

INTRODUCTION

When the Alpha was conceived and developed, several considerations were kept in mind. First, it needed to fly well on a large range of engines. Over a dozen prototypes were flown for two flying seasons with engines ranging from a Golden Bee .049 to a Tee Dee .09—performance was found to be quite stable and forgiving with an .049 and with an .09 loops, spins, rolls, and take-offs were possible with good speed and rock steady tracking. For the beginner a good running Golden Bee, a Black Widow, or a Tee Dee .049 and two channels is recommended. The sport pilot will find the Alpha a ball with a good, hot .09 and three channels.

Secondly, the Alpha had to be sturdy enough to withstand the inevitable, unplanned, sudden, not-so-gentle landings which plague all of us. Extensive use of lite plywood and interlocked construction provided the strength to withstand an unusual amount of punishment and remain flight worthy with either no or a small amount of repair.

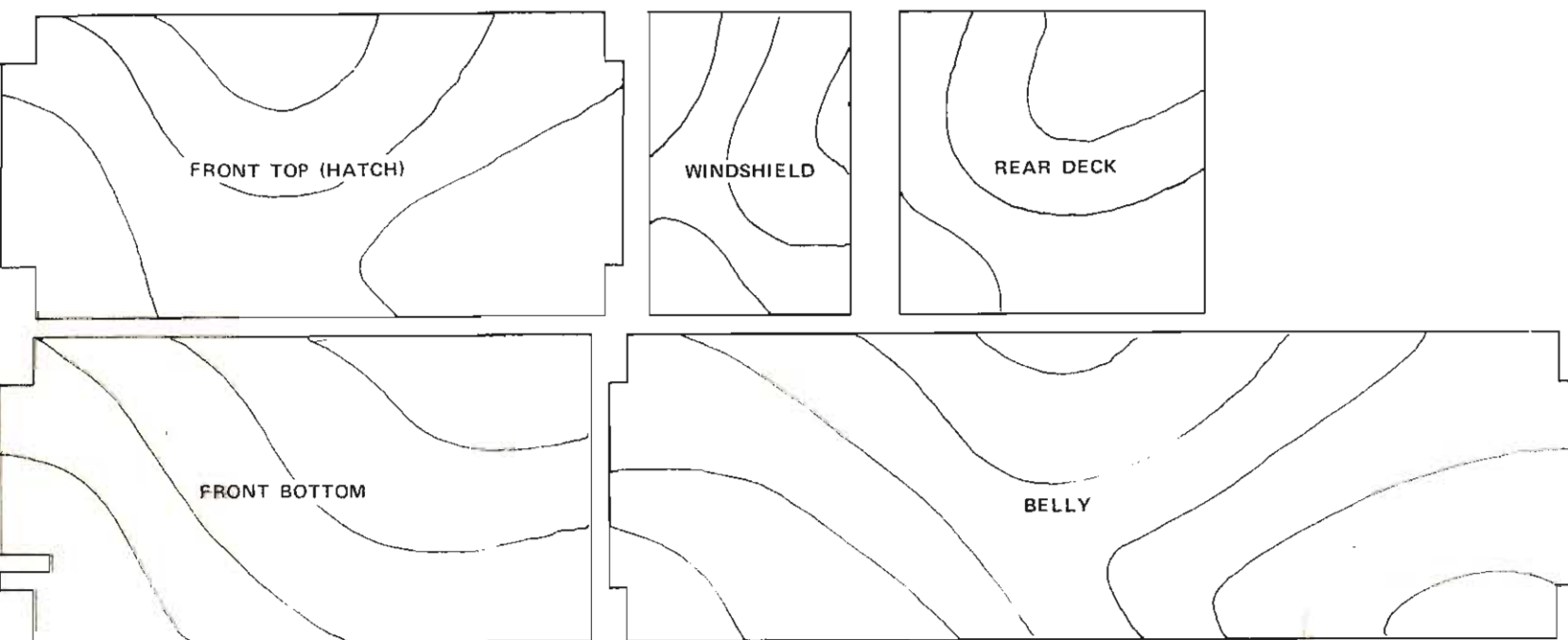
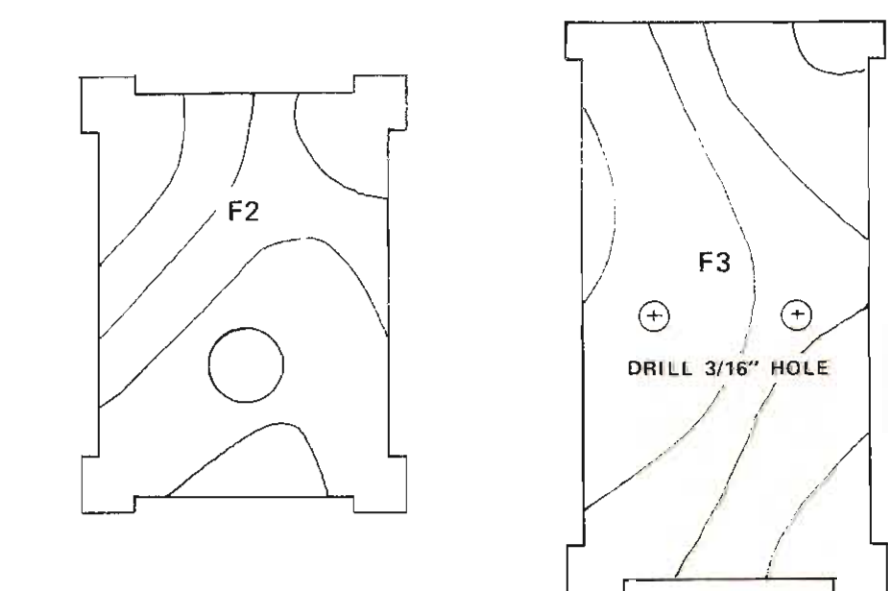
Also, construction of the Alpha had to be easy and quick. Simplicity, interlocking construction, quality machined and die cut parts and 5 minute epoxy provide this. The Alpha can be ready for finishing and radio installation in one long evening.

We hope you are happy with your Alpha kit. If it is your first effort in R/C, we wish you success, and hope you enjoy one of the most enjoyable and rewarding hobbies in existence.

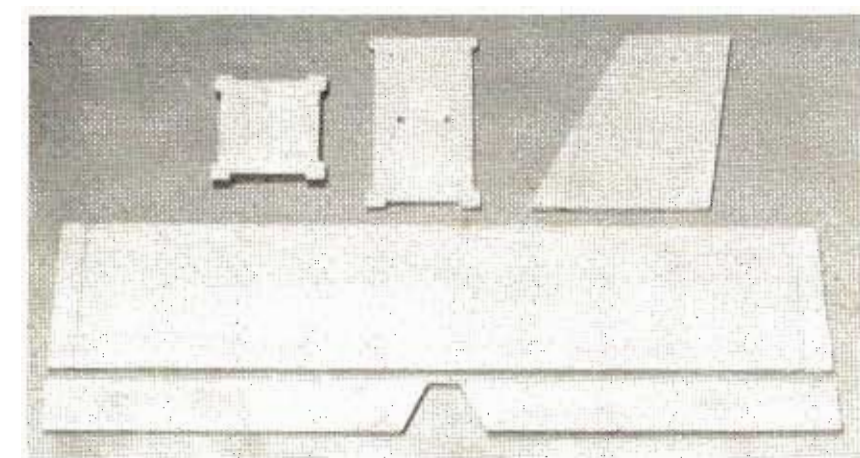
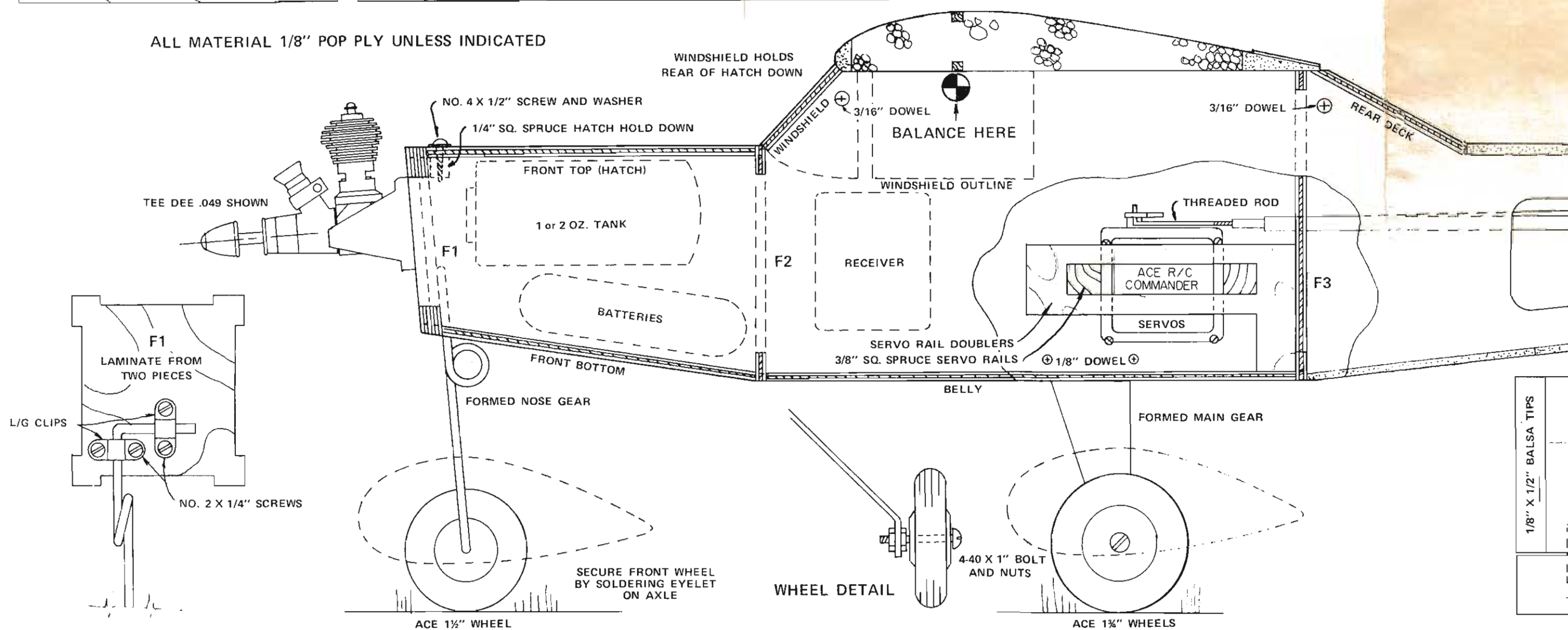
MATERIALS NEEDED

Although other adhesives can be used, it is recommended that 5 minute epoxy be used throughout construction with the exception of putting the spars in the wing; here, white glue is recommended. Use of 5 minute epoxy on most of the plane will insure a good joint and make for quick progress—use sparingly, though, otherwise you'll add too much weight. Never use anything but epoxy or water soluble white glue on the foam; normal cements will melt the foam.

Other materials needed are 1/16", 3/32", 1/8" and 3/16" drills, a small triangle, a razor blade or X-acto knife, pins, sandpaper, finishing material, radio, engine, tank, and wheels.



ALL MATERIAL 1/8" POP PLY UNLESS INDICATED

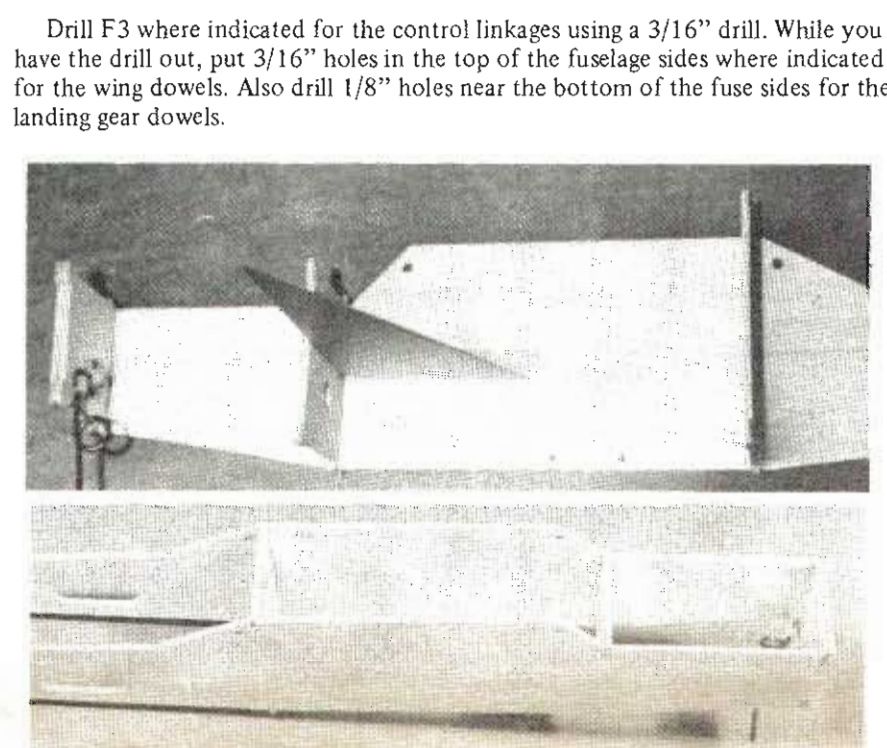


FUSELAGE CONSTRUCTION

Begin by laminating the two F1 pieces together to form the firewall. Be sure to wipe off any excess glue that may ooze out the edges.

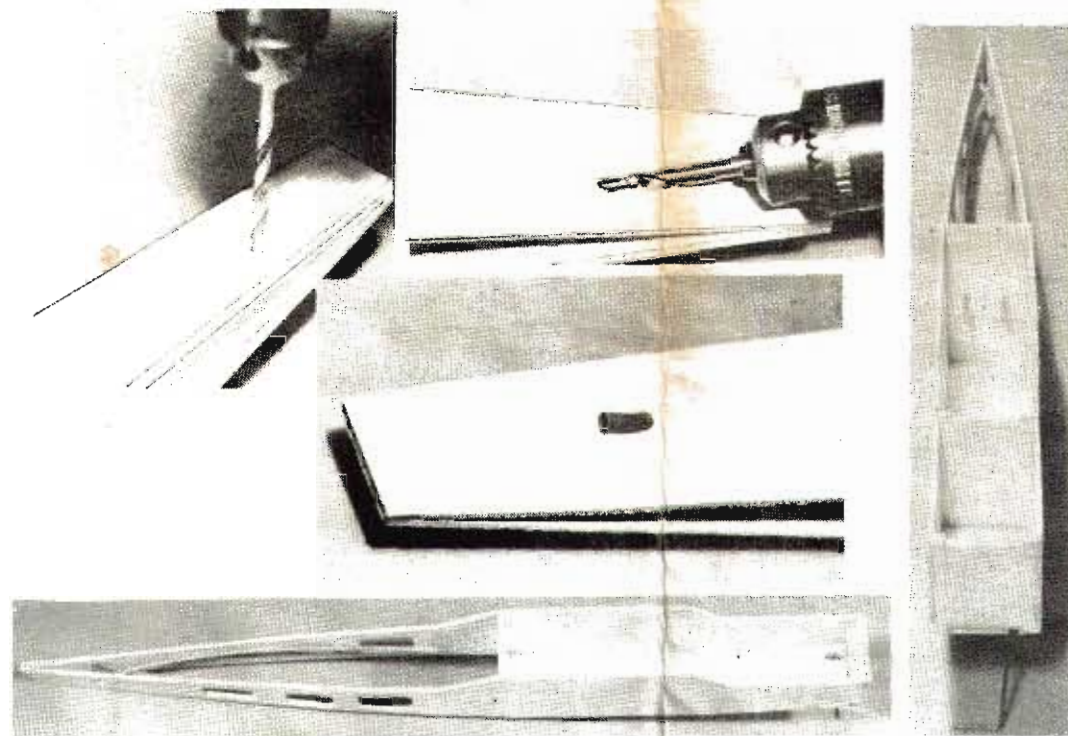
On a flat surface, glue the two fin pieces together and the 1/8" X 1/2" X 3" tips on the stabilizer (1/8" X 3" X 14" balsa).

Using a 1/16" drill and the assembled stabilizer for a guide to get the proper spacing, drill into the elevators for the 1/16" music wire elevator link—notch the front of the elevators so the outer edge or the wire is flush with the edge of the elevators. Securely epoxy or "Hot Stuff" the wire link in place.



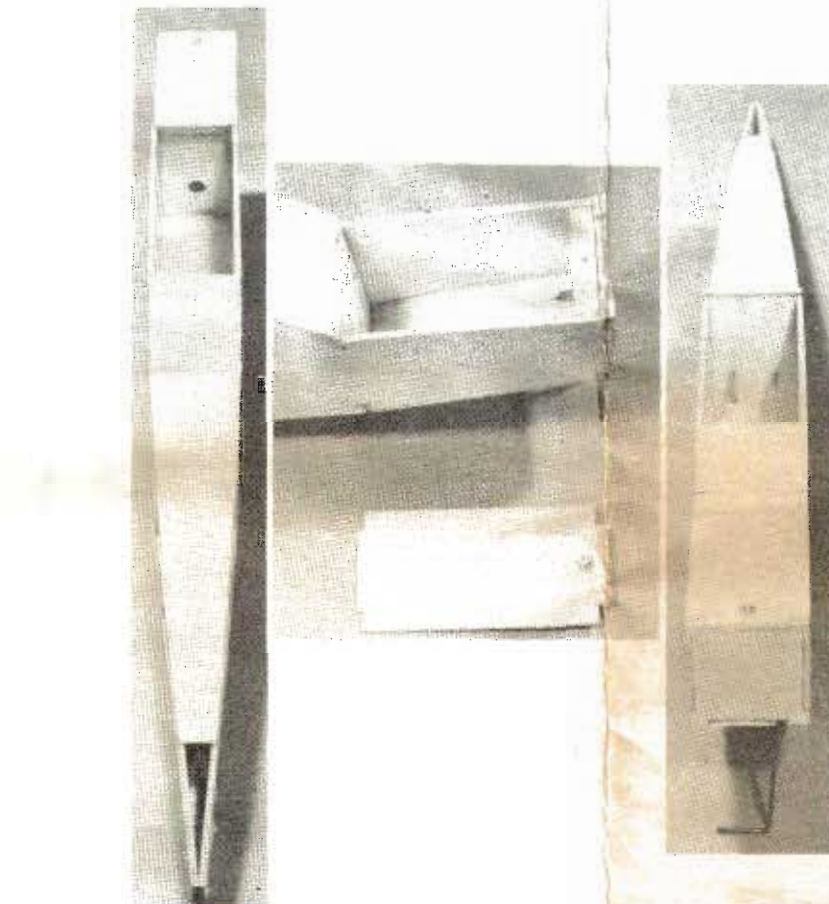
Using No. 2 X 1/4" screws and the landing gear clips furnished, secure the nose gear to F1. Liberally cover the nose gear and clips with epoxy for reinforcement.

Glue F1, F2, and F3 to the right fuselage side, using a triangle to keep them perpendicular to the side. After the glue has set, glue the other side to F1, F2, and F3.



Glue the front bottom and the belly pieces on to the fuselage, notching out the front bottom to clear the nose gear. Join the tail together at the rear, keeping the sides lined up properly.

Drill the rear of the fuse sides for the control linkage to exit through using a 3/16" drill. Refer to the side view for approximate location. First drill through perpendicular to the side and then while the drill is still running, slowly rotate it to the rear to give an elongated hole. Install the outer pushrod tubing (red) in the fuselage. You have plenty of material, so leave some extra which can be cut off later. Note that the tubing crosses over in the fuselage—the one that goes through the right hole in F3 exits out of the left side of the fuselage. Glue the outer tubing in place.

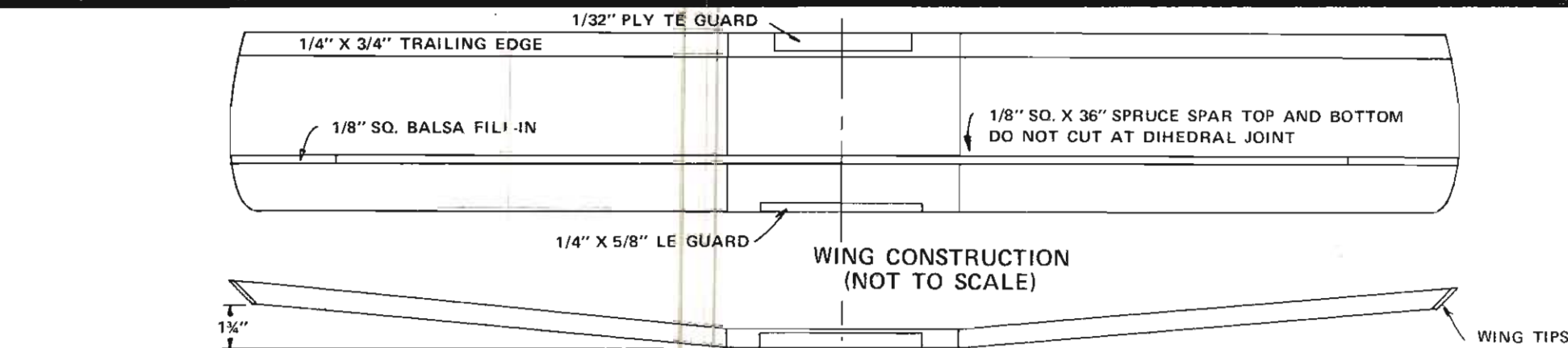


Sheet the bottom of the rear of the fuselage using the 3/32" X 3" X 8" balsa furnished, crossgrained.

Glue the rear deck in place and stopping 3" from the rear, sheet the rear of the top of the fuse using the 1/8" X 3" X 6" balsa furnished, crossgrained. The stab goes on the last 3". Glue the windshield in place.

Glue the 1/4" sq. X 2" spruce hatch hold-down block onto F1. Slip the hatch in place (the windshield holds the rear of the hatch down).

Drill a 3/32" hole through hatch and hatch hold-down block so that the hole is centered in the hatch hold-down block. Remove the hatch and drill the hole in it out to 1/8". Reinstall the hatch and secure it with the No. 4 X 1/2" screw and washer.



WING CONSTRUCTION

Cut the 36" length of trailing edge stock in half and on a flat surface, epoxy one piece to each outer wing panel keeping the bottom surface flat. Glue the short piece of T.E. stock to the wing center panel. Remember, use epoxy or white glue on the foam; normal cement will attack the foam.

Using a sharp razor blade and a straight edge, cut the leading edge of the center section back 1/4" for 4", centered in the panel. Glue the 1/4" X 5/8" X 4" balsa leading edge rubber band guard in place; when dry, trim and sand it to match the wing airfoil. Trim the trailing edge stock to match the ends of the panels.

Epoxy the three wing panels together making sure there is 1 3/4" dihedral under each tip measured from the bottom of the wing—keep the bottom of the wing in alignment.

Glue the two 1/8" sq. X 36" spruce spars in the slots—center them in the wing, leaving the slots empty on the ends—do not cut or break the spars at the dihedral joints; bend the spars at the joints and clamp if necessary. If the spars are cut or cracked at the joints, the strength of the wing will be considerably impaired. White glue is recommended for this step because excess glue can be easily removed with a wet rag before the glue sets. If you use epoxy, be sure to remove any excess. Fill the slots left over on the ends with the 1/8" sq. balsa furnished.

Glue the 1/32" plywood rubber band guard on the trailing edge of the wing. Glue the tip plates on the wing tips.

FINISHING

It is highly recommended that the wing be covered with a low heat shrink film such as Solarfilm, Econokote, Kwikkote, Flitekote, etc. Follow the manufacturer's directions, being careful not to use too much heat so the wing isn't affected.

The fuselage can be either covered with plastic film material or painted.

RADIO INSTALLATION

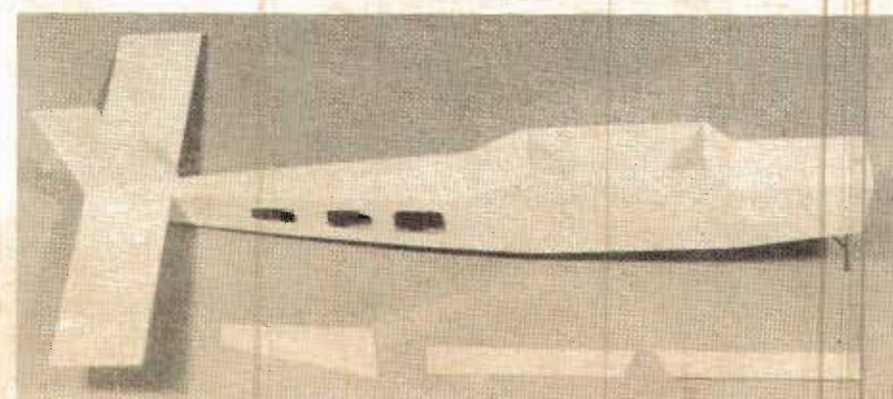
Horns, clevises, and rods are furnished; see the side view of the airplane for proper installation.

Servo rails and rail doublers are furnished and dimensionally are set up for the Ace Digital Commander Banham servos (see the side view). If other servos are used, modification will probably be necessary. The servos may be mounted to the fuse side using servo tape if desired; if so, it would be advisable to smear some epoxy on the inside where the servos are to go in order to give a good surface for the servo tape to adhere to.

Position the batteries so the airplane balances at the point indicated.

It is suggested that initially the rudder be set up to have approximately 3/4" total movement from full right to full left and the elevator have about 1/2" total movement from full up to full down.

We hope you have enjoyed building your Alpha and that it provides you with hours of enjoyable flying. We would appreciate any comments you might have concerning this kit.



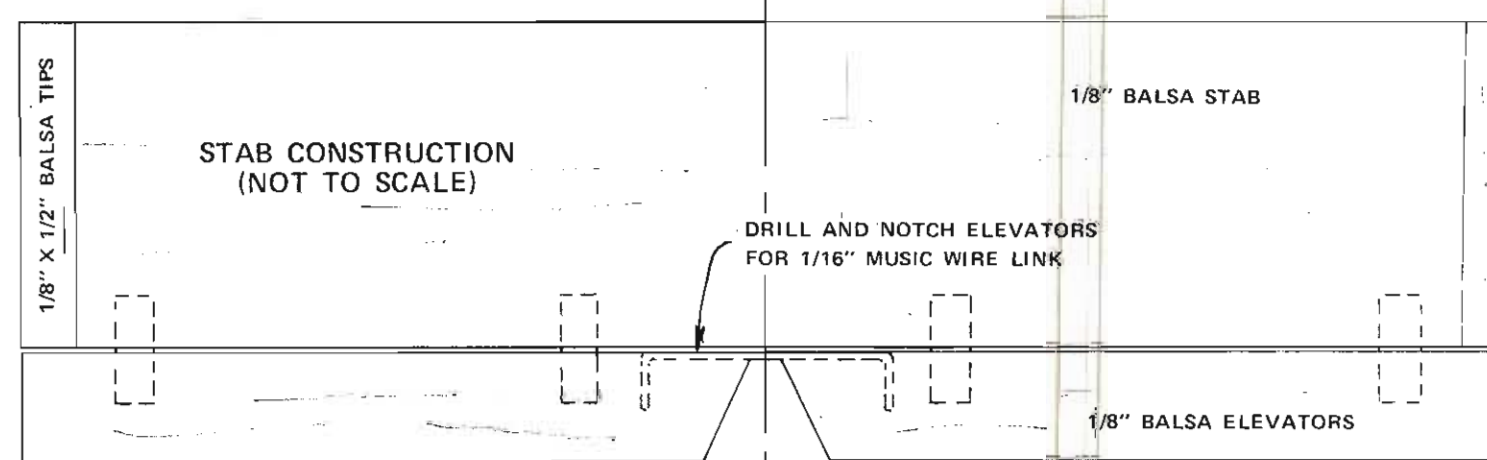
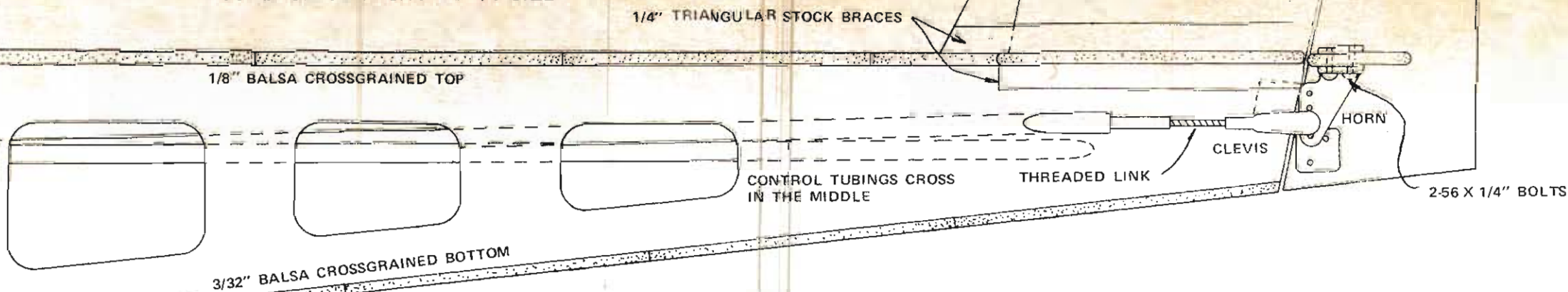
Trim and sand the fuselage smooth. Also sand the fin and stabilizer. Measure for the center of the stabilizer and make a mark in the center at a right angle to the leading edge. Glue the fin on; the stab using the line as a guide—use a triangle to keep it perpendicular to the stab.

Glue the stab/rudder assembly on the fuselage—lay a ruler across the wing saddle and make sure the stab is parallel to it. Cut triangular braces from the stock furnished and glue into place to reinforce the fin/stab joint and the stab/fuse joint.

If you are covering the fuselage, it is much easier to install the wing and landing gear dowels after the covering is completed.

If you plan to paint the fuse, the dowels can be installed now.

FUSELAGE VIEW SHOWN 3/4 SIZE



ALPHA

DESIGNED BY TOM RUNGE

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