

"EAGER EAGLE"

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by William Harding

◆ At the sudden roar behind me, I nearly dropped the $\frac{1}{2}$ A I was cranking. Anxious to locate this nut with the lawnmower before he chewed up my models and me with them, I turned quickly in the direction of the sound. Following the gaze of the crowd, I saw not a lawnmower, but a football huddle of modelers near the center of the field. Then suddenly, out of the huddle, a giant yellow free-flight jumped skyward.

The big engine screamed like a banshee. Its canoe paddle prop chewed up and spit out huge chunks of the summer sky as it clawed its way to a tremendous altitude on sheer power. Awestruck by what I'd seen, the picture of the big ship repeated itself in my mind as I journeyed home from the contest.

The big yellow free-flight still haunted my daydreams when Kenny Rohm dropped by later that year.

"How about designing me a free-flight," he blurted out as though I could sit down and draw one up for the weekend.

I would have laughed at anyone else but Ken is a real competitor in the free-flight field. Having a ship in his hands is a tough test of its ability to



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EAGLE



It floats. The big birds have it all over the smaller ships in the glide department. Rudder fin aft of the stab simplifies the dethermalizer.

Lash it together, weather's perfect. 90" span.

A little engine tinkering never hurt anybody.

produce trophies. I was weakening and Ken's next statement clinched it.

"I want a big ship," he said. "One for a .35 or .40."

That did it! Visions of the big free-flight exploded in my brain. Rushing Ken out of the house, I almost broke my neck getting down the basement steps and to my drawing board.

It would be nice to say that "Eager Eagle" came to me in a flash of inspiration, and that after a sleepless, coffee filled night, I emerged sleepy eyed but victorious from my basement dungeon carrying a roll of completed drawings under my arm. Oh I had a sleepless coffee filled night. Then I had another and another until about a month later the first "Eager Eagle" took shape.

The time spent in design paid off for the present "Eagle" is very much like the first. About the only changes needed were certain places that we felt needed beefing up a bit. Ken and I have learned the hard way that a contest ship, no matter how good a performer, can prove worthless unless it can stand up to a rigorous contest schedule. "Eager Eagle" is not only a high climbing floater, it is a rugged workhorse capable of taking hard knocks and still being there for the fly-off.

Although not intended as a beginners ship, construction is straight forward and fairly standard. Anyone who has built a couple of free-flight kits should be able to struggle through this design, so let's grab a truckload of balsa and get to work.

The wing is a good place to start and



"EAGER EAGLE"

the "Eagle's" wing is built much the same as any free-flight wing. Be sure you keep the structure warp-free and use a good strong joint at all polyhedral breaks. Ken recommends epoxy glue at these joints and while I feel regular model cement is enough, his method may give enough added strength to make it worthwhile. Ken also sheeted the center-section of his "Eagle" wing. Since the construction method makes a flush planking difficult, this causes a slight bulge at this point. However, this detracts little from appearance and nothing from the aircraft flying ability. You could notch the top spars 1/16" and trim the center ribs to give a flush fit, but the gain in appearance would be lost in strength. Cover the wing with bright silk.

While you're in the mood to pin balsa to the work board, let's build the stab. Again we have a straight forward structure that should offer no trouble. You will notice that the space between the three center ribs is filled in with light 1/8" balsa. This gives a better mounting and also allows better keying of the stab, to assure perfect alignment. If you decide not to key the fly-

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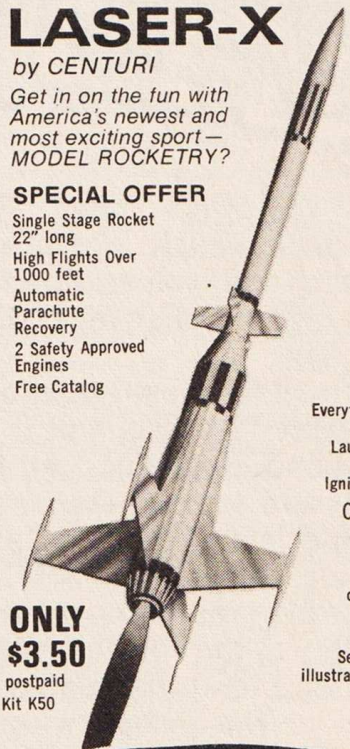
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ing surfaces, be sure you take along a basket for the pieces. A model of this size and power can do some mighty interesting maneuvers if a flying surface should twist. This gives a short but eventful show for the spectators that ends with a sickening thud and crunch.

As you can see from the plans, a $\frac{1}{8}$ " plywood false rib is used between the two center ribs. I use this to hold my front DT hook. Drill a hole in the plywood rib, insert the glue coated hook, then reinforce with fiberglass cloth. Cover the stab with the same color silk as the wing.

The fuselage must be a compromise of strength and light weight. My method of constructing this component is not new but has always worked well for me. The sides are cut from $\frac{1}{4}$ " sheet balsa. The pylon, which is cut from very hard $\frac{1}{2}$ " sheet balsa, and the longerons, uprights, and diagonals are

all glued to one side. The other side is then glued over them. When dry, sand the fuselage to a more rounded cross-section.

The nacelle is either carved from a solid block or from laminated sheet. Personally, I prefer the laminations. By using a $\frac{1}{2}$ " sheet for the center lamination, you will have the exact size notch needed to fasten the nacelle to the pylon.

Ken and I mount our engines radially with a Tatone tank mount. This system works very well on a pressure set-up with a flood-off timer. It is a good idea to reinforce the plywood firewall with fiberglass cloth. Remember, there is a good deal more than a $\frac{1}{2}$ A on the front of this baby and it needs a solid mount.

The wing platform is next. Cut it apart at the centerline and reglue it with a dihedral to match that of the wing. The top of the pylon will have to be V-notched to accept the wing platform. Finally add the bracing under the platform. It is a good idea to streamline the bracing a bit before installing. Make this a STRONG joint.

The top of the fuselage is notched $\frac{1}{8}$ " to allow the stab platform to be mounted flush. Be sure you maintain zero degrees incidence in the stab platform.

The fin is cut from $3/16$ " balsa. I use contest balsa since I'm a nut about keeping weight off my tail. (On my models, that is!) Carve and sand the

fin to shape in one piece. Then, separate the rudder from the fin and hinge it with copper wire. This will give you a means of adjusting the rudder for trim. Glue the fin solidly to the fuselage.

The entire fuselage, fin assembly should be given a few coats of clear dope and then covered with silk. Finish the "Eagle" by doping the entire model to a high gloss and you are ready to fly.

I'm always a bit shaky when the time comes to test a new model. Therefore, I go in big for the old high grass gambit. I even like to spend some time hand gliding from an elevated position before turning on the power. Maybe it really gives me a better feel of the model; maybe I'm just chicken, but I generally have the gliding problems pretty well licked on the first power flight.

You will probably find that "Eagle" flies right off the board with just a bit of left rudder. Climb should be almost straight away with a slight left turn that puts her right in the groove at flame-out.

If anyone would like to correspond about this ship, I'll be glad to answer any questions or listen to any comments. My address is: William R. Harding, 125 Wood St., East Palestine, Ohio 44413.

Ken and I feel that "Eager Eagle" is a ship of high contest caliber. Once you try her I'm sure you will agree. ●