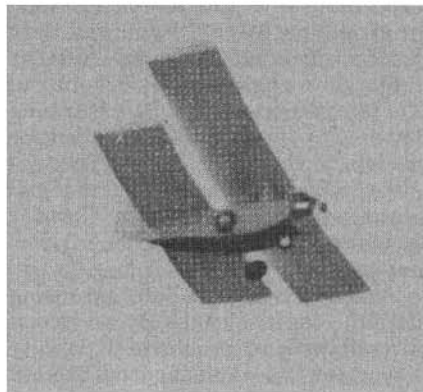


# LE FRENCH POUDLE

The tandem wing Le French Poodle is suspected of being a descendant of Pou du Ciel, the French Flying Flea.

By Randy Wrisley

**L**e French Poodle (pronounced poodle) is a super simple .09 sized sport model. It is designed around the Pou Du Ciel formula popularized by Henri Mignet in France. Like the Can-Can, and that unique method of kissing developed by the French, the Poodle's control system differs from accepted practice.



All I can say is don't knock it until you've tried it! By using minimum control throws, and low power, the Poodle is a docile trainer type model with outstanding low speed characteristics. With large control throws, the very same machine becomes a tiger. It loops, snap rolls, spins and, even though I saw it, I still don't believe this silly critter flies upside down!

I really worked hard to make the Poodle as simple to construct as possible. All the wood sizes are stock. There is no exotic hardware, or any wire to bend. A standard size radio fits comfortably within the chubby fuselage. The builder even gets to choose conventional, or tricycle landing gear. So what are you waiting for? Tell the little lady it's time she had some companionship while you're away. Then run down to the hobby shop and grab what you need to build her a French Poodle!

## CONSTRUCTION

### Fuselage:

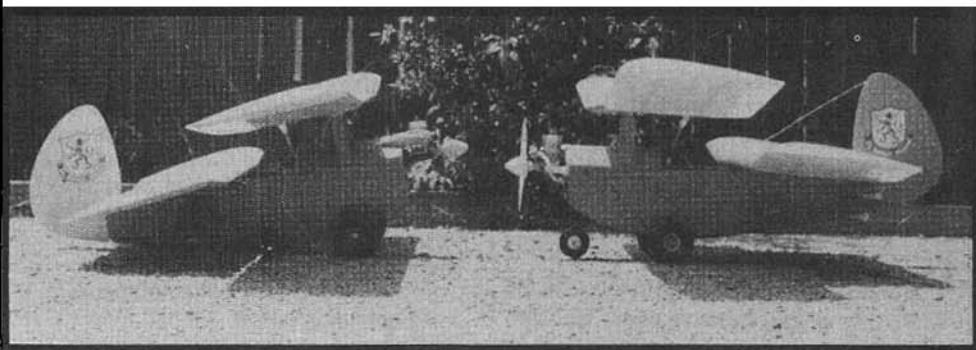
Cut two identical sides from medium soft 1/8" balsa. Very carefully mark the location of the cabane struts and the formers. Cut the firewall from 1/4" plywood and the remaining formers from 1/8" lite ply.

Cut the cabane struts from 1/4" x 3/4" spruce or pine. Using Super Jet, install a cabane strut on one side. Pin the sides together and Jet glue the second strut to the other side. They must be correctly aligned. Make the wing pivoting control horn as follows: Enlarge the outermost holes from a pair of large T-type control horns until the bolt from a 90° aileron bellcrank fits through. Clip the outer holes off the bellcrank and bolt it, complete with its eyelet, between the two horns. Center the assembly on F-2 and bolt in place using the nylon plates provided with the horns. Go back to F-1 and drill the holes for the motor mount.

Install the blind mounting nuts and mount the Du-Bro 1/2A nosegear



assembly, if you plan to use a nosewheel. Using a triangle, Jet glue formers 1, 2, and 3 to one side of the fuselage. Slip the other side in place and carefully check everything with the triangle to make sure its straight. Jet glue the second side on once you are satisfied with the alignment. Install the 1/4" triangle stock behind F-1 and the 3/16" square spruce cockpit stiffeners. The landing gear mount, made from 1/4" x 3/4" spruce





and a piece of  $3/32$ " plywood, is added now. Remember to choose which location you want, conventional or tricycle. Plank the bottom of the fuselage with  $3/32$ " balsa applied cross-grain from F-3 to F-1. Carefully pull the tail together. The tail post is made from a couple of pieces of 1" trailing edge stock carved or sanded to fit; all it has to do is hold the rudder hinge. Finish planking the bottom of the fuselage. Route the rudder pushrod before you plank the top aft end of the fuselage. Be sure to install the spruce/plywood rear wing hold-downs at the locations indicated. I used a Perfect #13 fuel tank modified, as shown, in my Poudle. This was before I learned the thing could fly upside down. You may want to use a stunt-type tank that will allow sustained inverted flight. Whatever you use, mount it before you plank the front deck with soft  $1/8$ " balsa. It takes a little care to correctly bevel the parts but if you take your time, it's easy. Besides there's always balsa filler to

cover your mistakes! Sand the completed fuselage. The cockpit cover is made from  $1/32$ " ply; four screws hold it on. The landing gear is a 9" long piece of  $1/8$ " music wire. Hold it in place with  $1/8$ " nylon landing gear clamps. That's it for the fuselage. Set it aside until we build the rest.

#### **Rudder:**

Cut the rudder from  $5/32$ " soft balsa. If you can't find that size, sand down some  $3/16$ " stock. Round all the edges with sandpaper. If you plan to paint the fuselage, you can install the rudder now using a full length plastic "living hinge" and plenty of Jet. If you plan to use plastic film for covering, wait to install the rudder until after it's covered.

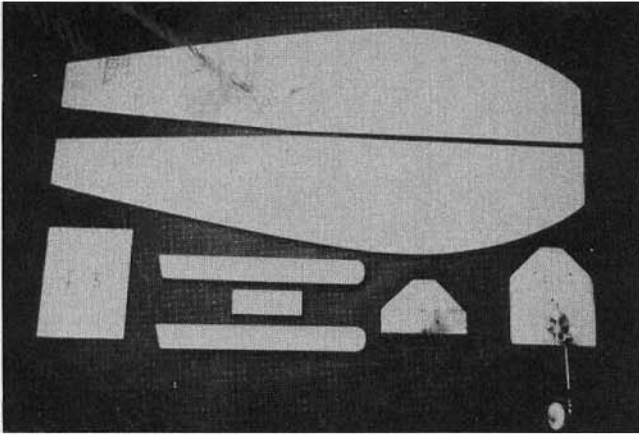
#### **Wings:**

Using a plywood template, cut out 36 ribs. Make a few extras as they make lovely Christmas gifts! Since both wings are built alike, we will cover the building of both at the same time, noting the differences as we go along.

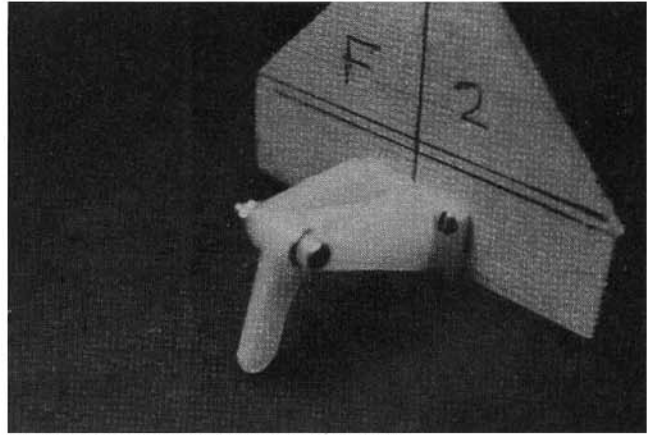
Pin the front and rear spars down on the plan. Jet glue the ribs in, except those at the dihedral breaks. Jet glue the top  $1/16$ " x 1" trailing edge piece in place. Jet glue the  $5/16$ " x  $5/16$ " leading edge on; be sure to stick it to both sides of the rib. Saw through the L.E., T.E., and spars at the dihedral breaks. Block up each tip  $3/4$ " for the main wing and  $3/8$ " for the rear wing.

Cut a total of eight dihedral braces from  $1/32$ " ply. They're all the same angle. Jet glue one onto the front of each spar at the dihedral break. Pick the wing up off the board. Bevel the top trailing edge piece and Jet glue the bottom T.E. piece in place. To install it you may want to rock the wing back until the bottom T.E. piece lies flat on the board. In that manner, a warp-free wing is assured. Enlarge the spar cut-outs on the ribs which fit over the dihedral breaks, and flex them into place. Cut the four identical wingtips from  $1/8$ " balsa and Jet glue them on.

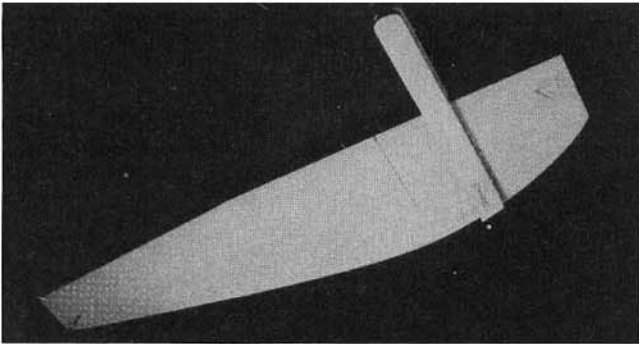
Install the  $1/4$ " x  $1/4$ " spruce wing mounts to the front and rear of the



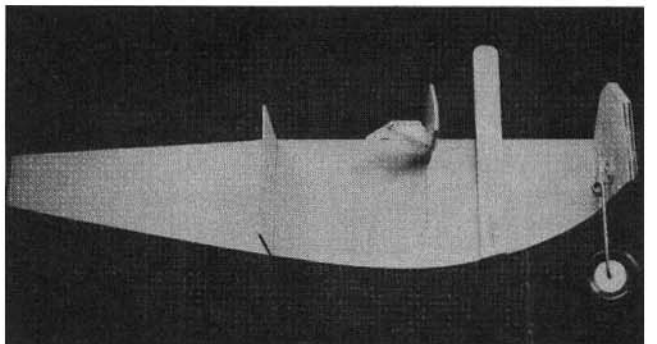
*Parts required to start fuselage assembly.*



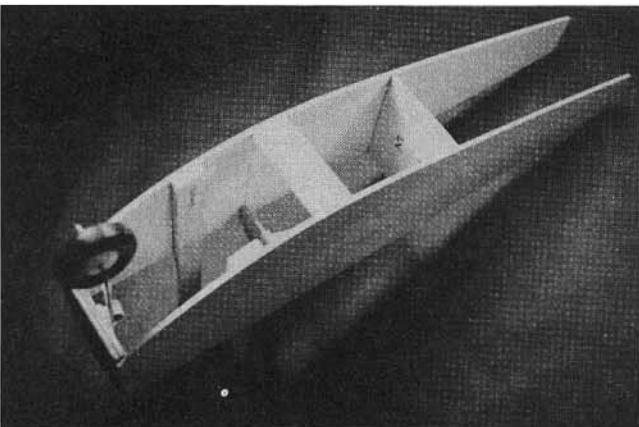
*Wing actuator assembled on Former F2.*



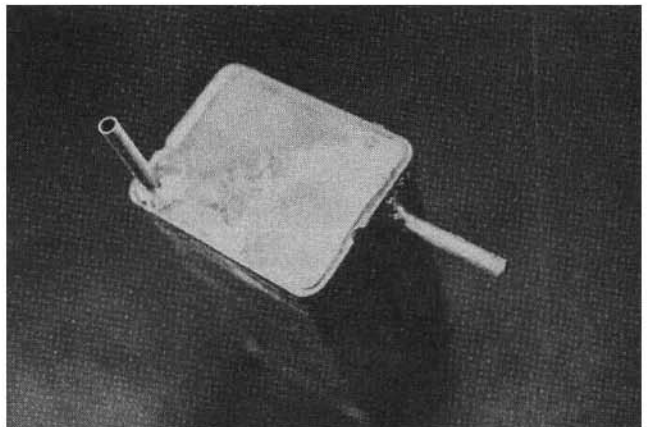
*Fuselage sides are pinned with outer faces together to obtain perfect cabane strut alignment.*



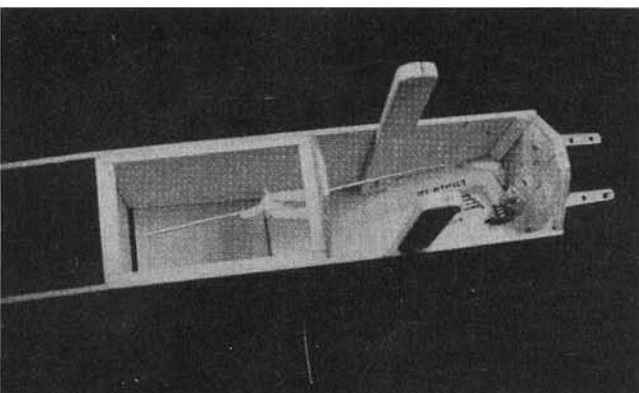
*Firewall and formers are glued to side panel. Check for squareness.*



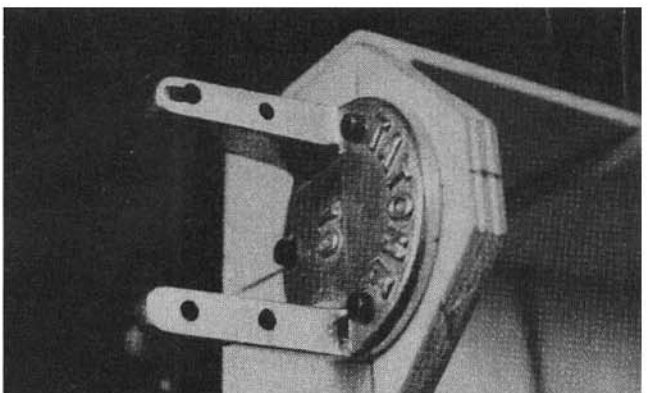
*Opposite side attached and landing gear mount for tricycle gear installed.*



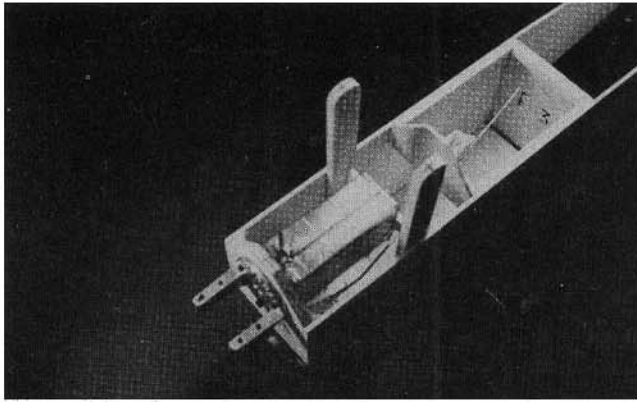
*Modification to perfect #13 fuel tank is shown. Install clunk tank for inverted flight.*



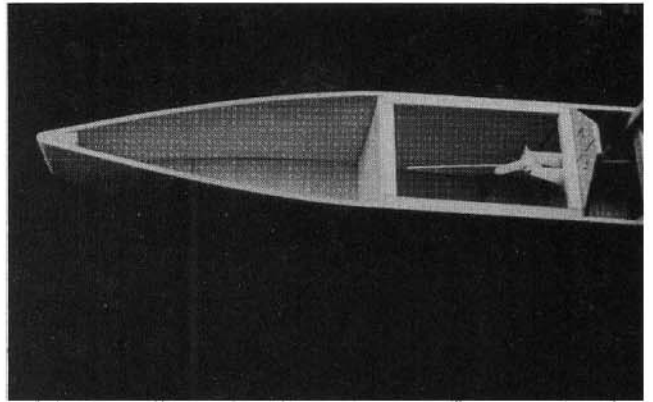
*Nosewheel steering controls and cockpit stiffeners have been installed.*



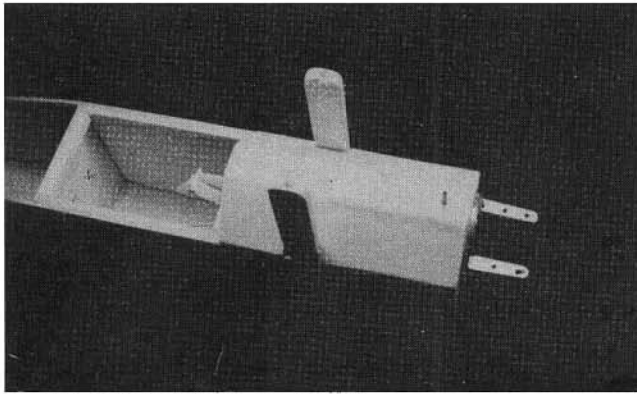
*A Tatone engine mount was used.*



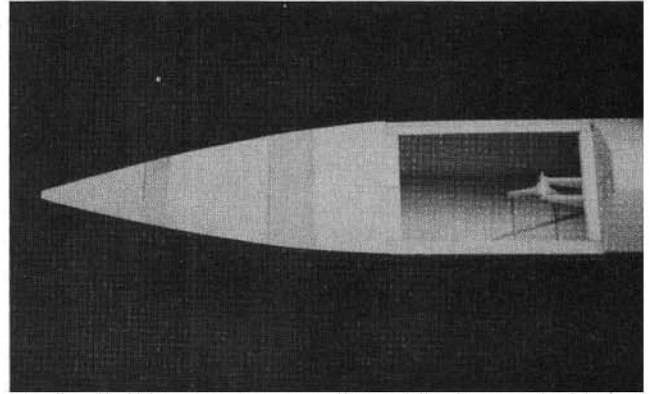
*Fuel tank in place.*



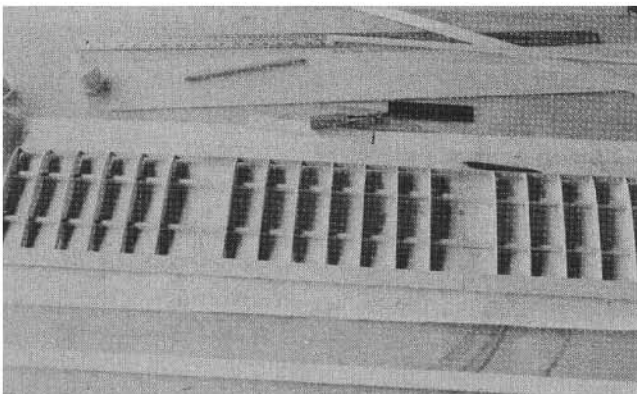
*Aft fuselage sides secured to tall post and bottom sheeting applied.*



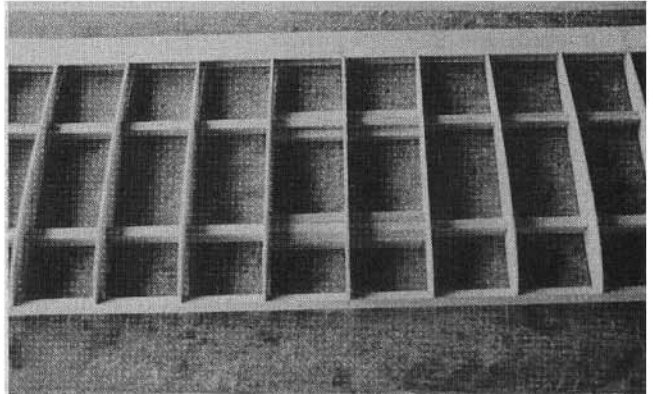
*Front decking has been assembled.*



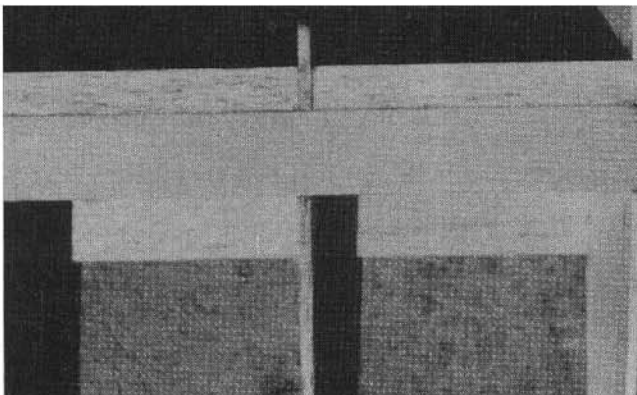
*Aft top sheeting has been attached. Darker areas are for rear wing mounting.*



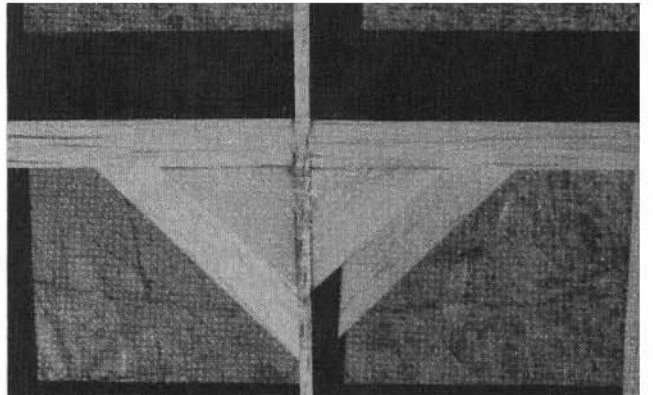
*First step in wing assembly. Wing is built flat.*



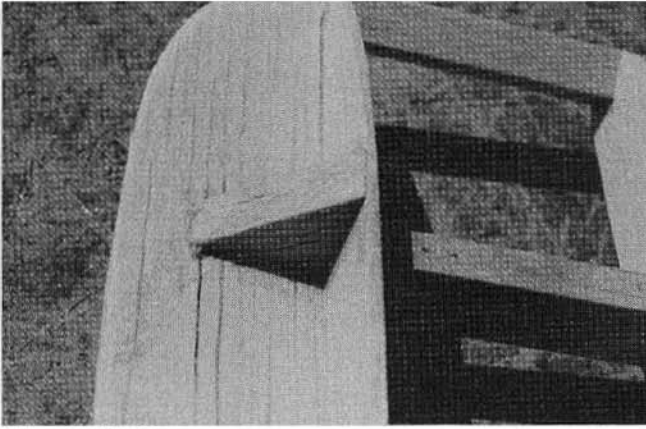
*Mounting reinforcement strips are attached to spars at center section.*



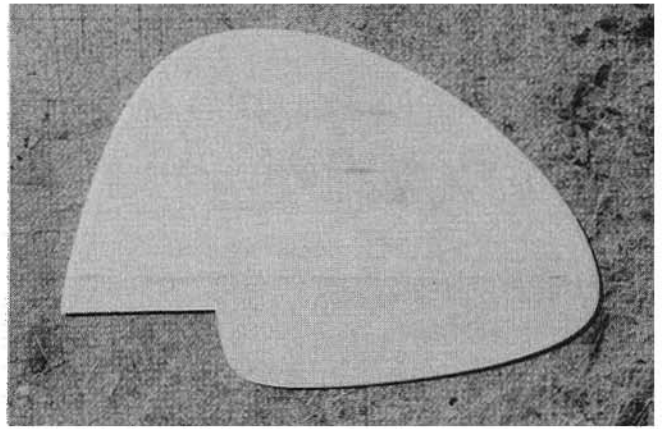
*Rear wing plywood mount viewed at front spar.*



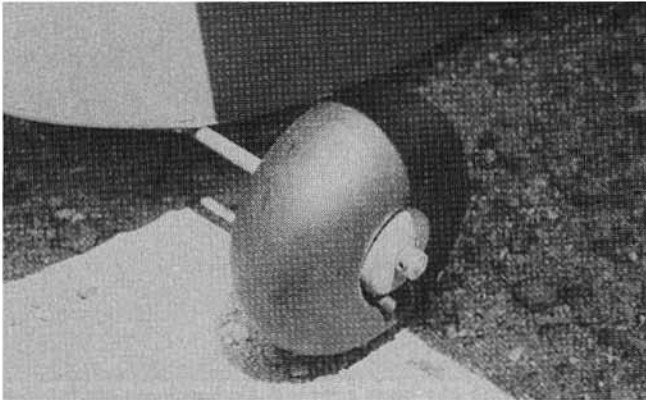
*Rear wing reinforcement at rear spar.*



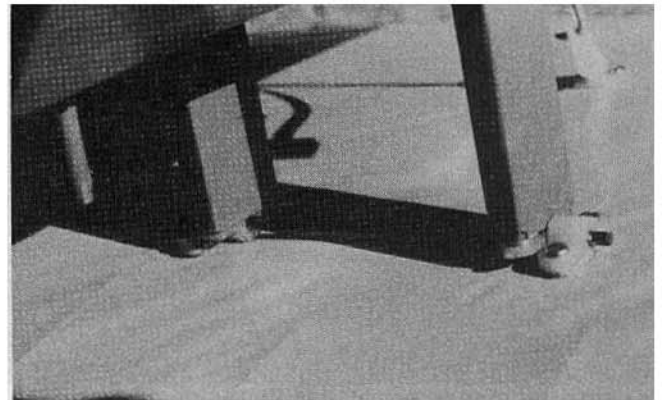
*Wing tip detail.*



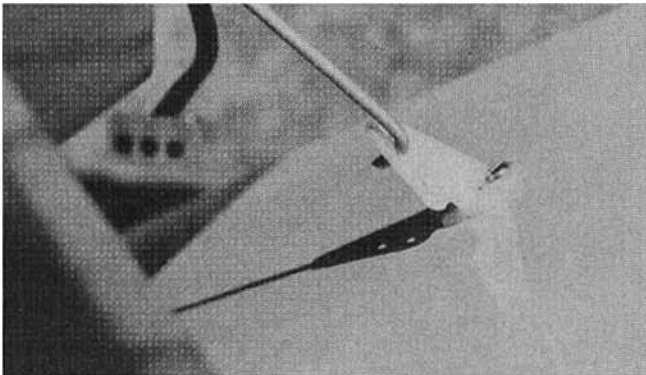
*The rudder is solid sheet.*



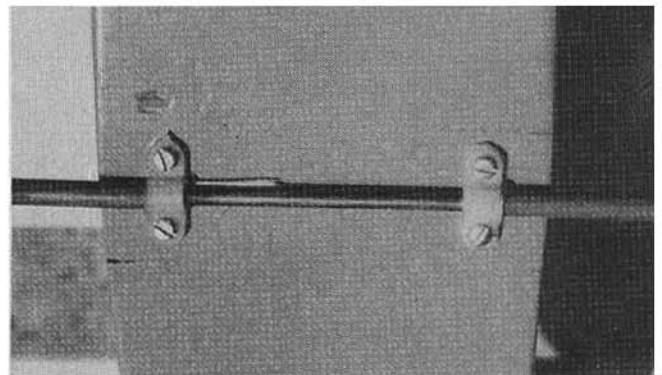
*Conventional tail dragger landing gear installation.*



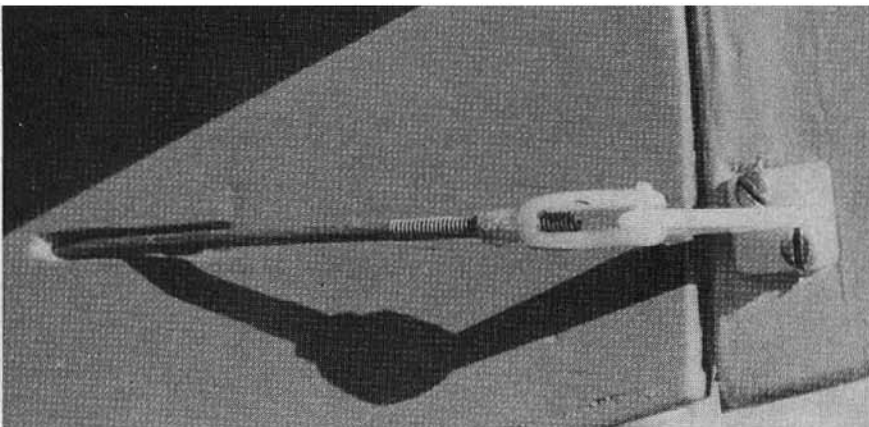
*Cabane to wing mounting details.*



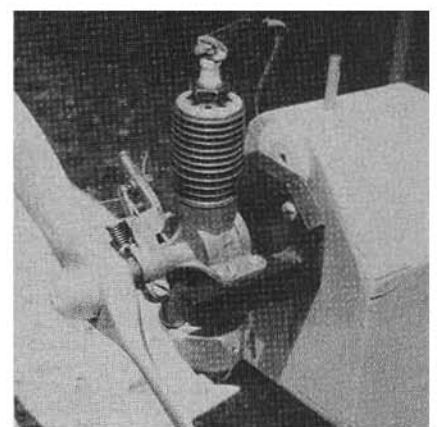
*Wing angle control installation.*



*Landing gear to fuselage mounting details.*



*Rudder control and tail skid installations.*



*The designer is only showing off his 1940 Atom ignition engine in this photo.*

main spar on the front wing. Add the 1/8" x 1/2" spruce control horn mount to the front of the rear spar, on the bottom. This completes the front wing.

Using some leftover spar stock, build up the main and rear spars between the center and the first rib out, on the rear wing. Jet glue a 3/32" x 1" ply plate directly behind the material, flush with the top of the ribs. Do the same thing behind the rear spar; note that the material is triangle shaped. Finish up the rear wing by installing some 1/16" balsa sheeting on the bottom of the wing below the wing mounting plates. This prevents the screws from poking holes in unsupported covering material. Sand the completed wings, rounding the leading edges and being very careful not to remove any of the reflex built into the trailing edge. You can cover the completed wings with your favorite covering material. If you use a plastic film, use a low temperature brand. You will find the wing tips much easier to do.

#### Assembly:

Paint or cover the fuselage. If you haven't already done so, square the landing gear on the fuselage, and install it with 1/8" landing gear clamps. Center the gear and slip a piece of outer Nyrod tubing on each side before you mount the wheels. Bolt the engine in place with three washers of down, and one of right thrust.

Carefully align the rear wing on the fuselage. When you're satisfied, bolt it in place. Back the bolts out, and squirt some Super Jet down the holes to preserve the threads. Drill the holes on top of the cabane struts for the 3/32" landing gear clamps. Use Sig SH-548, No. 2 x 3/4" screws to install the clamps. The same holds true for the clamps which fit on the bottom of the wing. Run a long piece of 3/32" music wire through the clamps on the cabanes. Make sure the wire is aligned with the rear wing when viewed from the front. Sand off the top of the high cabane strut if necessary. Leave the long wire in place. Slip a few large rubber bands around the chord of the front wing. Slide the wire under the bands and carefully align the front wing with the rear wing when viewed from the top. Install the landing gear clamps in the wing on top of a 1/16" x 1/4" spacer, on the outside of the cabane struts. Shorten the music wire pivot and check the assembly for free movement. Install the short control horn on the bottom of the wing, then take a break, you deserve it!

#### Mounting The Radio:

Remove the wing by loosening up the screws. Slip your foam wrapped battery pack up under the fuel tank. Slide the foam wrapped receiver in behind it. Three servos are mounted



abreast at the aft end of the cockpit. Use a tray or spruce servo rails. Route the rudder pushrod to the rudder servo. Mine's on the left side.

The elevator servo is connected to the bellcrank. This is easier done if the elevator servo is in the middle. The throttle servo goes on the right. By the way, pushrod connectors mounted on the servo wheels really make adjustment simple. The rudder should move 3/4" each way to begin with. When viewed from the side, the main wing should have about half the positive incidence of the rear wing. You want to move the trailing edge of the wing up about 1/8" and down about 3/4". To do this, you have to mount the servo wheel at about 45° from center. In this manner you get very little down elevator and lots of up. Mount the switch on the hatch and charge the batteries 'cause it's time to fly!

#### Flying:

Balance the critter carefully. 1/8" to 1/4" ahead of F-2 is fine. Set the controls for minimum throw and put the 8"d x 4"p prop on backwards. Adjust the engine until a reliable idle is achieved. Run the thing around on the ground until you feel comfortable with it. If you used a small radio, you will find the Poudle will lift off at 1/2 throttle. Once you get used to flying it, increase the control throws and get set to have a ball! One word of caution: If your Poudle shows a tendency to dive, your C.G. is too far aft, or you don't have enough positive incidence in the front wing. By the way, I have never gotten mine into an attitude from which I couldn't recover!

If you apply down elevator and hold it, your Poudle will enter a dive and

proceed to go inverted. If, on the other hand, you get the nose down and neutralize the elevator control, your Poudle will continue to dive ever steeper, merrily picking up speed as the ground races up. All that is necessary to stop the dive is to apply up elevator. I could have prevented this by reflexing the rear wing more than the front. I felt it was easier to make all the ribs alike, and just tell you about this rather unusual trait. Down elevator can be used in a conventional manner for short periods of time.

"But how do I ever get it to come down," you ask? In the words of Ray Henry, my intrepid flight instructor, "If you want to go up, pull back on the stick. If you want to come down, just pull back further!"

Come back on the power, and establish a rate of sink. A little extra back pressure will increase drag and increase the rate of sink. Let your Poudle get very close to the ground before you apply full up to flare. Once the front wing quits flying, it can drop rather quickly. To make the most of your Poudle, learn to fly it slow. It won't fly like a conventional model, it flies better. Once you get it slowed down, use the throttle in turns. You might even find yourself holding a little top rudder while going around at very slow speed. The more you fly it, the more you won't believe how well the Poudle does behind the power curve. As a matter of fact, I have a transmitter frequency flag at home that I cut off while doing fly-bys. That may not seem too unusual until I tell you that it was on the transmitter I was holding! Good luck. □