# L2 AIRFRAMES

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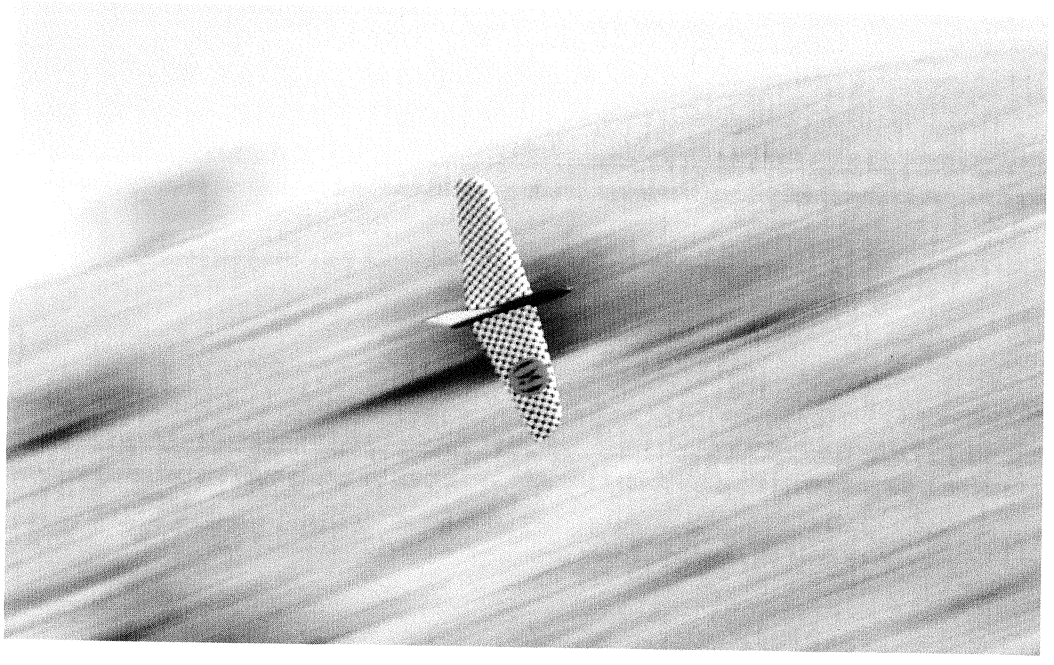
# JW 60"
# BUILDING INSTRUCTIONS



**Thank you for choosing the JW as your high performance sailplane.**

**CAUTION: The JW is not a toy. Even though the plane is made of foam, it could potentially cause injury to persons and or property. You should use care and principals of safety when building and flying this plane. There is no warranty involved in the sale of this plane. YOU ASSUME ALL RISKS. The AMA offers flying insurance as a benefit to membership. You may want to join to have this added financial protection against damages.**

**Before you begin construction, please read the directions thoroughly and familiarize yourself with the construction sequence for the JW before you actually cut or glue.**

### *JW 60" Parts List*

2 each wing panels
1 each fuse
2 each ailerons
1 each tail
2 each 29 ¾' carbon tubes
2 each 25" carbon tubes
2 each push rods
2 each bent joiner tube
2 each Coroplast pieces
2 each Coroplast spacers
2 each control horns
2 each EZ connectors with screws and black caps
4 each horn screws
1 each instruction manual

### *List of Materials Needed*

3M77 Spray adhesive
Household Goop and epoxy
2" filament strapping tape (Best quality you can find.) 3M893 is recommended.
Heavy Duty clear packing tape (3M 375)
Sanding block or palm sander with coarse grit sand paper.
Exacto knife
Dremmel tool with router bit
Ultracoat covering or colored packing tape

## Wing and Fuselage Assembly

1. Epoxy top carbon spar together with joiner tube. Make sure both carbon spars are centered in the middle of the joiner tube. Do the same thing with the bottom carbon spars. (See figures 1 & 2)

2. Find the lower wing saddles and tape them together like in figure 1. Set them on a flat surface.

3. Use Household "Goop", if possible for assembly of this plane. If you can't get Goop, you can use epoxy, CA or silicone. Use Goop to join both wing halves together and set them in the lower wing saddles. Remove a small amount of foam from the middle of the spar groove to allow for the joiner tube, top and bottom.

4. Glue in the top carbon spar. Put a bead of Goop down the length of the spar groove. Now set your spar in the groove and push down so the Goop comes up around each side of the spar. Remove excess Goop as necessary. Put weight on top of the spar to hold it in place until the glue dries. (See figure 1)

5. Remove the wing from the lower wing saddles and turn it upside down on a flat surface. Now glue in the bottom spar. You will not be using the lower wing saddles. (See figure 2)

6. Sand the sharpness off the leading edge of the wing till round.

7. It is recommended to round the tips of the wing. This enhances the performance and gives the plane a nicer look. It also makes the wing tips much more durable when they hit the ground. Use something round, about 3 ½ " diameter, set it on the wing tip, trace around it with a pen. Then you cut off the excess with an Exacto blade. Sand till the tip blends in with the airfoil. If you decide to skip this step the plane will still fly well. (See figure 3)

8. Get the fuse and glue the back of it back together where the hot wire entered to cut out the wing saddle. After the glue has dried, cut off the trailing edge tip off the center of the wing until it fits the wing saddle of the fuse. (See figure 3)

9. Cut out cavities for the receiver and servos. The receiver should go right behind the joiner tube. The servos go 13" out from the center of the wing, next to the spar. Use a metal gear servo with lots of torque. Decide where you want the radio gear, then set it on the wing. Trace around it with a pen. Use an exacto knife and cut just inside the line, the depth of the servo or receiver. Remove the cavity with whatever means you have. I like to use a dremmel with a router bit. The receiver and servos should fit as tight as possible. The servos should be flush with the top of the wing. Make small slits in the wing from the receiver to the servos for the servo wires. (See figure 3) The receiver should be recessed enough so a piece of coroplast can go on the top for protection. Make and opening in the coroplast for the battery wire.

10. Make a small hole in the bottom of the receiver cavity for the antenna wire to go through.

11. Turn the wing over and cut a very small slit down one side of the wing for the antenna wire. (See figure 2) Install all the radio gear at this time. Plug the battery and servos into the receiver and make sure the servo arms are 90° to the wing and move the right direction. Push the antenna wire into the slit that you made.

12. Spray entire wing with 3M Super 77 contact cement. Let dry for ten minutes. Use the best 2" strapping tape you can find. I recommend 3M 893 strapping tape. Apply the strapping tape to the leading edge, trailing edge, over all spars, wing tips, antenna, servos and receiver. Also put strapping tape over center of wing, bottom and top. (See figure 4)

13. Cover entire wing with Ultracoat. Cover the top first. The covering should overlap all the edges at least ½". Cover the bottom and cut off flush with the edge. Apply clear 2" tape to the leading edge and tips.

14. Cut the ends of the ailerons to match with the wing and fuse. Sand the leading edge of the aileron round. (See figure 6)

15. Cover ailerons with Ultracoat.

16. Attach one aileron to wing. Turn the wing over so that the bottom faces up. Attach a piece of 2" clear tape half way on and half way off the trailing edge of one side of the wing. Turn the wing over and set it back down. Place the two Coroplast spacers up against the trailing edge of the wing. Push down on them so they stick against the tape. (See figure 5) Now set the aileron up against the spacers and push down so it sticks to the tape. Remove the spacers. Put another piece of clear 2" tape over the aileron and wing. (See figure 6)

17. Now you should have a piece of tape on both sides of the aileron. Hold the wing in one hand. Run your thumb and forefinger down each side of the aileron where the tape touches the wing and aileron so that both sides of the tape are pushed towards each other. (See figure 6A) Now hold the wing in one hand and the aileron in the other. Push them towards each other. The tape should touch in the middle and make a hinge. (See figure 6B) Do not attach the other aileron until after you attach the wing to the fuse. If you attach both ailerons to the wing, it won't fit through the fuse.

18. Use a sanding block with coarse paper or a palm sander to sand all the corners of the fuse till they are round. Remember the more aerodynamic the fuse is, the better it will fly. Do not sand the wing saddle. After sanding, spay the entire fuse with 3M77 contact cement. Let dry for ten minutes. Cover the entire fuse with strapping tape. Apply tape crosswise over the wing saddle. (See figure 7)

19. Cut out the cavity in the nose of the fuse for the battery. Recess the battery enough so that you can put a piece of coroplast over it for protection. Make a tunnel from the battery to the top of the wing saddle. (See figure 8) Cut an access slot through the top of the fuse large enough to get the connector from the battery and the receiver through. This is where you will plug and unplug the battery. (See figure 8) Do not cut out for the nose weight at this time.

20. Cover the entire fuse with Ultracoat, except the wing saddle.

21. Slide the wing into the wing saddle. As you are sliding the wing in, push the battery wire from the battery and receiver through the opening that you made earlier in the top of the fuse. Now push the wing in so that the fuse is in the center. (See figure 9)

22. Apply small pieces of clear packing tape where the wing meets the fuse bottom and top, or you can glue the wing on with Goop. (See figure 10)

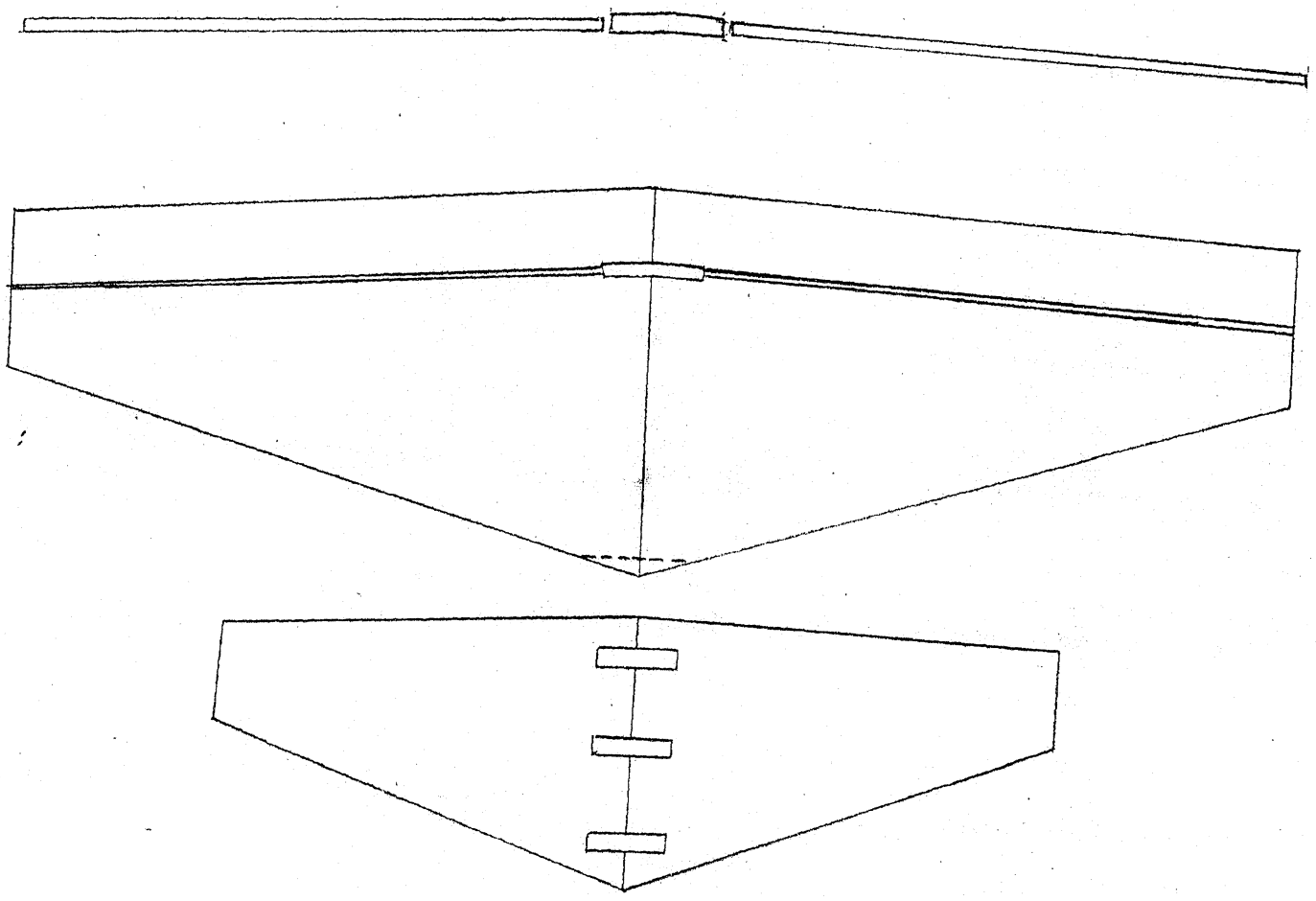
23. Attach the other aileron on the wing. (See Figure 5 and 6) Attach the tail to the fuse, use clear packing tape or Goop.

24. Attach push rods and horns to the ailerons (See figure 5)

25. Set the C.G.: The C.G. is 2 ¾ " back from the leading edge. Once you have determined how much weight to put in the nose, cut out a cavity and attach the weight. Secure it with strapping tape. Recover that spot with Ultracoat.

26. Aileron throw is ½" up, ½" down. Elevator throw is ¼" up, ¼" down. (Note: You can have all the aileron throw that you want, but it is very important not to have to much up and down.)

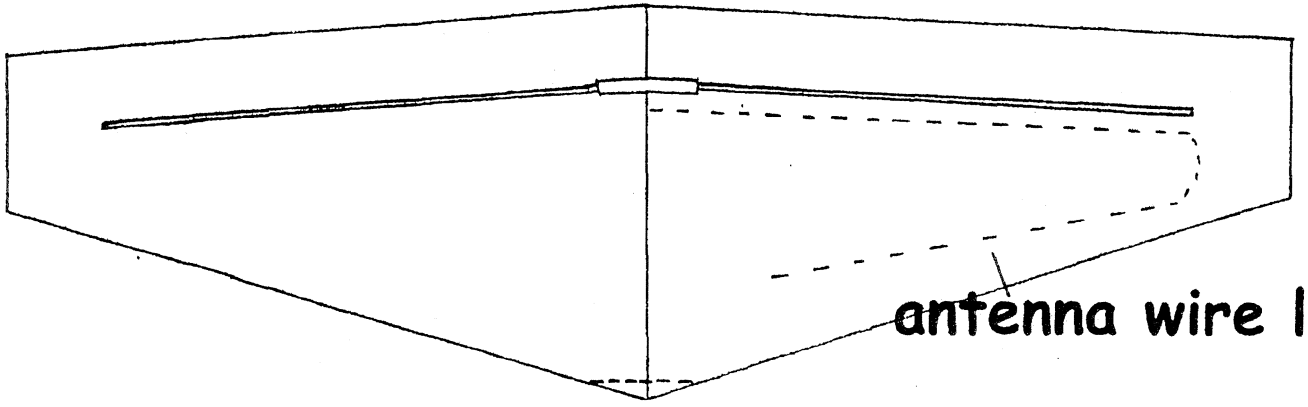
top carbon spar and joiner tube assembly



lower wing saddle

figure 1

bottom carbon tube and antenna location

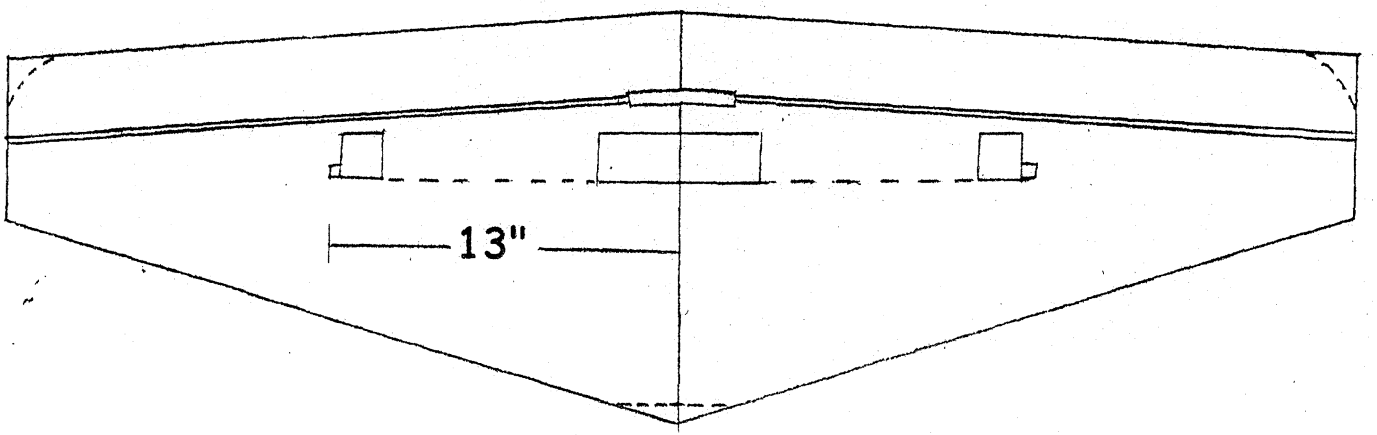



bottom of wing

figure 2

servo and receiver location

optional: round wing tips

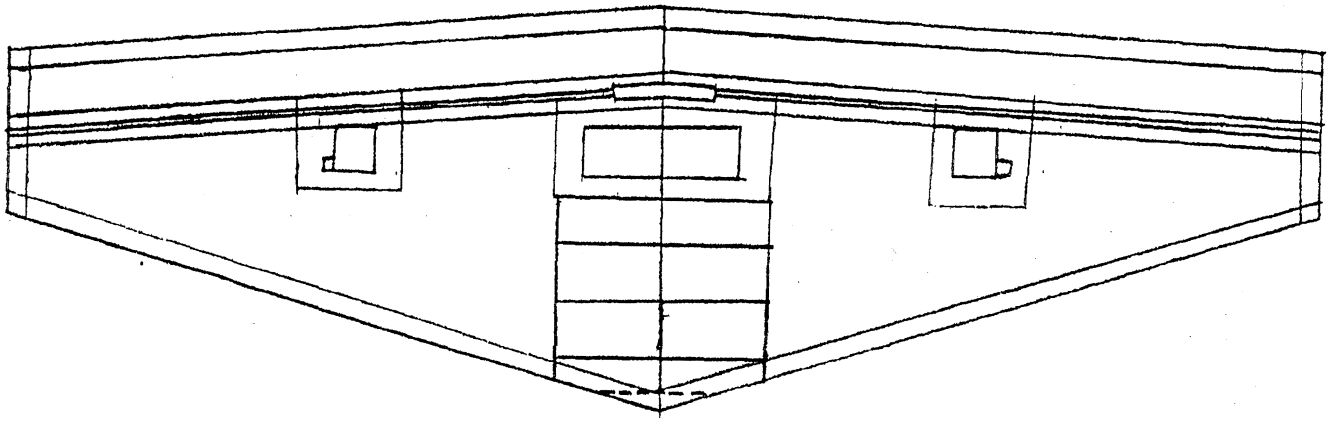



cut off to match fuse

top of wing

figure 3

# strapping tape pattern



top and bottom

figure 4

# location of push rods, horns and aileron spacers

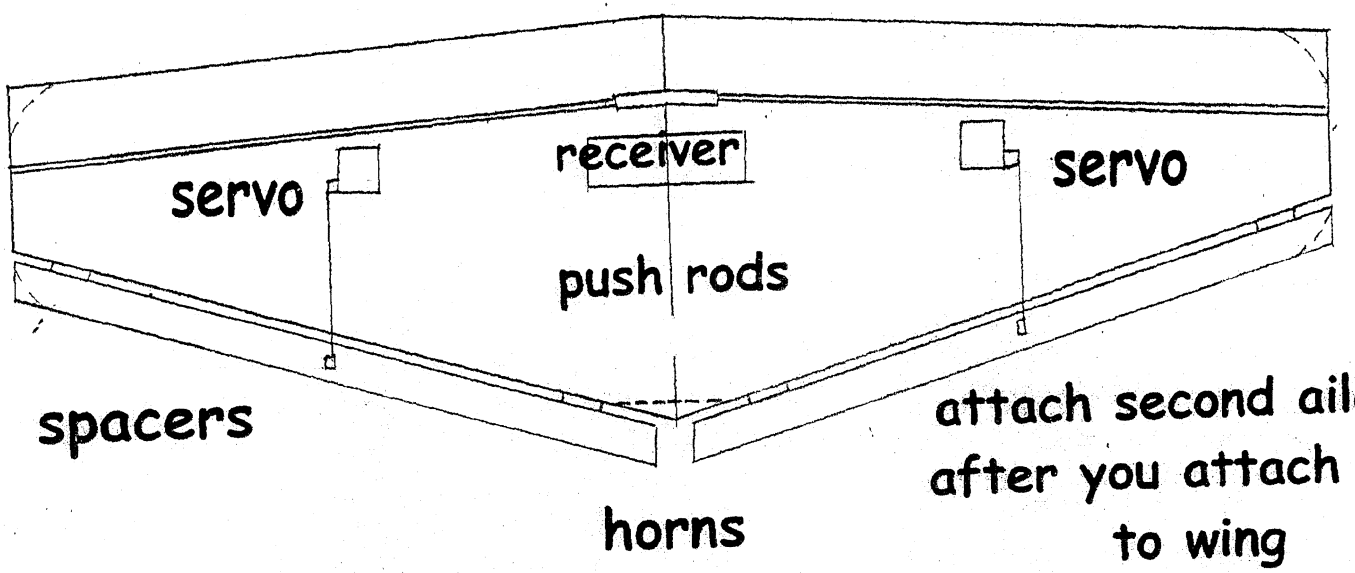
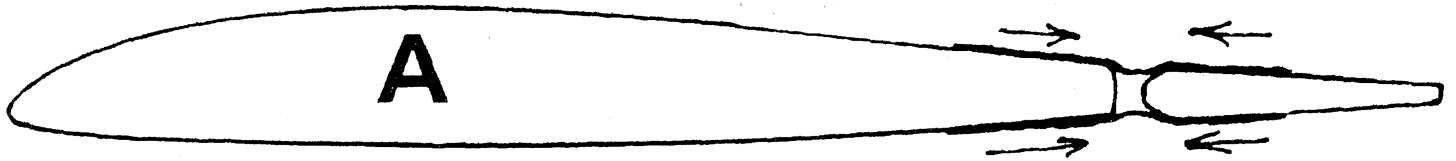



figure 5

2" wide clear packing tape, top and bottom




push wing and aileron stock
together to make a hinge

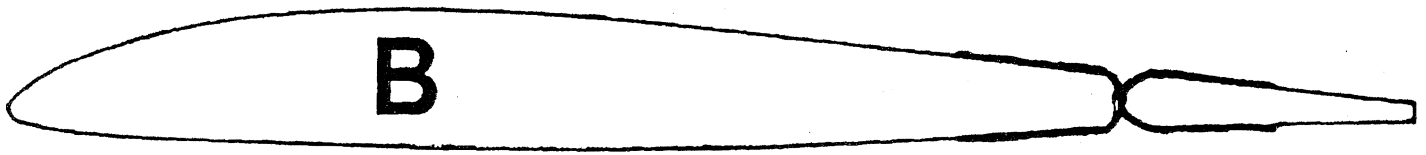



Figure 6

# fuse strapping tape pattern

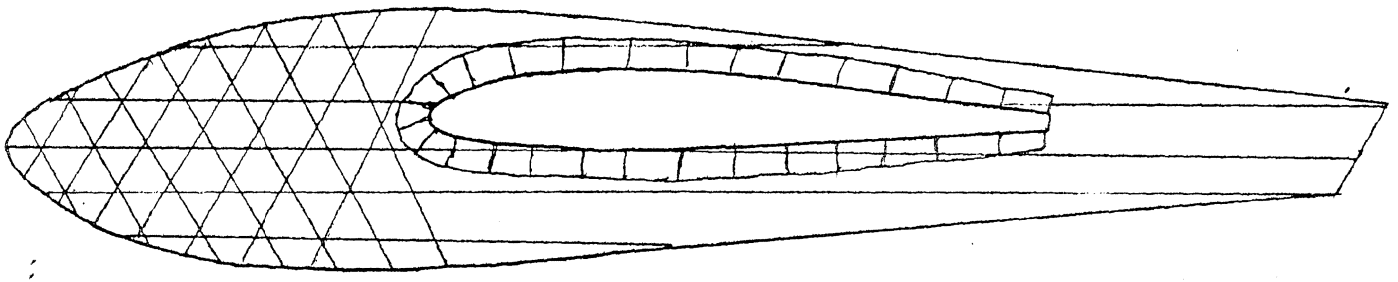


figure 7

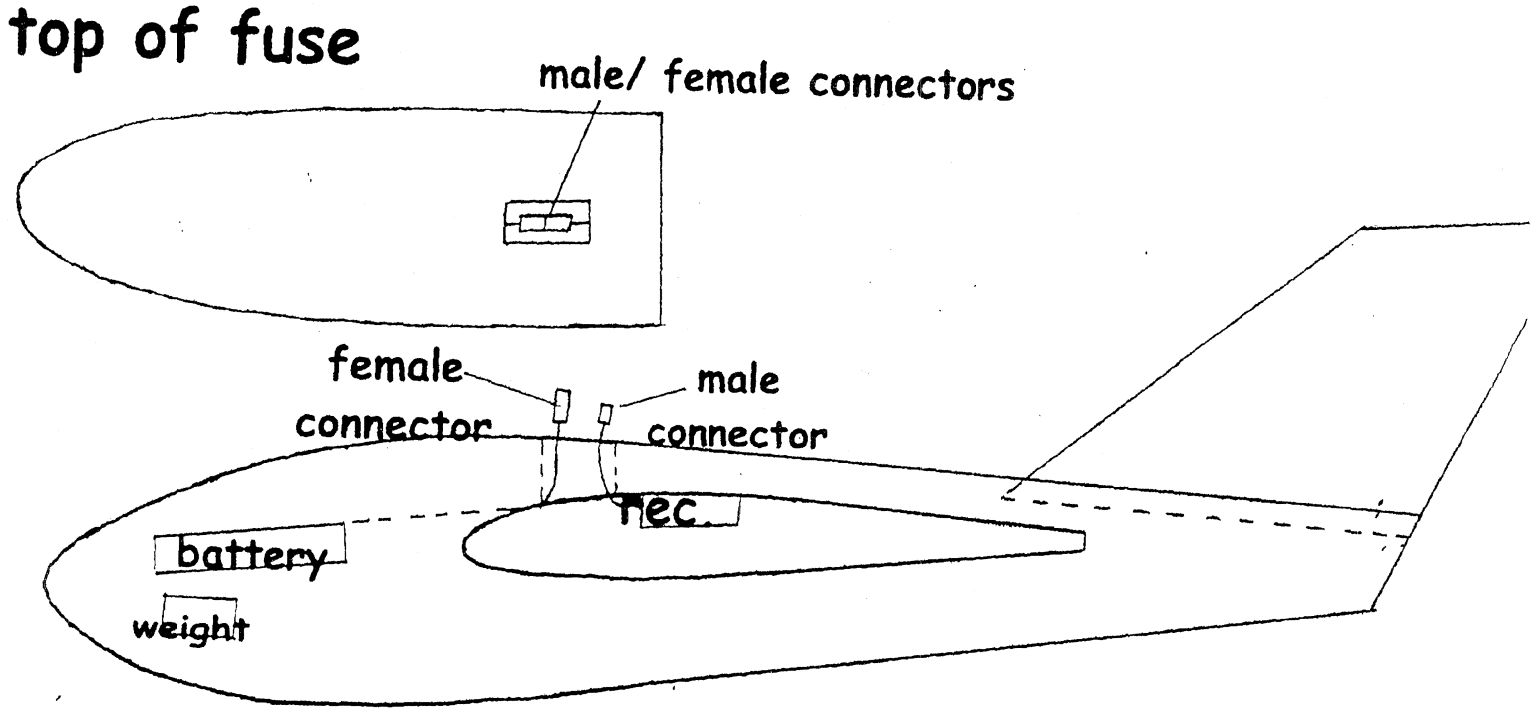

top of fuse
male/ female connectors
female
connector
male
connector
rec.
battery
weight

figure 8

# wing alignment

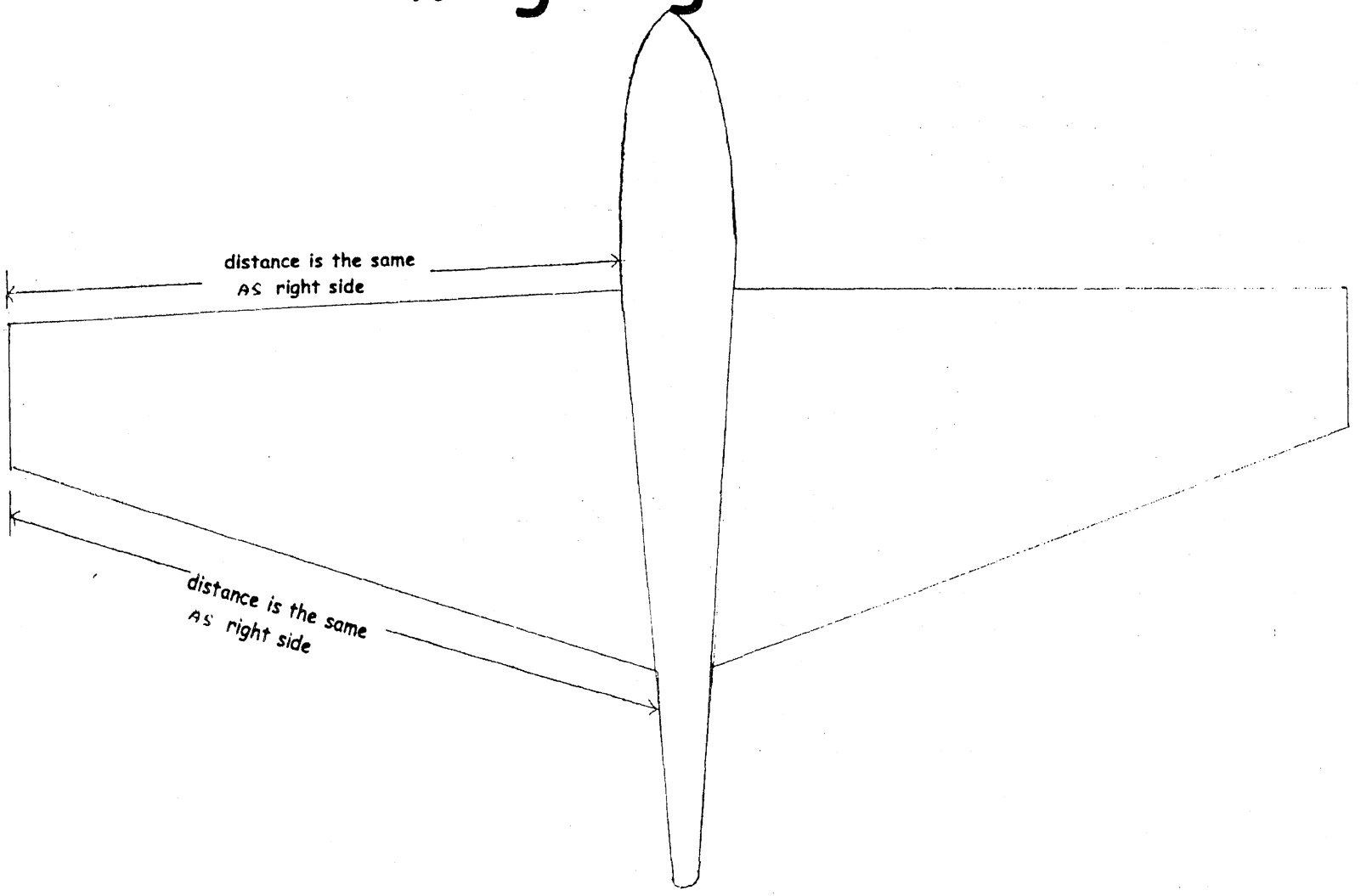



figure 9

apply clear packing tape
where wing and tail
meet the fuse

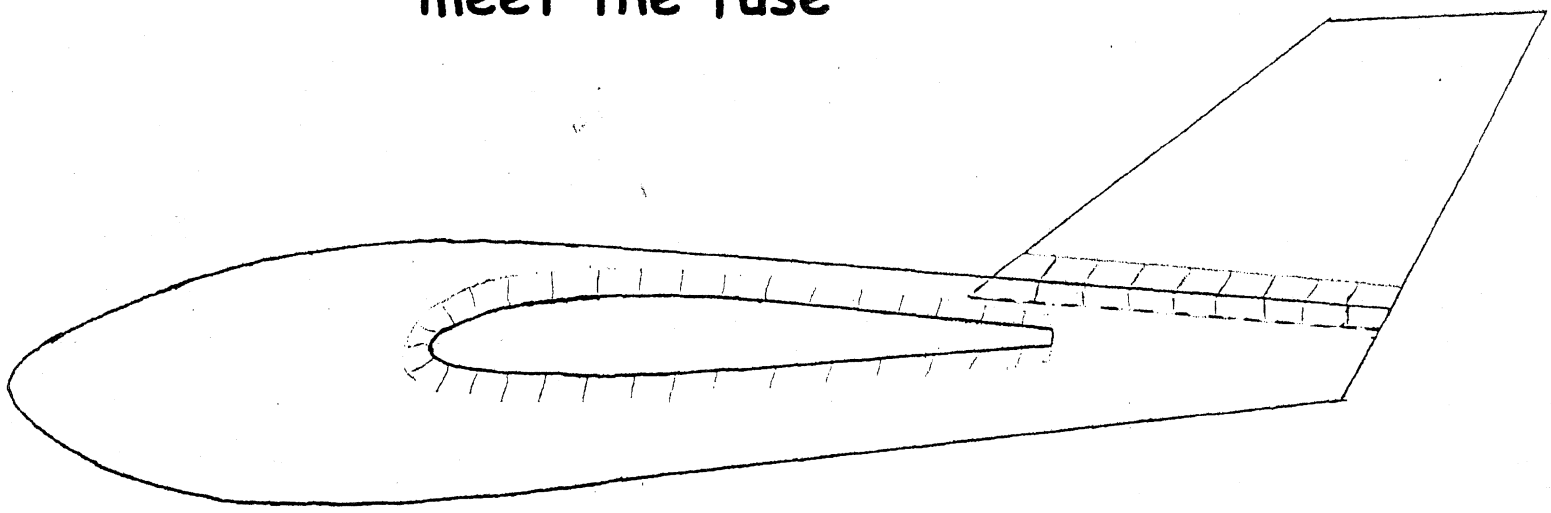


figure 10