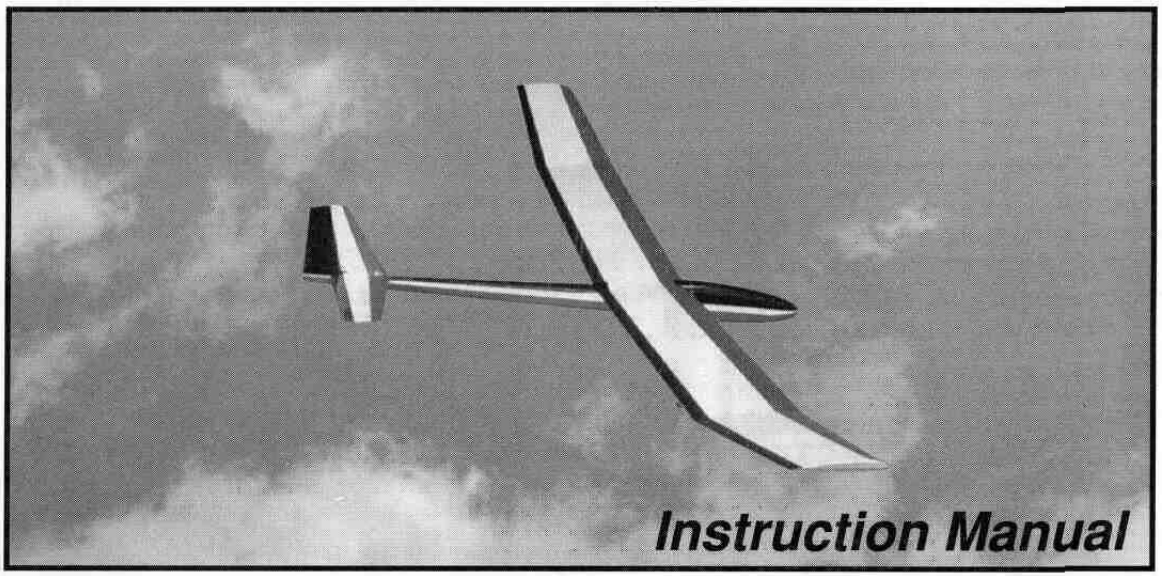
Dynaflite™ SKEETER

• Easy-to-Build • All Wood Hand-Launched Glider
• 2-Channel Radio Required
(mini servos recommended)

BEFORE STARTING CONSTRUCTION, READ THROUGH THIS INSTRUCTION MANUAL. IT CONTAINS IMPORTANT INSTRUCTIONS AND WARNINGS CONCERNING THE ASSEMBLY AND USE OF THIS MODEL.



WARRANTY

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

MADE IN USA

SKTRP03 Printed in USA

PROTECT YOUR MODEL. YOURSELF & OTHERS BY FOLLOWING THIS IMPORTANT SAFETY PRECAUTION

Your Skeeter is not a toy, but a sophisticated working model that functions very much like a full-size airplane. Because of its realistic performance, the Skeeter, if not assembled and operated correctly, could possibly cause injury to yourself or spectators and damage property.

To make your R/C modeling experience totally enjoyable, we recommend that you get experienced, knowledgeable help with assembly and during 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 2,300 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
(800) 435-9262
Fax (317) 741-0057

PRECAUTIONS

1. You must assemble the plane 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 drawings or plan. In those instances you should assume the written instructions are correct.

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

3. You must properly 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 is operating correctly. You must also make certain that the model has remained structurally sound.

NOTE: We, as the kit manufacturer, can provide you with a quality kit and great instructions, but ultimately the quality and flyability of your finished model depends on how you assemble 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.

INTRODUCTION

Congratulations on your purchase of the Dynaflite Skeeter. The Skeeter is an attractive, easy to build, all wood polyhedral Hand Launched Glider (HLG). With its 55-1/2" inch wingspan and Selig 3021 airfoil, the Skeeter is a real winner. You will have many hours of fun with this little ship and never have to chase a Hi-Start. The Skeeter is easy to build and cover with its liteweight all balsa conventional construction. The polyhedral wing, along with simple 2-channel (elevator and rudder) control make for gentle, forgiving flights. The Skeeter, with its ideal proportions, is perfectly suited for small flying sites. So go ahead... enjoy, and don't let those little flying sites get in the way of your fun!

At Dynaflite we take pride in offering kits that are simple and straightforward to build and provide value for your modeling dollar. Although the Skeeter is small and easy to build, we recommend seeking the help of an experienced modeler if this is your first kit. Your local hobby shop or model club are prime sources of modeling information.

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.

REQUIRED ITEMS

- ❑ #1 Hobby Knife Handle (XACR4305)
- ❑ #11 Blades (Qty. 100 - HCAR0311) or (Qty.5-XACR2911)
- ❑ Hand or Electric Drill
- ❑ Drill Bits: 3/16", 1/2" and 9/64" (or #26) and a 10-24 tap
- ❑ Medium T-pins (HCAR5150)
- ❑ Wax Paper
- ❑ Clothespins
- ❑ Masking Tape
- ❑ 1 /2 oz. Thin CA Adhesive - (GPMR6001)
- ❑ 1 /2 oz. Medium CA+ (GPMR6007)
- ❑ 4 oz. Aliphatic Resin (Wood Glue) (GPMR6161)
- ❑ 6-Minute Pro™ Epoxy (GPMR6045)
- ❑ Bar Sander (GPMR6170) or Sanding Block and Sandpaper (coarse/ medium, fine grit*)
- ❑ 1 roll film covering plus trim colors
- ❑ Covering Iron
- ❑ Straightedge (Fourmost Non-Slip/ FORR2149)

*0n our workbench/ we have four 11" Easy-Touch™ Bar Sanders/ equipped with #50/ #80/ #150 and #220-grit sandpaper. This setup is all that is required for almost any sanding task. Custom sanding blocks can be made from balsa for sanding hard-to-reach spots. We also keep some #320-grit wet-or-dry sandpaper handy for finish sanding before covering.

IMPORTANT BUILDING NOTE: During construction! you will be using a number of balsa sticks to frame various assemblies. Ample material is included but you should study the plans/ then make an effort to cut the longest pieces you will need first. Label the pieces as you cut them for later reference. By doing this now, you won't have to splice pieces together later,

BET READY TO BUILD

❑ 1. Unroll the plan sheet. Reroll the plan inside out to make it lie flat.

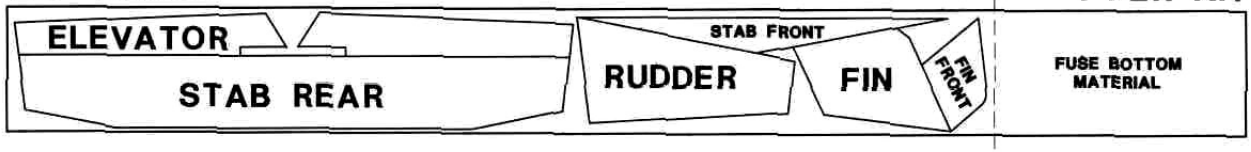
❑ 2. Remove all parts from the box. As you do, determine the name of each part by comparing if with the plans/ instruction manual and parts list included with this kit. Using a felt-tip or ballpoint pen/ lightly write the part name or size on each piece to avoid confusion later. Use the die-cut patterns shown on page 4 to identify the die-cut parts and mark them before removing them from the sheet. Save all leftovers. If any of the die-cut parts are difficult to punch out/ do not force them! Instead, cut around the parts with a hobby knife. After punching out the die-cut parts/ use your bar sander or sanding block to lightly sand the edges to remove any die-cutting irregularities or slivers.

❑ 3. As you identify and mark the parts/ separate them into groups/ such as fuse (fuselage)/ wing/ fin, stab (stabilizer) and hardware.

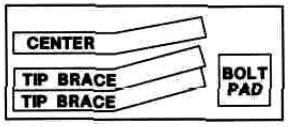
DIE-CUT PATTERNS

3/32" BALSA — 2 PER KIT

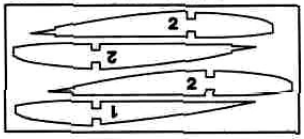
1/8" BALSA — 1 PER KIT



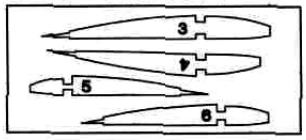
1/16" PLY



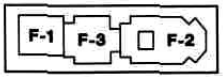
1/16" BALSA



1/16" BALSA



1/8" PLY



3/32" BALSA

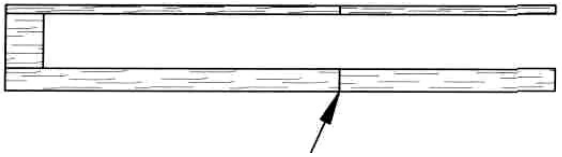
BUILD THE WING

❑ 1. Start the wing by placing the wing portion of the plans on the building board. Cover the plans with wax paper or plastic wrap. This is to prevent the wing from becoming glued to the plans.

❑ 2. Pin the bottom .040" x 15/16" sheet trailing edge over the drawings.

NOTE: .040" is the thinnest of the sheeting.

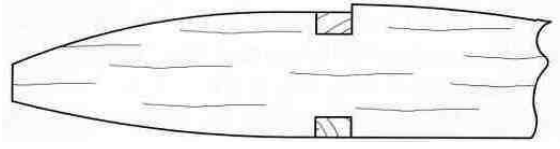
❑ 3. Pin the 1/8" x 3/16" hardwood bottomspars over the drawings.



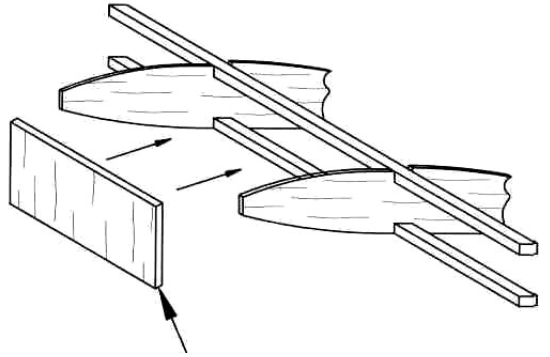
MAIN PANEL / TIP SEPARATION

❑ 4. Glue the .040" bottom sheet between the spar and the trailing edge sheet. Refer to the sketch above.

❑ 5. Glue the ribs in place from the center to the tip as shown on the plans. We will cut the ribs later for the polyhedral braces. The ribs should fit as shown above.



❑ 6. Test fit the top 1 /8" x 3/16" spar into place. If it doesn't fit properly, enlarge the notches in the ribs so the spar fits completely in the notch. This is important so the .040" LE sheet will blend with the rear portion of the rib. Glue the spar in place with thin CA.



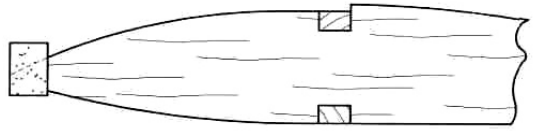
VERTICAL GRAIN SHEAR WEB

❑ 7. Cut the shear webs from the 1/16" x 3" balsa sheet. Glue the shear webs into place between the ribs. Be sure the grain runs vertically.

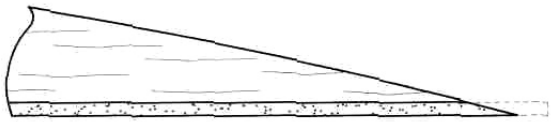
NOTE: Do Not install the shear webs where the polyhedral braces will be installed later.

❑ 8. Sand the shear webs so they are flush with the top of the spar.

❑ 9. Glue the 3/16" x 1/4" leading edges to the front of the ribs.

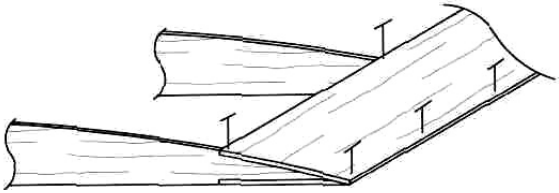


❑ 10. Carve and sand the leading edge top to blend into the ribs. You will probably need to take the wing off the building board.

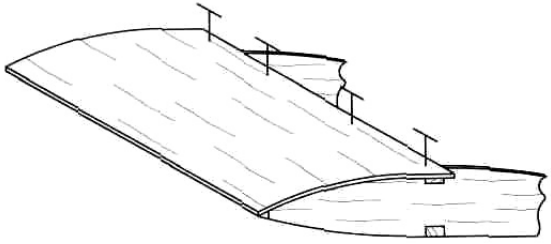


❑ 11. Carve and sand the trailing edge sheeting to accept the upper trailing edge sheeting.

Q 12. Lay the wing back down on the work surface. Apply thick CA to the area where the top TE is about to be installed.



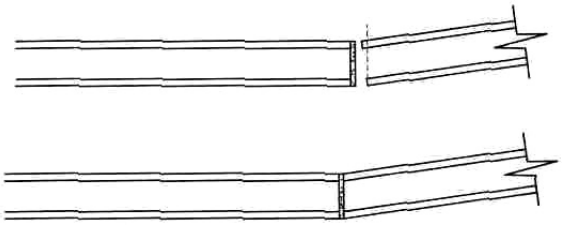
❑ 13. Install the top TE. Use pins to secure the parts until the glue dries.



❑ 14. With the wing still pinned down, install the top LE sheet. Cut the .040" x 3" balsa sheeting to the approximate length. If you haven't put on LE sheeting with CA before, use the following method:

Apply thick CA to the top spar, ribs and leading edge. Place the LE sheet into place, and start pinning down... **LET DRY!**

❑ 15. Once dry, trim off excess wood at W1, W2 and the LE.

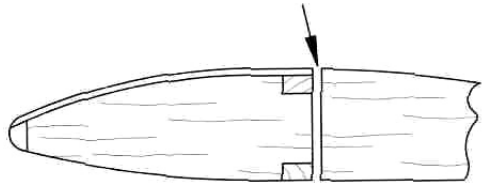


❑ 16. Prepare the wing for the Polyhedral.

Beginners Note: To avoid difficulties, read this step through **BEFORE** cutting and sanding! Refer to the dimensions on the plans. With each center panel flat on the work surface, lift the tips so that the bottoms of rib W6 are 2-3/4" off the table. With the tips still blocked up, carefully sand the roots of each tip panel so they are flush with W2. The final fit should be tight with no gaps. Take your time while sanding, removing small amounts at a time.

❑ 17. Referring to the plans, sand the center and tip panels to shape as shown.

CUT RIB AS SHOWN



❑ 18. Working with the left wing, cut through and remove 1/16" of rib W2 just behind the spar. This will make a slot for the polyhedral brace to fit into. Test fit the die-cut 1/16" ply polyhedral brace in place as shown on the plans. The polyhedral brace should contact the top and bottom spars along it's entire length and the front edge of W2 should touch the back of the polyhedral brace. If the polyhedral brace fits, remove the brace and glue the wing tip to the center panel with CA. If the polyhedral brace does not fit, slightly adjust its angle with your sanding block.

❑ 19. Using 6-minute epoxy, glue the polyhedral brace into place. Clothespins work well as clamps while the epoxy cures. When the epoxy has cured, glue rib W2 to the polyhedral brace with medium CA. Repeat steps 18 and 19 for the right wing.

❑ 20. **Joining the wing panels:** Using the same techniques outlined in steps 16 thru 19, prepare, fit and glue the two wing panels together using the die-cut 1/16" ply dihedral brace.

NOTE: The measurement for blocking up the wing panels for this step is 3".Refer to the plans.

❑ 21. Using .040" balsa, sheet the center of the wing on top. Leave the lower bottom forward section unsheeted where we will need to get to the W1 ribs to install the hold down dowel.

❑ 22. Glue the 3/16" x 1/2" balsa tip sheets into place.

❑ 23. Sand the wing so the airfoil looks like the drawing on the plan labeled "typical rib section". Shape the wing tips as shown on the plan.

BUILD THE TAIL GROUP

❑ 1. Remove the die-cut stabilizer, elevator, fin and rudder from their die-cut sheets. Refer to the die-cut layout for identification.

❑ 2. Start assembly by joining the stab front to the stab. Using your sanding block, remove any die-cut irregularities. When they mate to your satisfaction, use CA to glue the two parts together. Sand the joint to obtain a smooth surface.

❑ 3. Tape the elevators to the stab.

❑ 4. Cut a piece of leftover spar material to fit into the tie bar area between the elevators. When it fits to your satisfaction glue it in place. Be careful not to glue the elevator to the stabilizer!

❑ 5. Remove the elevator from the stab and bevel its LE as shown in the cross section on the plan. This will allow for proper movement.

❑ 6. Hinge the elevator to the stabilizer. Start by cutting the hinges from the 2" x 9" strip of hinge material to a size of 1/2" x 1". Snip off the corners of the hinges for easier insertion.

❑ 7. Now use your knife to cut the slots into the stab and elevator at the hinge locations shown on the plans. **CAUTION:** Do this slowly. The wood is thin. It is best to use many small cuts to get the required depth. Test fit the hinges by joining both parts. Make sure the bevel will allow the elevator to move adequately up and down. **Do not glue the hinges in place** until the model is covered.

❑ 8. Sand the stab to the approximate airfoil shape as shown in the cross section on the stab drawing.

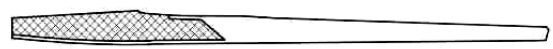
❑ 9. Glue the rudder front to the rudder.

❑ 10. Bevel the leading edge of the rudder

❑ 11. As before/ install the hinges to the fin and rudder.

❑ 12. Sand the fin and rudder to a nice thin airfoil shape. Set these parts aside and move on to the fuselage.

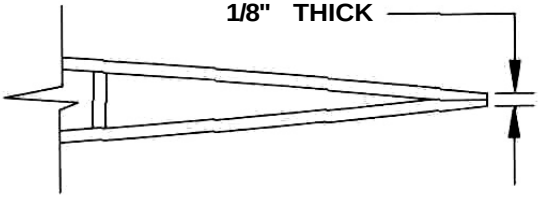
BUILD THE FUSELAGE



❑ 1. Cover the fuselage section of the plans with wax paper or plastic wrap. Start the fuselage by aligning a die-cut 3/32" balsa doubler over the inside of a die-cut 3/32" balsa fuse side. Align the doubler at the **front** and **top.** When everything is aligned, glue the doubler to the fuse side by applying thin CA around the perimeter of the doubler. **Be sure to make both a left and a right side.**

❑ 2. Glue the 1/4" sq. top and bottom longerons into place.

❑ 3. Drill or cut and file a 1 /2" hole in the center of F3. This will allow the pushrods to pass through it. Lay the sides over the plans and mark the location of the F2 and F3 fuselage formers.



❑ 4. Taper the 1 /4" sq. longerons at the rear of the fuselage with a sanding block so when the bulkheads are installed the tail will pull together to measure about 1/8" thick.

❑ 5. Using a small triangle, glue F2 and F3 to the left fuse side at a 90-degree angle. See section AA on the plans for bulkhead orientation.

❑ 6. Glue the right fuse side to F2 and F3.

❑ 7. Pull the fuse together at the tail and glue into place.

❑ 8. Pull the fuse front together and glue F1 into place.

❑ 9. With your sanding block/ sand the top and bottom flat to accept the 1/16" and 1/8" balsa bottom.

❑ 10. Starting at the nose/ cut and glue 3 pieces of 1/8" balsa **bottom** sheeting as shown on the plans.

❑ 1. Glue the 1/16" balsa **bottom** sheeting into place. Do not sheet the top yet, we will need to install the pushrods first.

❑ 12. Find the 1/2" x 1-3/8" x 1-1/4" block that fits cross grain in front of the canopy. Sand a bevel to the approximate angle shown on the plan.

❑ 13. Glue the block into place.

❑ 14. Sand the front flat and glue the nose block into place

❑ 15. Glue the tow hook block into place. It fits between the two 1/4" sq. longerons and against the bottom sheeting.

❑ 16. Cut a small exit hole on either side of the fuse near the tail for the pushrod guide tubes.

❑ 17. Slide the pushrod guide tubes into the slots at the rear, then through F3 and F2. Leave the tubes as they are until you install the radio.

❑ 18. Sheet the rear top of the fuse with 1/16" balsa. Do not sheet the area where the stabilizer will mount.

❑ 1 9. Cut or sand a bevel at one end of the hatch/canopy block so it will fit with the cross grain block already installed.

❑ 20. Hollow out the hatch/canopy block so that it just clears F2, and sits flat on the fuselage.

❑ 21. **Tack** glue the hatch/canopy block into place with about 4 drops of CA. This will hold it in position while the front of the fuse is being shaped.

❑ 22. Carve and sand the fuselage to a nice round shape. Section AA and CC shows approximately what you should try to achieve. **Do not** carve the wing or stab mount areas!

❑ 23. Glue the 1/8" ply wing bolt mount into position as shown on the fuselage drawing.

FINAL ASSEMBLY

❑ 1. Cut the canopy block loose with your knife. Set the canopy aside.

❑ 2. Place the wing on the fuselage in the position shown in the plans. Push the leading edge up against F2.

❑ 3. Drill a 3/16" hole through F2 and into the leading edge and rib W1.

❑ 4. Before you glue the dowel, let us install the rear bolt. Start by aligning the wing with the fuselage. Use a measuring tape to measure the distance from the wing tip to the tail of the fuselage.

❑ 5. When both the left and right sides are equal/ use a #26 or 9/64" drill to drill a hole through the wing and the 1/8" ply wing bolt mount. See the fuselage drawing for the proper location.

❑ 6. Use a 10-24 tap to thread the wing bolt mount. Apply a couple of drops of thin CA to the threads to harden them. When dry, run the tap through the threads again.

❑ 7. Remove the wing and apply 6-minute epoxy to the front dowel at W1. Before the epoxy cures, reinstall the wing so it will set in the proper location.

NOTE: Be careful not to glue the wing to the fuselage!

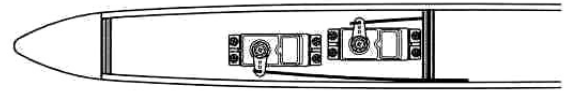
❑ 8. Pin the stabilizer to the fuselage. Sight down the fuse from the rear making sure the stabilizer is parallel to the trailing edge of the wing. You may need to sand the stab mount area so the stab sits flat on the fuse. When everything looks good, glue the stab to the fuse with medium CA.

❑ 9. Pin the fin to the centerline of the stab. Use a 90-degree triangle to make certain that the fin is perpendicular to the stab and centered, when viewed from the back. When satisfied that the fin is centered and straight, glue it in place using medium CA.

❑ 10. Use a piece of 1 /4" sq. leftover balsa from the fuse longerons to cut triangular sticks to fit where the stab and fin intersect. Glue them in place with CA.

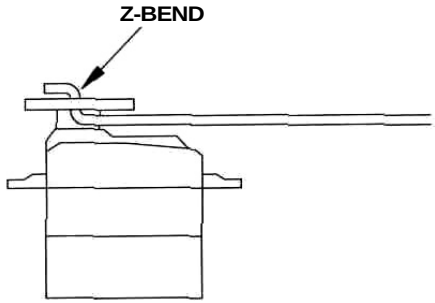
This should finish the basic construction. Cover your "Skeeter" according to the instructions included with the covering of your choice.

RADIO INSTALLATION



❑ 1. At this point the pushrod guides are in place. You will need to test fit your servos before you cut the guides to their final length.

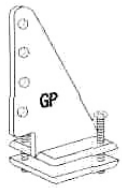
❑. 2. Based on the servo location, cut the pushrod guide tubes to fit. Leave enough room for the servo output attachment. Use 1/16" wire for this.



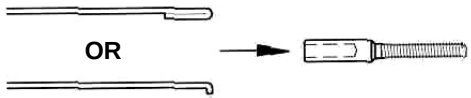
❑ 3. When you have the forward part of the pushrod bent and attached/ slide the wire into the tube from the front. Then mount the servos using double-sided tape.

❑ 4. Use CA to glue the guide tubes to the fuselage formers and the rear of the fuse.

❑ 5. Trim off and sand the excess guide tubes flush with the fuse sides.



❑ 6. Before attaching the threaded shaft and clevis, install the control horns using two 2-56 x 5/8" screws each.



❑ 7. Turn on the radio and center the servos. Thread a nylon clevis onto a threaded solder coupler at least 10 turns. Attach a clevis/coupler assembly to the rudder and elevator control horns. Align the coupler with the pushrod wire (making sure the rudder and elevators are centered) and mark the wire at the back of the coupler (where it would enter the coupler). Now, measure another 1/2" toward the elevator on the pushrod wire and make another mark. Trim the pushrod wire at the second mark.

Bend the wire between the two marks as shown in the sketch. Remove the clevises from the control horns and unscrew the clevis from the coupler. Slide the coupler onto the wire and carefully solder the coupler to the wire. Reassemble the clevises and reattach them to the control horns.

❑ 8. Mount the battery in the front of the fuse. If you can fit any foam around the battery, use it to keep the battery in place.

❑ 9. Glue the 1/16" plywood tongue to the bottom front of the canopy, as shown on the fuse plan.

❑ 10. To hold the canopy down, simply use a piece of tape on both sides.

❑ 11. Mount the receiver and check the direction of the control surface movement.

❑ 12. Check the balance. A good place to start is **on** the spar. Move the center of gravity (C.G.) to your liking - remember if you move the C.G. back the model will become more sensitive in pitch, to the point that it snap rolls, so go slowly.

IMPORTANT

If this is your first model we recommend you now enlist tne help of an experienced modeler and Test Pilot. Doing so will assure a more successful first experience. Your local hobby dealer or R/C club is a great source of assistance if you don't already know someone into R/C.

GLOSSARY OF TERMS

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

AMA - Academy of Model Aeronautics

A.R. - Aliphatic Resin glue (wood glue).

Bulkhead - A structural member in the fuselage used to strengthen and establish the shape of the cross section.

CA - Cyanoacrylate glue

C.G. - Center of Gravity

Clevis - Used to attach the pushrods to the control surfaces through a control horn.

Control horn - A lever projecting from a control surface which translates motion from the pushrod and clevis.

Die-cut - Parts of sheet wood that are precut so the modeler can use them with a minimum of preparation.

Dihedral - The angle formed by the wing panels where they intersect.

Doubler - Part of the structure that is used to reinforce a member by lamination.

Elevator - The horizontal moving surface hinged to the stabilizer. Used to raise and lower the tail in flight, thus causing the aircraft to pitch about the lateral axis.

Fin - The fixed vertical stabilizer

Fuselage - (fuse) The structure of an airplane to which the wings and tails are attached.

Glider - A heavier-than-air unpowered aircraft.

Leading edge - (LE) The forward edge of a wing, stabilizer, fin etc...

Pushrods - Wooden or wire rods which transfer motion from the electronic servos to the aircrafts control surfaces.

Rib - A structural member which maintains the contour of the wing surface.

Rudder - The vertical control surface hinged to the fin and used to control yaw about the vertical axis.

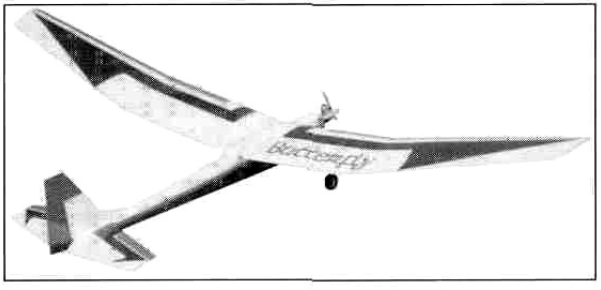
Slope soaring - the art of remaining aloft in a glider or sailplane by utilizing the vertical components of air currents caused by wind being deflected up and down a cliff or hill.

Spar - The principle spanwise structural member of a wing or stabilizer.

Tierod - Structural member that connects two halves of a split elevator.

Trailing edge - (TE) The rearmost edge of the wing, stabilizer, fin, etc...

Towhook - a device used to connect the tow line to the aircraft during lunch.



DYNAFLITE BUTTERFLY.....DYFA1010

The Butterfly is a "powered sailplane" or "motor glider" and is an ideal model for learning to fly radio controlled models. Because of its large wingspan and light wing loading, the Butterfly is a gentle model that will give you plenty of time to think and react. The Butterfly does not require a powerful engine. Any .10 to .15 cu. in. 2-stroke will do the job - all the engine has to do is provide a little thrust and the large wing will do the rest!

FLIGHT LOG

DATE	COMMENTS
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/ /	Finished Construction
/ /	First Flight
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