Sometimes a design crosses categories so skillfully that both groups get exactly what they need. This .10-powered, 33-oz. RC sport trainer is stable enough for the beginner yet maneuverable enough for the experienced fun flier. ■L. F. Randolph

Randy's Dime

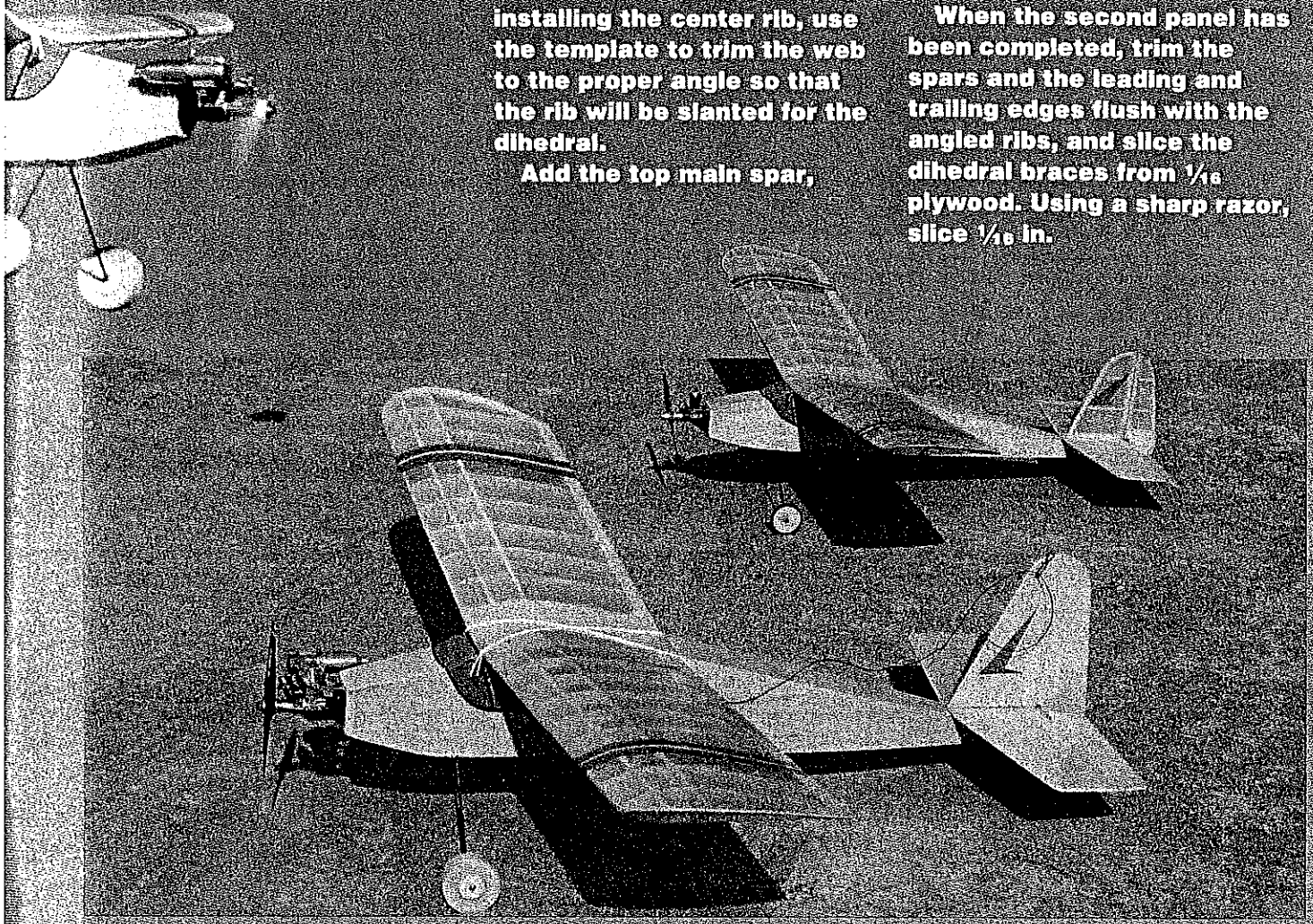
over the waxed paper-covered plan. Slip some of the ribs on the spar, and use them to position the trailing edge sheet. That way, any slight discrepancy between the length of your ribs and the dimension indicated on the plan will carry through to the trailing edge.

Pin the trailing edge in place, and, beginning with the pair of trimmed center webs, glue all the ribs and webs in position. Slip a piece of 1/16 sheet scrap under the center ribs, raising them over the plan so that there will be enough room to add the center sheeting later. When installing the center rib, use the template to trim the web to the proper angle so that the rib will be slanted for the dihedral.

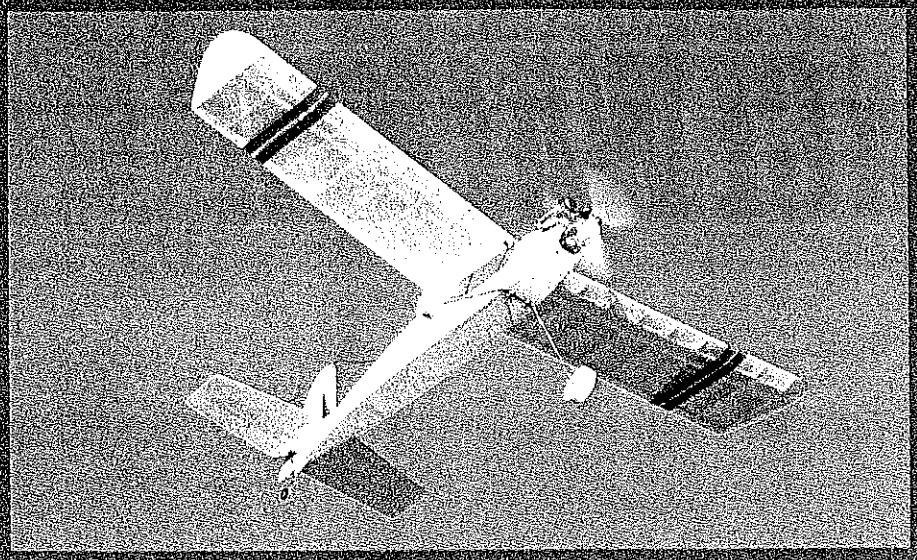
Add the top main spar, making sure it's glued to all webs and ribs. Install the leading edge. The top trailing edge sheet will be added after the wings have been joined at the center.

Build the other wing half the same way, with the angled ribs at the opposite end.

When the second panel has been completed, trim the spars and the leading and trailing edges flush with the angled ribs, and slice the dihedral braces from 1/16 plywood. Using a sharp razor, slice 1/16 in.



The author scaled up Dime to twice the size of his earlier RC Nickel (shown in background) while keeping the same proportions. The result is a smooth flier that cuts through winds as efficiently as many a larger model. Whether you're in the mood for rip-roaring maneuvers or just loafing around in the sky, Dime does it all on a small fuel budget. Snaps and rolls are little different than with full-house planes.



Dime is large enough to be easily spotted when it's high in the sky.

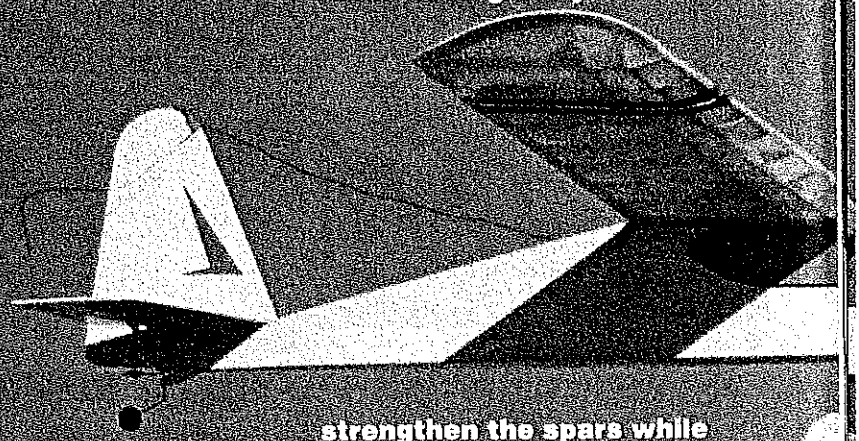
IT'S ONLY FAIR to warn you. An RC sport trainer as versatile and economical as this one can be habit-forming.

Dime suits just about any mood. Take it up for slow flight, just puttering around clipping weeds and doing endless touch-and-goes, or go for tearing up the sky with reckless abandon—all on a small fuel budget.

In two respects, this model is a twice-size version of my earlier Nickel (see my construction article "Nickel" in the November 1988 issue of *Model Aviation*). I moved up from an .049 engine to a more potent .10 size, and doubled the weight from 16½ to 33 oz., but held to the proportions used in the smaller airplane. The more powerful engine equips Dime for handling breezy conditions, and the somewhat larger airframe is easier to see in a high sky.

Dime makes a practical choice for a good, inexpensive trainer. And for sheer fun, it's difficult to beat.

A plethora of engines is available in the .10 size range: the Cox and Enya .09s, the superb O.S. .10, the SuperTigre .11, and the HB .12, to name a few. Though intended for this size engine, Dime can easily handle the more powerful .15s or even a .20. At the other end of the scale, it will probably fly on a G-Mark .061 or a Cox .074. But for the best, most economical performance, stay with a .10-size power plant.



Construction

Wings. Cut the ribs, either individually or by stack cutting, from 3/32 lightweight sheet balsa.

If you cut the ribs one at a time, use a sheet you've marked up with a fine felt-tip pen by tracing around a template. If you cut all the ribs at once, stack balsa blanks together, trace the rib pattern on top, and slice through the assembly with a band saw or jigsaw.

Individually cut ribs should be stacked and pinned together, then gang sanded. This will smooth out any high or low places that might have crept in during the cutting operation.

Select four ribs, and trim 1/16 in. from their tops and bottoms. These will be used as the center section ribs.

The webs greatly strengthen the spars while adding little weight. Cut them from 3/32 sheet, with the grain running in the direction shown on the plan.

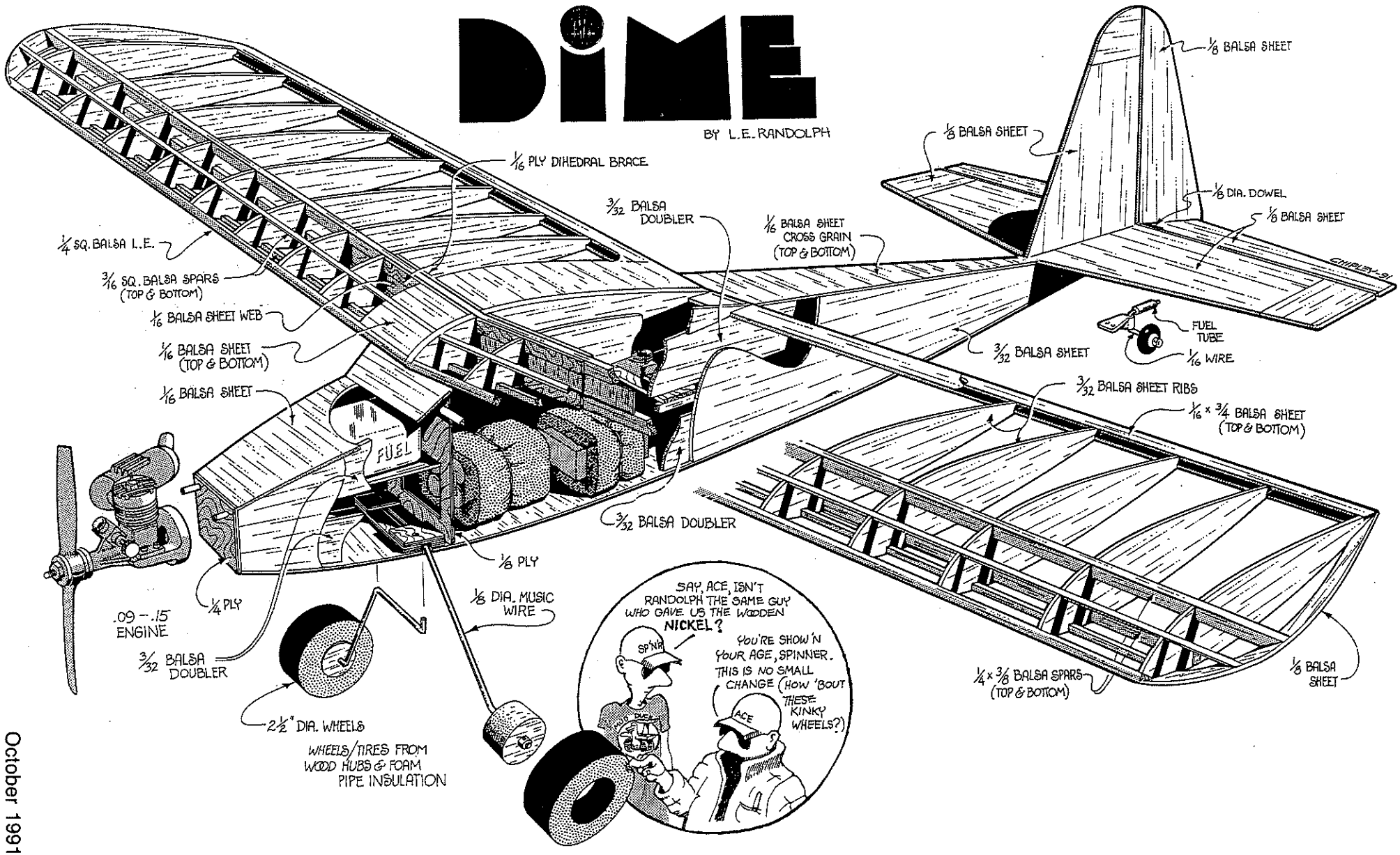
Use different grades of wood for different purposes: firm stock for the wing spars, slightly softer wood, if desired, for the leading edge, and medium-weight quarter-grained stock for the trailing edge. Slice the tip pieces from medium-hard 1/16-in. sheet, always cutting along the grain.

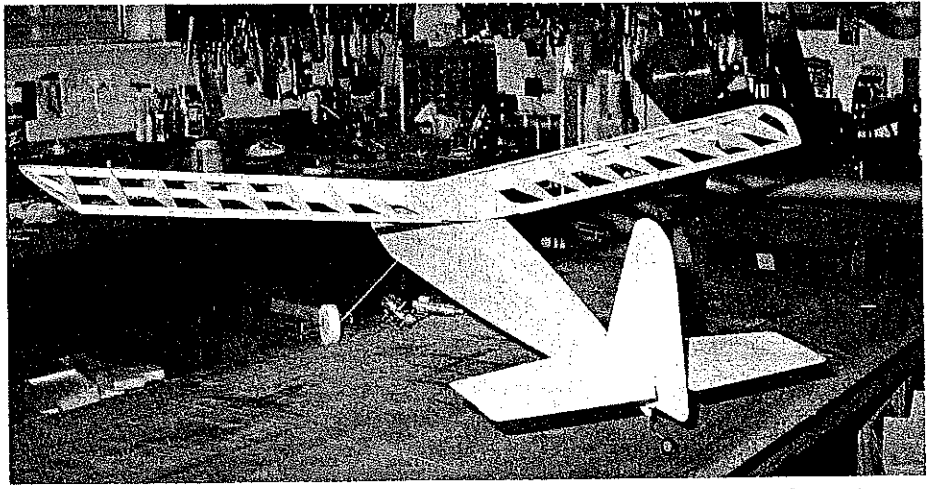
Although the spars may be purchased, it's preferable to strip them from sheet wood. This can be done with either a straightedge and razor knife or a commercial stripper.

The wing is built in two halves. Begin by pinning the bottom main spar in place

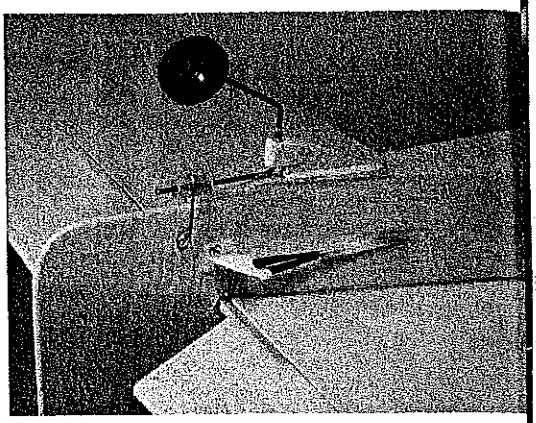
DIME

BY L.E. RANDOLPH

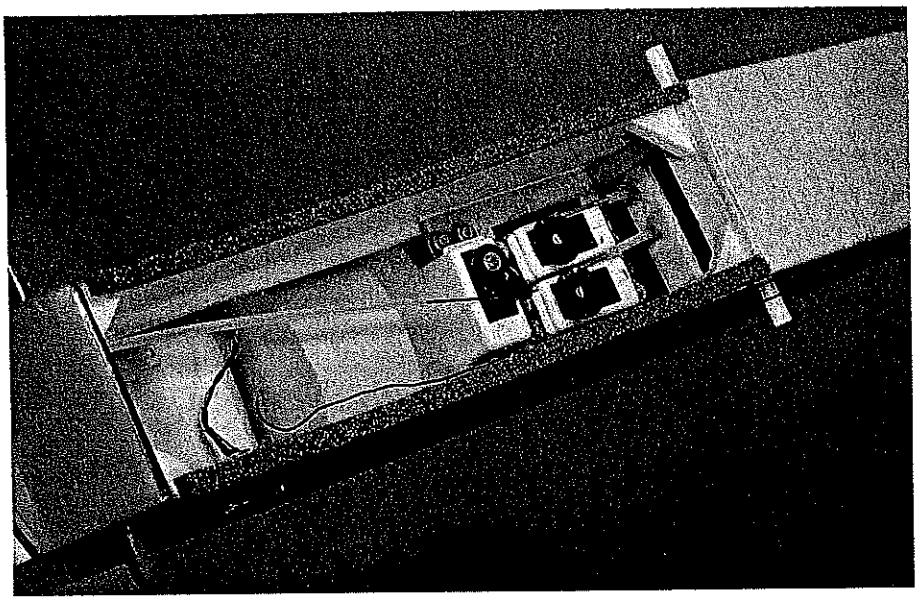




All that remains is covering the model and installing the engine and radio. Correcting any problems in alignment is easier before the covering has been applied.



The tiller-type tail wheel gives positive ground control. If you're accustomed to flying aileron-equipped airplanes, you'll have to remember to steer with your right hand both on the ground and in the air.



Unlike most .10-powered airplanes, Dime has lots of room for radio gear in the cabin area. Reversing the servo throw would allow the throttle line to run closer to the fuselage side.

from the center ribs on each side of the main spars to fit the plywood dihedral braces.

With one wing half flat on the bench and the other elevated six inches, install the plywood braces. Check all joints for fit before gluing. When the cement has set, install the top and bottom front spars.

Glue the tips to the two tip ribs. The tips are angled upward so that they're flush with the top of the top spar stubs. Fill the area between the bottom spars and the tips with scrap spar material. Add the top trailing edges and then the center section sheeting, making sure you position the sheeting between rather than over the spars.

Sand the wing, and set it aside.

Stabilizer, elevator, and rudder. Cut these parts from medium-hard 1/8-in. sheet. Add the cross-grained tips to the stabilizer; these help to eliminate warping.

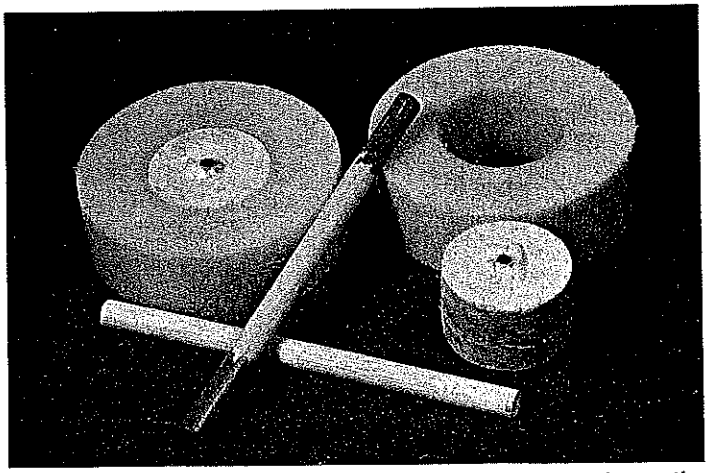
Join the stab and elevator surfaces, and sand the outlines to match. Inset the music wire carry-through at the leading edge of the elevator, and epoxy it in place. When the cement has set, cut the rudder clearance notch in the trailing edge.

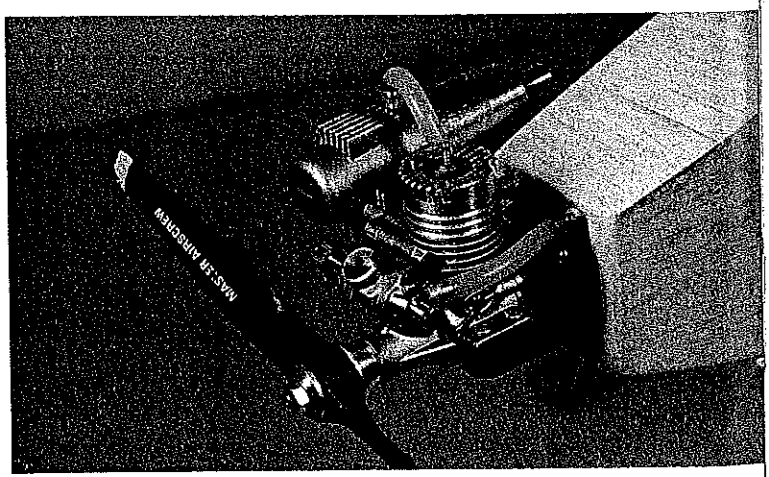
Fuselage. Cut the sides from medium 3/32 balsa sheet. The wing saddle is not cut out until the doublers have been glued in place.

The doublers are also cut from 3/32 balsa. Cement them in place along with the 1/32 plywood triplers. Pin the sides together, and block sand them to matching outline. With the sides still pinned together, cut the wing saddle and drill the 1/4-in. holes for the wing mounting dowels.

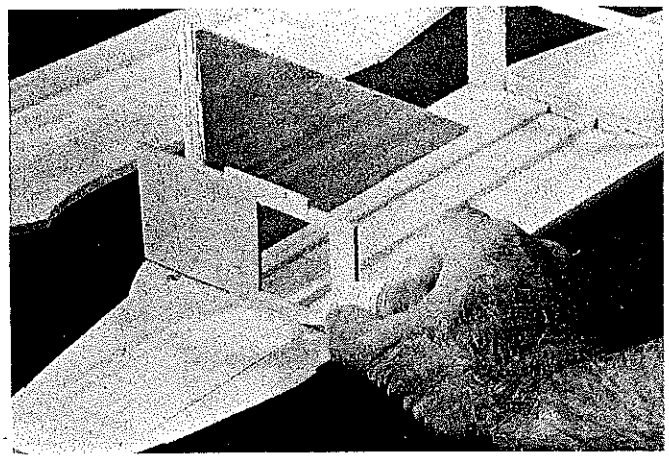
Separate the sides, and add the 3/32 square uprights and the servo mounting rails. Cut out the firewall and the two cabin formers. Epoxy strips of 3/16 plywood to the rear of the firewall as backups for the wood screws that anchor the engine mount. Drill the firewall for the throttle, fuel, and overflow lines; drill the front cabin former for the throttle line.

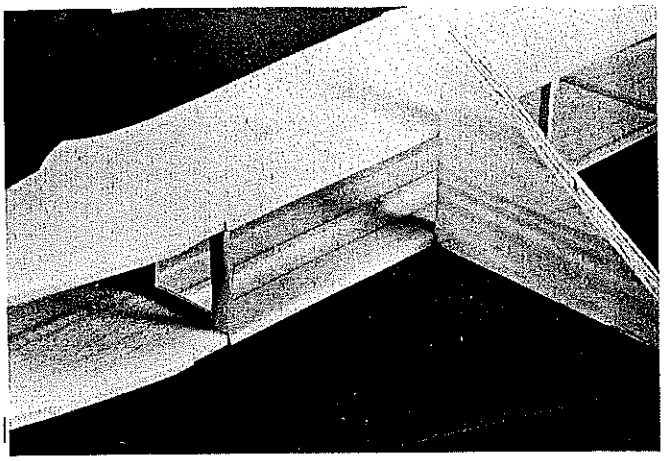
Begin fuselage assembly by gluing the



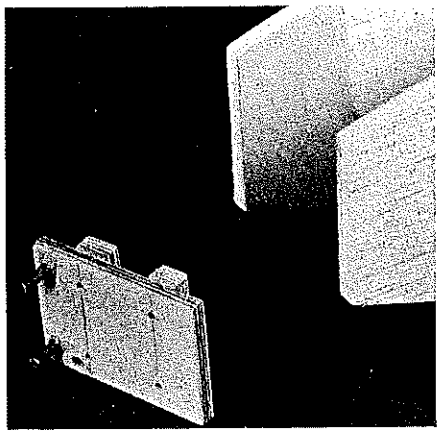


Left: It's a simple job to paint the wheel hubs before epoxying on the tires. The ends of the wing holding dowels can also be painted before they're glued through the fuselage. Right: Though you can opt for an engine size as small as an .09 or as large as a .20, the SuperTigre .11X has all the power you'll need to snatch Dime around in fine style. It's one of those small, forgotten engines that ought to be remembered.

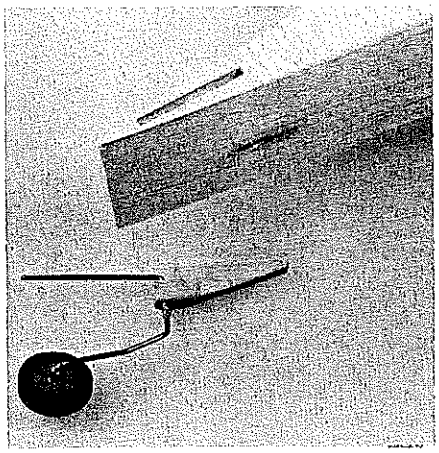




Left: A ½-in. ply right triangle holds the formers vertical to the fuselage side while they are glued in place. Right: The triangle is being used again to square the sides while the second side is glued over the first. Notice how the sides are notched to receive the landing gear mount.



The 1/8-in. brass tube fuel and overflow lines are installed and the firewall is drilled for the engine mount and throttle line before it is mounted on the fuselage. The ¼-in. ply doublers are necessary if the engine mount is to be attached to the firewall with wood screws.



Note the 1/32 plywood doublers on either side of the 1/8-in. ply tail wheel mount. The mount is drilled for a 3/32 brass tube bearing; 1/16 music wire is slipped through the bearing and bent to shape before the tail wheel assembly is mounted on the fuselage.

two cabin formers in position on one of the sides. Use a right triangle to check that they are perpendicular to the side. When the glue has dried, attach the second side to the formers, making sure it's perfectly aligned with the first.

Glue the fuselage sides together at the tail. When the glue joint is dry, mount the firewall. I recommend securing it with epoxy.

Make the landing gear mount, and glue it in place just in front of the first cabin former.

Sheet the fuselage bottom with 1/16 balsa, making sure the grain runs crosswise. The balsa is replaced at the very aft end with 1/16 plywood for the tail wheel mount.

Epoxy the ⅛-in. copper-tube fuel and overflow lines and the throttle Nyrod through the firewall. Install the fuel tank in its mounts. Connect the fuel and overflow lines with fuel tubing, watching for and correcting any kinks in the lines.

Add the elevator and rudder Nyrods, and complete the cross-grained sheeting.

Sand the fuselage, and set it aside.

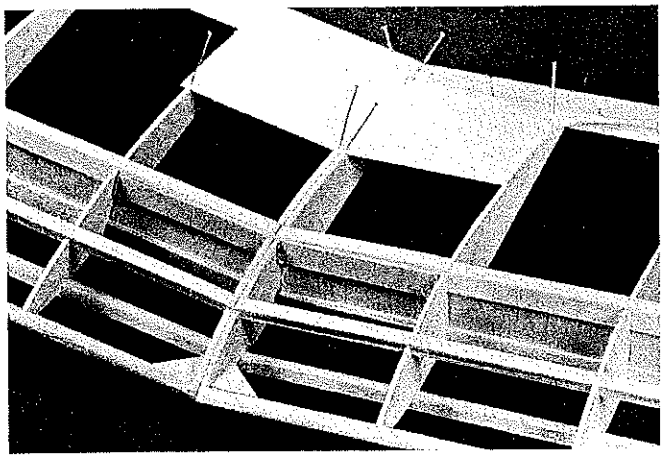
Covering and finishing. I suggest covering the model with MonoKote as was the prototype. Follow the manufacturer's instructions in applying the MonoKote.

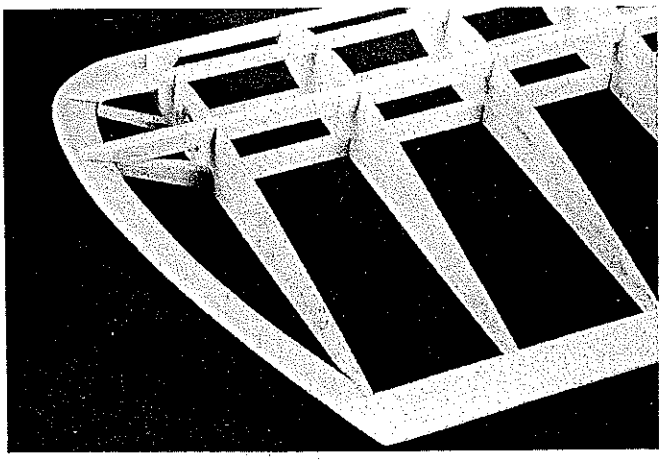
Hinge the surfaces with MonoKote as well, or use the method with which you are most familiar.

Trim the covering from the stabilizer where it contacts the fuselage and rudder. Install the control horns on the elevator and rudder, and epoxy the fin to the top of the stab. Use a T-square to check the alignment, then epoxy the stab assembly to the fuselage.

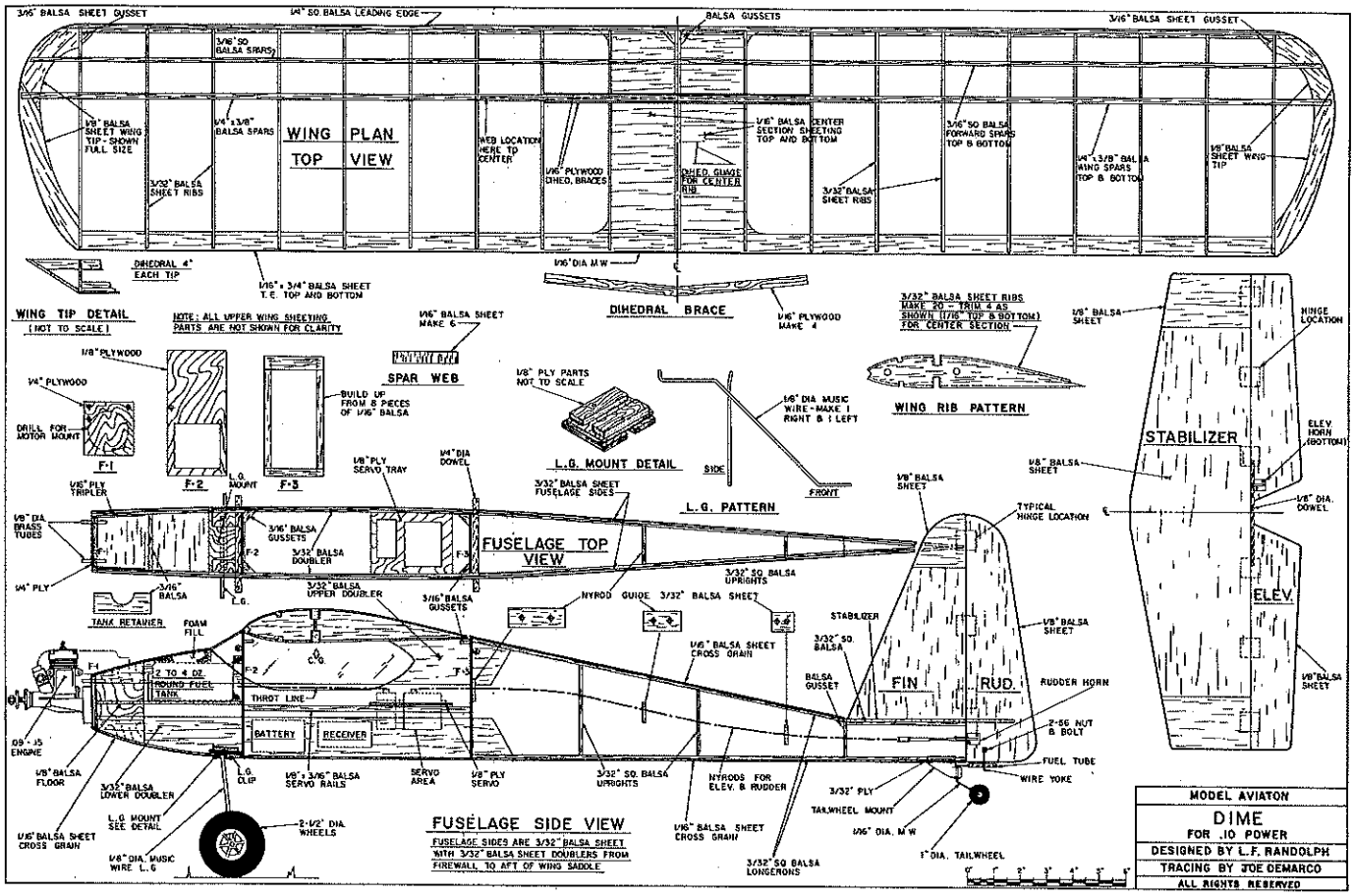
Trim the covering, and epoxy the ¼-in. wing mounting dowels in place. Install the tail wheel mount and the steering yoke.

Final assembly and radio installation. Before attaching the engine mount to the firewall, harden the wood attachment screws with thin CyA and paint the firewall with a coat of epoxy. Mount the engine. Attach the fuel line to the





Left: Only the two center ribs are notched to receive the ply dihedral braces. The 1/16 vertical-grain spar webs should not be omitted—they greatly strengthen the spars just outboard of the center sheeting. Right: The two top spars are beveled to match the tip, and scrap wood is used between the tip and the bottom spars. This type of tip improves the roll action of the rudder in three-channel airplanes.



carburetor and the overflow line to the muffler tap.

Run a piece of soft iron wire through the throttle Nyrod, then connect it to the throttle arm.

Bend the landing gear legs, and add the wheels. Mount the unit in the gear mount using metal brackets and small wood screws. The prototype's wheels have pine hubs and tires made from pipe insulation—a lightweight combination.

Assemble the airplane, and check the balance point. Move the battery pack and servos around until the center-of-gravity matches that shown on the plans, and then install the radio to maintain this balance.

Connect the elevator and rudder horns to the servos with inner Nyrods, threaded studs, and clevises. Make a Z-bend in the throttle wire to engage the throttle servo. Check transmitter control response. Do a range check, and the model is ready to fly.

Flying. With a new aircraft, it's a good idea to taxi around a little to get the feel of things. Remember to steer with the right stick whether the model is on the ground or in the air. Dime tracks well and responds smoothly to rudder commands.

Take off into the wind while applying full power. The airplane will track straight, then lift off from the three-point position.

On the first flight, keep the nose down a little to build up speed, then make a shallow climbout. Assuming there are no noticeable warps, any necessary flight trim should be well within the range of the transmitter trim controls. Response to control input is smooth and positive; the model will snap at slow speed, but you'll have plenty of warning.

This airplane can perform nearly any maneuver, provided it doesn't require crossed controls. As with all rudder-directed models, you'll need to use forward stick at the beginning of a roll—a little more if the airplane is flying inverted. Snaps, stalls, tail slides, loops, and rolls are little different than with full-house airplanes.

Dime will fly inverted, but it isn't happy that way—the dihedral continually tries to roll the model back upright.

Landings are fun. Because no aileron control is available, when the wings are level the airplane is traveling in the direction in which it is pointed—except, of course, when it's flying into a crosswind. Hold it off the ground with Up elevator, and it will do the slickest three-pointers you ever saw. Everyone who flies Dime likes to take it through touch-and-goes. That's a good test for the pipe insulation wheels.

So far, they're holding up well. □

To make the ultralight wheels, the author used sections of water pipe insulation for the tires and pine for the hubs. He cut the hubs with a 1 ¼-in. hole saw, then filled the center hole with a ¼-in. dowel and drilled it for a 5/32 brass tube bearing.