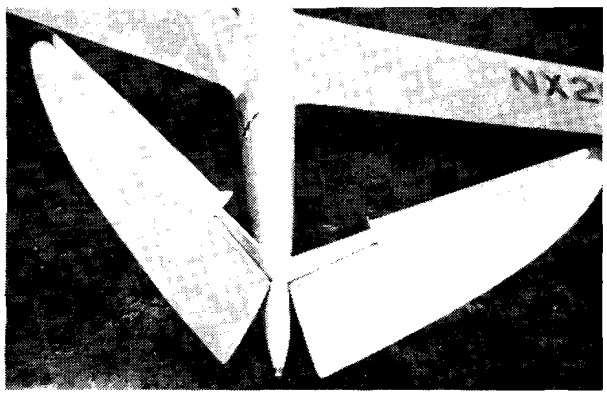
excellent. Giving ample warning, the stall always dropped the nose straight ahead, wings level. This I attribute to: (1) elliptical planform of the wing, giving ideal lift distribution; (2) deliberate choice of a root airfoil having a lower C_L max. than the tip foil, giving aerodynamic washout at high C_L without adverse bending or torsional moments at high speed, as would have resulted from geometric washout alone.

The 4½° dihedral, chosen primarily to provide adequate tip-to-ground clearance to facilitate landing, gave very desirable lateral stability characteristics, permitting hands-off flight either straight or in spirals. It was a great help in blind flight. No adverse effects of dihedral were noted, either in maneuverability or elsewhere.



Vee type tail surfaces stick forward rudder neutral

The above combination of airfoils, planform, and dihedral is most highly recommended.

Metal Monococque Fuselage:

For production and durability, monococque is ideal. For the home builder without numerous and adequate facilities for working metal, plus considerable experience, it would be a headache. Its adaptability to streamline forms, its smoothness, its polished beauty, its energy absorption and crash protection, its protection of occupant during electrostatic discharge, its resistance to weathering and age deteriorations, all are desirable features. Its trivial damage resulting from the recent crash is mute testimony of its ability to absorb crash energy without sustaining serious damage. It has never been hangared, has already spent 1½ years in the open, without apparent deterioration of either appearance or structural strength. The metal shell surrounding a pilot is most reassuring within a thunderstorm. The labor of designing and building the first model is, however, several times that of any other structural material.

A lift handle on the fuselage nose is necessary. By incorporating a pressure line from the large diameter lift handle, I was able to retain airspeed indication even after the rest of the plane was completely iced up. Its large size required a lot of ice to clog it completely.

The use of a water ballast tank in the tail afforded C.G. control for any weight pilot. The hollow stub-stabilizers which were painted inside with rubber cement were still water tight after the crash. The advantage of ballast to achieve trim rather than deflected stabilizer may not be apparent unless one considers that there must be the same compensating download on the tail in any case, and it is far more efficient to use weight to achieve it rather than to deflect a stabilizer, and set up an aerodynamic drag.

Vee Tail:

The unique vee tail proved 100% satisfactory. Cockpit controls were conventional. The pilot flying Nomad flew it as he would any other plane, and would note no difference unless he chanced to look back and see that the tail was unconventional. Its advantages are: simplicity of assembly, fewer surfaces to build, cleaner aerodynamic lines, less area required, good clearance above weeds and ground obstructions, avoidance of wing wash, etc. Only disadvantages found to date are the inevitable explanations so universally demanded.

Rapid Assembly System:

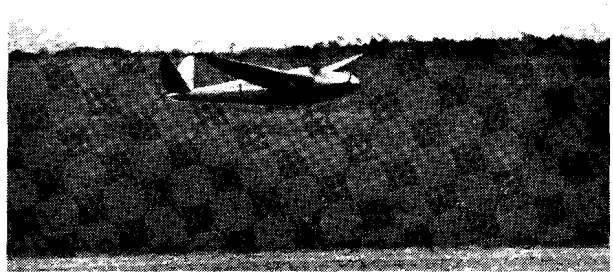
Nomad was designed for ultra-rapid assembly. I consider it to be the plane's outstanding feature, its most important structural novelty, its principal contribution to structural design. It requires about three minutes for three men to assemble and fly it. It has been in the air five minutes after its arrival upon the field in a dismantled condition on the trailer. Dissembly is equally fast. Insertion of three-self-locking pins in each wing, one in each ruddervator, and it is ready to fly. Ailerons, flaps, electrical circuits, all connect automatically when the wings are installed. Control connection is so designed that improper mating of automatic couplers is impossible. A telescoping action of metal stub wing to wood outer wing provided a smooth seal obviating the necessity of gap strips. The advantages of speedy assembly systems for contest flying are manifest, and of great importance.

General Discussion:

The generosity of many fellow contestants this year enabled me to fly quite a number of different planes. Likewise I have flown alongside every high performance plane present at the 1938 and '39 meets, in the same thermals and gliding together between thermals. On the basis of those I have observed and flown, I would rate Nomad approximately as follows:

1. Sinking Speed:—Lowest of any observed in any category.
2. Gliding Angle:—
   a. Below 70 m.p.h.; flattest of any plane observed.
   b. Above 70 m.p.h. Perhaps inferior to Lawrence or Ibis.
3. Turning Radius:—Average.
4. Stability:—Same as Minimoa, superior to any other flown.

(*Continued on page 8*)



Nomad landing