SportCruiser

Pilot’s Operating Handbook

Airplane Registration Number:  N107BK
Airplane Serial Number:  09SC284

Date of Issue:  04/2009
Revision:  -
SportCruiser aircraft
is designed and manufactured by:

Czech sport aircraft a.s.
Na Záhonech 1177/212, 686 04 Kunovice
Czech Republic

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## 1.2 Record of revisions

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1.4 General

SportCruiser is a Light Sport Aircraft (LSA) designed and built in:

OFFICE: ROHÁČOVA 188/37, 130 00, PRAHA 3, CZECH REPUBLIC
PRODUCTION FACILITY:
NA ZÁHONECH Č.E. 212, KUNOVICE, 686 04, CZECH REPUBLIC

www.czechsportaircraft.com

based on FAA Light Sport Aircraft category according to ASTM Standards F2245, F2279 and F 2295.

This Pilot Operating Handbook has been prepared to provide pilots with information for the safe and efficient operation of SportCruiser. It also contains supplemental data supplied by the Aircraft Flight Training Supplement.

1.5 Warnings, cautions and notes

The following definitions apply to warnings, cautions and notes in the Pilot Operating Handbook.

**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.*
1.6 Definitions and abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
<th>Conversion Factor</th>
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<tr>
<td>ADI</td>
<td>Attitude direction indicator</td>
<td></td>
</tr>
<tr>
<td>ALT</td>
<td>Altitude or Altimeter</td>
<td></td>
</tr>
<tr>
<td>ATC</td>
<td>Air Traffic Control</td>
<td></td>
</tr>
<tr>
<td>ASI</td>
<td>Airspeed Indicator</td>
<td></td>
</tr>
<tr>
<td>bar</td>
<td>pressure unit</td>
<td>(1 bar = 14.5037 psi)</td>
</tr>
<tr>
<td>BEACON</td>
<td>anti-collision beacon</td>
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</tr>
<tr>
<td>°C</td>
<td>temperature in degree of Celsius</td>
<td>(1°C = (°F - 32) / 1.8)</td>
</tr>
<tr>
<td>CAS</td>
<td>Calibrated Airspeed</td>
<td></td>
</tr>
<tr>
<td>CDI</td>
<td>Course deviation indicator</td>
<td></td>
</tr>
<tr>
<td>CHT</td>
<td>Cylinder head temperature</td>
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</tr>
<tr>
<td>COMM</td>
<td>Communication transceiver</td>
<td></td>
</tr>
<tr>
<td>EFIS</td>
<td>Electronic Flight Instrument System</td>
<td></td>
</tr>
<tr>
<td>ELT</td>
<td>Emergency Locator Transmitter</td>
<td></td>
</tr>
<tr>
<td>EMS</td>
<td>Engine Monitoring System</td>
<td></td>
</tr>
<tr>
<td>°F</td>
<td>temperature in degree of Fahrenheit</td>
<td>(1°F = (°C x 1.8) + 32)</td>
</tr>
<tr>
<td>ft</td>
<td>foot or feet</td>
<td>(1 ft = 12 in = 0.305 m = 305 mm)</td>
</tr>
<tr>
<td>fpm</td>
<td>vertical speed in feet per minute</td>
<td>(1 fpm = 0.0051 m/s)</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
<td></td>
</tr>
<tr>
<td>hp</td>
<td>power unit</td>
<td>(1 hp = 0.7457 kW)</td>
</tr>
<tr>
<td>IAS</td>
<td>Indicated Airspeed</td>
<td></td>
</tr>
<tr>
<td>IC</td>
<td>Intercom</td>
<td></td>
</tr>
<tr>
<td>IFR</td>
<td>Instrument Flight Rules</td>
<td></td>
</tr>
<tr>
<td>in</td>
<td>inch</td>
<td>(1 in = 25.4 mm)</td>
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<tr>
<td>ISA</td>
<td>International Standard Atmosphere</td>
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<tr>
<td>KCAS</td>
<td>Calibrated Airspeed in Knots</td>
<td></td>
</tr>
<tr>
<td>kg</td>
<td>kilogram</td>
<td>(1 kg = 2.205 lb)</td>
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<tr>
<td>KIAS</td>
<td>Indicated Airspeed in Knots</td>
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<tr>
<td>km</td>
<td>kilometer</td>
<td>(1 km = 1000 m = 0.54 NM = 0.621 SM)</td>
</tr>
<tr>
<td>km/h</td>
<td>speed in kilometer per hour</td>
<td>(1 km/h = 0.54 knots = 0.621 mph = 0.278 m/s)</td>
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<tr>
<td>knot</td>
<td>speed in NM per hour</td>
<td>(1 knot = 1.151 mph = 1.852 km/h = 0.514 m/s)</td>
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<tr>
<td>kW</td>
<td>power unit</td>
<td>(1 kW = 1.341 hp)</td>
</tr>
<tr>
<td>l</td>
<td>litre</td>
<td>(1 l = 0.22 UK gal = 0.264 US gal)</td>
</tr>
<tr>
<td>lb</td>
<td>pound</td>
<td>(1 lb = 0.454 kg)</td>
</tr>
<tr>
<td>lbf</td>
<td>force unit</td>
<td>(1 lbf = 4.448 N)</td>
</tr>
<tr>
<td>m</td>
<td>metre</td>
<td>(1 m = 1000 mm = 3.28 ft = 39.37 in)</td>
</tr>
<tr>
<td>mm</td>
<td>millimeter</td>
<td>(1 mm = 0.03937 in)</td>
</tr>
<tr>
<td>MAC</td>
<td>Mean Aerodynamic Chord</td>
<td></td>
</tr>
<tr>
<td>max.</td>
<td>maximum</td>
<td></td>
</tr>
<tr>
<td>min.</td>
<td>minimum or minute</td>
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</tr>
<tr>
<td>mph</td>
<td>speed in statute miles per hour</td>
<td>(1 mph = 0.87 knots = 1.61 km/h)</td>
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</table>
m/s  speed in meter 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 = 1852 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
POH  Pilot Operating Handbook
psi  pressure unit - pound per square inch  
(1 psi = 0.0689 bar)
rpm  revolutions per minute
s or sec  second
SM  Statute Mile  
(1 SM = 1,609 m)
US gal  US gallon  
(1 US gal = 0.83 UK gal = 3.785 l)
V  Volt
VFR  Visual Flight Rules
VMC  Visual Meteorological Conditions
VSI  Vertical Speed Indicator
VTU  vertical tail unit
V_A  maneuvering airspeed
V_FE  maximum flap extended speed
V_NE  never exceed speed
V_NO  maximum designed cruising speed
V_SO  stall speed with wing flaps in extended position
V_S1  stall speed with wing flaps in retracted position
V_X  best angle of climb speed
V_V  best rate of climb speed
SECTION 2

2. AIRPLANE AND SYSTEMS DESCRIPTION

2.1 Airplane description 2-2
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2.3 Propeller 2-10
2.4 Fuel system 2-10
2.5 Oil 2-11
2.6 Operating weights and loading 2-12
2. AIRPLANE AND SYSTEMS DESCRIPTION

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

2.1 Airplane description

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

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

Airplane dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
<th>Value</th>
<th>Conversion</th>
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<td>Wing span</td>
<td>ft</td>
<td>28.90</td>
<td>(8.81 m)</td>
</tr>
<tr>
<td>Length</td>
<td>ft</td>
<td>21.33</td>
<td>(6.50 m)</td>
</tr>
<tr>
<td>Height</td>
<td>ft</td>
<td>7.78</td>
<td>(2.37 m)</td>
</tr>
<tr>
<td>Wing area</td>
<td>sq ft</td>
<td>132.3</td>
<td>(12.3 m²)</td>
</tr>
<tr>
<td>Wing loading</td>
<td>lb/sq ft</td>
<td>10</td>
<td>(49 kg/m²)</td>
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<tr>
<td>Cockpit width</td>
<td>in</td>
<td>46</td>
<td>(1.17 m)</td>
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</table>
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.

Control system

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

The elevator and aileron trim are electrically actuated by buttons on the control stick. Wing flaps are electrically actuated by the rocker switch located on the middle panel.

Deflections:

- Rudder deflections .............. 30° to each side
- Elevator deflections ............ + 28°/- 25°
- Aileron deflections ............ + 20°/- 15°
- Flap deflections ................. 0° to 30°
- Aileron trim deflections ......... + 20°/- 20°
- Elevator trim deflections ....... + 22°/- 28°

Landing gear

Tricycle landing gear with the castering nose wheel. Main landing gear uses two fiberglass spring elements.
Seats and safety harness

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

**NOTE**
Prior to each flight, ensure that the seat belts are firmly secured to the airframe and that the belts are not damaged. The buckle to adjust to the central position on the body.

Baggage compartment

The rear baggage compartment is located behind the seats. It may accommodate up to 40 [lb] (18 [kg]). This space is divide on two sections - baggage compartment A and B. Is not recommended give too heavy things into baggage compartment B.

The baggage may also be loaded into the baggage compartment inside each wing up to 44 [lb] (20 [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.

All baggage must be properly secured.

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.

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.
Cockpit

Actual picture, description and data for follow items

Instrument panel layout

and

Description of instrumentation and controls in the cockpit

and

Instruments and Avionics

and

Miscellaneous equipment

are shown in SECTION 10, Supplement No. 02

NOTE

For operating instructions refer to the documentation supplied with the instruments

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Minimum instruments and equipment list for VFR flights:

- Airspeed indicator
- Altimeter
- Compass  *(is not required by ASTM F 2245)*
- Fuel quantity indicator
- Tachometer (RPM)
- Engine instruments as required by the engine manufacturer:
  - Oil temperature indicator
  - Oil pressure indicator
  - Cylinder head temperature indicator
- Safety harness for every used seat

Additional instruments and equipment list for Night VFR flights:

- Attitude indicator
- Instrument lights
- Position lights
- Anti-collision light
- Landing light

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2.2 Engine

ROTAX 912 ULS engine 98.6 [hp] (73.5 [kW]) is installed in SportCruiser. Rotax 912 ULS is a 4-stroke, 4 cylinder, horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV. Liquid cooled cylinder heads, 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.

Coolant

Coolant type:
(refer to the ROTAX the Rotax Operator’s manual section 10.1.2 Operating speeds and limits and section 10.2.1 Coolant, Rotax Installation manual section 12 Cooling system, Rotax Service Instruction SI-912-016)

In principle, 2 different types of coolant are permitted:
- Conventional coolant based on ethylene glycol
- Waterless coolant based on propylene glycol

**WARNING**

The coolant concentrate (propylene glycol) may not be mixed with conventional (glycol/water) coolant or with additives!
Non observance can lead to damages to the cooling system and engine.

**CAUTION**

Conventional glycol/water coolant reduce to apply the maximum permissible coolant exit temperature.

Type of coolant used by aircrafts manufacturer:
- see Section 10 Supplement No. 02

Coolant liquid volume:
It is approximately ........................................... 0.66 [US gal] (2.5 [litre])
Throttle and Choke

Engine power is controlled by means of the THROTTLE lever with 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.

Carburetors preheating

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

Heating

Heating consists of a heat exchanger on the exhaust manifold and actuator located on the instrument panel.

---

CAUTION

Incidents involving exhaust gases entering the heating or ventilation system may result in fatal accidents due to carbon monoxide poisoning of the aircraft occupants. A carbon monoxide detector is recommended.

---

Electrical system

Battery

The 12 [V] battery is mounted on the front side of forward bulkhead.

Master switch

Master switch connects the electrical system to the 12 [V] battery.

---

NOTE

Ignition system is independent on the power source and will operate even with Master switch and/or breaker off.
Ignition Switch
Ignition switch must be on "BOTH" position to operate the engine. For safety remove the key when engine is not running.

NOTE
All switches or engine controls are "up" or "push forward" for operation, except the choke, cabin heating and carburetor preheat, which is "Pull" for "On". Optional equipment, switches and/or circuit breakers are subject to change or installed as requested. See Aircraft Equipment List and Instrument panel layout and Description of equipment and controls in the cockpit.

2.3 Propeller
Standard WOODCOMP KLASSIC 170/2/R three composite blade in ground adjustable propeller is installed.

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

2.4 Fuel system
Each tank is equipped with a vent outlet and finger screen filter. Drain valve located in the lowest point of the each tank and on the bottom edge of the bulkhead, on the gascollator. Main fuel selector valve is on the central console in the cockpit. The electric fuel pump is located on bulkhead.

CAUTION
Do not overfill the tanks to avoid fuel overflow through venting tubes.
Recommended fuel type:

(refer to the ROTAX Operator’s manual section 10.2.2 Fuel, Rotax Service Instruction SI-912-016)

MOGAS

European standard
- min. RON 95, EN 228 Super, EN 228 Super plus

US standard
- ASTM D4614

Canadian standard
- min. AKI 91, CAN/CGSB-3.5 Quality 3

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 tank volume ......................2 x 15.06 [US gal] \( \times 2 \times 57 \) [litre])
- Unusable fuel quantity .....................2 x 0.13 [US gal] \( \times 2 \times 0.5 \) [litre])

2.5Oil

Oil type:

(refer to the Rotax Operator’s manual section 10.2.3 Lubricants, Rotax Service Instruction SI-912-016)

Motorcycle 4-stroke engine oil of registered brand with gear additives.
Use only oil with API classification “SG” or higher!
Use of multi-grade no mineral oils is recommended.

Type of oil used by aircrafts manufacturer:
- see Section 10 Supplement No. 02

Oil volume:

- Minimum ....................................0.87 [US gal] \( \times 3.3 \) [litre])
- Maximum ....................................1.0 [US gal] \( \times 3.8 \) [litre])

Date of Issue: 04/2009
Revision: 3.0
2.6 Operating weights and loading

Empty weight (standard equipment) .................... 760 [lb] (345 [kg])

**NOTE**
Actual empty weight is shown in Section 10 Supplement No. 02

LSA Max. take-off weight .................................. 1 320 [lb] (600 [kg])
Max landing weight........................................ 1 320 [lb] (600 [kg])
Max. weight of fuel ........................................ 180 [lb] (82 [kg])
Max. baggage weight in rear fuselage ............... 40 [lb] (18 [kg])
Max. baggage weight in each wing locker ......... 44 [lb] (20 [kg])

**WARNING**
Do not exceed maximum take-off weight 1 320 [lb] (600 [kg])!

Number of seats ........................................... 2
Minimum crew .............................................. 1 pilot on the left seat
Minimum crew weight .................................. 95 [lb] (43 [kg])
Maximum crew weight ................................. see Section 10 Supplement No. 02
SECTION 3

3. OPERATING LIMITATIONS

3.1 Stalling speeds 3-2
3.2 Flap extended speed range 3-2
3.3 Maximum maneuvering speed 3-2
3.4 Never exceed speed 3-2
3.5 Maximum structural cruising speed 3-2
3.6 Crosswind and wind limitations 3-3
3.7 Service ceiling 3-3
3.8 Load factor 3-3
3.9 Prohibited maneuvers 3-3
3.10 Engine operating speeds and limits 3-4
3.11 Other limitations 3-5
3. OPERATING LIMITATIONS

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

### 3.1 Stalling speeds at maximum take-off weight

<table>
<thead>
<tr>
<th>Conditions: Max.take-off weight Engine: idle</th>
<th>Wing flaps pos.</th>
<th>IAS</th>
<th>CAS</th>
<th>Altitude loss at recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing level stall</td>
<td></td>
<td>IAS</td>
<td>CAS</td>
<td></td>
</tr>
<tr>
<td>0°</td>
<td></td>
<td>39</td>
<td>43</td>
<td>45</td>
</tr>
<tr>
<td>15°</td>
<td></td>
<td>35</td>
<td>39</td>
<td>45</td>
</tr>
<tr>
<td>30°</td>
<td></td>
<td>32</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td>Coordinated turn 30° bank</td>
<td></td>
<td>IAS</td>
<td>CAS</td>
<td></td>
</tr>
<tr>
<td>0°</td>
<td></td>
<td>42</td>
<td>46</td>
<td>48</td>
</tr>
<tr>
<td>15°</td>
<td></td>
<td>38</td>
<td>42</td>
<td>48</td>
</tr>
<tr>
<td>30°</td>
<td></td>
<td>35</td>
<td>39</td>
<td>45</td>
</tr>
</tbody>
</table>

### 3.2 Flap extended speed range - $V_{S0}$ to $V_{FE}$

Flap operating range (IAS):

- $32 - 75$ [knot] ($37 - 86$ [mph])

### 3.3 Maximum maneuvering speed - $V_A$

Maximum maneuvering speed (IAS):

- $88$ [knot] ($101$ [mph])

### 3.4 Never exceed speed - $V_{NE}$

Never exceed speed (IAS):

- $138$ [knot] ($158$ [mph])

### 3.5 Maximum structural cruising speed – $V_{NO}$

Maximum structural cruising speed (IAS):

- $108$ [knot] ($124$ [mph])

Date of Issue: 04/2009

Revision: 3.0
3.6 Crosswind and wind limitation

Demonstrated wind performance
Max. demonstrated head wind velocity for take-off and landing ........................................... 24 [knot]
Max. demonstrated cross wind velocity for take-off and landing ........................................... 12 [knot]

3.7 Service ceiling

Service ceiling ........................................................................ 10 000 [ft]

3.8 Load factor

Maximum positive limit load factor .......................................... +4 g
Maximum negative limit load factor .......................................... -2 g

3.9 Prohibited maneuvers

WARNING
AEROBATICS AND INTENTIONAL SPINS ARE PROHIBITED!

Airplane Category: LSA

The SportCruiser is approved for normal and below listed maneuvers:
- Steep turns not exceeding 60° bank
- Lazy eights
- Chandelles
- Stalls (except whip stalls)
### 3.10 Engine operating speeds and limits

<table>
<thead>
<tr>
<th>Engine Model:</th>
<th>ROTAX 912 ULS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine Manufacturer:</td>
<td>Bombardier-Rotax GMBH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Power</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Take-off:</td>
<td>98.6 hp (73.5 kW) at 5800 rpm (max. 5 min.)</td>
</tr>
<tr>
<td>Max. Continuous:</td>
<td>92.5 hp (69 kW) at 5500 rpm</td>
</tr>
<tr>
<td>Cruising:</td>
<td>71 hp (53 kW) at 4800 rpm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engine RPM</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Take-off:</td>
<td>5800 rpm (max. 5 min.)</td>
</tr>
<tr>
<td>Max. Continuous:</td>
<td>5500 rpm</td>
</tr>
<tr>
<td>Cruising:</td>
<td>4800 rpm</td>
</tr>
<tr>
<td>Idling:</td>
<td>1400 rpm (minimum)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cylinder head temperature:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum:</td>
<td>122° F (50° C)</td>
</tr>
</tbody>
</table>
| Maximum: | 275 ° F (135 ° C) *
| Optimum: | 167 - 230° F (75 - 110° C) |

<table>
<thead>
<tr>
<th>Oil temperature</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum:</td>
<td>122° F (50° C)</td>
</tr>
<tr>
<td>Maximum:</td>
<td>266° F (130° C)</td>
</tr>
<tr>
<td>Optimum:</td>
<td>194 - 230° F (90 - 110° C)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oil pressure:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum:</td>
<td>12 psi (0.8 bar) - below 3500 rpm</td>
</tr>
<tr>
<td>Maximum:</td>
<td>102 psi (7 bar) - cold engine starting</td>
</tr>
<tr>
<td>Optimum:</td>
<td>29 - 73 psi (2 - 5 bar) - above 3500 rpm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fuel press.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum:</td>
<td>2.2 psi (0.15 bar)</td>
</tr>
<tr>
<td>Maximum:</td>
<td>5.8 psi (0.4 bar)</td>
</tr>
</tbody>
</table>

* see the Rotax Operator’s manual section 10.1.2 Operating speeds and limits and section 10.2.1 Coolant, Rotax Installation manual section 12 Cooling system, Rotax Service Instruction SI-912-016, POH Section 2 Coolant and Section 10 Supplement No. 02 Type of coolant used in engine.

Date of Issue: 04/2009
3.11 Other limitations

- No smoking on board of the aircraft!
- There are permitted Day VFR flights
- Night VFR flights are permitted with installation of optional Night Lighting and Instruments Equipment and operation by an appropriately rated pilot.

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

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!
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SECTION 4

4. WEIGHT AND BALANCE INFORMATION

4.1 Installed equipment list 4-2
4.2 Center of gravity range and determination 4-2
4.3 Permitted payload range 4-2
4. WEIGHT AND BALANCE INFORMATION

This section contains weight and balance records and the payload range for safe operating of SportCruiser 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.

Aircraft preparation for weighing
- 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 surface blocking.

4.1 Installed equipment list

Actual Installed equipment list is shown in SECTION 10, Supplement No. 02.

4.2 Center of gravity (C.G.) range and determination

Aircraft C.G. range:

Operating C.G. range: ......................27 to 38 [%] of MAC
15.94 to 22.44 [in] (405 to 570 [mm]) of MAC

Empty weight C.G. range: .................28 to 32 [%] of MAC
16.54 to 18.90 [in] (420 to 480 [mm]) of MAC

LSA category:
Max. take-off weight 1 320 [lb] (600 [kg])

Aircraft C.G. determination:

Actual Weight and Balance reports are shown in SECTION 10, Supplement No. 02.

4.3 Permitted payload range

Actual Permitted payload range table is shown in SECTION 10, Supplement No. 02.
SECTION 5

5. PERFORMANCE

5.1 Take-off and landing distances 5-3
5.2 Rate of climb 5-3
5.3 Cruise speeds 5-4
5.4 Fuel consumption 5-5
5.5 Airspeed indicator system calibration 5-6
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 take-off weight and under ISA conditions.

The performance shown in this section is valid for aircraft fitted with given ROTAX 912 ULS 98.6 [hp] (73.5 [kW]) engine and WOODCOMP KLASSIC 170/3/R propeller.

CAUTION
Airspeeds values are valid for standard AVIATIK WA037383 pitot-static probe.
5.1 Take-off and landing distances

Take-off distances:

<table>
<thead>
<tr>
<th>RUNWAY SURFACE</th>
<th>Take-off run distance</th>
<th>Take-off distance over 50 ft obstacle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ft</td>
<td>ft</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>328</td>
<td>820</td>
</tr>
<tr>
<td>GRASS</td>
<td>361</td>
<td>918</td>
</tr>
</tbody>
</table>

Landing distances:

<table>
<thead>
<tr>
<th>RUNWAY SURFACE</th>
<th>Landing distance over 50 ft obstacle</th>
<th>Landing run distance (braked)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ft</td>
<td>ft</td>
</tr>
<tr>
<td>CONCRETE</td>
<td>591</td>
<td>180</td>
</tr>
<tr>
<td>GRASS</td>
<td>558</td>
<td>197</td>
</tr>
</tbody>
</table>

5.2 Rate of climb

| Conditions: Max. continuous power: 5500 [rpm] | Best rate of climb speed | Rate of climb Vz |
| Max. take-off weight: 1320 [lb] (600 [kg]) | knot | mph | fpm |

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ft</td>
<td>65</td>
<td>75</td>
<td>1200</td>
</tr>
<tr>
<td>3000 ft</td>
<td>65</td>
<td>75</td>
<td>850</td>
</tr>
<tr>
<td>6000 ft</td>
<td>60</td>
<td>70</td>
<td>550</td>
</tr>
<tr>
<td>9000 ft</td>
<td>55</td>
<td>63</td>
<td>315</td>
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</table>
## 5.3 Cruise speeds

<table>
<thead>
<tr>
<th>Altitude</th>
<th>Engine speed</th>
<th>IAS</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ft</td>
<td>rpm</td>
<td>knot</td>
<td>mph</td>
</tr>
<tr>
<td>4200</td>
<td>77</td>
<td>89</td>
<td></td>
</tr>
<tr>
<td>4500</td>
<td>86</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>4800</td>
<td>95</td>
<td>109</td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td>101</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>5300</td>
<td>110</td>
<td>126</td>
<td></td>
</tr>
<tr>
<td>5500</td>
<td>116</td>
<td>133</td>
<td></td>
</tr>
<tr>
<td>5800</td>
<td>125</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>4200</td>
<td>75</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>4500</td>
<td>83</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>4800</td>
<td>92</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td>97</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>5300</td>
<td>106</td>
<td>122</td>
<td></td>
</tr>
<tr>
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<td></td>
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<tr>
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<td>139</td>
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</tr>
<tr>
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<td>72</td>
<td>83</td>
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</tr>
<tr>
<td>4500</td>
<td>80</td>
<td>92</td>
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<tr>
<td>4800</td>
<td>88</td>
<td>101</td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td>94</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>5300</td>
<td>102</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>5500</td>
<td>107</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>5800</td>
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<td>134</td>
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<tr>
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<td>69</td>
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<td>112</td>
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<td>111</td>
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<td>4500</td>
<td>73</td>
<td>84</td>
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<td>93</td>
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</tr>
<tr>
<td>5500</td>
<td>98</td>
<td>112</td>
<td></td>
</tr>
<tr>
<td>5800</td>
<td>105</td>
<td>121</td>
<td></td>
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</table>
5.4 Fuel consumption

The table below shows fuel consumption, endurance and range:

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<thead>
<tr>
<th>Altitude</th>
<th>ft</th>
<th>3000</th>
</tr>
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<tbody>
<tr>
<td>Usable fuel quantity</td>
<td>US gal</td>
<td>29.86</td>
</tr>
<tr>
<td></td>
<td>litre</td>
<td>113</td>
</tr>
<tr>
<td>Engine speed</td>
<td>rpm</td>
<td>4200</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5000</td>
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<td>5300</td>
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<td></td>
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<td>5500</td>
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<tr>
<td>Fuel consumption</td>
<td>US gal/h</td>
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<tr>
<td></td>
<td></td>
<td>3.70</td>
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<td></td>
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<td>4.36</td>
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<td></td>
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<td>4.89</td>
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<td></td>
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<td>5.55</td>
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<td>6.08</td>
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<td>21.0</td>
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<td></td>
<td>23.0</td>
</tr>
<tr>
<td>Airspeed IAS</td>
<td>knot</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>mph</td>
<td>86</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
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<td>109</td>
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<tr>
<td>CAS</td>
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### 5.5 Airspeed Indicator System Calibration

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SECTION 6

6. EMERGENCY PROCEDURES

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6.2 In-flight engine starting 6-3
6.3 Smoke and fire 6-3
6.4 Glide 6-5
6.5 Landing emergencies 6-5
6.6 Recovery from unintentional spin 6-7
6.7 Other emergencies 6-7
6. EMERGENCY PROCEDURES

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 standard WOODCOMP KLASIC 170/3/R three composite blade in ground adjustable propeller.

6.1 Engine Failure

6.1.1 Engine failure during take-off run

1. Throttle - reduce to idle
2. Ignition switch - switch off
3. Apply brakes

6.1.2 Engine failure during take-off

1. Speed - gliding at 60 [knot] (70 [mph])
2. Altitude - below 150 [ft]: land in take-off direction
   - over 150 [ft]: choose a landing area
3. Wind - find direction and velocity
4. Landing area - choose free area without obstacles
5. Flaps - extend as necessary
6. Fuel Selector - close
7. Ignition switch - switch off
8. Safety harness - tighten
9. Master switch - switch off before landing
10. Land
6.1.3 Engine failure in flight

1. Push control stick forward
2. Speed - gliding at 60 [knot] (70 [mph])
3. Altitude - below 150 [ft]: land in take-off direction
- over 150 [ft]: choose a landing area
4. Wind - find direction and velocity
5. Landing area - choose free area without obstacles
6. Flaps - extend as necessary
7. Fuel Selector - close
8. Ignition switch - switch off
9. Safety harness - tighten
10. Master switch - switch off before landing
11. Land

6.2 In-flight Engine Starting

1. Switches - switch off unnecessary electrical equipment
2. Master switch - switch on
3. Fuel Selector - turn on (to tank with more quantity of fuel)
4. Throttle - idle
5. Electric pump - switch on
6. Ignition switch - hold activated to start the engine
7. After engine starting - electric pump - switch off
- other switches - switch on as necessary

6.3 Smoke and Fire

6.3.1 Fire on ground at engine starting

1. Fuel Selector - close
2. Throttle - full power
3. Ignition switch - switch off
4. Leave the airplane
5. Extinguish fire by fire extinguisher or call for a fire-brigade if you cannot do it.

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6.3.2 Fire on ground with engine running
1. Heating - close
2. Fuel selector - close
3. Throttle - full power
4. Ignition switch - switch off
5. Leave the airplane
6. Extinguish fire by fire extinguisher or call for a fire-brigade if you cannot do it.

6.3.3 Fire during take-off
1. Speed - 60 [knot] (70 [mph])
2. Heating - close
3. Fuel Selector - close
4. Throttle - full power
5. Ignition switch - switch off
6. Land, stop and leave the airplane
7. Extinguish fire by fire extinguisher or call for a fire-brigade if you cannot do it.

6.3.4 Fire in flight
1. Heating - close
2. Fuel Selector - close
3. Throttle - full power
4. Master switch - switch off
5. Ignition switch - switch off after the fuel in carburetors is consumed and engine shut down
6. Choose of area - heading to the nearest airport or choose emergency landing area
7. Emergency landing - perform according to 6.5.1
8. Leave the airplane
9. Extinguish fire by yourself or call for a fire-brigade if you cannot do it.
6.3.5 Fire in the cockpit
1. Master switch - switch off
2. Heating - close
3. Use the fire extinguisher (if installed)

6.4 Glide
An example of the use of gliding is in the case of engine failure
1. Speed - recommended gliding speed 60 [knot] (70 [mph])

6.5 Landing Emergencies

6.5.1 Emergency landing
Emergency landings are generally carried out in the case of engine failure
and the engine cannot be re-started.
1. Speed - adjust for optimum gliding 60 [knot] (70 [mph])
2. Trim - adjust
3. Safety harness - tighten
4. Flaps - extend as necessary
5. COMM - if installed then report your location if possible
6. Fuel Selector - close
7. Ignition switch - switch off
8. Master switch - switch off
9. Perform approach without steep turns and land on chosen landing area.

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6.5.2 Precautionary landing

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 land area location if a COMM is installed in the airplane.
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. Perform approach at increased idling with flaps fully extended.
6. Reduce power to idle when flying over the runway threshold and touchdown at the very beginning of the chosen area.
7. After stopping the airplane switch off all switches, shut off the fuel selector, lock the airplane and seek for assistance.

NOTE
Watch the chosen area steadily during precautionary landing.

6.5.3 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.

6.5.4 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.
6.6 Recovery from Unintentional Spin

WARNING
Intentional spins are prohibited!

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

Unintentional spin recovery technique:
1. Throttle - idle
2. Lateral control - ailerons neutralized
3. Rudder pedals - full opposite rudder
4. Rudder pedals - neutralize rudder immediately when rotation stops
5. Longitudinal control - neutralize or push forward and recovery dive.

6.7 Other Emergencies

6.7.1 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 6.5.2.
6.7.2 Carburetors icing

The carburetors icing shows itself through a decrease in engine power and an increase of engine temperatures. To recover the engine power, the following procedure is recommended:

1. Carburetors heating - open
2. Throttle - set to 1/3 of power
3. Speed - min. 76 [knot] (87 [mph])
4. Leave the icing area - as soon as possible
5. Engine power - increase gradually

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 6.5.2.

NOTE

Use carburetors heating at long time descent and in area of possible carburetors icing.

*Remember:* Aircraft is approved to operate in VMC condition only!
SECTION 7

7. NORMAL PROCEDURES

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7.2 Engine starting 7-4
7.3 Taxiing 7-6
7.4 Normal take-off 7-6
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7.7 Descend 7-7
7.8 Approach 7-8
7.9 Normal landing 7-8
7.10 Short field take-off and landing procedures 7-9
7.11 Balked landing procedures 7-9
7.12 Airplane parking and tie-down 7-10
7. 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 emergency procedures are valid for standard WOODCOMP KLASSIC 170/3/R three composite blade in ground adjustable propeller.

7.1 Pre-flight 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:

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7-2
## Inspection Check List

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| 1 | Ignition  - OFF  
    | Master switch  - ON  
    | Fuel gauge ind.  - check fuel quantity  
    | Master switch  - OFF  
    | Avionics  - check condition  
    | Control system  - visual inspection, function, clearance, free movement up to stops  
    | Canopy  - check wing flaps operation  
    | Check cockpit for loose objects  - condition of attachment, cleanliness  |
| 2 | Engine cowling condition  
    | Propeller and spinner condition  
    | Engine mount and exhaust manifold condition  
    | Oil and coolant quantity check  
    | Visual inspection of the fuel and electrical system  
    | Fuel system draining  
    | Other actions according to the engine manual  |
| 3 | Wing surface condition  
    | Leading edge condition  
    | Pitot head condition  |
| 4 | Wing tip  - surface condition, attachment  
    | Aileron  - surface condition, attachment, clearance, free movement  
    | Wing flap  - surface condition, attachment, clearance  |
| 5 | Landing gear  - wheel attachment, brakes, condition and pressure of tires  
    | Wing lower surface and fuselage bottom condition  |
| 6 | Vertical tail unit  - condition of surface, attachment, free movement, rudder stops  
    | Horizontal tail unit  - condition of surface, attachment, free movement, elevator stops  
    | The check left side the fuselage and wing is the same as right side  |
WARNING
Physically check the fuel level before each takeoff to make sure you have sufficient fuel for the planned flight.

CAUTION
In case of long-term parking it is recommended to turn the engine several times (ignition 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.

7.2 Engine starting

7.2.1 Before engine starting
1. Control system - free & correct movement
2. Canopy - clean
3. Safety harness - tighten
4. Brakes - fully applied

7.2.2 Engine starting
1. Start the engine according to its manual procedure
2. Master switch - switch on
3. Fuel Selector - turn on (left or right fuel tank)
4. Choke (cold engine) - pull to open and gradually release after engine start
5. Electrical pump - switch on
6. Ignition switch - hold activated to start the engine
7. After engine starting
   - instrument - switch on
   - el. pump - switch off
   - avionics - switch on
   - other switches - switch on as necessary
CAUTION

The starter should be activated for a maximum of 10 [sec], followed by 2 [min] pause for engine cooling.

As soon as engine runs, adjust throttle to achieve smooth running at approx. 2500 [rpm]. Check the oil pressure, which should increase within 10 [sec]. Increase the engine speed after the oil pressure has reached 29 [psi] (2 [bar]) and is steady.

To avoid shock loading, start the engine with the throttle lever set for idling or 10 % open at maximum, then wait 3 [sec] to reach constant engine speed before new acceleration.

Only one magneto should be switched on (off) during ignition magneto check.

7.2.3 Engine warm up, Engine check

Prior to engine check block the main wheels using chocks. Initially warm up the engine to 2000 [rpm] for approximately 2 [min], then continue to 2500 [rpm] till oil temperature reaches 122 [°F] (50 [°C]).

The warm up period depends on ambient air temperature.

Check both ignition circuits at 4000 [rpm] for Rotax 912 ULS. The engine speed drop during the time either magneto switched off should not over 300 [rpm]. The Max. engine speed drop difference between circuits L and R should be 120 [rpm].

NOTE

Only one magneto should be switched on (off) during ignition magneto check.

Set max. power for verification of max. speed with given propeller and engine parameters (temperatures and pressures).

Check acceleration from idling to max. power. If necessary, cool the engine at idle [rpm] before shutdown.

CAUTION

The engine check 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).
7.3 Taxiing

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

7.4 Normal Take-off

7.4.1 Before take-off

1. Altimeter - set
2. Trim - set neutral position
3. Control system - check free movement
4. Cockpit canopy - closed
5. Safety harness - tighten
6. Fuel Selector - turn on (left or right fuel tank)
7. Ignition switch - switched on (both magnetos)
8. Wing flaps - extend as necessary

7.4.2 Take-off

1. Brakes - apply to stop wheel rotation
2. Take-off power - throttle fully forward
   \( \text{max. } 5800 \text{ [rpm] for max. } 5 \text{ [min]} \)
3. Engine speed - check rpm
4. Instruments within limits - check
5. Brakes - release
6. Nose wheel unstick - 32 [knot] (37 [mph])
7. Airplane lift-off - 42 [knot] (48 [mph])
8. Passing to climb - after reaching airspeed
   \( 65 \text{ [knot]} (75 \text{ [mph]}) \)
9. Wing flaps - retract at safe altitude
   \( \text{max. airspeed for flaps using is } \)
   \( 75 \text{ [knot]}, 86 \text{ [mph]} \)

**WARNING**

The Take-off is prohibited if:
- The engine is running unsteadily
- The engine instruments values are beyond operational limits
- The crosswind velocity exceeds permitted limits (see section 3.6)
7.5 Climb

1. Throttle
   - max. take-off power
     (max. 5800 [rpm] for max. 5 [min])
   - max. continue power (5500 [rpm])
2. Airspeed
   - $v_x = 60$ [knot] (70 [mph])
   - $v_y = 65$ [knot] (75 [mph])
3. Trim
   - trim the airplane
4. Instruments
   - oil temperature, oil pressure and
     CHT 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.

7.5.1 Best angle of climb speed($v_x$): 60 [knot] (70 [mph])

7.5.2 Best rate of climb speed($v_y$): 65 [knot] (75 [mph])

7.6 Cruise

Refer to Section 5, for recommended cruising figures

7.7 Descend

Optimum glide speed
- 60 [knot] (70 [mph])
7.8 Approach

Approach speed - 50 [knot] (70 [mph])

1. Throttle - as necessary
2. Wing flaps - extend as necessary
3. Trim - as necessary

**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 3000 [rpm]), speed between 60-75 [knot] (70-86 [mph]) and check that the engine instruments indicate values within permitted limits.

7.9 Normal landing

7.9.1 Before landing

1. Throttle - as necessary
2. Airspeed - 60 [knot] (70 [mph])
3. Wing flaps - extend as necessary
4. Trim - as necessary

7.9.2 Landing

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

7.9.3 After landing

1. Throttle - engine rpm set as required for taxiing
2. Wing flaps - retract
3. Trim - set neutral position

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7.9.4 Engine shut down

1. Throttle - idle
2. Instruments - engine instruments within limits
3. Switches - switch off except Instrument and Master
4. Ignition switch - turn key to switch off
5. Instrument switch - switch off
6. Master switch - switch off
7. Fuel Selector - close

**CAUTION**

Rapid engine cooling should be avoided during operation. This happens above all during aircraft descent, taxiing, 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 idle [rpm] to stabilize the temperatures prior to engine shut down.

7.10 Short field take-off and landing procedures

None

7.11 Balked landing procedures

1. Throttle - max. take-off power
   \( (\text{max.} \ 5800 \ \text{[rpm]} \ \text{for max.} \ 5 \ \text{[min]}) \)
2. Passing to climb - after reaching 65 [knot] (75 [mph])
3. Trim - adjust as necessary
4. Wing flaps - retract at safe altitude
   \( (\text{max. airspeed for flaps using is 75 [knot], 86 [mph]}) \)
5. Trim - adjust as necessary
6. Repeat circle pattern

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7.12 Aircraft parking and tie-down

1. Ignition switch - OFF
2. Master switch - OFF
3. Fuel selector - close
4. Parking brake - use it as necessary (if installed)
5. Canopy - close, lock as necessary
6. Secure the airplane

NOTE
It is recommended to use parking brake (if installed) 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. The anchoring before leaving the airplane is important if the airplane is not equipped with a parking brake.
## 8. AIRPLANE GROUND HANDLING AND SERVICING

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<td>8.4 Aircraft inspection periods</td>
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<td>8.5 Aircraft alterations or repairs</td>
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8. AIRPLANE GROUND HANDLING AND SERVICING

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.

8.1 Servicing fuel, oil and coolant

See appropriate chapters in the ROTAX engine Maintenance and Operator's manuals and SportCruiser Aircraft Maintenance and Inspection Procedures.

8.2 Towing and tie-down instructions

8.2.1 Towing

To handle the airplane on ground use the Tow Bar, or the fuselage rear pushed down in the place of a bulkhead.

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<td>Avoid excessive pressure at the airplane airframe-especially at control surfaces. Keep all safety precautions, especially in the propeller area.</td>
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8.2.2 Mooring

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.

Mooring procedure:

1. Check: Fuel Selector close, Master switch and other switches switched off, Ignition switch switched off.
2. Fix the hand control using e.g. safety harness
3. Close air vent
4. Close and lock canopy
5. 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.*

8.2.3 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.

8.2.4 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.
8.2.5 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.

8.2.6 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.*

8.3 Assembly and Disassembly

Refer to the SportCruiser Maintenance and Inspection Procedures and the SportCruiser Aircraft Assembly photo manual.
8.4 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 following periods, at least:

- after the first 25 flight hours
- after every 50 flight hours
- after every 100 flight hours or at least annual inspection

Refer to the Sportcruiser aircraft Maintenance and Inspection Procedures for aircraft maintenance.

Refer to the Rotax engine Maintenance Manual for engine maintenance.

Maintain the propeller according to its manual.

All repairs and maintenance should be made in accordance with AC 43.13-1B.

8.5 Aircraft alterations or repairs

It is recommended to contact the airplane manufacturer prior to any alterations 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 that alternation, a new weighing is necessary, then record the new empty weight into the Weight and Balance record / Permitted payload range and up-date the placard showing weights in the cockpit.
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SECTION 9

9. REQUIRED PLACARDS AND MARKINGS

9.1 Airspeed indicator range markings 9-3
9.2 Engine instruments markings 9-3
9.3 Operating limitations on instruments panel 9-4
9.4 Passenger warning 9-5
9.5 Prohibited maneuvers 9-5
9.6 Miscellaneous placards and markings 9-5
9. REQUIRED PLACARDS AND MARKINGS

This section includes placards and instruments markings necessary for the safe operation of the aircraft.

The airplane must be placarded with:

- All circuit breakers
- All switches
- Choke: ON and OFF
- Elevator trim: Nose UP and Tail DOWN
- Flaps: UP and DOWN
- Maximum rear baggage weight: 40 lbs (18 kg)
- Maximum weight in each wing locker: 44 lbs (20 kg)
- Instruments
- Airspeed limitations
- Canopy: Open - Close
- Fuel capacity at filler necks: 57 litres / 15 US gal
  
  MOGAS RON 95 / AKI 91

- Fireproof Identification plate to be affixed to the aircraft in a prominent position near the main point of entrance to the aircraft (plate must show required information)

CAUTION

Airspeeds values are valid for standard AVIATIK WA037383 pitot-static probe.
9.1 Airspeed indicator range markings

<table>
<thead>
<tr>
<th>Marking</th>
<th>IAS value or range</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>knot</td>
<td>mph</td>
</tr>
<tr>
<td>White arc</td>
<td>32-75</td>
<td>37-86</td>
</tr>
<tr>
<td>Green arc</td>
<td>39-108</td>
<td>45-124</td>
</tr>
<tr>
<td>Yellow arc</td>
<td>108-138</td>
<td>124-158</td>
</tr>
<tr>
<td>Red line</td>
<td>138</td>
<td>158</td>
</tr>
</tbody>
</table>

9.2 Engine instruments markings

<table>
<thead>
<tr>
<th>Rotax 912ULS 98.6 [hp] (73.5 [kW])</th>
<th>Minimum Limit (red line)</th>
<th>Normal Operating Range (green arc)</th>
<th>Caution Range (yellow arc)</th>
<th>Maximum Range (red line)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine speed [RPM]</td>
<td>1400</td>
<td>1400-5500</td>
<td>5500-5800</td>
<td>5800</td>
</tr>
<tr>
<td>Oil Temperature</td>
<td>122 °F (50 °C)</td>
<td>194-230 °F (90-110 °C)</td>
<td>230-266 °F (110-130 °C)</td>
<td>266 °F (130 °C)</td>
</tr>
<tr>
<td>Exhaust Gas Temp. (EGT)</td>
<td>1472-1562 °F (800-850 °C)</td>
<td>1562-1616 °F (850-860 °C)</td>
<td>1616 °F (880 °C)</td>
<td></td>
</tr>
<tr>
<td>Cylinder head Temperature (CHT)</td>
<td>122 °F (50 °C)</td>
<td>167-230 °F (70-110 °C)</td>
<td>230-275 °F (70-135 °C)</td>
<td>275 °F (135 °C)</td>
</tr>
<tr>
<td>Oil Pressure</td>
<td>12 psi (0.8 bar)</td>
<td>29-73 psi (2.5 bar)</td>
<td>73-102 psi (5-7 bar)</td>
<td>102 psi (7 bar)</td>
</tr>
<tr>
<td>Fuel Pressure</td>
<td>2.2 psi (0.15 bar)</td>
<td>2.2-5.8 psi (0.15-0.4 bar)</td>
<td></td>
<td>5.8 psi (0.4 bar)</td>
</tr>
</tbody>
</table>

Date of Issue: 04/2009

Revision: 3.0
9.3 Operating limitation on instrument panel

<table>
<thead>
<tr>
<th>AIRSPEEDS:</th>
<th>AIRSPEEDS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{NE}$</td>
<td>138 kts</td>
</tr>
<tr>
<td>$V_A$</td>
<td>88 kts</td>
</tr>
<tr>
<td>$V_{FE}$</td>
<td>75 kts</td>
</tr>
<tr>
<td>$V_{SO}$</td>
<td>32 kts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AIRSPEEDS:</th>
<th>AIRSPEEDS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{NE}$</td>
<td>158 mph</td>
</tr>
<tr>
<td>$V_A$</td>
<td>101 mph</td>
</tr>
<tr>
<td>$V_{FE}$</td>
<td>86 mph</td>
</tr>
<tr>
<td>$V_{SO}$</td>
<td>37 mph</td>
</tr>
</tbody>
</table>

WARNING!
DO NOT EXCEED MAXIMUM TAKE-OFF WEIGHT: 600kg/1320lbs

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

Operating limitation in baggage space

MAX. BAGGAGE WEIGHT: 18kg/40lbs

MAX. WEIGHT IN WING LOCKER: 20kg/44lbs

9.4 Passenger warning

THIS AIRCRAFT WAS MANUFACTURED IN ACCORDANCE WITH LIGHT SPORT AIRCRAFT AIRWORTHINESS STANDARDS AND DOES NOT CONFORM TO STANDARD CATEGORY AIRWORTHINESS REQUIREMENTS.

Date of Issue: 04/2009

Revision: 3.0
9.5 Prohibited maneuvers

NO INTENTIONAL SPINS!  
AEROBATICS PROHIBITED!

9.6 Miscellaneous placards and markings

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

FUEL DRAIN

AEROSHELL OIL  
SPORT PLUS 4

MAX   POWER   OFF   CHOKE  ON

IDLE              MUSIC IN

Date of Issue: 04/2009  
Revision: 3.0
PEDAL SETTING

PEDAL SETTING

CANOPY OPENED

CANOPY CLOSED

BAGGAGE COMPARTMENT - A

BAGGAGE COMPARTMENT - B

NO STEP

NO PUSH
If BRS rescue system is installed:

- located on the both sides of fuselage between canopy and rear window

**WARNING**

This aircraft is equipped with a ballistically-deployed emergency parachute system

- located in place rocket egress

**EXPLOSIVE EGRESS**

**DANGER**

Rocket Deployed Parachute Egress Area

STAY CLEAR

Emergency Information at: www.BRSparachutes.com
or call (651) 457-7491 — after hours & weekends call (762) 226-6119

**CAUTION**

The owner (operator) of this airplane is responsible for the readability of placards during the aircraft service life.
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SECTION 10

10. SUPPLEMENTARY INFORMATIONS

10.1 List of inserted supplements 10-2
10.2 Inserted supplements 10-4
10. SUPPLEMENTARY INFORMATION

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.

10.1 List of inserted supplements

<table>
<thead>
<tr>
<th>Date</th>
<th>Suppl. No.</th>
<th>Title of inserted supplement</th>
<th>Revision No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>04/2009</td>
<td>01</td>
<td>Aircraft Flight Training Supplement</td>
<td>3.0</td>
</tr>
<tr>
<td>06/2009</td>
<td>02</td>
<td>Aircraft specification s/n: 09SC284</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Date of Issue: 04/2009

Revision: 3.0
<table>
<thead>
<tr>
<th>Date</th>
<th>Suppl. No.</th>
<th>Title of inserted supplement</th>
<th>Revision No.</th>
</tr>
</thead>
</table>

Date of Issue: 04/2009  
Revision: 3.0
10.2 Inserted Supplements
The SportCruiser flying characteristics and behavior are similar as the other single engine aircraft. Following training procedure is applicable if the pilot is holder of PPL or LSA Pilot License. The training flight hours are recommended minimum and depends on the Flight Instructor if student pilot is ready to continue on in next training step. Training can be performed by Flight Instructor or by the experienced pilot who has minimum 20 hours on the SportCruiser.

**Type Rating Training Procedure:**

**Ground Training** - before practical Flight Training the pilot has to get familiar with following procedures and documentation

- Pilot Operating Handbook (POH)
- Aircraft Maintenance and Inspection Procedures
- Aircraft preflight inspection procedure
- Control Checklists
- Radio, avionics, aircraft and engine controls procedures
- Differences in control and aircraft handling
- Emergency procedures
Flight training program - recommended

<table>
<thead>
<tr>
<th>Flight Training Procedure</th>
<th>Dual</th>
<th></th>
<th>Solo</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flights</td>
<td>hr/min</td>
<td>Flights</td>
<td>hr/min</td>
</tr>
<tr>
<td>1. Check flight</td>
<td>1</td>
<td>30'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pattern training flights up to 1000 ft AGL</td>
<td>4</td>
<td>20'</td>
<td>3</td>
<td>15'</td>
</tr>
<tr>
<td>3. Pattern training flights up to 500 ft AGL</td>
<td>4</td>
<td>20'</td>
<td>3</td>
<td>15'</td>
</tr>
<tr>
<td>4. Stall speed, 45° turns, side slips</td>
<td>1</td>
<td>30'</td>
<td>1</td>
<td>20'</td>
</tr>
<tr>
<td>5. Emergency landing training</td>
<td>4</td>
<td>20'</td>
<td>3</td>
<td>10'</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>2 hr</td>
<td>10</td>
<td>1 hr</td>
</tr>
</tbody>
</table>
Flight Training Procedure - description

1. **Check flight** – Student Pilot will fly the airplane in local flight, instructor is giving advises as necessary.

2. **Pattern training flights up to 1000 feet AGL** - high pattern procedures, instructor is giving advises as necessary.

3. **Pattern training flights up to 500 feet AGL** - high pattern procedures, instructor is giving advises as necessary.

4. **Stall speed, 45° turns, sideslips** – stall speed flaps retracted and extended (landing configuration), sideslips at landing configuration.

5. **Emergency landing training** – emergency procedures and landing to 1/3 of runway.

**Note:**
During solo flights instructor is observing the student pilot on pattern and can advise by radio as necessary.

**Endorsement:**
Instructor will endorse the Type Rating to the Pilots Logbook, if required.
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AIRCRAFT SPECIFICATION

Aircraft Registration number :

Aircraft Serial Number : 09SC284

This Supplement must be contained in the Pilot Operating Handbook during operation of the airplane.

Information contained in this Supplement add or replace information from the basic Pilot Operating Handbook in the further mentioned parts only. Limitations, procedures and information not mentioned in this Supplement are contained in the basic Pilot Operating Handbook.

This Supplement adds information necessary for airplane operation with equipment installed in the airplane.

Date of Issue: 06/2009

Revision: 0.0
2. AIRPLANE AND SYSTEMS DESCRIPTION

2.1 Airplane description

Cockpit

Instrument panel layout of SportCruiser aircraft s/n: 09SC284
Description of instrumentation and controls in the cockpit

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Parking brake</td>
<td>20</td>
<td>Engine hours counter</td>
</tr>
<tr>
<td>2</td>
<td>Aileron trim indicator</td>
<td>21</td>
<td>Ignition switch</td>
</tr>
<tr>
<td>3</td>
<td>Elevator trim indicator</td>
<td>22</td>
<td>Electric turn coordinator</td>
</tr>
<tr>
<td>4</td>
<td>Airspeed indicator</td>
<td>23</td>
<td>PTT / elevator trim / aileron trim buttons</td>
</tr>
<tr>
<td>5</td>
<td>Electric directional gyro</td>
<td>24</td>
<td>Switches</td>
</tr>
<tr>
<td>6</td>
<td>Electric attitude indicator</td>
<td>25</td>
<td>Transponder</td>
</tr>
<tr>
<td>7</td>
<td>Vertical speed indicator</td>
<td>26</td>
<td>PS Engineering Intercom</td>
</tr>
<tr>
<td>8</td>
<td>Altimeter</td>
<td>27</td>
<td>Flaps control switch</td>
</tr>
<tr>
<td>9</td>
<td>Transceiver</td>
<td>28</td>
<td>Flaps position indicator</td>
</tr>
<tr>
<td>10</td>
<td>GPS</td>
<td>29</td>
<td>Throttle</td>
</tr>
<tr>
<td>11</td>
<td>Compass</td>
<td>30</td>
<td>Choke</td>
</tr>
<tr>
<td>12</td>
<td>Fuel pressure gauge</td>
<td>31</td>
<td>Fuel selector valve</td>
</tr>
<tr>
<td>13</td>
<td>Engine RPM indicator</td>
<td>32</td>
<td>Socket 12V</td>
</tr>
<tr>
<td>14</td>
<td>Fuel pump operation lamp</td>
<td>33</td>
<td>Carburetors preheating</td>
</tr>
<tr>
<td>15</td>
<td>Oil pressure gauge</td>
<td>34</td>
<td>Cabin heating</td>
</tr>
<tr>
<td>16</td>
<td>Oil temperature gauge</td>
<td>35</td>
<td>Circuit breakers</td>
</tr>
<tr>
<td>17</td>
<td>Low voltage warning light</td>
<td>36</td>
<td>Fuel quantity indicator – LH tank</td>
</tr>
<tr>
<td>18</td>
<td>CHT indicator</td>
<td>37</td>
<td>Fuel quantity indicator – RH tank</td>
</tr>
<tr>
<td>19</td>
<td>Voltmeter</td>
<td>38</td>
<td>ELT control unit</td>
</tr>
</tbody>
</table>
Instruments and Avionics

- ASI, ALT, VSI
- Compass
- Electric turn coordinator
- Electric directional gyro
- Electric altitude indicator
- Garmin SL30 transceiver
- PS Engineering PM3000 stereo intercom
- Garmin GTX327 transponder
- King AK350 altitude encoder
- Artex ME405 ELT, Antennas
- AirGizmos, Garmin 296 GPS
- Engine RPM indicator
- Oil pressure and temperature gauges
- Fuel pressure and quantity gauges
- CHT indicator, Voltmeter
- Engine hours counter

Miscellaneous equipment

- G-205 trim control and PTT on the control sticks
- Trim tabs and flaps electrically actuated
- Kuntzeman strobe/nav lights
- Landing light in cowl
- Adjustable pedals
- Dual hydraulic brakes
- Parking brake
- Wheel fairings tricycle
- Carburetors preheating
- Cabin heating
- Leather upholstery
- Metallic paint

NOTE

For operating instructions refer to the documentation supplied with the instruments.
2.2 Engine

Coolant
Type of coolant used in engine:
- Specification: ASTM D 3306, VW TL 774C
- Mixture ratio coolant / water: 50/50 [%]
- Max. coolant temperature: 248 [°F] (120 [°C])

2.5 Oil

Type of oil used in engine:
- AeroShell Oil Sport Plus 4
- SAE: 10W-40
- API: SL
4. WEIGHT AND BALANCE INFORMATION

4.1 Installed equipment list of SportCruiser aircraft s/n: 09SC284

- Rotax 912 ULS with airbox engine s/n: 5852581
- Woodcomp Klassic 170/3/R propeller s/n: 9132683R
- Airspeed indicator
- Altimeter
- Vertical speed indicator
- Compass
- Attitude electric indicator
- Electric turn coordinator
- Electric directional gyro
- Garmin SL40 transceiver
- PS Engineering PM3000 stereo intercom
- Garmin GTX327 transponder
- King AK350 altitude encoder
- Artex ME406 ELT
- Argizmos, Garmin 996 GPS
- Antennas
- Engine RPM indicator
- Oil pressure and temperature gauges
- CHT indicator
- Fuel pressure and quantity gauges
- Voltmeter
- Engine hours counter
- G-205 trim control and PTT on the control sticks
- Trims and flaps electrically actuated
- Kuntzleman wing tip strobe/nav. lights
- Landing light in cowl
- Adjustable pedals
- Dual hydraulic brakes
- Parking brake
- Wheel fairings tricycle
- Cabin heating
- Carburetors preheating
- Leather upholstery
- Metallic paint

Date of Issue: 06/2003
Revision: 0.0