7. AEROPLANE AND SYSTEMS DESCRIPTION

SECTION 7

7. AEROPLANE AND SYSTEMS DESCRIPTION

7.1 *Introduction*

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

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

7.2 *Airframe*

The ***EV-97 „EUROSTAR" model 2000 version R*** airframe is of semimonocoque construction, formed with metal reinforcements, bulkheads and a duralumin cover.

7.2.1 Fuselage

The fuselage has a semimonocoque construction formed with reinforcements and duralumin covers.

The fuselage cross-section is rectangular in the lower section and elliptical in the upper one. The tail fin is an integral part of the fuselage. In the middle section of the fuselage there is a two-man cockpit which is accessible by unfolding the one-part perspex overlap canopy. The engine section in the nose is separated from the crew by a firewall to which the engine bed is attached.

7.2.2 Wing

The rectangular wing is a monospar construction with an auxiliary spar for the ailerons and flaps attachments. All the elements are riveted together. At the ends of the wings fibre glass wing tips are riveted. The wing can be equipped with a folding mechanism for a convenient storing in the hangar.

7.2.3 Horizontal tail unit (HTU)

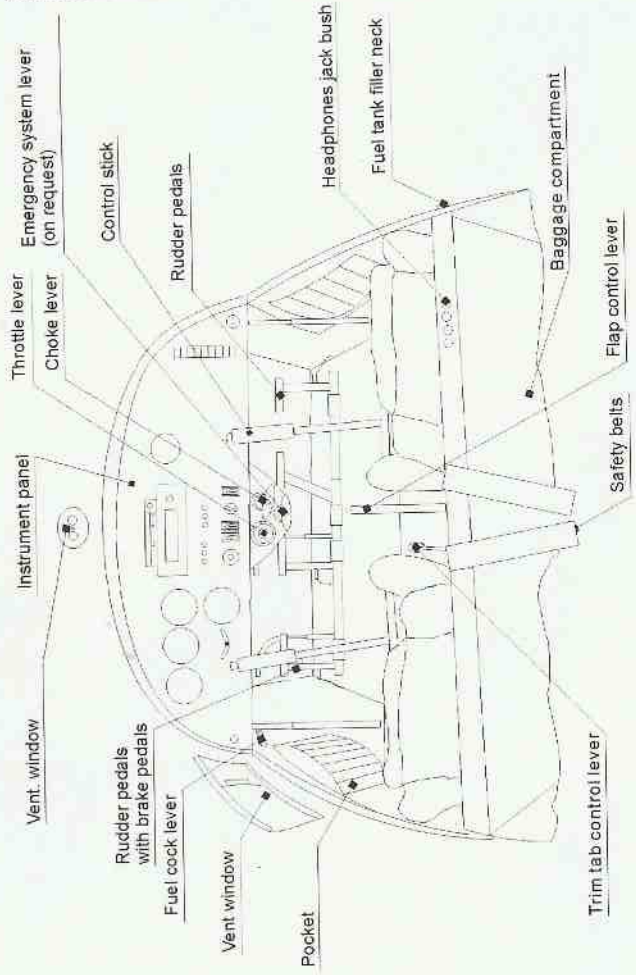
The rectangular HTU consists of a stabiliser and elevator with a trim tab. The semimonocoque construction of the HTU consists of duralumin ribs, spar and cover. The width of 2.5 m (8.2 ft) enables transport on a sidecar without dismantling.

7.2.4 Vertical tail unit (VTU)

The trapezoidal fin section of the VTU is mounted to the rear section of the fuselage. The rudder is attached on the fin by two hinges. The frame of the VTU is composed of a metal sheet spar and a duralumin cover.

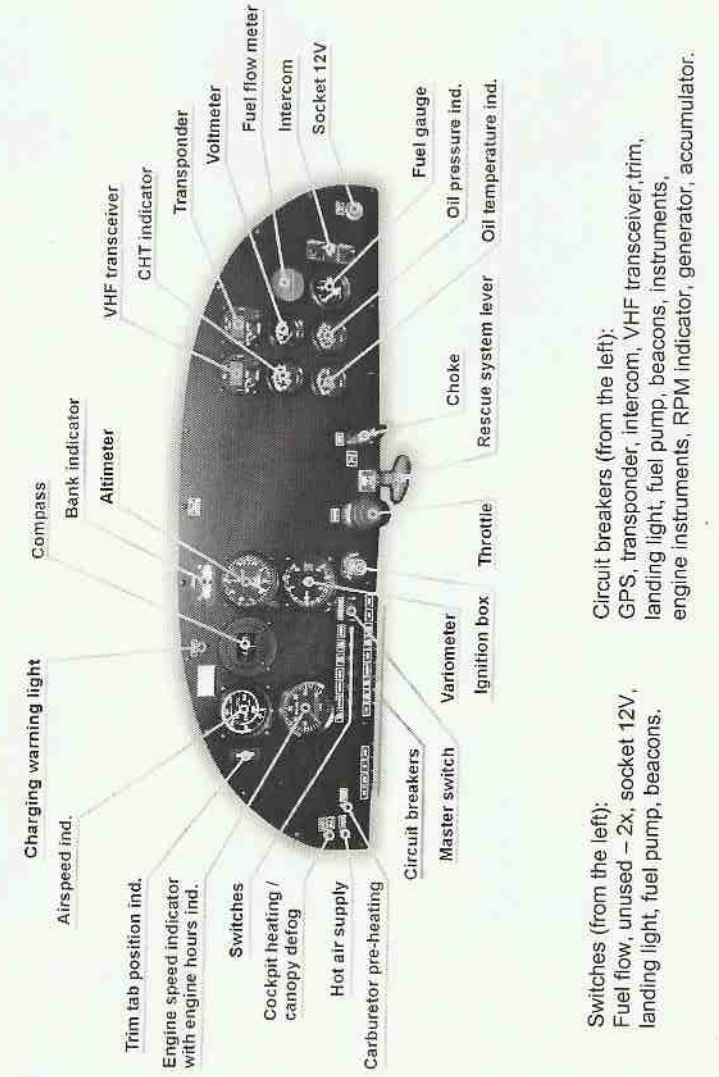
7.3 Controls in the cockpit

The aeroplane ***EV-97 „EUROSTAR" model 2000 version R***, S/N 2005 2503 is equipped with the electric control of the elevator trim tab. Trim tab control lever is cancelled. Control switches are located on the left stick, trim tab position indicator is positioned on the instrument panel left side.



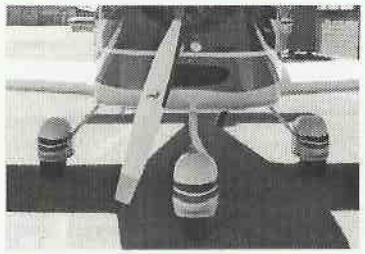
7.4 Instrument panel

The aeroplane ***EV-97 „EUROSTAR" model 2000 version R***, S/N 2005 2503 is equipped with the following instrument panel:



7.5 Landing gear

The plane has fixed landing gear with a controllable nose wheel. The main landing gear legs are composed of a composite spring. The wheels on both landing gear legs are equipped with 14 x 4 tyres with hydraulic disc brakes that are controlled by foot pedals on the main rudder pedals. The nose landing gear leg is welded from steel tubes and its suspension is made from rubber rope.



The nose wheel steering system is connected to the rudder control. The wheels may be equipped with aerodynamic, fiberglass covers.

7.6 Seats and safety harness

The plane has two side-by-side seats which are fixed, unadjustable and thinly upholstered. Each seat is equipped with four point safety belts attached to the centre of bulkhead behind the baggage compartment and alongside the seats.

7.7 Baggage compartment

The baggage compartment is located behind the seats.

Maximum baggage weight is stated on the placard located near the baggage compartment

7.8 Canopy

The semi drop-shaped canopy consists of a steel frame on which is bolted the organic glass canopy. The canopy is attached to the nose section of the fuselage by two 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. On the lower frame there are handles outside the canopy. The canopy is equipped with a lock in the rear upper section of the frame.

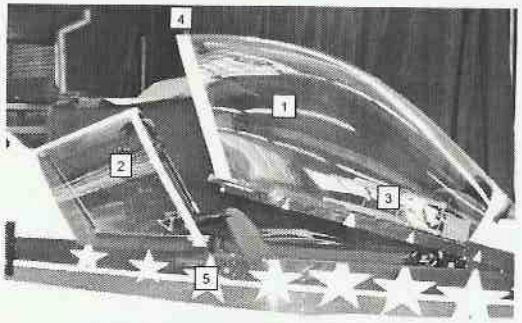


Fig. Two-parts cockpit canopy
1- front tilted canopy,
2 - rear fixed canopy,
3 - side vent window,
4 - canopy lock,
5 - fuel tank filler cap

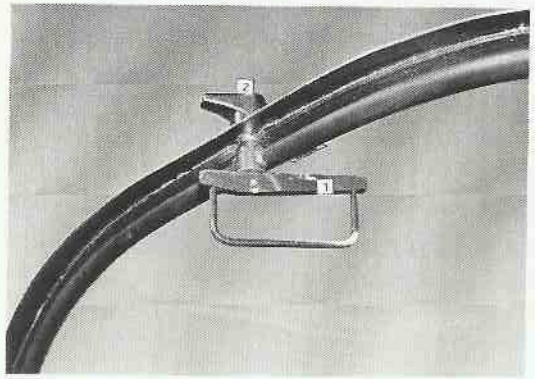


Fig. Cockpit canopy lock
1- inside lever
2 - outside lever (with a lock)

7.9 Powerplant

The standard powerplant of the ***EV-97 „EUROSTAR" model 2000 version R*** is the ROTAX 912 A resp. UL (80 hp) engine.

The ROTAX 912S resp. ULS (100 hp) may be installed as option.

Rotax 912 is 4-stroke, 4 cylinder horizontally opposed, spark ignition engine with one central camshaft-push-rod-OHV.

Liquid cooled cylinder heads, ram air cooled cylinders.

Dry sump forced lubrication.

Dual breakerless capacitor discharge ignition.

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

The two blade, fixed, wooden propeller V 230C is installed as standard on the ROTAX 912 A resp. UL engine.

The DUC propeller is installed in the EV-97 EUROSTAR model 2000 version R of S/N. 2005 2503. The DUC prop is three blade, on-ground adjustable propeller. Propeller diameter – 1727 mm.

7.10 Fuel system

The fuel system consists of a 65 litre (*17.2 USgals*) tank, a fuel cock, a filter and a fuel pump on the engine. The tank is positioned in the separate space behind the seats, has a drain pocket and a drain valve. The outlet is situated below the fuselage.

Fuel quantity is indicated by a fuel-sight gauge or by an electric float fuel gauge. The electric fuel gauge indicates the relative quantity of fuel in the tank (corresponding quantity in litres is shown in the table 6.2 and on placard "LOAD LIMITS" in the cockpit).

7.11 Electrical system

The electric system is single-wire type with the negative connected to the chassis. Both the single-phase generator integrated to the engine and the 12V/16Ah maintenanceless battery located on the firewall serve as power sources. The system is protected by the main circuit breaker (ACCU) positioned on the instrument panel. The circuits of the particular sections are each guarded separately by circuit breakers.

The engine dual ignition is a separate part of the electric system. Each ignition circuit is has its own position on the ignition box to allow ignition check and position BOTH for normal operation.

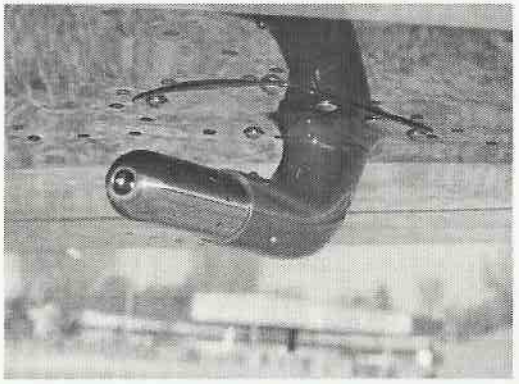
7.12 Pitot and static pressure systems

The Pitot static head serving to read dynamic and static air pressure is located under the left half of the wing. Pressure distribution to individual instruments is done through flexible plastic hoses.

Keep the system clear to assure its right function.

Both the dynamic and static hose systems are equipped with dirt pockets. The dirt pockets are located inside the cockpit just before the pilot´s seat.

In the case where water is inside the system, unscrew the covers from the dirt pockets and blow into the Pitotstatic head. Then screw the covers back and check the sealings.



CAUTION
Avoid blowing into the Pitot static system with dirt pocket cover closed - it may cause instrument damage.

7.13 Miscellaneous equipment

Besides the instruments stated in par. 7.14, the ***EV-97 „EUROSTAR" model 2000 version R*** aeroplane, S/N 2005 2503 is fitted with the following equipment:

- ROTAX 912 ULS engine
- Auxiliary fuel pump
- On ground adjustable three blade propeller DUC
- Cap for oil level check on the upper engine cover
- Cockpit heating with canopy defog
- Electric elevator trim tab control
- Upholstered instrument panel cover and baggage compartment
- Adjustable foot pedals
- Brake system with parking brake
- Landing light WHELEN A715
- Position lights and beacons BW AVIO SL 7N
- Wheel pants
- Canopy with front venting and left and right sliding windows
- Rescue system Magnum Speed Soft 450

7.14 Avionics

- *Flight instruments:*
  (standard equipment)
  1 Airspeed indicator 6FMS421
  1 Altimeter 5934PAM-3
  1 Variometer 5STV10-2
  1 Compass CM-13

  The ***EV-97 „EUROSTAR" model 2000 version R***, S/N 2005 2503 is additionally equipped with the following instrument:
  1 Bank indicator ..... Winter
  1 Voltmeter ..... VDO
  1 VHF transceiver ..... AR 4201
  1 Intercom ..... PM 1000/II
  1 Transponder ..... ATC 4401-1 with A-30 alt. encoder

NOTE

Refer to the documentation supplied with "non-standard," instruments for operating instructions.

- *Engine instruments*
  The following powerplant instruments are installed in the EV-97 aeroplane model 2000 version R:
  1 Engine RPM indicator with engine hours ind. ..... VDO
  1 Engine cylinder head temperature (CHT) indicator ..... VDO
  1 Oil temperature indicator ..... VDO
  1 Oil pressure indicator ..... VDO

  The ***EV-97 „EUROSTAR" model 2000 version R***, S/N 2005 2503 is additionally equipped with the following engine instruments:
  1 Electric float fuel gauge ..... SW 13.803
  1 Fuel flow meter ..... ELBA