

0. Table of Contents

0. Table of Contents.....	0-0
1. General.....	1-0
2. Limitations.....	2-0
3. Emergency procedures.....	3-0
4. Normal procedures.....	4-0
5. Performance.....	5-0
6. Weight and Balance.....	6-0
7. Aircraft and Systems Description.....	7-0
8. Aircraft handling, servicing and maintenance.....	8-0
9. Supplements.....	9-0

Section 1

1. General

1.1	Introduction.....	1-1
1.2	Certification basis.....	1-1
1.3	Warnings, cautions and notes.....	1-2
1.4	Descriptive data.....	1-3
1.5	Three-view drawing.....	1-6

Samba XXL

1.1 Introduction

This Aircraft Operating Manual provides information useful for the safe and efficient operation of the Samba XXL aircraft.

It also contains supplemental data supplied by the aircraft manufacturer.

1.2 Certification basis

Type Samba XXL design complies with LAMAC DS-10141 Amendment 003.

1.3 Warnings, cautions and notes

The following definitions apply to warnings, cautions and notes in the flight manual.

Warning

Means that failure to observe the corresponding procedure leads to an immediate or significant degradation in flight safety.

Caution

Means that failure to observe the corresponding procedure leads to a gradual or minor degradation to flight safety.

Note

Draws the attention of any special item not directly related to safety, but is important or abnormal.

Samba XXL

1.4 Descriptive data

1.4.1 Aircraft description

The Samba XXL aircraft is intended for recreational and cross-country flying. It is not approved for aerobatic operation.

The Samba XXL is a single engine, fibreglass / carbon-fibre aircraft with two side-by-side seats. The aircraft is equipped with a fixed tricycle landing gear with a steerable nose wheel. The fuselage is a fibreglass / carbon-fibre shell with carbon-fibre / kevlar seats integrated.

Safety belts are attached to the seats, and the shoulder harness is attached to the back shelf intended for storing lightweight objects (headphones, maps, etc.).

The wing construction employs a carbon-fibre capped main spar, and a sandwich skin composed of two layers of fibreglass and a special foam core. Control surfaces and empennage are of the same construction.

The aircraft is controlled by a dual push-pull control system. Only the rudder is controlled by cable. The ailerons and elevator are controlled by the control stick located between the pilot's and co-pilot's legs. The rudder is controlled by the rudder pedals. Flaps are operated by an electrical servo system or by a control lever located between the pilots on the fuselage main spar.

Samba XXL

1.4.2 Basic Technical Data

Wing

Span..... 10.0 m (32.8 ft)

Area 8.9 m² (95.79 sq ft)

MAC 0.946 m (3.10 ft)

Wing Loading 50.5 kg/m² (10.35 lbs/sq ft)

Ailerons

Area 0.164 m² (1.76 sq ft)

Flaps

Area 0.54 m² (5.81 sq ft)

Fuselage

Length 6.0 m (19.68 ft)

Width 1.14 m (3.74 ft)

Height 2.2 m (7.21 ft)

Horizontal tail unit

Span..... 2.5 m (8.20 ft)

Area 1.36 m² (14.63 sq ft)

Elevator area..... 0.51 m² (5.48 sq ft)

AIRCRAFT OPERATING MANUAL

Samba XXL

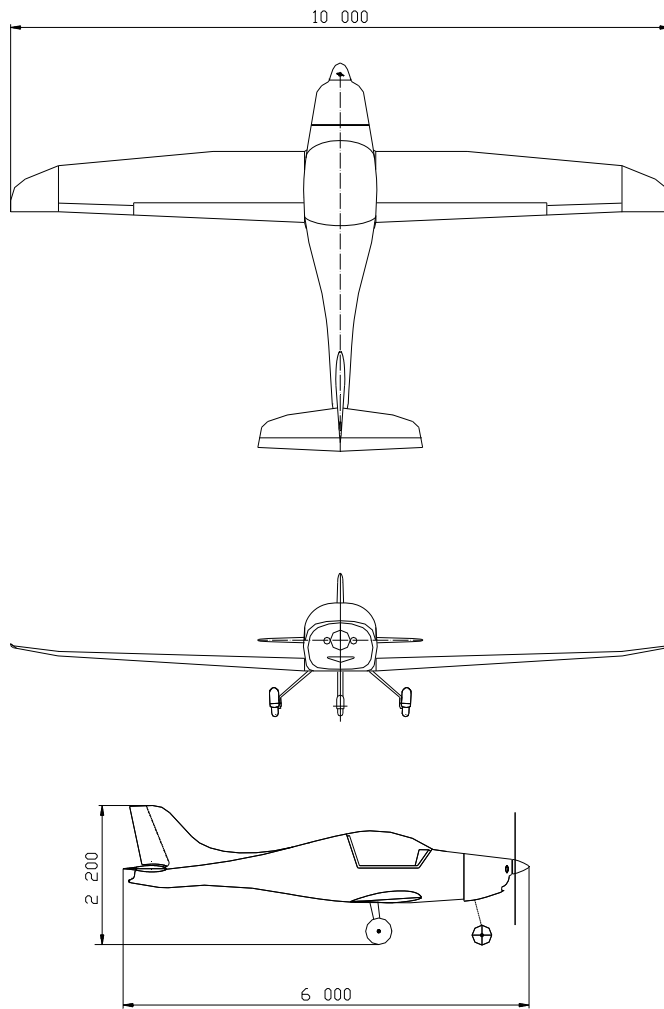
Vertical tail unit

Height.....	0.94 m (3.08 ft)
Area	0.76 m ² (8.18 sq ft)
Rudder area	0.32 m ² (3.44 sq ft)

Landing gear

Wheel track.....	1.54 m (5.05 ft)
Wheel base.....	1.38 m (4.53 ft)
Main wheel diameter	0.4 m (1.31 ft)
Nose wheel diameter	0.3 m (0.98 ft)

1.5 Three-view drawing



Section 2

2. Limitations

2.1	Introduction.....	2-1
2.2	Airspeed	2-1
2.3	Airspeed indicator markings.....	2-2
2.4	Powerplant	2-3
2.5	Powerplant instrument markings.....	2-7
2.6	Miscellaneous instrument markings.....	2-8
2.7	Weight	2-9
2.8	Centre of gravity	2-9
2.9	Approved manoeuvres	2-9
2.10	Manoeuvring load factors.....	2-10
2.11	Crew	2-11
2.12	Kinds of operation	2-11
2.13	Fuel.....	2-12
2.14	Maximum passenger seating	2-12
2.15	Other limitations	2-15
2.16	Limitation placards	2-16

AIRCRAFT OPERATING MANUAL

Samba XXL

2.1 Introduction

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

2.2 Airspeed

Airspeed limitations and their operational significance are shown below:

Airspeed		IAS	Remarks
V_{NE}	Never exceed speed	268 km/h 145 kts	Do not exceed this speed in any operation.
V_{NO}	Maximum Normal Operation speed	200 km/h 108 kts	Do not exceed this speed except in smooth air, and then only with caution.
V_A	Design Manoeuvring speed	159 km/h 86 kts	Do not make full or abrupt control movement above this speed, because under certain conditions the aircraft may be overstressed by full control movement.
V_{FE}	Maximum Flap. Extension speed	110 km/h 59 kts	Do not exceed this speed with flaps extended

Samba XXL

2.3 Airspeed indicator markings

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

Marking	Range or value [IAS]	Significance
White arc	65 - 110 km/h 35 - 59 kts	Positive Flap Operating Range
Green arc	80 - 200 km/h 43 -108 kts	Normal Operating Range
Yellow arc	200 - 268 km/h 108 - 145 kts	Manoeuvres must be conducted with caution and only in smooth air.
Red line	268 km/h 145 kts	Maximum speed for all operations.

Samba XXL

2.4 Powerplant

Option 1

Engine Manufacturer :..... Bombardier-Rotax GMBH

Engine Model..... Rotax 912 UL

Power:

Max. Take-off:59.6 kW (80 hp)

Max. Continuous:58 kW (78 hp) @ 5500 rpm

Cruising: 53 kW / 71 hp @ 4800 rpm

Engine RPM:

Max. Take-off:5800 rpm, max. 5 min.

Max. Continuous: 5500 rpm

Cruising: 4800 rpm

Idling: 1400 rpm

Cylinder head temperature:

Minimum: 60 °C

Maximum: 150 °C

Oil temperature:

Minimum: 50 °C

Maximum: 140 °C

Opt. operating: 90 °C – 100 °C

AIRCRAFT OPERATING MANUAL

Samba XXL

Fuel pressure (if the fuel gauge and sensor are installed):

Minimum: 0.15 bar (2.18 psi)

Maximum: 0.40 bar (5.80 psi)

Fuel: see 2.13

Oil: Automotive engine oil with gear additives
(Do not use oil specified for aircraft engines).
(refer to engine Operator's Manual).
API classification "SF" or "SG".

Propeller: VARIA 160/2/R (or as equipped)

Propeller diameter: 1600 mm

Warning

The Rotax 912 UL is not certified as an aircraft engine and its failure may occur at any time.

The pilot is fully responsible for consequences of such a failure.

AIRCRAFT OPERATING MANUAL

Samba XXL

Option 2

Engine Manufacturer :..... Bombardier-Rotax GMBH

Engine Model: Rotax 912 ULS

Power:

Max. Take-off: 73.5 kW / 100 hp

Max. Continuous: 69 kW / 95 hp @ 5500 rpm

Cruising: 66 kW / 90 hp @ 4800 rpm

Engine RPM:

Max. Take-off:5800 rpm, max. 5 min.

Max. Continuous: 5500 rpm

Cruising: 4800 rpm

Idling: 1400 rpm

Cylinder head temperature:

Minimum: 60 °C

Maximum: 150 °C

Oil temperature:

Minimum: 50 °C

Maximum: 140 °C

Opt. operating: 90 °C – 100 °C

AIRCRAFT OPERATING MANUAL

Samba XXL

Fuel pressure (if the fuel gauge and sensor are installed):

Minimum: 0.15 bar (2.18 psi)

Maximum: 0.40 bar (5.80 psi)

Fuel: see 2.13

Oil: Automotive engine oil with gear additives (Do not use oil specified for aircraft engines).

(refer to engine Operator's Manual).

API classification "SF" or "SG".

Propeller: Sport prop.VARIA16/2R (or as equipped)

Propeller diameter: 1600 mm / 1700 mm

Warning

The Rotax 912 ULS has not been certified as an aircraft engine and its failure may occur at any time.

The pilot is fully responsible for consequences of such a failure.

2.5 Power plant instrument markings

Function	Minimum Limit	Normal Operating Range	Caution Range	Maximum Range
Engine speed (RPM)	1400	1400-5500	5500-5800	5800
Cylinder Head Temperature (CHT) [°C]	60	60-100	100-150	150
Oil Temperature [°C]	50	90-110	110-140	140
Oil Pressure [bar]	1.5	1.5 – 4.0	4.0 – 5.0	7.0 cold engine starting

Note (if equipped)

The TL engine instrument memory stores the 1st and 2nd level limits for the Rotax 912 engine. The values of limits are stated in the Operator's Manual for the TL engine instrument. A limit overrun is indicated by the indicating lamp flashing, and stored in the TL engine instrument memory for further evaluation. Make a note of these limits and do not exceed them. If these limits have been exceeded and a message "SERVICE" is shown on the TL engine instrument display - contact engine manufacturer or a Rotax Service Centre for help.

2.6 Miscellaneous instrument markings

- Fuel gauge
A fuel reserve of 7 litres is indicated by a yellow warning lamp.

Samba XXL

2.7 Weight

Empty weight (standard equipment)	325.5 kg (717.6 lbs)
Max. take-off weight.....	560.0 kg (1232 lbs)
Max landing weight	560.0 kg (1232 lbs)
Max. baggage weight.....	4 kg (8.8 lbs)

2.8 Centre of gravity

Empty aircraft C.G. position	22.4 %MAC
Operating C.G. range	25 – 36 %MAC

2.9 Approved manoeuvres

Aircraft Category: NORMAL

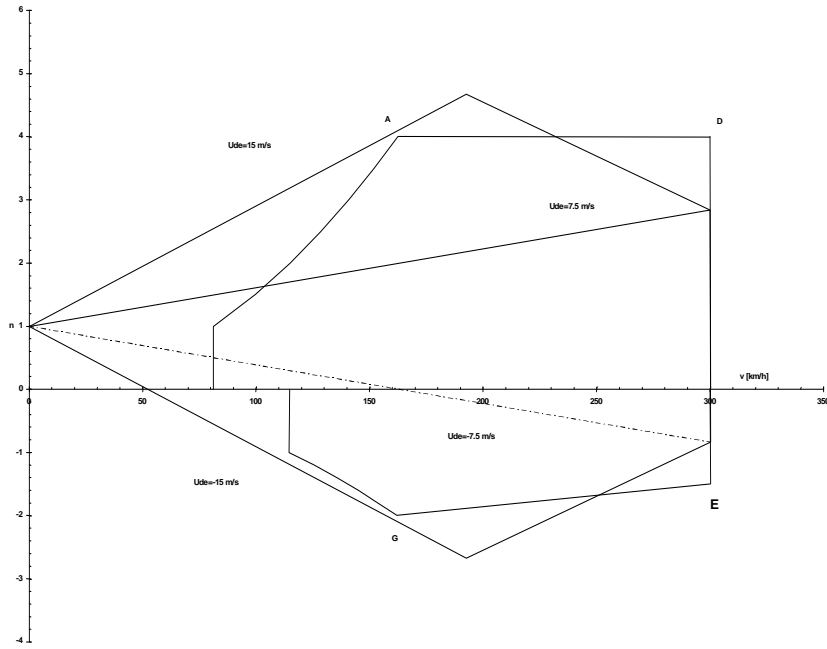
The aircraft is approved for Normal and Manoeuvres listed below:

- Steep turn not exceeding 60° bank
- Chandelle

Warning

Aerobatics, intentional spins and stalls are prohibited!

2.10 Manoeuvring load factors



2.11 Crew

Minimum crew..... 1
Maximum crew..... 2

2.12 Kinds of operation

Day VFR flights only.

Instruments and equipment for VFR flights:

- 1 Airspeed indicator (marked according to 2.3)
- 1 Altimeter
- 1 Vertical speed indicator
- 1 Magnetic compass
- 2 Safety harnesses

2.13 Fuel

- automotive premium grade gasoline, leaded, according to DIN 51600,Ö-NORM C 1103
- EUROSUPER RON 95 unleaded accord. to DIN 51607,Ö-NORM 1100

Fuel according to DOT (Canada)

912 UL / A / F engine:

Canadian standard: – CAN/CGSB-3.5, Quality 1, min AKI 87
or AVGAS 100LL

912 ULS / S engine:

Canadian standard: – CAN/CGSB-3.5, Quality 3, min AKI91

*AKI=Anti Knock Index, $(RON+MON)/2$

Fuel: gasoline to Canadian General Standards Board,
(Unleaded Automotive Gasoline),

or

AVGAS 100 LL

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, or equivalent fuels according to Chapter 10.2.2) of the Rotax 912 Operators Manual

ATTENTION: Use only fuel suitable for the respective climatic zone.

NOTE: Risk of vapour formation if using winter fuel in summer.

Samba XXL

Fuel according to FAA (U.S.A.)

Fuel: Standard Spec. for Automotive Spark-Ignition Engine,
Fuel, ASTM D 4814, or

AVGAS 100 LL

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 vapour lock or if the other fuel types are not available, or equivalent fuels according to Chapter 10.2.2) of the Rotax 912 Operators Manual

ATTENTION: Use only fuel suitable for the respective climactic zone.

NOTE: Risk of vapour formation if using winter fuel in summer.

For other suitable fuel types refer to the engine Operator's Manual.

Samba XXL

2.14 Maximum seating

Number of seats.....2

Minimum crew weight65 kg (143.3 lbs)

Maximum crew weightsee 6.2

Warning

Never exceed 560 kg / 1232 lbs MTOW.

2.15 Other limitations

- Smoking is forbidden on board the aircraft.

Samba XXL

2.16 Limitation placards

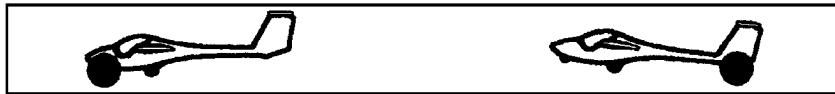
Caution

The owner (aircraft operating agency) of this aircraft is responsible for readability of cards during aircraft service life.

Samba XXL

URBAN - AIR

Empty weight	325.5 kg
Max. Take-off weight	560 kg
Min. crew weight	65 kg
Max. baggage weight	4 kg
Never exceed speed	Vne 145 kts
Max. speed with flaps	Vfe 59 kts
Stalling speed	Vso 35 kts
Fuel tank capacity	50 + 50 l



AIRCRAFT OPERATING MANUAL

Samba XXL

Manufactured: URBAN – AIR s.r.o.

Model: Samba XXL

Date of produce: DD /MM /YYYY

S/N

Registration:

Empty weight: 325.5 kg

Max. Take-off weight: 560.0 kg

Allowable crew weight

full fuel tank (100l) 163.5 kg

¾ fuel tank (75l) 180.5 kg

½ fuel tank (50l) 198.5 kg

¼ fuel tank (25l) 216.5 kg

half an hour flight 268.5 kg

Section 3

3. Emergency procedures

3.1	Introduction.....	3-1
3.2	Engine failure	3-2
3.3	In-Flight start	3-4
3.4	Smoke and fire	3-4
3.5	Glide	3-7
3.6	Landing emergencies.....	3-7
3.7	Recovery from unintentional spin.....	3-10
3.8	Other emergencies.....	3-11

3.1 Introduction

Section 3 provides checklists and amplified procedures for coping with emergencies that may occur.

Emergencies caused by aircraft or engine malfunctions are extremely rare if proper pre-flight inspections and maintenance are performed.

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 - retard to idle
2. Ignition - off

3.2.2 Engine failure immediately after take-off

1. Speed - gliding at 100 km/h (54 kts)
2. Altitude - below 50 m (165 ft): land straight ahead
- above 50 m (165 ft): choose landing area
3. Wind - evaluate direction and velocity
4. Landing area - choose area free of obstacles,
into wind if possible.
5. Flaps - extend as needed
6. Fuel valve - off
7. Ignition - off
8. Safety harness - tighten
9. Master switch - position to "off" before landing
10. Land

Note

Skip 6 - 9 if necessary.

3.2.3 Engine failure in flight (Forced landing)

1. Speed - - maintain gliding speed of 100 km/h (54 kts)
2. Altitude - when safe glide speed established, commence
- in-flight start procedure. (3.3)
- if unable to re-start engine, proceed to item 3.
3. Wind - evaluate direction and velocity
4. Landing area -choose area free of obstacles,
into wind if possible.
5. Flaps - extend as needed
6. Fuel valve - off
7. Ignition - off
8. Harness - tighten
9. Master - position to "off" before landing
10. Land

3.3 In-Flight start

1. Speed - gliding at 100 km/h (54 kts)
2. Altitude - check
3. Landing area - choose according to altitude (safest area)
4. Master switch - on
5. Fuel valve - open
6. Choke - as necessary (for cold engine)
7. Throttle - for 1/3 power
8. Ignition - on
9. Starter - turn switch box key

3.4 Smoke and fire

3.4.1 Fire on ground

1. Fuel valve - off
2. Throttle - full
3. Master switch - off
4. Ignition - off
5. Evacuate the aircraft
6. Extinguish fire if possible or call fire department.

3.4.2 Fire during take-off

1. Fuel valve - off
2. Throttle - full
3. Speed - 110 km/h (60 kts)
4. Master switch - off
5. Ignition - off
6. Land and brake
7. Evacuate the aircraft
8. Extinguish fire if possible or call fire department.

Samba XXL

3.4.3 Fire in flight

1. Fuel valve - off
2. Throttle - full
3. Master switch - off
4. Ignition - off (after using up fuel in carburettors and engine has stopped)
5. Choose area - set heading to the nearest airport
- choose emergency landing area.
6. Emergency landing - perform according to para.3.6.1
7. Evacuate the aircraft
8. Extinguish fire if possible or call fire department.

Note

Estimated time to pump fuel out of carburettors is 30 sec.

3.5 Glide

Gliding may be used in case of engine failure.

1. Speed - ~ 100 km/h (54 kts)
2. Flaps - retracted
3. Instruments - within permitted limits

3.6 Landing emergencies

3.6.1 Emergency landing

An emergency landing may be carried out due to engine failure and when the engine cannot be restarted.

1. Speed - 100 km/h (54 kts)
2. Trim - trim the aircraft
3. Safety harness - tighten
4. Flaps - extend as needed
5. COMM - report your position if possible
6. Fuel valve - off
7. Ignition - off
8. Master switch - off

3.6.2 Precautionary landing

A precautionary landing may be carried out as follows:

1. Choose landing area, determine wind direction
2. If a COMM is installed - report your plan to land and land area location to nearest ATC
3. Perform low-altitude pass into wind over the chosen area with flaps extended to the take-off position at a speed of 110 km/h (60 kts) to thoroughly inspect the area
4. Establish circuit for chosen area
5. Perform an approach at increased idling with fully extended flaps
6. Reduce power to idle when over the runway threshold and touch-down at the very beginning of the chosen area
7. After stopping the aircraft switch off all switches, lock the aircraft and look for a help

Note

Watch the chosen area continuously during precautionary landing.

3.6.3 Landing with a flat tire

1. Approach - Normal
2. Touch down - Land on good tire first.
Keep damaged wheel off ground as long as possible using ailerons
3. Maintain the landing direction, applying braking control

3.6.4 Landing with a defective landing gear

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

Samba XXL

Warning

Intentional spins are prohibited !

3.7 Recovery from unintentional spin

There is no tendency to enter spontaneous uncontrollable spins if normal pilot techniques are used.

Should an inadvertent spin occur, the following recovery procedure should be used:

1. Throttle - retard to idle
2. Control stick - hold ailerons neutralized
3. Rudder pedals - apply full opposite rudder
4. Control stick - forward elevator control as required to break the spin
5. Rudder pedals - immediately after the stopping of rotation, neutralise the rudder
6. Recover from dive

3.8 Other emergencies

3.8.1 Vibration

If vibrations develop:

1. Set engine speed to power setting where the vibrations are the lowest.
2. Land at the nearest airfield or perform a precautionary landing according to 3.6.2

3.8.2 Carburetor icing

Carburetor icing mostly occurs when getting into an area of ice formation. The carburetor icing presents 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 - 110 km/h (60 kts)
2. Throttle - set for 1/3 power
3. If possible, leave the icing area
4. Gradually increase the engine power to cruise condition after 1-2 minutes.

If you fail to recover the engine power, land at the nearest airfield (if possible) or depending on circumstance, execute a precautionary landing according to 3.6.2

Section 4

4. Normal procedures

4.1	Introduction.....	4-1
4.2	Assembly and disassembly	4-1
4.3	Pre-flight inspection.....	4-1
4.4	Normal procedures.....	4-6
4.4.1	Before entering cockpit	4-6
4.4.2	After entering cockpit	4-6
4.4.3	Before engine starting and Engine starting.....	4-7
4.4.4	Engine warm up, Engine check	4-8
4.4.5	Taxiing.....	4-9
4.4.6	Before take-off	4-10
4.4.7	Take-off.....	4-11
4.4.8	Climb.....	4-12
4.4.9	Cruise.....	4-12
4.4.10	Descent.....	4-13
4.4.11	Check before landing	4-13
4.4.12	On base leg.....	4-14
4.4.13	On final.....	4-14
4.4.14	Landing	4-14
4.4.15	Balked landing	4-15
4.4.16	After landing.....	4-15
4.4.17	Engine shutdown	4-16
4.4.18	Flight in rain	4-16

Samba XXL

4.1 Introduction

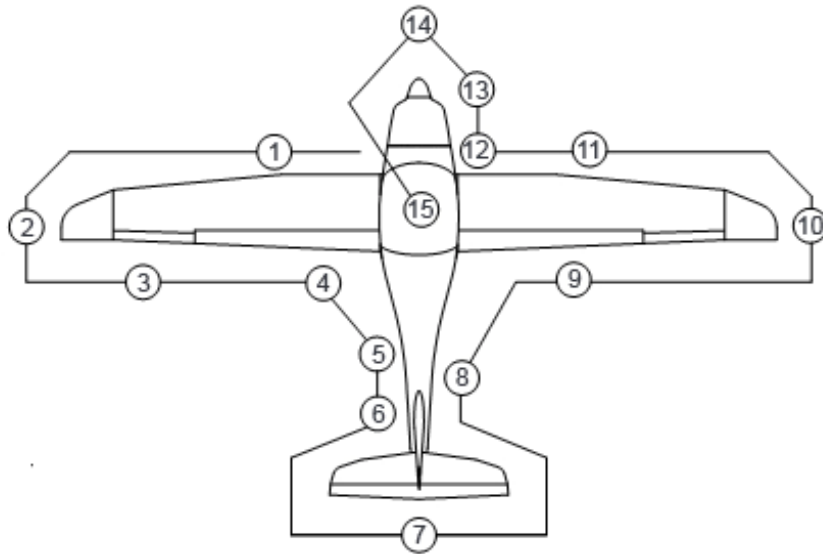
Section 4 provides checklist and amplified procedures for the conduct of normal operation.

4.2 Assembly and disassembly

Refer to 8.4.7 and 8.4.8 for assembly and disassembly procedures.

4.3 Pre-flight inspection

The pre-flight inspection is very important because an incomplete or careless inspection could allow aircraft failure. The following pre-flight inspection procedure is recommended by the aircraft Manufacturer:



Samba XXL

⇒ Check if ignition is switched off in the cockpit

1. Wing

- Wing surface condition
- Remove fuel cap using tool provided and visually inspect fuel level
- Leading edge condition
- Check if the flap and aileron controls are correctly connected

2. Wing tips

- Surface condition
- Check of tips attachment
- Condition and attachment of position lights (if installed)

3. Aileron

- Surface condition
- Attachment
- Check for play

4. Flap

- Surface condition
- Attachment
- Check for play

5. Fuselage rear

- Surface condition

Samba XXL

6. Vertical tail unit

- Surface condition
- Play
- Freedom of movement
- Pitot-tube inspection

7. Horizontal stabilizer

- Surface condition
- Attachment
- Check for play
- Freedom of movement
- Check the automatic elevator control connection for correct alignment

8. See. 5

9. See. 4

10. See. 3

11. See. 2

12. See. 1

13. Landing gear

- Inspect main and nose landing gear attachment
- Nose wheel steering
- Condition and inflation of tires
- Condition and attachment of wheel fairings (if installed)

AIRCRAFT OPERATING MANUAL

Samba XXL

14. Engine

- Engine cowlings condition
- Engine mount condition
- Engine attachment check
- Oil quantity check (after 1 minute engine run)
- Fuel and Electrical system visual check
- Fuel system drain

Caution

It is advisable to turn the propeller by hand with ignition off if the engine has been out of operation for a long time. Avoid excessive pressure on a blade tip and trailing edge.

15. Propeller

- Propeller attachment
- Blades, Hub, Spinner condition

16. Cockpit

- Ignition - off
- Switch box - off
- Master switch - off
- Instruments - check of condition
- Fuel gauge - fuel quantity check (for fuel quantity check switch on Switch box and Master switch, then switch off!)
- Controls - visual check
 - check for proper function

AIRCRAFT OPERATING MANUAL

Samba XXL

- check of plays
- check of flaps extension
- check of free movement up to the stops
- Check for loose items
- Canopy
- secure papers
- Condition of attachment, cleanliness

4.4 Normal procedures

4.4.1 Before entering cockpit

1. Aircraft surface - remove covers and caps
2. Cockpit - items inside the cockpit
3. Ignition - off
4. Master switch - off

4.4.2 After entering cockpit

1. Rudder control - check free movement
2. Brakes - check function
3. Control Stick - unrestricted movement
4. Trim - check control movement
5. Flaps - check function
6. Engine controls - throttle and choke lever movement
7. Fuel valve - confirm on
8. Fuel gauge - fuel quantity check
9. All switches - off
10. Circuit breakers - off
11. Ignition - off
12. Instruments, COMM- confirm off
13. Safety harness - check condition and attachment
14. Cockpit - condition and canopy lock function

4.4.3 Before engine starting and Engine starting

- | | |
|---------------------|-----------------------------------|
| 1. Fuel valve | - confirm on |
| 2. Switch panel | - select beacon on (if installed) |
| 3. Circuit breakers | - in |
| 4. Throttle | - set for idling |
| 5. Choke | - according to engine temperature |
| 6. Control stick | - fully back |
| 7. Check area | - clear |
| 8. Master switch | - on |
| 9. Ignition | - on, start |
| 10. Starter | - start the engine |
| 11. After starting | - set throttle to idling |
| 12. Oil pressure | - within 10 sec. min. pressure |
| 13. Choke | - off |
| 14. Engine warm | - according to 4.4.4 |

Samba XXL

Caution

Observe Engine Starter cycle: on for maximum 10 sec., then 2 min. pause for starter cooling.

After engine start, adjust the throttle for smooth running at 2500 rpm. Check oil pressure which should increase within 10 sec. Increase engine speed after oil pressure reaches 2 bars and is steady.

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

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

4.4.4 Engine warm up, Engine check

Lock the main wheels by means of wheel chocks before engine check. Refer to the Engine Manual for warming .

Set max. power.

Check acceleration from idling to max. power. If necessary cool the engine prior to its shutdown.

Caution

Engine checks should be performed with the aircraft pointing into wind. Do not accelerate engine while standing on loose gravel or terrain allowing debris to be picked up by the propeller (the propeller may pick up debris and cause damage).

4.4.5 Taxiing

The maximum recommended taxiing speed is 15 km/h (8 kts). The direction of taxiing can be controlled by the steerable nose wheel and rudder. The hydraulic brake control is installed on the control stick. Keep the control stick neutral or pulled back during taxi.

Samba XXL

4.4.6 Before take-off

- | | |
|---------------------|----------------------------|
| 1. Brakes | - fully applied |
| 2. Rudder control | - check free movement |
| 3. Control stick | - check free movement |
| 4. Trim | - neutral position |
| 5. Flaps | - "TAKE-OFF" position |
| 6. Engine controls | - choke off |
| 7. Fuel valve | - open |
| 8. Fuel gauge | - fuel quantity check |
| 9. Circuit breakers | - on |
| 10. Instruments | - within limits, |
| 11. COMM | - checked, frequency set |
| 12. Safety harness | - secured and tightened |
| 13. Cockpit | - canopy condition, locked |

Samba XXL

4.4.7 Take-off

Smoothly advance the throttle (max. power) to set the aircraft in motion.

(abrupt application of full power may damage prop due to debris)

The take-off direction can be controlled by the steerable nose wheel and rudder. Gently pull the stick back to lift the nose wheel. The aircraft takes-off at a speed above 70 km/h (38 kts), then gently push the stick forward to reach a climb speed of 100 km/h (54 kts). Refer to the par. 5.2.5 for optimum climb speed. Max. flap extended speed is 109 km/h (59 kts).

Warning

Take-off is prohibited if any of these conditions exist:

- unstable engine parameters
- engine limits exceeded
- engine choke is on
- crosswind velocity exceeds permitted limits. 5.3.3

Samba XXL

4.4.8 Climb

1. Throttle - Max. Continuous Power
2. Speed - 100 km/h (54 kts)
3. Trim - adjust as needed to reduce stick pressure
4. Instruments - CHT, Oil temp. and pressure within limits.

Caution

If cylinder head or oil temperature exceeds limits, reduce the angle of climb to increase airspeed and allow better cooling.

4.4.9 Cruise

The aircraft flight characteristics are very forgiving if flown within permitted limits, configurations and C/G range. The aircraft can be controlled very easily. Refer to the Section 5 par. 5.3.1 .

Samba XXL

4.4.10 Descent

- | | |
|----------------|-----------------------------------------|
| 1. Throttle | - reduce to idle |
| 2. Speed | - 109 km/h (59 kts) |
| 3. Trim | - as necessary to reduce stick pressure |
| 4. Instruments | - within limits |

Caution

When on long final or descending from a very high altitude, it is not advisable to reduce the engine speed to idle. The engine becomes overcooled and a loss of power occurs. Therefore, when descending, advance the engine idle speed to maintain instrument readings within the limits for normal use.

4.4.11 Check before landing

- | | |
|-----------------------|------------------------|
| 1. Fuel | - fuel quantity check |
| 2. Safety harness | - tightened |
| 3. Brakes | - check function |
| 4. Trim | - adjust as required |
| 5. Landing area check | - runway
- base leg |

Samba XXL

4.4.12 On base leg

1. Speed - 109 km/h (59 kts)
2. Flaps - extend to "TAKE-OFF" position
3. Trim - adjust as required
4. Throttle - as necessary
5. Instruments - within limits

4.4.13 On final

1. Speed - 109 km/h (59 kts)
2. Flaps - "LANDING" position
3. Trim - adjust as required
4. Throttle - as necessary
5. Instruments - within limits

4.4.14 Landing

The airspeed during final is slowly reduced, so that the touch down speed is about 70 km/h (38 kts).

Gradually exert back pressure on the stick after touch down to hold the nose wheel up as long as possible. Push the control stick forward when the nose wheel touches. The landing run can be shortened by braking.

Caution

If the aircraft bounces on landing, hold the control stick fully back,
or initiate a go-around

Samba XXL

4.4.15Balked landing

1. Throttle - advance to full
2. Engine speed - 5200 rpm
3. Flaps - set at the "TAKE-OFF" position
at a speed of 109 km/h (59 kts)
4. Trim - as necessary
5. Flaps - retract at a height of 50 m (150 ft)
6. Trim - as necessary
7. Engine speed - Max. cont. power
8. Instruments - within limits
9. Climb - at 109 km/h (59 kts)

4.4.16After landing

1. Engine speed - set as necessary for taxiing
2. Flaps - retracted and locked
3. Trim - neutral position

Samba XXL

4.4.17 Engine shutdown

- | | |
|---------------------|------------------------------------|
| 1. Engine speed | -idle |
| 2. Instruments | - engine instruments within limits |
| 3. COMM + intercom | - off |
| 4. Ignition | - off |
| 5. Circuit breakers | - off |
| 6. Master switch | - off |
| 7. Switch box | - turn the key to switch off |

4.4.18 Flight in rain

When flying in the rain, no additional steps are required. Aircraft qualities and performance are not substantially changed.

Section 5

5. Performance

5.1 Introduction..... 5-1

5.2 Performance..... 5-2

 5.2.1 Airspeed indicator system calibration 5-2

 5.2.2 Stall speeds 5-3

 5.2.3 Take-off performance..... 5-4

 5.2.4 Landing 5-4

 5.2.5 Climb performance..... 5-4

5.3 Additional information..... 5-5

 5.3.1 Cruise..... 5-5

 5.3.2 Endurance..... 5-6

 5.3.3 Demonstrated crosswind performance 5-6

5.1 Introduction

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

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

If not stated otherwise the performance data given in this section is valid for max. take-off weight and under International Standard Atmosphere (ISA) conditions.

AIRCRAFT OPERATING MANUAL**Samba XXL****5.2 Performance****5.2.1 Airspeed indicator system calibration**

IAS	EAS	dv	IAS	EAS	dv
[km/h]	[km/h]	[km/h]	[kts]	[kts]	[kts]
63	65.1	2.1	34	35	1
70	72.4	2.4	38	39	1
80	82.9	2.9	43	45	2
90	93.3	3.3	49	50	2
100	103.8	3.8	54	56	2
110	114.2	4.2	59	62	2
120	124.6	4.6	65	67	2
130	135.1	5.1	70	73	3
140	145.5	5.5	76	79	3
150	155.9	5.9	81	84	3
160	166.4	6.4	86	90	3
170	176.8	6.8	92	95	4
180	187.3	7.3	97	101	4
190	197.7	7.7	103	107	4
200	208.1	8.1	108	112	4
210	218.6	8.6	113	118	5
220	229.0	9.0	119	124	5
230	239.4	9.4	124	129	5
240	249.9	9.9	130	135	5
250	260.3	10.3	135	140	6
260	270.8	10.8	140	146	6
270	281.2	11.2	146	152	6
280	291.6	11.6	151	157	6
290	302.1	12.1	156	163	7
300	312.5	12.5	162	169	7

AIRCRAFT OPERATING MANUAL

Samba XXL

5.2.2 Stall speeds

Stall	Flaps position	Engine Power	Warning speed		Stalling Speed	
			IAS	CAS	IAS	CAS
Wing level stall	RETRACTED	idling	88km/h 47kts	86km/h 46kts	80km/h 43kts	77km/h 41kts
	"TAKE-OFF"	idling	83km/h 45kts	81km/h 44kts	78km/h 42kts	75km/h 40kts
	"LANDING"	idling	72km/h 39kts	68km/h 37kts	70km/h 38kts	65km/h 35 kts

Note

When the stall develops the aircraft moves downward without pitching, is fully controllable and level flight may be recovered without excessive loss of altitude.

AIRCRAFT OPERATING MANUAL

Samba XXL

5.2.3 Take-off performance

Take-off distances in the following table are valid at sea level at MTOW.

	Take-off run distance [m]	Take-off distance over 15 m obstacle [m]
Grass	150 m (493 ft)	275 m (900 ft)

5.2.4 Landing

Landing distances in the following table are valid at sea level at MTOW.

	Landing distance over 15 m obstacle [m]	Landing run distance (full braking) [m]
Grass	285 m (935 ft)	80 (262 ft)

5.2.5 Climb performance

Best Rate-of-Climb speed is 120 km/h (65kts) IAS, resultant climb rate is 5 m/s (1000 fpm).

AIRCRAFT OPERATING MANUAL

Samba XXL

5.3 Additional information

5.3.1 Cruise

Regime	Economy Cruise	Max. Continuous Power	Max. Take-Off Power
Time limitation	unlimited	unlimited	max. 5 min.
Engine speed	4500	5500	5800
Altitude [m ISA]	IAS	IAS	IAS
500	165km/h (89kts)	200km/h (108kts)	215km/h (116kts)

AIRCRAFT OPERATING MANUAL

Samba XXL

5.3.2 Endurance

The following table states fuel consumptions, endurances and ranges for RPM settings for the Samba XXL aircraft with 1 x 50L (13.2 USGal).

For a Samba XXL equipped with 2x50l, the endurance and range figures double.

Regime		Max. Continuous Power	Economy Cruise
Engine speed	[rpm]	5500	4500
Airspeed	IAS	205 km/h (110 kts)	165 km/h (89 kts)
	CAS	207 km/h (112 kts)	170 km/h (92 kts)
Fuel consumption		18 l/h l/h (4.755US gal/h)	9.5 l/h (2.483US gal/h)
Range	[km]	515 km (278 nm)	895 km (483 nm)

5.3.3 Demonstrated crosswind performance

Max. demonstrated cross wind velocity
for take-off and landing 18 km/h (10 kts)

Max. demonstrated head wind velocity
for take-off and landing 35 km/h (19 kts)

Section 6

6. Weight and Balance

6.1	Introduction.....	6-1
6.2	Permitted payload range	6-2

6.1 Introduction

This section contains the payload range within which the Samba XXL aircraft may be safely operated.

Procedures for weighing the aircraft and the calculation method for establishing the permitted payload range are contained in the Technical Description, Operating, Maintenance and Repair Manual for Samba XXL ultralight aircraft.

Samba XXL

6.2 Permitted payload range



Nominal empty weight of airplane is 325.5 kg (717.6 lbs)

(weighing error max. 2%)

Permitted crew weight	
full fuel tank (100l)	164 kg (362 lbs)
$\frac{3}{4}$ fuel tank (75l)	181 kg (399 lbs)
$\frac{1}{2}$ fuel tank (50l)	199 kg (439 lbs)
$\frac{1}{4}$ fuel tank (25l)	217 kg (478 lbs)
half an hour flight	269 kg (593 lbs)

Section 7

7. Aircraft and Systems Description

7.1	Introduction.....	7-1
7.2	Airframe.....	7-1
7.2.1	Fuselage	7-1
7.2.2	Wing.....	7-1
7.2.3	Horizontal Tail Unit (HTU).....	7-1
7.2.4	Vertical tail unit (VTU).....	7-1
7.3	Controls in the cockpit (Standard layout example)	7-2
7.4	Instrument panel (example)	7-3
7.5	Landing gear	7-4
7.6	Seats and Safety harness	7-4
7.7	Baggage compartment.....	7-4
7.8	Canopy	7-4
7.9	Engine	7-4
7.10	Fuel system	7-5
7.11	Electrical system	7-6
7.12	Pitot-static system	7-7
7.13	Miscellaneous equipment.....	7-7
7.14	Avionics	7-8

Samba XXL

7.1 Introduction

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

Refer to Section 9, Supplements, for details of optional systems and equipment.

7.2 Airframe

The Samba XXL airframe is an all fibreglass/carbon-fibre/Kevlar monocoque construction.

7.2.1 Fuselage

Fibreglass/carbon-fibre monocoque construction with integrated seats.

There are stiffening ribs inside the rear fuselage and the fin is reinforced with foam.

7.2.2 Wing

The fibreglass wing has one main spar with carbon flanges, no ribs.

The stressed skin is of sandwich construction with a foam core.

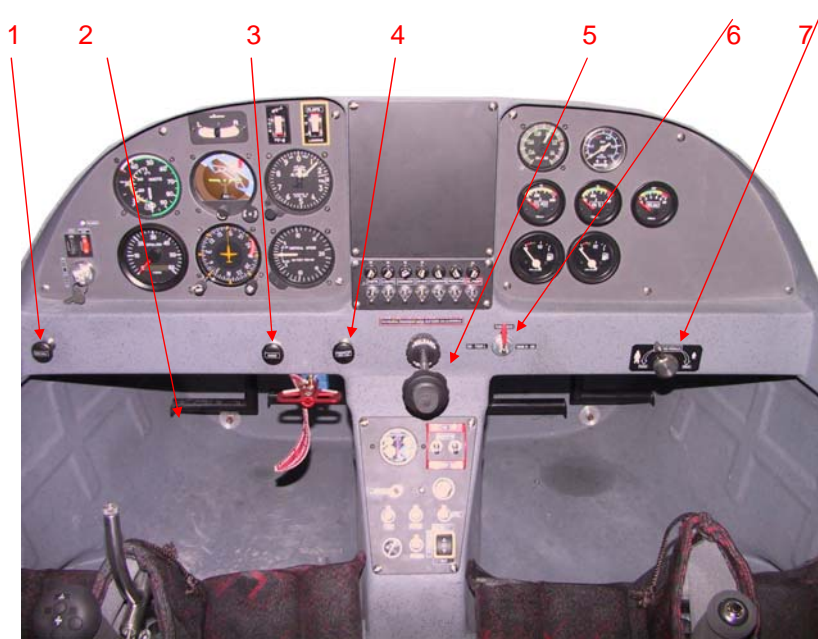
7.2.3 Horizontal Tail Unit (HTU)

HTU is of the same construction as the wing, except for the spar which is formed by a fibreglass C-channel

7.2.4 Vertical tail unit (VTU)

VTU is a sandwich construction without a spar.

7.3 Controls in the cockpit



1 – Heating

2 – Pedals

3 – Choke

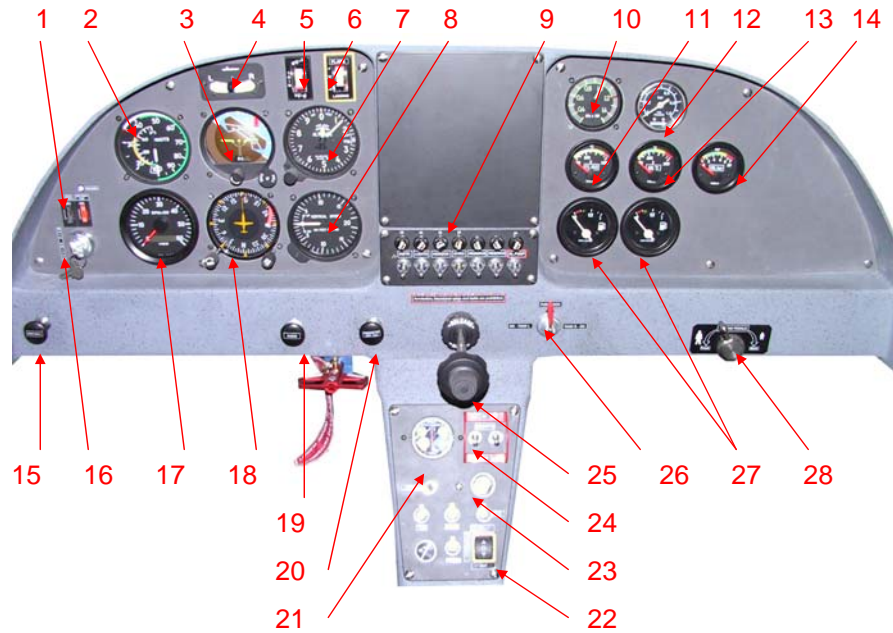
4 – Carburetor. heating

5 – Throttle

6 – Fuel valve

7 – Pedals adjustment

7.4 Instrument panel (example)



- | | |
|--------------------------------|--------------------------|
| 1 – Main fuses | 15 – Heating |
| 2 – Air speed indicator | 16 – Main key – starter |
| 3 – Artificial horizon | 17 – RPM indicator |
| 4 – Slip ball | 18 – Gyrocompas |
| 5 – Trim indicator | 19 – Choke |
| 6 – Flaps indicator | 20 – Carburetor. heating |
| 7 – Altimeter | 21 – Propeller. control |
| 8 – Vertical speed indicator | 22 – Flap control |
| 9 – Fuses and switches | 23 – 12V socket |
| 10 – Manifold pressure | 24 – Magnetos |
| 11 – Cylinder head temperature | 25 – Throttle |
| 12 – Fuel pressure | 26 – Fuel valve |
| 13 – Oil temperature | 27 – Fuel indicators |
| 14 – Oil pressure | 28 – Pedal adjustment |

7.5 Landing gear

The plane has a tricycle fixed landing gear with a nose wheel. The main gear has fibreglass legs, main wheel size 400x100, hydraulically operated brakes. The steerable nose wheel of 300 x 100 size has a rubber shock absorber and is controlled by the rudder pedals.

7.6 Seats and Safety harness

The seats are an integral part of the fuselage. Back rests are formed by a fibreglass skeleton covered with upholstery. A four-point safety harness with a central lock is standard equipment.

7.7 Baggage compartment

The storage shelf, intended for lightweight objects (headphones, maps, etc.), is located behind the heads of the occupants.

7.8 Canopy

The canopy is made of clear Plexiglas®. The canopy frame is formed by a fibreglass former. The canopy is hinged forward and is locked in the closed position by two locks.

Samba XXL

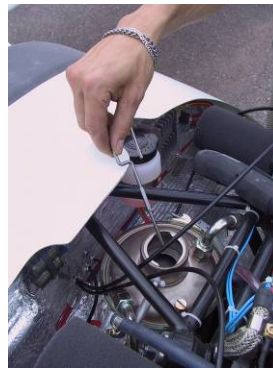
7.9 Engine

The Rotax 912 ULS engine is the standard engine in the Samba XXL aircraft.

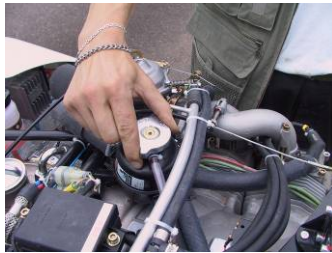
The Rotax 912 ULS is 4-stroke, 4 cylinder horizontally opposed, dual ignition engine. It features OHV with one central camshaft, liquid cooled cylinder heads, ram air cooled cylinder barrels, and dry-sump forced lubrication. It has a dual breakerless capacitor discharge ignition.

The engine is fitted with an electric starter, AC generator and mechanical fuel pump. Prop drive is via reduction gear with integrated shock absorber.

Oil quantity check



Coolant quantity check



Samba XXL

7.10 Fuel system

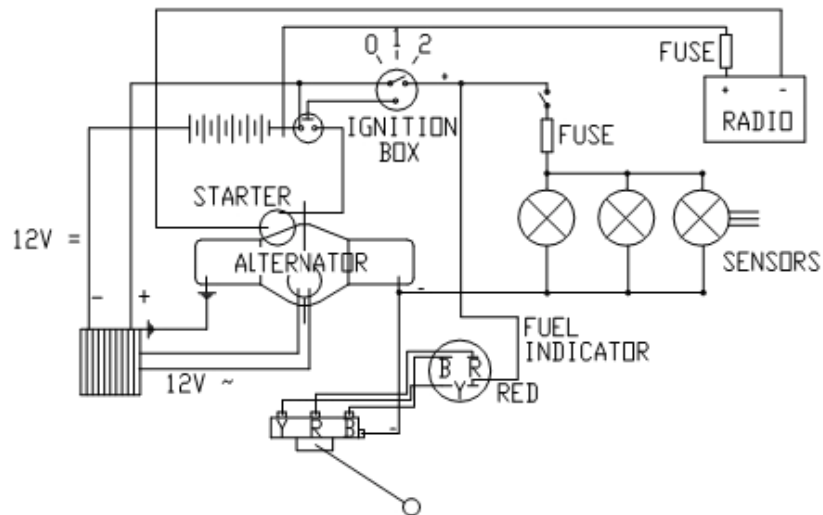
The 100 litre main fuel tanks are an integral part of the wings.

Fuel quantity sensors are located inside the wings. The fuel passes through a coarse filter, a fuel valve, and a fine filter before reaching the engine.

In order to drain and check fuel samples, a blow-down valve is located on the bottom of each wing.



7.11 Electrical system



7.12 Pitot-static system

The pitot-static system consists of a pitot tube on the leading edge of the left wing and static ports located on the sides of the fuselage approximately 1 m (3 feet) behind the wing trailing edge. Pressure distribution to individual instruments is done through flexible hoses.

Keep the system clear to assure its correct function. If water gets inside the system disconnect hoses from the instruments and blow lightly into the system.

7.13 Miscellaneous equipment

Besides the standard instruments the Samba XXL aircraft may be fitted with the following equipment:

In addition to the standard equipment the Samba XXL aircraft may be equipped with following miscellaneous equipment:

- Ballistic rescue system
(compatible systems are supplied by :
GALAXY/BRS/STRATOS)
- Cockpit heating

7.14 Avionics

- Flight instruments :
 - Airspeed indicator
 - Altimeter
 - Compass
 - Vertical speed indicator
 - Slip indicator (ball

- Engine instruments :
 - Analog engine instruments
 - Fuel pressure indicator
 - Manifold pressure indicator

- Fuel quantity management
 - Electric Fuel Gauge

Section 8

8. Aircraft handling, servicing and maintenance

8.1	Introduction.....	8-1
8.2	Aircraft inspection periods`.....	8-1
8.3	Aircraft alterations or repairs.....	8-2
8.4	Ground handling / Road transport.....	8-2
8.4.1	Towing.....	8-2
8.4.2	Parking.....	8-2
8.4.3	Tying-Down.....	8-3
8.4.4	Jacking.....	8-4
8.4.5	Levelling.....	8-4
8.4.6	Road transport.....	8-4
8.4.7	Aircraft Assembly.....	8-6
8.4.8	Aircraft Disassembly.....	8-6
8.5	Cleaning and care.....	8-7

Samba XXL

8.1 Introduction

This section contains factory-recommended procedures for proper ground handling and servicing of the aircraft.

It also identifies certain inspection and maintenance requirements which must be followed if the aircraft is to retain that new-plane performance and dependability.

It is wise to follow a planned schedule of lubrication and preventive maintenance based on climatic and flying conditions encountered.

8.2 Aircraft inspection periods`

Frequency of overall checks and required maintenance depends upon the operating conditions and upon the overall condition of the aircraft. As a minimum, the manufacturer recommends accomplishing the following schedule of maintenance service and periodic inspections:

After each year of operation clean and lubricate the bearings as per the Lubricating Chart. (Maintenance and Repair Manual 4.5)

Contact the Aircraft Manufacturer when excessive play is detected.

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

The propeller is maintained according to its condition. The inspection performed by the propeller manufacturer is highly recommended after 100 hours of operation.

Refer to the Operating, Maintenance and Repair Manual for the Samba XXL aircraft for more details about periodical inspections.

8.3 Aircraft alterations or repairs

It is essential that the manufacturer be contacted prior to any alterations on the aircraft to ensure that the airworthiness of the aircraft is not compromised.

If the aircraft weight is affected by an alternation, a new weight and balance calculation shall be necessary. A revised "Weight and Balance Record / Permitted payload range" and Placard "LOAD LIMITS" must be filled out and attached to the aircraft.

Refer to the Operating, Maintenance and Repair Manual for the Samba XXL aircraft for repairs.

8.4 Ground handling / Road transport

8.4.1 Towing

Because the empty weight of this aircraft is relatively low, It is easy to tow the aircraft a short distance by holding the propeller blade root.

A suitable surface for ground-handling of the aircraft is the rear part of the fuselage forward of the vertical fin.

Caution

Avoid excessive pressure on the aircraft airframe - especially at the wing tips, elevator, rudder, trim etc.

8.4.2 Parking

It is advisable to park the aircraft inside a hangar. For long-term storage, a weather-proof space (such as a garage) with a stable temperature, good ventilation, low humidity and a dust-free environment is recommended.

It is essential that the aircraft is tied down when parked outside.

If plane must be tied-down outdoors for extended periods, it is advisable to cover the cockpit canopy, and if possible, the entire aircraft using a suitable cover.

Caution

Handle the propeller by holding the blade root - never grasp the blade tip!

If starting the engine manually - always handle the propeller on the blade surface (i.e. do not hold it by the edge)

8.4.3 Tying-Down

The aircraft is usually tied-down after a day of flying or when needed. Securing the aircraft is necessary to protect it against possible damage caused by wind gusts. For these reasons the aircraft is equipped with tie-down strips on the wing tips.

Procedure:

- Check: Circuit breakers and Master switch off, Switches off.
- Secure the control stick (e.g. by means of safety harness)
- Close and lock the cockpit
- Shut all the ventilation windows
- Tie the aircraft to the surface by means of the strips. It is also necessary to tie down the aft fuselage and nose-wheel. (lace a rope through the wheel and fork).

Note

It is advisable to cover the cockpit canopy.

Cover the entire aircraft if possible by means of a suitable covering material attached to the airframe for long term outside parking.

8.4.4 Jacking

Because the empty weight of this aircraft is relatively low, it is easy for two persons to lift the aircraft.

First prepare two suitable jacks to support the aircraft.

The aircraft should be lifted by the following parts:

- Press-down on the rear of the fuselage in front of the fin to lift the front and then support under the firewall.
- To raise the rear of the fuselage grasp the fuselage near the auxiliary tail skid, lift it upward and support.
- To lift the wings, push on the wings lower surface at the main spar. Do not lift by the wing tips.

8.4.5 Levelling

Refer to the Operating, Maintenance and Repair Manual for the Samba XXL ultralight aircraft for more details about levelling.

8.4.6 Road transport

The aircraft may be transported in a trailer made suitable for this purpose.

AIRCRAFT OPERATING MANUAL

Samba XXL

It is necessary to dismantle the aircraft before loading.

Samba XXL

8.4.7 Aircraft Assembly

Note

No special qualification is needed for assembling or disassembling.

Degrease and clean all connecting parts and grease again using suitable lubricants.

- **Horizontal Tail Unit (HTU) Installation:**

Secure the HTU on the two main pins and at the same time insert the elevator control bell into automatic connector, then insert the front screw and secure with safety pin.

- **Wing Installation:**

Set the left half of the wing on the pins. Then secure the rear auxiliary pin. Follow with the right half of the wing so that the fuel sensor and hose may be connected, insert the wing and secure the rear auxiliary pin. Insert the main eccentric pin, turn it 180 ° to tighten both halves of the wing together. Then connect aileron and flap controls with M10 bolts and secure with fibre-lock nuts. Then secure the main pin with a clip through the spar end and at the rear with a safety pin. Check control system and fuel gauge function. Use an adhesive tape to cover the gap between the fuselage and the wing root for streamlining.

8.4.8 Aircraft Disassembly

Follow the Assembly steps in reverse order.

8.5 Cleaning and care

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

The canopy should only be cleaned by washing it with lukewarm water and mild detergents. Use a clean soft cloth, a sponge or chamois. Then use suitable polishers to clean the canopy.

Caution

Never clean the canopy if it is dry. It will become scratched.

Never use gasoline or chemical solvents

Upholstery and covers may be removed from the cockpit, brushed or washed in lukewarm water and mild detergents. Dry the upholstery before replacing in the cockpit.

Caution

For long term storage cover the canopy to protect the cockpit interior from the direct sunshine.

Section 9

9. Supplements

9.1	Introduction.....	9-1
9.2	List of inserted supplements	9-2
9.3	Supplements inserted.....	9-3
9.4	Service records	9-4
9.4.1	Summary of repairs, checking, parts changes, etc.....	9-4
9.4.2	Record of Manufacturers Service Bulletins.....	9-6

9.1 Introduction

This section contains the appropriate supplements necessary to safely and efficiently operate the aircraft when equipped with various optional systems and equipment not provided with the standard aircraft.

9.3 Supplements inserted

AIRCRAFT OPERATING MANUAL

Samba XXL

9.4 Service records

9.4.1 Summary of repairs, checking, parts changes, etc.

Operation: (reason)	date	hours flown	sign: done by... controlled by...

