

FALCON III

INSTRUCTIONS

Looking back, you will learn that the Carl Goldberg **Falcon** has been an integral part of R/C modelling history. Its design broke new ground and it was, for many years, the "standard" in sport aircraft. In 1976, the "Liberty Bell", a Sr. Falcon, piloted by Bob Rich, was flown coast-to-coast in commemoration of the United States Bicentennial. That aircraft then went to the Smithsonian Institution, becoming part of its permanent modelling collection. As technology improved, so did each new version of the Falcon and over the years, many thousands of modelers have learned to fly with and deeply loved this classic aircraft. Here, Carl Goldberg Models proudly brings you the **FALCON III** — a model which retains its legendary flight heritage, yet incorporates the simpler construction techniques of today's Goldberg kits. We know, as you build and fly it, you will enjoy becoming a part of the **Falcon** tradition.

WARNING

While this aircraft is an excellent first choice for novice pilots, a radio-controlled model is not a toy and is not intended for persons under 16 years old. Keep this kit out of the reach of younger children, as it contains parts that could be dangerous. A radio-controlled model is capable of causing serious bodily injury and property damage. It is the buyer's responsibility to build this kit correctly and to properly install the motor, radio, and all other equipment. Test and fly the finished model only in the presence and with the assistance of another experienced R/C flyer. The model must always be operated and flown using great care and common sense, as well as in accordance with the Safety Code of the Academy of Model Aeronautics (5151 Memorial Drive, Muncie, IN 47302, 1-800-435-9262). We suggest you join the AMA and become properly insured prior to flying this model. Also, consult with the AMA or your local hobby dealer to find an experienced instructor in your area. Per the Federal Communications Commission, you are required to use only those radio frequencies specified "for Model Aircraft."

LIMITED WARRANTY

Carl Goldberg Models takes pride in the care and attention given to the manufacture of components for its model airplane kits. The company warrants replacement of any materials found to be defective for their intended use, prior to their use in construction of the aircraft, provided the buyer requests such replacement within a period of one year from the date of purchase and provided the defective part is returned, if so requested by the company. No other warranty, expressed or implied, is made by the company with respect to this kit. The buyer acknowledges and understands that it is his responsibility to carefully construct a finished flying model airplane and to fly it safely. The buyer hereby assumes full responsibility for the risk and all liability for personal or property damage or injury arising out of the buyer's use of the components of this kit.

ITEMS NEEDED TO COMPLETE THIS KIT.

- ☐ 1 RADIO GUIDANCE SYSTEM (4-CHANNEL MINIMUM REQUIRED)
- ☐ 1 1 ENGINE
- ☐ 1 6 TO 8 OZ. FUEL TANK
- ☐ 1 18" SILICONE FUEL LINE
- ☐ 1 2" CGP SPINNER
- ☐ 1 PROPELLER SIZED FOR YOUR ENGINE (10-6 FOR A .35 TO .40 ENGINE)
- ☐ 3 2-1/4" DIAMETER WHEELS
- ☐ 2 ROLLS COVERING
- ☐ 1 2 OZ. BOTTLE CA GLUE
- ☐ 1 **EPOXY**
- ☐ 1 TUB TINTED CGP **FILLER**
- ☐ 6 5/32" WHEEL COLLARS
- ☐ 1 1/2" x 8 x 12" CGP FOAM PADDING

FOR TAILDRAGGER OPTION

- ☐ 1 SMALL LANDING GEAR
- ☐ 1 SMALL TAILWHEEL



NECESSARY TOOLS AND SUPPLIES.

- ☐ MISCELLANEOUS RUBBER BANDS (INCLUDING #64)
- ☐ ROLL OF WAXED PAPER
- ☐ MODELING KNIFE AND SINGLE EDGE RAZOR BLADE
- ☐ SANDPAPER (ASSORTED GRITS, INCLUDING **MEDIUM (150)** AND **FINE (220-320)**)
- ☐ SANDING BLOCK
- ☐ "T" PINS (at least 75)
- ☐ BUILDING BOARD (24" x60")
- ☐ ELECTRIC DRILL
- ☐ DRILL BITS (1/16", 5/32", 1/8")
- ☐ 5/64" ALLEN WRENCH SET
- ☐ RAZOR SAW
- ☐ SMALL SCREWDRIVER (1/8" BLADE TIP)
- ☐ COVERING IRON AND HEAT GUN
- ☐ MASKING TAPE
- ☐ PLIERS
- ☐ YARD STICK
- ☐ FLEXIBLE STRAIGHT-EDGE
- ☐ PENCIL
- ☐ 10" 30-60-90 DRAFTING TRIANGLE

SELECTING RADIO CONTROL EQUIPMENT

Radio sets are battery powered with either dry cells or the more reliable, rechargeable nickel-cadmium (ni-cad) batteries. Although ni-cad powered units are more expensive, the cost of routinely replacing worn out batteries may be much higher in the long run. Many of the radio systems now available feature "servo reversing" switches which allow you to reverse the response of the servo. This simplifies radio installation and is worth considering. Exponential or dual rates are popular features which, if used properly, can help smooth out the flight of a sensitive model. Your local hobby dealer should be able to help you select the proper radio for your needs and skill level. Consider reliability and service, as well as price. And be sure to get a system designated for aircraft, as only certain frequencies are available for model aircraft.

INSTRUCTIONS

USING THIS INSTRUCTION MANUAL

Before you start gluing and sanding, take some time to look through this entire Instruction Booklet. It is designed to guide you through the construction process step by step. Radio selection and installation, covering, and balancing and flying the model are all covered. Also spend time becoming familiar with the plans.

Like a full-size airplane, the **FALCON III** is built from basic structures (stabilizer, fin, wing, etc.), which are then assembled into the complete airplane.

Special procedures or comments will usually be explained before a step, so you will be prepared. If a step begins with a statement like "Note," "Warning," or "Important," it is a good idea to read through the step before doing it.

A check-off box appears at the beginning of each step. Check these boxes as you build, so you can tell at a glance what steps you have completed. Some steps require you to repeat them, as in the case of the left and right wing panel.

Some of the instructions deal with general procedures. Boxes are not needed for these sections.

HOW TO READ THE PLAN

The plan shows the Fuselage (Body), the Wing, and the Tail Parts. Everything on the plan is drawn to full-size and shape and shows how the finished parts fit together.

The plan is drawn to show the model completely assembled, but as a result, the areas inside or underneath are covered up, making it hard to understand how these parts fit together. Therefore, for clarity, some parts are drawn with hidden lines, others with breakaway views, and some are entirely removed from the structure and shown separately.

For example, on the fuselage, the left side of the completed model has been removed to show the details inside. Sometimes a surface is broken away to reveal the detail behind or underneath. Dashed lines indicate details that are hidden behind or under another part of the surface.

The model is made from four varieties of wood: balsa, bass, birch, and various plywoods. Each kind of wood has its own characteristic *end grain pattern* (as viewed from the end) which has been drawn on the plan. You can easily use these end grain patterns to identify what kind of wood is shown for a part, if you are in doubt.

IDENTIFYING PARTS

Parts for the wing are bundled together; likewise, parts for the tail assembly are also grouped. Die-cut plywood and balsa sheets of common sizes are bundled together, so they are less likely to be damaged during shipping and handling.

The various screws, hinges, and fittings are packaged in plastic bags.

HOW TO USE THE PLAN

The plan is used in several ways. The wings, stabilizer, and fin are assembled directly over the plan. Each wood part is matched over its corresponding location printed on the plan and pinned in place. To prevent ruining your plan from gluing your wings, etc. to it, cover the area you are working on with waxed paper or plastic kitchen wrap.

Because the fuselage plugs together and is self-aligning, it is not built directly over the plan. As you assemble the fuselage, you will find the plan helpful in identifying parts and how things fit together.

The plan also shows the installation of a typical radio, battery and all remaining equipment and hardware needed to complete the model. By referring to the examples shown, you should be able to install your own radio, etc., even if it is not the same as what is shown on the plan.

PREPARING FOR ASSEMBLY

Set a flat, warp-free pinning board on your work bench. Any material that accepts pins, such as insulation board, soft plywood, or dry-wall (sheet rock) will work. **Important: any warps or bends in the pinning board will result in wings or tail surfaces that are also warped or bent, making your model more difficult to fly.** Make sure that the pinning board is flat by laying a straight edge across it. You may be able to correct a warped board by shimming its low areas.

Position the area of the plan (such as the stabilizer) on which you are going to build over the pinning board and tape it in place so the plan lays flat and wrinkle free.

Place a sheet of waxed paper or plastic kitchen wrap over the work area to prevent **Super Jet** from sticking to your plan and ruining it.

CONSTRUCTION TIPS

If you have never assembled a built-up model before, the following tips will prove helpful.

IMPORTANT: ALWAYS READ A FEW STEPS AHEAD. This will alert you to coming instructions and will help you plan accordingly.

You may find it convenient to empty all of the small parts from the hardware bags into a common container, such as a margarine tub. This will help you find items quickly.

When drilling any 1/16" holes in balsa, you may find it easier to twist the drill between your thumb and index finger. This procedure allows more control in positioning the drill on the center mark.

Punch out only the die-cut (D/C) parts you need as you proceed. This will help you keep track of parts, especially the small ones.

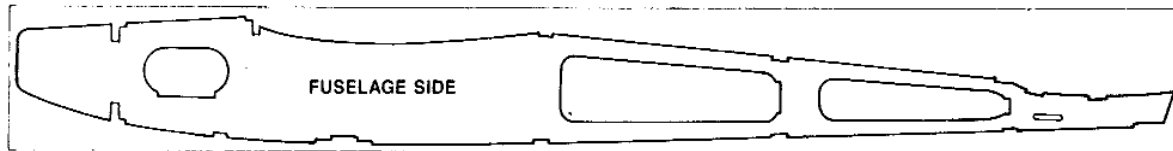
After completing each section of the aircraft, you may want to go back and reglue the joints, just in case some area has been missed. Properly glued joints are important to the overall strength of the model.

WOOD PARTS

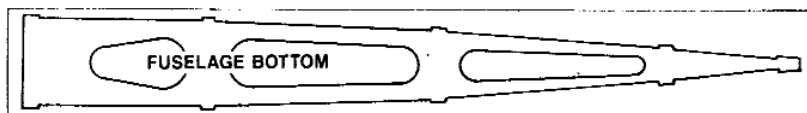
Be careful when removing parts (such as fuselage sides) from die-cut sheets. Long parts are fragile until glued into a structural unit. If necessary, use a razor knife or razor saw to assist in the removal of parts from sheet. Sometimes a little trimming and sanding can improve parts where desired. Save scrap until model is completed, in case you should miss a part. Scrap is used also in some building steps on the plan.

ABOUT THE WOOD IN THE KIT

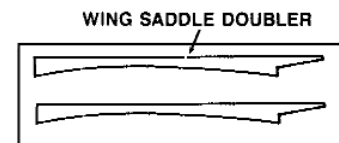
We strive to supply good quality materials in your kit. Wood parts are inspected with regard to the function they will serve. If an imperfection is spotted in a scrap corner of a die-cut sheet and doesn't affect actual parts, the sheet is considered acceptable. Also, internal stresses in wood are relieved as it is cut into parts. These relieved stresses may cause some parts to bow. Bows in wood parts (such as leading edges) readily straighten out as they are glued into a structural unit.



SHEET 5001-320000 (2 REQ'D)



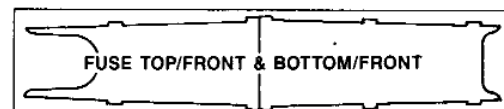
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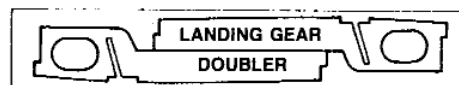
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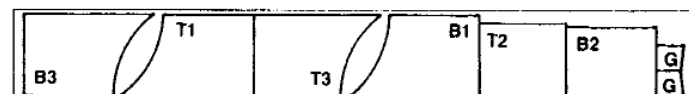
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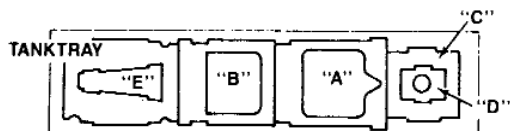
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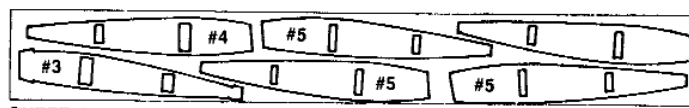
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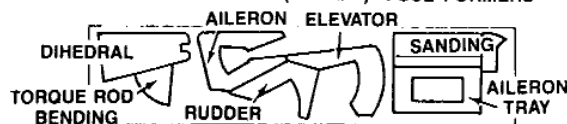
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SHEET 5006-320500 (1 REQ'D)



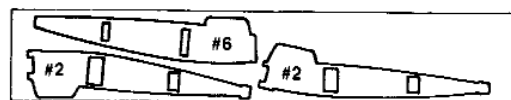
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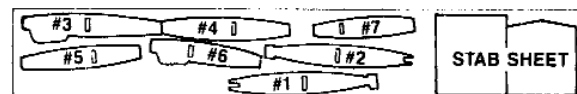
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SHEET 5014-321300 (1 REQ'D)



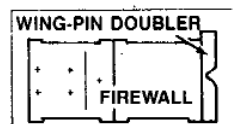
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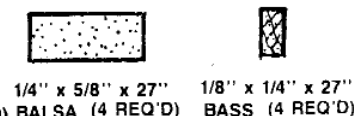
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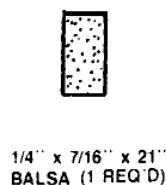
Sheet 5010B-3209B
(1 Req'd)



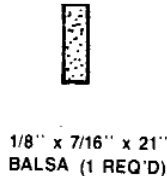
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SHEET 5009-320800 (1 REQ'D)



1/4" x 7/16" x 21"
BALSA (1 REQ'D)



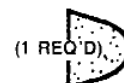
1/8" x 7/16" x 21"
BALSA (1 REQ'D)



SHAPED AILERON
BALSA (2 REQ'D)



NOTCHED TRAILING EDGE
BALSA (2 REQ'D)



SHAPED LEADING EDGE
BALSA

VERTICAL FIN CONSTRUCTION (7 Steps)

1. Find all the parts that you will need to construct the VERTICAL FIN.

THEY INCLUDE:

- (1) VERTICAL FIN & RUDDER Balsa
(DIE SHT. #5014-321300)
- (1) BEVEL GAUGE L PLY
(DIE SHT. #5015-321400)
- (1) C.G. CENTERLINE TOOL PLASTIC
(#142500)

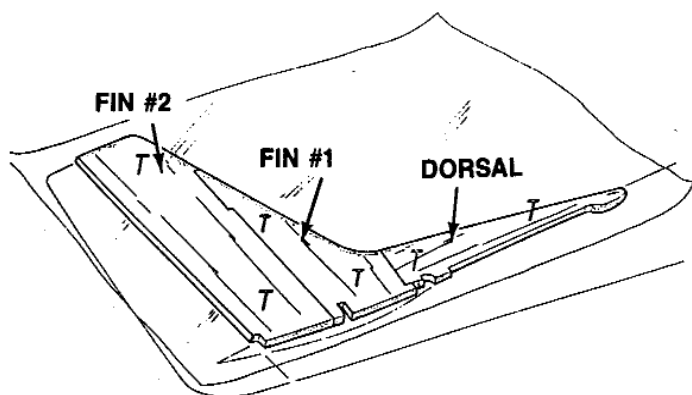


SHEET 5014-321300 (1 REQ'D)

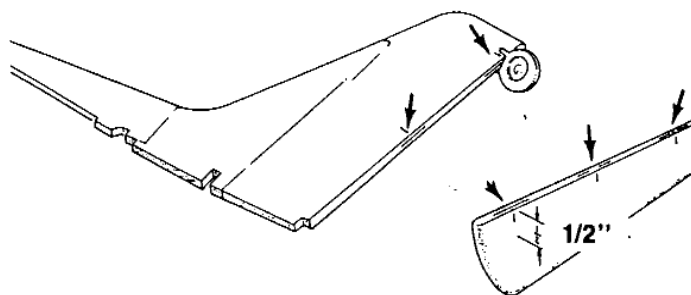


SHEET 5007-320600 (1 REQ'D) GAUGES

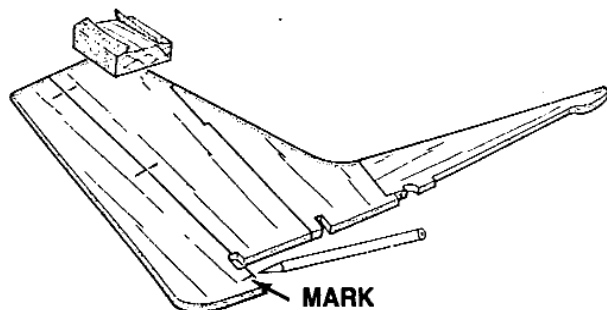
2. ☐ Lay the fin portion of the plan over the building board.
- ☐ Lay the waxed paper over the fin plan.
- ☐ Glue the DORSAL to FIN #1.
- ☐ Glue FIN #1 to FIN #2.



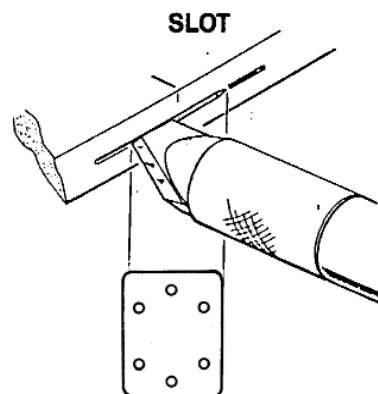
4. ☐ Using the C.G. Centerline tool, scribe a centerline onto the rudderpost and finpost.



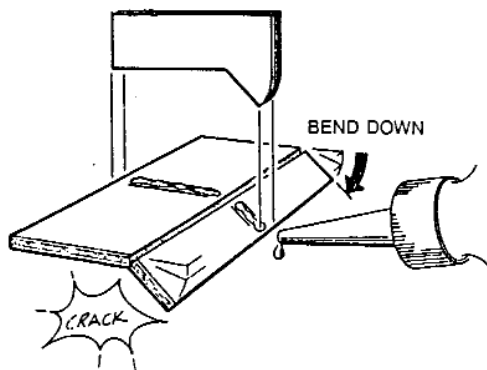
3. ☐ Position the RUDDER and sand the entire assembly on both sides.
- ☐ Round the leading edge of the fin and outer edges of the rudder.
- ☐ Mark the hinge locations on the fin and rudder. (Use the plan for reference.)



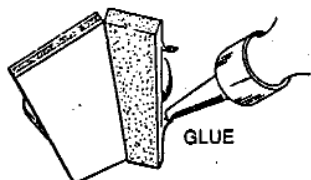
5. ☐ Use a X-acto knife to cut slots on the centerline for each hinge.



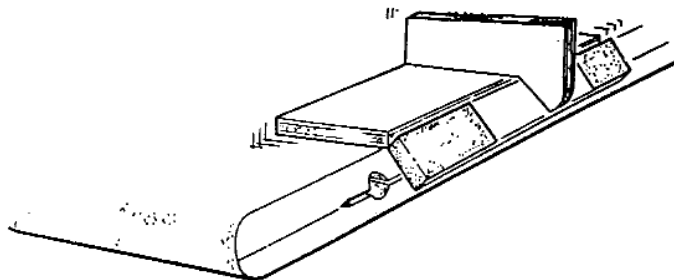
6. ☐ Assemble the BEVELING TOOL.



- ☐ Cut a strip of medium sandpaper and glue it to the narrow panel of the bevel tool.



7. ☐ Use the bevel tool to sand the hinge side of the rudder. Sand both sides until a symmetrical bevel is formed along the entire length.



LIKE THIS

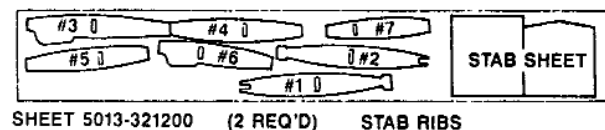
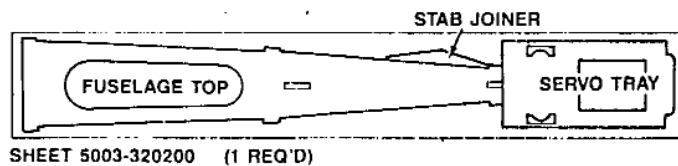
THIS COMPLETES THE VERTICAL FIN STABILIZER AND RUDDER. YOU WILL NOT NEED THESE PARTS AGAIN UNTIL YOU ARE READY FOR COVERING.

HORIZONTAL STABILIZER AND ELEVATOR CONSTRUCTION (11 Steps)

1. Collect all the parts that you will need to build the HORIZONTAL STABILIZER.

THEY INCLUDE:

- (1) STAB JOINER L-PLY
(DIE SHT. #5003-320100)
- (2) STAB RIBS & SHEETING BALSA
(DIE SHT. #5013-321200)
- (1) 1/8" x 7/16" x 21" SPAR BALSA
(#420400)
- (1) 1/16" x 7/16" x 21" T.E. BALSA
(#420300)
- (1) SHAPED LEADING EDGE BALSA
(#420200)
- (1) 5/8" x 3/4" x 8-1/4" TIPS BALSA
(#420900)
- (1) ELEVATOR BALSA
(#420500)
- (1) 3/32" DIA. x 3-3/4" WIRE (#125100)



SPAR



T.E.



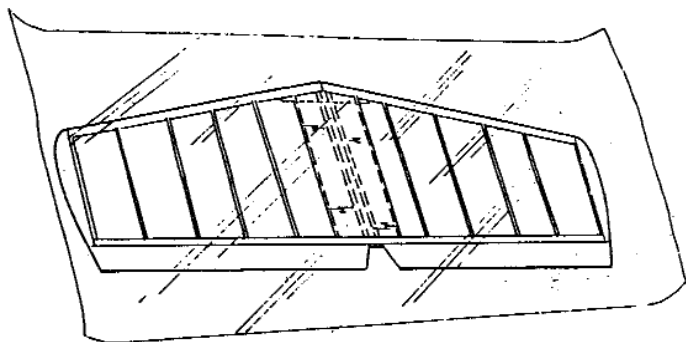
L.E.



ELEVATOR

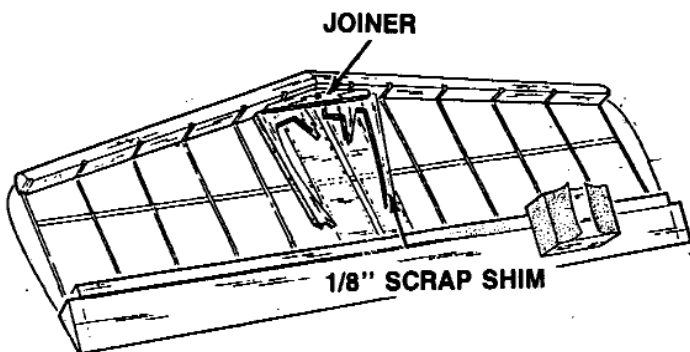
2. ☐ Lay the stab portion of the plan over your building board.

☐ Lay waxed paper over the stab plan.



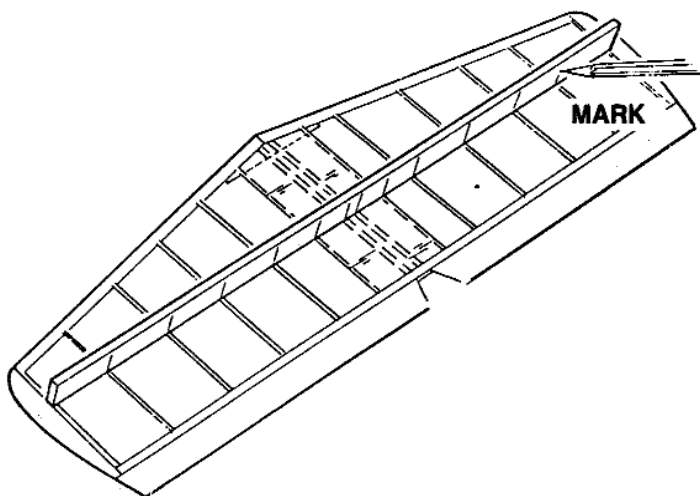
3. ☐ Align the notches in the LEADING EDGE over the plan and cut at the break. Repeat for the right half.

☐ Shim the STAB JOINER up 1/8" and glue to the L.E.



☐ Sand the 1/4" x 7/16" x 21" T.E. to blend with the ELEVATOR.

4. ☐ Mark the rib locations onto the 1/8" x 1/4" x 21" BALSA SPAR.

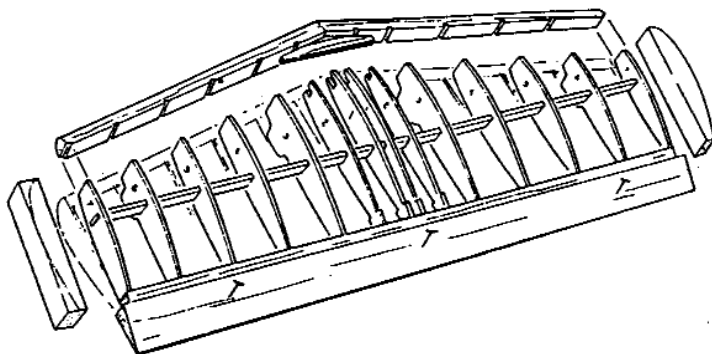


5. ☐ Slide the ribs onto the spar and locate the marks over the plan.

☐ Glue the ribs to the trailing edge and the notched L.E. DO NOT GLUE RIBS #1 AT THIS TIME.

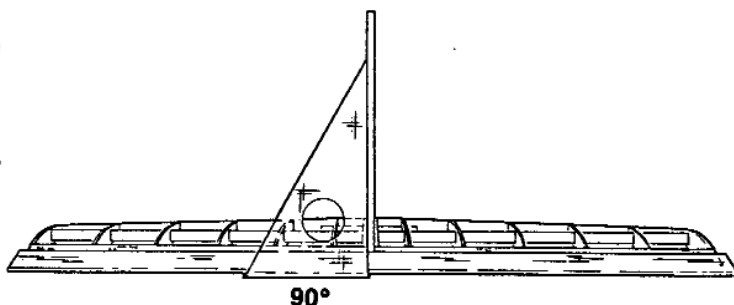
☐ Cut the 5/8" x 3/4" x 8-1/4" balsa into two equal parts.

☐ Rough-cut the tip blocks to shape and glue them to the end ribs.

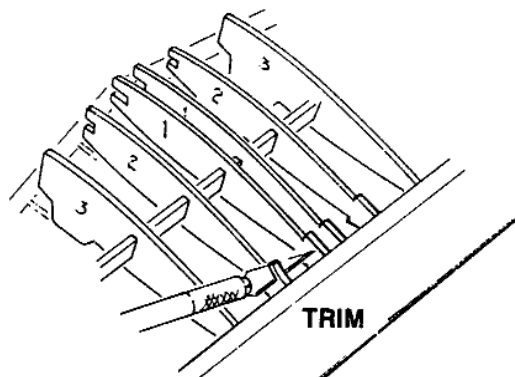


6. ☐ Position the fin between the two rib #1's and square the stab to the fin.

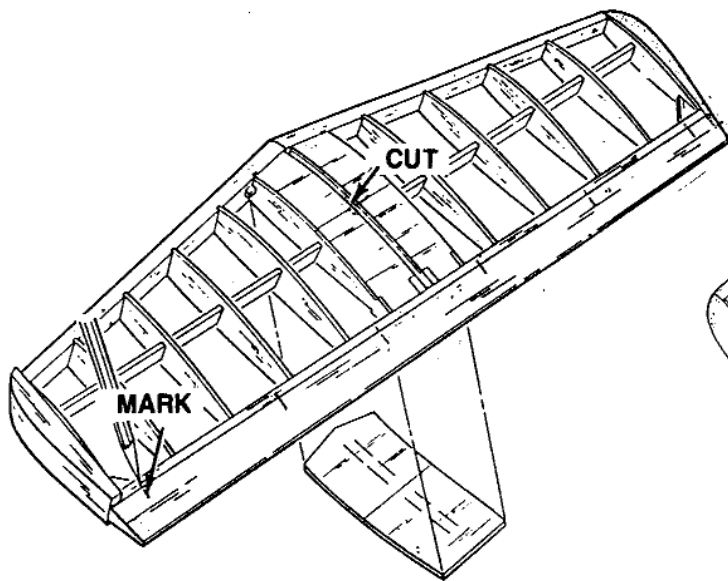
☐ Pin the fin in position and glue the two rib #1's to the L.E., spar and T.E. DO NOT GLUE THE FIN TO THE STAB.



7. ☐ Cut away the top and bottom alignment lugs from the center ribs.



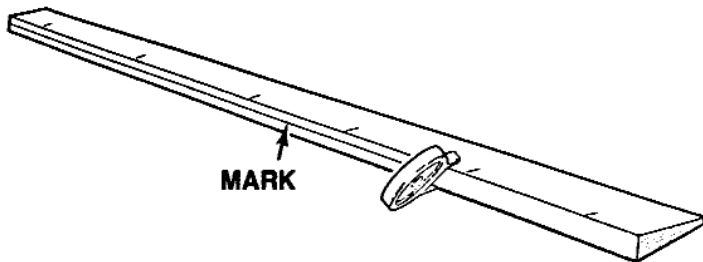
8. ☐ Install the top and bottom center sheeting cutting the TOP sheeting only to accept the fin.



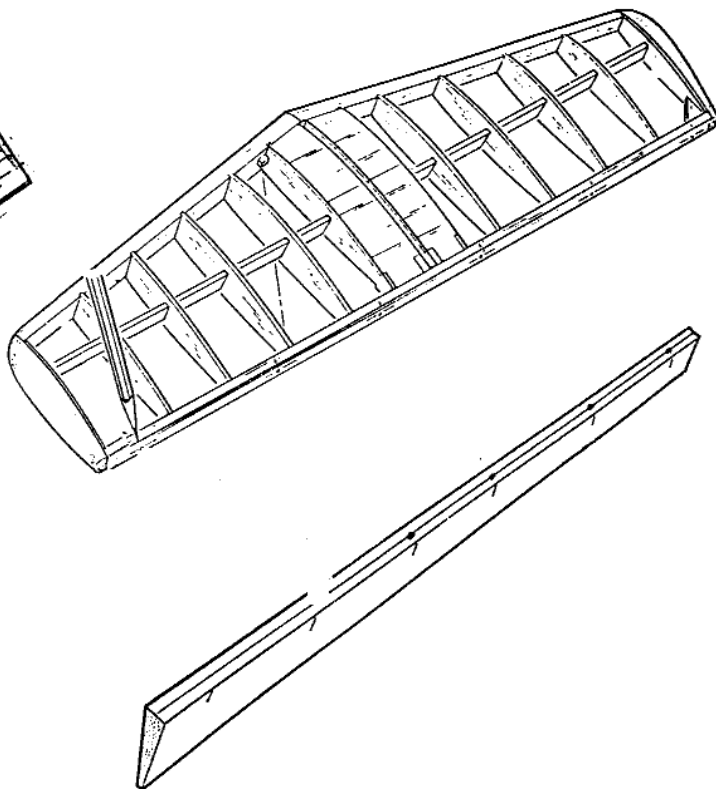
- ☐ Finish sand the stab tip blocks.

- ☐ Transfer the hinge locations from the plan onto the elevator and stab.

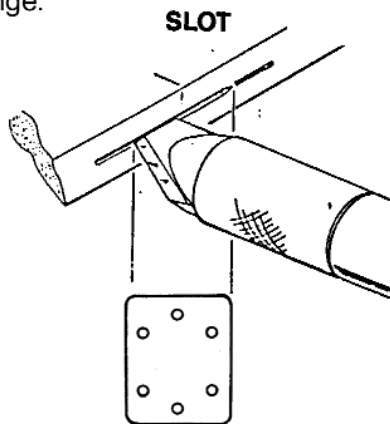
9. ☐ Use the centerline tool to mark the center of the stab and elevator.



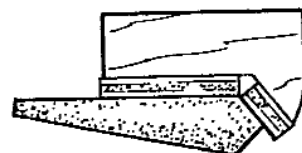
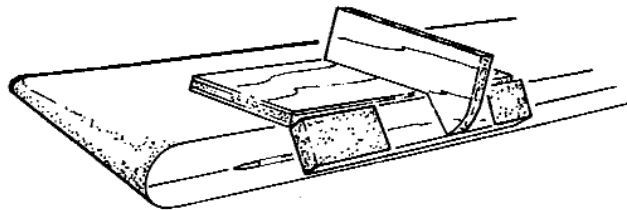
- ☐ Drill a 1/16" hole at each of the twelve locations.



- ☐ Use a X-acto knife to make a slot for each Hinge.



- ☐ Use the bevel tool and sand the hinge side until you have formed a symmetrical bevel along the entire length.



LIKE THIS

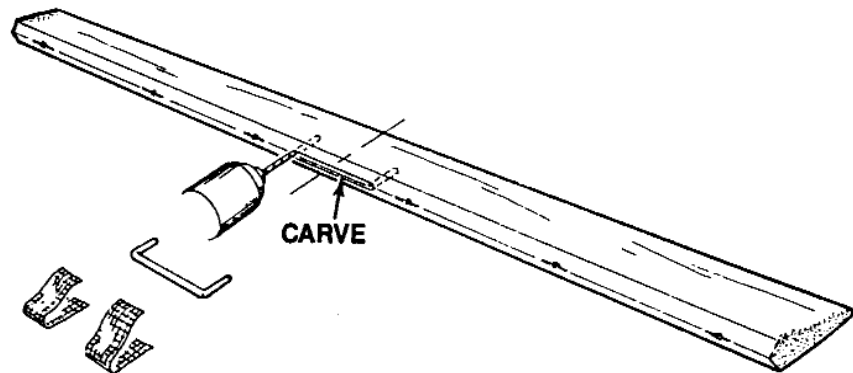
10. ☐ Bend the 3/32" diameter wire to this shape.



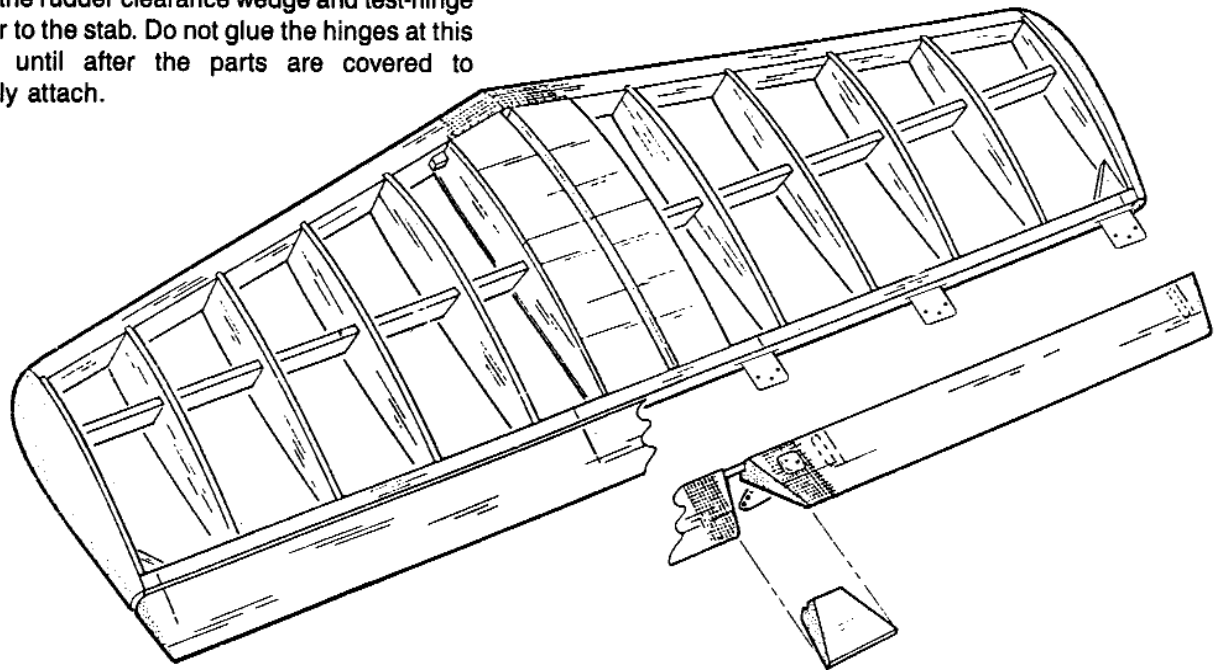
☐ Drill two 3/32" diameter holes using the wire form to determine the location.

☐ Carve out a recess for the back of the wire form.

☐ Insert the wire, wrap and glue with two short pieces of nylon tape.



11. ☐ Cut out the rudder clearance wedge and test-hinge the elevator to the stab. Do not glue the hinges at this time, wait until after the parts are covered to permanently attach.



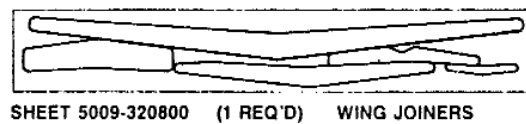
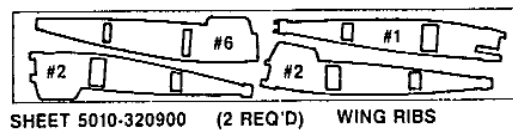
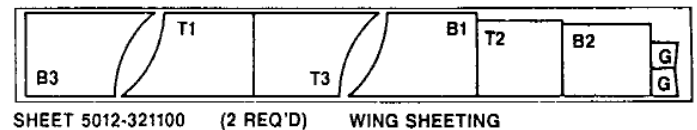
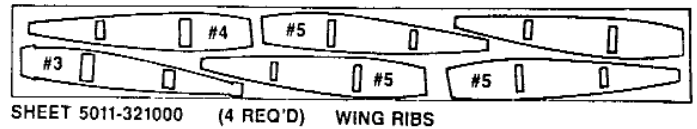
THIS COMPLETES THE HORIZONTAL STABILIZER AND ELEVATOR. YOU WILL NOT NEED THESE PARTS UNTIL YOU ARE READY FOR COVERING. THE WING IS OUR NEXT SEGMENT, SO LET'S GET STARTED.

WING CONSTRUCTION (24 Steps)

1. Collect all the parts that you will need to build both wing.

THEY INCLUDE:

- (2) SHAPED LEADING EDGES BALSA
(#419600)
- (2) SHAPED TRAILING EDGES BALSA
(#419700)
- (4) 1/8" x 1/4" x 27" SPAR CAP BASS
(#419800)
- (4) 1/4" x 5/8" x 27" SPAR BALSA
(#419900)
- (2) SHAPED AILERON BALSA BALSA
(#420000)
- (2) T.E. CENTER SECTION BALSA
(#420100)
- (1) 1/4" x 1-3/4" DOWEL BIRCH
(#175500)
- (2) WING TIP BALSA
(#420700)
- (2) AILERON TORQUE RODS WIRE
(#580100)
- (1) CANOPY PLASTIC
(#156200)
- (1) 3/4" x 48" NYLON TAPE NYLON
(#520800)
- (1) DIHEDRAL BRACE B-PLY
(DIE SHT. #5009-320800)
- (2) WING RIBS #1, 2 & 6 BALSA
(DIE SHT. #5010-320900)
- (4) WING RIBS #3, 4 & 5 BALSA
(DIE SHT. #5011-321000)
- (2) WING CENTER SHEETING BALSA
(DIE SHT. #5012-321100)
- (1) DIHEDRAL GAUGE L-PLY
(DIE SHT. #5007-320600)



AILERON



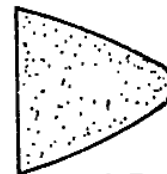
SPAR
CAP



SPAR

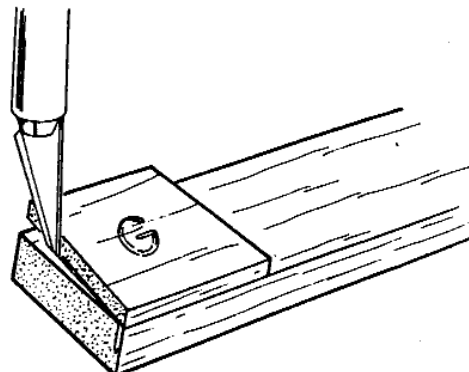


T.E.

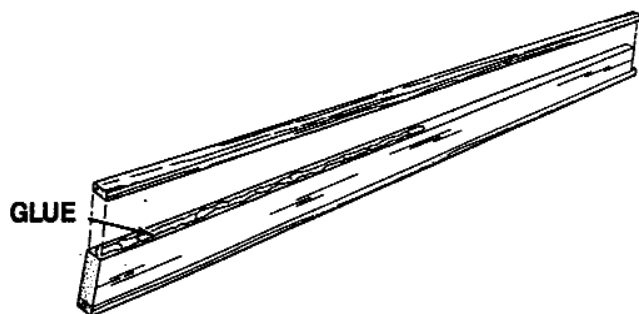


L.E.

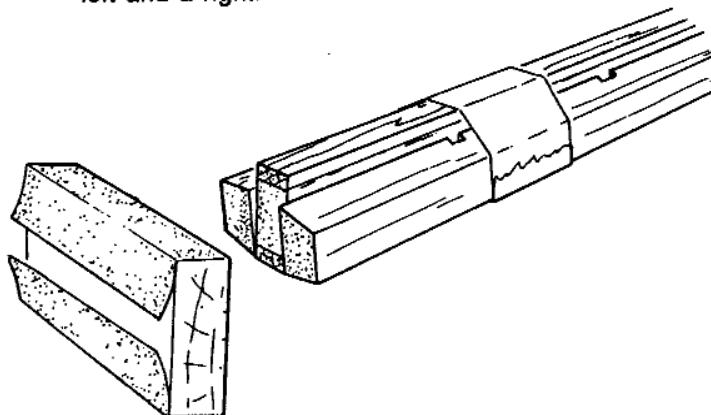
2. ☐ Using the angle gauge "G" cut one end of all four balsa spars.



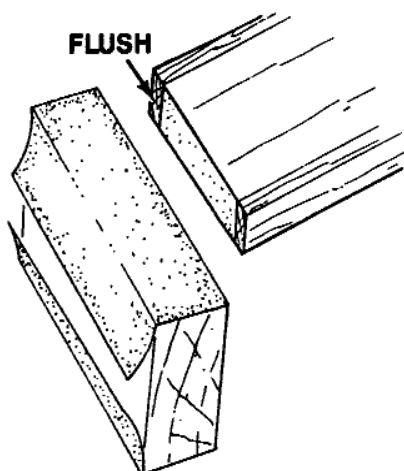
3. ☐ Glue a 1/8" x 1/4" x 27" basswood spar-cap onto the top and bottom of two of the trimmed balsa spars.



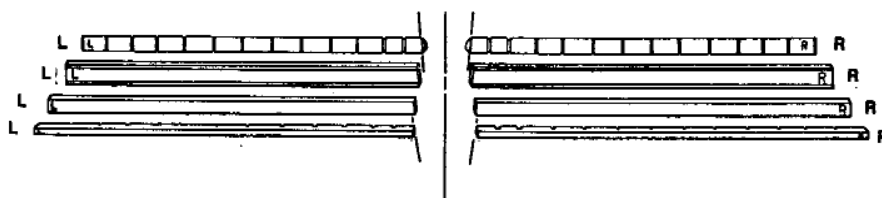
- ☐ Tape a finished spar between the two notched trailing edges and sand to match. Be sure to sand a left and a right.



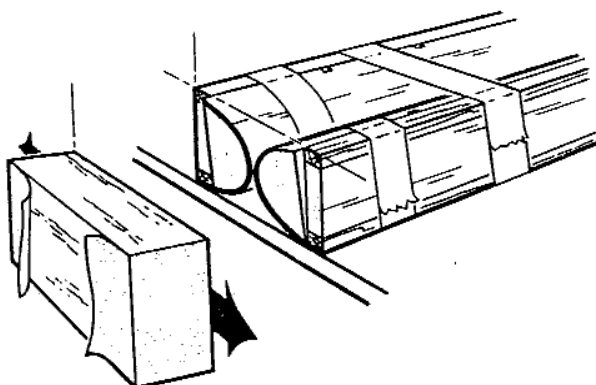
- ☐ Sand the basswood caps flush with the angled balsa spar.



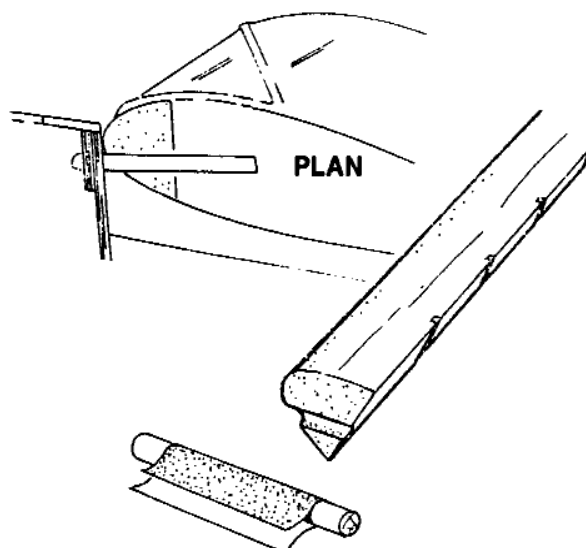
5. ☐ Position the leading edges, spars and trailing edges so that angle-cut to angle-cut and mark the outside ends "L" (left) and "R" (right) as shown.



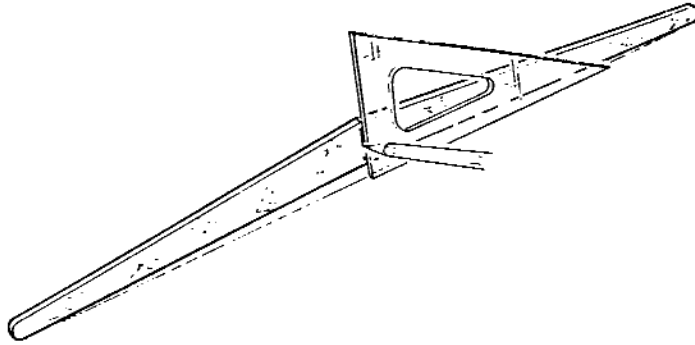
4. ☐ Tape a finished spar assembly to a shaped leading edge and sand to match. Be sure to sand a left and a right.



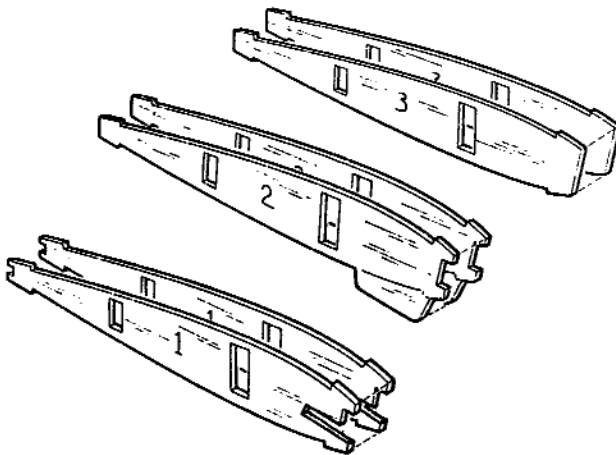
6. ☐ Use the 1/4" dowel as a sanding tool to sand half notch into the angled end of the leading edge. Check the plan for the correct position and angle.



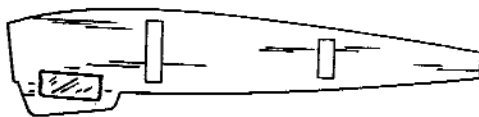
7. ☐ Use a drafting angle to find the centerline on each of the dihedral braces.



8. ☐ Laminate the two sets of wing ribs #'s 1, 2 and 3.

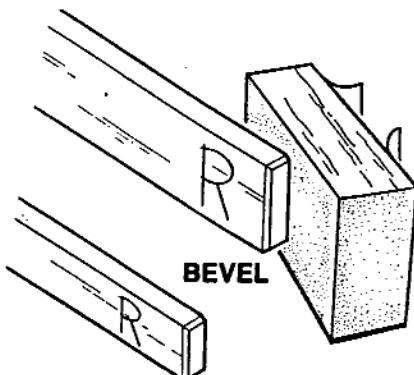


- ☐ Tape over the half-cut on the tabbed ribs.



TAPE BOTH SIDES

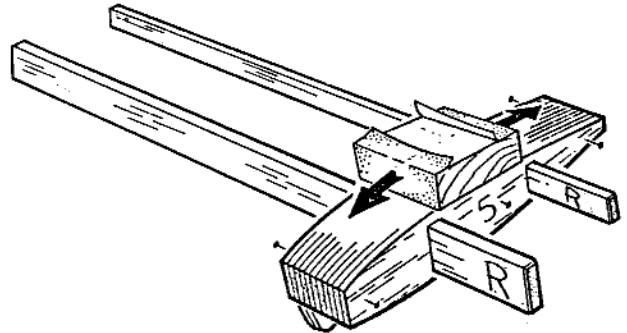
9. ☐ Bevel the marked ends of the spars to ease pushing spar through the ribs.



10. ☐ Slide the wing ribs onto the spars in the order that they appear on the plan. Trim the slots if necessary to allow bind-free fit, and pin them together.

- ☐ Lightly sand the ribs.

- ☐ Remove the pins and ribs from spars.



IMPORTANT! MAKE SURE THAT YOU BUILD A RIGHT AND A LEFT WING HALF. DO NOT BUILD TWO LEFT OR TWO RIGHT PANELS.

11. ☐ Position the wing portion of your plan over your building board.

- ☐ Lay waxed paper over the plan.

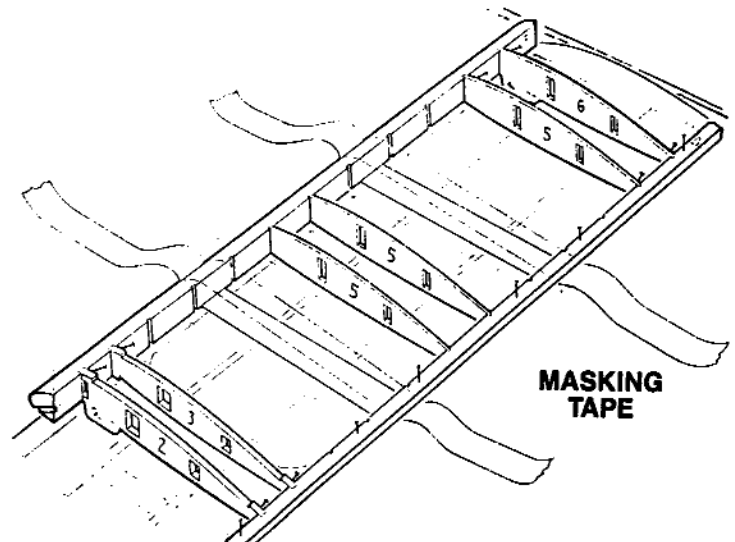
- ☐ ☐ Lay two 2' strips of masking tape, sticky side up, over the plan as shown.

- ☐ ☐ Pin the trailing edge over the plan aligning the notches to the ribs.

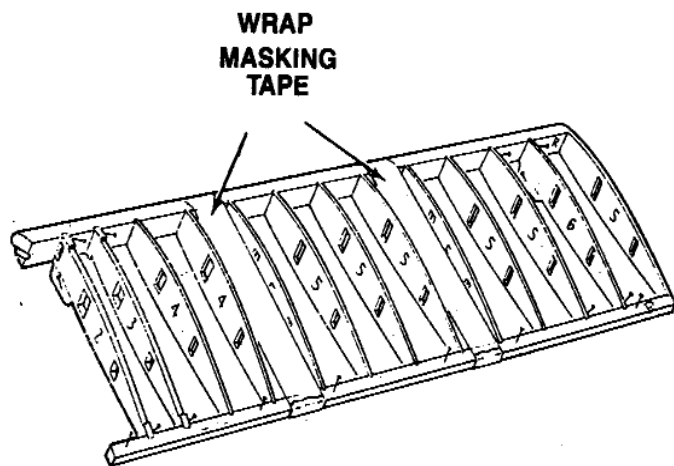
- ☐ ☐ Glue ribs #2 and #6 to the T.E.

- ☐ ☐ Glue and pin the shaped leading edge to the ribs.

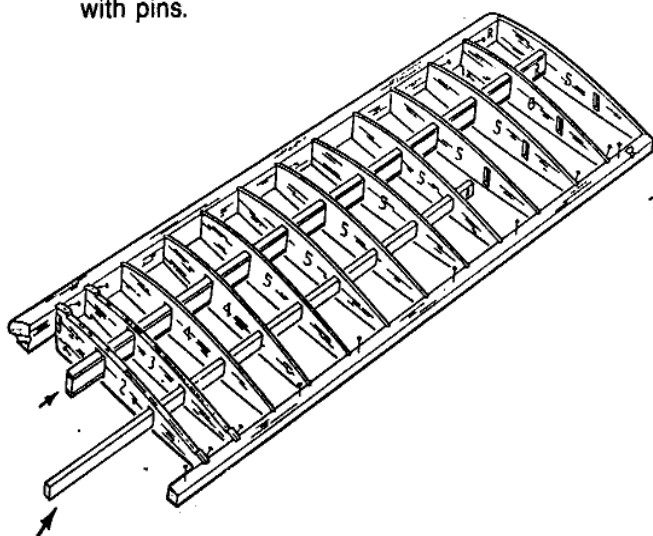
- ☐ ☐ Glue ribs #3 and #5 and secure with tape.



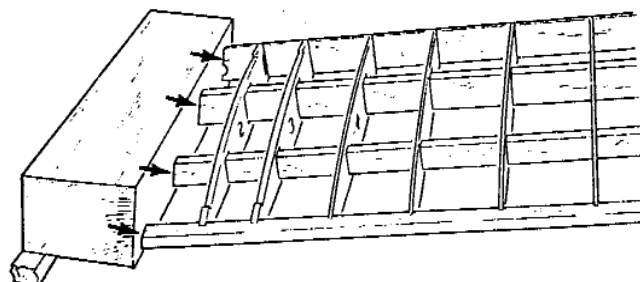
12. ☐ ☐ Glue in the remaining wing ribs.
- ☐ ☐ Pull the tape up and wrap forming a clamp.



13. ☐ ☐ Slide in the spars. Make sure that the angled ends are at the centerline of the wing. Back-up the ribs with pins.



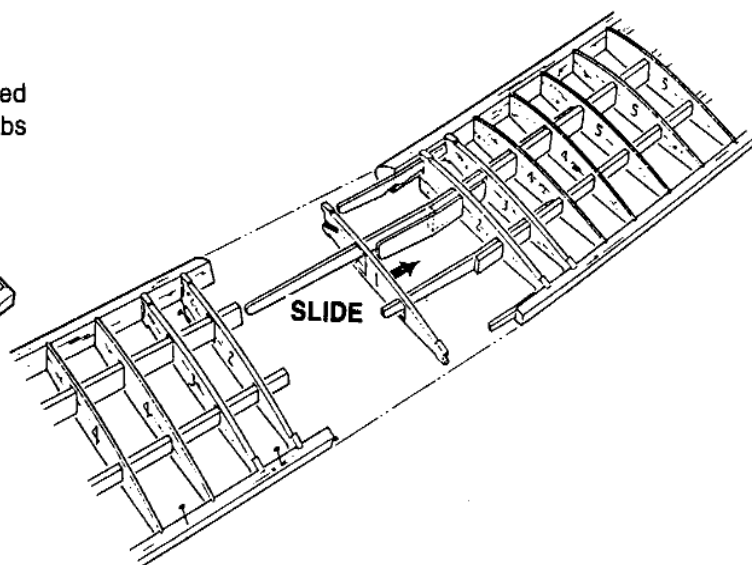
- ☐ ☐ Use a straight block to position the angled ends in line.
- ☐ ☐ Glue ribs #5 and #6 to the spars.



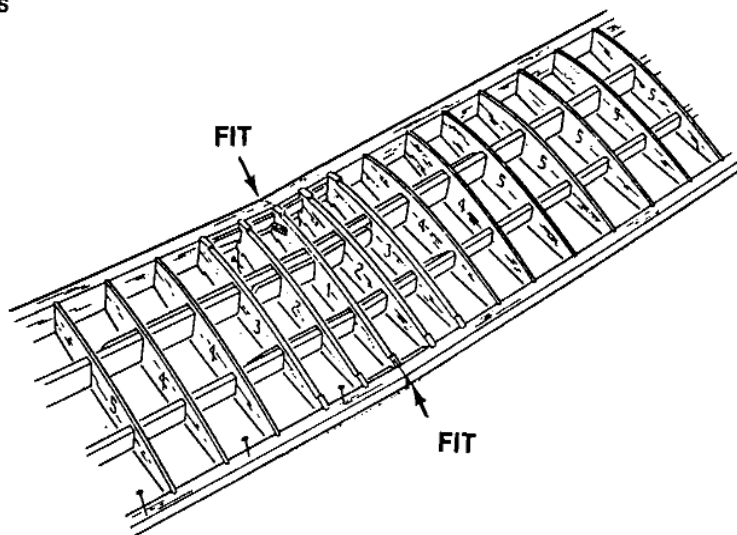
- ☐ Go back to step 11 and repeat the sequence for the left wing half.

NOW THAT YOU HAVE BOTH WING HALVES COMPLETED, LET'S JOIN THEM.

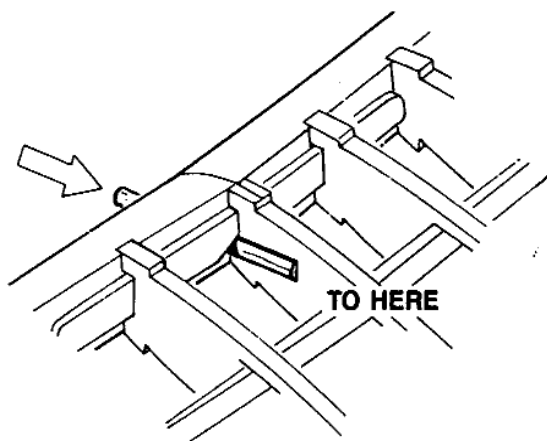
14. ☐ Slide the dihedral braces into the right wing half, but DO NOT glue.
- ☐ Slide rib #1 onto the braces, note that the wing dowel slot is pointing down.
- ☐ Slide the right half into the pinned down left half. Make sure that the spars and the leading and trailing edges fit well together.



- ☐ Position the dihedral gauge against the tip rib.
- ☐ Glue the dihedral braces to the spars, ribs, leading and trailing edges and let dry.

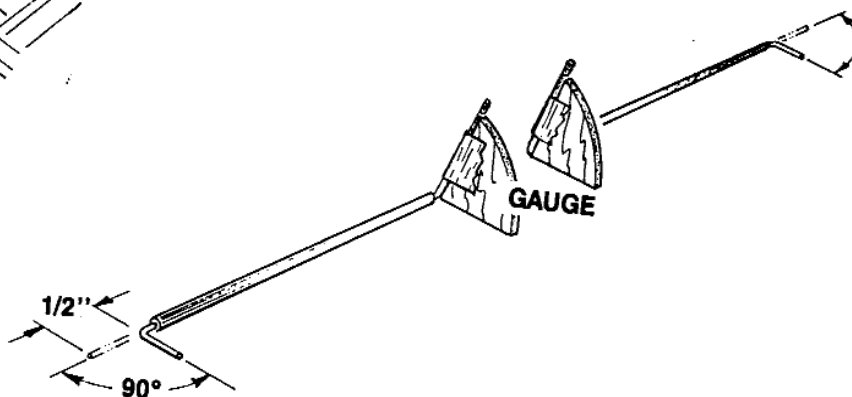


15. ☐ Insert the 1/4" dia. wing pin and glue in place.



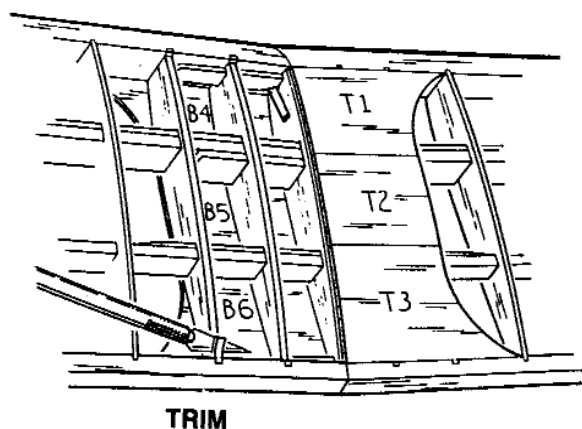
18. ☐ Tape the bending gauge to the threaded portion of the torque rod as shown.

☐ Bend the wires 1/2" x 90 degrees. You may need to trim the plastic tubing to accomplish this.



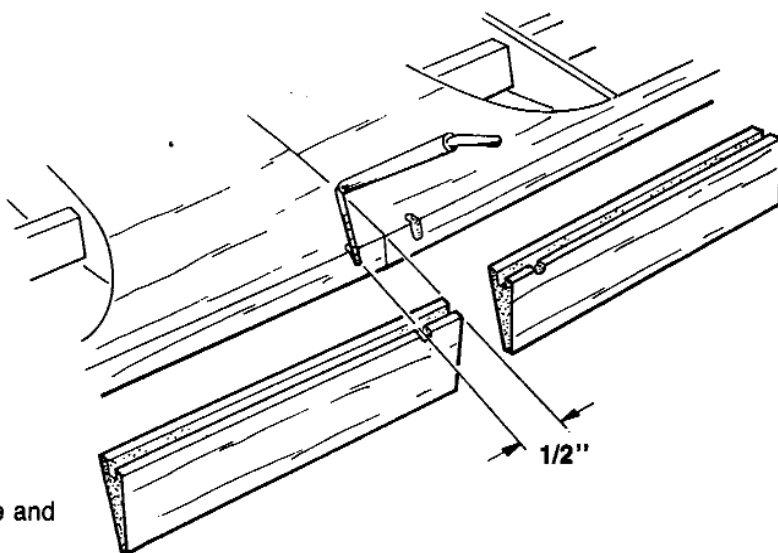
16. ☐ Trim off the alignment lugs on the top and bottom.

☐ Sheet the center section top and bottom.

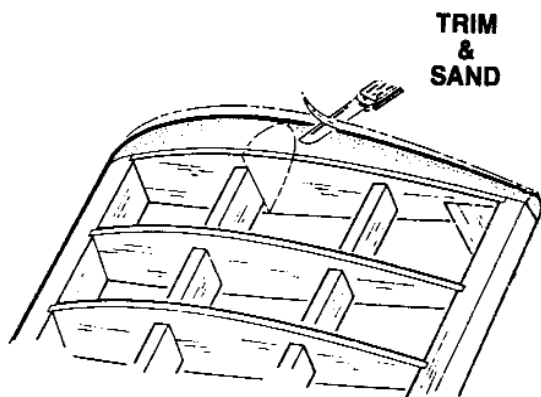


IMPORTANT! Make sure that you make a left and a right torque rod form.

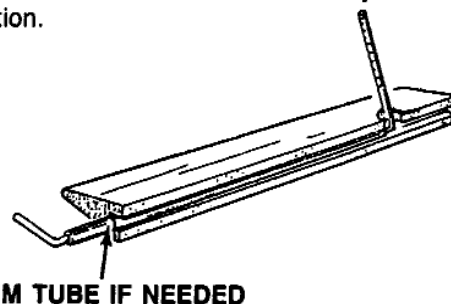
19. ☐ Measure 1/2" from both sides of the centerline of the wing and use the threaded end of the torque rod to gouge out a clearance space on both the wing and center section.



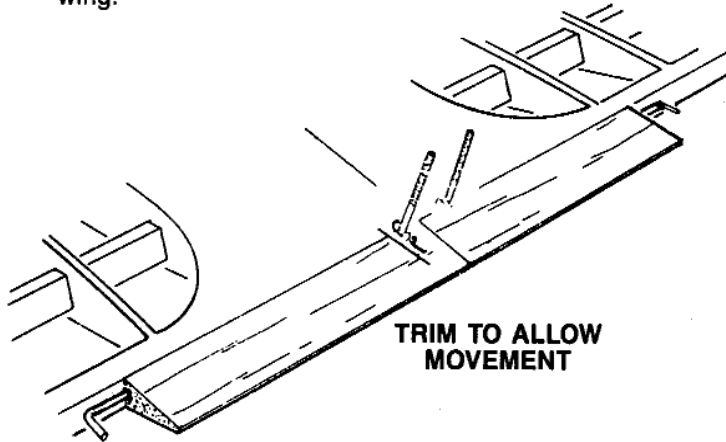
17. ☐ Glue the tip blocks to the end rib, and carve and sand to shape.



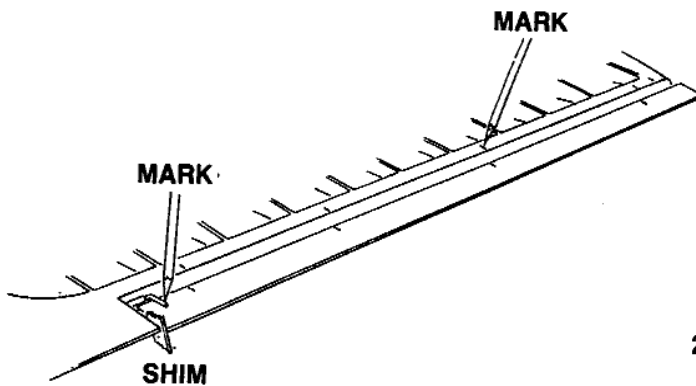
20. ☐ Glue the torque rods into the slot in the center sections. Make sure that the top of the threaded portion of the rod leans forward, away from the center section.



- ☐ Glue the center section assembly to the wing. Make sure that the threaded ends are on the bottom of the wing.

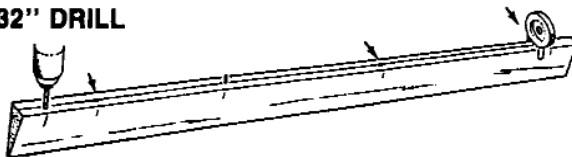


21. ☐ Space the aileron out 1/16" from the center section and mark the location of the torque rod. Also mark the location of the hinges on the aileron and the wing.



- ☐ Drill a 3/32" dia. hole to accept the torque rod.

3/32" DRILL

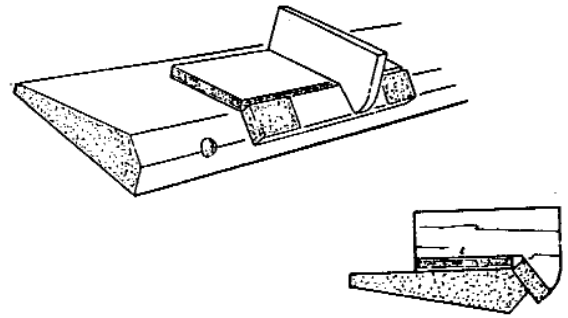


- ☐ Use a X-Acto knife to make a slot for each of the hinges.

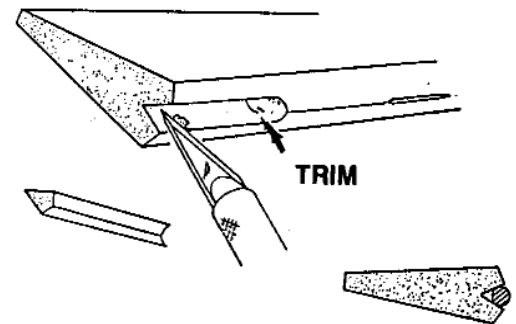


- ☐ Go back and repeat this process for the other aileron.

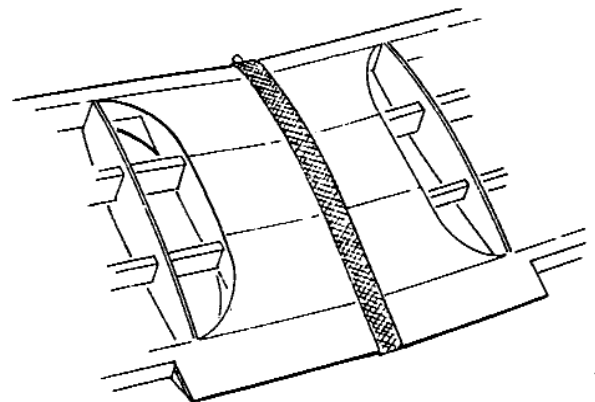
22. ☐ Bevel both sides of the ailerons.



- ☐ Carefully cut out the torque rod clearance slot and test fit until the torque rod fits properly.



23. ☐ Wrap the center of the wing with 3/4" nylon tape, starting at the leading edge, over the top and under back to the leading edge.

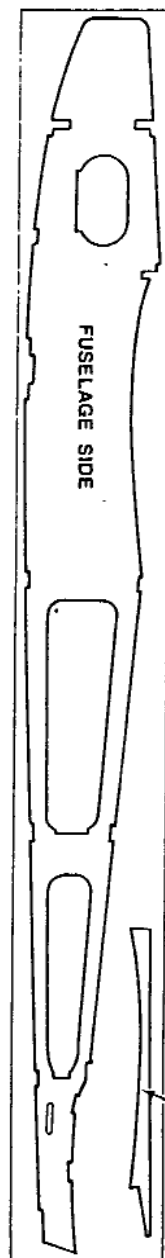


CONSTRUCTING THE FUSELAGE (25 Steps)

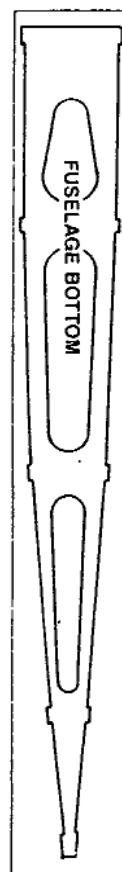
1. Collect all of the parts that you will need to build the FUSELAGE.

THEY INCLUDE:

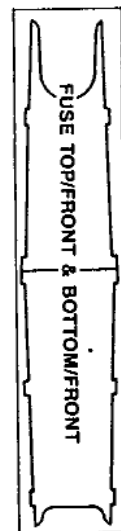
- (2) FUSELAGE SIDE L-PLY
(DIE SHT. #5001-320000)
- (1) FUSELAGE TOP L-PLY
(DIE SHT. #5007-320100)
- (1) FUSELAGE BOTTOM & SERVO TRAY L-PLY
(DIE SHT. #5003-320200)
- (1) FUSELAGE FRONT TOP
& BOTTOM L-PLY
(DIE SHT. #5004-320300)
- (1) FUSELAGE LANDING
GEAR DOUBLER L-PLY
(DIE SHT. #5005-320400)
- (1) FUSELAGE FORMERS L-PLY
(DIE SHT. #5006-320500)
- (1) FIREWALL & FORMER-DOUBLER ... B-PLY
(DIE SHT. #5008-320700)
- (1) 1/4" x 1" x 3-1/8" L.G. BLOCK B-PLY
(#421100)
- (2) 1/4" x 3/4" x 1-1/2" WING BLOCK ... B-PLY
(#419400)
- (8) 4-40 BLIND NUT METAL
(#112500)
- (4) 4-40 x 3/4" MOTOR MOUNT BOLT .. METAL
(#104900)
- (4) 4-40 x 1/2" BEARING BOLT METAL
(#104800)
- (8) #4 WASHER METAL
(#113900)
- (2) MOTOR MOUNTS NYLON
(#146600)
- (2) 5/32" NOSE GEAR BEARING NYLON
(#141300)
- (1) 5/32" STEERING ARM NYLON
(#141400)
- (1) 5/32" WHEEL COLLAR METAL
(#116800)
- (1) 6-32 x 3/16" SOCKET HD. SCREW . METAL
(#101900)
- (1) 5/32" NOSE GEAR STRUT METAL
(#602200)
- (2) 5/32" MAIN LANDING GEAR METAL
(#131300)
- (2) 6-32 BLIND NUT METAL
(#112400)
- (2) 6-32 x 1" SOCKET HEAD BOLT METAL
(#102300)
- (2) #6 WASHER METAL
(#114400)



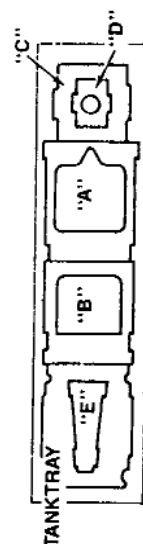
SHEET 5001-320000
(2 REQ'D)



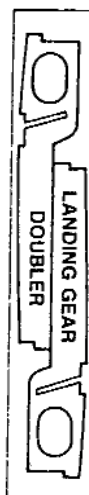
SHEET 5002-320100
(1 REQ'D)



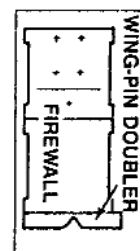
SHEET 5004-320300
(1 REQ'D)



SHEET 5006-320500
(1 REQ'D)

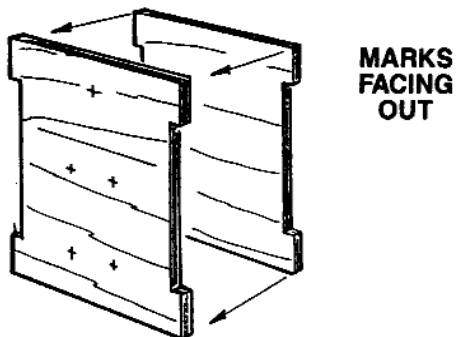


SHEET 5005-320400
(1 REQ'D)

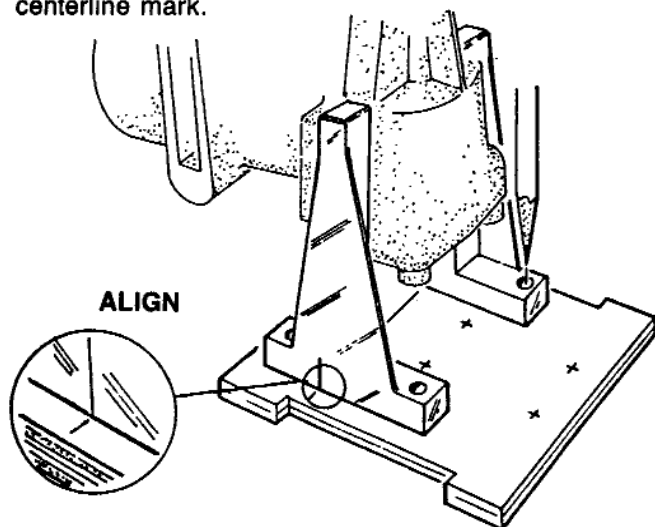


SHEET 5008-320700
(1 REQ'D)

2. ☐ SUPER JET glue the two 1/8" plywood firewall parts together keeping the center points and engine centerline mark to the outside. Make sure the edges are in line. Tape together and place a weight on it until dry.

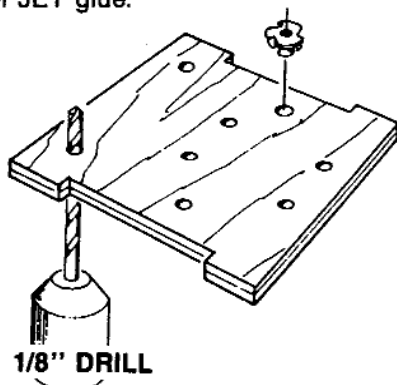


3. ☐ Tack-glue the motor you intend to use to the motor mounts and center the assembly on the firewall. Align the mark on the motor mount with the engine centerline mark.

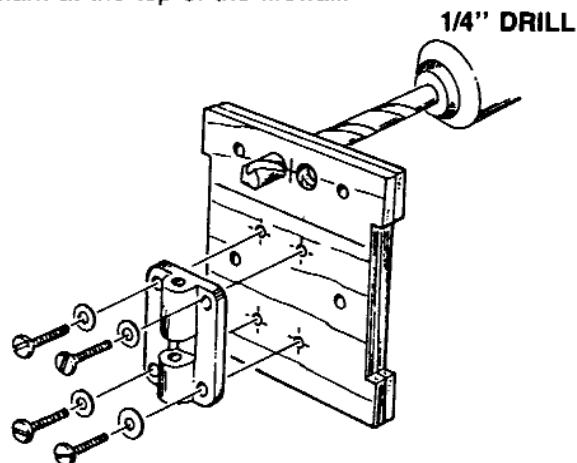


- ☐ Mark the hole locations.

4. ☐ Drill a 1/8" diameter hole at all eight locations.
- ☐ Insert 4-40 blind nuts at each location. Seat them into the firewall using a hammer.
- ☐ Coat the edges of each nut with a generous amount of JET glue.



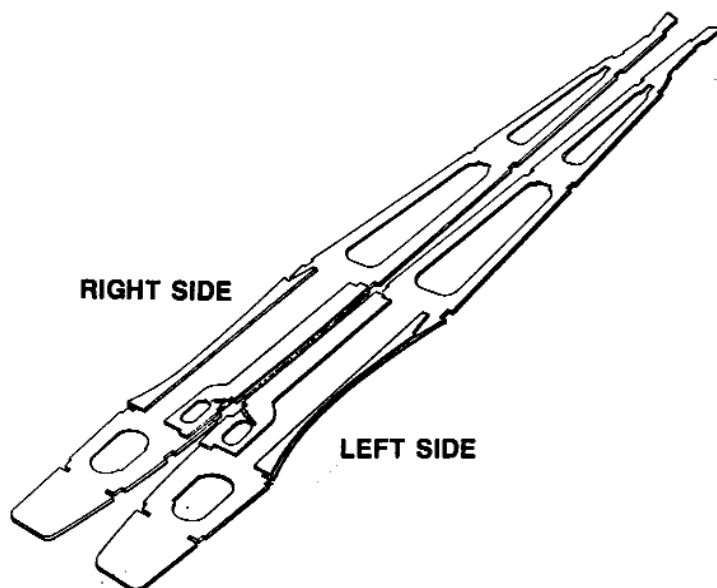
5. ☐ Drill a 1/4" diameter hole on each side of the center-mark at the top of the firewall.



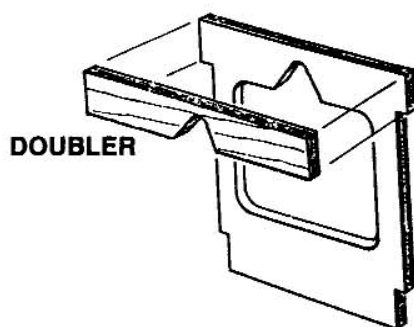
6. ☐ Using four 4-40 x 1/2" bolts and #4 washers, attach the nose gear bearing to the firewall. Note that the small bearing is down.

7. ☐ Lay the sides next to each other so that they are mirror images. This will insure that you build a left and right fuselage side.

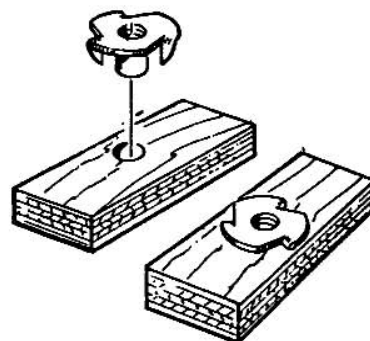
- ☐ Glue the wing saddle doubler and the landing gear doubler to the fuselage sides.



8. ☐ Glue the birch plywood doubler to former "A."

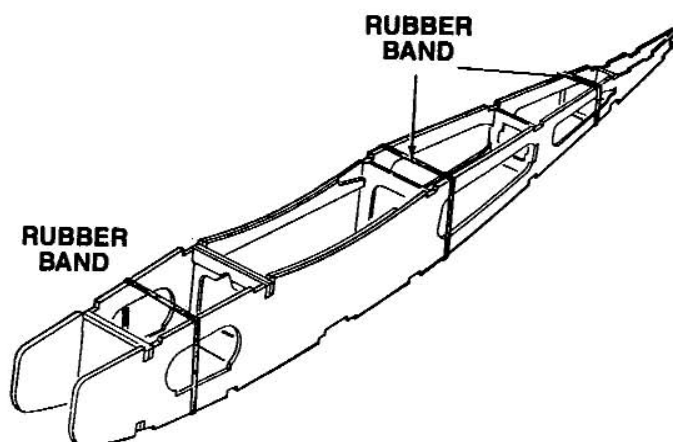


11. ☐ Insert a 6-32 blind nut into each hole. Tap with a hammer to seat the tangs into the wood.

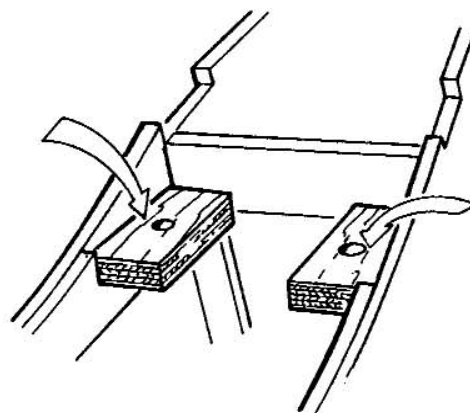


9. ☐ Assemble the fuselage inserting all of the formers and the firewall. Use rubber bands to hold everything together.

- ☐ Tape the side together at the tail.

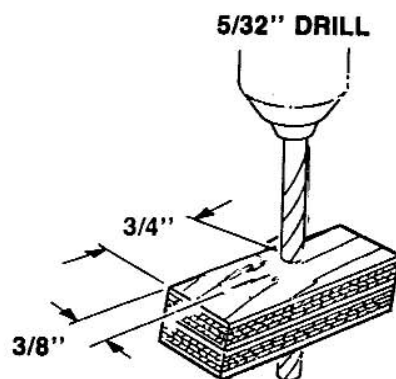


12. ☐ With the blind nut flanges to the inside, securely glue the blocks to the fuselage sides.



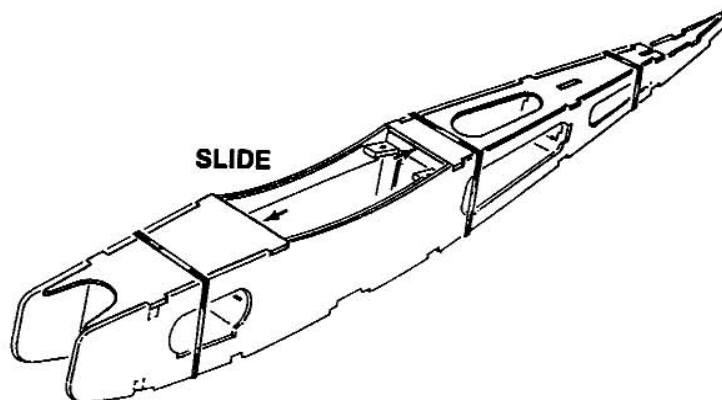
10. ☐ Stack the two 1/4" x 3/4" x 1-1/2" plywood wing mounting blocks together, use tape if you wish.

- ☐ At the location shown, drill a 5/32" diameter hole completely through the blocks.

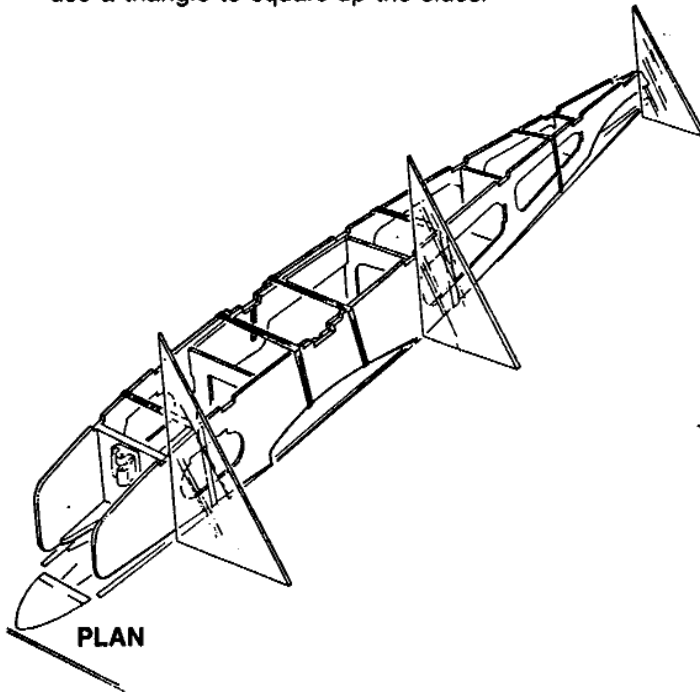


13. ☐ Slip the fuselage top/aft under the rubber bands and into the slots.

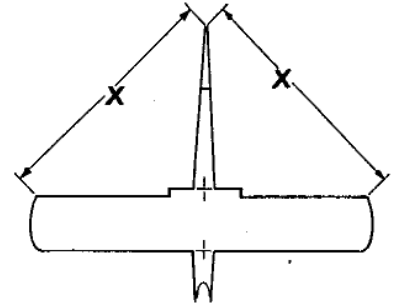
- ☐ Repeat for the top/front.



14. ☐ With the fuselage resting on a firm level surface, use a triangle to square-up the sides.

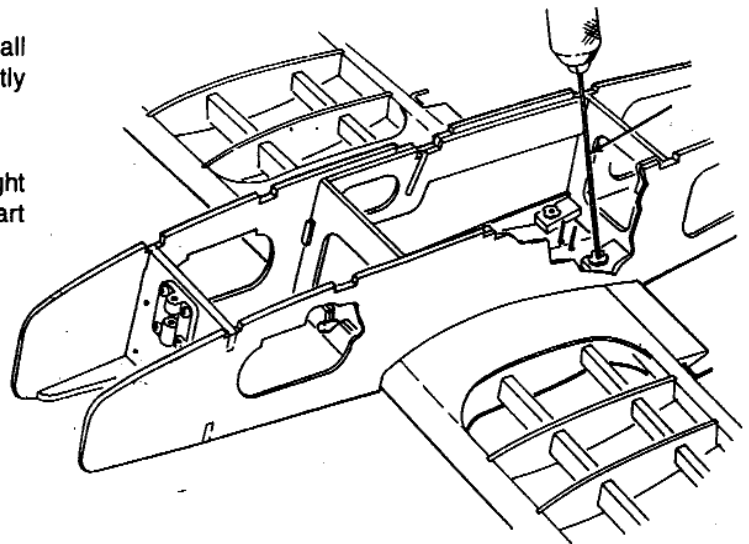


- ☐ With the wing fitting properly, adjust until the two diagonal dimensions are equal, and tape in place.



17. ☐ Flip the wing/fuse and drill a small pilot hole, no larger than $7/64$ " (the aileron pushrod works well if you cut the end with a pair of wire cutters first) through the wing.

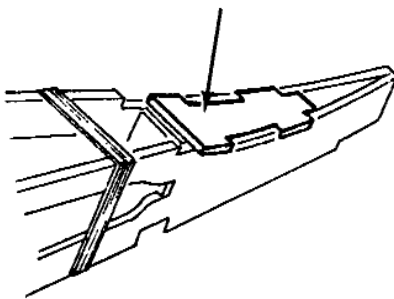
**USE
AILERON
PUSHROD
FOR DRILL**



- ☐ With the fuselage square, commence glueing all of the joints and seams created, checking frequently for squareness.

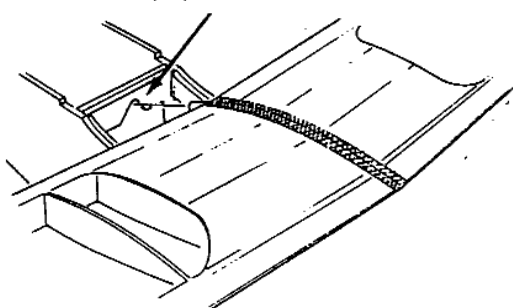
15. ☐ Insert the stab support and glue in place. You might find this part a little easier to form if you wet the part with water first.

STAB SUPPORT

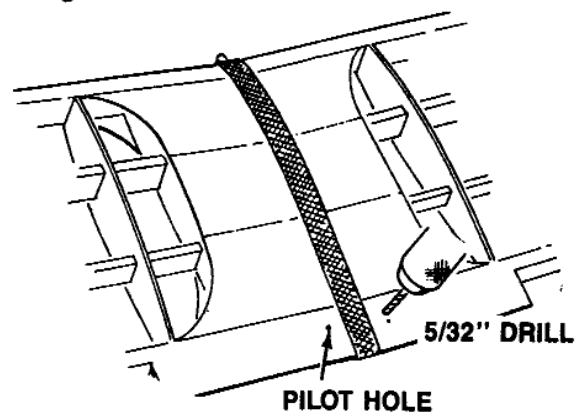


16. Take the wing and insert the wing pin into the inverted "V" in leading edge fuselage former. You may need to trim the "V" to get the wing to fit all along the saddle.

INSERT PIN



18. ☐ Remove the wing from the fuselage and drill a $5/32$ " diameter hole through the wing using the pilot hole as a guide. Test-bolt the wing and check the diagonals.

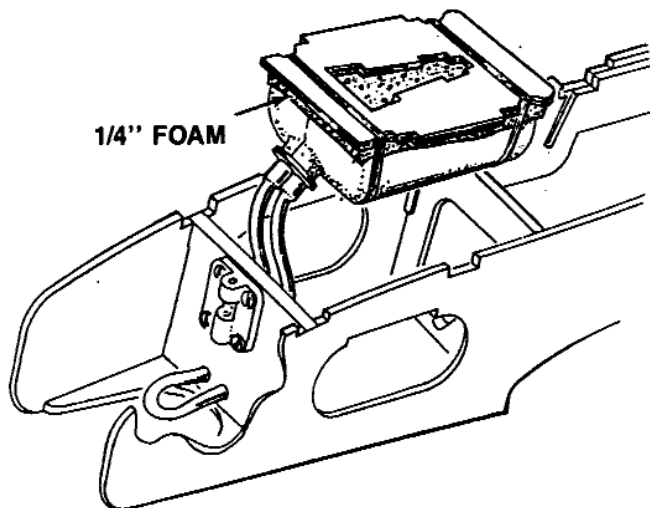


19. ☐ Assemble the fuel tank and rubber band it to the tank tray. Insert 1/4" foam between the tank and tray.
☐ Insert the fuel supply and vent lines onto the tank. Mark the supply line now so you know which one to connect to the engine carburetor later on.

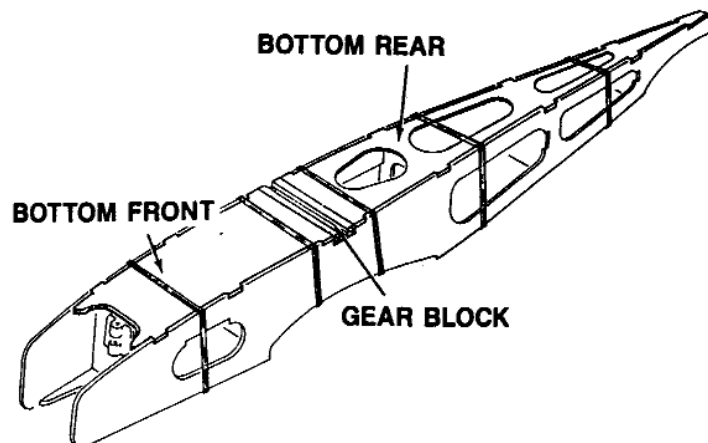
☐ Feed the lines through the two holes in the top of the firewall.

☐ Install the tray assembly into the fuselage and glue in place. Pull the slack out of the fuel lines. Make sure that there are no kinks in the fuel lines at this time.

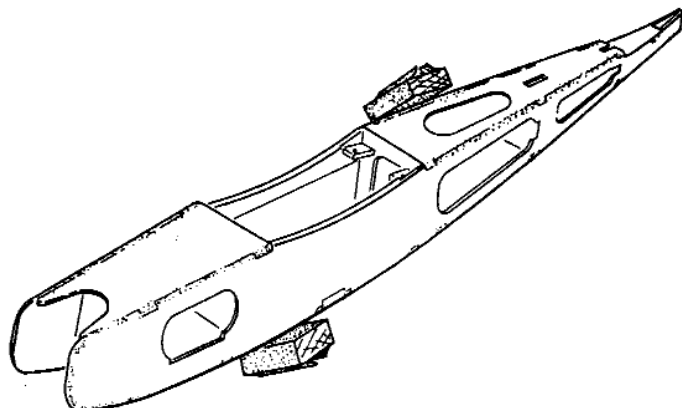
(Note that the fuel tank and tray could be installed after the model is covered, but it is easier if you do it now.)



20. ☐ Glue the landing gear block in place. Make sure that the groove is facing out.
☐ Slip the fuse bottom/aft under the rubber bands and into the notches. Sand/trim to fit if needed.
☐ Slip the fuselage bottom/front under the rubber bands and into the notches.
☐ Glue the bottoms to the sides and to the formers making sure that the fuselage maintains square.



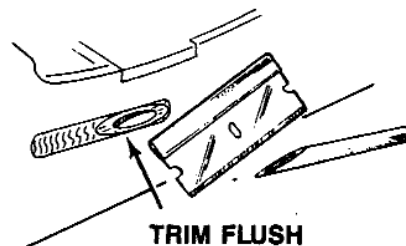
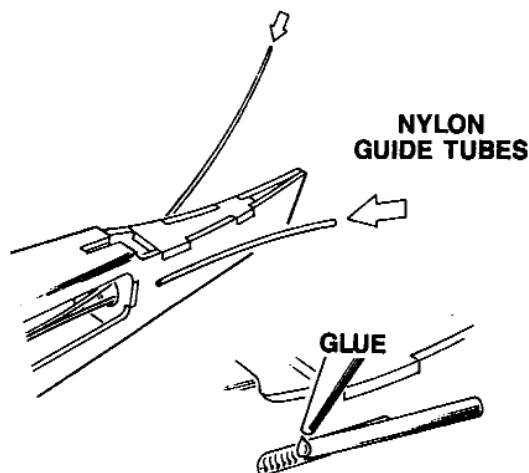
21. ☐ Sand the entire fuselage first using medium grit and then switching to fine grit. Remember that the covering will not hide a rough surface.



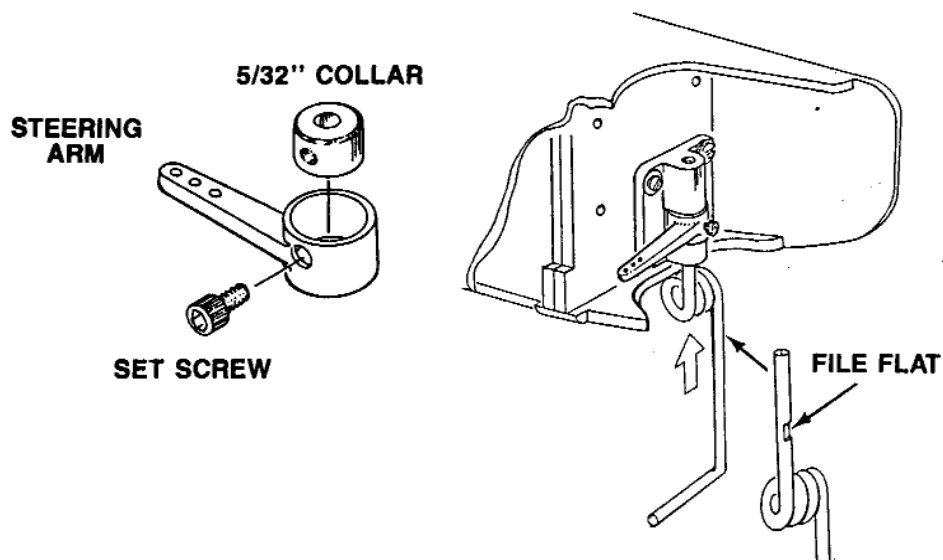
22. ☐ Install the 1/8" nylon pushrod guides into the exit slots at the rear of the fuselage. One is for the elevator, and the other is for the rudder.

☐ Apply glue to the tube at the exit.

☐ Trim the tube even with the sides of the fuselage.



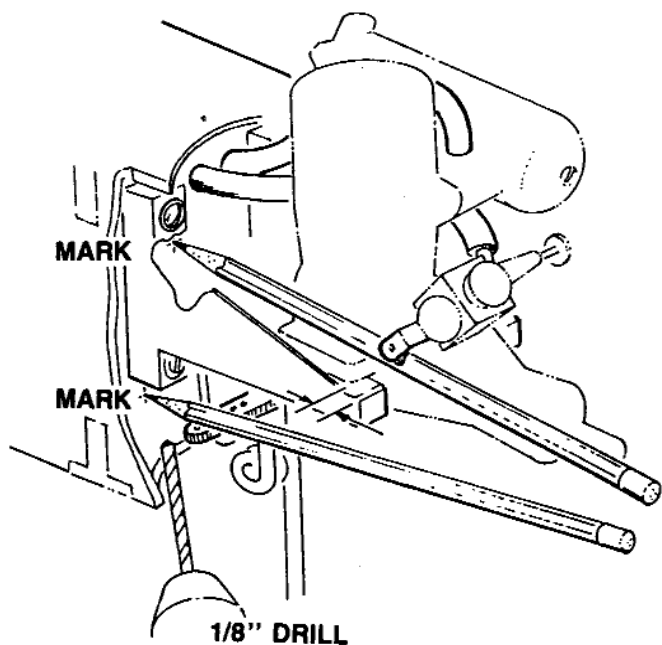
23. ☐ Assemble the steering arm to mark the location of the pushrod exit on the firewall.



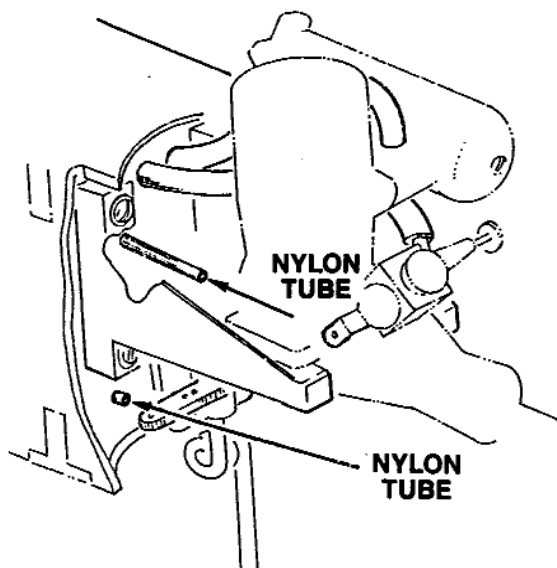
24. ☐ Temporarily bolt the motor mounts to the firewall and position the motor.

☐ Mark the position of the throttle pushrod exit on the firewall, using the engine as a reference.

25. ☐ Install the 1/8" nylon control guide tubes and glue.



- ☐ Drill a 1/8" diameter hole through the firewall at each mark.



THIS COMPLETES THE BUILDING PORTION OF THE FALCON.

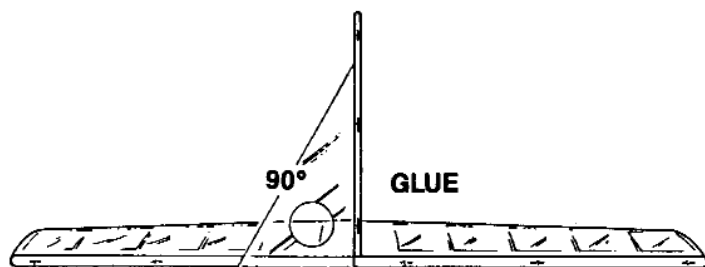
MAKE SURE THAT ALL OF THE PARTS ARE SANDED TO YOUR SATISFACTION AND THAT ANY NICKS ARE FILLED. WITH THAT, YOU ARE NOW READY FOR COVERING THE MODEL.

See the section on "COVERING" in the GENERAL INFORMATION BOOKLET enclosed in this kit.

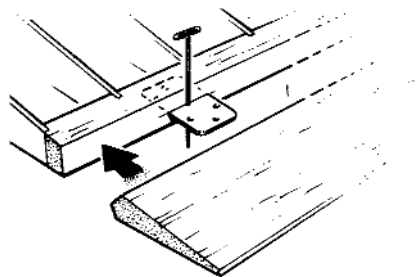
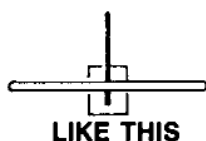
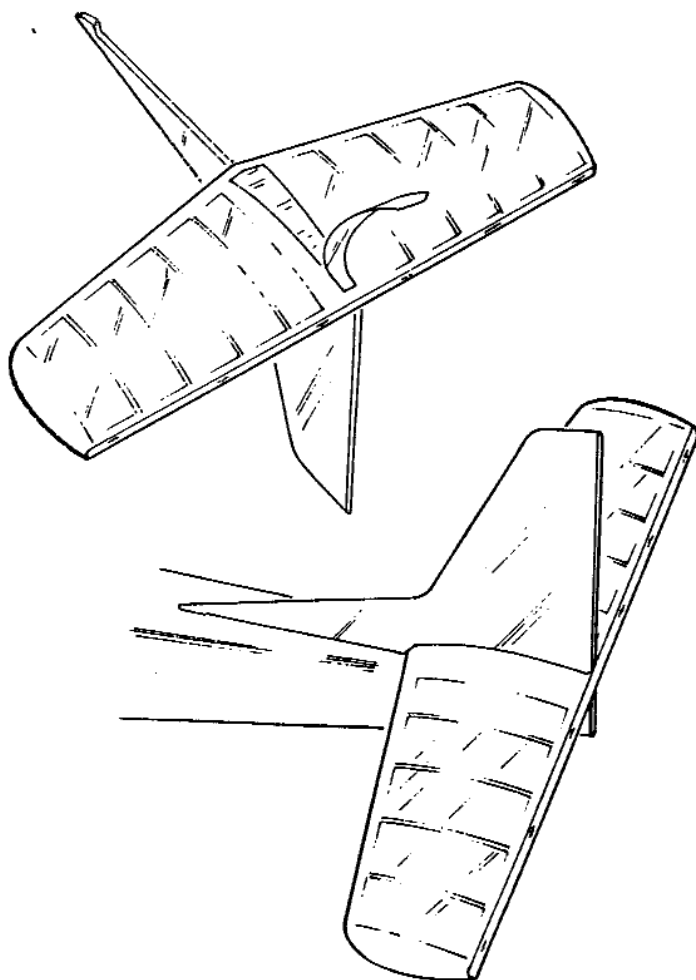
After the model is covered return to this section and finish the final details . . . see you later!

FINISHING THE MODEL

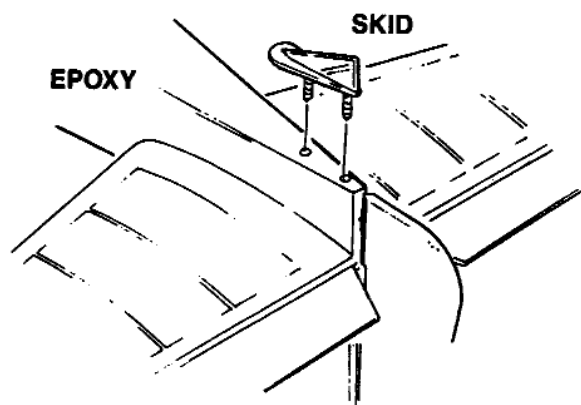
1. ☐ Glue the fin into the slot in the horizontal stabilizer. Make sure that the fin is 90 degrees to the stab.



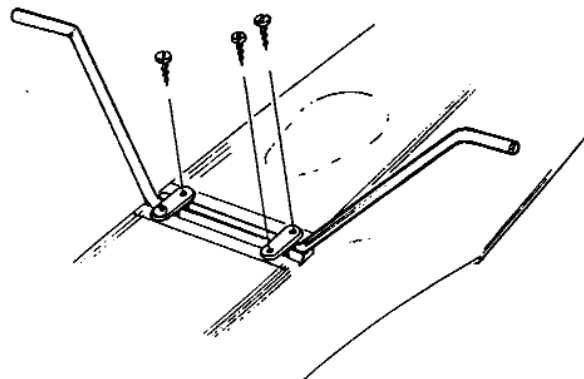
2. ☐ Remove a small patch of covering to allow a wood to wood bond glueing the stab to the fuselage. Make sure that the assembly is properly aligned. Be very careful not to cut into wood sheeting.



3. ☐ When all the parts are ready for hinging then re-mount the hinge with a pin inserted in the center. when satisfied that all parts are aligned properly, remove pin. Apply 3 to 4 drops of thin CA glue to the exposed hinge line. Turn over and apply another 3 to 4 drops to the hinge line of the other surface.
 - ☐ Allow 10 minutes for the CA to cure, before flexing the surface.
 - ☐ Work the surface up and down to remove any stiffness you may feel.
4. ☐ Install the tail skid by drilling two 1/8" diameter holes and using epoxy to secure.

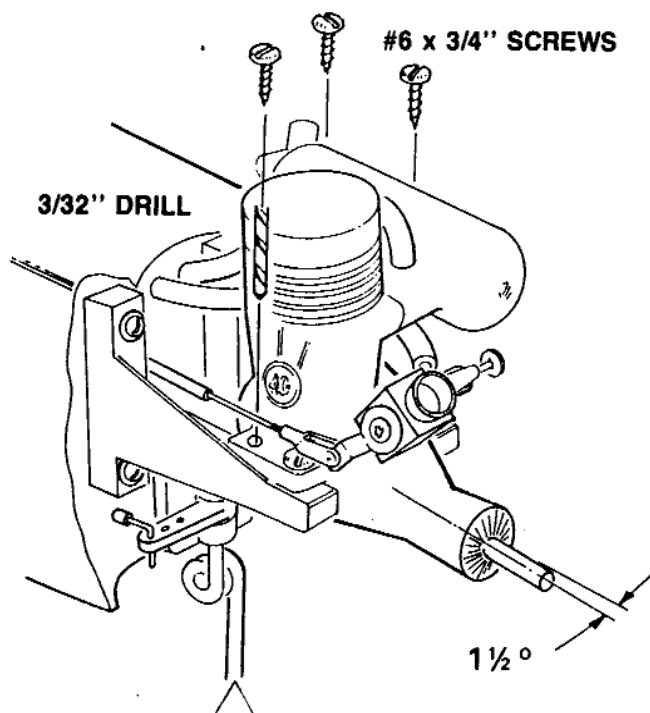


5. ☐ Install the main landing gear wire.



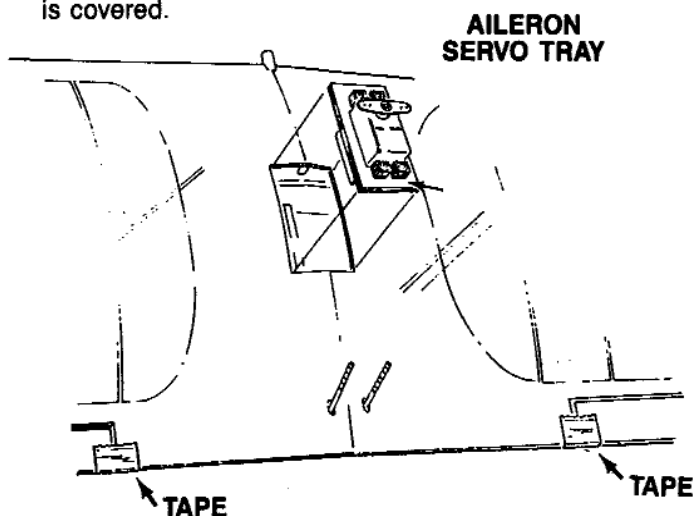
- ☐ Use the two nylon straps and four #2 x 3/8" screws to secure the wires.

6. ☐ Mount the engine with the proper right thrust. See the plan for correct angle.



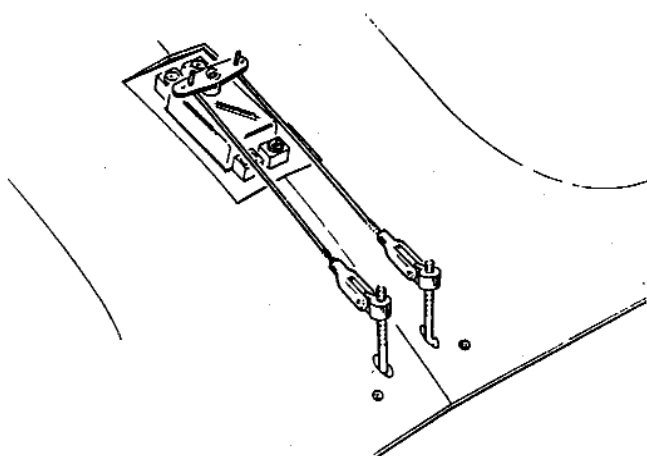
☐ Install the nose gear strut and secure it with the steering arm assembly.

7. ☐ Cut an opening in the bottom of the wing to accommodate the aileron servo tray. Glue the tray to the spars and screw the servo to the tray after the wing is covered.

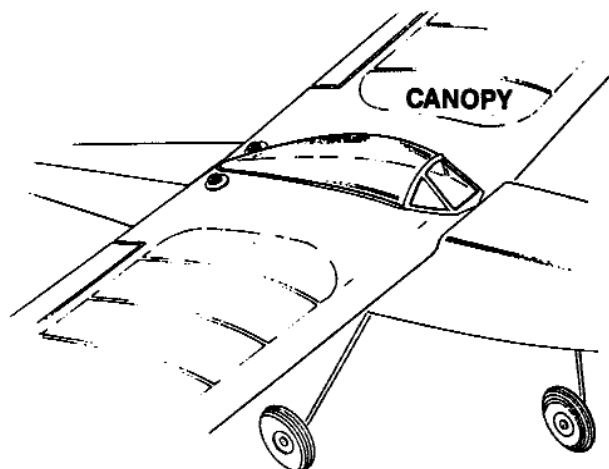


8. ☐ Permanently install the ailerons to the wing, using the same method as describe before when hinging the elevator and rudder.
☐ Tape the ailerons in the plane of the wing and permanently install the aileron servo.

9. ☐ Thread the adjustable horn bracket on to the torque rod, and connect the servo to the aileron.



10. ☐ Bolt the wing to the fuselage. Trim the canopy to fit the camber of the wing and JET glue to the wing. If you want, add a pilot or any cockpit details to it now. Also, try to keep the canopy area dust-free.

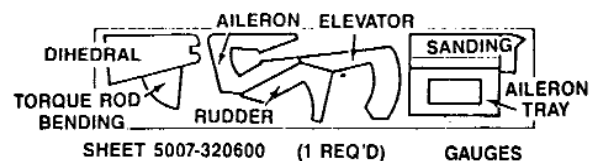


11. ☐ Install the radio system. A servo tray is provided in the kit. It may need to be modified depending on the control system that you use.

☐ The location of the center of gravity (C.G.) is very important. Refer to the plan for the location and to the General Information Booklet (BOOK TWO) for the procedure used to balance your model.

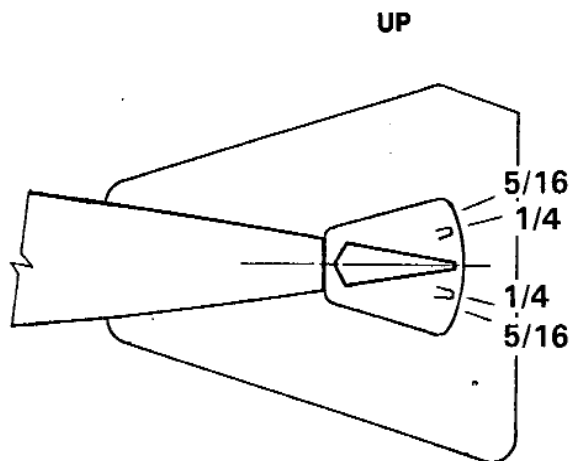
CONTROL SURFACE TRAVELS

Use the control surface travel gauges provided to correctly set up the surface deflections. The gauges provide you with two settings, a gentle response and an aerobatic mode. We encourage you to start out with the gentle marks and work to the aerobatic mode as you become a more proficient flyer.



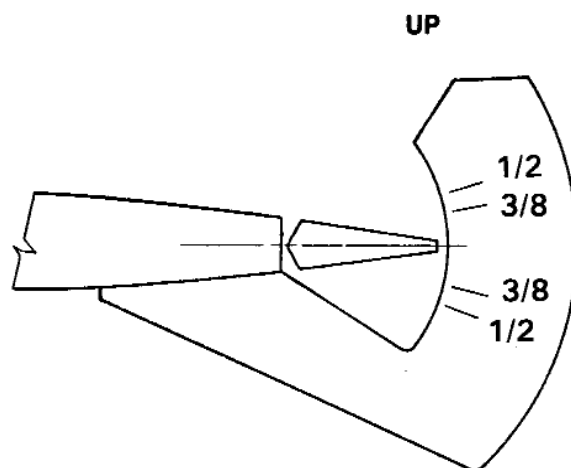
AILERON GAUGE

- ☐ Place the gauge, point up, anywhere along the wing. Note that the movement is more up than down.
- ☐ The gauge has a gentle and an aerobatic mark.



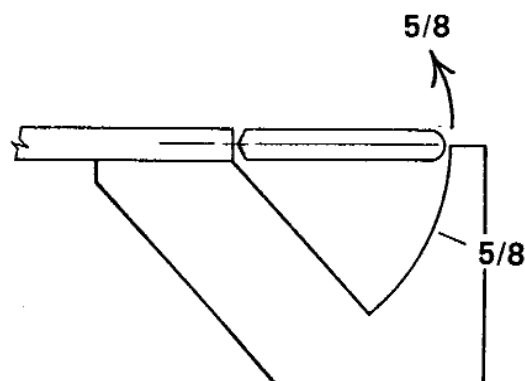
ELEVATOR GAUGE

- ☐ Place the gauge, point up, anywhere along the hinge line.



RUDDER GAUGE

- ☐ Place the gauge anywhere along the hinge line on either side of the fin.



THAT DOES IT! NOW GO ON TO BOOK TWO — READ THE FLYING SECTION.

GLOSSARY

of common modeling terms

ARF: Almost Ready to Fly

AILERON: the control surface on the wing that rolls the plane

AIRFOIL: the shape of the wing as seen from the end

ANGLE OF ATTACK: the angle at which the wing meets the air flow

BEVEL: to sand to an angle shape

BURR: the rough edges on a piece of wood or metal after it is cut

CAP STRIP: a thin strip glued to the edges of the ribs to shape the wing

CONTROL HORN: a device attached to each control surface to provide an attachment point for the pushrod

COWL (COWLING): the nose section of the fuselage that encloses the engine

DECALAGE: the difference between the incidence of the wing and stabilizer

DIHEDRAL: the inward angle of the wings, as seen from the front

ELEVATOR: the moveable part of the horizontal tail, which controls pitch

EMPENNAGE: the tail of the plane

FIN: the fixed vertical part of the tail

FIREWALL: the hard wooden former at the front of the fuselage, to which the engine is mounted

FORMER: a piece which shapes the fuselage; and to which the sides of the fuselage are attached.

GUSSET: a small triangular piece glued into a corner to strengthen it

INCIDENCE: the angle of the wing or the tail in relation to the thrustline

LAMINATE: to glue two thin sheets of material together to form a thick sheet

LEADING EDGE (L.E.): the edge of the wing that first meets the airflow

LONGERON: a stringer that runs the length of the fuselage

OUTPUT ARM: the piece that attaches to the servo and connects it to the pushrod

PITCH: an up and down movement of the nose of the plane, which is controlled by the elevator

PROTOTYPE: the full scale airplane from which the model design was taken

PUSHROD: the long, stiff dowel or plastic piece that connects the servo with the control horn

RTF: Ready to Fly

RIB: the airfoil-shaped piece that connects the leading edge, spars and trailing edge of the wing together and holds them in shape

RETRACTS: devices for extending and retracting the wheels on command

ROLL: tilting of the plane as viewed from the front, controlled by the ailerons

RUDDER: the moveable vertical tail of the plane, which controls yaw

SERVO: the part of the airborne radio system that moves the control surfaces

SHEAR WEB: wood sheeting that connects the top and bottom spars to stiffen the wing

SHIM: a thin piece of wood inserted between two other pieces to improve their fit

SPAR: a wooden stick running lengthwise through the wing that serves as its backbone

SPINNER: the rounded cone that fits over the propeller hub

STABILIZER (STAB): the fixed horizontal part of the tail

STALL: a situation in which the plane is flying too slowly to move sufficient air across the wing to produce lift

STRINGER: a long piece of wood attached to the formers to shape the fuselage

THRUSTLINE: a line drawn from the center of the propeller hub straight through the airplane

TORQUE: a rolling tendency caused by the spinning propeller

TRAILING EDGE (T.E.): the edge of the wing that faces the rear of the plane

TRIM: small adjustments made to the control surfaces to cause the plane to fly straight and level by itself

WASHIN: a twist in the wing that makes the trailing edge lower than normal

WASHOUT: a twist in the wing that makes the trailing edge higher than normal

WING SADDLE: the shaped part of the fuselage in which the wing rests

WHEEL COLLAR: a metal ring that holds the wheel on the axle

YAW: a right-to-left movement of the nose, controlled by the rudder



For your next model kit, consider the **Anniversary Edition Piper Cub**, a realistic model that assembles quickly, and includes cowling, engine detail, windows, engine mount, and complete hardware. Build either the full length wing, for a scale-like floater, or the "clipped" wing, for an aerobic thriller.



The **Super Chipmunk** is a terrific first low-wing model. All the thrills without the chills! Turn it loose and this easy to handle Sunday flyer will put on an airshow with all the flash and flair of its full-size cousin. Optional flaps offer an added dimension of realism. Kit includes cowl, wheel pants, full-color decals, and complete hardware.

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