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ZUGVOGEL IIIA - TECHNICAL DESCRIPTION

The 'Zugvogel IIIA' is a single-seat, high performance glider with laminar flow wings. Easy and comfortable to fly, of robust and simple construction and with excellent performance, even in weak lift - these characteristics, together with its reasonable price, won the 'Zugvogel IIIA' many friends on its appearance in 1987.

The 'Zugvogel IIIA' is built according to German sailplane construction regulations BVS2. The breaking load factor of the wing is 8 and that of vital fittings is somewhat higher. In Germany, sailplanes of this category are not cleared for aerobatics and cloud flying is completely forbidden. However, the 'Zugvogel IIIA' is cleared for cloud flying under British regulations.

The fuselage of the 'Zugvogel IIIZ' consists of a steel tube framework. The well-fitting canopy gives an undistorted view forward. The steel tube framework of the forward part of the fuselage is covered with a fibreglass skin. In combination with the canopy, it assures a good aerodynamic shape with undisturbed airflow in front of the wings. The triangular section rear fuselage is rounded off by wooden formers and fabric covered. Experience has shown that these fuselage profiles are aerodynamically no worse than an oval wooden fuselage.

The cockpit is not constricted, giving large pilots adequate room. A parachute or back cushion can be used according to choice. Behind the pilot's seat there is room for luggage or additional equipment.

A braked wheel is built into the fuselage as landing gear. In front of the wheel is an optional streamlined skid or a reinforced fibre glass floor. The tail skid is made of spring steel with a rubber buffer.

The winch launch hook is fitted in front of the wheel. The aerotow hook is fitted in the nose of the fuselage.

The two-part wing is of single spar construction, the spar box being made of laminated beech and out as far as the ailerons, over 50% of the wing section is covered with strong plywood. Most of the gluing is done with British Aerodux 185. Because of extra thickness in the ply, it is possible to remove most unevenness so that little filling is required to achieve a good surface finish. The close spacing of the leading edge ribs of only 100 mm and the thick plywood ensures that the leading edge surface is not wavy. The ailerons, which do not extend all the way to the wing tip, are ply decked on top, fabric covered underneath and attached to the wing by four hinges. The aileron actuator only protrudes a little beneath the wing. The wing/aileron slots are as narrow as possible. Large Schempp-Hirth aluminium airbrakes provide good glide path control and are speed limiting in a dive to 210 kmh (113.4 kt). The wings have NACA laminar profile 63 with 16% thickness at the root and 14% at the aileron. There is moreover the greatest thickness of 30% of the wing thickness lifted whereby better low flying speed characteristics are obtained. The wing has a constant angle of incidence. The cantilevered tail is of standard wooden construction. The fin and the torsion-box of the rudder are ply covered, the rudder and elevator fabric covered. The elevator is equipped with a trim tab which can be adjusted from the cockpit. Control friction is minimised by means of the simplest linkages and use of ball bearings. Movement of ailerons, elevator and airbrakes is by rods and of the rudder by cables.

Rigging and de-rigging is done without difficulty in a few minutes. The wings are fixed to the fuselage simply by an eye and a fixed bolt and are held together by a main pin. Aileron and airbrake connections are made by linkages in the fuselage centre section. The tail is fitted over two fixed bolts and then fixed to the fuselage by a third bolt, the elevator then being coupled by means of a loose bolt. The fuselage centre section remains open and accessible during rigging and is finally closed with a light cover.

D A T A

Span	17.0 m	55 ft 9 in
Length	7.1 m	23 ft 3 in
Height	1.7 m	5 ft 7 in
Fuselage Width	0.6 m	2 ft
Wing Area	14.5 m ²	156 ft ²
Aspect Ratio	20	
Dihedral	2.5°	
Wing Profile	NACA 632-616/614	
Empty Weight	245 kg	540 lb
Max. Load	120 kg	265 lb
All-up Weight	365 kg	805 lb
Wing Loading	25.2 kg/m ²	5.16 lb/ft ²
Stress Group	8	
Best Glide Angle	1 : 35	
at	80 kmh	43 kt
Min. Sink	0.62 m/sec	
at	68 kmh	37 kt
Min. Speed	58 kmh	31 kt
Max. Speeds:		
still air	200 kmh	108 kt
rough air	140 kmh	76 kt
aerotow	140 kmh	76 kt
winch launch	100 kmh	54 kt