RADIO CONTROL STANDOFF SCALE

Realistic Beauty . . .
Exciting Performance . . .
FROM TOP FLITE

Standoff Scale is the newest and most exciting thing on the R/C scene! By subtle design, these models achieve truly excellent flying qualities, equal to sport or pattern R/C types, *at no expense to the scale appearance.*

Add to this, standard uncomplicated structural design, and it's easy to see why modelers everywhere have accepted these Top Flite R/C models as "the only way to fly!"

All kits feature balsa for strength and durability, and contain accurately machined & diecut wood parts, complete nylon and metal fittings, large full-color fuelproof decals, full-size plans and clear building instructions. The P-47 "Jug", Warhawk & 'Cobra feature plastic cowls; all kits have super-quality clear cockpit canopies.

SPECS: P-47D: Span 60", Area 720 sq. ins.; for .50 to .60 engines and 4 to 7 channel equipment.

SPECS: P-39, P-40 & P-51B: Span 60", Area 600 sq. ins.; for .40 to .60 engines and 4 to 7 channel equipment.

KIT RC-19

P-47D THUNDERBOLT

KIT RC-18

P-39 AIRACOBRA

KIT RC-17

P-40 WARHAWK

KIT RC-16

P-51B MUSTANG

RADIO CONTROL EXACT SCALE

An R/C scale model designed with measurable accuracy from the wing dihedral and tail area to the most minute incidences. The S.E.5a combines ruggedness and flying-field performance seldom found in any model. Nylon strut fittings, machined air foil section wing struts, stamped metal cowls, scale display prop-blank . . . cut to shape, 2 full-sized plan sheets (including both wings), 2 gigantic fuel-proof authentic decal sheets, plus the finest quality balsa, nylon and metal parts and fittings money can buy.

S.E.5A

KIT RC-13

Specs: Span - 53"; Area - 1060 Sq. In.; Engines 45 to .60.

TOP FLITE

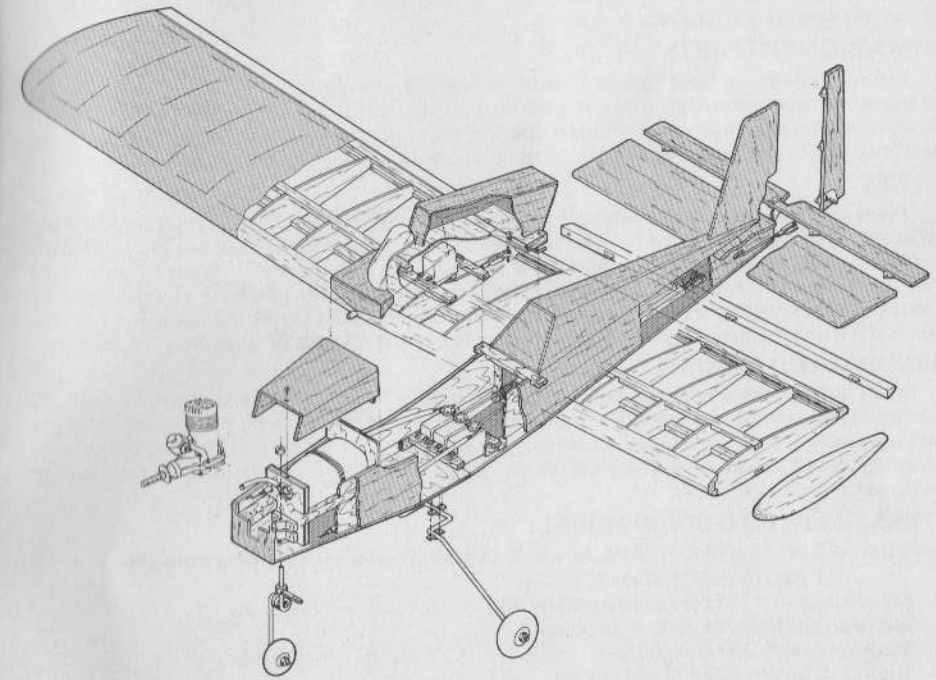
FOR TOPS IN FLIGHT

TOP FLITE MODELS, INC.

1901 N. Narragansett Ave., Chicago, IL 60639

PRINTED IN U.S.A.

Building the FRESHMAN TRAINER



TOP FLITE

TOP FLITE MODELS INC.

1901 NORTH NARRAGANSETT AVENUE • CHICAGO, ILLINOIS 60639

INTRODUCTION

Welcome to the wonderful world of Radio Controlled modeling! Your purchase, careful building and correct equipping of this model will give you an easy to fly R/C Trainer with a character and identity setting it apart from the average R/C Trainer. What's more, you will find this kit quite easy and quick to assemble if you will follow the instructions carefully and devote the required time, effort and patience. The result will be a model you will be proud of . . . one with EYE Appeal as well as FLY Appeal!

With the purchase of this kit, you have started a project we hope will satisy your natural creative desires and put you on the path of mastering the art of radio controlled flight.

HOW TO USE THIS INSTRUCTION BOOK

1. This instruction book has been arranged so as to enable quick assembly of your model. First you should read through the entire instruction book to familiarize yourself with its contents and steps. Examine the plans with each step and identify the wood or parts involved.

2. Begin by following each step, one at a time and as it is completed, place a check mark in the block for that step. It is not advisable to skip around unless you are an experienced modeler.

3. As you begin each step, read the instructions, locate the parts involved, double check that part number with the plans and then proceed.

REMOVING DIE CUT PARTS

Some die cut parts may need a little help in removing them from the sheet. This can be done by lightly sanding the back of the sheet. Some plywood parts may have to be removed with the help of an X-acto knife or coping saw. Remove only those parts necessary for the completion of the step you are working on.

WORKING WITH PARTS

Before glueing any parts together, make certain they fit properly. Trim or sand them as necessary. There are some machined parts in your kit which are not marked with letters or numbers such as the ailerons, stabilizers, leading edge, trailing edge, etc. These parts can be identified by checking them against the plans. If you wish, use a ball point to mark their identity.

GLUES

There are many fine glues available for model construction. The new Aliphatic Resin glues [Wilhold, Titebond or Se-Cur-It (Ambroid)] can be used for both Balsa-to-Balsa joints as well as hardwood-to-hardwood joints. Epoxies work well for high stress joints. Whatever type of glue you use, remember that excess glue is no substitute for a well-fitting joint. Use a minimum of glue at all times, wiping off excess glue that squeezes out of a joint before it sets hard. Once glue sets it is not only difficult to remove or sand, but may also spoil your covering work on the plane.

SANDING AND PINNING

When sanding, use a balsa wood block approximately 1" x 3" x 6" with sandpaper around the block and fastened on the top side. Sand only in the direction of the grain of the wood. When holding pieces together with pins, allow enough wood between the pin and the edge of the piece to minimize the chance of splitting the wood. Keep in mind that pins hold best when they are pushed into parts at an angle.

ITEMS NEEDED TO BUILD MODEL:

Glues: – 8 oz. Titebond, Wilhold, Se-Cur-It (Ambroid), or similar aliphatic resin glue.
– 1 pkg. (4 oz.) "5 Minute" epoxy.
Pins: Sewing or "T" type, approximately 200.
Waxpaper (or Super-Monokote backing).
Sandpaper: 180, 220 and 400 grit.
Tools: – X-acto type knife and saw set
– Single-edged razor blade
– Hand or electric drill with 1/4", 1/8", 1/32", 11/64" bits
– Medium Screw Driver
– Heavy Black Thread
– Small (2") "C" Clamp – Metal or Plastic

Covering: For covering your model we strongly recommend Super-Monokote. Super-Monokote will give you the easiest, fastest, lightest covering job possible and yet is durable and very attractive. We have included an instruction sheet in this kit on how to apply Super-Monokote and what tools you will need.

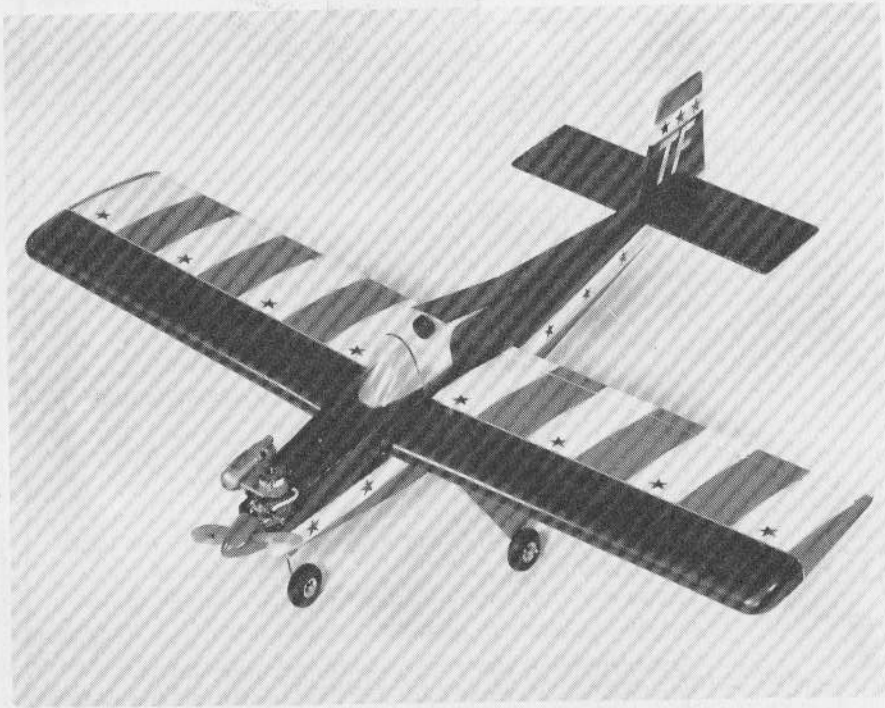
ITEMS NEEDED TO FLY MODEL:

As your model is being completed you will need the following items to prepare it for R/C flight:

Radio control unit, 3, 4 or more channels–
Engine – R/C type, .29 to .40 size
Fuel tank – 6 oz., R/C type
Wheels – 1 3/4" for nose gear and a pair of 2" for main gear
Fuel Line – medium size, 1 ft.
Fuel pump or fuel bulb
Propeller – 9-4 or 9-6 Top Flite props for .29 to .35
– 9-7 or 10-6 for .35 to .40 size engines or as recommended by engine manufacturer.
Starting Battery – 1 1/2 Volt with glow plug clip
Prop Wrench-4Way type, "Chicken Stick"- or electric starter and it's battery.
Fuel – As recommended by engine manufacturer
Spinner – 2" or AMA Prop Nut

WARNING

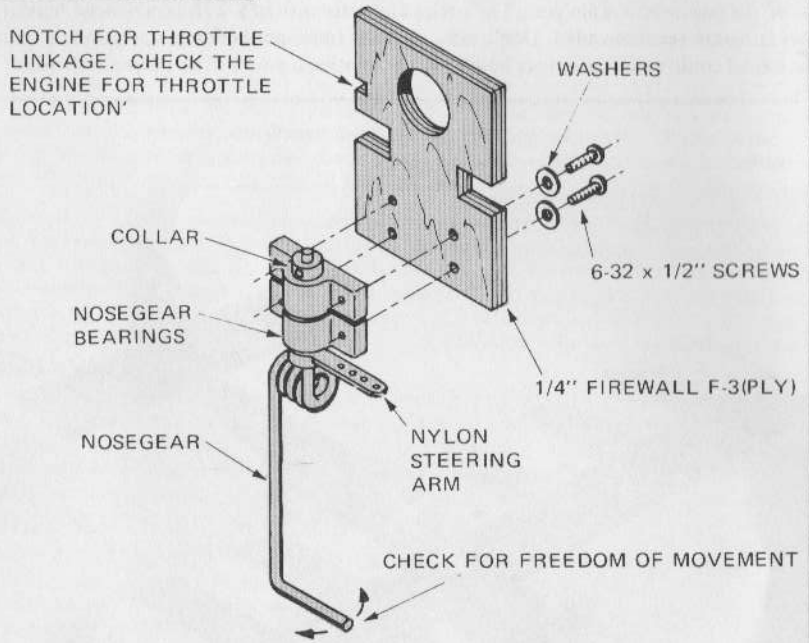
A Radio Controlled Model is not a "toy". Care and caution must be taken in properly building the model as well as in the installation and use of the Radio Control device. It is important to follow all directions as to construction of this kit as well as installation and use of the engine and radio gear. The advice and assistance of a well experienced builder and pilot is highly recommended. Don't take chances. Improper building, operation or flying of this model could result in serious bodily injury to others, yourself, or property damage.



CONSTRUCTION SEQUENCE

Follow each step in order and put check marks in the blocks as you complete each phase described.

FUSELAGE

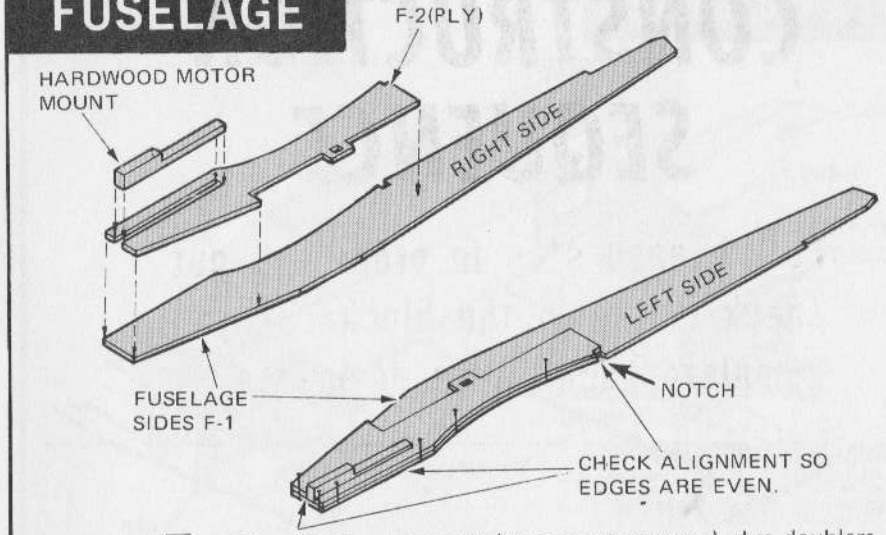


STEP 1

☐ Screw the 6-32 x 1/2" screws and washers from the back side and into the 1/4" firewall F-3(PLY). Thread the screws into the nylon nosegear bearings. Tighten screws, but do not let them bind the nosegear.

☐ Assemble nylon steering arm onto nosegear. Insert it into the two nosegear bearings. Place collar on end of nosegear to retain it in place. Check nosegear for freedom of movement, adjust if required, and remove.

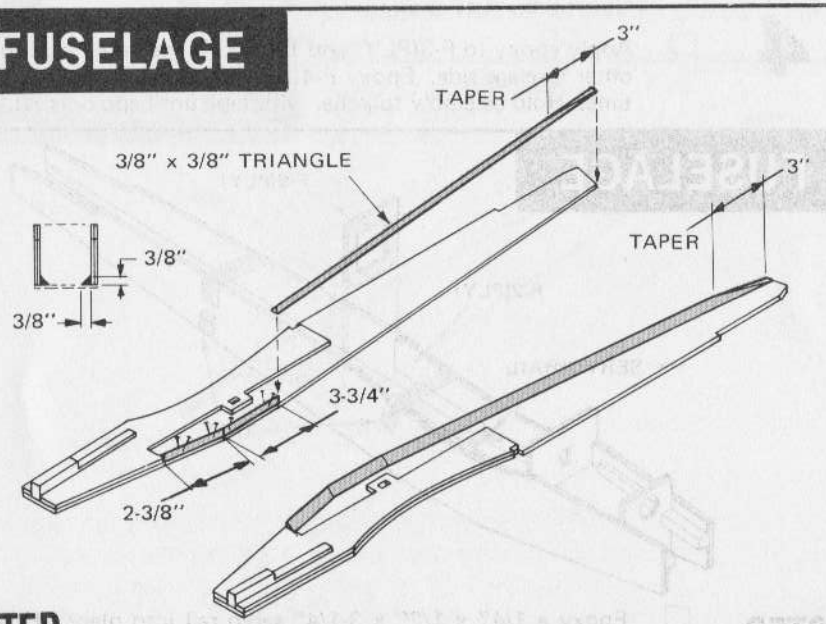
FUSELAGE



STEP 2

☐ Using '5 minute' epoxy (to prevent warpage) glue doublers F-2(PLY) and hardwood motor mounts to fuselage sides F-1. Be sure to make a RIGHT and a LEFT side. Be careful of alignment at the top front of the fuselage, and at the notch at the rear. The wing opening alignment is not important.

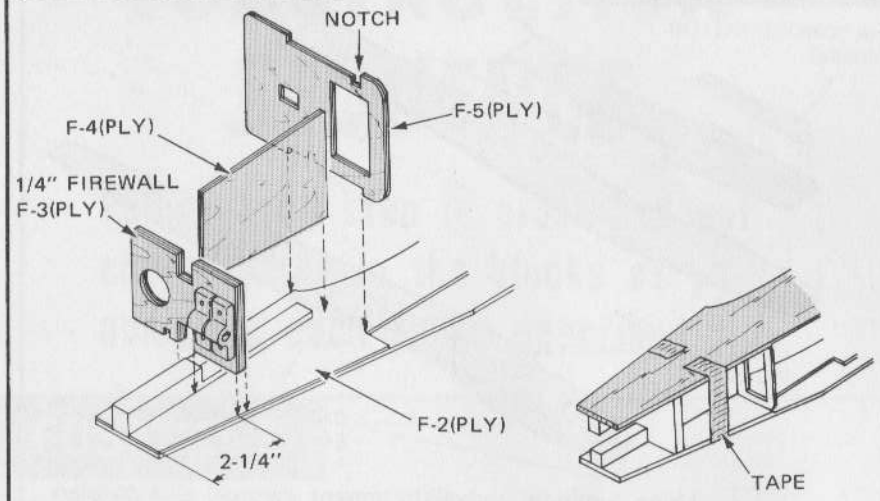
FUSELAGE



STEP 3

☐ Glue 3/8" balsa triangles to the bottom edges of both fuselage sides. Use 3 pieces each as shown. Taper triangle at rear to dimension shown above.

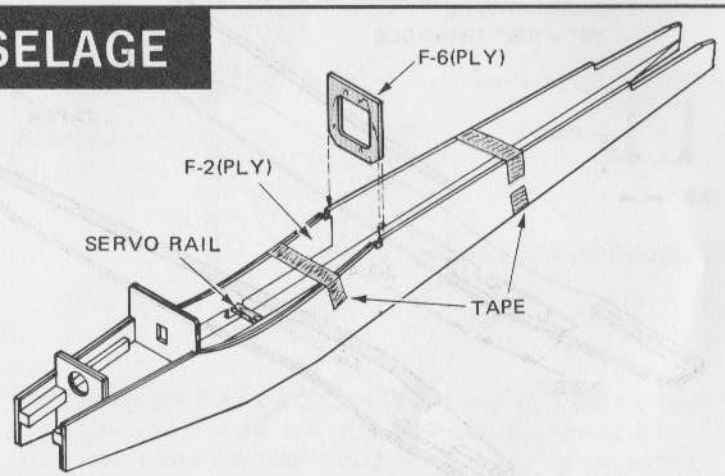
FUSELAGE



STEP 4

- ☐ Epoxy 1/4" firewall F-3(PLY) to fuselage side, 2-1/4" from the front, using F-4(PLY) as a guide. Epoxy F-5(PLY) to the same fuselage side, again using F-4(PLY) as a guide. Make sure the notches on F-5(PLY) are as shown in the illustration. Let epoxy set.
- ☐ Apply epoxy to F-3(PLY) and F-5(PLY) and apply glue to other fuselage side. Epoxy F-4(PLY) in place at the same time. Hold assembly together with tape until epoxy is set.

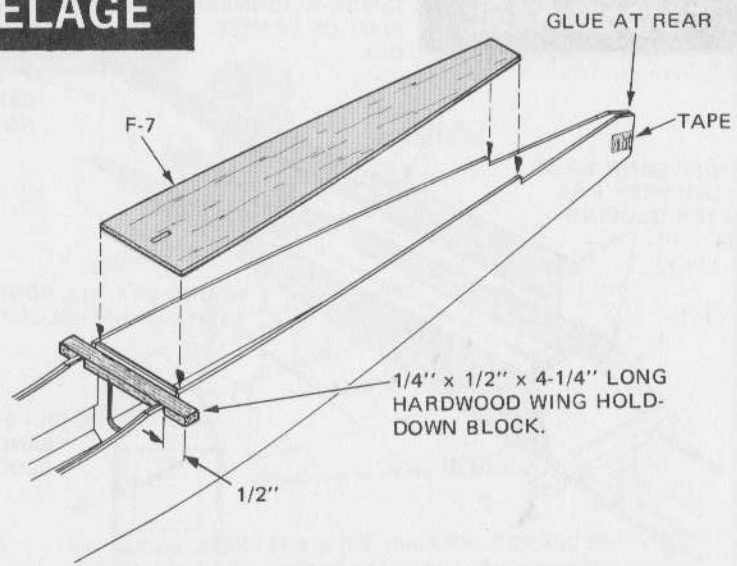
FUSELAGE



STEP 5

- ☐ Epoxy a 1/4" x 1/2" x 3-1/4" servo rail into place. Hold sides together with tape until epoxy is set.
- ☐ Position F-6(PLY) behind doublers F-2(PLY) and epoxy in place. Hold sides together with tape until epoxy is set.

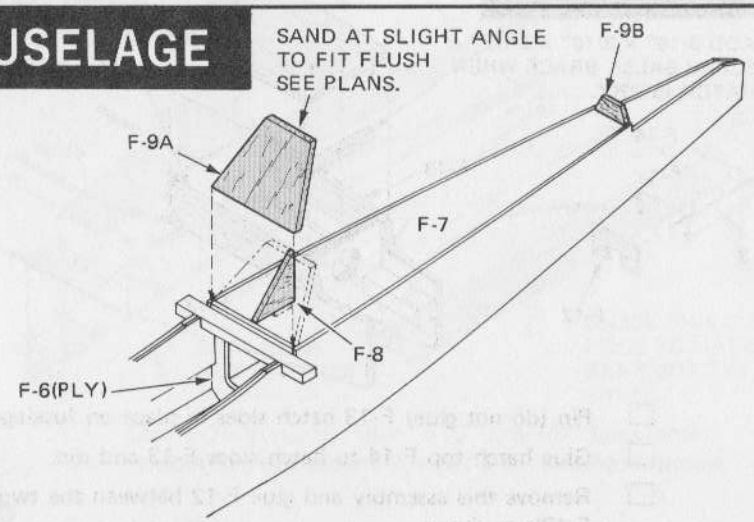
FUSELAGE



STEP 6

- ☐ Glue sides together at rear. Hold in place with tape.
- ☐ Glue hardwood wing hold-down block in place. (See fuselage top view on plans).
- ☐ Glue F-7 in place on INSIDE of fuselage sides and pin until dry.

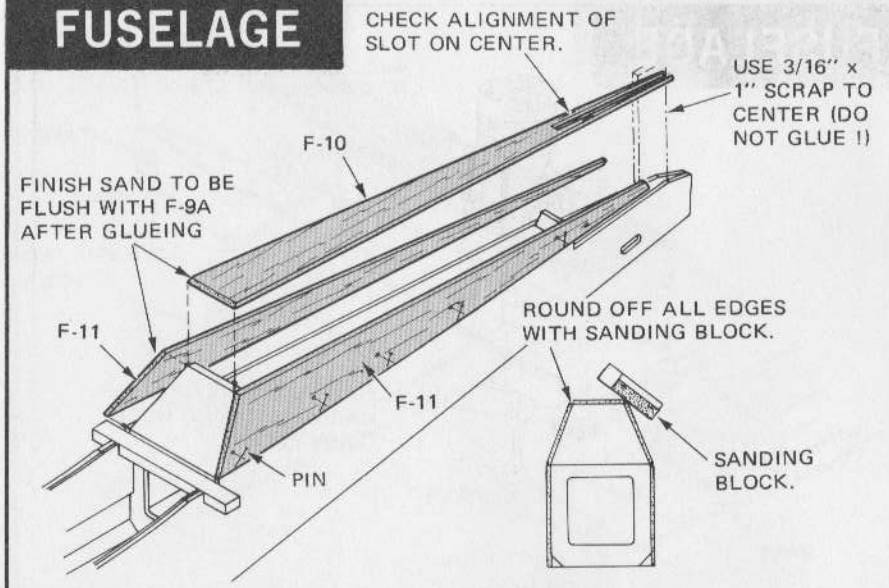
FUSELAGE



STEP 7

- ☐ Glue F-8 to F-7.
- ☐ Glue F-9A to F-8 as shown. Align with top edge of F-6(PLY).
- ☐ Glue F-9B to top rear edge of F-7.

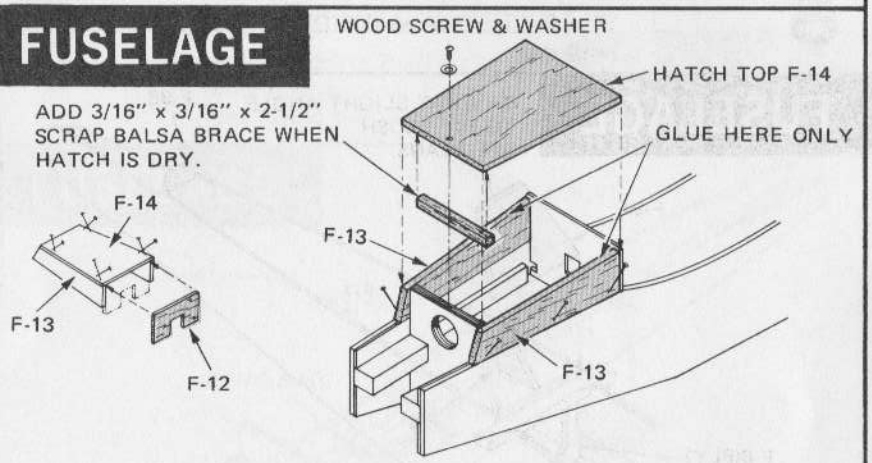
FUSELAGE



STEP 8

☐ Glue sides F-11 to top edge of fuselage sides F-9A and F-9B and pin. When dry, add top F-10. Align fin slot (at rear), using a 3/16" x 1" scrap balsa piece as shown. DO NOT glue scrap in place!

FUSELAGE



☐ Pin (do not glue) F-13 hatch sides in place on fuselage.

☐ Glue hatch top F-14 to hatch sides F-13 and pin.

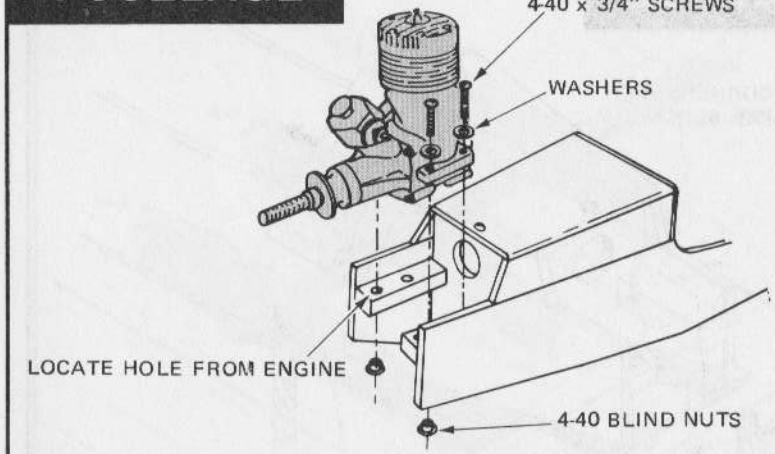
☐ Remove this assembly and glue F-12 between the two F-13's as shown.

STEP 9

☐ Take a piece of 3/16" scrap, and cut to 3/16" x 3/16" x 2-1/2". Glue this piece to F-14, so that it fits just behind the firewall when the hatch is in place.

☐ Screw the hatch assembly to the top of the firewall.

FUSELAGE

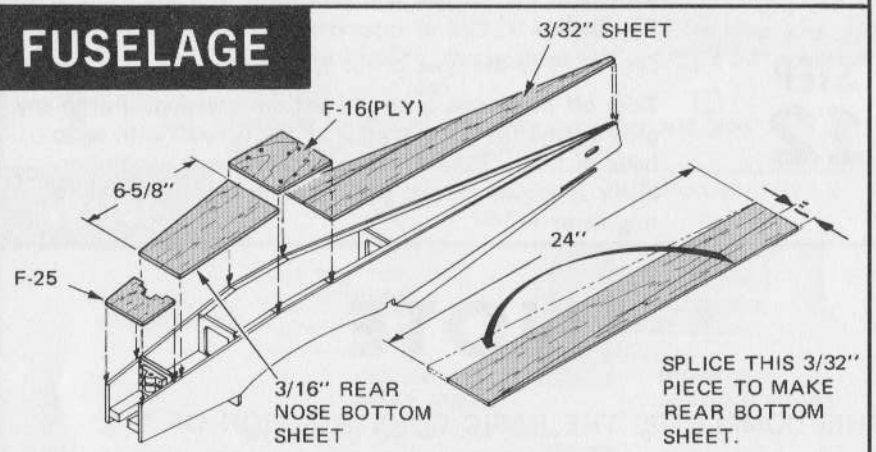


STEP 10

☐ Using your engine as a guide, mark location and drill 1/8" diameter holes for mounting screws. Make sure the engine is on center with fuselage (not pointing to one side or the other).

☐ Insert blind nuts from the bottom of the mounts and pull them into the hardwood mount by tightening the screws. Remove the screws & washers and remove the engine.

FUSELAGE



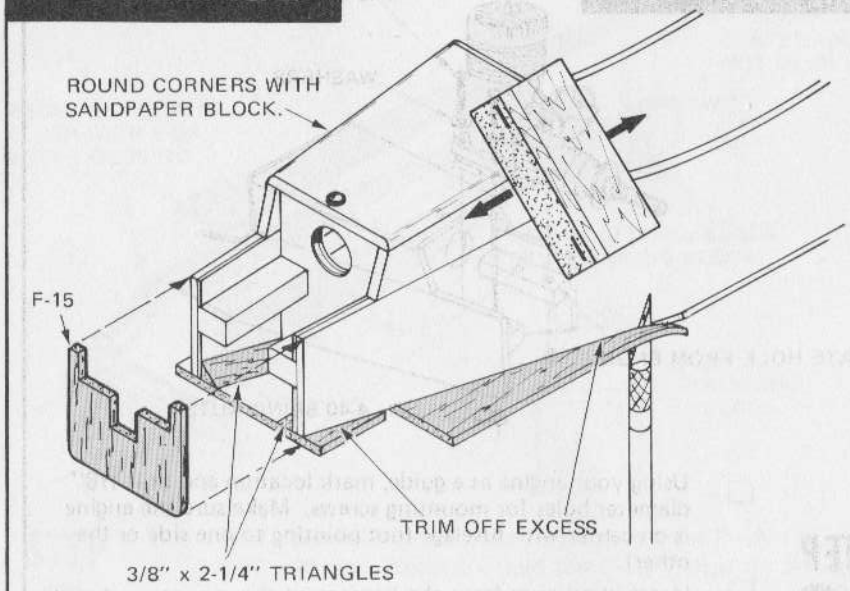
☐ Glue F-25 in place. Glue 3/16" x 6-5/8" balsa nose bottom in place behind firewall after cutting to proper length.

STEP 11

☐ Glue F-16 in place with the center punch marks for the landing gear clips to the outside of the fuselage. Refer to the plans for the correct position of the marks before final glueing.

☐ Cut and splice to make a full width of 3/32" balsa sheet for rear bottom piece. Glue in place.

FUSELAGE



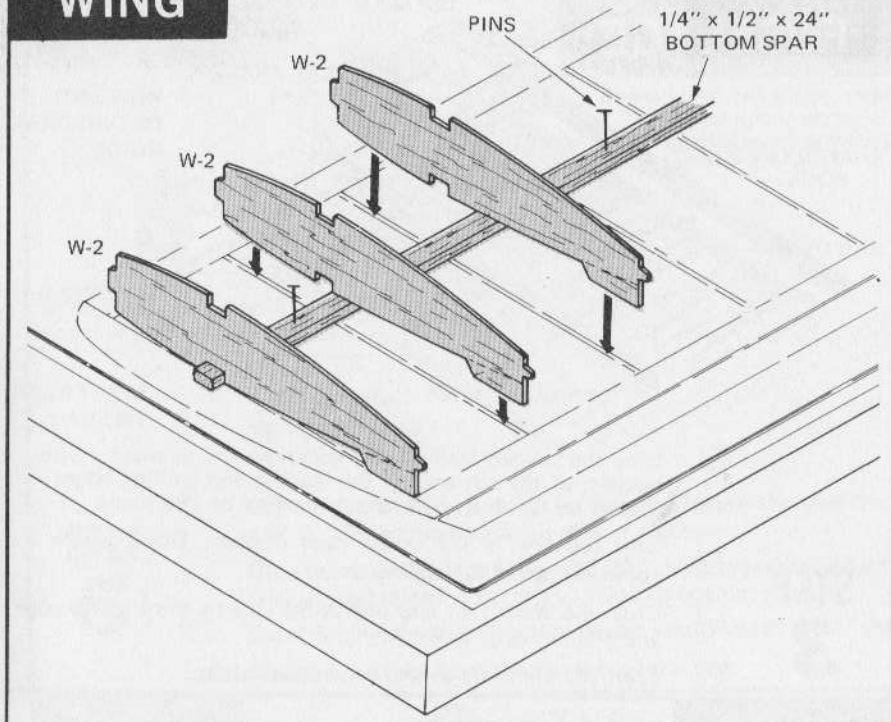
STEP 12

- ☐ Glue the two 3/8 " x 2-1/4" balsa triangles in bottom corners of the fuselage and trim flush with the front of the fuselage.
- ☐ Glue F-15 to the nose of the fuselage.
- ☐ Trim off the excess from the bottom sheeting. Fill in any gaps around the bottom edge of the firewall with scrap balsa or filler. Round fuselage corners with sandpaper block as shown. Shape front bottom piece as shown on the plans.

NOTE

THIS COMPLETES THE BASIC CONSTRUCTION OF THE FUSELAGE. THE NEXT STEP IS THE CONSTRUCTION OF THE WING. BEFORE STARTING, CUT OUT THE 'WING TIP PLAN' FROM THE MAIN PLANS. TAPE IT ON TO THE MAIN WING DRAWING SO THAT LINES 'A-A' ON BOTH DRAWINGS LINE UP EXACTLY. TAPE OR TACK THE PLANS ONTO THE WORK TABLE SO THAT THE WING DRAWING IS NEAREST TO YOU. USE WAXED PAPER OR SUPER MONOKOTE BACKING OVER THE PLANS DURING CONSTRUCTION.

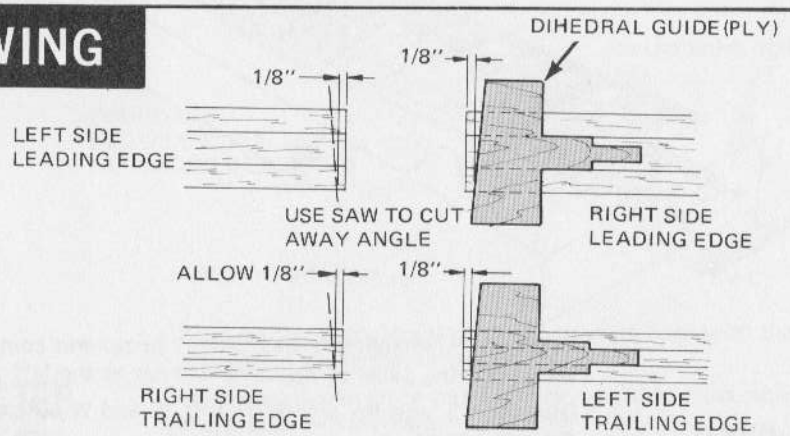
WING



STEP 1

- ☐ Lay waxed paper or SUPER MONOKOTE backing over plan to prevent sticking. Pin bottom 1/4" x 1/2" x 24" spar over left side of wing plan.
- ☐ Position all W-2 ribs in place over spar and glue. Rib W-1 goes in the center as shown on plan.

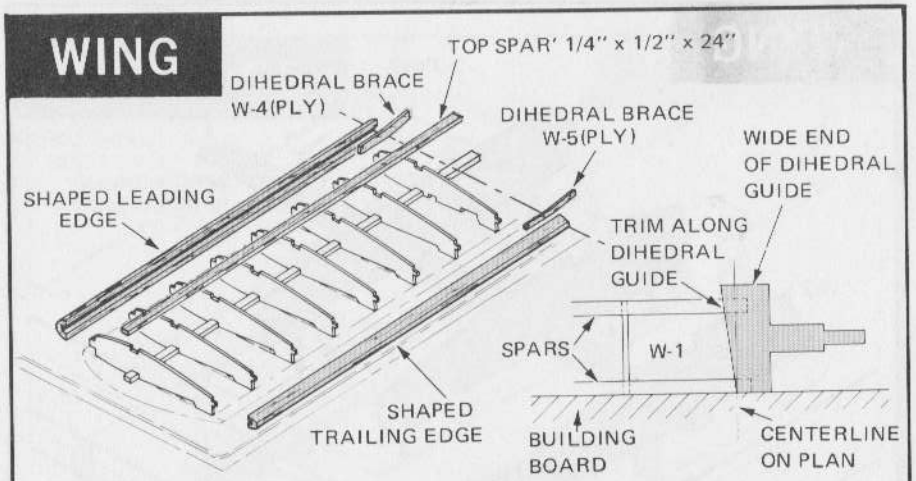
WING



STEP 2

- ☐ Using Dihedral Guide(PLY) trim both leading edges as shown with an X-ACTO saw. Trim both trailing edges in the same manner.

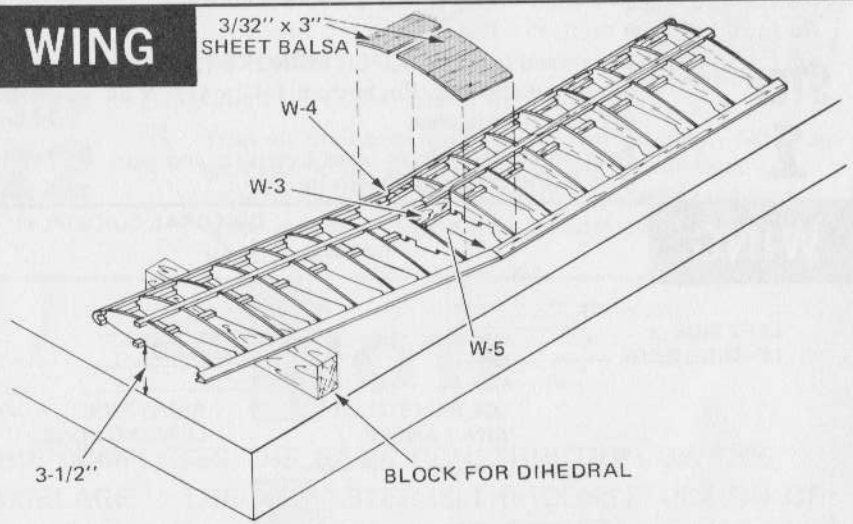
WING



STEP 3

- ☐ Glue the shaped leading and trailing edges in place. The bottom of the cut end of the leading and trailing edges should be lined up with the centerline on the plans.
- ☐ Glue top 1/4" x 1/2" x 24" spar in place. Don't worry about lining up the spar ends.
- ☐ Glue one W-4(PLY) and one W-5(PLY) to the leading edge and trailing edge as shown.
- ☐ Trim off the spars as shown in illustration.

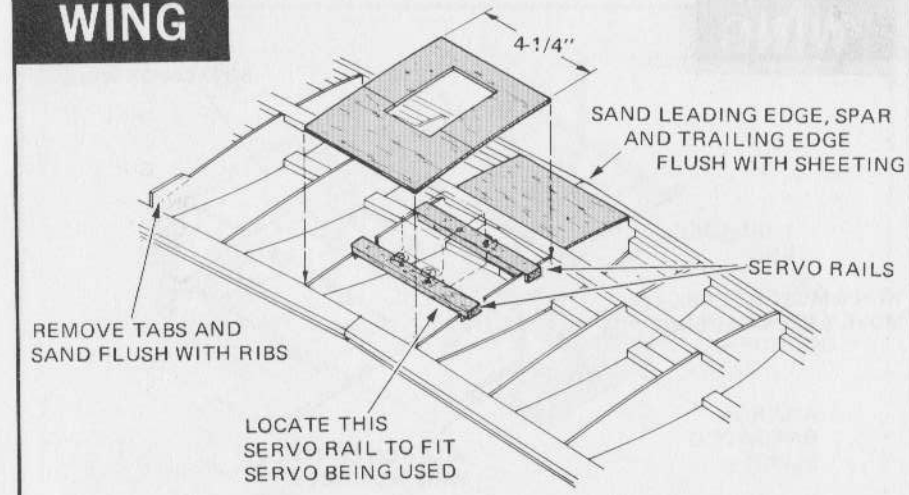
WING



STEP 4

- ☐ Block up completed left wing 3-1/2" at tip and complete the right wing panel in the same manner as the left panel.
- ☐ Glue in W-3 and the second W-4(PLY) and W-5(PLY) dihedral braces.
- ☐ Sheet and glue the top center section of the wing using 3/32" x 3" balsa sheets. Use three pieces.
- ☐ Allow to dry, and then turn the wing over.

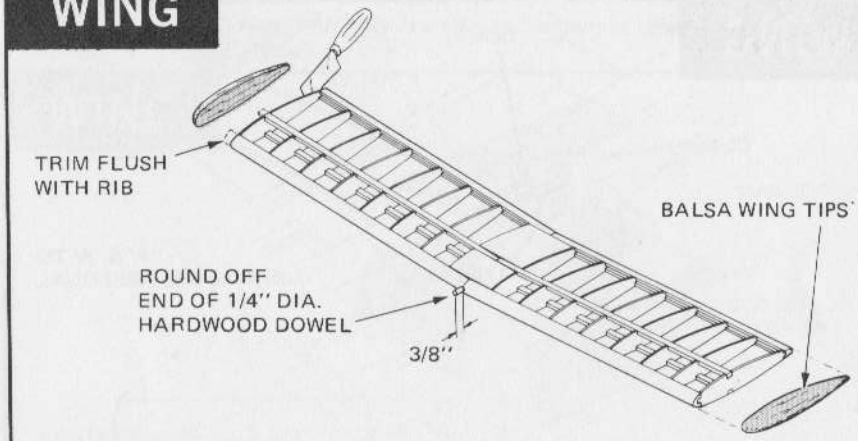
WING



STEP 5

- ☐ Using your servo as a guide for spacing, locate and glue the 1/4" x 1/2" hardwood servo rails in place.
- ☐ Glue two 4-1/4" long pieces of 3/32" sheet together. When dry, cut out opening for servo. Glue to bottom of wing.
- ☐ Sheet & glue the front bottom center section with 3/32" sheet.
- ☐ Remove the tabs from the bottom of the ribs.

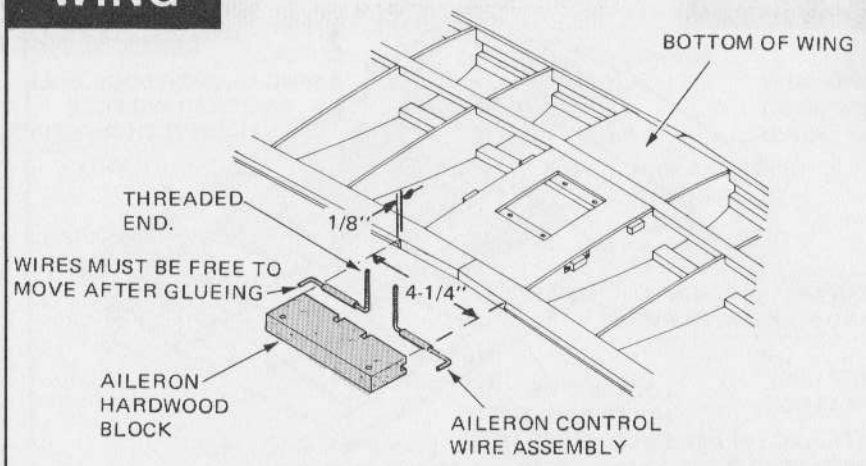
WING



STEP 6

- ☐ Trim leading edges, trailing edges and spars flush with the end rib on the left and right panels.
- ☐ Glue wing tips in place and, when dry, sand to cross section shape as shown on plans.
- ☐ Drill a 1/8" diameter pilot hole and then a 1/4" diameter hole in the center of the leading edge. Glue the hardwood dowel in the hole and round off end of dowel. Let 3/8" extend out from the leading edge as shown on the plans.

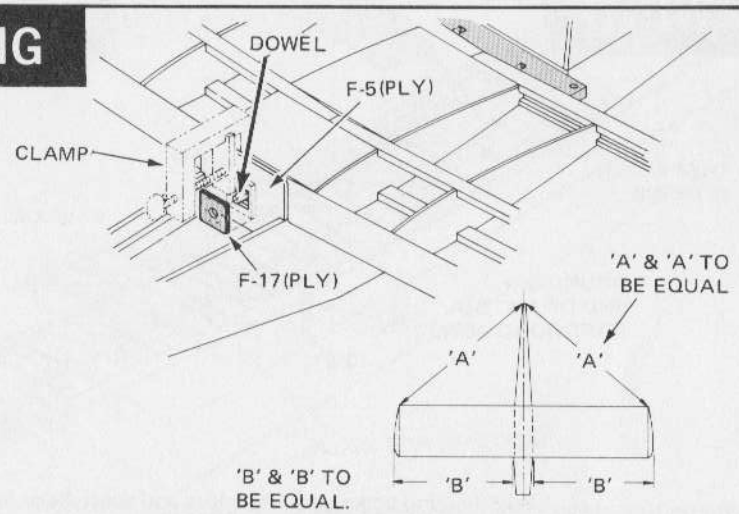
WING



STEP 7

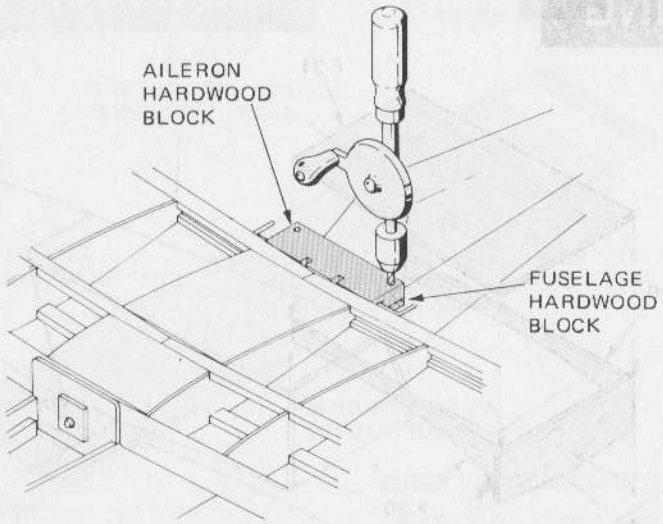
- ☐ Notch the trailing edge for the aileron hardwood block. The notch should be 1/8" deep and 4-1/4" long. Center the notch on the trailing edge of the wing as shown on the plans.
- ☐ Epoxy aileron control wire assemblies into the hardwood block. Make sure the bends in the wire are facing as shown in the illustration. Glue only the tube, making sure the wire is free to move. Make sure the wire assemblies are pushed all the way into the notch in the hardwood block.

WING



STEP 8

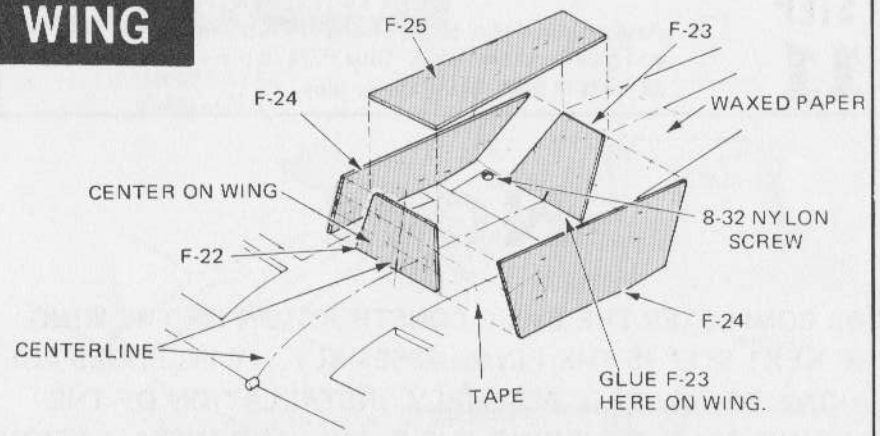
- ☐ Align the wing on the fuselage. Center it as shown in the diagram and pin it in place.
- ☐ Glue F-17(PLY) to F-5(PLY). Be careful not to glue to the wing dowel. Clamp F-17(PLY) in place until glue is dry.
- ☐ Glue hardwood block into notch in the wing. Make sure the wires are as shown in step 7.



STEP 9

- ☐ With wing still in place, drill a 1/8" diameter hole in the fuselage hardwood block, using the aileron hardwood block as a drill guide. Drill holes on both sides of the block.
- ☐ Remove the wing. Tap the holes in the fuselage hardwood block with the 8-32 tapping screw provided.
- ☐ Now drill only the aileron hardwood block holes to 11/64" diameter.

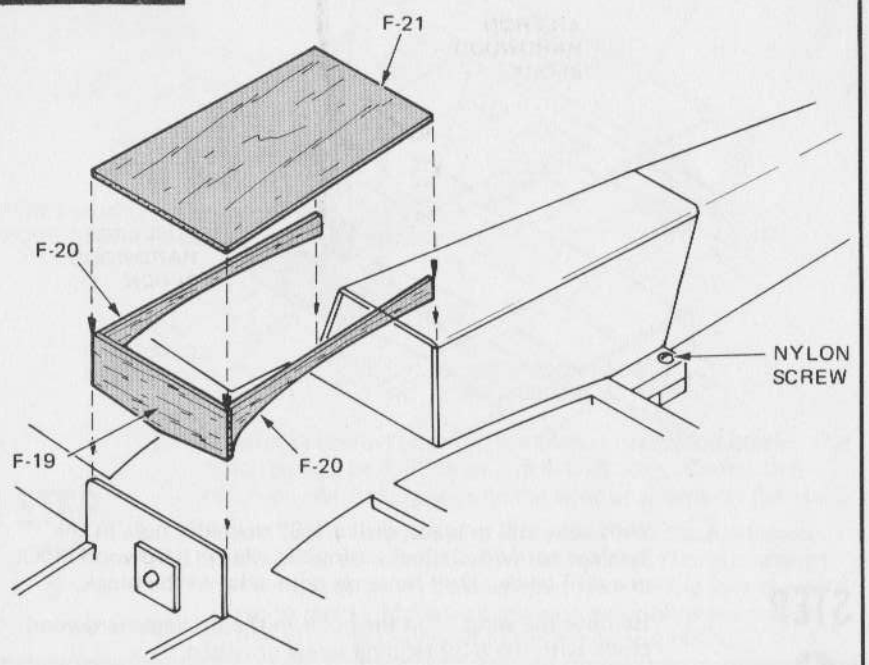
WING



STEP 10

- ☐ Replace wing and screw it in place using 8-32 nylon screws. Glue F-23 in place, centered on the wing. Glue the two F-24's to F-23. Glue F-22 to inside of both F-24's, and glue the whole assembly to the wing. Make sure F-22 is also centered on the wing.
- ☐ Glue F-25 in place as shown. Hold all pieces in place with tape and pins.

WING



STEP 11

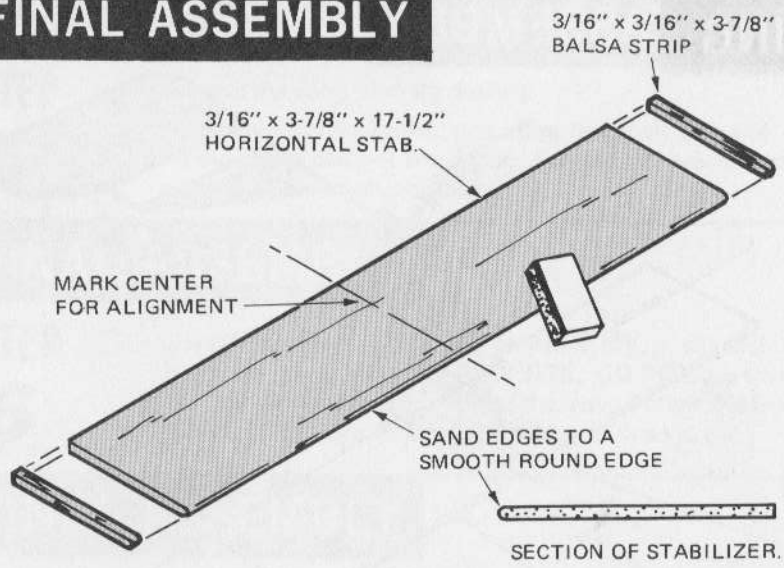
☐ Assemble and glue together pieces F-19 and F-20 as shown and glue to top of wing. Glue F-21 in place as shown. Hold all parts in place with tape or pins.

NOTE

THIS COMPLETES THE BASIC CONSTRUCTION OF THE WING. THE NEXT STEP IS THE FINAL ASSEMBLY. IT INCLUDES THE MAKING OF THE TAIL ASSEMBLY, INSTALLATION OF THE LANDING GEAR, COVERING THE PLANE, AND INSTALLATION OF THE RADIO EQUIPMENT.

THE PLANS CAN BE REMOVED FROM THE TABLE AND TACKED UP ON A WALL NEAR THE WORK BENCH. NOW IS A GOOD TIME TO CLEAN UP THE WORK AREA, GET RID OF THE BALSA SCRAPS AND STRAIGHTEN THINGS UP IN GENERAL.

FINAL ASSEMBLY

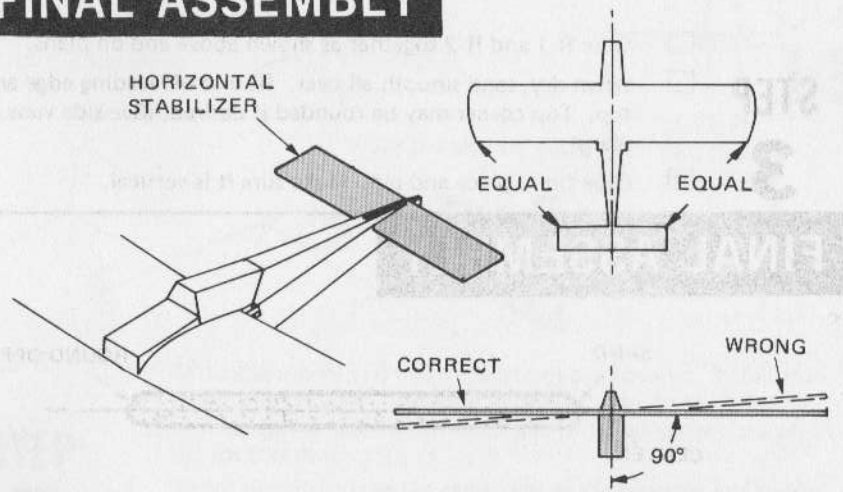


STEP 1

☐ Glue 3/16" x 3/16" x 3-7/8" balsa strips to each end of the horizontal stabilizer. (These are to reduce warpage)

☐ When dry, sand smooth allover. Round off the leading edge on each side. Refer to the side view of the fuselage on the plans and the sections shown. Mark a centerline on the stab.

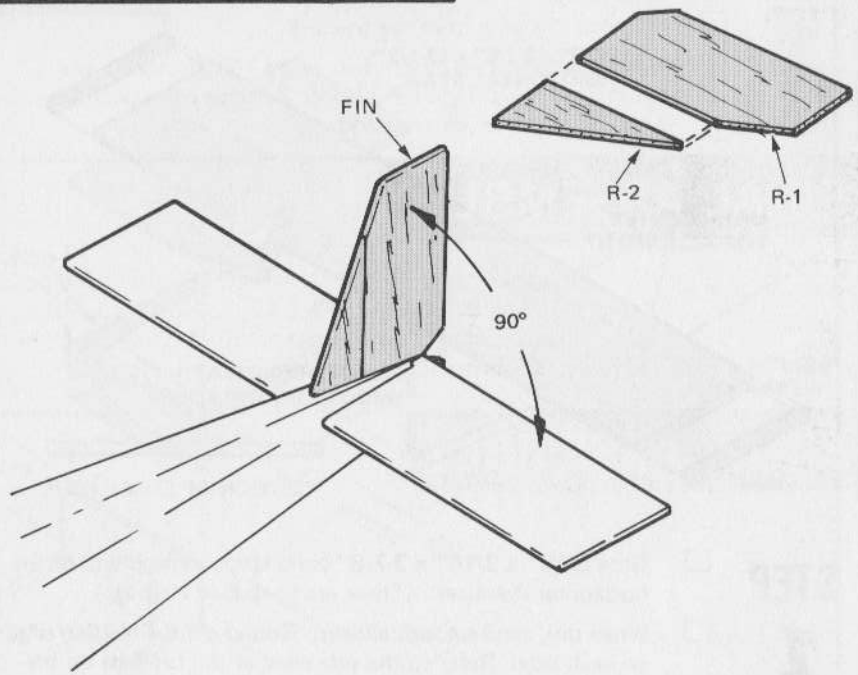
FINAL ASSEMBLY



STEP 2

☐ Glue the horizontal stabilizer to the top rear of the fuselage. make sure it is squared up with the fuselage and the wing.

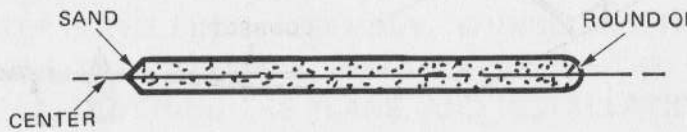
FINAL ASSEMBLY



STEP 3

- ☐ Glue R-1 and R-2 together as shown above and on plans.
- ☐ When dry, sand smooth all over. Round off leading edge and top. Top corner may be rounded if desired. (See side view of plans).
- ☐ Glue fin in place and pin. Make sure it is vertical.

FINAL ASSEMBLY



STEP 4

- ☐ Sand 'V' section on rudder and elevator (not fin or stabilizer) to allow for control movement. See side view of fuselage on the plans.

FINAL ASSEMBLY

STEP 5

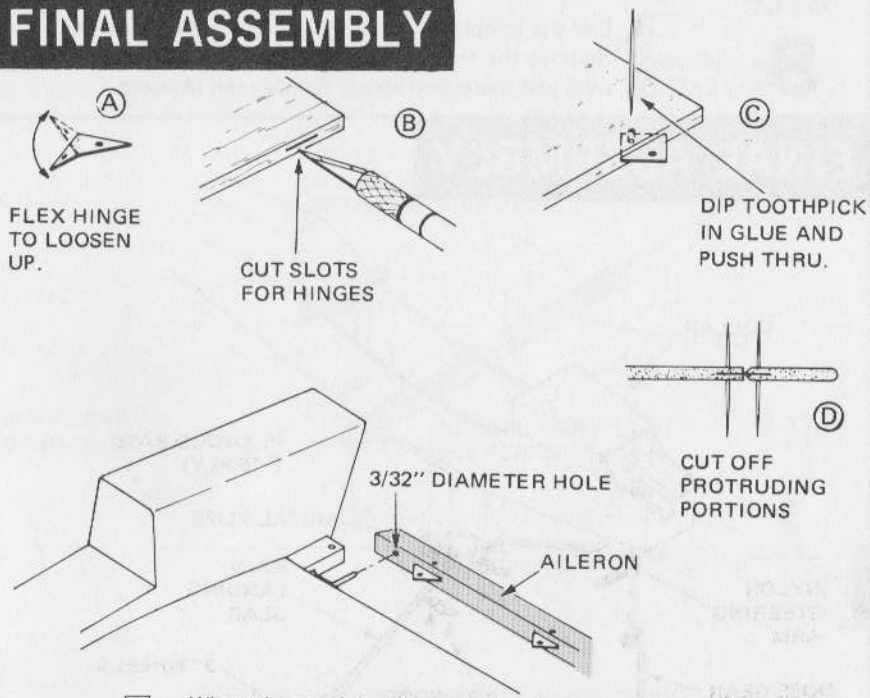
- ☐ Remove the wing from the fuselage.
- ☐ Sand down entire airplane, first using 180, then 220, and finishing with 400 grit sandpaper. Remove balsa dust from the airplane with a brush or a cloth.

FINAL ASSEMBLY

STEP 6

- ☐ Cover the model using SUPER MONOKOTE, or silk and dope. If you are using SUPER MONOKOTE, DO NOT dope wood as it will bubble from the heat of the iron. Follow the SUPER MONOKOTE instructions furnished with this kit.

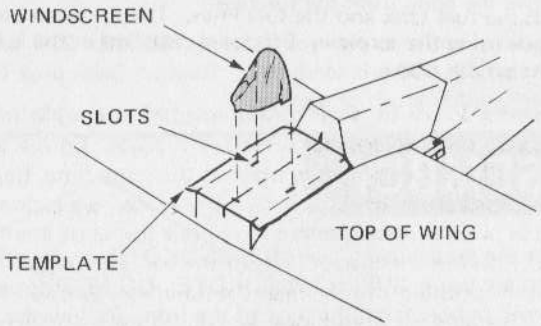
FINAL ASSEMBLY



STEP 7

- ☐ When the model and control surfaces are covered, Install the elevator and rudder, hingeing in order shown in the illustrations above. Carefully cut off the protruding portions of the toothpicks.
- ☐ Install the ailerons in the same way as the elevator and rudder, but first drill a 3/32" diameter hole for the aileron control wire. Force epoxy into the hole with the wire.
- ☐ Install the control horns on the elevator and rudder. See the plans for location and position.

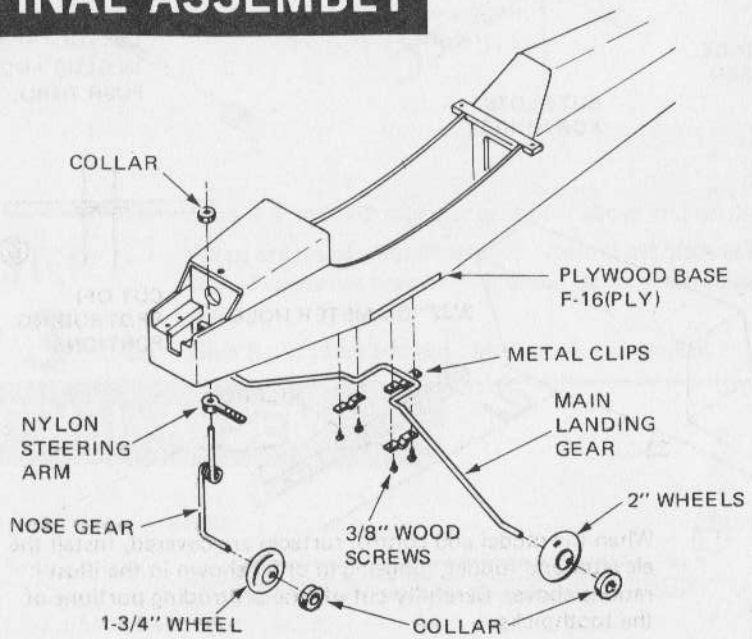
FINAL ASSEMBLY



STEP 8

- ☐ Cut windscreen slot location template from the plans.
- ☐ Lay the template on the wing as shown and cut slots. Remove the template. Insert the windscreen tabs in the slots just made and epoxy windscreen in place.

FINAL ASSEMBLY



STEP 9

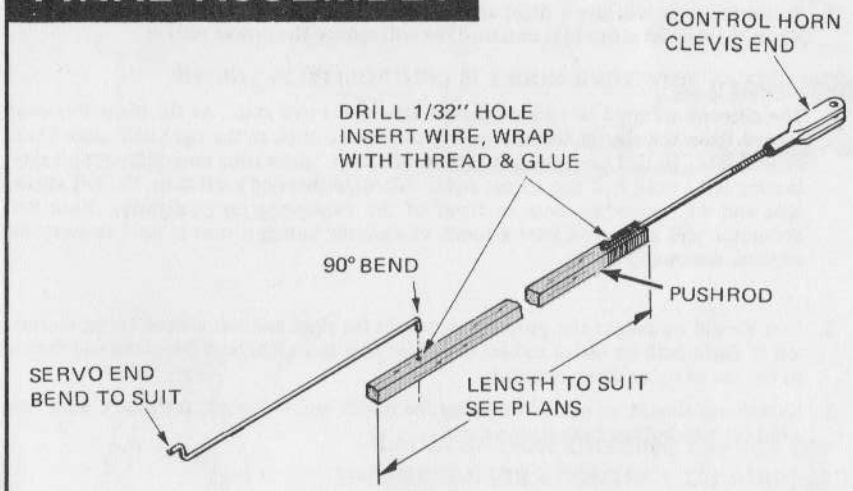
- ☐ Install the main landing gear using the clips and wood screws furnished with the kit. Then install the wheels and the wheel collars. Place the steering arm on the nose gear as shown. Insert this assembly thru the nose gear bearings on the fuselage. Install collar on the end of the nose gear.

FINAL ASSEMBLY

STEP 10

- ☐ Install the fuel tank and the fuel lines. The tank can be held in place using the screw eyes (hooks) supplied in the kit, as shown on the plans.
- ☐ Using your servos (or their measurements) as a guide, locate and epoxy the fuselage rear servo rail in place. Epoxy supports F-18(PLY)(see plans) in place at the same time. Because of the wide variety of radio systems available, we cannot possibly provide installation instructions for all of them. In all cases, follow the instructions of the radio manufacturer. Whenever possible, use the manufacturer's servo tray. A typical installation would look like that shown on the plans. Install the nose gear, steering and throttle push rods.

FINAL ASSEMBLY



STEP 11

- ☐ With the radio receiver and the servos installed, make up the elevator and rudder push rods. Use illustrations above. See plans for length.
- ☐ Insert the push rods (clevis end first) thru the hole in fuselage former F-6(PLY). Insert each pushrod thru it's hole in the fuselage at the rear. Connect the clevis to the nylon control horn and locate where the bend should be at the servo end. Remove the pushrod, make the bend with pliers, and cut off the excess wire. Re-install the pushrod and center the control surfaces by adjusting the clevises. (See plans)

FLYING

PREPARATION FOR, AND FLIGHT OF YOUR MODEL

The flight stability of the TOP FLITE 'FRESHMAN' as it is designed is excellent and you should have many hours of flying provided you have built the model correctly and follow these guidelines.

1. Make certain that the model balances correctly; the balance point (center of gravity) is as shown on the plans.
2. Before attempting a first flight, have an experienced R/C pilot go over your entire model, checking out all aspects of your building and installation of R/C equipment.
3. He should then "trim" out the airplane in its first flight. Every airplane differs slightly because of such things as a heavy wing tip, some slight warp in the wing or some slight twist in the fuselage. Every transmitter has "trim levers" so that compensation can be made as the initial flight is taking place.
4. An experienced R/C pilot will steer the model on the ground by controlling the nose wheel and rudder which are linked together. Upon take-off, he will slowly advance the throttle and steer using the rudder-nose gear control. At the proper point of acceleration, he will give a slight amount of up elevator and the plane will lift off. When the desired altitude is obtained, he will reduce the power setting.

HOW YOUR MODEL IS CONTROLLED IN THE AIR

1. The ailerons are used to control the airplane in its roll axis. As the plane flys away viewed from the rear in the air, moving the aileron stick to the right will cause a turn to the right. In this turn, the left aileron will drop, generating more lift on that side, causing it to bank and rise to the right. When performing a left turn, the left aileron rises and will cause the nose or front of the airplane to drop slightly. Your R/C instructor will show you how a touch of elevator during a turn is used to keep the airplane reasonably level.
2. You should be taught the proper procedures for right and left aileron turns, correction of flight path by use of rudder or rudder trim as well as how the plane will respond to the use of up or down elevator.
3. Experience should be gained in flying the model into the wind (upwind), with the wind (downwind) and at varying speed.

FINAL COMMENTS

The thrill of flying radio controlled models is, we believe, incomparable. It does, however, take a great deal of experience and practice. Just how much will vary from person to person, but persistence and patience are necessary.

Be certain that you learn not only to fly an airplane, but, most importantly, how to fly it safely. That means making certain that no one else is operating a model on your frequency (and that you never turn on your transmitter while another is operating); learning the rules of flying in terms of "right-of-way" for taking off and landing as well as handling emergency situations in flying.

Never operate your model alone until you are thoroughly familiar with your plane, its controls and flying characteristics. Do not fly where your model could injure any person or property; do not fly over the heads of spectators or persons in the area of your flying field.

Remember that if your model goes out of control it may do serious injury or damage to others. "SAFETY FIRST" is more than a slogan when operating any radio controlled model. Keep in mind that you are responsible for the operation of your model.

The enjoyment that comes from flying your radio controlled model depends first and foremost upon safe flying by a competent pilot.

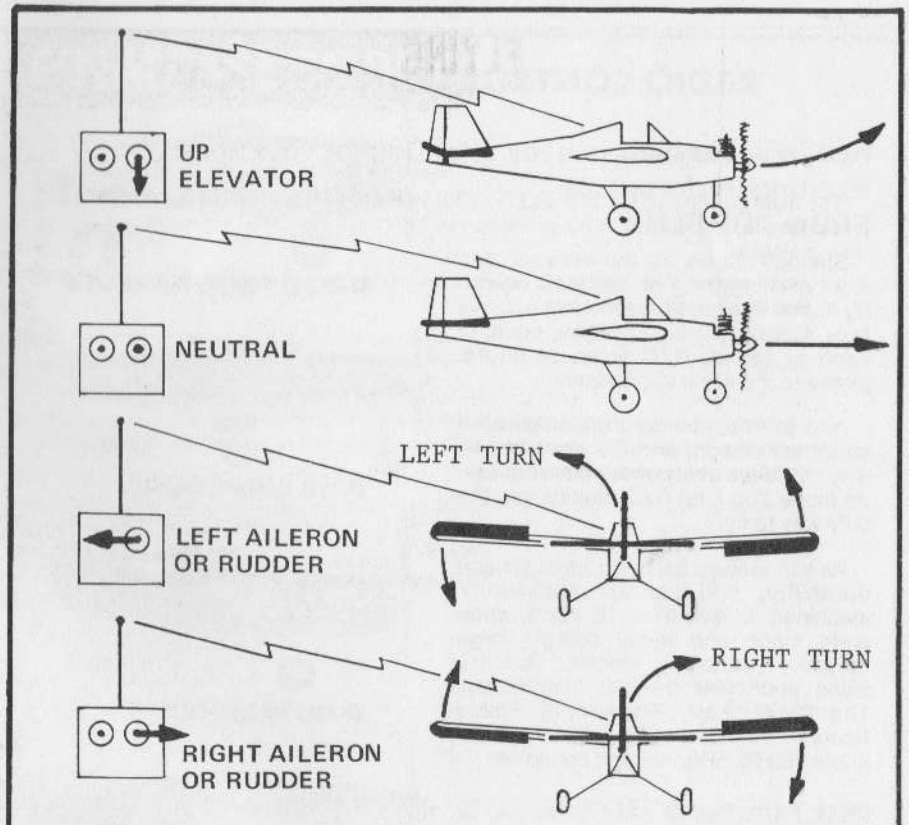


ILLUSTRATION SHOWING EFFECT OF TRANSMITTER CONTROL ON AIRPLANE

FOR MORE DETAILED INFORMATION, REFER TO YOUR RADIO MANUFACTURER'S INSTRUCTIONS.

We also suggest you read R/C MODELERS MAGAZINE'S FLIGHT TRAINING COURSE by Don Dewey.

Also the book BASICS OF RADIO CONTROL MODELING by Fred M. Marks and William Winter.