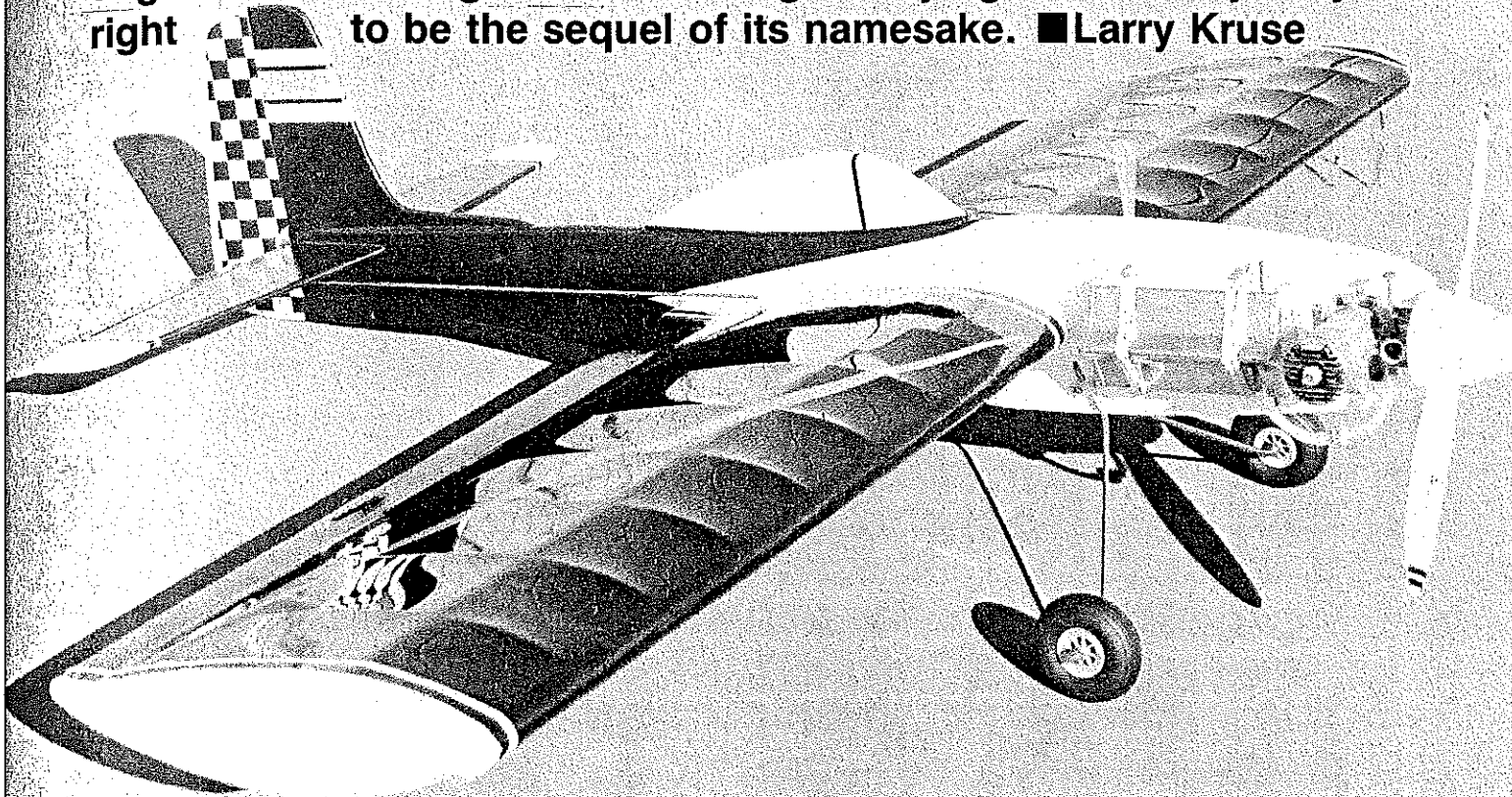
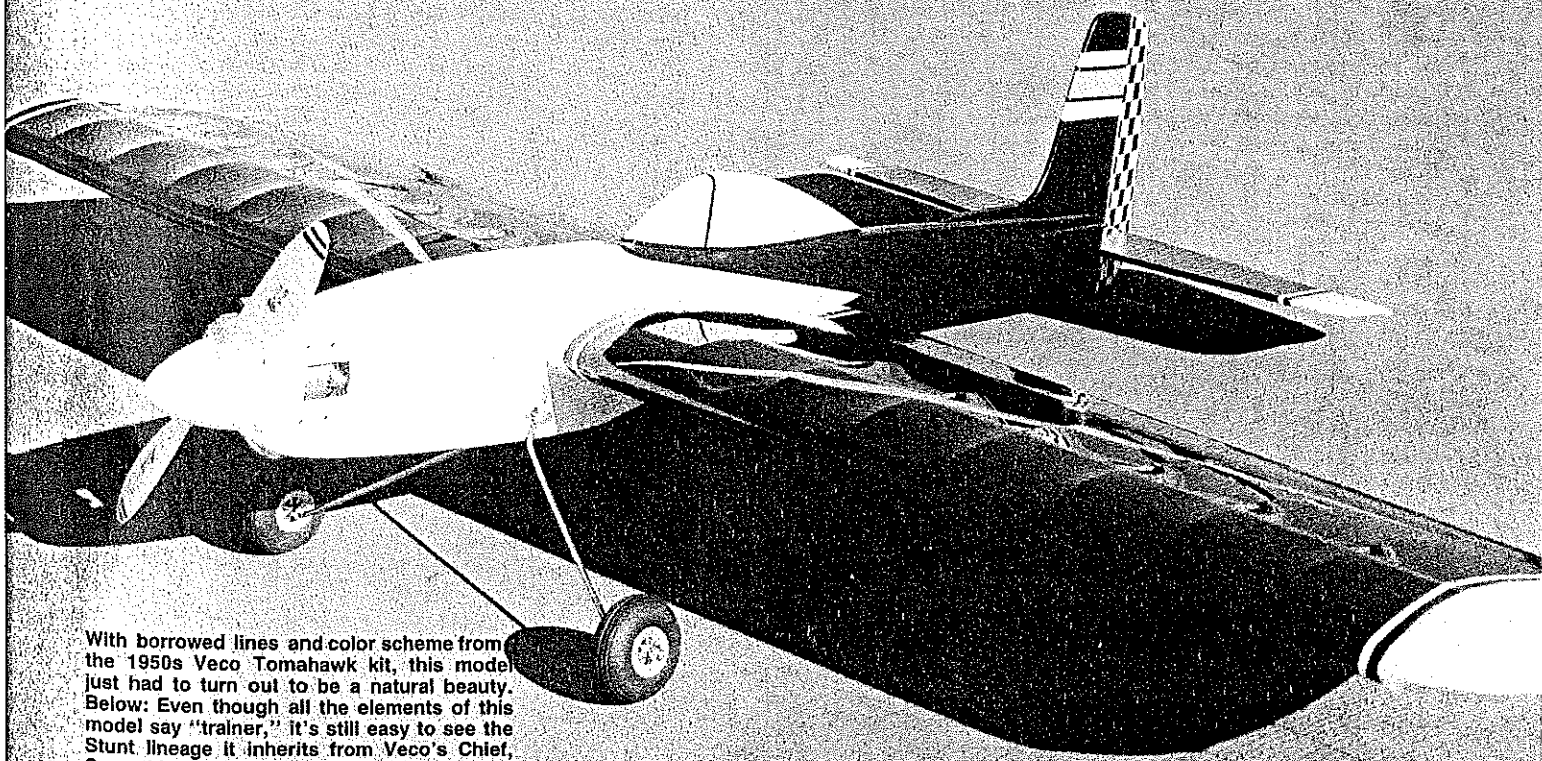


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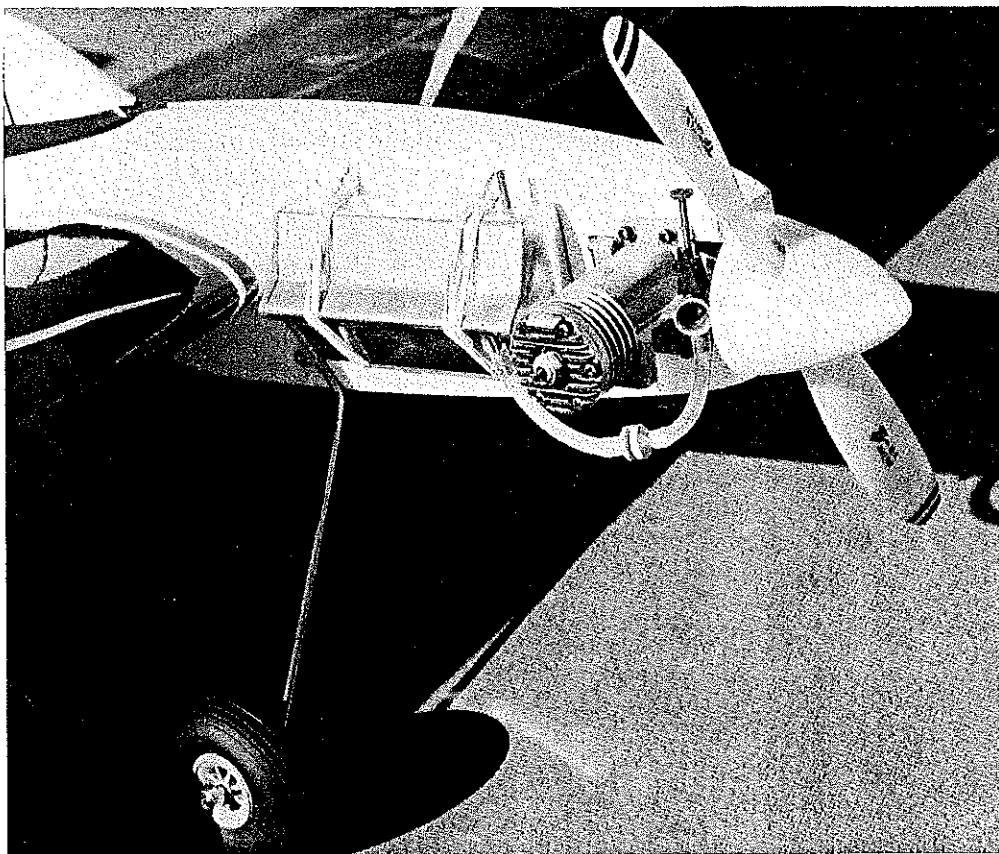
Reborn from a classic 1950s kit, this once-upon-a-time Stunt model has been given new life as a Control Line trainer for .35-size engines. Timeless good looks and great flying more than justify its right to be the sequel of its namesake. ■ Larry Kruse



TOMAHAWK II



With borrowed lines and color scheme from the 1950s Veco Tomahawk kit, this model just had to turn out to be a natural beauty. Below: Even though all the elements of this model say "trainer," it's still easy to see the Stunt lineage it inherits from Veco's Chief, Smoothie, and their Immortal Thunderbird.



The tank and engine setup. Two washers are placed between the engine lugs and the mount at the front end to keep the model pulling to the outside. Rubberbands hooked over "T" bolts hold the tank in place, and the fuel filter helps to keep the Fox engine running reliably.

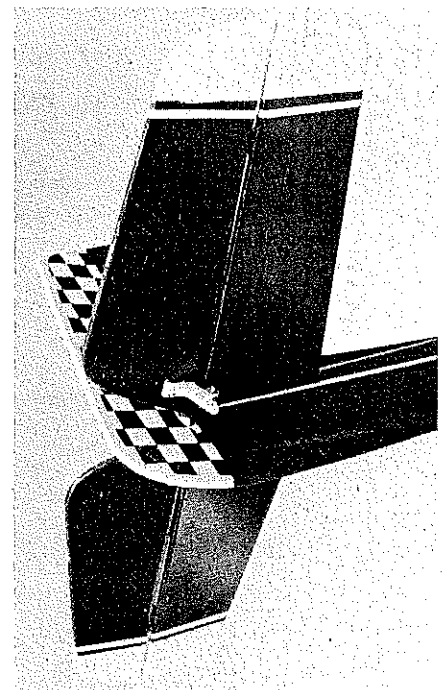
A LOOK-ALIKE of the Tomahawk profile Control Line trainer kitted by Veco over three decades ago, the Tomahawk II was designed to be somewhat larger and to fly even better than its namesake. Although it mimics the appearance of the Veco original, this latter-day version is in no way intended to replicate the earlier model. Even though no wing flaps are employed, stretching the wingspan and lengthening the tail moment just a tad has resulted in a docile and gentle-flying trainer that is both smooth and responsive on the lines.

Back in the 1950s, the Tomahawk made its mark as part of a Veco series of Control Line ships with Indian names such as the Brave, Warrior, and Chief. The company even carried the theme over into Free Flight offerings with the Navajo, Scout, and the

immortal Sioux.

The Tomahawk was a good-looking profile ship designed for engines with displacements of from .19-.35. It was intended, I surmise, to compete with the Ringmaster, Mustang, and Yak, three very popular models put out in those days by Sterling Models, Inc. While the Sterling kits have survived the past 30 or so years, the Tomahawk met an unluckier fate. When Veco went out of business, it was only a matter of time before its popular trainer design disappeared from the aeromodeling scene as well.

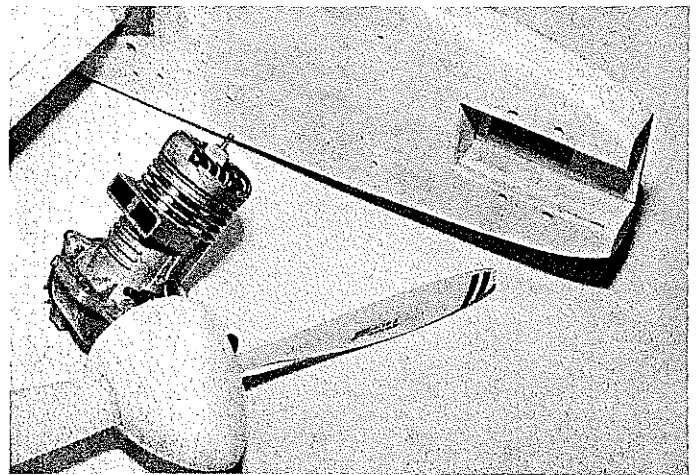
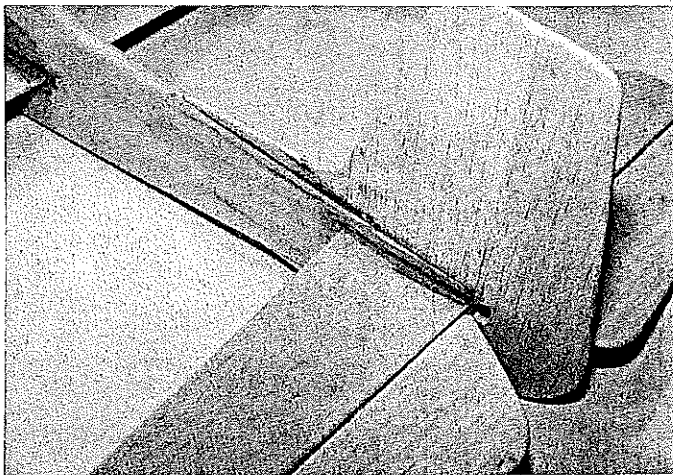
My interest in the Tomahawk was reawakened by a couple of faded photos (two very early Polaroids) that fell out of an old album I was thinking of chucking in preparation for a garage sale. The old pictures were so faded that it was difficult to see the impor-



A $\frac{3}{32}$ Du-Bro wheel collar holds the pushrod end in the nylon control horn. Control sensitivity can be decreased by moving the pushrod to the outer holes in the control horn.

tant details, but a search through my magazine file produced an advertisement for the Tomahawk from *Model Airplane News*, circa 1954. There it was, resplendent in a paint scheme of solid colors, stripes, checkerboard squares, and arrows. Despite the rather motley decoration, the design was pleasing to look at even by today's standards.

According to the ad, the Tomahawk had a wingspan of 40 in. and many prefabricated parts. For a nominal fee of \$2.95, the model builder could claim it as his own. That certainly represented a bargain for a Veco kit, a product line which enjoyed an excellent reputation for high-quality, flyable models. Needless to say, in today's dollars even 300% of that 1950s price tag won't begin to purchase the wood and supplies you'll need to build the Tomahawk II; but by scrounging a bit from a scrapbox and



Left: Tail surfaces also sport Sig Epoxylite fillets. Note the grain direction of the front part of the fin. The rudder is offset $\frac{1}{2}$ -in. to the right as viewed from the rear. Right: Plywood doublers provide a solid base for mounting the Fox .35 engine. The left doubler is cut out to allow clearance for the bottom backplate bolt, then the engine mounting holes are drilled. Other holes visible are for tank and landing gear mounts.

Tomahawk II/Kruse

Continued from page 155

in place, making sure it is at 90° to the fuselage when viewed from both the front and the top. After the wing/fuselage joint has cured, glue the fixed flaps into position and sand them to fair smoothly into the main wing panels. The stabilizer should be treated in the same manner, taking special care to see that it, too, is aligned squarely with the other components.

Glue the rudder and sub-rudder into place. The rudder in particular needs to be glued firmly into position in order to survive the occasional nose-over when the plane is landing on tall grass or other uneven terrain. A strip of fiberglass epoxied to the sub-rudder is a good investment that likewise prevents wear and tear from the piece scraping the ground.

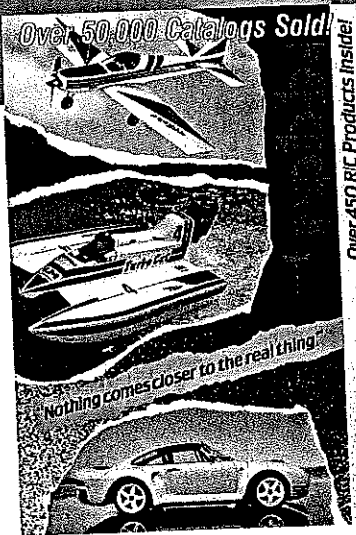
Connect the pushrod to the elevator using a large Sig nylon control horn. Tape or pin the elevator at a neutral setting before installing the pushrod in order to get an equal degree of up and down movement. The bellcrank must be set at neutral as well.

Test fit the landing gear and retainer into their respective holes, and bolt the engine into position. At this point it is useful to locate the position of the fuel tank brackets or straps, making sure that the tank pick-up tube is in line with the engine venturi. If the tank were off-center by as little as 1/8 in., it could cause the engine to run unevenly when the plane is either upright or inverted, or both.

Covering and finishing. Since the Tomahawk II is a profile trainer, you probably won't want to lavish a great deal of time on the finish. Most profile ships look very smart in simple color schemes that are easy to repair and/or repaint after the inevitable ding occurs. I chose to finish the prototype in the crazy-quilt manner and style of the 1954 advertisement I'd unearthed, but far less involved color schemes will work equally well.

Begin the finishing process by forming fillets of Sig Epoxolite around the wing, stabilizer, and rudder where they are attached to the fuselage. The nice thing about Epoxolite is that it can be shaped to final smooth contours with a wet finger. If you used Pop-sicle sticks in the wing construction process, put one to work now as a spatula to apply the Epoxolite to the surfaces. Wipe off all excess material before it sets up, and prepare all balsa surfaces for the color finish by filling them with a talcum powder/clear dope mixture or a commercial balsa filler coat such as the one made by Aerogloss.

After all surfaces are filled and sanded smooth, apply three coats of clear dope to the fuselage, rudder, and stabilizer. I elected to cover the wing panels with Mono-Kote, so I brushed on two coats of Balsarite to help it stick. If instead you're using silkspan or silk, you'll want to brush at least four coats of dope onto the wings to help the material adhere to the framework. In either



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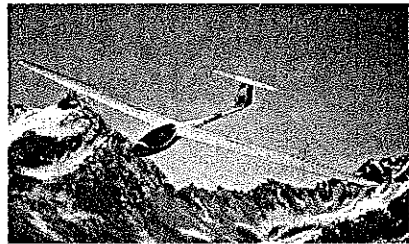
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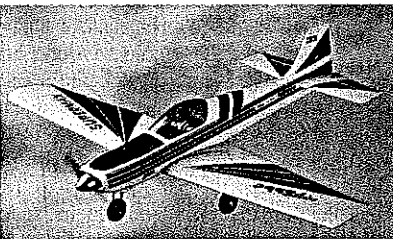
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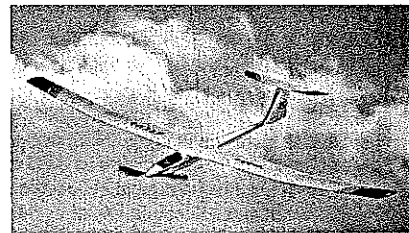
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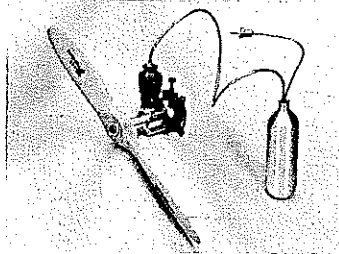
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case, the wings should be covered before proceeding to the color coats.

In the case of silkspan or silk, from five to seven additional coats of clear dope will probably be necessary in order to fill the grain of the covering before applying the final colors. The colored dope adds weight very quickly, so do not pile it on. Use only as much as necessary to give an even appearance to the finish. When the finish has been given ample time to dry, you're ready to hook up the controls and to reinstall the landing gear and engine in anticipation of that first trip to the flying field.

Balance the airplane as shown on the plans. Add weight to either the nose or the tail with small pieces of commercially available "stick-on" weights. When the balance point is reached, glue the weights permanently into place.

Flying, The Tomahawk II makes an excellent choice for a first or second airplane. This trainer has extremely smooth responses, and with a classic Fox .35 engine mounted in the nose it's a slow and stable flier. The novice has plenty of time to react to the airplane in all modes.

Preparation for the first flight should include a pull test of the flying lines after making sure they are not kinked. Also, check the elevator throw to make certain that *up* movement is equal to *down*. If there's a discrepancy, adjust the control handle to compensate. Fill the tank and start the engine.

An optimum needle valve setting is one

which allows the engine to four-cycle when the plane is level and then break into a two-cycle mode as the nose of the plane either drops or raises. Adjust the needle valve accordingly until the engine is just barely dropping from a fast four-cycle to two cycles as the plane changes altitude. When you are holding the plane on the ground with the engine running, tip the nose straight up, and even flip the plane over on its back, to make sure the engine runs evenly in all attitudes. Be extremely conscious of where the prop is during all of these tilting and tipping operations.

Once you're satisfied with the way the engine is running, have your helper launch the plane from a three-point position on the ground. Let it roll out approximately a quarter-lap before giving it just a little bit of *up* on the control handle. The plane will break ground smoothly and remain at the altitude you direct. Fly a couple of level laps to familiarize yourself with the feel of the model before beginning any vertical maneuvers.

My hope is that this fresh rendition of an old favorite will introduce some of today's beginning modelers to the delights of Control Line flight, just as in its heyday the original Tomahawk did more than 30 years ago.

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