SKYLEADER

JA 600 (SKYLEADER 600)

PILOT OPERATING HANDBOOK

Production number: **6 210 229 R**
Registration mark: **CC-AHB**
Category: S-LSA

Date of issue: February / 2018

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Category: **S-LSA**

Manufacturer: **Zall JIHLAVAN airplanes, s.r.o., Znojemská 826/64, 586 01 Jihlava, Czech Republic.**

⚠ This lightsport aircraft is operated at the operator's own risk!

OWNER – OPERATOR OF THE AIRCRAFT:

Owner of the aircraft:

Name: ----------

Address: ----------

Identity number: ----------

Registration mark: ----------

From, To: ---------- (Dates)

The change of the ownership:

Name: ----------

Address: ----------

Identity number: ----------

Registration mark: ----------

From, To ---------- (Dates)

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From, To: ---------- (Dates)

The change of the ownership:

Name: ----------

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Identity number: ----------

Registration mark: ----------

From, To ---------- (Dates):

CHAPTERS:

Pilot Operating Handbook

WARNING! ATTENTION NOTE

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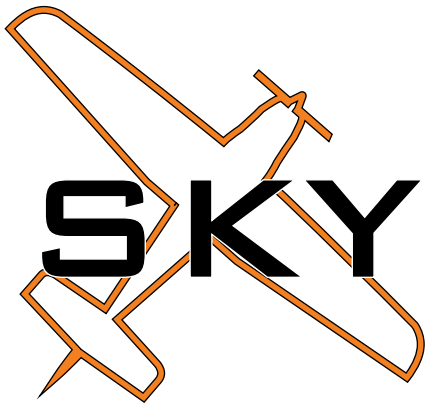


SKYLEADER 600

PILOT OPERATING HANDBOOK

1. GENERAL INFORMATION

Dear Customer!

Kindly accept our congratulations to the purchase of the ULL aircraft SKYLEADER, which is a pure result of our own research & development. Please remember - flying with SKYLEADER ULL aircraft is low-cost, safe and fun!

We believe that SKYLEADER ULL aircraft will satisfy your needs on more than 100%. As part of our continuing commitment to responding to your needs, we continuously improve the quality of the products and services we provide to all of our customers.

Team of SKYLEADER is constantly looking for your satisfaction across a wide range of attributes such as performance, product quality, service and repair, technical support, training, delivery and most importantly, your overall satisfaction with SKYLEADER.

Our company sincerely thank all of you who became our clients. Your continued feedback is invaluable help to us, and supports our endless quest in pursuing your Total Satisfaction.

Let us wish You and Your new SKYLEADER all the best!

Sincerely,
Team of Zall JIHLAVAN airplanes, s.r.o. („SKYLEADER“)
www.skyleader.aero

1.1. Profile of the company

The JIHLAVAN airplanes company was established in March 2005 after taking over the design rights and production technology of the Kappa 77 company - its ultralight aircraft manufacturing partner. In May 2017 it has entered into a strategic partnership with Zall Aircraft Manufacturing Co. Ltd. which resulted into a change in the company name into the current ZALL JIHLAVAN airplanes, s.r.o.
By retaining the know-how of Kappa 77's skilled workforce, and rebranding as SKYLEADER, the ZALL JIHLAVAN company started the production of the following all-metal UL/S-LSA aircraft - SKYLEADER 150, 200 and 500. The primary goal of the company was to continue aircraft production and to undertake further development of the aircraft models.

SKYLEADER Aircraft currently supplies the UL / LSA market and continues to increase its production capacity. With research and development support from the Institute of Aerospace Engineering (Brno University of Technology), the SKYLEADER aircraft are refined and modernized, building up on their already excellent characteristics at all times. The ZALL JIHLAVAN airplanes company's modern 3,200 m2 factory allows plenty of space for future expansion. SKYLEADER has established trade contracts around the world, with network of representatives in Argentina, Australia, Austria, Brazil, Czech Republic, France, Germany, Holland, India, Iran, Italy, Malta, New Zealand, Poland, Romania, South Africa, Spain, Taiwan, Turkey and USA. SKYLEADER aircraft can be seen at international exhibitions in Friedrichshafen (Germany); U.S. Sport Aviation Expo Sebring, Sun ´n Fun and Oshkosh (USA); Radom (Poland), Blois (France), Cielo e Volo, Meeting di Primavera (Italy); FIDAE (Chile); AeroExpo Prague (CZ); etc.

The ZALL JIHLAVAN airplanes company has now developed the wide-body fuselage for its SKYLEADER 200 and SKYLEADER 500, and more recently the new SKYLEADER 400 and 600. It extends the comfort of crew by enlarging the cockpit width, without sacrificing the top flying qualities, minimal operating costs or safety. The newest members of the SKYLEADER fleet are GP One, a wide-body carbon composite model, and a new all-metal model, the single-seat SKYLEADER 100.

1.2. Introduction

Validity:
The Pilot Operating Handbook is valid exclusively for the plane whose number is on the first page of the manual.

It is necessary for the crew to be familiar with this Pilot Operating Handbook before the flight!

1.3. Amendments

1.3.1. Amendments and supplements of the Pilot Operating Handbook

All amendments and supplements of the Pilot Operating Handbook should be done as follows:

a) the manufacturer of LSA aircraft sends an operational update with new and revised information to the owner of the Pilot Operating Handbook.
b) the holder of the Pilot Operating Handbook is obliged:

1/ to change the original information with the revised edition, which is marked by the abbreviation „REV" and the date of the change.
2/ to make a record of receiving the amendment into the amendment list. This list is found in art. 1.3.2..

The changed and amended parts of the text will be marked on the new pages by *an italics font of a text* and by the corresponding number of the amendment according to the amendments list in art. 1.3.2, amendments.

1.3.2. Amendment list

Change Number	Amendent update Number	Numbers of affected pages	Issue date of the new pages	Date of new pages were changed (with and signature)

The holder of the Pilot Operating Handbook fills in this chart. For instructions see art. 1.3.1

1.4. Abbreviations and definitions

IAS	Indicated Air Speed is the reading of the in-built airspeed indicator.
CAS	Calibrated Air Speed is the airspeed after the IAS instrument and pitot port errors have been corrected (CAS is equivalent to the true airspeed at zero level of international standard atmosphere).
TAS	True Air Speed is the aircraft speed considering "undisturbed" air.
IFR	Instrument Flight Rules.
VFR	Visual Flight Rules.
ISA	International Standard Atmosphere.
MAC	Mean Aerodynamic Chord.
VTU	Vertical Tail Unit (fin with rudder).
HTU	Horizontal Tail Unit (stabilizer with elevator).
V_{S0}	Stall speed or minimum steady flight speed at which the aircraft is controllable in the landing configuration.
V_{S1}	Stall speed or minimum steady flight speed at which the aircraft is controllable in crise configuration
V_{F0}	Maximum flap extending and retracting speed.
V_{FE}	Maximum flap extended speed.
V_{A}	Design maneuvering speed.
V_{C}	Design cruising speed
V_{LO}	Maximum speed for landing gear extending and retracting.
V_{H}	Maximum speed in level flight with maximum continuous power.
V_{NE}	Never exceed airspeed.
RWY	Runway
LG	Landing Gear
EPS	Emergency Parachute System
ELT	Emergency Locator Transmitter

Unless otherwise stated, the airspeeds in the manual are IAS

Units:				
	1 km = 1000 m	1 in = 25,40 mm	1 kt = 1,8520 km/h	1 lb = 0,4536 kg
	1 m = 1000 mm	1 nm = 1,8520 km	1 mph = 1,6090 km/h	1 US gal = 3,7854 L
	1 ft = 0,3048 m	1 mi = 1,6093 km	1 fpm = 0,00508 m/s	1 kPa = 0,1450 psi

1.5. Basic technical data

1.5.1. Technical description

SKYLEADER 600 is a LSA category airplane, two-seater, self-contained, low-wing with side-by-side seats. Main construction of the airplane is metal, consist of duralumin metal sheets. Upper part of a cockpit is made of fibre composite. Wing is composed of arectangular centre-section and a trapezoidal outer wing with Fowler flap. Tail units are self-contained, all metal with a forward HTU. A three-wheeled undercarriage with a controlled front wheel is fixed. Maximum takeof weight is 600 kg (1320 lbs).

1.5.2. Aircraft dimensions

Wing span	9,9 m	32 ft 5.5 in
Length	7,1 m	23 ft 3.5 in
Height	2,5 m	8 ft 2.4 in
Wing area	11,85 m^2	127.55 sq ft
Depth of MAC	1,27 m	4 ft 2 in
Wing Aspect Ratio	7,78	
Dihedral of the centre section	0˚	
Dihedral of the wing	6˚	

Flap area		0,7 m^2	7.53 sq ft
Flap deflection:	**take-off**	10° ± 2°	
	landing	35° ± 2°	

Aileron area		0,55 m^2	5.92 sq ft
Aileron deflection:	**up**	23° ± 1°	
	down	16° ± 1°	

HTU span		2,95 m	9 ft 8.1 in
HTU area		2,28 m^2	24.54 sq ft
Elevator deflection:	**up**	34° ± 2°	
	down	28° ± 2°	

Trim area		0,1 m^2	1.08 sq ft
Trim deflection:	**up**	30° ± 2°	
	down	30° ± 2°	

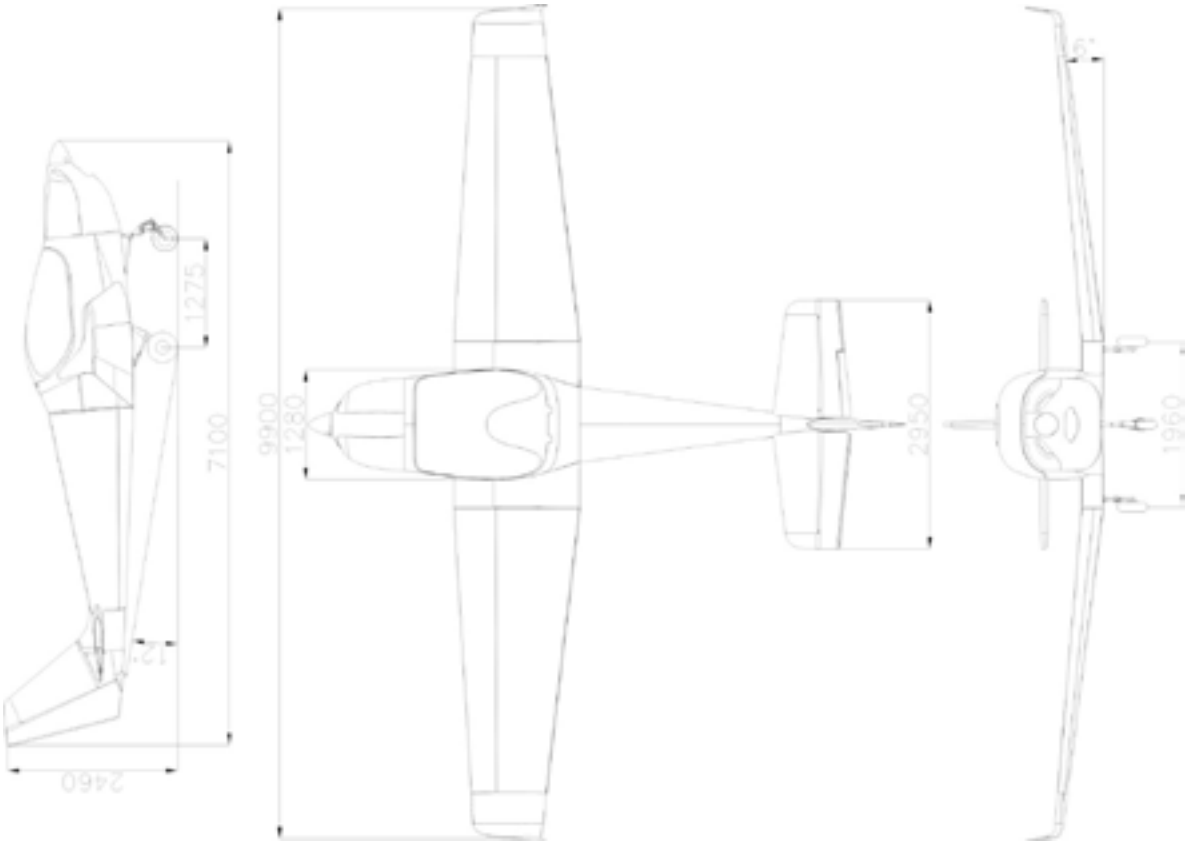
VTU area		1,73 m^2	18.62 sq ft
VTU deflection:	**left**	28° ± 2°	
	right	28° ± 2°	

Landing gear:			
Gauge		1,96 m	6 ft 5.2 in
Wheel base		1,28 m	4 ft 2.4 in
Wheel dimensions:	**nose**	300×85	4"
	main	350×115	6"
Tyre pressure-both		250±10 kPa	37±1.5 psi

1.5.3. Fuel tanks

Maximum capacity of fuel tanks: 2x60 l / 2x15.85 U. S. gal
Detailed information about fuel tanks are in chapter 2.5.

1.5.4. Diagram of aircraft

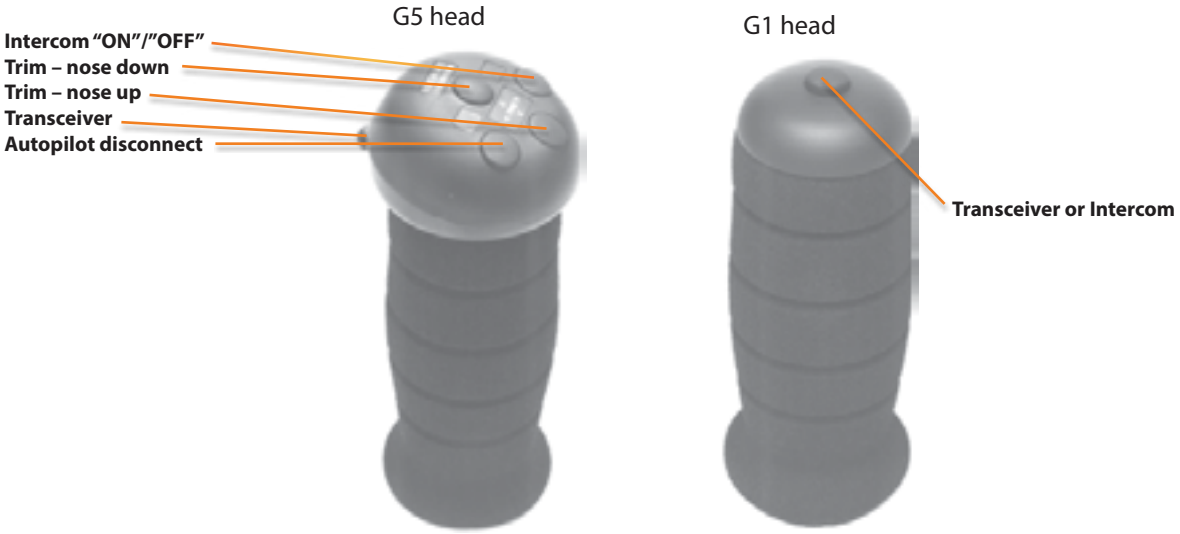


Dimensions are in millimeters (mm).

1.6. Instrument

1.6.1. Operating switches of the left control stick

Button on the G1 head could be used for Transceiver or Intercom or stay unused.



Description is valid for used equipment in the airplane, instead button is unused.

2. LIMITATIONS

2.1. Structural regulations

SKYLEADER 600 aircraft, construction, materials and performance correspond with ASTM F2245.

2.2. General

Limitations and performances correspond to sea level in International Standard Atmosphere.

Main pilot seat: Left / ~~Right~~

Pilot must be familiar with:
- Engine Operator's Manual.
- ELT Instalation and Operation Manual
- SkyView Pilot's User Guide
- Autopilot Operator's Manual
- Emergency Parachute System Manual
- Propeller Operator's Manual

2.2.1. Pitot System Error

	IAS [km/h]	60	70	80	90	100	110	120	130	140	150	160	170
Cruise	CAS [km/h]	83	87	92	98	103	109	116	123	130	138	146	155
Takeoff		64	73	82	91	100	110	119					
Landing		64	74	83	92	101	110	119					
Cruise	IAS [km/h]	180	190	200	210	220	230	240	250	260	270		
	CAS [km/h]	164	173	183	193	203	214	226	237	250	262		

	IAS [kt]	32,4	37,8	43,2	48,6	54,1	59,5	64,9	70,3	75,7	81,1	86,5	91,9
Cruise	CAS [kt]	44,9	47,0	49,7	53,0	55,7	58,9	62,7	66,5	70,3	74,6	78,9	83,8
Takeoff		34,6	39,5	44,3	49,2	54,1	59,5	64,3					
Landing		34,6	40,0	44,9	49,7	54,6	59,5	64,3					
Cruise	IAS [kt]	97,3	102,7	108,1	113,5	118,9	124,3	129,7	135,1	140,5	145,9		
	CAS [kt]	88,6	93,5	98,9	104,3	109,7	115,7	122,2	128,1	135,1	141,6		

2.3. Airspeeds

Airspeed	Abbreviation	IAS [km/h]	CAS [km/h]	IAS [kt]	CAS [kt]
Never exceed airspeed	V_{NE}	262	252	142	136
Design maneuvering speed	V_{A}	176	160	95	87
Max. speed of cruising flight - it can be exceeded in calm air only	V_{NO}	231	215	125	116
Maximum flap extended speed	V_{FE}	112	110	61	60
Stall speed with flaps retracted	V_{S1}	88	96	48	52
Stall speed in landing configuration	V_{S0}	70	74	38	40

2.3.1. Coloured range marks on Airspeed Indicator

Colour	IAS [km/h]	IAS [kt]	Description
White arc	70-112	38-61	Operational range with flaps down
Green arc	88-231	48-125	Normal range of operating speed
Yellow arc	231-262	125-142	Range of operating in calm air and with greater attention
The first red radial line	70	38	Stall speed in landing configuration
The second red radial line	262	142	Never exceed airspeed

2.4. Engine limitations

2.4.1. Rotax 912 ULS

Specifications stated in this article are not complete.
Detailed data of the engine is stated in the engine Operator's Manual.

R 912 ULS	Value
Takeoff RPM	5800 (max 5 minutes)
Max. RPM	5500
Idle RPM	1400
Oil pressure	max: 7 bar (102 psi), min 0.8 bar (12 psi) below 3500 rpm
	normal: 2.0 - 5.0 bar (29-73 psi) above 3500 rpm
Oil temperature	min: 50°C (120°F), max 130°C (266°F)
	normal: approx. 90 to 110°C (190-230°F)
Cylinder heat temp.	max: 135°C (275°F)
Exgaust gas	max: 880°C (1616°F) at takeoff
	max: 850°C (1560°F) during fly
	normal: 800°C (1470°F)
Fuel pressure	min: 0.15 bar (2.2 psi), max 0.4 bar (5.8 psi) max 0.5 bar (7.26 psi) - for applicate only for fuel pump from S/N 11.0036
Fuel consumption	27.0 l/h (7.1 gal/h) at takeoff performance
	25.0 l/h (6.6 gal/h) at max. continous performance
	18.5 l/h (4.9 gal/h) 75% at max. continous performance

⚠ The ROTAX engines have no airworthiness certificate and they could fail at any time. The pilot of the aircraft is responsible for any consequences of the engine failure!!!

2.4.2. Other engines limitations

- do not use max. engine power for a prolonged time (max. 5 min)
- takeoff is prohibited:
  - if engine is running unnaturally
  - if data on engine instruments is not in operating ranges
  - if you smell exhaust gas odour in the cockpit
  - if the tank does not have enough fuel

2.5. Fuel capacity

Max. capacity	**2x60 Ltr.**	**2x 15.85 U.S. gal**
Min. capacity for takeoff (in one fuel tank)	**10 Ltr.**	**2.6 U.S. gal**
Inexhaustible volume	**2x1.5 Ltr.**	**2x0.4 U.S. gal**
Expansion capacity	**5%**	
Rest is indicated by permanent light (reserve capacity)	**5-7 Ltr.**	**1.3 - 1.9 U.S.gal**

Electromechanical fuel gauges indicate the amount of fuel.

Note: Return pipe of fuel system is connected to the active fuel tank.

2.6. Wind and air operational limitations

Max. wind speed for take-offs and landings:	m/s	kt
Headwind (in RWY direction)	12	23,3
Crosswind	8	15,6

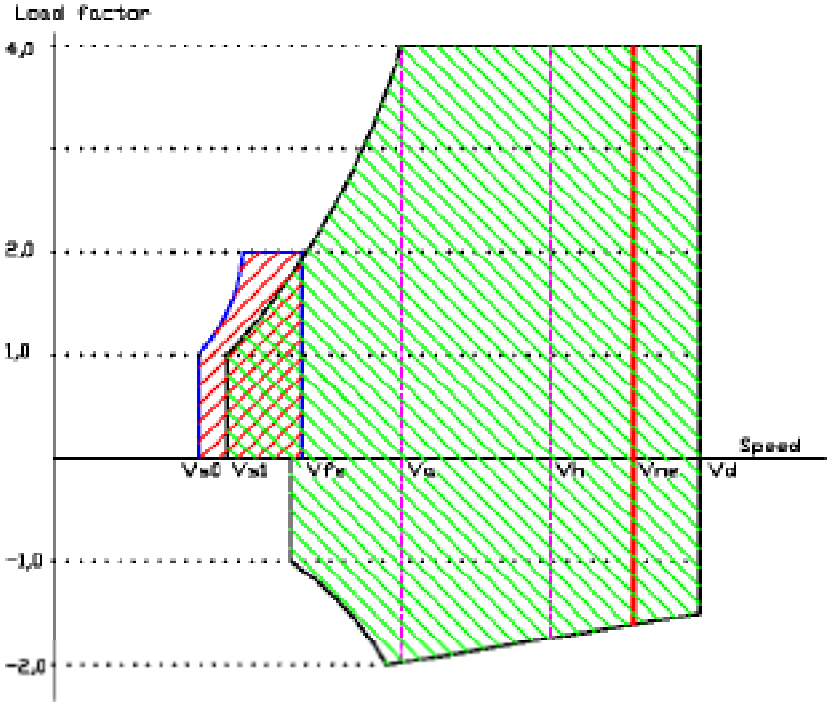
Temperatures limitations:	°C	°F
Engine type	*R912 UL/A/ULS/S*	
Max. ambient temp. for engine start	50	120
Min. ambient temp. for engine start	-25	-13

For more information see the Engine Operator´s manual.

2.7. Load factors

Max. load factor positive – flaps off	+ 4,0
Max. load factor negative – flaps off	- 2,0
Max. load factor positive – flaps extended	+ 2,0

2.8. Flight envelope



2.9. Type of operation

Daytime VFR. Night VFR (operations allowed if operated by an appropriately rated pilot with equipment as required by local regulations). Flights in known icing conditions are prohibited.

2.10. Other limitations

- When handling the aircraft on the ground, always use the tow bar
- Push the aircraft from the centre section of wing preferably or by holding the root part of propeller blades carefy!
- Do not push or p the aircraft via the propeller!
- Do not push or p the aircraft via the wings or control surfaces
- Always tie the aircraft down when it is left alone for a longer time! Use the guy eye on the rear bottom part of the fuselage and under the wings!
- If the aircraft is placed on blocks, it is prohibited to enter the cockpit, except for training purposes or possible repairs.
- Smoking is strictly prohibited in the cockpit of the aircraft or in the vicinity of the aircraft when re-fuelling!
- Seat adjustment during flight is prohibited.
- If the aircraft is parked on a sunny area:
  - Do not use the parking brake. There is a risk of damage to the brakes!
  - Cover the cabine - There is a risk of damage to the canopy!

2.11. Placards

2.11.1. Notices in the cockpit

a) Limitations, restrictions, warnings

Notices are placed on the instrument panel within view of the pilot.

NO SMOKING

ACROBATIC TURNS AND INTENDED SPINS ARE PROHIBITED

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

registration mark: **CC-AHB**

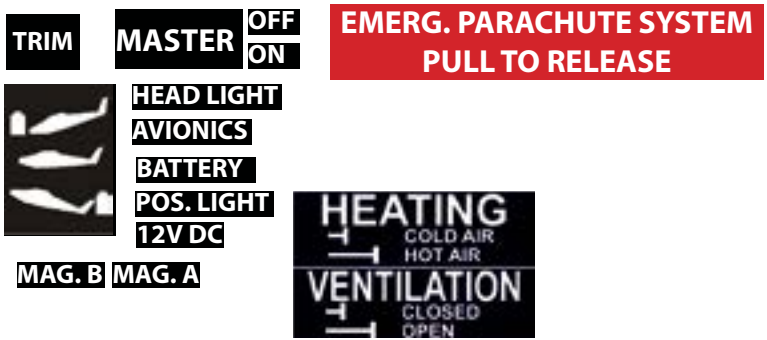
EFFECTIVE LOAD (lb)	
60L/15.9U.S.gal	120L/31.7U.S.gal
191	158

Empty weight		**375 kg**	**826 lb**
Max. takeoff weight		600 kg	1320 lb
Max. baggage weight		30 kg	66 lb
Min. pilot weight		60 kg	132 lb
Max. pilot weight		120 kg	264 lb
Never exceed speed	V_{NE}=	262 km/h	142 kt
Min. permited speed in landing config.	V_{SO}=	70 km/h	38 kt
Never exceed speed with flaps extended	V_{FE}=	112 km/h	61 kt

b) Labelling, operating and controlling

Not all equipment described here is mounted in the airplane.

Labels on the instrument panel:



Control lights:
- BATTERY

Switches:
- INTERCOM
- TRIM
- HEAD LIGHT
- POS. LIGHT
- FUEL PUMP
- AVIONICS
- MAGNETO A
- MAGNETO B
- MASTER switch
- socket: 12 V DC/10 A

circuit breaker notations

Controls:
- CHOKE
- VENTILATION - OPEN/CLOSED
- HEATING - OPEN/CLOSED
- EMERGENCY PARACHUTE SYSTEM HANDLE
- STARTER BUTTON
- FUEL COCK
- THROTTLE LEVER
- FLAP LEVER

Engine instruments:
- Engine speed
- DYNON EMS
- Oil temperature
- Oil pressure
- Fuel pressure
- Water temperature indic.
- Water press. indic
- Cylinder head temperature

Labels under the seat:
- parking brake:

Labels on the canopy opening system:

Labels on aircraft skin:

Labels on cockpit tunnel (behind the seats):
- Headphones:

Labels on canopy lock system:
- outside:

- inside:

- key lock

3. EMERGENCY PROCEDURES

Pilot must be familiar with:

- Engine Operator's Manual.
- ELT Instalation and Operation Manual
- SkyView Pilot's User Guide
- Autopilot Operator's Manual
- Emergency Parachute System Manual
- Propeller Operator's Manual

⚠ Procedures must be followed in the order they are given!!!

3.1. General information

This section provides checklists and amplified procedures for coping with various emergencies that may occur. Emergencies caused by aircraft or engine malfunction are extremely rare if proper pre-flight inspections and maintenance are practiced.

However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to correct the problem.

3.2. Airspeeds for Emergency procedures

3.2.1. Speed for Best Glide Angle

Engine mode	IDLE	STOPPED
Optimal speed for gliding	105 km/h (57kt)	105 km/h (57kt)
Sink rate	**2.8 m/s**	**3.0 m/s**
	500 fpm	**540 fpm**
Max. velocity with flaps fy extended	112 km/h (61kt)	

3.3. Emergency procedure checklists

3.3.1. Engine failure after Take-off

Emergency landings are generally carried out in the case of engine failure (i.e. the engine cannot be re-started)

1. Immediately establish a glide, with airspeed of 100-110 km/h (54-60kt)
2. Flight altitude:
   - if altitude less than 150 ft AGL - continue straight ahead and land in RWY direction (possibility to change direction to 15 ° from RWY axis)
   - if altitude more than 150 ft - to land in an open area without hazards or obstructions
3. Direction - preferably in the RWY direction, preferably into the wind
4. Flaps - use as needed
5. Magneto A+B swithces - switch "OFF"
6. Fuel cock - CLOSE

After landing:

7. Do not taxi
8. Parking brake - "ON"
9. Fuel pump - switch "OFF"
10. Transponder - STB (Stand-By mode)
11. Toggle switches, Avionics - switch "OFF"
12. Master switch - switch "OFF"
13. Emergency Parachute System - LOCK
14. Exit the aircraft and seek assistance

3.3.2. Emergency landing to terrain

Emergency landings are generally carried out in the case of engine failure (i.e. the engine cannot be re-started)

1. Immediately establish a glide, with airspeed of 100-110 km/h (54-60kt)
2. Autopilot - switch "OFF"
3. Landing area - consider landing direction, ground surface/slope, wind direction/speed, obstructions/hazards.
4. Direction - preferably into the wind. In hilly terrain to prioritize landing maneuver into the hill.
5. Magneto A and B switches – switch "OFF"
6. Flaps – use as needed

7. Fuel cock - CLOSE
8. Fuel pump - switch "OFF"
9. Seat belts - fasten and tighten
10. Radio call - report your situation and location
11. Approach - without any steep turns

After landing:

12. Do not taxi
13. Parking brake - "ON"
14. Transponder - STB (Stand-By mode)
15. Toggle switches, Avionics - switch "OFF"
16. Master switch - switch "OFF"
17. Emergency Parachute System - LOCK
18. Exit the aircraft and seek assistance

3.3.3. Precautionary landing with engine power

A precautionary landing is generally carried out in the case of pilot disorientation, lack of daylight, crew health issues, no fuel reserve, bad weather conditions, or technical problem.

1. Autopilot - switch "OFF"
2. Chose area for landing (check landing direction, landing surface, obstacles, wind speed / direction)
3. Propeller - set MIN. angle
4. Make a 360° turn above the landing area in height of 100 - 200 ft AGL - check nature of landing area
5. Make an 'into the wind' low pass in takeoff configuration at a height of 100 - 200 ft AGL and an airspeed of 100-110 km/h (54-60kt) on right side of landing area - check landing surface, estimate altitude of field (x ft) and 'runway' heading

After low pass: Full throttle, Climb up, Make 1st and 2nd turn coupled

6. Flaps retract (at safe altitude), climb at 120km/h (65kt) to altitude 500ft above field altitude (x + 500 ft)
7. Perform standard circle pattern

DOWNWIND

- Propeller - set MIN. angle
- Engine and flight instruments - check values
- Fuel pump – switch "ON"

- Fuel pressure - check value
- Fuel gauges - check fuel amount
- Fuel cock – OPEN the fuel tank with greater fuel quantity
- Seat belts - fasten and tighten
- Brakes – check function
- RWY, area of base leg and finals - clear for descent and landing
- Report (Downwind radio call)
- Plan the landing maneuvre
- Check landing area surface

BASELEG

- Airspeed 100-110 km/h (54-60kt)
- Flaps - set takeoff position
- Trim – as required to reduce control stick forces
- RWY and area of finals – clear for approach
- Fine-tune the landing approach

FINAL APPROACH

- Descend for landing at a shallow angle with increased engine power
- Airspeed 100-110 km/h (54-60kt)
- Flaps - landing position
- Trim – as required to reduce control stick forces
- Brakes - released
- Touchdown into beginning of selected area

Never change selected landing area at last minute.
Watch selected area during Precautionary landing maneuvre.

AFTER LANDING

- Do not taxi
- Parking brake - use a parking brake
- Fuel pump - switch “OFF”

- Transponder - STB (Stand-By mode)
- Toggle switches and avionics – switch "OFF"
- Magneto A and B switches – switch "OFF"
- Master switch - switch "OFF"
- Fuel cock - CLOSE
- Emergency Parachute System - LOCK
- Exit the aircraft and seek assistance

3.3.4. Landing with a flat tire

1. Final approach - Normal
2. During landing, keep damaged wheel above ground as long as possible using opposite aileron deflection
3. Hold landing direction by rudder control or use brakes as needed

Be prepared for the aircraft to yaw suddenly after damaged wheel touches the ground.

3.3.5. Landing with defective landing gear

1. Final approach - Normal
2. If the main landing gear is damaged, perform touchdown at the lowest practicable airspeed.
3. *After landing:* maintain direction using rudder control. Use opposite aileron deflection to hold damaged wheel in the air as long as possible.
4. If the nose wheel is damaged perform touch-down at the lowest practicable airspeed. Hold the nose wheel off the ground as long as possible by means of the elevator control.

Be prepared for the aircraft to yaw suddenly after damaged wheel touches the ground.
In the case of a damaged nose gear, be prepared for aircraft to pitch forward and stop abruptly after landing.

3.3.6. Loss of engine power in flight

1. Establish the glide, at airspeed, at airspeed 100-110 km/h (54-60kt)
2. Fuel cock - switch to the other fuel tank
3. Altitude - in accordance with actual altitude:

- try to restart engine according to Art. 3.3.7
- if unsuccessful, perform an Emergency landing to terrain (according to Art. 3.3.2)

3.3.7. In flight engine restart

1. All unnecessary equipment - switch "OFF"
2. Continue according to Art. 4.2 Starting the engine

Be prepared for engine failure and Emergency landing to terrain (see Art. 3.3.2).

3.3.8. Engine fire - on ground

1. Fuel cock- CLOSE
2. Brakes - use parking brake
3. Magneto A and B switches – switch "OFF"
4. Master switch - switch "OFF"
5. Heating - push in to CLOSE
6. Leave cockpit immediately and extinguish fire (if it is possible)

Time necessary to deplete fuel from carburettor system is about 30 sec.

Do not attempt to restart the engine after extinguishing fire!

3.3.9. Engine fire - in flight

1. Fuel pump - switch "OFF"
2. Fuel cock - CLOSE
3. Throttle - OPEN (max. power)
4. Heating - push in to CLOSE
5. Magneto A and B switches (after fuel depletion and engine stop) – switch "OFF"
6. Maintain airspeed at 100-110 km/h (54-60kt)
7. If fire continues, try side slipping. If this does not help, increase airspeed to the safe maximum in this situation.
8. Radio call - May Day, report your situation and location
9. Perform Emergency landing to terrain according to 3.3.2
10. *After landing:* Master switch - switch "OFF"

After extinguishing fire, do not try to start up the engine again!

Time necessary to deplete fuel from carburettor system is about 30 sec.

Do not attempt to restart the engine after extinguishing fire!

3.3.10. Electrical fire - in flight

1. Toggle switches, Avionics - switch "OFF"
2. Magneto A and B switches – switch "OFF"
3. Master switch - switch "OFF"
4. Ventilation - OPEN
5. Perform an Emergency landing to terrain (according to Art. 3.3.2) as soon as possible without using flaps (Master switch is "OFF")

- Land with increased airspeed!

3.3.11. Loss of oil pressure

On ground

1. Immediately stop the engine and check reason. Check oil system.
2. Check oil quality
3. A maintenance inspection should be carried out

In flight

1. Throttle - reduce to minimum necessary for flight
2. Carry out an Emergency landing to terrain (according to 3.3.2)

Be prepared for engine failure and Emergency landing to terrain (see Art. 3.3.2)

3.3.12. High oil pressure

On ground

The oil pressure may achieve maximum value for a short time after engine start during extreme cold conditions. Apply the following procedure:

1. Throttle - moderate level to not further raise oil press
2. As engine warms up and the pressure might reduce

If oil pressure does not become normal, stop engine. **Check oil viscosity - via engine Operator's manual.**

In flight

The oil pressure may achieve a high value if after an oil line blockage. Apply the following procedure:

1. Throttle - reduce to 50% power
2. Land as soon as possible

Be prepared for engine failure and Emergency landing to terrain (see Art. 3.3.2).

3.3.13. Emergency descent

1. Airspeed - according 2.3 Airspeeds
2. Engine RMP - do not overrun max. 5800 rpm

Be prepared for engine failure and Emergency landing to terrain (see Art. 3.3.2).

3.3.14. Overvoltage

1. All unnecessary equipment - switch "OFF"
2. Throttle - degrase to minimum power usable for flight
3. Voltmeter - check values

If the overvoltage indication persists:

4. Carry out Precautionary landing wit engine power according to Art. 3.3.3

3.3.15. Engine trouble shooting

All checks in accordance with the engine Maintenance Manual. This chapter contains possible cause in case of trouble shooting.

1. Starting problems

- Engine does not start

2. Engine run

- Engine idles rough after warm-up period, smoky exhaust emission

- Engine keeps running with ignition off
- Knocking under load

3. Oil pressure
- Low oil pressure
- High oil pressure

4. Oil level
- Oil level is increasing

5. Cold engine start
- Engine hard to start at low temperature

Detailed information about engine Abnormal Operations have been written in engine Operator's Manual.

3.3.16. Inadvertent spin recovery

There is no uncontrollable tendency of the aircraft to enter into a spin, provided the normal piloting techniques are used:

1. Throttle - CLOSE
2. Control stick - push forward to neutral position
3. Ailerons - neutral position
4. Rudder - full deflection opposite to the sense of rotation (to stop rotation)

After rotation stops

5. Rudder control - neutral position
6. Elevator control - control stick p gently back to recover from diving
7. Flaps - retract (if there are opened)
8. Throttle - use as required

Intentional spins are prohibited!!

3.3.17. Inadverent icing encounter

1. Fly away from the area causing the freezing conditions (e.g. cloud; warm, humid-air mass)
2. Throttle – CLOSE or set necessary minimum power according to flight conditions (to minimize ice build-up on propeller blades).

3. After 1 – 2 min gradually increase power of the engine to cruising power
4. If you fall to regain engine power, perform an Emergency landing to terrain (see 3.3.2).

Aircraft is approved to operate in conditions VFR without creating known icing only

In the case of icing on the wing leading edge, the **stall speed could be increased.**
In case of icing on the pitot probe, erroneous indicating of the airspeed and altimeter.
If you fail to recover the engine power or normal flight conditions, land on the nearest airfield (if possible) or depending on the circumstances, perform a Precautionary landing with engine power according to Art. 3.3.3 or Emergency landing to terrain according to Art. 3.3.2.

3.3.18. Engine and/or propeller vibrations

If unnatural vibrations occur, it is necessary to:

1. Check the current airspeed - if it is getting close to stall speed, near to maximum airspeed or is flying in a side-slip, change the flight regime
2. If the vibration still persists, then adjust the engine speed to minimize vibrations.
3. Proceed with a Precautionary landing with engine power (see 3.3.3) to the nearest airfield or other suitable area
4. If vibrations increase, turn off the engine and proceed as Emergency landing to terrain (see 3.3.2).

If you fail to recover the engine power or normal flight conditions, land on the nearest airfield (if possible) or depending on the circumstances, perform a Precautionary landing with engine power according to Art. 3.3.3 or Emergency landing to terrain according to Art. 3.3.2.

3.3.19. Loss primary instruments

EFIS/EMS unit malfunction or failure

1. EFIS/EMS circuit braker -"ON" (check)
2. Master switch - re-activate "OFF"/"ON"
3. If one of Skyview units does not turn "ON" use the other Skyview device for flight/engine values check

If both left-side and right-side Skyview fault, than

4. Continue the flight with use of backup instruments and refer to the:
   - Position of the aircraft to the horizon
   - Altitude above ground

- Throttle lever position
- Engine noise in the cockpit
- Land at the nearest airport

3.3.20. Loss of flight control

1. Lateral (roll) control failure - Use elevator and rudder control for aircraft banking

Avoid steep turns – keep less than 15° of bank!

2. Longitudinal (pitch) control failure - Use elevator trim and throttle for aircraft pitch control

Avoid abrupt manoeuvres! A longer runway will be need for landing!
Do not extend wing flaps!

3. Directional (yaw) control failure - Use elevator and aileron control for aircraft steering.

3.3.21. Throttle linkage failure

In the case of throttle linkage failure, engine goes to the **maximum power setting!**

1. Establish a climb (max. 5min.) at speed of 120km/h (65kt), then switch "OFF" magneto A and B switches.
2. *After engine stops:* switch "ON" magneto A and B switches. Establish the glide without engine power to minimal safe altitude (at airspeed 100-110 km/h (54-60kt)), then start up the engine (alternatively use choke) and climb up again.

Repeat this process as necessary.

3. Land at the nearest airport as soon as possible.
4. Seek assistance.

Be prepared for the possibility of an engine failure when starting up the engine.
Perform an Emergency landing to terrain (see Art. 3.3.2).

3.3.22. Inadvertent canopy opening

1. Canopy opens to the maximum position and there is a danger that breaks off.
2. Do not try to close canopy during flight
3. Airspeed 100-110 km/h (54-60kt)

4. Perform an Emergency landing to terrain (according to Art. 3.3.2)

DO NOT USE EMERGENCY PARACHUTE SYSTEM WITH CANOPY OPENNED

Close and lock the canopy before takeoff !!!

Opening the canopy during the flight may cause pilot injury, upper part of the fuselage damage and rudder (vertical tail unit) destruction.

3.3.23. Carbon monoxide (CO) poisoning - signs & symptoms

- Light-hearted and exuberant or vice versa (lethargy, drowsiness, ataxia, inaccurate)
- A greater sense of confidence (paradoxical euphoria)
- Rapid heart rate, rapid breathing
- Discomfort, moods
- Headache, pounding pulse in the temples
- Occasional nausea and vomiting
- 'Cherry red' nail beds and lips, tongue
- Hyperventilation (rapid breathing), coma and shock,
- Death occurs when CO has affected more than 60% of the blood's heamoglobin

When you smell an exhaust gas odour in the cockpit:

- Close heating
- Open ventilation
- Land as soon as possible

If your aircraft is equipped by heating, purchase and use an CO indicator!

CO poisoning can lead to death!

3.3.24. ELT operation (AK-451-2)

The ELT automatically activates during a crash and transmits the standard swept tone.

The Green ON lights flashing located on both the ELT Main Unit and the Cockpit. Remote Switch unit and the buzzer sound periodically indicates when the ELT is activated.
The ON switch on the Remote Switch Unit allows you to turn on the ELT for testing.
The RESET Switch on the Remote Switch Unit enables to reset the ELT. In normal operation, the Main Switch on the ELT Unit must be selected at "ARM" position.

Do not allow test duration to exceed 5 seconds. A false alarm may be generated.
Any time the ELT is activated, it is transmitting a 121.5 MHz and 243.0 MHz distress signal. If the ELT operates for approximately 50 seconds, a "live" 406 MHz distress signal is transmitted and is considered valid by the Cospas-Sarsat satellite system. Any time that the ELT Main Switch is lifted and flipped from "OFF" to "ARM", a 406 MHz self test signal is transmitted (after 25 seconds), however it is specially coded as a "self test" signal that is ignored by the COSPAS-SARSAT satellites. Note: Press RESET anytime to turn off unwanted transmission

In the event of a crash, the AK-451-2 activates automatically, and transmits the standard swept tone on 243/121.5 MHz lasting until battery power is gone. This 243/121.5 MHz signal is mainly used to pinpoint the beacon during search and rescue operations.

If the ELT is accessible after the accident, place the Main Switch in the ON position and monitor it on 121.5 MHz for proper operation if possible. If the Antenna is broken off of the ULL aircraft, the ELT Unit should be removed and the portable antenna to be used. If the ELT Unit is to remain at the ULL aircraft site, it should be placed on a large metallic portion of the airframe with its Antenna pointing skyward. The Green ON lights should be flashing after the accident. If the ELT is to be taken along as the Portable Unit when leaving the scene of the accident, place the Main switch in the ON position and keep the Antenna vertically oriented as much as possible. The ELT Green ON light should be flashing.

3.3.25. Emergency parachute system usage

1. Fuel cock - "CLOSE"
2. Magneto A and B switches - switch "OFF" both
3. Seat belts - tighten and fasten
4. Pull the hand lever to release the Emergency Parachute System
5. Radio call - May Day, report your situation and location
6. *After reaching ground:* Master switch - switch "OFF"

The handle of the Emergency Parachute System is placed on the instrument panel.

This handle must be unlocked before flight!
Max. airspeed for EPS activation = **300km/h** (162kt, 186mph) **IAS**
Min. height for EPS activation = **90m AGL** (295ft AGL) minimum speed **90km/h** (49 kt) (56 mph) **IAS**

It is possible to omit points 1, 2, 3 of this procedure in a time of distress and activate emergency parachute system immediately.

The Emergency Parachute System is designed for use below a maximum speed of **300km/h** (162kt, 186mph) IAS. In an emergency situation it is necessary to respond quickly before maximum speed is reached. Therefore practicing the necessary drills (without actually deploying the parachute) is advisable to prove that you can activate the rescue system effectively.

3.3.26. Autopilot failure

Pilot must be familiar with Skyview Autopilot Operator's manual

1. Autopilot system - switch "OFF" (there is three ways, to switch OFF autopilot)
- AP Servos switch - situated on the instrument pannel
- Autopilot disconect button - situated on the pilot's control stick (see Art. 1.6.1)
- Dynon EFIS menu

2. Proceed in the usual way of flying without autopilot use
3. *After landing:* Seek assistant to find the cause of autopilot malfunction

4. NORMAL PROCEDURES

4.1. Pre-flight check

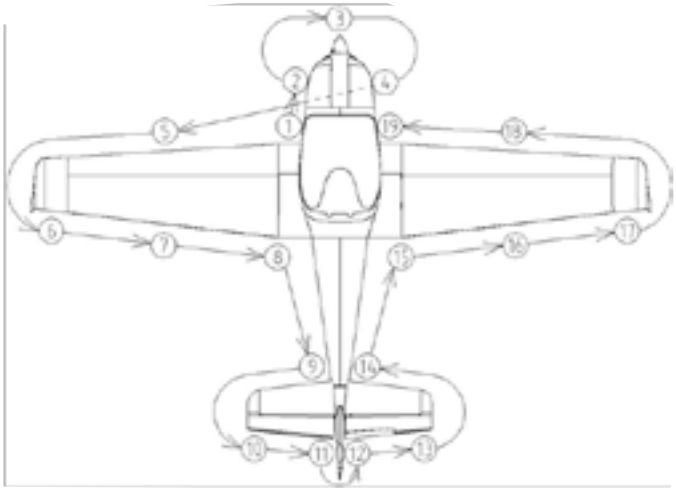
Take off the protective coverings. If parked out of hangar unfasten guy ropes, chock the wheels.

After rain or if the canopy glass is wet, wipe dry before you open the canopy!

The numbered checking points on the drawing refer to the checking procedures described below.. When checking some parts it is necessary to open hatches or inspection covers. Inspect the aircraft as follows:

Generally:
Check airframe completely before flight. Including engine and additional installation

- Check the aircraft documentation before flight.
- Check an aircraft documentation (time limits to the following inspection)
- Check the validity of aircraft statutory insurance



Pilot must be familiar with:

- Engine Operator's Manual.
- ELT Instalation and Operation Manual
- SkyView Pilot's User Guide
- Autopilot Operator's Manual
- Emergency Parachute System Manual
- Propeller Operator's Manual

a) Before entering cockpit (1.)

- Seat attachment - Check
- Seat belts - Check
- Control systems motion - Check f range and free of any binding
- Brake function - Check
- Master switch - switch "ON"
- Engine & Flight instruments & Avionics - Check
- Fuel gauges - Check fuel quantity
- Trim function - Check
- Flaps - OPEN to takeoff position
- Master switch, toggle switches, Magneto A and B switches – switched "OFF"
- Throttle lever motion - Check
- Cleanness and condition of canopy windows - Check
- Loose objects - Secure or remove
- Canopy closing and locking system - Check

b) Engine area (2. 3. 4.) – check the following:

Pilot must be familiar with engine Operator's Manual!

- Engine cover - OPEN
- Engine equipment - Check
- Exhaust equipment - Check
- Electric installation - Check
- Fuel hoses installation - Check
- Carburettor system - Check
- Engine oil system and oil quantity - Check
- Cooling system and cooling fluid - Check
- Propeller condition and installation - Check
- Directional control system - Check
- Nuts and screws secure - Check
- Engine cover - CLOSE and LOCK

c) Front landing gear (2. 3. 4.) – check the following:

- Tyre pressure - Check
- Nose wheel, shock absorber - Check
- Tyre surface and tyre position with regard to wheel rim (according to red mark) - Check
- Nose landing gear strut - Check
- Nuts and screws secure - Check
- Nose Landing Gear leg - Check
- Nose wheel fork - Check

d) Fuel tanks (1. 19.) – check the following:

- Fuel tank - Check
- Fuel tank filler cap - OPEN
- Fuel quantity - Check, refuel as required
- Fuel tank filler cap - CLOSE and LOCK
- Fuel tank ventilation - Check

e) Wings (1. 5. 6. 7. 8. 15. 16. 17. 18. 19.) – check the following:

- Leading edge; trailing edge and whole wing skin - Check
- Winglets riveting - Check
- Pitott tube – Check
- Wing instalation points - Check
- Nuts and screws secure - Check

f) Ailerons (6. 7. 16. 17.) – check the following:

- Skin - Check
- Nuts and screws secure - Check
- Clearance in aileron installation points - Check
- Aileron moves - Check - freely in whole range of deflection

g) Flaps (7. 8. 15. 16.) – check the following:
Flaps in Takeoff position and check the following:

- Skin - Check
- Nuts and screws secure - Check
- Clearance in flap installation points - Check
- Flap control system - Check
- Rollers free motion (during flap movement)
- Flap lock mechanism in extended position – Check function (pushing to flap trailing edge)
- **Extend flaps to Landing position and repeat previous flap checks**

h) Main landing gear (8. 15.) – check the following:

- Tyre pressure - Check
- Main wheel with brake body; shock absorber - Check
- Tyre surface and tyre position with regard to wheel rim (according to red mark) - Check
- Hydraulic hoses - Check
- Main landing gear strut - Check
- Nuts and screws secure - Check
- Main Landing Gear leg - Check

i) Fuselage (1. 8. 9. 11. 12. 14. 15. 19.) – check the following:

- Fuselage skin - Check
- Anti-collision beacon (bottom) - Check
- Fibreglass cover (over stabilizator installation points) - Check
- Directional control system - Check
- Tail eye - Check

j) Horizontal Tail Unit (9. 10. 11. 12. 13. 14.) – check the following:

- Clearance in horizontal stabilizer instalation points- Check
- Stabilizer and elevators - Check skin condition
- Clearance in elevator installation points - Check
- Horizontal tail unit end tip - Check
- Nuts and screws secure - Check
- Trim - Check following:
  - skin condition
  - correctly function
  - instalation points
  - p rod condition and corrected attachment

k) Vertical Tail Unit (9. 11. 12. 14.) – check the following:

- Clearance in rudder installation points - Check
- Vertical tail unit end tip - Check
- Nuts and screws secure - Check

Write the inspection results into the Logbook!

4.2. After entering cockpit

1. Emergency Parachute System handle - Check if it is locked
2. Adjust seat position, lock seat by locking mechanism
3. Canopy - Close and **LOCK** **(Canopy lock LED doesn´t shine when canopy is closed and locked)**
4. Seat belts – fasten and tighten
5. Head sets - put on head, adjust head band and microphone position
6. Control stick – free motion throughout its entire range of deflection
7. Master switch – switch ”ON”

4.3. Starting the engine

1. Space behind the aircraft - Check if is clear (before starting the engine)
2. Throttle - CLOSE for cold engine (alternatively use choke) or 1/3 throttle for warm engine (do not use choke)
3. Fuel gauges – check fuel amount
4. Fuel cock – OPEN fuel tank with greater quantity of fuel
5. Nose wheel - hold in straight direction
6. Engine and flight instruments - check values
7. Propeller pitch - set MIN. angle
8. Fuel pump – switch “ON”
9. Magneto A switch – switch “ON”
10. Magneto B switch – switch “ON”
11. Brakes - use brakes or wheel chocks
12. Area around propeller – clear of obstructions, animals or people
13. Starter button - press until the engine starts up to run
14. Set engine speed after start up – 2000 RPM
15. Check oil and fuel pressures
16. Choke - deactivate as soon as the engine is running smoothly (if it has been used)
17. Engine instruments - check for any error messages
18. EMS - display - check for any error messages
19. Toggle switches and avionics – switch them “ON”

20. Electrical charging - check function
21. Radio and keys function - Check
22. Trim – Check function, return to neutral position
23. Flaps – Check free motion, retract

Electric fuel pump may not be switched "ON" with empty fuel tanks and closed fuel cock!

Max. time perion for engine start up is 10 seconds. It is possible to repeat starting up process with 2 min delay for cooling of starting gear.
Oil pressure must rise within 10 seconds after start. When oil pressure is steady above 2 bars, it is possible to increase engine speed!!!

4.4. Engine warm up and engine check

1. Control stick - pull fy to back position
2. Rudder pedals - set to neutral position
3. Engine speed - 2000 rpm and let run about 2 min., then warm up engine at 2500 rpm until oil temperature reaches 50 C (120°F). Check temperatures and pressures.
4. *Ignition test:* Check alternately A and B magnetos with engine speed 4000 rpm; engine speed should not decrease more than 300 rpm with one ignition circuit OFF. Difference between A and B magneto "OFF" should not exceed 115 rpm. Repeat 2 or 3 times
5. Short f throttle ground test - smoothly increase engine speed to maximum, hold approximately 5 sec.
6. Throttle - CLOSE

After engine waeming up let the engine cool at idling engine speed.
Do not carry out the engine check and warmin up the engine on dusty terrain (there is danger of propeller or engine damage) !!!

- It is necessary for the pilot to be familiar with the instructions given in the engine Operator´s Manual
- Before starting the engine the aircraft must:
  - be pointing into a headwind
  - have the wheels fixed by using chocks or the parking brake
- It is necessary to have an extinguisher ready near the aircraft in case of fire. For this reason one more person, familiar with operating the extinguisher, should be nearby.
- The engine must not be started, until the pilot is seated in the cockpit!
- **Do NOT get into or out of the cockpit, while the engine is running!**

4.5. Taxiing

1. Emergency Parachute System - UNLOCK before start taxy
2. Transponder - SBY mode (Stand-by mode)
3. Release the brakes (remove wheel chocks)
4. Report - use transceiver to make a broadcast call
5. Check brake function and range of directional control when taxiing
6. Adjust speed of taxiing to airfield surface condition and to wind direction / speed

Maximum taxy speed is 15 km/h (8 kt) (9 mph)

4.6. At Holding point and LineUp

1. Brakes – use brake
2. Throttle - CLOSE
3. Engine test - perform according to Art. 4.4, points 4-6
4. Controls - check free motion throughout the entire range of deflection
5. Seat belts - fasten and tighten
6. Canopy - make absolutely sure that canopy is **closed and locked!**
7. Flaps - lower to takeoff position
8. Fuel gauges – check fuel amount
9. Fuel cock - turn to fuel tank with greater fuel volume
10. Engine instruments - check instrument values
11. EMS - display - check for any error messages
12. Fuel pump - "ON" (check)
13. Fuel pressure - check value
14. Autopilot - "OFF"
15. Propeller pitch - set min. angle
16. Flight instruments - check instrument values. Set altimeter.
17. Transponder - ALT (Altitude mode)
18. Master switch - "ON" - check
19. Magneto A and B switches – check if both circles are switched "ON"

20. Toggle switches and avionics – switch "ON" - check
21. Trim - set neutral position
22. Traffic pattern area - clear for entry to RWY
23. Report about to Lineup on RWY (radio call)
24. Release the brakes.
25. Lineup

4.7. Takeoff

4.7.1. Normal takeoff

1. RWY area – clear for takeoff
2. Check time on clock. Report (Takeoff radio call)
3. Brakes - released (make sure)
4. Throttle – OPEN (smoothly increase to takeoff power)
5. Hold direction straight by rudder control
6. At speed 50 km/h (30 kt) smoothly p control stick back to lift front wheel. The aircraft will lift-off at 70 km/h (40 kt)
7. Levell off aircraft at 3 ft above the ground, until reaching 90 km/h (48 kt)
8. Climb at 110 km/h (60 kt) ; engine speed max. 5800 RPM (for max. 5 min)
9. Flaps retract at altitude 150 ft (50 m) AGL, than climb at 120 km/h (65kt) airspeed (at 5500 RPM)
10. Engine instruments – check values
11. EMS-display - check for any error messages
12. Trim – adjust as required to reduce control stick forces

4.7.2. Short field takeoff

1. RWY area – clear for takeoff
2. Check time on clock. Report (Takeoff radio call)
3. Brakes - use brakes
4. Throttle – OPEN (smoothly increase to takeoff power)
5. Brakes - release brakes
6. Hold direction straight by rudder control

7. At speed 50 km/h (30 kt) smoothly p control stick back to lift front wheel. The aircraft will lift-off at 70 km/h (40 kt)
8. Level off aircraft at 3 ft above the ground, until reaching 90 km/h (48 kt)
9. Climb at 110 km/h (60 kt) ; engine speed max. 5800 RPM (for max. 5 min)
10. Flaps retract at altitude 50 m (150 ft) AGL, than climb at 120 km/h (65kt) airspeed (at 5500 RPM)
11. Engine instruments – check values
12. EMS - display - check for any error messages
13. Trim – adjust as required to reduce control stick forces

4.7.3. Soft field takeoff

Apply Normal takeoff procedures (according to Art. 4.7.1), but:

- Perform a Holding point procedure Checks (according to Art. 4.6) before start to taxy
- Do NOT stop at holding point, line up straight on runway and perform takeoff

4.8. Climbing

	Rotax 912 ULS
Climbing	**3,9 m/s**
	768 fpm
At speed	120 km/h (65kt)

4.9. Cruise

1. Set aircraft to horizontal flight
2. Trim - as required to reduce control stick forces
3. Fuel pump - switch "OFF"
4. Fuel pressure - check value
5. Throttle and propeller angle - set as required

- 4300 rpm at 26.3 inHG Manifold pressure
- 4800 rpm at 26.5 inHG Manifold pressure

- 5000 rpm at 27.2 inHG Manifold pressure - 75% max. continuous power
- 5500 rpm at full throttle - maximal continuous power

6. Engine and flight instruments - check values
7. EMS-display - check for any error messages regulary
8. Fuel gauges - check fuel amount regularly

4.10. Downwind procedures

1. Autopilot - "OFF"
2. Propeller - set MIN. angle
3. Engine and flight instruments - check values
4. EMS-display - check for any error messages
5. Fuel pump - switch "ON"
6. Fuel pressure - check value
7. Fuel gauges - check fuel amount
8. Fuel cock – OPEN the fuel tank with sufficient fuel quantity
9. Seat belts - fasten and tighten
10. Brakes – check function
11. RWY, area of base leg and finals - clear for descent and landing
12. Report (Downwind radio call)
13. Plan the landing maneuver

4.11. On Base leg

1. Airspeed 100-110 km/h (54-60kt)
2. Flaps – set to takeoff position
3. Trim – as required to reduce control stick forces
4. RWY and area of finals – clear for approach
5. Plan the landing maneuvre

4.12. Final approach and Landing

4.12.1. Normal landing

1. Airspeed at 100-110 km/h (54-60kt)
2. Brakes – released (make sure)
3. Flaps – takeoff or landing position (according to pilot discretion)
4. Trim – adjust as required to reduce control stick forces
5. RWY – check if it is clear for landing, report (radio call)
6. At 15 ft AGL: Throttle - CLOSE and round out to fly level at 3 ft above RWY
7. Lose speed by smoothly ping back on control stick. Touch down on main landing gear
8. Maintain direction with rudder control
9. Brakes - use brake as needed

4.12.2. Short field landing

- Descend for landing at a shallow angle, with increased engine power.
- Calculate landing maneuver to land at the beginning of selected area.

1. Airspeed at 100-110 km/h (54-60kt)
2. Brakes – released (make sure)
3. Flaps – landing position
4. Trim – adjust as required to reduce control stick forces
5. RWY – check if it is clear for landing, report (radio call)
6. At 15 ft AGL: Throttle - CLOSE and round out to fly level at 3 ft above RWY
7. Lose speed by smoothly ping back on control stick. Touch down on main landing gear
8. Maintain direction with rudder control. Reduce speed by holding the nose high with elevator control.
9. Brakes - use brake immediately and adequately

4.12.3. Soft field landing

1. Final approach - Normal, but:

- Touch-down at the lowest practicable speed and hold the nose wheel above the ground as long as possible (by means of the elevator control).

2. Do NOT use brakes

4.12.4. Balked landing procedures

Repeat takeoff from levelling point	Recovery from rebound or high flare	Takeoff resumed after touching down (Touch and Go)
Throttle – max. power	Continue to glide	Assess length of runway needed for takeoff
- *Wait for speed to:* reach 100-110 km/h (54-60 kt) (62-68 mph) - Trim – use as required to reduce control stick forces - Flaps - set to Takeoff position - Trim – set Neutral position	Throttle – increase engine power as required	Flaps - set takeoff position
Climb up	Assess length of RWY needed for landing	Trim - set Neutral position
Flaps retract at altitude of 50 m (150 ft)	If sufficient, attempt - to land again	F throttle
Repeat circuit	Otherwise, repeat circuit and land again	Takeoff maneuver
Land again		

Using f throttle in the landing configuration, expect that the aircraft will appear as a heavy to tail, and will tend to climb.

4.13. After Landing

1. Vacate RWY, Check time on clock
2. Trim - set neutral position
3. Flaps - retract
4. Fuel pump - switch "OFF"
5. Transponder - STB (Stand-By mode)
6. Report (radio call)

4.14. Engine shut down

Normally the cooling down of the engine during descenting and taxiing will be sufficient to allow the engine to be shut off as soon as the aircraft has stopped.

At increased operating temperatures cool down the engine at least minimum of 2 minutes.

1. Engine instruments - check values

2. Avionics - switch “OFF”
3. Toggle switches - switch “OFF”
4. Throttle - CLOSE
5. Magneto A and B switches - switch “OFF”
6. Wait for engine stop.
7. Master switch - switch “OFF”

4.15. Leaving aircraft

1. Magneto A and B switches - switch “OFF” (check)
2. Master switch and toggle switches – switched “OFF” (check)
3. Emergency Parachute System - LOCK
4. Fuel cocks - CLOSE
5. Canopy – CLOSE, lock
6. Chock or tie down ULL aircraft, Cover canopy

4.16. Cold start procedure

With throttle closed and choke activated (NOTE: an open throttle makes starting carb ineffective). Be aware, there is no spark below a crankshaft speed of 220 rpm (prop. speed of 90 rpm). As performance of electric starter is greatly reduced when hot, limit cranking to periods not much longer than 1 sec. With a well-charged battery, adding a second battery will not improve cold starting performance.

1. Use of multigrade oil with the low end viscosity code of 5 or 10
2. Check the electrode gap on spark plugs or fit new spark plugs according to Maintenance Manual.
3. Pre-heat engine
4. Remove aerodynamic wheel covers - remove all aerodynamic wheel covers for more safe of operation at:

- low temperatures
- snow operation

Icing due humidity

Carburetor icing due to humidity may occur on the venturi and on the throttle valve due to fuel evaporation and leads to performance loss and change in mixture.

5. PERFORMANCE

5.1. Takeoff and landing distances

Data are valid for concrete RWY

Takeoff	Distance
Total distance of takeoff until reaching 15m (50ft)	250 m
	820 ft
Rolling distance	130 m
	427 ft

Landing	Distance
Total distance of landing from 15m (50ft)	250 m
	825 ft
Run out distance	100 m
	330 ft

Take-off distances for grass RWY depend on the surface condition.

5.2. Climbing

Using takeoff power.

	Rotax 912 ULS
Climbing	**3,9 m/s**
	768 fpm
At speed	120 km/h (65kt)

5.3. Gliding

Gliding velocities when engine idling.

Engine mode	**IDLE**	**STOPPED**
Optimal speed for gliding	105 km/h (57kt)	105 km/h (57kt)
Sink rate	**2.8 m/s**	**3.0 m/s**
	500 fpm	**540 fpm**
Max. velocity with flaps fy extended	112 km/h (61kt)	

5.4. Flight range

This data are for INFORMATION ONLY!
Data are taken for 75% continuous power.

Standard FT (120l / 31.7US gal)	Distance
Range	1365 km
	7347 nm
	841 mi.
Endurance	6.0 + 0.5 hrs

Distances are approximated.

5.5. Ceiling

Ceiling altitude: 4500m 14764 ft

5.6. Manoeuvres approved

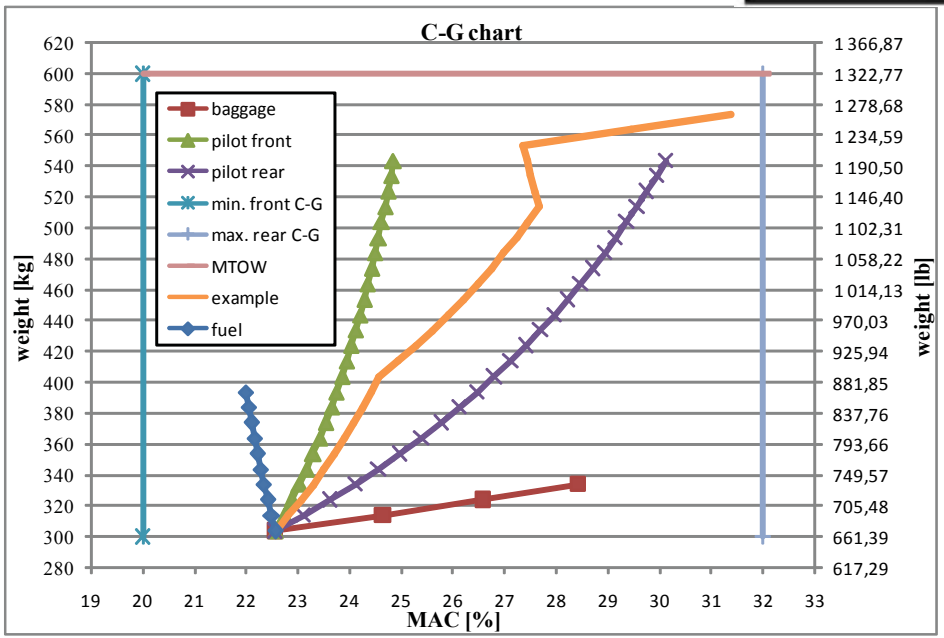
Manoeuvres	Max. initial airspeed in IAS (km/h)	Max. initial airspeed in IAS (kt)
Steep turn (60°bank)	175	95
Slide	110	60

6. EQUIPMENT LIST / WEIGHT AND BALANCE

6.1. Weight and Centre of Gravity Limits charts

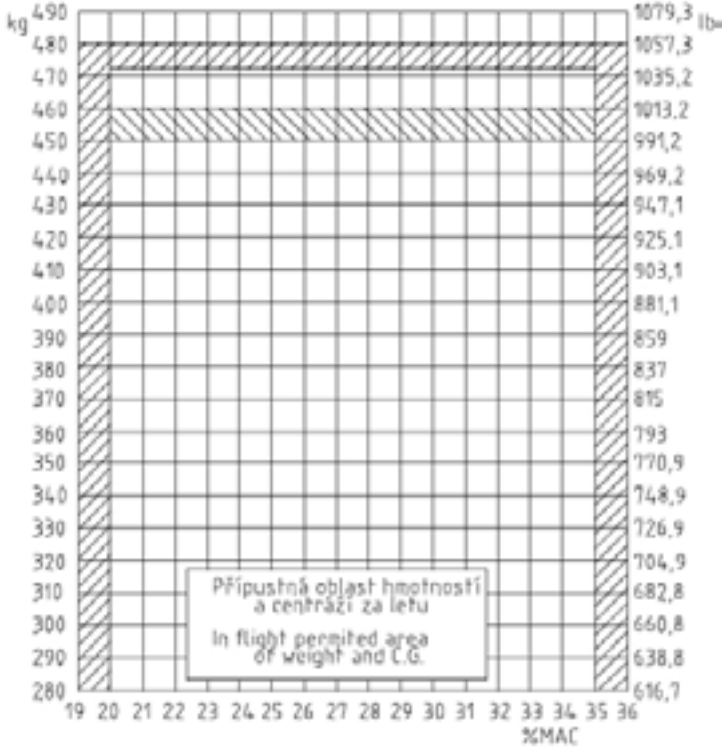
An example of how to use the Weight and Centre of Gravity Limits chart.

Example:		Weight [kg]	Weight [lb]
Empty weight		304 kg	670 lb
Empty C-G		22,6 % MAC	
Pilot 1		100	220,5
Pilot 2		110	242,5
Fuel	53,3 L	40	88,2
Baggage		20	44,1
Total		574	1265,5
Rear limit of C-G position		32% Mac	



6.2. Weights and loading distribution

If all the limits of the variable load are respected, the C – G is situated in stated limits in all configurations.



6.3. Equipment list

Engine:	**ROTAX 912 ULS**	**6 779 494**
Propeller:	**WOODCOMP SR3000/2WN**	**18026**
Landing gear:	**FIXED**	

Flight instruments	Type	Serial number
Airspeed indicator	Winter 151872	7426
Altimeter	Winter	W17672
Vertical speed indicator	BC-6	2544
Compass	CM-13LS	001 12 2005
Flaps control	PFC 10	0925/79
Propeller control elect.	Flybox CS 3-5	1118/66
Autopilot servo	SV 42	7186
	SV 42	7323
Dynon EFIS	SV-D1000	3917
Skyview module	SV-EMS-220	3222
Skyview module	SV-ADAHRS-200	4898
GPS receiver module	Garmin 695	1H8003929
GPS AirGizmos inst. frame	AirGizmos 695	3321
GPS Antenna	GA25 MCX	-

Radio instruments	Type	Serial number
Transceiver	Garmin SL 40	258 200 40
Transceiver antenna	CL 121	365 127
Transponder	SV-XPNDR-262 (TT21)	02878

Engine instruments	Type	Serial number
Engine speed indicator	TU 9122	A4779
Oil press. indicator	UMA N04113V080P000	A3027
CHT temp. indicator	UMA N12116V300F020	A2046
Oil temp. indicator	UMA N12113U300F000	A2891
Fuel press. indicator	UMA N0412U015P000	A3101
Dynon	SV-D1000	3977
Watter press. indicator	UMA N04112U015P000	A3102
Water temp. indicator	UMA T12115U300F000	A1531
Sensors		
Watter temp. sensor	UMA E8737	1B4
Water press. sensor	UMA N1EU35G	A3724
Oil temp. sensor	UMA E6116	1B4
Oil press. sensor	PS-211-9002	1099
Fuel press. sensor	UMA N1EU35G	A3721
CHT temp. sensor	No mark	No mark

Other equipment	Type	Serial number
Battery	Forte FG12170 12V/17AH	
Emergency parachute sys.	GRS 6/600, SD S-LSA SOFT B	5479-12-2076-6234, 6234
Position lights	AVE-WPSTR-20A	A12-1205-01048
	AVE-WPSTG-20A	A19-1205-01048
	AVE-POSW-002	AVVE-1110-00372
Fuel flow meter	FT-60	138164
DYNON battery	SV-BAT-320	
ELT	AK 451	11866

7. DESCRIPTION OF AIRPLANE AND SYSTEMS

7.1. General

This section provides the general descriptions of the aircraft airframe and systems. This section does not provide any maintenance information, and may not be used as maintenance input. The purpose is to provide an understanding of the way the systems are installed and operate. When maintenance information is needed, it is fy provided by the Aircraft Maintenance Manual.

7.2. Airframe

The airframe is made of duralumin materials, which allows for an aerodynamic shape and excellent flight characteristics while archieving a minimal aircraft weight.

All outside surfaces are protected with high performance 2 component white paint. Interior surfaces are protected with a high quality 2 component paint.

The airframe consists of two major components. These are the fuselage (including engine mounts, cockpit, centroplan, landing gear, horizontal and vertical tail units), and wing (each one is connected by three bolts to the centroplan part).
Althrough assembly and disassembly of the aircraft is not complex, it may be only done by qualified personnel.

The holder of a mechanic certificate with airframe or power plant rating(s), or both, or an LSA Repairman maintenance that has received additional task specific training for the function to be performed is generally considered the minimum level of certification to perform heavy maintenance on the SKYLEADER 600.

JIHLAVAN airplanes authorizes the holder of a mechanic certificate with airframe or power plant rating(s), or both, or an LSA Repairman maintenance that has received additional task specific training for the function to be performed to perform heavy maintenance on the SKYLEADER 600 as described in the Basic principles for repair and maintenance of the aircraft document..

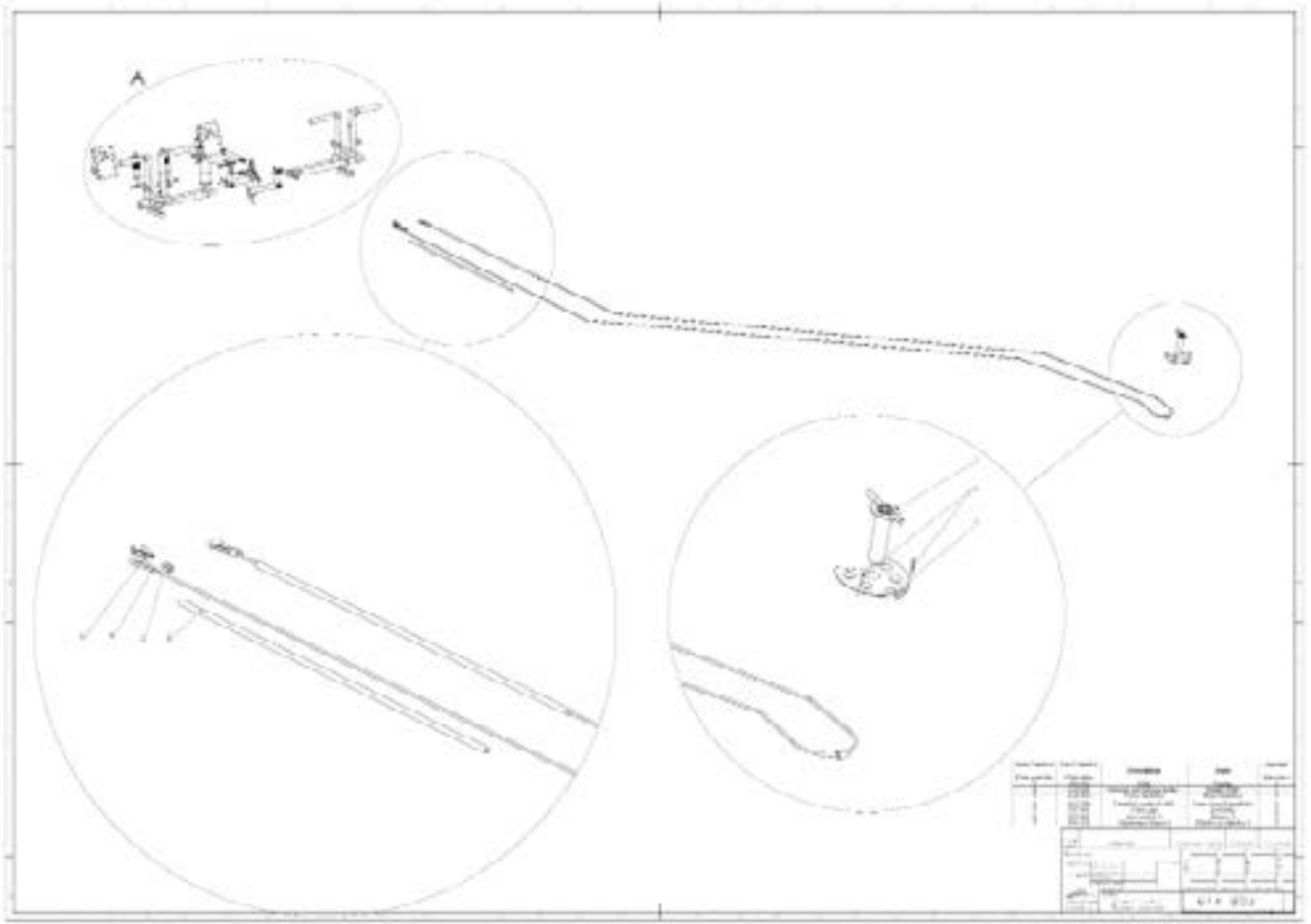
7.3. Flight controls

7.3.1. Dual controls

The aircraft is equipped with a f dual control system and it can be fy controlled from each pilot seat. Pilot -in-command is defined as the left hand pilot seat. The left hand seat provides best access to the main control elements (i.e. flight instruments, engine instruments, etc.)
This arrangement is optimised for the main purpose of the aircraft - that is, pilot training in flight schools. In this case instructor sits in right hand seat.

7.3.2. Rudder control and Nose Wheel Steering

The rudder is activated via a ropes control system, which is situated inside the cockpit tunnel and slides through the fuselage of the tail section. Left and right foot pedals are coupled in the tunnel.
The nose wheel steering control is linked with rudder pedals with a push rods control system.
Minimal force is required to move the pedals from their neutral position.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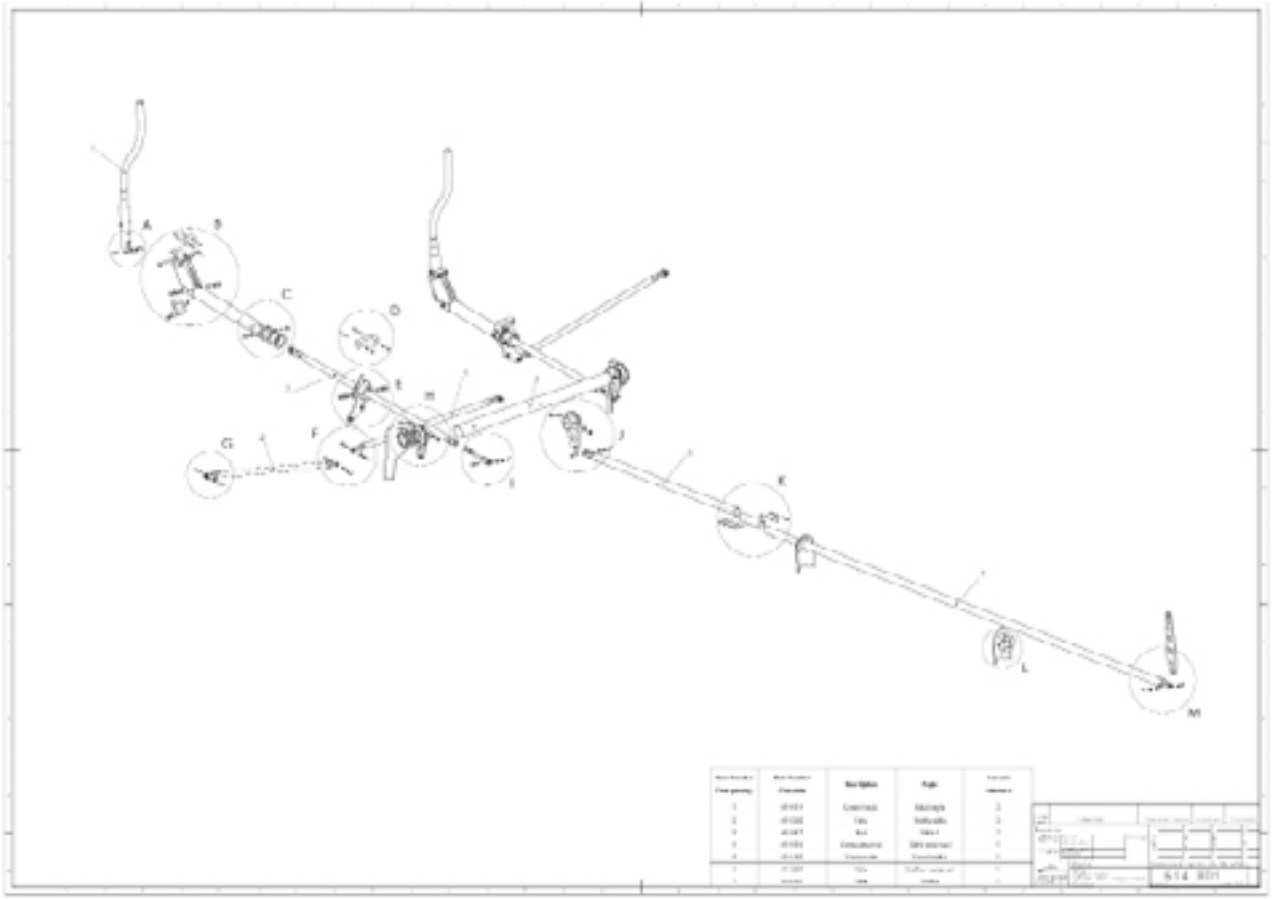
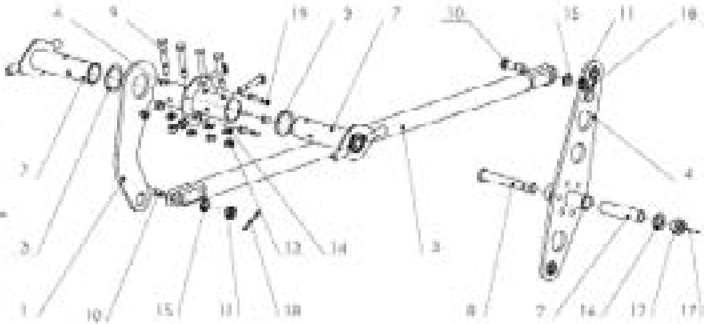
7.3.3. Elevator and Aileron control system

Elevator and Aileron surfaces are controlled by combination of p-rods, levers and angle levers system.



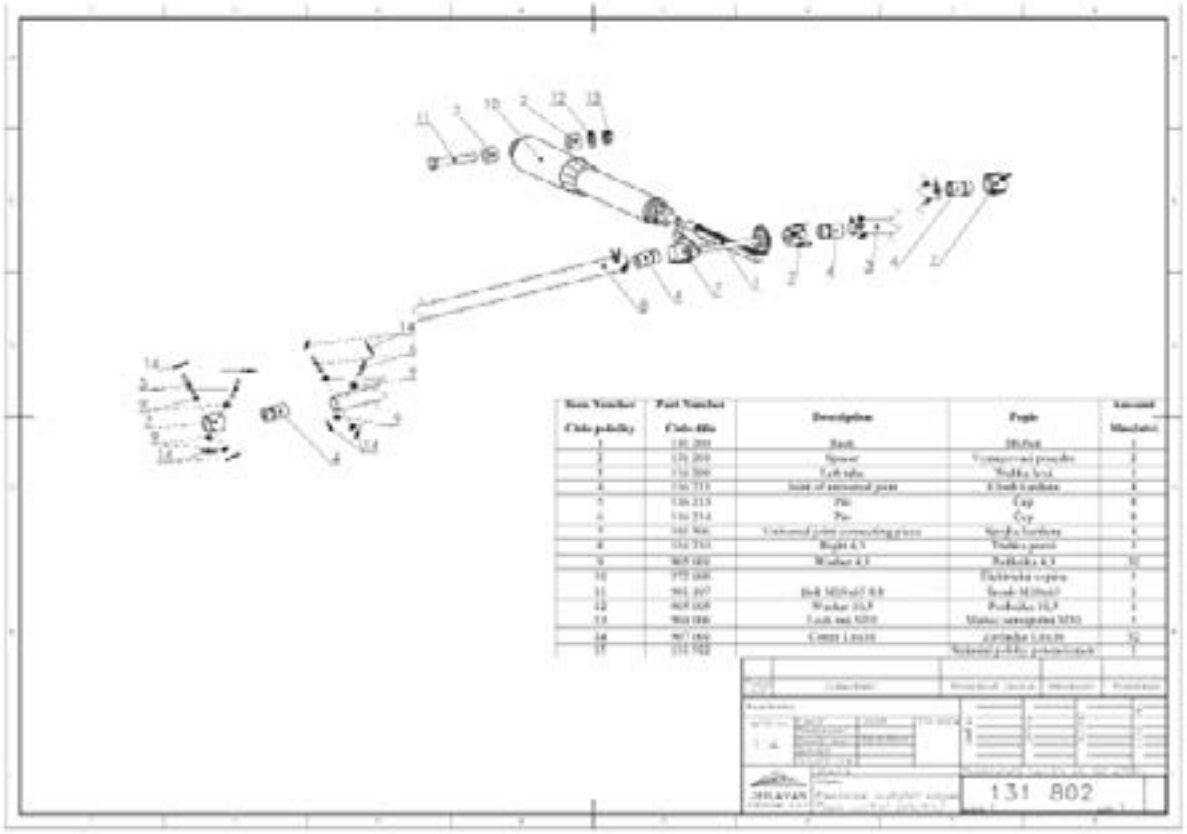


Item number Číslo položky	Part number Číslo dílu	Description	Popis	Amount Množství
1	104 401	Lever	Páka	1
2	104 402	Spacer tube	Dist. trubka	1
3	104 403	Bearing gasket	[illegible]	2
4	104 440	Lever	Páka [illegible]	1
5	104 342	Rod	Táhlo [illegible]	1
6	104 343	Lever flange	Příruba páky	1
7	104 344	Stop	[illegible]	2
8	902 030	Screw M8x[illegible]	Šroub M8x[illegible]	1
9	902 024	Bolt [illegible]	Šroub [illegible]	6
10	902 044	Bolt M6x[illegible]	Šroub M6x[illegible]	2
11	903 102	Castle nut M6	Matice korunová M6	2
12	903 103	Castle nut M8	Matice korunová M8	1
13	904 003	Nut M5	Matice M5	6
14	905 002	Washer 5,3	Podložka 5,3	6
15	905 003	Washer 6,4	Podložka 6,4	2
16	905 004	Washer 8,4	Podložka 8,4	1
17	907 001	Cotter pin 1,6x16	Závlačka 1,6x16	1
18	907 003	Cotter pin 2x20	Závlačka 2x20	2
19	911 [illegible]	Rivet 3,2x10	Nýt 3,2x10	6

504 804

7.3.4. Flap control system

The Wing Flap Control System controls is handled electrical strut. Movement is carried by the system of gears, levers and torque tubes on flaps.



The whole complex is designed so that both of the flaps slides simultaneously, therefore it is impossible that the slide will be not on an even keel.

Flap effect is compensated by deflection of lift-side trim surface. The lef-side trim surface is automaticaly deflected according to actual flap position.

Flap effect is compensated via deflection of lift-side trim surface. The lef-side trim surface is automaticaly deflected according to actual flap position.

Operation

The flaps control lever is used for opening and retracting flaps. If the flaps lever is down, flaps are retracted. For moving the flaps, unlock the lock lever (situated under the flaps lever) by moving ahead and than move flaps lever to selected position. The flaps position for takeoff is in the middle of the range of the flaps lever move. The flaps position for landing is situated on the upper end of the range. For retracting the flaps unlock the lock lever (by moving ahead) and than move the flaps lever to selected position.

7.3.5. Brakes

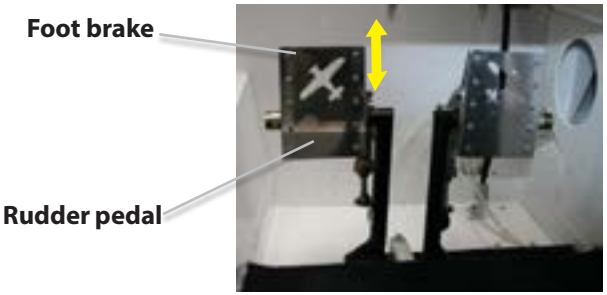
Foot brakes

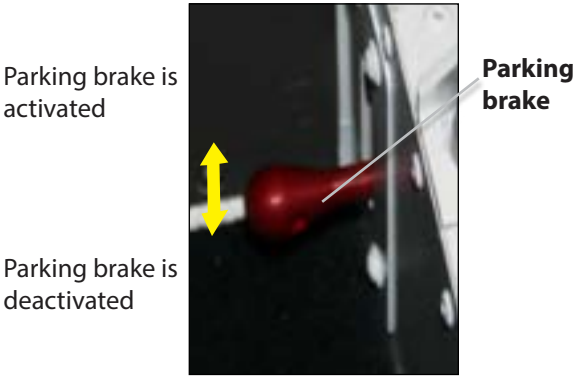
The foot brakes are situated above the rudder pedals. This brakes are used for stop airplane from low speed and for easier turning the airplane on the ground.
They cannot be used for permanent braking! You could damage brake. Control the airplane speed with the throttle lever! The brakes are activated by pushing them forward with your big toe.

NOTE: The brakes cannot be used for permanent braking - it could damage the braking mechanism.

Parking brake

The parking brake is situated under the pilot seat next to the tunnel. This brake is used to stay the airplane on one place for short time. If you want leave the airplane for longer time period, use a guy eye under the wing and on the tail tip.
For activation the parking brake, push both foot brakes and then p the parking brake lever up.
To deactivate parking brake, push the parking brake lever down.





7.4. Engine

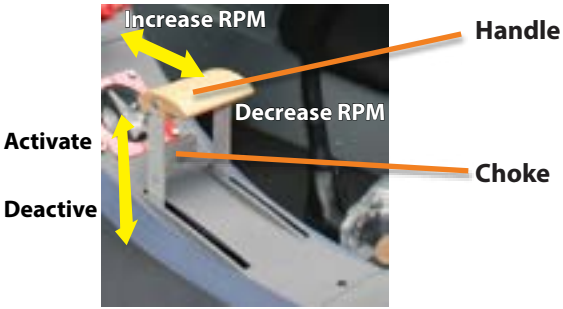
Enigne dates:
4-stroke, 4 cylinder horizontaly opposed, spark ignition engine, single central camshaft push rods - OHV

Engine type: Rotax 912 ULS
Serial Number: 6 779 494

Liquid cooled cylinder heads
Ram air cooled cylinders
Dry sump forced lubrication
Dual breakerless capacitor discharge ignition
2 constant depression carburetors
Mechanical fuel pump
Electric starter (12V, 0.8W)
Integrated AC generator with external rectifier-regulator (12V, 20A DC)
Propeller drive via integrated gearbox with mechanical shock absorber and overload clutch

7.4.1. Throttle lever

The throttle lever is used for changing the engine speed. For easier start of cold engine use the choke. Location of choke lever depend on the type of used engine, or in the case that the physical capabilities allows it, on the customer requirements.
Choke lever is installed on the throttle lever. Ping the choke lever up, activate the choke. Then it is possible to start up the cold engine. While engine runs smoothly, deactivate the choke.
To increase the engine speed, push the throttle lever forward; to reduce the engine speed, p the throttle lever backward.



7.4.2. Propeller

Detailed data of the propeller is stated in the Propeller Technical Manual.
SR 3000/2WN is a two bladed electrically operated in flight adjustable ULL aircraft propeller of mixed tructure

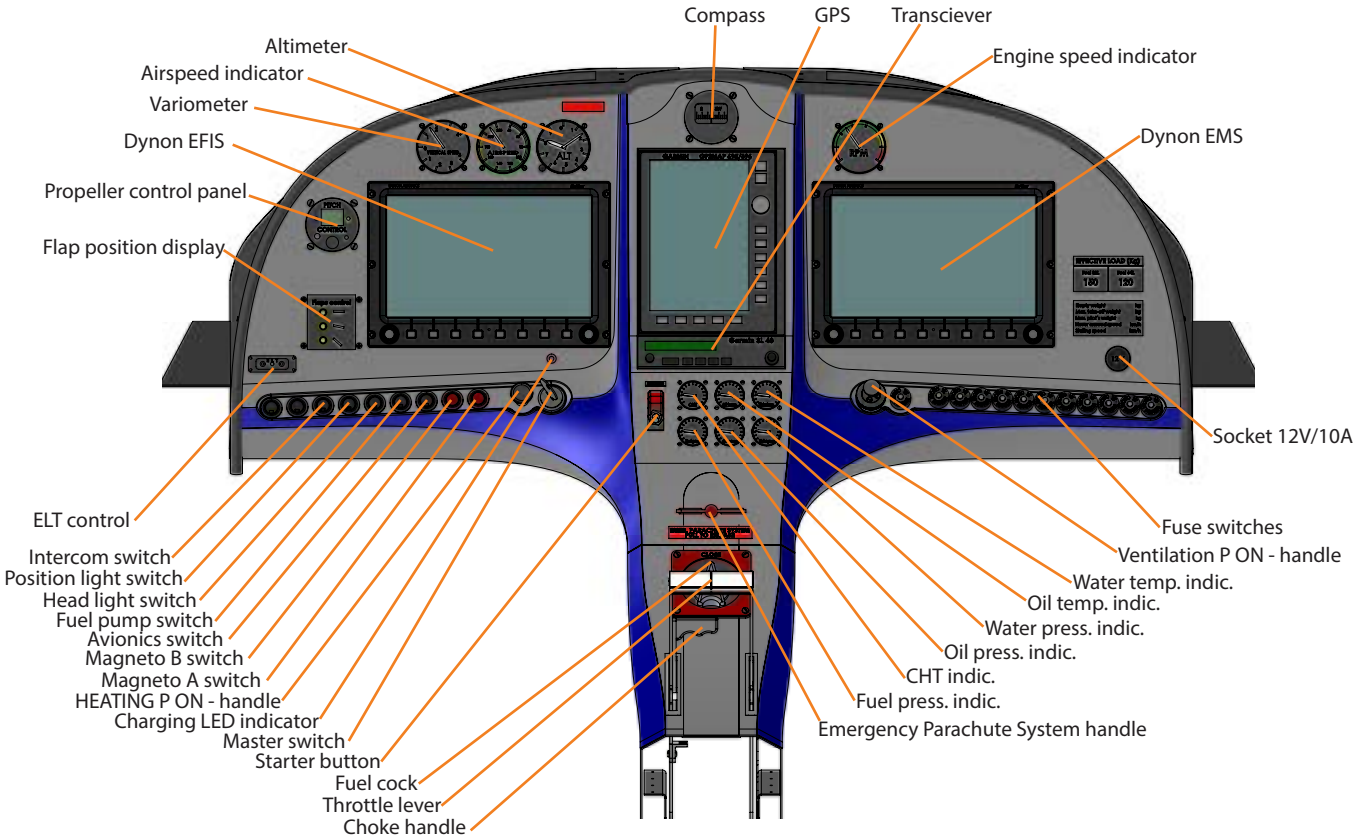
intended for the following engines:
- Subaru EA 81, BMW
- Rotax 912 UL 80 HP
- Rotax 912 S (iS), Rotax 912 ULS 100 HP
- Rotax 914 115 HP

Installation on other engines should be considered only after consultation with the propeller producer.
The angle of blade setting is adjusted by a servomotor controlled from the cockpit and it can be adjusted smoothly in the range from the minimum (fine) angle intended for takeoff up to the maximum (coarse) angle.
The propeller can be used in both tractor and pusher applications.

Type	SR 3000/2WN
Serial number	18026
Number of Blades	2
Outer diameter of propeller	1700 mm
Adjustable	in flight
Propeller weight	7,5 kg
Root material	Dural ČSN 424203
Blade material	ash/beech
Spinner diameter	240 mm
Manufacturer	WOODCOMP s.r.o.

The propeller has no airworthiness certificate !!

7.5. Instrument panel



8. HANDLING, SERVICE AND MAINTENANCE

8.1. Introduction

This chapter gives instructions of the aircraft ground handling and servicing practices.

8.2. Aircraft inspection intervals

Engine inspection and maintenance must be provided according to the Rotax manufacturer Maintenance plan.
Aircraft Maintenance is defined completely within the Aircraft Maintenance Manual.
It is duty of the owner/operator to inform himself about possible manual updates, Service Betins, Airworthiness Instructions or other Instruction for continued airworthiness, issued by the individual equipment manufacturer (in the case of certified equipment) or by Jihlavan Airplanes. It is the duty of the owner/operator to verify, that the information is applicable to the individual piece of equipment installed to the aircraft, or to the aircraft S/N.

8.3. Ground handling

The SKYLEADER 600 is a lightweight aircraft, which is easy to handle on the ground. It is preferable to move the aircraft with its special towing handle.
The aircraft may be ped carefy from the propeller (by grasping beside the spinner) or pushed from the upper surface of centroplan carefy.

Do NOT press down on the horizontal tail unit in an attempt to lower the aircraft's tail - this will cause severe damage to the aircraft structure.
Do NOT push or p forwards/backwards on the horizontal tail unit - this will cause severe damage to the aircraft structure.
Do NOT push the aircraft backwards from the spinner - pushing the spinner may damage it (Running the engine with a damaged spinner can lead to spinner failure with risk of further damage and risk of hurting other persons.).
Do NOT push the aircraft backwards on the cowling. This is a lightweight moulding which is easily damaged.

8.4. Towing instructions

The SKYLEADER 600 can accept a Tow Bar connection. The tow bar is attached to two short horizontal pins protruding from the nose landing gear leg.
When handling the aircraft on the ground, it is preferable to use the tow bar

When the tow bar is attached to the nose landing gear, the aircraft can be easily moved by hand. You should always p or control the rolling speed with the tow bar. Avoid ping on the propeller, to avoid damaging the propeller. To steer the aircraft while ping, move the tow bar to the sides. The range of steering is restricted by the limit stops of the rudder control system.

The tow bar has a long arm. Steering with the tow bar can produce unacceptably high forces on the nose wheel steering mechanism. Avoid trying to steer hard against the limits of the rudder control system stops - otherwise, you can easily damage the rudder control system.

8.5. Parking

For short term parking the aircraft should be placed with the nose into the wind. Retract flaps. Activate parking brake. Check the aircraft does not roll when leaving the aircraft. When you intend to park the aircraft for a longer duration, you must chock the wheels in addition to the parking brake. For longer term parking, it is highly recommended to tie down the aircraft or to park it in a hangar.

Control surfaces must be blocked using pilot side seat belts.

To lock the controls, p the control stick back against the seat cushion. Close the seat belts around the control stick, so that the stick is fixed in the back position, ped against the seat cushion. This will block elevator and aileron movement.

Only use the pilot seat belts to lock the control stick. This way, the belts will have to be removed from the control stick before a pilot attempts to fly the aircraft. There have been accidents with other aircraft where the control stick was locked with the co-pilot's seat belts and the pilot did try to fly the aircraft!

8.6. Tie-down instructions

Use the guy eyes on the rear bottom part of fuselage and on the bottom part of wings!

8.7. Servicing of the fluids

8.7.1. Fuel

Engine	R912ULS	
MOGAS		
European standard	*min. RON 95 (min. AKI 91)*	

	EN 228 Super	
	EN 228 Super plus	
Canadian standard	CAN/CGSB-3.5 Quality 3	
Russian standard	R 51105-97	R 51866-2002
	---	---
	Premium-95	Premium Euro-95
	Super-98	Super Euro 98
US standard	ASTM D4814	
AVGAS		
leaded	AVGAS 100LL (ASTM D910)	
unleaded	UL 91 (ASTM D7547)	
Scandinavian area	HJELMCO AVGAS 91/96 UL	
	HJELMCO AVGAS 91/98 UL	

8.7.2. Oil, Coolant, Brake fluid

Oil content of engine	**Refer to the Rotax manual for recommended oils to be used**
	AeroShell Oil Sport Plus 4
	Oil with API classification "SG" or higher
Max. oil capacity	**approx. 3,5 Ltr/0.92 U.S. gal**
Cooling liquid	**FRIDEX G48; distilled water; 50:50% (-38°C/-36,4°F)**
Max. cooling liquid volume	**approx. 4 Ltr/1.06U.S. gal**
Brake fluid	**SYNTHOL HD 265 international std.: DOT4, SEA 1703**

Oil servicing by Operator's Manual for all versions of ROTAX engines. It is not stated in this handbook. Cooling liquid servicing by Operator's Manual for all versions of ROTAX engines. It is not stated in this handbook. Brake fluid servicing by Maintenance Manual for JA 600. It is not stated in this handbook.

8.8. Periodic maintenance

Act in accordance to the Maintenance Plan in chapter 9. Check the particular parts and systems of the aircraft at the stated time intervals according to its function and wear and during inspection of each part look for faults that could lead to failure. File the performed check in the Aircraft Book, Engine Book and Propeller Book.

⚠ Engine maintenance is not stated in this manual. Follow the engine manufacturer instructions: "Maintenance manual for ROTAX engines". Maintenance of the emergency parachute system (repacking time intervals, pyropatron replacement, etc.) is also not stated. Follow system´s manufacturer´s instructions!!!

8.9. Accumulator maintenance

A non-maintenance gel accumulator 12V/17Ah (or similar) is used in the airplane. With this type of accumulator it is not necessary to check the electrolyte level. The accumulator is placed on the right side of firewall in engine compartment. Charge the battery as required. Charging is recommended once or twice a year. When charging, follow the accumulator manufacturer's instructions.

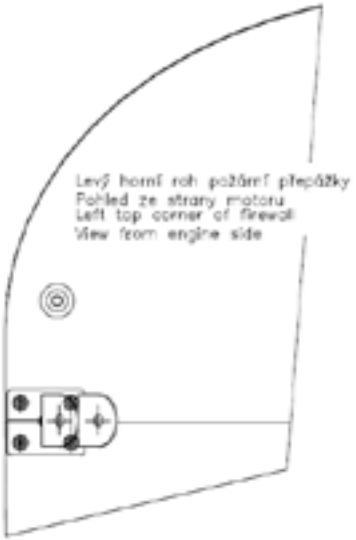
Battery is accessible after opening the engine cowling.

⚠ It is necessary to abide by the polarity of the battery and the battery charger. It may destroy the battery if the polarity is changed. It is recommended to disconnect the battery before charging!!!

8.10. The governor rectifier circuit breaker

The circuit breaker is instrumental for the protection of the electrical systems of the engine. The circuit breaker will cut out automatically if there is a current overload of these systems. When possible failure is rectified, pushing on the circuit breaker can reconnect the system. This circuit breaker is placed on the engine side of the firewall.

More info is stated in the Installation manual of the engine!



8.11. Aircraft maintenance at the end of flying day

Wash the plane and the propeller with water without addition of detergents at the end of flying day. It is recommended to use any dish washing detergent or car shampoo for washing the surface behind the exhaust for easier removal of the dirt from the exhaust pipe. The canopy perspex should be washed very carefy with a soft sponge after removing the remains of insects or other matter. The remaining drops may be removed with a wet wash-leather (chamois).

While washing the plane check the condition of riveted and screwed joints, check the condition of the leading and trailing edges of the aerodynamic areas of the plane.

During operation on grass RWY after rainfall, when RWY is wet and muddy, it is necessary to wash the undercarriage to prevent it from corrosion.

The inside of the cockpit should be kept clean using a small vacuum cleaner.

After cleaning check the levels of fuel, oil and cooling liquids. If it is necessary, fill up.

9. ELECTRIC WIRING DIAGRAM

See separate list: Electric wiring diagram

10. MAINTENANCE PLAN

See separate list: Maintenance plan.

NOTES:

JA 600 (SKYLEADER 600)


SKYLEADER