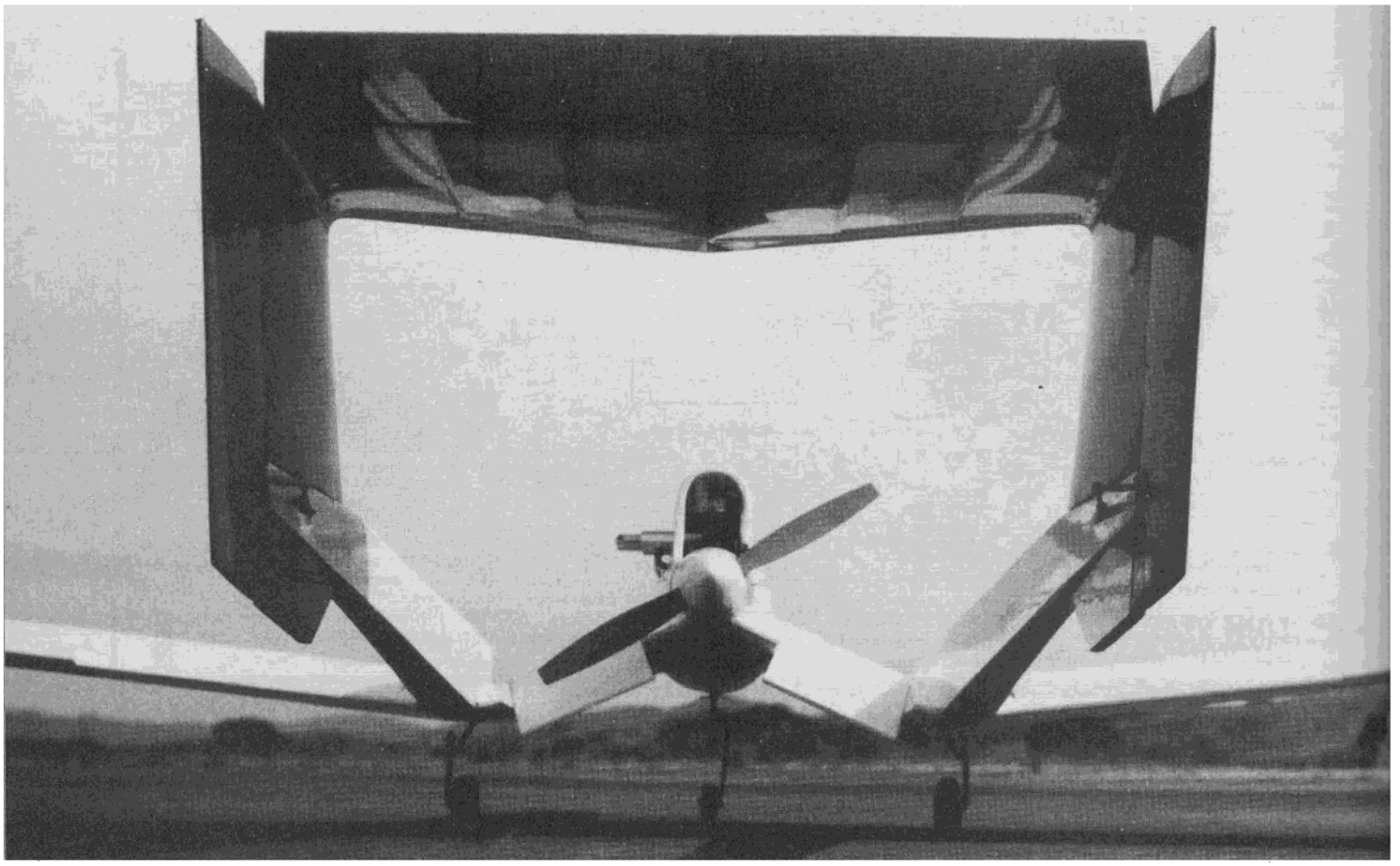
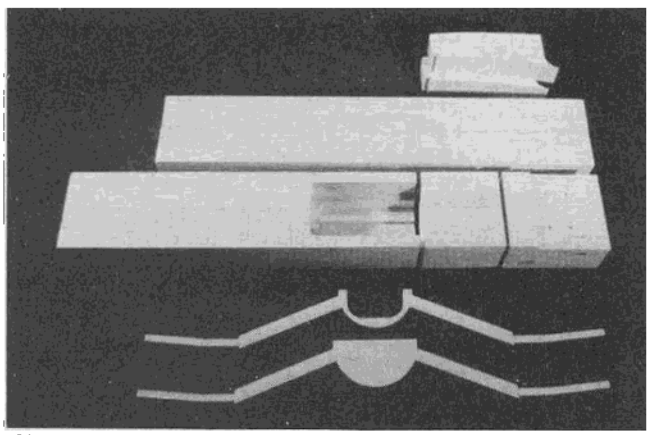
ELIMINATOR



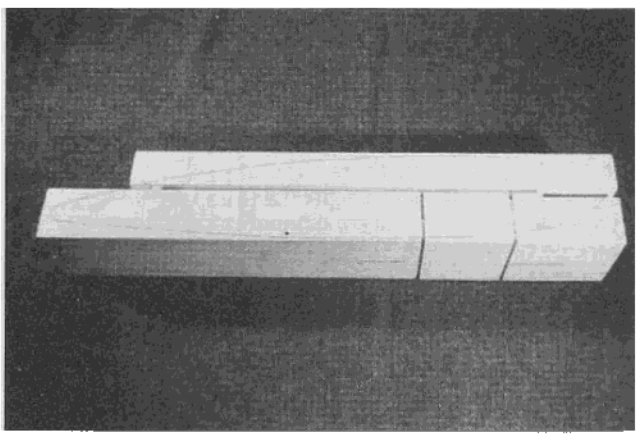
With all due respect to the fine people at Chance Vought, my Eliminator is how I feel the F4-U Corsair should have been designed.

By M.A. Fallandy

Many years ago, more than I care to remember, I joined an organization that sent me on a field trip. The field trip lasted six years, the organization was called the United States Navy. While associated with this merry band of itinerant indigents, it fell my lot to fly the F4-U Corsair. A fine airplane, but a little long in the nose. If you were long in the groove coming aboard the carrier, that extended nose had a tendency to block out the Landing Signal Officer. Also, it had a rather bad habit of flipping over on its back when it stalled. However, it was very good at what it was designed to do; eliminate the enemy, also fairly good



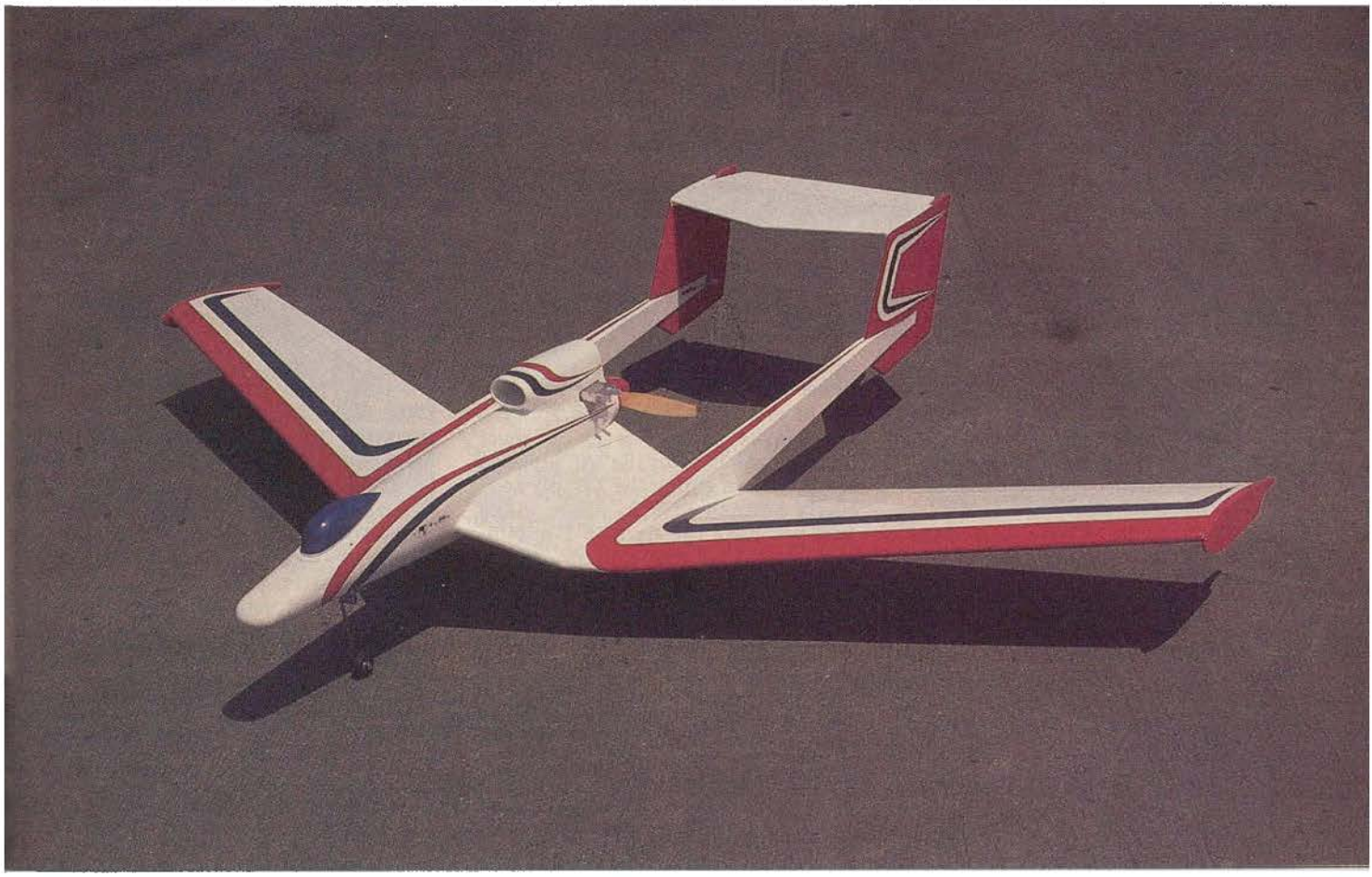
Air scoop halves, top and bottom of fuselage pod, and Gull Wing formers. Note cut-out for servos, wing formers, and engine mount.



Fuselage pod marked for cut-out in one dimension. Note spacers for later addition of plywood components.

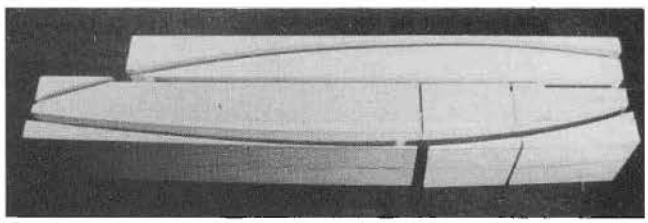
at eliminating Naval and Marine aviators. These attributes plus its inverted gull wings earned it the nickname of "bent wing eliminator." With all due respect to the fine people at Chance Vought, my Eliminator is how I feel the F4-U Corsair should have been designed. Granted my version would have been a little difficult to bail out of, but what the hey, you can't have everything.

The Eliminator is a rewarding airplane; it builds fast, flies well and is guaranteed different.

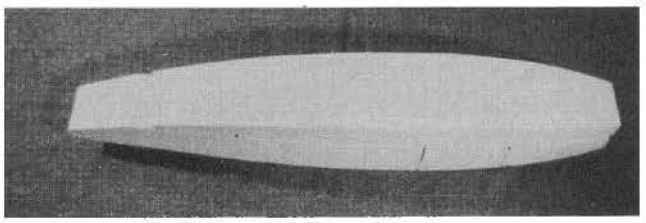


CONSTRUCTION

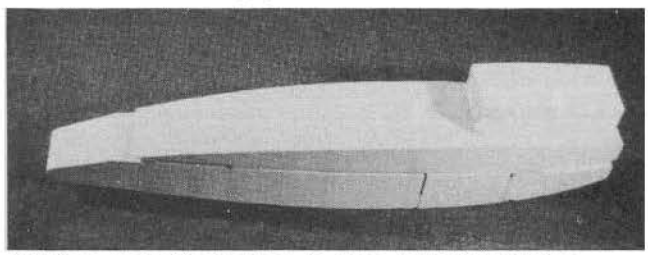
Although it looks somewhat difficult, don't let it fool you. Construction is not all that difficult. I started with the fuselage or "pod." Even though you may have a big enough block of balsa from which to carve the whole pod, split it into quarters. This will always give you a centerline from which to measure. The pod separates on the engine centerline. Both mating halves are surfaced with 1/8" plywood. Before you start whittling, cut out the two wing spars that form the gull part of the wing. Also from 1/8" plywood, cut out the two wing spar center sections only, just that part goes into the pod. Also cut out F-1, the nosewheel support. Now cross-cut the two blocks that make up the lower half of the pod where the two wing spars go and up front for the nosewheel support. The bottom half of the pod may now be glued together. Apply glue only to the center of F-1 and the wing spar center sections in an area that will fall out when you scoop out the insides of the pod. Now glue the top half of the pod to the bottom half, but replace the two



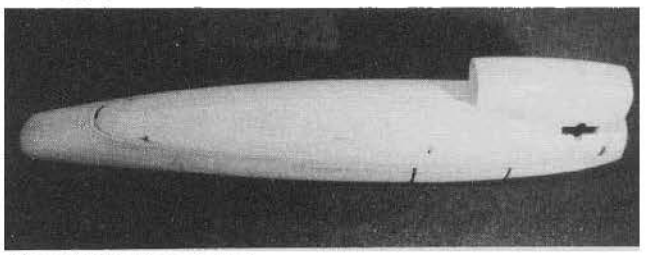
Band saw cut of fuselage pod in one dimension.



Fuselage pod cut-out in two dimensions.



Fuselage pod with air scoop in place, ready for shaping.

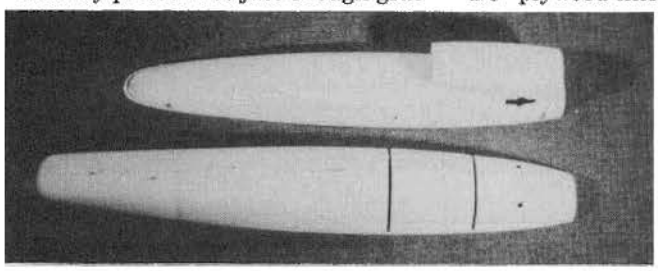


Completely shaped pod.

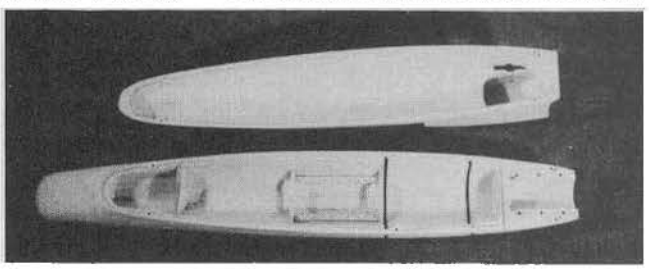
1/8" plywood liners with 1/8" balsa. Again place the glue in the center section that will fall away when the insides are removed. The reason for replacing the plywood with balsa is for ease of carving. It is very difficult to get a constant surface with varying hardness of materials. You should now have a rectangular block and can trace on the top and side view. With your handy bandsaw, cut out the side view. Carefully glue back these cutaway pieces. Use just enough glue to hold the block together while cutting out the top view. Always remember to put the glue in the corners or in an area that will later disappear.

For those of you without a bandsaw, I have found that if you ask around the local junior high schools or high schools and explain what you are doing, they are more than glad to help, or let you use their equipment.

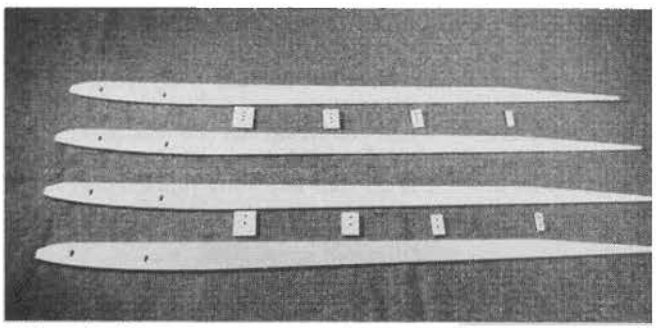
Now that you have the general shape of the pod in two dimensions, you can turn loose your pet beaver, pocket knife, Dremel tool, belt sander, or whatever device you use to remove undesired balsa. When you are sure you have the outside to shape, split the top from the bottom. Use the 1/8" sheet balsa for patterns for the 1/8" plywood liners. Before gluing the 1/8" plywood liners permanently in place, make sure you have the six 2-56 T-nuts in the lower half and matching 2-56 washers on top of the upper half. Now glue the two halves together in a couple of places only and feather the 1/8" plywood liners in flush with the balsa. The two wing spars and nosewheel plate may now be glued in place. Make sure you have the T-nuts in place in the nosewheel plate assembly and the wing rib and tail boom locations marked on the wing spars. Now is also a good time to locate the engine mount plate, dowels, and T-nuts that secure your particular engine in place. With the main wing spars in place, locate and glue the first three wing ribs in place on both sides. All this has taken a lot out of me, so



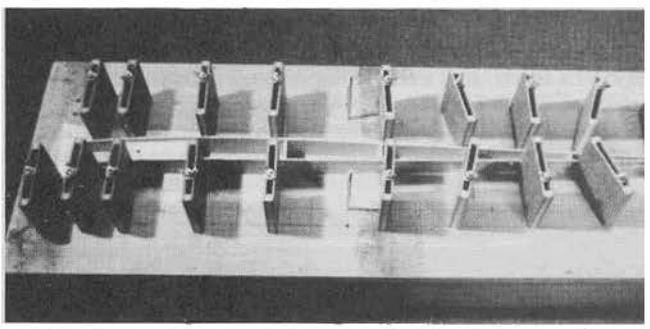
Top and bottom of pod.



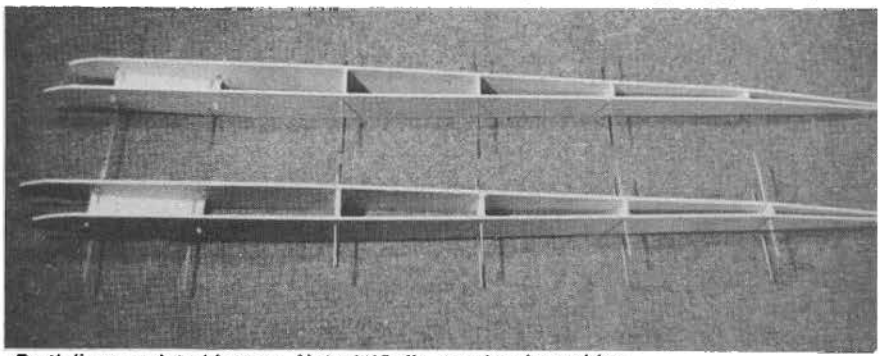
Top and bottom of pod ready for Gull Wing formers.



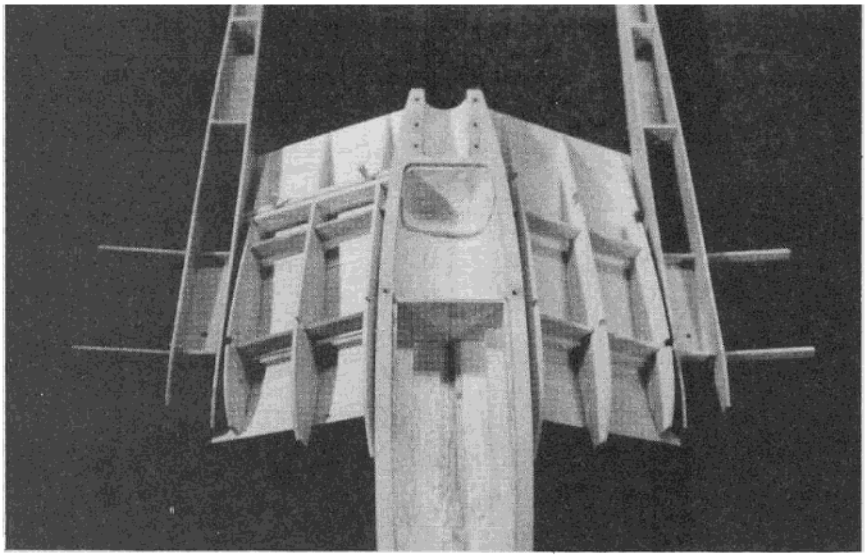
Sides of tail booms.



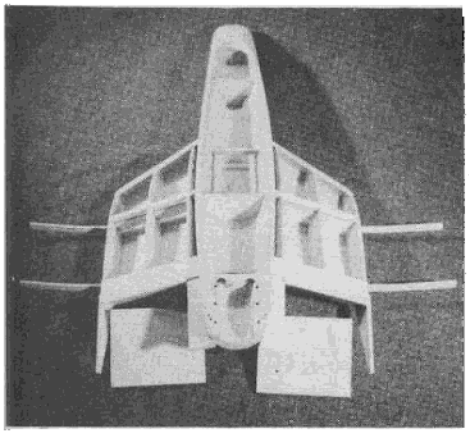
Booms are assembled using RCM Fuselage Jig (Feb. '72).



Partially completed booms. Note 1/16 dia. music wire guides.

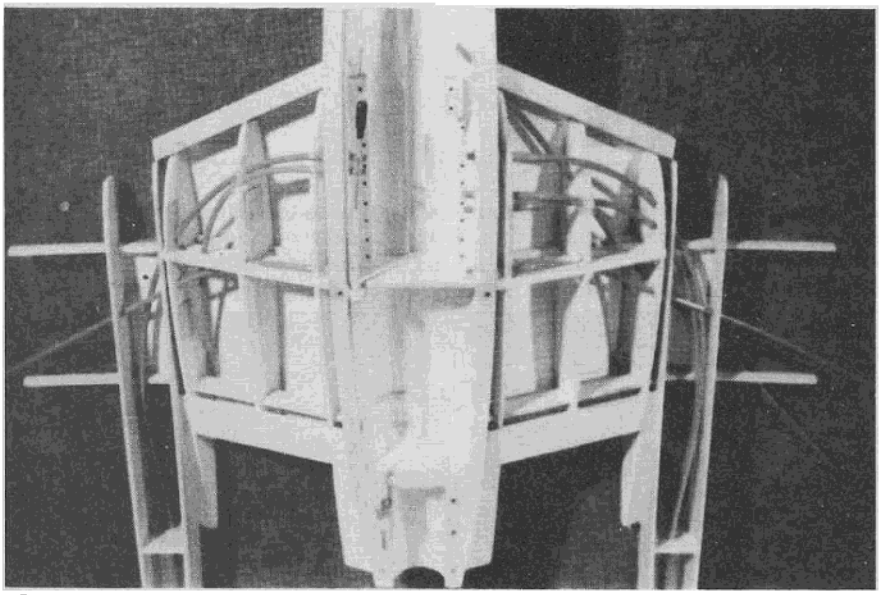


Bottom half of pod, with Gull Wing formers and tail booms in place.



Bottom half of pod with Gull Wing formers and flaps.

by laminating a 1/64" sheet of wing skin plywood on both sides of a 3/32" sheet of balsa. Stack all four sides together and cut them out as a unit. Drill the 1/16" diameter holes at all bulkhead and landing locations; also cut in the wing spar slots. When all location holes are in place and the shape is right, separate the pieces and cut two of the sides to the configuration of the outer side of each boom. The outsides of the booms are a little shorter than the insides. To assemble to booms, I use the RCM Fuselage Jig (RCM Feb. 1972). Pass 1/16" diameter music wires through the predrilled holes and the two sides and the bulkheads will be properly



Bottom half of pod with NyRod control tubes in place.

now is a good time to set the whole thing aside and open up and enjoy a bottle of your favorite vitamins, providing you're not going to fly in the near future.

Tail Booms:

The sides of the tail booms are made located. Cross sheet the top of each boom and set aside.

Wing:

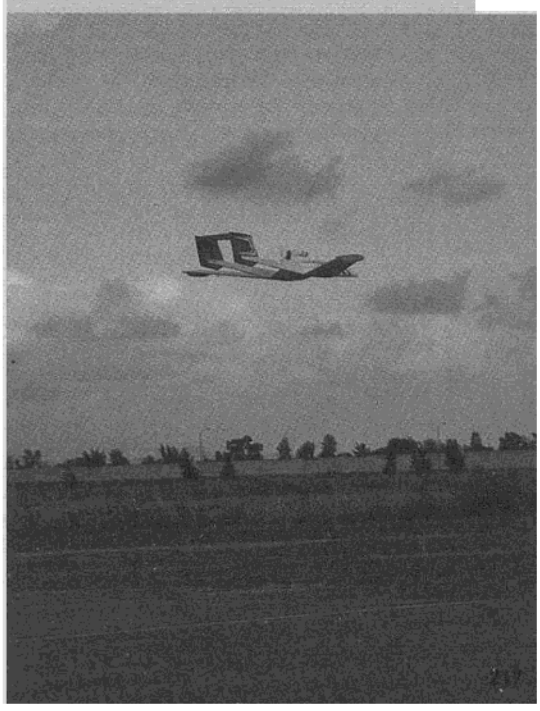
The wing has three sections; the center gull wing with fuselage and flaps included, and the two outer panels with ailerons. The two 1/8"

ELIMINATOR

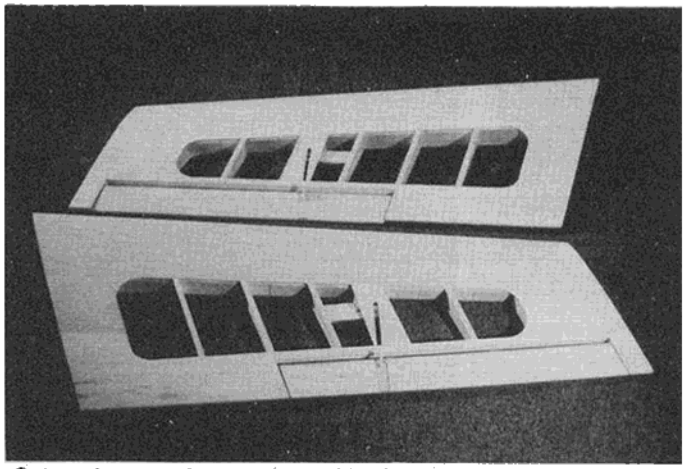
Designed By:
M.A. Fallandy
TYPE AIRCRAFT
Sport
WINGSPAN
65.25 Inches
WING CHORD
9.75 Inches (Avg.)
TOTAL WING AREA
636 Sq. In.
WING LOCATION
Low Wing
AIRFOIL
Semi-Symmetrical
WING PLANFORM
Swept L.E. Inv. Gull
DIHEDRAL EACH TIP
2.12 Inches
O.A. FUSELAGE LENGTH
26.25 Inches
RADIO COMPARTMENT SIZE
(L) 12" x (W) 2.5" x (H) 2"
STABILIZER SPAN
14.75 Inches
STABILIZER CHORD
8.5 Inches
STABILIZER AREA (inc. elev.)
125.4 Sq. In.
STAB AIRFOIL SECTION
Flat Bottom
STABILIZER LOCATION
Top of Fins
VERTICAL FIN HEIGHT
8.25 Inches
VERTICAL FIN WIDTH (incl. rud.)
7.5 Inches (Avg.)
REC. ENGINE SIZE
.60
FUEL TANK SIZE
12 Oz.
LANDING GEAR
Tricycle (Retracts)
REC. NO. OF CHANNELS
6
CONTROL FUNCTIONS
Rud., Elev., Ail., Throt.,
Speed-brks., Retracts

BASIC MATERIALS USED IN CONSTRUCTION

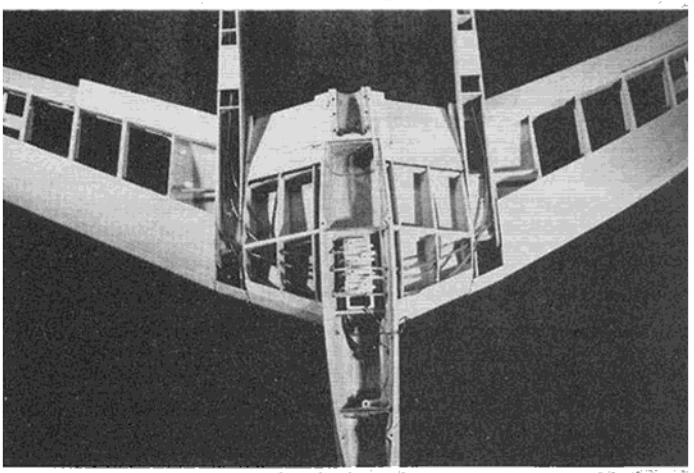
Fuselage	Balsa & Ply
Wing	Balsa & Ply
Empennage	Balsa
Wt. Ready To Fly	**120 Oz.**
Wing Loading	**27.2 Oz./Sq. Ft.**



plywood spars are for shape only, so be sure to glass the top and bottom all the way across as indicated on the plans. The top side, of course, can only be glassed up to the pod. The two outer panels are of normal construction. However, because the airfoil is semi-symmetrical, they do not lend themselves to flat construction. I like to thread the wing ribs on a couple of 1/4" diameter drill rods and support the rods slightly above my building

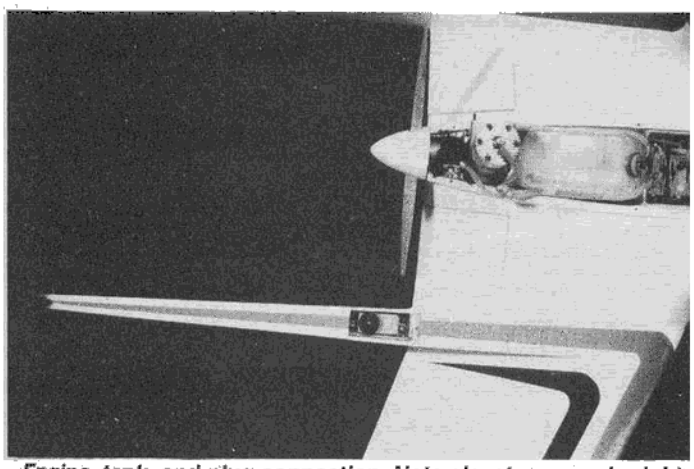


Outer wing panels complete with ailerons.

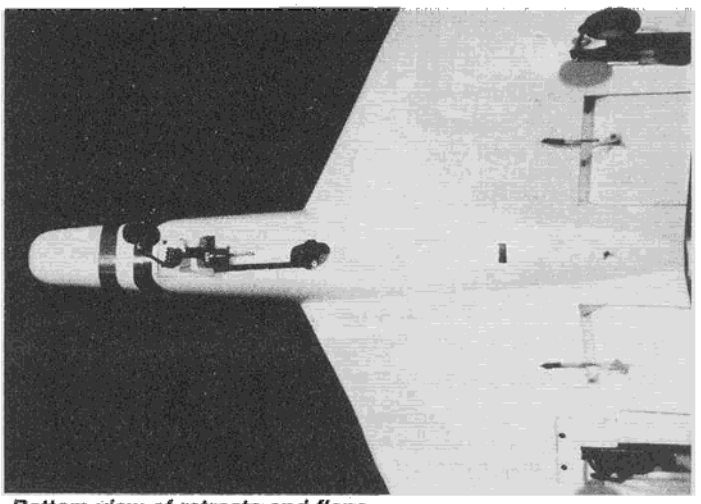


This is the prototype version before the retracts were added. It shows how wing panels are attached.

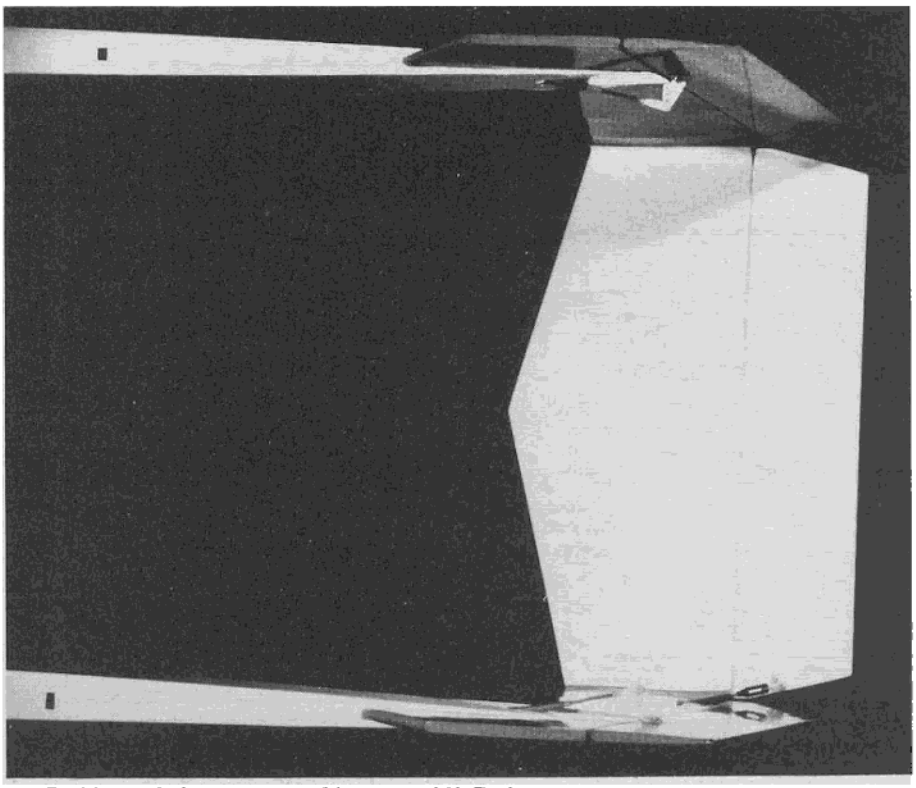
board at three stations. The supports can be of any type of wood, with the hole spacing identical to those in the wing ribs. One support is threaded on the drill rods with an equal number of ribs on either side. The remaining two supports are threaded on outboard of the ribs. With everything properly spaced, secure the supports to your building board with a screw. With the ribs suspended in this manner, the rest of the wing may be assembled.



Engine, tank, and plug connection. Note elevator servo in right boom.



Bottom view of retracts and flaps.



Rudder and elevator control horns and NyRods.

Sheet only one side of each wing panel and the gull center section to allow for NyRod control rod installation. When the wing panel is dry, the 1/4" diameter drill rods may be removed by rotating and gently pulling them from the wing panel.

Rudder, Stab, Elevator:

The rudder, stabilizer, and elevator are built directly over the plans. Don't forget to add the 1/8" thick capstrips on the top of the stabilizer — a little lift in the caboose is nice on those low, slow approaches.

Assembly:

Find a nice flat space. I don't advise a pool table at your favorite pool emporium. I tried this and you can't imagine how excited they become when you spill a little glue on the felt. Then when I lifted the model up from the table and a small piece of felt came with it, they really came apart. As a result I have been barred from the pool hall. The dining room table will probably do just fine. Assemble the center gull wing section, the two booms and outer wing panels inverted. The split line of the fuselage pod, with wing tips and the aft end of the tail booms, form a common plane. Make sure everything is symmetrical. Measure from each wing tip to the ends of the tail booms. Make sure the booms are parallel. When you are sure all is aligned, glue everything. When dry, turn the assembly over and add the rudders and elevator.

The main portion of the aircraft is now together. What remains to be done is to add the controls, electronics, retracts, and engine. Some of these installations may vary depending on the equipment used. However, here are a couple of tips:

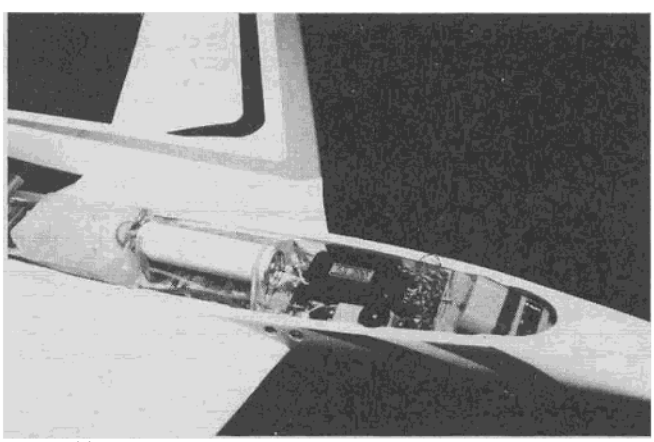
NyRods of some type are almost a necessity. Because of the curvaceous path of some of the control elements, be sure to secure them on both sides of everything they pass through. Rough up the surface of the NyRod tube in the area of penetration, pack a little baking soda on both sides of the bulkhead or wing rib and add some Hot Stuff. This makes a good, solid joint and will eliminate some flutter problems later. Speaking of NyRods, don't forget to install an empty NyRod tube from the receiver area of the pod through the wing and out the left tail boom for the receiver antenna. After everything works well, finish sheeting over the model.

Use your favorite covering. I used MonoKote. Normally I advocate changing things to suit yourself; however, in this case, leave the wing, elevator and engine incidence angles as indicated on the plans. You don't have to go to a lot of trouble, just build to the plans; put a washer under the front two engine bolts and you'll be all right. Also, be sure your plane balances close to the place shown on the plans.

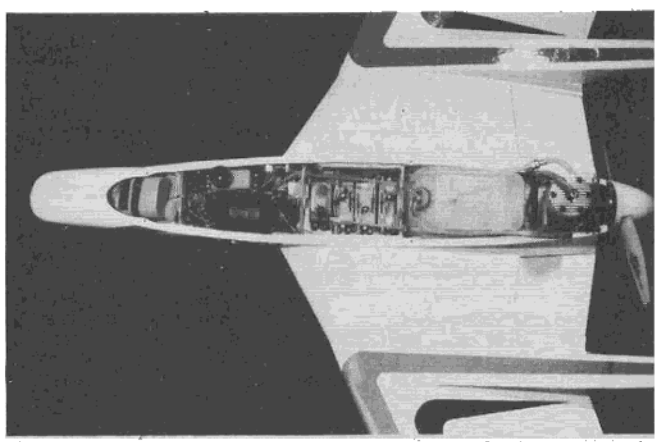
First Flight:

There is nothing strange or different about flying this airplane. It is fairly fast, but you can slow it up to suit yourself. It will stall flat and landings are no problem. Pop the flaps slowly the first time, the plane will want to rise, so you don't want to have more flap than your elevator trim tab can accommodate. If you like flaps on take-off, milk them up slowly while close to the deck as she will settle when the flaps come up.

It's a fun plane to fly. I hope you enjoy yours as much as I'm enjoying mine, and it sure is different. Happy Landings. □



Top half of pod removed to show retract air reservoir and internals.



Top half of pod and air reservoir removed to show servos and internals.