Callsign: ***24-nnnn***

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LEGEND 600

Pilot's Operating Handbook

TABLE OF CONTENTS

1 Introduction

1.1 Ten Rules of Safe Flying

I. Observe all regulations applicable to operation of Light Sports aircraft.

II. Do not overestimate your piloting skills and never show off in front of spectators. Quite to the contrary, practice emergency landing at suitable locations.

III. Watch the weather and its development all the time. Do not attempt long flight if storms, clouds or icing are likely to occur.

IV. Monitor fuel level frequently, not only by watching the needles, but also by comparing the flight time with actual fuel consumption.

V. Always choose your bearing and altitude so that you will be able to make emergency landing.

VI. Always fly with a sufficient speed margin, especially during the take-off and landing.

VII. Do not perform nor mimic any aerobatic figures (e.g. stall turns) even if you feel that your piloting skills and aircraft handling qualities would allow aerobatic maneuvers.

VIII. Under no circumstances, not even for a very short period of time, exceed the never-exceed speed VNE.

IX. Do not minimize navigation. Do not fly into unknown areas without appropriate navigation preparation and aids (map, compass), even with a GPS installed.

X. Fly only when you are in good physical and mental condition.

1.2 Instructions for use

1) This Manual is issued by aircraft manufacturer and must be kept on board of the aircraft during each flight.
2) Records shall be made legibly and indelibly, no page may be torn out of the Manual.
3) Manual with complete records form a part of the aircraft technical documentation.
4) This manual provides the reference material for a pilots training in the aircraft's safe operation
5) Total number of landings and operating time shall be recorded and transferred from old into new logbook, along with the information about latest service bulletin performed.
6) The aircraft´s owner is responsible for correctness of operation records.

1.3 Important information

Changes and Amendments to this Manual

Any changes to applicable regulations or to this aircraft's construction will be published in the form of a bulletin (e.g. in the Pilot magazine). It is the responsibility of each aircraft owner to implement the change (or to have it implemented) and to record the change in the respective part of this Manual.

Owner of the aircraft and every operator of the aircraft shall read this Manual carefully and familiarize themselves with its contents.

This aircraft is not subject to the certification in the 'Standard Category' by the Civil Aviation Authority of the Czech Republic and it is operated entirely on the user's own risk.
Deliberate spins, stalls and aerobatics are prohibited.

Any damage to the aircraft shall be reported to applicable inspector-technician. The inspector-technician will recommend the method of repair, supervise the repair and will make a technical inspection after the repair has been completed. A record shall be entered into the aircraft documentation. Any damage which potentially compromises the airworthiness of the aircraft must be reported to the regulatory body, i.e. RAAus, CASA

1.4 Location of decals

A) Warning decal visible to the passenger containing the following words is required:

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

Location: right part of instrument panel, above center.

B) Operating data and limitations

OPERATING DATA AND LIMITATIONS

Call Sign	N600LD
Type/Name	LEGEND 600
Serial No./Year of manufacture	1531/2016
Empty weight	335kg
Max. take-off weight	600 kg
Payload	278 kg
Stall speed	71km/h-38kn
Never exceed speed	240km/h-130kn
Max. speed in turbulent air	170km/h-90kn
Max. speed with 30° flaps	135km/h-72kn
Max. speed with 40° flaps	135km/h=72kn
Fuel tank capacity	130L

Location: left part of left instrument panel.

C) Registration decal

SLZ REGISTRATION DECAL	
Call Sign	N600LD
Type/Name	LEGEND 600
Manufacturer	AEROPILOT Ltd.
Serial No./Year of manuf.	1531/2016
Empty weight	335kg
Max. take-off weight	600kg
Payload	278kg

Location: center tunnel, in front of central control.

D) Payload decal

Fuel tank capacity / Max. payload		
	L	Payload / kg
Full tanks	130	185
3/4 of tanks	97	180
1/2 of tanks	65	231
1/4 of tanks	32	245
30min. fuel reserve	20	263

Location: right part of right instrument panel.

2 Flight manual data

2.1 Data on commissioning

The Legend 600 LSA is 3 axis control Light Sports aircraft, with control yokes. On registration, it was equipped with a 100hp Rotax 912 ULS motor, a Woodcomp Classic–ground adjustable propeller, a Dynon Skyview glass panel, a Kanardia HORIS AH and analogue gauge panel, with Garmin GPS, ICOM VHF radio and Funkwerk ADSB transponder. For further detail refer the delivery summary with the Certificate of Airworthiness approval request.

Name/Model:

LEGEND 600 LSA

The aircraft has obtained UL L type certificate and also has a manufacturer's Statement of Compliance as a 600 Kg MTOW Light Sport Aircraft:

2.2 Record of aircraft operator / owner

Aircraft first owner:
Name: Deon Lombard
Address:
Drivers License:
Ownership dates: 2016 to: ……..
Call sign:

Change of Owner: .....
Name: .....
Address: .....
Birth certificate (CIN): .....
Date, from – to: .....
Call sign: OK – .....

Change of Owner: .....
Name: .....
Address: .....
Birth certificate (CIN): .....
Date, from – to: .....
Call sign: OK – .....

Change of Owner: .....
Name: .....
Address: .....
Birth certificate (CIN): .....
Date, from – to: .....
Call sign: OK – .....

Change of Owner: .....
Name: .....
Address: .....
Birth certificate (CIN): .....
Date, from – to: .....
Call sign: OK – .....

Change of Owner: .....
Name: .....
Address: .....
Birth certificate (CIN): .....
Date, from – to: .....
Call sign: OK – .....

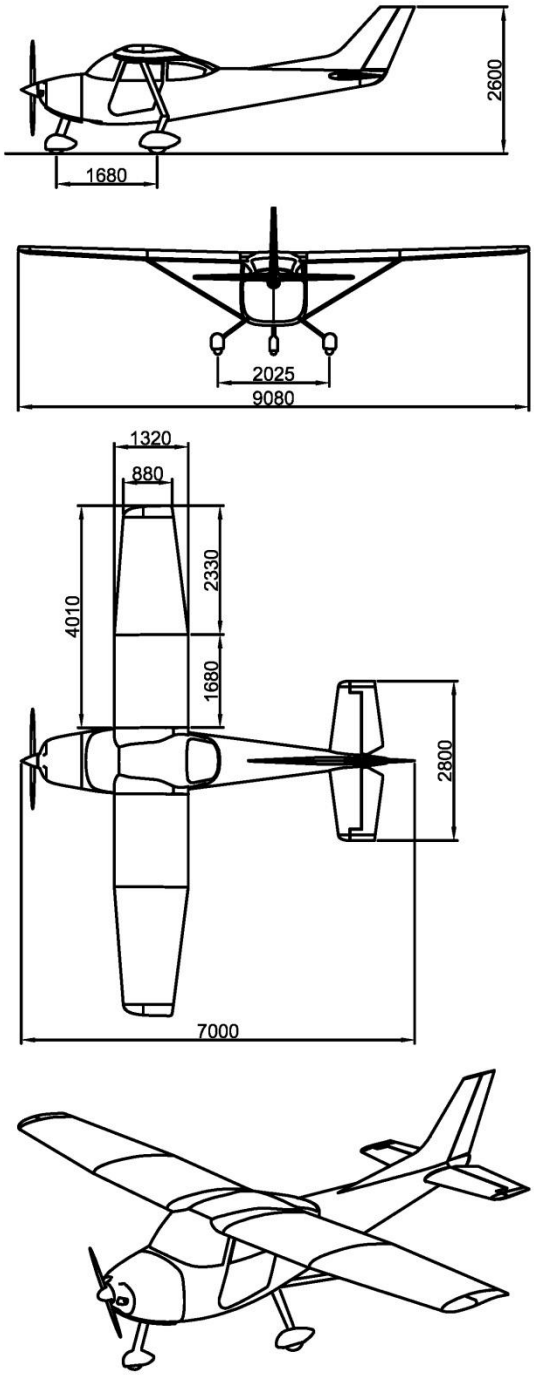
Note: Change of ownership must be reported in writing to the National Aircraft Operation Authority in the country of operation and the aircraft's manufacturer, under LSA regulations.

2.3 Aircraft data

Aircraft data				
Model	**Airframe LSA 600**	**Engine**	**Propeller**	**Rescue System**
Manufacturer	AEROPILOT Ltd.	Rotax 912 ULS	Klassic 170/3R	GALAXY 6/600SD
Serial No.	1531	6.785.375	16003-683R	7455
Place & Year of Manufacture	2016-Čáslav (Czech Republic)	2016	2016	2016
Other Data				

Initial Supply data

2.4 Aircraft drawing



2.5 Brief technical description

Characteristic

The Legend LSA aircraft is a two-seat, strut high-wing monoplane of all-composite structure designed for sport, recreational or tourist flying. Favourable flight characteristics make the aircraft suitable for flight training. Sufficient performance allows glider towing. The aircraft features spacious crew and baggage compartments. Large doors provide for comfortable boarding of crew and loading of baggage. Adjustable seats allow the pilots of all heights to find comfortable position. A stiff Kevlar cabin, four-point seat harnesses and rocket assisted rescue system provide maximum safety of crew in emergency situations.

Technical description of aircraft components

A) Airframe

1. The fuselage is made of carbon composite. Bulkheads are bonded into integrally stiffened skin to receive forces from the landing gear, rescue system, stabilizer, rudder, safety harnesses, and wings. There are two doors with a central-lock system mounted on flush hinges on the sides of fuselage, opening against flight direction.
2. Sandwich-type single-spar wings made of carbon-composite house two fuel tanks within leading section. Wings are fitted with a slotted Fowler flaps. Wings have rectangular centre section with trapezoidal tips. MS 313 wing profile is used. Banking control by ailerons with differentiated deflection 10° down and 23° up . With aileron deflection up, a nose rises from profile, providing favourable yawing moment. The wing strut is made of aluminum profile.
3. Trapezoidal fixed part of elevator is fixed into the fuselage bulkheads by pins and screws. Aerodynamically balanced elevator has electrically servo-actuated trim tab. The elevator deflection is 21° up and 13° down.
4. Fixed part of trapezoidal swept vertical tail is offset from a longitudinal axis to eliminate an angular propeller flow. The elevator deflection is approximately 24°.
5. Rudder and ailerons have dual cable control, elevator is rod-operated. Yoke controls, Rudder and nose landing gear are operated by pedals with top-mounted shafts, which greatly improve the kinematics of controls. Combined central controller panel allows control of the engine, landing gear brakes, parking brake, and wing flaps, the flaps being driven by central actuator through Bowden cables.
6. Tricycle landing gear with steerable nose wheel. Main wheels - size 15x6-6 - are provided with hydraulic disc brakes. Theses are carried on an all-composite leg. The nose wheel is fitted with spring and hydraulic shock absorber. The front wheel has size 12 x 4 – 4. All wheels provided with fairings. Tire inflation of all wheels is for 2,3 bar (33psi) pressure.

B) Powerplants

Rotax 912UL and 912ULS engines are used most frequently, providing excellent dynamic and flight characteristics. Rotax 912UL and 912ULS engines are four-stroke, four-cylinder engines of "boxer" configuration, having air-cooled cylinders with water-cooled heads, an integrated reduction gearbox, and two carburetors. For more information, see the ROTAX engine operating manual supplied.

Caution!

Neither of the engines mentioned above is certified as an aircraft engine. Even with utmost attention during engine manufacture, engine failure may occur at any time during flight and the pilot bears full responsibility for the consequences. According to Light Sports and Ultralight regulations, the pilot must always select bearing and altitude allowing him/her to glide down and land safely at suitable location.

C) Propeller

A Woodcomp 'Klassic' ground adjustable propeller, as well as VARIA 170/2R adjustable-pitch propeller or a Fixed-pitch PESZKE propeller may be used. For the description of the propeller delivered with your aircraft, see the instructions for the propeller installation and maintenance, delivered along with the aircraft.

D) Equipment

The aircraft may be optionally equipped with traditional analogue instruments, together with GPS navigation, or a glass cockpit incorporating flight, engine and navigation instruments, including a transponder. When delivered serial #1527 was equipped with analogue instruments for EFIS and EMS primary instruments, plus a SKVIEW glass panel for navigation and autopilot and a Kanardia HORIS AH.

2.6 Controls

Pedals – pressing left pedal turns aircraft left both on the ground and in the air, and vice versa.

Hand controls – pulling the yoke backwards, towards the pilot, raises the nose of aircraft (the angle of attack increases) and the aircraft climbs. Pushing the yoke forward dives the aircraft. Turning the yoke to the left banks the aircraft to the left, and vice versa.

Engine throttle – moving combined controller located on the middle-panel forward from its central position, in the flight direction, increases engine output, and vice versa.

Brake control – pulling combined controller backwards, in the opposite direction of taxiing, brakes the aircraft. Moving the controller backwards and pressing the detent locks the brake (parking brake). To release the parking brake, pull brake lever or combined controller backwards.

2.7 Engineering data

(a) Dimensions

Wing span			9.1m	
Length			7.05m	
Height, total			2.6m	
Wing surface			10.84m^2	
Wing aspect ratio			7.64	
Depth of MAC (mean aerodynamic chord)			1200mm	
Wing profile			MS 313 B	
At root			1300mm	
At tip			880 mm	
Wing flaps surface			1.75m^2	
Flaps deflections			15° / 30° / 45°	
Horizontal tail plane span			2.8m	
Horizontal tail plane surface			2.24m^2	
Vertical tail plane surface			1.04m^2	
Control surface deflections:				
Ailerons	up	.....23°	down	.....12°
Elevator	up	.....21°	down	.....10°
Rudder	left	.....23°	right	.....25°

(b) Weights

Empty weight, per UL–2	320,5kg
Take-off weight, maximum	600kg as an LSA

(c) Engine

Type (brief description): Rotax 912ULS 100HP – four-stroke, four-cylinder engine, air-cooled cylinders with water-cooled heads, integrated reduction gearbox, dual electronic ignition and tuned inlet manifold.

Swept volume	1400ccm
Take-off power, max.	73.5kW@5800rpm
Cruising power, max.	69.0kW@5500rpm
Dry weight	56kg
including accessories	72kg

Fuel (fuel grade, octane index)	Automotive pump fuel minimum 95 RON
Oil (type)	SHELL HELIX H x 7 AV 10 W - 40
Oil capacity	3L
Reduction gear (gear ratio)	2.43:1
Fuel tank volume – main tank	130L

(d) Propeller

Diameter / pitch at 75%	Woodcomp 'Klassic' ground adjustable
Weight	5kg
Material	Wood/Composite

The propeller shall be sent to the manufacturer for inspection in case of even the slightest damage or if crack is found. Flying with damaged propeller may endanger life and limb and is prohibited.

2.8 Aircraft equipment

(a) Instruments

	Type	**Serial No.**
Speed indicator	LUN 1106	673
Altimeter	BG – 3E	1316
Compass	CM – 13	016
Climb & descent indicator	BC 10 – 1B	1605
Tachometer	VDO COCKPIT	333025015 x
Cylinder temperature gauge	CHT/100 ROAD	0542
Oil-temperature gauge	R 2011	0561
Oil-pressure gauge	ROAD	0531
Dynon SKYVIEW (customer supplied)		
Kanardia AH panel HORIS	Horis AD-AHRS	x

	Type	**Serial No.**
Exhaust-gas thermometer	x	x
Fuel-pressure gauge	EMRS	x
Manifold pressure gauge	x	x
GPS	in Skyview	……
Radio	ATR 500	505867 11
Transponder	EM 800	908094 - 11

(b) Ballistic Rescue System

Model, manufacturer, serial No.	GALAXY 5/560
Activation	By pulling the handle on central panel
Descent speed, max. (m/s)	6,6m/s
At take-off weight	600 kg
Speed at activation, max.	170kn (310km/h)

(c) Battery (type, parameters)

Type	508 901
Voltage	12 V
Ah rating	8
Weight	2.9 kg
Location	On firewall, at the highest point of engine compartment

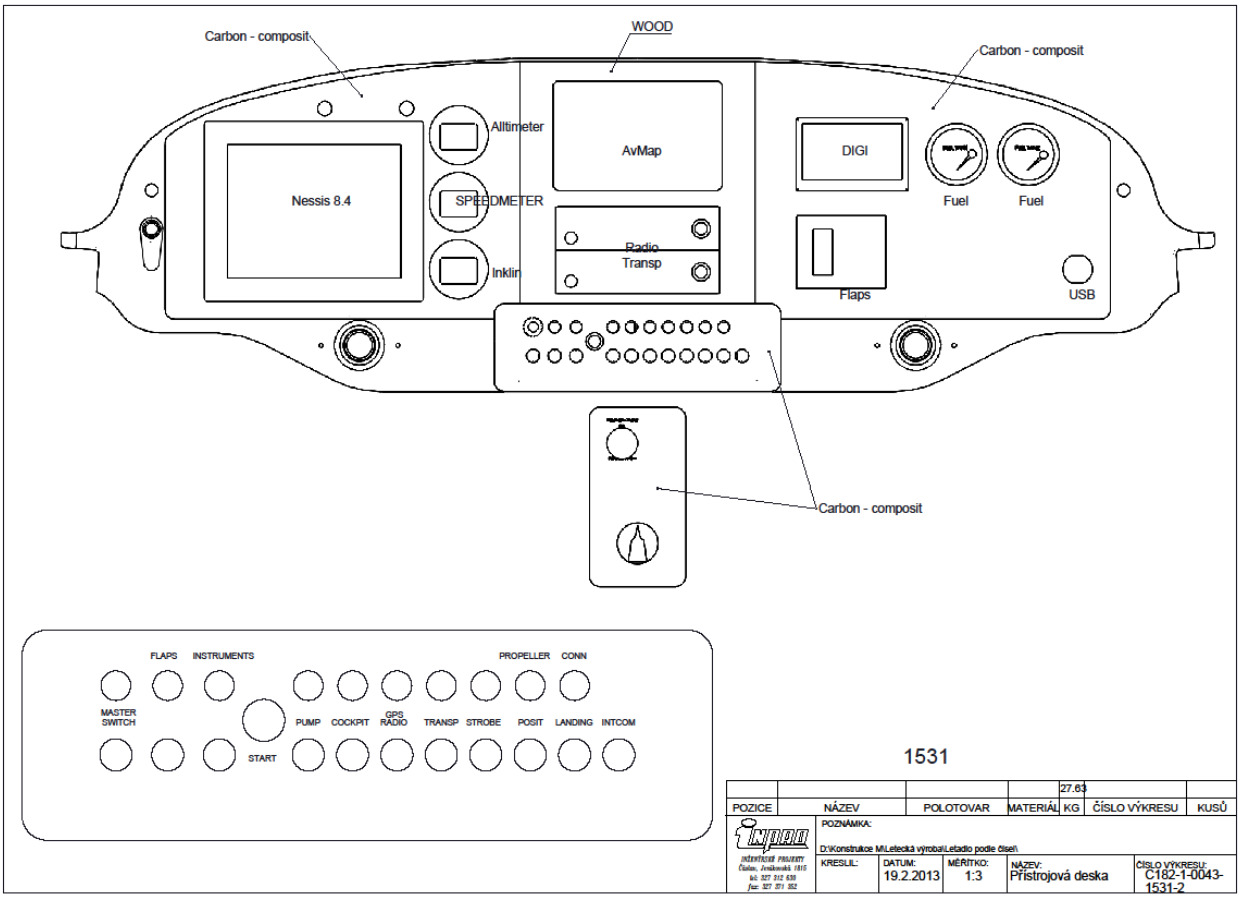
Notice:	Only the charger designed for gel batteries may be used to charge the battery. Use of other chargers will destroy the battery.

(d) Location of Controls

Ignition switch	Center panel, left-hand side
Starter	Center panel, left-hand side
Choke	Central controller – left instrument panel
Throttle	Central controller – bottom part of middle panel
Brakes	Central controller – bottom part of middle panel
Longitudinal trim	Control yokes
Wing flaps	Engine throttle + right instrument panel
Closing of the cabin	Front section of the door
Rescue system	Central bottom panel
Radio	Central dashboard panel
GPS	Central dashboard panel – Dynon SKYVIEW

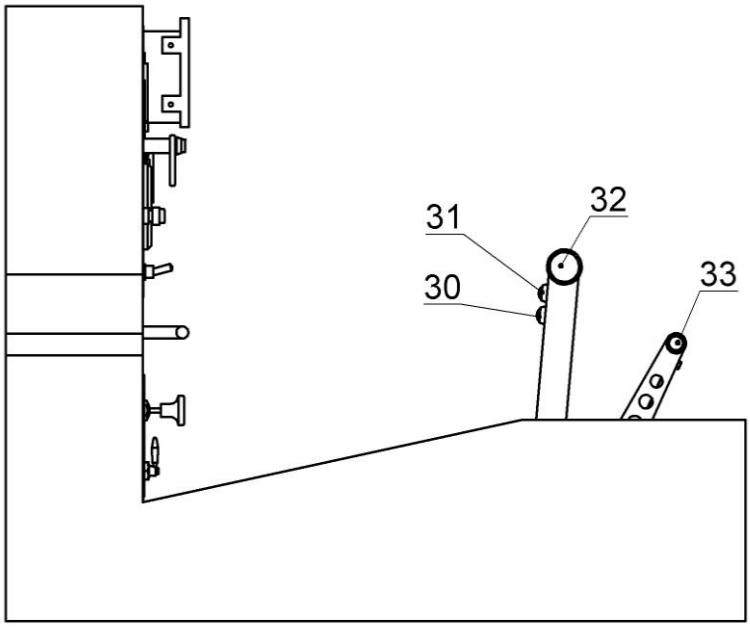
Equipment layout

Drawing:



Central controller functions

Drawing



30 Flaps extend
31 Flaps retract
32 Engine throttle
33 Wheel brake/parking brake

3 Operating limits

3.1 Speeds

All speeds stated in this Manual are Indicated Air Speeds IAS!

Never-exceed speed, V_{NE} = 240km/h

This speed must not be exceeded under any circumstances!

Stalling speed at maximum take-off weight and at the landing configuration, V_{SO}:		67km/h 40kn
Maximum allowed speed with flaps fully deflected, V_{FE}:		135km/h 72kn
Flaps deflection:		
Degrees/Use	1 – 15° / Take-off	135km/h 72kn
Degrees/Use	2 – 30° / Landing	135km/h 72kn
Degrees/Use	3 – 40° / Landing	135km/h 72kn
Maximum speed in turbulent air:		202km/h 108kn
Maximum manoeuvre speed, V_A:		180km/h 97kn

Do not apply full deflections above this speed

3.2 Wind speed limits

Maximum allowed headwind speed	20kn
Maximum allowed crosswind speed:	8kn (inexperienced pilot) 15kn (Experienced pilot/Instructor)

Tailwind take-off and landing should be avoided.

3.3 Powerplant limits

Maximum allowed speed:	5800rpm for 5 minutes
Maximum continuous speed:	5500rpm
Idling speed, approximately:	1400rpm
Maximum cylinder head temperature:	130°C
Maximum oil temperature:	135°C
Minimum air temperature at starting:	-25°C
Maximum air temperature at starting:	50°C
Oil pressure:	1.15 – 4.0bar

3.4 Weights

Minimum crew weight:	60kg
Maximum payload:	143kg
Maximum take-off weight:	600kg LSA
Empty weight	278kg
Maximum COG locations from front edge of wing:	
Forward limit	26% bMAC
Aft limit:	34% bMAC
Max. baggage weight	15kg

3.5 Allowed turns

Tight turns up to 60° banking angle, climbing and diving up to 30° from horizontal plane.
Intentional spins, stalls and aerobatics are PROHIBITED!

3.6 Load factors (per UL-2 regulation)

Maximum positive load factor in the centre of gravity:	4.0
Maximum negative load factor in the centre of gravity:	-2.0

3.7 Types of operation

Only daylight flights are allowed, under VFR (ground-contact) rules.
All other flights are prohibited.

4 Emergency procedures

This section describes recommended procedures for resolving emergency situations, which could occur during operation.
Strict adherence to inspection and maintenance schedule prescribed by the manufacturer reduces the probability of a failure to absolute minimum.

4.1 Engine failure

1) During take-off run

- Throttle to idle
- Ignition switch off
- Brake according to actual conditions

2) During take-off (in air)

- Maintain speed (120km/h) 65kn minimum
- Less than 300ft above terrain – land in the direction of flight, maneuvering the aircraft out of obstructions
- Detect wind direction and speed
- Apply flaps as necessary
- Shut off fuel cock
- Shut off the ignition
- Tighten safety harnesses
- Main switch off

3) In flight

- Dive and glide, maintain speed (120km/h) 65kn minimum
- More than 300ft above terrain –: select suitable landing location
- If cause of engine failure is discovered (e.g. empty fuel tank) and flight altitude allows it, try restarting the engine according to the procedure below:
- If engine does not restart or if flight altitude drops below safe level, select suitable landing location and proceed according to previous section.

4) Restarting engine in flight

May be only performed at safe flight altitude to allow safe emergency landing with engine off.

- Fuel cock — open, check amount of fuel in selected tank
- Fuel pump — switch on
- Ignition — switch on
- Throttle — up to 1/3 of throttle, not more
- Flight speed — (120–140km/h) 65-75knots
- Press start button

Flying with engine off

If the engine fails, it is necessary to maintain best glide speed 120km/h. - 65knots

Safety landing

Safety landing is generally made in case of loss of orientation, worsening of weather, low fuel, and/or sudden incapacitation of pilot. Always follow the recommendations listed below:

- Select suitable landing location depending on wind direction and terrain/cover
- If possible, communicate your intention to land
- Fly above right side of selected landing area in the direction of planned landing, maintaining horizon at approx. 150ft altitude.
- Apply "take-off" flaps, maintain speed 65knots
- Carefully check the location.
- Climb a little, maintaining ground visibility if conditions permit, fly small left circuit.
- Perform landing approach and then land.

Check selected area throughout the safety landing procedure.

4.2 In case of fire

a) On ground, during starting

- Release starter button
- Shut off fuel cock
- Switch off ignition
- Main switch off
- Exit the aircraft
- Try to extinguish the fire

b) On ground, engine running

- Shut off fuel cock
- Switch off ignition
- Main switch off
- Exit the aircraft
- Try to extinguish the fire

c) On ground, during take-off

- Speed 65knots
- Shut off fuel cock
- Switch off heating, if switched on
- Switch off ignition
- Main switch off
- Land and exit the aircraft
- Try to extinguish the fire

d) In flight

- Speed 65knots
- Shut off fuel cock
- Open the throttle as much as possible
- Switch off heating, if switched on
- Switch off ignition after all fuel in the carburetors is consumed and engine stops
- Main switch off
- Perform emergency landing and exit the aircraft
- Try to extinguish the fire

Consuming all fuel in the carburetors takes approx. 30 seconds.

Do not try to restart the engine in this situation.

4.3 In case of vibrations

Proceed as follows should any unnatural vibrations occur:

- Adjust engine speed to a value which minimizes the vibrations
- Land at nearest airport or perform safety landing
- If vibrations keep increasing, turn engine off and land with engine off

Icing of carburetor

Icing of carburetor manifests itself by reduced engine power and increased temperature; sometimes, light vibrations also occur.

The following procedure is recommended to try to restore engine power:

- Flight speed 75knots
- Throttle adjust to 1/3
- Carburetor heating where fitted - switch on
- Fly away from icing area - if possible.
- After 1-2 minutes, gradually increase throttle to cruising power

If engine power cannot be restored, land at nearest airport (if possible), or perform safety landing.

Only switch on carburetor heating for minimum time necessary to fly away from icing location. Switching on carburetor heating leads to reduced engine rpm (by 100–200 rpm) and thus to reduced engine power.

This aircraft is approved for VFR flights only.
Flights without sufficient visibility and IMC flights are prohibited.

4.4 Landing gear failure

- If main gear leg is damaged, land with the lowest speed possible, keeping the aircraft on undamaged leg for as long as possible. Begin braking intensively as soon as the damaged leg touches the ground, trying to relieve it as much as possible.
- If nose gear leg is damaged, use elevator to keep the nose up for as long as possible, without the use of brakes if possible.
- Always try to land with headwind and with engine off.

4.5 Recovering from unintentional spin

Intentional spins are prohibited. The aircraft has never been tested in this flight regime.

Legend 600, if flown in normal conditions, keeping with operating limits and with careful piloting, does not exhibit tendency to spinning.

Recovering from unintentional spin

- Throttle idle
- Rudder fully opposite to spin direction
- Ailerons maintain center position
- Elevator gradually push fully forward (dive) without moving the ailerons
- Rudder neutral position immediately when rotation stops
- Elevator gradually pull back to recover from steep dive

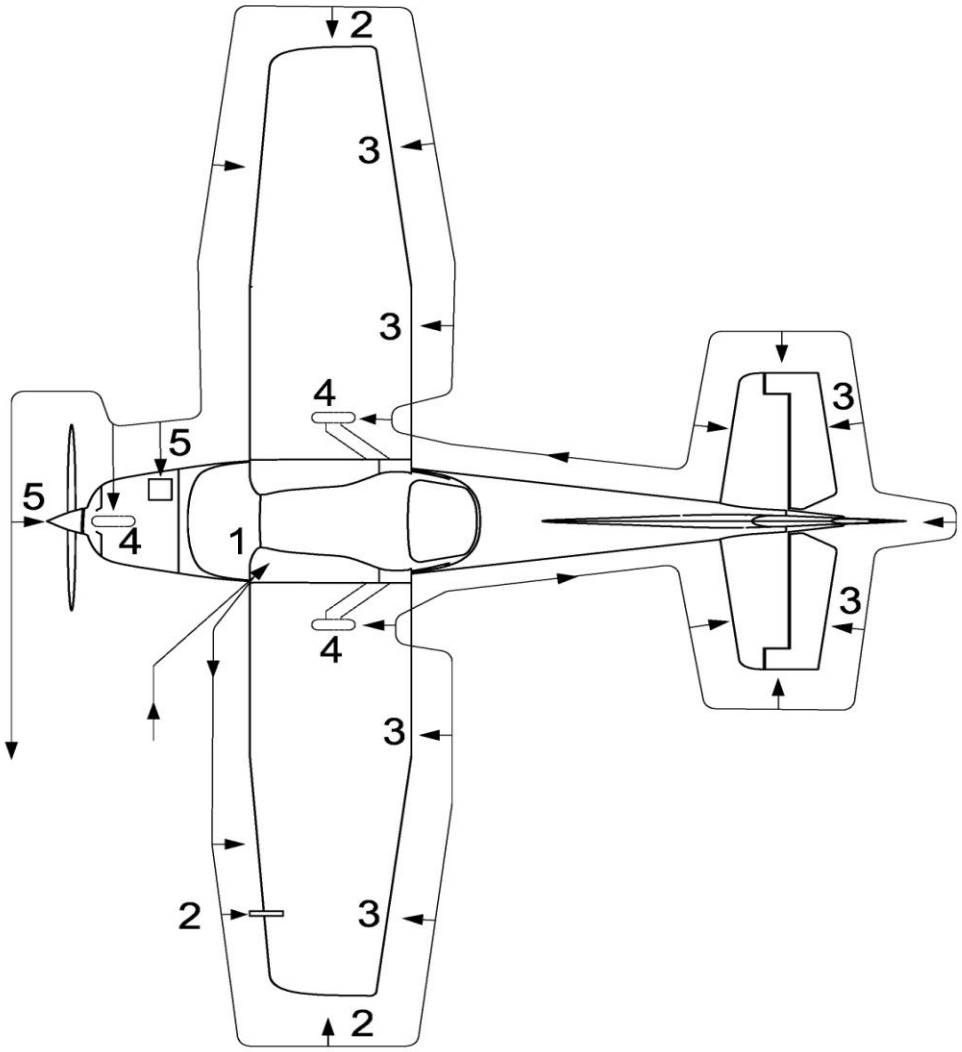
4.6 Using the rescue system

(1) In emergency, when you lose the control of the aircraft:
- Switch off the ignition
- Tighten up safety harnesses
- Activate the rescue system

(2) In case of landing with very short distance available, when there is imminent danger of crashing into obstacle at high speed, activate the rescue system to decelerate the aircraft. In such case, damage to aircraft is likely.

5 Standard procedures

5.1 Pre-flight inspection



1 - Cabin
- Ignition off
- Main switch on, check fuel level, check instruments
- Main switch off
- Check range of movement of all controls, condition of safety harnesses
- Remove loose objects from cabin, check canopy – cleanliness
- Check rescue system - must be locked to prevent inadvertent activation

2 - Fuselage, wings and tail surfaces
- Check surface condition, leading edges
- Check Pitot tube

3 - Control surfaces, wing flaps
- Range of movement and free play of all control surfaces

4 - Landing Gear
- Check wheels for free rotation, tire inflation 2,3 bar (34psi), attachment to airframe, check brakes, attachment of wheel fairings, check tire is correctly seated and not slipping around the rims

5 - Engine, propeller, fuel system
- Check fuel level and cleanliness, check propeller and attachment to engine
- Check oil level (according to engine manufacturer's manual), check coolant
- Check engine cowling fastening
- Check tightness of fuels hoses, tank caps, fuel filters
- Check fuel filter for impurities and water

5.2 Refueling

- Rotax912 engines are designed for automotive lead-free gasoline (RON 95 unleaded). Temporary limited use of AVGAS is possible. See Rotax912 UL, Rotax912 ULS Operating manual for more details.
- The aircraft has two fuel tanks, capacity 65L each.
- There are two methods of refueling LEGEND aircraft.

1) Refueling from fuel station (dispenser)

- Fuel station must be certified for aircraft refueling.
- Always neutralize electric potentials of aircraft and station.
- LEGEND aircraft has two grounding points for this purpose. One of them is copper grounding strip at landing gear leg. The other is exhaust manifold, which is better suited for attachment of grounding clip of refueling station. **Do not handle fuel tank before completing the grounding.** Open fuel cap and insert filling nozzle into tank. It is not necessary to use strainer, as certified refueling stations always include it.

2) Refueling from storage containers

- Position stairs or chair next to wing.
- Protect wing surface by suitable mat.
- Fuel containers, if made of metal, must be connected to grounding point of aircraft.
- Open fuel tank.
- Use hose with built-in strainer and self-priming pump (ball valve) to pump fuel from container to fuel tank.
- If hose is not used, use a funnel with wire strainer (mesh).

Physically measure amount of fuel before each flight. Never rely on the gauges to assess the amount of fuel necessary for safe completion of the flight.

During flight, fuel consumption from tanks is not regular. Better leave both fuel cocks on.

If **one of the tanks becomes empty - 10 liters or less** (marked on the fuel gauges) - always close its fuel cock and continue flying on the other tank, until fuel levels in both tanks equalize.

If **both fuel tanks become empty - 10 liters or less** (marked on the fuel gauges) - always leave both fuel cocks open and **switch on secondary fuel pump**.

It is not recommended to take-off when both tanks contain less than 10 liters of fuel.

If the procedures above are not adhered to, air may enter the fuel system and the engine may stop.

5.3 Checks on entering the cabin

- Check free movement of pedals and hand controls, check brakes and fuel level
- Check the instruments, set up the altimeter for QNH
- Fasten and tighten seat harnesses
- Check that the ignition switch is in OFF position
- Close and latch cabin doors

5.4 Starting the engine

- Apply parking brake
- Main switch on
- Both fuel cocks ON
- Set minimum pitch of (in-flight adjustable) propeller if fitted
- Choke - activate only when starting cold engine; close gradually when engine warms up
- Throttle - idle setting when starting cold engine; up to 10% throttle when engine is warm
- Electric AUX fuel pump turn on
- Check area in front and around propeller, declare intention to start loudly!
- Switch ignition on.
- Start the engine.
- **Only press starter button for 10 seconds or less; if engine does not start, wait 2 minutes before starting attempts.**
- **As soon as engine starts, set it to 2000–2300tpm - it should run without vibrations**
- **Check oil pressure – it must reach normal operating value within 10 seconds**

5.5 Engine test

- Always start to warm up the engine at approx. 2000rpm for approx. 2 minutes. Continue at 2500rpm until cylinder head and oil temperature reaches 50°C minimum.
- Test maximum rpm; check transition from minimum to maximum rpm and back.
- Check function of both ignition circuits by switching off the first and then the second circuit at 4000rpm. Max. permitted drop of rpm when switching is 300rpm.
- Fuel pressure must not drop below 0.2bar throughout the test (with secondary fuel pump switched off); oil pressure must not drop below 0.8bar.
- Note: it is recommended to have a fire extinguisher available.

DANGER! Nobody is allowed to be present in the vicinity, especially not in the propeller rotation plane.

Do not perform the engine test with the aircraft placed on the loose ground. Loose material, if drawn in by the propeller, may cause personal injury and/or damage to propeller.

5.6 Taxiing

- Communicate your taxiing intentions before starting to taxi and before entry to the runway holding point
- Taxi at speed 10km/h maximum (fast walking speed)
- Keep the yoke pulled back
- Taxi very slowly when turning at a small radius and control the engine with care (to prevent overloading of nose landing gear leg)
- Under crosswind conditions, keep ailerons “up into the wind”.

5.6 Mandatory actions before take-off – on runway holding point

- Check free movement and function of all controls
- Check fuel level, open cocks
- Check instruments, adjust altimeter if necessary.
- Check engine operating values (temperatures and pressures).
- Check the cabin – tighten seat harnesses, unlock rescue system, close door, remove/secure loose objects.
- Apply flaps – 15° position
- Center the trim
- Set propeller to low pitch

- Unlock rescue system
- Switch on secondary fuel pump
- Check that the runway, including final approach, is clear
- Switch transponder to STAND BY mode
- Radio - check frequency setting, report readiness for take-off
- GPS - switch on, activate planned route

5.8 Take-off

- Set throttle to full take-off power
- Engine rpm: 5500rpm minimum
- Instruments: check values
- Keep yoke control in central position
- Pull yoke control slightly on reaching 33kt to lift off nose wheel
- On reaching 43-45kt lift the aircraft off the ground and hold it in level flight just above the runway
- On reaching 60kt, start climbing, maintaining a 65kt climb speed

Do not take off when:

- Engine does not run smoothly
- Instrument readings are not within prescribed operating limits
- Wind speed is not within prescribed operating limits
- Runway or final approach is not clear

5.9 Climbing

- Best climbing speed is 65 knots.
- If cylinder head temperature or oil temperature reaches maximum operating limit, you must reduce engine power and climbing rate
- Climb to altitude necessary for subsequent flight

5.10 Mandatory actions after take-off

(height above terrain 150ft)

- Retract flaps
- Switch off AUX electric fuel pump and check fuel pressure is normal
- Radio – communicate if required
- Reduce engine throttle to below the Rotax 'max continuous performance limit – 5,500rpm, e.g. 5,000rpm
- Adjust the propeller pitch (if an in-flight adjustable prop is fitted) to "level flight" or Cruise

5.11 During flight

- Check that flaps have retracted
- Trim aircraft to cruising speed
- Flight speed 80-105 knots
- Instruments – check at normal operating values

5.12 Flying in turbulent air

- In strong turbulence, we recommend maintaining flight speed above 60 knots but less than 90 knots
- When making a turn, do not bank more than 30°.
- Do not use more than 1/3 rudder deflection at speed above 95 knots; or reduce speed accordingly

5.13 Descent

- During descent from higher altitude and/or during approach, it is not recommended to reduce engine rpm to idle; this could lead to excessive temperature drop, carby icing and reduced engine power. Glide at increased idle speed, approx. 3000 rpm, and maintain engine temperatures within operating limits.

5.14 Final approach

Speed	65-70 knots
Throttle	As necessary
Flaps	Set to 15° position and continue to final maintaining speed at 60-65 kt.
Propeller	If adjustable in flight, set minimum pitch
Trim	As necessary

5.15 Landing

Speed	50-55Knots
Flaps	30° position
Trim	As necessary

- At approx. 5m height above runway, start pulling the yoke to reduce descent rate; at approx. 0.5m above runway, let the plane loose speed gradually, until the main wheels touch down.
- Always touch down on main landing gear wheels.
- Pull up yoke gradually to maintain nose gear above ground for as long as possible.
- When nose gear finally touches down, apply brakes as necessary.
- If runway is short or clearway is high, extend the flaps to 40°. With the flaps in this position, descend rate increases markedly. Maintain speed 50 knots.

5.16 Go-around

Throttle	Full engine power (5700 rpm max.)
Flaps	Retract to “take-off” position
Start climbing	Speed at least 55 kt. IAS
Trim	As necessary
Adjust speed for climbing	65knots IAS
Flaps	Retract, at the minimum height above ground of 150-200ft
Trim	As necessary
Go around	

5.17 Actions after landing

Flaps	Retract
Trim	Middle position
Engine rpm	As necessary
Observe taxiing rules	Speed up to 5 knots

5.18 Stopping the engine

Engine rpm	Idle
Instruments	Observe if engine instrument needles are within limits
Avionics	Switch off
Ignition	Switch off
Section switches	Switch off
Main switch	Switch off
Fuel cocks	Close

5.19 Stopping the aircraft, parking

- Taxi very carefully before stopping the aircraft, paying attention to obstacles and terrain
- Brake the aircraft and shut off the engine
- Secure the rescue system
- Secure the aircraft against movement (use wedges, anchors, brakes)

5.20 Flying in rain, snow

There are no special requirements during flying in rain or snow. Aircraft handling and performance does not change. After landing, always check for water in speed measurement system, and empty the water trap if there is water present.

5.21 Assembly and disassembly of the aircraft

1) Elevator Assembly

- Check condition of rubber sealing edge
- Check elevator hinges and condition
- Slide the elevator into the fuselage from a side and insert elevator pins into fuselage bulkhead
- Screw on the rear bulkhead and secure the screws using wire
- Connect elevator control rod and apply a drop of paint onto new self-locking nut
- Connect the trim control connector
- Check rudder control
- Screw-on rudder control cover
- Check function of rudder controls

2) Wing Assembly

- Check and grease strut and wing pins, remove the locking of the wing flap Bowden cable, check condition of rubber edges at wing
- Thread aileron control cables and flaps Bowden cable into the fuselage.
- Insert wing attachment forks into the fuselage. Ensure correct position of wing fittings by moving wing top. Use the auxiliary pointed pin first, then replace it with M8 screw. Check that no cables or hoses are pinched during assembly.
- Connect strut to the wing. Install two aerodynamic covers on the strut and then insert pin connecting the strut to the fuselage.
- Secure all pins using self-locking nuts
- Install strut fitting covers and fix them using adhesive tape
- Connect tank breathing and fuel take-off hoses (and fuel gauge hoses, if used)
- Repeat the procedure at the other wing
- Connect the aileron control cable turnbuckles, adjust tension of cables and central position of ailerons. Secure turnbuckles using a drop of paint and safety wire.
- Fix the ends of the wing flap Bowden cables and rods. Check by looking from behind that both flaps are in the same position.
- Install cabin ceiling covers, check function of ailerons and flaps, screw-on anchoring lugs

3) Disassembly

- Drain all fuel
- Remove ceiling covers
- Remove and move strut covers
- Perform disassembly in reverse order of assembly. Disassembled wings may only be placed on soft rests or hung on stands, using their fittings as anchors. Remove elevator using similar procedure.

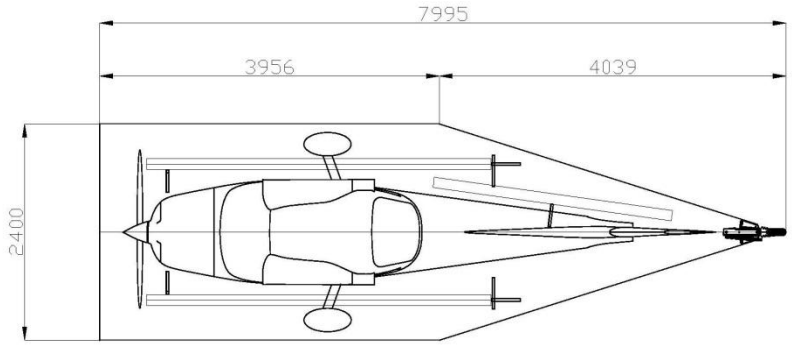
5.22 Long-term storage and transport

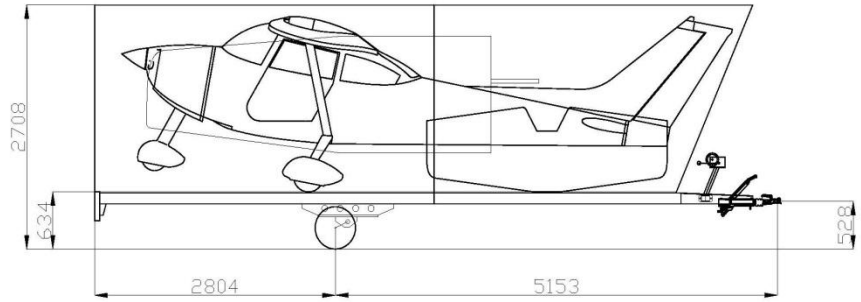
Before long-term storage

- Remove battery and connect to maintenance charger
- Drain all fuel from the tanks through drain valves
- Apply preservation to the engine following manufacturer's instructions
- Cover glass parts of cabin and/or wings and tail surfaces
- Support main landing gear legs using assembly stands or ensure periodic checking of tyre inflation
- Put protective covers on propeller blades

Transport

- The aircraft may only be transported with wings removed. When transporting over longer distance or in closed cargo bay of a truck, elevator must be removed. If elevator is not removed, it must be fitted with red pennants, or accompanying vehicle must be procured.
- During the transport, the fuselage must be connected to truck or trailer by landing gear legs and possibly also by tail bumper. The wings must be anchored using their central-section fittings and wing tip nor leading edges may contact the floor nor be leaned on anything.
- Flap controls must be fixed in position – see section Disassembly. If elevator is transported separately from the fuselage, it must only be fixed using fuselage fittings and front pins. Entire elevator must be protected by soft cover and attached to the truck or trailer using wide straps.





5.23 Determining the location of centre of gravity

Place the aircraft on horizontal floor, with its wheels positioned on three scales (one scale for each wheel).

1) Weighing for aft centre of gravity

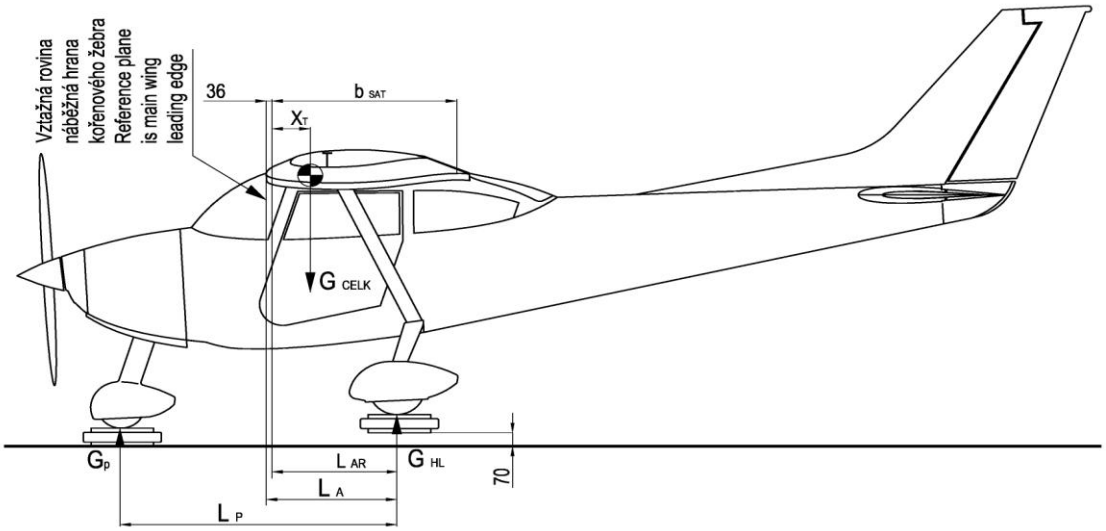
- Move seats to rearmost position
- Fill baggage compartment with maximum allowed load
- Empty fuel tanks

2) Weighing for forward centre of gravity

- Empty baggage compartment
- Move seats to foremost position
- Full fuel tanks

Weight and balance record of the aircraft LEGEND 600

Configuration		Aircraft	Engine	Propeller	Rescue system
	TYPE	LEGEND 600	ROTAX 912 ULS	Woodcomp 'Klassic'	Galaxy 6/473SD
	Serial number	1527	6.784.889	15182683RM	7471



C.G. position calculation

$$X_T[mm] = L_{AR} - \frac{Gp.Lp}{Gtotal}$$

C.G. Centre of gravity calculation

$$X_T[\%] = - \frac{X_{T[mm]}}{B_{SAT}} * 100$$

Weight calculation

$$G[_{CELK}] = G_P + G_{HL}$$

$L_{A\,[mm]\,=\,568,5}$ $L_{AR} = L_A - 36$ $b_{SAT}[mm] = 1200$ $b_k = 1300$ mm

	Nose wheel G_p	Main gear G_{HL}	Total weight G_{CELK}	C.G. from the wing leading edge	
				X_T[mm]	X_T[%]
No fuel and no crew					
crew fuel baggage					

crew fuel baggage					
crew fuel baggage					
crew fuel baggage					

Calculated position of C.G. is within a permitted range of 21,6-35,6 % $b_{SAT.}$

_____ _____

Place Date

_____

Signature

6 Periodic inspections

6.1 25-hour inspection

- Remove top cowling of engine
- Check condition and leaks of fuel system
- Check condition and leaks of oil system
- Check condition and leaks of cooling system
- Check exhaust system for cracks and leaks
- Check engine mount for cracks
- Check attachment of engine mount and engine
- Check attachment of propeller
- Visual check of electric installation
- Check nose wheel shock absorber and control
- Lubricate nose wheel leg
- Check carburetor control (choke, throttle)

6.2 100-hour inspection

If aircraft is operated in demanding conditions, halve this interval to 50 hours.

Demanding operating conditions include:

1) Glider towing
2) Ambient temperatures continuously exceeding 35° C or very dusty conditions

This inspection consists of the following:

1) Engine and propeller service
2) Airframe service
3) Fuel system cleaning
4) Inspection of instruments and equipment

1) Engine and propeller service

Change engine oil and filter, check and clean spark plugs, replace as necessary, check carburetor adjustment and control, check exhaust system condition, check engine mount and attachment of all parts, propeller service, inspection, check tightening of mounting screws using prescribed torque, check condition of propeller hub and blades – concentrate on cracks; other checks prescribed by propeller manufacturer.

Observe engine and propeller manufacturer's instructions during this work.

2) Airframe service

a) Remove seats, remove ceiling covers, remove tail surfaces cover, remove landing gear covers.
b) Check condition and function of control cables, rods, their securing, check for any jerks or contact between control elements and airframe parts (save for bumpers intended to limit movement range). Lubricate manual control rods using graphite grease, lubricate also aileron hinges (using only small amount of grease), lubricate nose wheel leg - in this case, it is better to apply more grease, or lubricate more often.
c) Check condition of landing gear, concentrate on cracks and deformation. Main landing gear must not move at all. Nose leg must not be bent. This inspection is mandatory after each hard landing from height more than 0.5m. Check brakes, add brake fluid if required.
d) Check proper movement and adjustment of doors.

3) Fuel system cleaning

a) Replace fuel filters; clean pre-filter when necessary.
b) Remove carburetor bowls and clean.
c) Use electric pump to pressurize fuel system, check for leaks, especially at fuel level sensors and pre-filter (glass jar).

4) Inspection of instruments and equipment

a) Check Pitot tube and attached hoses for leaks.
b) Verify function of all electric instruments and systems, including attachment. Visual check of cables and attachment.
c) Check attachment of rescue system and its components (ropes, containers).
d) Verify function of tow hook control cable (if installed).

5) Reinstall engine cowling, propeller cone, ceiling covers, seats, and tail surface cover

7 Performance

7.1 Speed measurement system calibration

knots IAS	***knots CAS***
35	34
45	43
50	47
55	53
60	58
65	63
70	67
75	72
80	77
85	82
90	86
95	90
100	95
105	99
110	105
115	112
120	117
125	122
130	127

knots IAS	***Knots CAS***

7.2 Stall speeds

Conditions: Max. TOW, engine at idle	**Flaps deflection**	**Knots IAS**	**Height loss during recovery [ft]**
Horizontal flight	**0°**	47	26
	15°	41	38
	30°	36	50
Turn with 30° bank angle	**0°**	50	36
	15°	44	50
	30°	40	60

7.3 Take-off performance

RUNWAY SURFACE	**Take-off run *[m]***	**Take-off distance over 50 *ft* obstacle *[m]***
PAVED	90 (ft)	200 (650ft)
GRASS	105 (350ft)	225 (750ft)

7.4 Landing performance

RUNWAY SURFACE	**Landing distance over 50 *ft* obstacle *[m]***	**Braking distance *[m]***
PAVED	135 (450ft)	95 (300ft)
GRASS	135 (450 ft)	80 (200ft)

7.5 Climbing performance

Conditions: ***Max. continuous power 5500rpm, aircraft weight 600kgs***	**Ideal climbing speed/rate**	
	knots IAS	***Ft/Min [m/s]***
1500ft ISA	65	1100’ (5.9)
4000ft ISA	65	850’ (4.4)
8000ft ISA	65	650’(3.3)

7.6 Flight

Performance data corresponding to inlet manifold vacuum pressure 24Hg.

Altitude [ft ISA]	**Engine speed [rpm]**	**Flight speed**
		knots IAS
1500	4000	89
	4400	96
	4600	105
	4800	108
	5000	110
	5200	114
	5400	117
	5600	123
6000	4000	82
	4400	88
	4600	91
	4800	96
	5000	97
	5200	101
	5400	105
	5600	111

7.7 Endurance and range

The table lists fuel consumption, range and endurance.

Altitude	[ft ISA]	3000 ft				
Fuel on board	Ltrs	130l total 120 avail				
Engine speed	[rpm]	**4400**	**4800**	**5000**	**5200**	**5500**
Fuel consumption	[L/h]	12	14	15	18	20
Flight speed	knots IAS	86	97	102	105	113
Endurance	[hh:mm]	10:00	8:34	8:00	6:40	6:00
Range	[nm]	817	782	765	700	678

7.8 Verified performance with crosswind

Max. allowed headwind for take-off and landing	20 Knots
Max. allowed crosswind for take-off and landing	8 knots (novice pilot) 15 knots (experienced pilot)

7.9 Optimum gliding speed

Optimum gliding speed	60 knots IAS

7.10 Ceiling

Operating ceiling	14000ft

Pilot Training

In order to introduce the student pilot to the essentials of control of the Legend 600 aircraft and put the technical training required of a pilot to practical use in developing his overall skills, a structured approach to training is required. This training will be somewhat country and regulations specific, the following is simply a guide. The Chief Flying Instructor at the various training facilities will likely establish the full details of the training program offered to the trainee for Light Sports Aircraft training, or it may be carried out under a program set by a country's aviation administration. The general outline will however follow the program below and is offered by the manufacturer as a guide, as required under the LSA regulations.

This training requires constant reference to the aircraft's Pilot Operating Handbook (P.O.H), the aircraft Maintenance Manual and other material available from the trainee's Instructor and in general terms would proceed according to the steps below. Though individual trainees will proceed through each of these stages at different rates, depending on existing skills, available time, continuity of training and their speed of learning the various tasks, the indicative stage training times may be a useful guide. To explain the details of the content of each stage, the processes followed by the Instructor and his student in this training is also detailed below.

Training Schedule
Introductory flight: duration: 1 flight, 20 minutes
Straight flight: duration: 3 flights, 1 hour
Turns, bank angle up to 15°: duration: 3 flights, 1 hour
Turns, bank angle up to 45°: duration: 3 flights, 1 hour
Take-off and landing: duration: 30 flights, 2 hours 50 minutes
Maintaining attitude/heading prevention of loss of height: duration: 3 flights, 1 hour
Landing plan/correction: duration: 10 flights, 1 hour
Safety landing: duration: 1 flight, 1 hour
Emergency landing: duration: 15 flights, 1 hour 30 minutes
Cross wind: duration: 3 flights, 15 minutes
Blocked instruments: duration: 2 flights, 10 minutes
Test for solo flight duration: 1 flight, 15 minutes
Circuit flight (solo): duration: 3 flights, 15 minutes
Check flight: duration: 1 flight, 10 minutes
Circuit flight (solo): duration: 15 flights, 1 hour a 40 minutes
Turns, bank angle 15° - 45° (solo): duration: 3 flights, 1 hour
Maintaining attitude/heading prevention of loss of height duration: 2 flights, 30 minutes
Landing plan practice (solo): duration: 10 flights, 1 hour
200km navigation flight: duration: 1 flight, 2 hours a 5 minutes
100 km navigation flight: duration: 1 flight, 1 hour

PRACTICAL TRAINING FOR PILOT QUALIFICATION

4.1 Exercise 1: Introductory Flight
Minimum flight level is 1000ft / 300m AGL.
Training methodology:
The instructor shows aircraft handling during traffic pattern flight and free area flight to the student. He also introduces the shape of airfield traffic pattern, its size, and major orientation landmarks in the vicinity. The instructor demonstrates and comments on all flight controls, including flap action, changes to flight speed and aircraft responses.
The instructor does not grade the introductory flight.

4.2 Exercise 1: Straight flight, effects of controls
Minimum flight level is 1000ft / 300m AGL.
Training methodology:
The instructor shows effects of controls onto aircraft flight. He demonstrates the deflection necessary to maintain straight flight, and also demonstrates the effect of forward/rearward balancing, flaps, and aircraft response to changes in

engine operation. Practical training is performed in level flight, climb, and descent.
The student strives to maintain straight flight using controls, in all above mentioned flight regimes.
Conditions for passing: **The student** is able to maintain straight flight without major fluctuations of speed, bank angle, and altitude.

4.3 Exercise 3: Turns with bank angle up to 15º
Minimum flight level is 1000ft / 300m AGL.
Training methodology:
The instructor shows proper performance of turns at small bank angle to the student. **The student** tries to perform turns properly, finishing them at indicated bearing. At the same time, the student strives to maintain even flight speed and to keep slip indicator ball in center position throughout the turn. This exercise includes performance of turns finishing at indicated compass bearing. Before each turn, the student checks that the area into which he/she turns is free.
Conditions for passing: **The student** performs turns at small bank angle on his/her own, finishing them at indicated bearing, without major fluctuations of **altitude**, flight speed, and bank angle, with slip indicator ball in center position throughout the turn, and including proper commencing and completion of turns.

4.4 Exercise 4: Turns with bank angle up to 45º
Recommended flight level is 1000ft / 300m AGL – 1600ft / 500m AGL; it must not be less than 1000ft / 300m AGL.
Training methodology:
The instructor shows proper performance of sharp turns to the student. He points out the importance of increasing engine rpm before commencing the turn. Extra attention must be paid to the danger of losing speed in a turn. The instructor pays attention to the sequence of controls when entering the turn, stabilization of turn, and warns against the risk of spin and/or spiral. Recovery from spin and spiral is touched only theoretically during pre-flight instruction. Turns on horizontal, during climb and descent are performed with regard to engine power. The instructor sees to it that the student checks that the area into which he/she turns is free. **The student** checks that the area into which he/she turns is free, performs sharp turns with indicated bank angle, speed, slip indicator position, and finishes the turns at indicated bearing. The student also performs turns to opposite directions one after another
Conditions for passing: **The student** performs sharp turns on his/her own, finishing them at indicated bearing, and performs turns to opposite directions one after another = figure eights.

4.5 Exercise 5: Take-off, traffic pattern flight, and landing
Traffic pattern flight level is 500ft / 150m AGL – 1000ft / 300m AGL.
Training methodology:
The instructor shows proper piloting during take-off, traffic pattern flight, and landing to the student. Special attention must be paid to gaining speed after lift-off, to allow climb at correct climbing speed; also to shape of traffic pattern, altitude at different sectors for traffic pattern, and correct planning of landing with stable descent without the need to change engine power to change angle of approach. As far as planning of landing is concerned, the instructor explains the effect of wind, length of runway, possible turbulence near ground, and other factors which may influence the decision during planning of landing. He points out that it is necessary to maintain proper speed during descent until the aircraft is leveled, so that no change of engine power is necessary during rounding out. He also points out that controls become less effective with decreasing flight speed. **The student** practices take-off, climbing, traffic pattern flight, planning of landing, landing, and take-off from leveling out point. First and fourth turn must be performed with 15 degree bank angle at altitude at least 330ft / 100m AGL. Second and third turn must be performed with 30 degree bank angle at altitude 500ft / 150m AGL – 1000ft / 300m AGL.
Take-off from leveling out point must be practiced.
Conditions for passing: **The student** is able to take-off, to fly traffic pattern, to plan for landing turns, to land, and knows important procedures.

4.6 Exercise 6: Glissade, prevention of loss of hight, flight speed
Flight level is 1000ft / 300m AGL – 1600ft / 500m AGL.
Training methodology:
The instructor shows glissades, prevention of loss of height during direct flight, during turns with 30 degree bank angle, and flight at maximum speed to the student. He warns against the risk of spin resulting from skidding turn and/or spiral resulting from slipping turn. The instructor ensures that the student practices glissade thoroughly, as it is the main element of correcting planning for emergency landing into limited space. Practice glissades must be terminated at sufficient altitude. Subsequently, piloting throughout the speed envelope is repeated, focusing on aircraft control during slow flight. Flight at minimum speed is practiced, at different engine powers and flap configurations. During flight at maximum speed, the instructor ensures that the student uses only 1/3 deflection of controls. **The student** practices

glissade left and right, prevention of fall, and flights throughout the speed envelope listed in aircraft flight manual.
Conditions for passing: **The student** is able to enter glissade, to maintain speed, direction of flight, and is able to recover into straight flight. The student is able to fly throughout the speed envelope of aircraft.

4.7 Exercise 7: Corrections of improper planning of landing, and landing
Training methodology:
The instructor shows correction of long approach and short approach to the student, as well as the actions necessary to correct high leveling out, ballooning, and rebound. He lets the student fly long approach and short approach, and lets the student correct them. The instructor shows intentionally high leveling out, ballooning, and rebound, and lets the student correct them. **The student** corrects long approach, short approach, high leveling out, ballooning, and rebound.
Conditions for passing: **The student** is able to correct improper approach, high leveling out, ballooning, and rebound on his own.

4.8 Exercise 8: Safety landing practice
Training methodology:
The instructor practices approach to suitably selected area, with engine operating. The instructor assesses student's selection of area for landing, and performance of the maneuver by the student. During this practice, it is allowed to review the area, having assessed the slope and obstacles in the vicinity, from at least 20m AGL. **The student**, on instructor's request, selects area for landing and performs approach, without completing the landing; on instructor's signal, the student increases throttle and interrupts the maneuver at safe altitude.
Conditions for passing: **The student** is able to select area suitable for landing, review the area safely, and plan the landing using engine power.

4.9 Exercise 9: Emergency landing practice
Flight level is 1000ft / 300m AGL – 1600ft / 500m AGL.
Training methodology:
The instructor reduces engine power to idle between 2nd and 4th traffic pattern turn. Approach must end on the runway without further use of engine power. **The student**, with engine idling or switched off, performs approach to 1/3 of runway length, and full landing, The instructor does not signal the time of reducing engine power to idle beforehand. **At least three last landings from minimum of 15 emergency landings must be performed with engine switched off.**
The instructor is responsible for safe performance of this exercise, taking into account the altitude, position of aircraft in traffic pattern, wind speed and direction, and other operating conditions.
Having mastered emergency landing at an airfield, the instructor and the student leave the airfield and enter free area, where the instructor reduces engine power to idle; the instructor does not signal the time of reducing engine power to idle beforehand, and the student must select area for landing, plan the landing, and perform approach onto selected area, without performing actual landing.
The instructor must interrupt this exercise at 50m AGL, not lower.
Conditions for passing: **The student** is able to plan the landing on assigned section of runway without use of engine power. He is able to fly safely, plan the landing, and land with engine off. He is able to use glissade to correct landing approach.
In the free area, the student is able to select area suitable for landing, and plan the landing correctly.

4.10 Exercise 10: Landing with crosswind
Training methodology:
The instructor practices landing with crosswind, up to the limit defined in aircraft manual. The instructor focuses on compensating the drift. When the student learns to maintain the axis of descent, the instructor adds slight rudder deflection in the end of rounding out phase, so that the aircraft lands parallel to runway axis. The instructor explains to the student the amount of deflection of aircraft axis from runway axis depending on crosswind speed. **The student** practices compensation of drift during descent, rounding out, after touchdown, and during landing run.
Conditions for passing: **The student** is able to maintain the axis of descent in crosswind, including compensation of drift during rounding out, after touchdown, and during landing run.

4.11 Exercise 11: Flight with covered instruments
Training methodology:
The instructor reviews aircraft handling at different speeds with the student, and lets the student fly with covered instruments. **The student** must maintain safe speed, especially its reserve during approach and landing. He must be able to perform turns correctly when not seeing the slip indicator, and must be able to determine whether the aircraft climbs or descends.

Conditions for passing: **The student** is able to fly traffic pattern without seeing the instruments.

4.12 Exercise 12: Check before first solo flight
Training methodology:
The instructor performs check flight with the student, focusing on his ability to control the aircraft in all flight regimes. Special attention must be paid to take-off, gaining speed, adherence to flight speed limits, performing turns, flight at lower speeds, correct estimate for landing, correct and complete rounding out, and managing the landing run and stopping. During a check flight, the instructor re-checks student's responses to an engine failure. **Provided that the instructor grades student's performance as 1 or 2 (i.e. very good), he will allow the student to fly solo.**

Before this first solo flight, the instructor will discuss with the student all differences between dual and solo, especially lower weight and apparent higher available engine power, notably changing aircraft's performance during take-off and climb, and also is markedly different on approach with longer hold-off, and lower stall speed. The instructor will also instruct the student how to handle possible engine failure during all phases of traffic pattern flight. **If the student shows any signs of stress and/or nervousness, the instructor must add a dual flight.** Student's uncertainty usually results from incomplete mastering of certain piloting skill. **First solo is only allowed on the aircraft on which the student trained, and no later than one hour after completion of check flight.**
Conditions for passing: **The student** is able to fly traffic pattern and to land acceptibly.

4.13 Exercise 13: Solo traffic pattern flight
Training methodology:
Having passed the check flight, the **student flies** a traffic pattern according to instructor's directions; the instructor observes and assesses the flight from ground. If no obvious piloting errors are observed, the instructor will allow the other two flights forming this exercise. Two-way radio communication between the instructor and the student is recommended.
Conditions for passing: Grade 1 to 2 at grading scale.

4.14 Exercise 14: Check traffic pattern flight
Training methodology:
Having passed the three solo flights forming the previous exercise, the **instructor with the student fly** a check flight, during which the instructor checks student's piloting skills and habits. The instructor will draw attention to any piloting errors, errors in altitude, traffic pattern shape, and/or any other deficiencies.
Conditions for passing: Grade 1 to 2 – all elements.

4.15 Exercise 15: Solo traffic pattern flight
Training methodology:
The student flies 15 traffic patterns to strengthen the mastery of piloting skills and traffic pattern flying. Two-way radio communication between the instructor and the student is recommended.
Conditions for passing: Grade 1 to 2 – all elements.

4.16 Exercise 16: Turns with bank angle 15 to 45º
Flight level is 1000ft / 300m AGL – 1600ft / 500m AGL.
Training methodology:
The student repeatedly practices (solo) turns with bank angle 15 to 45º, finishing them at indicated bearings according to compass, and flying figure-eights in free area, outside airfield, but under instructor's supervision. Two-way radio communication between the instructor and the student is recommended.
Conditions for passing: Grade 1 to 2 – all elements.

4.17 Exercise 17: Prevention of fall, glissade
Flight level is 1000ft / 300m AGL – 1600ft / 500m AGL.
Training methodology:
The student repeatedly practices (solo) glissade and prevention of fall, in free area, outside airfield, but under instructor's supervision. Glissade practice as part of landing approach must be terminated at 170ft / 50m AGL. Two-way radio communication between the instructor and the student is recommended.
Conditions for passing: Grade 1 to 2 – all elements.

4.18 Exercise 18: Planning of landing
Flight level is 1000ft / 300m AGL – 1600ft / 500m AGL.

Training methodology:
The student repeatedly practices (solo) planning of landing at airport; on instructor's signal, the student reduces engine power to idle and plans landing to 1/3 of runway length, without further use of engine power. **The instructor** is responsible for safe performance of this exercise, taking into account the altitude, position of aircraft in traffic pattern, wind speed and direction, the risk of overcooling the engine during descent, and airfield operating conditions. In case of incorrect planning of landing, the student interrupts the approach, uses throttle and repeats the exercise until it is mastered. Two-way radio communication between the instructor and the student is recommended.
Conditions for passing: **The student**, on his own, plans landing to 1/3 of runway length, without further use of engine power to correct angle of descent.

4.19 Exercise 19: 200km navigation flight
Flight level is 1000ft / 300m AGL, minimum visibility 8km.
200 km, minimum flight time 2hrs 5min. All conditions must be met. If aircraft radio station is used during navigation training, at least one flight (including landing and take-off) must be to airfield with ATIS.
Training methodology:
The instructor defines flight route with landing at different airfield. A Triangular navigation flight with landing at two different airfields is planned, with a Minimum flight distance **The student** performs complete navigation preparation for the flight following assigned route. **The instructor** verifies navigation preparation and flies with the student, without intervening in student's piloting and/nor navigation, but accompanies the student for instruction. The student must be able to fly safely and navigate at the same time while en route, during approach and landing at other airfield. In case of loss of orientation and/or bigger deviations from planned route, this exercise is failed. Fuel onboard must suffice for planned flight and 20 more minutes.
Conditions for passing: Grade 1 to 2 – piloting and navigating skills.

4.20 Exercise 20: 100km navigation flight
Flight level is 1000ft / 300m AGL, minimum visibility 8km
A Triangular navigation flight with landing at two different airfields is planned, with a minimum flight distance of 100 km, minimum flight time 1hr. All conditions must be met.
Training methodology:
The instructor defines flight route with landing at different airfields. **The student** performs complete navigation preparation for the flight following assigned route, which is verified by the instructor. **The instructor** checks adherence to calculated times and bearing during the flight with the student. Fuel onboard must suffice for planned flight and 20 more minutes.
Conditions for passing: Grade 1 to 2 – piloting and navigating skills.

4.21 Exercise 21: 100km navigation flight
Flight level is 1000ft / 300m AGL, minimum visibility 8km, without chance of storms and/or rain showers.
A Solo triangular navigation flight with landing at different airfield is planned with a minimum flight distance 100 km, minimum flight time 1hr. All conditions must be met.
Training methodology:
The instructor defines flight route with landing at different airfield. Definition is the same as in exercise 20. The only difference is that the student flies solo. **The instructor** verifies correctness and completeness of navigation preparation and permits the flight. **Stopover landing must not be planned at airfield where properly instructed person is not available.** Fuel onboard must suffice for planned flight and
20 more minutes. Planned time of landing at home airfield must be at least 30 minutes before sunset.
Conditions for passing: Grade 1 to 2 – piloting and navigating skills

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8 Records; These records may be replaced by Forms from a national Authority that perform the same purpose.

8.1 Logbook

Date	Take-off/landing location	Crew pilot-member	Today		Total		Remarks on the flight; faults, repairs, fuel consumption, etc.
			Take-off	Flight time	Take-off	Flight time	

Date	Take-off/landing location	Crew pilot-member	Today		Total		Remarks on the flight; faults, repairs, fuel consumption, etc.
			Take-off	Flight time	Take-off	Flight time	

Date	Take-off/landing location	Crew pilot-member	Today		Total		Remarks on the flight; faults, repairs, fuel consumption, etc.
			Take-off	Flight time	Take-off	Flight time	

Date	Take-off/landing location	Crew pilot-member	Today		Total		Remarks on the flight; faults, repairs, fuel consumption, etc.
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			Take-off	Flight time	Take-off	Flight time	

Date	Take-off/landing location	Crew pilot-member	Today		Total		Remarks on the flight; faults, repairs, fuel consumption, etc.
			Take-off	Flight time	Take-off	Flight time	

8.2 Maintenance records

Overview of performed inspections, repairs, replacement of important parts, etc.			
Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

Activity (reason)	Date performed	Performed at (flight hours)	Signature - performed by - inspected by

8.3 Record of implemented manufacturer's bulletins or mandatory modifications

Sequence	Bulletin	Date performed	Remark	Performed by - signature

Sequence	Bulletin	Date performed	Remark	Performed by - signature

Sequence	Bulletin	Date performed	Remark	Performed by - signature