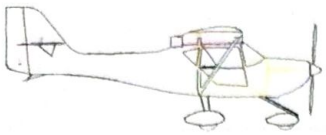


AEROPRO , Production of UL Planes
Dlha 126, 949 07 NITRA, Slovakia
www.aeropro.sk

Pilot Operating handbook

And

Flight training supplement

AEROPRO

EuroFox LSA

20706

Aircraft Type:

EuroFox LSA

Serial Number: **20706**

Registration: **24 - 4844**

Date of Issue: November 22. 2006

Stamp, Signature

This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

DATA OF THE AEROPLANES

	Type	Produktion	Serial Number:	Destination and year of production
Fuselage	EUROFOX 3k	AEROPRO	20706	Aeropro NITRA SR
Engine	ROTAX 912 ULS	BOMBARDIER-ROTAX GMBH AUSTRIA	5647 041	2006
PROPELLER	3LR Ø158	Fiti Disign Mařákova 1061 Řevnice 252 30 ČR	055/2006	2006

....

Signature **Stemp**

RECORD OF REVISIONS

Any revisions or amendments to the present manual shall be issued in the form of bulletins with attached new pages. It is in the interests of every user to enter such revision into the table of revisions and to replace the existing page by the new one. The revised or corrected text shall be indicated by a vertical line on left page margin and the page shall bear revision number and date of its issue.

Rev. No.	Pages Affected	Date of Issue	Bulletin Number	New Page Inserted On, Signature

TABLE OF CONTENTS:

0. General information

0.1 Introduction

This handbook is provided with your aircraft to allow you to attain as much knowledge about the aircraft as its operation as possible. This manual is following ASTM F 2245 document – Standard Specification for Design and Performance of a Light Sport Airplane. Read this manual thoroughly before your first flight and make sure you understand all the information contained here. This aircraft is equipped with non-certified engine that meets ASTM F-2339 engine standard. Flying this aircraft must always be done with the possibility of a safe landing due to loss of engine power. Pay attention to the fact that you as the pilot are fully responsible for safety of your passengers and persons or property on the ground.

0.2 Certification Basis

This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and with type certificate Micro light airworthiness by Slovak Aviation Authority issues with No.: V – 82/2004.

0.3 Manufacturer

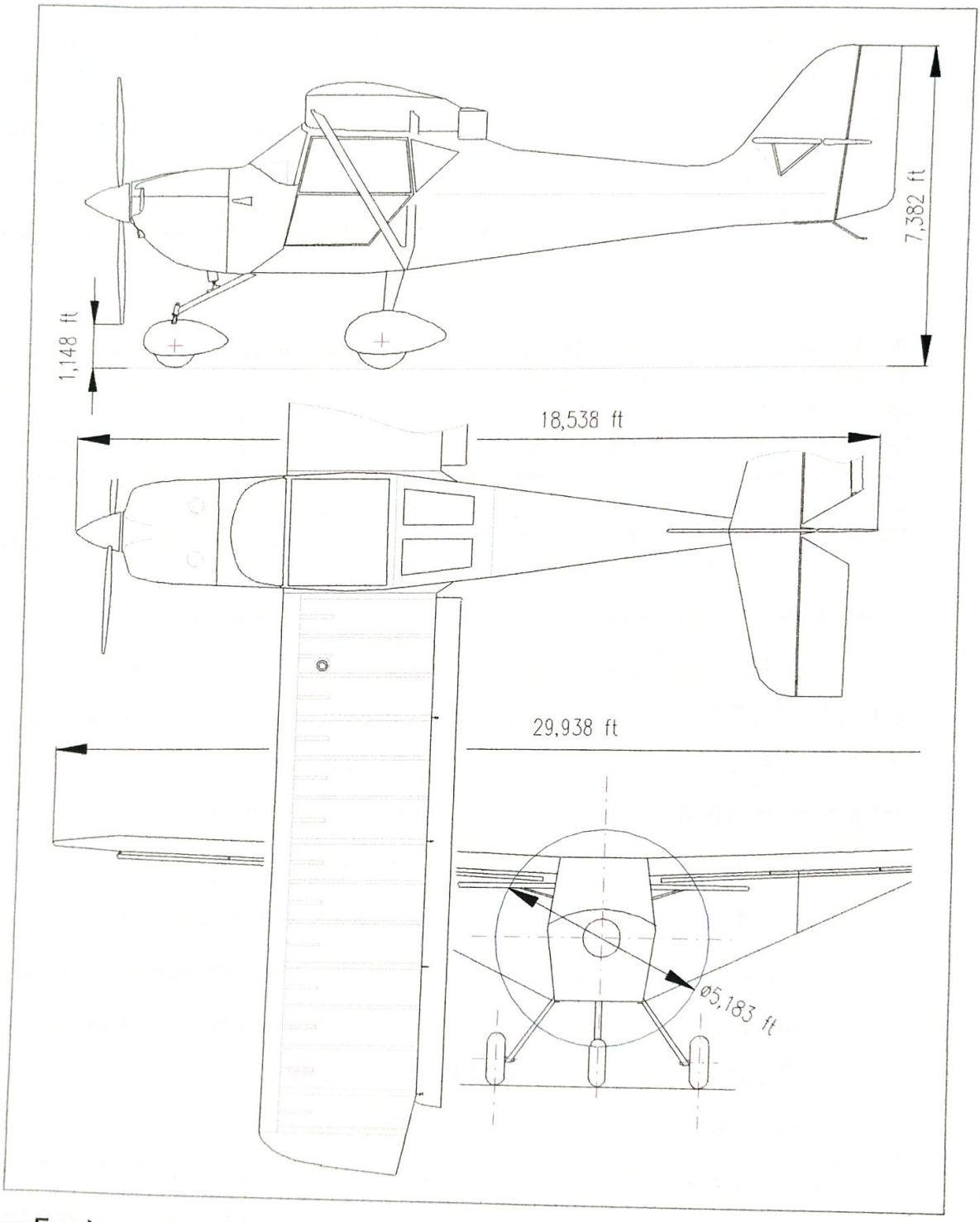
AEROPRO s.r.o
Dlhá 126
949 07 Nitra
Slovak Republic
www.aeropro.sk

0.4 Warning, Caution and Note

In this handbook the following is used to highlight especially important information:

WARNING	**Information which could prevent personnel injury or loss of life**
CAUTION	Information which could prevent damage to equipment
NOTE	*Information of special importance to pilots*

1. Airplane and Systems Description



EuroFox is an LSA designed as a high-wing monoplane. A two-spar wing is equipped with flaperon. Fuselage is a open truss structure welded of steel tubes. Tail unit is formed of a lattice-work tube frame. The airplane is

equipped with tricycle landing gear and incorporates a steerable nose wheel.

Wing area including flaperon ..... 122.53 sq. ft

Chord length (including flaperon) ..... 4.265 ft

Wing loading ..... 10.1 lbs/sq. ft

Power loading ..... 12.35 lbs/HP

Aspect-ratio 6.74

Propeller clearance (in flight position) ..... 1.143 ft

1.1 Engine

The EuroFox LSA is powered by ROTAX 912ULS engine. It is a four-cylinder, four-stroke, horizontally opposed-cylinder, centre-camshaft engine with over-head valves. Engine cooling is of a combined type, cylinder heads are water-cooled, while cylinders are air-cooled. Dry sump lubrication. The ignition system is of a dual, distributorless and capacitor flywheel magneto type. The engine is equipped with an electric starter, AC generator and a mechanical fuel delivery pump. The propeller is powered from an integrated reduction gear with mechanical damping.

Engine manufacturer ..... ROTAX GmbH., Austria

Engine model ..... ROTAX 912 ULS

Max. power - take-off ..... 73.5 kW / 100 hp

- continuous ..... 69 kW / 94 hp

Max. engine speed (MSL) - take-off ..... 5800 RPM (max. 5 min)

- continuous ..... 5500 RPM

Max. cylinder head temperature ..... 275 °F

Max. oil temperature ..... 266 °F

Oil pressure minimum ..... 12 PSI

maximum (cold start only) ..... 103 PSI

normal operation ..... 29 – 73 PSI

Oil consumption ..... max 0.06 quarts/hour

Fuel pressure - minimum ..... 0.15 bar

- maximum ..... 0.40 bar

Propeller gearbox reduction ration ..... 2.43 : 1

For more details see **Operator's Manual for all versions of Rotax 912** supplied with the engine.

WARNING

This aircraft is equipped with non-certified engine that meets ASTM F-2339 engine standard.

Flying this aircraft must always be done with the possibility of a safe landing due to loss of engine power. The pilot is fully responsible for consequences of such failure.

1.2 Propeller

The FITI ECO propeller is made by Fiti design – Josef Faturik company. The propeller is a three-bladed, ground adjustable, clockwise rotation, tractor, made of composite. Propeller diameter - 62.2 inches

For additional propeller information see **Operators Manual and Technical description** supplied with the propeller.

1.3 Fuel and fuel capacity

Fuel tank capacity - wing tanks .....10.6 U.S.gallons each

- central connecting tank ..... 1.3 U.S. gallons

Max. fuel quantity..... 22.5 U.S. gallons

Usable fuel quantity..... 22.0 U.S. gallons

Unusable fuel quantity..... 0.5 U.S. gallons

Fuel specification..... Premium unleaded auto fuel (Standard Spec. for Automotive Spark-Ignition Engine, Fuel, ASTM D 4814) or AVGAS 100 LL.

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

For additional information concerning fuel specification consult **Operator's Manual for all versions of Rotax912** supplied with the engine.

The fuel system includes two wing tanks of 10.6 U.S. gallons each, a central tank of 1.3 U.S. gallons, Fuel drain valve, fuel valves, a fuel filter, an engine fuel pump and connecting lines.

The fuel is gravity-fed from the right-hand or left-hand wing tank into the central tank depending which wing tank fuel valve is open. The fuel is then further directed from the central tank via the main fuel valve and fuel filter into the mechanical fuel pump on the engine which delivers the fuel to the carburetors.

The amount of fuel in each tank is indicated by a visual fuel gauge which is a part of each tank. Minimum fuel quantity in the central tank is indicated by a warning light on the instrument panel. The remaining fuel (1.1 U.S. gallon), is in that case enough for approximately 10 minutes of flight. The warning light condition can be verified any time by pushing the control button. No red light indication when the control button is pushed and held means the bulb is blown out and the minimum fuel quantity is not indicated:- In this case, make a more conservative estimate for fuel on board, check fuel quantity in wing tanks and land as soon as you are not confident of the fuel quantity inside the wing tanks.

Do not forget to properly manipulate the fuel tank valves to ensure continuous flow of fuel to the engine.

The fuel drain valve outlet is behind the left seat on the outside bottom side of the fuselage; to drain off water and dirt, the drain pipe is to be pressed into the fuselage and subsequently a fuel sample is to be taken.

For refuelling information see section 7.1

1.4 Oil

Oil tank capacity .....3.2 quarts

Maximum oil quantity .....2.6 quarts

Minimum oil quantity .....2.1 quarts

Oil specification:

Use motorcycle oil of a registered brand with gear additive. Caution: When selecting the most suitable lubricants refer to the additional information in the Rotax Service Information SI-18-1997.

- Use only oil with API classification "**SF**" or "**SG**"!
- Due to the high stresses in the reduction gears, oils with gear additives such as high performance motor cycle oils are required
- Because of the incorporated friction clutch, oils with friction modifier additives are unsuitable as this could result in a slipping clutch during normal operation.
- Heavy duty 4-stroke motor cycle oils meet all the requirements. These oils are normally not mineral oils but semi- or full synthetic oils.

— Oils primarily for Diesel engines are **insufficient** due to **high temperature properties and additives which favor clutch slipping, generally therefore are unsuitable.**

CAUTION: If the engine is mainly run on AVGAS **more frequent** oil changes will be required. See Rotax Service Information SI-18-1997.

For additional information concerning oil system consult **Operator's Manual for all versions of Rotax912** supplied with the engine.

The maximum and minimum oil level is indicated by two marks on the dip stick in the oil tank.

1.5 Operating weights and loading (occupants, baggage, fuel, ballast)

Empty weight (standard version) ..... 683 lbs

Max. take-off weight ..... 1235 lbs

Max. landing weight ..... 1235 lbs

Max. fuel weight ..... 135 lbs

Max. baggage weight in baggage compartment ..... 33 lbs

Maximum number of persons on board 2

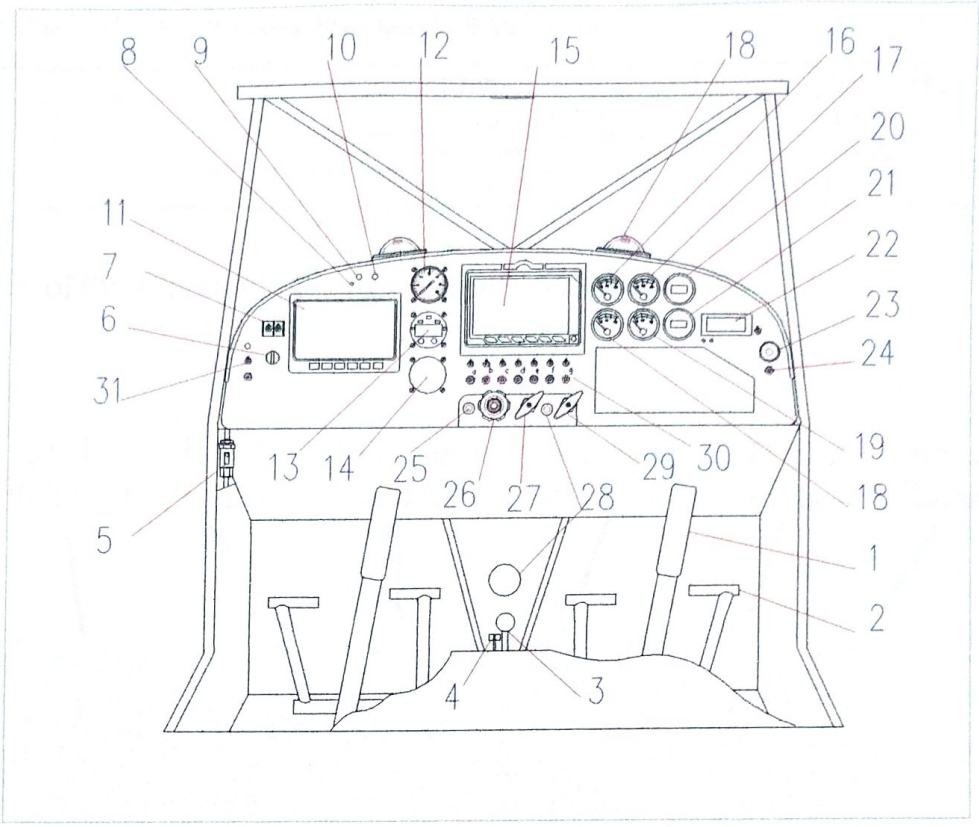
Minimum crew weight ..... 121 lbs

Make sure that above mentioned weight limits are strictly followed.

Structural failures which result from overloading of the aircraft may be dramatic and catastrophic.

The additional stress placed on the structural parts by overloading can accelerate the occurrence of metal fatigue failures. Also flight characteristics might change significantly when aircraft is overloaded. Takeoff and landing distance is significantly longer for overloaded aircraft. Overloading of the aircraft is one of the typical causes of accidents.

1.6 Cockpit overview



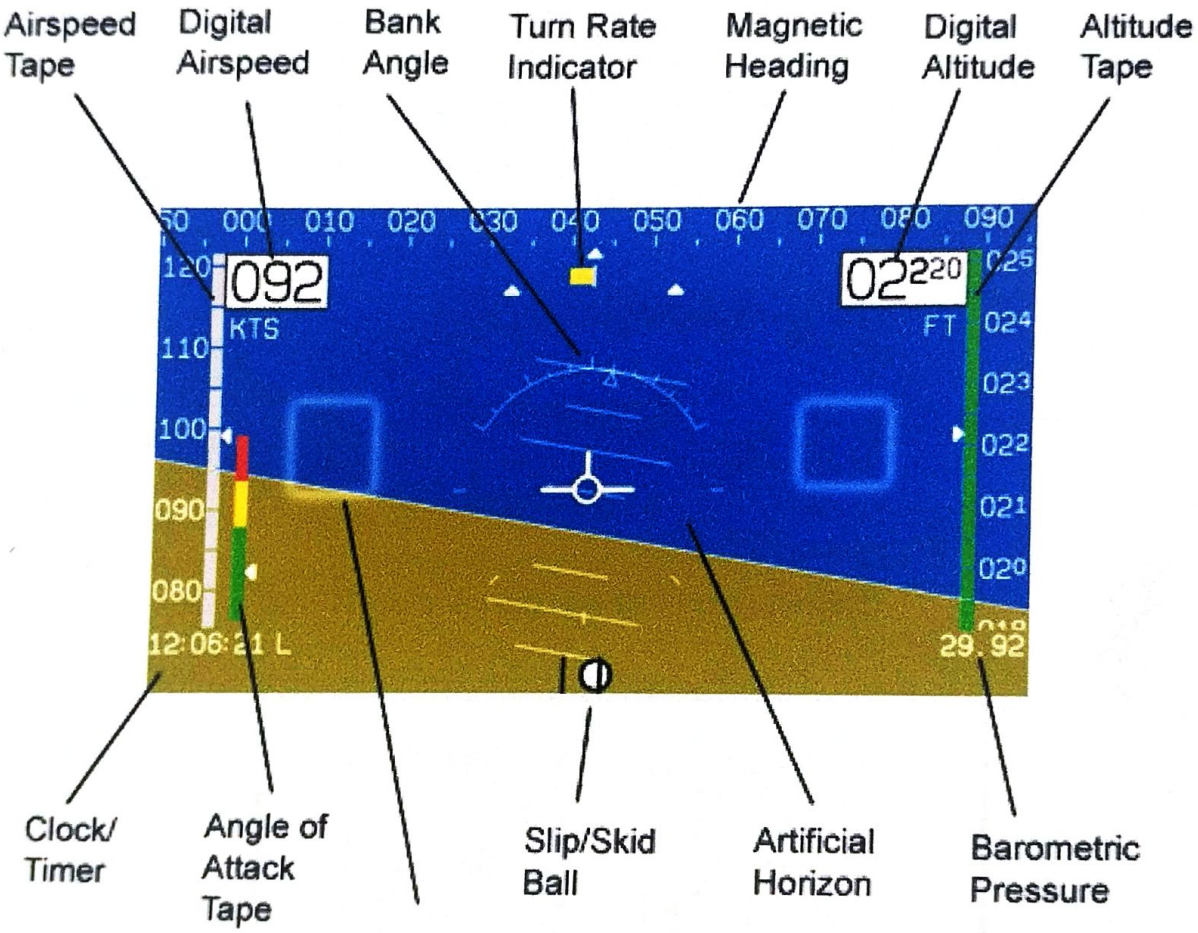
LAYOUT OF CONTROLS AND INSTRUMENTS (see following pages for details)

1. Control stick
2. Rudder pedals
3. Wing flaps
4. Trim elevator
5. Fuel cock
6. Master Switch
7. Ignition
8. Min. fuel pushbutton
9. The last 4 lit. war. light
10. Control of charges
11. EFIS – D100
12. RPM
13. Radio
14. Hlole for Transponder
15. GPS
16. Oil temperature
17. Cylinder heat.
18. Oil Presure
19. Fuuel Presure
20. Flight Hours
21. Total Engines Hours
22. Time and Out temper.
23. 12 V socket
24. Breaker
25. Perhiting carb.
26. Engine throttle
27. Brake with park. brake
28. Heating
29. Choke
30. Switches
30.a) Handing lights 10A
30.b) Storbe lights 10A
30.c) Navigation light 5A
30.d) FREE 5A
30.e) Radio 3A
30.f) Transponder 2A
30.g) GPS 2A
31. Electric Boost pump

List of installed instruments and other equipment:

	Type	Serial No.
DYNON	EFIS – D100	1606
Radio	XCOM	1069
GPS	AvMAP	604 1106

Scream of the Electronic Flight information System



Info Area, 2 places, either:
* G-Meter
* Voltmeter
* VSI
* OAT, Density Altitude, True Airspeed

Figure 1 - Airspeed Indicator marking

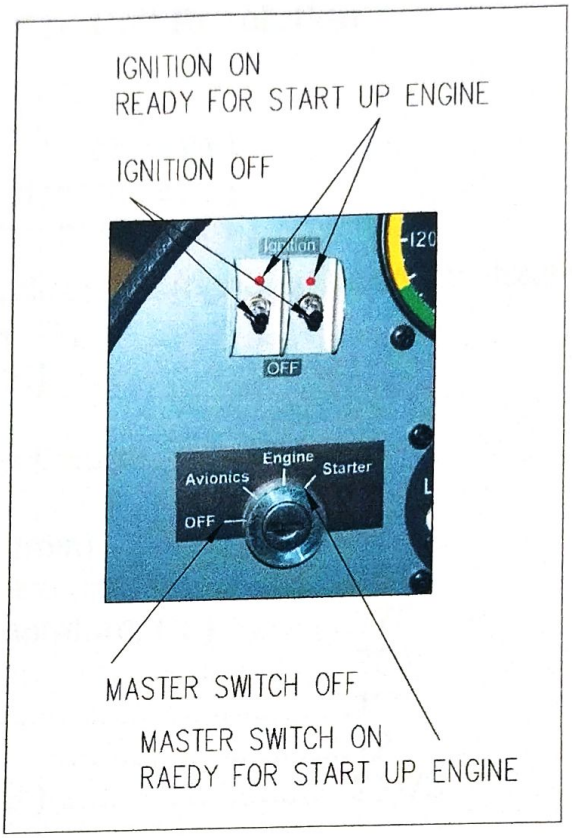


Figure 2 - Ignition and master switch

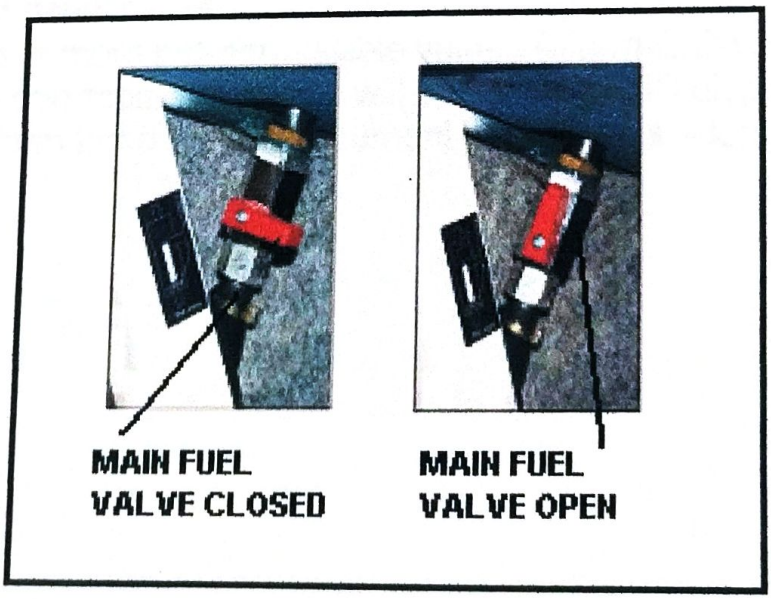


Figure 3 - Main Fuel Valve open and close position

Display panel Description Unit Resolution

1 ..... RPM [1/min]
2.....Operation hours [hours]
3.....Exhaust gas temperature [°F]
4.....Exhaust gas temperature [°F]
5.....Cylinder head temperature [°F]
6.....← (→) symbolizes left (right) cylinders, switching every 6-8 sec.
7.....Oil temperature [°F]
8.....Oil pressure [PSI]

Indicator Unit Warning limits

RPM / rotation speed (1/min) 5800
EGT/Exhaust gas temperature (°F) 1616
CHT/cylinder head temperature, (°F) 275
Oil temperature, (°F) 266
Oil pressure, max (PSI) 103
Oil pressure, min (PSI) 12
Oil pressure, normal (PSI) 29-73

- When one or more warning limits are exceeded - corresponding value will blink on the EIS display and also the alarm lamp on the instrument panel blinks.
- When one or more not-permissible values (alarm limit values) are reached - corresponding value will blink on the EIS display and also the alarm lamp on the instrument panel blinks – longer intervals.

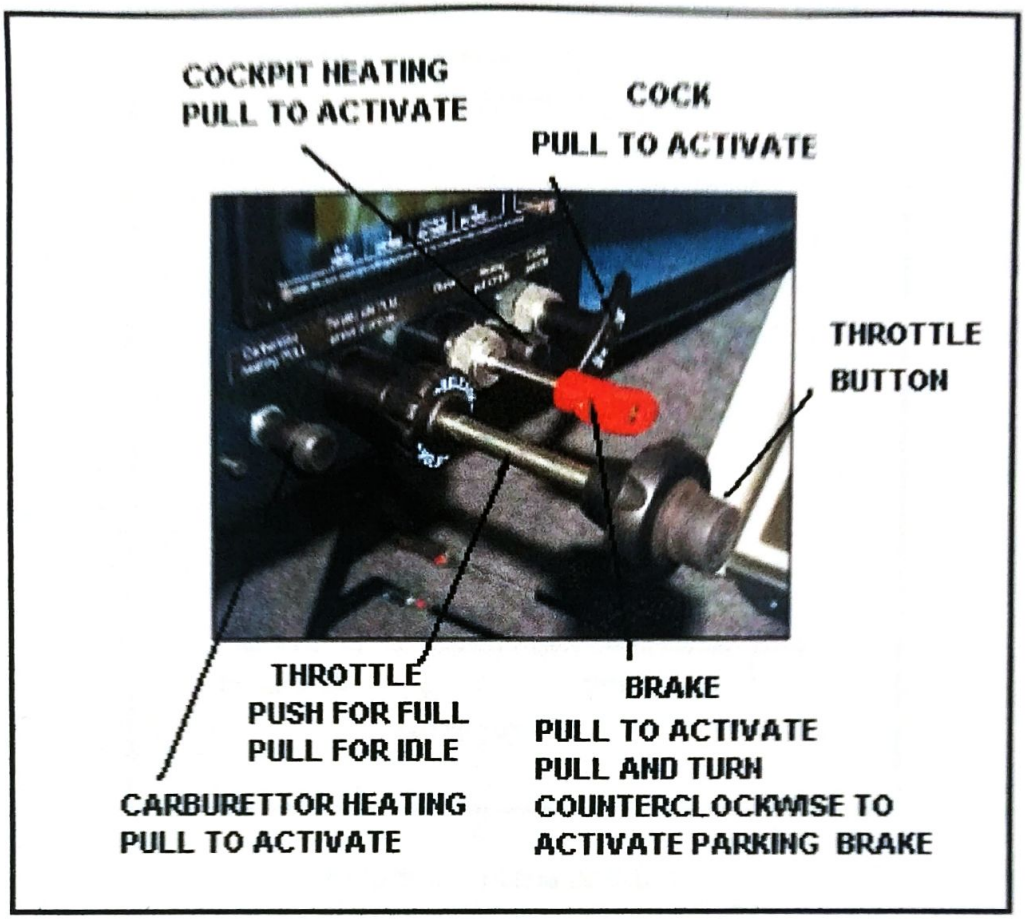


Figure 5 – Central panel

Note: Rotate throttle lever for fine power settings (clockwise to increase power, counterclockwise to reduce power), for larger changes push/pull throttle when the button is pressed and held

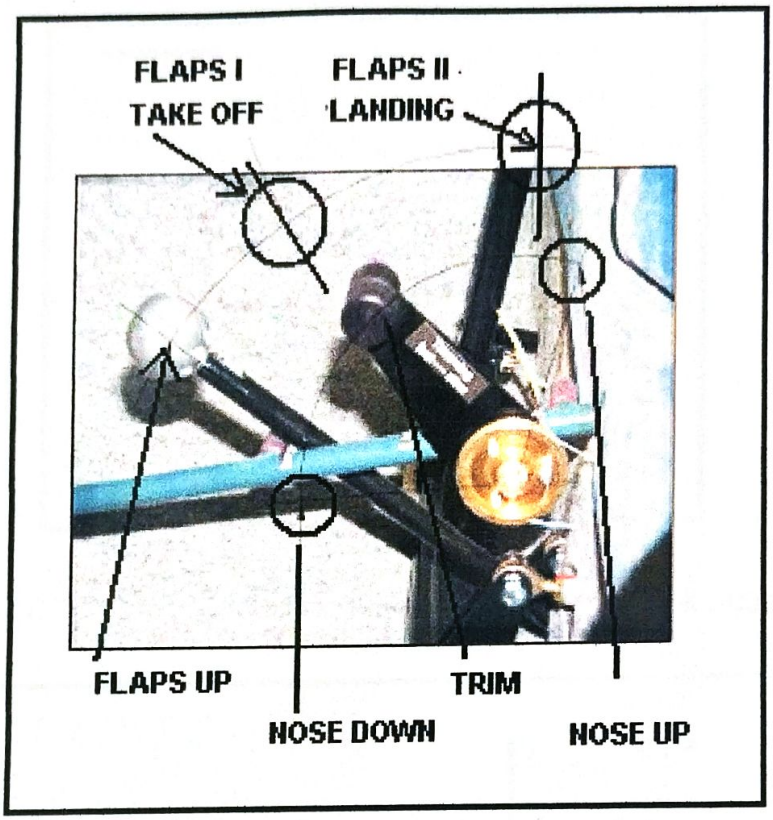


Figure 6 – Flaps and trim

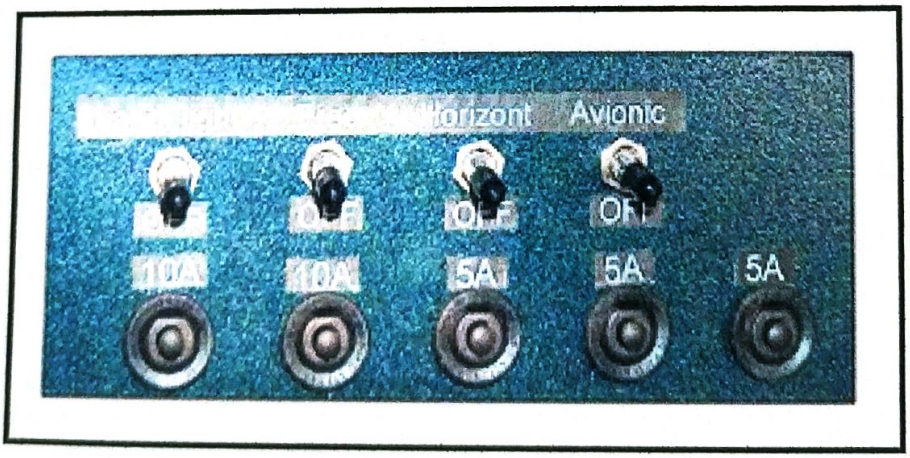


Figure 7 – Switches and fuses panel

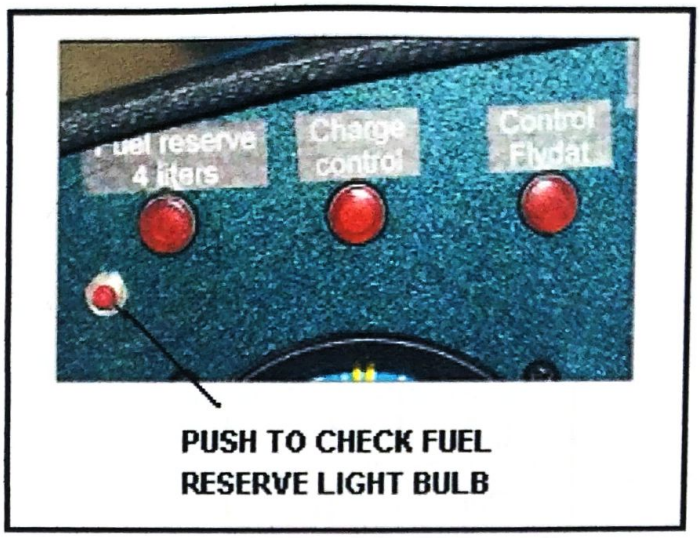


Figure 8 – Control lights and fuel reserve bulb check button

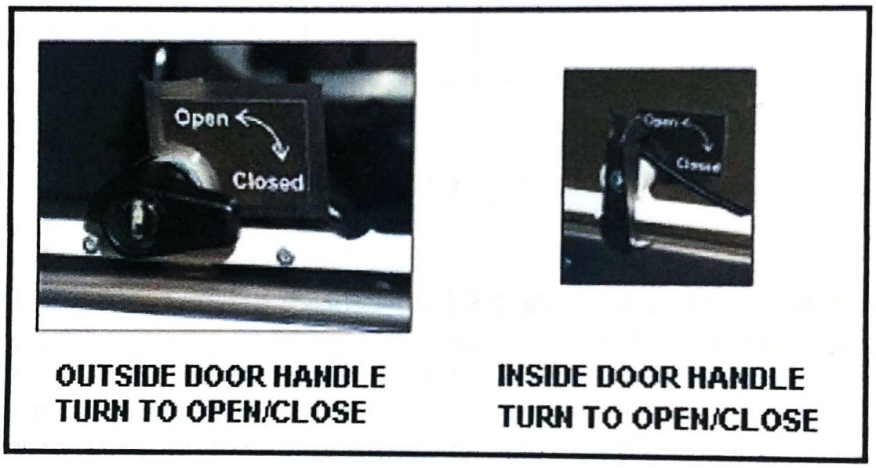


Figure 9 – Door locking mechanism

The battery (Dryfit A500, 12 V, 16 Ah) is located behind the right-hand pilot's seat. Nominal voltage in aircraft system is 13.5 to 14.2 V. The engine is equipped with integrated AC generator with external rectifier-regulator (12 V, 20A DC)

1.7 Other equipment

reserved

2. Operating limitations

KIAS	CAS
35	38
40	42
50	51
60	60
70	69
80	77
90	86
100	95

Airspeed indicator system calibration:

As requested by ASTM F-2245-04 §9.1 all flight speeds are presented as calibrated airspeeds in miles per hours (MPH). As the calibrated airspeed can not be usually determined by simple reading of aircraft airspeed indicator, corresponding Indicated airspeed in miles per hours (MPH) are also presented in this document. All airspeed values in this handbook assume no instrument error.

2.1 Stall speed at maximum takeoff weight (V_S and V_{SO})

Aircraft configuration	Stall speed – angle of bank 0°	
	KIAS	KCAS
Flaps down (V_{so})	36	39
Flaps up (V_s)	43	45

WARNING

The stall speed mentioned above are with wings level. Once any angle of bank (e.g. turn) is encountered the stall speed is significantly increasing.

Example: angle of bank – 60° ..... V_S= 73 MPH

The more bank – the higher stall speed. This simple rule is especially important when a turn at maximum permitted angle of bank (60°) is performed. Do not start the turn until you have sufficient airspeed reserve – recommended entry speed is 92 MPH. Full throttle is also essential to have sufficient thrust reserve as the drag is increasing during a steep turn.

2.2 Flaps extended speed range (V_{SO} to V_{FE})

	KIAS	KCAS
Lower limit	36	39
Upper limit	81	78

2.3 Maximum maneuvering speed (V_A)

	KIAS	KCAS
Max. manoeuvring speed (V_A)	95	90

2.4 Never exceed speed (V_{NE})

	KIAS	KCAS
Never exceed speed (V_{NE})	124	116

2.5 Crosswind and wind limitation

Maximum permitted wind speed components for take-off and landing:

Max. wind (in runway direction)..... 25 mph (22 knots)

Crosswind..... 10 mph (9 knots)

tail wind..... 5 mph (4 knots)

Cross wind takeoffs and landings require training and experience, the higher crosswind component, the better your skill must be. Do not fly without proper experience when the wind speed is approaching the limit.

Avoid takeoffs with tail wind when possible – the total takeoff distance is significantly longer and longer ground distance is required to gain altitude.

When landing with tail wind the aircrafts possessive ground speed is higher resulting in longer landing distance.

2.6 Service ceiling

Ceiling..... 14 760 ft

WARNING

Oxygen mask and/or other equipment required to reach maximum ceiling, consult respective regulations.

2.7 Load factors

Flaps up:

Maximum positive center of gravity load factor.....+ 4 Gs

Maximum negative center of gravity load factor .....- 2 Gs

Flaps down:

Maximum positive center of gravity load factor.....+ 2 Gs

Maximum negative center of gravity load factor .....0 Gs

2.8 Prohibited maneuvers

WARNING

Aerobatics, intentional stalls and spins are prohibited.

Maximum angle of bank : 60°

2.9 Other Limitations

WARNING

No smoking

WARNING

Flights with rear canopy removed are prohibited

WARNING

Only VFR day flights at ambient temperature above 14° F are permitted.

Flights at ambient temperature between 14° F and 32° F are permitted only under no icing conditions and when the carburettor heating is activated.

WARNING

IFR flights and flying in clouds is prohibited.

Flight into know icing is prohibited

This aircraft is not certified for operation in IMC (Instrument meteorological conditions). Always stay clear of clouds and have visual contact with the ground. Follow the airspace classification regarding distance from clouds. Always evaluate weather during your flight and try to get weather information from your destination using radio whenever possible. When weather is deteriorating make a diversion or turn back before the low cloud base and/or low visibility are critical.

3. Weight and Balance Information

3.1 Installed equipment list

		VFR Day
EFIS – D100	Airspeed indicator	X
	Turn Bank indicator	X
	Attitude indicator	X
	Altimeter	X
	Magnetic compass	X
	Vertical speed indicator	X
EIS		X
Control light of EIS		X
Fuel pressure indicator		X
Radio		X
Intercom		X
Transponder		-
ELT		-
12V socket		X

3.2 Center of gravity (CG) range and determination

Aircraft handlings and performances have been determined for this range of CG positions.

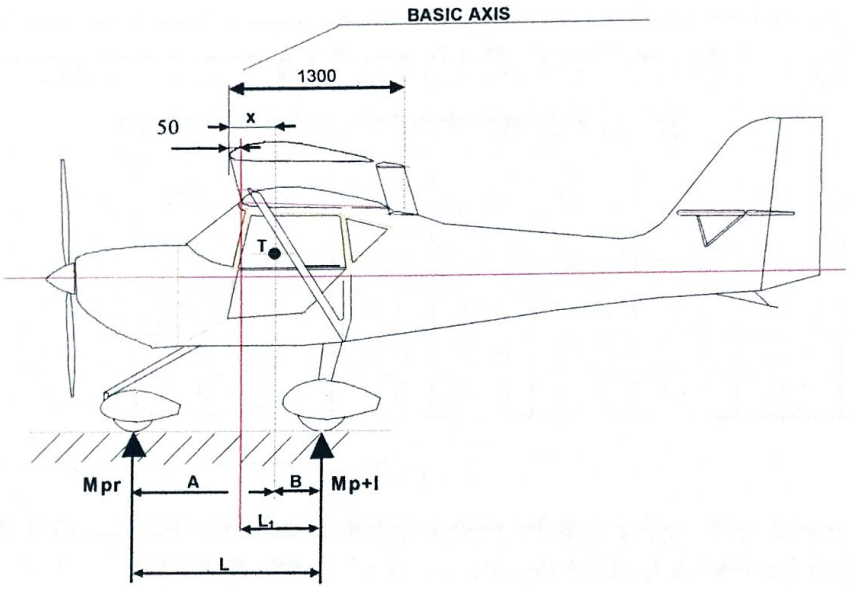
	Front limit (%)	Rear limit (%)
Center of gravity limits	20	28

3.2.1 Airplane weight and balance statement

The CG position of empty aircraft is determined by weighting. The procedure is described in the Maintenance manual. The whole procedure must be repeated and new **Airplane weight and balance statement** must be prepared whenever a modification or repair having impact to the weight of the aircraft occurs.

Serial Number 20706 **Registration:** 14-4544

Aircraft Leveling:



Values Weighed:

Main wheels	right-hand	MRH =	116,5	kg	L=	1375 mm
	left-hand	MLH =	113	kg	L_1=	476 mm
Nose wheel		MTS =	59	kg		
Resulting weight		Mres =	288,5	kg		

C.G. position

$B = (M_{pr} \times L) / M_{vys}$ = 281,2 mm

X = L1 - B = 244,8 mm

$\bar{X} = (X \times 100) / 1300$ = 18,83 % B_{SAT}

Date: 17.11.2006 Performed by:

AEROPRO s.r.o.
Dlhá 126 tel./fax: 037/6526 355
949 07 NITRA
IČO: 34 142 215 IČ DPH: SK2020410700

3.2.2 Weight and balance determination for flight

WARNING

The aircraft must not be operated in violation of its approved weight and balance limitations to assure safe flying.

Maximum takeoff weight is the maximum weight approved for the start of the takeoff roll.

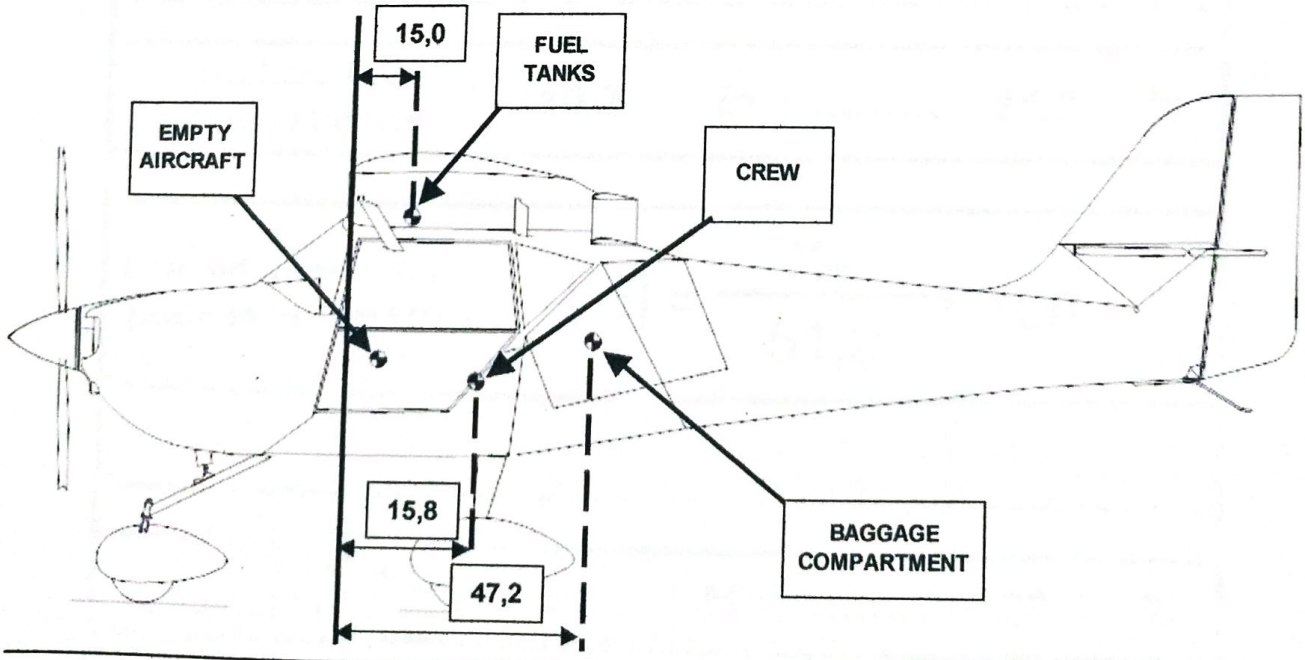
The table given bellow represents the maximum amount of fuel for given crew weight and given weight in the baggage compartment. The CG (center of gravity) position is within the approved range for all combination in the table and any interpolation between displayed values.

Maximum amount of fuel (U.S. Gallons) for given crew and baggage weight

crew weight (lbs)		121	180	210	270	300	360	390	405
weight in the baggage compartment (lbs)	0	22,5	22,5	22,5	22,5	22,5	22,5	22,5	22,5
	10	22,5	22,5	22,5	22,5	22,5	22,5	22,5	22,5
	20	22,5	22,5	22,5	22,5	22,5	22,5	22,5	20,9
	33	22,5	22,5	22,5	22,5	22,5	22,5	21,3	18,8

3.2.3 Detailed calculation of CG position

As all items are located behind the leading edge of the wing, the leading edge was selected as the reference plane. The table below shows a typical calculation including an example.



		Weight (lbs)	Arm (in)	Moment (lb.in)
Empty aircraft		**683**	**9**	**6147**
Crew			***15,8***	
		Example: 250		*Example: 3950*
Fuel	**U.S. Gallons**		***15,0***	
	Example: 18	*Example: 108*		*Example: 1620*
Baggage			***47,2***	
		Example: 33		*Example: 1558*
Total		[2]		[1]
		Example: 1074		*Example: 13275*

Loaded aircraft CG position in inches:

$$X_T = \frac{\text{Total moment } [1]}{\text{Total weight } [2]}$$

Example $XT = \frac{13275}{1074} = 12,36$ *in*

Permitted C.G. range in inches	***10.2***	***in***	***.....***	***14.3***	***in***

Loaded aircraft CG position in % MAC:

$$[\%] = \frac{X_T}{51,2} * 100$$

Example $[\%] \frac{12,36}{51,2} = 24,1$ *%*

Permitted C.G. range in %	***20***	***%***	***.....***	***28***	***%***

4. Performance

The data is based on particular flight measurements undertaken with the aircraft of this type in good service conditions and with application of average piloting technique. The performance stated below are calculated at sea level of the international standard atmosphere (ISA). Variations in pilot technique can cause significant differences as well as the other conditions like runway slope, runway surface condition, humidity etc.

Use the following data for guidance but do not plan a takeoff or landing when only 50 ft excess runway is available or do not plan a cross country with only 2 gallons fuel planned when arriving to your destination. Always be conservative when planning a flight and be ready for the unexpected – not forecasted wind, atmospheric turbulence or sudden weather change in destination forcing you to divert to airfield 60 NM away. Always plan a reasonable fuel reserve – 30 to 60 minutes seems to be sufficient time for most of flights, but this time should be even more increased when complicated weather conditions (strong headwind or rain showers) are expected en route.

The propeller installed on your aircraft was set to achieve the best compromise between takeoff and cruising performance (the performance information below are based on this setting). You can change the setting (see propeller documentation) to achieve a better rate of climb or a better cruising speed. Always be carefully when making this change and make a record of the current settings. When the propeller is set to achieve a maximum cruise speed, the takeoff distance is significantly longer. On the other hand, when the propeller is set to achieve good rate of climb, the fuel consumption during a level flight is higher. The finer pitch is set (e.g. climb setting), the higher static RPM are achieved when aircraft is static and full power is applied.

4.1 Takeoff and landing distances

Surface	Takeoff Distance (ft)	
	Ground run	Takeoff distance to 50 ft
Grass runway	492	1049
Concrete runway	459	1017

Surface	Landing Distance (ft)	
	Landing distance from 50 ft	Ground run
Grass runway	1148	558
Concrete runway	1082	492

Both takeoff and landing distance are significantly increased by the following factors:

- Tail wind
- High airport altitude
- High air temperature
- Up-hill runway slope
- Runway wet or covered with snow, dust or water
- Propeller set to achieve better cruising performance

4.2 Rate of climb

	MTOW 560 kg
Rate of climb (fpm)	816

4.3 Cruise speeds

Maximum cruising speed at 75%..... 93 KIAS (89 KCAS)

4.4 RPM

Max. take off power 5,800

Max. continuous power 5,500

Cruise flight .... 4,200 – 5,200

Idle speed ..... approx. 1,600

4.5 Fuel consumption

Engine settings	Fuel consumption (U.S. gallons per hour)
Takeoff power performance	7.1
Max. continuous performance	6.6
Cruise performance	3.2 – 5.4

Fuel consumption during cruise flight is dependant on various factors. The most important ones are engine settings and propeller settings. The higher the engine RPM is set during cruise, the higher fuel consumption. When propeller is set to minimum angle to achieve good climbing performance, level flight will be slower together with higher fuel consumption. When planning a flight, always consider all these and other factors like wind direction and speed or expected weather en route. Always plan for sufficient fuel reserve when arriving to the destination. Always carefully evaluate fuel consumption during the flight.

4.6 Other performance data

Max. endurance ..... 6 hours

Max. range ..... 614sm (534 NM)

5. Emergency procedures

5.1 Introduction

This section contains procedures for various emergencies which may occur. Emergencies caused by aircraft or engine malfunctions are rare if proper pre-flight inspections and maintenance are practised.

The chapter describes basic emergencies and recovery procedures. Not all emergencies that may occur can be listed here in full, therefore their solution depends on experience of the crew controlling course of such events. All air speed values in this chapter are presented in MPH Indicated Airspeed, as this value represents instrument reading better than the Calibrated air speed.

5.2 Engine Failure and Emergency landings

5.2.1 Engine Failure during Take-Off Run

- throttle	REDUCE TO IDLE
- ignition	OFF
- master switch	OFF
- brakes	AS REQUIRED

5.2.2 Engine Failure during Take-Off

- airspeed	65 KIAS
- choice of landing site	- after take-off and up to 150 ft - land in straight direction ahead, if possible
	- over 150 ft choose suitable landing site

The landing site is to be preferably chosen in the runway direction or the nearest suitable site clear of obstacles

- master switch	OFF
- ignition	OFF
- main fuel valve	SHUT
- tank fuel valves	SHUT
- flaps	EXTEND AS NEEDED
- safety belts	TIGHTEN

after touchdown:

- brakes	AS REQUIRED

5.2.3 In-flight Engine Failure

- airspeed	65 KIAS
- landing site selection	SELECT

- transmit MAYDAY on 121,5, ELT ON, XPDR 7700 - if time permits

check	- master switch	ON
	- ignition	ON
	- main fuel valve	OPEN
	- wing tank fuel valves	OPEN to tank with more fuel
	- throttle	SET TO 1/3 OF TRAVEL
	- starter	START THE ENGINE

If the engine cannot be started up, proceed in accordance with the procedure 5.2.2 .

5.2.4 Additional information to engine failure and emergency landing procedures

If the engine failure occurs during the takeoff run, the pilots main concern should be to stop the aircraft on the remaining runway. Those extra items in the checklist are to add protection should the runway be too short to stop.

In flight, prompt reduction of pitch attitude to obtain and maintain a proper glide speed upon experiencing an engine failure is the first priority. If the failure has occurred shortly after takeoff, a landing should be planned straight ahead with only small changes in the flight direction to avoid obstacles. The best gliding ration can be achieved with flaps up – flaps down will reduce the stall speed but at the same time deteriorating gliding performance. Try to stop rotation of propeller if restarting efforts are not successful – wind milling propeller has higher drag than stopped propeller.

While gliding towards a selected forced landing site, an effort should be made to determine and correct the cause of engine failure – time and altitude permitting. Do not concentrate of cause determination or restart effort unless you have selected a suitable landing site and you are

confident of this manoeuvre. Flying the aircraft (especially maintaining the proper gliding speed) is always the first priority. If the cause cannot be determined and corrected the emergency landing must be accomplished.

Always announce your intensions and position after engine failure using radio and other equipment when time permits. Turn radio to international emergency frequency – 121.5 and transmit MAYDAY message. Activate Emergency locator transmitter (ELBA) – set the switch to ON position. Set transponder (XPDR) to emergency code 7700. When the above mentioned procedure can not be performed due to time constrains try to complete as many steps as possible. Transmitting MAYDAY message on the frequency already tuned on your radio should be the minimum procedure.

WARNING

During a landing it is vital for the pilot to continue to fly the aircraft. Damages and/or injuries can be minimised if the pilot is fully concentrating on controlling the aircraft until it comes to complete stop

5.2.5 Carburetor Icing

Carburettor icing mostly occurs when getting into an area of ice formation. The carburettor icing shows itself through a decrease in engine power and an increase of engine temperatures. To recover the engine power, the following procedure is recommended:

- carburettors heating — ACTIVATE
- airspeed — 65 KIAS
- throttle — 1/3 of power ≈ (3500 RPM)
- if possible, leave the icing area
- increase gradually the engine power to cruise conditions after 1-2 minutes
- if you fail to recover the engine power, land on the nearest airfield (if feasible), or, depending on circumstance, off-airfield, following the procedure given under 5.2.2

5.3 In-flight Engine Starting

- airspeed	65 KIAS
- landing site selection	SELECT
- master switch	ON
- main fuel valve	OPEN
- wing tank fuel valves	OPEN to tank with more fuel
- choke	SWITCH ON (cold engine only)
- throttle	- ADJUST to 1/3 of travel
	- IDLE (when choke is activated)
- ignition	ON
- starter	START UP

- if the engine cannot be started up, increase the airspeed to 75 – 85 KIAS so that air flow can rotate the propeller, thus enabling engine starting.

WARNING Loss of height needed for in-flight engine starting is about 500 to 650 ft.

5.4 Fires

Follow these procedure when fire or smoke in the engine compartment or cockpit is detected even fires are extremely rare in properly maintained aircraft.

5.4.1 Engine fire on the ground

- main fuel valve	SHUT
- tank fuel valves	SHUT
- throttle	FULL
- ignition	switch off when engine has stopped as all remaining fuel in carburetors was burned
- master switch	OFF

- abandon the aircraft and extinguish fire (if possible)
- Fire damage INSPECT

NOTE	Time needed to burn fuel remaining in carburettors after fuel valves are closed is around 30 sec.

WARNING	DO NOT CONDUCT ANOTHER FLIGHT BEFORE THE FIRE CAUSE HAS BEEN DETERMINED AND REPAIRED BY AUTHORIZED PERSONNEL

5.4.2 Engine fire during takeoff

- throttle	IDLE
- main fuel valve	SHUT
- tank fuel valves	SHUT
- airspeed	65 KIAS
- brakes	STOP
- throttle	FULL
- ignition	switch off when engine has stopped as all remaining fuel in carburetors has burned

- abandon the aircraft and extinguish fire (if possible) once the aircraft is stopped

5.4.3 Engine fire in flight

- main fuel valve	SHUT
- tank fuel valves	SHUT
- throttle	FULL
- airspeed	INCREASE as required to find an airspeed which will provide as incombustible mixture. Do not exceed V_{NE}
- landing site selection	guide the aircraft to the nearest airfield, or choose a suitable landing site for emergency landing
- ignition	switch off when engine has stopped as all remaining fuel in carburetors was burned

- master switch	OFF
- airspeed	65 KIAS
- wings flaps	EXTEND AS NEEDED
- safety belts	TIGHTEN

- perform emergency landing
- abandon the aircraft and extinguish fire (if possible)

WARNING **DO NOT ATTEMPT TO RESTART THE ENGINE**

WARNING **DO NOT CONDUCT ANOTHER FLIGHT BEFORE THE FIRE CAUSE HAS BEEN DETERMINED AND REPAIRED BY AUTHORIZED PERSONNEL**

5.4.4 Cockpit or electrical fire

Electrical fires are usually signalled by the odour of burning insulation.

- cockpit door	OPEN to remove smoke from the cockpit
- avionics and other switches	OFF

Land at the nearest suitable landing site. Consider shutting down the engine (and master switch) once the suitable landing site is reached. Extinguish fire as soon as possible.

5.5 Gliding

gliding ratio ..... 1 : 11

optimum gliding speed..... 59 KIAS

rate of descent..... 551 fpm

Always consider flying though areas of descending air when calculating gliding range. Do not forget to has sufficient altitude to perform a landing procedure once suitable landing site has been reached.

5.6 Precautionary Landing

- choose suitable landing site, evaluate wind direction and speed, surface, surrounding obstacles and total safety of the manoeuvre under consideration
- perform approach and fly-over at a speed of 65 KIAS along the selected landing site at a height of 150 ft to estimate the area condition, obstacles and to determine exact landing direction
- Follow normal landings checklist and land

after touchdown

- Ignition OFF
- master switch OFF
- fuel valves SHUT
- brakes AS REQUIRED

Precautionary landing should be preferred instead of emergency landing. When engine vibration or engine roughness is presented, do not wait until the engine stops and perform a precautionary landing.

Precautionary landing is also used when a fuel exhaustion is imminent. This should not happed when a proper flight preparation is performed. Always perform a precautionary landing before all fuel is consumed, emergency landing following the loss of power is more complicated and more risky.

Also consider a precautionary landing when bad weather are is encountered. Again, it should not happed when a proper flight planning is done. When the cloud base is forcing you to fly in low altitude and/or visibility is limited, try to fly reverse of other course to avoid bad weather area. If the conditions are not getting better or even are deteriorating, perform a precautionary landing before the conditions are getting even worse.

5.7 Blown-Out Tire Landing

- carry out normal approach-to-land
- when flaring at landing, keep the damaged wheel above ground as long as possible using ailerons (or elevator for the nose wheel)
- maintain the direction at landing run, applying rudder

5.8 Damaged Landing Gear Landing

- carry out a normal approach-to-land

- if the nose wheel is damaged, perform a touch-down on main wheels and hold the aircraft nose wheel up as long as possible till the speed is lost.
- if the main landing gear is damaged, perform touch-down at the lowest speed possible and maintain direction at landing run, if possible

5.9 Vibrations or other engine problem

If any forced vibrations appear in the aircraft, it is necessary:

- to set engine speed to such power rating where the vibrations are the lowest
- to land on the nearest airfield, or to perform a precautionary landing off-airfield
- if the vibrations are increasing, carry out an emergency landing off-airfield, following procedures given under 5.2.2

If the oil pressure reduces during a flight, an engine failure is probable. Reduce the engine power and execute a nearest airfield or precautionary landing before the engine failure occurs.

5.10 Inadvertent icing encounter

- carburettor heating	ACTIVATE
- throttle	INCREASE above normal cruise settings
- course	REVERSE or ALTER as required to avoid icing

WARNING

EVASIVE ACTION SHOULD BE INITIATED IMMEDIATELY WHEN ICING CONDITIONS ARE ENCOUNTERED

A prompt action must be taken immediately once icing conditions are encountered. A 180° turn and a climb is usually appropriate. If the airframe ice builds extremely rapidly, consider off-airport forced landing. Approach speed should be increased slightly depending upon icing severity.

5.11 Extreme turbulence encounter

- Airspeed	REDUCE to 75 KIAS
- safety belts	SECURED
- loose objects	SECURED

When an area of extreme turbulence is entered reduce airspeed to approximately 75 KIAS. Do not reduce the airspeed to lower values to prevent the aircraft stalling due to turbulence as well as do not to keep high speed to prevent structural damages to the aircraft.

5.12 Electrical system malfunctions

5.12.1 Indicator of charging is illuminated

When a red light of charging indicator is illuminated no immediate action is required. All avionics and other equipment is powered from the battery, so the power source is limited. Try to switch off instruments not necessary for flight and land at the nearest airfield

5.13 Inadvertent Stall and spin recovery

Stall or spin should not occur during normal aircraft operation and are prohibited.

5.13.1 The following general procedure should be followed should a stall occurs:

- lower the nose by pushing the control stick
- gradually increase power

5.13.2 The following general procedure should be followed should a spin occurs:

- throttle	IDLE
- rudder	opposite to rotation
- control stick	fully pushed

Once the rotation is stopped, central rudder and establish a level flight.

6. Normal procedures

All air speed values in this chapter are presented in MPH Indicated Airspeed, as this value represents instrument reading better than the Calibrated air speed.

6.1 Pre-flight inspection

Pre-flight inspection must be conducted before the first flight of the day. The pre-flight inspection is recommended prior to any flight or series of flights by one pilot at any given day. Prior to any flight at least fuel and oil quantity should be checked.

If the aircraft has been stored outside the engine area and other points of entry should be checked for evidence of bird occupancy. All control surfaces and travel stops should be examined for wing damages. Wheel fairings are not recommended for muddy field operation due to possible mud accumulation inside the fairings. When operating from gravel fields pay special attention to propeller leading edges. Fuel caps should be monitored for any deterioration periodically to avoid fuel leakage in flight or water infiltration.

The aircraft general condition should be noted during a visual inspection of the aircraft. Inspect any signs of deterioration, distortion and any damages to fabric skin of the aircraft. In cold weather, all traces of ice, snow, and frost should be removed from the aircraft. Make sure that no ice, snow or debris is trapped between any movable control surfaces.

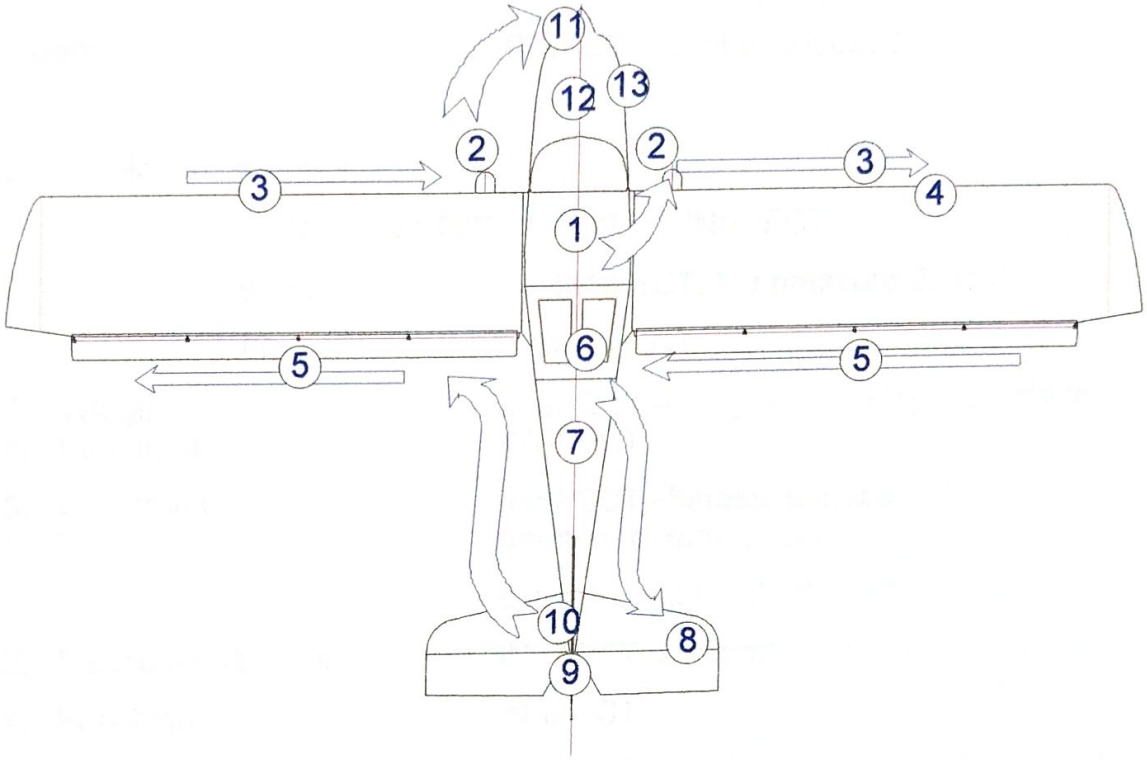
Make sure that all instrument are in good condition, no broken glass. Airspeed indicator should read zero, altimeter should be checked against ramp or field elevation.

Do not activate the electrical system when anyone is near the propeller to prevent injury that can possibility resulting from electrical system malfunction.

Pay special attention to the propeller area – make sure the ignition and master switches are OFF before touching the propeller. Avoid touching propeller when possible to prevent possible injury resulting from electrical system malfunction.

WARNING	**DO NOT FLY THE AIRCRAFT IF YOU FIND ANY DAMAGES OR PROBLEMS DURING A PRE-FLIGHT INSPECTION. ALWAYS CONSULT AUTHORISED PERSONNEL FOR REPAIRS**

6.1.1 Daily Preparation



1. Cockpit

POH and other documentation	review and available to pilot
master switch	OFF
ignition	OFF
fuel valves	OPEN, fuel quantity check
instruments	INSPECT
safety belts	INSPECT
check of flaperon tie rods	INSPECT
control stick	INSPECT , freedom of movement
rudder pedals	INSPECT , freedom of movement
brakes	INSPECT
trim	freedom of movement, proper function

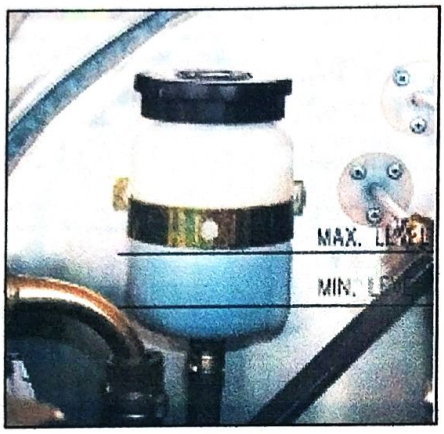
engine controls	INSPECT, freedom of movement
loose objects in cockpit	remove
cockpit windows	INSPECT
door	INSPECT, shut and locked

2. Main landing gear

gear legs and attachment	INSPECT
wheels	INSPECT, tire pressure 29 PSI
brakes	INSPECT

3. Wings	INSPECT – wing, struts, hinges, surface
4. Pitot tube	INSPECT
5. Flaperons	INSPECT –hinges, surface freedom of movement
	counterweights attachment.
6. Rear cockpit cover	INSPECT, secured
7. Fuselage	INSPECT
8. Stabilizer, elevator, hinges	INSPECT –surface, hinges, attachment of stabilizer struts
	freedom of movement of elevator and trim tab.
9. Fin, rudder, hinges	INSPECT surface, attachment, freedom of movement
	condition and attachment of balance tab.
10. Nose wheel	INSPECT, tire pressure – 29 PSI
11. Propeller	INSPECT / blades, propeller hub, check of locking propeller nuts (when visible)
12. Engine	Remove the top engine cowling and
	INSPECT - engine mount
	INSPECT - air intake, carburettors and controls
	INSPECT - exhaust system

INSPECT – coolant, quantity (0.4 inch above bottom) - (between MIN and MAX marks), leakages –(see picture 1)



INSPECT – oil, quantity (between MIN and MAX marks), leakages. The oil level should be at least in the middle between marks when planning a long term operation.

INSPECT - fuel system, filter and carburettors

INSPECT - electrical system, ignition, cable connections

13. Fuel

Quantity (between MIN and MAX, at least middle for longer flights)

INSPECT - draining off water and dirt from the central tank. Fuel system must be sampled daily to assure lack of contamination. Inspect the type of fuel.

Fuel caps secured, correct vent orientation – open end against air in flight.

6.1.2 Engine Warm-Up, Power Check

- wheels chocked, brakes on.
- Start the engine - see section 6.2
- warming-up to operating temperature - first at 2000 RPM for 2 minutes, then at 2500 RPM to reach oil temperature of 122 °F
- temperature and pressure values - within operating limits
- set maximum power - speed of about 5000 RPM (3 ÷ 5 sec.). The maximum RPM may vary with vary with temperature and propeller setting

- check of ignition (magnetos) – set 3 850 RPM, RPM drop should not exceed 300 on either magneto nor 120 differential between magnetos.
- Idle rotation - 1450 RPM
- All engine instrument readings must not exceed operating limits under any rating
- Remove wheel chocks for further operation, secure the aircraft

CAUTION	Perform the engine check heading upwind. Do not carry it out on loose terrain. Nobody is allowed to stand within dangerous proximity and, in particular, within propeller level! Select proper aircraft orientation – propeller blast can be surprisingly powerful.
CAUTION	The engine is cowled for optimum cooling during flight. Use high power settings for limited time only during ground operation to avoid engine overheating
CAUTION	*After check of engine power, cool down the engine for a short time to avoid evaporation of the cooling liquid in cylinder heads.*

6.1.3 Pre-Flight Inspection

Make a brief walk around before you board the aircraft. This short inspection might discover damages or problem occurred during the last flight. It is especially important to make this inspection when you are taking over the aircraft from other pilot.

Use chocks for main wheels when possible and practical to prevent the aircraft from moving. Always make sure that the person you asked to remove your chocks while engine is running is aware of propeller danger. The best practise is to use chocks only for engine warm-up and engine check, shut down the engine and remove chock while the engine is stopped. Before using chock make sure they do not collide with wheel fairings preventing any damage.

Cockpit
- INSPECT COCKPIT INTERIOR EQUIPMENT
- INSPECT SAFETY BELTS

	- CONTROL SYSTEM-FREEDOM OF MOVEMENT, DAMAGES
wings	- INSPECT WING SURFACES
	- INSPECT WING AND STRUTS SUSPENSIONS
	- INSPECT FLAPERONS.
Fuselage	- INSPECT
tail unit	- INSPECT
landing gear	- INSPECT
engine and propeller	- INSPECT.

6.2 Engine starting

Lack of oil pressure within 10 seconds after engine starting can lead to serious engine damage.

Make sure nobody and/or nothing is near the propeller when staring the engine.

6.2.1 Use of External Power Supply

The aircraft is not provided with connection for external power supply - the external power supply may be connected to battery contacts when necessary.

6.2.2 Engine Starting

- pre-flight inspection	COMPLETED
- safety belts	ADJUST AND SECURE
- rudder pedals	FREEDOM OF MOVEMENT
- brakes	CHECK FUNCTION
- control stick	FREEDOM OF MOVEMENT
- trim	FREEDOM OF MOVEMENT
- wing flaps	FREEDOM OF MOVEMENT, RETRACTED
- engine control + choke	FREEDOM OF MOVEMENT
- instruments	CHECK OF VALUES, SETTINGS
- door	CLOSED, LOCKED
- master switch	SWITCH ON

- main fuel cock	OPEN
- wing tank fuel cocks	OPEN TO TANK WITH MORE FUEL
- choke	SWITCH ON (COLD ENGINE ONLY)
- throttle	1/3 OF TRAVEL (IDLE for cold engine)
- control stick	PULLED (clamped between legs)
- brakes	ON
- propeller area	"CLEAR"
- ignition	SWITCH ON
- starter	SWITCH ON (10 sec as maximum without interruption, followed by a cooling period of 2 minutes)

- after starting the engine, adjust speed to smooth operation – IDLE

- instruments	CHECK OF INDICATION (oil pressure must rise within 10 seconds. Increase of engine speed is permitted only at steady oil pressure readings above 30 PSI)
- choke	SWITCH OFF (cold engine only)
- avionics and other switches and-	SWITCH ON (transceiver, IC, turn-slip indicator .....)

The aircraft has a tendency to roll forward easily on paved surfaces like asphalt even when the engine at idle. The tail wind is also a significant factor. Make sure that the aircraft is not moving once the engine is started. If the aircraft is rolling and cannot be stopped with brakes, turn the engine immediately off using ignition switch.

6.3 Taxiing

6.3.1 Prior to Taxiing

Be aware of the entire area around the aircraft to ensure that the aircraft will clear all obstruction and other aircraft. When first beginning to taxi, the brakes should be tested for proper operation as soon as the aircraft is put in motion. If braking action is unsatisfactory, the engine should be shut down immediately.

- brakes	FUNCTIONAL CHECK

- stop watch	SWITCH ON, record time

6.3.2 Taxiing

- taxiing speed is 8 knots maximum. Steering is performed by rudder pedals controlling the nose wheel.
- in crosswind hold ailerons „upwind", using the control stick.
- In strong crosswind perform the taxiing with an assisting person holding the wing by its windward side.
- When taxing on gravel surfaces use as low engine power as possible to prevent damage to the propeller leading edges.

6.4 Normal takeoff

6.4.1 Prior to Take-Off

- brakes	BRAKES ON
- speed	3,850 RPM
- magnetos	CHECK (R, BOTH, L, BOTH)
- carburetor heating	ACTIVATE WHEN NECESSARY
- choke	OFF
- trim	NEUTRAL
- wing flaps	TAKE-OFF POSITION
- master switch	ON
- ignition	ON
- main fuel valve	OPEN
- tank fuel valves	FUEL QUANTITY CHECK, OPEN TO BOTH OR TANK WITH MORE FUEL QUANTITY
- instruments	CHECK
- door	CLOSED, LOCKED
- safety belts	FASTENED, TIGHTENED
- controls	FREEDOM OF MOVEMENT
- runway	not occupied by another aircraft

6.4.2 Take-Off

Continuously increasing engine power to maximum (max. 5800 RPM are not to be reached as the aircraft is not moving and the propeller is not in flight adjustable), bringing the aircraft into motion. At a speed above 40 KIAS rotate the aircraft by slight pulling. Do not climb before the airspeed of 55 KIAS is reached. Then make a transition to climb, get the aircraft to climbing at a speed of 60 KIAS. Accelerate during initial climb to 65 KIAS unless the best angle of climb is required. Maintain the airspeed during best angle climb carefully, do not let the speed drop below 60 KIAS.

- throttle		FULL
- engine instruments		CHECK
- elevator control		ROTATE at 50 KIAS by slight pulling
- initial climb speed	60 KIAS	
- engine instruments		CHECK
- wing flaps		slowly FLAPS UP ABOVE 150 FT
- trimming		TRIM

WARNING

Take-off is forbidden - if engine running is not smooth.
- if runway is occupied.

Perform a brief magneto check before the takeoff after positioning the aircraft clear of other aircraft. When a magneto problem is present, do not takeoff. Monitor power and engine RPM early during takeoff run – if the engine RPM are lower than usually (exact RPM value depends on propeller settings) or engine is not running smoothly abort the takeoff immediately.

If taking off the from gravel surface apply the power slowly to prevent propeller leading edges damages.

Always retract wing flaps slowly – sudden retracting of wing flaps might cause a loss of attitude.

Always judge, based on your experience, whether the available runway is sufficient for normal takeoff. Always make a realistic estimation and be ready to abort the takeoff before critical speed is reached.

6.5 Best angle of climb speed (V_X)

6.5.1 Climbing

- throttle	5,500 PRM MAX
- airspeed	60 KIAS
- engine instruments	CHECK

6.6 Best rate of climb speed (V_y)

6.6.1 Climbing

- speed	5,500 PRM MAX
- airspeed	65 KIAS
- engine instruments	CHECK

6.7 Cruise

6.7.1 Cruise Flight

- bring the aircraft into horizontal flight

- speed	4,000 – 5,500 RPM
- airspeed	60 – 95 KIAS as required
- engine instruments	CHECK
- fuel tank valves	SWITCH BETWEEN TANKS (open one side and close the other) regularly

During cruising flight an RPM up to 5 500 can be used. Always monitor all engine parameters during cruise flight, especially when high engine settings is set. Higher RPM means higher speed, but fuel consumption is increasing significantly at the same time. An RPM setting around 4 500 is usually the best compromise between time and fuel consumption. A propeller setting is always an important factor. Monitor minimum fuel bulb indication condition by pushing control button when you expect minimum fuel quantity (1.1 US Gallons).

Monitor the atmospheric condition as well – do not enter turbulence area in a high speed. Be ready for a sudden weather change during your flight – stronger head wind can limit your ability to safely reach planned destination.

When carburetor icing is possible, activate carburetor heating. A fuel consumption and remaining fuel on board should be monitored. Always make a comparison between estimated and actual time above any waypoint.

Select carefully the flight path – avoid flying over large urban areas, large forests or large water areas as well as over mountains. Landing possibilities are very limited in case of engine failure or other emergency over those areas. Always have some suitable landing area within a gliding range. When it is necessary to cross a large area not suitable for emergency landing, always climb to the appropriate altitude to reach suitable landing site once emergency occurs.

Always monitor the airspace around your to prevent a mid-air collision.

WARNING

Do not forget to change the wing tank supplying the engine on regular basis to prevent fuel starvation.

A proper fuel supply to the engine is provided by a central connecting tank during changing the active fuel tank change.

6.8 Approach

6.8.1 Descent

- throttle	INCREASED IDLE OR AS REQUIRED
- engine instruments	CHECK
- carburettor heating	ACTIVATE WHEN NECESSARY

WARNING

During long approaches and when descending from a considerable height, it is not advisable to reduce the engine throttle control to idle. In such case the engine becomes overcooled and a loss of power might occur. When descending, apply increased idle so that engine instrument readings range within the limits for normal use.

6.8.2 Downwind

- power	4,000 – 5,000 RPM
- airspeed	65 – 80 KIAS
- engine instruments	CHECK

- fuel	FUEL QUANTITY CHECK, SWITCH TO TANK WITH MORE FUEL
- brakes	CHECK FUNCTION BY SHORT BRAKING (check proper system resistance)
-safety belts	TIGHTEN
- base leg and final leg airspace	CHECK OF FREE SPACE
- landing site	SITUATION

6.9 Normal landing

6.9.1 On Base Leg

- power	3,000 RPM
- airspeed	65 KIAS
- engine instruments	CHECK
- wing flaps	TAKE-OFF
- trimming	TRIM

- final leg airspace check of free space

6.9.2 On Final

- airspeed	65 KIAS
- power	ADJUST AS NEEDED
- carburettor heating	ACTIVATE WHEN NECESSARY
- engine instruments	CHECK
- wing flaps	LANDING
- trimming	TRIM
- engine instruments	WITHIN LIMITS

- check of clear landing site (people, obstacles).

6.9.3 Landing

Always judge, based on your experience, whether the available runway is sufficient for normal landing. Always make a realistic estimation and be ready for balked landings.

At a height of about 30 ft reduce the engine speed to idle. Maintain speed of 65 KIAS till flare. When flaring at a height of 1,5 to 3 ft above ground, decelerate gradually by pulling the control stick backward. At a speed of about 35 to 40 KIAS the aircraft touches-down.

When landing with a significant crosswind component do not set the flap to landing position – use take-off setting to touch down at higher speed to ensure proper control over the aircraft before it touches the ground.

Entry speed to side slip ..... 65 KIAS

6.9.4 After landing

- brakes — APPLY WHEN NECESSARY
- wing flaps — RETRACT
- trim — TAIL HEAVY

6.9.5 Engine Stopping

- power — cool down the engine at 2,000 RPM when necessary
- engine instruments — CHECK
- turn radio to 121,5 — CHECK ELT IS NOT ACTIVATED.
- avionics and other switches — OFF
- ignition — OFF
- master switch — OFF
- avionics and other switches — OFF
- main fuel valve — SHUT
- tank fuel valves — SHUT
- secure the aircraft — chocks or other way to prevent the aircraft from unintended movement, lock the controls (using safety belts)

During normal operation the engine is usually cooled enough during the approach and landing. Make sure that all avionics and other instruments are switched off before the engine is stopped.

Do not use parking brake to hold unattended aircraft, especially when the aircraft is located in hanger.

6.9.6 Post-Flight Check

- check
  - damage of fuel system. fuel leakage
  - damage of oil system, oil leakage
  - damage of cooling circuit, liquid leakage
  - damage of electrical system, ignition
- check of aircraft exterior for damage
  - fuselage
  - wings, flaperons
  - tail unit
  - landing gear
  - fiberglass covers
- wash down the aircraft, clean it of dirt
- cover the cockpit with a protective cover

6.10 Short field takeoff and landing procedures

The standard takeoff procedure should be followed. The only difference is that the full throttle is applied with brakes on – do not forget to has elevator in fully pull position to prevent aircraft turn over. Brakes are released when the maximum RPM are achieved by the engine. To clear possible obstacles in the runway direction climb at speed for best rate of climb – see section 6.6

When approaching a short field make sure that the approach speed of 65 KIAS is carefully maintained and full flaps are set.

6.11 Balked landing procedures

- power	MAX. 5500 R.P.M
- airspeed	65 KIAS
- engine instruments	CHECK
- wing flaps	TAKE-OFF
- trimming	TRIM
- wing flaps	RETRACT AT A HEIGHT OF 150 FT
- trimming	TRIM
- power	MAX. 5500 RPM
- climb	65 KIAS

6.12 Information on stalls, spins and any other useful pilot information

WARNING **Aerobatics, intentional stalls and spins are prohibited.**

6.12.1 Rain

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

7. Aircraft Ground Handling and Servicing

7.1 Servicing fuel, oil, coolant

7.1.1 Servicing fuel

1. Verify the main switch OFF position
2. remove fuel tank cap
3. service with fuel of proper type until level rises to the filler openings (or any required level)
4. Replace fuel cap and check for security
5. wash any spilled fuel from wings with a clean water
6. repeat for opposite fuel tank.

It is not advisable to change the used type of gasoline during engine operation. Refuelling should be carried out in places not endangering either the aircraft, its attendance or environment. Prior to refuelling it is always necessary to check gasoline for absence of water. Sampling should be done both from the transportation containers and from tanks and aircraft fuel system through drain sump. When refuelling from a barrel, a funnel must be used provided with a strainer to trap impurities, or, even better, with a buckskin leather which can trap also eventual fuel moisture content. Fuel dumping is performed similarly as sampling by means of a drain cock.

When filling fuel into tanks, be careful to avoid staining of cockpit window panels and glass with fuel as it contains corrosive components that will cause a fast deterioration and damage to cockpit glazing. Make sure that fuel tanks are closed when refuelling is finished.

7.1.2 Servicing oil

The proper oil type should be used – see this manual or engine manual. .

1. Make sure that ignition and master switch are off
2. Remove the top engine cowling.
3. Open the oil tank.
4. When a level is not between minimum and maximum marks (or not high enough for expected longer operation), add oil. Do not add oil above the MAX level – the oil will be overflowed out of the engine anyway.

5. replace oil tank cap
6. replace the top engine cowling

The oil is to be changed every 50 or 100 hours of operation – see Maintenance manual and engine documentation for details. The first oil change is to be performed after initial 25 hours of operation of a new or overhauled engine.

7.1.3 Servicing coolant

The proper coolant type should be filled in – see this manual or engine manual.

1. Make sure that ignition and master switch are off
2. Remove the top engine cowling.
3. Remove the cap of the coolant tank
4. Add estimated quantity of coolant
5. replace coolant tank cap
6. replace the top engine cowling

7.2 Landing gear tire dimension and pressure

Main landing gear wheel tire dimension 14x4
Tire pressure ..... 29 PSI

Nose wheel tire dimension 12x4
Tire pressure ..... 29 PSI

7.3 Towing and tie-down instructions

7.3.1 Aircraft towing instruction

1. Make sure that parking brake is off
2. Check the space around the aircraft and in the proposed direction of movement
3. Push and hold the tail down - use handle located on fuselage close to rudder leading edge
4. Push the aircraft in desired direction

Aircraft can be also towed using a tow bar – optional equipment, ask your dealer for details.

CAUTION Never push, pull, or lift the aircraft by use of control surfaces

7.3.2 Aircraft tie-down instruction

1. Turn the aircraft into wind, if possible
2. Lock the controls (using safety belts)
3. Make sure that parking brake is on, install wheel chocks when possible.
4. Attach ropes to the ring located on the lower wing surface (front strut attachment)
5. Attach rope the nose wheel
6. Attach rope to the tail (between tail skid and fuselage)
7. secure all ropes to the tie-down points

It is recommended to install a soft foam rubber or fabric cover into engine intakes to prevent foreign matter form accumulating inside the engine cowling. Before using chock make sure they do not collide with wheel fairings preventing any damage.

CAUTION Never push, pull, or lift the aircraft by use of control surfaces

8. Required Placards and Markings

8.1 Airspeed indicator range markings

Marking	MPH (Indicated Air Speed)	Signification
Marking	KIAS	Signification
White arc	36 ÷ 81	Flaps operating range. Lower limit is maximum weight zero thrust stall speed in the landing configuration. Upper limit is maximum speed allowable with flaps extended.
Green arc	43 ÷ 95	Normal operating range. Lower limit is maximum weight zero thrust stall with flaps retracted, upper limit is manoeuvring speed
Yellow arc	95 ÷ 124	Caution range – Operation must be conducted with caution and only in smooth air

Overview of speed limits:

Speed		KIAS	Remarks
V_{NE}	Never exceed speed	124	V_{NE}
V_A	Manoueuvring speed	95	V_A
V_{FE}	Maximum wing-flaps extended speed	81	V_{FE}

V_{S0}	Minimum steady flight speed	36	V_{S0}
V_{S1}	Minimum steady flight speed	43	V_{S1}

8.2 Operating limitation on instrument panel

Manufacturer: AEROPRO s.r.o., 949 07 Nitra, Slovakia			
Max. take-off weight:		1235 lbs	
Empty weight:		683 lbs	
Never exceed speed	V_{NE}	124	KIAS
Max. Flap Extended speed	V_{FE}	81	KIAS
Stalling speed – wing level, flaps down	V_{S0}	36	KIAS

8.3 Passenger warning

This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

8.4 "No intentional spins"

The following placard is located on the instrument panel

AEROBATICS, INTENTIONAL SPINS ARE PROHIBITED

8.5 Miscellaneous placards and markings

Reserved

Passenger warning

This aircraft was manufactured in accordance with Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

Fuel tank capacity:10.6 U.S.gal
Fuel specification:
ASTM D4814 or AVGAS 100LL

9. Supplementary information

9.1 Familiarization flight procedures

Familiarization flights procedure depends on pilot's experience. The whole familiarization should start with careful study of this document (Pilot Operating Handbook and Flight training supplement). Maintenance manual should be read as well.

The recommended procedure for experienced pilot usually consists of:

- Local flight in duration of approximately 30 minutes with instructor
- 5 to 10 traffic patterns with instructor
- 5 flights – emergency situations
- local flight do 30 minutes – solo
- 5 traffic patterns solo

Always perform as many flights as required to be able to properly control the aircraft, the syllabus above is for reference only.

9.2 Pilot operating advisories

reserved

9.3 Further Information

The following general information is recommended for further study among other books available:

The ***Pilot's Handbook of Aeronautical Knowledge*** provides general basic knowledge that is essential for pilots.

The ***Airplane Flying Handbook*** is designed as a general technical manual to introduce basic pilot skills and knowledge that are essential for piloting airplanes.

Both handbooks are available online from web of FAA and paper copies are available from various source.