SILA 450 C

P O H

Signature:___________________________

Civil Aviation Directorate of the Republic of Serbia
Stamp
Original date of approval

Serial No.: XXXXXX – AEE – XXXX

This airplane is to be operated in compliance with information and limitations contained herein.

September 2015

Foreword

This Pilot's Operating Handbook (POH or Handbook) has been prepared by Aero-East-Europe to familiarize operators with the SILA 450 C airplane. Read this Handbook carefully. It provides operational procedures that will assure the operator obtains the performance published in the manual, data designed to allow the most efficient use of the airplane, and basic information for maintaining the airplane in a "like new" condition.

SILA 450 C is the high-wing, single engine, two seat aircraft, with a semi - monocoque fuselage structure, make from approved aeronautical aluminum. The wing airfoil is NACA 5417 and it's same along wing span, wings are rectangular with sweep angle equal to zero, twist angle of -2° from wing root to wing tip and dihedral angle of 0,5°. Wings are made from approved aeronautical aluminum, with wing tips from epoxy plastic. Wings are connected to the top of the fuselage and supported by two struts on each wing. Wings are main lift surfaces which supporting the aircraft in flight. The tail surfaces are with classic design. Vertical tail has a rudder, the airfoil of vertical tail is NACA 0010, vertical tail sweep angle is equal to 40°. Horizontal tail has elevator with trim tab, the airfoil of horizontal tail is NACA 0010, the horizontal tail is rectangular with sweep angle equal to zero. Aircraft landing gear is non – retractable, tricycle with nose leg. Power plant consists from four – stroke engine and tractor propeller with clockwise rotation. Engine mount is fabricated from welded chrome molybdenum steel. The engine compartment is from fire proof epoxy plastic.

Happy Flying!

Aero-East-Europe

Record of revisions

Any revision of the POH need to be noticed in table below.

Log of revisions

Revision No.:	Date released	Section	Reason for revision	Approved by
00	01.09.2015	1	Initial issue	
00	01.09.2015	2	Initial issue	
00	01.09.2015	3	Initial issue	
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00	01.09.2015	7	Initial issue	
00	01.09.2015	8	Initial issue	
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8	01	00	01.09.2015
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SECTION 1

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1.1 INTRODUCTION

Section 1 provides basic data and information of general interest. Values stated in this chapter are based on calculation and tested values during flight tests and aircraft exploitation. Intention of aircraft manufacturer is to explain in safe manner using and exploitation of SILA 450 C.

Basic aircraft characteristics are stated in foreword of this manual.

1.2 CERTIFICATION BASIS

This flight manual has been prepared according to EASA CS – VLA and complies with LTF – UL (German Airworthiness Requirements) and Serbian Regulation for Ultra-Light Airplanes.

1.3 PERFORMANCES-SPECIFICATIONS(values according calculations and experience)

SPEED:

Maximum	223 kmh (120kts)
Cruise, 75% power	204 kmh (110 kts)
Stall speed flaps up	70 kmh (40 kts)

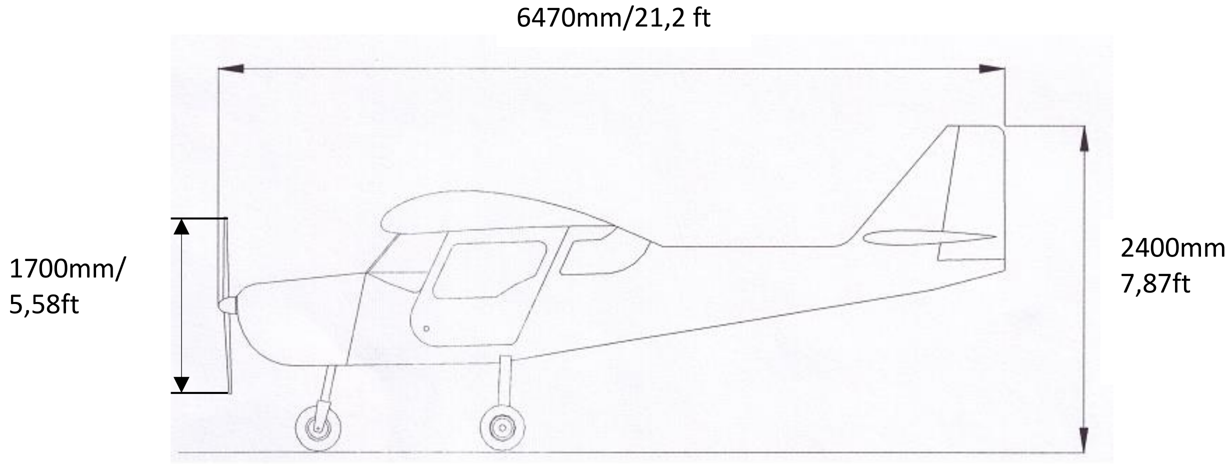
CRUISE: Recommended with fuel allowance for engine start, takeoff, climb flight to destination or closest alternative airport and air field 45 minutes reserve, average consumption is 15 liters per hour or 3,97 gallons per hour

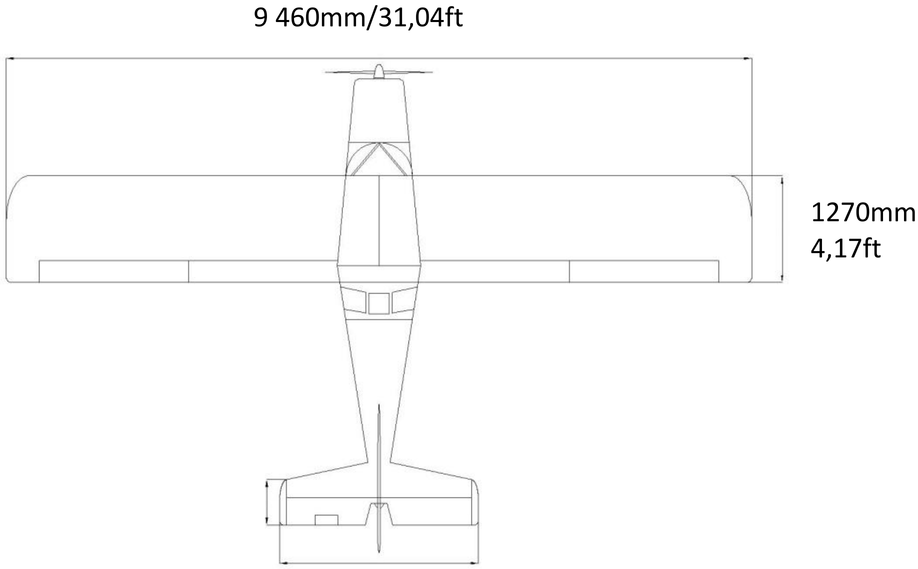
RATE OF CLIMB AT SEA LEVEL	5,6 m/s – 1000 FPM
SERVICE CEILING	3. 658 m – 12000 FT
TAKEOFF PERFORMANCE	
Ground Roll	90 meters – 295 FT
LANDING PERFORMANCE	
Ground Roll	140 meters – 460 FT
STALL SPEESDS (KCAS)	
Flaps Up, Power Off	83 km/h – 38 Knots
Flaps Down, Power Off	64 km/h – 34Knots
MAXIMUM TAKE-OFF WEIGH	472,5 kg
STANDARD EMPTY WEIGHT	280 kg without parachute, 292,5 kg with parachute
MAXIMUM USEFUL LOAD	180 kg=MTOW - (empty weight aircraft)
FUEL CAPACITY	100L (96 lit useful)–23,8 gallons (22,8 gallons useful)
PROPELLER: Diameter	1600 – 1700 millimeters

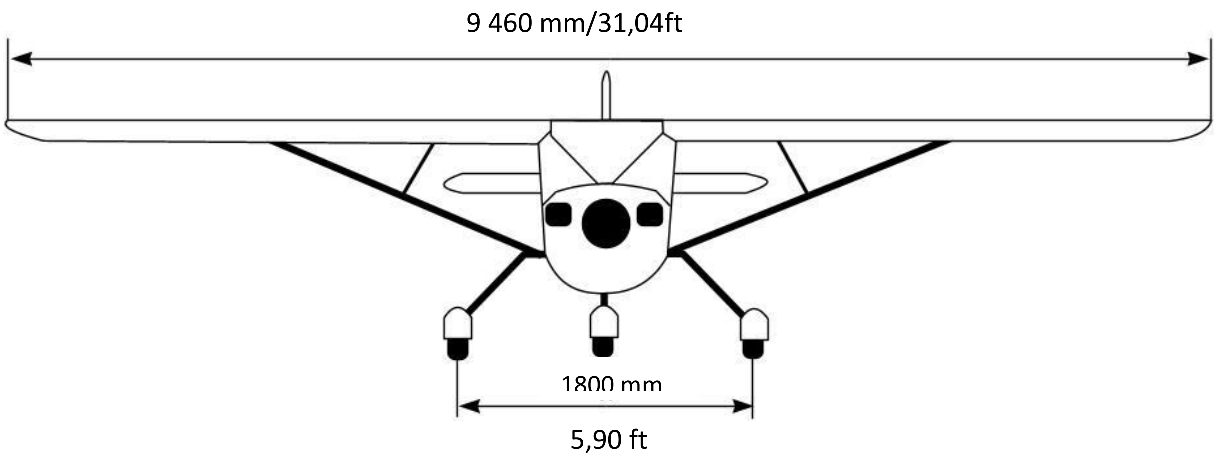
NOTE:

The performance figures are estimated basically on the indicated weights, standard atmospheric conditions 15 °C (59 °F, 288,15K) and 101.325 kPa (14.696 psi, 1.01325 bar), sea level, hard-surface, dry runways and no wind. They are calculated values derive from calculations conducted by the Aero East Europe Company under carefully documented conditions and will vary with individual airplanes and numerous factors affecting flight performance.

1.4 DIMENSIONS







1.5 DESCRIPTIVE DATA

1.5.1 ENGINE

- Number of engines:	1 piece
- Engine Manufacturer:	BRP Powertrain GmbH & Co KG
- Engine Model Number:	Rotax series , 912UL/ULS 2/ S/F/A
- Engine Type:	Normally aspirated, direct-drive, air-cooled, horizontally opposed, Carburetor equipped, four-cylinder engine with 319.8 cu.in. Displacement
- Horsepower Rating and Engine Speed:	80/100 rated HP at 5800 RPM

1.5.2 PROPELLER

- Propeller Manufacturer:	WOODCOMP Czech Republik. MT Propeller and others
- Propeller Model Number:	Woodcomp……., MTV-33-1-A and others
- Number of Blades:	two and three blades etc
- Propeller Diameter:	Maximum: 1700 millimeters, Minimum: 1600 millimeters.
- Propeller Type:	Tractor right

1.5.3 FUEL

Approved Fuel Grades: BMB 95 Octane alternative 100LL

Fuel Capacity:

Total Capacity:	90 lit– 23,8 gallons
Total Capacity Each Tank:	45 lit – 11,9 gallons
Total Usable:	(86 lit useful) (22,8 g useful) gallons.

1.5.4 OIL

Oil Grade (Specifications): 10w-40 (5w-50)

Straight semisynthetic oil: As provided in Engine Maintenance Manual.

1.5.5 MAXIMUM AIRCRAFT WEIGHT

-Maximum Takeoff Weight: 472,5 Kg

-Maximum Landing Weight: 472,5 Kg

1.6 WARNINGS, CAUTIONS AND NOTES

The next definitions are connected with warnings, cautions and notes used in Pilot Operation Handbook

WARNING

It means that non – observation of the appropriate procedure leads to an immediate or significant decreasing of flight safety.

CAUTIONS

It means that the non – observation of the appropriate procedure to a minor or to a more or less long term decreasing of flight safety.

NOTES

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

SECTION 2

TABLE OF CONTENTS

2.1 INTRODUCTION

Section 2 describing limitations which are must not to be exceed for safe flight. All limitations are market with appropriate placards.

2.2 AIR SPEED LIMITATIONS

Air Speed Limitations and their operational significance are shown in Figure 2-1.
Maneuvering speed shown apply to normal category operations

	SPEED	IAS	REMARKS
V_{NE}	Never Exceed Speed	223 km/h 120(knots)	Do not exceed this speed in any operation
V_H	Maximum Structural Cruising Speed	204 km/h 110(knots)	Do not exceed this speed except in smooth air.
V_{RA}	Maximum speed for rough air	183 km/h 99 knots	Exceed this speed only in smooth air
V_A	Maneuvering Speed	165 km/h 89 (knots)	Do not make full or abrupt control movements above this speed
V_{FE}	Maximum Flaps ExtSpeed: 19° - 38° Flaps ½ - Full Flaps	106 km/h 57 (knots)	Do not exceed this speed with flaps down. Take care about flaps setting
V_{NE}	Maximum gear operating speed	223 km/h 120(knots)	The landing gear is not retractable

Figure 2-1. Airspeed Limitations

2.3 AIR SPEED INDICATOR MARKINGS

Airspeed Indicator markings and their color code significance are shown in figure 2-2.

MARKING	IAS VALUE OF RANGE	SIGNIFICANCE
White Arc From 1.1 V_{S0}	72 – 106 km/h 38 – 57(knots)	Full Flap Operating Range. Lower limit is maximum weight V in landing configuration. Upper limits maximum speed permissible with full flaps extend.
Green Arc	91 km/h(49 knots)	Normal Operating Range. Lower limit is maximum weight V at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed.
bar	165km/h(89knots)	
From 1.1 V_{S1}	183km/h(99 knots)	
Yellow Arc	183 – 223 km/h 223 – 120 (knots)	Operating must be conducted with caution and only in smooth air.
Red Line	223 km/h 120 (knoots)	**Maximum speed for all operations!!!**

Figure 2-2. Airspeed Indicator Makings

Remark : *The color of placard on Air Speed Indicator is the same as in Figure 2 – 2*

WARNING

Do not exceed speed of 223,6 km/h(120,6 knots) at any operation and at under any circumstances.

2.4 POWER PLANT LIMITATIONS

-Engine Manufacturer: **BRP-Powertrain GmbH & Co KG**
-Engine Model Number: 912 UL
-Maximum Power: 80 HP rating and others

-Engine Operating Limits or Takeoff and continuous Operations:
Maximum Engine Speed: 5800 RPM maximum for 5 min
Maximum Oil Temperature: According Engine Manual

NOTE

Static engine RPM should be 5100±250 under clear weather without wind

-Oil Pressure
Minimum: 0.8 bar at 3000 rpm - 12 psi at 3000 rpm
Maximum: 7 bar 101.5 psi.

-Oil Grade (Specification): 10w – 40 / 5w - 50

-Propeller Manufacturer: Woodcomp s.r.o. and others

-Propeller Model Number: Woodcomp SR 3000 and others

-Propeller Diameter: 1700 millimeters

NOTE:
The static RPM range at full throttle 5800rpm per 5 minute in case
- redactor per engine 2:43 100hp is 2389 rpm
- redactor 2:27 per engine 80hp is 2555 rpm

2.5 POWER PLANT INSTRUMENT MARKINGS ROTAX 912 UL

Power plant instrument markings and their color code significance are shown in figure 2-3

INSTRUMENT	RED LINE MINIMUM LIMIT	GREEN ARC NORMAL OPERATING	YELLOW ARC	RED LINE MAXIMUM LIMIT
Tachometer: Sea Level 5000 ft 10000 ft	1400 RPM	1400 – 5500 RPM 1400 – 5500 RPM 1400 – 5500 RPM	5500 – 5800 RPM 5500 – 5800 RPM 5500 – 5800 RPM	5800 RPM 5800 RPM 5800 RPM
Oil Temperature	50 °C	90 – 110 °C	50-90;110-130°C	130 °C
Oil Pressure	0,83 bar 12 psi	2 – 5 bar 29 – 73 psi	0,83 – 2;5 – 7 bar 12 – 29;73 – 102 psi	7 bar 102 psi
CHT	50 °C	50 – 130 °C	130-135 °C	135 °C
Fuel Quantity	0 l 0 gallons	8 – 100 l 2,12– 26,4 gallons	0 – 8 l 0 – 2,12 gallons	100 l 26,4 gallons
Suction	6,5 l/h	12,5 – 17,5 l/h	N/A	25 l/h

Figure 2-3 Power Plant Instrument Markings

Remark : *The colors on engine instruments are the same as in Figure 2 – 3*

2.6 WEIGHT LIMITS

Maximum take – off weight	472,5 kg
Maximum landing weight	472,5 kg
Maximum empty weight	297,5 kg
Maximum weight in baggage compartment	20kg

Figure 2-4

2.7 CENTER OF GRAVITY LIMITS

Center of Gravity range has two different categories for empty airplane and for different load cases. Center of Gravity range for empty airplane is calculated for the worst possible combination of loads from occupants, baggage(if any) and fuel, and considered the worst combination of weights during flight.

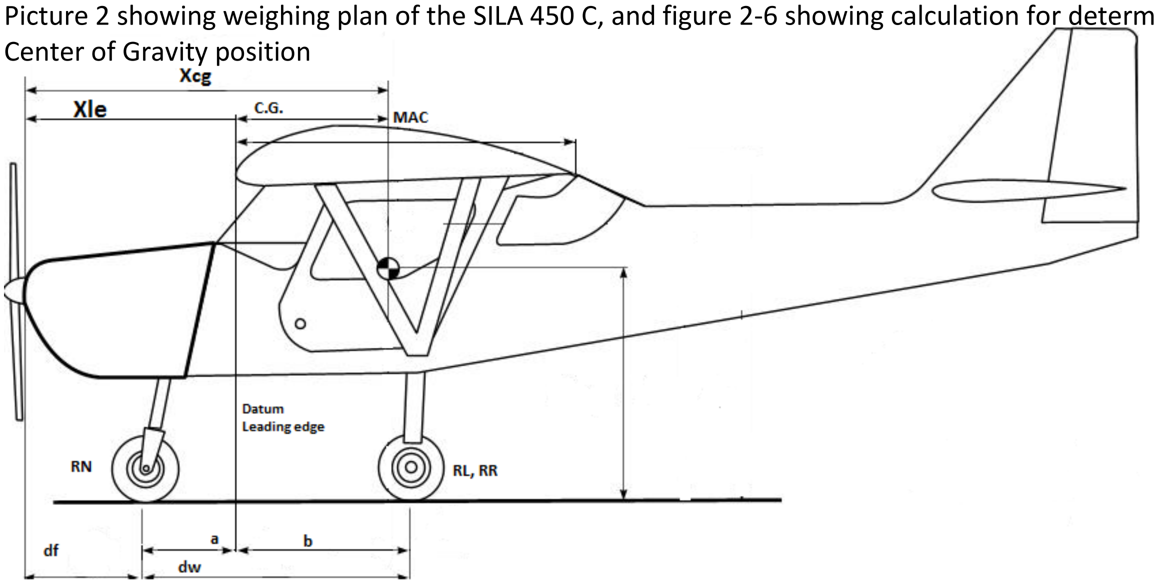
Forward limit C.G. (empty airplane)	23,0% of MAC or 292 mm from leading edge
Aft limit C.G. (empty airplane)	27,0% of MAC or 340 mm from leading edge
Forward limit C.G. (MTOW)	29% of MAC or 368 mm from leading edge
Aft limit C.G. (MTOW)	34% of MAC or 432 mm from leading edge

Figure 2-5

Warning

Aircraft commander is obligate to take care about center of gravity positions by weighing the aircraft and take care about approved weights for aircraft loadings (if any baggage, crew and fuel)

Picture 2 showing weighing plan of the SILA 450 C, and figure 2-6 showing calculation for determining Center of Gravity position



Picture 2 – Weighing plan

Weighing point	Scale reading R_i [kg]	TareT_i [kg]	Net Weight$NW_i = R_i - T_i$ [kg]
Nosewheel	R_N = [kg]	T_N = [kg]	NW_N = [kg]
Left wheel	R_L = [kg]	T_L = [kg]	NW_L = [kg]
Right wheel	R_R = [kg]	T_R = [kg]	NW_R = [kg]
Total weight [lbs] or [kg] $TW = NW_N + NW_L + NW_R$ + +			**TW = [kg]**
C.G. position from Datum (Leading edge) [mm] C.G.=$\frac{(R_L+R_R)b-R_N.a}{TW} = \frac{(\quad + \quad)633- \quad 790}{TW} = \quad [mm]$			**C.G. = [mm]**
C.G. position [% MAC] $\overline{C.G} = \frac{C.G.}{MAC}x100 = \frac{\quad}{1270} \cdot 100 = \quad [\%]$			$\overline{\boldsymbol{C.G}} =$ [%]

Figure 2-6: Calculation of Center of Gravity positions

2.8 MANEUVER LIMITS

This airplane is designed for non-aerobatic operations.
These include any maneuvers incidental to normal flying, stalls (except whip stalls), lazy eights, chandelles, and turns in which the angle of bank is not more than 60°.

WARNING

Aerobatic maneuvers, including spins, are not approved.

Non – aerobatic maneuvers are approved and they are listed below:

MANEUVER	RECOMMENDED ENTRY SPEED*
Chandelles	167 km/h – 90 (knots)
Lazy Eights	157 km/h – 85 (knots)
Steep Turns	148 km/h – 80 (knots)

WARNING

Abrupt use of the controls is prohibited above 165 km/h - 89 (knots)

CAUTION

Aerobatics that may impose high loads should not be attempted.

The important thing to bear in mind in flight maneuvers is that the airplane is clean in aerodynamic design and will increase up speed quickly with the nose down. Proper speed control is an essential requirement for execution of any maneuver, and care should always be exercised to avoid excessive speed which in turn can impose excessive loads. In the execution of all maneuvers, avoid abrupt use of the controls. Intentional spins with flaps extended are prohibited.

2.9 MANEUVERING LOAD FACTORS

According certification specifications and project calculations the load factor limits are the next, according maximum take – off weight and acceleration of gravity "g"

Flaps retracted 0°	Maximum positive load factor; V_A, V_{NE}	+4
	Maximum negative load factor	-2

Figure 2 – 7: Limit load factor with flaps retracted

Flaps deployed 19-38° (take-off and landing)	Maximum positive load factor	+2
	Maximum negative load factor	0

Figure 2 – 7: Limit load factor with flaps deployed

2.10 FLIGHT CREW

Minimum flight crew	1 pilot
Maximum flight crew	2 (1pilot + 1copilot)

Two seated aircraft side by side.

2.11 KINDS OF OPERATIONAL LIMITS

The airplane is equipped for day VFR and may be equipped for night VFR and/or IFR operations in any case no icing conditions. The reference to types of flight operations on the operating limitations placard reflects equipment installed at the time of Airworthiness issuance.

WARNING

A flight into known icing conditions is strictly prohibited.

2.12 FUEL LIMITATIONS

Fuel Capacity:

Total Capacity:	90 lit – 23,8 gallons
Total Capacity Each Tank:	45 lit – 11,9 gallons
Total reserve tank capacity:	10 liters – 2,6 gallons (only if installed)
Total Usable:	86 lit useful – 22,8 gallons

Approved fuel grades:

95 Octane – Premium automotive benzene
100 LL – AV Gas

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

The following fuels can be used:

	Usage/Description	
Mogas	912 A/F/UL	912 S/ULS
European standard	EN 228 Normal 1) EN 228 Super 1) EN 228 Super plus 1)	 EN 228 Super 2) EN 228 Super plus 2)
Canadian standard	CAN/CGSB-3.5 Quality 1 3)	CAN/CGSB-3.5 Quality 3 4)
US standard	ASTM D4814 3)	ASTM D4814 4)

1) min. RON 90
2) min. RON 95
3) min. AKI 87
4) min. AKI 91

	Usage/Description	
AVGAS	912 A/F/UL	912 S/ULS
Aviation Standard	AVGAS 100 LL (ASTM D910)	AVGAS 100 LL (ASTM D910)

Special instructions for fuel management

During replenishment of fuel tanks in wing take care to aircraft be parked at plane surface to assure proper estimate of level of fuel and fulfillment of fuel tanks.

NOTE

Especially take attention in case when determining fuel quantity, is necessary that airplane be park at absolutely horizontal surface, it's important to prevent spilling fuel from tanks because tanks are communicative. According to above mentioned facts parking at uneven surface can cause emphasis of fuel from inferior tank. Parking at absolutely horizontal surface is also important to have reliable information of fuel quantity.

2.13 MAXIMUM PASSENGER SEATING

SILA 450 C is two seated aircraft, as above mentioned this aircraft utility is sport and amateur flying and isn't intended for passenger travel. Two seated aircraft, side by side, left pilot side, and right copilot side. Limitations for crew are stated in Chapter 2.10 of this document.

2.14 LIMITATIONS PLACARDS

Limitation placards are installed on aircraft instruments and they are the same as depicted in this document, Chapter 2.3 and 2.5. the figures are shown below.

Airspeed Indicator markings and their color code significance

MARKING	IAS VALUE OF RANGE	SIGNIFICANCE
White Arc From 1.1 V_{S0}	72 – 106 km/h 39 – 57(knots)	Full Flap Operating Range. Lower limit is maximum weight V in landing configuration. Upper limits maximum speed permissible with full flaps extend.
Green Arc	91 km/h(49knots)	Normal Operating Range. Lower limit is maximum weight V at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed.
bar	165km/h(89knots)	
From 1.1 V_{S1}	183 km/h(99 knots)	
Yellow Arc	183 – 223 km/h 223 – 120 (knots)	Operating must be conducted with caution and only in smooth air.
Red Line	223 km/h 120 (knoots)	**Maximum speed for all operations!!!**

NOTE

The difference between stated speeds and airspeed indicator marking is consequence from tested and certified values because of safety margin of 10%. Test pilots and manufacturing pilots are with much higher experience than amateur pilots.

Power plant instrument markings and their color code significance

INSTRUMENT	RED LINE MINIMUM LIMIT	GREEN ARC NORMAL OPERATING	YELLOW ARC	RED LINE MAXIMUM LIMIT
Tachometer: Sea Level 5000 ft 10000 ft	1400 RPM	1400 – 5500 RPM 1400 – 5500 RPM 1400 – 5500 RPM	5500 – 5800 RPM 5500 – 5800 RPM 5500 – 5800 RPM	5800 RPM 5800 RPM 5800 RPM
Oil Temperature	50 ^{0}C	90 – 110 ^{0}C	50-90;110-130°C	130 ^{0}C
Oil Pressure	0,83 bar 12 psi	2 – 5 bar 29 – 73 psi	0,83 – 2;5 – 7 bar 12 – 29;73 – 102 psi	7 bar 102 psi
CHT	50 ^{0}C	50 – 130 ^{0}C	130 – 135 ^{0}C	135 ^{0}C
Fuel Quantity	0 l 0 gallons	8 – 90 l 2,12– 23,8 gallons	0 – 8 l 0 – 2,12 gallons	90 l 23,8 gallons
Suction	7,5 l/h	14,5 – 18,5 l/h	N/A	27 l/h

SECTION 3

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3.1 INTRODUCTION

This Section provides checklists and amplified procedures for coping with emergencies that might occur. Emergencies caused by airplane or engine malfunctions are extremely rare if proper preflight inspections and maintenance are practiced. Enrooted weather emergencies can be minimized or eliminated by careful flight planning and good judgment when unexpected weather is encountered. However, should an emergency arise, the basic guidelines described in this section should be considered and applied as necessary to fix the problem.

3.2 AIRSPEEDS FOR EMERGENCY OPERATION

Engine Failure After Takeoff:	
Wing Flaps Up	120 km/h - 65(knots) IAS
Wing Flaps Down	102 km/h - 55(knots) IAS
Maneuvering Speed (maximum glide):	
472,5 kg – 1041 lbs.	139 km/h - 75(knots) IAS
420,0 kg – 926 lbs.	130 km/h - 70(knots) IAS
367,5 kg – 810 lbs.	111 km/h - 60(knots) IAS
Precautionary approach speed for Landing With Engine Power	
472,5 kg – 1041 lbs.	120 km/h - 65(knots) IAS
420,0 kg – 926 lbs.	102 km/h - 55(knots) IAS
367,5 kg – 810 lbs.	92 km/h - 50(knots) IAS
Precautionary approach speed for Landing Without Engine Power:	
Wing Flaps Up	120 km/h - 65(knots) IAS
Wing Flaps Down	102 km/h - 55(knots) IAS

3.3 ENGINE FAILURES

3.3.1 ENGINE FAILURE DURING TAKEOFF RUN

[1]	Throttle	--- IDLE
[2]	Brakes	--- APPLY
[3]	Ignition Switch	--- OFF
[4]	Master Switch	--- OFF

3.3.2 ENGINE FAILURE IMMEDIATELY AFTER TAKEOFF

[1] Airspeed	--- 120 km/h – 65(knots) IAS(flaps up)
	--- 102 km/h – 55(knots) IAS (flaps down)
[3] Fuel Selector Valve	--- OFF
[4] Ignition Switch	--- OFF
[5] Wing Flaps	--- AS REQUIRED
[6] Master Switch	--- OFF

3.3.3 ENGINE FAILURE DURING FLIGHT

[1] Airspeed --- 120 km/h - 65(knots) IAS
[2] Check fuel quantity and selector --- ON
[3] Carburetor Heat --- ON
[4] Chock push --- OFF
[5] Check engine instruments (temperature, etc)
[6] Push start engine buttons, repeat several times
[7] During recovery procedure, all the time take care about speed, attitude and selected field !

3.4 FORCED LANDINGS

3.4.1 EMERGENCY LANDING WITHOUT ENGINE POWER

[1] Airspeed --- 120 km/h - 65(knots) IAS (flaps up)
--- 111 km/h - 60(knots) IAS (flaps down)
[2] General Fuel Valve --- OFF
[3] Change in flight direction up to 30° to left and right side. Highly recommended!
[4] Wing Flaps --- AS REQUIRED, USUALY IN FINAL APPROACH
[5] Master Switch --- OFF
[6] Doors --- UNLATCH PRIOR TO TOUCHDOWN
[7] Touchdown --- SLIGHTLY TAIL LOW
[8] Brakes --- APPLY HEAVILY(if necessary)

3.4.2 PRECAUTIONARY LANDING WITH ENGINE POWER

[1] Wing Flaps --- 19°
[2] Airspeed --- 111 km/h - 60(knots) IAS
[3] Selected Field --- FLY OVER, noting terrain, obstruction and wind direction from safe altitude and airspeed,
[4] Electrical Switches --- OFF
[5] Wing Flaps --- 38° (on final approach)
[6] Speed at final approach --- 84 kmh 45 kts
[7] Master Switch --- On
[8] Doors --- UNLATCH PRIOR TO TOUCHDOWN
[9] Touchdown --- SLIGHTLY TAIL LOW
[10] Ignition Switch --- OFF AFTER TOUCHDOWN
[11] Brakes --- APPLY HEAVILY(if necessary)

3.5 LANDING WITH FLAT MAIN TIRE

[1] Wing Flaps --- DEPLOYED
[2] Elevator control --- NOSE UP
[3] Expect rotation after runway touch, to the flat tyre side
[3] Aileron and rudder --- BANK TOWARD GOD TIRE
[4] Rudder control --- KEEP NOSE STRAIGHT TO BALANCE ROTATION
[5] Touchdown --- GOOD TIRE FIRST
[6] Brakes --- APPLY CAREFULLY WITH HIGHER FORCE AT GOOD TYRE

3.6 LANDING WITH A DEFECTIVE LANDING GEAR

[1] Wing Flaps --- FULLY DEPLOYED
[2] Elevator control --- NOSE HIGH
[3] Aileron control --- ZERO POSITION
[4] Rudder control --- KEEP NOSE STRAIGHT
[5] Airspeed --- ADJUST TO MINIMUM POSSIBLE(CCA 65 KMH-35KNOTS)
[6] Touchdown --- SLIGHTLY AND GENTLE
[7] Landing roll --- KEEP STRAIGHT DIRECTION
[8] Brakes --- APPLY (DEPPEND FROM DEFECTED LEG)

Remark : If nose wheel damaged try to hold nose wheel over runaway using elevator till total decreasing of speed and kinetic energy.

3.7 FIRES

3.7.1 DURING START ON GROUND

[1] Mixture --- IDLE CUT-OFF
[2] Fuel Selector Valve --- OFF
[3] Master Switch --- OFF
[4] Cabin Heat and Air --- OFF (except overhead vents)
[5] Leave the aircraft --- IMMEDIATELY
[6] TRY TO EXTINGUISH FIRE WITH EXTINGUISHER (IF POSSIBLE)
[7] Call fire department and start with extinguishing fire if safe

3.7.2 ENGINE FIRE IN FLIGHT

[1] Mixture --- IDLE CUT-OFF
[2] Fuel Selector Valve --- OFF
[3] Master Switch --- OFF
[4]Flying in such a way that the air stream rejects the fire away from the airplane
[5] Cabin Heat and Air --- OFF (except overhead vents)
[6] Airspeed --- TAKE CARE ABOUT STALL SPEED
[7] Precautionary Landing --- EXECUTE

3.7.3 ELECTRICAL FIRE IN FLIGHT

[1] Master Switch --- OFF
[2] Avionics Power Switch --- OFF
[3] All other switches
(except ignition switch) --- OFF
[4] Continue with flight in opposite direction from fire to ensure that flue gases not entered to cockpit.
[5] Cabin Air/Heat --- CLOSED (except overhead vents)

3.7.4 CABIN FIRE IN FLIGHT

[1] Master Switch --- OFF
[2]Open window or snap vent in opposite side of the pilot and make shift plane in opposite direction from smoke source
[3] Cabin Air/Heat --- CLOSED (except overhead vents)
[4] Land the airplane as soon as possible to inspect for damage

3.7.5 WING FIRE

[1] Navigation Light Switch --- OFF
[2] Pitot Heat Switch --- OFF
[3] Strobe Light Switch --- OFF
[4] Fuel selector --- OFF BURNING WING
[5Flight in opposite direction from fire and make shift plane to opposite side from burned wing

NOTE:
As soon as possible select field for precautionary – emergency landing.

3.8 GLIDE

[1]Level the aircraft if necessary
[2] Adjust air speed for maximum glide

--- 472,5 kg – 1041 lbs.	**139 km/h - 75(knots) IAS**
--- 420,0 kg – 926 lbs.	**130 km/h - 70(knots) IAS**
--- 367,5 kg – 810 lbs.	**111 km/h - 60(knots) IAS**

[3]Keep with a steady and free flight
[4] Find adequate airport or field for landing as soon as possible
[5] Land according to 3.4.1 if necessary

3.9 APPROACH AND LANDING WITH FLAPS RETRACTED

[1] AIRSPEED ---Take speed at least 92 kmh(50kts),because V_{S1}=84 kmh(45kts)
[2] Make landing approach with best glide slope
[3] Start with landing at the beginning of the runaway, to ensure safe stop
[4] TOUCHDOWN --- Slightly
[5] BRAKES --- Apply (heavily if necessary)

3.10 RECOVERY FROM UNINTENTIONAL SPIN

WARNING

Intentional spins are strictly prohibited. Information below is only for information to inform pilot about steps for recovery from emergency situation.

[1] CONTROL STICK --- Push forward till start recovery and then pull back
[2] THROTTLE --- FULL OPEN
[3] CONTROL STICK --- Ailerons in neutral position till start recovery and then opposite
[4] RUDDER --- In neutral position till start recovery and then opposite
[5] AIRSPEED --- Make sure to not exceed V_{NE} 223 kmh(120Knots)
[6] RUDDER --- Immediately spin stop, set rudder in neutral position
[7] CONTROL STICK --- Pull backward to recover from dive

NOTE

Aircraft have no tendency of spontaneously entering to spin, under normal maneuvers and normal handling.

3.11 OTHER EMERGENCIES

3.11.1 VIBRATIONS

[1] THROTTLE --- Adjust engine speed to minimize vibrations
[2] Land as soon as possible; perform precautionary landing if necessary, chapter 3.4.2,3.4.1

SECTION 4 – NORMAL PROCEDURES

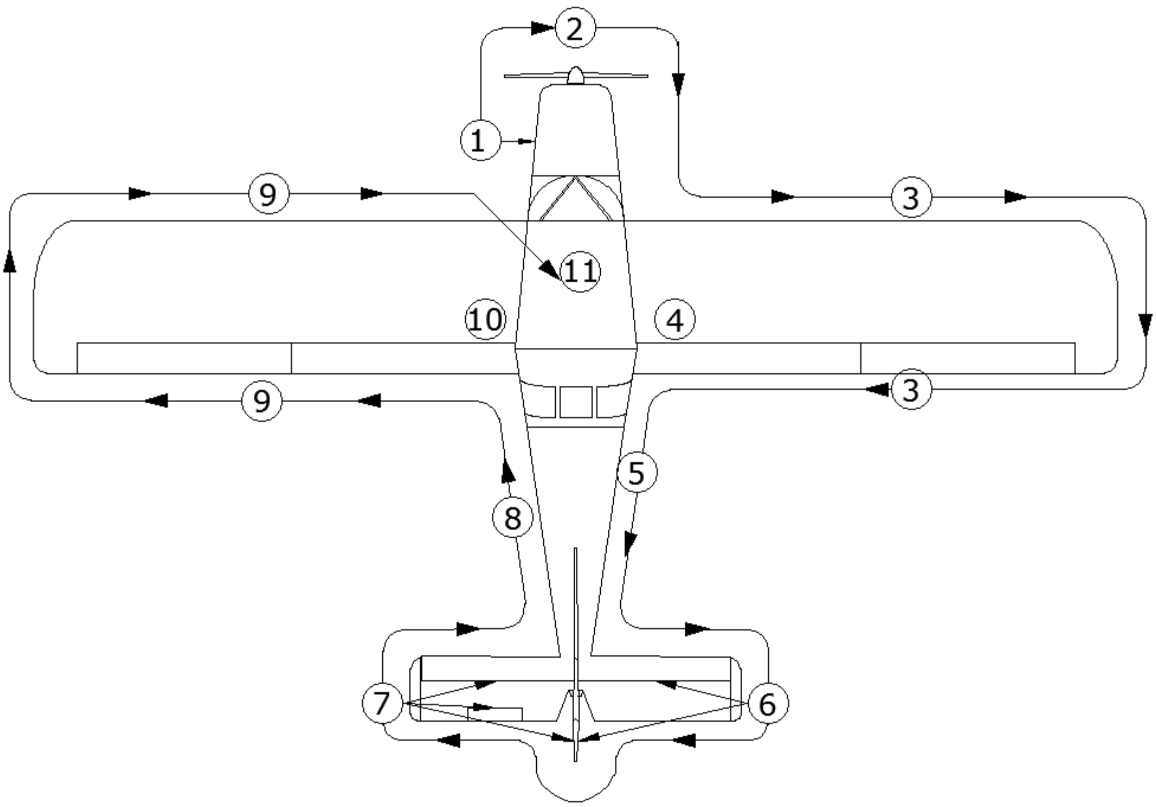
TABLE OF CONTENTS

4.1 INTRODUCTION

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

4.2 PRE – FLIGHT INSPECTION

Pre – flight inspection is absolutely necessary and mandatory. Steps necessary for pre – flight inspection are described below.



Picture 4-1 : Aircraft pre – flight inspection

1. POWER PLANT

Inspect general condition of propeller, check damages, attachment to engine flange, attachment blades to hub, inspect leaking of fuel, oil or refrigerant fluid in engine compartment, inspect attachments to engine mount, inspect attachment of engine mount to the structure, inspect damage and leaking of engine hoses, inspect electrical wires, inspect fluids to be at optimal level (oil, coolant), inspect fuel pump, inspect condition of engine cowling.

2. NOSE LEG OF LANDING GEAR

Inspect shock absorber, check legs attachments to firewall and wheel attachment to leg, inspect visually tire, check tire pressure (0,6 – 1,0 bar tundra tyres 1,1-1,3 15X6-6.00).

3. LEFT WING

Inspect general condition of upper surface, lower surface, leading and trailing edge, check rivets and attachment to fuselage and struts, inspect general condition of struts and attachment to wing and fuselage, inspect general condition ailerons, check freedom of movement and deflections, inspect attachments to wing, aileron hinges, inspect general condition flaps, check freedom of movement and deflections, inspect attachments to wing, flaps hinges, inspect wing root and wing tip and fuel tank cap, be sure that is properly tightened, to prevent fuel leaking. Visual inspection of pitot tube.

4. LEFT LEG OF MAIN LANDING GEAR

Inspect brake system, check legs attachments to fuselage and wheels, visual inspect of tire and check tire pressure (0,6 – 1,0 bar tundra tyres 1,1-1,3 15X6-6.00).

5. LEFT SIDE OF FUSELAGE

Inspect general condition of surfaces, check attachment with other parts of aircraft, check rivets visually.

6. LEFT PART OF HORIZONTAL AND VERTICAL TAIL

Inspect general condition of surfaces, leading and trailing edge, check rivets and attachment to fuselage. When elevator and rudder acting simultaneously, check there are no contact between rudder and elevator, check deflections.

7. RIGHT PART OF HORIZONTAL AND VERTICAL TAIL

Inspect general condition of surfaces, leading and trailing edge, check rivets and attachment to fuselage. When elevator and rudder acting simultaneously, check there are no contact between rudder and elevator, check deflections. Inspect the trimmer on elevator and rudder.

8. RIGHT SIDE OF FUSELAGE

Inspect general condition of surfaces, check attachment with other parts of aircraft, check rivets visually

9. RIGHT WING

Inspect general condition of upper surface, lower surface, leading and trailing edge, check rivets and attachment to fuselage and struts, inspect general condition of struts and attachment to wing and fuselage, inspect general condition ailerons, check freedom of movement and deflections, inspect attachments to wing, aileron hinges, inspect general condition flaps, check freedom of movement and deflections, inspect attachments to wing, flaps hinges, inspect wing root and wing tip and fuel tank cap, be sure that is properly tightened, to prevent fuel leaking.

10. RIGHT LEG OF MAIN LANDING GEAR

Inspect brake system, check legs attachments to fuselage and wheels, visual inspect of tire and check tire pressure (0,6 – 1,0 bar0,6 – 1,0 bar tundra tyres 1,1-1,3 15X6-6.00).

11. COCKPIT

Check that master and ignition switch in off position. Inspect freedom of control stick movement, inspect freedom of movement of rudder pedals, inspect freedom of movement of nose wheel. Check position of seats and locking mechanism if exist. Inspect safety belts from damage and check locking. Inspect instruments , and check for proper functioning. Inspect freedom of throttle lever movement, check engine cables. Inspect brakes, and check for proper functioning. Inspect windshield and windows for visibility and clean if necessary. Inspect position and functionality of breakers

WARNING

Assuring of the execution of pre – flight check is task of aircraft commander. These is extremely important task which can prevent accidents if proper executed.

4.3 RIGGING

Before flight rigging and check of control surface deflection is necessary. For easier use of aircraft and this manual in next figure are given deflections of control surfaces with corresponding tolerances.

All control surfaces need to set in zero position before flight.

Aileron	Up	19° ± 2°
	Down	19° ± 2°
Elevator	Up	25° ± 2°
	Down	19° ± 2°
Flaps	Down 1/2	19° ± 2°
	Down full	38° ± 2°
Rudder	Left	30° ± 2°
	Right	30° ± 2°

Figure 4 - 1

Warning

Rigging of any important part of aircraft structure is possible any in case of special approval of aircraft manufacturer and need to be connect to the specified aircraft serial number and specified type of rigging with clearly described reasons

4.4 SPEEDS FOR NORMAL OPERATION

The following speeds are based on a maximum weight of 472,5 kg and may be used for lesser weight. However, to achieve the performance specified in Section 5 for takeoff distance, the speed appropriate to the particular weight must be used.

Takeoff, Flaps Up:	
Normal Climb Out	120 km/h - 65(knots) IAS
Short Field Takeoff, Flaps 38°,	
Speed at 50 Feet	102km/h - 55(knots) IAS
Enroute Climb, Flaps Up:	
Normal, Sea Level	149 km/h - 80(knots) IAS
Best Rate of Climb, Sea Level	130 km/h - 70(knots) IAS
Best Angle Of Climb, Sea Level	25˚
Landing Approach:	
Normal Approach, Flaps Up	111 km/h - 60(knots) IAS
Normal Approach, Flaps down 38°	102 km/h - 55(knots) IAS
Short Field Approach, Flaps 38°	83 km/h - 45(knots) IAS
Maximum Crosswind Velocity:	
Takeoff or Landing	28 km/h 15(knots) IAS
Maximum Frontal wind Velocity:	
Takeoff or Landing	46 km/h 25(knots) IAS
Maximum Tailwind Velocity:	
Takeoff or Landing	15 km/h 8(knots) IAS

NOTE

Demonstrated values executed by experienced pilot and given only for information

Maximum Demonstrated Crosswind Velocity:	
Takeoff or Landing	*45 km/h 24,3(knots) IAS*
Maximum Demonstrated Frontal wind Velocity:	
Takeoff or Landing	*83 km/h 45(knots) IAS*
Maximum Demonstrated Tailwind Velocity:	
Takeoff or Landing	*28 km/h 15(knots) IAS*

4.4.1 BEFORE STARTING ENGINE

[1] Preflight Inspection	--- COMPLETE
[2] Seat Belts, Shoulder Harnesses	--- ADJUST and LOCK.
[3] General Fuel Valve	--- ON
[4] Avionics Power Switch, Electrical Equipment	--- OFF
[5] Brake	--- TEST and SET
[6] Circuit Breakers	--- CHECK IN

CAUTION:*The Avionics Power Switch must be OFF during engine start to prevent possible damage to avionics.*

4.4.2 STARTING ENGINE

[1] Start turn propeller without Master Switch –to get up oil pressure to 1,5 bar
[2] Master Switch --- ON
[3]Chock pull --- (only cold engine)
[4] Throttle --- OPEN AT 1/4 APROXIMATELY TO 1800 RPM
[5] Propeller Area --- CLEAR
[6] General fuel valve --- ON
[7]Push start engine buttons
[8] Oil Pressure --- CHECK (To 2,5 bar in 10 secs max)
[9] Flashing Beacon and Navigation Lights --- ON
[10] Avionics, TXP, VHF Radio Power Switch --- ON

4.4.3 BEFORE TAXYING

[1] Parking Brake --- RELEASE
[2] Cabin Doors and Windows --- CLOSED and LOCKED
[3] Flight Controls --- FREE and CORRECT
[4] Flight Instruments --- SET
[5] Fuel level check, general fuel valve --- ON
[6] Engine instruments --- CHECK(All in “green”)

4.4.4 TAXYING

[1] Taxi area (monitoring) --- CLEAR
[2] Flight, steering controls --- SET, CHECK
[3] Flight instruments --- FINAL CHECK
[4] General Fuel Valve --- ON

4.4.5 BEFORE TAKEOFF

[1] Parking Brake --- SET
[2] Cabin Doors and Windows --- CLOSED and LOCKED
[3] Flight Controls --- FREE and CORRECT
[4] Flight Instruments --- SET
[5] General Fuel Valve --- ON
[6] Elevator Trim and Rudder Trim --- TAKEOFF
[7] Throttle --- 3800 RPM
  a. Magnetos --- CHECK(both – left and right for RPM drop)*
  b. Carburetor Heat --- CHECK (for RPM drop)
  c. Engine Instruments and Ammeter --- CHECK
  d. Suction Gauge --- CHECK
[8] Power check --- CHECK at 5000 RPM and POWER IDLE
[9] Constant speed propeller controller --- CHECK & SET
[8] Throttle --- 1800 RPM
[9] Radios --- SET
[10] Autopilot (if installed) --- OFF
[11] Air Conditioner (if installed) --- OFF
[12] Strobe Lights --- ON
[13] Brakes --- RELEASE

NOTE: *RPM drop should not exceed 300 RPM on either magneto or 150 RPM difference between magnetos*

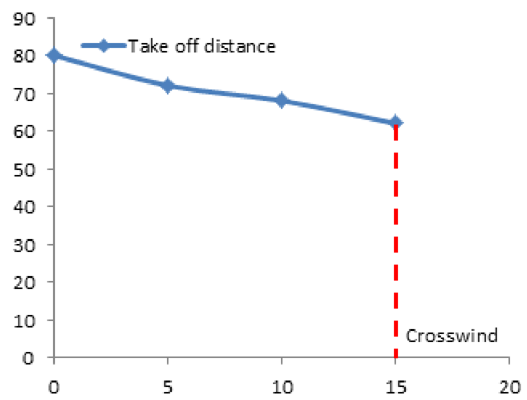
4.4.6 NORMAL TAKEOFF

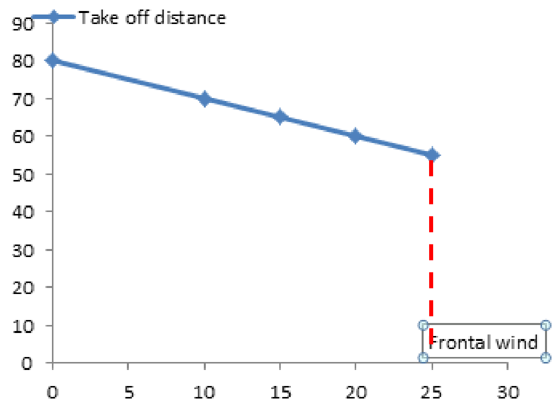
[1] Wing Flaps	--- 19°
[2] Carburetor Heat	--- OFF
[3] Throttle	--- FULL OPEN(progressively)
[4] Elevator Control(at 80 kmh/45kts)	--- LIFT NOSE WHEEL
[5] Climb Speed	--- 100 – 140 km/h 54 - 75(knots) IAS

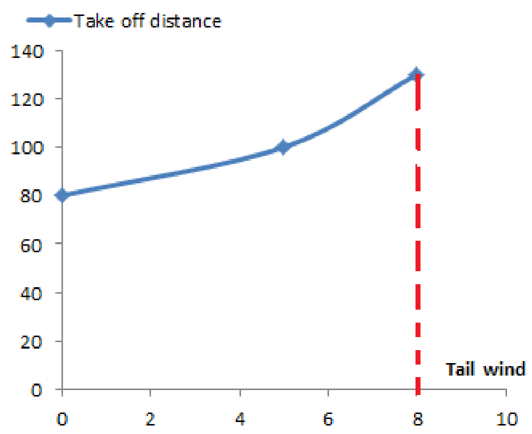
4.4.7 SHORT FIELD TAKEOFF

[1] Wing Flaps	--- 38°
[2] Carburetor Heat	--- OFF
[3] Brakes	--- APPLY
[4] Throttle	--- FULL OPEN(progressively)
[5] Brakes	--- RELEASE
[6] Elevator Control(at 75 kmh/40kts)	--- SLIGHTLY TAIL DOWN
[7] Climb Speed	--- 102km/h-55ktsIAS(until obstacles are cleared)

4.4.8 TAKE OF IN WIND CONDITIONS







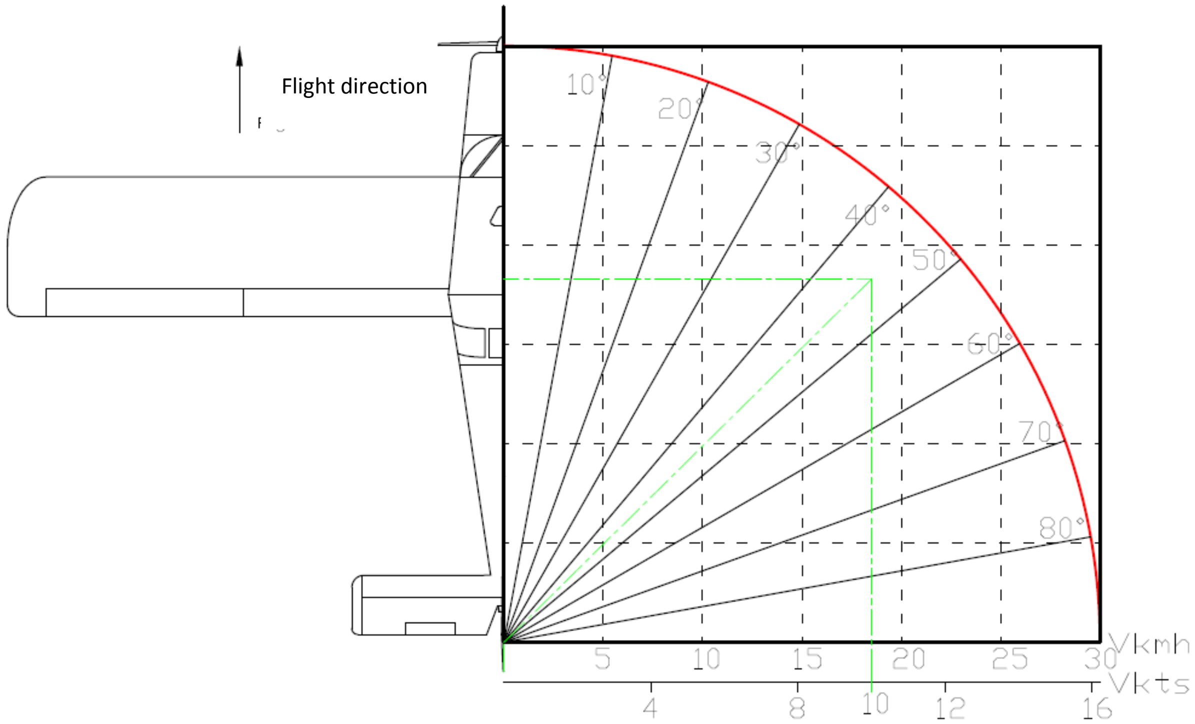
Cross-wind[kmh]	Take off distance[m]
0	90
10	87
20	83
30	80

Frontal wind[kmh]	Take off distance[m]
0	90
20	80
30	75
40	70
50	65

Tail wind[kmh]	Take off distance[m]
0	90
10	120
15	140

WARNING

Flying with wind conditions of 15 knots crosswind, 8 knots tailwind and 25 knots of frontal wind is prohibited



Angle[°]	Wind[kts]	Crosswind [kmh]	Front wind[kmh]	Angle[°]	Wind[kts]	Crosswind [kmh]	Front wind[kmh]
10	10	3.21	18.24	10	20	6.43	36.48
20	10	6.33	17.40	20	20	12.66	34.81
30	10	9.26	16.04	30	20	18.51	32.08
40	10	11.90	14.19	40	20	23.80	28.38
50	10	14.18	11.91	50	20	28.36	23.82
60	10	16.03	9.27	60	20	32.07	18.54
70	10	17.40	6.34	70	20	34.80	12.69
80	10	18.24	3.23	80	20	36.47	6.46
10	30	9.64	54.72	10	40	12.86	72.96
20	30	18.99	52.21	20	40	25.32	69.62
30	30	27.77	48.12	30	40	37.02	64.16
40	30	35.70	42.57	40	40	47.60	56.77
50	30	42.55	35.73	50	40	56.73	47.64
60	30	48.10	27.81	60	40	64.14	37.07
70	30	52.20	19.03	70	40	69.60	25.38
80	30	54.71	9.69	80	40	72.95	12.92

Table 4.4.8 Wind calculations due to tested cross wind conditions. Take of in red cells condition is prohibited

Note: If you have only one component of wind, for example if frontal wind is equal to 45 kmh you can take off.

4.4.9 ENROUTE CLIMB

[1] Airspeed --- 120 – 140 km/h - 65 - 75 IAS
[2] Throttle --- 90% of Power

4.4.10 CRUISE

[1] Power --- 5000 – 5200 RPM(75-80% of Power)
[2] Constant speed variable pitch --- SET & RPM ADJUST(in case of VPP)
[2] Elevator Trim --- ADJUST
[3] Rudder/Aileron Trim --- ADJUST

4.4.11 DESCEND

[1] General Fuel Valve --- ON
[2] Reduce power --- SET (balance MAP & RPM)
[3] Constant speed variable pitch --- SET & RPM ADJUST(in case of VPP)
[4] Airspeed --- (not exceed 223 kmh/120 kts IAS in smooth air)
[5] Carburetor Heat --- FULL HEAT AS REQUIRED

4.4.12 BEFORE LANDING

[1] Seat Belts, Shoulder Harnesses --- SECURE
[2] General Fuel Valve --- ON
[3] Buster pump (if installed) --- ON
[4] Carburetor Heat --- AS REQUIRED(in base of meteorological conditions)
[5] Autopilot (if installed) --- OFF
[6] Air Conditioner (if installed) --- OFF
[7] Set up pitch of propeller for take off/land
[8] Landing lights and strobe lights --- ON

4.4.13 NORMAL LANDING APPROACH

[1] Airspeed approach ---111 – 130 km/h - 60 - 70(knots) IAS (flaps up)
[2] Airspeed final --- 92 km/h- 111 km/h - 50 - 60(knots) IAS (flaps DOWN)
[3] Touchdown --- MAIN WHEELS FIRST
[4] Landing Roll --- LOWER NOSE WHEEL GENTLY
[5] Braking --- MINIMUM REQUIRED

4.4.14 SHORT FIELD LANDING

[1] Airspeed --- 83 – 102 km/h - 45 - 55(knots) IAS (full flaps)
[2] Wing Flaps --- FULL DOWN(in final approach)
[3] Airspeed in flare --- 74 km/h - 40(knots) IAS (until flare)
[4] Power --- Maintain required engine RPM
to enable more vertical descend
[5] Touchdown --- MAIN WHEELS FIRST
[6] Brakes --- APPLY HEAVILY

4.4.15 AFTER LANDING

[1] Wing Flaps --- UP
[2] Carburetor Heat --- OFF
[3] Avionics Power Switch --- OFF
[4] Remain engine before shut down for two minutes at 1800 RPM
[5] Throttle pull at 1500 RMP switch off left magneto, after left magneto switch off right Magneto
[6] Master switch --- OFF

4.4.16 SECURING AIRPLANE

[1] Parking Brake --- SET(if installed)
[2] Control Locks --- INSTALL
[3] Mats for wheels --- SET
[4] Fix the pilot stick by secure belts
[5] Fix the aircraft to the ground by belts and lugs under the wing if necessary(outside park)

SECTION 5 - PERFORMANCE

TABLE OF CONTENTS

5.1 INTRODUCTION

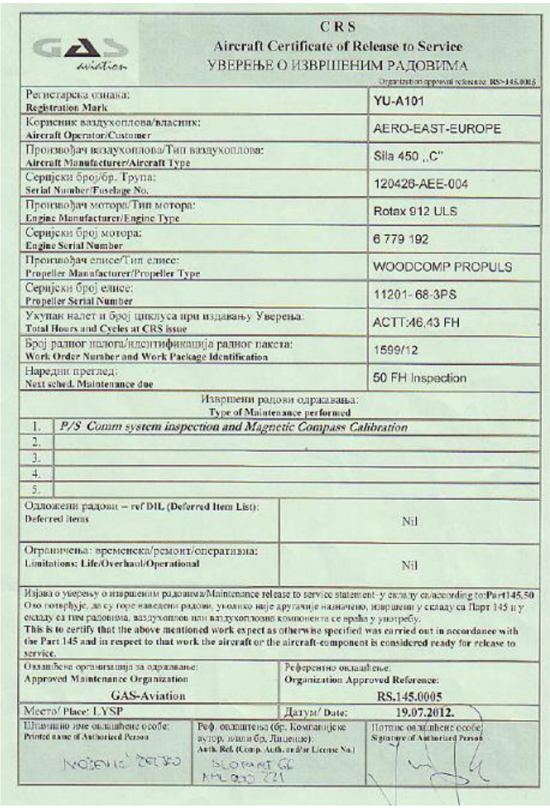
Flight performances are valid for standard version of aircraft under maximum take – off weight of 472,5 kg, for pilots with normal pilot skills and ISA conditions (sea level, 15°C, 1013 hPa). Flight characteristic are tested and calculate, the all flight characteristic are tested and most of flight characteristics are tested and calculated, both ways**. Difference between calculated and tested values are 5% for extremely cases, in majority of characteristics difference is less than 3%.**

5.2 APPROVED DATA

As above mentioned data of important flight characteristics are tested on different aircrafts according manufacturing procedures for new aircrafts. Values are interpolated and given in conservative manner, for any pilot with average pilot skills.

5.2.1 AIRSPEED INDICATOR SYSTEM CALIBRATION

Before delivery of every aircraft, company performs testing of pitot – static system in flihght speed calibration, and buyer executing procedure in approved organization. During pitot – static testing procedure, all important aircraft instruments are calibrated and level of mistake is minimal and in approved tolerances. After this pre – delivery check, periodical pitot – static testing and adjustments are obligation of aircraft owner, according to approved periods for maintenance and testing of equipment.
Pictures 5 – 1 , 5 – 2 , 5 – 3 , 5 – 4 showing tested values of tested equipment



CRS
Aircraft Certificate of Release to Service
УВЕРЕЊЕ О ИЗВРШЕНИМ РАДОВИМА
Organization approval reference: RS-145.0005

Регистарска ознака: Registration Mark	YU-A101
Корисник ваздухоплова/власник: Aircraft Operator/Customer	AERO-EAST-EUROPE
Произвођач ваздухоплова/Тип ваздухоплова: Aircraft Manufacturer/Aircraft Type	Sila 450 „C"
Серијски број/бр. Трупа: Serial Number/Fuselage No.	120426-AEE-004
Произвођач мотора/Тип мотора: Engine Manufacturer/Engine Type	Rotax 912 ULS
Серијски број мотора: Engine Serial Number	6 779 192
Произвођач елисе/Тип елисе: Propeller Manufacturer/Propeller Type	WOODCOMP PROPULS
Серијски број елисе: Propeller Serial Number	11201- 68-3PS
Укупан налет и број циклуса при издавању Уверења: Total Hours and Cycles at CRS issue	ACTT:46,43 FH
Број радног налога/идентификација радног пакета: Work Order Number and Work Package Identification	1599/12
Наредни преглед: Next sched. Maintenance due	50 FH Inspection

Извршени радови одржавања: Type of Maintenance performed
1. *P/S Comm system inspection and Magnetic Compass Calibration*
2.
3.
4.
5.

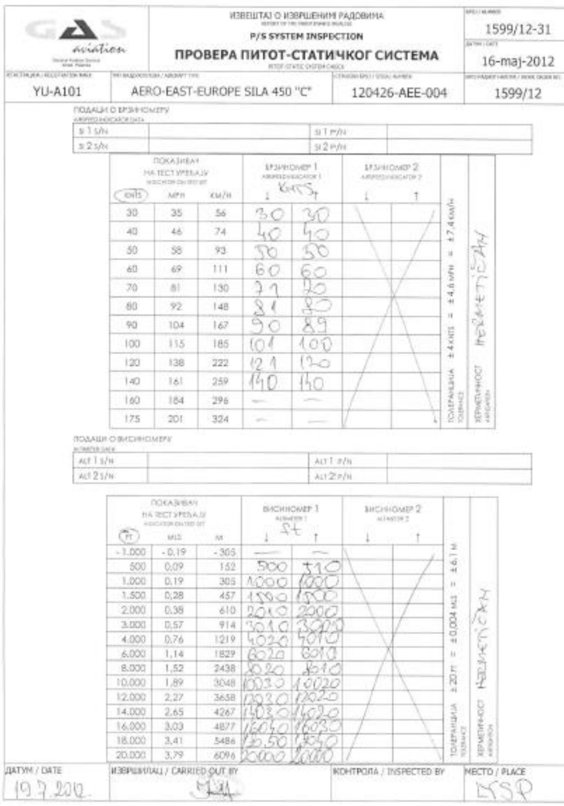
Одложени радови – ref DIL (Deferred Item List): Deferred Items	Nil
Ограничења: временска/ремонт/оперативна: Limitations: Life/Overhaul/Operational	Nil

Изјава о уверењу о извршеним радовима/Maintenance release to service statement - у складу са/according to:Part145.50
Ово потврђује, да су горе наведени радови, уколико није другачије назначено, извршени у складу са Парт 145 и у складу са тим радовима, ваздухоплов или ваздухопловна компонента се враћа у употребу.
This is to certify that the above mentioned work expect as otherwise specified was carried out in accordance with the Part 145 and in respect to that work the aircraft or the aircraft-component is considered ready for release to service.

Овлашћена организација за одржавање: Approved Maintenance Organization: GAS-Aviation	Референтно овлашћење: Organization Approved Reference: RS.145.0005
Место/ Place: LYSP	Датум/ Date: 19.07.2012.

Штампано име овлашћене особе: Printed name of Authorized Person	Реф. овлашћења (бр. Компанијске аутор. и/или бр. Лиценце): Auth. Ref. (Comp. Auth. and/or License No.)	Потпис овлашћене особе: Signature of Authorized Person
[illegible]	[illegible]	

Picture 5 – 1 CRS



ИЗВЕШТАЈ О ИЗВРШЕНИМ РАДОВИМА
P/S SYSTEM INSPECTION
ПРОВЕРА ПИТОТ-СТАТИЧКОГ СИСТЕМА
1599/12-31
16-maj-2012

YU-A101	AERO-EAST-EUROPE SILA 450 "C"	120426-AEE-004	1599/12

ПОДАЦИ О БРЗИНОМЕРУ

KNTS	MPH	KM/H	БРЗИНОМЕР 1 ↓	БРЗИНОМЕР 1 ↑	БРЗИНОМЕР 2 ↓	БРЗИНОМЕР 2 ↑
30	35	56	30	30		
40	46	74	40	40		
50	58	93	50	50		
60	69	111	60	60		
70	81	130	71	70		
80	92	148	81	80		
90	104	167	90	89		
100	115	185	101	100		
120	138	222	121	120		
140	161	259	140	140		
160	184	296	—	—		
175	201	324	—	—		

ТОЛЕРАНЦИЈА ±4 KNTS = ±4,6 MPH = ±7,4 KM/H

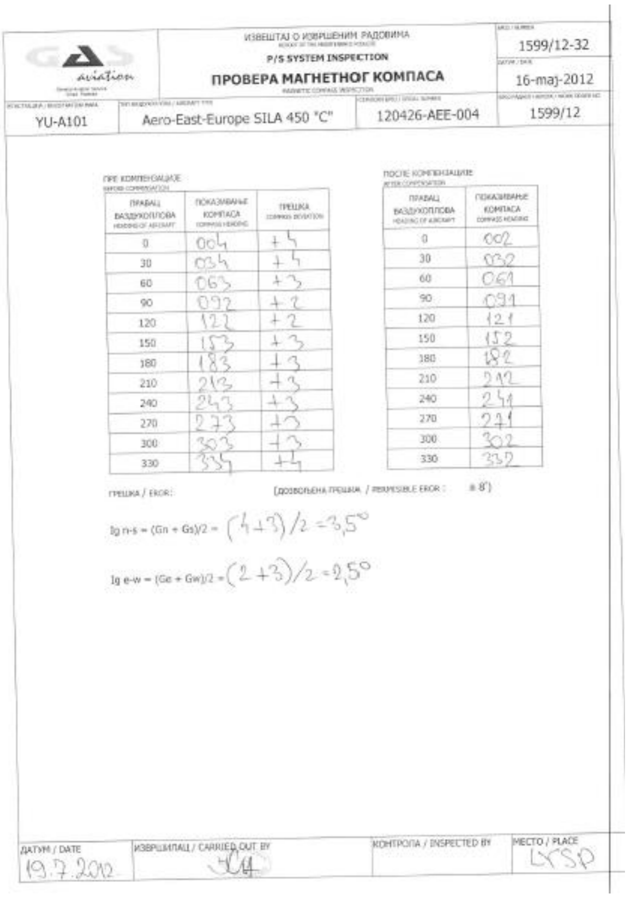
ПОДАЦИ О ВИСИНОМЕРУ

FT	MLS	M	ВИСИНОМЕР 1 ↓	ВИСИНОМЕР 1 ↑	ВИСИНОМЕР 2 ↓	ВИСИНОМЕР 2 ↑
-1.000	-0,19	-305	—	—		
500	0,09	152	500	510		
1.000	0,19	305	1000	1000		
1.500	0,28	457	1500	1500		
2.000	0,38	610	2010	2000		
3.000	0,57	914	3010	3000		
4.000	0,76	1219	4020	4010		
6.000	1,14	1829	6020	6010		
8.000	1,52	2438	8020	8010		
10.000	1,89	3048	10030	10020		
12.000	2,27	3658	12030	12020		
14.000	2,65	4267	14030	14020		
16.000	3,03	4877	16040	16030		
18.000	3,41	5486	18050	[illegible]		
20.000	3,79	6096	20000	20000		

ТОЛЕРАНЦИЈА ±20 FT = ±0,004 MLS = ±6,1 M

ДАТУМ / DATE	ИЗВРШИЛАЦ / CARRIED OUT BY	КОНТРОЛА / INSPECTED BY	МЕСТО / PLACE
19.7.2012			LYSP

Picture 5 – 2 Airspeed indicator and altimeter



ИЗВЕШТАЈ О ИЗВРШЕНИМ РАДОВИМА
P/S SYSTEM INSPECTION
ПРОВЕРА МАГНЕТНОГ КОМПАСА

1599/12-32
16-maj-2012

YU-A101	Aero-East-Europe SILA 450 "C"	120426-AEE-004	1599/12

ПРЕ КОМПЕНЗАЦИЈЕ

ПРАВАЦ ВАЗДУХОПЛОВА	ПОКАЗИВАЊЕ КОМПАСА	ГРЕШКА
0	004	+4
30	034	+4
60	063	+3
90	092	+2
120	122	+2
150	153	+3
180	183	+3
210	213	+3
240	243	+3
270	273	+3
300	303	+3
330	334	+4

ПОСЛЕ КОМПЕНЗАЦИЈЕ

ПРАВАЦ ВАЗДУХОПЛОВА	ПОКАЗИВАЊЕ КОМПАСА
0	002
30	032
60	061
90	091
120	121
150	152
180	182
210	212
240	241
270	271
300	302
330	332

ГРЕШКА / EROR: (ДОЗВОЉЕНА ГРЕШКА / PERMISSIBLE EROR : ± 8°)

Ig n-s = (Gn + Gs)/2 = (4+3)/2 = 3,5°

Ig e-w = (Ge + Gw)/2 = (2+3)/2 = 2,5°

ДАТУМ / DATE 19.7.2012 ИЗВРШИЛАЦ / CARRIED OUT BY КОНТРОЛА / INSPECTED BY МЕСТО / PLACE LYSP

YU-A101

For	N	030	060	E	120	150
Steer	002	032	061	091	121	152
For	S	210	240	W	300	330
Steer	182	212	241	271	302	332

KNOTS			AIRSPEED INDICATOR 1 ↓	↑	AIRSPEED INDICATOR 2 ↓	↑
30	35	56	30	30	-	-
40	46	74	40	40	-	-
50	58	93	50	50	-	-
60	69	111	60	60	-	-
70	81	130	71	70	-	-
80	92	148	81	80	-	-
90	104	167	90	89	-	-
100	115	185	101	100	-	-
120	138	222	121	120	-	-
140	161	259	140	140	-	-
160	184	296	-	-	-	-
175	201	324	-	-	-	-

FT		M	ALTIMETER 1 ↓	↑	ALTIMETER 2 ↓	↑
500	0,09	152	500	510	-	-
1.000	0,19	305	1.000	1.000	-	-
1.500	0,28	457	1.500	1.500	-	-
2.000	0,38	610	2.010	2.000	-	-
3.000	0,57	914	3.010	3.000	-	-
4.000	0,76	1219	4.020	4.010	-	-
6.000	1,14	1829	6.020	6.010	-	-
8.000	1,52	2438	8.020	8.010	-	-
10.000	1,89	3048	10.030	10.020	-	-
12.000	2,27	3658	12.030	12.020	-	-
14.000	2,65	4267	14.030	14.020	-	-
16.000	3,03	4877	16.040	16.030	-	-
18.000	3,41	5486	18.050	18.040	-	-
20.000	3,79	6096	20.000	20.000	-	-

5 – 3 Compass

5 – 4 Pitot – static test data

5.2.2 STALL SPEED

Stalling speeds are mentioned in figure below. Stalling speeds are valid for aircraft weight of 472,5 kg and wing level flight.

SILA 450 C	Indicated	**Stall speed IAS**
Flaps retracted		83 kmh (45 knots)
Flaps take off position	½ Flaps	74kmh (40 knots)
Flaps in landing position	Full flaps	64 kmh (35 knots)

Figure 5 – 1

5.2.3 TAKE – OFF PERFORMANCE

SILA 450 C	Take – off run	Take – off with 0bstacle 15 m
Flaps take off position	90 m	190 m

Figure 5 – 2

5.2.4 LANDING DISTANCES

SILA 450 C	Lnd ground roll	Lnd dist. From 15 m Obst.
Flaps in landing position	140 m	380 m

Figure 5 – 3

5.2.5 CLIMB PERFORMANCE

SILA 450 C climb performances are shown at figure 5 – 4 below

Altitude	Rate of climb	Airspeed to achieve maximum rate of climb
0 m	5,6 m/s (1100 ft/min)	120 kmh(65 knots)
1.000 m(3.300 feet)	4,1 m/s (800 ft/min)	120 kmh(65 knots)

Figure 5-4

5.3 ADDITIONAL INFORMATION

Additional information provide to pilot more useful information for easier handling with aircraft.

5.3.1 CRUISE

Recommended cruising speed of SILA 450 C is 204 kmh(110 Knots), engine rpm 5.000 – 5.200 (75-80 % power) between 29-32 MAP, for IAS condition (standard atmosphere). Aircraft is correctly trimmed for wing level flight, with elevator trimmer and rudder trimmer if installed.

5.3.2 ENDURANCE, CRUISING SPEED & RANGE

Endurance data are for engine ROTAX 912 UL/ULS, as standard equipment for SILA 450 C.
Figure 5 – 5

SILA 450 C	RPM	4800	5000	5100	5200	5500
IAS	Km/h	160	170	180	190	205
Suction	Liters/hour	13.5	14	15	16	20
Endurance	hours	6,7	6,4	6	5,6	4,3
Range	Km	1100	1100	1100	1000	950

CAUTION

Recommended minimum engine speed is 4.800 rpm because of propeller efficiency

5.3.3 BALKED LANDING CLIMB

In cases when is for any reason necessary to execute balked landing maneuver, its need to make next steps

[1] Carburetor heating --- OFF
[2] Throttle --- APPLY PROGRESSIVELY & SMOOTHLY
[3] Engine RPM --- 5.000 – 5.300
[4] Control stick --- PULL BACKWARD SMOOTHLY TO LEVELED FLIGHT
[5] Throttle --- FULL OPEN MAX CONTINOUS POWER
[7]Flaps --- SET TO ½ POSITION
[8]Climb --- Minimum altitude 200 M(650 feet)QFE
[9] Speed --- INCREASE TO 100 KMH (54 Knots)
[10] Flaps --- RETRACT
[11] STEP TURN 90 + 90 ° --- EXECUTE
[12] Repeat landing approach and landing procedure see 4.4.13

CAUTION

During the balked landing maneuver keep the straight - line flight, except if otherwise requested from particular situation

5.3.4 TAKE OFF MEASUREMENT FROM A DRY, SHORT – MOWN GRASS SURFACE

Take – off measurement from a dry, short – mown surface are performed and data in table 5 – 6, ant it's only can be used for take – off from short distances.

SILA 450 C	Take – off run	Take – off with obstacle 15 m
Flaps take off position	90 m	190 m

Figure 5 - 6

5.3.5 EFECTS ON FLIGHT PERFORMANCES AND CHARACTERISTICS CAUSED BY RAIN OR ACCUMULATION OF INSECTS

During the rainy weather, flight characteristics decreasing because aerodynamic characteristics of airplane and decreased visibility, and huge accumulation of insects on windshield and lift surfaces can also cause decreasing of aircraft characteristic. There is predicted pre – flight inspection of these surfaces.

5.3.6 DEMONSTRATED CROSSWIND PERFORMANCE

For crosswind performance see chapter 4.4 and 4.4.8. Next figure showing demonstrated and recommended crosswind, frontal wind and tail wing performances.

SILA 450 C	Crosswind		Frontal wind		Tail wind	
	Demonst.	Recomm.	Demonst.	Recomm.	Demonst.	Recomm.
	45 kmh	30 kmh	83 kmh	50 kmh	28 kmh	15 kmh

Figure 5 – 7

CAUTION

Performing of flights in wind conditions over recommended values can increase risk to significant level and shouldn't be performed at any circumstances

5.3.7 NOISE DATA

Measuring of noise level is performed in Germany by Deutche Aero Club(DAeC) engineers and SILA 450 C meets all requirements and standards according to German Airworthiness Requirements LTF – UL.

Measured noise level is around 59.42 dB DAeC.

SECTION 6 – WEIGHT AND BALANCE

______TABLE OF CONTENTS____

6.1 INTRODUCTION

The aircraft weight and determination of aircraft weight is extremely important to be in proper balance, because maneuvering and controllability of aircraft depends on C.G. position and distribution of payload. There are some limitations about payload but for any case in this manual, for example baggage with weigh of 20 kg.

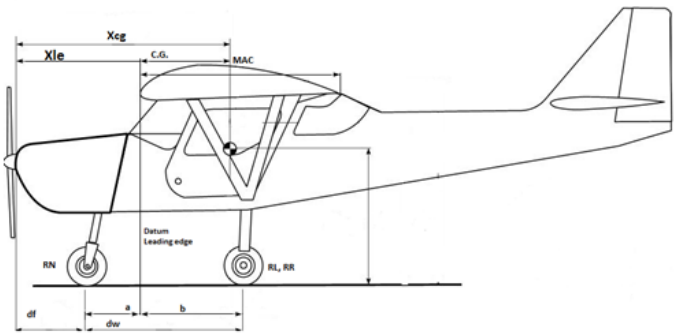
6.2 WEIGHT AND BALANCE RECORD PERMITED PAY LAOD RANGE.

Aircraft weighing procedure need to be performed when aircraft is leveled on plane surface. The all operating fluids are in recommended boundaries, with unusable fuel in fuel tanks. Determining of center of gravity is in respect of leading edge of the wing, as wing is rectangular, there are the same where respect point is, but according aviation standards the point is at the half of wing span.

Figure 6 -1 Weight and balance record

Weight and Balance Record AEE Form 41 a)

Model:	SILA 450 "C"	Registration:		S/N:	
Configuration :	Aircraft specification				



Weighing point	Scale reading R_i [kg]	Tare [kg]	Net Weight $NW_i = R_i - T_i$ [kg]
Nosewheel	R_N = kg	T_N =	NW_N = kg
Left wheel	R_L = kg	T_L =	NW_L = kg
Right wheel	R_R = kg	T_R =	NW_R = kg
Total weight [lbs] or [kg] $TW = NW_N + NW_L + NW_R =$ + + = [kg]			TW = [kg]
C.G. position from Datum (Leading edge) [in] or [mm] $C.G. = \frac{(NW_L + NW_R) \cdot b - NW_N \cdot a}{TW} = \frac{(\quad + \quad) \cdot 633 - \quad \cdot 790}{\quad} =$			C.G. = [mm]
C.G. position [% MAC] $\overline{C.G.} = \frac{C.G.[mm]}{MAC[mm]} x100 = \frac{\quad}{1.270} x100$			$\overline{C.G.}$[%MAC] = %

Allowed position of center of gravity for empty airplane is 292 – 340 mm or 23 – 27% MAC!!!

Weighing carried out by Date: / /

1.Name&Signature	2. Name&Signature	3. Name&Signature
Milan Filipovic	Jovan Zaturovski	Miroslav Bogdanovski
____________________	____________________	____________________

Figure 6 – 1 showing weight and balance record and permitted C.G. range of empty aircraft. Permitted range of C.G. for empty airplane is 23-27% of MAC or 292 – 340 mm from l.e.

WARNING

If C.G. isn't in allowed range further exploitation is prohibited

SECTION 7 – Airplane System & Description

TABLE OF CONTENTS

7.1 INTRODUCTION

SILA 450 C is the high-wing, single engine, two seat aircraft, with a semi - monocoque fuselage structure, make from approved aeronautical aluminum. The wing airfoil is NACA 5417 and it's same along wing span, wings are rectangular with sweep angle equal to zero, twist angle of -2° from wing root to wing tip and dihedral angle of 0,5°. Wings are made from approved aeronautical aluminum, with wing tips from epoxy plastic. Wings are connected to the top of the fuselage and supported by two struts on each wing. Wings are main lift surfaces which supporting the aircraft in flight. The tail surfaces are with classic design. Vertical tail has a rudder, the airfoil of vertical tail is NACA 0010, vertical tail sweep angle is equal to 40°. Horizontal tail has elevator with trim tab, the airfoil of horizontal tail is NACA 0010, the horizontal tail is rectangular with sweep angle equal to zero. Aircraft landing gear is non – retractable, tricycle with nose leg. Power plant consists from four – stroke engine and tractor propeller with clockwise rotation. Engine mount is fabricated from welded chrome molybdenum steel. The engine compartment is from fire proof epoxy plastic.

Certification basis for SILA 450 C was primarily German Airworthiness Requirements LTF – UL, CS – VLA and Serbian Regulation for Ultra – Light Aircrafts.

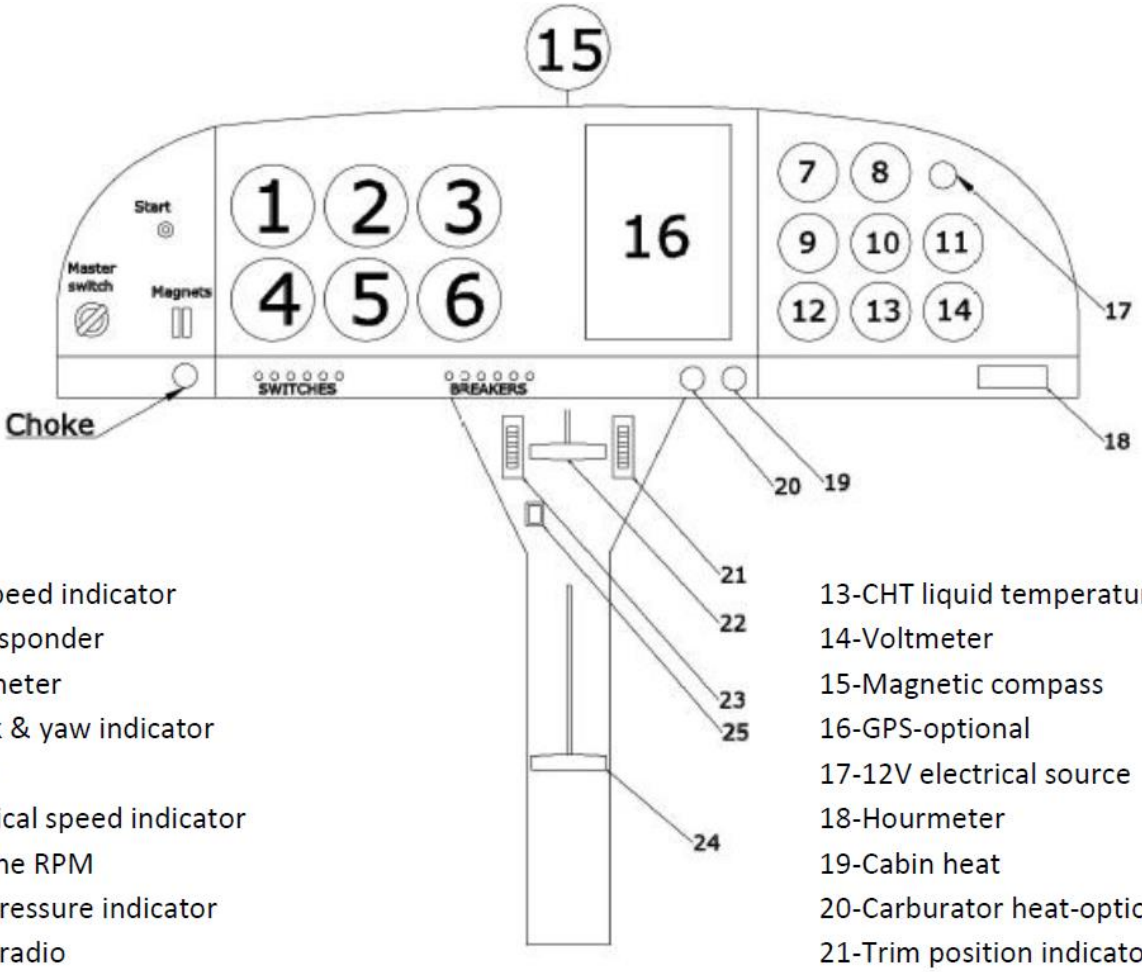
7.2 AIRFRAME

Airframe of SILA 450 C is classic monocoque metallic structure, with some parts from epoxy plastic such as wing tips, horizontal and vertical tail tips, wheels fairings and engine cowling. Materials used for manufacturing of SILA 450 C are approved aeronautical materials with strictly controlled characteristics because factory procedures are in compliance with EASA Part 21(JAR Part 21).

7.3 FLIGHT CONTROLS

Flight controls are traditional the most parts are made from chrome molybdenum steel, also aluminum and aeronautical parts, such as cables, bearings, nuts, bolts … etc with well-known characteristics. Flight controls are combination of mechanical and automatic controls, primary flight controls such as ailerons, elevator and ruder are mechanical, and flaps and tabs are semi – automatic.

7.4 INSTRUMENT PANEL



1-Airspeed indicator
2-Transponder
3-Altimeter
4-Bank & yaw indicator
5-Free
6-Vertical speed indicator
7-Engine RPM
8-Oil pressure indicator
9-VHF radio
10-Oil temperature indicator
11-Outside temperature
12-Free

13-CHT liquid temperature
14-Voltmeter
15-Magnetic compass
16-GPS-optional
17-12V electrical source
18-Hourmeter
19-Cabin heat
20-Carburator heat-optional
21-Trim position indicator
22-Parachute handle
23Flaps position indicator
24-Throtle

7.5 LANDING GEAR SYSTEM

SILA 450 C is equipped with non – retractable landing gear. Landing gear consist of main landing gear, with two legs connected to the fuselage and nose leg with shock absorber connected to firewall. Legs of main landing gear are from aluminum 2024 T4 and nose leg is from chrome – molybdenum steel. Wheels are 6 inches DURO Super Guide 15x6.00-6, with magnesium alloy wheels and axles from chrome molybdenum. Main landing gear is equipped with brake system connected to the rudder pedals, so pilot can breaking or to release brakes during take – off and landing run and during the taxying on ground.

7.6 SEATS AND SAFETY BELTS

SILA 450 C is two seated aircraft, seats are positioned side by side, left seat is for pilot and right is for the copilot. Seat template is from epoxy plastic wear by sponge and leader. In basic version seats are not adjustable, but it’s possible to deliver aircraft with adjustable seats under client requests. Safety harnesses (belts) for pilot and copilot are part of basic equipment.

7.7 BAGGAGE COMPARTMENT

Baggage compartment is positioned behind pilot and copilot seat, and weight of baggage is limited to 20 kg.

7.8 DORS, WINDOWS AND EXITS

Doors are positioned on left and right aircraft side in manner to make easier entrance and exit to aircraft, in flight doors are closed. Windshield and windows are from “makrolon” because better visibility.

7.9 ENGINE OIL SYSTEM

Oil for the engine lubrication is supplied from a tank out of the engine. The full capacity of the engine oil tank excluding radiator and pipelines is from a min. of 2Lts up to a max of 3,5Lts.
The engine is provided with a dry sump forced lubrication system with an oil pump with integrated pressure regulator. The oil pump is driven by the camshaft.
The oil pump sucks the motor oil from the oil tank via the oil cooler and forces it through the oil filter to the points of lubrication it lubricates also the propeller – engine gear box (it is strictly recommended the use of oil with gear additives and the use of aircraft engine oil for directed driven engines is not allowed. The surplus oil emerging from the points of lubrication accumulates on the bottom of the crankcase and is forced back to the oil tank by the piston blow-by gases. (The oil circuit is vented via the nipple in the oil tank). According to the check lists the procedure of oil level check/replenish must take into account the following:

- Always allow engine to cool down to ambient temperature before starting any work due to risks of burns.

- Before checking the oil level, make sure that there is not excess residue oil in the crankcase.
- Prior to oil level check, turn the propeller several times by hand in direction of engine rotation to pump all the oil from the engine to the oil tank. This process is completed when air flows back to the oil tank cover of the oil tank of the oil tank is removed.
- Pull out the oil dipstick.
- The oil in the oil tank should be between the two marks (min./max) on the oil dipstick, but must never fall below the min mark.
- For longer flights replenish oil to max. mark to warrant more oil reserve.

It is important to remember how oil temperature, pressure and type are important factors for the correct and safe use of the aircraft.

Constant behavior of temperatures and parameters (say “as usual” but of course within the constructor’s limits) indicates generally safe and health engine service. For this reason any unexpected change in what the user is judging as “unusual” must be carefully considered.

Oil participate to the fluids cooling action of the engine and its temperature must be in line with that of the cooling liquid. Usually friction (RPM) make oil temperature to raise while CHT raise with EGT and MAP. Oil pressure is highly dependent from viscosity so it is normal that the oil temperature decrease after the worming up of the engine to stabilize on a fixed value. Because of the presence of an oil circuit separated from the engine case through radiator and pipeline it is very important the constant monitoring in occasion of the pre-flight inspections verifying eventual leaking, or critical points as the connections along the pipeline; more no contact points between the engine parts must be in the potential condition to impair trough vibrations any element of the pipeline including the radiator.

The characteristics of the oil must take into account the prevalent kind of fuel used (detergent properties of the oil itself) as well as the climatic area in which the aircraft is supposed to operate. Temperature steps which the user must remember are the following:

- About 50°C = the minimal temperature necessary for a sufficient engine lubrication.
- About 90 – 110°C = desirable working temperature.
- About 120 °C = limit for almost mineral oils (above this value lubrication is not guaranteed).
- About 130 °C = limit for almost synthetic oils (above this value lubrication is not guaranteed).

When during the flight it happens to be unable to maintain the oil temperature within the limits the following actions must be undertaken:

- Temperature is increasing = reduce RPM and change aircraft attitude and speed (rate of climb).
- Temperature is too low = increase RPM , interrupt a descent or decrease the rate of descent, increase aerodynamic drag.

A sudden fall of the oil temperature is equally dangerous as an excess of its raising.

Oil for the engine lubrication is supplied from a sump at the bottom of the engine. The capacity of the engine sump is seven quarts (one additional quart is contained in the full flow oil filter. Oil is drawn from the sump through an oil suction strainer screen into the engine driven oil pump. From the pump oil is routed to a bypass valve. If the oil is cold, the bypass valve allows the oil to bypass the oil cooler and go directly from the pump to the full flow oil filter. If the oil is hot, the bypass valve routes the oil out of the accessory housing And into a flexible hose leading to the oil cooler on the right rear engine baffle. Pressure oil from the cooler returns to the accessory housing where it passes through the full flow oil filter. The filter oil then enters a pressure relief valve which regulates engine oil pressure by
allowing excessive oil to return to the sump while the balance of the oil is circulated to various engine parts for lubrication. Residual oil is returned to sump by gravity flow. An oil filter cap/oil dipstick is located at the right rear of the engine. The filler cap/dipstick is accessible through an access door on the top right side of the engine cowling. The engine should not be operated on less than five quarts (3 liters) of oil.

7.10 IGNITION-STARTER SYSTEM

Engine ignition is provided by two engine-driven magnetos, and two spark plugs in each cylinder. Normal operation is conducted with both magnetos due to the more complete burning of the fuel-air mixture with dual ignition. Ignition and starter operation is controlled by a rotary type switch, ignition button, left and right magneto switch with red covers located on the left of the control panel. The engine should be operated on BOTH magnetos except for magneto checks and emergency use only. When the switch is rotated the master relay is energized and battery is giving tension to the circuits. Pressing the start button crankshaft an propeller will rotate, in this way (but for no more than 6-10 secds) let the oil pressure gouge show a pressure increase than turning the magnets switches in the ON position, the engine will start.
Warning: Never handle or turn the propeller operating by hands with the magnets in the ON position, this may result in a sudden and unexpected engine start.

7.11 AIR INDUCTION SYSTEM

The engine air induction system receives air through an intake in the front portion of the engine cowling (+from a lateral NACA intake vent) or from the heat exchanger situated on the exhaust pipe pot: this is selected by the pilot through the WORM/COLD control. Depending on the choice of accessories the air driven in the cowling may be directed to an airbox (if any) or directly to the conics air filters mounted on the carburetors (in this case no device will allow any WORM/COLD selection). When an airbox system is present the air-filter, which removes dust and other foreign matter from the induction air, is situated in the airbox. Airflow passing through the filter in the airbox, enters the inlet in the carburetors which are on the engine sides, then ducted to the engine cylinders through intake manifold tubes. In the event of a carburetor icing condition heated air can be obtained pulling the carburetor heat control (WORM position) on the instrument panel. Both Cold and worm surceases are filtered. The use of full carburetor heat at full throttle will result in a loss of approximately 75 to 250 RPM. To obtain full power (takeoff and pulling up) it is recommended the COLD position. In every situation where an icing condition is suspected, while descending or when power will be sensibly reduced WORM position is recommended.

Always monitor the air temperature and verify that pulling the WORM selector the air in the airbox reaches at least 25 °C(expect in case of turbo charged engine).

IN FLIGHT ICE TEST:

- Pulling the air selector in WORM position results in a decrease of RPM: no ice (normal behavior).
- Pulling the air selector in WORM position results in a decrease of RPM then a rough engine behavior and finally an increase of RPM: ICE was present.
- NEVER LET ICE TO FORM – ALWAYS PREVENT ITS FORMATION.

Generally the conic air filters are safe from ICE formation due to their hidden position in the cowling; for the same reason with conic air filters engine performances are averagely decreased.

AIRPLANE & SYSTEMS DESCRIPTION

The dynamic intake of fresh air make the more performing and this is the reason for the COLD position of the airbox selector in the normal flight conditions.
Always keep in mind than the air temperature and than the final mixture temperature passing through the venture system of the carburetor may be so important to reach a temperature deep of 20 °C and the ice formation is only a matter of concomitant conditions, so do not be confident: ice formation may occur also with apparently reasonable worm weather conditions. Do not hesitate to pull WORM air or to perform the ice test at the minimum doubt! Cold exhaust pipes will no more give worm air: do not risk.
Pull Warm air **always** when rain falls, when misty, when descending, when passing through clouds.

7.12 CARBURETORS AND PRIMING SYSTEM

The system is consisting in two carburetors which are on the standard engine attached by a flexible flange. Bowden cables connect throttle and starting device.
When starting the engine operate a few seconds the electric pump (if installed) to ensure the filling of the carburetors float chambers, pull choke and then start the engine. Throttle will be in the idle position, soon after engine starts allow the stabilization of the RPM releasing gently the choke accordingly. Never operate with the choke in, let it in the off position as soon as it is no more necessary.
Inspection of carburetor floats chambers must be performed often, ask the mechanics to perform the cleaning and check procedure always when you feel that it is necessary and especially when often operating with rain or when the aircraft is not kept in hangar. Fuel in the chambers must always be clean of dirtiness and water. Water is the most common reason of engine failure during take off together with the fuel valve forgotten in the OFF position. An accurate worming up pre-flight procedure (with WORM air position in) is recommended for safety reasons, it will keep you safe from ICE and … fuel valve OFF!...

7.13 COOLING SYSTEM

The engine is cooled through air, oil and liquid. Oil and water radiators are present as well as an air intake for engine cooling entering through the openings in the front of the engine cowling. The cooling air is directed around the cylinders and other areas of the engine by baffling, and is then exhausted through an opening at the bottom aft edge of the cowling. No manual cooling system control is provided. Constant monitoring of oil and water temperatures according to the engine manuals is necessary.
As for the liquid cooling system this is designed for the cylinders heads where a closed circuit with an expansion tank is previewed.
The coolant flow is forced by a water pump, driven from the camshaft, from the radiator to the cylinder heads. From the top of the cylinder heads the coolant passes on the expansion tank which is closed by a pressure cap with excess pressure valve and a return valve. A transparent overflow bottle is provided in order to allow the flow to and from the bottle itself via a hose (when cooling down the coolant is sucked back into the cooling circuit).
it is very important the constant monitoring in occasion of the pre-flight inspections verifying eventual leaking, or critical points as the connections along the pipeline; more no contact points between the engine parts must be in the potential condition to impair trough vibrations any element of the pipeline including the radiator. Inspect carefully the connection between the pump and the hose.

7.14 PROPELLER

The airplane equipment varies according the following:

- Wooden two-bladed fixed-pitch.
- Wood & Composite Three-bladed variable on ground-pitch.
- Wood & Composite Three-bladed variable –pitch in flight.
- Wood & Composite Three-bladed variable –pitch in flight with governor constant speed.
- Composite Three-bladed variable –pitch on ground.
- Composite Two-bladed variable –pitch in flight.

It is recommended to clean the propeller blades (always before the flight) or in any case when is possible. The airplane is equipped with a two or three-bladed, fixed-pitch or variable pitch, one-piece forged aluminum alloy propeller, which is anodized to retard corrosion or wood propeller covered with composite or completely in carbon. The propeller diameter is between 165cm to 175cm(for more information’s check propeller manual).

7.15 FUEL SYSTEM

The airplane is equipped with a standard fuel system. System consists of two vented removable aluminum fuel tanks (one tank of 45Litres each wing), a tow-position selector valve, fuel strainer, (10Litres reserve tank with sensor, sender and panel red light wit tester button[)**optional] , drain bowl with drain valves for fuel (and air[**optional]), electric pump with pressure gauge[**optional], mechanical pump, two carburetors and return line.

Each fuel tank is in communication with the central drain bowl and no selection right/left is previewed.
The fuel flows by gravity from the two wing tanks trough a drain bowl to a two-position selector valve labeled ON and OFF. Fuel system venting is essential to system operation. Blockage of the venting system will result in decreasing fuel flow and eventual engine stoppage. Venting is accomplished by two dynamic air intakes located close the wing struts. The fuel level in the tanks is directly showed by a transparent hose located in the upper left and right side of the cockpit.
The indicators cannot be relied upon for accurate readings during skids, slips, or unusual attitudes. A red line marked on the transparent hoses indicates the quantity of remaining fuel considered unusable. The availability of the above defined "unusable fuel" depends on the attitude of the aircraft but for safety reasons the red line must stand for EMPTY tank.
When a 10 Liters reserve tank is present the red LOW FUEL light will switch on as soon as the volume of fuel in the reserve tank is decreased. Low fuel Light ON has to be intended as a distress situation and a correct and safe flight planning must never lead to the use of the fuel in the reserve tank.
The reserve fuel tank is equipped with an air valve drainer; in case of a non correct air draining during preflight procedures may result in anomalous LOW FUEL indication while flying above about 4000ft.
In case of distress flight condition of low fuel:
As soon as the red indicator light turns on reduce speed and allow the aircraft to fly with a "nose up" attitude in order to maximize the availability of the remaining fuel in the tow main tanks until the light turns again off. This operation may be carried on for one or two times until the alarm LOW FUEL red light will be constantly ON, from this moment no more of about 0,5 Liters of fuel must be taken into account.
Prolonged slips, deeps and skids may lead to an anomalous LOW FUEL alarm indication when the fuel amount in the two wing tanks contain less then about 1/3 of their capacity: the red light will turn off as soon as the aircraft will return in a usual flight attitude. Anomalous or unusual prolonged deep attitudes must be avoided if no reserve fuel tank is installed when the total fuel amount is less then about 1/3 of the tanks capacity.
Unequal fuel flow from each tank may occur if the wings are not maintained exactly leveled.

NOTE:

The fuel system is equipped with drain valves to provide a means for the examination of fuel in the system fuel contamination and grade. The system should be examined before the first flight of every day and after each refueling, by using the sampler cup provided to drain fuel from the tank sump. The fuel tanks should be filled after each flight to prevent condensation.

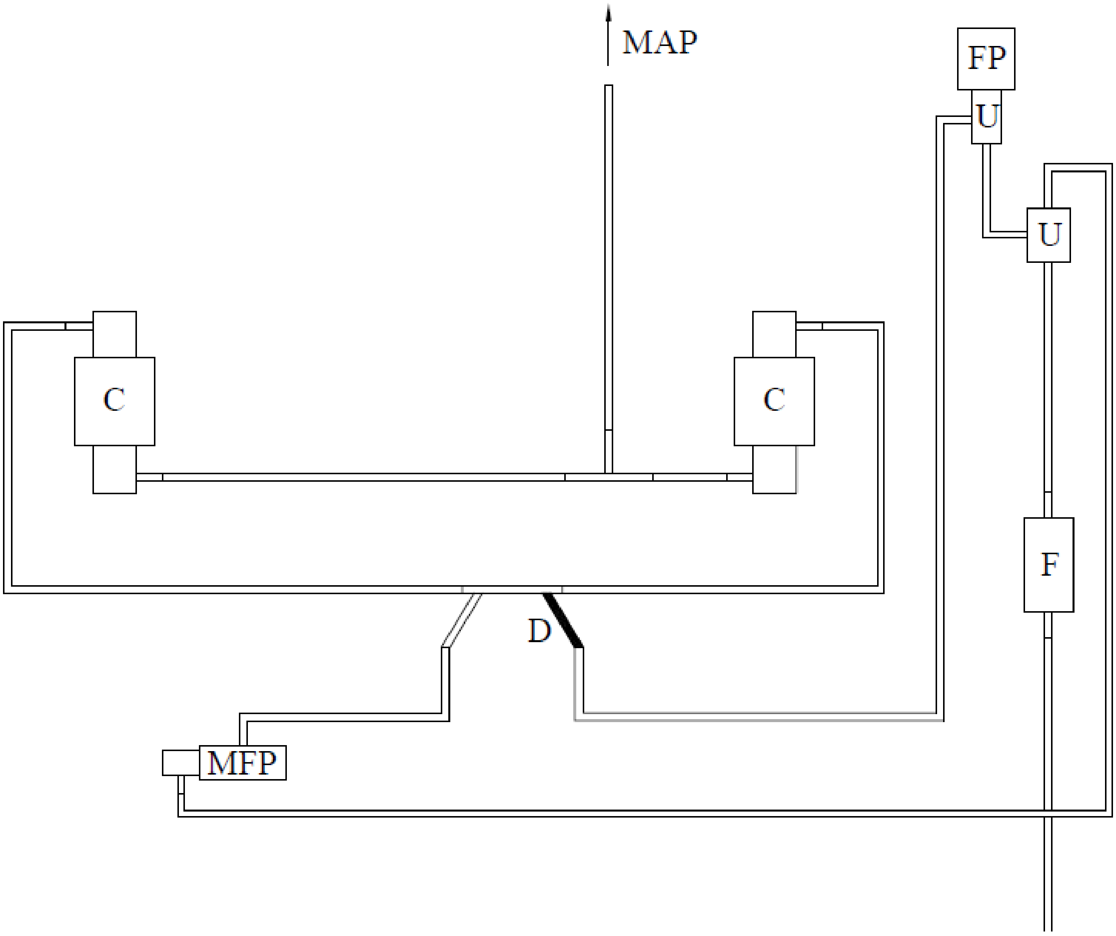
NOTE:

Let the fuel to flow out also up to 20-30Ltr if you feel it is necessary to drain out dirtiness or water. Fuel MUST flow and spill out CLEAN!

The airplane is equipped with a standard fuel system.
The fuel system consist form two tanks (one in each wing) connected at one collection tank at the bottom of the fuselage, which volume is 0,4 liters. Systems have two positions ON or OFF. When switch in in position ON fuel flow in same quantity from both tanks through the collection tank. When wing tanks are empty system give the signal by red lamp, low fuel, that means system suck fuel from collection tank, pilot must landed in maximum of 35 minutes

** Please be informed what kind of additional equipment is installed on aircraft

The next picture is fuel system scheme.



F - FILTER
U - USHER
FP - FUEL PRESSURE (ELECTRIC)
C - CARBURETOR
MFP - MECHANICAL FUEL PUMP
MAP - MANIFOLD PRESSURE
D - DIZNA

NOTE:

Flying at temperatures higher than 35° Celsius is danger because of possibility of vapor in fuel system.

NOTE:

Use only fuel suitable for the respective climatic zone, risk of vapor formation if using winter fuel for summer operation.

Fuel characteristics are depicted in the engine user manual.
If AVGAS 100LL is often used provide adequate servicing.

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

The following fuels can be used:

	Usage/Description	
Mogas	**912 A/F/UL**	**912 S/ULS**
European standard	EN 228 Normal[1)] EN 228 Super [1)] EN 228 Super plus [1)]	EN 228 Super [2)] EN 228 Super plus [2)]
Canadian standard	CAN/CGSB-3.5 Quality 1[3)]	CAN/CGSB-3.5 Quality 3[4)]
US standard	ASTM D4814 [3)]	ASTM D4814 [4)]

1) min. RON 90
2) min. RON 95
3) min. AKI 87
4) min. AKI 91

	Usage/Description	
AVGAS	**912 A/F/UL**	**912 S/ULS**
Aviation Standard	AVGAS 100 LL (ASTM D910)	AVGAS 100 LL (ASTM D910)

7.16 IGNITION-STARTER SYSTEM

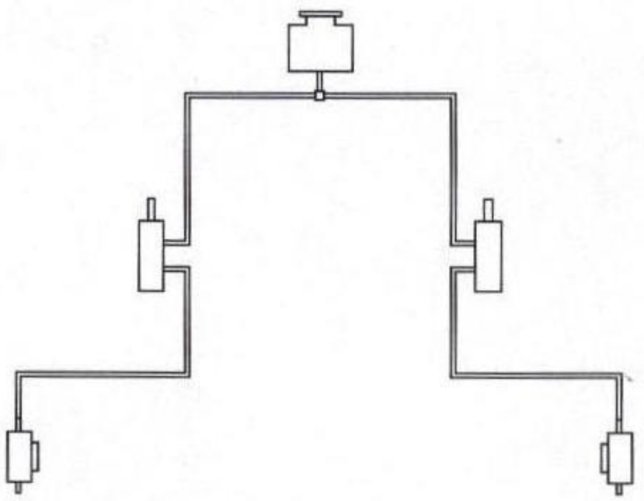
Engine ignition is provided by two engine-driven magnetos, and two spark plugs in each cylinder. The right magneto fires the lower right and upper right spark-plugs. Normal operation is conducted with both magnetos due to the more complete burning of the fuel-air mixture with dual ignition. Ignition and starter operation is controlled by a rotary type switch located on the left switch and control panel. The switch is labeled clockwise: OFF, R, L, BOTH and START. The engine should be operated on BOTH magnetos except for magneto checks. The R and L position are for checking purposes and emergency use only. When the switch is rotated to the spring-loaded START position, the starter contactor is energized and the starter will crank the engine. When the switch is released, it will automatically return to the BOTH position.

7.17 AIR INDUCTION SYSTEM

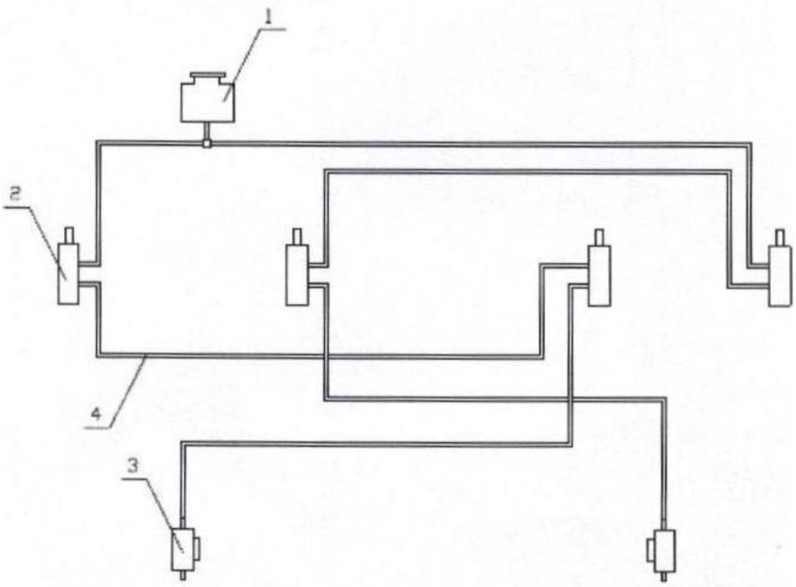
The engine air induction system receives ram air through an intake in the lower front portion of the engine cowling. The intake is covered by an air-filter which removes dust and other foreign matter from the induction air. Airflow passing through the filter enters an airbox. After passing through the airbox, induction air enters the inlet in the carburetor which is under the engine, andis then ducted to the engine cylinders through intake manifold tubes. In the event carburetor ice is encountered or the intake filter becomes blocked, alternate heated air can be obtained from a shroud around an exhaust riser through a duct to a valve in the air box operated by the carburetor heat control on the instrument panel. Heated air from the shroud is obtained from an unfiltered outside source. Use of full carburetor heat at full throttle will result in a loss of approximately 75 to 150 RPM. Ram air for engine cooling enters through two intake openings in the front of the engine cowling. The cooling air is directed around the cylinders and other areas of the engine by baffling, and is then exhausted through an opening at the bottom aft edge of the cowling. No manual cooling system control is provided.

7.18 BRAKE SYSTEM

A



B



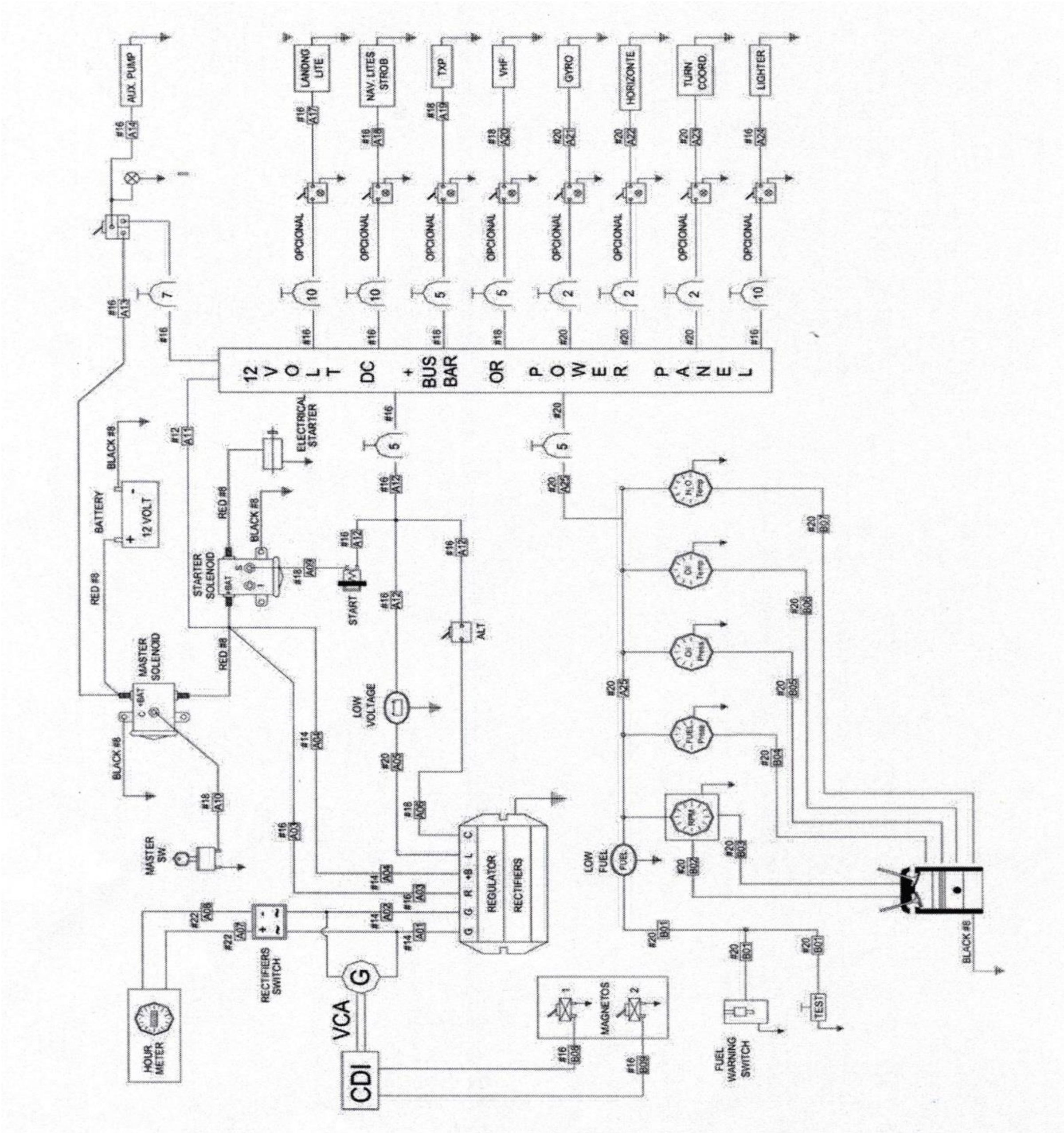
A Pilot side
B Pilot and Copilot side
1. Tank
2. Brakes pumps
3. Wheel Brakes
4. Installation

The airplane has a single-disk, hydraulically-actuated brake on each main landing gear wheel. Each brake is connected, by a hydraulic line, to a master cylinder attached to each of the pilot's rudder pedal. The brakes are operated by applying pressure to the top of either the left or right set of rudder pedals which are interconnected.

The Hydraulic brakes are fully independent with separate controls.

Proper use of the nose wheel keeping heels on the floor, avoids excessive brake overheating. This cautious attitude should also apply during take-off. Use mineral base brakes oil to refill.

7.19 ELECTRICAL SYSTEM



In its standard configuration the aircraft is supplied with an engine integrated generator, a rectifier-regulator, electronic modules, electric starter, start relay and items conditional for operation like circuit breakers switches an so on. Additional alternator, battery ad redounding other devices are installed on request. As concerning lighting conventional aviation lights are located on the wing tips and in tail. A single landing light is located in the cowling. Available are also flashing strobe lights on the wing tips as well as on the fuselage. Panel and cabin lights also available.

The flashing lights should not be used when flying through clouds or overcast; the flashing lights reflected from the water droplets or particles in the atmosphere, particularly at night can produce vertigo and loss of orientation. Flashing strobe lights require a considerable amount of energy to be supplied, this must be taken into account.

AVIONICS POWER SWITCH

The master switch activates the master relay in order to connect battery to circuits. When master switch is ON it is possible to select the single services switches on supplying power to the avionics.
Any way it is better to turn on the single avionics devices after that the engine starts except for the radio COM.

VOLTMETER

A voltmeter installed on the instr. panel shows if the electric system is working properly according to the following:

- Volt indication under 12,5 indicate a problem or a overloading of the system.
- Volt indication up to 14.5 indicate a normal behavior.
- Volts indications over 14.5 indicate a problem at the rectifier-regulator.

ALTERNATOR CONTROL UNIT AND
LOW – VOLTAGE WARNING LIGHT

The integrated generator produces approx. 250W AC output at 5800RPM and for DC output is in connection with rectifier-regulator type electronic full wave. Effective voltage is 14 +-0.3V (from 1000+-250RPM). The current limit is 22A and the max. Permissible component temperature is +80 °C.
A low voltage warning light is present on the instr. Panel.

CIRCUIT BREAKERS AND FUSES

All of the electrical circuits in the airplane are protected by “push to reset “ type circuit breakers mounted on the bottom side of panel. The circuit breakers have the correspondent lighted toggle switch (ON when red light ON) in order to provide power to every device.

THE AIRCRAFT STANDARD CONFIGURATION AND THE COMPLETE LIST OF THE AVIONICS EQUIPMENT IS REPORTED IN THE “ENCLOSURE 2” ANNEXED TO THE PURCHASE CONTRACT mod. AEE-Ug001-Engl OF THE AIRCRAFT AND RELEASED ACCORDINGLY.
The Standard configuration comprises the totality airplane’s structure, equipment, instruments and finishes which enable it to operate properly. When installed optional devices as for ENCLOSURE 2 the use of the devices must be in accordance with the device’s operation manual released and supplied by the producer of the avionics/devices.

AIRSPEED INDICATOR

As depicted in the Annex 2.

VERTICAL SPEED INDICATOR

As depicted in the Annex 2.

ALTIMETER

As depicted in the Annex 2.

VACUUM SYSTEM AND INSTRUMENTS

As depicted in the Annex 2.

ATTITUDE INDICATOR

As depicted in the Annex 2.

DIRECTIONAL INDICATOR

As depicted in the Annex 2.

SUCTION GAGE

May be engine driven or Venturi driven.
As depicted in the Annex 2.

WARNING:

The indications and suggestions of the present manual are valid ONLY within the limits and in compliance with what stated by the competent CAA (or anyway since not otherwise indicated by the competent CAA itself).

7.20 MINIMUM REQUIRED FLIGHT EQUIPMENT

7.20.1 AVIONICS

The following Standard instruments must be present on the aircraft when this is supposed to be used in VFR Flights.

- Magnet Compass
- Aneroid Speed Indicator
- Aneroid Altimeter
- Radio VHF

7.20.2 ENGINE GAUGES AND OTHER DEVICES

As for the engine or other instruments or devices here follows the minimum required equipment for a safe VFR:

- RPM indicator
- Low volt light alarm
- Oil pressure indicator
- Oil temperature indicator
- CHT(Cilynder Head Tepmerature)

SECTION 8 – Airplane Handling, Servicing and Maintenance

TABLE OF CONTENTS

8.1 INTRODUCTION

This section of manual provides information's about airplane handling, maintenance and operation recommended by manufacturer.

Every buyer need to use airplane in compliance with this manual and to be in permanent contact with aircraft manufacturer to get the newest information concerning airplane operation, handling and maintenance. Manufacturer regularly informing airplane buyers and publishing necessary material on web site www.aeroeast.net. Airplane manufacturer is obligate to publish and distribute service bulletins. Mandatory bulletins are extremely important to keep continued airworthiness and need to be finished according manufacturer instructions.

With every delivered aircraft manufacturer delivering Pilot Operation Handbook and Maintenance Program for airplane.

8.2 AIRPLANE INSPECTION PERIOD

Periodical inspections and reviews of airplane need to be performed at least in the following intervals

- After first 25 ± 2 hours of operation
- After first 50 ± 3 hours of operation
- After first 100 ± 5 hours of operation
- After every 200 ± 5 hours of operation
- Annual inspection

Details of periodical inspections are described in Maintenance Program for SILA 450 C.

Engine inspection and maintenance according to Rotax 912 Operator's Manual.

Propeller inspection and maintenance according Propeller Maintenance Manual.

Parachute inspection and maintenance according to Parachute Maintenance Manual.

8.3 AIRPLANE ALTERATIONS AND REPAIRS

Any repair or alteration of airplane have to be performed by aircraft manufacturer or authorized service center or qualified personnel approved by aircraft manufacturer. Before you made any repair/alteration of airplane, consult aviation authority of the country in which airplane is registered to estimate effect of the repair/alteration to the airworthiness.

Basic repair are described in Maintenance Program.

8.4 GROUND HANDLING/ROAD TRANSPORT

8.4.1 TOWING

Moving the airplane on short distance on ground is possible. Airplane can be hold to the fuselage end, to wing root, to engine flange or with fastening for the nose wheel.

Rotating of airplane is possible and need to be performed by pushing down of the fuselage end, lift up the nose wheel and rotate airplane over the main landing gear.

WARNING:
Switch off ignition before ground handling with airplane

CAUTION:
Carry out and avoid hard pressure to the airframe structure, especially to the wing tips, horizontal tail, vertical tail, ailerons, flaps.

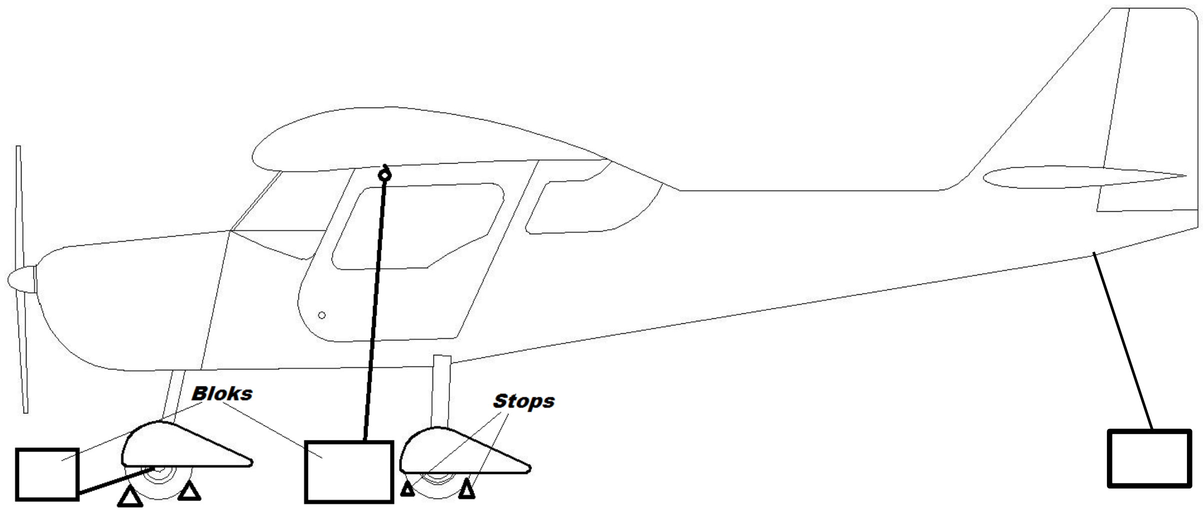
8.4.2 PARKING

The best solution for the aircraft parking is hangar with stabile atmospheric conditions, such as humidity, temperature, good venting and dust free environment.

If parking isn't possible in hangar airplane need to be anchored and covered by canopy, fixed by belts connected to lower wing surface and ground block. The airplane wheels need to be secured by metal stops.

8.4.3 MOORING

The airplane mooring is described in previous chapter 8.4.2 parking and the picture below showing way of airplane mooring.



Picture 8 – 1 Airplane mooring

8.4.4 JACKING

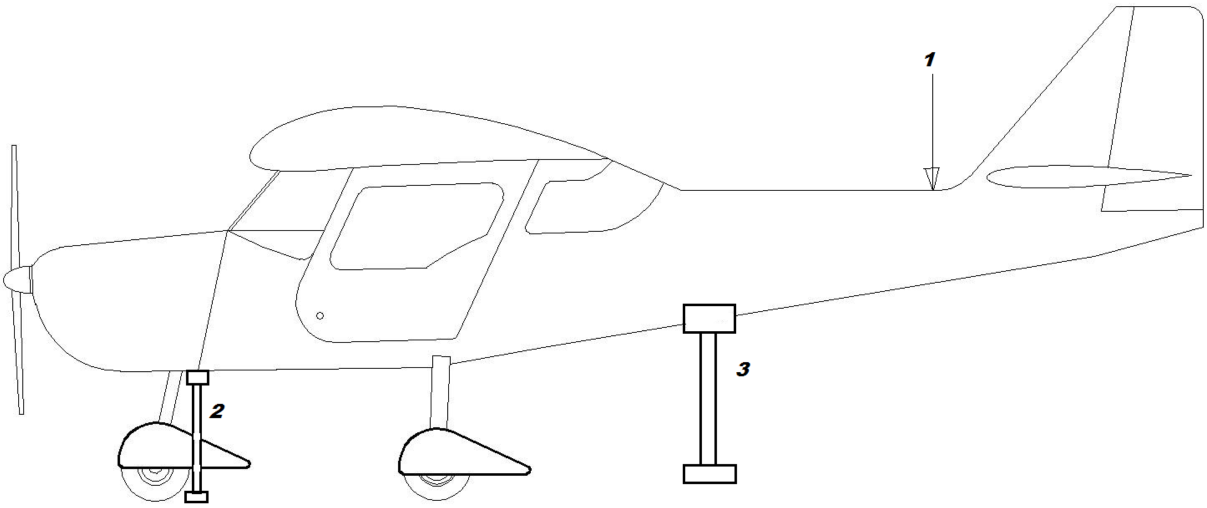
The airplane jacking isn’t very difficult because of low airplane empty weight and can be performed by two persons.

First it’s necessary to prepare two suitable and comfortable rests which will support the aircraft.

The aircraft can be jack by the following procedure:

- push down the fuselage rear part from above,
- put the template or rest below the firewall,
- put the template or rest below the fuselage after cockpit at third framework.

The picture below showing possible way of airplane jack.

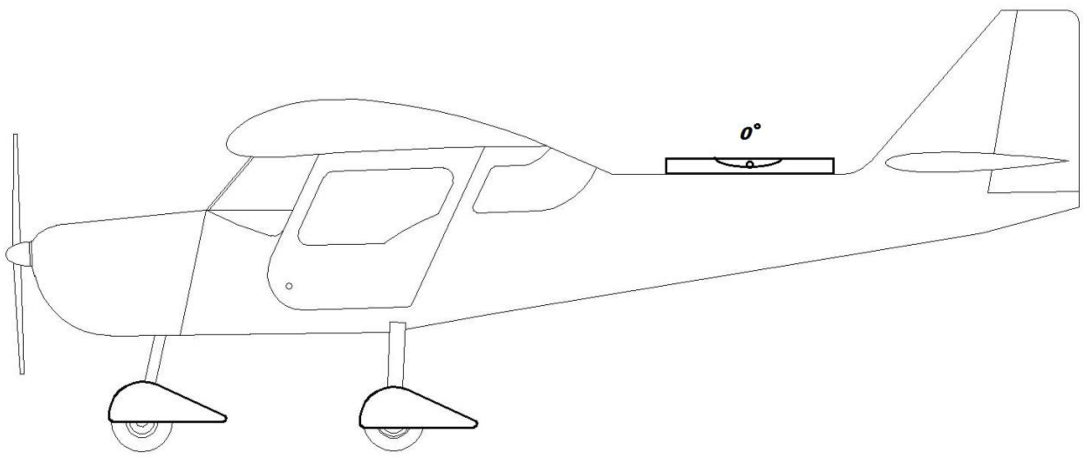


Picture 8 – 2 Airplane jacking

8.4.5 LEVELING

Airplane leveling is on production template and after moving of from production template checking with libel.

Picture below showing leveled airplane



8.4.6 ROAD TRANSPORT

Road transport is allowed only in cases when performed by staff from Aero – East – Europe for disassembling and assembling, or nominated personnel for this operation. Road transport is described in factory procedures of Aero – East – Europe.

CAUTION

Every unauthorized disassembling and assembling of the airplane can increase risk and decrease safety, and aslo dissable guarantee!!!

8.5 CLEANING AND CARE

8.5.1 PAINTED EXTERIOR SURFACES

Cleaning of painted exterior surfaces performing by soft rag, clean watter and non – abrasive cleaning fluid, for polishing.

8.5.2 PROPELLER

According to Propeller Maintenance Manual.

8.5.3 ENGINE

According to Engine Maintenance Manual.

8.5.4 INTERIOR, WINDSHIELD AND WINDOWS

Cleaning of interior deppend of material which is used for interior surfaces. Windshield and windows clean only by soft rag and clean watter.

CAUTION

Treatment of windshield and windows by any chemical materia can damage these surfaces and decrease visibility.

8.6 Protocol for parachute installation

This protocol of the parachute installatiton is agreed between Magnum Ballistic Parachutes Recovery Systems and AERO-EAST-EUROPE D.O.O. This recovery system is approved to be used in Germany by German Authorities, according to German Airwortines Requirements.
With the present document, AERO-EAST-EUROPE D.O.O. declare that parachute is installed in aircraft, always is installed in accordace with certified staff and procedure.

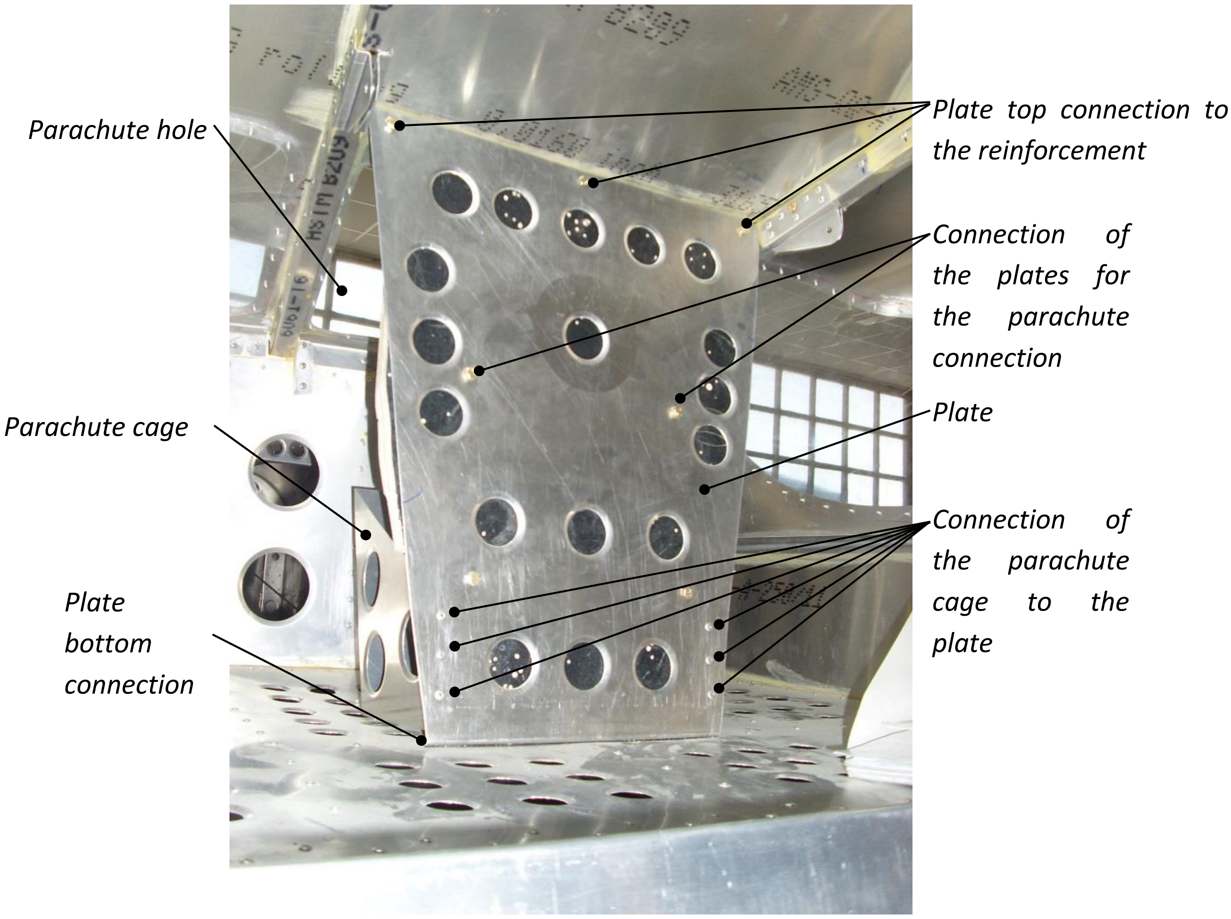
8.6.1 Parachute instalation place

Parachute is installed in the rear middle part of the fuselage behind the pilot seats.
Picture 8.1 shows the position of the parachute on the SILA 450 C airplane.

Picture 8.1: *Position of the parachute on the SILA 450 C aircraft*

Parachute mount consists of a cage, and plate connected with rivets. Plate is connected to the fuselage at the place of reinforcement between the fuselage stringers of the first and the second fuselage frame with three AN34 bolts at the top connection, and to the reinforcement, with two AN35 bolts in the bottom connection.

Position of the parachute mount is shown in the picture 8.2.



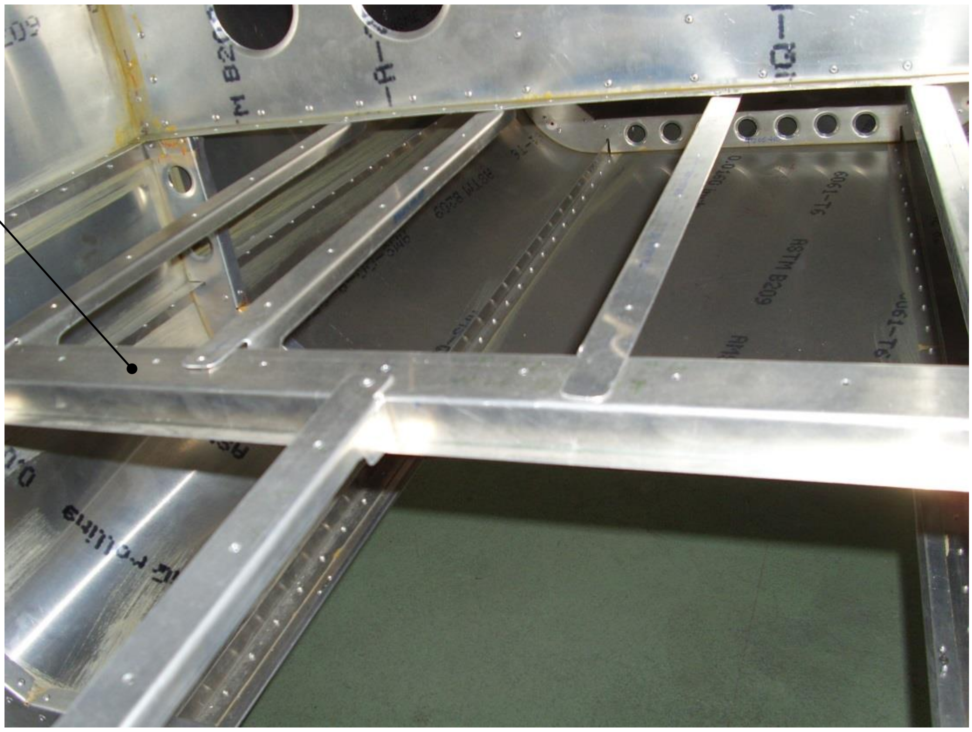
Picture 8.2: *Position mount and it's position on the SILA 450 C airplane*

Parachute mount assembly is made of certified aeronautical material aluminum 6061T6.
For the assembly of parachute mount and it's connection to the fuselage, standard rivets and bolts were used.
The connections of the parachute mount to the fuselage are shown in the picture 8.3a, and b.

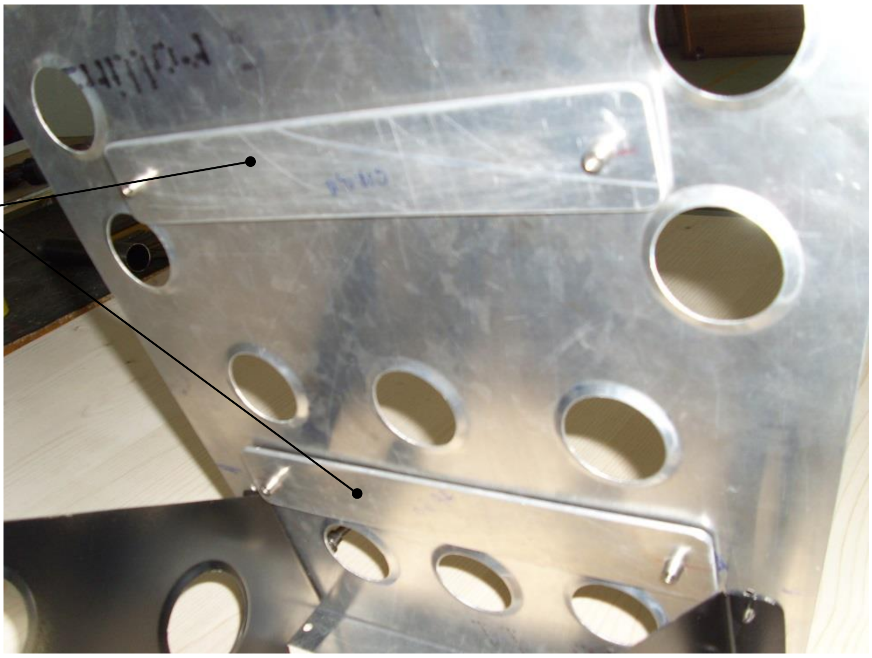
Reinforcement between two stringers for the top connection

Picture 8.3a: *Connections to the fuselage*

Reinforcement at the place for plate bottom connection

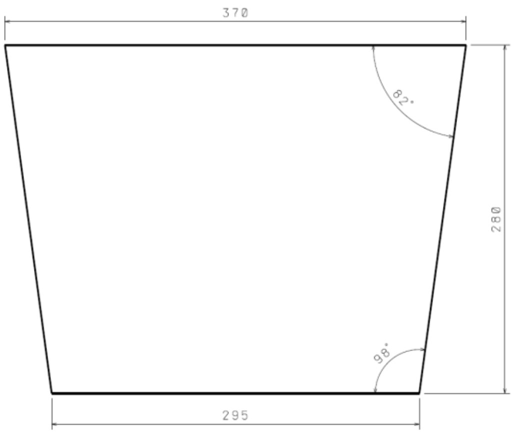


Picture 8.3b: *Connections to the fuselage*



Picture 8.4: *Parachute connections to the aluminum plate*

Parachute hole is located on the rear top part of the fuselage. Dimensions of the parachute hole are given in the picture 8.5a.
Picture 8.5b shows parachute hole location on the SILA 450 C aircraft.



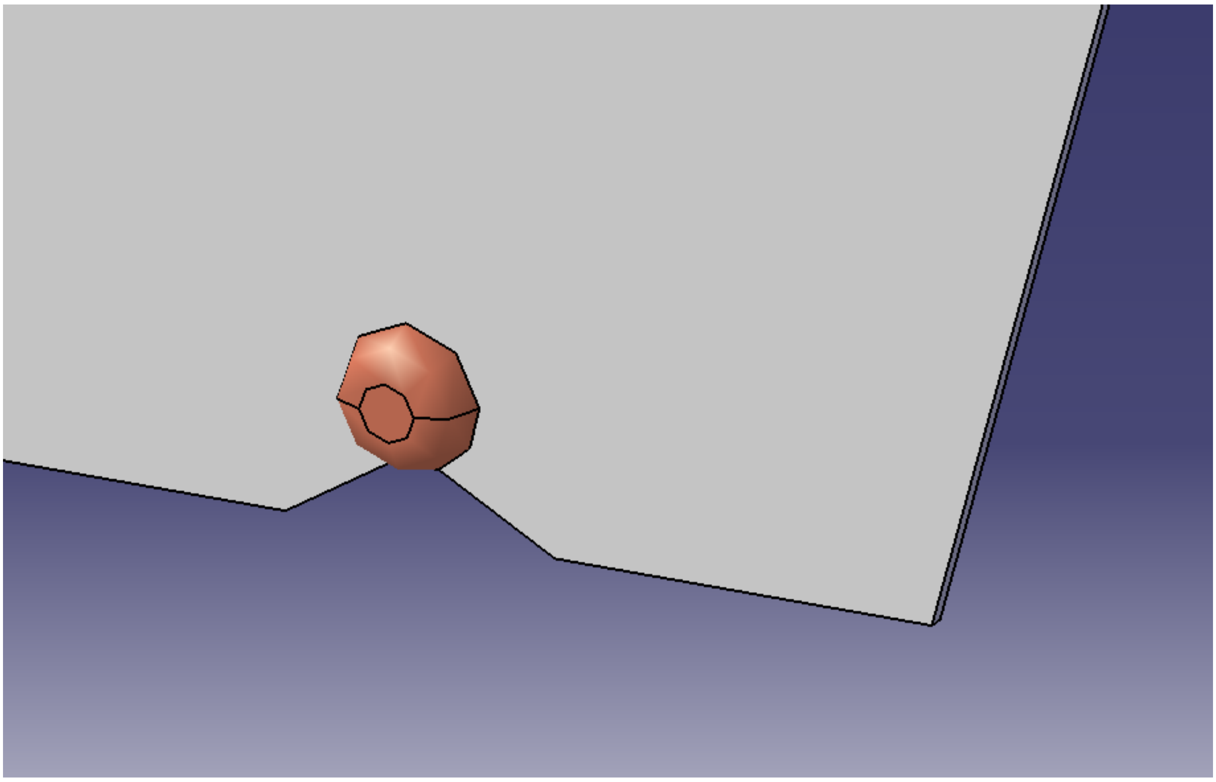
Picture 8.5a: Parachute hole

Picture 8.5b: *Location of the parachute hole on the SILA 450 C aircraft*

Sharp edges of the parachute hole are covered with bended sheet metal to prevent the damage of the parachute during the ejection. This is shown in the picture 8.5c.
Also the holes on the parachute cover have grooves for easier ejection of the parachute. This is shown in the picture 8.5d

Bended sheet metal

Picture 8.5c: *Protection of the parachute from sharp edges with bended sheet metal*



Picture 8.5d: *Cutting of the parachute hole cover for easier ejection*

8.6.2 Parachute and rocket connections

Parachute is connected to the mount with two belts fixed between the plate and two litle plates shown in the picture 8.4.
Picture 8.6 shows the position of the parachute inside it's mount. Position of the rocket is shown in pictures 8.7a and b. Rocket is connected to the parachute cage with four M5 bolts.
Parachute and rocket are connected with steel cables and carbine hook. The connection of parachute and rocket is shown in picture 8.8.
In the picture 8.1 one can see that there is nothing that might disrupt the rocket's trajectory during the ejection of the parachute.

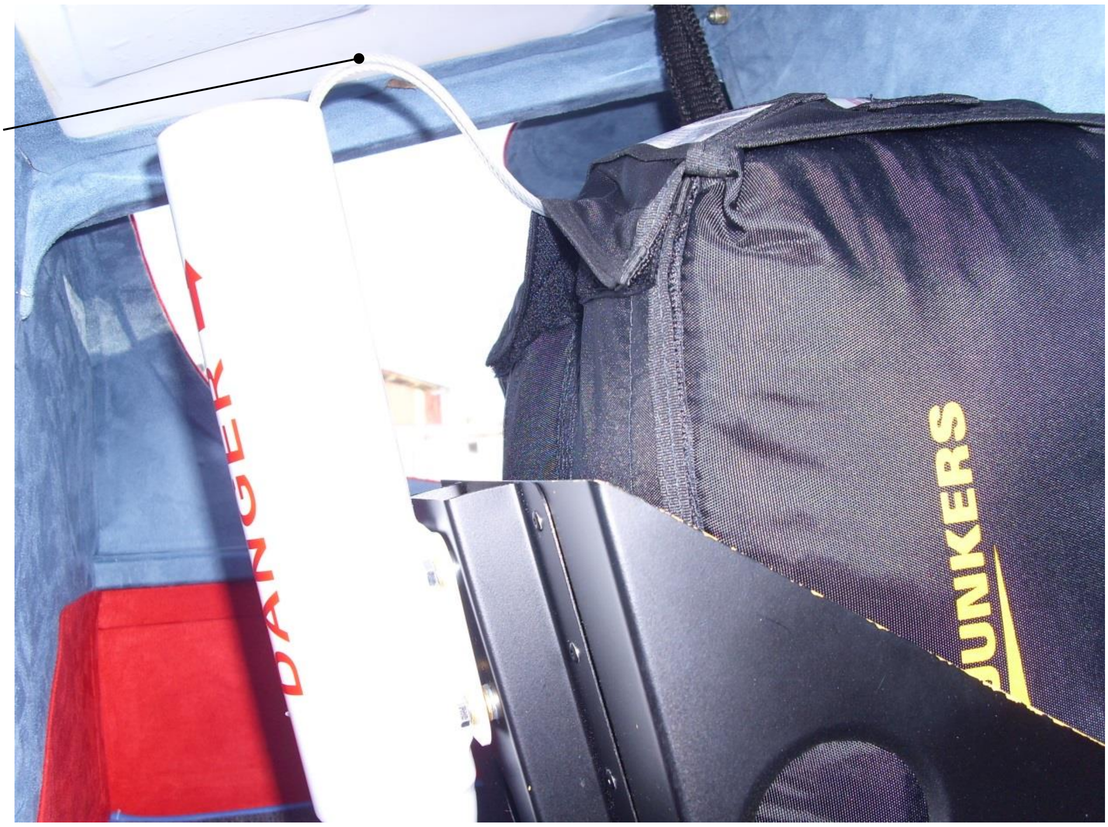
Picture 8.6: *Position of the parachute*

Connection of the rocket to the parachute cage

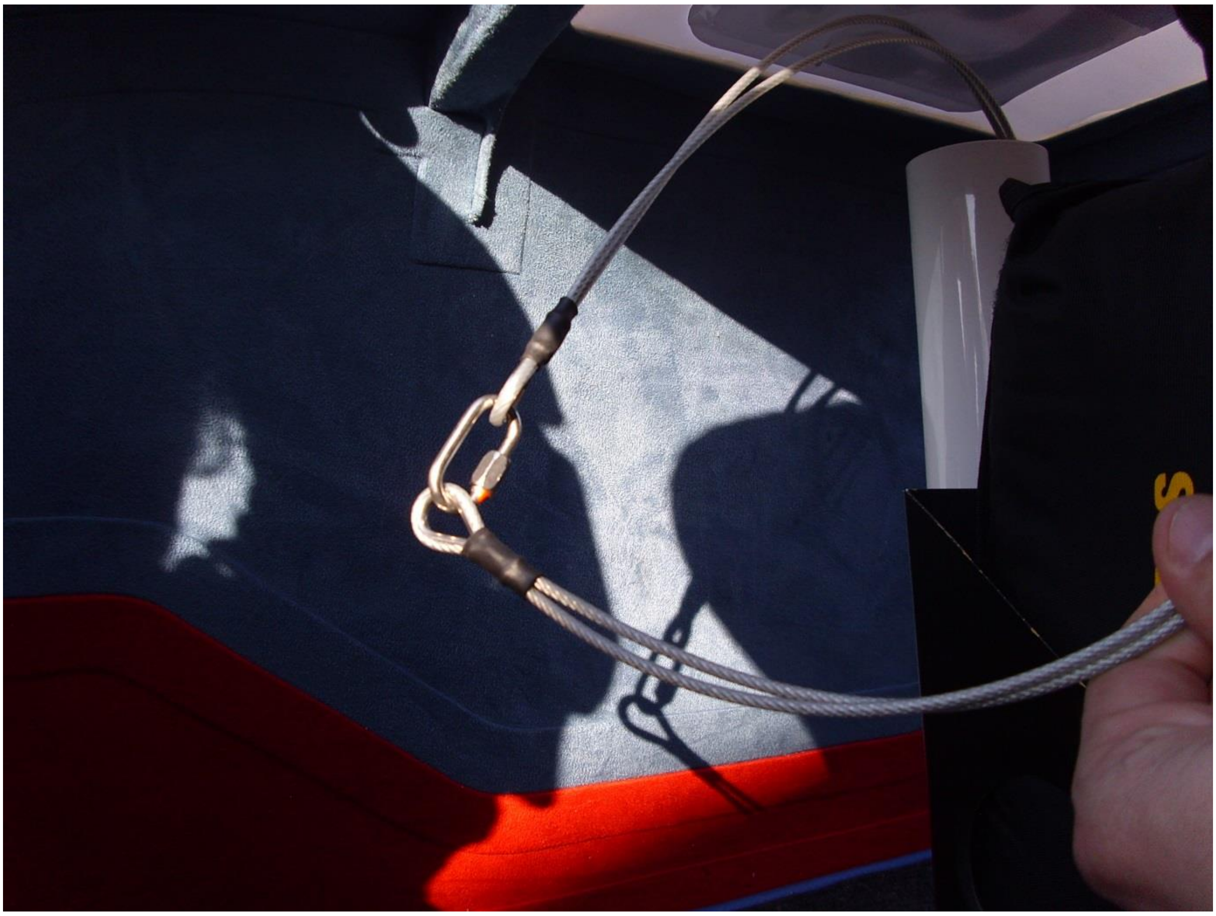
Connection of the rocket to the parachute activating control handle

Picture 8.7a: *Position of the rocket*

Steel cable for the connection of rocket and parachute



Picture 8.7b: *Position of the rocket*



Picture 8.8: *Connection of the parachute and the rocket*

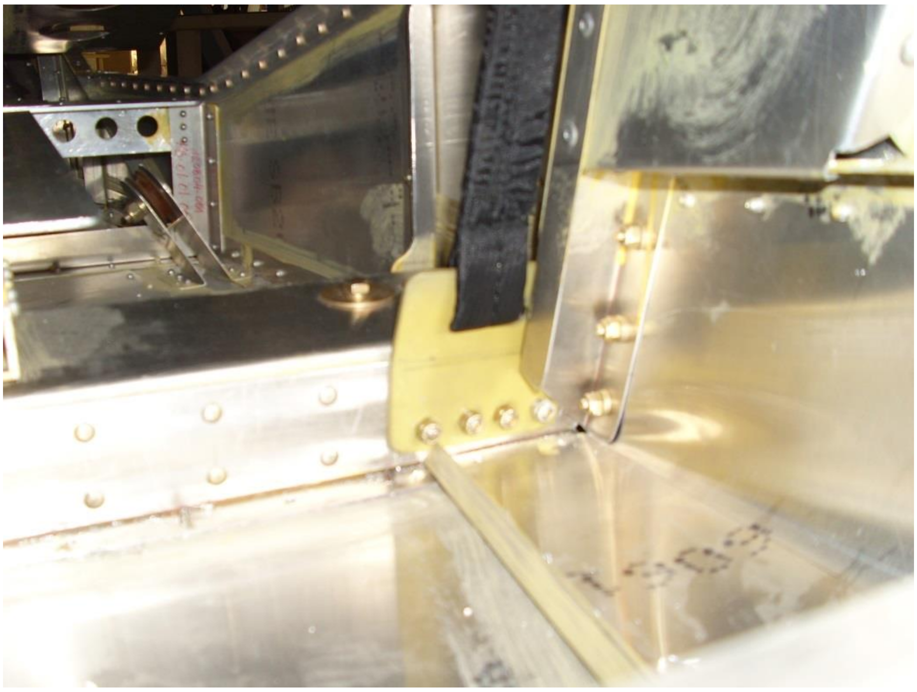
8.6.3 Connection of the parachute to the fuselage

Parachute ropes are connected to the fuselage cabin frame - front connection points, which are shown in pictures 8.9a and b, and to the main landing gear box – rear connection points which are shown in pictures 8.10a and b.
Principial sheme of the parachute layout through the fuselage is given in the picture 8.12.

Picture 8.9a: *Parachute ropes-front connection points*

Picture 8.9b: *Parachute ropes-front connection points*

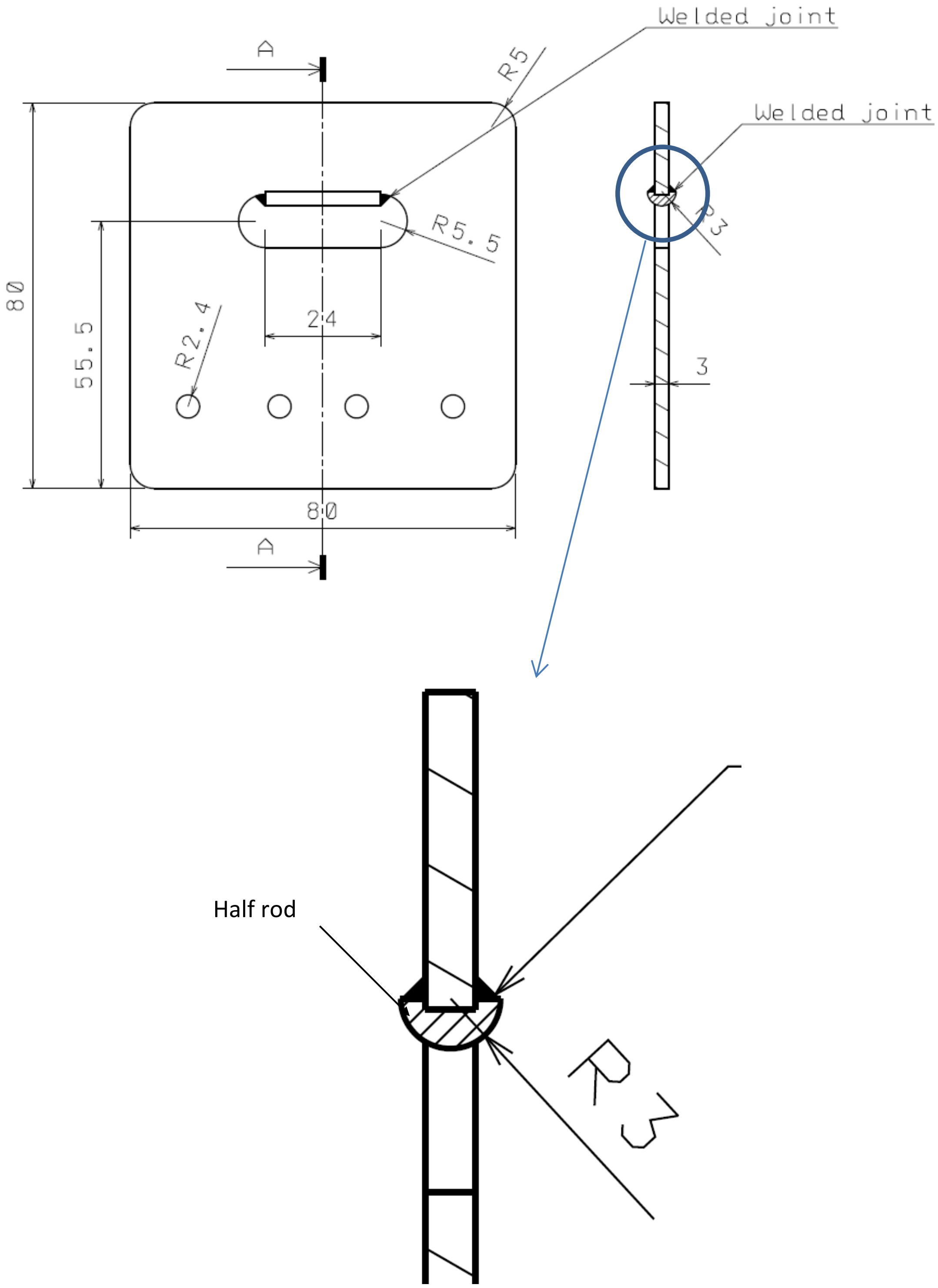
Picture 8.10a: *Parachute ropes-rear connection point*



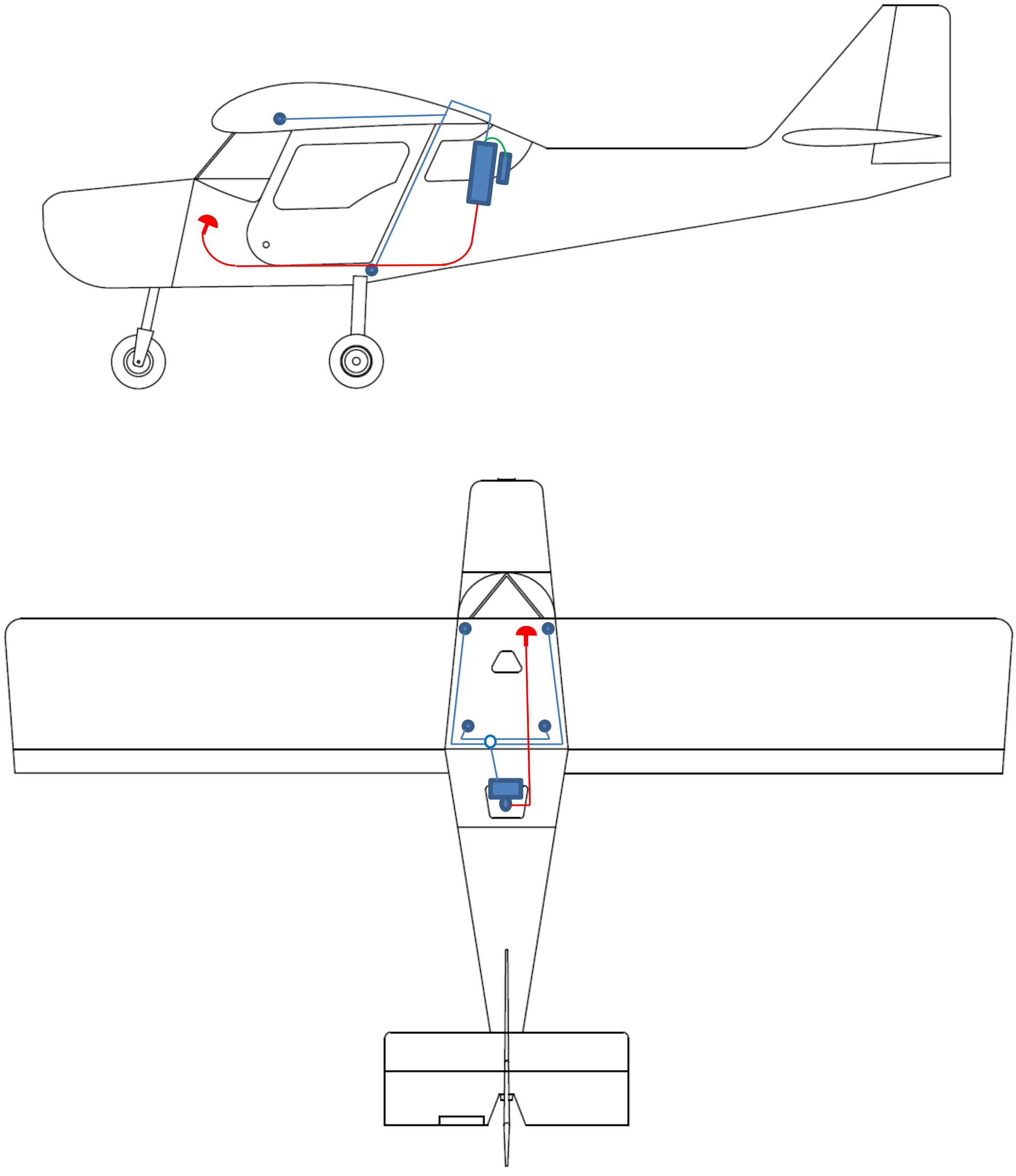
Picture 8.10b: *Parachute ropes-rear connection point*

Drawing of the plate for the parachute connection is shown in the picture 8.11.
To revent the damaging of parachute ropes, half rod was welded to the plate. Welding is done so as to prevent sharp edges that could damage the parachute ropes.

The length of the parachute ropes is 3*m* for backward connections and 2*m* for forward connections. This gives the angle of descending of 30 degrees.



Picture 8.11: *Drawing of the parachute connection plate*



Picture 8.12: *Principial sheme of parachute instalation on SILA 450 C airplane*

8.6.4 Parachute activation handle

The parachute activation handle is located on the lover side of instrument panel at the center. In this position it is well visible for both pilots, easy to reach and to be pulled even in the case of g-load.

The parachute activating controll handle is held by using provided supportng plate which is directly connected to the central console with to M5 bolts. The activating cable runs on lover side of central console, under the fuselage and all the way to the connection to the rocket.

The parachute activating control handle is shown in the picture 8.13.

Picture 8.13: *Parachute activating control handle*

SECTION 9 - SUPPLEMENTS

TABLE OF CONTENTS

9.1 INTRODUCTION

Supplements are helping using of airplane and make use easier and faster. Supplements contains all necessary information's which are not mentioned in Pilot Operation Handbook, or clarifying some misunderstanding of this manual.

9.2 LIST OF INSERTED SUPPLEMENTS

- Engine Manual/ INSTALATION MANUAL FOR ROTAX ENGIE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04631.pdf
- Engine Manual/ OPERATORS MANUAL FOR ROTAX ENGINE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04997.pdf
- Engine Manual/ MAINTENANCE MANUAL FOR ROTAX ENGINE TYPE 912 SERIES http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04774.pdf
- Propeller Manual
- AEE Form 41 a)/ WEIGHT AND BALANCE RECORD
- SERIAL NUMBERS OF AIRCRAFT IMPORTANT PARTS AND EQUIPMENT
- AICRAFT GEOMETRY
- MAINTENANCE PROGRAM FOR SILA 450 C
- AEE Form 35 / FLIGHT TEST RECORD
- EMERGENCY PROCEDURES
- NORMAL PROCEDURES
- ABNORMAL PROCEDURES
-

9.3 FOR EACH INSERRTED SUPPLEMENT

9.3.1 Section 1 – General

For this chapter the next supplements are relevant

- Engine Manual/ INSTALATION MANUAL FOR ROTAX ENGIE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04631.pdf
- Engine Manual/ OPERATORS MANUAL FOR ROTAX ENGINE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04997.pdf
- Engine Manual/ MAINTENANCE MANUAL FOR ROTAX ENGINE TYPE 912 SERIES http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04774.pdf
- Propeller Manual
- AICRAFT GEOMETRY
- MAINTENANCE PROGRAM FOR SILA 450 C

9.3.2 Section 2 – Limitations

For this chapter the next supplements are relevant

- Engine Manual/ INSTALATION MANUAL FOR ROTAX ENGIE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04631.pdf

- Engine Manual/ OPERATORS MANUAL FOR ROTAX ENGINE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04997.pdf
- Engine Manual/ MAINTENANCE MANUAL FOR ROTAX ENGINE TYPE 912 SERIES http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04774.pdf
- Propeller Manual
- AEE Form 35 / FLIGHT TEST RECORD

9.3.3 Section 3 – Emergency Procedures

For this chapter the next supplements are relevant

- EMERGENCY PROCEDURES
- ABNORMAL PROCEDURES

With every delivered aircraft in the scope of delivery are Emergency Procedures in hard copy printed on red paper and Abnormal Procedures in hard copy printed on yellow paper.

9.3.4 Section 4 – Normal Procedures

For this chapter the next supplement is relevant

- NORMAL PROCEDURES

With every delivered aircraft in the scope of delivery is Normal Procedures in hard copy printed on green paper.

9.3.5 Section 5 – Performance

For this chapter the next supplements are relevant

- Engine Manual/ INSTALATION MANUAL FOR ROTAX ENGIE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04631.pdf
- Engine Manual/ OPERATORS MANUAL FOR ROTAX ENGINE TYPE 912 SERIES /http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04997.pdf
- Engine Manual/ MAINTENANCE MANUAL FOR ROTAX ENGINE TYPE 912 SERIES http://www.rotax-aircraft-engines.com/portaldata/5/dokus/d04774.pdf
- Propeller Manual
- AEE Form 35 / FLIGHT TEST RECORD
- AICRAFT GEOMETRY

9.3.6 Section 6 – Weight and Balance

For this chapter the next supplement is relevant

- AEE Form 41 a)/ WEIGHT AND BALANCE RECORD