

The Wanderlust

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PROBABLY the most outstanding feature of the Wanderlust is its compact smallness. The pros and cons of small sailplanes have been discussed at great length in the past and have introduced many schools of thought. The outcome of these was that the smallest machine practicable with good all around performance should be aimed for in design, and for the following reasons:

1. Small storage space required. (An average garage would house the Wanderlust.)
2. Small trailer required for transport.
3. General ground handling.
4. Speed of production, less materials and consequently cheaper to produce.

It was these features coupled with good cross-country performance that formed the basic foundation of the Wanderlust design.

The qualifications of the cross-country sailplane differ considerably from the usual high performance sailplane. First, it seemed to us desirable to have a fairly high wing loading to attain a fast cruising speed and good penetration in a high wind. A high forward speed with the resultant minimum sinking speed was necessary. Low speeds on landing are also very necessary to enable a pilot during a cross-country flight to put down almost anywhere without risk to himself or machine. To cover the wide range of speeds needed an adequate form of control is necessary. We hope to have achieved all of these points in the Wanderlust and list below a detailed description of the component parts.

The wing is fitted with external airfoil flaps running the full span. These are split at approximately half span and the outer portion made to act both as flap and drooping ailerons. This may suggest a rather complicated set of controls in the wing but, this is not so, as it has been accomplished by one very simple piece of mechanism in the fuselage. The only controls in the wing are cables and pulleys. The flaps are actuated by a handwheel in the cockpit which, at the same time, automatically droops the ailerons. These ailerons have been designed with an extreme differential movement

to overcome the adverse yawing which this type of aileron tends to cause.

In order to improve the cruising characteristics of the Wanderlust over many types, and also for aerotowing purposes, the wing sections vary somewhat from those of past conventional practice. NACA sections have been used, the root section being 23021 and the tip section 4315. A two degree washout is incorporated to improve stalling tendencies. These sections have a very small C.P. travel, which is essential with the type of wing used, as the flaps when lowered cause a fairly large pitching moment.

The wing is of the normal type of construction for sailplanes. A single box spar is situated at 33% chord constant to the rear face. The nose is ply-skinned back to the spar to give the wing the torsional stiffness required. The aft part of the spar is fabric covered which, incidentally, is the only fabric covering on the machine. The torsional and drag loads of the wing are carried back to the fuselage by use of a drag strut through the wing, as is usual in sailplane practice.

The assembly of wing to fuselage is done by four bolts only, the controls being automatically linked up by the mating of wing to fuselage. Careful thought has been given to finding the best possible wing joint which is on the center line of the aircraft, with the result that only four small dural plates and one tubular connecting pin are used instead of the usual 16 plates so common in normal shoulder wing design. A very light and quick-to-release joint has been effected.

We are considering a one-piece wing for production models, as we believe for so small a span no great inconvenience would be experienced in trailing, while at the same time, by building a one-piece wing, weight and expense would be saved. This also would save time in assembling the sailplane.

Wing spoilers have been installed to assist landing and also to prevent or check dangerous speeds that may easily occur in cloud flying. These are of very simple design. The mechanism consists solely of parallel links which are operated from the cockpit by a hand lever.

