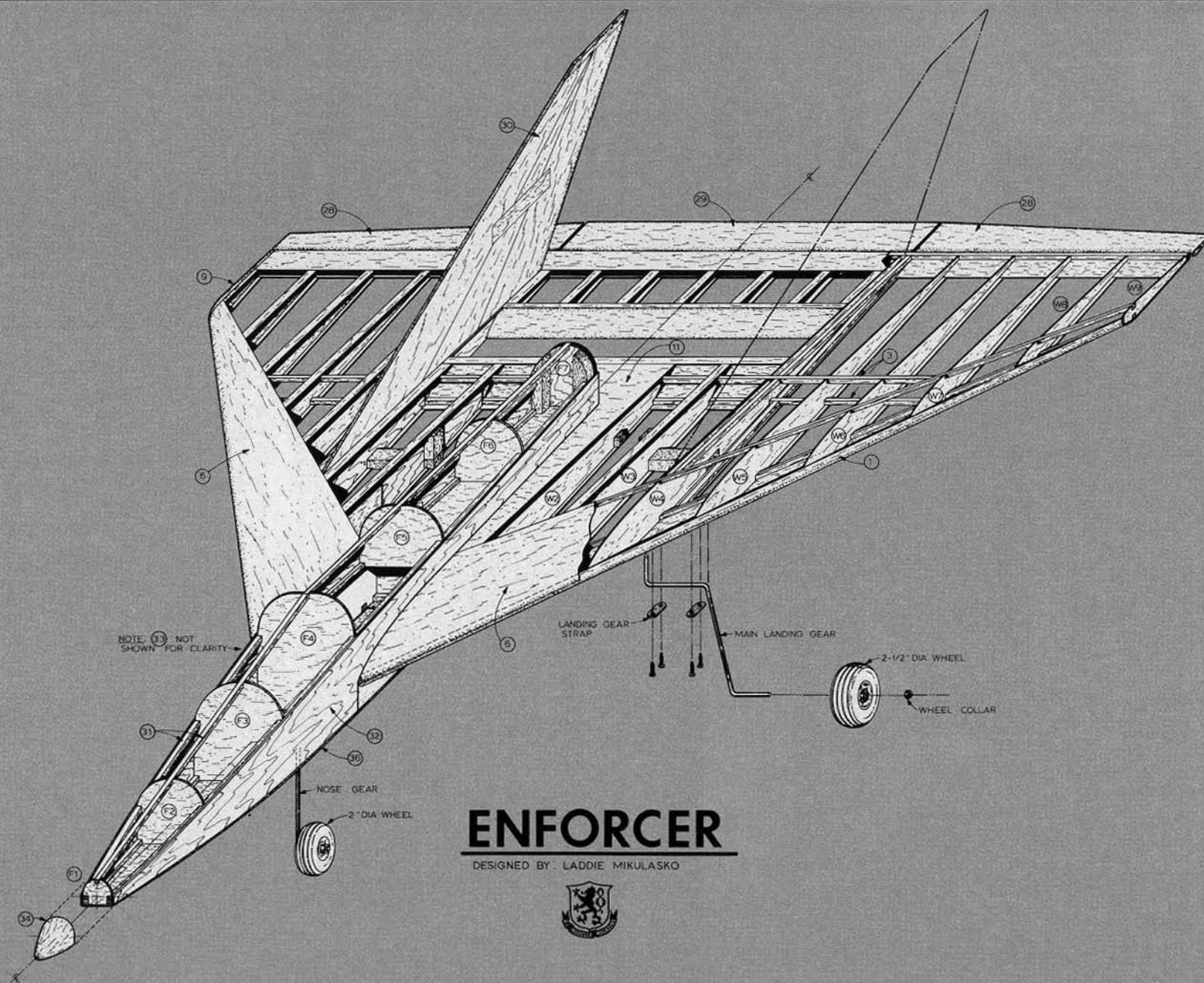
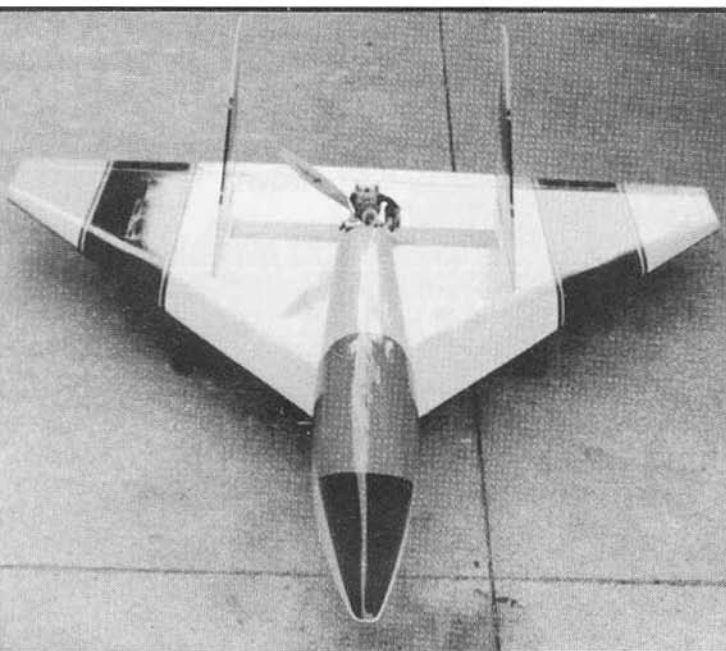




ENFORCER

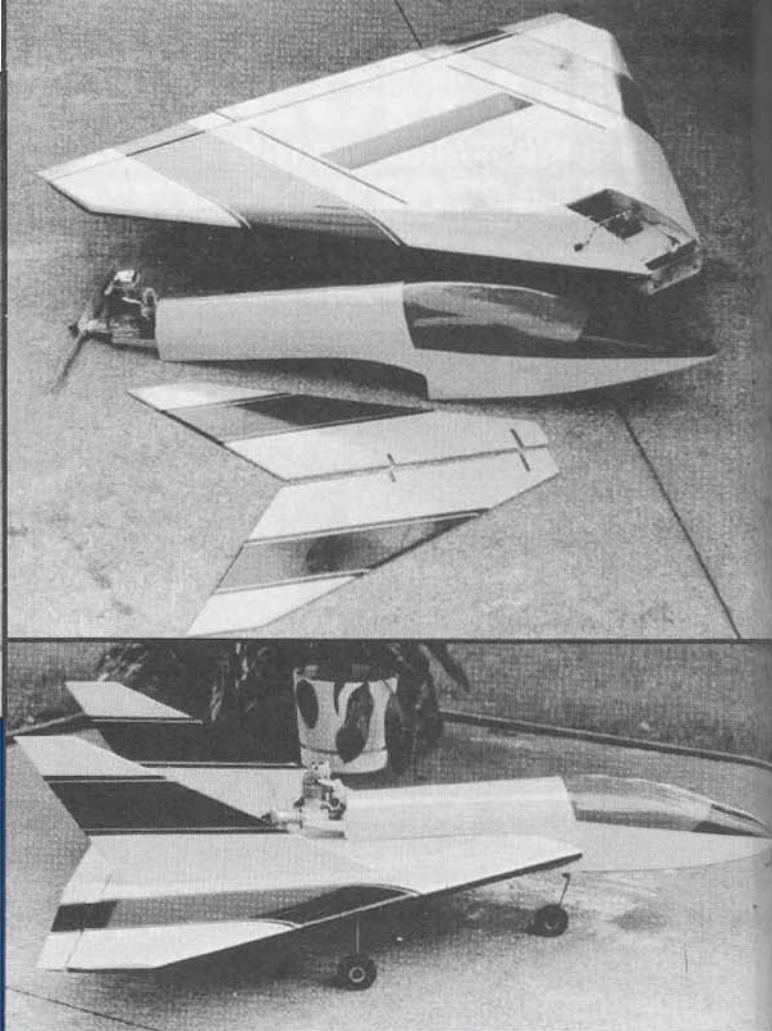
DESIGNED BY LADDIE MIKULASKO





The Enforcer was the final result of the many requests for a larger "Force 1" (RCM March '82). RCM feels it's another winner.

By Laddie Mikulasko



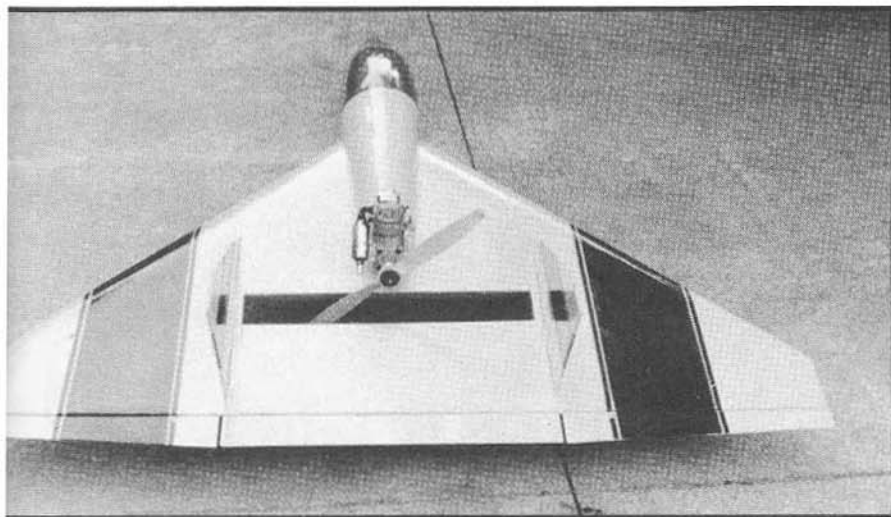
ENFORCER

The "Enforcer" model is a variation to the "Force 1" design (RCM March 1982).

When I designed the "Force 1," I wanted to have a good flying and a good looking delta wing model. I enjoyed flying that model a lot and from the letters and pictures I received from around the world, a lot of other people are still enjoying flying this model as well. Because of the sustained interest in that design,

The "Enforcer" can be flown by anybody who can take off and land a trainer type model. To assist less experienced builders, I've numbered all the pieces.

BELOW: Looks fast from rear also!
RIGHT: Wing servo area also holds receiver and battery pack. Switch push/pull protrudes from leading edge.



OPPOSITE PAGE: TOP, LEFT: Head-on view of the prototype Enforcer. Looks fast sitting on the ground.

TOP, RIGHT: Aircraft breaks down so transporting it to the field is no problem.

BELOW, RIGHT: Laddie has designed another winner.

Balsa USA is producing a very reasonably priced kit of the "Force 1." See their ad in this issue.

Since the article on the "Force 1" was published, I've been asked a number of times if I am planning on building the larger version. I didn't think I would, but when I started to use the 4-stroke engines, I thought that it might be interesting to see how the delta wing model performs, using one of these engines.

I took the "Force 1" design and more or less enlarged the wing and made the change to the shape of the fuselage. Because the model is larger, the fuselage and the fins are removable to make transportation easier.

The flying characteristics are similar to the "Force 1." The model is a stable flier. It has a very wide speed range. With a .90 4-stroke engine and 14 x 6 prop, it moves like a rocket. Vertical performance at the 6 lb. flying weight is phenomenal. The model does basic maneuvers with ease.

Cut out all of the parts accurately. Drill and cut out the holes where needed.

Building The Wing

Place the drawing on a flat building board and cover it with clear plastic.

Pin the trailing edge spar (4) to the building board right through the plan. Do the same thing to the bottom main spars (2) and sub spars (3) and (5). Be very accurate when doing this.

Glue on plywood doublers (21) to the ribs (W3) and (W4).

Take all the ribs and glue them to the spars. Make sure that each rib is lined up with the plan. Use a square to get a 90° angle between them and the building board.

Glue the short ribs at the rear of the propeller cut-out to the trailing edge (4).

Glue in the top main spars (2) and sub spars (3) and (5).

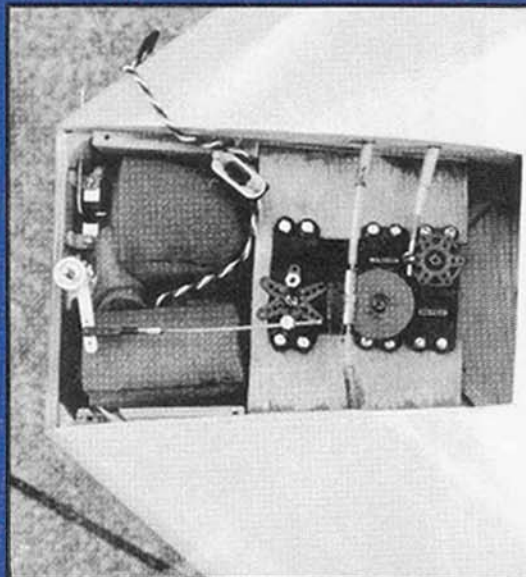
Glue on the 1/4" x 1/4" balsa stiffener (20) to the ribs (W4).

To make the slots where the fins (30) will be plugged in, glue 1/4" x 1/4" balsa (20) between the main spar (2) and the trailing edge (4), 3/16" apart from the rib (W4). See section B-B on the drawing.

Now, glue on the trailing edge sheeting (7) and the balsa leading edge (1). Sand the top of this leading edge to the contour of the ribs.

Glue on leading edge sheeting (6).

Insert and glue in the trailing edge (12) and the leading edge (3) of the



ENFORCER

Designed By:

Laddie Mikulasko

TYPE AIRCRAFT

Sport Delta

WINGSPAN

48 3/4 Inches

WING CHORD

34 1/4 Inches

TOTAL WING AREA

940 Sq. In.

WING LOCATION

Low Wing

AIRFOIL

Symmetrical

WING PLANFORM

Delta

DIHEDRAL EACH TIP

None

O.A. FUSELAGE LENGTH

36 1/4 Inches

RADIO COMPARTMENT SIZE

(L) 8" x (W) 4" x (H) 2 1/2"

STABILIZER SPAN

NA

STABILIZER CHORD (incl. elev.)

NA

STABILIZER AREA

NA

STAB. AIRFOIL SECTION

NA

STABILIZER LOCATION

NA

VERTICAL FIN HEIGHT

9 1/4 Inches

VERTICAL FIN WIDTH (incl. rud.)

16 Inches

REC. ENGINE SIZE

.90 4-stroke, .60 2-stroke

FUEL TANK SIZE

10-12 Oz.

LANDING GEAR

Tricycle

REC. NO. OF CHANNELS

4

CONTROL FUNCTIONS

Elev., Ail., Throt., Nose Wheel

BASIC MATERIALS USED IN CONSTRUCTION

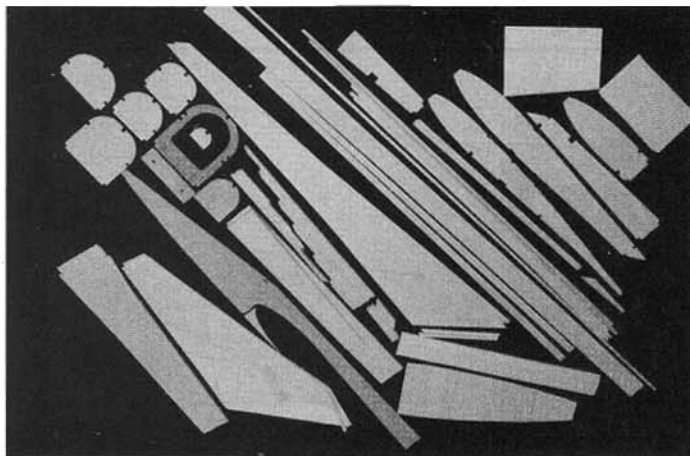
Fuselage Balsa, Ply., & Spruce

Wing Balsa, Ply., & Spruce

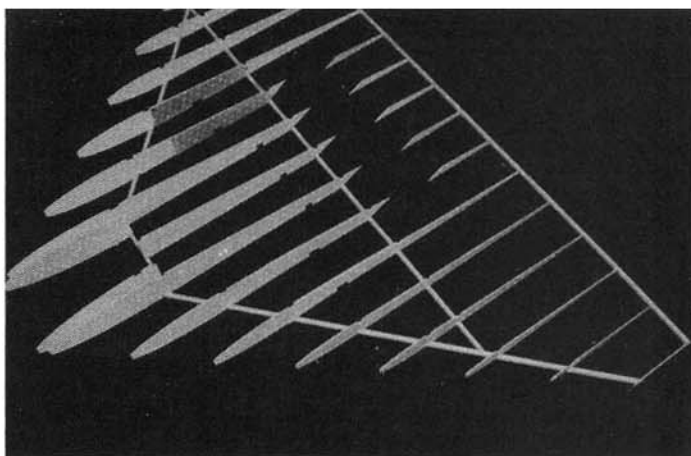
Vertical Fin Balsa

Wt. Ready To Fly 96 Oz. (6 Lbs.)

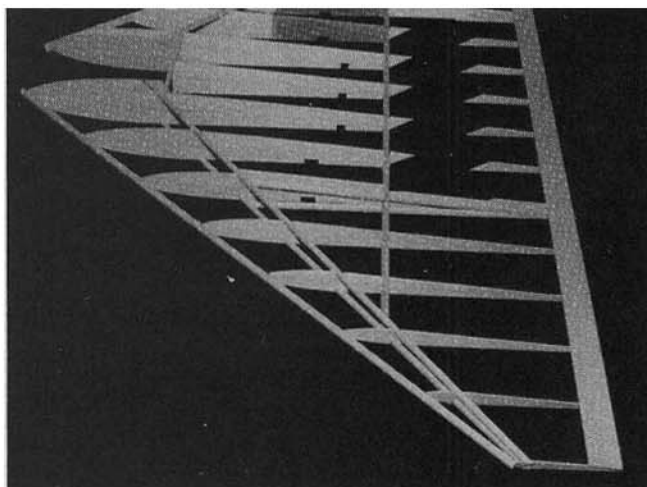
Wing Loading 14.7 Oz./Sq. Ft.



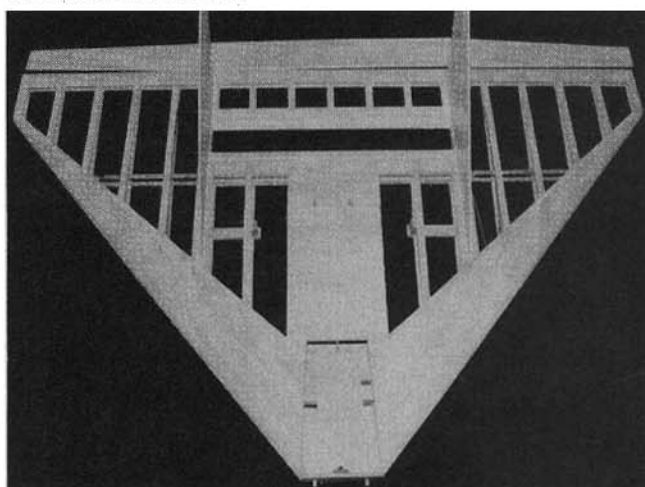
All the parts are cut out.



The ribs are glued to the bottom spars. Notice plywood doublers on the ribs W3 and W4.



The trailing edge sheeting and all the spars are glued to the ribs.



Completed wing. The fins are removable.

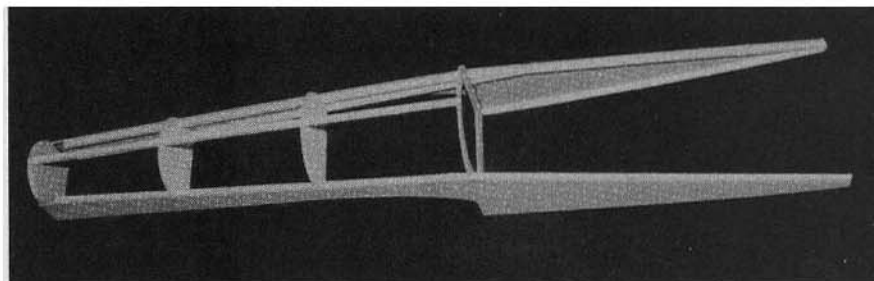
propeller cut-out.

Sheet the center section of the wing with the sheeting (11) and glue on all the capstrips (8).

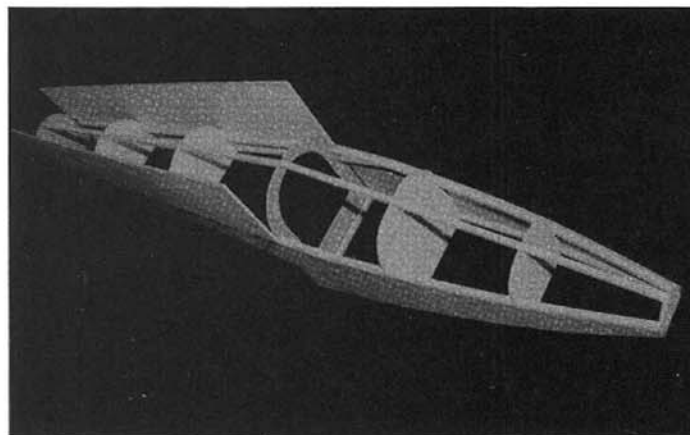
Remove the wing from the building board and turn it over on its backside.

Glue in the semi-flexible NyRods for the elevator and ailerons. Glue in NyRod for receiver antenna.

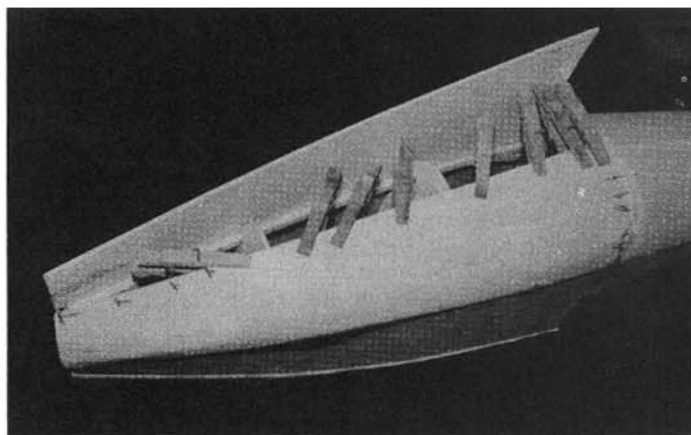
Now, glue on trailing edge sheeting (7), followed by sheeting the leading edge and center section of the wing.



Fuselage sides with the formers F4, 5, 6, 7, in place.



Sheeting of the rear section in progress.



Sheeting of the fuselage almost finished. Notice that bottom is already sheeted.

Cap the ribs. Notice that there is 1¼" wide capstrips (19) at the rib (W4). Again refer to the Section B-B.

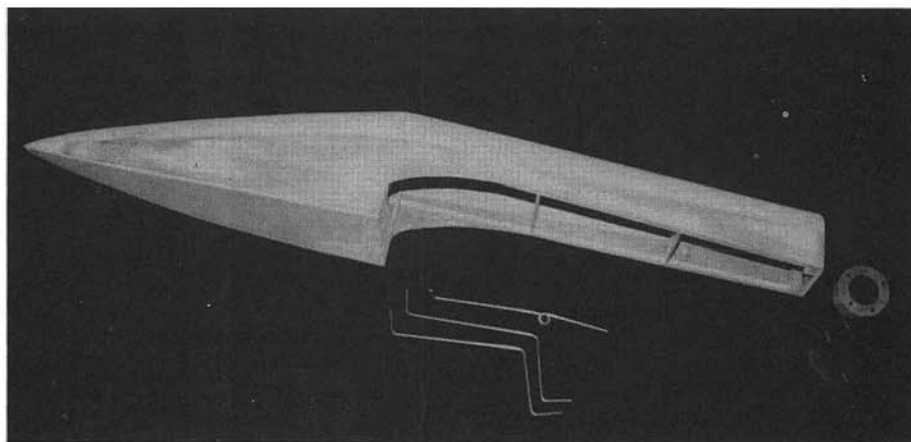
Epoxy in the landing gear blocks (18).

Cut out the opening in the sheeting (11) and glue in the hardwood block (15). Do not forget to glue in the vertical blocks, to prevent crushing of the wing's sheeting (11) when tightening the hold-down screws.

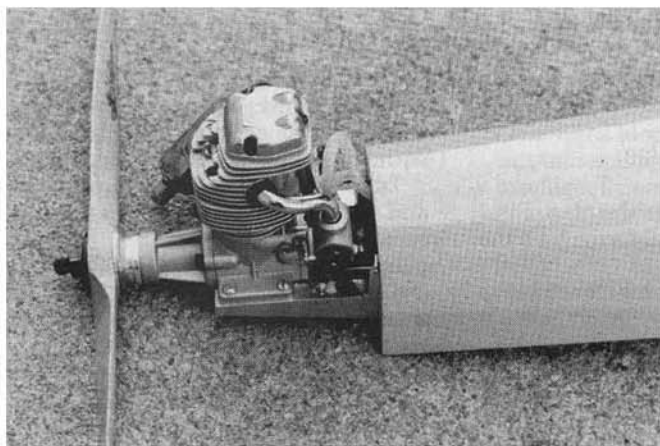
To the wing tips, glue on balsa block (9) as shown in section A-A.

Sand the whole wing. The wing's leading edge should be sanded to the large radius.

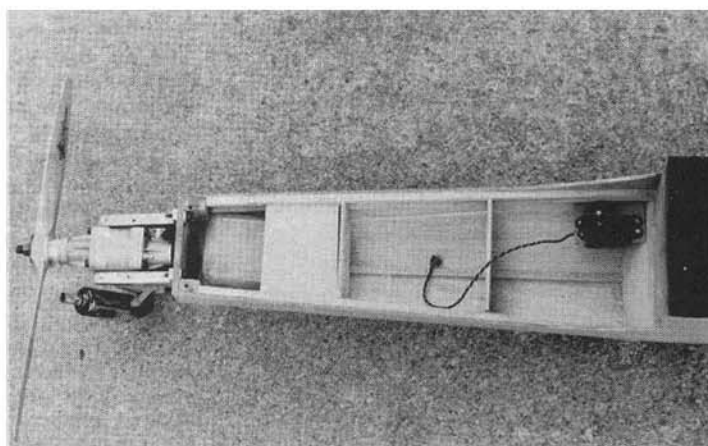
Cut out the elevator (29) and the ailerons (28) out of 3/8" balsa sheet. Sand them to the taper. You should



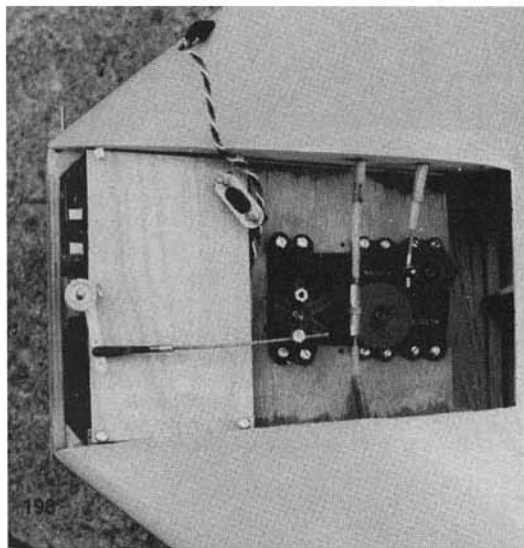
Fuselage is ready for covering. Round plywood disk was made to extend the engine mount so the propeller on .60 2-stroke can rotate freely in the cut-out. It is not needed on 4-stroke or if long engine mount is used.



Engine installation. Since this picture was taken, I added remote glow plug connector mounted on the firewall.



Inside of the fuselage. Notice hardwood blocks at the firewall. The fuel tank is held in place with removable piece of plywood. Also note throttle servo.



sand the aileron's tip so it has built-in washout. See the side view of the "Enforcer."

Make the two fins (30).

Build the fuselage.

Again it is built over the plan. First mark the location of all formers on the fuselage sides (32).

Glue on the balsa longerons (31) to the sides.

The radio installation. Receiver and battery can be located on the other side of servo tray. Notice several things: Type of connector for aileron pushrods. Rudder servo used for steering on the ground only, and triangular stock giving more support to the nose gear plywood piece.

Pin the formers (F4) and (F7) to the building board. Make sure that the centerline of each former, lines up with the centerline on the drawing.

Take fuselage sides and position and glue them to the formers with epoxy glue.

Insert and glue in formers (F5) and (F6) at the top, glue in longeron (31).

In the front, glue in formers (F1), (F2) and (F3) making sure that the fuselage is straight.

Glue on top longeron (31).

Glue on bottom sheeting (36).

Sheet the top of the fuselage between (F4) and (F7) with 1/8" balsa sheet (33). Dampen the sheets on the

outside so that they bend easier.

Sheet the nose section now. Because the nose has a slight compound curve, apply more pressure on the sheet (33) when bending.

Glue on nose block (34).

At the firewall (F7), epoxy in two hardwood blocks (35). These two blocks serve two purposes. They give the firewall more support, and self-tapping screws will be screwed into them to hold the wing to the fuselage.

The fuselage can be sanded to your satisfaction.

Turn the fuselage upside down and place the wing into the saddle. Make sure that the fuselage is square with the wing.

Drill the block (15) in the wing right through and into the blocks (35) in the fuselage. Insert and tighten #6 x 2½" long self-tapping screws.

Take the plywood nose gear bulkhead (10) and glue in two hardwood dowels (26).

Line them up with the holes in (F4) and secure plywood (10) in place by gluing the balsa sides (25) to it and to the leading edge sheeting.

Glue on bottom sheeting (29).

In the corners, glue in triangular stock (27) to give plywood (10) more support to hold the nose gear.

Install the radio, engine and the landing gear. The elevator and aileron servos, battery, switch and receiver are installed in the wing. The rudder servo is used for steering on the ground only. The throttle servo should be installed in the fuselage just far enough so it could be plugged into the receiver.

Temporarily attach the elevator and ailerons.

Check the C.G. Try to balance the model by moving the battery; if not enough, add the lead before you cover the wing.

The reason that the balancing is

Install the hinges and landing gear. Plug the fins into the slots. Secure them in the slots with 90° hold-down keepers (Carl Goldberg). The keeper is held to the spar (3) with a self-tapping screw and the fin is held with a 2-56 bolt and nut.

Reinstall the radio and engine. The fuel tank is installed in a conventional manner, with the fuel lines going over the top and back to the engine.

I strongly recommend mounting a remote glow plug connector.

The engine can be started by flipping the prop by hand carefully or, preferably, by using the electric starter. When adjusting the needle valve, please go to the front of the plane and do the adjusting from there. **Do not try to adjust the engine by reaching over the rotating prop.**

You will have to use a pusher propeller. I use a 14 x 6 Zinger on my .90 4-stroke and a 12 x 6 on my .60 2-stroke. A good hobby shop should be able to get them for you.

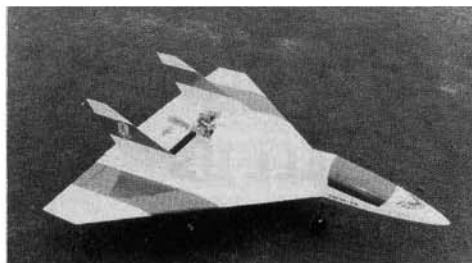
Flying:

Check the balance point. The fuel tank can be empty or full.

Handle the "Enforcer" as any sport model. It is a docile plane with no bad habits.

I hope you will get a lot of enjoyment from flying the "Enforcer." □

**From
RCModeler
Apr. 1 1987**



done now is that on this model you might have to add the ballast at the trailing edge of the wing especially if you are using a 2-stroke engine. The finish on the model will not upset the balance point.

Cover and finish the model with your favorite material. When choosing a color scheme, I would suggest using mostly light colors on top with contrasting trims.