

Hobbico® **HOBBISTAR 60™**

ALMOST READY-TO-FLY RADIO CONTROLLED MODEL AIRPLANE

- ALL AIRFRAME PARTS ARE FACTORY ASSEMBLED FOR PERFECT ALIGNMENT AND QUICK ASSEMBLY.
- ALL PRE-ASSEMBLED COMPONENTS ARE FACTORY COVERED.
- CLASSIC DESIGN WITH DURABLE Balsa AND PLYWOOD CONSTRUCTION.
- SEMI-SYMMETRICAL AIRFOIL GIVES THE HOBBISTAR 60 AEROBATIC CAPABILITIES.

WINGSPAN: 71"
LENGTH: 55"
WING AREA: 875 sq. in.
WEIGHT: 7.5 lbs.



RADIO: 4-CHANNEL (NOT INCLUDED)
ENGINE: .60 CU.IN. 2-CYCLE (NOT INCLUDED)
ACCESSORIES: Starting Battery w/Clip, Fuel, Etc.
(NOT INCLUDED)

IMPORTANT: BEFORE YOU BEGIN.

If this is your first R/C airplane kit, a word of caution is in order. **BEFORE** you begin assembly, carefully look through the box and thoroughly read the instruction manual. Also check the parts list against the items in the box to be sure you have everything that is on the parts list. Although we have taken great pains to simplify the building process, there are no shortcuts to safety. These instructions are your guide to safe and successful flying.

Only after you are thoroughly familiar with the construction process should you proceed with assembly. Remember! Under no circumstances will a dealer accept a kit back for return if assembly has already begun.

If the Hobbistar 60 is not quite what you expected, return it to your dealer in New and Unused condition. However, we think you will agree with us that the Hobbistar 60 kit is one of the finest models of its type and will offer you many hours of enjoyment.

ADDITIONAL ITEMS

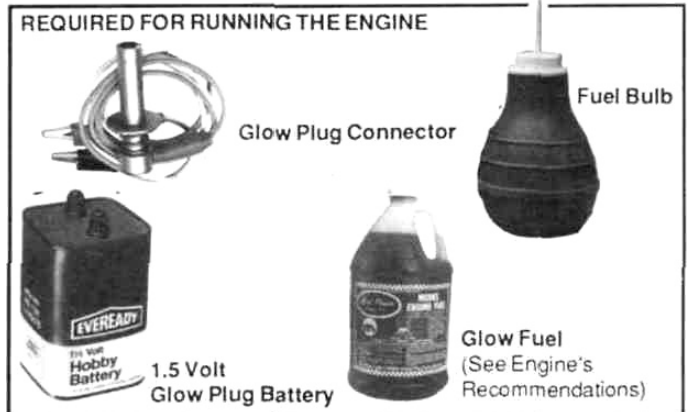
Please check the additional items listed below for those materials not furnished but recommended.

- Dubro #163 Wing seat tape (1)
- Dubro#121 E-Z connectors..... (6)
- or
- Goldberg#361 Snap'R'Keepers(6)
- Goldberg#482 1/2" foam rubber.....(1)

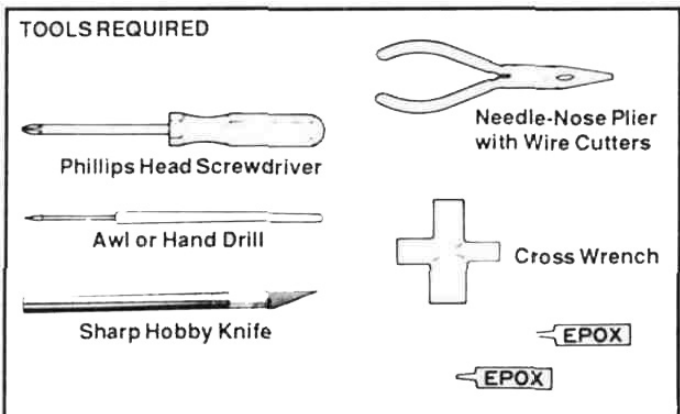
- Dubro #349 Antenna Hook & Keeper..... (1)
- Devcon #5250 Silicone rubber 2 oz.(1)
- Hobbico (HCAR3950) Bullet 30 min. epoxy 9 oz. (1)
- Hobbico (HCAR3760) Bullet Threadlock..... (1)
- Arco#64 Rubberbands 1/4 lb.(1)



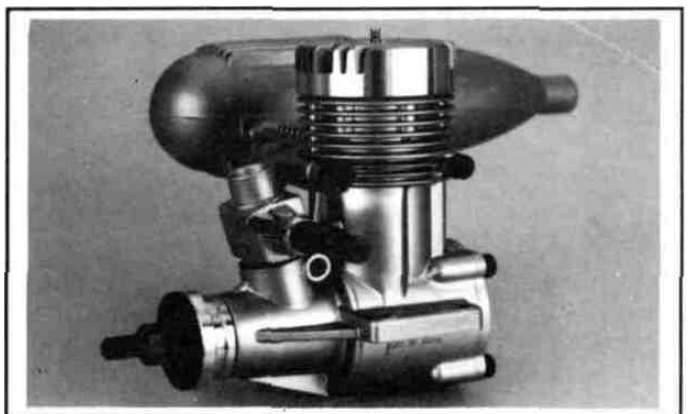
A four channel radio control system with 4 servos is required for the Hobbistar 60. The various components are pictured above.



Most engines require a 1.5V glow plug starting battery, a glow plug clip, and a quality brand fuel (consult the engine manufacturer's recommendations).



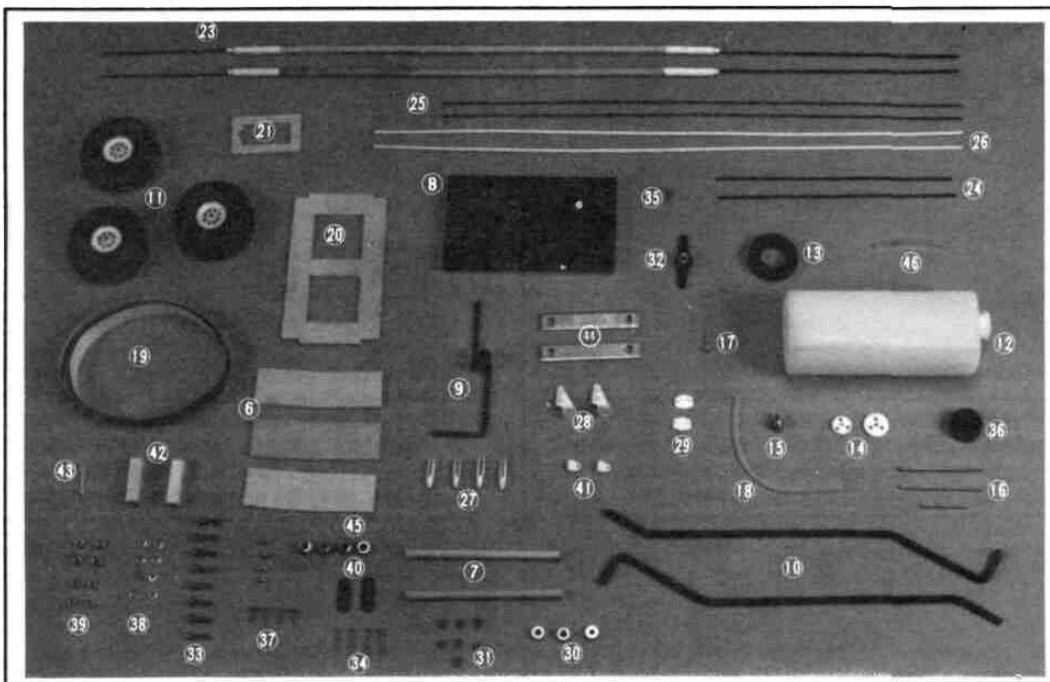
Here are a few tools that are necessary to properly finish this kit. They should be available from your local hobby dealer or hardware store.



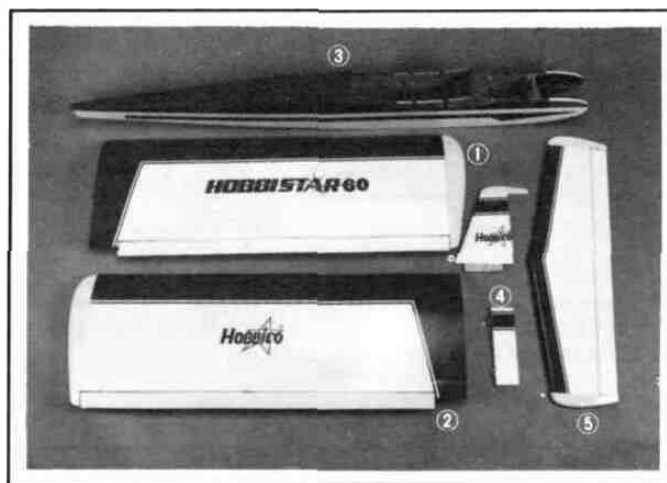
A quality brand engine will be needed. We recommend the O.S. 60FP two cycle engine. Also a prop and fuel tubing will be required for the engine.

PARTS LIST

Before assembly match the parts in the exploded view of the Hobbistar with the parts in the kit. Check off each part on the parts list. If any parts are missing or damaged return the kit to your hobby dealer.

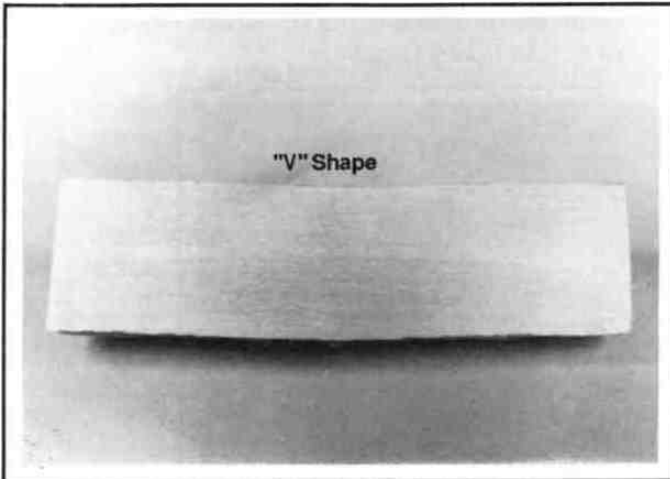


1.	Right Wing	1
2.	Left wing	1
3.	Fuselage	1
4.	Vertical stabilizer and rudder	1
5.	Horizontal stabilizer and rudder	1
6.	Wing joiners.....	3
7.	Wing mounting dowels.....	2
8.	Fuel tank compartment cover.....	1
9.	Front steerable nose gear.....	1
10.	Main landing gear	2
11.	Tires and wheels	3
12.	Fuel tank	1
13.	Neoprene ring.....	1
14.	Plastic disk.....(1) large (1) small	
15.	Clunkweight.....	1
16.	Fuel pipe	3
17.	m3 x 18 self-tapping screw	1
18.	Silicone fuel line.....	1
19.	Center tape.....	1
20.	Servo tray.....	1
21.	Aileron servo tray.....	1
22.	Spinner (not shown)	1
23.	Stabilizer control rods	2
24.	Aileron control rods (7 7/8")	2
25.	Throttle and nose gear control rods (17 3/4")	2
26.	Plastic guide tubes	2

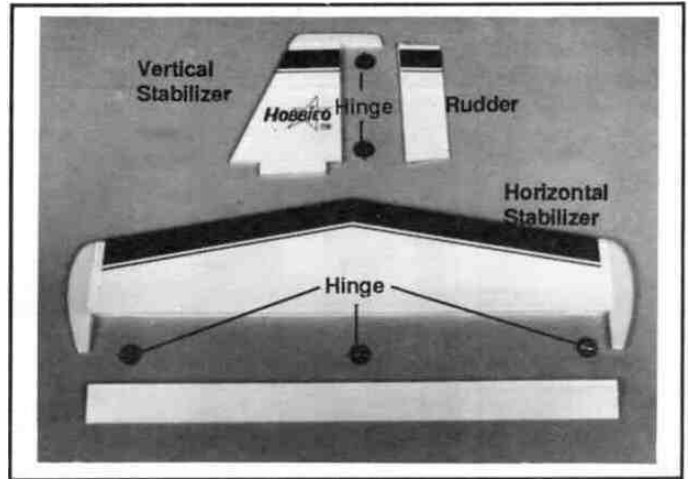


27.	Clevis	4
28.	Control horns	2
29.	Control horn back plate	2
30.	4mm x 10mm collars	3
31.	m3 x 4 screw	7
32.	Nose gear control horn	1
33.	m4 x 15 screw	8
34.	m2 x 20 screw	4
35.	m3 x 8 screw	1
36.	Tank Cap.....	1
37.	m2x 12 self tapping screw	4
38.	m4 lock washers	8
39.	m4 nut.....(4) small (4) large	
40.	Landing gear straps.....	2
41.	Aileron control horns	2
42.	Aileron servo tray blocks.....	2
43.	Alignment peg	1
44.	Engine mounting pads	2
45.	5mm x 10mm wheel collars	4
46.	Clevis retainer tubing	1

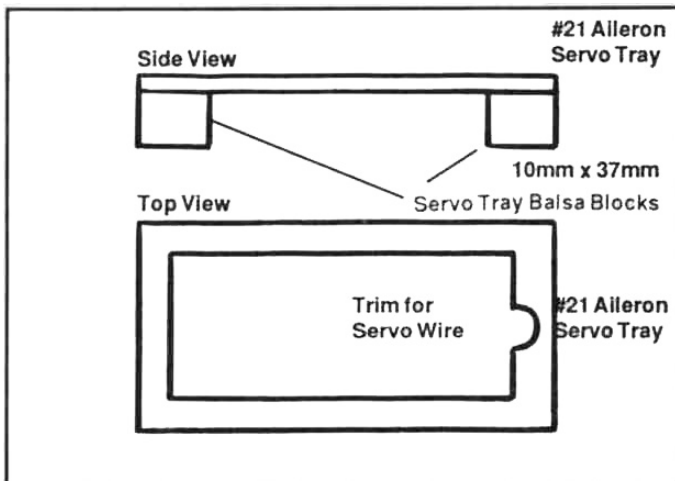
PRE-ASSEMBLY



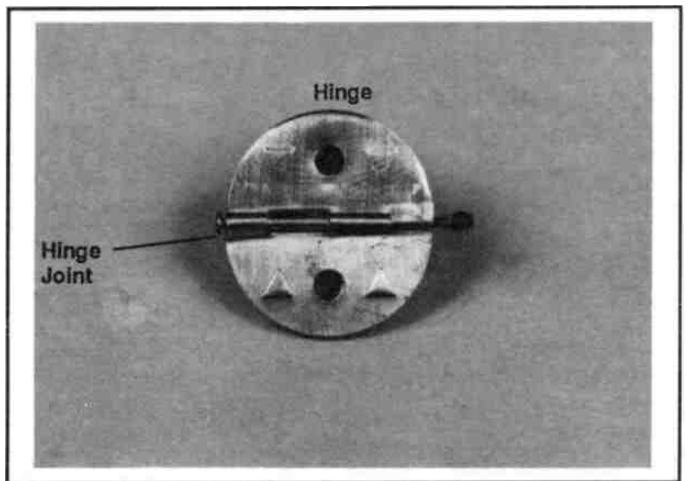
1. Locate part #6 wing joiners. Join the three wing joiners together using a light coat of epoxy. They should form a "V" shape as shown above.



4. Locate the #4 vertical stabilizer and #5 horizontal stabilizer. The rudder is temporarily attached to the vertical stabilizer. The elevator is temporarily attached to the horizontal stabilizer. Remove the rudder, elevator, and the preinstalled metal hinges.



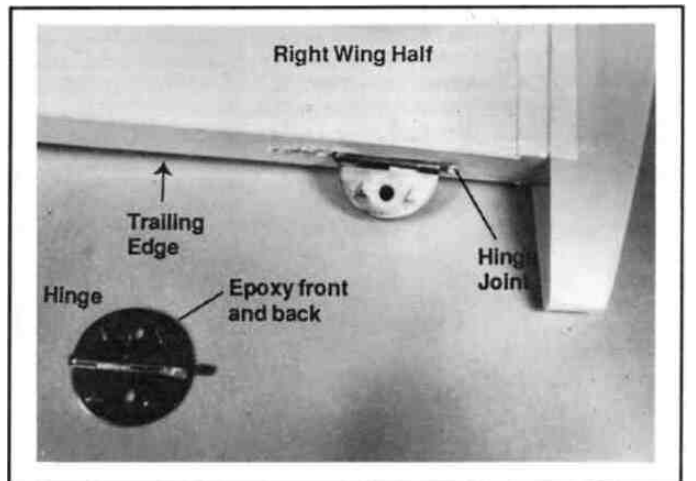
2. Assemble the aileron support tray with parts #21 aileron servo tray and #42 10mm x 37mm balsa aileron servo tray blocks. Epoxy the balsa blocks to the plywood tray as shown above.



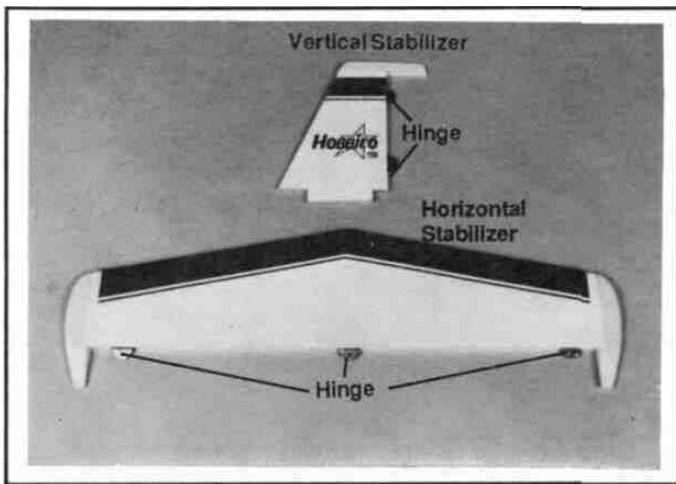
5. Apply a small amount of vaseline along the hinge point on both sides of the hinge. This will prevent epoxy from getting in the hinge joint and ruining the hinge. **Do not** get vaseline on the rest of the hinge. If this happens the epoxy will not hold the hinge and the aileron may separate from the wing causing a crash. Do this step to all eleven hinges.



3. The ailerons are mounted temporarily from the factory. Remove the ailerons from the wings. Now remove the three metal hinges on each wing.



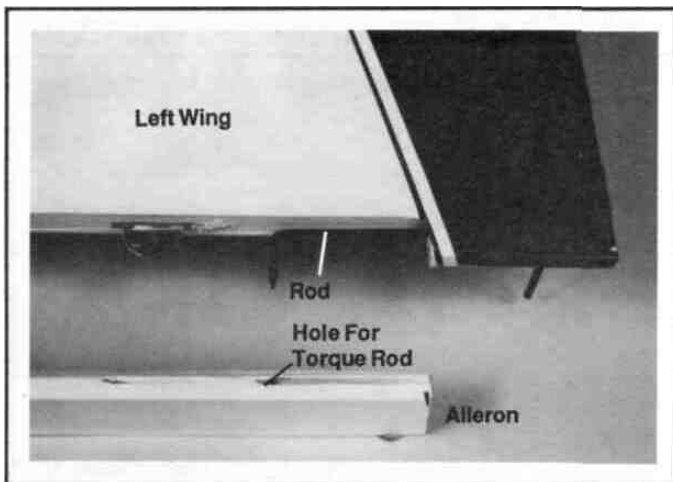
6. Apply epoxy to both sides on one end of the hinge as shown. Slide the hinge back into the slot in the wings trailing edge. Wipe off any excess epoxy before it cures. The hinge pin must be against the trailing edge of the wing to allow the ailerons, installed later, to fit correctly. Install six hinges, three in each wing, and set the wings aside until the epoxy cures.



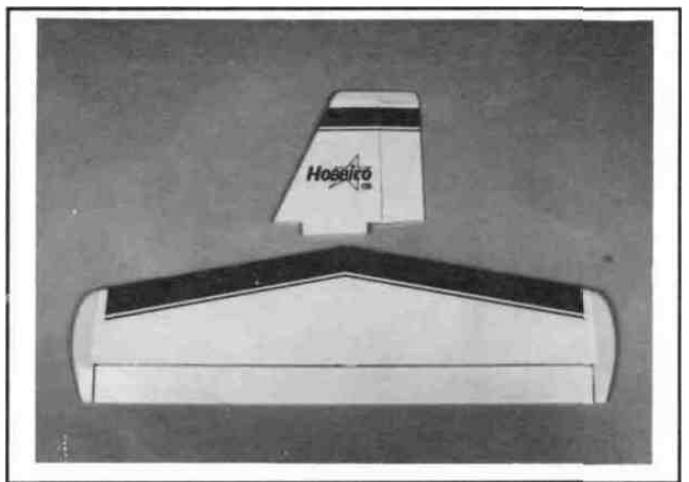
7. Using the same procedure for epoxying the hinges that was used in Step 6, epoxy the three hinges into the horizontal stabilizer. Epoxy two hinges into the vertical stabilizer.



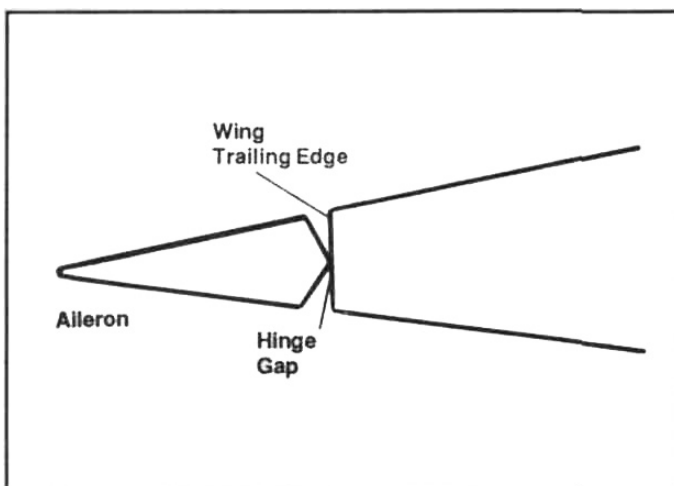
10. Remove the aileron and apply epoxy to the hinges and the part of the torque rod that is inserted into the aileron. Also force a small amount of epoxy into the torque rod hole that is in the aileron. Carefully install the aileron onto the hinges and torque rod. Install the ailerons onto both wings carefully. Make sure that no epoxy gets into the torque rod hinge. Also be sure that there are no gaps.



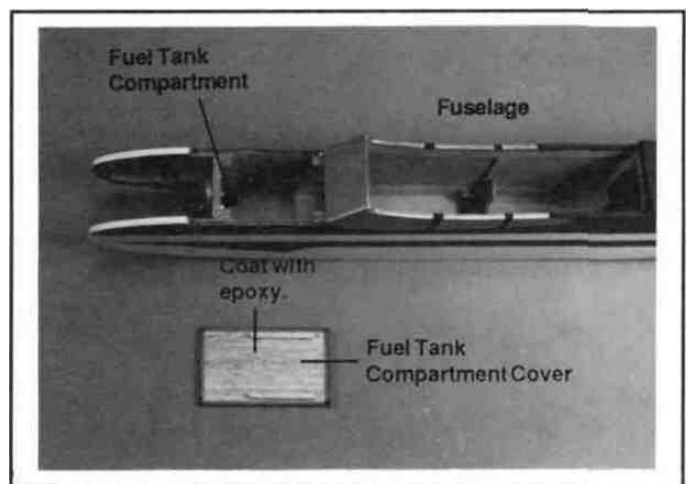
8. After the epoxy holding the hinges has cured, locate the ailerons that were removed from the wing in Step 3. Test fit the aileron on the wing. Be sure the torque rod fits in the hole in the edge of the aileron. The torque rod is what will transmit motion from the servo to the aileron.



11. Install the rudder on the vertical stabilizer and elevator on the horizontal stabilizer using the same procedure used for the aileron. Be careful not to leave a gap at the hinge.

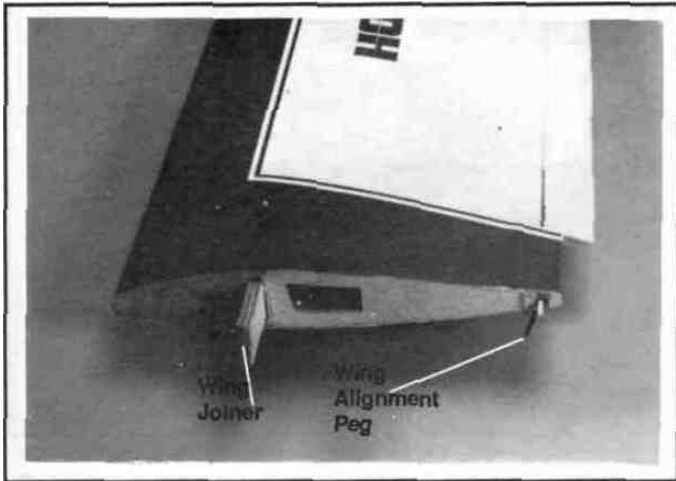


9. With aileron temporarily installed, there should be no gap. If the plane is flown with a hinge gap of more than 1/16", flutter (a rapid vibration) may be created. This flutter may cause the ailerons to come loose or in severe cases, break the wing.



12. Coat the fuel tank compartment with an even thin coat of epoxy. Cover all exposed balsa and plywood parts. Be careful not to fill any holes. Also at this time coat the bottom of the #8 fuel tank compartment cover. This will prevent the fuel from destroying the wood.

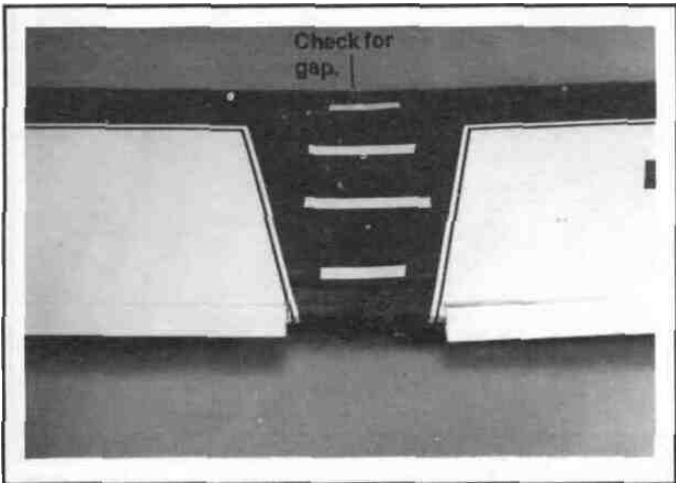
WING JOINER INSTALLATION



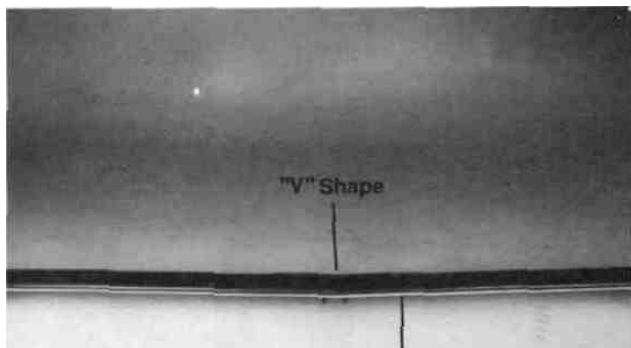
- Using the wing joiner assembled in Step 1 of pre-assembly, insert the wing joiner into the wing panel temporarily. Also install the wing #43 alignment peg as shown. **Do not glue at this time.**

CAUTION:

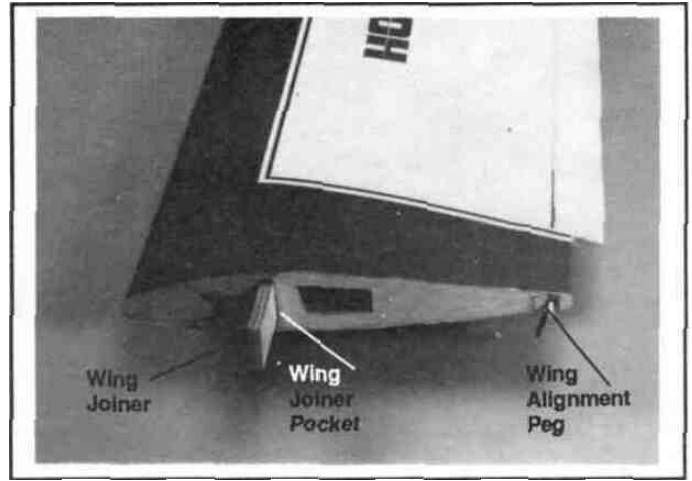
Make sure that the glue joints at the wing root are fastened securely. Check the ribs and the sheeting. If this is at all loose, apply epoxy between the rib sheeting and spars.



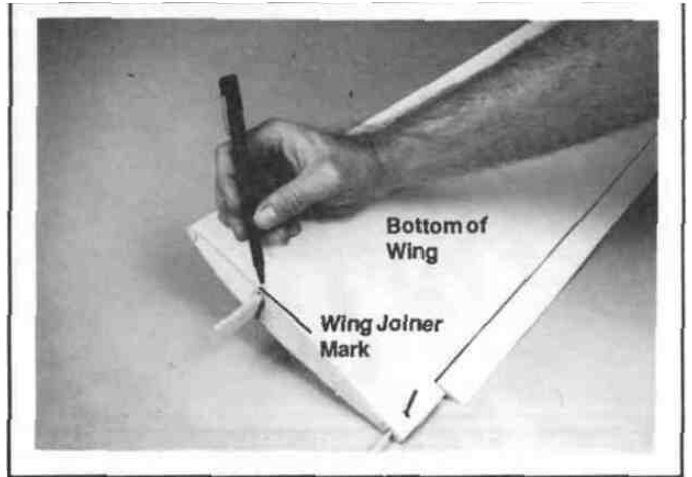
- Slide the other wing panel onto the wing joiner. Slide the two wing halves together. Check for proper alignment. There should be no gap between the wing halves. If there is, trim the end of the wing joiner slightly to allow proper fit. **Do not glue at this time.**



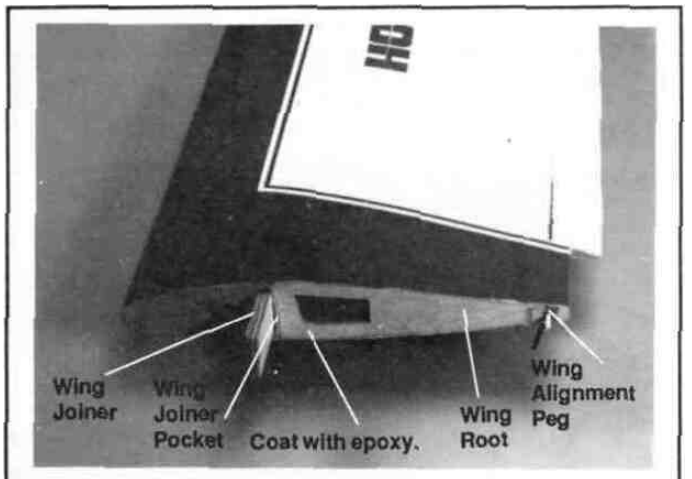
- The wing should form a "V" when assembled as shown. The top of the wing has lettering on it. When one side is placed flat on your work surface, the other wing tip should be angled up so there is approximately 2" of clearance between the surface and the tip.



- When you are satisfied with the fit of the wing joiner, remove the wings from the joiner. Mix a batch of 30 minute epoxy and using the right wing panel (has Hobbistar on top) smear the inside of the right wing joiner pocket with a heavy coat of epoxy. Also coat half of the wing joiner with epoxy and push into the wing joiner pocket. Coat half of the wing alignment peg with epoxy and insert it into the hole at the rear of the wing root. Clean the epoxy from the wing root to prevent epoxy build up. Allow the epoxy to cure.

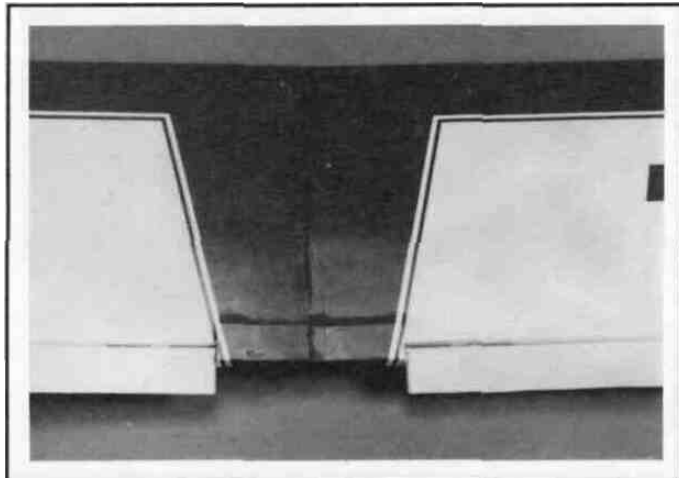


- Mark the location on the bottom of the wing where the wing joiner is installed.



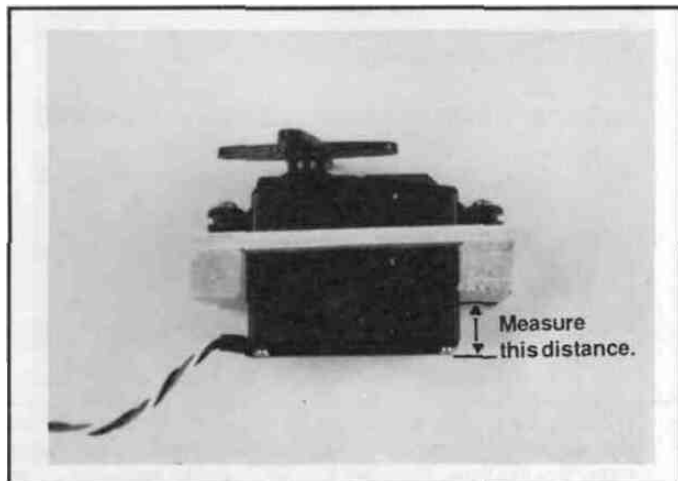
- When the epoxy has cured you may proceed to join **both** wing panels together. Mix a batch of epoxy and heavily coat the wing joiner pocket of the left wing. Also apply an even coat of epoxy on both wing roots. Be sure to cover the whole wing root. When satisfied with the gluing, slide the wing panels together and check for fit. Wipe excess glue from the joint. Isopropyl alcohol works well for this. It is best to use masking tape to hold the wing halves together until the epoxy cures.

Note: You may proceed with fuselage preparation and come back to here after the wing is ready.

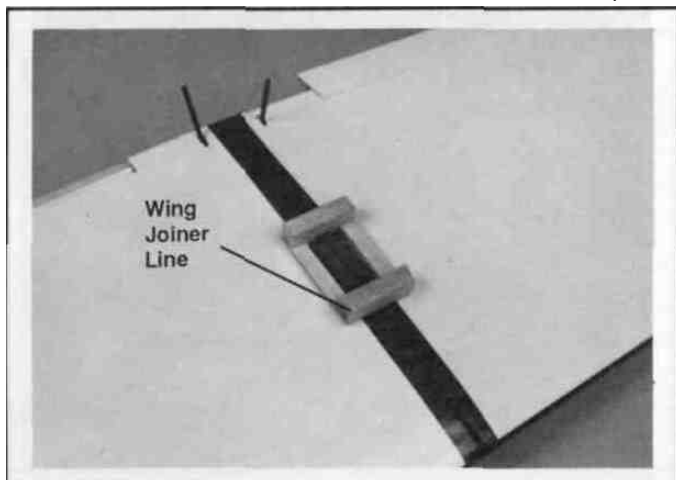


7. After the epoxy has fully cured (overnight) remove the masking tape and apply the blue center tape. Begin at the bottom trailing edge, wrap forward and around to top trailing edge overlapping the beginning point.

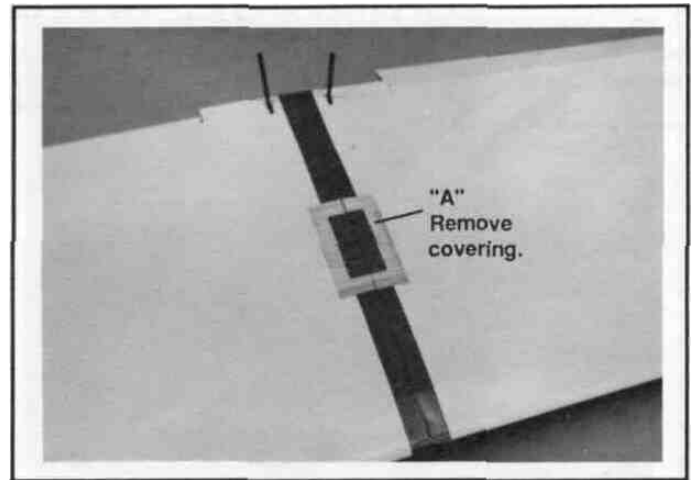
AILERON SERVO TRAY INSTALLATION



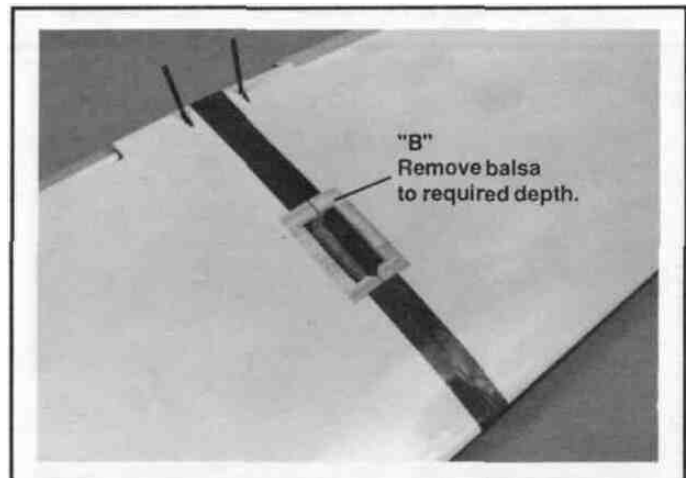
1. Locate the pre-assembled #21 aileron servo tray with #42 balsa blocks and a servo from your radio system. Slip the servo into the tray and measure the distance from the bottom of the servo to the bottom of the balsa block. Note the distance for use in Step 4.



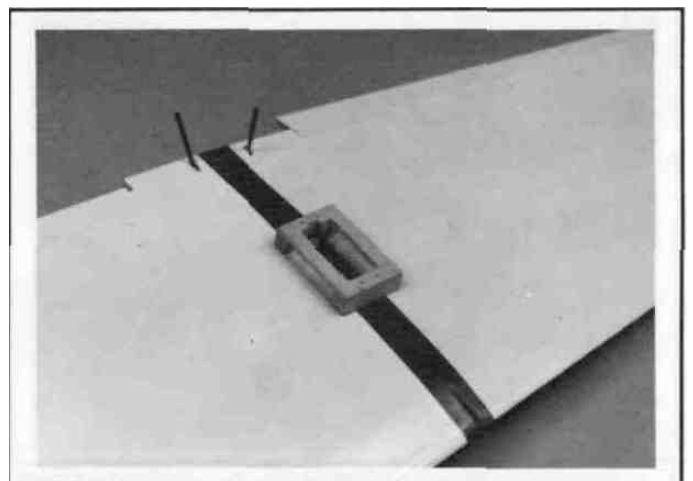
2. Remove the servo from the servo tray. Turn the servo tray upside down (balsa blocks up) and lay the end of the tray on the line drawn in Step 5 of the wing joiner installation. Using a felt tip pen trace around the outside and inside of the servo tray.



3. Remove the servo tray and, following the picture, remove the covering from area "A".

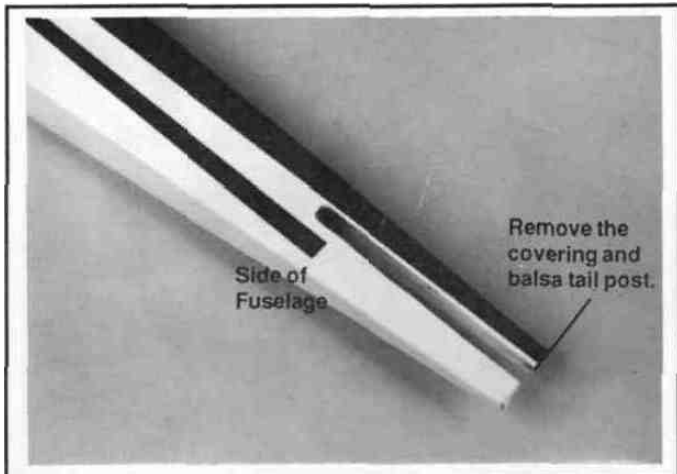


4. Then remove the balsa wood from area "B". Remove enough balsa wood to accommodate the servo previously measured in Step 1

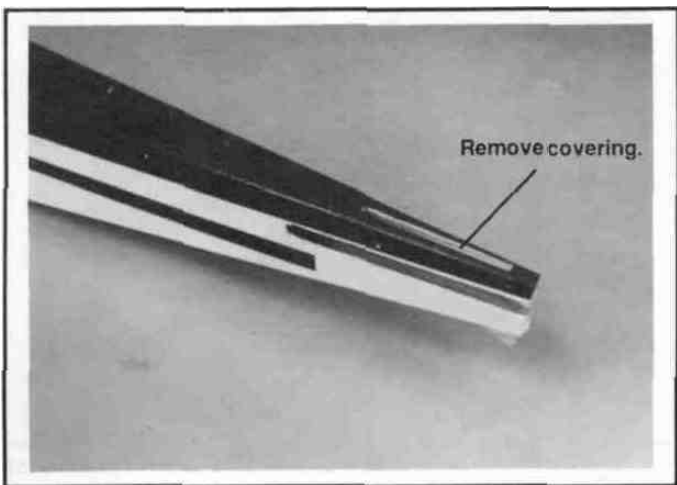


5. Set the servo in the servo tray and test fit the servo tray to the mounting area. When satisfied with the fit, remove the servo and epoxy the servo tray to the mounting area.

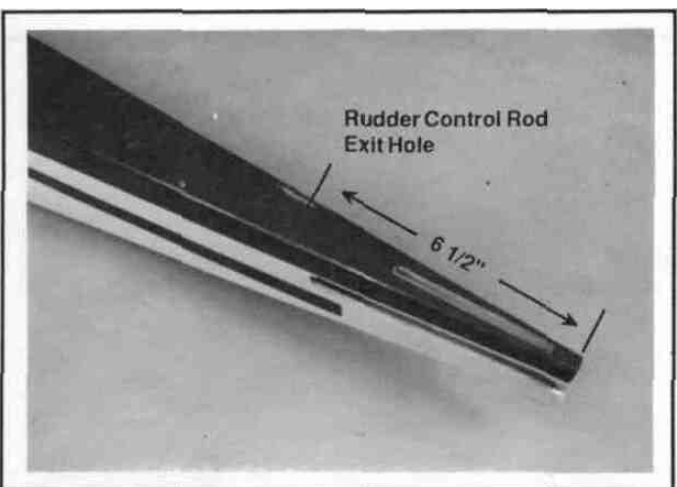
FUSELAGE PREPARATION



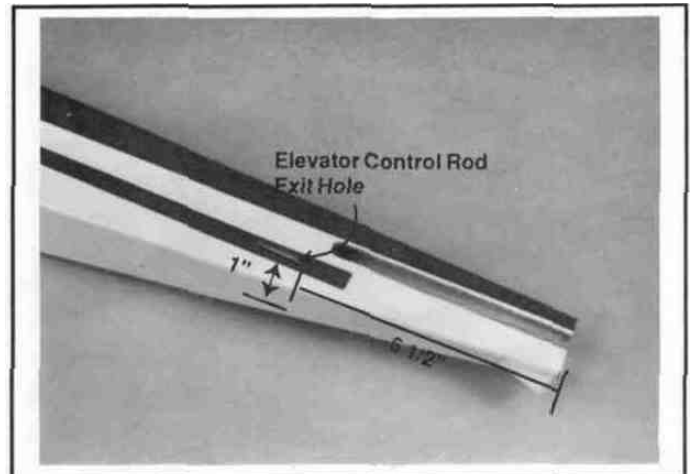
1. On the side at the rear of the fuselage use your finger to locate the stabilizer cutouts. They will be soft spots under the covering on both sides. Using a sharp knife remove the covering material from the soft spots on both sides. During the process you will find a balsa tail post. This must also be removed to allow the installation of the horizontal stabilizer.



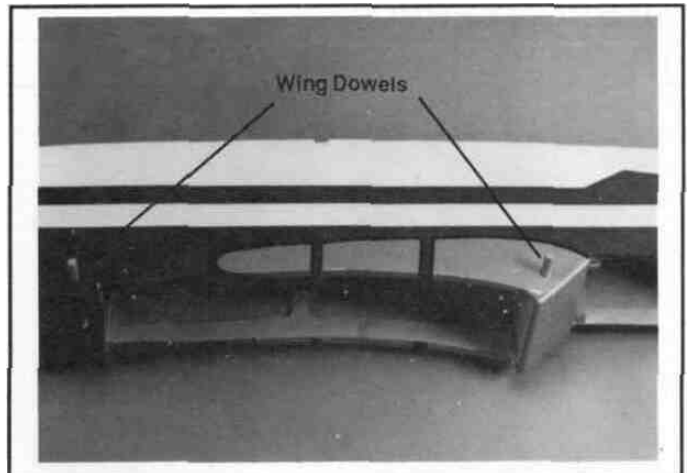
2. Again using your finger locate the vertical stabilizer slot on top of the fuselage, and remove the covering from this area.



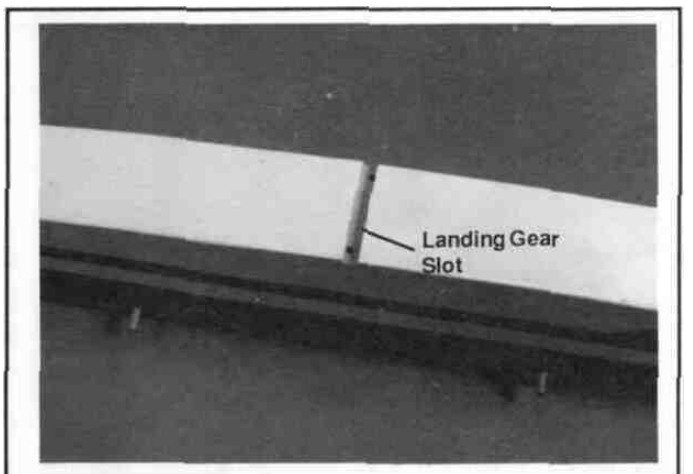
3. The factory has pre-cut the rudder and elevator control rod exit holes. These are approximately 1/8 inch by 1 inch long. The location of the rudder exit hole is approximately 6 1/2 inches forward from the tail post and on top of the fuselage and slightly to the right when viewing the plane from the tail. The area appears slightly darker. Remove the covering from this area at this time.



The elevator exit hole is located on the left side of the fuselage, 6 1/2" forward of the tail post and approximately 1 inch above the bottom of the fuselage. You may be able to detect this as a soft spot in the fuselage. Remove the covering from the elevator exit hole.

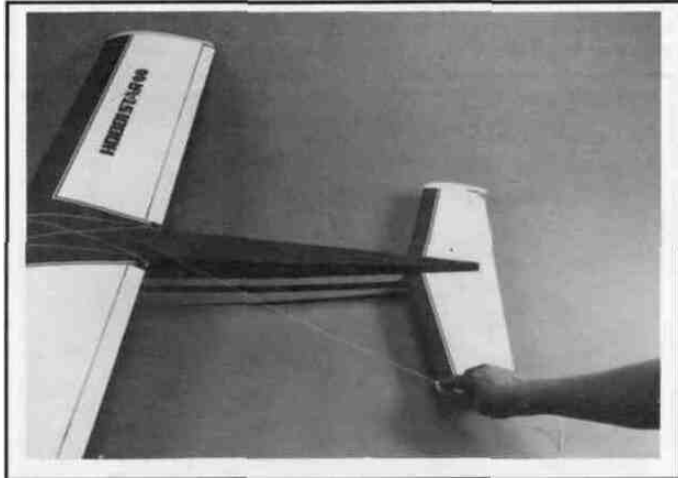


5. The wing dowel holes are also pre-drilled. They are located in the area indicated in the photo. Using a sharp knife remove the covering material at this time. There are four holes, two on each side of the fuselage. Insert the dowels so that they protrude equal distance on each side of the fuselage. Epoxy part of the dowel protruding from the sides of the fuselage. This will keep fuel from ruining the dowels.

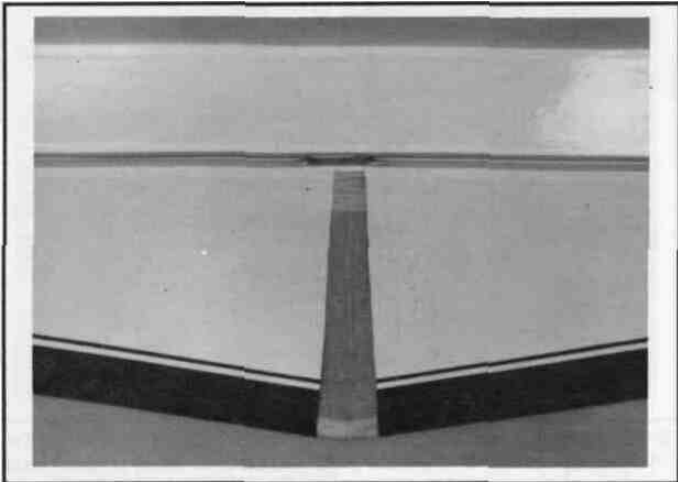


6. The main landing gear slot is located on the bottom of the fuselage, approximately 17 1/2 inches back from the nose (or front) of the plane. Using a sharp knife remove the covering from this area.

STABILIZER PREPARATION



1. Locate the horizontal stabilizer. Slide the stabilizer into the slot prepared in the previous section. Position the stabilizer so that it is centered in the fuselage and that the trailing edge of the elevator is 90° to the center line of the fuselage. Insert a pin through a piece of string and attach the pin to the fuselage on the center line as shown. Stretch the string to the corner of the elevator. The distance from the pin to the corner must be equal on both sides. This method will adjust the stabilizer so it is 90° to the center line of the fuselage.



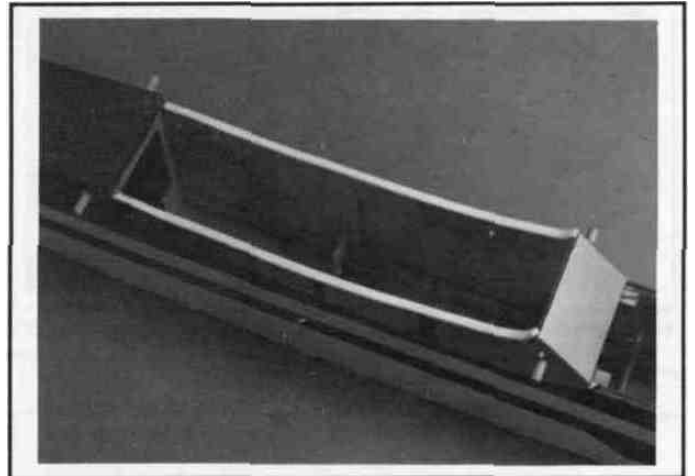
2. Mark on the stabilizer where the fuselage and the stabilizer touch. Do this on the top and the bottom of the stabilizer. Remove the covering in between the two lines. This will allow a more secure glue joint when the stabilizer is epoxyed later. **Do not** cut the balsa wood under the covering.



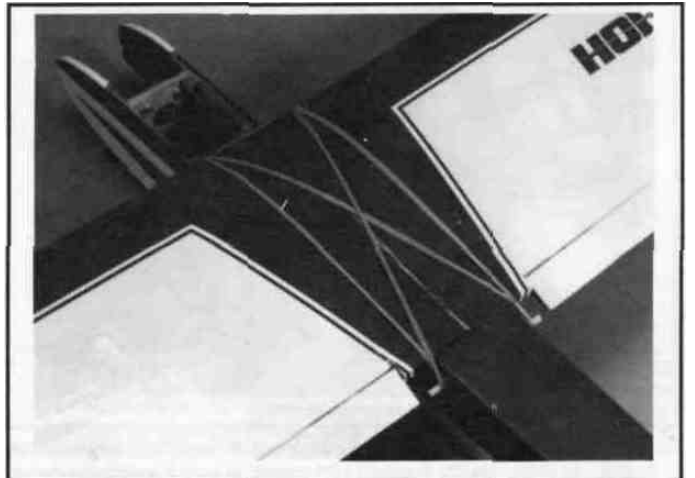
3. Locate the vertical stabilizer. Remove the covering from the lower vertical stabilizer base.

INSTALLATION OF HORIZONTAL STABILIZER

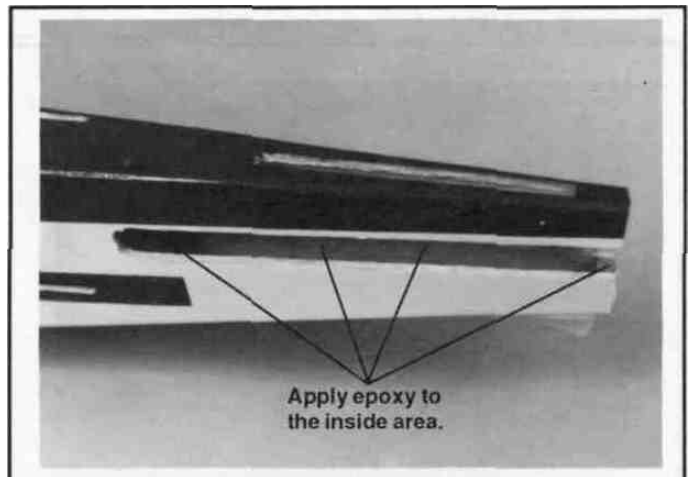
IMPORTANT: This next series of steps will determine how well your Hobbistar 60 will fly. So please read and reread these steps so that you are totally familiar with its sequence.



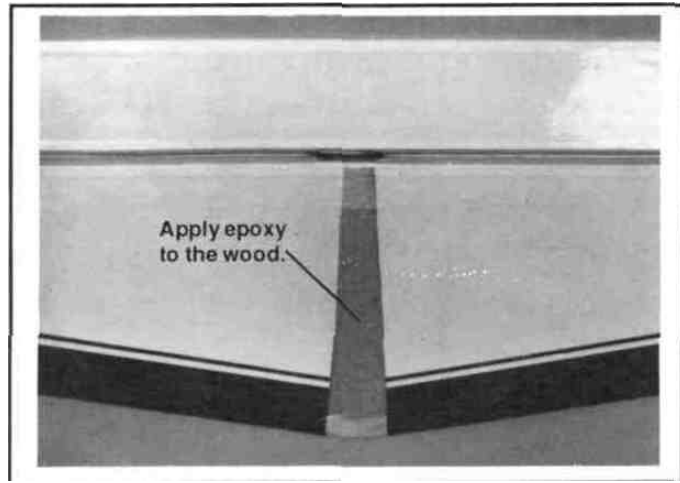
1. Using wing saddle tape, apply a strip to both sides of the wing saddle area as shown.



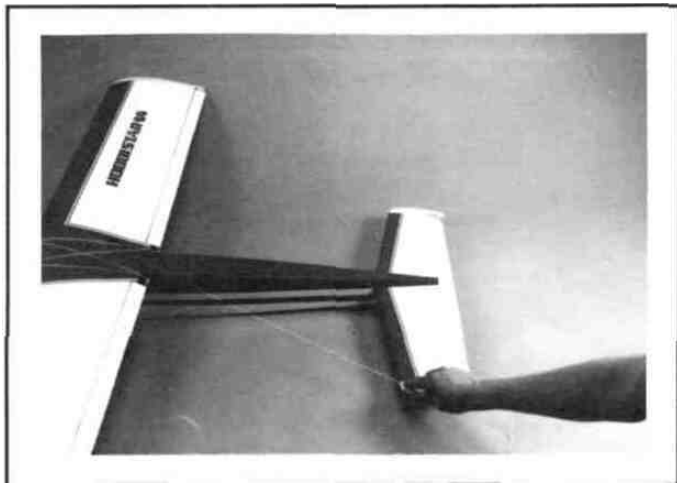
2. Using four rubber bands (#64) temporarily secure the wing to the fuselage. This becomes your basic reference point.



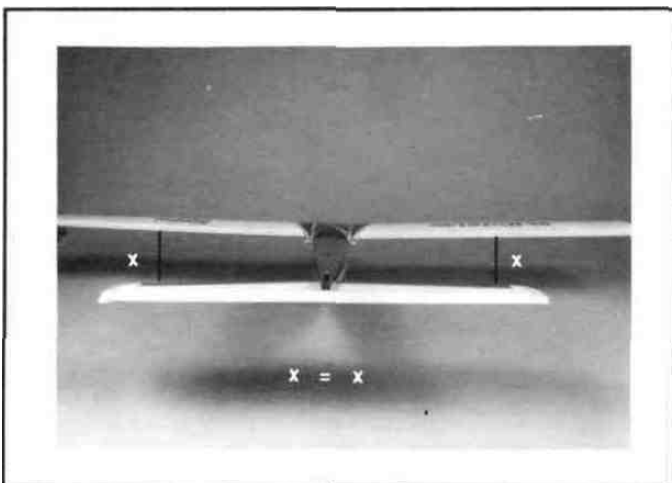
3. Lay the fuselage with wing attached on any flat surface. Mix a batch of 30 minute epoxy. You will have plenty of time to work so don't hurry. Using a scrap piece of plywood left over from the aileron servo tray, apply a generous amount of epoxy to the inside area; top and bottom, and along the sides of the stabilizer slot as shown.



4. Using the same scrap of plywood, apply an even coat of epoxy to the top and bottom of the horizontal stabilizer in the area where you removed the covering.



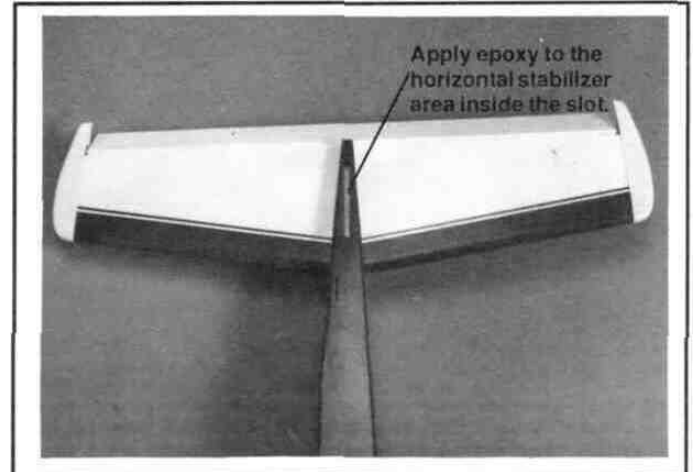
5. Slide the stabilizer into the slot from the rear. This fit should be close but not tight. Using a ruler (12") check to see if you have equal distance from the center of the tail to the outside edge of the stab. Now using the string explained in the stabilizer preparation section, adjust the stabilizer so it is 90° to the center line of the fuselage.



6. Now view the stabilizer-wing relationship from behind with the plane resting on a level surface (see photo above). Distance "x" should be the same. If not, shim the stabilizer using a small sliver of wood to get the proper relationship. Let the epoxy cure thoroughly.

INSTALLATION OF VERTICAL STABILIZER

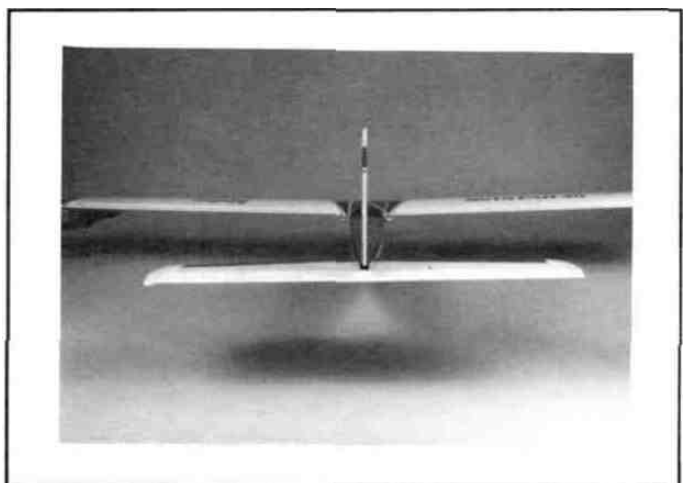
Now if we have done a good job with the wing-stabilizer relationship, the installation of the rudder should be easy. The vertical stabilizer is 90° to the wing. A drafting triangle would be helpful here.



1. Looking into the fuselage vertical stabilizer slot, apply some epoxy to the top surface of the horizontal stabilizer that is visible inside the fuselage.

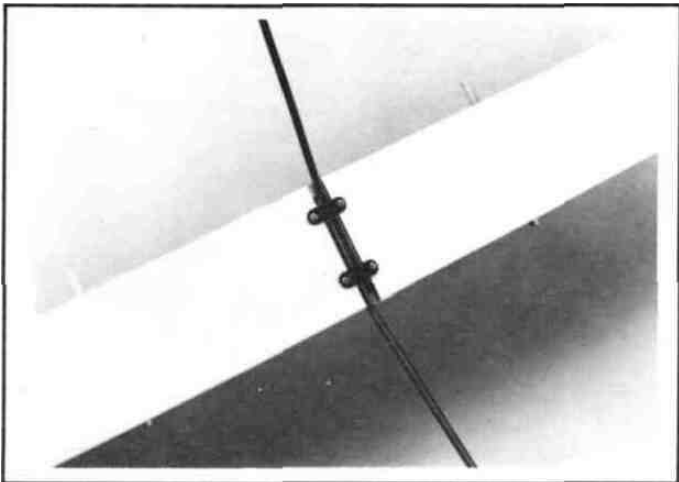


2. Mix a small batch of epoxy and apply it to the area inside of the fuselage on the surface of the exposed wood. Apply an even coat to the vertical stabilizer base where you removed the covering. Inset the vertical stabilizer into the slot and push down until the stabilizer stops.



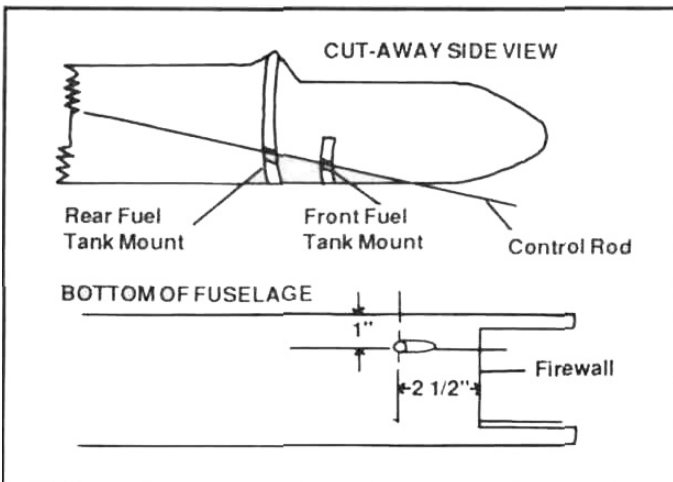
3. Using the triangle, check to see if the rudder is 90° to the horizontal stabilizer. If so, a couple of straight pins will hold the rudder in position until the epoxy cures.

MAIN LANDING GEAR INSTALLATION

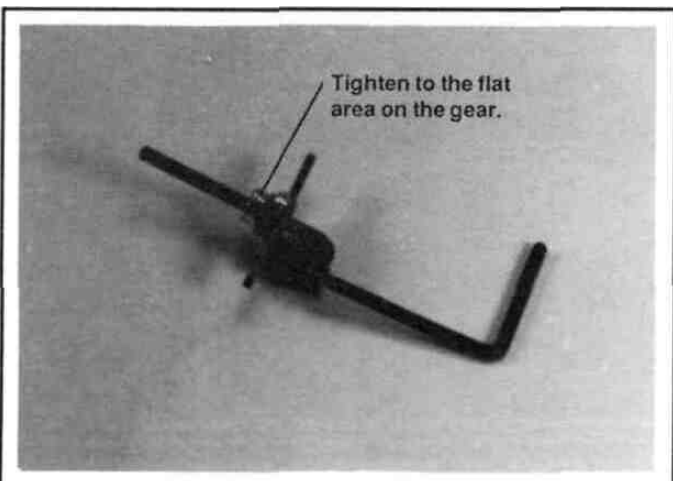


Place a small bead of silicone sealant in the groove, then insert the landing gear strut into the fuselage in the holes on the bottom as shown. Secure the struts in place with the metal straps and m3 x 10 self-tapping screws.

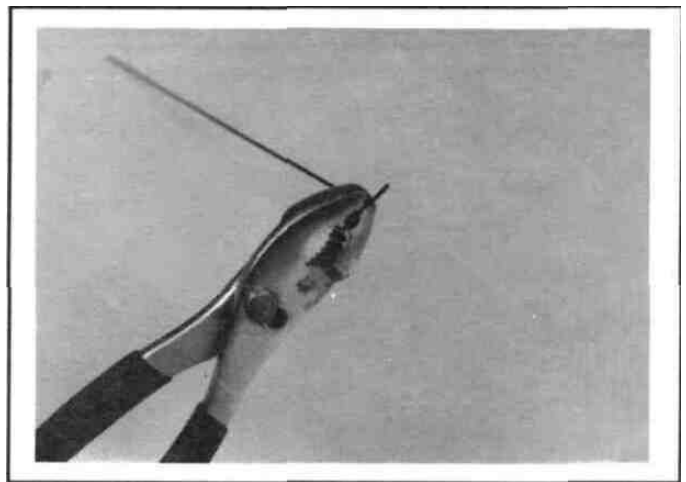
NOSE GEAR CONTROL ROD



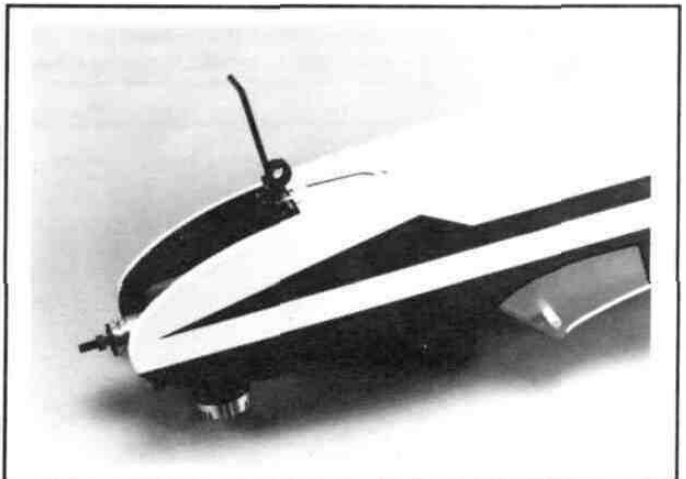
1. Drill a 1/8" hole in the fuselage bottom right side at a 30° angle so that the drill also drills through the front fuel tank mount, insert the 17 3/4" x 1/16" rod through the holes and mark where the rod hits the rear fuel tank mount. Remove the rod. Cut a white tube to 11" and rough it up with 240 grit sandpaper. Drill a 1/8" hole where you made the mark in the rear fuel tank mount. Insert the white plastic tube through the holes so that the end of the tube is even with the bottom of the fuselage. Epoxy the tube to the fuel tank mounts and the bottom of the fuselage.



2. Install the nose gear control horn parallel to the nose gear axle and tighten the mounting screw. Next install a 4mm x 10mm collar on top of the control horn and secure with a m3 x 4 screw.

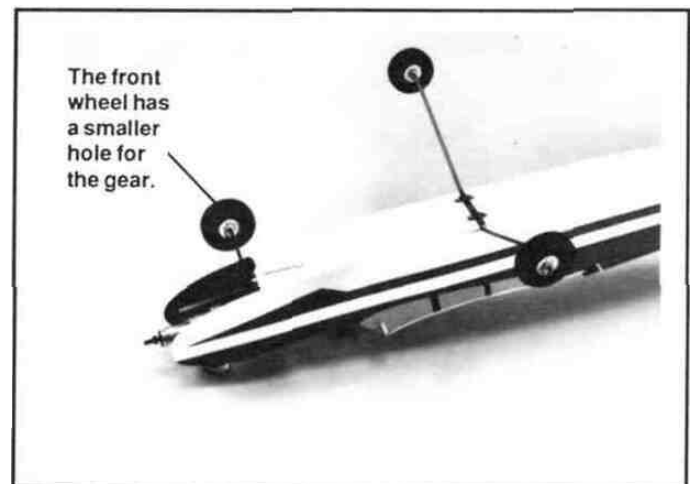


3. If using the Snap 'R' Keeper make a 90° bend 5/16" from the end of the 17 3/4" control rod as shown. If using the E-Z connector, install the connector on the bottom of the nose gear control horn following the manufacturer's instructions.



4. Slide the nose gear shaft through the nose gear mount. Secure the gear in place with a 4mm x 10mm collar and a m3 x 4 screw. Slide the 17 3/4" control rod into the white tube in the bottom of the fuselage. Connect the rod to the nose gear control horn using the Snap 'R' Keeper or E-Z connector following the manufacturer's instructions.

WHEEL INSTALLATION

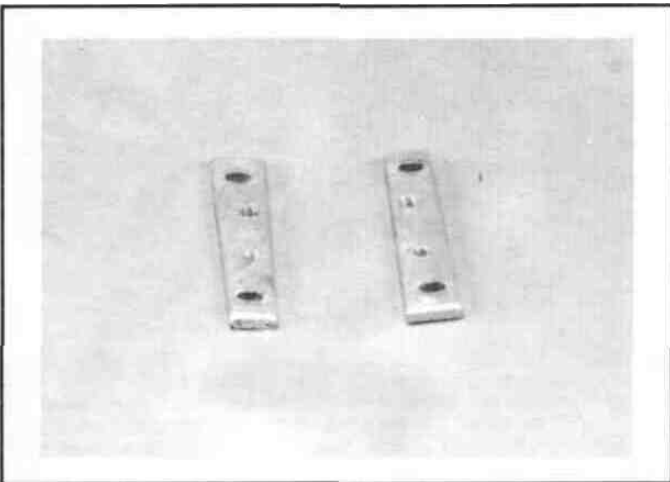


Install a wheel on the nose gear. Then install a 4mm x 10mm wheel collar and secure it with a m3 x 4 screw. Install a 5mm x 10mm wheel collar on each side of the main landing gear. Then install the wheels and then the other 5mm x 10mm wheel collar. Secure the wheel collars with the m3 x 4 screws. All three wheels should turn freely. If not, trim the inside of the wheel slightly.

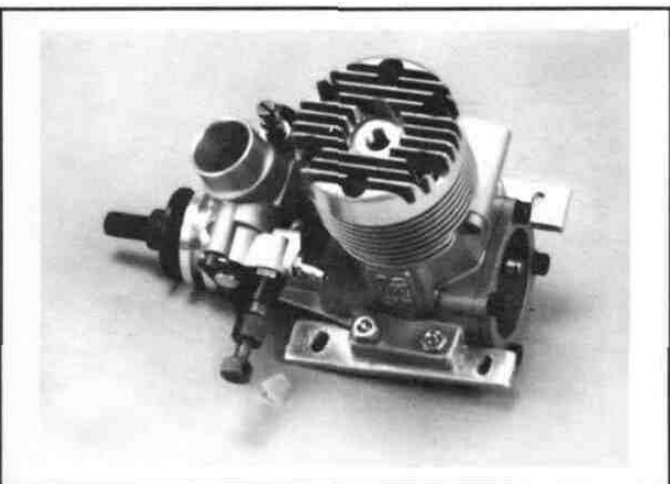
ENGINE INSTALLATION



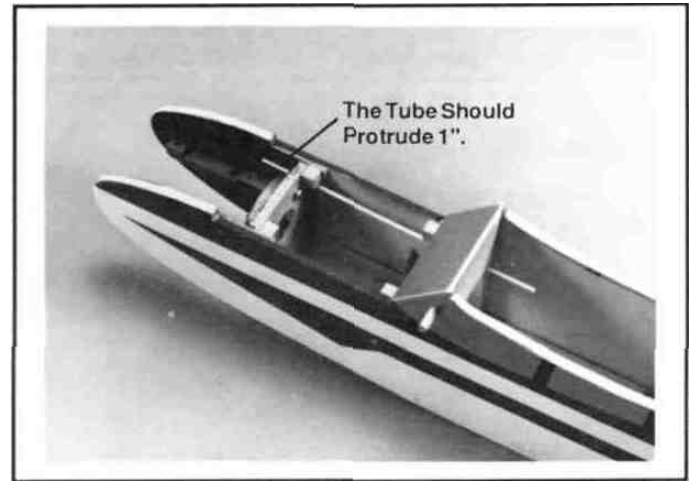
1. Temporarily install the two mounting pads to the engine mount using four 4mm x 15mm screws. Set the engine on the mounting pads so that the center line of the engine is in line with the center line of the engine mount. Also the drive washer on the engine must protrude 1/8" from the front of the plane. Next, mark the mounting holes for the engine on the pads.



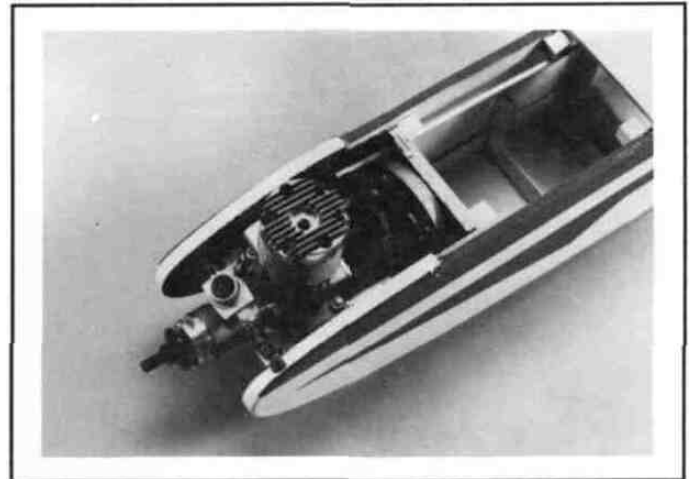
2. Remove the pads and drill a 5/32" hole at each mark.



3. Mount the engine to the mounting pads by using four 4mm x 15mm screws, four lock washers and four 4mm nuts (small) as shown.

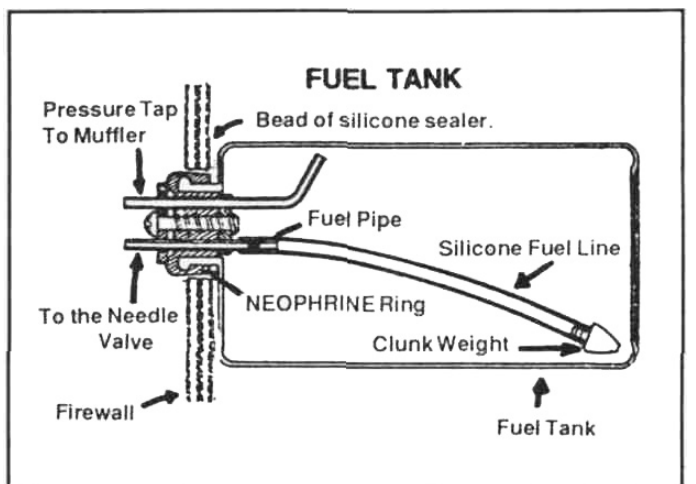


4. Make a "z" bend in the 17 3/4" throttle control rod and install on the throttle arm of engine. Next, cut one white tube so it is 9" long. Rough it up slightly with sand paper. Now epoxy it inside of the fire wall and to the fuselage former as shown (You may have to drill the hole completely through the firewall).



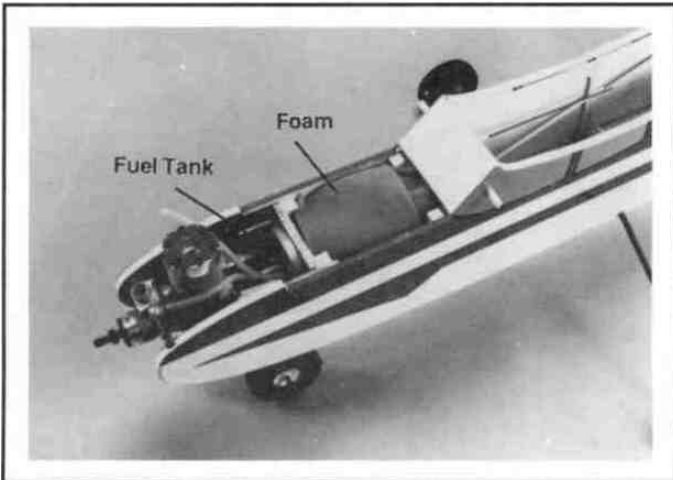
5. As you install the engine and mounting pads on the engine mount, slide the throttle control rod into the throttle control tube. Install the four lock washers. Note: It is advisable to use semi permanent thread locking compound on the screws.

ASSEMBLY OF FUEL TANK

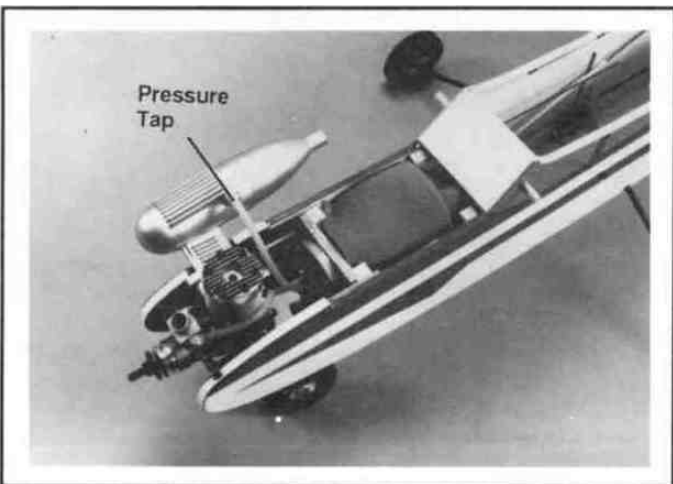


1. Assemble the fuel tank as shown. Apply a bead of silicone sealant around the fuel tank cap as shown when installing it into the fuselage.

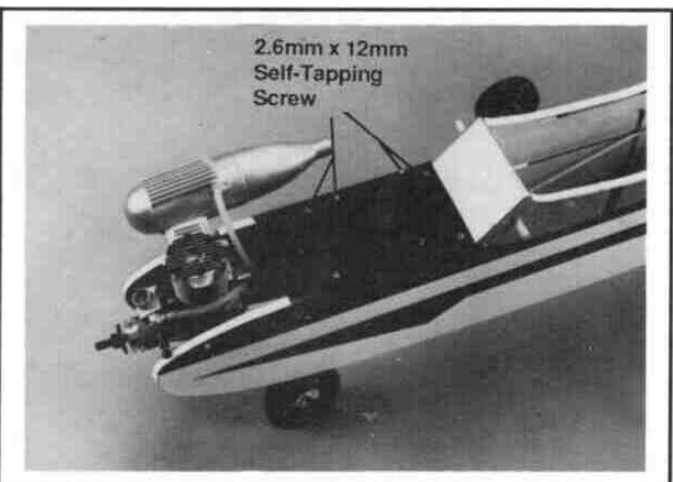
RADIO INSTALLATION



2. Wrap the fuel tank with natural foam to insulate it from vibration. Install the fuel tank so that the cap is through the hole in the firewall. Install two six inch pieces of fuel tubing to the fuel pipes from the fuel tank. Connect the tubing from the line with the clunk weight attached (called the fuel pick-up line) to the carburetor. The other line is connected to the muffler pressure tap in the next step.



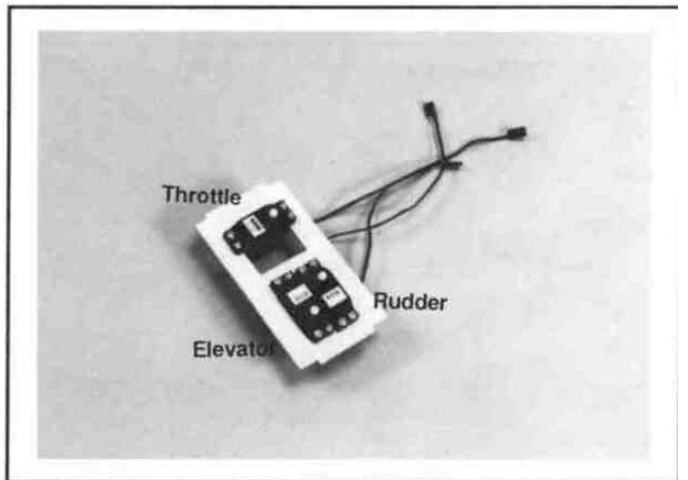
3. Install the muffler following the manufacturer's instructions. Connect the pressure line to the muffler pressure tap. You may need to trim the fuselage side to allow muffler clearance.



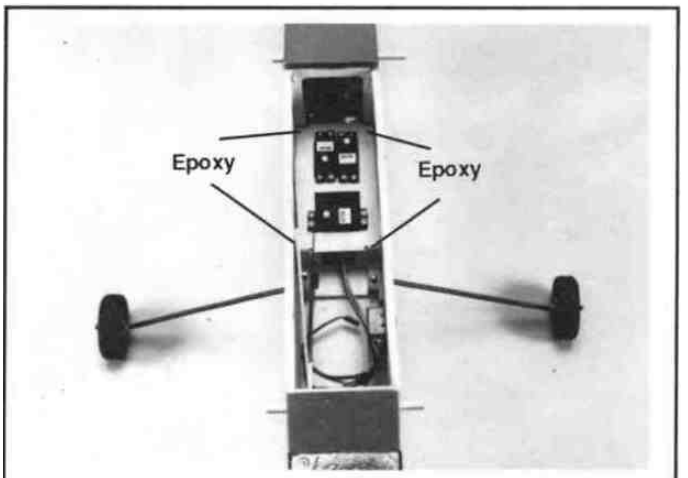
4. Set the hatch cover over the fuel tank compartment. Drill four 1/16" holes as shown. Secure the hatch using four 2.6mm x 12mm screws.



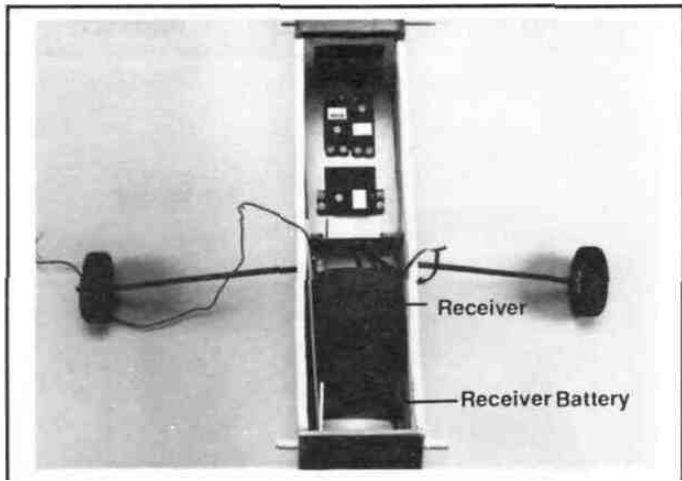
1. Using your radio switch as a guide, make the necessary opening for mounting the switch on the left side of the fuselage, as viewed from above looking toward the engine, and 2" down from the wing saddle. Install the switch at this time. Mounting the switch on this side will prevent fuel from damaging the switch.



2. Test fit your servos into the servo tray. Trim the tray as necessary to fit. If over-sized servos are being used, it may be necessary to make an additional servo tray. We recommend using standard to heavy duty sized servos. Arrange them as shown in the picture above. Before securing the servos to the servo tray, read the instructions that came with your radio on how to install the servos.

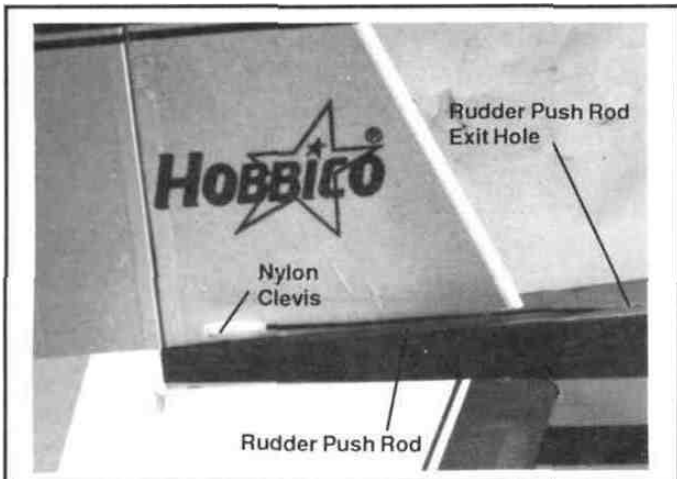


3. Mount the servo tray onto the rails inside the rear of the fuselage. Epoxy the tray in place. Use enough glue to hold the tray in place, but be very careful not to glue the servos to the tray or the fuselage.

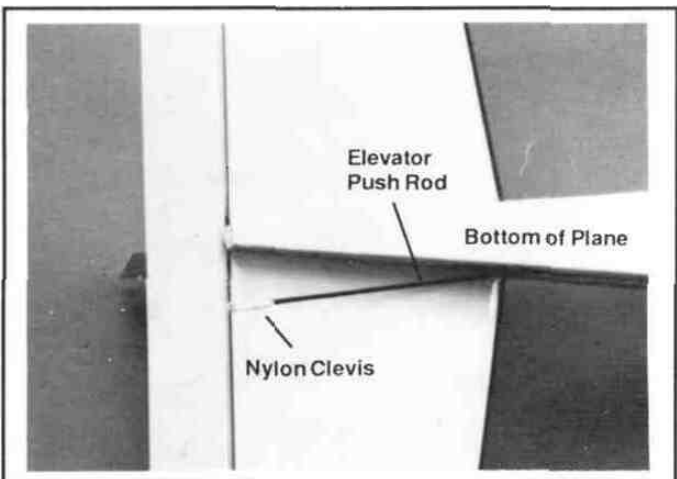


4. Plug the servos and switch into the receiver and the receiver battery into the switch. Then wrap the receiver and the receiver battery in natural foam. Use the rubber bands to loosely hold the foam in place. This foam packing protects the radio components from damaging engine vibrations. Place the battery toward the front of the compartment.

PUSH ROD INSTALLATION

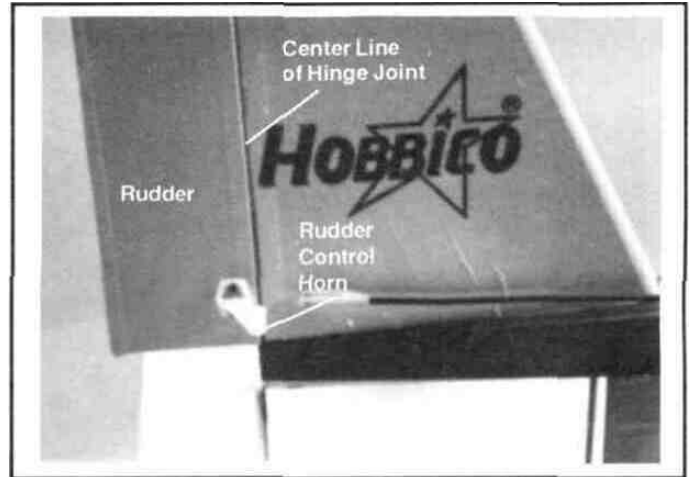


1. Insert the threaded end of the rudder pushrod into the fuselage; working it around until the end of the push rod is extending through the exit hole on the top of the fuselage. This may take some time. Cut a piece (3/16") from the retaining tube and slide onto the rod,

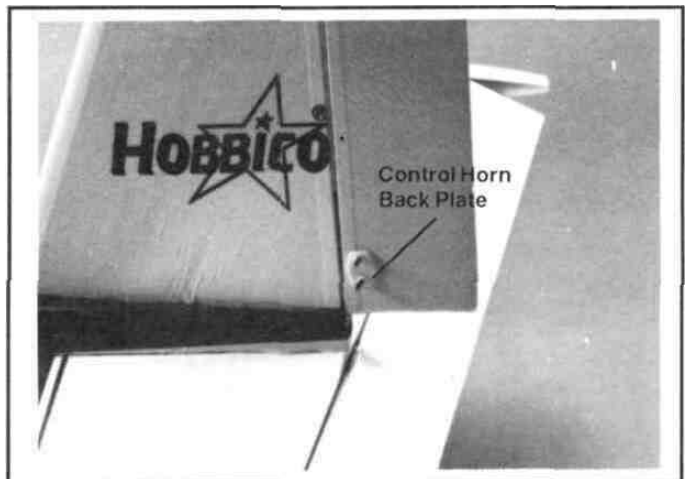


2. Insert the threaded end of the elevator pushrod into the fuselage; working it around until the end of the rod is extending through the exit hole on the left lower side of the fuselage. This may take some time. Cut another piece (3/16") from the retaining tube and slide onto the rod. Install the nylon clevis onto the threaded end of the push rod.

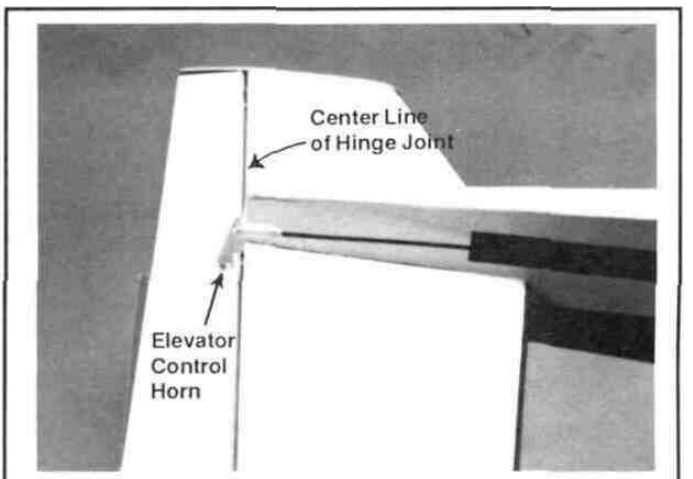
CONTROL HORN INSTALLATION



1. **Caution:** When installing control horns the center line of the control horn holes must be the same as the center line of the hinge joint. If not the control surface will move farther one way than the other.

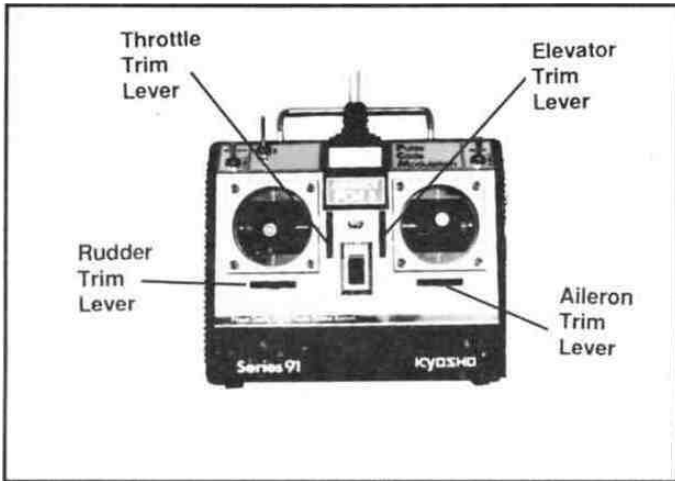


2. Mount the rudder control horn so that it is on the center line of the hinge joint and pointing toward the push rod as shown. Mark the location of the two mounting holes and drill a hole on the marks. Insert the m2 x 20 screws through the horn and into the control horn back plate. Attach the clevis to the control horn. Slide the retaining tube over the clevis to secure it.



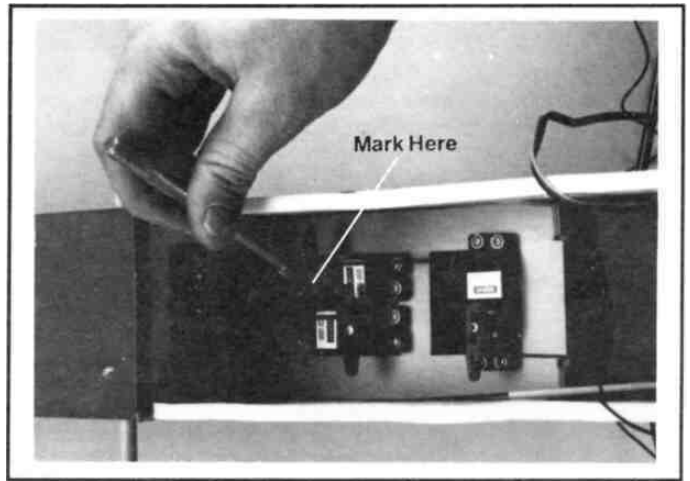
3. Mount the elevator control horn on the elevator so it is on the elevator hinge joint center line and pointing toward the elevator pushrod. Using the same procedure as before, install the m2 x 20 screws and control horn back plate. Attach the clevis to the control horn. Slide the retaining tube over the clevis to secure it.

CONTROL ROD ADJUSTMENT

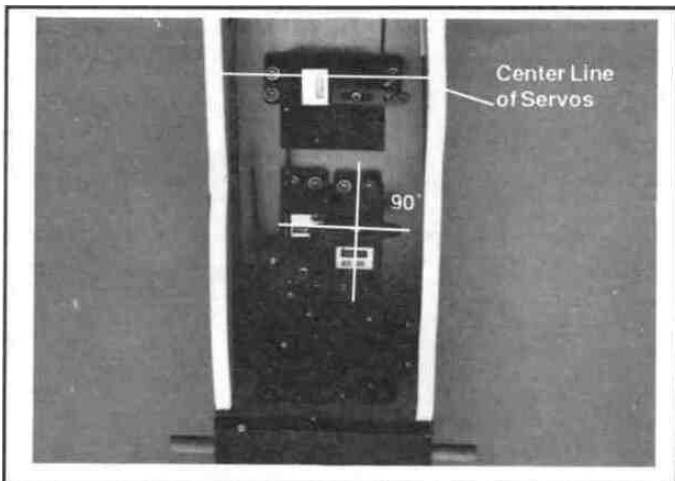


1. Be sure that your radio system is fully charged and the servos are plugged into the receiver. Turn on the transmitter then receiver. Set the trim levers to the neutral position. Turn the receiver then the transmitter back off.

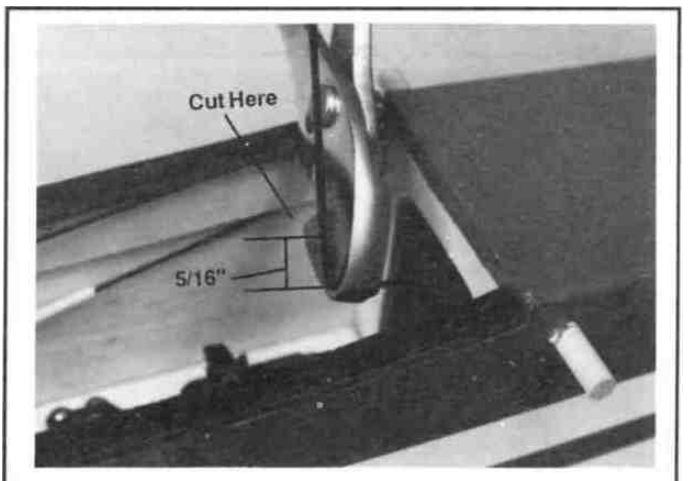
RADIO INSTALLATION



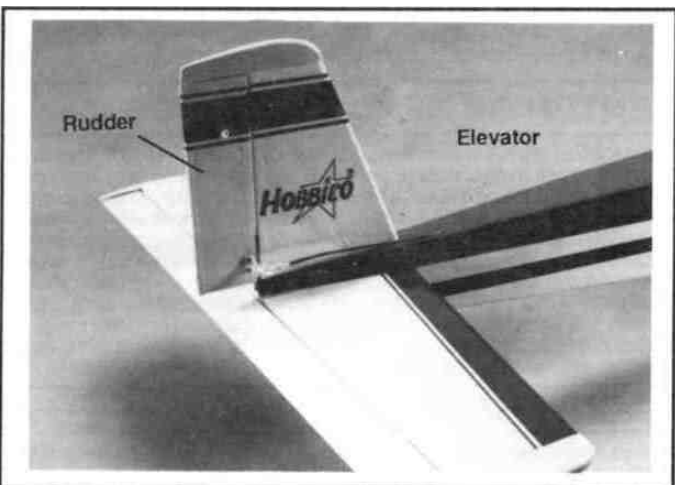
4. If using the Snap 'R' Keeper mark on the push rods where the hole in the servo arm is.



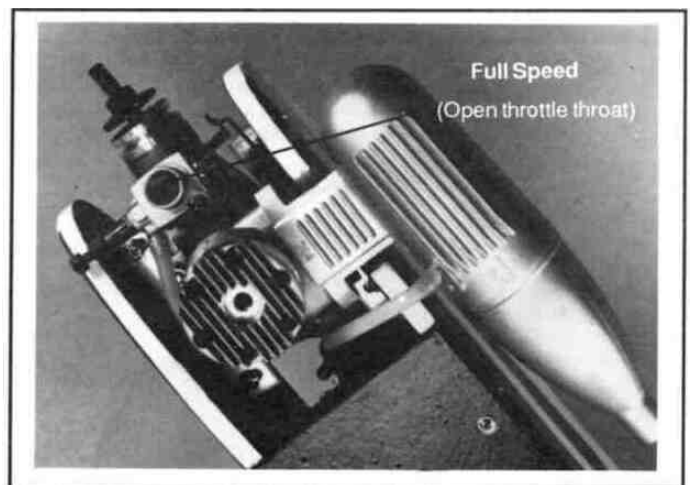
2. Adjust the servo arms so that they are positioned as shown above. The screw holding the arm on may need to be removed so that the arm can be removed and adjusted.



5. Make a 90° bend at the mark on the push rods. Cut the excess wire as shown, and install the Snap "R" Keepers to the rod and servo arms following the manufacturer's instructions. If using E-Z connectors install them on the servo arms and attach the rods following the manufacturer's instructions.

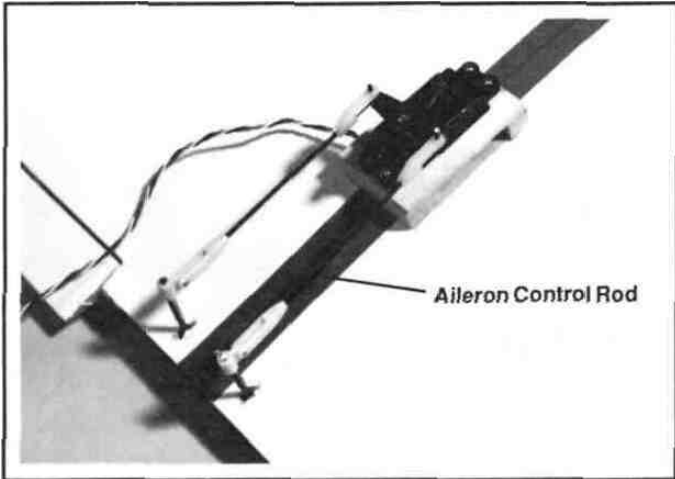


3. Set the rudder and elevator so that they are in the neutral position as shown.



6. With the transmitter and receiver on, set the throttle to full speed on the transmitter. Set the throttle arm on the carburetor to full power. Install the push rod as instructed in the previous step. Next, install in order the spinner back plate, prop, prop washer, prop nut, and the spinner. Use the two 2 x 1/2 self-tapping screws to secure the spinner.

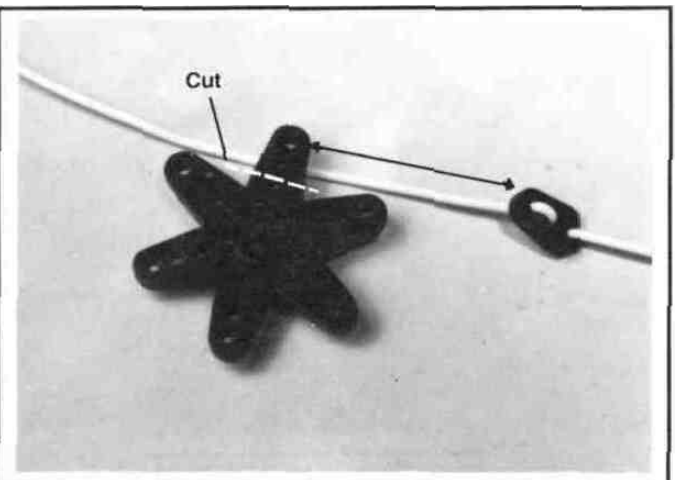
AILERON SERVO INSTALLATION



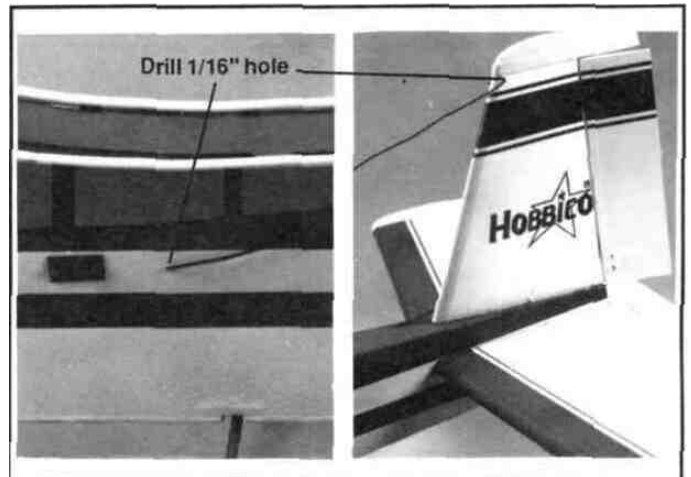
1. Route the servo wire through the side of the tray as shown. Using the screws supplied with your radio, mount the servo into the tray. Install the clevises on the threaded ends of the aileron control rods. Connect the control rods to the aileron horns. Center the aileron servo arm and measure the length of rod needed. Use the same procedure to connect the aileron control rods to the servo arms as used in control rod adjustment Step 5. Uneven aileron centering will cause severe turns.



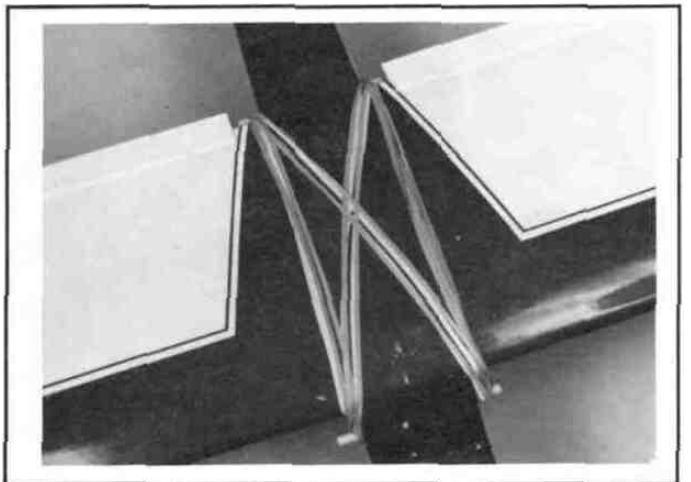
2. Turn both the transmitter and receiver switches on. Center the trim levers on the transmitter. Rotate the clevises in the proper direction to center the control surfaces (clockwise - shortens the length). The rudder should have 1" of throw to each side. The elevator 1/2" up and 1/2" down.



3. If the receiver antenna should get caught, the receiver could possibly be damaged. By putting a strain relief on the antenna the damage may be prevented. Cut an arm off of a servo arm as shown above and thread the receiver antenna through the three holes. Position this about 6" from the receiver.



4. Drill a 1/16" hole in the side of the fuselage and the upper portion of the vertical stabilizer. Install the strain relief close to the receiver. Route the receiver antenna through the holes as shown. This configuration should allow for the best radio reception. Move the strain relief up to the hole in the fuselage. Leave some slack in the antenna between the receiver and the strain relief. **Do not cut the antenna.** Make another strain relief to hold the antenna to the tail.



At this time be certain that the aileron servo is connected to the receiver, otherwise the wing will need to be removed later to connect it. The wing is mounted to the fuselage by using (8) #64 rubber bands. Wrap the bands around the wooden dowels as shown above. This design is to allow for those not-so-perfect landings that come with learning how to fly. The bands are designed to pop off during hard landings and thus help prevent major damage. Four rubber bands are needed per side.

CENTER OF GRAVITY

The center of gravity is a very important aspect of setting up the airplane property. It will control a large part of what type of flying characteristics your plane will have, if it is nose heavy the airplane will try to dive, and the elevator will be sluggish to respond to your control inputs. If the plane is tail heavy the airplane will be very sensitive to the elevator and possibly uncontrollable. The center of gravity should be checked with the fuel tank empty in the plane to be accurate. The range in which the airplane should balance is 3 1/2" to 4" back from the leading edge of the wing. With standard radio equipment, the plane should balance within this range. If it does not balance within this range, feel free to add weight to the nose or tail as you need to obtain proper C.G.

RADIO CHECK

Always check the operation of your radio before you fly to see that the control surfaces move in the proper directions and that they move the proper amount. If the direction of rotation needs to be reversed to correct for reversed controls, simply change the side of the servo arm to which the push rod is attached. To INCREASE the amount of movement that the surface will have, move the CLEVIS CLOSER to the surface or move the (SNAP 'R' KEEPER OR E-Z CONNECTOR) away from the center of the servo arm. To DECREASE the amount of movement, move the CLEVIS AWAY from the surface or move the (SNAP 'R' KEEPER OR E-Z CONNECTOR) closer to the center of the servo arm.

STARTING ENGINE

Engine Maintenance

Always check the engine mounting bolts, muffler, glow plug, propeller and spinner, etc., before attempting to start the engine. Check for loose bolts, nuts or screws which may come off when the engine is running and cause serious damage. Always check the area in which you will be flying or just running the engine. Check for possible hazards, such as loose rags, rocks, tools, etc., lying on the ground which may get caught in the prop.

If you intend on starting the engine by hand flipping the prop, always use a chicken stick, and be sure to check the position of the prop. It is most comfortable when it is at the 2 o'clock position when starting the compression stroke. When you are using an **electric 12V** starter, the position of the prop is of no concern.

Engine Break-In and Starting

Most manufacturers recommend that the engine be broken-in on a test stand. We also recommend that this be done according to manufacturer's instructions. If a test stand is unavailable the engine may be broken-in on the Hobbistar. Breaking-in the engine allows the parts to "seat to each other.

1. Remove the carburetor fuel line and the muffler pressure line from the muffler.
2. Fill the fuel tank through the carburetor fuel line; when the tank is full the fuel will come out the pressure line.
3. Reconnect the tubing.
4. Follow your manufacturer's instructions according to needle valve settings.

5. Turn the radio on and open the throttle to full open Place your finger over the air intake on the carburetor while turning the prop counter clockwise a few time? Notice the fuel line It no fuel is reaching the carburetor, recheck the fuel line plumbing
6. Reduce the throttle to 1/4 or 1/2 throttle for stalling
7. Using a starting stick (chicken stick) and holding the fuselage firmly, quickly flip the prop in the counter clockwise direction Do not attach the glow plug clip in this step **This** will prevent the engine from being flooded and will make starting much easier Do not use bare hands/ fingers for starting, as the kick back from a model engine can be strong enough to cause severe injury
8. Attach the glow plug clip at this time
9. With quick flipping movements, flip the prop in the counter-clockwise direction If the engine does not try to start in the first few tries, double check your procedure and keep trying
10. Once the engine has started, listen carefully to the sound of the engine The sound of the engine will tell you how the engine is running, if you **know** what to listen for A lower tone, popping sound is the sound of a rich running engine As you turn the needle valve in, the popping sounds should decrease and the pitch of the engine should rise The optimum needle valve setting will depend on your engine. Again check with the manufacturer's recommendations for engine break in procedures and valve settings
11. If you continue to have problems with the performance or starting of your engine, refer to engine trouble shooting guide as shown below

ENGINE TROUBLESHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE	SOLUTION
The engine does not start.	Glow plug battery is making poor contact.	Check to see if the battery is wired correctly and to see if the clip is making good contact with the plug.
	Battery is dead or has a very low voltage.	Replace or recharge the battery and check to make sure the battery can glow the plug red hot prior to starting.
	Bad glow plug (burned up or deteriorated filament).	Replace the glow plug.
	Improper air/fuel mixture intake.	Prime the engine through the carburetor air intake.
	Engine is flooded with fuel.	Close the needle valve completely and try to start the engine. It should start and then quickly stop. Reset the needle valve and continue starting.
The propeller is difficult to rotate.	Engine may be flooded.	Remove the glow plug and rotate the engine until only a mist of fuel remains in the cylinder. Replace the plug and continue.
The engine fires but does not start.	Fuel is not reaching the carburetor.	Check the level of fuel in the tank. Recheck fuel. Open the needle valve a half turn or so and continue.
	Improper break-in procedures.	Check the break-in procedure and repeat.
The engine starts but does not sound or run good.	Loose plug or bad plug.	Replace the plug and/or tighten the old plug.

Pre-Flight Check

1. Clean the dust dirt, and oil off of the surface of the airplane.
2. Check to make sure all nuts, bolts, and screws are securely fastened.
3. Check all control surfaces to see if they are properly attached.
4. Check the range of the radio system as the manufacturer recommends.
5. Check that all controls move smoothly and in the proper directions.
6. Check the level of charge in the transmitter and receiver batteries.
7. Check that the area being used is free of obstacles and debris.
8. Check the frequencies currently in use at the field and in your area.
9. Check the level of the fuel tank to be sure it is full.
10. Double check the radio operation.

Flight Safety

- If this airplane happens to be your first radio controlled airplane, we strongly suggest that you ask a skilled pilot or instructor to help you learn how to fly. You should also suggest to him to take the maiden flight to see what problems (if any) that need to be worked out. There will be enough to worry about on your first solo flight without having to worry about whether or not it is properly set up.
- Fly in an open field without any obstructions. For example, trees, power lines, buildings, crowds of people, etc., are obstacles that the plane may hit and cause damage.
- If you are a novice pilot, local area clubs have been formed and are very willing to help you with any questions you may have. Many of the clubs even have club trainer airplanes that they will actually teach you to fly with. This helps prevent disappointing crashes on your first flights. Addresses of local area clubs can be located from your local area hobby shop and/or by writing to: Academy of Model Aviation, 1810 Samuel Morse Drive, Reston, VA 22090.
- Fly the model at reduced throttle until you get to know the flight characteristics.
- When adjusting the needle valve just prior to flight, hold the plane at a 45° nose up altitude, full open throttle and adjust the throttle for top performance as the manufacturer's instructions suggest.

Take-Off

The airplane may be taxied around on a smooth/open section of pavement without the wing after the engine has been adjusted and the radio has been properly checked. Become familiar with controlling the plane on the ground with the rudder, in the air you will find that most of the time you will be using a combination of elevator and ailerons to turn the plane because they are more effective in the air. On the ground, the rudder is more effective. A transition will need to be made once the plane leaves the ground. That transition, from using the rudder on the ground to using the ailerons once it leaves the ground, will take a little practice. One good rule of thumb is to always take off directly into the wind (if there is any). This will prevent the wind from trying to blow the model from side-to-side and will not take as much runway as if you were trying to take off downwind.

Once you feel comfortable with the way it handles on the ground, it comes time for you to concentrate very much on the airplane's movements. As you are ready for take-off, simply point the nose into the wind and slowly advance the throttle up to full throttle. At this point the plane will be going very fast and will be very sensitive to your rudder inputs. Use smooth inputs to correct the plane from wandering off of the runway. Once the plane is at take-off speed, slowly pull back on the elevator stick. This will cause the plane to leave the ground. At this point, notice whether the plane tends to turn, climb or dive, and make the necessary opposite control inputs to keep the plane on a gentle climb in the desired direction.

Flight

Once the plane has reached a safe altitude, reduce the throttle to about half power. If the airplane is properly set up (i.e. correct C.G., trims all centered, engine properly set), the plane should be very stable without any wandering tendencies. If the plane does tend to go more in one

direction than another, use your trim levers on your transmitter to correct this. Do not look at the transmitter while adjusting trims. Then while the plane is flying straight, adjust the elevator trim to correct abnormal climbing or diving. If the trims will not overcome a turn or a climbing tendency, land the model immediately and check for improper setup.

Landing

There is an old saying that states, "You do not have to take off... But you do have to land." Therefore, be ready to land at all times during your flight. The engine may not stay running through a complete tank of fuel for one reason or another. It is suggested to time the "run time" of a complete tank before flight. That way you know approximately what to expect and when you need to land before the fuel runs out.

Set up your landing approach downwind at 100-200 feet up and 500-800 feet away depending on the height of the plane and the strength of the wind. Approach into the wind and slowly reduce the throttle to the closed position. Concentrate on the glide path of the plane, taking notice of whether the plane will reach the beginning of the runway or if it will overshoot the runway completely. With smooth, deliberate inputs, use your engine power and your elevator to adjust the glide path so the plane will touch down smoothly on the beginning of the runway at its slowest speed. It will still **seem** very fast and will use the complete runway to slow down.

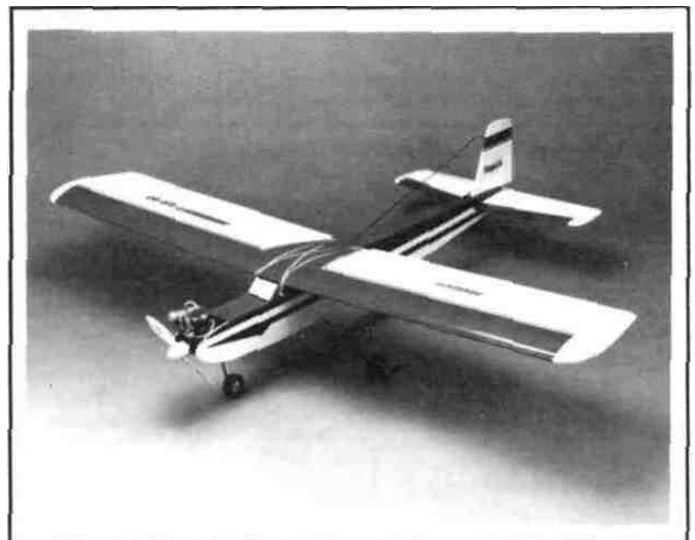
After-Flight Maintenance

- Remove all excess fuel from the fuel tank as this fuel can become jelly-like and cause clogging of the fuel lines as well as clogging the engine's carburetor valves.
- Always use after-run oil in the engine to prevent corrosion.
- Check and double check that the transmitter and receiver switches **are** switched to the off positions.
- Wipe off the excess oil that will collect on the wing and fuselage. Use a light-duty cleanser to help cut through the oil.
- Remove fresh fuel from the surface of the plane immediately as different brands can cause clouding of the surface.
- Replace any bent, marred, or dinged props as they can fly apart at any time when the engine is turning.
- Completely check the airplane for damage to the wings, landing gear, covering and repair as needed before your next flight.

Repair

If damage should occur, wipe the broken area clean with a clean rag to remove all debris. Use epoxy glue to repair. Do not use Cyanoacrylate adhesive near any foam parts as it will deteriorate the foam.

Fully Assembled Hobbistar 60



Pre-Flight Checklist

Before leaving for the flying field go through the pre-flight checklist. This will help prevent you from forgetting to take things with you.

- A. Make sure the transmitter and receiver battery packs are fully charged. One way to check is by using a Hobbico voltmeter.
- B. Transmitter, make sure it is the same frequency as the receiver.
- C. Glow plug clip and fully charged 1 1/2 volt battery.
- D. Fuel and fuel pump or fuel bulb.
- E. Rubber bands #64.
- F. Extra props.
- G. Screw driver and knife.
- H. Epoxy and something to mix it on.
- I. Paper towels (to clean the plane).

FLIGHT DIRECTIONS

Before starting the engine check and make sure all screws are tight, that the hinges have not come loose, the control surfaces move in the right directions according to your input on the transmitter, and nobody is on your frequency.

1. Start the engine and set the needle valve following the engine manufacture's instructions.
2. Hold the plane tightly and move the throttle to full speed. Pick the plane up and hold it at a 45'-60' nose up for 10-15 seconds. The engine should run smoothly. If it starts to die the engine is either too rich or too lean and the needle valve needs readjusting.
3. Taxi the Hobbistar to the end of the runway and point the nose into the wind.
4. Check that the control surfaces respond to the transmitter commands.
5. Gently advance the throttle to full power.
6. Gently steer the plane left or right as necessary to obtain a straight take-off.
7. After the plane has gained speed, gently pull back on the elevator stick. **Do not** allow the plane to climb too steeply.
8. Keep the wings level and reduce the throttle some to obtain a gentle climb.
9. To turn, gently move the aileron stick to the side and pull back on the elevator. If **too** much aileron is used the plane will bank too steeply. Make a wide, gentle turn. When the turn is completed, return the sticks to the center.
10. After the plane passes by you make another wide 180' turn.
11. When learning to fly it is easier to control the plane by facing the direction the plane is going and looking over your shoulder at it.
12. Fly in a figure eight making left and right turns at the end of the straights.
13. For the first landing don't worry about landing on the runway, just try not to hit any objects. Decide where you are going to land and gently turn into the wind 500-800 feet down wind.
14. When you know you can reach the landing area, reduce the throttle. You want the plane to gently descend towards the landing area. Keep the wings level and do not allow the nose to rise. This can produce a stall (a lack of lift) and the plane will dive steeply.
15. If the plane is going to be short of the landing area apply some power to reach the landing area. If the plane is too high, apply power and climb back up to some altitude and set-up to land again. With practice you will be flying with more confidence and able to make nice smooth landings on a runway. The only way to become a good pilot is to practice.

Hobbico Inc. is proudly known as being the nation's number ONE supplier for ARF type airplane kits. Below are a few of the fine kits that are available from your dealer.



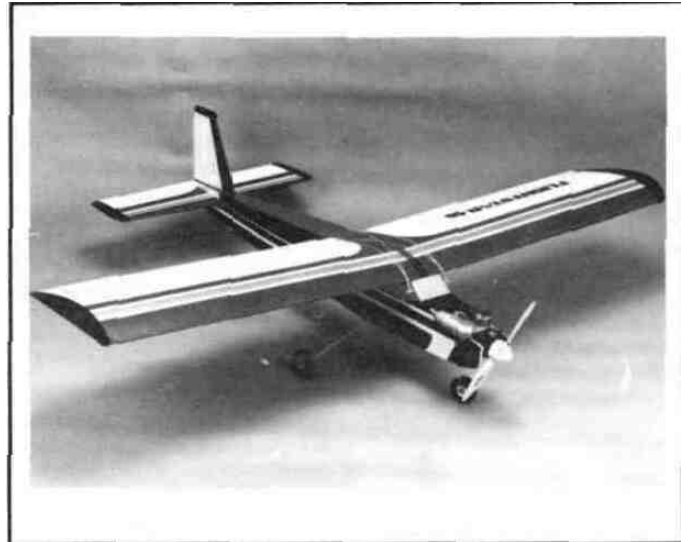
HCAA2560 - Diabolo



HCAA2570 - Super Chipmunk 40
HCAA2510 - Super Chipmunk 25



HCAA2580 - Telstar 40
HCAA2520 - Telstar 25



HCAA2050 - Flightstar 40



HCAA2530 - Cherekee 25



HCAA2600 - Extra 300



HCAA2590-Cessna 182