THIS MANUAL TO BE KEPT IN AIRCRAFT.
NG4-LSA

Aircraft Operating Instructions

NG 4 ML

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REGISTRATION 24-7357
SR No. 001/2008

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SECTION 0

0. TECHNICAL INFORMATION

0.1 Record of revisions

0.2 List of effective pages

0.3 Table of contents

0.3 Table of contents

SECTION 1

1. GENERAL INFORMATION

1.1 Introduction

NG 4 ML is a Light Sport Aircraft designed and built in ROKO AERO a.s., Uherský Brod, Czech Republic, based on FAA Light Sport Aircraft (LSA) category according to ASTM Standards F2245, F2279 and F 2295.

This Aircraft Operating Instruction has been prepared to provide pilots with information for the safe and efficient operation of NG 4 ML aircraft. It also contains supplemental data supplied by the Aircraft Flight Training Supplement.

1.2 Warnings, cautions and notes

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

WARNING

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

CAUTION

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

NOTE

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

1.3 Descriptive data

1.3.1 Aircraft description

NG 4 ML is airplane intended especially for recreational and cross-country flying, non-aerobatics operation and basic training.

NG 4 ML is a single-engine, all metal, low-wing monoplane of semi-monocoque construction with two side-by-side seats. The airplane is equipped with a fixed tricycle undercarriage with stearable nose wheel.

1.3.2 Powerplant

The standard powerplant is composed of ROTAX 912 ULS 98.6 hp, 4-cylinder, 4-stroke engine and Woodcomp Klassic 170/3/R or SR 3000 170/3/R propeller.

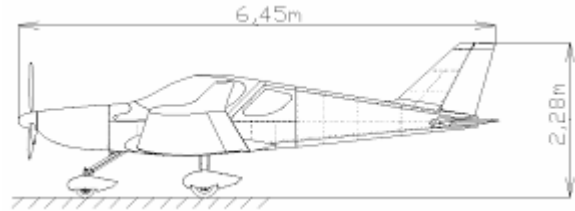
1.3.3 Aircraft dimensions

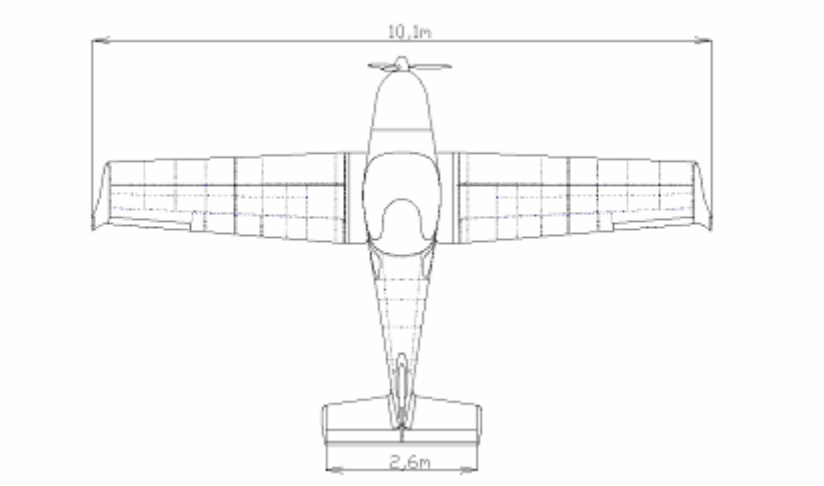
Wing span.....10,1 m
Length.....6,45 m
Height .....2.28 m
Wing area .....13 sq m
Wing loading.....46,1 kg/sq m
Cockpit width .....1,3 m

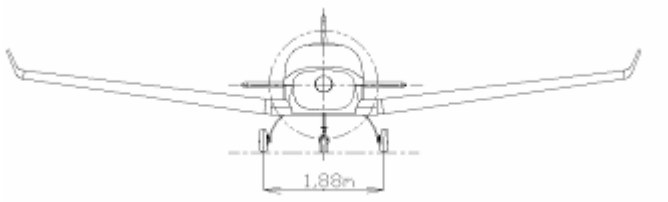
Deflection:

Rudder deflections.....30° to each side
Elevator deflections .....+ 30°/- 15°
Aileron deflections .....+ 22°/-11°
Flap deflections.....0° to 35°
Aileron trim deflections .....+ 15°/- 20°
Elevator trim deflections .....+ 15°/- 25°

1.3.4 Aircraft layout







1.4 Definitions and abbreviations

ATC	Air Traffic Control
ASI	Airspeed Indicator
BEACON	anti-collision beacon
CAS	Calibrated Airspeed
COMM	communication transmitter
EFIS	Electronic Flight Instrument System
ELT	Emergency Locator Transmitter
EMS	Engine Monitoring System
°F	temperature in degree of Fahrenheit
ft	foot / feet
ft/min	feet per minute
GPS	Global Positioning System
hp	power unit
IAS	Indicated Airspeed
IC	Intercom
IFR	Instrument Flight Rules
in	inch
ISA	International Standard Atmosphere
knot	NM per hour
lb	pound
MAC	Mean Aerodynamic Chord
max.	maximum
min.	minimum or minute
mph	statute miles per hour
NM	Nautical Mile
OFF	system is switched off or control element is in off-position
ON	system is switched on or control element is in on-position

OAT	Outside Air Temperature
POH	Pilot Operating Handbook
psi	pound per square inch - pressure unit
rpm	revolutions per minute
sec.	second
US gal	volume unit
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
V_A	maneuvering airspeed
V_{FE}	maximum flap extended speed
V_{NO}	maximum designed cruising speed
V_{NE}	never exceed speed
V_{SO}	stall speed with wing flaps in extended position
V_{S1}	stall speed with wing flaps in retracted position
V_X	best angle of climb speed
V_Y	best rate of climb speed

SECTION 2

2. OPERATING LIMITATION

2.1 Introduction

Section 2 includes operating limitations, instrument markings and basic placards necessary for the safe operation of the aircraft, its engine, standard systems and standard equipment.

2.2 Airspeed

Airspeed limitations and their operational significance are shown below:

Speed		*KIAS*	Remarks
V_{NE}	Never exceed speed	***145***	Do not exceed this speed in any operation.
V_{NO}	Max. structural cruising speed	***129***	Do not exceed this speed except in smooth air, and then only with caution.
V_{A}	Maneuvering speed	***89***	Do not make full or abrupt control movement above this speed, because under certain conditions full control movement may overstress the aircraft.
V_{FE}	Maximum Flap Extended Speed	***75***	Do not exceed this speed with flaps extended.

2.3 Airspeed indicator markings

Airspeed indicator markings and their color-code significance are shown below:

Marking	IAS value or range *KIAS*	Significance
White arc	***30-75***	Flap Operating Range.
Green arc	***36-129***	Normal Operating Range.
Yellow arc	***129-145***	Maneuvers must be conducted with caution and only in smooth air.
Red line	***145***	Maximum speed for all operations.

2.4 Powerplant

2.4.1 Engine operating speeds and limits

Engine Model:		**ROTAX 912 ULS**
Engine Manufacturer:		**Bombardier-Rotax GMBH**
Power	***Max Take-off:***	**98.6 hp at 5800 rpm, max.5 min.**
	Max. Continuous:	**92.5 hp at 5500 rpm**
	Cruising:	**68.4 hp at 5000 rpm**
Engine RPM	***Max. Take-off:***	**5800 rpm, max. 5 min.**
	Max. Continuoust:	**5500 rpm**
	Cruising:	**5000 rpm**
	Idling:	**~1400 rpm**
Cylinder head temperature:	***Minimum:***	**-**
	Maximum:	**248 / 275° F ***
	Optimum:	**167 - 230° F**
Oil temperature	***Minimum:***	**122° F**
	Maximum:	**266° F**
	Optimum:	**194 - 230° F**
Oil pressure:	***Minimum:***	**12 psi *- below 3500 rpm***
	Maximum:	**102 psi - cold engine starting**
	Optimum:	**29 - 73 psi *- above 3500 rpm***

***** Max. CHT temperature depend on the type of coolant used in engine.
- see Section 2.4.4 and Section 10 Supplement No.2

2.4.2 Fuel

This fuel can be used:
(refer to engine Operator's Manual**)**

- min. RON 95, EN 228 Premium, EN 228 Premium plus, AVGAS100LL
- Fuel according to FAA - Standard Spec. for Automotive Spark-Ignition Engine Fuel, ASTM D 4814 or AVGAS 100 LL
- Fuel according to DOT - CAN/CGSB-3.5 Quality 3 min AKI 91 or AVGAS 100 LL, 93 Octane Automotive Fuel

Due to higher lead content in AVGAS, the wear of the valve seats and deposits in the combustion chamber will increase. Therefore, use AVGAS only if you encounter problems with vapor lock or if the other fuel types are not available.

Fuel volume:

Wing fuel tank volume..... *2x65 ltr*
Unusable fuel quantity..... *2x0,1 ltr*

2.4.3 Oil

Oil type:

(refer to engine Operator's Manual)

Use motorcycle a 4 stroke engine oil of registered brand with gear additives, but not aircraft oil. Use only oil with API classification „SG" or higher! Use of multi-grade no mineral oils is recommended.

NOTE: *Type of oil used by aircrafts manufacturer is shown in Section 10 Supplement No.2.*

Oil volume:

Minimum..... 3,24 ltr
Maximum..... 3,6 ltr

2.4.4 Coolant

Coolant type:

(refer to engine Operator's and Installation Manuals)

The water-free coolant concentrate can be used based on *propylene glycol.* The conventional glycol/water coolant mixture can also be used. The conventional glycol/water coolant mixture reduce to apply the max.permissible cylinder head temperature.

NOTE: *Type of coolant used by aircrafts manufacturer is shown in Section 10 Supplement No.2.*

Coolant liquid volume:

It is about ..... 2,5 ltr

2.4.5 Powerplant instrument markings

Analogue engine instruments markings and their color-code significance are shown below.

Rotax 912ULS *98.6 hp*	**Minimum Limit (red line)**	**Normal Operating Range (green arc)**	**Caution Range (yellow arc)**	**Maximum Range (red line)**
Engine speed [RPM]	1400	1400-5500	5500-5800	5800
Oil Temperature	*50°C (122°F)*	*50-110°C (122-230°F)*	*110-130°C (230-266°F)*	*130°C (266°F)*
Exhaust Gas Temp. (EGT)	-	*800-850°C (1472-1562°F)*	*850-880°C (1562-1616°F)*	*880°C (1616°F)*
Cylinder Head Temperature (CHT)	50°C *(122°F)*	50-110°C *(122-230°F)*	110-120 / 135°C * *(230-248 / 275°F)*	120 / 135°C * *(248 / 275°F)*
Oil Pressure	*0,8 bar (12 psi)*	*0,8-5 bar (12-73 psi)*	*5-7 bar (73-102 psi)*	*7 bar (102 psi) cold engine starting*

***** Max. CHT temperature depend on the type of coolant used in engine.
- see Section 2.4.4 and Section 10 Supplement No.2

2.5 Miscellaneous Instrument Marking

Note: *There are not any miscellaneous instrument marking*

2.6 Weight

Empty weight (standard equipment) ..... 340 kg

NOTE

Actual empty weight is shown in SECTION 6

Max. take-off weight..... 600 kg

Max landing weight ..... 600 kg

Max. weight of fuel ..... 98 kg

Max. baggage weight in rear fuselage ..... 15 kg

Max. baggage weight in each wing locker ..... 20 kg

2.7 Center of gravity

Operating C.G. range..... *25 to 35 % of* MAC

2.8 Approved maneuvers

Airplane Category: LSA

The NG 4 ML is approved for normal and below listed maneuvers:

- Steep turns not exceeding 60° bank
- Lazy eights
- Chandelles
- Stalls (except whip stalls)

WARNING

Aerobatics and intentional spins are prohibited !

2.9 Maneuvering load factors

Maximum ultimate positive limit load factor ..... +6 g

Maximum ultimate negative limit load factor..... - 4 g

2.10 Crew

Number of seats 2
Minimum crew ..... 1 pilot in the left seat
Minimum crew weight ..... 55 kg
Maximum crew weight ..... see SECTION 6

WARNING
Do not exceed maximum take-off weight 600 kg !

2.11 Kinds of operation

There are permitted Day VFR flights, Night VFR flights are permitted with installation of optional Night Lighting Package and operation by an appropriate rated pilot.

WARNING
IFR flights and intentional flights under icing conditions are PROHIBITED!

Minimum instruments and equipment list for VFR flights:

- Airspeed indicator
- Altimeter
- Compass (is not required by ASTM F 2245)
- Fuel quantity indicator
- Tachometer (RPM)
- Oil temperature indicator
- Oil pressure indicator
- Cylinder head temperature indicator

2.12 Other limitations

- ***No smoking on board of the aircraft!***

SECTION 3

3. EMERGENCY PROCEDURES

3.1 Introduction

Section 3 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 Engine Failure

3.2.1 Engine failure during take-off run

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

3.2.2 Engine failure during take-off

1. Speed - gliding at 65 KIAS
2. Altitude - below 150 ft: land in take-off direction
   - over 150 ft: choose a landing area
3. Wind - find direction and velocity
4. Landing area - choose free area without obstacles
5. Flaps - extend as needed
6. Fuel Selector - shut off
7. Ignition - switch off
8. Safety harness - tighten
9. Master switch - switch off before landing
10. Land

3.2.3 Engine failure in flight

1. Push control stick forward
2. Speed - gliding at 65 KIAS
3. Altitude - below 150 ft: land in take-off direction
   - over 150 ft: choose a landing area
4. Wind - find direction and velocity
5. Landing area - choose free area without obstacles
6. Flaps - extend as needed
7. Fuel Selector - shut off
8. Ignition - switch off
9. Safety harness - tighten
10. Master switch - switch off before landing
11. Land

3.3 In-flight Engine Starting

1. Electric pump - ON
2. Fuel Selector - switch to second fuel tank
3. Starter - switch on

3.4 Smoke and Fire

3.4.1 Fire on ground at engine starting

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

3.4.2 Fire on ground with engine running

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

3.4.3 Fire during take-off

1. Speed - 65 KIAS
2. Heating - close
3. Fuel Selector - close
4. Throttle - full power
5. Ignition - switch off
6. Land and stop the airplane
7. Leave the airplane
8. Extinguish fire by fire extinguisher or call for a fire-brigade if you cannot do it.

3.4.4 Fire in flight

1. Heating - close
2. Fuel Selector - close
3. Throttle - full power
4. Master switch - switch off
5. Ignition - switch off after the fuel in carburetors is consumed and engine shut down
6. Choose of area - heading to the nearest airport or choose emergency landing area
7. Emergency landing - perform according to 3.6
8. Leave the airplane
9. Extinguish fire by yourself or call for a fire-brigade if you cannot do it.

NOTE

Estimated time to pump fuel out of carburetors is 30 seconds.

WARNING

Do not attempt to re-start the engine!

3.4.5 Fire in the cockpit

1. Master switch - switch off
2. Heating - close
3. Use the fire extinguisher

3.5 Glide

An example of the use of gliding is in the case of engine failure

1. Speed - recommended gliding speed 65 KIAS

3.6 Landing Emergencies

3.6.1 Emergency landing

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

1. Speed - adjust for optimum gliding 65 KIAS
2. Trim - adjust
3. Safety harness - tighten
4. Flaps - extend as needed
5. COMM - if installed then report your location if possible
6. Fuel Selector - close
7. Ignition - switch off
8. Master switch - switch off
9. Perform approach without steep turns and land on chosen landing area.

3.6.2 Precautionary landing

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

1. Choose landing area, determine wind direction
2. Report your intention to land and land area location if a COMM is installed in the airplane.
3. Perform low-altitude passage into wind over the right-hand side of the chosen area with flaps extended as needed and thoroughly inspect the landing area.
4. Perform circle pattern.
5. Perform approach at increased idling with flaps fully extended.

6. Reduce power to idle when flying over the runway threshold and touch-down at the very beginning of the chosen area.
7. After stopping the airplane switch off all switches, shut off the fuel selector, lock the airplane and seek for assistance.

NOTE

Watch the chosen area steadily during precautionary landing.

3.6.3 Landing with a flat tire

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

3.6.4 Landing with a defective landing gear.

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

3.7 Recovery from Unintentional Spin

WARNING
Intentional spins are prohibited!

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

Unintentional spin recovery technique:

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

3.8 Other Emergencies

3.8.1 Vibration

If any forced aircraft vibrations appear, it is necessary:

1. To set engine speed to such power rating where the vibrations are lowest.
2. To land on the nearest airfield or to perform a precautionary landing according to 3.6

3.8.2 Carburetor icing

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

To recover the engine power, the following procedure is recommended:

1. Speed - 75 KIAS
2. Throttle - set to 1/3 of power
3. If possible, leave the icing area
4. Increase the engine power gradually up to cruise conditions after 1-2 minutes

If you fail to recover the engine power, land on the nearest airfield (if possible) or depending on the circumstances, perform a precautionary landing according to 3.6

NOTE

If your engine is equipped with carburetor heating, use it for extended period descent and in area of possible carburetor icing.

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

SECTION 4

4. NORMAL PROCEDURES

4.1 Introduction

Section 4 provides checklists and recommended procedures for normal operation of the aircraft.

4.2 Assembly and Disassembly

Refer to the NG 4 ML Maintenance and inspection procedures manual.

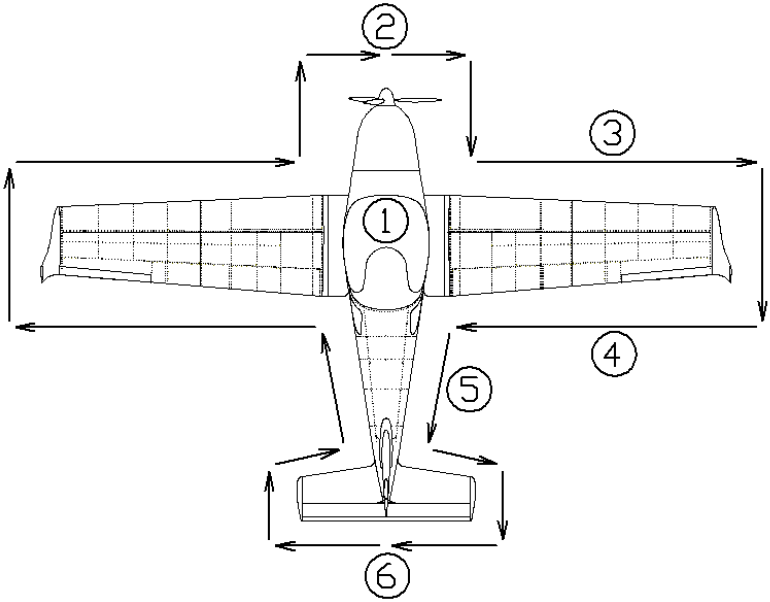
4.3 Pre-flight Inspection

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

NOTE

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

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



Inspection Check List

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

WARNING

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

CAUTION

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

4.4 Normal procedures

4.4.1 Before engine starting

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

4.4.2 Engine starting

1.	Start the engine according to its manual procedure	
2.	Master switch	- switch on
3.	Fuel Selector	- on
4.	Choke (cold engine)	- pull to open and gradually release after engine start
5.	El. pump	- switch on
6.	Starter	- hold activated to start the engine

CAUTION

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

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

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

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

4.4.3 Engine warm up, Engine check

Prior to engine check block the main wheels using chocks. Initially warm up the engine to 2000 rpm for approx. 2 minutes, then continue to 2500 rpm till oil temperature reaches 122°F. The warm up period depends on ambient air temperature.

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

NOTE

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

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

Check acceleration from idling to max. power. If necessary, cool the engine at 3000 rpm before shutdown.

CAUTION

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

4.4.4 Taxiing

Apply power and brakes as needed. Apply brakes to control movement on ground. Taxi carefully when wind velocity exceeds 20 knots. Hold the control stick in neutral position, or in a position that properly deflects a crosswind.

4.4.5 Before take-off

1.	Altimeter	- set
2.	Trim	- set neutral position
3.	Control system	- check free movement
4.	Cockpit canopy	- closed
5.	Safety harness	- tighten
6.	Fuel Selector	- on (select tank)
7.	Ignition	- switched on
8.	Wing flaps	- extend as needed

4.4.6 Take-off

1.	Brakes	- apply to stop wheel rotation
2.	Take-off power	- throttle fully forward
3.	Engine speed	- check rpm
4.	Instruments within limits	- check
5.	Nose wheel unstick	- 30 KIAS
6.	Airplane lift-off	- 38 KIAS
7.	Wing flaps	- retract when speed of 65 KIAS is reached, at altitude of 150 ft
8.	Transit to climb	

WARNING

The Take-off is prohibited if:

- The engine is running unsteadily
- The engine instruments values are beyond operational limits
- The crosswind velocity exceeds permitted limits (see 5.2.8)

4.4.7 Climb

1. Best rate-of-climb speed - 70 KIAS
2. Throttle - Max. take-off power (max. 5800 rpm for 5 minutes)
   - Max. cont.power 5500 rpm
3. Trim - trim the airplane
4. Instruments - oil temperature and pressure, cylinder temperature within limits

CAUTION

If the cylinder head temperature or oil temperature approach their limits, reduce the climb angle to decrease airspeed and thus fulfill the limits.

4.4.8 Cruise

Refer to Section 5, for recommended cruising figures

4.4.9 Descent

1. Optimum glide speed - 65 KIAS

CAUTION

It is not advisable to reduce the engine throttle control lever to minimum on final approach and when descending from very high altitude. In such cases the engine becomes under-cooled and a loss of power may occur. Descent at increased idle (approx. 3000 rpm), speed between 65-75 KIAS and check that the engine instruments indicate values within permitted limits.

4.4.10 Before landing

1. Approach speed - 65 KIAS
2. Throttle - as needed
3. Wing flaps - extend as needed
4. Trim - as needed

4.4.11 Balked Landing

1. Throttle - full power (max.5800 rpm)
2. Wing flaps - extend as needed
3. Trim - adjust as needed
4. Wing flaps - retract at height of 150 ft after reaching 65 KIAS
5. Trim - adjust
6. Repeat circle pattern

4.4.12 Landing

1. Touch-down on main wheels
2. Apply brakes as needed after the nose wheel touch-down

4.4.13 After landing

1. Engine speed - set as required for taxiing
2. Wing flaps - retract

4.4.14 Engine shutdown

1. Engine speed - idle
2. Instruments - engine instruments within limits
3. Avionics - switch off
4. Ignition - switch off
5. Circuit breakers - switch off
6. Master switch - switch off
7. Switch box - turn key to switch off
8. Fuel Selector - off

CAUTION

Rapid engine cooling should be avoided during operation. This happens above all during aircraft descent, taxiing, low engine rpm or at engine shutdown immediately after landing.
Under normal conditions the engine temperatures stabilize during descent, taxiing and at values suitable to stop engine by switching the ignition off. If necessary, cool the engine at 2500 - 2750 rpm to stabilize the temperatures prior to engine shut down.

4.4.15 Aircraft parking and tie-down

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

NOTE

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

NOTE

Use anchor eyes on the wings and fuselage rear section to fix the airplane. Move control stick forward and fix it together with the rudder pedals. Make sure that the cockpit canopy is properly closed and locked. The anchoring before leaving the airplane is important if the airplane is not equipped with a parking brake.

4.4.16 Flight in rain

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

SECTION 5

5. PERFORMANCE

5.1 Introduction

5.2 Performance

5.2.1 Airspeed indicator system calibration
5.2.2 Stall speeds
5.2.3 Take-off performance
5.2.4 Landing distances
5.2.5 Climb performance
5.2.6 Cruise
5.2.7 Endurance and Range
5.2.8 Demonstrated crosswind performance
5.2.9 Optimum glide speed
5.2.10 Ceiling

5.1 Introduction

Section 5 provides data for airspeed calibration, stall speeds, take-off performance and additional information.

The presented data has been computed from actual flight tests with the aircraft and engine in good conditions and using average piloting techniques.

If not stated otherwise, the performance stated in this section is valid for maximum take-off weight and under ISA conditions.

The performance shown in this section is valid for aircraft fitted with given engine ROTAX 912 ULS 98.6 hp with WOODCOMP Klassic 170/3/R or EFFie 170/3/RF propeller.

5.2 Performance

5.2.1 Airspeed indicator system calibration

KIAS	*KCAS*
30	*35*
35	*40*
40	*44*
45	*47*
50	*52*
55	*56*
60	*60*
65	*64*
70	*68*
75	*73*
80	*78*
85	*83*
90	*88*
95	*93*
100	*98*
105	*102*
110	*106*
115	*110*
120	*115*
125	*119*
130	*123*
135	*127*
140	*131*
145	*134*

5.2.2 Stall speeds

Conditions: Max.take-off weight Engine idle run	Wing flaps pos.	KIAS	KCAS	Altitude loss at recovery [ft]
Wing level stall	0°	36	45	45
	15°	33	41	39
	35°	30	37,5	18
Co-ordinated turn 30° bank	0°	38	47,5	72
	15°	35	44	58
	35°	33	41	42

5.2.3 Take-off performance

RUNWAY SURFACE	Take-off run distance *[m]*	Take-off distance over 15 *m* obstacle *[m]*
PAVED	100	240
GRASS	120	270

5.2.4 Landing distances

RUNWAY SURFACE	Landing distance over 15 *m* obstacle *[m]*	Landing run distance (braked) *[m]*
PAVED	170	146
GRASS	167	122

5.2.5 Climb performance

Conditions: ***Max.Continuous Power - 5500 rpm Weight - 1320 lbs***	**Best rate-of-climb speed**	
	KIAS	***[fpm]***
0 ft ISA	*70*	*1500*
3000 ft ISA	*70*	*1050*
6000 ft ISA	*65*	*650*
9000 ft ISA	*59*	*415*

5.2.6 Cruise

Altitude [ft ISA]	Engine speed [rpm]	Airspeed	
		KIAS	KCAS
0	4500	102	95
	4800	109	100
	5000	114	103
	5300	121	108
	5500	127	113
	5800	135	119
3000	4500	82	79
	4800	103	94
	5000	108	98
	5300	115	104
	5500	120	107
	5800	122	109
6000	4500	75	73
	4800	90	85
	5000	95	88
	5300	102	94
	5500	107	98
	5800	109	100
9000	4500	61	64
	4800	71	69
	5000	76	74
	5300	93	87
	5500	98	91

5.2.7 Endurance and Range

The table below shows fuel consumption, endurance and range

Altitude	[ft ISA]	3000 ft				
Fuel quantity	[ltr]	130				
Engine speed	[rpm]	**4500**	**4800**	**5000**	**5300**	**5500**
Fuel consumption	[l/h]	12	14	15	18	20
Airspeed	KIAS	82	103	108	115	120
	KCAS	79	94	98	104	107
Endurance	[hh:mm]	10:50	09:17	08:40	07:13	06:30
Range	[NM]	854	878	852	752	698

5.2.8 Demonstrated crosswind performance

Max. permitted head wind velocity
for take-off and landing.....*30kts*

Max. permitted cross wind velocity
for take-off and landing.....*18kts*

5.2.9 Optimum glide speed

Optimum glide speed.....*65KIAS*

5.2.10 Ceiling

Service ceiling *10.000ft*

SECTION 6

6. WEIGHT AND BALANCE

6.1 Introduction

This section contains the payload range within which the NG 4 ML may be safely operated.

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

6.2 Weight and Balance Record

Equipment list:

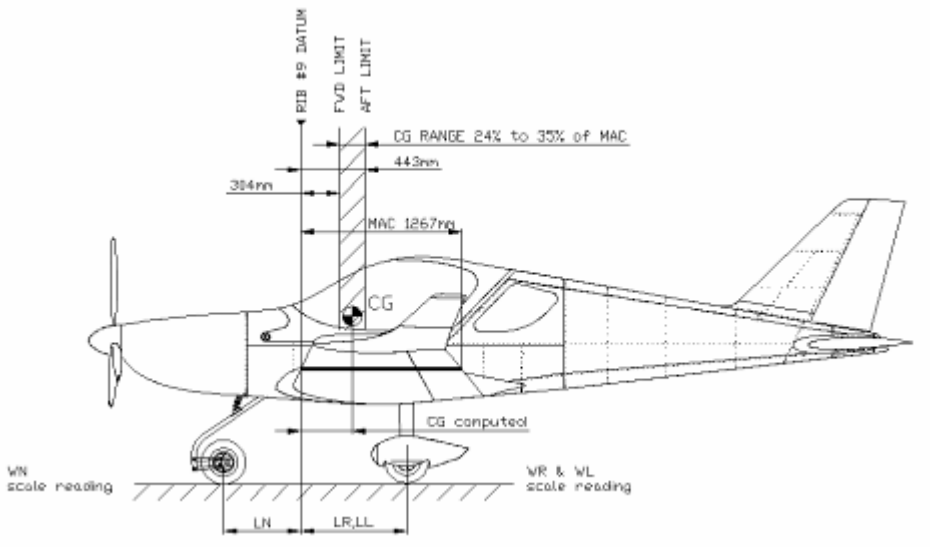
- *WOODCOMP SR 3000 CONSTANT SPEED PROPELLER*
- *EFIS D 100*
- *EMS D 120*
- *GPS GARMIN 296*
- *B/K KY 97A + AV 10*
- *GARMIN GTX 327 + AK 350 + AV 22*
- *ASI, ALT, VCC*
- *DUAL BRAKES*
- *PARKING BRAKE*
- *ADJUSTABLE PEDALS*
- *CABIN HEATING*
- *SNOWBOARD BOX*
- *WHEEL PANTS*
- *AVEO STROBE AND NAVIGATION LIGHTS*
- *LANDING LIGHT*
- *12 V SOCKET*
- *LEADER UPHOLSTARY*
- *TOW BAR*
- *AIRPLANE COVER*
- *THREE COLOUR METALIC PAINT*

Weight and Balance report lists:

1. Empty CG check
2. Forward CG check
3. Rear CG check
4. Blank form

WEIGHT & BALANCE REPORT

Empty Weight C.G. Check



	ITEM	WEIGHT (kg)	ARM (m)	MOMENT (WEIGHTxARM)
AIRCRAFT EMPTY CG	RIGHT MAIN WHEEL	W_R= 120,6	L_R= 0,79	95,274
	LEFT MAIN WHEEL	W_L= 124,4	L_L= 0,79	98,276
	NOSE WHEEL	W_N= 103	L_N = - 0,785 (negative arm)	- 80,855
	COMPUTED CG EMPTY	Empty Weight: **W_E= 348 kg**	**CG= 0,323 m** 25,5 **%** MAC	Aircraft moment: **112695**

	WEIGHT *(kg)*	***ARM*** *(m)*	***MOMENT*** *(WEIGHTxARM)*
PILOT		*0,6*	
PASSENGER		*0,6*	
BAGGAGE COMPARTMENT - A		*1,4*	
BAGGAGE COMPARTMENT - B		*2,0*	
WING LOCKERS		*0,65*	
FUEL TANKS		*0,20*	
TOTAL	***W=***		***M=***
Take-Off Weight*:*			***CG=*** *in* ***%*** *MAC*

Max.Take-off Weight: 600 kg

CG Range: 24 – 35 %

Serial No:	***001/2008***
Date:	*2008-04-26*
By:	***Milan Bristela***

Maximum useful weight:

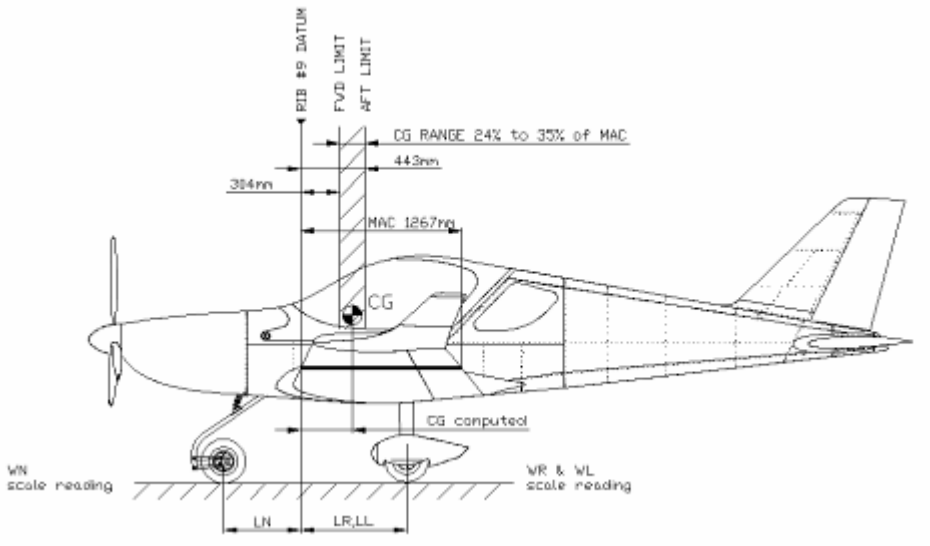
W_{USEFUL} = 600 kg W_{EMPTY}

$\mathbf{W_{USEFUL}}$ = 600 kg – 348 kg = 252 **kg**

This useful weight must be never exceded!

$$\text{Center of Gravity (}\mathbf{CG}\text{)} = \frac{\text{Total Moment}}{\text{Total Weight}} \text{ [in] } x \frac{100}{MAC} \text{ [\%]}$$

WEIGHT & BALANCE REPORT
Forward C.G. Check



	ITEM	WEIGHT (kg)	ARM (m)	MOMENT (WEIGHTxARM)
AIRCRAFT EMPTY CG	RIGHT MAIN WHEEL	W_R= 120,6	L_R= 0,79	95274
	LEFT MAIN WHEEL	W_L= 124,4	L_L= 0,79	95274
	NOSE WHEEL	W_N= 103	L_N = - 0,785 (negative arm)	- 80855
	COMPUTED CG EMPTY	Empty Weight: **W_E= 348 kg**	**CG= 0,323m** 25,5 **%** MAC	Aircraft moment: **112695**

	WEIGHT *(kg)*	***ARM*** *(m)*	***MOMENT*** *(WEIGHTxARM)*
PILOT	*55*	*0,6*	*33*
PASSENGER			
BAGGAGE COMPARTMENT - A			
BAGGAGE COMPARTMENT - B			
WING LOCKERS			
FUEL TANKS	*98*	*0,2*	*19,6*
TOTAL	***W= 153***		***M= 52,6***
***Take-Off Weight**:*	***501 kg***		***CG= 0,329 m*** ***26 %** MAC*

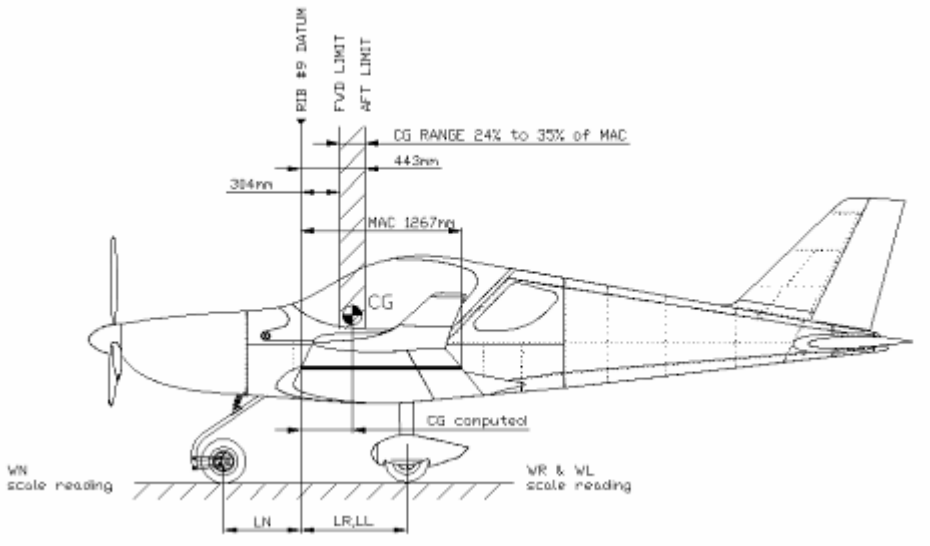
Max.Take-off Weight: 544 kg

CG Range: 24 - 35 %

Serial No: 001/2008
Date: 2008-04-26
By: Milan Bristela

$$\text{Center of Gravity (}\mathbf{CG}\text{)} = \frac{\text{Total Moment}}{\text{Total Weight}}\ [\text{in}] \times \frac{100}{\text{MAC}}\ [\%]$$

WEIGHT & BALANCE REPORT
Rear C.G. Check



	ITEM	WEIGHT (kg)	ARM (m)	MOMENT (WEIGHTxARM)
AIRCRAFT EMPTY CG	RIGHT MAIN WHEEL	W_R= 120,6	L_R= 790	95,274
	LEFT MAIN WHEEL	W_L= 124,4	L_L= 790	98,276
	NOSE WHEEL	W_N= 103	L_N = - (negative arm)	- 80855
	COMPUTED CG EMPTY	Empty Weight: **W_E= 348 kg**	**CG**= 0,323 m 25,5 **%** MAC	Aircraft moment: **112,695**

	WEIGHT *(kg)*	***ARM*** *(m)*	***MOMENT*** *(WEIGHTxARM)*
PILOT	*80*	*0,6*	*48*
PASSENGER	*80*	*06*	*48*
BAGGAGE COMPARTMENT - A	*0*	*1.4*	*0*
BAGGAGE COMPARTMENT - B	*14*	*2,0*	*28*
WING LOCKERS	*0*	*0,65*	*0*
FUEL TANKS	*22*	*0,20*	*4,4*
TOTAL	***W = 196***		***M= 128,4***
Take-Off Weight:	***544 kg***		***CG= 0,443 m*** ***35 %*** *MAC*

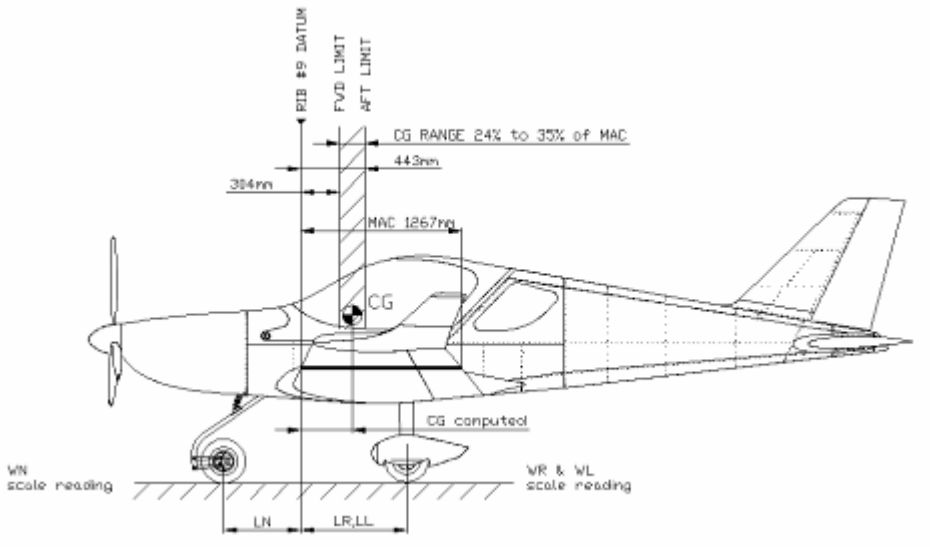
Max.Take-off Weight: 544 kg

CG Range: 24 – 35 %

Serial No: 001/2008
Date: 2008-04-26
By: Milan Bristela

$$\text{Center of Gravity (CG)} = \frac{\text{Total Moment}}{\text{Total Weight}} \ [\text{in}] \times \frac{100}{\text{MAC}} \ [\%]$$

WEIGHT & BALANCE REPORT
Blank form



	ITEM	WEIGHT (kg)	ARM (m)	MOMENT (WEIGHTxARM)
AIRCRAFT EMPTY CG	RIGHT MAIN WHEEL	W_R=	L_R=	
	LEFT MAIN WHEEL	W_L=	L_L=	
	NOSE WHEEL	W_N=	L_N = - (negative arm)	-
	COMPUTED CG EMPTY	Empty Weight: W_E=	CG= m % MAC	Aircraft moment:

	WEIGHT *(kg)*	***ARM*** *(m)*	***MOMENT*** *(WEIGHTxARM)*
PILOT		*0.6*	
PASSENGER		*0.6*	
BAGGAGE COMPARTMENT - A		*1.4*	
BAGGAGE COMPARTMENT - B		*2.0*	
WING LOCKERS		*0.65*	
FUEL TANKS		*0.2*	
TOTAL	***W=***		***M=***
Take-Off Weight:	***kg***		***CG=*** ***m*** ***%*** *MAC*

Max.Take-off Weight: 544 kg

CG Range: 24 – 35 %

Registration:
Serial No.:
Date:
By:

Maximum useful weight :

$W_{USEFUL} = 600\ kg - W_{EMPTY}$

$\mathbf{W_{USEFUL}} = 600\ kg - \quad = \_\_\_\_\_ kg$

This useful weight must be never exceeded!

$$\textit{Center of Gravity (}\mathbf{CG}\textit{)} = \frac{\textit{Total Moment}}{\textit{Total Weight}}\ [\textit{in}] \times \frac{100}{\textit{MAC}}\ [\%]$$

This page was printed for 544kg in NZ- Aircraft is rated at 600kg in Australia.

6.3 Permitted payload range at 544 kg- not 600 kg.

Permitted payload range of NG 4 ML SN:								
FUEL	GAUGES TOGETHER			60 min	1/4	1/2	3/4	1
	VOLUME		**USgal**	**5**	**7.9**	**15,8**	**23.7**	**34**
			(litres)	*(19)*	*(30)*	*(60)*	*(90)*	*(130)*
	WEIGHT		**lbs**	**30**	**48**	**97**	**145**	**211**
			(kg)	*(14)*	*(22)*	*(44)*	*(66)*	*(96)*
				Permitted crew weight				
BAGGAGE	**NO BAGGAGE**		**lbs**	**400**	**382**	**334**	**286**	**220**
	0 lb	*(0 kg)*	*(kg)*	*182*	*174*	*152*	*130*	*100*
	1/2 REAR		**lbs**	**385**	**367**	**319**	**270**	**204**
	15 lbs	*(7 kg)*	*(kg)*	*175*	*167*	*145*	*123*	*93*
	REAR		**lbs**	**369**	**352**	**303**	**255**	**189**
	30 lbs	*(14 kg)*	*(kg)*	*168*	*160*	*138*	*116*	*86*
	1/2 WING LOCK		**lbs**	**356**	**339**	**290**	**242**	**176**
	44 lbs	*(20 kg)*	*(kg)*	*162*	*154*	*132*	*110*	*80*
	1/2 REAR+1/2 WING		**lbs**	**341**	**323**	**275**	**226**	**160**
	59 lbs	*(27 kg)*	*(kg)*	*155*	*147*	*125*	*103*	*73*
	REAR+1/2 WING		**lbs**	**325**	**308**	**259**	**211**	**145**
	75 lbs	*(34 kg)*	*(kg)*	*148*	*140*	*118*	*96*	*66*
	WING LOCK		**lbs**	**312**	**295**	**246**	**198**	**132**
	88 lbs	*(40 kg)*	*(kg)*	*142*	*134*	*112*	*90*	*60*
	1/2 REAR+WING		**lbs**	**297**	**279**	**231**	**182**	**116**
	103 lbs	*(47 kg)*	*(kg)*	*135*	*127*	*105*	*83*	*53*
	REAR+WING		**lbs**	**281**	**264**	**215**	**167**	**101**
	119 lbs	*(54 kg)*	*(kg)*	*128*	*120*	*98*	*76*	*46*

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

* This weight values are determine with regard on rear CG range.

SECTION 7

7. AIRPLANE AND SYSTEMS DESCRIPTION

7.1 Introduction

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

7.2 Airframe

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

The wing has a high lift airfoil equipped by fowler flaps controlled by the electric servo operated by the pilot.

7.3 Control system

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

The elevator, aileron trim control, as well as wing flaps are electrically operated from the rocker switches located on the instrument panel or on the control stick.

7.4 Landing gear

Tricycle landing gear with the castering nose wheel. Main landing gear uses two fiberglass spring elements.

7.5 Seats and safety harness

Side-by-side seating. Seat cushions are removable to make easier cleaning and drying. Four point safety belts provided to each seat.. Optional, is additional seat upholstery to raise the small pilot or move him forward.

NOTE

Prior to each flight, ensure that the seat belts are firmly secured to the airframe, and that the belts are not damaged. Adjust the buckle so that it is centered on the body.

7.6 Baggage compartment

The rear baggage compartment is located behind the seats. It may accommodate up to 15 kg. This space is divide on two sections – baggage compartment A and B. Is not recommended give to heavy things into baggage compartment B.

The baggage may also be loaded into the baggage compartment inside each wing up to 20 kg, in each wing locker.

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

All baggage must be properly secured.

7.7 Canopy

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

7.8 Powerplant

Engine:

ROTAX 912 ULS engine 98.6 hp is installed in NG 4 ML. Rotax 912 ULS is 4-stroke, 4 cylinder, horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV. Liquid cooled cylinder heads, ram air cooled cylinders.

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

Propeller:

- standard

- WOODCOMP KLASSIC 170/3/R.

NOTE

For technical data refer to documentation supplied by the propeller manufacturer

7.8.1 Throttle and Choke

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

7.8.2 Carburetor pre-heating

The control lever is installed on the instrument panel.

7.8.3 Heating

Heating consists of a heat exchanger on the exhaust manifold and control mechanism located on the right hand side of instrument panel.

CAUTION

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

7.9 Fuel system

Wing tanks volume 2 x 65 ltr.

Each tank is equipped with a vent outlet and screen filter.

Drain valve located in the lowest point of the each tank and on the bottom edge of the firewall, on the gascolator.

Main fuel selector valve is on the central console in the cockpit.

The electric fuel pump is located on firewall.

CAUTION

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

7.10 Electrical system

7.10.1 Battery

The battery is mounted on the forward side of the firewall.

7.10.2 Master switch

Master switch connects the electrical system to the 12 Volt battery and charger/coils, controlled by the regulator. See Engine Manual for electrical system details.

NOTE

Ignition system is independent on the power source and will operate even with Master switch and/or breaker off.

7.10.3 Ignition Switch

Ignition must be on BOTH to operate the engine: For safety, remove key when engine is not running.

NOTE

All switches and or engine controls are "up" or "push forward" for operation, except the choke, cabin heat and carburetor pre-heat, which is "Pull" for "on". Optional equipment, switches and/or fuses are subject to change or installed as requested. See Aircraft Equipment List and Photo and Description of equipment and controls in the cockpit.

7.11 Pitot and static pressure system

Pitot Tube is located below the left wing. Pressure distribution to the instruments is through flexible plastic hoses. Static port is located in center section of wing close to rib # 1 between the spars.

Keep the pitot head clean to ensure proper function of the system.

7.12 Miscellaneous equipment

- Dual brakes
- Adjustable pedals
- Heating
- Wheel pants
- Airplane cover
- Tow bar

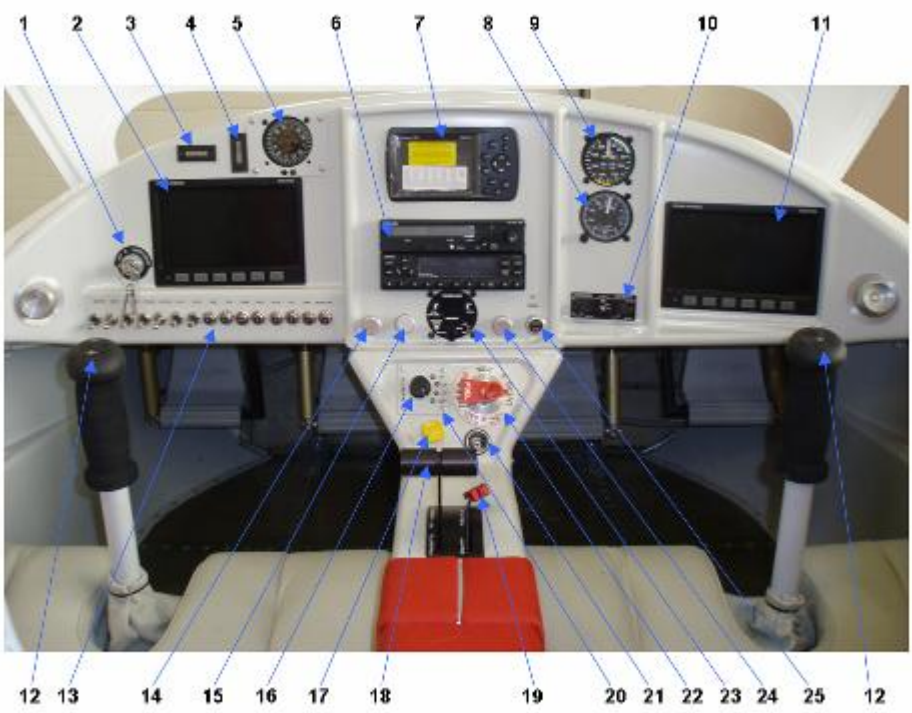
7.13 Instruments and Avionics

- EFIS D 100
- EMS D 120
- Bendix King radio KY 97A + AV 10 antena
- Garmin GTX 327 Transponder + AV 22 antena + AK 350 encoder
- ASI – dia 57 mm
- ALT – dia 57 mm
- VCC – dia 57 mm
- Garmin GPS 296 + antena
- 12 V Socket

NOTE

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

7.14 Cockpit



7.14.1 Photo of the cockpit

7.14.2 Description of equipment and controls in the cockpit

1	***Ignition switch***	***19***	***Choke***
2	***EFIS D 100***	***20***	***Flap position indicators***
3	***Aileron trim indicator***	***21***	***12 V Socket***
4	***Elevator trim indicator***	***22***	***Fuel selector valve***
5	***Vertical card compass***	***23***	***Constant speed propeller***
6	***Bendix King KY 97A radio***	***24***	***Heating***
7	***Garmin GPS 296***	***25***	***Heating devider flap***
8	***Altimeter***	***26***	
9	***Air speed indicator***	***27***	
10.	***Intercom PM 1000***	***28***	
11	***EMS D 120***	***29***	
12	***G 205 PTT + Trim control***	***30***	
13	***Switches + Circuit brakers***	***31***	
14	***Parking brake***	***32***	
15	***Cold air control***	***33***	
16	***Flap control botton***	***34***	
17	***Carburateur heat***	***35***	
18	***Throttle***	***36***	

SECTION 8

8. AIRPLANE HANDLING, SERVICING AND MAINTENANCE

8.1 Introduction

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

8.2 Aircraft inspection periods

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

Inspections and revisions should be carried out in the following periods, at least:

a) after the first 25 flight hours
b) after every 50 flight hours
c) after every 100 flight hours or at least annual inspection

Refer to the Engine Operator's Manual for engine maintenance.

Maintain the prop according to its manual.

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

8.3 Aircraft alterations or repairs

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

If the aircraft weight is affected by that alternation, a new weighing is necessary, then record the new empty weight into the Weight and Balance record / Permitted payload range in SECTION 6 and up-date the placard showing weights in the cockpit.

8.4 Ground handling

8.4.1 Towing

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

CAUTION

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

8.4.2 Parking

It is advisable to park the airplane inside a hangar or alternatively inside any other suitable space (garage) with stable temperature, good ventilation, low humidity and dust-free environment.

It is necessary to moor the airplane when it is parked outside a hangar. Also when parking for a long time, cover the cockpit canopy, possibly the whole airplane by means of a suitable tarpaulin.

8.4.3 Mooring

The airplane should be moored when parked outside a hangar after the flight day. The mooring is necessary to protect the airplane against possible damage caused by wind and gusts.

For this reason the aircraft is equipped with mooring eyes located on the lower surfaces of the wings.

Mooring procedure:

1. Check: Fuel Selector shut off, Circuit breakers and Master switch switched off, Switch box switched off.
2. Fix the hand control using e.g. safety harness
3. Close air vent
4. Close and lock canopy
5. Moor the aircraft to the ground by means of a mooring rope passed through the mooring eyes located on the lower surfaces of the wings and below rear fuselage

NOTE

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

8.4.4 Jacking

Since the empty weight of this aircraft is relatively low, two people can lift the aircraft easily.

First of all prepare two suitable supports to support the aircraft.

It is possible to lift the aircraft by handling the following parts:

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

8.4.5 Road transport

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

8.5 Cleaning and care

Use efficient cleaning detergents to clean the aircraft surface. Oil spots on the aircraft surface (except the canopy!) may be cleaned with gasoline.

The canopy may only be cleaned by washing it with a sufficient quantity of lukewarm water and an adequate quantity of detergents. Use either a soft, clean cloth sponge or deerskin. Then use suitable polishers to clean the canopy.

CAUTION

Never clean the canopy under “dry“conditions and never use gas or chemical solvents!

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

CAUTION

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