Micro *Pitts*

Pitts Special for the RFFS-100 by Chris O'Riley

All wood 1/32 inch sheet unless otherwise stated.

F1

F2

F3

F4

Small balsa blocks for LG reinforcement

E1

E2

E3

E4

Small balsa blocks for LG reinforcement

(1/8)

C3 (1/16)

C2 (1/8)

C1 (1/16)

F1

(1/8)

(1/8)

(1/8)

(1/8)

F3

F2 (1/16)

F4
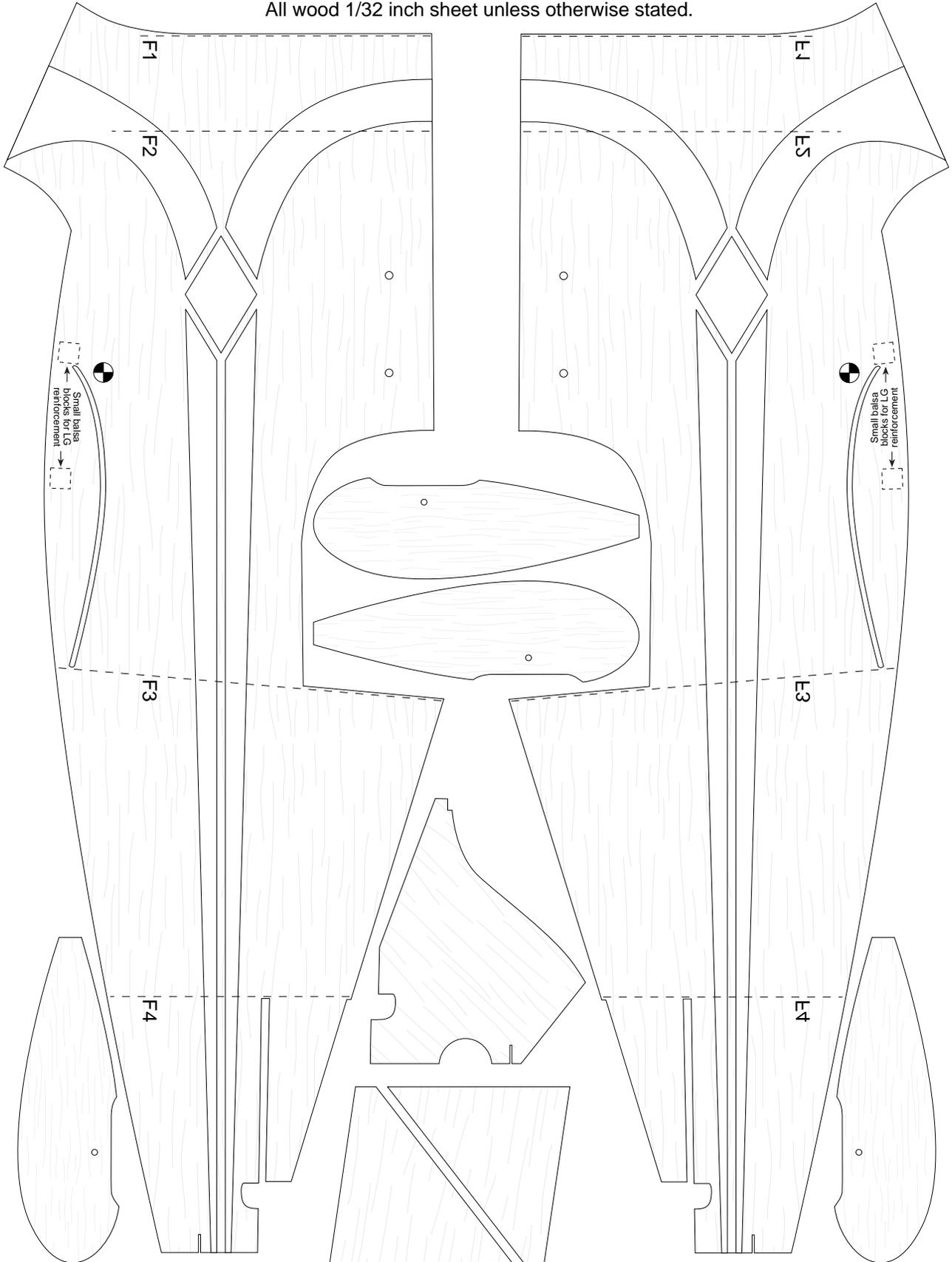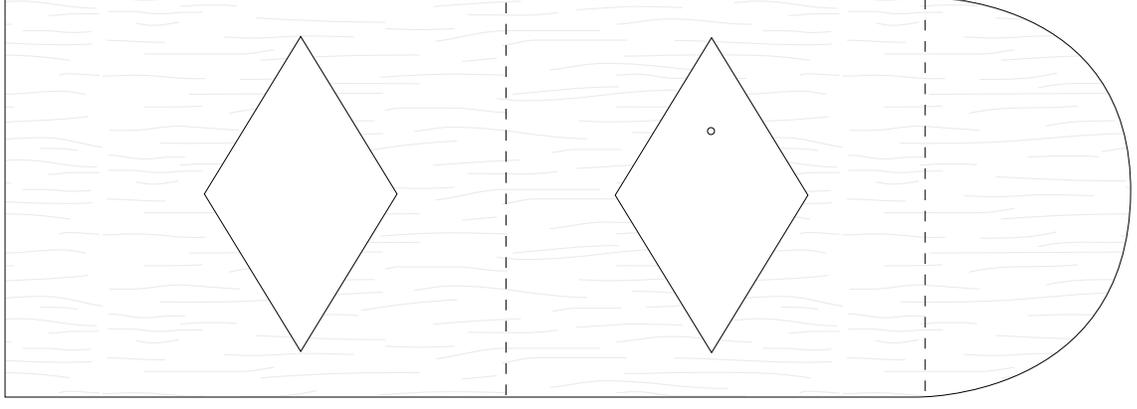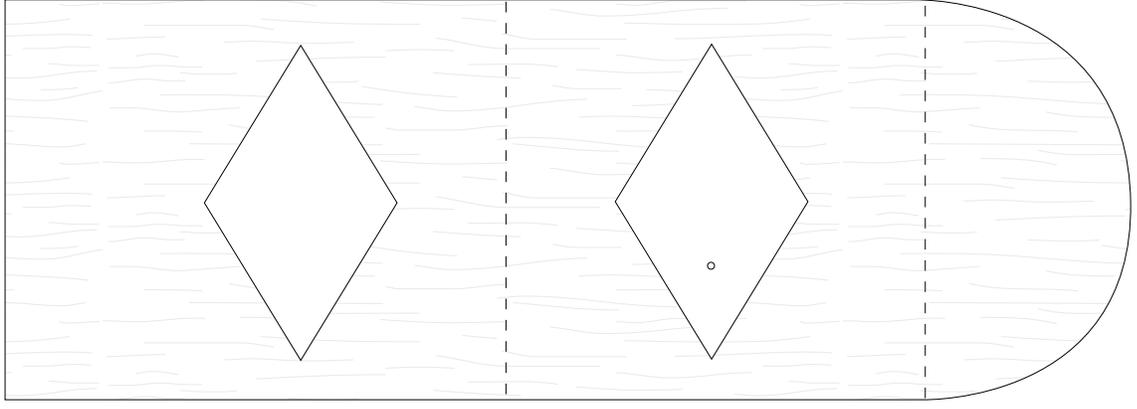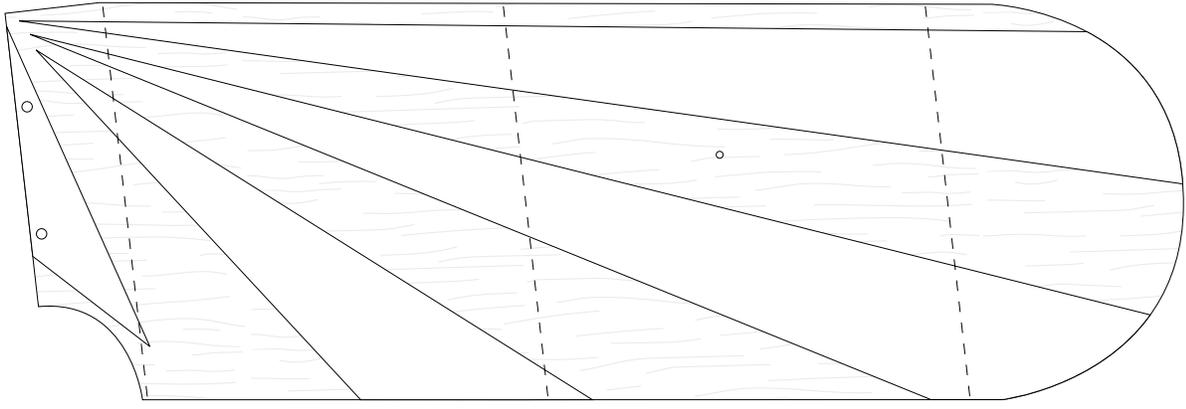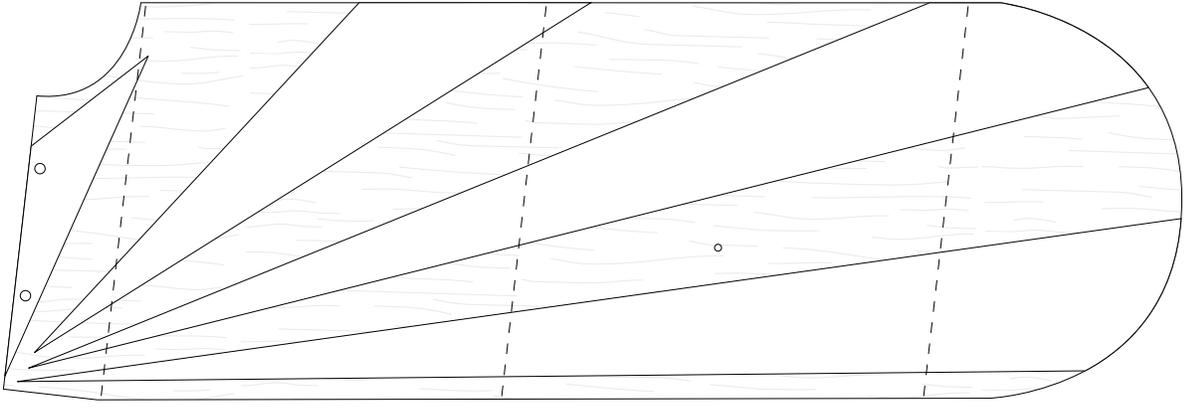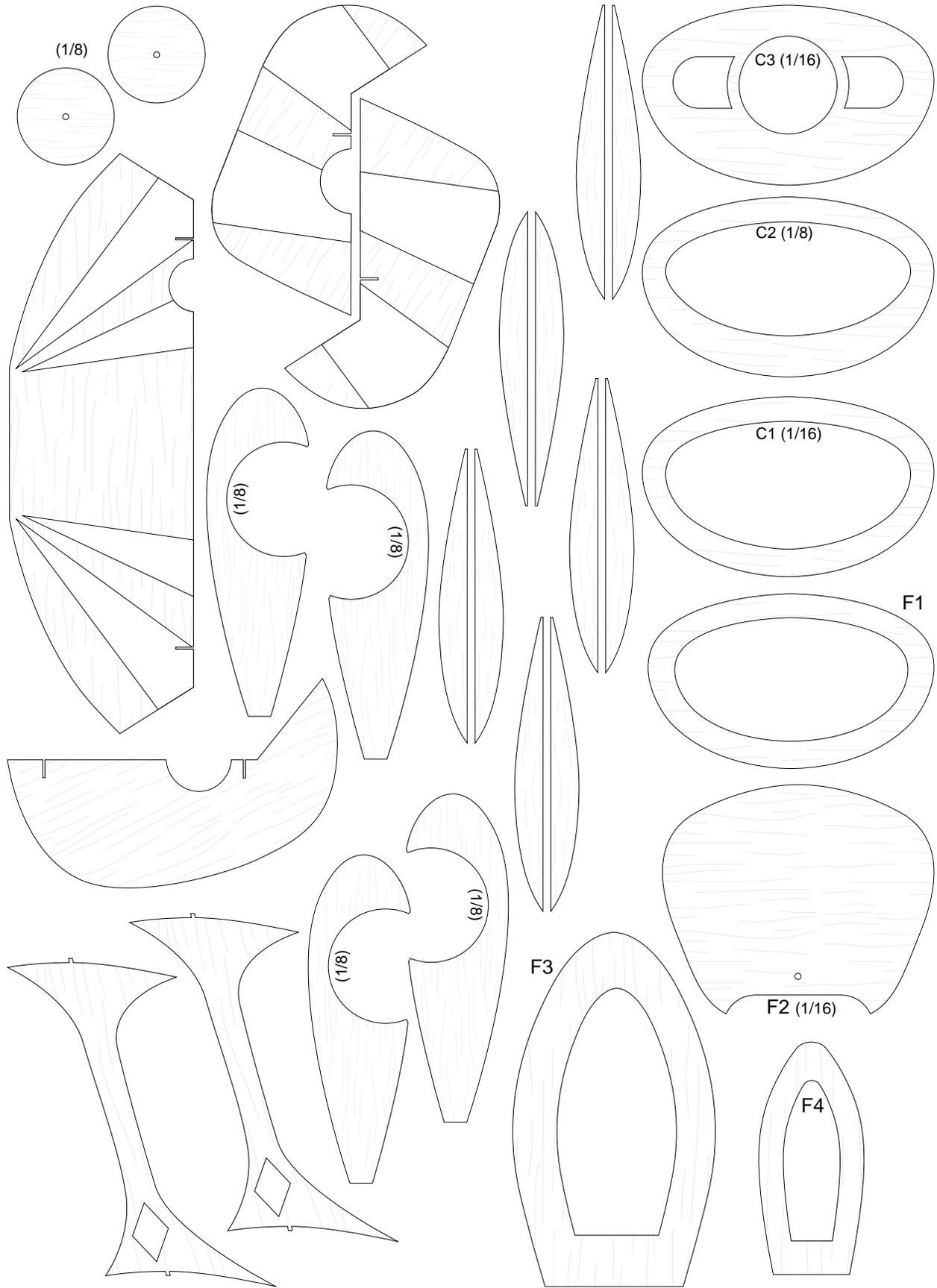
Construction notes:

Use the lightest, thinnest 1/32 balsa for all wood except where indicated on the plans.

The best time to color the plane is before assembly. Colored dye does an excellent job at providing full color at a virtually insignificant weight gain. Stripes can then be added with paint or markers.

The wings go together quickly. Join the top wings with a dihedral of 1/8 inch. Prepare the bottom wings with a dihedral of 5/8 inch, but don't join them yet.

Start building the fuselage by gluing the rear turtledeck - from the back of the cockpit to the slot for the vertical stabilizer. Glue the front upper deck next and, finally, the front lower cowl. Gluing the lower cowl is best accomplished by reaching in from the front of the fuselage with your index fingers and holding the two halves together over a flat surface. In all cases, doing this over waxed paper prevents the parts from sticking to your building surface. Give these joints plenty of time to dry before proceeding.

Carefully glue in the fuselage former F1, making sure it's straight and flush with the front edge of the fuselage. Next, glue together the rear-most edges of the fuselage halves together (where the rudder will eventually attach). Finally, glue in formers F3 and F4, paying attention to minimizing any uneven bowing of either bottom edge of the fuselage. Some bowing will occur, just try to keep it even between the two sides.

Before gluing in F2, create a small "J" hook from thin music wire, and attach it to F2 with length of rubber band. There should be 1/8 inch of rubber band between F2 and the hook. This will be used to secure the battery in the cowl. When gluing in F2, angle it to provide 6° of right and 3° of down thrust. This may seem like a large amount of right thrust, but it's necessary due to the short tail and small vertical stabilizer. Also, sand F2 as necessary to position it far enough forward so your prop will clear the front of the cowl. Do this by removing the motor from a KP-00 and resting the gearbox on F2 as you position it in the fuselage. Once positioned, you can pull the gearbox out and glue in F2.

At this time, assemble the cowl and wheel pants. Glue C1, C2 and C3 together, then round the edges with sand paper, gently sloping the lower front of the cowl. For the wheel pants, glue together the two 1/8 center sections and taper each side until the rear is about 1/16 of an inch wide. Glue on the 1/32 sides and round the front and top sides. If you'll be using dye to color your model, keep the glue away from edges that will be sanded round, as the dye will not be absorbed into the glue. Alternatively, you can carve the wheel pants and cowl from single pieces of 1/4 inch wood.

Sand the front of the fuselage to provide a completely flat surface for the cowl to mate with, then glue the cowl on. Also, reinforce the bottom opening (directly in front of where the bottom wing will attach) with some string saturated with CA. The wood is fairly stressed in this area, and could split without this reinforcement.

Attach the bottom wings by carefully sliding them through the slots in the fuselage and gluing them together. Once together, position and align the wings within the fuselage and glue with a small drop of CA on the leading and trailing edges on the inside of the fuselage.

Connect the two elevator halves with a small 1/16 inch stick, then attach the elevator to the horizontal stabilizer with thin slivers of rubber band. Glue the horizontal and vertical stabilizer to the fuselage, making sure they're in alignment, then attach the rudder.

Attach the top wing by first gluing the interplane struts. These struts will set the correct position of the top wing, and you can then glue in the cabane struts, made from 1/16 inch sticks sanded round. Use the cabane struts to make sure the incidence angle remains constant across the top wing.

At this time, glue in the small reinforcement blocks for the landing gear where indicated on the plan, then sheet the bottom of the fuselage with an oversized piece of 1/32 balsa. If you have any uneven bowing in the bottom of the fuselage, glue the bottom sheet a little at a time, gently removing the bowing as best as possible. Once glued, carefully trim the bottom sheet and lightly sand the edges. If you're coloring the plane, dye this bottom sheet before attaching, and then color the edges after trimming with marker.

Build the landing gear from small diameter music wire. Each side is made from two separate pieces, as shown in the diagram below. Predrill small holes through the reinforcement blocks, and test fit the landing gear. Connect the two pieces of each side, held in place in the fuselage, by wrapping with thread and saturating with CA, or by wrapping with a single strand of copper wire and tinning with solder. Next, glue each side into the reinforcement blocks and, finally, attach the rear struts together where they cross with either thread and CA or copper wire and solder. Glue on the balsa landing gear struts and then the wheels and wheel pants.
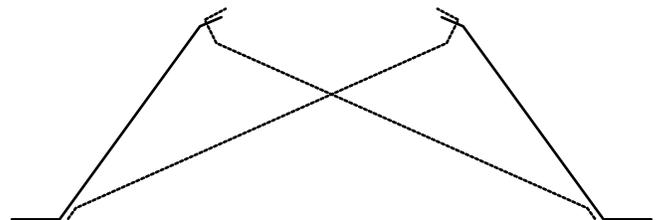
Construction notes:

Add the components in the standard manner. I use rubber cement to attach the coils so they can be easily removed if necessary. The coil wires may be passed through the openings on either side of the rudder and the space for the elevator joiner to travel. As shown in the picture, slide the battery up into the cowl until it hits former F1. Secure the battery by reaching in through the bottom opening with a pair of tweezers to grab the "J" hook.

Place the RFFS-100 horizontally in the center of the cockpit. I gently pressed it into the bottom wing until the posts beneath the battery and motor connectors penetrated the wing. This keeps the board from sliding forward or back, and holding it down with a finger as you remove the battery leads keeps it from being pulled up. I use a length of thin coated copper wire for the antenna, which is passed to the rear of the fuselage and exits through a small hole in the bottom sheeting.

Built as shown, the plane should balance where indicated on the plan. If needed, a penny or two may be placed in the nose, beneath the battery to bring the CG forward. Double check your controls and your MicroPitts should be ready to fly.

On this page, I've also included outlines for an alternate set of bottom wings, interplane struts and a solid rudder, should you want to use ailerons. If you choose this, you'll have to relocate the battery into the cockpit to compensate for the decreased weight on the tail. You might also want to remove all dihedral from the top wing and decrease it in the bottom wing to somewhere between 1/4 to 3/8 inch. Doing so will necessitate the use of the alternate struts to maintain the height of the top wing. When gluing the ribs to the wings, simply trim and discard the excess from the back - there's no need to add ribs to the ailerons.