

# **Aircraft Flight Manual**

Doc. No. 2008/100 Ed. 2 – Rev. 6 19 February 2020



# TECNAM P2008 JC

Manufacturer:	NUFACTURER: C. A. TECNAM S.r.l.				
AIRCRAFT MODEL:	RCRAFT MODEL: P2008 JC				
EASA TYPE CERTIFICATE NR.:	A .583 (DATED 2013, 27 SEPTEMBER)				
SERIAL NUMBER:					
BUILD YEAR:					
REGISTRATION MARKINGS:					
This Aircraft Flight Manual is approved and applies only to EASA CS-VLA certified airplanes.					
This Manual must be carried in the airplane at all times. This aeroplane has to be operated in compliance with procedures and limitations contained herein.					
Costruzioni Aeronautiche <b>TECN</b>	NAM srl				

Costruzioni Aeronautiche **TECNAM** sr Via Maiorise CAPUA (CE) – Italy Tel. +39-0823 997538

WEB: www.tecnam.com



# **SECTION 0**

# **INDEX**

1.	RECORD OF REVISIONS	3
	LIST OF EFFECTIVE PAGES	
3.	FOREWORD	9
4	SECTIONS LIST	10



#### 1. RECORD OF REVISIONS

Any revision to the present Manual, except actual weighing data, is recorded: a Record of Revisions is provided in this Section and the operator is advised to make sure that the record is kept up-to-date.

The Manual issue is identified by Edition and Revision codes reported on each page, lower right side.

The revision code is numerical and consists of the number "0"; subsequent revisions are identified by the change of the code from "0" to "1" for the first revision to the basic publication, "2" for the second one, etc.

Should be necessary to completely reissue a publication for contents and format changes, the Edition code will change to the next number ("2" for the second edition, "3" for the third edition etc).

Additions, deletions and revisions to existing text will be identified by a revision bar (black line) in the left-hand margin of the page, adjacent to the change.

When technical changes cause expansion or deletion of text which results in unchanged text appearing on a different page, a revision bar will be placed in the right-hand margin adjacent to the page number of all affected pages providing no other revision bar appears on the page.

These pages will be updated to the current regular revision date.



It is the responsibility of the owner to maintain this handbook in a current status when it is being used for operational purposes.



Rev	Revised	-		nam Appr	EASA Approval or Under DOA		
No	page	Revision	DO	OoA	HDO	Privileges	
0	0 all Editorial revision.		A. Sabino	C. Caruso	M. Oliva	Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/097.180126)	
	0-1,4,7	Cover, RoR and LOEP updated.					
	2-6	Airspeed indicator markings amended; the indication is now proper for both analogue and digital instruments.					
	3-20	Note amended.					
1	4-3, 4-4	Note amended; information have been added to airspeed for nor- mal operations table; paragraph shifted from page 3 to page 4.	A. Sabino	C. Caruso	M. Oliva	.Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/103.180312)	
	4-9, 4-12 thru 17	Checklists amended; note to PFI revised; speed information have been moved to page 4-3.					
	6-9	W&B calculation sample.					
	6-11 thru 13	Equipment list.					
	7-1,5 thru 16	Contents rearranged.					
	9-3	Supplements list updated.					
	0-1,4,7	Cover, RoR and LOEP updated.		D.Ronca	M. Oliva	Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/111.180802)	
2	4-12	Added check of pitot heating system (if installed)	G.Valentino				
2	6-11 thru 13	Equipment list.	G. valentino				
	9-3	Supplements list updated: added Supplement S14					
	0-1,4,7	Cover, RoR and LOEP updated.				Approved under the	
3	6-12	Equipment list amended	A. Sabino	D. Ronca	M. Oliva	authority of DOA, ref. EASA.21J.335	
	9-3	Supplements list updated				(MOD2008/113.190404)	
	0-1,4,7	Cover, RoR and LOEP updated.				Approved under the	
4	6-13	Amended equipment list	A. Sabino	D. Ronca	M. Oliva	authority of DOA, ref. EASA.21J.335	
	9-3	Supplements list updated				(MOD2008/123.190620)	
	0-1,4,7	Cover, RoR and LOEP updated.					
5	6-13	Amended equipment list	A. Sabino	D. Ronca	M. Oliva	Approved under the authority of DOA,	
5 -	7-17,18	New brake pumps	A. Saulilo	D. Konca		ref. EASA.21J.335 (MOD2008/126.190711)	
	9-3	Supplements list updated				(11002000/120.170/11)	

Rev	Revised	Description of	Tecnam Approval			EASA Approval or Under DOA		
No	page	Revision	DO	OoA	HDO	Privileges Privileges		
	0-1,5,7	Cover, RoR and LOEP updated.	G. Valentino			Approved under the		
6	4-13 thru 15	Editorial revision.		G. Valentino	G. Valentino	D. Ronca	M. Oliva	authority of DOA,
	6-13	Update to include alternative P/N for GSU equipment (MOD2008/130).					ref. EASA.21J.335 (MOD2008/136.200219)	





## 2. LIST OF EFFECTIVE PAGES

The List of Effective Pages (LOEP), applicable to manuals of every operator, lists all the basic AFM pages: each manual could contain either basic pages or one variant of these pages when the pages of some Supplements are embodied.

Pages affected by the current revision are indicated by an asterisk (\*) following the revision code.

Edition 1 30 July 2013 Edition 2 15 January 2018

Section	Pages	Revision
Section 0	2, 3, 6, 8,9, 10	Rev 0
	4	Rev 5
	1, 5, 7	Rev 6
Section 1	1 thru 14	Rev 0
Section 2	1 thru 5, 7thru 30	Rev 0
Section 2	6	Rev 1
Section 3	1 thru 19, 21, 22	Rev 0
	20	Rev 1
Section 4	1, 2, 5 thru 11, 18	Rev 0
	3, 4, 16, 17	Rev 1
	12	Rev 2
	13 thru 15	Rev 6
Section 5	1 thru 16	Rev 0
Section 6	1 thru 8, 10, 14	Rev 0
	9	Rev 1
	11	Rev 2
	12	Rev 3
	13	Rev 6
Section 7	2 thru 4	Rev 0
	1, 5 thru 16	Rev 1
	17, 18	Rev 5
Section 8	1 thru 10	Rev 0
Section 9	1, 2 and 4	Rev 0
	3	Rev 5





#### 3. FOREWORD

Tecnam **P2008 JC** is a single-engine two-seat aircraft with a strut braced high wing and fixed landing gear.

Section 1 provides general information and it contains definitions, symbols explanations, acronyms and terminology used.

Before using the airplane, you are recommended to read carefully this manual: a deep knowledge of airplane features and limitations will allow you for operating the airplane safely.

For further information, please contact:

COSTRUZIONI AERONAUTICHE **TECNAM**s.r.l.

Via MAIORISE

CAPUA (CE) - ITALY

**\***+39 (0)823 997538

<u>airworthness@tecnam.com</u>



# 4. SECTIONS LIST

General (*)	Section 1
Limitations (**)	Section 2
<b>Emergency Procedures (**)</b>	Section 3
Normal Procedures (**)	Section 4
Performance (***)	Section 5
Weight and balance (*)	Section 6
Airframe and Systems description (*)	Section 7
<b>Ground Handling and Service</b> (*)	Section 8
AFM Supplements list (*)	Section 9

<sup>(\*)</sup> non-approved Section

<sup>(\*\*)</sup> approved Section

<sup>(\*\*\*)</sup> approved Section except for pages 5-1 thru 5-4, 5-6, 5-11 thru 5-13



# **SECTION 1 - GENERAL**

# **INDEX**

1.	INTRODUCTION	3
2.	CERTIFICATION BASIS	3
3.	WARNINGS - CAUTIONS - NOTES	3
4.	THREE-VIEW AND DIMENSIONS	4
	ENGINE	
	PROPELLER	
	FLIGHT CONTROL SURFACES TRAVEL	
8.	SPECIFIC LOADINGS	7
9.	ACRONYMS AND TERMINOLOGY	8
10.	UNIT CONVERSION CHART	. 13
	LITRES / US GALLONS CONVERSION CHART	





#### 1. INTRODUCTION

The Flight Manual has been prepared to provide pilots and instructors with information for the safe and efficient operation of this very light airplane.

This manual includes the material required to be furnished to the pilot of CS-VLA. It also contains supplemental data supplied by the airplane manufacturer.

#### 2. CERTIFICATION BASIS

This type of aircraft has been approved by the European Aviation Safety Agency in accordance with CS-VLA including Amendment 1 and the Type Certificate No.EASA.A.583 has been issued on (date) 27<sup>th</sup> September 2013.

Category of Airworthiness: Normal

Noise Certification Basis: EASA CS 36 Amendment 2.

## 3. WARNINGS - CAUTIONS - NOTES

Following definitions apply to warnings, cautions and notes used in the Aircraft Flight Manual.



means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety.



means that the non-observation of the corresponding procedure leads to a minor or to a more or less long term degradation of the flight safety.



draws the attention to any special item not directly related to safety but which is important or unusual.

Ed. 2, Rev 0



# **THREE-VIEW AND DIMENSIONS**

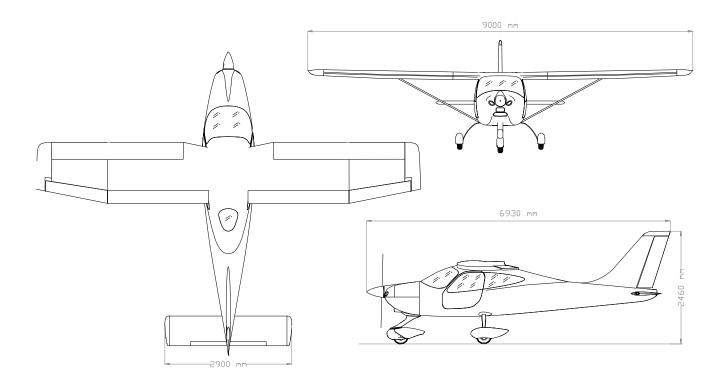


Figure 1 – General views



#### **Dimensions**

# Wing

Wing Span 9.00 m (29.5 ft)

Wing Area 12.16 m<sup>2</sup> (130.9 ft<sup>2</sup>)

Aspect Ratio 6.7

Taper Ratio 0.8

Wing chord 1.373 m (4.5 ft)

# **Fuselage**

Overall length 6.93 m (22.9 ft)

Overall width 1.20 m (3.9 ft)

Overall height 2.67 m (8.8 ft)

## **Empennage**

Stabilator span 2.90 m (9.51 ft)

Stabilator area  $2.03 \text{ m}^2 (21.8 \text{ ft}^2)$ 

Vertical tail area 1.06 m<sup>2</sup> (11.4 ft<sup>2</sup>)

### Landing Gear

Wheel track 1.8 m (5.9 ft)

Wheel base 1.94 m (6.4 ft)

Main gear tire 5.00-5

Nose Gear tire 5.00-5



#### 5. ENGINE

Manufacturer Bombardier-Rotax GmbH

Model 912 S2

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 ab-

sorber and overload clutch.

Maximum power (at declared rpm) 73.5 kW (98.6hp) @ 5800 rpm -5

minutes maximum.

69.0 kW (92.5hp) @ 5500 rpm (continu-

ous)

### 6. PROPELLER

Manufacturer GT Propeller

Model GT-2/173/VRR-FW101 SRTC

Blades One-piece 2-blade fixed pitch, construct-

ed of wood materials, protective layer of

laminate.

Diameter 1730 mm (no reduction allowed)

Type Fixed pitch



#### **7.** FLIGHT CONTROL SURFACES TRAVEL

Ailerons Up 22° Down 14°  $(\pm 2^\circ)$ 

Stabilator (refer to Trailing Edge) Up  $4^{\circ}$  Down  $15^{\circ}$  (±  $2^{\circ}$ )

Stabilator trim tab (refer to Trailing Edge) Up 2°; Down 12° (± 1°)

Rudder RH 25° LH 25° (± 2°)

 $0^{\circ}; 35^{\circ} (\pm 1^{\circ})$ Flaps

#### 8. **SPECIFIC LOADINGS**

	MTOW 630 kg (1388lb)
Wing Loading	51 kg/m <sup>2</sup> (10.6 lb/sqft )
Power Loading	6.29 kg/hp (14.09 lb/hp )



# **ACRONYMS AND TERMINOLOGY**

KCAS	<u>Calibrated Airspeed</u> is the indicated airspeed expressed in knots, corrected taking into account the errors related to the instrument itself and its installation.
KIAS	<u>Indicated Airspeed</u> is the speed shown on the airspeed indicator and it is expressed in knots.
KTAS	<u>True Airspeed</u> is the KCAS airspeed corrected taking into account altitude and temperature.
$V_A$	<u>Design Manoeuvring speed</u> is the speed above the which it is not allowed to make full or abrupt control movement.
$V_{FE}$	<u>Maximum Flap Extended speed</u> is the highest speed permissible with flaps extended.
$V_{NO}$	<u>Maximum Structural Cruising Speed</u> is the speed that should not be exceeded, except in smooth air and only with caution.
$V_{NE}$	$\underline{\text{Never Exceed Speed}}$ is the speed limit that may not be exceeded at any time.
$V_{O}$	Operating Manoeuvring speed is the speed above the which it is not allowed to make full or abrupt control movement
$V_S$	Stall Speed.
$V_{\rm S0}$	Stall Speed in landing configuration (flaps extended).
$V_{S1}$	Stall speed in the given flap configuration.
$V_X$	<u>Best Angle-of-Climb Speed</u> is the speed which allows best ramp climb performances.
$V_{Y}$	Best Rate-of-Climb Speed is the speed which allows the best gain in altitude over a given time.
$V_R$	<u>Rotation speed</u> : is the speed at which the aircraft rotates about the pitch axis during takeoff



# **Meteorological terminology**

ISA	International Standard Atmosphere: is the air atmospheric standard condition at sea level, at 15°C (59°F) and at 1013.25hPa (29.92inHg).	
QFE	Official atmospheric pressure at airport level: it indicates the aircraft absolute altitude with respect to the official airport level.	
QNH	Theoretical atmospheric pressure at sea level: is the atmospheric pressure reported at the medium sea level, through the standard air pressure-altitude relationship, starting from the airport QFE.	
OAT	Outside Air Temperature is the air static temperature expressed in degrees Celsius (°C).	
$T_S$	Standard Temperature is 15°C at sea level pressure altitude and decreased by 2°C for each 1000 ft of altitude.	
$H_P$	Pressure Altitude is the altitude read from an altimeter when the barometric subscale has been set to 1013 mb.	



# Aircraft performance and flight planning terminology

is the velocity of the crosswind component Crosswind Velocity

for the which adequate control of the air-

plane during takeoff and landing is assured.

Usable fuel is the fuel available for flight planning.

Unusable fuel is the quantity of fuel that cannot be safely

used in flight.

Gis the acceleration of gravity.

TORis the takeoff distance measured from actual

start to wheel liftoff point.

TODis total takeoff distance measured from start

to 15m obstacle clearing.

GRis the distance measured during landing

from actual touchdown to stop point.

LDis the distance measured during landing,

from 15m obstacle clearing to actual stop.

S/R is the specific range, that is the distance (in

nautical miles) which can be expected at a specific power setting and/or flight configu-

ration per kilogram of fuel used.



# Weight and balance terminology

Datum "Reference datum" is an imaginary vertical

plane from which all horizontal distances

are measured for balance purposes.

Arm is the horizontal distance of an item meas-

ured from the reference datum.

Moment is the product of the weight of an item

multiplied by its arm.

C.G. <u>Center of Gravity</u> is the point at which the

airplane, or equipment, would balance if suspended. Its distance from the reference datum is found by dividing the total moment by the total weight of the aircraft.

Standard Empty Weight is the weight of the aircraft with engine flu-

ids and oil at operating levels.

Basic Empty Weight is the standard empty weight to which it is

added the optional equipment weight.

Useful Load is the difference between maximum takeoff

weight and the basic empty weight.

Maximum Takeoff Weight is the maximum weight approved to perform

the takeoff.





# **10. UNIT CONVERSION CHART**

MOLTIPLYING		BY 🗲	YIELDS	
TEMPERATURE				
Fahrenheit	[°F]	$\frac{5}{9} \cdot (F - 32)$	Celsius	[°C]
Celsius	[°C]	$\frac{5}{9} \cdot (F - 32)$ $\left(\frac{9}{5} \cdot C\right) + 32$	Fahrenheit	[°F]
Forces				
Kilograms	[kg]	2.205	Pounds	[lbs]
Pounds	[lbs]	0.4536	Kilograms	[kg]
SPEED				
Meters per second	[m/s]	196.86	Feet per minute	[ft/min]
Feet per minute	[ft/min]	0.00508	Meters per second	[m/s]
Knots	[kts]	1.853	Kilometres / hour	[km/h]
Kilometres / hour	[km/h]	0.5396	Knots	[kts]
Pressure				
Atmosphere	[atm]	14.7	Pounds / sq. in	[psi]
Pounds / sq. in	[psi]	0.068	Atmosphere	[atm]
LENGTH				
Kilometres	[km]	0.5396	Nautical miles	[nm]
Nautical miles	[nm]	1.853	Kilometres	[km]
Meters	[m]	3.281	Feet	[ft]
Feet	[ft]	0.3048	Meters	[m]
Centimetres	[cm]	0.3937	Inches	[in]
Inches	[in]	2.540	Centimetres	[cm]
VOLUME				
Litres	[1]	0.2642	U.S. Gallons	[US Gal]
U.S. Gallons	[US Gal]	3.785	Litres	[1]
AREA				
Square meters	$[m^2]$	10.76	Square feet	[sq ft]
Square feet	[sq ft]	0.0929	Square meters	$[m^2]$



# 11. LITRES / US GALLONS CONVERSION CHART

Litres	US Gallons
5	1.3
10	2.6
15	4.0
20	5.3
25	6.6
30	7.9
35	9.2
40	10.6
45	11.9
50	13.2
60	15.9
70	18.5
80	21.1
90	23.8
100	26.4
110	29.1
120	31.7
130	34.3
140	37.7
150	39.6
160	42.3
170	44.9
180	47.6
190	50.2
200	52.8

US Gallons	Litres
1	3.8
2	7.6
3	11.4
4	15.1
6	22.7
8	30.3
10	37.9
12	45.4
14	53.0
16	60.6
18	68.1
20	75.7
22	83.3
24	90.9
26	98.4
28	106.0
30	113.6
32	121.1
34	128.7
36	136.3
38	143.8
40	151.4
45	170.3
50	189.3
55	208.2



# **SECTION 2 - LIMITATIONS**

# **INDEX**

1.	INTRODUCTION	3
2.	AIRSPEED LIMITATIONS	5
3.	AIRSPEED INDICATOR MARKINGS	
4.	POWERPLANT LIMITATIONS	
5.	FUEL	8
6.	LUBRICANT	
7.	COOLANT LIQUID	8
8.	PAINT	
9.	PROPELLER	9
10.	MAXIMUM OPERATING ALTITUDE	9
11.	AMBIENT TEMPERATURE	9
12.	POWERPLANT INSTRUMENTS MARKINGS	. 10
13.	OTHER INSTRUMENTS MARKINGS	. 10
14.	WEIGHTS	. 12
15.	CENTER OF GRAVITY RANGE	. 14
16.	APPROVED MANOEUVRES	. 16
17.	MANOEUVRES LOAD FACTOR LIMITS	. 17
18.	DEMONSTRATED CROSS WIND SAFE OPERATIONS	. 18
19.	FLIGHT CREW	. 18
20.	KINDS OF OPERATION EQUIPMENT LIST (KOEL)	. 19
	LIMITATIONS PLACARDS	
22	OTHER PLACARDS	23





# 1. INTRODUCTION

Section 2 includes operating limitations, instrument markings, and basic placards necessary for safe operation of the aeroplane, its engine, standard systems and standard equipment.





# 2. AIRSPEED LIMITATIONS

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

AIRSPEED		KIAS	KCAS	REMARKS
v <sub>NE</sub>	Never exceed speed	145	141	Do not exceed this speed in any operation.
v <sub>NO</sub>	Maximum Structural Cruising speed	113	Do not exceed this sp except in smooth air, only with caution.	
V <sub>A</sub>	Design Manoeuvring speed	99	98	Do not make full or abrupt control movement above
v <sub>o</sub>	Operating Manoeuvring speed			this speed, because under certain conditions the air- craft may be overstressed by full control movement.
V <sub>FE</sub>	Maximum flaps extended speed	71	72	Do not exceed this speed for indicated flaps setting.



#### 3. AIRSPEED INDICATOR MARKINGS

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

MARKING	KIAS	EXPLANATION
White arc/band	40 – 71	Positive Flap Operating Range (lower limit is V <sub>SO</sub> , at specified maximum weight and upper limit is the maximum speed permissible with landing flaps extension).
Green arc/band	48 – 113	Normal Operating Range (lower limit is $V_{S1}$ at specified maximum weight and most forward c.g. with flaps retracted and upper limit is maximum structural speed $V_{NO}$ ).
Yellow arc/band	113 – 145	Manoeuvres must be conducted with caution and only in smooth air.
Red line	145	Maximum speed for all operations.



#### 4. POWERPLANT LIMITATIONS

Following table reports the powerplant operating limitations:

**ENGINE MANUFACTURER:** Bombardier Rotax GmbH.

ENGINE MODEL: 912 S2 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

\* applicable for Engines up to serial no. 4924543(included) and repaired engine which doesn't change the cylinder head n°3 with new one (part no. 413195)

#### Oil Pressure:

Minimum 12psi (below 1440 propeller rpm) Maximum 102 psi (above 1440 propeller rpm)



In event of cold starting operation, it is permitted a maximum oil pressure of 7 bar for a short period.

## **Engine starting: allowable temperature range**

OAT Min  $-25^{\circ}$  C OAT Max  $+50^{\circ}$  C

### **Fuel pressure:**

Minimum 2.2 psi Maximum 7.26 psi



#### 5. FUEL

**2 TANKS**: 62 litres each one (16.38 US gallons)

MAXIMUM CAPACITY: 124 litres (32.76 US gallons)

MAXIMUM USABLE FUEL: 120 litres (32 US gallons)

APPROVED FUEL: MOGAS ASTM D4814 (min RON 95/AKI 91)

MOGAS EN 228 Super/Super plus (min. RON 95/AKI 91)

AVGAS 100 LL (ASTM D910)



Prolonged use of Aviation Fuel Avgas 100LL results in greater wear of valve seats and greater combustion deposits inside cylinders due to higher lead content. Make reference to Rotax Maintenance Manual which prescribes dedicated checks due to the prolonged use of Avgas.

#### 6. LUBRICANT

Recommended by Rotax:

BRAND	DESCRIPTION	SPECIFICATION	VISCOSITY	CODE
SHELL	AeroShell Sport Plus 4	API SL	SAE 10 W-40	2



Use only oil with API classification "SG" or higher. see Rotax SI-912-016 R4 for list of alternative recommended commercial brands and types

#### 7. COOLANT LIQUID

Refer to "Rotax Operators Manual" – last issue -, "Operating Media" Section.

**NOTE:** For the Engines affected by Rotax SB-912-066 R1, the waterless coolant is not permitted)

#### 8. PAINT

To ensure that the temperature of the composite structure does not exceed limits, the outer surface of the airplane must be painted with white paint, except for areas of registration marks, placards, and ornament. Refer to Aircraft Maintenance Manual (AMM), Chapter 51, for specific paint requirements.



# **PROPELLER**

**GT** Propeller MANUFACTURER:

GT-2/173/VRR-FW101 SRTC MODEL:

One-piece 2-blade, constructed of wood materials, protective **BLADES**:

layer of laminate.

TYPE: Fixed pitch

1730 mm (no reduction is permitted) DIAMETER:

### 10. MAXIMUM OPERATING ALTITUDE

Maximum operating altitude is 13000ft (3962 m) MSL.



Flight crew is required to use supplemental oxygen according to applicable Air Operation Rules.

#### 11. AMBIENT TEMPERATURE

Ambient temperature: from  $-25^{\circ}$ C to  $+50^{\circ}$ C.



Flight in expected and/or known icing conditions is forbidden.



### 12. POWERPLANT INSTRUMENTS MARKINGS

Powerplant instrument markings and their colour code significance are shown be-

Instrum	MENT	RED LINE Minimum limit	GREEN ARC  Normal  operating	YELLOW ARC Caution	RED LINE Maximum limit
Propeller	rpm		577 - 2265	2265 - 2388	2388
Oil temp.	°C	50	50-130		130
CHT*	°C		0-135		135
СТ	°C		0-120		120
Oil pressure	psi	OP LOW WARNING 12 psi			102
Fuel press.	psi	FP LOW WARNING 2.2 psi	2.2-7.26		7.26

<sup>\*-</sup> applicable for Engines up to serial no. 4924543(included) and repaired engine which doesn't change the cylinder head n°3 with new one (part no. 413195

# 13. OTHER INSTRUMENTS MARKINGS

Instrument	RED ARC Minimum limit	GREEN ARC Normal operating	YELLOW ARC Caution	RED ARC Maximum limit
Voltmeter	10-10.5 Volt	12–16 Volt		16-16,5





# 14. WEIGHTS

Condition	Weight		
Maximum takeoff weight	630 kg 1388lb		
Maximum landing weight	630 kg 1388lb		

Baggage Compartment		
Maximum weight	20 kg	44lb
Maximum specific pressure	12,5 kg/dm <sup>2</sup>	256 lbs/sq in



INTENTIONALLY LEFT BLANK



## **15. CENTER OF GRAVITY RANGE**

Datum Vertical plane tangent to the propeller flange (the aircraft

must be levelled in the longitudinal plane)

Levelling Refer to the seat track supporting beams (see procedure in

Section 6)

Forward limit 1.841 m (20% MAC) aft of datum for all weights
Aft limit 1.978 m (30% MAC) aft of datum for all weights



The pilot is responsible for ensuring that the airplane is properly loaded. Refer to Section 6 for appropriate instructions.



INTENTIONALLY LEFT BLANK



### 16. APPROVED MANOEUVRES

The aircraft is certified in Normal Category in accordance with EASA CS-VLA regulation applying to aeroplanes intended for non-aerobatic operation only. Non aerobatic operation includes:

- Any manoeuvre pertaining to "normal" flight
- Stalls (except whip stalls)
- Lazy eights
- Chandelles
- Steep turns in which the angle of bank is not more than  $60^{\circ}$

Recommended entry speeds for each approved manoeuvre are as follows:

Manoeuvre	Speed [KIAS]
Lazy eight	99
Chandelle	113
Steep turn (max 60°)	99
Stall	Slow deceleration (1 kts/s)



Acrobatic manoeuvres, including spins and turns with angle of bank of more than 60°, are not approved for such a category.



Limit load factor could be exceeded by moving abruptly flight controls at their end run at a speed above  $V_A$  (Manoeuvring Speed: 99 KIAS).



Flight in expected and/or known icing conditions, in proximity of storms or in severe turbulence is forbidden.



## 17. MANOEUVRES LOAD FACTOR LIMITS

Manoeuvre load factors limits are as follows:

Positive Negative + 4 g - 2 g

Manoeuvre load factors limits with flaps extended are as follows:



## 18. DEMONSTRATED CROSS WIND SAFE OPERATIONS

The aircraft controllability, during take-offs and landings, has been demonstrated with a cross wind components of 15kts.

## 19. FLIGHT CREW

Minimum crew: 1 pilot

Maximum number of occupants: 2 people (including the pilot)



## 20. KINDS OF OPERATION EQUIPMENT LIST (KOEL)

This paragraph reports the KOEL table, concerning the equipment list required on board under CS-VLA regulations to allow flight operations in VFR Day.

Flight in VFR Day is permitted only if the prescribed equipment is installed and operational.

Additional equipment, or a different equipment list, for the intended operation may be required by national operational requirements and also depends on the airspace classification and route to be flown. The owner is responsible for fulfilling these requirements.



Garmin G3X provides primary engine and electric system parameters information, supported by caution/warning lights in the annunciator panel and backup CHT/CT indicator.



Garmin G3X indeed is NOT intended to be used as primary reference for flight and navigation information but only provides information for increased situational awareness: primary flight information (altitude, airspeed and heading) is provided by analogue instruments.



Equipment	VFR Day
Analogue Altimeter	•
Analogue Airspeed Indicator	•
Magnetic Direction Indicator	•
Analogue Fuel Quantity Indicators	•
Analogue CHT/CT indicator	•
Garmin G3X suite	•
Transponder	•
Altitude Encoder	•
Slip indicator	•
Longitudinal Trim Indicator	•
Flap Position Indicator	•
COMM/NAV equipment	•
Audio Panel/Marker beacon	•
Landing/Taxi Light	
Strobe Lights	
NAV Lights	
Annunciator Panel	•
Breakers Panel	•
Stall warning system	•
First Aid Kit	•
Hand-held fire extinguisher	•
ELT	•
Pitot Heat	
Torch (with spare batteries)	
Cabin Light	



#### 21. LIMITATIONS PLACARDS

The following limitation placards are placed in plain view on the pilot.

On the left side instrument panel, above on the left, it is placed the following placard reporting the speed limitations:

Manoeuvring Speed V<sub>A</sub> = 99 kts

On the central side of the instrument panel, the following placard is placed reminding the observance of aircraft operating limitations according to installed equipment configuration (see KOEL, Para. 20):

This a/c is classified as VLA
approved for
DAY VFR
(with required equipment)
in non-icing conditions.
all aerobatics manoeuvres
including spinning are prohibited.
For operating limitations
refer to KOEL in the
FLIGHT MANUAL

On the right hand side of the instrument panel the following placard is placed reminding the observance for "no smoking":



In the baggage compartment following placard is placed:

TIE-DOWN HARNESS MAX WEIGHT 20kg [44 lbs]

DO NOT PLACE SHARP OBJECTS ON THE FLOOR



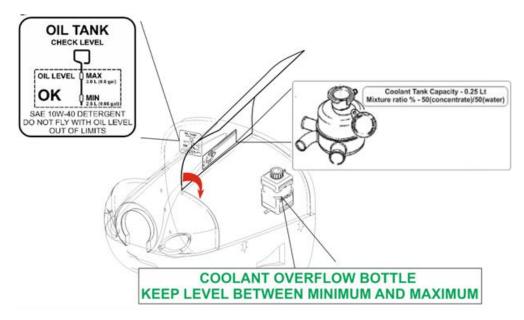
Below LH and RH Garmin G3X display and analogue instruments following placards are placed :



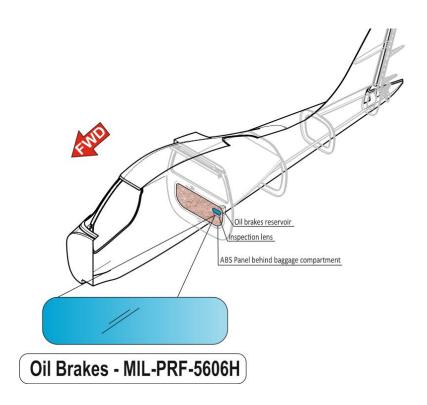


#### 22. **OTHER PLACARDS**

## **Engine compartment placards**



## Oil brakes reservoir placard





### Usable fuel markings



# Right Tank Usable Fuel 60 litres

#### Allowed fuel placard



#### **Emergency exit placard**

# **EMERGENCY EXIT**

#### Parking brake placard





## Throttle marking



## Fuel selector valve marking



## Choke placard





## Cabin heat/defrost placard



## Carb heat placard



## Ignition key placard

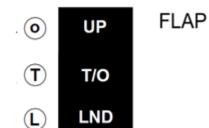


## Master/Generator placards





## Flap indicator placard



## **Backrest lever placard**

BACKREST: PRESS TO UNLOCK

#### Safety equipment location placard

FIRST AID KIT
FIRE EXTINGUISHER
are in the luggage
compartment

#### Elt placard



## **Battery placard**





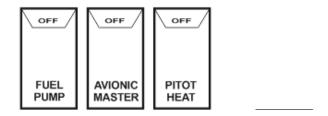
#### **Annunciator panel**

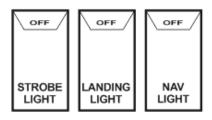


## Upper panel labels



#### **Switches labels**





Door lock lever

## **CLOSED**

## **OPEN**



INTENTIONALLY LEFT BLANK



INTENTIONALLY LEFT BLANK



## **SECTION 3 - EMERGENCY PROCEDURES**

#### **INDEX**

1.	INTRODUCTION	3
2.	AIRPLANE ALERTS	4
2	2.1. Electric Power System Malfunction	5
	2.2. G3X Failures	
2	2.2.1 LH or RH Display failure	6
2	2.2.2 Loss of engine parameters on G3X	6
2	2.3. Pitot Heating System Failure	7
3.	AIRPLANE EVACUATION	8
4.	ENGINE SECURING	8
5.	ENGINE FAILURE	9
5	5.1. Engine Failure During Take-Off Run	
	5.2. Engine Failure Immediately After Take-off	
	5.3. Engine Failures During Flight	
	5.3.1 Low Fuel Pressure	
5	5.3.2 Low Oil Pressure	11
5	5.3.3 High Oil Temperature	12
5	5.3.4 CHT/CT limit exceedance	13
6.	IN-FLIGHT ENGINE RESTART	14
7.	SMOKE AND FIRE	15
7	'.1. Engine fire on the ground	15
	'.1. Engine fire on the ground	
7		15
7 7	.2. Engine Fire During Takeoff	15 16
7 7 7	7.2. Engine Fire During Takeoff	15 16 16
7 7 7 7	7.2. Engine Fire During Takeoff	15 16 16 16
7 7 7 7	7.2. Engine Fire During Takeoff	15 16 16 16
7 7 7 8.	7.2. Engine Fire During Takeoff	15 16 16 16 17
7 7 7 8. 8	7.2. Engine Fire During Takeoff	15 16 16 16 17 17
7 7 7 8. 8.	7.2. Engine Fire During Takeoff	15 16 16 17 17 17
7 7 7 8. 8.	7.2. Engine Fire During Takeoff	15 16 16 17 17 17 17
7 7 7 8. 8 8 8	7.2. Engine Fire During Takeoff	15 16 16 17 17 17 17 18
7 7 7 8. 8 8 8 8	7.2. Engine Fire During Takeoff 7.3. Engine Fire In-Flight 7.4. Cabin Fire / Electrical smoke in cabin during flight 7.5. Electrical smoke/fire in cabin on the ground 7.6. LANDING EMERGENCIES 7.6.1. Forced Landing Without Engine Power 7.6.2. Power-On Forced Landing 7.6.3. Landing With A Flat Nose Tire 7.6.4. Landing With A Flat Main Tire 7.6.4. RECOVERY FROM UNINTENTIONAL SPIN	15 16 16 17 17 17 18 19
7 7 7 8. 8 8 8 8 9.	7.2. Engine Fire During Takeoff	15 16 16 17 17 17 18 19 20 20



INTENTIONALLY LEFT BLANK



#### 1. INTRODUCTION

Section 3 includes checklists and detailed procedures to be used in the event of emergencies. Emergencies caused by a malfunction of the aircraft or engine are extremely rare if appropriate maintenance and pre-flight inspections are carried out.

Before operating the aircraft, the pilot should become thoroughly familiar with the present Manual and, in particular, with the present Section. Further, a continued and appropriate training should and self-study should be done.

In case of emergency the pilot should acts as follows:

- 1. Keep control of the aeroplane
- 2. Analyse the situation
- 3. Apply the pertinent procedure
- 4. Inform the Air Traffic Control if time and conditions allow.

Two types of emergency procedures are hereby given:

a. "Bold faces" which must be known by heart and executed in the correct and complete sequence, as soon as possible as the failure is detected and recognized;
 These procedures characters are boxed and highlighted, an example is shown below:

#### **BEFORE ROTATION: ABORT TAKE OFF**

1. Throttle

*IDLE* 

2. Rudder

Keep heading control

3. --

4. --

b. Other procedures which should be well theoretically know and mastered, but that are not time critical and can be executed entering and following step by step the AFM appropriate checklist.



For the safe conduct of later flights, any anomaly and/or failure must be communicated to the National Authorities in charge, in order to put the aircraft in a fully operational and safe condition.



*In this Chapter, following definitions apply:* 

Land as soon as possible: land without delay at the nearest suitable area at which a safe approach and landing is assured.

Land as soon as practical: land at the nearest approved landing area where suitable repairs can be made.



## 2. AIRPLANE ALERTS

The alert lights, located on the instrument panel can have the following colours:

**GREEN** to indicate that pertinent device is turned ON

**AMBER** to indicate no-hazard situations that have to be considered and

which require a proper crew action

**RED** to indicate emergency conditions



#### 2.1. ELECTRIC POWER SYSTEM MALFUNCTION

## **Alternator Failure Light ON**





Alternator light may illuminate for a faulty alternator or when voltage is above 16V; in this case the over-voltage sensor automatically shuts down the alternator.

#### If **ALTOUT** caution is **ON**:

- 1. Verify failure
- 2. Circuit breaker(s)
- 3. Generator switch:

Check

OFF 1 sec. then back ON

#### *If* **ALTOUT** *caution persists* **ON**:

4. Generator switch:

OFF

- 5. Reduce electrical load as much as possible
- 6. Land as soon as practical.

NOTE

The battery can supply electrical power for at least 25 minutes.



#### 2.2. G3X FAILURES

## 2.2.1. LH OR RH DISPLAY FAILURE

In case of LH or RH display failure, navigation and engine data will be automatically available in the remaining display (split mode).



**INSTRUCTION:** revert to the remaining display.

#### 2.2.2. Loss of engine parameters on G3X

**INSTRUCTION:** refer to engine parameters warning lights (OP LOW and FP LOW) and CHT/CT backup indicator.



#### 2.3. PITOT HEATING SYSTEM FAILURE

When the Pitot Heat system (if installed) is activated, the green **PITOT HEAT ON** safe operating annunciation is **ON**;



If the amber **PITOT HEAT** is turned ON, but the caution remains **ON**, the Pitot Heat system is not functioning properly.



In this case, apply following procedure:

1.	Pitot Heat switch	OFF
2.	Check Pitot Heat circuit breaker	IN

3. Pitot Heat switch ON

4. Check PITOT HEAT caution light:

If the amber light stays ON, assume PITOT HEAT malfunction.

Avoid visible moisture conditions.



#### 3. AIRPLANE EVACUATION

With the engine secured and propeller stopped (if practical):

Parking brake:

**Seat belts:** unstrap completely

**Headphones: REMOVE** 3. 4. Door: **OPEN** 

Escape away from flames/ hot engine compartment/ spilling fuel tanks/ Hot brakes.

## 4. ENGINE SECURING

Following procedure is applicable to shut-down the engine in flight:

1. Throttle Lever *IDLE* 

**OFF** 2. Ignition key

3. Fuel Selector **OFF** 4. Electrical fuel pump **OFF** 5. Generator switch **OFF** 



#### 5. ENGINE FAILURE

5.1.	ENGINE	<b>F</b> AILURE	DURING	TAKE-OFF R	IN
J. I.	LINGINE	IAILURE	DUKING	I ANE-OFF IN	JI

1. Throttle:	IDLE (keep fully out)
2. Rudder:	Keep heading control
3. Brakes:	apply as needed

When safely stopped:

4.	Ignition key:	OFF.
5.	Fuel selector valve:	OFF
6.	Electric fuel pump:	OFF
7.	Alternator& Master switches:	OFF.

#### 5.2. Engine Failure Immediately After Take-off

1. Speed: keep minimum 58 kias

2. Find a suitable place to land safely.



The immediate landing should be planned straight ahead with only small changes in directions not exceeding  $45^{\circ}$  to the left or  $45^{\circ}$  to the right.

## 3. Flaps: as needed



Stall speed increases with bank angle and longitudinal load factor. Acoustic stall warning will in any case provides a correct anticipated cue of incipient stall.

At, or right before, touch down

4.	Throttle:	IDLE (fully out and hold)
5.	Ignition key:	OFF
6.	Fuel selector valve:	OFF
7.	Electric fuel pump:	OFF
8.	Alternator Master switches:	OFF



A single engine aircraft take off should always be preceded by a thorough take off emergency pilot self-briefing. Decision to try an engine emergency restart right after take off should be taken only if environmental situation requires it: pilot shall never ignore the priority of attentively follow an immediate emergency landing.

After possible mechanical engine seizure, fire or a major propeller damage, engine restart attempt is not recommended.



#### 5.3. Engine Failures During Flight

#### **5.3.1 Low Fuel Pressure**



If the fuel pressure indicator falls below 2.2 psi/**FP LOW** warning is **ON**:

1. Electric fuel pump: ON

2. Fuel selector valve: select opposite fuel tank if NOT empty

3. Fuel quantity indicators: Check both

If fuel pressure does not build up:



## **5.3.2 Low Oil Pressure**



If oil pressure is below12 psi/**OP LOW** warning is **ON**:

1. Throttle Lever

- REDUCE to minimum practical
- 2. Land as soon as practical

If oil pressure does not increase and **OP LOW** persists **ON**:



#### **5.3.3 High Oil Temperature**

If **OP LOW** warning is **ON**, see para. 5.3.2 "Low Oil Pressure".

If oil pressure is within limits:

1. Throttle Lever *REDUCE* to *Minimum practical* 

If oil temperature does not decrease

2. Airspeed INCREASE if practical



If oil temperature does not come back within limits, the thermostatic valve regulating the oil flow to the heat exchangers could be damaged, or an oil leakage can be present in the oil supply line.

3. Land as soon as practical

If engine roughness, vibrations, erratic behaviour, or high CHT/CT is detected:



#### 5.3.4 CHT/CT limit exceedance

If CHT is above 135°C or CT is above 120°C, apply following procedure:

If **OP LOW** warning is **ON**, see para. 5.3.2 "Low Oil Pressure".

If oil pressure is within limits:

- 1. Throttle Lever REDUCE Minimum practical
- 2. Land as soon as practical



If CHT/CT does not come back within limits, the thermostatic valve regulating the water flow to the cylinder heads, could be damaged or a coolant leakage can be present in the coolant supply line.

If CHT/CT continues to rise and engine shows roughness or power loss:



#### **6. IN-FLIGHT ENGINE RESTART**



6.

After a mechanical engine seizure, fire or a major propeller damage engine restart is not recommended.

Carburettor heat ON if required 1.

Electrical fuel pump ON2. Fuel quantity indicator **CHECK** 

**Fuel Selector** select opposite tank if not empty

Ignition key BOTH5. Ignition key **START** 

7. Throttle lever SET as required

### **In case of unsuccessful engine restart:**

1. Engine SECURE(see engine securing procedure on Para. 4)



#### 7. SMOKE AND FIRE

	_			
7.1.	ENGINE	EIDE ON	TUE (	CDUIND
<i>.</i>	FIAGUAE	FIRE UN	INE	GRUUND

**Fuel Selector OFF** 2. Electrical fuel pump **OFF** 3. **Ignition key OFF** 

4. Throttle lever **FULL POWER** 

5. Cabin Heat **OFF** 6. Alternator & Master Switches **OFF** 

7. Parking Brake **ENGAGED** 

8. Aircraft Evacuation carry out immediately

#### 7.2. **ENGINE FIRE DURING TAKEOFF**

## **BEFORE ROTATION: ABORT TAKE OFF**

**Throttle Lever IDLE** (fully out and hold) 1. Rudder Keep heading control 2. **Brakes** As required

## With aircraft under control

**Fuel Selector OFF** 2. Electrical fuel pump **OFF** 3. **Ignition key OFF** 4. Cabin Heat **OFF** 5. Alternator & Master Switches **OFF** 

6. Parking Brake **ENGAGED** 

**Aircraft Evacuation** carry out immediately



#### 7.3. ENGINE FIRE IN-FLIGHT

Cabin heat: OFF
 Fuel selector valve: OFF
 Electric fuel pump: OFF

4. Throttle: FULL FORWARD until the engine stops

5. Ignition key: OFF6. Cabin vents: OPEN



Do not attempt engine restart

7. **Land as soon as possible** applying forced landing procedure(See Para. 7).

#### 7.4. CABIN FIRE / ELECTRICAL SMOKE IN CABIN DURING FLIGHT

1. Cabin heating: *OFF* 

2. Cabin vents: *OPEN* 

3. Try to choke the fire. Direct the fire extinguisher towards flame base

#### If smoke persists:

4. Alternator & Master switches: OFF

5. **Land as soon as possible** and evacuate the aircraft



If the MASTER SWITCH is set to OFF, consider that flaps extension and pitch trim operation is prevented.

#### 7.5. ELECTRICAL SMOKE/FIRE IN CABIN ON THE GROUND

Generator switch: OFF
 Throttle Lever: IDLE
 Ignition key: ALL OFF
 Fuel Selector Valve: OFF
 Master Switch: OFF

6. Aircraft Evacuation carry out immediately



#### 8. LANDING EMERGENCIES

#### 8.1. FORCED LANDING WITHOUT ENGINE POWER

Flaps: UP
 Airspeed: 71 KIAS

3. Find a suitable place to land safely, plan to approach it upwind.

4. Fuel selector valve: OFF
5. Electric fuel pump: OFF
6. Ignition key: OFF
7. Safety belts: Tighten

When certain to land

8. Flaps: as necessary

9. Alternator and Master switches: *OFF*.



Glide ratio is 12.8, therefore in zero wind conditions for every 1000 ft above Ground Level it is possible to cover ca. 2 NM.

#### 8.2. POWER-ON FORCED LANDING

1. Airspeed: 71 KIAS

2. Flaps: UP

3. Locate the most suitable terrain for emergency landing, plan to approach it upwind.

4. Safety belts: *Tighten* 

When certain to land, right before touch down

5. Flaps: as necessary

6. Fuel selector valve: OFF
7. Electric fuel pump: OFF
8. Ignition key: OFF
9. Alternator and Master switches: OFF

### 8.3. LANDING WITH A FLAT NOSE TIRE

Pre-landing checklist: Complete
 Flaps: Land

3. Land and maintain aircraft *NOSE HIGH* attitude as long as possible.

As aircraft stops

4. Engine securing: Perform (see Para. 4)
5. Airplane evacuation: Perform (see Para. 3)



#### 8.4. LANDING WITH A FLAT MAIN TIRE

If it's suspected a main tire defect or it's reported to be defective:

1. Pre-landing checklist: Complete

2. Flaps: Land

- 3. Land the aeroplane on the side of runway opposite to the defective tire to compensate the change in direction which is to be expected during final rolling
- 4. Touchdown with the GOOD TIRE FIRST and hold aircraft with the flat tire off the ground as long as possible by mean of aileron and rudder control.

As aircraft stops

5. Engine securing: Perform (see Para. 4)
 6. Airplane evacuation: Perform (see Para. 3)



#### 9. RECOVERY FROM UNINTENTIONAL SPIN

If unintentional spin occurs, the following recovery procedure should be used:

1. Throttle: IDLE (full out position and hold)

2. Rudder: full, in the opposite direction of the spin

3. Stick: centralize and hold neutral

As the spin stops:

4. **Rudder:** SET NEUTRAL

5. Aeroplane attitude: smoothly recover averting speeds in

excess of V<sub>NE</sub>

6. Throttle: Readjust to restore engine power.



Keep full rudder against rotation until spin has stopped. One complete turn and recovery takes about 500 feet.



#### 10. OTHER EMERGENCIES

#### 10.1. Unintentional Flight Into Icing Conditions



Airbox carburettor heater is designed to help prevent carburettor ice, less effectively functions as a de-icing system.



See TECNAM SIL-2017-02 for further information about Carburettor Heating operation.



In case of ice formation on wing leading edge, stall speed could highly increase and stall may become asymmetric. In case of stabilator ice accretion it may lose its efficiency, leading to aircraft pitch up response and loss of control.

1. Carburettor heating:

ON

- 2. Immediately fly away from icing conditions (changing altitude and direction of flight, out and below of clouds, visible moisture, precipitations)
- 3. Controls surfaces: continue to move to keep free from ice build up
- 4. Throttle speed: increase RPM
- 5. Cabin heat: ON



#### 10.2. TRIM SYSTEM FAILURE

#### **Trim Jamming**

Should trim control be inoperative, act as follows:

1. Breaker: CHECK IN

2. LH/RH Trim switch: CHECK for correct position

If jamming persists

1. Trim cutout switch: CHECKON

2. Speed: adjust to control aircraft without excessive stick force

3. Land aircraft as soon as possible.

#### **Trim Runaway**

In event of trim runaway, act as follows:

. Trim cutout switch: OFF

2. Speed: adjust to control aircraft without excessive stick force

3. Land aircraft as soon as possible.

#### 10.3. FLAPS FAILURE

In event of flaps-up landing, account for:

Approach speed: 64 KIAS

Landing length: 35% increased

INTENTIONALLY LEFT BLANK



## **SECTION 4 - NORMAL PROCEDURES**

#### **INDEX**

1.	I.	NTRODUCTION	
2.		AIRSPEEDS FOR NORMAL OPERATIONS	
<b>∠.</b>	F	AIRSPEEDS FOR NORMAL OPERATIONS	4
3.	F	PRE-FLIGHT INSPECTIONS	5
3.	1.	Cabin Inspection	5
3.	2.		
4.	C	CHECKLISTS	12
4.	1.	Before Engine Starting (After Pre-flight Inspection)	12
4.	2.	Engine Starting	
4.	3.	Before taxiing	13
4.	4.	Taxiing	
4.	5.	Prior to takeoff	14
4.	6.	Takeoff and climb	
4.	7.	Cruise	
4.	8.	Before Landing	
4.	9.	Balked landing/missed approach	
4.	10.	After landing	
		Engine shut down	
		Post-flight checks	



INTENTIONALLY LEFT BLANK



## 1. INTRODUCTION

Section 4 describes checklists and recommended procedures for the conduct of normal operations for *P2008 JC* aircraft.



Garmin G3X provides primary engine and electric system parameters information, supported by caution/warning lights in the annunciator panel and backup CHT/CT indicator.



Analogue CHT/CT is a backup for the information provided by G3X. Since the pick-up location for the CHT sensors is different (cylinder 2 and 4 respectively), analogue CHT could indicate a temperature up to 20° less than the G3X (in case of CT indicator, the sensor is only one).



Garmin G3X indeed is NOT intended to be used as primary reference for flight and navigation information but only provides information for increased situational awareness: primary flight information (altitude, airspeed and heading) is provided by analogue instruments.



## 2. AIRSPEEDS FOR NORMAL OPERATIONS

The following airspeeds are those which are significant for normal operations.

	FLAPS	630kg
Rotation Speed $(V_R)$	T/O	48 KIAS
Flap Retraction Speed ( $V_{OBS}$ )	T/O	58 KIAS
Best Angle-of-Climb Speed $(V_X)$	0°	65 KIAS
Best Rate-of-Climb speed $(V_Y)$	0°	71 KIAS
Approach speed	T/O	58 KIAS
Final Approach Speed	FULL	54 KIAS
Touch Down Speed	FULL	54 KIAS
Balked Landing Speed	FULL	61 KIAS
Manoeuvring speed $(V_A)$	0°	99 KIAS
Never Exceed Speed $(V_{NE})$	0°	145 KIAS



#### 3. PRE-FLIGHT INSPECTIONS

Before each flight, it is necessary to carry out a complete aircraft check including a cabin inspection followed by an external inspection, as below detailed.

#### 3.1. CABIN INSPECTION

- A Aircraft documents (ARC, Certificate of Airworthiness, Noise certificate, Radio COM certificate, AFM): *check current and on board*
- B Weight and balance: calculate (ref. to Section 6) and check within limits
- C Safety belts: connected to hard points, check condition
- D Ignition key: OFF, key extracted
- E Master switch: *ON*
- F Voltmeter: check within the limits
- G Lights: all ON, check for operation
- H Acoustic stall warning: check for operation
- I Master switch: *OFF*
- J Baggage: check first aid kit, ELT, fire extinguisher, luggage secured with restraint net.



#### 3.2. AIRCRAFT WALK-AROUND

To perform the aircraft walk-around, carry out the checklists according to the pattern shown in Figure 4-1.



Visual inspection is defined as follows: check for defects, cracks, detachments, excessive play, unsafe or improper installation as well as for general condition. For control surfaces, visual inspection also involves additional check for freedom of movement and security. Red lubber lines on bolts and nuts shall be intact.



Fuel level indicated by the fuel quantity indicators must be verified by visual check of actual fuel quantity embarked in the tanks: graduated dipstick must be used.



If ignitions key is in L/R/BOTH position, a propeller movement can cause the engine starting with consequent hazard for people nearby.



Fuel drainage operation must be carried out with the aircraft parked on a level surface. Set Cockpit Fuel Selector Valve to ON prior to drain fuel.



A

Left fuel filler cap

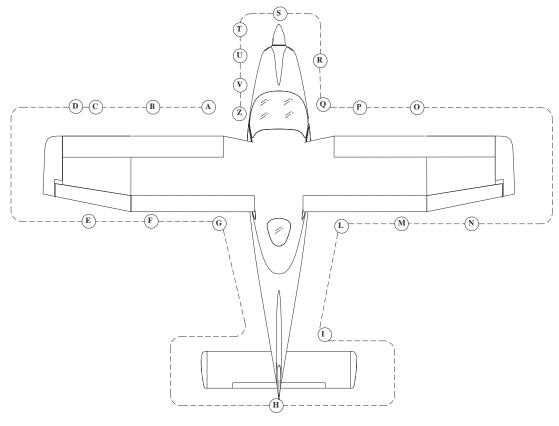


Figure 4.1

dipstick). Drain the left fuel tank sump by quick drain valve using a cup to collect fuel (drainage operation must be carried with the aircraft parked on a level surface). Check for water or other contaminants. Make sure filler cap is closed. В Pitot tube REMOVE pitot plug and check the pitot for obstructions. Do not blow inside pitot tube. C Left side leading edge and wing Visual inspection, CHECK stall strips skin D Left strobe light Visual inspection, CHECK for integrity and fixing  $\mathbf{E}$ 

CHECK desired fuel level (use graduated

Left aileron, hinges and LH tank vent line CHECK for damage, freedom from plays; Left tank vent: CHECK for obstructions.

F Left flap and hinges Visual inspection



G	Left main landing gear	CHECK inflation, tire condition, alignment, fuselage skin condition. Check fuselage skin status, tire status (cuts, bruises, cracks and excessive wear), slippage markers integrity, gear structure and brakes hoses: there should be no sign of hydraulic fluid leakage.
Н	Stabilator and tab	CHECK stabilator leading edge. Check the actuating mechanism of stabilator and the connection with related tab: CHECK free of play, friction. CHECK fuselage bottom and top skin. CHECK antennas for integrity.
I	Vertical tail and rudder	Visual inspection, check free of play, friction.
L	Right main landing gear	CHECK inflation, tire condition, alignment, fuselage skin condition. Check fuselage skin status, tire status (cuts, bruises, cracks and excessive wear), slippage markers integrity, gear structure and brakes hoses: there should be no sign of hydraulic fluid leakage.
M	Right flap and hinges	Visual inspection
N	Right aileron, hinges and RH tank vent line	Visual inspection, check free of play, friction; Right side tank vent: check for obstructions.
0	Right strobe light, leading edge and wing skin	Visual inspection, CHECK stall strips, CHECK strobe light for integrity and fixing
P	Stall indicator switch	CHECK for integrity and free of play,
Q	Right fuel filler cap	CHECK desired fuel level (use graduated dipstick). Drain the right fuel tank sump by quick drain valve using a cup to collect fuel (drainage operation must be carried with the aircraft parked on a level surface). Check for water or other contaminants. Make sure filler cap is closed.
R	Nose wheel strut and tire/ RH static port	CHECK inflation, tire condition and condition of shock absorber: there should be no sign of hydraulic fluid leakage. Check the right static port for obstructions.
S	Propeller and spinner condition	CHECK for nicks, cracks, dents and other defects, propeller should rotate freely. Check fixing and lack of play between blades and hub.



# P2008 JC - Aircraft Flight Manual

- T Check the engine cowling surface conditions, then open engine inspection doors and perform the following checks:
  - a) Nacelle inlets and exhausts openings must be free of obstructions. Check connection and integrity of air intake system, visually inspect that ram air intake is unobstructed. If inlet and outlet plugs are installed, they must be removed.
  - b) Check radiators. There should be no indication of leakage of fluid and they have to be free of obstructions.
  - c) Check for foreign objects
  - *d)* 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: level must be between min. and max. mark.



Before proceeding to the next step be sure that magnetos and Master switch are OFF with the key extracted.

- (3) Turn the propeller by hand to and from, 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.
- (4) Carburettors: check the throttle and choke cables for condition and installation.
- (5) Exhaust: inspect for damages, leakage and general condition.
- (6) Check engine mount and silent-blocks for condition.
- e) 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, or let the engine idle for 1 minute. 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.
- f) Drain off Gascolator for water and sediment (drain until no water comes off). Then make sure drain valve is closed.
- g) Check drainage hoses free of obstructions
- h) Verify all parts are fixed or locked: inspect fuel circuit for leakages.

U Engine cowling doors CLOSE, check for proper alignment of cam-

locks

V Landing/Taxi light and LH static *CHECK, Visual inspection for integrity.*port *Right side tank vent: check for obstructions.* 



**Z** Tow bar and chocks *REMOVE*, stow on board pitot, static ports

and stall warning protective plugs.

Windshield and windows INSPECT for cracks, erosion, crazing, visi-

bility and cleanliness.

NOTE

Avoid blowing inside Pitot tube and inside airspeed indicator system's static ports as this may damage instruments.



INTENTIONALLY LEFT BLANK



#### 4. CHECKLISTS

## 4.1. Before Engine Starting (After Pre-flight Inspection)

1. Seat position and safety belts: adjust



In-flight seat release can cause the loss of airplane control. Check that occupied seats are positively locked: after seat adjustment, make sure that the adjustment lever is well aligned with the aircraft longitudinal axis(neutral position) and that has a springback return to the neutral position.

- 2. Flight controls: operate full stroke checking for movement smoothness, free of play and friction.
- 3. Parking brake: engage
- 4. Throttle friction: adjust
- 5. Circuit Breakers: check all IN
- 6. Master switch: ON, Check ALT OUT caution ON and check Voltmeter
- 7. Pitot heating system (if installed): make sure plug is removed, set to ON, CHECK advisory light ON. After about 5 seconds, turn OFF Pitot heating system. Check Pitot if warm.
- 8. Electric fuel pump: *ON* (*check for audible pump noise*)
- 9. Electric fuel pump: *OFF*
- 10. Avionic Master switch: ON, check instrument
- 11. Flap control: cycle fully extended and then set to T/O
- 12. Pitch Trim: cycle fully up and down, from both LH and RH controls, check for trim disconnect switch operation then set neutral.



Pitch trim position other than in neutral position would affect take off performance and take off rotation execution at the correct  $V_R$ .

- 13. Nav. light & Strobe light: *ON*
- 14. Fuel quantity: compare the fuel quantity indicators information with fuel quantity visually checked into the tanks (see Pre-flight inspection External inspection)



In absence of RH seat occupant: fasten seat belts around the seat so as to prevent any interference with the aeroplane flight control operation and with rapid egress in an emergency.

15. Doors: Closed and locked



Avionic Master switch must be set OFF during the engine's start-up to prevent avionic equipment damage.



#### 4.2. ENGINE STARTING

1. Throttle *IDLE* 

2. Choke *AS NEEDED* 

3. Fuel selector valve SELECT the tank with less fuel

4. Electric fuel pump *ON* 

5. Propeller area *CALL for clear and visually check* 



Check to insure no person or object is present in the area close to the propeller. Forward lower sector visibility is not possible from inside the cockpit.

6. External lights AS REQUIRED

7. Ignition key *START* 

8. Check oil pressure rises within 10 sec.

9. Generator switch *ON* 

10. Voltmeter *CHECK more 14V or more* 

11. Engine instruments Check within the limits

12. Choke *OFF* 

13. RPM *1000-1200 prop. RPM* 

14. Electric fuel pump *OFF* 

15. Fuel pressure CHECK within limits

#### 4.3. BEFORE TAXIING

1. Radio *ON* 

2. Avionic Master CHECK ON

3. Altimeter *SET* 

4. Landing light / Taxi light (if installed): *ON* 

5. Parking brake *OFF and taxi* 



#### 4.4. TAXIING

Brakes CHECK
 Flight instruments CHECK

## 4.5. PRIOR TO TAKE OFF

1. Parking brake brake pedal press, ON

2. Check engine parameters within limits and all caution/warning alerts OFF

3. ALT OUT caution CHECK OFF

4. Electric Fuel pump *ON* 

5. Fuel selector valve SELECT the fullest tank

6. Fuel pressure *CHECK* 

7. Throttle *ADVANCE to 1640 prop. RPM* 

a. Ignition key test SELECT LEFT, check speed drop within 130 prop RPM;

b. Select BOTH CHECK propeller speed 1640 prop. RPM;c. Select RIGHT CHECK speed drop within 130 prop. RPM;

d. Maximum difference of speed between LEFT and RIGHT 50 prop. RPM;

e. Select BOTH CHECK propeller speed 1640 prop. RPM.

8. Carburettor heat test:

a. Pull selector fully OUT

b. RPM CHECK 100 prop. RPM drop

c. Push selector fully IN

d. RPM CHECK 1640 prop. RPM

9. Throttle Set to 1000-1200 prop. RPM

10. Flaps position  $T/O(15^{\circ})$ 

11. Pitch trim CHECK neutral12. Flight controls CHECK free

13. Seat belts *CHECKED fastened* 

14. Doors *CHECK closed and locked.* 



#### 4.6. TAKE-OFF AND CLIMB



Flight information provided by G3X is only for situational awareness. Refer to primary flight instruments.



On uncontrolled fields, before line up, check runway wind direction and speed and check for traffic on final.

1. Landing light AS REQUIRED

Parking brake OFF
 Carburettor heat OFF

4. Throttle SET full forward and

check approximately  $2100 \pm 100$  prop. RPM

5. Engine instruments CHECK parameters within limits

When  $V_R$  is reached

6. Rotate

7. Flaps RETRACT (speed above  $V_{OBS}$ )

8. Establish Climb rate

9. Landing and Taxi light (if installed) *OFF* 

10. Electric fuel pump *OFF* 

11. Fuel pressure *CHECK within limits* 

12. Throttle REDUCE engine speed at or below 2250 prop. RPM

#### 4.7. CRUISE

1. Throttle SET engine speed at or below 2250 prop. RPM

2. Check engine parameters within limits and all cautions/warnings OFF

3. Carburettor heat *AS NEEDED* 



Monitor and manually compensate asymmetrical fuel consumption by switching fuel selector valve. Switch on the electric fuel pump prior to swap the fuel feeding from one tank to another.



#### 4.8. BEFORE LANDING

- 1. Electric fuel pump ON
- 2. Fuel valve *SELECT* the fullest tank
- 3. Landing Light *ON*

On downwind, leg abeam touch down point:

- 4. Flaps position T/O
- 5. Establish Approach Speed

On final leg:

- 6. Flaps *FULL*
- 7. Establish Final Approach Speed
- 8. Carburettor heat OFF (full IN)

#### 4.9. BALKED LANDING / MISSED APPROACH

- 1. Throttle *FULL*
- 2. Speed KEEP over Balked Landing Speed
- 3. Flaps position T/O

Only after positive climb rate is established:

- 4. Flaps RETRACT
- 5. Landing Light *OFF*
- 6. Electric fuel pump OFF
- 7. Throttle REDUCE engine speed at or below 2250 prop. RPM

#### 4.10. AFTER LANDING

1.	Flaps	UP
1.	Taps	UI

- 2. Electric Fuel Pump *OFF*
- 3. Taxi Light (if installed) ON when required
- 4. Landing Light *OFF when required*



#### 4.11. ENGINE SHUT DOWN

1.	Parking brake	<i>ENGAGE</i>

2. Keep engine running at 1200 propeller RPM for about one minute in order to reduce latent heat

3. Avionic equipment *OFF* 

4. Ignition key *OFF*, keys extracted

All external lights OFF
 Master & Generator switches OFF
 Fuel selector valve OFF



Before disembarkation verify propeller is fully stopped.



Instruct passenger to fully open RH door and depart, avoiding contact with wheels and sharp wing control surfaces edges.

#### 4.12. POST-FLIGHT CHECKS

1. Flight controls LOCK by mean of seat belts

2. Wheel chocks SET

3. Wing mooring lines *SET* 

4. Parking brake *RELEASE* 

5. Doors *CLOSE and LOCK* 

6. Protection plugs SET over pitot tube, stall warning, static ports



INTENTIONALLY LEFT BLANK



## **SECTION 5 - PERFORMANCE**

## **INDEX**

1.	INTRODUCTION	. 2
2.	USE OF PERFORMANCE CHARTS	. 2
3.	AIRSPEED INDICATOR SYSTEM CALIBRATION	. 3
4.	ICAO STANDARD ATMOSPHERE	. 4
5.	STALL SPEED	. 5
6.	CROSSWIND	. 6
7.	TAKEOFF PERFORMANCE	. 7
8.	TAKE-OFF RATE OF CLIMB	1C
9.	EN-ROUTE RATE OF CLIMB	11
10.	CRUISE PERFORMANCE	12
11.	LANDING PERFORMANCE	14
12.	BALKED LANDING PERFORMANCE	15
13.	NOISE DATA	15



## 1. INTRODUCTION

This section provides all necessary data for an accurate and comprehensive planning of flight activity from take-off to landing.

Data reported in graphs and/or in tables were determined using:

- ✓ "Flight Test Data" under conditions prescribed by EASA CS-VLA regulation
- ✓ aircraft and engine in good condition
- ✓ average piloting techniques

Each graph or table was determined according to ICAO Standard Atmosphere (ISA - s.l.); evaluations of the impact on performance were carried out by theoretical means for:

- ✓ Airspeed
- ✓ External temperature
- ✓ Altitude
- ✓ Weight
- ✓ Runway type and condition

#### 2. USE OF PERFORMANCE CHARTS

Performance 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.

Additional information is provided for each table or graph.

## 3. AIRSPEED INDICATOR SYSTEM CALIBRATION

Graph shows calibrated airspeed V<sub>IAS</sub> as a function of indicated airspeed V<sub>CAS</sub>.

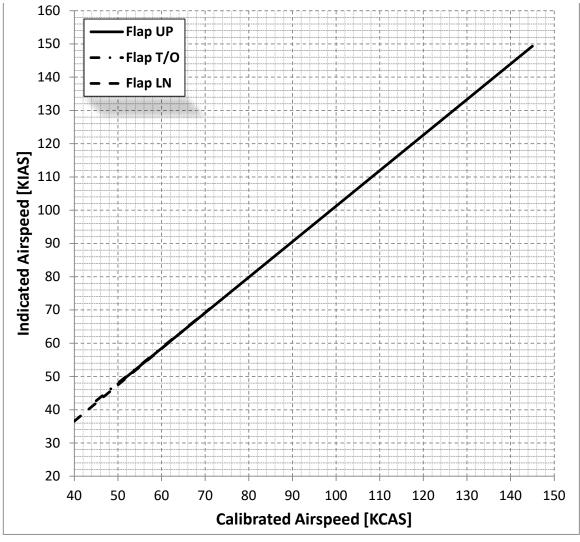


FIG. 5-1. CALIBRATED VS INDICATED AIRSPEED

Example:

<u>Given</u> <u>Find</u>

KIAS 75.0 Flap: UP KCAS 74.5

NOTE Indicated airspeed assumes 0 as an instrument error

#### 4. ICAO STANDARD ATMOSPHERE

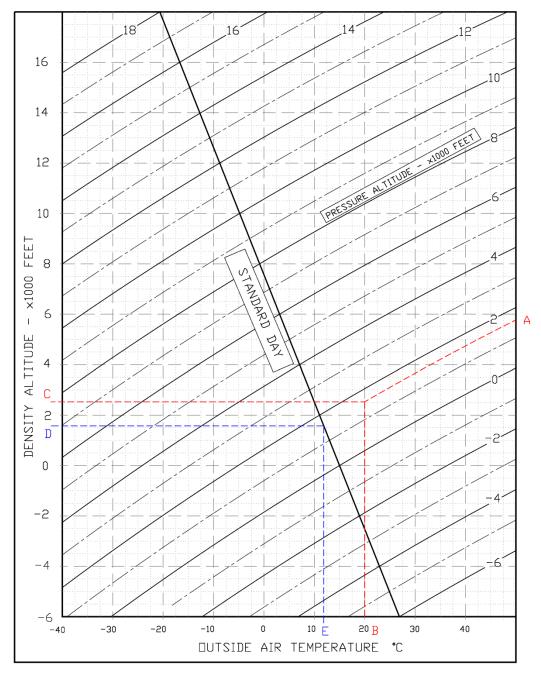


FIG. 5-2. ICAO CHART

Examples:

**Scope** <u>Given</u> <u>Find</u> **A:** Pressure altitude = 1600ft  $\rightarrow$  C: DensityAltitude = 2550ft **DensityAltitude: B:** Temperature =  $2\theta \cdot C$ 

**D:** Pressure altitude = 1600ft → E: ISA Air Temperature =  $12 \, ^{\circ}C$ **ISA Temperature:** 



## 5. STALL SPEED

Weight: 630 kg Throttle Levers: IDLE CG: Most Forward (20%)

No ground effect

	Bank	STALL SPEED							
WEIGHT	ANGLE	FLAPS 0°		FLAPS T/O		FLAPS FULL			
[kg]	[deg]	KIAS	KIAS KCAS		KCAS	KIAS	KCAS		
	0	48	50	43	46	40	43		
600	15	49	51	44	46	41	44		
<b>630</b> (FWD C.G.)	30	52	54	47	49	44	46		
(FWD C.G.)	45	58	60	52	54	49	51		
	60	70	71	63	64	60	61		



Altitude loss during conventional stall recovery, as demonstrated during flight tests is approximately 350 ft with banking below 30°.



## 6. CROSSWIND

Maximum demonstrated crosswind is 15Kts

 $\Rightarrow$ Example:

<u>Given</u> <u>Find</u>

Wind direction (with respect to aircraft longitudinal axis)=  $30^{\circ}$  Headwind = 17.5 Kts

Wind speed = 20 Kts Crosswind = 10 Kts

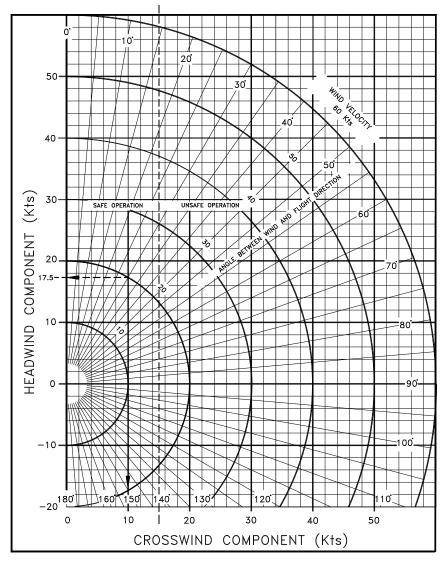


FIG. 5-2. CROSSWIND CHART



## 7. TAKEOFF PERFORMANCE



To account for likely in service performance variations apply a factored to distances of 1.10

## **Weight** = *630 kg*

Flaps: T/O
Speed at Lift-Off =48 KIAS
Speed Over 50ft Obstacle =60KIAS
Throttle Levers: Full Forward

**Runway:** Grass

#### **Corrections**

Headwind: - 5m for each kt (16ft/kt)

Tailwind: + 15m for each kt (49 ft/kt)

Paved Runway:-10% to Ground Roll

Runway slope: +7% to Ground Roll for each +1%

Pressure		Distance [m]  Temperature [°C]						
Altitude			ISA					
[ft]		-25	0	25	50	157		
S.L.	<b>Ground Roll</b>	157	198	244	296	225		
J.L.	At 50 ft AGL	265	331	406	490	375		
1000	<b>Ground Roll</b>	172	216	267	323	242		
1000	At 50 ft AGL	289	361	442	533	402		
2000	<b>Ground Roll</b>	187	236	291	353	259		
2000	At 50 ft AGL	314	392	481	580	430		
3000	<b>Ground Roll</b>	205	258	318	386	279		
3000	At 50 ft AGL	342	427	524	631	461		
4000	<b>Ground Roll</b>	224	281	347	421	299		
4000	At 50 ft AGL	373	466	571	688	494		
5000	<b>Ground Roll</b>	244	308	380	461	322		
3000	At 50 ft AGL	406	508	622	750	530		
6000	<b>Ground Roll</b>	268	337	416	504	346		
8000	At 50 ft AGL	443	554	679	819	569		
7000	<b>Ground Roll</b>	293	369	455	552	373		
7000	At 50 ft AGL	484	605	741	894	611		
8000	<b>Ground Roll</b>	321	404	499	605	401		
8000	At 50 ft AGL	529	661	810	977	656		
9000	<b>Ground Roll</b>	352	443	547	663	432		
3000	At 50 ft AGL	578	722	885	1068	705		
10000	Ground Roll	386	486	600	728	466		
10000	At 50 ft AGL	632	790	969	1168	758		

Corrections



## **Weight =** 580 kg

**Headwind:** - 5m for each kt (16ft/kt) Flaps: T/O **Speed at Lift-Off =**48KIAS **Tailwind:** + 15m for each kt (49 ft/kt)**Speed Over 50ft Obstacle =** 60 KIAS Paved Runway:-10% to Ground Roll

**Throttle Levers:** Full Forward Runway slope: +7% to Ground Roll for each +1%

Runway: Grass

Pressure		Distance [m]						
Altitude			ISA					
[ft]		-25	0	25	50	13/4		
S.L.	Ground Roll	129	162	200	243	185		
3.1.	At 50 ft AGL	219	274	335	404	310		
1000	Ground Roll	141	177	219	265	198		
1000	At 50 ft AGL	238	298	365	440	332		
2000	Ground Roll	154	193	239	289	213		
2000	At 50 ft AGL	259	324	397	478	355		
2000	Ground Roll	168	211	261	316	228		
3000	At 50 ft AGL	282	353	432	521	380		
4000	Ground Roll	183	231	285	346	245		
4000	At 50 ft AGL	308	384	471	568	408		
5000	Ground Roll	200	252	311	378	264		
3000	At 50 ft AGL	335	419	514	619	437		
6000	Ground Roll	219	276	341	413	284		
0000	At 50 ft AGL	366	457	560	676	469		
7000	<b>Ground Roll</b>	240	302	373	453	305		
7000	At 50 ft AGL	400	499	612	738	504		
8000	Ground Roll	263	331	409	496	329		
3000	At 50 ft AGL	436	545	668	806	541		
9000	Ground Roll	289	363	448	544	354		
3000	At 50 ft AGL	477	596	731	881	582		
10000	Ground Roll	317	399	492	597	382		
10000	At 50 ft AGL	522	652	799	964	626		



## **Weight =** 530 kg

Flaps: T/O Speed at Lift-Off =48KIAS

**Speed Over 50ft Obstacle =** 60 KIAS

**Throttle Levers:** Full Forward

Runway: Grass

#### **Corrections**

**Headwind:** - 5m for each kt (16ft/kt) **Tailwind:** + 15m for each kt (49 ft/kt)

Paved Runway:-10% to Ground Roll

Runway slope: +7% to Ground Roll for each +1%

Pressure		Distance [m]						
Altitude			ISA					
[ft]		-25	0	25	50	IJA		
S.L.	Ground Roll	104	131	161	196	149		
3.2.	At 50 ft AGL	178	222	272	328	251		
1000	Ground Roll	113	143	176	214	160		
1000	At 50 ft AGL	193	241	296	357	269		
2000	Ground Roll	124	156	192	233	171		
2000	At 50 ft AGL	210	263	322	388	288		
3000	<b>Ground Roll</b>	135	170	210	255	184		
3000	At 50 ft AGL	229	286	351	423	309		
4000	Ground Roll	148	186	229	278	198		
4000	At 50 ft AGL	250	312	382	461	331		
5000	Ground Roll	161	203	251	304	213		
3000	At 50 ft AGL	272	340	417	502	355		
6000	Ground Roll	177	222	275	333	229		
8000	At 50 ft AGL	297	371	455	548	381		
7000	Ground Roll	194	244	301	365	246		
7000	At 50 ft AGL	324	405	496	598	409		
8000	Ground Roll	212	267	329	400	265		
8000	At 50 ft AGL	354	442	542	654	439		
0000	Ground Roll	232	293	361	438	285		
9000	At 50 ft AGL	387	484	593	715	472		
10000	Ground Roll	255	321	396	481	308		
10000	At 50 ft AGL	423	529	648	782	508		

## 8. TAKE-OFF RATE OF CLIMB

NOTE

To account for likely in service performance variations apply a factored to rate of climb of 0.90

Throttle Levers:Full Forward Flaps: Take-Off (15°)							
Weight	Pressure	Climb	Rate of Climb [ft/min]				
weight	Altitude	Speed V <sub>y</sub>		Tempera	iture [°C]	l	ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
	S.L.	67	1055	870	706	558	770
	2000	66	915	733	572	426	660
	4000	66	775	597	438	295	550
630	6000	65	636	461	305	164	441
030	8000	64	497	325	172	34	331
	10000	64	359	190	40	-96	221
	12000	63	221	56	-92	-226	112
	14000	63	84	-79	-224	-355	2
	S.L.	67	1182	987	814	657	881
	2000	66	1034	843	672	518	765
	4000	65	887	698	530	379	649
580	6000	65	739	555	390	241	533
360	8000	64	593	411	249	103	417
	10000	63	447	269	109	-34	302
	12000	63	301	126	-30	-171	186
	14000	62	156	-16	-169	-307	70
	S.L.	66	1331	1123	937	770	1009
	2000	66	1173	968	786	622	886
	4000	65	1015	815	635	474	762
530	6000	64	858	661	485	326	638
330	8000	64	702	508	335	179	515
	10000	63	546	356	186	33	391
	12000	63	391	204	37	-113	268
	14000	62	236	53	-111	-259	144



## 9. EN-ROUTE RATE OF CLIMB

NOTE

To account for likely in service performance variations apply a factored to rate of climb of 0.90

Throttle Levers:Full Forward Flaps: UP							
Weight	Pressure	Climb Speed	Rate of Climb [ft/min]				
vveigiit	Altitude	V <sub>Y</sub>		Tempera	ature [°C]	l	ISA
[kg]	[ft]	[KIAS]	-25	0	25	50	
	S.L.	71	1045	894	759	637	811
	2000	70	930	782	649	529	721
	4000	68	816	670	539	422	631
620	6000	67	702	558	430	314	541
630	8000	65	588	447	321	207	451
	10000	64	474	336	212	101	362
	12000	62	361	225	104	-5	272
	14000	61	249	115	-4	-111	182
	S.L.	71	1171	1011	869	740	924
	2000	69	1050	893	753	626	829
	4000	68	929	774	637	513	734
500	6000	66	808	657	521	399	639
580	8000	65	688	539	406	286	544
	10000	64	568	422	291	174	449
	12000	62	449	305	177	62	354
	14000	61	330	189	63	-50	259
	S.L.	71	1317	1147	995	858	1054
	2000	69	1188	1021	871	737	953
	4000	68	1059	895	748	616	852
F30	6000	66	931	769	625	495	751
530	8000	65	803	644	502	375	649
	10000	63	675	519	380	255	548
	12000	62	548	395	259	135	447
	14000	60	421	271	137	16	346



## 10. CRUISE PERFORMANCE



Propeller speed over 2265 RPM is restricted to 5min.

Weight:	= 630 kg						
			C	ORRECTIONS			
		KTAS	Fuel Endurance		Range	Specific Range	
For each +15°C of OAT			-2%	-2.5%	+2%	+1%	+1%
For each -15°C of OAT			+1%	+3%	-4%	-2%	-1%
For -100kg of weight			+3.3%	-	-	+3%	+4%
CRUISE PERFORMANCE							
Pressure Altitude [ft]	OAT ISA [deg C]	Propeller RPM	KTAS	Fuel Consumption [lt/hr]	Endurance [hr:mm]		
0	15	2388	120	25.8	4:40	562	4.64
		2250	110	21.3	5:40	624	5.16
		2100	99	17.4	7:00	689	5.70
		2000	92	15.3	7:50	725	5.99
		1900	85	13.7	8:45	748	6.18
		1800	78	12.5	9:40	751	6.21
	11	2388	118	24.1	5:00	593	4.90
2000		2250	108	20.0	6:00	653	5.40
		2100	98	16.6	7:20	712	5.89
		2000	90	14.8	8:10	740	6.12
		1900	83	13.4	9:00	752	6.22

6.15

12.4

9:45

743

1800

76



					•		
Weight	= 630 ka						
333,413			C	ORRECTIONS			
			KTAS	Fuel Consumption	Endurance	Range	Specific Range
For each +15°C of OAT			-2%	-2.5%	+2%	+1%	+1%
For each -15°C of OAT			+1%	+3%	-4%	-2%	-1%
For -100kg of weight			+3.3%	-	-	+3%	+4%
			CRUIS	E PERFORMANCI	<u> </u>		
Pressure Altitude [ft]	OAT ISA [deg C]	Propeller RPM	KTAS	Fuel Consumption [lt/hr]	Endurance Range [hr:mm] [nm]		Specific Range [nm/lt]
4000	7	2388	117	22.6	5:25	624	5.16
		2250	107	18.9	6:25	681	5.63
		2100	96	15.9	7:35	731	6.04
		2000	89	14.3	8:25	750	6.20
		1900	82	13.2	9:10	750	6.21
		1800	75	12.4	9:45	728	6.02
6000	3	2250	105	18.0	6:40	706	5.84
		2100	94	15.3	7:50	744	6.16
		2000	87	14.0	8:35	753	6.22
		1900	80	13.1	9:25	741	6.13
		1800	73	12.5	9:40	705	5.83
8000	-1	2250	103	17.2	7:00	726	6.01
		2100	93	14.9	8:05	752	6.22
		2000	85	13.8	8:45	748	6.19
		1900	78	13.1	9:10	723	5.98
10000	-5	2100	91	14.6	8:20	752	6.22
		2000	84	13.7	8:45	735	6.08
		1	l	1			1

5.77

698

9:05

13.3

1900

76



#### LANDING PERFORMANCE 11.



To account for likely in service performance variations apply a factored to distances of 1.67

## **Weight** = 630 kg

#### **Corrections**

Flaps: LAND **Short Final Approach Speed =** *54 KIAS*  **Headwind:** -4m for each kt (13 ft/kt) **Tailwind:** + 13m for each kt (43 ft/kt)

Throttle Levers: Idle

Paved Runway:-10% to Ground Roll

Runway: Grass Runway slope: -3% to Ground Roll for each +1%

Pressure		Distance [m]					
Altitude			ISA				
[ft]		-25	0	25	50	IJA	
S.L.	Ground Roll	149	164	179	194	173	
	At 50 ft AGL	358	373	388	403	382	
1000	<b>Ground Roll</b>	154	170	186	201	178	
	At 50 ft AGL	363	379	395	410	387	
2000	<b>Ground Roll</b>	160	176	192	209	183	
	At 50 ft AGL	369	385	401	418	392	
3000	<b>Ground Roll</b>	166	183	200	216	189	
3000	At 50 ft AGL	375	392	409	425	398	
4000	<b>Ground Roll</b>	172	190	207	225	195	
4000	At 50 ft AGL	381	399	416	434	404	
5000	<b>Ground Roll</b>	179	197	215	233	201	
3000	At 50 ft AGL	388	406	424	442	410	
6000	<b>Ground Roll</b>	186	205	223	242	207	
	At 50 ft AGL	395	414	432	451	416	
7000	<b>Ground Roll</b>	193	212	232	251	213	
	At 50 ft AGL	402	421	441	460	422	
8000	<b>Ground Roll</b>	200	221	241	261	220	
8000	At 50 ft AGL	410	430	450	470	429	
9000	<b>Ground Roll</b>	208	229	250	271	227	
9000	At 50 ft AGL	417	438	459	480	436	
10000	<b>Ground Roll</b>	217	238	260	282	234	
10000	At 50 ft AGL	426	447	469	491	443	

## 12. BALKED LANDING PERFORMANCE

NOTE

To account for likely in service performance variations apply a factored to rate of climband to angle of climb of 0.90

Throttle Levers: Full Forward Flaps: Take-Off (15°)

Speed: 60 KIAS

Speed: 60 KIAS											
Weight	Pressure		i	Rate of Climb [ft/min] (angle of climb [deg])							
	Altitude		Temperature [°C]					ISA			
[kg]	[ft]	-2	-25 0 25 50								
	S.L.	881	(9°)	750	(7°)	633	(6°)	528	(5°)	678	(6°)
	2000	781	(8°)	653	(6°)	538	(5°)	434	(4°)	600	(5°)
	4000	682	(6°)	556	(5°)	443	(4°)	341	(3°)	523	(5°)
630	6000	583	(5°)	459	(4°)	348	(3°)	248	(2°)	445	(4°)
030	8000	485	(4°)	363	(3°)	254	(2°)	156	(1°)	367	(3°)
	10000	387	(3°)	267	(2°)	160	(1°)	64	(0°)	289	(2°)
	12000	289	(2°)	171	(1°)	66	(0°)	-28	(0°)	211	(2°)
	14000	191	(1°)	76	(1°)	-27	(0°)	-120	(-1°)	133	(1°)

### NOISE DATA

Noise level, determined in accordance with ICAO/Annex 16 6<sup>th</sup> Ed., July 2011, Vol. I°, Chapter 10, is **69.83**dB(A).



INTENTIONALLY LEFT BLANK



# **SECTION 6 - WEIGHT AND BALANCE**

### **INDEX**

1.	INT	RODUCTION	3
2.	WE	IGHING PROCEDURES	3
	2.1.	Preparation	3
		Levelling	
		Weighing	
	2.4.		
	2.5.	Weighing record	5
		Weighing record (II)	
3.	WE	IGHTS AND C.G	7
4.	ВА	GGAGE LOADING	9
5.	FOI	IIIPMENT I IST	0



INTENTIONALLY LEFT BLANK



### 1. INTRODUCTION

This section describes the procedure for establishing the basic empty weight and the moment of the aircraft. Loading procedure information is also provided.



Aircraft must be operated in accordance with the limits concerning the maximum takeoff weight and CG excursion as reported in Flight Manual Section 2.

Pilot is responsible for checking the weight and CG excursion are compliant with the related limits. CG excursion and weight limits are reported in Section 2 – Limitations.

### 2. WEIGHING PROCEDURES

#### 2.1. PREPARATION

- Carry out weighing procedure inside closed hangar
- Remove from cabin any objects unintentionally left
- Insure Flight Manual and mandatory documents are on board
- Align nose wheel
- Drain fuel via the specific drain valve
- Oil, hydraulic fluid and coolant to operating levels
- Move sliding seats to most forward position
- Raise flaps to fully retracted position (0°)
- Place control surfaces in neutral position
- Place scales under each wheel

#### 2.2. LEVELLING

- Level the aircraft (the reference for longitudinal levelling is made putting a spirit-level on the cabin floor as shown in the Aircraft Maintenance Manual).
- If needed, adjust longitudinal attitude deflating nose tire

#### 2.3. WEIGHING

- Record weight shown on each scale
- Repeat weighing procedure three times
- Calculate empty weight



### 2.4. DETERMINATION OF C.G. LOCATION

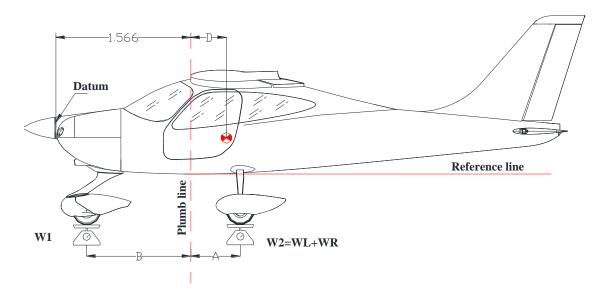
- Drop a plumb bob tangent to the wing leading edge and trace a reference mark on the floor (see Figure on Para. 2.5 or 2.6)
- Repeat the operation for other wing
- Stretch a taught line between the two marks
- Measure the distance between the reference line and both main and nose wheel axis (A and B distances respectively)
- Using recorded data it is possible to determine the aircraft C.G. location and the aircraft moment (see following table)



### 2.5. WEIGHING RECORD

Model **P2008 JC**S/N:\_\_\_\_\_\_ Weighing no. \_\_\_\_ Date:\_\_\_\_\_

Datum: Propeller Flange



	Kg or Lbs
Nose wheel weight	$\mathbf{W}_1 =$
LH wheel weight	$\mathbf{W}_{\mathrm{L}} =$
RH wheel weight	$W_R =$
$W_2 = W_L + W_R =$	

	Meters or feet
Plumb bob distance LH wheel	$A_L =$
Plumb bob distance RH wheel	$A_R =$
Average distance (A <sub>L</sub> + A <sub>R</sub> )/2	A =
Plumb bob distance from nose wheel	B =

Empty weight  $We = W_1 + W_2 =$  [kg] or [lbs]

$D = \frac{W_2 \cdot A - W_1 \cdot B}{We} =$	[m] or [Ft]	$D\% = \frac{D}{1.373 \ m \ (or \ 4.5 \ ft)} \cdot 100 =$
--	-------------	---

Empty weight moment:  $M = [(D+1.566) \cdot We] = [m \cdot kg]$  or [ft ·lbs]

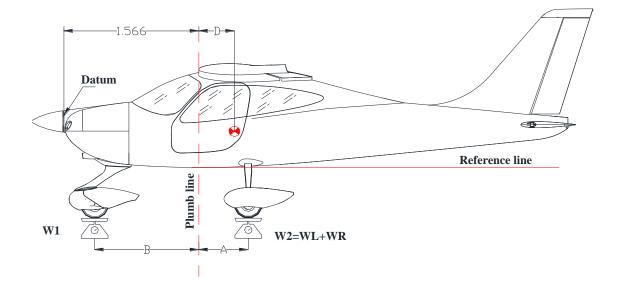
Maximum takeoff weight	$W_T = 630 \text{ Kg}$	(1388 lbs)	Signature
Empty weight	We =	[kg] or [lbs]	
Max. useful load W <sub>T</sub> - We	Wu =	[kg] or [lbs]	



# 2.6. WEIGHING RECORD (II)

Model **P2008 JC**S/N:\_\_\_\_\_\_ Weighing no. \_\_\_\_ Date:\_\_\_\_\_

Datum: Propeller Flange



	Kg or Lbs
Nose wheel weight	$\mathbf{W}_{1} =$
LH wheel weight	$W_L =$
RH wheel weight	$\mathbf{W}_{\mathrm{R}} =$
$W_2 = W_L + W_R =$	

	Meters or feet
Plumb bob distance LH wheel	$A_L =$
Plumb bob distance RH wheel	$A_R =$
Average distance (A <sub>L</sub> + A <sub>R</sub> )/2	A =
Plumb bob distance from nose wheel	B =

Empty weight  $We = W_1 + W_2 =$  [kg] or [lbs]

$D = \frac{W_2 \cdot A - W_1 \cdot B}{We} = [m] \text{ or } [ft]$	$D\% = \frac{D}{1.373 \ m \ (or \ 4.5 ft)} \cdot 100 =$
we	1.375  m  (or  4.5  ft)

Empty weight moment:  $M = [(D+1.566) \cdot We] = [m \cdot kg]$  or [ft ·lbs]

Maximum takeoff weight	$W_T = 630 \text{ Kg}$	(1388 lbs)	Signature
Empty weight	We =	[kg] or [lbs]	
Max. useful load W <sub>T</sub> - We	Wu =	[kg] or [lbs]	



### 3. WEIGHTS AND C.G.

In order to compute the weight and balance of this aircraft, the following loading charts are provided. To compute weight and balance use the formula:

Weight \* Arm = Moment.

Pilot&Passenger		
Weight(k	Мо-	
g)	ment	
	(kgm)	
10	18	
20	36	
30	54	
40	72	
50	90	
60	108	
70	126	
80	144	
90	162	
100	180	
110	198	
120	216	
130	234	
140	252	
150	270	
160	288	
170	306	
180	324	
190	342	
200	360	
210	378	
220	396	
230	414	

Fuel				
Li- ter	Weight (kg)	Mo- ment (kgm)		
10	7.2	15.91		
20	14.4	31.82		
30	21.6	47.74		
40	28.8	63.65		
50	36	79.56		
60	43.2	95.47		
70	50.4	111.38		
80	57.6	127.30		
90	64.8	143.21		
100	72	159.12		
110	79.2	174.95		
120	86.4	190.86		
124	89.3	197.26		

Baggage			
Weight(k g)	Mo- ment (kgm)		
5	12.05		
10	24.10		
15	36.15		
20	48.20		



	Meter	Inches
Pilot and PAX	1.800	70.90
FUEL	2.209	86.97
BAGGAGE	2.417	95.16

### To compute weight and balance:

- 1. Get moments from loading charts
- 2. Obtain the empty weight and moment from the most recent weight and balance
- 3. Insert the weights and the moments for fuel, occupants and baggage from the previous chart
- 4. Sum the weight and the moment columns
- 5. Divide the total moment by the total weight to get the arm
- 6. Check that the total weight does not exceed maximum gross weight of 630 Kg (1388 lb)
- 7. Check that the arm falls within the C.G. range

CoG Position Computation Chart					
	Weight (kg)	Arm (m)*	Moment (kg*m)		
EmptyWeight					
Fuel		2.209			
Pilot&Passenger		1.800			
Baggage		2.417			
Total <b>MOMENT</b>					
Total <b>WEIGHT</b>					
Distance "D"=MOMENT/WEIGHT					

\*ADD to the distance "D" the value 1.566m (62in)

Signature		



C.G.Range	Max FWD m	Max AFT m
	1.841	1.978

Max Weight	lbs	kg
	1320.00	630.00

Example						
	Weig	Arm		Moment		
	lbs	kg	in	m	lbs in	kg m
Empty	813.5	369.0	74.4	1.89	60533	697.4
Fuel	150.0	68.0	87.0	2.21	13052	150.4
Pax	300.0	136.1	70.9	1.80	21270 245.1	
Baggage	0	0	94.9	2.41	0 0	
Total	1263.5	573.1	75.1	1.91	94854	1092.8

In this example, the gross weight is under the max gross weight and the Arm or C.G. is within the C.G. range listed above.

### 4. BAGGAGE LOADING

The baggage loading in the dedicated compartment, behind the pilots' seats, must be carried out in accordance with C.G. excursion and weight limitations reported in Section 2.

Baggage must be uniformly distributed on compartment floor.

Pilot is provided with a red tie-down net and snap fasteners allowing for securing the loads on the compartment floor.



Loading the baggage, make sure that you correctly stretched the net which must be secured to the four vertices of the compartment.



### 5. EQUIPMENT LIST

The following is a comprehensive list of all TECNAM supplied equipment for the P2008 JC. The list consists of the following groups:

- A Engine and accessories
- B Landing gear
- C Electrical system
- D Instruments
- E Avionics

the following information describes each listing:

- > Part-number to uniquely identify the item type.
- ➤ Item description
- > Weight in kilograms
- > Distance in meters from Datum



Items marked with an asterisk (\*) are part of basic installation. Equipment marked with X in the Inst. column are those actually installed on board relative to aircraft S/N.



	P2008 JC EQUIPMENT LIST	DATE:			
RIF.	DESCRIPTION & P/N	Inst	WEIGHT [kg]	DATUM [mm]	Q.TY [N°]
	ENGINE & ACCESSORIES		•		
<b>A1</b>	GT Propellers GT-2/173/VRR-FW101 SRTC		6.0	-144	1
	Hoffmann Propellers – HO17GHM A 174 177C		6.84	-144	1
	MTV-34-1-A/170-202		10.0	-144	1
<b>A2</b>	Heat exchanger 28-10-8000-000	*	2.00	754	1
<b>A3</b>	Oil Reservoir (full) 956508 or 956137	*	4.00	760	1
A4	Oil radiator 886029 or 886032	*	0.50	25	1
<b>A5</b>	Liquid coolant radiator 995.697	*	1.50	129	1
<b>A6</b>	Air filter K&N 33-2544	*	0.40	315	1
<b>A7</b>	Electric Fuel pump 21-11-342-000 or 478360	*	1.20	764	1
<b>A8</b>	Thermostatic water valve 26-9-9100-000	*	0.35	316	1
<b>A9</b>	Thermostatic oil valve 26-9-9000-000	*	0.35	316	1
	LANDING GEAR AND ACCESSO	RIES			
B1	Main gear rims Cleveland 40-78B or Beringer RF-005(B) or Cleveland 199-102	*	2.05	2229	2
<b>B2</b>	Main gear tires Air Trac 5.00-5 or Michelin PAA02 (pn 071-311-C)	*	2.58	2229	2
В3	Disk brakes Cleveland 164-17 or Beringer EA-002N(A)	*	0.80	2229	2
<b>B4</b>	Nose gear wheel rim or Beringer RA002(B) or Cleveland 0101120 or Cleveland 4077C	*	1.30	418	1
<b>B5</b>	Nose gear tire Air Trac 5.00-5 or Goodyear 505T08-1	*	1.20	418	1
<b>B6</b>	Nose gear fairing 28-8-1110-1 / 28-8-1112-1	*	1.50	418	1
<b>B7</b>	Main gear fairing 92-8-410-1/2	*	1.50	2229	2
<b>B8</b>	Nose gear shock 28-8-500-000	*	1.45	770	1
	ELECTRICAL SYSTEM				
<b>C1</b>	Battery FIAMM 6H4P 12V 18Ah		4.70	1900	1
<b>C2</b>	Battery GILL-Teledyne G-25 12V 18Ah		9.53	1900	1
C3	Buffer Battery Sonnenschein A512/2 S	*	1.0	1900	2
<b>C3</b>	Battery relay 111-226-5	*	0.30	1900	1
<b>C</b> 4	Flaps actuator control 22-5-176-1	*	2.20	2206	1
C5	Trim actuator control BRISTOL SG B6-()	*	0.15	5818	1
<b>C6</b>	Overvoltage sensor Electrodelta OS75-14		0.30	772	1
	Overvoltage sensor LAMAR B-00289-2		0.30	772	1
<b>C7</b>	Aveo NAV/POS/Strobe AVE-WPST R/G-54G	*	0.20	2130	2
<b>C8</b>	Landing led light PLED1L		0.40	415	1
<b>C9</b>	Aveo Landing/Taxi Light AVE-H16MWSSNH-00A		0.40	415	1
C10	Landing led light Whelen 01-0771833-10		0.40	415	1



I

	P2008 JC EQUIPMENT LIST	DATE:			
RIF.	DESCRIPTION & P/N	INST	WEIGHT [kg]	DATUM [mm]	Q.TY [N°]
	Instruments				
<b>D1</b>	Altimeter Mikrotechna LUN 1128.12B6 TSO C10b		1.00	1084	1
D2	Airspeed ind Mikrotechna LUN 1116F2B2 TSO C2b		1.00	1084	1
D3	Compass – Airpath C2400 L4P – TSO C7c	*	0.29	1000	1
<b>D4</b>	Clock – DAVTRON mod. M 800	*	0.15	1084	1
<b>D5</b>	Slip Indicator SI-2Q		0.56	1084	1
<b>D6</b>	Attitude Indicator - RC Allen Instr. RCA26EK-12		1.30	1084	1
<b>D7</b>	Trim Position Ind. UMA N0911S0U2DR000()	*	0.20	1084	1
D8	Fuel Quantity Ind. Road GmbH ID31.2B35.21	*	0.45	1090	2
<b>D9</b>	RPM indicator Sorlini SOR 52		0.30	1084	1
D10	Oil temperature indicator Sorlini SOR 54S		0.30	1084	1
D11	CHT temperature indicator Sorlini SOR 53		0.30	1084	1
D12	Voltmeter Sorlini SOR 51S	*	0.30	1084	1
D13	G3X Display (LH + RH) - P/n 28-9-5090-000		1.60	1084	2
D14	G3X AHRS - P/n 28-9-5110-000		1.60	1900	1
D15	G3X Magnetometer - GMU 44	*	0.23	4697	1
D16	OAT probe - GTP 59	*	0.10	2060	1
D17	CT temperature indicator Sorlini SOR 59		0.30	1084	1
D18	Turn and slip coordinator MD 5550-8340N3L		0.63	1084	1
D19	Primary Flight Instrument Mid Continent MD302		0.73	1084	1
<b>D20</b>	G3X Touch Display GDU 460 (LH + RH)		2.10	1084	2
	AVIONICS AND OTHER				
<b>E</b> 1	Nav/Comm Garmin SL30 Pack and connectors		1.50	1084	1
<b>E2</b>	ELT Artex ME 406		1.10	1900	1
<b>E3</b>	Transponder Garmin GTX328		1.00	1084	1
<b>E4</b>	Audio panel Garmin GMA 340 or 345	*	0.50	1084	1
E5	Transponder Antenna Garmin 010-10160-00	*	0.17	985	1
<b>E6</b>	GPS Antenna Garmin GA-35		0.27	807	1
<b>E7</b>	Comm Antenna Comant Industries CI-121		0.34	4253	1
<b>E8</b>	ELT Antenna Kit Model ME 406		0.21	1900	1
<b>E9</b>	First Aid Kit	*	0.30	1800	1
E10	Fire Extinguisher H3Rs Halon RTA600		0.60	1800	1
E11	Garmin GNC 255A COM/NAV	*	1.80	1084	1
E12	Marker beacon Antenna Comant Industries CI 102	*	0.30	2917	1
E13	Nav Antenna Comant Industries CI-158C	*	0.30	5782	1
E14	Altitude Encoder ACK technologies ACK A30	*	0.35	975	1
E15	ELT Kannad 406 AF Compact or Integra		1.10	1900	1
E16	ELT Antenna ANT200		0.21	0.11	1
E17	Transponder Garmin GTX335		1.30	1084	1
E18	Transponder Antenna Comant industries CI 105		0.12	985	1



	P2008 JC EQUIPMENT LIST	DATE:			
RIF.	DESCRIPTION & P/N	Inst	WEIGHT [kg]	DATUM [ <i>mm</i> ]	Q.TY [N°]
E19	GPS Antenna Garmin GA-56		0.12	807	1
E20	COM Antenna Comant Industries CI291		0.34	4253	1
E21	ADC + ADAHRS Garmin GSU 25/25C		0.22	2410	1
E22	EIS Garmin GEA 24		0.32	1070	1
E23	Magnetometer Garmin GMU 22		0.16	3000	1
E24	GARMIN GTR 225A/B COM radio		1.39	1084	1
E25	COM Antenna Comant Industries CI 292-2		0.27	4000	1
E26	Fire Extinguisher Amerex A344		1.50	1800	1
E27	KN63 (DME Receiver)		1.27	2830	1
E28	KDI572 (DME Indicator)		0.36	1084	1
E29	CI105-16 (DME Antenna)		0.10	2917	1
E30	KR87 (ADF Receiver)		1.45	1084	1
E31	KI227 (ADF Indicator)		0.41	1084	1
E32	KA44B (ADF Antenna)		1.27	5027	1



INTENTIONALLY LEFT BLANK



## **SECTION 7 – AIRFRAME AND SYSTEMS DESCRIPTION**

# **INDEX**

1. INTRODUCTION	
2. AIRFRAME	
2.1. Wing	
2.2. Fuselage	
2.3. Empennages	3
2.4. Landing gear	4
3. FLIGHT CONTROLS	5
4. INSTRUMENT PANEL	6
4.1. Carburettor Heat	7
4.2. Cabin Heat	7
5. SEATS AND SAFETY HARNESS	9
6. DOORS	
7. POWERPLANT	10
7.1. ENGINE	
7.2. PROPELLER	
8. FUEL SYSTEM	11
9. ELECTRICAL SYSTEM	12
9.1. Stall Warning System	
9.2. Avionics	
9.3. External Power Supply	14
10. PITOT-STATIC PRESSURE SYSTEMS	15
11. BRAKES	16



### 1. INTRODUCTION

This section provides description and operation of the aircraft and its systems.

### 2. AIRFRAME

P2008 JC's airframe can be divided in the following main groups, as highlighted below on:

- 1) Wings
- 2) Fuselage
- 3) Empennage
- 4) Landing gear

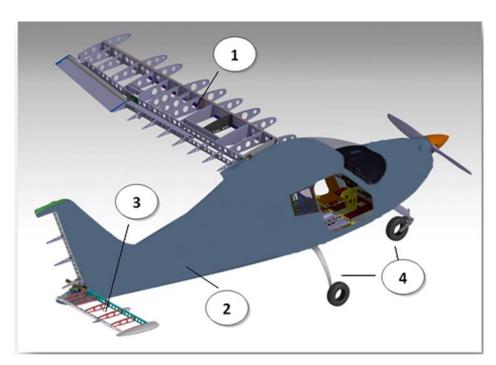


Fig. 7-1.P2008JC AIRFRAME

#### 2.1. WING

Each wing is connected to the fuselage by means of two bolt attachments and a single strut brace per side. The wings are made up of a central light alloy torsion box; a light alloy leading edge is attached to the front spar whereas the flap (slotted) and the aileron ("frise") are attached to a rear spar through two hinges each. The torsion box consists of a front and rear spar that represent its front and rear vertical walls; a series of ribs and wrap-around panels complete the structure. Front and rear spars are integrated with wing-fuselage attachment fittings.

The ailerons and flaps are made by an aluminium spar attached to a formed sheet metal leading edge and metal ribs; an aluminium skin surrounds the aileron structure.



#### 2.2. FUSELAGE

The P2008 JC fuselage is mainly made by carbon fibres composite materials. The fuselage is made by two main shells that are later assembled bonding the two main bodies and the floor (composite) and adding aluminium stiffeners that allow the connection of the main landing gear, seats, wing and instrument panel. In this context the fuselage and vertical fin are a unique body.

### 2.3. EMPENNAGES

The horizontal tail is an all-moving type; the stabilizer and elevator form a single uniform plane called stabilator that rotates to the desired pitch setting. The stabilator structure is made-up by an aluminium spar (1) and ribs (2). Aluminium skin panels are riveted to the above elements (3).

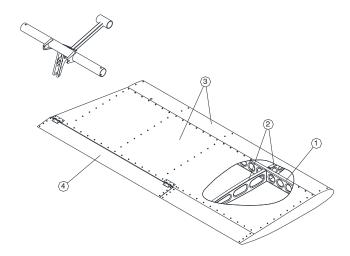


Fig. 7-2.STABILATOR STRUCTURE

A trim tab (4) provides stick force adjustment and longitudinal compensation.

The rudder structure is made-up by a single aluminium spar and ribs. Aluminium skin panels are riveted to the above elements. At the lower hinge a bellcrank is connected for the movement transmission.

#### 2.4. LANDING GEAR

The main landing gear (see Figure 7-3) consists of two special steel leaf-springs positioned crossways to the fuselage.

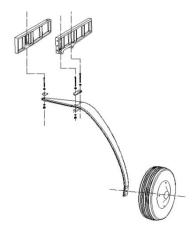


Fig. 7-3. Main Landing Gear structure

The steel leaf-springs are attached to the fuselage structure via two couples of machined aluminium beams.

Wheels are cantilevered on gear struts and feature hydraulically actuated disc brakes controlled by toe.

A Pivoting nose gear is attached to the firewall reinforcement plate. The Hydraulic shock absorber is fitted on the upper machined component and directly on the nose landing gear structure.

In the following figure is shown:

- 1) Hydraulic shock absorber
- 2) Firewall
- 3) Nose wheel

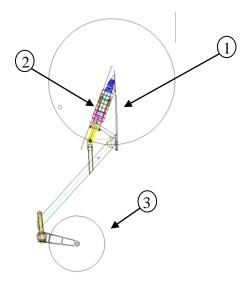


Fig. 7-4. Nose Landing Gear structure



### 3. FLIGHT CONTROLS

Aircraft flight controls are operated through conventional stick and rudder pedals. Longitudinal control acts through a system of push-rods and is equipped with a trim tab. 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. Aileron trimming is carried out on ground through a small tab positioned on left aileron.

Flaps are extended via an electric servo actuator controlled by a switch on the instrument panel. Flaps act in continuous mode; the indicator displays three markings related to  $0^{\circ}$ , takeoff (T/O) and landing (FULL) positions. A breaker positioned on the right side of the instrument panel protects the electric circuit.

Longitudinal trim is performed by the trim tab located on the stabilator through an electric actuator controlled by the pilot or co-pilot by a switch located on the control stick, another switch on the instrument panel, gives full authority to pilot or co-pilot control switch. An analogue trim indicator provides information about the surface position. In case of a trim control runaway a trim disconnect switch is available on the instrument panel.



### 4. INSTRUMENT PANEL

The instrument panel is divided in four areas:

- The left area holds primary (analogue) and pilot's situational awareness (G3X LH display) flight instruments, a chronometer and the pitch trim indicator;
- The right area holds engine and moving map indicator (G3X RH display), an analogue backup CHT indicator and breaker panel;



Analogue CHT is a backup for the information provided by G3X. Since the pick-up location for the sensors is different (cylinder 2 and 4 respectively), analogue CHT could indicate a temperature up to 20° less than the G3X.

- The central area holds Nav/Com instrument, the transponder, warning lights, trim cut out switch and Trim LH/RH selector switch and the annunciator panel with following lights:
  - ➤ Electric fuel pump ON (GREEN)
  - ➤ Low Oil Pressure (RED)
  - ➤ Low Fuel Pressure (RED)
  - ➤ Alternator Fail (AMBER)
  - ➤ Pitot heat operation lights (GREEN/AMBER) optional
- The lower-LH portion of the instrument panel holds:
  - > Ignition key;
  - Master and Generator switches;
  - > Emergency fuel pump;
  - > Avionic Master switch;
  - ➤ Pitot heat switch (optionally provided);
  - > Carburetor heat knob;
- The lower-Central portion of the instrument panel holds:
  - > Throttle;
  - > Two analogue fuel quantity indicators;
  - > Fuel selector valve.
- The lower-RH portion of the instrument panel holds:
  - Flap indicator and control;
  - > Cabin heating knob;
  - NAV, land and strobe switches.



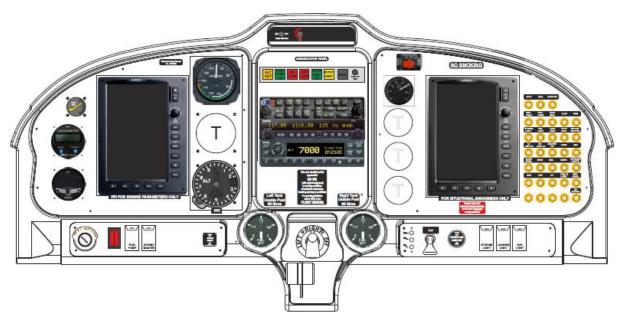


Fig. 7-5. Instrument Panel

#### 4.1. CARBURETTOR HEAT

Carburettor heat control knob is located lower-LH portion of the instrument panel; when the knob is pulled fully outward from the instrument panel, carburettors receive maximum hot air. During normal operation, the knob is set in OFF position.

### 4.2. CABIN HEAT

The cabin heat control knob is positioned on the lower right side of the instrument panel; when knob is pulled fully outward, cabin receives maximum hot air. If the outlets are kept closed, hot air only performs windshield defrost. Vents are located by the rudder pedals. If necessary, outside fresh air can be circulated inside cabin by opening the vents on the doors' windows.



INTENTIONALLY LEFT BLANK



### **5. SEATS AND SAFETY HARNESS**

Aircraft features three fitting point for safety belts equipped with waist and shoulder harnesses adjustable via sliding metal buckle.

Seats are built with light alloy tube structure and synthetic material cushioning. A lever located on the right lower side of each seat allows for seat adjustment according to pilot size.

### 6. DOORS

Two doors are provided for P2008 JC, on Pilot and co-pilot side. A sketch of the door is shown below (RH and LH doors are specular):

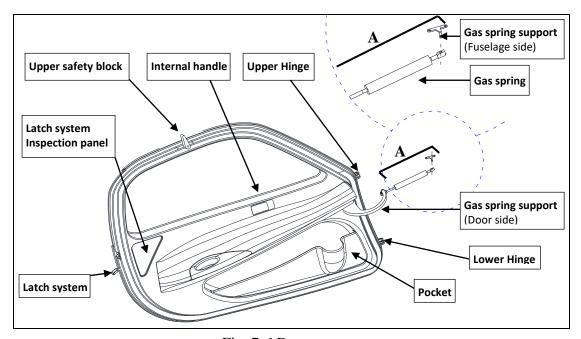


Fig. 7-6.Door

The door is equipped with a gas spring fixed to the fuselage that facilitates door opening.



### 7. POWERPLANT

#### 7.1. ENGINE

**Manufacturer:** Bombardier-Rotax GmbH

**Model:** *ROTAX 912 S2* 

**Type:** 4 stroke, horizontally-opposed 4 cylinder, mixed air and

water cooled, twin electronic ignition, forced lubrication.

**Maximum rating:** 98.6hp (73.5kW) @ 5800 rpm/min (2388 rpm/min. prop).

Gear reduction ratio - 2.4286:1

Max oil consumption: Max: 0.1 litres/hour

### 7.2. PROPELLER

**Manufacturer:** *GT Propellers* 

**Model:** *GT-2/173/VRR-FW101 SRTC* 

 $N^{\circ}$  of blades: 2

**Diameter:** 1730 mm (no reduction permitted)

**Type:** wood, fixed pitch



### 8. FUEL SYSTEM

The fuel system is designed to supply the reciprocating engine (Bombardier-Rotax 912 S2) with the suitable flow rate and pressure according to engine limitations required by Rotax.

Following figure shows the fuel system assy of P2008JC airplane.

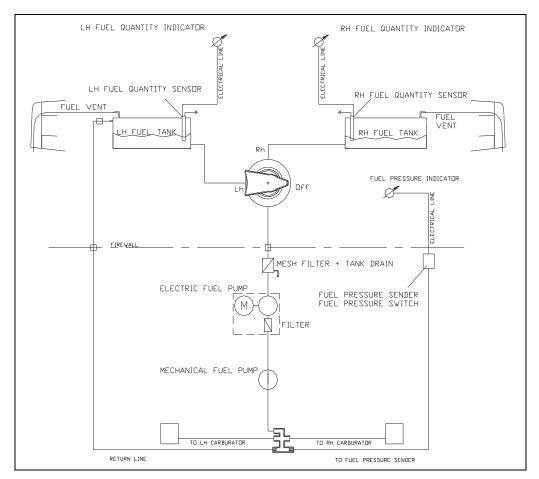


Fig.7-7. FUEL SYSTEM SCHEMATIC

Each fuel tank is integrated within the wing ribs box. The capacity of each tank is 62 liters for a total of 124 liters.

The internal side of fuel tank is accessible for inspection through two dedicated doors.

The fuel tank filler cap is located on the top of the wing, in the area outside of the tank and it is easily accessible from the leading edge of the aircraft. At the lowest point of the tank it is positioned a drain sump.

The engine is equipped with an engine gear pump, mechanical (primary). An additional auxiliary electrical fuel pump is provided (auxiliary).

The fuel selector is operated by a fuel selector control knob located in the cabin on the central panel. The fuel selector control and the fuel valve are connected via a rigid control rod.



### 9. ELECTRICAL SYSTEM

Primary DC power is provided by an external alternator with a 14 VDC output, rated to 40 Amps @ 5800 rpm. During normal operations, it recharges the battery.

Secondary DC power is provided by a battery (Main) which provides the energy necessary for feeding the essential electrical loads in the event of a alternator failure.

A second battery, activated only during engine start-up is installed; this is intended to act as a buffer battery during engine start-up, but it can provide additional electrical power in the event of an alternator failure or of a total loss of electrical system. This battery is enabled by the master switch and is only connected to the G3X units. It is installed beside the main battery and is housed in a dedicated box.

The switch between the energy sources (alternator and main battery) is automatic and no action is required in order to activate the alternate energy source.

For ground maintenance and/or starting, an external power socket is provided.

The alternator and battery are connected to the battery bus in order to provide energy for the electric equipment.

Each electrically fed instrument is connected to a dedicated circuit breaker which protects the cable from the battery bus to the associated electric equipment.



If the Ignition is in the position L, R, or BOTH, an accidental movement of the propeller may start the engine with possible danger for bystanders.

### 9.1. STALL WARNING SYSTEM

The aircraft is equipped with a stall warning system consisting of a sensor located on the right wing leading edge connected to a warning horn located near the instrument panel.



#### 9.2. AVIONICS

The avionic system installed P2008 JC features four analogue indicators, an airspeed indicator, an altimeter, a magnetic compass and a slip indicator, which provide primary flight information.

Garmin G3X integrated avionic suite in a dual screen configuration is installed. It provides flight information intended for the pilot's situational awareness only. The suite provides primary engine information, except fuel quantity information which is provided by two dedicated analogue indicators located in the bottom central instruments panel, supplemented by an annunciator panel and analogue CHT indicator. G3X also embodies a GPS WAAS receiver whose information, intended for situational awareness only, are presented on RH display moving map.

Two dedicated indicators provide the pilot with information about the flaps and pitch trim position.

Stand-alone external COM/NAV and transponder sources (Garmin SL 30 and GTX 328) are installed. Garmin SL 30 Navigation information is presented on the display (course and direction) along with the information related to active/standby frequency. This information is supplemented by an HSI indicator on G3X LH display.

GTX 328 transponder provides SSR (Secondary Surveillance Radar) responses; this unit is capable of both mode "S" and mode "C". An external altitude encoder (ACK A-30) allows altitude reporting, this information is also presented on GTX 328 display.

An automatic reversion mode is integrated within the system in order to continue providing the pilot with the flight and engine information in the event of a LH or RH display failure.

Four warning lights located on the top centre area of the instrument panel are available:

- ➤ Electric fuel pump ON (GREEN)
- ➤ Low Oil Pressure (RED)
- ➤ Low Fuel Pressure (RED)
- Alternator Fail (AMBER)

Two additional annunciator lights are installed when pitot heat system is optionally provided:

- ➤ Pitot heat ON (GREEN)
- ➤ Pitot heat fail (AMBER)



### 9.3. EXTERNAL POWER SUPPLY

On the right side of the tail cone, an external power is present. Using this device it is possible to feed the electric system directly on the bus bar, by an external power source. It should be used at the engine start-up in cold weather condition. For engine start below -17°C OAT it is advisable to use the external power source.

Follow this procedure to start the engine using the external power source.

- 1. Magnetos, Master switch, Generator switch: OFF
- 2. Open the receptacle door and insert the external power source's plug into the socket
- 3. Engine start-up procedure (see Sect. 4 in this manual)
- 4. Disconnect the external power source's plug and close firmly the receptacle door.



#### PITOT-STATIC PRESSURE SYSTEMS 10.

The P2008 JC air speed/altitude indicating systems are connected with a Pitot-Static system based on a total pressure/Pitot probe (simple Pitot tube) mounted on left wing strut and two static pressure ports connected in parallel and located in correspondence of engine firewall on left and right side of fuselage. Flexible plumbing connects total pressure and static ports to primary analogue instruments, anemometer and altimeter.

Garmin G3X ADAHRS (GSU73) unit, installed on the rear of the fuselage near the battery, acts as an air data computer for Garmin G3X suite, it is connected to both static and total pressure lines providing on that suiteboth air speed and altitude information.

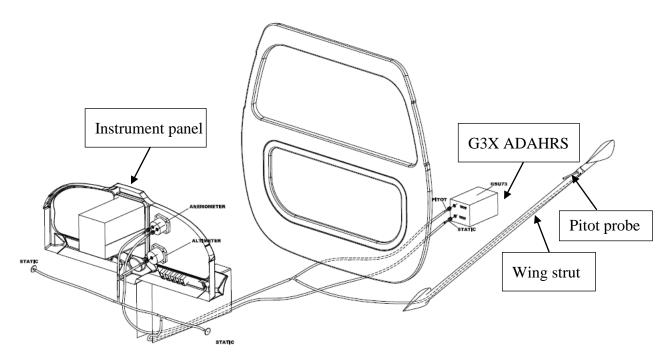


FIG.7-8. PITOT-STATIC SYSTEM



### 11. BRAKES

The P2008 JC is provided with an independent hydraulically actuated brake system for each main wheel. A master cylinder is attached to each pilot's rudder pedal. Hydraulic pressure, applied via the master cylinders, enters the brake via lines connected to the 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 pressurized by toe brakes, to hold the brake assemblies linings tightened round the main wheels brake discs. Brakes can be operated from either 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.

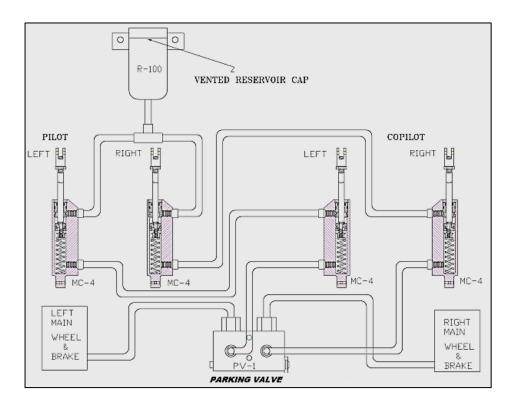


FIG. 7-9. BRAKE SYSTEM SCHEMATIC

If MOD2008/124 is embodied, the brake system is composed by two brake pumps MC-5 on pilot's side and two MC-4 on co-pilot's side. The oil reservoir is contained in the pilot's brake pumps.

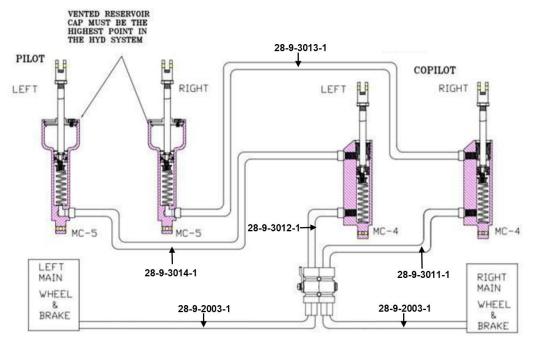


FIG. 7-10. BRAKE SYSTEM SCHEMATIC (MOD2008/124)



INTENTIONALLY LEFT BLANK



# SECTION 8 - GROUND HANDLING & SERVICE

# INDEX

1.	Introduction	2
2.	Aircraft Inspection Intervals	3
3.	Aircraft Changes or Repairs	4
4. 4.1 4.2 4.3	Maintenance	5 5
5. 5.1 5.2	Engine Cowling Check Upper cowling Lower Cowling	6
6. 6.1 6.2 6.3 6.4 6.5	Ground Handling	7 7 8
7. 7.1 7.2 7.3 7.4 7.5	Cleaning And Care	9 9 9
8.	Ice removal10	)



### 1. INTRODUCTION

This section contains factory-recommended procedures for proper ground handling and routine care and servicing. It also identifies certain inspection and maintenance requirements.

It is recommended to follow a planned schedule of lubrication and preventive maintenance based on climatic and flying conditions encountered locally.



# AIRCRAFT INSPECTION INTERVALS

Scheduled inspections must be performed in accordance with the instructions addressed on the Aircraft Maintenance Manual. Independently from the aircraft flight hours, an annual inspection has to be performed.

All required inspections are reported in the Aircraft Maintenance Manual.

As far as the scheduled/unscheduled engine maintenance is concerned, refer to the engine manufacturer Maintenance Manual.



Unscheduled inspections/maintenance tasks are necessary when one or more of following conditions occur:

- 1. Emergency landing
- 2. Breaking / damage of propeller (or in case of simple impact)
- 3. Engine fire
- 4. Lighting damage
- 5. Any type of damage or failure



# 3. AIRCRAFT CHANGES OR REPAIRS

Aircraft changes or repairs must be performed in accordance with Aircraft Maintenance Manual and Job cards provided by TECNAM.



# MAINTENANCE

### 4.1 Refueling

- Do not perform aircraft refuelling near flames, sparks or similar.
- Avoid fuel contact with the skin: a skin corrosion could occur.
- Make sure that a fire extinguisher is available nearby during refuelling operations.



- Make sure that overall aircraft instrumentation is turned OFF before performing the refuelling.
- Do not operate switches and/or pushbuttons inside the aircraft during refuelling operation; make sure that crew left the aircraft before performing refuelling.
- *Make sure that the aircraft is electrically connected to the ground.*

### 4.2 OIL LEVEL CONTROL

- 1. Open the engine cowling (RH)
- 2. Prior to oil check, switch off ignition circuit and turn the propeller by hand in direction of engine rotation several times to pump oil from the engine into the oil tank, or let the engine idle for 1 minute. 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.
- 3. Clean the dipstick and soak it in the reservoir
- 4. Remove dipstick and read oil level
- 5. If required, replenish oil: oil level should be between max. and min. Marks shown on thedipstick
- 6. Close the engine cowling

### 4.3 LANDING GEAR TIRES PRESSURE CONTROL

## For each wheel proceed as follows:

- 1. Remove wheel fairing
- 2. Unscrew the tire cap
- 3. Connect a gauge
- 4. Read the pressure value
- 5. If required, rectify the pressure (nose tire 2.2 Bar / 32 Psi, main landing gear tires 2.8 Bar / 40 Psi)
- 6. Fit the tire cap
- 7. Install wheel fairing



# ENGINE COWLING CHECK

# 5.1 Upper cowling

I. Parking brake: *ON* 

II. Fuel selector valve: *OFF* 

III. Magnetos: OFF

IV. Generator & Master switches: OFF

- V. Unlatch all four butterfly Cam-locks mounted on the cowling by rotating them 90° counter clockwise while slightly pushing inwards.
- VI. Remove engine cowling paying attention to propeller shaft passing through nose.
- VII. To assemble: rest cowling horizontal insuring proper fitting of nose base reference pins.
- VIII. Secure latches by applying light pressure, check for proper assembly and fasten Cam-locks.



Butterfly Cam-locks are locked when tabs are horizontal and open when tabs are vertical. Verify tab is below latch upon closing.

### 5.2 LOWER COWLING

- I. After disassembling upper cowling, move the propeller to a horizontal position.
- II. Using a standard screwdriver, press and rotate 90° the two Cam-locks positioned on lower cowling by the firewall.
- III. Disconnect the ram-air duct from the NACA intake. Pull out the first hinge pin positioned on the side of the firewall, then, while holding cowling, pull out second hinge pin; remove cowling with downward motion.
- IV. For installation follow reverse procedure.



# 6. GROUND HANDLING

#### 6.1 Towing

The aircraft is most easily and safely maneuvered by hand by pushing on wing struts near attachments or by pulling it by its propeller near the axle. A tow bar can be fixed onto nose gear fork. Aircraft may be steered by turning rudder or, for steep turns, by pushing lightly on tail cone to lift nose wheel.

#### 6.2 PARKING AND TIE-DOWN

#### General

Under normal weather conditions, the airplane may be parked and headed in a direction that will facilitate servicing without regard to prevailing winds. Ensure that it is sufficiently protected against adverse weather conditions and present no danger to other aircraft.

#### **Procedure**

- 1. Position airplane on levelled surface, headed into the prevailing wind, if practical.
- 2. Engage parking brake
- 3. Secure pilot control stick by wrapping the seat belt around it



Do not engage the parking brakes at low ambient temperature, when an accumulation of moisture may cause the brakes to freeze, or when they become hot from severe use. In this case use wheel chocks.

In case of long time parking or overnight parking, it is recommended to moor the a/c as shown on Para.6.3.



Mooring is strongly recommended when the wind is more than 15 knots and the a/c is completely refuelled.



### 6.3 Mooring

The aircraft is moored to insure its immovability, protection, and security under various weather conditions.



Mooring is strongly recommended when the wind is more than 15 knots and the a/c is completely refuelled.

#### **Procedure**

- 1. Position airplane on levelled surface and headed into the prevailing wind, if practical
- 2. Centre nose wheel and engage parking brake and/or use the wheel chocks



Do not engage the parking brakes at low ambient temperature, when an accumulation of moisture may cause the brakes to freeze, or when they become hot from severe use. In these cases use wheel chocks.

- 3. Secure pilot control stick by wrapping the seat belt around it
- 4. Assure that flaps are retracted
- 5. Electrically ground airplane, by connecting ground cable to the engine muffle
- 6. Install control locks
- 7. Install protective plugs
- 8. Close and lock cabin doors.
- 9. Secure tie-down cables to the nose gear leg (and to the wings (in correspondence of wing struts) and tail cone tie-down rings at approximately 45 degree with respect to the ground.



Additional preparation for high winds includes tie-down ropes from the main landing gear employment.

### 6.4 JACKING

The aircraft can be lifted up by hydraulic jacks in correspondence of the points shown by external placards.

For the correct procedure please refer to the Maintenance Manual.

### 6.5 ROAD TRANSPORT

It is recommended to secure tightly all aircraft components onto the cart to avoid damage during transport. Minimum cart size is 7x2.5 meters. It is suggested to place wings under the aircraft's bottom, secured by specific clamps. Secondary components like the stabilator shall be protected from accidental hits using plastic or other material. For correct rigging and de-rigging procedure, refer to the Maintenance Manual.



# CLEANING AND CARE



Aircraft surface must be kept clean to ensure expected flight performance. Excessively dirty surfaces can affect normal flight conditions.

#### 7.1 WINDOWS

For windows cleaning, it is allowed the use of acrylic products employed for glass and Plexiglas surfaces cleaning.

# 7.2 EXTERNAL SURFACES

Aircraft surface is cleaned with soapy water; they are not allowed solvents or alcohol based products. Died insects must be removed using hot water.

It is advisable to avoid outside aircraft parking for long periods; it is always convenient to keep the aircraft in the hangar.

# 7.3 Propeller

To preserve its functionality avoiding wear and corrosion, the propeller manufacturer uses, for external surface painting, an acrylic paint which is resistant to all solvents. In any case it is advisable to clean the propeller using exclusively soapy water.

#### 7.4 ENGINE

Engine cleaning is part of the scheduled maintenance. Refer to the engine manufacturer Maintenance Manual for operating and for planning its cleaning.

## 7.5 INTERNAL SURFACES

Interiors must be cleaned with a rate of 3 to 6 months. Any object present in the cabin (like pens, lost property, maps etc) must be removed.

The instrumentation as a whole must be cleaned with a humid cloth; plastic surfaces can be cleaned with suitable products.

For parts not easily accessible, perform cleaning with a small brush; seats must be cleaned with a humid cloth.



# 8. ICE REMOVAL

Anti icing products are not allowed. To remove ice, tow the aircraft in the hangar and operate with a soft brush or a humid cloth.



# **SECTION 9 – AFM Supplements**

# **INDEX**

1.	Introduction	2
2	Sunnlements list	7



# 1. Introduction

This Section concerns the supplemental manuals of additional (or optional) instrumentation equipping the *P2008JC* and/or information and limitations related to installed equipment configuration or needed to fit local national rules.



# 2. SUPPLEMENTS LIST

Aircraft S/N: Registration marks: Date:						
	SUPPLEMENTS LIST FOR P2008 JC					
Sup.	m.,		D-4-	APPLICABLE:		
No.	Title	Rev. no.	Date	YES	NO	
S1	VFR Night equipment configuration	2				
S2	AveoMaxx Hercules Landing/Taxi lights	1				
<b>S</b> 3	Hoffman propeller	2				
S4	MTOW increment at 650 kg	1				
S5	Argentine AFMS	0				
S6	Aircraft Flight Manual Supplement for MOGAS MG95 IS 2796:2008	0				
S7	MTOW increment at 650 kg for airplane equipped with Hoffmann propeller	3				
<b>S</b> 8	MD302 and G3X Touch	2				
S9	MTV 34 Propeller for aircraft with MTOW Increment at 650 kg	2				
S10	GARMIN GTX 335 Transponder	0				
S11	KR87 ADF System	0				
S12	GARMIN GTR 225A/B	1				
S13	AFM Supplement for China	0				
S14	Garmin G3X Touch (VFR Day)	1				



INTENTIONALLY LEFT BLANK



# **SUPPLEMENT NO.S1 VFR NIGHT EQUIPMENT CONFIGURATION**

# **Record of Revisions**

Darr	Revised	Revised Description of	Tecnam Approval			EASA Approval or	
Rev	page	Revision	DO	OoA	HDO	Under DOA Privileges	
0	All	Editorial revision	A. Sabino	C. Caruso	M. Oliva	DOA Approval	
	Cover pages	Rearranged					
1	2N-1 thru 18, 23, 24, 27, 29, 30 3N-2, 3, 4, 8, 9, 12 thru 21, 23, 24 7N-2, 3, 4, 5, 9, 10, 11, 12, 17, 18	Pages removed, information already contained in basic AFM	A. Sabino	A. Sabino	C. Caruso	M. Oliva	Approved under the authority of DOA, ref. EASA.21J.335
	3N-1	Index of Section 3 amended				(MOD2008/103.180312)	
	3N-6, 7, 22	Content rearranged					
	4N-3, 4	Information added to normal operations speeds table; paragraph shifted from page 3 to page 4.					
	4N-11 thru 18	Checklist amended					
2	S1-1	LOEP correction	A. Sabino	D. Ronca	M. Oliva	Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/113.190404)	

# **List of Effective Pages**

	Page	Revision
Cover Pages	S1-1	Rev 2
	S1-2 thru 10	Rev 1
Section 2	2N-19 thru 22, 25, 26, 28,	Rev 0
Section 3	3N-5, 10, 11	Rev 0
	3N-1, 6, 7, 22	Rev 1
Section 4	4N-3	Rev 1
Section 7	7N-1, 6 thru 8, 13	Rev 1



# INTRODUCTION

The information contained herein supplements or supersedes the basic Aircraft Flight Manual: detailed instructions are provided to allow the owner for replacing the basic AFM pages containing information amended as per the VFR Night Equipment Configuration in subject.

It is the owner's responsibility to replace the mentioned pages in accordance with the instructions herein addressed section by section.



# SECTION 1 -GENERAL

Refer to Basic AFM Section 1.



# **SECTION 2 – LIMITATIONS**

Follow replacing instructions contained in the table below.

Supplement pages		AFM Pages
2N-19 thru 22	REPLACE	Page 2-19 thru 22 of basic AFM
2N-25 thru 26	REPLACE	Page 2-25 thru 26 of basic AFM
2N-28	REPLACES	Page 2-25 thru 28 of basic AFM

#### 20. KINDS OF OPERATION EQUIPMENT LIST (KOEL)

This paragraph reports the KOEL table, concerning the equipment list required on board under CS-VLA regulations to allow flight operations in VFR Day and VFR Night.

Flight in VFR Day and Night is permitted only if the prescribed equipment is installed and operational.



VFR NIGHT operation is limited to airfields providing centre line illumination.

Additional equipment, or a different equipment list, for the intended operation may be required by national operational requirements and also depends on the airspace classification and route to be flown. The owner is responsible for fulfilling these requirements.



Primary flight information (airspeed, altitude, heading and attitude) is provided by analogue instruments. All information provided by G3X is only intended for situational awareness.

ANALOGUE ALTIMETER ANALOGUE AIRSPEED INDICATOR ANALOGUE AIRSPEED INDICATOR  MAGNETIC DIRECTION INDICATOR ANALOGUE ATTITUDE INDICATOR ANALOGUE FUEL QUANTITY INDICATORS ANALOGUE GUEL QUANTITY INDICATORS ANALOGUE CHT INDICATOR ANALOGUE RPM INDICATOR ANALOGUE PM INDICATOR ANALOGUE OIL TEMPERATURE INDICATOR ANALOGUE VOLTMETER GARMIN G3X SUITE  TRANSPONDER ALTITUDE ENCODER SLIP INDICATOR LONGITUDINAL TRIM INDICATOR FLAP POSITION INDICATOR COMM/NAV EQUIPMENT AUDIO PANEL/MARKER BEACON LANDING/TAXI LIGHT STROBE LIGHTS NAV LIGHTS ANNUNCIATOR PANEL BREAKERS PANEL BREAKERS PANEL STALL WARNING SYSTEM FIRST AID KIT HAND-HELD FIRE EXTINGUISHER ELT PITOT HEAT TORCH (WITH SPARE BATTERIES) PANEL LIGHTS EMERGENCY LIGHT DIMMING DEVICES DAY/NIGHT SWITCH	Equipment	VFR Day	VFR Night
MAGNETIC DIRECTION INDICATOR ANALOGUE ATTITUDE INDICATOR ANALOGUE FUEL QUANTITY INDICATORS ANALOGUE FUEL QUANTITY INDICATORS ANALOGUE CHT INDICATOR ANALOGUE RPM INDICATOR ANALOGUE OIL TEMPERATURE INDICATOR ANALOGUE VOLTMETER GARMIN G3X SUITE TRANSPONDER ALTITUDE ENCODER SLIP INDICATOR LONGITUDINAL TRIM INDICATOR FLAP POSITION INDICATOR COMM/NAV EQUIPMENT AUDIO PANEL/MARKER BEACON LANDING/TAXI LIGHT STROBE LIGHTS NAV LIGHTS ANNUNCIATOR PANEL BREAKERS PANEL STALL WARNING SYSTEM FIRST AID KIT HAND-HELD FIRE EXTINGUISHER ELT PITOT HEAT TORCH (WITH SPARE BATTERIES) PANEL LIGHTS EMERGENCY LIGHT DIMMING DEVICES	ANALOGUE ALTIMETER	•	•
ANALOGUE ATTITUDE INDICATOR ANALOGUE FUEL QUANTITY INDICATORS ANALOGUE FUEL QUANTITY INDICATORS ANALOGUE CHT INDICATOR ANALOGUE RYM INDICATOR ANALOGUE OIL TEMPERATURE INDICATOR ANALOGUE VOLTMETER GARMIN G3X SUITE  TRANSPONDER ALTITUDE ENCODER SLIP INDICATOR LONGITUDINAL TRIM INDICATOR FLAP POSITION INDICATOR COMM/NAV EQUIPMENT AUDIO PANEL/MARKER BEACON LANDING/TAXI LIGHT STROBE LIGHTS NAV LIGHTS ANNUNCIATOR PANEL BREAKERS PANEL STALL WARNING SYSTEM FIRST AID KIT HAND-HELD FIRE EXTINGUISHER ELT PITOT HEAT TORCH (WITH SPARE BATTERIES) PANEL LIGHTS EMERGENCY LIGHT DIMMING DEVICES	ANALOGUE AIRSPEED INDICATOR	•	•
ANALOGUE FUEL QUANTITY INDICATORS  ANALOGUE CHT INDICATOR  ANALOGUE RPM INDICATOR  ANALOGUE OIL TEMPERATURE INDICATOR  ANALOGUE VOLTMETER  GARMIN G3X SUITE  TRANSPONDER  ALITITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •  •  •  •  •  •  •  •  •  •  •  •  •	MAGNETIC DIRECTION INDICATOR	•	•
ANALOGUE CHT INDICATOR ANALOGUE RPM INDICATOR ANALOGUE RPM INDICATOR ANALOGUE OIL TEMPERATURE INDICATOR ANALOGUE VOLTMETER GARMIN G3X SUITE  TRANSPONDER ALTITUDE ENCODER SLIP INDICATOR LONGITUDINAL TRIM INDICATOR LONGITUDINAL TRIM INDICATOR COMM/NAV EQUIPMENT AUDIO PANEL/MARKER BEACON LANDING/TAXI LIGHT STROBE LIGHTS NAV LIGHTS ANNUNCIATOR PANEL BREAKERS PANEL STALL WARNING SYSTEM FIRST AID KIT HAND-HELD FIRE EXTINGUISHER ELT PITOT HEAT TORCH (WITH SPARE BATTERIES) PANEL LIGHTS EMERGENCY LIGHT DIMMING DEVICES	ANALOGUE ATTITUDE INDICATOR		•
ANALOGUE RPM INDICATOR  ANALOGUE OIL TEMPERATURE INDICATOR  ANALOGUE VOLTMETER  GARMIN G3X SUITE  TRANSPONDER  ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES   •  •  •  •  •  •  •  •  •  •  •  •	ANALOGUE FUEL QUANTITY INDICATORS	•	•
ANALOGUE OIL TEMPERATURE INDICATOR  ANALOGUE VOLTMETER  GARMIN G3X SUITE  TRANSPONDER  ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  I	ANALOGUE CHT INDICATOR	•	•
ANALOGUE VOLTMETER  GARMIN G3X SUITE  TRANSPONDER  ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  I   O  O  O  O  O  O  O  O  O  O  O  O  O	ANALOGUE RPM INDICATOR	•	•
GARMIN G3X SUITE  TRANSPONDER  ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  •  •  •  •  •  •  •  •  •  •  •  •  •	ANALOGUE OIL TEMPERATURE INDICATOR	•	•
TRANSPONDER  ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  •  •  •  •  •  •  •  •  •  •  •  •  •	ANALOGUE VOLTMETER	•	•
ALTITUDE ENCODER  SLIP INDICATOR  LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  •  •  •  •  •  •  •  •  •  •  •  •  •	GARMIN G3X SUITE		
SLIP INDICATOR LONGITUDINAL TRIM INDICATOR FLAP POSITION INDICATOR COMM/NAV EQUIPMENT AUDIO PANEL/MARKER BEACON LANDING/TAXI LIGHT STROBE LIGHTS NAV LIGHTS NAV LIGHTS ANNUNCIATOR PANEL BREAKERS PANEL STALL WARNING SYSTEM FIRST AID KIT HAND-HELD FIRE EXTINGUISHER ELT PITOT HEAT TORCH (WITH SPARE BATTERIES) PANEL LIGHTS EMERGENCY LIGHT DIMMING DEVICES	TRANSPONDER	•	•
LONGITUDINAL TRIM INDICATOR  FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  •  •  EMERGENCY LIGHT  •  •  •  •  •  COMM/NAV EQUIPMENT  •  •  •  COMM/NAV EQUIPMENT  •  •  COMM/NAV EQUIPMENT  •  COMM/NAV E	ALTITUDE ENCODER	•	•
FLAP POSITION INDICATOR  COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	SLIP INDICATOR	•	•
COMM/NAV EQUIPMENT  AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	LONGITUDINAL TRIM INDICATOR	•	•
AUDIO PANEL/MARKER BEACON  LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	FLAP POSITION INDICATOR	•	•
LANDING/TAXI LIGHT  STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	COMM/NAV EQUIPMENT	•	•
STROBE LIGHTS  NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	AUDIO PANEL/MARKER BEACON	•	•
NAV LIGHTS  ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	LANDING/TAXI LIGHT		•
ANNUNCIATOR PANEL  BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	STROBE LIGHTS		•
BREAKERS PANEL  STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	NAV LIGHTS		•
STALL WARNING SYSTEM  FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES	ANNUNCIATOR PANEL	•	•
FIRST AID KIT  HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  • • • • • • • • • • • • • • • • • •	BREAKERS PANEL	•	•
HAND-HELD FIRE EXTINGUISHER  ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •  •  •  •  •  •  •  •  •  •  •  •  •	STALL WARNING SYSTEM	•	•
ELT  PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •  •  •  •  •  •  •  •  •  •  •  •  •	FIRST AID KIT	•	•
PITOT HEAT  TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •  •	HAND-HELD FIRE EXTINGUISHER	•	•
TORCH (WITH SPARE BATTERIES)  PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •	ELT	•	•
PANEL LIGHTS  EMERGENCY LIGHT  DIMMING DEVICES  •	PITOT HEAT		•
EMERGENCY LIGHT  DIMMING DEVICES  •	TORCH (WITH SPARE BATTERIES)		•
DIMMING DEVICES •	PANEL LIGHTS		•
	EMERGENCY LIGHT		•
DAY/NIGHT SWITCH •	DIMMING DEVICES		•
	DAY/NIGHT SWITCH		•



#### LIMITATIONS PLACARDS 21.

The following limitation placards are placed in plain view on the pilot. On the left side instrument panel, above on the left, it is placed the following placard reporting following speed limitation:

> Manoeuvring Speed **V**<sub>A</sub> = 99 kts

On the central side of the instrument panel, the following placard is placed reminding the observance of aircraft operating limitations according to the installed equipment configuration (see KOEL, Para. 20):

> This a/c is classified as VLA approved for DAY OR NIGHT VFR (with required equipment) in non-icing conditions. all aerobatics manoeuvres including spinning are prohibited. For operating limitations refer to KOEL in the FLIGHT MANUAL

On the right hand side of the instrument panel the following placard is placed reminding the observance for "no smoking":



In the baggage compartment following placard is placed:

TIE-DOWN HARNESS MAX WEIGHT 20kg [44 lbs]

DO NOT PLACE SHARP **OBJECTS ON THE FLOOR** 

# P2008 JC - Aircraft Flight Manual

Below the G3X screens and analogue instruments, the following labels are placed:



# P2008 JC - Aircraft Flight Manual Page 2N - 25

# Throttle marking



# Fuel selector valve marking



# Choke placard



# Alternate static port placard



# P2008 JC - Aircraft Flight Manual Page 2N - 26

# Cabin heat/defrost placard



# Carb heat placard



# Ignition key placard



# Master/Generator placards



# Map-light placard

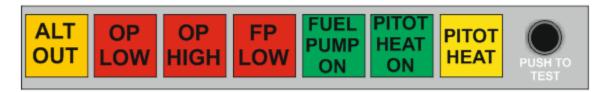




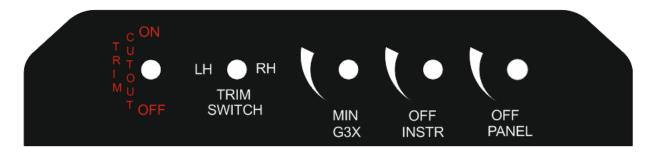


# P2008 JC - Aircraft Flight Manual Page 2N - 28

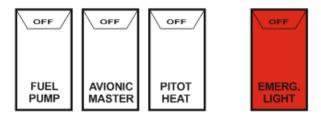
# **Annunciator panel**

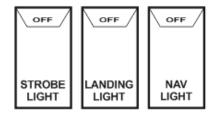


# Upper panel labels



### **Switches labels**





# Day/Night switch label



Door lock lever

**CLOSED** 

**OPEN** 



# **SECTION 3 – EMERGENCY PROCEDURES**

Follow replacing instructions contained in the table below.

Supplement pages		AFM Pages
3N-1	REPLACES	Page 3-1 of basic AFM
3N-5 thru 7	REPLACE	Page 3-5 thru 7 of basic AFM
3N-10	REPLACES	Page 3-10 of basic AFM
3N-11	REPLACES	Page 3-11 of basic AFM
3N-22	REPLACES	Page 3-22 of basic AFM

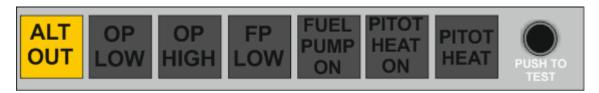
# **SECTION 3 – EMERGENCY PROCEDURES**

# **INDEX**

1.	INTRODUCTION	3
2.	AIRPLANE ALERTS	4
2	2.1. Electric Power System Malfunction	5
	2.2. G3X Failures	
	2.3. Pitot Heating System Failure	
3.	AIRPLANE EVACUATION	8
4.	ENGINE SECURING	8
5.	ENGINE FAILURE	9
Ę	5.1. Engine Failure During Take-Off Run	9
	5.2. Engine Failure Immediately After Take-off	
	5.3. Engine Failures During Flight	
Ę	5.3.1 Low Fuel Pressure	10
5	5.3.2 Low Oil Pressure	11
5	5.3.3 High Oil Temperature	12
Ę	5.3.4 CHT/CT limit exceedance	13
6.	IN-FLIGHT ENGINE RESTART	14
7.		
	7.1. Engine fire on the ground	
	7.2. Engine Fire During Takeoff	
	7.3. Engine Fire In-Flight	
	7.4. Cabin Fire / Electrical smoke in cabin during flight	
	7.5. Electrical smoke/fire in cabin on the ground	
8.	LANDING EMERGENCIES	17
	3.1. Forced Landing Without Engine Power	
	3.2. Power-On Forced Landing	
	3.3. Landing With A Flat Nose Tire	
	3.4. Landing With A Flat Main Tire	
9.	RECOVERY FROM UNINTENTIONAL SPIN	19
	OTHER EMERGENCIES	
	10.1. Unintentional Flight Into Icing Conditions	
	l0.2. Trim System Failure	
	10.3. Flaps Failure	
	l0.4. Static ports failure	
-	•	_

## 2.1. ELECTRIC POWER SYSTEM MALFUNCTION

# **Alternator Failure Light ON**





Alternator light may illuminate for a faulty alternator or when voltage is above 16V; in this case the over-voltage sensor automatically shuts down the alternator.

### If **ALTOUT** caution is **ON**:

- 1. Verify failure
- Circuit breaker(s) 2.

Check

Generator switch:

OFF 1 sec. then back ON

# *If* **ALTOUT***caution persists* **ON**:

Generator switch: 4.

OFF

- Reduce electrical load as much as possible 5.
- Land as soon as practical.

NOTE

The battery can supply electrical power for at least 30 minutes.

# 2.2 G3X FAILURES

In case of LH or RH display failure, navigation and engine data will be automatically available in the remaining display(split mode).



**INSTRUCTION:** revert to the remaining display.

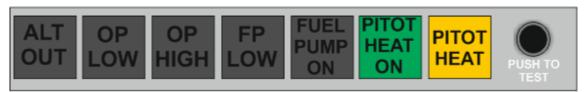


#### 2.3 **PITOT HEATING SYSTEM FAILURE**

When the Pitot Heat system is activated, the green PITOT HEAT ON safe operating annunciation is **ON**;



If the amber PITOT HEAT is turned ON, but the caution remains ON, the Pitot Heat system is not functioning properly.



In this case apply following procedure:

1.	Pitot Heat switch	OFF
2.	Check Pitot Heat circuit breaker	IN

3. Pitot Heat switch ON

4. Check PITOT HEAT caution light:

If the amber light stays ON, assume PITOT HEAT malfunction.

Avoid visible moisture conditions.

#### 5.3 **ENGINE FAILURES DURING FLIGHT**

# **5.3.1 Low Fuel Pressure**



If the fuel pressure indicator falls below 2.2 psi / **FP LOW** warning is **ON**:

1. Electric fuel pump: ON

Fuel selector valve: select opposite fuel tank if NOT empty

Check both Fuel quantity indicators: 3.

If fuel pressure does not build up:

Land as soon as possible applying forced landing procedure (See Para. 8)

# 5.3.2 Low Oil Pressure



If oil pressure is below12 psi / **OP LOW** warning is **ON**:

1. Throttle Lever

REDUCE to Minimum practical

2. Land as soon as practical

If oil pressure does not increase and **OP LOW** warning persists ON:

3. Land as soon as possible applying forced landing procedure (See Para. 8)

# 10.3 STATIC PORTS FAILURE

In case of static ports failure, the alternate static port in the cabin (identified by the placard below) must be activated.



In this case apply following procedure:

Cabin heat OFF
 ALTERNATE STATIC PORT VALVE OPEN

3. Continue the mission



# **SECTION 4 – NORMAL PROCEDURES**

Follow replacing instructions contained in the table below.

Supplement S1 pages		Basic AFM Pages
4N-3	REPLACES	4-3

# AFMS for VFR NIGHT equipped airplanes



P2008 JC - Aircraft Flight Manual Page 4N - 3

# 1. Introduction

Section 4 describes checklists and recommended procedures for the conduct of normal operations for P2008 JC aircraft.



Garmin G3X is NOT intended to be used as primary reference for flight information but only provides information for situational awareness.

Primary flight information is provided by analogue instruments and, for engine parameters, pilot will rely upon caution/warning lights in the annunciator panel.

# **SECTION 5 - PERFORMANCE**

Refer to Basic AFM Section 5.



# **SECTION 6 – WEIGHT AND BALANCE**

Refer to Basic AFM Section 6.



# **SECTION 7 – AIRFRAME AND SYSTEM DESCRIPTION**

Follow replacing instructions contained in the table below.

Supplement S1 pages		Basic AFM Pages
7N-1	REPLACES	7-1
7N-6	REPLACES	7-6
7N-7	REPLACES	7-7
7N-8	REPLACES	7-8
7N-13	REPLACES	7-13

## **SECTION 7 – AIRFRAME AND SYSTEMS DESCRIPTION**

## **INDEX**

1.	INTRODUCTION	2
2.	AIRFRAME	2
	2.1. Wing	
	2.2. Fuselage	
	2.3. Empennages	
	2.4. Landing gear	
3.	FLIGHT CONTROLS	5
4.	INSTRUMENT PANEL	6
	4.1. Carburettor Heat	7
	4.2. Cabin Heat	7
	4.3. Internal Lights System	8
5.	SEATS AND SAFETY HARNESS	9
6.	DOORS	9
7.	POWERPLANT	10
	7.1. ENGINE	10
	7.2. PROPELLER	10
8.	FUEL SYSTEM	11
9.	ELECTRICAL SYSTEM	12
	9.1. Stall Warning System	12
	9.2. Avionics	13
	9.3. External Power Supply	14
10.	PITOT-STATIC PRESSURE SYSTEMS	15
11.	BRAKES	16



Page 7N - 6

## 4. INSTRUMENT PANEL

The instrument panel is divided in four areas:

- The left area holds primary (analogue) and pilot's situational awareness (G3X LH display) flight instruments, a chronometer and the pitch trim indicator;
- The right area holds engine and moving map indicator (G3X RH display), an analogue backup CHT indicator and breaker panel;



Analogue CHT is a backup for the information provided by G3X. Since the pick-up location for the sensors is different (cylinder 2 and 4 respectively), analogue CHT could indicate a temperature up to 20° less than the G3X.

- The central area holds Nav/Com instrument, the transponder, warning lights, trim cut out switch and Trim LH/RH selector switch and the annunciator panel with following lights:
  - ➤ Electric fuel pump ON (GREEN)
  - ➤ Low Oil Pressure (RED)
  - ➤ Low Fuel Pressure (RED)
  - ➤ Alternator Fail (AMBER)
  - ➤ Pitot heat operation lights (GREEN/AMBER) optional
- The lower-LH portion of the instrument panel holds:
  - > Ignition key;
  - Master and Generator switches;
  - > Emergency fuel pump;
  - ➤ Avionic Master switch;
  - ➤ Pitot heat switch (optionally provided);
  - > Carburetor heat knob;
- The lower-Central portion of the instrument panel holds:
  - > Throttle;
  - > Two analogue fuel quantity indicators;
  - > Fuel selector valve.
- The lower-RH portion of the instrument panel holds:
  - > Flap indicator and control;
  - > Cabin heating knob;
  - NAV, land and strobe switches.

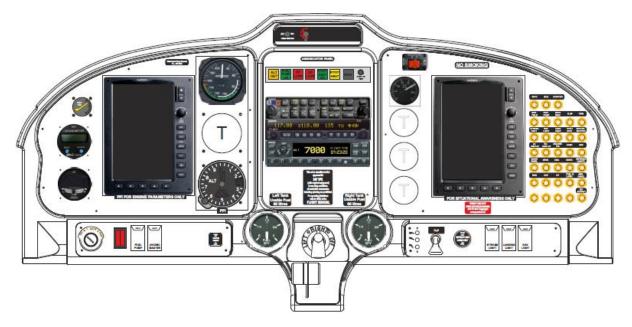


Fig. 7-5. INSTRUMENT PANEL

#### 4.1. CARBURETTOR HEAT

Carburettor heat control knob is located lower-LH portion of the instrument panel; when the knob is pulled fully outward from the instrument panel, carburettors receive maximum hot air. During normal operation, the knob is set in OFF position.

#### 4.2. CABIN HEAT

The cabin heat control knob is positioned on the lower right side of the instrument panel; when knob is pulled fully outward, cabin receives maximum hot air. If the outlets are kept closed, hot air only performs windshield defrost. Vents are located by the rudder pedals. If necessary, outside fresh air can be circulated inside cabin by opening the vents on the doors' windows.

#### 4.3. INTERNAL LIGHTS SYSTEM

An internal lightning system is provided; it's based on the following elements:

- 2 dimmable panel lights (with flexible and adjustable supports) located in both sides of the dashboard and 2 LED lights above the annunciator panel (Panel DIM device);
- 2 emergency lights located in side area of the cabin ceiling and 1 LED light above the annunciator panel (all controlled by red Emergency Switch);
- 1 adjustable map-light located in the center area of the cabin ceiling.



Fig. 7-6 PANEL LIGHTS

#### 9.2 AVIONICS

The avionic system installed P2008 JC features four analogue indicators, an airspeed indicator, an altimeter, a magnetic compass and a slip indicator, which provide primary flight information.

Garmin G3X integrated avionic suite in a dual screen configuration is installed. It provides flight information intended for the pilot's situational awareness only. The suite provides primary engine information, except fuel quantity information which is provided by two dedicated analogue indicators located in the bottom central instruments panel, supplemented by an annunciator panel and analogue CHT indicator. G3X also embodies a GPS WAAS receiver whose information, intended for situational awareness only, are presented on RH display moving map.

Two dedicated indicators provide the pilot with information about the flaps and pitch trim position.

Stand-alone external COM/NAV and transponder sources (Garmin SL 30 and GTX 328) are installed. Garmin SL 30 Navigation information is presented on the display (course and direction) along with the information related to active/standby frequency. This information is supplemented by an HSI indicator on G3X LH display.

GTX 328 transponder provides SSR (Secondary Surveillance Radar) responses; this unit is capable of both mode "S" and mode "C". An external altitude encoder (ACK A-30) allows altitude reporting, this information is also presented on GTX 328 display.

An automatic reversion mode is integrated within the system in order to continue providing the pilot with the flight and engine information in the event of a LH or RH display failure.

Four warning lights located on the top centre area of the instrument panel are available:

- ➤ Electric fuel pump ON (GREEN)
- ➤ Low Oil Pressure (RED)
- ➤ Low Fuel Pressure (RED)
- ➤ Alternator Fail (AMBER)

Two additional annunciator lights are installed when pitot heat system is optionally provided:

- ➤ Pitot heat ON (GREEN)
- > Pitot heat fail (AMBER)



## **SECTION 8 - GROUND HANDLING & SERVICE**

Refer to Basic AFM section 8.



# Supplement no. S3 AFMS for Hoffman propeller equipped airplanes

## **Record of Revisions**

Rev	Revised	Description of	Tecnam Approval			EASA Approval or Under DOA
Kev	page	Revision	DO	DO OoA		Privileges
0	New edition	Editorial revision	A. Sabino	C. Caruso	M. Oliva	Approved under the authority of DOA, ref EASA.21J.335
	Cover pages	Rearranged				
	H2-9	Note on oxygen use amended				
	H4-3, HN4-3	Information added to normal operations speeds table; paragraph shifted from page 3 to page 4.				Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/103.180312)
1	H4-15, HN4-15	Pages removed, information included in basic AFM	A. Sabino	C. Caruso	M. Oliva	
	H5-12 thru 13	Cruise performance amended				
	H6-10 thru 11	Pages removed, information included in basic AFM.				
	H7-8	Changed page number to match basic AFM				
	HN7-10	Page removed				
2	S3-1,6	Loep corrections	A. Sabino	D. Ronca	M. Oliva	Approved under the authority of DOA, ref. EASA.21J.335 (MOD2008/123.190620)

## **List of Effective Pages**

	Page	Revision
<b>Cover Pages</b>	S3-1,6	Rev 2
	S3-2,3,4,5,7,8	Rev 1
Section 1	H1-6	Rev 0
Section 2	H2-9	Rev 1
Section 4	H4-4	Rev 1
	H5-7 thru 11	Rev 0
Section 5	H5-12 thru 13	Rev1
	H5-15 thru 16	Rev 0
Section 7	H7-10	Rev 1



## INTRODUCTION

The information contained herein supplements or supersedes the basic Aircraft Flight Manual: detailed instructions are provided to allow the owner for replacing the AFM and Supplement S1 pages containing information amended as per Hoffman propeller in subject.

It is the owner's responsibility to replace the mentioned pages in accordance with the instructions herein addressed section by section.



## **SECTION 1 – GENERAL**

Make sure you first applied instructions reported on the basic AFM, Section 1 General

Apply following pages replacement:

Supplement S3 – GENERAL page		AFM Section 1 page
H1-6	REPLACES	Page 1-6 of AFM, Section 1



P2008 JC - Aircraft Flight Manual

Page H1-6

## 5 ENGINE

Manufacturer Bombardier-Rotax GmbH

Model 912 S2

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 ab-

sorber and overload clutch.

Maximum power (at declared rpm) 73.5 kW (98.6hp) @ 5800 rpm

(5 minutes maximum)

69.0 kW (92.5hp) @ 5500 rpm

(continuous)

## 6 PROPELLER

Manufacturer Hoffman Propeller

Model HO17GHM A 174 177C

Blades 2 blades of Laminated hard wood. Com-

posite structure, epoxy fibre glass cover

Diameter 1740 mm

Type Fixed pitch



## **SECTION 2 – LIMITATIONS**

Make sure you first applied instructions reported on the basic AFM and on the Supplement S1,
Section 2 Limitations

Apply following pages replacement:

Supplement S3 –		AFM	Supplement S1
LIMITATIONS page		Section 2 page	Section 2 page
H2-9	REPLACES	Page 2-9	Page N2-9



P2008 JC - Aircraft Flight Manual

Page H2-9

## 9. PROPELLER

MANUFACTURER: Hoffman Propeller

**MODEL:** HO17GHM A 174 177C

BLADES: 2 blades of Laminated hard wood. Composite structure,

epoxy fibre glass cover

**TYPE**: Fixed pitch **DIAMETER**: 1740 mm

## 10. MAXIMUM OPERATING ALTITUDE

Maximum operating altitude is 13000ft (3962 m) MSL.



Flight crew is recommended to use supplemental oxygen according to applicable Air Operations Rules.

#### 11. AMBIENT TEMPERATURE

Ambient temperature: from  $-25^{\circ}$ C to  $+50^{\circ}$ C.



Flight in expected and/or known icing conditions is forbidden.



## **SECTION 4 – NORMAL PROCEDURES**

Make sure you first applied instructions reported on the basic AFM, Section 4 Normal Procedures

Apply following pages replacement:

Supplement S3 – NORMAL PROCEDURES page		AFM Section 4 page
H4-4	REPLACES	Page 4-3 of AFM, Section 4



P2008 JC - Aircraft Flight Manual

Page H4-4

## 2. AIRSPEEDS FOR NORMAL OPERATIONS

The following airspeeds are those which are significant for normal operations.

	FLAPS	630kg
Rotation Speed $(V_R)$	T/O	48 KIAS
Flap Retraction Speed (V <sub>OBS</sub> )	T/O	58 KIAS
Best Angle-of-Climb Speed $(V_X)$	0°	63 KIAS
Best Rate-of-Climb speed $(V_Y)$	0°	67 KIAS
Approach speed	T/O	58 KIAS
Final Approach Speed	FULL	54 KIAS
Touch Down Speed	FULL	54 KIAS
Balked Landing Speed	FULL	61 KIAS
Manoeuvring speed $(V_A)$	0°	99 KIAS
Never Exceed Speed ( $V_{NE}$ )	0°	145 KIAS



## **SECTION 5 – PERFORMANCE**

Make sure you first applied instructions reported on the basic AFM, Section 5 Performance

Apply following pages replacement:

Supplement S3 – PERFORMANCE page		AFM Section 5 page
H5-7 thru 13	REPLACES	Page 5-7 thru 13 of AFM, Section 5
H5-15 and 16	REPLACES	Page 5-15 and 16 of AFM, Section 5



P2008 JC - Aircraft Flight Manual

Page H5-7

## 7. TAKE-OFF PERFORMANCE

NOTE

Weight = 630 kg

To account for likely in service performance variations apply a factored to distances of 1.10

Interpretation     Interpretation       Interpretation     Interpretatio	i <b>t</b> = 630 kg			Corrections				
Paved Runway: - 10% to Ground Roll   Runway: - 10% to Ground Roll   Runway: - 10% to Ground Roll   Runway: Grass	•				` * ' '			
Runway slope: + 7% to Ground Roll for each +1%	Speed at Lift-Off = 48 KIAS				<b>Tailwind:</b> + 15m for each kt (49 $ft/kt$ )			
Runway: Grass   Each +1%   Each +1%	Speed Over 50ft Obstacle = 61 KIAS				nway: - 10	% to Grour	nd Roll	
Pressure Altitude         Distance [m]           [ft]         -25         0         25         50           S.L.         Ground Roll         134         169         208         252         192           At 50 ft AGL         283         352         431         518         398           1000         At 50 ft AGL         307         383         468         564         426           At 50 ft AGL         307         383         468         564         426	Throttle Levers: Full Forward				lope: + 7%	to Ground	Roll for	
Altitude         Temperature [°C]           [ft]         -25         0         25         50           S.L.         Ground Roll         134         169         208         252         192           At 50 ft AGL         283         352         431         518         398           Ground Roll         146         184         227         275         206           At 50 ft AGL         307         383         468         564         426	ay: Grass							
[ft]	ssure				Distance [m	]		
Interpretation     Interpretation       S.L.     Ground Roll     134     169     208     252     192       At 50 ft AGL     283     352     431     518     398       Ground Roll     146     184     227     275     206       At 50 ft AGL     307     383     468     564     426	tude			Tempera	ture [°C]		ISA	
S.L.         At 50 ft AGL       283       352       431       518       398         Ground Roll       146       184       227       275       206         At 50 ft AGL       307       383       468       564       426	ft]		-25	0	25	50	134	
At 50 ft AGL       283       352       431       518       398         Ground Roll       146       184       227       275       206         At 50 ft AGL       307       383       468       564       426	Grou	nd Roll	134	169	208	252	192	
1000 At 50 ft AGL 307 383 468 564 426	At 50	ft AGL	283	352	431	518	398	
At 50 ft AGL         307         383         468         564         426	Grou	nd Roll	146	184	227	275	206	
Ground Poll 150 201 249 201 220	At 50	ft AGL	307	383	468	564	426	
2000 Ground Roll 139 201 248 301 223	Grou	nd Roll	159	201	248	301	221	
	At 50	ft AGL	334	417	509	613	456	
3000 Ground Roll 174 219 271 328 237	Grou	nd Roll	174	219	271	328	237	
	At 50	ft AGL	364	453	554	667	488	
4000 Ground Roll 190 240 296 359 259	Grou	nd Roll	190	240	296	359	255	
At 50 ft AGL         396         493         603         726         523	At 50	ft AGL	396	493	603	726	523	
5000 Ground Roll 208 262 323 392 274	Grou	nd Roll	208	262	323	392	274	
At 50 ft AGL         431         538         657         791         563	At 50	ft AGL	431	538	657	791	561	
6000 Ground Roll 228 287 354 429 295	Grou	nd Roll	228	287	354	429	295	
At 50 ft AGL         470         586         717         862         602	At 50	ft AGL	470	586	717	862	602	
7000 Ground Roll 249 314 388 470 317	Grou	nd Roll	249	314	388	470	317	
	At 50	ft AGL	513	639	782	941	645	
Ground Roll 273 344 425 515 <b>34</b> 2	Grou	nd Roll	273	344	425	515	342	
At 50 ft AGL         560         698         853         1027         693	At 50	ft AGL	560	698	853	1027	693	
Ground Roll 300 377 466 565 <b>368</b>	Grou	nd Roll	300	377	466	565	368	
9000 At 50 ft AGL 611 762 932 1122 744	At 50	ft AGL	611	762	932	1122	744	
Ground Roll 329 414 511 620 <b>39</b> 7	Grou	nd Roll	329	414	511	620	397	
10000 At 50 ft AGL 668 833 1019 1226 800	At 50	ft AGL	668	833	1019	1226	800	



P2008 JC - Aircraft Flight Manual

Page H5-8

Weight = 530 kg

Flaps: T/O

**Speed at Lift-Off =** 48 KIAS

**Speed Over 50ft Obstacle =** 61 KIAS

**Throttle Levers:** Full Forward

Corrections

**Headwind:** - 5m for each kt (16 ft/kt)

**Tailwind:** + 15m for each kt (49 *ft/kt*) **Paved Runway:** - 10% to Ground Roll

Runway slope: + 7% to Ground Roll for

each +1%

Runway: Grass

•	Runway: Grass							
Pressure		Distance [m]						
Altitude			Tempera	ture [°C]		ISA		
[ft]		-25	0	25	50	ISA		
S.L.	Ground Roll	88	111	137	167	127		
3.L.	At 50 ft AGL	190	237	290	349	268		
1000	<b>Ground Roll</b>	96	121	150	182	136		
1000	At 50 ft AGL	207	258	315	379	287		
2000	Ground Roll	105	133	164	198	146		
2000	At 50 ft AGL	225	280	342	412	307		
3000	Ground Roll	115	145	179	217	157		
3000	At 50 ft AGL	245	305	373	448	328		
4000	Ground Roll	126	158	195	237	168		
4000	At 50 ft AGL	266	332	406	488	352		
5000	Ground Roll	137	173	214	259	181		
5000	At 50 ft AGL	290	361	442	532	377		
6000	Ground Roll	150	189	234	284	195		
8000	At 50 ft AGL	316	394	482	580	404		
7000	<b>Ground Roll</b>	165	207	256	311	210		
7000	At 50 ft AGL	345	430	526	632	434		
8000	<b>Ground Roll</b>	181	227	280	340	226		
8000	At 50 ft AGL	376	469	574	690	466		
9000	Ground Roll	198	249	308	373	243		
3000	At 50 ft AGL	411	512	626	754	500		
10000	Ground Roll	217	273	337	409	262		
10000	At 50 ft AGL	449	560	685	824	537		



P2008 JC - Aircraft Flight Manual

Page H5-9

**Weight** = 430 kg

Flaps: T/O

**Speed at Lift-Off =** 48 KIAS

**Speed Over 50ft Obstacle = 61 KIAS** 

**Throttle Levers:** Full Forward

Corrections

**Headwind:** - 5m for each kt (16 ft/kt) **Tailwind:** + 15m for each kt (49 ft/kt)Paved Runway: - 10% to Ground Roll

Runway slope: + 7% to Ground Roll for

each +1%

Runway: Grass

Runway: Gras	<u> </u>							
Pressure		Distance [m]						
Altitude			Tempera	ture [°C]		ISA		
[ft]		-25	0	25	50	ISA		
S.L.	Ground Roll	54	67	83	101	77		
3.L.	At 50 ft AGL	118	147	179	216	166		
1000	<b>Ground Roll</b>	58	74	91	110	82		
1000	At 50 ft AGL	128	159	195	234	177		
2000	<b>Ground Roll</b>	64	80	99	120	88		
2000	At 50 ft AGL	139	173	212	255	190		
2000	<b>Ground Roll</b>	70	88	108	131	95		
3000	At 50 ft AGL	151	189	231	277	203		
4000	<b>Ground Roll</b>	76	96	118	143	102		
	At 50 ft AGL	165	205	251	302	218		
5000	<b>Ground Roll</b>	83	105	129	157	110		
3000	At 50 ft AGL	180	224	273	329	233		
6000	<b>Ground Roll</b>	91	115	142	172	118		
8000	At 50 ft AGL	196	244	298	359	250		
7000	<b>Ground Roll</b>	100	126	155	188	127		
7000	At 50 ft AGL	213	266	325	391	268		
8000	<b>Ground Roll</b>	109	138	170	206	137		
0000	At 50 ft AGL	233	290	355	427	288		
9000	Ground Roll	120	151	186	226	147		
5000	At 50 ft AGL	254	317	388	466	309		
10000	Ground Roll	131	166	204	248	159		
10000	At 50 ft AGL	278	346	424	510	333		



P2008 JC - Aircraft Flight Manual

Page H5-10

## 8. TAKE-OFF RATE OF CLIMB

NOTE

To account for likely in service performance variations apply a factored to rate of climb of 0.90

Throttle Levers: Full Forward								
Flaps: Take	e Off (15°)							
Weight	Pressure	Climb Speed		Rate of Climb [ft/min]				
	Altitude	V <sub>Y</sub>		Tempera	ture [°C]		ISA	
[kg]	[ft]	[KIAS]	-25	0	25	50	ISA	
	S.L.	70	996	847	714	594	765	
	2000	69	882	736	605	487	676	
	4000	68	769	626	497	381	588	
630	6000	66	657	516	389	276	499	
630	8000	65	545	406	282	170	411	
	10000	64	433	297	175	65	322	
	12000	63	322	188	68	-39	233	
	14000	62	211	79	-38	-144	145	
	S.L.	69	1118	961	820	694	875	
	2000	68	999	844	706	581	781	
	4000	67	879	727	592	469	688	
F00	6000	66	761	611	478	358	594	
580	8000	65	642	495	364	246	500	
	10000	64	524	380	251	135	407	
	12000	63	406	265	139	25	313	
	14000	62	289	150	27	-85	220	
	S.L.	69	1261	1093	943	808	1001	
	2000	68	1133	968	821	688	901	
	4000	67	1006	844	699	569	802	
520	6000	66	879	720	578	450	702	
530	8000	65	753	597	457	331	602	
	10000	64	627	474	337	213	502	
	12000	63	502	351	217	95	402	
	14000	61	377	229	97	-22	303	



P2008 JC - Aircraft Flight Manual

Page H5-11

## 9. EN-ROUTE RATE OF CLIMB

NOTE

To account for likely in service performance variations apply a factored to rate of climb of 0.90

Throttle Levers: Full Forward							
Flaps: UP							
Weight	Pressure	Climb Speed	Rate of Climb [ft/min]				
	Altitude	V <sub>Y</sub>		ISA			
[kg]	[ft]	[KIAS]	-25	IJA			
	S.L.	67	1028	878	745	624	796
	2000	67	914	767	636	517	707
	4000	67	801	656	527	410	618
630	6000	67	688	545	418	304	529
030	8000	67	575	435	311	198	440
	10000	67	463	325	203	92	351
	12000	67	351	216	96	-13	262
	14000	67	239	107	-11	-118	173
580	S.L.	67	1158	998	855	726	910
	2000	67	1036	879	739	612	815
	4000	67	915	761	623	498	720
	6000	67	794	643	507	385	625
	8000	66	674	525	392	272	530
	10000	66	554	408	277	159	435
	12000	66	435	291	162	47	340
	14000	66	315	174	48	-65	244
530	S.L.	67	1308	1136	982	844	1042
	2000	67	1177	1008	857	721	940
	4000	66	1047	881	732	598	837
	6000	66	917	754	608	476	735
	8000	66	787	627	484	354	632
	10000	66	658	501	360	233	530
	12000	66	530	375	237	112	428
	14000	65	401	250	114	-8	325



P2008 JC - Aircraft Flight Manual

Page H5-12

## 10. CRUISE PERFORMANCE



Propeller speed over 2265 RPM is restricted to 5min.

<u>Weight = 630 kg</u>									
CORRECTIONS									
				Fuel					
			KTAS	Consumption	Endurance	Range	Specific Range		
For each +15℃ of OAT			-2%	-2.50%	2%	1%	1%		
For each -15°C of OAT			1%	3%	-4%	-2%	-1%		
For -100k	g of wei	ght	3.30%			3%	4%		
CRUISE PERFORMANCE									
Pressure	OAT	Propeller		Fuel	Endurance	Range	Specific Range		
Altitude	ISA	RPM	KTAS	Consumption	[hr:mm]	[nm]	[nm/lt]		
[ft]	[deg C]			[lt/hr]					
	15	2388	119	26.9	4:28	531	4.4		
		2250	111	24.6	4:53	542	4.5		
0		2100	102	20.7	5:48	591	4.9		
0		2000	96	18.7	6:25	616	5.1		
		1900	90	17	7:04	635	5.3		
		1800	84	15.6	7:42	646	5.4		
		2250	110	23.5	5:06	562	4.7		
	11	2100	101	19.9	6:02	609	5.1		
2000		2000	95	18.1	6:38	630	5.3		
		1900	89	16.6	7:14	643	5.4		
		1800	83	15.3	7:51	651	5.4		
		2250	109	22.4	5:21	584	4.9		
4000	7	2100	101	19.2	6:15	631	5.3		
		2000	95	17.5	6:51	651	5.4		
		1900	89	16.2	7:24	659	5.5		
		1800	83	15.1	7:57	660	5.5		



P2008 JC - Aircraft Flight Manual

Page H5-13

<b>Weight</b> = 630 kq							
CORRECTIONS							
			KTAS	Fuel Consumption	Endurance	Range	Specific Range
For each +15°C of OAT			-2%	-2.50%	2%	1%	1%
For each -15°C of OAT			1%	3%	-4%	-2%	-1%
For -100kg of weight			3.30%	-	-	3%	4%
			CRUI	SE PERFORMA	NCE		
	3	2250	109	21.3	5:38	614	5.1
		2100	100	18.5	6:29	649	5.4
6000		2000	94	17.1	7:01	660	5.5
		1900	88	15.9	7:33	664	5.5
		1800	82	14.9	8:03	660	5.5
	-1	2250	108	20.4	5:53	635	5.3
8000		2100	99	18	6:40	660	5.5
8000		2000	93	16.7	7:11	668	5.6
		1900	87	15.6	7:42	669	5.6
10000	-5	2250	107	19.7	6:05	652	5.4
		2100	98	17.5	6:51	672	5.6
10000		2000	92	16.4	7:19	673	5.6
		1900	86	15.4	7:48	670	5.6



P2008 JC - Aircraft Flight Manual

Page H5-15

## 12. BALKED LANDING PERFORMANCE

NOTE

To account for likely in service performance variations apply a factored to rate of climb and to angle of climb of 0.90

Throttle Levers: Full Forward

Flaps: LAND Speed: 54 KIAS

Weight	Pressure	Angle of Climb [deg]						
	Altitude		ISA					
[kg]	[ft]	-25	0	25	50	ISA		
	S.L.	8.9	7.4	6.2	5	6.7		
	2000	7.8	6.4	5.1	4	5.8		
	4000	6.7	5.3	4.1	3	5		
630	6000	5.6	4.3	3	1.9	4.1		
030	8000	4.5	3.2	2	0.9	3.2		
	10000	3.5	2.1	1	-0.1	2.4		
	12000	2.4	1.1	-0.1	-1.1	1.5		
	14000	1.3	0.1	-1.1	-2.1	0.7		
	S.L.	11.6	9.9	8.3	7	8.9		
	2000	10.3	8.6	7.1	5.7	7.9		
	4000	9	7.3	5.8	4.5	6.9		
530	6000	7.7	6.1	4.6	3.3	5.9		
330	8000	6.4	4.8	3.4	2.1	4.8		
	10000	5.1	3.5	2.1	0.9	3.8		
	12000	3.8	2.3	0.9	-0.3	2.8		
	14000	2.5	1	-0.3	-1.6	1.8		
	S.L.	15.4	13.2	11.3	9.6	12.1		
430	2000	13.7	11.6	9.8	8.1	10.8		
	4000	12.1	10.1	8.2	6.6	9.5		
	6000	10.5	8.5	6.7	5	8.2		
	8000	8.9	6.9	5.1	3.5	7		
	10000	7.3	5.3	3.6	2	5.7		
	12000	5.7	3.8	2.1	0.5	4.4		
	14000	4.1	2.2	0.5	-1	3.2		



P2008 JC - Aircraft Flight Manual

Page H5-16

## 13. NOISE DATA

Noise level, determined in accordance with ICAO/Annex 16  $6^{th}$  Ed., July 2011, Vol. I°, Chapter 10, is **68.06**dB(A).



## **SECTION 6 - WEIGHT AND BALANCE**

See basic AFM, Section 6 Weight and Balance



## **SECTION 7 – AIRFRAME AND SYSTEMS DESCRIPTION**

Make sure you first applied instructions reported on the basic AFM and on the Supplement S1,
Section 7 Airframe and Systems Description

Apply following pages replacement:

Supplement S3 – AIRFRAME AND SYSTEMS DESCRIPTION page		AFM
H7-10	REPLACES	Page 7-8 of Basic AFM or Page 7N-10 of Supplement S1



P2008 JC - Aircraft Flight Manual

Page H7-10

## 7. POWERPLANT

## 7.1. ENGINE

**Manufacturer:** Bombardier-Rotax GmbH

**Model:** *ROTAX 912 S2* 

**Type:** 4 stroke, horizontally-opposed 4 cylinder, mixed air and

water cooled, twin electronic ignition, forced lubrication.

**Maximum rating:** 98.6hp (73.5kW) @ 5800 rpm/min (2388 rpm/min. prop).

Gear reduction ratio - 2.4286:1

Max oil consumption: Max: 0.1 litres/hour

## 7.2. PROPELLER

**Manufacturer:** Hoffman Propellers

**Model:** *HO17GHM A 174 177C* 

 $N^{\circ}$  of blades: 2

**Diameter:** 1740 mm **Type:** fixed pitch