

THE HP-11

by R. E. SCHREDER

Like most sailplane pilots, I dream about the perfect sailplane.

The HP-8 was at its best in Texas and California, but left much to be desired in West Germany and Elmira.

The HP-11 is an attempt to build an all-condition contest sailplane that can excel under soaring conditions ranging from the weakest to the strongest.

This ship is now about 50% complete and will be finished in time to fly in the 1962 Nationals at El Mirage.

Principal design features were rationalized as follows:

1. All-metal construction, necessary for pilot protection and stabilization of laminar contours.

2. Minimum gross weight wing loading of less than 6 lbs. per sq. ft.,

necessary for low sink and weak weather performance.

3. Gross weight with water ballast of 8 lbs. per sq. ft., to get suitable high speed task performance.

4. Aspect ratio of 26, to obtain highest practicable L over D.

5. 65 (sub 3) 618 airfoil, for low-drag, deep wrinkle-resisting contours.

6. Simple assembly, to reduce tear down and reassembly times.

7. Fixed wheel, to save weight, simplify design and maintenance.

8. V-tail, for simplicity, lower drag, superior weed clearance and lightest weight.

9. -5° to $+90^{\circ}$ simple flap, for better high speed drag coefficient, lower thermalling speed and drag, higher Cl. max., terminal velocity and approach control without air

leakage and contour penalties.

10. Forward canopy with simple curve, to improve visibility.

11. Drooping ailerons, to smooth out span-load distribution, lower thermalling speed and cut high speed drag.

12. Fully balanced control surfaces, to eliminate possibility and danger of flutter.

13. High mid-wing position to simplify fuselage and achieve lowest drag wing/fuselage intersection.

14. Roomy cockpit for maximum pilot comfort.

Water ballast is carried in removable 2" dia. aluminum tubes which extend to the wing tips. This type of weight distribution actually reduces wing bending moments and does not require any excess structure.

Extreme care in fitting and riveting skins is being taken to eliminate the necessity of filling and painting this sailplane. A net saving of about 50 pounds of weight results.

Forward fuselage skins are stretch-

(Concluded on page 20)

