CZECH SPORT AIRCRAFT

SportCruiser

Pilot Operating Handbook

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

SportCruiser

Registration:

Serial Number: **xxSCxxx**

This airplane must be operated in compliance with information and limitations contained in herein.
This POH must be available on board of the airplane.

SECTION 1

1. GENERAL INFORMATION

1.1 Table of contents	1-2
1.2 Record of revisions	1-3
1.3 List of effective pages	1-4
1.4 General	1-6
1.5 Warnings, cautions and notes	1-6
1.6 Definitions and abbreviations	1-7

1. GENERAL INFORMATION

1.1 Table of contents

Section

GENERAL INFORMATION **1**

AIRPLANE AND SYSTEMS DESCRIPTION **2**

OPERATING LIMITATIONS **3**

WEIGHT AND BALANCE INFORMATION **4**

PERFORMANCE **5**

EMERGENCY PROCEDURES **6**

NORMAL PROCEDURES **7**

AIRPLANE HANDLING,SERVICING AND MAINTENANCE **8**

REQUIRED PLACARDS AND MARKINGS **9**

SUPPLEMENTARY INFORMATIONS **10**

1.2 Record of revisions

Revision No.	Affected pages	Reason for revision	Date of Issue	Signature
1.0	All	Initial	01/2007	CH.W.E.
2.0	All	Pitot static probe change. Valid for Pitot static probe "AVIATIK" WA037383 only!	12/2007	CH.W.E.
2.1	All	Control surfaces deflection, formal faults removal. Valid for Pitot static probe "AVIATIK" WA037383 only!	07/2008	CH.W.E.
3.0	All	Reissue	04/2009	

1.3 List of effective pages

Section	Page	Date of Issue	Section	Page	Date of Issue
1	1-1	04/2009	3	3-1	04/2009
	1-2	04/2009		3-2	04/2009
	1-3	04/2009		3-3	04/2009
	1-4	04/2009		3-4	04/2009
	1-5	04/2009		3-5	04/2009
	1-6	04/2009			
	1-7	04/2009			
	1-8	04/2009	4	4-1	04/2009
				4-2	04/2009
				4-3	04/2009
				4-4	04/2009
2	2-1	04/2009		4-5	04/2009
	2-2	04/2009		4-6	04/2009
	2-3	04/2009		4-7	04/2009
	2-4	04/2009		4-8	04/2009
	2-5	04/2009			
	2-6	04/2009			
	2-7	04/2009			
	2-8	04/2009			
	2-9	04/2009	5	5-1	04/2009
	2-10	04/2009		5-2	04/2009
	2-11	04/2009		5-3	04/2009
	2-12	04/2009		5-4	04/2009
	2-13	04/2009		5-5	04/2009
	2-14	04/2009		5-6	04/2009

Section	Page	Date of Issue	Section	Page	Date of Issue
6	6-1	04/2009	8	8-1	04/2009
	6-2	04/2009		8-2	04/2009
	6-3	04/2009		8-3	04/2009
	6-4	04/2009		8-4	04/2009
	6-5	04/2009		8-5	04/2009
	6-6	04/2009			
	6-7	04/2009			
	6-8	04/2009			
			9	9-1	04/2009
				9-2	04/2009
				9-3	04/2009
7	7-1	04/2009		9-4	04/2009
	7-2	04/2009		9-5	04/2009
	7-3	04/2009		9-6	04/2009
	7-4	04/2009		9-7	04/2009
	7-5	04/2009			
	7-6	04/2009			
	7-7	04/2009			
	7-8	04/2009	10	10-1	04/2009
	7-9	04/2009		10-2	04/2009
	7-10	04/2009		10-3	04/2009
				10-4	04/2009

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

ADI	Atitude direction indicator	
ALT	Altitude or Altimeter	
ATC	Air Taffic Control	
ASI	Airspeed Indicator	
bar	pressure unit	*(1 bar = 14.5037 psi)*
BEACON	anti-collision beacon	
°C	temperature in degree of Celsius	*(1°C = (°F - 32) / 1.8)*
CAS	Calibrated Airspeed	
CDI	Course deviation indicator	
CHT	Cylinder head temperature	
COMM	Communication transceiver	
EFIS	Electronic Flight Instrument System	
ELT	Emergency Locator Transmitter	
EMS	Engine Monitoring System	
°F	temperature in degree of Fahrenheit	*(1°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	
hp	power unit	*(1 hp = 0.7457 kW)*
IAS	Indicated Airspeed	
IC	Intercom	
IFR	Instrument Flight Rules	
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 kilometer 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)*
kW	power unit	*(1 kW = 1.341 hp)*
l	litre	*(1 l = 0.22 UK gal = 0.264 US gal)*
lb	pound	*(1 lb = 0.454 kg)*
lbf	force unit	*(1 lbf = 4.448 N)*
m	metre	*(1 m = 1000 mm = 3.28 ft = 39.37 in)*
mm	milimeter	*(1 mm = 0.03937 in)*
MAC	Mean Aerodynamic Chord	
max.	maximum	
min.	minimum or minute	
mph	speed in statute miles per hour	*(1 mph = 0.87 knots = 1.61 km/h)*

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	*(1psi = 0.0689bar)*
rpm	revolutions per minute	
s or sec	second	
SM	Statute Mile	*(1SM = 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_Y	best rate of climb speed	

SECTION 2

2. AIRPLANE AND SYSTEMS DESCRIPTION

2.1 Airplane description	**2-2**
2.2 Engine	**2-10**
2.3 Propeller	**2-12**
2.4 Fuel system	**2-12**
2.5 Oil	**2-13**
2.6 Operating weights and loading	**2-14**

2. AIRPLANE AND SYSTEMS DESCRIPTION

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

2.1 Airplane description

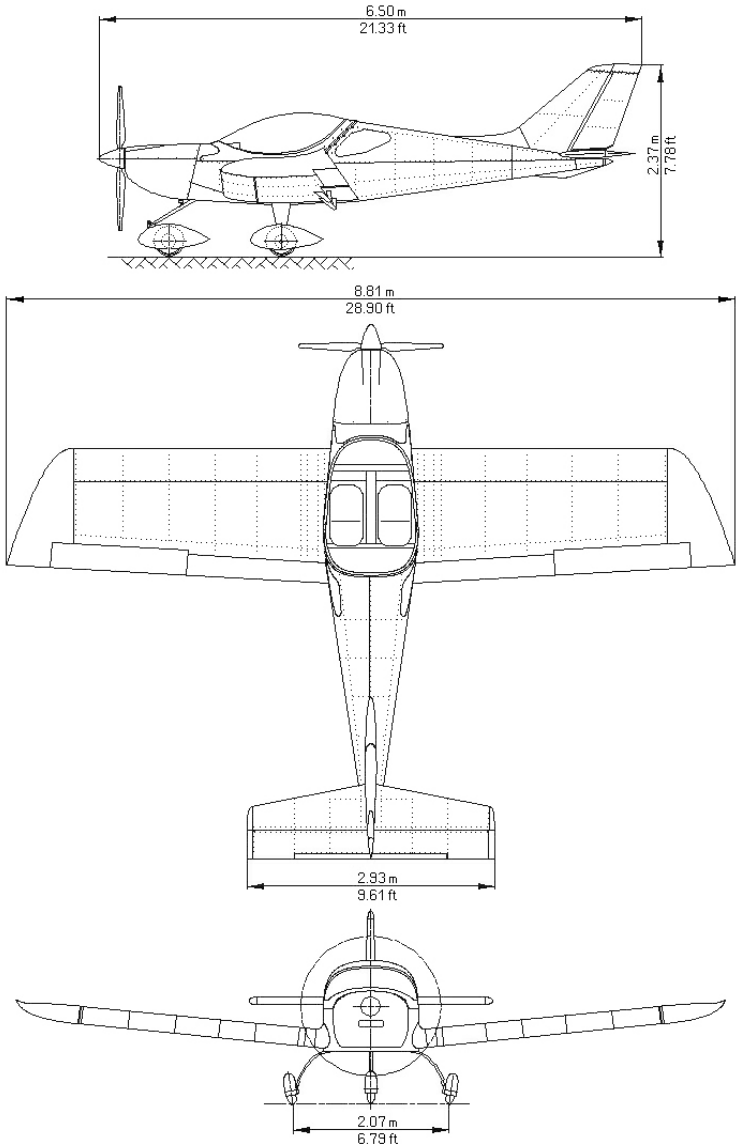
SportCruiser is the airplane intended especially for recreational and cross-country flying, and non-aerobatics operation.

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

Wing span	*28.90 [ft]*	*(8.81 [m])*
Length	*21.33 [ft]*	*(6.50 [m])*
Height	*7.78 [ft]*	*(2.37 [m])*
Wing area	*132.3 [sq ft]*	*(12.3 [m^2])*
Wing loading	*10 [lb/sq ft]*	*(49 [kg/m^2])*
Cockpit width	*46 [in]*	*(1.17 [m])*

Aircraft layout



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

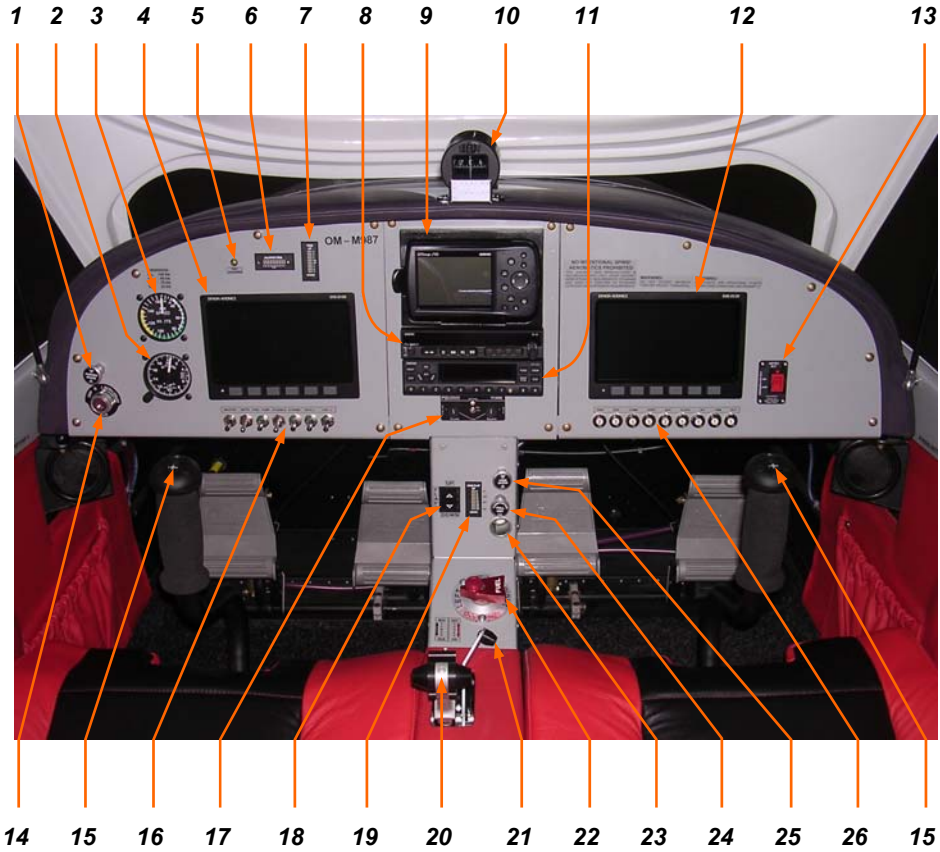
Access to the cabin is from both sides. Make sure that the canopy is latched and mechanism is securely locked into position on both sides before operating the aircraft.

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

Instrument panel layout



Description of instrumentation and controls in the cockpit

1	*Parking brake*	*14*	*Ignition switch*
2	*Backup Altimeter*	*15*	*PTT / elevator trim / aileron trim buttons*
3	*Backup Airspeed indicator*	*16*	*Switches*
4	*EFIS*	*17*	*PS Intercom*
5	*EMS warning light*	*18*	*Flaps control switch*
6	*Aileron trim indicator*	*19*	*Flaps position indicator*
7	*Elevator trim indicator*	*20*	*Throttle*
8	*Transceiver*	*21*	*Choke*
9	*GPS*	*22*	*Fuel selector valve*
10	*Compass*	*23*	*Socket 12V*
11	*Transponder*	*24*	*Carburetors preheating*
12	*EMS*	*25*	*Cabin heating*
13	*ELT control unit*	*26*	*Circuit breakers*

Instruments and Avionics

- *Dynon D100 EFIS*
- *Dynon D120 EMS*
- *Backup Airspeed indicator*
- *Backup Altimeter*
- *Compass*
- *Garmin SL40 transceiver*
- *PS Engineering PM3000 stereo intercom*
- *Garmin GTX327 transponder*
- *Garmin 296 GPS*
- *Artex ME406 ELT*
- *Antennas*

Miscellaneous equipment

- *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*
- *Paint*

NOTE

For operating instructions refer to the documentation supplied with the instruments

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*

2.2 Engine

ROTAX 912 ULS engine *98.6 [hp]73.5 [kW] (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 (propylen glycol) may not be mixed with conventional (glycol/water) coolant or with additives!

Non observance can lead to demages 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 10.2 Supplement No.2

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 170/3/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 D4814

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	*2x15.06 [US gal]*	*(2x57 [litre])*
Unusable fuel quantity	*2x0.13 [US gal]*	*(2x0.5 [litre])*

2.5 Oil

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 10.2 Supplement No.2

Oil volume:

Minimum	*0.87 [US gal]*	*(3.3 [litre])*
Maximum	*1.0 [US gal]*	*(3.8 [litre])*

2.6 Operating weights and loading

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

NOTE

Actual empty weight is shown in section 4

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 4

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

Conditions: Max.take-off weight Engine: idle	Wing flaps pos.	IAS		CAS		Altitude loss at recovery
		knot	mph	knot	mph	ft
Wing level stall	0°	39	45	43	49	65
	15°	35	40	39	45	49
	30°	32	37	37	43	33
Coordinated turn 30° bank	0°	42	48	46	53	82
	15°	38	44	42	48	66
	30°	35	40	39	45	49

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])

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: LSZ

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

Engine Model:		**ROTAX 912 ULS**
Engine Manufacturer:		**Bombardier-Rotax GMBH**
Power	***Max Take-off:***	**98.6 hp** *(73.5 kW)* **at 5800 rpm (max. 5 min.)**
	Max. Continuous:	**92.5 hp** *(69 kW)* **at 5500 rpm**
	Cruising:	**71 hp** *(53 kW)* **at 4800 rpm**
Engine RPM	***Max. Take-off:***	**5800 rpm (max. 5 min.)**
	Max. Continuoust:	**5500 rpm**
	Cruising:	**4800 rpm**
	Idling:	**1400 rpm (minimum)**
Cylinder head temperature:	***Minimum:***	**122° F** *(50° C)*
	Maximum:	**275 ° F** *(135 ° C)* *
	Optimum:	**167 - 230° F** *(75 - 110° C)*
Oil temperature	***Minimum:***	**122° F** *(50° C)*
	Maximum:	**266° F** *(130° C)*
	Optimum:	**194 - 230° F** *(90 - 110° C)*
Oil pressure:	***Minimum:***	**12 psi** *(0.8 bar)* ***- below 3500 rpm***
	Maximum:	**102 psi** *(7 bar)* **- cold engine starting**
	Optimum:	**29 - 73 psi** *(2 - 5 bar)* ***- above 3500 rpm***
Fuel press.	***Minimum:***	**2.2 psi** *(0.15 bar)*
	Maximum:	**5.8 psi** *(0.4 bar)*

* 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 2.2 Coolant and section 10.2 Supplement No.2 Type of coolant used in engine.

3.11 Other limitations

- ***No smoking on board of the aircraft !***
- ***There are permitted Day VFR flights***

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 !***

SportCruiser

Pilot Operating Handbook

SECTION 4

4. WEIGHT AND BALANCE

4.1 Installed equipment list **4-2**
4.2 Center of gravity range and determination **4-3**
4.3 Permitted payload range **4-8**

4. WEIGHT AND BALANCE INFORMATION

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

4.1 Installed equipment list

- *Rotax 912 ULS with airbox* *engine* *s/n: xxxxxxx*
- *Woodcomp KLASSIC 170/3/R* *propeller* *s/n: xxxx683R*
- *Dynon D100 EFIS*
- *Dynon D120 EMS*
- *Backup Airspeed indicator*
- *Backup Altimeter*
- *Compass*
- *Garmin SL40 transceiver*
- *PS Engineering PM3000 stereo intercom*
- *Garmin GTX327 transponder*
- *Garmin 296 GPS*
- *Artex ME406 ELT*
- *Antennas*
- *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*
- *Paint*

xxSCxxx
20xx-xx-xx

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

LSA category

Max. take-off weight ..... *1 320 [lb] (600 [kg])*

Center of gravity (C.G.)

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

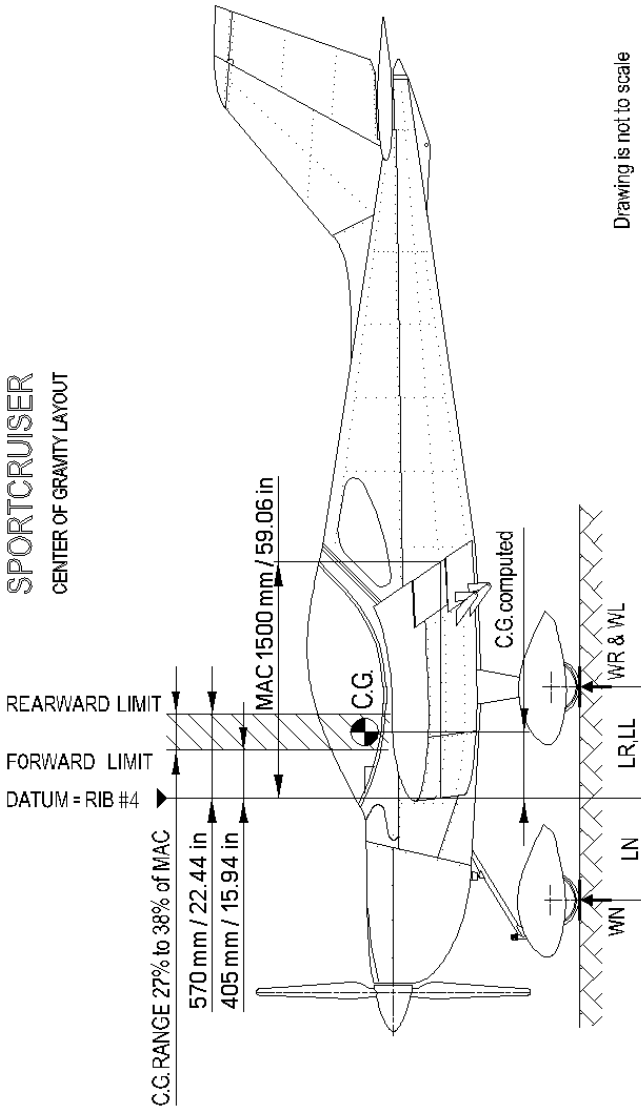
16.54 to 18.90 [in] (420 to 480 [mm]) of MAC

Aircraft C.G. determination

Weight and Balance list of reports:

- C.G. Layout
- Empty Weight C.G. Check
- Forward C.G. Check
- Rearward C.G. Check

WEIGHT & BALANCE REPORT
C.G. Layout



WEIGHT & BALANCE REPORT
Empty Weight C.G. Check

AIRCRAFT EMPTY C.G.	ITEM	WEIGHT [lb]	ARM [in]	MOMENT (WEIGHT x ARM)
	RIGHT MAIN WHEEL	W_R= 313.5	L_R= 31.26	9 800.01
	LEFT MAIN WHEEL	W_L= 315.9	L_L= 30.86	9 748.67
	NOSE WHEEL	W_N= 176.7	L_N= - 28.23 negative arm	- 4 988.24
	COMPUTED C.G. EMPTY	**Empty weight:** **W_E= 806.1** [lb]	**C.G.= 18.06** [in] **30.6** [%] MAC	**Aircraft moment:** **M_E = 14 560.44**

NOTE: EMPTY WEIGHT INCLUDING OIL, COOLANT AND HYDRAULIC FLUID.

Empty weight C.G. range : 16.54 to 18.90 [in] / 28 to 32 [%] of MAC

Max. take-off weight : 1 320 [lb]

Maximum useful weight :

$W_{Max\ Useful} = W_{Max\ Take\text{-}Off} - W_E$

$W_{Max\ Useful}$ = 1320 [lb] – 806.1 [lb] = **513.9 [lb]**

This useful weight must be never exceeded!

NOTE: MAXIMUM USEFUL WEIGHT INCLUDING PILOT, PASSENGER, BAGGAGE AND FUEL.

$$\textbf{Aircraft Empty C.G.} = \frac{M_E}{W_E}\ [mm] \times \frac{100}{MAC}\ [\%]$$

xxSCxxx
20xx-xx-xx

WEIGHT & BALANCE REPORT
Forward C.G. Check

FORWARD C.G.	WEIGHT [lb]	ARM [in]	MOMENT (WEIGHTxARM)
EMPTY AIRCRAFT	806.1	--------	14 560.44
PILOT	88.0	27.56	2 425.28
PASSENGER	0.0	27.56	0.0
BAGGAGE COMPARTMENT - A	0.0	51.58	0.0
BAGGAGE COMPARTMENT - B	0.0	70.87	0.0
WING LOCKERS	0.0	23.62	0.0
FUEL TANKS	180.6	7.09	1 280. 45
TOTAL	W_T=1 074.70 [lb]		M_T= 18 266.18
TAKE-OFF WEIGHT	1 074.70 [lb]		C.G.= 17.00 [in] 28.8 [%] MAC

NOTE: MAXIMUM FUEL QUANTITY IN WING TANKS (180.62LB =30.1US GAL) IS USED FOR MOST FORWARD C.G.CALCULATION.

Max. take-off weight : 1 320 [lb]

Max. weight in baggage compartment A+B : 40 [lb]

Max. weight in wing lockers together : 88 [lb]

Operating C.G. range : 15.94 to 22.44 [in] / 27 to 38 [%] of MAC

$$\text{Forward C.G.} = \frac{M_T}{W_T}\ [mm] \times \frac{100}{MAC}\ [\%]$$

xxSCxxx
20xx-xx-xx

WEIGHT & BALANCE REPORT
Rearward C.G. Check

REARWARD C.G.	WEIGHT [lb]	ARM [in]	MOMENT (WEIGHT x ARM)
EMPTY AIRCRAFT	806.1	--------	14 560.44
PILOT	190.0	27.56	5 236.40
PASSENGER	190.0	27.56	5 236.40
BAGGAGE COMPARTMENT - A	33.3	51.58	1 722.77
BAGGAGE COMPARTMENT - B	6.7	70.87	467.74
WING LOCKERS	71.7	23.62	2 078.56
FUEL TANKS	0.0	7.09	0.0
TOTAL	W_T=1 297.8 [lb]		M_T= 28 919.24
TAKE-OFF WEIGHT	1 297.8 [lb]		CG= 22.28 [in] 37.7 [%] MAC

NOTE: MINIMUM FUEL QUANTITY IN WING TANKS FOR 30MINUTE FLIGHT (22.2LB=3.7US GAL) IS SUBTRACTED FROM MTOW (1320LB). MOST REARWARD C.G. CALCULATION IS DONE WITH ZERO FUEL QUANTITY (AFTER FUEL DEPLETION).

Max. take-off weight : 1 320 [lb]

Max. weight in baggage compartment A+B : 40 [lb]

Max. weight in wing lockers together : 88 [lb]

Operating C.G. range : 15.94 to 22.44 [in] / 27 to 38 [%] of MAC

$$\text{Rearward C.G.} = \frac{M_T}{W_T}\ [mm] \times \frac{100}{MAC}\ [\%]$$

Serial No.:	xxSCxxx
Date:	20xx-xx-xx
By:	

4.3 Permitted payload range

			SportCruiser		Serial No. : **xxSCxxx**		
FUEL	gauges together		**for 30 min flight**	**1 / 4**	**1 / 2**	**3 / 4**	**1**
	volume	US gal	3.7	7.5	15.1	22.6	30.1
		litre	*14*	*28.5*	*57*	*85.5*	*114*
	weight	lb	22.2	45.1	90.3	135.4	180.6
		kg	*10.1*	*20.5*	*41*	*61.6*	*82.1*
			Permitted crew weight				
BAGGAGE	No baggage	lb	**492**	**469**	**424**	**379**	**333**
		kg	*224*	*213*	*193*	*172*	*152*
	½ rear (A) **20 [lb]** *(9 [kg])*	lb	**472**	**449**	**404**	**359**	**313**
		kg	*214*	*204*	*183*	*163*	*142*
	rear (A) **40 [lb]** *(18 [kg])*	lb	**452**	**429**	**384**	**339**	**293**
		kg	*205*	*195*	*174*	*154*	*133*
	½ wing lockers **44 [lb]** *(20 [kg])*	lb	**448**	**425**	**380**	**335**	**289**
		kg	*204*	*193*	*173*	*152*	*132*
	½ rear (A) + ½ wing lockers **64 [lb]** *(29 [kg])*	lb	**428**	**405**	**360**	**315**	**269**
		kg	*194*	*184*	*163*	*143*	*122*
	rear (A) + ½ wing lockers **84 [lb]** *(38 [kg])*	lb	**408**	**385**	**340**	**295**	**249**
		kg	*185*	*175*	*154*	*134*	*113*
	wing lockers **88 [lb]** *(40 [kg])*	lb	**404**	**381**	**336**	**291**	**245**
		kg	*184*	*173*	*153*	*132*	*112*
	½ rear (A) + wing lockers **108 [lb]** *(49 [kg])*	lb	**384**	**361**	**316**	**271**	**225**
		kg	*174*	*164*	*143*	*123*	*102*
	rear (A) + wing lockers **128 [lb]** *(58 [kg])*	lb	**364**	**341**	**296**	**251**	**205**
		kg	*165*	*155*	*134*	*114*	*93*

Crew weight = *Max.Take-off weight - Empty weight - Baggage weight - Fuel weight*

Crew weight values must be determine with regard on rearward C.G. limit.
Max. take-off weight : *1 320 [lb] (600 [kg])*

20xx-xx-xx

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:

RUNWAY SURFACE	Take-off run distance	Take-off distance over *50 ft* obstacle
	ft	*ft*
CONCRETE	*328*	*820*
GRASS	*361*	*918*

Landing distances:

RUNWAY SURFACE	Landing distance over *50 ft* obstacle	Landing run distance (braked)
	ft	*ft*
CONCRETE	*591*	*180*
GRASS	*558*	*197*

5.2 Rate of climb

Conditions: Max. continuous power: *5500 [rpm]* Max. take-off weight: *1 320 [lb] (600 [kg])*	Best rate of climb speed		Rate of climb Vz
	knot	*mph*	*fpm*
0 ft	*65*	*75*	*1200*
3000 ft	*65*	*75*	*850*
6000 ft	*60*	*70*	*550*
9000 ft	*55*	*63*	*315*

5.3 Cruise speeds

Altitude	Engine speed	IAS		CAS	
ft	*rpm*	*knot*	*mph*	*knot*	*mph*
1000	4200	*77*	*89*	*77*	*88*
	4500	*86*	*99*	*85*	*98*
	4800	*95*	*109*	*93*	*107*
	5000	*101*	*116*	*98*	*113*
	5300	*110*	*126*	*106*	*122*
	5500	*116*	*133*	*111*	*128*
	5800	*125*	*143*	*119*	*137*
3000	4200	*75*	*86*	*75*	*86*
	4500	*83*	*96*	*82*	*94*
	4800	*92*	*106*	*90*	*104*
	5000	*97*	*112*	*95*	*109*
	5300	*106*	*122*	*103*	*118*
	5500	*112*	*129*	*108*	*124*
	5800	*120*	*139*	*116*	*133*
5000	4200	*72*	*83*	*72*	*83*
	4500	*80*	*92*	*79*	*91*
	4800	*88*	*101*	*86*	*99*
	5000	*94*	*108*	*92*	*106*
	5300	*102*	*117*	*99*	*114*
	5500	*107*	*124*	*104*	*120*
	5800	*116*	*134*	*112*	*129*
7000	4200	*69*	*79*	*70*	*80*
	4500	*77*	*88*	*77*	*88*
	4800	*84*	*97*	*83*	*96*
	5000	*90*	*103*	*88*	*101*
	5300	*97*	*112*	*95*	*109*
	5500	*103*	*118*	*100*	*115*
	5800	*111*	*127*	*107*	*123*
9000	4200	*65*	*75*	*66*	*76*
	4500	*73*	*84*	*73*	*84*
	4800	*80*	*93*	*80*	*92*
	5000	*85*	*98*	*84*	*97*
	5300	*93*	*107*	*91*	*104*
	5500	*98*	*112*	*95*	*109*
	5800	*105*	*121*	*102*	*117*

5.4 Fuel consumption

The table below shows fuel consumption, endurance and range

Altitude		*ft*	*3000*					
Usable fuel quantity		*US gal*	*29.86*					
		litre	*113*					
Engine speed		*rpm*	***4200***	***4500***	***4800***	***5000***	***5300***	***5500***
Fuel consumption		*US gal/h*	*3,04*	*3.70*	*4.36*	*4.89*	*5.55*	*6.08*
		l/h	*11.5*	*14.0*	*16.5*	*18.5*	*21.0*	*23.0*
Airspeed	IAS	*knot*	*75*	*83*	*92*	*97*	*106*	*112*
		mph	*86*	*94*	*104*	*109*	*118*	*124*
	CAS	*knot*	*75*	*82*	*90*	*95*	*103*	*108*
		mph	*86*	*94*	*104*	*109*	*118*	*124*
Endurance		*hh:mm*	*9:49*	*8:04*	*6:51*	*6:06*	*5:23*	*4:55*
Range		*NM*	*737*	*662*	*616*	*580*	*554*	*530*
		SM	*845*	*759*	*712*	*666*	*635*	*609*

5.5 Airspeed indicator system calibration

IAS	CAS
knot	
30	35
35	39
40	44
45	48
50	53
55	57
60	62
65	66
70	71
75	75
80	79
85	84
90	88
95	93
100	97
105	102
110	106
115	111
120	115
125	120
130	124
135	129
140	133

IAS	CAS
mph	
35	41
40	45
45	49
50	54
55	58
60	63
65	67
70	72
75	76
80	81
85	85
90	89
95	94
100	98
105	103
110	107
115	112
120	116
125	121
130	125
135	130
140	134
145	139
150	143
155	148
160	152

SECTION 6

6. EMERGENCY PROCEDURES

6.1 Engine failure	6-2
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 KLASSIC 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.

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.

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

WARNING
Do not attempt to re-start the engine!

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.

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 touch-down 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

7.1 Preflight check	7-2
7.2 Engine starting	7-4
7.3 Taxiing	7-6
7.4 Normal take-off	7-6
7.5 Climb	7-7
7.6 Cruise	7-7
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.*

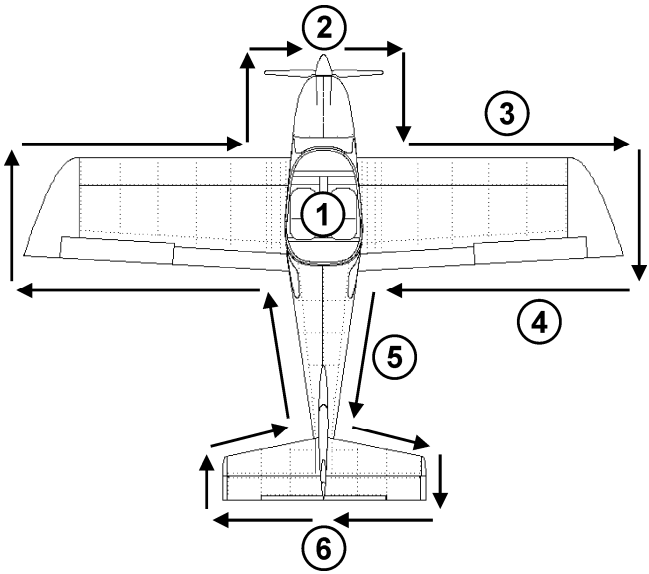
7.1 Pre-flight check

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:



Inspection Check List

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 - check wing flaps operation
	– Canopy	- condition of attachment, cleanness
	– Check cockpit for loose objects	
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

Tthe 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 *(max. 5800 [rpm] for max. 5 [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 [knot] (75 [mph])*
9.	Wing flaps	- retract at safe altitude *(max. airspeed for flaps using is 75 [knot], 86 [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 - *60 [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

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

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.

SECTION 8

8. AIRPLANE GROUND HANDLING AND SERVICING

8.1 Servicing fuel, oil and coolant	**8-2**
8.2 Towing and tie-down instructions	**8-2**
8.3 Assembly and Disassembly	**8-4**
8.4 Aircraft inspection periods	**8-5**
8.5 Aircraft alterations or repairs	**8-5**

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.

CAUTION

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

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 Engine Operator's 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 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 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.

SportCruiser

Pilot Operating Handbook

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

Marking	IAS value or range		Significance
	knot	*mph*	
White arc	***32-75***	***37-86***	Flap Operating Range.
Green arc	***39-108***	***45-124***	Normal Operating Range.
Yellow arc	***108-138***	***124-158***	Maneuvers must be conducted with caution and only in smooth air.
Red line	***138***	***158***	Maximum speed for all operations.

9.2 Engine instruments markings

Rotax 912ULS ***98.6 [hp]*** ***(73.5 [kW])***	**Minimum Limit (red line)**	**Normal Operating Range (green arc)**	**Caution Range (yellow arc)**	**Maximum Range (red line)**
Engine speed [RPM]	1400	1400-5500	5500-5800	5800
Oil Temperature	122 °F *(50 °C)*	194-230 °F *(90-110 °C)*	230-266 °F *(110-130 °C)*	266 °F *(130 °C)*
Exhaust Gas Temp. (EGT)	-	1472-1562 °F *(800-850 °C)*	1562-1616 °F *(850-880 °C)*	1616 °F *(880 °C)*
Cylinder head Temperature (CHT)	122 °F *(50 °C)*	167-230 °F *(75-110 °C)*	230-275 °F *(110-135 °C)*	275 °F *(135 °C)*
Oil Pressure	12 psi *(0.8 bar)*	29-73 psi *(2-5 bar)*	73-102 psi *(5-7 bar)*	102 psi *(7 bar)* *cold engine starting*
Fuel Pressure	2.2 psi *(0.15 bar)*	2.2-5.8 psi *(0.15-0.4 bar)*	-	5.8 psi *(0.4 bar)*

9.3 Operating limitation on instrument panel

AIRSPEEDS:	
V_{NE}	138 kts
V_A	88 kts
V_{FE}	75 kts
V_{SO}	32 kts

AIRSPEEDS:	
V_{NE}	158 mph
V_A	101 mph
V_{FE}	86 mph
V_{SO}	37 mph

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*

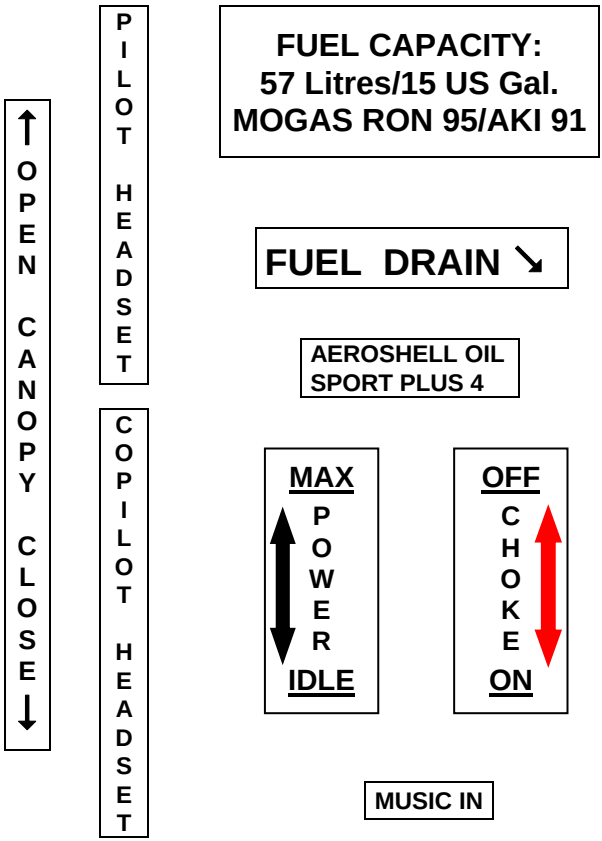
9.4 Passenger warning

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

9.5 Prohibited maneuvers

NO INTENTIONAL SPINS !
AEROBATICS PROHIBITED !

9.6 Miscellaneous placards and markings



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

- located in place rocket egress

CAUTION

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

SportCruiser

Pilot Operating Handbook

SECTION 10

10. SUPPLEMENTARY INFORMATIONS

10.1 List of inserted supplements **10-2**
10.2 Inserted supplements **10-4**

10. SUPPLEMENTARY INFORMATIONS

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

Date	Suppl. No.	Title of inserted supplement
04/2009	01/2007	Aircraft Flight Training Supplement
xx/20xx	02/20xx	Description of the aircraft *S/N xxSCxxx*

Date	Suppl. No.	Title of inserted supplement

10.2 Inserted Supplemets

Aircraft Flight Training Supplement

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*

Flight Training Procedure		*Dual*		*Solo*	
		Flights	*hr/min*	*Flights*	*hr/min*
1.	*Check flight*	1	30’		
2.	*Pattern training flights up to 1000 ft AGL*	4	20’	3	15’
3.	*Pattern training flights up to 500 ft AGL*	4	20’	3	15’
4.	*Stall speed, 45°turns, side slips*	1	30’	1	20’
5.	*Emergency landing training*	4	20’	3	10’
Total		***14***	***2 hr***	***10***	***1 hr***

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.

SportCruiser

CZECH
SPORT AIRCRAFT

AIRCRAFT DESCRIPTION

Registration :

Serial Number: **xxSCxxx**

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.

2. AIRPLANE AND SYSTEMS DESCRIPTION

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 : 120 [°C] (248 [°F])

2.5 Oil

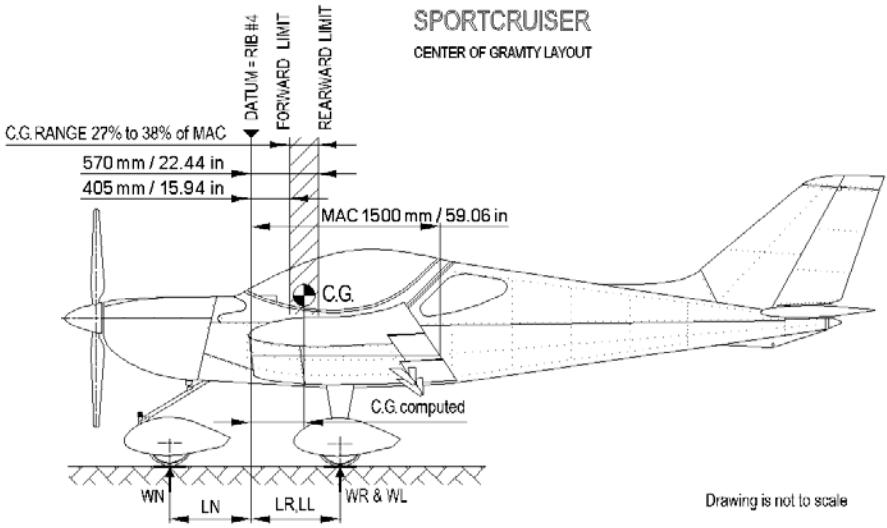
Type of oil used in engine:

AeroShell Oil Sport Plus 4
SAE: 10W-40 API: SL

4. WEIGHT AND BALANCE

Blank forms

Weight & balance report – Blank form



AIRCRAFT EMPTY C.G.	ITEM	WEIGHT [lb/kg]	ARM [in/mm]	MOMENT (WEIGHT x ARM)
	RIGHT MAIN WHEEL	W_R=	L_R=	
	LEFT MAIN WHEEL	W_L=	L_L=	
	NOSE WHEEL	W_N=	L_N= - negative arm	-
	COMPUTED C.G. EMPTY	**Empty weight:** W_E= [lb/kg]	**C.G.**= [in/mm] [%]MAC	**Aircraft moment:** M_E =

NOTE:

EMPTY WEIGHT INCLUDING OIL, COOLANT AND HYDRAULIC FLUID.

MAXIMUM FUEL QUANTITY IN WING TANKS (180.62LB =30.1US GAL / 82.1KG=114L) IS USED FOR MOST FORWARD C.G.CALCULATION.

MINIMUM FUEL QUANTITY IN WING TANKS FOR 30MINUTE FLIGHT (22.2LB=3.7US GAL / 10.1KG=14L) IS SUBTRACTED FROM MTOW (1320LB / 600KG). MOST REARWARD C.G. CALCULATION IS DONE WITH ZERO FUEL QUANTITY (AFTER FUEL DEPLETION).

AIRCRAFT C.G.	WEIGHT [lb/kg]	ARM [in/mm]	MOMENT (WEIGHTxARM)
EMPTY AIRCRAFT		--------	
PILOT		27.56 / 700	
PASSENGER		27.56 / 700	
BAGGAGE COMPARTMENT - A		51.58 / 1 310	
BAGGAGE COMPARTMENT - B		70.87 / 1 800	
WING LOCKERS		23.62 / 600	
FUEL TANKS		7.09 / 180	
TOTAL	W_T = [lb/kg]		M_T =
TAKE-OFF WEIGHT	[lb/kg]		C.G.= [in/mm] [%] MAC

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

Max. weight in baggage compartment A+B : *40 [lb] (18 [kg])*

Max. weight in wing lockers together : *88 [lb] (40 [kg])*

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

Operating C.G. range : *15.94 to 22.4 4 [in] (405 to 570 [mm]) / 27 to 38 % of MAC*

Maximum useful weight :

$W_{Max\ Useful} = W_{Max\ Take\text{-}off} - W_E$

$W_{Max\ Useful} = 1\ 320$ [lb] (600 [kg]) – = _____ [lb]/[kg]

This useful weight must be never exceeded!

NOTE: MAXIMUM USEFUL WEIGHT INCLUDING PILOT, PASSENGER, BAGGAGE AND FUEL.

$$\text{Aircraft C.G.} = \frac{M_T (M_E)}{W_T (W_E)}\ [mm/in] \times \frac{100}{MAC}\ [\%]$$

Registration:
Serial No.:
Date:
By:

Permitted payload range – Blank form

	SportCruiser		Serial No. :				
F U E L	gauges together		**for 30 min flight**	**1 / 4**	**1 / 2**	**3 / 4**	**1**
	volume	US gal	3.7	7.5	15.1	22.6	30.1
		litre	*14*	*28.5*	*57*	*85.5*	*114*
	weight	lb	22.2	45.1	90.3	135.4	180.6
		kg	*10.1*	*20.5*	*41*	*61.6*	*82.1*
			Permitted crew weight				
B A G G A G E	No baggage	lb					
		kg					
	½ rear (A) **20 [lb]** *(9 [kg])*	lb					
		kg					
	rear (A) **40 [lb]** *(18 [kg])*	lb					
		kg					
	½ wing lockers **44 [lb]** *(20 [kg])*	lb					
		kg					
	½ rear (A) + ½ wing lockers **64 [lb]** *(29 [kg])*	lb					
		kg					
	rear (A) + ½ wing lockers **84 [lb]** *(38 [kg])*	lb					
		kg					
	wing lockers **88 [lb]** *(40 [kg])*	lb					
		kg					
	½ rear (A) + wing lockers **108 [lb]** *(49 [kg])*	lb					
		kg					
	rear (A) + wing lockers **128 [lb]** *(58 [kg])*	lb					
		kg					

Crew weight = *Max.Take-off weight - Empty weight - Baggage weight - Fuel weight*

Crew weight values must be determine with regard on rearward C.G. limit.
Max. take-off weight : *1 320 [lb] (600 [kg])*

Date of Issue: xx/20xx *Revision: -*

SportCruiser

CZECH
SPORT AIRCRAFT