

# Mayfly

SUPER BEGINNER'S SINGLE-CHANNEL RC PLANE THAT CAN TAKE YOU THROUGH THE SINGLE SURFACE CONTROL TO ENGINE AND ELEVATOR BY MEANS OF GALLOPING-GHOST

By RICHARD GIBBS



Dale Myers of Myers Models puts his single-channel pulse-controlled Mayfly through its paces. Min-X 1200 radio equip. with Rand LR-3 in this plane.

► Engines plopped to a stop and the club members on the flight line gathered around the smiling spectator as he approached with a RC model in hand. In answer to the question he admitted, with quiet pride, to all the hours of work he had put in on this, his first model; not only his first RC but his first model—period!

The crowd silently analyzed this first effort—construction technique solid but obviously the result of an un-

practiced hand—covering and finish just passable—some obvious warping in the wing and stabilizer—can't tell for sure about decalage on account of those warps—single channel radio installation well done, neat and with good solder joints.

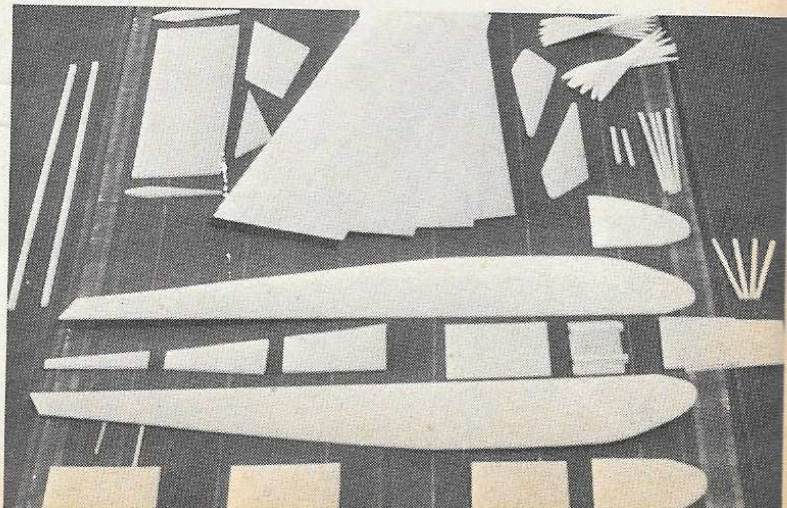
Had the spectator flown it?

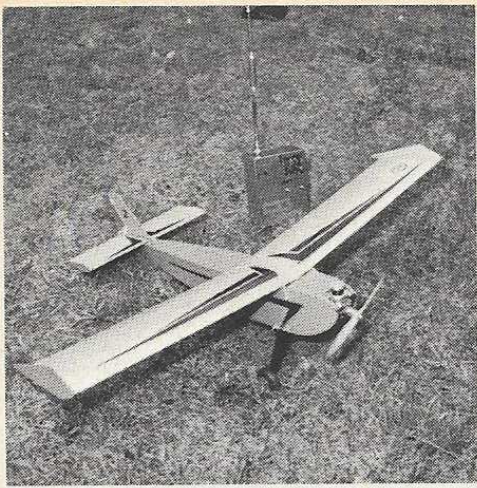
The smile faded and the spectator admitted that he had tried several times to fly it by himself but something al-

Butch displays his Monokoted-Mayfly at Schroder acres, outside N.Y. City.



All the kit pieces as supplied by Myers Models in Stewartstown, Penna.

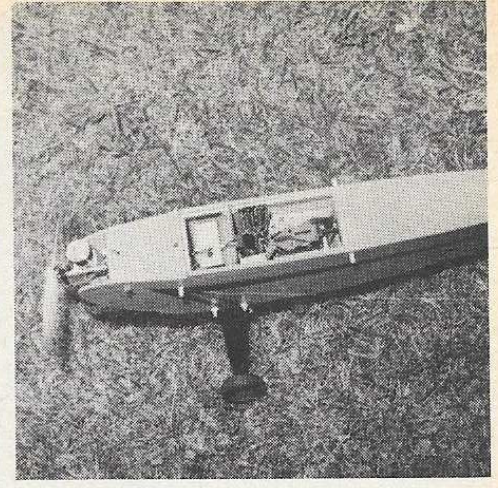




This photo taken after at least 25 flights and the Monokote shows no sign of wear or tear, as yet.



Cox Medallion .09 with throttle control really put Editor's Mayfly through its paces with CG.



Rand LR-3 installation and Min-X superhet fill cabin. Hatch behind engine for battery access.

ways happened (rather suddenly) shortly after the model was airborne and he never had time to figure it out before the ship hit the ground. He also admitted that it did take considerable time to make repairs and that the whole affair was rather frustrating!

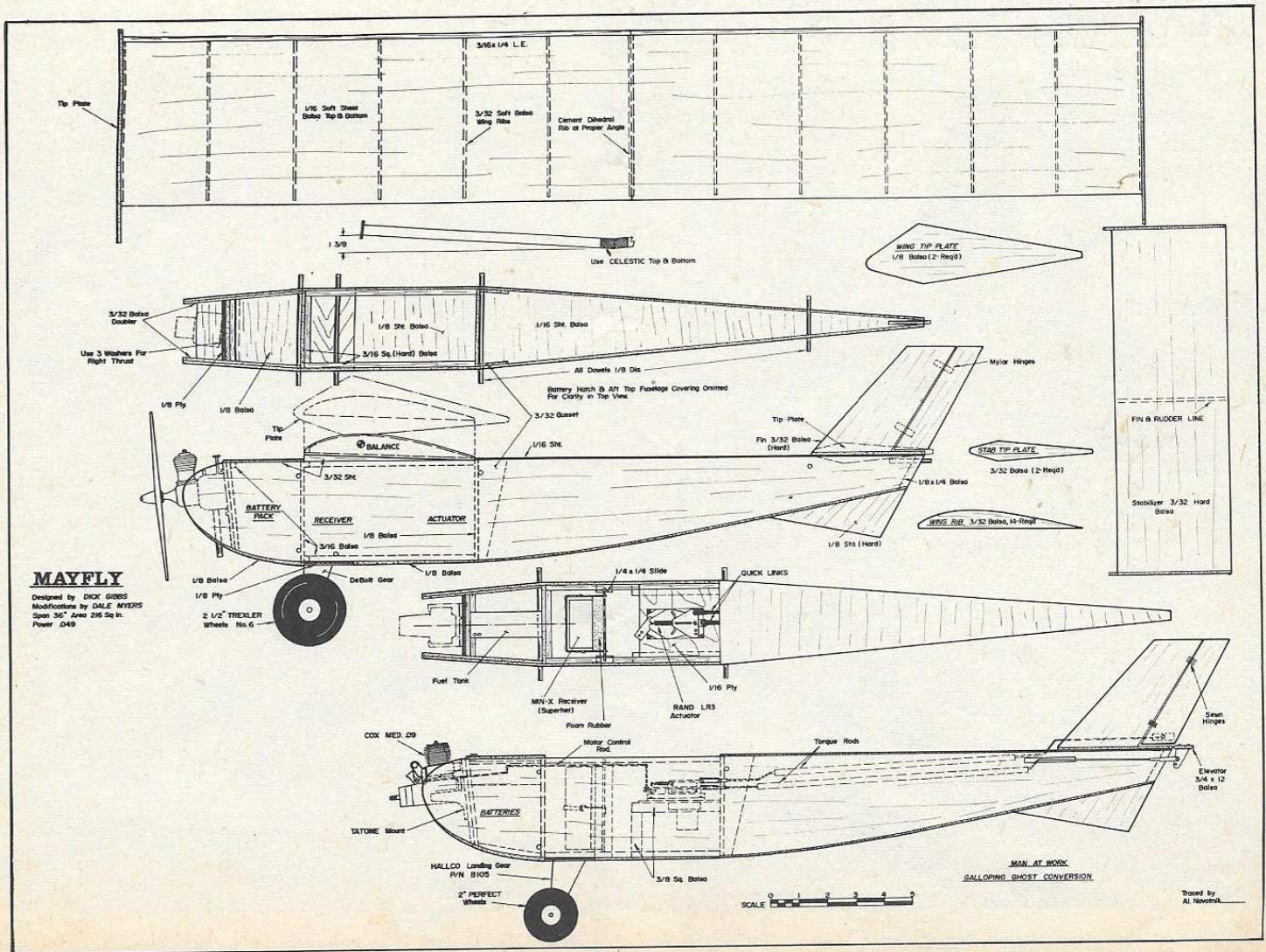
After some encouraging comments from the crowd, the spectator agreed to another attempt, but this time with one of the old-timers by his side. The engine was started, radio checked, and the plane was launched; before the old-timer could open his mouth, the plane twisted into a snarling right turn, an abrupt left, snap roll and—crunch. The spectator quietly gathered up the pieces, walked off the field, and out of the hobby!

Fiction? In this case yes, but it does happen.

Of course most model clubs, including our (The York

Area RC Club, York, Pa.), offer the new club member all the help and encouragement possible to get him successfully into the air—and keep him there. But what about the loner, the potential modeler who has never had any experience with free-flight, or U Control, and perhaps does not have access to a club or the advice of an experienced modeler? Or the chap who is not interested in club activity but just wants to fly now and then and cannot (or will not) spend the time necessary for the construction of a model for such occasional flying? Or the guy who likes to fly and doesn't like to build?

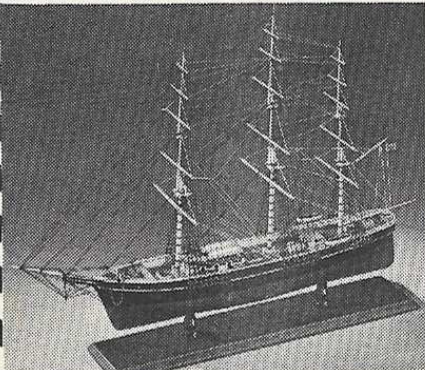
Dale Myers (Myers Models, Stewartstown, Pa.) believes that there must be thousands of potential RC'ers who never become active in the hobby for the reasons mentioned above and decided to market a (Continued on page 40)



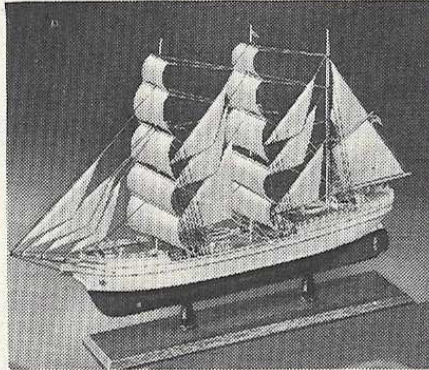
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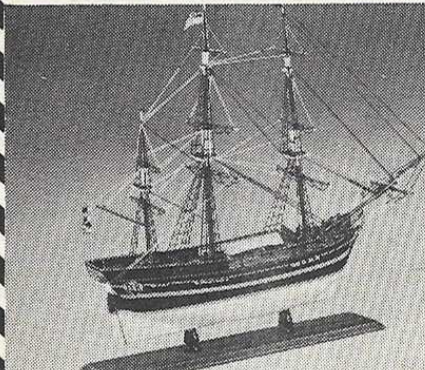
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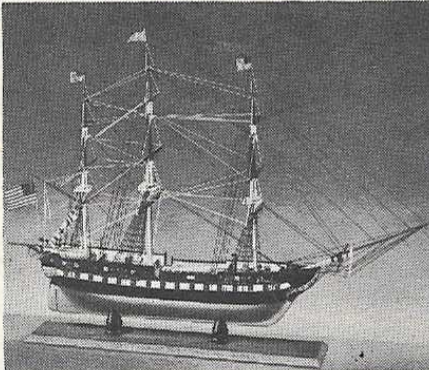
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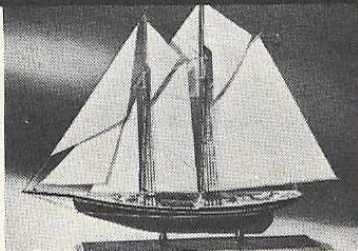


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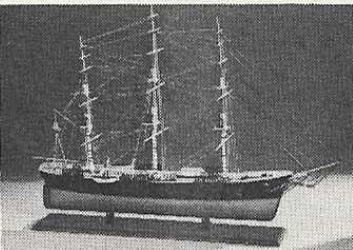
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RC model designed specifically for the beginner in radio control. To provide a broad appeal the model was to be offered in various stages of completion, i.e. completely assembled, painted and with engine installed (and radio gear, if requested) for those with a time problem; an assembled, but unpainted package for those with the desire to at least do a dope job; a third choice would offer all major components completed, with assembly and finishing to be done by the buyer; and finally, a kit would take care of those who want to go all the way.

Knowing that I shared his views on the "RC Beginner" problem (and having opened my big mouth once too often!) Dale asked me to come up with a design to meet the following requirements:

1. Capable of stable, hands-off flight but with maneuver potential.
2. Small size (consistent with good performance) for low first cost and use with simple single channel radio equipment.
3. All balsa construction for quick building, warp resistance and ruggedness.
4. Ample room for almost any single channel installation.

Prototype drawings were supplied and Dale built the first model, fitted with F & M single-channel superhet receiver and Royal Products servo. Engine thrust-line adjustments and decalage were established after a few flights and the ship proved to be a cinch to fly. Grooving around gently in the breeze it resembled, and was promptly named, the Mayfly! We were on the right track.

Another model was built with several structural modifications, for greater strength, and a slightly longer tail moment. A Min-X Pulsmite 1200A was installed along with the Rand actuator for rudder-only and seven 500 mah nicads were lowered into the battery compartment. With the Mayfly lugging all that weight, the wing loading was fairly high but with only .049 power the performance was excellent—not contest caliber by any means, but just what we wanted for Mr. Beginner; stable shallow climb, smooth turns with very little loss in altitude and responsive to control without touchiness. Power off glide was flat without ballooning. This looked like "it" and for a couple of months the Mayfly was flown with pulse rudder and single-channel servo, reliable, relaxed, pleasant flying with no panic—just fun!

Satisfied that the design standards had been achieved, Dale started producing the Mayfly and several early production models were sent to various individuals for evaluation. M.A.N. at Work, of course, received one of these models and had Butch flying it in short order, and suggested that a construction article might be of interest to the readers.

So clear off a small space on the workbench and start building. You can be flying this weekend!

**CONSTRUCTION**—Cut all parts from sheet balsa as indicated on the plans, noting direction of grain. The grade of balsa you use is not critical but try to get some hard stuff for the fin, rudder, stabilizer and sub-fin.

**FIN AND RUDDER** are cut from hard 3/32 sheet and sanded lightly. Hinge rudder to fin with Mylar, Nylon, cloth tape or figure 8 stitching with Dacron thread. The important thing is that the hinge be strong and move freely.

**STABILIZER** is cut from 3/32 x 4 inch hard sheet balsa. The tip plates will help to prevent warping so weight the

stabilizer onto a flat surface and cement tips in place. Do not remove weights until cement is completely dry. Cementing fin and rudder assembly to the stabilizer completes the tail group. Epoxy glue does a real good job here; adds strength and another warp resistant joint.

**WING**—Cut two sheets 1/16 x 6 x 36 balsa in the center and you have the top and bottom covering for both wing panels (aren't we clever?). Pin bottom covering to a flat work surface and cement and pin 3/16 x 1/4 leading edge material to top of bottom covering (read it again—it makes sense!) Cement wing ribs in place making certain that one end rib of each wing panel is slanted in to provide the proper amount of dihedral. (It helps to build both wing panels at the same time so that you're sure to build one left and one right panel.) When all cement joints are thoroughly dry, remove pins from bottom covering and cement top covering in place, starting at the leading edge. Use plenty of cement and pins again to make sure panels are flat. Panels should remain pinned flat for several hours (preferably overnight) to completely dry. When dry panels are joined at dihedral ribs using double cemented joint or Epoxy glue; refer to plans for proper amount of dihedral. Cover dihedral joint with cloth tape or Celastic. Addition of the tip plates with contact cement is fast, strong, neat and completes the wing except for sanding.

**FUSELAGE** is started by cementing 3/32 inch sheet balsa doublers to fuselage side pieces. Next the side pieces are cemented to 1/8 balsa bulkheads C and D. (Bulkhead sections are not shown but are all rectangular in shape and dimensions can be taken directly from plans.) The top of the fuselage is a straight line and if sides are placed upside down over the drawing when cementing in bulkheads everything should come out properly aligned. Next add 3/16 square balsa framework to the inside of radio compartment as shown. When dry pull aft section of fuselage together and join to 1/8 x 1/4 tail-post. Do this with fuselage upside down and you won't build in a twist. Install blind mounting nuts in firewall to suit your engine. Front section of fuselage can now be pulled in and cemented to plywood firewall and back-up bulkhead B. Firewall must be installed at angle shown on the drawing to provide proper downthrust! Epoxy glue would do well here. If you don't care for the bending routine you can score the fuselage sides at bulkheads C and D (about half-way through and on the outside surface) which will make it easier to join the ends, particularly at the nose. Either scoring or bending will do but if you intend to use a handful of nicads in the battery compartment the bending method will provide more strength. Again allow everything to dry thoroughly before continuing construction. Cement plywood landing gear mount in place as well as all bottom fuselage covering (cross grained). Use Epoxy glue to fasten sub-fin to fuselage because it also doubles as the tailskid. Note grain direction.

Because there are so many good radio systems available, we have not shown any particular type on the prints; however the actuator, escapement or servo mounting and torque, or pushrod, installation should be made before adding top fuselage sheeting. All hold-down dowels should also be firmly cemented in place before sheeting fuselage top. If rechargeable cells are to be used, the battery hatch can be cut and permanently cemented into place. Replaceable energizer cells will require a removable hatch with a rubber hand hold down. If you are installing a pulse system and are worried about all those batteries exiting

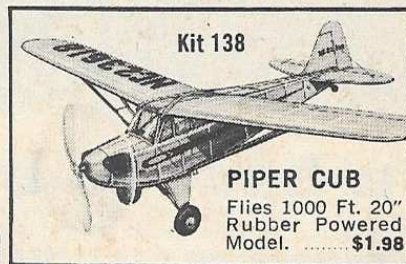
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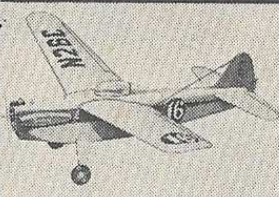


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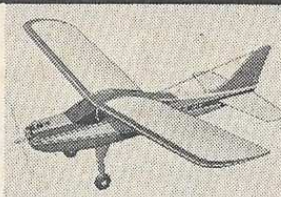
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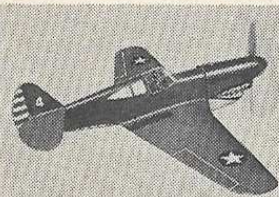
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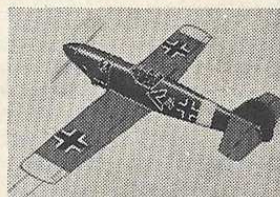
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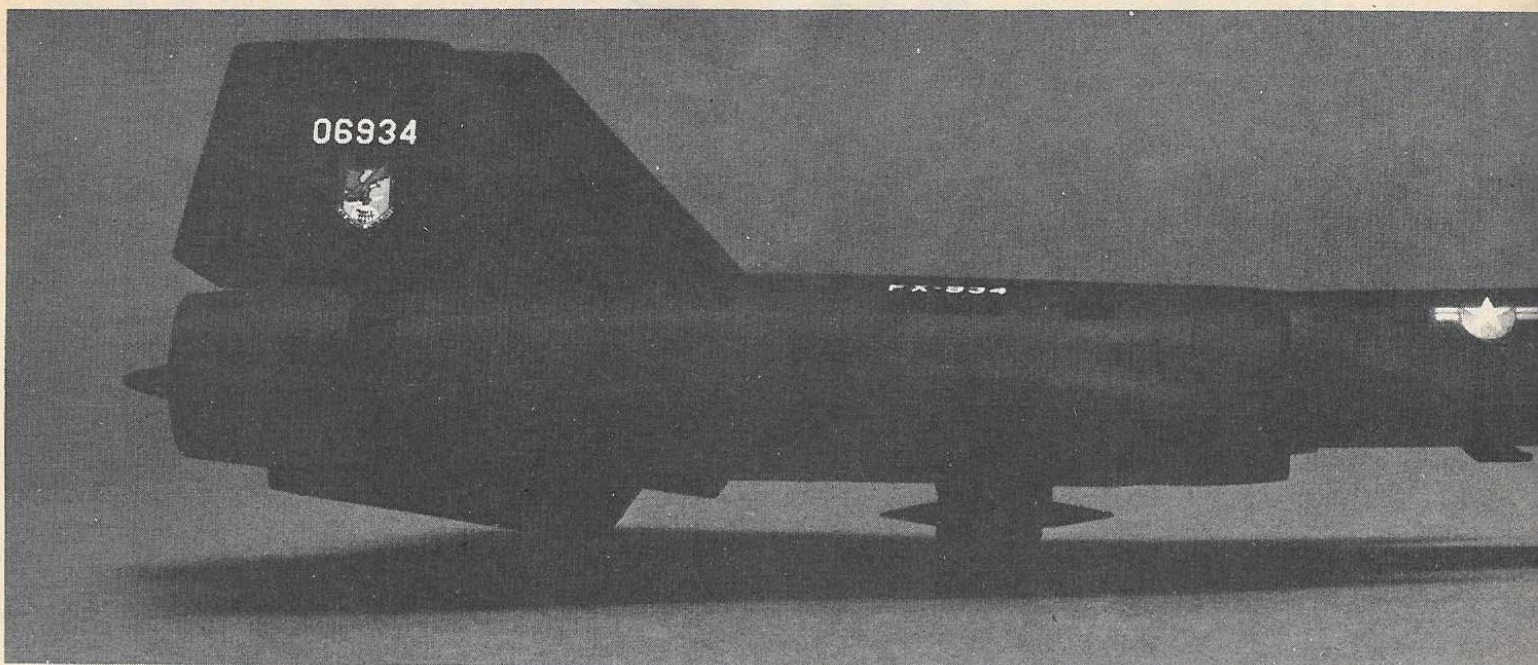
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## You have to build it to believe it.

suddenly through the bottom of the fuselage in a hard landing, lay a piece of Celastic on the bottom of the battery compartment with the Celastic extending about an inch up the sides of the compartment.

Wing incidence blocks are installed last. Cut them from fairly hard sheet and make sure they are identical. They should be 3/16 inch high in front—exactly.

Mount wheels to aluminum landing gear with 4-40 x 1/4 inch long machine screws and all components are completed.

FINISH can be just as fancy as you please. A light sanding of all balsa parts followed by a couple of coats of sanding sealer, colored and clear dope provides a minimum finish. It's not necessary to use Silkspan or silk covering over the balsa although there is no law against it, and weight is not too critical in case you get carried away! We have used Monokote on one Mayfly and it does an excellent job.

**FLIGHT TEST AND TRIM**—With everything strapped together (and radio installed) check to be sure that all flying surfaces are warp-free and true. (We did tell you to build on a FLAT surface, remember? And you can't steam the warps out of this type of construction—if they're kinked you gotta rebuild 'em kid!)

Double check to make certain that wing incidence, stabilizer incidence and CG (balance point) are as shown on drawing. Engine downthrust is built-in but be sure that the engine is mounted with plenty of right thrust; start with three washers behind the engine on the left hand mounting bolts and you can add or subtract later if it should prove necessary.

Range check your radio and, if everything moves in the right direction at the right time, fuel up. With engine running range check again. If everything still works (but only if it works!) have someone launch the Mayfly straight ahead and just

slightly above the horizon. Do not throw like a baseball. Do not loft like a basketball. It does have wings so it is not necessary to hurl the Mayfly like a javelin. The name of the game is "Launch the airplane"—it should fly out of your hand.

After launch the Mayfly should move straight and in a shallow climb. Get plenty of altitude before making any turns and make the first few very gentle, just to see what happens. Any turning tendencies under power (with neutral rudder) can be corrected with additional right or left engine thrust as needed. Turns in the glide should be corrected by trimming the rudder. If you should get a bit careless, the Mayfly is quite rugged and can usually be dusted off and flown again. However, these is a limit!

Set up as shown on the plans it is almost impossible to loop the Mayfly—should you manage to flop over at the top of a zooming climb it simply chugs off straight and level, with very little loss of altitude. Turn out of a near stall and—straight and level. Very nice to know when you are involved in those confusion maneuvers close to terra firma! With control linkage set up for full rudder throw the Mayfly will spiral dive, roll, and do beautiful wingovers; however loops are still hard to come by with the CG as shown. If you are a beginner let the CG alone and enjoy yourself. Later, if you wish, you can move it gradually aft, change the stabilizer incidence, engine thrustline adjustments and have a maneuverable, hard to fly airplane with little or no wind penetration!

Oh yes, if you are eyeballing the drawing and mentally scaling things up—we beat you to it! With a 48-inch span and 384 square inches of wing area, we call it the ShooFly! Let Walt know if you are interested. We'll cooperate.

One final thought. If you still can't con-

vince yourself that you should build the Mayfly—don't! Myers Models can supply one completely finished.

*Editor's note. This is to be a long one and entirely without the knowledge of Dick Gibbs, our author! As Dick told you in his article, a Mayfly had been sent on to Butch and myself for our evaluation and the first thing we did was to enter a field in which we were entirely without knowledge, Galloping Ghost. My column in the July 66 issue explained what our problems were, but like all good modelers we prevailed and while the Mayfly suffered during our learning period, it showed us enough to realize that here we had the ideal first plane, or beginner's model.*

*Now that we realized the Mayfly's potential, we immediately asked Dale Myers to send us another kit but this time with just the fabrication completed but no finish as it was time to get our feet wet with Monokote. Again we had a learning curve but this time not nearly as severe or long as with the GG flying. A few minutes with the electric iron, plus remembering the first class demonstration by Sid Axelrod at the DCRC and old Button Pusher, Northrop's excellent article on how to overcome Monokote in the June '66 issue of MAN, we had it licked. Just wish we could print the color photos we have of the little bird as it is spectacular.*

*However, this was only the first experiment as now we are going to take the Mayfly all the way with a Medallion .09 up front and the new Rand LR-3 Galloping Ghost actuator with a bit more throw.*

*Over twenty flights to date and a real going machine—a two-ounce tank up front gives engine run of slightly over five minutes and in this time you can loop, roll and do many more stunt maneuvers that you would not have thought possible.*

*One recent week-end, incidentally my*

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first time out of the house in about two weeks and all knuckled up in a brace that will be part of my back for the next six months—the penalties of getting old are many but oh, this backache, to get back to the first time out, Butch wanted the boys in the club to see this little machine perform as there were many doubters.

After six flights and at least three of the doubters flying the machine, they were thoroughly sold. Galloping Ghost is here to stay and more so with these little mechanical marvels that are currently available for this fast growing part of R/C.

Before I close, there is one little incident that must be reported even if it leaves me with a bit of egg on my face. Getting my land legs back in readiness to go to the office, we tried an outing at the local high school field and Butch insisted he should take it off for me as it was a sensitive machine that needed tender, loving handling, but not me. No sir, no thirteen-year-old is about to tell me how to fly or help me into the air. No need to describe the debacle. Suffice it to say that now it reposes in the top of the tallest tree at the field—during the period getting it to the top of the tree was one big over control after another with Butch desperately hoping that I would be sensible enough to hand the box to him but pride goeth before a tree!

Too late in the day to get a tree man to rescue it for us so had to leave it for the following day. About two hours before the tree man's arrival, we have a cloudburst. So retrieve is set off for another day and all the while I can still hear that little machine tearing its heart up there and in fail-safe.

A testimonial now to Monokote. Butch was invited to be the flying guest of another club and was shot down by the club's Gauleiter, better known as field Fuehrer. Wish I knew what he has against

13-year-old kids but all he did was to harass the poor kid the entire time he was in the air and he finally became so nervous he missed a control and barreled in. Expecting to see a total wreck, he was amazed to see an entirely whole fuselage, but the entire contents of the inside spewed out through where the firewall had previously resided. The first impression was of fuselage with the worst possible case of dysentery.

In less than an hour the machine was ready for the air and you would never know that it had spewed its innards as it was just the next day when Butch gave the flying demonstration in which many of the club members flew the machine.

For those who want to take the Mayfly the whole way in Galloping Ghost, we have included the information for this installation on the construction plans, plus the small modifications necessary to accommodate the installation. Our only suggestion is that you use the smallest and softest throw for the control movement until you have the machine well in hand and then go all the way for the best flying you will have had in many a day. I told you this note was to be a long one and my apologies to Dick for tagging so much on to your fine article.

—W.S.