2) Verify coolant level in the overflow bottle through the slot under the nacelle: level must be between min. and max. mark. Replenish if required removing the upper cowling; after that, install upper cowling checking for interferences with radiators (3) Turn the propeller by hand to and fro, feeling the free rotation of 15°or 30° before the crankshaft starts to rotate. If the propeller can be turned between the dogs with practically no friction at all further investigation is necessary. Turn propeller by hand in direction of engine rotation several times and observe engine for odd noises or excessive resistance and normal compression. f) Check oil level and replenish as required. Prior to oil check, switch off both ignitions circuits and turn the propeller by hand in direction of engine rotation several times to pump oil from the engine into the oil tank. This process is finished when air is returning back to the oil tank and can be noticed by a murmur from the open oil tank. Prior to long flights oil should be added so that the oil level reaches the “max” mark. g) Drain off Gascolator for water and sediment (drain until no water comes off). Then make sure drain valve is closed. h) Check drainage hoses clamps i) Verify all parts are fixed or locked. j) Verify all inspection doors are closed.
6.	**Air induction system**	Check engine air inlet for integrity and correct fixing. The air intake filter must be free of obstructions.

7.	**Left fuel tank**	Check that the refuelling port cap is properly secured, then perform the fuel tank sump drainage operating the related valve which, after operation, must be checked closed. Fuel must checked for water and sediment. Verify the tank vent outlet is clear.
8.	**Landing and taxi lights**	Visual inspection
9.	**Left wing leading edge**	Visual inspection. Check cabin ventilation inlet and carburettor heating inlet for condition and free of obstruction. Check stall strip.
10.	**Left wing top and bottom panels**	Visual inspection
11.	**Left winglet, nav and strobe lights; static discharge wick**	Check for integrity and fixing
12.	**Left aileron and balance mass**	Visual inspection, remove tie-down devices and control locks if employed.
13.	**Left flap and hinges**	Visual inspection
14.	**Left static port**	Remove protective cap – Visual inspection
15.	**Antennas**	Check for integrity
16.	**Gear pump, external power and battery compartment**	Check emergency landing gear extension system pressure (low pressure limit: 20 bar), external power and battery compartments closure.
17.	**Horizontal and vertical empennage and tabs. Static discharge wicks.**	Check the actuating mechanism of control surfaces and the connection with related tabs. Check wicks for integrity. Remove tie-down device if employed.
18.	**Stabilator leading edge**	Check for integrity
19.	**Fuselage top and bottom skin**	Visual inspection
20.	**Right static port**	Remove protective cap – Visual inspection
21.	**Right flap and hinges**	Visual inspection
22.	**Right aileron and balance mass**	Visual inspection, remove tie-down devices and control locks if employed
23.	**Right winglet, nav and strobe lights: static discharge wicks**	Check for integrity and fixing and lighting
24.	**Right wing top and bottom panels**	Visual inspection
25.	**Right wing leading edge**	Visual inspection. Check cabin ventilation inlet and

		carburettor heating inlet for condition and free of obstruction. Check stall strip.
26.	**Right fuel tank**	Check that the refuelling port cap is properly secured, then perform the fuel tank sump drainage operating the related valve which, after operation, must be checked closed. Fuel must checked for water and sediment. Verify the tank vent outlet is clear.
27.	**Propeller and spinner**	The propeller blades and spinner should be free of cracks, nicks, dents and other defects and should rotate freely. Check fixing and lack of play between blades and hub.
28.	**Right engine nacelle**	Apply check procedure reported in the walk-around station 5 and 6.
29.	**Passenger door and cabin**	Check door for integrity. Check safety belts for integrity and baggage for correct positioning and fastening. Check ditching emergency exit safety lock. Check passengers ventilation ports for proper setting.
30.	**Right main landing gear**	*Apply check procedure reported in the walk-around Station 2*
31.	**Wheel chock**	*Remove if employed*
32.	**Bottom fuselage antennas**	*Check for integrity*
33.	**Right cabin ram-air inlet**	*Visual inspection*
34.	**Right Pitot tube**	*Remove protective cap and check for any obstruction*
35.	**Nose landing gear**	*Check tire status (cuts, bruises, cracks and excessive wear),slippage markers integrity, gear structure and retraction mechanism, shock absorber and gear doors attachments. There should be no sign of hydraulic fluid leakage.*
36.	**Radome**	*Check for integrity*
37.	**Radome access door**	*Visual inspection*
38.	**Left Pitot tube**	*Remove protective cap and check for any obstruction*

3.6. COCKPIT PREPARATION ACTIONS

AIRCRAFT DOCUMENTS ..... CHECK, ON BOARD
SEAT ..... ADUST
SEAT BELT ..... FASTEN
DOORS ..... CLOSED AND LOCKED
ENGINE STARTING BATTERY VOLTMETER ..... CHECK 12 TO 14 VOLT
PARKING BRAKE ..... SET
ALTERNATE STATIC PORT ..... CHECK CLOSED
ALL EXTERNAL LIGHTS SWITCHES ..... OFF
FLAPS LEVER ..... UP
PROPELLER ..... MAX RPM
CARBURATOR HEAT (2) ..... OFF
POWER LEVER ..... IDLE
ENGINE LEVERS FRICTION ..... ADJUST
AVIONIC/CROSSBUS/FIELD SWITCHES ..... OFF
GEAR LEVER ..... DOWN
EMERGENCY BACK BATTERY SWITCH ..... SECURED
ELT ..... CHECK ARM
CABIN HEAT ..... OFF
RH FUEL SELECTOR ..... RIGHT
LH FUEL SELECTOR ..... LEFT
IGNITION SWITCHES ..... OFF
BREAKERS ..... ALL IN

3.7. BEFORE START ACTIONS

MASTER SWITCH ..... ON
DEPARTURE BRIEFING ..... PERFORMED
STROBE ..... ON
FUEL QUANTITY ..... CHECK
FUEL PUMP ..... ON, THEN OFF
→ *Check normal fuel pressure gauge operation, and return to zero*
FIRE DETECTOR SYSTEM ..... CHECK

3.8. BEFORE START CHECKLIST

1. DEPARTURE BRIEFING ..... PERFORMED
2. PARKING BRAKE ..... SET
3. MASTER SWITCH ..... ON
4. STROBE ..... ON
5. POWER LEVER ..... IDLE
6. DOORS ..... CLOSED & LOCKED

3.9. RIGHT ENGINE START UP

RH CHOKE ..... AS NECESSARY
RH FUEL PUMP ..... ON
RH IGNITION SWITCHES (2) ..... ON
RH OUTSIDE SAFETY ..... CHECK
RIGHT ENGINE START PUSHBUTTON ..... ENGAGE
→ *Do not engage starter for more than 10 seconds*
RH CHOKE ..... OFF
RIGHT ENGINE OIL PRESSURE ..... CHECK, > 2 BAR
RH THROTTLE LEVER ..... 1200 RPM
→ *When power is low, RPM are controlled through manifold pressure lever*
RH FIELD ..... ON
RH AVIONICS ..... ON
RH CROSS BUS ..... ON
RH AMMETER ..... CHECK CHARGE

3.10. LEFT ENGINE START UP

LH CHOKE ..... AS NECESSARY
LH FUEL PUMP ..... ON
LH IGNITION SWITCHES (2) ..... ON
LH OUTSIDE SAFETY ..... CHECK
LEFT ENGINE START PUSHBUTTON ..... ENGAGE
→ *Do not engage starter for more than 10 seconds*
LH CHOKE ..... OFF
LEFT ENGINE OIL PRESSURE ..... CHECK, > 2 BAR
LH THROTTLE LEVER ..... 1200 RPM
→ *When power is low, RPM are controlled through manifold pressure lever*
LH FIELD ..... ON

LH AVIONICS ..... ON
LH CROSS BUS ..... ON
LH AMMETER ..... CHECK CHARGE
→ *Charge should be shared evenly between the two alternators*

3.11. AFTER START UP ACTIONS

XPDR ..... STBY
FMS - RADIO/RADIONAV/PROCEDURE ..... SET
ATIS/DEPARTURE PARAMETERS ..... OBTAINED
NAV LIGHTS ..... ON
FUEL PUMPS ..... OFF
ALTIMETERS ..... SET
ELECTRICAL TRIM ..... CHECK RANGE AND DISCONNECTION
AUTO PILOT ..... CHECK THEN OFF
FLIGHT CONTROLS ..... FREE
FLAPS ..... CHECK THEN UP

3.12. AFTER START UP CHECK-LIST

1. ENGINE OIL PRESSURE ..... CHECK
2. AVIONICS / FIELD / CROSS BUS ..... ON
3. FMS (RADIO/RADIONAV/PROCEDURE) ..... SET
4. ALTIMETERS ..... SET
5. FLIGHT CONTROLS ..... FREE
6. FLAPS ..... UP
7. FUEL PUMPS ..... OFF

3.13. TAXIING ACTIONS

BLOCK TIME ..... REPORTED
TAXI LIGHT ..... ON
PARKING BRAKE ..... RELEASE
BRAKES ..... CHECK
→ *Test right seat braking action if occupied*
INSTRUMENTS & AHRS ..... CHECKED DURING TURNS

3.14. ENGINE RUN-UP

PARKING BRAKE ..... SET
TAXI LIGHT ..... OFF
OIL TEMPERATURE ..... CHECK
FUEL PUMPS ..... ON
RPM ..... 1650 RPM
- *Perform engine run-up on both engines at the same time*

PROPELLER ..... FEATHER CHECK

- *Go swiftly from max RPM to feather position then go back to max RPM, one handle at a time, do not drop more than 400 RPM*
- *Repeat 3 times for each engine*

IGNITION SWITCHES ..... CHECK
- *Perform check one ignition switch at a time. Check loss of RPM < 130 RPM and maximum in between < 50 RPM*

CARBURATORS HEAT ..... CHECK
- *Check loss of RPM of about 100 RPM and returning to normal*

AMMETER ..... CHECK
POWER LEVERS ..... IDLE
- *Check idle position > 750 RPM*

RPM ..... 1200 RPM

3.15. BEFORE LINE UP ACTIONS

LANDING LIGHT ..... ON
TRIMS ..... SET NEUTRAL
HEADING AND ALTITUDE BUG ..... AS NECESSARY
FLAPS ..... T/O
TAKE OFF BRIEFING ..... PERFORMED

3.16. BEFORE LINE UP CHECKLIST

1. ENGINE RUN UP .....PERFORMED
2. TAKE OFF BRIEFING .....PERFORMED
3. FLAPS ..... T/O
4. FUEL PUMPS.....ON
4. RIGHT ENGINE FUEL SELECTORS ..... RIGHT POSITION
5. LEFT ENGINE FUEL SELECTORS.....LEFT POSITION
6. PROPELLERS.....MAX RPM
7. TRIMS .....NEUTRAL
8. XPDR.....ALT

3.17. LINE-UP ACTIONS

QFU AND HEADING .....CHECK
PITOT HEAT.....AS NECESSARY
CAS ALARM..... CHECK GREEN

3.18. TAKE-OFF

TAKE OFF TIME..... ANNOUNCED
MAP 20 Hg THEN BRAKE RELEASED

POWER.....FULL
→ *Check ~ 29 Hg, 2350 RPM*
ENGINE PARAMETERS .....CHECK
SPEED ..... ALIVE AND CHECK
ANNUNCIATOR PANEL.....CHECK
ROTATION SPEED ..... 65 kt
→ *Wait for positive climb then*
LANDING GEAR..... UP

3.19. AFTER TAKE-OFF ACTIONS

→ *Wait upon reaching ASD (min. 400 ft AGL) then*
FLAPS ..... UP
FUEL PUMPS..... OFF
LIGHTS (TAXI & LANDING) ..... OFF
CLIMB POWER ..... SET
→ *Manifold pressure : 28 Hg, RPM : 2200 RPM*

3.20. AFTER TAKE-OFF CHECKLIST
1. LANDING GEAR.....UP, LOCKED
2. FLAPS ..... UP
3. CLIMB POWER (MAP & RPM) ..... SET
4. LIGHTS (TAXI & LANDING) ..... OFF
5. FUEL PUMPS..... OFF

3.21. CLIMB ACTIONS

ALTIMETERS .....SET, COMPARED
ENGINE POWER ……...ADJUST
ELECTRICAL FAN
……OFF

3.22. CRUISE ACTIONS

CRUISE POWER..... SET
➔ *See cruise performance table for correct manifold pressure and RPM settings*
ENGINE PARAMETERS .....CHECK

3.23. CRUISE CHECKLIST	
1. CRUISE POWER	SET
2. ENGINE PARAMETERS	CHECK

3.24. BEFORE DESCENT ACTIONS

LANDING PARAMETERS	OBTAINED
FMS (RADIO/RADIONAV/PROCEDURE)	SET
ARRIVAL BRIEFING	PERFORMED

3.25. BEFORE DESCENT CHECKLIST	
1. FMS (RADIO/RADIONAV/PROCEDURE)	SET
2. ARRIVAL BRIEFING	PERFORMED

3.26. APPROACH ACTIONS

ALTIMETERS	SET, COMPARED

3.27. APPROACH CHECKLIST	
1. ALTIMETERS	SET, COMPARED
2.TAXI LIGHT	ON

3.28. BEFORE LANDING ACTIONS

FLAPS	TO/APPR
FUEL PUMP	ON
LANDING GEAR	DOWN
LANDING LIGHTS	ON
FLAPS	LDG
PROPELLERS	MAX RPM
AUTO PILOT	OFF

3.29. BEFORE LANDING CHECKLIST	
1. LANDING GEAR	DOWN, THREE GREENS
2. FLAPS	AS REQUIRED
3. PROPELLERS	MAX RPM
4. FUEL PUMPS	ON
5. LANDING LIGHTS	ON
6. AUTO PILOT	OFF

3.30. AFTER LANDING ACTIONS

FLAPS	UP
LANDING LIGHTS	OFF
FUEL PUMPS	OFF
XPDR	STBY
TAXI LIGHT	ON

3.31. AFTER LANDING CHECKLIST	
1. FLAPS	UP
2. LANDING LIGHTS	OFF
3. FUEL PUMPS	OFF
4. XPDR	STBY

3.32. APRON CHECKLIST	
1. PARKING BRAKE	SET
2. TAXI & NAV LIGHT	OFF
3. AP MASTER	OFF
4.ELECTRICAL FAN	OFF
5.FLIGHT TIME & ENGINE HOURS	CHECKED
6. AVIONICS (RH AND LH)	OFF
7. CROSS BUS (RH AND LH)	OFF
8. FIELD (RH AND LH)	OFF
9. THROTTLE LEVERS	IDLE
→ *Allow one minute for engine cooldown if necessary*	
10. IGNITION SWITCHES (RIGHT THEN LEFT)	OFF
→ *Turn off one at a time*	
11. STROBE	OFF
12. MASTER SWITCH	OFF

4. EMERGENCY PROCEDURES

This section contains abnormal procedures to use in case of failure of either one of the systems of the aircraft.

4.1. EMERGENCY AIRSPEEDS

OEI SPEED		
		KIAS
Air Minimum Control Speed	**VMCA**	62
OEI Best Rate of Climb Speed	**VYSE**	84

4.2. ENGINE FAILURES

ENGINE FIRE / FAILURE BEFORE V1

POWER LEVER ..... IDLE
BRAKES ..... APPLIED
→ *Maintain runway axis*
FUEL SELECTORS ..... OFF
IGNITION SWITCHES ..... OFF
BATTERY ..... OFF
→ *Evacuate aircraft as necessary*

ENGINE FIRE / FAILURE AFTER V1

AP ..... DISC
POWER ..... FULL
LANDING GEAR ..... UP
FLAPS ..... UP
- → *Identify dead engine (dead foot, dead engine). It is designed engine X. (X being either RIGHT or LEFT)*

X ENGINE POWER ..... IDLE
- → *Check nothing happens*

X ENGINE PROPELLER ..... FEATHER
- → *Check feather*
- → *Reach and climb to 84 kt (blue line)*

OPERATING ENGINE POWER ..... ADJUSTED
TRIMS ..... SET
X ENGINE FIELD ..... OFF
X ENGINE FUEL SELECTOR ..... OFF
X ENGINE IGNITION SWITCHES ..... OFF
X ENGINE FUEL PUMP ..... OFF
OPERATING ENGINE FUEL SELECTOR ..... CROSSFEED AS NECESSARY

LAND AS SOON AS POSSIBLE
USE « ONE ENGINE INOPERATIVE APPROACH » CHECKLIST

ENGINE FIRE / FAILURE IN FLIGHT

AP ..... DISC
POWER ..... FULL
LANDING GEAR ..... UP
FLAPS ..... UP
- → *Identify dead engine (dead foot, dead engine). It is designed engine X. (X being either RIGHT or LEFT)*

X ENGINE POWER ..... IDLE
- → *Check nothing happens*

X ENGINE PROPELLER ..... FEATHER
- → *Check feather*
- → *Reach and climb to 84 kt (blue line)*

OPERATING ENGINE POWER ..... ADJUSTED
TRIMS ..... SET
X ENGINE FIELD ..... OFF
X ENGINE FUEL SELECTOR ..... OFF
X ENGINE IGNITION SWITCHES ..... OFF
X ENGINE FUEL PUMP ..... OFF
OPERATING ENGINE FUEL SELECTOR ..... CROSSFEED AS NECESSARY

LAND AS SOON AS POSSIBLE
USE « ONE ENGINE INOPERATIVE APPROACH » CHECKLIST

PROPELLER OVERSPEEDING

X ENGINE POWER LEVER ..... REDUCE
X ENGINE PROPELLER .....REDUCE AS PRACTICAL

IF UNSUCCESSFUL APPLY "ENGINE SECURING"

ENGINE FIRE / FAILURE ON FINAL

AP .....DISC
POWER .....ADJUSTED
FLAPS ..... APP
- → *Identify dead engine (dead foot, dead engine). It is designed engine X. (X being either RIGHT or LEFT)*

X ENGINE POWER ..... IDLE
- → *Check nothing happens*

X ENGINE PROPELLER .....FEATHER
- → *Check feather*

PROCEED FOR SAFE LANDING IF STABLIZED, OR PERFORM ONE ENGINE INOPERATIVE GOING AROUND PROCEDURE

ENGINE SECURING

OPERATING ENGINE POWER .....ADJUSTED
LANDING GEAR.....UP
FLAPS .....UP
X ENGINE POWER LEVER .....IDLE
X ENGINE IGNITION SWITCHES.....OFF
X ENGINE PROPELLER ..... FEATHER
- → *Check feather*

X ENGINE FUEL PUMP .....OFF
X ENGINE FIELD .....OFF
X ENGINE FUEL SELECTOR .....OFF
OPERATING ENGINE FUEL SELECTOR.....CROSSFEED AS NECESSARY

INFLIGHT ENGINE RESTART

CARBURATOR HEAT ..... AS REQUIRED
X ENGINE ELECTRICAL FUEL PUMP ..... ON
FUEL SELECTORS ..... CHECK
X ENGINE FIELD ..... OFF
X ENGINE IGNITION SWITCHES ..... ON
X ENGINE THROTTLE ..... IDLE
X ENGINE PROPELLER ..... FULL FORWARD
X ENGINE STARTER ..... ENGAGED
X ENGINE POWER LEVERS ..... IDLE
- → *Stay idle while engine is warming up*

X ENGINE FIELD ..... ON

If engine restart is unsuccessful :

EMERGENCY BATTERY SWITCH ..... ON
- → *Repeat engine restart procedure*

IF ENGINE RESTART IS STILL UNSUCCESSFUL APPLY ENGINE SECURING PROCEDURE AND USE ONE ENGINE INOPERATIVE APPROACH CHECKLIST

LOW FUEL PRESSURE

FUEL QUANTITY INDICATOR ..... CHECK

If a fuel leakage can be excluded:

FUEL PUMP ..... ON
FUEL SELECTOR ..... CONSIDER CROSSFEEDING

If a fuel leakage is suspected:

APPLY "ENGINE SECURING" PROCEDURE ON AFFECTED ENGINE, AND DO NOT CROSSFEED

LOW OIL PRESSURE

POWER (AFFECTED ENGINE) ..... IDLE
OIL TEMPERATURE ..... CHECK

IF OIL TEMPERATURE IS RISING APPLY « ENGINE SECURING» PROCEDURE

EXCESSIVE OIL TEMPERATURE

POWER (AFFECTED ENGINE) ..... IDLE
OIL PRESSURE ..... CHECK

IF OIL PRESSURE IS UNDER ACCEPTABLE VALUE APPLY « ENGINE SECURING» PROCEDURE

EXCESSIVE CHT

POWER (AFFECTED ENGINE) ..... REDUCE
AIRSPEED..... INCREASE AS PRACTICAL
OIL TEMPERATURE ..... CHECK

IF CHT IS STILL RISING APPLY « ENGINE SECURING» PROCEDURE

COOLANT LIQUID LOW LEVEL

CHT (AFFECTED ENGINE) ..... CHECK

If CHT is above 135 °C:
POWER (AFFECTED ENGINE) ..... REDUCE
AIRSPEED..... INCREASE AS PRACTICAL
OIL TEMPERATURE ..... CHECK

IF CHT IS STILL RISING APPLY « ENGINE SECURING» PROCEDURE

ONE ENGINE INOPERATIVE APPROACH
ALTIMETERS ..... SET, COMPARED
FUEL SELECTORS ..... STOP CROSSFEED OPERATIONS
SPEED AND FINAL CONFIGURATION: 90 kt, FLAPS APPROACH. **DO NOT EXTEND GEAR BEFORE REACHING FINAL DESCENT GLIDE PATH**

4.3. FIRE

ENGINE FIRE ON GROUND
FUEL SELECTORS ..... BOTH OFF
POWER LEVER ..... FULL
STARTER ..... ENGAGE
→ *Continue to crank while carrying the following actions*
MASTER SWITCH ..... OFF
CABIN HEAT ..... OFF
PARKING BRAKE ..... SET
EVACUATE THE AIRCRAFT

ELECTRICAL FIRE / SMOKE ON GROUND
MASTER SWITCH ..... OFF
CABIN HEAT ..... OFF
FUEL SELECTORS ..... BOTH OFF
POWER LEVER ..... IDLE
IGNITION SWITCHES ..... OFF
PARKING BRAKE ..... SET
EVACUATE THE AIRCRAFT

ELECTRICAL FIRE / SMOKE IN FLIGHT
EMERGENCY LIGHT ..... AS NECESSARY
STBY ATTITUDE INDICATOR ..... AS NECESSARY
MASTER SWITCH ..... OFF
RH & LH FIELD ..... OFF
RH & LH AVIONICS ..... OFF
RH & LH CROSS BUS ..... OFF
IF FAULTY SOURCE CAN BE FOUND, IT MAY BE POSSIBLE TO RESTORE NON FAULTY POWER SOURCE *ONE AT A TIME*

4.4. ELECTRICAL FAILURES

TOTAL ELECTRICAL FAILURE

EMERGENCY LIGHT ..... AS NECESSARY
MASTER SWITCH..... OFF
RH & LH FIELD ..... OFF
MASTER SWITCH..... ON
RH & LH FIELD ..... ON

IF FAILURE PERSIST, ENGAGE EMERGENCY BATTERY AND LAND AS SOON AS PRACTICAL

SINGLE ALTERNATOR FAILURE

LH OR RH FIELD ..... OFF
LH OR RH FIELD ..... ON

If the LH (or RH) ALT caution stays displayed:
RH OR LH FIELD ..... OFF
LH AVIONIC ..... OFF

If conditions permit:
RH OR LH CROSS BUS..... OFF

Equipment will be lost according to the following table:

Cross Bus LH	Cross Bus RH	Avionic Bus LH
Field LH	Field RH	Avionic bus LH
Taxi Light	Rudder Trim	Trim A/P
Pitot Heat	Co-pilot seat	A/P
Voltage regulator LH	Voltage regulator RH	XPDR
Cabin fan	Nav Light	D M E
	Audio panel	Turn coord
	Avionic Fan	TCAS

4.5. AVIONICS FAILURES

LOSS OF AIRSPEED / ALTITUDE / VERTICAL SPEED / HEADING
LOSS OF INFORMATION IS MATERLIALIZED BY A RED 'X'. **REFER TO STANDBY INDICATOR MD 302**

DISPLAY FAILURE
DISPLAY BACK UP BUTTON ..... PUSH

ATTITUDE FAILURE IN IMC
ATTITUDE REFERENCE ..... STBY INDICATOR DISPLAY BACK UP BUTTON ..... PUSH **IF UNSUCCESSFUL, SEEK VMC CONDITIONS AS SOON AS PRACTICAL.** **USE MD 302 INDICATOR AS SOLE ATTITUDE REFERENCE**

4.6. LANDING GEAR

LANDING GEAR UNSAFE WARNING
GEAR LEVER ..... RECYCLED **IF LANDING GEAR EXTENSION IS UNSUCCESSFUL APPLY « MANUAL GEAR EXTENSION »**

MANUAL LANDING GEAR EXTENSION
SPEED ..... < 122 KT GEAR LEVER..... DOWN EMERGENCY GEAR EXTENSION ACCESS DOOR .....REMOVED RH CONTROL LEVER .....ROTATE 90° COUNTERCLOCKWISE → *Wait at least 20 seconds* LH CONTROL LEVER.....ROTATE 180° COUNTERCLOCKWISE LANDING GEAR..... CHECK 3 GREENS **LAND AS SOON AS PRACTICAL**

4.7. MISCELLANOUS

UNINTENTIONAL SPIN	
POWER LEVERS	IDLE
RUDDER	FULL OPPOSITE TO ROTATION
AILERONS	NEUTRAL
STICK	FULL FORWARD
FLAPS	UP
WHEN ROTATION STOPS :	
RUDDER	NEUTRAL
STICK	SMOOTHLY RECOVER

EMERGENCY DESCENT	
POWER	IDLE
PROPELLER	MAX RPM
AIR SPEED	122 KT
LANDING GEAR	DOWN
PITCH	-15°

ADJUST PITCH TO MAINTAIN VLE

DITCHING	
LANDING GEAR	DOWN
FLAPS	FULL
Before impact:	
FUEL SELECTORS	BOTH OFF
IGNITION SWITCHES	BOTH OFF
FUEL PUMPS	BOTH OFF
AVIONICS / FIELD / CROSS BUS SWITCHES	OFF
MASTER SWITCH	OFF

EVACUATE THE AIRCRAFT THROUGH DITCHING EMERGENCY EXIT.
ROTATE HANDLE CLOCKWISE.
DO NOT INFLATE LIFE VESTS BEFORE EXITING THE AIRCRAFT.

PITOT HEATING SYSTEM FAILURE	
PITOT HEAT SWITCH	OFF
BREAKER	CHECK
PITOT HEAT SWITCH	ON

IF PITOT HEAT CAUTION LIGHT STILL DISPLAYED, AVOID IMC CONDITIONS WITH OAT BELOW 10 °C

STATIC PORT FAILURE

CABIN VENTILATION ..... OFF
ALTERNATE STATIC PORT ..... OPEN

CONTINUE THE MISSION

FLAPS SYSTEM MALFUNCTION

FLAPS CONTROL .....CHECK
BREAKERS .....CHECK

IF FLAPS STAY JAMMED, USE TABLE BELOW :

FLAPS	APPROACH SPEED	LANDING DISTANCE
UP	90 kt	D*1.6
APP	85 kt	D*1.4

5. PERFORMANCES

5.1. USE OF PERFORMANCE CHARTS

Performances data are presented in tabular or graphical form to illustrate the effect of different variables such as altitude, temperature and weight. Given information is sufficient to plan the mission with required precision and safety.

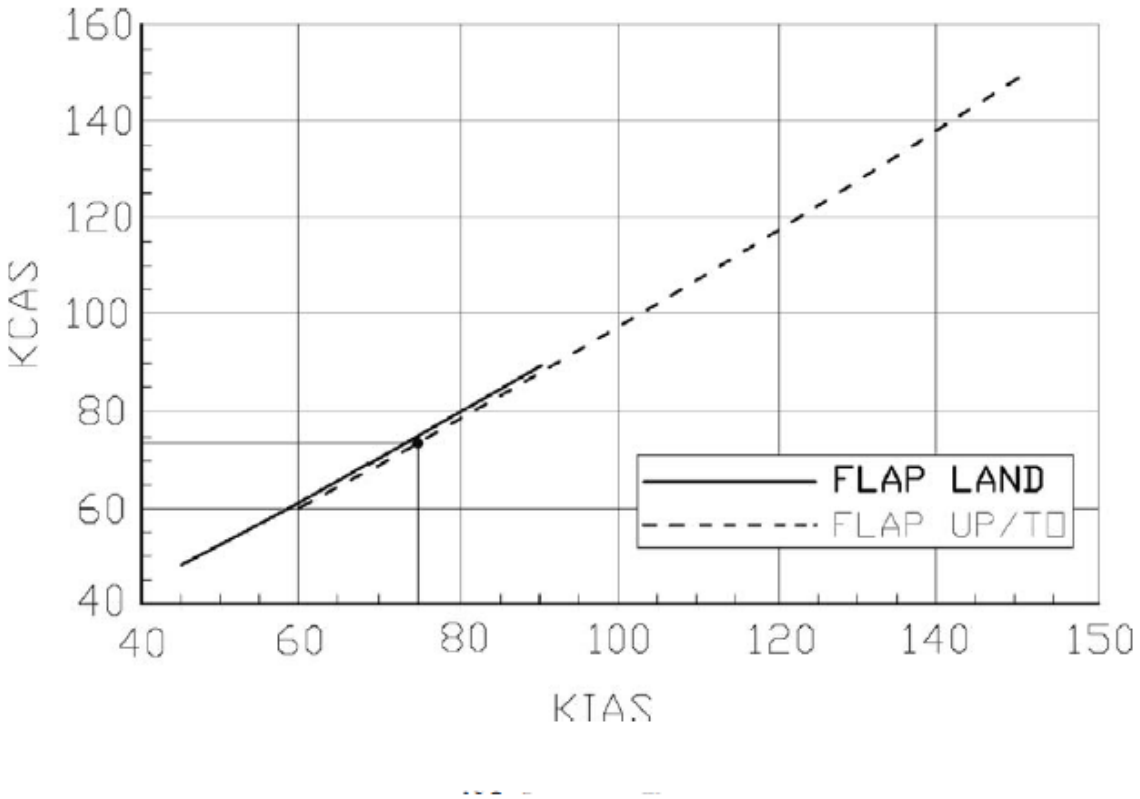
However, performances charts have been established by test pilots, on board of brand-new aircrafts. Thus although not exploiting aircraft under part-CAT regulation, C3P requires the use of pondering coefficient for take-off, landing, and climb performance charts. The pilot must be assured during flight preparation that:

- **Take-off distance * 1.2 < TODA**
- **Accelerate-stop distance * 1.3 < ASDA**
- **Climb gradient – 0.7 % > Required *OBSTACLE* climb gradient**
- **Landing distance * 1.7 < LDA**

Additional information is provided for each table or graph.

5.2. AIRSPEED INDICATOR SYSTEM CALIBRATION

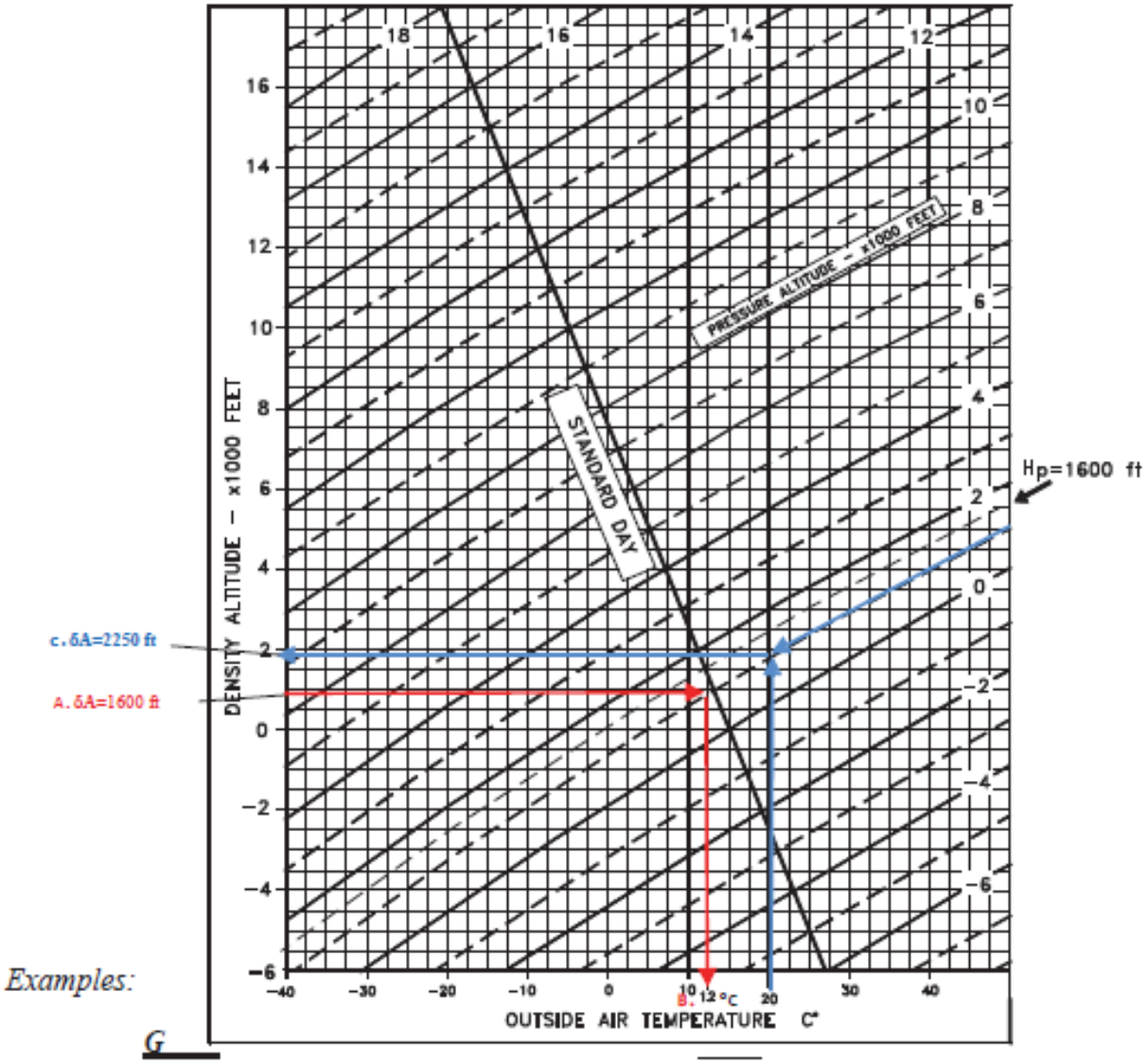
Graph shows calibrated airspeed V_{CAS} as a function of indicated airspeed V_{IAS}.



Example:

Given	***Find***
KIAS *75*	KCAS *74*

5.3. DENSITY ALTITUDE



Examples:

G

a. Temperature = 20°C

b. Pressure altitude = 1600'

→ c. Corresponding Density Altitude = 2250'

Given ***Find***

A. Pressure altitude = 1600'

ISA condition

→ B. ISA Air Temperature = 12°C

5.4. STALL SPEED

Weight: *1230 kg (2712 lb)*
Throttle Levers: *IDLE*
Landing Gear: *Down*
CG: *Most Forward (16.5%)*
No ground effect

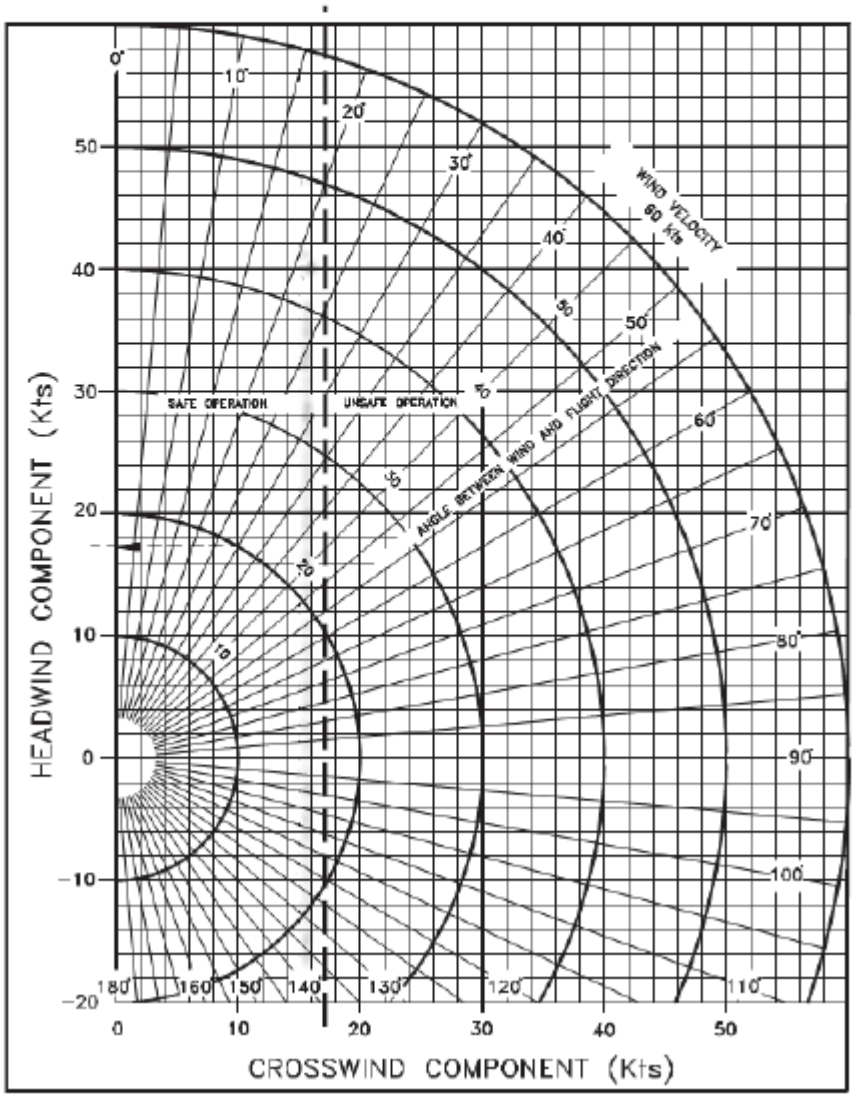
WEIGHT	BANK ANGLE	STALL SPEED					
		FLAPS 0°		FLAPS T/O		FLAPS FULL	
[kg]	*[deg]*	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
1230 *(FWD C.G.)*	0	66	65	59	57	54	55
	15	67	66	58	58	55	56
	30	71	70	61	61	59	59
	45	79	78	68	68	65	65
	60	95	93	83	81	79	78

5.5. CROSS WIND

Maximum demonstrated crosswind is 17 Kts

=:: Example:

Given	***Find***
Wind direction (*with respect to aircraft longitudinal axis*) = 30°	Headwind = 17.5 Kts
Wind speed = 20 Kts	Crosswind = 10 Kts



5.6. TAKE-OFF PERFORMANCE

Weight = *1230 kg (2712 lb)*

Flaps: *T/O*
Speed at Lift-Off = *65 KIAS*
Speed Over *50ft* Obstacle = *70 KIAS*
Throttle Levers: *Full Forward*
Runway: *Grass*

Corrections

Headwind: - 2.5m for each kt (*8 ft/kt*)
Tailwind: + 10m for each kt (*33ft/kt*)
Paved Runway: - *6%* to Ground Roll
Runway slope: + 5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	207	263	328	401	301
	At 50 ft AGL	271	345	429	525	394
1000	Ground Roll	231	294	366	447	330
	At 50 ft AGL	303	385	479	586	432
2000	Ground Roll	258	328	409	500	362
	At 50 ft AGL	338	430	535	654	474
3000	Ground Roll	289	367	457	559	398
	At 50 ft AGL	378	480	598	731	521
4000	Ground Roll	323	411	511	625	438
	At 50 ft AGL	423	537	669	818	573
5000	Ground Roll	362	460	572	700	481
	At 50 ft AGL	473	602	749	916	630
6000	Ground Roll	405	515	642	785	530
	At 50 ft AGL	531	675	840	1027	694
7000	Ground Roll	455	578	720	880	584
	At 50 ft AGL	595	757	942	1152	765
8000	Ground Roll	511	650	809	989	645
	At 50 ft AGL	669	850	1059	1295	844
9000	Ground Roll	575	730	909	1112	712
	At 50 ft AGL	752	956	1190	1456	932
10000	Ground Roll	647	822	1023	1252	786
	At 50 ft AGL	847	1076	1340	1638	1029

Weight = *1080 kg (2381 lb)*

Flaps: *T/O*
Speed at Lift-Off = *65 KIAS*
Speed Over *50ft* Obstacle = *70 KIAS*
Throttle Levers: *Full Forward*
Runway: *Grass*

Corrections

Headwind: - 2.5m for each kt (*8 ft/kt*)
Tailwind: + 10m for each kt (*33ft/kt*)
Paved Runway: - *6%* to Ground Roll
Runway slope: + 5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	148	188	234	286	215
	At 50 ft AGL	193	246	306	374	281
1000	Ground Roll	165	210	261	319	235
	At 50 ft AGL	216	274	341	418	308
2000	Ground Roll	184	234	291	356	258
	At 50 ft AGL	241	306	381	466	338
3000	Ground Roll	206	262	326	398	284
	At 50 ft AGL	269	342	426	521	372
4000	Ground Roll	230	293	364	446	312
	At 50 ft AGL	301	383	477	583	409
5000	Ground Roll	258	328	408	499	343
	At 50 ft AGL	338	429	534	653	449
6000	Ground Roll	289	368	457	559	378
	At 50 ft AGL	378	481	599	732	495
7000	Ground Roll	324	412	513	628	417
	At 50 ft AGL	425	540	672	822	545
8000	Ground Roll	364	463	577	705	460
	At 50 ft AGL	477	606	755	923	602
9000	Ground Roll	410	521	648	793	508
	At 50 ft AGL	536	682	849	1038	664
10000	Ground Roll	461	586	730	893	561
	At 50 ft AGL	604	767	955	1168	734

Weight = *930 kg (2051 lb)*

Flaps: *T/O*
Speed at Lift-Off = *65 KIAS*
Speed Over *50ft* **Obstacle =** *70 KIAS*
Throttle Levers: *Full Forward*
Runway: *Grass*

Corrections

Headwind: - 2.5m for each kt (*8 ft/kt*)
Tailwind: + 10m for each kt (*33ft/kt*)
Paved Runway: - *6%* to Ground Roll
Runway slope: + 5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	100	127	158	194	146
	At 50 ft AGL	131	167	207	254	190
1000	Ground Roll	112	142	177	216	160
	At 50 ft AGL	146	186	231	283	209
2000	Ground Roll	125	159	197	242	175
	At 50 ft AGL	163	208	258	316	229
3000	Ground Roll	140	177	221	270	192
	At 50 ft AGL	183	232	289	353	252
4000	Ground Roll	156	198	247	302	212
	At 50 ft AGL	204	260	323	395	277
5000	Ground Roll	175	222	277	338	233
	At 50 ft AGL	229	291	362	443	305
6000	Ground Roll	196	249	310	379	256
	At 50 ft AGL	257	326	406	496	335
7000	Ground Roll	220	280	348	426	282
	At 50 ft AGL	288	366	455	557	370
8000	Ground Roll	247	314	391	478	312
	At 50 ft AGL	323	411	512	626	408
9000	Ground Roll	278	353	440	538	344
	At 50 ft AGL	364	462	575	704	450
10000	Ground Roll	313	397	495	605	380
	At 50 ft AGL	409	520	648	792	498

5.7. TAKE-OFF RATE OF CLIMB AT Vy

Power Setting: Maximum Continuous Power
Flaps: Take-Off
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_y	Rate of Climb [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	86	1276	1088	920	768	985
	2000	83	1133	948	783	634	873
	4000	79	990	809	646	500	761
	6000	76	848	670	510	366	649
	8000	73	707	531	374	233	537
	10000	70	565	393	239	100	425
	12000	67	425	256	104	-32	313
	14000	64	285	118	-30	-164	201
1080	S.L.	85	1507	1302	1119	954	1190
	2000	82	1351	1150	970	808	1068
	4000	79	1196	998	822	662	946
	6000	76	1041	847	674	517	825
	8000	73	887	696	526	372	703
	10000	69	734	546	379	228	581
	12000	66	581	397	232	84	459
	14000	63	428	248	86	-59	338
930	S.L.	85	1803	1575	1372	1189	1451
	2000	82	1630	1406	1206	1026	1315
	4000	79	1457	1238	1041	864	1180
	6000	75	1286	1070	877	703	1045
	8000	72	1114	902	713	542	909
	10000	69	944	735	549	382	774
	12000	65	774	569	387	222	639
	14000	62	604	404	224	63	503

5.8. TAKE-OFF RATE OF CLIMB AT Vx

Power Setting: Maximum Continuous Power
Flaps: Take-Off
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_x	Rate of Climb at V_x [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	78	1214	1037	880	738	941
	1000	76	1147	972	816	675	888
	2000	75	1080	906	751	612	836
	3000	74	1013	841	687	549	783
	4000	73	946	776	623	486	731
	5000	72	879	710	560	424	678
	6000	71	813	645	496	361	626
	7000	70	746	580	432	299	574
1080	S.L.	78	1283	1102	940	794	1002
	1000	76	1214	1034	874	729	949
	2000	75	1145	967	808	664	895
	3000	74	1076	900	742	600	841
	4000	73	1008	833	676	535	787
	5000	72	939	766	611	471	733
	6000	71	871	699	545	407	679
	7000	70	803	632	480	342	625
930	S.L.	78	1435	1243	1072	918	1138
	1000	76	1362	1172	1002	849	1081
	2000	75	1289	1101	932	780	1024
	3000	74	1216	1030	863	712	967
	4000	73	1144	958	793	644	910
	5000	72	1071	888	724	576	853
	6000	71	999	817	654	508	796
	7000	69	927	746	585	440	739

5.9. ENROUTE RATE OF CLIMB AT Vy

Power Setting: Maximum Continuous Power
Flaps: Up
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_Y	Rate of Climb [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	84	1317	1135	973	827	1036
	2000	83	1179	1000	841	697	928
	4000	81	1041	865	709	568	819
	6000	80	904	731	577	439	711
	8000	78	767	598	446	310	603
	10000	77	631	464	316	182	495
	12000	75	495	332	186	54	387
	14000	73	360	199	56	-73	279
1080	S.L.	83	1560	1360	1182	1022	1251
	2000	82	1408	1212	1037	879	1132
	4000	80	1257	1064	892	737	1014
	6000	78	1106	917	748	595	895
	8000	76	956	770	604	454	776
	10000	74	807	624	461	314	658
	12000	72	657	478	318	173	539
	14000	70	509	333	175	34	420
930	S.L.	82	1873	1649	1449	1269	1527
	2000	81	1703	1483	1286	1109	1393
	4000	79	1533	1317	1124	950	1260
	6000	77	1364	1151	962	791	1127
	8000	75	1196	987	800	632	994
	10000	73	1028	823	639	474	861
	12000	71	860	659	479	317	727
	14000	69	693	496	319	160	594

5.10. ENROUTE RATE OF CLIMB AT Vx

Power Setting: Maximum Continuous Power
Flaps: Up
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_x	Rate of Climb at V_x [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	72	1241	1073	924	789	982
	1000	72	1177	1011	863	729	932
	2000	72	1114	949	802	669	882
	3000	72	1050	887	741	609	832
	4000	72	986	825	680	550	782
	5000	72	923	763	619	490	732
	6000	71	860	701	559	431	682
	7000	71	797	639	498	371	632
1080	S.L.	72	1480	1295	1130	981	1194
	1000	72	1410	1226	1062	915	1139
	2000	72	1340	1158	995	848	1084
	3000	72	1269	1089	928	782	1029
	4000	71	1199	1020	861	717	973
	5000	71	1129	952	794	651	918
	6000	71	1059	884	727	585	863
	7000	71	990	815	660	520	808
930	S.L.	72	1787	1578	1391	1223	1463
	1000	72	1707	1500	1315	1148	1401
	2000	71	1628	1422	1239	1074	1339
	3000	71	1549	1345	1163	999	1277
	4000	71	1470	1268	1087	925	1215
	5000	71	1391	1190	1012	851	1153
	6000	71	1312	1113	936	777	1090
	7000	70	1233	1036	861	703	1028

5.11. ONE-ENGINE RATE OF CLIMB AT Vyse

Power Setting: Maximum Continuous Power (operative engine)
propeller feathered (inoperative engine)
Flaps: Up
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_{YSE}	Rate of Climb [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	84	330	230	142	62	176
	1000	83	292	193	106	26	147
	2000	82	254	157	69	-9	117
	3000	81	216	120	33	-44	87
	4000	80	179	83	-3	-80	58
	5000	79	141	46	-38	-115	28
	6000	79	104	10	-74	-150	-1
	7000	78	67	-27	-110	-185	-31
1080	S.L.	80	436	330	235	149	271
	1000	80	396	290	196	111	240
	2000	79	355	251	157	73	208
	3000	79	315	211	118	35	176
	4000	79	275	172	80	-3	145
	5000	79	234	132	41	-41	113
	6000	78	194	93	3	-78	81
	7000	78	154	54	-35	-116	50
930	S.L.	79	574	455	349	253	390
	1000	79	529	411	305	211	355
	2000	79	483	367	262	168	319
	3000	78	438	322	219	126	284
	4000	78	393	278	176	83	248
	5000	78	348	235	133	41	213
	6000	78	304	191	90	-1	178
	7000	77	259	147	47	-43	142

5.12. ONE-ENGINE RATE OF CLIMB AT Vx

Power Setting: Maximum Continuous Power (operative engine)
propeller feathered (inoperative engine)
Flaps: Up
Landing Gear: Up

Weight	Pressure Altitude	Climb Speed V_{xSE}	Rate of Climb at V_{xSE} [ft/min]				
			Temperature [°C]				ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
1230	S.L.	83	325	227	140	61	174
	1000	82	288	191	104	26	145
	2000	81	251	155	69	-9	116
	3000	81	214	118	33	-44	86
	4000	80	177	82	-2	-78	57
	5000	79	140	46	-38	-113	28
	6000	78	103	10	-73	-148	-1
	7000	77	66	-26	-108	-183	-30
1080	S.L.	79	424	321	229	147	265
	1000	79	385	283	192	110	234
	2000	79	346	245	155	73	204
	3000	79	307	207	117	37	173
	4000	79	268	169	80	0	143
	5000	78	229	131	43	-36	112
	6000	78	190	93	6	-73	81
	7000	78	152	55	-31	-109	51
930	S.L.	78	556	442	341	249	380
	1000	78	513	400	299	209	346
	2000	78	469	358	258	168	312
	3000	78	426	316	217	128	279
	4000	78	383	274	176	87	245
	5000	78	340	232	134	47	211
	6000	77	298	190	93	7	177
	7000	77	255	148	52	-34	143

5.13. CRUISE PERFORMANCE

Weight: *1150 kg (2535 lb)*
Pressure Altitude: *0 ft*

RPM*	MAP [inHg]	ISA – 30°C (-15°C) PWR	KTAS	F.C.** [lt/hr]	ISA (15°C) PWR	KTAS	F.C.** [lt/hr]	ISA + 30°C (45°C) PWR	KTAS	F.C.** [lt/hr]
2250	29.5	103%	143	28.6	97%	145	27.1	92%	146	25.8
2250	28	88%	134	24.5	83%	136	23.2	79%	138	22
2250	26	69%	122	19.2	65%	124	18.2	62%	125	17.3
2250	24	59%	115	16.6	56%	116	15.7	53%	117	14.9
2250	22	46%	103	12.8	43%	103	12.1	41%	103	11.5
2250	20	39%	96	11	37%	95	10.4	35%	94	9.9
2100	28	84%	132	23.5	80%	134	22.2	76%	135	21.1
2100	26	66%	121	18.5	63%	122	17.5	60%	123	16.7
2100	24	57%	114	16	54%	114	15.1	52%	115	14.4
2100	22	43%	100	12.1	41%	100	11.5	39%	100	10.9
2100	20	37%	92	10.2	35%	91	9.7	33%	89	9.2
1900	26	61%	117	17.1	58%	118	16.2	55%	119	15.4
1900	24	53%	110	14.9	50%	111	14.1	48%	111	13.4
1900	22	41%	97	11.4	39%	97	10.8	37%	96	10.2
1900	20	35%	89	9.6	33%	88	9.1	31%	85	8.7

* *Propeller RPM*
** *Fuel Consumption for each Engine*

Weight: *1150 kg (2535 lb)*
Pressure Altitude: *3000 ft*

RPM*	MAP [inHg]	ISA – 30°C (-21°C) PWR	KTAS	F.C.** [lt/hr]	ISA (9°C) PWR	TCAS	F.C.** [lt/hr]	ISA + 30°C (39°C) PWR	KTAS	F.C.** [lt/hr]
2388	26.4	92%	141	25.7	87%	143	24.3	83%	144	23.1
2250	26.4	89%	139	25	85%	141	23.6	80%	143	22.4
2250	26	85%	137	23.9	81%	138	22.6	77%	140	21.5
2250	24	72%	128	20	68%	129	18.9	64%	130	18
2250	22	57%	116	16	54%	117	15.1	51%	118	14.3
2250	20	48%	108	13.4	45%	108	12.7	43%	108	12.1
2100	26.4	85%	137	23.9	81%	138	22.6	77%	140	21.4
2100	26	82%	134	22.8	77%	136	21.6	73%	137	20.5
2100	24	69%	125	19.2	65%	127	18.1	62%	128	17.2
2100	22	54%	114	15.2	51%	114	14.3	49%	115	13.6
2100	20	45%	104	12.6	43%	104	11.9	41%	104	11.3
1900	26.4	78%	132	21.9	74%	134	20.7	70%	135	19.6
1900	26	75%	130	20.9	71%	131	19.8	67%	132	18.8
1900	24	63%	121	17.7	60%	122	16.7	57%	123	15.9
1900	22	50%	110	14.1	48%	110	13.3	45%	110	12.6
1900	20	42%	101	11.7	40%	101	11.1	38%	100	10.6

* *Propeller RPM*
** *Fuel Consumption for each Engine*

Weight: *1150 kg (2535 lb)*
Pressure Altitude: *6000 ft*

RPM*	MAP [inHg]	ISA – 30°C (-27°C)			ISA (3°C)			ISA + 30°C (33°C)		
		PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]
2388	23.6	83%	139	23.3	79%	141	22	75%	142	20.9
2250	23.6	81%	138	22.6	76%	139	21.4	73%	141	20.3
2250	22	68%	129	19.1	65%	130	18.1	61%	131	17.2
2250	20	57%	119	15.8	54%	120	14.9	51%	120	14.2
2250	18	46%	108	12.9	44%	108	12.2	41%	107	11.6
2100	23.6	77%	135	21.6	73%	137	20.4	69%	138	19.4
2100	22	65%	126	18.2	62%	127	17.2	59%	128	16.4
2100	20	54%	116	15	51%	116	14.1	48%	117	13.4
2100	18	44%	106	12.4	42%	106	11.7	40%	105	11.1
1900	23.6	71%	130	19.8	67%	132	18.7	64%	133	17.8
1900	22	60%	122	16.8	57%	123	15.8	54%	123	15
1900	20	50%	112	13.9	47%	112	13.1	44%	112	12.4
1900	18	41%	102	11.6	39%	102	10.9	37%	100	10.4

* *Propeller RPM*

Weight: *1150 kg (2535 lb)*
Pressure Altitude: *9000 ft*

RPM*	MAP [inHg]	ISA – 30°C (-33°C)			ISA (-3°C)			ISA + 30°C (27°C)		
		PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]
2388	21.1	75%	137	20.9	71%	139	19.7	67%	140	18.7
2250	21.1	73%	136	20.3	69%	137	19.2	65%	138	18.2
2250	20	65%	130	18.3	62%	131	17.2	58%	131	16.3
2250	18	53%	118	14.9	50%	119	14	48%	118	13.3
2100	21.1	69%	133	19.4	65%	134	18.3	62%	135	17.4
2100	20	62%	127	17.4	59%	128	16.4	56%	128	15.6
2100	18	51%	116	14.2	48%	116	13.4	46%	116	12.7
1900	21.1	64%	128	17.8	60%	129	16.8	57%	130	15.9
1900	20	57%	122	16	54%	123	15.1	51%	123	14.3
1900	18	47%	112	13.2	44%	112	12.4	42%	111	11.8

* *Propeller RPM*
** *Fuel Consumption for each Engine*

Weight: *1150 kg (2535 lb)*
Pressure Altitude: *12000 ft*

RPM*	MAP [inHg]	ISA – 30°C (-39°C)			ISA (-9°C)			ISA + 30°C (21°C)		
		PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]	PWR	KTAS	F.C.** [lt/hr]
2388	18.8	67%	135	18.8	63%	136	17.7	60%	136	16.7
2250	18.8	65%	133	18.2	61%	134	17.2	58%	134	16.3
2250	18	60%	129	16.8	57%	129	15.9	54%	129	15
2100	18.8	62%	130	17.4	59%	131	16.4	56%	132	15.5
2100	18	58%	126	16.1	54%	126	15.2	51%	126	14.4
1900	18.8	57%	125	15.9	54%	126	15	51%	126	14.2
1900	18	53%	121	14.8	50%	121	13.9	47%	121	13.2

* *Propeller RPM*
** *Fuel Consumption for each Engine*

5.14. LANDING PERFORMANCE

Weight = *1230 kg (2712 lb)*

Flaps: *LAND*
Short Final Approach Speed = *70 KIAS*
Throttle Levers: *Idle*
Runway: *Grass*

Corrections

Headwind: - 5m for each kt (*16 ft/kt*)
Tailwind: + 11m for each kt (*36ft/kt*)
Paved Runway: - *2%* to Ground Roll
Runway slope: - 2.5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	199	219	239	259	231
	At 50 ft AGL	308	334	359	384	349
1000	Ground Roll	206	227	248	269	238
	At 50 ft AGL	318	344	370	396	358
2000	Ground Roll	214	236	257	279	245
	At 50 ft AGL	328	355	382	408	367
3000	Ground Roll	222	244	267	289	252
	At 50 ft AGL	348	377	406	434	385
4000	Ground Roll	230	254	277	300	260
	At 50 ft AGL	348	377	406	434	385
5000	Ground Roll	239	263	287	311	268
	At 50 ft AGL	359	389	419	448	395
6000	Ground Roll	248	273	298	323	276
	At 50 ft AGL	371	402	432	463	405
7000	Ground Roll	258	284	310	336	285
	At 50 ft AGL	382	415	446	478	416
8000	Ground Roll	268	295	322	349	294
	At 50 ft AGL	395	428	461	494	427
9000	Ground Roll	278	306	334	362	303
	At 50 ft AGL	408	442	476	510	438
10000	Ground Roll	289	318	348	377	313
	At 50 ft AGL	421	457	492	527	450

Weight = *1080 kg (2381 lb)*

Flaps: *LAND*
Short Final Approach Speed = *70 KIAS*
Throttle Levers: *Idle*
Runway: *Grass*

Corrections

Headwind: - 5m for each kt (*16 ft/kt*)
Tailwind: + 11m for each kt (*36ft/kt*)
Paved Runway: - *2%* to Ground Roll
Runway slope: - 2.5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	175	192	210	227	203
	At 50 ft AGL	271	293	315	337	306
1000	Ground Roll	181	199	218	236	209
	At 50 ft AGL	279	302	325	348	314
2000	Ground Roll	188	207	226	245	215
	At 50 ft AGL	288	311	335	358	322
3000	Ground Roll	195	215	234	254	222
	At 50 ft AGL	306	331	356	381	338
4000	Ground Roll	202	223	243	263	228
	At 50 ft AGL	306	331	356	381	338
5000	Ground Roll	210	231	252	273	235
	At 50 ft AGL	315	342	368	394	347
6000	Ground Roll	218	240	262	284	243
	At 50 ft AGL	325	353	380	406	356
7000	Ground Roll	226	249	272	295	250
	At 50 ft AGL	336	364	392	420	365
8000	Ground Roll	235	259	283	306	258
	At 50 ft AGL	347	376	405	434	375
9000	Ground Roll	244	269	294	318	266
	At 50 ft AGL	358	388	418	448	385
10000	Ground Roll	254	280	305	331	275
	At 50 ft AGL	370	401	432	463	395

Weight = 930 kg (2051 lb)
Flaps: *LAND*
Short Final Approach Speed = *70 KIAS*
Throttle Levers: *Idle*
Runway: *Grass*

Corrections
Headwind: - 5m for each kt (*16 ft/kt*)
Tailwind: + 11m for each kt (*36ft/kt*)
Paved Runway: - *2%* to Ground Roll
Runway slope: - 2.5% to Ground Roll for each +1%

Pressure Altitude [ft]		Distance [m]				
		Temperature [°C]				ISA
		-25	0	25	50	
S.L.	Ground Roll	150	166	181	196	175
	At 50 ft AGL	233	252	271	290	264
1000	Ground Roll	156	172	187	203	180
	At 50 ft AGL	240	260	280	299	270
2000	Ground Roll	162	178	194	211	185
	At 50 ft AGL	248	268	288	309	277
3000	Ground Roll	168	185	202	219	191
	At 50 ft AGL	263	285	307	328	291
4000	Ground Roll	174	192	209	227	197
	At 50 ft AGL	263	285	307	328	291
5000	Ground Roll	181	199	217	235	203
	At 50 ft AGL	272	294	317	339	299
6000	Ground Roll	188	207	226	244	209
	At 50 ft AGL	280	304	327	350	307
7000	Ground Roll	195	215	234	254	215
	At 50 ft AGL	289	313	338	361	315
8000	Ground Roll	203	223	243	264	222
	At 50 ft AGL	299	324	349	373	323
9000	Ground Roll	210	232	253	274	229
	At 50 ft AGL	308	334	360	386	331
10000	Ground Roll	219	241	263	285	237
	At 50 ft AGL	319	346	372	399	340

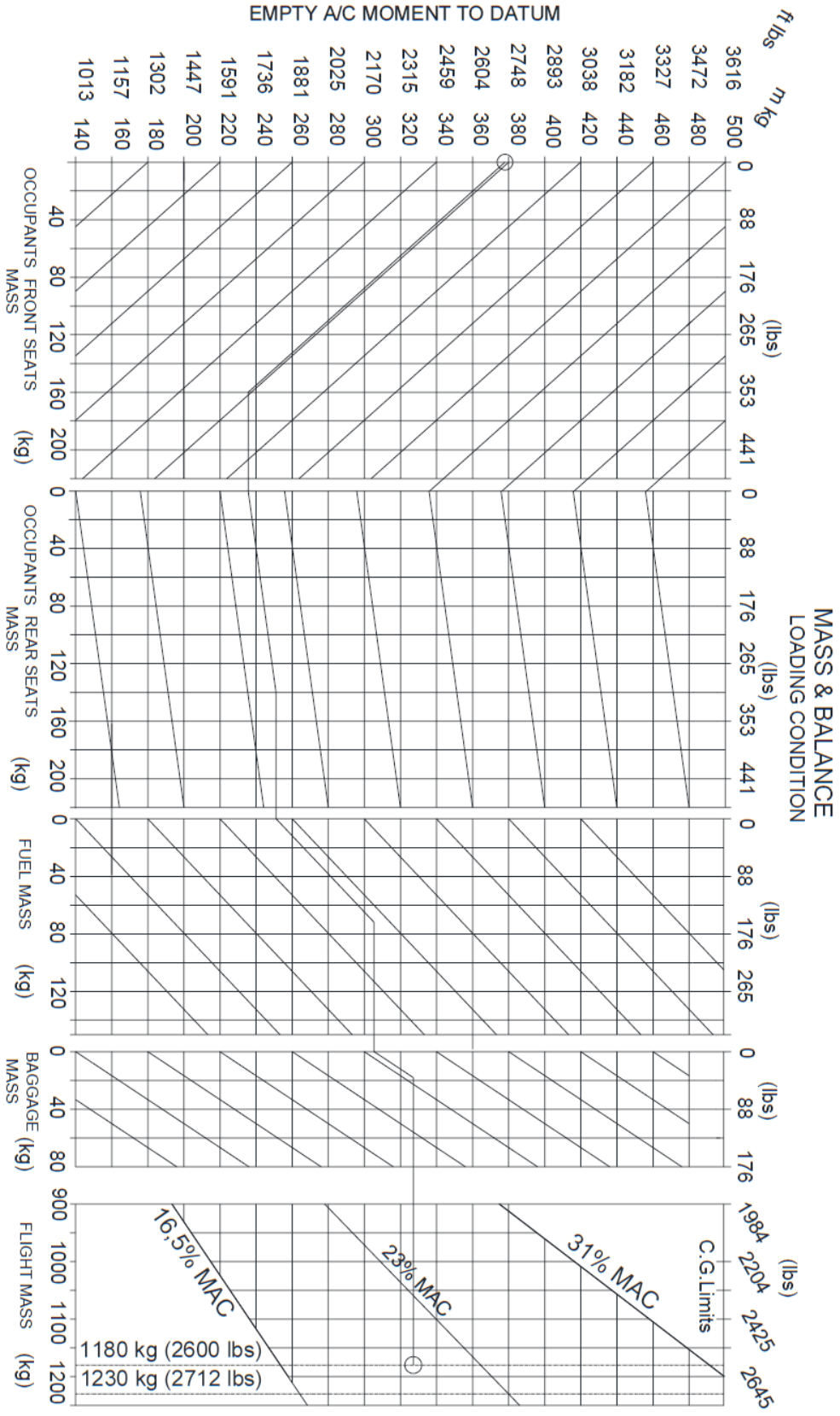
6. MASS AND BALANCE

6.1. DEFINITION OF MASSES

C3P only uses the actual weight calculation method for crew, passengers and baggage (both cabin and hold). The determination of the actual weight will be done before each flight with a scale. The weighing will be under the responsibility of the captain. The masses will be rounded to the next nearest kilogram.

In case of load change (due to passengers or pieces of luggage), new weight and balance sheet must be made.

6.2. CENTER OF GRAVITY LOCATION DETERMINATION



7. MIMIMUM EQUIPMENT LIST

7.1. INTRODUCTION

This Minimum Equipment List details the conditions under which the P2006T can be exploited with missing or inoperative items.

7.2. EQUIPEMENT LIST

ATA Chapter : 21 Air conditioning				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
21-20-1A	**Fresh air inlets**	6	1	Cabin ventilation must be provided
21-20-1B	**Electric fan**	1	0	Can be inoperative
21-40-1	**Cabin heat**	1	0	Can be inoperative

ATA Chapter : 22 Auto flight				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
22-10-1	**Auto pilot**	1	0	Can be inoperative (M) Auto pilot must be deactivated (O) A safety pilot must be on board in addition to the pilot in command
22-10-2	**Auto pilot disconnection button**	1	0	Can be inoperative (O) Auto pilot must not be used

ATA Chapter : 23 Communications				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
23-10-1A	**Headsets**	1	0	Can be inoperative, provided handeld microphone and speaker are working
23-10-2	**Audio panel**	1	1	Considered unusable if the pilot cannot select the frequencies necessary to operate flight in acceptable condition
23-10-3A	**Speaker**	1	0	Can be inoperative, provided pilot headset is working
23-10-4A	**Handheld microphone**	1	0	Can be inoperative, provided pilot headset is working
23-10-5	**PTT Button**	2	0	Can be inoperative if handheld microphone is working
23-12-1A	**VHF Communication system**	2	1	A VHF communication mean must be accessible

ATA Chapter : 25 Equipments and furnishing				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
25-11-2	**Pilot seat horizontal adjustment**	1	0	Can be inoperative (M) – Seat is secured and locked - Position is acceptable for the pilot Seat position must allow full flight controls movement
25-21-1A	**Passenger seats**	3	0	Can be inoperative, provided : - Inoperative seat does not obstruct an emergency exit, - Seat is locked and marked “INOPERATIVE”.
25-63-3	**Emergency Location Transmitter (ELT)**	1	0	Can be inoperative or missing for a maximum of 6 hours or 25 flight, whichever comes first

ATA Chapter : 26 Fire Protection				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
26-24-1A	**Handheld fire extinguisher**	1	1	Required

ATA Chapter : 27 Commandes de Vol				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
27-20-1	**Rudder trim position indicator**	1	0	(O) Can be inoperative, provided : - Full travel is verified on the ground - No roughness during operation - Trim is visually placed in neutral position on the ground before departure
27-30-1A	**Elevator trim position indicator**	1	0	(O) Can be inoperative, provided : - Full travel is verified on the ground - No roughness during operation - Trim is visually placed in neutral position on the ground before departure
27-31-1A	**Electrical trim**	1	0	Can be inoperative (M) Manual trim must be verified and electrical trim deactivated
27-50-1	**Flaps position indicator**	1	0	Can be inoperative for ferry flights only

ATA Chapter : 28 Fuel				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
28-40-1A	**Fuel gauge**	2	0	(O) Fuel quantity is verified thanks to the fuel gauge stick before any flight 2 hours flight maximum

ATA Chapter : 30 Ice and rain protection				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
30-31-1	**Pitot heat**	1	0	(O) Can be inoperative, provided : - Operations are conducted under daylight VFR - Flight is forbidden in known or forecast icing conditions.

ATA Chapter : 31 Indicating and recording system				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
31-21-1A	**Chronometers**	1	0	Can be inoperative or missing if a device displaying hour, minutes and seconds is at pilot disposal.
31-22-1	**Hourmeter**	1	0	(O) Pilot must report block time as a way to record the flight time

ATA Chapter : 32 Landing gear				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
32-40-1	**Parking brake**	1	0	Can be inoperative, provided an alternative way of stopping the aircraft on apron is available

ATA Chapter : 33 Lights				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
33-10-1	**Flight crew compartment lights**	2	0	Can be inoperative (O) Daylight flight only
33-41-1	**Strobe lights**	2	0	Can be inoperative. (O) Day VFR flights only
33-41-2	**Navigation lights**	2	0	Can be inoperative. (O) Day VFR flights only
33-44-1	**Landing lights**	1	0	Can be inoperative. (O) Day VFR flights only

ATA Chapter : 34 Navigation				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
34-10-1	**Airspeed indicator**	2	1	Speed indication must be accessible for the pilot
34-10-2	**Altitude indicator**	2	1	Altitude indication must be accessible for the pilot
34-10-3	**Turn and sideslip indicator**	2	0	Can be inoperative in day light VFR
34-10-4	**Vertical speed indicator**	1	0	Can be inoperative in day light VFR
34-10-5	**OAT indicator**	1	0	(O) Can be inoperative, provided : - Operation are conducted in daylight VFR - Operation are not conducted in known or forecast icing condition - Meteorological information ensure that at any given point of the route OAT are within aircraft operational limits
34-15-1	**Altitude alert system**	1	0	Can be inoperative
34-20-2	**Primary attitude indicator**	1	0	Can be inoperative in daylight VFR provided the standby attitude indicator is working
34-20-2	**Standby attitude indicator**	1	0	Can be inoperative in daylight VFR provided the primary attitude indicator is working
34-51-1	**VOR/ILS**	1	0	Can be inoperative. (O) No operation requiring VOR/ILS is anticipated.
34-51-3	**GPS**	2	0	Can be inoperative.

				(O) No operation requiring GPS is anticipated.
34-51-4	**G1000 Display**	2	1	Can be inoperative in daylight VFR only
34-54-1	**SSR System** A+C mode	1	0	Can be inoperative (O) Obtain a derogation from SNA and indicate SSR failure on FPL as required in AIP PAC P
34-54-1	**SSR System** C Mode	1	0	Can be inoperative (O) Inform ATS before filling flight plan and indicate SSR Mode C failure on FPL as required in AIP PAC P
34-54-1	**SSR** S Mode	1	0	Can be inoperative
34-54-2-1	**Enhanced secondary surveillance system (ADS-B)**	1	0	Can be inoperative

ATA Chapter : 52 Portes				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
52-70-1	**Door open alarm**	2	0	Can be inoperative (M) Door is secured (O) Passengers are briefed on evacuation procedure

ATA Chapter : 79 Oil				
(1) System and Item number		(2) Number Installed	(3) Number Required	(4) Remarks and conditions
79-10-1	**« OP LOW » caution alarm**	1	0	Can be inoperative, provided oil pressure gauge is working
79-20-2	**Oil pressure gauge**	1	0	Can be inoperative provided “OP LOW” alarm is working (O) Flight limited to runway patterns with a flight instructor on board

8. AIRCRAFT SYSTEMS

8.1. INTRODUCTION

This section provides aircraft and systems description and operation.

8.2. AIRFRAME

WING

Each wing consists of a central light alloy torque box which carries all the wing bending, shear and torque loads; an aluminium leading edge is attached to the front spar while flap and aileron are hinged to the rear spar.

The torque box houses an integrated fuel tank and supports the engine mount.

Flap and aileron, respectively located inboard and outboard of wing and made up of light alloy, are constructed with a central spar to which front and rear ribs are jointed. Wrapped-around aluminium stressed skin panels cover all the structures. Steel alloy attachments connect left and right wing to each other.

Following figure shows the left wing fitted with the engine nacelle, fuel tank and composite winglet. Steel alloy attachments link left and right wing to each other.

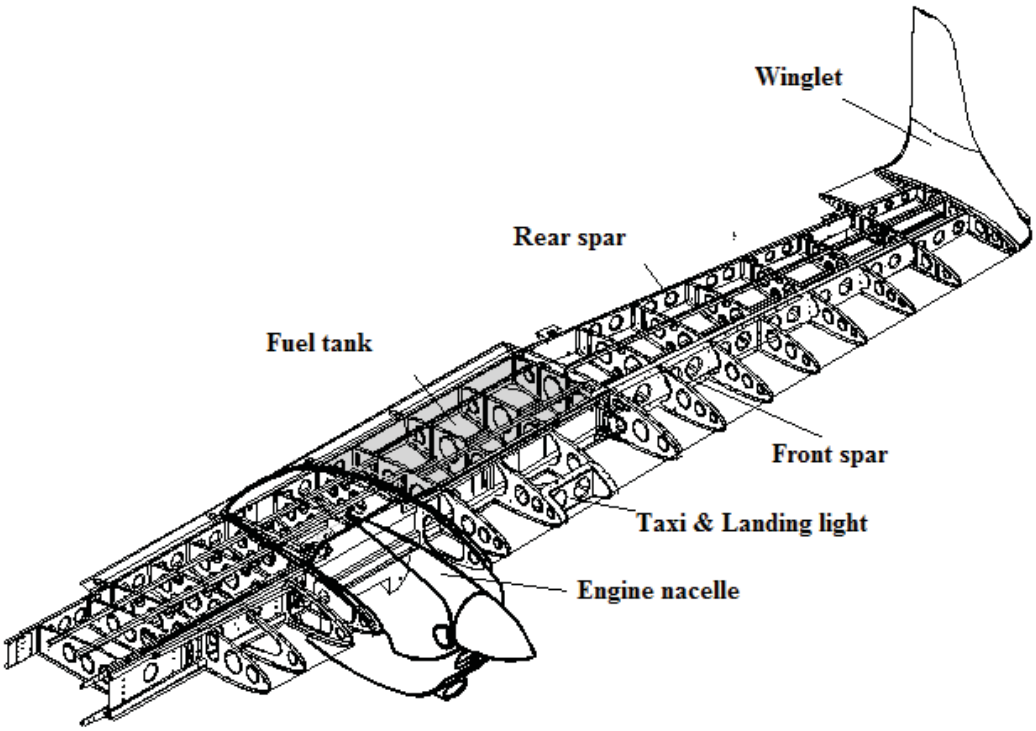


Figure 1. – Left wing structure

FUSELAGE

The fuselage is constituted by a light-alloy semi-mono-coque structure wrapped-around by stressed skin panels. Radome and stern fairing are of composite material. Cabin and baggage compartment floor is a warping of beams and keelsons supporting the seats guides and other components.

Two spar frames support on the top the wings attachments and on the bottom the *sponson* beans sustaining the main landing gear. The forward frame, to which radome is connected, supports a steel trestle to which the nose landing gear is connected.

The front and rear seats access occur by means of two doors located in the opposite sides of the fuselage; a ditching emergency exit is available on the top of the cabin. In tail cone, two spar frames support the horizontal and vertical empennages attachments.

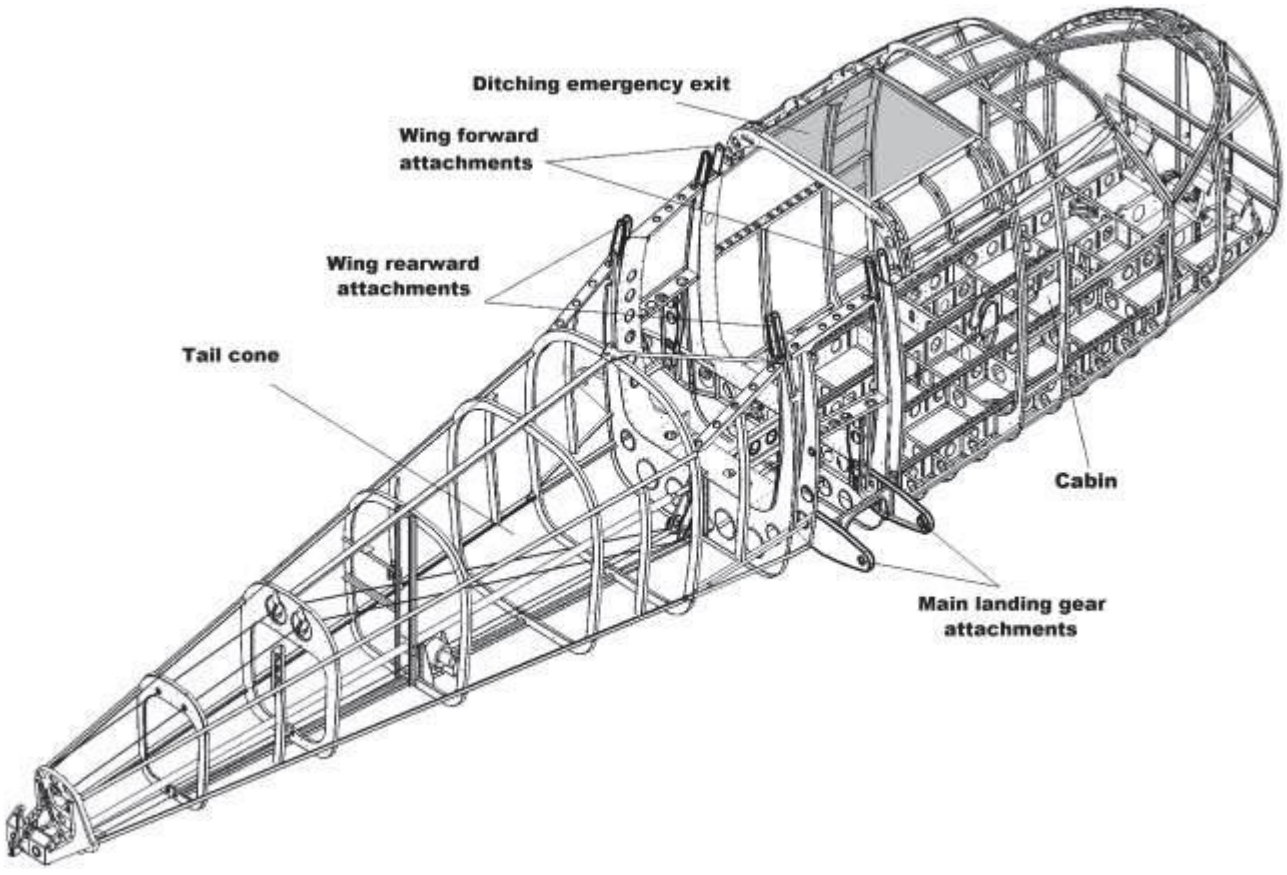


Figure 2. – Fuselage structure

EMPENNAGES

The vertical tail is entirely metallic: vertical fin is made up of a twin spar with aluminium alloy stressed skin. Rudder, providing directional control of the airplane, is made up of aluminium alloy.

The rudder is connected to the vertical tail at two hinge points. A trim tab system increases directional stability of the airplane.

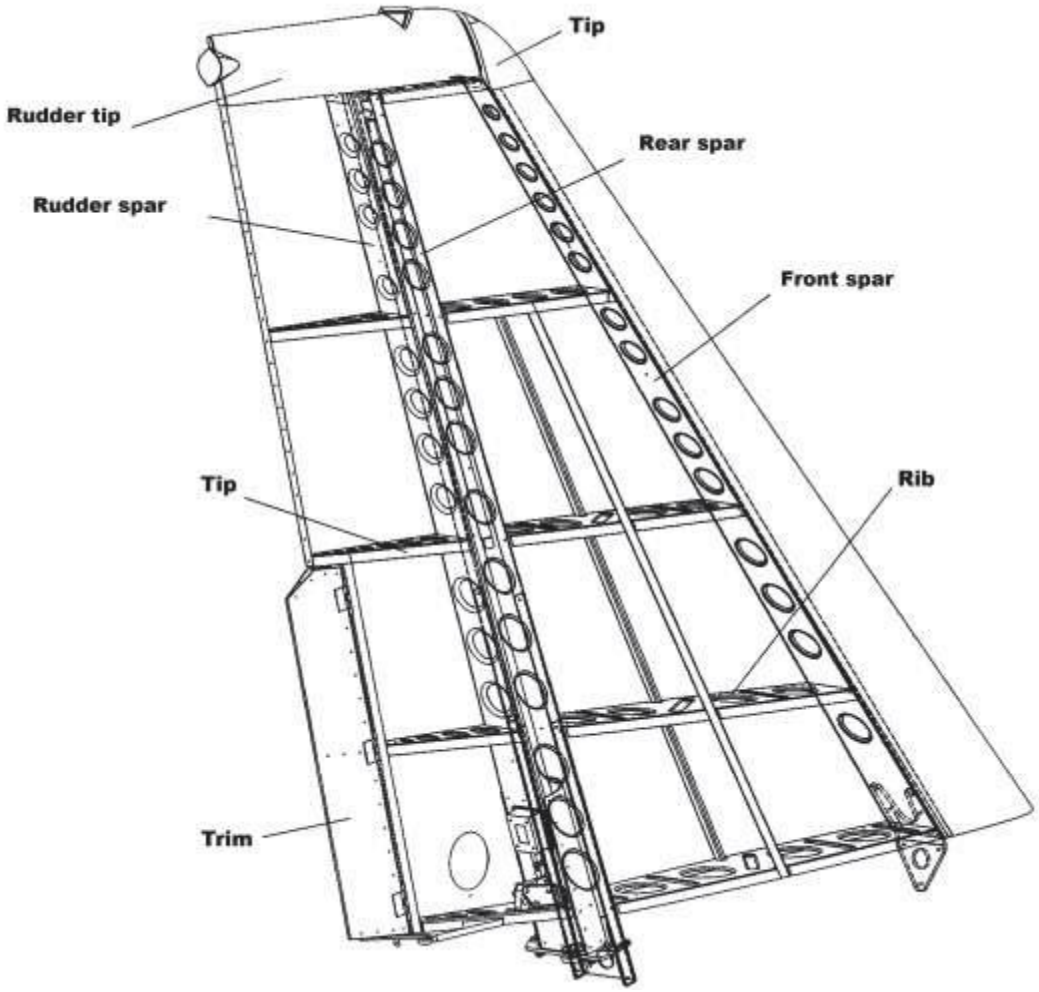


Figure 3. – Vertical empennage structure

The horizontal empennage is an all-moving type (stabilator); its structure consists of a twin spar to which front and rear ribs are jointed and it is covered by stressed aluminium alloy skin. The trim tab completes the assy.

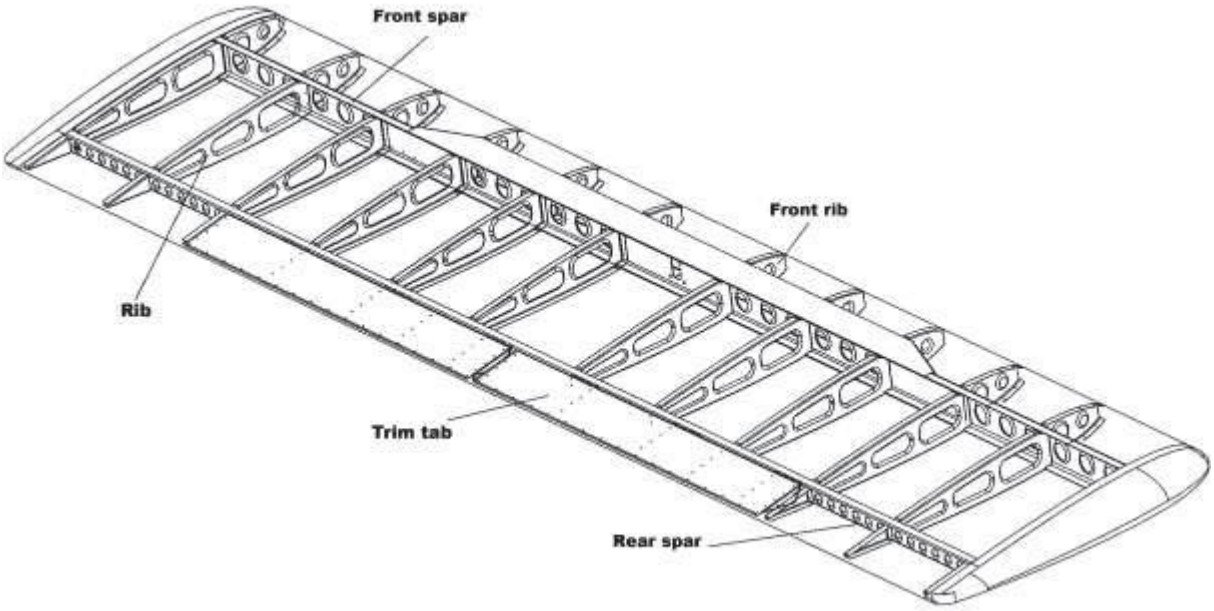


Figure 4. – Stabilator structure

FLIGHT CONTROLS

The main flight control system controls the airplane in three axes. All primary controls (ailerons, rudder and stabilator) are manually operated by a conventional control column and rudder pedals, pulleys, cables, bellcranks and rods.

The secondary flight controls consist of a two-axis trim system and a flaps system. Complete dual controls are provided for pilot and co-pilot.

Longitudinal control acts through a system of push-pull rods connected to the control column and moving the stabilator whose anti-tab winglet works also as trim tab. Autopilot pitch servo (if installed) is connected to the push-pull rods system through driving cables.

Longitudinal trim is performed by a small tab positioned on the stabilator and manually operated via a control wheel positioned between the two crew seats. As optional, it is available an electrically operated longitudinal trim which it is also controlled by the autopilot system, when installed.

Trim position is monitored by an indicator on the instrument panel. A trim disconnect toggle switch is provided.

Ailerons control is of mixed type with push-rods and cables; a cable control circuit is confined within the cabin and it is connected to a pair of push-pull rod systems positioned in each main wing which control ailerons differentially.

The U-shaped control wheels, hinged on the top of the control column, control the ailerons. Control wheel motion is transferred to the ailerons through a cable loop, up to the interconnecting rod linking the two push-pull rod systems which finally transmit the motion to the ailerons.

When either aileron control wheel is rotated, the crossover cable rotates the other control wheel.

The left aileron has a trim tab adjustable on ground: its deflection allows for lateral trimming of the airplane.

Both flaps are extended via a single electric actuator controlled by a switch on the instrument panel. Flaps act in continuous mode; the analogue indicator displays three markings related to 0°, takeoff (T/O) and landing (FULL) positions.

An aural warning is generated whenever the flaps are lowered to the FULL position and the landing gear is not down-locked.

Rudder is operated through a cable system. A rudder trim tab allows aircraft directional trimming, especially in case of OEI operation: it is electrically operated via a switch located on the central console placed between crew seats.

Its position is monitored by an indicator on the instrument panel. A trim disconnect toggle switch is provided.

8.3. POWERPLANT

P2006T is equipped with two four-cylinder four-stroke Rotax 912S engines of 98hp (73kW) each, both rotating clockwise. These are partially liquid cooled and they feature an integrated reduction gear driving constant speed propellers with pitch feathering devices.

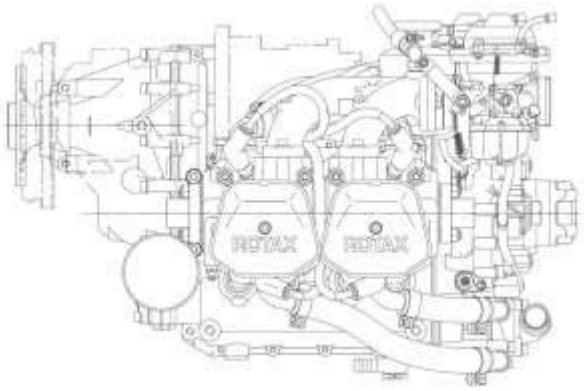


Figure 5. – Rotax 912S

Cooling system is designed for liquid cooling of the cylinders heads and ram-air cooling of the cylinders. The liquid system is a closed circuit with an overflow bottle and an expansion tank.

The coolant flow is forced by a water pump, driven from the camshaft, from the radiator to the cylinder heads. From the top of the cylinder heads the coolant passes on to the expansion tank (item 1, Figure below). Since the standard location of the radiator (2) is below engine level, the expansion tank, located on top of the engine, allows for coolant expansion.

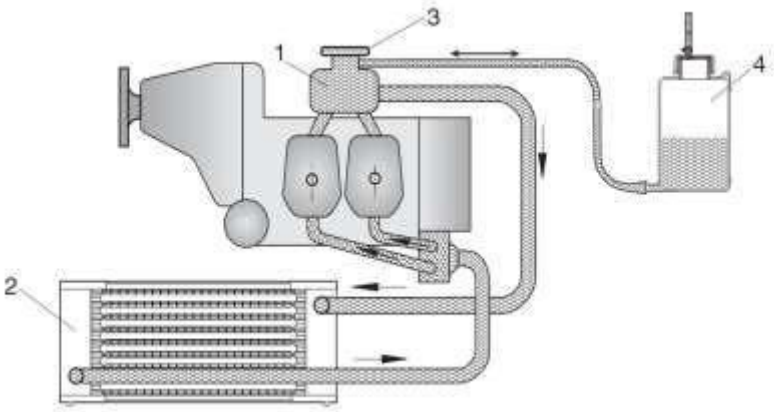


Figure 6. – Liquid cooling system schematic

The expansion tank is closed by a pressure cap (3) fitted with pressure relief valve and return valve. At temperature rise and expansion of the coolant, the pressure relief valve opens and the

coolant will flow via a hose at atmospheric pressure to the transparent overflow bottle (4). Once cooled down, the coolant will be sucked back into the cooling circuit.

The engine is provided with a dry sump forced lubrication system with an oil pump with integrated pressure regulator. A thermostatic valve regulates the oil flow to the heat exchanger (oil radiator) on the basis of oil temperature: this allows the engine starting in cold conditions.

The oil tank is installed behind the firewall protected from heat sources. Some holes on the bracket structure allow for air ventilation

The reservoir is fitted with a dipstick; a hose, immediately located beneath the filler cap, allows for oil relief discharged in a safe zone in the cowling, far from exhausts and other heat sources.

Following powerplant instruments are provided:

- LH and RH RPM Indicator
- LH and RH Manifold Pressure Indicator
- LH and RH Oil Pressure Indicator
- LH and RH Oil Temperature Indicator
- LH and RH Cylinder Head Temperature Indicator

ENGINE FEATURES

Manufacturer	Bombardier-Rotax GmbH
Model	912 S3
Certification basis	FAR 33, Amendment 15
Type Certificate	EASA TCDS no. E.121 dated 1st April 2008
Engine type	4 cylinders horizontally opposed with 1352 c.c. of overall displacement, liquid cooled cylinder heads, ram-air cooled cylinders, two carburetors, integrated reduction gear box with shock absorber.
Maximum power (at declared rpm)	73.5 kW (98.6hp) @ 5800 rpm –5 min. maximum 69.0 kW (92.5hp) @ 5500 rpm (continuous)

PROPELLER FEATURES

Manufacturer	MT Propeller
Type certificate	LBA 32.130/086 (MTV-21 series)
Model	MTV-21-A-C-F/CF178-05
Blades/hub	2 wood/composite blades, aluminium hub
Diameter	1780 mm (no reduction allowed)
Type	Variable pitch hydraulically controlled

PROPELLER GOVERNOR FEATURES

Manufacturer	MT Propeller
Model	P-875-12
Type	Hydraulic

8.4. PEDESTAL CONTROLS

Following picture shows the controls installed on the central pedestal.

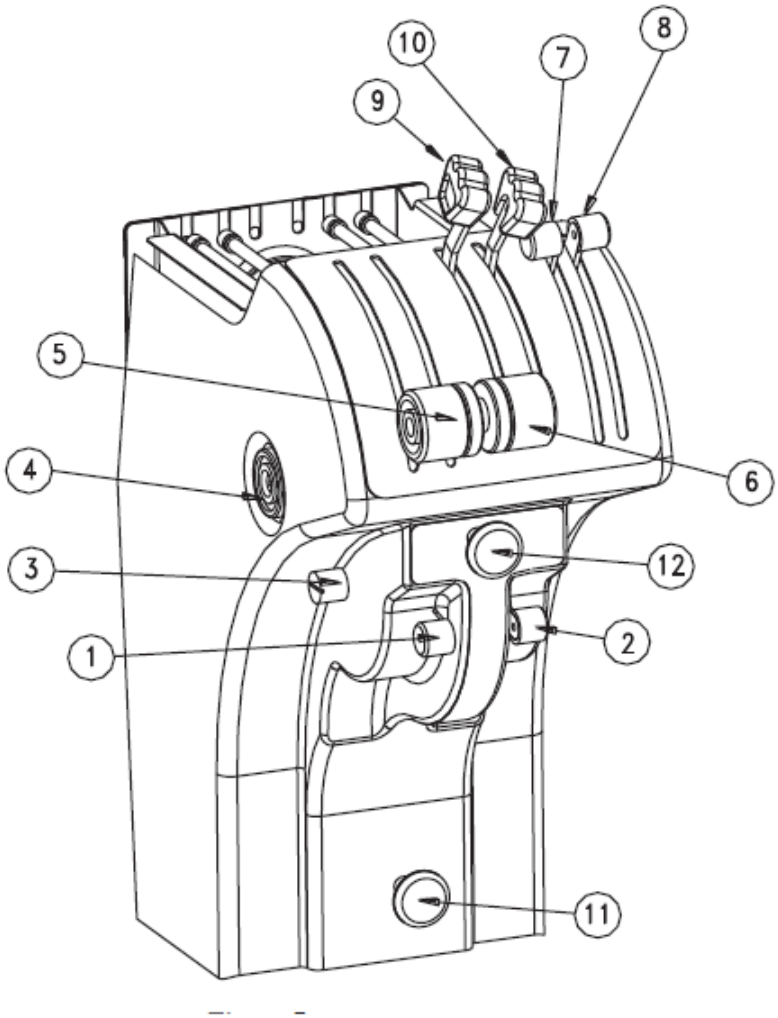


Figure 7. – Pedestal controls

No	Description
1 and 2	Choke control
3	Choke friction knob
4	Upper levers friction knob
5-6	LH and RH Throttle lever
7-8	LH and RH Carburetor Heating lever
9-10	LH and RH Propeller Pitch Control lever
11	Parking brake
12	Windshield defrost control knob

It is possible to adjust the throttle, propeller and carburettor heat levers friction by appropriately tightening the friction knob located on the central console.

A similar device is provided for engine choke controls.

Carburettor heat control knobs are located between throttle and propellers levers; when the knobs are fully pulled backwards, carburettors receive maximum hot air.

During normal operations, the knobs are fully forward set (carburettors heating set to OFF).

The console houses also the parking brake and windshield defrost control knobs.

8.5. CABIN OVER-HEAD PANEL CONTROLS

Following picture shows the controls installed on the cabin over-head panel.

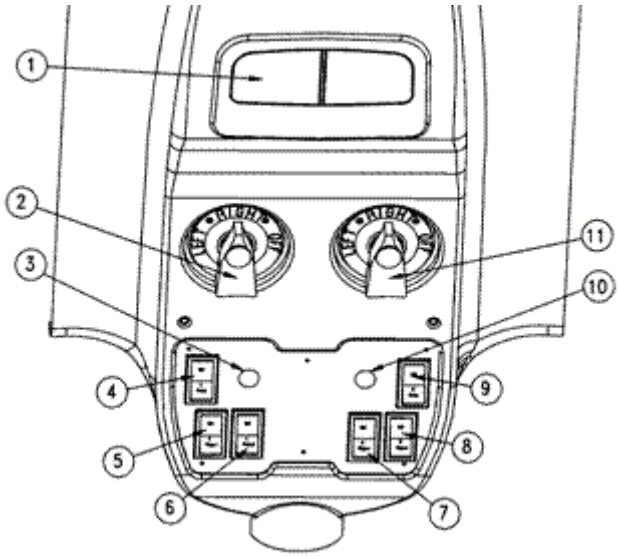


Figure 8. – Cabin head panel controls

No	Description
1	Cabin Light
2	LH Fuel selector valve
3	LH Electric Starter
4	LH electric fuel pump
5	LH Engine ignition 1
6	LH Engine ignition 2
7	RH Engine ignition 1
8	RH Engine ignition 2
9	RH electric fuel pump
10	RH Electric Starter
11	RH Fuel selector valve

8.6. INTERNAL LIGHTS

Internal lights system is composed by following equipment:

- **Cabin light**, providing lighting for crew and passengers compartment;
- **Instruments lights**, which in turn are composed by three sub-systems each one fitted with dimming device:
  - Switches built-in lights
  - Avionics lights
  - Cockpit lights
- **Emergency light**

The **cabin light** is a ceiling light, fitted with control switches, located on the overhead panel in correspondence of the crew seats.

About the **instrument lights** (controlled by a switch on the RH instrument panel), the switches built-in lights concern the instrument panels switches lighting, the avionics lights concern the avionic equipment lighting and the cockpit lights concern two lights located on the over-head panel illuminating LH and RH instrument panels (see Figure below).

All above mentioned lights are supplied by the battery bus apart from the **Emergency light** which is directly connected to the battery. It is a five-leds light located in the over-head panel (see Figure below) controlled by a switch installed on the LH breakers rack.

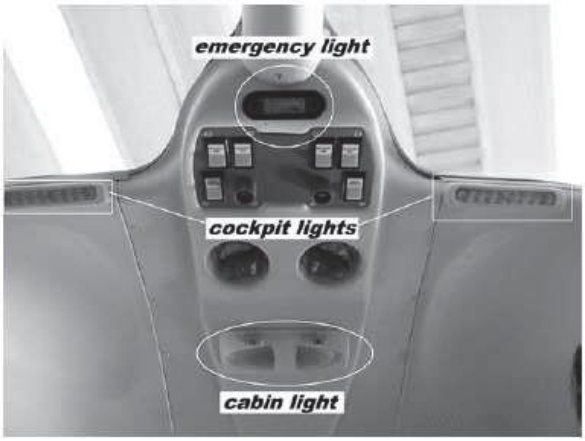


Figure 9. – Over-head panel lights arrangement

8.7. EXTERNAL LIGHTS

External lights system consists of the following equipment (see Figure below):

- **NAV Lights**: they provide, by means of three position lights, the aircraft flight direction identification.
- **Strobe Lights**: they provide aircraft identification to prevent collision. They are located, like the above mentioned NAV lights, on the winglets and on the top of the vertical fin.
- **Taxi Light**: supports taxi maneuvering on the ground at night. It is installed on the left wing leading edge.
- **Landing Light**: provides ground reference information during final approach, touchdown, ground roll and take off and illuminates any major obstructions in the airplane approach glide path or on runway at night. It is installed on the left wing leading edge.

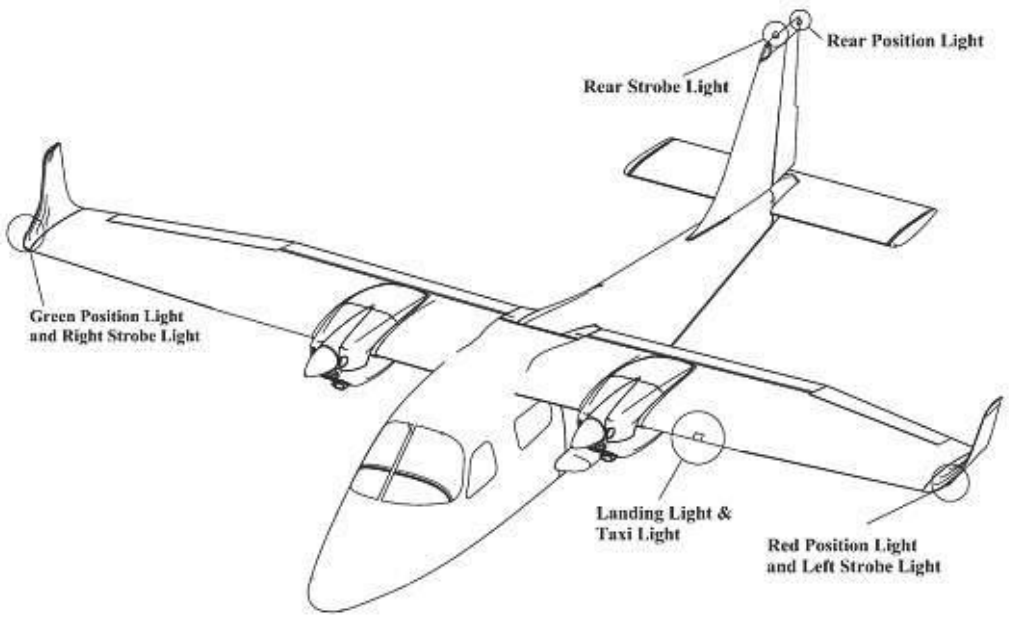


Figure 10. – External lights arrangement

All mentioned lights, whose circuits are protected by dedicated breakers, are activated by the related switches on the right instrument panel: see below.



Figure 11. – Lights switches panel

8.8. FUEL SYSTEM

Fuel system consists of two integrated tanks inside the wing torque boxes and fitted with inspection doors.

Each fuel tank has a capacity of 100 litres and is equipped with a vent valve (its outlet is located on the lower wing skin) and a sump fitted with a drain valve for water/moisture drainage purposes.

An electric fuel pump feeds the pertinent engine in case of engine-driven pump failure. The fuel Gascolator (a sediment-filter bowl) is located beneath the engine nacelle, between the fuel tank and the electrical pump, in correspondence of the fuel system lowest point. It is fitted with a drain valve which allows for the overall fuel line drainage.

Fuel quantity indicators and fuel pressure indicators for each engine are located on the RH instrument panel.

In normal conditions, to supply fuel to engines, each engine pump sucks fuel from the related tank; crossfeed is allowed by fuel valves located on the front spar and controlled by Bowden cables from the fuel selectors located on the cabin overhead panel.

Left fuel selector manages the left engine feeding, allowing fuel supply from the left fuel tank or from the right one (crossfeed).

Right fuel selector manages the right engine feeding, allowing fuel supply from the right fuel tank or from the left one (crossfeed).

Each selector can be set in OFF position only pulling and simultaneously rotating the lever: this avoids an unintentional operation.

Use of Aviation Fuel Avgas 100LL results in greater wear of valve seats and greater combustion deposits inside cylinders due to higher lead content. The prolonged use of Avgas is thus forbidden by C3P.

System schematic is shown on the following Figure.

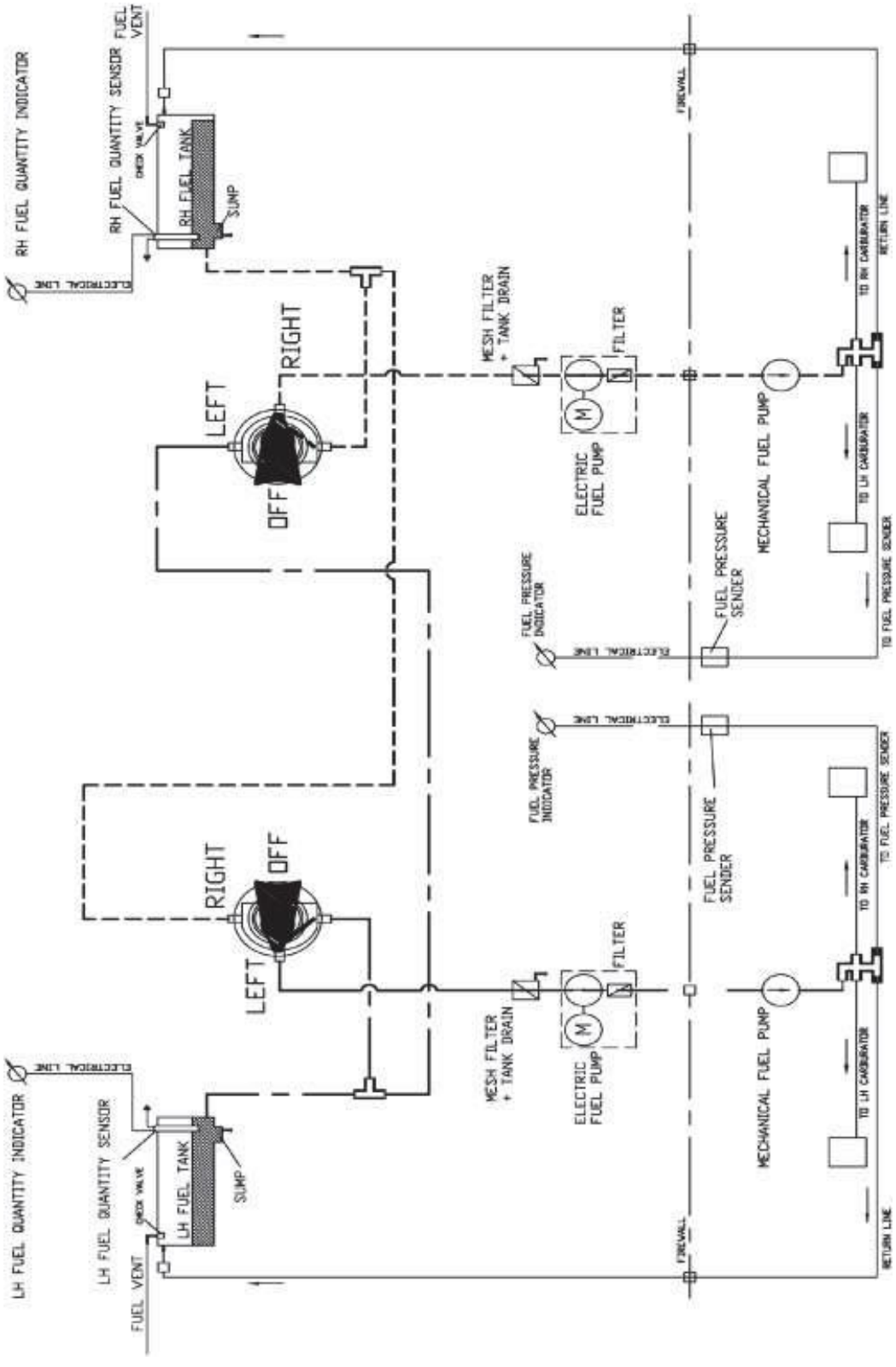


Figure 12. – Fuel system schematic

8.9. LANDING GEAR SYSTEM

The landing gear retraction system is of electro-hydraulic type, powered by a reversible pump which is electrically controlled by the LG control knob located on the LH instrument panel and by the legs position micro switches: these ones allow for detecting landing gear “down-locked” and “up” positions and for alerting the pilot by aural means should the approach and landing configuration be incorrect, in terms of flaps/throttle levers/landing gear position, in order to avoid an unintentional gear-up landing.

The system operates in two modes: normal and emergency.

Normal operation provides gear extension and retraction by means of hydraulic jacks. Gears extension is helped by gravity also.

Emergency operation only provides landing gear extension by means of a hydraulic accumulator which discharges pressurized oil in the above mentioned jacks.

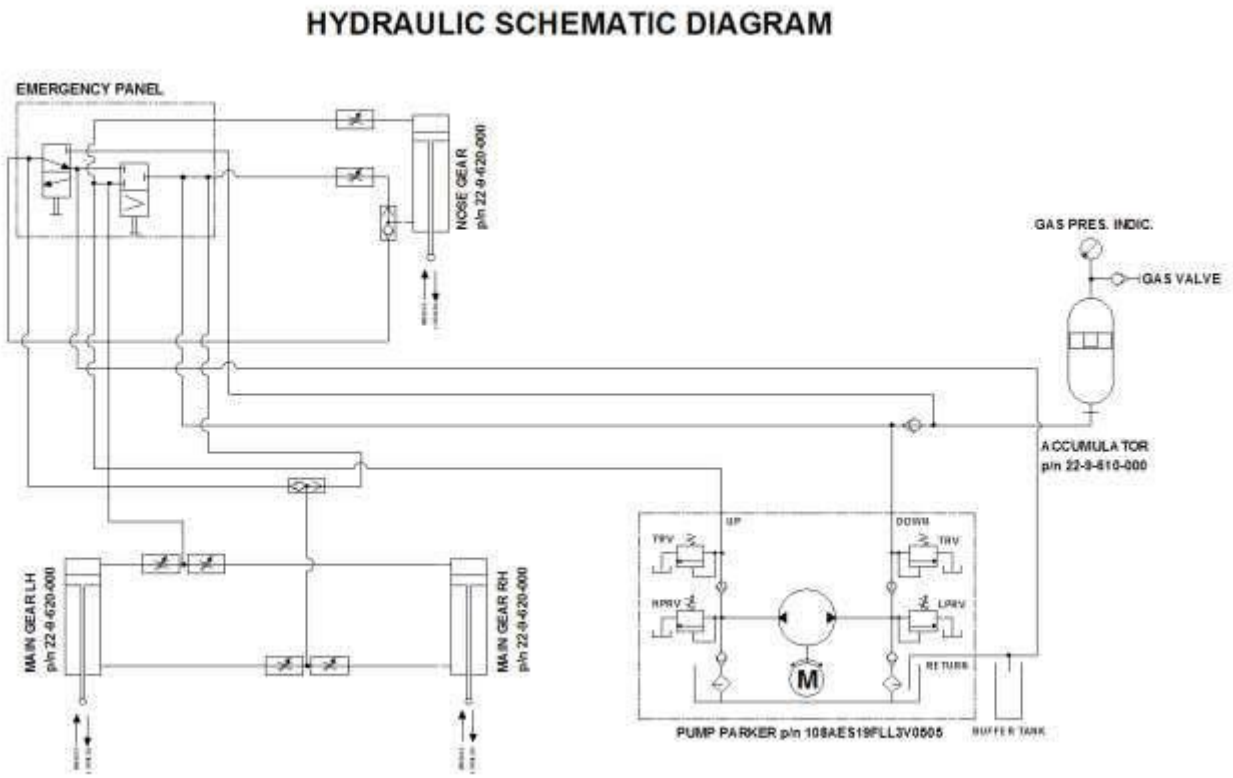


Figure 13. LG hydraulic system schematic

Hydraulic oil, contained in an integrated reservoir located inside the Hydraulic Power Pack, is pressurized by a reversible electric pump: as the LG control knob is placed in either the UP or DOWN position, the pump directs the fluid through the related pressure line toward each hydraulic jack.

In order to prevent an inadvertent LG retraction, the control knob must be pulled before being pushed upward for UP command.

The emergency hydraulic accumulator is used for the landing gear extension: normal extension line and emergency extension line converge in correspondence of the shuttle valves (two valves: the first one for NLG and the second one for MLG emergency operation).

The emergency accumulator nitrogen pressure indicator is located on the tail cone, left side; on ground, a red push-button located beneath the pressure indicator allows the electrical pump for charging the accumulator should the nitrogen pressure be below the lower limit indicated on the placard.

Emergency extension is controlled by two distributors located on the cabin floor, under a removable cover in correspondence of the pilot seat.

The LG indication system is electrical and it is composed by the following main components:

- UP/DN limit micro-switches (6 couples, 2 for each leg)
- leg position lights, 3 green (turned ON when the pertinent leg is extended and locked and located on the LH instrument panel)
- transition light, 1 red (turned ON during transition phases)
- pump light, 1 amber (GEAR PUMP ON caution amber light turned ON when the pump is electrically supplied)
- push to test (for landing gear red and green lights operational check)

The three green lights illuminate only when the respective gear is “down-locked”; the red light indicates the gear is in transit “up” or “down” and the amber caution light GEAR PUMP ON indicates that the pump is electrically supplied.

The red transition light extinguishes only when all the three gear legs are “downlocked” or they are “up” while the amber caution light extinguishes only when the electrical pump is “off”.

The Up/Down limit switches control the LG lights lighting and pump operation on the basis of LG configuration set by the pilot through the LG control knob.

A “push to test” button is used to check that the landing gear position lights are operating.

A warning horn alerts the pilot when the LG control knob is in UP position and at least one of the two throttle levers and/or flaps are respectively set to idle and to LAND position.

During emergency extension, LG position lights work as per normal extension mode: for this reason the LG control knob must be set on DOWN position before starting the emergency procedure.

IMPORTANT

After each emergency landing gear extension, apply the restoration procedure described in the AMM

8.10. BRAKES

The A/C is provided with an independent hydraulically actuated brake system for each main wheel. A master cylinder is attached to each pilot/co-pilot's rudder pedal: see schematic below.

Hydraulic pressure, applied via the master cylinders, enters the brake via lines connected to an inlet fitting on the wheel brake caliper.

A parking brake valve, mounted in correspondence of the cabin floor and operated by a knob on the cockpit central pedestal, intercepts the hydraulic lines, once the system is pressurized, to hold the brake assemblies linings tightened round the main wheels brake discs.

Brakes can be operated from both pilot's and co-pilot's pedals: a single vented oil reservoir feeds the pilot side master cylinders which are connected, via hoses, with the co-pilot's side ones.

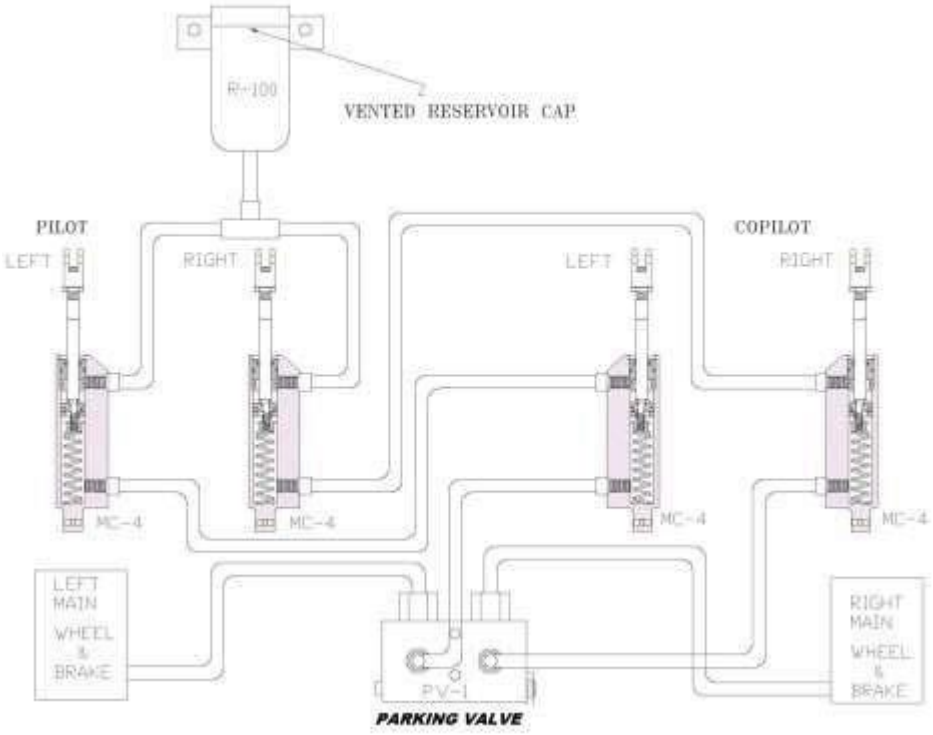


Figure 14. Brake system schematic

On the ground, when a pedal is pushed to steer the airplane, do not operate the opposite toe brake until the pedals are back aligned again. This prevents pedals mechanism from being damaged.

8.11. VENTILATION

If required, pilot allows for ram-air entering the cabin via the two outlet ports respectively located on the left and right side of the instruments panel. Other two ram-air ventilation outlets are located on the cabin head, in the passengers' zone.

8.12. CABIN HEAT

The cabin heating system utilizes hot air coming from engines heat exchangers: here cold ram-air is warmed by engine exhaust gases and then it is routed to the heating system hoses.

The cabin heat control knobs are positioned on the lower side of the LH instrument panel; when knobs are fully pulled, cabin receives maximum hot air.

Left knob controls the warm air from LH engine heat exchanger, right knob controls the warm air from RH engine heat exchanger.

Crew heating system outlet ports are located on the cabin floor, near the pedestal; for passengers zone it is provided an outlet port on the cabin head.

Windshield defrost is operated via a knob positioned on the pedestal: when knob is pulled the hot air flow for crew heating is deviated to the windshield.

8.13. SEATS AND SAFETY BELTS

In correspondence of the seats, three fitting points safety belts are provided; belt adjustment is via the sliding buckle located on the belt metal hook.

Seats are built with light alloy tube structure and synthetic material cushioning. It is possible to perform following seat adjustments:

- *Horizontal* – pulling the lower front lever and sliding the seat
- *Vertical* – operating the lever located on the outward seat side
- *Seat back inclination* – unlocking it via the lateral knob

These adjustments ensure the crew and passengers comfort.

8.14. DOORS

The cabin main door is located forward, on the left side of the fuselage while the emergency exit (passenger door) is located aft, on the right side of the fuselage.

On the top of the cabin it is located the ditching emergency exit: see figure below.

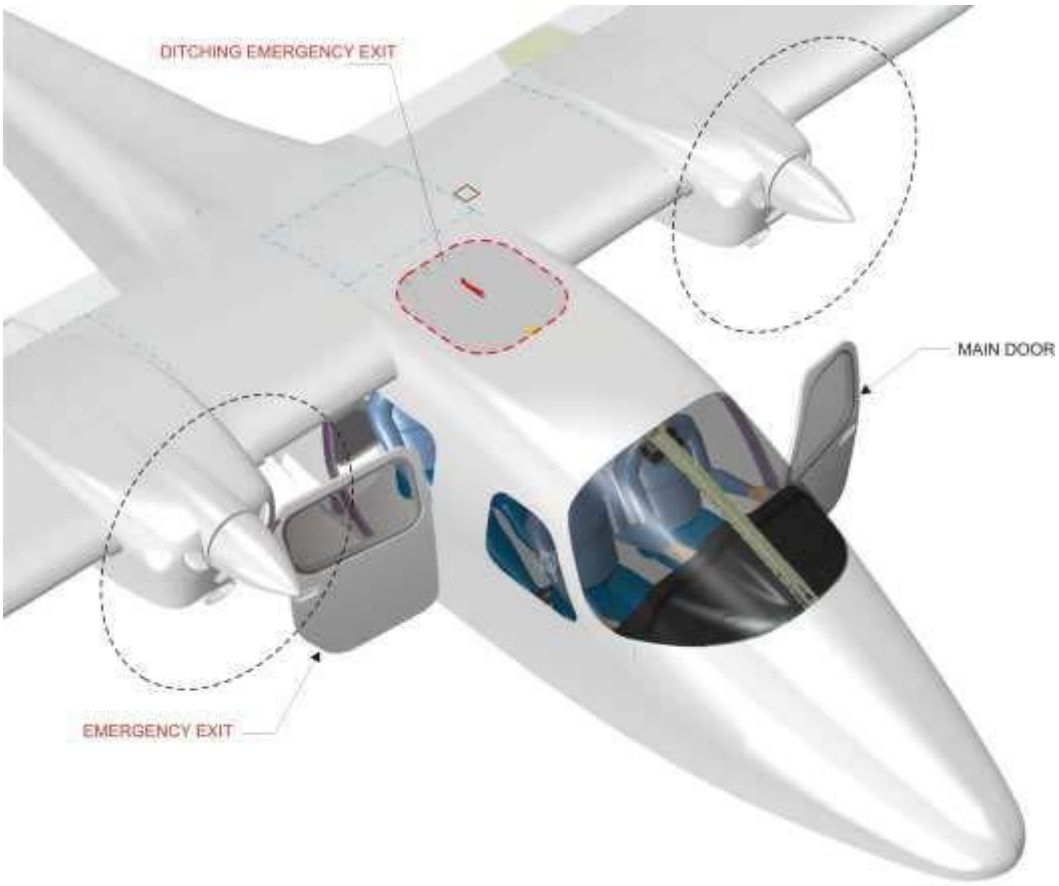


Figure 15. Doors location

Being the main door located in correspondence of the propeller disc, its operation is limited to the engine shut-down condition.

In fact, in order to prevent crew injuries, an electro-mechanical device locks the door latch when left engine runs. A pressure switch senses engine oil pressure and allows for electrical supply to a solenoid which engages the door lock mechanism.

This prevents the latch opening when left engine runs but, if needed, the device can be also manually by-passed operating either from the door inside panel or from outside. Instructions are reported on the placards near the by-pass lever, located in correspondence of the latch: to unlock it is necessary to push and hold the red tab down, after that the door can be opened operating the handle.

After engine shut-down, the pressure drop can have a certain delay, preventing the door from being opened by normal means: do not force the handle but operate the override system above mentioned

In any case, the electric lock becomes disengaged after a complete loss of the electric power.

Two switches engage respectively when the door and the latch are closed. Should one or both switches be released, the MAIN DOOR OPEN warning light is turned ON.

The emergency exit is fitted with the same safety device: in this case the pressure switch allowing for solenoid operation is activated from right engine oil pressure line; should be the door “open” or “closed and unlocked”, the REAR DOOR OPEN warning light is turned ON.

Any voluntary operation of the manual by-pass solenoid lock causes related door warning light is turned on.

The ditching emergency exit is manually operated turning the handle and pushing outward the door.

The yellow fluorescent painted handle, which can be operated also from outside, is fitted with a safety wire assuring removal effortlessness. When the door is open, it stays connected to the fuselage by means of two cables which allow for door opening forward.

8.15. BAGGAGE COMPARTMENT

The baggage compartment is located behind the passengers' seats. The baggage must be uniformly distributed on the floor and the weight cannot overcome 80kg. Make sure that the baggage is secured before the flight.

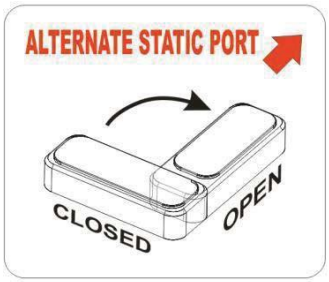
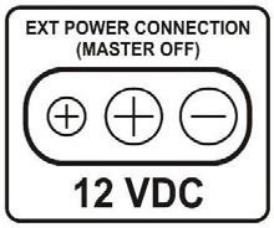
8.16. MD302 ALTERNATIVE STAND-BY INSTRUMENT

In order to improve the digital version cockpit layout of the P2006T in terms of human-machine interface, weight saving and reliability this backup instrument V 1 0 5 is installed

8.17. PLACARDS

In addition to the limitation placards reported on Section 2, following placards are installed on the aircraft

DESCRIPTION	PLACARD	PLACE
ELT equipment location		Baggage compartment, right side
First Aid Kit location		Baggage compartment, aft cover panel
Fire extinguisher location		Cockpit floor, pilot side
Emergency gear extension compartment location		Removable cap
Emergency gear extension instructions		Emergency distributors compartment

DESCRIPTION	PLACARD	PLACE
Alternate static port location		Central pedestal, left side
Alternate static port operating instructions		Central pedestal, right side
Static ports location	STATIC PORT KEEP CLEAN	Static ports: fuselage both sides
Battery compartment location		Fuselage tail, left side
EXT power connection: socket schematic and instructions		Fuselage tail, left side
Landing gear hydraulic accumulator: low pressure limit		LG hydraulic compartment cap (fuselage tail, left side)
LG hydraulic compartment location	**LANDING GEAR HYDRAULIC COMPARTMENT**	Fuselage tail, left side, in correspondence of LG hydraulic compartment cap

DESCRIPTION	PLACARD	PLACE
Towing limitations		Nose LG forward door
Stabilator excursion range		Fuselage tail, left side, in correspondence of the stabilator leading edge
Aircraft grounding		Close to the fuel filler cap
Engine coolant expansion tank location		Engine nacelle top side
Steel boards: a/c identification marks	 (SAMPLE)	Fuselage tail, left side
Main LG tires inflation pressure values		MLG leg, LH and RH

DESCRIPTION	PLACARD	PLACE
Nose LG tire inflation pressure values		Nose LG fork

8.18. INSTRUMENTS PANEL



GARMIN GtOOO NXi Instruments panel (typical layout)

ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	GDU 1050 (PFD)	19	Cross bus 2 switch
2	Audio Panel	20	RH battery switch
3	A/P Programmer/Computer	21	Cross bus 1 switch
4	GDU 1050 (MFD)	22	Master switch
5	Main bus breaker panel	23	Avionics master switch 2
6	Ess bus breaker panel (RH)	24	Avionics master switch 1
7	Ess bus breaker panel (LH)	25	LH Battery Switch
8	Avionic bus breaker panel (LH & RH)	26	Landing gear lever
9	Battery and Alternators (LH & RH) breakers	27	Windshield defrost
10	Cabin ventilation (RH)	28	Cabin heat
11	Instrument light switch	29	Cabin ventilation
12	Strobe light switch	30	Emergency Locator Transmitter switch
13	Navigation light switch	31	A/P master switch
14	Taxi light switch	32	Pitot heating switch
15	Landing light switch	33	Rudder trim disconnect switch
16	Cabin/Instruments/Panel lights dimmers	34	Pitch trim disconnect switch
17	Flaps switch	35	Electric fan switch
18	MD-302 Standby Attitude Module	36	Fire detection system test switch

8.19. ELECTRICAL SYSTEM

Primary DC power is provided by two engine-driven generators which, during normal operations, operate in parallel

Each generator is rated of 40 Amps and 14 VDC, as the two voltage regulators An automatic overvoltage device protects the circuits and the electric components from an excessive voltage caused by generator failures

The power rating of each generator is such that if one generator fails the other one can still supply the airplane equipment to maintain flight safety

Secondary DC power is provided by a main battery (lead type 12 V, 23-Ah) and a secondary battery (lead type 12V, 13 Ah)

An external DC power source can be connected to the aircraft distribution system in order to have it fed without starting the engine

The ammeter section of the G1000 EIS can indicate the current supplied by either left or right generator switching a dedicated selector

There are five different buses:

- Battery bus,
- LH Generator bus,
- RH Generator bus,
- LH Avionics bus,
- RH Avionics bus

The distribution system operates as a single bus with power being supplied by the battery and both generators but it is possible to separate the left busses from the right busses when required by means of the Cross Bus switches

The switches to enable and disable the alternators and battery are grouped in the master switches group and are located in the centre side of the instrument panel Only the emergency switch, that allow to put in parallel both batteries is located in left side of the instrument panel

All electrical loads are divided among the five busses on the basis of their importance and required power: equipment with duplicate functions is connected to separate busses

The Battery bus, which supplies the most important loads, is energized from three sources: the battery and both generators This allows the bus for remaining active also in case of two independent faults in the supply paths

The following loads are connected to the battery bus:

Breaker ID
Start LH
Start RH
Fan TAS (if installed)
Fuel Pump LH
Fuel Pump RH
E I S 1
E I S 2
P F D
GPS/NAV 1
COM 1
AHRS
Stall warning
A D I
ADC
Flaps actuator
Door
Cabin Light
Landing light
Strobe Light
Instr Light
Cross bus
Pilot seat
Backup Battery
Landing Gear
Relay Landing Gear
Light Landing Gear

In addition, Emergency Light is connected directly on the battery

Cross Bus LH	Cross Bus RH	Avionic Bus LH	Avionic Bus RH
Field LH	Field RH	Avionic bus LH	Avionic bus RH
Taxi Light	Rudder Trim	Trim A/P	COM 2
Pitot Heat	Co-pilot seat	A/P	M F D
Voltage regulator LH	Voltage regulator RH	XPDR	A D F
Cabin fan	Nav Light	D M E	GPS/NAV 2
	Audio panel	Turn coord	Converter 12/24
	Avionic Fan	TCAS	12V socket

On the central pedestal (see Figure below) there are seven switches disposed on two rows: on the first row there is the MASTER SWITCH which allows for connecting, through the battery relay, the battery to the battery bus

LH and RH FIELD switches control the pertinent generator: setting the switch to OFF puts the pertinent generator off-line

In correspondence of the second row there are 4 switches LH/RH AVIONIC and LH/ RH CROSS BUS



Central pedestal switches console

The first two switches allow, through a relay, to cut off the power supply to the pertinent avionic bus

The second ones allow, through a relay, for realizing the parallel connection between the pertinent generator bus and the battery bus Setting these ones to OFF, the pertinent generator bus (and related avionic bus supplied) is separated from the battery bus and from opposite generator bus

When both generators are correctly operating and all above mentioned switches are in ON position, all the busses are connected to the generators

The ignition switches, two for each engine and grouped on the over head panel, are instead independent from the airplane electrical system (generation and distribution); they only control and open the engine electrical circuit

8.20. AVIONIC SYSTEM

The P2006T is equipped with an integrated avionic system provided by Garmin. See the G1000 user manual for detailed avionic utilisation.