

# PHOENIX \* PROFILE STUNTER \*

By MIKE PARENTEAU . . . A good stunt trainer doesn't have to be ashamed of its looks, even if it's a "No-Cal" (profile fuselage). For .29 to .36 engines, it has a wingspan of 44 inches.

'PHOENIX' . . . a profile stunter with a 44 inch span, full operational flaps, tapered wing, that will take a .29 to .36 engine. Mine is powered by a Super Tigre G35 on suction with a 10-6 prop. The original was a tail-dragger, but I added a tail wheel the second summer I flew it, and that greatly improved the takeoff and landing characteristics for hard surfaces.

## WING AND FLAP ASSEMBLY

Start by covering the plans with wax paper or Saran Wrap, then cut out all ribs. Splice and pin the bottom spar in place on a building board. Cut the T.E. pieces from 3 inch wide stock. If 36 inch stock is used, it will be necessary to splice the T.E. in the center. Pin the T.E. to the board, then pin all ribs in position on the bottom spar. Remove the pins holding the spar to the building board and block it up so the trailing edge of the ribs can be pinned in place to the T.E. splice and pin the L.E. in position on all ribs, and glue all ribs to the bottom spar, T.E. and L.E. Leave assembly pinned to the board and allow it to dry overnight. Then glue the top T.E. in position.

Cut out the bellcrank floor from plywood and drill a hole in it for the bellcrank bolt. Insert the bolt from the bottom of the floor and attach with a nut on the top. Place some epoxy on the head of the bolt, epoxy the 1/4 sq. floor supports to the floor, and then epoxy the floor assembly in position between the center ribs. Next attach the L.O. wires and flap pushrod to the bellcrank. Now, slide the L.O. wires through the ribs, starting from the center and slip the bellcrank over the bolt. Fasten the bellcrank in place with a nut and place a drop of epoxy on the nut to keep it from vibrating loose.

Splice the top spar and glue it in place. Add the center sheeting on the top of the wing. Notch the sheeting for the pushrod exit. While this assembly is drying, carve and hollow out the wing tips. Drill holes in the inboard tip for the L.O. wires and install tubing or eyelets for bushings. Epoxy 3/4 oz. of weight in the outboard tip. Attach the tips and allow the entire wing assembly to dry thoroughly. I allow at least 48 hours before I remove the wing from the building board. This extra drying time will help eliminate wing warps.

Remove the wing from the building board, add center sheeting on the bottom and add the T.E. cap strip. While this is drying, cut and shape the wing flaps and join them in the center with the control horn assembly. Now carve and sand the L.E. and T.E. cap strip to shape. At this time, I mark and cut slots in the wing and flaps for the hinges, but *do not* join the flaps to the wing at this time . . . see assembly step.

## TAIL ASSEMBLY

Cut and sand pieces to shape, join elevator halves with control horn assembly, and hinge elevator to stabilizer, using your favorite hinge method. Cut the rudder from sheet stock and sand it to the shape indicated on the plans. Notice that only the inboard side of the rudder is air-foiled, since it is not offset when it is attached to the fuselage.

## FUSELAGE ASSEMBLY

Cut the fuselage from 6 inch wide sheet (or splice together from 3 inch sheets). Cut out for the wing, allowing a 1/4 inch behind the wing for the flap joiner wire to move freely. Also cut out an 1/8 inch slot in front of the L.E. for the landing gear. Cut out for the engine and engine mounts. Make sure to measure the engine you're going to use and space the engine mounts accordingly. The engine mounts on the plans are spaced for the Super Tigre G35. Epoxy the engine mounts to the fuselage. While this is curing, cut out the plywood doublers. I only notch out the inboard doubler as necessary to clear the engine. Feather the edges of the doublers at this time to make final sanding easier. Epoxy the doublers to the fuselage and place a weight on them while they are curing. Round all edges of the fuselage except where the stabilizer will be attached. Bend the landing gear and tail gear as shown. The landing gear is placed in the slot in front of the wing and held in place with L.G. retaining clips. The tail gear is attached by cutting a groove in the bottom of the fuselage and drilling a hole. Fill the groove and hole with epoxy and insert the tail gear.

## ASSEMBLY

Insert the flap assembly in the wing cutout and slide the wing through the fuselage. At this time, I install the flap to the wing with the hinges. This is not as difficult as it sounds. (An alternate method is to hinge the flaps to the wing as the

end of the wing assembly step, then cut out a section of the bottom of the fuselage to allow the wing and flaps to be inserted as an assembled unit. Replace and epoxy the piece cut out of the fuselage.) After the flaps are hinged to the wing, epoxy the wing in place and allow it to cure thoroughly. Epoxy the stabilizer/elevator assembly in place and then the rudder. After allowing sufficient drying time, sand the entire plane lightly.

## FINISHING

Most builders have their own method for finishing, but, for those who don't, here is mine. After final sanding, put on two coats of Sig Lite Coat clear dope, sanding lightly after each coat has dried. Now cover the wings with SGM grade silkspan (that's right, I still use silkspan!!). Put on enough coats of Lite Coat to fill the silkspan. This is followed with one or two coats of sanding sealer over the entire plane, wings included. Sand thoroughly after each coat. Now, put on the color to suit your wildest (or most modest) desires. The original Phoenix was painted white with metallic green trim (When using a light color for the base, it is advisable to paint the entire plane silver or gold as an undercoat before adding the base color). Follow the color with enough coats of clear dope to allow for rubbing out and waxing.

## FINAL ASSEMBLY

No, I didn't forget about the pushrod. At this time, I install the pushrod and guide (bolt and epoxy the guide to the fuselage). Attach the wheels and tank, and bend the ends of the L.O. wires. Install your favorite powerplant (add washers under the front mounting bolts to obtain 1 to 2° of offset) and head for the nearest flying site.

## OPTIONS

If you prefer, an adjustable line guide could be installed in the inboard tip. Also, the flaps can be made permanent. In this case, they would be glued on after the wing was epoxied into the fuselage. For flying over grass, more prop clearance can be obtained by omitting the tail wheel. If this is desired, epoxy a piece of 3/32 M.W. to the rear bottom section of the fuselage and rudder. GOOD LUCK!!!

**MODEL  
BUILDER** #8783