A high-performance all-weather contest glider design

Bismarck was designed to give contest performance, and yet have a simple and strong construction to stand up to any kind of weather. The weight of the prototype came out at 11 oz., just over the F.A.I. limit, with a wing-loading of approximately 10 oz. per sq. ft.

It proved a consistent thermal-catcher and was lost four times last year. Once, it flew a distance of 92 miles and was undamaged when picked up. You will have no trouble in towing it up, for it is very stable on the line, even in windy weather.

Fuselage
From \( \frac{1}{8} \) in. sheet, cut the keel and formers 1, 2, 3, 4 and 8. Mount the formers on to the keel, and when dry, cement in place the nose uprights, followed by the weight box. Incidence is built in on the wing platform with \( \frac{3}{4} \) in. sq. balsa tapered to \( \frac{1}{8} \) at the T.E., and fitted into F2 and 3. The fuselage spine is next fitted and the \( \frac{1}{4} \) sq. upright. If a parachute-type D.T. is to be used, the box to accommodate it will be built in behind the wing platform. The towhook is bent from 18-g. wire and cemented to F7, which is in turn cemented firmly to F2 and the keel. Finally, both sides of the fuselage are covered with \( 1/32 \) sheet.

Wing
Build the inner panels first, and when laying out the structure, remember to pack up the front edge of the T.E. \( 1/8 \) in. When the ribs have been fitted, cement the top spar in place. At this stage the two inner panels can be joined, laying one flat on the board and packing up the other tip 2\( \frac{1}{2} \) in. Next build the tip sections and join them to the others, giving 3 in. tip dihedral. Finally, when all joints are set, fit the mainspar into place.

Tailplane and Fin
The tailplane is quite simple, and as the section is a modified Clark Y with a flat undersurface, the unit can be laid out quite flat. The fin has a solid top, F6, which should be pinned down, and the L.E. and T.E. cemented to it.

D.T. Parachute
This is made from silk cut to approximately 12 in. diameter, with a 2 in. hole in the centre. Cut a \( 1\frac{1}{2} \) in. square from \( \frac{1}{16} \) ply, and drill 12 small holes around the edge as shown on the plan. Attach eight threads to the 'chute and the remaining four to the tail of the model, via a rubber band as a shock absorber.

Covering and Finishing
The fuselage of the prototype was given three coats of clear dope and one of banana oil, rubbing down between coats. Wings and tail were covered in lightweight Modelspan and given three coats of clear dope.

Trimming
Before attempting to fly Bismarck, check all flying surfaces for warps. Balance the model at the position shown on the plan and then hand-launch gently into wind. From now on, trimming should be done with packing under the tailplane L.E. or T.E. When a good hand-launched glide is obtained, tow the model up on about 80 ft. of line, and keep adjusting the trim until a really flat glide is obtained. An auto-rudder can be incorporated, and \( \frac{1}{8} \) in. offset will give quite a tight turn.

Once Bismarck is trimmed, be sure to use the D.T., for this model is a real thermal-chaser.