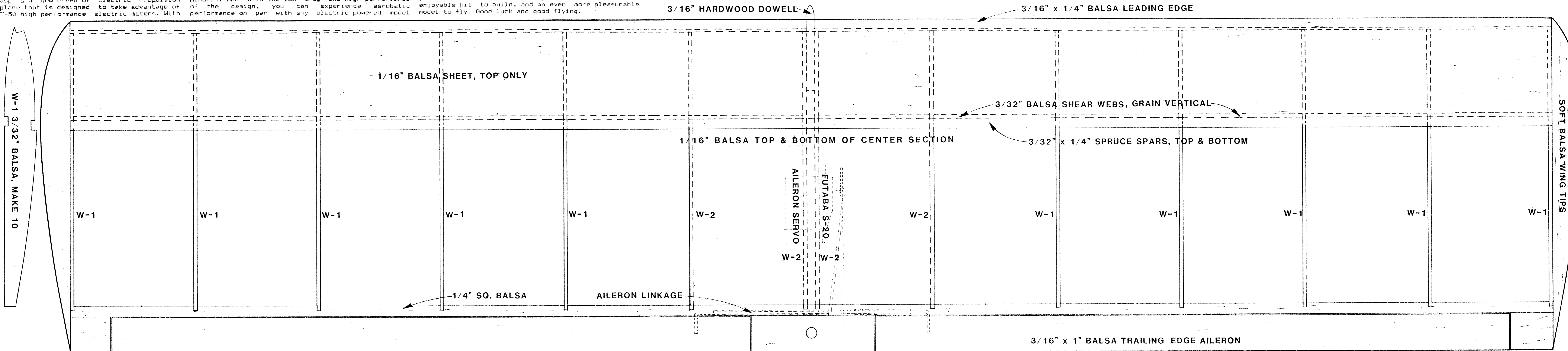


The Wasp is a new breed of Electric Propulsion model airplane that is designed to take advantage of the new LT-50 high performance electric motors. With

a 6 cell competition wind or 7 cell pattern wind system, you can expect high power for five to nine minutes. And with the low drag and high performance of the design, you can experience aerobatic performance on par with any electric powered model

airplane now being flown. We, at LEISURE are proud to bring the Wasp to you in kit form. We are sure you will find it a very enjoyable kit to build, and an even more pleasurable model to fly. Good luck and good flying.



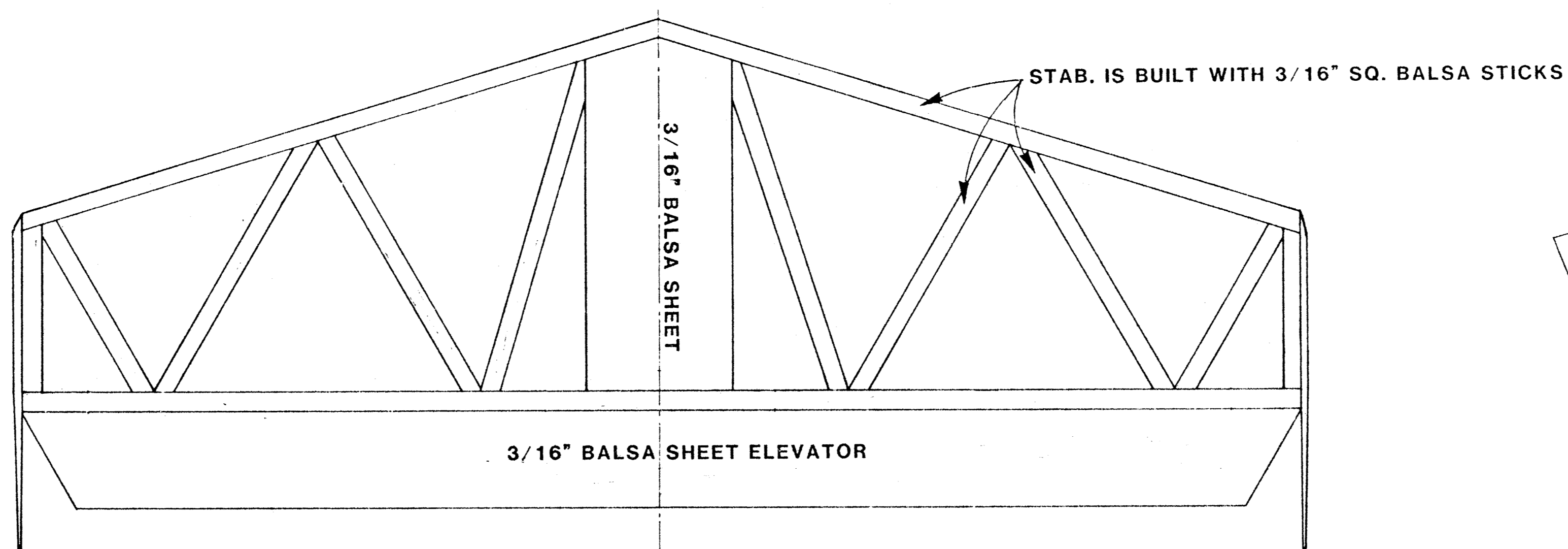
I. WING CONSTRUCTION:

- Cover the wing plan with waxed paper or plastic wrap. (Waxed paper should be used if construction is to be done with cyanoacrylate (CY) glues—that is ZAP, Jet or Hot Stuff Glues.)
- Mark the 1/4" sq. trailing edge for the rib notches and cut the notches 1/8" deep with a Zona saw. (Glue a strip of wood to the blade with CY glue to control the depth of the cut.)
- Pin the trailing edge in position over the plan. Next locate the 3/32" x 1/4" bottom spruce spar over the plan and cement the 1/16" balsa sheet at the center section.
- Now, take each rib and place in position over the spar and into the trailing edge notch. (Note: the ribs are cut oversize on the TE dimension, so trim to a precise fit for assembly.)
- Add the top spruce spar by placing it in the upper rib notches, followed by the Leading edge piece (3/16" x 1/4") held in position with pins.
- Square the ribs using a small square, and glue the ribs, spars, LE and TE with CY (or your favorite) glue.
- Next, add the shear webs, cementing them into position as shown with the wood grain vertical.
- Remove the wing from the building surface and run a bead of thick CY glue (Zap CA+, Super Jet) on the top spar only. Cement the 1/16" forward wing sheeting to the top spar and let it fully cure before the next step.
- Hold the wing perpendicular to the table with the leading edge up and put a big bead of thick CY glue at the leading edge of every wing rib. (The slow CY

- will flow downward toward the top spar. Next, run a bead of slow CY glue across the entire leading edge. Finally, place the wing upside down over the building surface and slowly roll it into a position where the top sheeting is touching all ribs with straight pins holding the leading edge down over the sheet.
- Cut the tapered TE stock to the sizes required for the two ailerons and the center piece. Add the wing tip blocks and carve and sand to shape.
- To make the aileron horns, take the 1/16" music wire and cut it to length for the two horns. Install the plastic tubing on the wire and bend to shape. (The wire at the horn end should be 3/8" long from the point of the bend.)
- Now solder the 3/32" O.D. x 5/8" brass tubing to the center end of the aileron horns, then flatten the part of the tube that extends above the horn wire. Drill the flattened tube for the clevis pin with a 1/16" drill bit.
- Cut the center TE piece as needed to clear the horn wire and bearings. (The parts must be installed close to the upper surface of the wing to work with the monokote hinge.) (If you chose to use more conventional hinges, the horn units can be centered to the TE.)
- Shape the Aileron for the monokote hinge—
- Reinforce the wing hold-down hole with fiberglass and you're ready for sanding.
- Add the wing mounting dowel later, that is, in conjunction with the completion of the fuselage.

NO DIHEDRAL ON PROTOTYPE, 1/2" OPTIONAL UNDER EACH TIP FOR INCREASED STABILITY FOR NOVICES

This Plan paper can shrink or expand slightly with temperature or humidity changes. This will cause minor mismatching but will not seriously affect the fit of the parts. The stick lengths and patterns for all parts are taken from the master link drawings.



II. THE STABILIZER AND FIN:

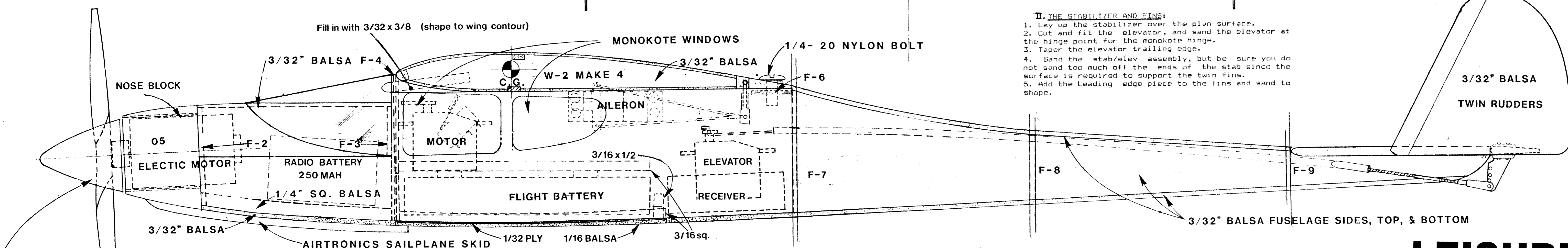
- Lay up the stabilizer over the plan surface.
- Cut and fit the elevator, and sand the elevator at the hinge point for the monokote hinge.
- Taper the elevator trailing edge.
- Sand the stab/elev assembly, but be sure you do not sand too much off the ends of the stab since the surface is required to support the twin fins.
- Add the Leading edge piece to the fins and sand to shape.

V. RADIO INSTALLATION:

- (Note: Small servos were used in all our test models, and are probably required. We have used several brands, including the Futaba S-20 and S-33, ACE R/C Micro, and World S-22's.)
- Install the aileron servo to the wing surface. We used double-back "servo tape", with the monokote cut away and the wood surfaced with CY sheathing and, using 1/8" x 1/4" Spruce rails, mounting with servo mounting hardware—just be sure to plan to clear any other items that will fit in that area of the fuselage.) Add the aileron pushrods.
 - Position the motor battery on the fuselage floor just behind F-4.
 - Cut two 1/8" x 1/2" balsa pieces so that they fit cross wise in the fuselage on top of the motor battery pack.
 - Two 1/8" x 1/2" balsa sticks to the length shown, and, with the two 1/8" x 1/2" pieces below them, glue them to the fuselage sides. (Thus, your battery pack will be secured for flight, but can be removed for charging by rotating the two balsa pieces.)
 - Add the 3/16" x 1/2" Balsa piece behind the motor battery.
 - Next fit and install the elevator servo and radio receiver in the location shown. (We installed the elevator servo with "servo tape" against the right fuselage side, behind the motor battery.) The receiver will fit on the fuselage floor just behind the motor battery. (Depending on the size of your receiver, you may have to make added space for it by cutting a clearance hole into F-7.)
 - Fit the radio flight pack battery into the area shown.
 - Mount the Motor on-off switch on the right fuselage side near F-4.
 - Mount the radio on-off switch on the right fuselage side just forward of the elevator servo.
 - Install the motor on-off "micro Switch"/servo unit in a convenient place—mounting is not necessary as long as the leaf does not get obstructed. (We attached the micro switch to the side of the servo with servo tape with a long servo arm wiping across the leaf to activate it.)

VI. FINAL PREPARATION AND FLYING:

- With everything installed, check for correct balance—move components or ballast as needed to achieve this.
- Check for warps in the wing or tail and remove any found by twisting and re-shrinking of the Monokote.
- Set the control throws—elevator 3/8" up and down; ailerons 1/4" up and down. (Adjust to your taste after trim flights.)
- The Wasp is intended to be hand launched. The launch is quite important—you need a hard, straight out throw. For the first tests, it is best to have someone else launch it. (Find someone who is good at this, for you don't need a limp wrist launch on your trim flights.)
- Now, go for altitude, but stay off of excess up elevator until good flying speed is gained. Once up, adjust the trims and begin to fully feel out your Wasp.
- When you feel comfortable, go ahead and wing it out. (Note: The Wasp is not an R/C trainer, but with moderate flying experience, it is smooth and precise aerobatic model.)



III. FUSELAGE:

- Place the two fuselage sides on the building surface with the bottoms toward each other (this is to insure that you build a right and a left side.)
- Add the 1/4" sq. balsa stock to the front bottom of the fuselage sides and then add the 3/16" sq. balsa strip at the lower edge of the sides. Make sure that F-4 and F-7 are perpendicular. (Note: As your radio flight pack battery must be installed through F-4, the hole in it may need to be enlarged so that it can pass through. (Do this now.)
- Cement this unit to the other fuselage side while carefully checking alignment.
- Then cement F-2, F-3, F-9, and the rear fuselage sides together.

- When this cures, add the bottom sheeting, former F-3, and the front cowling for the LT-50. (Note: the area under the battery uses 1/32" ply layered first onto the fuselage against the bottom in the area where the 3/16" sq. sticks were glued. Then, below that 1/16" balsa is glued to the plywood—this gives a solid floor for the battery pack to lie on.)
- Now install your favorite brand of elevator control rod and sheet the top rear of the fuselage.
- Epoxy F-8 in place and drill and tap a hole for the wing hold-down bolt.
- Now is where the wing and the fuselage come together. Drill a hole in the wing for the hold-down dowel and use ample amounts of epoxy to secure it in the wing while positioning the wing on the fuselage with the dowel inserted into the hole in F-4.

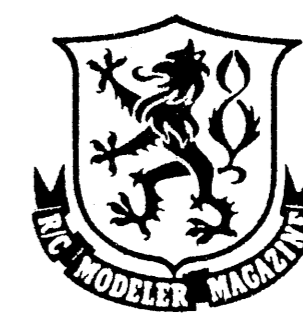
- Next, fit the motor into the motor hole in the nose block. The hole is undersize for the LT-50, so carefully open it up until a tight fit to the motor is achieved. Then, with some CY glue harden the inside of the hole so that the tight fit will be maintained. (To further secure for flying, the motor can be wrapped with tape for a tight fit, or a small amount of silicon adhesive can be placed at the front of the motor in the tube—just make sure you can remove the motor for servicing.)
- Then, with a piece of sand paper on a dowel, sand two shallow grooves into the inside 180 degrees from each other. (This is to allow clearance for the motor brush holders when inserting the motor from the front.)
- Glue the nose block into position at the fuselage front and open up F-1 for

- motor clearance.
 - Sand the nose to a round cross section, sanding down to the edge of the hole. (Watch contour and shape if you are going to use a spinner.)
- IV. FINISH:**
- Sand the entire model with 100 grit, followed by 220 and 400, before covering. Seek to achieve a clean aerodynamic shape and smooth finish.
 - Cover the entire model with a high quality plastic film—Super Monokote was used on the prototypes.
 - Cover the wing and fuselage entirely with Monokote, but cover the wing and tail parts in separate pieces and before assembly to the fuselage.
 - Before covering the wing and ailerons // stab and elevator, make the monokote hinge

- first, and then cover the remaining surfaces per the Monokote instructions. Leave the stab tips uncovered, and the rudders glue there.
- Cover the twin rudders completely. Then place against the stab at the exact location required, mark and cut away the Monokote from the side of the rudder at the exact point where it will contact the stab. Square up the rudder and glue into position. Do the same for the other rudder.
- Now, fit the stab/elevator to the fuselage and carefully check alignment in each dimension. Mark the bottom of the stab where the fuselage will contact the stab, and cut away the Monokote from that area only. Glue the stab/elevator assembly to the fuselage—get it straight.
- From here add the horn and push rod and go on the the radio installation.

LEISURE

VITAL STATISTICS:
 WINGSPAN—37 1/4"
 WING CHORD—8"
 WING AREA—295 SQ. IN.
 AIRFOIL—NACA 2410
 FUSELAGE LENGTH—30 3/4"
 STABILIZER SPAN—12"
 STABILIZER AREA—50 SQ. IN.
 WEIGHT READY TO FLY—32 to 38 OZ.
 WING LOADINGS—15.6 OZ./SQ. FT.
 POWER—Leisure LT-50 SYSTEM
 PROPELLOR—6" x 4"
 RADIO—3 CHANNEL.

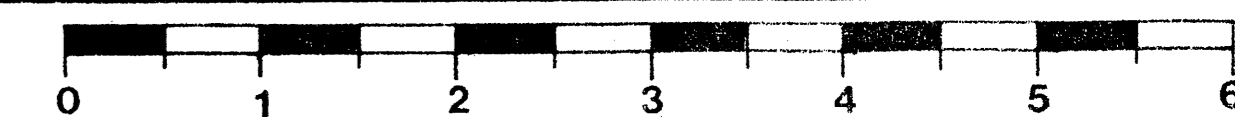


REVISED FEB 1984 BY Bob Sliff

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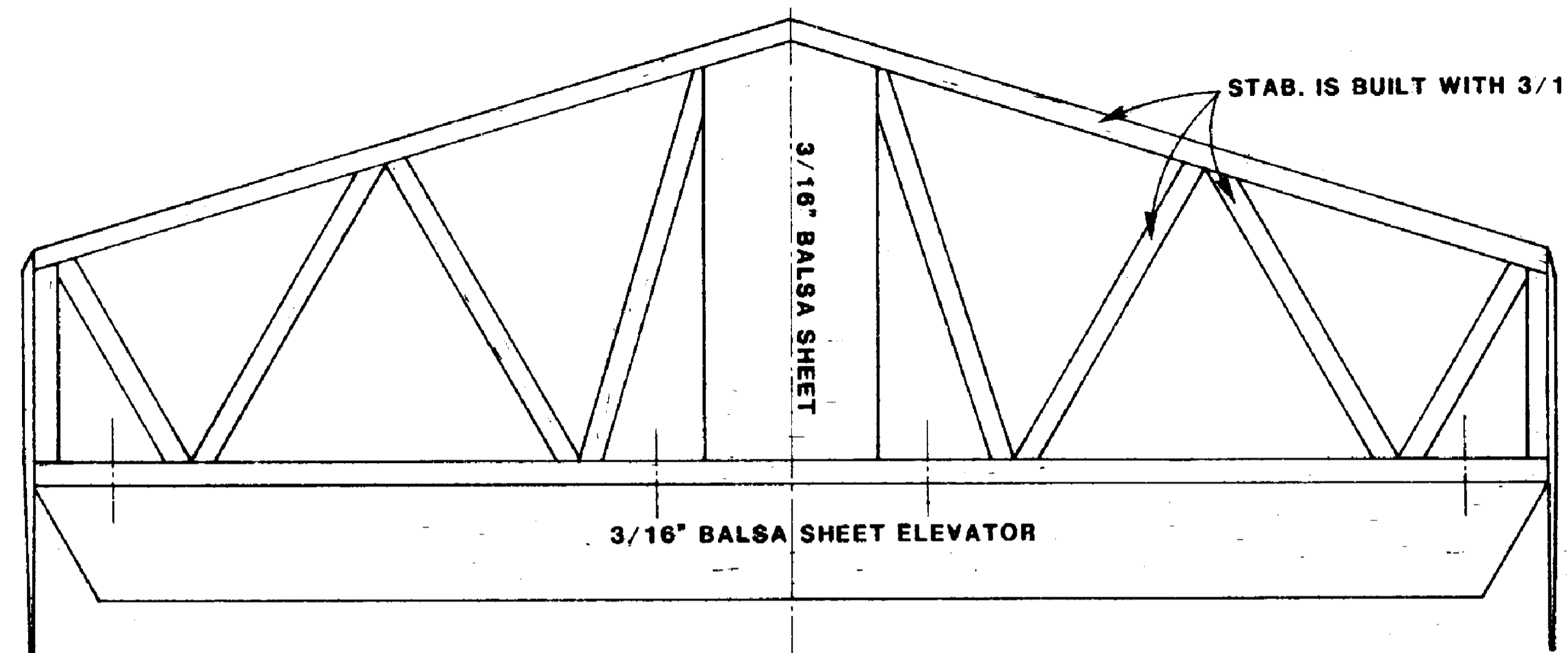
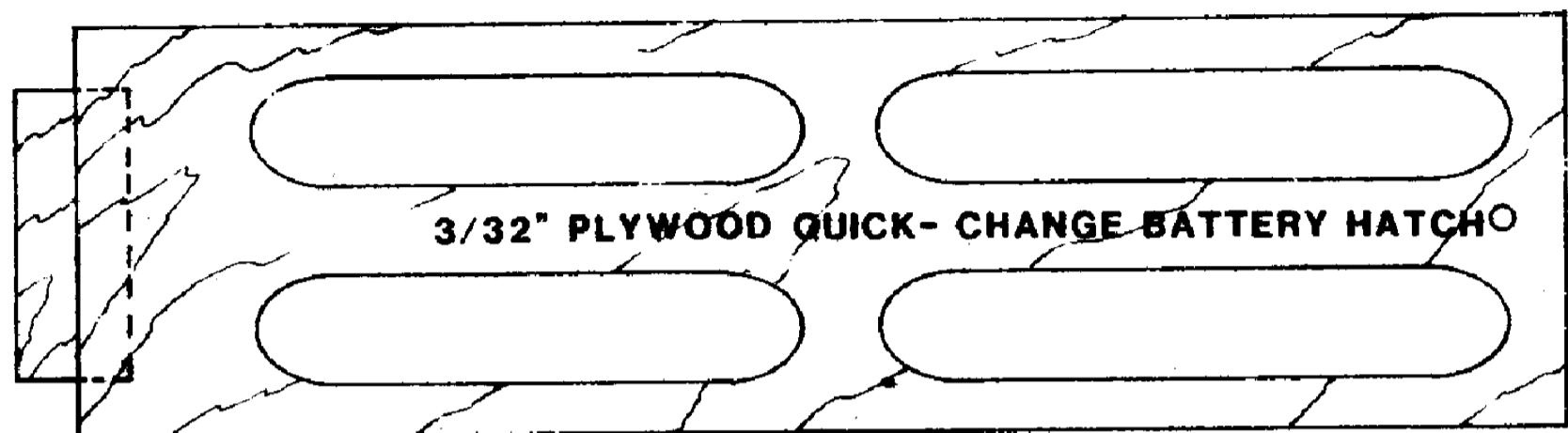
WASP
 FOR SPORT AEROBATICS

DESIGNED & DRAWN BY J.V. ZAREMSKI

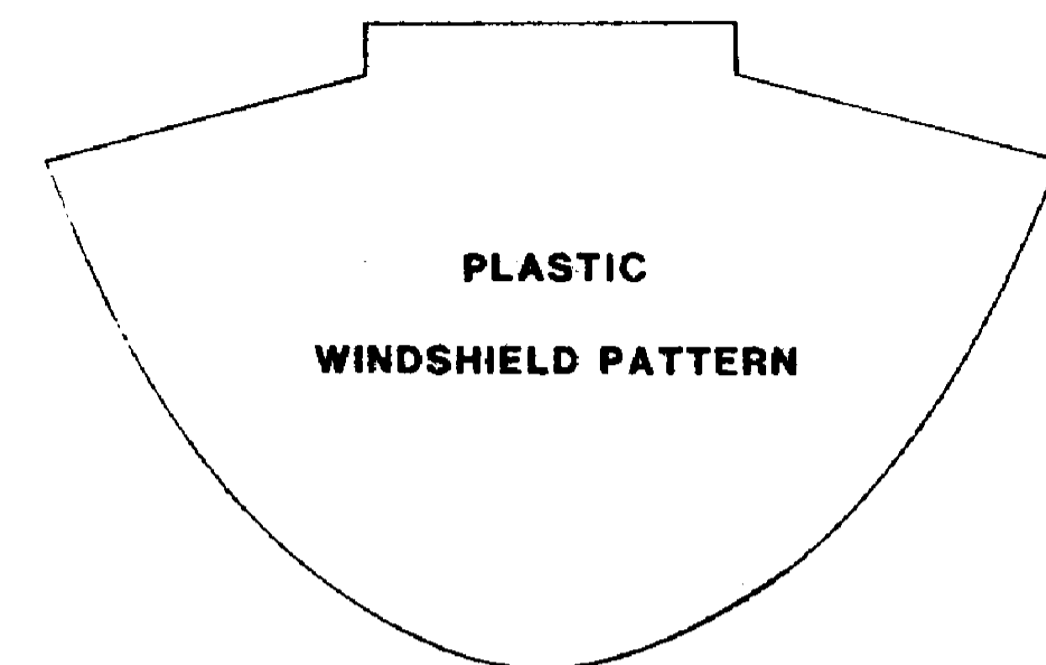


CARL GOLDBERG 1-1/2" SPINNER

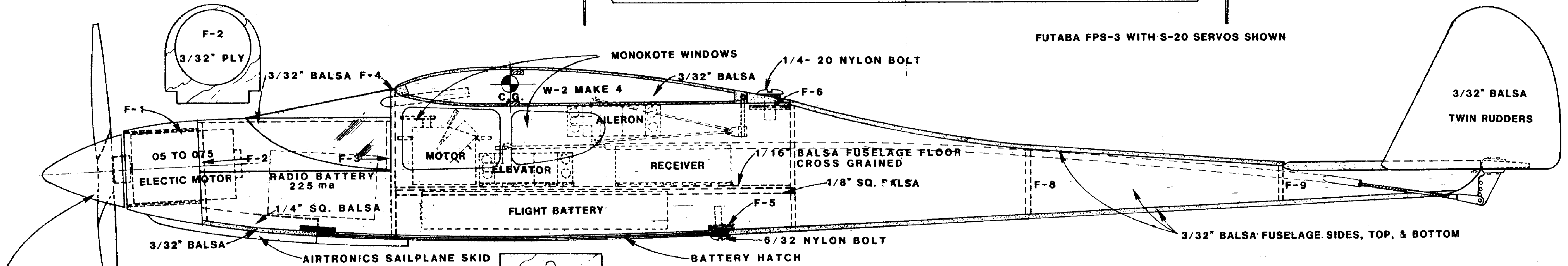
WRAP 1/64" x 1-1/2"x9" PLY. AROUND
MOTOR TO FORM MOUNTING TUBE, CEMENT IN F-1



STAB. IS BUILT WITH 3/16" SQ. Balsa STICKS

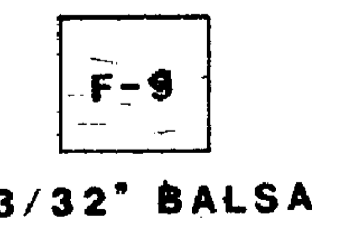
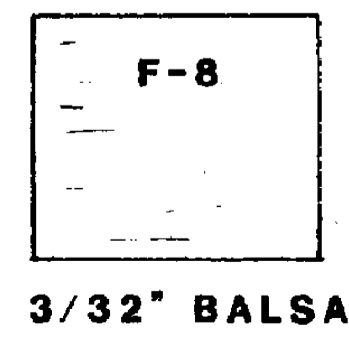
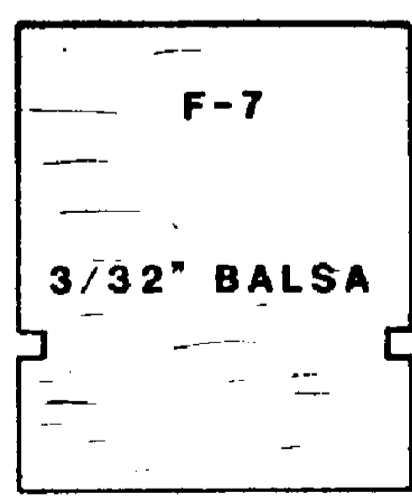
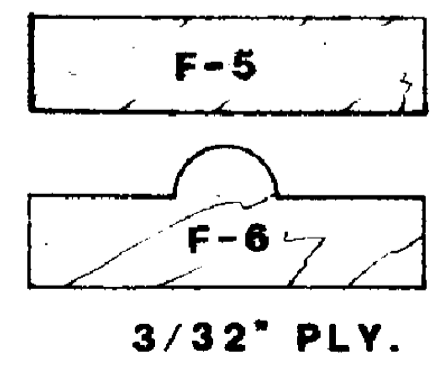
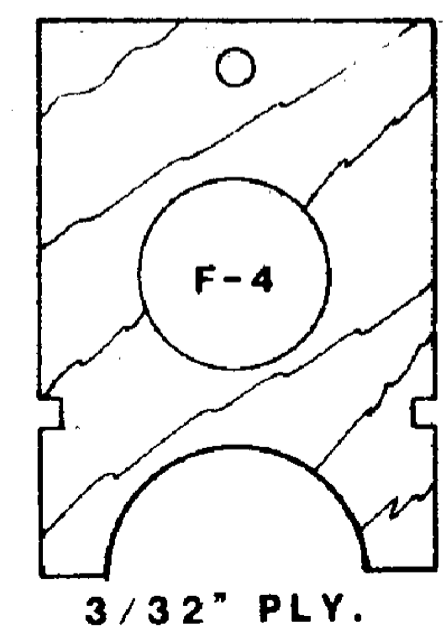
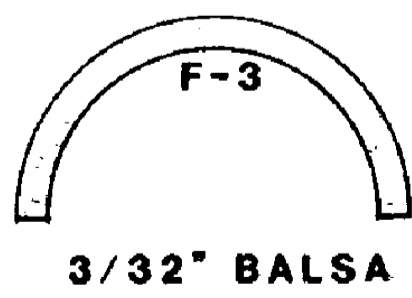
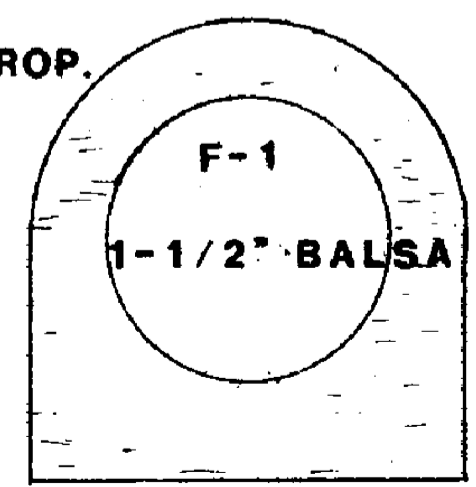


FUTABA FPS-3 WITH S-20 SERVOS SHOWN



3/32" Balsa TWIN RUDDERS

CARL GOLDBERG 1-1/2" SPINNER



ASTRO COBALT REQUIRES ADDITIONAL DOWNTHRUST OR 3/32" SHIM UNDER T.E.

MOTOR INSTALLED THROUGH HATCH