LIMITED COMPANY
AEROSPOOL PRIEVIDZA
Airfield Prievidza
971 03 PRIEVIDZA
Slovak Republic
Fax: +421 46 5183 250
Tel.: +421 46 5183 200
aerospool@aerospool.sk
www.aerospool.sk

T E C H N I C A L D E S C R I P T I O N

OPERATING, MAINTENANCE

AND REPAIR MANUAL

FOR ULTRALIGHT AEROPLANE

WT 9 DYNAMIC

Model: **Club S LW**

Serial Number: **DY 106 /2005**

Registration: **SE - VPA**

Date of Issue: **14. 11. 2005**

Owner:

The aeroplane manufacturer will highly appreciate all suggestive proposals and reminders concerning this Manual as well as an announcement of knowledge and experience found during DYNAMIC WT 9 ultralight aeroplane operation.
Translation of this manual has been done by best knowledge and judgement. In any case the original in Slovak language is authoritative.

S E C T I O N 0

G E N E R A L

0.1. RECORD OF REVISION

Any revisions or amendments to this 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 page fore-edge and the page shall bear revision number and date of its issue.

Revision Number	Affected Section	Affected Page	Date of Issue	Bulletin No.	Date of Approval	Date Inserted	Signature

0.2 LIST OF EFFECTIVE PAGES

Section	Page	Date	Section	Page	Date
0	0-1	01.03.2002	2	2-1	01.03.2002
	0-2	01.03.2002		2-2	01.03.2002
	0-3	01.03.2002		2-3	01.03.2002
	0-4	01.03.2002		2-4	01.03.2002
	0-5	01.03.2002		2-5	01.03.2002
				2-6	01.03.2002
				2-7	01.03.2002
				2-8	01.03.2002
1	1-1	01.03.2002		2-9	01.03.2002
	1-2	01.03.2002		2-10	01.03.2002
	1-3	01.03.2002		2-11	01.03.2002
	1-4	01.03.2002		2-12	01.03.2002
	1-5	01.03.2002		2-13	01.03.2002
	1-6	01.03.2002		2-14	01.03.2002
	1-7	01.03.2002		2-15	01.03.2002
	1-8	01.03.2002		2-16	01.03.2002
	1-9	01.03.2002			
	1-10	01.03.2002			
	1-11	01.03.2002			
	1-12	01.03.2002			
	1-13	01.03.2002	3	3-1	01.03.2002
	1-14	01.03.2002		3-2	01.03.2002
	1-15	01.03.2002		3-3	01.03.2002
	1-16	01.03.2002		3-4	01.03.2002
	1-17	01.03.2002		3-5	01.03.2002
	1-18	01.03.2002		3-6	01.03.2002
	1-19	01.03.2002		3-7	01.03.2002
	1-20	01.03.2002		3-8	01.03.2002
	1-21	01.03.2002		3-9	01.03.2002
	1-22	01.03.2002		3-10	01.03.2002
	1-23	01.03.2002		3-11	01.03.2002
	1-24	01.03.2002		3-12	01.03.2002
	1-25	01.03.2002		3-13	01.03.2002
	1-26	01.03.2002		3-14	01.03.2002
	1-27	01.03.2002		3-15	01.03.2002
	1-28	01.03.2002		3-16	01.03.2002
	1-29	01.03.2002		3-17	01.03.2002
	1-30	01.03.2002		3-18	01.03.2002
	1-31	01.03.2002		3-19	01.03.2002
				3-20	01.03.2002
				3-21	01.03.2002
				3-22	01.03.2002
				3-23	01.03.2002
				3-24	01.03.2002

Section	Page	Date	Section	Page	Date
4	4-1	01.03.2002			
	4-2	01.03.2002			
	4-3	01.03.2002			
	4-4	01.03.2002			
	4-5	01.03.2002			
	4-6	01.03.2002			
5	5-1	01.03.2002			
	5-2	01.03.2002			
	5-3	01.03.2002			
	5-4	01.03.2002			
	5-5	01.03.2002			
	5-6	01.03.2002			
	5-7	01.03.2002			
	5-8	01.03.2002			
	5-9	01.03.2002			
	5-10	01.03.2002			
	5-11	01.03.2002			

0.3 CONTENTS

SECTION 1

TECHNICAL DESCRIPTION

1.1 Introduction

The Technical Description, Operating, Maintenance and Repair Manual for ultralight aeroplane DYNAMIC WT9 has been prepared to provide the information for the safe and efficient operation of this ultra light aeroplane.

This manual contains supplemental data supplied by the aeroplane manufacturer.

1.2 Certification basis

This type of aircraft has been approved in Germany by the Deutscher Aero Club e.V. (DaeC) in accordance with the German Certification Regulations and Airworthiness Requirements for ultra light aircraft of the DaeC (BFU des DaeC, Ausgabe 10/95) and the Type Certificate No. 61179 has been issued on 23.10.2001.

Category of Airworthiness : **Normal – Ultralight Aircraft.**

1.3 Warnings, cautions and notes

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

WARNING

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

CAUTION

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

NOTE

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

1.4 Basic and general information

1.4.1 Aeroplane description

DYNAMIC WT9 is a single engine, low-wing monoplane with two side-by side seats and dual control. An airframe consists of a sandwich shells from advanced composite material.. The aeroplane is equipped with a fixed or a retractable tricycle undercarriage with a nose wheel. As power plant of this ultralight aircraft is used 4 cylinder, 4 stroke engines ROTAX 912 UL (59,6 kW) or ROTAX 912ULS (73,5 kW) with 3 blades, fixed DUC propeller or in flight electrically adjustable aircraft propeller Woodcomp SR 2000.

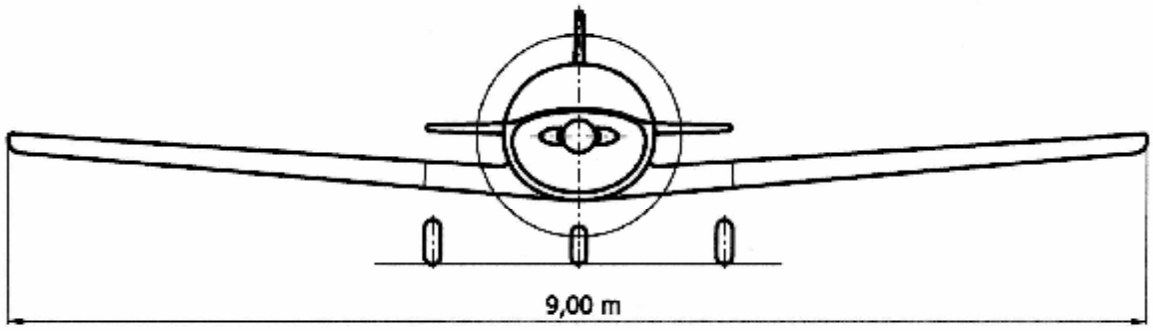
1.4.2 Designation

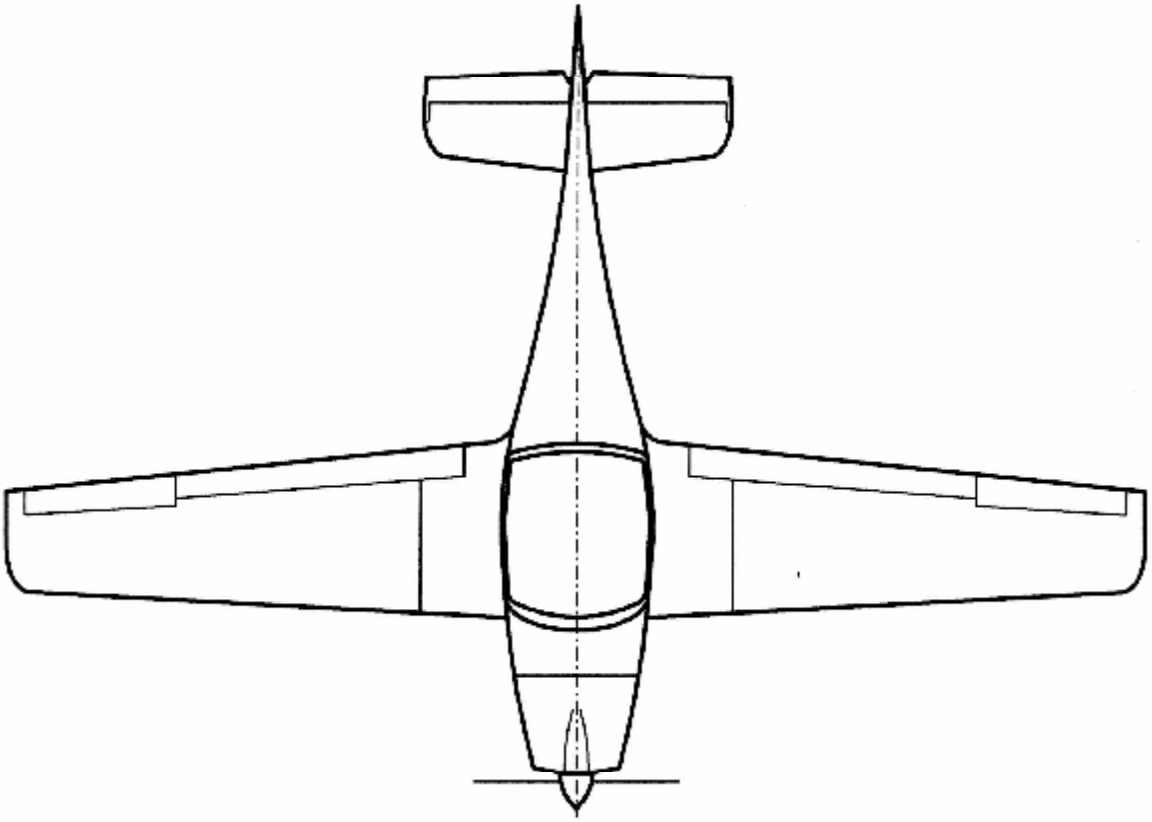
DYNAMIC WT9 is intended for sporting, recreation and tourist flying in accordance with VFR. Aerobatic manoeuvres and intentional spins are prohibited!

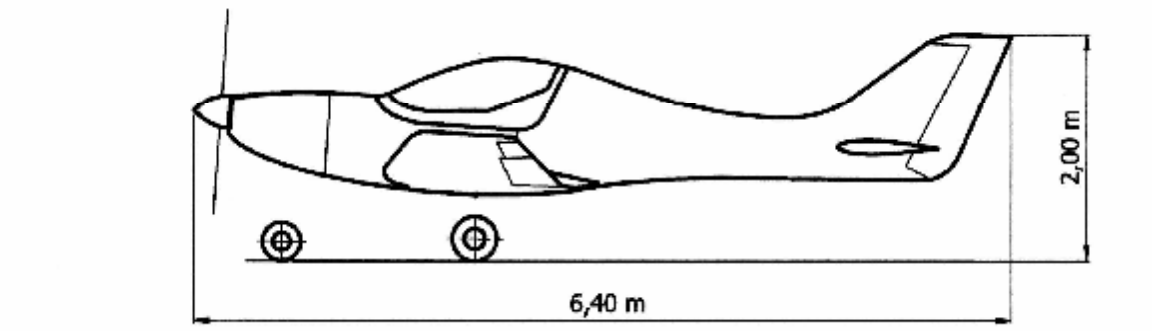
1.5 Basic technical data

1.5.1 Aeroplane views

1.5.2 Three-view drawing







1.5.3 Basic dimensions

Wing

Wing span	9,000 m
Wing area	10,300 m^2
Wing aspect ratio	7,82
Aerodynamic mean chord (MAC)	1,185 m

Aileron

Aileron span	1,250 m
Aileron area	0,273 m^2

Wing flap

Flap span	2,280 m
Flap area	0,750 m^2

Fuselage

Length	6,400 m
Width	1,180 m
Height	2,000 m

Horizontal tail unit

Horizontal tail span	2,400 m
Horizontal tail area	1,680 m^2
Elevator area	0,500 m^2

Vertical tail unit

Height	1,022 m
Vertical tail area	1,020 m^2
Rudder area	0,360 m^2

Landing gear

Wheel spacing	2,270 m
Wheel base	1,490 m
Main wheel diameter	0,350 m
Nose wheel diameter	0,320 m

1.5.4 Weights

Empty weight
(with rescue system and standard instrument equipment)

(Model Club/Tow	259/268 kg
(Model Speed	270 kg
Maximum take-off weight	450 kg
Maximum landing weight	450 kg
Fuel weight (75 litres)	52 kg

Maximum weight in Baggage Compartment…… 10 kg

NOTE
Actual empty weight is stated on the placard „ LOAD LIMITS „ stuck in the cockpit.

1.5.5 Centre of gravity

Empty aeroplane ……. 12 ± 2% SAT
Position of C.G. in flight …….. 20 ÷ 30% SAT

1.5.6 Operating limitations

Refer to the Aeroplane Flight Manual (AFM), Section 2 for more details about the following operating limits:

- Airspeed limits,
- Weights limits,
- C.G. range limits,
- Approved manoeuvres.

1.6 Technical description of the aeroplane

1.6.1 General

An airframe consists of a sandwich shells from advanced composite material. The shell is of three layer construction. The external and internal shell layers are made of a glass and a carbon fiber fabricses, which are saturated with a resin. Between them there is a filling from a hard foam panels. The shells are formed in negative forms and they are heat treatmented 12 hours at temperature 54 °C for resin-harden.

1.6.2 Fuselage

The fuselage sandwich shell is divided in the symmetry plane. The fuselage cross-section are parabolic curves. The cockpit is reinforcemented with hollow profile from advanced composite material. The back rest of the crew and the central pedestal are glued and together with the shells they create reinforcement element of the airframe. The fin is made together with the fuselage. The wing central panel is fixed at the fuselage. There is the integral tank in the forward box of the wing central panel. The back box of the wing central panel is used as room for main legs of the retractable undercarriage. There are stiffening ribs in the back box of the wing central panel for gripping of the legs of the fixed undercarriage. A rescue system with ejection of the rescue parachute through removable cover may be located behind the fire wall of the power plant (if is installed). A horizontal tail is fixed at the fuselage too. The baggage compartment is situated behind the seats. There is the frame with the access hole into the rear part of the fuselage. The Perspex canopy is glued on the composite frame. The canopy is attached to the nose section of the fuselage by pins which make it possible for the canopy to be tilted forward. For easier manipulation, the weight of the canopy is counterbalanced by two gas struts which allow it to open effortlessly. The

engine section in the nose is separated from the cockpit by a firewall which the engine bed is attached to.

1.6.3 Wing

A construction of the wing is two – box type (the main spar caps are made from the carbon rods and one auxiliary girder). A torsion box is glass fibre reinforced plastics sandwich construction. The spars of right and left wings are joined to the wing central panel spar with the help of two pins. The outer pin is inserted through the room for main legs of the retractable undercarriage (at model SPEED) or through the access hole on the lower wing surface (at model CLUB). The inner pin is inserted through the hole in the cockpit below pilot seat. The third join point is the pin of the auxiliary girder. The Pitot-static head is located on the right wing leading edge.

1.6.3.1 Aileron

A construction of the aileron is the sandwich shell structure type. The aileron is attached to the upper surface of the wing shell with three hinges from advanced composite material. The movement by means of the rod is transmitted into the root rib. The control-surface weight balance is attached on the aileron tip rib. The deflections of the ailerons are differentiated 1: 1,6 .

1.6.3.2 Wing flap

The wing flap is the slotted flap type, with the low lying point of rotation. A construction of the wing flap is the sandwich shell structure type. The flap is attached to the wing with four hinges. The movement by means of the rod is transmitted into the wing flap root rib. The flap control lever has four positions: retracted, take-off with flap deflection 15°, landing position with flap deflection 24 ° and landing position with flap deflection 35°.

1.6.4 Horizontal tail unit

The horizontal tail unit consists of a stabilizer and elevator. The stabilizer consists of the sandwich shells from advanced composite material. The stabilizer is fixed at the fin. The elevator consists of two parts, which are joined together by means of the elevator control. The control-surface weight balance are attached on the tip of both parts of the elevator.

1.6.5 Vertical tail unit

The vertical tail unit consists of the fin and rudder and has trapezoidal shape. The fin is an integral part of the fuselage rear section. The rudder consists of a sandwich shells from advanced composite material with the control-surface weight balance. The ruder is attached by three hinges at the fin.

1.6.6 Landing gear

DYNAMIC WT9, model Club is equipped with fixed tricycle landing gear and model Speed is equipped with retractable tricycle landing gear, which is actuated by a hydraulic system by the help of the electrical driven hydraulic pump.

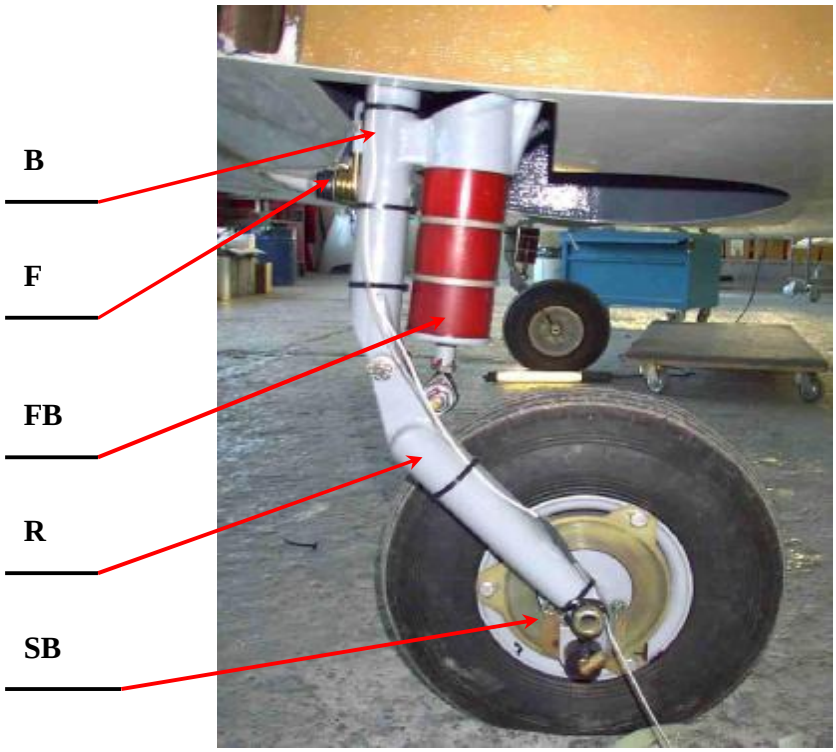
1.6.6.1 Fixed undercarriage

The main landing gear uses the legs, which are formed as a fibber-glass springs and are fixed in the fuselage casing under the seats on the stiffening ribs in the back box of the wing central panel. The diameter of the main wheels is 350 mm and they are covered with laminated fairings. The main wheels on both legs are equipped with hydraulic disc brakes. The main wheel are braked by hydraulic brakes with main

hydraulic face ram, which is located beyond the seats. The main wheel brakes are actuated via the handle on the pedestal between the pilot seats. This handle actuates the parking brake too. Systems are actuated via the handle on the pedestal between the pilot seats. The nose wheel leg consists of the steel tube and the carbon fork, where is located nose wheel with diameter 300 mm. The nose wheel leg is supported on bearings (upper and down) and is controlled by means of the rods connected to the rudder pedals. The springing is carried out with rubber rope and with the flexible element, which is located in the upper nose wheel bearing. The nose wheel is covered with laminated fairing.

1.6.6.2 Retractable undercarriage

Main undercarriage consists of the welded steel leg (B) , the arm (R) with the wheel and the flexible element (FB) . The main leg is fixed into the fitting of the wing central panel main spar in front, and into the fitting of the auxiliary girder in rear. The wheel is equipped with disc brake (SB). The retraction of the undercarriage is carried out with help of the hydraulic face rams inside to the symmetry plane of the aeroplane. The pistons of the hydraulic face rams are connected with the drag stay, which is equipped with the spiral spring (F) . This spring pushes the drag stay during of the undercarriage extension into the arrested position. The emergency extension of the undercarriage is carried out by own mass with the help a three-way valve. The drag stay is arrested with help of the springs.



Main leg of the retractable undercarriage

1.6.6.3 Nose wheel leg

The nose wheel leg (B) is fixed into the engine bed. The nose wheel leg is the wheel arm towed type.
The damping of the arm is carried out with the flexible elements from polyurethane, which are located in the tube of the leg (B). The nose undercarriage leg is retracted backwards. The drag stay (KS), which is connected with the piston of the hydraulic face ram provides for the movement of the nose undercarriage. The gas strut (GF) provides for the emergency extension of the nose undercarriage. This gas strut extrudes the drag stay into the arrested position.
The control of the nose undercarriage leg is carried out with help of the control cables (KZ) „Cabelcraft“ type connected with the rudder pedals.

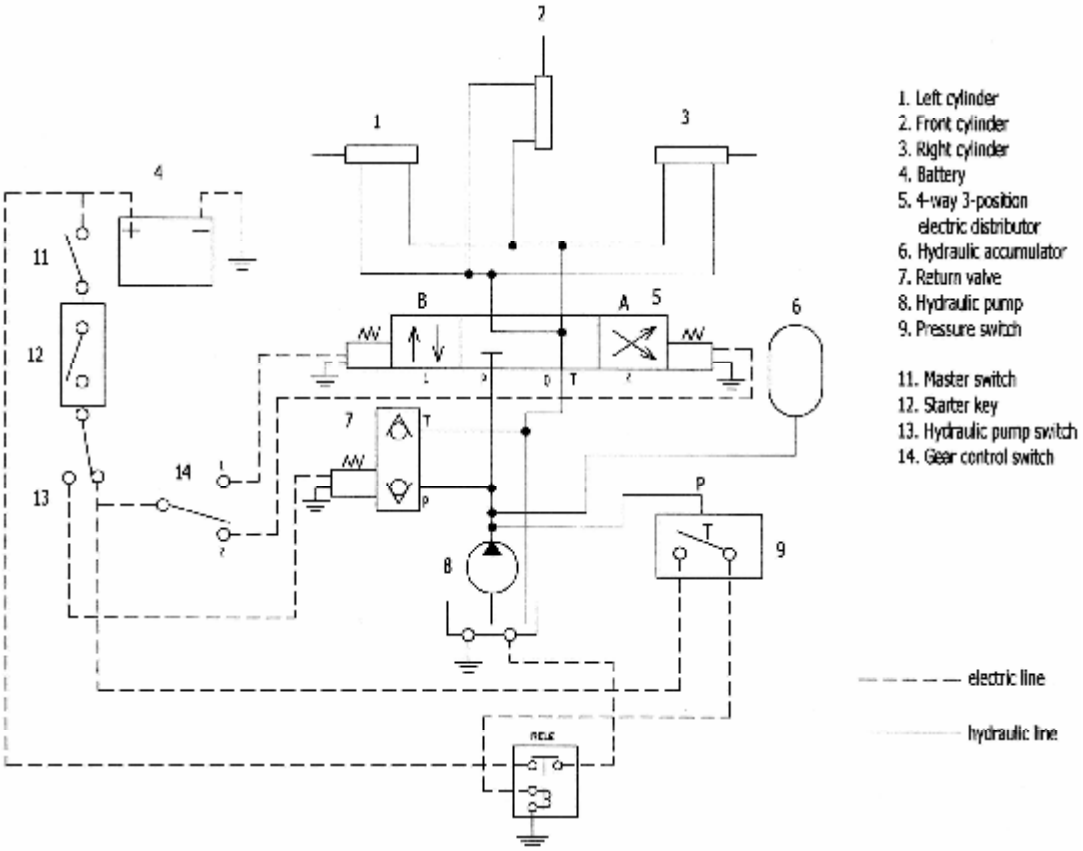
The nose wheel leg of the retractable undercarriage

1.6.6.4 Retractable undercarriage system

Retractable undercarriage system is hydraulic and consists of the following elements:

- the electrical driven hydraulic pump (12 V DC).
- the three-way valve
- the pressure switch
- three hydraulic face rams for both main legs and for one nose wheel leg
- the pressure lines
- the overswitch no.1
- the overswitch no. 2

The hydraulic system schematic of the retractable undercarriage is shown in the following figure:



The power is supplied from the battery to the overswitch S1 in the up position on the instrument panel labelled “Hydraulic On”, which switch on the hydraulic pump by means of the pressure switch and the relay. The pressure switch switches off the power after reaching of desired pressure. The overswitch S1 in the down position labelled “Emergency extension of L/G” switches on the emergency extension of the undercarriage. The emergency extension of the undercarriage is carried out by own mass with the help a three-way valve. The drag stay is arrested with help of the springs. The other overswitch S2 controls the direction of the pressure fluid movement for extension or retraction of the undercarriage. The pressure fluid proceeds via the three-way valve to the one or another side of the hydraulic face ram. Both sides of the hydraulic face ram are without pressure at the emergency extension of the undercarriage.

Fig..... The hydraulic system scheme of the retractable undercarriage

1.6.6.5 Wheel brake system

Both wheels on main undercarriage are equipped with the hydraulic disc brakes. The brake disc is bolted on the rim inner part with three screws. The hydraulic brake cylinders (BZ) are actuated with the pressure of the hydraulic fluid. The source of the pressure is the main brake hydraulic face ram (HZ), which is located beyond the rear frame of the baggage compartment. The main brake hydraulic face ram (HZ) is actuated via the handle on the pedestal between the pilot seats. The movement of the lever is transmitted with the cable. The pressure fluid is distributed through the hoses (L).
This handle actuates the parking brake too.

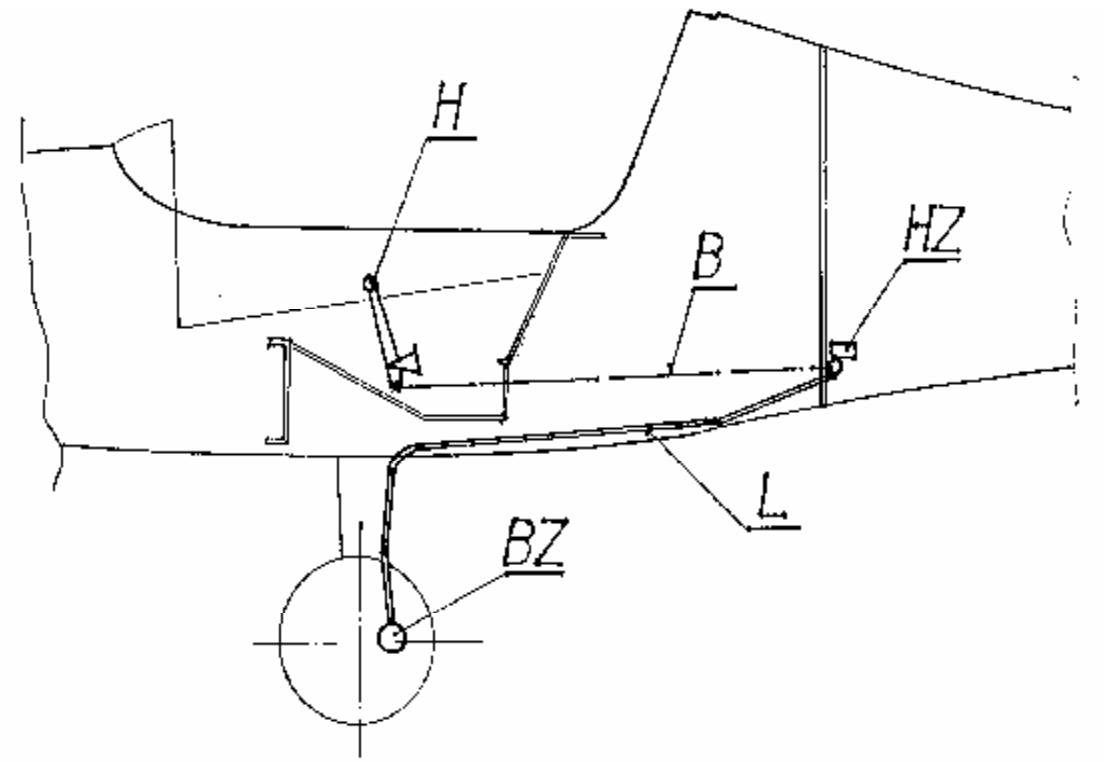


Fig....Brake system scheme

1.6.7 Cockpit

The side wall of the seats together with the pedestal between the seats and a back supporter of the seats are glued into the fuselage construction as the frame. The seats with a thin upholstery interior cockpit sides are covered with padded panels with pockets. The bottom of the seats are removable for the access to the aggregates, which are mounted below the seats.

1.6.7.1 Cockpit control

The control sticks are supported on the torsional tube. The attachments of this torsional tube are fixed to the main spar of the wing central panel. The flap control lever, elevator trim tab lever and the main wheel brakes handle are located on the pedestal between the pilot seats.
The standard instrument panel arrangement is shown in the following figure.
Instrument panel arrangement is described in par. 1.6.8.3.

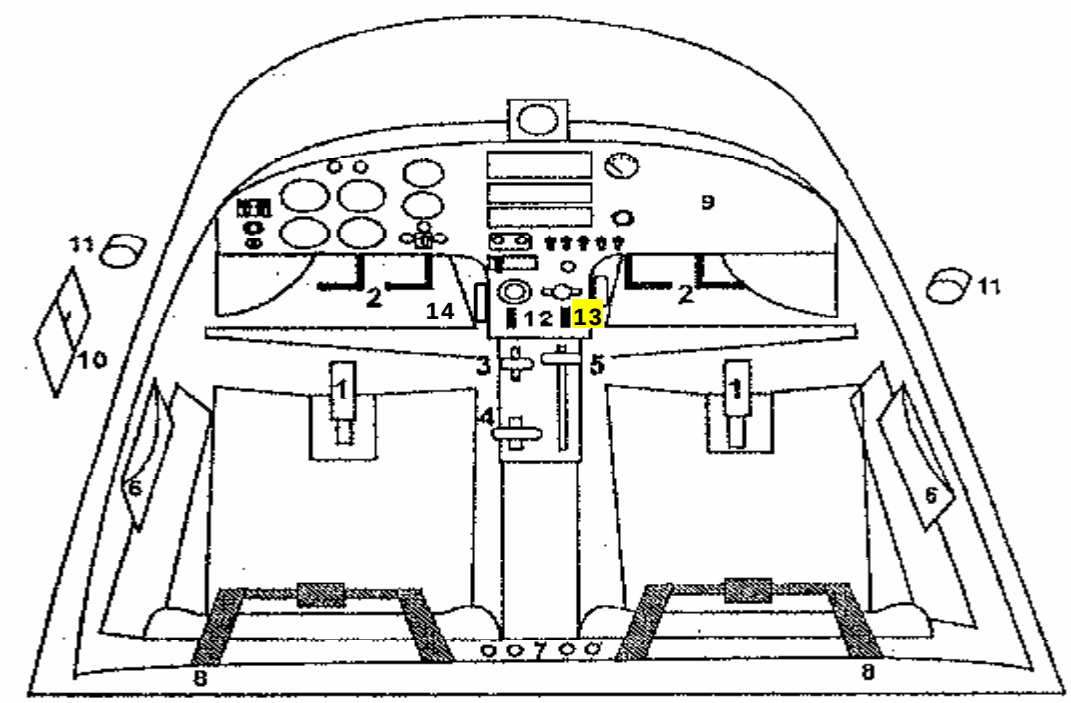


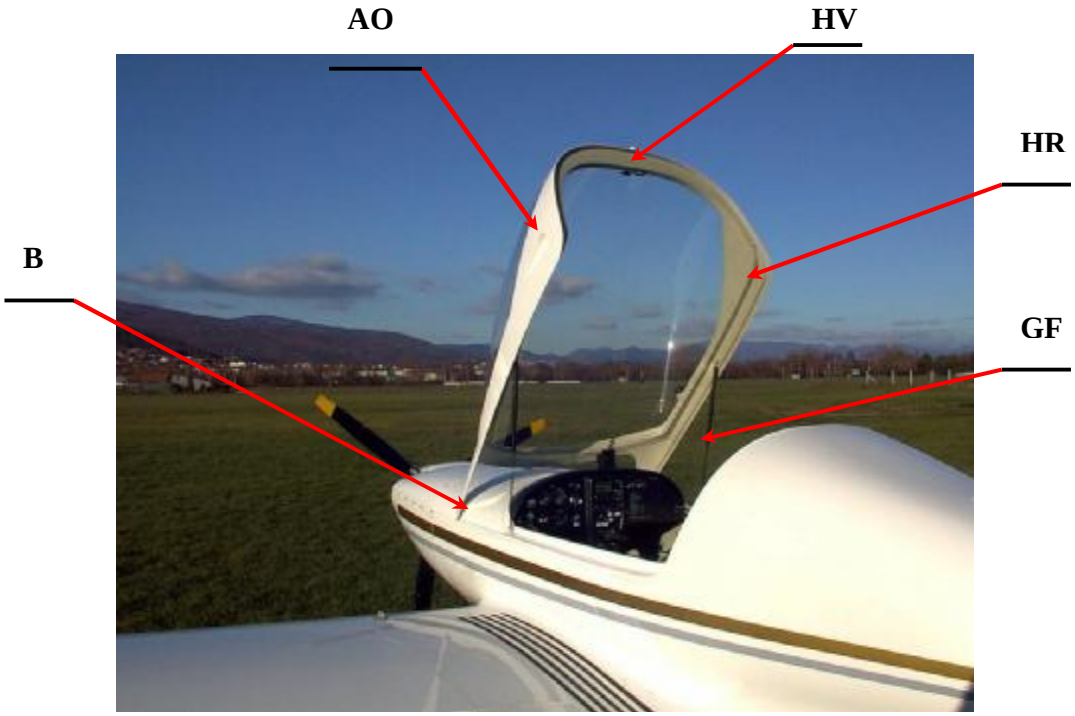
Fig... The cockpit controls

1. Control stick/ push button of the transmission
2. Rudder pedals
3. Elevator trim control lever
4. Brake control lever
5. Wing flaps control lever
6. Pocket
7. Headset socket / jack
8. Seat and safety harness.
9. Instrument panel
10. Ventilation sliding window
11. Ventilation
12. Fuel cock
13. Chock
14. Tow cable release

1.6.7.2 Cockpit canopy

The cockpit canopy consists of one part. The Perspex canopy is glued on the composite frame. The canopy is attached to the nose section of the fuselage by two pins (B) which make it possible for the canopy to be tilted forward. For easier manipulation, the weight of the canopy is counterbalanced by two gas struts (GF) which allow it to open effortlessly. On the lower frame there are handles outside the canopy. The canopy is equipped with a lock on the upper rear section of the frame.

The ventilation air flows through the canopy frame (HR) which is shaped as a hollow laminated profile. The air inlet for the ventilation (AO) is located on the upper rear section of the canopy and serves as the handle for the opening and the closing of the cockpit canopy. The ventilation air is led through the hollow to the adjustable venting nozzles on both cockpit sides. The side sliding window is located on the left-hand side of the canopy. The cockpit canopy close (HV) finds in the symmetry plane of the fuselage. This close is accessible from both seats. The pin of the close is created as the latch with push spring.
The lock with the key which is located beside the close allows the locking of the canopy cockpit.



1.6.8 Equipment

1.6.8.1 Seats and safety harness

The safety belts – 4 point static harness restrain system is attached to the left and right seats side panel and to the strut behind the back supporter of the seats.

1.6.8.2 Baggage compartment

The baggage compartment is situated behind the back supporter of the seats and separated from the rear fuselage section with the frame.
There is a well in the baggage compartment. An elevator control rod and a rudder control rod as well as a control of the main undercarriage brake passes through this well. Maximum baggage weight is stated on a placard stick near the compartment. A loading of the baggage compartment have to be in accordance with a balancing of the aeroplane.

1.6.8.3 Instrument panel

The minimum required instrument equipment is:

- Airspeed Indicator, Altimeter, Magnetic Compass, Fuel Quantity Indicator

For detail description of exact aircraft see the Flight manual.

The flight and navigation instruments are mounted as an option of the customer (but with respect to the weight limitation and C.G. of the ultra light aircraft). A magnetic field may be changed after an additional installation of the instruments, whereupon a compass compensation must be done.

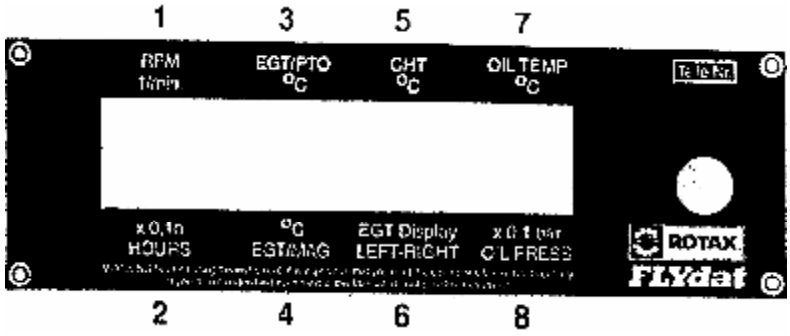
Fig. Instrument panel

1. Landing Gear Check Light
2. Charge
3. Net Light
4. Bank Indicator
5. Airbox Temperature
6. Airspeed Indicator
7. Tachometer
8. Variometer
9. Altimeter
10. Landing Gear Control
11. Propeller Control Constant Speed Indicator
12. Master Switch
13. Ignition
14. Starter
15. Intercom Control
16. Tow Release
17. Throttle Lever
18. Choke Lever
19. Oil Cooler Flap Lever
20. Carburettor Heat Control
21. Heating
22. Main Fuel Coke
23. Trim Control Lever
24. Flap Control Lever
25. Brake Lever
26. Control Column
27. VHF button
28. Fuel Quantity Indicator
29. Fuel Pressure
30. Manifold Pressure
31. Cylinder-Head Temperature Indicator
32. Oil Temperature Indicator
33. Oil Pressure Indicator
34. Hydraulic Pump
35. Auxiliary Electrical Fuel Pump
36. Landing Lights Switch
37. Navigation Lights Switch
38. Wing Tip Strobe Lights Switch
39. 12 V Stage Pocket
40. Fuses
41. Magnetic Compass
42. Rescue System Handle

1.6.8.3.1 Powerplant instrument

According to option of the customer are mounted round one–purpose needle instruments or multiple instrument FLYdat on the instrument panel. The FLYdat represents an instrument especially developed for ROTAX aircraft engines for indication and acquisition of engine operating data readily accessible for the pilot. The operating data is permanently compared with the engine specific operating limit. If the signalled operating data exceeds the stored operating limit, the FLYdat will warn the pilot by the warning light (annunciator).

FLYdat indications and their significance are shown below:



Display field	Designation	Unit	Resolution
1	Engine speed	rpm	1
2	Hours of operation	h	0,1
3	Exhaust gas temperature cylinder PTO*	°C or °F	1
4	Exhaust gas temperature cylinder MS**	°C or °F	1
5	Cylinder head temperature	°C or °F	1
6	**x)**		
7	Oil temperature	°C or °F	1
8	Oil pressure	bar	0,1

x) Arrow indicating the line of cylinders from which the exhaust gas temperature is picked up. Arrow ← denotes left line of cylinders
Arrow → denotes right line of cylinders

* Cylinder PTO is at power take off side
** Cylinder MS is at the magneto side

The FLYdat has been configured for ROTAX 912 UL engine by the manufacturer. The following warn- and alarm limits are stored:

Display	**Unit**	**Warn limit**	**Alarm limit**
Engine speed	rpm	**5 800**	**6 000**
Exhaust gas temperature EGT	°C	**880**	**900**
Cylinder head temperature CHT	°C	**150**	**160**
Oil temperature	°C	**140**	**150**
Oil pressure maximum	bar	**6,0**	**8,0**
Oil pressure minimum	bar	**2,0**	**1,0**

The FLYdat has been configured for ROTAX 912 ULS engine by the manufacturer. The following warn- and alarm limits are stored:

Display	**Unit**	**Warn limit**	**Alarm limit**
Engine speed	rpm	**5 800**	**6 000**
Exhaust gas temperature EGT	°C	**880**	**900**
Cylinder head temperature CHT	°C	**135**	**150**
Oil temperature	°C	**130**	**145**
Oil pressure maximum	bar	**6,0**	**8,0**
Oil pressure minimum	bar	**2,0**	**1,0**

Distinguish between three ranges of readings control:

Colour range	**Significance**
Green (standard operation)	All readings are below or above (min. oil pressure) the warn limits programmed.
Yellow (exceeding of warn limits)	If one or more readings exceed the programmed warn limit, then the readings appears flashing on the display , and simultaneously the alarm output is periodically (0,25 sec.) switched on and off, until no readings exceed warn limit.
Red (exceeding of alarm limits)	If one or more readings exceed the programmed alarm limit, then the readings appear flashing on the display and simultaneously the alarm output is permanently activated until no reading exceeds the warn limit.

If one or more alarm limits have been exceed, or the reading on the meter of the operating hours has surpassed the programmed TBO, the maintenance message reads as follows: **„Service !“** .

CAUTION
Disregard of the warn- and alarm signals might result in injuries or endanger the life of operator or third party.

BOMBARDIER-ROTAX as manufacturer, warrants every FLYdat for a period of not more than 9 consecutive months for private use owners or 12 consecutive months from date of shipment of the manufacturer or the first 150 operation hours.

Powerplant instrument markings and their colour code significance are shown below:

Instrument	Unit	Red Line Minimum Limit	Green Arc Normal Operating	Yellow Arc Caution Range	Red Line Maximum Limit
Tachometer	**rpm**	**1 400**	**1 800 – 5 500**	**5500–5800**	**5 800**
Oil temperature indicator	**°C**	**50**	**90 – 110**	**50 - 90** **110 - 140 1)** **110 – 130 2)**	**140 1)** **130 2)**
Cylinder-head temperature indicator	**°C**				**150 1)** **135 2)**
Fuel-pressure indicator	**bar**	**0,15**			**0,4**
Oil-pressure indicator	**bar**	**1,5**	**1,5 – 5**	**5 – 7**	**7**
Fuel quantity indicator	**l**	**Yellow light annunciator above the fuel indicator will be illuminated with the remaining fuel of 7 litre in each fuel tank.**			

1) Indication is valid for ROTAX 912 UL engine
2) Indication is valid for ROTAX 912 ULS engine

1.6.8.3.2 Avionics

The following avionics are mounted in the aeroplane: radios and intercom. These equipment must be connected with the headphones and with the antenna. The aeroplane might be equipped with other instruments (GPS, transponder, or board computer). The flight and navigation instruments are mounted as an option of the customer (but with respect to the weight limitation of the ultra light aircraft). Refer to the Manuals supplied with above mentioned instruments for right operation of the instruments and for more details.

1.6.8.3.3 Additional equipment

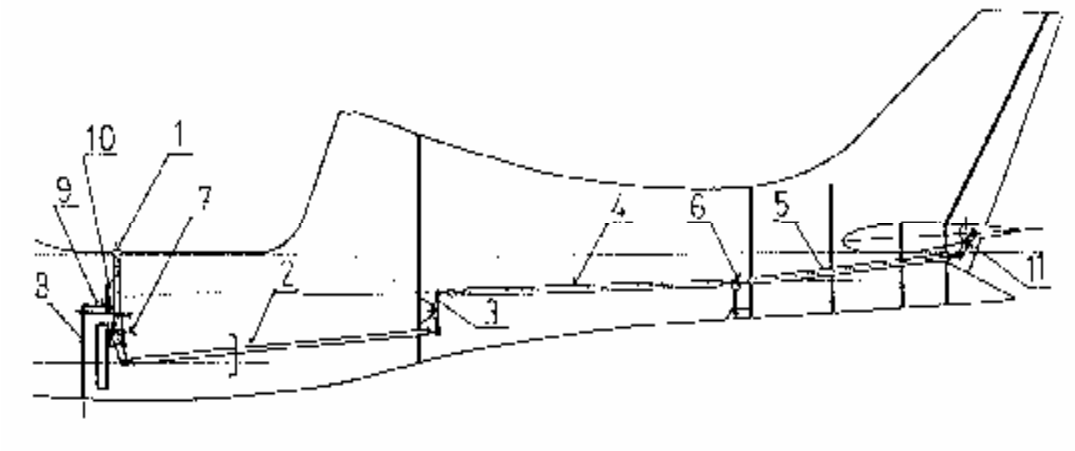
The rescue system USH 52 S Speed Softpack from the company USH – záchranné systémy s.r.o Praha can be mounted as the miscellaneous equipment of the aeroplane DYNAMIC WT 9. This rescue system is designed for the ultralights aircraft with maximum weight up to 520 kg and with maximum speed of using 300 km/hour. The triconical type of parachute with 30 parachute gores and square area 105 m^2 with slider is used for the rescue system. The descent rate of the opened parachute is 6,5 m/sec. The container dimension is 260 x 150 x 500 mm and the total weight is 12,5 kg. The solid fuel rocket engine UPI – PFE – 400 with total impulse of 400 N sec and time of the burning 0.85 sec is used. The life time of the rescue system is 10 years with the repacking interval is 5 years.

1.6.9 Control system

1.6.9.1 Longitudinal control system

The control sticks (1) are supported on the torsional tube and a control stick pull-up or push-down movements are transmitted to the an elevator by the rods. A longitudinal motion of the first rod (2) is transferred through a two-armed lever (3) to an additional rods (4) and (5). The additional rods are connected together by an elevator rods connecting lever (6). An attachment of this lever is glued into the fuselage construction. The rod (5) is connected to the elevator single-arm lever (11), which is a part of the fitting connected both half of the elevator.

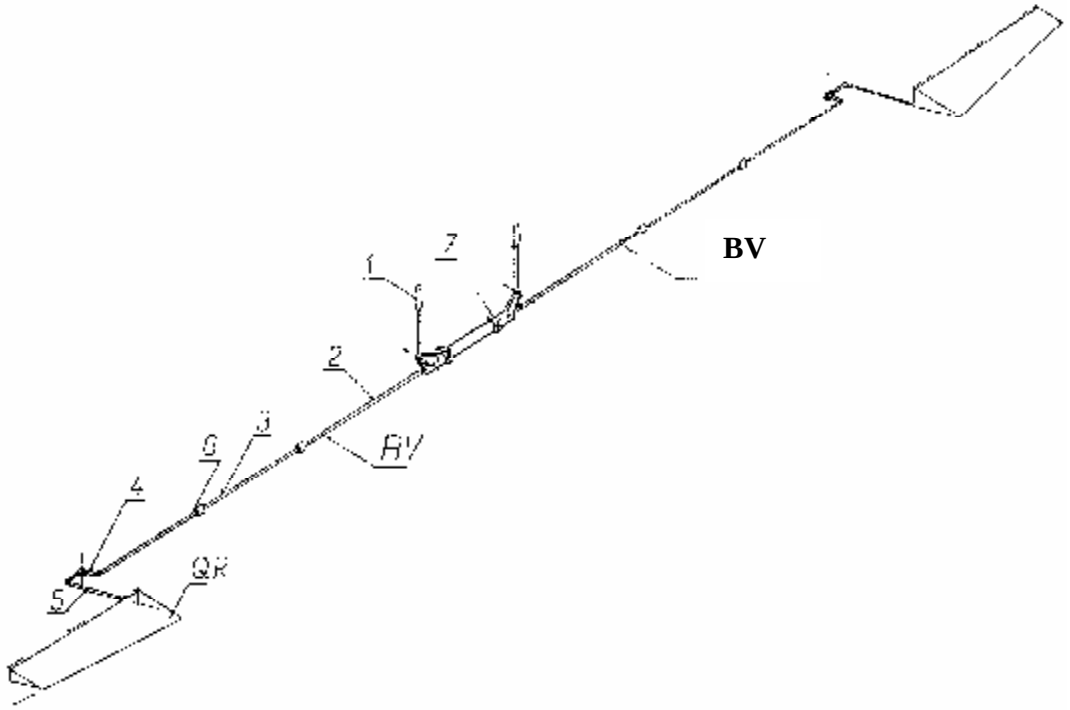
The control stick motions are limited by two stops (7). A “push-down” stop is glued into the wing central panel main spar. A “pull-up” stop is on the lateral located tube, which is passed through the walls of the middle console between the seats. An adjustment of the stops is allowed after removal of the pedestal upper cover. A trim control system uses lamellar carbon spring (8). A trim control lever (10) changes a position of the lamellar carbon spring during the trimming by the motion of the rod (9). A force of the lamellar carbon spring is transmitted into the control by a short rod. An adjustment of the short rod by the slewing of a nut adjusts a range of the trimming.



Longitudinal control system scheme

1.6.9.2 Lateral control system

A control stick lateral motion (1) is transferred by rod (2) into a pin joint (BV), which allows a disconnection of the rod in case of a derigging of a wing. An access to this joint (BV) is allowed through an access hole at a model with a fixed undercarriage and through a main wheel well at a model with a retractable undercarriage.
Long rod (3) guides from the end of the wing central panel to the two-arm lever (4), which a console with the bearings is attached at the wing main spar. This lever provides a necessary differentiation of the aileron deflections. Two-armed lever angular displacement is transferred at aileron by short rod (5). A longitudinal movement of a short rod is transferred into an aileron root rib, which a point of rotation is below a upper surface wing. The long rod (3) is guided in a sliding guide rollers (6) which are located in the wing root rib and in the wing auxiliary rib. Its guide surfaces are equipped with a riveted sliding capsulars on a rod. The range of the control stick deflection is adjusted by stops (AS) on the consoles of the torsional tube (TR). The stops are screws type with the fastening nut.

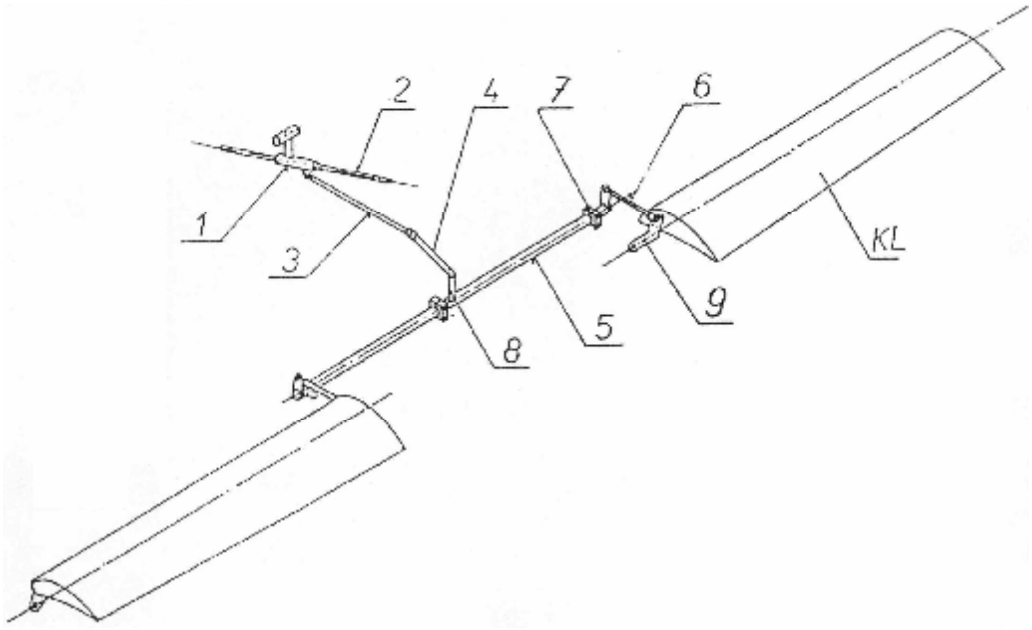


Lateral control system scheme.

1- Control stick,
2- Rod in the wing central panel,
3- Rod in the wing,
4- Two-arm lever,
5- Aileron rod,
6- Sliding guide rollers,
7- Sliding bearings
BV- Split pin joint,
QR- Aileron

1.6.9.3 Wing flap control system

The wing flaps are controlled by a flap control lever (1) located on the pedestal between the seats.
Set flap position is locked by the deflection of the flap control lever into the appropriate recesses on the pedestal cover, where a lever is pushed by a spring.
The lever deflection is transferred at a longitudinal movement of a rod (3) to the torsional tube (5), which transfers this motion symmetrically on both wing flaps. The torsional tube (5) is supported at three sliding bearings (7). Two short rods (6) with the adjustable rod ends provide for a connection of the torsional tube with the wing flaps. These adjustable rod ends allow the symmetrical deflections adjustment of both flaps. The rods (6) are jointed with the flap control lever by means of the disconnection pin, which is secured by a cotter pin. An access to this joint is allowed by the wing flap deflection into the maximum lower landing position.

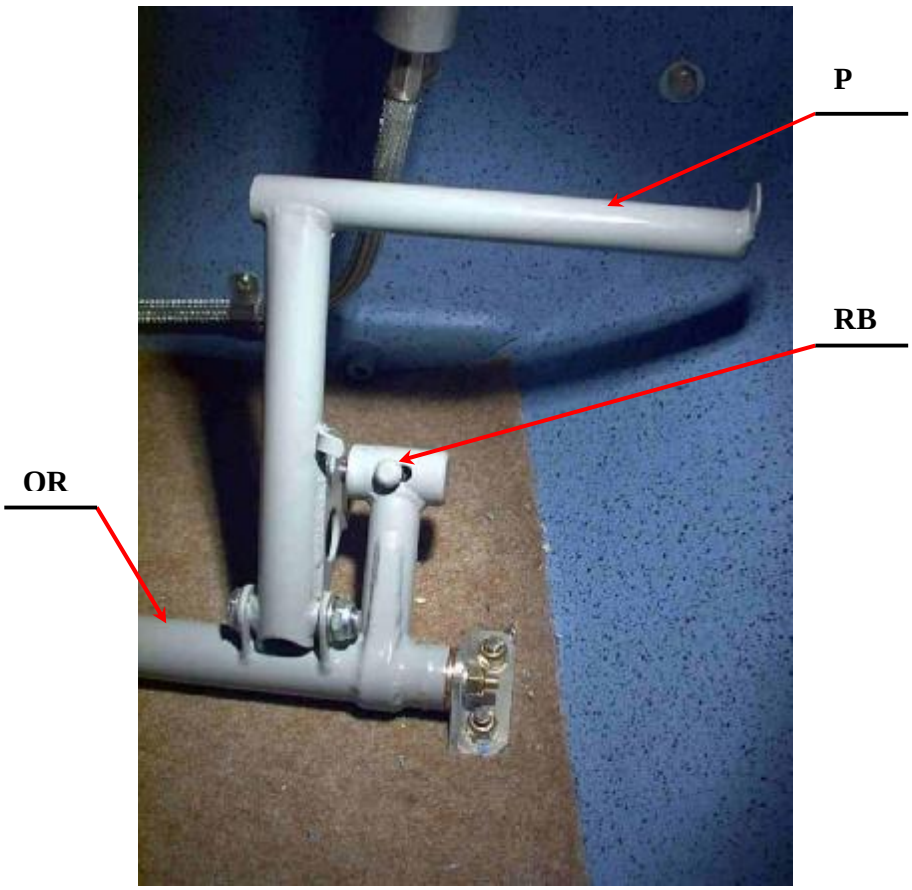


Wing flap control system scheme

1- Flap control lever,
2- Changing gate,
3- Rod,
4- Arm of the torsional tube,
5- Torsional tube,
6- Short rod,
7- Sliding bearing,
8- Arm joint bolt,
9- Flap arm,
KL- Flap

1.6.9.4 Directional control system

The rudder pedals are attached on the cockpit floor at the model with a fixed undercarriage. In case of the retractable undercarriage, due to a present of a nose wheel leg well, the control system is attached on the lateral reinforcement. For adjustment is necessary pull-up a pin (RB) pushed by spring from a pressure, slew a pedal (P) into the required position, than push the pin (RB) again into the appropriate hole.
The pedal motions are transferred from the lateral torsional tubes (QR) to the rudder by means of the control cables. The control cables are guided through a polyurethane casing, which is attached into the fuselage structure. The rudder control is connected with nose wheel undercarriage control by means of two short rods or by means of control cables „Cablecraft“ type at a model with retractable undercarriage.



Adjustment of the rudder pedals

1.6.10 Powerplant

1.6.10.1 Brief description

Standard powerplant consists of 4 cylinder horizontally opposed, 4-stroke engine ROTAX 912 UL with power 59,6 kW or engine ROTAX 912 ULS with power 73 kW and a three blades, fixed pitch or in flight electrically adjustable aircraft propeller DUC or SR 2000. The standard powerplant is shown on the following figure:

1.6.10.2 Engine

1.6.10.2.1 Engine description

ROTAX 912 UL / 912 ULS is 4-stroke, 4 cylinder horizontally opposed, spark ignition engine, one central camshaft-push-rods-OHV. Liquid cooled cylinder heads, ram air cooled cylinders. Dry sump forced lubrication. The engine is fitted with electric starter, AC generator, mechanical fuel pump and the reduction gear with integrated shock absorber. Refer to the Operator's Manual for all versions of ROTAX 912 for more details about versions difference.

1.6.10.2.2 Technical data

Engine Manufacturer :	ROTAX-Bombardier, Gunskirchen	
Engine Model:	Rotax 912 UL or 912 ULS	
Power:		
Maximum take-off:	59,6 kW/80 hp at 5800 rpm	(for ULS 73,5 kW/100 hp)
Maximum continuous:	58 kW/78 hp at 5500 rpm	(for ULS 69 kW/94 hp)
Cruising:	53 kW/71 hp at 4800 rpm	

1.6.10.2.3 Operation limitations

	912 UL	912ULS
Engine speed:		
Maximum take-off	5800 rpm, max. 5 min	5800 rpm, max. 5 min
Maximum continuous	5500 rpm	5500 rpm
Idling	≈1400 rpm	≈1400 rpm
Cylinder head temperature	minim. 60°C	
	maxim.140°C	(135°C) (FLYdat CHT reading)
Oil temperature	maxim. 140°C	(130°C) (FLYdat OIL TEMP reading)
	minim. 50° C	(50° C) (FLYdat OIL TEMP reading)
	optimum 90-110° C	(optimum 90-110° C)
Oil pressure	maxim. 7 bar	(for a short period admissible at cold start)
	minim. 1,5 bar	(minim. 1,5 bar)
	normal 2,0 ÷5,0 bar (above 3500 rpm)	(2,0 ÷ 5,0 bar)
Engine start, operating temperature:	max. 50° C	(max. 50° C)
	min. -25° C	(min. -25° C)
Fuel pressure:	max. 0,4 bar	(max. 0,4 bar)
	min. 0,15 bar	(min. 0,15 bar)

1.6.10.2.4 Fuel

912 UL/A/F	912 ULS/S
Minimum octane number 90	Minimum octane number 95
EN 228 Normal	———————
EN 228 SUPER	EN 228 SUPER
EN 228 SUPER plus	EN 228 SUPER plus
AVGAS 100 LL	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 vapour lock or if the other fuel types are not available.
Risk of a vapour formation if using winter fuel for summer operation.

	Left tank (l)	**Right tank (l)**
The total quantity of fuel in the tank	**37,5**	**37,5**
Unusable fuel in the tank	**0,5**	**0,5**
Unusable fuel during approach	**1,9**	**1,9**
The total usable quantity of fuel in the tank	**37,0**	**37,0**

1.6.10.2.5 Oil

Oil grade: motorcycle oil of a registered brand with gear additives. Use only oil with API classification „SF“ or „SG“! If using aircraft engine oil, than only blended one. Due to the high stresses in the reduction gears, oils with gear additives such as high performance motor cycle oils are required. Heavy dry 4-stroke motor cycle oils meet all the requirements. These oils are normally no mineral oils but semi- or full synthetic oils.

Oil capacity: 3,0 litre

Minimum: 2,0 litre

Oil consumption: max. 0,1 l/h

WARNING

Never use AVGAS LB 95 with mix full synthetic engine oils.

At the selection of suitable lubricants refer to the additional information in the Operator’s Manual for all versions of ROTAX 912.

1.6.10.3 Propeller

Standard version of aeroplane is equipped with SR 2000 is the three blades, in flight electrically adjustable aircraft propeller of a mixed structure. The propeller blades are made of a wood and the leading edges are made of a wear resistant material.
The angle of blades setting is adjusted by servomotor controlled from the cockpit and it can be adjusted smoothly in range from the minimum angle intended for take-off up to maximum angle. The momentary blade angle is designated by a time of displace from 16° lower blade stop (measured at 0,75 of a propeller semi-diameter). A speed of displace is 0,5 °/sec. Propeller control on the instrument panel consists of panel, in which there is placed the signalisation of the direction of propeller blades adjusting, together with control diodes of small and large angle and also the switch of control. The meaning of the control diodes signals is:

Yellow control diode of adjusting the fine angle:
- shines after reaching the stop at 16°, i.e. min. angle
- blinks when adjusting the fine angle

Red control diode of adjusting the rough angle:
- shines after reaching the stop at 26°, i.e. max. angle
- blinks when adjusting the rough angle

Propeller Technical Data:

Propeller Diameter:	1700 mm
Propeller Blade Angle:	16 ÷ 26° (Range of setting angles is adjustable)
Max. Propeller Speed on ground:	2550 rpm
Max. Propeller Speed in flight:	2600 rpm
Max. Propeller Speed on testing stand:	3200 rpm
Propeller Mass:	7,8 kg
Time Between Overhaul (TBO):	1200 hrs or 15 years (whichever comes first)

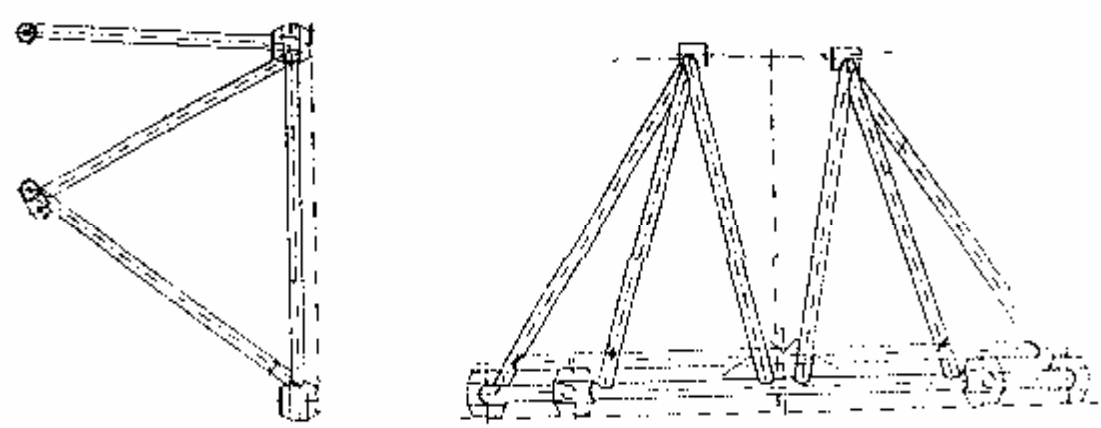
Additional data can be found in the Operator's Manual for electric adjustable aircraft propeller SR 2000.

WARNING
Never run the engine without propeller, this inevitably causes engine damage and is an explosion hazard.

1.6.10.4 Engine bed

The engine bed is welded from chrome-molybdenum tubes and its producing is different for an aeroplane model with a fixed undercarriage or for an aeroplane model with a retractable undercarriage.

1.6.10.4.1 Engine bed for fixed undercarriage



The engine bed is solid and attached to the firewall with 4 bolts. The bed is spring-mounted with four rubber silentblocks.

1.6.10.4.2 Engine bed for retractable undercarriage

The engine bed is two-part type. A front part is attached to the engine and with a rear part is spring-connected with rubber silentblocks and 4 bolts. The rear part is attached to the firewall and this part serves for attachment of the retractable nose wheel leg.

1.6.10.5 Engine cowlings

There are two laminated cowlings. The disassembly of a upper cowling is easy, just release the quick-closing locks. The quick-closing locks releases by means of a suitable screwdriver with a 90° counterclockwise slewing. The releasing starts at a rear corner with the simultaneous raising of the cowling. The quick-closing locks releases have to remain over a cowling until the disassembly of a all cowling.
The lower cowling is removed after unscrew the attachment screws connecting the cooler to the cowling face side, then unscrew the attachment screws connecting the cowling to the firewall border. The coolers remain connected with the inlet hoses.

1.6.10.6 Engine lubrication system

The ROTAX 912 engine is provided with a dry sump forced lubrication system. The oil pump is driven by the camshaft. The oil pump sucks the motor oil from the oil tank via the oil cooler or LAMINOVA heat exchanger and forces if through the oil filter to the points of lubrication in the engine.
The surplus oil emerging from the points of lubrication accumulates on the bottom of crankcase and is forced back to the oil by the blow-by gases. The oil tank is equipped with a venting hose. The oil temperature sensor for reading of the oil inlet temperature is located on the oil pump housing.
Refer to the Operator's Manual for all versions of ROTAX 912 for additional information.

1.6.10.7 Engine cooling system

The cooling system of the ROTAX 912 engine is designed for liquid cooling of the cylinder heads and ram-air cooling of the cylinder. The cooling system of the cylinder heads is a closed circuit with an expansion tank and with a overflow bottle. The coolant flow is forced by a water pump, driven from the camshaft, from the radiator to the cylinder heads and through the LAMINOVA heat exchanger (if installed).
From the top of the cylinder heads the coolant passes to the expansion tank (1). Since the standard location of the radiator (2) is below engine level, the expansion tank located on top of the engine allows for coolant expansion. The expansion tank is closed by a pressure cap (3) (with excess pressure valve and return valve). At temperature rise of the coolant the excess pressure valve opens and the coolant will flow via a hose at atmospheric pressure to the transparent overflow bottle (4). When cooling down, the coolant will be sucked back into the cooling circuit.
A direct reading of the coolant temperature is not taken. The coolant temperatures are measured by means of temperature probes installed in cylinder heads. This system allows for accurate measurement of engine temperature, even in event of fluid loss.

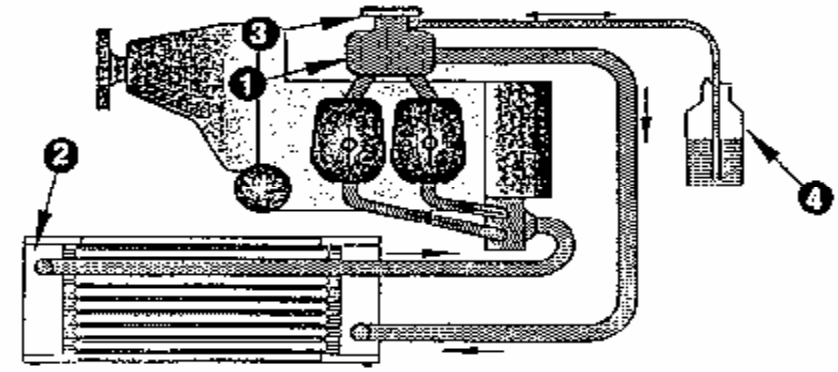
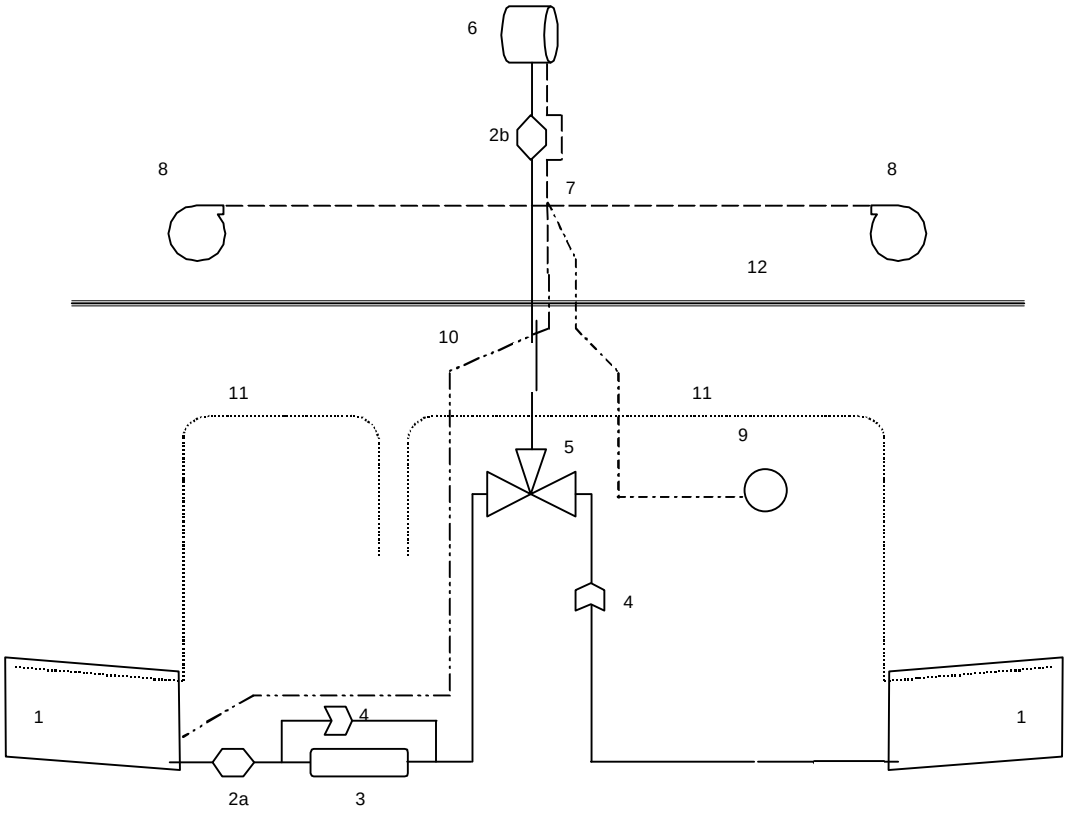


Fig. Engine cooling system

1.6.10.8 Aeroplane fuel system

The integral fuel tanks are located in the forward box of the wing central panel. The inner walls of the integral fuel tanks are paint by a special resin with a less electrical resistance. There is a bulkhead in each tanks for the preclusion of a rapid fuel flowage during the flight manoeuvres. The total fuel tankage is 75 litres. The fuel tank filler necks are placed on a wing upper surface near of the wing root.

The fuel is feeded from the fuel tank into the fuel cocks (shut-off cocks of fuel also) through the fuel filter into the engine fuel pump. From the pump fuel passes into the two carburettors. Through a return line surplus fuel flows back to the left fuel tank. The vent pipe is outgoing from the upper part of the fuel tank, proceeds along the fire wall and the vent opening is located at a lower surface of the fuselage behind the fire wall. The electrical fuel indicator switch allows the indication of the fuel quantity in the left or the right fuel tank. Yellow light annunciator above the fuel indicator will be illuminated with the remaining fuel of 7 litres in each fuel tank. The fuel tanks are equipped with the draining outlet on the wing lower surface.



Aeroplane fuel system

1. fuel tank
2. filter
3. auxiliary electrical fuel pump
4. non-return valve
5. fuel cock
6. engine fuel pump
7. fuel governer
8. carburettor
9. fuel pressure indicator
10. return piping
11. vent pipe
12. fire wall
13. fuel filter with draincock

1.6.10.8.1 Fuel tank draining

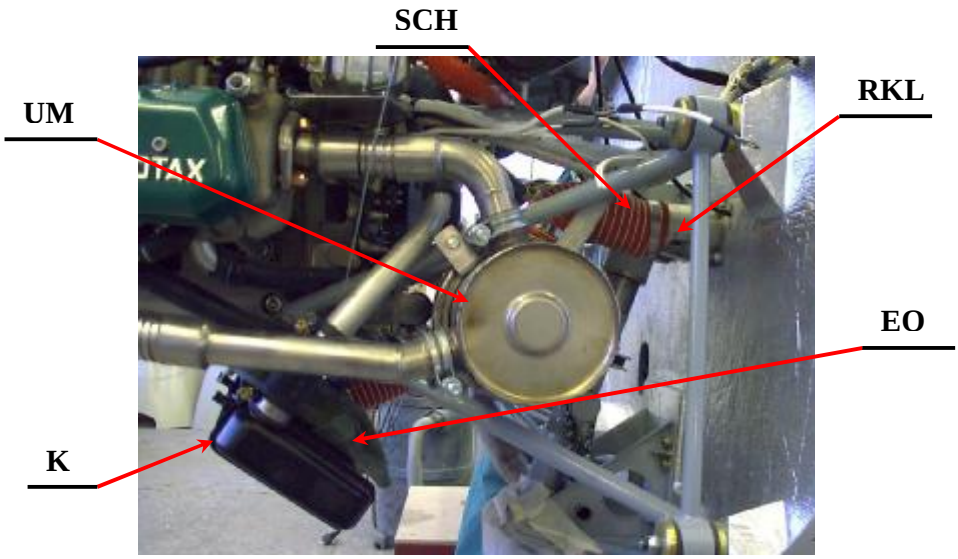
The objective is to drain off debris absorbed in the fuel tank drain pocket. Draining procedure:

1. Place a suitable bottle below the draining outlet.
2. Open the cap of fuel tank filler neck.
3. Drain off a small quantity of fuel by pushing of drain cock shank
4. Close the drain cock.

WARNING
Do not manipulate with open fire during draining.

1.6.10.9 Heating

The air for the heating is taken in at the inlet (EO), located behind a radiator (K) and passes through a casing (UM) around a muffler. Hot air is piped through the hose (SCH) to a heating flap (RKL) controlled by a cable from a cockpit.



1.6.10.10 Ventilation

There are the following cockpit ventilation systems:

- A ram-air ventilation. The ram-air through a NACA catcher on a side of a cockpit canopy blows through the canopy frame which is shaped as a hollow laminated profile to the adjustable venting nozzles on both cockpit sides..
- A side sliding window on the left-hand side of the canopy with a venting air flap.

1.6.11 Electrical system

The electric system of DYNAMIC WT9 aeroplane is single-wire type with the negative connected to the chassis. As a power source serve the single-phase generator integrated to the engine and the 12V/16Ah maintenanceless battery. The electric system has two electric buses located on the engine bed and on the instrument panel, another one for model with a retractable undercarriage is located in the cockpit below a left pilot seat.
The wiring system depends on instrumentation (FLYdat or a conventional aircraft instruments) or other electric equipment of individual aeroplane according to a

customer's desire. See this Manual Appendices for wiring diagram of your aeroplane. The fuse box contains the fuses for following equipment:

1. Fuel Quantity Indicator	**1**	**A**
2. Lights (landing, navigation, strobe)	**10**	**A**
3. Radios + Intercom	**6,3**	**A**
4. Transponder + Encoder	**6,3**	**A**
5. GPS (according type)	**1**	**A**
6. Adjustable aircraft propeller	**10**	**A**
7. Retractable undercarriage control	**3**	**A**

According to a customer's desire a protection of some consumers can be provided by the install of ETA breakers type.
The electric starter switch is a keylock type.
At additional installation of the instruments by the owner is necessary to take account to the weight limitation and C.G. of the ultra light aircraft and to the electromagnetic equipment compatibility. A magnetic field may be changed after an additional installation of the instruments, whereupon a compass compensation must be done.

1.6.12 Pitot – static system

The Pitot static head serving to read dynamic and static air pressure is located on the right wing leading edge. Pressure distribution to individual instruments on the instrument panel in the cockpit is done through flexible plastic hoses.
Take care of the hoses from the Pitot-static tube at the rigging of the wings. They must not be twisted and the hose coupling must be properly inserted. The static pressure receivers (small holes with diameter 1 mm) are located on the both sides of the fuselage at distance 0,5 m behind a cockpit canopy frame. Keep the system clear and without leakage to assure its right function.
Take care of these holes at the aeroplane washing, they must be without a water and clean. In case that water is inside the system disconnect the hoses from the instrument and bow into the Pitotstatic head.

WARNING
Avoid the blowing into the Pitot static system before a instrument disconnection from system. It may cause any instruments damage..

1.6.13 Placards

A new aeroplane is equipped with placard by the aeroplane manufacturer. There are generally the placards explaining the purpose and sense of controls, instruments, airspeeds limits placard, weight limits placard etc. and placards with additional information.. The placards are usually stuck close to the appropriate instruments and controls, limitation placards are stuck on the instrument panel, external placard on appropriate aeroplane parts, however placards on an individual aeroplane may slightly differ.

Airspeed IAS		
Never exceed speed	V_{NE}	**280 km/h**
Normal Operating Limit speed	V_{NO}	**250 km/h**
Rough Air speed	V_{RA}	**230 km/h**
Manoeuvring speed	V_A	**165 km/h**
Maximum Flap Extended speed	V_{FE}	**140 km/h**
Maximum Landing Gear Operating speed	V_{LO}	**140 km/h**

Acrobatic, intentional spins and stalls are prohibited!

IFR flights and flights in icing conditions are prohibited !

Retractable undercarriage with tow system

Maximum allowed filling of the fuel tanks in litres									
Baggage weight (kg)	**Crew weight (kg)**								
	70	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
0	Full tanks			**65**	**52**	**38**	**24**	**10**	**0**
5	Full tanks			**58**	**45**	**31**	**17**	**3**	**0**
10	Full tanks		**65**	**52**	**38**	**24**	**10**	**0**	**0**

Note: Depends on used Type Version and Equipment

Maximum Baggage weight 10 kg

SECTION 2

OPERATION

2.1 Operation outlines

During operation and maintenance of DYNAMIC WT 9 aeroplane it is very important to keep instructions stated in the aeroplane accompanying documentation:

- Technical Description, Operating, Maintenance and Repair Manual for Ultralight aeroplane DYNAMIC WT 9
- Flight Manual for Ultralight aeroplane DYNAMIC WT 9
- Operator's Manual for all versions of ROTAX 912 engine
- Operator's Manual for electric adjustable aircraft propeller SR 2000.
- Additional documents supplied with an aeroplane instruments or equipment.

The airworthiness and operational readiness of the aeroplane depend upon careful adherence to the recommended procedures and regulations. Climate, aerodrome conditions, dustiness, manner of hangaring and other factors, such as corrosive effects in industrial or seaside areas, should be considered by an aeroplane operator.
The procedures given in this Manual suit coverage operational conditions, and more harsh environments may require more frequent scheduled maintenance.

2.2 Aeroplane assembly

2.2.1 Wing

There is described the rigging procedure for the right wing. The procedure for the left wing is analogous.

2.2.1.1 Necessary tools

(A screwdriver

(An adhesive tape

(Lubricant to preserve the wing suspensions

2.2.1.2 Wing assembly and disassembly procedure

1. Thoroughly clean and lubricate all the wing suspensions before wing assembly.
2. All pins easily lubricate.
3. Fit the spar end of the right wing into the spar end (fork) of the wing central panel and push the wing along longitudinal axis so that a connection slot between the wing central panel and the wing root is approx. 100 mm. The person holding the wing tip lower it down at a thorax level.
4. Connect the hoses from the Pitot-static tube (connect the position lights wires connector, if lights installed). They must not be twisted.
5. Full push the wing into the wing central panel. Place fixation pins for connection of the wing spar end with the wing central panel . The outer pin is inserted through the room for main legs of the retractable undercarriage (at model SPEED) or through the access hole on the lower wing surface (at model CLUB and TOW). The inner pin is inserted through the hole in the cockpit below pilot seat (slightly lift and lower the wing tip to make easy the pin insertion). Secure both pins with splint pins.

6. Insert auxiliary pin through the suspension at the auxiliary girder of the wing central panel and secure all the pins into special forks with split pin.
7. Insert the pin of the extended wing flap hinge into the suspension of the wing central panel and secure the connection.
8. A short flap rod joints with a flap arm, secure joint pin with a cotter pin. During this procedure the flap control lever in the cockpit shall be set to the rearmost position and the flap shall be deflect to maximum down position.
9. Joint the aileron control rod and secure the connection (a castle nut secure with a cotter pin).
10. After check the securing of the connection the connection slot between wing and the wing central panel should be glued with adhesive tape.

NOTE
Take care of pitotstatic tube when handling the right wing.

Use the opposite sequence for wing disassembly procedure.

2.2.2 Landing gear

2.2.2.1 Fixed undercarriage

2.2.2.1.1 Tire replacement

2.2.2.1.1.1 Necessary tools

- A screwdriver
- A rubber hammer
- A combination pliers
- A spanner to tighten and loose M13 attaching nuts of the wheel fairing.
- A spanner to tighten and loose M10 attaching nuts of the bolts which connecting left and right part of a rim
- A spanner to tighten and loose M22 main wheel axle nut

2.2.2.1.1.2 Main landing gear wheel

At a tire replacement of the main landing gear wheel proceed in accordance with following procedure:

1. Disconnect the contact stripes (1), which attach a brake hose on the main landing gear leg.
2. Straighten bend small tabs (2) under screws of the wheel fairing.
3. Unscrew the screws (3) of the wheel fairing .
4. Unscrew the screws (5) of the brake hydraulic cylinder cover (4).
5. Advance a cover so that brake hose (6) passes through a slice of the cover.
6. Move up and demount the cover (7).
7. Remove the cotter pin of the main wheel axle castle nuts and unscrew the castle nut.
8. Remove the washer from the wheel axle.
9. Deflate a wheel tube.
10. Unscrew and remove the screws which joint together both rim halves.

11. Remove outer rim half from the wheel axle.
12. Take the tire out.
13. Replace the tire or tube
14. Insert a new tube into a tire and slightly pump up.
15. Shoe the tire with tube, the valve insert into the hole.
16. Put the rim with tube and tire on the wheel axle and adjust the wheel hub.
17. Screw connecting screws both rim halves.
18. Adjust the tire and tube positions to avoid a tire nip.
19. Tighten the screws.
20. Put the washer on the axle.
21. Screw the castle nut on the axle, insert a new cotter pin and lock the castle nut.
22. Secure the connecting screws both rim halves.
23. Pump up the tube on a required wheel pressure.
24. Mount the wheel fairings back in the opposite sequence.

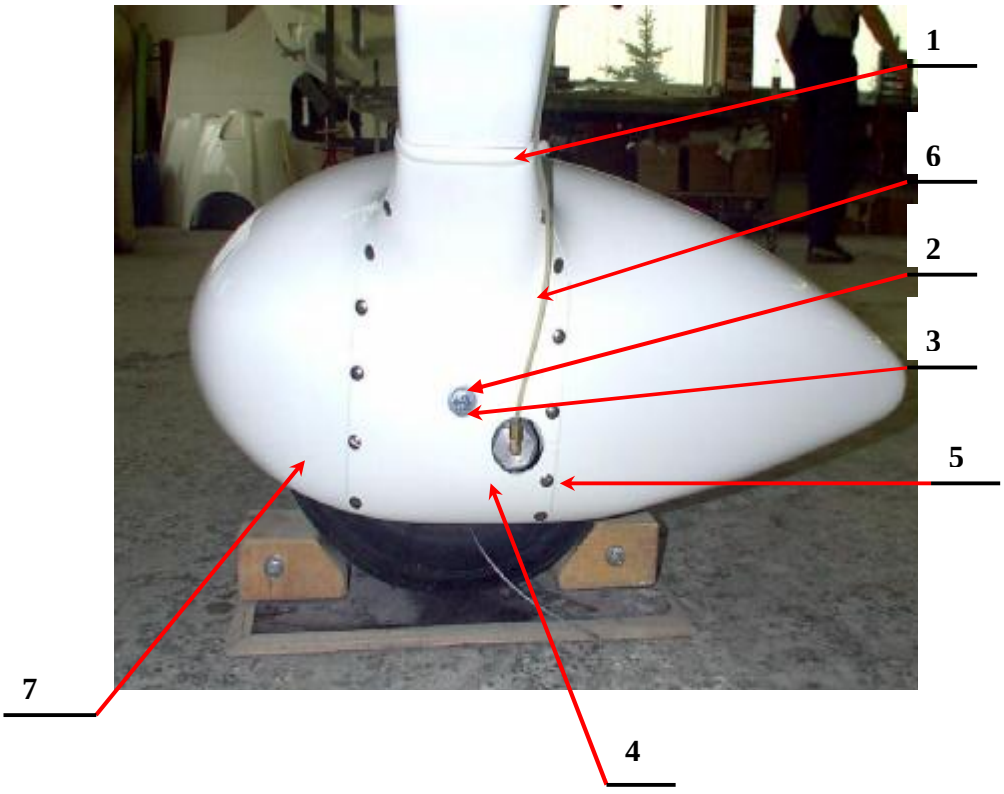


Fig. Disassembly of the main landing gear wheel

2.2.2.1.1.3 Nose wheel

At a tire replacement of the nose landing gear wheel proceed in accordance with following procedure:

1. Dismantle a nose wheel fairing (if installed)
2. Remove a cotter pin securing a castle nut on a wheel axle.
3. Release and unscrew the castle nut on the wheel axle.
4. Remove a washer from the wheel axle.
5. Lift the nose of the aeroplane
   a) Push the rear of the fuselage down and support the aeroplane under the nose wheel leg – fuselage attachment or
   b) Sling a suitable load at the rear part of fuselage near the fin (bags with a load) to lift the nose wheel above ground.
6. Knock the wheel axle out of the wheel fork by means of a hammer and suitable brass round.
7. Remove the nose wheel.
8. Deflate a wheel tire.
9. Release and unscrew 3 self-locking nuts from the bolts which connecting left and right part of a rim.
10. Remove 3 bolts.
11. Take apart the rim halves.
12. Take the tire out.
13. Replace the tire or tube.
14. Insert a new tube into a tire and slightly pump up.
15. Set a half of a rim (with valve) on the wheel axle.
16. Shoe the tire with tube, the valve insert into the hole.
17. Set the other half of the rim on the wheel axle.
18. Adjust the tire and tube positions to avoid a tire nip.
19. Attach both half of the rim with 3 bolts.
20. Put the washers on the bolts.
21. Screw and tighten self-locking nuts.
22. Draw the wheel axle out of the rim.
23. Pump the wheel on a required pressure.
24. Insert the wheel in the fork.
25. Set and hammer the wheel axle into the fork.
26. Put the washer on the wheel axle.
27. Screw the castle nut on the axle.
28. Insert a new cotter pin and lock the castle nut.
29. Lift the aeroplane down the supports (remove a support of the aeroplane under the nose wheel leg or the bags from the tail)
30. Mount the wheel fairings back (if installed).

CAUTION
Usage of new self-locking nuts is highly recommended.

2.2.3 Cockpit canopy

2.2.3.1 Canopy demounting

Apply the following procedure to demount the cockpit canopy:

1. Open canopy should be supported.
2. Dismantle both gas struts. The securing shim sweep into a open position for the releasing of the strut joint pin.
3. Unscrew self-locking nuts of the front canopy hinges which are located in the cockpit.
4. Remove the canopy attachment screws.
5. Carefully remove the canopy.

WARNING
Be carefully at canopy handling on the ground of a possibility a damage of the Perspex canopy.

2.2.3.2 Canopy mounting

The mounting procedure is opposite to the demounting one and does not require additional explanation.

2.2.4 Instrument panel

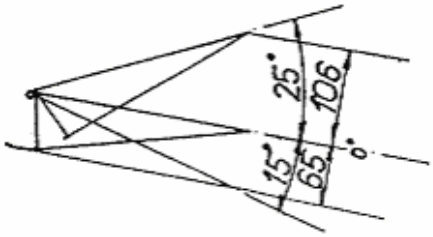
The instrument panel is separated into two parts. The upper part of the instrument panel contains the flight instruments and powerplant instrument and lower part contains the powerplant controls. A sheet cover over the instrument panel removes after the releasing of the connecting screws when install or de-install the instruments. The flight and navigation instruments are mounted as an option of the customer (but with respect to the weight limitation and C.G. of the ultra light aircraft). Follow the instructions of an instrument manufacturer.

2.3. Control surfaces

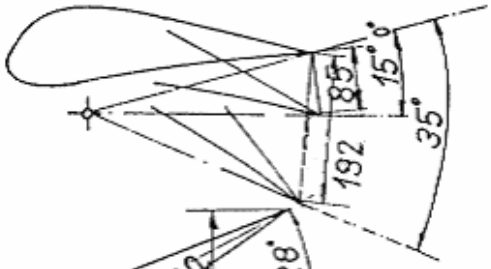
2.3.1 Required deflections

Control surfaces deflections are specified in a Control Surface Deflections Record (see Appendices of this Manual and in the following figure:

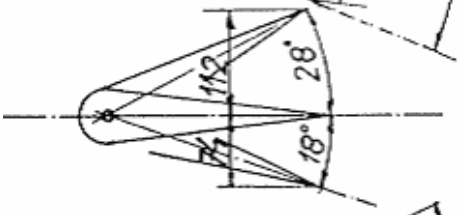
Ailerons:



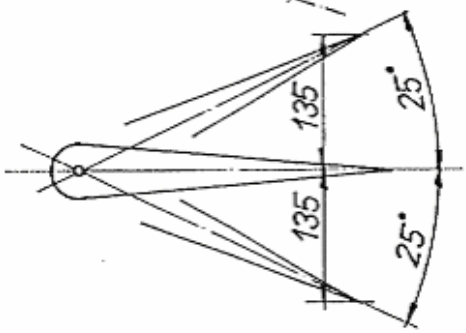
Flaps:



Elevator:



Rudder:



A protractor with deflecting hand is used by aeroplane manufacturer to measure deflections, the protractor is attached to a trailing edge of the control surface. There are also described procedure in the following text (a measurement of the distance of the deflected control surface trailing edges from a neutral position). Specified distances are present in the figure.

2.3.2 Aileron deflections measurement

Measurement procedure:

1. Attach a protractor with deflection hand at upper aileron trailing edge.
2. Set the aileron in neutral position.
3. Zero the protractor – starting position for measurement.
4. Deflect the aileron fully down/up and read the deflections.
5. Compare, if measured deflections correspond with those ones specified in Control Surfaces Deflections Record.
6. If not – adjust aileron deflections according to the par 3.11.1.

If there is not a protractor at disposal, can be applied a measurement procedure of the distance of the deflected control surface trailing edges from a neutral position according to the figure.

2.3.3 Wing flap deflections measurement

The wing flaps can be set in 4 positions :

- Retracted (deflection 0°)
- Take-off (deflection 15°)
- Intermediate (deflection 24°)
- Landing (maximum deflection 35°)

The flap control lever located on the pedestal between the seats. Set flap position is locked by the deflection of the flap control lever into the appropriate recesses
A protractor measurement procedure is similar to the aileron deflection measurement procedure. If there is not a protractor at disposal, the following procedure can be applied:

1. Insert a hard drawing paper in a space between a fuselage and flap and hold the drawing paper to the wing central panel upper surface by means of the adhesive tape.
2. Trace the trailing edge of the retracted flap.
3. Extend the flap to a required position and trace the trailing edge of the set flap again.
4. Remove the drawing paper and directly measure the distances from the “Retracted“ position by means of a ruler.
5. Compare, if measured deflections correspond with those ones specified in Control Surfaces Deflections Record.
6. If not – adjust flap deflections according to the par 3.11.4
   The deflection of left flap against right flap may be adjusted on the last short rod, which is attached to a flap lever.

2.3.4 Elevator deflections measurement

A protractor measurement procedure is similar to the aileron deflection measurement procedure. If there is not a protractor at disposal, the following procedure can be applied:

1. Attach the drawing papers to the rudder side surfaces by means of the adhesive tape.

2. Mark the neutral position of the elevator trailing edge.
3. Fully pull and push the control stick to deflect the elevator and mark the positions of deflected elevator trailing edge.
4. Measure the distances between marks at a half of the elevator on the hard drawing paper by means of a ruler.
5. Compare, if measured deflections correspond with those ones specified in Control Surfaces Deflections Record.
7. If not – adjust elevator deflections with adjustable end of rod according to the par 3.11.2

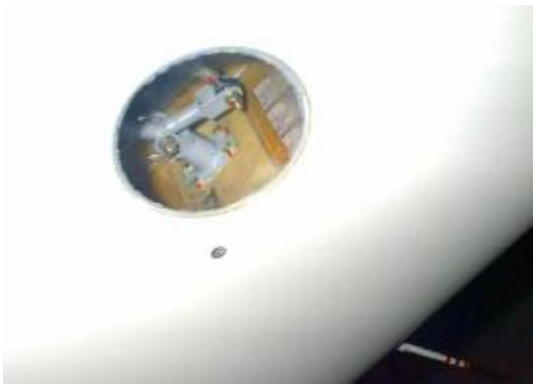
2.3.5 Rudder deflections measurement

Measurement procedure:

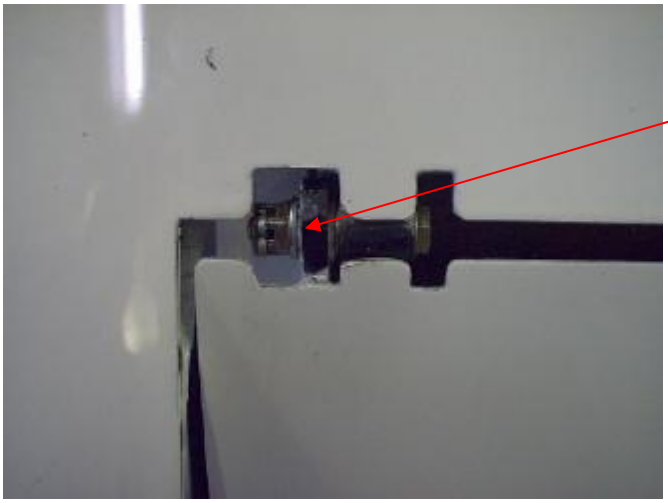
1. Insert a hard drawing paper in a space between a rudder and a fuselage aft part and hold the drawing paper to the fuselage bottom below rudder by means of the adhesive tape.
2. Mark the neutral position of the lower rudder trailing edge on a hard drawing paper.
3. Fully deflect the rudder and mark the position of a deflected lower rudder trailing edge on a hard drawing paper.
4. Measure by means of a ruler distance between the mark on a hard drawing paper.
5. Compare, if measured deflections correspond with those one in Control Surfaces Deflections Record. Record real values into the Record.

2.3.6 Demount of ailerons

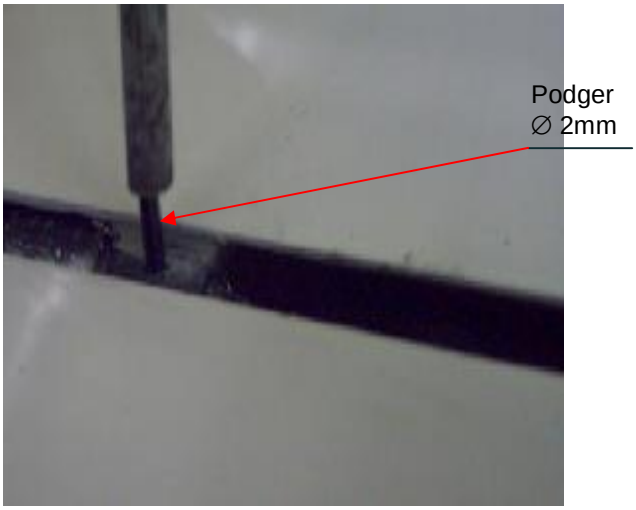
1. Remove the transparent cover from inspection openinng on the wing bottom side. Cut he silicon sealing off with sharp knigfe and remove tho cover.



2. Release the self locking nuts M6 and disconnect the short aileron drive rod from the angle arm.
3. Remove the sealing MILLAR foil; aileron-wing.
4. Disconnect the bolt LN M6 x 26 on ailerong hing, remove the cotter pin, and castle nut M6, than remove the washer and bolt screw.



5. Remove the securing tensile hollow pin of aileron hinge (use the podger ∅ 2 mm). Follow the same procedure on seckond aileron hinge.
6. Remove the aileron hinge pins.
7. Carefully slide out the aileron together with short aileron drive rod.
8. If required disconnect the short rod from the aileron.



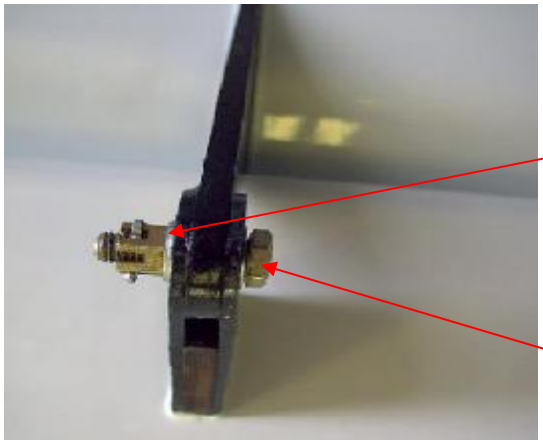
The mount of ailerons is carried out in oposit order.

2.3.7 Demount of flaps

Before flaps demount is necessary to demount he wing first (see section 4.2.1, 4.2.2 Flight Manual) than lie the wing up side down on appropriate supports.

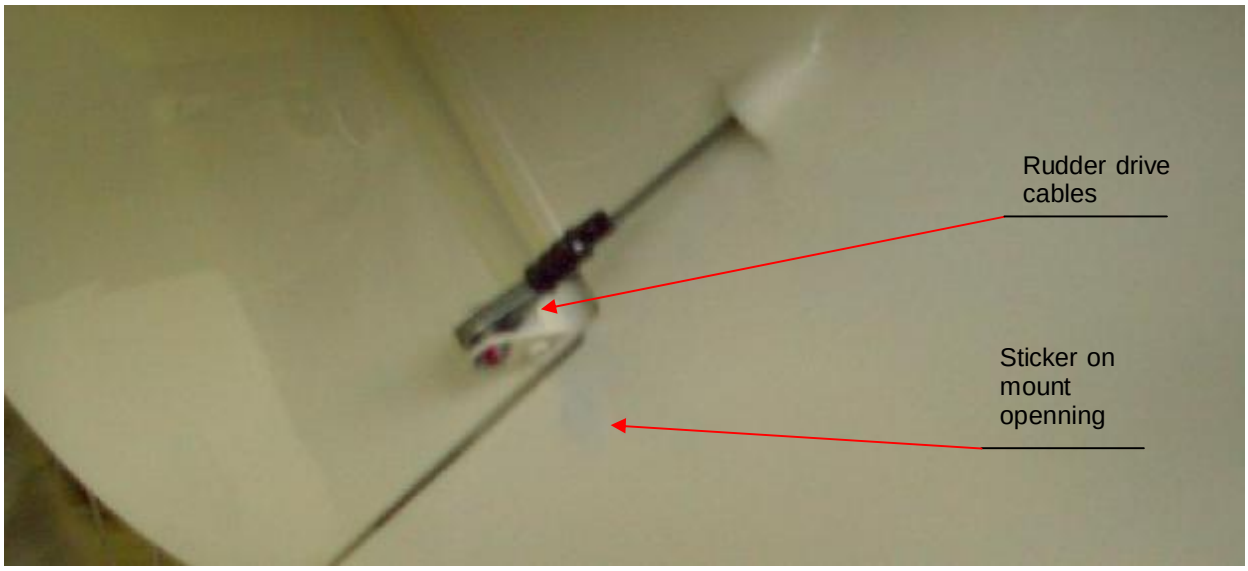
1. Remove the safety pins and castle nut M6 with pflat washer.
2. Remove the screw M6 together with the second washer.
3. Grasp the flap at traling edge and slide out the flap.

Mount of the flap is carried out in oposite order.

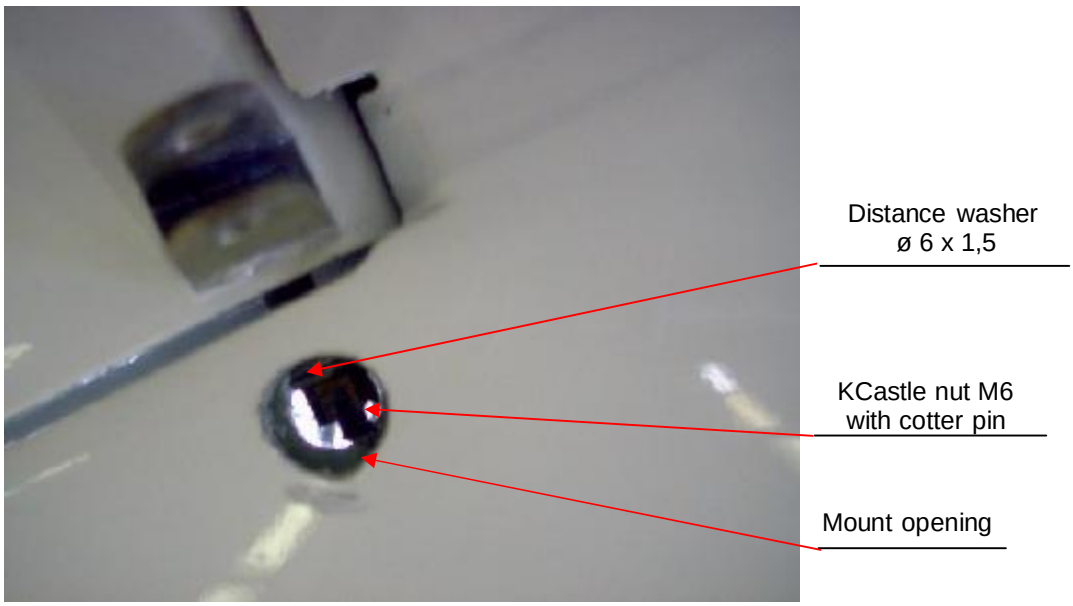


2.3.8. Demount of rudder

1. Disconnect the rudder drive cables. Remove the cotter pin on connaction pin and release the control.
2. Remove the sticker on mount opening.
3. Remove the cotter pin from castle nut M6 and remove the nut.
4. Remove the Millar foil covers on the hinges.
5. Carefully slide out the rudder in up direction folloving the turn axis.

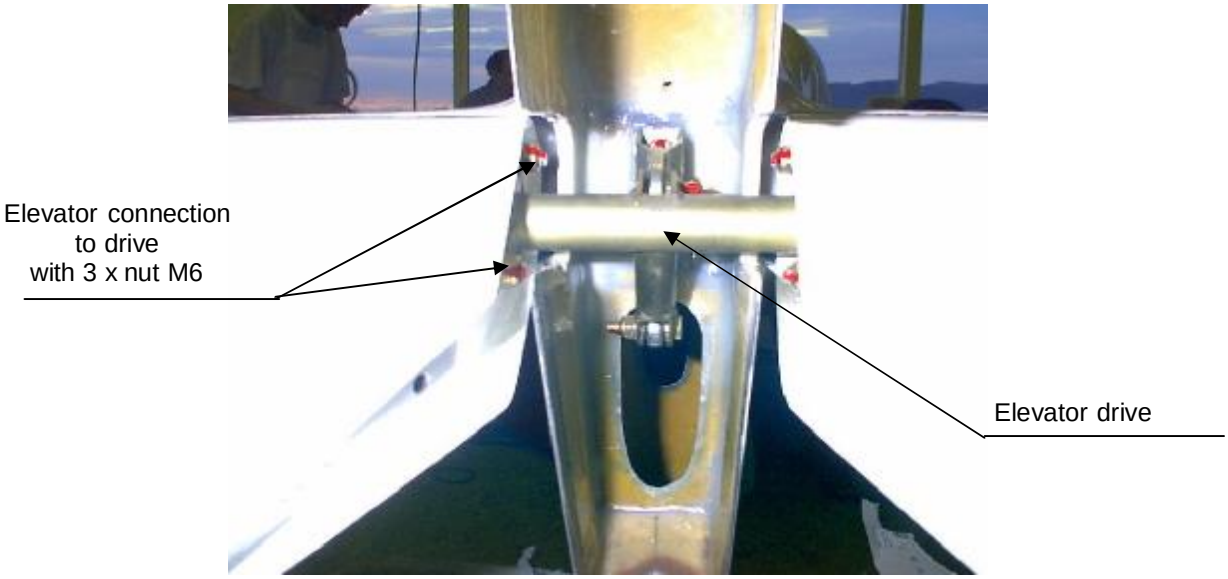


Mount openning



The rudder is carried out in oposite order.

2.3.9 Demount of elevator



1. Demount the rudder; see instructions in section 2.3.8 of this manual.
2. Remove the self locking nuts M6 (3 x) and washers, connecting the control surface to drive.
3. Carefully slide out the elevator.

Mount of elevator is carried out in oposite order.

2.4 Permissible plays

In the following table are shown the permissible plays for most important parts of the aeroplane. These values should be not exceeded in operation.

It is expected that an operator will take steps if finds excessive plays of any other part not listed below.

System	Procedure to find a play	Procedure to remedy a play	Max. product play	Max. operation play
Ailerons control system	Block ailerons up to the wing and move the control stick to the left and right to find possible plays	Check condition of bearings and replace if need be	**2 mm**	**5 mm**
Elevator control system	Block elevator up to the stabilizer, pull and push the control stick to find possible plays	Check condition of bearings and replace if need be	**2 mm**	**5 mm**
Flaps control system	Extend the flaps and then handle the flap trailing edge near the flap root, move the trailing edge up/downward to find possible plays	Check condition of a an arrest of the flap control lever in the cockpit, check condition of sliding bearings stowage and replace the worn-out joint bearings on the rod ends	**2 mm**	**5 mm**
Ruder control	The system is prestressed by means of a cylinder springs (therefore it had not has a possible plays). Rudder hinges (stowage) check by the moving of the rudder	Change bearing bushes.	Rudder hinges **1 mm**	**2 mm**
Wing-Fuselage attachment	Move a wing tip to find possible plays in wing suspensions.	Check wing suspensions, replace pins	**0 mm**	**2 mm** at wing tip
Nose wheel	Push the rear part of the fuselage down (use a weight) to lift the nose wheel, then move the wheel forward-rearward to find possible plays.	Remove the wheel, remove the rim and tire and replace the bearings bushes and bearings.	**1 mm**	**3 mm**
Main landing gear	Jack the aeroplane or lift the wing tip to lift a main leg, then move the wheel forward-rearward to find possible plays in bearings or leg attachment.	Check the leg attachment, wheels attachment, replace the bearings, if necessary.	**1 mm**	**3 mm**

2.5 Weighing the aeroplane and C.G. calculation

There is necessary to abide with permitted maximum take-off weight and C.G. range for any configuration of crew, fuel and baggage according to the Flight Manual. The removal or addition of equipment results in changes to the centre of gravity and empty weight of the aeroplane, and the permissible useful load is affected accordingly. In that case new weighing is necessary to determine new empty weight and centre of gravity position of empty aeroplane. New empty weight and C.G. position should be recorded in Flight Manual,

Section 6., Weight and Balance Record / Permitted Payload Range and new permitted crew weight for appropriate fuelling and baggage weight must be computed and recorded, also. Then in the cockpit stuck placard “Load Limits” should be up-dated.

2.5.1 Empty weight determination

The empty weight of an aeroplane includes all operating equipment that has a fixed location and is actually installed in the aeroplane. It includes the weight of the painted aeroplane, accumulator, standard and optional equipment, full engine coolant, hydraulic fluid (for retractable undercarriage), brake fluid, oil. The aeroplane is weighing without crew, fuel and baggage.
The following weighing procedure is recommended:

1. Remove excessive dirt, grease, moisture from aeroplane before weighing.
2. Weight the aeroplane inside a closed building to prevent error in scale due to wind.
3. Place the scales, properly calibrate zero.
4. Place the aeroplane on the scales (use board to run on the scales or lift the aeroplane – see aeroplane jacking).
5. The aeroplane position for weighting has to be parallel with the horizontal plane which passes through the side edge of the cockpit (check by means of a spirit-level).
6. Weight the aeroplane and record read values in Weight and Balance Record (make a copy of standard Record included in section 5 Appendices).
7. Compute the weight and C.G. position according to the formulae given in the Record.
8. Compare, if computed C.G. position with those one in the Weight and Balance Record.
9. Up-date the placard “ Load Limits “ (make a new one) stuck in the cockpit.

2.5.2 Operating C.G. range calculation

Operating C.G. position calculation procedure is evident from the Record. The reference point (datum point = DP) is leading edge of wing root section (Note: Moment from the nose wheel substitutes as a negative value). There are the arms of the items to the DP (fuel, crew, baggage) in the Record for a purpose of Operating C.G. position calculation procedure. In case, that calculated C.G. position is out of C.G. range limits, is necessary change a position of any items or locate an additional ballast (beware of maximum allowed take-off weight excess).

2.6 Ground handling

2.6.1 Towing the aeroplane

The aeroplane can be displaced by means of towing the aeroplane at a short distance by holding the blade. Handle the propeller by holding the blade root – never blade tip. For a direction motion change push rear part of a fuselage close before a fin down to lift the nose wheel, than turn the aeroplane into a required direction.

CAUTION

Avoid excessive pressure at the aeroplane control surfaces and the wing tips. The perpendicular pressure on the surface of the airframe sandwich shell thin skin layers can produce a creation of a prints. These prints can weaken a sandwich shell. During the aeroplane towing handle the propeller by holding the blade root – never blade tip.

2.6.2 Parking the aeroplane

There is advisable to park the aeroplane inside a hangar or eventually inside other proof space. During the aeroplane parking can be used a parking brake.

CAUTION

In case of a parking outside a hangar and at long term parking to cover cockpit canopy by means of a suitable cloth dust-cover, due to preclusion of the sun effect. The sunbeams together with the optical action of the cockpit canopy may be the source of the spot heating, which can create damage of the cockpit area and the upholstery.

2.6.3 Mooring the aeroplane

The aeroplane is usually moored in case of parking outside a hangar or if need be. By this reason the aeroplane is equipped with mooring eyes (GL) located ant wing lower surface. The aeroplane moors to the ground by means of a mooring rope passed through the mooring eyes.

There is also necessary to moor the nose wheel landing gear, to shut all venting holes (a side sliding window), to block the control stick up e.g. by means of safety harness, to close and to cover cockpit canopy.

2.6.4 Jacking the aeroplane

Since the empty weight of this aeroplane is relatively low there is easy to lift the aeroplane without a special equipment. The aeroplane may be lifted by handling the following parts:

1. Push down the rear part of fuselage (handle the fuselage before the fin) to lift the nose wheel and then support the fuselage under the firewall by means of a suitable support.
2. For a complex check of the retractable undercarriage lift the aeroplane with help of the holders at places assigned for this purpose. These supported points (SP) are located at the wing central panel lower surface behind the auxiliary spar and at a firewall (see figure).

If the aeroplane is supported at these points, than may be performed a operation test of the retractable undercarriage (retracting and releasing) with one person in the cockpit.

2.7 Road transport

The aeroplane may be transported after its loading at a suitable car trailer or a lorry. Disassembly the wing according to the procedure in the par. 2.2.1.2.

The airframe surfaces should be protected by means of a light plastic foil or cloth cover against the dust. The check holes of the engine, the fuel tanks and the pitot static system should be enclosed before the transportation, due to ability of the penetration of the strange objects (insect, birds) by means of an adhesive tape.
The landing gear latches by means of a suitable blocks. There is also necessary to moor the nose wheel landing gear to the floor of the lorry. The dismantled wings should be fastened down to ensure these parts against a possible damage (the wing leading edges). The control stick blocks up by means of the safety harness. The side sliding window shuts and a cockpit canopy closes and covers.
The propeller blades covers by means of a special covers.

SECTION 3

MAINTENANCE

3.1 Overall maintenance survey

The aeroplane maintenance is a care and repairs of an aeroplane to save its airworthiness. There are performed periodical events (periodical and pre-flight inspections) and irregular events e.g. a repair of a damage.

3.2 Daily inspection

The daily inspection must be performed before every flight day of the ultralight aeroplane. A method of the daily inspection execution is the object of a pilot training. The scope of this inspection is specified in the Flight Manual and in the additional documents supplied with an aeroplane instruments or equipment. Special attention must be devoted to the parts, which are affected by the high vibrations and high temperatures from a powerplant.

These parts are especially:

- a propeller attachment
- an exhaust system (a muffler)
- an engine attachment
- a wiring, especially an ignition system
- a lubrication system, a cooling system and a fuel system

3.3 Pre-flight inspection

This inspection is shorter than a daily inspection whereupon the pre-flight inspection should be performed before each flight. The Flight Manual presents more information about a pre-flight inspection. If any problems are found they must be corrected before flying.

3.4 Inter-flight inspection

Inter-flight inspection is a visual check of aeroplane for deformations, surface damages, fuel and oil system leaks, propeller damages, released locks, covers and cowlings etc.
The found damages and failures should be repaired immediately if aeroplane airworthiness is affected or when impossible the aeroplane should be put out of operation.

3.5 Post-flight inspection

Post-flight inspection is performed in the end of each flight day; the post-flight inspection events are the same as the preflight ones. Failures, damages and malfunctions should be recorded and repaired immediately, if possible by a qualified staff. It is useful to clean and/or wash the aeroplane surface. Check also fuel and oil consumption if are in normal range. Lastly record hours flown and other data in appropriate documentation of an aeroplane (engine, propeller).

3.6 Periodical inspections

3.6.1 Periodical inspections intervals

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

1) after the first 25 ± 2 flight hours
2) after every 50 ± 3 flight hours
3) after every 100 ± 5 flight hours

Refer to the Operator's Manual for all versions of ROTAX 912 engine and the Operator's Manual for electric adjustable aircraft propeller SR 2000.

3.6.2 Periodical inspections Sign off sheets

The following Periodical inspections Sign off sheets are intended for copying and serve as the Maintenance Record. There is also recommended to register small repairs, damages and their remedy or replacement of parts. Some parts of the aeroplane (engine, landing gear and propeller etc.) may have special time limits – refer to appropriate manuals.

3.6.3 Periodical inspections – events

Type: DYNAMIC WT9	Registration:	Hours flown:	Date of inspection:
		No. of Take-offs:	

Event	Event description	Inspection after			Carried out by:	Inspected by:
		first 25 hr	every 50 hr	every 100hr		
1	Prior to the inspection clean and wash the aeroplane surfaces	*	*	*		
2	**ENGINE**	See engine manufacturer ´s instructions				
2.1	**Laminated engine cowlings**					
2.1.1	Check condition of cowlings and quick closing locks-repair found damages			*		
2.1.2	Remove engine cowling	*	*	*		
2.1.3	Visually check fireproof primer- repaint if need be		*	*		
2.2	**Engine bed**					
2.2.1	Visually check condition, attachment, security of attachment bolts: engine-engine bed, engine bed-firewall	*	*	*		
2.2.2	Visually check condition of rubber silentblocks-replace those cracked and excessively deformed			*		
2.2.3	Check the engine mount screws for cracks and damage	After 600 flight hour operation				
2.3	**Suction system**					
2.3.1	Visually check condition, integrity, attachment and security of air filter at carburettor inlet - clean impure filter according to the engine manual	*	*	*		
2.3.2	Visually check condition of suction piping	*	*	*		
2.3.3	Check carburettors – condition, control cables attachment, lubricate cables at inlet to the bowdens	*	*	*		
2.4.	**Battery**					
2.4.1	Visually check attachment and security		*	*		
2.4.2	Check charging – charge battery if need be			*		
2.4.3	Visually check condition and attachment of wire leads-replace those damaged	*	*	*		
2.5.	**Wiring**					
2.5.1	Visually check condition and integrity of wires, connections, security of wires	*	*	*		
2.6.	**Fuel system**					
2.6.1	Visually check condition, integrity, attachment and security of hoses – replace those damaged	*	*	*		
2.6.2	Visually check fuel filter condition-replace impure filter	*	*	*		
2.6.3	Visually check system for leakage	*	*	*		
2.7.	**Cooling system**					

Event	Event description	Inspection after			Carried out by:	Inspected by:
		First 25 hr	every 50 hr	every 100hr		
2.7.1	Visually check cooler for condition and leakage			*		
2.7.2	Visually check condition, attachment of hoses, check system for leakage	*	*	*		
2.7.3	Tighten hose clips if need be		*	*		
2.7.4	Check coolant quantity in the expansion tank-add or change coolant according to the ROTAX engine manual if need be	*	*	*		
2.7.5	Visually check condition and attachment of overflow bottle on the firewall			*		
2.8	**Lubrication system**					
2.8.1	Visually check condition and attachment of oil tank			*		
2.8.2	Check oil cooler for condition, attachment and leakage	*	*	*		
2.8.3	Visually check hoses for condition , leakage, attachment and security-replace damaged hoses	*	*	*		
2.8.4	Check oil quantity – add or change oil according to the engine manual if need be	*	*	*		
2.9	**Exhaust system**					
2.9.1	Visually check exhaust system for condition, cracks, deformations or damage – repair (weld)	*	*	*		
2.9.2	Visually check condition and attachment of the muffler-weld found cracks	*	*	*		
2.9.3	Check joints security	*	*	*		
2.10	**Heating**					
2.10.1	Visually check hose leading hot air into the cockpit-check hose for condition, integrity, attachment and security	*	*	*		
2.10.2	Check condition, function and control of the heating flap		*	*		
2.11	**Reinstall lower engine cowling** Upper engine cowling reinstall when the inspection is completed and engine test run performed	*	*	*		
2.12	**Lubricate according to the Lubrication Chart**	*	*	*		
3.	**PROPELLER**	see manufacturer instruction				
3.1	**Blades**					
3.1.1	Inspect blades for abrasions, cracks, paint damage, condition of blades leading edges and tips-repair according to the propeller manual	*	*	*		

Event	Event description	Inspection after			Carried out by:	Inspected by:
		25 hod.	50 hod.	every 100hr		
3.1.2	Remove spinner		*	*		
3.2	**Propeller hub**					
3.2.1	Check prop attachment, security of bolts		*	*		
3.2.2	Check run-out			*		
3.2.3	Pitch change mechanism (if controllable pitch prop is mounted) Check condition and function according to the prop manufacturer's instructions	see manufacturer instruction				
3.2.4	Install spinner		*	*		
4.	**LANDING GEAR (retractable)**					
4.1	**Nose wheel leg**					
4.1.1	Check condition and attachment of the nose wheel leg and leg support strut, pins play, deformations, pins security	*	*	*		
4.1.2	Check of the PU-shock absorber – replace if need be	*	*	*		
4.1.3	Check of the drag stay for damages, deformations, pins security and pins play	*	*	*		
4.1.4	Check tyres for condition, cuts, uneven or excessive wear and slippage-replace if need be. Check pressure – inflate at required pressure (see Flight Manual)	*	*	*		
4.1.5	Lubricate the pins			*		
4.1.6	Check condition of bearings, wheel free rotation, play – wrong bearings replace if need be			*		
4.1.7	Check nose wheel fork free rotation inside the leg- rotation should not be too free to prevent shimmy		*	*		
4.1.8	Check control cables condition, cables ends security		*	*		
4.1.9	Check the nose wheel leg for retraction. Check the hydraulic system for leakage. Replace if need be.		*	*		
4.1.10	Operation test of the landing gear retraction together with the main landing gear (see main landing gear)			*		
4.1.11	Lubricate according to the Lubrication Chart			*		
5.	**Main landing gear**					
5.1	Visually check of the landing gear legs for condition, damages deformations, paint damage, pins security. Inspect leg attachment into the wing spars (no play)	*	*	*		
5.2	Check attachment of brake system hoses to the main leg	*	*	*		
5.3	Check hydraulic fluid condition-add or change hydraulic fluid according to the Maintenance Manual.			*		

Event	Event description	Inspection after			Carried out by:	Inspected by:
		first 25 hr	every 50 hr	every 100hr		
5.4	Check tyres for condition, cuts, uneven or excessive wear and slippage-replace if need be. Check pressure – inflate at required pressure (see Flight Manual)	*	*	*		
5.5	Check of the drag stay for damages, deformations, pins security and pins play	*	*	*		
5.6	Visually check condition of the pads-steady and symmetry abrasion of the pads-replace a pad if need be The same is valid for the brake disc.		*	*		
5.7	Visually check disc for cracks, permanent deformation – replace if need be. Check condition of bearings, wheel free rotation, play		*	*		
5.8	Check of the PU – shock absorbers for cracks and permanent deformations – replace if need be		*	*		
5.9	Operation test of the landing gear. Lift the aeroplane with help of the holders at places assigned for this purpose. Retract the landing gear, take time of the landing gear retraction. This procedure repeat three times. Check wheel position into the room for main legs during retraction. .			*		
4.	**LANDING GEAR (fixed)**					
4.1	**Nose wheel leg**					
4.1.1	Check of the leg for damages, attachment, deformation. Check torque and security of fixed joints, nose wheel control levers condition	*	*	*		
4.1.2	Visually check rubber absorber for permanent deformation, cracks, excessive wear- replace if need be.	*	*	*		
4.1.3	Check the nose wheel fork for delaminations and damages. Check attachment of the nose wheel leg.	*	*	*		
4.1.4	Check tyres for condition, cuts, uneven or excessive wear and slippage-replace if need be. Check pressure – inflate at required pressure (see Flight Manual)	*	*	*		
4.1.5	Lubricate the pins			*		
4.1.6	Check condition of bearings, wheel free rotation, play – wrong bearings replace if need be			*		
4.1.7	Check nose wheel fork free rotation inside the leg- rotation should not be too free to prevent shimmy		*	*		
4.1.8	Visually check laminated fairing (mudguard) condition – repair found damages and cracks.	*	*	*		

Event	Event description	Inspection after			Carried out by:	Inspected by:
		first 25 hr	every 50 hr	every 100hr		
4.1.9	Lubricate according to the Lubrication Chart			*		
5.	**MAIN LANDING GEAR**					
5.1	Visually check of the leg for delaminations, damages, attachment, bolts security	*	*	*		
5.2	Visually check laminated fairing (mudguard) condition-repair found damages and cracks	*	*	*		
5.3	Check tyres for condition, cuts, uneven or excessive wear and slippage-replace if need be. Check pressure – inflate at required pressure (see Flight Manual)	*	*	*		
5.4	Visually check condition of the pads-steady and symmetry abrasion of the pads-replace a pad if need be The same is valid for the brake disc.		*	*		
5.5	Visually check disc for cracks, permanent deformation – replace if need be. Check condition of bearings, wheel free rotation, play		*	*		
6.	**LIFTING SURFACE**					
6.1	**Wing**					
6.1.1	Visually check of the wing surface for damages, delaminations, recesses	*	*	*		
6.1.2	Check of the surface for finding out of the delaminations of the sandwich. Contact aeroplane manufacturer if are found larger areas of the delaminations.			*		
6.1.3	Check plays of wing suspensions . Move the wing tip upward-downward, frontward-rearward. Contact aeroplane manufacturer if the motions are greater than 5 mm		*	*		
6.1.4	Check pitotstatic tube attachment at the right wing	*	*	*		
6.2	**Aileron**					
6.2.1	Visually check of the aileron surface for damages, delaminations and paint damages	*	*	*		
6.2.2	Check free movement, aileron hinge and plays	*	*	*		
6.2.3	Check security of control rod ends	*	*	*		
6.2.4	Lubricate the bearings			*		
6.2.5	Check control-surface weight balance attachment	*	*	*		
6.3	**Flap**					
6.3.1	Visually check of the flap surface for damages, delaminations	*	*	*		
6.3.2	Check free movement, flap hinge and plays	*	*	*		
6.3.3	Check security of control rod ends	*	*	*		

Event	Event description	Inspection after			Carried out by:	Inspected by:
		First 25 hr	every 50 hr	Every 100hr		
6.3.4	Check of the flaps stops for condition at the flaps up position. Increase a prestress of the flap shaft, in case of the plays appearance.			*		
7.	**FUSELAGE**					
7.1	Visually check fuselage surfaces for delaminations and damages. Pay special attention to condition of the bottom part of the wing central panel and of the get on into cockpit zone.	*	*	*		
7.1.2	Visually check of the room for main legs condition (in case of the retractable landing gear)	*	*	*		
7.1.3	Visually check of the auxiliary tail skid for attachment. Replace the auxiliary tail skid in case of a delaminations.	*	*	*		
7.1.4	Visually check of the static pressure receivers for stoppage. (The small opening must be clean)	*	*	*		
7.2	**Cockpit canopy**					
7.2.1	Visually check canopy condition for cracks, scratches, any other damages – bore ends of cracks. Check venting windows for condition and operation.	*	*	*		
7.2.2	Check canopy lock for condition and operation.	*	*	*		
7.2.3	Operation test of the venting nozzles.	*	*	*		
7.2.4	Check gas struts operation – replace those functionless		*	*		
7.2.5	Check attached pins for condition and security			*		
8.	**TAIL UNIT**					
8.1	**Horizontal tail unit**					
8.1.1	Visually check horizontal tail unit surfaces for delaminations and damages. Pay special attention to condition of the connection with the fin.	*	*	*		
8.1.2	Check elevator free movement, elevator hinges and plays.	*	*	*		
8.1.3	Check control-surface weight balance condition	*	*	*		
8.2	**Rudder**					
8.2.1	Visually check of the surface for delaminations, damages.	*	*	*		
8.2.2	Check plays in the bearings and in the hinges	*	*	*		
8.2.3	Check control cables condition			*		
8.2.4	Check security of control rod ends	*	*	*		
8.2.5	Check control-surface weight balance condition in the upper ruddertip.	*	*	*		
9.	**COCKPIT**					

9.1	**Instrument panel**					
Event	**Event description**	**Inspection after**			**Carried out by:**	**Inspected by:**
		first 25 hr	**every 50 hr**	**Every 100hr**		
9.1.1	Visually check condition and attachment of the instrument panel		*	*		
9.1.2	Check functions of instruments (see manufacturer instruction)		*	*		
9.1.3	Check throttle and choke levers free movement and lock	*	*	*		
9.1.4	Inspect completeness and readability of placards			*		
9.2	**Seats**					
9.2.1	Visually check of the safety harness for condition, attachment and security- replace if need be			*		
9.2.2	Visually check seat upholstery condition			*		
9.3	**Hand control**					
9.3.1	Remove control stick covers above a seat		*	*		
9.3.2	Check control stick free movement. Remove foreign objects and contamination	*	*	*		
9.3.3	Check control surface deflections and plays.	*	*	*		
9.3.4	Check security of control rod ends			*		
9.3.5	Lubricate the control rod ends			*		
9.4	**Foot control**					
9.4.1	Check stiffness of movement	*	*	*		
9.4.2	Check joints security	*	*	*		
9.4.3	Check condition and security of cables	*	*	*		
9.4.4	Check nose wheel control levers conditions at the output from fuselage	*	*	*		
9.4.5	Lubricate according to the Lubrication Chart			*		
9.5	**Flap control**					
9.5.1	Remove central pedestal cover between pilots seats		*	*		
9.5.2	Check pin joints for security and plays in the flaps bellcranks		*	*		
9.5.3	Check free movements of levers	*	*	*		
9.5.4	Lubricate guider tube of the flaps control lever		*	*		
9.5.5	Check operation of flap control lever	*	*	*		
9.5.6	Check of the play in the flap control. Find out the plays in the flap control at fixed flap control lever by the moving of the flap.	*	*	*		
9.6.	**Trimmer control system**					
9.6.1	Check pin joints of the control system for security	*	*	*		
9.6.2	Check of the trimmer control lever blocking. If the control stick is moved fully forward/rearward, the trimmer control lever must be without motion.	*	*	*		

Event	Event description	Inspection after			Carried out by:	Inspected by:
		first 25 hr	every 50 hr	every 100hr		
9.6.3	Check of the lamellar carbon spring for delaminations and attachment (lower hinge)	*	*	*		
9.6.4	Check free movements of trimmer control system (foreign objects)	*	*	*		
9.7	**Brake system**					
9.7.1	Check of the bowden from brake lever to the main brake hydraulic face ram	*	*	*		
9.7.2	Check of the brake lever in the parking position. The aeroplane must be braking – check by towing of the aeroplane. Adjust the cable if need be.		*	*		
9.7.3	Check hydraulic fluid condition-add or change hydraulic fluid according to the Maintenance Manual.		*	*		
9.7.4	Reinstall central pedestal cover between pilots seats.					
10.	**MISCELLANEOUS EQUIPMENT**					
10.1	**THE RESCUE SYSTEM**	see manufacturer instruction				
10.1.1	Check the blocking of the rescue system control lever			*		
10.1.2	Remove rescue system cowling			*		
10.1.3	Check of the attachment of the rocket engine and the control lever			*		
10.1.4	Check the attachment of the parachute			*		
10.1.5	Check the attachment at the firewall and at the auxiliary girder			*		
10.1.6	Check condition of parachute lines			*		
10.1.7	Instal rescue system cowling			*		
10.2	**TOW RELEASE**					
10.2.1	Remove tow release E85			*		
10.2.2	Check tow release E85	see manufacturer instruction				
10.2.3	Instal tow release			*		
10.2.4	Check the tow release control lever for free movement, tension of rope check, screw joints, lubrication of control rod			*		
10.2.5	Check the attachment of tow release in the fuselage for delamination, screw joints			*		

3.6.4 List of periodical inspections of ROTAX 912UL/ULS engine

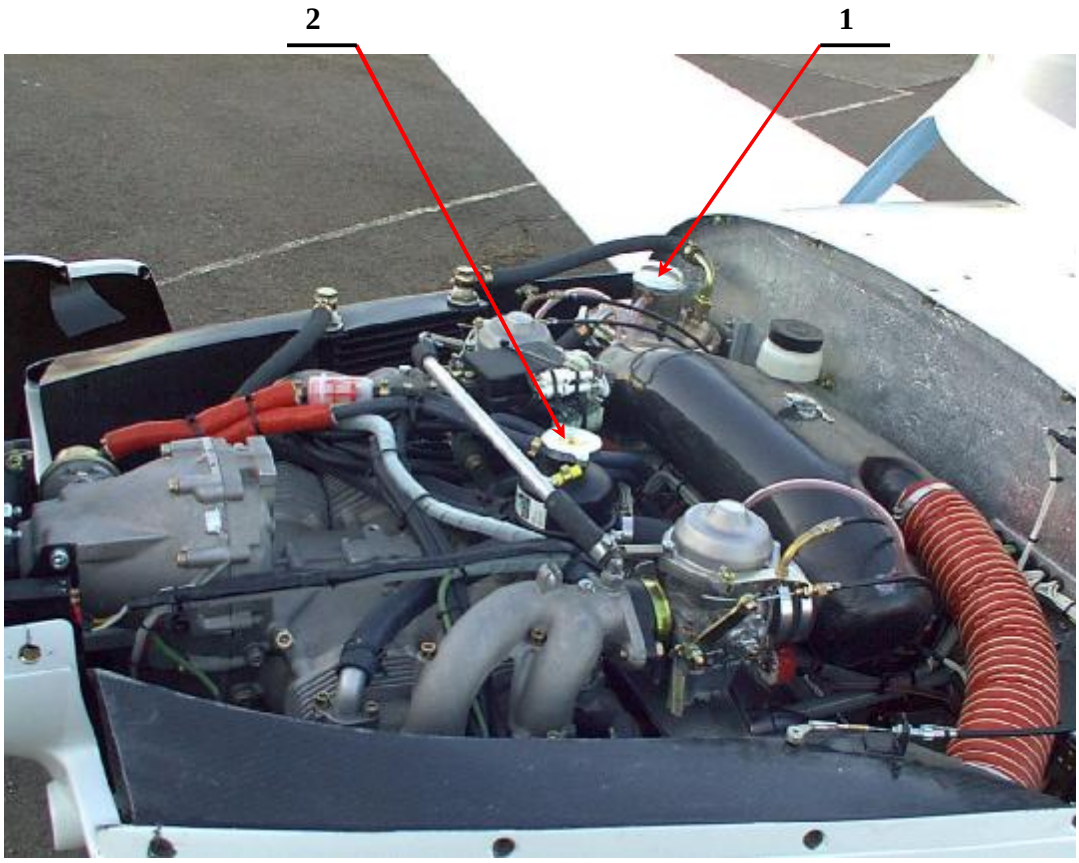
Engine: ROTAX 912	**S/N:**	**Hours flown:**	**Date of inspection:**
Aeroplane:DYNAMIC WT9	**S/N:**	**Registration:**	

Event description every ... hr	**25 hr**	**50 hr**	**100 hr**	**200 hr**	**600 hr**	**1500hr or 12 years whichever occurs first**	**Every 2years**	**Every 5years**	**See Rotax 912 Operator's Manual**	**Carried out by**	**Inspected by**
1. Engine cleaning	*	*	*	*	*				12-00-00 2.1		
2. Engine inspection	*	*	*	*	*				12-00-00 2.2		
3. Leak-proof check	*	*	*	*	*				12-00-00 2.2		
4. Suspension check	*	*	*	*	*				12- 00-00 2.3		
5. Check of equipment	*	*	*	*	*				12-00-00 2.2		
6. Check of reducer	*	*	*	*	*				12-00-00 7.1		
7. Oil quantity check	*	*	*	*	*				12-00-00 5.1		
8. Oil change	*		*	*	*				12-00-00 5.2		
9. Oil filter replacement	*		*	*	*				12-00-00 5.3		
10. Cooling system inspection	*	*	*	*	*				12-00-00 3.1		
11. Cooling system flush				*	*				12-00-00 3.3		
12. Liquid coolant change							*		12-00-00 3.2		
13. Air filter check	*	*	*	*	*				12-00-00 2.4		
14. Carburettors check	*	*	*	*	*				12-00-00 4.2		
15. Check of cabling	*	*	*	*	*				12-00-00 6.1		
16. V-belt tension check	*	*	*	*	*				12-00-00 2.6		
17. Replacement of spark-plugs			*	*	*				12-00-00 6.2		
18. Spark-plug connectors	*			*	*				05-20-00 2.2.13 page 12		
19. Check of compression				*	*				12-00-00 2.5		
20. Engine test run	*	*	*	*	*				12-00-00 2.8		
21. Replacement of rubber parts								*	05-20-00 2.2		
22. Overhaul						*			05-10-00 2.		

Note: 25 hr`s inspection must by passed after the first 25 hrs operation of new engine or engine after overhaul.

3.7 Operating media

Operating media are: fuel, engine oil, liquid coolant, brake fluid. Operating media filling holes can be seen in the following Figure and they are: **1. for engine oil,**
2. for liquid coolant



3.7.1 Engine oil

Total oil quantity in ROTAX 912 lubricating system amount s to 3.5 litre. The oil tank is located in the engine compartment and is accessible when engine upper cowling is removed. Oil quantity is measured by wire-gage in the oil tank.
The recommended oil brands are listened in the Operator's Manual for all versions of ROTAX 912 engine. Prior to oil check, turn the propeller by hand several times to pump oil from the engine into the oil tank, or let the engine idle for 1 minute. He oil level in the oil tank should be between min. and max. mark and should not be below min. mark (see the Operator's Manual for all versions of ROTAX 912 engine).
For oil empying the following procedure can be applied:

- Place a suitable container for old oil below the oil tank,
- Unscrew a drain screw from the bottom of the oil tank to empty oil,
- Remove and replace oil filter at each oil change,
- Replace a new sealing ring of the drain screw,
- Fit drain screw,
- Refill with approx. 3 litre of new oil.

It is recommended to empty oil immediately after engine test run or a flight when is warm and better escape the engine and the oil tank. For further information see the maintenance manual for ROTAX Engine Type 912 Serie.

3.7.2 Coolant

Refer to the Operator's Manual for all versions of ROTAX 912 engine for recommended coolant sorts. The "EVANS NPG+" is recommended by engine manufacturer. The performance of EVANs cooling liquid see www.evanscooling.com .
Water or water-containing coolant must not be adedd in any case to cooling system! 3,6% water or less in the system is acceptable and may be checked with a brix scale refractometer. Residual water, if present, will vent rapidly as steam. This could further lead, by too low cooling level, in a complete failure of the cooling system. Check coolant level in expansion tank.

Total coolant quantity is about 1.5 litre. The coolant level in the overflow bottle should be between min. and max. mark. In case of the coolant emptying disconnect hose leading coolant from the radiator into the pump (on the lowest part of the cooling system) to empty coolant into a suitable bottle.

The liquid coolant fills into the expansion tank (the highest point of the cooling system) located in the engine compartment. In addition to that an overflow bottle is attached on the firewall to absorb coolant in case engine overheating. Run engine to operating temperature and allow engine to cool down before checking coolant level. Replenish as necessary. Oftentimes make checking coolant level during the first 10 operation hours as far as the last pneumatic blebs are removed.

3.7.3 Brake fluid

Only brake fluid of J 1703c classification should be used for hydraulic brake system (sort for middle hard or hard operation). In general the certify automobile brake fluid meet needed requirements. Brake fluid refilling is necessary when a low brake system efficiency occurs due to fluid leak. The wheel brake system is filled with the brake fluid into the tank which is located on the main brake hydraulic face ram located beyond the rear frame of the baggage compartment.
Brake fluid gets thick during aeroplane operation and absorb air humidity. This is the most important condition, which causes brake system failures. There is not possible to determine time when it occurs. The best way is to precede any troubles and change brake fluid every 2 years with new one.

3.7.4 Fuel

Recommended fuel brands are introduced in the following table:

Engine 912 UL/A/F	Engine 912 ULS/S
Minimum octane number 90	Minimum octane number 95
EN 228 Normal	
EN 228 Super	EN 228 Super
EN 228 Super plus	EN 228 Super plus
AVGAS 100 LL	AVGAS 100 LL

For further information see the Operator's Manual for all versions of ROTAX 912 engine.

3.7.4.1 Fuelling

The total fuel tankage is 75 litre. The fuel tank filler necks are placed on a wing upper surface near of the wing root. Keep in mind maximum permitted take-off weight when tank the aeroplane.

The precaution should be kept during fuelling to prevent fire.

WARNING

There is prohibited to smoke or manipulate with fire during fuelling. Under no circumstances tank with engine running. Connect the aeroplane to earth prior fuelling. No person in the cockpit during fuelling.

3.8 Lubrication

3.8.1 Lubrication fundamentals

There are some inaccessible joints and control system parts inside a wing and fuselage, which have been cleaned and lubricated during aeroplane assembly and next lubrication will be performed during a periodic inspection.

On the other side there are some parts, e.g. landing gear, which are exposed to external conditions and to varying loads. Those parts would be inspected during pre-flight and periodical inspections and should be lubricated always when it necessary, but at least at intervals specified below.

3.8.2 Recommended lubricants

The manufacturer recommends to use the greases and oil without acid for the lubrication only.

3.8.3 Lubricating points

Unit	Lubricating point	After 25hr	Every 50 hr	Every 100 hr	Lubricant
Propeller	See ManufacturerManual				
Engine	*oil change according an engine manual				
	* carburettor control cable at inlet into the bowden	*	*		Oil the control cables
	* choke control cables at inlet into the termination	*	*		Oil the control cables
Nose wheel landing gear (retractable undercarriage)	*wheel bearings			*	Lubricate by grease
	*swing wheel fork joint pins	*	*	*	Grease nipple Lubricate by grease
	* drag stay pins			*	Lubricate by grease
	* gas strut pins			*	Lubricate by oil
	* upper and down leg pin		*	*	Lubricate by grease
	* swivel bearings in the cables terminations close to the nose wheel control levers			*	Lubricate by grease
Nose wheel landing gear (fixed undercarriage)	* wheel bearings			*	Lubricate by grease
	* upper and down leg locating bush		*	*	Lubricate by grease
	* joint pins of the control		*	*	Lubricate by grease
Main landing gear (retractable undercarriage)	* swing wheel fork joint pins	*	*	*	Grease nipple Lubricate by grease
	* drag stay pins		*	*	Lubricate by grease
	* hydraulic face rams pins			*	Lubricate by grease
	* wheel bearings			*	Lubricate by grease
Hand control	*control stick bearings and all movable joints			*	Lubricate by grease
Foot control	* all movable joints			*	Lubricate by grease
Ailerons	*supporting bearings		*	*	Lubricate by grease
	*rod end bearings		*	*	Lubricate by grease
Rudder	*sliding bearings			*	Lubricate by grease
	*rudder lever pins		*	*	Lubricate by grease
Elevator	* all movable joints		*	*	Lubricate by grease
	*supporting bearings			*	Lubricate by grease
Flaps	* rod sliding bearings			*	Lubricate by grease
	*rod joint pins			*	Lubricate by grease at each flaps disassembly
	*Changing gate guided a flap control lever in the pedestal between the pilot seats		*	*	Lubricate by HHS 2000 oil (Würth Firm)

3.9 Mechanisms adjustments

3.9.1 Torque moments

		Strength class									
Metric thread		**4D**	**5D**	**4S**	**6E**	**5S**	**5R**	**6S**	**8G**	**10K**	**12K**
M4	N.m					1,67					
	Kg.m					0,17					
M5	N.m					3,45					
	kg.m					0,35					
M6	N.m	4,31	4,90	5,39	5,88	6,86	7,84	8,33	9,80	13,72	16,67
	kg.m	0,44	0,50	0,55	0,60	0,70	0,80	0,85	1,00	1,40	1,70
M7	N.m	5,88	7,84	8,82	9,80	10,78	11,76	12,74	14,70	20,59	25,49
	kg.m	0,60	0,30	0,90	1,00	1,10	1,20	1,30	1,50	2,10	2,60
M8	N.m	8,33	10,78	12,74	13,72	15,69	17,65	19,61	22,55	32,36	38,24
	kg.m	0,85	1,10	1,30	1,40	1,60	1,80	2,00	2,30	3,30	3,90
M10	N.m	16,18	21,57	24,51	27,45	31,38	34,32	37,26	44,12	61,78	73,54
	kg.m	1,65	2,20	2,50	2,80	3,20	3,50	3,80	4,50	6,30	7,50
M12	N.m	27,45	36,28	42,16	47,07	52,95	58,83	63,74	74,53	104,93	125,52
	kg.m	2,80	3,70	4,30	4,80	5,40	6,00	6,50	7,60	10,70	12,80
M14	N.m	43,14	58,83	66,68	73,54	78,54	93,16	98,06	117,67	164,75	196,13
	kg.m	4,4	6,00	6,80	7,50	8,00	9,50	10,00	12,00	16,80	20,00
M16	N.m	60,80	78,45	93,13	98,06	107,87	127,48	131,29	164,75	225,55	274,58
	kg.m	6,20	8,00	9,5	10,00	11,50	13,00	14,00	16,80	23,00	28,00
M18	N.m	88,25	117,67	137,29	156,90	171,61	196,13	205,93	245,16	343,23	411,87
	kg.m	9,00	12,0	14,00	16,00	17,50	20,00	21,00	25,00	35,00	42,00
M20	N.m	117,67	156,90	176,51	196,13	225,55	245,16	274,58	313,81	441,29	539,36
	kg.m	12,00	16,00	18,00	20,00	23,00	25,00	28,00	32,00	45,00	55,00
M22	N.m	147,09	196,13	225,55	245,16	284,39	313,81	33,42	392,26	558,97	676,65
	kg.m	15,00	20,00	23,00	25,00	29,00	32,00	34,00	40,00	57,00	69,00
M24	N.m	205,93	274,58	313,81	353,03	392,26	441,29	470,71	549,17	755,11	970,85
	kg.m	21,00	28,00	32,00	36,00	40,00	45,00	48,00	56,00	77,00	99,00
Ultimate strength		37	50	37	-	50	-	60	80	100	120
ϑ in %		25	22	14	-	7	-	8	12	8	8
Yield point		21	28	32	36	40	45	48	64	90	108

Torque moment formula (valid for all bolt size) :

$$M_{kmax} = 1{,}065 \times \frac{d \cdot s \cdot S}{m}$$

Legend:

M_k	Torque moment	**kg.cm**
d……..	Bolt shank diameter	**cm**
s……..	Minimum yield point	**kg/cm^2**
m…….	Safety factor	**(m = 1,25 pre s<50 kg/mm^2, m = 1,43 pre s>50 kg/mm^2)**
S……..	Lead of helix	**cm**

3.9.2 Necessary maintenance tools

No special tools are needed for DYNAMIC WT9 maintenance. The manufacturer recommends using of the suitable piercer for dismantling of the nose wheel axle.

3.9.3 Inspection holes

There are not use the special inspection holes for an access into the airframe on the ground of preservation of the smooth aeroplane surface. There is an inspection window blinded by transparent acryl glass on the wing lower surface for the inspection of the aileron two-arm lever. After opening of this small window and the finishing of the works glue it by means of a pure silicon glue again.
The control elements are accessed after the pedestal cover demounting and the rear frame cover demounting behind the baggage compartment.

3.10 Brake system

3.10.1 Brake plate replacement

The brake plate replacement is performed when a plate is worn-out. Apply the following procedure to brake plate replacement:

1. Jack the aeroplane
2. Remove the cotter pin, unscrew the M22 main wheel axle nut, remove washer from the wheel axle.
3. Bend small tabs on 3 washers and unscrew screws connecting brake disc to the rim..
4. Remove the wheel and a distance ring from the axle.
5. Take the brake disc down (leave the brake on a main leg).
6. Remove the cotter pins, shift the pins out and remove the brake plates.
7. Mount a new brake plates, secure the pins with cotter pins (diameter 2 mm, length 14 mm).
8. Put the brake disc on the wheel.
9. Put the distance ring on the axle and then the wheel (adjust the distance ring between bearings).
10. Set tab washers on the screws, apply a Loctite and screw the brake disc to the inner part of a rim, bend the tabs of washers to secure screw heads.
11. Put the washer on the axle, screw main wheel axle nut back and secure with a cotter pin.

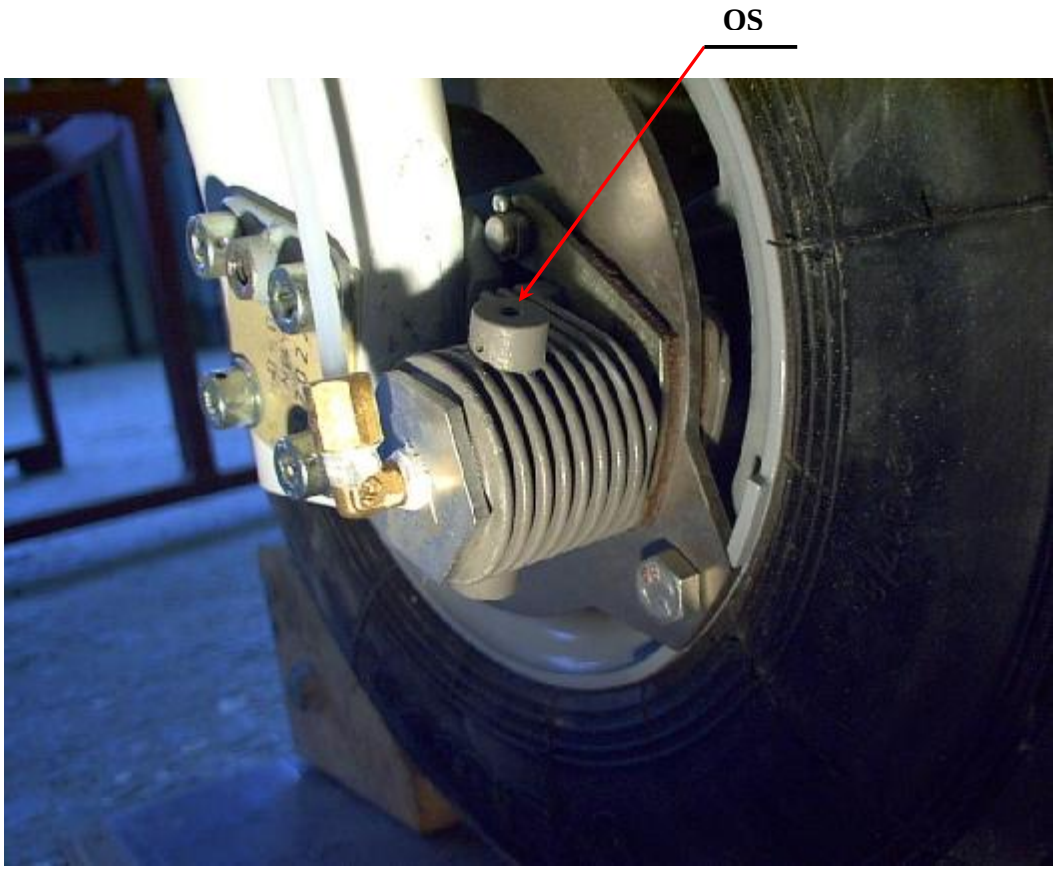
List of parts necessary for Brake plate replacement procedure:

1. Brake plates 4 pcs
2. Cotter pins ϕ2 x 14 4 pcs
3. Cotter pins ϕ4 x 40 2 pcs
4. Secure Tab washers 6x2 6 pcs
5. LOCTITE (blue) to secure the screw heads

3.10.2 Venting

It is most important thoroughly vent the brake system, otherwise the system function may be unreliable and the brakes may fail. There are two main reasons of air entry into the brake system:

1. Disconnected or released hoses
2. Insufficient quantity of brake fluid.



Procedure:

1. Loosen the vent screw in appropriate brake cylinder (OS).
2. Pull brake control lever in the cockpit and hold at a rear position.
3. Tighten the vent screw.
4. Repeat several times until the brake control lever offers resistance against motion.
5. Full tighten the vent screw.

CAUTION
If brake efficiency remains unsatisfactory after venting, there is necessary to fill brake fluid and vent the system again.

3.10.3 Brakes adjustment

The brakes adjustment carries out after the brake system venting and after a brake plate replacement. The main landing wheels are braked together by means of the brake control lever pulling in the cockpit. The brake effect adjustment is carried out at the brake control lever in the cockpit. Bowden cable leads from the brake control lever to the main brake hydraulic face ram, it is adjusted so that at rear detent position of the brake control lever (a parking position) the aeroplane is full braked.

3.11 Control surfaces deflections setting

Control surfaces deflections of a new aeroplane are set by the manufacturer. Deflections are adjusted at values specified in Control Surfaces Deflections Record enclosed in this Manual.
A neutral position of control surfaces and controls is a base for adjustment of deflections.

3.11.1 Aileron deflections adjustment (see Lateral control system scheme)

The range of the control stick deflection is adjusted by stops (AS) on the consoles of the torsional tube (TR). Aileron deflections can be adjusted with adjustable threaded end of a short rod (5). Further adjustable rode ends are located at a place a pin joint (BV), which allows a disconnection of the rod in case of a derigging of a wing. An access to this joint (BV) is allowed through an access hole at a model with a fixed undercarriage and through a main wheel well at a model with a retractable undercarriage.
Deflection of the two-arm lever (4) , which a console with the bearings is attached at the wing main spar and provides a necessary differentiation of the aileron deflections, is set by the manufacturer and can not be adjusted in operation.

3.11.2 Elevator deflections adjustment (see Longitudinal control system scheme)

The control stick motions are limited by two stops (7). A “push-down” stop is glued into the wing central panel main spar. A “pull-up” stop is on the lateral located tube, which is passed through the walls of the middle console between the seats. An adjustment of the stops is allowed after removal of the pedestal upper cover. Elevator deflections can be adjusted with adjustable threaded rod end (2).

3.11.3 Trimming deflections adjustment

A neutral position of a trim control lever can be adjusted by means of a adjustment of a length of the rod (9). An adjustable nut is accessible after removal of the pedestal upper cover between seats.

3.11.4 Flap deflections adjustment

Set flap position is locked by the deflection of the flap control lever into the appropriate recesses on the pedestal cover, where a lever is pushed by a spring.
A neutral position of each flap adjusts by means of an adjustment of an adjustable short rod end (6). A common neutral position of the flaps can be adjusted by means of an adjustment of an adjustable rod end (3). An access to this joint is allowed after removal of the pedestal upper cover between seats.

3.11.5 Rudder deflections adjustment

The rudder deflections are set by the aeroplane manufacturer by means of corresponding length of the control cables and can not be adjusted in operation.

3.12 Nose wheel leg flexible polyurethane roller replacement

3.12.1 Fixed undercarriage

The springing is carried out by means of the gilled flexible polyurethane roller, which is located in the upper nose wheel bearing bush (1) and by means of the rubber ropes twisted around a leg (1) and bearing console pin (B). At the gilled flexible polyurethane roller replacement must be the nose wheel leg demounted.
Procedure:

1. Remove both engine cowlings.
2. Disconnect both pin joints of the nose wheel control rod.
3. Loosen the screws (2) of the lower bearing bush (LG) and a part of the bearing bush together with a nose wheel leg pull read forward through a groove inside console (B).
4. Eject a leg from a upper bearing bush so that the gilled flexible polyurethane roller can be replaced.
5. Pull the gilled flexible polyurethane roller and replace new one.
6. Assemble back the nose wheel leg in inverted sequence.

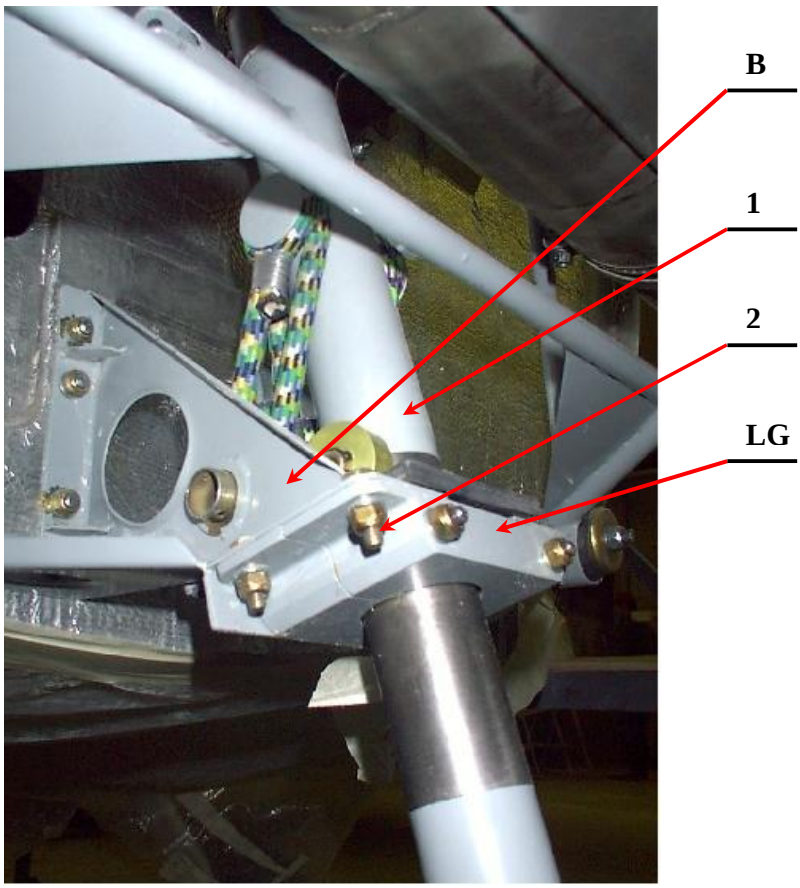


Fig. Nose wheel leg of the fixed undercarriage mounting

3.13 Tire inflating

Main wheel pressure…….. 250 kPa

Nose wheel pressure……..…. 200 kPa

Wheels pressures for tires are stated on placards stuck on the aeroplane, also. A car pump or a compressor or a pressure bottle may be used to pump a wheel.

3.14 Winter operation

3.14.1 General

The aeroplane is considered as a winter one, if outside temperature falls below + 5°C , the aeroplane must be prepared for winter operation.

3.14.2 Preparing the aeroplane for winter operation

Aeroplane airframe:

- Lubricate the aeroplane per Lubricating Chart, if from the last 100 hrs. Inspection did not pass more than 6 months.
- Check fuel tank venting.
- Check attachment of wing, ailerons, flaps and tail units; lubricate per Lubricating Chart.

Power plant

- The cooling system of the cylinder heads is filled with the mixture of the non-freezing liquid and water, which protects the cooling system against the freezing up to – 18 ° C. If the temperature is below this value, the coolant must be drained or renewal with pure the non-freezing liquid. The coolant must be renewal after each two years. Use only coolant according to the current Operator's Manual for engine ROTAX 912 UL / 912 ULS.
- Fill engine oil suitable for low temperatures. The required operation oil temperature and operation temperature of the coolant are not reached in the winter operation. The oil temperature must be higher than 90°C.
- Cover the oil cooler face or a part of face only. Cover a part of radiator face by means of a width adhesive tap so, that is a small 10 – 15 cm width slot for cooling and for the inlet of air for the heating. The oil tank must be isolated by means of suitable thermal insulation in case of the lower outside temperatures.

CAUTION
The limit temperatures of the coolant, cylinder heads and oil must be kept after these arrangements.

- Check electrode gap of the spar plugsand adjust as necessary or renew as required.

3.14.3 Operation

Preflight inspection

In addition to the Pre-flight inspection events in Aeroplane Flight Manual (AFM) , the following would be done:

- Throw down or ice from aeroplane surfaces
- Check control surfaces for free movement and cleanness of slots of control surfaces and flaps
- Check cleanness and passage of the fuel tank venting before each flight
- Check fuel system (fuel filter) for frail, if found than empty the fuel tank and refill with new one
- Check fuel for water prior filling
- Drain fuel tank, deflate a small quantity of a fuel.
- If the aeroplane is equipped with a tricycle type of fixed undercarriage, for the winter operation on the frozen or harden surface of the runway is recommended to remove the spats from the wheels due to their damages.

Pre-heating engine and oil

There is possible to start an engine without need of pre-heating if outside temperature is not below + 5°C. It is recommended to pre-heat the engine and oil if temperature falls below + 5°C. Use suitable air heater or a dryer.

WARNING
Never use open fire to pre-heat an engine.

Blow hot air from the front into the hole around the propeller hub . Temperature of hot air should not exceed 100°C. Pre-heat until cylinder head temperature and oil temperature exceed + 20°C.

Engine starting

1. Turn the propeller by hand (ignition switched off)
2. Open the fuel cocks
3. Set throttle lever for idle run
4. Open the choke
5. Switch on Master switch
6. Turn the key in the switch box
7. Switch on ignition switches
8. Push the starter button to start the engine
9. Adjust engine run after starting
10. Close the choke
11. Warm up the engine, check oil pressure

CAUTION

If cylinder heads and oil temperatures fall during parking among flights than is recommended to start and warm up engine from time to time. Do not open choke when starting hot engine.

Parking and taxiing

Check wheel brakes for freezing when parking outside and temperature is below 0°C. Check wheels free rotation prior to taxiing (hold a propeller and tow an aeroplane). Heat the brakes with hot air to remove freezing. Freezing should not be removed by force towing.

After winter operation

- Clean the aeroplane thoroughly
- Lubricate the aeroplane per Lubricating Chart
- Check and adjust the control system

SECTION 4

REPAIRS

4.1 Repair outlines

Describe procedures apply to minor damages only. Major repairs can be carried out by the aeroplane manufacturer or a repair workshop approved by local Civil Aviation Authority (CAA). Under decscribed procedures are general. For each part are used different cloths. For repair of any damage class 3 or bigger ask the manufactuurer for cloths arrangement. The sandwich shells, from which is aeroplane made, are repaired very difficult.

4.2 Repair classification

The repairs are divided according to the influence to the airworthiness of all aeroplane into following classes:

Repair class 1: Large damages required a partial replacement of the airframe important or large repairs can be carried out by the aeroplane manufacturer or a repair workshop approved by local Civil Aviation Authority.

Repair class 2: Destruction of the whole shell (also the inner glass fiber laminate destroyed), however small size only.

Repair class 3: Simple surface damage (only the outer glass fiber laminate damaged) and small damage of the foam filling.

Repair class 4: The erosion damages caused by the scores and the scrapes without the outer glass fiber laminate damage and without the breakage of the element.

4.3 Construction

DYNAMIC WT9 airframe consists of a sandwich shells from advanced composite material. The shell is of three layer construction. The external and internal shell layers are made of a carbon and glass fiber fabrics, which are saturated with a resin. Between them there is a filling from a hard foam panels (Polyurethane foam HEREX 3 – 8 mm thick).

4.4 Materials

The following materials apply to all advanced composite material parts:

Resin :	L 285 type	Manufacturer Scheufler Firm
Hardener :	L 286 type	Manufacturer Scheufler Firm

Mixing proportions by weight :	100 resin to 38 hardener
Mixing proportions by volume :	2 resin to 1 hardener

The given mixing proportion of components must be observed as exactly as possible. Mixture of a resin and a hardener must be stirred thoroughly until there are no cloudiness and no bubbles in a vessel. The thickeners and the resin-fillers are added after stirring.

The hardening of the mixture is 15 hours at a temperature 55 °C. The mixture reaches final properties after this time.

Reinforcements:

Glass clothes

INTERGLAS Style	Weave	Weight g/m^2	Application
91110	Crosstwill	110	Inner skins
92110	Crosstwill	163	Fuselage, wing, control surfaces
92125	Crosstwill	285	Fuselage, wing
92145	Unidirectional	216	Fuselage, wing

Carbon clothes

CF 200	Cloth	200	Fuselage
CF 140	Unidirectional	140	Fuselage, stabilizer
CF 80	Cloth	80	Fuselage; control surfaces
CF 80	Unidirectional	80	Fuselage
CF/AR 160	Cloth	160	Fuselage; cabin part

Rovings

Carbon :	TENAX HTA 5131 (KDU 380 =)
Glass :	EC9-756 K43
Foams :	HEREX C.70.55
Resin - Fillers :	Aerosil, Chopped cotton wool, Microballoons white
Lacquer :	Acryl
Steel :	L-CM3.9 (AISI 4130, DIN 1.7214.4) L-CM3.7 (AISI 4130, DIN 1.7214.4)
Light metals :	Duralumin Z 424203.61 (ASM 2024)

4.5 Repair preparation

You should first inspect the damaged area to determine exactly the extent of damage, type of construction and type and density of weave concerning to main dimensions of the part. The aeroplane DYNAMIC WT9 has the first layer of the sandwich outer layers from the 92110 cloth with 45 ° diagonal weave direction to the fuselage centre line or to the wing centre line. The first step is removing all damage parts and all portion of the shell which has become delaminated from a damage area. A repair area should be washed with a soap and dried up. Then clean a repair area with carbon tetrachloride or acetone. Prepare clean vessels for stirring the mixtures of a resin and a hardener.

4.6 Repair class 4

The erosion damages caused by the rain, the scores, the scrapes without the outer glass fiber laminate damage require the lacquer works only. Suitable is PE – Lackvorgelat , white No.3-69469 and PE – Hardener No. 07-20500. Mixing proportions by weight 100 parts Lackvorgelat to 10 parts hardener. The lacquer remains to gell (appr. 30 minutes) for filling more deep scrapes. In case of first cloth layer damage, then whole repair area cleans well and sands smooth with an abrasive paper. Lay on the cloth layer and, if the resin is dry, the repair area can be puttied and repainted with lacquer.

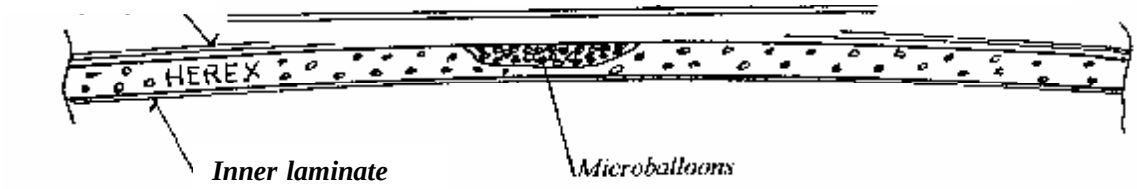
4.7 Repair class 3

If the outer shell receives a puncture or a fracture, tap to determine the extent of delamination from the foam. Follow by removing the lacquer with a sanding disc or block and remove from the foam the portion of the shell which has become delaminated. Around the edge of the damaged area where the shell is still firmly bonded, scarf with an abrasive block or a plane blade at least 4 cm (for each cloth layer about 15 mm is necessary). After scarfing the shell, blow out thoroughly the whole repair area including the pores of the foam and wash the scarf with carbon tetrachloride or acetone. Now fill the hole in the foam with microballoons and simultaneously fill the pores of the exposed foam. Then lay two patches of the 92110 cloth with diagonal weave direction (stepwise largest patch first) over the damaged area. The applied cloth must be dry and dust free. After hardening (appr. 8 hrs at 20°C) the damaged area should be smoothed, filled and painted. In smoothing take care that only the edges of the patches are sanded.

1. layer CF 80 diagonal
2. layer CF 140 unidirectional

An Example - Fuselage front part

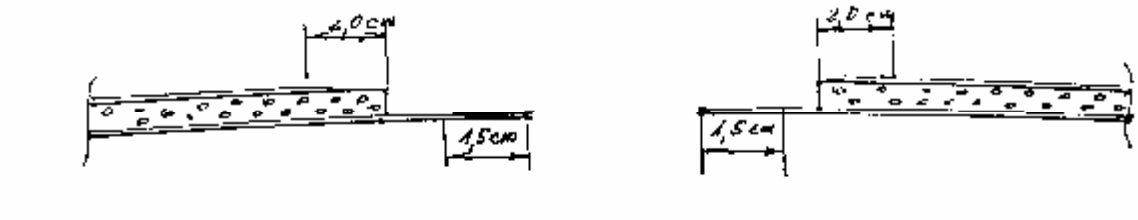
1. layer 91 110 diagonal
2. layer CF 140 unidirectional



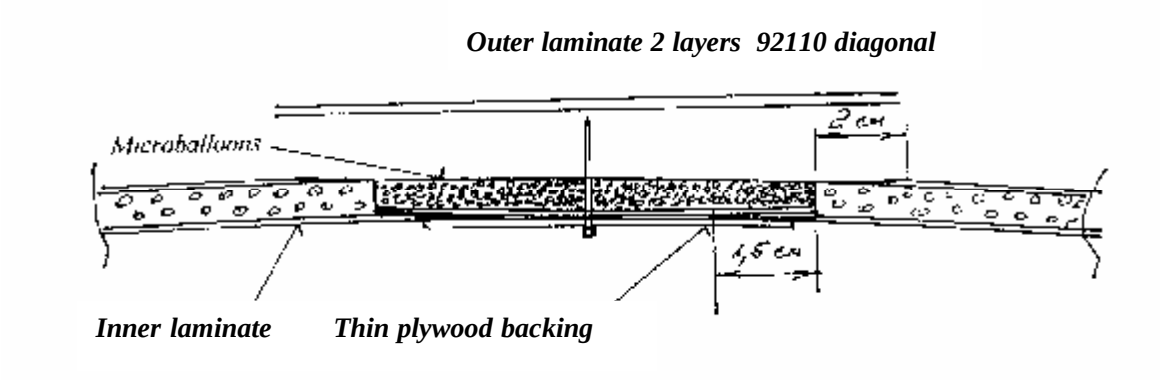
* layers for model LW

4.8 Repair class 2

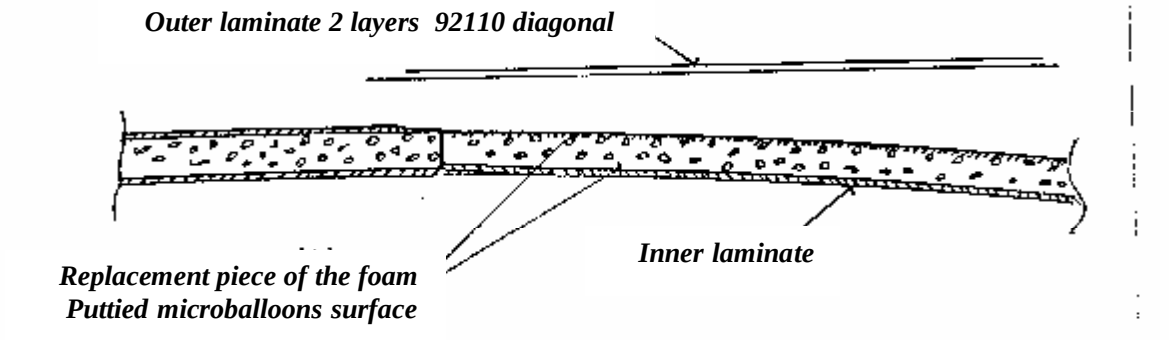
If there is a through hole in the sandwich shell then the inner laminate must be repaired. We remove the outer laminate in the region of the region of the damage which is no longer bonded to the foam and enlarge the hole in the foam and inner laminate until good bonding to the foam is evidenced. Then the foam is further removed 20 mm around the hole in the inner laminate and the outer laminate scarfed as under Repair class 3.



Now the projecting inner laminate is cleaned of any foam and feathered. If the hole in the foam is smaller than a fist then glue with Patex a thin plywood or polyester plate from the inside to the laminate, lay on the inner laminate (2 layers 92110 diagonal) and fill the hole in the foam with microballoons mixed with Styropor kernels or crumbled Styropor. After hardening (appr. 8 hrs at 20°C) the damaged area should be smoothed, sanded and apply the outer patches (2 layers 92110 diagonal).



A tip on gluing the plywood plate – the hole in the inner laminate should always be a bit oblong so as to insert the plywood backing plate. Before inserting the plywood drive through the middle of the ply a pin or nail by which it can be drawn against the inner shell. With additional nails or pins it is in this manner possible to close very large holes to the proper contour to lay the cloth patch on. Basically it is possible to repair also larger shell parts in the foregoing manner. Because of weight you should use a plug of foam in place of the microballoons and Styropor kernels. In these case you cut or sand a plug of foam to fit the hole, spread the inner laminate. The inner laminate must harden before doing further work. If the hardening is completed at least progressed so that the laminate does not separate from the foam, then glue the plug in the hole with thickened resin (chopped cotton wool, microballoons). The foam with laminate on one side is flexible so that it can be fitted to the repair place contour (if necessary warm the foam with hairdryer and bend). Once the foam is glued it can be smoothed, puttied with microballoons and the outer laminate applied (2 layers 92110 diagonal).



4.9 Repair class 1

These repairs have serious character and can be carried out by the aeroplane manufacturer or a repair workshop approved by local Civil Aviation Authority (CAA). In any case contact the aeroplane manufacturer.

4.10 Repairs of a metal parts

In case of a damage of any fittings, if a damage reason was not designate immediately, contact the aeroplane manufacturer. It is necessary take account to an element function, a material composition, a processing technology and etc. The aeroplane manufacturer can evaluate all these factors only.
Welding should be carried out only by an approved aircraft welder. All weldments made by the aeroplane manufacturer are by the Argon-arc welding method.

4.11 Test flight after a repair

CAUTION
Only qualified pilot may perform a test flight. .

The test flight should be performed above all in following cases:

After repair or replace of fixed surfaces – wing, fin, stabilizer, or control surfaces – elevator, aileron or flap. Flight characteristics and aeroplane stability can be affected when above mentioned part is replaced or adjusted. Therefore a test flight should be performed to check aeroplane flight characteristics, control surfaces setting, maneuverability, stability and stall characteristics. The characteristics are check during taxiing, takeoff, climbing, cruise, descent, approach and landing. Use the Flight Test Record (see Section 5, Appendices, of this Manual) to record data obtained during a test flight.

Test flight flying time

Test flight flying time takes about 40 minutes if the test flight is performed according to the Flight Test Record.

Aeroplane inspection before a Test flight

Prior to the test flight the aeroplane should be thoroughly inspected, weighed, found faults debugged and the aeroplane should be prepared for the flight (tank etc.).

Test crew

Only qualified persons (test pilots) are permitted to perform a test flight.
In-flight found faults should be debugged forthwith the test flight.

SECTION 5

APPENDICES

5.1 List of Appendices

5.1.1 Control Surfaces Deflections Record

Control Surfaces Deflections Record					
DYNAMIC	**Registration:**		**S/N:**		**Date:**
Control surface deflection	**Upward**		**Downward**		Distance between the measurement point and the turning point
	Specified	**Real**	**Specified**	**Real**	
Left aileron	25°/ 106 mm	°	15°/65 mm	°	252 mm
	Tolerance ±5 mm		Tolerance ±5mm		
Right aileron	25°/ 106 mm	°	15°/65 mm	°	252 mm
	Tolerance ±5 mm		Tolerance ±5 mm		
Elevator	28°/112 mm	°	18°/74 mm	°	240 mm
	Tolerance ±6 mm		Tolerance ± 6mm		
Rudder	**Right**		**Left**		
	25°/135 mm	°	25°/135 mm	°	320 mm
	Tolerance ± 20mm		Tolerance ±20mm		
Wing flap deflection		**Specified**	**Real**		
			Right	**Left**	
	1. Take off	15°/ 76 mm	°	°	295 mm (root rib of the outer wing)
	2. Intermediate	24°/ 120mm	°	°	295 mm (root rib of the outer wing)
	3. Landing	38°/ 181mm	°	°	295 mm (root rib of the outer wing)
Deflections tolerance ± 6 mm , maximum difference between both flaps deflection ± 6 mm					
References and notes:					
Measurement carried out by:				Signature:	

5.1.2 Magnetic Compass Compensation Record

	MAGNETIC COMPASS COMPENSATION RECORD	**Compass compensation place:** Compensation circle at the Airfield **Prievidza**
A/C Type: **DYNAMIC WT9**	**S/N:**	**Registration:**
Type power plant and S/N:	**Power plant running:** Yes – No	**Radio/Radiocompass:** Yes – No

Compass type and S/N:	**front**	**rear**
HEADING (°)	**Measured value** **Deviation**	**Measured Value** **Deviation**
N		
030		
060		
E		
120		
150		
S		
210		
240		
W		
300		
330		

Date of the compensation:	**Compensation carried out by:** ..... Signature
Notes:	**Record approved by:** ..... Stamp and Signature

5.1.3 Checking Control Surfaces Weights and Balancing

AEROSPOOL Prievidza	**CHECKING CONTROL SURFACES WEIGHTS AND BALANCING**					
WT 9 DYNAMIC (WT 9 DYNAMIC LW)	**Registration:**		**S/N:**		**Date:**	
Control surface	**Without balancing**		**With balancing**			
	Specified values		**Specified values**		**Real values**	
	weight (kg)	**st. moment (Ncm)**	**weight (kg)**	**st. moment (Ncm)**	**weight (kg)**	**st. moment (Ncm)**
Aileron						
Right	**0,77- 0,95 (0,70- 0,90)**	**70 – 100 (70 – 100)**	**1,00-1,25 (0,90-1,10)**	**20-60 (10 – 46)**		
Left	**0,77- 0,95 (0,70- 0,90)**		**1,00-1,25 (0,90-1,10)**			
Arm l = 252 mm (the distance between rotation axis of the control surface and weighting point) **Note:**						
Elevator						
Right	**1,00-1,20 (0,80-1,00)**	**60-85 (42 – 54)**	**1,15-1,40 (0,95-1,15)**	**30- 68 (30- 38)**		
Left	**1,00-1,20 (0,80-1,00)**		**1,15-1,40 (0,95-1,15)**			
Arm l = 240 mm (the distance between rotation axis of the control surface and weighting point) **Note:**						
Rudder	**1,50- 1,90 (1,05- 1,30)**	**40- 70 (40- 80)**	**1,75- 2,25 (1,25-1,65)**	**-40 do –20 (-50 - 0)**		
Arm l = 320 mm (the distance between rotation axis of the control surface and weighting point) **Note:**						
Wing flap						
Right	**2,50- 3,30 (1,75- 2,25)**	**180-220 (145-180)**	**3,50-4,70 (2,25-2,90)**	**-20do+25 (70 – 92)**		
Left	**2,50-3,30 (1,75- 2,25)**		**3,50-4,70 (2,25-2,90)**			
The static moment is measured on root rib at arm distance **l = 320 mm.** **Note:**						

Checking static moment of the control surfaces are within the approved tolerances.

Prievidza, date ....

Checking carried out by

5.1.4 Flight Test Record

Flight Test Record			
Take-off weight:			
Model:**DYNAMIC WT9**	S/N:	Registration:	
Engine: **R 912 ULS**	S/N:	Hours flown:	
Propeller: **SR 2000**	S/N:	No. of take-offs:	
RESULTS: (Airspeed are IAS)			
Regime			**Test**
Meteorological conditions		On ground pressure QNH	**HPa**
		On groun temperature QMU	**°C**
		Wind direction / velocity	**°/ m/s**
Engine check	**Full throttle**	Engine speed 4900±200 rpm	**rpm**
		Oil temperature 50°C	**°C**
		Oil pressure 1.5 – 5.0 bar	**bar**
		Ignition check 3850 rpm Engine speed drop max 300 rpm with either magneto switched off	**L:** **R:**
	Idling	1400 + 100 rpm	**rpm**
Take-off and climbing to 1000 m ISA (3300 ft) **IAS = 120 km/h (65 kts)**		Engine speed max. 5500 rpm	**rpm**
		Oil pressure 1.5 – 5.0 bar	**bar**
		Oil temperature 130°C	**°C**
		CHT 135°C	**°C**
		Time of climbing 300-1000 m ISA (1000-3300 ft)	**min**
Stalling speed at idling		Landing configuration (flaps fully extended) V_{SO} = 50 km/h (27 kts)	**km/h**
		Cruise configuration V_{S1} = 60 km/h (33 kts)	**km/h**
Steep turns		max. 45°	**s**
Never exceed speed		V_{NE} = 270 km/h IAS (262 CAS)	**km/h**
		Engine speed max. 5800 rpm	**km/h**
Cruising speed at engine speed: **Altitude 500 m ISA (1650 ft)** **4800- km/h 5000- km/h** **5200- km/h 5500- km/h**		Airspeed at 5000 rpm min. 160 km/h IAS (156 CAS) 86 kts IAS (84 CAS)	**km/h**
		Oil temperature 90-110°C	**°C**
		CHT 60-135°C	**°C**
Maximum horizontal speed **Altitude 500 m ISA (1650 ft)**		Airspeed at 5750 rpm min. 220 km/h IAS (215 CAS)	**km/h**
		Oil temperature 90-130°C	**°C**
		CHT 60-135°C	**°C**
Landing		Touch down speed	**km/h**

Date: Pilot´s signature:

Report: Flight Test Results comply with Type Certificate.

5.1.5 Pitot-static system for leak proof Test Record

Pitot - static system for leak proof Test Record

A/C Type: **Dynamic WT9** S/N.: Registration: Date:

There is a measured decrease in the static pressure system: ….....km/h per 5 min.

Tested at airspeed indicator reading.....km/h.

Carried out by:…….

Leakage place: .....

Repair process : .....

Repair carried out by: .....

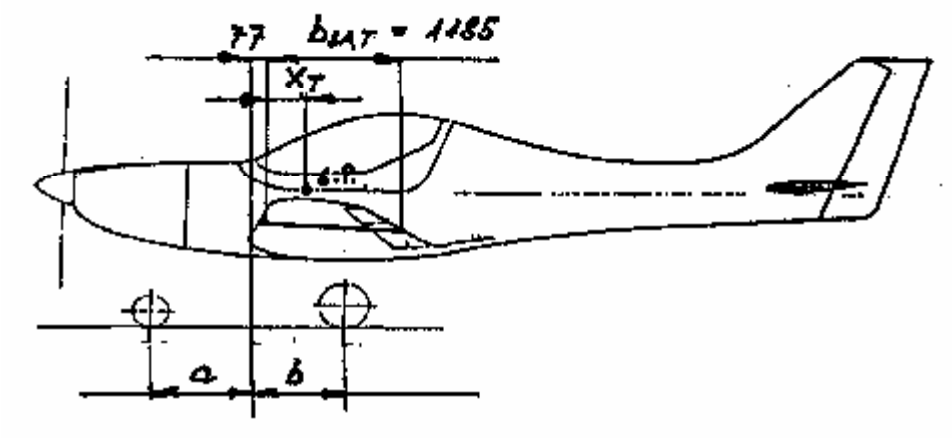
Signature: .....

5.1.6 Weight and Balance Record

Weight and Balance Record of the aeroplane DYNAMIC

Model: DYNAMIC WT-9	Registration:	S/N:	Date of production:

Configuration : (Empty weight including the operating fluids of the engine and standard equipment).
Datum point (DP): leading edge of wing root section



Weighing-machines place		Weight (kg)	Distant from DP (mm)	Moment M= G * Distant
Nose wheel	G_N		**a = -**	**-**
Right wheel	G_R		**b =**	
Left wheel	G_L		**b =**	
Total weight	**G**		**Total Moment M =**	
Fuel			**240**	

Weight = **kg** Moment = **kg/mm**
Engine oil and coolant including

C.G. position from DP.

$X_T = M/G = \frac{\qquad}{\qquad} =$

C.G. in % MAC (MAC= 1185 mm)

$$X_{CT} = (X_T - 77)/ SAT \times 100 = \frac{X_T - 77}{1185} \times 100 =$$

Permitted C.G. range of empty aeroplane X_{CT} is 12% ± 2 % MAC
Calculated position of C.G. is within an permitted range.

Place , date: **Signature / Supervisor Stamp:**

5.1.7 Measurement Record – ZKM Encoding Altimeter

MEASUREMENT RECORD – ZKM

A/C Type: DYNAMIC WT9	**S/N:**	**Registration:**
Encoding altimeter	**Type:**	**S/N:**

A. Transitions of the encoder (Feet)

Transition altitude	Measured error climb	Measured error descent	Allowed toleran.	Code change	Transition altitude	Measured error climb	Measured error descent	Allowed toleran.	Code change
50			50		7950		xx	± 50	
750		xx	"	B1	8050	xx		„	
850	xx		„	B1	9950		xx	„	
1950		Xx	„		10050	xx		„	
2050	xx		„		14750		xx	„	A1
2750			"	A4	14850	xx		"	A1
2850	xx		"	A4	15950		xx	"	
3950		Xx	"		16050	xx		"	
4050	xx		"		19950		xx	"	
4950		Xx	"		20050	xx		"	
5050	xx		"		24950		xx	"	
5950		Xx	"		25050	xx		"	
6050	xx		"		29950		xx	"	
6750		Xx	"	A2	30050	xx		"	
6850	xx			A2	34950		Xx		
					35050	xx			

Code change: comply (yes – no)

B. OTHERS TESTS

Tightness test	**Allowed tolerance (measure at 4000 feet) is -100 feet**	**Measured deviation**	

C. TOTAL ASSESSMENT: comply (yes – no)

Record elaborated by : **Date:**	**Record approved by :** **Date:**	**Measurement carried out by:** **Date:**

5.1.8 Measurement Record – ZKM Radio Station VHF

Measurement Record

A/C Type: DYNAMIC WT9	S/N:	Registration:
Radio station VHF	S/N:	Value

Pos.	MEASUREMENT	Specified	Real
1	Check function of the control knobs and the lighting	satisfy	
2	Receiver sensitivity f= 118,00 MHz 126,50 MHz 136,95 MHz	 3,0 uV 	uV uV uV
3	Squelch f= 126,50 MHz	satisfy	
4	VF Transmitter power f= 118,00 MHz U_{js} - 28,5 V 126,50 MHz 136,95 MHz	 7 W 	W W W
5	Carrier frequency f=118,00 MHz without modulation 126,50 MHz 136,95 MHz		
6	Reflected power f= 118,00 MHz 126,50 MHz 136,95 MHz	 satisfy 	
7	Total assessment	satisfy	

Record elaborated by:	Record approved by:	Measurement carried out by:
Date:	Date:	Date:

5.1.9 Measurement Record – ZKM Transponder

Measurement Record

A/C Type: DYNAMIC WT9	**S/N:**	**Registration:**
Transponder :	**S/N:**	

Pos.	**MEASUREMENT**	**Specified**	**Real**
1	Validity of the Pilot code	Satisfy	
	Function of the A/C converter	Satisfy	
2	Transmitter power	Minim.200W	
3	Transmitter frequency	1090MHz+3MHz	
4	Reply	Min. 90%	
5	SPI – Duration	25 + 5 sec	
6	Impulse position P3 - allowed	0	
	(INTER) - limited		
7	Width and position F2 - FRAMING	Width 0,3 - 0,6 us	
		Position + 0,15 us	
8	Sensitivity in Mode - ALT	Min.72dBm/90%	
	- CODE	Min.72dBm/90%	
	135,95 MHz		
9	Suppression of the lateral pattern	% Reply 0%	
	(SLS) – 9 dB	Reply 90–100 %	
10	Function TEST	Satisfy	
11	Total assessment	Satisfy	

Record elaborated by: **Date:**	**Record approved by:** **Date:**	**Measurement carried out by:** **Date:**

5.1.10 Delivery Record

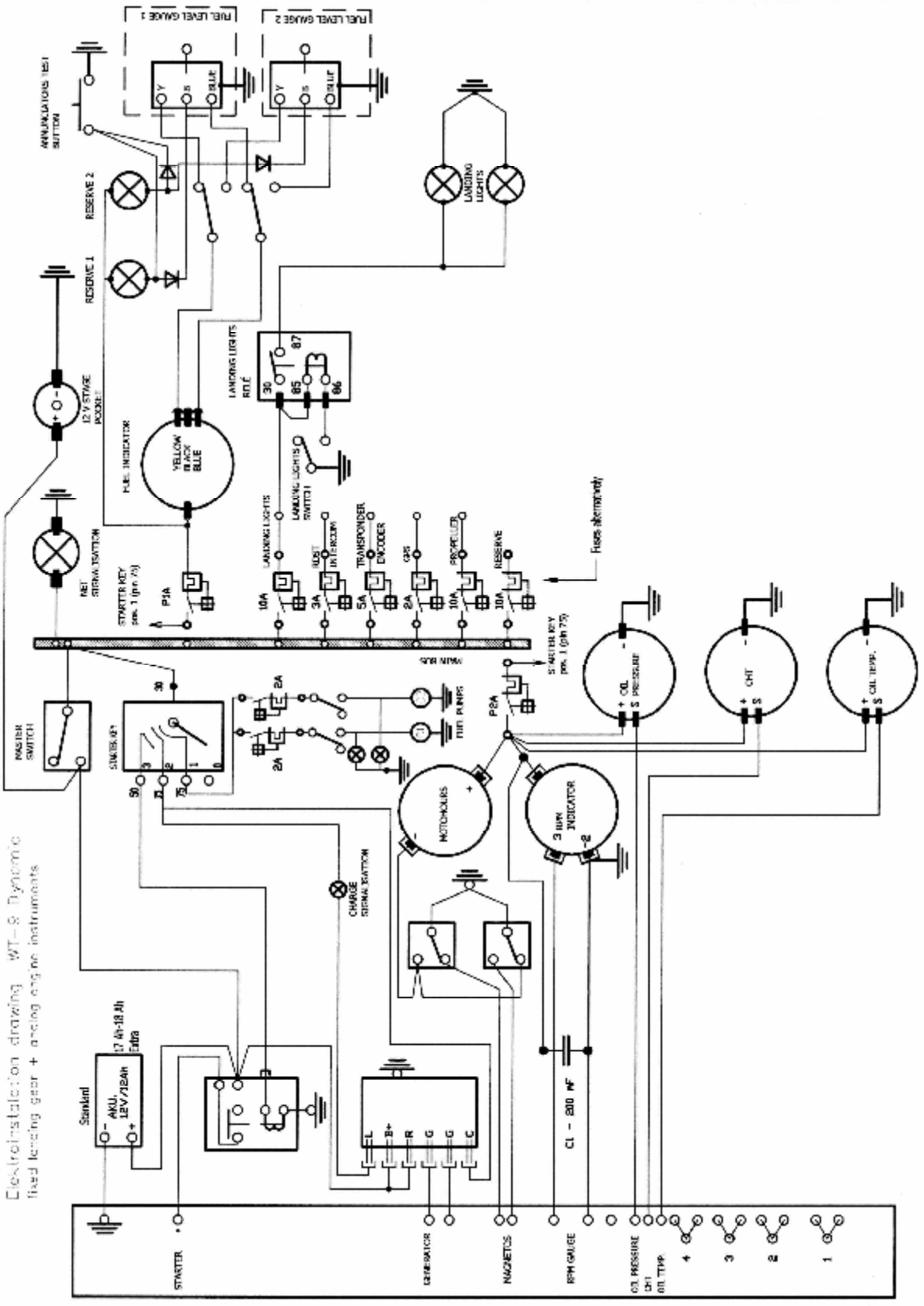
Delivery Record

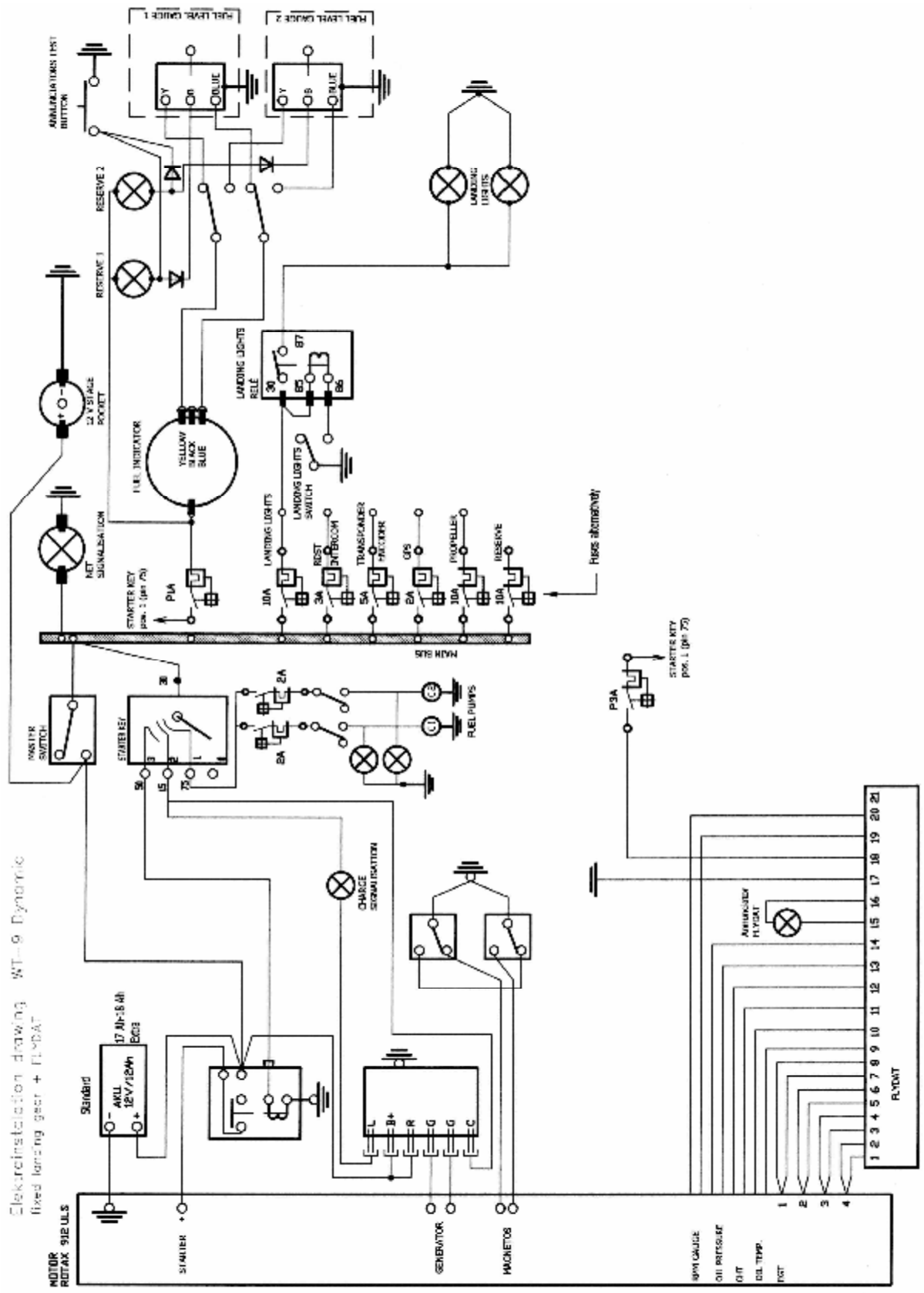
Registration:		**S/N:**	
A/C Type	**Dynamic WT9**	**Power plant**	**Propeller**
Model		**ROTAX 912 ULS/UL**	**SR 2000**
S/N:			
Date of production:			

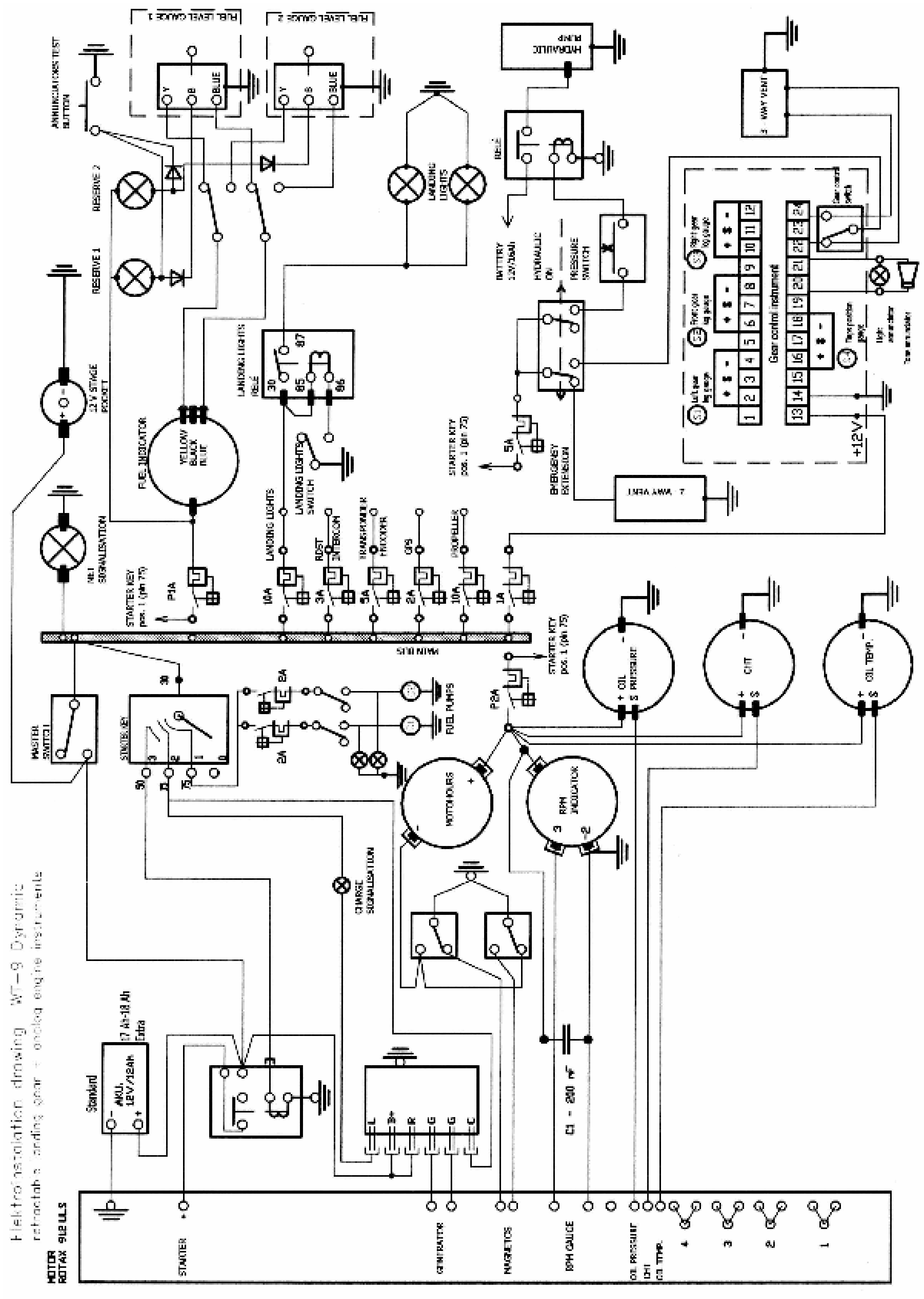
Pos.	Equipment	Quant.	W	Manual, Certificate, Record	Quant.
1.	Cover of the cockpit canopy	**1**	-	Flight Manual	**1**
2.	Cover of the propeller blades	**3**	-	Authorized Release Certificate	
3.	Tools for engine	**1**	-	Technical Description, Operating, Maintenance and Repair Manual	**1**
4.	Key for canopy lock	**2**	-		
5.	Heating	**1**	**X**	Operator's Manual for all versions of ROTAX 912	**1**
6.	Intercom – type		**X**		
7.	Radios:		**X**	Operator's Manual Electrical adjustable aircraft propeller SR 2000	**1**
8.	Transponder:		**X**	Installation Manual for ROTAX 912S Aircraft Engine	**1**
9.	GPS:		**X**		
10.	Airspeed Indicator:		**X**	Maintenance Manual for ROTAX Engine Type 912 Serie	**1**
11.	Altimeter:		**X**		
12.	Variometer:		**X**	User´s Guide for FLYdat	
13.	Magnetic Compass:		**X**	Protocol of propeller- Attestation of production permission LAA ČR	**1**
14.	Turn-and-slip indicator:		**X**	Control Surface Deflection Record	**1**
15.	Artificial horizon:		**X**		
16.	Tachometer:		**X**	Compass Compensation Record	**1**
17.	Accelerometer:		**X**		
18.	Oil temperature indicator:		**X**	Checking Control Surfaces Weights and balancing	**1**
19.	Oil temperature indicator:		**X**		
20.	Fuel pressure indicator:		**X**	Flight Test Record	**1**
21.	Fuel Quantity Indicator:		**X**	Pitotstatic System Test Record	**1**
22.	Boost-pressure Indicator:		**X**		
23.	12 V Stage Pocket		**X**	Weight and Balance Record	**1**
24.	Multiple instrument: FLYdat		**X**		
25.	Ventilation		**X**	Encoding Altimeter Measurement Record	
26.	Ventilation sliding window		**X**	VHF Radio Measurement Record	**1**
27.	Fuses		**X**	Transponder Measurement Record	
28.	Rescue system: **USH 520 Speed**		**X**	Delivery Record	**1**
29.	Main landing gear Tyres:	**2**	**X**	Rescue System Instruction Manual + Guarantee List	
30.	Nose landing gear Tyre:	**1**	**X**	Intercom Flightcom Installation /Operation Manual	**1**
31.	Parking Brake Lever	**1**	**X**	VHF Radio station Operating Instructions	**1**
32.	Adjustable Pedals	**2**	**X**	Altitude Encoder Operation Manual,	
33.	Headset :		**X**	Transponder Operating Instructions	
34.	Mooring eyes		-		

Manufacturer:	**Date:**	**Customer:**	**Date:**

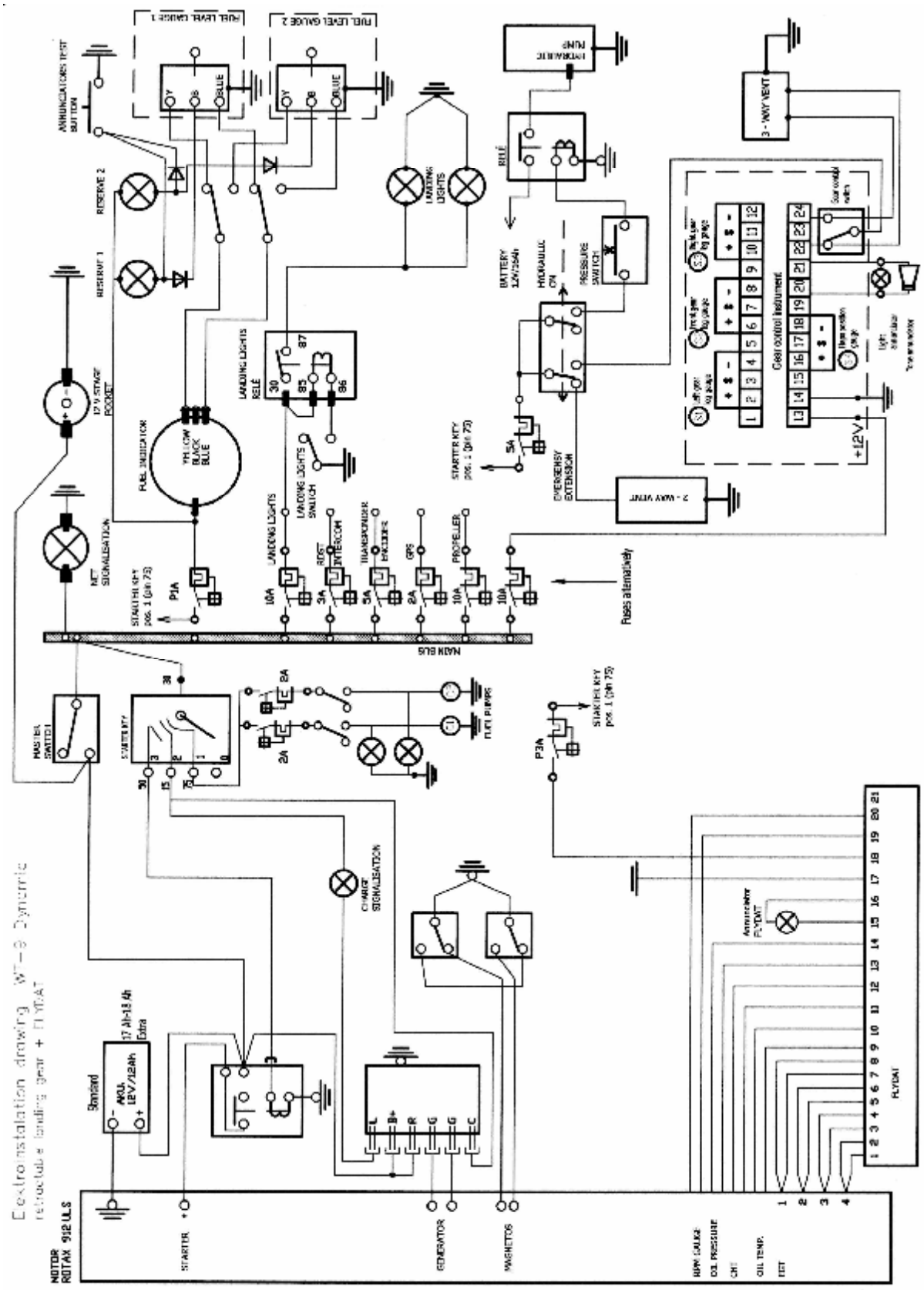
5.1.11 Aeroplane Wiring diagrams




Elektroinstallation drawing WT-9 Dynamic
fixed landing gear + FLYDAT
MOTOR
ROTAX 912 ULS
STARTER
GENERATOR
MAGNETOS
RPM GAUGE
OIL PRESSURE
OAT
OIL TEMP.
EGT
FLYDAT
MAIN BUS
STARTER KEY
MASTER SWITCH
FUEL PUMPS
CHARGE SIGNALISATION
LANDING LIGHTS
LANDING LIGHTS RELE
LANDING LIGHTS SWITCH
FUEL INDICATOR
NAVIGATIONS TEST BUTTON
RESERVE 1
RESERVE 2
NAVIGATION
TRANSPONDER
GPS
PROPELLER
RESERVE
Fuses automotiv
Standard
Extra



MOTOR ROTAX 912 ULS
STARTER
GENERATOR
MAGNETOS
RPM GAUGE
OIL PRESSURE
CHT
OIL TEMP.
MASTER SWITCH
STARTER KEY
MAIN BUS
FUEL PUMPS
CHARGE SIGNALISATION
MOTOHOURS
RPM INDICATOR
OIL PRESSURE
CHT
OIL TEMP.
FUEL INDICATOR
YELLOW BLACK BLUE
FUEL LEVEL GAUGE 1
FUEL LEVEL GAUGE 2
RESERVE 1
RESERVE 2
LANDING LIGHTS
LANDING LIGHTS RELÉ
LANDING LIGHTS SWITCH
12 V STAGE POCKET
HYDRAULIC PUMP
RELÉ
PRESSURE SWITCH
EMERGENCY EXTENSION
3 - WAY VENT
Gear control instrument
+12V
GPS
PROPELLER


Electro installation drawing W-8 Dynamic
retractable landing gear + FLYDAT
MAIN BUS
MASTER SWITCH
STARTER KEY
CHARGE SIGNALISATION
LANDING LIGHTS
LANDING LIGHTS RELE
LANDING LIGHTS SWITCH
ANNUNCIATORS TEST BUTTON
RESERVE 2
RESERVE 1
FUEL LEVEL GAUGE 1
FUEL LEVEL GAUGE 2
FUEL INDICATION
12 V STAGE SOCKET
NT SIGNALISATION
BATTERY 12V/35Ah
HYDRAULIC PUMP
PRESSURE SWITCH
RELÉ
3 - WAY VENT
EMERGENCY EXTENSION
Gear control instrument
+12V
ROST
INTERCOM
TRANSPONDER
GPS
PROPELLER
Fuses alternatively
STARTER KEY pos. 1 (pin 75)
FLAPS
Standard
AKUMULATOR 12V/12Ah
17 Ah-18 Ah Extra
NOTOR ROTAX 912 ULS
STARTER
GENERATOR
MAGNETOS
ROW GAUGE
OIL PRESSURE
CHT
OIL TEMP.
TET
FLYDAT