

This CL Precision Aerobatics model is an eye-grabber, and it uses a contest-proven wing. Build one for fun or to take into the winner's circle.
■ Tom Dixon

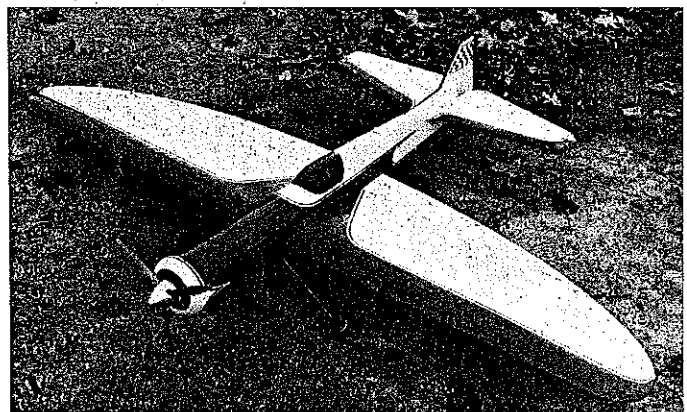
Thunderbird 60 Mk II

IT WASN'T LONG AFTER the 1988 Nats that I received a note and photo from *Model Aviation* Editor and Publisher Carl Wheeley expressing interest in publishing the Thun-

derbird 60 Mk II. Although we were both unaware of it, Wheeley's camera had captured Milton Woodward and myself as we launched the plane for the last official flight

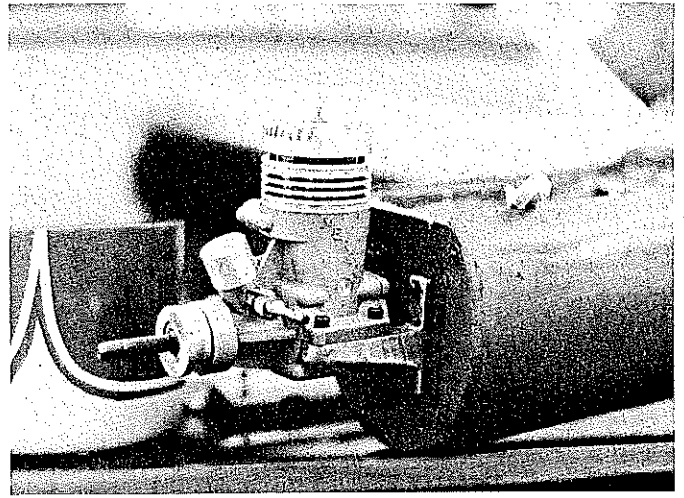
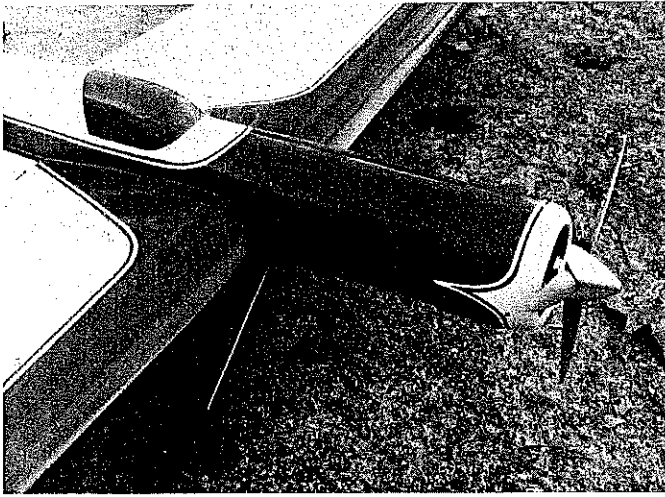
at the Nats. That shot, included in this article, motivated me to redo the plans and present them to you.

While the T-60 Mk II is clearly an evolu-

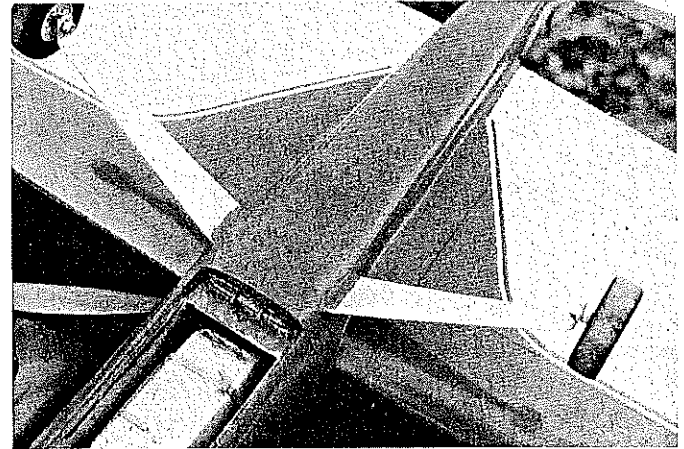
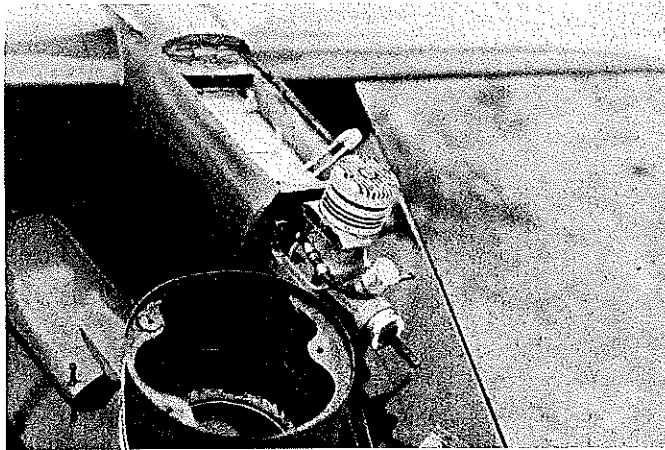


Top: Milton Woodward, Stunt flier from Atlanta, releases the T-60 Mk II as our author takes it off for the last official flight on Top 20 Day at the 1988 Nats. Bouncy landings kept the model in 19th place and led to a redesigned landing gear for the model presented here. Above left: The round cow! gives the T-69 Mk II a look reminiscent of the Russian SU-26M full-scale aerobatics design. Above right: From this angle the classic Palmer Thunderbird lines are more evident. The AMA number was applied using a 1-in. stencil and drafting pen. It's legal but barely visible.

#621



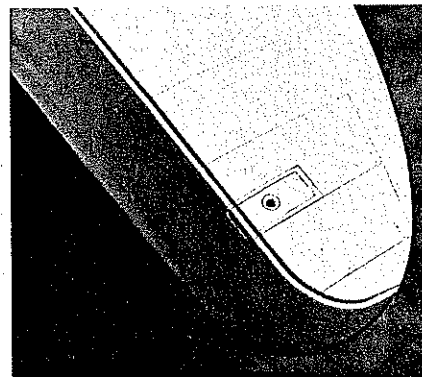
Left: The fiberglass cowl overlaps the fuselage. The small hole allows an Allen ball-driver to be inserted to adjust the needle valve. The spinner is from Tru-Turn, and the prop is a Bolly fiberglass. Right: The Merco .49 is a fine power plant for this model, although Tom says he used the Merco .61 for competing at the Nats. The needle valve is a reworked Enya, and a non-standard venturi is required to clear the cowl's lip.



Left: A ply ring epoxied into the cowl serves to anchor it to the fuselage. The small ply pieces are alignment shims. The fuel tank is retained in its cradle by two nylon tie wraps. The tank has a fill/overflow vent system which is capped with a piece of tubing. Tank venting during the flight is by a uniflow vent located inside the cowl. No muffler pressure is used. Right: An aluminum landing gear from B.J.'s Hobbies (text has address) was retrofitted after the 1988 Nats. The Tetra wheels are available from G.P. Aircraft, 802 Fern Dr., Washington, DC 20012.

tion from my previous .60-size 'bird presented in these pages in the September 1987 issue, cosmetically it is much different from the earlier effort. Indeed, its "look" was inspired by two factors: (1) A three-view drawing of Bob Palmer's "round engine" Thunderbird which he took on a tour of England and Africa back in the 1950s. This drawing appears in Ron Moulton's *Control Line Manual* published in England. (2) The final inspiration was seeing the gorgeous full-size Gee Bee Sportster replica built and flown to the 1985 Nats by Ken Flaglor. In fact, the model you see here was built in 1985 for use at the 1985 Nats, but I never quite got around to painting it until this year (1988)! If you like Stunters that echo classic full-size designs, this one is for you.

Construction. The wing and tail structures are built in a similar manner to that described in my previous articles on other Palmer elliptical-wing Stunters. Use of a jig of some sort is mandatory, as is a long sanding block to bring everything into true shape. It helps to visualize the rib-and-spar structure as a solid-wood wing which must be carved and sanded to shape before adding the planking and cap strips. Think of it



The tip weight box on the prototype was installed more inboard than optimal. Originally this area was to house an onboard Ni-Cd battery "electric tip weight" so no external battery would be needed for starting. The concept was abandoned because it required too much maintenance to be worth the benefits.

as a big Hand-Launched Glider wing. For certain, there is no easy way to cut it out of foam.

This time around I sheeted the stab-elevator assembly and used solid-sheet flaps. This type of structure is more rigid and easier to finish without being heavier,

as more paint can be sanded off. I suppose the wing could be planked, too, if you'd like.

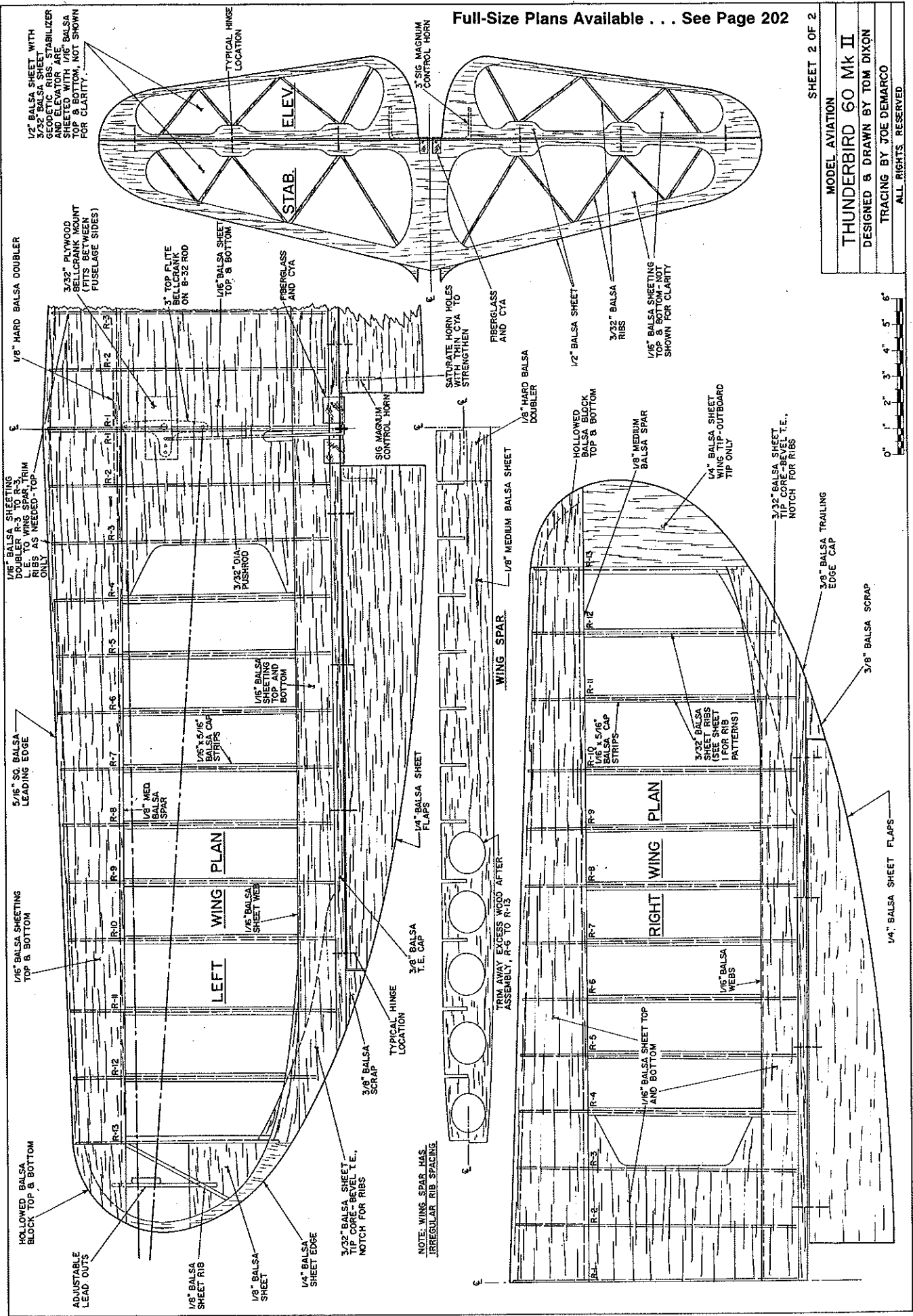
The fuselage is where the real work is encountered. Some new techniques were used along with older methods. The shape at the front comes from 3/4-in. side blocks and a 1-in. top block carved to shape and hollowed until they're nearly paper thin. These blocks are nonstructural and need only be thick enough to withstand handling the plane.

Build the basic fuselage box, then add side and top blocks and carve away the excess. Make a template to help in getting a uniformly round shape. My canopy is merely a painted balsa block, but you might choose a plastic canopy for more realism.

The cowl is a stock part from Fiberglass Master, Dept. MA, Rt. 1, Box 530, Goodview, VA 24095. I had originally planned to use a turned aluminum cowl, but this was simply too heavy. Building a balsa cowl just kept getting put off until later. When I visited the Atlanta IMS show I hadn't gotten around yet to building a substitute balsa cowl, but as I walked by the Fiberglass Mas-

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MODEL AVIATION
THUNDERBIRD 60 Mk II
 DESIGNED & DRAWN BY TOM DIXON
 TRACING BY JOE DEMARCO
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pliers is worth it—and you won't have to write me about it!

The *MACA Newsletter* did upstage us here at *Model Aviation* by printing a picture of the winners of the Combat Classic. I would have loved to have a picture for this column, but nobody sent me one. I didn't get one from the King Orange, either. All the columnists say the same thing: "If you want to be famous, you better send a picture of the winners." I feel that the Nats winners in particular get too little credit for their accomplishments. The least we can do for them is put their picture in the magazine. Paul Smith and Jim Cameron are two fliers who have sent material to me. Thanks, guys.

The next big money meet is the Money Nats in Los Angeles on April 22-23. A thousand bucks up for grabs. There's still time to catch a plane out to the coast for a shot at fame and fortune.

Thunderbird/Dixon

Continued from page 86

ter booth I spotted a cowl just perfect for my needs. I bought it on the spot!

A 1/8-in., five-ply ring is epoxied into the rear of the cowl to act as a mount (see photos). This ring is best cut by placing the cowl on a sheet of plywood and tracing around the outside, then cutting the ply slightly under the line. If you open up the front of the cowl and attempt to trace the inside, you can distort the cowl's shape and end up with a ring that doesn't fit. All openings in the cowl are easily cut with a Dremel tool and carbide cutting bit.

Clean the cowl thoroughly with thinner or acetone to remove any residue of release agent before you paint it. If there are any pinholes in the fiberglass, they should be filled with spackle or Model Magic filler before doping. I brush on two coats of Sig nitrate dope to ensure a good bond between the fiberglass and the dope finish.

I use a shortened Enya needle valve on my model. Adjustment of the needle setting is done with a long ball-end Allen wrench through a 1/8-in. hole in the cowl. You could use a long Tigre needle from Harry Higley if you run a Tigre spray bar.

The original landing gear was a problem, to say the least, at the Nats. My highest landing score was 25 points, due to out-of-control bouncing. The wire torsion bar gear

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originally installed was too far forward and much too springy, up and down as well as fore and aft.

Right after the Nats I had a custom 6061-T6 aluminum gear made for me by B.J.'s Hobby Supplies (Rt. 5, Box 234, Dunnellon, FL 32630). The custom gear, shown in most of the accompanying photos, solved all the T-60's landing problems. Since I fly on grass most of the time, I haven't replaced the wheel pants yet. It is possible that Fiberglass Master may have fiberglass pants that would be a good match.

Please note the firewall and engine mounting. The firewall is made from laminated 1/4-in. end-grain balsa and carbon fiber.

This material is available from Bob Violet Models, 1373 Citrus Rd., Winter Spring, FL 32708, and possibly from other sources. It is equivalent in strength to 1/4-in. ply but almost as light as balsa. The engine mounts are Sig Mfg. aluminum mounts for .19s, their smallest size; they have also been lightened by drilling and grinding off excess material. This firewall and mounting system works so well that I will continue to use it even in slim-fuselage models.

The fuel tank mount is a piece of 1/16 ply cut with large lightening holes. The tank is retained by two nylon ties (see photos). It's simple, easily adjustable, and goof-proof.

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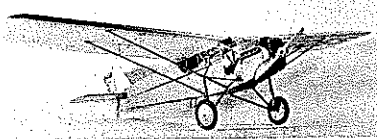
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England for the past three years or so. The .61 and .49 are both suitable for this model. I also believe a solid .45 Royal or O.S., suitably de-tuned, would be plenty of power. My current setup is the Merco .61SS with .285 venturi, SST silencer with 10 holes open, no pressure, Taffinder's 5% nitro PA fuel, and an 1 1/4 x 6 Bolly three-blade prop. The engine has two .020 head gaskets added to further soften the four-cycle/two-cycle break. This combination gets through the pattern using just 3 3/4 oz. of fuel! Lines are 70 ft. of .018 cable. The model weighs 64 oz. in current trim.

The finish you see here is Sig dope—nitrate clear base followed by butyrate color—over silkspan on the wing, and .56-oz. Sig glass cloth and epoxy everywhere else. I am completely convinced that glass cloth and epoxy is the only way to go for speed, strength, fuel-proofing, and stability of finish. As far as I can tell, it is as light or lighter than a traditional dope-and-paper finish. I have had very good results using Loctite Finishing Epoxy with the cloth. This stuff sands like

chalk and leaves very little material on the plane.

If you use dope for the colors, a nitrate bonding coat must first be applied over the epoxy, as butyrate won't adhere directly to epoxy very well. I usually spray two coats of nitrate clear over the sanded epoxy-glass surface, sand lightly, then spray a filler coat of talc and nitrate. After this is wet-sanded with 400-grit paper, I spray on the colors.

One last thought. If I were to build this model again, I would add another inch to inch-and-a-half to the tail moment length. This not only would increase the elevator's groove and leverage, it would also look more scalelike. You may wish to incorporate this change into your own T-60 II.

Fly safe, fly quiet, and contact Don McClave, 221 N.W. 2nd Ave., Suite 300, Portland, OR 97209 to find out how you can join PAMPA, the association of model Stunt fliers and enthusiasts.

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Frequency Battle/Good

Continued from page 92

der the CRS umbrella. Under the new regulation, persons other than the owner would be allowed to operate the RC transmitter with the owner's permission. That forestalled any possible repetition of the misunderstandings concerning piloting which had occurred with modelers using the amateur radio frequencies.

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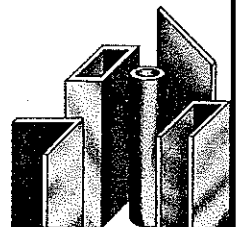
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