



Thank you for purchasing the Fantasy ARF from Skyshark R/C. For the first time, R/C enthusiasts have a choice in aircraft designs. Good looks and flying characteristics, and a uniqueness that is sure to turn heads wherever you take your airplane!

Covering

When you receive the Fantasy, there will normally be some loose or wrinkled covering. This is due to climate changes that take place during shipping. The parts are covered in low temperature covering so they don't require a lot of heat to remove wrinkles. The best way to tighten the covering is with a heat gun set for low heat. Hold the gun about 6" away from the covering and move it in fast circles around the parts. Be careful, too much heat in one place at one time will damage the covering or the decals.

CAD Design

CAD design allows strength to be built into the airplane without sacrificing weight. Because of this, the Skyshark Fantasy is one of the most durable and best flying airplanes in this size range.

Engine Options

Engine choices range from .46 - .60 2-strokes, or .56 to .91 4-strokes. This plane is not really suited for a gas engine. We used a .60 2-stroke in our final prototype. With the battery in front of the CG our plane balance perfectly with this combination. The .60 also provided very fast performance. If you are a beginning flyer, you probably want to start with a smaller engine.

Repairs and Replacement Parts

Repairs can be made easily using readily available plywood, balsa and any low temperature covering. The covering used was Oracover. If you would like to purchase replacement parts, please call our customer service line at 1-866-854-6100. We will be happy to assist you with anything that you need.

General Building Information

The Skyshark Fantasy was designed to be built and flown by anyone who has previously assembled and flown a trainer plane. This instruction manual is written so that even

beginning builders will be able to assembly the plane without difficulty.

Occasionally hints will be included at certain building steps. These are not required for completion, rather they are tips intended to ease a particular process.

All hardware needed to complete the Fantasy is included in the kit. The pushrods and clevises are 2-56 and are USA made. If you need replacements, any 2-56 clevises or pushrods will work.

We have flown this plane on standard 42 oz-in servos with no problems. If you are doing extreme aerobatics, we recommend the use of high torque servos (55 oz-in or greater)

This aircraft is not a toy. It must be flown in a responsible manner according to the rules set forth by the Academy of Model Aeronautics. The builder assumes the responsibility for the proper assembly and operation of this product. Skyshark R/C shall have no liability whatsoever, implied or expressed, arising out of the intentional or unintentional neglect, misuse, abuse, or abnormal usage of this product. Skyshark R/C shall have no liability whatsoever arising from the improper or wrongful assembly of the product nor shall it have any liability due to the improper or wrongful use of the assembled product. Skyshark R/C shall have no liability for any and all additions, alterations, and modifications of this product.

Having said that mouthful, it's time to start building the best airplane on the market!

Before beginning assembly: Check all components for shipping damage. Be sure to look inside the fuselage and wings at the servo bay locations for any hidden damage. If you notice any damage, notify us immediately for replacement parts.

Preflight checks

- Double check that all control surfaces are properly glued by pulling on them firmly.
- Insure that all control surfaces are operating in the correct direction with the proper control throws.
- Insure that all wheels turn freely and that the plane tracks straight down the runway. Adjust the wheels as necessary.
- Secure all bolts with thread locking compound. This will keep them from vibrating loose in flight.

Items needed to complete your Fantasy:

Thin CA glue
Medium CA glue
5 minute epoxy
30 minute epoxy
Epoxy brushes
Red threadlocking compound
RC-56 canopy glue
Masking tape
Fuel Tubing
Foam padding
Misc. tools for building including: Screwdrivers, hex wrenches, pliers, scissors, sandpaper, files, etc.
Battery

(5) Standard (42 oz-in or higher) servos
(2) 12" Servo extensions
Y-harness (optional)

Flying:

None of the prototypes weighed over 6 lbs., though the weight range specified allows for more variations in wood weight. We do recommend using dual rates on the ailerons, rudder and elevators. The Skyshark Fantasy is a very easy plane to handle on the ground and in the air. On low rates it flies similar to a low wing trainer. Nothing special to note on takeoff. Just slowly advance the throttle until the plane lifts off. Once you are airborne, you will need very little or no rudder input to negotiate turns. Landings are very gentle with no tip stalls. For a smooth landing, I usually just cut the engine and allow the plane to glide in. The glide rate will not be nearly as long as a trainer - so be prepared. The plane will settle once it starts to lose lift. Try not to land the plane unless it is slowed down properly. Landing at excessive speed will only result in control difficulty once the plane has touched the runway.

Be careful of flutter when doing high speed dives. If you hear any flutter (characterized by a buzz sound) immediately slow the plane and land as soon as possible. Check all control surfaces, servo connections etc until you have discovered the cause.

The plane flies great in windy conditions. With proper use of rudder and an experienced pilot, it can be flown easily in wind speeds up to 20 mph.

Notes:

Note: All control surfaces are pre-hinged, however, the hinges are not glued in place. All hinges should be glued in place using high quality thin CA.



1. Carefully remove the tape holding each aileron on the wing pane. Use rubbing alcohol to remove any tape marks.

2. Remove each hinge from the wing panel/aileron and place a t-pin in the center of each hinge. Slide the hinge into the aileron until the t-pin is seated against the aileron. This will help center the hinge in the slot before it is glued.

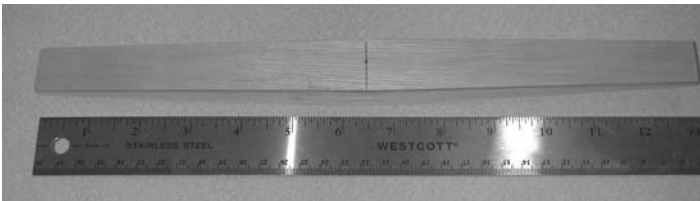
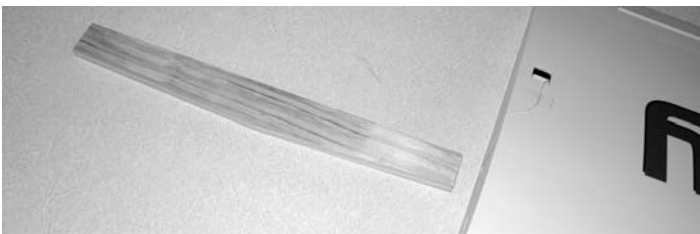


3. Slide the aileron hinges into the slots on the wing trailing edge until it is tight. Insure the end of the aileron is flush with the wingtip and there is less than a 1/32" gap between the ailerons and wing on the hinge line. Remove the t-pins from the hinges.

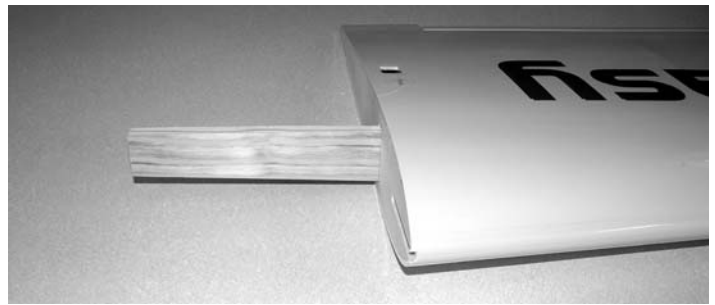
4. Deflect the aileron all the way down and saturate the hinges with thin CA. Make sure that you maintain a gap of 1/32" or less on the hinge line.

5. Turn the wing over, deflect the aileron the opposite direction and saturate the bottom side of the hinges with thin CA. Be careful not to add too much CA or it will run down the wing panel.

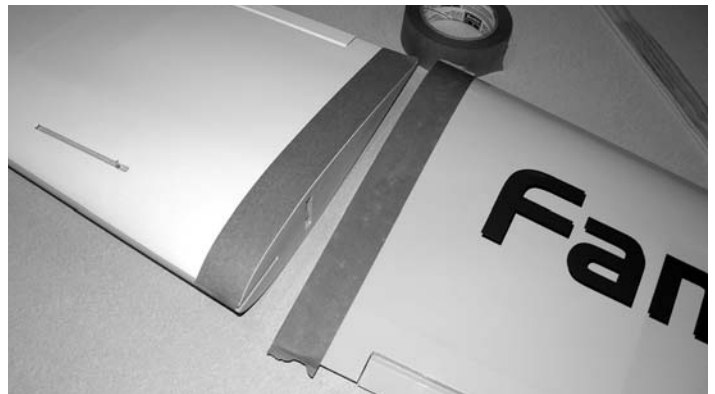
6. Repeat for the remaining wing panel.



7. Locate the plywood wing joiner and mark a line down the center of the joiner.



8. Trial fit the wing joiner into both halves of the wing. The flat side of the joiner should face the top of the wing. At this point, the wing halves should fit tightly together. If the joiner is too tight, it may be necessary to sand it in order to obtain a somewhat loose fit. This will allow room for the epoxy when the wing is glued.

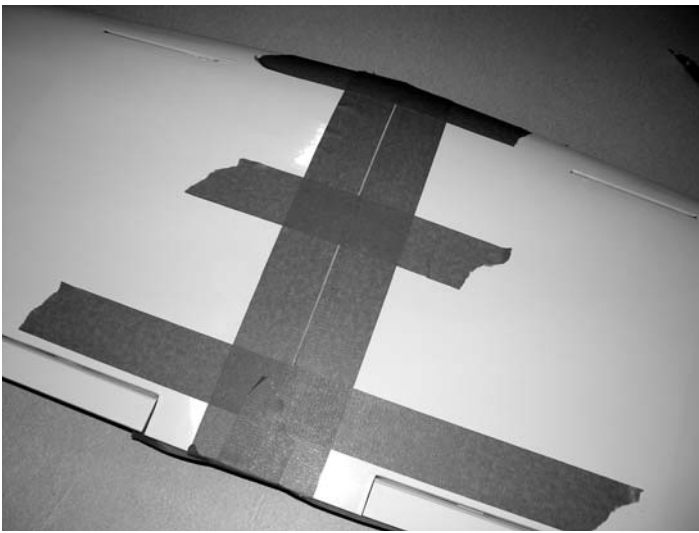


9. Apply low tack masking tape to the center top and bottom of the wing. This will insure that no epoxy gets on the wing once it is glued together.



10. Apply 30 min epoxy onto one half of the wing joiner and into the joiner cavity in one wing half. Insert the joiner into the cavity and insure the area is filled with epoxy.

11. Apply 30 min epoxy to both wing root ribs, the other side of the wing joiner and remaining joiner cavity.



12. Slide the two wing halves together and use masking tape or clamps to hold them firmly together. Make sure that the leading and trailing edges are aligned. Wipe off any excess epoxy using denatured alcohol. Allow the epoxy to dry completely.

13. Once the epoxy has cured, remove the masking tape and/or clamps.

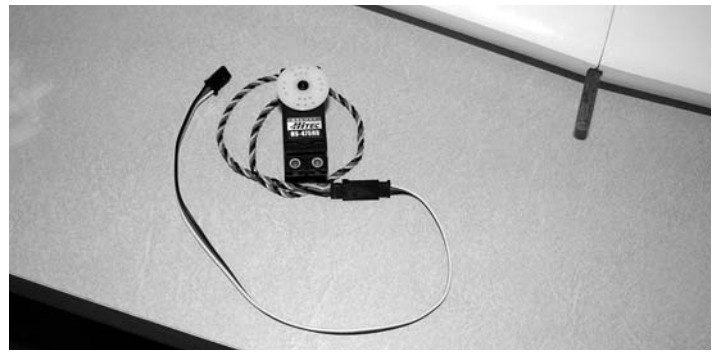


14. Cover the seam in the bottom of the wing with the covering strip provided. Set the temperature of your covering iron no higher than 250 degrees.



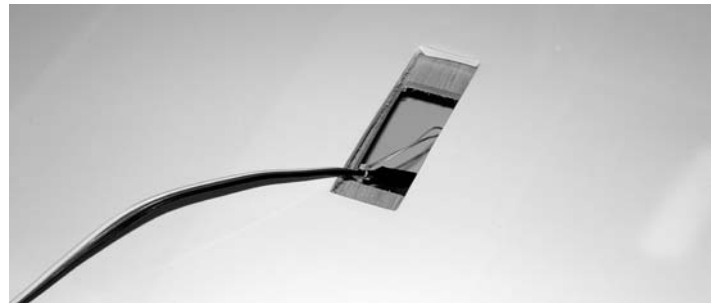
15. Test fit the wing dowel in the square hole in the leading edge of the wing. Cut the dowel so that only 5/8" sticks out from the wing.

16. Use 5 min epoxy to glue the dowel in place.



17. Connect a 12" extension to each aileron servo and test fit the servo in the hole in the bottom of the wing.

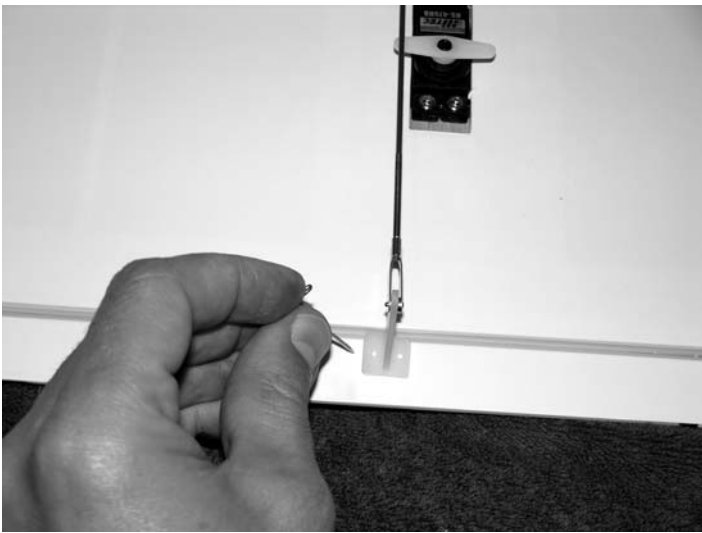
Note: You can use electrical tape or CA glue to secure the extensions to the servo lead so they do not come loose when pulling them through the wing or in flight.



18. Route the servo extension through the wing using the strings.



19. Drill holes and fasten the aileron servos in place.



20. Locate a 2-56 pushrod with threads on both ends. Cut the pushrod in half at the center.

21. Screw a 2-56 clevis on the threaded end of one of the pushrods and connect a control horn to the clevis.

22. Align the control horn on the leading edge of the aileron so it is inline with the servo arm as shown. Mark the location of the control arm holes with a pencil or pin.



23. Remove the control horn and use a 5/64" drill bit to drill the holes at the marked locations. Make sure the drill is straight when drilling the holes.

24. Reinforce the hole area with thin CA. Be careful not to use too much or it will run over the wing. We used masking tape on one side of the holes to keep the CA from running out.



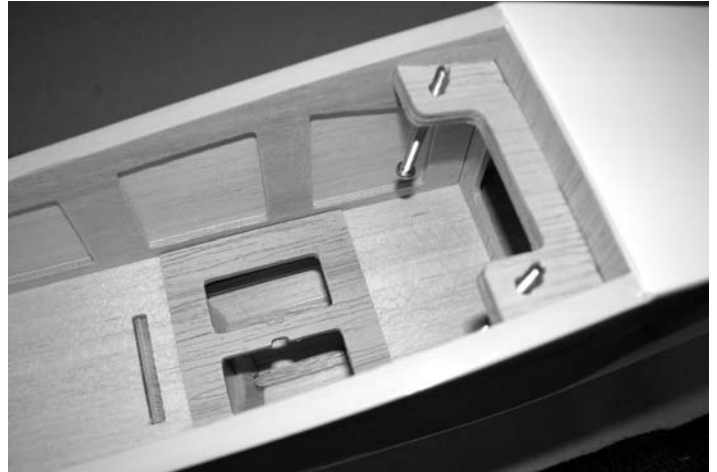
25. Install the control horn using the enclosure screws and plastic backplate.

Before connecting servos and linkages, it's a good idea to make sure the servos are properly centered.

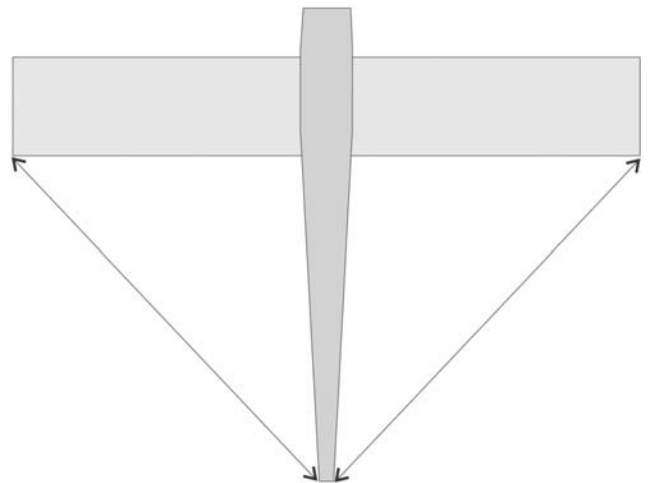


26. Measure the 2-56 pushrod by attaching a clevis to one end and attaching the clevis to the control horn. Make a Z bend at the servo arm. Attach the pushrod to the clevis and control horn. Repeat for the other aileron.

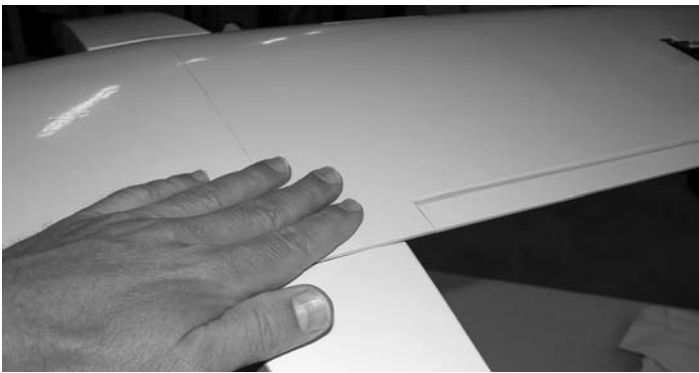
Note: The pushrod will sit on the outboard side of the servo (closer to the wingtip)



27. Install the 2" hex head wing bolts into the fuselage wing mounting plate from the bottom so they extend 1/8" above the wing saddle as shown.



28. Slide the wing into place on the fuselage. Measure and align the wings as shown on the diagram.



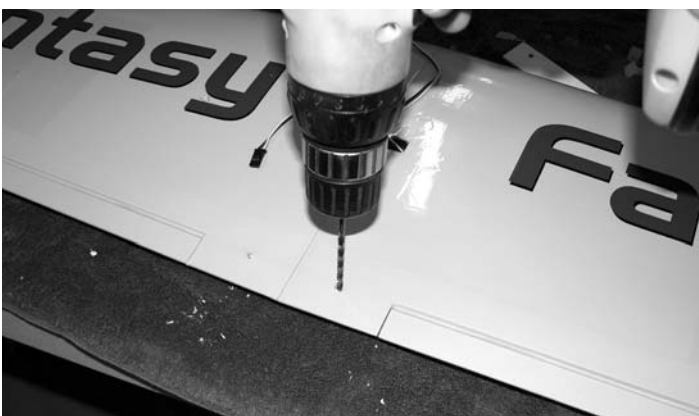
29. Once the wing is aligned, press down on the trailing edge of the wing hard enough so the bolts that were threaded in the fuselage will mark the top of the wing.



30. Remove the wing from the saddle and use a pencil to make the bolt indentations more visible.



31. Remove the covering from the holes in the plywood wing bolt mounting place and align the plate with the top of the wing so the bolt marks align with the holes in the mounting plate. You may need to adjust the marked holes slightly so they match the holes in the plate



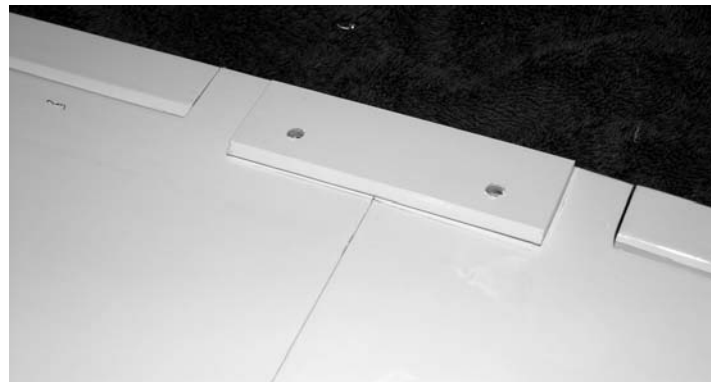
32. Drill a 5/32" hole though the wing at each mark. Be careful to insure the drill is straight or the holes will not line up correctly.



33. Turn the wing upside down and test fit the wing bolt mounting plate. Once it is positioned properly, use a pencil to mark a line around the plate.



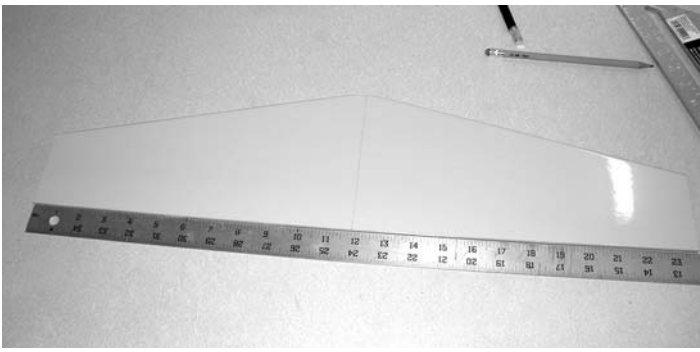
34. Remove the covering 1/18" inside the line you drew being careful not to cut into the sheeting on the wing.



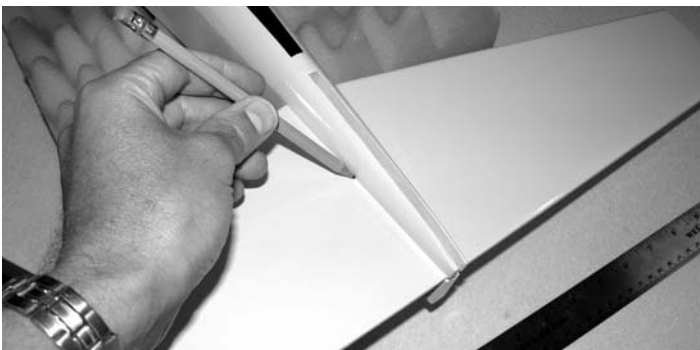
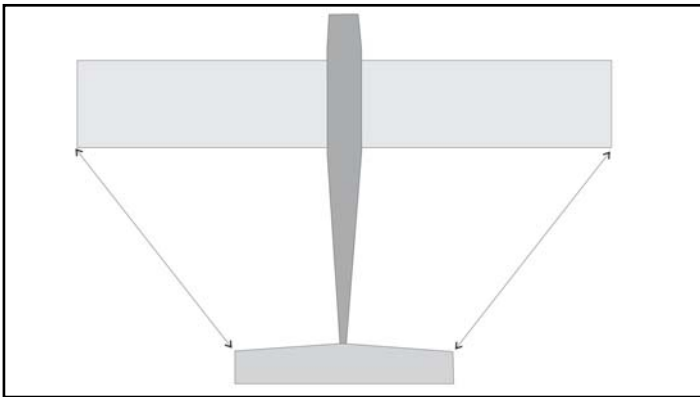
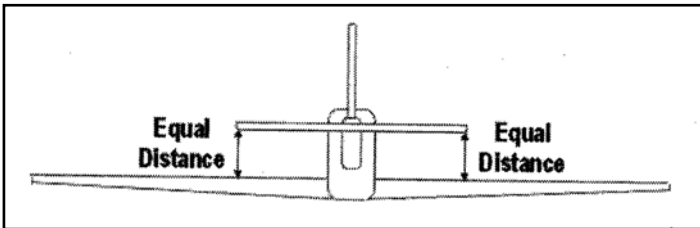
35. Use 5 min epoxy to glue the wing bolt plate in place. You can insert the wing bolts through the holes to help with alignment.



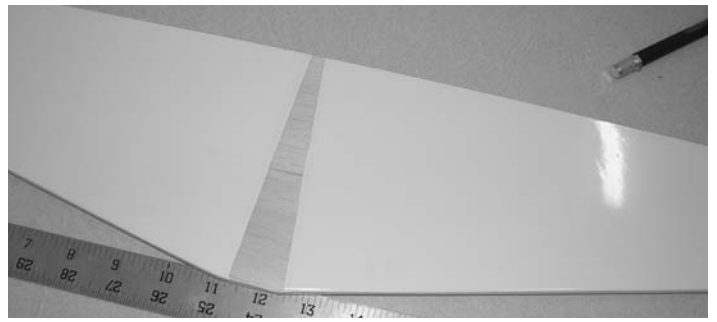
36. Use a sharp hobby knife or hot soldering iron to remove the covering from the horizontal and vertical stab slots in the rear of the fuselage.



37. Draw a line down the center of the horizontal stab. Test fit the horizontal stab in the slot on the rear fuselage. Adjust the slot as necessary for a good fit. Note: you may need to remove the back portion of the slot in order for the stab to fit. The elevator wire will fit in this slot and be covered by the rudder.



38. Align the stab with the wing as shown and use a pencil to mark a line on the top and bottom of the stab, where it meets the fuselage.



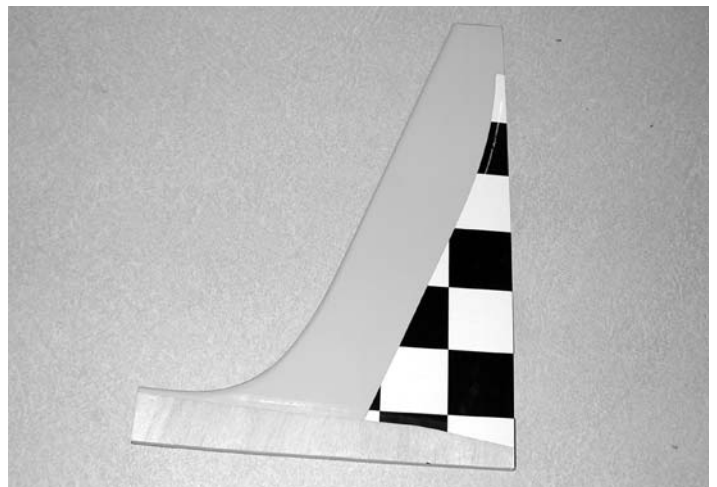
39. Using a hobby knife, carefully cut the covering about 1/8" inside the lines drawn in the previous step. Remove the covering in this area. Be sure to remove the covering on both the top and bottom of the stab.



40. Insert the horizontal stab back into the slot in the fuselage but do not glue in place.

41. Insert the vertical stab into the upper fuselage slot and lock it in place with the horizontal stab.

42. Mark a line on the vertical stab when it meets the fuselage.



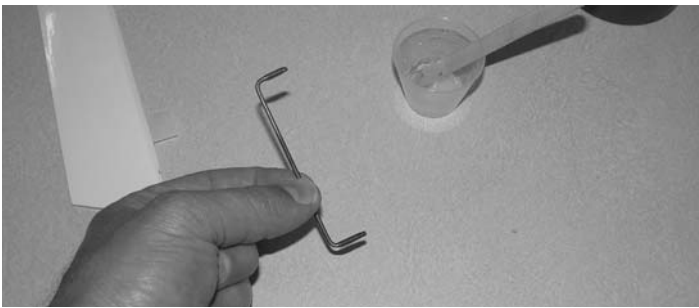
43. Using a hobby knife, carefully cut the covering about 1/8" inside the lines drawn in the previous step. Remove the covering in this area on both sides of the vertical stab.



44. Apply low tack masking tape to the edges of the vertical and horizontal stabs - where the covering was removed. This will keep the epoxy mess to a minimum.

45. Use 30 min epoxy to glue the horizontal and vertical stabs in place. You can use tape to secure them in the correct position. Wipe off any excess epoxy with paper towels and denatured alcohol.

46. Once the epoxy has cured, remove the masking tape.



47. Remove the covering from the holes and grooves on the inside leading edge of each elevator half and test fit the elevator joiner wire into the holes.

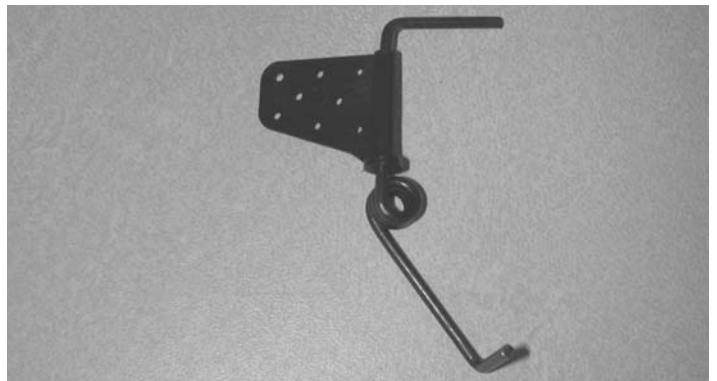
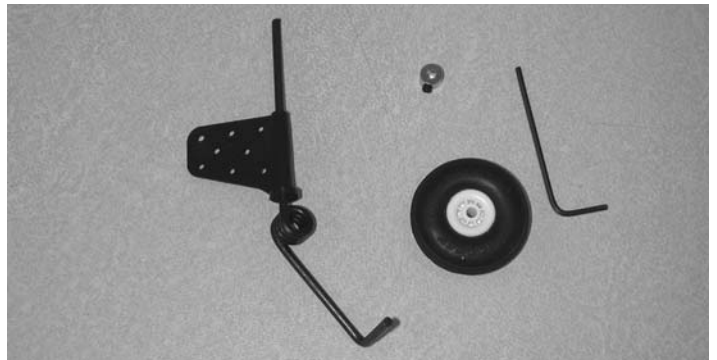
48. Apply 5 min epoxy to the ends of the elevator joiner wire where it is bent at 90 degrees.

49. Lay the elevator halves flat on a table and insert the joiner wire in the holes as shown in the photo above. Use masking tape to tape the wire tight to the elevator halves.

50. Allow the epoxy to dry, insuring that the elevator halves stay flat on the table and are straight on the leading edge.



51. Once the epoxy has cured, attach the elevator assembly to the horizontal stab and use thin CA to glue in place as was done to the aileron assembly.



52. Locate the tailwheel assembly. Place the plastic retaining piece over the tailwheel wire and make a 90 degree bend in the wire as shown.



53. Hold the tailwheel assembly up to the aft fuselage and mark the location of the plastic slot. The round "lip" should sit below the fuselage.

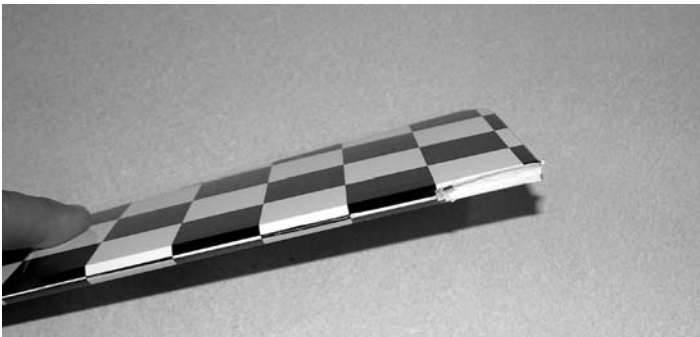


54. Cut a slot at the location previously marked. The slot should be large enough to accommodate the plastic tailwheel retainer. Make sure the slot is centered on the fin post.

55. Test fit the tailwheel assembly plastic fin in the slot.



56. Align the tailwheel assembly with the rudder so the plastic "lip" sits below the rudder. Mark the location of the 90 degree bend on the leading edge of the rudder.



57. Drill a 7/64" hole in the leading edge of the rudder at the location marked in the previous step.

58. File a groove in the leading edge of the rudder, large enough to accommodate the plastic sleeve on the tailwheel. See photo.



59. Slide the tailwheel assembly in place on the fuselage and test fit the rudder. The rudder should be able to move freely. Adjust the tailwheel hole/groove as necessary for a good fit.



60. Once a good fit is achieved, insert t-pins in the center of the rudder hinges. Insert the hinges into the rudder until the t-pins are firmly against the rudder.

61. Apply 30 min epoxy to tailwheel wire where it inserts into the rudder. Insert the tailwheel assembly into the rudder.

62. Apply 30 min epoxy to the plastic fin on the tailwheel and attach the rudder to the vertical stab. Remove the t-pins and make sure the plastic tailwheel fin is inserted firmly into the slot on the fuselage. There should be 1/32" or less gap in the hinge line.

Note: Be sure not to get epoxy in the sleeve of the tailwheel wire/plastic fin. The tailwheel needs to swivel at this point. You can add a few drops of oil at this location to help keep glue out of the hinge.

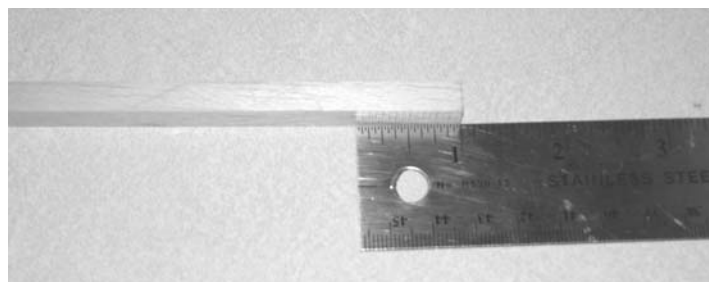
63. Deflect the rudder until it hits one side of the elevator and apply thin CA to the hinges. Be sure to maintain a 1/32" or less gap in the hinge line.

64. Deflect the rudder the opposite direction and apply thin CA to the other side of the hinges.

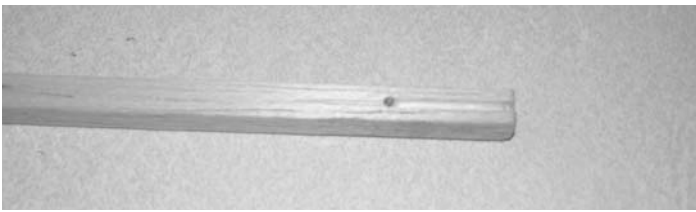
65. Allow the epoxy to cure.



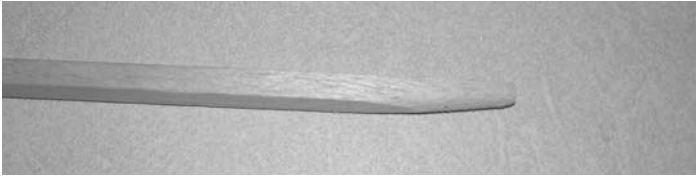
66. Use a sharp hobby knife or soldering iron to remove the covering from the pushrod slots (3) in the rear of the fuselage.



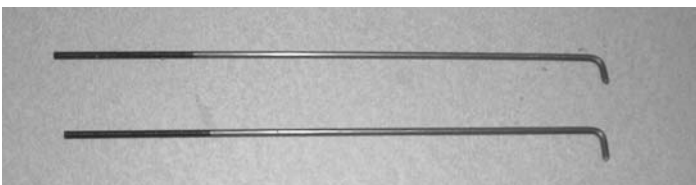
67. Locate the two hardwood pushrod dowels and drill a 5/64" hole 1" from both ends of each dowel. The hole can go completely through the dowel.



68. Using one of the threaded pushrods, file a groove into one side on both ends of the dowels. The groove should allow the pushrod to sit flush with the outside of the dowel.

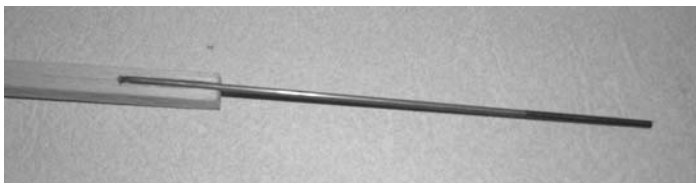


69. Taper both ends of each wood dowel so they come to a smooth point.



70. Cut 2 pushrods to 8-3/4" and make a 90 degree bend 1/4" from the non threaded end on each pushrod.

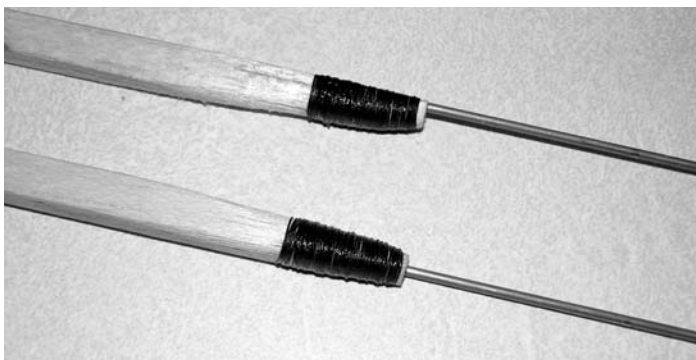
71. Make a 90 degree bend on one end of each enclosed non-threaded pushrod 1/4" from the end.



72. Insert the bent end of a threaded pushrod into one end of the first wood dowel.

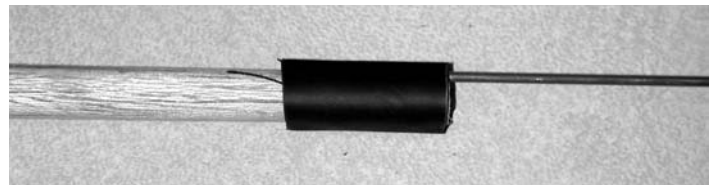
73. Insert the bent end of one unthreaded pushrod into the other end of the wood dowel as shown.

74. Locate the other wood dowel and insert the other threaded and unthreaded pushrods into it.



75. Use the enclosed string to tightly wrap the ends of each dowel, securing the pushrod to the dowel.

76. Apply thin CA to the string in order to harden it and keep it from unraveling.



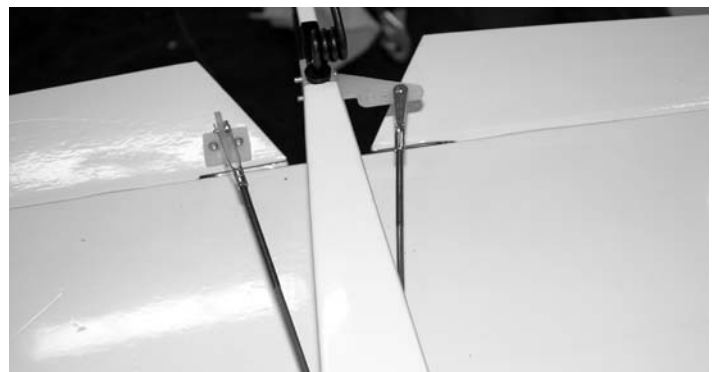
77. Cut a short piece of heat shrink tubing and slide it over the dowel/pushrod. Use a match or torch to carefully shrink the tubing. Do the same for the other dowel/pushrods.



78. Position and mark the location of the elevator control horn on the left elevator half using the same method as was used on the aileron control horns. The center of the control horn should 3/4" from the inside edge of the elevator and be even with the leading edge of the elevator.

79. Drill two 5/64" holes at the marked locations and mount the control horn using the enclosed screws and plastic backplate.

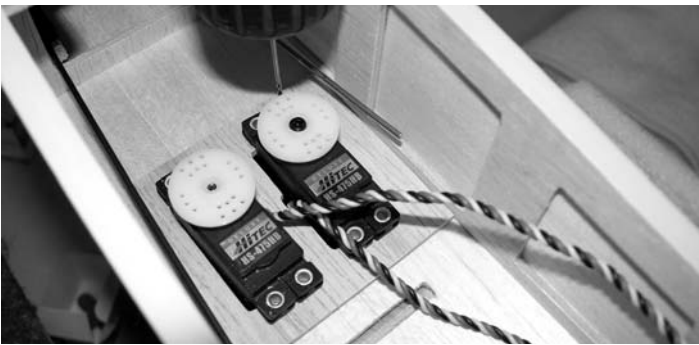
80. Mark the location of the rudder control horn 1/2" from the bottom of the rudder and on the right side. Drill holes and mount the control horn in the same fashion as described above.



81. Insert the elevator pushrod into the center fuselage and run it so the threaded end sticks through the hole in the left rear fuselage. Thread a clevis on the pushrod and attach it to the elevator horn.

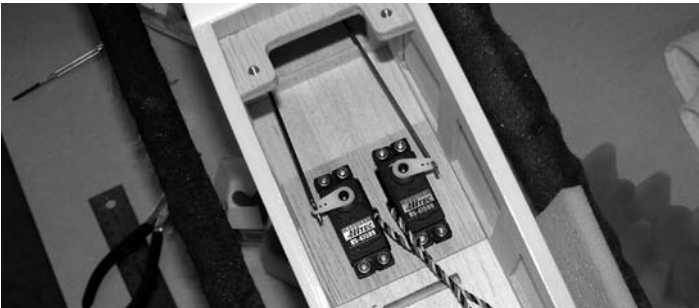
82. Insert the rudder pushrod into the center fuselage and run it so the threaded end sticks through the hole in the right rear fuselage. Thread a clevis on the pushrod and attach it to the rudder horn.

83. Slide the pushrods back and forth to insure the control surfaces move freely without binding. You may need to make small bends in the pushrods to insure there is very little friction when the pushrods move back and forth.



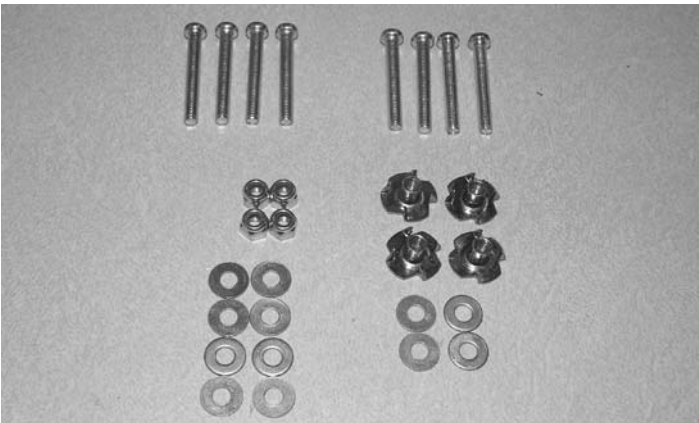
84. Mount the rudder and elevator servos as shown in the center of the fuselage.

Note: The rudder servo should be mounted on the left side and the elevator servo on the right. (the pushrods should cross over each other inside the fuselage.)

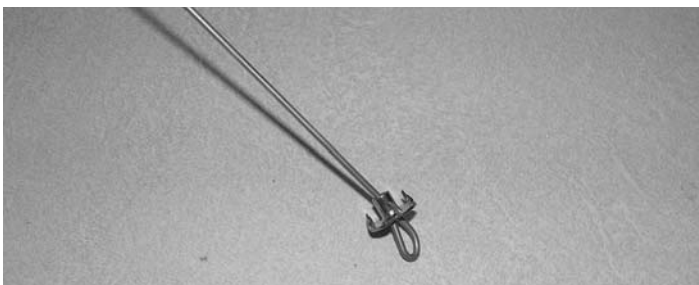


85. Use masking tape to secure the elevator and rudder control surfaces so they are perfectly centered. Measure the pushrods and mark the location of the servo arms.

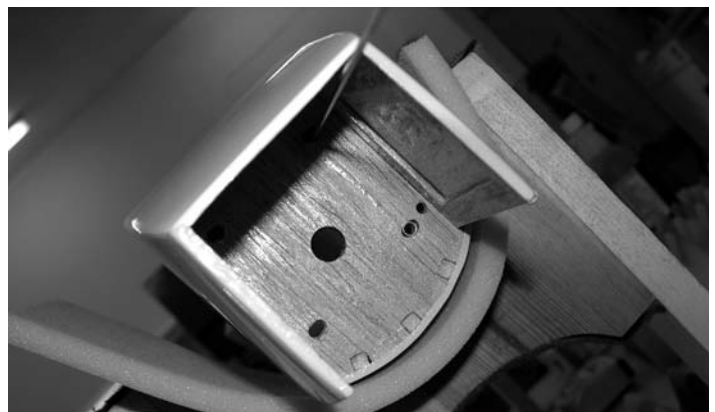
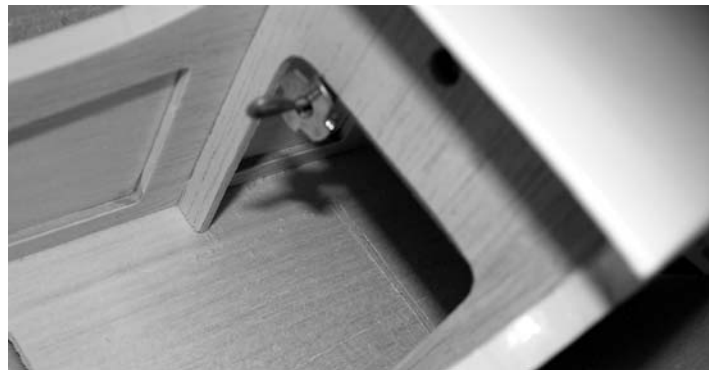
86. Make a Z-bend at the marked location and cut off the excess pushrod. With the servos centered, connect the pushrods at this time.



87. Locate the engine mounting hardware. 8 threaded screws, 4 blind nuts, 4 locknuts and 12 washers.



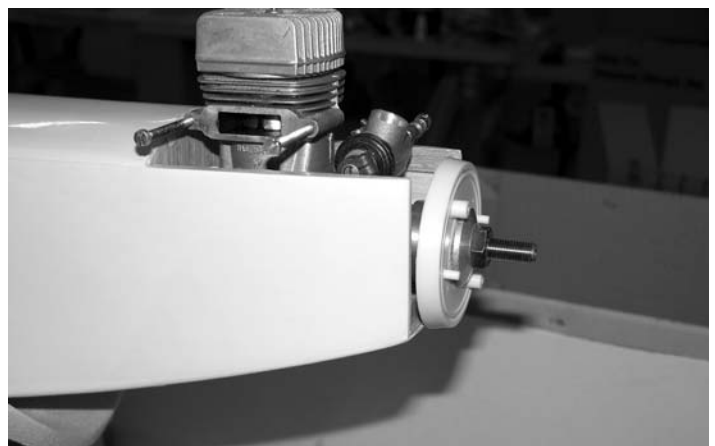
88. The easiest way to install the blind nuts into the firewall is by bending a spare pushrod and sliding a blind nut over the pushrod as shown.



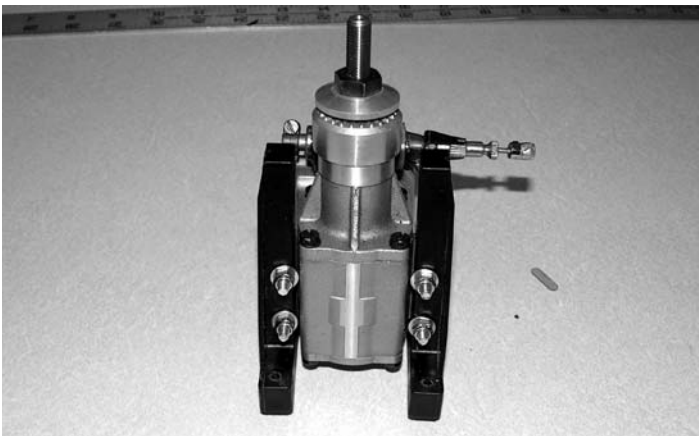
89. Insert the wire into the hole in the back of the firewall and pull firmly until the blind nut is seated into position. Do the same with the remaining blind nuts.



90. Once the blind nuts are in place, attach the engine mounts to the firewall using 4 screws and washers. Do Not tighten the mount at this time.

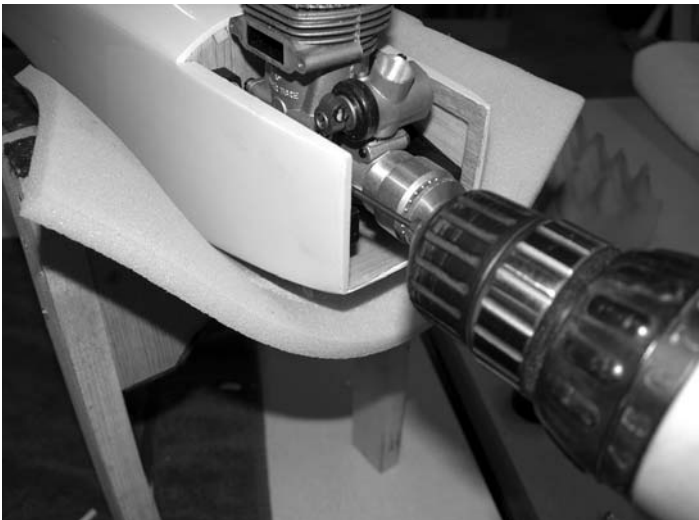


91. Bolt the spinner backplate to the engine and place the engine on the mounts so there is 1/8" of space between the front of the fuselage and the spinner backplate. Mark the location of the engine mount holes on the mount.



92. Remove the engine mounts from the firewall and drill a 5/32" hole at the locations marked in the previous step.

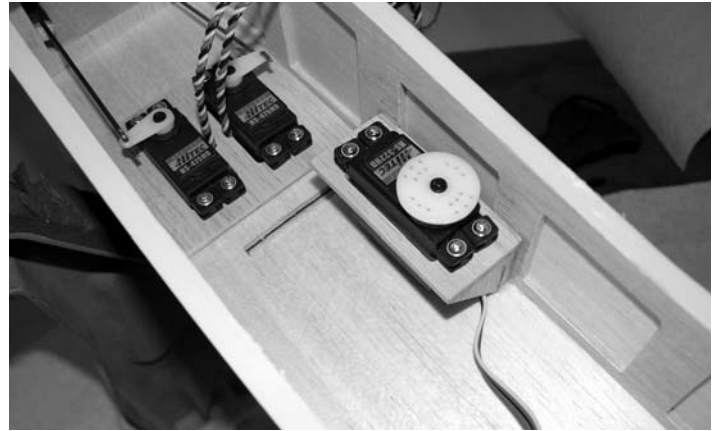
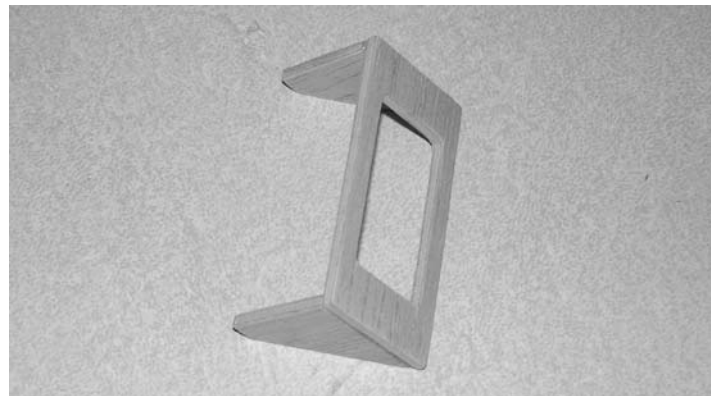
93. Use the four bolts, washers and locknuts to attach the engine to the mounts.



94. Test fit the engine/mount on the firewall and note the location of the throttle. Remove the engine and drill a hole in the firewall for the throttle pushrod.

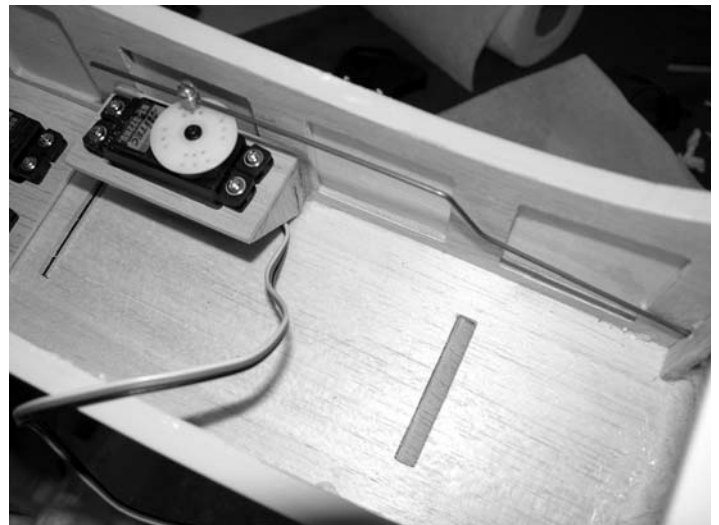


95. Install the engine/mount to securely to the firewall using the provided screws and washers. You can also use thread locking compound to insure the screws do not vibrate loose.



96. Locate the plywood servo mounting tray and use Medium CA to attach it to the inside of the fuselage side. It should be mounted on the same side as the engine throttle.

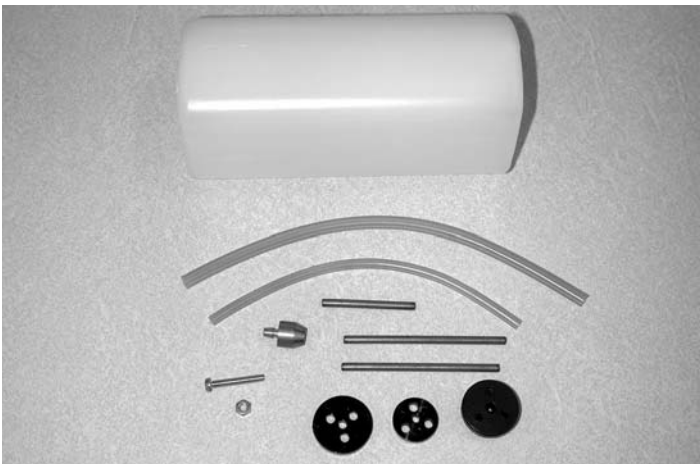
Note: Be sure to leave room to fit the fuel tank when mounting the bracket.



97. Slide the throttle pushrod through the hole you drilled in the previous steps. Attach a clevis to the forward end and attach the clevis to the throttle on the engine.

98. With the servo and the throttle arm centered, measure and make a Z bend in the other end of the pushrod and connect it to the servo arm.

Note: You can also use a screw type connector on the servo for easier adjustment.



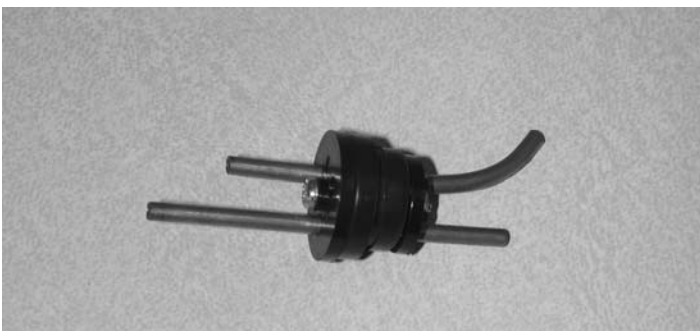
99. Locate the fuel tank and hardware.



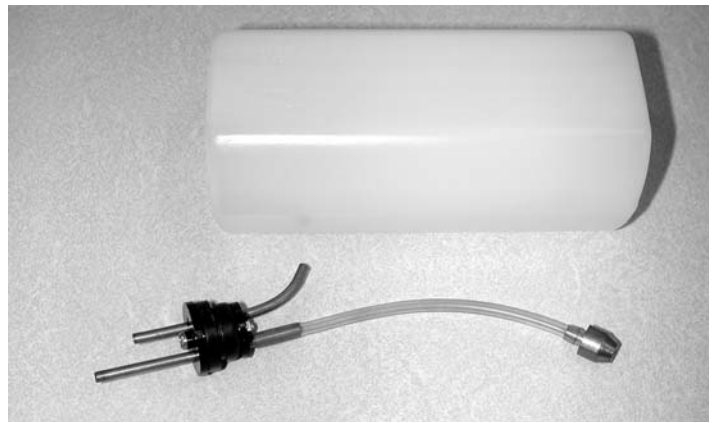
100. Locate the rubber stopper. Insert one of the brass tubes into an open hole in the stopper so an equal amount of tubing extends from each end of the stopper. Insert the other brass tube into the other open hole in the same fashion.

101. Slide the smaller plastic cap onto the small end of the stopper. Slide the larger cap over the tubes on the other end of the stopper.

102. Insert the threaded bolt into the cap on the large end of the stopper. Insert the nut in the tabs on the other end and thread the bolt into the nut. Do not tighten at this time.



103. Make a 60 - 90 degree bend in one of the brass tubes as shown. Be careful not to kink the tube. You can insert a small pushrod into the brass tube to help bend it without kinking.



104. Install the short piece of fuel line on the unbent brass tube.

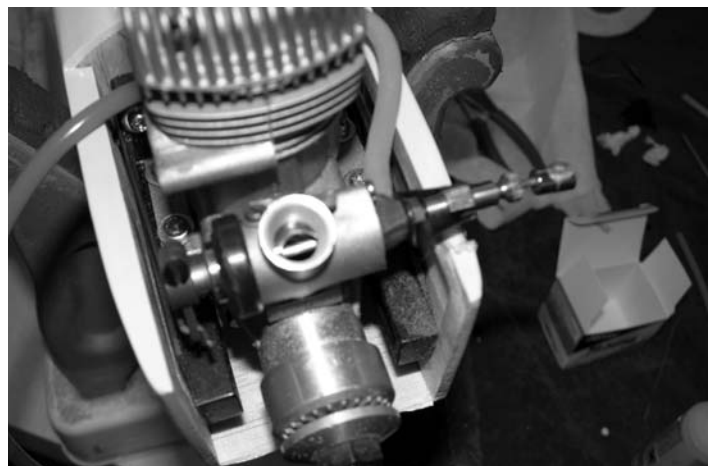
105. Measure the length from the stopper to the back of the fuel tank - less the length of the metal clunk.

106. Cut the fuel line to size and install the metal clunk



107. Install the stopper assembly into the fuel tank with the angled tube pointing up towards the top of the tank. It may be necessary to lightly sand the opening in the tank so the stopper will fit.

108. Tighten the bolt until the stopper is secured and mark the top of the tank for later referral.



109. Connect 2 pieces of fuel tubing to the brass tubes in the fuel tank and slide the tank into the front cut-out in the fuselage. Route the fuel tubing through the hole in the firewall and seat the front of the fuel tank in that hole. You can use silicone to seal the hole once the fuel tank is in position.

110. Cushion the sides of the fuel tank by adding pieces of foam rubber around the sides, top and bottom of the tank. This will help prevent fuel foaming.



111. Locate the main landing gear slots in the bottom of the wing and remove the covering from the slots.

112. Slide the main gear into the gear block as shown.



113. Locate two plastic gear straps and wood screws. Space the gear straps evenly across the gear wire/gear block as shown and install them using the wood screws. Note: You can drill a 1/16" hole into the gear blocks to make the screw installation easier.

114. Locate and install a wheel collar on the gear wire as shown.



115. Slide the wheel onto the gear wire and secure it using the enclosed wheel collar. Note: Use thread locking compound on this wheel collar to keep it from loosening.



116. Slide the tailwheel into place on the tailwheel wire and secure it with the 3/32" wheel collar.



117. Carefully trim the canopy around the scribed lines and test fit onto the fuselage. Trim as necessary for a good fit.

118. Glue the canopy in place with epoxy or RC-56 canopy glue. Use masking tape to secure the canopy until it dries.

Center of Gravity

119. Set the center of gravity by turning the plane upside down and using your fingertips or a plane balancer to balance the plane **4 inches** from the leading edge of the wing at the fuselage.

Note: You can move the radio receiver and battery to help with balance, otherwise add weight to the appropriate location to achieve the proper balance.

120. Secure the receiver and battery. Also route the antenna through or outside the fuselage.

121. Connect any needed servo extensions and install all required switches, charging jacks, etc.

122. Set the control surfaces to the proper throws.

Control Throws

Aileron

Low rates: 1/4" up, 1/4" down

High rates: 3/8" up, 3/8" down

Elevator

Low rates: 1/2" up, 1/2" down

High rates: 5/8" up, 5/8" down

Rudder

Low rates: 1-3/8" right, 1-3/8" left

High rates: 1-3/4" right, 1-3/4" left