THE HIGH-PERFORMANCE SAILPLANE STANDARD AUSTRIA

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During the last World Soaring Championships at Cologne in 1960 the prototype of the "Standard Austria" gained wide attention and many admirers. An international jury of experts judged this sailplane as the outstanding Standard Class design by awarding it the 1960 OSTIV Prize. Indeed, the designer, Austrian engineer Rudiger Kunz, made a hit with his creation, which is remarkable for its clean lines and smooth-contours, all-movable V-tail, and comfortable cockpit. This cockpit features a seat which is adjustable over a wide range, excellent visibility, and numerous other points rated highly by every soaring pilot who appreciates comfort and convenience during long, high-performance flights.

This article is intended to show many technical details of the unique construction; details which, of course, could not be seen at Cologne and which constitute a number of new ideas in our quest to obtain high performance at reasonable cost. These details can best be understood with the aid of the numbered photographs. The fuselage is of the shell type. The entire cockpit is made of fiberglas in a female mold, giving a perfect shape and surface, ample strength and excellent protection for the pilot. This protection has been proven in many landings in difficult terrain in the Austrian Alps during the past two years. The rear part of the oval fuselage is a 2½ mm plywood tube with a minimum of bulkheads. The extreme aft end of the fuselage is again made of fiberglas and can be taken off easily for inspection of the tail fittings and controls. The landing gear consists of one large pneumatic-tired wheel (380 x 150 mm) with disk brake and is placed well ahead of the c.g., thus eliminating the need for a landing skid. The wheel extends approximately 5½ inches below the bottom of the fuselage for clearance in landings on rough ground. The back rest for the pilot is a welded steel tube frame covered with canvas on elastic straps. It is adjustable fore and aft as well as in inclination. The maximum width of the cockpit is 24½ inches. The sides are finished in colored plastic material and contain large pockets for maps and other gear. A back-type parachute rests in the upper part of the back rest. There is ample space for barograph, oxygen bottles, batteries and thermos bottles in the baggage compartment behind the pilot. The radio can be installed on the left side of the cockpit within easy reach. Also on the left side is the lever for airbrakes combined with the handle for the wheel brake. The aircraft can be trimmed over a wide range of loadings and speeds. The rudder pedals and the headrest are adjustable in flight by means of Bowden cables. Cockpit ventilation can be regulated. The fresh air intake is located in the nose of the fuselage. The air is led through a flexible tube to the canopy. The pitot source is located inside this flexible tube.

The jettisonable plexiglas hood is of a free-blown shape without hinges or slides and fairs perfectly with the fuselage contours. When it came to the control system the designer set to provide the finest money could buy, preferring to concentrate on the low-cost objectives of the Standard Class in other parts of the machine. The result is a simple, safe, effortlessly operating system due to push-pull rods with ball bearing pivots and connections, differentials and automatic couplings. There are no bolts to be installed or removed in the entire assembly operation including the control connections. If the instructions are followed, the complete assembly can be done in a few minutes without possibility of errors. The flight and service manual in English, which is approved by the F.A.A., is very complete and has many detailed illustrations.

The all-moving balanced tail surfaces, covered with fabric, are of extremely light construction. The absence of stabilizers, avoiding hinge gaps and the bending of the profile, brings an additional reduction in drag, favorable particularly in fast flight. The tail skid is made of fiberglas with an exchangeable steel shoe, rotating 360 degrees on a universal ball bearing. Its construction is simple, sturdy and light. The tail skid is interchangeable with a tail wheel, should that be preferred.

The construction of the wings in steel jigs allows the high degree of accurate work necessary for a laminar profile wing. The main spar, built of laminated beech, twenty laminations for every 10 mm thickness, has a length of just over eight feet. Eighteen stringers run the full length of the wing, supporting the plywood shell of 2½ mm thickness throughout. The ribs are cut in metal jigs from 3 mm five ply mahogany plywood on a milling machine to an extra airfoil contour. The 2½ mm plywood panels on the upper and lower sides of the wings are spliced into one full-length piece before being glued to the ribs. The panels also carry an additional