0. Table of Contents

Section 1

1. General

1.1 Introduction

This Flight Manual provides information useful for the safe and efficient operation of Samba XXL aeroplane.

It also contains supplemental data supplied by the aeroplane manufacturer.

1.2 Warnings, cautions and notes

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

Warning

Means that the non-observation of the corresponding procedure leads to an immediate or important degradation of the flight safety.

Caution

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

Note

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

1.3 Descriptive data

1.3.1 Aeroplane description

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

Samba XXL is a single engine, all-fibreglass aeroplane with two side-by-side seats. The aeroplane is equipped with fixed tricycle landing gear with a steerable nose wheel. The fuselage is a carbon shell with carbon/kevlar seats integrated. Safety belts are attached to the seats and to a shelf intended for putting off lightweight objects (headphones, maps, etc.).

The wing is a monospar construction with a sandwich skin composed of two layers of fibreglass and special foam. Control surfaces and empennage is of the same construction.

The aeroplane is controlled by dual push-pull control system, only rudder drive is controlled by cable. The ailerons and elevator are controlled by the control stick located between the pilot's legs (co-pilot's). The rudder is controlled by the rudder pedals, flaps are electric operated by a control button located between the pilots on the fuselage main spar.

1.3.2 Basic Technical data

Wing

span ..... 10,0 m

area ..... 8,9 m^2

MAC ..... 0.946 m

loading ..... 50.5 kg/m^2

Ailerons

area ..... 0.164 m^2

Flaps

area ..... 0.54 m^2

Fuselage

length ..... 6,15 m

width ..... 1.14 m

height ..... 2,2 m

Horizontal tail unit

span ..... 2.5 m

area ..... 1.36 m^2

elevator area ..... 0.51 m^2

Vertical tail unit

height ..... 0,94 m

area ..... 0,76 m^2

rudder area ..... 0.32 m^2

Landing gear

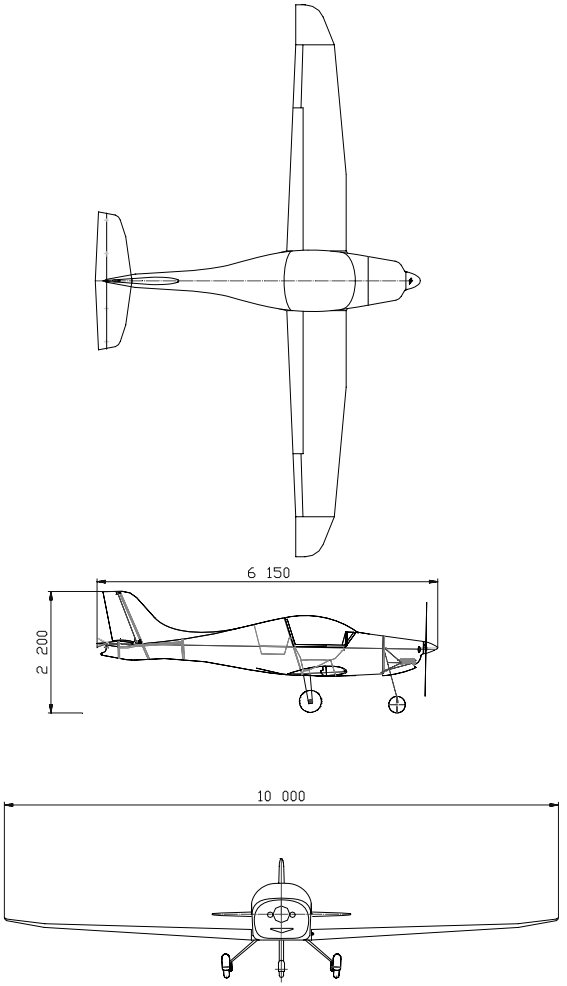
wheel track ..... 1.54 m

wheel base ..... 1.38 m

main wheel diameter ..... 0.4 m

nose wheel diameter ..... 0.3 m

1.4 Three-view drawing



Section 2

2. Limitations

2.1 Introduction

Section 2 includes Operating limitations, instrument markings, and basic placards necessary for safe operation of the aeroplane, 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	270 km/h	Do not exceed this speed in any operation.
V_{N0}	Maximum structural cruising speed	200 km/h	Do not exceed this speed except in smooth air, and then only with caution.
V_A	Manoeuvring speed	160 km/h	Do not make full or abrupt control movement above this speed, because under certain conditions the air-craft may be overstressed by full control movement.
V_{FE}	Maximum Flap. Extension speed	110 km/h	Do not exceed this speed with flaps extended

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	Positive Flap Operating Range
Green arc	80 – 200 km/h	Normal Operating Range
Yellow arc	200 – 270 km/h	Manoeuvres must be conducted with caution and only in smooth air.
Red line	270 km/h	Maximum speed for all operations.

2.4 Powerplant

Engine Manufacturer :	Jabiru Australia
Engine Model:	JABIRU 2200
Power:	
Max. Take-off:	59,6 kW / 80 hp
	at 3300 rpm
Engine RPM:	
Max. Take-off:	3300 rpm,
Idling:	900 rpm
Cylinder head temperature:	
Maximum:	200 °C
Oil temperature:	
Minimum:	15 °C
Maximum:	118 °C
Opt. operating:	80 °C – 100 °C

Fuel:	see 2.13
Oil:	Automotive engine oil of registered brand with gear additives, but not aircraft oil (refer to engine Operator's Manual). API classification „SF" or „SG".
Propeller:	GT 142
Propeller diameter:	1 420 mm

Warning

The Jabiru 2200 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 Engine instrument markings

Function	Minimum Limit	Normal Operating Range	Caution Range	Maximum Range
Engine speed (RPM)	900	2000-2700	2700-3300	3300
Cylinder Head Temperature (CHT) [°C]	60	100-150	100-150	200
Oil Temperature [°C]	15	80-100	80-100	118
Oil Pressure [bar]	80	220-525	220-525	525

2.6 Miscellaneous instrument markings

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

2.7 Weight

Empty weight (standard equipment) ..... 280 kg

NOTE

Actual empty weight is stated in SECTION 6, par. 6.2

Max. take-off weight ..... 450 kg

Max landing weight ..... 450 kg

Max. baggage weight ..... 4 kg

2.8 Centre of gravity

Empty aeroplane C.G. position ..... 20,6 %MAC

Operating C.G. range ..... 25 - 35 %MAC

2.9 Approved manoeuvres

Aeroplane Category: NORMAL

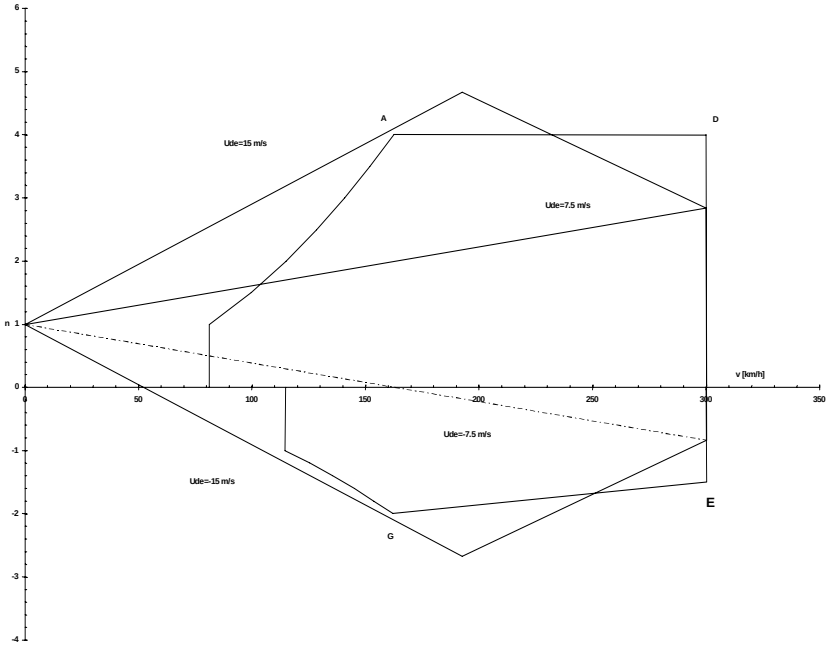
The aeroplane is approved for Normal and Manoeuvres listed below:

- Steep turn not exceeding 60° bank

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 516000,Ö-NORM C 1103
- EUROSUPER RON 95 unleaded accord. to DIN 51607,Ö-NORM 1100
- AVGAS 100 LL
- Due to higher lead content in AVGAS, the wear of valve seats and deposits in the combustion chamber will increase. Therefore, use AVGAS only if other fuel types are not available.
- BA 95 Natural is recommended for Czech Republic

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

2.14 Maximum passenger seating

Number of seats..... 2

Minimum crew weight ..... 65 kg

Maximum crew weight .....see 6.2

Warning

Never exceed 450 kg Maximum Takeoff Weight.

2.15 Other limitations

- No smoking aboard the aeroplane.

2.16 Limitation placards

Caution

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

Samba XXL	URBAN – AIR	
Empty weight		**280 kg**
Max. Take-off weight		**450 kg**
Min. crew weight		**65 kg**
Max. baggage weight		**4 kg**
Never exceed speed	**Vne**	**270 km/h**
Stalling speed	**Vso**	**65 km/h**
Fuel tank capacity		**2x50 l**

Manufactured:	**URBAN – AIR s.r.o.**
Model:	**Samba XXL**
Date of produce:	**2004**
S/N	**SA XL 12**
Registration:	**LN-YOH**
Empty weight:	**280 kg**
Max. Take-off weight:	**450 kg**

Permitted crew weight	
half an hour flight	**163 kg**
half fuel tank	**134 kg**
full fuel tank	**99 kg**

Section 3

3. Emergency procedures

3.1 Introduction

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

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

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
2. Altitude	- below 50 m: land in take-off direction
	- over 50 m: choose landing area
3. Wind	- evaluate direction and velocity
4. Landing area	- choose free area without obstacles, into wind
5. Flaps	- extend as needed
6. Fuel valve	- off
7. Ignition	- off
8. Safety harness	- tighten
9. Master switch	- switch off before landing

10. Land

Note

Skip 6-10 if necessary.

3.2.3 Engine failure in flight (Forced landing)

1. Speed	- gliding at 100 km/h
2. Altitude	- below 50 m: land in take-off direction
	- over 50 m: choose landing area
3. Wind	- evaluate direction and velocity
4. Landing area	- choose free area without obstacles
5. Flaps	- extend as needed
6. Fuel valve	- off
7. Ignition	- off
8. Safety harness	- tighten
9. Master switch	- off before landing
10. Land	

3.3 In-Flight start

1. Speed	- gliding at 120 km/h
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. Abandon the aeroplane
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
4. Master switch - off
5. Ignition - off
6. Land and brake
7. Abandon the aeroplane
8. Extinguish fire if possible or call fire department.

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 stopping
5. Choose of area - heading to the nearest airport or choose emergency landing area
6. Emerg. landing - perform according to par.3.6.1
7. Abandon the aeroplane
8. Extinguish fire if possible or call fire department.

Note

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

3.5 Glide

Gliding may be used in case of engine failure.

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

3.6 Landing emergencies

3.6.1 Emergency landing

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

2. Speed	- 100 km/h
3. Trim	- trim the aeroplane
4. Safety harness	- tighten
5. Flaps	- as needed
6. COMM	- if installed - report your location if it is possible
7. Fuel valve	- off
8. Ignition	- off
9. Master switch	- off

3.6.2 Precautionary landing

A precautionary landing may be carried out due to low fuel and/or bad weather conditions.

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 passage into wind over the right-hand side of the chosen area with flaps extended to the take-off position at a speed of 110 km/h to thoroughly inspect the area
4. Perform flight around the 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 aeroplane switch off all switches, shut off the fuel valve, lock the aeroplane 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 - good tire first, keep the damaged wheel above ground as long as possible using ailerons
3. Maintain the direction at landing run, 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 run, 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

3.7 Recovery from unintentional spin

Warning

Intentional spins are prohibited !

There is no tendency of spontaneous uncontrollable spin entry 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 a rotation neutralise the rudder
6. Recover from dive		

3.8 Other emergencies

3.8.1 Vibration

If vibrations appear::

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 Carburettor icing

Carburettor icing mostly occurs when getting into an area of ice formation. The carburettor 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 - 110 km/h
2. Throttle - set for 1/3 power
3. If possible, leave the icing area
4. Gradually increase the engine power to cruise conditions 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

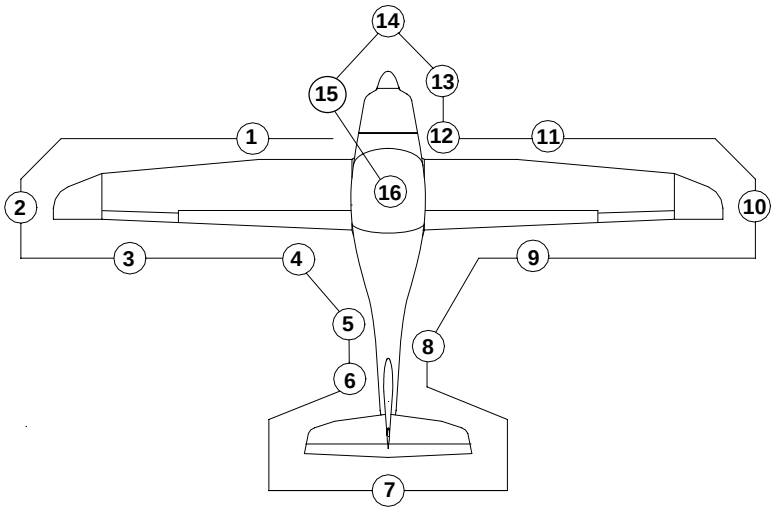
Section 4 provides checklist and amplified procedures for the conduct of normal operation.

4.2 Assembly and disassembly

Refer to 8.4.7 a 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 aeroplane failure. The following pre-flight inspection procedure is recommended by the aeroplane Manufacturer:



⇒ Check if ignition is switched off in the cockpit

1. Wing
   - Wing surface condition
   - Leading edge condition
   - check if the flap and aileron controls are correctly shifted in the automatic gripping

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

3. Aileron
   - Surface condition
   - Attachment
   - Play

4. Flap
   - Surface condition
   - Attachment
   - Play

5. Fuselage rear
   - Surface condition

6. Vertical tail unit
   - Surface condition
   - Play
   - Free movement
   - Pitot-tube inspection

7. Horizontal tail
   - Surface condition
   - Attachment
   - Play
   - Free movement
   - check if the elevator control is correctly shifted in the automatic gripping

8. see. 5
9. see. 4
10. see. 3
11. see. 2
12. see. 1
13. Landing gear
    - Check of main and nose landing gear attachment
    - nose wheel steering
    - Condition and inflation of tires
    - Condition and attachment of wheel fairings (if installed)

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
- check of plays
- check of flaps extension
- check of free movement up to the stops

- Check for loose items - secure papers
- Canopy - Condition of attachment, cleanliness

4.4 Normal procedures

4.4.1 Before entering cockpit

1. Aeroplane surface - check of 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 - free movement check - Correct?
2. Brakes - check of function
3. Hand control - free movement check - Correct?
4. Trim - check control movement
5. Flaps - check of function
6. Engine controls - throttle and choke lever movement
7. Fuel valve - off
8. Fuel gauge - fuel quantity check
9. Switch box - off
10. Circuit breakers - off
11. Ignition - off
12. Instruments, COMM- condition check
13. Safety harness - check of integrity and attachment
14. Cockpit - condition and canopy lock function

4.4.3 Before engine starting and Engine starting

1.	Fuel valve	- on
2.	Switch box	- turn the key
3.	Circuit breakers	- in
4.	Throttle	- set for idling
5.	Choke	- according to engine temperature
6.	Control stick	- fully pulled
7.	Check of free area	- clear
8.	Master switch	- on
9.	Ignition	- on
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

Caution

The starter should be activated for max.10 sec., then 2 min. pause for engine cooling.

After engine starting adjust the throttle for smooth running at 2500 rpm. Check oil pressure which should increase within 10 sec. Increase engine speed after oil pressure reaches2 bars and is steady.

To avoid shock loading start the engine with throttle lever set for idling or max. 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 check should be performed with the aeroplane pointing upwind and not on loose terrain (the propeller will pick up debris which can damage the propeller).

4.4.5 Taxiing

The maximum recommended taxiing speed is 15 km/h. The direction of taxiing can be controlled by the steer able nose wheel and rudder or by brakes. There is installed the lever on the control stick to operate the brakes.

4.4.6 Before take-off

1.	Brakes	- fully applied
2.	Rudder control	- check of free movement
3.	Hand control	- check of 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	- in
10.	Instruments, COMM,	- within limits, frequency set
11.	Safety harness	- secured and tightened
12.	Cockpit	- canopy condition, lock

4.4.7 Take-off

Gradually increase the throttle (max. power) to set the aeroplane into motion.

The direction of take-off run can be controlled by steer able nose wheel and rudder. Slightly pull the stick to lift the nose wheel. The aeroplane takes-off at a speed above 70 km/h, then slightly push forward the stick to reach climb speed of 110 km/h. Refer to the par. 5.2.5 for optimum climb speed. Max. flaps extended speed is 120 km/h.

Warning

The Take-off is prohibited if:

- The engine run is unsteady
- The engine instruments values are beyond operational limits
- The engine choke is on
- The crosswind velocity exceeds permitted limits. 5.3.3

4.4.8 Climb

1. Throttle - Max. Continuous Power
2. Speed - 120 km/h
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 exceed limits, reduce the angle of climb to increase airspeed and allow better cooling.

4.4.9 Cruise

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

4.4.10 Descent

1.	Throttle	- idling
2.	Speed	- 110 km/h
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 Throttle control lever to idle. The engine becomes overcooled and a loss of power occurs. When descending, apply increased idle so that engine instrument readings stay 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

4.4.12 On base leg

1.	Speed	- 120 km/h
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	- 110 km/h
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.

Gradually pull 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.

When the aeroplane rebounds hold the control stick fully pulled.

4.4.15 Balked landing

1.	Throttle	- full
2.	Engine speed	- 3100 rpm
3.	Flaps	- set at the "TAKE-OFF" position at a speed of 110 km/h
4.	Trim	- as necessary
5.	Flaps	- retract at a height of 50 m
6.	Trim	- as necessary
7.	Engine speed	- Max. cont. power
8.	Instruments	- within limits
9.	Climb	- at 120 km/h

4.4.16 After landing

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

4.4.17 Engine shutdown

1.	Engine speed	-idling
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
8.	Fuel valve	- off

4.4.18 Flight in rain

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

Section 5

5. Performance

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 aeroplane 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. takeoff weight and under International Standard Atmosphere (ISA) conditions.

5.2 Performance

5.2.1 Airspeed indicator system calibration

IAS [km/h]	EAS [km/h]
55	50
60	58
65	65
70	70
80	80
90	92
100	103
110	115
120	117
130	138
140	149
150	160
160	171
170	182
180	195
190	206
200	218
210	229
220	240
230	250
240	252
250	273
260	284
270	296
280	308

5.2.2 Stall speeds

Stall	Flaps position	Engine Power	Warning speed		Stalling Speed	
			IAS	CAS	IAS	CAS
Wing level stall	RETRACTED	idling	85	86	77	77
	"TAKE-OFF“	idling	81	81	75	75
	"LANDING“	idling	68	68	65	65

Note

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

5.2.3 Take-off performance

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

	Take-off run distance [m]	Take-off distance over 15 m obstacle [m]
Grass	150	275

5.2.4 Landing

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

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

5.2.5 Climb performance

Best Rate-of-climb speed is 120 km/h IAS, corresponding Rate of climb is 5 m/s.

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	2500	3100	3300
Altitude [m ISA]	IAS	IAS	IAS
500	165km/h 89kts	200km/h 108kts	215km/h 116kts

5.3.2 Endurance

In the following table are stated fuel consumptions, endurances and ranges for RPM settings of Samba XXL aeroplane.

Regime		Max. Continuous Power	Economy Cruise
Engine speed	**[rpm]**	3100	2500
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	**[l/h]**	18	10
Range	**[km]**	800	1200

5.3.3 Demonstrated crosswind performance

Max. permitted cross wind velocity for take-off and landing	5	m/s
Max. permitted head wind velocity for take-off and landing	5	m/s

Section 6

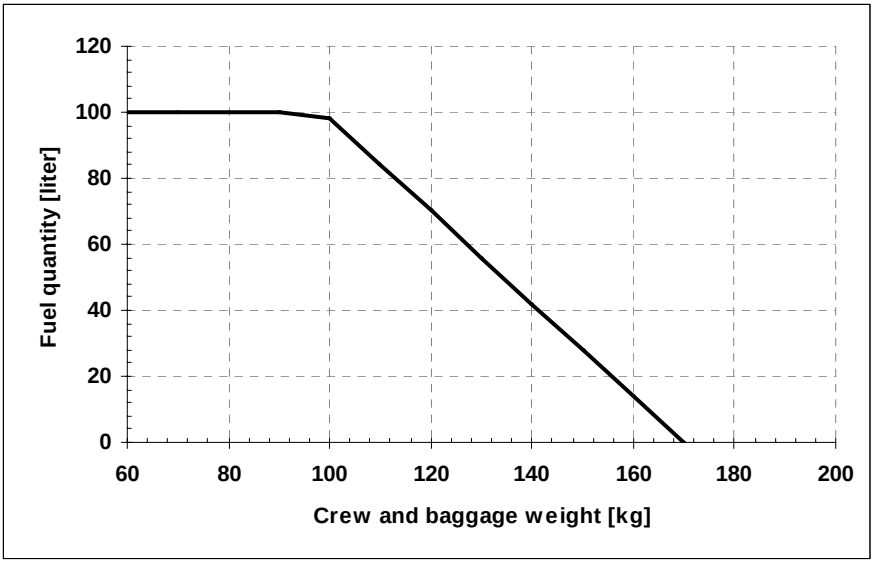
6. Weight and Balance

6.1 Introduction

This sections contains the payload range within which the Samba XXL aeroplane may be safely operated.

Procedures for weighing the aeroplane 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 aeroplane.

6.2 Permitted payload range (only sample)



Maximum crew weight :

Half an hour flight..... 163 kg

Half fuel tank..... 134 kg

Full fuel tank ..... 99 kg

Section 7

7. Aeroplane and Systems Description

7.1 Introduction

This section provides description and operation of the aeroplane and its system.

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

7.2 Airframe

Samba XXL airframe is all-fibreglass monocoque construction.

7.2.1 Fuselage

All-fibreglass monocoque construction with integrated seats. There are stiffening ribs inside the fuselage rear and the fin 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)

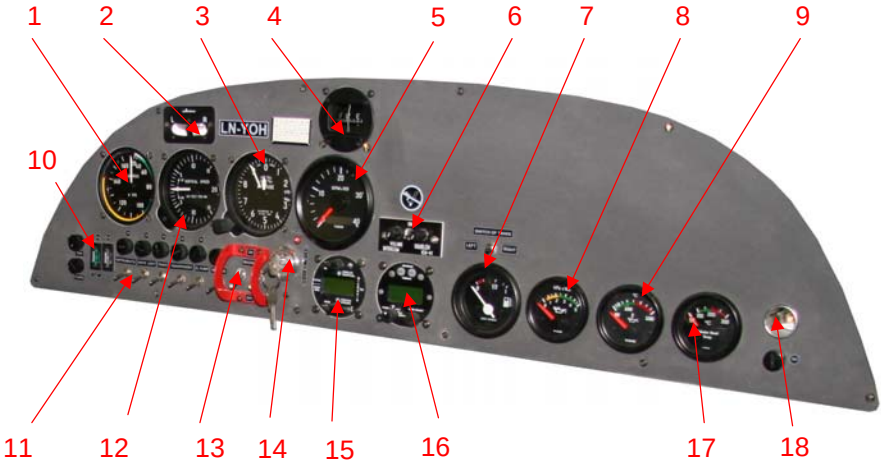
HTU is of the same construction as the wing, only the spar is formed by a fibreglass profile.

7.2.4 Vertical tail unit (VTU)

VTU is of sandwich construction and without a spar.

7.3 Controls in the cockpit

7.4 Instrument panel



1	Air speed indicator	**10**	Main fuse
2	Slip ball	**11**	Switches and fuses
3	Altimeter	**12**	Vario
4	Compass	**13**	Magnetos
5	RPM indicator	**14**	Main key
6	InterCom	**15**	Radio
7	Fuel indicator	**16**	Transponder
8	Oil pressure	**17**	CHT
9	Oil temperature	**18**	12V socket

7.5 Landing gear

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

7.6 Seats and Safety harness

The seats and back rests are formed by a fibreglass skeleton covered with upholstery. Four points safety harness with a central lock.

7.7 Baggage compartment

The shelf intended for putting off lightweight objects (headphones, maps, etc.) is located behind the heads of pilots.

7.8 Canopy

Canopy is made from the clear Plexiglas. The canopy frame is formed by a fibreglass profile. The canopy is tilted backward and it is locked in the closed position by three locks.

7.9 Engine

There is installed Jabiru 2200 engine in the Samba XXL aeroplane.

Jabiru 2200 is 4-stroke, 4 cylinder horizontally opposed, spark ignition engine.

Ram air cooled cylinders and cylinder heads.

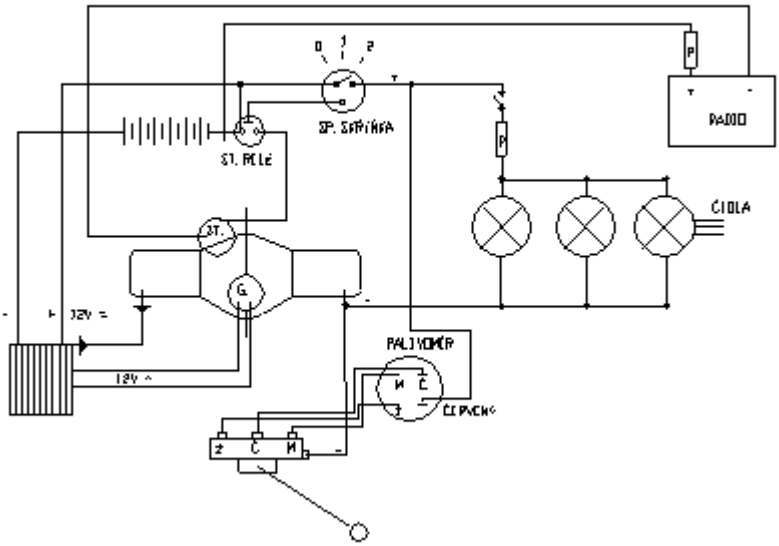
Dry sump forced lubrication.

Dual breaker less capacitor discharge ignition. The engine is fitted with electric starter, AC generator and mechanical fuel pump.

7.10 Fuel system

The 100 litre main fuel tanks is an integral part of the wings, a fuel quantity sensor is located inside the wing. Further a coarse filter, fuel valve, and fine filter are parts of the fuel system.

7.11 Electrical system



7.12 Pitotstatic system

The pitotstatic system consists of a Pitot tube under the wing and static ports located on the bottom of the wing. Pressure distribution to individual instruments is done through flexible plastic hoses.

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

7.13 Miscellaneous equipment

Besides the standard instruments the Samba XXL aeroplane is fitted with the following equipment:

7.14 Avionics

- Flight instruments :
  - Airspeed indicator
  - Altimeter
  - Compass
  - Vertical speed indicator

- Analogic engine instruments.

The Samba XXL aeroplane is additionally equipped with the following engine instruments :

- Electric Fuel Gauge

Section 8

8. Aeroplane handling, servicing and maintenance

8.1 Introduction

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

It also identifies certain inspection and maintenance requirements which must be followed if the aeroplane 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 Aeroplane inspection periods`

Periods of overall checks and contingent maintenance depends on the condition of the operation and on overall condition of the aeroplane. The producer recommends accomplishing maintenance checks and periodic inspections in the following periods, at least:

After each year of operation clean and lubricate the bearings per Lubricating Chart. Contact the Aeroplane Manufacturer when plays are excessive.

Refer to the Engine Operator's Manual for 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 Samba XXL aeroplane for more details about periodical inspections.

8.3 Aeroplane alterations or repairs

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

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

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

8.4 Ground handling / Road transport

8.4.1 Towing

It is easy to tow the aeroplane a short distance by holding the blade root because the empty weight of this aeroplane is relatively low.

Suitable surfaces to hold the aeroplane airframe are the rear part of the fuselage before the fin and wing roots..

> Caution
>
> Avoid excessive pressure at the aeroplane airframe - especially at the wing tips, elevator, rudder, trim etc.

> Caution
>
> Handle the propeller by holding the blade root - never the blade tip! If starting the engine manually - always handle the propeller on a blade surface i.e. do not hold only an edge

8.4.2 Parking

It is advisable to park the aeroplane inside a hangar or eventually inside other weather proof space (such as a garage) with a stable temperature, good ventilation, low humidity and dust-free environment.

It is necessary to tie-down the aeroplane when parking outside.

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

8.4.3 Tying-Down

The aeroplane is usually tied-down after a flight day or when needed. The tying-down is necessary to protect the aeroplane against possible damage caused by wind gusts.

For reason the aeroplane is equipped with tie-down strips on the wing tips.

Procedure: :

- Check: Fuel valve off, Circuit breakers and Master switch off, Switch box off.
- Block the control stick up e.g. by means of safety harness
- Close and lock cockpit
- Shut all the ventilation windows
- Tie-down the aeroplane to the ground by means of the strips. It is also necessary to tie-down the fuselage rear and nose wheel landing gear (lace a rope through the wheel and fork).

Note

It is advisable to cover cockpit canopy, if possible the whole aeroplane, 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 aeroplane is relatively low it is easy to lift the aeroplane using 2 persons.

First prepare two suitable jacks to support the aeroplane.

The aeroplane 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 jack the rear of the fuselage grab 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 Samba XXL ultralight aeroplane for more details about levelling.

8.4.6 Road transport

The aeroplane may be transported in a suitable trailer. It is necessary to dismantle aeroplane before loading.

8.4.7 Aeroplane Assembly

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

- Horizontal Tail Unit (HTU) Installation:

Set the HTU on the two main pins and at the same time insert the elevator control bell into automatic gripping, then screw 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 and secure the rear auxiliary pin. Insert the main eccentric pin, turn it 180 ° to tighten both halves of the wing together. Then secure the main pin with a clip through the spar end and at the rear with a safety pin. Tighten screws to connect flaps control lines and ailerons control lines. Check control system and fuel gauge function. Use an adhesive tape to cover the gap between the centre section and the wing root.

8.4.8 Aeroplane Disassembly

Follow the Assembly steps in reverse order.

8.5 Cleaning and care

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

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

Caution
Never clean the canopy under "dry" conditions (it will scratch) and never use gasoline or chemical solvents!

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

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

9.2 List of inserted supplements

Date	Title of inserted supplement

9.3 Supplements inserted