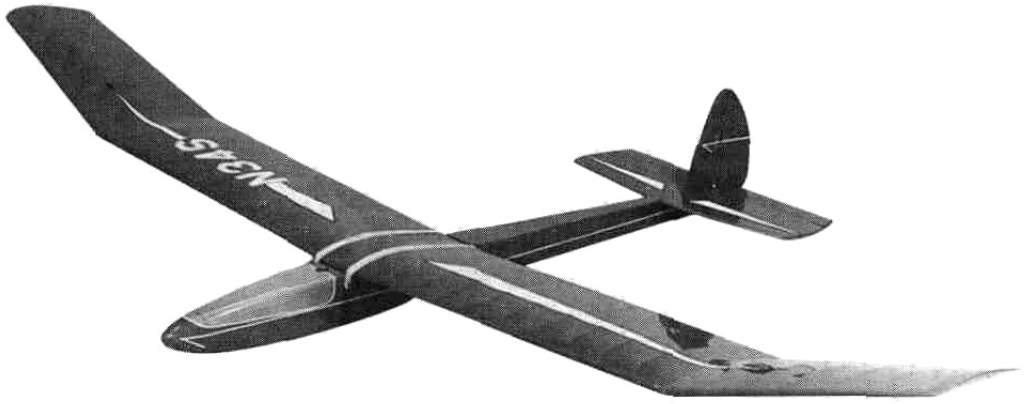
Dynaflite™

Wanderer™

- *Simple Entry Level Construction*
- *Stable Flight Characteristics*
- *Excellent R/C Trainer*

READ THROUGH THIS INSTRUCTION MANUAL FIRST. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY 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 you are 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

WANDP03 Printed in USA

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INTRODUCTION

Congratulations on your choice of this kit for your next project. If you are new to radio control modeling, we would like to take a minute to give you some background on the Wanderer.

The 72" version of the Wanderer was developed by Mark Smith as a first-time building and flying project. Since its introduction in 1975, over 85,000 kits have been produced. Over the years the Wanderer has been updated with many changes recommended to us by first-time builders. The Wanderer still has the same basic aerodynamics as the original kit, but has been simplified to make assembly quicker and easier.

At Dynaflite we take pride in offering kits that are simple and straightforward to build and provide value for your modeling dollar.

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

To make your R/C modeling experience totally enjoyable, we recommend that you get assistance with 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 below:

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

PRECAUTIONS

1. You must assemble the sailplane 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 instructions may differ slightly from the photos or plan. In those instances the text should be taken as correct.

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

3. You must install all R/C 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 the first and each successive flight to insure that all equipment operates correctly. You must also make certain that the model has remained structurally sound, especially after a rough landing.

NOTE: We, as the kit manufacturer, provide you with a quality kit and great instructions, but ultimately the quality and flyability of your finished model depends on how you assembled 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 inventory and inspect all parts carefully before starting to build. If any parts are missing, broken or defective, or if you have any questions about building or flying this model, please call us at (217) 398-8970 and we'll be glad to help. If you are calling for replacement parts, please look up the part numbers and have them ready when calling.

PREPARATIONS

REQUIRED ITEMS

These are the items not included with your kit; you will need to purchase them separately. Items in parentheses (GPMQ4243) are suggested part numbers recognized by distributors and hobby shops and are listed for your ordering convenience. **GPM** is the Great Planes® brand, **TOP** is the Top Flite® brand, **HCA** is the Hobbico® brand and **DYN** is the Dynaflite™ brand.

- ❑ 2 - 4 channel radio with two standard servos.
- ❑ Top Flite MonoKote® (Approximately 2 rolls)
- ❑ 1/4" Latex Foam Rubber (HCAQ1050)
- ❑ Switch and Charge Jack (GPMM1000)
- ❑ 2 Meter Up-Start (DYNP8305) or Standard Hi-Start(DYNP8301)

SUGGESTED BUILDING SUPPLIES

*We recommend **Great Planes Pro™** CA and Epoxy glue.*

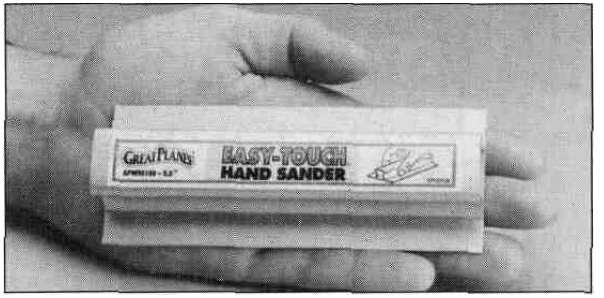
- ❑ 2 oz. Pro CA (Thin, GPMR6003)
- ❑ 1 oz. Pro CA- (Thick, GPMR6014)
- ❑ 6-Minute Pro Epoxy (GPMR6045)
- ❑ 30-Minute Pro Epoxy (GPMR6047)
- ❑ 4 oz. Pro Wood Glue (GPMR6161)
- ❑ Hand or electric drill
- ❑ Sealing Iron (TOPR2100)
- ❑ Hobby saw

SUGGESTED BUILDING SUPPLIES, CON'T.

- ❑ Hobby Knife (HCARO105)
- ❑ #11 Blades
- ❑ Pliers (Common and Needle Nose)
- ❑ Screw driver (Phillips)
- ❑ T-pins(HCAQ5150)
- ❑ 60" Retractable Tape Measure (HCAR0478)
- ❑ Straightedge With Scale
- ❑ Masking Tape (TOPR8018)
- ❑ Sandpaper (coarse, medium, fine grit)
- ❑ Easy-Touch™ Bar Sander (or similar)
- ❑ Plan Protector (GPMR6167)
- ❑ Lightweight Balsa Filler such as Hobbico® HobbyLite™ (Hobbico HCAR3400)
- ❑ Isopropyl Rubbing Alcohol (70%)
- ❑ Ballpoint Pen
- ❑ 90° Building Square
- ❑ Heavy Sewing Thread **(any color)**
- ❑ #64 Rubber Bands
- ❑ Drill bits: 1/16", 5/64", 3/32", and 3/16"

OPTIONAL BUILDING SUPPLIES

- ❑ CA Applicator Tips (HCAR3780)
- ❑ Epoxy Brushes (GPMR8060)
- ❑ Epoxy Mixing Sticks (GPMR8055)
- ❑ CA Debonder (GPMR6039)
- ❑ Hot Sock™ (TOPR2175)
- ❑ Single Edge Razor Blades (HCAR031**2)**
- ❑ Heat Gun (TOPR2000)
- ❑ Razor Plane (Master Airscrew®)



Great Planes **Easy-Touch Bar Sanders** are made from lightweight extruded aluminum and can be found at most hobby shops. They are available in five sizes - 5-1/2" (GPMR6169) for those tight, hard to reach spots; 11" (GPMR6170) for most general purpose sanding; and 22" (GPMR6172), 33" (GPMR6174) and 44" (GPMR6176) for long surfaces such as wing leading edges. **Easy-Touch Adhesive-Backed Sandpaper** comes in 2" x 12" rolls of 80-grit (GPMR6180), 150-grit (GPMR6183) and 220-grit (GPMR6185) and an assortment of 5-1/2" long strips (GPMR6189) for the short bar sander. The adhesive-backed sandpaper is easy to apply and remove from your sanding bar when it's time for replacement.

Custom sanding blocks can be made from balsa or hardwood blocks and dowels for sanding difficult to reach spots.

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** and then slightly modify or sand the part as necessary for the best fit.

- Whenever the instructions tell you to glue pieces together, thin CA should be used. When a **specific** type of glue is required, the instructions will state the type of glue that is **highly recommended.** 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.

- **Do not throw away any leftover material** until after you have completed your model. Some small pieces of leftover balsa or plywood are used during construction.

This kit is built using three types of glue.

Cyanoacrylate - CA glues cure almost instantly and are moderately strong. There are three common types used: thin, medium and thick. Thin CA cures the fastest but will not span gaps between parts. Medium and thick CA are used where parts do not fit perfectly. CA glue does not bond well to most plywoods and hardwoods. CA glues are also brittle. When using CA glues we recommend keeping a bottle of CA debonder on your building table in case you need to undo a joint or "un-stick" your fingers.

Aliphatic Resin - Resin glues require that parts be pinned or clamped together while the glue dries - typically 15 to 30 minutes. Resin glues are very strong and work well with balsa and plywoods.

Epoxy - Six-minute epoxy cures the fastest; it sets within six minutes but is not fully cured for one hour or more. Thirty-minute epoxy is the strongest as it allows the epoxy to soak into the wood thoroughly. While it sets within 30-minutes, it is not fully cured for two or more hours.

GLOSSARY OF TERMS USED IN THIS MANUAL AND PLANS

Airfoil: A curved structure designed to create lift by the reaction to air moving over its surface.

C.G. (Center of Gravity): This is the point at which the model balances forward and aft and side-to-side.

Clevis: A small clip which is threaded onto the wire end of a pushrod and connects the pushrod to the control horn of a control surface. The threads allow fine adjustment of pushrod length.

Control Horn: The arm which is attached to a control surface at the hingeline and is connected to a pushrod.

Die-Cut Parts: Precut parts stamped out of a sheet of wood. The parts require a minimum of preparation.

Dihedral: The V-shaped bend in the wing. Typically more dihedral causes more aerodynamic stability in an airplane, and allows the rudder to control both the roll and yaw axis.

Doubler: Part of the structure that is laminated to another part to increase its strength.

Elevator: The hinged control surface located at the trailing edge of the horizontal stabilizer, which provides control of the model about the pitch axis and causes the model to climb or dive. The correct direction of control is to pull the transmitter elevator control stick back, towards the bottom of the transmitter, to move the elevator upward, which causes the airplane to climb. Pushing the control stick forward will cause the model to dive.

Foam Rubber: A soft foam material used to wrap the receiver and receiver battery for protection.

Gusset: A brace used to reinforce the joint between 2 parts.

GLOSSARY OF TERMS USED IN THIS MANUAL AND PLANS CONTINUED

High-Start: A device used to launch a model glider like a slingshot. This device consists of a stake, an elastic tube/ monofilament line (or string), a parachute or streamer and a ring for attaching the high-start to the glider.

Laminate: The process of gluing a multiple number of sheets face-to-face to increase strength.

Horizontal Stabilizer: The non-moving horizontal tail surface at the back of the fuselage which provides aerodynamic pitch stability.

Pitch Axis: The sailplane axis controlled by the elevator. Pitch is illustrated by holding the sailplane at each wing tip. Raising or lowering the nose is the pitch movement.

Pushrod: A rigid piece of steel, plastic or wood used to transfer movement from a servo to a control surface.

Receiver (RX): The radio unit in the sailplane which receives the transmitter signal and relays the control to the servos. This is somewhat similar to the radio you may have in your family automobile, except the radio in the glider perceives commands from the transmitter and the radio in your car perceives music from the radio station.

Rudder: Hinged control surface located at the trailing edge of the vertical stabilizer, which provides control of the sailplane about the yaw axis and causes the sailplane to yaw left or right. Left rudder movement causes the sailplane to yaw left and right rudder movement causes it to yaw right.

Sailplane: An airplane which flies without an engine. Sailplanes are designed to ride on warm, rising air currents, called thermals. Sailplanes are launched by several methods: a giant sling shot called a high-start; a winch which pulls the sailplane up like a kite; or with the assistance of a small engine or electric motor.

Servo: The electronic/mechanical device which moves the control surfaces of the sailplane according to the commands from the receiver. The radio device which does the physical work inside the sailplane.

Servo arm: The removable arm or wheel which bolts to the output shaft of a servo and connects to the push rod.

Tow Hook: A device used to connect the tow line to the sailplane during launch.

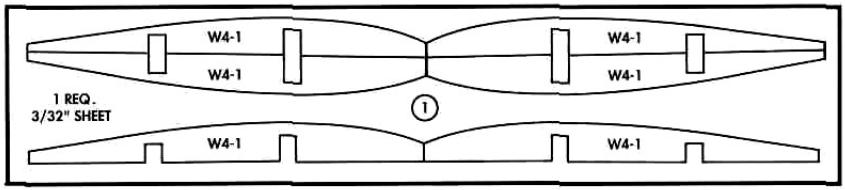
(Transmitter: The hand-held radio controller. This is the unit that sends out the commands that you input.

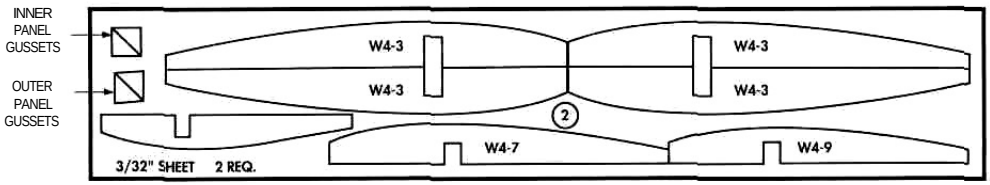
Vertical stabilizer: The non-moving surface that is perpendicular to the horizontal stabilizer, often referred to as the fin, providing lateral stability. The rudder attaches to this surface.

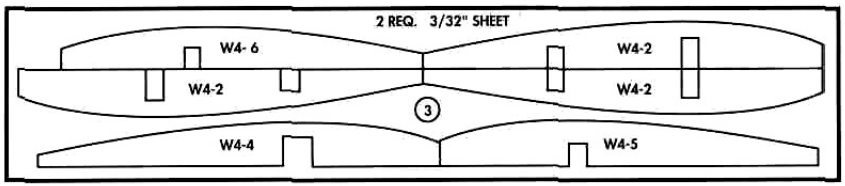
Wing: The main lifting surface of an airplane.

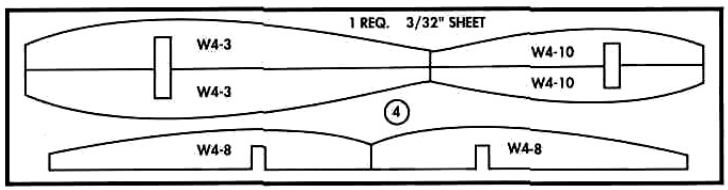
Yaw Axis: The glider axis controlled by the rudder. Yaw is illustrated by hanging the glider level by a wire located at the center of gravity. Left or right movement of the nose is the yaw movement. Many gliders are not equipped with ailerons and the roll and yaw axis are controlled by the rudder. This is due to the larger amount of dihedral in the wing and is why most sailplanes have a large amount of dihedral.

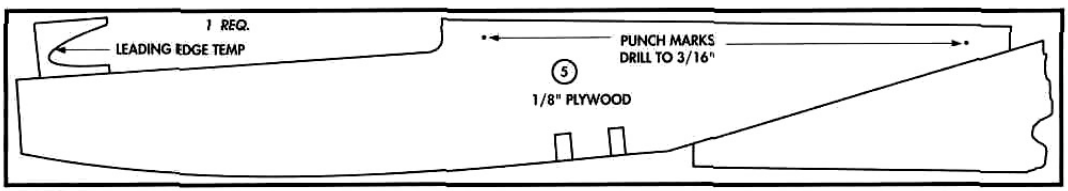
Die-Cut Layout

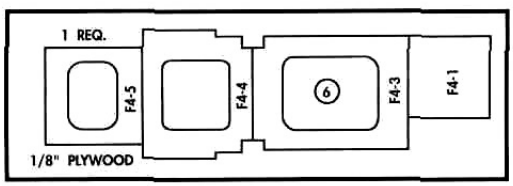










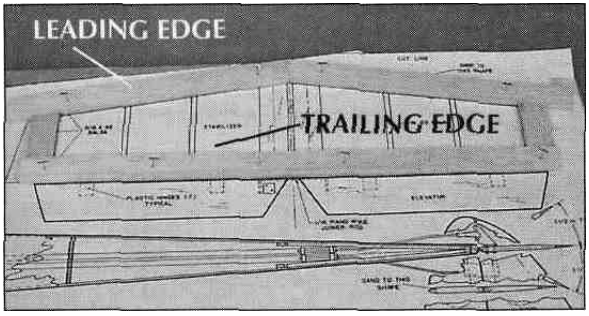


NOTES ON REMOVAL OF DIE CUT PARTS FROM THE SHEET

1. Sand both sides of all die cut sheets enough to remove loose wood Fibers.
2. Bend each sheet slightly, along the direction of the grain, to identify the side that is not cut completely through.
3. Sand this side until most of the parts can be easily removed from the sheet.
4. If a part is difficult to remove, use a sharp hobby knife to cut any slivers of wood that are holding it in place.

BUILD THE HORIZONTAL STABILIZER AND ELEVATOR

❑ 1. Unroll the plan sheet. Roll the plans inside out to make them lie flat. Wax paper or Great Planes **Plan Protector** placed over the plan will **prevent** glue from sticking to the plan.

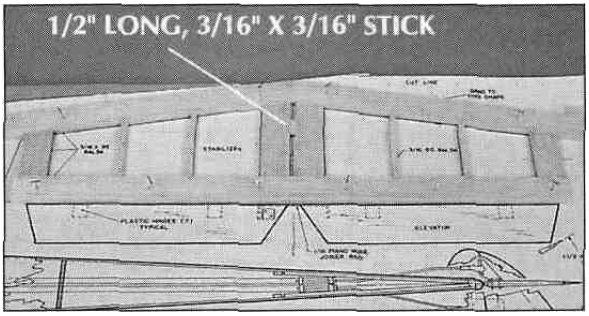


❑ 2. Cut an 18" long piece from the 3/16" x 15/16" x 30" balsa stick. Pin the 18" long piece over the horizontal stabilizer **trailing edge.**

❑ 3. Cut a 10" long piece from the remaining 3/16" x 15/16" x 12" balsa stick. Place the stick over the **left leading edge** of the horizontal stabilizer. Carefully mark and cut the end of the leading edge to match the centerline of the stabilizer. Pin the left leading edge piece in position.

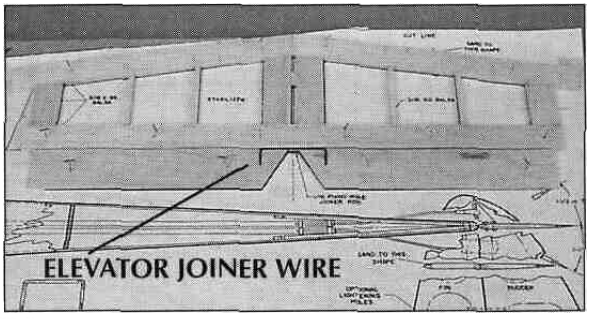
❑ 4. Cut another 10" long piece from the second 3/16" x 15/16" x 30" balsa stick. Place the stick over the **right leading edge** of the horizontal stabilizer and cut the end of the right leading edge to butt tightly against the center of the left leading edge. Pin the right leading edge piece in position and glue it to the left leading edge.

❑ 5. From the remaining 3/16" x 15/16" x 20" balsa stick, cut, fit and glue **stabilizer tips** between the leading and trailing edges.



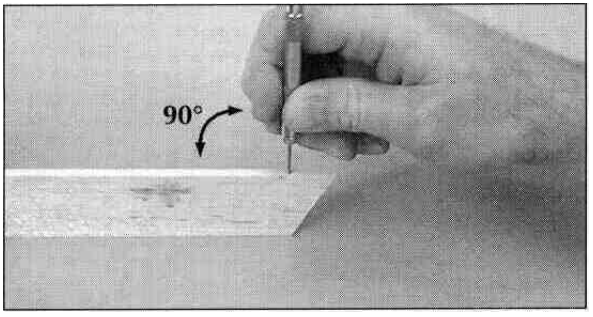
❑ 6. From the remaining 3/16" x 15/16" balsa stick, cut and fit **stabilizer center sections** between the leading edges and trailing edge. Position the fin between the two center sections for the proper spacing. **DO NOT** glue the fin in position. Glue the center sections to the leading and trailing edge.

❑ 7. From a 3/16" x 3/16" x 24" balsa stick, cut/ fit and glue **stabilizer ribs** between the leading edge and trailing edge. Also, cut a 1 /2" long piece and glue it in position between the stabilizer center sections.

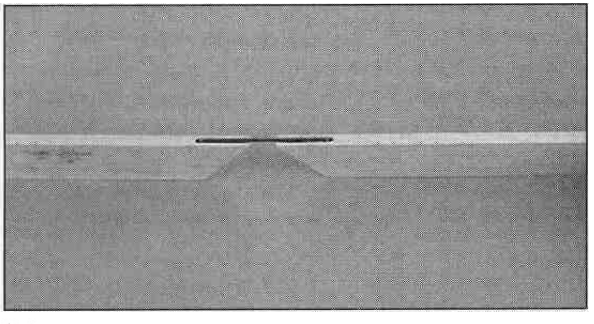


❑ 8. Pin the two shaped balsa **elevators** in position over the plans, making sure the beveled ends are toward the **center.**

❑ 9. Center the pre-bent 1/16" **elevator joiner wire** on the elevators and mark the location of the "arms" on the leading edge of the elevators.



❑ 10. Drill 1/16" holes, 9/16" deep, in the leading edge of the elevators at the marked locations. Make sure the two holes are perpendicular to the leading edge. Be careful that the drill bit does not break through the sides of the elevators.

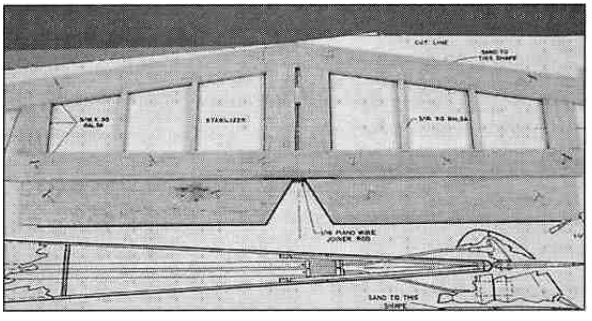


❑ 11. Cut a small groove from the hole to the inboard end of the elevators. Gradually deepen the groove until the joiner wire fits flush with the leading edge of the elevators. With the elevator joiner wire installed, the wire **must** be flush with the leading edge of the elevators.

❑ 12. With the joiner wire installed in the elevators, place the assembly on a flat surface. MAKE SURE both elevators lie flat. If they do not, remove the joiner wire and twist it slightly. It is very **important** that both elevators lie flat.

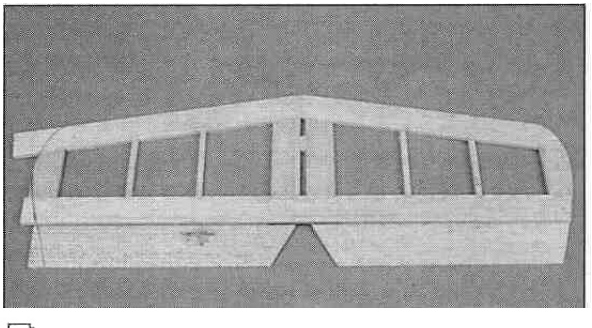
❑ 13. Remove the joiner wire. Mark a centerline on the leading edge of both elevators and carefully sand the leading edges to a *"V* shape as shown on the fuselage plan.

❑ 14. For a more **secure fit,** file or grind four or five notches in each arm of the elevator joiner wire. Thoroughly clean the joiner wire with isopropyi alcohol.



❑ 15. Pack **30-minute** epoxy into both elevator joiner wire holes and in the groove on the leading edge of the elevators. Install the joiner wire in both elevators. Wipe off any excess epoxy with a paper towel dampened with isopropyi alcohol. Before the epoxy cures, place a piece of wax paper over the joiner wire and pin the elevators flat to the building board with the leading edge against the trailing edge of the stabilizer.

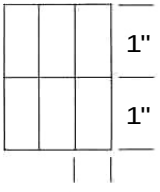
❑ 16. Remove the elevator and stabilizer from the building board after the epoxy has cured.

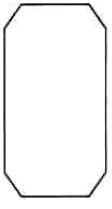


❑ 17. Draw the outline for the tips on the stabilizer and elevator using the plan as a pattern. Cut and sand the stabilizer and elevator tips to shape.

❑ 18. Sand the top and bottom of the stabilizer smooth. Sand a radius on the leading edge and tips of the stabilizer and the tips of the elevator using the stabilizer view as a guide.

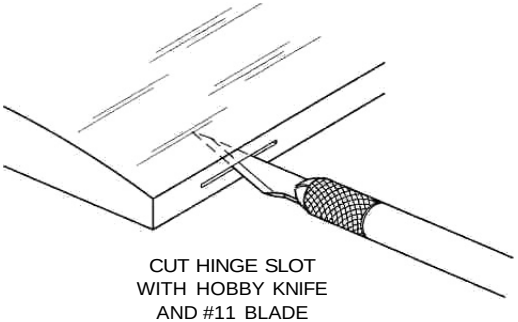
INSTALL THE HINGES





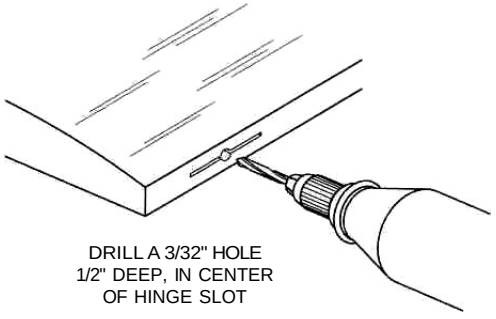
❑ 1. Cut the 2" x 9" **hinge strip** into 6 individual (1/2" x 1") hinges and bevel the corners as shown.

❑ 2. Place the stabilizer and the elevator on the plan and mark the location of the hinges. Also, mark the centerline on the trailing edge of the stabilizer.



CUT HINGE SLOT
WITH HOBBY KNIFE
AND #11 BLADE

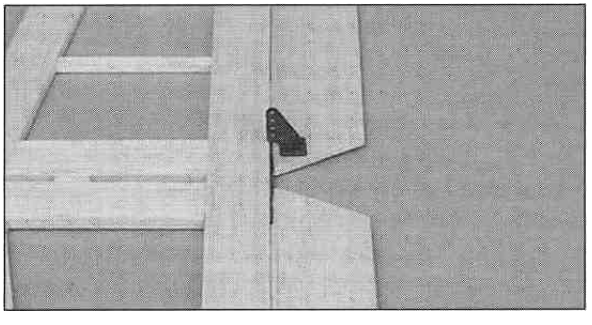
❑ 3. Cut the hinge slots using a #11 blade. Test fit the hinges into the slots. If the hinges do not slide in easily, work the knife blade back and forth in the slots a few times to provide more clearance.

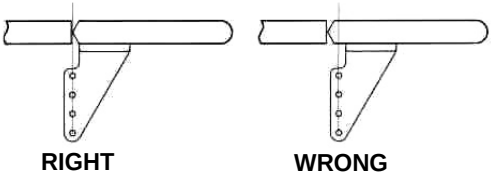


DRILL A 3/32" HOLE
1/2" DEEP, IN CENTER
OF HINGE SLOT

❑ 4. Drill a 3/32" hole, 1/2" deep, in the center of the hinge slot. Drilling the hole will twist some of the wood fibers into the slot, making it difficult to insert the hinge. Re-insert the knife blade into the slot and work it back and forth a few times to clean out the slot.

❑ 5. Test fit the hinges into the slots and temporarily attach the elevator to verify the fit and operation. **DO NOT** glue the hinges at this time. They will be glued in after the sailplane is covered.





RIGHT **WRONG**

❑ 6. Place a **nylon control horn** on the bottom of the left elevator as shown on the plan. With the four clevis holes aligned with the hinge line, drill a 3/32" hole through both holes in the horn base.

NOTE: The control horn in the photo was painted for clarity (The control horns in the kit are made of while plastic).

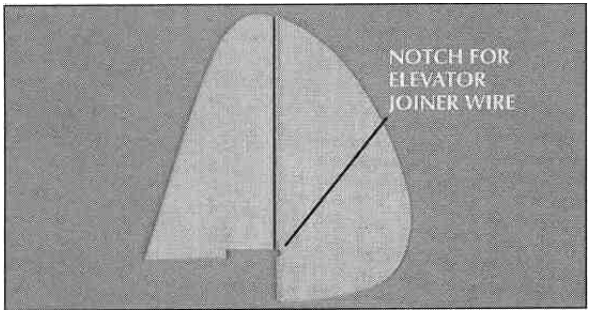
❑ 7. Insert two 2-56 x 1/2" machine screws through the horn base and elevator. Place the nut plate on top of the elevator and thread the machine screw into the nut plate.

❑ 8. Remove the nut plate and control horn. Reinforce the elevator by applying a couple of drops of thin CA on the elevator where the control horn is mounted.

FINISH THE FIN AND RUDDER

❑ 1. Draw a centerline completely around the edge of the shaped balsa **rudder.** This will help keep the rudder symmetrical while sanding.

❑ 2. Carefully sand the shaped balsa **fin** and rudder to the shape shown on the fuselage cross section. **NOTE:** The weight of the fin and rudder can be reduced by cutting lightening holes in them as shown on the plan. This may reduce the weight required in the nose to balance the sailplane.



❑ 3. Cut a notch in the leading edge of the rudder to clear the elevator joiner wire as shown on the plan.

❑ 4. Sand a "V" on the leading edge of the rudder. Use the cross section view as a guide.

❑ 5. Sand a radius on the leading edge of the fin as shown on the cross section view.

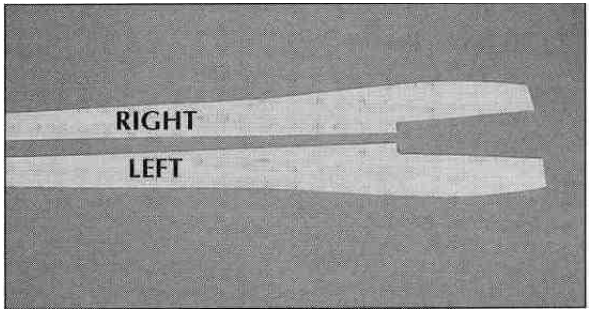
❑ 6. Mark and install the hinges following the same procedure used on the stabilizer and elevator. **DO NOT** glue the hinges in at this time.

❑ 7. Install the control horn on the rudder following the same procedure used with the elevator.

BUILD THE FUSELAGE

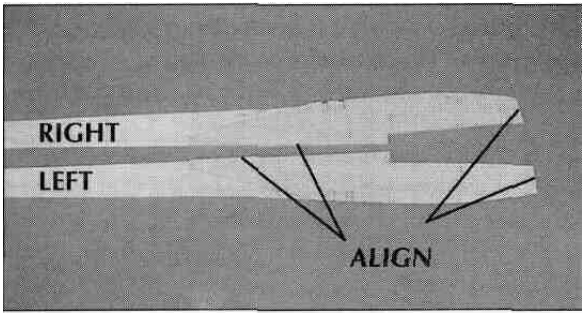
❑ 1. Place wax paper or Great Planes **Plan Protector** over the fuselage plan to **prevent** glue from sticking to the plan.

❑ 2. Put the two die-cut 3/32" balsa **fuselage sides** together and check that they are the same size and shape. If not/ lightly sand them. Compare the fuselage sides to the fuselage plan.

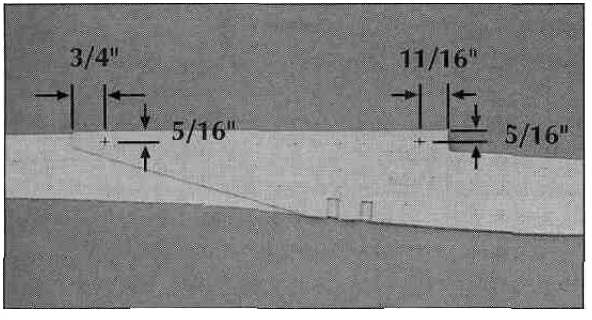


❑ 3. Lay the fuselage sides top edge to top edge as shown. Mark one fuselage side left and the other right.

❑ 4. Lightly sand the edges of the die-cut 1/8" plywood **fuselage doublers.**

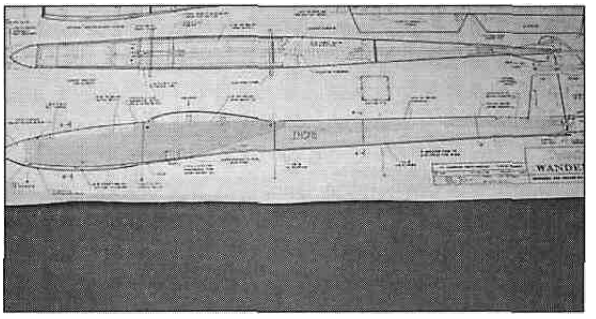


❑ 5. Use thick CA to glue the fuselage doublers onto the fuselage sides, aligning the **top** and **front** edges. Make sure to glue the doublers to the sides with the right and left written on them.



❑ 6. On the left fuselage side place two marks at the locations shown.

❑ 7. Clamp the fuselage sides together so that the **balsa** sides are against each other and the edges align. Set the assembly on a piece of leftover plywood with the two marks you made facing up. At each mark, drill a 3/16" hole through the fuselage sides. Make sure the holes are drilled **perpendicular** to the fuselage sides.

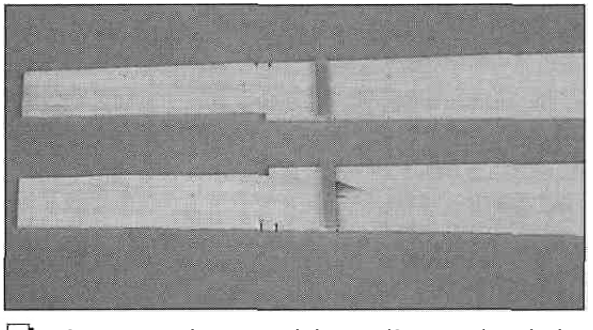


❑ 8. Pin the right fuselage side to the fuselage plan. Use a straightedge to draw vertical lines **on** the fuselage doubler and fuselage side at stations "B" through *"E".* Also mark the 1/8" x 1/4" balsa bottom cross brace, as shown on the plan.

❑ 9. Remove the right fuselage side from your building board and continue the lines around the edges of the fuselage side.

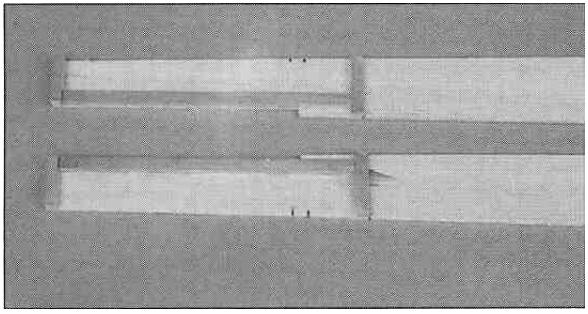
❑ 10. Hold the fuselage sides together (balsa-to-balsa) aligning the edges. Transfer the marks to the edges of the left fuselage side. Draw vertical lines on the fuselage doubler and balsa side, connecting the marks. Also mark the location of the 1/8" x 1/4" balsa bottom cross brace.

❑ 11. Cut **5-1/2"** long pieces from each of the **two** 1/8"x1/4"x 10" balsa sticks.

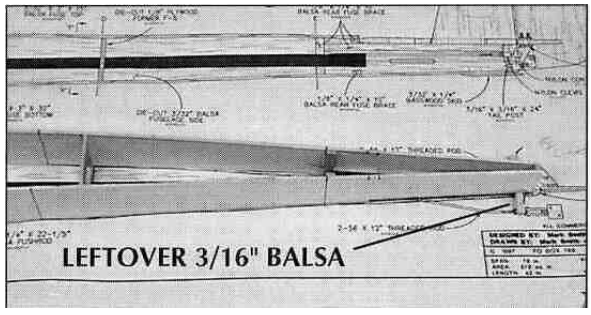


❑ 12. From the remaining 1/8" x 1/4" balsa sticks, cut and glue two **side braces** at station "E".

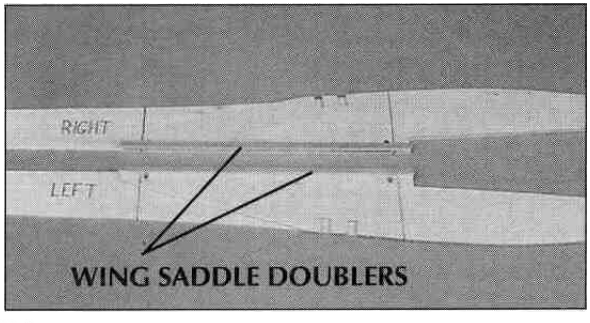
NOTE: The front edges of the braces are glued along the station line.



❑ 13. From the remaining 3/16" square balsa stick used on the stabilizer, cut two 1" long **tail posts.** Glue a tail post to the aft end of both fuselage sides. Glue the 5-1/2" balsa stick, cut in step 11, to each fuselage side, **flush** with the **stabilizer seat.**



❑ 17. Place a leftover piece of 3/16" balsa over the fuselage top view in front of the tail post. With the fuselage sides inverted, align the sides with the fuselage top view. With the tail posts aligned and the sides of the fuselage perpendicular to the building table, glue the tail posts together.

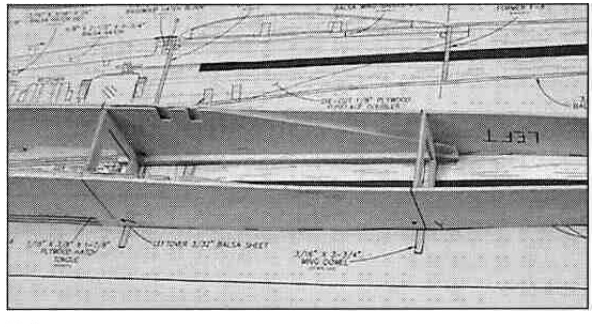


❑ 14. From the 3/16" x 3/16" x 24" balsa stick, cut two 9-3/4" long **wing saddle doublers.** Glue the wing saddle doublers to the plywood fuselage doublers, flush with the top edge of the fuselage doublers.

❑ 15. Using the fuselage top view as a guide, lightly sand the tail posts to the angle shown to allow the aft end of the fuselage sides to meet properly.

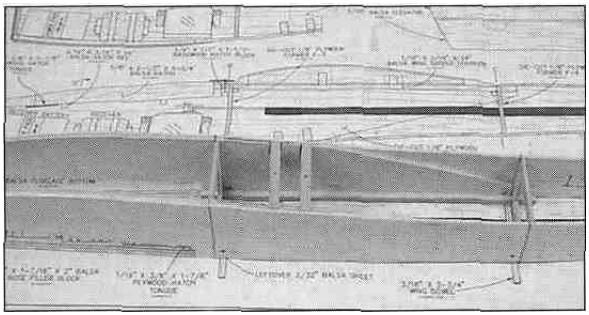
❑ 16. Pin the die-cut 1/8" plywood former **F-5** in position over the fuselage top view, perpendicular to the building board. Make sure the longest side of F-5 is against the building board.

❑ 18. Pin the fuselage sides to the building board at former F-5. With F-5 still **perpendicular** to the building board, glue it to the fuselage sides.



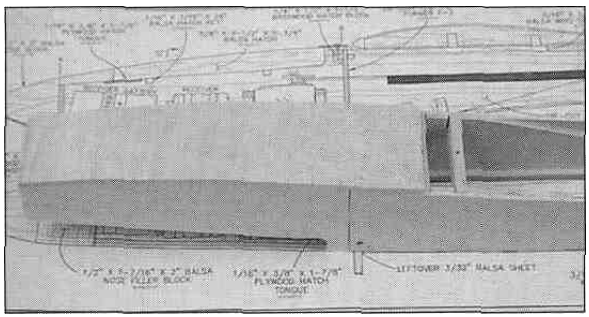
❑ 19. Glue the die-cut 1/8" plywood formers **F-4** and **F-3** in position. Make sure the formers are perpendicular to the building board and the fuselage sides are aligned over the plan.

❑ 20. Place the die-cut 1/8" plywood former **F-1** in position. Use masking tape or clamps to hold the fuselage sides against F-1. Check the alignment of the fuselage sides over the plan before gluing F-1 to the fuselage sides.

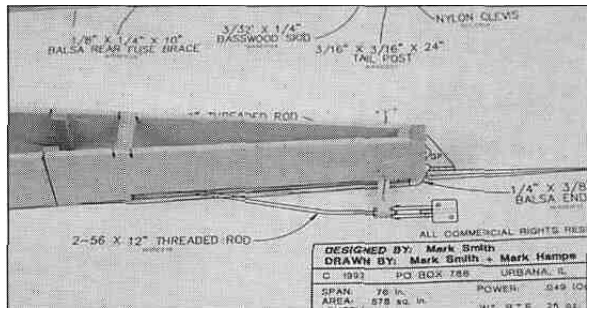


❑ 21. Test fit the two 1/4" x 1/2" x 2-1/4" basswood **tow hook blocks** in the notches of the plywood fuselage doubler. When you're satisfied with the fit/ glue the blocks to the fuselage sides and doubters with aliphatic resin or 6-minute epoxy. After the epoxy cures/ drill a 3/32" hole in the center of both blocks.

❑ 22. Lightly sand the bottom of the fuselage **so** that the plywood fuselage doublers and formers are flush with the balsa fuselage sides.



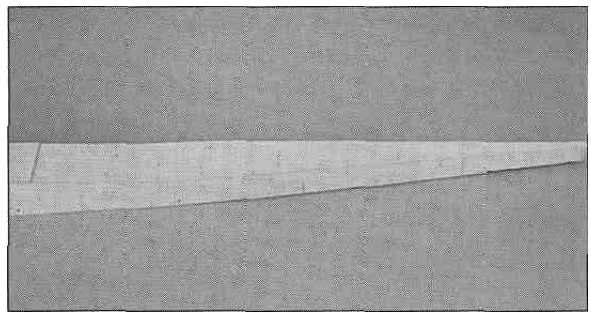
❑ 23. Sheet the bottom front of the fuselage with the three 3/16" x 2-1/2" x 3" balsa **bottom forward** sheets. Start at the **middle** of the **front tow hook block** and work toward former F-1. The balsa sheets are installed with the grain running across the fuselage. Wetting the top of the sheets with a 50-50 mix of water and isopropyi alcohol will make the sheets easier to mold to the fuselage contour. Use a leftover piece of 3/16" balsa from the stabilizer to fill the gap between the third sheet and former F-1. Sand the sheets flush with the balsa fuselage sides.



❑ 24. From the 1/8" x 1/4" x 10" balsa stick, cut and glue the **bottom cross brace** between the fuselage sides, flush with the bottom edge. Glue the 1/4" x 3/8" x 1" balsa **end cap** to the tail post, flush with the fuselage sides.

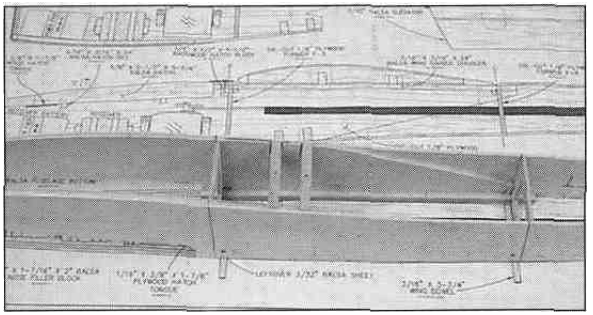
❑ 25. Use thick CA to glue the 3/32" x 3" x 30" balsa **aft fuselage bottom** to the edge of the 3/16" bottom fuselage sheet, the tow hook blocks and the fuselage sides.

❑ 26. After the glue has cured, remove the fuselage from your building board. Starting at the tow hook blocks, trim the aft fuselage bottom to within 1/16" of the fuselage sides. **Do not** attempt to trim the fuselage bottom from the tail post forward. The wood may split or your knife may cut into the fuselage sides. Save the leftover aft fuselage bottom sheeting.



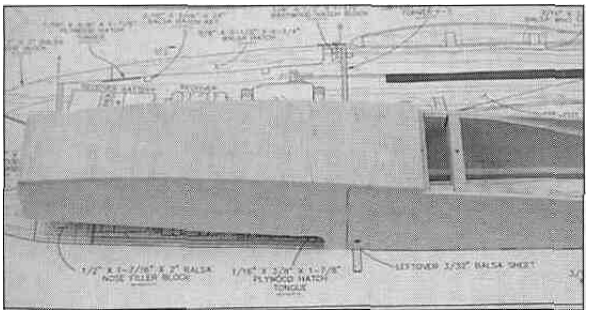
❑ 27. Sand the fuselage bottom flush with the fuselage sides.

❑ 28. From the leftover 1/8" x 1/4" balsa stick, cut and glue a **top cross brace** in front of the stabilizer base, flush with the top edge of the fuselage sides.

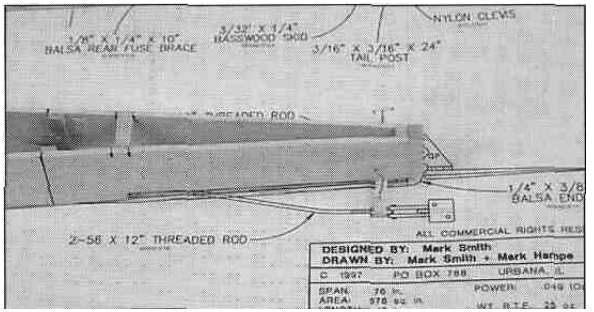


❑ 21. Test fit the two 1/4" x 1/2" x 2-1/4" basswood **tow hook blocks** in the notches of the plywood fuselage doubler. When you're satisfied with the fit, glue the blocks to the fuselage sides and doublers with aliphatic resin or 6-minute epoxy. After the epoxy cures, drill a3/32" hole in the center of both blocks.

❑ 22. Lightly sand the bottom of the fuselage so that the plywood fuselage doublers and formers are flush with the balsa fuselage sides.



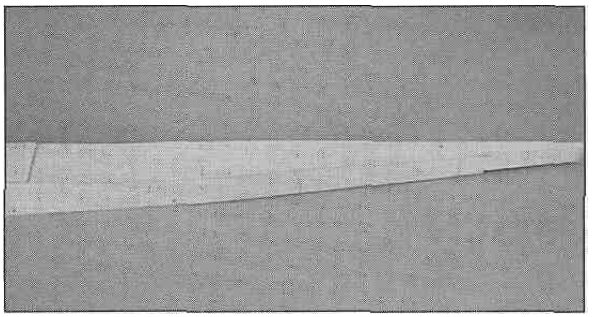
❑ 23. Sheet the bottom front of the fuselage with the three 3/16" x 2-1/2" x 3" balsa **bottom forward** sheets. Start at the **middle** of the **front tow hook block** and work toward former F-1. The balsa sheets are installed with the grain running across the fuselage. Wetting the top of the sheets with a 50-50 mix of water and isopropyi alcohol will make the sheets easier to mold to the fuselage contour. Use a leftover piece of 3/16" balsa from the stabilizer to fill the gap between the third sheet and former F-1. Sand the sheets flush with the balsa fuselage sides.



❑ 24. From the 1/8" x 1/4" x 10" balsa stick, cut and glue the **bottom cross brace** between the fuselage sides, flush with the bottom edge. Glue the 1/4" x 3/8" x 1" balsa **end cap** to the tail post, flush with the fuselage sides.

❑ 25. Use thick CA to glue the 3/32" x 3" x 30" balsa **aft fuselage bottom** to the edge of the 3/16" bottom fuselage sheet, the tow hook blocks and the fuselage sides.

❑ 26. After the glue has cured, remove the fuselage from your building board. Starting at the tow hook blocks, trim the aft fuselage bottom to within 1/16" of the fuselage sides. **Do not** attempt to trim the fuselage bottom from the tail post forward. The wood may split or your knife may cut into the fuselage sides. Save the leftover aft fuselage bottom sheeting.

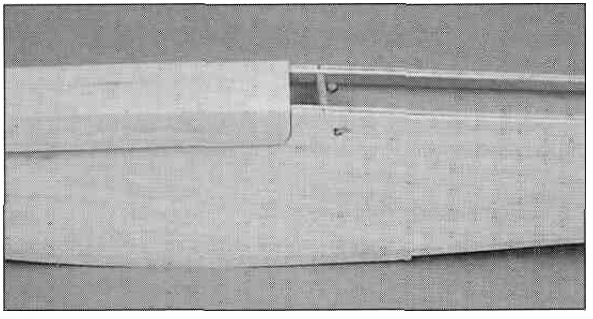


❑ 27. Sand the fuselage bottom flush with the fuselage sides.

❑ 28. From the leftover 1/8" x 1/4" balsa stick, cut and glue a **top cross brace** in front of the stabilizer base, flush with the top edge of the fuselage sides.

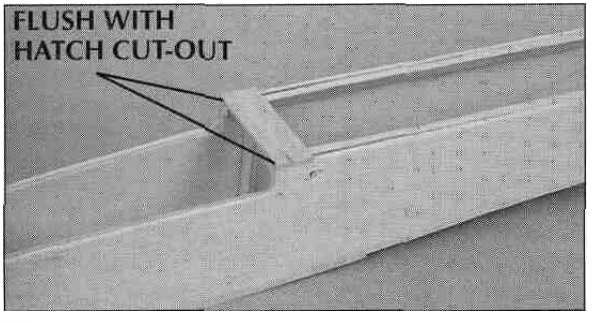
❑ 29. Glue the 3/32" x 3" x 15" balsa **aft fuselage top** from former F-4 to the front of the stabilizer base. Trim and sand the aft fuselage top flush with the fuselage sides.

INSTALL THE HATCH



❑ 1. Trim the aft edge of the 5/8" x 2-1/2" x 5-3/4" balsa **hatch block** to match the radius on the fuselage sides.

❑ 2. With the 1/2" x 1-7/16" x 2" balsa **filler block** snug against the front of the hatch block, glue the filler block to the fuselage. **Do not** glue the filler block to the hatch block. After the glue has cured, remove the hatch block.

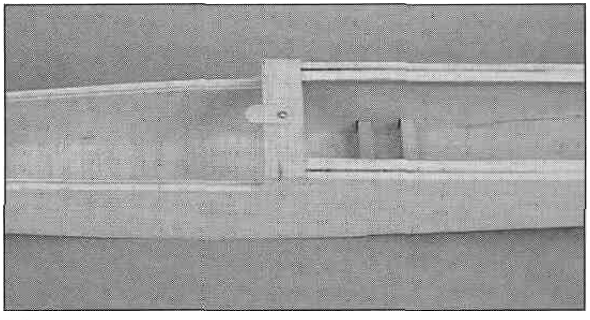


❑ 3. From a leftover piece of 3/32" balsa sheet, cut a 3/4" x 2-1/2" rectangle with the grain running along the long dimension. Glue this sheet **to** the top of the fuselage, with the front edge flush with the aft edge of the hatch cut-out.

❑ 4. Drill a 1/16" hole through the center of the 1/4" x 1/2" x 1-1/2" basswood **hatch hold-down block.**

❑ 5. Glue the hatch hold-down block to the front of former F-3 and the underside of the sheet glued on in step 3. After the glue has cured, insert a T-pin, from the bottom, through the hole in the hatch hold-down block and 3/32" sheet. Mark the hole location on the sheet.

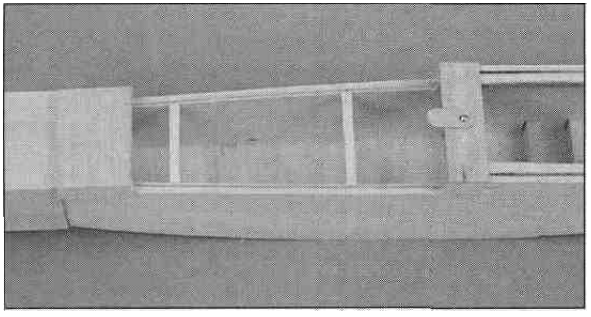
❑ 6. Cut a 7/8" long **hatch tab** from the 1/16" x 3/8" x 1 -3/4" plywood strip. Round the corners on the hatch tab and drill a 3/32" hole at one end at the location shown on the plan. The remaining piece will be used later as the **hatch tongue.**



❑ 7. Use a #2 x 1 /2" sheet metal screw to attach the hatch tab to the fuselage at the mark made in step 5. The hatch tab should be snug but still able to rotate.

❑ 8. Sand the filler block flush with the front of former F-1.

❑ 9. If you are building the sailplane version, glue the 2" x 2" x 2" balsa **nose block** to former F-1 and the filler block. If you are building the .049 powered version, cut out and glue the optional 1/16" plywood firewall (not included) to former F-1 and the filler block. The template is shown on the plan.

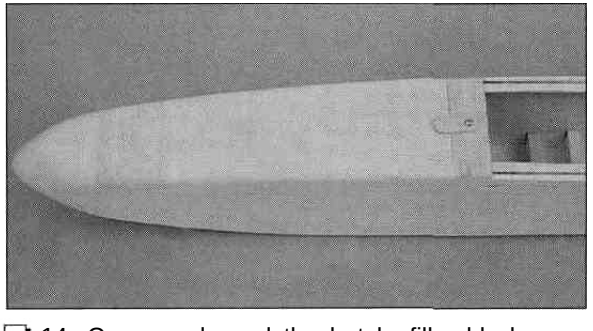


❑ 10. Make two 3/16" balsa **hatch keys** from leftover 3/16" square sticks. Wedge the hatch keys between the fuselage sides at the locations shown on the plan. **Do not** glue the hatch keys to the fuselage sides.

❑ 11. With the hatch keys flush or slightly higher than the fuselage sides, put a bead of thick CA along the top of the hatch keys. Place the hatch in position and hold it in place until the glue cures. **Do not** glue the hatch keys to the fuselage sides.

❑ 12. Remove the hatch and glue the hatch tongue, cut in step 6, centered on the front of the hatch.

❑ 13. After the glue has cured, test fit the hatch on the fuselage and lock it in place with the hatch tab.



❑ 14. Carve and sand the hatch, filler block, nose block and 3/16" bottom sheeting to shape as shown in the G-G cross section on the plan.

❑ 15. Cut the two pushrod exit slots at the aft end of the fuselage. Make sure the **lower slot (rudder)** is on the **right side** of the fuselage. The **upper slot (elevator)** is on the **left side** of the fuselage.

❑ 16. Sand the bottom of the fuselage, blending the 3/16" bottom forward sheeting into the 3/32" bottom aft sheeting. Use the cross sections shown on the plan as a guide to sand a radius on the corners. Be careful not to sand the corners too thin and weaken the structure. Sand a radius on the 1/4" end cap.

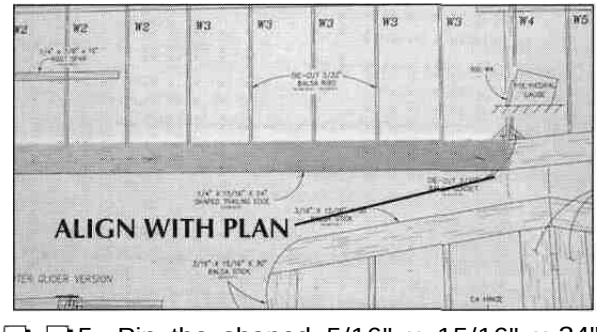
BUILD THE WING ROOT PANEL

❑ ❑ 1. Lay the right wing plan on your building board and cover it with Plan Protector or wax paper.

❑ ❑ 2. Before removing the die-cut 3/32" balsa ribs from the die sheets, label each rib using the die patterns on page 7.

❑ ❑ 3. Stack the W-1 through W-3 ribs together. Insert the 1/2" x 3/8" x 24" basswood main spar in the slot of the ribs. Lightly sand the leading and trailing edges flush.

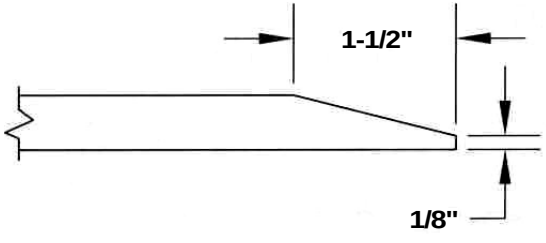
❑ ❑ 4. Test fit the wing spars in all the ribs and trim the slots as necessary. **Important:** The slots in the bottom of the W-1 ribs are 1/16" shallower than the spars. This is to allow the 1/16" sheeting to fit **between** the spars, flush with the top of the spars.



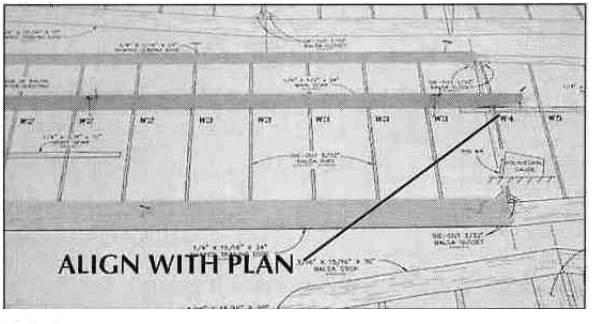
❑ ❑ 5. Pin the shaped 5/16" x 15/16" x 24" balsa **trailing edge** to the building board. Make sure the front of the trailing edge and the tip end are aligned with the wing plan. The root end will

overhang the wing plan slightly. Also/ the 90° edge on the trailing edge **goes against the building board.** See the cross section on the left wing plan.

❑ ❑ U U 6. Using a W-3 rib as a spacer/ shaped 5/16" x 3/8" x 24" balsa **leading edge** over the plan. Note that the angled edge of the leading edge faces up and the tip end is aligned with rib W-4.



❑ ❑ 7. Cut a bevel as shown on one end of the 1/4" x 1/2" x 24" basswood **main spar.**



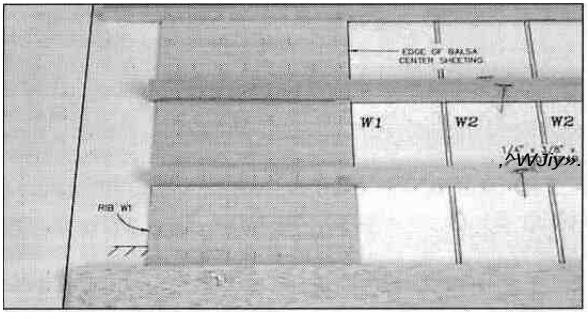
❑ ❑ 8. Pin the main spar over the plan with the beveled edge down and at the tip end. Align the tip end with the plan using a T-pin at the tip end to prevent the main spar from moving.

❑ ❑ 9. Pin the 1/4" x 3/8" x 10" basswood **root spar** in position.

❑ ❑ 10. Place the W-2 inboard and W-3 outboard ribs in position to check the alignment of the main and root spars.

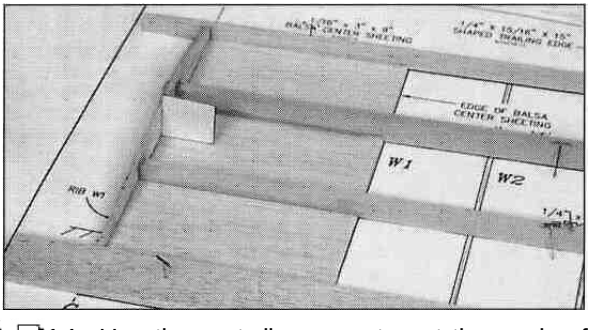
pin the

❑ 11. Cut two **center sheets** 4-1/8" long from each of the five 1/16" x 3" x 9" balsa sheets. Set five of these sheets aside. They will be used on the left wing panel.



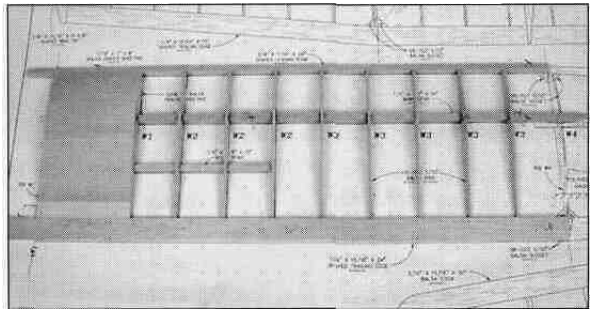
❑ ❑ 12. Trim one of the center sheets to fit between the leading edge and the main spar. Make sure the spar/ leading edge and center sheet are against the building board before gluing. Trim and glue the second center sheet between the main spar and root spar and the third center sheet between the root spar and trailing edge. **Save** the leftover balsa sheet for use in step 16 when sheeting the top center section.

❑ ❑ 13. Cut the root rib dihedral template from the plan and glue it to a piece of cardboard.



❑ ❑ 14. Use the root rib gauge to set the angle of the W-1 root rib. Align the bottom edge of the W-1 rib with the centerline on the plan.

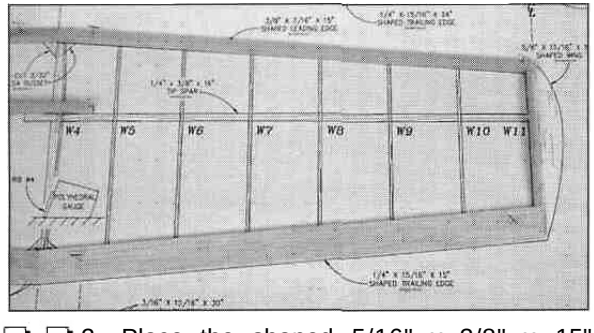
❑ ❑15. Glue the two remaining W-1 ribs/ the three W-2 ribs and the five W-3 ribs in place/ perpendicular to the building board.



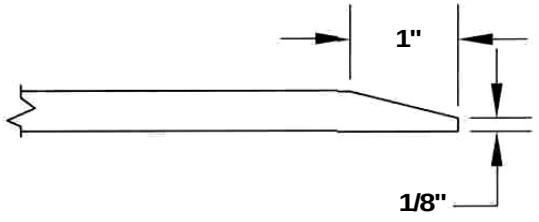
❑ ❑16. Glue one of the previously cut 4-1/8" long center sheets on top of the three W-1 ribs, butted against the leading edge. Glue the second center sheet on top of the three W-1 ribs, butted against the first sheet. Use a piece of leftover center sheeting from step 12 to finish sheeting the center section.

BUILD THE WING TIP PANEL

❑ ❑1. Place the shaped 5/16" x 15/16" x 15" balsa **trailing edge** over the wing tip plan. Trim the inboard end of the trailing edge so that it butts against the root panel trailing edge. Pin the trailing edge in place but do not glue it to the root panel.



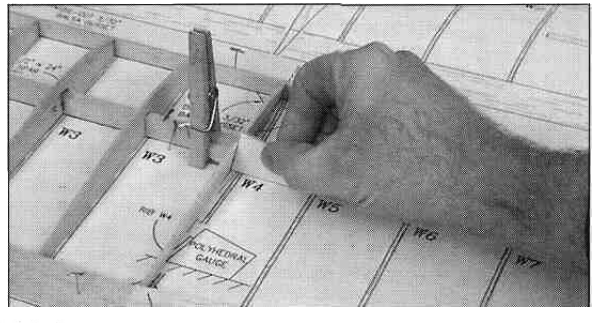
❑ ❑2. Place the shaped 5/16" x 3/8" x 15" balsa **leading edge** over the wing tip plan. Trim the inboard end of the leading edge so that it butts against the root panel leading edge. Place the W-11 rib in position and pin the leading edge in place, but do **not** glue it to the root panel.



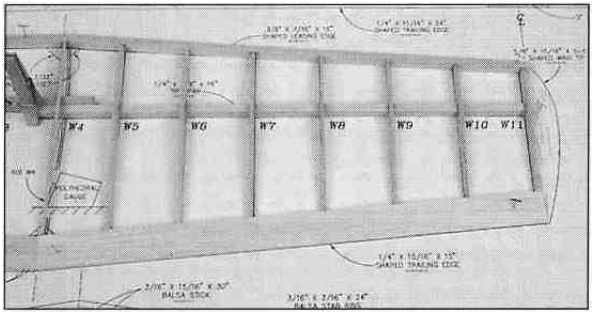
❑ ❑ 3. Cut a bevel as shown on one end of the 1 /4" x 3/8" x 16" basswood **tip spar.**

❑ ❑4. Place the tip spar over the plan, **bevel side down.** Place a pin at the inboard and outboard ends of the spar to hold it in place. Use a clothes pin or clamp to hold the tip spar against the main spar.

❑ ❑5. Cut the polyhedral rib gauge template from the plan and glue it to a piece of cardboard.



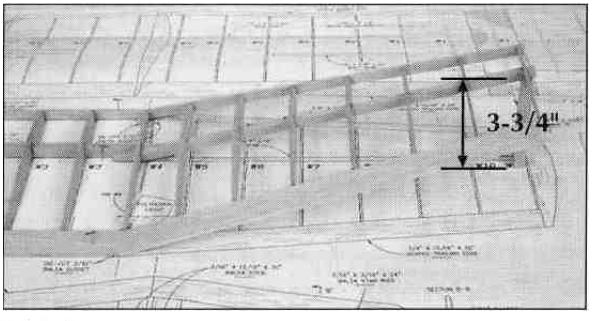
❑ ❑6. Use the polyhedral rib gauge to set the angle of the W-4 root rib. Align the bottom edge of the W-4 rib with the centerline on the plan. Glue the rib to the tip spar and the leading and trailing edge. **Avoid** gluing the rib to the main spar and the leading and trailing edge of the root wing panel.



❑ ❑7. Fit the remaining W-5 through W-11 ribs in place, **perpendicular** to the building board. You may need to bevel the ends of the ribs to match the angle of the leading and trailing edge. When you are satisfied with the fit, glue the ribs to the tip spar and leading and trailing edge.

❑ ❑8. Remove the tip panel assembly from your building board. Leave the root wing panel assembly in place.

❑ ❑9. Place the tip panel against the root panel and raise the tip panel **3-3/4"** at rib **W-11.** Notice that the leading and trailing edges of both panels do not fit correctly. Carefully sand the leading and trailing edges of the wing tip panel flush with the face of rib W-4.



❑ ❑10. After checking that both panels fit together correctly, use aliphatic resin or 30-minute epoxy to glue the spars, leading and trailing edges together. Make sure the tip panel is raised 3-3/4" at rib W-11. Use clamps to hold the spars together until the epoxy cures.

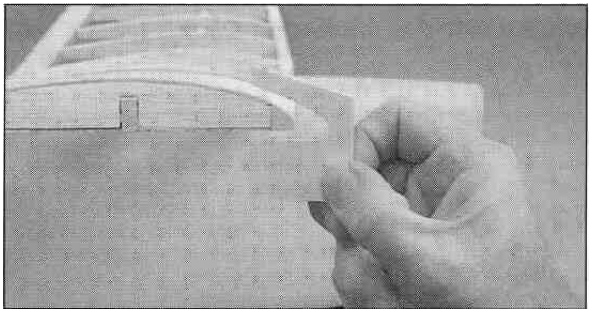
❑ ❑11. After the epoxy cures, remove the wing half from the building board.

❑ ❑12. Use a razor saw and a sanding block to trim the spars and leading and trailing edges flush with the W-1 and W-11 ribs. Be careful to not remove any of the rib, changing its angle.

❑ ❑13. Glue the shaped 5/8" x 15/16" x 5-5/8" balsa **wing tip** to rib W-11. Note the wing tip cross section on the plan for the proper orientation.

❑ ❑14. Trim and sand the wing tip to shape. An easy procedure to obtain the proper shape is to cover the leading and trailing edge and ribs W-9 and W-10 with masking tape. Sand the wing tip to the shape of rib W-11 using a sanding bar, but be careful not to sand through the masking tape or ribW-11.

❑ ❑15. Locate the 1/8" plywood **leading edge template** and clean-up the die-cutting around the radius, if needed.



❑ ❑16. Use the leading edge template and the wing cross section at W-1 (shown on the fuselage side view) as a guide while sanding the wing root panel leading edge. The correct shape of the leading edge is very important to the flight characteristics of the Wanderer.

❑ ❑17. Note that the tip panel ribs get smaller as they go from W-4 to W-1 1. Carefully taper the leading edge to match the front of the wing tip ribs.

❑ ❑18. Using the leading edge template as a general guide, sand a radius on the tip panel leading edge.

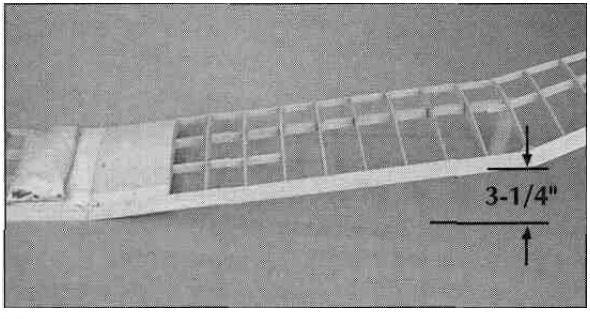
❑ ❑ 19. Use a sanding bar to carefully sand the top and bottom of the wing ribs, spars, center sheeting and leading and trailing edges flush. Do not alter the shape of the ribs while sanding.

❑ ❑ 20. Trim the four die-cut 3/32" x 1/2" x 1 /2" balsa **gussets** to fit on both sides of rib W-4 at the leading and trailing edge. When satisfied with the fit/ glue them in place.

❑ 21. Go back to step 5 of ***Build The Wing Root*** Pane/and build the left wing.

FINAL WING ASSEMBLY

❑ 1. Now that both wing halves are assembled, give them a final sanding with #400-grit sandpaper. Use a shop vacuum or compressed air to remove the sanding dust from the wing panels.

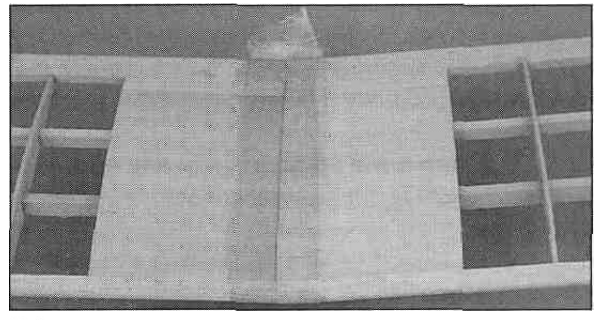


❑ 2. Pin or weigh down the root panel of the left wing. With the right wing panel elevated 3-1/4" at rib W-4, test fit the right wing panel against the left wing panel. If needed, lightly sand the root ribs of the wing panels to fit.

❑ 3. When satisfied with the fit, use aliphatic resin or 30-minute epoxy to glue the wing panels together. Support the right wing panel at rib W-4 and pin the root ribs together. Allow the epoxy to fully cure before removing the wing from the building board.

❑ 4. Handle wing with care. The center section has little strength at this point.

❑ 5. Draw a line on the top and bottom of the wing 1" on each side of the center joint.



❑ 6. Read this step **completely** before starting. In a well ventilated area, prop the wing up off of the building surface. Mix approximately 5 oz. of 30-minute epoxy following the manufacturer's instructions. Brush a thin coat of epoxy on the center joint between the previously drawn lines. Starting at the trailing edge, lay the 2" fiberglass cloth on the epoxy. Use your brush to work the cloth into the epoxy, making sure the epoxy penetrates into the cloth. Work your way along the top of the wing, wrapping the cloth around the leading edge and working back toward the trailing edge on the bottom of the wing. If the epoxy has not come through the cloth, apply more epoxy to the area. Do not allow the epoxy to run or puddle, as this just adds weight, not strength. Allow the epoxy to fully cure before moving the wing.

❑ 7. After the epoxy cures, sand off any surplus epoxy and rough edges. Trim the cloth that is overhanging at the trailing edge flush with the trailing edge of the wing.

ALIGN THE STABILIZIER TO THE WING

❑ 1. Temporarily install the two 3-3/4" wing hold down dowels in the fuselage. Set the wing on the fuselage and secure it by hooking a couple of rubber bands (not included) over the forward dowel/ stretching the rubber bands over the wing and hooking them over the aft dowel. Set the stabilizer in the stabilizer saddle. Check the alignment of the stabilizer with the wing from the front and rear of the model. If the stabilizer tips are not equidistant above the wing/ carefully sand the high side of the stabilizer saddle until the stabilizer and wing are aligned. Use a tape measure to set the stabilizer tips equal distances from the nose.

❑ 2. Use T-pins to hold the stabilizer in position on the fuselage while marking the bottom of the stabilizer where it meets the fuselage. **Do not** glue it in position at this time.

BALANCE THE MODEL LATERALLY

Do not confuse this procedure with "checking the C.G." That will be discussed later in the manual.

Now that the model is nearly completed/ you should balance it laterally (side-to-side). An airplane that is laterally balanced will track better. Here's how:

U 1. Temporarily attach the stabilizer/ elevators, fin, rudder and wing. Lift the model by the nose and the bottom of the fuse near the rudder. This will require an assistant. Do this several times.

Q 2. The wing that consistently drops indicates the heavy side. Balance the model by adding weight to the other wing tip.

FINISHING

Make sure that all the surfaces to be covered have been sanded to remove any irregularities. The Dynaflite Wanderer can be covered with Top Flite® MonoKote® or EconoKote® film, using the suggested covering sequence that follows.

Suggested Covering Sequence
Fuselage and Tail:

1. Fuselage bottom
2. Fuselage right side
3. Fuselage left side
4. Fuselage top
5. Fin TE, followed by the fin sides
6. Stabilizer TE/ followed by the bottom and top (only cover the bottom of the stabilizer up to the marks where the fuselage meets the stabilizer)
7. Elevator LE and root ends
8. Elevator bottoms/ followed by the top
9. Rudder LE, right side followed by the left side
10. Hatch

Wing: Tack the covering to the wing tips and leading and trailing edges. Do not shrink the covering until after the wing is completely covered.

1. Tips of wing
2. Trailing edges of wing
3. Bottom of both wing halves
4. Top of both wing root halves (extend the covering 1/4" past rib W-4 and tack it to the outboard face of the rib)
5. Top of both wing tip halves

After the wing is completely covered/ shrink the covering on the bottom of the wing, keeping the wing as straight as possible. Next, place the wing root panel against a flat building surface and shrink the covering on it.

Once the root panels are done, place a tip panel on a flat surface. Place a 1 /4" thick shim under the aft

end of the wing tip. While holding the wing leading edge and trailing edge at rib W-4 firmly against the flat surface, shrink the covering. This will put a slight twist in the wing called "washout." This washout will help prevent tip stalls when flying.

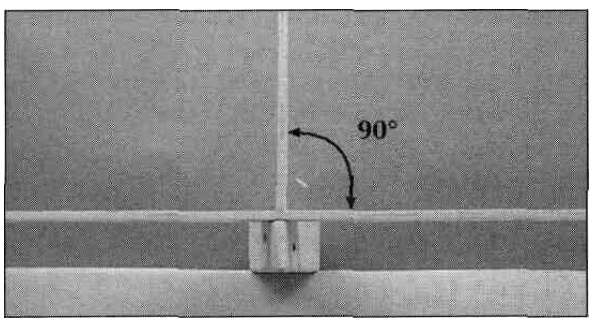
After all the covering on the wing is shrunk, iron the covering to each wing rib.

FINAL ASSEMBLY

❑ 1. Center and glue the two 3-3/4" wing hold down dowels in the fuselage.

❑ 2. Set the wing on the fuselage and secure it to the fuselage by hooking a couple of rubber bands (not included) over the forward dowel, stretching the rubber bands over the wing and hooking them over the aft dowel. Again, set the stabilizer in the stabilizer saddle. Check the alignment of the stabilizer with the wing from the front and rear of the model. Use a tape measure to set the stabilizer tips equal distance from the nose.

❑ 3. Use 30-minute epoxy to glue the stabilizer in position on the fuselage, rechecking the alignment before the epoxy cures.

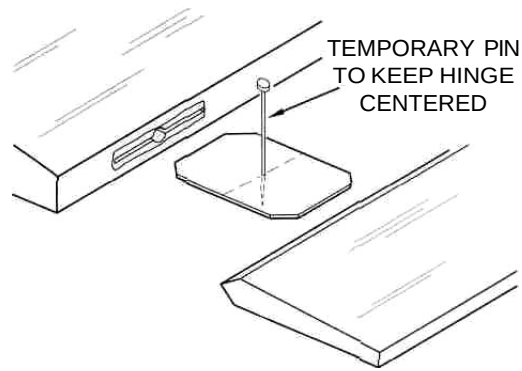


❑ 4. Remove the covering from the bottom 3/16" of the fin. Be very careful not to cut into the fin. Test fit the fin in the slot at the aft end of the stabilizer. The trailing edge of the fin should be flush with the trailing edge of the stabilizer. When satisfied with the fit, glue the fin to the stabilizer with 30-minute epoxy or aliphatic resin. Make sure the fin is 90° to the stabilizer. Masking tape and T-pins can be used to hold it in place while the epoxy cures.

❑ 5. Cut and shape the 3/32" x 1/4" x 10-3/4" basswood **nose** and **tail skid.** Bevel the forward face of the nose skid before gluing it on. Place the skids in position and mark the outline of the skids on the fuselage. Carefully remove the covering from inside the outline. Glue the skids on the fuselage with thick CA. The skids may be varnished or painted after installation.

❑ 6. Starting with the elevators and stab/ cut the covering from the hinge slots.

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



❑ 7. It is best to leave a very slight hinge gap, rather than closing it up tight, to help prevent the CA from wicking along the hinge line. Make sure the control surfaces will deflect to the recommended throws without binding. If you have cut your hinge slots too deep, the hinges may slide in too far,

leaving only a small portion of the hinge in the control surface. To avoid this, you may insert a small pin through the center of each hinge before installing. This pin will keep the hinge centered while you install the control surfaces.

❑ 8. Install the hinges in the elevator and attach the elevator to the stabilizer.

❑ 9. Apply 6 drops of thin CA adhesive to both sides of each hinge. Allow a few seconds between drops for the CA to wick into the slot.

❑ 10. Follow the same procedure to install the rudder on the fin.

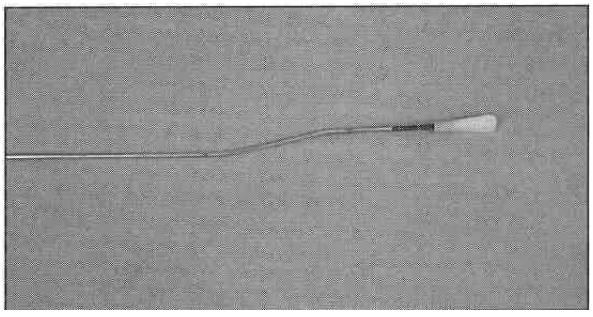
❑ 11. Reinstall the control horns.

❑ 12. Use a T-pin inserted through the tow hook block from the inside of the fuselage to locate the tow hook pilot holes. Thread a 4-40 nut onto the tow hook. Then, thread the tow hook into the tow hook block from the bottom of the fuselage to the depth shown on the plan.

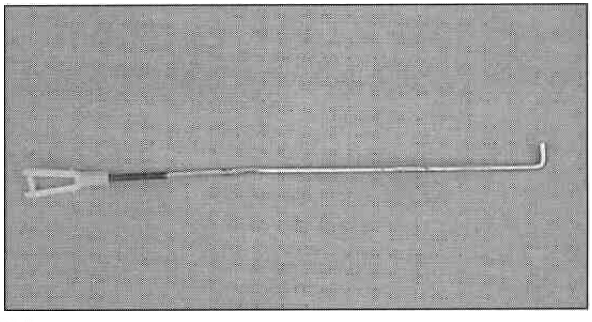
ASSEMBLE THE PUSHRODS

❑ 1. Locate the two 1/4" x1/4"x 22-1/2" balsa **pushrods.** Mark one of the rods "elevator" and the other "rudder".

❑ 2. Thread a nylon **clevis** 20 turns onto both of the 2-56 x 12" **threaded rods.**



❑ 3. Lay one of the threaded rods over the rudder pushrod on the fuselage top view. The pin in the clevis should be aligned with the hinge line of the rudder and fin. Using a pliers/ make two bends in the threaded rod at the locations shown on the plan.



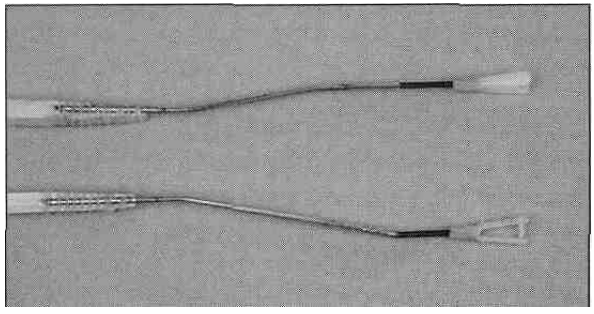
❑ 4. Cut the rod 6-1/4" from the non-threaded end. Save the piece of non-threaded rod. On the threaded rod make a 90° bend 1/4" from the end of the rod, opposite the clevis.

❑ 5. Use the same procedure to make the elevator pushrod.

❑ 6. Lay both pieces of balsa pushrod material over the plan at their proper position. Mark the pushrods at the hole location for the metal rods (approximately 1-1/8" from the end). Drill a 3/32" hole through the balsa pushrods at both marks (see step 9).

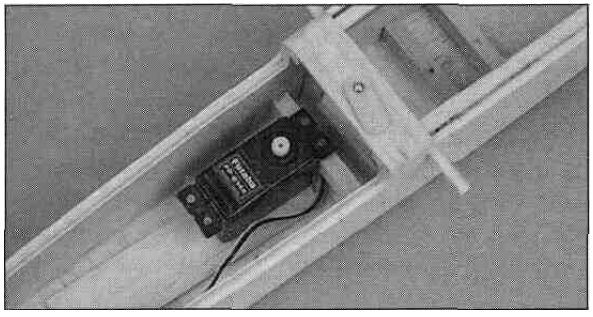
❑ 7. Cut a groove in each pushrod from the hole to the end of the pushrod. The groove needs to be wide enough for the metal rod to fit in.

❑ 8. Taper the end of both balsa pushrods as shown on the plan.



❑ 9. Install the metal rods in each balsa pushrod. Wrap the ends of the pushrods with heavy-duty button thread and apply epoxy to hold the thread in position and add strength. Set the pushrods aside to allow the epoxy to cure.

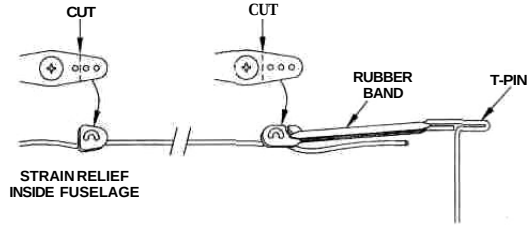
INSTALL THE RADIO SYSTEM



❑ 1. Place a couple of pieces of leftover 1/16" balsa sheeting in the bottom of the radio compartment to raise the servos. Install the rubber grommets and eyelets on the rudder and elevator servos. Set the servos in the radio compartment. Test fit the aft 1/4" x 1/2" x 2" basswood **servo rail** in position. The rail should be snug against the fuselage sides, but not so tight that it causes the fuselage sides to bow outward. Once you're satisfied with the fit, use 6-minute epoxy or aliphatic resin to glue the aft servo rail in place.

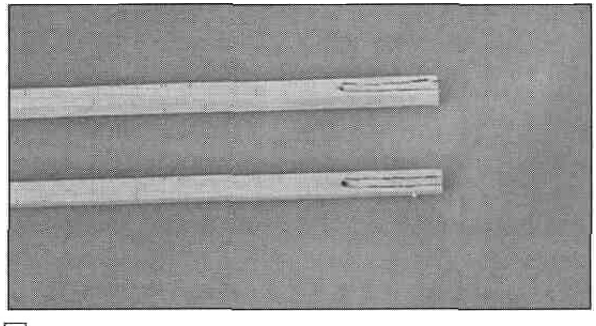
❑ 2. After the epoxy cures/ test fit the forward 1/4" x 1/2" x 2" basswood **servo rail** in position and glue it in place.

❑ 3. Place a **spacer** made from leftover 3/32" balsa sheet between the rudder and elevator servos. Mount the servos on the servo rails using the screws provided with the radio system. Remove the spacer after the servos are mounted. Wrap the receiver and receiver battery in foam rubber and place them in front of the servos.



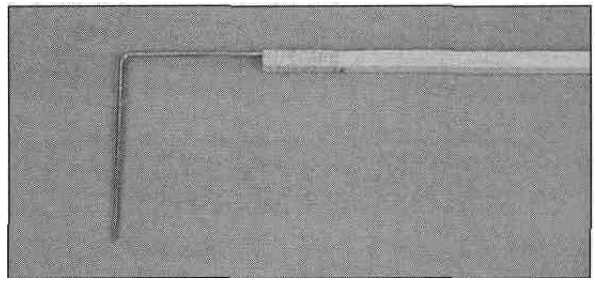
❑ 4. Drill a small hole in the side of the fuselage next to the receiver. Route the receiver antenna out the hole and attach it to the vertical stabilizer with a rubber band and T-pin.

❑ 5. Install the receiver switch in the side of the fuselage and connect it to the receiver and receiver battery.

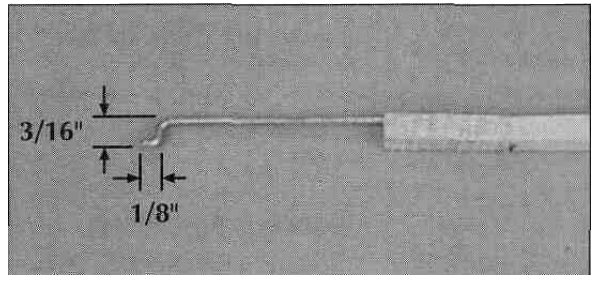


❑ 6. Drill a 3/32" hole 1-1/8" from the end of both balsa pushrods. The holes should be on the same sides as the holes used for the threaded rod. Cut a groove from each hole to the end of the pushrod. The groove needs to be wide enough for the leftover metal rod to fit in.

❑ 7. Make a 90° bend 1 /4" from the end of both leftover metal rods. Insert the metal rods in the grooves of the balsa pushrods and use thread and epoxy to secure them using the same procedure as before.



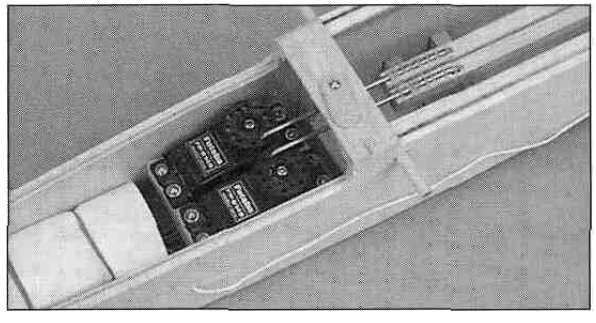
❑ 8. Remove the clevises from the pushrods and insert them in the fuselage. Make sure the correct pushrod exits the correct slot at the aft end of the fuselage.

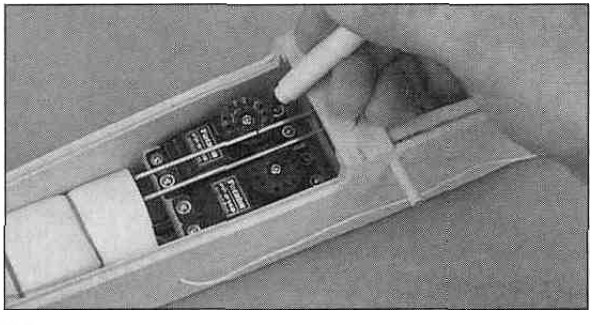


❑ 9. Reinstall the clevises to the pushrods and connect them to the control horns.

❑ 12. Remove the clevises from the pushrods and the pushrods from the fuselage. Bend the pushrods down at a 90° angle. Make a second 90° bend approximately 3/16" from the first bend and trim the excess rod 1 /8" from the second bend.

❑ 10. Install a servo wheel on each servo. Switch on the transmitter and receiver and center the trims on your transmitter. Switch the radio system off.





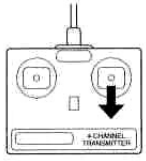
❑ 11. With the rudder and elevator in the **neutral position,** mark the elevator pushrod where it crosses the servo wheel at the 3 o'clock position. Mark the rudder pushrod where it crosses the rudder servo wheel at the 9 o'clock position.

❑ 13. Remove the servo wheels from the servos. Use a 5/64" drill to enlarge the hole in the servo wheel for the pushrod. Insert the pushrods in the servo wheels and reinstall the servo wheels on the servos.

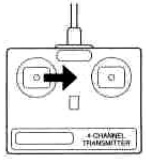
❑ 14. Install the hatch and switch the radio system on. Move the controls on the transmitter to check for any binding of the pushrods.

SET THE CONTROL THROWS

4-CHANNEL RADIO SET-UP
(STANDARD MODE 2)

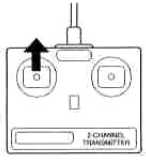


ELEVATOR MOVES UP

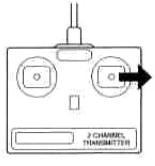


RUDDER MOVES RIGHT

2-CHANNEL RADIO SET-UP



ELEVATOR MOVES UP



RUDDER MOVES RIGHT

The throws are measured at the widest part of the elevator and rudder. Adjust the position of the pushrods at the servo wheels to control the amount of throw. You may also use the ATV's if your transmitter has them but the mechanical linkages should still be set so the ATV's are near 100% for the best servo resolution (smoothest, most proportional movement).

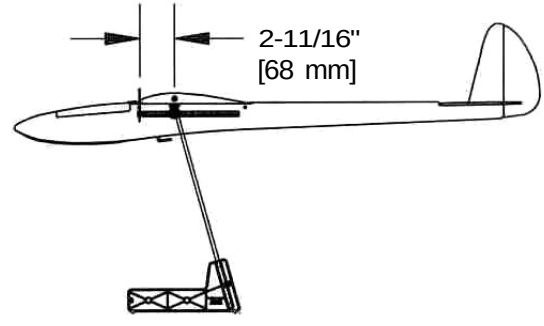
We recommend the following control surface throws:

Elevator:	3/8" [9.5mm] up	3/8"[9.5mm] down
Rudder:	1-1/2" [38mm] left	1-1/2"[38mm] right

Note: The balance and control throws for the Wanderer have been extensively tested. This chart indicates the settings at which the Wanderer flies best. Please set up your model to the specifications listed above. If, after you become comfortable with your Wanderer, you would like to adjust the throws to suit your tastes, that's fine. Too much throw can force the sailplane into a stall, so remember, "more is not always better."

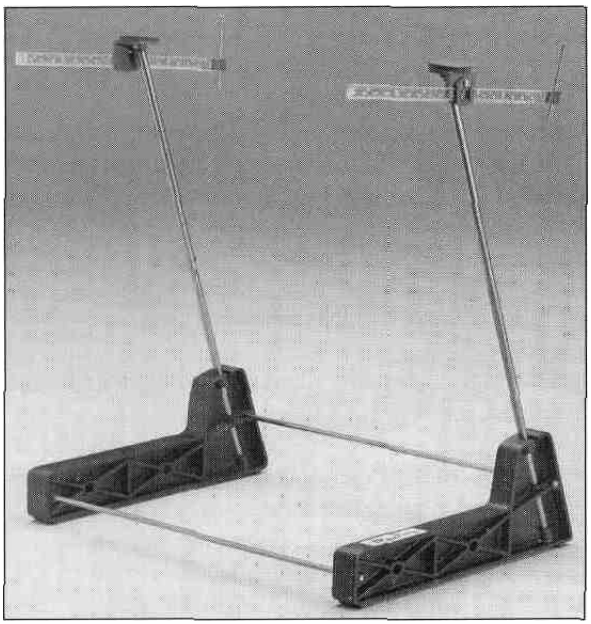
BALANCE YOUR MODEL

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



❑ 1. The **balance point** (C.G.) is located **2-11/16" [68 mm]** back from the leading edge of the wing, next to the fuse sides as shown in the sketch and on the fuselage plan. Accurately mark the balance point on the bottom of the wing on both sides of the fuselage. Use thin strips of tape or a felt-tip pen to make the marks.

Hint: Reference the full-size fuse plan to help you locate the proper balance point. This is the balance point at which your model should balance for your first flights. After initial trim flights and when you become more acquainted with your Wanderer, you may wish to experiment by shifting the balance up to **3/16" [5 mm]** forward or backward to change its flying characteristics. Moving the balance forward may improve the smoothness and stability, but the model may become more difficult to slow for landing. Moving the balance aft makes the model more agile with a lighter, snappier "feel." In any case, please start at the location we recommend. Do not at any time balance your model outside the recommended C.G. range.



❑ 2. Attach the wing to the fuselage with six #64 rubber bands, two on each side running straight across the wing and two crossing the wing to form an "X". With the wing attached to the fuselage and all parts of the model installed (ready to fly), hold the model right side up with the stabilizer level. The Great Planes CG Machine™ Balancer works great for balancing the model.

3. Set the model on the balancer at the balance point. If the tail drops, the model is "tail heavy" and you must add weight to the nose to balance the model. If the nose drops, it is "nose heavy" and you must add weight to the tail to balance the model.

NOTE: Weight may be added by using Great Planes (GPMQ4485) "stick-on" lead weights. Later, if the balance is O.K., you can glue the weights inside the fuselage permanently.

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

PRE-FLIGHT

At this time check all connections, including servo horn screws, clevises and servo cords.

CHARGE THE BATTERIES

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

GROUND CHECK YOUR MODEL

Inspect your radio installation and confirm that all the control surfaces respond correctly to the transmitter inputs. Make sure all screws remain tight and the hinges are secure.

RANGE CHECK YOUR MODEL

Whenever **you** go to the flying field, check the operational range of the radio before the first flight of the day. First, make sure no one else is on your frequency (channel). With your transmitter on and the antenna collapsed you should be able to walk at least 100 feet away from the model and still have control. While you work the controls, have a helper stand by your model and tell you what the control surfaces are doing. If the control surfaces are not always responding correctly, do not 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 receiver battery, a damaged receiver antenna, or a receiver crystal that may have been damaged from a previous crash.

FLYING

FIRST FLIGHT

We recommend that if you have never previously flown an R/C airplane, you find an experienced sailplane pilot. An experienced pilot will be able to help you get the Wanderer trimmed properly and to help you with your first few flights. If you cannot locate an experienced pilot, we recommend that you gently hand launch the Wanderer a few times to get the sailplane trimmed out for a smooth glide. Get the feel of the controls. Try to avoid using the rudder. At this low of an altitude the wing tips may catch the ground and damage the Wanderer. After you are comfortable with the controls, you can then move up to a hi-start launch.

We recommend that you take it easy with your Wanderer for the first several flights, gradually "getting acquainted" with this great model.

LANDING

When it's time to land, fly a normal rectangular landing pattern with your final approach directly into the wind. For your first few landings/ plan to land slightly faster than stall speed.

Have a ball! But always remember to think about your next move and plan each maneuver before you do it. Impulsively "jamming the sticks" without any thought is what gets most fliers in trouble, not lack of flying skill. Happy Landings!