F4U CORSAIR

GOLD EDITION™

WARRANTY..... Top Flite Models guarantees this kit to be free of defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Top Flite's liability exceed the original cost of the purchased kit. Further, Top Flite reserves the right to change or modify this warranty without notice.

In that Top Flite has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability.

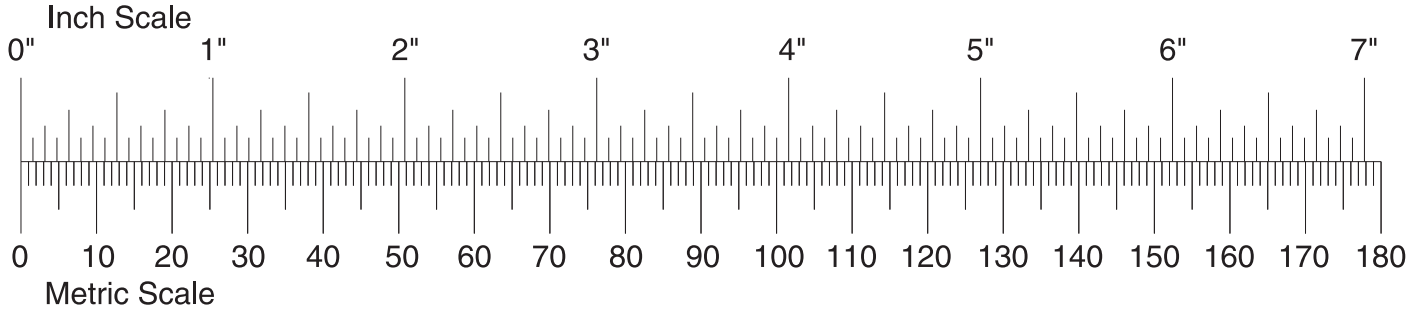
If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to immediately return this kit in new and unused condition to the place of purchase.

TOP FLITE®

Top Flite Models
P.O. Box 788
Urbana, Il 61803

Technical Assistance - Call (217) 398-8970
www.top-flite.com

READ THROUGH THIS INSTRUCTION BOOK FIRST. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.



PROTECT YOUR MODEL, YOURSELF & OTHERS – FOLLOW THIS IMPORTANT SAFETY PRECAUTION

Your Top Flite F4U Corsair is not a toy, but rather a sophisticated, working model that functions very much like an actual airplane.

Because of its performance, the Corsair, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage property.

To make your R/C modeling experience totally enjoyable, we recommend that you get experienced, knowledgeable help with assembly and during your first flights. You'll learn faster and avoid risking your model before you're truly ready to solo. Your local hobby shop has information about flying clubs in your area whose membership includes qualified instructors.

You can also contact the national Academy of Model Aeronautics (AMA), which has more than 2,500 chartered clubs across the country. Through any one of them, instructor training programs and insured newcomer training are available.

Contact the AMA at the address or toll-free phone number below:

AMA
SINCE 1936

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Telephone: (800) 435-9262
Fax: (317) 741-0057

INTRODUCTION

Thank you for purchasing the Top Flite GOLD EDITION Corsair.

The Top Flite F4U Corsair is a sport scale model of the Chance Vought F4U Corsair. This kit may be built as a sport model for sport flying or detailed out for sport scale competition. Either way, the model possesses a very good scale outline.

The decals in the kit (and shown on the box cover) duplicate a Korean war vintage F4U-4 Corsair which lends itself well to a MonoKote® covering. Most other types of the Corsair line, such as the F4U-1A, may be built from this kit with minor modifications.

Several color photo sets and 3-view drawings suitable for sport scale documentation are available from:

Scale Model Research
3114 Yukon Ave.
Costa Mesa, CA 92626
(714) 979-8058

The Top Flite Corsair is designed to fly as good as it looks. The outer wing panels have jig tabs that automatically build in approx. 1-1/4 degrees of washout to prevent tip stalling. The computer-designed, interlocking structure allows you to build a straight and true model that will fly great.

This model aircraft is not for beginners. The Top Flite Corsair has excellent flight characteristics and is very maneuverable, but it is quite fast and does not have the required stability and self recovery characteristics of a good R/C trainer. A pilot should be confident flying a sport aircraft with ailerons before attempting to fly the Corsair.

Please inspect all parts carefully before starting to build! If any parts are missing, broken or defective, or if you have any questions about building or flying this model, please call us at (217) 398-8970 and we'll be glad to help. If you are calling for replacement parts, please look up the part numbers and the kit identification number (stamped on the end of the carton) and have them ready when calling.

PRECAUTIONS

1. You must build the plane according to the plan and instructions. Do not alter or modify the model, as doing so may result in an unsafe or unflyable model. In a few cases the plan and instructions may differ slightly from the photos. In those instances you should assume the plan and written instructions are correct.

2. You must take time to build straight, true and strong.

3. You must use a proper R/C radio that is in first class condition, the correct sized engine and correct components (fuel tank, wheels, etc.) throughout your building process.

4. You must properly install all R/C and other components so that the model operates properly on the ground and in the air.

5. You must test the operation of the model before the first and each successive flight to insure that all equipment is operating, and you must make certain that the model has remained structurally sound. Be sure to check external nylon clevises often. Replace any that show signs of wear.

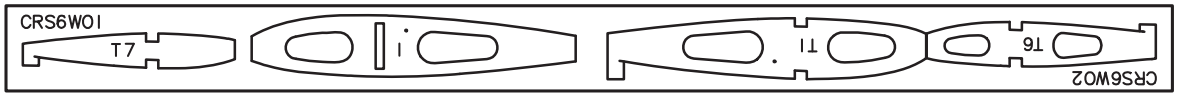
6. You must fly the model only with the competent help of a well experienced R/C pilot if you are not already an experienced R/C pilot at this time.

Remember: Take your time and follow directions to end up with a well-built model that is straight and true.

NOTE: We, as the kit manufacturer, can provide you with a top quality kit and great instructions, but ultimately the quality and flyability of your finished model depends on how you build it; therefore, we cannot in any way guarantee the performance of your completed model, and no representations are expressed or implied as to the performance or safety of your completed model.

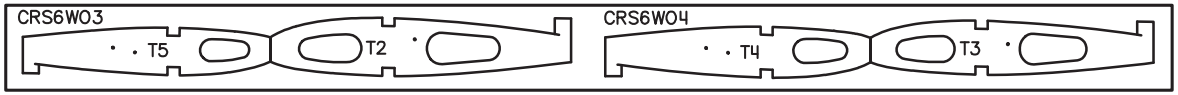
DIE-CUT PARTS

CRS6W01 — **2 PER KIT** — **CRS6W02**



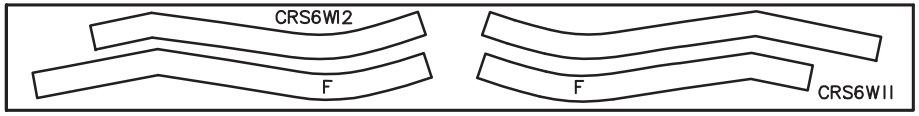
BALSA 3/32" X 3" X 36"

CRS6W03 — **2 PER KIT** — **CRS6W04**



BALSA 3/32" X 3" X 36"

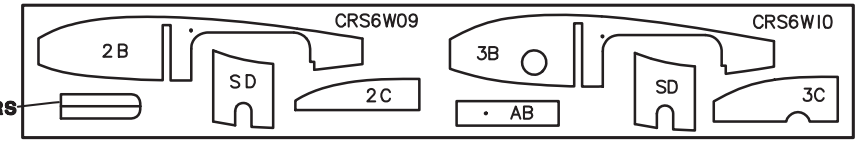
CRS6W012 — **1 PER KIT** — **CRS6W011**



BALSA 3/16" X 3-1/2" X 28-1/2"

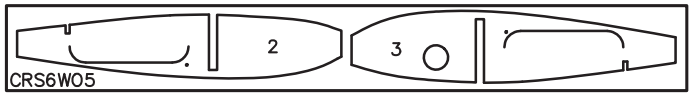
CRS6W09 — **2 PER KIT** — **CRS6W10**

SPAR JOINERS



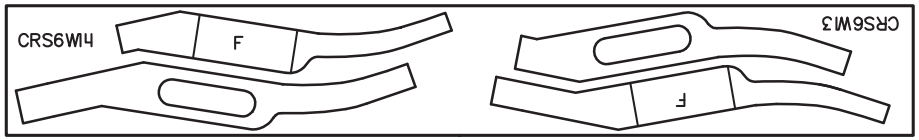
PLYWOOD 1/16" X 4-3/8" X 26"

CRS6W05 — **2 PER KIT**



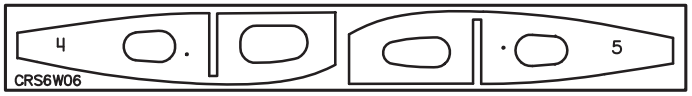
BALSA 3/32" X 2-5/8" X 21"

CRS6W013 — **1 PER KIT** — **CRS6W014**



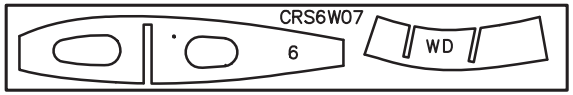
BALSA 3/16" X 4" X 28-1/2"

CRS6W06 — **2 PER KIT**



BALSA 1/8" X 2-5/8" X 21"

CRS6W07 — **2 PER KIT**



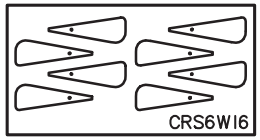
BALSA 1/8" X 2-5/8" X 18"

CRS6W15 — **2 PER KIT**

BALSA 3/16" X 2-5/8" X 11"

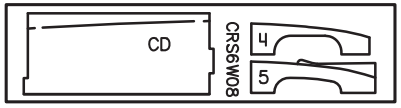
CRS6W16 — **1 PER KIT**

FLAP ENDS



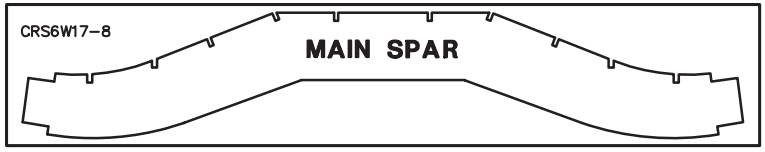
PLYWOOD 1/16" X 4" X 7-5/8"

CRS6W08 — **2 PER KIT**



BALSA 1/8" X 2-5/8" X 12"

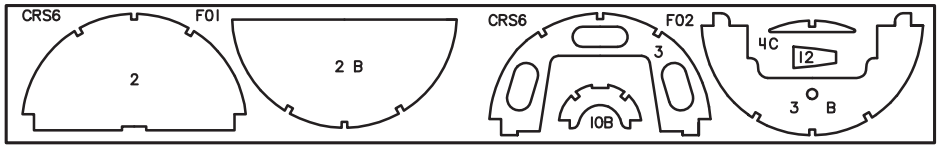
CRS6W17-18 — **2 (1/16")** — **1 (1/8")** — **PER KIT**



PLYWOOD 4-3/8" X 23-1/2"

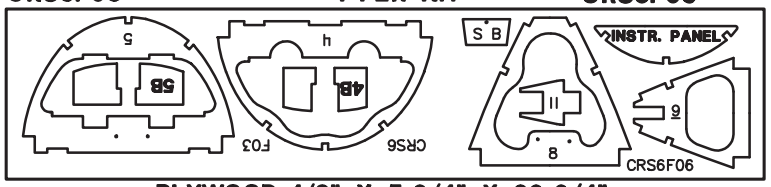
DIE-CUT PARTS

CRS6F01 1 PER KIT **CRS6F02**



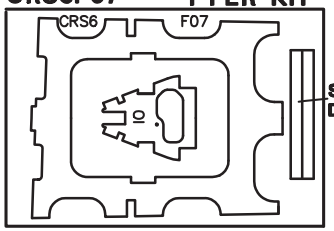
PLYWOOD 1/8" X 4-5/8" X 28-3/4"

CRS6F03 1 PER KIT **CRS6F06**



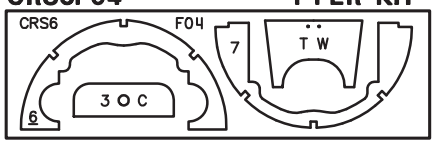
PLYWOOD 1/8" X 5-3/4" X 23-3/4"

CRS6F07 1 PER KIT



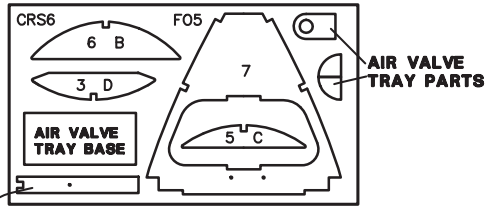
PLYWOOD 1/8" X 6-3/4" X 9"

CRS6F04 1 PER KIT



PLYWOOD 1/8" X 4" X 12-1/2"

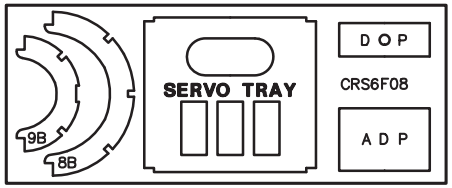
CRS6F05 1 PER KIT



PLYWOOD 1/8" X 5" X 9-7/8"

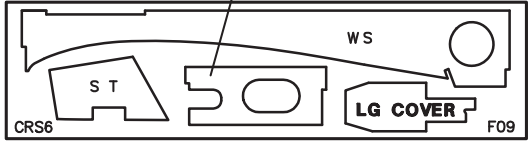
TAILWHEEL SUPPORT

CRS6F08 1 PER KIT



PLYWOOD 1/8" X 5-1/2" X 13-1/2"

CRS6F09 STAB BASE SUPPORTS 2 PER KIT



PLYWOOD 1/8" X 4-1/2" X 16-1/2"

CRS6S01 1 PER KIT

BALSA 1/16" X 3-1/2" X 21

CRS6S02 2 PER KIT

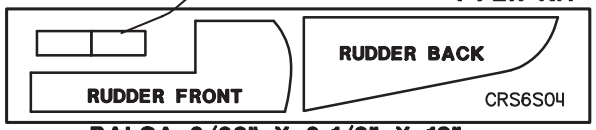
BALSA 1/16" X 2-5/8" X 24

CRS6S03 2 PER KIT

BALSA 1/16" X 2-5/8" X 24

FLAP RIBS

CRS6S04 ELEV BAL. TABS 1 PER KIT

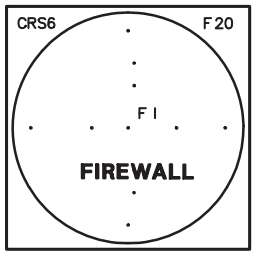


BALSA 3/32" X 3-1/2" X 18"

CRS6S05 1 PER KIT

BALSA 3/32" X 3-1/2" X 20"

CRS6F20 1 PER KIT



PLYWOOD 1/8" X 7-1/2" X 7-1/2"

DECISIONS YOU MUST MAKE EARLY IN THE BUILDING SEQUENCE

ENGINE AND MOUNT SELECTION

The recommended engine size range is as follows:
.60 to .90 cu. in. 2-stroke
.90 to 1.20 cu. in. 4-stroke

NOTE: The smaller engines in the range provide more than enough power to fly the Corsair well. Do not hesitate to use them.

The instructions show an OS® .61 2-stroke engine side mounted at a 45 degree inverted position. It also shows a Top Flite internal muffler (TOPQ7915). This power package works very well. Most .61 2-stroke engines will fit in the supplied EM60120 engine mount.

The instructions also show the installation of an OS 1.20 4-stroke engine. Even though it is shown mounted inverted, it could also be mounted upright or on its side; the decision is yours. Flexible exhaust systems are available for most 4-stroke engines and there is more than enough room inside the Corsair's cowl to route the exhaust out the bottom. You would also have to change the cowl mounting. The engine is shown on the plans mounted to a JT-122 SV isolation mount which may no longer be available. The supplied EM60120 mount will fit the O.S. 1.20.

FULL COCKPIT (Optional)

You must decide before you build the fuselage if you will be adding the optional full cockpit kit (TOPQ8404) to your Corsair. If you are undecided, you should build it as though you are going to install it. That way you can add it at a later time should you want to.

FLAPS

You must decide early in the building process if you are going to use operating wing flaps. These are not required but do add to the Corsair's appearance and flyability. The flaps as described in this manual work very well, giving super stable slow flight with virtually no trim changes. Obviously there is some extra work and craftsmanship required to fit operating flaps to the model. If you use operating flaps, you will need to have (2) standard servos and small Robart hinge points (ROBQ2508) available during construction.

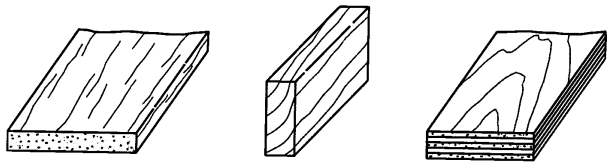
RETRACTS

You will need to decide early whether you intend to use retractable landing gear in your Corsair. Robart 100 degree rotating retracts (ROBQ1815) were used in the prototypes and the rib spacing and mounts in the kit are designed to accept them. Century Jet Models 90 degree rotating retracts (CJMQ3055) will also work as well. Other retracts have not been tested.

COMMON ABBREVIATIONS USED IN THIS BOOK AND ON THE PLANS:

Deg.	=	Degrees	Ply	=	Plywood
Elev	=	Elevator	Rt	=	Right
Fuse	=	Fuselage	Stab	=	Stabilizer
LE	=	Leading Edge (front)	TE	=	Trailing Edge (rear)
LG	=	Landing Gear	"	=	Inches
Lt	=	Left	Tri	=	Triangle

TYPES OF WOOD



Balsa **Basswood** **Plywood**

SUPPLIES AND TOOLS NEEDED

- ❑ 2 oz. Thin CA Adhesive (GPMR6003)
- ❑ 2 oz. Medium or Thick CA (GPMR6009)
- ❑ 6-Minute Epoxy (GPMR6045)
- ❑ 30-Minute Epoxy (GPMR6047)
- ❑ Hand or Electric Drill
- ❑ Drill Bits: 1/16", 3/32", 1/8", 5/32", 3/16", 13/64", 7/32", 1/4", and 5/16"
- ❑ Soldering Iron & Silver Solder
- ❑ Sealing Iron (TOPR2100)
- ❑ Heat Gun (TOPR2000)
- ❑ Hobby Saw (Razor Saw)
- ❑ Hobby Knife, #11 Blades
- ❑ Plier
- ❑ Screwdrivers (Phillips & Flat Head)
- ❑ T-Pins (HCAR5150)
- ❑ Straightedge
- ❑ Short Ruler
- ❑ Masking Tape (required for construction)
- ❑ Sandpaper (coarse, medium, fine grit)*
- ❑ Bar Sanders (see below)
- ❑ Waxed Paper
- ❑ Lightweight Balsa Filler (HCAR3401)
- ❑ 1/4-20 & 8-32 Tap, (GPMR8105) (GPMR8103)
- ❑ Tap Wrench
- ❑ Isopropyl Rubbing Alcohol (70%)
- ❑ Rotary tool (Dremel®) or similar (optional)

On our workbench, we have four 11" **Great Planes® Easy-Touch™ Bar Sanders**, equipped with #50, #80, #150 and #220-grit sandpaper. This setup is all that is required for almost any sanding task. Custom sanding blocks can be made from balsa for sanding hard to reach spots. We also keep some #320-grit wet-or-dry sandpaper handy for finish sanding before covering. Great Planes **Easy-Touch Bar**

OTHER ITEMS REQUIRED

- ❑ Four-Channel Radio with 4 servos (additional channels and servos required if retracts and/or flaps are used).
- ❑ Top Flite Power Point® Propellers (see engine instructions for recommended sizes)
- ❑ Prop Safety Nut (Great Planes has sizes and styles that work nicely)
- ❑ 12 oz Fuel Tank (DUBQ0212)
- ❑ 5/32" Wheel Collars - 4 (GPMQ4306)
- ❑ 3/32" Wheel Collars - 2 (GPMQ4302)
- ❑ Top Flite MonoKote Covering Material (Insignia Blue and Yellow)
- ❑ Fuelproof Paint* for Cowl, Canopy and Oil Coolers (Top Flite LustreKote™ recommended)
- ❑ Latex Foam Rubber Padding, 1/4" thick (HCAQ1000)
- ❑ Silicone Fuel Tubing (GPMQ4131)
- ❑ Plastic Pilot: Williams Bros. Standard, 2" Scale #17600 (WBRQ1050)
- ❑ Main Gear Retracts (optional)...Robart #615 (ROBQ1815) Century Jet 33325 - complete kit (CJMQ3055)
- ❑ Air Control Kit (optional retracts)...Robart #188VRX (ROBQ2307) (Not required with CJ 33325)
- ❑ Oleo Robo Struts (optional)...Robart #650 (ROBQ1700) (Not required with CJ 33325)
- ❑ Hinge Points (optional flaps)...Robart #308 (ROBQ2508)
- ❑ 3-1/4" Main Wheels...Robart #134 (ROBQ1534)
- ❑ 1-1/4 Tail Wheel (GPMQ4242)
- ❑ .60 to .80 2-stroke, .90 to 1.20 4-stroke

NOTE: Top Flite "LustreKote Paint" matches MonoKote covering and is available in aerosol cans.

Sanders are made from lightweight extruded aluminum and can be found at most hobby shops. They are available in three sizes – 5-1/2" (GPMR6169) – 11" (GPMR6170) for most general purpose sanding and 22" (GPMR6172) for long surfaces such as wing leading edges. We recommend using the 2" wide self-adhesive sandpaper sold in 12' rolls by Great Planes. Standard sandpaper can be attached by gluing it to the sander with brush-on rubber cement. Apply the rubber cement to both the bottom of the sander and the back of the sandpaper. When both surfaces are dry to the touch, press the sandpaper firmly onto the sander. Spray adhesive can be used for this purpose but it's much harder to remove the sandpaper when you need to replace it. Use a knife blade for cutting sandpaper, not your good scissors!

GET READY TO BUILD

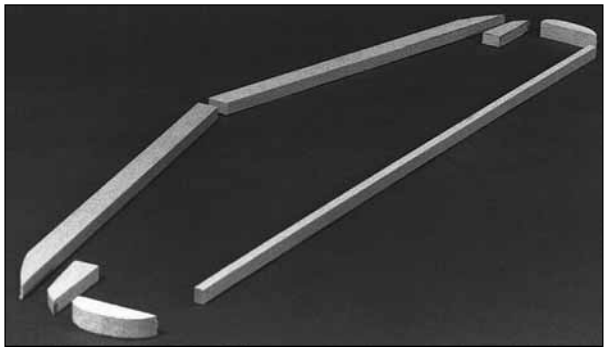
❑ 1. Unroll the plan sheets. Reroll the plan sheets inside out to make them lie flat.

❑ 2. Remove all parts from the box. As you do, determine the name of each part by comparing it with the plan. Using a felt-tip pen, write the part name or size on each piece to avoid confusion later. Use the die-cut patterns shown on pages 4 and 5 to identify the die-cut parts and mark them before punching out. Save all scraps. If any of the die-cut parts are difficult to punch out, do not force them! Instead, first cut around the parts with a hobby knife. After punching out the die-cut parts, use your bar sander or sanding block to lightly sand the edges to remove any die-cutting irregularities.

❑ 3. As you identify and mark the parts, separate them into groups, such as fuse (fuselage), wing, fin and stab (stabilizer), and hardware.

BUILD THE STAB

❑ 1. Arrange the **stab** portion of the plan on a flat building board (you may wish to cut out the stab section). Cover the area over the stab with waxed paper.

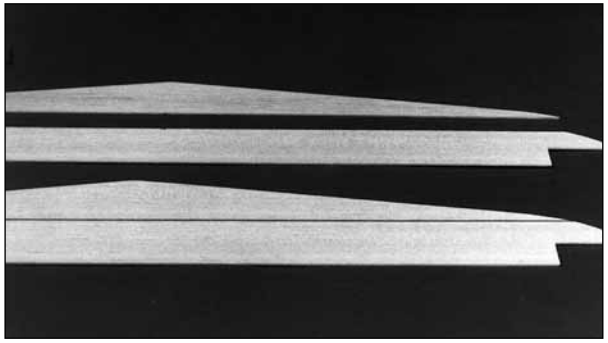


❑ 2. Cut the balsa 3/8" x 5/8" x 24" **LE stock** to fit nicely at the center joint. Save excess material for the fin LE. Trim the tip of the LE to the approximate shape on the plan but leave about 1/16" excess for final shaping later.

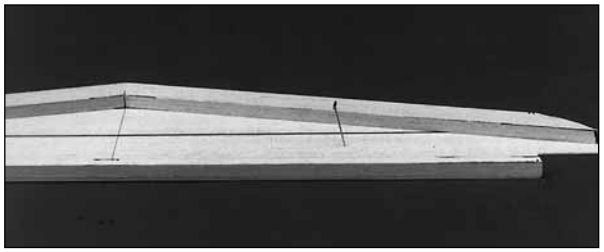
❑ 3. Cut the balsa 1/4" x 3/8" x 30" **TE stock** to the correct length. Extra material is kept for the Fin.

❑ 4. Cut the two **elevator tip blocks** from the 1/2" x 1/2" x 4" balsa stick provided. Shape the tips to match the plan shape.

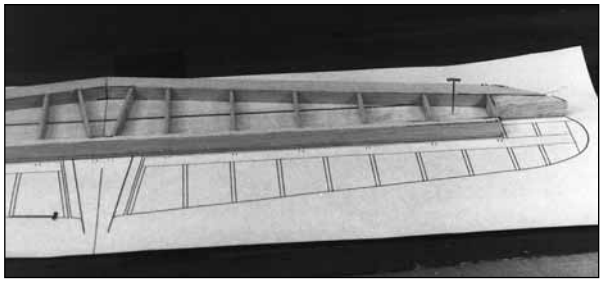
❑ 5. Make the **stab tips** from excess 3/8" x 5/8" LE stock. Set the previously made parts aside for now.



❑ 6. Make a top and bottom stab skin by placing the 1/16" die-cut balsa pieces, **stab front** and **stab back**, together over waxed paper and glue them together with thin CA. Block sand the skins lightly with 220-grit sandpaper.

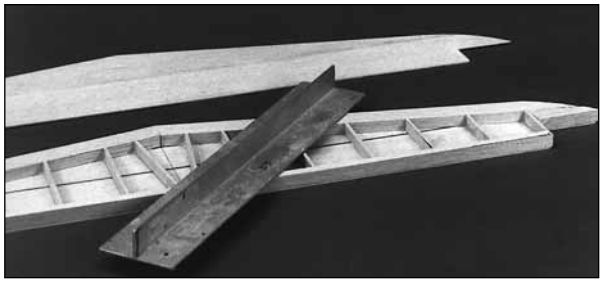


❑ 7. Pin the bottom skin to the stab plan. Draw tick marks for the rib spacing on the skin to match the plan. Glue the LE and TE pieces on top of the bottom skin.



❑ 8. Cut the **"ribs"** from two 3/32" x 3/8" x 24" balsa sticks. Align them with the "tick" marks and glue in place. Do not overlook the two angled pieces in the center over the fuse stab base.

❑ 9. Check the fit of the stab tips. Sand if necessary, then glue them in place.



❑ 10. Use a bar sander to flatten the top of the exposed structure. No parts should be left high or low. Check all glue joints and add glue to any that appear weak.

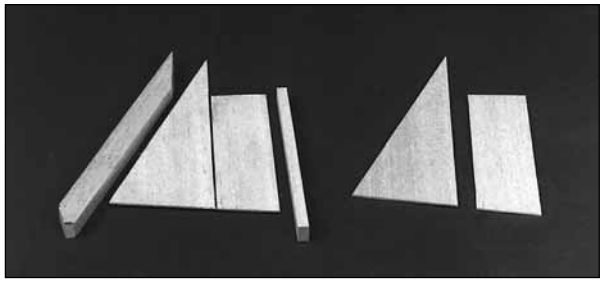
❑ 11. Glue on the top stab skin with medium or slow CA. Be sure to apply glue to **all** ribs as well as the LE and TE.

❑ 12. True the stab tips to match the die-cut stab skins.

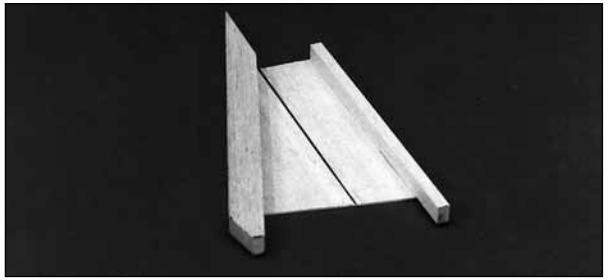
❑ 13. Draw a centerline around the stab to help you maintain symmetry during sanding. Rough shape the LE and the tips to the approximate cross section shown on the plan.

BUILD THE FIN

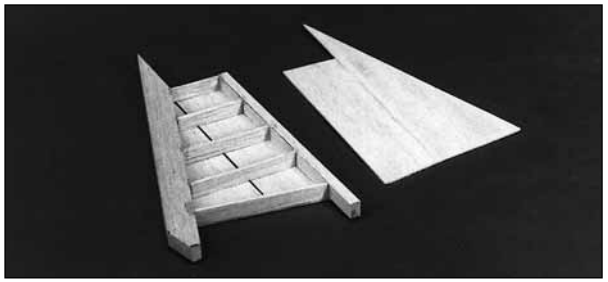
❑ 1. Trim the 3/8" x 5/8" **LE** and the 1/4" x 3/8" **TE** to match the plan. **Notice that they extend down into the formers.**



❑ 2. Make a left and a right fin skin by placing the die-cut 1/16" balsa **fin front** and **fin back** together over waxed paper and applying thin CA to the joint. Block sand lightly.



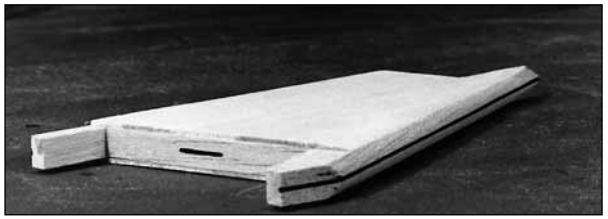
❑ 3. Pin the right skin to the plan. Glue the LE and TE on top of the skin.



❑ 4. Cut to length and glue in the 3/32" x 3/8" **"ribs"** where indicated on the plan.

❑ 5. Block sand the structure until it is flat.

❑ 6. Use medium CA to glue the left fin skin to **all** the ribs, the LE and the TE.



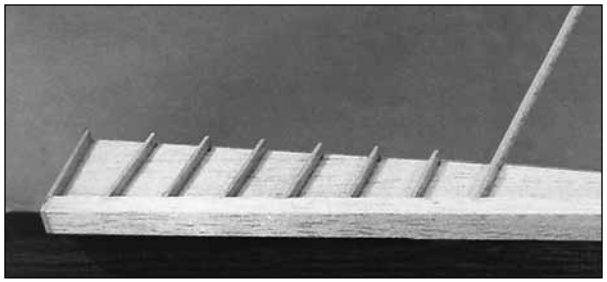
❑ 7. Draw a centerline around the fin to assist you in hinging and shaping. Shape the LE of the fin to match the cross section on the plan.

BUILD THE ELEVATORS

❑ 1. Place the 3/32" balsa die-cut **elevators** over the plan. Mark the locations of the **"ribs"** on **both** sides of **both** elevators.

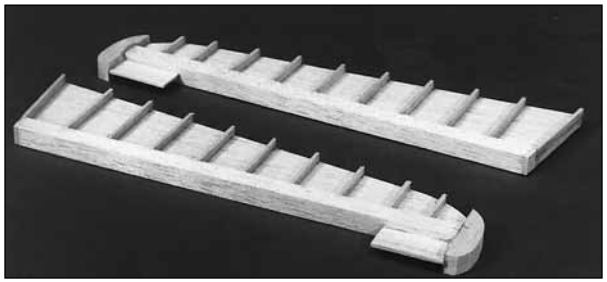
❑ 2. From the grooved 1/2" x 1/2" x 30" balsa **control surface LE**, cut two pieces to the length shown on the plan.

❑ 3. Slide the elevators into the slot in the control surface LE's. Glue with CA.



❑ 4. Hang the LE's over the edge of the table and glue the 3/32" x 1/4" "**ribs**" (made from 3/32" x 1/4" x 30" balsa) to the elevators at the locations marked earlier.

❑ 5. Flip the elevators over onto their other side and glue the "ribs" onto the second side.

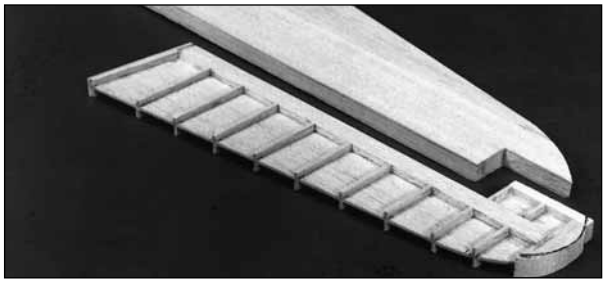


❑ 6. Center the 3/32" die-cut balsa **balance tabs** on the forward surfaces of the elevator LE's. Glue them in position as indicated by the plan.

❑ 7. Glue the elevator tip blocks (cut earlier) to the end of the elevators.

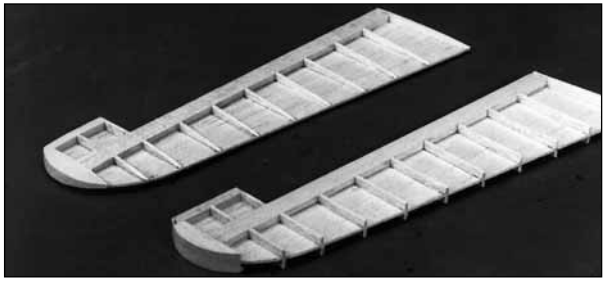
❑ 8. Cut 2" balsa **balance tab LE's** from 1/4" x 1/2" stock. Glue them to the front edge of the elevator as shown on the plan.

❑ 9. Cut balance tab **root cap strips** from leftover balsa 3/32" balsa. Glue them to the root end of the balance tabs as shown on the plan. Glue a rib to the balance tab (made from 3/32" x 1/4" x 30" balsa) between the tip and the root cap strip.



❑ 10. Make **doubler caps** for the root end of each elevator from leftover 1/8" balsa. Glue a cap to the root end of each elevator. Make four torque rod doublers (see plan for shape and location) from leftover 3/32" balsa. Glue them to both sides of the elevators in the locations shown on the plan.

❑ 11. Sand the tip of each elevator to match the outline on the plan.



❑ 12. Use a bar sander to sand the ribs to match the typical cross-section on the plan. **Note that there is some outward curvature to provide the scale ribbed appearance**.

❑ 13. Tape the elevators to the stab for blending and shaping.

❑ 14. Remove the elevators and shape the LE to a "V" as shown on the cross-section if you are using the standard hinging technique. (See the Hinging section and the plan sheets for alternatives.)

BUILD THE RUDDER

❑ 1. Trim the grooved 1/2" x 1/2" balsa **LE** (left over from the elevators) to the length shown on the plan. Cut the **balance tab LE** from the 1/4" x 1/2" stock.

❑ 2. Join the 3/32" die-cut balsa rudder pieces, **rudder front** and **rudder back** together with CA. Mark the "rib" locations on both sides of the rudder.

❑ 3. Glue the rudder sheet into the slot in the rudder LE.

❑ 4. Cut "**ribs**" from the 3/32" x 1/4" x 30" balsa sticks and glue them to both sides of the rudder.

❑ 5. Glue the 1/4" x 1/2" **balance tab LE** to the front edge of the rudder.

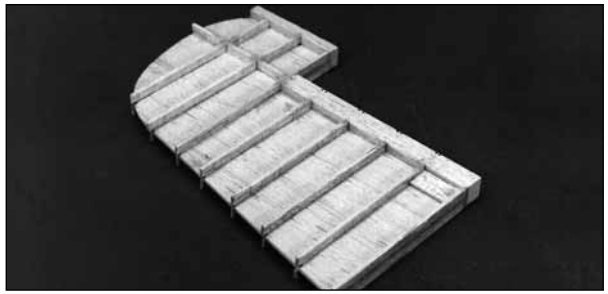


Photo for steps 1-6

❑ 6. Make **doublers** from leftover 3/32" sheet to reinforce the area where the torque rod protrudes into the rudder (see plan for location).

❑ 7. Shape the rudder to match the photos and the typical cross-section on the plan. Tape the rudder to the fin for shaping.

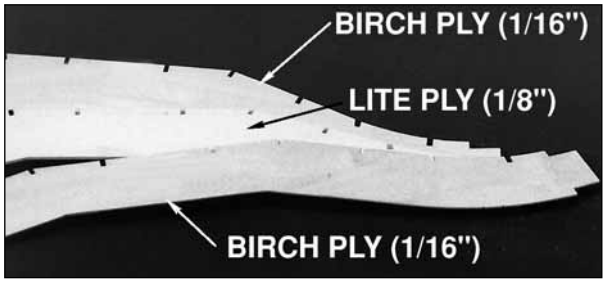
❑ 8. Shape the LE to a "V" as shown on the cross-section if you are using the standard hinging technique.

BUILD THE WING

WING CENTER SECTION

NOTE: The center section main spar is made of one die-cut 1/8" plywood piece sandwiched between two die-cut 1/16" birch plywood pieces.

NOTE: The wing root ribs are stamped only with a **number** (2 is R-2), the wing tip ribs are stamped with **T and a number** (T 4 is T-4).

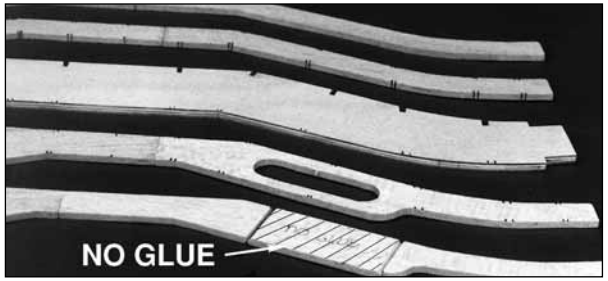


❑ 1. Lightly sand the surfaces of the three pieces that make up the main spar to make sure they will lie flat together for a good glue joint.

❑ 2. Make some short sticks from leftover 1/8" balsa to key the rib slots together and assure proper alignment during gluing. Test fit pieces.

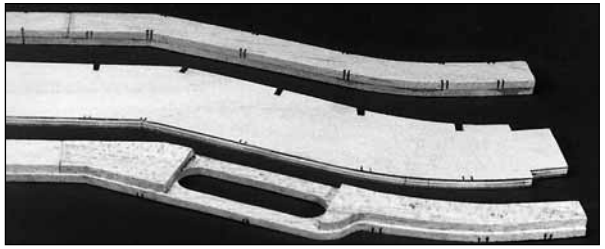
❑ 3. Use 30-minute epoxy to glue the spar pieces together. Use weights to hold them **flat** on the table while the glue cures. Apply thin CA on the edges of the spar, **especially to areas that do not appear to be well glued.**

❑ 4. Clean up the edges of the spar with sandpaper. If you will be installing retracts, you may want to cut any holes required for your retracts in the spar at this time. See the instructions that came with your retracts.



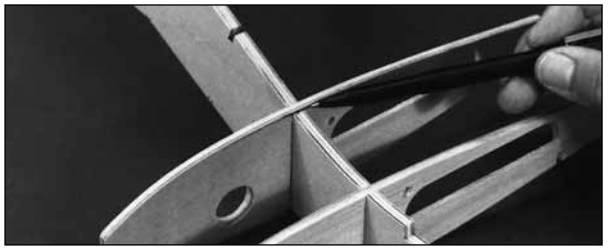
❑ 5. Join the die-cut 3/16" balsa **aft leading edge** pieces at the center over the template provided on the plan. Use the plan to mark the rib locations on the aft LE. Glue the die-cut 3/16" balsa **fwd leading edge** pieces to the aft leading edge. (Center the fwd leading edge on the aft leading edge as shown on the cross-sectional view.) **Refer to the photo - do not put glue where indicated.**

❑ 6. Join the die-cut 3/16" balsa **fwd trailing edge** pieces at the center over the template provided on the plan. Use the plan to mark the rib locations on the fwd TE. Glue the die-cut 3/16" balsa **aft trailing edge** pieces to the fwd trailing edge. (Center the aft trailing edge on the fwd trailing edge as shown on the cross-sectional view.)

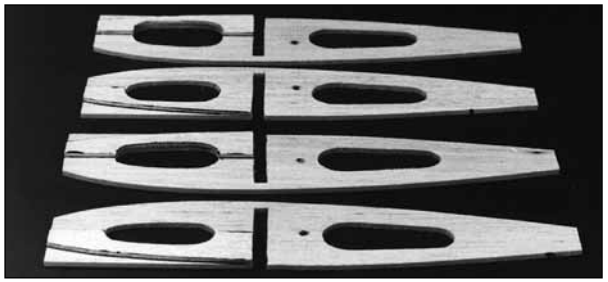


❑ 7. The hatched area of the forward LE which was not glued may be cut loose with a razor saw and removed after the glue has set on the rest of the part.

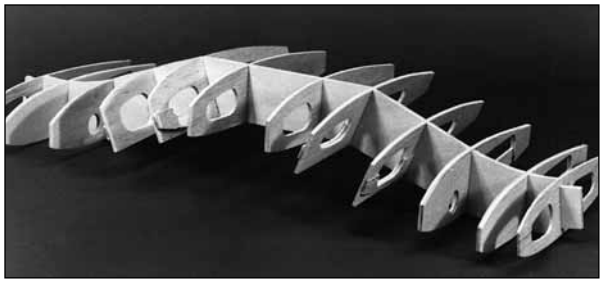
❑ 8. Drill 3/16" holes through all ribs and doublers that require them for aileron linkage routing. These holes are located by punch marks in the ribs just aft of the spar.



❑ 9. Glue the die-cut 1/16" plywood **R-2B rib doublers** to the die-cut 3/32" balsa **R-2 ribs**. Glue the plywood **R-3B rib doublers** to the balsa **R-3 ribs**. **Be sure to make a left and a right of each assembly**. Trial fit the R-3 assembly into the spar slot – you may find it necessary to bevel the plywood doubler along the top side a little for a smooth transition.

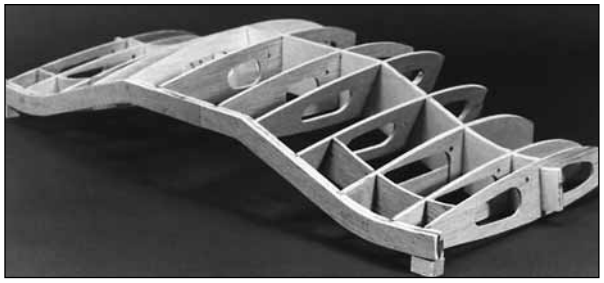


❑ 10. Glue the die-cut 1/8" balsa **R-4B sub ribs** to the die-cut 1/8" balsa **R-4 ribs**. Glue the **R-5B sub ribs** to the **R-5 ribs**. **Be sure to make a left and a right of each assembly**.



❏ 11. Plug the die-cut ribs **R-1** to **R-6** into the spar. Hold this assembly over the plan to make sure the ribs are perpendicular to the spar and not skewed. When you are satisfied that all ribs are fitting properly, lightly glue them in place with a drop of CA. You will glue all these joints thoroughly after the LE, TE and a few other parts are installed.

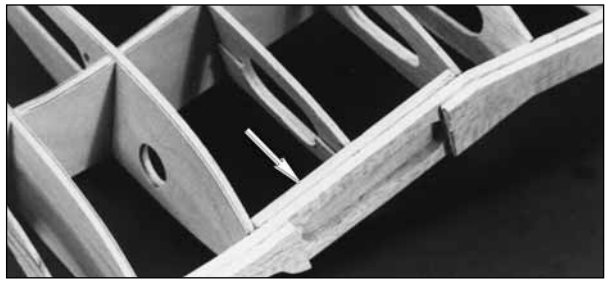
❏ 12. Make a couple of 1/2" tall balsa blocks to support the ends of the R-1's and prevent the center section from twisting. Tack glue these to the R-1's.



❏ 13. Slide the die-cut balsa **well doublers (WD)** into place - **do not glue yet**.

❏ 14. Glue the TE assembly in place. Check the center section on a flat table to be sure it is not twisted. Flex and reglue joints to take out any warps.

❏ 15. Align the LE assembly onto the front edge of the wing. Glue only to ribs R-1, R-2 and R-3.



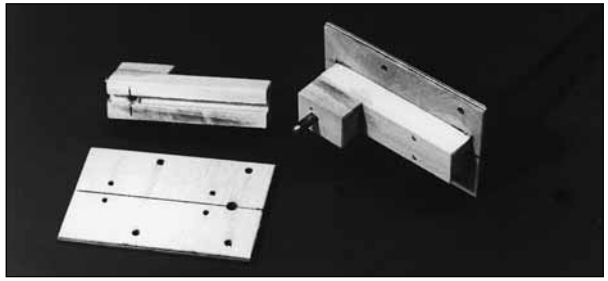
❏ 16. Glue the die-cut 3/16" balsa **LE triplers** in place between R-3 and R-5. Glue ribs R-4 and R-5 to the LE.

❏ 17. Glue both 1/8" die-cut plywood **dowel plates (DP and ADP)** in place as shown on plan. Glue the R-6's to the LE. Drill a hole through the LE of the wing through the hole in the forward dowel plate (DP). Start with a small drill and gradually increase the size to 5/16".

❏ 18. If you are using retracts, glue in the die-cut 1/16" plywood **spar doublers (SD)** on both sides of the spar using 30-minute epoxy. Cut a notch in the main spar to match the strut cutout in (SD). The notch will probably need to be deepened slightly during final retract fitting. **Keep this cut smoothly radiused to prevent the creation of a weak spot in the wing**. A small Dremel® drum sander is helpful here. See Page 42 for details on retract installation.

19. If you are using fixed landing gear, assemble both sets of fixed gear parts with 30-minute epoxy as follows:

❏ **A**. Drill the holes in the 1/8" x 1-13/16" x 3" **5-ply plates** using the pattern on the wing plan.



❏ **B**. Glue each basswood 7/16" x 5/8" x 7/8" **landing gear retainer block to a grooved bass landing gear mount**.

❏ **C**. Refering to the drawing on the wing plan, drill a 5/32" hole where shown into each **Grooved LG mount** and through each **LG retainer block**.

❏ **D**. Slide a 1/8" plywood plate onto each main landing gear wire. Trial fit the LG block assemblies, relieve any parts if necessary to allow the 1/8" plates and the block assemblies to almost come together (a little pressure during final assembly is good).
NOTE: The wire Landing Gear in the kit differs in appearance from the wire LG in the photos.

❏ **E**. Drill the four 5/64" holes shown in each basswood block assembly for the #4 x 1/2" sheet metal screws, using the 1/8" plate as a pattern.

❑ **F**. Disassemble the parts and enlarge the hole drilled in the previous step in the 1/8" plate to 1/8" for clearance.

❑ **G**. Reassemble the fixed gear parts.

❑ 20. Measure and drill the gear mounting holes in the 1/4" x 5/16" x 3" **plywood mounting rails**. Mount the fixed gear plates or retracts – test fit between R-2B and R-3B while holding the 1/16" die-cut plywood **R-3C gear reinforcement tripler** in place (if you are using retracts, make sure the retract will clear the wing skins). Adjust the height of R-3C if necessary. Do this for both wing panels.

❑ 21. Glue the R-3C's in position.

❑ 22. Tilt the LG assemblies (fixed or retract) until the struts protrude straight down (the left and right struts should be parallel to each other and perpendicular to the ground). Check the fit of the R-2C's, adjust their height if necessary, then glue them in place. Glue in the mounting rails.

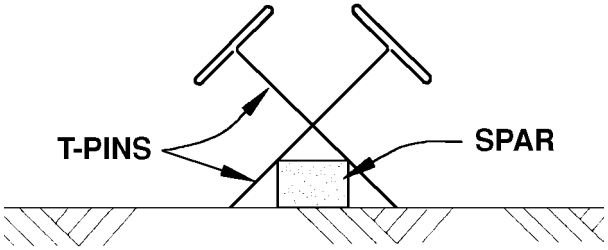
❑ 23. Remove the LG assemblies and apply a small fillet of 30-minute epoxy to all joints involving plywood in the landing gear mounting areas. Apply some epoxy to the dowel plate joints also.

❑ 24. Glue all ribs to the spar. Glue both WD's to ribs **R-1, R-2, R-3** and **R-4**. Reinforce any glue joints that appear weak.

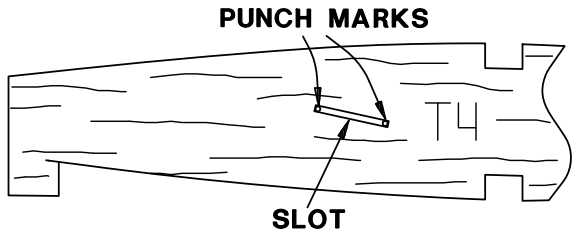
TIP PANELS

NOTE: The tip panels are built "UPSIDE-DOWN" on the plan (the jig tabs are attached to what is, in the end, the TOP surface of the wing.)

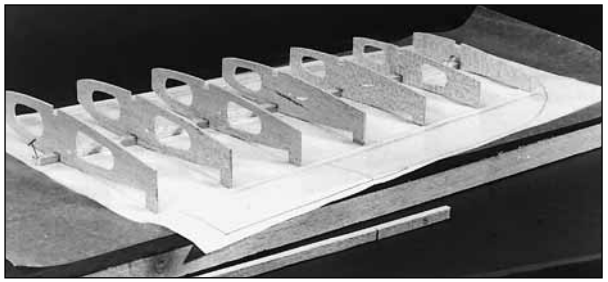
❑ ❑ 1. Place the tip panel plan over a flat building board (you may wish to cut out these sections of the plan sheet). Cover with waxed paper.



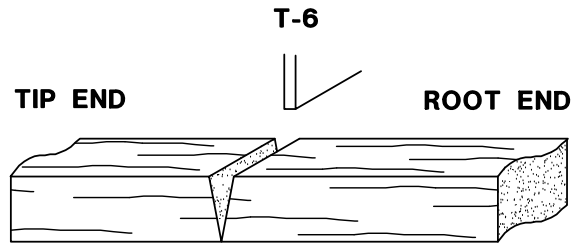
❑ ❑ 2. Cut the top 1/4" x 3/8" x 20" hard balsa **spar** to length. Pin it in place over the plan.



❑ ❑ 3. Cut a 1/16" slot in the 3/32" balsa die-cut ribs **T-4** and **T-5** between the punch marks provided to allow the bellcrank platform to slide in place later.

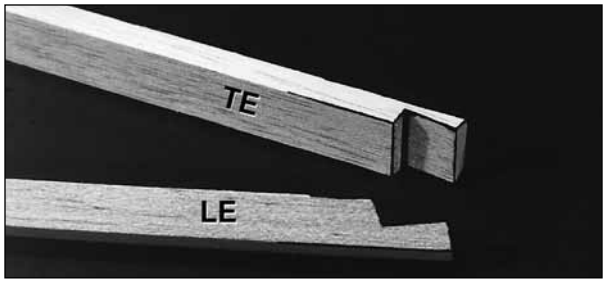


❑ ❑ 4. Glue die-cut 3/32" balsa **ribs T-1** through **T-7** to the spar with the jig tabs at the TE flat against the work surface.



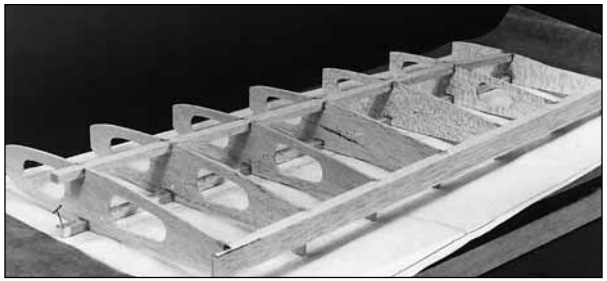
CUT A V-NOTCH IN THE SPAR

❑ ❑ 5. Cut a V-notch in the **bottom** 1/4" x 3/8" x 20" balsa **spar** so it can bend at T-6. Slide the bottom spar into place. It will be glued in **step 8**.

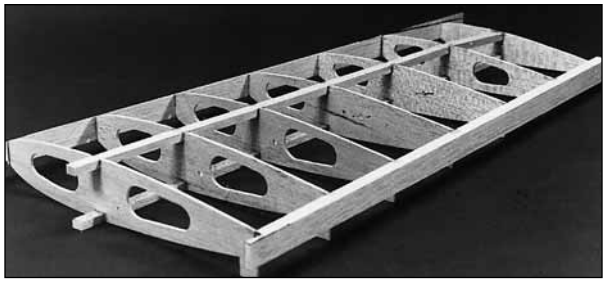


❑ ❑ 6. Notch the inner end of the shaped LE and TE stock to match the plan.

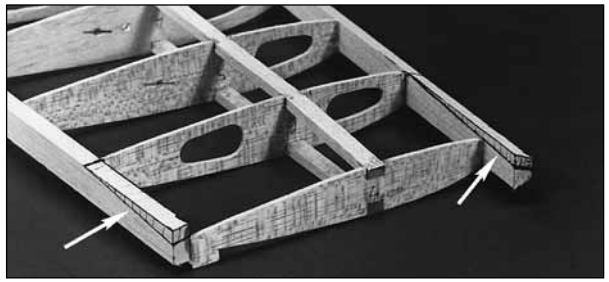
❑ ❑ 7. Glue the TE to the ribs. Notice that T-7 is glued flush with the top (toward plan) edge of the TE.

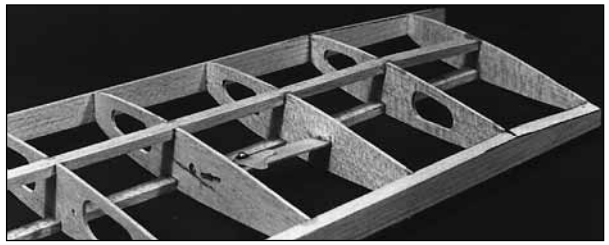


❑ ❑ 8. With the wing slightly weighted down so the entire top spar and all the jig tabs rest on the building board, apply glue to all joints involving the bottom spar. Make sure the bottom spar is securely glued at T-6 where it is notched.

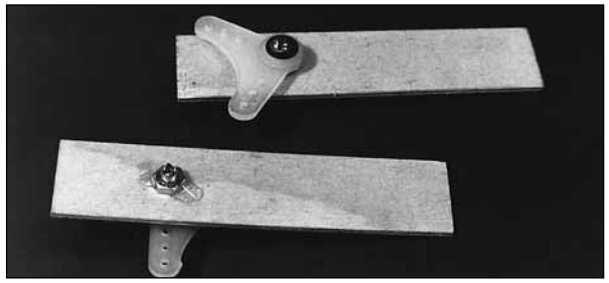


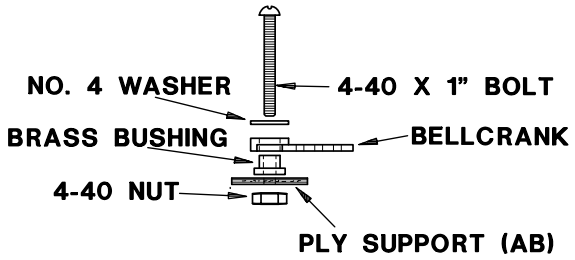
❑ ❑ 9. Glue the LE to the ribs, centering it on all ribs except T-7. T-7 is glued flush with top edge (toward plan) of the LE.



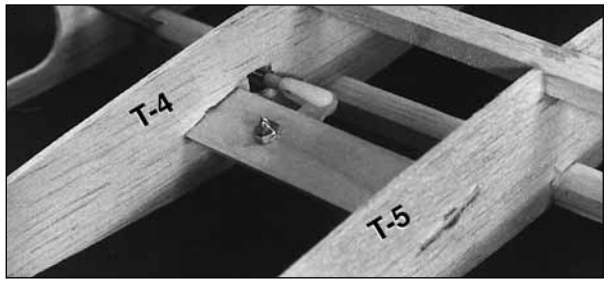


❑ ❑ 10. Draw lines with a pen and a straight edge as shown in the photos to mark the tapering of the bottom of the LE and TE. Use a knife and a sanding block to carefully taper the LE and TE.

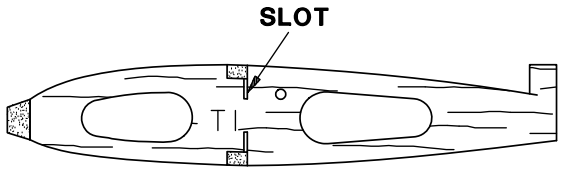




❑ ❑ 11. Assemble the **bellcrank parts** onto the die-cut 1/16" **ply support** – make a left and a right. Be sure to put a drop of 6-minute epoxy on the thread and nut of the 4-40 bolt to prevent it from vibrating loose.



❑ ❑ 12. Glue the bellcrank assembly securely in place through the slots in ribs T-4 and T-5.

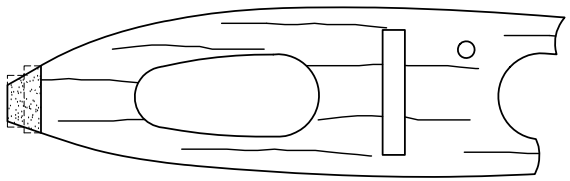


❑ ❑ 13. Cut a 1/16" x 3/8" slot in the top and bottom of T-1 so the 1/16" plywood spar joiners can pass through the rib and overlap the main spar when the panels are joined.

REPEAT THE WING TIP PANEL STEPS 1-13 TO BUILD THE OPPOSITE PANEL. BE SURE TO MAKE A LEFT AND A RIGHT TIP PANEL.

WING JOINING

❑ 1. Trim off all tip panel jig tabs **except** the tabs on the T-7's.



❑ 2. Sand the center section LE and TE (using a block or sanding bar where possible) to approximate the shape of the outer panel LE and TE. **Be careful**

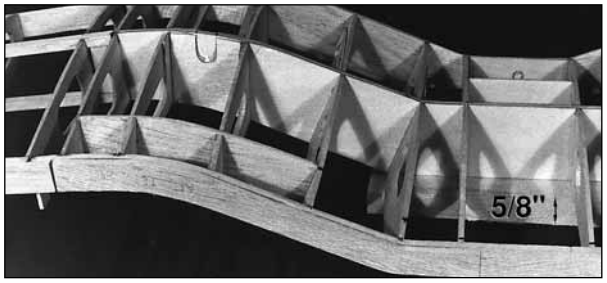
not to alter the shape of the ribs during this process (masking tape can be used to help protect them). Final shaping can be done after wing joining.

❑ 3. Trim the tip panel top and bottom spars so they protrude 11/16" past T-1.

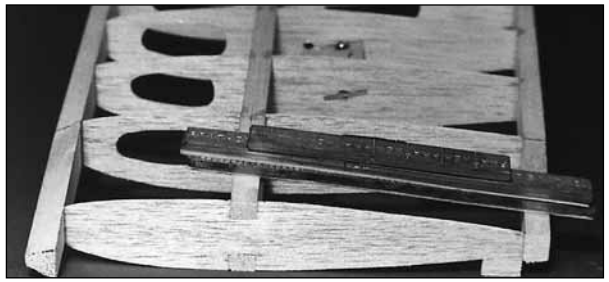
❑ 4. Notch the front of the center section LE to accept the tip panel LE. Notch the back of the center section TE to accept the tip panel TE.

❑ 5. Make any small adjustments necessary to allow you to mate the tip panel with the center section. Use a small ruler to check that ribs R-1 and T-1 can be positioned parallel and 11/16" apart. Adjust if necessary to obtain a good fit.

NOTE: The 3/8" wide tip spar should be centered over the 1/4" wide center spar.



❑ 6. Place the wing upside down on a flat table with the balsa 5/8" x 2" x 6" dihedral jig block under the center section. This sets the proper dihedral when the tips are on the table surface.



❑ 7. Apply small weights to the tips of the wing. The T-7 jig tabs and the spar tips should contact the table. Adjust the LE and TE junctions of the tip and center sections to align them and relieve any stresses.

❑ 8. Check again to see that R-1 and T-1 are parallel.

❑ 9. Tack glue the TE and spar joints with CA.

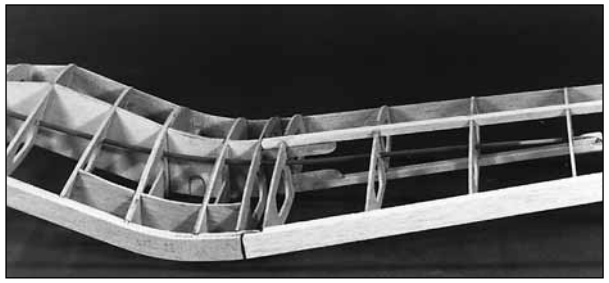
❑ 10. Carefully remove the tip weights and look at the entire wing. Make sure there are no twists in the wing. If there are any problems, pop loose the wing joints and realign them.

❑ 11. Replace the wing tip weights and apply 30-minute epoxy to all joints involved. Use 30-minute epoxy to glue the die-cut 1/16" ply spar joiners in place before the glue cures.

WING STRUCTURE COMPLETION

❑ ❑ 1. Cut a piece of the outer pushrod guide tube to 18". Roughen the outside of it with coarse sandpaper. Carefully slide it in place through the wing ribs. Glue it to all ribs it touches.

❑ ❑ 2. Cut a 20" piece of inner pushrod tube and screw a 1" piece of threaded rod and a nylon clevis into one end.



❑ ❑ 3. Use a sharp knife to cut a 5/16" sq. window in T-4 where the pushrod passes through. This will allow the pushrod to move slightly as the bellcrank rotates.

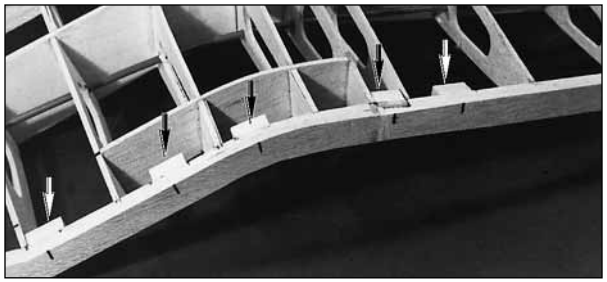
❑ ❑ 4. Slide the inner pushrod tube into place and connect the clevis to the bellcrank.

REPEAT STEPS 1-4 FOR THE OTHER SIDE OF THE WING

❑ 5. If you have your aileron servo available it is easiest to install it now. This will allow you to confidently zero the bellcranks when the servo is in its centered position. See plan for proper location and mounting of the aileron servo. The aileron servo is mounted on 3/16" x 3/8" plywood rails.

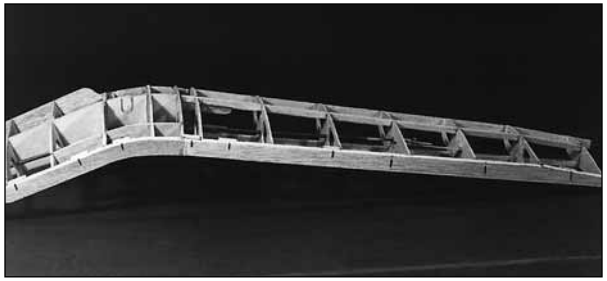
NOTE: The servo may protrude about 5/16" below the bottom of R-6 into the belly-pan if necessary.

Skip steps 6 to 8 if you are using standard sport ailerons and no flaps.



❑ 6. If you are installing functioning flaps, install the hinge reinforcement blocks shown on the wing plan. These are cut from a 3/8" x 1/2" balsa stick supplied. The flap reinforcement blocks (for Hinge Points) rest against the **bottom** wing skin.

❑ 7. If you wish to use the "scale" type of aileron hinging (see plan for a typical cross section), using Hinge Points, install reinforcement blocks now. The aileron reinforcement blocks are centered on the TE.



❑ 8. Mark the hinge locations on the **outside** of the TE so you can find them after the wing is sheeted.

❑ 9. In preparation for wing skinning, sand any parts that protrude higher than the surrounding parts. Any high spots will cause you to sand through the wing skins after they are applied. It is important to have a consistent structure if you want a smooth skin.

❑ 10. Final sand the center section LE and TE to blend them with the outer panel. The transition from the LE to all the ribs may be **slightly** blended to provide a smooth curve for the sheeting to bend over.

❑ 11. Do any final fitting of retracts at this time. If you have chosen retracts that require external actuation, rig them at this time.

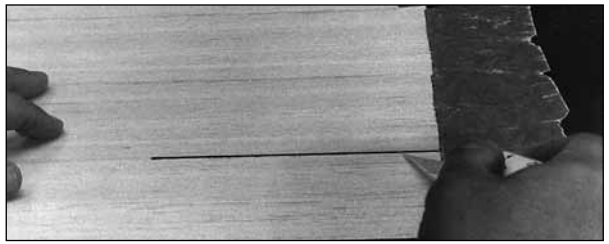
❑ 12. Make the aileron pushrods from the 12" long threaded end rods. Make a Z-bend in one end and screw a nylon clevis on the other.

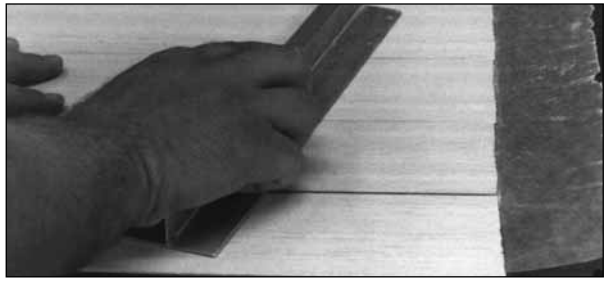
WING SHEETING

❑ 1. Sort through the 1/16" x 3" x 24" balsa **wing sheeting**, separating the best wood with the most uniform grain for the top wing skins. Use the other wood for the bottom skins.

❑ 2. True the edges of the wing sheeting by placing a metal straightedge lengthwise on the sheet. Position the straightedge about 1/32" from the sheet edge. With a sharp knife, cut carefully along the straightedge.

❑ 3. Place waxed paper on a flat smooth table. You will join the wing skins on this surface.





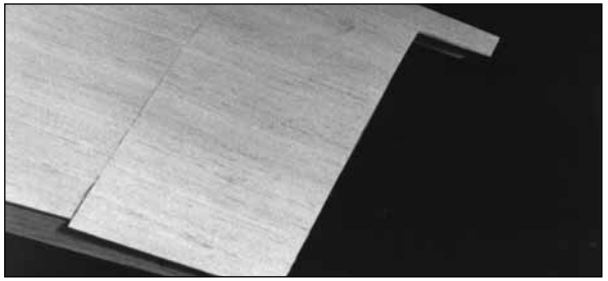
❑ 4. Edge glue four wing sheets together with thin CA for each of the four outer panel surfaces. **LIGHTLY** sand both sides of the skin over the work surface with a block and **sharp** 220-grit sandpaper.

❑ ❑ 5. Hold a skin over the bottom of the outer wing panel. Mark the shape of the wing on the skin, allowing about 3/16" extra on all sides. On the wing **bottom**, the section between T-6 and T-7 is sheeted separately from the section between T-1 and T-6. **Cut off the tip of the skin and save it.**

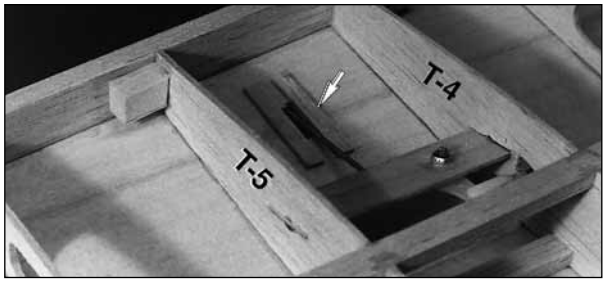
❑ ❑ 6. Connect the aileron pushrod to the bellcrank. Make a small cut in the bottom skin to act as a pushrod exit. Refer to the plan for its location.

NOTE: Before gluing the bottom wing skin, jig the wing as before with the 5/8" block under the center and the tips weighted on the table.

❏ ❏ 7. Test fit the bottom skin. Make any adjustments necessary for a good fit. Apply medium or slow CA to all the structure that will contact the bottom wing skin between T-1 and T-6. Carefully position the bottom wing skin on the structure between ribs T-1 and T-6. **The skin should cover half of the rib T-6**. Hold the skin in place until the glue cures (masking tape is often helpful in holding skins in place while glue sets).



❏ ❏ 8. Do any trimming necessary to fit the skin piece cut off at step 5, over ribs T-6 and T-7. Glue the tip skin in place.

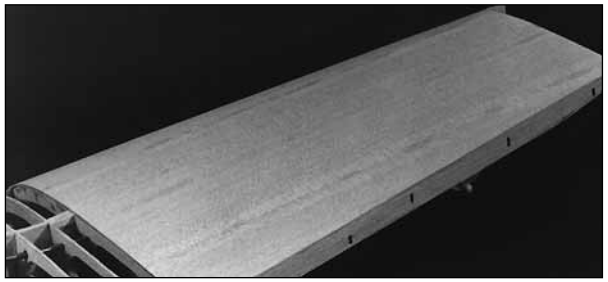


❏ ❏ 9. Make two 1/4" x 1" pushrod exit stiffeners from leftover 1/16" balsa. Glue them in place around the aileron linkage exit in the bottom wing skin.

REPEAT STEPS 5 to 9
FOR THE OTHER TIP PANEL

❏ ❏ 10. Cut the top outer panel wing skins from 2 remaining blanks made earlier. The top tip panel is skinned in one piece from the center of T-1 to T-7.

❏ ❏ 11. When you are ready to skin the top of the wing, cut the remaining jig tabs off the T-7's. **Be careful not to twist the tip panels while applying the top skin**.



❏ ❏ 12. Apply medium or slow CA to all structures that will contact the top wing skin. Position the top wing skin on the structure and hold it in place until the glue sets.

REPEAT STEPS 10 to 12
FOR THE OTHER TIP PANEL

❏ 13. Trim and sand the edges of all tip panel wing skins with a knife and bar sander.

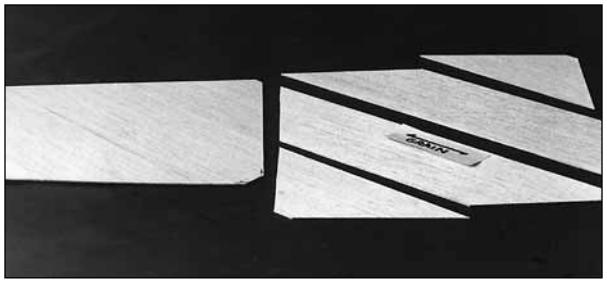
❏ 14. Refer to the photos and plan to see the grain directions of the sheeting on the **top** of the wing center section. All sheeting in the top center section is applied in prejoined sections as in photos. Study the photos in this section...when making the skins with angled grain, cut the sheets at 45 degree angles to conserve wood. The grain direction shown for these wing skins represents the best technique for sheeting the Corsair's bent wing.

NOTE: You may find it faster and easier to do both left and right wings at the same time to avoid having to determine the sheet shapes twice. Skin sizes given are approximate.

❏ 15. Make a slightly oversize skin to cover the area forward of the spar from R-3 to T-1. Trim the wood until it fits well along the edge at T-1.

❏ 16. Wet the outside of the skin with a water soaked paper towel. Glue the skin in place starting at T-1. You may apply glue from the underside of the wing structure.

❏ 17. Trim the skin edges to the middle of the spar and the middle of R-3.



❑ 18. Make a skin to cover the area aft of the spar from R-5 to T-1. Wet the skin and place it over the structure. Trim it so it fits well at T-1 and at the spar. Glue the wet skin to the structure.

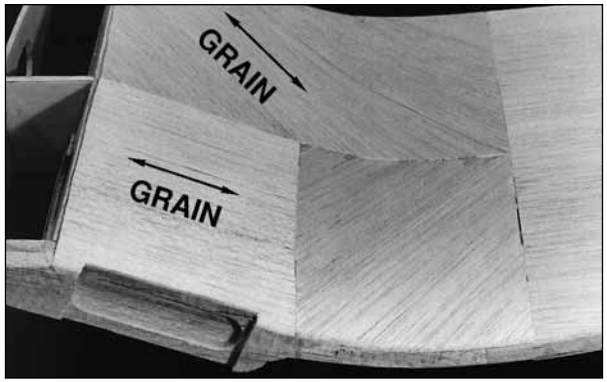
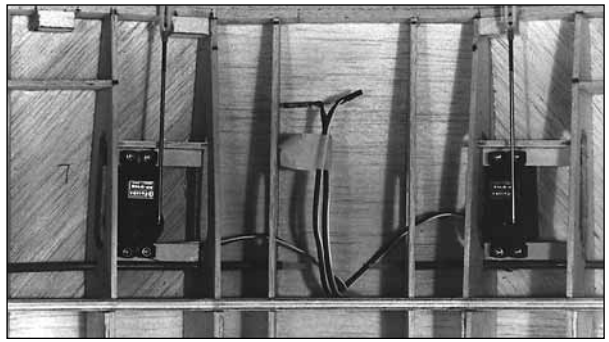


Photo for steps 19-20

❑ 19. Make a skin for the section forward of the spar from R-5 to R-3. Glue this piece on dry.

❑ 20. Skin the top of the wing between the two R-5's.

❑ 21. Add some CA to any questionable center section top wing skin joints from the bottom side of the wing.



❑ 22. If you are using flaps, install the servos now. They are mounted on 3/16" x 3/8" plywood rails between ribs R-4 and R-5. Notice that one servo is mounted inboard in the bay and one is mounted outboard. This allows both pushrods to exit at the center of the bay. Route the servo leads to the center as shown. (A Y-harness is used to connect the two flap servos together. Plug the Y-harness into the receiver and use it as an extension.)

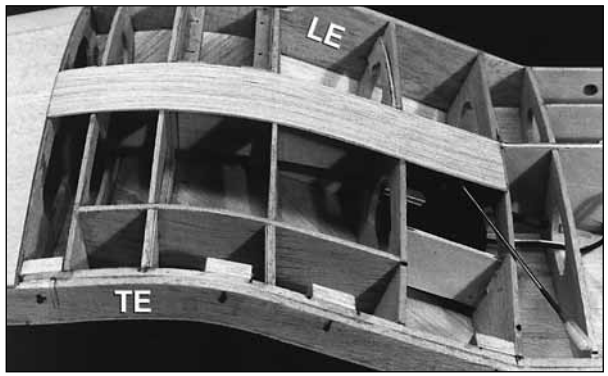
NOTE: The ribs were changed slightly after the photos were taken to make it easier to mount the servo rails.

❑ 23. Make the flap pushrods from two 12" threaded end wires. Use nylon clevises at one end of the wires and make Z-bends at the other. When the servos are **centered** the clevis pins should line up with the seam between the two 3/16" TE laminations.

NOTE 1: If you are using fixed gear, the standard procedure is to securely screw the fixed gear into place before proceeding to sheet around the wire strut. An alternative is to proceed as you would with the retracts. Sheet the bottom of the wing with no gear installed and cut out an opening for installing the fixed/retract gear after sheeting is completed. A balsa block (not supplied) could be glued to each fixed gear plate (with holes drilled to access mounting bolts) and faired into the bottom of the wing. This technique allows you to remove the fixed gear for servicing.

NOTE 2: All of the bottom wing sheeting is cut from the remaining 1/16" x 3" x 24" balsa sheeting. Study the photos in this section before proceeding. You may find it faster and easier to do both left and right wings at the same time to avoid having to determine sheet shapes twice. Indicated skin sizes are approximate.

NOTE 3: Parts of the center section will be covered by the belly-pan. Do not fill small misfits in this area until after the belly-pan is installed.

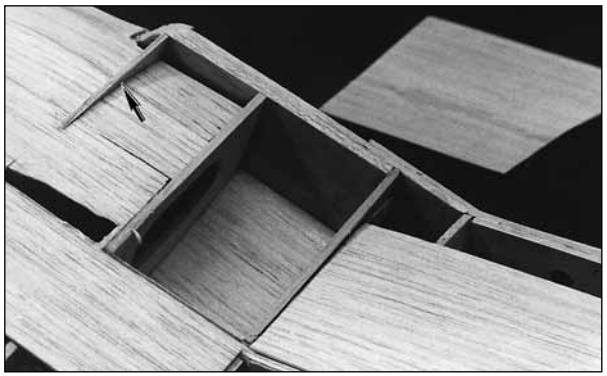


❑ 24. Cut a 1-1/2" x 10" piece of 1/16" wing skin. Glue it behind the main spar, starting at the aft half of the main spar.

❑ 25. Next, glue a 1-1/2" x 7" piece forward from the center of the main spar. This sheet covers from R-4B outward to T-1.

❏ 26. Continue forward until you reach the LE with narrower strips (3/4" to 1"). It will be necessary to curve the aft edge of the strips to allow them to conform to the structure.

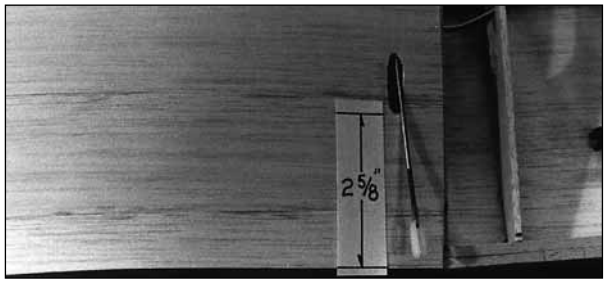
❏ 27. Glue a 3" wide sheet over the center section between two R-5's. The R-5B's serve as a shelf to support this sheet.



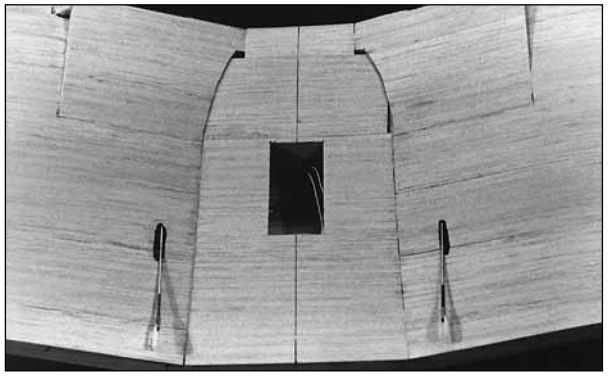
❏ 28. Locate the small 1/8" die-cut **R-5C sub ribs**. Cut off the small die-cut bump at the narrow end so the part tapers to a point. Glue it in place at the outboard end of the oil cooler as shown in the photo.

❏ 29. Make a piece of skin to cover the bottom of the oil cooler from the center of the spar forward to the LE. Study the photos. Notice how the sheet blends into the center of the wing. Cut out a small piece of wing sheeting between R-3 and R-4 just forward of the main spar. This will allow the oil cooler sheeting to blend in smoothly.

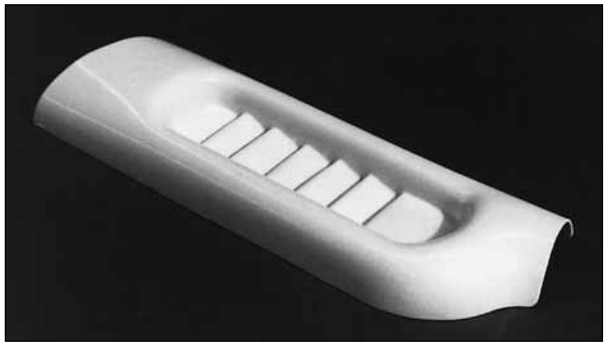
❏ 30. Glue the oil cooler skin in place.



❏ 31. Continue sheeting aft in 1-1/4" to 1-1/2" increments. Allow the flap pushrods (if any) to exit as shown.

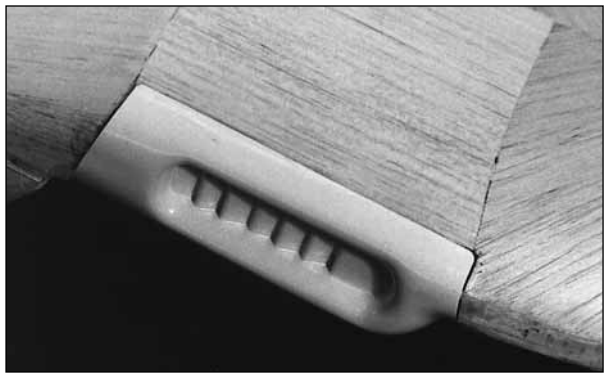


❏ 32. Sheet the rest of the wing center section between the R-5's. The rectangular hole shown allows the aileron servo to protrude into the belly-pan.

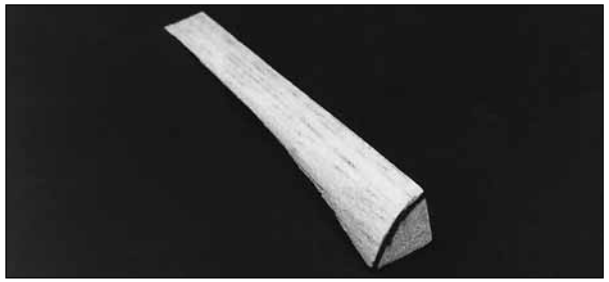


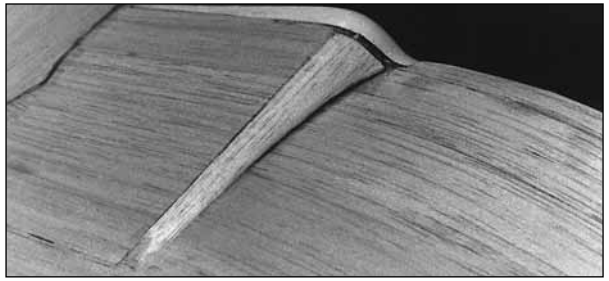
❏ 33. Cut out the vacuum formed **oil coolers** just below the faint cut line on the inside. Use coarse sandpaper to sand the part exactly to the line.

❏ 34. Place the oil cooler on the wing. Trace its location onto the LE of the wing. Cut away balsa under the oil cooler until it will blend nicely into the wing. You will need to remove a fair amount of wood.



❏ 35. Glue the oil cooler to the wing. Shape the surrounding area to blend into the formed oil coolers. Lightweight filler may be used to fill any gaps.





❏ 36. Use a portion of the provided 3/8" x 1/2" x 24" stick to fair the outboard ends of the oil coolers.

The wing will be completed after the Fuselage Construction.

FUSELAGE TOP

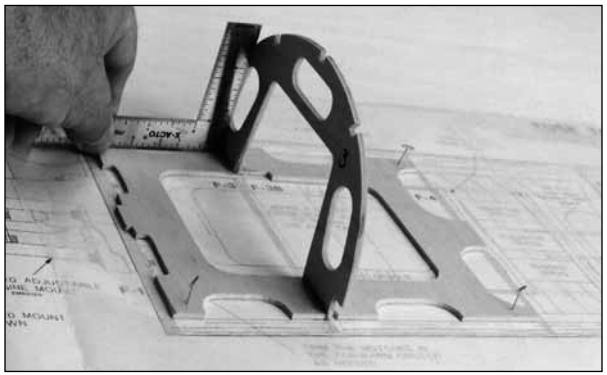
NOTE: The 1/8" die-cut plywood formers are stamped only with the necessary portion of their name (F-3B is stamped 3-B).

IMPORTANT: All formers should be installed with the **STAMPED IDENTIFICATION NUMBER FACING FORWARD.** This is necessary to line up the pushrod holes.

❑ 1. Cut out the **Top View** of the fuselage. Tape it to the building board and cover it with waxed paper.

❑ 2. Pin the 1/8" die-cut forward frame accurately over the plan. Be sure the outline fits the plan exactly as this establishes the engine offset thrust angle.

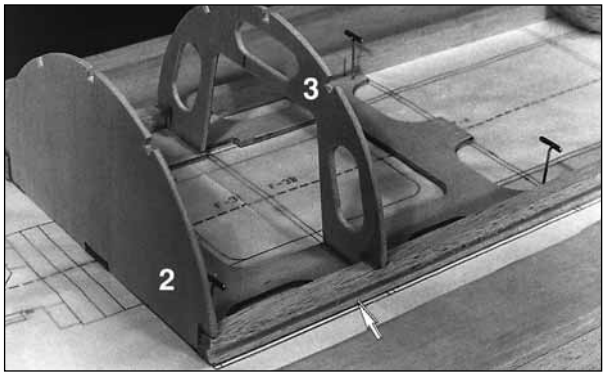
NOTE: Use a small triangle to hold all formers vertical while gluing. Any small warps or twists in the formers can be taken out when the 3/16" sq. stringers are glued in place.



❑ 3. Glue **F-3** into the forward half of the slot in the middle of the forward frame.

❑ 4. Glue **F-2** to the forward edge of the forward frame. It is centered by the interlocking tab.

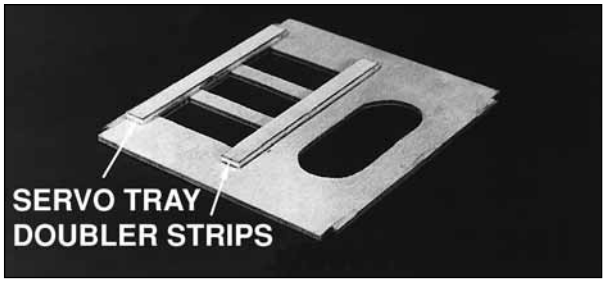
❑ 5. Separate the two 42" long shaped balsa **main fuselage stringers** by running a knife vertically against the edge where they are joined. Sand the edges if necessary.



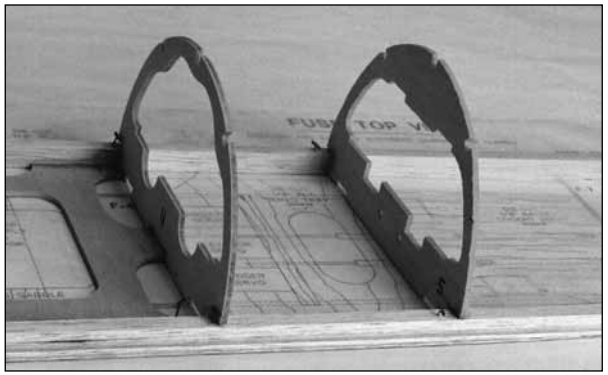
❑ 6. Position the **main fuselage stringers** in the former notches so the ends protrude about 1/16" forward of F-2. Notice that the 1/8" slots in the main fuselage stringers are more toward the bottom of the fuse (toward the table). Glue the stringers to F-2, F-3 and the forward frame

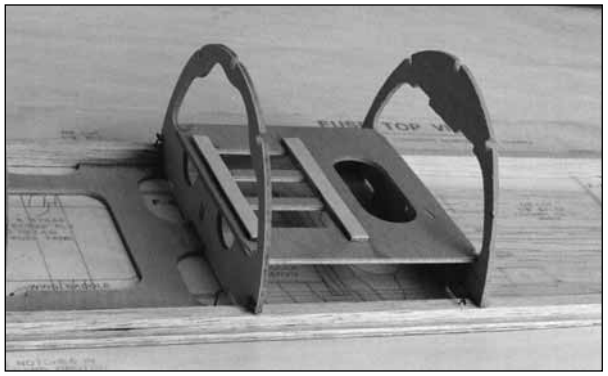
❑ 7. Glue **F-4** in place at the aft end of the forward frame. The notch at the center of F-4 engages the tab on the forward frame (see photo at step 10).

❑ 8. Drill 3/16" holes where indicated by punch marks in **F-5, F-7, F-8 and F-10**. The pushrods will be installed through these holes later. Check that all pushrod holes are offset slightly to the plane's left. These holes should line up for a virtually straight shot.

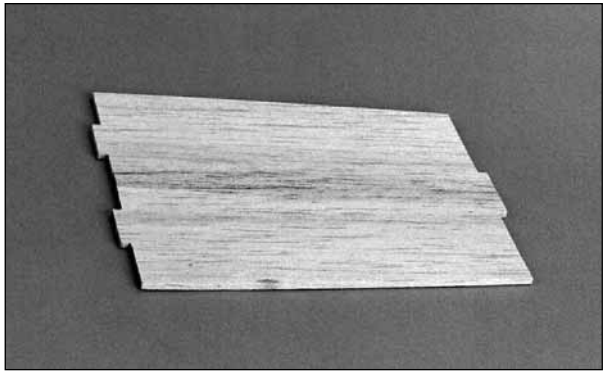


❑ 9. Check your servos for fit in the 1/8" die-cut **servo tray**. Make modifications if necessary. Glue the 1/8" die-cut plywood **servo tray doubler strips** to one side of the servo tray as shown. These will stiffen the tray and give the servo mounting screws extra material to bite into.

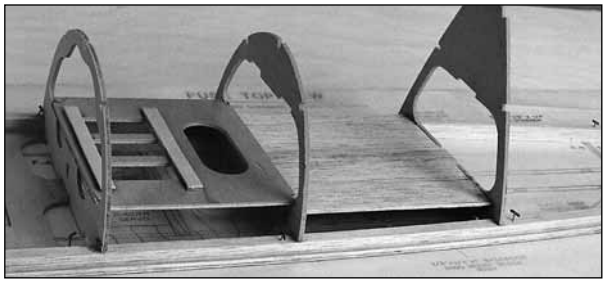




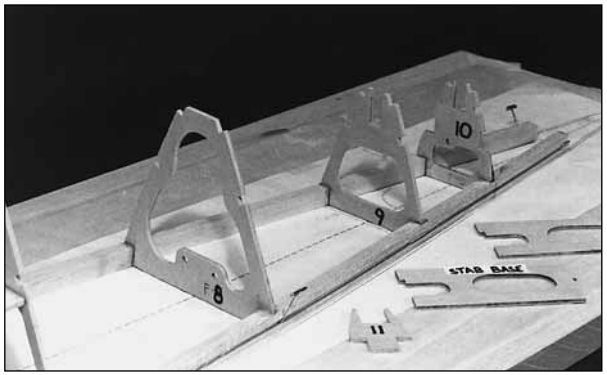
❑ 10. Position **F-5** over the plan. Key the servo tray in place as in the photo. Notice that the servo tray doublers are facing up. Glue F-5 to the main stringer. Remove the servo tray and apply medium CA to the mating surfaces. Put the servo tray back in position.



❑ 11. Glue the two halves of the die-cut 1/8" balsa **cockpit deck (CD)** together.



❏ 12. If you are **installing the optional cockpit kit,** glue **F-7** and the **cockpit deck** in position as indicated in the photo. Otherwise, trim off both edges of the cockpit deck along the precut lines and install it in the notches in the upper part of the formers.

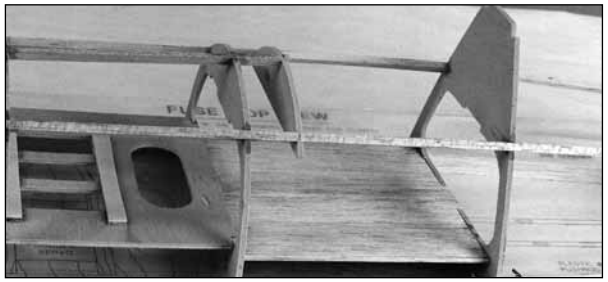


❏ 13. Glue **F-8, F-9 and F-10** to the main stringers over their location on the plan. Be sure the pushrod holes are properly oriented.

❏ 14. Trial fit F-11 on the main stringers. Test the fit of the **stab base supports** in between **F-10** and **F-11**. The stab base support should rest flat on the building board along its entire length. **This is very important as it sets the stab incidence**. Remove a little material from the interlocking joints if necessary to allow the stab base support to rest on the building board. Glue the stab base support and F-11 in position with medium CA.

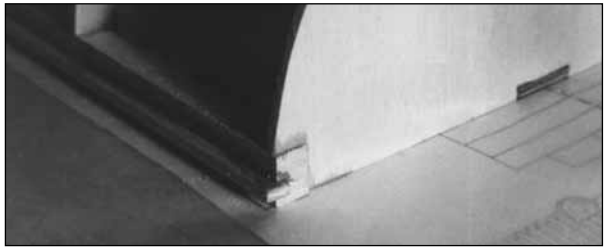
NOTE: If you are installing the optional cockpit kit, install the instrument panel as shown in the following steps. Otherwise, the instrument panel is glued to the base of the cockpit deck 1-1/16" behind F-5.

❏ 15. Glue all the upper stringers in place as shown in the photograph. Check the formers with a 90 deg. triangle during this process to make sure they are vertical.



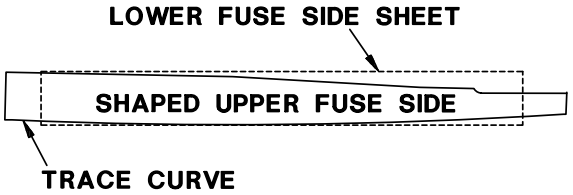
❏ 16. Fit the Instrument Panel into the stringers 1-1/16" to the rear of F-5. Insure that it is parallel with F-5 and then glue it into position.

❏ 17. With a sanding block, smooth any glue joints that will affect the sheeting of the fuselage. Sand the main stringers slightly to blend with the formers.



❏ 18. Glue the four 1/8" x 1/4" x 24" balsa **sub stringers** into the slots in each of the main stringers. These will provide a shelf for the sheeting to rest on.

NOTE: It is helpful to put some weight in the cockpit to hold the fuse firmly on the building board. Leave the fuse on the building board during sheeting.



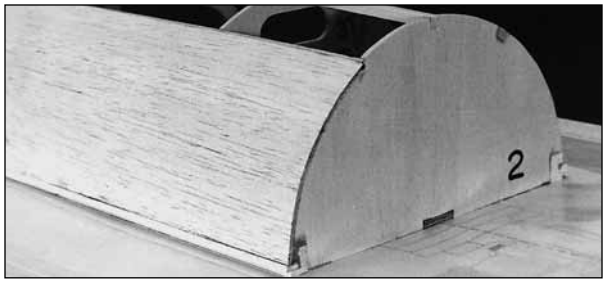
❏ 19. Locate the 3/32" x 4" x 36" balsa **lower fuse side sheets**. Place the shaped 3/32" balsa **upper fuse side** over the lower fuse side sheets. Trace the “bow” of the bottom edge of the upper fuse side sheet onto the lower fuse side sheets as shown in the sketch. Set the lower fuse side sheets aside until they are needed.

❏ ❏ 20. Pin a shaped 3/32" balsa fuse side on the fuselage frame. Align the rear edge of the fuse side with the rear of F-12. Notice that the bottom edge of the fuse side is curved up slightly. This allows the wood to bend around the fuselage frame without lifting the center of the fuselage off the building board.

NOTE: A small amount of water applied to the outside of the fuse side with a paper towel is helpful when bending the fuse sides.

❑ ❑ 21. Glue the balsa fuse side to the main stringer **only between F-5 and F-7**.

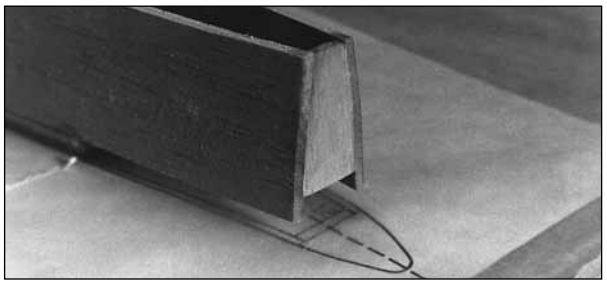
❑ ❑ 22. Apply medium CA to the edge of F-5 and F-7 and the lower edge of the instrument panel. Bend the fuse side to meet them. Use thin CA to glue the fuse side to the 3/16" sq. stringer between F-5 and F-7.



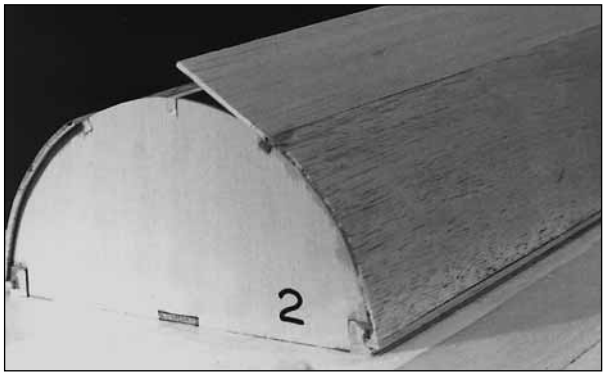
❑ ❑ 23. Work your way forward and aft from this point, one former section at a time. Glue the fuse side to the main stringer (at bottom edge of sheeting) first, then to the formers and upper stringer for that segment. If you notice the center of the fuselage trying to lift off the building board during this process, trim a little wood off the bottom edge of the fuse side.

Repeat steps 20 to 23 for the other fuse side.

❑ 24. Keep the fuselage firmly pinned down on the building board **until all glue is cured and the wood is dry.**

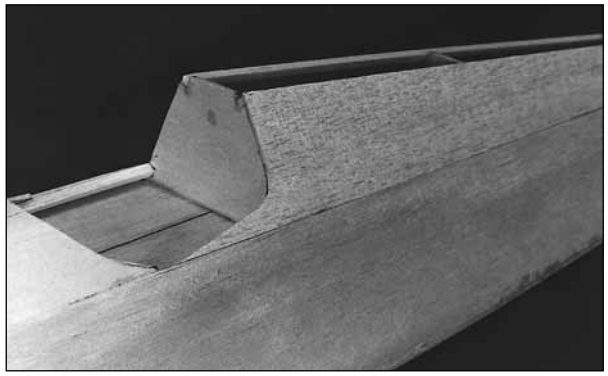


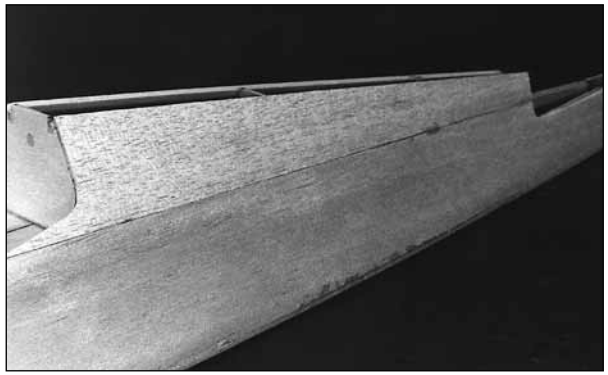
❑ 25. Look at the fuselage side view on the plan and notice F-12's height off the building board. Glue **F-12** in place. Trim the aft end of the fuse sides flush with F-12.



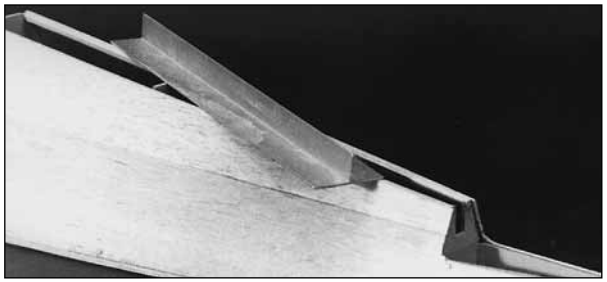
❑ 26. Use the pattern provided on the plan to cut two **forward deck sheets** out of the 3/32" x 2-1/2" x 36" balsa sheet. Glue one deck sheet in place starting at the edge of the fuse side. Apply glue to the former and the top 3/16" sq. stringer. Wrap the sheet around until it is glued to the top stringer. Trim the sheet to the center of the stringer. Repeat this process for the other forward deck sheet.

NOTE: The sheeting will extend well beyond F-2 to allow trimming for the engine offset.



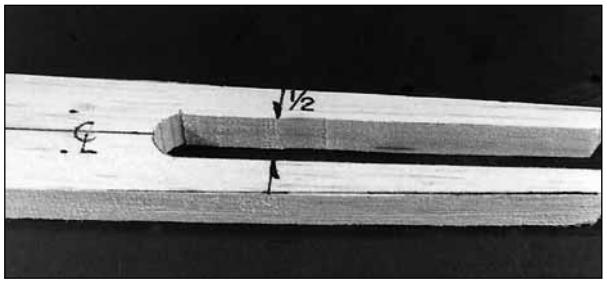


❑ 27. Use the pattern on the plan to cut two **aft deck sheets** out of the 3/32" x 3" x 24" balsa sheet. Glue the aft deck sheets in place as shown in the photo and on the plan.

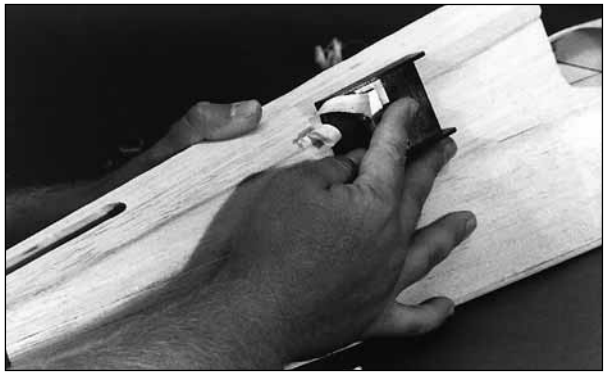


❑ 28. Use a sanding block to sand the top of the aft deck sheeting down to the height of the former tops.

❑ 29. Place the 1/2" x 2" x 17-7/8" **top deck block** on top of the fuse. Trace the shape of the fuse onto the bottom of the block. Roughly cut the block to shape.

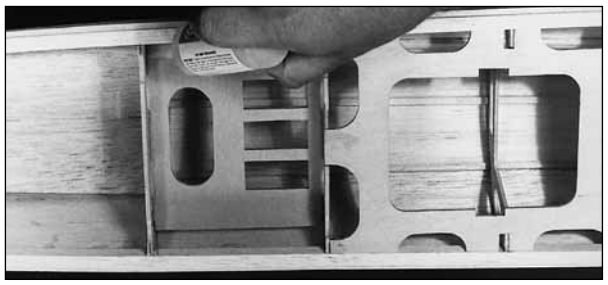


❑ 30. Mark a 1/2" wide slot on the top deck block that will allow the fin to protrude through. Notice that the fin LE sweeps back. Cut the slot into the deck block. Temporarily plug the fin into the slots in formers F-9 and F-10. Adjust the slot in the deck block if necessary for a satisfactory fit. Tack glue the deck block to the fuse but **do not** glue the fin. Remove the fin and thoroughly glue the deck block to the fuse with thin CA.



❑ 31. Shape the deck block to match the cross-section on the plan. A razor plane is helpful for this kind of shaping.

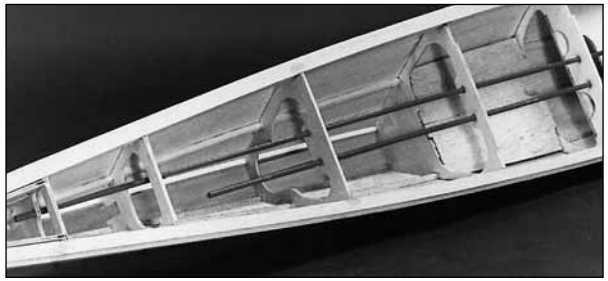
❑ 32. Remove the fuselage from the building board.



❑ 33. Inspect the structure from the inside. Add glue to any open joints.

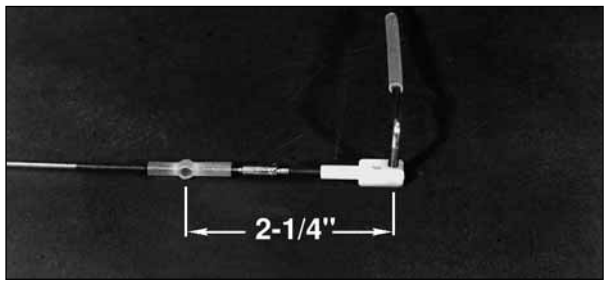
FUSELAGE BOTTOM

❑ 1. Cut two of the 24" **outer pushrod guide tubes** to the lengths required for the rudder and elevator pushrods (see fuse side view).



❑ 2. Roughen the outside of the pushrod tubes with sandpaper. Slide the tubes through the 3/16" holes in the formers with reference to the plan. Securely glue the tubes to all formers they contact.

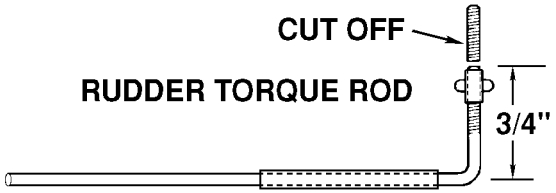
❑ 3. Cut 10" off the **unthreaded end** of a **threaded pushrod wire**. Cut about eight 5/16" lengths of the **inner pushrod tube** from the material left over from the inner aileron pushrod. Use rubbing alcohol to remove any residue from the pushrod wire. Slide the short lengths of inner tube over the pushrod wire, spacing them approximately 3" apart. These act as spacers to support the wire pushrod in the guide tube. The spacers can be shorter than 5/16" if they are to hard to push on. **The spacers must not be near the end of the outer pushrod tube**. Apply a small drop of thin CA to each spacer if the fit is loose.



❑ 4. Screw the nylon **double-ended ball link** onto the threaded end of the .074" x 24" wire. Make a

1-1/2" threaded rod by cutting off a 4" threaded end rod and soldering a brass threaded coupler onto the bare end. Screw this assembly into the other end of the ball link.

❑ 5. Thread a **nylon swivel clevis** onto the exposed end of the 1-1/2" threaded rod. Thread the nylon parts onto the threaded rod until the center of the ball and the center of the **swivel clevis pivot** are exactly 2-1/4" apart (see photo for step 4).



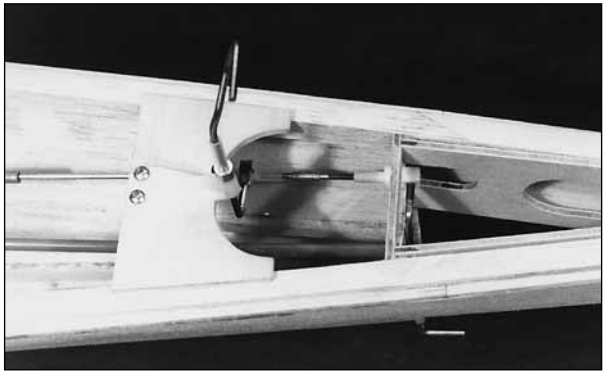
❑ 6. Cut off the threaded end of the **rudder torque rod** so the end is only 3/4" from the center of the torque rod.

❑ 7. Screw the **nylon swivel** onto the rudder torque rod and attach this assembly to the end of the pushrod (see photo step 4).

❑ 8. Flatten one end of the 1/8" OD brass tube and solder it onto the top of the **tailwheel wire assembly**. Drill a 1/16" hole in the flattened portion of the brass tube at the top of the tailwheel wire. Securely screw the ball and nut to the tail wheel wire. Use two **#4 x 1/2" sheet metal screws** to screw the tail wheel wire assembly to the 1/8" die-cut **tail wheel mount plate (T W)**. Refer to the photo for proper orientation. Put a drop of 5-minute epoxy on the threads of each #4 screw and the nut on the ball link to prevent them from vibrating loose.

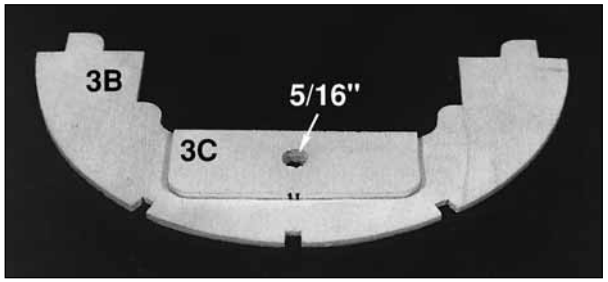
❑ 9. Slide the rudder pushrod assembly into its outer pushrod guide tube from the back of the fuse.

❑ 10. Position the tailwheel assembly and rudder torque rod as shown on the plan. Check to see if the tailwheel and rudder rods are both properly aligned. Make adjustments if required.

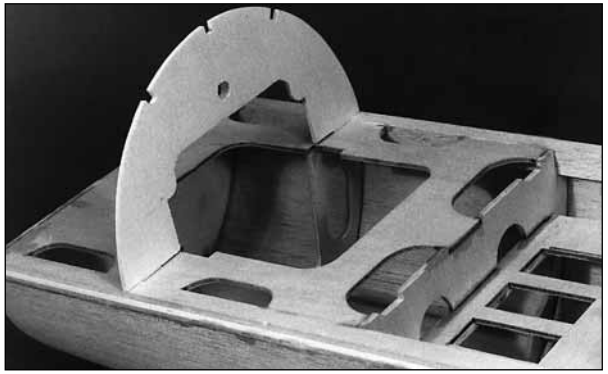


❑ 11. Glue the tailwheel assembly to the fuse in the position indicated on the plan. Use the wheel collar to position the tailwheel wire so the pushrod is centered in its passageway through the formers. Use **thread lock** on the wheel collar set screw and tighten it with an allen wrench.

NOTE: Do not glue the rudder torque rod bearing tube in position until after the fin is attached. The rudder torque rod may be taped back out of the way until more work is done in this area.

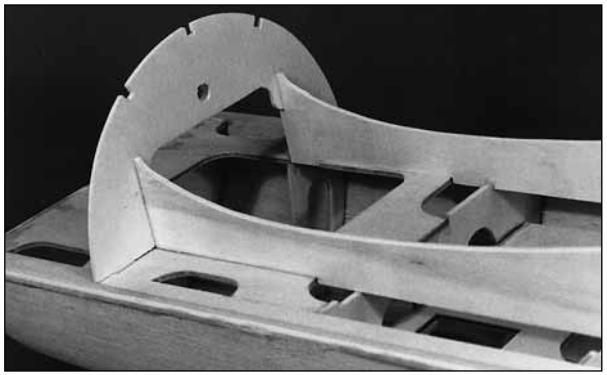


❑ 12. Glue the die-cut 1/8" plywood **F-3C** to the die-cut 1/8" plywood **F-3B**. Be sure that the 5/16" punched holes in F-3C and F-3B line up with each other.

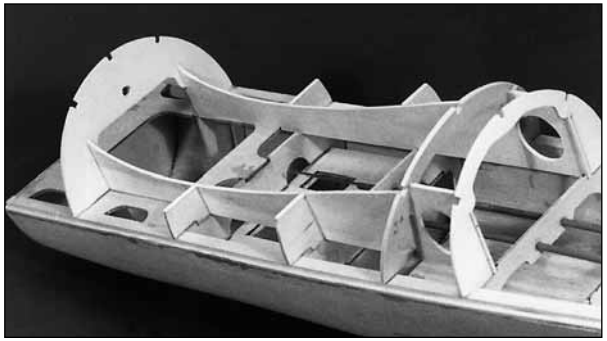


❑ 13. Plug F-3B into the forward frame of the fuselage just behind F-3. Notice that F-3C is on the forward side of F-3B.

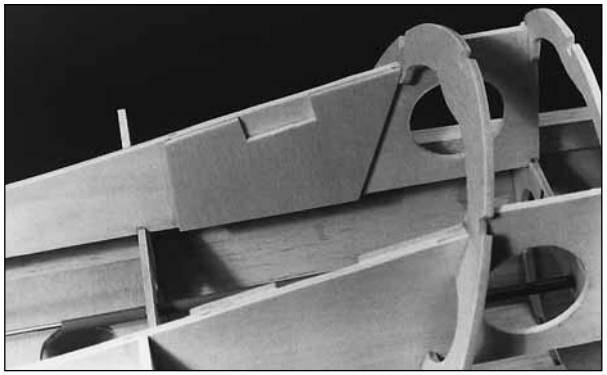
❑ 14. Slide the die-cut 1/8" plywood **wing saddles (WS)** into place along the bottom of the fuse.



❑ 15. Interlock F-3B and the wing saddles together on the bottom of the fuse. Glue them to the fuselage and to each other.

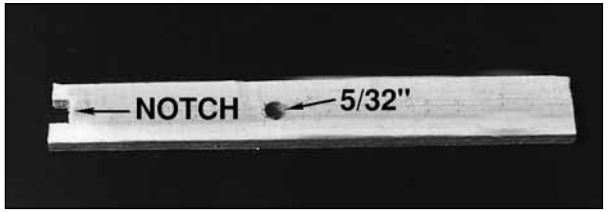


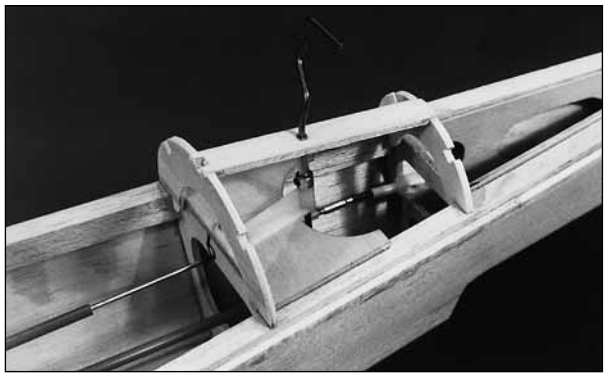
❑ 16. Glue **F-4B, F-5B, F-6 and F-7B** in place as indicated on the plan and in the photos.



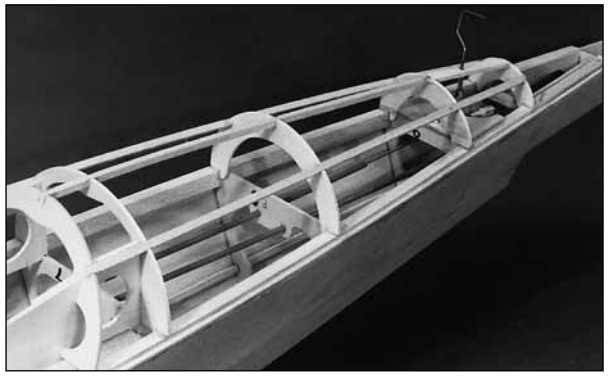
❑ 17. Glue the **wing saddle triplers (ST)** to the inside of the wing saddle just forward of F-6 as shown on the plan.

❑ 18. Glue **F-8B, F-9B and F-10B** in position as shown on the plan.



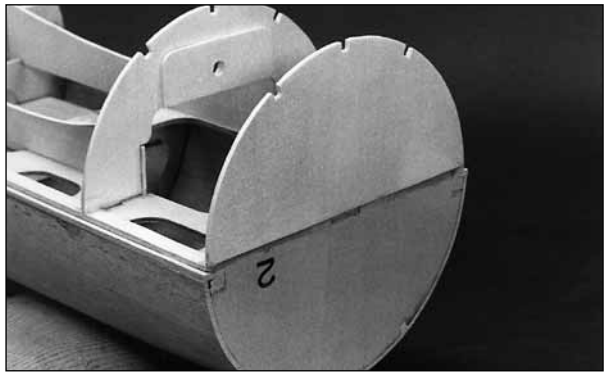


❑ 19. Drill a 5/32" hole where indicated by the punch mark in the 1/8" die-cut plywood tailwheel support. It is helpful to contour the edges of the tailwheel support slightly to allow the sheeting to smoothly transition into it. Glue the tailwheel support in place between F-9 and F-10. Roughen the lower nylon tailwheel bearing with some fine sandpaper and glue it to the tailwheel support. Be careful not to get glue inside the bearing. A little petroleum jelly applied to both ends will help protect the inside of the bearing from glue.

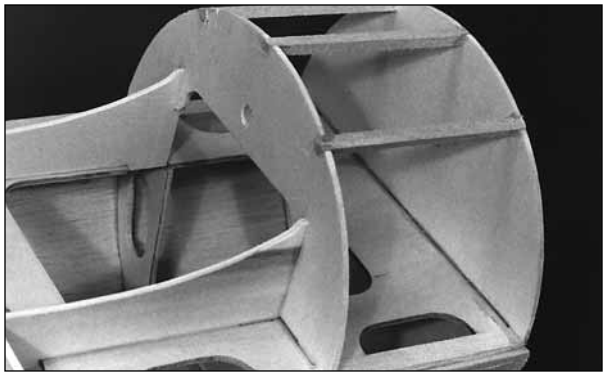


❑ 20. Glue in the lower aft 3/16" sq. stringers as shown in the photo. The center one is notched slightly to where it engages the tailwheel support.

❑ 21. Trim the upper fuse side sheeting flush with F-2. Use a bar sander to obtain a smooth front surface.

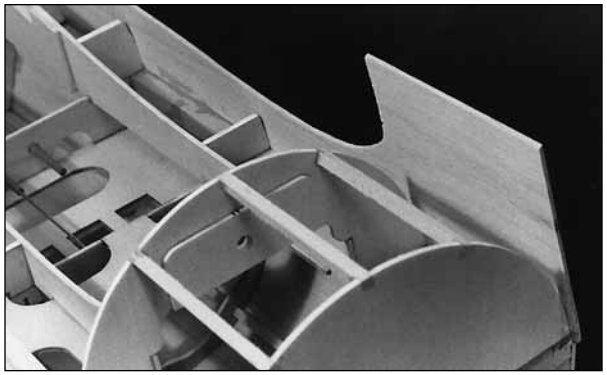


❑ 22. Carefully align and glue F-2A to F-2. This can be accomplished with the fuselage pointing nose down, resting on F-2 over a waxed paper covered flat surface.

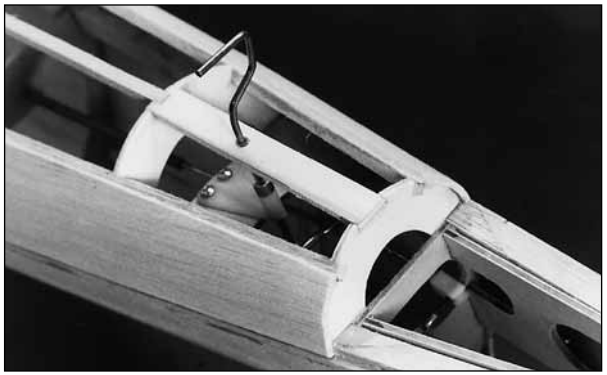


❑ 23. Glue the forward 3/16" sq. stringers into place. These stringers can be used to pull any slight twists out of F-2A.

❑ 24. In preparation for fuselage sheeting, look over the structure and use a sanding block to blend all parts smoothly.

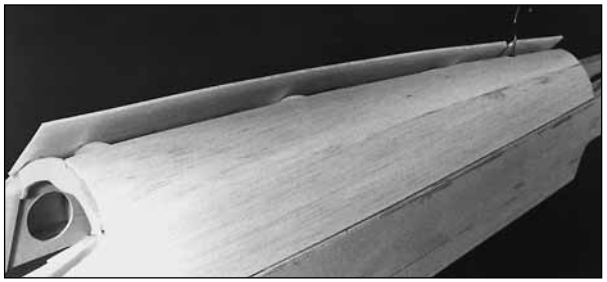


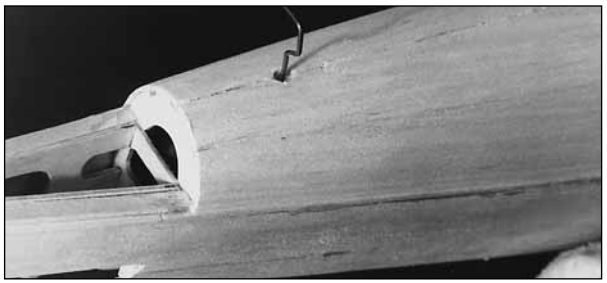
❑ 25. Refer to the photo and plan. Cut oversized **lower fuselage sides** from the 3/32" x 4" x 36" balsa sheets. Cut the bow along the line you marked earlier on the edge that engages the main stringer.

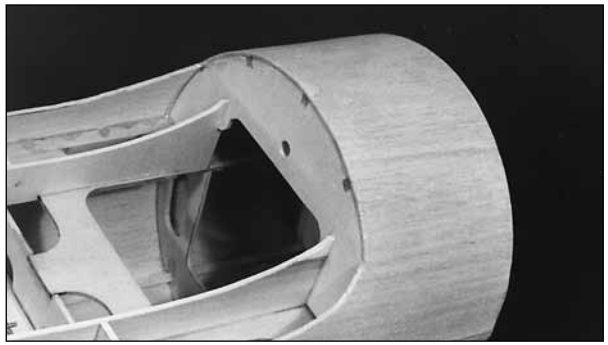


❑ 26. Glue the bottom fuse sheet in place using the same technique used on the upper fuse sheet. Start at the center of the main stringer and work your way toward the ends. It will be necessary to wet the outer surface of the bottom sheet to permit bending.

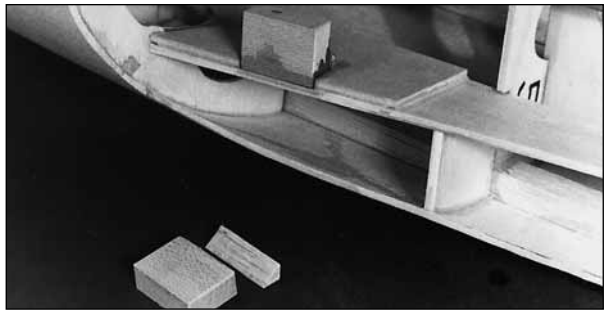
❑ 27. Trim the ends of the sheeting at F-2A and F-10B. Trim the edges of the bottom sheeting to the middle of the 3/16" stringers. Lay a leftover piece of stiff cardboard or similar thin sheet across the plywood wing saddle pieces and mark the wing saddle on the inside of the bottom fuse sheeting. Trim the sheeting close to the mark along the wing saddle.



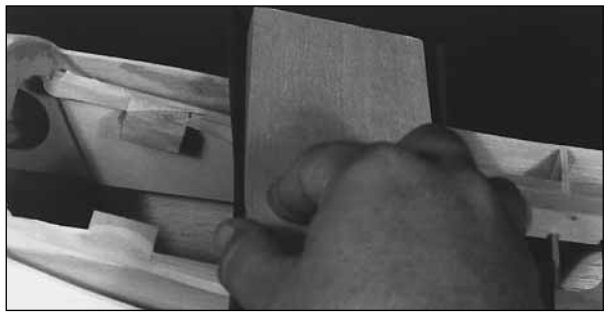




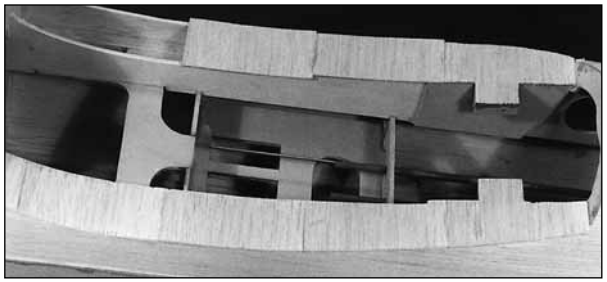
❑ 28. Use the 3/32" x 3" x 36" balsa fuse bottom sheeting to skin the forward and aft fuselage bottom.

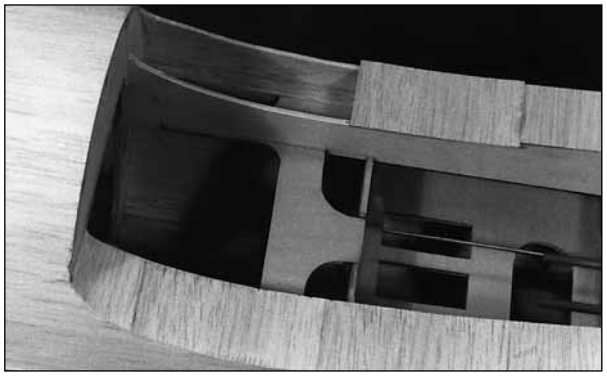


❑ 29. Use 30-minute epoxy to glue the 3/8" x 3/4" x 1" hardwood **wing bolt blocks** in position. Back these up with 1" lengths cut from the supplied 1/4" hard balsa **triangle stock**.



❑ 30. Place a strip of masking tape over the plywood wing saddle edges. This will prevent them from being inadvertently altered. Use a sanding block to carefully sand the bottom fuse sheeting to the same height as the wing saddle. (A slightly rounded sanding block works best for this.)

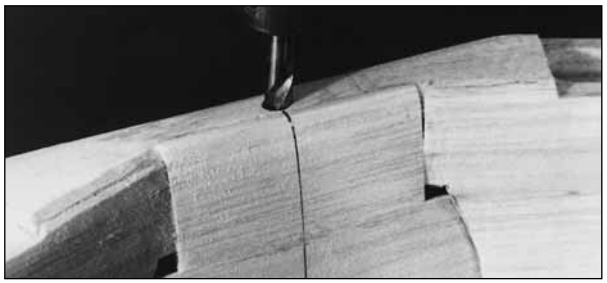




❑ 31. Sheet (cross grain) the wing saddle area with leftover 1/16" balsa wing sheeting. Trim and block sand edges of the sheeting to blend with the fuse sides and the wing saddle.

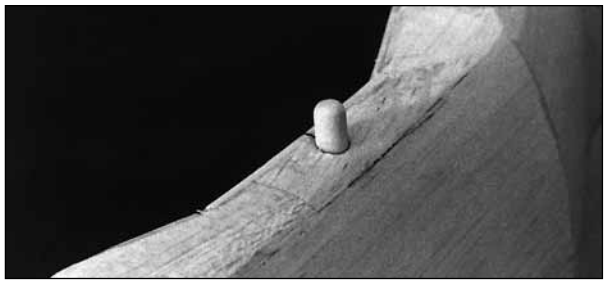
WING MOUNTING

❑ 1. Draw an accurate centerline on both the wing and the fuse to aid you in the wing mounting process.

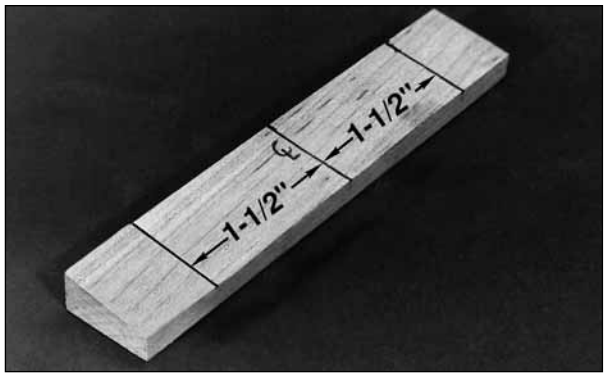


❑ 2. Drill a 5/16" hole in the LE of the wing through the existing hole in the forward dowel plate (DP) and through the aft dowel plate (ADP).

❑ 3. Round the ends of the 5/16" x 3-3/8" **dowel** and install it into the hole you drilled. Trial fit the wing onto the fuse. Make any adjustments to the wing and fuse necessary for a good fit. If the dowel alignment is interfering with the wing fit, “oblong” the hole in the forward dowel plate using a round file.

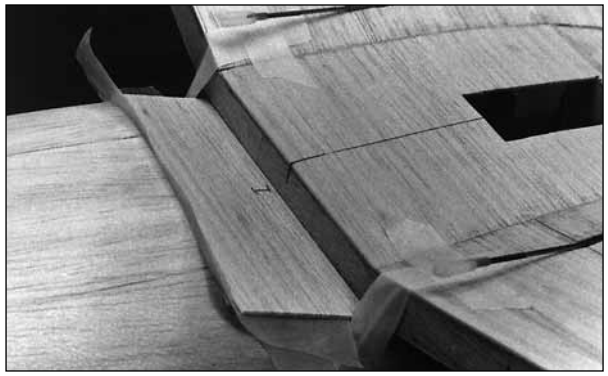


❑ 4. Epoxy the dowel into the wing so it protrudes about 1/2" forward of the LE.



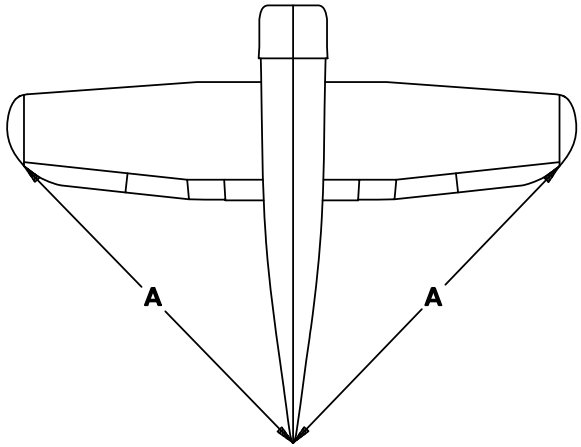
❑ 5. Mark the **tapered hardwood bolt plate** with a centerline. Put two lines 1-1/2" outside the centerline on the non-tapered (square) side of the block. Drill two 3/16" pilot holes 3/8" behind the front (thick) edge of the block. Refer to plan for exact locations.

❑ 6. Cover the aft portion of the wing saddle with waxed paper. Place the wing in the wing saddle. Use masking tape to hold the wing securely in place. Carefully align the wing visually and with the centerlines you drew.



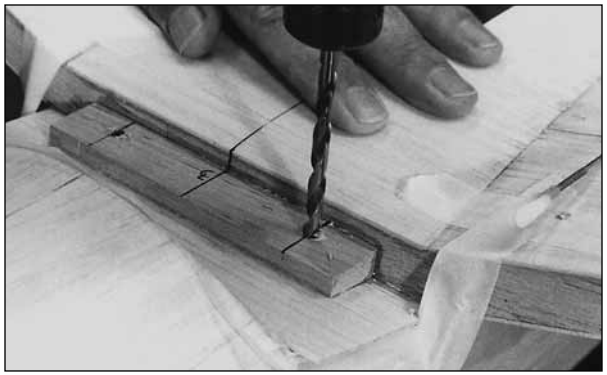
❑ 7. Cut a piece of 1/16" balsa to fit in the wing saddle behind the wing. Glue it to the aft edge of the wing.

❑ 8. Epoxy the tapered hardwood bolt plate to the aft edge of the wing and the 1/16" balsa sheet (see photo at step 10).

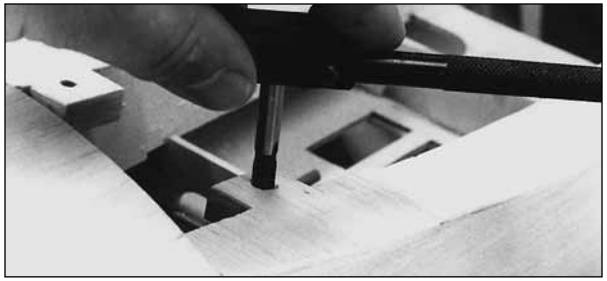


DISTANCES MUST BE EQUAL

❑ 9. Push a T-pin into the center of F-12. Tie a piece of string to the pin. Use the string to check the distances between the pin and the wingtips. **They should be equal**.



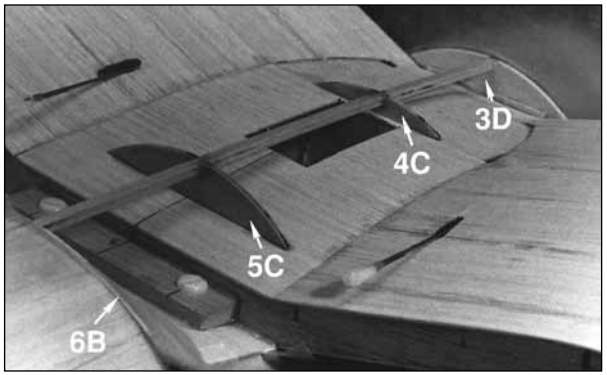
❏ 10. Tape and hold the wing firmly down. Use a 13/64" bit to drill through the pilot holes in the tapered bolt plate and through the wing bolt blocks.



❏ 11. Remove the wing and tap the wing bolt blocks in the fuse with a 1/4-20 tap. Drill out the tapered bolt plate in the wing with a 1/4" drill to clear the wing bolts.

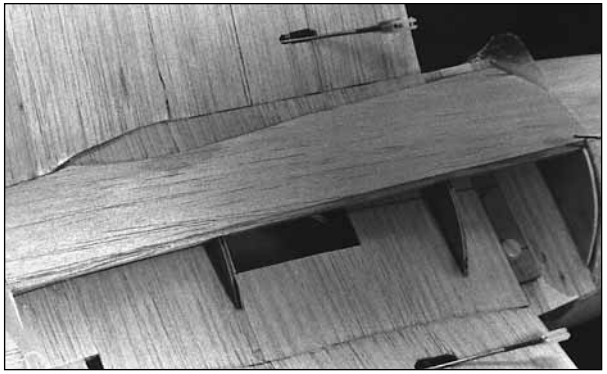
❏ 12. Keep the saddle covered with waxed paper. Bolt the wing onto the fuselage with two 1/4-20 nylon bolts.

❏ 13. Bevel the edges of the 1/8" die-cut plywood **F-6B** to allow the wing saddle to blend into the fuselage (see fuse side view). Glue F-6B in place; the waxed paper **must** keep the glue off the fuselage.



❏ 14. Test fit **F-3D** at the front of the wing saddle. Trim it if necessary so it matches up nicely with F-3B. Use waxed paper to make sure it does not get glued to the fuselage. Glue F-3D to the wing.

❏ 15. Glue a 3/16" sq. stringer between F-3D and F-6B. Slide **F-4C** and **F-5C** under the stringer. Trim the height of F-4C and F-5C if necessary to obtain a smooth profile in the belly-pan area.



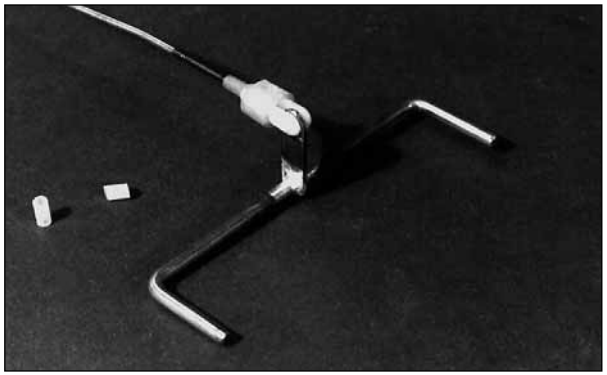
❏ 16. Cut the 3/32" x 3" x 30" balsa belly-pan sheeting using the approximate pattern on the plan. Fit and glue the sheeting in place as shown in the photo.

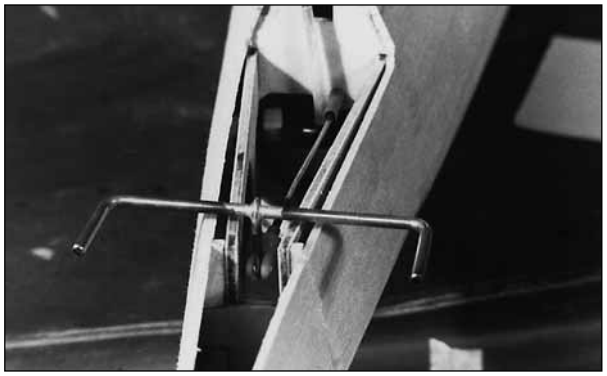
❏ 17. Cut 1/2" access holes in the belly pan sheeting for the wing bolts. Glue lengths of cardboard tubes into the access holes, but do not glue the bolts. Trim their length close with a knife, then sand flush with a block and sharp sandpaper.

❏ 18. Make two triangles from 1/8" leftover balsa. Glue them in place behind the wing TE and fair in.

STAB & FIN MOUNTING

❏ 1. Notch the bottom of the stab as shown to allow elevator horn movement.



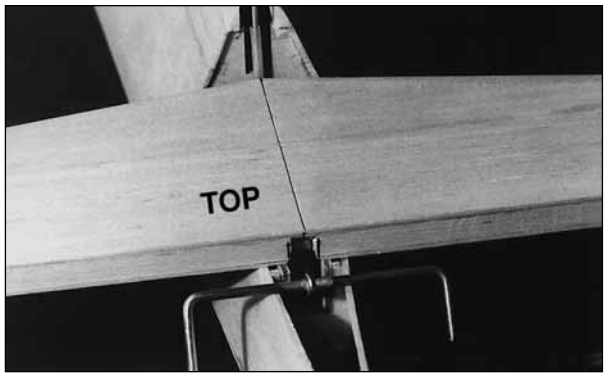


❑ 2. Cut off the metal elevator horn so only two 1/16" holes remain. Check the holes in the horn and remove any sharp edges or burrs that may damage the clevis pin. Prepare the elevator pushrod by screwing a nylon clevis onto a .074 x 34" **threaded pushrod wire** until the threads protrude slightly into the clevis opening. Slide a 1/4" long piece of medium silicone fuel tubing down the pushrod to act as a safety sleeve on the elevator clevis. Slide 5/16" pieces of inner pushrod tube onto the wire, spacing them about 3" apart. Hook the nylon clevis to the outside hole on the elevator control horn and slide the safety sleeve over the clevis.

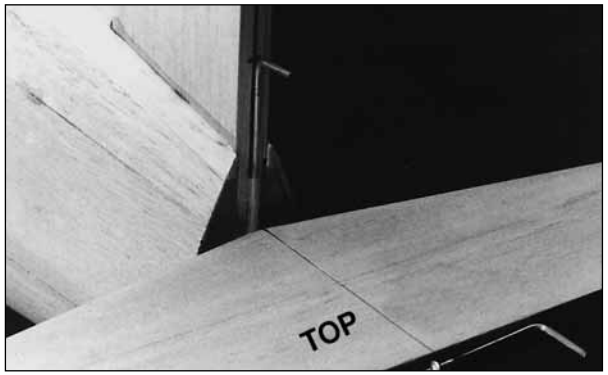
❑ 3. Securely glue the die-cut 1/8" plywood **stab base (SB)** in flush with the two stab base supports. Be sure the rudder torque rod is in its proper upright position.

❑ 4. Position the stab in place on the stab base and stab base supports. Check the stab alignment with the wing. If any slant is detected, apply masking tape to the low side of the stab supports and block sand the other side of the base until the stab will sit level.

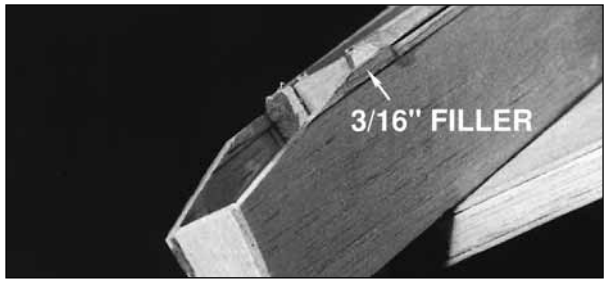
CAUTION: Do not change the stab incidence which is set by the stab base supports.



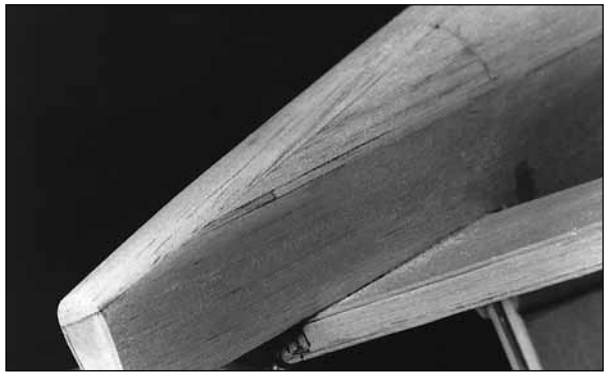
❑ 5. Check the stab alignment visually and with a string from the top center of F-2 to the stab tips. Epoxy the stab in place – check the final alignment before the epoxy cures.



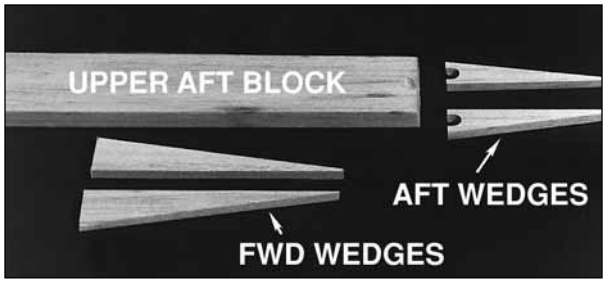
❑ 6. When the stab epoxy has cured, check the fit and alignment of the fin and adjust if necessary (a 90 deg. triangle placed on the stab will help you detect any fin tilt). Use 30-minute epoxy to glue the fin in place.



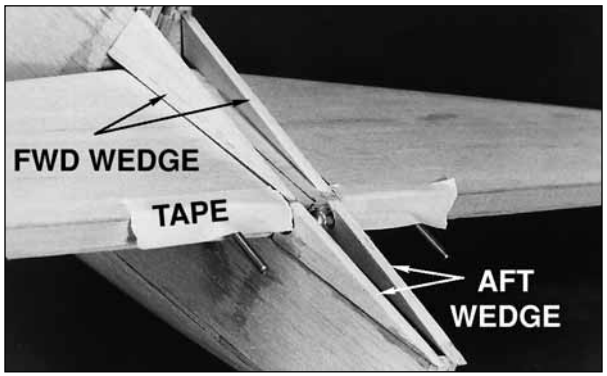
❑ 7. Taper the fuse side sheeting between F-11 and F-12 as shown on the fuse side view. Look at the photos and the plan, and note where leftover 3/16" balsa filler is glued on.



❑ 8. Angle the front edge of the 3/8" x 2-1/2" x 7-3/4" **lower aft fuse block**. Glue the block to the bottom of the fuse. Use a razor plane and a bar sander to shape the block.

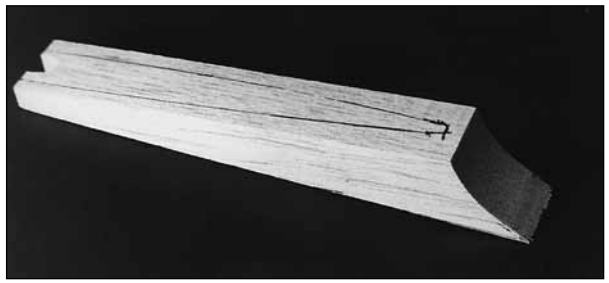


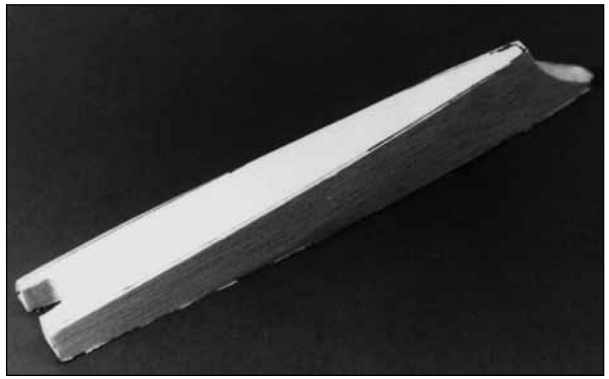
❑ 9. Look at the photo and the plan. Make FWD and AFT wedges from 3/16" or 1/8" leftover balsa. Note the clearance holes in the aft wedge for the elevator torque rods.

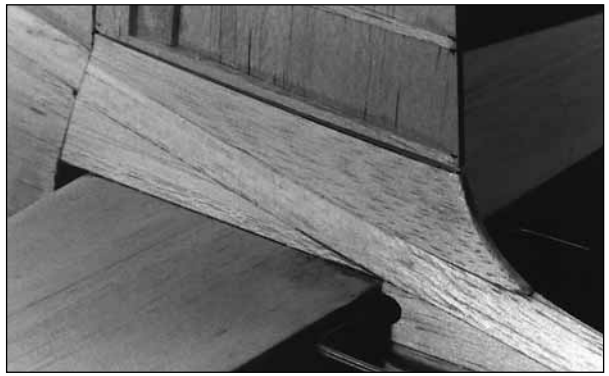


❑ 10. Glue the wedges in place. Use masking tape to protect the stab while you sand the tops of the wedges flush. Fit the 1/2" x 1" x 7-1/2" **upper aft fuse block**. Glue it in place. Rough shape the sides of the block to a taper but **do not** round the corners until after the **rudder fillet block** is installed.

❑ 11. Move the rudder torque rod through its range of motion. Make sure it is at an elevation where it is not binding or striking a former. Mark the height on the rudder where the torque wire bends aft. Drill a 3/32" hole in the rudder to engage the wire. Slot the lower leading edge of the rudder to accept the remainder of the torque rod.

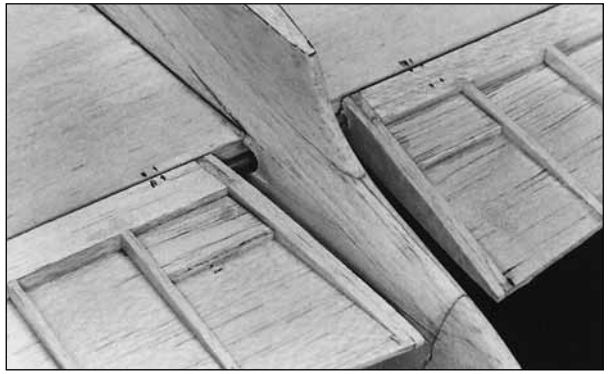




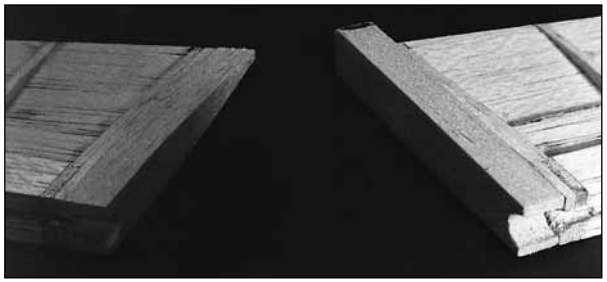


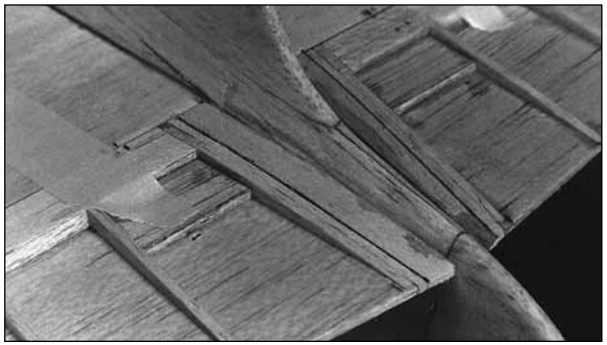
❑ 12. Refer to the plan to obtain a starting point for shaping the 3/4" x 1" x 6" **rudder fillet block**. Shape the rudder fillet block by trial fitting it between the rudder and the fuse. Mark the radius on the side of the fillet block by extending a line off the bottom of the rudder. When the shape is close, glue the fillet block in place on the fuselage. Use the photos to assist you in obtaining the final shape of the fillets.

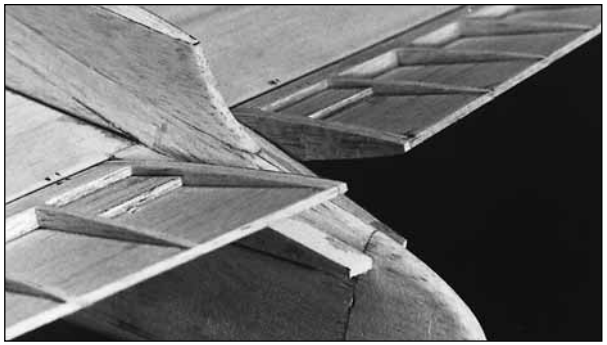
❑ 13. Sand the end of the fuselage flat and glue the shaped balsa **aft tip block** to the end of the fuselage. Sand it to shape.



❑ 14. Mark the elevators left and right. Mark the location of the torque rods on the elevators. Drill the elevators with a 1/8" bit to accept the torque rod. Notch the LE of the elevator to accept the torque rod.







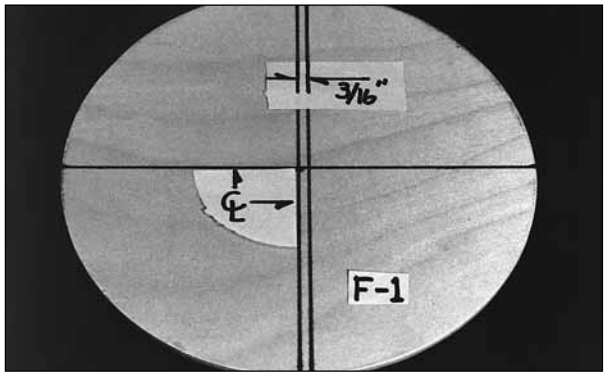
❑ 15. Cut two 3-1/8" long elevator **fillet blocks** from 3/8" x 1/2" stock. **Tack glue** one to the root end of each elevator. Carve and sand them to match the taper of the elevators. Bevel the root end until the blocks mate to the fuselage when the elevators are both **neutral** (make sure the elevators are both aligned the same). Glue the fillet blocks to the fuselage while the elevators are both neutral. When the elevator blocks are properly glued to the fuselage, break loose or cut through the tack glue joints, leaving the fillet blocks attached to the fuselage. Sand the root end of the elevator to provide clearance between the elevator and the fillet.

FIREWALL AND ENGINE INSTALLATION

Read through this entire section before proceeding!

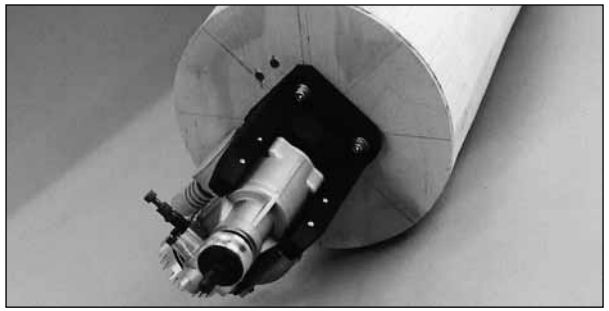
Depending on your choice of engine, 2-stroke or 4-stroke, you may have to be a little inventive for engine mounting and throttle, tank and muffler hookup. The installation of a 2-stroke .60 to .75 size engine with a Top Flite In-Cowl Muffler (TOPQ7915) is pretty straightforward. Some 4-stroke engines allow the throttle linkage to be rotated 180 degrees, thereby permitting the same servo setup as a 2-stroke engine. The O.S. .91 Surpass is one such engine.

This model flies very well on an O.S. .61 SF 2-stroke engine. As the .61SF also allows for the most “sterile” setup with everything contained in the cowl, we will detail its installation.



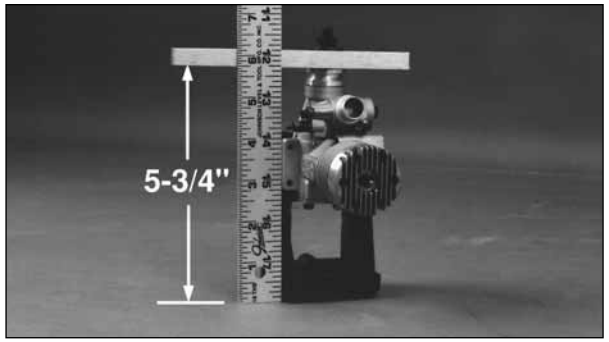
❑ 1. Mark a horizontal and vertical centerline on the firewall **F-1**. Mark a line 3/16" to the right of the centerline. (If the engine mount is centered on this line, 2 deg. of right thrust starting at the firewall will cause the prop shaft to be centered in the cowl.

❑ 2. Spread 30-minute epoxy over the entire firewall. Use multiple strips of masking tape to hold the firewall to the fuselage while the epoxy cures. Install the firewall so the reference lines are vertical and horizontal.



❑ 3. Decide how you will mount the engine. For a .61 size 2-stroke engine, mounting at a 45 degree inverted position will allow the cowl to be installed as shown on the plans. Mounting the engine in other positions will require the cowl mounting bolts to be relocated.

❑ 4. Remove the spacer bar from the back of both **engine mount** halves and trim off any burrs. Snap the Engine Mount halves together and place the engine between the rails, adjusting the width between the rails accordingly.



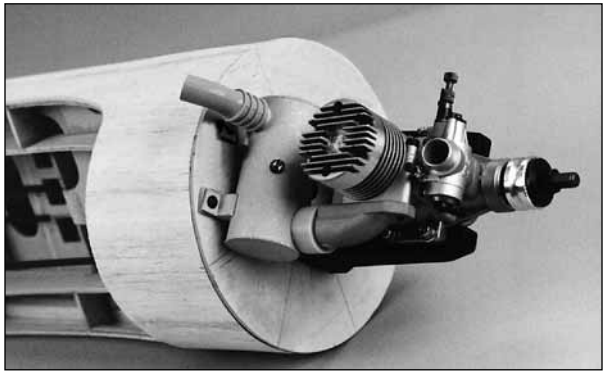
❑ 5. Position the engine so that the propeller backplate is exactly 5-3/4" (146 mm) from the aft

edge of the **engine mount.** Mark, drill and tap the engine mounting holes to accept 8-32 socket head cap screws.

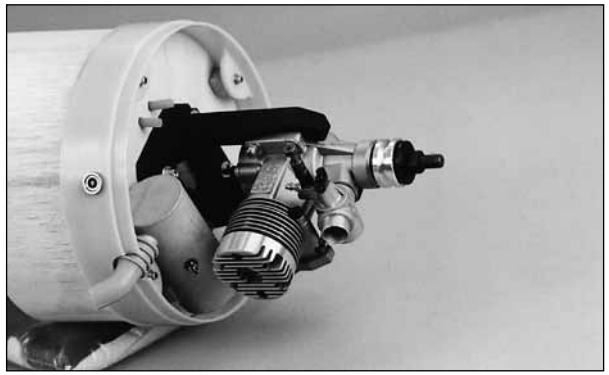
❑ 6. Center your engine mount over the lines you drew on the face of the firewall. Mark and drill the engine mount holes in the firewall. Install the engine mount on the firewall with four 8-32 x 2" socket head cap screws, #8 flat washers and #8 lock washers. Cut off the excess screw length, if any, that protrudes into the tank compartment.

NOTE: The firewall is already marked for the 45 degree inverted position.

❑ 7. Drill holes in the firewall for the fuel lines and the throttle pushrod. The location of these holes will depend on the engine installation you choose.



❑ 8. Before mounting the muffler you will have to modify the Top Flite Engine Exhaust Header (not included) and the Top Flite In-Cowl Muffler (not included). Trim 3/8" from the outlet end of the Engine Exhaust Header and 1/8" from the Muffler inlet. Other engine and muffler combinations will require different modifications. Bolt the Top Flite Header to the engine. Use the Silicone Sleeve to attach the Top Flite In-Cowl Muffler to the header. Mount the Muffler to the firewall with the supplied screws and silicone washers.



❑ 9. Place the molded plastic aft cowl ring on the front of the model. The 1/8" mounting holes are rotated 45 degrees from the horizontal and vertical axis as shown in the photos. These holes may have to be relocated depending on how you mount your engine. Mark and drill these holes with a 5/32" drill.

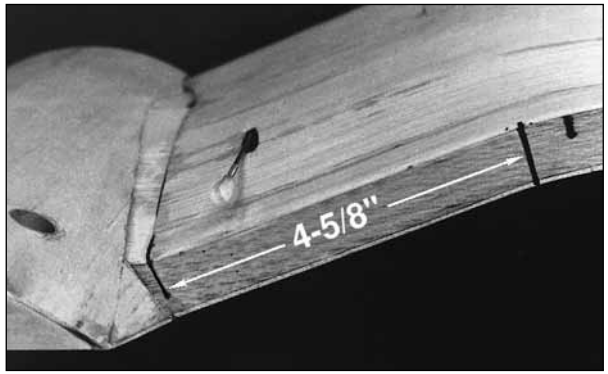
❑ 10. There are four 1/2" x 1/2" x 11/32" **maple spacer blocks** provided for mounting the cowl ring. Drill a 1/8" hole through two of these blocks on the face that is 1/2" thick. On the other two blocks drill a 1/8" hole through the face that is 11/32" thick. The thicker blocks are used on the right side of the ring and the thinner ones on the left side. You may have to trim one of the blocks to clear the muffler.

❑ 11. Use 4-40 x 1-1/2" socket head cap screws, #4 flat washers and #4 lock washers in conjunction with 4-40 blind nuts inside the firewall to mount the cowl. Cut off excess screw length, if any, that protrudes into the tank compartment.

FLAPS

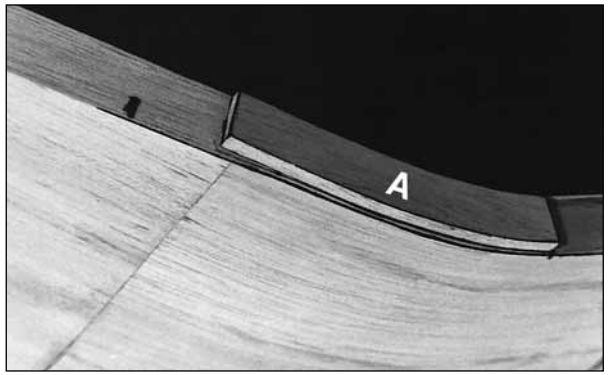
(Fixed and Operating)

❑ 1. Square up the trailing edge of the wing with a sanding bar.



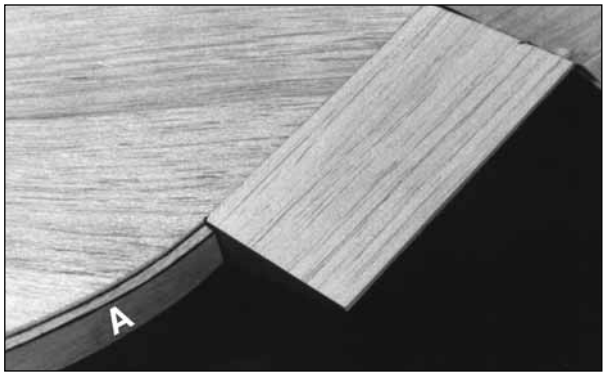
❑ 2. Put a mark 4-5/8" outside the sheeting junction at R-5. Refer to the aft view of the wing on the plan for flap and hinge locations.

❑ 3. Locate the **aft (A) flap LE.** Check its fit on the outboard side of the mark you made. Taper **(A)** with sandpaper if necessary to allow a 1/16" balsa top and bottom skin to blend into the wing TE. (The **forward (F) flap LE** is not used for fixed flaps; it will be used later on operating flaps.)



❑ 4. Tack glue **(A)** in place as shown. (Glue it solidly for fixed flaps.)

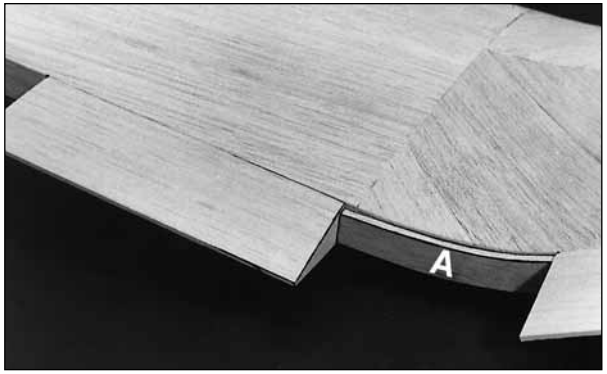
❏ 5. Cut off a 5" piece of tapered **aileron/flap stock**. This is the inner flap. Angle the inboard end to match the fuse fairing. Trim its length so it fits just inside of **(A)**.



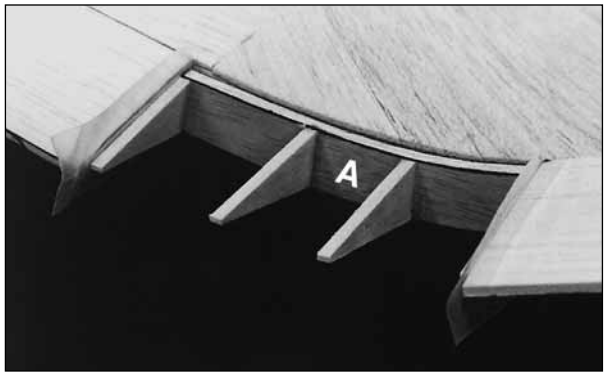
❏ 6. Tack glue the inboard flap section in place. (Glue it solidly for fixed flaps.)

❏ 7. Put a mark 11-1/2" inboard of the wing's tip rib T-7. This is the outer flap/aileron junction.

❏ 8. Cut off a 7-1/4" length of flap/aileron stock. This is the **outer flap**. Trim the inboard end of the outer flap to match angle on the plan. (100 deg.) Place the outer flap in position against **(A)**. Trim the length of the outer flap until it extends just to the outer flap/aileron junction mark. The cut-off angle at the outboard end of this flap is 90 degrees.

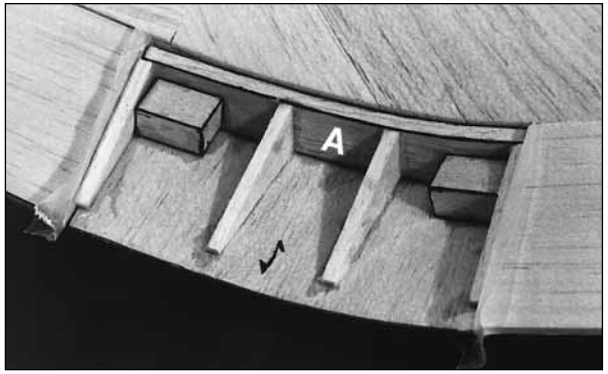


❏ 9. Tack glue the outer flap in place. (Glue it solidly for fixed flaps.)



❏ 10. Glue the die-cut balsa **flap ribs** to A as shown the photos. (These parts are found in die-cut sheets CRS6S03 and CRS6S05. Use the 3/32" parts at the ends of the middle flaps and the 1/16" parts in the middle.) Notice that waxed paper is used to separate the flap ribs from the other flaps if you are making operational flaps. (Omit the waxed paper for fixed flaps).

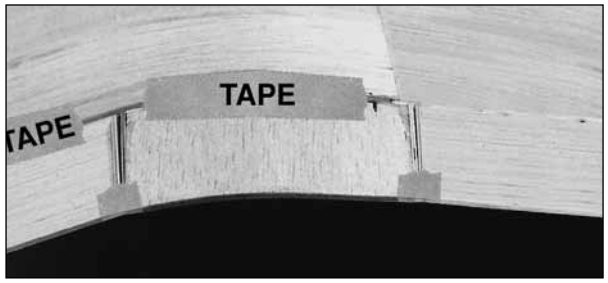
❏ 11. Make the bottom middle flap skins from 1/16" balsa. Note the fore and aft grain direction. Taper the very aft edge of the skin slightly. This will yield a thinner and stronger TE. Glue the bottom skin to the flap frame.



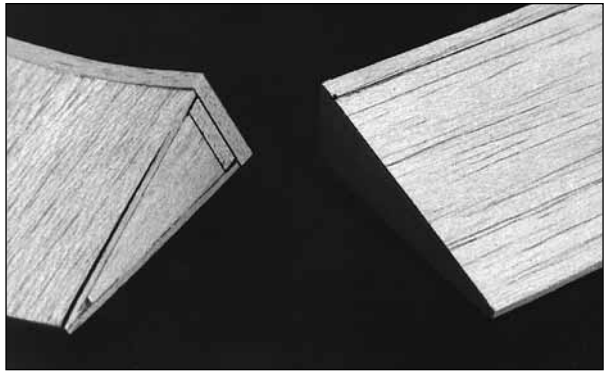
❏ 12. If you are making operational flaps, cut four 3/4" lengths from 3/8" x 1/2" balsa stock. Glue these "hinge anchors" to the TE next to the bottom skin as shown.

❏ 13. Fit a piece of 1/16" sheeting for the top skin. Taper the aft edge of the skin as you did on the bottom skin. Glue the top skin in place (if you are building operating flaps, do not glue the flaps solidly to the wing). Apply thin CA to the TE to harden it.

Skip to WING TIPS if you use fixed flaps



❏ 14. Mark hinge locations clearly on the wings and the flaps. Mark lines 1/16" from the seam on both sides of the junctions where the middle flaps meet the other flaps (see photo). This material will be removed to allow the die-cut 1/16" plywood **flap ends** to be glued to concerned flap ends.



❏ 15. Pop loose all flap sections. Glue the 3/16" x 7/8" pieces cut from the stick provided to the front edge of the inner and outer flaps. The die-cut 3/16" balsa **flap LE (F)** is glued to the front edge of the middle flap. Use a bar sander to true the ends of the added wood.

❑ 16. Trim the end of the flaps to the lines you drew earlier. Glue the flap ends to the edges you previously trimmed. Drill a 3/32" hole in each die-cut 1/16" flap end where the punch mark indicates. Study the cross-section on the wing plan to properly orient flap ends.

Tips for using Robart Hinge Points

1. 1/8" holes are drilled to insert the shank of the hinge. (Robart has a handy drill jig available to help you drill accurate holes in surfaces where the hinges are on the centerline.) Use a sharp #11 knife to enlarge the hole slightly where the hinge pivots.

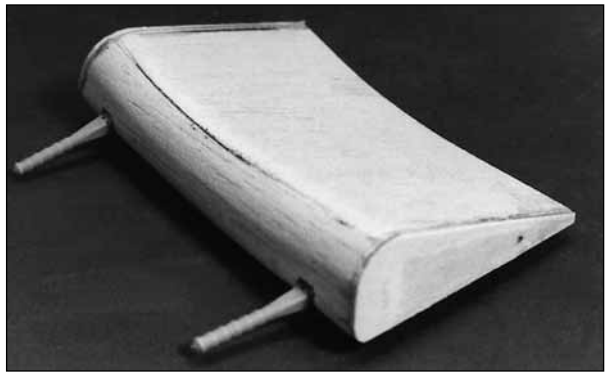
2. Rough up the hinge with 80 grit sandpaper and apply a very small amount of petroleum jelly to the hinge joint before gluing.

3. Fill the hinge hole approximately 1/2 full of 15 to 30-minute epoxy and insert the hinge.

Hint: The hinges can be bent over at a sharp angle while the glue is curing to help you align all the hinge pivots with each other.

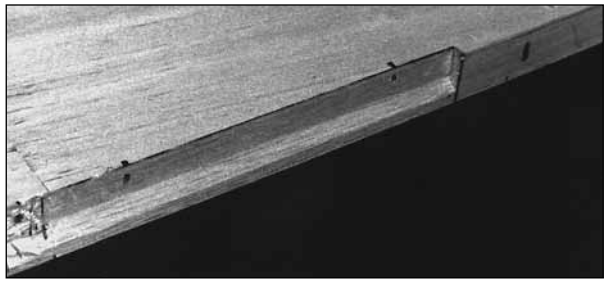
❑ 17. Drill 1/8" holes into the wing TE about 3/16" above the bottom of the bottom wing skins and on the spanwise location already marked. These holes should angle slightly toward the center of the wing for maximum strength. (The holes are for Robart Hinge Points).

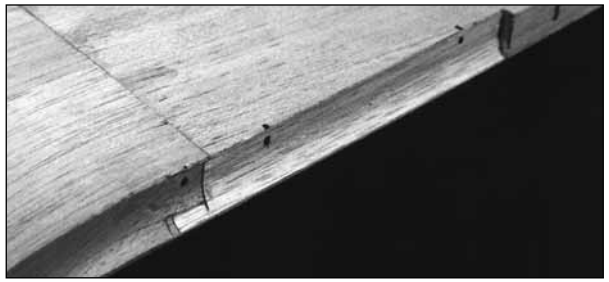
❑ 18. Drill 1/8" holes in the flaps in the same manner. Trial fit the flaps as you go to find out if you need to make any adjustments to your technique.



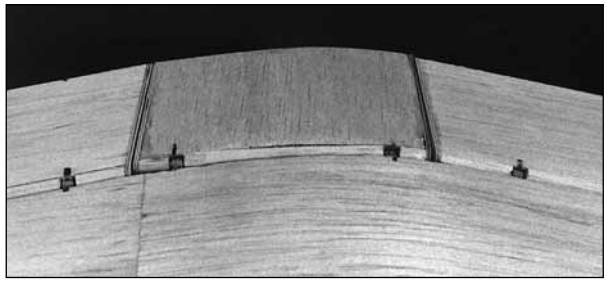
❑ 19. Sand the LE of the flaps to the proper shape. The inner and outer flaps are sanded to a constant LE shape which is cut into the flap ends and shown on the plan. The middle flap is a little different. It is rounded extra in the middle. Study the photos of the middle flap. All flaps will have final adjustments made before covering.

❑ 20. Drill 3/32" holes through the flap ends **straight** into the inner and outer flaps. Notice the oblong holes cut into both ends of both middle flaps in the photo and on the plan. Carefully cut them into your middle flaps now.

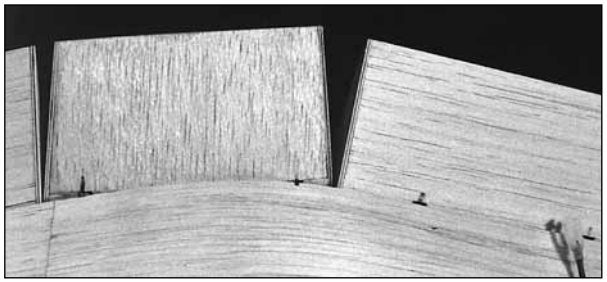




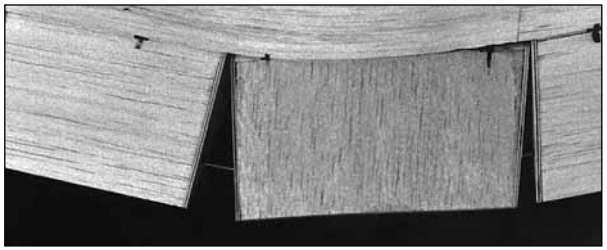
❑ 21. Mark a line on the bottom of the wing in the area of the flaps 3/16" forward of the TE. Study the plan and photos to see the end result you are seeking. Notice that the TE at the top surface of the wing is not altered. Use a knife and a straight edge to cut into the bottom of the wing. Use a knife, Dremel drum sander, or other tools if you prefer to carve the wing TE to the shape indicated.



❑ 22. Test fit the flaps. They should fit well into the wing TE and should pivot down freely through 50 degrees of travel. As discussed earlier, the middle flaps require a larger radius at their center. If any of the flap ends or hinge holes require shimming, do so with hard balsa.

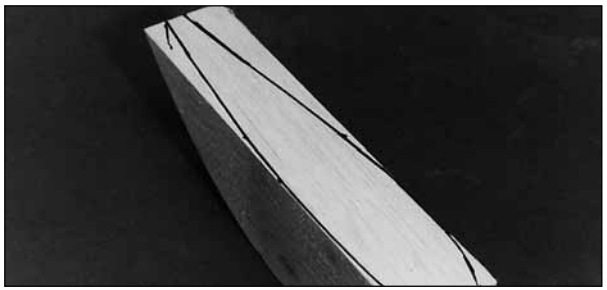


❑ 23. Clean the 3/32" x 1-1/2" wires, then insert them into the appropriate ends of the inner and outer flaps. The wires should protrude 3/4" out from the end of the inner flap and 1/2" out of the outer flap.



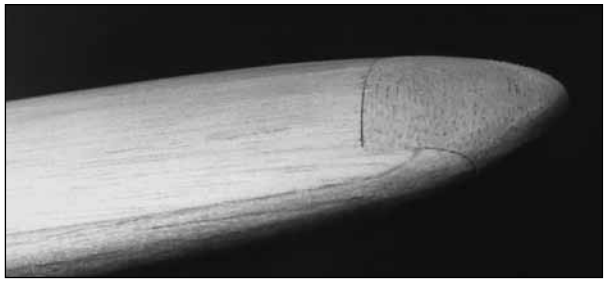
❑ 24. Test fit and operate the flaps one more time. Make any adjustment that are necessary. The wires will be glued into the inner and outer flaps **after finishing**.

WING TIPS



❑ 1. Tape a shaped balsa **wing tip** in place on the end of the wing. Use a pen to mark the airfoil and LE shape onto the wing tip.

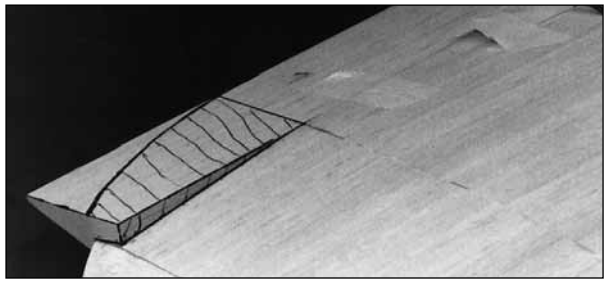
❑ 2. Remove the tip and rough cut away some of the excess wood. You may also hollow out the tip slightly if you desire.

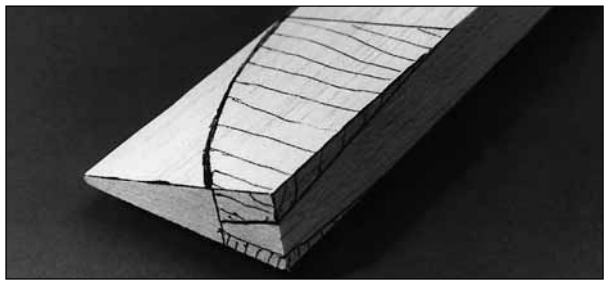


❑ 3. Glue the tip solidly in place and shape it as per the plan and photos. **The very aft portion will be final shaped later in conjunction with the ailerons**.

AILERONS

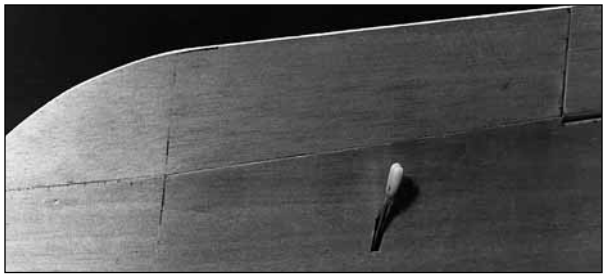
❑ 1. Cut off a 12" piece of tapered aileron/flap stock. Fit the aileron between the flaps and the wing tip. Mark a centerline on the wing TE and aileron LE.





❑ 2. Tape the aileron to the wing TE in the proper position. Draw lines on the aileron as in the photos to indicate the taper of the wing. Also mark the top profile as shown on the plan.

❑ 3. Remove the aileron and carve it to the approximate shape. Tape the aileron back onto the wing and finish shaping the aileron and wing tip.



❑ 4. Cut the hinge slots in the wing and ailerons.

❑ 5. Taper the leading edge of the aileron to match the cross-section on the plan.

❑ 6. Make two (four for flaps) 3/4" x 1" horn reinforcement blocks from leftover 1/8" plywood.

❑ 7. Mark the locations of the reinforcement blocks on the ailerons and flaps (if used) as shown on the plan. Cut away some of the balsa material to allow the blocks to be inset flush with the bottom of the ailerons and flaps. Use 6-minute epoxy to glue the pieces in position.

❑ 8. Blend the reinforcement blocks with a sanding block.

THIS COMPLETES THE BASIC CONSTRUCTION SEQUENCE

FINISHING

COWL FINISHING

❑ 1. Clean the fore and aft cowl pieces with warm water and a mild detergent to remove any molding residue. Use rough sandpaper to score areas where the two pieces are glued together. Test fit the forward and aft cowl pieces together. It is easiest to trim any “flash” from the cowl pieces before they are glued together.

❑ 2. While holding the two cowl pieces together, apply thin CA from the inside and allow it to wick into the joint.

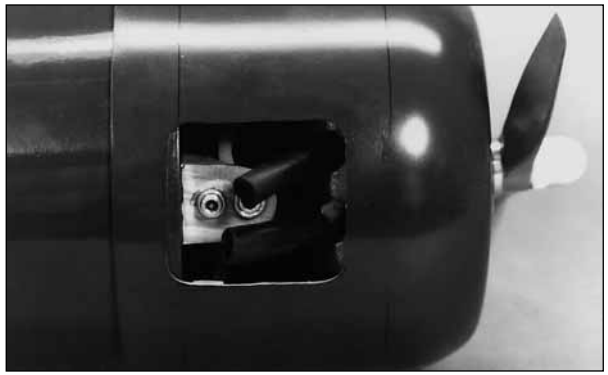
❑ 3. Carefully apply some thin CA to the outside of the joint. Sand the seam down to the original level or slightly below. Fill any imperfections with your favorite filler. Bondo auto body filler can be used in very small amounts to fill cowling imperfections. Use of Bondo or similar fillers is **not** recommended for other parts of the model.

❑ 4. Sand the entire cowl with 400 grit sandpaper.

❑ 5. Test fit the cowl to determine the cooling, glow plug and exhaust hole locations (see Cooling Notes section). Cut out the necessary holes. A Dremel MultiPro is useful here.

❑ 6. Fit and glue the baffle in place now (see Cooling Notes on page 40).

❑ 7. Paint the cowling as desired. For best results, prime and sand the cowl first (see the following cowl detail photos).



FINAL SANDING

Nearly every imperfection in your wood structure will show through the covering material. Therefore, before covering, you should make a final check of the entire structure. Fix any “dings,” then sand the entire structure smooth using progressively finer grades of sandpaper.

FUELPROOFING

Note: Fuelproofing may be done after covering.

❑ 1. Fuelproof the firewall area and the cowl baffle. Black K&B Superpoxy paint was used for this on the prototypes.

❑ 2. Fuelproof the inside of the fuselage forward of F-3. K&B polyester resin and a bent epoxy brush was used for this on the prototypes.

❑ 3. Fuelproof any external exposed wood. Top Flite LustreKote™ paint works nicely here.

BALANCE THE AIRPLANE LATERALLY

SPECIAL NOTE: Do not confuse this procedure with "checking the C.G." or "balancing the airplane fore and aft." That very important step will be covered later in the manual.

Now that you have the basic airframe nearly completed, this is a good time to balance the airplane **laterally** (side-to-side). Here is how to do it:

❑ 1. Temporarily attach the wing and engine (with muffler) to the fuselage.

❑ 2. With the wing level, lift the model by the engine propeller shaft and the aft tip block (this may require two people). Do this several times.

❑ 3. If one wing always drops when you lift, it means that side is heavy. Balance the airplane by gluing weight to the other wing tip.
NOTE: An airplane that has been laterally balanced will track better in loops and other maneuvers.

COVERING

Because it is assumed that you have had some previous model building experience, we won't go into detail in regard to the covering procedure. **Follow the instructions included with your covering material**.

NOTE: When covering areas that involve fillets and sharp junctions, like the tail section of the Corsair, cut narrow strips (3/8" to 5/8") and apply them in the corners before covering the major surfaces. The larger pieces of MonoKote film will overlap and capture these smaller surfaces. This technique also bypasses the need to cut the MonoKote film in these areas after it is applied. **DO NOT,** under any circumstances, attempt to cut the covering material after it has been applied to the fin and stab, except around the leading and trailing edges and the tip. Modelers who do this often cut through the covering and part-way into the balsa stab. This can weaken the stab to the point where it may fail in flight!

The F4U Corsair prototypes first had the wing tips covered with yellow MonoKote film. Then they were completely covered with insignia blue MonoKote film (with the exception of the wing tips and anti-glare panel).

Recommended Covering Sequence:

1. Fillet Strips as described in above note
2. Rudder left side
3. Rudder right side
4. Bottom of elevators
5. Top of elevators
6. Stab bottom
7. Stab top
8. Fuse bottom
9. Fuse sides
10. Fuse top
11. Fin left side
12. Fin right side
13. Ends of ailerons and flaps
14. Bottom of ailerons and flaps
15. Top of ailerons and flaps
16. TE surfaces of wing (at ailerons and flaps)
17. Oil coolers and fairings (on bottom of wing)
18. Bottom of left wing panel
19. Bottom of right wing panel
20. Top of left wing panel (overlap covering 1/4" at wing LE)
21. Top of right wing panel (overlap covering 1/4" at the LE)

When covering concave surfaces, follow the iron with a damp cloth, pressing the covering down.

APPLY DECALS AND TRIM

NOTE: The decal sheet does not give you everything you need to completely trim your model; it does, however, provide all the intricate detailing and difficult items.

❑ 1. Study the plan and the photos on the box to determine where to place the decals.

❑ 2. Thoroughly clean your airplane before applying decals.

❑ 3. Cut out the individual decal items and apply them in the locations shown on the plan.

NOTE: Certain non-scale decals are provided which you may use at your discretion, such as the "Top Flite" logo and the "kill" markings.

HINT: To apply decals accurately, peel only a small portion of backing from one end, cut off the backing with a scissors, position the decal carefully, press down the exposed portion of the decal, peel off the rest of the backing, then (working from the already stuck down end) carefully press down the rest of the decal.

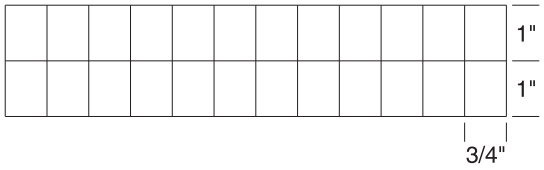
❑ 4. The top of the fuselage in front of the canopy can be covered with black MonoKote film. You can also cover the entire fuse with insignia blue, then mask and paint the top with black LustreKote followed by flat clear.

❑ 5. We recommend Top Flite LustreKote™ insignia blue paint be used on the cowl to provided a satisfactory match to the MonoKote covering.

❑ 6. For drawing the "panel lines," we used a Top Flite Power Line fine point pen, which is available from hobby supply stores. Although not completely fuelproof, we like using this pen because it draws very nicely on MonoKote film and the lines may be removed if necessary with 70% rubbing alcohol. The plane may be cleaned with most cleaners without affecting the lines, however.

❑ 7. As a finishing touch, we added a 3 blade static prop and dummy replica radial engine for competition use and display.

HINGING



❑ 1. With reference to the above sketch, cut **18 hinges** from the supplied 2" x 9" composite hinge material. You will need six hinges for the elevators and two for the rudder. Each aileron gets three hinges.

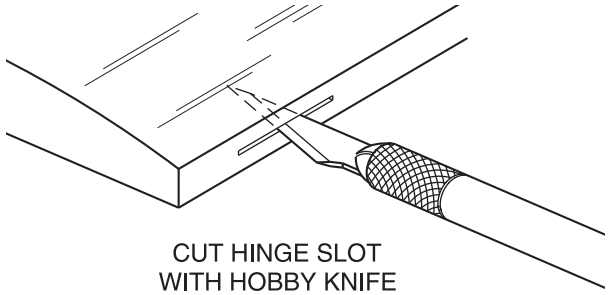
❑ 2. Draw a centerline on the TE of the stab and the LE of the elevators. Do the same for the fin and rudder.

❑ 3. Use the plan as a guide to mark the locations of the hinges on all tail components – fin, rudder, stab, elevator, the wings' TE and the ailerons. Read the following instructions, then cut matching hinge slits in all parts. **Do not use any glue until step 4.**

INSTALLING CA HINGES

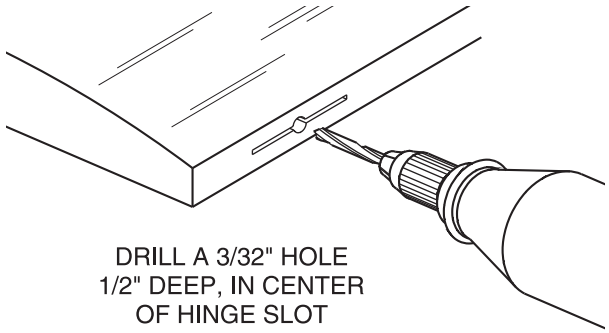
The hinge material supplied in this kit consists of a 3-layer lamination of mylar and polyester. It is specially made for the purpose of hinging model airplane control surfaces. Properly installed, this type of hinge provides the best combination of strength, durability and ease of installation. We trust even our best show models to these hinges, but **it is essential to install them correctly**. Please read the following instructions and follow them carefully to obtain the best results. These instructions may be used to effectively install **any** of the various brands of CA hinges.

The most common mistake made by modelers when installing this type of hinge is not applying a sufficient amount of glue to fully secure the hinge over its entire surface area; or, the hinge slots are very tight, restricting the flow of CA to the back of the hinges. This results in hinges that are only "tack glued" approximately 1/8" to 1/4" into the hinge slots. The following technique has been developed to help ensure thorough and secure gluing.



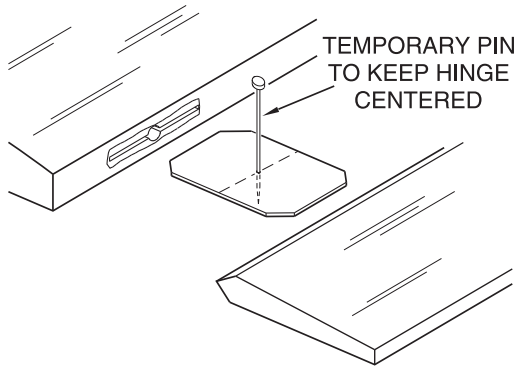
CUT HINGE SLOT
WITH HOBBY KNIFE
AND #11 BLADE

A. Cut the hinge slot using a #11 blade in a standard #1 knife handle. The CA hinges provided have a thickness that fits this type of slot very well. Trial fit the hinge into the slot. If the hinge does not slide in easily, work the knife blade back and forth in the slot a few times to provide more clearance (it is really the **back edge** of the blade that does the work here in widening the slot).



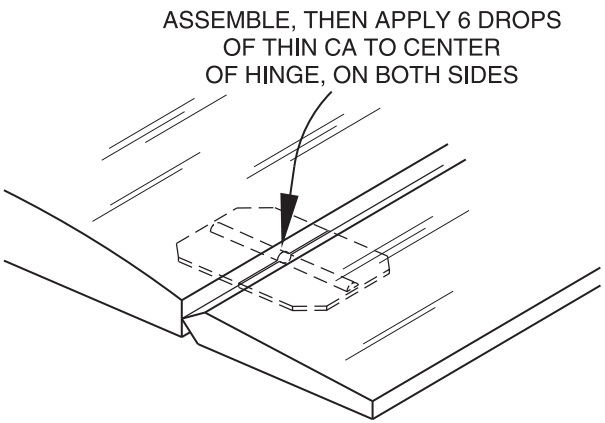
DRILL A 3/32" HOLE
1/2" DEEP, IN CENTER
OF HINGE SLOT

B. Drill a 3/32" hole, 1/2" deep, in the center of the hinge slot. If you use a Dremel MultiPro® for this task, it will result in a cleaner hole than if you use a slower speed power or hand drill. Drilling the hole will twist some of the wood fibers into the slot, making it difficult to insert the hinge, so you should reinsert the knife blade, working it back and forth a few times to clean out the slot.



Note: When hinging the rudder and elevator which use torque rods, use a toothpick to force epoxy down the hole drilled for the torque rod. In the case of the rudder, be sure not to let glue get into the bearing tube.

C. Insert the hinges and install the control surface. Verify the left-right positioning of the control surface, and close up the hinge gap to 1/32" or less. It is best to leave a very slight hinge gap, rather than closing it up tight, to help prevent the CA from wicking along the hinge line. Make sure the control surface will deflect to the recommended throws without binding. If you have cut your hinge slots too deep, the hinges may slide in too far, leaving only a small portion of the hinge in the control surface. To avoid this, you may **insert a small pin** through the center of each hinge, before installing. This pin will keep the hinge centered while installing the control surface. Remove the pins before proceeding.



❑ 4. Apply **6 drops** of thin CA adhesive to **both sides of each hinge on the elevators and rudder only – not the ailerons yet.** Allow a few seconds between drops for the CA to wick into the slot. Note that the small “tunnels” you created by drilling the 3/32" holes allow the CA to freely travel in to the entire surface of the hinge, producing an extremely secure bond.

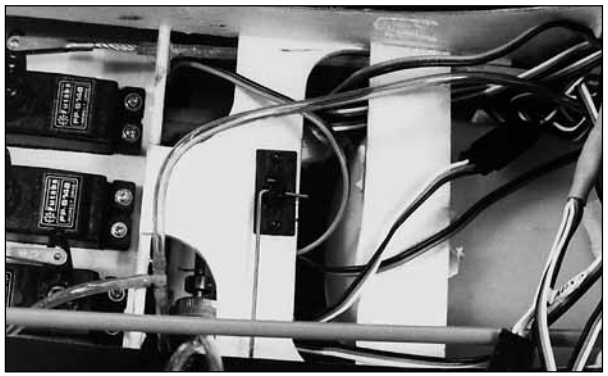
FINAL CONTROL HARDWARE HOOKUPS

❑ 1. Drill 1/16" holes to mount the control horns in the 1/8" ply reinforcement blocks installed earlier. Apply a drop of CA in each hole to harden the area. Install the flap and aileron horns with the #2 x 3/8" sheet metal screws.

❑ 2. Cut down a large round servo horn as shown on the plan - use ball links (not included) or your favorite method to hook up the ailerons. Hook up and adjust aileron and flap linkages at the horns. Make sure they are centered. Refer to the Control Surface Throws section for movement recommendations.

❑ 3. Great Planes Nylon Pushrod Connectors (not included) are recommended for elevator and rudder hookups. Simply bend a 90 degree angle in the pushrod wire and install the connector.

❑ 4. The throttle linkage is left up to you due to the variety of engine types and orientations possible.



❑ 5. The receiver switch can be mounted in the aft portion of the **forward frame** in the fuselage as shown in the photos.

6. The following procedure was followed to mount the GPM 12 oz. fuel tank:

❑ **A**. Assemble the tank per tank instructions. Use extra long external fuel lines for the rigging process.

❑ **B**. Make the plywood cross-member (visible in the preceding photo) from leftover balsa and fit it between the two **wing saddles**.

❑ **C**. Glue approximately 1/2" x 1" x 3" pieces of dense latex foam rubber to one side of the cross-member and to the top of the front shelf of the forward frame. Glue a 1/2" x 1" x 4" strip of latex foam to the inside edge of F-3.

❑ **D**. Feed the fuel lines through the holes in the firewall and gradually pull the tank into position. (See the fuselage side view plan for tank position.)

❑ **E**. Push the cross-member down onto the tank firmly. Make sure none of your lines are kinked. Glue the cross-member to the wing saddles.

COCKPIT FINISHING

(Basic cockpit)

❑ 1. Sand the inside of the cockpit around the edges with 320-grit sandpaper. True up any uneven edge in the cockpit area.

❑ 2. Test fit the pilot into the model. Our Williams Brothers scale pilot required a 3/8" block under him to adjust his height. Assemble and paint your pilot.

❏ 3. Paint the interior of the cockpit. An alternative to paint is to cover the inside of the cockpit with a fine grit black sandpaper for a textured finish. If you use the sandpaper technique, it is still advisable to paint the cockpit corners dark first.

❏ 4. Paint the frame of the canopy. This can be done from the inside or the outside. For best results, use Hobbico® Master Mask™ (HCAR3410) to mask the frame before painting.

❏ 5. Install the **instrument panel decal**. It can be applied directly to the existing panel. **Hint:** For best results, stick the decal to a leftover piece of 1/64" to 1/16" plywood, trim it to shape, and then glue it in place.

❏ 6. Glue the canopy to the model. We used 6-minute epoxy on the prototype. For best results, remove a small strip of covering from under the frame for good glue adhesion. Use masking tape to hold the canopy in place while the glue sets.

RETRACT NOTES

❏ 1. Determining when to cut out the wheel wells depends on the finishing method you use. If you glass and paint the model, you will probably want to cut out the wheel wells after the wing is glassed, but before priming. If you use a MonoKote finish, cut out the wheel wells and “hook up” the retracts before covering.

❏ 2. When cutting out openings, start with a small hole in the center of the cutout area and gradually expand the opening.

❏ 3. The wheel well lining technique you use is up to you. The prototypes did not use a conventional liner. The wells were cut out almost to their final extents, then 1/16" balsa sheet leftover was glued to the inside of the bottom skin around the perimeter of the well. The well was then final shaped to accept the tire. If you use open wells, be sure to fuel/water proof as much of the internal structure as you can.

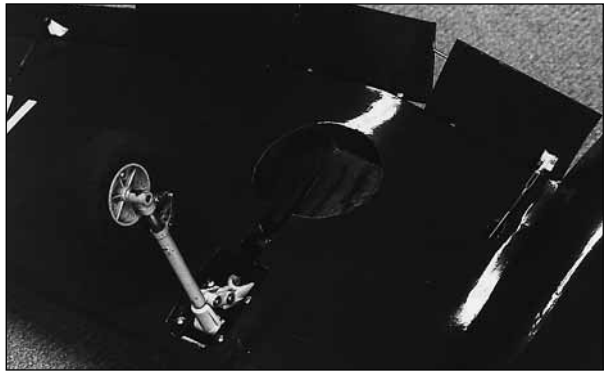
❏ 4. The Top Flite Corsair is designed to work with the **Robart** ninety degree rotating retracts (ROBQ1815). **Century Jet Models** ninety degree rotating retracts (CJMQ3055) are specifically made for this model and will work equally as well. The Century Jet retracts include functional struts as part of a complete kit.

❏ 5. Die-cut 1/8" parts are supplied in sheet CRS6F05 to make an air valve tray. This assembly can be placed in various locations for C.G. corrections. It was placed in the cavity forward of the servos on the prototypes. Be sure the servo does not put side loads on the valve. This may cause it to leak.

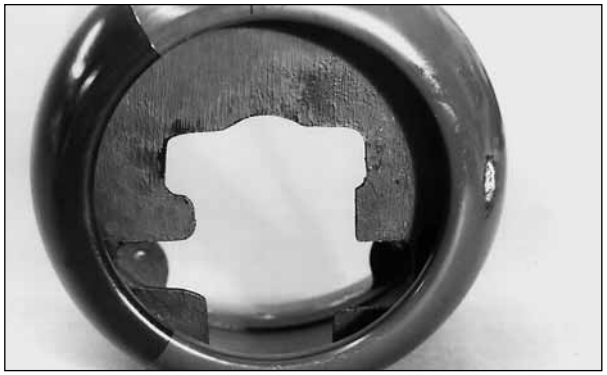
❏ 6. The air tank was securely taped to the elevator and rudder pushrods in the prototype.

❏ 7. Air line routing is straightforward in the Corsair. Pass the lines through the holes in the formers. A “T” can be placed at the center of the wing to avoid the need for double sets of connectors. If you do this, seal off one side of the valve fittings with a short length of air line and a plug made from music wire.

NOTE: Robart Robostruts were used on the prototypes. These add to the appearance of the Corsair and smooth out good to moderate landings. They cannot, however, absorb the huge amount of energy that wire struts can. For example, a fast or high sink rate landing on rough grass will put a huge backwards bending force on the gear. Wire struts will handle this well; Robostruts are not designed to cope with this situation. The prototype Corsairs were flown off of pavement and grass through good to moderate landings while equipped with Robostruts with no failures.



COOLING NOTES



Model engines require sufficient cooling to provide reliable operation, good performance and long life. There are two problems which often present themselves in scale models with cowlings: lack of air intake area and lack of air outlet area. A rough rule in figuring such installations is to allow twice as much outlet area as intake area.

The Corsair model, equipped with a single cylinder engine, has too much intake area. To work around this problem, the prototypes were equipped with baffles. A baffle is used to block intake area where it offers little benefit and to promote good airflow where it is needed (at the cylinder head). A typical baffle pattern is provided on the plan.

Ample air **outlet area** must be provided for good cooling. The bottom of the cowl is a logical place for this since it is least visible there. Refer to the photograph on page 35 to see the outlet on the prototypes.

Most modern engines in the size range specified provide more than ample power for the Corsair. It is recommended, therefore, that you run the engine somewhat rich for the first flights because the excess fuel running through the engine provides a cooling effect. If your engine is not broken in, run a few tanks of fuel through it on the ground with the cowl removed before flying.

CONTROL SURFACE THROWS

We recommend the following control surface throws. (Throws are measured at the widest part of the elevators, rudder and ailerons.)

ELEVATOR: 11/16" up, 5/8" down (High Rate)
1/2" up, 7/16" down (Low Rate)

RUDDER: 2-3/8" right, 2-3/8" left (High Rate)
1-3/8" right, 1-3/8" left (Low Rate)

AILERONS: 1/2" up, 1/2" down (High Rate)
3/8" up, 3/8" down (Low Rate)

FLAPS: At low point of middle flap,
1-3/8" down

NOTE: If your radio does not have “dual rates,” then set up the control surfaces to move midway between the recommended high and low rates.

INSTALL RECEIVER, SWITCH AND BATTERY

❑ 1. Wrap your receiver and battery in plastic bags, then wrap with foam rubber.

❑ 2. Install the battery and receiver in the fuselage.

NOTE: These were put under the fuel tank forward of the wing in the .60 powered prototype as shown on the plan. Additional foam was put between them and the fuel tank to hold them in place. The position of the battery and receiver may be changed to balance the aircraft.

❑ 3. Route the receiver antenna in one of the following ways:

A. Route the antenna along the inside of the fuse side and out of the fuse top, just behind the canopy. Anchor the antenna to the top of the fin with a rubber band.

B. Install another “pushrod guide tube” along the inside of the fuse, along the bottom, exiting just behind the tailgear. Insert the antenna through the tube and let the excess length trail behind.

BALANCE YOUR MODEL

NOTE: This section is **VERY IMPORTANT** and must not be omitted! A model that is not properly balanced will be unstable and possibly unflyable.

❑ 1. Accurately mark the balance point on the **top** of the wing on both sides of the fuselage. The balance point is shown on the plan **(CG)** and is located approximately **4-1/4 inches** back from the leading edge at the center. This is the balance point at which your model should balance for your first flights. Later, you may wish to experiment by shifting the balance up to **5/16" forward or back** to change the flying characteristics. Moving the balance **forward** may improve the smoothness and arrow-like tracking, but it may then require more speed for takeoff and make it more difficult to slow down for landing. Moving the balance **aft** makes the model more agile with a lighter and snappier “feel” and often improves knife-edge capabilities. In any case, **do not balance your model outside the recommended range**.

❑ 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly), the landing gear extended and an **empty fuel tank**, hold the model upside down with the stabilizer level.

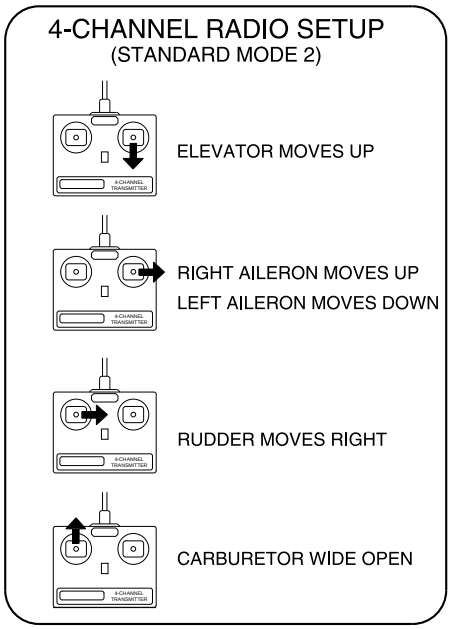
❑ 3. L**ift the model at the CG marks**. If the tail drops when you lift, the model is “tail heavy” and you must add weight* to the nose to balance. If the nose drops, it is “nose heavy” and you must add weight* to the tail to balance.

NOTE: Nose weight may be easily installed by using a Great Planes “Heavy Hub” or by gluing strips of lead into the engine compartment behind the engine. Tail weight may be added by using Great Planes “stick-on” lead weights. Later, if the balance proves to be OK, you can open the fuse bottom and glue these in permanently.

* If possible, first attempt to balance the model by changing the position of the receiver battery and retract servo (if used). If you are unable to obtain good balance by doing so, then it will be necessary to add weight to the nose or tail to achieve the proper balance point.

FINAL HOOKUPS AND CHECKS

❑ 1. Make sure the control surfaces move in the proper direction as illustrated.



❑ 2. Adjust your pushrod hookups as necessary to provide the proper control surface movements as listed on Page 39.

***NOTE:** The control surface “throws” are approximate and provide a good starting point for the first flights with your F4U Corsair. You may wish to change the throws slightly to provide the smoothness or quickness that you prefer.

PREFLIGHT

CHARGE THE BATTERIES

Follow the battery charging procedures in your radio instruction manual. You should **always** charge your transmitter and receiver batteries the night before you go flying, and at other times as recommended by the radio manufacturer.

FIND A SAFE PLACE TO FLY

The best place to fly your R/C model is an AMA (Academy of Model Aeronautics) chartered club field. Ask your hobby shop dealer if there is such a club in your area and join. Club fields are set up for R/C flying and that makes your outing safer and more enjoyable. The AMA also can tell you the name of a club in your area. We recommend that you join the AMA and a local club so you can have a safe place to fly and have insurance to cover you in case of a flying accident. (The AMA address is listed on page 3 of this instruction manual).

If a club and its flying site are not available, you need to find a large, grassy area at least 6 miles away from any other R/C radio operation, like R/C boats and R/C cars, and away from houses, buildings and streets. A schoolyard may look inviting but it is too close to people, power lines and possible radio interference.

GROUND CHECK THE MODEL

If you are not thoroughly familiar with the operation of R/C models, ask an experienced modeler to check to see that you have the radio installed correctly and that all the control surfaces do what they are supposed to. The engine operation also must be checked and the engine “broken-in” on the ground by running the engine for at least two tanks of fuel. **Follow the engine manufacturer’s recommendations for break-in**. Check to make sure all screws remain tight, that the hinges are secure and that the prop is on tight.

RANGE CHECK YOUR RADIO

Wherever you do fly, you need to check the operation of the radio before every time you fly. This means with the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have someone help you. Have them stand by your model and, while you work the controls, tell you what the various control surfaces are doing.

Repeat this test **with the engine running** at various speeds with an assistant holding the model. If the control surfaces are not always acting correctly, **do not fly!** Find and correct the problem first.

ENGINE SAFETY PRECAUTIONS

NOTE: Failure to follow these simple safety precautions may result in severe injury to yourself and others.

Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; and remember that the engine exhaust gives off a great deal of deadly carbon monoxide. Therefore **do not run the engine in a closed room or garage**.

Get help from an experienced pilot when learning to operate engines.

Use safety glasses when starting or running engines.

Do not run the engine in an area of loose gravel or sand, as the propeller may throw such material in your face or eyes.

Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.

Keep items such as these away from the prop: loose clothing, shirt sleeves, ties, scarfs, long hair or loose objects (pencils, screw drivers) that may fall out of shirt or jacket pockets into the prop.

Use a “chicken stick” device or electric starter; follow instructions supplied with the starter or stick. Make certain the glow plug clip or connector is secure so that it will not pop off or otherwise get into the running propeller.

Make all engine adjustments from **behind** the rotating propeller.

The engine gets hot! Do not touch it during or after operation. Make sure fuel lines are in good condition so fuel will not leak onto a hot engine causing a fire.

To stop the engine, cut off the fuel supply by closing off the fuel line or follow the engine manufacturer’s recommendations. Do not use hands, fingers or any body part to try to stop the engine. Do not throw anything into the prop of a running engine.

AMA SAFETY CODE

Read and abide by the following Academy of Model Aeronautics Official Safety Code:

GENERAL (Excerpt)

1. I will not fly my model aircraft in sanctioned events, air shows, or model flying demonstrations until it has been proven to be airworthy by having been previously successfully flight tested.

2. I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right of way to, and avoid flying in the proximity of, full scale aircraft. Where necessary an observer shall be used to supervise flying to avoid having models fly in the proximity of full scale aircraft.

3. Where established, I will abide by the safety rules for the flying site I use, and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.

7. I will not fly my model unless it is identified with my name and address or AMA number, on or in the model.

9. I will not operate models with pyrotechnics (any device that explodes, burns, or propels a projectile of any kind).

RADIO CONTROL

1. I will have completed a successful radio equipment ground check before the first flight of a new or repaired model.

2. I will not fly my model aircraft in the presence of spectators until I become a qualified flier, unless assisted by an experienced helper.

3. I will perform my initial turn after takeoff away from the pit or spectator areas, and I will not thereafter fly over pit or spectator areas, unless beyond my control.

FLYING

The Top Flite F4U Corsair is a great flying sport scale airplane that flies smoothly and predictably, yet is highly maneuverable. It does not have the self-recovery characteristics of a primary trainer. Therefore you must either have mastered the basics of R/C flying or seek the assistance of a competent R/C pilot to help you with your first flights.

TAKEOFF

If you have dual rates on your transmitter, set the switches to “high rate” for takeoff, especially when taking off in a crosswind. Although this F4U has good low speed characteristics, you should always build up as much speed as your runway will permit before lifting off, as this will give you a safety margin in case of a “flame-out.” When you first advance the throttle and the tail begins to lift, the plane will start to turn left (a characteristic of all “taildraggers.”) Be ready for this and correct by applying sufficient right rudder to hold it straight down the runway. The left-turning-tendency will go away soon after the tail is up and the plane picks up speed. Be sure to allow the tail to come up. Depending on the surface you are flying from, you will need to apply very little or no up elevator until flying speed is obtained. Holding

the tail on the ground with too much up elevator will cause the Corsair to become airborne prematurely. When the plane has sufficient flying speed, lift off by smoothly applying a little up elevator (don't "jerk" it off to a vertical climb!) and climb out gradually.

FLIGHT

We recommend that you take it easy with your F4U Corsair for the first several flights and gradually "get acquainted" with this fantastic ship as your engine gets fully broken-in. Add and practice one maneuver at a time, learning how she behaves in each one. For ultra-smooth flying and normal maneuvers, we recommend using the "low rate" settings as listed on page 39. "High rate" elevator and rudder may be required for crisp snap rolls and spins. "High rate" rudder is best for knife edge. Speed is the key to good knife-edge performance.

CAUTION

(THIS APPLIES TO ALL R/C AIRPLANES)

If, while flying, you notice any unusual sounds, such as a low-pitched "buzz," this may be an indication of control surface "flutter." Because flutter can quickly destroy components of your airplane, any time you detect flutter you must immediately cut the throttle and land the airplane! Check all servo grommets for deterioration (this will indicate which surface fluttered) and make sure all pushrod linkages are slop-free. If it fluttered once, it will probably flutter again under similar circumstances unless you can eliminate the slop or flexing in the linkages. Here are some things which can result in flutter: Excessive hinge gap; Not mounting control horns solidly; Sloppy fit of clevis pin in horn; Elasticity present in flexible plastic pushrods; Side-play of pushrod in guide tube caused by tight bends; Sloppy fit of Z-bend in servo arm; Insufficient glue used when gluing in the elevator joiner wire or aileron torque rod; Excessive flexing of aileron, caused by using too soft balsa aileron; Excessive "play" or "backlash" in servo gears; and Insecure servo mounting.

LANDING

When it's time to land, fly a normal landing pattern and approach. If you find that it lands a little fast, you might try dialing in a few clicks of up elevator when you cut the throttle on the downwind leg of the landing pattern. This will automatically help to bleed off some of the speed. If your F4U is built straight and true, you'll find that you can really flare it out for slow, nose-high, landings.

FLAP OPERATION

The flaps on the Corsair work extremely well. They slow down the stall speed and add drag for steeper, controlled approaches. As with all models, they should be tried for the first time at a safe altitude and after reliable engine operation has been established. The flaps on the prototypes were set up on a 2-position switch. This allows the same amount of flaps to be used every time for consistent results. The prototype Corsairs required about 2-3 clicks of down elevator when the flaps were dropped. If you have a radio equipped with mixing, the elevator can be trimmed "automatically" when the flaps are dropped. **Do Not** mix any elevator with the flaps on the first flight.

When you are ready to try the flaps, climb to a comfortable altitude and reduce your throttle until your airspeed drops to a normal approach speed. Drop the flaps. Nothing "spectacular" should happen. If the Corsair does any significant rolling, pitching, etc, bring the flaps back up immediately. If all is well, apply a little additional throttle and cruise the aircraft around a little. When you feel comfortable with the flaps, try a stall test. The plane should slow to an extremely slow speed and eventually begin to buffet a little. If you continue to hold full up elevator, it may eventually begin to fall off to one side or the other. Our prototypes always give lots of warning before stalling.

You may now land with or without the flaps. Remember, you will need to use a little additional power on shallow approaches with the flaps down to maintain flying speed.

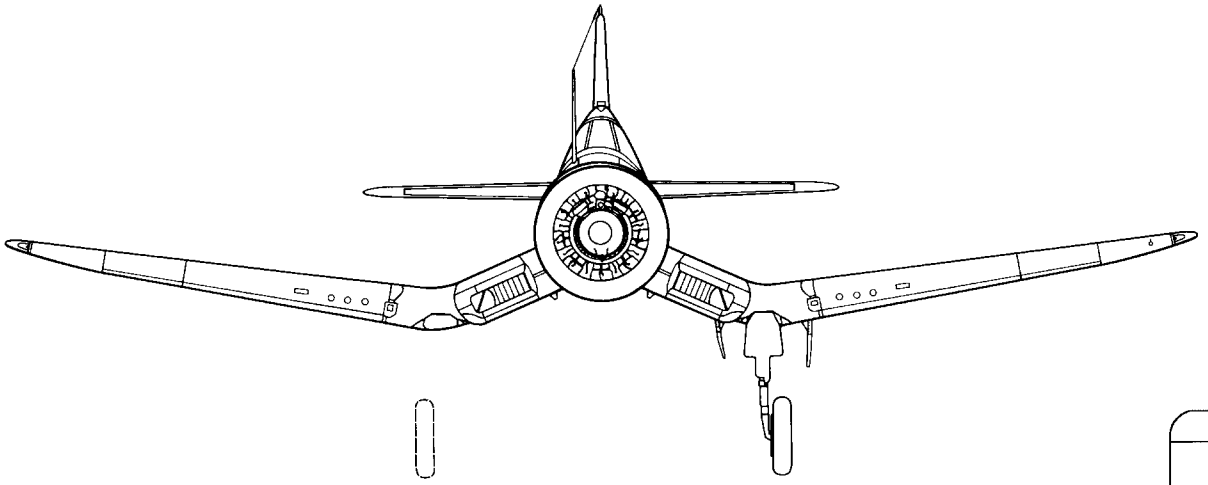
Enjoy flying the Top Flite F4U Corsair, but always stay in control and fly in a safe manner.

Started Construction _____

Finished Construction _____

First Flight _____

Notes _____



Specifications
F4U-1 Corsair

Wingspan .....41 feet
Length .....33 feet 4 inches
Height.....15 feet 7 inches
Empty Weight.....8,982 pounds
Powerplant .....One 2,000 hp Pratt & Whitney
R-2800-8W air-cooled engine
Armament.....Six .50 caliber machine guns
Speed.....417 mph
Service Ceiling ....20,000 feet
Range.....1,015 miles
Crew.....One