

C-QUELL

By BOB STALICK

● The C-Quell was almost called the Mexican Satel-Stick in honor of its ancestry, but Al Grell stopped me one day and suggested C-Quell. He reasoned that the design was, in fact, a "sequel" to the Mexi-Boy, the Satellite and the Lipstick, and it was designed to "Quell" the opposition in C gas, so C-Quell would be a logical title. Obviously, his reasoning won out and C-Quell it is.

The origin of the design dates back to 1964, when Al and I sat down one long and frenzied night and reduced Al Vela's outstanding design, the Mexi-Boy, to 3/4 size. This was done to accommodate our available engines . . . which were lesser in power than the K&B 35 Series 61 used on the original. Each of us built the reduced Mexi-Boy and flew them for years. Mine finally fell apart from use in 1968 (after spending 2 weeks in the Oregon rainforest on a flyaway), but Al's is still flying with a K&B .40 R.R.

After a couple of years of trying some other B-C gas designs, we began reminiscing about how good the old 3/4 Mexi-Boy flew . . . and what we might do to improve it.

First, we determined that we could lighten the wing structure and still retain enough rigidity and strength by using the Satellite rib and spar system.

Second, we reasoned that the fin on the stab was a goof waiting to happen. So, a rear fin was incorporated.

Third, a longer tail moment arm should allow a more rearward C.G., and improve the already excellent glide.

These features were designed into the C-Quell, and the results were as predicted. First flights indicated the need for slight left thrust and left rudder tab. With addition of left stab tilt, the model was ready for competition. Power pattern is a right spiral from an 80 degree V.T.O. or hand launch. The model makes one turn in 10 seconds and then gently transitions into a soft, floating left hand glide.

The model is flyable interchangeably with either a .29 or .40 engine, using either a Top Flite Wood 10x3½ or Tornado 10 x 4 nylon prop. The engines I use are the Torp .29F or the Torp .40F. Other good choices would be the Super Tigre or similar high performance engines.

I think the model is a superb performer. The climb is excellent and the glide is spectacular. Build one and see . . . here's how:

WING

Cut out all main wing ribs and false ribs, using a plywood or metal pattern. Laminate the leading edges for the main wing panels and assemble both main wing panels. Build in 3/16 inch washin on the right main panel. Pound pins into the building board, located at the back of the leading edge for the length of the tip. These pins should be about ½ inch apart as a laminating guide. Wet the tip leading edge strips and using TiteBond or similar adhesive to laminate, pull them into place and pin them there until dry.

Cut the trailing edge to shape from 3/32 sheet C grain, and laminate vertically as indicated on the plan . . . use a "hard" epoxy, such as Devcon. Glue the block tip into place. Glue in the 1/16 inch rib blanks cut to length as indicated. Sand to an airfoil section. As a guide, the rib high point falls 3/16 inch in front of the main spar. Rib depth at the high point is .57 inch at the main tip rib, .85 for the middle tip rib, and .95 at the tip rib closest to the dihedral break.

When the glue joints are dry, join all panels together, using gussets as indicated. When complete, notch all tip ribs to accept leading edge spar and main spars. Glue these into place. Glue in geodetic rib blanks as indicated between main spars and trailing edge. Sand to shape with a long sanding block. Cut spar notches and insert and glue in rear top spar. Shape leading edge and trailing edge. Finish sanding and add center section sheeting, gauze reinforcement, etc. Add 1/16 sheet spar webs as indicated to the main spars. This web extends from the central dihedral break to one rib bay past the polyhedral break. Apply two coats of clear dope to the structure and sand lightly. Cover with Japanese tissue, or silk, and dope.

STAB

The stab is built similarly to the wing, however, do not add any spars until all of the ribs are shaped. As a guide to shaping the ribs, the high point is a ½ inch in front of the main spar at the center and an 1/8 inch behind the

main spar at the tip rib location. Rib thickness at the tip rib is .45 inches. After sanding ribs to airfoil shape, add all spars, shape leading and trailing edges, predope, cover with Japanese tissue, but use a low shrink dope to minimize rib compression.

FUSELAGE

Structure here is conventional. Start by constructing the firewall, the pylon, and the fin. Then cut the fuselage sides to size, add all doublers and longerons, and cut the fuselage bottom to shape. Pin the bottom to a straight board, glue in the firewall, the fuselage sides, the fuel tank, the pylon, and all fuselage formers, in that order. The fuselage top and the wing mount are installed next and then the fin is lined up and glued in. Pull the fuselage sides together at the rear and blend into the fin. Fill in around the fin/fuselage joint with scrap balsa and sand the entire structure. Add the stab mount platforms. I strongly recommend the S.H.O.C. type mount as shown on the plans. Install a d.t. line guide through the fuselage rear, starting alongside the subrudder and leading through the rear stab mount.

Use lightweight fiberglass cloth around the firewall. Adhere with several coats of epoxy cement or resin. Cover the remainder of the fuselage with tissue or silk.

Assemble the model, add timers, engine, prop., etc. Check the balance point . . . it should fall into the 80-85% range. If not, add weight accordingly. First test flights will probably indicate the need for some left stab tilt and some left rudder tab. Add in small increments. The ship should climb in a wide right hand spiral . . . making 1 to 1½ turns in ten seconds. If it makes more than 1½ turns, add a 1/32 inch shim under the leading edge of the stab. The transition should be a gentle turn to a wide left hand glide. If you fly in windy conditions, the glide turn may be too wide . . . decrease the size of the glide circle using more left stab tilt.

If your C-Quell weighs in at not much over 30 oz., you will be impressed with its climb and spectacular glide. The ship will handle hot engines with ease, so pour on the power . . . it only climbs faster and higher.

Thermals!

MODEL BUILDER

11743