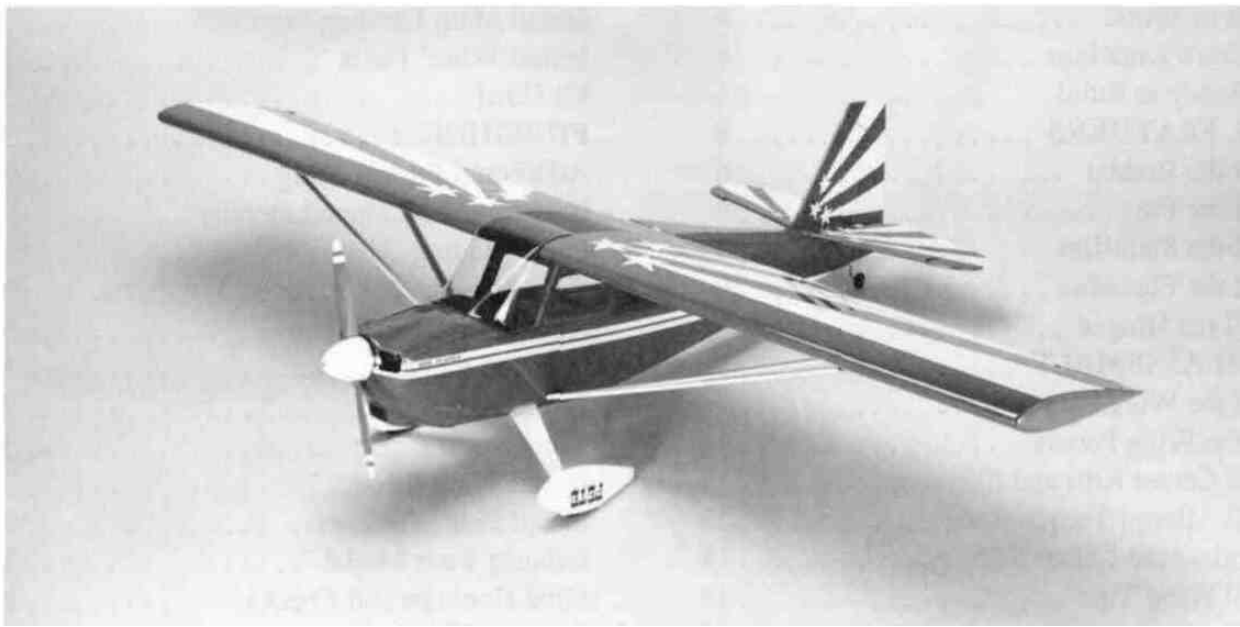
SUPER DECATHLON 40

INSTRUCTION BOOK



PLEASE READ THROUGH THIS INSTRUCTION BOOKLET IN ITS ENTIRETY BEFORE BEGINNING ASSEMBLY. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.

WARNING! THIS IS NOT A TOY!

This R/C kit and the model you will build is not a toy! It is capable of serious bodily harm and property damage. **IT IS YOUR RESPONSIBILITY AND YOURS ALONE - to** build this kit correctly, properly install all R/C components and flying gear (engine, tank, pushrods, etc.) and to test the model and fly it **only** with experienced, competent help, using common sense and in accordance with all safety standards as set down in the Academy of Model Aeronautics Safety Code. It is suggested that you join the AMA to become properly insured before you attempt to fly this model. IF YOU ARE JUST STARTING R/C MODELING, CONSULT YOUR LOCAL HOBBY SHOP OR WRITE TO THE ACADEMY OF MODEL AERONAUTICS TO FIND AN EXPERIENCED INSTRUCTOR IN YOUR AREA.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252 (800) 435-9262

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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 airplane, please call us at (217) 367-2069 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.

INTRODUCTION

Congratulations! Thank you for purchasing the **Great** Planes **Super Decathlon 40!**

The Super Decathlon 40 is a 1/6-scale model of a full-size Bellanca Super Decathlon, owned by Pete Myers, located at Howell Airport in New Lenox, IL. The airplane was built by Champion Aircraft in 1979. Pete calls his Super Decathlon "experimental" because he has made a few changes to enhance its acrobatic capabilities, the most noticeable of which are the squared-off "clipped" wing tips. The normal wingspan would be 32'; but, due to the special tips, Pete's Decathlon spans only 30.5'. You will notice that the model's wingspan has been increased by 5% to enhance the flying qualities.

If you are interested in sport scale competition, you'll be happy to know that color photos of Pete's full-size Super Decathlon are available from Scale Model Research, 2334 Ticonderoga Way, Costa Mesa, CA 92626.

The Super Decathlon 40 is easy to build and fly, predictable, highly acrobatic, and has no "bad habits," making it a great sport-scale airplane (as long as you don't get carried away with the glue bottle and make it a "lead sled")! Although the model is sufficiently close to scale that it can place well in sport-scale competition, traditional Great Planes quality and ruggedness is evident throughout, making this an airplane you'll want to take along every time you go to the flying field.

This is not a beginner's airplane! While the Super Decathlon 40 is easy to build and flies great, we must discourage you from selecting this kit as your first R/C airplane. It is fast, highly maneuverable, and lacks the self-recovery characteristics of a good basic trainer such as the Great Planes PT Series airplanes. On the other hand, if you have already learned the basics of R/C flying and you are able to safely handle an "aileron trainer" airplane such as the Great Planes Trainer Series or Big Stick Series airplanes, the Super Decathlon 40 is an excellent choice.

PRECAUTIONS

1. You must build the plane **according to the plans 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 plans and instructions may differ slightly from the photos. In those instances you should assume the plans 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 the nylon clevises often, and replace if they 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 and knowledgeable R/C pilot at this lime.

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 arc expressed or implied as to the performance or safety of your completed model.

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

COMMON ABBREVIATIONS USED IN THIS BOOK AND ON THE PLANS:

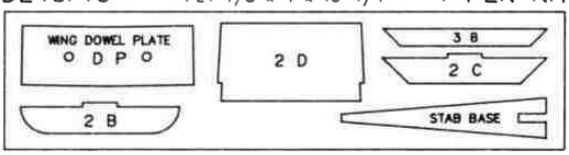
Elev	=	Elevator
Fuse	=	Fuselage
LE	=	Leading Edge (front)
LG	=	Landing Gear
Lt	=	Left
Ply	=	Plywood
Rt	=	Right
Stab	=	Stabilizer
TE	=	Trailing Edge (rear)
"	=	Inches

INSTRUCTIONS IN BOXES LIKE THIS ARE VERY IMPORTANT AND SHOULD BE FOLLOWED CAREFULLY

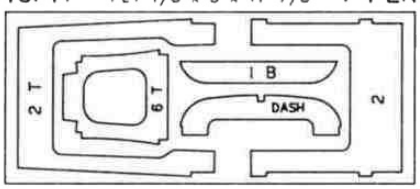
DIE PATTERNS

Use this drawing to help you identify the die cut parts

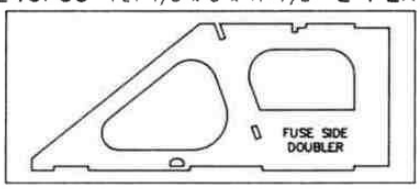
DE40F10 PLY 1/8 x 4 x 16-1/4 1 PER KIT



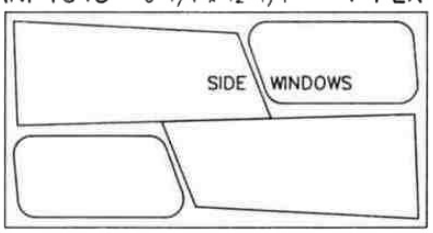
DE40F11 PLY 1/8 x 5 x 11-7/8 1 PER KIT



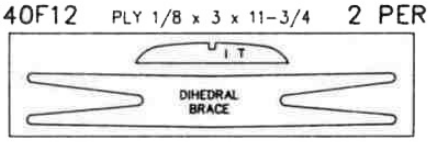
DE40F06 PLY 1/8 x 5 x 11-7/8 2 PER KIT



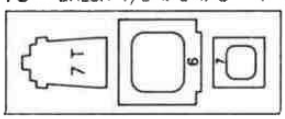
CANPY043 CLEAR PLASTIC 6-1/4 x 12-1/4 1 PER KIT



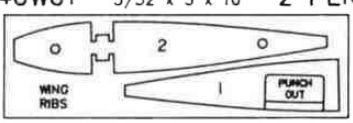
DE40F12 PLY 1/8 x 3 x 11-3/4 2 PER KIT



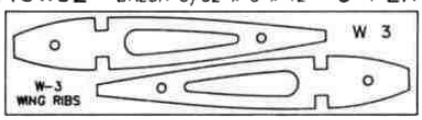
DE40F13 BALSA 1/8 x 3 x 8 1 PER KIT



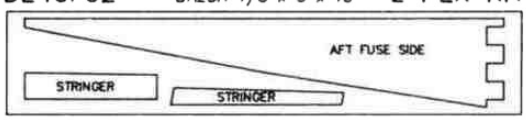
DE40W01 BALSA 3/32 x 3 x 10 2 PER KIT



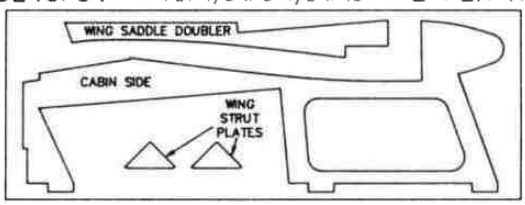
DE40W02 BALSA 3/32 x 3 x 12 9 PER KIT



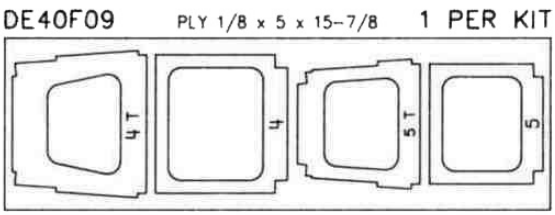
DE40F02 BALSA 1/8 x 3 x 15 2 PER KIT



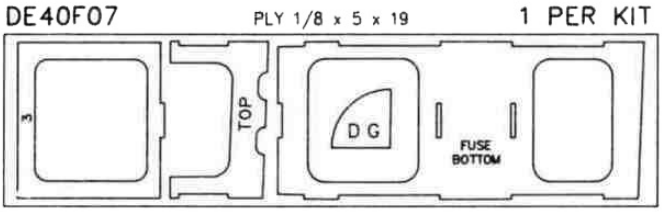
DE40F04 PLY 1/8 x 5-1/2 x 15 2 PER KIT



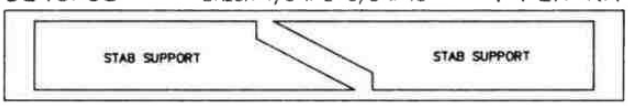
DE40F09 PLY 1/8 x 5 x 15-7/8 1 PER KIT



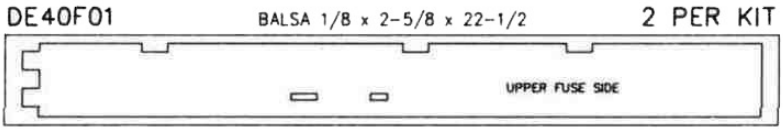
DE40F07 PLY 1/8 x 5 x 19 1 PER KIT



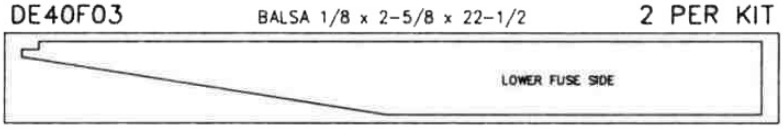
DE40F08 BALSA 1/8 x 2-5/8 x 18 1 PER KIT



DE40F01 BALSA 1/8 x 2-5/8 x 22-1/2 2 PER KIT



DE40F03 BALSA 1/8 x 2-5/8 x 22-1/2 2 PER KIT



DECISIONS YOU MUST MAKE NOW

ENGINE AND MOUNT SELECTION

The recommended engine size range is as follows:
.40* - .46 cubic inch displacement **2-cycle**
.48 - .70 cubic inch displacement **4-cycle**
*NOTE: Performance may be marginal if a non-schneurle-ported .40 cu.in. 2-Cycle engine is used.

NOTE: If you install a 2-Cycle engine, we recommend using a muffler that can be completely enclosed inside the cowl. The muffler shown in the instruction book photos is a Tatone #11434 Pitts Style Muffler for .45 **- .80** engines.

The engine you select will determine how you build the fuselage, so it is important that you have the engine close at hand while building.

This kit includes a Great Planes **MM40** engine mount that fits most .40 - .45 (2-Cycle) engines (only slight modification of this mount is required to mount the OS40SF and OS45SF). If you are installing an OS48 SURPASS (4-cycle), you may purchase a Great Planes **MM60** mount. If you are planning to install the OS70 SURPASS (4-cycle), you may purchase the Great Planes MM60L mount. If you prefer, you may purchase a **custom** engine mount for your engine, or you may choose to install shock-absorbing rubber-cushioned **mounts.**

NOTE: If you choose to power your Super Decathlon 40 with a 4-cycle engine, keep in mind that the RPM of your engine will be considerably less than that of a 2-Cycle engine; therefore, you should select a higher pitch propeller to keep the speed and overall performance roughly equivalent to that of a 2-Cycle engine. For example, a 10x6 or 10x7 prop would be used with a .40 (2-Cycle) engine; but a 12x8,11x9 or 10x10 prop may be the best choices for a 4-cycle engine.

SELECTION OF WHEELS

For maximum scale realism, 2-1/4" diameter main wheels and a 1" diameter tail wheel may be used. However, for better handling, we recommend 2-1/2" main wheels and a 1-1/8" or 1-1/4" tail wheel. For operation from a rough grass field, leave the wheel pants off and use 2-3/4" or 3" main wheels. To save weight, we recommend using lightweight foam rubber wheels.

OTHER ITEMS REQUIRED

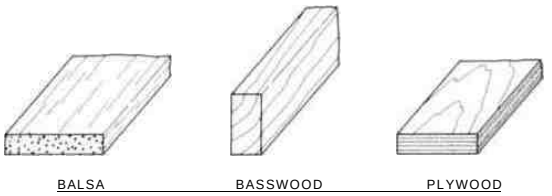
Four-channel radio with 4 servos
Propellers (see engine instructions for recommended size)
Spinner (2-1/4" diameter)
Fuel Tank (10 or 12 ounce)
3/32" Wheel Collars - 2
Iron-on Covering Material (red & white for scale)
1/16" and 1/8" Striping Tape (blue for scale)
Silicone Fuel Tubing
Wing Seating Tape (or silicone sealer... see instructions)
Latex Foam Rubber Padding (1/4" thick)
Dubro "E-Z Connector" (optional)

SUPPLIES AND TOOLS NEEDED

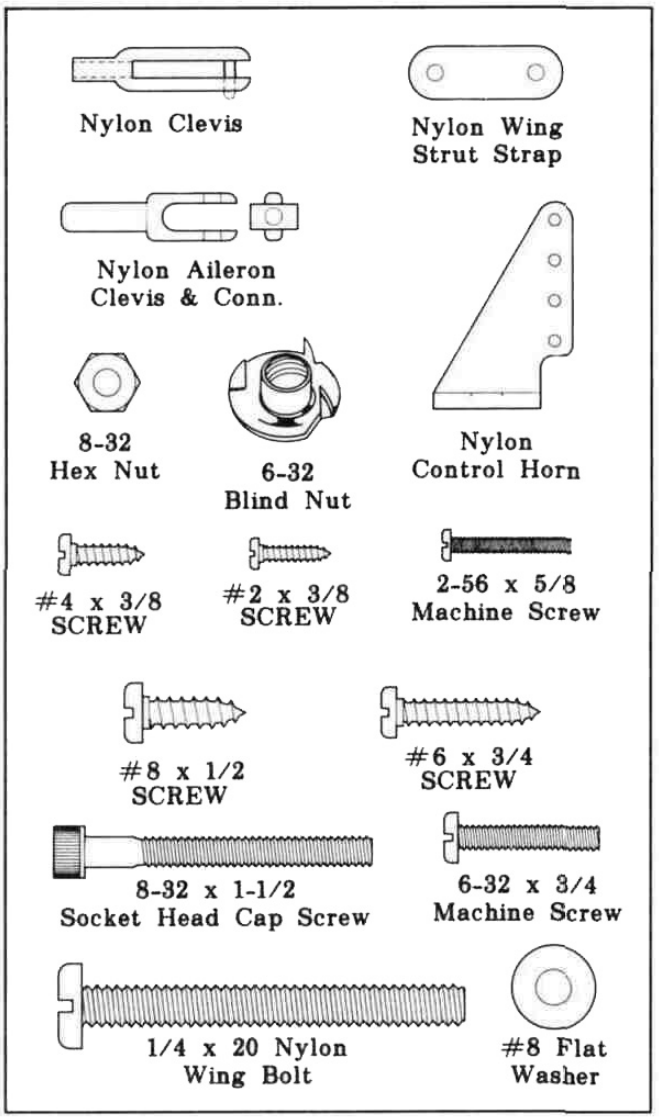
2 oz. Thin CA Adhesive
2 oz. Medium or Thick CA Adhesive
2.5 oz. 5-Minute Epoxy
2.5 oz. 30-Minute Epoxy
Hand or Electric Drill
Sealing Iron
Heat Gun
Drill Bits: 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32". 11/64". 3/16", 13/64". 7/32", and 1/4"
Hobby Saw (Xacto Razor Saw)
Xacto Knife. #11 Blades
Pliers
Screw Drivers
T-Pins
Straightedge
Masking Tape
Sandpaper (coarse, medium, fine grit)*
T-Bar Sanding Block (or similar)
Waxed Paper
Lightweight Balsa Filler
1/4-20 Tap, Tap Wrench
Vaseline Petroleum Jelly
Isopropyi Rubbing Alcohol (70%)
Dremel Moto Tool or similar (optional)

*NOTE: On our workbench, we have four 11" T-Bar sanders, equipped with #50, #80, #100 and #150-grit sandpaper. This setup is all that is required for almost any sanding task. We also keep some #320-grit wet-or-dry sandpaper handy for finish sanding before covering.

TYPES OF WOOD



HARDWARE DRAWINGS,



NOTICE:

The screws supplied in this kit may be "slotted-head" or "phillips-head" screws. The screw types may differ from those shown on the plans and instructions, but they are interchangeable.

GET READY TO BUILD

1. Unroll the plan sheets. Re-roll the plans inside out to make them lie flat.

2. Remove all parts from the box. As you do, figure out the name of each part by comparing it with the plans and the parts list at the back of this book. Using a felt tip pen, write the part **name** or **size** on each piece to avoid confusion later. Use the die-cut patterns on page 4 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 an Xacto knife. After punching out the die-cut parts, use your T-Bar 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.**

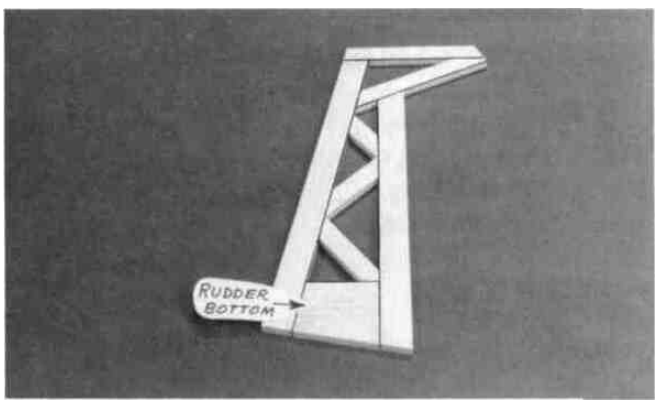
"TAIL FEATHERS"

BUILD THE RUDDER

To build the rudder you'll need the following:

1/4" x 3/4" x 36" balsa sticks
1/4" x 1/2" x 30" balsa sticks
1/4" shaped balsa **rudder bottom**

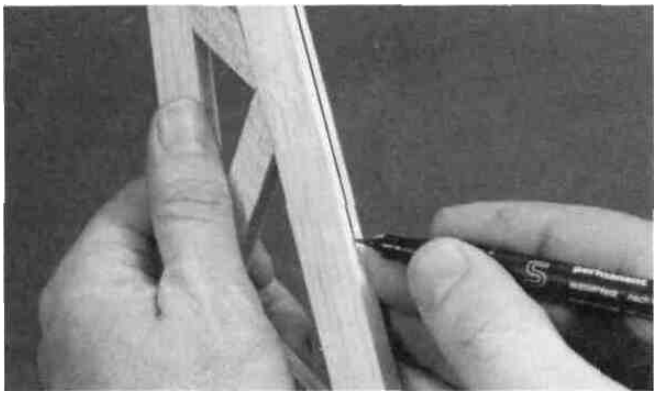
D 1. Tape the **fuselage plan** down to your flat work surface. Tape a piece of waxed paper over the fin and rudder portion of the plan.



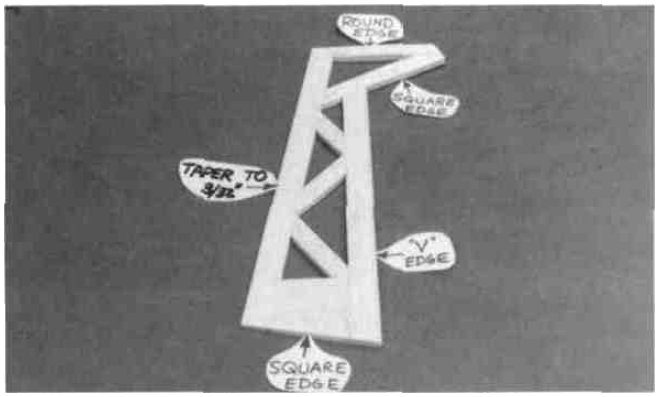
D 2. Using a razor saw, cut pieces of 1/4" x 3/4" and 1/4" x 1/2" balsa (from the 36" and 30" sticks) to make the **rudder framework.** Working right on the plan, glue together these pieces and the **rudder bottom,** using thin CA glue.

D 3. From the 1/4" x 1/2" x 30" sticks, cut "braces" to fit between the rudder framework, and glue them in place. NOTE: It is not necessary to get these braces in the **exact** position shown on the plan.

D 4. Examine the rudder framework and add thick CA glue to any open joints, then use your T-bar with medium grit sandpaper to sand both sides of the rudder framework smooth.

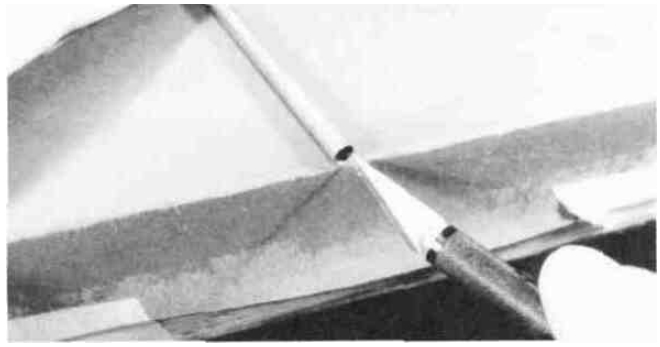


D 5. Carefully draw a centerline all around the edges of the rudder (this will help to maintain symmetry when sanding).

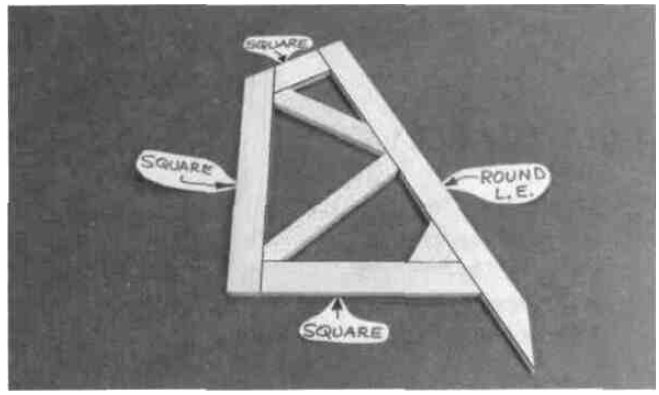


D 6. Using a sanding block and **coarse** (50 or 80-grit) sandpaper, sand both sides of the rudder to a **taper** as shown on the plans. The trailing edge should end up approximately 3/32" wide and have a rounded shape. (Do not sand to a sharp edge). Sand the top edge to a **rounded** shape. Sand the leading edge to a **"V-shape"** as shown on the plan.

D 7. Check the plans and mark the location of the **tailgear** on the rudder. Drill a 7/64" hole in the rudder (the hole is drilled slightly oversize to allow for positioning, and to create a hard epoxy "sleeve" around the wire). Then groove the rudder leading edge to accept the tailgear wire . (See the photo at step 5 on page 15). HINT: Using an Xacto knife, sharpen the inside of one end of a 1/8" diameter brass tube, and use it to cut the groove in the leading edge of the rudder.



BUILD THE FIN



D 1. In the same manner as the rudder, build the **fin** using the 1/4" x 3/4" and 1/4" x 1/2" balsa sticks. Also, cut 1" from the 1/4" x 3/4" x 36" balsa stick, and from this small piece cut the triangular gusset for the front comer of the fin.

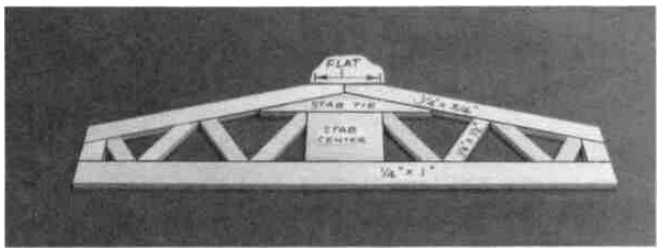
D 2. Carefully draw a **centerline** on the leading and trailing edges of the **fin.**

D 3. Sand the leading edge (only) to a round shape.

NOTE: The trailing edge, bottom edge and top edge must not be rounded or V-shaped, instead, just sand these edges flat and square.

BUILD THE STABILIZER

You'll need the following parts:
- 1/4" x 1" x 17-7/8" balsa suck
- 1/4" x 3/4" x 36" balsa sticks
- 1/4" x 1/2" x 30" balsa sticks
- 1/4" shaped balsa stab tie
- 1/4" shaped balsa stab center



D 1. Tape waxed paper over the separate stabilizer drawing on the fuse plan. In the same manner as the rudder, cut balsa pieces and build the stab framework.

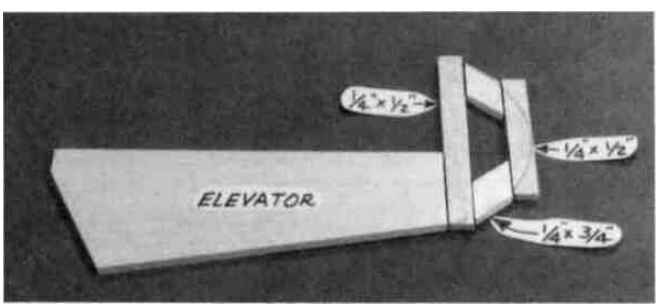
D 2. Sand a flat spot on the leading edge at the center, as shown on the plan.

D 3. Carefully draw a **centerline** on the leading and trailing edges of the stab.

D 4. Sand the leading edge (only) to a round shape. **NOTE:** The trailing edge and ends must not be rounded or V-shaped. Instead, just sand these edges **flat** and **square.**

BUILD THE ELEVATORS

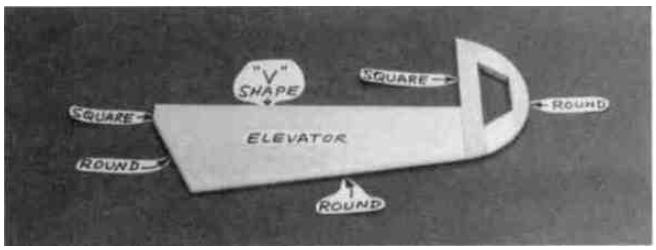
You'll need the following parts:
- 1/4" x 3/4" balsa stick
- 1/4" x 1/2" balsa sticks
- 1/4" shaped balsa **elevators**
- 1/8" bent wire **elevator joiner**



D 1. Position the shaped balsa elevators on the plan, then, from the 1/4" x 1/2" sticks, cut pieces to make the elevator tips. Glue these pieces to the ends of the elevators.

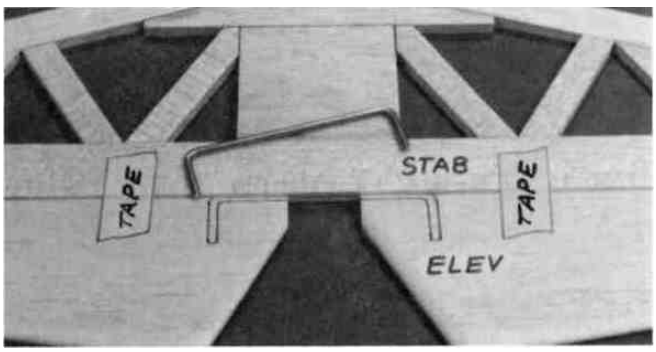
D 2. Sand the elevator tips to the shape as shown on the plan.

D 3. Carefully draw a **centerline** all around the edges of the elevators.



D 4. Sand the leading edge to a "V-shape, the trailing edge to a round shape, and the outside edge of the tip to a round shape.

D 5. Temporarily tape the elevators to the stab, providing 1/16" clearance between the elevator tip and the stab end.

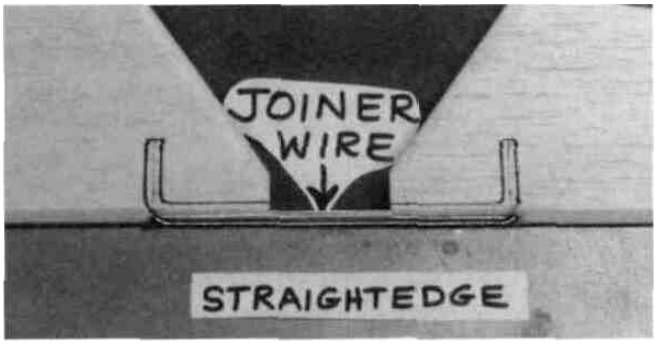


D 6. Lay the 1/8" wire elevator joiner in place on the elevators and mark its outline using a fine point felt-tip pen.

D 7. Accurately drill holes in the elevators for the 1/8" wire joiner. Begin by drilling a 1/16" or 5/64" pilot hole, then drill the final hole to a depth of 7/8" with a 9/64" drill bit. (The hole is drilled slightly oversize to allow for positioning, and to create a hard epoxy "sleeve" around the wire).

D 8. Use the sharpened 1/8" diameter brass tube to cut grooves in the leading edge of the elevators to accept the joiner wire.

D 9. Roughen the joiner wire with coarse sandpaper, then clean the wire thoroughly with alcohol to remove any oily residue.



D 10. Trial fit the joiner wire into the elevators, then glue it in using 5-minute or 30-minute epoxy. When gluing, lay the elevators on a flat surface, with the leading edges along a straightedge to insure perfect alignment

INSTALL THE HINGES (Do not glue)

NOTE: One-piece molded polypropylene hinges are supplied in this kit. If you choose to use these hinges or the' 'pinned' '-type hinges, you may cut the hinge slots at this time. However, if you choose to use the one-piece hinges that are paper covered for CA glue installation, you may wait until after covering before cutting the hinge slots, because this will be easier than trying to find the slot locations under the covering.

D 1. Lay the rudder and elevators on the plan and mark the **hinge locations.** Place the rudder against the fin TE and transfer the marks over to the fin. Place the elevators against the stab TE and transfer the marks over to the stab.

CAUTION!!!: You must use extreme care when cutting hinge slots with an Xacto knife, to avoid cutting yourself! If the balsa part breaks while you are pushing on the knife, the blade could go into your hand before you know it! A good precaution is to wear leather gloves while performing the following steps, and always cut away from yourself.

D 2. Cut the hinge slots **on the accurate centerlines which you previously drew,** using an Xacto knife or a slotting fork and slotting hook. (The recommended hinge slotting technique is listed below).

A. Begin by carefully cutting a **very shallow slit at the** hinge location. This first cut is to establish your cut in the right place, so concentrate on staying **on the** centerline and **don't cut too deep!**

B. Make three or four more cuts in the same line, **going slightly deeper each time.** As you make these additional cuts, work on going straight into the wood. Continue this process while "**wiggling**" the knife handle back and forth until the blade has reached the proper depth for the hinge.

C. Trial fit the hinge into the slot. If the hinge is difficult to push in, re-insert the knife and move it back and forth in the slot a few times to enlarge the slot

D 3. IMPORTANT! Condition or "break-in" the hinges by folding them back and forth several times.

D 4. Insert the hinges into the slots and trial fit the rudder and elevators in place on the fin and stab. **Do not glue the hinges until after you have covered the model.**

WING ASSEMBLY

BUILD THE WING PANELS

NOTE: The following instructions explain how to build the wing directly on the plans. An alternate method is to use a Great Planes Wing Jig (available from your local hobby dealer). Many expert modelers prefer to use a wing jig for high performance airplanes, as it helps to insure a straight, warp-free wing, especially if you do not have a workbench or building board that is perfectly flat. If you choose to use the Wing Jig, please read the instructions that are included with the jig before beginning.

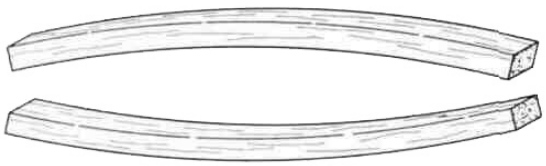
NOTE: It will be helpful to build the wing on a piece of "Celotex" or other semi-soft (and flat) surface, into which you may easily stick pins to firmly hold down the wing pans while building, to avoid warps.

D 1. Tape the plan to your flat work surface, and cover the wing drawing with waxed paper (so you won't glue the wing to the plan!). **NOTE;** If your work space is limited, you may cut the left and right wing half drawings apart

D 2. The shaped and notched wing **leading edges** (LE) and **trailing edges** (TE) are fastened together by thin strips of balsa. Separate them by **folding** until the balsa breaks. Sand away the excess balsa that remains along the edges after breaking them apart, using a T-bar with 100-grit sandpaper.

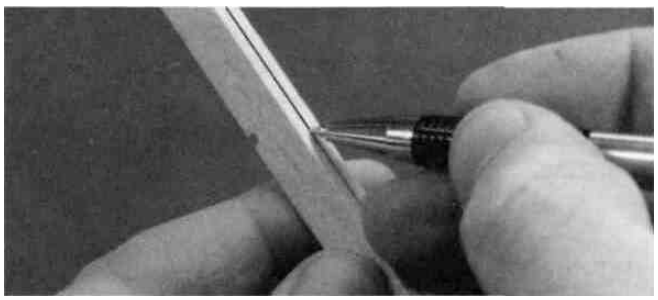
D 3. Before using the 3/8" x 3/8" x 32" hard balsa **spars,** examine them carefully for possible imperfections. Look for knots, soft spots, diagonal grain and any other imperfections. If possible, position each spar so the imperfections are on the outer half of the wing panel (toward the tip), where they will be least affected by high stress. If the spars are warped slightly, try to "balance them out" by installing the warped spars in opposite directions (see sketch).

TWO WARPED SPARS INSTALLED
THIS WAY WILL RESULT IN A
STRAIGHT WING



TWO WARPED SPARS INSTALLED
THIS WAY WILL RESULT IN A
WARPED WING

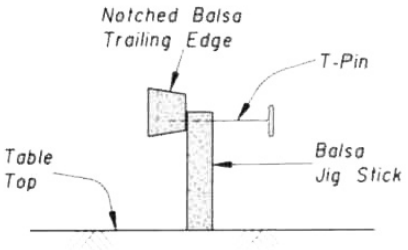
D 4. Carefully punch out all the die-cut 3/32" balsa **wing ribs.** Sand the edges **slightly** to remove any die-cutting irregularities.

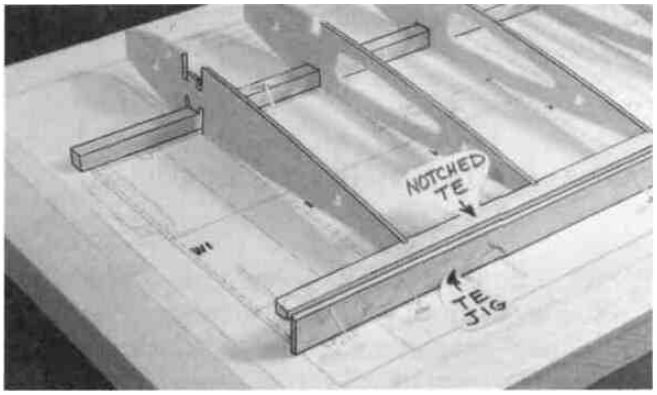


D 5. Draw an accurate centerline along the rear edge of the notched balsa trailing edges.

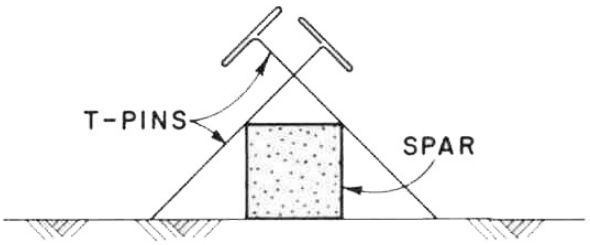
NOTE: Follow steps 6 through 21 to build the RIGHT wing panel, then repeat these steps to build the LEFT wing panel.

D D 6. Pin one of the notched balsa trailing edges to the 1/8" x 3/4" x 32" balsa **TE Jig stick** as shown in the following sketch. Note that the top of the Jig stick must be on the centerline which you have drawn on the trailing edge.





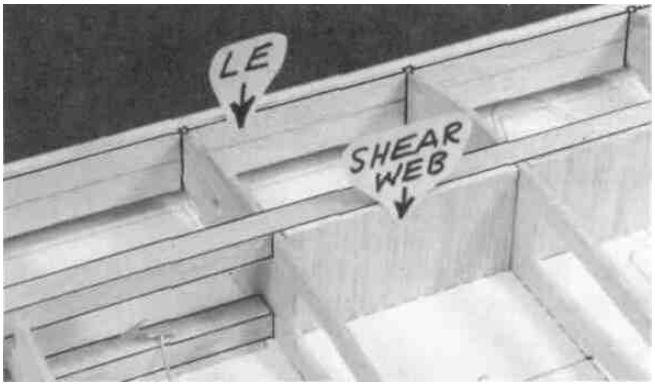
D D 7. Place one of the 3/8" x 3/8" balsa main spars on the wing plan and pin the spar down with crossed T-pins as shown in the following sketch. NOTE: The spars are cut slightly too long, and the excess will be cut off later.



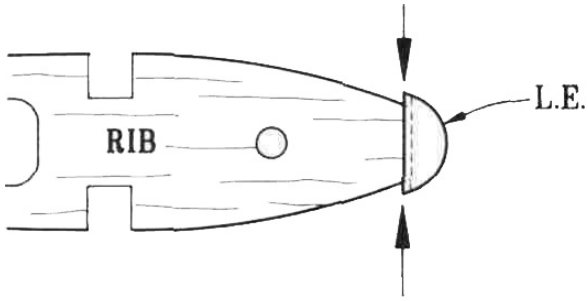
D D 8. Place one of the **W-2** ribs and nine of the **W-3** ribs on the spar in their approximate positions, but do not glue.

D D 9. Hold the notched balsa trailing edge in place (with TE Jig attached) and carefully work the ribs into the notches, centering each rib up and down. Pin or tack glue the TE Jig stick to your building surface, making sure the ribs line up with the plan.

D D 10. Glue the W-2 and W-3 ribs to the TE. (Apply glue sparingly, to avoid gluing the TE to the TE Jig).



D D 11. Insert the front ends of the ribs into the notches in the **LE.** NOTE: Position the LE as shown in the following sketch.



D D 12. Make sure the ribs are fully down on the plan and all ribs are inserted into the LE notches. Glue the W-2 and W-3 ribs to the LE and bottom spar.

D *D* 13. Insert the top spar into the notches in the ribs. From the excess 1/4" x 3/4" balsa (used in the fin & stab construction), cut two pieces, 2-1/2" long. Insert one of these 1/4" x 3/4" x 2-1/2" balsa **spar fillers** between the top and bottom spars in the area between W-l and W-2 (to hold the spars apart at the proper spacing), then glue the top spar to **the** ribs. Glue the spar filler to the spars.

D D 14. Glue five of the pre-cut 3/32" balsa vertical grain shear **webs** to the rear edge of the spars in the locations shown on the plan. **NOTE:** The webs must be securely glued to the spars, but it is not necessary to glue the webs to the ribs.

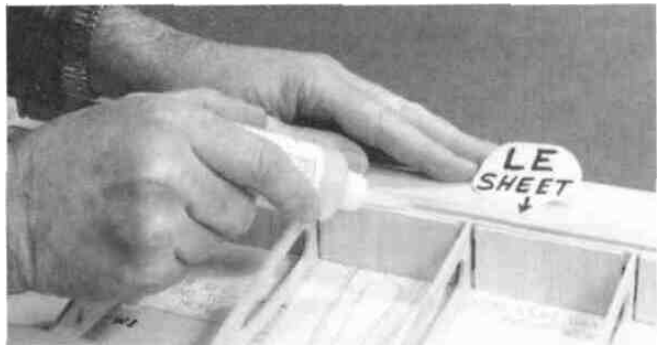
NOTE: In the next steps, maintain straightness by keeping the wing down on the Hat surface and on the TE Jig.

D D 15. Lightly sand the tops of the ribs to blend with the notched trailing edge; then glue one of the 3/32" x 1-1/4" x 32" balsa **trailing edge sheets** in place. **NOTE':** The edge of the TE sheet may not be exactly straight, but just position the sheet so it slightly overlaps the TE, and any overlap can **be** sanded off later.

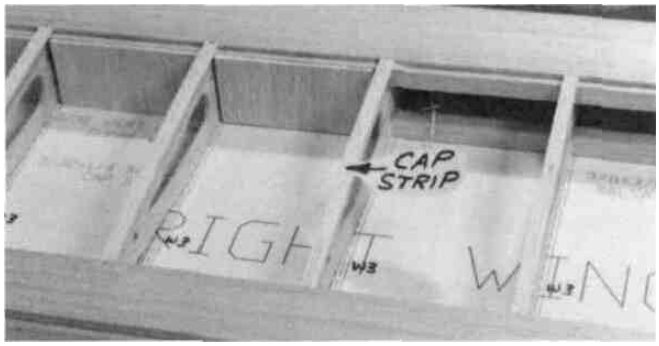
D D 16. Before applying the leading edge shecting in the next step, use your T-bar to lightly sand off the edges of the shear webs and smoothly blend the ribs to the spar.

D D 17. Prepare the 3/32" x 2-5/8" x 30" balsa **leading edge sheeting** by sanding the front edge to a slight bevel so it will fit snugly against the back of the leading edge. (Check by trial fitting)

NOTE: It will be helpful to have the following items handy for the next step... thin CA, thick CA, a wet cloth, masking tape and T-pins. Read through the following step and go through a "dry run" before actually gluing.



D D 18. Position the leading edge sheeting at the rear edge of the notched LE so it is just overlapping rib W-2. Using thin CA, glue the front (beveled) edge of the leading edge sheeting to the back edge of the LE. Now wet the top surface of the sheeting so it will bend easier. Apply thick CA glue to the top edge of the ribs and to the front half of the spar, then immediately bend the sheeting down onto the ribs and spar. Hold the sheeting down with masking tape, pins and your hands until the glue has set.



D D 19. From the 3/32" x 1/4" x 30" balsa sticks, cut and glue **cap strips** to the top of the seven outside ribs. **HINT:** For easier positioning of the cap strips, first mark the location of each rib on the LE and TE sheeting. When finished, remove the wing from the building board and turn it over again.

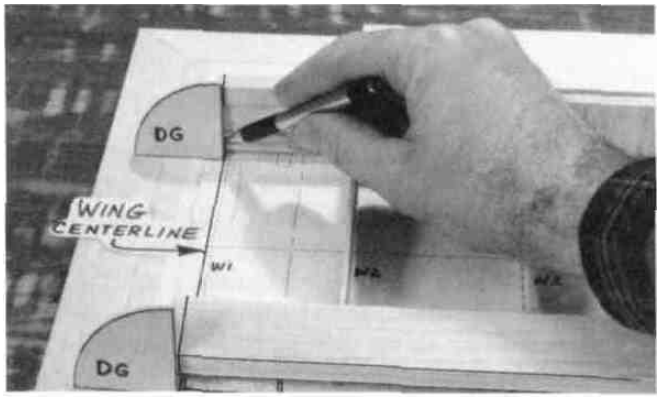
D D 20. With the wing upside down, again use the TE jig to support the TE. Then install the bottom TE sheeting, LE sheeting and cap strips. IMPORTANT: To insure a straight wing, you must pin the TE securely to the TE jig and pin the jig to the building surface while the bottom sheeting is glued in place!

D D 21. Trim the spars and sheeting flush with the tip rib. Cut and sand the LE sheeting and LE flush with rib W-2. and sand the entire wing panel smooth. Sand the leading edge to smoothly blend with the LE sheeting (see the rib cross-section on the plan for the desired LE shape).

D 22. Now go back and repeat steps 6 through 21, to build the other wing panel. **NOTE:** The two wing panels are identical, so you may build on the same plan.

JOIN THE WING PANELS

D 1. Designate one wing panel **"RIGHT"** and the other **"LEFT".**



D 2. Accurately position the right wing panel on the right wing plan, and block up the trailing edge 1/2", using the 1/2" x 1/2" x 2" balsa blocks. Position the die-cut 1/8" ply **dihedral gauge** (DG) on the **wing centerline,** as shown in the photo, and mark **cut-off lines** on the spars, trailing edge and TE sheeting. Carefully cut or sand off the spars and trailing edge at these marks.

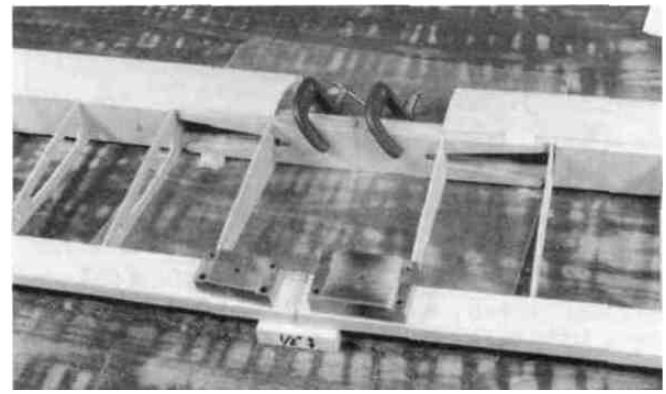
D 3. Accurately position the **left** wing panel on the left wing plan. Mark and cut off the spars and TE as in step 2.

D 4. Lay a piece of waxed paper down at the center of the wing, place the two wing panels together at the center, and block up both wing tips 1/2-inch, and block up the trailing edge 1/2-inch at the center (use the 1/2" x 1/2" x 2" balsa blocks provided). If the spars do not mate with one another, sand them slightly until they do.

D 5. Trial fit the die-cut 1/8" ply dihedral braces on both sides of the spars to make sure they will readily slide into place.

NOTE: Read steps 6 and 7, then make a "dry run' through these steps before actually proceeding.

NOTE: 30-minute epoxy is strongly recommended for the wing joining process.

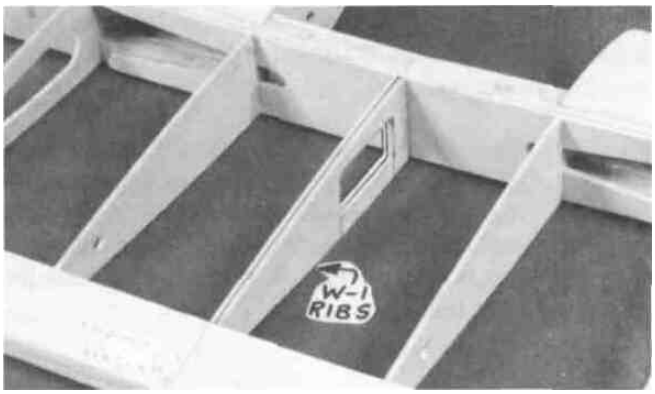


D 6. Mix up a batch of 30-minute epoxy and smear it on the dihedral braces, spars, spar ends, and the mating surfaces of the trailing edge. Slide the dihedral braces in place, push the wing panels together and **immediately proceed to the next step.**

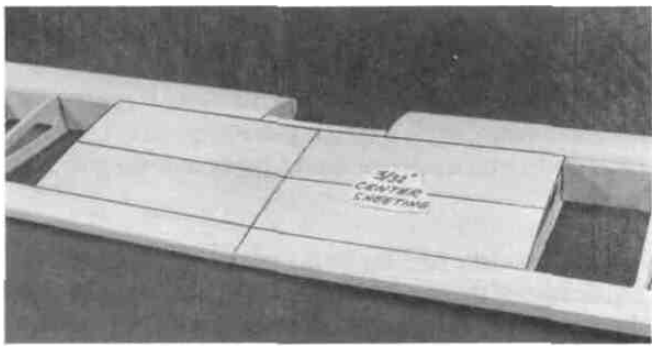
D 7. With the wing tips blocked up 1/2-inch, carefully align the spars and TE of both wing panels. Clamp the dihedral braces to the spars and apply a few pieces of masking tape to hold the trailing edges in correct alignment. Wipe up the excess epoxy with a tissue. Allow the epoxy to fully harden before disturbing the wing.

INSTALL CENTER RIBS AND SHEETING

D 1. Use a sanding block to sand off any excess epoxy on the top and bottom of the spars in the center of the wing.



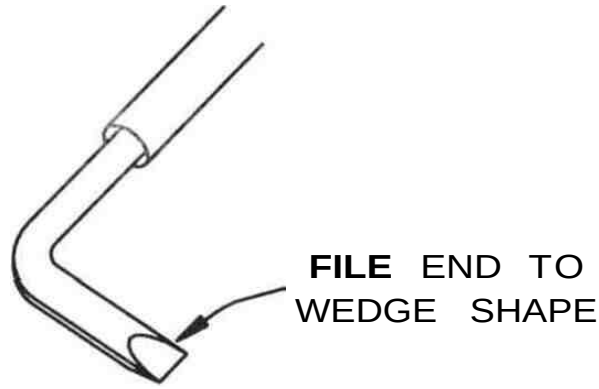
D 2. Remove the die-cut aileron servo "punch-outs" from the two **W-l** wing ribs, then glue the W-l ribs together, and trim and sand them to fit between the TE and the dihedral brace. Glue the ribs in place with the opening for the aileron servo facing **down.**



D 3. Using the 3/32" x 3" x 8-7/8" balsa sheets, glue the **center section sheeting** in place on the top and bottom, as shown on the plan. Sheet all the way to the front of the front dihedral brace.

INSTALL AILERON TORQUE RODS

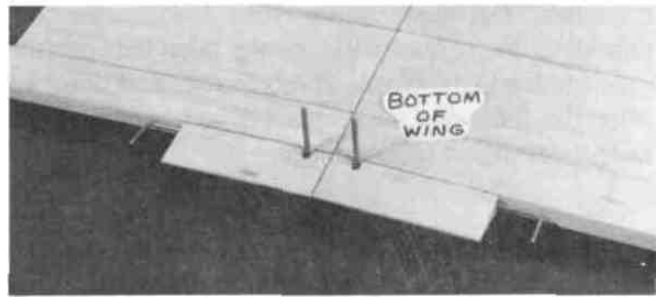
D 1. Roughen the short end of the **aileron torque rods** with 100-grit sandpaper, and file the same end to a wedge shape.



D 2. Roughen the surface of the plastic bearing tubes with 100-grit sandpaper.

D 3. Clean the torque rods and bearing tubes with alcohol.

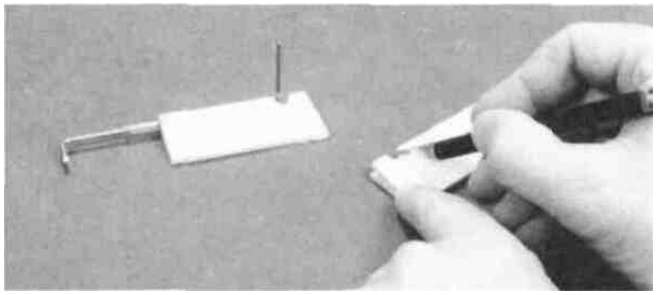
D 4. Find the two grooved, tapered balsa **center trailing edge** pieces. Lay them on the plan and check them for length. Mark and cut them off to match the plan, if necessary.



D 5. Trial fit the torque rods into the center TE pieces. Determine from the plan where to cut the clearance notches, which will permit the torque rod horns to travel freely. Also cut small clearance notches in the wing TE. **Note: The torque rod horn (threaded end) must exit the BOTTOM of the wing!**

D 6. Slide the plastic bearings toward the threaded end of the torque rods, then use a toothpick to apply a small amount of petroleum jelly to the ends of the plastic tubes (to help prevent glue from getting inside and locking up the torque **rods).**

D 7. Use 5-minute epoxy or CA to glue the plastic bearing tubes into the grooves in the center TE pieces. Wipe off any excess glue and allow it to harden.



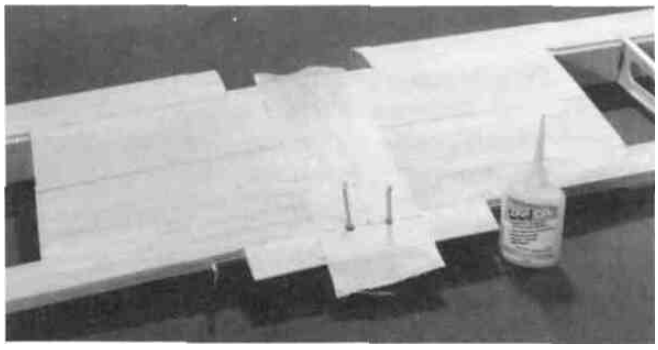
D 8. Trial fit the trailing edge/torque rod assembly onto the wing trailing edge. Sand the center trailing edge pieces slightly where they join, for a good fit. The top and bottom surfaces of these pieces should blend smoothly with the top and bottom of the wing. Glue these pieces in place with epoxy (threaded ends pointing DOWN). SUGGESTION: If you are using 5-minute epoxy, glue only one piece at a time. and use masking tape to hold it to the wing TE, to aid in correct positioning.

FIBERGLASS THE CENTER SECTION

NOTE: Because of the high stresses in the center of this wing, fiberglass reinforcement is REQUIRED. Please do not omit this important section!

NOTE: If you have previous experience applying fiberglass, feel free to use your favorite method, providing that it results in a strong bond between the glass cloth and the wood. If this is your first time, we offer the following suggested method, which is the fastest and easiest we have seen.

D 1. Make location marks for the fiberglass reinforcement cloth, 1-1/2" each way from the wing centerline. NOTE: The cloth will be applied to the top and bottom surfaces only. Do not apply cloth to the front surface of the front dihedral brace.



D 2. Cut the length of 3" glass cloth in half, making two equal lengths. Trial **fit** the fiberglass cloth in place. You can use a scissors or a paper punch to cut holes in the glass cloth for the aileron torque rod horns.

D 3. Wrap small pieces of masking tape around the exposed portions of the aileron torque rods to protect them from the spray adhesive in the next step.

D 4. Spray a very light mist of 3M "77" Spray Adhesive on the center section in the area to be glassed. Hold the spray can at least 12" away from the surface when doing this to avoid a heavy buildup. The purpose of this is only to give the wood a little "tackiness". If you apply too much spray it could result in a poor glue bond.

D 5. Lay the glass cloth in place on the top and bottom of the wing. Gently press the cloth in place, working out all the wrinkles. The "77" spray adhesive should hold the cloth down to the surface, but will permit you to lift and reposition the cloth if you make a mistake. Don't attempt to wrap the cloth around the trailing edge.

D 6. Working outdoors or in a **very well-ventilated area** apply **thin** CA glue to the glass cloth. Begin by running a bead of glue down the center of the glass cloth strip, then continue applying the glue in lines until all the cloth has been secured. Run the thin CA out 1/4" beyond the edges of the glass cloth to help protect the balsa sheeting when sanding later. **WARNING: This operation produces a larger than normal quantity of CA fumes, so adequate ventilation is a must!**

D 7. Inspect the surface of the glass cloth. If any areas are not glued down, apply a couple more drops of CA glue and press down with a piece of waxed paper until the glue sets.

D 8. To make sure the glass cloth is fully "wetted out" and bonded to the balsa, you may apply more thin CA, a few drops at a time, and spread it out with a piece of waxed paper.

D 9. After the glue has set, trim the excess cloth at the front of the front dihedral brace and at the trailing edge **with** a sharp Xacto knife followed by a sanding block.

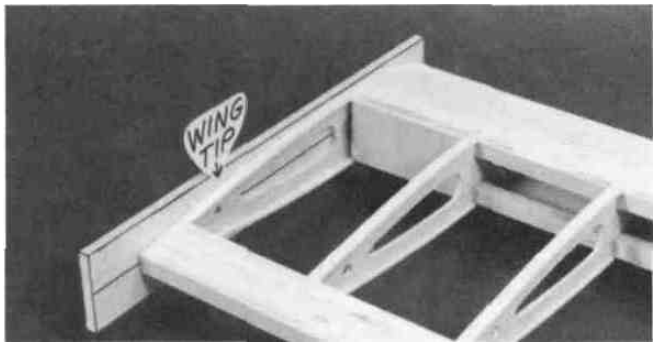
D 10. Carefully sand the **edges** of the glass cloth with a T-bar sander with 80 or 100-grit sandpaper, smoothly blending the edges to the wing. Also, **lightly** sand the surface of the glass cloth with a piece of fine sandpaper held in your fingers to remove any rough spots. **WARNING: When sanding fiberglass, wear a dust mask to avoid breathing airborne glass libers.**

D 11. You may now clean up any 3M "77" Overspray with a tissue dampened with lighter fluid or K&B thinner.

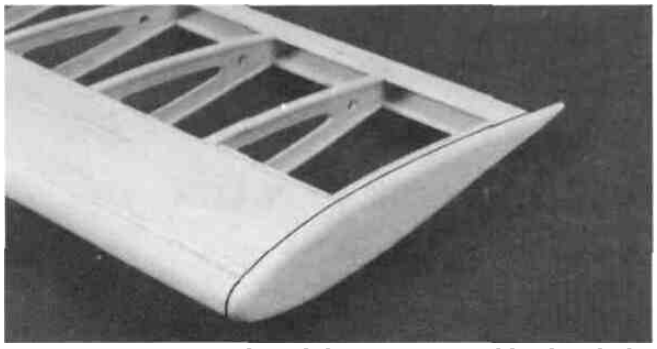
INSTALL WING TIPS

NOTE: The wing tips will be cut and carved from the 1/4" x 1-3/4" x 11" balsa blocks.

D 1. Draw a centerline on the ends of the wing and on the wing tip blocks.



D 2. Securely glue the wing tip blocks to the ends of the wing, lining up the centerlines you previously drew.



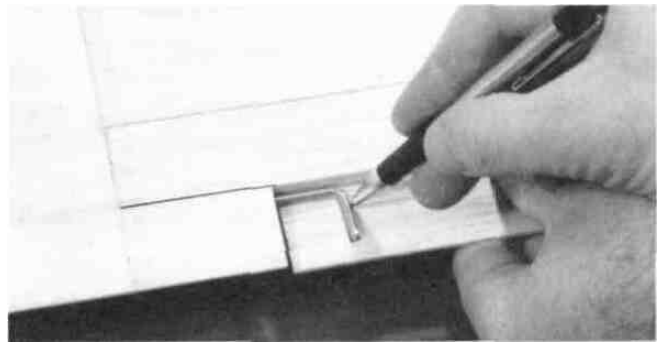
D 3. Cut, carve and sand the wing tips to blend with the wing, and to the shape as shown on the plan. **NOTE:** Leave the tips oversize in the area of the ailerons, for now.

INSTALL AILERONS

NOTE: Do not glue the aileron hinges until after your model has been covered.

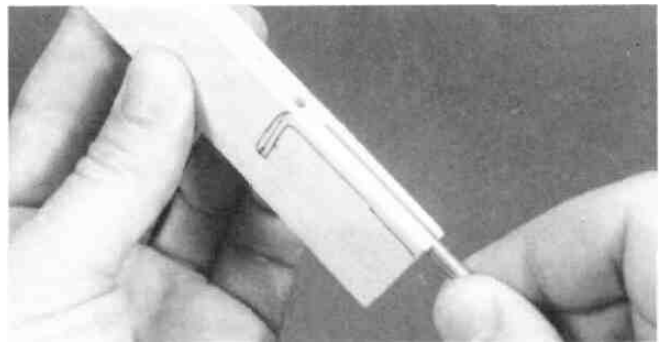
D 1. Draw an accurate centerline along the LE of the tapered balsa ailerons and the wing TE.

D 2. Check the length of your ailerons against the actual aileron openings and trim the ailerons as necessary. You should provide approximately 1/16" gap at each end of the ailerons.



D 3. Hold the ailerons in place in the openings, with the torque rods resting on top of the ailerons. **Mark the torque rod locations on the top of the ailerons.**

D 4. Drill a 7/64" hole in the ailerons at the torque rod locations, starring at the leading edge centerline and drilling **straight** in to the proper depth.



D 5. Use the sharpened 1/8" diameter brass tube to cut **a groove** in the leading edge of the ailerons to accept the torque rods. Trial fit the ailerons onto the torque rods and cut as necessary until they fit.

D 6. Lay the ailerons on the plan and mark the **hinge locations** on the ailerons. Place the ailerons against the wing TE and transfer the marks over to the wing.

D 7. Cut the hinge slots in the ailerons and wing TE using an Xacto knife. (The suggested procedure was given on page 9).

D 8. IMPORTANT! Condition or "break-in" the hinges by folding them back and forth several rimes.

D 9. Using a T-bar with 50 or 80-grit sandpaper, sand the leading edge of the ailerons to the same **"V-shape** as shown **on** the wing cross-section drawing on the plan.

D 10. Insert the hinges into the slots and trial fit the ailerons in place on the wing. **Do not glue the hinges until after you have covered the wing.**

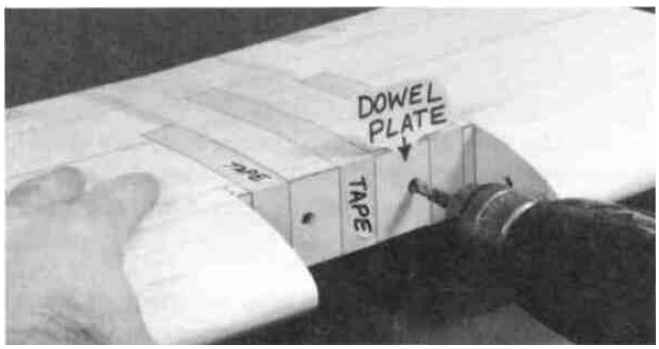
There should be no hinge gap!

Therefore, if you are using "pinned" hinges, you must cut away balsa to make room for the center portion of the hinge.

NOTE: Now is a good time to finish the wing tips. Tape the ailerons on in the neutral position, and sand the wing tips to blend with the ailerons.

TEMPORARILY INSTALL WING DOWELS
(Do not glue)

D 1. Use a sanding block to custom fit the die-cut 1/8" ply **wing dowel plate** to the front of the dihedral brace, sanding as necessary to blend with the top and bottom of the wing.



D 2. Securely tape the dowel plate in place (it must not move while drilling), then drill 1/4" holes through the dihedral braces, using the dowel plate holes as a drill guide. The drill must extend at least 7/8" into the wing to penetrate the front and rear dihedral braces.

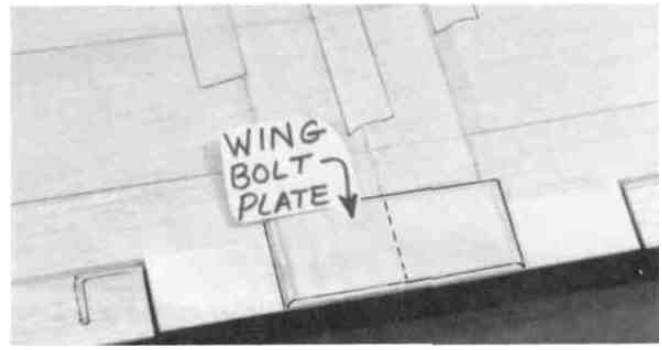
D 3. Sand **one end** of each wing dowel to a rounded or pointed shape. This is the end that will be inserted. Do not sand the other end at this time.

D 4. Trial fit the dowels into the dowel holes, and trial fit the dowel plate over the dowels. If the dowels fit too tightly, you may enlarge the holes slightly using a round file, or you may sand the dowels down slightly. **Do not** glue the dowels or dowel plate in place at this time.

INSTALL WING BOLT PLATE

D 1. Mark a centerline on the 1/16" x 3-1/2" x 1-1/2" ply wing bolt plate.

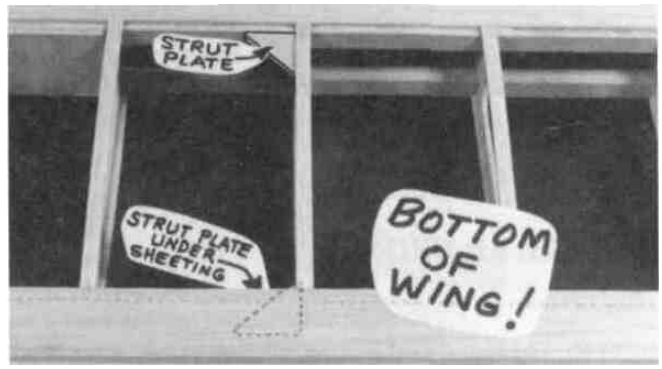
D 2. Use a sanding block to "feather" three edges of the wing bolt plate, leaving the TE square. Doing so will make it easier to cover, and will blend more smoothly with the wing.



D 3. Position the wing bolt plate on the **top** of the wing, and accurately line it up with the wing TE and centerline. Glue it in place.

D 4. Sand the wing bolt plate flush with the wing TE.

INSTALL WING STRUT PLATES



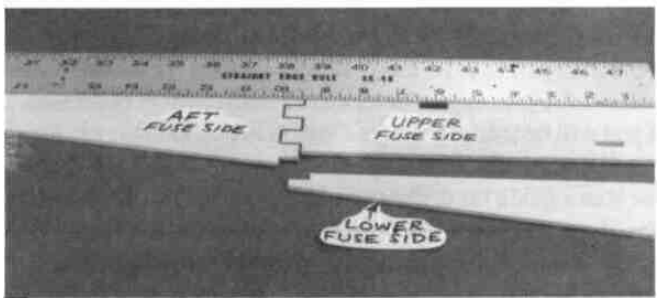
D 1. Glue the die-cut 1/8" ply **wing strut plates** in place on the **BOTTOM** of the wing in the locations shown on the plan. The front plates are glued to the spar and the rib, and are flush with the spar. The rear plates are glued to the rib, TE and TE sheeting.

D 2. Glue scraps of 3/32" balsa to the front plates, and

sand them to blend with the surface of the wing. Poke several holes with a pin near the center of the plate, apply thin CA, then sand smooth. This will harden the balsa and prevent crushing when the strut straps are installed later.

FUSELAGE ASSEMBLY

PREPARE FUSE SIDES



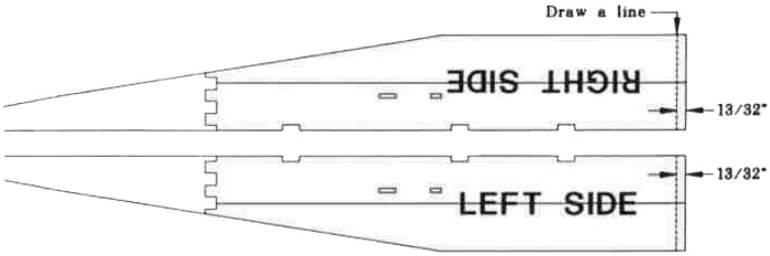
D 1. Working on a flat surface covered with waxed paper, trial fit the die-cut 1/8" balsa upper fuse side and aft fuse side together at the "zig-zag" joint, sanding as necessary for a good fit. While assembling, lay a straightedge along the top edge of these parts, to make sure they are properly lined up. Glue these parts together.

D 2. Glue the die-cut 1/8" balsa **lower fuse side** to the upper fuse side and aft fuse side.

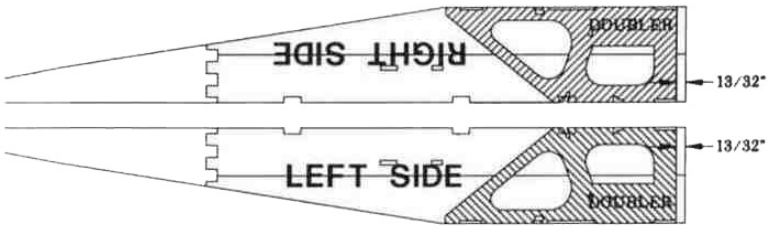
D 3. Inspect the glue joints for gaps, add thick CA glue if necessary. Sand the glue joints smooth on both sides using a T-bar and 100-grit sandpaper, then repeat the above steps to make the other fuse side.

D 4. Place the two assembled fuse sides together. Sand the edges as necessary to make the two sides **identical.**

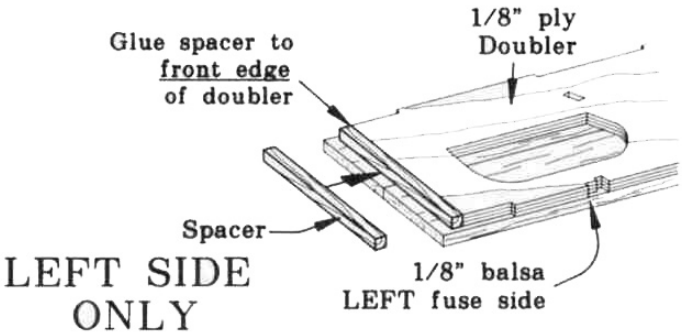
D 5. As shown in the following sketch, designate the fuse



sides "RIGHT" and "LEFT". From the front edge of both sides, accurately measure back 13/32" and draw a line parallel with the front edge.



D 6. Glue the two die-cut 1/8" ply **fuse doublers** to the fuse sides, making a right and a left side. The front edge of both doublers bull against the 13/32" **line.**

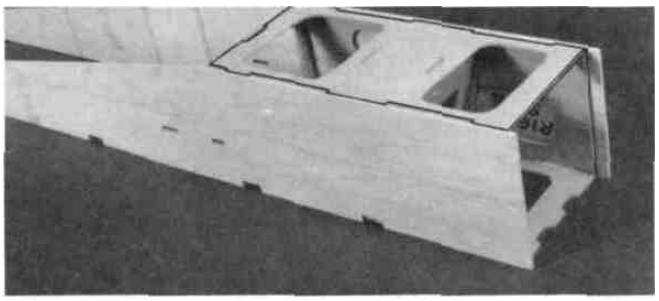


D 7. Find the 1/8" x 5/32" x 4" Hardwood Spacer and glue it to the **LEFT fuse side and the fuse doubler. REFER TO THE ABOVE SKETCH TO AVOID CONFUSION.**

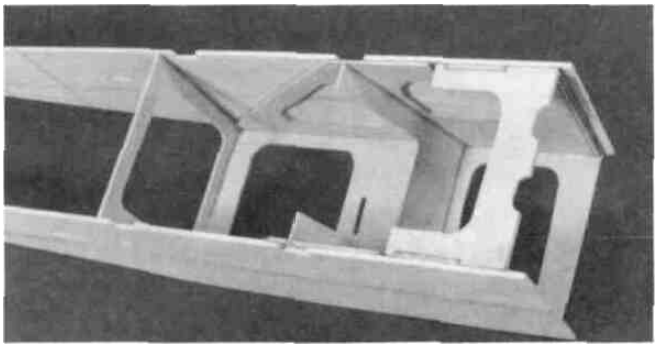
IMPORTANT NOTE: When assembling the fuselage you must install the die-cut FUSE TOP and FUSE BOTTOM correctly. When these parts are correctly installed, the front edges of the fuse top and fuse bottom will match up with the front edge of the fuse side doubler (right side) and with the front edge of the hardwood spacer (left side).

ASSEMBLE LOWER FUSELAGE

NOTE: The lower fuselage will be assembled **upside down** on the plan.



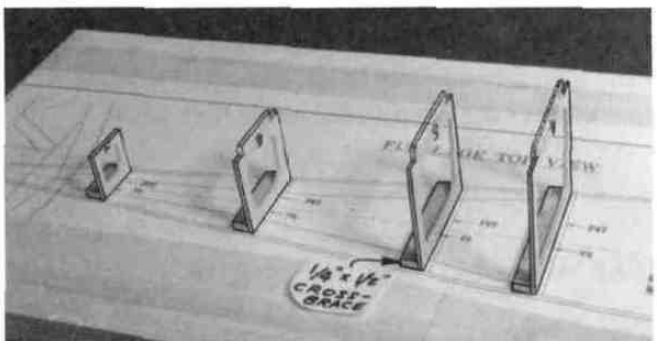
D 1. Trial fit (do not glue) the following parts together, upside down on a flat surface: Die-cut 1/8" ply fuse top, fuse sides, die-cut 1/8" ply F-2, F-3, and the fuse bottom. Check the fit of all parts and trim, file or sand as necessary for a good fit. NOTE: The front portion of the fuse is "self-aligning," but it is important that the top edges of the fuse sides rest on a flat surface.



D 2. Once you have everything fitting properly, re-assemble the above parts, using clamps, pins, tape and weights to hold everything together and flat on the workbench. Make sure F-3 is positioned perpendicular to the work surface. There should be waxed paper underneath to prevent gluing the fuse to the plan. Apply thin CA glue to the joints. Remove the assembly from the workbench and inspect the glue joints, following with thick CA glue in any joints that are not tight fitting.

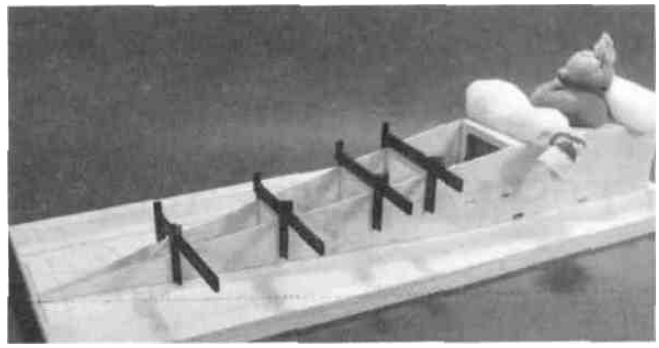
D 3. Tape the fuselage plan to your workbench and cover the Fuse Top View with waxed paper.

D 4. From the 1/4" x 1/2" x 14-7/8" balsa stick, cut the four **cross-braces** to the exact size shown on the plan. Pin these cross-braces securely to the building surface, aligning them accurately.



D 5. Trial fit formers F-4, **F-5, F-6** and F-7 to the front of the cross-braces (the formers are upside down), and sand the edges of the formers slightly to match the angle of the fuse sides. Glue the formers to the cross-braces, **making sure that each former is installed perpendicular to the building surface.** Use a carpenter's square or draftsman's triangle to insure correct installation of F-4.

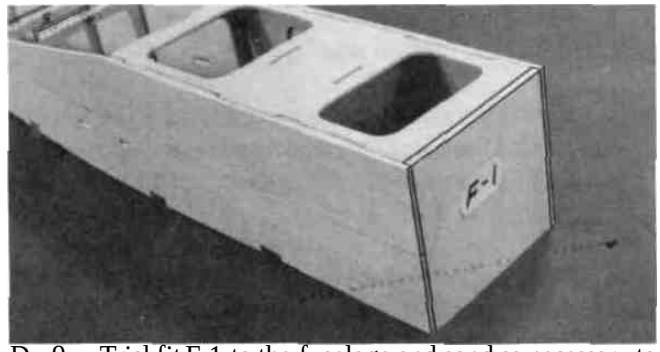
D 6. Now carefully align the fuse assembly on the plan. Line up the aft edge of the **fuse top** with the front edge of the **dash.** Hold the front portion of the fuse securely by placing books or other suitable weights on the fuse. **NOTE: The front of the fuse sides will not match the plan, because the fuse is upside down.**



D 7. Pull the aft ends of the fuse sides together and glue the fuse sides to F-4, F-5, F-6 and F-7. **Do not** glue the aft ends of the fuse sides together yet.

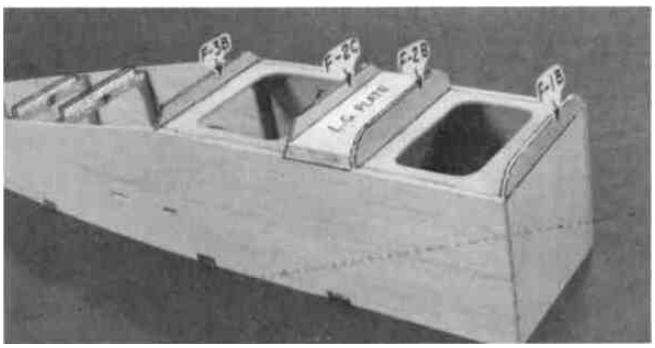
D 8. Study the plans and note that you will attach the engine mount directly to the 1/4" ply firewall (F-l) if a 4-cycle engine is to be used. Before installing F-l, you may drill F-1 for your engine mount and install the 6-32 blind nuts. If you will be using the engine mount supplied in the kit, you may cut out the F-1 drawing from the plans, tape it to F-1 and use it as a guide for drilling the four 5/32" holes. If you will be using a different mount, note that the mount should not be positioned on the vertical and horizontal centerlines of F-l, but should be offset approximately 5/32" toward the left side of the airplane. Drill the holes and install the blind nuts on the back of F-l, pressing them in with a pliers or a vise.

NOTE: 2-Cycle engine installation will be covered later in the building sequence.



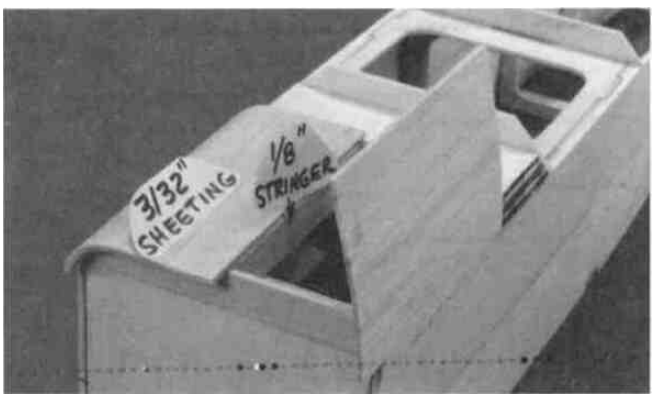
D 9. Trial fit F-1 to the fuselage and sand as necessary to

fit between the fuse sides. Use 30-minute or 5-minute epoxy to securely glue F-l to the fuse sides, holding with clamps or tape until the glue has firmly set. NOTE: Before the glue sets, double check to make sure F-l is properly aligned with the top edge of the fuselage, and fully back against the fuse doublers. After the glue has fully hardened, sand off the front of the fuse sides flush with the front of F-l.



D 10. Glue the die-cut 1/8" ply F-1B, F.2B, F-2C, F-3B, and the 1/4" ply main landing gear mounting plate to the fuse bottom. NOTE: F-1B should line up with the front of F-l, and you should use epoxy for the L.G. plate.

D 11. Glue the die-cut 1/8" balsa **center stringer** between F-1B and F-2B, along the centerline of the fuselage.

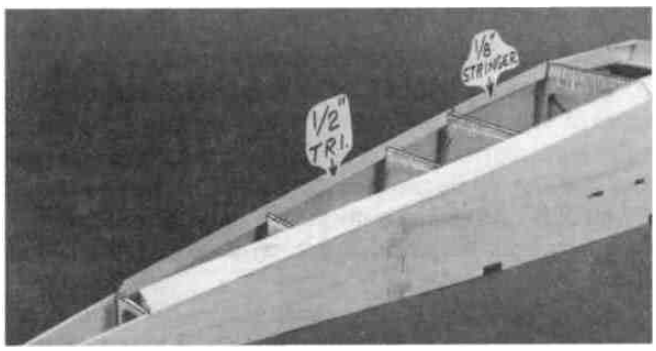


D 12. Find the 3/32" x 3" x 9" balsa sheet and cut it in half to make two 4-1/2" lengths. Glue one edge of one of these sheets to the bottom edge of the fuse side, beginning at the rear edge of F-2B and extending past F-1B. **Wet** the sheeting **thoroughly** with warm water or alcohol in the area to be bent, then bend the sheeting over the formers and glue it down. Trim the sheeting at the centerline of the center stringer. Repeat this process for the other side. Trim and sand the sheeting flush with the front of F-1B and the rear of F-2B.

D 13. From the 3/4" **x 9-3/4"** balsa triangle stock, cut two pieces to fit between F-2C and F-3B, and glue them along the

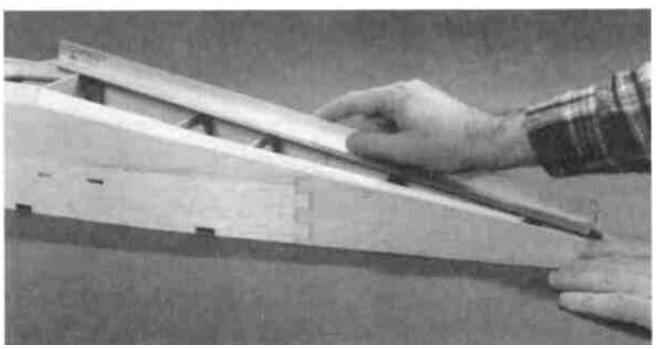
outside edge of the bottom of the fuse sides. Add small pieces of scrap balsa in the front corners (at F-2C) as shown in the photo.

D 14. Using a sanding block, sand the 3/4" triangles on a Straight line from F-2C to F-3B.



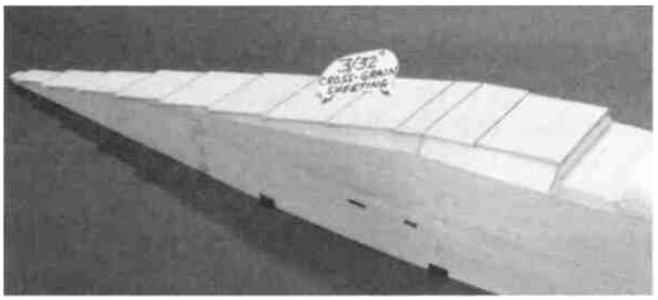
D 15. Cut one of the 1/2" x 36" balsa triangles in half to make two 18" lengths. Glue these triangles along the outside edge of the bottom of the fuse sides between F-3B and F-7.

D 16. Find the two die-cut 1/8" balsa **stringers** that fit between F-3B and F-4, and glue them to the inside edge of the 1/2" balsa triangles, just behind F-3B.



D 17. Using a long sanding block with 50 or 80-grit sandpaper, sand the above triangles and stringers to taper on a straight line from F-3B to F-7 as shown on the fuse plan side view. In other words, you will sand off almost nothing at F-3B, and almost all of the triangle at F-7.

IMPORTANT NOTE: When performing steps 16-18, it is possible that adding the triangles may have pulled the aft portion of the fuse out of alignment slightly. Check for this by positioning the fuse on the plan. If this is the case. relieve the stresses caused by the triangles by making razor saw cuts in the triangles until the fuse straightens out. After doing so, apply thin CA to the saw cuts.

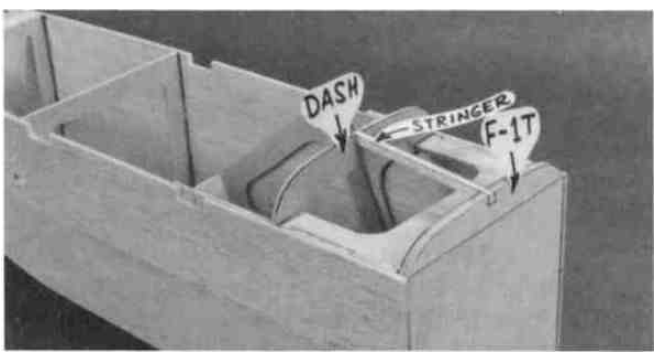


D 18. From the 3/32" x 3" x 32" balsa sheet, cut and glue pieces of cross-grain sheeting to the bottom of the fuse, beginning at the front of F-2C and running to the aft end of the fuse. **NOTE:** While applying sheeting to that portion of the fuse aft of F-7, temporarily pin the tapered balsa **tail filler** in place to maintain the proper separation of the fuse sides at the aft end.

D 19. Sand the edges of the bottom sheeting at a 45-degree angle to blend with the triangle stock, as shown on the former cross-sections on the plan. (This results in a shape that is reasonably close to the full-size Super Decathlon fuselage).

ASSEMBLE UPPER FUSELAGE

NOTE: You may now **fuelproofthe** inside of the fuel tank compartment and the front of F-l by brushing on a coat of polyester resin or 30-minute epoxy thinned with alcohol. You may wait until it is time to install the fuel tank, but it is easier to do so at this time.

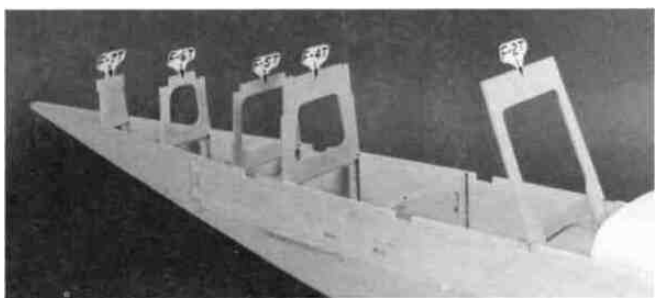


D 1. Glue the two die-cut 1/8" ply **F-1T** formers together, **and glue them to the top of F-1. The front of F-1T must line** up with the front of F-1.

D 2. Glue the die-cut 1/8" ply **DASH** in place in the notches in the fuse side doublers.

D 3. Glue the 3/16" x 3/16" x 3-1/4" balsa **top front stringer** into the notches in F-1T and the DASH. Sand the front and rear ends of the stringer flush with the formers.

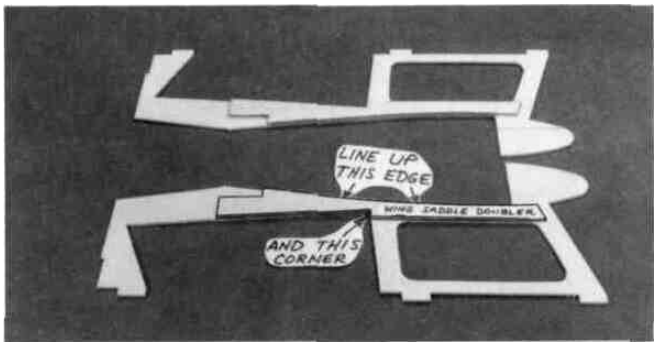
D 4. Cut the 1/16" x 3" x 8" balsa sheetin half to make two pieces 4" long. Using the same technique you used to apply the bottom front sheeting, glue the 1/16" **top front sheeting to** F-1T and the DASH. Sand the sheeting flush with the formers. Sand the fuse sides to a rounded shape to blend with the sheeting (See the cross-section drawing of F-l on the **plan).**



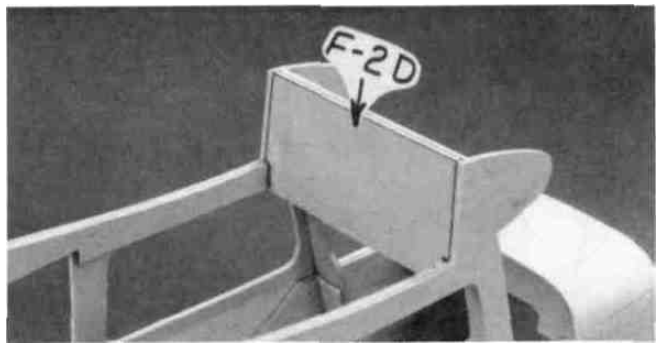
D 5. Glue **F-2T** to the front of F-2.
Glue **F-4T** to the front of F-4.
Glue **F-5T** to the front of F-5.
Glue **F-6T** to the front of F-6.

D 6. Draw a line on F-7T, 1/4" up from the bottom edge. Then glue **F-7T** to the front of F-7, aligning the line with the top edge of F-7. **Install this former accurately!**

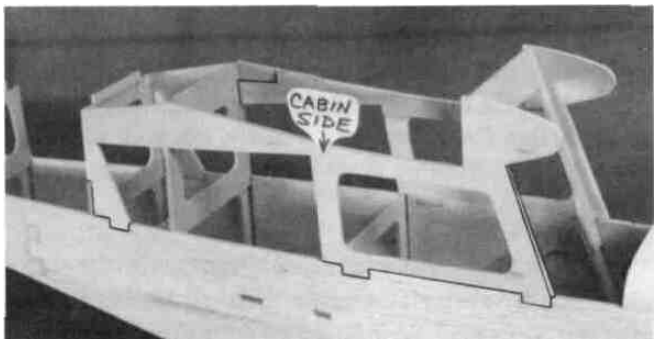
D 7. Find the die-cut 1/8" ply **wing saddle doublers.** Carefully position them on the **cabin sides,** aligning the top



edge and the rear window opening. Glue the doublers in place **making a RIGHT and a LEFT cabin side!**

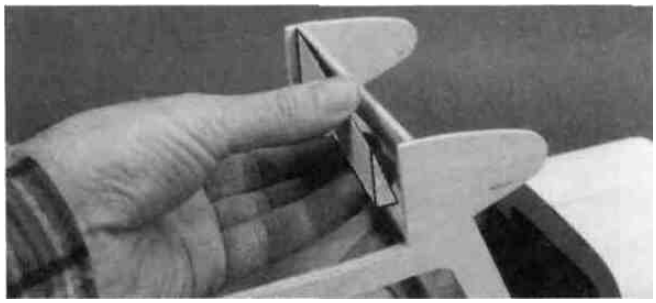


D 11. Securely glue the die-cut 1/8" ply **F-2D** to the tapered balsa filler and to the cabin sides.

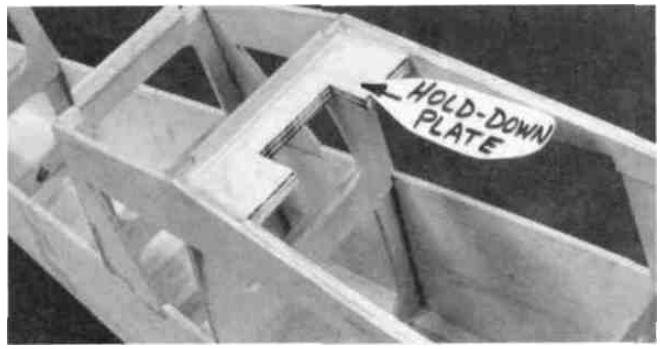


D 8. Trial fit the die-cut 1/8" ply **cabin sides** into the notches in the fuse sides, sanding as necessary for a good fit. Glue the cabin sides to the top edge of the fuse sides and to F-5T.

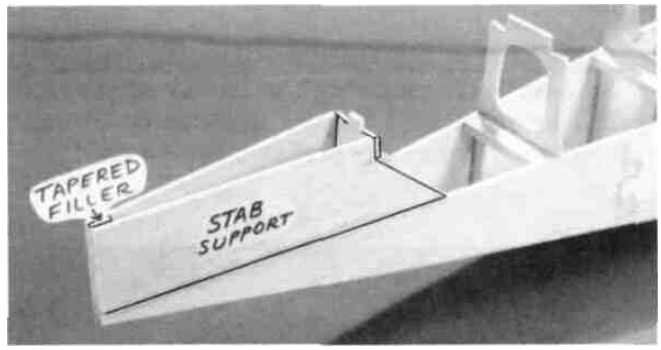
D 9. Glue the cabin sides to **F-4T** while pushing F-4T against the aft ends of the wing saddle doublers; and glue the cabin sides to **F-2T** while pushing F-2T against the front ends of the wing saddle doublers.



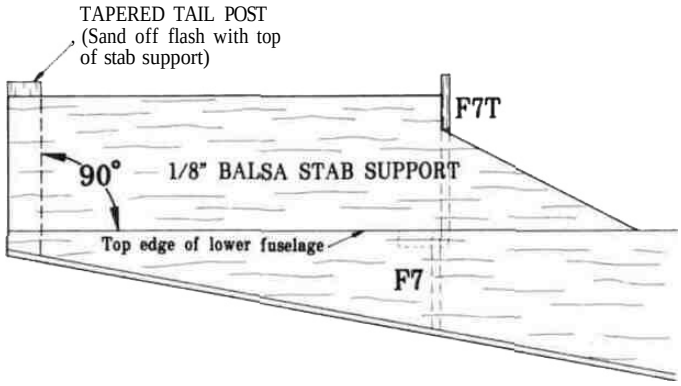
D 10. Trial fit the 4-3/16" length of tapered balsa at the top rear edge of F-2T, between the cabin sides, and glue in place.

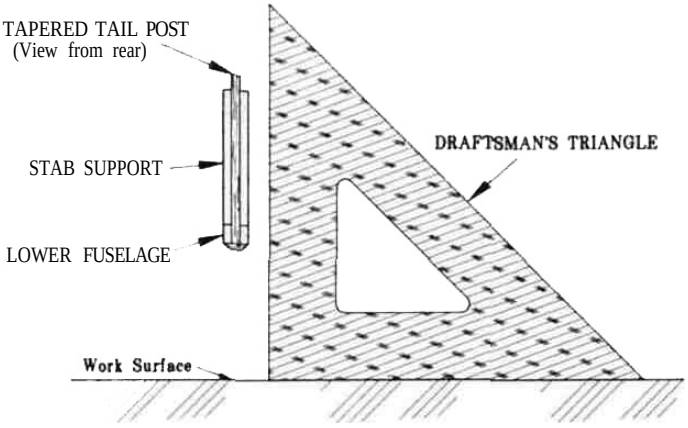


D 12. Find the 1/4" ply **wing hold-down plate** and trial fit it into the notches in the fuse side doublers, sanding as necessary for a good fit. Glue the hold-down plate in place **securely,** using 30-minute epoxy, then build up small fillets of epoxy all around the plate to lock it in place.

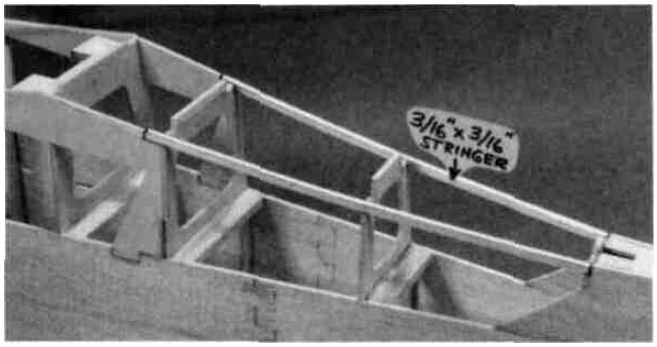


D 13. Securely glue the two die-cut 1/8" balsa **stab supports** and the tapered balsa **tail post** to the aft end of the fuselage. **IMPORTANT:** Before gluing these parts, tape and pin them in place and check alignment as follows: The tail post must be installed perpendicular to the top edge of the fuselage, and must be **vertical.** Cut and sand off the top of the tail post flush with the top of the stab supports, and sand the aft end of the stab supports to blend with the fuselage. See sketch at the top of the next page.

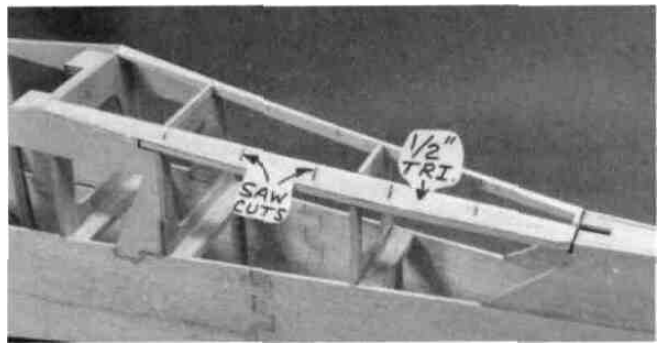




D 14. Sand the die-cut 1/8" ply **stab base** as necessary for a good fit between the stab supports, then glue the stab base in place, flush with the top edge of the stab supports.



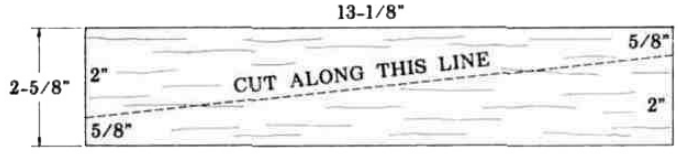
D 15. Cut the 3/16" x 3/16" x 24" balsa stick in half to make two **stringers** 12" long. Cut these pieces to run from the notch in front of F-5T to the aft edge of F-7T. Glue the stringers to F-5T, F-6T and F-7T, then sand to blend with the formers.



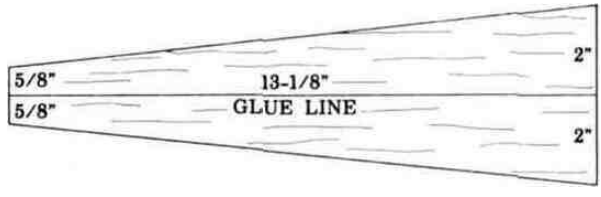
D 16. Cut the **1/2" x 36" balsa triangle** in half to make two pieces 18" long. Cut these pieces to run from the front edge of F-4T to the aft edge of F-7T. Try pressing the triangles down onto the 3/16" x 3/16" stringers. If the triangles are hard balsa, you may have to make several partial **saw cuts** with a razor saw (as shown in the photo) to permit easy bending. Make the cuts approximately 2" apart. Glue the triangles to the formers. If you made saw cuts, you should now apply thin CA to each cut. Finally, use your sanding block to sand the triangles down to blend with the lops of the formers.

NOTE: The glue joints where the stringers meet the stab saddle area are critical; therefore, please look them over again and add thick CA or 5-minute epoxy to insure very strong glue joints in that area.

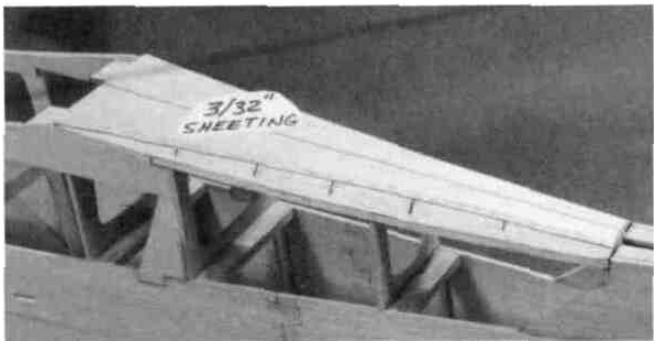
D 17. Prepare the **top rear sheeting** as follows: Cut the 3/32" x 2-5/8" x 13-1/8" balsa sheet on a diagonal as shown in the following sketch...



Now edge glue the two pieces together as shown in the following sketch...



Sand the glue joint smooth, using your T-bar sander with 100-grit sandpaper.



D 18. Glue the top rear sheeting to the top edge of the formers and stringers, beginning at the front of F-4T and running to the aft edge of F-7T. Sand the edges of the top sheeting at a 45-degree angle to blend with the triangular stringers (see the cross-sections on the fuse plan).

MOUNT THE WING TO THE FUSE

D 1. Sand the entire wing saddle area lightly until the wing saddle doublers and cabin sides are flush.

D 2. Apply six layers of masking tape onto the wing saddle to hold the wing off the saddle slightly. (This will simulate the thickness of the covering material and wing seating tape).

D 3. Make **fuselage centerline** marks on the top of F-2D and at the front edge of the top rear sheeting. Also mark the **wing centerline** on the front and rear edges of the wing.

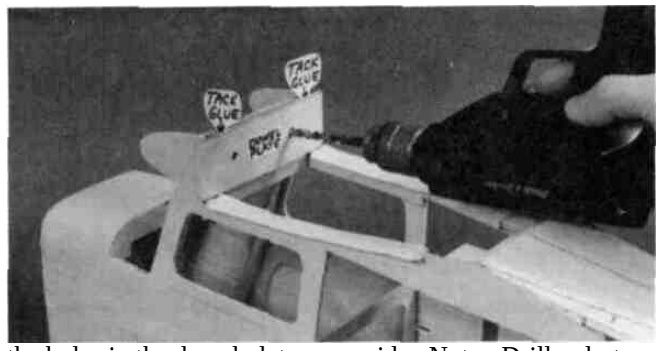
D 4. Hold the die-cut 1/8" ply **wing dowel plate** in place against the front of the wing **(do not glue).**

D 5. Insert the 1/4" wing dowels through the dowel plate and into the wing until they are flush with the front surface of the dowel plate. The dowels should insert easily, but be held **in** the wing by a friction fit. If necessary, use a 1/4" round file **to** enlarge the holes slightly.

D 6. Trial fit the wing into the wing saddle. If the wing is slightly too large (front to rear) to fit into the saddle, sand the rear edge of the saddle and the wing trailing edge slightly until it fits.

D 7. Center the wing, side to side, by aligning the center-line marks you previously made. Now **tack glue** the wing dowel plate to the upper comers of F-2D, using a couple drops of thick CA and CA accelerator spray (spray first, then apply a drop of glue, to prevent the glue from running down between the plates.

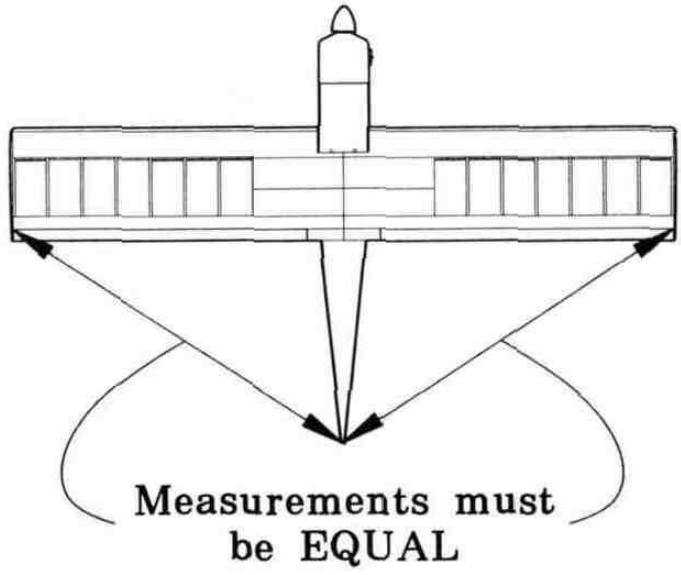
D 8. Gently remove the wing, leaving the dowel plate attached to F-2D. Then **drill** 1/4" **holes through F-2D** using



the holes in the dowel plate as a guide. Note: Drill only to a depth of 3/8", and try not to drill through F-2T.

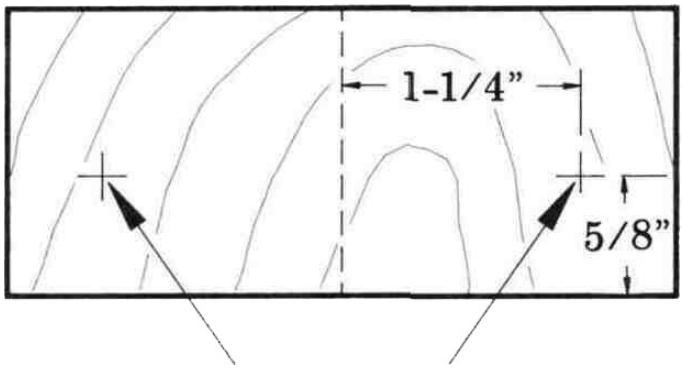
D 9. Use a razor saw to separate the dowel plate from F-2D.

D 10. Use a pliers to grasp the ends of the wing dowels and pull them out. Now you may **slightly** round (or chamfer) the ends of the dowels for easier insertion into F-2D. Mix up a batch of 30-minute epoxy, spread it on the front surface of the wing and press the dowel plate in place. Use a long stick to work some of the epoxy into the dowel holes, smear epoxy on the dowels, then re-insert the dowels into the wing, leaving them protrude approximately **5/16".** Wipe away **all** excess epoxy, then allow the epoxy to fully harden. Sand the dowel plate to blend smoothly with the top and bottom sheeting.

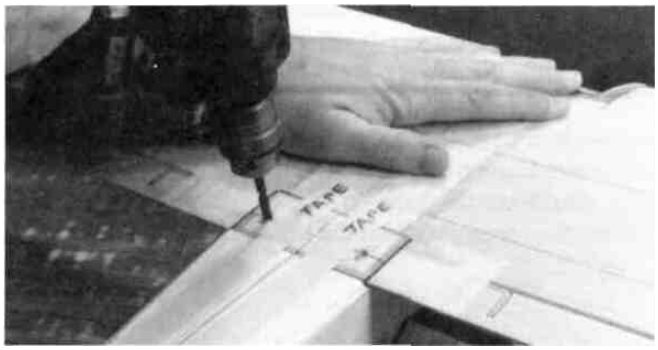


D 11. Place the wing back in the saddle and carefully align it according to the above sketch. While holding the wing in its proper position, make **alignment marks** on the wing TE and the front of the fuse top sheeting so you may easily re-align the wing later.

D 12. Study the wing plan and the sketch at the top of the next page to determine where the **wing bolt holes** are to be drilled. By measuring, transfer the locations to the wing bolt plate on the top of the wing. After marking the bolt locations, replace the wing in the saddle.

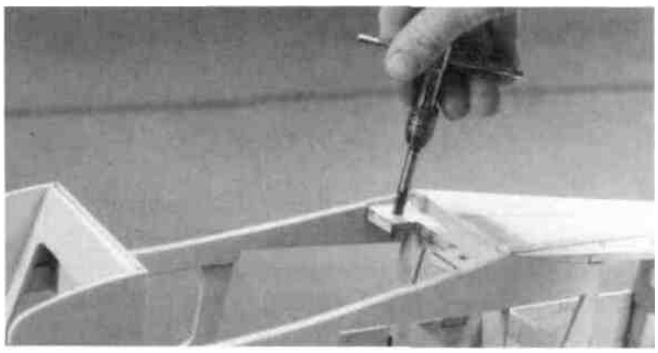


DRILLING LOCATIONS



D 13. Holding the wing **firmly** in place, drill 13/64" holes at the locations you marked in step 12, drilling down through the 1/16" ply wing bolt plate and through the 1/4" ply hold-down blocks in the fuselage. Try to drill straight in, perpendicular to the 1/16" ply bolt plate. **IMPORTANT!: Do not allow the wing to move while drilling!**

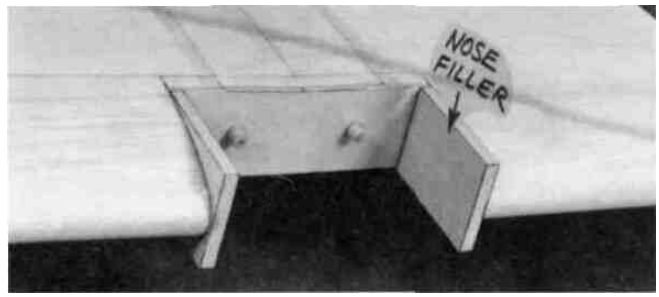
D 14. Remove the wing and re-drill the holes **in the wing only** to 1/4".



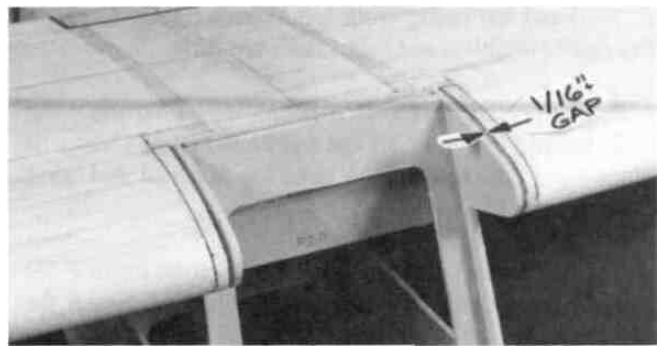
U 15. Use a 1/4-20 tap and a tap wrench to cut threads in the ply hold-down blocks in the fuselage.

D 16. **Harden** the threads in the hold-down block with thin CA glue, then re-tap the threads after the glue is completely **dry.**

D 17. **Trial fit** the wing to the fuse using the two 1/4-20 nylon bolts provided. You may cut the bolts off to their proper length, so they protrude about 1/4" below the hold-down blocks in the fuselage. Check the incidence of the wing using the instructions provided at the bottom of page 41.



D 18. Glue the two 1/4" xl -3/4" x 2-1/2" balsa **center nose fillers** to the inside edges of the W-2 ribs. Then sand the edges of these fillers to blend with the LE and LE sheeting.



D 19. Trial fit the wing on the fuselage, and sand the center nose fillers to mate with the front of the 1/8" ply cabin sides. **Provide at least 1/16" clearance** on both sides, between the wing and fuse, to allow for the thickness of the covering material and windshield.

MOUNT STABILIZER AND FIN

D 1. Lightly sand the **stab saddle area** smooth **with a** T-bar or sanding block.

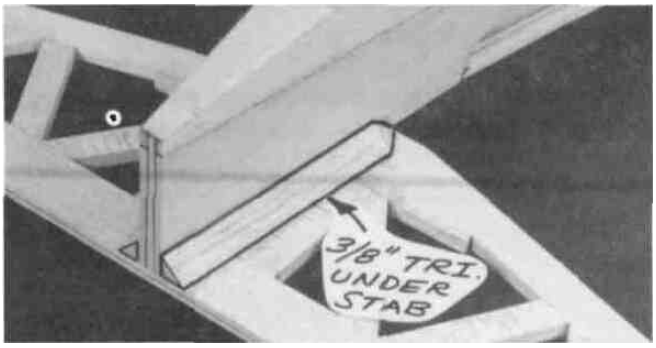
D 2. Accurately measure the trailing edge of the stabilizer and mark the center point.

D 3. Temporarily mount the wing in the saddle (for reference).

D 4. Lay the **stab** in position on the stab saddle with the center point lined up with the tail end of the fuselage. Carefully check the stab alignment by standing directly

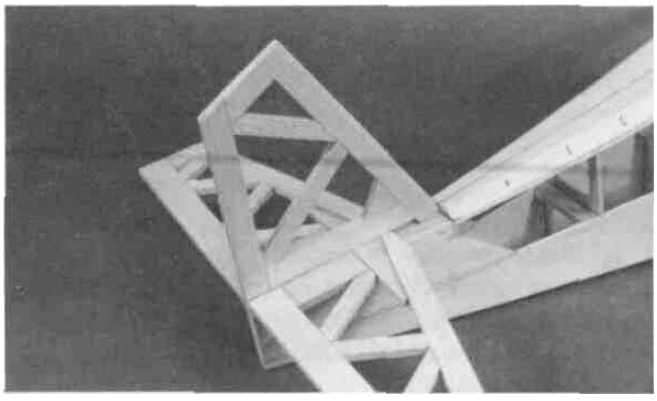
behind the fuselage and "eyeballing" whether or not the stab is level with the wing. Sand the stab saddle (a little at a time!) until it rests in proper alignment. Also measure from the rear comers of the stab to a point on the fuse centerline at the top of F-2T, and pivot the stab until both measurements are equal. With the stab in alignment, make a mark on the front of the stab and a corresponding mark on the stab base, which will be used for rapid alignment when gluing.

D 5. Mix up a batch of 5-minute or 30-minute epoxy **and** apply it to the stab saddle. Press the stab into position and **hold or pin in proper alignment until the glue has firmly set.** Wipe off any excess epoxy before it sets up.



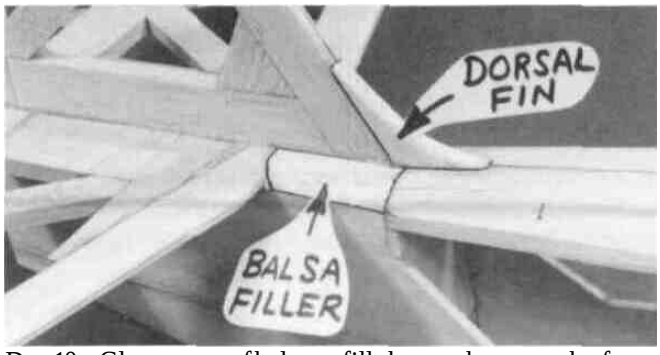
D 6. From the 3/8" balsa triangle supplied, cut and securely glue fillets **under the stab,** at the stab/fuse joint

D 7. Trial fit the fin on the stab. The fin trailing edge must line up with the aft end of the fuselage. If the fin protrudes too far aft, sand a small amount off the front of the fin.



D 8. Carefully align the fin on the stab. **The fin must be positioned perpendicular to the stab and must line up with the fuselage centerline EXACTLY!** File the slot in the stab base if necessary to properly align the fin. Securely glue the fin in place with epoxy.

D 9. Temporarily attach the elevators and rudder to check their fit and operation. Note that you must cut a **notch** in the rudder leading edge to clear the 1/8" wire elevator joiner. At this time, you should also cut the slots in the fuse tail filler for the **bottom rudder hinge** and the **tailgear bearing.** Trim off the bottom of the rudder, if necessary, to match the bottom of the fuse.



D 10. Glue scraps of balsa to fill the area between the front of the stab and the rear edge of F-7T, then sand to blend with the stringers. **NOTE:** It is a good idea to glue these pieces in with **epoxy** as a means of locking the stab area to the top sheeting and stringers.

D 11. From a scrap of 1/4" balsa, cut a small **dorsal fin,** as shown on the plan, and glue it to the front of the fin and the top sheeting. Round the leading edge of the dorsal fin to blend with the leading edge of the fin.

FINAL ASSEMBLY

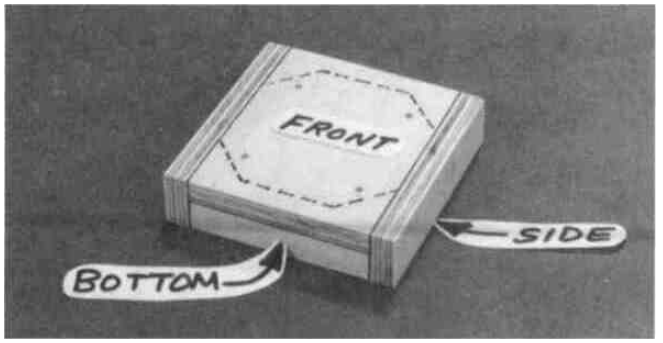
ENGINE INSTALLATION

NOTE: If you are using a 4-cycle engine, install your engine mount directly onto F-1, in the location shown on the plan. If you are using a 2-cycle engine and a Great Planes engine mount, you must assemble and install a "2-Cycle firewall", which positions the rear edge of the mount 21/32" forward of F-l. It may be possible to mount directly to F-l if you are using a mount that has extra-long arms. Plan your installation carefully before beginning.

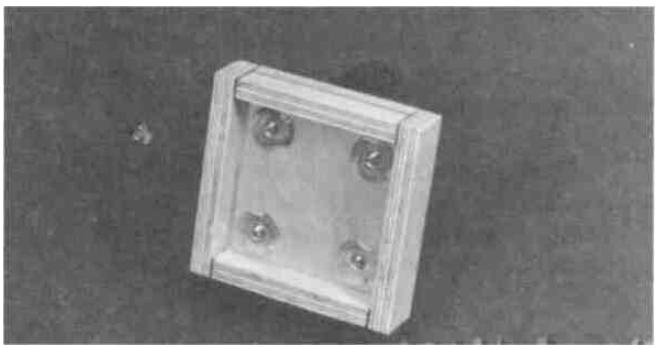
INSTALL "2-CYCLE FIREWALL"
(for 2-Cycle engines only)

NOTE: The 2-Cycle firewall consists of five 1/4" ply parts...

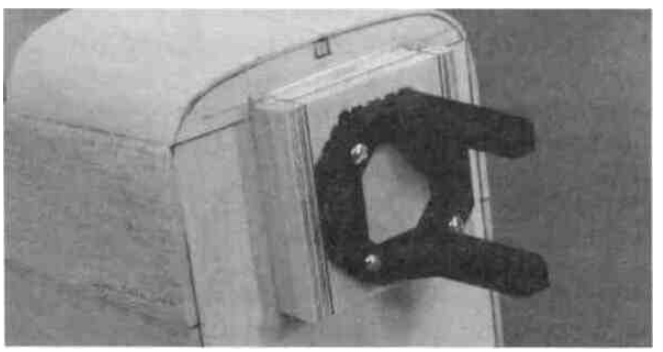
(1) -1/4" x 2-1/16" x 2-9/16" (FRONT)
(2) -1/4" x 13/32" x 2-1/16" (TOP & BOTTOM)
(2) -1/4" x 21/32" x 2-9/16" (SIDES)



D 1. Trial fit the five parts together to check how they fit (see the plans and the photos). Sand the parts as necessary for a good fit. Assemble the parts with 5-minute epoxy, and wipe up the excess glue inside the "box" before it sets up.



D 2. Hold the engine mount on the 2-cycle firewall in the location shown on the plan, and mark the boll locations through the mount. Drill 5/32" holes at the bolt locations, then install the 6-32 blind nuts inside the box. You may tap the blind nuts in with a hammer, or pull them in using a 6-32 bolt (with a flat washer under the head of the bolt). Apply CA glue or epoxy around the rim of the blind nuts to hold them permanently in place. Test the threads of each blind nut with a 6-32 bolt



D 3. Study the cross-section drawing of F-l (on the fuse plan), and, by measurement, mark the location of the "box" on F-l (Note **that the box and mount are offset** 5/32" **toward the left side of the fuse).** Glue the firewall box to F-1 with **epoxy.** Apply a small fillet of epoxy around the perimeter of the box, for added security.

DRILL ENGINE MOUNT (Great Planes MM40 or MM60 mounts)

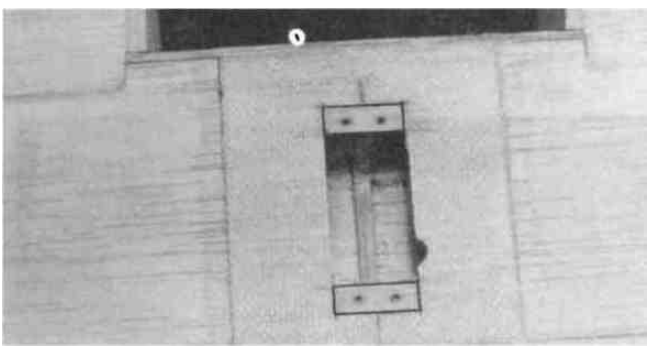
D 1. Align the engine on the mount and mark the mounting hole locations on the mount. At the marked locations, accurately drill 7/64" (or #36) holes. **NOTE:** If you have access to a drill press, use it for drilling these holes to insure that they are drilled vertically.

D 2. Now you may use one of the following methods to attach your engine to the mount:

Method 1: Screw the #6 x 3/4" sheet metal screws (provided in the kit) through the engine mounting flange and into the mount. When first installing these screws, put a drop of oil into each screw hole.

Method 2: Cut threads in the holes you just drilled using a 6-32 tap and tap wrench. If you use this method you'll have to supply your own bolts (6-32 x 1" socket head cap screws) for attaching the engine to the mount

INSTALL SERVOS, HORNS AND PUSHRODS



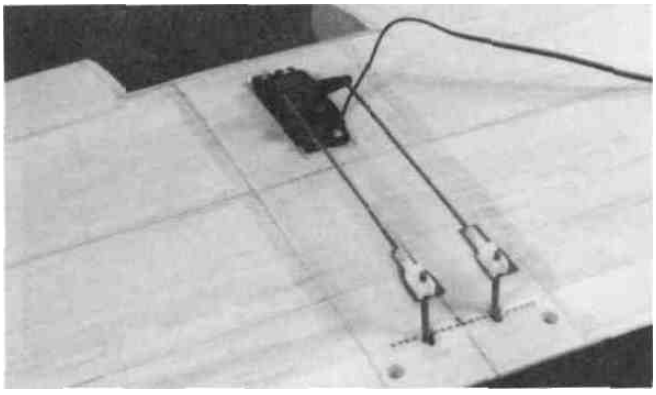
D 1. Study the plans to determine the location of the **aileron servo cutout.** Mark the location on the bottom of the wing and cut an opening in the fiberglass and sheeting slightly larger than your servo. **CAUTION: Do not cut into the wing spars or shear webs!**

D 2. Remove a sufficient portion of the W-l ribs to fit your servo, leaving "shelves" on which to glue the 1/8" ply rails. (See the plan to determine the depth). **NOTE:** A Dremel Moto Tool with a 1/8" router bit is excellent for this, but it may also be done with an Xacto knife and a long-nose pliers.

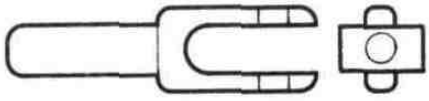
D 3. Make two **servo rails** from the 1/8" ply die-cutting scrap, and glue them in place. (See the side view of the aileron servo installation on the plan).

D 4. Mount the aileron servo using the screws provided with your radio.

D 5. Screw the nylon **aileron clevises** approximately 2/3 of the way onto the threaded end of the two 12" steel wire pushrods.



D 6. Screw the nylon **aileron clevis connectors** onto the aileron torque rods.



D 7. Attach the clevises to the clevis connectors; then, with the ailerons in the neutral position, mark the pushrod wires where they cross the holes in the servo arm. Remove the pushrods and make a **"Z-bend"** in the rods at that point, using a "Z-bend pliers" or a standard pliers.

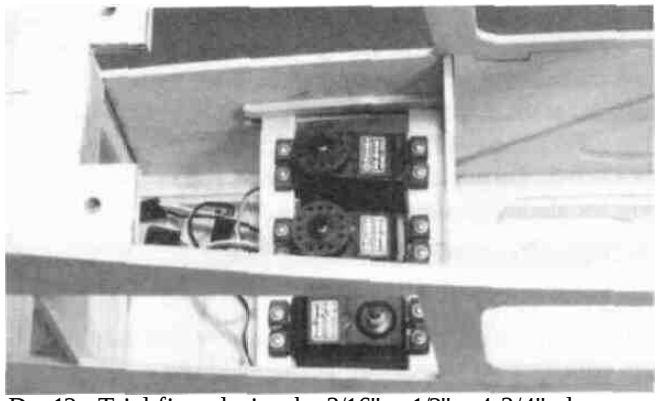
D 8. Remove the servo wheel from the servo and work the Z-bends into the wheel **(NOTE:** You may have to enlarge the servo wheel holes with a 5/64" diameter drill bit). Replace the servo wheel and check the operation of the ailerons. (See page 29 for the recommended amount of aileron movement).

IMPORTANT: PLAN YOUR SERVO INSTALLATION CAREFULLY!

D 9. Hold the **nylon control horns** on the elevator and rudder in the positions shown on the plan and mark the mounting hole locations. **REMEMBER:** The elevator horn is located on the **bottom** of the elevator! Drill 3/32" diameter holes at these locations.

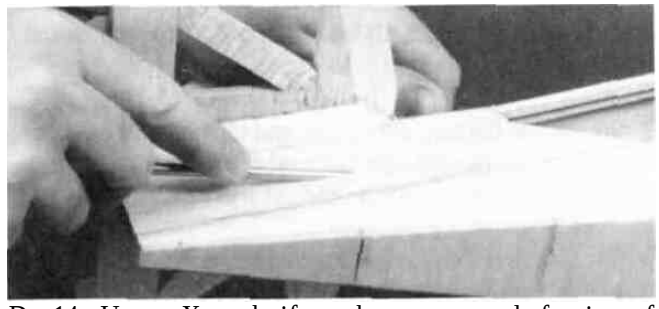
D 10. **Harden** the **balsa** in the area of the control horns (on both sides of the control surfaces) by poking several holes with a pin, then apply thin CA glue. Sand smooth.

D 11. Mount the horns with 2-56 screws and the nylon nut-**plates** which were attached to the horns.

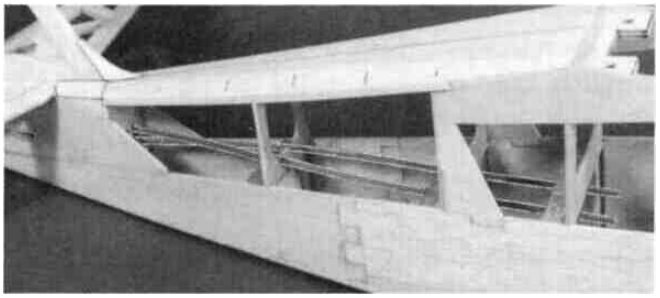


D 12. Trial fit and trim the 3/16" x 1/2" x 4-3/4" ply **servo rails** to fit flush with the fuse sides and mount your servos to the rails as shown on the plans. Now securely glue the servo rails to the fuse sides. Lock the rails in place by gluing scraps of 1/8" ply on top and bottom of the rails.

D 13. Cut one of the the 36" lengths of plastic **pushrod guide tube** exactly in half, then sand the outer surface of the pushrod guide tubes with 100-grit sandpaper to provide a surface to which the glue will adhere.



D 14. Use an Xacto knife to sharpen one end of a piece of 3/16" (outside diameter) brass tubing, then use this tubing to cut the pushrod exit holes (you may use a 3/16" drill bit, but the brass tube method gives a much neater cut). Determine the location of these holes from the plans. You may chuck this brass tube in an electric drill to aid in getting through F-7T.



D 15. Insert the plastic pushrod tubes through the holes you just cut and through formers F-7T, F-6T, F-5 and F-4.

D 16. Temporarily insert the 36" pushrod wires into the tubes and hold them in the correct position at the servo end. **Keep the tubes as straight as possible.** Glue the tubes to the fuse sides at the rear exit points using thin CA glue. Glue the tubes to F-7T and F-6T. Use scraps of 1/8" balsa to anchor the tubes to F-5. **Do not anchor the tubes to F-4 at this time** to allow for slight adjustment of their positions later.

D 17. Cut off the tubes at the exit points and sand them flush with the fuse sides using a sanding block.

D 18. Cut the short length of 1/8" diameter plastic tube into several pieces, approximately 1/4" long. Slide at least six of these pieces onto each of the long pushrod wires and space them approximately 2-1/2" apart (do not glue yet). **NOTE:** If these tubes do not slide on easily, cut them to a shorter length.

NOTE: While installing the pushrods, position the above plastic tube spacers so they always stay inside the pushrod guide tubes. If the tubes are not a tight friction fit on the pushrod wires, apply a drop of thin CA to secure them.

D 19. Insert the **pushrod wires** into the pushrod guide tubes (previously installed) and attach the clevises to the elevator and rudder horns.

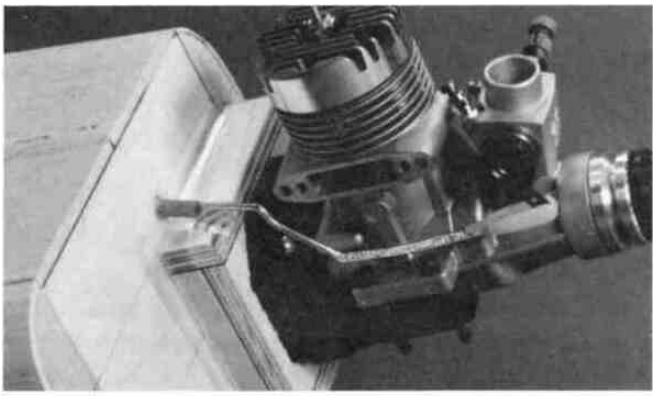
D 20. While holding the rudder and elevators in the **neutral** position, mark where the pushrod wires cross the holes in the servo wheels where each pushrod will be attached.

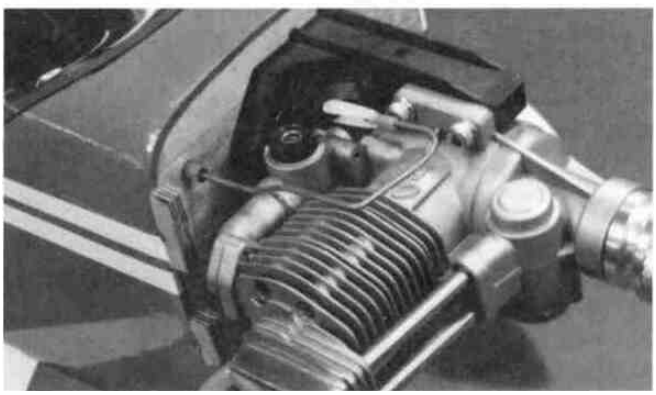
D 21. Remove the elevator and rudder pushrods and make **"Z-bends"** at the marks you just made. Cut off the excess pushrod wire.

D 22. Unscrew the nylon clevises, re-insert the pushrods, and replace the clevises. Remove the servo wheels and work the Z-bends into the holes (drill out the holes in the servo wheels to 5/64" if necessary). Finally, place the servo wheels back onto the servos and check the operation of the elevator and rudder.

D 23. Securely anchor the pushrod guide tubes to F-4 using cross-braces cut from scrap 1/8" balsa.

NOTE: The THROTTLE PUSHROD location will vary, depending on the engine used. Plan your installation carefully!



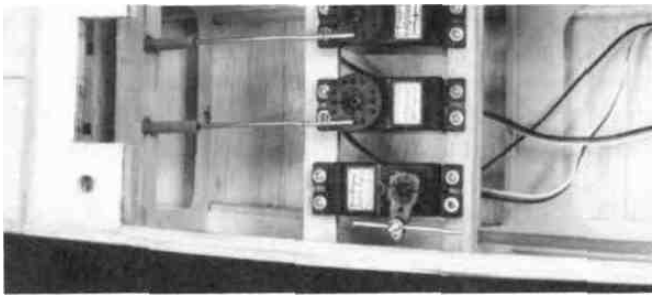


D 24. With the engine attached to the mount, plan the **throttle pushrod** routing. The pushrod should be located as close as possible to the fuse side (to allow room for the fuel tank), and the guide tube should not have any tight bends. Drill a 3/16" hole in F-l for the throttle pushrod guide tube.

D 25. Drill or carve holes in F-2 and F-3 (if necessary) for the guide tubes, and trial fit.

D 26. Sand the plastic pushrod guide tube with 100-grit sandpaper, then glue it in place.

D 27. Cut the 36" threaded **pushrod wire** to the required length and temporarily install the throttle pushrod. Bend the pushrod wire as necessary to avoid binding against the muffler.



D 28. Attach the throttle pushrod to the throttle servo arm. **NOTE:** You may use a "Z-bend" here, but we recommend using a DuBro "E-Z connector" (or similar) for this hookup, for ease of installation and adjustment.

D 29. Hook up your radio system and test the operation **of all** controls.

We recommend the following CONTROL SURFACE THROWS:

NOTE: Throws are measured at the **widest part** of the elevator and rudder.

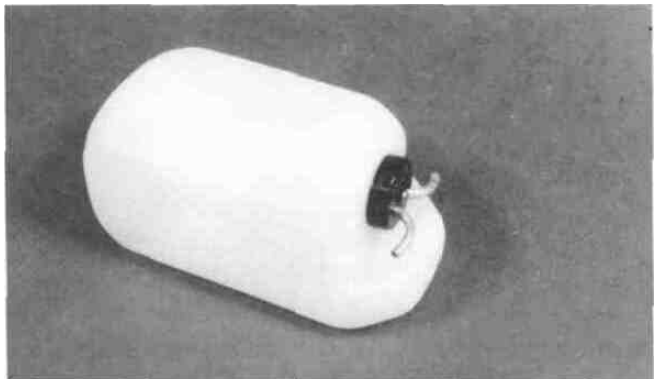
ELEVATOR: 3/8" up, 3/8" down

RUDDER: 3/4" Rt.. 3/4" Lt.

AILERONS: 5/16" up, 5/16" down

NOTE: These control surface "throws" are approximate and provide a good starting point for the first flights with your Super Decathlon 40. You may wish to change the throws slightly to provide the smoothness or quickness that you prefer.

FIT FUEL TANK AND FUELPROOF TANK COMPARTMENT



☐ 1. Assemble your **10 or 12 oz. fuel tank**. We recommend bending the brass lubes as shown in the photo to prevent them from cutting through the silicone fuel lines if pressed against the firewall. ("Bending Springs" are available from your hobby shop, which enable you to bend tubing without kinking).

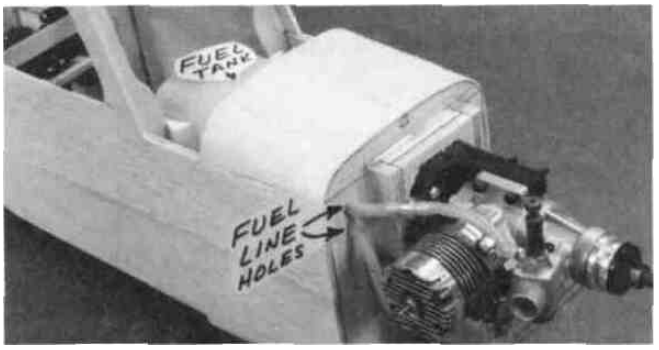
D 2. A 1/8" x 2-1/2" x 4-17/32" balsa sheet is provided as a **fuel tank base.** Trial fit and glue the fuel tank base in place on the bottom of the openings in the fuse side doublers.

NOTE: We recommend locating the fuel tank so the centerline of the tank is approximately 1/4" below the fuel line fitting on the carburetor. Check the manufacturer's recommendations for your engine, and adjust the height of the tank accordingly.

D 3. If your engine mount is attached directly to F-l, temporarily install the engine mount and note how far the mounting screws protrude into the fuel tank compartment. Remove the screws and cut them off so they do not protrude more than 1/8" (to prevent puncturing the fuel tank).

D 4. Drill two holes (7/32" or size to fit your fuel tubing) in F-l for your **fuel line tubing** vent and fill lines. The location of these holes will depend somewhat upon the type of engine you are using, etc.

D 5. If you have not already done so, remove the engine mount and **fuelproofthe** inside of the fuel tank compartment and the front of F-l by brushing on a coat of polyester resin or 30-minute epoxy thinned with alcohol.



D 6. Install the **fuel tank** at this lime, and **cushion** it from vibration and prevent it from moving by surrounding the tank

on all sides (and front) with latex foam rubber. Leave a few inches of extra fuel tubing in front of F-1 (you can cut off the excess later). Please route the fuel tubing without making tight bends, to prevent kinking. SUGGESTION: Access to the fuel lines can be a problem in a cowled engine; therefore, we suggest that you install some device for externally filling and draining your tank, such as a Dubro #334 "Kwik-Fill" fueling valve.

INSTALL WING STRUT STRAPS

D 1. Study the plans and, by measurement, mark the **wing strut strap** locations on the fuse sides.

D 2. Cut the slots by first drilling three 3/32" holes, then use an Xacto knife to make the rectangular slots.

D 3. Enlarge **one** of the holes in **six** of the nylon straps, using a 1/8" drill bit

D 4. Bend the nylon straps to the angle shown on the plan by grasping them with a pliers, and pushing against a hard surface.

D 5. Insert the ends of the straps which have enlarged holes through the rectangular holes in the fuse sides, and temporarily secure them to the fuse bottom with #4 x 3/8" sheet metal screws.

NOTE: Do not mount the wing struts until after the model is covered and the wing is installed in its **final** position.

INSTALL RECEIVER, SWITCH AND BATTERY

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

D 2. Secure the **battery** to the fuselage under the fuel tank, just aft of F-2. The battery must be secure, but must be surrounded by foam rubber to protect it from hard vibrations. Therefore, after wrapping with foam rubber, we recommend securing it to the fuselage with hooks and rubber bands.

D 3. Secure the **receiver** to the fuselage, just aft of the battery, in the same manner.

D 4. 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 F-4T. Anchor the antenna to the top of the fin with a rubber band.

b. From the receiver, run the antenna directly through the left fuse side just below the side windows, then back to the stab.

c. Install another "pushrod guide tube" along the inside of the fuse, along the bottom, exiting just forward of the tailgear. Insert the antenna through the tube,and leave the excess length trail behind.

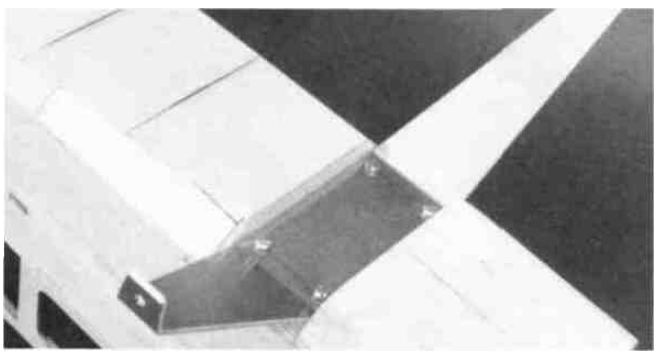
D 5. From scrap 1/8" ply, make a small plate on which to mount the **on-off switch.** Glue this plate to the front of F-3, and run a 1/16" pushrod wire out the left side of the fuse. so you can operate the switch without removing the wing.

INSTALL MAIN LANDING GEAR

D 1. Using a flat file, round the edges of the aluminum main landing gear to remove **all** sharp edges.

D 2. Drill four **11/64"** holes in the landing gear, using the **"Landing Gear Drilling Template"** on the fuse plan.

D 3. Lay the landing gear in place on the bottom of the fuselage, centered side-to-side. Use a pencil to mark the hole locations on the 1/4" ply mounting plate. Drill 1/8" holes in the mounting plate at these locations.



D 4. Secure the gear to the plate using the #8x1/2" sheet **metal** screws.

D 5. For scale realism, the landing gear should be white; therefore, you may now sand the gear with 320-grit sandpaper, clean thoroughly with alcohol or thinner, then **paint** the gear with fuelproof paint, such as K & B Superpoxy.

OPTIONAL: You may add a balsa fairing block to the bottom of the landing gear, and sand to blend with the fuselage; however, you must drill 3/8" holes in the fairing block for access to the screws.

INSTALL WHEEL PANTS

NOTE: While they do decrease drag somewhat, the wheel pants are included primarily for scale realism; therefore, if you will be flying your Super Decathlon 40 from a grass and/or rough field, we recommend that you do not install the wheel pants.

D 1. If you examine the inside of the wheel pants you will notice a raised **trim line** near the base. Using a scissors, cut away the excess plastic near the trim line. Use a large sanding block (or a sheet of sandpaper lying on a flat table) to sand the pants down to the trim line.

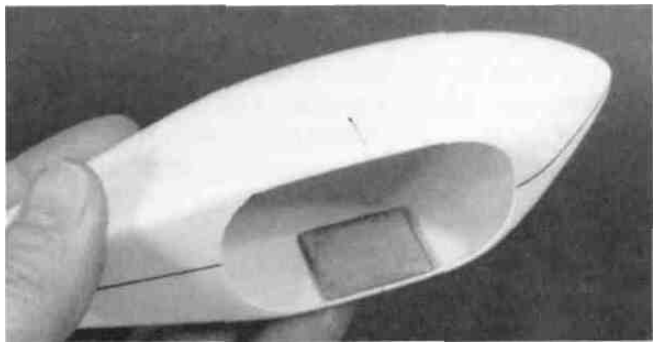
D 2. Clean the wheel pant halves with a tissue dampened with alcohol.

D 3. Lightly sand the **inside** of the wheel pants with fine sandpaper.

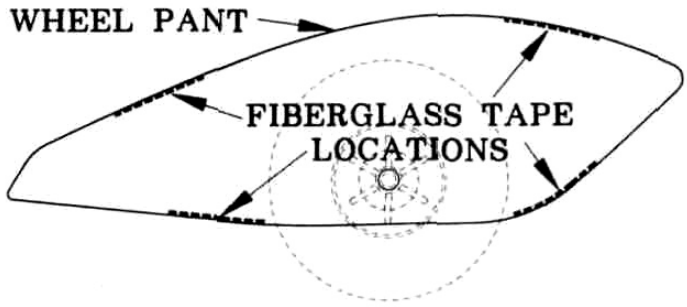
D 4. Hold two wheel pant halves together, carefully lining up the edges, and apply **thin CA** to bond them together all the way around.

D 5. Use a piece of 150-grit sandpaper held in your fingers to sand the pants along the joint, blending the two halves smoothly together.

D 6. Cut the opening for the wheel, using an Xacto knife **or a** Dremel Moto Tool with a pointed bit. Sand the edges of this opening smooth with a Dremel sanding drum (or a piece of sandpaper wrapped around a dowel). Make sure the opening fits your wheel!



D 7. Using thick CA, glue one of the 1/16" x 1" x 1" ply **wheel pants doublers** to the inside of the pant, centered over the axle "dimple." **NOTE: Make a RIGHT and a LEFT wheel pant!**

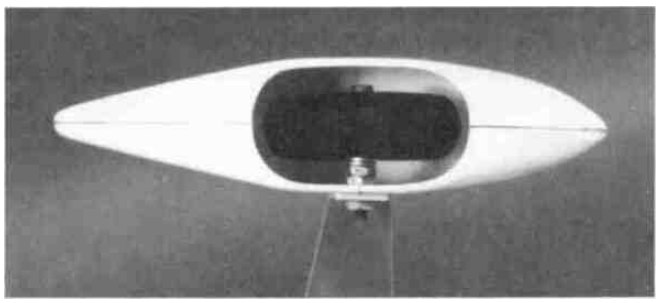


D 8. Cut the strip of 1"-wide fiberglass tape into l"-long pieces. Glue four pieces of this tape inside the pant at the center joint in the locations shown in the above sketch. A good method of doing this is to lay the glass cloth in position, apply thin CA glue, and press down with a piece of waxed paper until the glue sets.

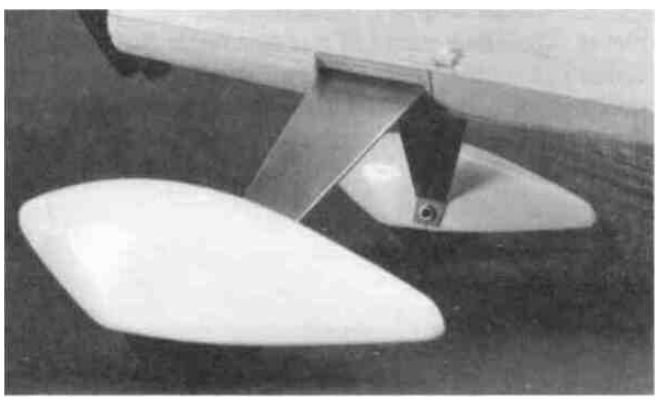
D 9. Drill an 11/64" diameter hole through the wheel pant and the 1/16" ply doubler at the axle "dimple" location. **Drill only through the side of the pant that has the ply doubler, making a LEFT and a RIGHT pant.**

D 10. Insert an 8-32 x 1-1/2" socket head cap screw through one of your wheels (If the hole is too small, drill the wheel hub with an 11/64" drill bit). Slide on one #8 flat washer and screw on two #8 hex nuts. Tighten the two nuts against each other to lock, providing just enough space for the wheel to turn freely.

D 11. Work the wheel/axle assembly into the pant, with the socket head cap screw protruding out of the hole. Check to see if the wheel is centered in the pant. If not, add or remove a #8 flat washer, as necessary, to center the wheel.



D 12. Attach the axle to the aluminum landing gear with another 8x32 hex nut. Check the pant alignment carefully, then drill a 5/64" hole through the aluminum landing gear and the wheel pant at the **locking screw** location. Remove the wheel pant and re-drill the hole in the aluminum LG only with a 1/8" drill bit. Later, when permanently installing the pants, lock them with a #4 x 3/8" sheet metal screw.

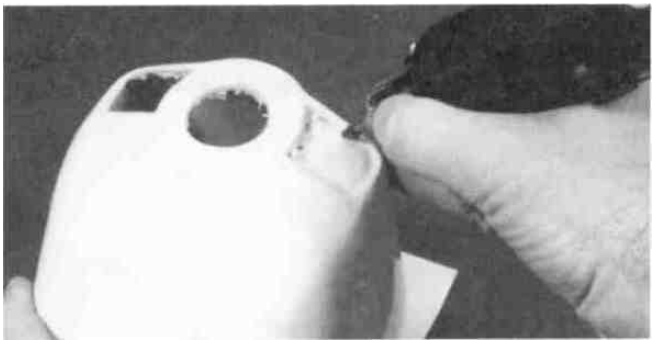


D 13. Sand the entire outside surface of the pants lightly with 320-grit sandpaper.

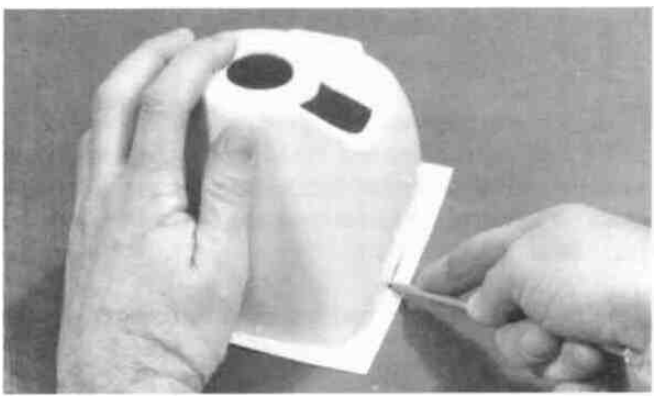
D 14. Spray on a coat of primer, then sand smooth.

D 15. Paint the wheel pants with white fuelproofpaint, and **trim with decals** provided.

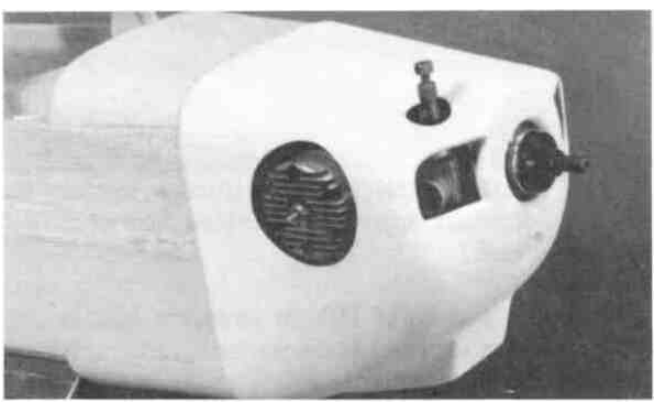
FIT COWL



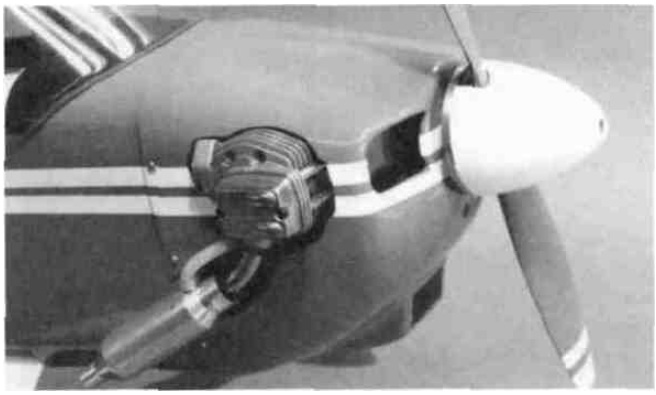
D 1. Using an Xacto knife or a Dremel Moto Tool with a pointed bit, carefully cut out the three openings in the cowl for air intake and the engine thrust washer.



D 2. Scribe around the base of the cowl several times with a large nail or spike, then fold and break off the flange. (This provides a little extra material at the base, which can be trimmed off as you custom fit the cowl).



D 3. By trial and error, cut openings in the cowl for the engine head, needle valve and exhaust pipes. Allow approximately 1/8" clearance all around the engine head for cooling



air flow. While fitting, if you notice that the cowl is a very tight fit over the fuselage, you may sand all around the front of the fuse until the cowl goes on easily.

D 4. Trim the base of the cowl so it overlaps the fuselage approximately 1/4" on the right side and 7/16" on the left side.

D 5. Attach the cowl to the fuse with four or five #2 x 3/8" sheet metal screws. **PLAN AHEAD!:** Locate the screws 1/8" behind the front edge of F-l, so they go into the center of F-l.

D 6. Reinforce the cowl screw hole locations by gluing 1/2" x 1/2" patches of lightweight fiberglass cloth to the inside of the cowl at the screw locations.

D 7. Sand the entire outside surface of the cowl lightly with 320-grit sandpaper.

D 8. Spray on a coat of K&B white primer, then sand smooth.

D 9. Paint the cowl with red fuelproof paint, mixed to match your covering material. Monokote varies slightly in color from roll to roll, but the following is a formula that will produce a very close match to #201 Red Monokote. This mix is intended for spraying. We recommend that you spray a scrap of white ABS plastic, allow it to dry. compare it with your covering material, and adjust the proportions as necessary. The paint will appear too orange when first applied, but will darken as it dries. This recipe will provide enough paint for one light mist coat and two full coats.

lOcc K&B Superpoxy Red #8103
5cc K&B Superpoxy Orange #8102
15cc K&B Superpoxy Gloss Catalyst #8129
30cc K&B Superpoxy Thinner

D 10. Trim the cowl with striping tape and the decals provided (see instructions later in this book).

FINISHING

ADDITIONAL FUELPROOFING

If you have not already done so, make sure the entire engine compartment is completely fuelproof. Also fuelproof any wood that will not be covered and which may be exposed to glow fuel residue. Use epoxy thinned with alcohol, polyester finishing resin or fuelproof paint.

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:

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

D 2. With the wing level, lift the model by the engine propeller shaft and the bottom of the rudder (this may require two people). Do this several times.

D 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.**

FINAL SANDING

Check over the entire structure carefully, inspecting for any poorly glued joints, gaps and "dings". Apply additional glue and/or balsa filler as necessary, then sand the entire structure smooth using progressively finer grades of sandpaper.

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 the fin and stab, begin by applying 1/2" wide strips of covering in the comers between the fin and stab, and (on the bottom of the stab) between the stab and the fuse. sides. Next, cover the stab and fin with pre-cut pieces that have a straight edge to overlap (1/8"+ overlap) the strips you previously 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!

Recommended Covering Sequence:

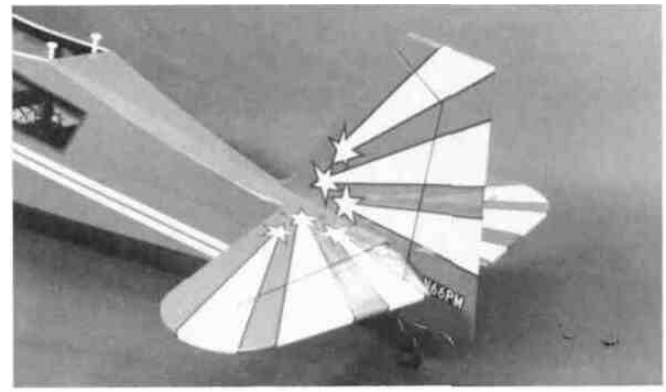
1. Strips as described in above note
2. Rudder left side
3. Rudder right side
4. Bottom of elevators
5. Top of elevators
6. Stab bottom
7. Stab top
8. L.G. slot
9. Fuse bottom
10. Fuse sides
11. Fuse top
12. Fin left side
13. Fin right side
14. Ends of ailerons
15. Bottom of ailerons
16. Top of ailerons
17. Aileron openings in 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 1/2" at the center and 1/4" at the LE)

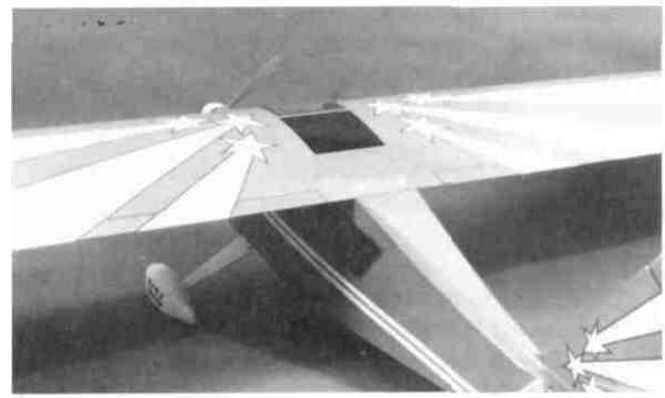
APPLY DECALS AND TRIM

NOTE: The decal sheet does not give you everything you need to completely trim your model; but it does provide all the intricate detailing and difficult items. The complete trim layout is shown on the back of the fuselage plan.

D 1. Study the plans and the photos on the box to determine where to place the decals.

D 2. Thoroughly clean your airplane before applying decals.





D 3. Cut out the individual dccal items and apply them in the locations shown on the plan. **NOTES:** For case of application, when cutting out the "starburst" decals, cut along a curving line around the star, rather than trying to follow all the star points. The "PETE" dccal should be applied **upside down** to the left wheel pant. "EXPERIMENTAL" may be applied to the **inside** of the cockpit, just under **the** right front window (Yes, this is the scale location). The

solid black circle goes in the indentation under the spinner. You may have to trim away some of the "dash" decal to clear the fuel tank. Certain non-scale decals are provided which you may use at your discretion, they include the "Great Planes" logos, "Decathlon Owners' Club", and "Great Planes Flight Team".

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.

D 4. Cut the starburst "rays" out of white Monokote **or** trim sheet material, and apply to the model, matching up with the starburst decals already applied. CAUTION: Do not touch the hot iron to the decal material. Then apply 1/16" and 1/8" blue striping tape along the edges of the rays.

D 5. If you are planning to enter your Super Decathlon 40 in scale competition and you need maximum scale realism, you may want to purchase another decal sheet (Part No, DE40 D01) and trim the **bottom** of the wing the **same** as the top.

D 6. From black trim sheet material, cut out and apply a shape to the top of the wing to represent the top window.

D 7. From covering or trim sheet material, cut and apply white stripes to the fuse sides. The stripes do not extend onto the fuse bottom.

GLUE THE HINGES

D 1. Lay the rudder, elevators and ailerons on the plans and mark on the leading edge of each pan the locations of the hinges, torque rods and tailgear. Now use a sharp Xacto knife to cut slits in the covering at the hinge locations. Trial fit the hinges to make sure you have "found" the slots which you previously cut. In the same manner, slit the covering at the hinge locations in the wing, stab and fin TE. Also cut the covering away from the torque rod and tailgear slots.

NOTE: When gluing in the nylon tailgear bearing and the hinges, do not just smear glue on the hinge and push it into the slot, as most of the glue will be wiped off as it is being pushed in. You must also work some glue into the slot. A good way of doing this is to scoop up some epoxy with a plastic soda straw, then pinch the end of the straw, insert it into the hinge slot, and squeeze the straw to force glue into the slot. Apply epoxy to the hinge, then insert the hinge into the slot. We recommend 30 minute epoxy for this process. After pushing in the hinge, **wipe away all** excess **glue with a** tissue **dampened with rubbing alcohol.**

D 2. Glue the hinges (and tailgear bearing) into the slots in the wing, stab and fin TE using the above process and **allow the glue to harden before proceeding.**

D 3. Put epoxy into the slots in the elevators and on the corresponding hinges, then push the elevators onto the hinges and wipe away **all** excess epoxy with a tissue (for best results dampen the tissue with rubbing alcohol).

D 4. Using coarse sandpaper, roughen the part of the aileron torque rods that will be glued into the ailerons, then clean off the sanded portion of the rods with alcohol or a degreasing solvent. Roughen and clean the tailgear wire in the same manner. Using a toothpick, apply a small amount of Vaseline where the torque rods and tailgear wire enter the nylon bearing tubes (to prevent glue from getting inside and locking them up).

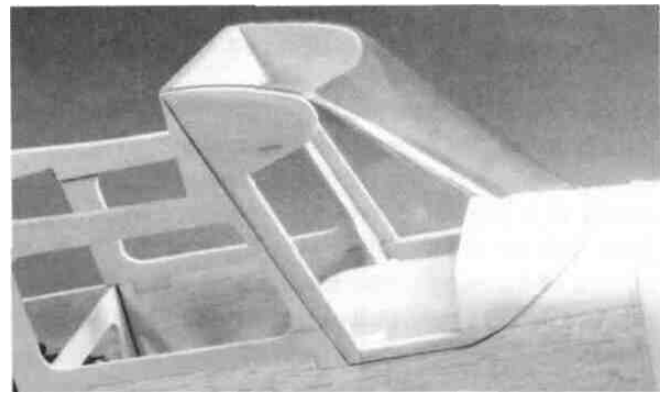
D 5. Put epoxy into the rudder hinge slots (and the tailgear hole), push the rudder into place and wipe off all excess epoxy.

D 6. Put epoxy into the aileron hinge slots and the torque rod holes, push the ailerons into place and **wipe off all** excess **epoxy. NOTE:** Make sure there is enough epoxy in the aileron torque rod hole to completely surround the torque rod wire.

INSTALL WINDSHIELD

NOTE: Before installing the windshield, we recommend painting the entire cabin interior **flat black** for better scale appearance. Because it is likely that this paint will not come in contact with fuel, you may use flat enamel paint, such as Testers hobby enamel.

D 1. Using a scissors, carefully cut the windshield along the trim line.



D 2. Trial fit the windshield onto the fuse, pressing into **place.** Trim as necessary for a good fit.

NOTE: Do not glue the windshield in place until after you have covered your model.

D 3. Lightly sand the inside of the windshield around the outside edge (sand a strip approximately 1/8" wide). **NOTE:** To avoid sanding more than you want, it is helpful to first apply strips of masking tape on the inside of the windshield, 1/8" in from the edges.

D 4. Hold the windshield in place on the fuselage and very carefully apply medium to thick CA glue around the edges. The CA will wick under the windshield slightly and will bond the windshield to the covering material.

NOTE: Use care to avoid getting CA on the outside exposed surface of the windshield.

D 5. To hide the windshield glue joint, you may use 1/8" red striping tape as a border around the windshield.

WING SEATING

D 1. Apply 1/4" wide foam wing seating tape to the wing saddle area to seal the wing/fuse joints*.

D 2. Also apply a couple pieces of the foam tape to the 1/4" ply wing hold-down plate, which helps to distribute the load when the nylon bolts are tightened.

*NOTE: An alternate method of sealing the wing/fuse joint is to use "silicone bathtub sealer". This is an excellent method, used by many experts because it results in a permanent and nearly perfect wing saddle joint. Briefly, the technique is as follows: 1. Cover the bottom of the wing center section with waxed paper or plastic kitchen wrap. Pull out all wrinkles and tape it to the wing. 2. Squeeze out a bead of silicone sealer onto the wing saddle area of the fuselage. 3. Lay the wing in the saddle and push down gently. The excess silicone sealer will squeeze out. 4. Allow to dry without disturbing for at least 24 hours. 5. Remove the tape, then remove the wing from the saddle (leaving the waxed paper or plastic wrap in place). 6. Gently pull the waxed paper or plastic wrap away from the sealer. 7. Allow the silicone to dry for a few more hours. 8. Using a new single-edge razor blade, trim the sealer flush with the edges of the fuse sides.

INSTALL WING STRUTS

NOTE: The wing struts are for scale appearance only. Built according to the plans and instructions, the structure has sufficient strength for normal acrobatic flying (within the boundaries of common sense).

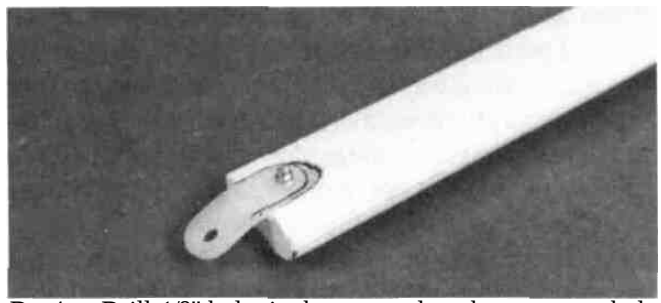
NOTE: Before proceeding, make sure that you have the wing seated and installed on the fuselage in its Final position. Skip ahead to the "FINAL HOOKUPS AND CHECKS" section, and check for wing twist as instructed. Also, study the **wing strut detail** drawings on the plan.

D 1. Sand the 1/4" x 5/8" x 24" and the 5/16" x 3/4" x 24" balsa sticks to an airfoil shape. The 3/4" slicks make the **front struts,** and the 5/8" sticks make the **rear struts.**

D 2. By measurement, determine the location of the center of the **wing strut plates** on the bottom of the wing, and drill 5/64" holes at these locations. Secure the drilled ends of **the** nylon straps to the wing with #4 x 3/8" sheet metal screws.

D 3. Cut the 3/4" **front** wing struts to the proper length. Sand the end of the strut closest to the fuselage at an angle so **it** lays flat against the fuse side.

IMPORTANT NOTE: The struts could adversely affect the way the airplane flies if not installed properly! **Please use care to align the struts parallel with the line of flight.**



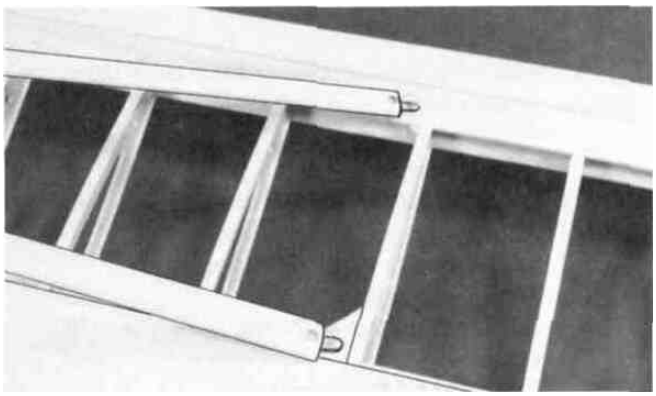
D 4. Drill 1/8" holes in the strut ends at the strut strap hole locations. Carve out an area on top of the strut ends to recess

the strut straps. Apply a generous amount **of thin** CA to the strut ends and screw holes to harden the balsa and prevent crushing. Re-drill the 1/8" holes.

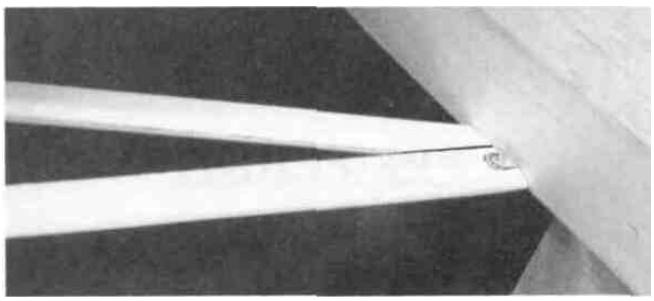
D 5. Attach the front struts to the strut straps with #4 x 3/8" sheet metal screws.

D 6. Cut the rear wing struts to length. The end of the rear strut closest to the fuselage must be cut off at an angle to mate with the trailing edge of the front strut.

D 7. Drill a 1/8" hole in the rear strut where it will attach to the strut strap in the wing, recess the strut end (as in step 4), and apply thin CA to harden the balsa.



D 8. Attach the rear strut to the strut strap in the wing, then glue the rear strut to the front strut.



D 9. For added security, it is recommended that you apply lightweight fiberglass cloth around the struts in the area where the front and rear struts join. If not, you may experience breakage at that glue joint.

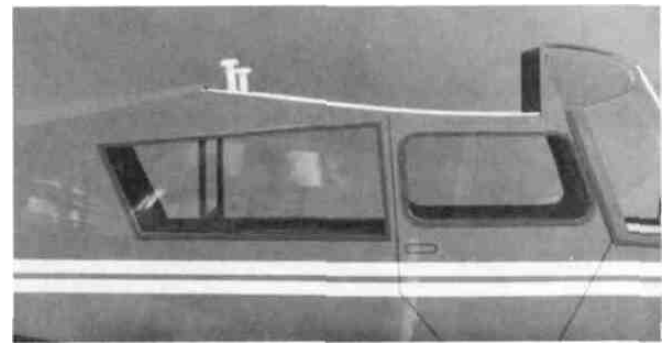
INSTALL SIDE WINDOWS

D 1. Using an Xacto knife, **cut the clear plastic side windows** from the die-cut sheet.

D 2. Carefully sand the edges of each window with #400-grit sandpaper to remove any irregularities caused by the die-cutting process, but use care not to scratch the surface of the windows.

D 3. Thoroughly clean the covering material around the window areas with alcohol, to remove all traces of skin oils. Poke pinholes (1/8" apart) through the covering material in the areas where the windows will be glued to the fuselage.

D 4. Holding a window in position on the fuse side, very carefully apply medium or thick CA around the edges and hold until set.



D 5. To hide the glue lines, you may apply 1/8" striping tape around the windows.

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.

D 1. Accurately mark the balance point on the bottom of the wing on both sides of the fuselage. The balance point is shown on the plan (CG), and is located approximately **3-1/4 inches** back from the leading edge. This is the balance point at which your model should balance for your first flights. Later, you may wish to shift the balance up to 3/8" **forward or back** to change the flying characteristics. Moving the balance forward results in a model that is more resistant to stalls and spins but also may act sluggish and require more speed for takeoff and landing. Moving the balance aft makes the model more agile with a lighter and snappier "feel" and often improves snap roll and knife-edge capabilities. In any case, **do not balance your model outside the recommended range.**

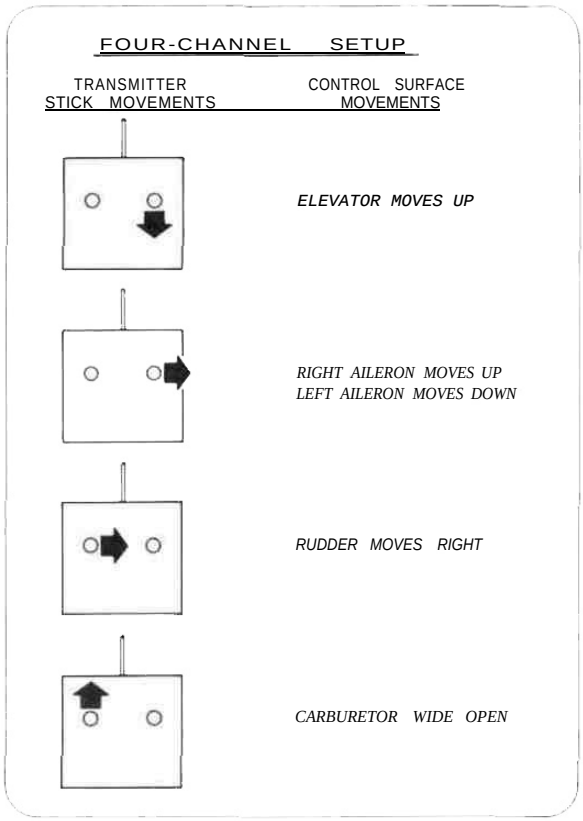
D 2. With the wing attached to the fuselage, all parts of the model installed (ready to fly), and an **empty** fuel tank, block up the tail as necessary to **level** the stab.

D 3. Lift 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

Prather "Spinner Weight" (available in assorted weights, up to 2 ounces), or by gluing strips of lead onto F-l under the engine. Tail weight may be added by using Prather "stick-on" lead weights, and later if the balance proves to be OK you can open the fuse bottom and glue these in permanently.

FINAL HOOKUPS AND CHECKS

D 1. Make sure the control surfaces move in the proper direction as illustrated in the following sketches;



D 2. Adjust your pushrod hookups as necessary to provide the proper control surface movements as listed on Page 29.

NOTE: These control surface "throws" are approximate and provide a good starting point for the first flights with your Super Decathlon 40. You may wish to change the throws slightly to provide the smoothness or quickness that you prefer.

D 3. Check for wing twist as follows:

NOTE: Even if you have built your wing on a perfectly flat surface and used utmost care. it is possible that your wing may have a twist due to uneven shrinking of the covering material. **You must check for this condition and correct it before the first flight.**

If you do not own a wing incidence meter, we recommend that you purchase one from your local hobby dealer or borrow one from another modeler. With the wing mounted to the fuselage, use the incidence meter to check the angle of your wing at the root and at the tips. If the incidence meter reveals a wing twist of more than 1/4 degree, you must grasp the wing at the tip and twist it slightly, while reheating the covering material. Keep checking, twisting and reheating until the wing twist is removed. **NOTE:** If you have corrected a wing twist by this method, you should periodically re-check to make sure the correction has held.

D 4. Following is a checklist of some other items you'll want to consider before your first flight with this model:

- D Record weight
- D Check all screws, use Loctite
- D Adjust tailgear for straight roll
- D Adjust throttle pushrod linkage
- D Take photographs!
- D Balance propeller & spinner
- D Oil axles
- D Place AMA **I.D. sticker inside**

PRE-FLIGHT

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 which makes your outing safer and more enjoyable. The AMA can also tell you the name of a club in your area. We recommend that you join AMA and a local club so you can have a safe place to fly and

also have insurance to cover you in case of a flying accident. (The AMA address is listed on the front cover of this instruction book).

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 must also 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 acting correctly at all times, **do not fly!** Find and correct the problem first

ENGINE SAFETY PRECAUTIONS

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

Keep all engine fuel in a safe place, away from heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; 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 expenenced 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, shin 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 is not leaked 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

1. I will not fly my model aircraft in competition or in the presence of spectators 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 utilized 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.

RADIO CONTROL

1. I will have completed a successful radio equipment ground range 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 Super Decathlon 40 is a great-looking scale airplane and a great-flying sport airplane that, true to its full-size counterpart, is highly acrobatic. It does **not** have the clean lines and smoothness of a "pattern ship" nor 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.

NOTE: We encourage you to fly this airplane only with the cowl attached, because the cowl streamlines the airframe and results in much better flying characteristics.

TAKEOFF: Do a low speed taxi test before your first takeoff. If the plane does not track straight, bend the tailgear with two pliers. **Don't adjust the ground steering with the rudder trim!** Although the Super Decathlon 40 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". The big fuselage has a lot of drag, so don't jerk it to vertical right after liftoff! Just climb out gradually and let it gain some airspeed before hunting for the clouds. For safety's sake, always remember to make your first turn away from the pit area.

FLYING: We recommend that you take it easy with your Super Decathlon 40 for the first several flights and gradually "get acquainted" with its flying characteristics as your engine gets fully broken-in. Work on trimming the airplane for straight and level flight with the transmitter trims at neutral, adjusting the nylon clevises after each flight, as necessary. Also, take note of the responsiveness of the elevator, ailerons and rudder, and adjust their throws to your preference. Add and practice one maneuver at a time, learning how it behaves in each one. If you notice any "sluggishness" in the way your Super Decathlon 40 handles, it is probably a result of not enough speed, in which case you should install a propeller with a larger diameter or increased pitch. We don't know of any maneuver that this airplane is not capable of performing; however, you can expect considerable roll coupling with rudder when attempting knife edge maneuvers. Snap rolls are instantaneous, requiring only a "shot" of elevator and rudder combined. **Full-throttle snaps are not recommended,** due to the extremely high stresses they place **on** the structure.

LANDING; Because the Super Decathlon 40 has a lot of aerodynamic "drag", it will slow down more quickly than you might expect when you cut the throttle for landing. Therefore, try to maintain at least a "high idle" during the landing approach to avoid inadvertently losing flying speed. Also, because of the high drag, it is not necessary to flare to a high angle of attack to reduce speed just before touchdown. If it starts to get "mushy", get off that up- elevator! As a rule of thumb (for this type airplane only), if the airplane looks like it is level, it is probably flared about right for landing. With a little practice, a little power on, and very little flare, you'll be "greasin' em in" before you know it!

Have a ball! But always stay in control and **fly in a** safe manner.

GOOD LUCK AND GREAT FLYING!

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 hom; 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.

NOTES

Date Purchased: Where Purchased:

Date Assembly Started: Date Assembly Finished:

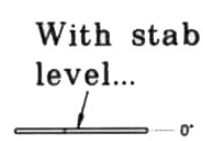
Finished Ready To Fly Weight: 8 Digit Code on Box End:

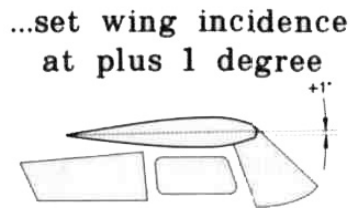
General Notes:

PROCEDURE FOR CHECKING THE WING INCIDENCE

(See Page 24)

1. Block up the fuselage until the stabilizer (or stab bed) is perfectly **level** (use a small bubble level).





2. With the fuselage level, use an incidence meter to check the wing angle. The wing must be set at **1 degree positive.** Adjust the wing trailing edge up or down until this reading is achieved. (If you do not have access to an incidence meter, try setting the wing angle so the center of the leading edge is 3/16" higher than the center of the trailing edge)

PARTS LIST

PART #	QTY.	DESCRIPTION
ITEMS PACKED INDIVIDUALLY		
DE40F37	1	Balsa 3/32 X 3 X 32 Fuse Bottom Sheeting
CANPY042	1	Clear Windshield
CANPY043	1	Die Cut Clear Cabin Windows
DE40D01	1	Full Color Decal Sheet
DE40F15	1	Ply 1/4 x 4-17/32 x 4-1/2 Firewall
DE40F35	1	1-Piece ABS Cowl
DE40P01	1	Fuselage and Trim Plan
DE40P02	1	Wing Plan
DE40P03	1	Instruction Book
DE40S06	2	Balsa 1/4 Shaped Elevator
DE40W06	8	Balsa 3/32 X 3 X 8-7/8 Wing Center Sheeting
DE40W09	1	Package of Ten 3/32 Balsa Shear Webs
L-3U	1	Aluminum Main Landing Gear
MM40U	1	.40-Size Engine Mount
PLTB002	2	Plastic Outer Pushrod Tube
WIRES17	3	Threaded Pushrod Wire (36")
WPNT009	1	ABS Wheel Pant Set
SUB-PACK LONG WING PARTS (DE40A01)		
DE40W03	1	Balsa Pre-Shaped Leading and Trailing Edges
DE40W04	4	Balsa 3/8 x 3/8 x 32 Spar
DE40W05	4	Balsa 3/32 x 1-1/4 x 32 Trailing Edge Sheet
DE40W07	2	Balsa Tapered Aileron
DE40W18	6	Balsa 3/32 x 1/4 x 30 Cap Strip
DE40W19	4	Balsa 3/32 x 2-5/8 x 30 Wing Leading Edge Sheet
SUB-PACK LONG STICKS (DE40A02)		
DE40F23	2	Balsa Triangle 1/2 X 36
DE40F31	1	Balsa 3/16 X 3/16 X 24 Stringer
DE40S01	2	Balsa 1/4 x 3/4 x 36 Stab, Fin and Rudder Frame
DE40S03	2	Balsa 1/4 x 1/2 x 30 Stab, Fin and Rudder Brace
DE40W14	2	Balsa 5/16 x 3/4 x 24 Front Wing Strut
DE40W15	2	Balsa 1/4 x 5/8 x 24 Rear Wing Strut
DE40W16	1	Balsa 1/8 x 3/4 x 32 Trailing Edge Jig

PART #	QTY.	DESCRIPTION
SUB-PACK SHORT STICKS (DE40A03)		
DE40F22	1	Balsa 1/4 x 1/2 x 14-7/8 Fuselage Cross Brace
DE40F24	1	Balsa Triangle 3/8 x 9-7/8
DE40F25	1	Balsa Triangle 3/4 x 8-7/8
DE40S02	1	Balsa 1/4 x 1 x 17-7/8 Stab Trailing Edge
SUB-PACK SHORT SHEETS (DE40A04)		
DE40F26	1	Balsa 3/32 x 2-5/8 x 13-1/8 Fuse Top Rear Sheeting
DE40F29	1	Balsa 1/16 x 3 x 7-7/8 Fuse Top Front Sheeting
DE40F30	1	Balsa 3/32 x 3 x 8-7/8 Fuse Bottom Front Sheet
DE40W10	2	Balsa 1/4 x 1-3/4 x 11 Wing Tip
SUB-PACK SMALL BALSA PARTS (DE40A05)		
DE40F20	1	Balsa 2-1/2" Tapered Tail Post
DE40F21	1	Balsa 1/8 x 2-1/2 x 4-17/32 Fuel Tank Base
DE40F28	1	Balsa 3/16 x 3/16 x 3-1/4 Top Nose Stringer
DE40F36	1	Balsa Tapered Filler (At F2D)
DE40S04	1	Balsa 1/4 Shaped Stab Tie
DE40S05	1	Balsa 1/4 x 2-11/32 x 2-1/2 Stab Center
DE40S07	1	Balsa 1/4 Shaped Rudder Bottom
DE40W08	2	Balsa Grooved Center Trailing Edge 3-1/2
DE40W13	2	Balsa 1/4 x 1-3/4 x 2-1/2 Center Nose Filler
DE40W17	3	Balsa 1/2 x 1/2 x 2 Dihedral Block
SUB-PACK PLYWOOD PARTS (DE40A06)		
DE40F14	1	Ply 1/4 Shaped Wing Hold-Down Plate
DE40F16	1	Ply 1/4 x 2-1/16 x 2-9/16 2-Cycle Firewall
DE40F17	2	Ply 1/4 x 13/32 x 2-1/16 Firewall Box Top & Bottom
DE40F18	2	Ply 1/4 x 21/32 x 2-9/16 Firewall Box Sides
DE40F19	1	Ply 1/4 Shaped Main Landing Gear Mount

PARTS LIST (Cont.)

PART #	QTY.	DESCRIPTION
DE40F27	2	Ply 3/16 x 1/2 x 4-3/4 Servo Rail
DE40F32	1	Basswood 1/8 x 5/32 x 4 Firewall Spacer
DE40F33	2	Ply 1/16 x 1 x 1 Wheel Pants Plate
DE40W11	1	Ply 1/16 x 3-1/2 x 1-1/2 Wing Bolt Plate
DOWEL032	2	1/4 x 1-1/4 Hardwood Dowel

SUB-PACK DIE-CUT PARTS (DE40A07)

DE40F01	2	DC Balsa 1/8 Upper Fuse Side
DE40F03	2	DC Balsa 1/8 Lower Fuse Side
DE40F08	1	DC Balsa 1/8 Stab Supports

SUB-PACK DIE-CUT PARTS (DE40A08)

DE40F02	2	DC Balsa 1/8 Aft Fuse Side, Stringers
DE40F13	1	DC Balsa 1/8 F6, F7, F7T
DE40W01	2	DC Balsa 3/32 W1, W2 Wing Ribs
DE40W02	9	DC Balsa 3/32 W3 Wing Ribs

SUB-PACK DIE-CUT PLY PARTS (DE40A09)

DE40F04	2	DC Ply 1/8 Cabin Sides, Wing Saddle, Strut Plates
DE40F09	1	DC Ply 1/8 F4, F4T, F5, F5T
DE40F10	1	DC Ply 1/8 Stab Base, F2B, F2C, F2D, F3B, Dowel Plate

SUB-PACK DIE-CUT PLY PARTS (DE40A10)

DE40F06	2	DC Ply 1/8 Fuselage Side Doubler
DE40F07	1	DC Ply 1/8 Fuse Bottom, Dihedral Gauge, Fuse Top, F3
DE40F11	1	DC Ply 1/8 F1B, F2, F2T, F6T, Dash
DE40F12	2	DC Ply 1/8 F1T, Dihedral Brace

PART #	QTY.	DESCRIPTION

SUB-PACK HARDWARE (DE40M01)

GLTP001	1	Fiberglass Tape 1 x 8 (Wheel Pants Reinforcement)
GLTP005	1	Fiberglass Tape 3 x 20 (Wing Center Reinforcement)
WIRES16	2	Threaded Pushrod Wire (12")
DE40M02	1	Small Hardware Bag (Contents Listed Below)

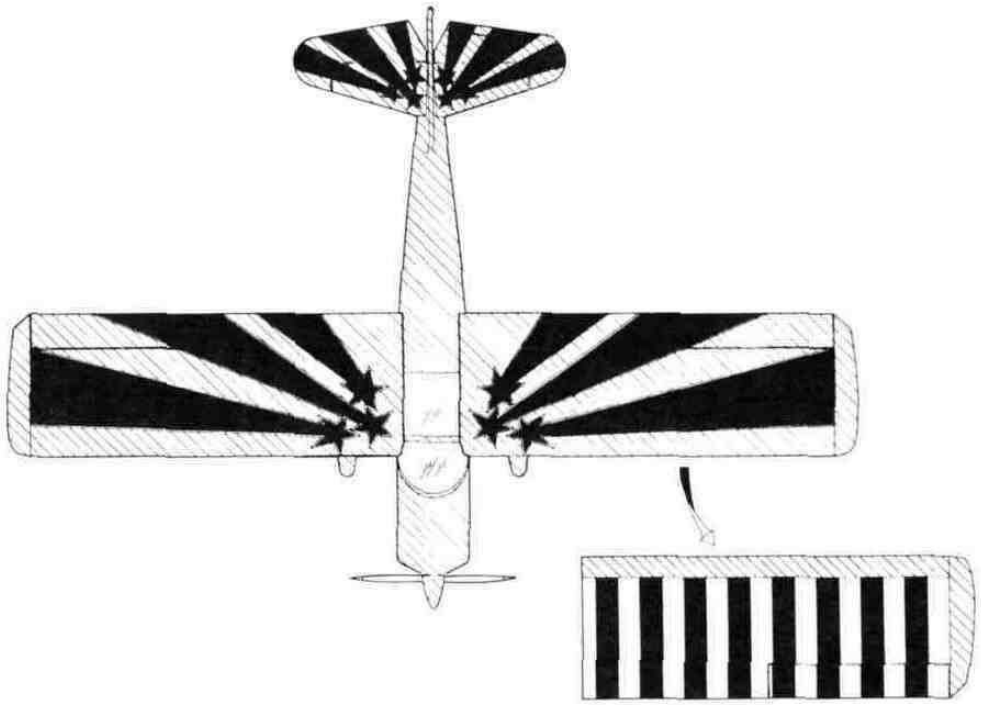
SUB-PACK SMALL HARDWARE (DE40M02)

NUTS003	4	6-32 Blind Nut
NUTS014	6	8-32 Hex Nut
NYLON02	2	Nylon Control Horn
NYLON09	2	Nylon Hinges (12 per Tree)
NYLON13	2	Nylon 1/4-20 x 2 Wing Bolt
NYLON17	3	Nylon Clevis
NYLON20	2	Nylon Aileron Clevis Connector
NYLON21	2	Nylon Aileron Clevis
NYLON36	2	Nylon Wing Strut Strap (4 per Tree)
PLTB004	1	Plastic Inner Pushrod Tube 6-3/8
SCRW002	4	2-56 x 5/8 Machine Screw
SCRW043	14	#4 x 3/8 Sheet Metal Screw
SCRW024	6	#2 x 3/8 Sheet Metal Screw
SCRW029	4	#8 x 1/2 Sheet Metal Screw
SCRW033	4	6-32 x 3/4 Machine Screw
SCRW035	2	8-32 x 1-1/2 Socket Head Cap Screw
SCRW018	4	#6 x 3/4 Sheet Metal Screw
WBNT002	1	Aileron Torque Rod Set
WBNT128	1	3/32 Tail Gear Wire & Bearing
WBNT145	1	1/8" Wire Elevator Joiner
WSHR011	4	#8 Flat Washer

IMPORTANT

Please check your kit against this parts list and immediately let us know if any parts are missing or damaged and we will correct the problem right away. Extra parts may also be ordered using the part numbers above.

GREAT PLANES MODEL MANUFACTURING
P.O. Box 788
Urbana, IL 61801
(217) 398-8970

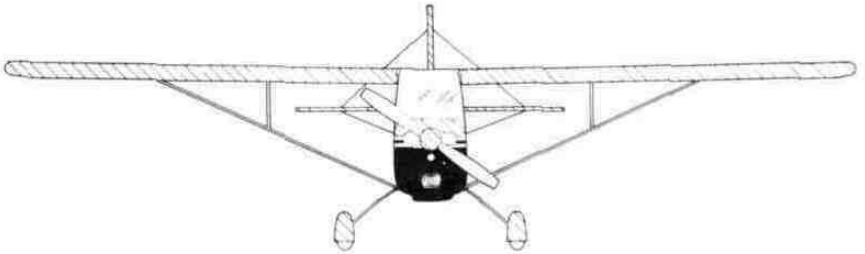


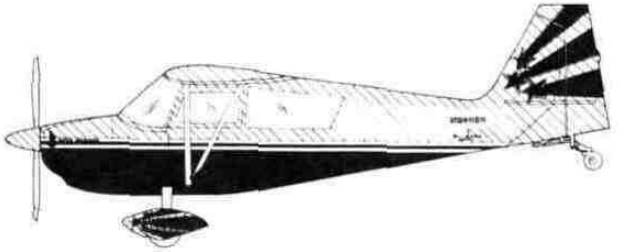
COLOR 1 CHOICE
COLOR 2 CHOICE
COLOR 3 CHOICE

3-view drawing of full-size Super Decathlon (unmodified), provided by American Champion Aircraft, Rochester, WI.

Pete Myers' modifications are listed in the instructions and shown on the plan. The major differences between Pete's airplane and the 3-view are:

1. "Clipped wing tips".
2. Trim on the bottom of the wing is the same as the top.
3. The wheel pants are trimmed with "Pete Myers*' (on the Right pant) and "'PETE" (upside down on the left pant).





BELLANCA SUPER DECATHLON