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# X-1 X-WING FIGHTER

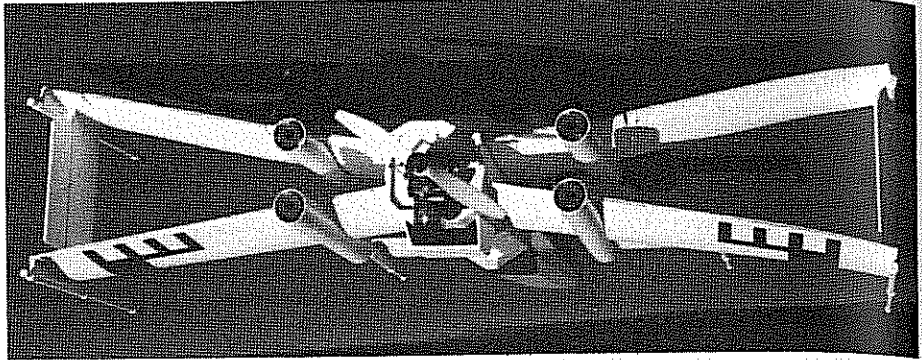
by GENE KNIGHT

**RED ALERT! RED ALERT!**  
Darth Vader has launched an attack against the Federation! Launch the X-Wing Fighters to defend the sector!

The X-Wing Fighter of *Star Wars* fame was the inspiration for this model. Of course, in order to fly in our atmosphere, some modifications were necessary, these were made while attempting to retain the character and appeal of an intergalactic fighter. The modifications include the wing airfoil, ailerons, and interplane struts that act as fin and rudder, and a canard by a rear-mounted pusher engine of .25 cubic inch displacement. It is also necessary for it to be equipped with landing gear. What this creates is a canard biplane

**CONSTRUCTION.** Construction is very simple and straightforward with no surprises. The model can be completed in a few evenings even by novice builders. I like to build the wings first so I will describe their construction although you can begin any place.

The wings are constructed over the bottom balsa sheet skins. Cut 1/16-inch balsa sheets to length and edge-glue them together to make four bottom skins. Lay out the spar and rib locations on the skin and glue the main spar in place, followed by the ribs and the leading edge stock. On the two lower wings install the landing gear mount behind the spar, be-



The top wings are built in the same manner except they have no landing gear blocks or ailerons. The pushrods are installed behind the main spar and exit the bottom of the wing close to the tip. Sand the leading edges to shape and the wings are complete.  
The landing gear will be installed later by notching out the bottom sheet over the

previously installed.  
and install a horn aligned with the pushrod Hinge the aileron close to the top surface. section to allow for the aileron movement.

Slope the front cut as shown in the and the 1/8-inch tip ribs.  
allow for the aileron spar and leading edge Cut down the remaining aileron piece to balsa rib tips to each end of the opening. 1/4-inch balsa aileron spar in place, capping off the wing opening. Add the two 1/8-inch wing at the location shown and glue the 1/4-inch balsa aileron spar in place, capping

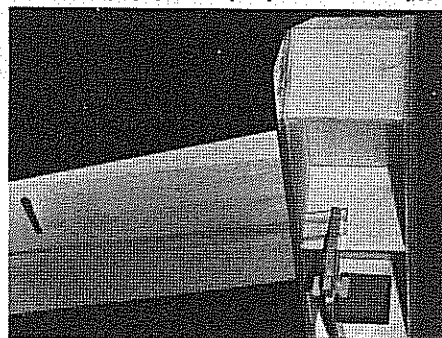
Next cut the ailerons away from the sheets.  
edge glued together as were the bottom These are also made up of 1/16-inch balsa. Check the control linkage for free movement, then glue the top skin in place. will be cut out of the wings later, after the top skin has been installed.

fore installing the ribs. Install the aileron pushrods or myrods with the rods exiting through the wing bottom. The ailerons will be cut out of the wings later, after the top skin has been installed.

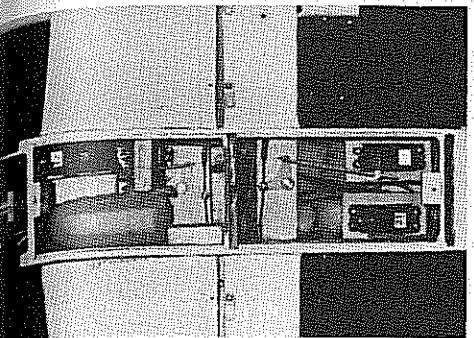




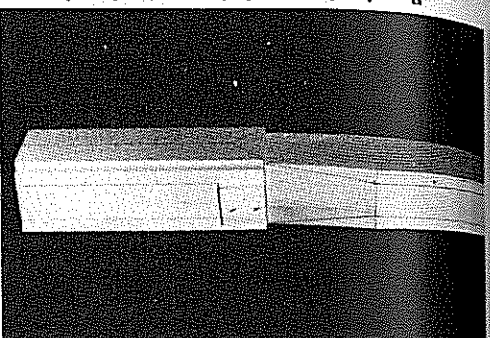
Details of top fuselage.



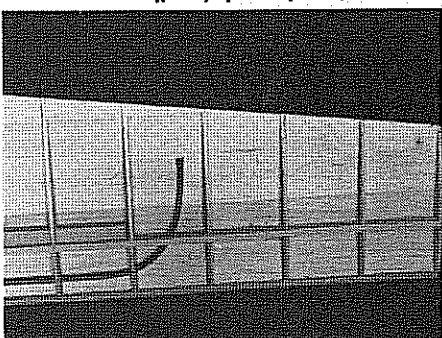
Wing spars are glued to 1/8 ply bulkhead.



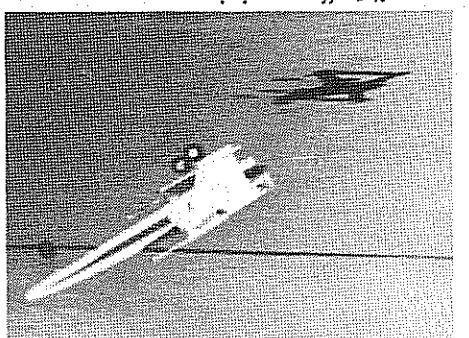
Interior of fuselage, note accessibility.



Rear fuselage ready for carving bevels.



Routing of myrds for ailerons.

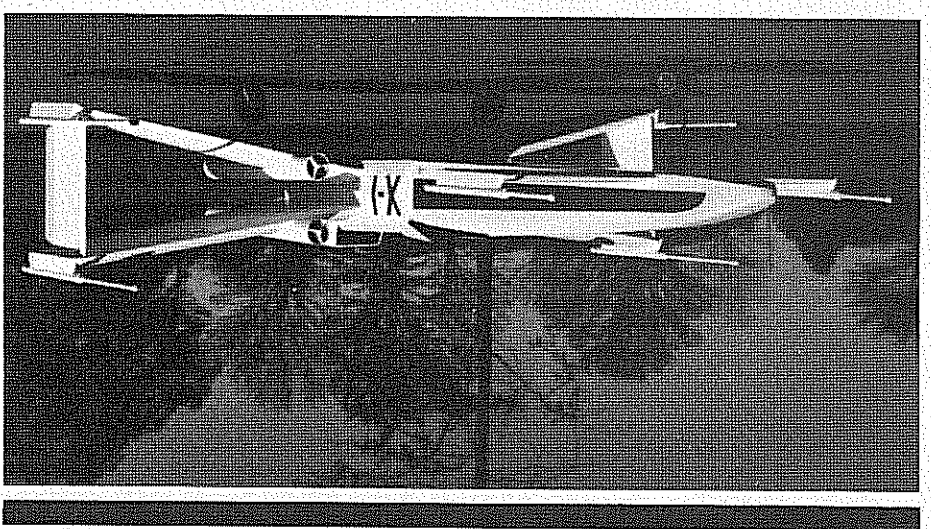


X-1 off on a mission.

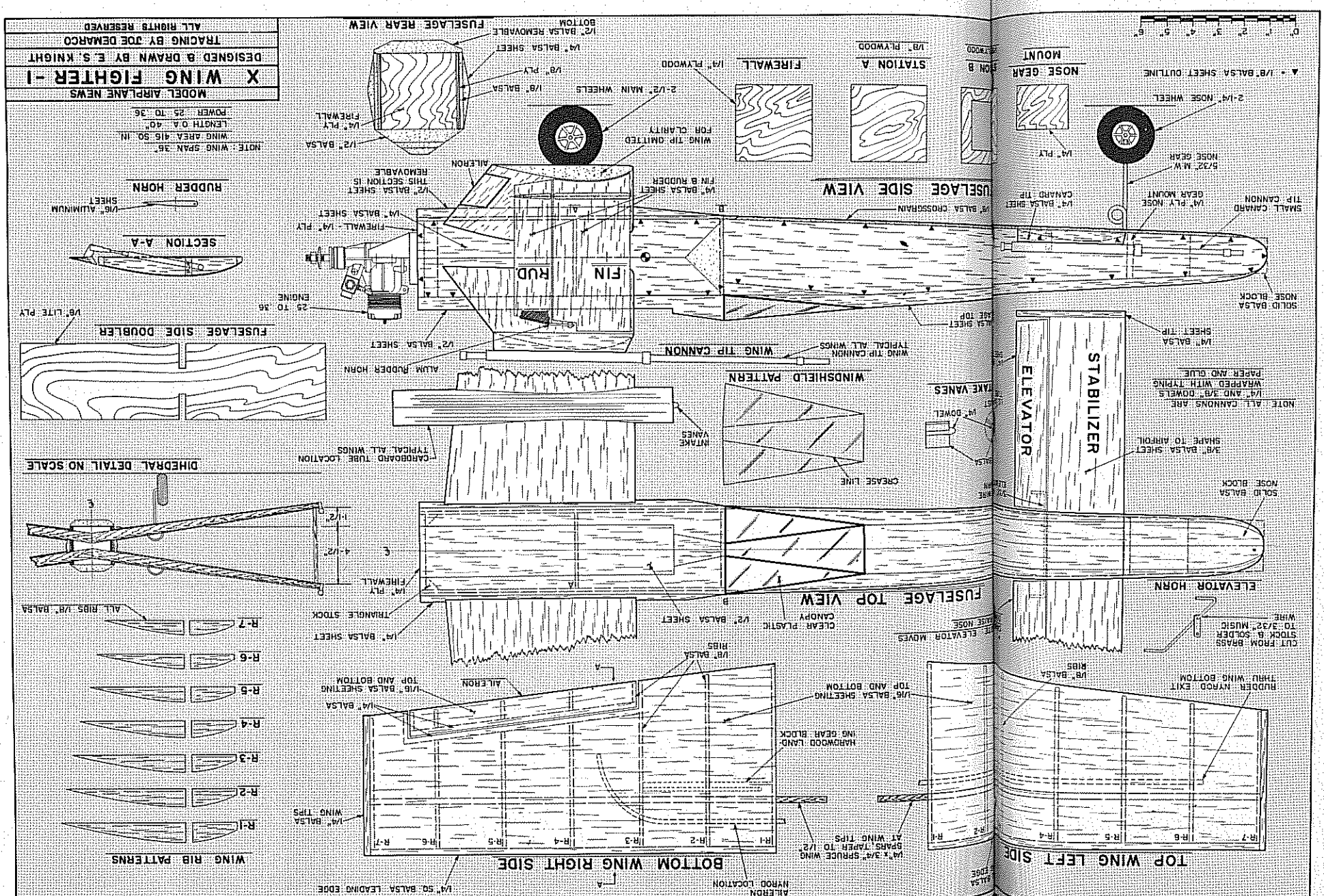
The fuselage is constructed using 1/4-inch balsa sheet sides with 1/8-inch light plywood doublers as shown. Glue the 1/4-inch ply firewall in place and the remaining original hides the rudder servo that extends through the top. The canard is simply glued to the fuselage sides. Once allowing the sides to follow the natural curve from the rear to the front. Glue the cockpit headrest in place and carve and sand the bevel on each side of the top.

## Construction is simple and straightforward.

you are ready to start the fuselage. Now extend up as shown, then hinge the elevators to the canard trailing edge. Connect the elevators with the wire control horn, checking to be sure that the horn leading edge to the trailing edge as shown. the elevators, tapering them from the shape shown. From 3/16-inch sheet, make and taper as shown. Fit the rear bottom sheet in place with hold-down blocks and install the 1/4-inch balsa rear side sheets. Now let's get the canard wing out of the way. Take a sheet of 3/16-inch balsa and cut to length. Sand and carve into the airfoil shape shown. From 3/16-inch sheet, make and taper as shown. Fit the rear bottom sheet in place with hold-down blocks and install the 1/4-inch balsa rear side sheets. Now let's get the canard wing out of the way. Take a sheet of 3/16-inch balsa and cut to length. Sand and carve into the airfoil shape shown. From 3/16-inch sheet, make and taper as shown. Fit the rear bottom sheet in place with hold-down blocks and install the 1/4-inch balsa rear side sheets.



The wings are mated to the fuselage as follows: First, notch the balsa sides in alignment with the existing notches in the plywood doublers. Do this so the wing spars can be inserted through the sides with the bottom of the spars resting on the bottom of the fuselage. The wings are mated to the fuselage as follows: First, notch the balsa sides in alignment with the existing notches in the plywood doublers. Do this so the wing spars can be inserted through the sides with the bottom of the spars resting on the bottom of the fuselage.



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ville, IN 46060.

You guys have really made this series of 15 to 19 powered racer/warbirds successful and I plan to continue along these lines as long as you enjoy them. Any suggestions for future subjects? Enjoy the Jug but "beware the Hun in

Flying the Jug is really a lot of fun. For those of you who have built and flown the T-6 or Mustang, you'll find this falls somewhere in between—perhaps a shade closer to the T-6. Although slightly smaller, the Jug doesn't skitter about, it grooves nicely and performs smoothly, even in winds. As with the T-6, I'm building a new version now to be equipped with the Adjust-O-Jig® retract (which sell for \$11.95) designed for up to .20-powered aircraft. It seems a shame to leave the gear

will stop the show.  
Now you are ready to repel any aggression from the Death Star. The Force be with you.

P-47 WARBIID

(Continued from page 71)

I covered my Jug with chrome Monotone painted with Chevron flat. This makes some very convincing "weathering" work. All the markings were air-brushed using Pactra military Flat formulated for plastic models. After all the embellishments, i.e., scoop, pylons, tank, and gun barrels, were added, the whole machine was given a coat of satin polyurethane to install the engine, radio, and tank in the usual manner, positioning equipment to give the proper CG.

Decorate the thrusters any way you want. The original used the front vanes "at the rear were originally plastic" from rolls of adding machine tape. The canopy is made from a piece of tape cut according to the full-size template on the plans. The acetate is creased along the crease lines shown, to the angle determined by the top and sides of the head—so the canopy will sit flush with the headrest. It is easier to take a piece of acetate larger than required and mark the outline of the canopy, then crease the acetate before cutting the outline. This gives you something to hold on to while making the crease. As you can see, the canopy tapers to the front edge of the fuselage and is virtually impossible to make by hand if the acetate is cut to size first. Two thin strips of black vinyl tape placed along the crease inside the canopy made the canopy more visible when installed. A trimment consists of four wing tip-mounted phasers and two canard tip-mounted proton cannons. Cut the mounts from ¼-inch balsa to the shapes shown, wrap sandpaper around a piece of ¾-inch dowel, and sand the top edges for a good fit to the dowel cannons. Glue the mounts to the wing and canard tips with the wing and canard bottom edge flush with the canard bottoms. Make the cannons from ¼- and ¾-inch dowels as shown on the plans. Cut strips of writing paper, wrap and glue around the dowels to form the enlarged sections as shown. Glue the cannons to the mounts and add any other decorations you may want to.

Install the main gear, engine, and tank. Cover or paint the model according to your preference.

Your preference. Be sure to balance the model as shown on the plans. It is important to have the model nose-heavy instead of tail-heavy! The X-1 will stall with disastrous results if it's tail-heavy.

FLYING. Takeoff requires a longer run than conventional models. Once airborne, however, the control is much like any other intermediate class model. I wouldn't say this is a novice model. The takeoff and landing are faster than usual and require more than beginning skill.

The initial model is powered with a .25 engine. I plan to install a .35 engine which I think will really make the X-1 move out. Maneuvers are as expected for this aircraft. While the pitch is rapid, the roll rate is sluggish. The additional power and more aileron area would improve this. All in all this is a fun model to fly and, while it won't win any pattern contests, it

# X-WING FIGHTER

(Continued from page 23)

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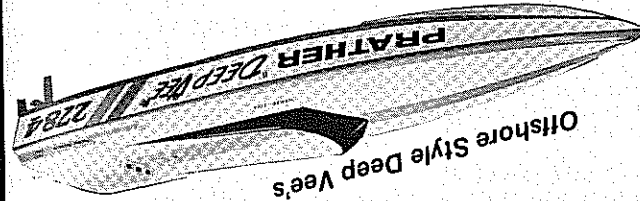
lower wings in place with a 6-inch gap between the wing tips.

When the wings are installed and the epoxy set, cut the fins to fit between the wings as shown, bevel the joints for a close fit and glue in place. Note the top rear of the fins are cut away to clear the rudder horns. Cut the rudders from 1/4-inch balsa and sand to a taper.

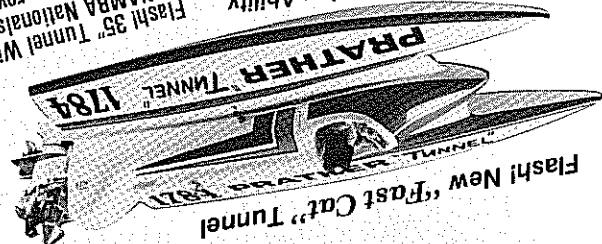
Install the rudder horns with epoxy and glass cloth and hinge the rudders to the trailing edge of the fins. Install your control system in any manner you see fit. The original uses bellcranks mounted on 1/8-inch ply plates to couple the pushrods from the wing halves. The rudder servo is located in the rear compartment and the elevator servo is in the front compartment. One word of caution: Since the elevator is forward, the movement is exactly reversed from the normal. That is, down elevator makes the nose rise while up causes the nose to go down. Don't forget this when setting up the controls!

The thrusters are made from the cardboard tubes that Monokote comes rolled on. If these aren't handy, any tube of approximately the same diameter will be suitable. Cut the tubes to length and trace around the cutout template to mark where to cut the tube for the wing opening. Turn the template over to mark the tubes for the wings on opposite sides since the rear of the cutout is angled. Cut along the marked lines. The tubes will then fit onto the top of the wings about 3 inches out from the fuselage. The exact placement of the tubes is not critical, just be sure they don't interfere with starting or running the engine. Glue the tubes in place and fill the

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*[The following text is extremely faint and largely illegible due to low contrast and blurring. It appears to be a continuation of the document's content, possibly a list or a detailed description.]*

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