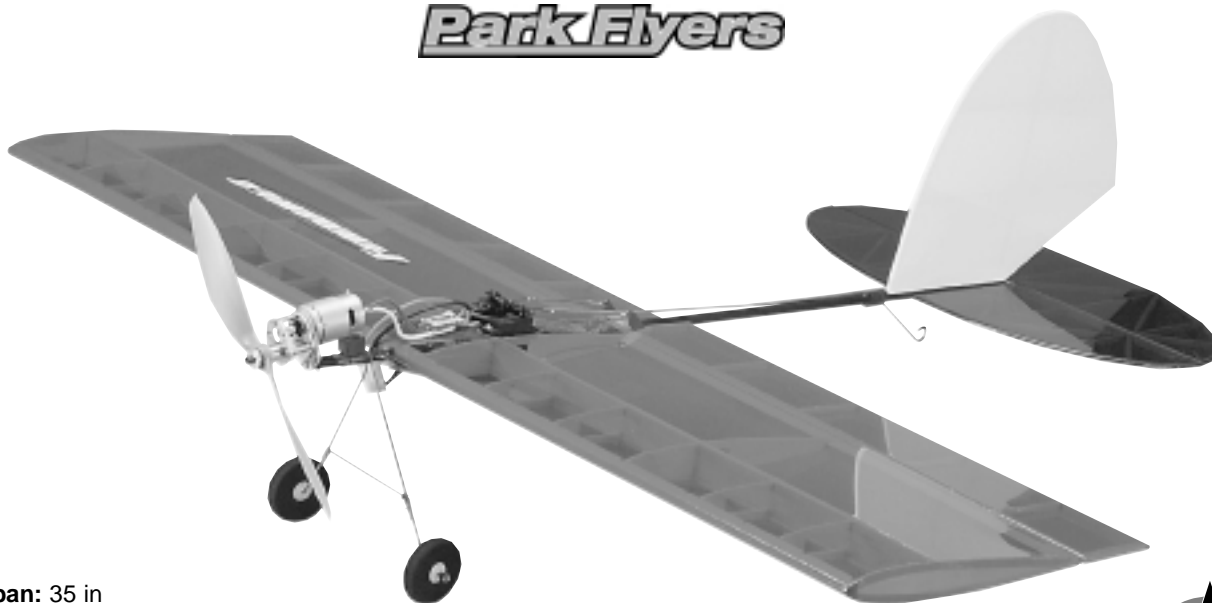# FUNDANGO™

INSTRUCTION MANUAL

Park Flyers

Wingspan: 35 in
Wing Area: 350 sq in
Weight (Ready to Fly): 13-16 oz
Wing Loading: 5.3-6.6 oz/sq ft
Fuselage Length: 30 in

MADE IN USA

WARRANTY

Great Planes Model Manufacturing Co. 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 Great Planes' liability exceed the original cost of the purchased kit.** Further, Great Planes reserves the right to change or modify this warranty without notice.

In that Great Planes 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 buyers are not prepared to accept the liability associated with the use of this product, they are advised to return this kit immediately in new and unused condition to the place of purchase.

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

GREAT PLANES®
MODEL MANUFACTURING COMPANY

P.O. Box 788   Urbana, IL 61801   (217) 398-8970
productsupport@greatplanes.com

TABLE OF CONTENTS

INTRODUCTION

The Fundango is a fun to fly, aerobatic electric airplane that can be flown in small spaces (see *Find a Safe Place to Fly* on page 23). Depending on your level of expertise, this plane can either be a slow "Park Flyer" or an aerobatic model capable of tight loops, inverted flight and fast rolls. Although the Fundango uses only ailerons and elevator, with practice you will be able to perform wing-overs and hammer-heads which traditionally require a rudder. The Fundango was not designed to look like a "real" airplane; instead it was designed for exceptional aerobatic performance and we think you'll agree that it meets this objective.

IMPORTANT: Though the Fundango is a small, lightweight model that is capable of flying slowly, due to its aerobatic design it is not intended for beginners. If you are new to R/C airplanes, do not attempt to learn to fly with the Fundango. You **MUST** learn to fly a trainer model first. Information about R/C clubs and instructors is provided later in this manual.

PROTECT YOUR MODEL, YOURSELF & OTHERS...FOLLOW THESE IMPORTANT SAFETY PRECAUTIONS

1. Even though the **Great Planes *Fundango*** is a small, lightweight model, if it is not assembled and operated correctly it could possibly cause injury to yourself or spectators and damage property.

2. 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 instructions may differ slightly from the photos. In those instances the plans and written instructions should be considered as correct.

3. Take time to build straight, true and strong.

4. Use an R/C radio system that is in first-class condition. The Fundango requires mini servos, a micro receiver and a micro speed control that is capable of handling at least 15 amps.

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

6. You must test the operation of the model before **every** flight to insure that all equipment is operating and that the model has remained structurally sound. Be sure to check connectors often and replace them if they show signs of wear or fatigue.

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

If you're an inexperienced modeler, we recommend that you get assistance from an experienced, knowledgeable modeler to help you with assembly and your first flights. You'll learn faster and avoid risking your model before you're truly ready to solo. Your local hobby shop has information about flying clubs in your area whose membership includes qualified instructors.

You can also contact the national Academy of Model Aeronautics (AMA), which has more than 2,500 chartered clubs across the country. Through any one of them, instructor training programs and insured newcomer training are available. Contact the AMA at the address or toll-free phone number below.

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

Before starting to build, compare the parts in this kit with the Parts List and note any missing parts. Also inspect all parts to make sure they are of acceptable quality. 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)398-8970 or e-mail us at:

productsupport@greatplanes.com.

If you are contacting us for replacement parts, please be sure to provide the full kit name (Fundango) and the part numbers as listed in the Parts List.

For the latest Fundango updates, you can also check our web site at:

www.greatplanes.com

DECISIONS YOU MUST MAKE

This is a list of items required to finish the Fundango that must be purchased separately. For some of these items there is more than one option which may require some decision making ahead of time. Order numbers (in parentheses) are provided for your convenience.

Radio Equipment

The Fundango requires three mini servos and a micro receiver. Futaba® S3101 (FUTM0033) or Hobbico® CS-35 (HCAM0120) micro servos and Hitec's® Feather Receiver (HRCL1535) are suitable. The Feather Receiver comes without a receiver crystal, so the crystal must be purchased separately. The order number for the Hitec receiver crystal is HRCL23**. Substitute the "**" with the channel number you require. For example, if the transmitter you plan to fly your Fundango with is on channel 44, order receiver crystal HRCL2344.

Speed Control

An electronic speed control with BEC (Battery Eliminator Circuitry) is required. The BEC allows both the motor and the radio system to be powered by the same battery (thus eliminating an additional battery typically required to power the radio). The Great Planes ElectriFly™ C-20 High Frequency Electronic Speed Control (GPMM2020) is recommended for the Fundango. If you purchase the complete motor and gear drive system, the speed control is included (refer to the **"Motor System"** section that follows).

Motor System
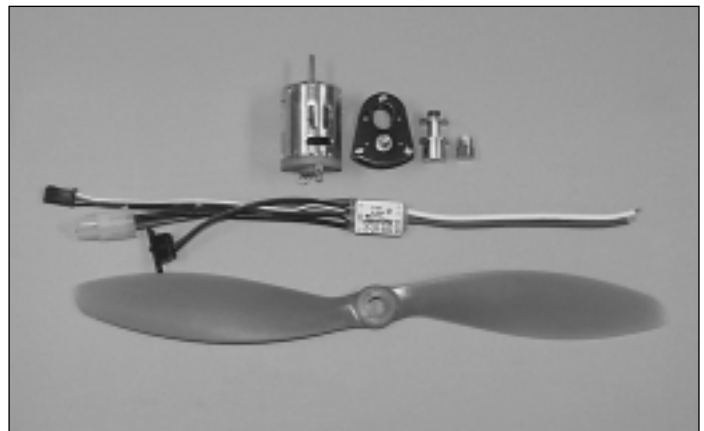
The Fundango is designed to use the Great Planes ElectriFly T-400GD ESC motor system and gear drive for electric flight (GPMG0400). This system includes a T-400 Ferrite Motor, S-400 3:1 ratio gearbox, 3mm prop adapter, APC 10 x 7 propeller and the ElectriFly C-20 High Frequency Electronic Speed Control w/BEC. The same components are also available without the speed control by ordering number GPMG0415.

Battery Recommendation

Each individual Nicd or Nimh cell that makes up a battery is 1.2 volts. An 8-cell battery pack is 9.6 volts. Batteries are also rated by their capacity in mAh (milli-Amp-hours), or how much energy they store. A 600 mAh battery can supply 1 *Ampere* for .6 hours (about 36 minutes). A 1200 mAh battery pack has twice the capacity of a 600 mAh battery pack.

The battery pack recommended for the Fundango is the 8-cell (9.6 volt) 600 mAh NiCd pack (HCAP6000). A 300 mAh charger is included with the battery. If you already have a charger, or if extra battery packs are required, the battery is available separately (HCAP6005).

Do not attempt to fly the Fundango with 1200 mAh "sub-C" battery packs, as they are too heavy.

Battery Warning

ATTENTION: The product you have purchased is powered by a rechargeable battery. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste system. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Chargers

The best type of charger to use is a peak charger, because it charges the batteries until they are fully charged, then automatically switches to a trickle charge mode. The Hobbico Accu-Cycle™ Plus (HCAP0270) is suitable for peak-charging the battery pack recommended.

The batteries may also be peak-charged by using a volt meter to monitor the voltage while the batteries charge. The voltage increases as the batteries charge. When the voltage begins to decrease the batteries are fully charged ("peaked").

The 9.6 volt 600 mAh battery recommended for the Fundango may be charged at a rate no higher than 400 mAh. At this rate, it will take 90 minutes to charge a discharged battery. If the battery is not discharged (and you are not using a peak-charger), connect the battery to the motor on your model. Run the motor until the propeller is turning slowly, thus discharging the battery.

IMPORTANT: While charging, monitor the temperature of the battery frequently. If the battery becomes warm, disconnect it from the charger.

Covering

Though the Fundango is a small, lightweight model, it isn't a floater, so using ultra-light coverings isn't a necessity. Some weight can be saved by using Top Flite® EconoKote® or Coverite™ Micafilm™, but the overall savings is minimal and has no noticeable effect on the way the Fundango performs. Our prototypes covered with Top Flite MonoKote® film performed very well.

ADDITIONAL ITEMS REQUIRED

Building Supplies

In addition to the equipment listed in the **"Decisions You Must Make"** section, following is the "short list" of the most important building supplies required to build the Fundango. *We recommend **Great Planes Pro**™ CA and Epoxy glue.*

- ❏ 1/2 oz. Thin Pro CA (GPMR6001)
- ❏ 1/2 oz. Medium Pro CA+ (GPMR6007)
- ❏ Hobby knife (HCAR0105)
- ❏ #11 blades (HCAR0211)
- ❏ Single-edge razor blades (HCAR0212)
- ❏ Soldering Iron (HCAR0776)
- ❏ 60/40 Resin core solder (or other solder suitable for electrical use)
- ❏ Approximately 3' of light string
- ❏ Small T-pins (HCAR5100)
- ❏ Builder's triangle (HCAR0480)
- ❏ Electric drill and drill bits: 1/16" [1.6mm], 5/64" [2mm] (or 1/16" [1.6mm]), 3/32" [2.4mm], 1/8" [3.2 mm], 5/16" [7.9mm], #60 (.040") [1mm]
- ❏ Small Phillips and flat blade screwdrivers
- ❏ Pliers with wire cutter (HCAR0630)
- ❏ Great Planes Plan Protector (GPMR6167) or wax paper
- ❏ Sanding tools and sandpaper assortment
- ❏ Sealing Iron (TOPR2100)
- ❏ 70% Isopropyl rubbing alcohol (or water for bending balsa sticks)

Optional Supplies and Tools

Here is a list of optional tools that may help you build the Fundango.

- ❏ Top Flite Precision Magnetic Prop Balancer™ (TOPQ5700)
- ❏ Top Flite Hot Sock™ iron cover (TOPR2175)
- ❏ Straightedge with scale (HCAR0475)
- ❏ Cutting mat (HCAR0456)

❏ Masking Tape (TOPR8018)
❏ CA Debonder (GPMR6039)
❏ CA Applicator tips (GPMR6033)
❏ Great Planes 5-1/2" [140mm] Bar Sander (GPMR6169)
   and 150-grit adhesive back sandpaper (GPMR6183)
❏ Top Flite 320-grit sandpaper (TOPR8030) and 400-grit
   sandpaper (TOPR8032)
❏ Razor saw or Dremel® tool with cut-off wheel
❏ Medium T-Pins (HCAR5150)

IMPORTANT BUILDING NOTES

For the best performance, the Fundango must be built light. Here are some tips to help you build neatly and light.
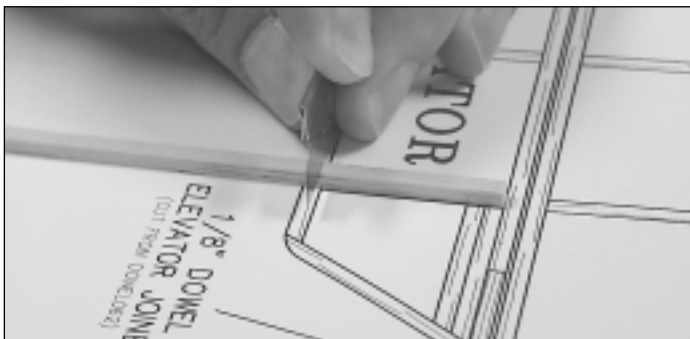
1. The easiest way to cut balsa sticks is with a single-edge razor blade. To do so, position the stick over the plan, then place the razor blade on the stick where you wish to cut it. Press down lightly on the razor blade to make a mark where the stick is to be cut.

2. Take the stick off the plan and cut it over a cutting mat or a leftover piece of wood *(Okay, if you're careful you could go ahead and cut the stick right over the plan, but if you do, you may cut through the plan protector and allow the CA to soak through, gluing the structure to the plan).*

3. Because of the small balsa sticks used in the tail, small T-pins may be used to hold the sticks to your building board, but only where **necessary**. Use small T-pins (HCAR5100) or small straight pins found in craft stores. Do not stick pins into the sticks near the ends, or the wood may split.
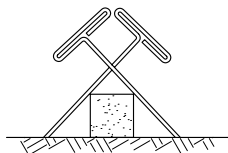
4. If you have difficulty with the T-pins splitting the small sticks, an alternate method is to use the "crossed-pin" technique. Insert the T-pins into the building board in a criss-cross fashion to hold the sticks to the plan.

5. When applying CA, be careful to not glue your fingers to the structure. In the process of *unsticking* your fingers you can inadvertently damage the structure, thus requiring repairs and adding additional weight *(not to mention the aggravation!)*.

6. Sanding requires a light touch to avoid damage. We found the best method for sanding is to use light strokes in the direction of the longest sticks. Be certain the sandpaper is **thoroughly** bonded to the bar sander. Lifted edges will catch the structure causing damage. Use medium-grit sandpaper such as 120 or 150.

7. One of the best ways to insure a lightweight model is to build **neatly**. Good-fitting glue joints with minimal adhesive are stronger, lighter and have a better appearance than poor-fitting joints with too much CA. Of course, you should take this approach with **all** of your projects! Use CA applicator tips (GPMR6033) to control and pinpoint the amount of CA.

8. Build over a flat surface. Cover the plans with Great Planes Plan Protector (GPMR6167) or wax paper so the parts will not adhere to the plan.
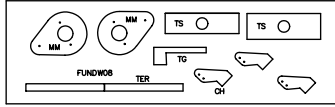
Common Abbreviations

Fuse = Fuselage
LE = Leading Edge (front)
TE = Trailing Edge (rear)
Stab = Stabilizer
" = Inches
Elev = Elevator
LG = Landing Gear
Ply = Plywood
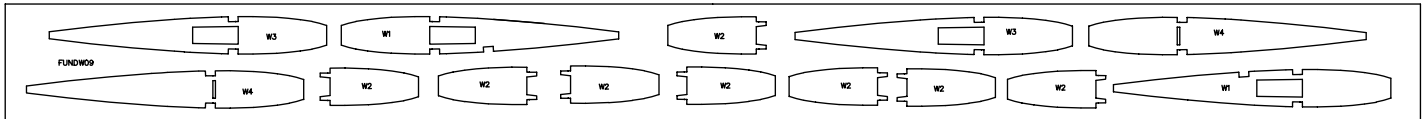
Types of Wood
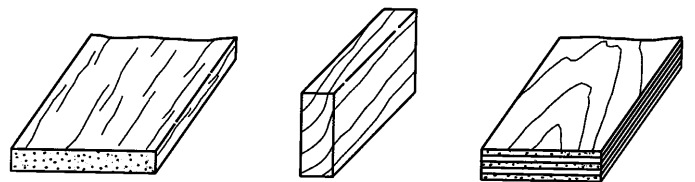
DIE-CUT PATTERNS

FUNDW08   I PER KIT

1/16" X 2-5/8" X 8-1/2" PLY

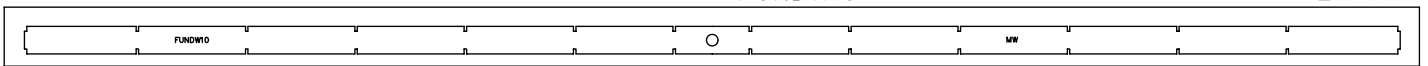1/16" X 3" X 36" BALSA   FUNDW09   I PER KIT
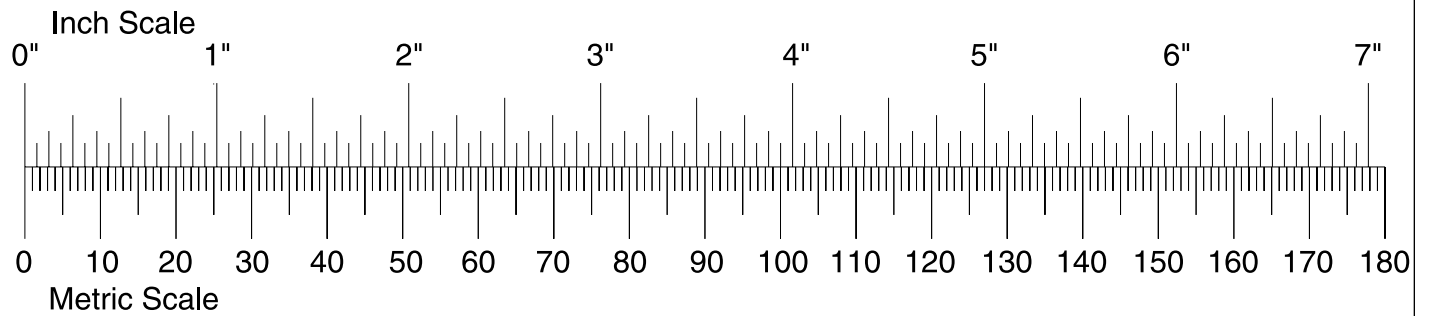
1/16" X 1-1/2" X 36" BALSA   FUNDW10   I PER KIT

	Metric Conversions				
		1/4" = 6.4 mm			
1/64" = .4 mm		3/8" = 9.5 mm		6" = 152.4 mm	
1/32" = .8 mm		1/2" = 12.7 mm		12" = 304.8 mm	
1/16" = 1.6 mm		5/8" = 15.9 mm		18" = 457.2 mm	
3/32" = 2.4 mm		3/4" = 19.0 mm		21" = 533.4 mm	
1/8" = 3.2 mm		1" = 25.4 mm		24" = 609.6 mm	
5/32" = 4.0 mm		2" = 50.8 mm		30" = 762.0 mm	
3/16" = 4.8 mm		3" = 76.2 mm		36" = 914.4 mm	

Inch Scale

0"   1"   2"   3"   4"   5"   6"   7"

0   10   20   30   40   50   60   70   80   90   100 110 120 130 140 150 160 170 180

Metric Scale

GET READY TO BUILD

❏ 1. Unroll the plan sheet. Re-roll it inside out to make it lie flat.

❏ 2. Remove all parts from the box. As you do, figure out the name of each part by comparing it to the plans, the die page and the parts list. Save all leftovers. If any of the parts are difficult to remove from their die sheets, do not force them. Instead, cut around the part with a hobby knife. After removing the parts, lightly sand the edges to remove any die-cutting irregularities.

BUILD THE WING

❏ 1. Place the wing portion of the plan over your flat building board. Cover the wing plan with Great Planes Plan Protector or wax paper.

❏ 2. Locate the die-cut 1/16" [1.6mm] balsa **ribs W1** through **W4**, the **main web (MW)** and the die-cut 1/16" [1.6mm] **plywood parts**.
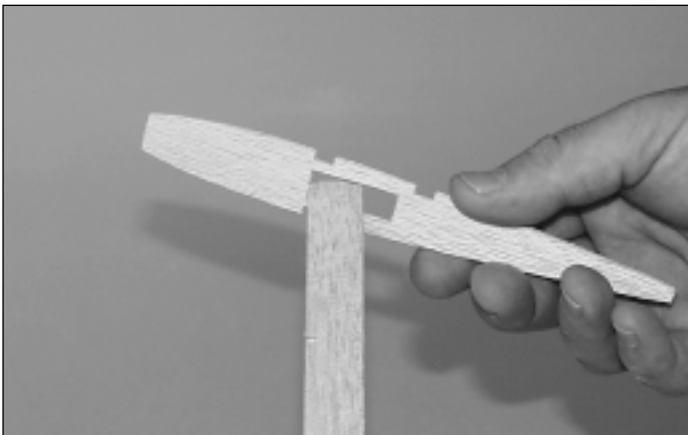
❏ 3. Insert the right end of the main web into the opening in rib W1 as shown.

Top of Rib
Has 2 Notches
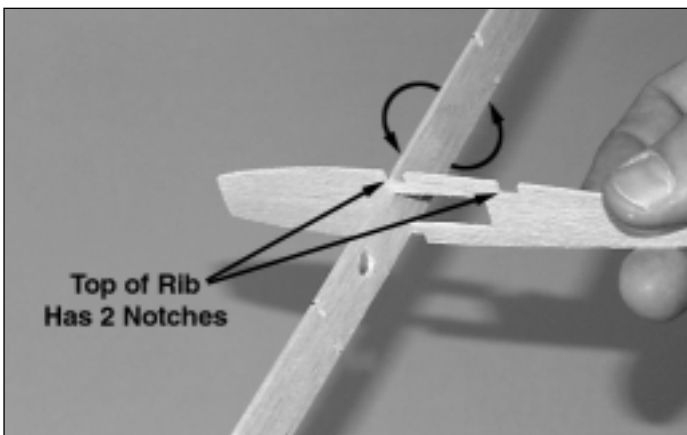
❏ ❏ 4. Place rib **W1** into the notch shown on the plan by twisting it into position on the main web. W1 should be lined up with the spar notch. The top of the rib is the side with two spar notches. **Be certain the rib is on the main web with these two notches up.** Glue W1 perpendicular to the main web.
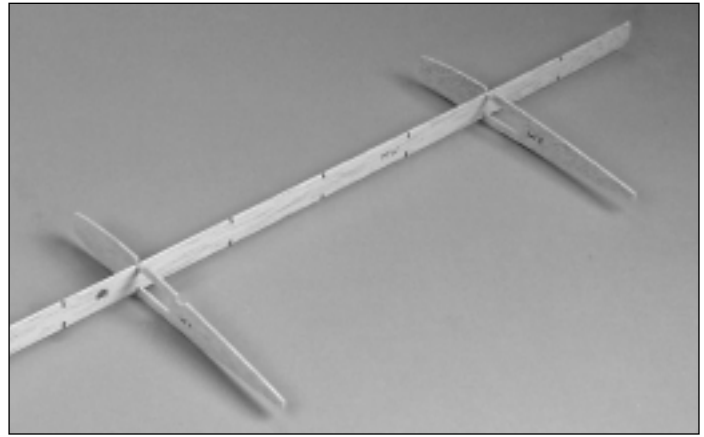
❏ ❏ 5. Using the same procedure, insert W3 onto the main web as shown on the plan. Glue W3 perpendicular to the main web.

❏ 6. Repeat steps 3, 4 and 5 for the left side of the wing.

❏ 7. Locate the two 1/8" x 1/4" x 36" [3.2 x 6.4 x 910mm] balsa sticks and cut them to 35" [889mm] in length. These make up the **top** and **bottom spar**.

❏ 8. Pin one of the spars in place over the plan. This will be the bottom spar.

❏ 9. Place the main web with the two W1 and two W3 ribs onto the bottom spar. Carefully align the ribs in place over the plan. Be sure that each rib is perpendicular to the building surface.

❏ 10. Glue rib W4 to the main web at each end of the bottom wing spar.

❏ 11. Glue each of the W2 half-ribs to the main web.
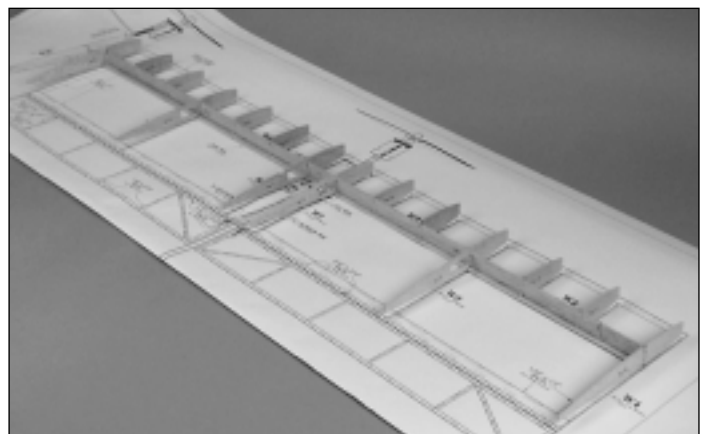
❏ 12. Make sure that ribs W1, W3, W4 and the main web are in contact with the bottom spar. Glue the ribs and the main web to the bottom spar with thin CA.
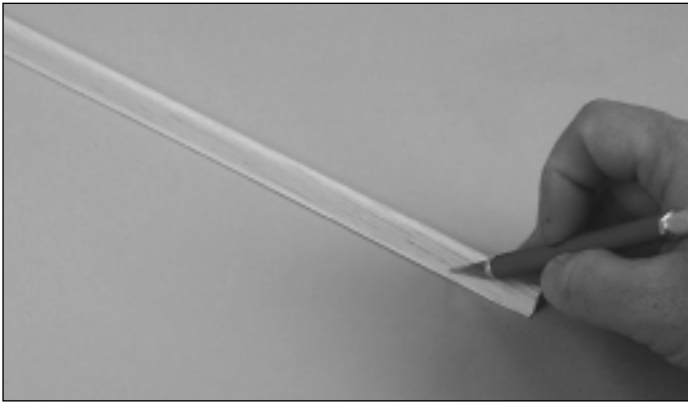
❏ 13. Use a hobby knife with a #11 blade to remove the flashing from the shaped 36" balsa **leading edge. NOTE:** The leading edge is symmetrical – there is no *top* or *bottom*.

❏ 14. Cut the leading edge to a length of 35" [889mm].
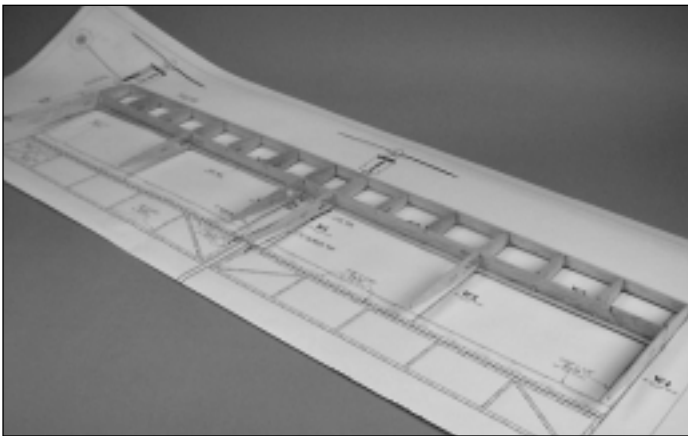
❏ 15. Beginning on the right side of the wing, glue the leading edge to rib W4 with medium CA. Position the leading edge so it is centered on the rib. When the glue has set, glue the leading edge to W4 on the left side of the wing. Continue to glue the leading edge to each of the W2 and W3 ribs for the entire length of the wing, making sure that each rib is centered on the leading edge.

❏ 16. Position and glue the top spar in place in the notches on the top of the wing above the main web.
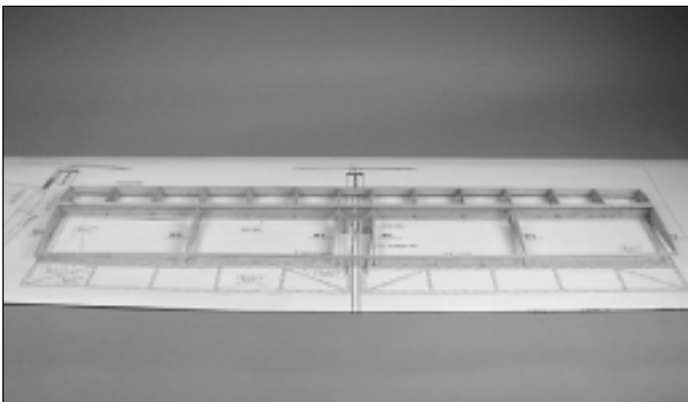

❏ 17. Cut one of the 3/16" x 3/16" x 36" [4.8 x 4.8 x 910mm] balsa sticks to a length of 35" [889mm] to make the wing **trailing edge**. Glue the trailing edge to ribs W1, W3 and W4.
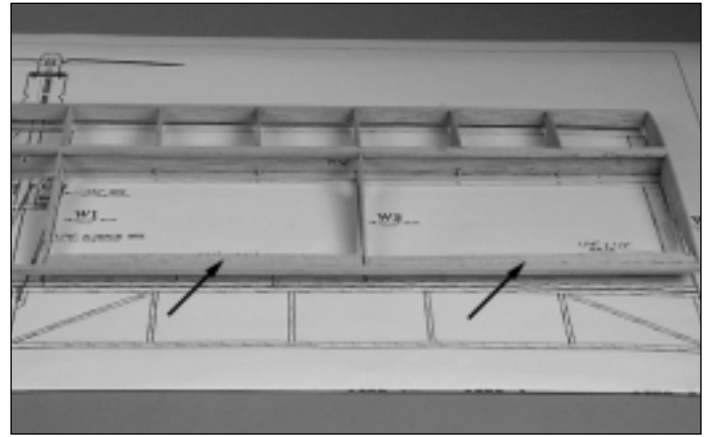
❏ 18. Cut both 1/16" x 1/2" x 24" [1.6 x 13 x 610mm] balsa **TE supports** to fit between W1 and W3 and between W3 and W4. Do this for the left and right side of the wing, gluing them into place. Be certain the supports are centered vertically on the TE.
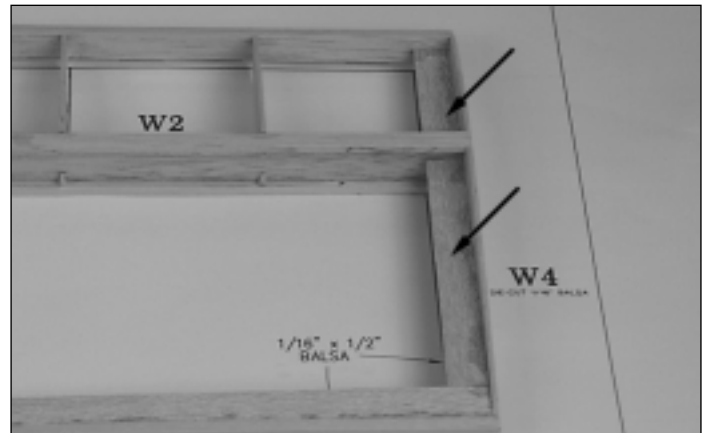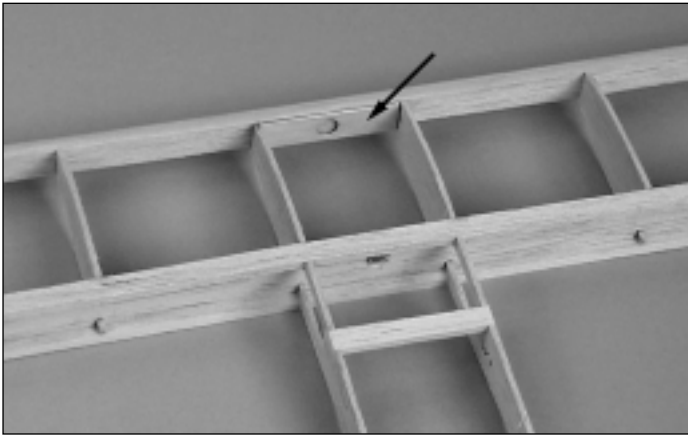

❏ 19. Fit the remaining 1/16" x 1/2" x 24" [1.6 x 13 x 610mm] balsa stick between the trailing edge and the leading edge at rib W4. When you are satisfied with the fit glue them into place. Do this for both the left and right end of the wing.
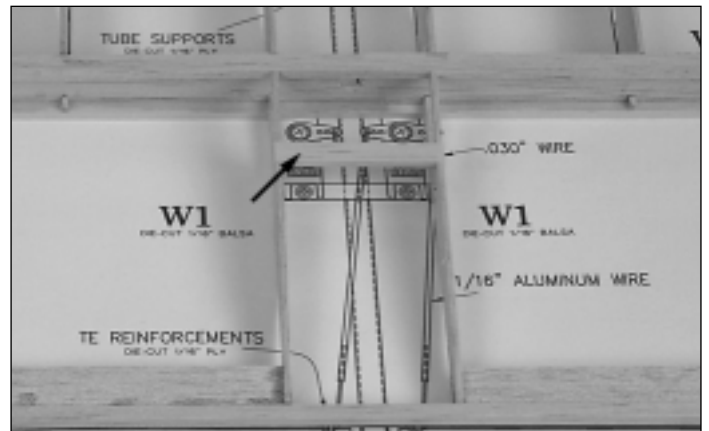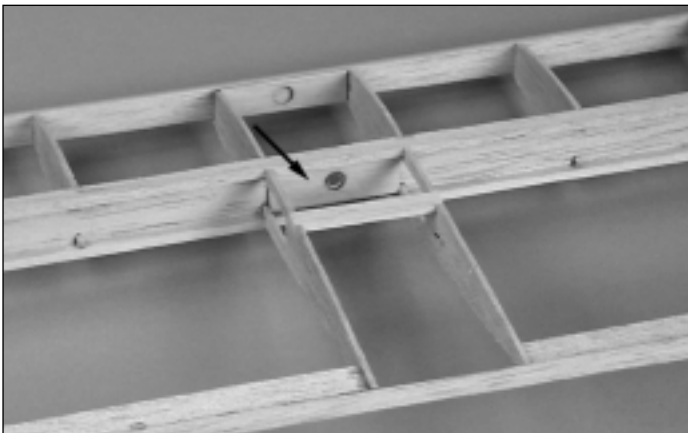

❏ 20. Glue the 1/8" x 1/4" x 2" [3.2 x 6.4 x 51mm] balsa **servo support** into the two remaining notches on ribs W1.

❏ 21. Locate both die-cut 1/16" [1.6mm] plywood **tube supports**. Glue the narrower support to the back of the leading edge in the center of the wing.

❏ 22. Glue the remaining tube support to the back of the main web. Be sure the hole in the main web and the rear tube support align.

❏ 23. Push a T-pin through the exact center of the tube support on the back of the LE, all the way through the leading edge. This will be your *pilot hole guide* for drilling a hole through the leading edge.
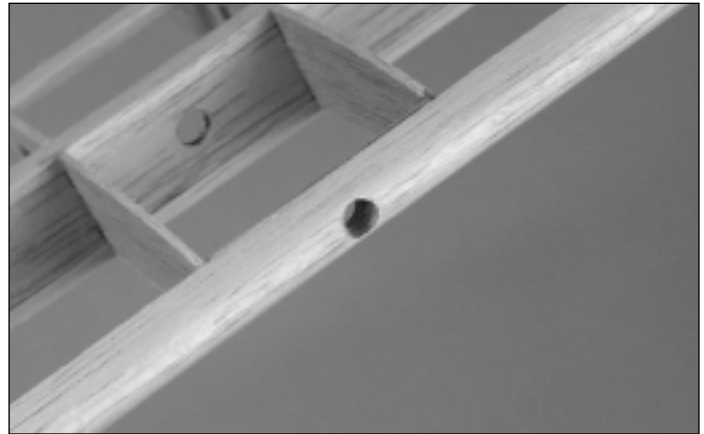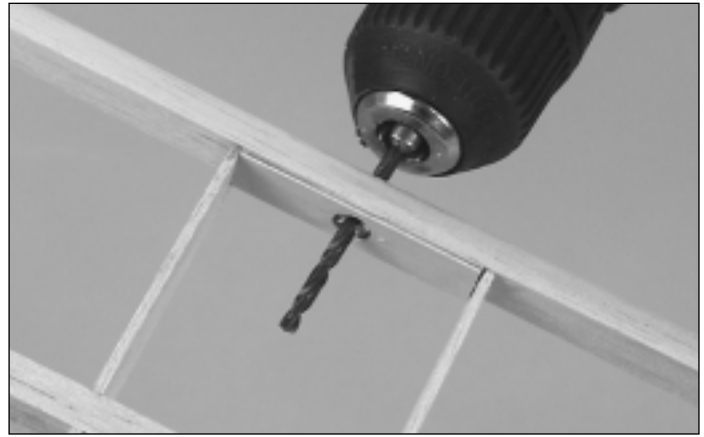
❏ 24. Drill a 1/8" [3.2mm] pilot hole through the pin hole guide. Once you are satisfied that the pilot hole is through the center of the forward tube support, drill a 5/16" [7.9mm] hole through the leading edge.

❏ 25. **Lightly** and **carefully** sand the entire wing. The wing is light and too much force could damage it.
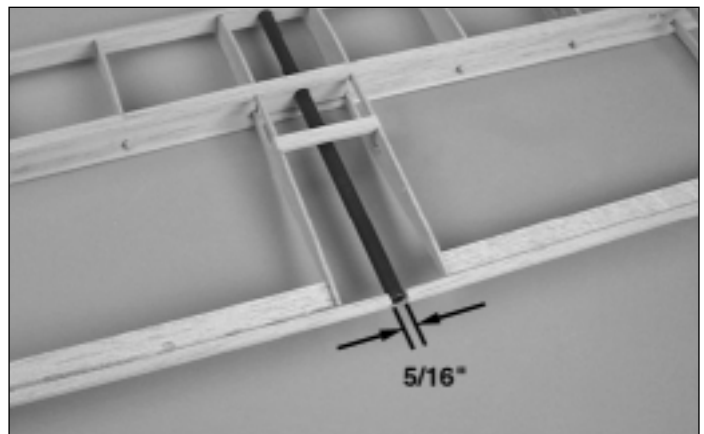
❏ 26. Test fit the fiberglass **fuselage tube** into the wing. Make any adjustments to the mounting holes needed for the tube to slide through the wing. Cut a 5/16" [7.9mm] opening in the trailing edge of the wing to allow the tube to pass through it. This opening must be exactly centered between the W-1 ribs.

BUILD THE AILERONS
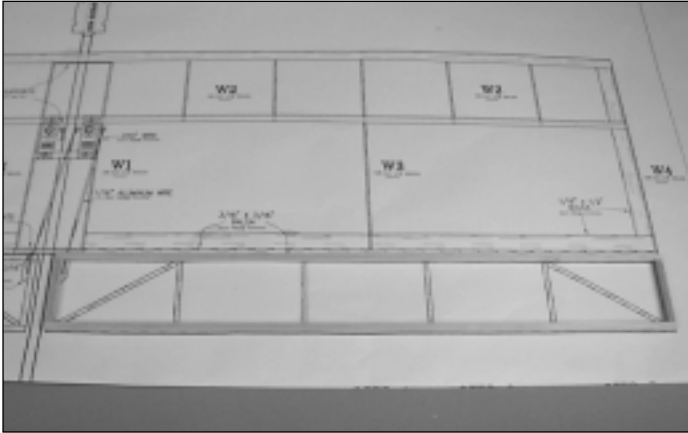
❏ ❏ 1. Make the **frame** of the aileron as shown on the plan from a 3/16" x 3/16" x 36" [4.8 x 4.8 x 910mm] balsa stick.

❏ ❏ 2. Cut the **cross supports** from a 1/8" x 3/16" x 36" [3.2 x 4.8 x 910mm] balsa stick. Glue the cross supports in place using the plan as a guide.

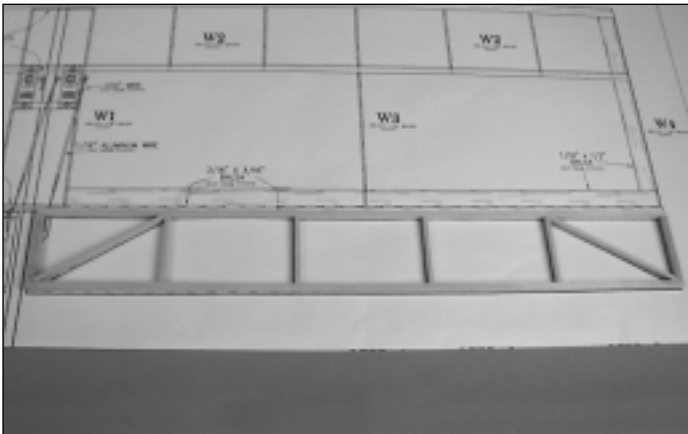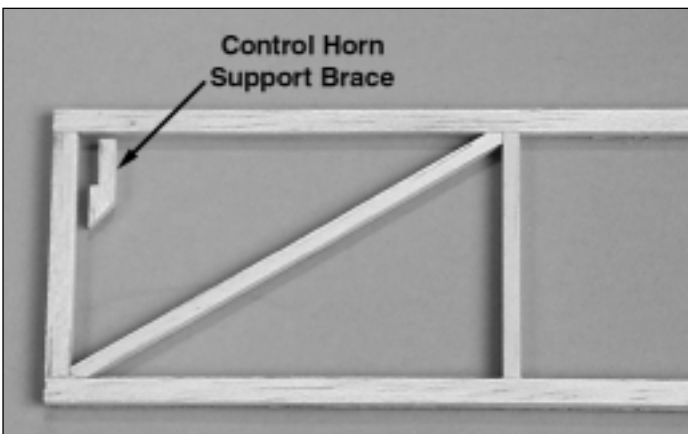❏ ❏ 3. From a leftover piece of 3/16" x 3/16" [4.8 x 4.8mm] balsa stick, cut the **control horn support brace** to the shape shown on the plan.
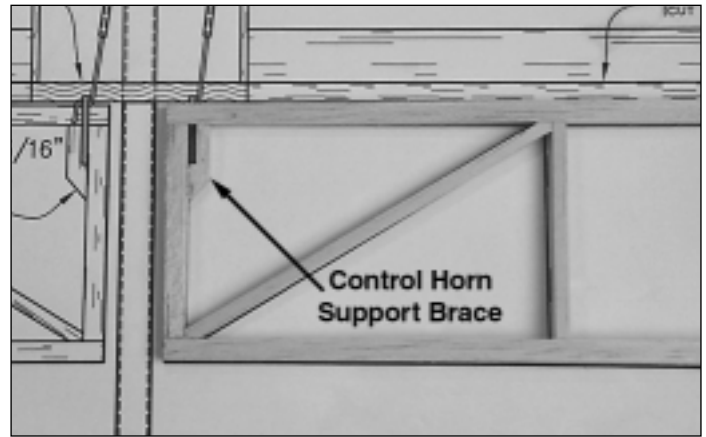
❏ ❏ 4. Glue the control horn support brace to the aileron as shown on the plan. **Do not** glue the control horn in place. The control horn will be glued in after the aileron is covered.

❏ 5. Repeat steps 1 – 4 for the **left** aileron.

BUILD THE TAIL SURFACES

Build the Fin

❏ 1. Cover the **fin** area of the plan with Great Planes Plan Protector.

❏ 2. Make the bottom of the fin and the **center fin post** from the 3/16" x 3/16" x 36" [4.8 x 4.8 x 910mm] balsa stick. Pin the parts to your building board as you proceed.
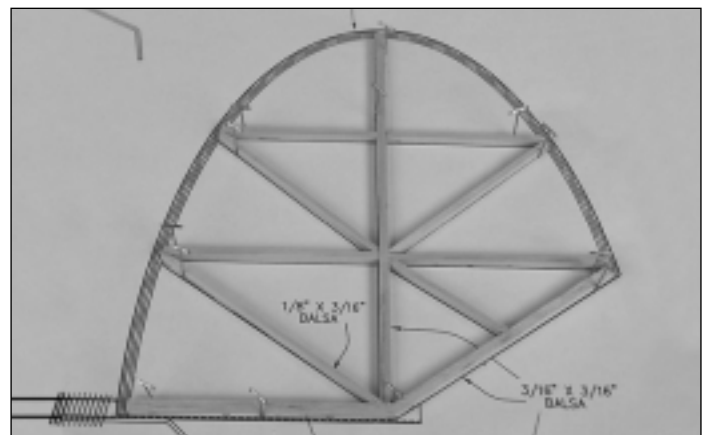
❏ 3. Fit and glue the rest of the cross-brace structure from one of the 1/8" x 3/16" x 36" [3.2 x 4.8 x 910mm] balsa sticks. Place a few pins around the structure to support it. This will be helpful as you move through the steps of wrapping the laminated frame of the fin.
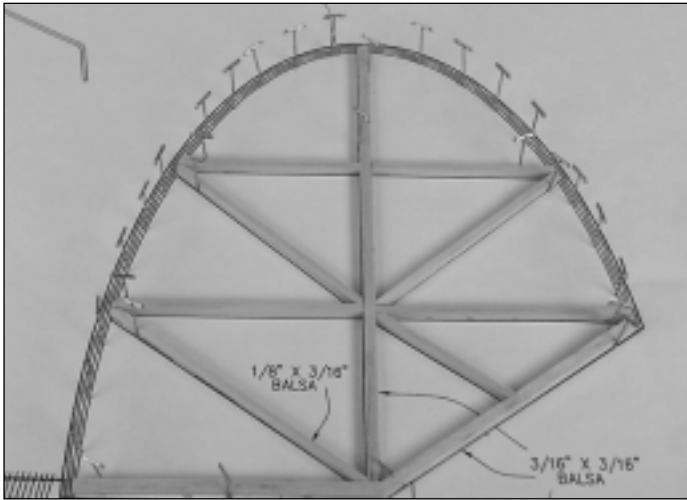
❏ 4. Insert T-pins into the building board following the line of the inside perimeter of the fin. This will help guide the balsa laminate that will create the fin.

❏ 5. Use Isopropyl Alcohol or water to wet one side of the three 1/16" x 3/16" x 24" [1.6 x 4.8 x 610mm] balsa sticks allowing them to soften, so they can be bent around the T-pins. Allow the sticks to sit for a few minutes before proceeding.
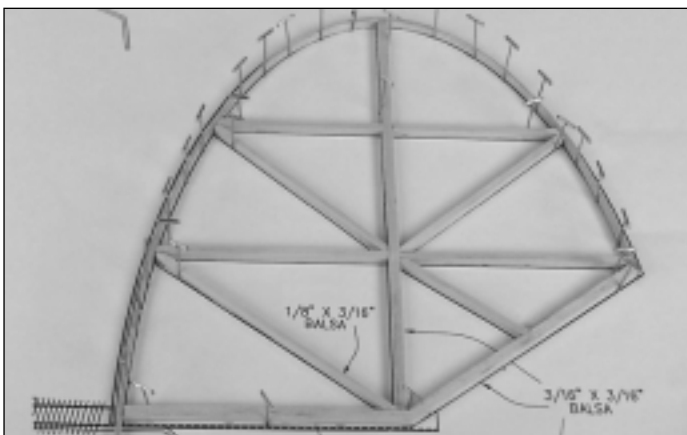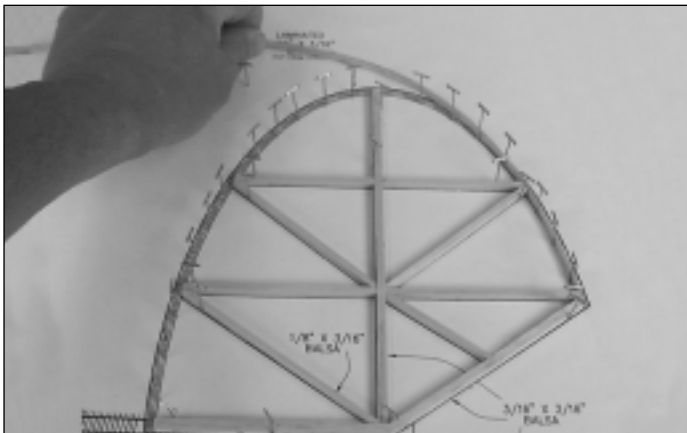
❏ 6. Glue the balsa sticks in place. Begin by gluing one end of the stick to the fin using medium CA. Work the stick around the fin using the T-pins as a guide. As you proceed, glue the stick to the wooden structure. Carefully work the balsa stick around the fin.

❏ 7. Repeat this process for the second and third stick, gluing each one to the other.
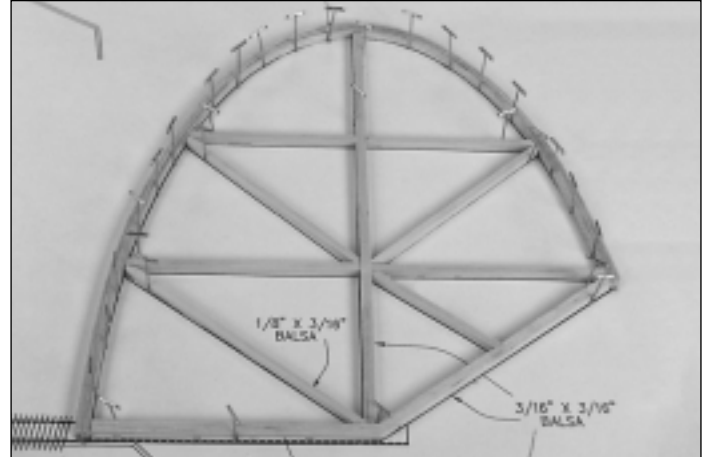
❏ 8. Trim the excess strips to match the shape of the fin. After the balsa has completely dried, lightly sand the fin.
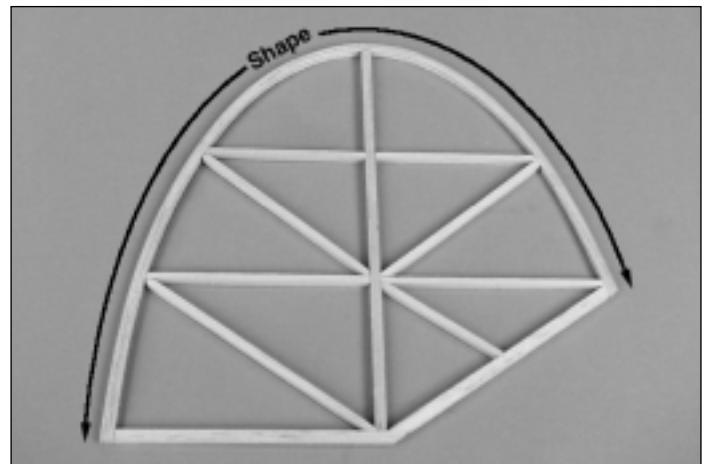
❏ 9. Round the perimeter of the fin by sanding as shown on the plan sheet.

Laminating is an interesting and fun way to make a strong, yet lightweight structure. Now that you know how to do it, you should be able to do the same thing to the horizontal stab and elevator in much less time. Let's get started!

Build the Stab and Elevator

❏ 1. Cover the stab and elevator area of the plan with Great Planes Plan Protector.

❏ 2. Cut the **stab trailing edge** and the **elevator leading edge** from the 3/16" x 3/16" x 36" [4.8 x 4.8 x 910mm] balsa stick, then pin them to the plan.
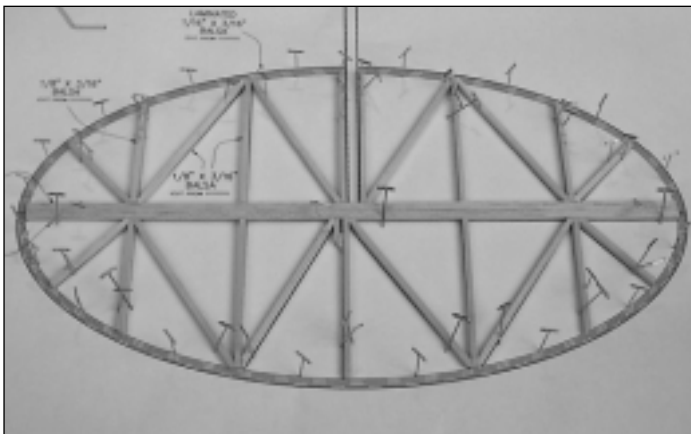
❏ 3. Build the cross-brace structure in the same manner as the fin from 1/8" x 3/16" x 36" [3.2 x 4.8 x 910mm] balsa sticks. The **elevator control horn brace** should be made from leftover 3/16" x 3/16" [4.8 x 4.8mm] the same as the control horn braces for the ailerons. **Do not** glue the control horn in place at this time. It will be installed after the elevator is covered. Place a few pins around the structure to support it and insert T-pins into the building board following the line of the inside perimeter of the fin. This will help guide the balsa laminate that will create the frames of the stab and elevator.

❏ 4. Locate three 1/16" x 3/16" x 36" [1.6 x 4.8 x 910mm] balsa strips. These will be wrapped around the stab and elevator the same way that you did the fin. Be sure you follow the same steps for wetting the wood as was done for the fin.
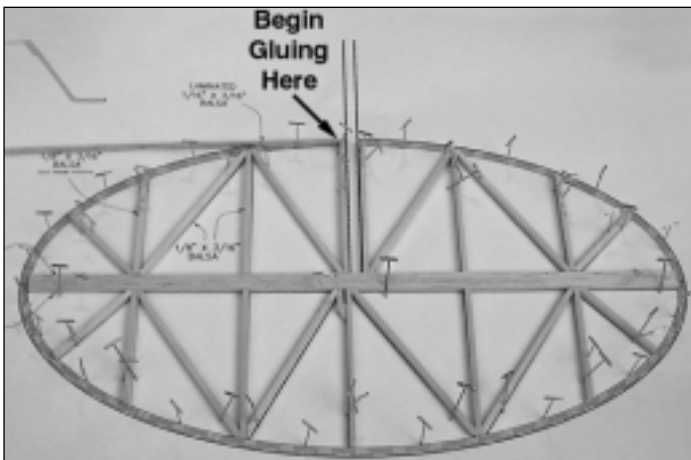
❏ 5. Wet the wood and allow it soften for a few minutes. Glue the balsa laminate in place. Begin by gluing one end of the strip to the stab at the location shown in the photo.
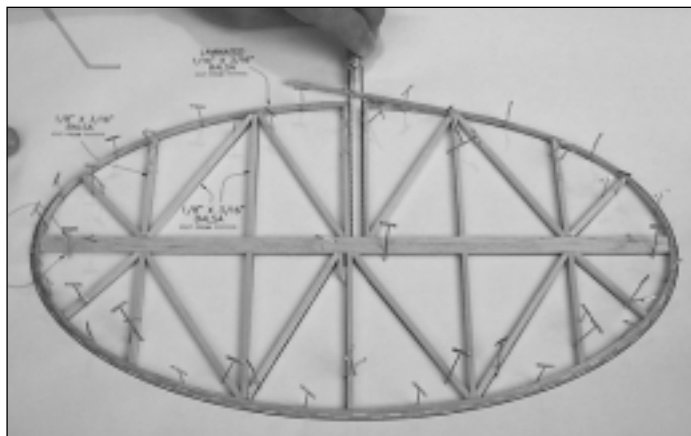
❏ 6. Work the strip around the perimeter of the stab and the elevator. When you get back to the point where you first glued the strip you will have to cut off the excess balsa stick. This will allow you to complete the laminate wrap.
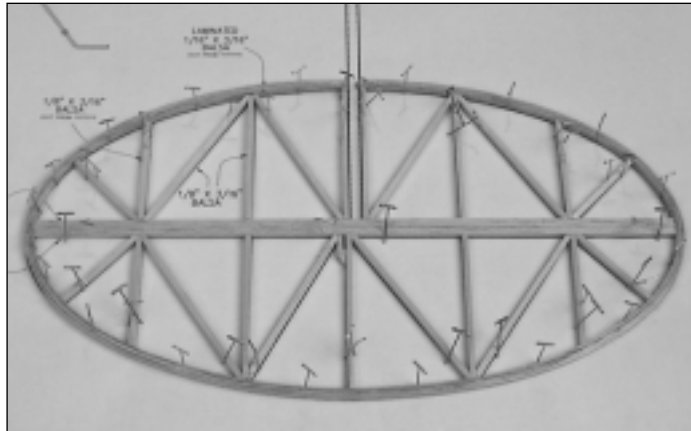
❏ 7. Repeat the process for the second and third balsa laminate strips, gluing them to one another.

❏ 8. After the balsa has dried, lightly sand the structure. The entire perimeter should be rounded to match the cross-section on the plan.
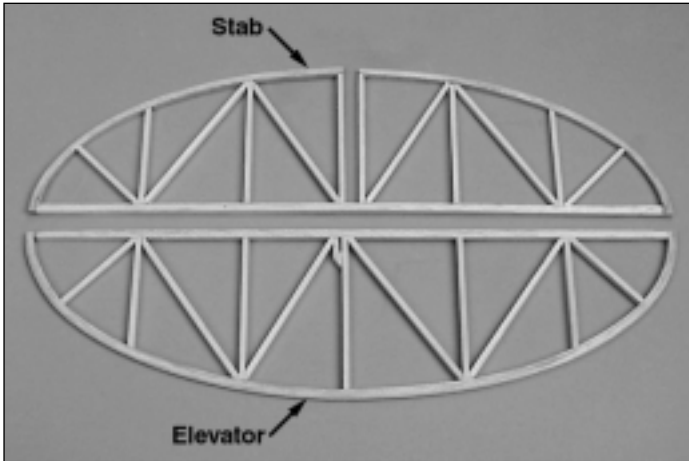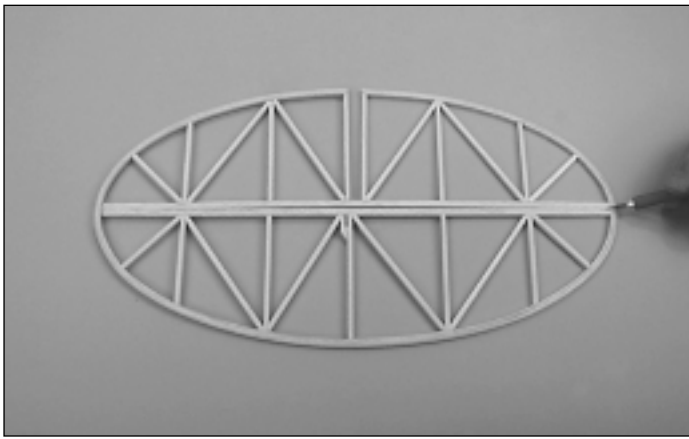
❏ 9. Use a hobby knife to separate the stab and elevator.

❏ 10. Use a sanding bar to bevel the leading edge of the elevator to the shape shown on the elevator cross-section on the plan.

That's it for the tuff stuff! Now you can move ahead with the process of assembling the plane.

BUILD THE FUSELAGE

Prepare the Fuselage Tube

❏ 1. Use a razor saw or a Moto-Tool with a cut-off wheel to cut the fiberglass fuselage tube to a length of 24-5/8" [625.5mm].

Refer to this photo for the following two steps.

❏ 2. Wrap one end of the tube with 5" [130mm] of masking tape. This will be the **aft** end of the fuselage tube. Mark a line on the tape 4-7/8" [124mm] from the end of the tube.

❏ 3. From the mark you made, draw a line parallel with the tube to the end of the tube. Draw a second line parallel with the line you just made the thickness of the fin. (This should be 3/16" [4.8mm], but may be less because of sanding.)

❏ 4. **CAUTION: Wear eye protection for this step!** Use a Dremel® tool with a cut-off wheel or a razor saw to cut the tube on the lines to create a slot for the fin. **Hint:** Cut the slot a bit narrow to begin with, so the fin will fit well.
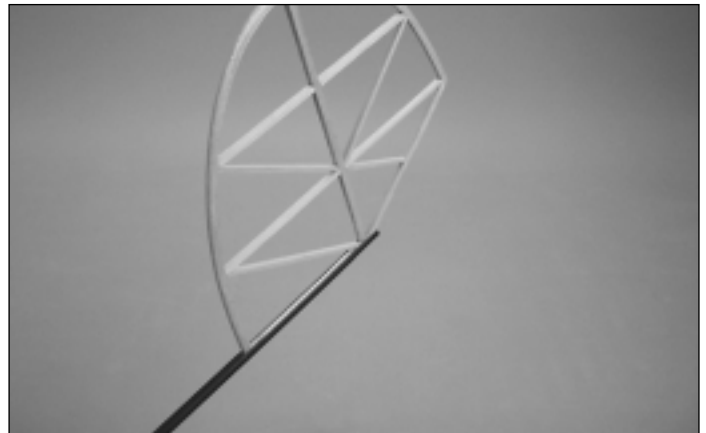
❏ 5. Test fit, but do not glue the fin into the slot. Make adjustments if necessary.

❏ 6. Sand the 1/4" x 2" [6.3 x 50mm] wooden dowel until it will fit into the front end of the fuselage tube. Be sure to leave a little room for glue. Fit the dowel into the tube, flush with the end of the tube and permanently glue it into position with thin CA.

❏ 7. Slide the fuselage tube into the wing. Position the wing so the leading edge of the wing is 2-1/4" [57mm] from the front of the tube. **Do not glue it in place yet!**
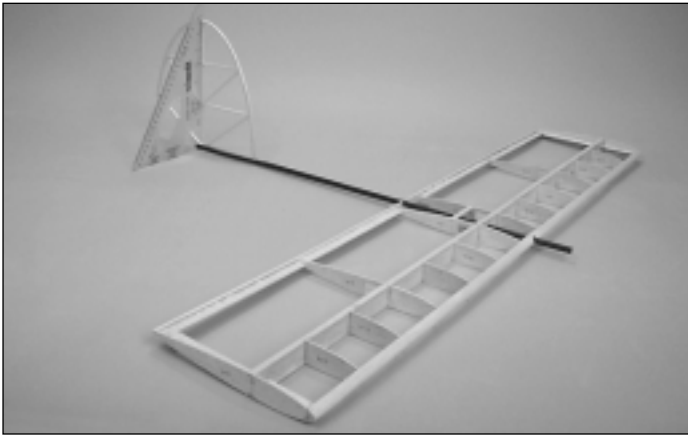
❑ 8. Lay the **bottom** of the wing flat on the bench. **IMPORTANT!** The top of the wing is the side that has the two servo rails. Temporarily place the fin into the slot at the end of the tube. Rotate the tube until the fin is 90 degrees to the bench. Use a triangle to verify that the fin is set at 90-degrees.

❑ 9. Once you are satisfied with the placement, use CA to glue the fuselage tube to the wing at the leading edge, the main web and the trailing edge.
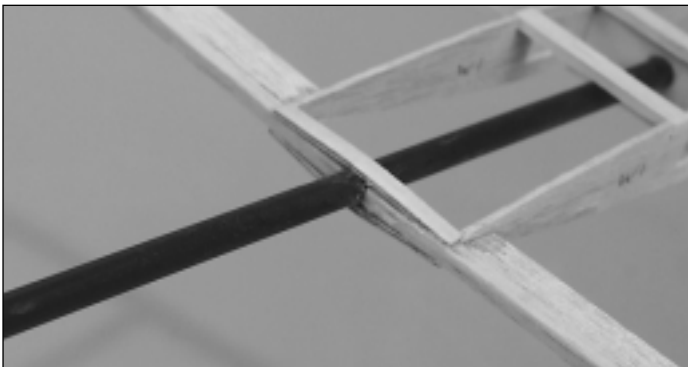
❑ 10. Locate the die-cut 1/16" [1.6mm] ply **top** and **bottom trailing edge reinforcement**. Glue one to the top of the trailing edge and one to the bottom of the trailing edge as shown in the photo. Apply them at the same time and use your fingers to apply equal pressure to the top and bottom at the same time. Any gap you have can be filled with medium or thick CA and hardened with CA accelerator.
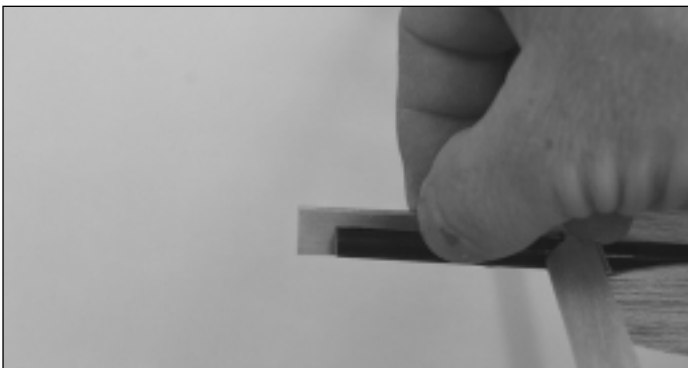
❑ 11. Hold the die-cut 1/16" [1.6mm] ply **engine thrust gauge** on the top of the fuselage tube. Sand the front of the tube to match the angle of the gauge to provide the correct motor down thrust.

Build the Landing Gear (Optional)

Landing gear is optional on the Fundango. With gear, hand-launching is not necessary as the plane can take-off and land on hard surfaces. The landing gear also protects the propeller on rough landings. The gear does, however, add weight and drag. If you fly over grassy areas you may consider omitting the gear. Soft landings in the grass are done easily without damaging the propeller.

❑ 1. Cut the 1/16" x 30" [1.6 x 760mm] wire into three pieces of 15-5/8" [397mm], 6" [152mm] and 9" [230mm].
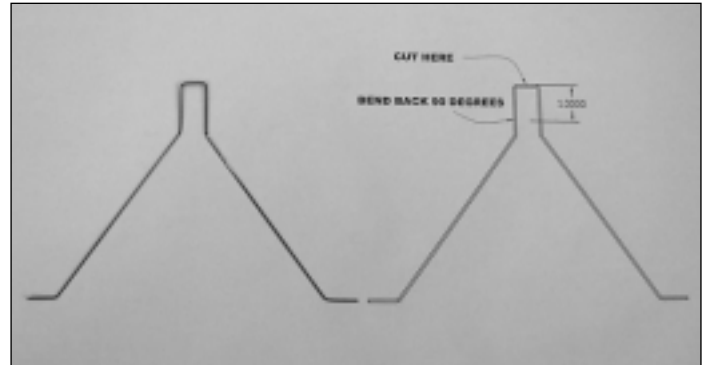
❑ 2. Bend the 15" [380mm] wire as shown on the **landing gear template** on the plan.

❑ 3. Use a felt-tip pen to mark the wire 1" [25mm] from the top as shown in the drawing. Bend the wire back at a 90 degree angle.
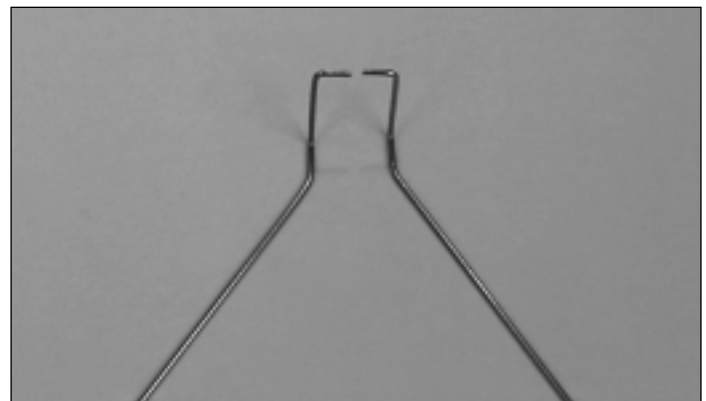
❑ 4. Cut the gear in half as shown in the photo and the drawing.
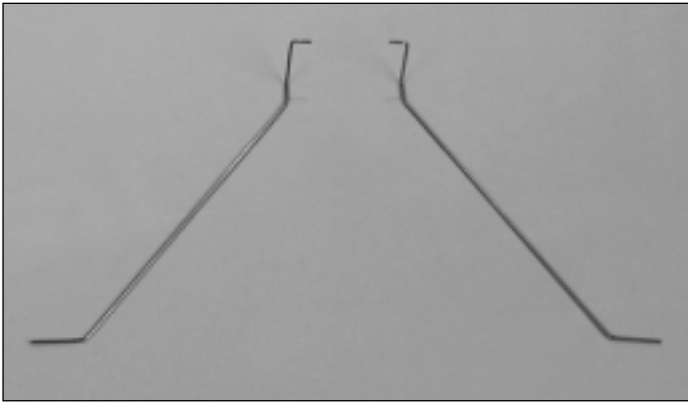
❏ 5. Now there is a **left** and **right** main landing gear.

❏ 6. Bend the 6" [152mm] wire as shown on the ***cross-brace*** template on the plan.

Complete Set of Wire Gear
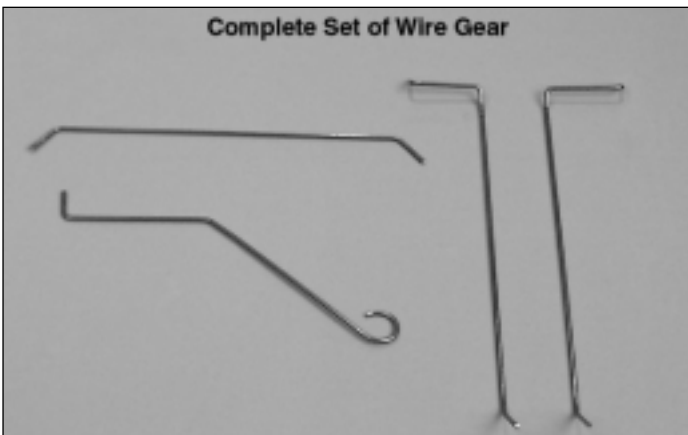
❏ 7. Bend the **tail skid** from the remaining piece of 9" [230mm] wire as shown on the plan. Use a needle nose pliers to make the circular bend in different spots until you have formed the curved end. Cut off the excess wire.

Mount the Landing Gear

❏ 1. Cover the front 2" [50mm] of the fuselage tube with masking tape, so you can mark where to drill the holes for the landing gear.
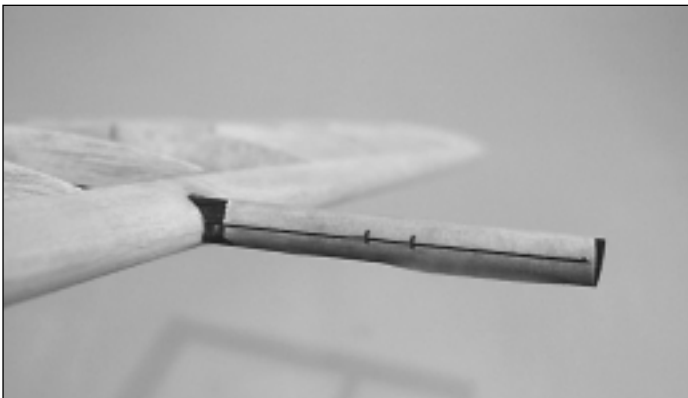
❏ 2. Use a ballpoint pen to mark the tube 1" [25mm] and 1-1/16" [27mm] from the end. Be certain the marks are on

the tube so that when the holes are drilled and the landing gear is mounted, the wings will be **level** when the model is resting on the gear.

❏ 3. Drill 1/16" [1.6mm] holes all the way through the fuselage tube at the marks you made.
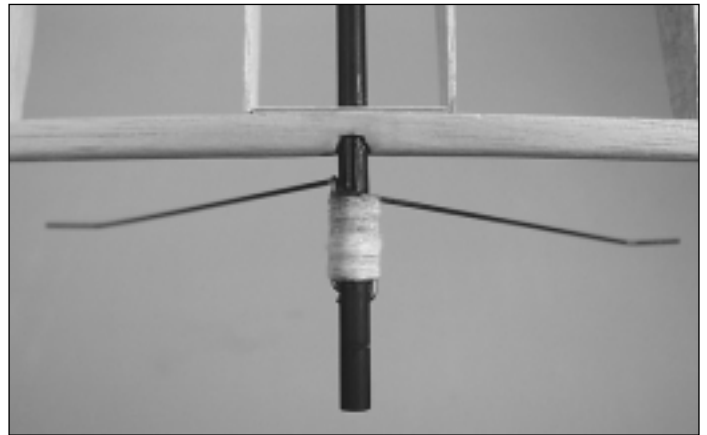
❏ 4. Insert the landing gear into the tube. Wrap the gear and the tube tightly with string or thread (not included in the kit). Saturate the string with thin CA.
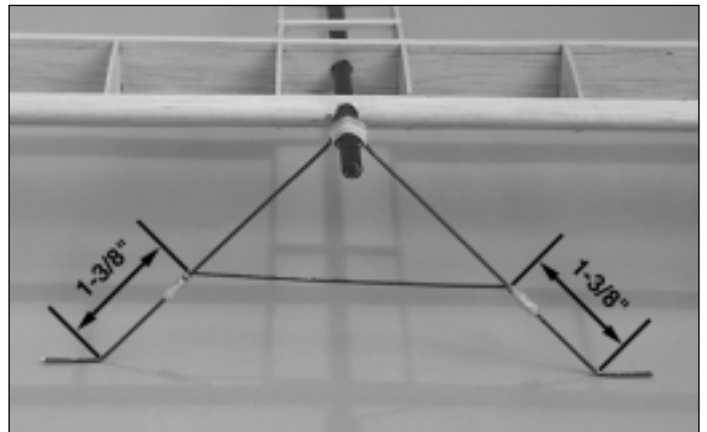
❏ 5. Attach the cross-brace 1-3/8" [35mm] above the bend in the axle. Wrap the joints tightly with string or thread and saturate with thin CA.

❏ 6. Drill a 1/16" [1.6mm] hole for the tail skid 6" [152mm] from the aft end of the tube.
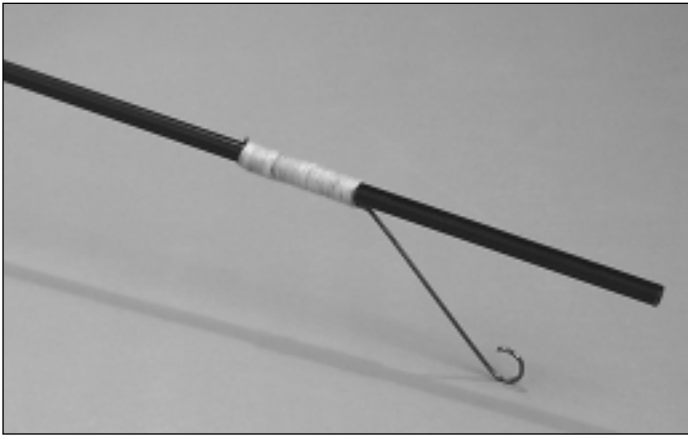
❏ 7. Attach the tail skid the same way you did the landing gear with string and CA.

❏ 8. Mount the wheels and secure them with the two nylon retainers.

COVER THE MODEL

Prepare the Model for Covering

❏ 1. If you haven't done so already, sand all wood parts of the model smooth with 320-grit, then 400-grit sandpaper.

❏ 2. Use compressed air (be careful!), a dust brush or a tack cloth to remove balsa dust from the model.

❏ 3. Determine what material you will be covering the model with. If using Top Flite EconoKote or MonoKote, the model is ready to cover. If using Coverite Micafilm, coat the areas to be covered with Coverite Balsarite (COVR2500). Be certain you use the formula for Micafilm (fabric) and not the formula for regular film covering.

Cover the Wing and Ailerons

The following procedure must be followed to assure a straight, strong wing.

❏ 1. Cover the bottom, then the top of the wing, but **do not shrink the covering until instructed to do so**. Do your best to minimize wrinkles without applying heat, thus reducing the amount of shrinking that will be required later on.

❏ 2. Cover the bottom, then the top of both ailerons the same way. **Do not** shrink the covering until instructed to do so.

❏ 3. Cut both 3/4" x 1" [9 x 25mm] hinge strips into (12) **hinges** as shown on the plan.

CUT HINGE SLOT
WITH HOBBY KNIFE
AND #11 BLADE
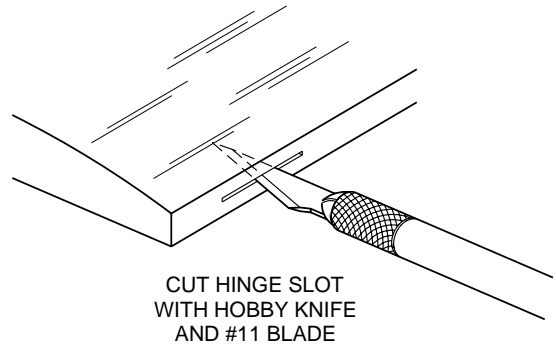
❏ 4. Use a hobby knife to cut 1/8" [3mm] hinge slots in the trailing edge of the wing and the leading edge of the ailerons where shown on the plan.

ASSEMBLE, THEN APPLY 3 DROPS
OF THIN CA TO CENTER
OF HINGE, ON BOTH SIDES
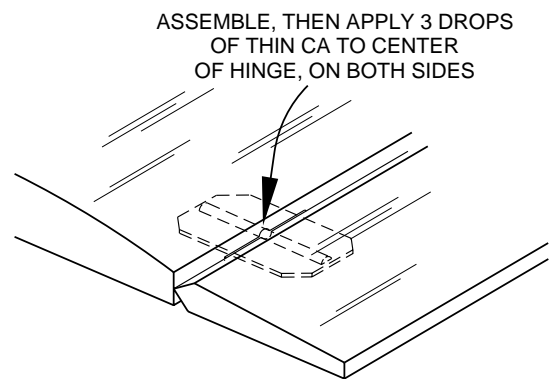
❏ 5. Join the ailerons to the wing with the hinges. Apply 3 drops of thin CA to each side of each hinge.

❏ 6. Proceeding slowly, heat the top and bottom of one side of the wing to shrink the covering. Heat each side a little at a time, so the top and bottom shrink simultaneously. Use only enough heat to remove the wrinkles. Avoid fully shrinking and tightening the covering. After the wrinkles have disappeared, use a covering iron to bond the covering to the ribs, to the servo mounting rails, to the aileron cross-braces and to the control horn brace.

❏ 7. Use the same procedure to remove the wrinkles from the other side of the wing and the ailerons.

❏ 8. Trim the covering from the servo mounting rails and the control horn braces in the ailerons.

Cover the Tail Surfaces

❏ 1. Cover both sides of the fin, shrinking the covering evenly and only as much as necessary to remove the wrinkles.

❏ 2. Cover the stab and the elevator.

❏ 3. Join the elevator to the stab with the hinges, then heat the covering evenly on both sides to remove the wrinkles.

FINAL ASSEMBLY

Mount the Control Horns
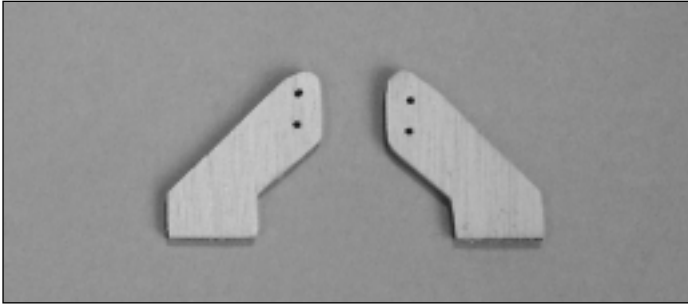
❏ 1. Drill two #60 (.040") [1mm] holes through the punch marks in the die-cut 1/16" **control horns**.
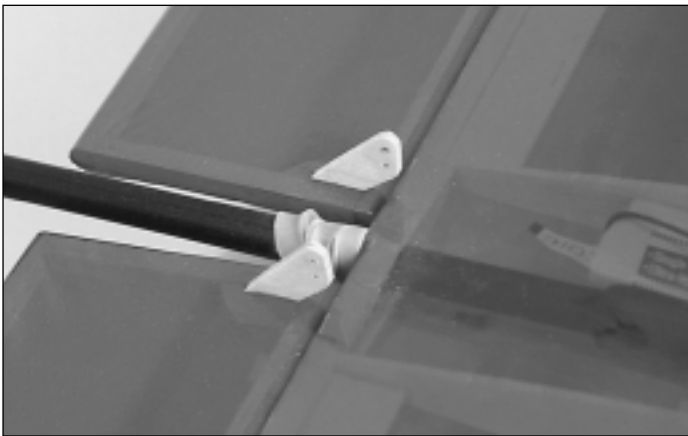
❏ 2. Glue the control horns into position in each of the ailerons and the elevator, making sure they are vertical to the control surface.

Mount the Stab and Fin

❏ 1. Slide the stab and elevator onto the fuselage tube. Make sure you have a good fit between the tube and the slot in the stab. Sand or shim the stab as needed to get a good fit. Be sure that the elevator moves up and down freely without any binding when the stab is mounted.
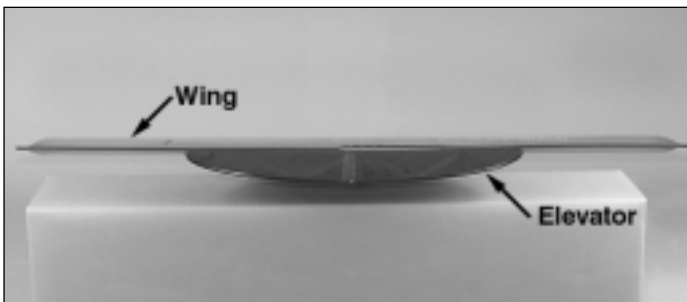
❏ 2. Make sure that the stab is parallel with the wing as shown in the photo above. Glue the stab to the fuselage tube with medium CA.
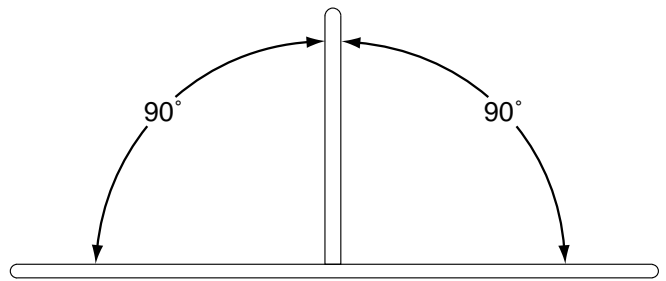
❏ 3. Slide the fin into the slot in the rear of the fuselage tube. Be sure that the fin is 90 degrees to the stab and parallel with the fuse, then glue the fin into the slot.

Mount the Battery
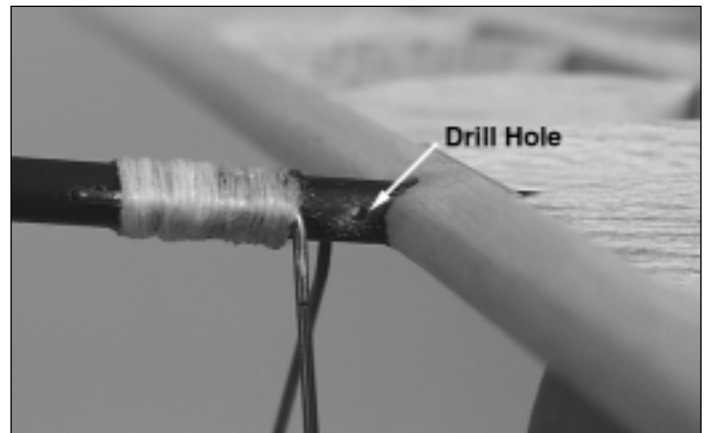
❏ 1. Drill a 5/64" [2mm] hole for the battery hook through one side of the fuselage tube between the leading edge of the wing and the landing gear. *(If you don't have a 5/64" [2mm] drill bit you could use a 1/16" [1.6mm] drill bit, but you'll have to enlarge the hole with a hobby knife.)*

❏ 2. Make the **battery hook** from .074 x 2" [1.9 x 50mm] wire.
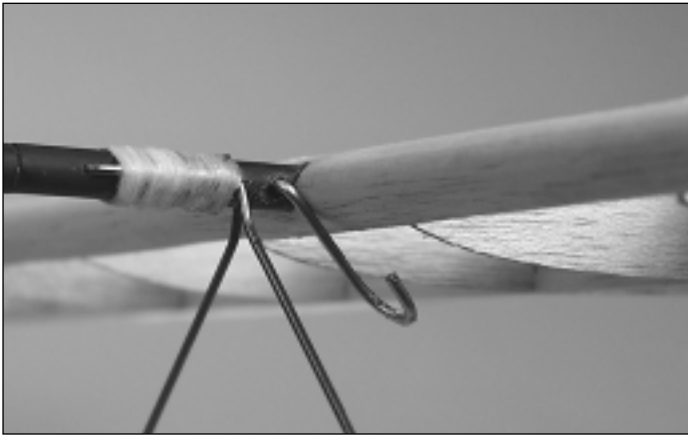
❑ 3. Use medium CA to glue the hook into the hole you drilled in the fuselage tube.

❑ 4. Hook two #64 rubber bands around the fuselage tube behind the wing, then connect them to the battery hook. Mount the battery pack between the wing and the rubber bands. Later, the exact location of the battery will be determined to balance the model.

Mount the Motor and Speed Control

❑ 1. Glue both die-cut 1/16" [1.6mm] plywood **motor mounts** together to form a 1/8" [3.2mm] motor mount.

❑ 2. Drill a 1/8" [3.2mm] hole though the three punch marks in the motor mount.

❑ 3. Drill a 3/32" [2.4mm] hole into the center of the wooden dowel in the front of the fiberglass pushrod.

❑ 4. Attach the motor mount to the front of the fuselage with a #4 washer and a #4 x 1/2" [3.2mm] screw.

❑ 5. Use electrical solder to tin the end of the white and blue wires coming from the speed control. **Do not** use silver solder as it is not suitable for electrical purposes and the flux will corrode the wires.
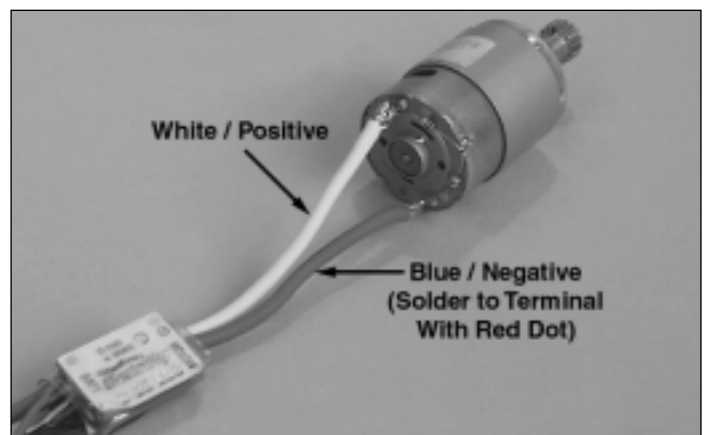
❑ 6. Solder the **blue** wire (negative) on the speed control to the tab on the motor that has a **red dot** (positive). Solder the **white** wire (positive) to the other tab on the motor (negative). **Note:** The speed control is connected to the motor "backwards" due to the gear reduction, which would otherwise cause the propeller to turn backwards.
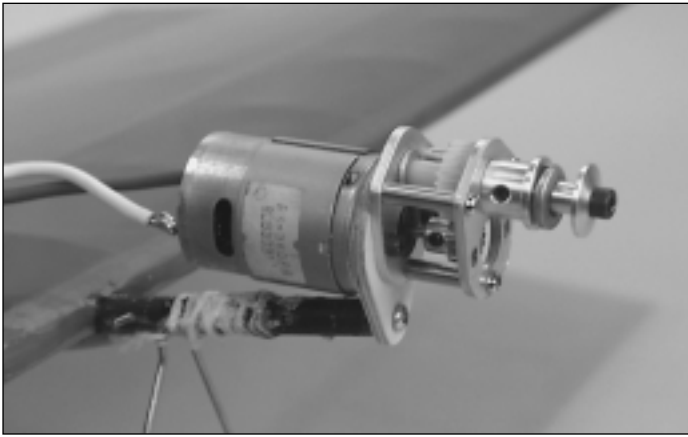
❏ 7. Mount the motor and gear box to the motor mount as shown, using the screws included with the system.

Balsa Block
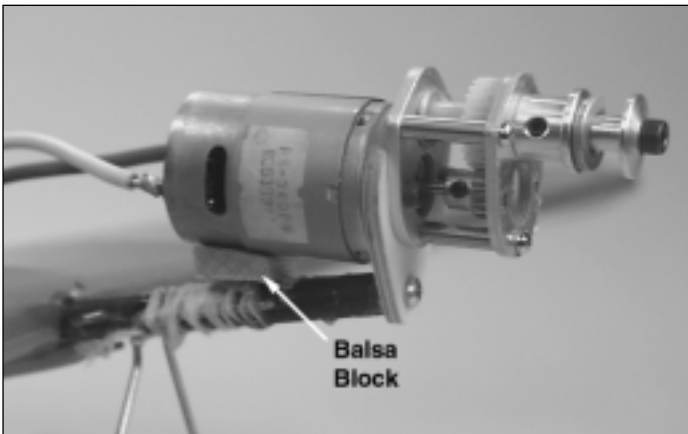
❏ 8. Make a tapered 3/16" spacer from leftover balsa and glue it to the fuselage under the aft end of the motor as shown on the plan.
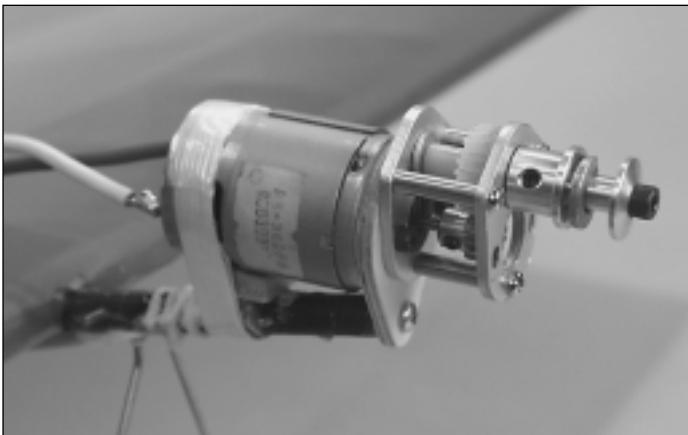
❏ 9. Secure the back of the motor to the fuselage with nylon tape or a tie wrap (not included).

Final motor connections will be done when the servos and receiver are installed.

Mount the Radio

The Hitec Feather Receiver is shown in these instructions.
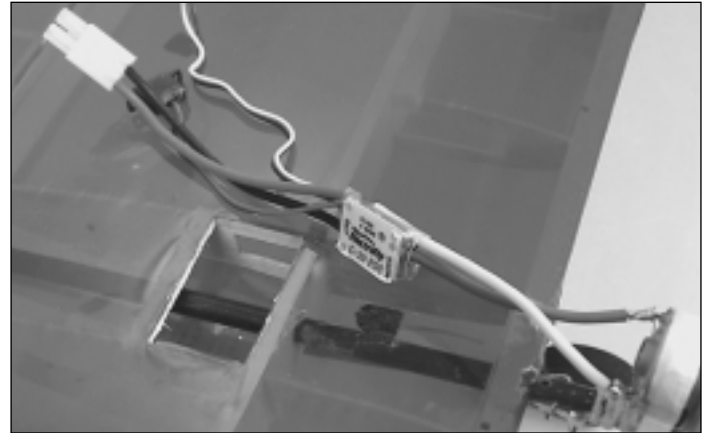
❏ 1. If you haven't yet done so, trim the covering from the servo bay as shown.

❏ 2. Connect the aileron servo to slot number one on the receiver, the elevator to number two and the speed control to number three.

❏ 3. Insert the receiver into the servo bay opening along side of the fuselage. (If you are using a larger receiver you can mount it outside the wing and secure it with rubber bands.)

❏ 4. Drill 1/16" [1.6mm] holes in the servo rails for mounting the servos. Add a drop of thin CA to the holes and allow to harden. Mount the servos to the rails.

Now let's make the pushrods!

❏ 5. Cut the 1/16" x 24" [1.6 x 610mm] aluminum tube into one 17-1/4" [438mm] piece and two 3-3/8" [86mm] pieces to make the **pushrod tubes. Hint:** The tubing is easily cut by placing the edge of your hobby knife blade on the tube, then rolling the tube back and forth until it cuts through.

❏ 6. Cut the .03" x 10" [.76 x 254mm] wire into four 1-1/2" [38mm] pieces and two 3" [76mm] pieces.

❑ 7. Place a couple of drops of medium CA on the end of one 3-3/8" [86mm] pushrod tube. Insert a 1-1/2" [38mm] wire into the tube approximately 1/2" [13mm]. Allow the CA to harden, or give it a "spritz" of CA accelerator. Do the same at the other end of the tube. Repeat for the other 3-3/8" [86mm] tube. These pushrods will be for the ailerons.

❑ 8. Follow the same procedure for the 17-1/4" [438mm] tube, inserting the 3" [76mm] wire 1/2" [13mm] into each end of the tube. This will be the elevator pushrod.
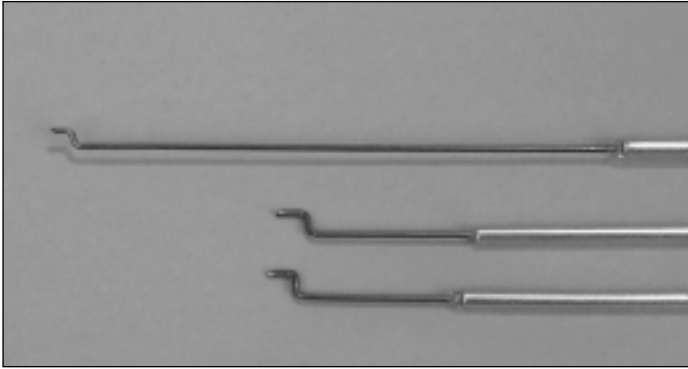
❑ 9. Make a Z – bend at **one end only** of all three pushrods as shown.

CUT OFF UNUSED ARMS
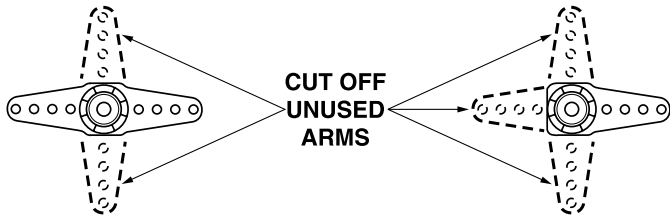
❑ 10. Using the servo horns supplied with your servos, make one *single* servo arm and one *twin* servo arm as shown.

❑ 11. Center the aileron servo and mount the twin servo arm to it.
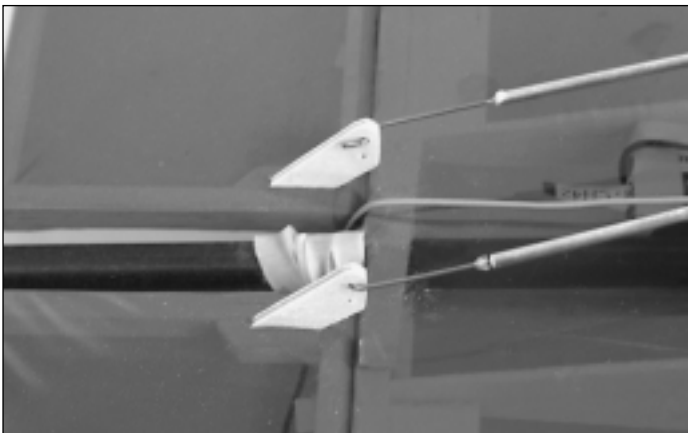
❑ 12. Insert the aileron pushrods that have the Z-bend into the aileron control horns.
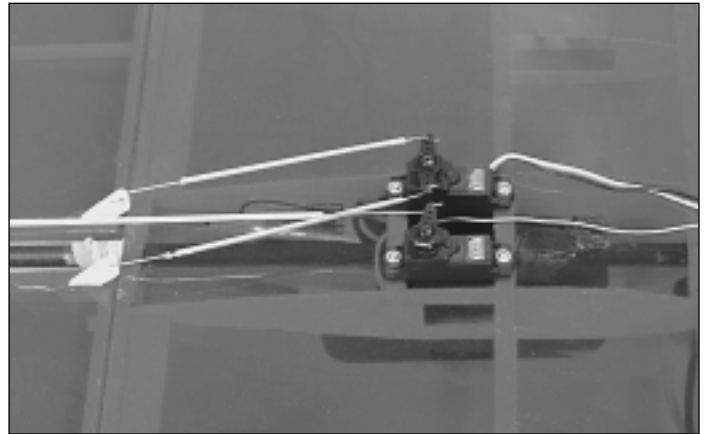
❑ 13. Center the aileron, then mark the end of the pushrod wire where it attaches to the servo. Make another Z- bend at the mark and insert it into the servo horn. Do this for both aileron servos.

❑ 14. Use the same procedure to install the elevator pushrod.
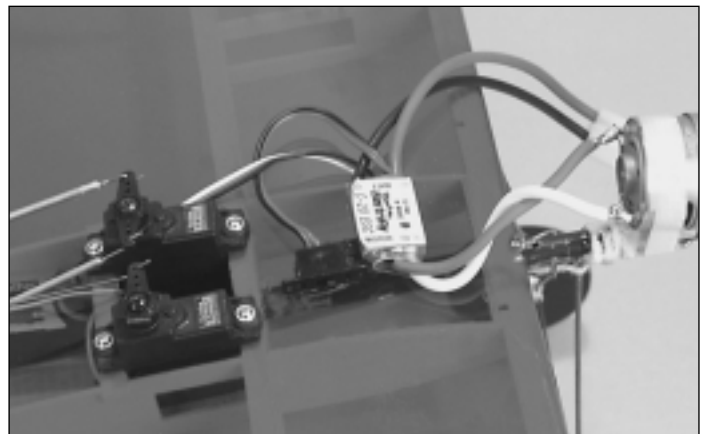
❑ 15. Mount the speed control and the on/off switch to the top of the fuselage with double-sided foam mounting tape (not included).

❑ 16. Extend the receiver antenna to the back of the fuselage and hold it to the stabilizer with cellophane tape. Be certain there is no way that the antenna can reach the propeller! Never coil-up the antenna, nor cut it. The antenna length is tuned to a certain radio frequency.

PREPARE THE MODEL FOR FLYING

Set the Control Throws

❑ 1. For safety, remove the propeller from the motor. Move the throttle stick to the off position. Connect the charged battery to the speed control. Turn on the transmitter, then follow the instructions that came with your speed control to turn on the receiver.

Warning: Whenever the model is not being flown or set up, the battery should be disconnected.

3-CHANNEL RADIO SETUP
(STANDARD MODE 2)
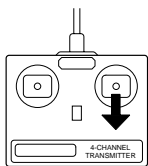
ELEVATOR MOVES UP
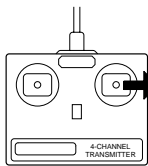
RIGHT AILERON MOVES UP
LEFT AILERON MOVES DOWN
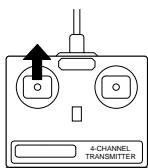
MOTOR TURNS

❑ 2. Center the trims on the transmitter. Operate the servos by moving the control sticks. Check that the servos respond in the correct direction as shown in the diagram. If necessary, use the servo reversing function in your transmitter to get the controls to respond correctly.

❑ 3. Operate the controls with the transmitter and use a ruler to measure the throws. Use the ATV function in the transmitter to set the control throws according to the chart that follows. If your transmitter does not have dual rates, set up the Fundango on the **low** rate settings. After you become accustomed to the way the Fundango flies, you may begin increasing the throws until you get to the high-rate settings.

These are the recommended control throws:

	High rate	Low rate
Elevator:	2" [51mm] up	1" [25mm] up
	2" [51mm] down	1" [25mm] down
Ailerons:	1-1/8" [29mm] up	1/2" [13mm] up
	1-1/8" [29mm] down	1/2" [13mm] down

IMPORTANT: The Fundango has been extensively tested. These are the control throws at which it flies best. If, after you become comfortable with the way the Fundango flies, you would like to adjust the throws to suit your taste, that is fine. However, on the high-rate settings the Fundango can already do all the maneuvers "in the book," so there shouldn't be any requirement to increase the throws. Doing so could make the model too difficult to control, so remember, "more is not always better."

❑ 4. Switch off the transmitter and disconnect the battery.

Balance the 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.

3-1/16"

Center of Gravity:
3-1/16" From Leading Edge
Total Range: 2-7/8" to 3-9/16"
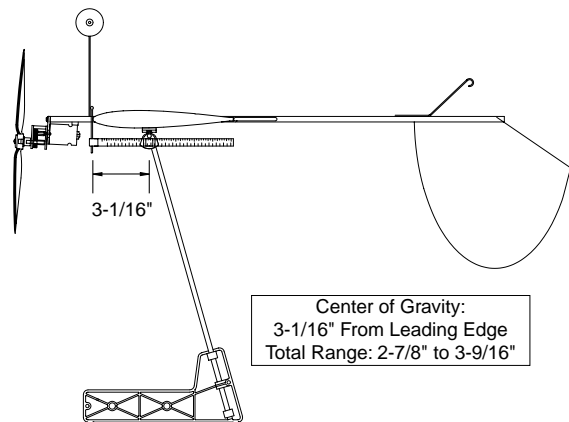
❑ 1. Use 1/8"-wide tape or a felt-tip pen to accurately mark the balance point on the **top** of the wing on both sides of the fuselage. The balance point **(CG)** is located **3-1/16" [78mm]** from the leading edge as shown in the sketch and on the plan. This is the balance point at which the Fundango should balance for your first flights. If, after initial trim flights you have become accustomed to the way the Fundango flies, you may wish to experiment by shifting the balance point 3/16" [5mm] forward to 1/2" [13mm] back to change the flying characteristics. Moving the balance point **forward** may improve the stability and make the model easier to fly, but it may not climb as rapidly and will be less aerobatic. Moving the balance **aft** makes the model more maneuverable and aerobatic, but it could be too difficult to control if you are not an experienced pilot. In any case, start at the balance point recommended and do not **at any time** balance the model outside the recommended range.

❏ 2. With the battery mounted to the fuselage, lift the model upside-down at the balance point. If the **tail** drops, the model is "tail heavy" and you must shift the battery pack forward to balance the model. If the **nose** drops, it is "nose heavy" and you must shift the battery aft to balance the model.

❏ 3. Shift the battery pack until the model balances at the balance point recommended. Use narrow masking tape or a felt-tip pen to mark the location of the battery pack on the bottom of the wing. Be certain this is where you always mount the battery pack when it's time to fly so the model will be properly balanced.

PREFLIGHT

Charge the Batteries

Follow the transmitter battery charging procedures in your radio's instruction manual. Charge the transmitter batteries the night before you go flying and at other times as recommended by the radio manufacturer.

Charge the motor battery following the instructions that came with the battery charger and the guidelines in the front of this manual.

Identify Your Model

No matter if you fly at an AMA sanctioned R/C club site or if you fly somewhere on your own, you should always have your name, address, telephone number and AMA number on or inside your model. It is **required** at all AMA R/C club flying sites and AMA sanctioned flying events. Fill out the identification tag on the center spread of this manual and place it on or inside your model.

Ground Inspection

Before you fly you should perform one last overall inspection to make sure the model is truly ready to fly and that you haven't overlooked anything. If you are not thoroughly familiar with the operation of R/C models, ask an experienced modeler to perform the inspection. Check to see that you have the radio installed correctly and that all the controls are connected properly. The motor must also be checked by confirming that the prop is rotating in the correct direction and the motor sounds like it is reaching full power. Make certain all control surfaces are secure, the pushrods are connected, the controls respond in the correct direction, radio components are securely mounted and the C.G. is correct.

Range Check

Ground check the operational range of your radio before the first flight of the day. 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 an assistant stand by your model and, while you work the controls, tell you what the control surfaces are doing. Repeat this test **with the motor running** at various speeds with an assistant holding the model, using hand signals to show you what is happening. If the control surfaces do not respond correctly, **do not fly!** Find and correct the problem first. Look for loose servo connections or broken wires, corroded wires on old servo connectors, poor solder joints in your battery pack or a defective cell, or a damaged receiver crystal from a previous crash.

NOTE: It is possible for the motor to cause interference. If you experience a range problem or notice the servos "glitching," install an additional .01 μF capacitor between the motor leads, then repeat the range check with the motor running.

PERFORMANCE TIPS

Cycle the Batteries

For the longest flight duration and to get the most from a new battery, the battery should be cycled. "Cycling" a battery means to fully charge ("peak" charge) the battery, then to discharge it. Many battery chargers have peak charging and automatic discharging capabilities. If you do not have a charger that is able to discharge batteries, you can discharge the battery yourself by running the motor with the propeller attached until the propeller spins slowly. Charge and discharge the battery 3 or 4 more times on the ground before flying. Be sure to remove the battery from the airplane between each cycle and allow it to cool before recharging.

Examine the Propeller

Use 400-grit sandpaper to remove imperfections along the edges of the propeller. For the best performance, use a Top Flite Precision Magnetic Prop Balancer™ (TOPQ5700) to balance the propellers (this is a necessity on glow-powered engines, but less critical on small electric models).

Motor Care

1. "Break-in" the motor by running it at 1/4 throttle **without** the propeller for at least ten minutes. This will ensure that the motor will provide full power for the first flight and will extend the overall life of the motor. Install the propeller onto the gear box shaft.

2. Using multiple battery packs for successive flights may cause the motor to become excessively hot, thus causing damage. Allow the motor to cool for at least 10 minutes between flights.

FIND A SAFE PLACE TO FLY

Though the Fundango is a "Park Flyer," the **best** place to fly **any** model is at an AMA chartered club field. Club fields are set up for R/C flying making your outing safer and more enjoyable. We recommend that you join the AMA and a local club so you can have a safe place to fly and have insurance to cover you in case of a flying accident. The AMA address and telephone number are in the front of this manual.

If there is no club or R/C flying field in your area, find a suitable site that is clear of trees, telephone poles, buildings, towers, busy streets and other obstacles. Since you are not flying at a sanctioned AMA site, be aware that there may be others like yourself who could be flying nearby. If both of your models happen to be on the same frequency, interference will likely cause one or both of the models to crash. An acceptable minimum distance between flying models is five miles, so keep this in mind when searching for a flying site.

In addition to obstacles, it is important to be aware of people who may wander into the area once you begin flying. At AMA club flying sites it is a severe rule infraction to fly over others. You should avoid flying over people no matter where you fly. R/C models tend to attract onlookers whose numbers can soon multiply forming small, uncontrolled crowds. Onlookers pose two main problems. First is the danger of actually crashing your model into a person, causing injury. Second is the distraction of those who ask you questions while you are trying to concentrate on flying. To minimize or avoid this problem, have an assistant standing by who can spot people who wander into your flying site (so you can avoid flying over them) and who can perform "crowd control" if people start to gather.

MOTOR SAFETY PRECAUTIONS

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

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

Use safety glasses when running motors.

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

Keep your face and body as well as all spectators away from the path of the propeller as you start and run the motor.

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

The electric motor and battery used in the Fundango are very powerful and the spinning propeller has a lot of momentum; therefore, if you touch the propeller while it is spinning it may inflict severe injury. Respect the motor and propeller for the damage they are capable of and take whatever precautions are necessary to avoid injury. Always disconnect and remove the motor battery until you are ready to fly again and always make sure the switches are turned off before connecting the battery.

Be aware that the motor may suddenly start when you attach the battery. Please keep away from the prop when attaching the battery.

AMA SAFETY CODE (EXCERPTS)

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.

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

Radio Control

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

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

3. I will perform my initial turn after takeoff away from the pit, spectator and parking areas and I will not thereafter perform

maneuvers, flights of any sort or landing approaches over a pit, spectator or parking area.

4. I will operate my model using only radio control frequencies currently allowed by the Federal Communications Commission.

FLYING

IMPORTANT: The Fundango is a great park flyer that flies smoothly and predictably, yet is surprisingly aerobatic. It does not, however, possess the self-recovery characteristics of a primary R/C trainer and should only be flown by experienced RC pilots. If you know how to fly, but are not experienced with aerobatic models, seek the assistance of a competent, experienced R/C pilot who can check your model for airworthiness and help you fly it.

The Fundango is capable of performing a broad range of aerobatics - from simple loops and rolls to impressive rolling circles. Have Fun!

Takeoff

Whether you have built your Fundango with or without landing gear, hand-launching is recommended for the first few flights until you get the model properly trimmed and set up for flight.

Turn on the transmitter and plug the battery into the speed control. Turn on the receiver by following the instructions that came with the speed control.

IMPORTANT: Confirm that the transmitter operates the controls by moving the sticks and watching the surfaces respond. Occasionally, electric models have been launched with the transmitter turned off or the battery disconnected from the speed control!

When ready to launch, an assistant should hold the model by the sides of the battery pack just behind the landing gear and raise the model above his head. Point the model **into the wind**. With the pilot *(that would be you!)* standing behind the plane, fully advance the throttle to start the motor. As soon as the motor is at full power, the hand-launcher should gently toss the plane into the air at a **level** or **slightly** nose-up attitude. Be certain the model is being launched **into** the wind and be immediately ready to make corrections to keep the airplane flying straight, level and into the wind.

When the model has gained adequate flying speed under its own power, **gently** pull the elevator stick back until the airplane starts a gradual climb. Be gentle on the elevator and don't panic. If you pull too hard and notice the model losing speed, release the elevator stick and allow the model to regain airspeed.

Continue a **gradual** climb and establish a gentle turn (away from other people) until the model reaches an altitude of 75 to 100 feet.

Flight

Fly on **low** control rates until you have become accustomed to the Fundango. If you find that the model is a bit of a handful, throttle back to slow it down, allowing time to think clearly and react.

Once at a comfortable altitude, the first priority is to adjust the trims so the model flies straight and level. Continue to fly around, executing turns and making mental notes (or having your assistant take notes for you) of what additional adjustments or C.G. changes may be required to fine tune the model so it flies the way you like.

Before it's time to land, climb to a safe altitude and cut the throttle to an idle and note how the model reacts. Do this a few times so you know what to expect when it's time to land.

After you've gotten a few trim flights under your belt and you are comfortable with the way the Fundango flies, you can "cut it loose" and start flying some aerobatic maneuvers. Remember to keep your maneuvers at a safe altitude until you know what to expect.

Landing

The Fundango lands about the same as any other model, it just requires much less space! When it's time to land, fly a normal (but smaller) landing pattern and approach. Keep a few clicks of power on until you are over the runway threshold. This model does not stall hard on landing and will *3-point* nicely. If flying without landing gear, land with the throttle off to avoid a prop strike.

ROG (Rise Off Ground) Takeoff

If you have built the Fundango with landing gear you may take off from a smooth surface—it probably won't takeoff from grass.

After you have trimmed the Fundango for flight and have become familiar with its characteristics, you may execute ROG takeoffs. Taking-off on the **low** rate settings is recommended. Place the model on the runway pointing into the wind. Typically, with most R/C models it is best to advance the throttle smoothly and allow the plane to build up as much speed as possible before lifting off. However, with the Fundango it is best to get the model into the air quickly. To do this, advance the throttle rapidly and allow the model to lift from the runway as soon as it reaches flying speed—which should be about fifteen feet or less. You will have little directional control until the model is in the air, but if taking off into the wind the model should track fairly straight on its own. Once in the air establish a climb the same as when you were hand-launching.

Best of luck and happy flying!

SLOW FLY PROP APC 10 X 6
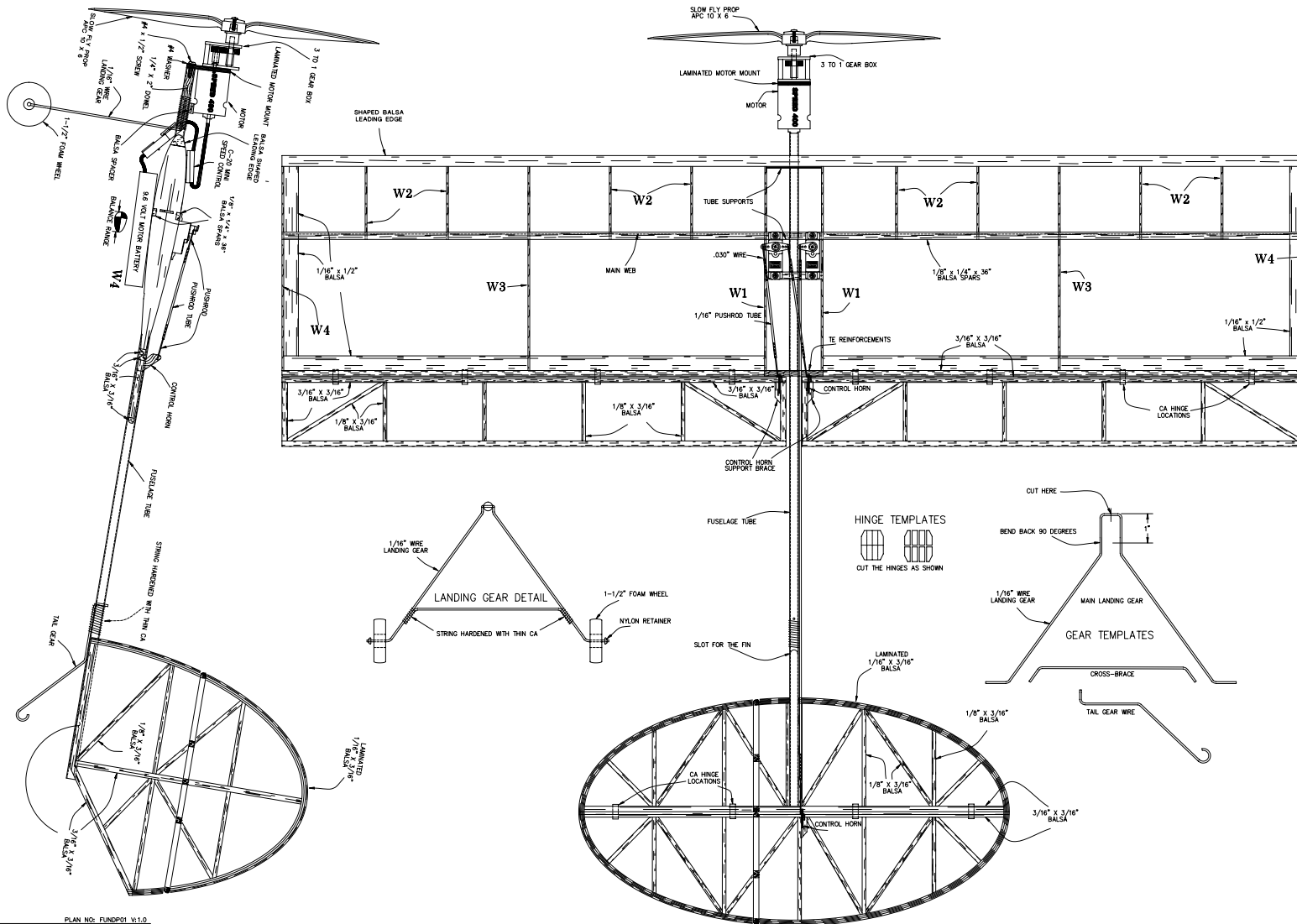
#4 x 1/2" SCREW

1/4" WASHER

1/16" WIRE LANDING GEAR

1/8" x 2" DOWEL

3 TO 1 GEAR BOX

#4 x 1/2" SCREW

LAMINATED MOTOR MOUNT

MOTOR

BALSA SHAPED LEADING EDGE

1-1/2" FOAM WHEEL

BALSA SPACER

C-20 MINI SPEED CONTROL

9.6 VOLT MOTOR BATTERY

1/4" x 1/4" x 36" BALSA SPARS

BALANCE RANGE

W4

PUSHROD

PUSHROD TUBE

CONTROL HORN

FUSELAGE TUBE

STRING HARDENED WITH THIN CA

3/16" x 3/16" BALSA

TAIL GEAR

1/8" X 3/16" BALSA

3/16" X 3/16" BALSA

LAMINATED 1/16" X 3/16" BALSA

SLOW FLY PROP APC 10 X 6

3 TO 1 GEAR BOX

LAMINATED MOTOR MOUNT

MOTOR

SHAPED BALSA LEADING EDGE

W2

W2

TUBE SUPPORTS

W2

W2

W4

.030" WIRE

1/8" x 1/4" x 36" BALSA SPARS

W3

MAIN WEB

W3

1/16" x 1/2" BALSA

W4

W1

W1

1/16" PUSHROD TUBE

1/16" x 1/2" BALSA

TE REINFORCEMENTS

W4

3/16" X 3/16" BALSA

3/16" X 3/16" BALSA

3/16" x 3/16" BALSA

CONTROL HORN

1/8" X 3/16" BALSA

1/8" X 3/16" BALSA

1/8" X 3/16" BALSA

CA HINGE LOCATIONS

CONTROL HORN SUPPORT BRACE

FUSELAGE TUBE

LANDING GEAR DETAIL

1/16" WIRE LANDING GEAR

1-1/2" FOAM WHEEL

NYLON RETAINER

STRING HARDENED WITH THIN CA

SLOT FOR THE FIN

HINGE TEMPLATES

CUT THE HINGES AS SHOWN

CUT HERE

BEND BACK 90 DEGREES

1/16" WIRE LANDING GEAR

MAIN LANDING GEAR

GEAR TEMPLATES

CROSS-BRACE

TAIL GEAR WIRE

LAMINATED 1/16" X 3/16" BALSA

1/8" X 3/16" BALSA

1/8" X 3/16" BALSA

3/16" X 3/16" BALSA

CA HINGE LOCATIONS

CONTROL HORN

QUESTIONS??

e-mail us at
productsupport@greatplanes.com
or call (217)398-8970
Visit our Web Site at
www.greatplanes.com

CENTER OF GRAVITY:
3-1/16" From Leading Edge
(Total Range: 2-7/8" to 3-9/16")

INCIDENCES:	
Wing:	0 degrees
Stabilizer:	0 degrees
Motor:	0 degrees right
Motor:	2 degrees down

CONTROL THROWS:		
SURFACE	HI RATE	LOW RATE
Elevator:	2" up	1" up
Elevator:	2" down	1" down
Aileron:	1-1/8" up	1/2" up
Aileron:	1-1/8" down	1/2" down

B

C

2-View
Use these 2-views(or photocopy them)
to design your trim scheme.

D

A