SAVAGE LIGHT
INDUSTRIES

F-4 PHANTOM II

Construction Guide

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You should read this construction guide completely and study the plans to become familiar with all of the assembly steps before you begin construction of the model. There may be some differences between what can be seen in the photos and what is seen on the plans and in the kit pieces. The plans and parts set contain the most recent revisions.

You should not remove any of the laser cut parts from their sheets until you are prompted to do so in this guide. Some of the pieces are small and easily lost while others are delicate and easily broken.

You may use whatever glue that you are comfortable with to build this model. Cyanoacrylate (CA) glue was used for most of the construction on the prototypes. Carpenter's wood glue was used to glue the wing sheeting to the wing ribs and quick-set epoxy was used to join the wing stub spar mounts to the fuselage. Medium-set epoxy was used to join the fins to the fuselage. Slow-set epoxy was used to join the wings to the fuselage and laminating epoxy was use for the reinforcements for horizontal stabilizer and on the inner to outer wing joints.

For parts of the construction and/or assembly of the prototype that required alignment over the plans such as the construction of the wings and fuselage and for the joining of the wings to the fuselage, the plan was taped to the backside of a large sheet of glass which is then placed on a flat building surface. The wing spars, ribs and/or assembly jigs were glued directly to the glass. If you want to use another method, make sure that the parts and/or jigs can be securely attached to the building surface.

While all laser cut parts are labeled with their part number, a large portion have also been etched with alignment marks and building hints to help you correctly orient the part during construction. An arrow etched onto a part indicates that the arrow should point to the centerline of the model. The word "front' etched onto a part means the "front" should be toward the nose.

This kit includes the finest contest-grade balsa sheeting available. Even so, there will be differences in density and grain making the sheet stiffer or softer. Carefully inspect the wood prior to construction and separate them according to their intended usage. Use the stiffest wood for the flat portions of the fuselage and save the softer and more flexible pieces for the round portions. Save the softest wood for sheeting of the 'spine', or top curved portion of the fuselage between the engine nacelles.

The exception to this is the 1/16" wing sheeting. For the wing, you'll want to use the stiffer pieces on the section of the wing ahead of the spars so that the wing sheeting doesn't "cup" between the wing ribs giving the wing the the so-called "starved horse" look.

Due to variations in the width of the wood, the 1/2" triangle stock used for the upper and lower corner blocks of the fuselage may not be exactly 1/2" wide. When building the fuselage, align the triangle stock so it is flush with the inner outline of on the plane. This will ensure that there is a good glue joint between the bulkheads and the corner blocks. You can add filler pieces to the outside of the corner blocks once the fuselage has been removed from the building board.

This construction guide shows the curved portion of the fuselage sheeting being applied section by section. If you'd rather plank the fuselage with strips of wood, feel free to do so as there is enough wood included in the kit for either method.

This model was designed to use either 90mm or 3-1/2" fan units and brushless motors and speed controllers. There are two sets of bulkhead pieces used to mount the fan unit included in the kit. These are B7, B7-1 and B8. Each set has a one-letter suffix -A and -B. The -A parts are intended for 90mm fan units and the -B parts are meant for 3-1/2" fan units.

Before beginning construction, check the fit of these parts on the fan unit you're going to use and then use those parts when you build your model. In addition to the -A and -B parts, the aft inner inlet wall (I2) has a tic-mark near the top and bottom of the rear edge. If you're using the -B parts, I2 requires no modification. If you're using the -A parts, use a steel rule and a hobby knife to modify I1 to fit your fan unit. Lay the steel rule on I2 so one end is flush with the front corner and the other end is flush with the tic-mark and cut away the upper and lower portions of I1 to shorten the height of the back of I2 to allow it to fit inside B7-1A.

You can use NiCad, Nimh, or LIPO batteries for the motor batteries. We recommend that you use of a separate receiver battery pack instead of a BEC for maximum safety and reliability. We also recommend the use of metal-geared servos for the same reason.

While the model was intended for use with Mini Spring Air 600-series retract units, you can substitute any brand including the Electric Jet Factory mini units or the Jet Hangar Hobbies mini units. The landing gear plates have been left undrilled so that they can be used with any brand of retracts.

This kit does not include the landing gear struts or the wire from which they're made. You'll need to obtain 1/8" music wire or whatever size will fit into your retracts and bend them to the proper shape shown on the plans. Do not use soft foam tires as they will dramatically increase the rolling resistance even to the point of preventing the model from taking off the ground. Instead, select moderately firm wheels which will minimize the rolling resistance and allow the model to accelerate quickly.

Vertical Fin Construction

Photo 1

☐ 1. Cut from their sheets R1, R2, R3, R4 and R5 (1/4" balsa) Lightly sand the edges, then glue R1, R2, R3 and R4 together the pieces over sandwich wrap to make the veritcal fin. Do not glue R5 to the vertical fin at this time. (Photo 1)

Photo 2

☐ 2. Mark the centerline of the leading edge of R6 and the hinge locations. Make sure the lower hinge location is above to location of the rudder torque rod. Cut slots in the R6 for the hinges and slip them into place, but do not glue them at this time. (Photo 2)

Photo 3

☐ 3. Mark the centerline of the trailing edge of the vertical fin as well as the hinge locations and cut the slots for the hinges. Assemble, but do not glue the rudder and the vertical fin. (Photo 3)

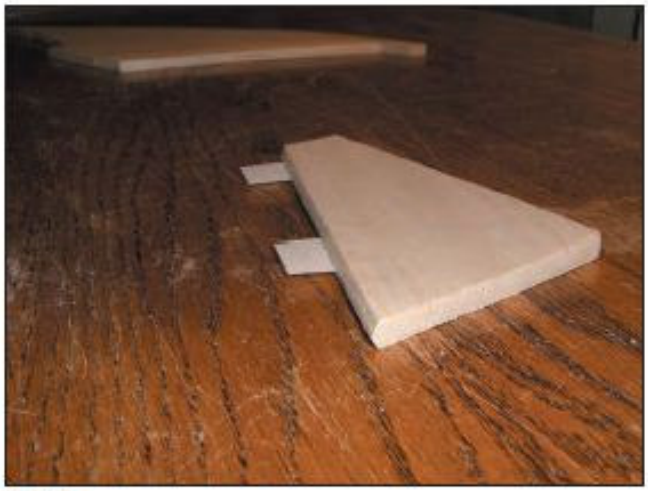

Photo 4

☐ 4. Use a razor plane and emory board to bevel the leading edge of the rudder. (Photo 4)

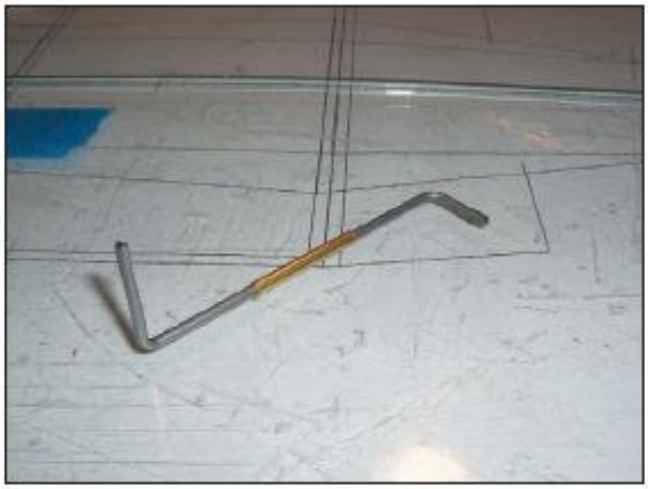

Photo 5

☐ 5. Cut a 1" length of 1/8" O.D. brass tubing (not supplied). Ream the inside of the tube to remove any burrs. Slip one aileron torque rod (not supplied) into the brass tubing. Bend the aileron torque rod as shown to make the rudder torque rod. (Photo 5)

Photo 6

☐ 6. Mark the location of the rudder torque rod on the leading edge of the rudder. Drill a 1/8" hole into the rudder. Use a hobby knife and sandpaper to cut a 1/8" wide half-round channel in the leading edge of the rudder. The channel should be deep enough so the leading edge of the rudder can sit flush against the vertical stab when the the rudder torque rod is in place. Use a razor knife and sandpaper to make a 1/8" wide and 1/8" deep half-round channel in the leading edge of F5. The channel should be deep enough to allow the leading edge of F5 to be flush with the vertical stab when the torque rod is in place. Set the vertical fin and rudder aside for now. (Photo 6)

Horizontal Tail Construction

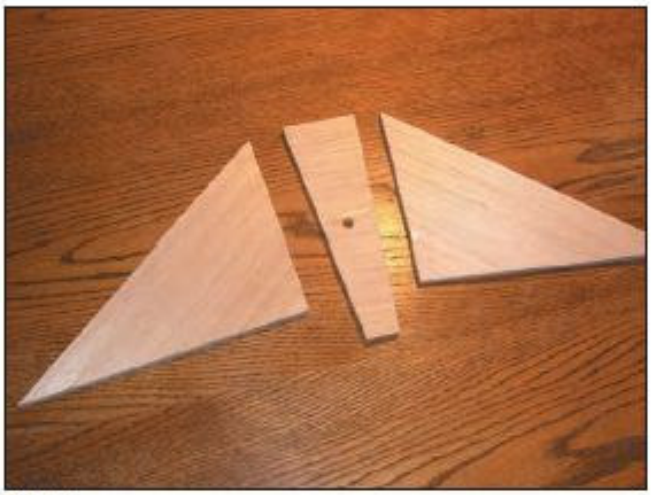

Photo 7

☐ 7. Cut from their sheet, two E1, two E2, E3-1 and E3-2 (1/4" balsa). Glue each E1 and E2 together over clear sandwich wrap to make each half of the horizontal stab. Glue E3-1 and E3-2 together over sandwich wrap to make the horizontal stab center section. (Photo 7)

Photo 8

☐☐ 8. Cut from their sheets two Stab Jigs (1/8" lite ply) Stand one of the Stab Jigs up on the end and use it as a guide to sand a bevel onto one side of the horizontal stab center section as shown. Repeat for the other side. (Photo 8)

Photo 9

☐☐ 9. Measure and mark a line on the trailing edge of the horizontal stab that is 1/16" from the top of the stab. Mark the hinge locations on the stab. Measure and mark a line on the leading edges of the elevator and mark the hinge locations. Repeat for the other side. (Photo 9)

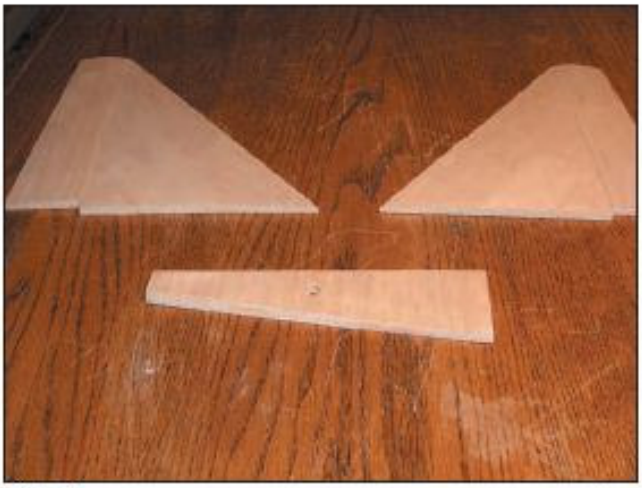

Photo 10

☐☐ 10. Cut a slot for the hinges into the horizontal stab and elevator and join them together. Flip the elevator over so the bottom is facing up and sand it so it ends up with an inverted Clark-Y profile. Repeat for the other side. (Photo 10)

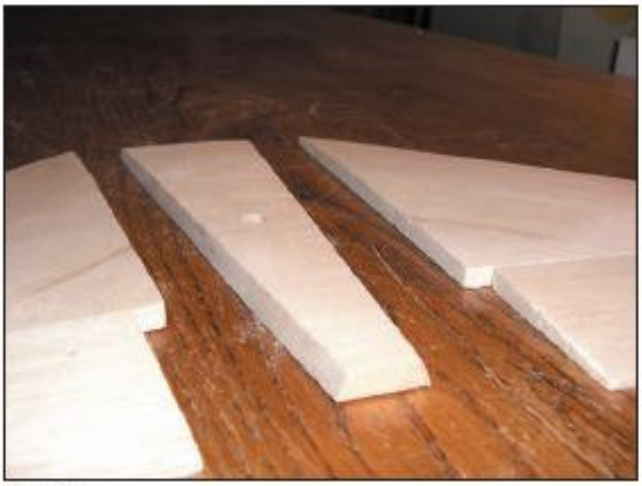

Photo 11

☐ 11. Sand the horizontal stab center section to match the profiles of the horizontal stabs. (Photo 11)

Photo 12

☐ 12. Tape a piece of clear sandwich wrap down to the building board (Photo 12)

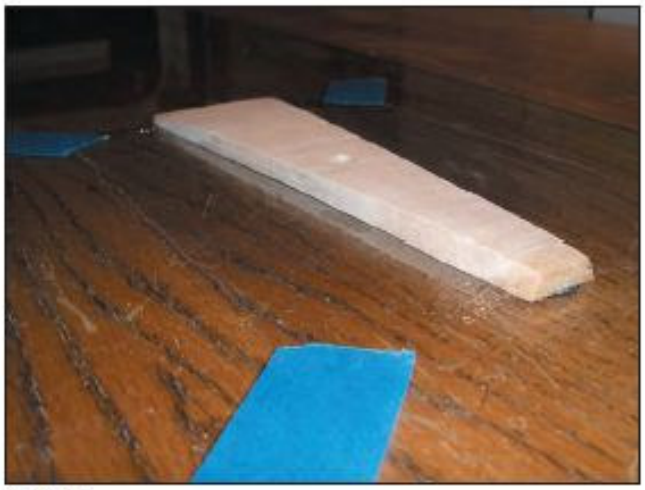

Photo 13

☐ 13. Tack glue the horizontal stab center section to the center of the sandwich wrap. (Photo 13)

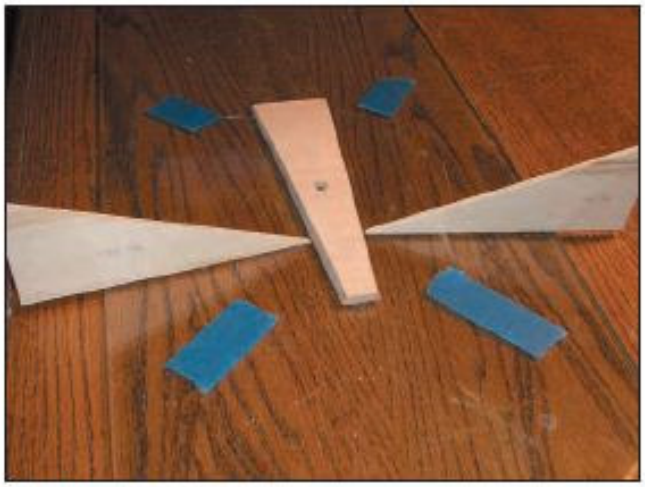

Photo 14

☐☐ 14. Position the Stab Jig so it is perpendicular to the edge of the side of the horizontal stab center section and secure it to the building board. Repeat for the other side. (Photo 14)

NOTE: The horizontal stab center section in this next photo sequence is the contiguration used on the prototype. This was changed for the production kit. The trailing edge of the horizontal stab center section should be flush with the trailing edge of the horizontal stab and the front of the center section should be recessed about 1/2" from the leading edges of the horiztonal stab.

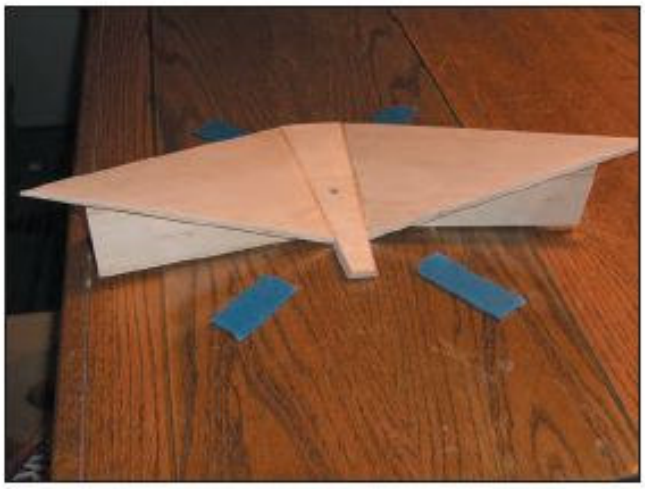

Photo 15

☐☐ 15. Position and glue the horizontal stab to the horizontal stab center section. Repeat for the other side. (Photo 15)

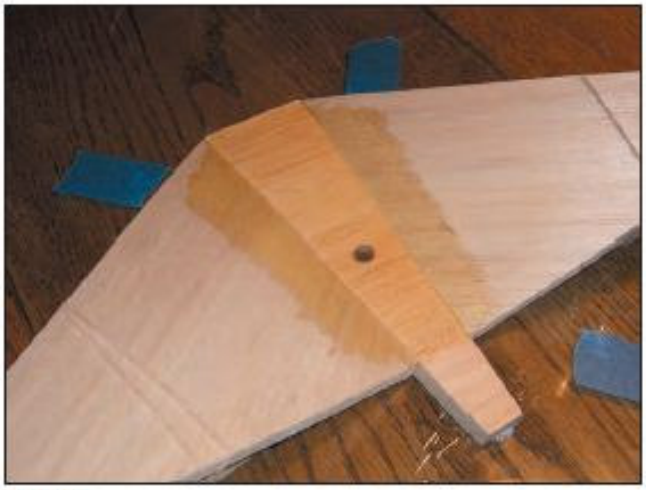

Photo 16

☐ 16. Cut a piece of 4 oz.fiberglass cloth that is big enough to cover the entire horizintal stab center section and about 1" of each horizontal stab Use laminating epoxy to wet out the cloth to reinforce the horizontal stab joints. Let dry overnight. (Photo 16)

Photo 17

☐ 17. Once the glue has dried, remove the horizontal stab from the building board. Find a piece of scrap styrofoam or wood that is wide enough and tall enough to support the horizontal stab as shown. Cut another piece of 4 oz. fiberglass cloth that is big enough to cover the horizontal stab center section and about 1" of each horizontal stab. Use laminating epoxy to wet out the cloth. Tape a piece of clear sandwich wrap over the wet cloth and use your finger to feather the edges of the wet epoxy to make a smooth transition to the dry balsa. Let this dry overnight. When dry, remove the sandwich wrap and set the horizontal stab and elevators aside for now. (Photo 17)

Wing Construction

NOTE: The wings are built and sheeted upside down over the plans.

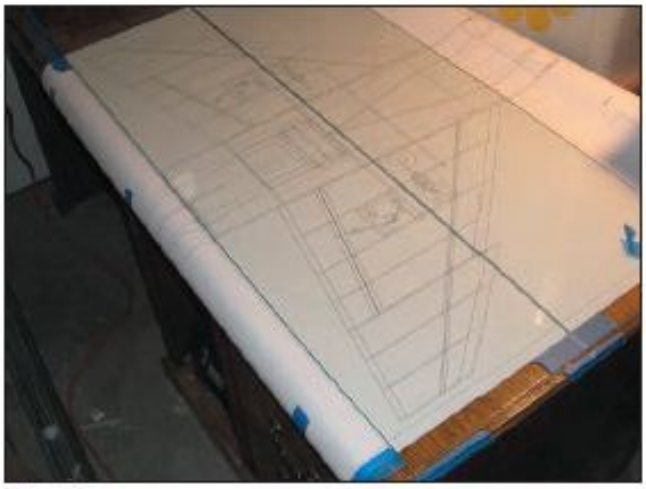

Photo 18

☐ 18. Secure the plans on the building board. (Photo 18)

Photo 19

☐☐ 19. Using 1/16" sheet balsa, make up the wing skins for the inboard and outboard wing panels as shown. Note the stiffness and grain and use the stiffer grain wood for the leading edge sheet to prevent cupping between the wing ribs. Make a set for the top and bottom of the inboard wing panel and a set for the top and bottom of the outboard wing panel. Repeat for the other side. (Photo 19)

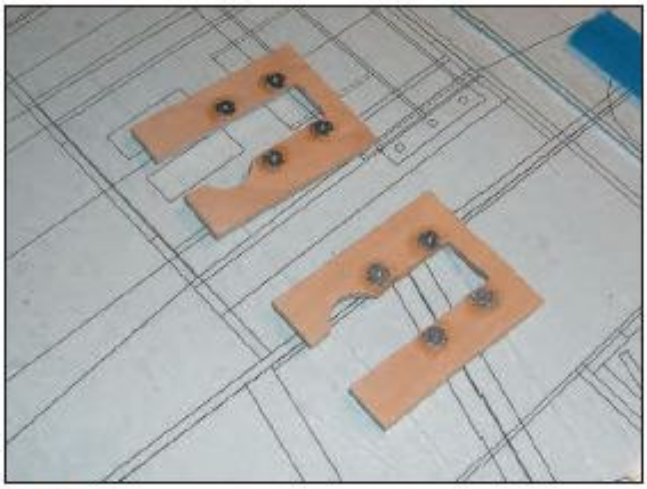

Photo 20

☐ 20. Cut from their sheets two MG main landing gear mounts (1/8" birch ply). Using your main landing gear retracts as a guide, drill 4 1/8" holes in each MG. Press a 2-56 blind nut into each hole on the top side of the MG and secure them with glue. (Photo 20)

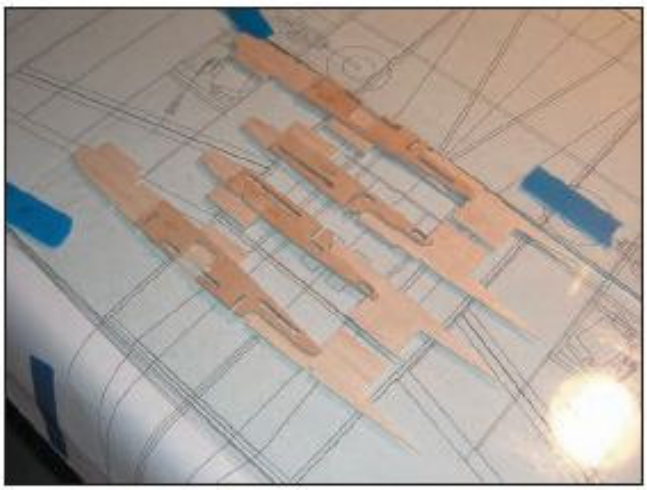

Photo 21

☐☐ 21. Cut from their sheets, two W2 and two W3 (1/16" balsa) and two W2-1 and two W3-1 (1/8" birch ply). Position and glue W2-1 to the ouboard face of W2 and glue W3-1 to inboard face of W3. Repeat for the other side. (Photo 21)

NOTE: Be sure to make right and left side set that are mirror-images of each other.

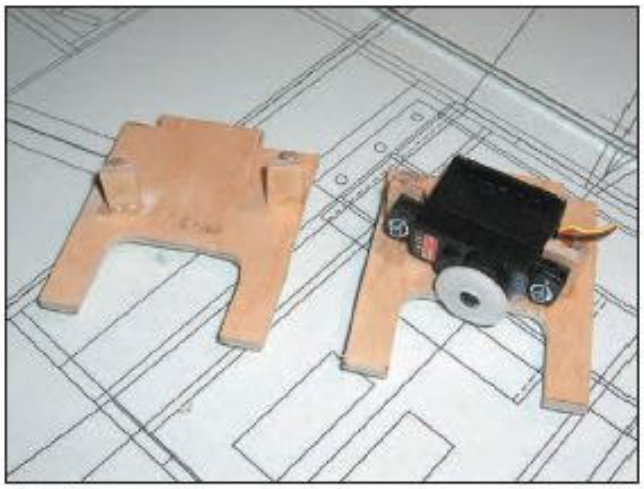

Photo 22

☐☐ 22. Cut from their sheets two SM1 servo mounts (1/8" birch ply), four SM2 servo mounting plates and four SM3 servo mount gussets (1/8" birch ply). Position and glue the SM3 gussets to the SM2 mounts. Make sure to glue the SM3 to the outer edges of SM2 to leave room for the servo wires and servo mounting screws. When the glue is dry, position and glue these assemblies to the SM1 servo plates. Make sure to make one left side and one right side. (Photo 22)

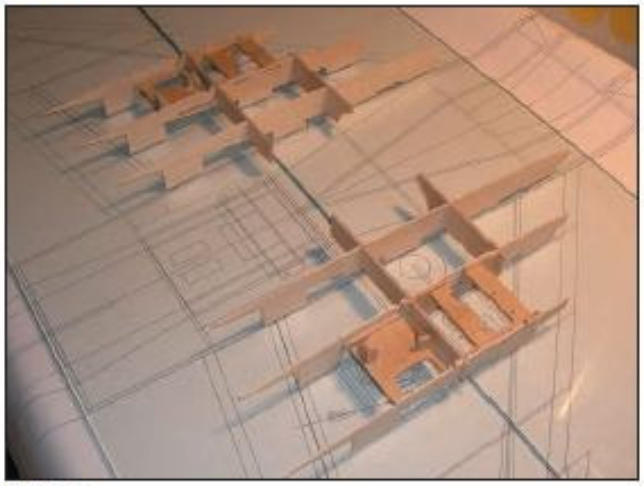

Photo 23

☐☐ 23. Cut from their sheets, two W1 (1/16" balsa), two FS and two RS (1/8" birch ply). Assemble, but do not glue W1, W2, W3 to the FS and RS. Slide the servo mount and the MG mount into place between W2 and W3. Make sure that the servo mount is facing to the bottom of the wing and the blind nuts on the MG mounts are toward the top of the wing. Position these over the wings, but do not secure them to the building board. Repeat for the other side. (Photo 23)

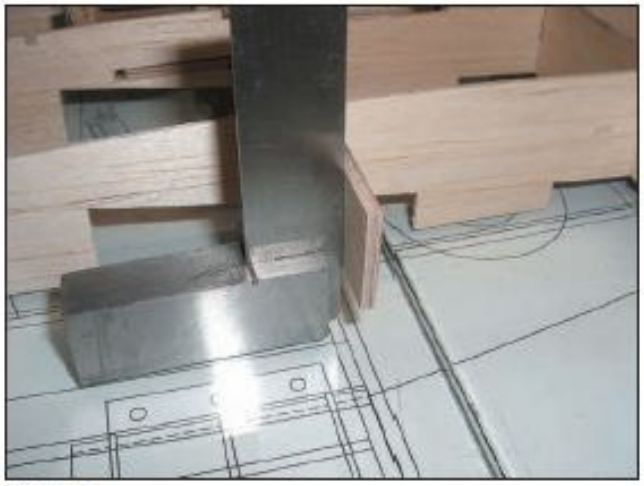

Photo 24

☐☐ 24. Use a building square to position the spars and W1 rib to the building board over the plans and to make sure the spars and ribs are perpendicular to the building board. Use the building square to position each rib and secure the ribs to the bulding board. Once this is done, glue all of the joints together. Repeat for the other side. (Photo 24)

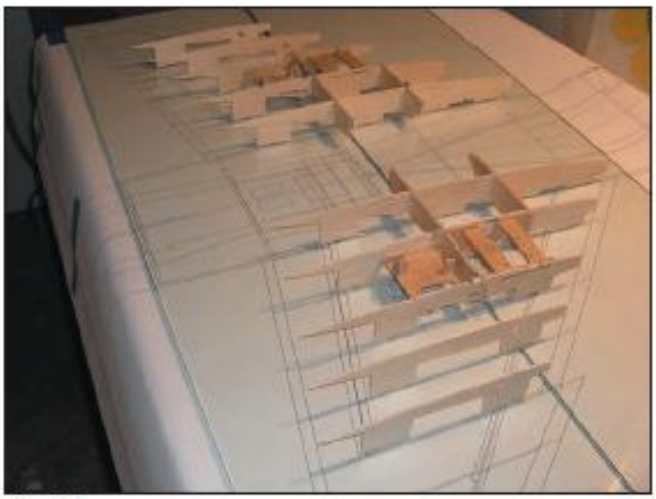

Photo 25

☐☐ 25. Cut from their sheets, two W4, W5 and W6 (1/16" balsa). Use the building square to position and square the ribs over the plans and secure them to the building board. Repeat for the other side. (Photo 25)

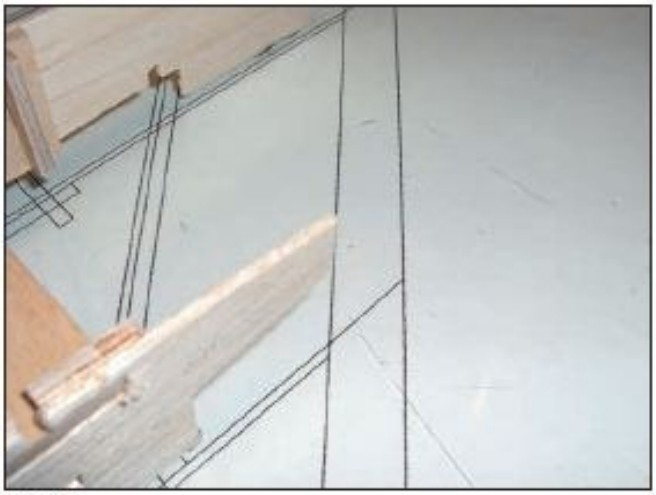

Photo 26

☐☐ 26. Use a sanding block or emory board to bevel the leading edges of the wing ribs to match the angle of the leading edge of the wing. Repeat for the other side. (Photo 26)

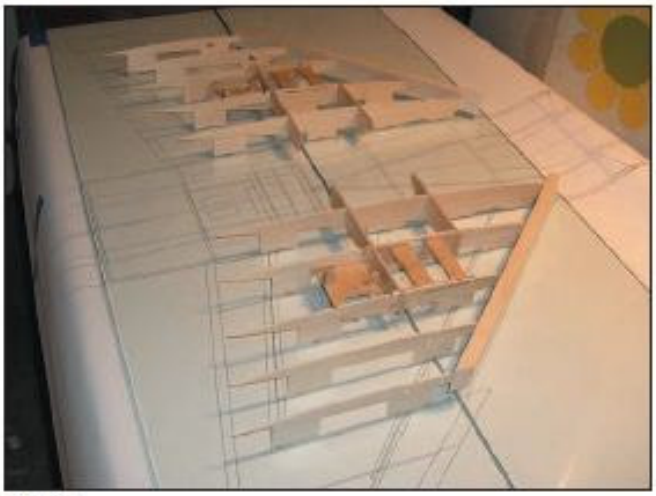

Photo 27

☐☐ 27. Measure and cut two leading edges from 1/2" x 3/4" balsa sticks. Position and glue these to each of the wing ribs. Repeat for the other side. (Photo 27)

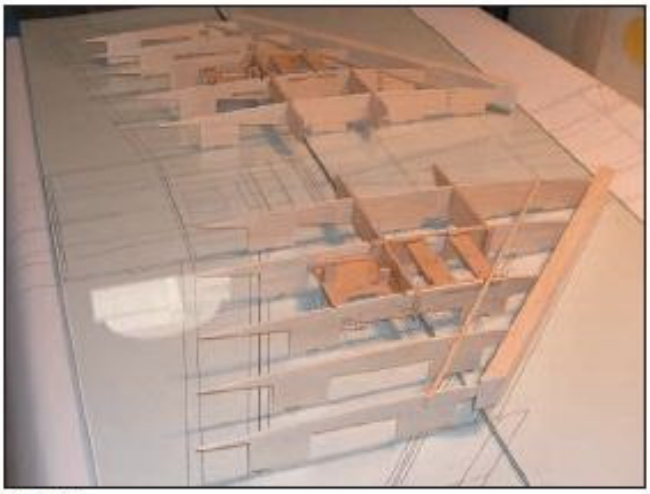

Photo 28

☐☐ 28. Measure and cut a main wing spar from a 1/8" balsa stick. Position and glue the spar into the wing spar slots in the bottom of the wing ribs. Repeat for the other side. (Photo 28)

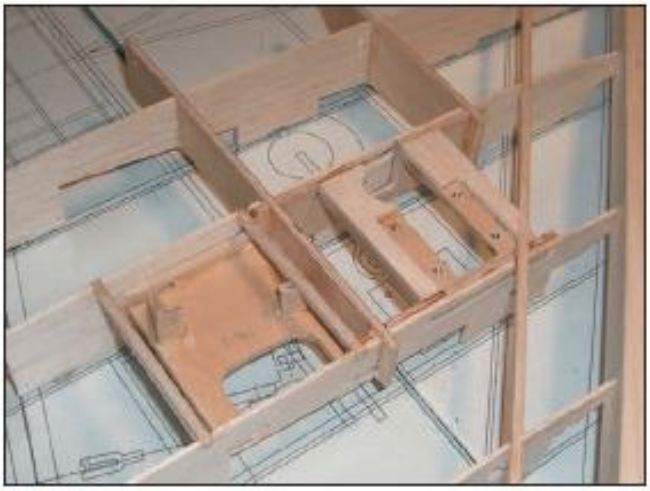

Photo 29

☐☐ 29. Cut two servo hatch doublers from a 1/8" balsa stick. Position and glue these into the bottom of W2 and W3. Cut MG doublers from 3/16" scrap balsa. Make sure to leave enough space for your retract, then glue them to the MG mount. Sand them to match the wing profile between W2 and W3. Repeat for the other side. (Photo 29)

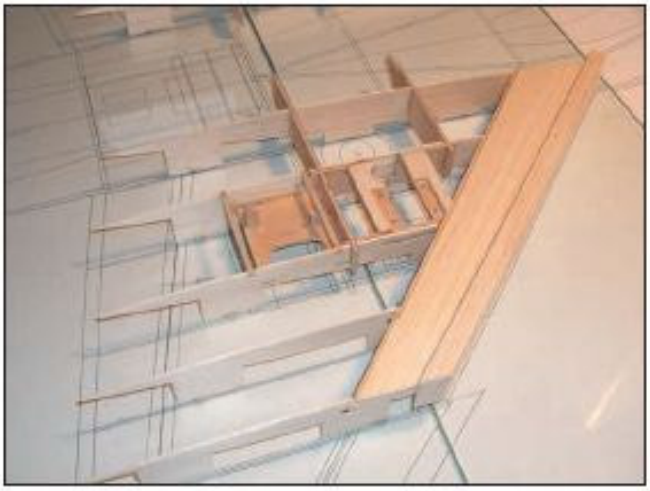

Photo 30

☐☐ 30. Position the forward wing sheeting over the wing between the leading edge and the main spar. Trim the trailing edge of the forward sheeting so it covers only the forward half of the main spar, leaving room for the aft wing sheeting to be glued to the rear half of the main spar. When you're satisfied with the fit, run a bead of carpenter's glue along the top of each wing rib between the main spar and the leading edge stock. Position the leading edge sheeting against the back of the leading edge stock and use thin CA to glue the sheeting to the leading edge. Push the sheeting down against the main spar and use thin CA to glue the sheeting to the main spar. Repeat for the other side. (Photo 30)

Photo 31

☐☐ 31. Test fit the aft wing sheeting to the wing. When satisfied, run a bead of carpenter's glue along each wing rib, along the FS and RS stub spars, along the servo opening doublers and along the MG doubler. Position the sheeting to the main spar and use thin CA to glue the sheeting to the main spar. Use a sand baggy or magazines to weight down the wing sheeting and let the glue dry overnight. Repeat for the other side. (Photo 31)

Photo 32

☐☐ 32. Carefully remove the wing panel from the building board and trim the building tabs flush to the tops of the wing ribs. Run a thin bead of glue along all joints to reinforce the glue joint. Repeat for the other side. (Photo 32)

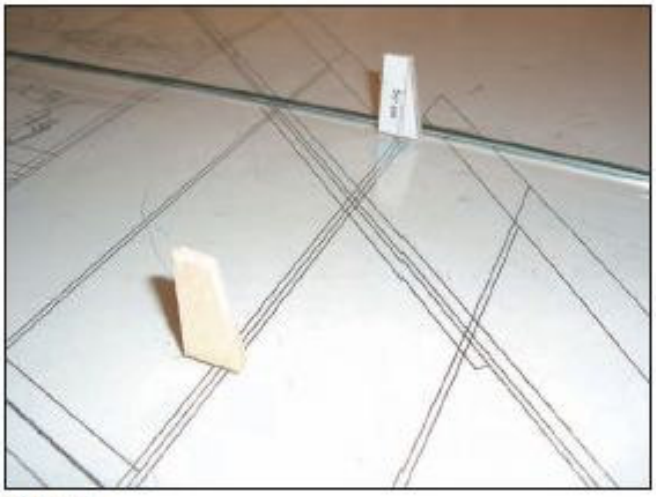

Photo 33

☐☐ 33. Cut from their sheets, four W6 jigs (1/8" lite ply). Using the alignment marks etched into each W6 position and secure them to the building board over the joint line between W5 and W6. Repeat for the other side. (Photo 33)

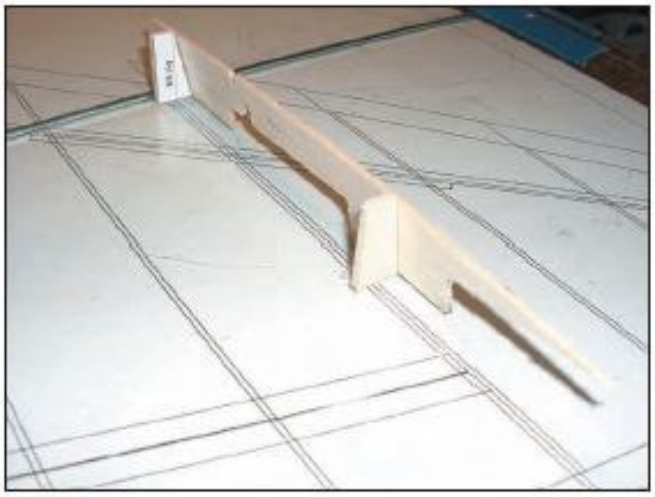

Photo 34

☐☐ 34. Cut from their sheets two W6 wing ribs (1/16" balsa). Lay W6 against the two W6 Jigs and use the building square to align it to the leading edge. Secure W6 to the building board and tack glue it to both W6 Jigs. Repeat for the other side. (Photo 34)

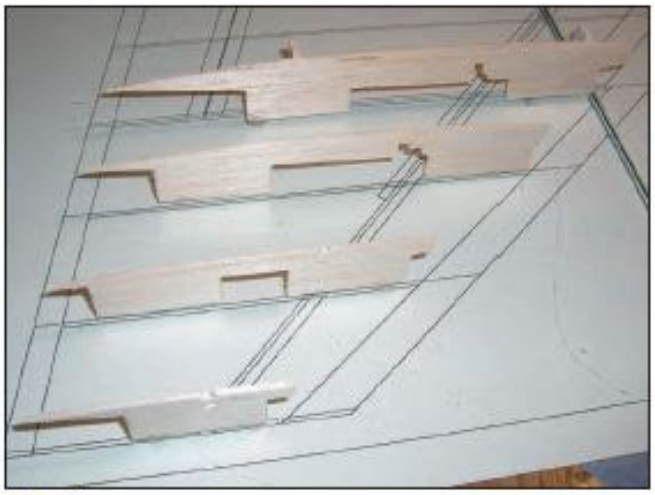

Photo 35

☐☐ 35. Cut from their sheets, two W7, W8 and W9 wing ribs (1/16" balsa). Use the building square to align these to the leading edge and secure these to the building board. Repeat for the other side. (Photo 35)

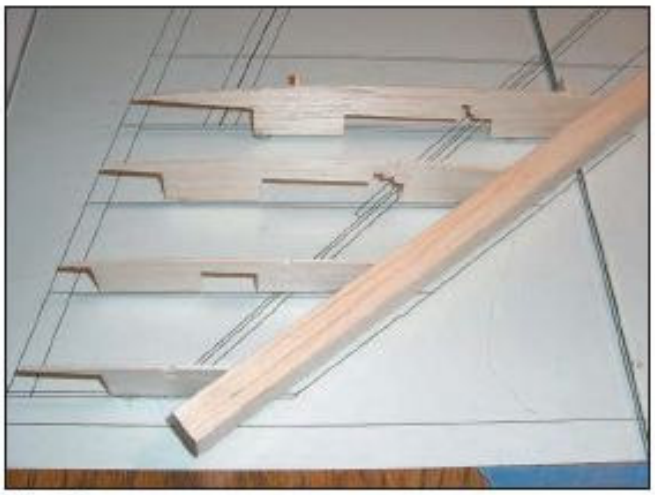

Photo 36

☐☐ 36. Use a sanding block or emory board to bevel the leading edges of the wing ribs to match the angle of the leading edge like you did in Step 26. Measure and cut two leading edges from 3/4" balsa sticks. Position and glue these to each of the wing ribs. Repeat for the other side. (Photo 36)

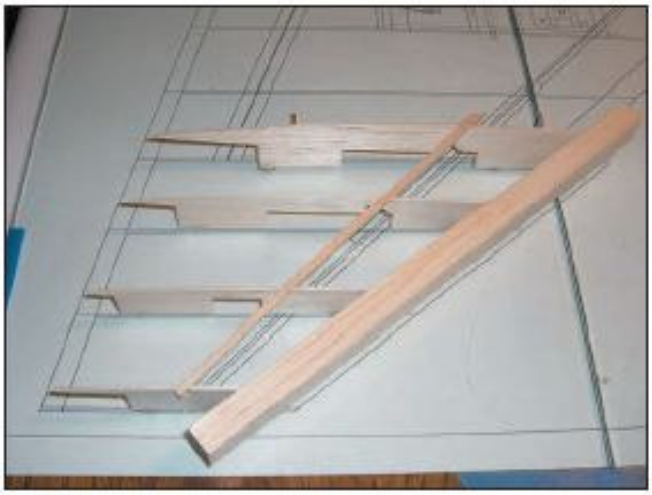

Photo 37

☐☐ 37. Measure and cut a wing spar from a 1/8" balsa stick. Position and glue this into the wing spar slots in the bottom of the wing ribs. Repeat for the other side. (Photo 37)

Photo 38

☐☐ 38. Position the forward wing sheeting over the wing between the leading edge and the main spar. Trim the trailing edge of the sheeting so it covers only the forward half of the main spar, leaving room for the aft wing sheeting to be glued to the rear half of the main spar. When you're satisfied with the fit, run a bead of carpenter's glue along the top of each wing rib between the main spar and the leading edge stock. Position the leading edge sheeting against the back of the leading edge stock and use thin CA to glue the sheeting to the leading edge. Push the sheeting down against the main spar and use thin CA to glue the sheeting to the main spar. (Photo 38)

Photo 39

☐☐ 39. Test fit the aft wing sheeting to the wing. When satisfied, run a bead of carpenter's glue along each wing rib. Position the sheeting to the main spar and use thin CA to glue the sheeting to the main spar. Use a sand baggy or magazines to weight down the wing sheeting and let the glue dry overnight. Repeat for the other side. (Photo 39).

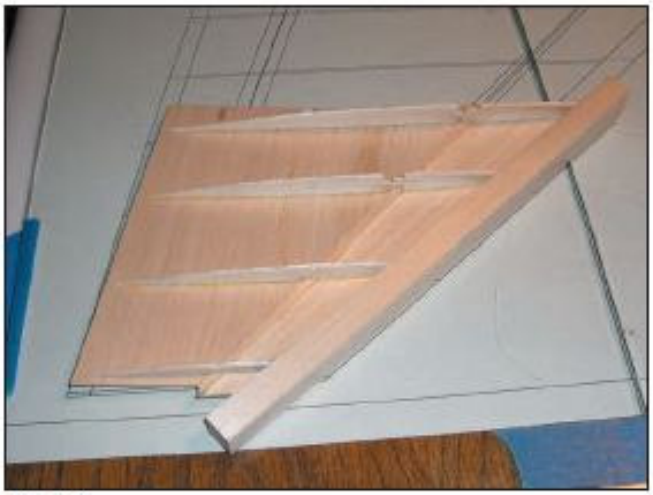

Photo 40

☐☐ 40. Carefully remove the wing panel from the building board and trim the building tabs flush to the tops of the wing ribs. Run a thin bead of glue along all joints to reinforce the glue joint. Repeat for the other side. (Photo 40)

Photo 41

☐☐ 41. Cut from their sheets, two WJ-1 and two WJ-2, two WJ-3 and two WJ-4 (1/8" lite ply). Use the building square to align WJ-1 over W1 rib location and WJ-2 over W6 wing rib location and secure these to the building board so the front corners of WJ-1 and Wj-2 are even with the aft face of the leading edge stock. Repeat for the other side. (Photo 41)

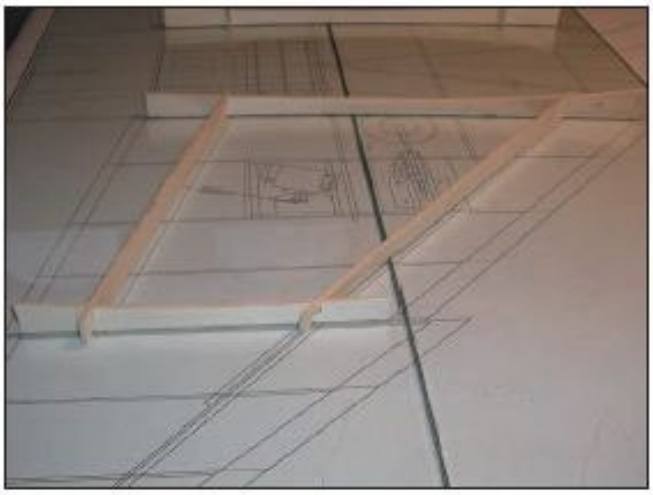

Photo 42

☐☐ 42. Slide WJ-3 into the forward slots in WJ-1 and WJ-2 and slide WJ-4 into the aft slots into WJ-1 and WJ-2. Tack glue all of the joints to keep the wing jigs from moving. Repeat for the other side. (Photo 42)

Photo 43

☐☐ 43. Put the inner wing panel into the wing jig with the aft face of the leading edge stock resting against the front corners of WJ-1 and WJ-2. Align the wing panels so that the wing ribs W1 is resting on WJ-1 and W6 is resting on WJ-2. Tack glue the wing panel to WJ-3 and WJ-4 so it doesn't move. Repeat for the other side. (Photo 43)

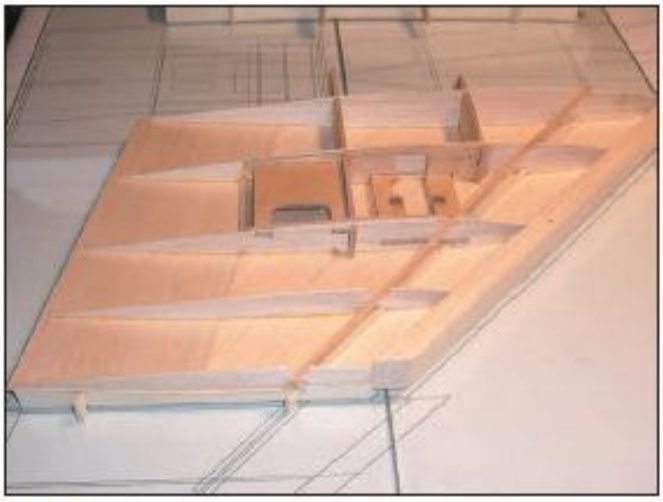

Photo 44

☐☐ 44. Cut a main spar from a 1/8" balsa stick and slip it into the main spar slots in the tops of the wing ribs and glue it in place.. Repeat for the other side. (Photo 44)

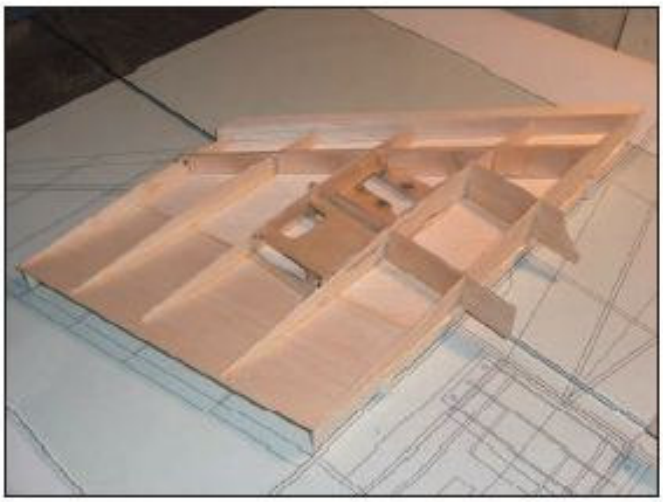

Photo 45

☐☐ 45. Using 1/16" balsa sheet, cut and glue the shear webs between the wing ribs and to the aft faces of the top and bottom main spars. Make sure the grain of the shear webs runs vertically. Repeat for the other side. (Photo 45)

Photo 46

☐☐ 46. Position the forward wing sheeting over the wing between the leading edge and the main spar. Trim the trailing edge of the sheeting so it covers only the forward half of the main spar, leaving room for the aft wing sheeting to be glued to the rear half of the main spar. When you're satisfied with the fit, run a bead of carpenter's glue along the top of each wing rib between the main spar and the leading edge stock. Position the leading edge sheeting against the back of the leading edge stock and use thin CA to glue the sheeting to the leading edge. Push the sheeting down against the main spar and use thin CA to glue the sheeting to the main spar Repeat for the other side. (Photo 46)

Photo 47

☐☐ 47. Test fit the aft wing sheeting to the wing. When satisfied, run a bead of carpenter's glue along each wing rib, and along the FS and RS stub spars. Position the sheeting to the main spar and use thin CA to glue the sheeting to the main spar. Use a sand baggy or magazines to weight down the wing sheeting and let the glue dry overnight. Repeat for the other side. (Photo 47)

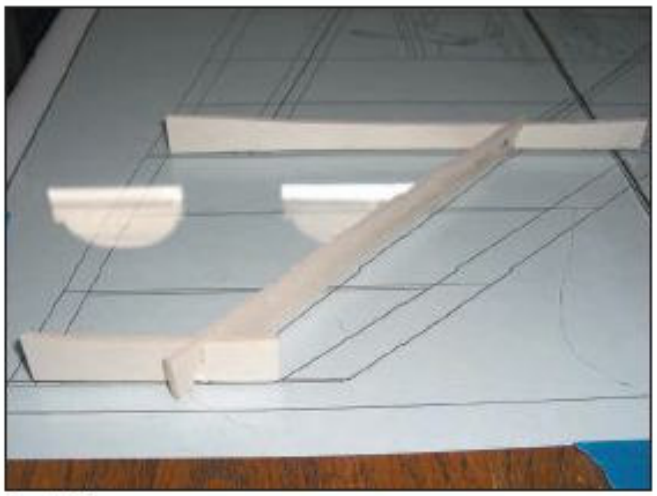

Photo 48

☐☐ 48. Cut from their sheets two WJ-5, two WJ-6 and two WJ-7 wing jigs (1/8" lite ply). Use the building square to position WJ-5 and WJ-6 so the front corners are aligned with the aft face of the leading edge stock and over wing ribs W7 and W9. Secure these to the building board. Slide WJ-7 into the slots in WJ-5 and WJ-6 and tack glue the joints. Repeat for the other side. (Photo 48)

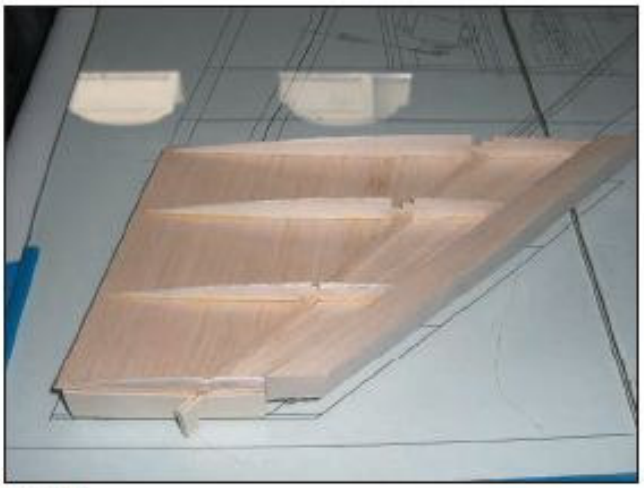

Photo 49

☐☐ 49. Put the outer wing panel into the wing jig with the aft face of the leading edge stock resting against the front corners of WJ-5 and WJ-6. Align the wing panels so that the wing ribs W7 is resting on WJ-5 and W9 is resting on WJ-6. Tack glue the wing panel to WJ-7 so it doesn't move. Repeat for the other side. (Photo 49)

Photo 50

☐☐ 50. Cut two main spars from 1/8" balsa sticks and slide them into the main spar slots in the tops of the wing ribs. Using 1/16" balsa sheet, cut and glue the shear webs between the wing ribs and to the aft faces of the top and bottom main spars. Make sure the grain of the shear webs runs vertically. Repeat for the other side. (Photo 50)

Photo 51

☐☐ 51. Test fit, then position and glue the forward wing sheeting using the same technique you used for the inner wing panels using CA and carpenter's glue. Test fit the aft wing sheeting to the wing and position and glue it using the same technique you used for the inner wing panels. Weight the wing sheeting and let the glue dry overnight. Repeat for the other side. (Photo 51)

Photo 52

☐☐ 52. Once the glue has dried, remove the outer wing panel from the jigs. Using a razor saw, hobby knife and sanding block, sand the leading edge stock and wing sheeting flush with the wing ribs. Cut the wing sheeting so it is flush with the rear of the wing ribs and glue the top and bottom sheeting together using thin CA. Measure and cut two trailing edge pieces from 1/2" x 1/8" stock and glue them to the trailing edges of the wing sheeting. (Photo 52)

Photo 53

☐☐ 53. Use a razor plane and sanding block to shape the leading edges and trailing edges so they are even with the wing sheeting. (Photo 53)

Photo 54

☐☐ 54. Measure and mark the position of the forward aileron spar stock onto the W6 rib. (Photo 54)

Photo 55

☐☐ 55. Tape some clear sandwich wrap around the W6 rib to prevent it from being glued to W7 rib when you join the inner and outer wing panels Repeat Steps 52-55 for the other side. (Photo 55)

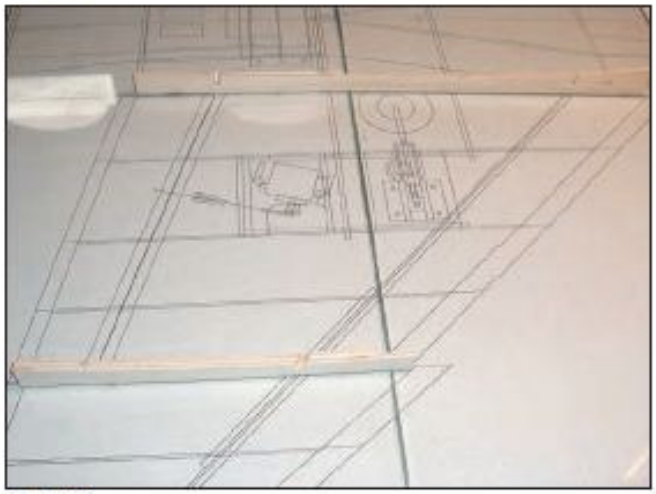

Photo 56

☐☐ 56. Separate WJ-1 and WJ-2 from WJ-3 and WJ-4. Separate WJ-5 and WJ-6 from WJ-7. Use the building square to position WJ-1 and WJ-2 over ribs W1 and W6. Align the forward corner of WJ-1 and WJ-2 so they are even with the aft face of the leading edge stock and secure them to the building board. Use the building square to position WJ-5 over rib W7 and align the forward corner of WJ-5 so it is even with the aft face of the leading edge sheeting and secure WJ-5 to the building board. (Photo 56)

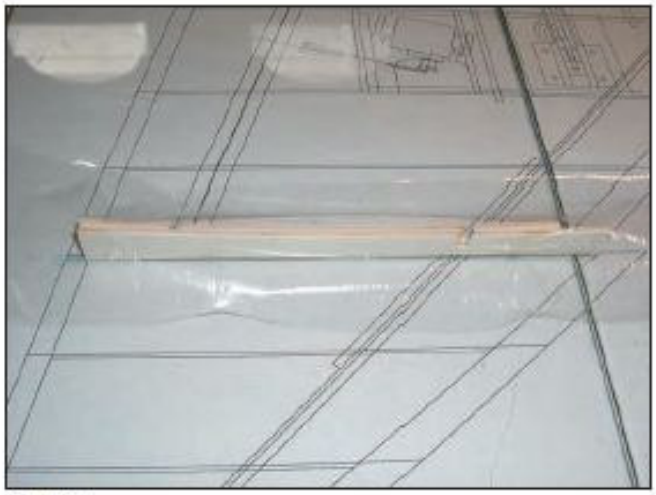

Photo 57

☐☐ 57. Lay some clear sandwich wrap over WJ-2 and WJ-5. (Photo 57)

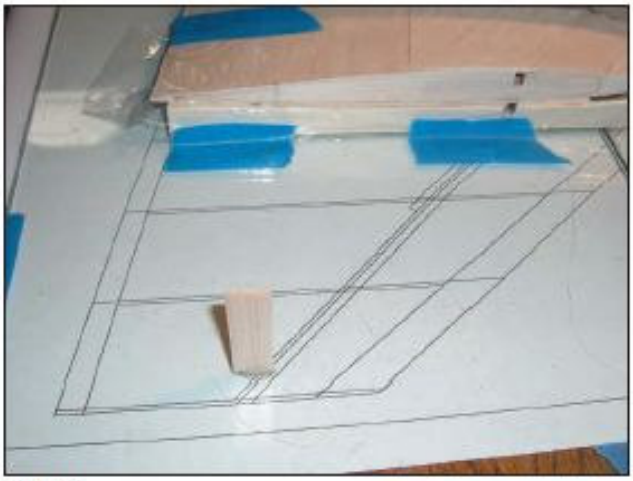

Photo 58

☐☐ 58. Use some masking tape to secure the clear sandwich wrap to WJ-2/WJ-5 Put the inner wing panel into the jig and align the aft face of the leading edge sheeting with the front corners of WJ-1 and WJ-2. Temporarily place the outer wing panel into the place so the aft face of the leading edge is aligned with the front corner of WJ-5 and raise the wing panel so the W7 rib is flush with W6 rib. Measure and cut a piece of scrap balsa to hold the wing panel in place. Secure this piece to the building board. (Photo 58)

Photo 59

☐☐ 59. Use a sand baggy to weight down the inner wing panel so it doesn't move. Apply a thin layer of 30-minute epoxy to the W6 and W7 ribs and position the outer wing panel into place in the wing jibs. Leave the wing in the jig until the glue has dried. Repeat Steps 56-59 for the other side. (Photo 59)

Photo 60

☐☐ 60. When the glue has dried, remove the wing panels from the jigs. Remove the clear sandwich wrap from between W6 and W7. On the tops and bottom of the inner wing panels, measure and mark the location of the front and rear aileron spars. Repeat for the other side. (Photo 60)

Photo 61

☐☐ 61. Use a hobby knife and razor plane to cut the ailerons from the inner wing panels. Repeat for the other side. (Photo 61)

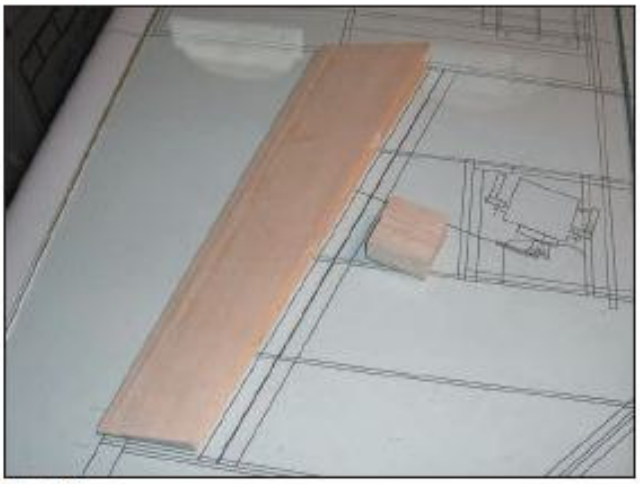

Photo 62

☐☐ 62. Measure and cut the 3/4" x 3/4" x 1/4" aileron horn filler block from some scrap balsa. Repeat for the other side. (Photo 62)

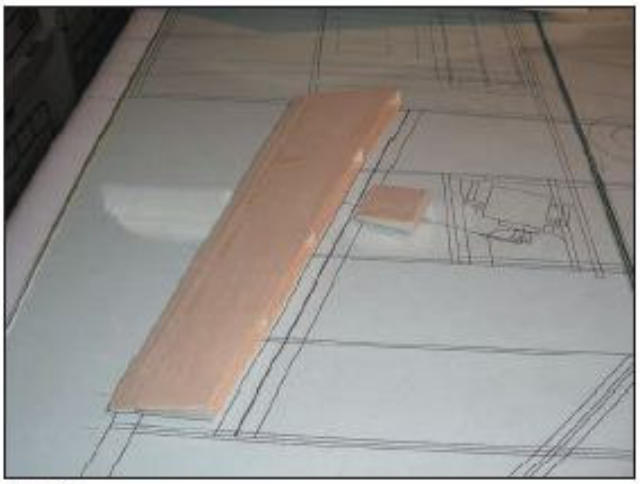

Photo 63

☐☐ 63. Use a razor plane and sandling block to taper the filler block so it fits into place between W2 and W3 ribs. When you're satisfied with the fit, glue it into place with carpenter's glue or medium CA. Repeat for the other side. (Photo 63)

Photo 64

☐☐ 64. Measure and cut the aileron spars from 1/4" x 3/4" balsa stock. Glue the aileron spars to the trailing edge of the wing. Repeat for the other side. (Photo 64)

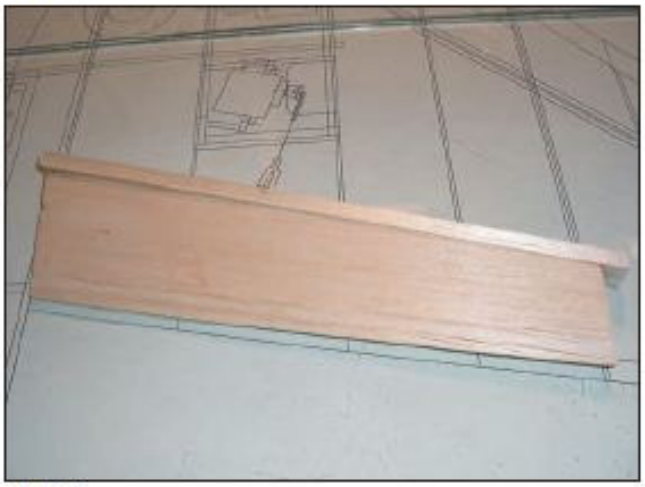

Photo 65

☐☐ 65. Measure and cut the aileron spars from 1/4" x 3/4" balsa stock. Glue these to the leading edge of the ailerons. Repeat for the other side. (Photo 65)

Photo 66

☐☐ 66. Use a razor saw, hobby knife and sanding block to trim the aileron spars so they are flush with the ends of the wing and aileron and wing and aileron sheeting. Repeat for the other side. (Photo 66)

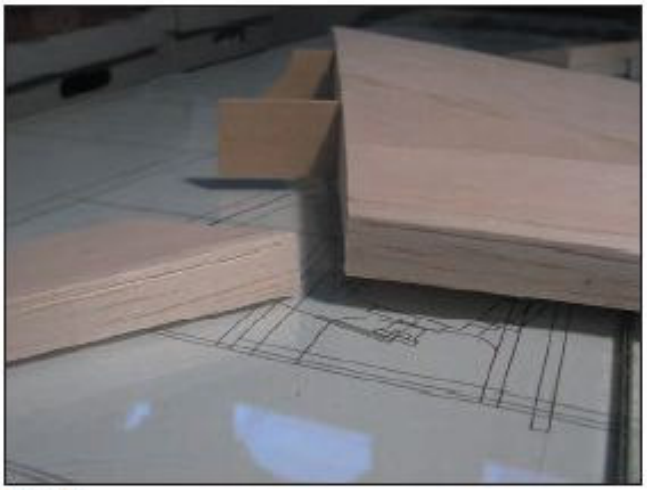

Photo 67

☐☐ 67. Measure and mark a line 1/16" from the top of the wing onto the aft face of the wing aileron spar and onto the front face of the aileron. Repeat for the other side. (Photo 67)

Photo 68

☐☐ 68. Mark the locations of the aileron hinges onto the wing and ailerons. Repeat for the other side. (Photo 68)

Photo 69

☐☐ 69. Use a razor plane and sanding block to bevel the leading edge of the aileron. Repeat for the other side. (Photo 69)

Photo 70

☐☐ 70. Measure and mark the location of the aileron servo opening on the bottom wing sheeting. Use a hobby knife to open the hole and trim it so it is flush with the aileron servo opening doublers and W2 and W3 ribs. Repeat for the other side. (Photo 70)

Photo 71

☐☐ 71. Assemble the ball joint onto aileron servo wheel and slide it into place onto the aileron servo. Do not screw it into place, yet. Install the aileron servo into the wing. Measure and mark the location of the aileron horn on the aileron spars. Repeat for the other side. (Photo 71)

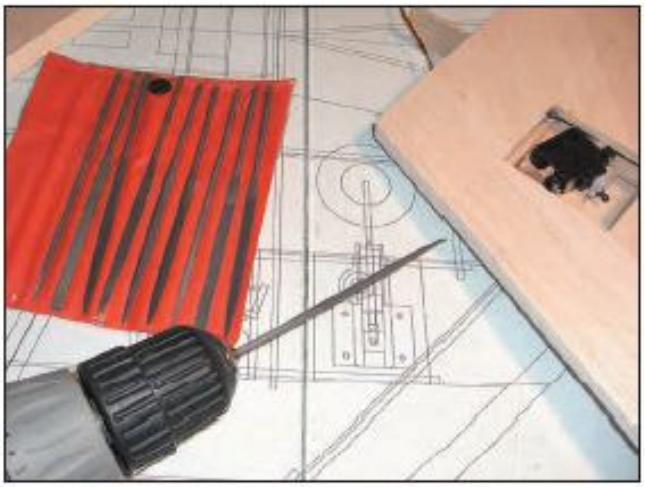

Photo 72

☐☐ 72. Install a triangular jewelers file into an electric drill. This will be used to bore a hole into the aileron spar. Repeat for the other side. (Photo 72)

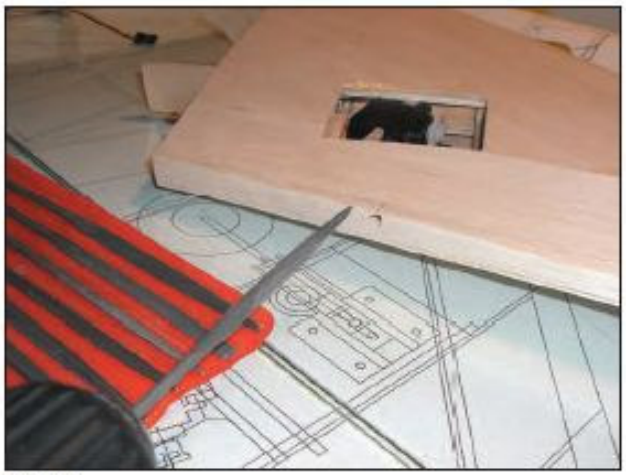

Photo 73

☐☐ 73. Mark a location on the wing aileron spar that is 1/8" above the bottom of the wing and use the jewelers file to bore a 1/4" hole. Make sure the hole is aligned between the ball joint on the servo wheel and the mark you just made. Repeat for the other side. (Photo 73)

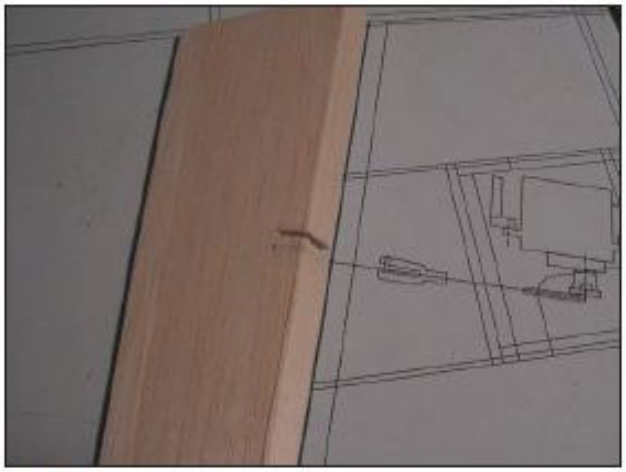

Photo 74

☐☐ 74. Use a razor saw and hobby knife to cut a 1/16" slot in the leading edge of the aileron. Repeat for the other side. (Photo 74)

Photo 75

☐☐ 75. Use a hobby knife to open a pocket in the leading edge of the aileron spar near the bottom of the wing so the clevis can be installed and removed from the aileron horn once the aileron has been glued to the wing. Repeat for the other side. (Photo 75)

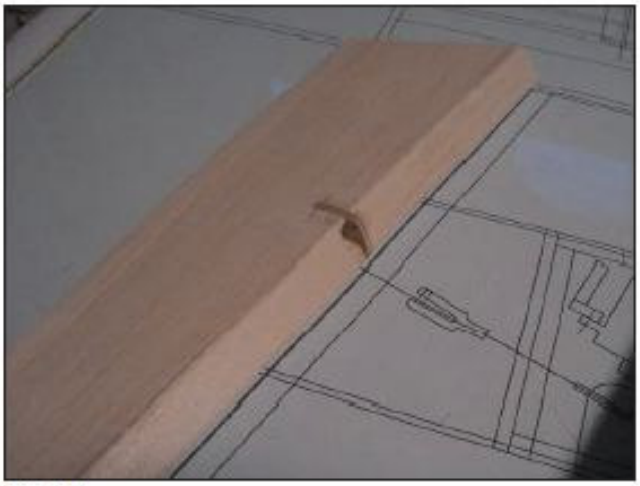

Photo 76

☐☐ 76. Position and glue the aileron horn into the slot in the ailerons. Test-fit the clevis and make any adjustments to the pocket so the clevis can be easily installed and removed. Repeat for the other side. (Photo 76)

Photo 77

☐☐ 77. Enlarge the hold in the trailing edge of the wing so the clevis can be installed and removed once the aileron is glued to the wing. Repeat for the other side. (Photo 77)

Photo 78

☐☐ 78. Install, but don't glue the aileron onto the wing. Make up the aileron pusrod and install it into the wing. Repeat for the other side. (Photo 78)

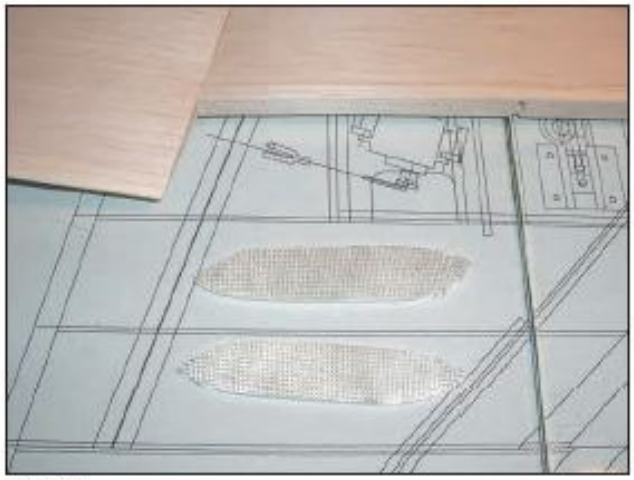

Photo 79

☐☐ 79. Cut two small pieces of 4 oz. fiberglass cloth to reinforce the inner and outer wing joints. Repeat for the other side. (Photo 79)

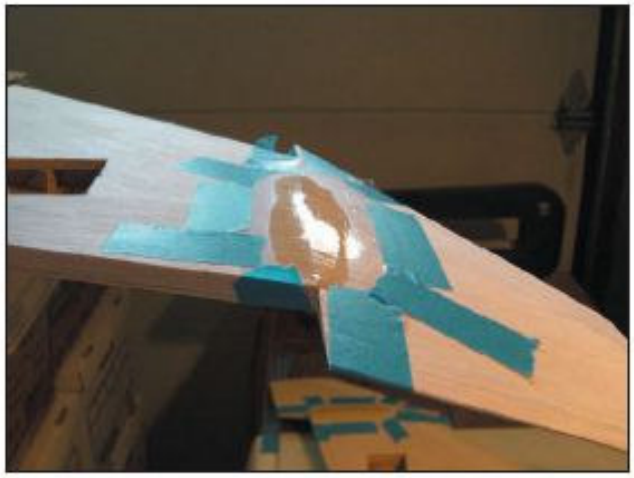

Photo 80

☐☐ 80. Place the fiberglass cloth over the wing joints. Mix a small quantity of laminating epoxy and wet out the cloth. Tape a small piece of clear sandwich wrap over the joint. Use your finger to feather the edge of the resin. Leave to dry overnight. Repeat for the other side. Make sure to reinforce the tops and bottoms of the wing joints. Set the wing panels aside for now. (Photo 80)

Fuselage Construction

Photo 81

☐ 81. Cut from their sheets, one B4, B4-1, B5, two B5-1, one B7, B7-1, B9 and B9-1 (1/8" lite ply). Glue B4-1 to the front of B4, both B5-1 to the front of B5, B7-1 to the front of B7 and B9-1 to the back of B9. Insert two 1/4" round magnets into the holes in the bottom of B9. Make sure the magnets are flush with the back face of B9. and glue them into place. (Photo 81)

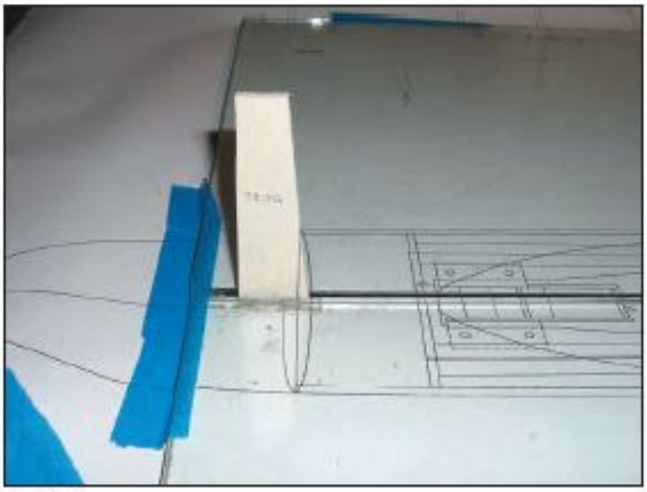

Photo 82

☐ 82. Cut from its sheet one B1 jig. Use the building square to position it so the alignment mark is even with the centerline of bulkhead B1 and secure it to the building board. (Photo 82)

Photo 83

☐ 83. Measure and cut the lower corner blocks from 1" triangle stock. You will need two front and two rear corner blocks. (Photo 83)

NOTE: The front and rear corner blocks are shown in Photo 83 as being square stock. This has been updated in the kit to be 1" triangle stock.

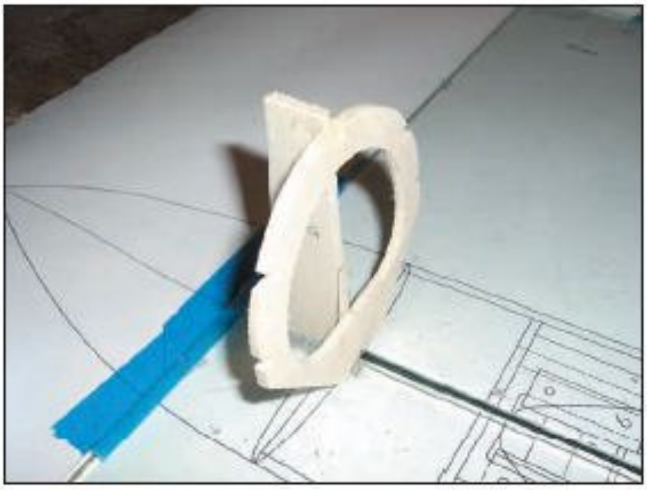

Photo 84

☐ 84. Position B1 over the plans so it is touching the B1 Jig. Tack glue it to the B1 Jig and secure it to the building board. (Photo 84)

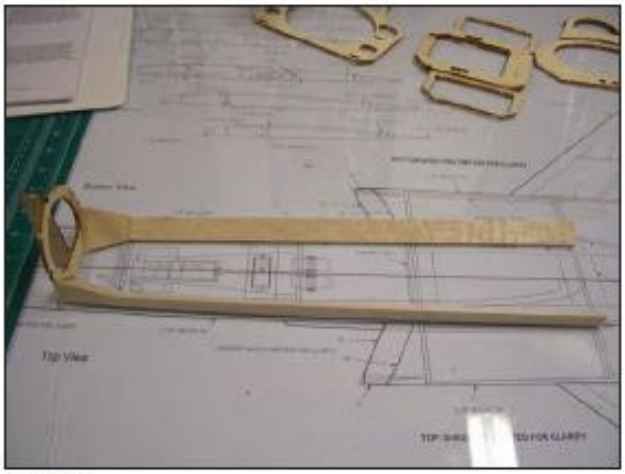

Photo 85

☐ 85. Cut from its sheet one B2 (1/8" lite ply). Use a razor plane and sanding block to taper the inside of the front corner blocks so they are will fit between B1 and B2. When satisfied, secure the front corner block to the building board and tack glue it to B1. Measure and cut two lower corner blocks from 1/2" triangle stock. Secure it to the building board between B2 and B5. (Photo 85)

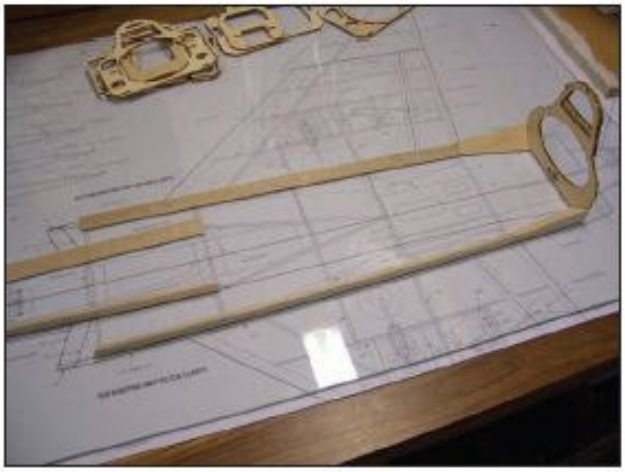

Photo 86

☐ 86. Use a razor plane and sanding block to taper the inside of the rear corner blocks so they fit between B8 and B9. Secure these to the building board. Measure and cut two lower corner blocks from 1/2" triangle stock. Secure these to the building board between B4 and B8. Use the building square to position B9 and secure it to the building board. Tack glue it to the rear corner blocks. (Photo 86)

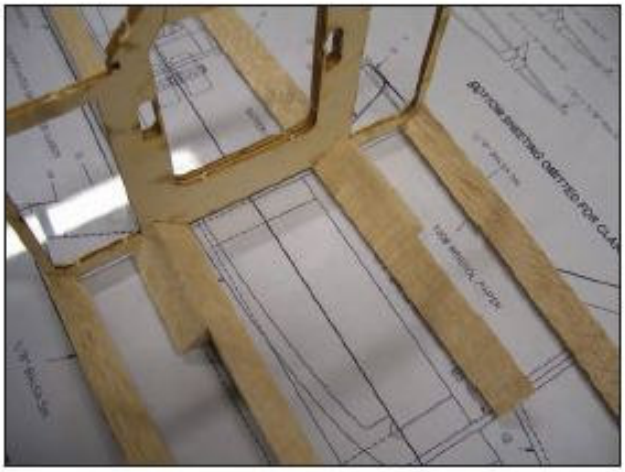

Photo 87

☐☐ 87. Use the building square to position B4/B4-1 and secure it to the building board. Tack glue B4/B4-1 to the lower corner blocks. Measure and cut two 2" pieces of 1/2" triangle stock filler blocks. Slip it into the bottom of B4 next to the outside of the nose section lower corner blocks behind B4. Make sure the front of the filler block is flush with the back of B4. (Photo 87)

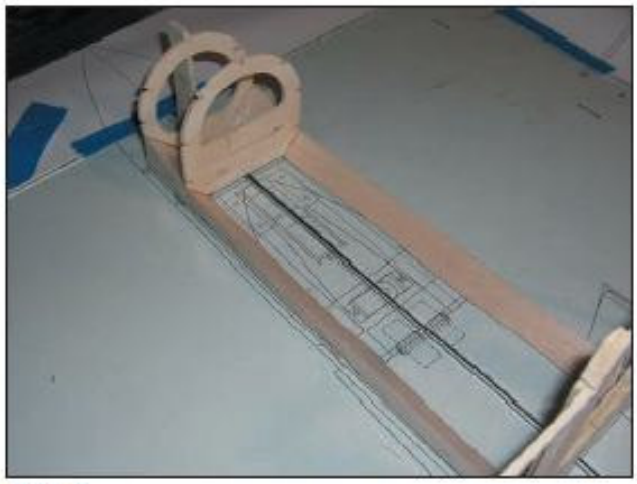

Photo 88

☐ 88. Use the building square to position B2 and secure it to the building board. Tack glue B2 to the lower corner blocks. (Photo 88)

Photo 89

☐ 89. Cut from its sheet one NG mount (1/8" birch ply). Using your nose landing gear retract as a guide, drill 4 1/8" holes in NG. Press a 2-56 blind nut into each hole on the top side of the MG and secure them with glue. (Photo 89)

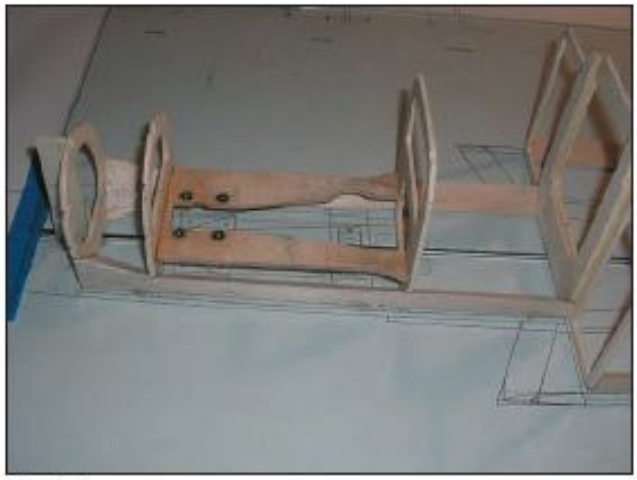

Photo 90

☐ 90. Cut from its sheet one B3 (1/8" lite ply). Slip the front of NG into the slot in B2. Use the building square to position B3 and slip the back of NG into the slots in B3. Secure B3 to the building board and tack glue it to the lower corner blocks. (Photo 90)

Photo 91

☐ 91. Cut from their sheet, one B6 and one B8 (1/8" lite ply) and two FM fan mounts (1/8" birch ply). Use the building square to position B5, B6 and B7/B7-1 and secure them to the building board. Tack glue B5, B6 and B7/B7-1 to the lower corner blocks. Slip the front of each FM into the slots in B7, but do not glue them at this time. Use the building square to position B8 and slip the back of each FM into the slots in B8, but do not glue them at this time. Secure B8 to the building board. Tack glue B8 to the lower corner blocks. (Photo 91)

Photo 92

☐ 92. Place the wings between B6 and B7 to verify that the FS front stub spars are flush with the back of B6 and that the RS stub spars are flush with the front of B7. If they are not, you will need to carefully remove the bulkheads from the building board and lower corner blocks and reposition the bulkheads so the spars do fit flush. (Photo 92)

Photo 93

☐ 93. Slip the fan unit into place in the back of B7. Mark the locations of the mounting holes on each FM. Remove the fan unit and each FM and drill 1/8" holes in each FM. Press a 2-56 blind nut into the top of each FM and secure them with glue. Slip each FM into the slots in B7 and B8. Slip the fan unit into place in the back of FM and insert a 2-56 screw into each blind nut from the top to act as alignment pins to prevent the fan unit from moving. Use the building square to make sure B7 is perpendicular to the building board. Tack glue each FM to B7 and B8. (Photo 93)

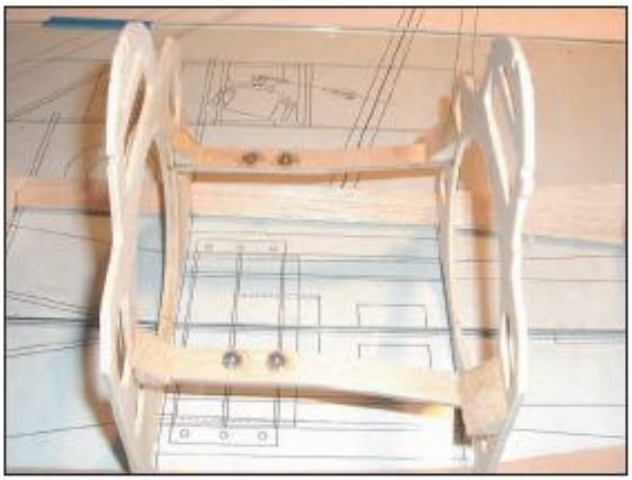

Photo 94

☐ 94. Remove the 2-56 screws from the blind nuts and remove the fan unit. Cut four joint doublers from 1/2" triangle stock and glue these to the top joints of each FM and B7 and B8. (Photo 94)

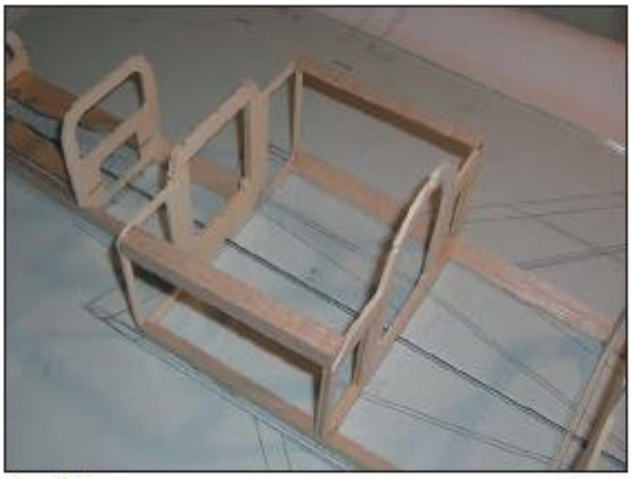

Photo 95

☐ 95. Measure and cut two top corner blocks from 1/2" triangle stock Position the top corner blocks so that it is only glued to the front half of B5 and tack glue these to the tops of B4 and B5. (Photo 95)

Photo 96

☐ 96. Measure and cut two top corner blocks from 1/2" triangle stock between B5 and B7. Position the top corner blocks so that it is only glued to the front have of B7. Place the wings into place between B6 and B7 and the fan into place into the back of B7. Insert the 2-56 screws to act as alignment pins to keep the fan from moving. Make sure B6 and B7 are flush with the stub spars and that B7 is still perpendicular to the building board. When satisfied, tack glue the corner blocks to the tops of B5, B6 and B7. (Photo 96)

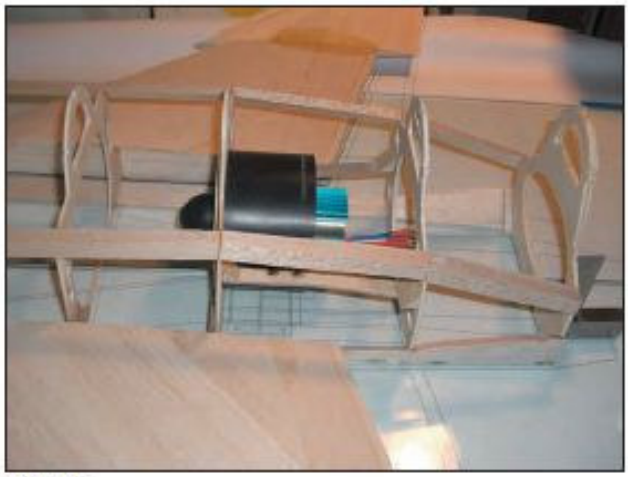

Photo 97

☐ 97. Measure and cut two top corner blocks from 1/2" triangle stock between B7 and B9. Position and tack glue these to the tops of B7 and B8. (Photo 97)

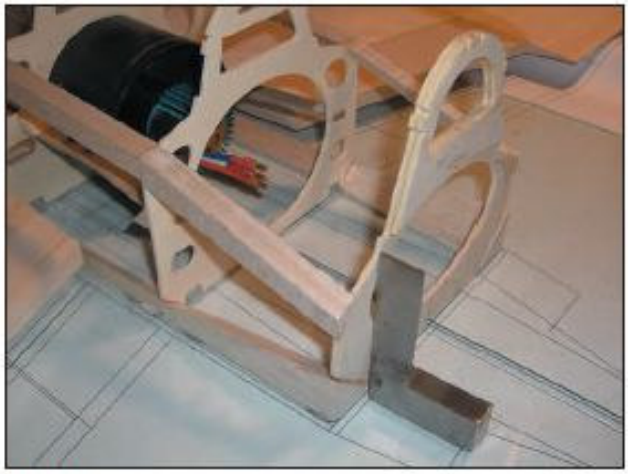

Photo 98

☐ 98. Use the building square to make sure that B9 is perpendicular to the building board, then tack glue the top corner blocks to B9. (Photo 98)

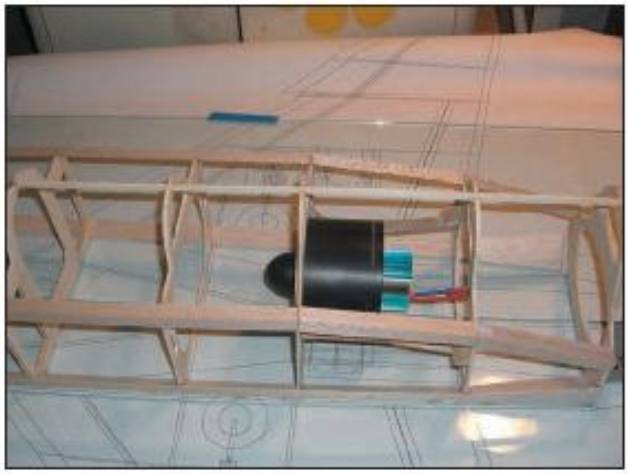

Photo 99

☐ 99. Cut from its sheet K1 top keel (1/8" lite ply) and slip it into place in the slots in the top of B4, B5, B6, B7, B8 and B9. Do not glue it at this time. (Photo 99)

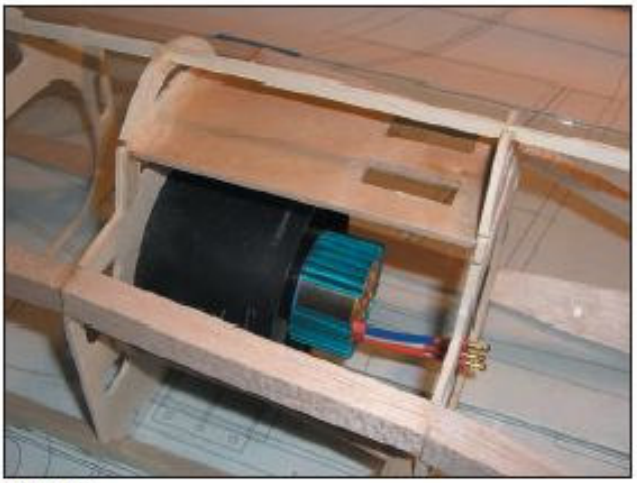

Photo 100

☐ 100. Cut from its sheet the SM4 servo mount (1/8" birch ply). Slip SM4 into place between B7 and B8. Tack glue SM4 to B7 and B8. Tack glue K1 to B5, B6, B7, B8 and B9. (Photo 100)

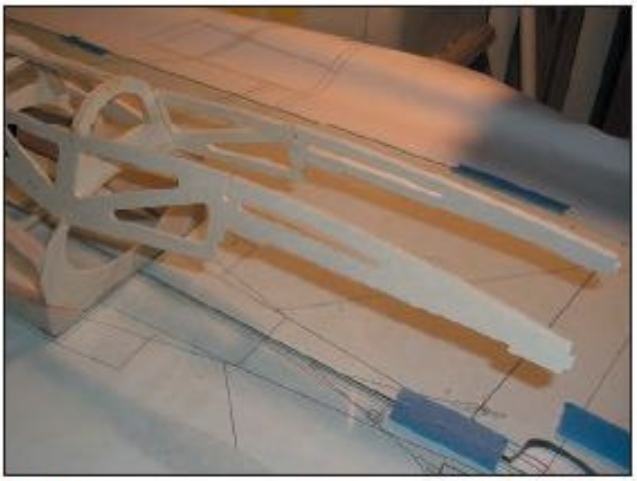

Photo 101

☐☐ 101. Cut from their sheets, two K2 and two K3 (1/8" lite ply). Position and tack glue K2 to the slots in B8 and B9. Glue K2 to the bottom of the slots in B8 and B9. This is to leave room at the top of K2 to install a 1/8" balsa stringer later on. Position K3 to the slots in B9-1. Measure the front and back of the elevator mount slot in K3 to verify that it is level with the building board. When satisfied that K3 is level, tack glue it to the building board. Repeat for the other side. (Photo 101)

Photo 102

☐ 102. Cut from its sheet one B10 (1/8" lite ply). Position B10 into the slots between the right and left K3 keels. Measure the front and back of the elevator slot in K3 keels to verify that they are still level to the building board and even with each other. When satisfied, tack glue both K3 keels to B10. (Photo 102)

Photo 103

☐ 103. Cut from its sheet one B12 (1/8" lite ply). Position B12 in the slots at the back of both K3. Verify that both K3 keels are level to the building board and that B12 is square. When satisfied, tack glue B12 to both K3 keels. (Photo 103)

Photo 104

☐ 104. Cut from its sheet one EM elevator mount (1/8" lite ply). Position EM into the elevator mount slots in the bottom of both K3 keels and tack glue EM to both K3 keels and to B10 and B12. Cut from their sheets one B11 (1/8" lite ply). Insert a 1/4" round magnet into the hole in B11 so it is flush with the front face and glue the magnet into place. Position B11 on the stab mount so it is centered and the front face is flush with the notch in K3. When satisfied, glue B11 to the stab mount and to K3. (Photo 104)

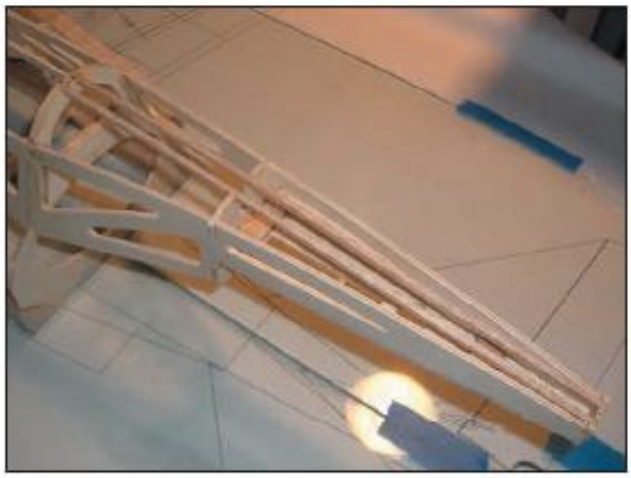

Photo 105

☐☐ 105. Cut from its sheet two K4 rudder keels. Position K4 into the slots in the top of B9, B10 and B12. Make sure that the vertical stab is able to fit in the slot formed by the rudder keels. Make sure the vertical stab sits flush on the top of EM. If necessary, trim the tab in the bottom of the vertical stab so the tab fits into the slot in EM so the vertical stab does sit flush on EM. When satisfied, glue the rudder keels into place. Repeat for the other side. (Photo 105)

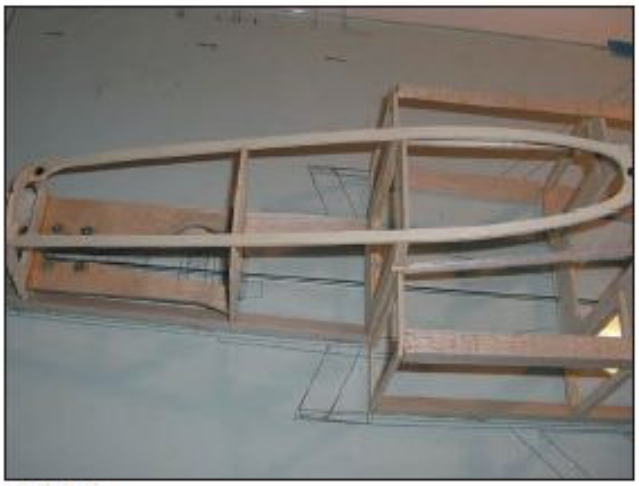

Photo 106

☐ 106. Cut from its sheet one CH1 (1/8" lite ply). Insert a 1/4" round magnet into each hole and glue the magnet to CH1 so it is flush with the top of CH1. When the glue is dry, position and glue CH1 into the slots in B2, B3 and B4 and to the top of K1. Once the glue has dried, use a high-speed rotary sander to bevel the outer edges of CH1 so it matches the profile of the bulkheads.(Photo 106)

Photo 107

☐ 107. At this point, the basic construction of the fuselage skeleton is complete. Reinforce all glue joints so they are solid. Once the glue has dried, carefully remove the fuselage skeleton from the building board. Use a razor plane and sanding block to shape the corner blocks to match the profile of the bulkheads. Do not round the corner blocks at this time. These will get rounded after the fuselage is sheeted. Sand the entire skeleton so all the outer joints are smooth and framework is ready for sheeting. (Photo 107)

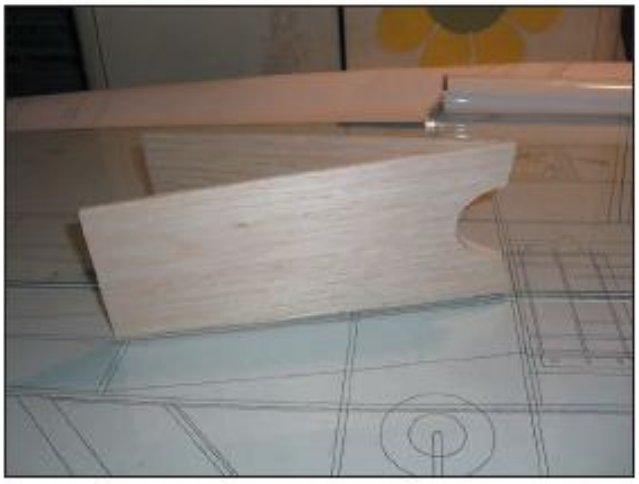

Photo 108

☐ 108. Cut from their sheets two I2 inner inlet walls. Position each I2 over the plans. Using a sanding block bevel the aft inboard edges of each I1 so that the bevel forms a smooth, sharp joint. If you are using the "A" fan unit parts, trim the top and bottom of I2 so it fits into the front of B7-1. Decide now if you are going to run the fan unit with or without the spinner. If you are going to run the spinner, Install the fan unit into the fuselage skeleton and cut a semi-circle from each of the I2 to clear the spinner. When satisfied with the fit, position each I1 over the plans and tack glue each I2 together. (Photo 108)

Photo 109

☐ 109. Finish the outer walls using your favorite method. Be careful to leave the top, bottom and front edges of each I2 unfinished so you get a good glue joint when installing I2 into the fuselage and gluing the outer inlet walls to I2. (Photo 109)

Photo 110

☐☐ 110. If the fan unit is still installed in the fuselage skeleton, remove it. Slip the assembled I2 through the back of the fan unit opening and into place between B5, B6 and B7-1. Make sure that I2 does not go forward past B5. If the front of I2 does not fit flush with the back of I1, then use a hobby knife and sanding block or emory board to bevel B5. (Photo 110)

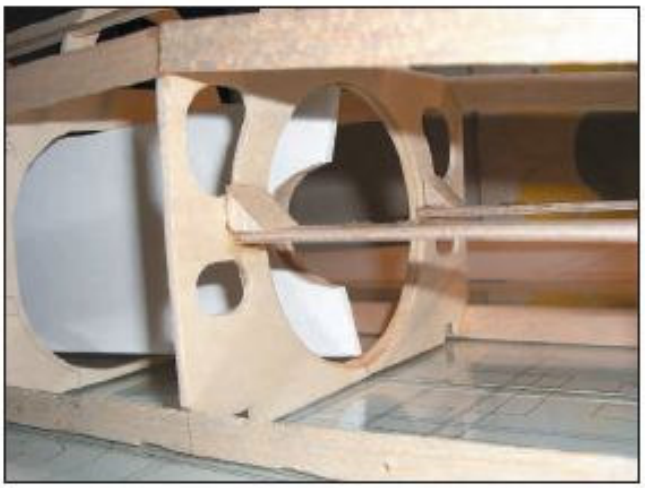

Photo 111

☐☐ 111. The recess formed by the joint between B7 and B7-1 creates a pocket for the front of the fan. This pocket is what seals the fan and inlet together. Make sure that I2 does not go back past B7-1 otherwise the front of the fan might not sit flush against the back of B7-1. When satisfied with the fit inside B7-1 and B5, tack glue I2 to B5 and B7-1. Repeat for the other side. (Photo 111)

Photo 112

☐☐ 112. Use the templates in the back of the construction guide to cut out the rear outer inlet walls from 100# smooth bristol paper. Curl the rear part of the outer inlet wall so it fits smoothly into the opening between B7-1 and I2. Verify that the front of the inlet wall fits smoothly inside B5. Curl the front corners of the inlet ducts over a 3/16" dowel. Repeat for the other side. (Photo 112)

NOTE: Because you'll need to cut out the templates to trace them onto the bristol paper, we recommend making photocopies of the template sheets and using the copies as the templates.

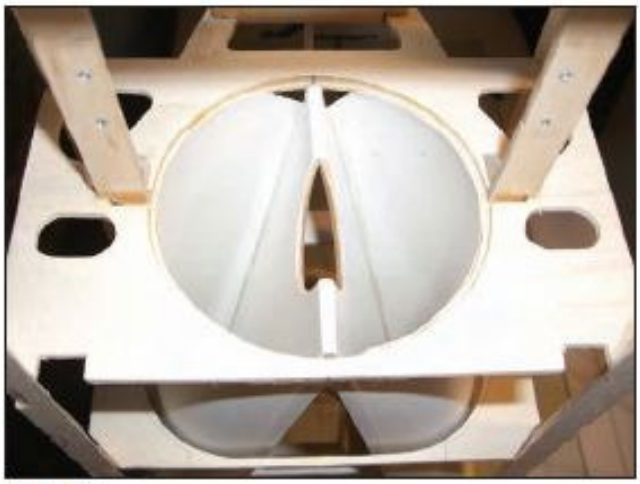

Photo 113

☐☐ 113. If necessary trim the upper and lower corners of the rear portion so it is easy to remove and install the outer inlet wall. Trim any excess overlap that extends behind B7-1. This will form a pocket that the front of the fan unit will fit when installed. When satisfied with the fit, glue the outer inlet wall to top of I2, then to B7-1, then to B5 and finally to the bottom of I2. Use a scrap piece of 100# Bristol paper to seal any openings. Glue these patches to the outside of the duct using a thin film of carpenter's glue. Repeat for the other side. Run a thin bead of medium CA along the top and bottom inside joints between I2 and the 100# Bristol paper outer walls. (Photo 113)

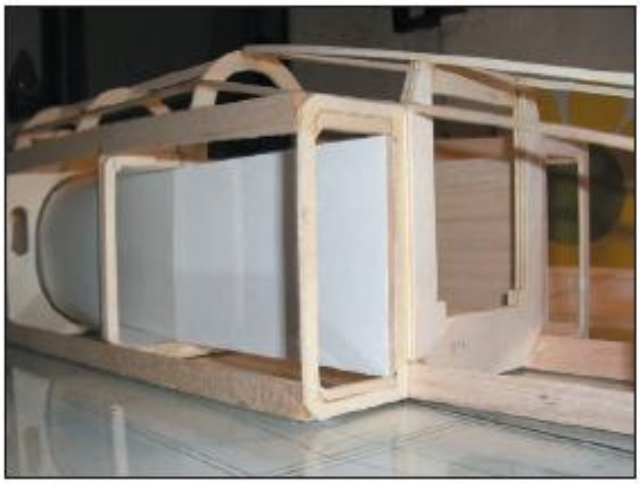

Photo 114

☐☐ 114. Cut from their sheets two I1 forward inner inlet walls. Fit this into the holes in B4 and B5-1. Curl the inside corners of the inlet duct wall using a 3/16" dowel. When satisfied with the fit, remove I1 from the fuselage skeleton and finish it. Make sure that the top, bottom and back edges of I1 are unfinished to make a good glue joint. Position and glue I1 between B4 and B5-1. Repeat for the other side. (Photo 114)

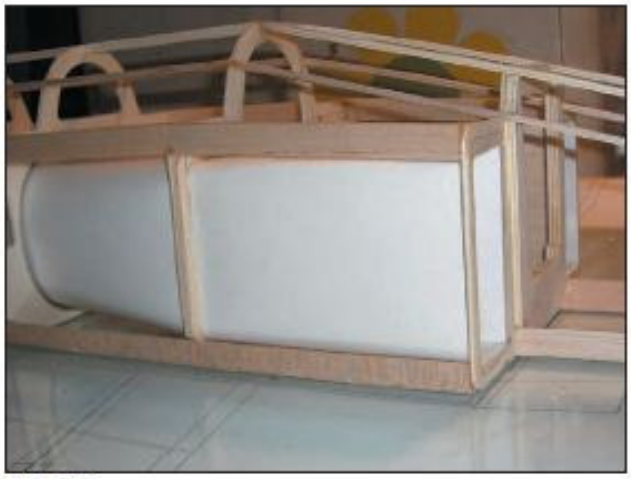

Photo 115

☐☐ 115. Using the templates on the plans, cut out two forward outer inlet walls from 100# smooth bristol paper. Slip the outer wall into the holes in B4 and B5-1 and verify that the front of the inle wall fits inside B5-1. Trim any excess that overlaps B5. When satisfied with the fit, glue the outer inlet wall to top of I1, then to B5-1, then to B4 and finally to the bottom of I1. Trim the excess outer inlet wall that extends beyond the front of B4. Repeat for the other side. (Photo 115)

Photo 116

☐☐ 116. Use the templates from the plans to cut out the rear inlet doublers and triplers from 100# smooth bristol paper. Slip the doubler into place in the opening in B6, below the rear duct. Pour some carpenter's glue into a small mixing cup and add a small amount of water to thin the glue. Use a disposable brush and apply a thin layer of glue to the rear duct. Slip the doubler into place and gently press it against the outer duct wall. Be careful not to dent the outer duct wall as the glue will slightly soften the paper. Repeat this procedure for the tripler. The wide part of the rear tripler goes to the front of the duct. Repeat this procedure applying the doublers and triplers to the forward outer duct walls between B4 and B5. Repeat for the other side. (Photo 116)

Photo 117

☐ 117. Cut from their sheets, one BT1 and two BT2 battery tray mounts (1/8" lite ply). Glue one BT2 to the bottom front and back of BT1. Slip the assembly into place between the inner inlet duct walls on the bottom web of the opening in B6. Make sure that the bottom of this assembly does not extend below the bottom of B6. When satsified, glue it into place. (Photo 117)

Photo 118

☐ 118. Cut from its sheet one K5 bottom plate (1/8" lite ply). Position this on the bottom of bulkheads B6 and B7. Make sure that you leave enough of each bulkhead exposed to allow the bottom balsa sheeting to be glued to the front half of B6 and for the fan hatch to rest on the back half of B7. If you are installing retracts, make sure the side with the wheel well marks is facing to the outside of the fuselage. When satisfied with the fit, glue K5 securely to B6 and B7. Do not glue K5 to the bottom corner blocks. (Photo 118)

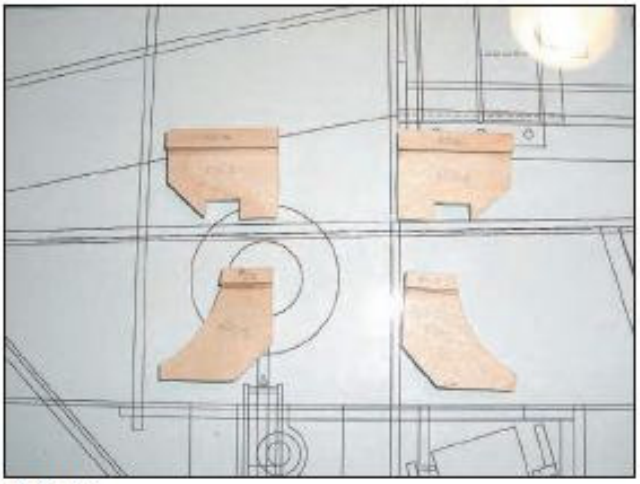

Photo 119

☐ 119. Cut from their sheets, two FS1, two FS2, two RS1 and two RS2 spar mounts (1/8" birch ply). Glue FS2 to the top front of FS1. Glue RS2 to the top back of RS1. Make sure to make a right side set and a left side set. (Photo 119)

Photo 120

☐☐ 120. Use a razor saw and hobby knife to cut away the bottom corner block from between B6 and B7 and set it aside for now. Repeat for the other side. (Photo 120)

Photo 121

☐☐ 121. Using a piece of scrap 1/8" birch ply as a spacer, position and glue the FS mount to the back of B6 and K5 and the RS mount to the front of B7 and K5. Be careful not to glue the spacer inside the spar pockets and that no excess glue blocks the top or bottom corners of the pocket. Repeat for the other side. (Photo 121)

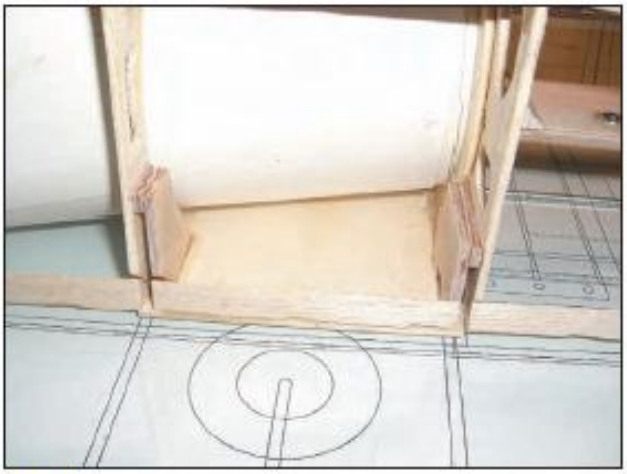

Photo 122

☐☐ 122. Position the bottom corner blocks from Step 119. Trim the excess to leave the slot in the spar mounts open. When satisfied, glue the bottom corner blocks to the spar mounts and K5. Use the spacer you made in Step 121 to verify that the wing spars will slide easily in and out of the spar pockets. Repeat for the other side. (Photo 122)

Photo 123

☐ 123. Measure and cut battery tray doublers from 1/2" balsa triangle stock. Position and glue these to the back of bulkhead B4, front and back of B5 and front of BT1. (Photo 123)

Photo 124

☐ 124. Cut from its sheet one battery tray (1/4" lite ply). Position and glue this to the battery tray doublers and the tops of B4, B5 and BT1. (Photo 124)

Photo 125

☐ 125. Cut from their sheet, one SM5 and two SM6 servo mounts (1/8" birch ply). Position and glue both SM6 to the bottom of SM5 as shown. Insert the nose-wheel steering servo into the opening in SM5. Drill mounting holes and screw the servo to the bottom of the mount. (Photo 125)

Photo 126

☐ 126. Position and glue the nose wheel servo mount to the top of NG nose gear mount. (Photo 126)

Photo 127

☐ 127. Measure and cut NG doublers from 1/2" triangle stock. Glue these doublers to the bottom of NG. (Photo 127)

Photo 128

☐ 128. Assemble the nose gear strut and install it and the steering horn into the nose gear retract. Mount the nose gear retract into the model. Make up the pull-pull cable nose wheel steering and connect the nose wheel steering servo to the nose gear retract. (Photo 128)

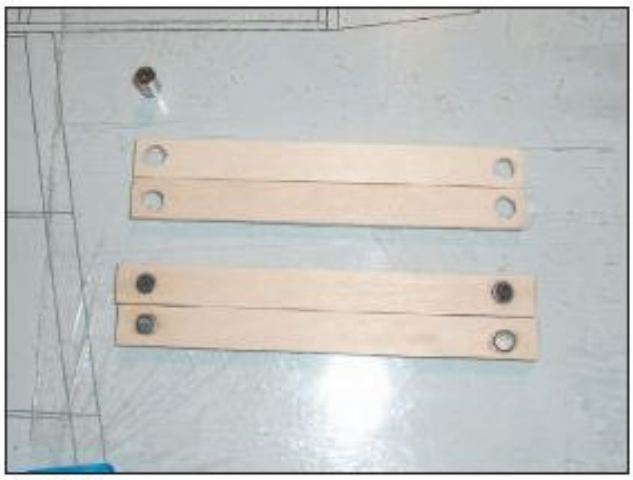

Photo 129

☐☐ 129. Cut from their sheets two FH1 and two FH2 (1/8" lite ply). Insert a 1/4" round magnet into each hole in FH1. Make sure that the face of the magnet is flush with the bottom of FH1. When satisfied, glue the magnets into place. Repeat for the other side. (Photo 129)

Photo 130

☐☐ 130. Insert FH1 into the slots in the bottom of bulkheads B7 and B8 and glue FH1 to B7 and B8. Repeat for the other side. Lay a piece of clear sandwich wrap over both FH1 and stick a 1/4" round magnet on top of each of the magnets glued to FH1. (Photo 130)

Photo 131

☐☐ 131. Position FH2 over FH1 and align the magnets. Push FH2 down so the magnets slip into the round holes. Make sure that FH2 is flush with FH1 and glue the magnets to FH1. Repeat for the other side. (Photo 131)

Photo 132

☐ 132. Cut two pieces of sheeting from 1/8" sheet stock and edge glue them to form the fan hatch cover. Make sure the grain of the wood runs across the fuselage. Position them over the fan opening. Make sure the clear sandwich wrap is between K5 and the fan hatch sheeting. Make sure that the fan hatch sheeting does not extend past the front half of B8. The bottom sheeting needs to be glued to the back half of B8. When satisfied with the fit, glue the fan hatch sheeting to both FH1. (Photo 132)

Photo 133

☐ 133. Cut from their sheets, one FH3 and one FH4 (1/16" birch ply). Measure the front and rear of the fan hatch and on the inside of the hatch, mark the centerline. Measure and mark a line 1/8" forward of the rear edge of the hatch. Position and glue FH3 to the bottom of the fan hatch. (Photo 133)

Photo 134

☐ 134. Use a hobby knife to cut the balsa hatch sheeting from the area of the slot in FH3. Slip FH4 into the slot in balsa and FH1. When satisfied with the fit, glue FH4 to the hatch sheeting and FH3. (Photo 134)

Photo 135

☐ 135. Cut four pieces of hook and loop fastners (not supplied). Position and stick each of the loop pieces to the bottom of the battery tray as shown. These will help keep the hook and loop wrap from slipping when wrapped around the flight battery packs. (Photo 135)

Photo 136

☐ 136. Cut a stringer from 1/8" balsa stick and glue it into the slots in the bottom of B9-1 and B10. (Photo 136)

Photo 137

☐ 137. Cut keel doublers from 1/2" triangle stock to fit the joints between K2 and B8 and the joints between K3 and B9-1. Position and glue the doublers to K2 and B8 and to K3 and B9-1. (Photo 137)

Photo 138

☐ 138. Install the fan hatch to the bottom of the fuselage. Using 1/8" balsa cut the bottom sheet for the area between the back of the fan hatch and B9. Make sure the grain of the wood runs across the fuselage. When satisfied, remove the fan hatch and glue the sheeting to B8, B9 and both of the bottom corner blocks. (Photo 138)

Photo 139

☐ 139. Using 1/8" balsa, sheet the bottom of the fuselage between bulkheads B4, B5 and B6 and the bottom corner blocks The sheeting between B4 and B5 should not extend past the front of B4. The nose section sheeting is glued to B4-1. (Photo 139)

Photo 140

☐ 140. Using 1/8" balsa, sheet the bottom of the fuselage between B1, B2, B3 and B4-1 and the bottom corner blocks. Make sure the grain of the wood runs across the fuselage. (Photo 140)

Photo 141

☐☐ 141. Using 1/8" balsa, sheet the side of the engine nacelle between bulkheads B4 through B9 and the top and bottom corner blocks. Make sure the grain of the wood runs lengthwise. Measure and cut a piece of 1/8" balsa stringer and slip it into the slots in bulkheads B1 through B5 and in bulkheads B5 through B9. Repeat for the other side. (Photo 141)

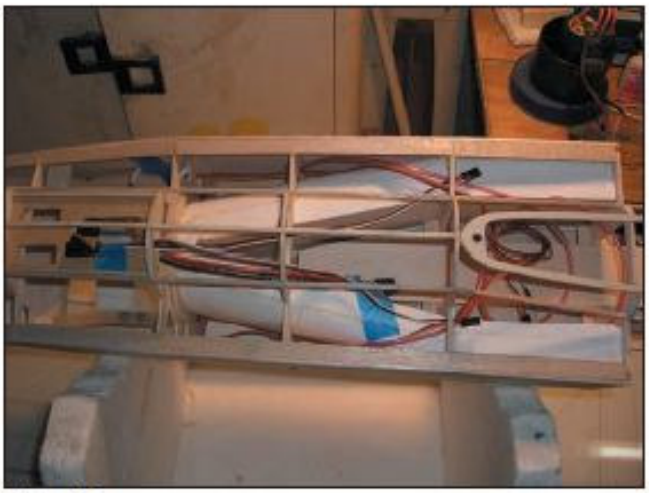

Photo 142

☐ 142. Measure and mark the location of the front and rear spar pockets on the nacelled side sheeting. Use a hobby knife to cut a 1/8" wide slot in the side sheeting. You will need to cut an opening in the nacelle side sheet to allow the retract air line and aileron servo wire to be routed through the fan compartment. At this point, all of the wiring and air lines should be routed. Once the top of the fuselage is sheeted, it will be much more difficult to do so. (Photo 142)

Photo 143

☐☐ 143. Using 1/8" balsa, sheet the top of the engine nacelle between bulkheads B4 and B7. Repeat for the other side. (Photo 143)

Photo 144

☐☐ 144. Using 1/8" balsa, sheet the top of the engine nacelle between bulkheads B7 and B8. To help the balsa conform to the curve in B8, wet the inside of the balsa. Repeat for the other side. (Photo 144)

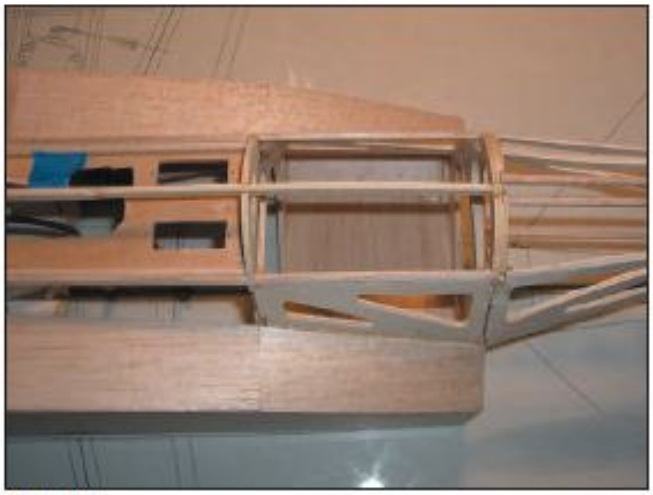

Photo 145

☐☐ 145. Using 1/8" balsa, sheet the top of the engine nacelle between bulkheads B8 and B9. To help the balsa conform to the curve in B8 and B9, wet the inside of the balsa. Repeat for the other side. (Photo 145)

Photo 146

☐☐ 146. Using 1/8" balsa, sheet the side of the nose section between bulkheads B1 and B4-1. Repeat for the other side. (Photo 146)

Photo 147

☐ 147. Using 1/8" balsa, sheet the bottom of the tail cone between bulkheads B9-1 and B10. (Photo 147)