

Vixen

By CLAUDE
McCULLOUGH



THE moral of the story of the Vixen is short and to the point. "Keep your dethermalizer in good operating condition." Because I didn't, the contest career of the original ship was likewise short.

First, brought into the fray at the Tall-corn meet, the Vixen quickly snagged one of the sparse thermals on "A" day and turned in good time to buoy my hopes while trying to extract it from hiding in a huge cornfield. Getting back to the field late in the afternoon, we found our good friend Dutch Hess, of De Kalb, Ill., firmly entrenched in the top spot in Class A. Two more flights with the motor having fits of temperament left Dutch still on top with a 30 sec. edge and yours truly in second place. However, I had the last laugh in this instance, for when the sponsors of the meet were unable to pay off the myriad of bills run up in promoting the big contest, Dutch was left holding the bag for a prize. Meanwhile the local Plymouth dealer donated a \$200 trip to Detroit for the best home-town performance, a prize I was pleased to accept!

At Detroit, of all places, the balky motor balked its last and I gave it the heave-ho and installed another before tackling the annual *Waterloo Prop Twisters* meet, one of the best in the Midwest. Fellow clubman John Heasley, home from college on vacation, found the simple lines of the Vixen the correct prescription for scarcity of building time and quickly turned out an *Ohlsson 23* version. Test flown the night before the contest, he soon had it performing so well that the next day he handily won first in Class B.

But to return to the moral—originally the dethermalizer installation was permanently fixed with a wire and tubing hinge. Of course you can guess what happened—as I should have known it would. On a hard landing the hinge tore loose and in the contest hustle the break was left unrepaired. So although I was lucky in snagging only a weak thermal on the first flight at Waterloo and none on the second, on the third my fate caught up with me. After a 6:33 official flight, which insured first place in Class A, Vixen disappeared into the blue. And I *mean* disappeared.

For when it turned up months later during the corn picking season, it was some 25 mi. away.

Several others have now been built on the strength of the fine climbing and gliding abilities of the first two versions, but they have a slight alteration, which you may note on the plan—a much more sensible and simpler dethermalizer hinge arrangement.

You should find the Vixen just the thing for the present contest season, with the '49 rules the same as last year.

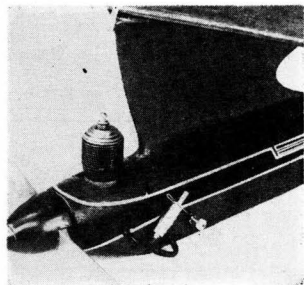
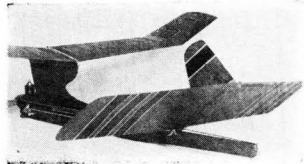
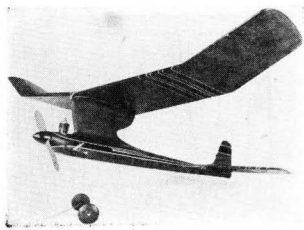
The plans may be easily enlarged by use of the scale ruler which appears on the plans. With this, all dimensions may be taken directly from the drawings. Full size patterns of all ribs and formers make drawing up the working plans a task that should not dismay anyone.

The fuselage is simple but strong. Build the sides of the rectangular main frame one on top of the other and connect them together. Add the pylon, built up from 1/8" sheet laminations, notched to fit into the top of the fuselage main frame and sanded to streamline shape. Cement formers A to H in place, planking with 1/8" sheet over formers A and add 1/8" stringers over the rest, to form the turtleback on the fuselage.

The motor used should preferably be a radially-mounted type such as *Arden 19*, *Ohlsson 23* or *K&B 24*. These may easily be mounted by cementing the nuts on the back of the plywood firewall and bolting to it directly. If you want to use some other type of motor, small mounts may be made from galvanized sheet metal. For motors other than an *Arden*, a gas tank must be mounted in the fuselage. It is recommended that this be sealed in the fuselage permanently with U-control type filler tubes protruding out of the planking.

On the original ship a D-E fuel shutoff valve was used and gave dependable service. Other types such as the *K&B* and *Austin* may also be used with slight modification to fit their operation. At this point I would like to say an enthusiastic word concerning the use of glow plug engines in free flight. There has been some oppo-

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sition to this, but after a season's flying our club is for them 100% and wouldn't think of switching back to ignition and the attendant multiplicity of things to go wrong. That first knotty problem—the effect of the fuels on finish—is now out of the way with the new finishes, cements, and dopes that are impervious to hot stuff.

The wing and tail are of dependable Goldberg multi-spar construction and all details relative to their construction appear on the plans. The dihedral should be installed in the wing before the leading edge planking is applied.

The dethermalizer pivot block is made from soft pine and cemented in place. An aluminum bracket at the rear of the elevator, with a hole to pass the timer pull rod, is securely fastened in place. A guide tab at the front part of the elevator prevents it from sliding or twisting when released. The pressure of the rubber bands must be kept light or there will be an undue amount of friction acting on the timer pull rod and cause its operation to be erratic. If your tail does not pop up satisfactorily when the timer releases, try adding a small rubber pull band on the leading edge of the rudder about a third of the way up and running it down to the fuselage. This gives a little starting inertia to get the tail started up. A piece of kite string is used to keep it from popping up too high; an angle of around 40 to 45° is generally considered best, but you can experiment with the angle if you think the ship is coming down too fast or at too steep an angle.

The original ship was covered with silk that had been dyed. If you don't care for silk, GM silkspar or Jap tissue will be satisfactory. The front part of the plane should be finished in a hot-fuel proof paint to prevent the fuel from deteriorating the cement and covering. You can get by quite well with only this amount of protection if you are careful not to spill the raw fuel around on the plane. If you want more total protection, try one of the clear varnish finishes, such as *Seal-Sure*. The places most affected usually are the areas around the motor and tank, and the side and half of the stab in the exhaust stream. The wing seldom has any contact with fuel in concentrated enough form to harm ordinary clear dope.

One objection that many fliers have to glow plugs in free flight ships is that you can't satisfactorily throttle down the motor to make test flights. To me, this is no objection because I have long thought the throttled-down motor is no way to make a test flight that will prove anything. Instead I use full power or fairly near full power and keep the motor run short—about 3-1/2 to 4 sec. A pylon ship always begins to climb and gain altitude before beginning to wind in under a maladjustment. I have never had a ship yet that was so seriously off keel that the motor did not cut before the ship was still a safe distance from the ground, even in a downward spiral. I have seen many builders make several flights successfully with throttled down motor and then raise it to 3/4 and then give it full power. On the full power flight the ship almost always shows different characteristics than it did on the others, and often with disastrous results. So I'll stick to my guns and say that if you really want to find out what the ship is doing, rev it up to at least 3/4 throttle. Most pylon ships fly best on right turn under power and left turn in the glide. If you prefer a tight circle in the

glide, it is almost a certainty that you will have to put right thrust in the motor.

All the removable surfaces should be securely keyed to the parts that they attach against so that once the adjustment is secured it may be kept. This business of adjustment the morning of every meet will sooner or later catch up with you and leave you nothing but a basketful of scraps. Even with permanent adjustments, a check flight is still advisable because of that possibility of a little warp, but at least the whole routine will not be necessary.

Incidentally, we'd like to say a word on landing gears. Originally we toyed with a one wheel pop-up design. But no matter how well you get them working, 9 out of 10 is about the best average of good take-offs you can expect. And that tenth one is at the big contest where you can least afford poor results. So on the *Vixen*, after starting fancy we ended plain, and have indicated a simple two wheel gear which will give you a good take-off when the contest director should require. A wrinkled prune to all those responsible for off-again on-again ROG rules. They should either be off or on, preferably off. Or even more preferably, leave it to the contestant as in the proposed rule for 20 second motor run ROG, or 15 sec. hand launch. Those that hand launch would have to take a few seconds penalty and those ROGing would get a few seconds advantage. But neither would be the victim of the occasional contest director who likes to see a model graveyard at the end of his inadequate runway.

Remember our moral on dethermalizers, because the *Vixen* romps off in a thermal at the slightest opportunity.