CRUISER AIRCRAFT

Pilot's Operating Handbook

PS-28 Cruiser®

equipped with Dynon SkyView HDX 1100 System

Airplane Registration Mark: **F-HDMG**

Airplane Serial Number: **C0638**

This Pilot's Operating Handbook is
EASA approved under Major Change Approval No.: 10066844
Approval Date: 11 September 2018

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CRUISER AIRCRAFT

PS-28 Cruiser aircraft

is designed and manufactured by:

Czech Aircraft Group s.r.o.

Na Záhonech 212, 686 04 Kunovice

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RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

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LIST OF ABBREVIATIONS

ADAHRS	Air Data Attitude and Heading Reference System	
ADI	Attitude direction indicator	
AGL	Above Ground Level	
ALT	Altitude or Altimeter	
ATC	Air Traffic Control	
ASI	Airspeed Indicator	
bar	Pressure unit	*(1 bar = 14.5037 psi)*
BARO	Barometer	
BC	Back Course	
BEACON	Anti-collision beacon	
BRG	Bearing	
°C	Temperature in degree of Celsius	*(°C = (°F - 32) / 1.8)*
CAS	Calibrated Airspeed	
CDI	Course deviation indicator	
C.G.	Center of Gravity	
CHT	Cylinder head temperature	
COMM	Communication transceiver	
CRS	Course	
CT	Coolant temperature	
EFIS	Electronic Flight Information System	
ELT	Emergency Locator Transmitter	
EMS	Engine Monitoring System	
°F	Temperature in degree of Fahrenheit	*(°F = (°C x 1.8) + 32)*
ft	Foot or feet	*(1 ft = 12 in = 0.305 m = 305 mm)*
fpm	Vertical speed in feet per minute	*(1 fpm = 0.0051 m/s)*
GPS	Global Positioning System	
GS	Glide Slope	
HDG	Heading	
hp	Power unit	*(1 hp = 0.7457 kW)*
HSI	Horizontal Situation Indicator	
IAS	Indicated Airspeed	
IC	Intercom	
IFR	Instrument Flight Rules	
ILS	Instrument Landing System	
in	Inch	*(1 in = 25.4 mm)*
ISA	International Standard Atmosphere	
KCAS	Calibrated Airspeed in Knots	
kg	Kilogram	*(1 kg = 2.205 lb)*
KIAS	Indicated Airspeed in Knots	
km	Kilometer	*(1 km = 1000 m = 0.54 NM = 0.621 SM)*
km/h	Speed in kilometers per hour	*(1 km/h = 0.54 knots = 0.621 mph = 0.278 m/s)*
knot	Speed in NM per hour	*(1 knot = 1.151 mph = 1.852 km/h = 0.514 m/s)*
KTAS	True Airspeed in Knots	
kW	Power unit	*(1 kW = 1.341 hp)*

L	Liter	*(1L = 0.22 UK gal = 0.264 US gal)*
LOC	Localizer	
lb	Pound	*(1 lb = 0.454 kg)*
lbf	Force unit	*(1 lbf = 4.448 N)*
m	Meter	*(1 m = 1000 mm = 3.28 ft = 39.37 in)*
MAC	Mean Aerodynamic Chord	
max.	Maximum	
MFD	Multi-Function Display	
MIN	Minimum Descent Altitude	
min.	Minimum or minute	
mm	Millimeter	*(1 mm = 0.03937 in)*
mph	Speed in statute miles per hour	*(1 mph = 0.87 knots = 1.61 km/h)*
MTOW	Maximum TakeOff Weight	
m/s	Speed in meters per second	*(1 m/s = 196.8 fpm = 1.944 knots = 3.6 km/h)*
N	Newton - force unit	*(1 N = 0.225 lbf)*
NM	Nautical mile	*(1 NM = 1,852 m)*
OFF	System is switched off or control element is in off-position	
ON	System is switched on or control element is in on-position	
OAT	Outside Air Temperature	
PFD	Primary Flight Display	
POH	Pilot's Operating Handbook	
psi	Pressure unit - pound per square inch	*(1psi = 0.0689 bar)*
rpm	Revolutions per minute	
s or sec	Second	
SM	Statute Mile	*(1SM = 1,609 m)*
SRC	Source	
TAS	True Airspeed	
TRK	Track	
US gal	US gallon	*(1 US gal = 0.83 UK gal = 3.785 L)*
V	Volt	
VFR	Visual Flight Rules	
VMC	Visual Meteorological Conditions	
VOR	VHF Omnidirectional Radio Range	
VS	Vertical Speed	
VSI	Vertical Speed Indicator	
VTU	Vertical tail unit	
V_A	Manoeuvring airspeed	
V_{FE}	Maximum flaps extended speed	
V_{NE}	Never exceed speed	
V_{NO}	Maximum structural cruising speed	
V_S	Stall speed with wing flaps in retracted position	
V_{S1}	Stall speed with wing flaps in takeoff position	
V_{SO}	Stall speed with wing flaps in extended position	
V_X	Best angle of climb speed	
V_Y	Best rate of climb speed	

CS-LSA STANDARD

The ***PS-28 Cruiser*** aircraft is designed and built according to CS-LSA standard.

CS-LSA, Initial Issue 27 June 2011
Certification Specification for Light Sport Aeroplanes

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CONTACT INFORMATION

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SECTION 1

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1. GENERAL INFORMATION

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1. GENERAL INFORMATION

This Pilot's Operating Handbook (POH) has been prepared to provide pilots with information for the safe and efficient operation of the ***PS-28 Cruiser*** aircraft and contains 9 sections. It also contains supplementary information considered to be important by the aircraft manufacturer.

Date of issue is written in the yy-mm-dd format.

NOTE

All airspeeds shown in the POH are IAS, except of shown otherwise.

Warnings, Cautions and Notes

The following definitions apply to warnings, cautions and notes in the POH.

WARNING

Means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety i.e. to injury or death of persons.

CAUTION

Means that the non-observation of the corresponding procedure leads to a minor or possible long term degradation of the flight safety.

NOTE

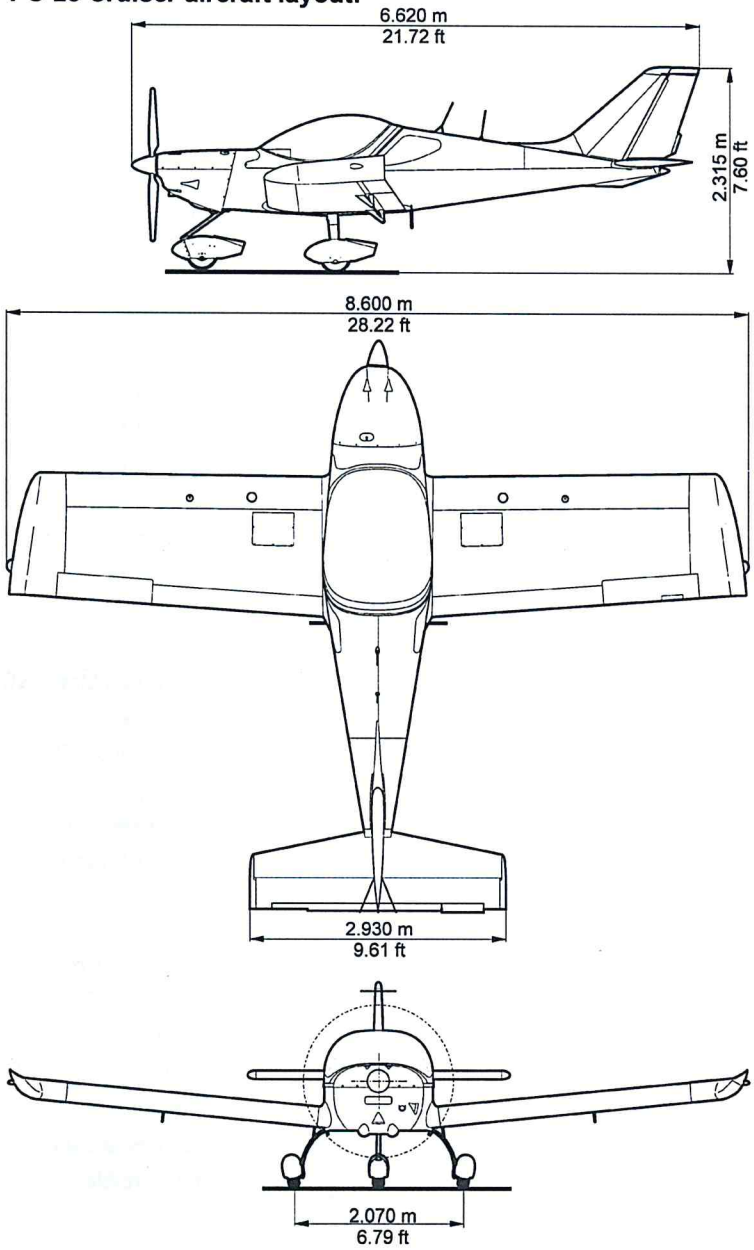
Draws attention to any special item not directly related to safety but which is important or unusual.

1.1 Airplane specification

PS-28 Cruiser is the airplane intended especially for recreational and cross-country flying, and non-aerobatics operation.

PS-28 Cruiser is a single-engine, all metal, low-wing monoplane of semi-monocoque structure with two side-by-side seats. The airplane is equipped with a fixed tricycle undercarriage with castering nose wheel.

PS-28 Cruiser aircraft layout:



Main airplane dimensions:

Wing span	*8.600 m*
Length	*6.620 m*
Height	*2.315 m*
Wing area	*12.30 m²*
Wing loading	*49 kg/m²*
Cockpit width	*1.170 m*

Flight control surfaces travel:

Rudder	*30°*	±2°	to each side
Elevator	*+24° / -24°*	±2°	
Aileron	*+15° / -15°*	±1°	
Flaps	*0° to 30°*	±1°	
Aileron trim	*+20° / -20°*	±2°	
Elevator trim	*+22° / -28°*	±2°	
Anti-balance tab	*+25° / -19°*	±2°	

Engine:

Manufacturer	BRP-Powertrain GmbH&Co.KG
Model number	912 S2 / ULS2
Maximum power rating	*73.5 kW at 5,800 RPM*
Cooling	liquid and air
Type	4-stroke, 4 cylinder, horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV

Propeller:

Manufacturer	WOODCOMP s.r.o.
Model number	KLASSIC 170/3/R
Number of blades	*3*
Diameter	*1,712 mm*
Pitch setting	*17.5 ±0.5°*
Type	three composite blades, ground adjustable

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/m²*
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*

SECTION 2

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2. LIMITATIONS

CAUTION

*Airspeeds values are valid for standard **AVIATIK WA037383 pitot-static probe.***

2.1 Airspeed indicator range markings

NOTE

The stated stall speeds are valid for all flight altitudes.

Marking	Speeds value or range	Significance
	KIAS	
White arc	**31-75**	Flap Operating Range.
Green arc	**37-108**	Normal Operating Range.
Yellow arc	**108-138**	Maneuvers must be conducted with caution and only in smooth air.
Red line	**138**	Maximum speed for all operations.

2.2 Stalling speeds at maximum takeoff weight

Wing flaps position: - retract *(0°)*
- takeoff *(12°)*
- landing *(30°)*

Conditions: Weight: MTOW Engine: idle	Wing flaps pos.	Stall speeds		Altitude loss at recovery
		KIAS	KCAS	ft
Wing level stall	0°	37	42	290
	12°	35	40	
	30°	31	37	
Coordinated turn 30° bank	0°	38	43	270
	12°	37	42	
	30°	30	36	

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 Maneuvering speed - V_A

Maneuvering 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 maneuvers

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

- 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 *(only on the left seat)*.....*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, latest edition.

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

Engine Model:		**ROTAX 912 S2 / ULS2**
Engine Manufacturer:		**BRP-Powertrain GmbH**
Power	***Max. takeoff:***	**73.5 kW *at 5,800 rpm (max. 5 min.)***
	Max. continuous:	**69 kW *at 5,500 rpm***
	Cruising (75%):	**51 kW *at 5,000 rpm***
Engine speed	***Max. takeoff:***	**5,800 rpm *(max. 5 min.)***
	Max. continuous:	**5,500 rpm**
	Cruising (75%):	**5,000 rpm**
	Idling:	**1,400 rpm *(minimum)***
Oil pressure	***Minimum:***	**0.8 bar *below 3,500 rpm***
	Maximum:	**7 bar *cold engine starting***
	Normal:	**2 - 5 bar *above 3,500 rpm***
Oil temperature	***Minimum:***	**50 °C**
	Maximum:	**130 °C**
	Normal:	**90 - 110 °C**
Coolant temperature (CT)	***Maximum:***	**120 °C**
Exhaust gas temperature (EGT)	***Nominal:***	**800 °C**
	Maximum:	**850 °C**
	Max. takeoff:	**880 °C**
Fuel pressure	***Minimum:***	**0.15 bar**
	Maximum:	**0.5 bar**
Engine start, operating temperature	***Minimum:***	**-25°C**
	Maximum:	**50 °C**
Limit of engine operation at zero gravity and in negative "g" condition		
	Maximum:	**5 seconds at max. -0.5 g**

2.13 Engine instruments markings

Rotax 912 S2 / ULS2 73.5 kW *(98.6 hp)*	Minimum Limit *(red line)*	Caution Range (yellow arc)	Normal Operating Range (green arc)	Caution Range (yellow arc)	Maximum Range (red line)
Engine speed RPM	-	0-1,400	1,400-5,500	5,500-5,800	5,800
Oil Pressure	0.8 bar	0.8-2 bar	2-5 bar	5-7 bar	7 bar
Oil Temperature	50 °C	50-90 °C	90-110 °C	110-130 °C	130 °C
Coolant Temperature (CT)	-	to 50 °C	50-120 °C	-	120 °C
Fuel Pressure	0.14 bar	0.14-0.15 bar	0.15-0.50 bar	0.50-0.51 bar	0.51 bar
Manifold Pressure	-	-	10-35 inHg	-	-

WARNING

Do not use the 50% ENGINE layout until the oil temperature scale bar on the ENGINE BOTTOM BAND changes in green (about 88°C). If this instruction not followed, the colors of RPM and Oil temperatures scale on the ENGINE BOTTOM BAND and the 50% ENGINE layout are not harmonized.

2.14 Engine instruments markings

Instrument	Minimum Limit (red line)	Caution Range (yellow arc)	Normal Operating Range (green arc)	Caution Range (yellow arc)	Maximum Range (red line)
Fuel Quantity	0-3 L	3-6 L	6-45 L	-	-
Fuel Flow	-	-	0-27 L/min	27-30	30 L/min
Ammeter	-15 to -14 A	-14 to -10 A	-10 to +15 A	+15 to +20 A	+20 to +21 A
Voltmeter	10-11 V	11-12 V	12-14.3 V	14.6-14.6 V	14.6-15.6 V

2.15 Other limitations

- ***No smoking on board of the aircraft!***
- ***Approved for Day VFR flights only.***

- ***Flight in rain***

  When flying in the rain, no additional steps are required.
  Aircraft qualities and performance are not substantially changed.
  However **VMC must be maintained!**

- ***Minimum instruments and equipment list for Day VFR flights:***

  - Airspeed indicator
  - Altimeter
  - Compass (is not required by CS-LSA)
  - Fuel quantity indicator
  - Tachometer (RPM)
  - Engine instruments as required by the engine manufacturer :
    - *Oil temperature indicator*
    - *Oil pressure indicator*
    - *Coolant temperature indicator*
  - Safety harness for every used seat

WARNING

IFR flights and intentional flights under icing conditions are PROHIBITED!

WARNING

Minimum 6 L of fuel quantity allows approximately 15 minutes of safe operation!

- ***Dynon SkyView system limitations***

  The Dynon SkyView HDX Pilot´s User Guide, Document 102949-003, Revision C or later must be immediately available to the flight crew. The required Pilot´s User Guide is referenced to the System Firmware Version number. PS-28 Cruiser equipped with the Dynon SkyView HDX requires System Firmware Version 15.3.3 or later.

  Use of the MAP page for pilotage navigation is prohibited. The navigation map is intended only to enhance situational awareness.

  Navigation is to be conducted using only current charts, data and authorized navigation facilities.

  Use of the Synthetic Vision information for primary terrain and obstacle avoidance is prohibited. The terrain map is intended only to enhance situational awareness. It is the pilot's responsibility to provide terrain clearance at all times.

2.16 Limitation placards and markings

Operating limitation on instrument panel

AIRSPEEDS:	
V_{NE}	138 kts
V_A	88 kts
V_{FE}	75 kts
V_{SO}	31 kts

WARNING!
DO NOT EXCEED MAXIMUM
TAKEOFF WEIGHT: *600kg/1320lbs*

WARNING!
IFR FLIGHTS AND INTENTIONAL FLIGHTS
UNDER ICING CONDITIONS ARE PROHIBITED

APPROVED FOR: DAY - VFR

Operating limitation in baggage space

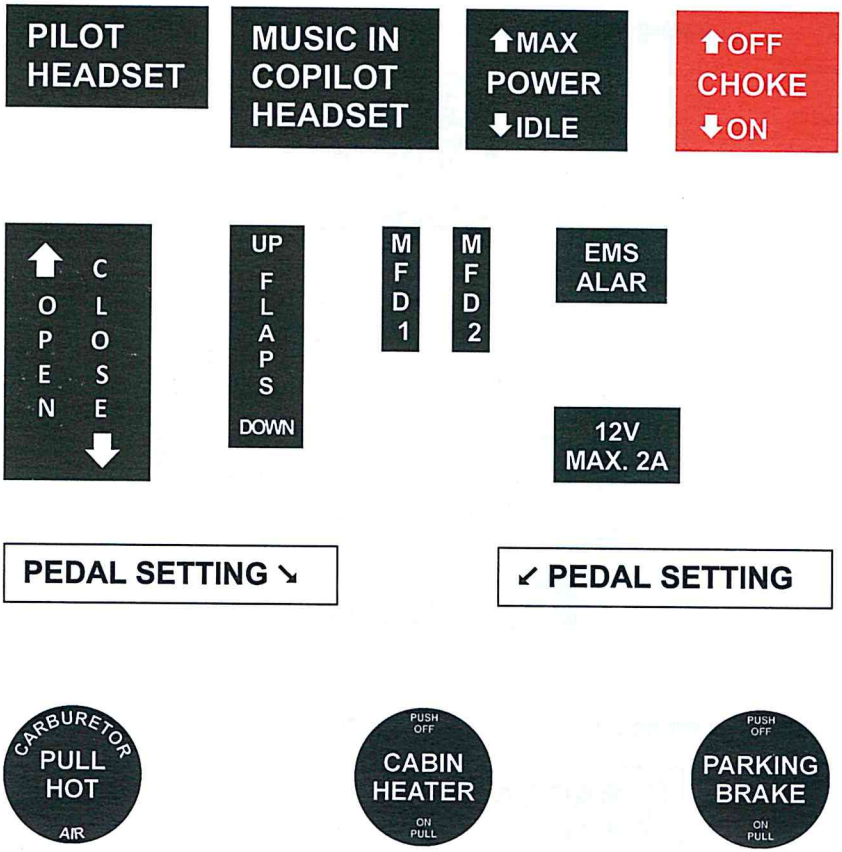
BAGGAGE COMPARTMENT
MAX. BAGGAGE WEIGHT: *18kg/40lbs*

MAX. WEIGHT IN WING LOCKER: *10kg / 22lbs*

Prohibited maneuvers

NO INTENTIONAL SPINS!
AEROBATICS PROHIBITED!

2.17 Miscellaneous placards and markings



FUEL CAPACITY:
57 Litres / 15 US Gal.
MOGAS RON 95/AKI 91
AVGAS 100 LL

CANOPY OPENED

CANOPY CLOSED

FUEL DRAIN ↘

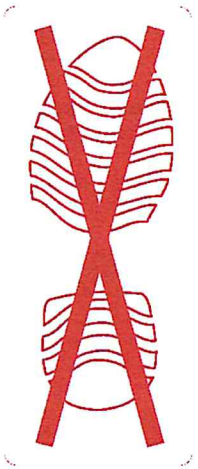
$1.8^{+0.2}$ bar

AEROSHELL OIL SPORT PLUS 4

$1.2^{+0.1}$ bar

NO PUSH

NO STEP



CAUTION

The owner (operator) of this airplane is responsible for the readability of placards during the aircraft service life.

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SECTION 3

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3. EMERGENCY PROCEDURES

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3. EMERGENCY PROCEDURES

3.1 General information

This section provides checklists and amplified procedures for coping with various emergencies that may occur. Emergencies caused by aircraft or engine malfunction are extremely rare if proper pre-flight inspections and maintenance are practiced.
However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem.

CAUTION
*Airspeeds values are valid for standard **AVIATIK WA037383 pitot-static probe**.*
*These emergency procedures are valid for **WOODCOMP KLASSIC 170/3/R** three composite blades ground adjustable propeller.*

3.2 Airspeeds for Emergency procedures

Engine failure after takeoff.....*60 KIAS*
(flaps as necessary)

Maneuvering speed at *600 kg*.....*88 KIAS*
(flaps retracted (0°))

Gliding speed.....*60 KIAS*
(flaps retracted (0°))

Precautionary landing with engine power.....*60 KIAS*
(flaps in landing position (30°))

Emergency landing without engine power.....*60 KIAS*
(flaps as necessary)

Emergency descent.....*138 KIAS*
(flaps retracted (0°))

3.3 Engine failure during takeoff run

1. THROTTLE - **IDLE**
2. Brakes - apply
3. Ignition Switch - **OFF**

3.4 Engine failure after takeoff

1. Airspeed - maintain *60 KIAS*
2. **FLAPS** - as necessary
3. **FUEL** selector - **OFF**
4. Ignition Switch - **OFF**
5. **MASTER GEN** - OFF
6. **MASTER BAT** - OFF - *before landing*
7. Land straight ahead, turning only to avoid obstacles

NOTE

Altitude loss during 180° turn is approximately 400 ft.

3.5 Loss of engine power in flight

1. Airspeed - maintain *60 KIAS*
2. Altitude - in accordance with actual altitude:
   - restart engine according to *3.6* or
   - search for a suitable place and perform emergency landing according to *3.9*

3.6 In-flight engine starting

1. All unnecessary electrical equipment switch - OFF
2. **MASTER BAT** - ON
3. **MFD 1** - ON
4. **FUEL P** - ON
5. **FUEL** selector - **LEFT** or **RIGHT** *(to tank with more quantity of fuel);* check correct position - green mark (see Chapter 7.11)
6. THROTTLE - **IDLE**
7. Ignition Switch - hold **START**
   after engine is starting - **BOTH**

After engine is running:

8. **MASTER GEN** - ON
9. **MFD 2** - ON
10. **AVIONICS** - ON
11. **FUEL P** - OFF
12. Other switches - ON as necessary

3.7 Loss of oil pressure

1. Oil temperature - check

If oil temperature is rising:

2. THROTTLE - reduce power to minimum for flight
3. Land - as soon as possible

CAUTION

Be prepared for engine failure and emergency landing.

If oil temperature is normal:

2. Oil temperature - monitor
3. Oil pressure - monitor
4. Land - at nearest airfield

3.8 High oil pressure

1. THROTTLE - reduce power to minimum for flight
2. Oil pressure - monitor
3. Land - as soon as possible

3.9 Emergency landing without engine power

Emergency landings are generally carried out in the case of engine failure and the engine cannot be re-started.

1. Airspeed - maintain *60 KIAS*
2. Emergency landing area - chose suitable area without obstacles
3. COMM - giving location and intentions - if possible
4. Ignition Switch - **OFF**
5. **FUEL** selector - **OFF**
6. **MASTER GEN** - OFF
7. Approach - without steep turns
8. Safety harness - fasten
9. **FLAPS** - as necessary
10. **MASTER BAT** - OFF - *before landing*

3.10 Precautionary landing with engine power

A precautionary landing is generally carried out in the cases where the pilot may be disorientated, the aircraft has no fuel reserve or possibly in bad weather conditions.

1. Choose landing area, determine wind direction.
2. Report your intention to land and landing area location.
3. Perform low-altitude passage into wind over the right-hand side of the chosen area with flaps extended as needed and thoroughly inspect the landing area.
4. Perform circle pattern.
5. Safety harness - fasten
6. Perform approach at increased idling with flaps in landing position *(30°)* at *60 KIAS*.
7. Reduce power to idle when flying over the runway threshold and touch-down at the very beginning of the chosen area.
8. After stopping the airplane:
   Ignition Switch - **OFF**
   All switches - OFF
   FUEL selector - **OFF**
   Airplane - lock and seek assistance

NOTE

Watch the chosen area steadily during precautionary landing.

3.11 Engine fire during start

1. **FUEL** selector - **OFF**
2. THROTTLE - **MAX**
3. Ignition Switch - **OFF**
4. **MASTER BAT** & **GEN** - OFF
5. Airplane - leave
6. Extinguish fire by yourself or call for a fire-brigade if you cannot do it.

3.12 Engine fire in flight

1. **FUEL** selector - **OFF**
2. THROTTLE - **MAX**
3. **CABIN HEATER** - **PUSH OFF**
4. Ignition Switch - **OFF** - after the fuel in carburetors is consumed and engine shut down
5. Airspeed - maintain *60 KIAS*
6. Emergency landing - perform according to *3.9* as soon as possible
7. Airplane - leave
8. Extinguish fire by yourself or call for a fire-brigade if you cannot do it.

NOTE

Estimated time to pump fuel out of carburetors is about 30 sec.

WARNING

Do not attempt to re-start the engine!

3.13 Electrical fire in flight

1. **MASTER BAT & GEN** - OFF
2. Other switches - OFF
3. **CABIN HEATER** - **PUSH OFF**
4. Ventilation - open
5. Emergency landing - perform according to *3.9* as soon as possible

3.14 Emergency descent

1. Airspeed - max. permitted - V_{NE} = *138 KIAS*
   - V_{NO} = *108 KIAS*
   - V_A = *88 KIAS*
2. Engine RPM - do not overrun max. *5,800 rpm*

3.15 Generator failure

- GEN "**OFF**" (on EMS screen) highlighted red, the MSG window blinking red with the "GEN CONTACT LOW" warning message, the external EMS ALARM light flashing and starts voice alert in headset..
- Voltmeter (on EMS screen) indicates voltage under *12.5 V.*
- Ammeter (on EMS screen) permanently indicates negative current.

1. **MASTER BAT & GEN** - ON
2. Engine RPM - increase above *3,000 rpm*

If the generator failure indication persists:

3. **MASTER GEN** - OFF – ON

If the generator failure indication persists:

4. **MASTER GEN** - OFF
5. All unnecessary electrical equipment - OFF
6. Voltmeter - monitor voltage of battery
7. Land as soon as possible at nearest suitable airport.

3.16 Overvoltage

- Voltage value (on EMS screen) highlighted red and blinking, the MSG window blinking red with the "VOLTAGE HIGH" warning message, the external EMS ALARM light flashing and starts voice alert in headset.
- Voltmeter (on EMS screen) permanently indicates voltage over *14.6 V*.

1. Engine RPM - decrease to minimum usable for flight

If the overvoltage indication persists:

2. **MASTER GEN** - OFF
3. All unnecessary electrical equipment - OFF
4. Voltmeter - monitor voltage of battery
5. Land as soon as possible at nearest suitable airport.

CAUTION

Use transceiver and transponder as necessary, short time only.
Operating time of battery in good condition is up to 30 minutes.
The engine runs independently on generator functioning.

3.17 Inadvertent spin recovery

There is no uncontrollable tendency of the airplane to enter into a spin provided the normal piloting techniques are used.

Inadvertent spin recovery technique:

1. THROTTLE - **IDLE**
2. **FLAPS** (if extended) - retract *(0°)*
3. Ailerons control - neutral
4. Rudder control - full deflect opposite to the sense of rotation
5. Elevator control - push forward

After rotation stops:

6. Rudder control - neutral
7. Elevator control - pull gently to recover diving

WARNING

Intentional spins are prohibited!

3.18 Inadvertent icing encounter

CAUTION
Aircraft is approved to operate in VMC condition only!

1. Leave icing area - turn back or change altitude to reach area with higher outside air temperature.
2. **CARBURETOR AIR - PULL HOT**
3. **CABIN HEATER - PULL ON**
4. Increase RPM to minimize ice build-up on propeller blades.
5. Continue to move control surfaces to maintain their moveability.
6. In case of icing on the leading edge of wing, the stall speed will increase.
7. In case of icing on the pitot probe, erroneous indicating of the airspeed and altimeter.
8. If you fail to recover the engine power or normal flight conditions, land on the nearest airfield *(if possible)* or depending on the circumstances, perform a precautionary landing according to *3.10* or emergency landing according to *3.9.*

NOTE
The carburetor icing and air filter icing shows itself through a decrease engine power and an increase of engine temperatures.

NOTE
Use carburetor heating during lengthy descents and in areas of possible carburetor icing.

3.19 Obstruction of air into engine filter

If the engine runs rough and power decrease, air filter can be clogged with some impurities e.g. dust or ice.

1. **CARBURETOR AIR - PULL HOT**
2. Check engine running and monitor engine instruments.
3. Land as soon as possible at nearest suitable airport.

NOTE
When using the carburetor heating, engine power will decrease due to hot air suction from the heat exchanger.

If you fail to recover the engine power, land on the nearest airfield *(if possible)* or depending on the circumstances, perform a precautionary landing according to *3.10*.

3.20 Engine vibration

If any forced aircraft vibrations appear, it is necessary:

1. To set engine speed to such power rating where the vibrations are lowest.
2. To land on the nearest airfield or to perform a precautionary landing according to *3.10*.

3.21 Landing with a flat tire

1. During landing keep the damaged wheel above ground as long as possible using the ailerons control.
2. Maintain the direction on the landing roll out, applying rudder control.

3.22 Landing with a defective landing gear

1. If the main landing gear is damaged, perform touch-down at the lowest practicable speed and if possible, maintain direction during landing run.
2. If the nose wheel is damaged perform touch-down at the lowest practicable speed and hold the nose wheel above the ground by means of the elevator control as long as possible.

3.23 Loss of primary instruments

SkyView notifies users with a large red X and a descriptive label if a major failure occurs that prevents the display of information. A red X may overlay an entire page if a data source such as an EMS module fails or a red X may overlay a single widget if a single engine sensor fails or is not connected.

PFD data loss

1. **MFD 1, MFD 2**
   circuit breakers - ON
2. Backup Airspeed indicator, Backup Altimeter
   - use for flight
3. Land as soon as practicable

CAUTION
GPS show ground speed only – take the surface wind into account!

EMS unit malfunction or failure

1. **MFD 1, MFD 2**
   circuit breakers - ON
2. Land as soon as practicable

CAUTION
Do not use maximum engine power without RPM indication!

3.24 Loss of flight controls

Lateral control failure

Use the Aileron Trim and Rudder for aircraft banking.

CAUTION
Avoid steep turns – more than 15° of bank!
Do not extend wing flaps!

Longitudinal control failure

Use the Elevator Trim and Throttle for aircraft longitudinal attitude change.

CAUTION
Avoid abrupt maneuvers! Longer runway will be need for landing!
Do not extend wing flaps!

3.25 Throttle lever linkage cables failure

If power setting is not possible:

1. Ignition Switch - **OFF**
2. Airspeed - maintain *60 KIAS*
3. Emergency landing - perform according to *3.9*

3.26 Inadvertent canopy opening during takeoff

- During takeoff – aircraft rotation occurs, the canopy opens approximately *50 mm*.
- During climb and descent with airspeed at *60-75 KIAS*, the canopy stays opened *50-80 mm*.
- During horizontal flight with airspeed at *60-80 KIAS*, the canopy stays opened *50-80 mm*.
- In all above-mentioned cases – there are no flight problems, no vibrations, good aircraft control, and no change of flight characteristics.
- **It is not possible to close the canopy.**

Recommended procedure if the canopy opens during takeoff:

1. **DO NOT TRY TO CLOSE THE CANOPY!**
2. Continue the takeoff
3. Climb to the safe altitude
   - maintain airspeed at *62 KIAS*
4. Continue to fly the normal traffic pattern (circuit)
   - max. airspeed *75 KIAS*
5. Land
   - after stopping, close and lock the canopy

Recommendation: ***- Before takeoff, manually check the canopy is locked by pushing on the canopy upwards.***

CAUTION
During the flight, approach and landing - do not perform any slipping.

3.27 Message, Caution, and Warning Alerting System

The area directly above the rightmost button (button 8) is the Message Notification Area. This area is reserved to notify the pilot of various messages and alerts that SkyView can present. All messages and alerts are categorized by severity into one of three categories. These include advisory "messages", "caution" alerts, and "warning" alerts.

Alerts and messages are all categorized into one of three severity levels:

MESSAGE - Advisory message

CAUTION - A condition which is abnormal but not critical in nature; may increase pilot workload.

WARNING - A critical condition that should be addressed immediately; may affect safety of flight if not addressed.

List of Alerts:

WARNING	Description
ADAHRS FAIL	ADAHRS failure.
ADAHRS INTERNAL ERROR	SkyView has detected a problem with the ADAHRS module. Contact Dynon for assistance.
ADAHRS CAL CORRUPT	Contact Dynon for assistance.
EMS FAIL	Engine monitor failure.
OIL PRESSURE HIGH / LOW	Oil Pressure High or Low
FUEL PRESSURE HIGH / LOW	Fuel Pressure High or Low
ENGINE SPEED HIGH / LOW	Engine Speed High or Low
VOLTAGE HIGH / LOW	Voltage High or Low
OIL TEMPERATURE HIGH	Oil Temperature High
CT L TEMPERATURE HIGH	High Coolant Temperature on the Left Sensor
CT R TEMPERATURE HIGH	High Coolant Temperature on the Right Sensor
LEFT LEVEL LOW	Low Fuel Level in the Left Tank
RIGHT LEVEL LOW	Low Fuel Level of the Right Tank
GEN CONTACT LOW	Generator disconnection or failure
CANOPY CONTACT LOW	Canopy is not locked
BACKUP BATTERY LOW	The backup battery connected to this display is low.

WARNING	Description
SKYNET POWER FAULT	A fault has been detected in the wires that provide power to SV Network devices.
AUDIO SUBSYSTEM FAIL	SkyView has detected a problem with the audio system.
MAG FACT CAL CORRUPT	Contact Dynon for assistance.

CAUTION	Description
STANDBY NETWORK ERROR	SkyView Network has lost its secondary standby network redundancy.
POSITION SOURCE or GPS X FAIL	Position source (GPS) failure.
EMS SFG FILE MISMATCH	The engine sensor indications may be incorrect, and screens may disagree.
BACKUP BATTERY IN USE	System has switched to SkyView Backup Battery.
OTHER DISPLAY OFFLINE	A SkyView Display has failed or is no longer communicating via SkyView Network.
NEED COMPASS CAL	Magnetic compass heading is not calibrated.
ADAHRS CAL OLD	Contact Dynon for assistance.
ACTV ADAHRS VIBRATION	The currently-active ADAHRS has detected vibration that will affect G Meter and attitude indicator performance. Troubleshoot when able.
BATTERY MISSING / FAULT	A previously connected backup battery is no longer detected or has failed.
CROSS CHECK ATTITUDE	While in flight, IAS has become invalid (likely due to icing or obstruction), and all GPS sources have failed. The attitude indication should be considered unreliable.
TOUCH PANEL FAULT	Touch Hardware is currently offline
NO HI-RES TERRAIN	SkyView has detected that there is no high resolution terrain dataabase installed for the aircraft's current position.
CPU TEMP CRITICAL	The display internal temperature is high. To prevent permanent damage, the display may shut down at any time unless immediate action is taken to cool it down.

MESSAGE	Description
TIMER EXPIRED	A DOWN timer under MENU > TIMER has expired.
BATTERY TEST FAILED	A full backup battery test was performed, and it failed. See the Installation Guide for further troubleshooting information.
BATTERY TEST NEEDED	A year or more has passed since the last successful backup battery test, or the last three SkyView shutdowns were abnormal.
SOFTWARE MISMATCH	SkyView components are not all running the same software version.
OEM CONFIG MISMATCH	OEM-customized displays are not in sync with each other.
TAIL # MISMATCH	Tail numbers differ between SkyView displays – settings will not properly synchronize.
CPU TEMP HIGH	The display internal temperature is significantly higher than the normal operating temperature.
BACKUP BATTERY LOW CHARGE	The backup battery connected to this display is not charged.
SYSTEM EVENT n	SkyView has detected a possible problem with software or hardware. Please fill out form at http://dynon.aero/event5 when convenient.

SECTION 4

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4. NORMAL PROCEDURES

This section provides checklists and recommended procedures for normal operation of the aircraft.

CAUTION

*Airspeeds values are valid for standard **AVIATIK WA037383 pitot-static probe.***
*These normal procedures are valid for **WOODCOMP KLASSIC 170/3/R** three composite blades ground adjustable propeller.*

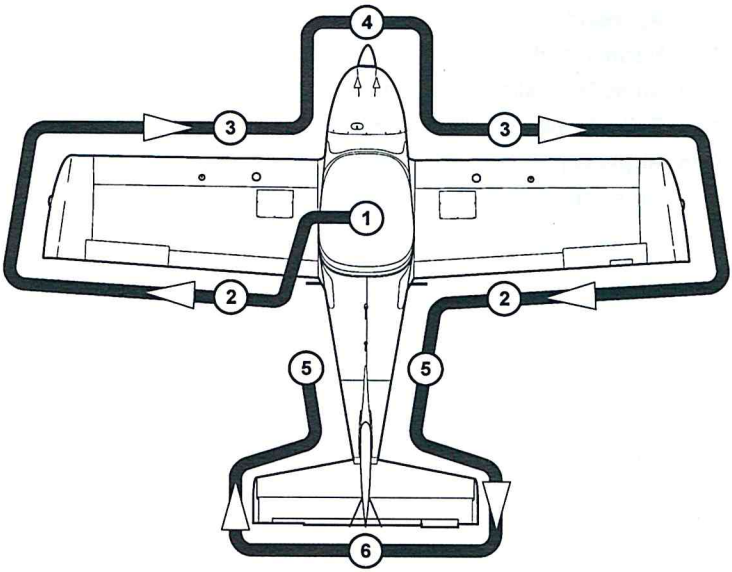
4.1 Preflight check

Carry out the pre-flight inspection every day prior to the first flight or after airplane assembly. Incomplete or careless inspection can cause an accident. Carry out the inspection following the instructions in the Inspection Check List.

NOTE

The word "condition" in the instructions means a visual inspection of surface for damage deformations, scratching, chafing, corrosion or other damages, which may lead to flight safety degradation.

The manufacturer recommends carrying out the pre-flight inspection as follows:



Inspection Check List

①	• Canopy	- condition of attachment, cleanness
	• Check cockpit for loose objects	
	Switches:	
	• Ignition	- **OFF**
	• **MASTER BAT**	- ON
	• **MFD 1, MFD 2**	- ON, check Screens functioning - check Fuel quantity indication - check Battery voltage, Backup batteries voltage
	• **AVIONICS**	- ON, check functioning of Transceiver, Intercom and Transponder
	• **NAV L, STROBE, LDG L, COCKPIT L**	- ON, check functioning
	• Flight controls	- visual inspection, function, clearance, free movement up to stops, check wing flaps and trims operation
	• All switches	- OFF
	MASTER BAT	- OFF
②	• Wing flap	- surface condition, attachment, clearance
	• Aileron	- surface condition, attachment, clearance, free movement, trim tab surface condition (*Right aileron only)*, attachment
	• Wing tip	- surface condition, strobe/nav. light attachment
③	• Wing upper surface	- condition, cleanness
	• Leading edge	- surface condition, cleanness
	• Wing locker	- closed and locked
	• Pitot head	- condition, attachment, cleanness - *Left wing only*

④	• Nose gear	- wheel, fairing and leg attachment, condition, pressure of tire
	• Engine cowling	- condition
	• Propeller and spinner	- condition
	• Engine mount and exhaust manifold	- condition, attachment
	• Oil quantity	- check (Before this check, ensure Ignition switch and **MASTER BAT** - OFF, open the oil tank and then turn the propeller by hand in direction of engine rotation several times to pump oil from the engine into the oil tank – this process is finished when air is returning back to the oil tank and can be noticed by a murmur from the open oil tank – see the Rotax Operator's manual.) - check oil level and replenish as required - close the oil tank
	• Coolant quantity	- check
	• Fuel and electrical system	- visual inspection
	• Fuel system	- draining
	• Other actions according to the engine manual	
⑤	• Main landing gear	- wheel, fairing, leg and brake attachment, condition, pressure of tire
	• Fuselage surface	- condition, cleanness
	• Antennas	- attachment
⑥	• Vertical tail unit	- condition of surface, attachment, free movement, rudder stops
	• Horizontal tail unit	- condition of surface, attachment, free movement, elevator stop - trim tab surface condition, attachment - anti-balance tab surface condition, attachment

CAUTION

Perform Weight and Balance check before flight.

WARNING

Physically check the fuel level before each takeoff to make sure you have sufficient fuel for the planned flight.

WARNING

In case of long-term parking it is recommended to turn the engine several times (Ignition Switch - OFF!) by turning the propeller. Always handle by palm the blade area i.e. do not grasp only the blade edge. It will facilitate engine starting.

4.2 Engine starting

4.2.1 Before engine starting

1.	Flight controls	- free & correct movement
2.	Canopy	- clean, close and lock
3.	Safety harness	- fasten
4.	Brakes	- fully applied
5.	**PARKING BRAKE**	- use

4.2.2 Engine starting

1.	THROTTLE	- **IDLE**
2.	**CHOKE** - cold engine	- **ON** *(fully pulled and hold)*
	- warm engine	- **OFF**
3.	**FUEL** selector	- **LEFT** or **RIGHT** *(in accordance with fuel tanks filling)*; check correct position - green mark (see Chapter 7.11)
4.	**MASTER BAT**	- ON
5.	**MFD 1**	- ON
6.	**FUEL P**	- ON
7.	Propeller area	- clear
8.	Ignition Switch	- hold **START**
	after engine is starting	- **BOTH**

After engine is running:

9.	**MASTER GEN**	- ON
10.	**MFD 2**	- ON
11.	**AVIONICS**	- ON
12.	**FUEL P**	- OFF
13.	Other switches	- ON as necessary
14.	**CHOKE**	- gradually release during engine warming up
15.	THROTTLE	- maintain max. *2,500 rpm* for warming up

WARNING

Do not use the 50% ENGINE layout until the oil temperature scale bar on the ENGINE BOTTOM BAND changes in green (about 88°C). If this instruction not followed, the colors of RPM and Oil temperatures scale on the ENGINE BOTTOM BAND and the 50% ENGINE layout are not harmonized.

CAUTION

- *The starter should be activated for a maximum of 10 sec, followed by 2 min pause for starter cooling.*
- *As soon as engine runs, adjust throttle to achieve smooth running at approx. 2,500 rpm.*
- *Check if oil pressure has risen within 10 sec. and monitor oil pressure. Increase of engine speed is only permitted at steady oil pressure readings above 2 bar.*
- *At an engine start with low oil temperature, continue to observe the oil pressure as it could drop again due to the increased flow resistance in the suction line. The number of revolutions may be only so far increased that the oil pressure remains steady.*
- *To prevent impact load, start the engine with throttle lever in idle position or at the most up to 10 % open.*

4.2.3 Engine warm up

Prior to engine check block the main wheels using chocks. Initially warm up the engine to *2,000 rpm* for approximately *2 min*, then continue to *2,500 rpm* till oil temperature reaches *50 °C*. The warm up period depends on ambient air temperature. Check temperatures and pressures.

4.3 Taxiing

1. Flaps - retracted *(0°)*
2. **PARKING BRAKE** - release
3. Brakes - function check at taxiing start

Apply power and brakes as needed. Apply brakes to control movement on ground. Taxi carefully when wind velocity exceeds *20 knots*. Hold the control stick in neutral position.

NOTE

During the airplane waiting maintain the engine speed within the range from 2,100 to 2,300 rpm.

For hot temperature conditions:

- *Restrict engine running at ground to the shortest time only*
- *Avoid or limit taxiing in downwind or "wind blowing from the right side " position if possible*
- *In case the CT is close to the limit, reduce the temperature by turning the airplane in a head-wind or "wind from the left side" position and set rpm to 2,100-2,300*

4.4 Normal Takeoff

4.4.1 Engine run-up

CAUTION

The engine run-up should be performed with the aircraft heading upwind and not on a loose terrain (the propeller may suck grit which can damage the leading edges of blades).

1. Brakes - fully applied
2. Throttle - **MAX**
3. Engine speed - check *(5,000 ±100 rpm – wind calm)*
4. Engine gauges - within limits
5. Throttle - **IDLE**
6. Engine acceleration - check

CAUTION

To prevent impact load, wait for around 3 sec. after throttling back to partial load to reach constant speed before re-acceleration.

7. Ignition check
   - set engine speed to *4,000 rpm*
   - switch ignition gradually to **L – BOTH – R – BOTH**
     (Max. engine speed drop with only one ignition circuit must not exceed ***300 rpm***.
     Max. engine speed drop difference between circuits **L** and **R** should be ***115 rpm***.)

8.	**CARBURETOR AIR**	- **PULL HOT** - check carburetor preheating function (Engine speed drop approximately *50 rpm.*) - push OFF
9.	Throttle	- **IDLE**

NOTE

For checking the two ignition circuits, only one circuit may be switched OFF and ON at a time.

4.4.2 Before takeoff

NOTE

Elevator and aileron trim position indicators are displayed on the EMS screen. Aileron trim tab position can be checked visually from cockpit by view to the right.

NOTE

Do not connect any device to the 12 V socket before takeoff. 12V socket use in the cruise only.

1.	Altimeter	- set
2.	Trims	- set neutral position – green mark
3.	Flight controls	- check free movement
4.	Cockpit canopy	- closed and locked
Recommendation:		***- Before takeoff, manually check the canopy is locked by pushing the canopy upwards.***
5.	Safety harness	- fastened
6.	**FUEL** selector	- **LEFT** or **RIGHT**; check correct position - green mark (see Chapter 7.11)
7.	Ignition switch	- **BOTH**
8.	Flaps	- takeoff position *(12°)*

4.4.3 Takeoff

1.	THROTTLE	- **MAX**
2.	Engine speed	- check *(5,000 ±100 rpm – wind calm)*
3.	Engine parameters	- within limits
4.	Elevator control	- neutral position - at *30 - 34 KIAS* pull slightly to lift the nose wheel

5. Airplane unstick	- at *40 - 44 KIAS*
6. Climb	- after reaching airspeed *62 KIAS*
7. Brakes	- apply
8. **FLAPS**	- retract *(0°)* at safe altitude *(max. airspeed for flaps using is 75 KIAS)*
9. Trims	- as necessary

WARNING

Takeoff is prohibited if:

- *Engine is running unsteadily, roughly or with vibrations*
- *Engine instrument values are beyond operational limits*
- *Aircraft systems (e.g. brakes, controls or avionics) working incorrectly*
- *Crosswind velocity exceeds permitted limits (see Section 5 Performance, 5.7 Demonstrated wind performance)*

4.5 Climb

1. THROTTLE	- **MAX** *(max. 5,800 rpm for max. 5 min,* max. continuous power *5,500 rpm)*
2. Airspeed	- V_x = *55 KIAS* - V_y = *62 KIAS*
3. Trims	- as necessary
4. Engine parameters	- within limits

CAUTION

If the cylinder head temperature or oil temperature and/or coolant temperature approaches or exceeds limits, reduce the climb angle to increase airspeed and possibly return within limits. If readings do not improve, troubleshoot causes other than high power setting at low airspeed.

4.6 Best angle of climb speed (V_x): *55 KIAS*

4.7 Best rate of climb speed (V_y): *62 KIAS*

4.8 Cruise

1. THROTTLE - as necessary (refer to Section 5, for recommended cruising figures
2. Trims - as necessary
3. Engine parameters - within limits

NOTE

As necessary connect any device to the 12 V socket.

4.9 Descend

1. Optimum glide speed - *60 KIAS*

4.10 Approach

1. Approach speed - *60 KIAS*
2. THROTTLE - as necessary
3. Flaps - takeoff position *(12°)*
4. Trims - as necessary
5. Safety harness - fasten

CAUTION

It is not advisable to reduce the engine throttle control lever to minimum on final approach and when descending from very high altitude. In such cases the engine becomes under-cooled and a loss of power may occur. Descent at increased idle (approximately 3,000 rpm), airspeed 60-75 KIAS and check that the engine instruments indicate values within permitted limits.

4.11 Normal landing

4.11.1 Before landing

1. THROTTLE - as necessary
2. Airspeed - *60 KIAS*
3. **FLAPS** - landing position *(30°)*
4. Trims - as necessary
5. 12 V socket - disconnect any device

4.11.2 Landing

1. THROTTLE - **IDLE**
2. Touch-down on main wheels
3. Apply brakes - as necessary (after the nose wheel touch-down)

4.11.3 After landing

1. **FLAPS** - retract *(0°)*
2. THROTTLE - engine RPM set as required for taxiing
3. Trims - set neutral position – green mark

4.11.4 Engine shut down

1. THROTTLE - **IDLE**
2. Instruments - engine instruments within limits
3. Ignition Switch - **OFF**
4. Switches - OFF
5. **MASTER BAT & GEN** - OFF
6. **FUEL** selector - **OFF**

CAUTION

Rapid engine cooling should be avoided during operation. This happens above all during aircraft descent, taxiing and low engine rpm or at engine shutdown immediately after landing.

Under normal conditions the engine temperatures stabilize during descent, taxiing and at values suitable to stop engine by switching the ignition off. If necessary, cool the engine at engine speed within the range 2,100 to 2,300 rpm to stabilize the temperatures prior to engine shut down.

4.12 Short field takeoff and landing procedures

None

4.13 Balked landing procedures

1.	THROTTLE	- **MAX** *(max. 5,800 rpm for max. 5 min,* max. continuous power *5,500 rpm)*
2.	Airspeed	- min. *60 KIAS*
3.	**FLAPS**	- takeoff position *(12°)* *(max. airspeed for flaps using is 75 KIAS)*
4.	Trims	- as necessary
5.	Climb	- after reaching *62 KIAS*
6.	Flaps	- retract *(0°)* at safe altitude *(max. airspeed for flaps using is 75 KIAS)*
7.	Trims	- as necessary

4.14 Aircraft parking and tie-down

1.	Ignition Switch	- **OFF**
2.	**MASTER BAT & GEN**	- OFF
3.	**FUEL** selector	- **OFF**
4.	Parking brake	- as necessary
5.	Canopy	- close, lock as necessary
6.	Secure the airplane	

NOTE

It is recommended to use parking brake for short-time parking only, between flights during a flight day. After ending the flight day or at low temperatures of ambient air, do not use parking brake, but use the wheel chocks instead.

NOTE

Use anchor eyes on the wings and fuselage rear section to fix the airplane. Move control stick forward and fix it together with the rudder pedals. Make sure that the cockpit canopy is properly closed and locked.

4.15 Noise characteristics

The noise level in accordance with requirements of the CS-36, Am.2 (ICAO Annex 16, Volume I, Chapter 10 - 10.4 b) has been established as *64.4 ± 1.2 dB(A)*

SECTION 5

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5. PERFORMANCE

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5. PERFORMANCE

The presented data has been computed from actual flight tests with the aircraft and engine in good conditions and using average piloting techniques.
If not stated otherwise, the performance stated in this section is valid for maximum takeoff weight *600 kg* and under ISA conditions.

The performance shown in this section is valid for aircraft equipped with ***ROTAX 912 S2 / ULS2*** engine with maximum power *73.5 kW* and ***WOODCOMP KLASSIC 170/3/R*** three composite blades ground adjustable propeller with pitch setting *17.5 ±0.5°*.

CAUTION
*Airspeed values are valid for standard **AVIATIK WA037383 pitot-static probe.***

5.1 Takeoff distances

Conditions: - Altitude: *0 ft* ISA
- Engine power: *max. takeoff*
- Flaps: *12°*

RUNWAY SURFACE	Takeoff run distance		Takeoff distance over *50 ft (15 m)* obstacle	
	ft	*m*	*ft*	*m*
CONCRETE	*463*	*141*	*1,270*	*387*
GRASS	*702*	*214*	*1,499*	*457*

5.2 Landing distances

Conditions: - Altitude: *0 ft* ISA
- Engine power: *dle*
- Flaps: *30°*
- Brakes fully depressed immediately after touch-down

RUNWAY SURFACE	Landing distance over *50 ft (15 m)* obstacle		Landing run distance (braked)	
	ft	*m*	*ft*	*m*
CONCRETE	*1,188*	*362*	*479*	*146*
GRASS	*1,109*	*338*	*364*	*111*

5.3 Rate of climb

Conditions: Engine: *max. takeoff* Flaps: *0°*	Best rate of climb speed Vy	Rate of climb Vz
Altitude	*KIAS*	*fpm*
0 ft	*62*	*825*
1,000 ft	*62*	*783*
3,000 ft	*62*	*685*
5,000 ft	*62*	*576*
7,000 ft	*62*	*472*
9,000 ft	*62*	*355*

5.4 Cruise speeds

Altitude	Engine speed	Airspeeds			MAP	Fuel consumption
ft	rpm	KIAS	KCAS	KTAS	in Hg	l/h
1,000	4,200	72	72	73	23.7	13.6
	4,500	81	80	81	24.6	15.7
	4,800	91	89	89	25.5	18.0
	5,000	96	94	95	26.1	19.5
	5,300	105	102	103	27.0	21.9
	5,500	112	108	109	27.7	23.7
	5,700	118	113	114	28.3	25.8
3,000	4,200	68	69	72	22.2	13.2
	4,500	78	77	80	23.0	15.3
	4,800	86	85	88	23.8	17.5
	5,000	93	91	94	24.3	19.0
	5,300	102	99	102	25.1	21.4
	5,500	108	104	108	25.5	23.3
5,000	4,200	65	66	71	20.5	12.9
	4,500	74	74	79	21.3	14.9
	4,800	83	82	87	22.1	17.2
	5,000	89	87	93	22.7	18.7
	5,300	97	95	101	23.5	21.1
	5,500	103	100	107	24.1	22.8
7,000	4,200	62	63	69	19.3	12.5
	4,500	69	70	77	20.0	14.6
	4,800	79	78	85	20.6	16.8
	5,000	84	83	91	21.2	18.4
	5,300	92	90	99	22.0	20.8
	5,500	98	95	105	22.5	22.3
9,000	4,200	57	59	67	18.4	12.2
	4,500	64	65	74	19.0	14.3
	4,800	73	73	83	19.6	16.4
	5,000	79	78	89	20.0	18.0
	5,300	86	85	97	20.5	20.4
	5,500	92	90	103	20.8	21.8

5.5 RPM setting and fuel consumption

Altitude	ft	1,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	l/h	13.6	15.7	18.0	19.5	21.9	23.7
Airspeeds	KIAS	72	81	91	96	105	112
	KCAS	72	80	89	94	102	108
	KTAS	73	81	89	95	103	109
Endurance and Range at 113 liters							
Endurance	hh:mm	8:18	7:11	6:16	5:47	5:09	4:46
Range	NM	607	583	559	551	531	520
	km	1123	1080	1035	1020	984	962
Endurance and Range at 90 liters							
Endurance	hh:mm	6:37	5:43	5:00	4:36	4:06	3:47
Range	NM	483	464	445	438	423	414
	km	895	860	824	812	784	767
Endurance and Range at 60 liters							
Endurance	hh:mm	4:24	3:49	3:20	3:04	2:44	2:31
Range	NM	322	310	297	292	282	276
	km	596	573	549	541	523	511
Endurance and Range at 30 liters							
Endurance	hh:mm	2:12	1:54	1:40	1:32	1:22	1:15
Range	NM	161	155	148	146	141	138
	km	298	287	275	271	261	256
Endurance and Range at 15 liters							
Endurance	hh:mm	1:06	0:57	0:50	0:46	0:41	0:37
Range	NM	81	77	74	73	71	69
	km	149	143	137	135	131	128

Altitude	ft	3,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	l/h	13.2	15.3	17.5	19.0	21.4	23.3
Airspeeds	KIAS	68	78	86	93	102	108
	KCAS	69	77	85	91	99	104
	KTAS	72	80	88	94	102	108
Endurance and Range at 113 liters							
Endurance	hh:mm	8:33	7:23	6:27	5:56	5:16	4:50
Range	NM	616	591	568	559	539	524
	km	1142	1094	1052	1035	997	970
Endurance and Range at 90 liters							
Endurance	hh:mm	6:49	5:52	5:08	4:44	4:12	3:51
Range	NM	491	471	453	445	429	417
	km	909	872	838	825	794	773
Endurance and Range at 60 liters							
Endurance	hh:mm	4:32	3:55	3:25	3:09	2:48	2:34
Range	NM	327	314	302	297	286	278
	km	606	581	559	550	530	515
Endurance and Range at 30 liters							
Endurance	hh:mm	2:16	1:57	1:42	1:34	1:24	1:17
Range	NM	164	157	151	148	143	139
	km	303	291	279	275	265	258
Endurance and Range at 15 liters							
Endurance	hh:mm	1:08	0:58	0:51	0:47	0:42	0:38
Range	NM	82	78	75	74	71	70
	km	152	145	140	137	132	129

Altitude	ft	5,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	l/h	12.9	14.9	17.2	18.7	21.1	22.8
Airspeeds	KIAS	65	74	83	89	97	103
	KCAS	66	74	82	87	95	100
	KTAS	71	79	87	93	101	107
Endurance and Range at 113 liters							
Endurance	hh:mm	8:45	7:35	6:34	6:02	5:21	4:57
Range	NM	622	599	572	562	541	530
	km	1152	1110	1059	1041	1002	982
Endurance and Range at 90 liters							
Endurance	hh:mm	6:58	6:02	5:13	4:48	4:15	3:56
Range	NM	495	477	455	448	431	422
	km	917	884	843	829	798	782
Endurance and Range at 60 liters							
Endurance	hh:mm	4:39	4:01	3:29	3:12	2:50	2:37
Range	NM	330	318	303	298	287	282
	km	612	589	562	553	532	521
Endurance and Range at 30 liters							
Endurance	hh:mm	2:19	2:00	1:44	1:36	1:25	1:18
Range	NM	165	159	152	149	144	141
	km	306	295	281	276	266	261
Endurance and Range at 15 liters							
Endurance	hh:mm	1:09	1:00	0:52	0:48	0:42	0:39
Range	NM	83	80	76	75	72	70
	km	153	147	141	138	133	130

Altitude	ft	7,000					
Engine speed	rpm	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption	l/h	12.5	14.6	16.8	18.4	20.8	22.3
Airspeeds	KIAS	62	69	79	84	92	98
	KCAS	63	70	78	83	90	95
	KTAS	69	77	85	91	99	105
Endurance and Range at 113 liters							
Endurance	hh:mm	9:02	7:44	6:43	6:08	5:25	5:04
Range	NM	624	596	572	559	538	532
	km	1155	1104	1059	1035	996	985
Endurance and Range at 90 liters							
Endurance	hh:mm	7:12	6:09	5:21	4:53	4:19	4:02
Range	NM	497	475	455	445	428	424
	km	920	879	843	824	793	785
Endurance and Range at 60 liters							
Endurance	hh:mm	4:48	4:06	3:34	3:15	2:53	2:41
Range	NM	331	316	304	297	286	283
	km	613	586	562	550	529	523
Endurance and Range at 30 liters							
Endurance	hh:mm	2:24	2:03	1:47	1:37	1:26	1:20
Range	NM	166	158	152	148	143	141
	km	307	293	281	275	264	262
Endurance and Range at 15 liters							
Endurance	hh:mm	1:12	1:01	0:53	0:48	0:43	0:40
Range	NM	83	79	76	74	71	71
	km	153	147	141	137	132	131

Altitude	ft	9,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	l/h	12.2	14.3	16.4	18.0	20.4	21.8
Airspeeds	KIAS	57	64	73	79	86	92
	KCAS	59	65	73	78	85	90
	KTAS	67	74	83	89	97	103
Endurance and Range at 113 liters							
Endurance	hh:mm	9:15	7:54	6:53	6:16	5:32	5:11
Range	NM	621	585	572	559	537	534
	km	1149	1083	1059	1035	995	989
Endurance and Range at 90 liters							
Endurance	hh:mm	7:22	6:17	5:29	5:00	4:24	4:07
Range	NM	494	466	455	445	428	425
	km	915	863	844	824	793	788
Endurance and Range at 60 liters							
Endurance	hh:mm	4:55	4:11	3:39	3:20	2:56	2:45
Range	NM	330	310	304	297	285	283
	km	610	575	562	549	528	525
Endurance and Range at 30 liters							
Endurance	hh:mm	2:27	2:05	1:49	1:40	1:28	1:22
Range	NM	165	155	152	148	143	142
	km	305	288	281	275	264	263
Endurance and Range at 15 liters							
Endurance	hh:mm	1:13	1:02	0:54	0:50	0:44	0:41
Range	NM	82	78	76	74	71	71
	km	153	144	141	137	132	131

5.6 Airspeed indicator system calibration

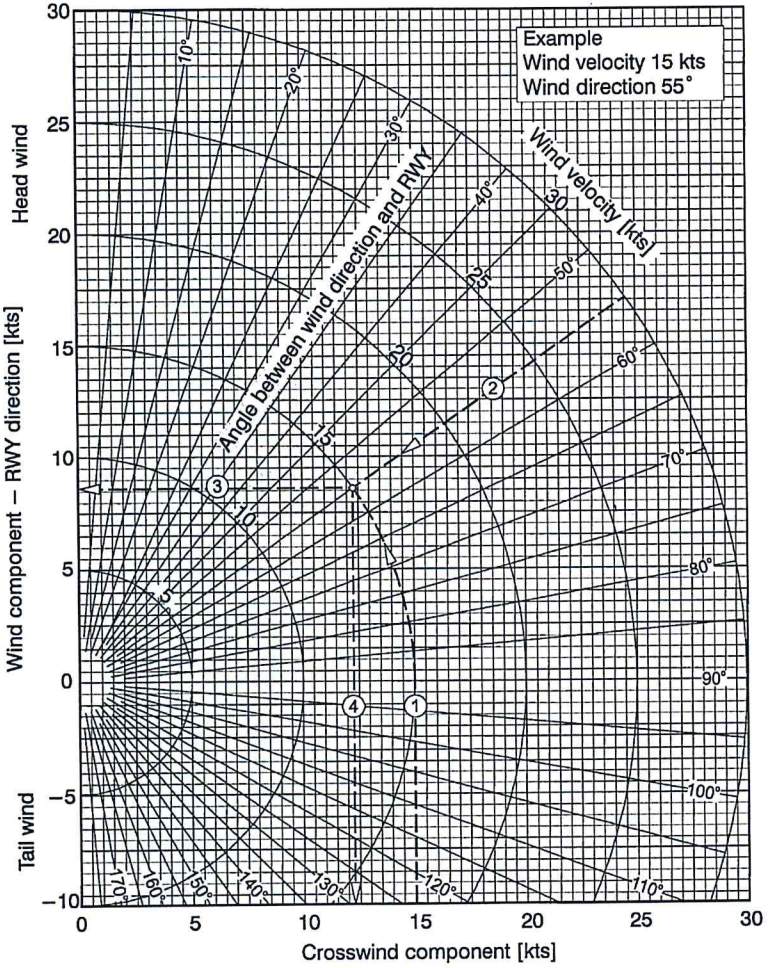
KIAS	KCAS
30	36
35	40
40	45
45	49
50	53
55	57
60	62
65	66
70	71
75	75
80	79
85	83
90	88
95	92
100	97
105	101
110	106
115	111
120	115
125	120
130	125
135	130
140	134

5.7 Demonstrated wind performance

Max. demonstrated headwind velocity for takeoff and landing:..... *24 knots*

Max. demonstrated crosswind velocity for takeoff and landing: ..... *12 knots*

Wind components figure



Example: *1. Wind velocity ..... 15 knots*
2. Wind direction..... 55°
3. Headwind component..... 8.6 knots
4. Crosswind component..... 12.3 knots

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SECTION 6

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6. WEIGHT AND BALANCE

6.1 Introduction

This section contains weight and balance records and the payload range for safe operation of ***PS-28 Cruiser*** aircraft.

Procedures for weighing the aircraft and the calculation method for establishing the permitted payload range are contained in FAA Aviation Advisory Circular AC.43.13 – 1B.

6.2 Airplane weighing procedure

1. Preparation

- remove all impurities from the aircraft as well as further undesirable objects
- inflate tires to recommended operating pressure
- drain fuel from fuel installation
- add oil, hydraulic and cooling liquid up to the maximum specified value
- retract wing flaps, close the canopy and other lids and covers, remove control surfaces blocking
- level the airplane according to the rivet line located on the fuselage (on LH and RH sides) under the canopy frame

2. Leveling

- Place scales under each wheel
- Deflate the nose tire and/or lower or raise the nose strut to properly center the bubble in the level.

3. Weighing

- With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.

4. Measuring

- The DATUM (reference plane) for arms measuring is on the wing leading edge Rib No.4.
- Obtain measurement LR and LL by measuring horizontally (along the airplane center line) from a line stretched between datum on the left and right wing.

- 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 *(only on the left seat)* ..... *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*

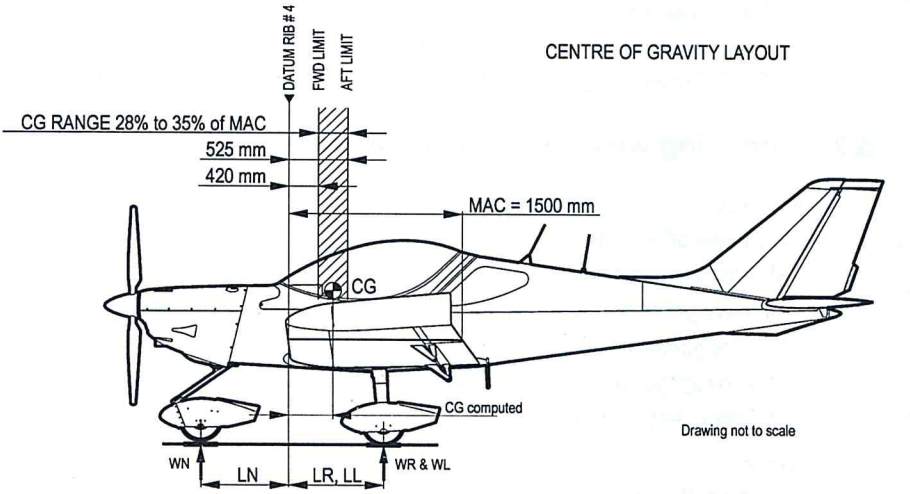
NOTE

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

6.5.2 Aircraft C.G. determination

After any changes in equipment or if the aircraft weight is affected by any alternation or repair, a new weighing and C.G. determination perform as follows:

Aircraft empty weight C.G. determination

1. Aircraft weighing according to 6.2.
2. Record weight and arm values to the aircraft empty weight C.G. table, nose wheel arm is negative (-).
3. Calculate and record moment for each of the main and nose wheels using the following formula:

MOMENT (kg mm) = WEIGHT (kg) x ARM (mm)

Nose wheel moment is negative (-).

4. Calculate and record total weight and moment.
5. Determine and record empty weight C.G. using the following formula:

$$\text{AIRCRAFT EMPTY WEIGHT C.G.} = \frac{M_{TE}}{W_{TE}}\ (mm) \times \frac{100}{MAC}\ (\%)\ \text{of MAC}$$

Aircraft empty weight C.G. determination table

AIRCRAFT EMPTY C.G.	ITEM	WEIGHT kg	ARM mm	MOMENT kg mm
	RIGHT MAIN WHEEL	W_R =	L_R =	
	LEFT MAIN WHEEL	W_L =	L_L =	
	NOSE WHEEL	W_N =	L_N = - (negative arm)	-
	TOTAL	**Empty weight:** W_{TE} =	**C.G.**= mm / % MAC	**Aircraft moment:** M_{TE} =

NOTE: *Empty weight is including oil, coolant, hydraulic fluid and unusable fuel.*

NOTE

Actual Weight and Balance record this aircraft is shown in Section 9, Supplement No. 02.

Blank form of Weight & Balance record

WEIGHT & BALANCE RECORD

Empty weight C.G. determination table

AIRCRAFT EMPTY C.G.	ITEM	WEIGHT kg	ARM mm	MOMENT kg mm
	RIGHT MAIN WHEEL	W_R =	L_R =	
	LEFT MAIN WHEEL	W_L =	L_L =	
	NOSE WHEEL	W_N =	L_N = - negative arm	-
	TOTAL	Empty weight: W_{TE} =	C.G. = mm % MAC	Aircraft moment: M_{TE} =

NOTE:

Empty weight is including oil, coolant, hydraulic fluid and unusable fuel.

Empty weight C.G. range : *427.5 to 442.5 mm / 28.5 to 29.5 % of MAC*

Operating C.G. range : *420 to 525 mm / 28 to 35 % of MAC*

MAC : *1,500 mm*

MOMENT (kg mm) = WEIGHT (kg) x ARM (mm)

$$\text{AIRCRAFT EMPTY WEIGHT C.G.} = \frac{M_{TE}}{W_{TE}} \text{ (mm)} \times \frac{100}{MAC} \text{ (\%) of MAC}$$

Registration:
Serial No.:
Date:
By:

6.6 Loading and C.G. check

Before flight is important to determine that the aircraft is loaded so its weight and C.G. location are within the allowable limits.
Aircraft loading and C.G. determination perform as follows:

1. Record actual empty weight, arm and moment to the table.
2. Record weights of pilot, passenger, baggage and fuel to the table.
3. Calculate and record moment for each item using the following formula:

MOMENT (kg mm) = WEIGHT (kg) x ARM (mm)

4. Calculate and record total weight and moment.
5. Determine and record aircraft C.G. using the following formula:

$$\text{AIRCRAFT C.G.} = \frac{M_T}{W_T}\ (mm) \times \frac{100}{MAC}\ (\%)\ of\ MAC$$

6. If loading or C.G. calculation results exceed maximum permitted values, reduce baggage or fuel weight and repeat calculation.
7. It is important to perform loading and C.G. check without fuel (in case of total fuel depletion) – most rearward C.G. check.

Loading and C.G. check table

ITEM	WEIGHT kg	ARM mm	MOMENT kg mm
EMPTY AIRCRAFT			
PILOT		700	
PASSENGER		700	
BAGGAGE COMPARTMENT		1,310	
WING LOCKERS		600	
FUEL IN TANKS		180	
TOTAL	W_T =	C.G. = mm % MAC	M_T =

Example of Loading and C.G. check

Aircraft empty data:

weight .....*387.0 kg*
arm.....*432.4 mm*
moment.....*167,329.0 kg mm*
MAC.....*1,500 mm*

Operating weights:

pilot .....*85.0 kg*
passenger.....*65.0 kg*
baggage in cockpit.....*10.0 kg*
baggage in wing lockers .....*10.0 kg*
fuel in tanks.....*43.0 kg (60 L)*

Loading and C.G. check table

ITEM	***WEIGHT*** *kg*	***ARM*** *mm*	***MOMENT*** *kg mm*
EMPTY AIRCRAFT	*387.0*	*432.4*	*167,329.0*
PILOT	*85.0*	*700*	*59,500.0*
PASSENGER	*65.0*	*700*	*45,500.0*
BAGGAGE COMPARTMENT	*10.0*	*1,310*	*13,100.0*
WING LOCKERS	*10.0*	*600*	*6,000.0*
FUEL IN TANKS	*43.0*	*180*	*7,740.0*
TOTAL	W_T = ***600.0***	***C.G.*** = ***498.6*** *mm* ***33.2*** *% MAC*	M_T = ***299,169.0***

Loading and C.G. check table – zero fuel

ITEM	WEIGHT kg	ARM mm	MOMENT kg mm
EMPTY AIRCRAFT	387.0	432.4	167,329.0
PILOT	85.0	700	59,500.0
PASSENGER	65.0	700	45,500.0
BAGGAGE COMPARTMENT	10.0	1,310	13,100.0
WING LOCKERS	10.0	600	6,000.0
FUEL IN TANKS	0.0	180	0.0
TOTAL	W_T = **557.0**	**C.G. = 523.2** mm **34.9** % MAC	M_T = **291,429.0**

Blank form of Loading and C.G. check

WEIGHT & BALANCE RECORD

Aircraft C.G. check table

ITEM	*WEIGHT* kg	*ARM* mm	*MOMENT* kg mm
EMPTY AIRCRAFT			
PILOT		700	
PASSENGER		700	
BAGGAGE COMPARTMENT		1,310	
WING LOCKERS		600	
FUEL IN TANKS		180	
TOTAL	W_T =	*C.G.* = mm % MAC	M_T =

NOTE:

Empty weight is including oil, coolant, hydraulic fluid and unusable fuel.

Maximum fuel quantity in wing tanks (114L=82.1kg) is used for most forward C.G. calculation.

Zero fuel quantity in wing tanks is used for most rearward C.G. calculation (in case of total fuel depletion).

Max. takeoff weight : *600 kg*

Max. weight in baggage compartment : *18 kg*

Max. weight in each wing locker : *10 kg*

Empty weight C.G. range : *427.5 to 442.5 mm / 28.5 to 29.5 % of MAC*

Operating C.G. range : *420 to 525 mm / 28 to 35 % of MAC*

MAC : *1,500 mm*

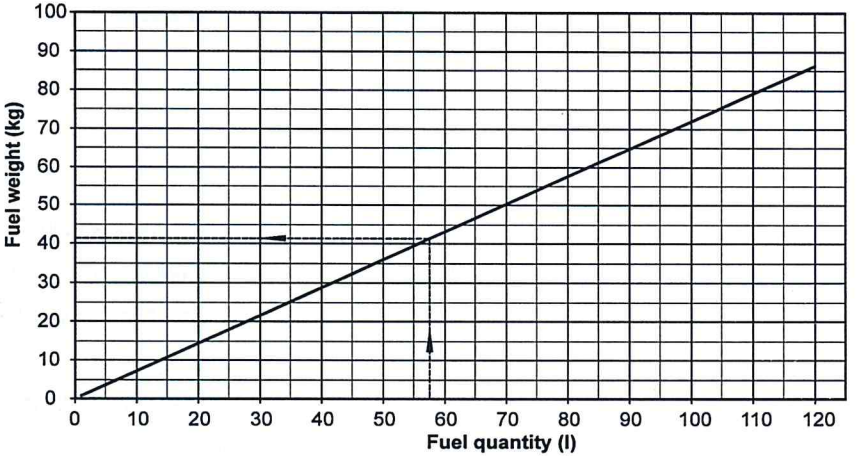
MOMENT (kg mm) = WEIGHT (kg) x ARM (mm)

$$\text{AIRCRAFT C.G.} = \frac{M_T}{W_T}\ (mm) \times \frac{100}{MAC}\ (\%)\ \text{of MAC}$$

Registration:
Serial No.:
Date:
By:

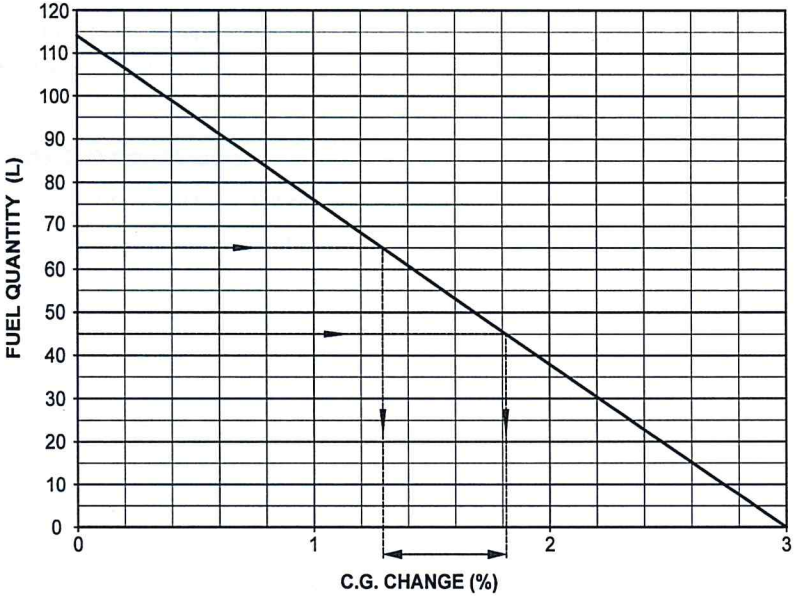
6.7 Fuel weight – quantity conversion chart

FUEL WEIGHT - QUANTITY CONVERSION CHART



6.8 C.G. change in dependence of fuel quantity

C.G. CHANGE IN DEPENDENCE OF FUEL QUANTITY



6.9 Load sheet and Balance chart

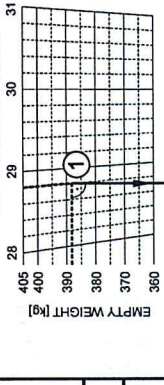
This chart makes possible to perform loading and C.G. check before flight simply and quickly. The undermentioned example shows how to use this chart. Perform following steps:

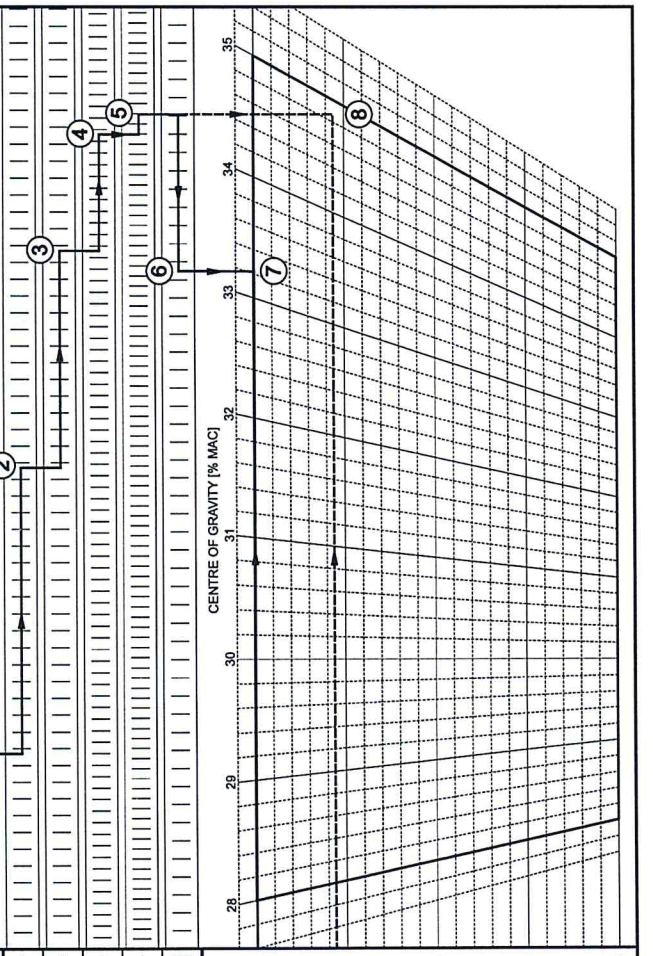
1. Record Empty weight and Empty C.G. *(% of MAC)* to the table.
2. Record the other used weight items to the table.
3. Calculate Total weight and record to the table.
4. Calculate Zero fuel weight record to the table – it is total weight without fuel weight (for most rearward C.G. check – in case of total fuel depletion).
5. The starting position line drawing is the intersection point of empty weight with empty C.G. marked as ①.
6. Go vertically down to the pilot weight scale, than continue horizontally to the right direction and pilot weight add. This is the point ②.
7. Repeat step 6 for the other used weight items (point ③ ④ ⑤) except fuel weight that is subtracted to the left direction to the point ⑥.
8. Go vertically down to the larger Aircraft C.G. chart to the crossing with Total weight line. This is the point ⑦ – actual Aircraft C.G. location in % of MAC – for takeoff.
9. In the end go vertically down from point ⑤ to the larger Aircraft C.G. chart to the crossing with Zero fuel weight line. This is the point ⑧ most rearward aircraft C.G. in % of MAC – without fuel.

F-C-02AM

LOAD SHEET & BALANCE CHART

NOTE: EMPTY C.G. RANGE 28.5 - 29.5% MAC
OPERATING C.G. RANGE 28 - 35% MAC
MAX. TAKEOFF WEIGHT 600 kg
MIN. PILOT WEIGHT 55 kg





REGISTRATION:

EXAMPLE:

EMPTY C.G.	28,8	% MAC
ITEM	ITEM WEIGHT	SCALE DIVISION AND MOTION DIRECTION
AIRCRAFT EMPTY	387 kg	
PILOT	85 kg	5 kg ▷
PASSENGER	65 kg	5 kg ▷
BAGGAGE COMPARTMENT	10 kg	1 kg ▷
WING LOCKERS	10 kg	5 kg ▷
FUEL IN TANKS	43 kg	5 kg ◁
TAKEOFF WEIGHT	600 kg	
ZERO FUEL WEIGHT	557 kg	

NOTE:
CONVERSION OF THE FUEL VOLUME TO WEIGHT UNIT:
1 LITER = 0.72 kg

DATE:

PILOT:

SIGNATURE:

Blank form of Load sheet & Balance chart

REGISTRATION:

F-C-02AM

LOAD SHEET & BALANCE CHART

NOTE:
EMPTY C.G. RANGE 28.5 - 29.5% MAC
OPERATING C.G. RANGE 28 - 35% MAC
MAX. TAKEOFF WEIGHT 600 kg
MIN. PILOT WEIGHT 55 kg

EMPTY C.G.		% MAC
ITEM	ITEM WEIGHT	SCALE DIVISION AND MOTION DIRECTION
AIRCRAFT EMPTY		
PILOT		5 kg ▷
PASSENGER		5 kg ▷
BAGGAGE COMPARTMENT		1 kg ▷
WING LOCKERS		5 kg ▷
FUEL IN TANKS		5 kg ◁
TAKEOFF WEIGHT		
ZERO FUEL WEIGHT		

NOTE:
CONVERSION OF THE FUEL VOLUME TO WEIGHT UNIT:
1 LITER = 0.72 kg

DATE:

PILOT:

SIGNATURE:

6.10 Installed equipment list

NOTE

Actual Installed equipment list is shown in Section 9, Supplement No. 02.

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SECTION 7

TABLE OF CONTENTS

7. DESCRIPTION OF AIRPLANE AND SYSTEMS

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7. DESCRIPTION OF AIRPLANE AND SYSTEMS

7.1 General

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

PS-28 Cruiser aircraft is a single-engine, all metal, low-wing monoplane of semi-monocoque structure with two side-by-side seats. The airplane is equipped with a fixed tricycle undercarriage with castering nose wheel.

Some parts of airplane are made from fiberglass laminate.

7.2 Airframe

All-metal construction, stressed skin, single curvature metal skins riveted to stiffeners. Construction is of 6061-T6 aluminum sheet metal riveted to aluminum angles with Avex rivets. This high strength aluminum alloy construction provides long life and low maintenance costs thanks to its durability and corrosion resistance characteristics.

The wing has a high lift airfoil equipped with flaps.

7.3 Flight controls

The aircraft is equipped with a dual stick control, the adjustable rudder pedals with pedal hydraulic brakes for easy ground control of the castering nose wheel.

Lateral and longitudinal control movement is transferred by mechanical system of pull rods and levers.

Rudder control is controlled by pedals of foot control. The rudder is interconnected with foot control pedals by cable system.

The rudder pedals setting levers are located in the left and right corner under and slightly behind the instrument panel.

Wing flaps are electrically actuated by the rocker switch located on the middle panel. The wing flaps position is displayed on the EMS screen.

Elevator and aileron trim tabs are electrically actuated by buttons on the control stick. Elevator and aileron trim position indicators are displayed on the EMS screen. Aileron trim tab position can be checked visually from cockpit by view to the right.

NOTE

Some possible SkyView screen layouts are shown in this Section.

7.4 Instrument panel

NOTE

Actual Instrument panel layout and Description of instrumentation and controls in the cockpit are shown in Section 9, Supplement No. 2.

7.5 Engine

ROTAX 912 S2 / ULS2 engine with maximum power *73.5 kW* is installed in this aircraft Rotax 912 S2 / ULS2 is a 4-stroke, 4-cylinder, horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV. Liquid cooled cylinder heads and ram air cooled cylinders.

Dry sump forced lubrication. Dual contactless capacitor discharge ignition. The engine is fitted with an electric starter, AC generator and mechanical fuel pump. Prop drive via reduction gear with integrated shock absorber.

For information about engine performance, speeds and limits see:

- *Section 2, chapter 2.12 "Engine operating speeds and limits" in this POH*
- *Rotax "Operator's manual" for engine type 912 series*

Engine controls

Throttle and Choke

Engine power is controlled by means of the THROTTLE lever and the CHOKE lever which are positioned in the middle channel between the seats side by side. Both levers are mechanically connected *(by cable)* to the flap on the carburetors. Springs are added to the throttle push rods to ensure that the engine will go to full power if the linkages fail.

Carburetor preheating

The heated air is streaming from a heat exchanger to the carburetor through the airbox. The control lever is installed on the middle panel.

Ignition switch

Ignition switch must be on **BOTH** position to operate the engine. For safety remove the key when engine is not running.

NOTE

Ignition system is independent of the power source and will operate even with Master switches and/or breakers OFF.

7.6 Propeller

Standard ***WOODCOMP KLASSIC 170/3/R*** three composite blades ground adjustable propeller is installed. The propeller diameter is *1,712 mm*.

NOTE

For technical data refer to documentation supplied by the propeller manufacturer.

7.7 Landing gear

Aircraft is equipped with tricycle landing gear.

Main landing gear uses two fiberglass spring elements. Each main gear wheel is equipped with an independent, hydraulically operated, disc type brakes. Nose wheel is free castering. Steering is accomplished by differential application of individual main gear brakes.

7.8 Baggage compartment

The rear baggage compartment is located behind seats. It may accommodate up to *18 kg*.

Baggage may also be loaded into the baggage compartment inside each wing up to *10 kg*, in each wing locker.

Make sure that baggage does not exceed maximum allowable weight, and that the aircraft C.G. is within limits with loaded baggage.

NOTE

The baggage compartments in wing lockers are not waterproof.

CAUTION

All baggage must be properly secured.

7.9 Seats and safety harnesses

Side-by-side seating. Seat cushions are removable for easy cleaning and drying. Four point safety belts provided to each seat. Additional seat upholstery to raise the small pilot or move him forward is optional.

NOTE

Prior to each flight, ensure that the seat belts are firmly secured to the airframe and that the belts are not damaged. Adjust the buckle to a central position on the body.

7.10 Canopy

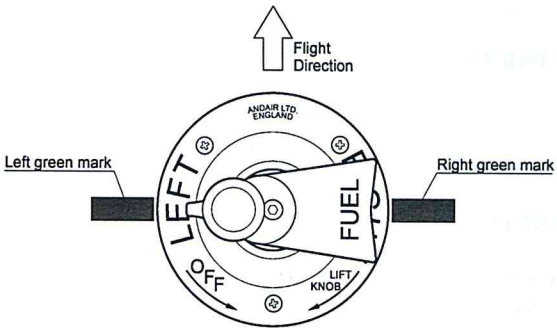
Access to the cabin is from both sides. Make sure that the canopy is latched and mechanism is securely locked into position on both sides before operating the aircraft and manually check the canopy is locked by pushing the canopy upward. The canopy unlocked indicates the **EMS ALARM** light flashing, the CANOPY OPEN red light on EMS screen and the "CANOPY CONTACT LOW" warning alert in the message box on SkyView screen.

7.11 Fuel system

Each tank is equipped with a vent outlet, finger screen filter and float sensor. Drain valve located in the lowest point of the each tank and on the bottom edge of the bulkhead, on the gascollator. Fuel selector valve is on the central console in the cockpit. The electric fuel pump is located on bulkhead and it is used for fuel line filling before engine starting. Fuel return hose goes from the fuel pump into the left tank.

CAUTION

During operation, fuel valve shall be in **LEFT** *or* **RIGHT** *tank position (position on green mark).*



NOTE

Fuel is not closed when the fuel valve is in upper half between **LEFT** *and* **RIGHT** *tank positions.*

If left tank is full, start engine with the fuel selector set to **LEFT**. *If you would start the engine with the fuel selector set to* **RIGHT** *and the left tank is full, than fuel bleed from the left tank vent may occur because a fuel return hose is led only into the left tank and returning fuel will overfill the left tank.*

CAUTION

Do not overfill the tanks to avoid fuel overflow through venting tubes.

7.12 Electrical system

Generator

The AC generator *(250 W AC)* is integrated in the engine and it is connected to the electric bus through the external rectifier regulator *(12 V 20 A DC)*.

Battery

The *12 V* battery is mounted on the front side of firewall.

Master battery switch

MASTER BAT switch connects the *12 V* battery to the electrical system.

Master generator switch

MASTER GEN switch connects the alternator to the electrical system.

Circuit breakers and switches

Circuit breakers and switches description is shown in Section 9, Supplement No. 02.

12 V Socket

The airplane is equipped with a 12 V socket on the right part of the instrument panel designed to supply portable appliances.

NOTE

12 V socket use in the cruise only.

7.13 Instruments and Avionics

7.13.1 Dynon SkyView HDX general description

The cockpit is fitted by Dynon SkyView SV-HDX1100 displays. SkyView SV-HDX1100 features brighter, higher-resolution HD touchscreen display with wider viewing angles and sharper picture even at direct sun beams. In addition, handling with the SV-HDX1100 display is easier thanks to use of touchscreen display features.

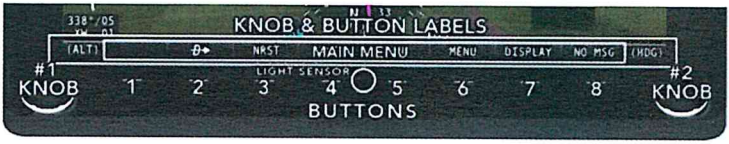
SkyView HDX screens can display a Primary Flight Display (PFD) and Engine Monitoring System (EMS) and Moving MAP. The most suitable layouts (mentioned and described below) were selected and locked by the aircraft manufacturer and cannot be changed by the pilot any more.

The left HDX screen located in front of the pilot is turn on by a switch-circuit breaker labeled MFD 1 and the right HDX screen located in front of the passenger is turn on by a switch-circuit breaker labeled MFD 2.

SkyView HDX is designed with an intuitive and comprehensive touch interface while still maintaining a full complement of tactile controls. This design assures the pilot has effective use of all necessary controls in a demanding cockpit environment, especially in turbulence. Even the physical design of the HDX bezel and button / knob control shelf has been optimized to assure comfortable use in a bumpy cockpit.

In almost every instance of touchable items or controls, there are tactile controls to accomplish the same action. Two exceptions to this design objective exist on the Map page, where touch gestures are the only method for panning the map display and for maximizing / minimizing the area of the screen occupied by the map. Especially in the case of map panning, the touch gesture has proven to be more effective in turbulence than nearly any tactile control.

SkyView HDX can control by two knobs and eight buttons and using touches in menus on the screen. Knob and button labels are arranged across the bottom of the display in the menu bar. Knob and button functionality is contextual based on what is on screen, and these labels show the current function.



SkyView HDX Display bottom part of front bezel layout

SkyView HDX basic menus

7.13.1.1 Primary Flight Display (PFD)

Airplane is fitted with Primary Flight Display (PFD) Dynon SkyView SV-HDX1100 which has following functions:

- Airspeed indicator
- Altimeter
- Attitude indicator
- Vertical speed indicator
- Slip/Skid ball
- Compass rose / directional gyro
- G-meter
- OAT

SkyView SV-HDX1100 PDF page layout

7.13.1.2 Engine instruments (EMS)

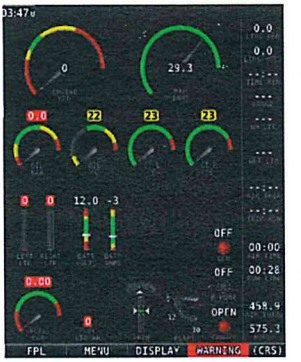
Engine parameters are displayed by EMS Dynon SkyView SV-HDX1100 which displays following engine parameters:

- Engine speed
- Mnifold pressure
- Oil pressure and temperature
- Coolant temperature
- Fuel pressure
- Fuel level
- Fuel flow meter

For information about engine instruments range and markings see:

- *Section 2, chapter 2.13 "Engine instruments markings".*

SkyView SV-HDX1100 EMS page layout as ENGINE BOTTOM BAND



SkyView SV-HDX1100 EMS page layout as 50% ENGINE

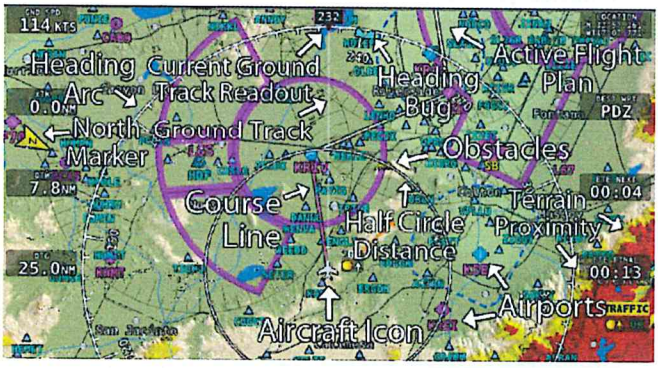
For information about engine instruments range and markings see *Section 2, chapter 2.13 "Engine instruments markings".*

WARNING

Do not use the 50% ENGINE layout until the oil temperature scale bar on the ENGINE BOTTOM BAND changes in green (about 88°C). If this instruction not followed, the colors of RPM and Oil temperatures scale on the ENGINE BOTTOM BAND and the 50% ENGINE layout are not harmonized.

7.13.1.3 Moving Map

The Moving Map Page displays a real-time topographical map in Track Up or North Up mode (depending on pilot setting). The map is sourced from a database that is stored inside the display and correlated to your current position using a GPS feed.



SkyView Moving Map

The following items are displayed on the Moving Map Page shown in Figure 40:

- Topography (terrain and bodies of water) with Terrain Proximity Alerting.
- Default Aircraft Icon with Ground Track Line.
- Distance Circle and Range.
- Heading Arc, Current Ground Track, Heading Bug, True North Marker.
- Configurable Info Items. Examples include GPS Ground Speed (SPEED), GPS Altitude (ALTITUDE), Distance to Waypoint (DTW), and Bearing to Waypoint (BTW).
- Course line (only displayed when actively navigating to an aviation waypoint).
- Airports with runways (if known).
- Obstacles.
- Airspace (with floors/ceilings).
- Navigation aids, such as VORs, NDBs, and Fixes.
- Active Flight Plan.

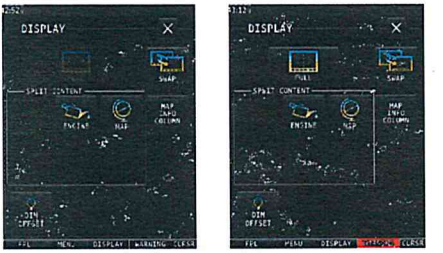
7.13.1.4 Screen Layout Configuration

SkyView SV-HDX1100 can display combinations of PFD, Engine, and Moving Map data in full-screen and partial-screen configurations as well as distribute this data across multiple displays. Each display in the system can also have its own layout. Each of the two installed HDX screens is configured to display PFD and EMS information at the same time.
Layout options is done through the DISPLAY menu page.

DISPLAY menu page

By pressing DISPLAY (Button 7) on the right at the bottom of the screen, the icon-based DISPLAY page on the right half of the screen will be opened. This page allows you to set the predefined screen layouts (FULL / ENGINE / MAP), MAP INFO COLUMN option, SWAP and DIM OFFSET functions.

The full PFD option is predefined when the device is switched on.
After using the ENGINE / MAP layout option, it is possible to turn back to the full PFD option by touching the FULL icon.



DISPLAY (menu) page without / with FULL option

The predefined layout configuration by the manufacturer is as follows:

Basic screen layout

The basic screen layout consists of PFD page (in upper part of screen) and EMS page as ENGINE BOTTOM BAND (in bottom part of screen).
This layout appears when you turn on the device or by selecting FULL icon on DISPLAY page.

Basic screen layout PFD as EFIS /
EMS as ENGINE BOTTOM BAND

MAP option

By selecting MAP icon on DISPLAY menu page, the screen layout PFD as EFIS / MAP / EMS as ENGINE BOTTOM BAND will be set.

Screen layout PFD as EFIS / MAP /
EMS as ENGINE BOTTOM BAND

ENGINE option

By selecting ENGINE icon on DISPLAY menu page, the screen layout PFD as EFIS / EMS as ENGINE / EMS as ENGINE BOTTOM BAND (left bottom part) will be set.

Screen layout PFD as EFIS / EMS as ENGINE page /
EMS as ENGINE BOTTOM BAND (left bottom part)

MAP INFO COLUMN option

By selecting MAP INFO COLUMN icon on DISPLAY page, 10 separate navigation information items in the vertical data column on the right edge of the MAP or PFD page will be displayed.

Basic screen layout with MAP INFO COLUMN

Screen layout MAP with MAP INFO COLUMN

SWAP function

A SWAP function used to exchange screens layout between the MFD 1 and MFD 2 displays and is activated by selecting SWAP icon on DISPLAY page.

Original MFD 1 and MFD 2 screen layouts

MFD 1 and MFD 2 screen layouts after SWAP function application

DIM OFFSET function

This function allows to manually adjust the brightness level of the screen by selecting DIM OFFSET icon on DISPLAY page.

DIM OFFSET (menu) page

7.13.1.5 Other setup options

MENU page

By pressing MENU (Button 6) on the right at the bottom of the screen, the icon-based MENU page will be opened. This page allows you to set the PFD TOOLS, ENGINE TOOLS, TIMER, MAP LAYERS, USER WAYPOINTS and MAP SETUP only.

MENU (menu) page

PFD TOOLS page

This page contains controls for selecting features and display modes for the PFD. By pressing MENU (Button 6) on the Main Menu and then selection the PFD TOOLS icon to enter this page.

PFD TOOLS (menu) page

SIX-PACK option

As an alternative to the EFIS tape-based display, SkyView HDX can display a traditional Six-pack analog presentation of flight instruments.
The Six-pack presentation on the PFD may be enabled or disabled at any time by pressing MENU (Button 6) on the Main Menu, then selecting the PFD TOOLS icon, then the SIX-PACK icon.

Basic screen layout PFD as SIX-PACK /
EMS as ENGINE BOTTOM BAND

Screen layout PFD as SIX-PACK /
MAP with MAP INFO COLUMN /
EMS as ENGINE BOTTOM BAND

Screen layout PFD as SIX-PACK / EMS as ENGINE page /
EMS as ENGINE BOTTOM BAND (left bottom part)

G METER option

A G Meter can be displayed on the PFD. When enabled, the G Meter replaces the HSI / Compass Rose in both the PFD presentation and the Six-pack presentation of the PFD.

Display of the G Meter in place of the HSI / Compass Rose on the PFD may be enabled or disabled at any time by pressing MENU (Button 6) on the Main Menu, then selecting the PFD TOOLS icon, then the G METER icon.

G-meter appears automatically when reaching G value of more than 2 or less than 0.

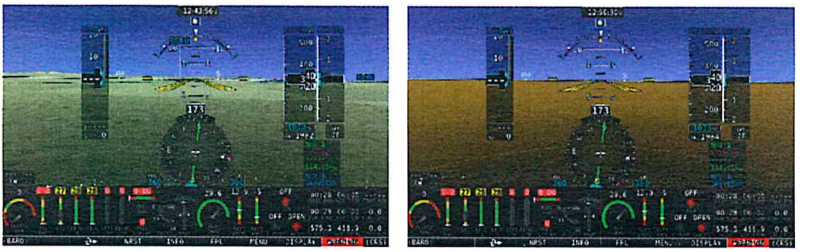
G METER

SYNVIS option

When valid GPS data is available, and high resolution terrain databases are loaded for the appropriate region, SkyView HDX's PFD features integrated Synthetic Vision (SYNVIS). Synthetic Vision displays the terrain directly ahead of the aircraft. Terrain is graphically represented in sectional chart color variations which represent topographical elevations and water features. Terrain is textured with a subtle checkerboard pattern to aid in identifying aircraft movement.

Synthetic Vision depictions of terrain, runways, obstacles, and other information are meant as informational aids only. These depictions should not be used as the primary means for obtaining situational awareness of these features in flight.

Display of Synthetic Vision may be enabled or disabled at any time by pressing MENU (Button 6), then selecting the PFD TOOLS icon, then the SYNVIS icon.



PFD as EFIS with activated and deactivated Synthetic Vision function.

PFD as Six-pack with activated and deactivated Synthetic Vision function.

WIDE VIEW option

SkyView offers the ability to show the Synthetic Vision on PFD in "Wide View" which displays additional peripheral view.
Display of WIDE VIEW may be enabled or disabled at any time by pushing the MENU button on the Main Menu, then tapping the PFD TOOLS icon, then the WIDE VIEW.

TERAIN ALLERT option

Terrain Alerting can provide additional situational awareness of terrain.
Terrain that is relatively close to the aircraft, that SkyView HDX considers an immediate threat, is colored Red. Terrain that is relatively close to the aircraft, that SkyView HDX considers potentially a threat, is colored Yellow.
Display of TERRAIN ALERT may be enabled or disabled at any time by selecting MENU (Button 6) on the Main Menu, then selecting the PFD TOOLS icon, then the TERRAIN ALERT icon. Terrain alerting is inhibited when the aircraft is on the ground.

HITS option

When a Flight Plan is engaged, Highway In The Sky (HITS) indicators (rectangles) can optionally be displayed in Synthetic Vision of the PFD. HITS is intended to be used for enroute flight.

Display of HITS can be toggled on and off at any time by pressing MENU (Button 6) on the Main Menu, then selecting the PFD TOOLS icon, then the HITS icon. SYNVIS must be enabled to display HITS.

AIRPORT FLAGS option

Airport Flags is symbology on the PFD representing the location of airports in your field of vision. They can be enabled and disabled through the PFD TOOLS menu item.

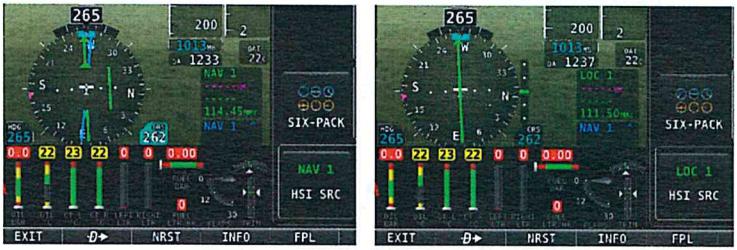
HSI SRC option

There are two primary types of sources: GPS and NAV radio. When a GPS is being used as an HIS source, HSI data generated by that source is colored magenta. When a NAV radio is being used as the source, its data is in green.
To the right of the heading indicator, a textual info item describes the data source of the HSI. It can be any of:

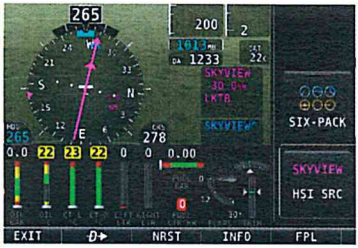
- NAV (VOR)
- BC (back course)
- LOC (localizer)
- SKYVIEW (GPS)

To cycle through the available sources of HSI data, you can either:

- Press MENU (Button 6) on the Main Menu, then select the PFD TOOLS icon, then select the HSI SRC icon. Repeated touches of the HSI SRC icon will cycle through the available HSI data sources. Or,
- Touch the HSI SRC data block near the lower right corner of the PFD beneath the Altimeter. Repeated touches of the HSI SRC data block will cycle through the available HSI data sources.



HSI SRC - NAV as VOR and as LOC



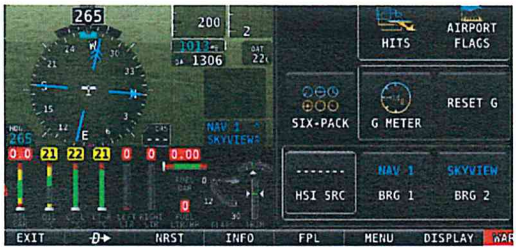
HSI SRC - SKYVIEW (GPS)

BRG 1 / BRG 2 option

Bearing Pointer arrows show you the bearing directly to a radio station or waypoint–in other words, the track that you would need to fly to go directly to it. BRG 1 is depicted with a single arrow head when displayed on the HSI display. BRG 2 has a double arrow head. There is also a textual information item for each bearing pointer that describes its source

Each of the bearing pointers can be cycled between all available bearing sources by selecting BRG 1 or BRG2 in the PFD Menu. Press the MENU button in the Main Menu, then tap the PFD TOOLS icon, then tap the BRG 1 or BRG 2 icons to select Bearing 1 or Bearing 2 respectively. Repeated taps on the BRG 1 or BRG 2 icons will select (appears on the HSI) or de-select (does not appear on the HSI) each bearing.

NAV radios tuned to a LOC/ILS frequency do not provide bearing information due to the nature of the localizer radio signal.



BRG 1 / BRG 2 pointer

BUGS option

BUGS switched on in the PFD menu appear in the Knob Function Menu and then can be set their desired values. Knob Function menus for each knob are used to specify which bug or parameter the knob adjusts if turned.

The SkyView PFD uses the following bugs:

- Barometer (BARO)
- Altitude (ALT)
- Course (CRS)
- Heading (HDG) / Track (TRK)
- Indicated Airspeed (IAS)
- Minimum Descent Altitude (MIN)
- Vertical Speed (VS)

BUGS menu in PFD page (right part of screen) and
Knob function menu (left bottom corner)

Barometer setting is performed via BARO bug in the Knob Function Menu and it is the only possibility to set pressure value. The BARO bug is permanently shown in the Knob Function Menu and is not possible to switch off in the BUGS setting menu.

TIMER page

The configurable count up/down timer is available on the SV-HDX1100 display. While the TIMER page is displayed, the clock in the top bar displays TIMER information instead of the normal clock that is normally shown. Leaving the timer menu will restore the clock if a timer is not running.

If the TIMER page is closed while the timer is running, the TIMER will continue to be displayed in the TOP BAR. It will continue to be displayed until the TIMER page is opened again and the timer is stopped. Any time the TIMER page is closed while the timer is stopped, the TOP BAR will return to displaying the normal clock.

The Timer function is selected either by touching the clock portion of the Top Bar, or by pressing MENU (Button 6) on the Main Menu bar, then selecting the TIMER icon to present the TIMER control page. In the TIMER can used the following icons:

- DOWN/UP - Toggles the timer mode - count-up and count-down timers are available
- RUN - Turns the timer on
- STOP - Turns the timer off
- ZERO - Resets the timer to zero
- LAST - Resets a DOWN timer to the last value it was set to before it was started

TIMER control (menu) page

MAP LAYERS page

Selecting the LAYERS icon opens the MAP LAYERS Menu, which allows you to select these "layers" (overlays) to the MAP window:

• TOPOG – Selecting this icon (terrain layer) displays high resolution terrain and base map with digital aviation and obstacle data. The aviation and obstacle data will vary depending on the various databases installed.

USER WAYPOINTS page

Selecting the USER WAYPOINTS icon opens the USER WAYPOINTS page. That page presents a list of user-created waypoints existing in SkyView, together with button controls on the bottom of the page for creating, editing and deleting user waypoints and for importing and exporting user waypoints to/from a USB stick.

MAP SETUP page

On this page the settings for the following items are available:

- INFO ITEMS (items for MAP INFO COLUMN)
- MAP ITEMS (items displayed on MAP screen)
- MAP MODE
- NEAREST LIST OPTIONS
- FLIGHT PLAN OPTIONS
- TRACK LINE OPTIONS
- VS REQ'D OPTIONS

ENGINE TOOLS page

Controls for features related to the engine are available by pressing MENU (Button 6) on the Main Menu, then selecting the ENGINE TOOLS icon.

ENGINE TOOLS (menu) page

Only the FUEL and the CLEAR TRIP TIMERS functions are used for PS-28 Cruiser. The LEAN function is meaningless for this aircraft.

FUEL option

Fuel computer adjustments are made by selecting the FUEL icon on the ENGINE menu. When FUEL is selected, a pop-up window will appear near the bottom of the screen, and the bottom bar menu will change to present options for changing the current fuel state in the fuel computer.
To obtain accurate data, you must reset the fuel computer every time you add fuel to the aircraft.

FUEL setting menu

CLEAR TRIP TIMERS option

The CLEAR TRIP TIMERS icon on the ENGINE menu is used to reset two system timers maintained by SkyView HDX: Engine Trip Timer and the Flight Trip Timer. Pressing the CLEAR TIMER resets both these timers to 0 hours.

NOTE

The SkyView HDX system is locked and password protected to prevent unintended changes in settings.

NOTE

Refer to "Dynon Avionics SkyView System Pilot's Guide, Document 102949-003, *Revision C" or later for complete operating procedures.*

7.14 Pitot-static system

Standard ***AVIATIK WA037383 pitot-static probe*** is located below the left wing. Pressure distribution to the instruments is through flexible plastic hoses. Keep the pitot head clean to ensure proper function of the system.

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SECTION 8

TABLE OF CONTENTS

8. HANDLING AND SERVICING

8.1	Introduction	8-2
8.2	Ground handling	8-2
8.3	Towing instructions	8-3
8.4	Tie-down instructions	8-3
8.5	Servicing operating fluids	8-4
8.6	Cleaning and care	8-6
8.7	Assembly and disassembly	8-6
8.8	Aircraft inspection periods	8-6
8.9	Aircraft alterations or repairs	8-7

8. HANDLING AND SERVICING

8.1 Introduction

This section contains factory-recommended procedures for proper ground handling and servicing of the airplane. It also identifies certain inspection and maintenance requirements, which must be followed if the airplane is to retain that new-plane performance and dependability.

8.2 Ground handling

8.2.1 Parking

It is advisable to park the airplane inside a hangar or alternatively inside any other suitable space *(garage)* with stable temperature, good ventilation, low humidity and dust-free environment.
It is necessary to moor the airplane when it is parked outside a hangar. Also when parking for a long time, cover the cockpit canopy, possibly the whole airplane by means of a suitable tarpaulin.

8.2.2 Jacking

Since the empty weight of this aircraft is relatively low, two people can lift the aircraft easily. First of all prepare two suitable supports to support the aircraft.
It is possible to lift the aircraft by handling the following parts:

- By pushing the fuselage rear section down in the place of a bulkhead the fuselage front section may be raised and then supported under the firewall.
- By holding the fuselage rear section under a bulkhead the fuselage rear may be raised and then supported under that bulkhead.
- To lift up a wing, push from underneath that wing ***only*** at the main spar area. Do not lift up a wing by handling the wing tip.

8.2.3 Road transport

The aircraft may be transported after loading on a suitable car trailer. It is necessary to dismantle the wings before road transport. The aircraft and dismantled wings should be attached securely to protect these parts against possible damage.

8.3 Towing instructions

To handle the airplane on ground use the *Tow Bar*, or if pushing the airplane by hand, push on the aft fuselage, placing your hands over an area of skin supported by a bulkhead.

CAUTION

Do not push or pull on the propeller or on the control surfaces when towing. You can damage the propeller and the control surfaces.

Avoid excessive pressure at the airplane airframe. Keep all safety precautions, especially in the propeller area.

Always use tow bar for direction control when pushing the airplane.

8.4 Tie-down instructions

The airplane should be moored when parked outside a hangar after the flight day. The mooring is necessary to protect the airplane against possible damage caused by wind and gusts.
For this reason the aircraft is equipped with mooring eyes located on the lower surfaces of the wings.

Tie-down procedures:

1. **FUEL** selector - **OFF**
2. **MASTER BAT** & **GEN** - OFF
3. Other switches - OFF
4. Ignition Switch - **OFF**
5. Control stick - fix using e.g. safety harness
6. Air vent - close
7. Ventilation windows - close
8. Canopy - close and lock
9. Moor the aircraft to the ground by means of a mooring rope passed through the mooring eyes located on the lower surfaces of the wings and below rear fuselage.

NOTE

In the case of long term parking, especially during winter, it is recommended to cover the cockpit canopy or possibly the whole aircraft by means of a suitable tarpaulin attached to the airframe.

8.5 Servicing operating fluids

See appropriate chapters in the ROTAX engine Maintenance and Operator's manuals and ***PS-28 Cruiser*** aircraft Maintenance manual for more instructions.

8.5.1 Approved fuel grades and specifications

Recommended fuel type:

(refer to the ROTAX Operator's manual section 2.4 Fuel, Rotax Service Instruction SI-912-016, latest edition)

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.

Fuel volume:

Wing fuel tanks volume .....*2x 57 L*

Unusable fuel quantity .....*2x 0.5 L*

8.5.2 Approved oil grades and specifications

Recommended oil type:

(refer to the Rotax Operator's manual section 2.5 Lubricants, Rotax Service Instruction SI-912-016, latest edition)

Motorcycle 4-stroke engine oil of registered brand with gear additives.
Use only oil with API "SG" classification or higher!
Use multi-grade oil. Use of mineral oil is not recommended.

Type of oil used by aircrafts manufacturer:

- see Section 9, Supplement No. 02

Oil volume:

Minimum ..... *3.3 L*
Maximum ..... *3.8 L*

8.5.3 Approved coolant grades and specifications

Recommended coolant type:

(refer to the Rotax Operator's manual section 2.2 Operating limits and section 2.3 Coolant, Rotax Service Instruction SI-912-016, latest edition)

New cylinder head design

Only one type of coolant is permitted:

- Conventional coolant based on ethylene glycol (mixture with 50% of water)

NOTE

With the change to a new cylinder heads design (applicable for 912 ULS2 engines from S/N 6 781 410 inclusive and 912 S2 engines from S/N 4 924 544 inclusive, or on all engines with type designation followed by suffix-01, or on all engines which have been later equipped with the new cylinder heads design of P/N 413185 at cylinder head position 2/3), no longer the Cylinder Head Temperature is measured, but the Coolant Temperature.

CAUTION

Waterless coolant are not allowed to use for Rotax engines with new cylinder head design.

Type of coolant used by aircraft manufacturer:

- see Section 9, Supplement No. 02

Coolant liquid volume:

It is approximately ..... *2.5 L*

8.6 Cleaning and care

Use efficient cleaning detergents to clean the aircraft surface. Oil spots on the aircraft surface *(except the canopy!)* may be cleaned with petrol.
The canopy may only be cleaned by washing it with a sufficient quantity of lukewarm water and an adequate quantity of detergents. Use either a soft, clean cloth sponge or deerskin. Then use suitable polishers to clean the canopy.

CAUTION
*Never clean the canopy under "dry" conditions and **never** use petrol or chemical solvents!*

Upholstery and covers may be removed from the cockpit, brushed and eventually washed in lukewarm water with an adequate quantity of detergents. Dry the upholstery thoroughly before insertion into the cockpit.

CAUTION
In the case of long term parking, cover the canopy to protect the cockpit interior from direct sunshine.

8.7 Assembly and disassembly

Refer to the *PS-28 Cruiser* aircraft Maintenance manual and the aircraft Assembly photo manual.

8.8 Aircraft inspection periods

Periods of overall checks and contingent maintenance depends on the condition of the operation and on overall condition of the airplane.

Inspections and revisions should be carried out in the periods listed in:

- ***PS-28 Cruiser** aircraft Maintenance manual* for aircraft maintenance.
- *Rotax engine Maintenance manual* for engine maintenance.
- *Woodcomp KLASSIC propeller manual* for propeller maintenance.

NOTE
Aircraft maintenance should be made in accordance with AC 43.13-1B.

8.9 Aircraft alternations or repairs

It is recommended to contact the airplane manufacturer prior to any alternations to the aircraft to ensure that the airworthiness of the aircraft is not violated. Always use only the original spare parts produced by the airplane (engine, propeller) manufacturer.

If the aircraft weight is affected by any alternation, a new weighing is necessary, then record the new empty weight into the Weight and Balance record.

NOTE

Aircraft repairs should be made in accordance with AC 43.13-1B.

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SECTION 9

TABLE OF CONTENTS

9. SUPPLEMENTS

9.1 List of inserted supplements 9-2
9.2 Inserted supplements 9-2

9. SUPPLEMENTS

This section contains the appropriate supplements necessary to safely and efficiently operate the aircraft when equipped with various optional systems and equipment not provided with the standard airplane.

9.1 List of inserted supplements

Suppl. No.	Title of supplement	Inserted	Date	Rev. No.
02	Aircraft specification S/N: C0638	yes	2020-05-15	1
05	Stall Warning System Installation	yes	2020-05-15	1
06	Sensenich 3B0R5R68C Propeller Installation	yes	2020-05-15	1
09	Installation of Efficient Heating and Windshield Defogging System	yes	2021-03-17	2
10	Installation of Garmin GNC 255A NAV/COMM	yes	2020-05-15	1
16	Installation of ELT KANNAD 406 AF-COMPACT	yes	2020-05-15	1

9.2 Inserted Supplements

Supplement No. 02

AIRCRAFT SPECIFICATION
Dynon SkyView HDX 1100 System equipment package

In this Supplement No. 02 – the Weight & Balance & Equipment is shown for real S/N of the aircraft.

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH during airplane operation.

Information in this Supplement completes or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement completes information necessary for the airplane operation with equipment installed on the airplane.

The structure of this supplement is EASA approved under Major Change Approval No. 10066844, Approval date: 11 September 2018.

This document is prepared in accordance with the AP DOA Approval No. AP507.

RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

1. GENERAL INFORMATION

No change.

2. LIMITATIONS

No change.

3. EMERGENCY PROCEDURES

No change.

4. NORMAL PROCEDURES

No change.

5. PERFORMANCE

No change.8

6. WEIGHT AND BALANCE

6.5 C.G. range and determination

6.5.2 Aircraft C.G. determination

WEIGHT & BALANCE RECORD

Empty weight C.G. determination table

AIRCRAFT EMPTY C.G.	ITEM	WEIGHT kg	ARM mm	MOMENT kg mm
	RIGHT MAIN WHEEL	W_R= 150.3	L_R= 784	117,835.2
	LEFT MAIN WHEEL	W_L= 149.5	L_L= 792	118,404.0
	NOSE WHEEL	W_N= 91.9	L_N= - 709 negative arm	- 65,157.1
	TOTAL	Empty weight: W_E = 391.7	C.G. = 436.8 mm 29.1 % MAC	Aircraft moment: M_E = 171,082.1

NOTE:

Empty weight is including oil, coolant, hydraulic fluid and unusable fuel.

Empty weight C.G. range: *427.5 to 442.5 mm / 28.5 to 29.5 % of MAC*

Operating C.G. range: *420 to 525 mm / 28 to 35 % of MAC*

MAC: *1,500 mm*

MOMENT (kg mm) = WEIGHT (kg) x ARM (mm)

$$\text{AIRCRAFT EMPTY WEIGHT C.G.} = \frac{M_{TE}}{W_{TE}} \text{ (mm)} \times \frac{100}{MAC} \text{ (\%) of MAC}$$

Registration:	F-HDMG
Serial No.:	C0638
Date:	2023-04-25
By:	Pavel Lukeš

CZECH AIRCRAFT QC 08 GROUP

6.10 Installed equipment list

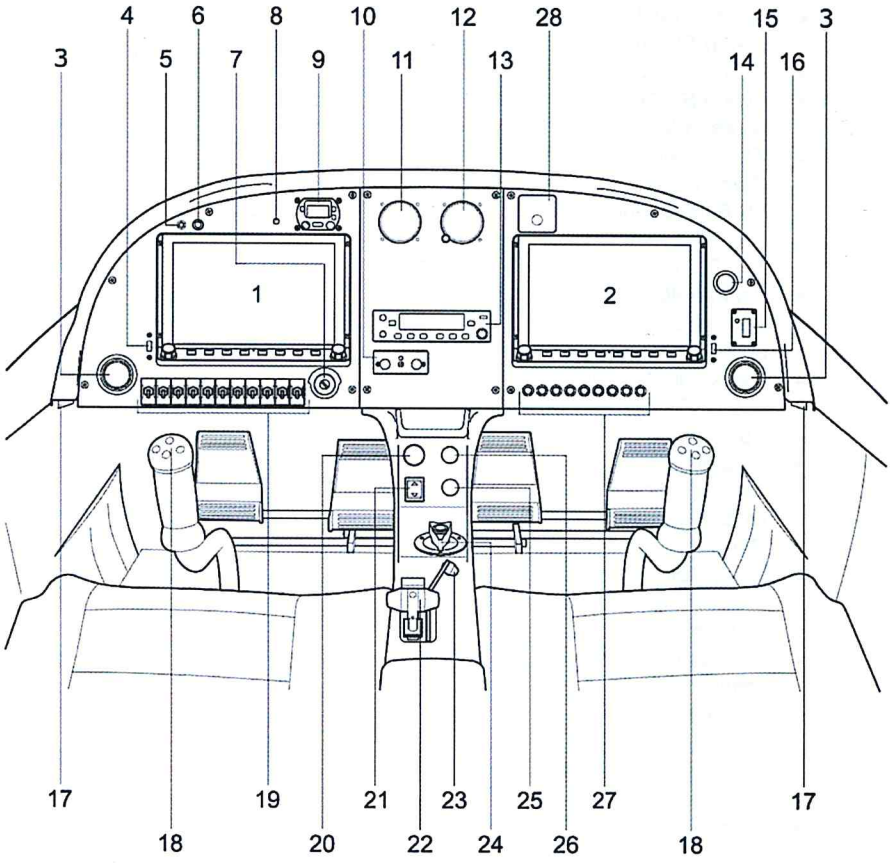
of PS-28 Cruiser aircraft

- *Rotax 912 ULS2 engine with airbox and thermostats*
- *Sensenich 3B0R5R68C propeller*
- *2x Dynon SV-HDX1100 screen*
- *Dynon SV-ADAHRS-200*
- *Dynon SV-EMS-220*
- *Dynon SV-GPS-250 GPS Receiver Module*
- *2x Dynon SV-BAT-320*
- *Dynon SV-OAT-340*
- *Winter 8022 backup airspeed indicator*
- *Winter 4 FGH 40 backup altimeter*
- *Garmin GNC 255A NAV/COMM device*
- *PS Engineering PM3000 intercom*
- *Trig TT21 transponder*
- *Trig TC20 transponder control unit*
- *Kannad 406 AF-Compact ELT*
- *Antennas*
- *G -205 trim control and PTT on the control sticks*
- *Trims and flaps electrically actuated*
- *AVE-WPST wing tips strobe/nav. lights*
- *Kuntzleman LED Landing light in cowl*
- *Cockpit light*
- *Adjustable pedals*
- *Dual hydraulic brakes*
- *Parking brake*
- *Wheel fairings tricycle*
- *Efficient cabin heating*
- *Carburetor preheating*
- *Leather upholstery*
- *Paint*
- *Sunshade*
- *Arm supports*
- *Stall warning system*
- *CO detector*
- *Front ballast 2.5 kg*

7. DESCRIPTION OF AIRPLANE AND SYSTEMS

7.4 *Instrument panel*

Instrument panel layout of *PS-28 Cruiser* aircraft



Description of instrumentation and controls in the cockpit

1	*LH Dynon SV-HDX1100 display*	15	*ELT control unit*
2	*RH Dynon SV-HDX1100 display*	16	*RH SV-HDX1100 USB port*
3	*Vent-air outlet*	17	*Pedal adjustment lever*
4	*LH SV-HDX1100 USB port*	18	*PTT / elevator trim / aileron trim buttons*
5	*Stall warning test button*	19	*Switches / Circuit breakers **
6	*Stall warning light*	20	*Carburetor preheating*
7	*Ignition switch*	21	*Flaps control switch*
8	*EMS alarm light*	22	*Throttle*
9	*Transponder control unit*	23	*Choke*
10	*PS Intercom*	24	*Fuel selector valve*
11	*Backup airspeed indicator*	25	*Parking brake*
12	*Backup altimeter*	26	*Cabin heating*
13	*NAV/COMM device*	27	*Circuit breakers **
14	*12 V socket*	28	*CO detector*

* Switches and circuit breakers detailed description is in this Supplement, page 8.

7.12 Electrical system

Circuit breakers and switches

LEFT PART OF INSTRUMENT PANEL	MASTER BAT	*master battery*	switch	-
	MASTER GEN	*master generator*	switch	-
	MFD1	*LH Dynon SV-HDX1100 display*	circuit breaker	7.5A
	MFD2	*RH Dynon SV-HDX1100 display*	circuit breaker	7.5A
	AVIONICS	*- transponder* *- NAV/COMM device* *- intercom*	switch	-
	FUEL P	*fuel pump*	circuit breaker	3A
	NAV L	*navigation lights*	circuit breaker	5A
	STROBE	*strobe lights*	circuit breaker	5A
	LDG L	*landing light*	circuit breaker	3A
	COCKPIT L	*cockpit light*	switch	-
	BLOWERS		circuit breaker	3A
	STALL WARNING TEST	*- stall warning system - test*	button	-
RIGHT PART OF INSTRUMENT PANEL	COMM	*communication device*	circuit breaker	10A
	IC	*intercom*	circuit breaker	1A
	NAV	*navigation device*	circuit breaker	4A
	XPDR	*transponder*	circuit breaker	3A
	FLAPS		circuit breaker	3A
	TRIM	*- aileron trim* *- elevator trim*	circuit breaker	1A
	INT L	*- cockpit light*	circuit breaker	2A
	12V	*12 V socket*	circuit breaker	2A
	STALL WARNING	*stall warning system*	circuit breaker	1A

7.13 Instruments and Avionics

The aircraft is equipped with instruments as follows:

Dynon SkyView system:

- **2x SV-HDX1100 screen**
- **SV-ADAHRS-200**
- **SV-GPS-250 GPS Receiver Module**
- **SV-EMS-220**
- **2x SV-BAT-320**
- **SV-OAT-340**

Backup airspeed indicator - Winter 8022

Backup altimeter - Winter 4 FGH 40

The aircraft is equipped with avionics as follows:

NAV/COMM device - Garmin GNC 255A

Transponder - Trig TT21

Transponder control unit - Trig TC20

Intercom - PS Engineering PM3000

ELT - Kannad 406 AF-Compact

NOTE

Refer to "Dynon Avionics SkyView System Pilot's Guide, Document 102949-003, *Revision C" or later for complete operating procedures.*

NOTE

For avionics operating instructions refer to the documentation supplied with the avionics.

8. HANDLING AND SERVICING

8.5 Servicing operating fluids

8.5.2 Approved oil grades and specifications

Type of oil used by aircrafts manufacturer:

AeroShell Oil Sport Plus 4

SAE: 10W-40, API: SL

8.5.3 Approved coolant grades and specifications

Type of coolant used by aircrafts manufacturer:

Specification: ASTM D 3306, VW TL 774C, G11

Mixture ratio coolant / water: *50/50 %*

Max. coolant temperature: *120 °C*

Supplement No. 05

Stall Warning System Installation

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH when the Stall Warning System is installed in accordance with the manufacturer's approved documentation.

Information in this Supplement completes or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement completes information necessary for the airplane operation with equipment installed on the airplane.

This supplement is EASA approved under Major Change Approval No.: 10066844, Approval Date: 11 September 2018

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RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

Section 1 - GENERAL INFORMATION

No change.

Section 2 - LIMITATIONS

2.15 Limitation placards and markings

Operating limitation on instrument panel

2.16 Miscellaneous placards and markings

Section 3 - EMERGENCY PROCEDURES

3.18 Inadvertent icing encounter

6. In case of icing on the leading edge of wing, the stall speed will increase. Stall warning probe is not heated and system will be probably out of function.

3.29 Stall warning system failure

If any doubt about the correct operation of the stall warning system:

1. **STALL WARNING** **TEST** button - momentary press
2. **STALL WARNING** red light / audiable alarm - check for annunciation

If warning light / audiable alarm not anunciated:

3. Land as soon as practicable

WARNING
In case of the stall warning system failure, pay increased attention to approach and to other low speed maneuvers.

Section 4 - NORMAL PROCEDURES

4.1 Preflight check

Inspection Check List

①	• **STALL WARNING TEST** button	- momentary press – **STALL WARNING** red light / audiable alarm must be annunciated
	• All switches	- OFF
	• **MASTER BAT**	- OFF
③	• Stall warning probe	- condition, attachment, function - *Left wing only*

Section 5 - PERFORMANCE

No change.

Section 6 - WEIGHT AND BALANCE

No change.

Section 7 - DESCRIPTION OF AIRPLANE AND SYSTEMS

7.16 Stall warning system

The airplane is equipped with a stall warning system. The lift detector of the stall warning system is located on the left wing leading edge.

Should the critical angle of attack be approached (close to stall speed), the lift detector is actuated by the differences in pressures. Actuation of the lift detector triggers the stall warning system's electrical circuit.

When the stall warning system is triggered, an audio alert is activated and the red **STALL WARNING** light will illuminate on the left instrument panel.

The proper function of the system can be checked by pressing **STALL WARNING TEST** button located on the left instrument panel.

Section 8 - HANDLING AND SERVICING

No change.

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Supplement No. 06

Sensenich 3B0R5R68C Propeller Installation

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH when the Sensenich 3B0R5R68C propeller is installed in accordance with the manufacturer's approved documentation.

Information in this Supplement completes or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement completes information necessary for the airplane operation with equipment installed on the airplane.

This supplement is EASA approved under Major Change Approval No.: 10066844, Approval Date: 11 September 2018

This document is prepared in accordance with the AP DOA Approval No. AP507.

RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

Chapter 1 - GENERAL INFORMATION

1.1 Airplane specification

Propeller:

Manufacturer	SENSENICH
Model number	3B0R5R68C
Number of blades	3
Diameter	*1,727 mm*
Pitch setting	*18.3 ± 0.5°*
Type	three composite blades, ground adjustable

1.2 Summary of performances

Speeds:

Maximum at sea level	*117 KIAS*
Cruise, 75% power at 3,000 ft	*92 KIAS*

Range and endurance:

Range	486 *NM*	*(900 km)*
Endurance	*5:03 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	*833 fpm*
Best angle of climb speed (v_x)	*55 KIAS*
Best rate of climb speed (v_y)	*62 KIAS*

Chapter 2 - LIMITATIONS

No change.

Chapter 3 - EMERGENCY PROCEDURES

No change.

Chapter 4 - NORMAL PROCEDURES

4.4 Normal Takeoff

4.4.1 Engine run-up

CAUTION

The engine run-up should be performed with the aircraft heading upwind and not on a loose terrain (the propeller may suck grit which can damage the leading edges of blades).

1.	Brakes	- fully applied
2.	Throttle	- **MAX**
3.	Engine speed	- check *(4,950 ±100 rpm – wind calm)*
4.	Engine gauges	- within limits
5.	Throttle	- **IDLE**
6.	Engine acceleration	- check

CAUTION

To prevent impact load, wait for around 3 sec. after throttling back to partial load to reach constant speed before re-acceleration.

7.	Ignition check	- set engine speed to *4,000 rpm* - switch ignition gradually to **L – BOTH – R – BOTH** *(Max. engine speed drop with only one ignition circuit must not exceed **300 rpm**. Max engine speed drop difference between circuits **L** and **R** should be **115 rpm**.)*
8.	**CARBURETOR AIR**	- **PULL HOT** - check carburetor preheating function *(Engine speed drop max.100 rpm)* - push **OFF**
9.	Throttle	- **IDLE**

NOTE

For checking the two ignition circuits, only one circuit may be switched OFF and ON at a time.

4.4.3 Takeoff

1. THROTTLE	- **MAX**
2. Engine speed	- check *(4,950 ±100 rpm – wind calm)*
3. Engine gauges	- within limits
4. Elevator control	- neutral position - at *30 - 34 KIAS* pull slightly to lift the nose wheel
5. Airplane unstick	- at *40 - 44 KIAS*
6. Climb	- after reaching airspeed *62 KIAS*
7. Brakes	- apply
8. Flaps	- retract *(0°)* at safe altitude *(max. airspeed for flaps using is 75 KIAS)*
9. Trims	- as necessary

4.15 Noise characteristics

The noise level in accordance with requirements of the CS-36, Am.2 (ICAO Annex 16, Volume I, Chapter 10 - 10.4 b) has been established as *63.7 ± 0.9 dB(A)*.

The noise level for aircraft equipped with the after muffler (Dwg. No. SE0490N) has been established as *62.6 ± 1.1 dB(A)*.

Chapter 5 - PERFORMANCE

The performance shown in this section is valid for aircraft equipped with ***ROTAX 912 ULS2*** engine with maximum power *73.5 kW* and ***SENSENICH 3B0R5R68C*** three composite blades ground adjustable propeller with pitch setting *18.3 ±0.5° (Pin No. 3)*.

5.1 Takeoff distances

Conditions: - Altitude: *0 ft* ISA
- Engine power: *max. takeoff*
- Flaps: *12°*

RUNWAY SURFACE	Takeoff run distance		Takeoff distance over *50 ft (15 m)* obstacle	
	ft	*m*	*ft*	*m*
CONCRETE	*541*	*165*	*1,352*	*412*
GRASS	*794*	*242*	*1,565*	*477*

5.2 Landing distances

Conditions: - Altitude: *0 ft* ISA
- Engine power: *idle*
- Flaps: 30°
- Normal brakes operation

RUNWAY SURFACE	Landing distance over *50 ft (15 m)* obstacle		Landing run distance (braked)	
	ft	*m*	*ft*	*m*
CONCRETE	*1,463*	*446*	*459*	*140*
GRASS	*1,447*	*441*	*463*	*141*

5.3 Rate of climb

Conditions: Engine: *max. takeoff* Flaps: *0°*	Best rate of climb speed Vy	Rate of climb Vz
Altitude	*KIAS*	*fpm*
0 ft	*62*	*833*
1,000 ft	*62*	*780*
3,000 ft	*62*	*685*
5,000 ft	*62*	*620*
7,000 ft	*62*	*515*
9,000 ft	*62*	*410*

5.4 Cruise speeds

Altitude	Engine speed	Airspeeds			MAP	Fuel consumption
ft	rpm	KIAS	KCAS	KTAS	in Hg	L/h
1,000	4,200	75	75	76	22.8	14.8
	4,500	83	82	84	23.8	17.1
	4,800	91	89	92	24.8	19.4
	5,000	96	94	97	25.4	21.0
	5,300	105	101	104	26.3	23.3
	5,500	109	105	108	26.9	24.8
	5,800	115	111	114	28.0	27.0
3,000	4,200	70	71	74	21.8	14.0
	4,500	79	78	83	22.6	16.4
	4,800	87	85	91	23.4	18.7
	5,000	92	90	96	24.0	20.3
	5,300	100	97	103	24.8	22.6
	5,500	105	101	107	25.3	24.2
	5,800	111	107	113	26.2	26.6
5,000	4,200	67	68	73	20.7	13.3
	4,500	75	75	82	21.5	15.6
	4,800	83	82	90	22.2	18.0
	5,000	89	87	95	22.7	19.6
	5,300	97	94	102	23.4	22.0
	5,500	103	98	106	23.9	23.6
	5,800	108	104	112	24.6	26.0
7,000	4,200	62	64	72	19.7	12.8
	4,500	71	72	81	20.3	15.2
	4,800	80	79	89	20.9	17.6
	5,000	86	84	94	21.3	19.2
	5,300	94	91	101	21.8	21.6
	5,500	99	96	105	22.2	23.2
	5,700	103	100	109	22.6	24.8
9,000	4,200	59	61	71	18.6	12.0
	4,500	68	69	80	19.1	14.5
	4,800	77	76	88	19.5	17.0
	5,000	83	81	93	19.8	18.6
	5,300	91	88	100	20.3	21.1
	5,500	96	93	104	20.6	22.6
	5,600	98	95	106	20.8	23.5

5.5 RPM setting and fuel consumption

Altitude	ft	1,000					
Engine speed	rpm	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption	L/h	14.8	17.1	19.4	21.0	23.3	24.8
Airspeeds	KIAS	75	83	91	96	104	109
	KCAS	75	82	89	94	101	105
	KTAS	76	84	92	97	104	108
Endurance and Range at 113 liters							
Endurance	hh:mm	7:38	6:36	5:49	5:22	4:50	4:33
Range	NM	580	555	536	522	504	492
	km	1075	1028	992	967	934	911
Endurance and Range at 90 liters							
Endurance	hh:mm	6:04	5:15	4:38	4:17	3:51	3:37
Range	NM	462	442	427	416	402	392
	km	856	819	790	770	744	726
Endurance and Range at 60 liters							
Endurance	hh:mm	4:03	3:30	3:05	2:51	2:34	2:25
Range	NM	308	295	285	277	268	261
	km	571	546	527	513	496	484
Endurance and Range at 30 liters							
Endurance	hh:mm	2:01	1:45	1:32	1:25	1:17	1:12
Range	NM	154	147	142	139	134	131
	km	285	273	263	257	248	242
Endurance and Range at 15 liters							
Endurance	hh:mm	1:00	0:52	0:46	0:42	0:38	0:36
Range	NM	77	74	71	69	67	65
	km	143	136	132	128	124	121

Altitude	ft	3,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	L/h	14.0	16.4	18.7	20.3	22.6	24.2
Airspeeds	KIAS	70	79	87	92	100	105
	KCAS	71	78	85	90	97	101
	KTAS	74	83	91	96	103	107
Endurance and Range at 113 liters							
Endurance	hh:mm	8:04	6:53	6:02	5:33	5:00	4:40
Range	NM	597	572	550	534	515	500
	km	1106	1059	1018	990	954	925
Endurance and Range at 90 liters							
Endurance	hh:mm	6:25	5:29	4:48	4:26	3:58	3:43
Range	NM	476	455	438	426	410	398
	km	881	844	811	788	760	737
Endurance and Range at 60 liters							
Endurance	hh:mm	4:17	3:39	3:12	2:57	2:39	2:28
Range	NM	317	304	292	284	273	265
	km	587	562	541	525	506	491
Endurance and Range at 30 liters							
Endurance	hh:mm	2:08	1:49	1:36	1:28	1:19	1:14
Range	NM	159	152	146	142	137	133
	km	294	281	270	263	253	246
Endurance and Range at 15 liters							
Endurance	hh:mm	1:04	0:54	0:48	0:44	0:39	0:37
Range	NM	79	76	73	71	68	66
	km	147	141	135	131	127	123

Altitude	ft	5,000					
Engine speed	rpm	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption	L/h	13.3	15.6	18.0	19.6	22.0	23.6
Airspeeds	KIAS	67	75	83	89	97	102
	KCAS	68	75	82	87	94	98
	KTAS	73	82	90	95	102	106
Endurance and Range at 113 liters							
Endurance	hh:mm	8:29	7:14	6:16	5:45	5:08	4:47
Range	NM	620	594	565	548	524	508
	km	1149	1100	1046	1014	970	940
Endurance and Range at 90 liters							
Endurance	hh:mm	6:46	5:46	5:00	4:35	4:05	3:48
Range	NM	494	473	450	436	417	404
	km	915	876	833	808	773	749
Endurance and Range at 60 liters							
Endurance	hh:mm	4:30	3:50	3:20	3:03	2:43	2:32
Range	NM	329	315	300	291	278	269
	km	610	584	556	539	515	499
Endurance and Range at 30 liters							
Endurance	hh:mm	2:15	1:55	1:40	1:31	1:21	1:16
Range	NM	165	158	150	145	139	135
	km	305	292	278	269	258	250
Endurance and Range at 15 liters							
Endurance	hh:mm	1:07	0:57	0:50	0:45	0:40	0:38
Range	NM	82	79	75	73	70	67
	km	152	146	139	135	129	125

Altitude	ft	7,000					
Engine speed	rpm	4,200	4,500	4,800	5,000	5,300	5,500
Fuel consumption	L/h	12.8	15.2	17.6	19.2	21.6	23.2
Airspeeds	KIAS	62	71	80	86	94	99
	KCAS	64	72	79	84	91	96
	KTAS	72	81	89	94	101	105
Endurance and Range at 113 liters							
Endurance	hh:mm	8:49	7:26	6:25	5:53	5:13	4:52
Range	NM	636	602	571	553	528	511
	km	1177	1115	1058	1025	979	947
Endurance and Range at 90 liters							
Endurance	hh:mm	7:01	5:55	5:06	4:41	4:09	3:52
Range	NM	506	480	455	441	421	407
	km	938	888	843	816	779	754
Endurance and Range at 60 liters							
Endurance	hh:mm	4:41	3:56	3:24	3:07	2:46	2:35
Range	NM	338	320	303	294	281	272
	km	625	592	562	544	520	503
Endurance and Range at 30 liters							
Endurance	hh:mm	2:20	1:58	1:42	1:33	1:23	1:17
Range	NM	169	160	152	147	140	136
	km	313	296	281	272	260	251
Endurance and Range at 15 liters							
Endurance	hh:mm	1:10	0:59	0:51	0:46	0:41	0:38
Range	NM	84	80	76	73	70	68
	km	156	148	140	136	130	126

Altitude	ft	9,000					
Engine speed	rpm	**4,200**	**4,500**	**4,800**	**5,000**	**5,300**	**5,500**
Fuel consumption	L/h	12.0	14.5	17.0	18.6	21.1	22.6
Airspeeds	KIAS	59	68	77	83	91	96
	KCAS	61	69	76	81	88	93
	KTAS	71	80	88	93	100	104
Endurance and Range at 113 liters							
Endurance	hh:mm	9:25	7:47	6:38	6:04	5:21	5:00
Range	NM	669	623	585	565	536	520
	km	1238	1155	1083	1046	992	963
Endurance and Range at 90 liters							
Endurance	hh:mm	7:30	6:12	5:17	4:50	4:15	3:58
Range	NM	533	497	466	450	427	414
	km	986	920	863	833	790	767
Endurance and Range at 60 liters							
Endurance	hh:mm	5:00	4:08	3:31	3:13	2:50	2:39
Range	NM	355	331	311	300	284	276
	km	657	613	575	556	527	511
Endurance and Range at 30 liters							
Endurance	hh:mm	2:30	2:04	1:45	1:36	1:25	1:19
Range	NM	178	166	155	150	142	138
	km	329	307	288	278	263	256
Endurance and Range at 15 liters							
Endurance	hh:mm	1:15	1:02	0:52	0:48	0:42	0:39
Range	NM	89	83	78	75	71	69
	km	164	153	144	139	132	128

Chapter 6 - WEIGHT AND BALANCE

No change.

Chapter 7 - DESCRIPTION OF AIRPLANE AND SYSTEMS

7.6 Propeller

SENSENICH 3B0R5R68C three composite blades ground adjustable propeller is installed. The propeller diameter is *1,727 mm.*

NOTE

For technical data refer to documentation supplied by the propeller manufacturer.

Chapter 8 - HANDLING AND SERVICING

8.8 Aircraft inspection periods

Periods of overall checks and contingent maintenance depends on the condition of the operation and on overall condition of the airplane.

Inspections and revisions should be carried out in the periods listed in:

- ***PS-28 Cruiser*** *aircraft Maintenance manual* for aircraft maintenance.
- *Rotax engine Maintenance manual* for engine maintenance.
- *Sensenich 3B0R5R68C propeller manual* for propeller maintenance.

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Supplement No. 09

Installation of Efficient Heating and Windshield Defogging System

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH when the Efficient Heating and Windshield Defogging System are installed in accordance with the manufacturer's approved documentation.

Information in this Supplement completes or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement complements information necessary for the airplane operation with equipment installed on the airplane.

This supplement is EASA approved under Major Change Approval No.: 10066844, Approval Date: 11 September 2018

This document is prepared in accordance with the AP DOA Approval No. AP507.

RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15
2	1 of 6, 2 of 6, 4 of 6, 5 of 6, 6 of 6	Editing of passive chemical carbon monoxide (CO) detector information.	HDO Jiří Sklenář	2021-03-17

Section 1 - GENERAL INFORMATION

No change.

Section 2 - LIMITATIONS

No change.

Section 3 - EMERGENCY PROCEDURES

3.18 Inadvertent icing encounter

CAUTION
Aircraft is approved to operate in VMC condition only!

1. Leave icing area - turn back or change altitude to reach area with higher outside air temperature
2. **CARBURETOR AIR** - **PULL HOT**
3. **CABIN HEATER** - **PULL ON**
4. **BLOWERS** - ON
5. Increase RPM to minimize ice build-up on propeller blades.
6. Continue to move control surfaces to maintain their moveability.
7. In case of icing on the leading edge of wing, the stall speed will increase.
8. In case of icing on the pitot probe, erroneous indicating of the airspeed and altimeter.
9. If you fail to recover the engine power or normal flight conditions, land on the nearest airfield *(if possible)* or depending on the circumstances, perform a precautionary landing according to *3.10* or emergency landing according to *3.9*.

NOTE
The carburetor icing and air filter icing shows itself through a decrease engine power and an increase of engine temperatures.

NOTE
Use carburetor heating during lengthy descents and in areas of possible carburetor icing.

3.30 Burned out heat exchanger

If smell of exhaust gas appears in the cockpit or the CO detector color changing (darkens) indicates the presence of carbon monoxide, immediately carry out:

1. **CABIN HEATER** - **PUSH OFF**
2. Vent-air outlets - open
3. Sliding ventilation windows - open
4. Landing - carry out as soon as practicable

Section 4 - NORMAL PROCEDURES

4.1 Preflight check

Inspection Check List

①	• CO detector	- condition, expiration date

Section 5 - PERFORMANCE

No change.

Section 6 - WEIGHT AND BALANCE

Upon removal or installation of the Efficient Heating and Windshield Defogging System the change of empty weight and corresponding center of gravity of the airplane must be recorded according to Chapter 6 of the POH.

Section 7 - DESCRIPTION OF AIRPLANE AND SYSTEMS

7.17 Efficient heating and windshield defogging system

The airplane is equipped with an adjustable ventilation and cockpit heating system. Cockpit heating is ensured by hot air from the heat exchanger, which is mounted on the exhaust muffler. Quantity of hot air is regulated by **CABIN HEATING** knob located on the central panel.

Furthermore is installed defogging of the windshield by means of two electric blowers that supply the air from the cockpit compartment via two air channels on the windshield. The blowers are not connected to the supply air from the heat exchanger and switch on by means of the **BLOWERS** switch located on the left part of the instrument panel (see Fig. 9-1).

7.18 Passive chemical carbon monoxide (CO) detector

The airplane is equipped with a passive chemical CO detector.

This device is a passive warning detector. It does not sound an alarm and must be viewed obtain indication of carbon monoxide conditions. The presence of CO in the cockpit is signaled by the detector color change (darkens). The detector will turn back to its normal orange color after some time of being exposed to fresh clear air.

Each detector is packaged in a protective bag then when opened activates it. The product lifetime (after activation) is stated on the detector body and in the supplied documentation.

The CO detector is installed on the instrument panel (see Fig. 9-1).

WARNING

Exposure to CO may cause sickness, headaches, or even death.

CAUTION

Watch the date on the detector and when necessary replace it.
Mark the date when install the new one.

NOTE

For detailed account refer to documentation supplied with the CO detector.

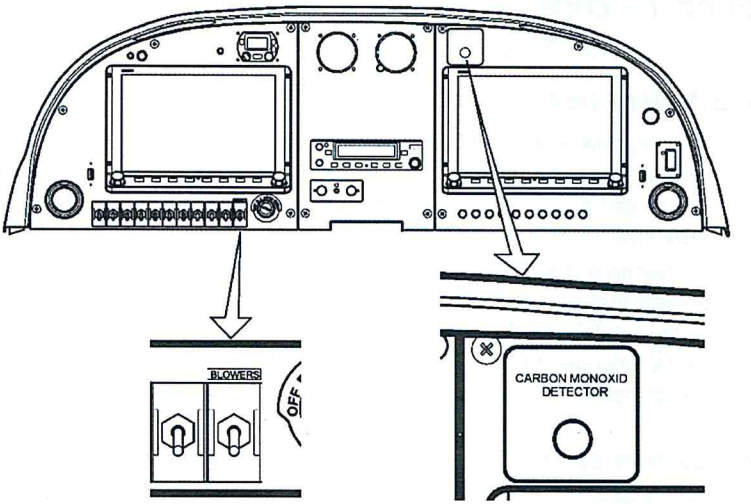


Fig. 9-1: CO detector / BLOWERS switch location

Section 8 - HANDLING AND SERVICING

No change.

Supplement No. 10

Installation of Garmin GNC 255A NAV/COMM

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH when the Garmin GNC 255A NAV/COMM is installed in accordance with the manufacturer's approved documentation.

Information in this Supplement completes or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement completes information necessary for the airplane operation with equipment installed on the airplane. This Supplement is a permanent part of this POH and must remain in this POH at all times when the GNC 255A NAV/COMM is installed.

This supplement is EASA approved under Major Change Approval No.: 10066844, Approval Date: 11 September 2018

This document is prepared in accordance with the AP DOA Approval No. AP507.

RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

Section 1 - GENERAL INFORMATION

The airplane is equipped with Garmin GNC 255A NAV / COMM device. The COM section of the GNC 255A NAV / COMM operates in the aviation voice band, from 118.000 to 136.975 MHz, in 25 kHz steps (default). For European operations, a Com radio configuration of 8.33 kHz steps is also available. The NAV section operates from 108 MHz to 117.95 MHz decoding both the VHF Omni Range and Localizer navigation signals. The built-in Glideslope receiver will automatically tune the corresponding glideslope paired frequencies (328 MHz to 335 MHz) when the localizer is tuned.

Garmin GNC 255A NAV / COMM has ETSO Authorization No. EASA.IM.21O.10043506, dated 04/02/2013.

Section 2 - LIMITATIONS

2.14 Other limitations

The Garmin GNC 255A/255B Pilot's Guide, P/N 190-01182-01 (revision A or later) must be available to the flight.

Section 3 - EMERGENCY PROCEDURES

In case of emergency flight conditions, the standard emergency channel (121.50 MHz) is stored in the Com memory of the GNC 255A NAV / COMM.

1. Flip/Flop key - press and hold for approx. two second
2. Listen or send message

Section 4 - NORMAL PROCEDURES

4.16 Garmin GNC 255A NAV / COMM Operation

NOTE

Refer to the Garmin GNC 255A/255B Pilot's Guide, P/N 190-01182-01 (revision A or later) for complete operating procedures.

4.16.1 Power on

1. **MASTER BAT** - ON
2. **AVIONICS** - ON
3. Power/Com Volume/ Squelch Knob - rotate clockwise past the detent

4.16.2 Selecting a Com Frequency

1. C/N key - press to reach the Com radio function, if necessary
2. Large knob - turn to change the values in one MHz increments
3. Small knob - turn to change the values in 25 kHz or 8.33 kHz increments
4. Large/Small knobs - turn clockwise to increase / counterclockwise to decrease the frequency values.
5. Flip/Flop key - press and release to toggle the Standby frequency to the Active frequency

4.16.3 Monitoring the Standby Com Channel

1. MON key - press to listen to the standby frequency; small "MN" will replace the "STB" to the left of the Standby frequency

4.16.4 Saving a Com Channel

1. ENT key - press - the Standby frequency is selected and the Waypoint name field will be active
2. Small knob - turn to select characters
3. Large knob - turn to move the cursor
4. ENT key - press after selecting the desired characters
5. Large knob - turn to select the waypoint Type
6. Small knob - turn to select the Type from the list
7. ENT key - press after making a selection

NOTE

When switching from 8.33 kHz to 25 kHz mode, any 8.33 kHz-specific user frequencies will be deleted from the user frequency list. This only affects the user frequencies within the 8.33 kHz spectrum.

4.16.5 Com Database Look-Up

1. CURSOR knob - press from the Com display to activate the database look-up function
2. Small knob - to select characters and turn the Large knob to move the cursor

3. ENT key - press after selecting the desired characters. Turn the Small knob to scroll through the list of waypoint types; waypoint Types with a "+" sign will have more frequencies for the same type. After selection, the selected waypoint and type will be remembered for 30 minutes.
4. ENT key - to copy the frequency into the Standby frequency location; press and release the Flip/Flop key to swap the Active and Standby frequencies

4.16.6 Selecting a Nav Frequency

1. C/N key - press to reach the Nav radio function; the NAV annunciator on the top line of the display will show
2. Large knob - turn to change the values in one MHz increments
3. Small knob - turn to change the values in 50 kHz increments
4. Flip/Flop key - press and release to toggle the Standby frequency to the Active frequency

CAUTION

The Identifier is determined from the database and is not the decoded Nav Identifier.

NOTE

Both Nav and Com frequencies cannot be displayed at the same time.

4.16.7 Saving a Nav Channel

1. ENT key - press - the Waypoint name field will be active
2. Small knob - turn to select characters
3. Large knob - turn to move the cursor
4. ENT key - press after selecting the desired characters
5. Large knob - turn to select the waypoint Type
6. Small knob - turn to select characters
7. Large knob - turn to move the cursor
8. ENT key - press after selecting the desired characters

4.16.8 OBS Mode

1. OBS key - press; if annunciator above the key lights:
2. Large and Small knobs - adjust the Omni Bearing Selector

4.16.9 Power off

1. Power / Volume knob - rotate counter clockwise past the detent
2. **AVIONICS** - OFF
3. **MASTER BAT** - OFF

Section 5 - PERFORMANCE

No change.

Section 6 - WEIGHT AND BALANCE

Upon removal or installation of the Garmin GNC 255A NAV / COMM the change of empty weight and corresponding center of gravity of the airplane must be recorded according to Chapter 6 of the POH.

Section 7 - DESCRIPTION OF AIRPLANE AND SYSTEMS

7.13 Instruments and Avionics

7.13.2 GNC 255A Transceiver

Garmin GNC 255A NAV / COMM (Fig. 10-1) consists of a transmitter / receiver for VHF communication (COM) and a receiver for navigation information (NAV). These are combined with operating controls in one unit. The COM section of the GNC 255A NAV / COMM operates in the aviation voice band, from 118.000 to 136.975 MHz, in 25 kHz steps (default). For European operations, a Com radio configuration of 8.33 kHz steps is also available. The NAV section operates from 108 MHz to 117.95 MHz decoding both the VHF Omni Range and Localizer navigation signals. The built-in Glideslope receiver will automatically tune the corresponding glideslope paired frequencies (328 MHz to 335 MHz) when the localizer is tuned.

Refer to the Garmin GNC 255A/255B Pilot's Guide, P/N 190-01182-01 (revision A or later) for complete descriptions of the Garmin GNC 255A NAV/COM.

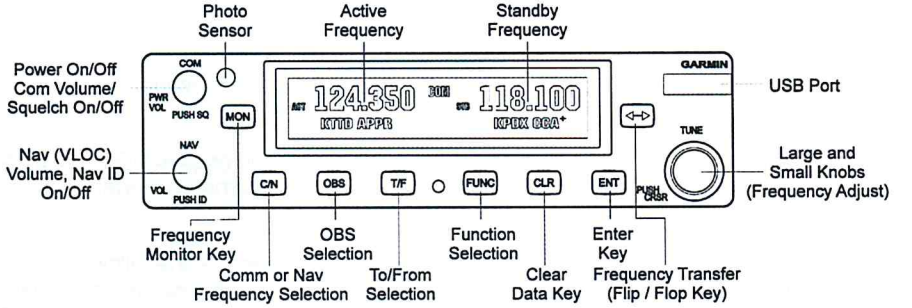


Fig. 10-1: Garmin GNC 255A NAV/COMM

7.13.2.1 GNC 255A Controls

Power/Com Volume/Squelch Knob

The Power/Com Volume/Squelch knob located in the top left corner of the bezel controls audio volume for the Com radio. Rotating the knob clockwise past the detent turns power on and counter-clockwise turns power off. When the Com radio is active, press the Power/Com Volume/Squelch knob to toggle automatic squelch control On/Off for the Com radio.

The Com radio features an automatic squelch to reject many localized noise sources. You may override the squelch function by pressing the Power/Com Volume/Squelch knob. This facilitates listening to a distant station or setting the desired volume level.

To override the automatic squelch, press the Power/Com Volume/Squelch knob momentarily. Press the Power/Com Volume/Squelch knob again to return to automatic squelch operation. A "SQ" indication appears to the left of the active Com frequency window in the upper left corner of the display when automatic squelch is overridden.

Nav Volume/ID Knob

The Nav Volume/ID knob located in the bottom left corner of the bezel controls audio volume for the Nav radio. Press the Nav Volume/ID knob and the Morse code tones will be heard. When Morse code tone is active, "ID" will appear to the left of the Nav active frequency.

Large/Small Concentric Knobs

The Large right and Small right knobs are used for tuning frequencies and data entry.

Flip/Flop Key

Press and release the Flip/Flop key to switch between the active (left-most) and standby (right-most) frequency. Switching between Com frequencies is disabled while you are transmitting.

C/N (Com/Nav) Key

Press the C/N key to select the Com or Nav (VLOC) radio mode.

OBS Key

Press the OBS key to see the current OBS setting and graphic CDI. The OBS page will be disabled if the unit is installed with an external converter.

FUNC (Function) Key

The FUNC (Function) key accesses function categories for the following: the Com Radio, Nav Radio, ICS Configuration, System Configuration, and Timer. Pressing the FUNC key once displays the Function mode. Pressing the FUNC key a second time exits the Function mode.

T/F (To/From) Key

Press the T/F key to toggle between the bearing TO or radial FROM the active VOR. The T/F page also shows Distance/Speed/ Time information. The T/F key does not operate for Localizer frequencies.

CLR Key

Pressing the CLR key erases information, cancels entries, and resets timers.

ENT Key

Press the ENT key to save selected values, to confirm a prompt, or to save the Standby frequency.

MON (Monitor) Key

The MON (Monitor) key will engage the monitor function where the Standby frequency may be monitored while still listening to the Active frequency.

USB Port

The USB port is used to update the frequency database in the GNC 255.

Section 8 - HANDLING AND SERVICING

8.10 GNC 255A NAV / COMM troubleshooting

Problem	Possible Cause	Action
GNC 255A does not power on.	No power to the GNC 255A.	Check power connections, breakers, and main avionic switch.
	Faulty electrical wiring or connection.	Contact your dealer to perform electrical system test.
No Nav audio.	Output disabled or set to a low level.	Contact dealer.
No audio in Com.	Mixed with Com feature.	Contact dealer.
GNC 255A does not transmit.	No power to Com.	Check power connections.
	Mic key connection.	Check Mic key input connection.
Intercom doesn't function.	It can be enabled or disabled via a remote mounted switch or via the menu.	Check connections.
	No voice activation, or must talk too loud.	Check ICS page, Intercom ON/OFF, Adjust Intercom.
Can't change active frequency.	Com Radio not communicating. The radio may also be in lockout mode. In this case the radio would be tuned to 121.50 and the active freq would not be able to be changed.	If in Lock Out mode, press the external Com FLIP/FLOP key for two seconds to return to normal operation or cycle the avionics power. If the condition persists, contact dealer.
OBS readout display "---".	Resolver failure.	Contact dealer.
	Calibration error.	Recalibrate resolver.
Display shows "Incorrect Calibration Checksum" at start-up.	Corrupted system calibration parameters.	Contact factory.

NOTE

Refer to the Garmin GTR 225/GNC 255 TSO Installation Manual, P/N 190-01182-02 (revision A or later) for complete maintenance procedures.

Supplement No. 16

Installation of ELT KANNAD 406 AF-COMPACT

Aircraft Registration Mark: **F-HDMG**

Aircraft Serial Number: **C0638**

This Supplement must be attached to the POH when the ELT KANNAD 406 AF-COMPACT is installed in accordance with the manufacturer's approved documentation.

Information in this Supplement complements or replaces information in the basic POH for the below mentioned parts only. Limitations, procedures and information not mentioned in this Supplement and included in the basic POH stay valid.

This Supplement complements information necessary for the airplane operation with equipment installed on the airplane. This Supplement is a permanent part of this POH and must remain in this POH at all times when the ELT KANNAD 406 AF-COMPACT is installed.

This supplement is EASA approved under Minor Change Approval No.: 10066844, Approval Date: 11 September 2018

This document is prepared in accordance with the AP DOA Approval No. AP507.

RECORD OF REVISIONS

Rev. No.	Affected pages	Revision name	Approved	Date
1	All	Administrative changes	HDO Jiří Sklenář	2020-05-15

Section 1 - GENERAL INFORMATION

The airplane is equipped with ELT (Emergency Locator Transmitter) KANNAD 406 AF-COMPACT device. This ELT is two-frequency (121.5 / 406.028 MHz) radio transmitter generating a signal to assist in SAR (Search And Rescue) for missing aircraft and is certified as Automatic Fixed (AF) ELT with the approved outside antenna.
The 406 MHz frequency is used by COSPAS-SARSAT satellites for precise pinpointing and identification of the aircraft in distress and facilitate SAR operation.
The 121.5 MHz frequency is used by SAR services for homing in the final stage of rescue operations.

ELT KANNAD 406 AF-COMPACT has ETSO Authorization No. EASA.21O.818, Rev.B, dated 19/07/2013.

Section 2 - LIMITATIONS

2.15 Other limitations

- The ELT KANNAD 406 AF-COMPACT Installation and Operation manual, DOC08038F (Revision 05 or later) and Remote Control Panel RC200 Installation and User manual DMA00514E (Revision 04 or later) must be available onboard.

2.16 Limitation placards and markings

Operating limitation on instrument panel

The text shown below is on the ELT remote control panel RC200:

FOR AVIATION EMERGENCY USE ONLY.
UNAUTHORIZED OPERATION PROHIBITED.

2.17 Miscellaneous placards and markings

The placard shown below is placed on the outer surface of the fuselage near the ELT:

The "ELT" marking shown below is on the ELT remote control panel RC200:

Section 3 - EMERGENCY PROCEDURES

3.31 ELT using before forced landing

In case of emergency situation before performing a forced landing, especially in remote, extensively wooded and mountainous areas, and if possible, the ELT transmitter should be activated manually by switching the remote switch (on RC200 panel) to the ON-position. The red LED should start flashing.

Immediately after a forced landing where emergency assistance is required, the ELT should be utilized as follows (the following points must then be executed directly on the ELT unit):

1. ELT Remote Switch ..... Verify ON
   - Switch the ELT Remote Switch to the ON-position even if the red LED is flashing.
   - If the airplane radio is operable and can be safety used (no threat of fire or explosion), turn radio ON and select 121.5 MHz.
     If the ELT can be heard transmitting, it is working properly.
2. Battery Power ..... Conserve
   - Do not use radio transceiver until the rescue aircraft is in sight.

After sighting the rescue aircraft:

3. ELT Remote Switch ..... "ARM" position to prevent radio interference.

   - Attempt contact with rescue aircraft with the radio transceiver set to a frequency of 121.5 MHz. If no contact is established, switch the remote switch to the ON-position immediately.

NOTE

If it was not possible to turn the ELT before performing an emergency landing and nor it was activated automatically during hard landing, and if possible, turn it to the ON-position manually by the remote switch (on RC200 panel) or by the main switch on the main ELT unit.

Section 4 - NORMAL PROCEDURES

4.1 Preflight check

Inspection Check List

①	• **ELT**	- check the antenna and the RC200 remote control panel connection, - check the main 3-position switch setting to the ARM position - check the 3-position switch on the RC200 remote control panel setting to the ARMED (middle) position

NOTE

Refer to the ELT KANNAD 406 AF-COMPACT Installation and Operation manual, DOC08038F (Revision 05 or later) and Remote Control Panel RC200 Installation and User manual DMA00514E (Revision 04 or later) for complete operating procedures.

Section 5 - PERFORMANCE

No change.

Section 6 - WEIGHT AND BALANCE

No change.

Section 7 - DESCRIPTION OF AIRPLANE AND SYSTEMS

7.13 Instruments and Avionics

7.13.3 ELT KANNAD 406 AF-COMPACT

General

The ELT (Emergency Locator Transmitter) KANNAD 406 AF-COMPACT serves as a rescue device, enabling identification of the aircraft in distress and facilitating SAR (Search And Rescue) operation.

The KANNAD 406 AF-COMPACT is designed to be installed onboard aircraft to transmit a distress signal on frequencies:

- 406 MHz (COSPAS-SARSAT satellites) frequency for precise pinpointing and identification of the aircraft in distress.
- 121.5 MHz used for homing in the final stages of the rescue operations.

The KANNAD 406 AF-COMPACT is certified as Automatic Fixed (AF) ELT with the approved outside antenna.

The ELT KANNAD 406 AF-COMPACT is composed of a transmitter, a mounting bracket, the remote control panel RC200 and an outside antenna.

The transmitter and the bracket are mounted in the upper rear part of the baggage compartment in the cockpit.

The outside antenna is mounted on the upper fuselage part near the tail.

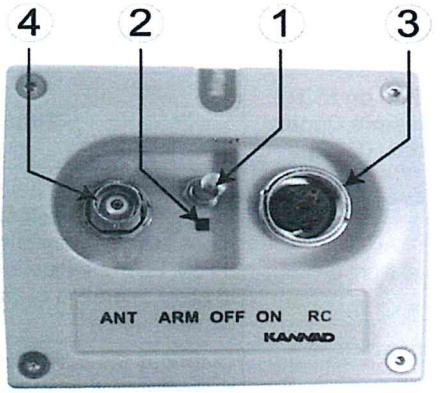
The remote control panel is installed on the right part of the instrument panel and connected to the ELT with wiring.

The housing of KANNAD 406 AF-COMPACT transmitter is made of moulded plastic with excellent mechanical resistance.

Controls and connectors

On the main unit front panel of the ELT KANNAD 406 AF-COMPACT are this controls and connectors:

1. A 3-position switch ARM/OFF/ON
2. A red LED visual indicator
3. DIN 12 socket for connection to an optional Remote Control Panel, a programming dongle or a programming equipment
4. BNC connector for the antenna



Front panel of ELT KANNAD 406 AF-COMPACT

On the remote control panel RC200 are this elements:

1. A 3-position switch ON/ARMED/RESET & TEST
2. A red LED visual indicator

Power supply

The ELT is supplied with electrical power independent from the on board electrical system of the aircraft.

The energy is provided by a battery pack composed of a LiMnO2 two-element battery.

With new batteries, the battery pack allows operation more than 48 hours.

The transmitter battery expiry date is 6 years after manufacturing. The battery pack must be replaced every 6 years, if no activation of the ELT has occurred during the lifetime of the battery, or if one of the following apply:

- after more than 1 hour of real transmission (cumulated duration)
- before or on the battery expiration date
- after use in an emergency
- after an unintentional activation of unknown duration

OPERATING MODES OF KANNAD 406 AF/AF-COMPACT ELT

The following table provides an overview of the different operating modes of the ELT:

KANNAD 406 AF/AF-COMPACT ELT		
Mode	**Switch on ELT Unit/Remote Control Panel (RCP)**	**Function**
ARMED/ STANDBY	ARM (normal flight setting)	Stand-by mode for automatic activation of the ELT by the crash sensor (g-sensor). This mode is mandatory during flight. The switch on the ELT unit must be in the ARM position to allow operation of the ELT via the remote control panel.
ON	ON	Overrides the crash sensor and activates ELT transmission manually (refer to the Installation Manual of the ELT for testing).
OFF	OFF (ELT unit only)	Turns the ELT off for maintenance or to terminate the emergency signal transmission after rescue or inadvertent operation.
RESET TEST	RESET TEST (remote control panel only)	To initiate the self-test function of the ELT and to terminate transmission of an activated ELT on the remote control panel.

In order to be automatically activated by the crash sensor, the ELT must be in standby (**ARM**) mode. This mode is mandatory during flight. The ELT can only be operated with the remote control panel if it is in the stand-by mode (**ARM**). It is recommended to only switch the ELT OFF during maintenance or when the aircraft is parked for a longer period of time. Ensure that the ELT antenna is clear of obstructions.

After a forced landing, it is recommended to tune in 121.5 MHz on the COM transceiver to check if the ELT has been activated. Once the ELT is activated, it can be manually deactivated by setting the ELT main switch to the OFF position or by pressing the remote switch to the RESET TEST position on the ELT remote control panel RC200 for at least 1 second, and then returning the switch to the ARMED position. In the case of unintentional activation, national regulations with regard to informing Air Traffic Control must be observed.

Section 8 - HANDLING AND SERVICING

8.11 ELT KANNAD 406 AF-COMPACT service and maintenance

The ELT batteries must be replaced upon reaching the date stamped on the batteries, after an inadvertent activation of unknown duration, or whenever the batteries have been in use for one cumulative hour.

The ELT batteries have a limited service life and must be replaced every 6 years if no ELT activation has occurs before.

SELF-TEST PROCEDURE

CAUTION

Do not perform a self-test without the antenna connected because the transmitter could be damaged!

1	Set ELT switch to the OFF position	The ELT is installed on the right side of the baggage compartment floor behind the copilot's seat. The ELT switches to the OFF mode.
2	Set ELT switch to the ARM position	A buzzer sounds during the whole self-test procedure. After a few seconds, the test result is displayed with the LED as follows: • One long flash indicates that the system is operational and that no errors were found. • A series of short flashes indicates that the test has failed and error conditions were found.
3	Return the ELT switch to the OFF position or retain the ARM position	Setting the ELT switch back to the OFF position turns the ELT off. Before the next flight, the ELT must be switched to the ARMED mode (Stand-by mode).

CAUTION

Provided that the ELT switch is in the ARM position, the self-test may also be initiated through the remote control panel by pushing the switch to the RESET TEST position. The self-test sequence is the same as described above for the ELT unit.

The number of flashes gives an indication to the fault detected during the self-test.

Number of flashes	Failure mode
3+1	LOW BATTERY VOLTAGE
3+2	LOW RF POWER
3+3	FAULTY VCO LOCKING
3+4	NO IDENTIFICATION PROGRAMMED

If the self-test fails, contact the manufacturer/distributor as soon as possible.

NOTE

Refer to the ELT KANNAD 406 AF-COMPACT Installation and Operation manual, DOC08038F (Revision 05 or later) and Remote Control Panel RC200 Installation and User manual DMA00514E (Revision 04 or later) for complete maintenance.