

HIGH PERFORMANCE Sailplane "FVA 10"

EDITOR'S NOTE: We are fortunate in having this translation by Walter Setz of the article in "Flugsport", describing the ship about which he said in his account of the 18th Rhen Competition, "The only entirely new high performance design was Kracht's 'Rheinland'."



The type "FVA 10" was developed and built by the technical flying group of Aachen. The objects of this design were to attain a better speed, especially for cross-country flying, and improved maneuverability and stability at all speeds. Furthermore, the ship was designed so that three men, unaided, can unload and completely assemble it in five minutes. All of these requirements were satisfied in this completed design.

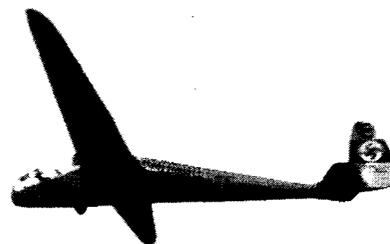
The full-cantilever, gulled mid-wing is in three parts; two panels and very large wing roots. These wing roots are built into the fuselage, thereby making possible a well streamlined unit. Assembly is very simple. Each wing is fitted to the root independently. This is done with only three bolts on each side which are fitted from the outside. Aileron and spoiler controls lock automatically without further adjusting. The wing form is tapered from both leading and trailing edges. The wing sections used from root to tip are: Jukowski 433, Goettingen 532 and USA M3. The construction is conventional with one spar and plywood leading edge. The spar has an I-section. Spar gussets and assembly are of the conventional German type (filler blocks for fittings, etc.) from the best grades of wood. The ailerons extend the full length of the wing panels beyond the gulled portion and are fitted on ball bearings. The controls are transmitted through a universal joint at the "gull" point. Fittings are made from welded Aero 50 steel (Chrom-molyb).

Spoilers to facilitate landing are installed on the upper surface of the wing and placed just inboard of the ailerons. The fuselage form is such that at the best speeds the lifting currents cause the least drag possible. The forward part of the fuselage is lined internally with plywood, thus leaving an air space between. The cockpit is so arranged that the pilot's weight is comfortably resting from his knees to his neck. The cockpit cover was copied from the lines of a bat's head and constructed from steel tubing covered with pyralin. The tail of the fuselage is constructed in a curved and shaped circular form without bulkheads but with light stiffening rings. Both rudder and elevator are dampened.

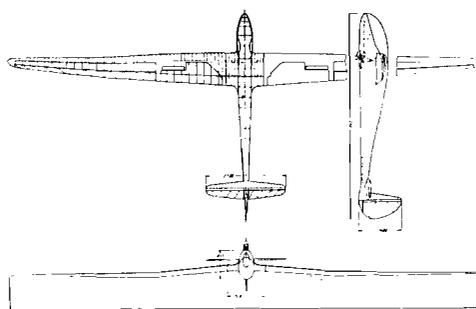
The rudder remains on the fuselage at all times but the elevator and stabilizer are removable by three easily accessible bolts. The FVA 10a, "Bienen", has wheel control, whereas the FVA 10b, "Rheinland", has stick control. All controls are seated in ball bearings. Aileron movement is actuated through push rods and universal joints only; elevator through push rods and positive cables. Rudder pedals are adjustable without altering the length of rudder cables.

Because these ships are almost invariably launched by airplane tow by this group, the conventional skid was abandoned. In its place, a retractable single wheel landing gear was developed. It is pulled in through action on the shock struts. In the retracted position, one third of the wheel protrudes below the fuselage, which makes landings and ground maneuvering quite possible. Landing shock is absorbed through Elektron Co. shock struts. The wheel is an Elektron Co. 260 x 85 mm. tail wheel.

In the three months that the FVA 10b has been in service, it has flown more than 90 hours and has amassed almost 1300 miles in cross-country flights.



The FVA 10a, "Bienen" *Flugsport*



The FVA 10b, "Rheinland"

Wing Span: 52½ ft.	Wing loading: 4.21 lbs. per sq. ft.
Length: 23 ft.	Speed at best gliding angle: 53 m.p.h.
Wing area: 126 sq. ft.	Stalling speed: 28 m.p.h.
Aspect ratio: 1:21.9	
Empty weight: 313 lbs.	
Max. weight: 530 lbs.	

Top: The FVA 10b, "Rheinland"
Photo by Flugsport
Bottom: Close-up of the FVA 10b
Photo by W. Setz

