Dynaflite™

Talon™

•Hand-launch sailplane for thermal or slope flying
•Flat wing with ailerons for ultimate maneuverability
•Rugged, lightweight balsa/ply construction
•Optional V-tail version

READ THROUGH THE PRELIMINARY INFORMATION BEFORE YOU START BUILDING. IT CONTAINS IMPORTANT INSTRUCTIONS, WARNINGS, AND INFORMATION CONCERNING THE BUILDING AND USE OF THIS MODEL.

Instruction Manual

WARRANTY

Dynaflite guarantees this kit to be free from defects in both material and workmanship at the date of purchase. This warranty does not cover any component parts damaged by use or modification. In no case shall Dynaflite's liability exceed the original cost of the purchased kit. Further, Dynaflite reserves the right to change or modify this warranty without notice. In that Dynaflite has no control over the final assembly or material used for final assembly, no liability shall be assumed nor accepted for any damage resulting from the use by the user of the final user-assembled product. By the act of using the user-assembled product, the user accepts all resulting liability. **If the buyer is not prepared to accept the liability associated with the use of this product, return this kit immediately in new and unused condition to the place of purchase.**

MADE IN USA

TALNP02 Printed in USA

TABLE OF CONTENTS

INTRODUCTION

Congratulations and thank you for purchasing the Dynaflite Talon. While the Talon is not necessarily an advanced glider, it is intended for modelers with some previous R/C building and flying experience. Due to its flat wing and relatively thin airfoil, the Talon is quite maneuverable and penetrates well, so it is at home either on the slopes or the breezy planes. The unique fuselage construction yields an interesting triangular cross section that builds rapidly and is pleasing to look at. This instruction manual also shows you how to build both the conventional straight-tail version or the V-tail version. We hope you enjoy building and flying your Dynaflite Talon!

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

Your Talon is not a toy, but a sophisticated working model that functions like a full-size sailplane.

Because of its performance, if you do not assemble and operate the Talon correctly, you could possibly injure yourself or spectators and damage property.

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

You can also contact the national Academy of Model Aeronautics (AMA), which has more than 2,500 chartered clubs across the country. We recommend you join the AMA which will provide you with insurance coverage at AMA club sites and events. AMA Membership is required at chartered club fields where qualified flight instructors are available. Contact the AMA at the address or toll-free phone number next page.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
Tele. (800) 435-9262
Fax (765) 741-0057
Or via the Internet at:
http://www.modelaircraft.org

AMA
SINCE 1936

PRECAUTIONS

1. You must assemble the model according to the 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 the written instructions are correct.

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

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

4. You must test the operation of the model before every flight to ensure that all equipment is operating, and that the model has remained structurally sound. Check clevises or other connectors frequently and replace them if they show signs of wear or fatigue.

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

Please inspect all parts carefully before you start to build! If any parts are missing, broken or defective, or if you have any questions about building or flying this model, please call us at (217) 398-8970 and we'll be glad to help. If you call 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 you call.We can also be reached by E-Mail at:

productsupport@dynaflite.com

PREPARATIONS

REQUIRED ACCESSORIES

This is a list of the "hardware" items you will need to complete your kit. Order numbers in parentheses (OSMG2691) are provided for your convenience and are recognized by distributors and hobby shops. **GPM** is the Great Planes® brand, **TOP** is the Top Flite® brand and **HCA** is the Hobbico® brand.

- ❑ 2-Channel Aircraft Radio System with 2 micro servos and mini battery pack (250 mAh)
- ❑ 1 Roll Top Flite EconoKote® covering
- ❑ 2 Great Planes 24" Flexible Cable Pushrods (GPMQ3700)
- ❑ Great Planes Double-Sided Foam Tape (GPMQ4442)

REQUIRED BUILDING SUPPLIES AND TOOLS

These are the building tools and supplies that you will need to build your Talon. We recommend Great Planes **Pro**™ CA and Epoxy

- ❑ 1 oz. Thin CA (GPMR6002)
- ❑ 1 oz. Medium CA+ (GPMR6008)
- ❑ CA Applicator Tips (HCAR3780)
- ❑ CA Accelerator (GPMR6035)
- ❑ 30-Minute Pro Epoxy (GPMR6047)
- ❑ #1 Hobby Knife (HCAR0100)
- ❑ #11 Blades (Qty. 5 – HCAR0211)
- ❑ Razor Plane (MASR1510)
- ❑ Small T-pins (HCAR5100)
- ❑ Great Planes Plan Protector (GPMR6167)
- ❑ Electric Drill
- ❑ Drill Bits: 1/16", 7/64" (or 3/32"), #25 (or 5/32"), 3/16", #12 (or 3/16")
- ❑ #1 Phillips Screwdriver
- ❑ Top Flite Covering Iron (TOPR2100)
- ❑ Hot Sock™ (for your covering iron, TOPR2175)
- ❑ Denatured or Isopropyl Alcohol (for epoxy clean-up)
- ❑ HobbyLite™ Balsa Filler (HCAR3401)
- ❑ Lead/Acid or Silver Solder (GPMR8070)
- ❑ Bar Sander or Sanding Block and Sandpaper (coarse, medium grit)
- ❑ 10-32 Tap

A flat, durable, easy to handle sanding tool is a necessity for building model airplanes. Great Planes makes a complete range of Easy-Touch™ Bar Sanders and replaceable Easy-Touch Adhesive-backed Sandpaper.

Here's a complete list of Easy-Touch Bar Sanders and Adhesive Backed Sandpaper:

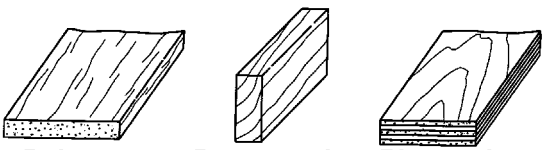
5-1/2" Bar Sander (GPMR6169)
11" Bar Sander (GPMR6170)
22" Bar Sander (GPMR6172)
33" Bar Sander (GPMR6174)
44" Bar Sander (GPMR6176)
11" Contour Multi-Sander (GPMR6190)
12' roll of Adhesive-backed 80-grit sandpaper (GPMR6180)
150-grit (GPMR6183)
220-grit (GPMR6185)
Assortment pack of 5-1/2" strips (GPMR6189)

BUILDING NOTES

- When you see the term **"test fit"** in the instructions, it means you should first position the part on the assembly **without using any glue**, then slightly modify or "custom fit" the part as necessary for the best fit.

- Whenever just **"epoxy"** is specified you may use ***either*** 30-minute epoxy ***or*** 6-minute epoxy. When 30-minute epoxy is **specified**, it is **highly recommended** that you use only 30-minute (or slower) epoxy because you will need either the working time and/or the additional strength.

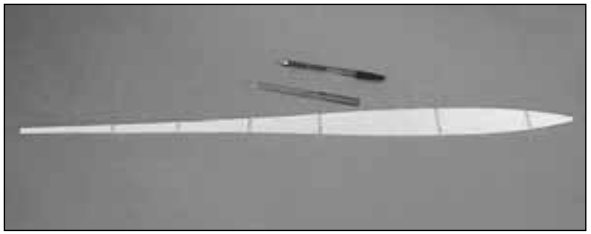
TYPES OF WOOD



BUILD THE FUSELAGE

JOIN THE UPPER FUSELAGE SIDES

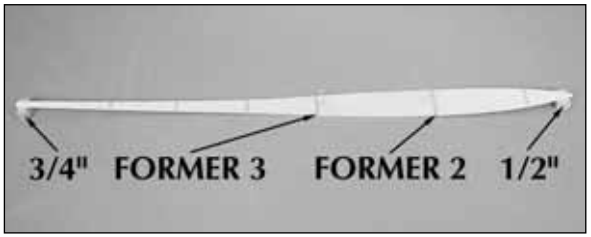
❑ 1. Unroll the plan sheet. Tightly roll it the other way so it will lie flat.



❑ 2. Place the die-cut 3/16" balsa **fuse bottom** over the top view of the plan and mark the location of formers 1 through 6 using a straightedge and a ballpoint pen.

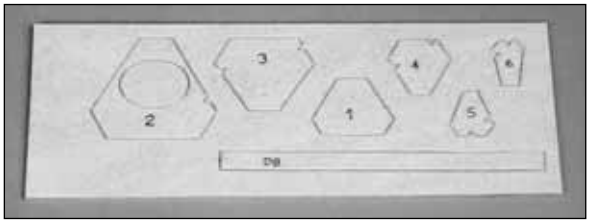
Note: If some of the parts are difficult to remove from their die sheets, don't force them out but cut around them with a hobby knife and a #11 blade. After you remove the parts, lightly sand the edges to remove slivers or die-cutting irregularities. Save some of the larger scraps of wood as you proceed.

❑ 3. Position the plan so the top view of the fuse is over a **flat** building board that you can stick pins into. Cover the top view of the fuse with Great Planes Plan Protector or wax paper.

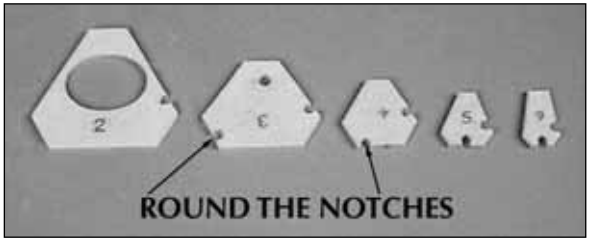


(For clarity, this photo shows the fuse bottom off the plan, but yours should be pinned to your building board over the plan as instructed in this step.)

❑ 4. Accurately position the fuse bottom over its location on the plan and pin it down **only** between formers 2 and 3. Raise the front of the fuse 1/2" and the rear of the fuse 3/4" using the 1/2" x 3/4" x 2" balsa block cut into two pieces.

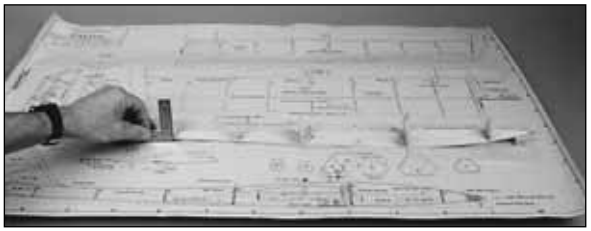


❑ 5. Use a ballpoint pen to label the die-cut 1/8" plywood **formers** and **dihedral brace (DB)** as indicated in the photo. Remove the parts from the die sheet.



❑ 6. Drill a 3/16" hole through former 3 at the punchmark. Use a small, round file or a rotary tool to round the "V" notches in formers 3 through 6 to accommodate the 1/8" pushrod guide tube (not included) and the antenna guide tube (not included).

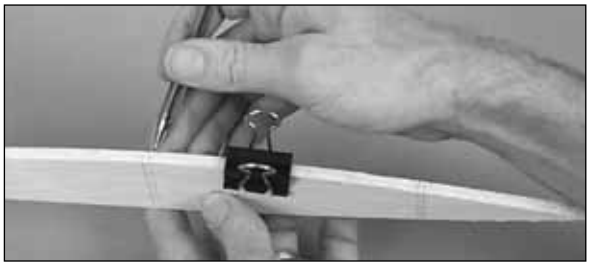
❑ 7. Drill a 3/16" hole through the center of former 1. After your Talon is completed, this will allow you to add lead shot to the compartment in the front of the fuse for ballast or to adjust the C.G.



❑ 8. **Lightly** spray the fuse bottom with CA accelerator over the lines indicating the location of the formers. Making certain the notches in the

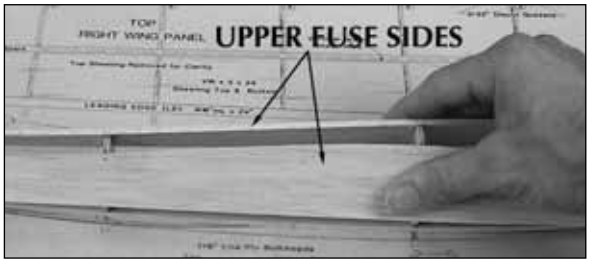
sides of the formers are on the **left side** of the fuse, glue the formers to the fuse bottom with thin CA. As you proceed, use a small building square to keep the formers perpendicular to your building board.

❑ 9. Position one of the die-cut 3/16" balsa **upper fuse sides** over the side view of the fuse plan, aligning the front where indicated on the plan. Mark the location of formers 2 and 3 on the fuse side with a straightedge and a ballpoint pen. This is now the **left** fuse side.

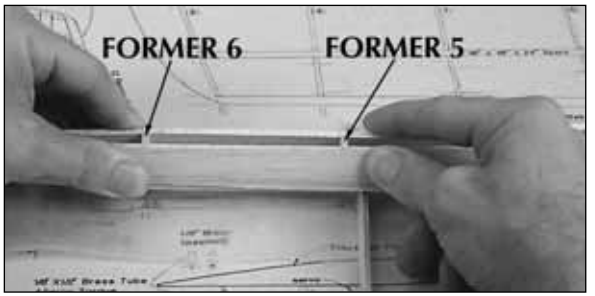


❑ 10. Transfer the lines from the left fuse side to the right fuse side.

❑ 11. Securely pin the 1/2" x 3/4" x 1" balsa blocks at the front and back of the fuse to the plan. Making sure the fuse remains aligned with the plan, pin the front and back of the fuse bottom to the blocks.



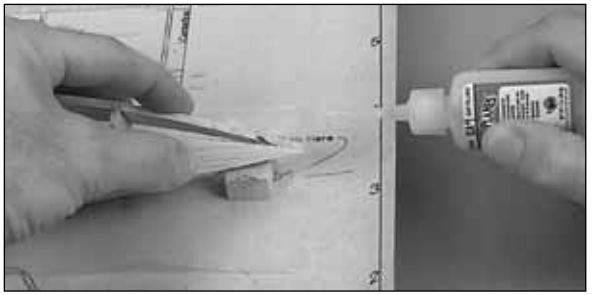
❑ 12. Position both upper fuse sides on the fuse assembly, aligning the marks you made with formers 2 and 3.



❑ 13. Temporarily hold the upper fuse sides to formers 2 and 3 with T-pins. Pull the aft end of the upper fuse sides to formers 5 and 6 and check alignment. Adjust the position of the upper fuse sides on formers 2 and 3 until they align near the aft end when you pull them to formers 5 and 6.

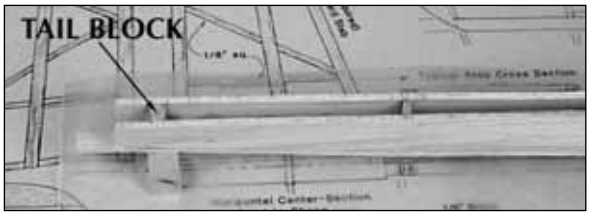
❑ 14. When you have achieved the alignment described in the preceding step, use thin or medium CA to glue the upper fuse sides **only** to formers 2 and 3.

❑ 15. Carefully checking alignment as you proceed, use thin or medium CA to glue the upper fuse sides to formers 4, 5 and 6.



❑ 16. Pull the upper fuse sides to each other and to the fuse bottom. Use medium CA to glue the upper fuse sides to the fuse bottom and to former 1. Refrain from gluing the fuse to the balsa block. But, if you do, it's no problem because you can just break the balsa block free and sand later.

❑ 17. From the 1/8" x 1/4" x 24" balsa stick, cut three 3/4" long pieces and glue them together to make the **tail block**. Cut a 1/8" round notch in one side of the tail block to accommodate the antenna guide tube.



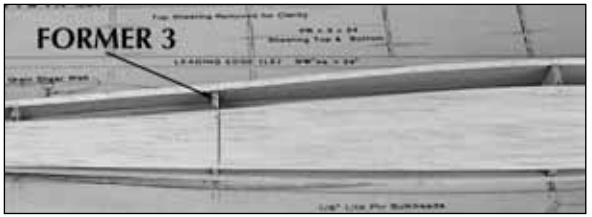
❑ 18. Position the tail block between the upper fuse sides 4" aft of former 6. Make sure the notch in the tail block is on the left side and glue it in place.

FINISH FRAMING THE FUSELAGE

❑ 1. Cut the outer guide tube from a Great Planes 24" Flexible Cable Pushrod (not included with this kit, GPMQ3700) to a length of 17" to be used for the elevator. Roughen the outside of the guide tube with sandpaper so glue will stick. Slide the pushrod through the bottom holes in formers 3 through 6 as shown in the side view of the fuse plan.

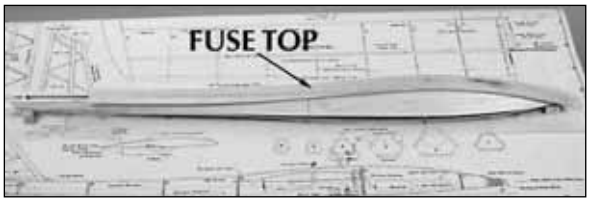
❑ 2. Roughen the outer guide tube from an additional Great Planes 24" Flexible Cable Pushrod kit and slide it through the holes in the sides of formers 2 through 6. This is the **antenna guide tube**.

❑ 3. Glue both guide tubes in position with medium CA.



❑ 4. Use a straightedge and a ballpoint pen to mark the front edge of former 3 on both upper fuse sides.

❑ 5. Use a razor plane and/or a bar sander and 80-grit sandpaper to sand the top edge of the upper fuse sides as shown in the cross section drawings on the plan. The top edges of the upper fuse sides must be even with the tops of the formers to accommodate the fuse top.

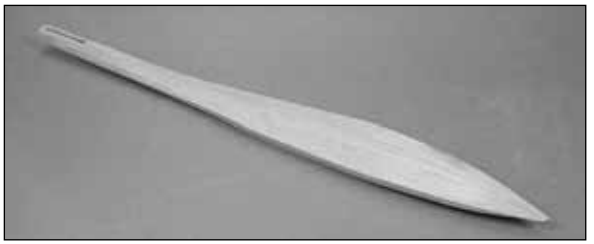


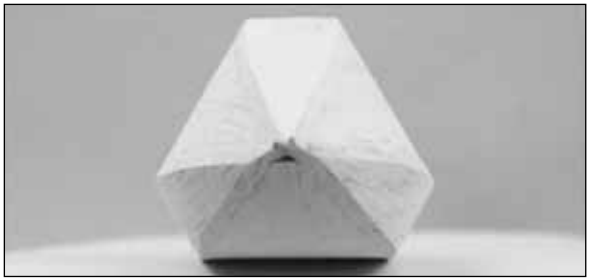
❑ 6. Glue the 1/8" x 1-1/4" x 30" balsa **fuse top** to the fuse with medium or thick CA. The aft edge of the fuse top should extend 1/2" aft of former 6.

❑ 7. Use a hemostat or small needle nose pliers to remove the T-pins from the fuse bottom that are holding it to your building board. You should be able to reach the T-pins through the space between the upper fuse sides and the fuse bottom. Remove the fuse from your building board.

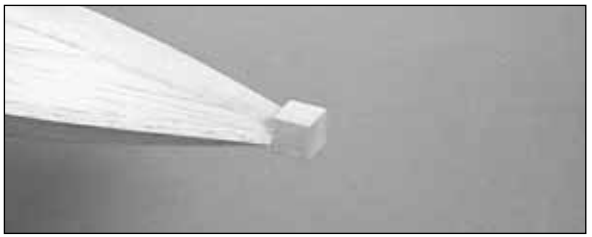
❑ 8. Trim the edges of the upper fuse sides and the fuse bottom even with the formers to accommodate the lower fuse sides, the same way you did for the fuse top.

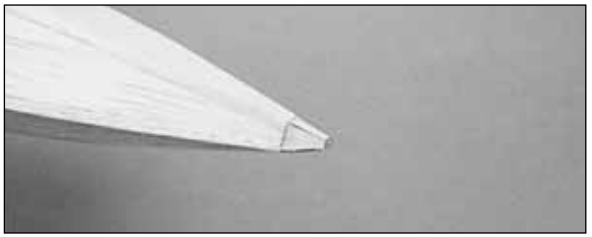
❑ 9. Glue one, then the other die-cut 1/8" balsa **lower fuse side** to the fuse. Handle the fuse carefully as you position so you do not build in any *twist* to the fuselage.





❑ 10. Use your razor plane and/or your bar sander to sand the lower fuse sides even with the upper fuse sides and the fuse bottom. Trim all sheeting even with the tail block.

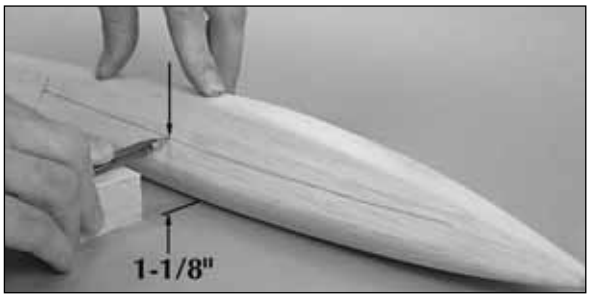




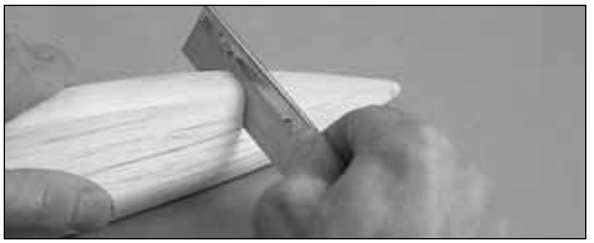
❑ 11. Cut the front of the fuse until the 1/2" x 1/2" x 1/2" hardwood **nose block** will fit. Glue the nose block to the fuse, then carve and sand it to the shape shown on the plan. Note that the grain direction of the nose block runs **parallel** with the length of the fuse.

❑ 12. Use your bar sander and progressively finer grades of sandpaper to round the edges of the fuse as shown in the cross section drawings on the plan.

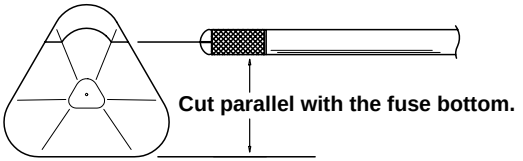
MAKE THE HATCH



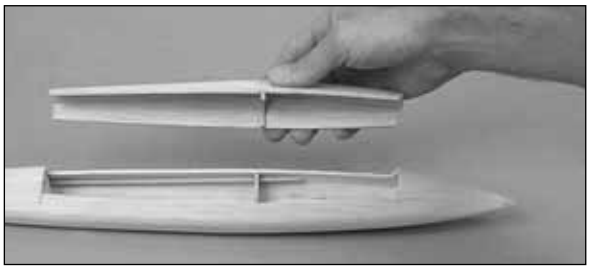
❑ 1. Use a balsa block or something similar to support a ballpoint pen so the tip will be 1-1/8" above your building table. Mark the bottom of the hatch on both sides of the fuse extending from the lines you marked earlier 11" forward. As you proceed, press down on the fuselage over the area where the bottom is flat as shown in the photo.



❑ 2. Use a razor saw to cut the aft end of the hatch along the lines you previously marked. Cut the front of the hatch at an angle 11" from the aft end of the hatch.



❑ 3. Use a fresh #11 blade to cut the bottom of the hatch along the lines you marked on both sides of the fuselage. Note how the knife in the photo is inserted at an angle, allowing the tip of the blade to trail behind. This provides more stability, allowing **you** to steer the blade, **not** the wood grain. Also note that the cut should be parallel with the **bottom** of the fuse.

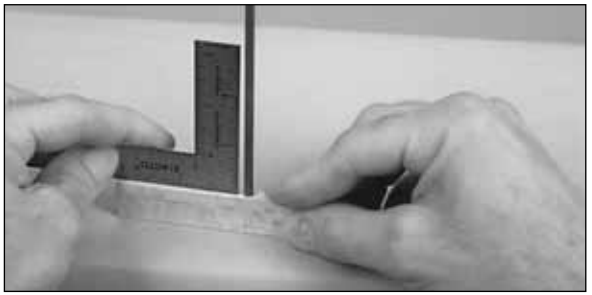


❑ 4. Use a fine razor saw to cut former 2 as shown in the cross section on the plan so you can remove the hatch. *Neato!*

BUILD THE TAIL SURFACES

MAKE THE STAB MOUNT

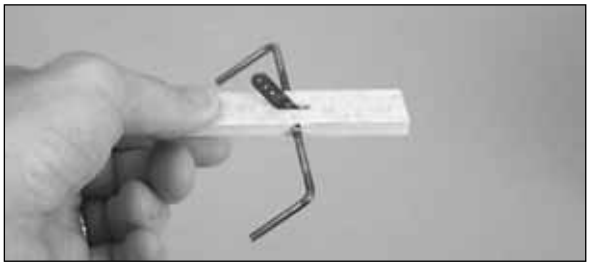
❑ 1. From the 1/8" x 3/4" x 8" balsa stick, cut two 4" long **stab mounts**.



❑ 2. Cut a 5/32" *half-round* groove 2-1/4" from one end of both stab mounts as shown on the cross section of the plan. As you can see on the plan, when joined together, the stab mounts will hold the stab joiner wire in position. **Hint:** Use a 5/32" brass tube sharpened at one end to cut the hole. Pinch the two stab mounts together and twist the brass tube as you push it through. As you proceed, use a small square to help you guide the tube straight through.

❑ 3. Cut notches in both stab mounts to accommodate the horn on the joiner wire. Round both ends of the notches (use your sharpened brass tube for the ends of the notches).

❑ 4. Use steel wool, sandpaper or a wire brush to remove corrosion and clean the solder joint holding the horn to pre-bent **stab joiner wire**. If necessary, use a small file to true up the solder joint so both brass bushings can slide up close to the horn.

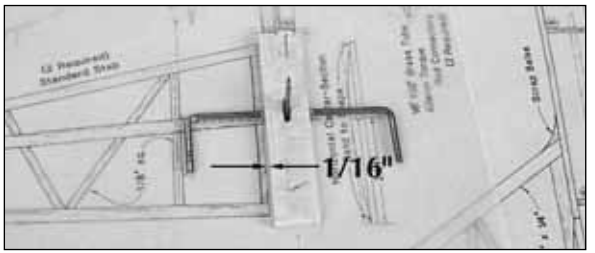


❑ 5. Test fit the joiner wire between the stab mounts. Make sure you have made your notches wide enough and long enough so the horn does not interfere and so you can get enough elevator throw.

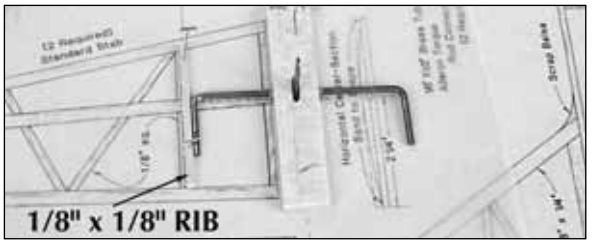
BUILD THE STAB

You may build either a conventional *straight-tail* stab and fin or a *V-tail* stab, whichever you prefer. The instructions show you how to build both versions. Most of the photos show the conventional tail, but there are photos of the V-tail where necessary.

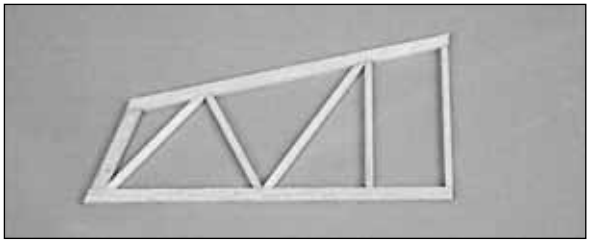
❑ 1. Position the plan so the stab is over your building board, then cover it with Great Planes Plan Protector or wax paper.



❑ ❑ 2. Pin the stab mount/joiner wire assembly over the location shown on the plan so the left edge of the balsa stab mount is 1/16" from the edge of the stab drawing.

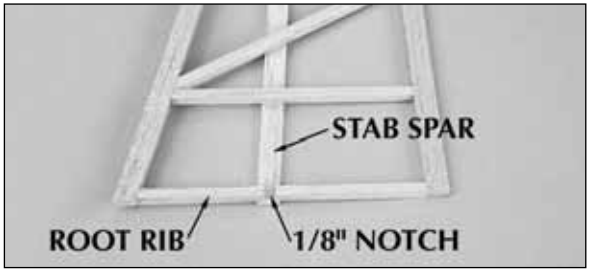


❑ ❑ 3. Note the location of the *arm* portion of the joiner wire. This determines the **true** location of the 1/8" x 1/8" balsa *rib*—not necessarily where it is shown on the plan. *(You can see in the photo how the rib on our model needed to be moved inward a bit).* Cut the rib from a 1/8" x 1/8" x 24" balsa stick and pin it to the plan so it is contacting the arm of the joiner wire.

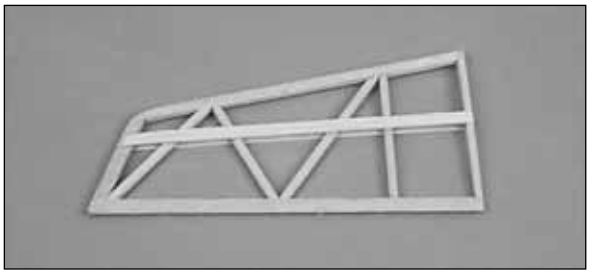


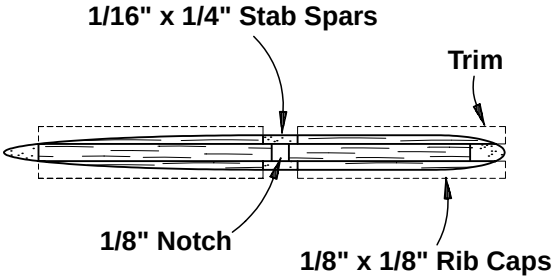
❑ ❑ 4. Remove the stab mount/joiner wire assembly from the plan and finish building the stab using the remainder of the 1/8" x 1/4" x 24" balsa stick and an 1/8" x 1/8" x 24" balsa stick.

❑ ❑ 5. Remove the assembly from the plan and **carefully** sand both sides flat, smooth and even. Be careful not to weaken the structure by sanding it too thin. Round the tips, LE and TE.

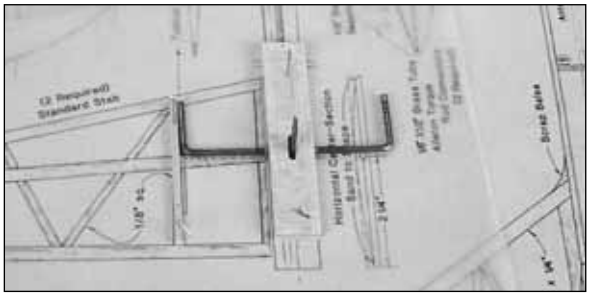


❑ ❑ 6. Cut a **stab spar** from the 1/16" x 1/4" x 36" balsa stick, then glue it to one side of the stab where shown on the plan. Turn the stab half over and cut an 1/8" notch in the 1/8" x 1/8" *root rib* to accommodate the elevator joiner wire.

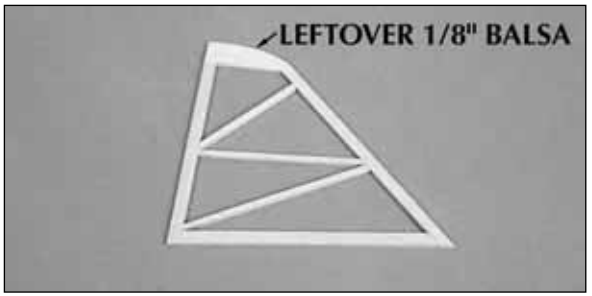




❑ ❑ 7. Glue an additional 1/16" x 1/4" balsa stab spar to the other side of the stab the same as the first. Use the remainder of your 1/8" x 1/8" x 24" balsa stick to make the **rib caps** that fit on the front and back of the stab spars on the top and bottom of the stab. Blend the rib caps and the tip of both stab spars to the stab by sanding.

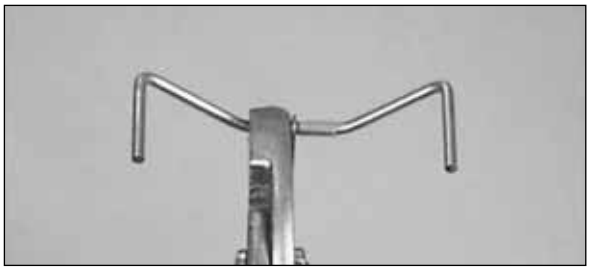


❑ 8. Return to step 2 and build the other stab half the same way. When you position the edge of the stab mount/joiner wire 1/16" from the end of the stab, you'll have to turn it around so you get the correct spacing for the **other side** of the joiner.



❑ 9. If you're building the conventional straight-tail, build the fin using the 1/8" x 1/8" balsa sticks and the 1/8" x 1/4" balsa sticks leftover from building the stab halves. Use leftover 1/8" balsa to make the tip of the fin.

PREPARE THE STAB AND FIN FOR JOINING TO THE FUSE

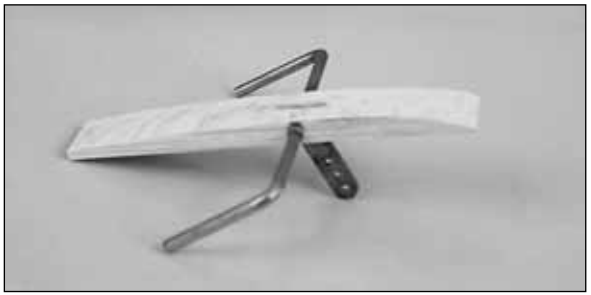


❑ 1. If you're building the V-tail version, bend the joiner wire as shown on the plan. When you bend the wire, clamp your pliers over the brass bearing tube next to the **horn**. Hold the joiner wire over the plan to make sure you have bent both sides the same.

❑ 2. Use sandpaper to roughen both brass bearing tubes on the joiner wire so glue will adhere. While you're at it, roughen the joiner wire where it will be glued to the elevators.

❑ 3. Carefully add a small drop of oil to the joiner wire on both sides of the horn to lubricate the bearing tubes. Refrain from getting oil on the outside of the bearing tubes.

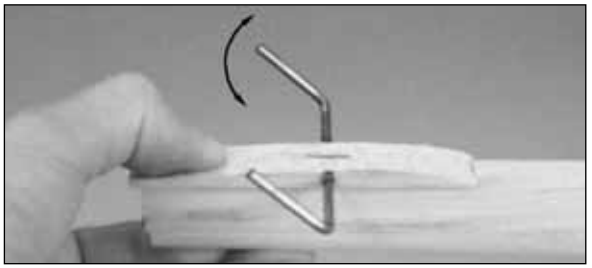
❑ 4. Glue the balsa stab mounts together with the joiner wire in between. Make sure you have the joiner wire facing the right way and make sure you glue the bearing tubes to the mounts, but refrain from getting glue inside the bearing tubes.



❑ 5. Sand the top of the stab mount to the airfoil shape shown on the plan.

❑ 6. Test fit both stab halves to the joiner wire and the stab mount. Position the stab halves so they are centered on the stab mount and are even with each other. View the stab from the rear and make sure they are both in the same plane. If necessary, remove the stab halves and use pliers to *tweak* the joiner wire so both stabs are even.

❑ 7. Remove the stab halves from the joiner wire. Solder a **metal clevis** to the braided wire elevator pushrod cable that came in your pushrod kit.



❑ 8. Connect the clevis to the bottom hole on the joiner wire. Slip the cable through the elevator pushrod guide tube in the fuse and position **but do not glue** the stab mount on the fuse as shown in the photo and on the plan. Move the cable back and forth to actuate the joiner wire. Make adjustments as necessary so the system operates smoothly.

That's about all we can do on the tail and the fuse until we get the wing built. Set the stab and fuse aside for now.

BUILD THE WING

BUILD ONE WING PANEL

Do the right one first so yours looks like the photos.

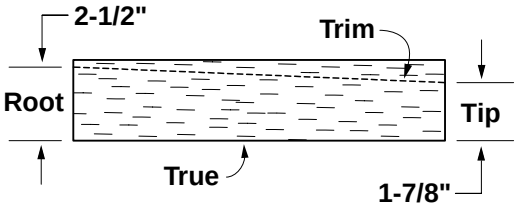
❑ ❑ 1. Use a ballpoint pen to draw a **guideline** 3/32" from the bottom of one of the 5/16" x 1-1/4" x 24" balsa **ailerons**. This guideline indicates the desired thickness of the trailing edge of the aileron. As shown in the photo, the guideline can be most easily drawn by laying your pen and the aileron on your workbench. You may have to raise the aileron off your workbench to make the guideline at the correct height. With the pen we used, it happened that one of the included 1/16" balsa sheets worked perfectly for this.

❑ ❑ 2. Using the line you drew as a guide, **carefully** shape the aileron to the cross section shown on the wing plan. We prefer a razor plane followed by a bar sander with 80-grit sandpaper for this job.

How'd you do? It wasn't so bad, was it?

❑ 3. Before we get started on the *real* wing construction, mark and shape the other aileron the same way.

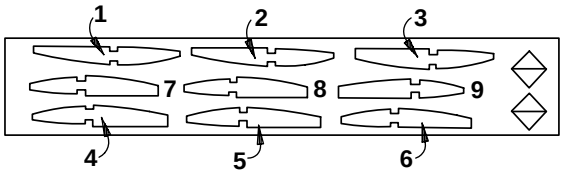
❑ ❑ 4. Arrange the plan so the right wing panel is over your building board and cover it with Great Planes Plan Protector. **Note:** If this is your **second** wing panel, make sure you are building the **left** one.



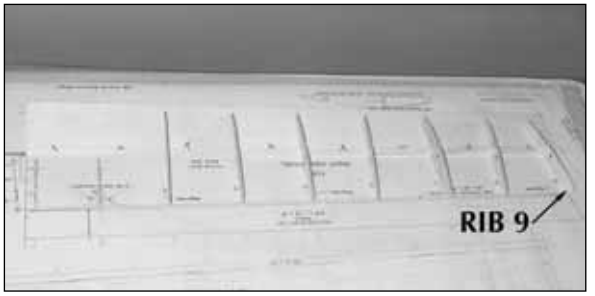
❑ ❑ 5. Use a fresh #11 blade and a straightedge to true one edge of a 1/16" x 3" x 24" balsa sheet. Trim the other edge of the sheet as indicated in the sketch. From now on this sheet will be called the **bottom leading edge skin**.

❑ ❑ 6. Glue a 1/8" x 1/4" x 24" balsa **spar** to the top of the bottom leading edge skin along the edge you trued (the aft edge).

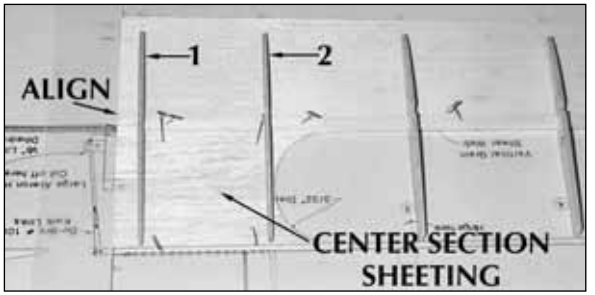
❑ ❑ 7. Accurately align the root and the aft edge of the bottom leading edge skin with the plan and pin it down.



❑ ❑ 8. Label both sets of die-cut 3/32" **wing ribs** as shown in the sketch and carefully remove them from their die sheets. If any of the ribs are difficult to remove, cut around them first. Remove any die-cutting irregularities or slivers with a hobby knife or sandpaper.

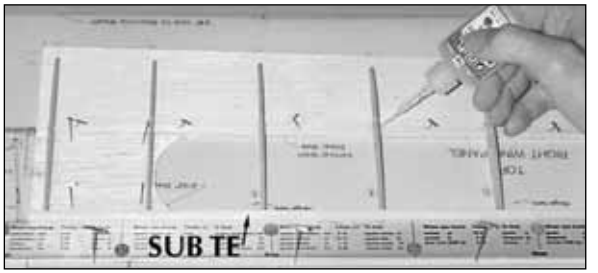


❑ ❑ 9. Place ribs 3 through 9 on the bottom spar. If necessary, trim the notch in rib 9 so it will fit the bottom spar at the angle on the plan.



❑ ❑ 10. Cut the bottom **center section sheeting** from a 1/16" x 3" x 24" balsa sheet (if you're building your second wing panel—the left one—use the remainder of the same 1/16" x 3" x 24" piece you used when you built the right wing panel). Accurately align the edge of the sheet with the end of the wing where shown on the plan and pin it in position. Place ribs 1 & 2 over the sheeting where shown on the plan.

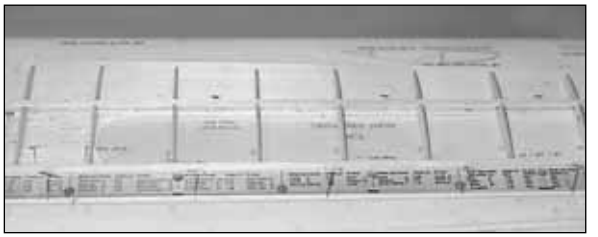
❑ ❑ 11. Place the 1/8" x 3/8" x 24" balsa **sub trailing edge (TE)** up against the ribs over its location on the plan. Pin a straightedge to the plan tightly up against the sub TE to hold it in position. Trim any ribs as necessary to make sure the sub TE will remain straight.



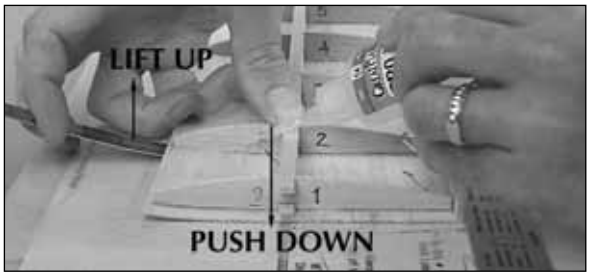
❑ ❑ 12. One at a time, glue ribs 3 through 9 to the sub trailing edge and the bottom spar. As you proceed, make **certain** the sub TE and the ribs are contacting your building board.

❑ ❑ 13. Use a straightedge to align ribs 1 & 2 with the *tick marks* on the plan. Then glue them to the bottom center section sheeting, the bottom spar and the sub trailing edge. Glue the center section sheeting to the leading edge skin and the sub trailing edge.

❑ ❑ 14. Using the same 1/16" sheet you used for the bottom center section sheeting, cut four **shear webs** to fit between ribs 2 through 6. Test fit, then glue the shear webs between the ribs. Make certain that the shear webs are the correct height so they will contact the top spar, yet allow the top spar to **fully** seat in the notches of the ribs.



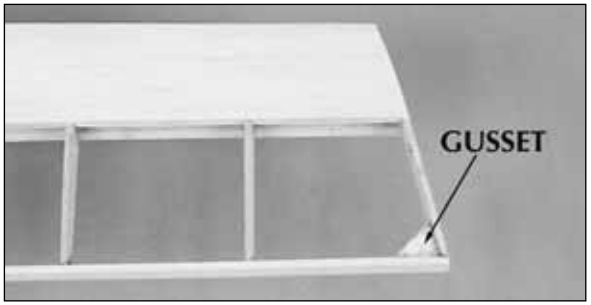
❑ ❑ 15. Test fit, then glue a 1/18" x 1/4" x 24" **top spar** to the ribs and the shear webs. Note that the top of the spar should be even with the tops of ribs 1 and 2 to accommodate the top center section sheeting.



❑ ❑ 16. One rib at a time, simultaneously ***lift up*** on the bottom LE skin at each rib as you ***push down*** on the rib. Add a few drops of thin CA to glue the skin to the rib. **Hint:** Use a thin metal ruler or something similar as a *pry bar* to lift the skin to the rib.

❑ ❑ 17. Trim another 1/16" x 3" x 24" balsa sheet as described in step 5 to make a **top leading edge skin**.

❑ ❑ 18. Reposition any T-pins in the bottom spar that will be concealed when you position the top leading edge skin and the top center section sheeting. Apply a bead of medium or thick CA **to the top spar only** and glue the top leading edge skin in position.



(For clarity, the wing panel is not shown on the building board in this photo, but yours should still be pinned down).

❑ ❑ 19. Glue a die-cut 3/32" balsa **gusset** to both sides of rib 2 and the sub trailing edge. Glue an additional gusset to rib 9 and the sub trailing edge. This gusset is not shown on the plan and you'll have to trim it to fit.

❑ ❑ 20. Sheet the top of the center section using the same 1/16" x 3" balsa sheet you used for the shear webs and the bottom center section.

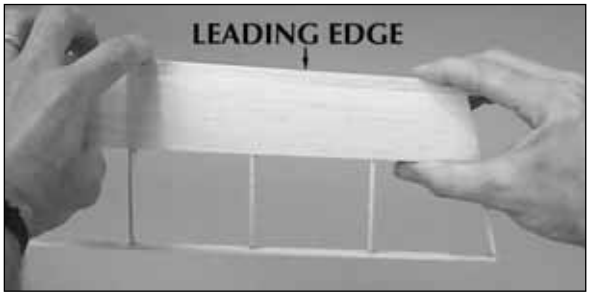
❑ ❑ 21. Lightly wet the top leading edge skin with Windex™ or water, then remove the T-pins and lift the wing panel from your building board.

❑ ❑ 22. Use thin CA to glue the top skin to the ribs. Do one rib at a time holding the top skin down until the glue hardens.

FINISH THE WING PANEL

❑ ❑ 1. Use a razor plane followed by a bar sander with 80-grit sandpaper to trim both LE skins even with the front of the ribs.

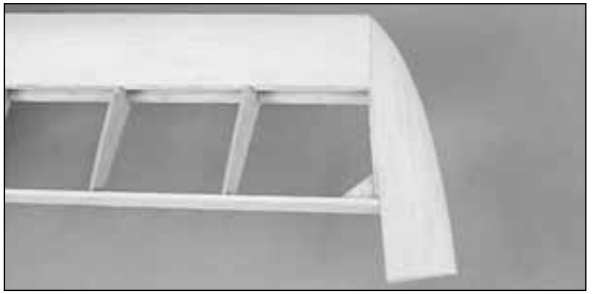
❑ ❑ 2. Trim the end of the wing skins and the spars even with rib 9.

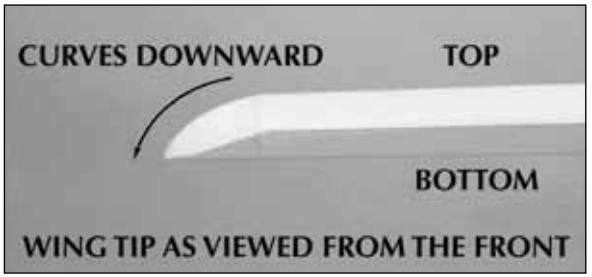


❑ ❑ 3. Glue the 5/16" x 5/16" x 24" balsa **leading edge** to the wing. We did it one half at a time by applying a bead of medium CA to the LE skins from the middle of the wing outward, then holding the LE in position for a few moments until the CA cures. Lift the other end of the LE from the wing and apply another bead of CA to the skins from the middle of the wing outward in the other direction and hold the LE to the wing. Another method would be to use aliphatic resin such as Great Planes Pro and hold the LE to the

wing with masking tape until the glue dries (about an hour should be sufficient).

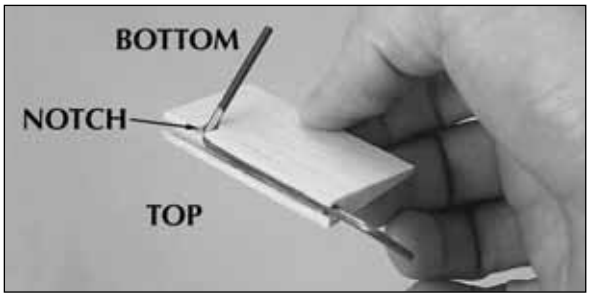
❑ ❑ 4. Use your razor plane followed by a bar sander with 80-grit sandpaper to blend the LE to the top and bottom skins. **Do not** round the LE until you are instructed to do so after you join the two halves together.



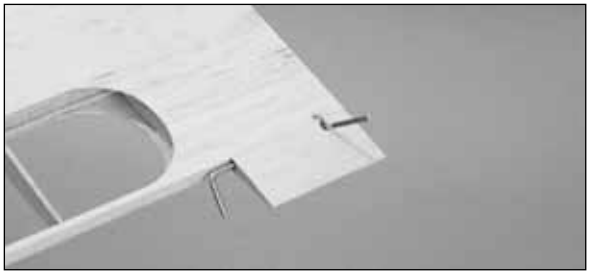


❑ ❑ 5. Glue a shaped triangular balsa **wing tip block** to the end of the wing. Note that the flat side of the tip block is on the bottom of the wing so the tip curves **downward**. Carve, then sand the wing tip block to match the shape of the wing and the plan.

❑ ❑ 6. Cut 2-1/2" from one of the ailerons you shaped earlier to make an **aileron torque rod block**. Cut a 5/32" groove through the center of the leading edge of the block to accommodate the nylon **bearing tube** on the **right aileron torque rod**. **Hint:** Use a 5/32" brass tube sharpened at one end to cut the groove.



❑ ❑ 7. Test fit the pre-bent wire **right aileron torque rod** (or the **left aileron torque rod** if this is your second time through and you are building the **left** wing panel) in the torque rod block. If necessary, enlarge the groove you cut so the torque rod will fit all the way in. Cut a notch in the **bottom** of the torque rod block to allow for control throw.

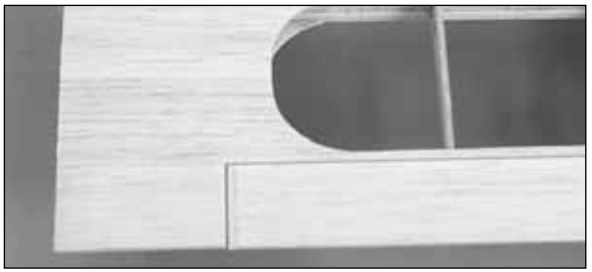


❑ ❑ 8. Cut a notch in the sub trailing edge of the wing panel (the same as the notch in the torque rod block) to allow for control throw. Roughen the nylon bearing tube on the aileron torque rod with coarse sandpaper. Apply a dab of petroleum jelly *(not marmalade)* to the ends of the bearing tube. Use thick or medium CA to simultaneously glue the bearing tube in the torque block and glue the torque block to the sub trailing edge of the wing. Note that the **bottom** of the torque block should be even with the **bottom** of the wing.

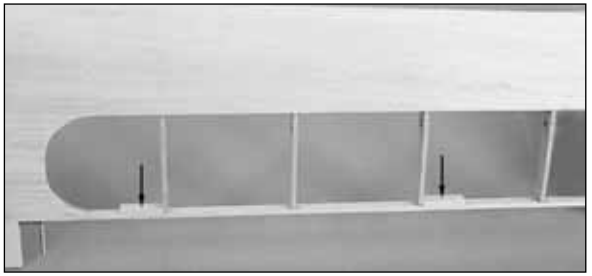
❑ ❑ 9. Use a bar sander with 80-grit sandpaper to sand the end of the wing square and even.

❑ ❑ 10. Trim the tip of the aileron to match the angle of the wing tip. Test fit the aileron to the wing. If necessary, glue leftover balsa to the tips of the aileron to achieve adequate spacing

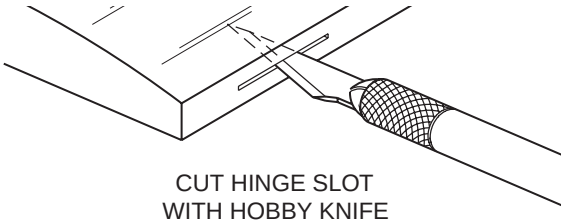
between the tips of the aileron and the wing. We recommend a 1/16" gap at both ends.



❑ ❑ 11. Cut a groove and drill a 7/64" (or 3/32") hole in the leading edge of the aileron to accommodate the aileron torque rod. Test fit the aileron to the wing.



❑ ❑ 12. Cut three 1/8" x 5/16" x 1" **hinge blocks** from leftover 1/8" balsa and glue them to the front of the sub trailing edge where the hinges are shown on the plan. The hinge blocks are not shown on the plan but you can see two of them in the photo.



CUT HINGE SLOT
WITH HOBBY KNIFE
AND #11 BLADE

❑ ❑ 13. Mark the location of the hinges on the wing and the aileron, then cut the hinge slots with a #11 blade.

❑ ❑ 14. Cut three **hinges** from the CA hinge strip and test fit the aileron to the wing with the hinges.

❑ ❑ 15. If necessary, shape the TE of the wing tip and the top of the sub trailing edge to match the aileron.

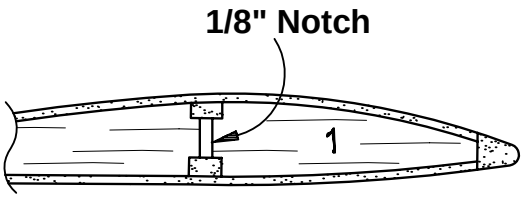
❑ ❑ 16. Remove the aileron from the wing. Use a razor plane or a hobby knife followed by a bar sander with 80-grit sandpaper to shape the leading edge of the aileron to a "V" to allow for control movement.

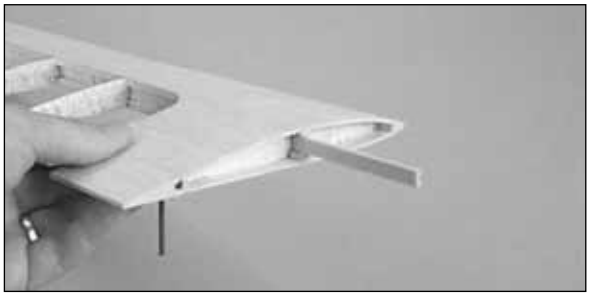
❑ ❑ 17. Temporarily join the aileron to the wing. Operate the aileron by moving the aileron torque rod back and forth. Make sure you have enough throw and make sure everything operates smoothly. Make adjustments as necessary.

*That's about all we can do on this wing until we join the other wing, so return to step 4 on page 12 and build the **Left** wing panel. Make sure you build a **LEFT** wing panel **not** a right wing panel!*

JOIN THE WING

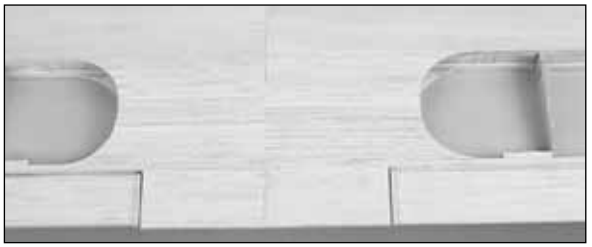
You may build your wing *flat* or with dihedral. If you build the wing flat your Talon will have more maneuverability. If you build your wing with dihedral your Talon will have more stability. The wing joiner included with the kit is for a **flat** wing. If you wish to build in dihedral, make your own dihedral brace from 1/8" plywood (not supplied) using the sketch on page 24 and raise **both** tips 3/8" from your workbench when it's time to join the wing.





❑ 1. Cut a 1/8" notch in rib 1 of both wing panels between the top and bottom spar to accommodate the die-cut 1/8" plywood **wing joiner** (or your homemade joiner if you are building in dihedral). Test fit the joiner in one wing half, then the other. Sand the joiner and adjust the notch in the ribs as necessary for a good fit.

Perform step 2 only if you are building your wing flat.



❑ 2. Test join the wing halves with the wing joiner. Lay your wing flat on your workbench so the aileron torque rods are over the edge. If necessary, use your bar sander and 80-grit sandpaper to sand the ends of the wing for a good fit.

Perform step 3 only if you are building your wing with dihedral.

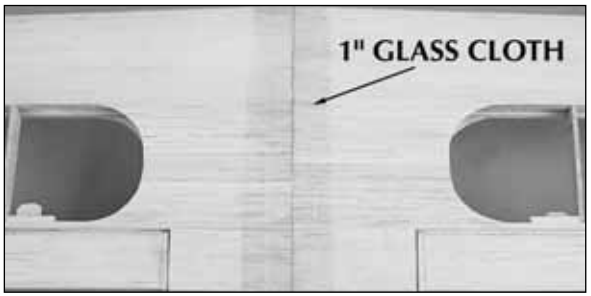
❑ 3. Test join your wing halves with your homemade wing joiner. Use your bar sander to sand the ends of the wing as necessary so they will fit at the correct angle.

❑ 4. Use a piece of wire or something similar to **thoroughly** apply 30-minute epoxy to the spars inside one wing half and to the top and bottom edges of one half of the wing joiner. Slide the joiner into the wing between the spars. Be certain the joiner is centered between the spars. Wipe away excess epoxy and allow the assembly to cure.

❑ 5. Lay a piece of Great Planes Plan Protector on your workbench. After the epoxy from the previous step has fully cured, apply 30-minute epoxy to the spars inside the other wing half, the top and bottom of the other end of the joiner and to the sheeting on the end of both wing halves. Proceed quickly to the next step.

❑ 6. Join both wing halves and wipe away excess epoxy. Lay your wing on the plan protector on your workbench. If you are building your wing flat, place weights on top of your wing to keep it from moving and to hold it down. If you are building your wing with dihedral, use balsa blocks or something similar to raise both wing tips 3/8". Make sure the trailing and leading edges align. Do not disturb your wing until the epoxy has fully cured.

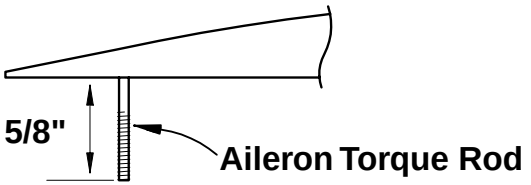
❑ 7. Lightly sand the center section of your wing to blend the two halves together. Finish rounding the leading edge as shown in the cross section on the plan.



❑ 8. Glue the 1" x 14" strip of **glass cloth** over the seam between the two wing halves. You may use

CA but we prefer 30-minute epoxy. Whatever adhesive you use, just make sure the cloth is thoroughly saturated and is securely bonded to the sheeting.

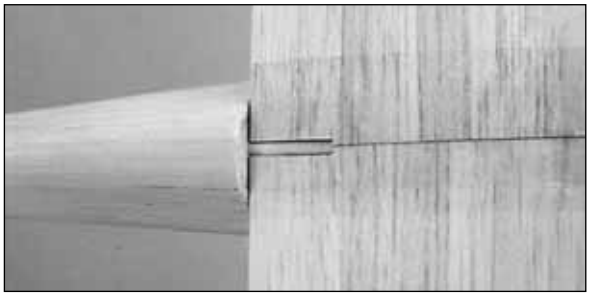
MOUNT THE WING TO THE FUSE



❏ 1. Cut both aileron torque rods to a length of 5/8".

❏ 2. Round one end of the 3/16" x 1-1/2" **wing dowel**. Test fit the dowel into the hole you drilled in former 3. If necessary, use a round wood file or a small tube wrapped with sandpaper to enlarge the hole so the dowel fits easily but snugly.

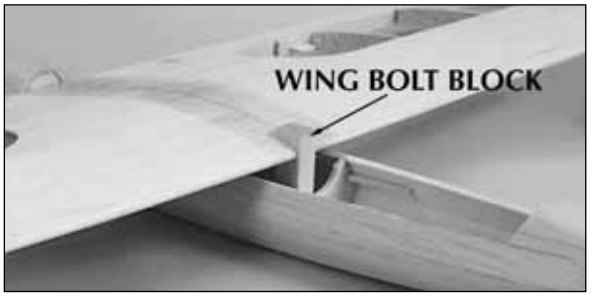
❏ 3. Cut a 3/16" notch in the center of the TE of the wing to accommodate the dowel. The aft, rounded end of the dowel should protrude from the TE of the wing 5/16".



❏ 4. Fit the wing to the fuselage using the dowel. Make adjustments where necessary for a good fit.

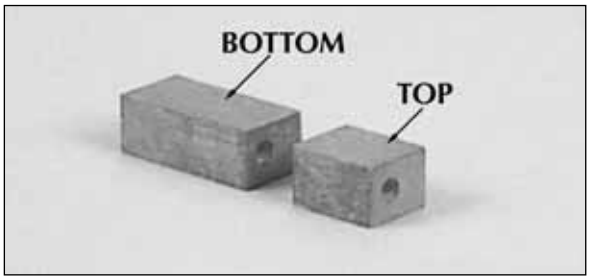
❏ 5. With the wing on the fuselage, apply a small amount of epoxy over the dowel to glue it to the wing. For additional strength, add some Great Planes Milled Fiberglass to the epoxy. Be careful so you don't glue the dowel to the fuse.

❏ 6. After the epoxy from the previous step has fully cured, remove the wing. Glue the dowel to the bottom of the wing with more epoxy.

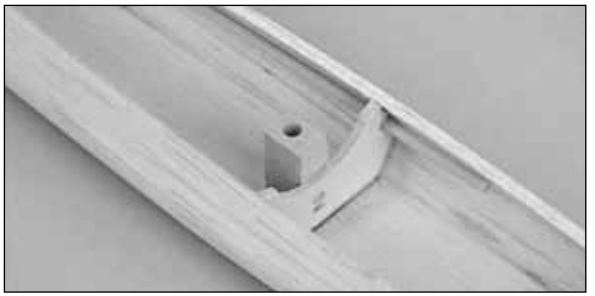


❏ 7. Similar to the way you did the trailing edge of the wing, notch the leading edge of the wing to accommodate the 3/8" x 1/2" x 1-3/4" **wing bolt block** when it is in position against the aft edge of former 2. Test fit the wing with the wing bolt block.

❏ 8. Remove the wing bolt block and drill a #25 (or 5/32") hole through the block as shown on the plan. If you have access to one, use a drill press to keep the hole on center as you drill, or just proceed carefully and use your *eagle eye* to drill straight through.



❏ 9. Cut 11/16" from the top of the wing bolt block. You now have a **bottom** and a **top** wing bolt block.



❑ 10. Securely glue the bottom wing bolt block to the aft edge of former 2 and the bottom of the fuse. Enlarge the hole in the bottom wing bolt block and drill through the bottom of the fuse with a #12 (or 3/16") drill bit.

❑ 11. Tap threads into the top wing bolt block with a 10-24 tap. Coat the threads with thin CA. Allow to fully cure (you may use a little CA accelerator), then re-tap the threads. Coat with thin CA and re-tap once more.

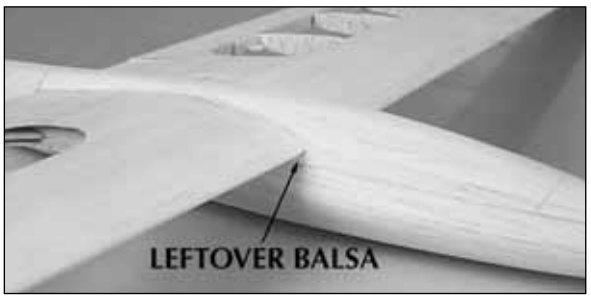
❑ 12. Secure the top wing bolt block to the bottom wing bolt block with the 10-32 x 2" nylon **wing bolt**. Position the wing on the fuselage with the top wing bolt block in the notch in the leading edge.

❑ 13. Check the wing alignment by accurately measuring the distance between both wing tips and the aft end of the fuse. If necessary, trim the notch in the LE of the wing for the wing bolt block and shift the wing until the distances between the tips and the aft end of the fuse are equalized.

❑ 14. Securely glue the wing to the top wing bolt with epoxy. For additional strength, add Milled Fiberglass Fibers to the epoxy. Build up a small fillet of epoxy around the top wing bolt block, but make sure you don't glue it to the bottom wing bolt block. Place a weight on top of the wing to hold it down until the epoxy fully cures.

❑ 15. Cut a small, round hole in the fuse bottom to *countersink* the head of the nylon wing bolt. **Hint:** Use a 13/32" brass tube sharpened at one end to cut the hole.

MOUNT THE HATCH



Refer to this photo while you mount the hatch to the wing.

❑ 1. Cut the end of the nylon wing bolt so it is even with the top of the top wing bolt block.

❑ 2. With the wing bolted to the fuselage, little by little carefully trim the hatch until it fits the wing. Proceed slowly and frequently test fit the hatch as you proceed.

❑ 3. Use thin or medium CA to carefully glue the hatch to the wing only. Remove the wing.

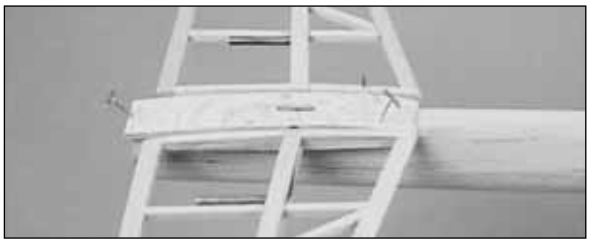
❑ 4. Use leftover 1/8" balsa to fill the space between the bottom of the wing near the LE and the fuse. Glue the leftover balsa pieces to the wing and shape them to fit the wing saddle on the fuse.

❑ 5. Use lightweight, sandable balsa filler where needed to blend the hatch to the wing. Do not build up a fillet, but use just enough filler to fill any gaps between the hatch and the wing. Then, yours will look as nice as ours (almost!)

MOUNT THE STAB AND FIN TO THE FUSE

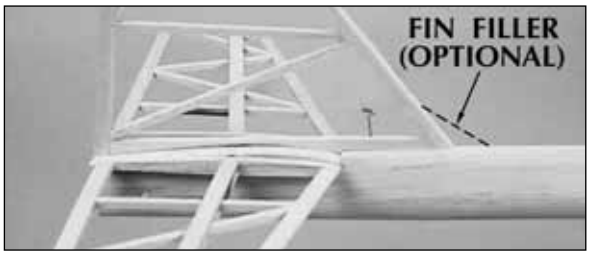
These following instructions apply to you V-tail builders, too.

❑ 1. Temporarily position the stab mount on the fuse with both stab halves. With the wing bolted to the fuse, view the model from the rear to make sure the stab aligns horizontally with the wing (it'll be a little trickier to see the V-tail stab alignment with the wing, but it's the same idea). If necessary, trim the stab saddle of the fuse to bring the stab into alignment with the wing.



❑ 2. After you have achieved the alignment described above, connect the elevator cable to the elevator joiner wire. Route the cable through the guide tube and securely glue the stab mount to the fuse with 30-minute epoxy. Hold the stab mount in position with T-pins until the epoxy is fully cured.

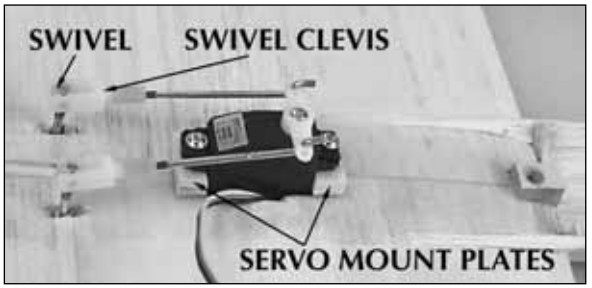
❑ 3. Sand the end of the stab mount and the fuse sheeting even with former 6.



❑ 4. If you're building the straight-tail, trim the bottom of the fin to fit the fuse and stab mount. Glue the fin in position. Make the small fin filler from leftover 1/8" balsa. Glue the **fin filler** to the front of the fin and the fuse top. Blend to the fin by sanding.

FINAL CONSTRUCTION

MOUNT THE SERVOS



Refer to this photo while you mount your aileron servo in the wing.

❑ 1. Cut a hole through the bottom wing sheeting to accommodate your aileron servo. Test fit your servo.

❑ 2. Make two **servo mount plates** from leftover 1/8" plywood. Glue the servo mount plates to the bottom of the wing. Mount your aileron servo to the plates with the wood screws that came with your servo.

❑ 3. Connect the aileron servo to the aileron torque rods with the nylon swivel and swivel clevis and two .074" x 4" wire pushrods. Cut the pushrods to the correct length and connect them to the servo horn with a Z-bend. If necessary, enlarge the holes in your servo horn with a hobby knife or a #48 drill.

Refer to this photo while you mount your elevator servo.

❑ 4. Make a one arm servo horn for your elevator servo by cutting off the unused arms. Connect the

servo horn to your elevator servo and secure it with the screw.

❑ 5. Position your elevator servo in the fuselage. Make **servo holders** for the elevator servo as shown on the plan from leftover 1/8" x 1/8" balsa and glue them to the fuse bottom.

❑ 6. Cut the elevator cable and the guide tube to the correct length, then solder a brass threaded coupler to the cable. Connect the threaded coupler to the elevator servo with a nylon clevis.

❑ 7. Mount the elevator servo to the fuse bottom with Great Planes Double-Sided Foam Tape (GPMQ4442, not included). For additional security, before mounting the servo, some modelers prefer to seal the wood grain in the area where the servo is to be mounted with a light coat of epoxy. After the epoxy cures, wipe with alcohol, then mount your elevator servo with the foam tape.

❑ 8. Secure the front end of the guide tube to the fuselage with a piece of leftover balsa.

COVER YOUR MODEL WITH TOP FLITE® ECONOKOTE® FILM

Follow these instructions. Most importantly, **do not** cover the stabilizer halves until **after** you have glued them to the joiner wire on the fuse. The instructions in this section provide the correct sequence.

❑ 1. Fill dents, scratches or low spots on your model with lightweight, sandable balsa filler. You can eliminate smaller dents or scratches by wetting the area which will cause the balsa to swell. Sand when dry.

❑ 2. Sand your entire model, finishing with 320 or 400-grit sandpaper.

❑ 3. Use compressed air or a paint brush to remove balsa dust.

❑ 4. Following the covering sequence below, cover your model with a low heat iron-on covering such as Top Flite EconoKote film. Regular iron-on films intended for larger models may shrink too much, damaging or warping your structure.

Fuse covering sequence

Fuse bottom
One fuse side, then the other
Vertical fin (if you've built the straight-tail version)
Sides of stab mount
Fuse top and stab mount

❑ 5. After you cover the fuse, glue the stab halves to the joiner wire with 30-minute epoxy. Before the epoxy cures, make sure the ends of the stab halves align with the stab mount. Wipe away excess epoxy before it cures.

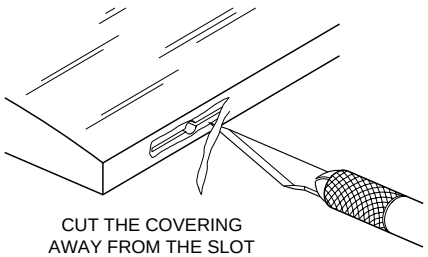
❑ 6. Cover the top and bottom of one stab half, then the other.

Wing covering sequence

Hatch sides, then top
Bottom, then top of one wing panel
Bottom, then top of other wing panel
Ailerons

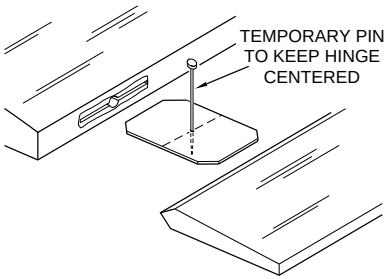
GET YOUR MODEL READY TO FLY

HINGE THE AILERONS



CUT THE COVERING
AWAY FROM THE SLOT

❑ ❑ 1. Use your hobby knife and a sharp #11 blade to remove a small strip of covering from the hinge slots of one of the ailerons and the matching half of the wing.



❑ ❑ 2. Join the aileron to the wing with the hinges. If you cannot get the hinges to remain centered, stick a pin through the center of the hinges and rejoin the aileron to the wing. Remove the pins after you join the aileron to the wing.

❑ ❑ 3. Make sure you have a small gap between the aileron and the wing so you do not inadvertently glue them together.

❑ ❑ 4. Carefully apply three drops of thin CA to both sides of the hinges. Use pieces of paper towel to absorb excess CA before it cures.

Do not use accelerator on any of the hinges. Do not glue the hinges with anything other than thin CA and do not attempt to glue one half of the hinge at a time with medium or thick CA. They will not be secure and the controls could separate while the model is flying.

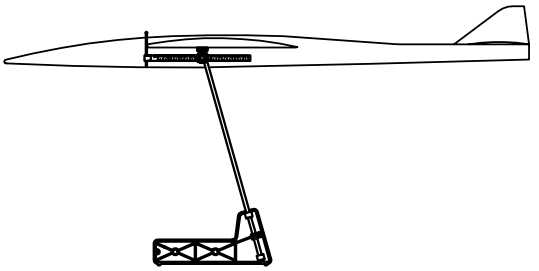
❑ ❑ 5. Let the CA fully cure, then carefully move the aileron up and down several times to break it in.

❑ 6. Hinge the other aileron the same way.

BALANCE THE MODEL

❑ 1. Mark the balance point on the bottom of the wing. The balance point is on the center of the spars where they meet both sides of the fuse **as shown on the plan**.

❑ 2. Temporarily position your receiver, battery pack and switch inside the fuselage. At this time all the rest of the components should be in your Talon and it should be ready to fly with the wing mounted to the fuse.



❑ 3. Lift your Talon at the balance point (or place it on a Great Planes C.G. Machine™). If the nose drops, the model is nose heavy. Instead of adding weight, shift the receiver and battery pack aft to achieve the correct C.G. If the tail drops, the model is tail heavy. Shift the receiver and battery pack forward to achieve the correct C.G. If possible, refrain from adding additional weight to balance your model in order to keep it as light as possible (*slope soarers* won't be too concerned about adding a little additional weight). If necessary, you can add additional weight later to change the flying characteristics, but for the first few flights we highly recommend you fly your Talon within the C.G. range shown on the plan.

MOUNT YOUR RECEIVER AND BATTERY

❑ 1. Mount your receiver and battery pack in the location you determined while balancing the model. The same as the elevator servo, you may mount your receiver and battery pack with double-sided foam tape, or wrap them with 1/4" R/C foam rubber and secure them with strips of wood.

❑ 2. Route your receiver antenna through the antenna tube in the fuselage.

❑ 3. Mount your on/off switch in a location that is easily accessible from the outside but will not interfere with anything inside the fuselage.

❑ 4. Recheck your C.G.

❑ 5. Lift the model by the tail and the nose several times noting which wing falls each time. Add stick on lead weight to the "lighter" wing tip until you can get the model to balance laterally.

SET THE CONTROL THROWS

Set your control throws as follows:

	High Rate	Low Rate
Ailerons:	1/2″ up 3/8″ down	3/8″ up 1/4″ down
Elevator:	3/4″ up/down	5/8″ up/down

PREFLIGHT

AT HOME

CHARGE YOUR BATTERIES

Follow the battery charging instructions in the manual that came with your radio control system. You should **always** charge your batteries the night before you fly and at other times recommended by the radio manufacturer. Remember to **adjust your charge rate** for smaller battery packs.

GROUND CHECK YOUR MODEL

Inspect all screws and connectors. **Make sure you install the screw that holds the servo arm onto the servos** and that the servo cords are securely connected to the receiver. Check the security of the hinges by lightly tugging on the control surfaces.

AT THE FLYING SITE

RANGE CHECK YOUR RADIO

Check the operational range of the radio before the first flight. **Before you turn your radio on, the first thing you always must do is make sure no one else is on your frequency (channel).** Most model flying fields utilize frequency control so familiarize yourself with their system. Collapse your transmitter antenna and turn on the transmitter, then the receiver (preferably the receiver should never be on by itself). You should be able to walk at least 100 feet away from the model and still have control. Have an assistant stand by your model and tell you what the control surfaces are doing while you operate them from the transmitter.

If the control surfaces do not always respond correctly, **don't fly!** Find and correct the problem first. Look for loose servo connections or corrosion, a defective on/off switch, low battery voltage or a defective cell, a damaged receiver antenna, or a receiver crystal that may have been damaged from a previous crash.

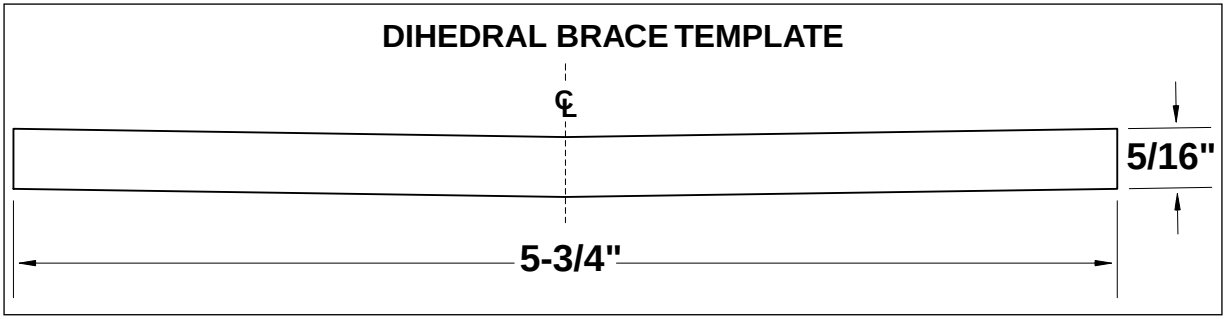
FLYING

Since the Talon is a model intended for modelers with previous R/C experience in slope soaring or hand launching, we will assume you already have the knowledge necessary to fly this model and won't go into great detail on flying. However, for those who may not be so experienced, here are some guidelines on how to get started...

The most important thing you can do to get your Talon flying well is to have it properly trimmed. The first step on your way to a properly trimmed model is to make sure you have set the C.G.

according to the instructions in this manual. After your model is *C.G.'d* correctly and ready to fly, take it out to your flying field. Turn your transmitter and receiver on and toss your Talon at a level attitude straight into the wind. Try to keep it on a straight glide path with the wings level as it descends to the ground. *How did you do?* If your Talon climbed rapidly and caught a ten minute thermal, well then what are you reading this for? However, if your Talon climbed rapidly, abruptly stalled, then landed, it may be tail heavy or may require some down elevator trim. If your Talon assumed a short glide path directly to the ground, it may be too nose heavy or require some up elevator trim. Adjust your elevator trim accordingly and try again. If you cannot establish a gentile glide path by adjusting the trims, remove the wing and relocate your receiver and/or battery pack in order to shift the C.G. as required. Make changes to the C.G. in **small increments** of no more than 1/8" or less.

Once you have your Talon trimmed and the C.G. is set, you're ready for the slopes!



Fill in the necessary information, then cut out this placard and place it inside of your model.

Dynaflite

THIS MODEL BELONGS TO:

NAME _____

ADDRESS _____

CITY _____

STATE _____ **ZIP** _____

PHONE # _____

AMA # / SFA # _____