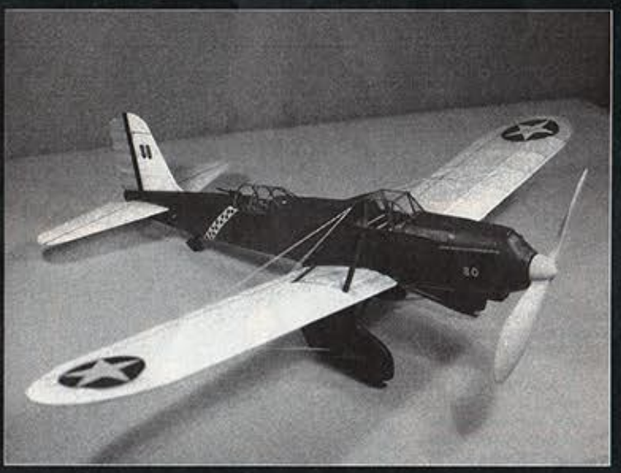
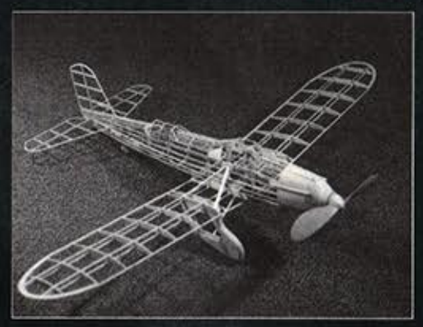
CURTISS SHRIKE YA-8

BY TED SCHREYER



The Curtiss Shrike YA-8 was designed in the early 1930's to meet the U.S. Army's need for an attack aircraft capable of close ground support, light bombing, and observation. The was aircraft developed around the favored Curtiss 600 hp. Conqueror in-line, liquid-cooled engine which produced a slim, streamlined 183 mph aircraft. But the Conqueror engine was plagued with chronic cooling problems and large maintenance costs. So Curtiss decided to re-engine the YA-8 with an air-cooled 625 hp. P&W radial and upped the designation to the YA-12 Shrike, an aircraft that proved popular with the Army and the pilots who flew it. However, the YA-8 makes a better looking model.

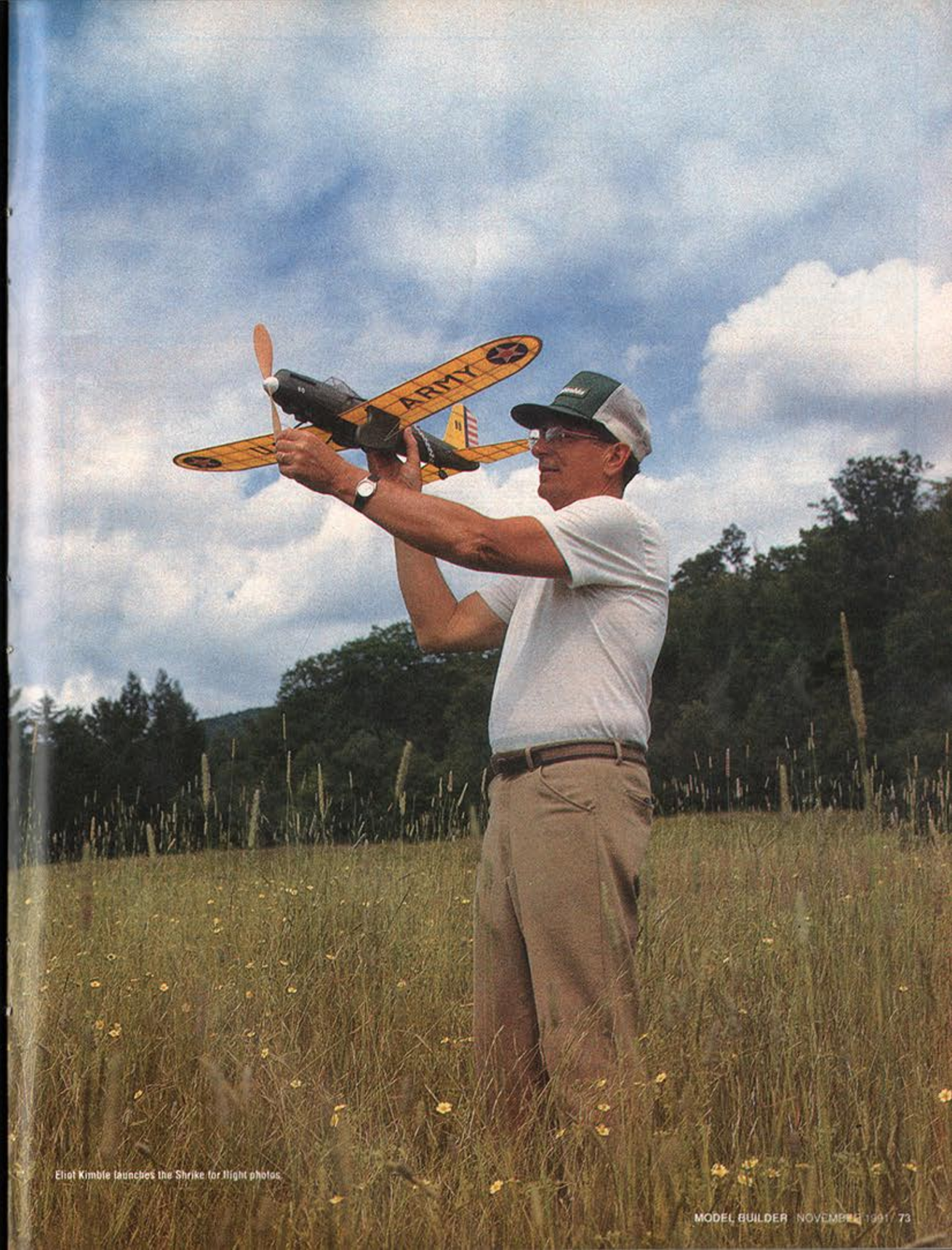


Uncovered models are pretty, especially if they're *airplane* models!

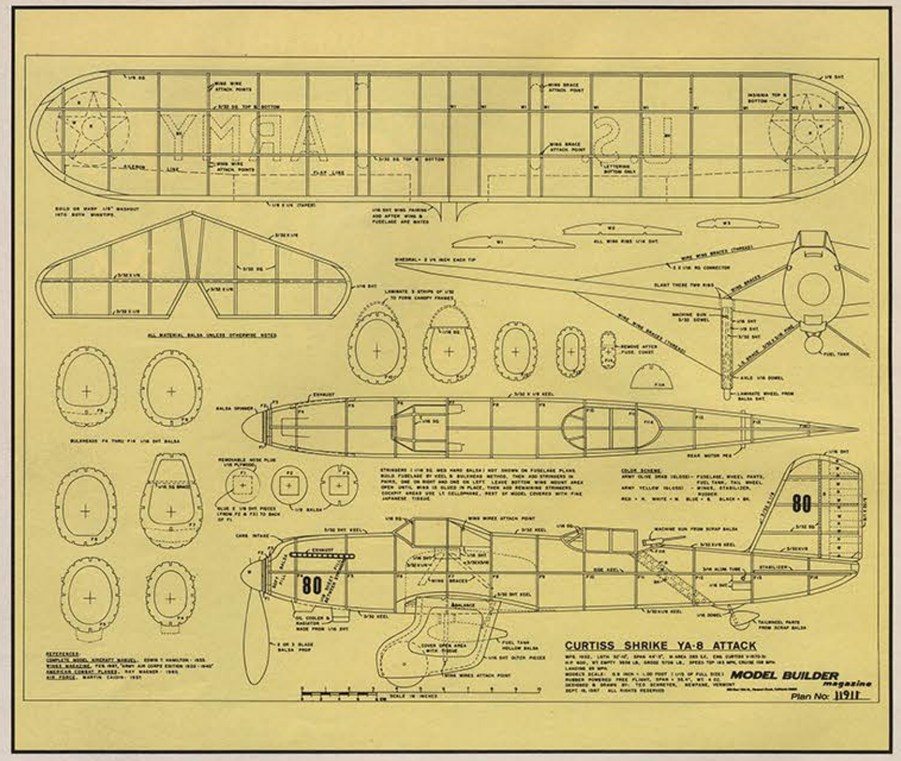
For those of us who grew up in the 30's and 40's there is a special fascination with the planes of that era, especially the military aircraft. Nations readying for war, rapid progress in aircraft design, and memories of seeing those planes as pictured in the media of those days all combine to motivate us to recreate these old warbirds as models.

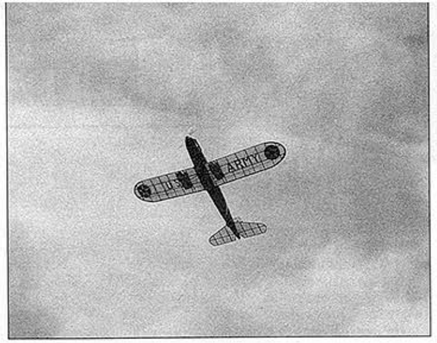
The Shrike was one of many models on the "must build" list... a list that most scale modelers have, written or unwritten. It was first made as a Peanut Scale with 13-inch span and 14-gram weight. A smooth flying little gnat, but with limited duration and a peculiar habit of climbing up about six feet, hesitating and making a slight turn to the left, and then going off in a beeline to land just as the winds ran out. One thing learned was that if those big wheel pants weren't positioned exactly straight ahead, the model wouldn't fly worth a darn.

By enlarging the plans to a wingspan of almost 36 inches, a more workable and detailed model was possible. The big model is also very steady in flight, and moves in wide circles to the left. Build light



Eliot Kimble launches the Shrike for flight photos.





The Shrike climbs through beautiful Vermont skies.

and pack in the rubber and see the performance go up. Incidentally, the Shrike would make a great radio-controlled scale model.

FUSELAGE

Cut out bulkheads from medium hard sheet balsa, cut out side keels from 3/32-inch sheet balsa, and the top and bottom keel pieces. Position bulkheads on side keels, then add top and bottom keels. Add 1/16-inch sq. stringers in pairs, beginning next to the side keel, making sure to keep the fuselage straight. Leave the wing bay open. Between F3 and F4, glue in soft pieces of 1/4-inch sheet or similar, carve to shape, and sand. Between F4 and F5, fill the spaces between the stringers with soft 1/16-inch sheet balsa. Add the 1/16-inch sheet pieces to support the wire wing braces, the solid wing braces, and the rear motor peg.

Cockpit canopy supports are 1/16-inch sq. balsa for front, and 1/32-inch laminated balsa strips for the rear cockpit. Later these supports can be covered with thin cellophane. When the fuselage is completed, use fine sandpaper to smooth the structure and to slightly scallop the bulkheads between the stringers, so the tissue doesn't bump-up on the bulkheads. Details such as the exhaust stack line, radiator, oil cooler, and fuel tank are made from scrap balsa and added to the fuselage just before painting.

WING

Cut out all ribs and lay down the two 3/32-inch sq. spars on the plan and glue in the ribs except for the center rib. Slightly slant the two ribs that bracket the landing gear so the pants fit in nicely. Glue in the 1/8-inch sq. leading edge and the 1/8 x 1/4 trailing edge, and add the wing tips and the top spars. For

continued on page 108

SHRIKE continued from page 75

the tips you may wish to cut a bunch of 1/8-inch strips from 1/32-inch sheets, wet them, and bend a group of them around a form or a line of closely-spaced pins, to form a laminated tip rather than the 1/8-inch sheet balsa. This can be done for the rudder and stabilizer tips also. After the wing has dried on the plan, cut the center line, trim the upper spars, and glue in the center rib with the wing panels blocked up at the correct dihedral angle. You may wish to add some reinforcement in the center section if this point seems weak. Use fine sandpaper to smooth the wing structure. Later, when adding the wing wire detail, a regular sewing needle is used to go through the balsa wing rib at the point of attachment and bring the thread through the rib. The threads were continuous from the landing gear pants up through the wing and over through the fuselage and down through the other wing and back to the other wheel pant. Having the threads continuous and tacked down at the attachment points with a drop of cement meant that there was a real system of bracing that added some strength to the model.

LANDING GEAR

Ugly but charming are the big wheel pants. Try to keep the weight down when constructing the wheel pants, as they are sturdy enough as shown on the plan to take hard landings. Use medium hard 1/16-inch sheet balsa for the outer parts and soft sheet balsa for the inner spacers. Trim the outer ends to a rounded shape and use a Dremel tool to remove excess wood from the inside of the pants. The sides of the pants are cut out and later covered with tissue to save weight. The wheels are of laminated balsa and hollowed out from hub to rim, leaving four spokes to hold the wheel. The machine guns on the pants were made from short pieces of hollow plastic tube (from an old RC pushrod). When mounting the wheel pants on the wing, make sure to get them pointed straight ahead and straight down. If these large lateral surfaces are skewed, it will be difficult to properly trim the model for flight.

TAIL

Build rudder and stabilizer on the plan from light balsa. Cover the front half of the rudder with yellow tissue, and the rear half with white tissue. Then the blue and red tissue stripes can be doped in place to make a neat insignia. When the fuselage is completed, the small area of F14 is cut out so the stabilizer can be inserted and cemented.

COVERING

All structures to be covered should be sandpapered to provide a smooth surface, after which the structures are given a coat or two of clear dope. The tissue is cut into pieces to fit the area being covered (smaller pieces where double curvature exists), laid on, and clear dope is brushed on through the tissue along the outer edges of the structure. When the part is completely covered, a fine water spray is applied to the tissue and the unit is allowed to dry to tighten up the tissue. Following this, two coats of 50-50 thinned clear dope are applied to strengthen and protect the covering. Olive-colored tissue was not available, so the fuselage was covered with white tissue and later doped with olive drab paint. This also served to color the exposed wood areas and the details such as the fuel tank, which have to be painted anyway. On the wing, the white star area was painted in with white dope, then red and blue tissue pieces were cut and clear doped in place to make the insignia. The underwing lettering was cut from black tissue and doped in place. The lines for aileron, flaps, and rudder and elevator separation were cut from black tissue and doped in place. After the wing has been covered, use the steam kettle method and bend in a slight amount of washout (tip with less incidence than root) for both wing panels.

PROP

An old 10-inch Paulownia prop was used with a spinner made from scrap balsa. Make the nose plug F1 from 1/16-inch plywood, and glue on the back of it the two square pieces from F2 and F3, so as to get a keyed but removable part to go along with the prop and prop shaft. Glue a 3/8 x 3/8-inch piece of sheet brass, with a hole drilled in it for the prop shaft, on the back of the balsa key pieces to keep the prop shaft from wobbling. Use some washers and a ball bearing washer to cut down on friction between prop and nose plug. And a drop of light oil on the washers is advisable. Most modelers have their own methods of prop construction, mounting, and free-wheeling, so not much will be said here. The model had no thrust offset, although down-thrust may be necessary if your model tends to climb into a stall under power.

FLYING

Make sure your model balances about 40% back from the wing leading edge and that the flying surfaces are reasonably straight. Clay can be added inside the cowl to bring the model to balance if needed. Test glide the model into the Sacred Field of long grass and breath-warp the stabilizer if necessary to obtain a smooth glide. Try a short powered flight and make corrections to the flying surfaces to counter any adverse power effects, or adjust the thrustline so as not to ruin the glide. Add more turns to the motor and your model should go up in a climbing turn to the left, and as the power drops off, the model will straighten out and enter into a long right turning glide.

The first flights were made on two loops of 3/16-inch rubber, after which four 24-inch long loops of 1/8-inch rubber were used. Don't forget the glycerine lube for the rubber motor. With all the detail hanging out in the breeze, this model is not a floater, but built lightly, it should be a realistic and enjoyable flier. **MB**