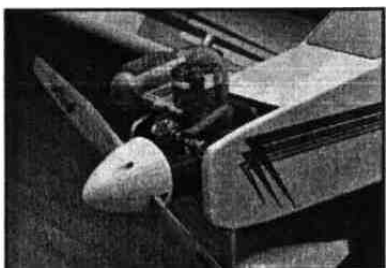
HOBBICO®

BRIGHTSTAR™ 40 AWARF®

All Wood–Almost Ready To Fly

- *Learn to fly low-wings with AWARF ease!*
- *Quick to build...flight-ready in just 16-20 hours*
- *Stable at low speeds—acrobatic at full throttle*



Features like this easy-access engine positioning will make BrightStar maintenance fast and simple.

You'll quickly make a successful step up to flying low-wings with your BrightStar 40 AWARE Its 90% prebuilt construction gets you out of the workshop and onto the flight line in only a matter of hours. Then you can begin exploring the exciting acrobatic possibilities in the BrightStar's low-mounted wing...without leaving behind the reasssuring durability and low-speed stability of your basic trainer.

Easy as 1,2,3

Congratulations!

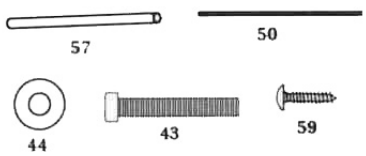
You're about to build in just days what took aviation pioneers years - a powered machine that flies. Specially created for you and other first-time radio control modelers, Hobbico's BrightStar offers nearly all the excitement of piloting a real airplane...and develops skills that will take you anywhere you want in your new hobby.

KNOW YOUR MODEL'S PARTS

Take a moment now to match the box contents with the items listed here. Following the BrightStar assembly instructions will be quite easy if you identify and organize the parts before you begin.

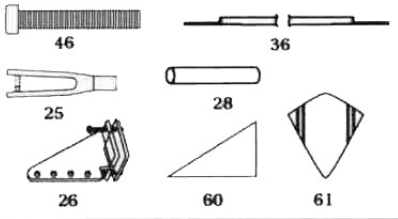
Engine Mounting Parts

Part #	Quantity
43 6-32 x 3/4" machine screw	4
44 #6 washers	4
50 Wire pushrods	2
57 Pushrod guide tubes	2
59 #6 x 3/4" sheet metal screw	4



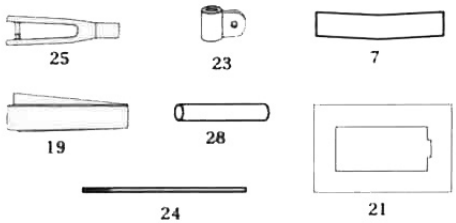
Tail Assembly

Part #	Quantity
4 Horizontal stab and elevator	1
5 Vertical fin and rudder	1
25 Clevises	2
26 Control horns	2
28 Clear clevis retaining tube	1
36 Dowel pushrods	2
46 2x15mm machine screws	4
60 Dorsal fin	1
61 Dorsal fin covering	1

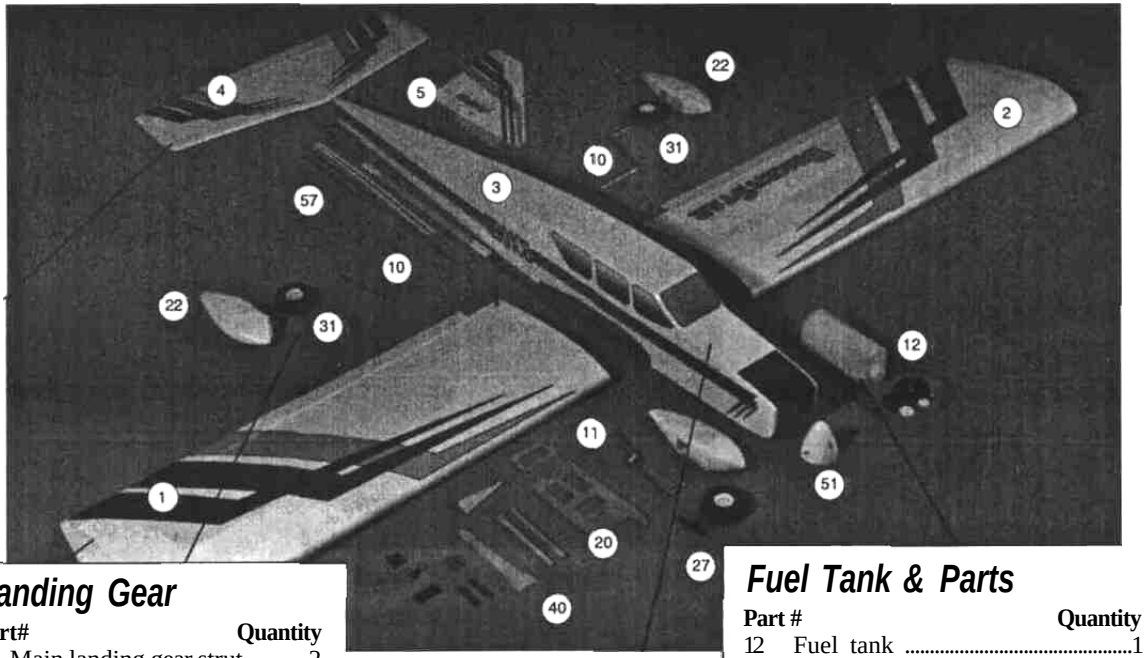


Wing Assembly

Part#	Quantity
1 Right wing with aileron	1
2 Left wing with aileron	1
7 Plywood wing joiners	3
19 Wing center tape	1
21 Aileron servo tray	1
23 Aileron control horns	2
24 Threaded aileron pushrods	2
25 Clevises	2
28 Clear clevis retaining tube	1

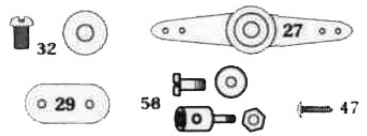


Please take your time and read through the instruction manual before starting to build your new airplane. If you have any questions, please feel free to give us a call at (217) 398-8970. We hope you enjoy building and flying the BrightStar 40.



Landing Gear

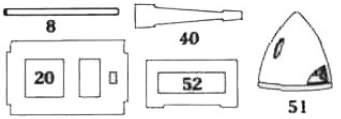
Part#		Quantity
10	Main landing gear strut	2
11	Nose gear strut	1
22	Wheel Pant	3
27	Plastic steering arm	1
29	Landing gear strap (Nylon)	4
31	Wheel	3
32	Wheel collar / 3x5mm screw	7
47	2.5xl0mm sheet metal screw	4
58	Pushrod connector	2
62	Landing gear strap (Metal)	3



* Sketches shown are not actual size or to scale.

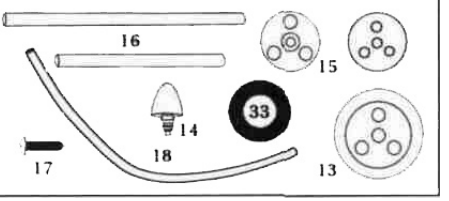
Fuselage & Parts

Part #		Quantity
3	Fuselage	1
8	Wing mounting dowel	2
20	Servo tray	1
40	Stabilizer mounting base	1
51	Spinner	1
52	Servo tray support	1

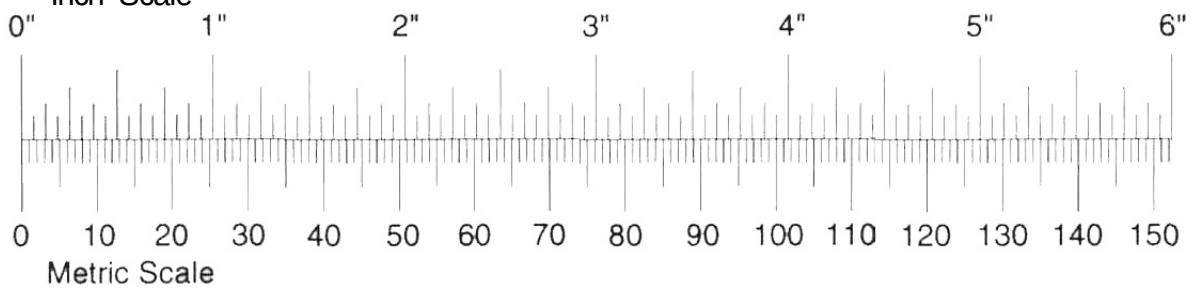


Fuel Tank & Parts

Part #		Quantity
12	Fuel tank	1
13	Rubber tank stopper	1
14	Fuel pick-up weight (clunk)	1
15	Plastic stopper disk (one large and one small)	2
16	Aluminum fuel tubing (one short and two long)	3
17	3xl8mm sheet metal screw	1
18	Silicone fuel line	1
33	Foam tank collar	1



Inch Scale

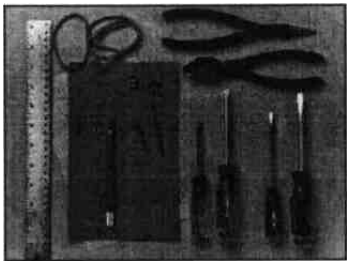


OTHER ITEMS YOU'LL NEED:

Glues

Choose a high quality 6-minute and 30-minute epoxy, such as Great Planes* Pro- Epoxy, which has been formulated especially for R/C model building. Pro Epoxies offer a strong bond and a variety of curing times suited for every step of assembly. You'll also need a 1 oz. bottle of thin and a 1 oz. bottle of medium CA (Cyanoacrylate), plus rubbing alcohol for easy epoxy cleanup.

Hardware



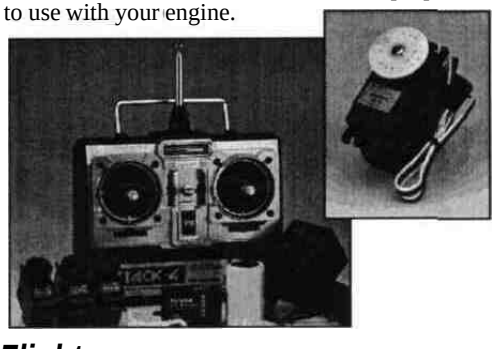
Tools and accessories required for assembly include a hobby knife, small and large Phillips screwdrivers, needle nose pliers, drill with 1/16", 11/64", 5/64", 3/32", 5/32" and 3/16" bits, ruler, #64 rubber bands, one foot of medium fuel tubing and petroleum jelly

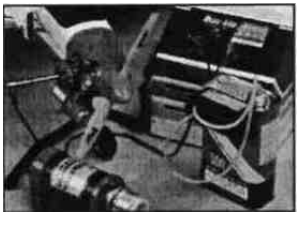
Model Engine

Power your BrightStar with any high-quality, .40 - .46 size model engine. The O.S. .40 LA is a fine engine for this plane. Look for features such as easy break-in, easy starting, efficient carburetion and low maintenance. Check the manufacturer's recommendations for propellers to use with your engine.

Radio Equipment

To control your BrightStar's "flight path," you'll need a 1991 legal 4-channel aircraft radio system with four standard servos. Many 4-channel radios include just three. You may need to purchase the fourth separately. Hobbico Command servos are available singularly and will work great for this plane. The servos, battery pack and radio receiver will be mounted onboard your model and need to be cushioned from jolts and vibration. Half-inch thick foam rubber sheets (HCAQ1050) are available for this purpose.





Getting Ready for Flight

Your Hobbico BrightStar can be ready for takeoff in as little as 16-20 hours. Your hobby dealer or flying instructor (see next page) can help you decide what accessories you'll need for flight. Most are one-time-only purchases - like a glow plug igniter (see glossary), fuel pump, and "chicken stick" or electric starter. You will also need to obtain model glow fuel. Use glow fuel with a 10-15% nitro content to keep your engine performing at its peak.

General Items Required

- Mixing Sticks (GPMR8055)
- Epoxy Mixing Cups
- Clothespins
- Foam Rubber (HCAQ1050)
- String
- Felt-tip Pen
- Easy-Touch" Bar Sander (GPMR6170)
- 150-grit **sandpaper** (GPMR6183)
- Adjustable Wrench
- Masking Tape
- Medium 3/32" Fuel Tubing (GPMQ4131)
- Paper Towels
- T-pins
- Wire Cutter
- Epoxy Brush
- Steel File
- Wax Paper

FIND A FLYING INSTRUCTOR

If you're a beginner, the best way to begin flying your BrightStar is with an experienced R/C pilot or flying instructor at your side. You'll learn faster and avoid risking your model before you're truly ready **to solo.**

Where do you find an instructor? Ask at your local hobby shop. They'll have information about flying clubs in your area whose membership includes qualified instructors. You should also join the Academy of Model Aeronautics (AMA), a 165,000 member-strong national organization with more than 2,300 chartered clubs across the country. Through any one of them, instructor training programs are available. Contact the AMA at the address or phone number below.

Academy of Model Aeronautics
5151 East Memorial Drive
Muncie, IN 47302-9252
(800)435-9262
Fax(317)741-0057

AMA
SINCE 1936
JOIN THE AMA

WARNING! THIS IS NOT A TOY! PLEASE FOLLOW THESE SAFETY PRECAUTIONS:

Before you fly:

1. Make sure that no other fliers are using your radio frequency.
2. Your radio transmitter must be the FIRST thing you turn ON, and the LAST thing you turn OFF.
3. Double check all control surfaces, making sure they arc secure and move in the proper direction.
4. Make sure that the transmitter & receiver batteries are fully charged.

Fuel storage and care:

1. Do not smoke near your engine or fuel.
2. Store all engine fuel in a safe, cool, dry place, away from children and pets. Model fuel will evaporate, so make sure that you always store it with the cap secure.

When starting and running your engine:

1. Always wear safety glasses.
2. Make certain that your glow plug clip is securely attached to the glow plug and cannot pop off, possibly falling into the spinning propeller.
3. Use a "chicken stick" or electric starter to start the engine - NOT your fingers.
4. Make sure that the wires from your starter and glow plug clip cannot become tangled with the spinning propeller.
5. Do not stand at the side of the propeller when you start or run the engine. Even at idle speed, the spinning propeller will be nearly invisible.
6. If any engine adjustments are necessary, approach the engine only from behind the spinning propeller.

90-Day Limited Warranty

If you, as the original owner of this model, discover a defect in parts or workmanship within 90 days of purchase, Hobbico will repair or replace it, at the option of our authorized U S repair facility, Hobby Services, without charge Our liability does not include cost of shipping to us However, Hobby Services will pay shipping expenses to return your model to you

You must provide proof of purchase, such as your original purchase invoice or receipt, for your model's warranty to be honored

This warranty does not apply to damage or defects **caused by misuse or** improper assembly, service or shipment. Modifications, alterations or repair by anyone other than Hobby Services voids this warranty We are sorry, but we cannot be responsible for crash damage and/or resulting loss of kits, engines, accessories, etc

Repair Service

Your BrightStar 40 must be returned directly to Hobby Services for warranty work The address is Hobby Services, Attn Service Department, 1610 Interstate Drive, Champaign, IL 61821-1067 Phone (217) 398-0007, or for product information and technical support please contact us at (217) 398-8970

Please follow the instructions below when returning your model This will help our experienced technicians to repair and return It as quickly as possible

1 ALWAYS return your entire system, including airplane and radio.
2 Disconnect the receiver battery switch harness and make sure that the transmitter is turned off Disconnect all batteries and drain all fuel
3 Include a list of all items returned and a THOROUGH, written explanation of the problem and service needed If you expect the repair to be covered under warranty, also include your proof of purchase
4 Include your full return address and a phone number where you can be reached during the day

If your model is past the 90-day warranty period or is excluded from warranty coverage, you can still receive repair service through Hobby Services at a nominal cost Repair charges and postage may be prepaid or billed COD Additional postage charges will be applied for non-warranty returns All repairs shipped outside the United States must be prepaid in U S funds only

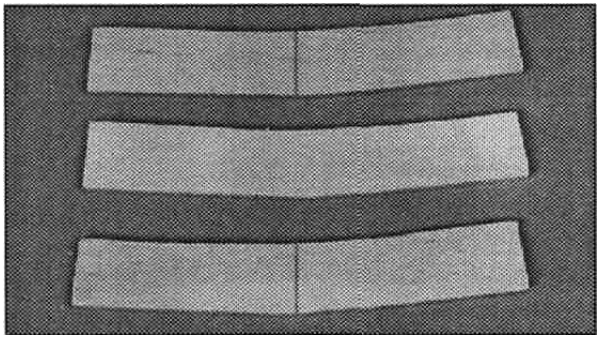
All pictures, descriptions and specifications found in this instruction manual and on the product package are subject to change without notice

Assemble the Wing

Special Note:

You should charge your radio system before starting to build. Following the manufacturer's directions, connect your transmitter and receiver batteries to the system's charger. This way the radio will be ready when it is time **to** install and test the components.

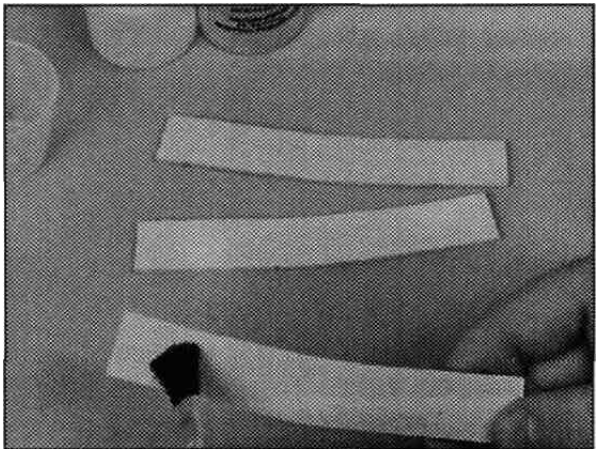
Prepare the wing joiners



D 1. Locate the three 1/8" (3mm) die-cut **plywood wing joiners.** Arrange the "V'-shaped joiners in the same orientation as they will be glued together. Sand off any bumps from the edges. Draw a centerline on two of the joiners as shown.

Glue the wing joiners

Note: Please read steps 2 through 4 before mixing epoxy.

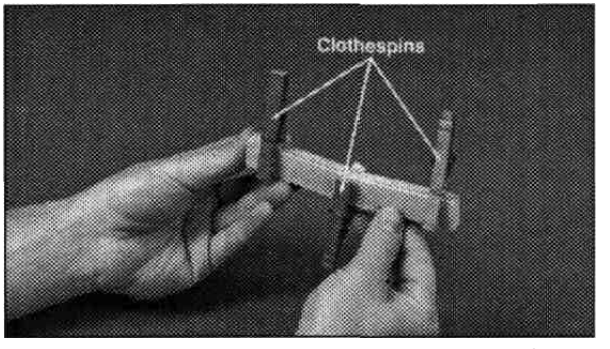


D 2. Mix approximately 1/4 oz. (7.5ml) of 30-minute epoxy using a mixing stick and a cup. Using a mixing stick or epoxy brush, apply an even coat of epoxy on both sides of one of the wing joiners. Sandwich this coated joiner **between** the remaining two. Make sure that the centerlines drawn in step 1 are visable on both sides of the assembly. Quickly proceed through the following steps (3 and 4) before the glue cures.

Remove the excess epoxy

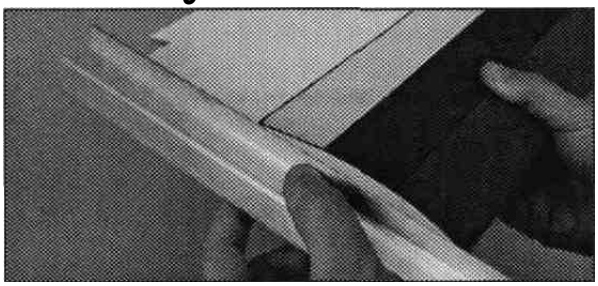
D 3. Excess epoxy will squeeze out of the seams between the joiners and must be removed *before* the epoxy is allowed to cure. Use a paper towel and rubbing alcohol to remove the excess epoxy.

Clamp the wing joiner



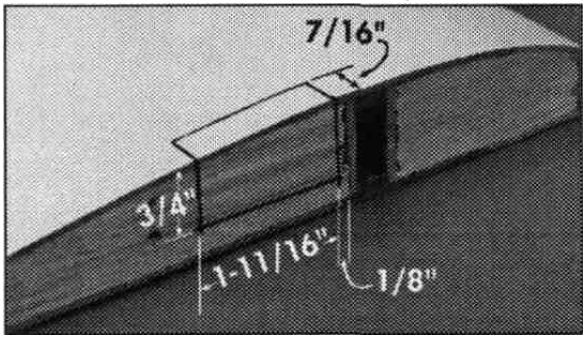
D 4. Use clothespins to clamp the wing Joiners firmly together. If any more epoxy squeezes out, remove it using a paper towel. Make sure the joiners are evenly lined up with each other. Set the joiner assembly aside until the epoxy has fully cured.

Even the edges



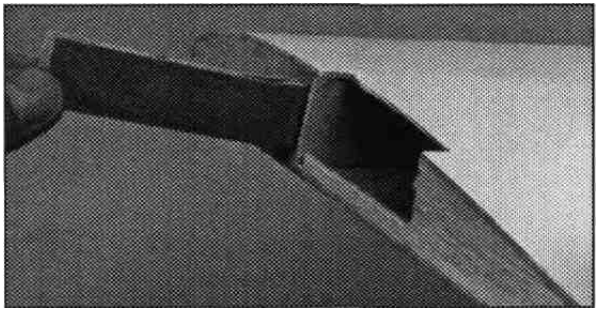
D 5. Using a bar sander or similar tool, sand the wing roots so they will fit together with no gaps. Do not sand **too** much or the dihedral angle could change.

Mark the wing servo cavity



D 6. Mark the aileron servo location on both wing panels using a felt-tip pen. Using a hobby knife, cut an opening into both panels following the lines you just drew.

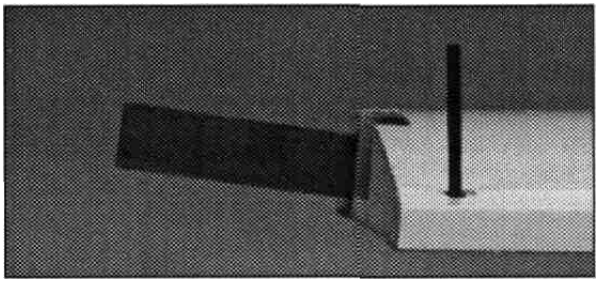
Test fit the wing joiner



D 7. Test fit the wing joiner in **both** wing panels by sliding the joiner into the joiner cavity in the wing. The joiner should slide in snugly up to the centerline. If the wing joiner will not fit in the cavity, lightly sand any excess epoxy or uneven surfaces from the joiner edges, sides and ends.

Caution: A snug fit is desirable between the joiner and the wing cavity. Do not sand excessively.

Viewing the wing dihedral

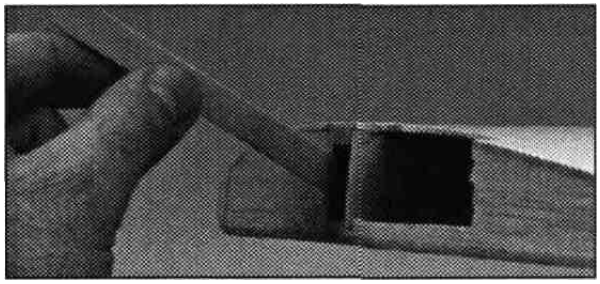


D 8. Pay close attention to the orientation of the wing joiner in relation to the wing panel, creating the dihedral angle as shown. Test fit the wing panels together. They should fit **flush against each other without gaps.**

Note! When performing the following steps, be sure to use a sufficient amount of epoxy to form a complete and solid bond between the plywood wing joiner and the two wing halves. This is the most important glue joint in the entire airplane.

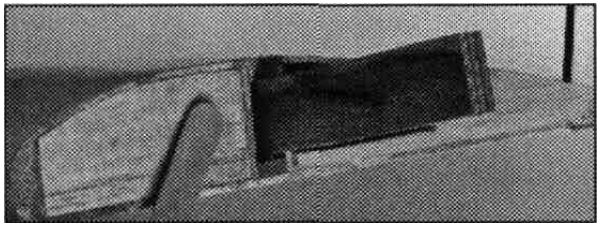
Please read through the following three steps before mixing any epoxy. You must complete these steps within 20 minutes from the time you mix the epoxy.

Glue the joiner



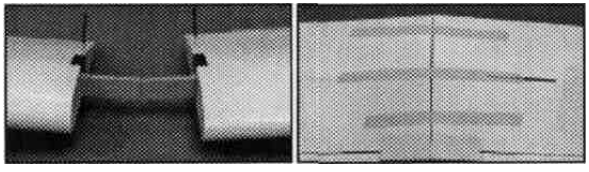
D 9. Mix 3/4 oz. (22ml) of 30-minute epoxy. Use a mixing stick or epoxy brush to apply epoxy to all four sides of the joiner cavity. Insert the joiner into the cavity up to the centerline marked on the joiner plate. Be sure you are installing the joiner correctly. Quickly proceed to the next step.

Apply epoxy to the wing root rib



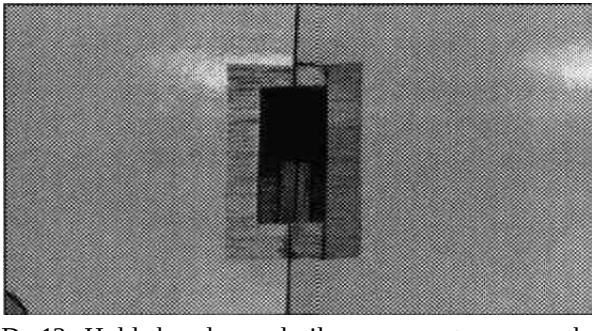
D 10. Apply epoxy inside the joiner cavity of the remaining wing panel. Next, coat the wing root ribs on **both** panels. Quickly proceed to the next step.

Join the wing halves



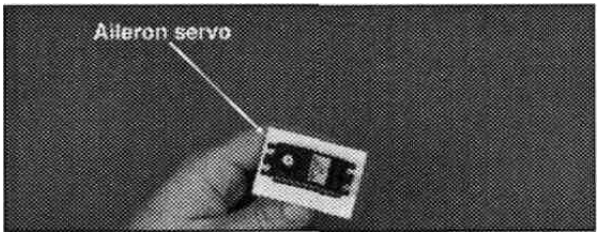
D 11. Assemble the two wing halves with the tightest seam possible. No **gaps** should be showing between the two wing halves. Clean any excess epoxy from the outside of the wing using a paper towel dampened with rubbing alcohol. Use several strips of masking tape on both sides to hold the wing halves tightly together. Let the epoxy fully cure before continuing.

Trim the covering



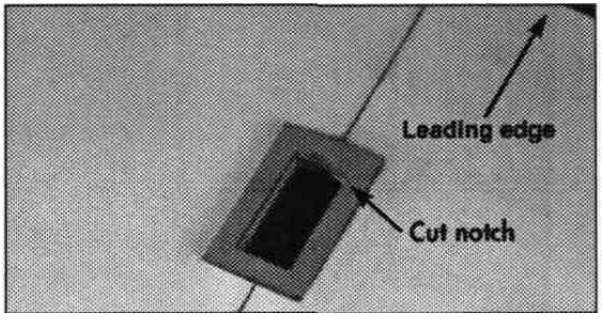
D 12. Hold the plywood aileron servo tray over the hole in the top of the wing. Trace the **outside** of the tray with a felt-tip pen and then remove the tray from the wing. **Carefully remove the covering within the lines using a new** #11 **blade in a hobby knife,** being careful **not** to cut into the balsa wing sheeting.

Test fit the aileron servo



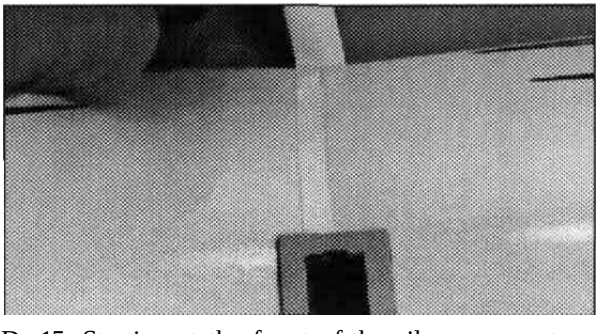
D 13. Test fit the aileron servo into the servo tray and the hole in the top of the wing. Enlarge either hole, if needed, with a hobby knife or a fine-toothed file until a proper fit is achieved. The plywood tray should not actually contact the the sides of the servo. Leave a 1/64" gap all the way around. Remove the servo. The servo should not touch any of the wing surface.

Install the servo tray



D 14. Mix l/8oz. (3.5ml) of 6-minute epoxy to glue the servo tray to the top side of the wing. Attach the servo tray to the top of the wing. After the epoxy has cured, cut a small notch in the servo tray to allow the servo lead to pass through.

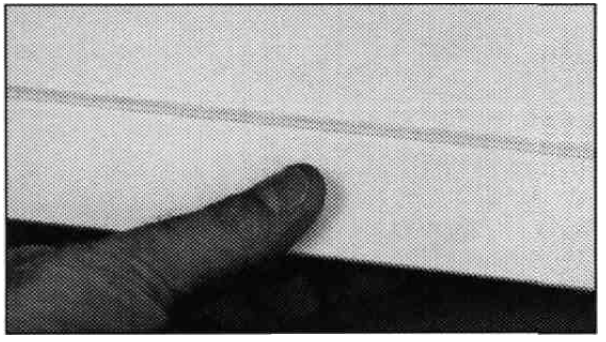
Apply the wing center tape



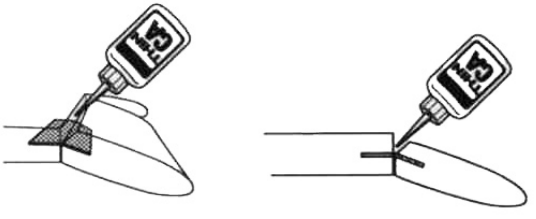
D 15. Starting at the front of the aileron servo tray, apply the 1/2" (12.5mm) white wing center tape

completely around the wing over the joint. A small amount of pressure should be applied to make a smooth seam.

Check the aileron hinge



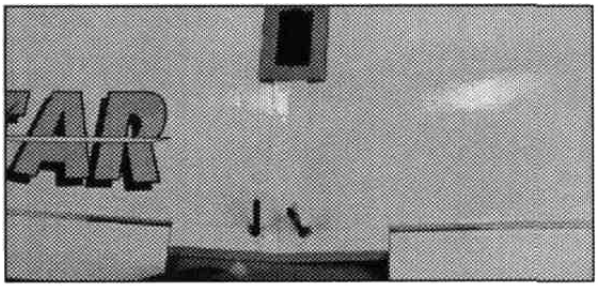
D 16. Gently tug on each of the ailerons at each hinge location. If any of the hinges are loose, reglue them as described here. First, flex the surface all the way one direction (DO NOT REMOVE THE AILERON).

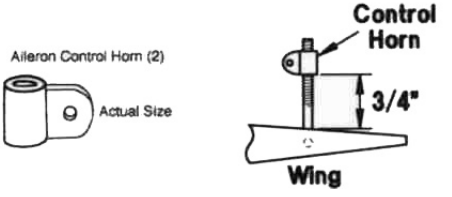


Apply 5 drops of thin CA onto each hinge.

NOTE: Do not use CA accelerator as the CA must "wick" into the slot. Use a paper towel to absorb any excess glue. Wait a few minutes for the glue to cure, then flex the surface the other direction and glue the other side of the hinges in the same manner. Finally, flex the surface back and forth several times to free up the aileron.

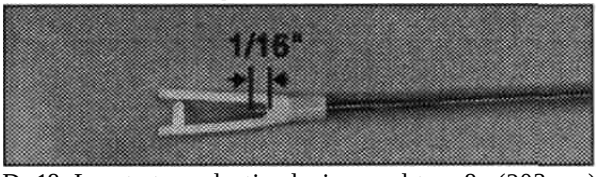
Install the aileron control horns





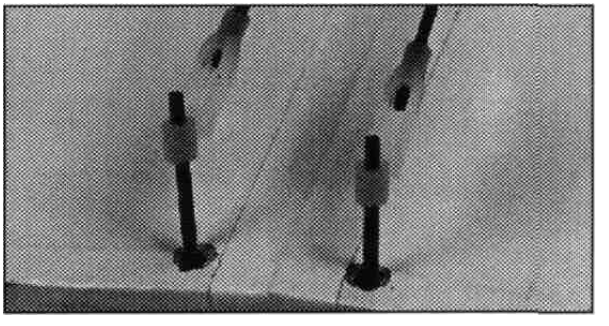
D 17. Thread the aileron control horns onto the torque rods until there is 3/4" (19mm) of torque rod between the wing and control horns.

Assemble the pushrods



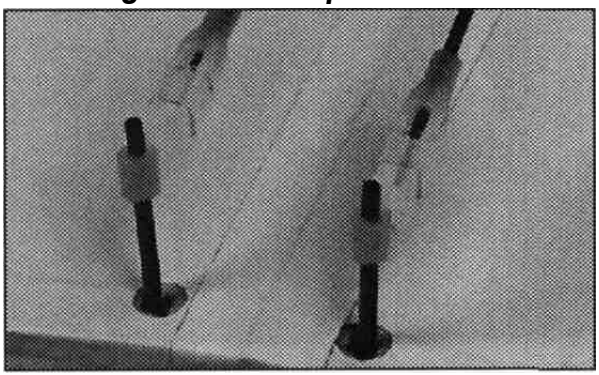
D 18. Locate two plastic clevises and two 8 (203mm) **aileron pushrods.** Thread the clevises onto the threaded end of the pushrods **until the rod protrudes** between the clevis forks 1/16".

Install the pushrods



D 19. Attach the pushrods to the aileron control horns. Press the forks of the clevis together until they snap into place.

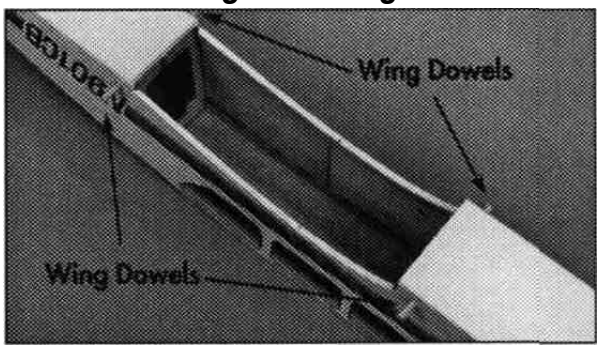
Securing the aileron pushrods



D 20. Locate the 1/4" (6.5mm) diameter clear retaining tube and cut two 1/4" (6.5mm) pieces. Slide one piece onto each clevis to secure the connection between the clevis and the horn.

This concludes the wing assembly for now. Tape the pushrods to the wing to keep them in place until you install the servo.

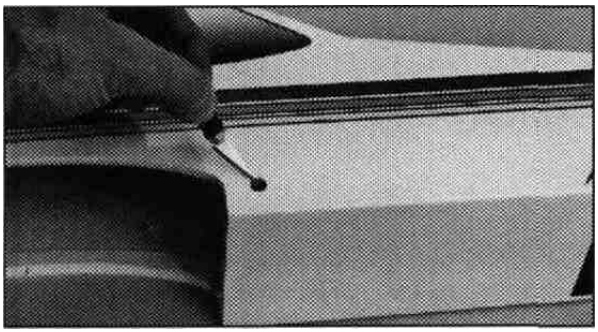
Install the wing mounting dowels



D 2. Insert both **wing mounting dowels** so they protrude an equal distance on both sides. Mix 1/4oz. (7.4ml) of 30-minute epoxy. Apply glue around the dowels next to the fuselage and slide them in and out to help force the glue into the holes. Using a paper towel, spread the excess glue around the ends of the dowels. This will fuelproof and add strength to the wood. From the inside of the fuselage, apply more epoxy around the dowels where they meet the sides of the fuselage. These wing dowels will be used as anchors for rubber bands to hold the wing in place. Wipe off all excess epoxy with a paper towel and rubbing alcohol.

Fuselage Assembly

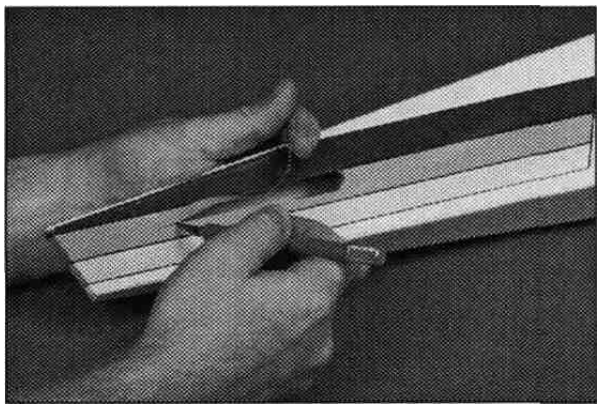
Locate the wing dowel holes



D 1. Locate the four round holes (two on each side of the fuselage, see photo below for reference) and remove the covering over each hole.

Caution: Do not cut out the rectangular holes in the side of the fuselage.

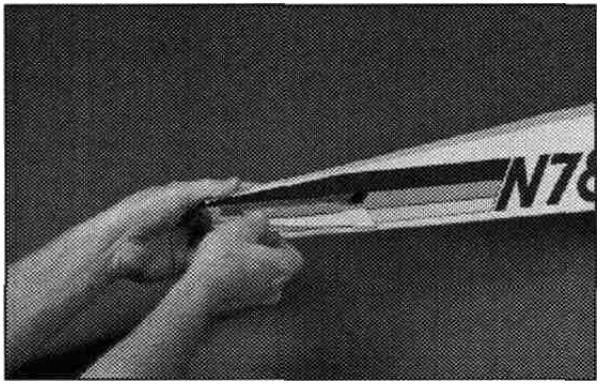
Locate the stabilizer slot



D 3. Locate the horizontal stabilizer slot under the covering on the tail section of the fuselage by pressing lightly with your finger. The slot is located on both sides of the tail. Using a hobby knife, carefully remove the covering, exposing the slots.

NOTE: Do not cut into the wood around the slot.

Install the plywood stabilizer mount

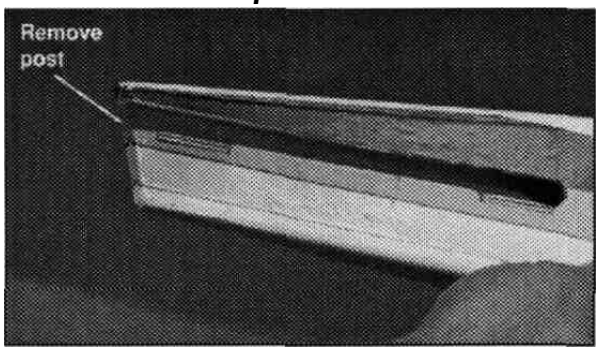


D 4. Locate the 1/8" (3mm) **plywood stabilizer mounting base** and test fit it into the bottom of the horizontal stabilizer slot. Lightly sand the base if necessary to obtain a good fit. Remove the base from the fuselage.

Glue the mount In place

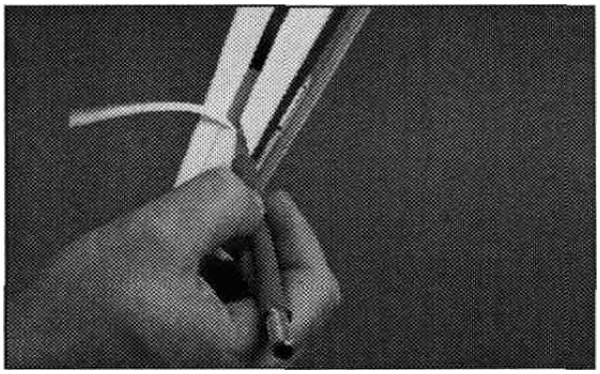
D 5. Mix l/8oz. (3 5ml) of 30-minute epoxy. Using a mixing stick, apply a generous amount of epoxy into the slot and position the stabilizer mounting base firmly in position. Remove any excess epoxy that remains on the top of the stabilizer base and on the outside of the fuselage with a paper towel and alcohol.

Remove the tail post



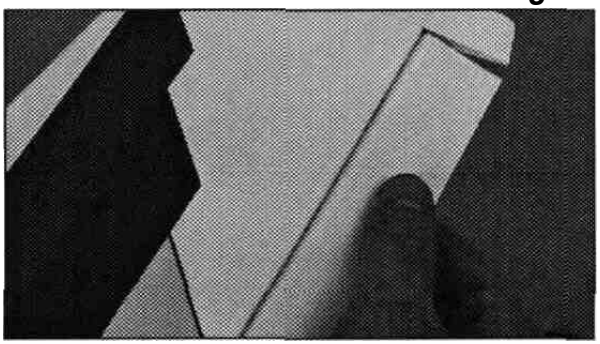
D 6. The balsa tail post is located at the rear of the fuselage, behind the horizontal stabilizer slot. This post was left for manufacturing alignment. The post must be removed in order to insert the horizontal stabilizer. Using a sharp hobby knife or razor saw, cut the post even with the slot as shown in the picture.

Locate the vertical fin slot

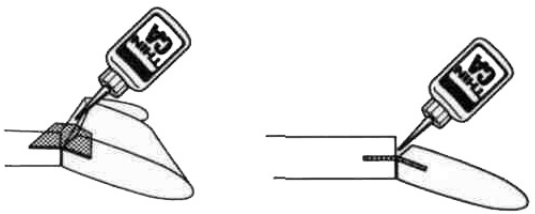


D 7. Using your finger, locate the vertical fin slot on the top of the fuselage. Remove the covering with a hobbyknife.

Check the rudder and elevator hinges



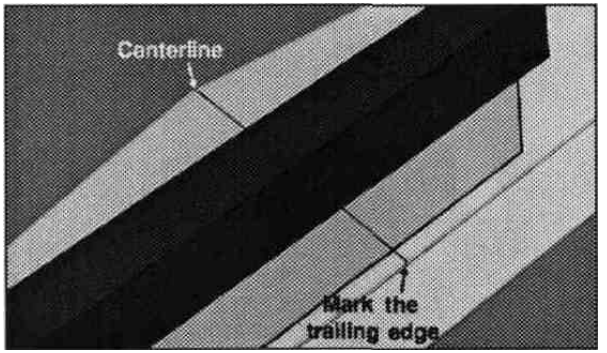
D 8. Gently tug on the rudder and elevator at each hinge location. If any of the hinges are loose, reglue them as described here: First, flex the control surface all the way one direction (DO NOT REMOVE THE CONTROL SURFACE).



Apply 5 drops of thin CA onto each hinge. Use a paper towel to absorb the excess glue. Wait a few minutes for the glue to cure, then flex the surface the other direction and glue the other side of the hinges. Finally, flex the surface back and forth several times to free it up.

NOTE: Do not use accelerator on the hinges.

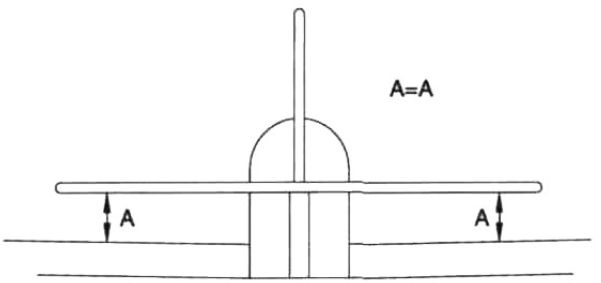
Mark the centerline



D 9. On the top surface of the **horizontal stabilizer,** measure to find the exact center from side to side. Draw a "centerline" using a felt-tip pen. Next, extend that line onto the trailing edge, in the hinge gap, as shown. (DO NOT MARK ON THE ELEVATOR.)

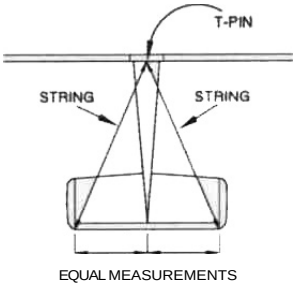
Align the stabilizer with the wing

(DO NOT USE GLUE IN THIS STEP)



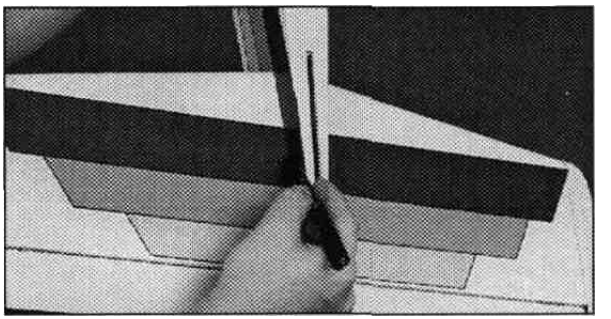
D 10. Insert the stabilizer into the horizontal stabilizer slot so it is centered in the fuselage (A). Place the wing onto the fuselage and secure it with two rubber bands view the plane from the rear to check for proper alignment. The stabilizer should be parallel with the wing (B). If not, sand the high side of the stabilizer mounting plate a little at a time until correct.

Align the stabilizer with the fuse



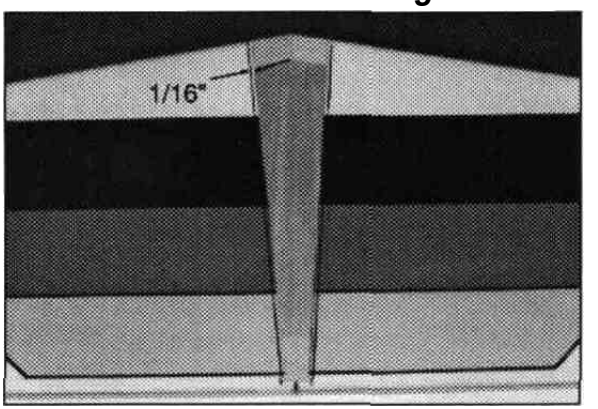
D 11. Attach a piece of string with a T-pin to the center of the fuselage as shown. Hold the string to one corner of the horizontal stabilizer. The distance from the pin to the horizontal stabilizer must be exactly the same to both corners.

Mark the stabilizer location



D 12. With the stabilizer properly aligned, use a felt-tip pen to trace a line around the tail of the airplane on the top and bottom of the horizontal stabilizer.

Remove the center covering



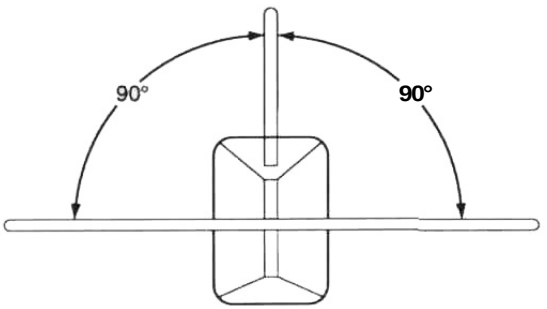
D 13. Remove the stabilizer and draw two additional lines, on the top and bottom, 1/16" **inside** the lines

drawn in the previous step. Next, carefully cut through the covering using a new #11 knife blade at the **inside** lines and remove the covering from the center. **Do not cut the wood under the covering! This would seriously weaken the stabilizer and could easily cause the stabilizer to break in flight.** If the stab breaks the plane may crash, so be **very careful** when you make this cut. If the covering is not removed from the stabilizer a proper bond cannot be achieved.

Install the stabilizer

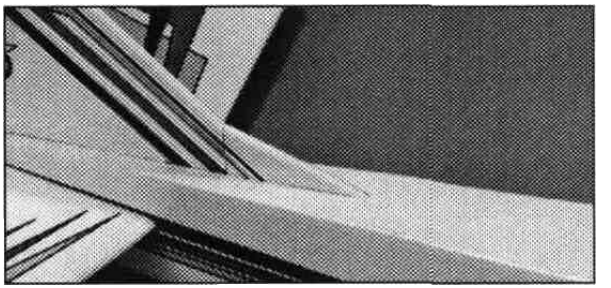
D 14. Mix l/4oz. (7.5ml) of 30-minute epoxy. Using a mixing stick, place epoxy inside the horizontal stabilizer slot on all sides including the horizontal stabilizer mount. Place more epoxy onto the bottom and top of the stabilizer where you removed the covering. Insert the stabilizer from the rear and adjust the alignment. Wipe off any epoxy that squeezes out using a paper towel dampened with rubbing alcohol. Recheck the alignment, several times while the epoxy cures.

Install the vertical fin



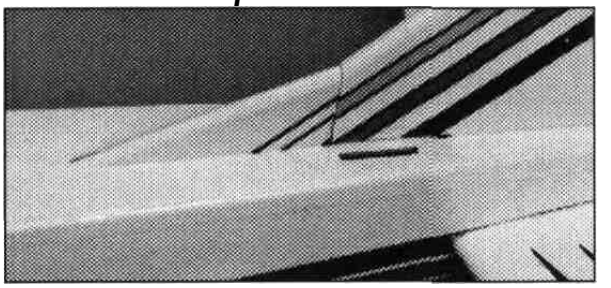
D 15. Test fit the vertical fin into the slot in the top of the fuselage. Sand the edges of the slot if necessary for a snug fit. When fit properly the bottom of the vertical fin will rest firmly against the top of the **horizontal stabilizer.** Mix l/4oz. (7.5ml) of 30-minute epoxy. Using a mixing stick, apply epoxy to the top of the horizontal stabilizer through the slot. Apply epoxy to the sides and bottom surfaces of the fin base that have balsa wood exposed. Insert the fin into the slot. Check for a 90° angle between the fin and the horizontal stabilizer when viewing from the rear. Check this alignment several times as the epoxy cures. (You may find it beneficial to hold the fin in place with tape until the epoxy cures.)

Install the Dorsal Fin



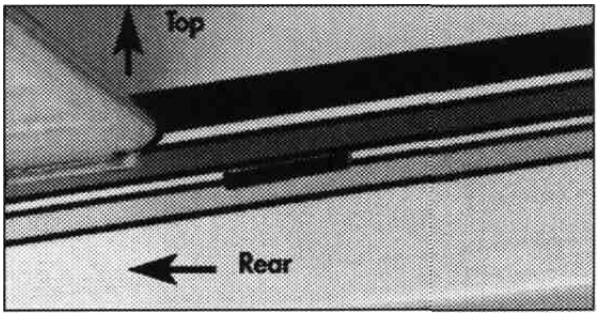
D 16. Locate the precut dorsal fin and decal. Apply the decal to the dorsal fin, starting at the top and working the decal down the sides. Trim any of the excess decal so that it doesn't hang from the bottom of the filler. Carefully trim away the covering from the fuselage where the filer will be positioned. Glue the filler in place using Medium CA.

Cut the rudder pushrod exit



D 17. The precut rudder pushrod exit hole is located on top of the fuselage on the **left** side of the fin. Use a hobby knife to remove the covering from the rudder pushrod exit hole.

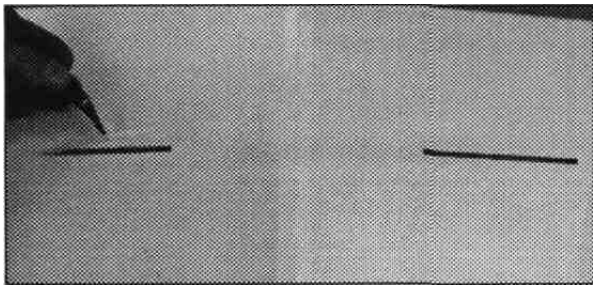
Cut the elevator exit



D 18. The precut elevator pushrod exit hole is located on the right side of the fuselage. Locate the exit hole by gently running your finger along the bottom side of the

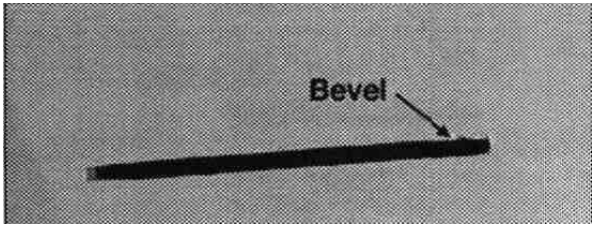
fuselage over the covering. It should be located approximately 1/2" in front of the stabilizer where shown. Use a hobby knife to remove the covering from the elevator pushrod exit hole.

Locate the landing gear channel



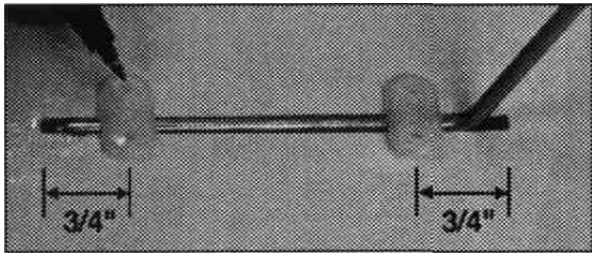
D 19. There is a channel for the main landing gear on the bottom of the wing. Locate this channel by running your finger over the covering on the bottom of the wing. Use a hobby knife to remove the covering from this channel.

Prepare the channel for the gear



D 20. Test fit the chrome wire landing gear struts into the holes. If they will not go in easily, enlarge the two holes using an 11/64" drill bit. Next, use the drill bit or hobby knife to bevel the inside corners of the holes so that the bend in the wire will fully seat into the holes.

Install the main landing gear struts

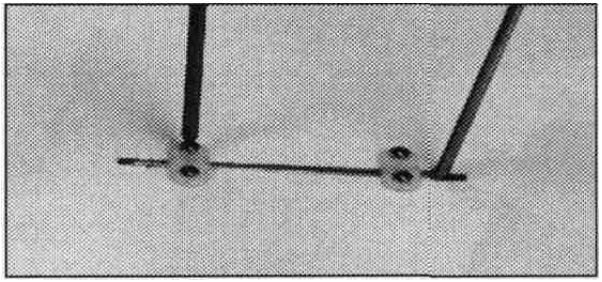


D 21. Position the wire landing gear strut in the hole inside the channel. Center the two nylon **landing gear straps** (from plastic parts tree) over the struts so they are approximately 3/4" from the ends of the channel. Mark the holes using a felt-tip pen.

Drill the fuselage

D 22. Drill four holes for the landing gear straps using a 1/16" (1.6 mm) drill **bit.**

Mount the struts

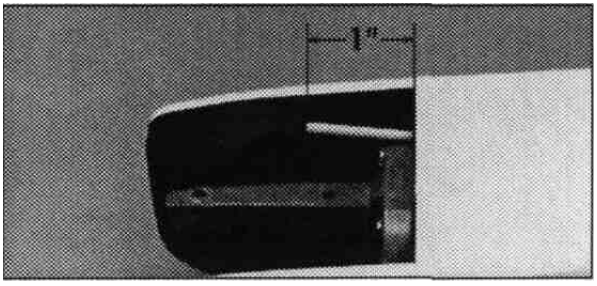


D 23. Use eight 2.5xl0mm self-tapping screws to fasten the landing gear straps to the bottom of the wing over the struts.

Engine Selection

D 24. Steps 25 through 42 show the installation of components for a 2-stroke engine. If you are planning to install a 4-stroke engine, you will need to install the throttle pushrod on the opposite side of what is shown in the photos. Pay close attention to any special notes covering 4-stroke installation in the text.

Glue the throttle guide tube in place

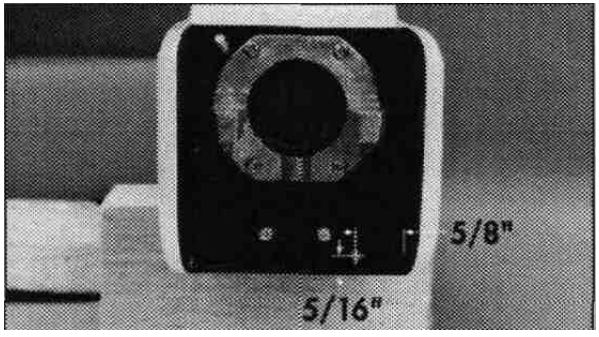


D 25. Use sandpaper to roughen the outside of both plastic pushrod guide tubes and clean them with a

paper towel dampened with rubbing alcohol. This will help the glue adhere to the tubes. Insert one of the tubes into the upper hole in the firewall. Position the tube so that approximately 1" protrudes out of the firewall. Mix l/8oz. of 6-minute epoxy and glue the guide tube into the hole in the firewall.

Note: If you are installing a 4-stroke engine, you will need to drill a new 5/32" hole for the throttle pushrod. Drill this hole so it lines up behind the carburetor arm on your engine. The predrilled hole is not needed and should be plugged with 6-minute epoxy.

Drill the steering pushrod exit hole



D 26. Drill a 5/32" hole through the firewall, 5/16" from the bottom and 5/8" from the inside edge of the fuselage side.

Install the steering guide tube

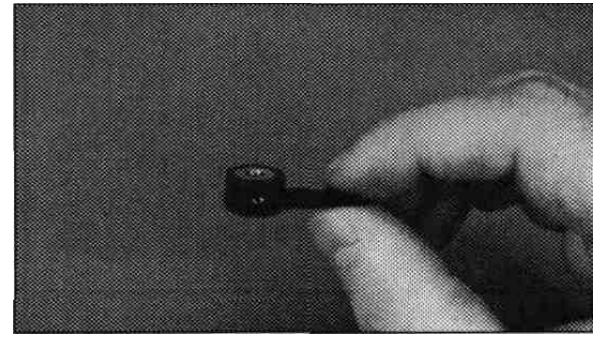
D 27. Slide the remaining guide tube into the 5/32" hole you just drilled so about 2" - 3" protrudes. Mix 1/8oz. of 6-minute epoxy. Glue the tube into the hole and into the lower left notch inside the fuselage. Once the epoxy has cured, trim off this tube so it is flush with the firewall.

Make "Z" bends in the wire

D 28. Make a Z-bend at only **one end** of each of the 1/16" x 18" wire pushrods using needle nose pliers.

NOTE: Hobbico offers pliers that easily make perfect Z-bends (HCAR2000). See your hobby dealer.

Trim the steering arm



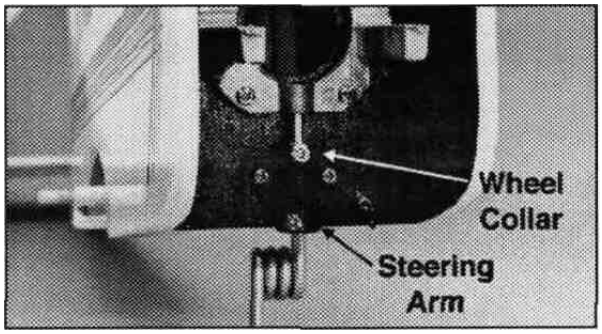
D 29. Locate the black plastic steering arm. Hold the steering arm in your hand so that the screw hole is facing you. Using a wire cutter, remove the right side of the arm.

Note: All directions are based upon you sitting in the cockpit.

Install the steering pushrod

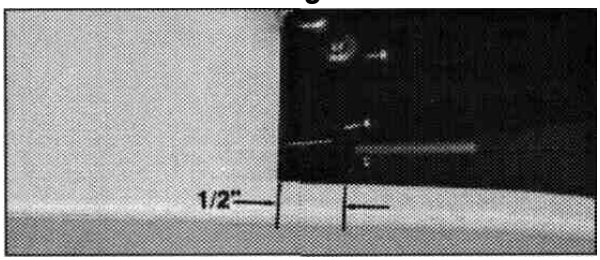
D 30. Attach the "Z" bend of one of the wires into the hole closest to the center of the black plastic steering arm. Slide the wire into the plastic guide tube so that the screw hole on the steering arm is facing forward.

Install the nose gear strut



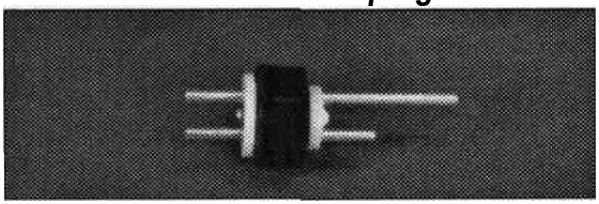
D 31. Install the nose gear strut through the steering arm, followed by a 4mm collar. Slide the strut through the lower lug on the engine mount. Slide the strut up so that the coil is about 1/4" below the bottom of the fuselage. Tighten the wheel collar to the strut using a 3 x 5mm machine screw.

Position the steering arm



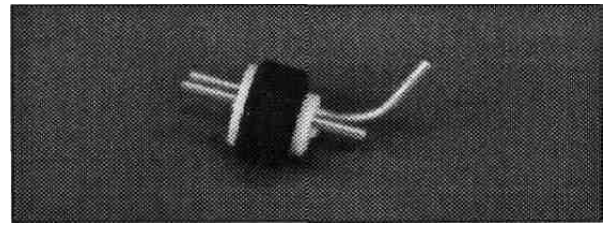
D 32. Rotate the nose gear strut so that the wheel (once installed) will point straight ahead. Swing the steering arm so it is approximately 1/2" from the firewall. Tighten the arm to the strut using a 3 x 8mm screw. The screw will leave a mark on the strut. Remove the strut and file a small flat at this mark. This will keep the steering arm from slipping on the strut.

Assemble the fuel tank plug



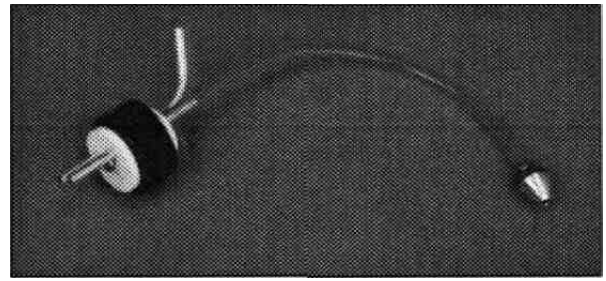
D 33. Push one long and one short aluminum tube through the black rubber stopper - the third aluminum tube will not be used. Place the two white plastic disks over the tubes. The larger disk should go towards the outside. The nub on the small disk should face away from the rubber stopper. Insert the 3 x 18mm self-tapping screw through the larger disk, rubber plug and then into the smaller disk. Do not tighten the screw at this time.

Bend the vent tube



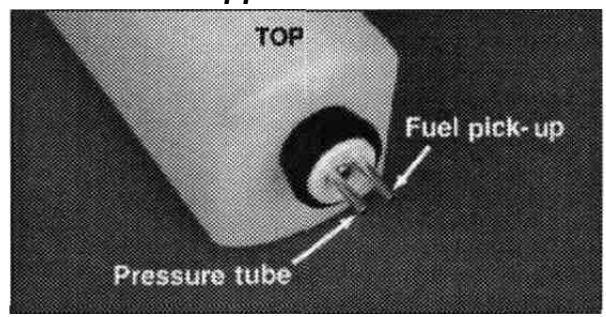
D 34. Bend the longer tube (pressure tube) up as shown so that it will come within 1/16" from touching the top of the tank when installed. Use your fingers to bend the tube, being careful not to kink it closed.

Install the clunk



D 35. Locate the metal fuel pick-up weight (often referred to as the **"clunk")** and the fuel tubing. Cut the fuel tubing so it is 3-1/2" long. Attach the fuel tubing **to** the short aluminum tube and **to the clunk.**

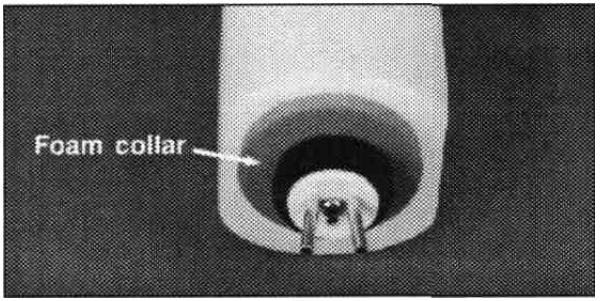
Install the stopper



D 36. The stopper assembly can now be inserted into the tank. The pressure tube should be adjusted so the tube is

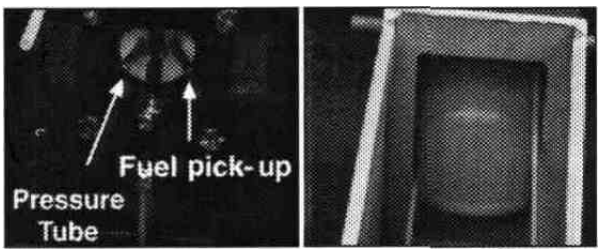
pointed straight up just under the top of the tank. The rubber stopper must seat over the lip of the tank. Make sure that the tubes are positioned side-to-side. Tighten the stopper by turning the screw. Do not overtighten or you may strip the threads in the plastic disk.

Install the foam tank collar and bend the tubes



D 37. Locate the foam tank collar. Remove the inner foam circle and place the collar around the neck of the fuel tank. Bend the aluminum tubes outward slightly, as shown.

Install the tank

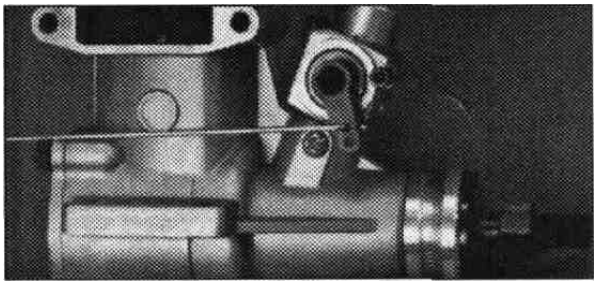


D 38. Insert the fuel tank into the fuselage. Make sure the foam collar is seated well against the firewall.

Attach fuel tubing to the tank

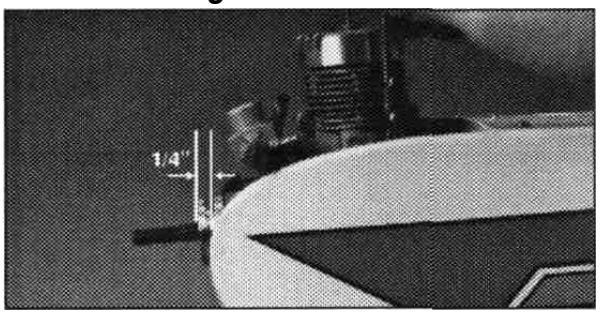
D 39. Cut two 6" pieces of medium silicone fuel tubing (not included). Slide one piece onto each of the aluminum tubes coming from the fuel tank.

Install the throttle pushrod

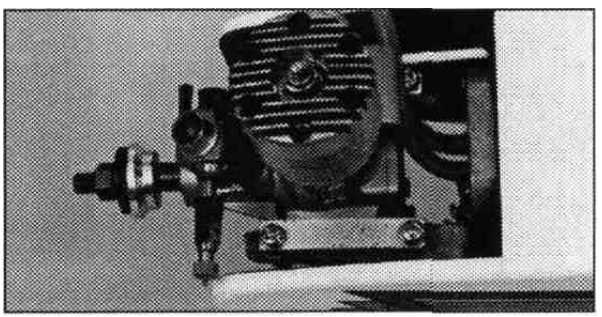


D 40. Attach the "Z" bend of the remaining 1/16" wire pushrod into the inside hole of the carburetor control arm.

Mount the engine

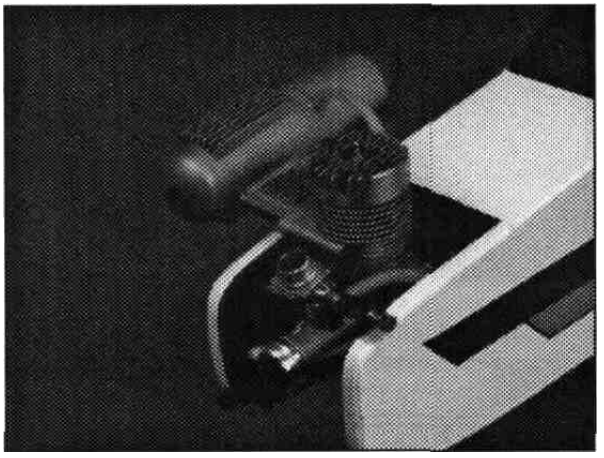


D 41. Insert the throttle pushrod into the pushrod guide tube and position the engine on the mount so that the face of the engine thrust washer is 1/4" forward of the fuselage sides. Align the engine so the crankshaft is pointing **straight** forward.



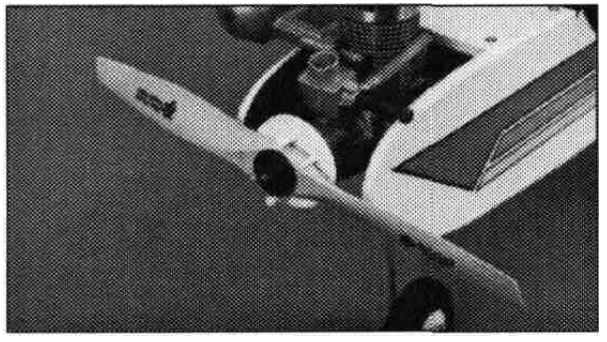
Using the engine mounting plates, 6/32" lock washers, 6/32" nuts and 6/32" x 3/4" screws, secure the engine into position.

Install the muffler



D 42. Install the muffler onto the engine using the screws that came with the engine. Attach the fuel tubing from the "pressure tube" in the fuel tank to the muffler pressure tap. Attach the fuel pick-up tube from the fuel tank to the carburetor. NOTE: You may wish to shorten the fuel lines for more direct routing. Make sure that the lines do not get any kinks which could restrict fuel flow.

Attach the propeller to the engine

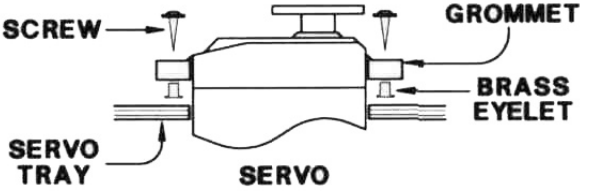


D 43. Install the spinner backplate, prop, prop washer and the prop nut onto the engine. Position the prop so it is horizontal when the engine is against its compression (the point at which you feel resistance when you turn the crankshaft counterclockwise). This is a good habit to get into when installing props onto model airplanes. If the engine quits during flight, the prop will stop horizontally, therefore reducing the chance of prop breakage if you are forced to land on rough terrain. Use an adjustable wrench (not a pliers) to securely tighten the prop nut.

Install the spinner

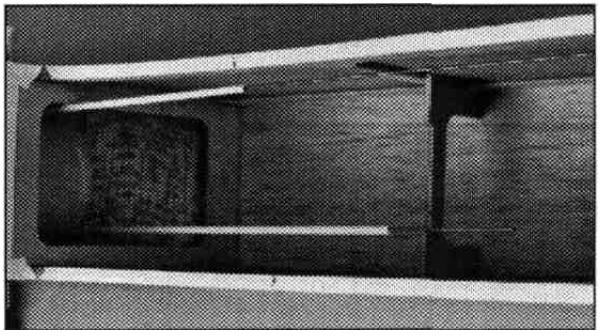
D 44. Trim the spinner cone propeller slots if necessary so there is at least a 1/16" gap between the cone and the prop. Once satisfied with the fit, attach the cone with the screws provided. Be careful not to overtighten these screws. They are threaded into plastic which can strip out easily if they are overtightened.

Prepare the servos



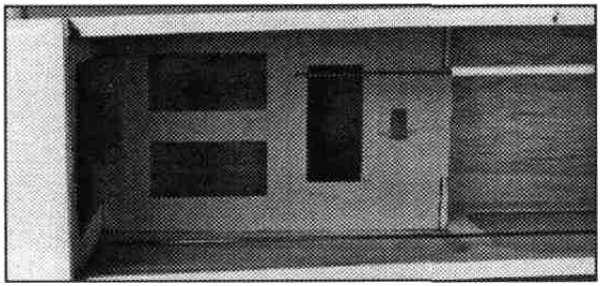
D 45. Install the rubber grommets and bushings included with your radio system, onto the four servos. Refer to your radio manual or the sketch for proper installation of these items.

Install the servo tray support



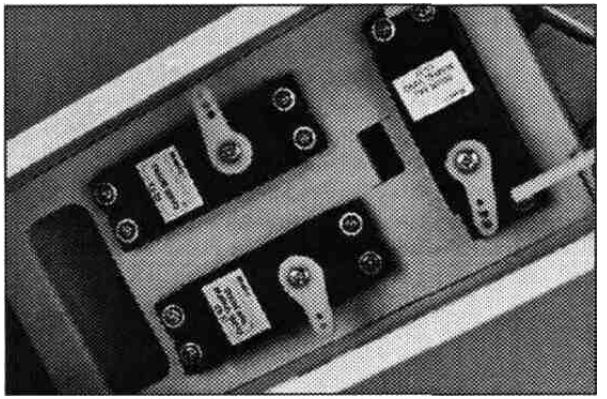
D 46. Position the **servo tray support** in the fuselage where shown. Glue it in place with thick CA.

Install the servo tray



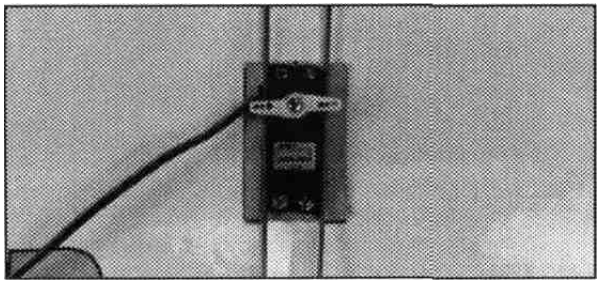
D 47. Position the servo tray in the fuselage. You may need to sand the edges and corners slightly for a good fit. Glue it in place using thick CA.

Install the servos in the fuselage



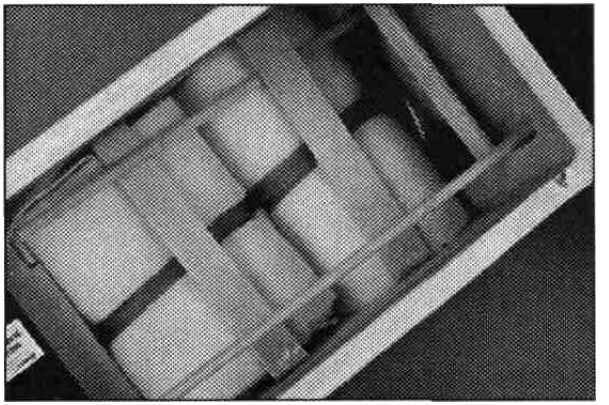
D 48. Route the servo wires forward. Install the servos into the tray as shown using the screws included with the radio system. Enlarge the openings if needed. Choose and trim the servo arms so they look similar to the ones shown in the photo.

Install the aileron servo



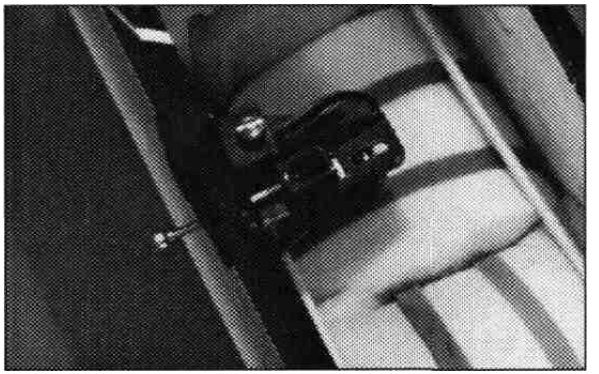
D 49. Route the servo wires through the harness notch that you made in the servo tray in step 14. Install the servo.

Receiver and battery installation



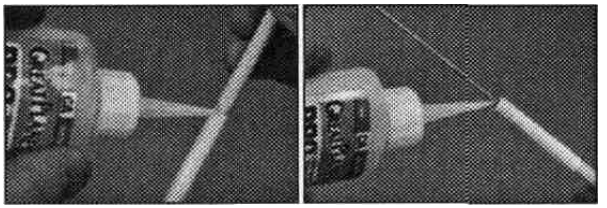
D 50. Following the radio system's instruction manual, plug the three servos into the receiver. Next, plug a servo extension into the aileron channel of the receiver. Finally, plug the switch into the receiver. Wrap the **receiver** and battery pack in **foam rubber** (HCAQ1050) using rubber bands or masking tape to hold the foam in place. Install the battery and receiver into the fuselage. The battery should be located directly behind the fuel tank. The receiver should then be placed directly behind the battery. Secure these components in place using pieces of scrap wood (mixing sticks work well) glued to the fuselage sides.

Mount the switch to the fuselage



D 51. Cut out the opening on the **left** side of the fuselage for the switch and install it using the screws included with the switch. We recommend using a Great Planes Switch/Charge Jack (GPMM1000, shown above). This makes it easy and convenient to charge your receiver batteries. It is good practice to always install the switch on the side opposite the engine's exhaust outlet.

Prepare the pushrods



D 52. Locate the two wooden dowel pushrods and apply thin CA to the ends of the shrink tubing on both rods.

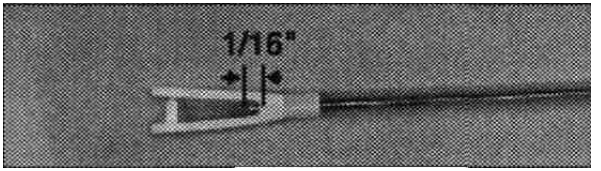
Install the pushrods

D 53. Insert the two pushrods, threaded end first, through the fuselage and out the two pushrod exits at the back of the fuselage. You may need to bend the rods slightly to eliminate binding, but keep any bends to a minimum. Excessive bending of the pushrod will allow it to flex during operation.

Make the clevis retainers

D 54. Cut two 1/4" long pieces of the clear tube. Slide one on each of the pushrods that protrude out of the rear of the fuselage.

Install the two clevises

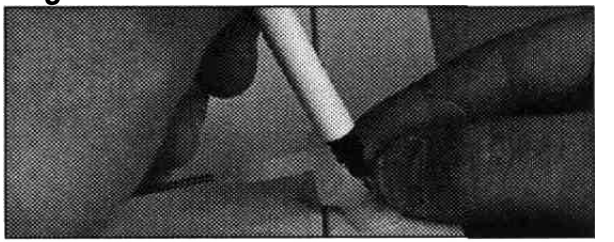


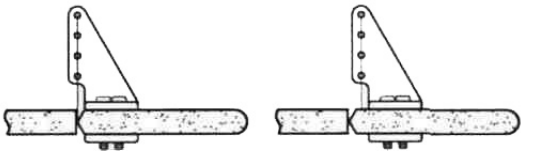
D 55. Screw a clevis onto each pushrod until the threads protrude about 1/16" between the clevis forks.

Connect the control horns

D 56. Attach the two clevises to the control horns as shown. Use the second hole from the outside for the elevator and the third hole from the outside hole for the rudder. Check to make certain that the pushrods do not bind in the openings and that they operate smoothly.

Align the control horns

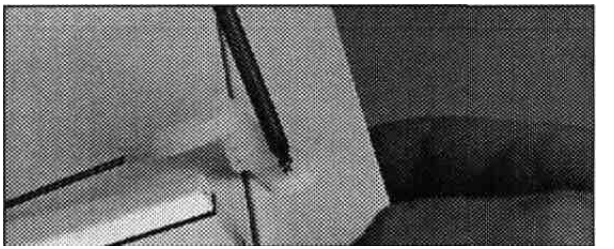




CORRECT **INCORRECT**

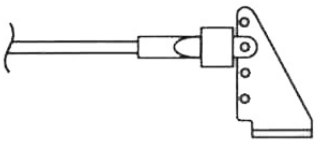
D 57. Position the control horn on the elevator so that the pushrod will work without binding. Mark the two holes using a felt-tip pen. Make sure that the control horns are positioned even with the hinge line (see sketch). Repeat this process for the rudder.

Secure the control horns



D 58. Drill two 3/32" (2.4mm) holes straight through the balsa elevator at the marks. Insert two 2 x 15mm machine screws through the control horn and the elevator, finally threading them into the control horn backplate. Tighten the screws but do not crush the balsa. Cut off the excess threads that stick out using a wire cutter. Repeat this process for the rudder.

Attach the pushrods

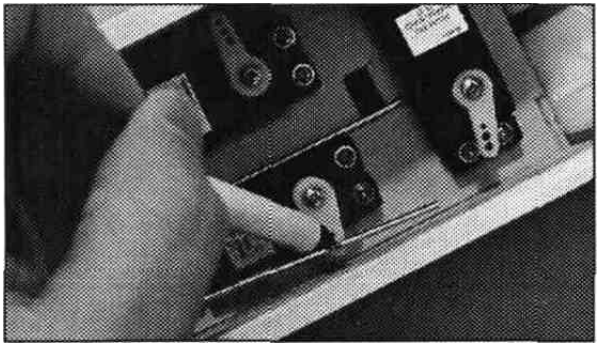


D 59. Slide the clevis retainers over the clevis forks.

Center the servos with your radio

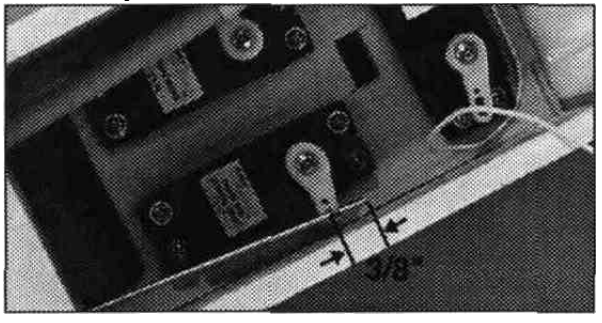
D 60. Turn the transmitter on and then the receiver. Center all of the trim levers on the transmitter and place the throttle stick at its midway position. Turn off the receiver and then the transmitter. By doing this, your servos will be at their centered (neutral) position when you connect the pushrods. Refer to the following photos and replace or trim the servo arms as shown. To do this, simply remove the servo arms and reposition them on the splined servo output shaft. **Be sure to reinstall the screws.**

Mark the pushrods



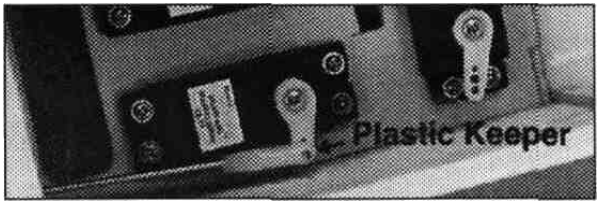
0 61. Holding the elevator in its neutral position, mark the pushrod wire where it crosses the servo arm using a felt-tip pen. Next, hold the rudder at its neutral position and mark the rudder pushrod wire in the same manner.

Cut the pushrods

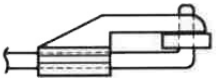


D 62. Cut off the pushrods approximately 3/8" past the marks. Removing the pushrods will make this and the next step easier.

Connect the pushrods

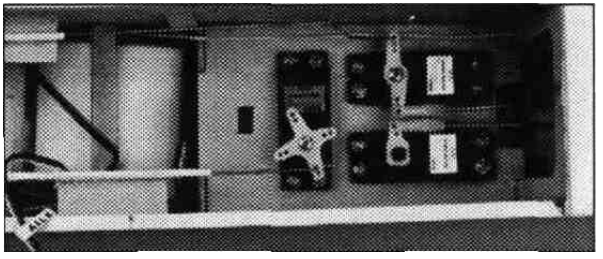


D 63. Make a "L" bend at each mark. Remove the servo arms from the servos. Attach the rods **to the servo** arms. Use the plastic keepers as shown.



Note: Install the rudder pushrod in the outside hole of the servo arm. Install the elevator pushrod into the middle or outer hole. You may need to enlarge the holes slightly on the arms. A 5/64" drill bit works great for this. Reattach the servo arms in the same position. Do not connect the rudder yet.

Support the pushrods



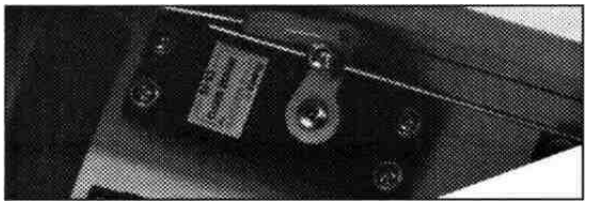
D 64. Support the pushrods using leftover pieces of plywood from the servo tray. This will keep the pushrods from flexing during operation.

Attach the pushrod connector

D 65. Install a pushrod connector on the rudder servo arm. For the steering pushrod, position the connector in the **innermost** hole of the arm. You may need to enlarge the hole using a 5/64" drill bit. Thread the nut onto the connector. The connector must be able to rotate in the servo arm, so do not over-tighten the nut. Place a **small** drop of thin CA onto the threads

to lock the nut in place. Thread a 3 x 4mm machine screw into the connector. Reattach the servo arms in the same position. Be sure to reinstall the servo screw.

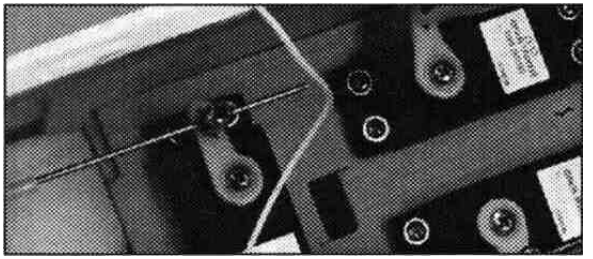
Install the steering pushrod



D 66. Slide the wire steering pushrod into the pushrod connector. Straighten the nose gear and tighten the pushrod connector screw. Using a wire cutter, carefully remove the excess wire, leaving only about 3/4" remaining past the connector. Connect the rudder to the outside hole of the servo arm.

NOTE: If there is any binding when the servo operates, use a "Z" bend to connect the rudder to the servo arm.

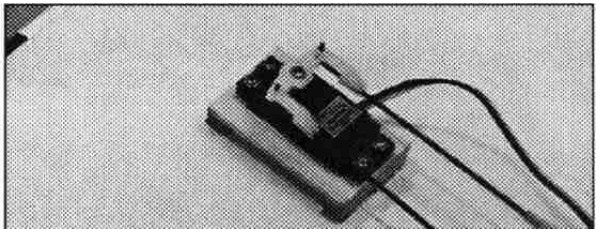
Connect the throttle servo



D 67. Install the second pushrod connector onto the throttle servo arm but do not apply CA glue to the threads yet (you may have to move this connector later). Slide the throttle pushrod wire through the connector. Hand tighten this screw so that the carburetor is half open. Final throttle adjustment will be made later. Using a wire cutter, carefully remove the excess wire, leaving only about 3/4" remaining past the connector.

NOTE: For a 4-stroke engine install the throttle servo and the arm 180° to what the photo shows.

Connect the aileron servo



D 68. Hold the ailerons at neutral and mark the servo arm where the pushrods intersect the holes. Make a "L" bend at the marks and attach to the servo arms using the plastic keepers.

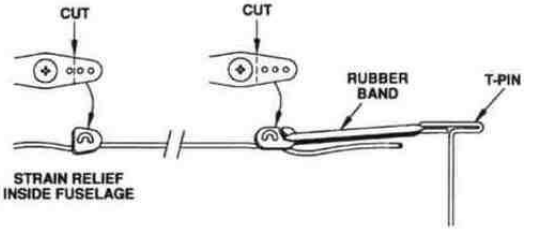
Straighten the antenna

D 69. Unwind the antenna and straighten the wire to its full length being careful not to stretch the wire. **Do not cut the antenna wire** as this will decrease the range and sensitivity of your receiver.

Drill an antenna exit

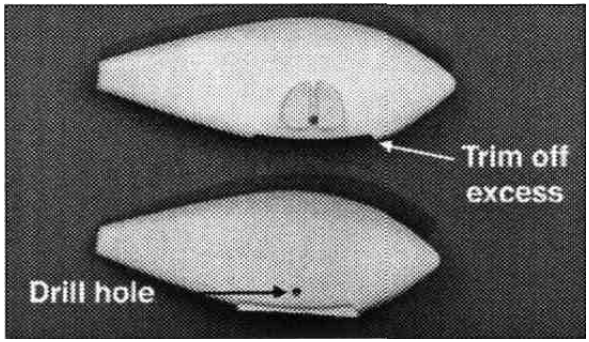
D 70. Using a 3/16" drill bit, drill a hole centered approximately 3/4" behind the wing saddle on top of the fuselage. Cut a 1/2" long piece of medium fuel tubing and center it inside this hole.

Securing the antenna



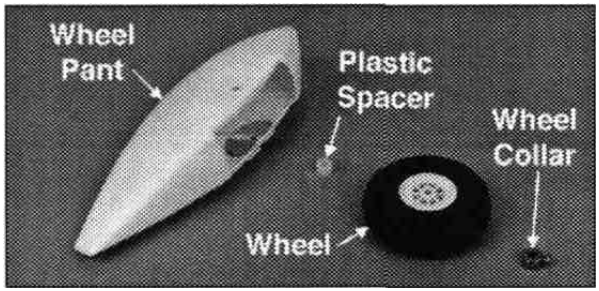
D 71. Route the antenna away from the servos, make a strain relief from a spare servo arm and route the antenna through the holes. Next, route the antenna up through the antenna exit. Use a trimmed servo arm and rubber band at the end of the antenna and attach to a T-pin. Push the pin into the top of the fin. Adjust the trimmed servo arm until there is a slight amount of tension on the antenna wire. The rubber band should be partially stretched. NOTE: Never push a pin through the antenna or trim off the excess wire.

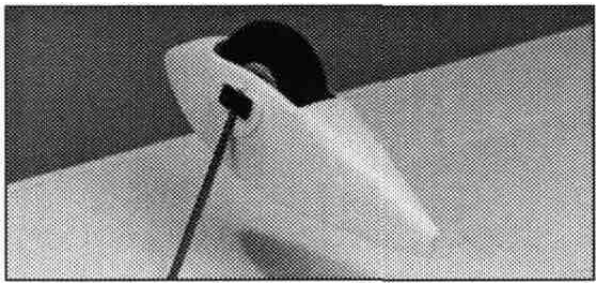
Prepare the Wheel Pants

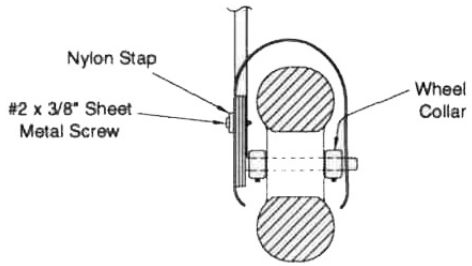


D 72. Trim the excess flashing from around the opening for the wheel. Drill a 5/32" hole at the mark on the raised side of the wheel pant as shown. Using this hole as a guide, mark and drill a hole on the opposite side of the wheel pant at the same location.

Install the wheels

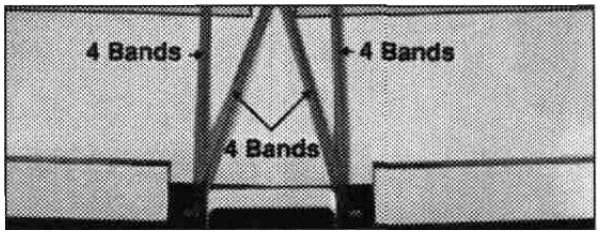






D 73. Install the wheels and wheel pants by using the parts in the following order: wheel pant, plastic spacer, wheel and wheel collar. Secure the wheel pant in place by attaching the steel wheel pant strap using two 2 x 8mm wood screws.

Attach the wing

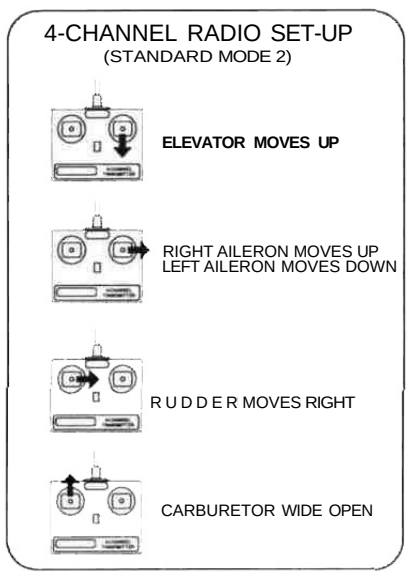


D 74. Connect the aileron servo to the aileron extension. Attach the wing onto the fuselage using 12 #64 rubber bands. Install 3 on each side first from front to back. Then criss-cross the remaining 4. This will hold the wing securely, but will allow it to pop off in the event of a cartwheel on the ground, thus minimizing damage.

RADIO SYSTEM SETUP

Check the control directions

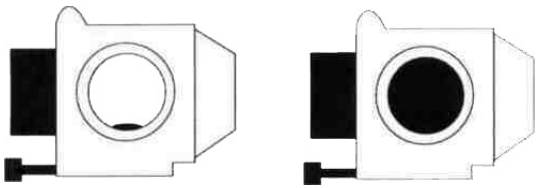
1. Turn on the Transmitter and then the Receiver. Standing behind the plane, make the following movements with the transmitter and observe the control surfaces.



If any of the servo movements are opposite, reverse the servo direction with the **servo reversing switches** on the transmitter.

Adjust the throttle

2 For added safety and convenience, the throttle should be set up so that the engine can be stopped using the throttle trim To do this, loosen the pushrod connector screw and move the throttle pushrod so that the carburetor is completely **closed** with the throttle stick and trim lever on the transmitter fully **back (NOTE:** If the carburetor does not fully close, adjust the idle stop screw on the carburetor until it will) Next, tighten the screw on the pushrod connector Test the trim lever by advancing it to full This will be a **fast idle position** with the carburetor barrel slightly open (about 1/32"). See sketch.



OPEN SLIGHTLY (IDLE) FULLY OPEN

Now move the throttle stick forward to full Make sure that the carburetor barrel opens **all the way** See sketch If it doesn't open far enough or opens too far (bending the rod) move the pushrod connector in or out on the servo arm and/or the carburetor arm to gain or reduce movement Apply a **small** amount of thin CA onto the threads of the pushrod connector The throw will be correct when the carburetor barrel will stop fully open at the same time the throttle stick reaches full With the throttle set up properly, you should be able to run the engine with the trim lever set midway to the full position (adjusted for a smooth but slow idle) Then when it is time to stop the engine, simply pull back the trim to close the carburetor and the engine will stop running

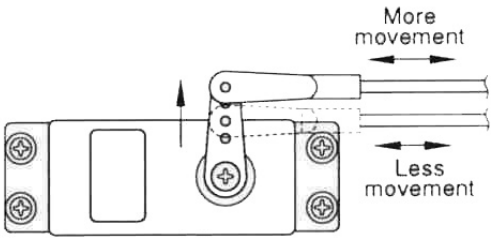
Adjust the control throws

3 Check the movement of the control surfaces Use a ruler to match our measurements listed below If your radio features dual rates, set up both the high and the low rates following the radio system's instructions If your radio does not have dual rates, set up the plane using the low rates first and increase the throws as you get familiar with the plane.

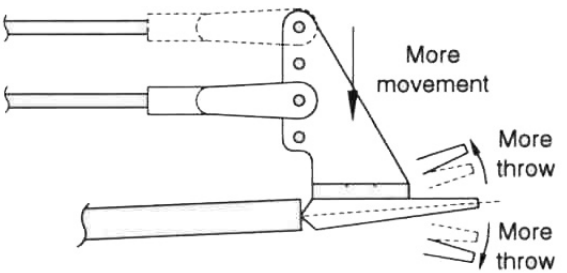
	Low rate	High rate
Aileron:	5/16" up 5/16" down	7/16" up 7/16" down
Elevator:	3/16" up 3/16" down	1/4" up 1/4" down
Rudder	7/8" left 7/8" right	

These are the suggested deflections from center.

If you need more control movement, you should move the clevis to a hole closer to the control surface or you can install a larger servo wheel and move the rod at the servo end further out from center If you have too much movement, move the rod in the opposite direction See sketches below:



Moving the clevis outward on the servo arm results in more pushrod movement



Moving the clevis inward on the control horn results in more throw

BALANCE THE MODEL

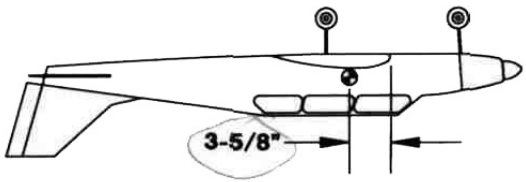
IMPORTANT

This section is very important and must not be omitted! A model that is not properly balanced will be unstable and possibly unflyable.

Check the lateral balance

1. An airplane that has been laterally balanced will track better in loops and other maneuvers. With the wing attached, gently lift the airplane by the spinner and the bottom of the fuselage at the tail. You may need an assistant to help you with this. If one wing tip is noticeably heavy (the tip will drop) attach some weight to the lighter tip until they are equal. Use Great Planes "stick-on" lead weights (GPMQ4485) for easy balancing.

Check the fore-alt balance



2. Check the fore-aft balance point, also referred to as the "center of gravity" (CG). Accurately mark the balance point on the **top** of the wing on both sides of the fuselage. The balance point is located 3-5/8" **back from the leading edge.** This is the balance point at which your model should balance for your first flights.

The plane must be "ready to fly" (all components installed) with an empty fuel tank before checking the CG. Turn the model upside down and place your finger tips or a balancing stand under the wing at the marked balance point. Lift the model. If the tail drops, the plane is "tail heavy" and you must add weight to the nose. If the nose drops, the plane is "nose heavy" and you must add weight to the tail. If possible, first attempt to balance the model by changing the position of the battery and receiver. 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.

You may wish to experiment by shifting the balance up to 3/16" **forward or back** to change the flying characteristics. Moving the balance forward may improve the smoothness and arrow-like tracking, but it may then require more speed for takeoff and make it more difficult to slow down 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** and do not at any time balance your model outside of the range of 2 7/8" to 3-1/4" back from the leading edge.

3-3/16"to3-7/16"UsefirstCG

PREPARE TO FLY

If you're a novice, there is one thing that you will need to fly your BrightStar safely that is not furnished with the kit: You will need a **qualified** instructor to teach you to fly. No model ever made will let you teach yourself to fly safely. It can be done, but you would be seriously risking more than just the airplane. To find an instructor, you should join an R/C flying club. If there is not a club nearby, then you should find an experienced model pilot who is willing to help you. The chosen instructor should fly well enough to allow you to concentrate on your own flying. If you are worried about your instructor crashing your model, you will not be able to concentrate on learning to fly. After you have found an instructor, you should spend some time just **talking** with him about what you will be trying to learn. He should inspect the model to be certain that it is ready to fly. Listen to him and learn from his experience.

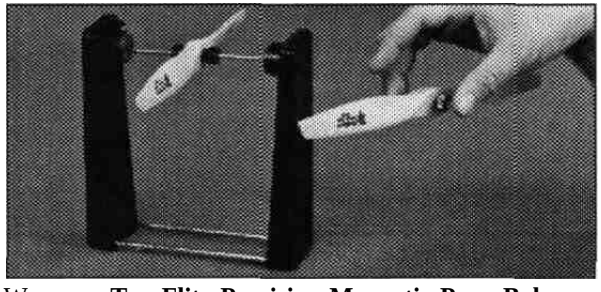
Now that you have a good model and an instructor whom you trust, you can go out and start learning to fly. You can expect to be very nervous at first and you will make some mistakes. There will be several instances where the instructor will prevent you from crashing. This will be unsettling, but the thing to do is jump right back into flying the model (after your knees stop shaking, of course). This is one of the most important things about learning to fly model airplanes...you have to fly! Fly as often as you can. Be sure to make several flights each time you go to the flying field, but give yourself time after each flight to calm down and discuss the flight with your instructor. Spending some time after each flight talking about what happened and what you need to work on to improve your skills will pay off with greater confidence in your own growing abilities.

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.

Balance the propeller

Balance your propellers carefully before flying. An unbalanced prop is the single most significant cause of damaging vibration. Not only will engine mounting screws and bolts vibrate out, possibly with disastrous effect, but vibration will also damage your radio receiver and battery. Vibration will cause your fuel to foam, which will, in turn, cause your engine to run **rough or quit.**



We use a **Top Flite Precision Magnetic Prop Balancer** (#TOPQ5700) in the workshop and keep a **Great Planes Fingertip Balancer** (#GPMQ5000) in our flight **box.**

Find a safe place to fly

1. The best place to fly your R/C model is an AMA (Academy of Model Aeronautics) chartered club field. Ask your hobby shop dealer if there is such a club in your area and join. Club fields are set up for R/C flying, which makes your outing safer and more enjoyable. The AMA can also tell you the name of a club in your area. We recommend that you join the AMA and a local club so you can have a safe place to fly and also have insurance to cover you in case of a flying accident. (The AMA address is listed on page 5 of this instruction book).

If there is not a flying club in your area, you need to find a large open area, free of obstructions, with a smooth surface that can be used as a runway. It should be located at least 6 miles away from any other R/C airplane operation and away from houses, buildings and streets. A schoolyard may look inviting but it is too close to people, power lines and possible radio interference.

Ground check the model

If you are not thoroughly familiar with the operation of R/C models, ask an experienced modeler to check to see that you have the radio installed correctly and that all the control surfaces do what they are supposed to. The engine operation must also be checked and the engine "broken in." **Follow the engine manufacturer's recommendations for break in.** Check to make sure all screws remain tight, that the hinges are secure and that the prop is on tight.

Range check your radio

Check the operation of the radio every time you fly. This means that with the transmitter antenna collapsed and the receiver and transmitter on, you should be able to walk at least 100 feet away from the model and still have control. Have someone help you. Have them stand by your model and, while you work the controls, tell you what the various control surfaces are doing. Repeat this test **with the engine running** at various speeds while an assistant holds the model. If the control surfaces do not act correctly at all times, **do not fly!** Find and correct the problem first.

Engine safety precautions

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

Keep all engine fuel in a safe place, away from high heat, sparks or flames, as fuel is very flammable. Do not smoke near the engine or fuel; remember that the engine exhaust gives off a great deal of deadly carbon monoxide. Therefore **do not run the engine in a closed room or garage.**

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

Use safety glasses when starting or running engines.

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

Keep your face and body as well as all spectators away from the plane of rotation of the propeller as you start and run the engine.

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

Use a "chicken stick" device or electric starter; follow instructions supplied with the starter or stick. Make certain that the glow plug clip or connector is secure so that it will not pop off or otherwise get into the running propeller.

Make all engine adjustments from **behind** the rotating propeller.

The engine gets hot! Do not touch it during or after operation. Make sure fuel lines are in good condition.

To stop the engine, cut off the fuel supply by pinching the fuel line. Do not use hands, fingers or any body part to try to stop the engine. Do not put anything into the prop of a running engine.

AMA safety code (excerpt)

Read and abide by the Academy of Model Aeronautics Safety Code, a portion of which is reprinted here:

GENERAL

1. I will not fly my model aircraft in sanctioned events, air shows or model flying demonstrations until it has been proven to be airworthy by having been previously successfully flight tested.

2. I will not fly my model aircraft higher than approximately 400 feet within 3 miles of an airport without notifying the airport operator. I will give right-of-way and avoid flying in the proximity of full-scale aircraft. Where necessary, an observer shall be utilized to supervise flying to avoid having models fly in the proximity of full-scale aircraft.

3. Where established, I will abide by the safety rules for the flying site I use and I will not willfully and deliberately fly my models in a careless, reckless and/or dangerous manner.

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

8. I will not operate models with pyrotechnics (any device that explodes, burns or propels a projectile of any kind)…

RADIO CONTROL

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

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

3. I will perform my initial turn after takeoff away from the pit or spectator areas and I will not thereafter fly over pit or spectator areas unless beyond my control.

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

It is best if you let the instructor test fly the model first. Once he has flown the model he will adjust the trim to eliminate any turning, climbing or diving tendencies that he found on the test flight. This will help make your first flights much easier and safer. When first learning to fly use the "low rates" for smoother control (see page 24).

One thing to keep in mind with R/C models (whether it be cars, boats or planes) is that the rudder and aileron controls may seem to "reverse" when the model is moving toward you. For example, if you are flying toward yourself and you give a **right** control input (ailerons or rudder), the model will move to your **left.** The fact of the matter is, of course, that the controls are not reversed and the aircraft did actually enter a right turn. The plane does move to your left from your vantage point, but if you imagined yourself in the cockpit you would realize the plane turned to the right as commanded. All it takes is a little practice to maintain proper orientation of your aircraft, but that's why we recommend finding an instructor.

There is a memory aid that may help keep you out of trouble when the plane is flying toward you — "put the stick under the low wing." In other words, move the stick in the direction of the low wing to raise that wing. When you are comfortable flying the aircraft, you can practice using the rudder along with the ailerons to 'coordinate' the turns. Usually, a small amount of rudder applied in the direction of the turn will keep the tail following in the exact same track as the nose.

Ground Handling

Start with learning to steer the model on the ground using the rudder and throttle. You should learn to guide the airplane on the ground at various speeds and directions. Be careful- you do not have brakes, so do not get close to any obstacles.

Takeoff

Line up as straight into the wind as possible. Gradually advance the throttle to get the model rolling. Advance the throttle to full. Using rudder inputs, guide the plane straight down the runway. Let the plane get up to flying speed on the ground before lifting off. Once up to speed, lift off by smoothly applying a little up elevator and climb out gradually. Once a positive angle of attack is achieved relax the up elevator input. Do not try to gain altitude or turn until the airplane gains additional speed.

Flying

We recommend that you take it easy with your new model for the first several flights and gradually "get acquainted" with the airplane as your engine gets fully broken-in. As you will see, this airplane is smooth and very predictable. Your confidence will grow to the point that flying is more fun than ever. Just remember to take your time. Follow your instructor's advice and learn to control the model in the many basic maneuvers possible.

Your first flights should consist of mostly straight and level flight with gentle turns to keep the model over the field. These flights will give you practice at coordinating your control inputs and maintaining the proper orientation of the airplane. As mentioned earlier, turns are accomplished by banking the aircraft with the ailerons, then gently adding some back stick (up elevator). Enough back stick should be held in to keep the aircraft at a constant altitude —to stop turning, apply opposite aileron (or rudder) to level the wings, then release the sticks. The most common mistake when learning to fly is over-control. Think of *pressure* instead of large movements of the control sticks. Add and practice one maneuver at a time, learning how your BrightStar behaves in each one. For ultra-smooth flying and normal maneuvers, we recommend using the "low rate" settings as listed on page 24. High rate control throws will give your BrightStar enough control for loops, barrel rolls and many other basic aerobatic maneuvers.

Landing

Because this is not a high-wing trainer, the BrightStar will need a slightly different approach to landing. Keeping the wings level during approach is recommended to prevent "scuffing" the wing tips. The BrightStar, being a low-wing trainer, will also land slightly faster because it doesn't have the "glide tendencies" of a high-wing trainer.

As with takeoffs, always land into the wind. Adding 2 to 3 "clicks" of up elevator trim will help slow the model and allow easier landings. Line up with the runway and reduce the throttle to idle. Glide the model down using ailerons to keep the wings level and elevator to control altitude. Be careful not to use too much elevator at slower speeds. This could cause the airplane to stall too close to the ground. If the airplane is coming in short, gradually increase the throttle to get to the runway. If you come in too fast, raise the throttle slowly and abort the landing. Do not force the plane to land. Try again with a slightly lower approach. Just before touchdown, add in a little more elevator to flare the airplane for a smooth touchdown. Perfect landings are difficult, so practice them often.

Thank you for choosing the BrightStar. We hope that it will be one of many, in a lifetime enjoyment of radio control airplanes.