

# Pilot's Operating Handbook

## ***PS-28 Cruiser***

equipped with analogue instrument package



**Airplane Registration Number:**

**Airplane Serial Number:**

This Pilot's Operating Handbook is  
EASA approved under  
Restricted Type Certificate No.:

EASA.A.546

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**RECORD OF REVISIONS**

<b>Rev. No.</b>	<b>Affected pages</b>	<b>Revision name</b>	<b>Approved</b>	<b>Date</b>
1	i, v, vii, 4-6, 4-11	Specification of engine speed at airplane waiting	EASA AFM Approval 10041100	21. 8. 2012
2	i, v, vii, viii, 1-5, 2-4, 2-6, 6-3	Supplementation of maximum empty weight value, correction of max. fuel pressure limit value	EASA AFM Approval 10049423	05 June 2014

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## 1.2 Summary of performances

### Weights:

Max. takeoff and landing weight .....	600 kg
Max. weight of fuel .....	82 kg
Max. baggage weight in rear fuselage .....	18 kg
Max. baggage weight in each wing locker....	10 kg
Maximum empty weight .....	405 kg

**NOTE**

*Actual empty weight is shown in Section 9, Supplement No. 02*

Wing loading .....	49 kg/m <sup>2</sup>
Power loading.....	8.15 kg/kW

### Speeds:

Maximum at sea level .....	119 KIAS
Cruise, 75% power at 3,000 ft .....	93 KIAS

### Range and endurance:

Range.....	512 NM	(948 km)
Endurance .....	5:26 h:mm	

*Conditions:*

Usable fuel.....	113 L
75% power of engine.....	5,000 RPM
Altitude.....	3,000 ft
Reserve.....	30 minutes

**Rate of climb:**

At sea level ..... 825 fpm  
Best angle of climb speed ( $v_x$ ) ..... 55 KIAS  
Best rate of climb speed ( $v_y$ ) ..... 62 KIAS

**Stall speeds:**

$V_{S0}$  – flaps down, power - idle ..... 31 KIAS  
 $V_S$  – flaps up, power - idle ..... 37 KIAS

**Fuel:**

Total fuel capacity ..... 114 L  
Total usable fuel ..... 113 L  
Approved types of fuel ..... see chapter 2.11

**Engine power:**

Maximum power at 5,800 RPM ..... 73.5 kW  
Max. continuous power at 5,500 RPM ..... 69 kW



**NOTE**

*Altitude losses shown in the table present max. values determined on the basis of flight tests using average piloting skill.*

**2.3 Flap extended speed range -  $V_{S0}$  to  $V_{FE}$**

Flaps operating range ..... 31 - 75 KIAS

**2.4 Manoeuvring speed -  $V_A$**

Manoeuvring speed at 600 kg ..... 88 KIAS

**2.5 Maximum structural cruising speed –  $V_{NO}$**

Maximum structural cruising speed ..... 108 KIAS

**2.6 Never exceed speed -  $V_{NE}$**

Never exceed speed ..... 138 KIAS

**2.7 Service ceiling**

Service ceiling ..... 15,090 ft

**2.8 Load factors**

Maximum positive limit load factor ..... + 4 g

Maximum negative limit load factor ..... - 2 g

Maximum positive limit load factor with flaps extended ..... + 2 g

Maximum negative limit load factor with flaps extended ..... 0 g

**2.9 Approved manoeuvres**

The *PS-28 Cruiser* is approved for normal and below listed manoeuvres:

- Steep turns not exceeding 60° bank
- Lazy eights
- Chandelles
- Stalls (except whip stalls)

## 2.10 Operating weights and loading

Max. takeoff weight .....	600 kg
Max landing weight .....	600 kg
Max. weight of fuel .....	82 kg
Max. baggage weight in rear fuselage .....	18 kg
Max. baggage weight in each wing locker .....	10 kg
Maximum empty weight .....	405 kg

**NOTE**

*Actual empty weight is shown in Section 9, Supplement No. 02*

**WARNING**

*Do not exceed maximum takeoff weight 600 kg.*

Number of seats .....	2
Minimum crew ( <i>only on the left seat</i> ) .....	1 pilot
Minimum crew weight .....	55 kg
Maximum crew weight on each seat .....	115 kg

## 2.11 Fuel

### Fuel volume:

Wing fuel tanks capacity .....	2x 57 L
Total fuel capacity .....	114 L
Unusable fuel .....	2x 0.5 L
Total usable fuel .....	113 L
Maximum allowable difference in fuel tanks .....	30 L

### Recommended fuel type:

**NOTE**

*Refer to the ROTAX Operator's Manual, section 2.4 Fuel, and Rotax Service Instruction SI-912-016*

### MOGAS

- European standards - min. RON 95, EN 228 Super, EN 228 Super plus
- US standard - ASTM D4814
- Canadian standards - min. AKI 91, CAN/CGSB-3.5 Quality 3

**CAUTION**

*Fuels that contain more than 5 % ethanol blend have not been tested and are not permitted for use.*

### AVGAS

US standard- AVGAS 100 LL (ASTM D910)

AVGAS 100 LL places greater stress on the valve seats due to its high lead content and forms increased deposits in the combustion chamber and lead sediments in the oil system. Thus it should only be used in case of problems with vapor lock or when other types of gasoline are unavailable.

## 2.12 Engine operating speeds and limits

<b>Engine Model:</b>		ROTAX 912 ULS2
<b>Engine Manufacturer:</b>		BRP-Powertrain GmbH
<b>Power</b>	<i>Max. takeoff:</i>	73.5 kW at 5,800 rpm (max. 5 min.)
	<i>Max. continuous:</i>	69 kW at 5,500 rpm
	<i>Cruising (75%):</i>	51 kW at 5,000 rpm
<b>Engine speed</b>	<i>Max. takeoff:</i>	5,800 rpm (max. 5 min.)
	<i>Max. continuous:</i>	5,500 rpm
	<i>Cruising (75%):</i>	5,000 rpm
	<i>Idling:</i>	1,400 rpm (minimum)
<b>Oil pressure</b>	<i>Minimum:</i>	0.8 bar below 3,500 rpm
	<i>Maximum:</i>	7 bar cold engine starting
	<i>Normal:</i>	2 - 5 bar above 3,500 rpm
<b>Oil temperature</b>	<i>Minimum:</i>	50 °C
	<i>Maximum:</i>	130 °C
	<i>Normal:</i>	90 - 110 °C
<b>Cylinder head temp. (CHT)</b>	<i>Maximum:</i>	135 °C
<b>Exhaust gas temp. (EGT)</b>	<i>Nominal:</i>	800 °C
	<i>Maximum:</i>	850 °C
	<i>Max. takeoff:</i>	880 °C
<b>Fuel press.</b>	<i>Minimum:</i>	0.15 bar
	<i>Maximum:</i>	0.4 bar 0.5 bar*
<b>Engine start, operating temperature</b>	<i>Minimum:</i>	-25°C
	<i>Maximum:</i>	50 °C
<b>Limit of engine operation at zero gravity and in negative "g" condition</b>		
	<i>Maximum:</i>	5 seconds at max. -0.5 g

\* Applicable only for fuel pump from S/N 11.0036.

- Obtain measurement LN by measuring horizontally and parallel to the airplane center line, from center of nose wheel axle left sides, to the datum on the left wing. Repeat on right side and average the measurements.
- 5. Using weights from item 3 and measurements from item 4 the airplane weight and C.G. can be determined.
- 6. Basic Empty Weight may be determined by completing appropriate table.

### 6.3 Operating weights and loading

**Weights:**

Max. takeoff weight .....	600 kg
Max landing weight .....	600 kg
Max. weight of fuel .....	82 kg
Max. baggage weight in rear fuselage .....	18 kg
Max. baggage weight in each wing locker.....	10 kg
Maximum empty weight .....	405 kg

**Crew:**

Number of seats .....	2
Minimum crew ( <i>only on the left seat</i> ).....	1 pilot
Minimum crew weight .....	55 kg
Maximum crew weight on each seat.....	115 kg

**Arms:**

Pilot/Passenger.....	700 mm
Baggage compartment.....	1,310 mm
Wing lockers.....	600 mm
Fuel tanks.....	180 mm

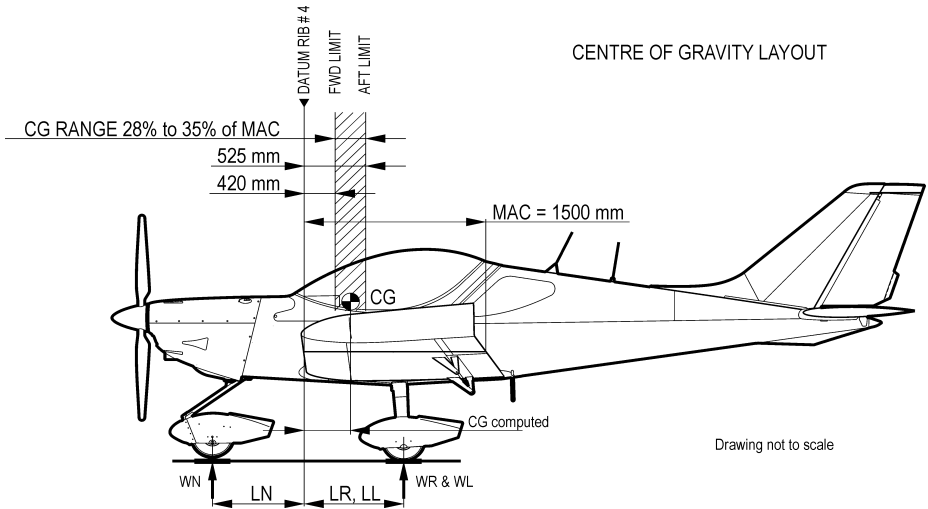
**NOTE**

*Actual Empty weight is shown in Section 9, Supplement No. 02.*

**NOTE**

*For the needs of this Handbook the fuel specific weight of 0.72 kg / L was used to convert volume units into weight units.*

## 6.4 Weight and balance C.G. layout



## 6.5 C.G. range and determination

### 6.5.1 Aircraft C.G. range:

Empty weight C.G. range.....	28.5 to 29.5 % of MAC
	427.5 to 442.5 mm of MAC
Operating C.G. range.....	28 to 35 % of MAC
	420 to 525 mm of MAC