
With the threat of war looming on the horizon in the late '30s, the Navy department determined that a rather extensive upgrade was needed for its carriers to compete with the newer designs being flown by the Axis powers. Grumman Aircraft, already a supplier of many of the Navy's aircraft, submitted the XTBF, named the Avenger, as there answer for the replacement of the Douglas TBD Devastator. Many features were unique to the Avenger, such as an internal bomb bay, capable of carrying a 2000 pound torpedo, or four 500 pound bombs, and a remotely powered rear gunners turret. The Avenger was adopted into service with very few changes from the prototypes, and got its first taste of combat, though not very auspiciously, at the Battle of Midway.

Shortly after beginning production, the Navy determined that Grumman's Bethpage, Long Island, factory wasn't capable of producing the Avengers at the rate needed. Their solution was to enlist General Motors to build additional Avengers. GM eventually produced most of the aircraft under the slightly changed designation of TBM. The only difference between Avengers produced by Grumman and GM was the designation. The Navy continued to use the Avenger in various roles, including the first airborne early warning radar aircraft, until the end of the Korean War.

The TBM-3 Avenger was powered by the Wright R-2600-20 18 cylinder radial engine, rated at 1900 horsepower. The Avenger had a wingspan of 54 feet 2 inches, a length of 40 feet, and had a max weight of over 18,000 pounds. The crew consisted of the pilot, a rear gunner and a radio operator. Armament consisted of two forward firing .50 caliber machine guns, one .50 caliber machine gun in the turret, and a .30 in the ventral position. Either bombs or a torpedo could be carried in the bomb bay, and later aircraft were equipped to fire rockets from mounts under each wing.


Thank you for purchasing the TBM Avenger from Skyshark R/C. For the first time, R/C enthusiasts have a choice in scale aircraft designs. Our goal, through computer technology and state-of-the-art production techniques, is to offer aircraft which in the past have not been modeled simply because they weren't popular enough to justify mass production. Our production techniques allow us to produce aircraft which, though not as popular and well known as P-51s and P-47s, still offer historical significance (good or bad!), Good looks and flying characteristics, and a uniqueness that is sure to turn heads wherever you take your airplane!

***Your airplane has many unique features in its design:***

## CAD Design

CAD design allows strength to be built into the airplane without sacrificing weight. Accurate parts design and placement ensures a perfect fit.

## CAD Drawn Plans

The plans in this kit are not copied from a master set! They are originals drawn directly from the CAD program where the airplane was designed. We do this because it allows us to use color, which helps you better visualize the various components of the airplane, and we can use better quality paper, which greatly reduces the possibility of shrinkage. Since you're going to build directly on the plans, they ought to be the proper size! Also, parts placement is guaranteed to be accurate, so you can build a better, straighter model.

## Laser Cut Parts

The same program that generates the design and plans also drives the laser, so every part is reproduced exactly as it was designed. Laser cutting also allows us to fit more parts on each sheet of wood, reducing the waste, and lowering the cost to you. Since laser cutting does not have the same limitations that mechanical cutters do, small and hard-to-produce parts are simply a computer file away, so you get a more accurate airplane.

## Plastics and Fiberglass

The cowl is accurately reproduced in fiberglass. The canopy is accurately reproduced in clear plastic, and is molded in two pieces, the turret in two pieces, and the ventral canopy as well.

***A Word About the Building Options***

## Engine Options

Engine choices range from .60 to .80 2-strokes, or .70 to .90 4-strokes. There's plenty of room in the cowl to mount the engine in any direction you desire, and you can, with a little extra thought, completely cowl in the engine; the extra thought is needed for adequate engine cooling. Scale exhausts can be fabricated.

## Electric Options

Electric conversion on a kit this size is very easy and straightforward. You will simply need to plan for a battery hatch in order to save having to remove the wing for battery changes. There is plenty of room in the Avenger cowl for any size motor and ESC.

## Retractable Gear

Retract installation is shown on the plans and explained in these instructions for Springair or Robart retracts. Of course, you are free to use any 90 degreeretract you wish. The retractable tailwheel depicted is the Robart #121, and it is recommended that this Tailwheel be used even if you opt for a fixed tailwheel. You will notice that fixed gear is not presented as an option. So many people install retracts that we felt that not designing the standard fixed gear mounts gave us much more flexiblity in design, and allowed, for example, scale wheel well detail to be incorporated.

## Flaps

The flaps can be made fully functional and as a bonus we added scale flap detail as well. All the servo reinforcements are included in the kit, as well as instructions of how to build and actuate the flaps.

## Cockpit Detail

A fully detailed, fully researched laser cut and engraved cockpit is included in the kit. In fact, the cockpit is built along with the fuselage and many of the parts are structural members of the fuselage.

## ***General Building Information***

The Avenger can be built by a person with average building skills. Certain steps in the building process must be followed as depicted, or you might find yourself digging back into the structure to redo something. These areas are outlined when necessary. There are a few areas that may be considered advanced construction techniques, such as strip planking, but what we've done to simplify this are things like laser cutting the planks!

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.

The laser does not cut through the wood, it burns its way through. As a result of this, occasionally there will be scorching on the surface of the wood. This is normal, and is only a surface discoloration, and does not affect the wood in any other way. Similarly, the laser settings are optimized for wood density averages, so occasionally, due to variations even in individual sheets, some areas might not cut through completely. This is apparent mainly with the plywood. Simply use care in removing the parts from the sheets; most of the time, the parts will literally fall out of the sheets!

Hardware and a motor mount are not included in the kit. There are so many choices for quality hardware that these choices are left to the individual preferences of the builder, rather than include something in the kit that you'll probably throw away anyway. A vibration-dampening motor mount is recommended for use regardless of engine choice (glow or gas engine), so select a mount suited to your particular engine.

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, turn the page and start building the best airplane on the market!

## Items required to complete your kit:

Sullivan Gold-N-Rods, 48" (Part no. 504) or other appropriate pushrods

Sullivan RST-10 or -12 Fuel Tank or other 10-12 ounce fuel tank

Motor Mount for engine used

3-1/2" Main Wheels (Robart #135)

1" Tailwheel

***Retracts:***
Springair Part # 103HD
Robart #510RS with #524 Gear Wire
Robart #510RSE (electric) with #524
E-flite #EFLG500 (electric)
Robart #. Robart Part # 121 Retractable tail gear (can be made retractable or fixed)

Hinges - your choice

Control Horns, Clevises, Bolts, Nuts, Screws, etc.

1/9th Scale Pilot Figure: The turret gunner is a bust figure. The pilot is a full figure.

Engine, Muffler, Radio, Covering, Paint, etc.

### Electric Conversion:

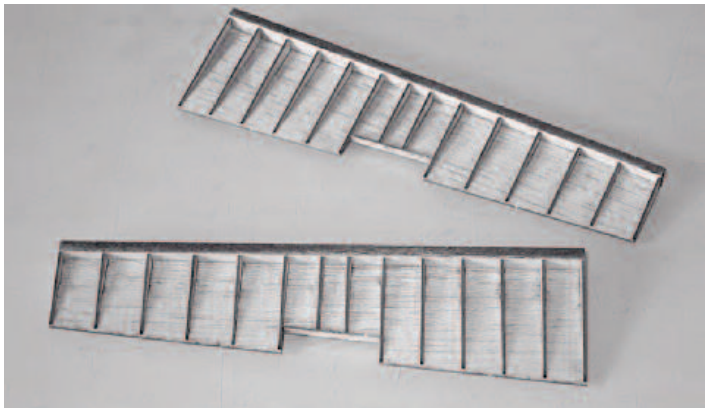
Brushless Outrunner Motor 400-500Kv
Skyshark Lightning 75 or E-flite Power 60

ESC: OS70, Cobra 80 or E-flite 80

Battery: Ulti-Power 6-8 cell 5200mAh

Rare Earth Magnets for battery hatch.

## Ailerons



☐ 1. Slide A2 thru A15 into the slots in A1. Glue in place.

2. Align A16 against the forward edge of the trim tab cutout in A1 and A8/A9. Glue in place.

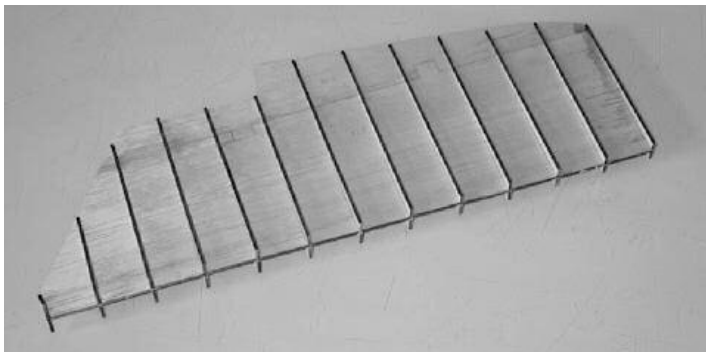
3. Align the ribs on A17 and glue.

4. Determine your hinge points and if necessary, add scrap balsa to the open bays at the hinge points for extra support.

5. Sand A17 to match the rib contours.

Set these assemblies aside for now.

## Elevators



☐ 1. Align the slots in E1B to E1A and glue the elevator halves together.

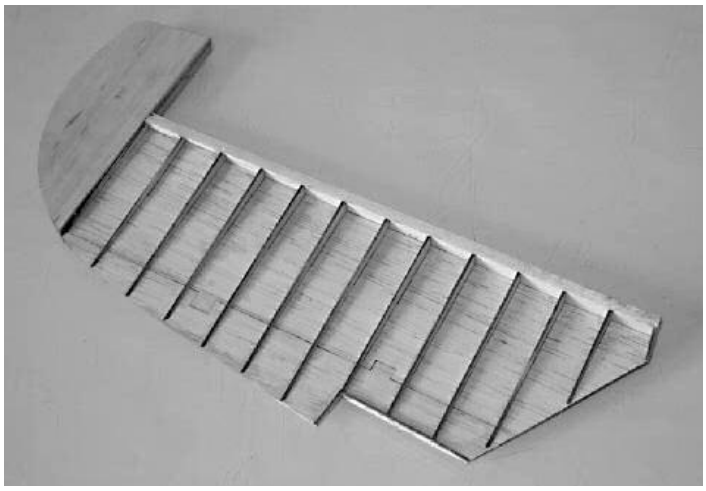
2. Slide E3 thru E15 into the slots in the E1 assembly. Glue in place.

3. Align the ribs with E2 and glue.

4. Sand E2 to match the rib contours.

5. Glue E17 to the end of the trim tab cutout.

6. Glue E18 to the forward edge of the trim tab cutout.

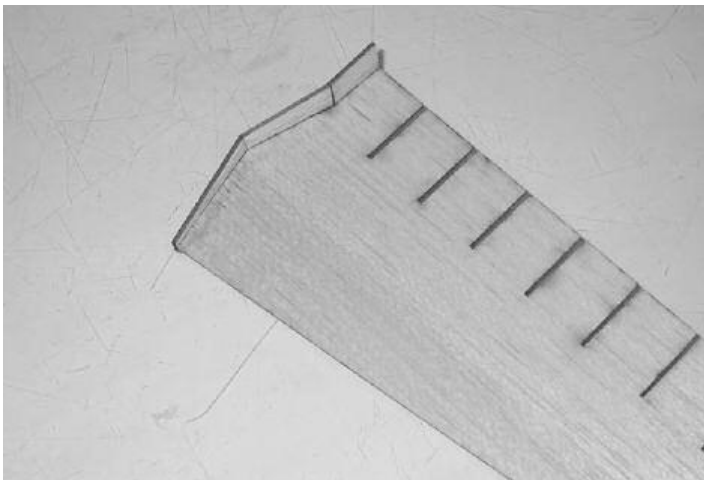


☐ 7. Glue two E16s together. Glue this assembly to the edge of the elevator at E15, aligning the aft edge.

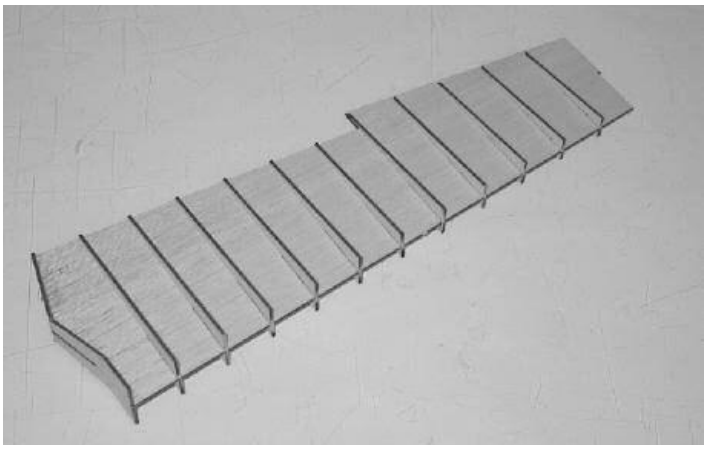
8. Determine your hinge points and if necessary, add scrap balsa to the open bays at the hinge points for extra support.

9. Sand the E16s to match the rib taper. Do not sand the forward portion of the balance tab until the stabilizer has been completed.

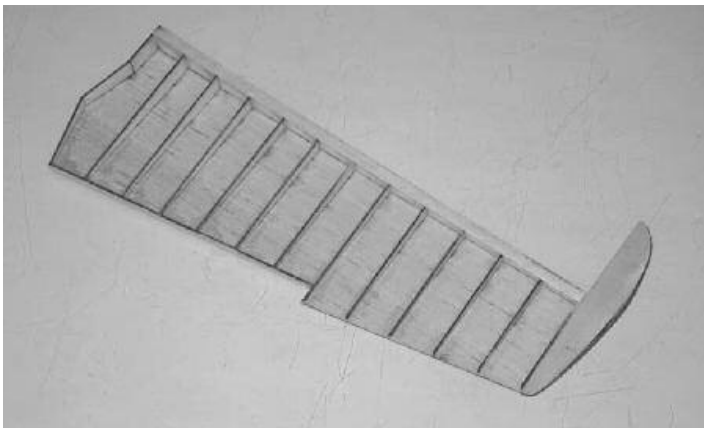
## Rudder



☐ 1. Carefully bend R3 at the scribed lines to fit the angles at the bottom of R1. Glue R3 to R1.



☐ 2. Slide R4 through R14 into the slots in R1. Glue the ribs to R1.



☐ 3. Glue R2 Leading Edge to the rudder assembly, carefully aligning R2 with the ribs.

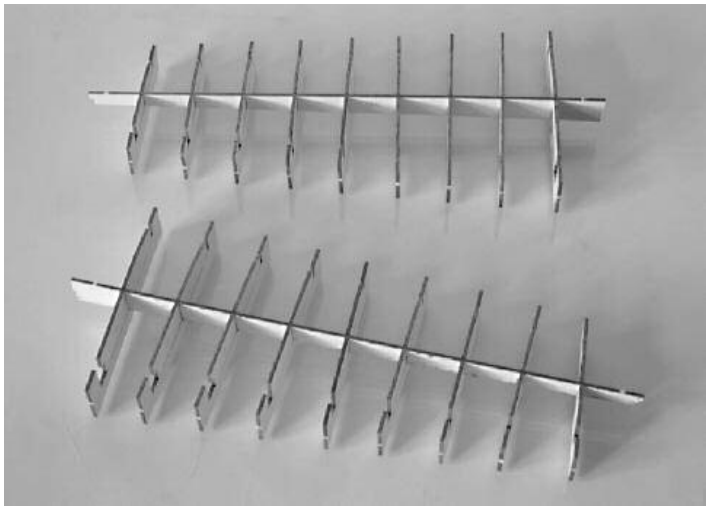
4. Glue R15 into the top slot in the assembly.

5. Glue R16 to the back edge of R1, aligning with the ribs.

6. Glue R17 and R18 together, with the engraved portion facing inward. This will create a slot for the antenna to fit into.

Set this assembly aside for now.

## Horizontal Stabilizer



☐ 1. Slide S2 thru S10 into the slots in S12 spar. Make a left and right side. The assembly will be upside down at this point.

2. Carefully turn the assemblies over, and align with the stab layout on the plans.

3. Pin S1 to the board. Align the stab assemblies to S1 and pin the ribs in place.

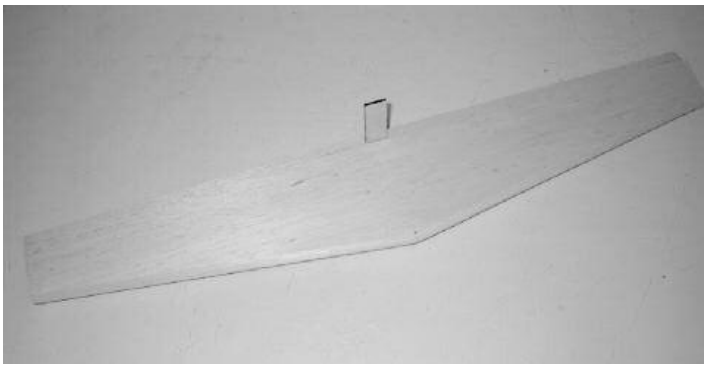
4. Align S11 to the ends of the spar, pin to the board, and glue.

☐ 5. Carefully slide the S15 rear spar into the slots in the rib jigs and glue in place. Repeat for the remaining S15.

6. Glue the ribs to the S15 spars.

7. Carefully slide the S13 front spar into the slots in the jigs and glue S13 to the ribs. Repeat for the remaining S13.

8. Carefully break off the upper front tabs on the rib jigs. This will allow adequate clearance for the sheeting to overlap.



☐ 9. Cut two 1/16x4x36 balsa sheets to 25". Using one sheet, sheet the top of the stab while it is pinned to the board.

10. Remove the stab from the board. Remove the jigs from the ribs, and trim and sand the assembly.

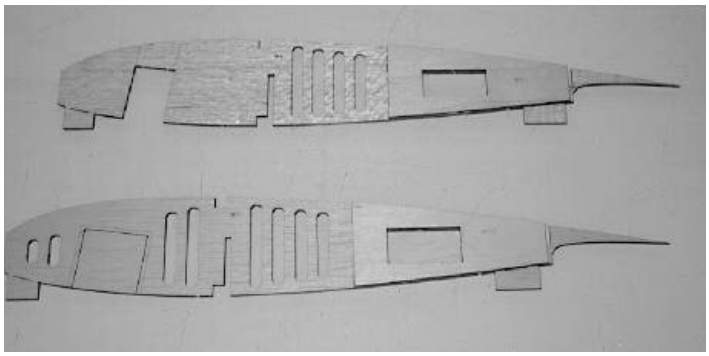
11. Slide S14 Ply Spar into the slots at the rear of the stab, and glue in place. Add scrap balsa pieces for hinge supports behind the spar at the hinge locations.

12. Cut a slot matching the spar extrusion into the remaining balsa sheet, and sheet the bottom of the stab.

13. Trim and sand the stab edges.

14. Cut and glue pieces of 3/8x1/4 balsa to the leading edge of the stab. Sand these pieces to finish the

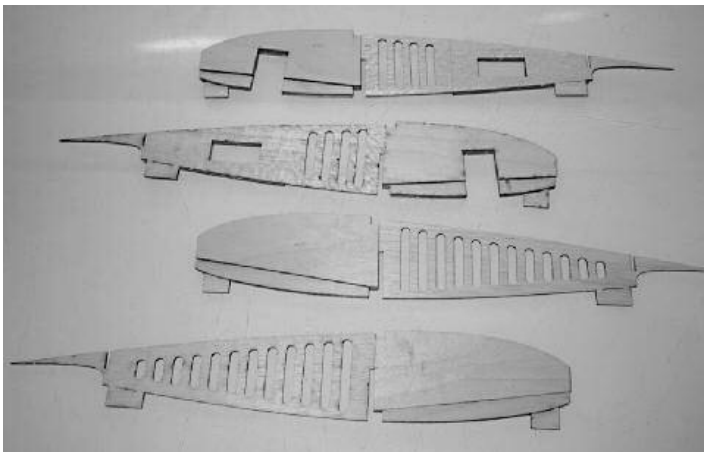
## Center Wing Assembly



☐ 1. If you are opting for functional flaps, complete Steps 1 and 2. For fixed flaps, go to Step 3. Epoxy W4C to W4 to serve as a servo mount reinforcement.

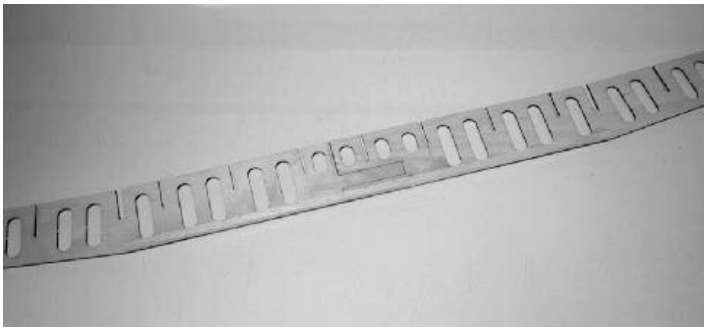
2. Epoxy W5B to W5 to serve as a servo mount reinforcement.

***Note:*** *both W5B and W4C are glued on the right side of the ribs. This is to properly align the flap servos for correct movement. The W4 rib will be installed on the right side, and will have additional ply plates added to it. The W5 rib will be installed on the left side of the center wing section.*



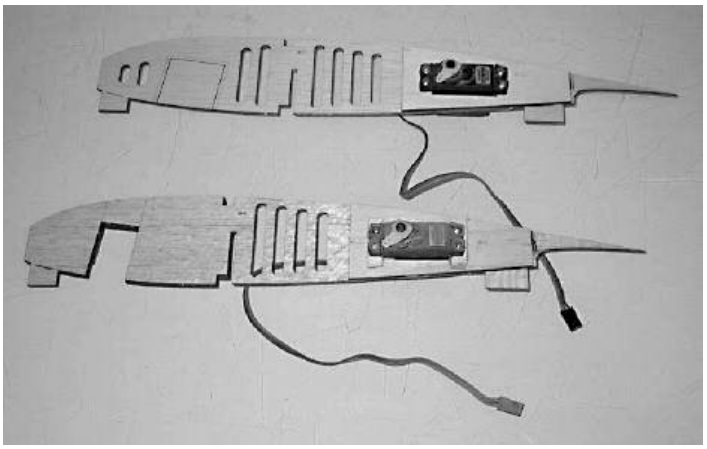
☐ 3. Epoxy W3A Ply Gear Support to W3. Epoxy W3B to W3A, aligning the upper edges. Make a left and right side. (Double-check yourself here, it's easy to make two left sides!)

4. Place the W4 rib with attached W4B on the table with W4B face down. Epoxy W4A Ply Gear Support to W4. Epoxy W4B to W4A, aligning the upper edges (W4D will be on the opposite side). This is the right rib. Make a left side W4 rib assembly by epoxying W4A and W4B as before except on the opposite side of W4.



☐ 5. Glue the two W17 Ply spar halves together.

6. Using the plans as a guide, cut a length of ¼ x ¼ balsa to fit between the W5s as a spar, and glue to the bottom edge of W17.

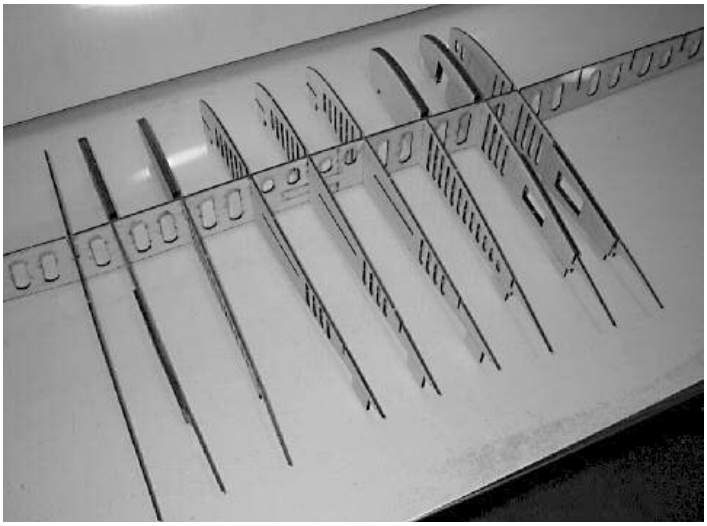


☐ Continue with this step if you are going to make the flaps functional. If not, skip to Step 10.

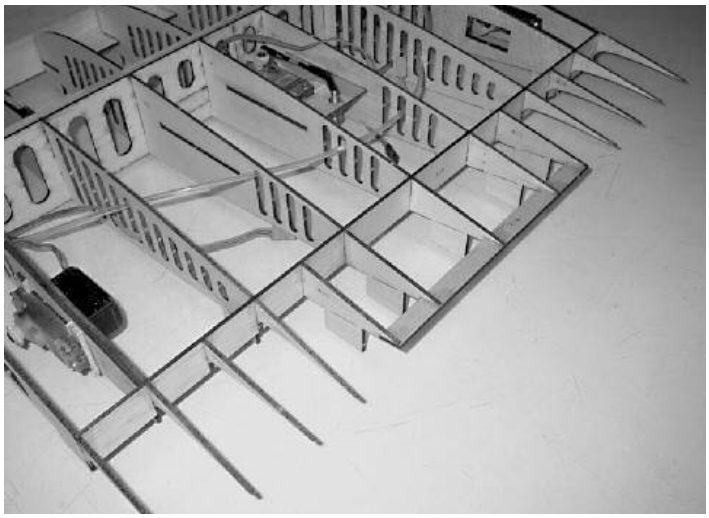
7. Cut several pieces of scrap 1/8” ply to use as reinforcements for the servo mounts.

8. Add the reinforcements to the W4 rib on top of the Ply Flap Servo Support, and install the servo.

9. Add the reinforcements to the W5 rib behind the Ply Flap Servo Support, and install the servo. This arrangement will properly position the flap servos.



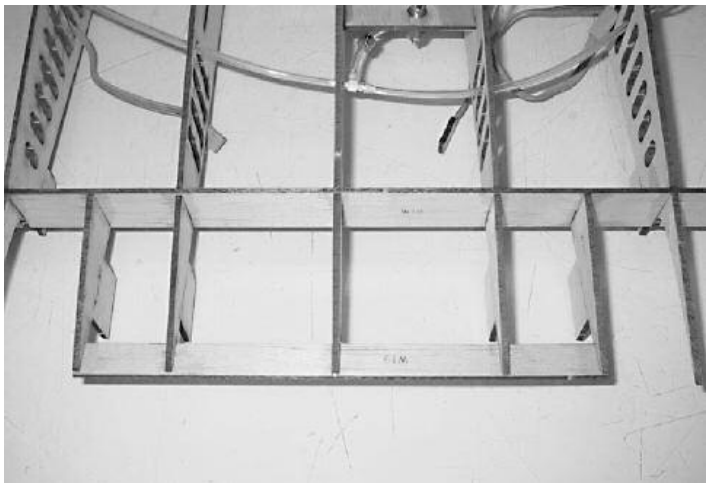
☐ 10. Align the spar with the center wing section plans, and slide W1 into place. Slide the W2s, W3s (the ply supports will face outward), W4s (the ply gear supports will face inward, the flap support outward) and W5s into the slots. Do not glue at this time.



☐ 11. Slide W18 Rear Spar into the slots in the ribs. At this time, align all the components of the center wing section assembly with the plans and pin to the board.

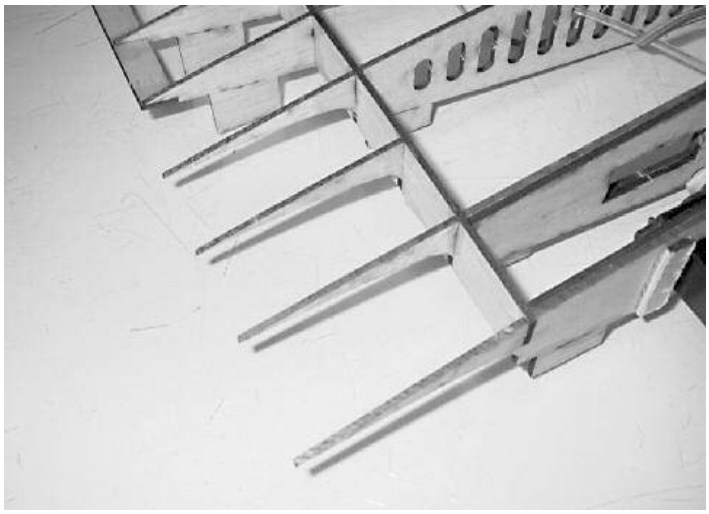
12. Glue the ribs to the Ply Spar, and to the Rear Spar.

Hint:
When gluing the W5 ribs, it helps to slide a piece of scrap 3/32” balsa in the rib slot to secure the W5 ribs against the inner edge of the slot. After gluing, remove these scrap pieces.

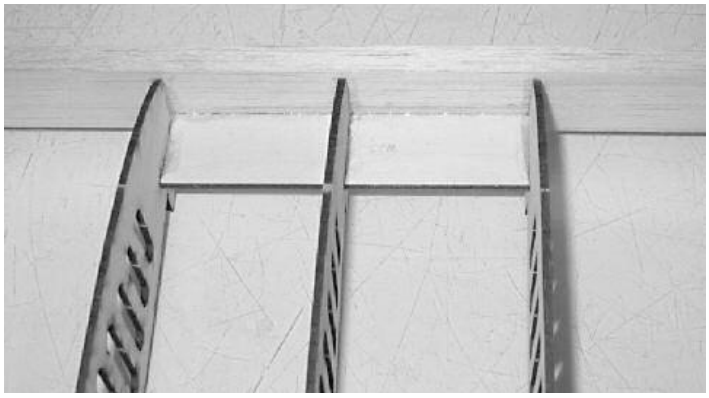


☐ 13. Align and glue the W25 Flap Sub-ribs to W18.

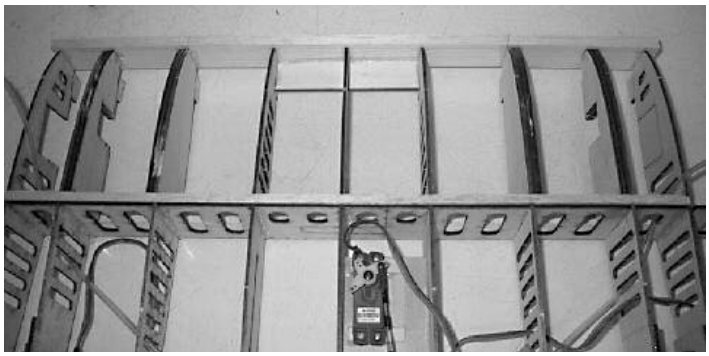
14. Align and glue W19 into the bottom slot in the trailing edges of the ribs.



☐ 15. Glue the W26 Flap Sub-rib into the slot in W18. Use a straightedge to ensure proper alignment.



☐ 16. Glue W23 Ply Forward Holddown Plate into the slots in the front edge of W1 and W2.

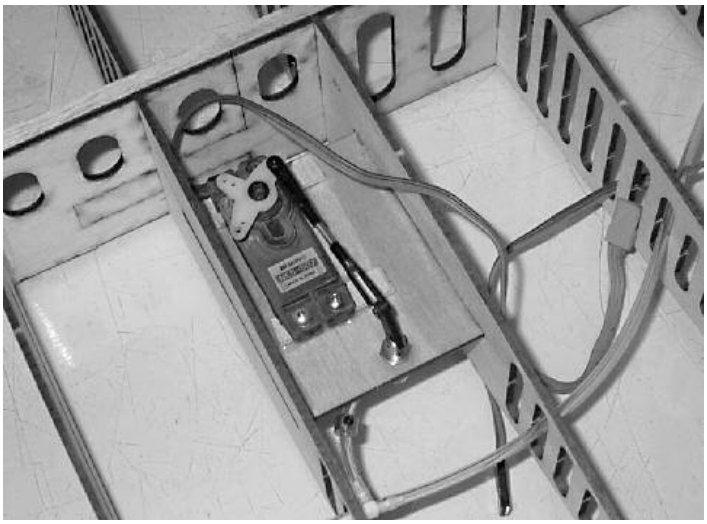


☐ 17. Glue an 18" piece of 3/8 x ¼ balsa to the 3/8 x 1 x 18 balsa leading edge. This will make the leading edge 3/8 x 1 ¼ x 18.

18. Cut the leading edge to fit from W3 on the left to W3 on the right, align so there is excess both above and below the rib faces, and glue in place.

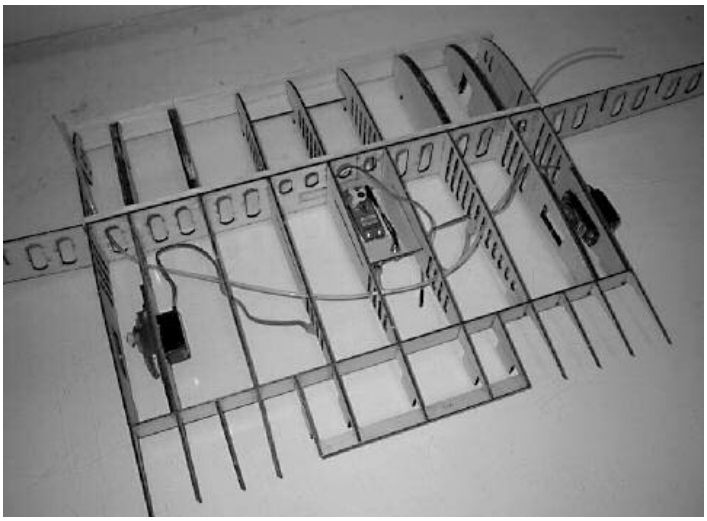
19. Cut additional pieces to fit from W3 to W5 on both sides, align and glue in place.

20. Cut a ¼ x ¼ balsa spar to size and glue into the slots and against the Ply Spar.



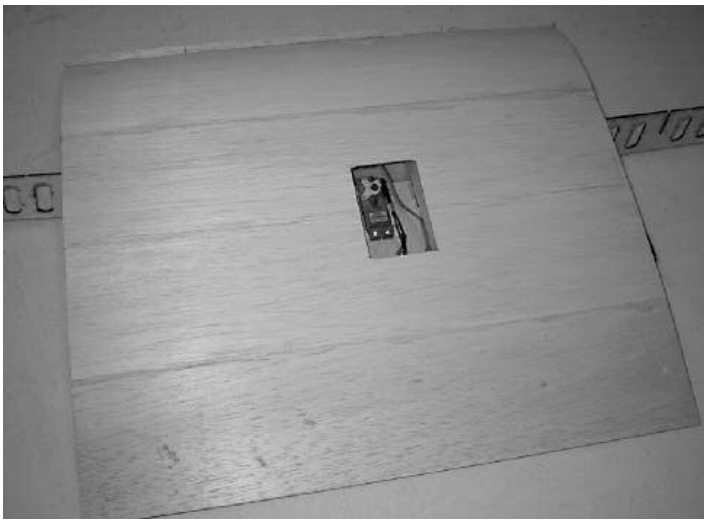
☐ 21. A retract servo mounting plate is provided as Part No# W20. If you wish to utilize this, mount the servo and retract valve and glue in place. Although the setup shown is for Springair retracts, any retract system may be utilized. The Retract Plate may be mounted on either side of W1.

*The Retract air lines and servo leads may be run at this time, or you may wait until the upper wing surface is sheeted.*



☐ 22. Sand the center wing section as necessary to relieve any high spots and rough areas for sheeting.

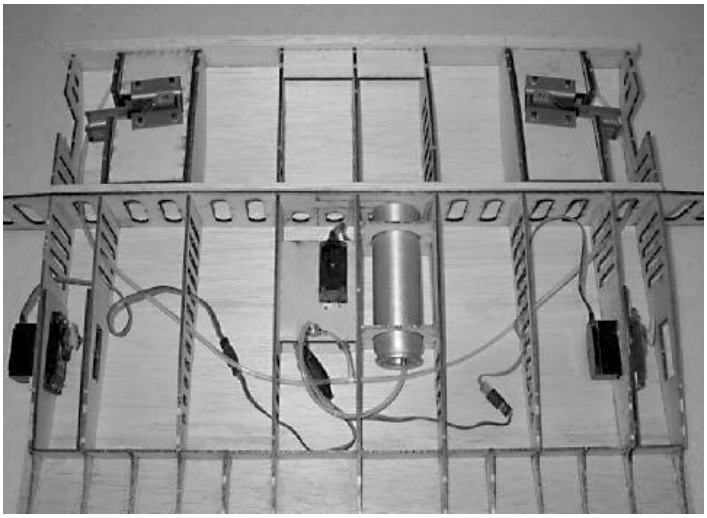
23. Cut four 1/16 x 4 x 36 balsa sheets to 18". Edge glue four 18" sheets to make the upper wing sheet. Edge glue the remaining four sheets to make the lower sheeting and set aside.



☐ 22. Sheet the upper surface of the center wing section.

23. Trim the sheeting around the retract servo and valve for access to the servo, servo leads, and retract air lines.

24. Trim the aft edge of the sheeting to 5/8" of the ends of W5.

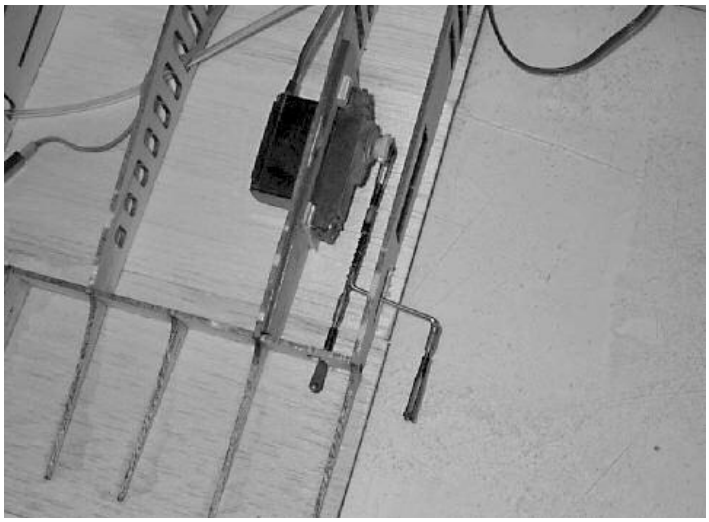


☐ 24. W21 and W22 are provided as air cylinder mounts, and are designed to fit between W1 and W2 as shown. You may mount the air cylinder now.

***Note:*** *W21 and W22 are designed to fit the Springair cylinder. Some others may be too large to fit in the wing. If this is the case, the air cylinder may be mounted in the fuselage, or in the belly pan. See the instructions for alternate locations.*

25. Epoxy both W24s in place. Trial fit the retract units.

26. Install the y-harnesses for the flaps and ailerons at this time, and hook up the servo leads.

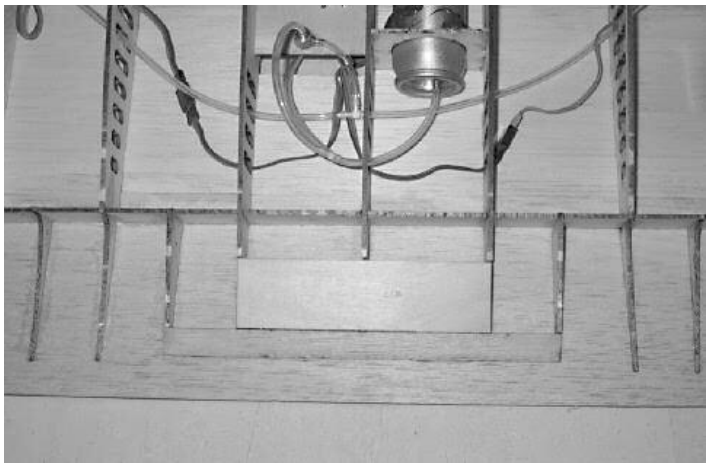


☐ 27. Make the flap pushrod by soldering a "y" (or lower case h, or whatever) to split the actuation for the flap halves. See the plans.

28. Install the flap pushrod and servo arm at this time for both sides.

***Note:*** *Locate the flap hinges and mark their location on the flap spar. Add scrap balsa behind the flap spar at these locations for added hinge support.*

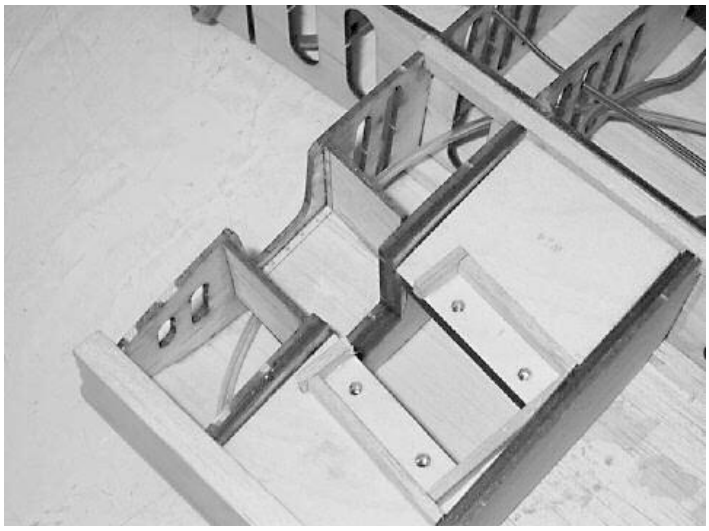
***Note:*** *if you wish to add hatches to access the servo, add any braces and reinforcement now.*



☐ 29. Remove enough material from the W1 and W2 ribs to allow the W27 Ply Rear Holddown Plate to fit flush with the bottom of the ribs and W19. Glue the W27 Ply Rear Holdown Plate onto the W1 and W2 ribs.

30. Bevel the edge of the trailing edge sheeting aft of W1, W2 and W25 to a sharp edge.

***Note:*** *bevel only the portion aft of the mentioned ribs. The trailing edge sheeting at the flaps should be full thickness.*

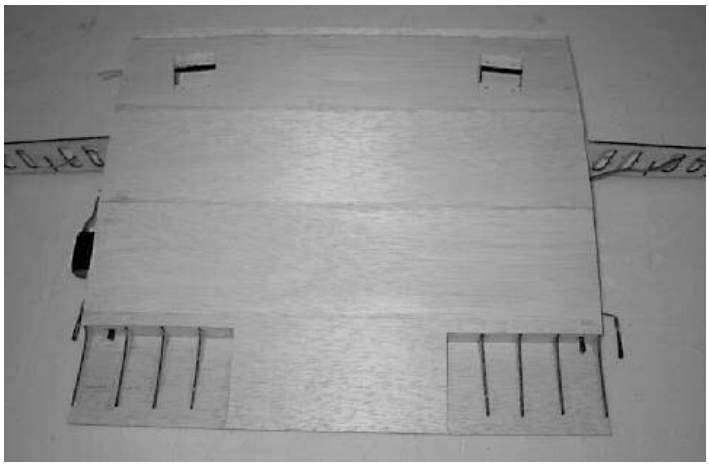


☐ 30. Install the wheel well liners by first gluing Ww1 to W5 and W4, aligning with the scribed marks on W5 and level with the retract cutout on W4. Note that Ww1 is shown on the left side of the center wing section on the plans - but when working on the wing upside down, you'll install it on your right.

31. Add Ww2 to the front, and Ww3 to the rear of Ww1. Make sure the engraved detail is towards W5.

32. Glue Ww4 into the notch in W5.

33. Repeat Steps 30 - 32 for the right side. Paint the wheel wells now.



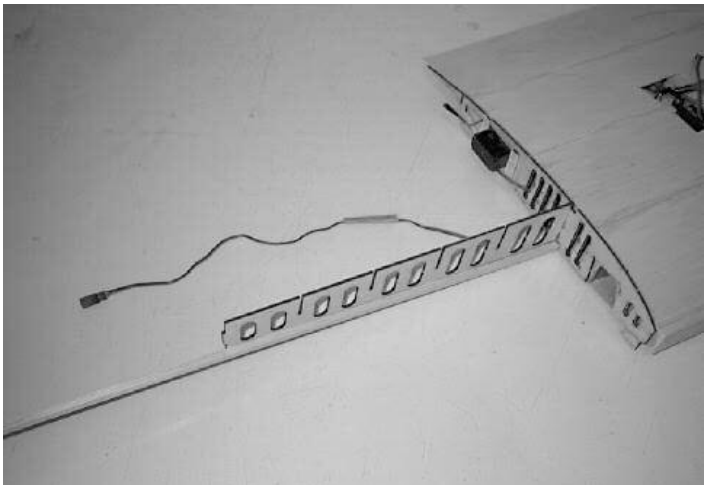
☐ 34. Lightly sand the bottom wing surface to remove any high spots or excess glue.

35. Double check that all the servo leads, air lines, etc., are properly routed. After sheeting the bottom wing surface, the will no longer be access to them.

36. Using the remaining sheet made earlier, sheet the bottom of the center wing section. Do not glue the sheeting together at the flap areas, only aft of W1, W2, and W25.

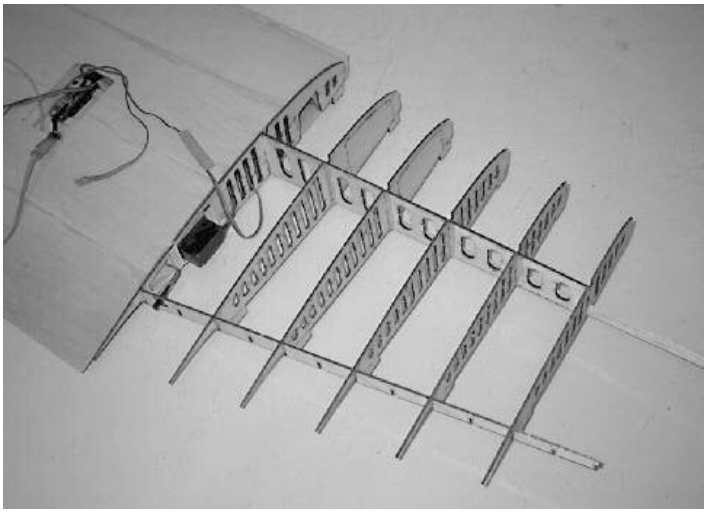
37. Trim and sand the sheeting at W5, the trailing edge, and the flap areas.

## Right Wing Panel Assembly



☐ 1. Cut a ¼ x ¼ balsa spar to 27 1/2". Glue this to W17 as the bottom spar.

2. Glue W5A to W5, aligning the ribs to allow for full sheeting thickness all around. You may have to section W5A to allow for relief of the flap servo.

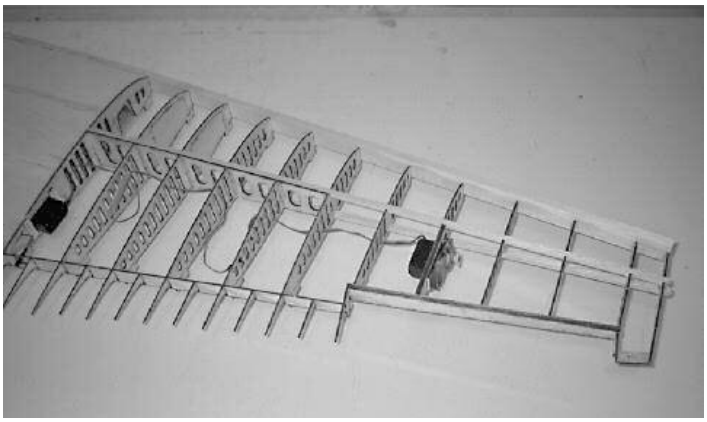


☐ 3. Align the center wing section with the plans and pin in place. Slide W6, W7, W8, W9 and W10 into the slots in W17.

4. Slide W28 Flap Spar into the slots in the ribs. Glue the ribs to the spars now.

5. Glue W11 in place on the main spar.

6. Glue W13, W14, W15, and W16 in place to the main spar.

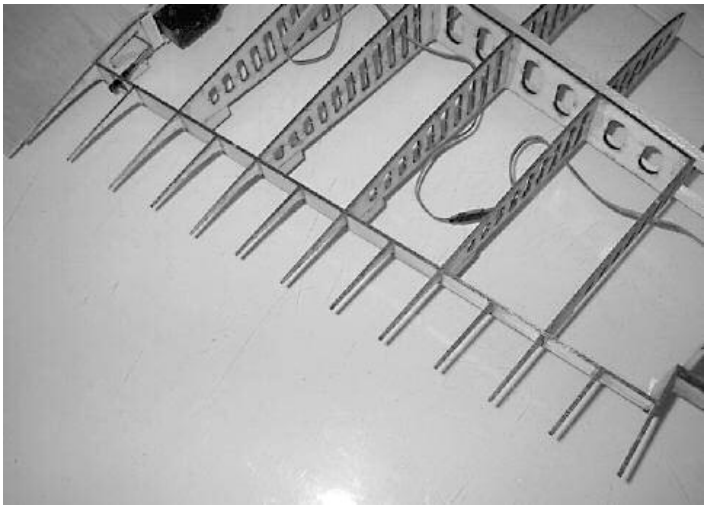


☐ 7. Align W29 Aileron Spar to the aft ends of W11 thru W15 and glue in place. Note that W29 will extend slightly past W11. Align W11A with the plans, W29, and W28 and glue.

8. Epoxy W12A Ply Servo Support to W12. Mount the aileron servo to W12, and glue in place.

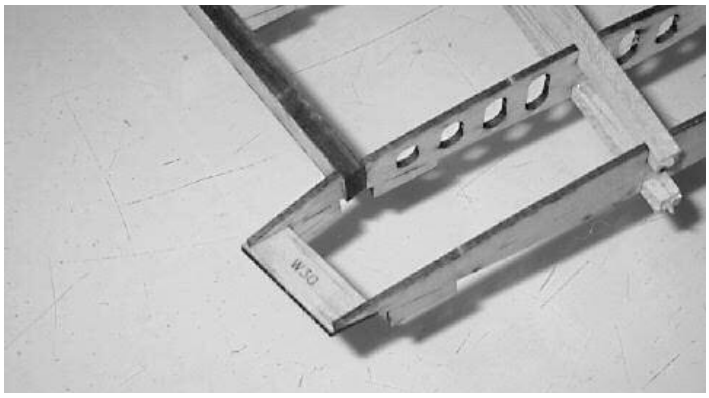
9. Sand the 3/8 x 1 x 36 (shorten to 27 ½") balsa leading edge to fit at the center wing section and glue in place.

10. Glue the ¼ x ¼ upper spar in place.



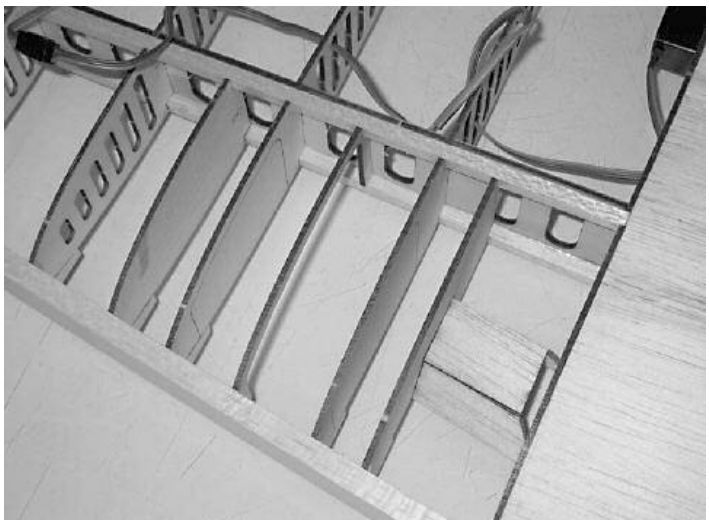
☐ 11. Glue W31 thru W36 Flap Ribs to W28, aligning with the existing ribs.

12. Cut shear webs from 1/16" balsa and glue to the spars outward of W10.




☐ 13. Align W15B and glue to W29.

14. Fit W30 into the notches in W15B and W16 and glue in place.



☐ 15. Align Ww8 with the plans and glue in place.

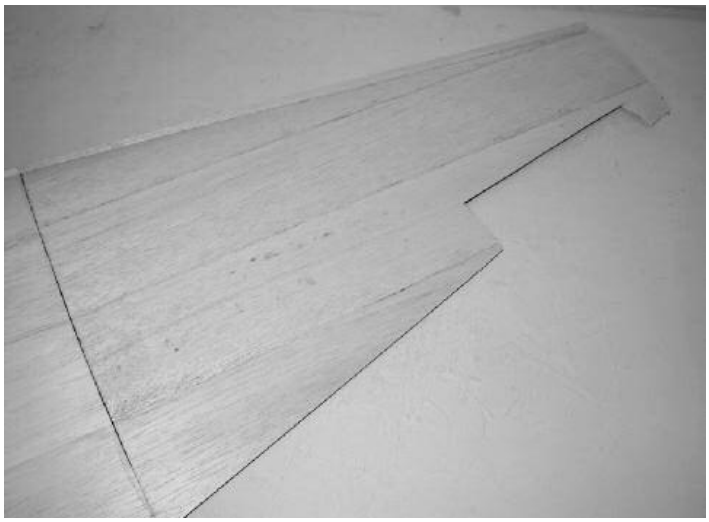
16. Using the engraved marks on Ww8 as a guide, glue a Ww10 in place. Note that the angled end faces W5.

17 glue another Ww10 to Ww8.

18. Glue Ww12 to the top edges of the Ww10s, with the rivet detail facing down.

19. Align and glue Ww17 in place.

20. Align and glue Ww9 in place.



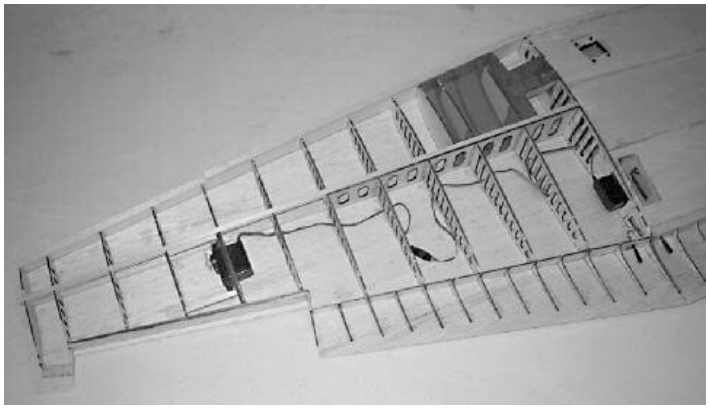
☐ 21. Cut three 1/16" x 4 x 36 balsa sheets to 27 1/2". Take one of these sheets and cut it into two pieces, cutting from the upper left corner to the lower right corner, creating a triangle.

22. Edge glue the two full sheets together. Then edge glue the two triangles to the sheet, creating a trapezoid. Sand the sheet smooth.

23. Trim the sheet to fit at the leading edge and at the center wing sheeting, and sheet the upper surface of the right wing panel.

24. Place the aileron in place temporarily, and use it as a guide to trim the sheeting trailing edge to proper size.

25. Determine, based on the illustrations on the plans, which aileron configuration you wish to use. If you're using the CA hinge or Standard Robart hinge, trim the sheeting flush with the aileron spar. If you're using the Frise aileron setup, trim the sheeting to leave 1/8" hanging past the aileron spar.



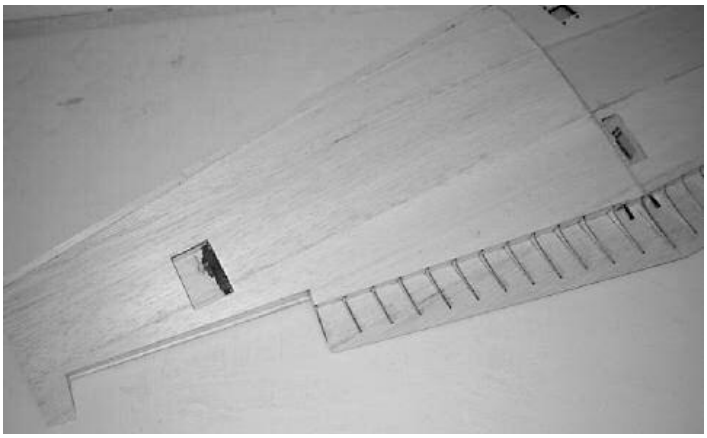
☐ 26. Bevel the edge of the wing sheeting at the wingtip to match the lower wing camber.

27. Add pieces of scrap balsa between W12 and W13 as supports for the aileron servo hatch.

28. Add a piece of 3/8 x ¼ to the leading edge to add depth to the leading edge close to the center wing section.

29. Mark the aileron hinge locations on W29 and add scrap pieces of 1/4" balsa behind W29 at the hinge locations for added support. Do this also for the flap hinges for functional flaps.

30. Glue Ww16 into the wheel well at Ww10 and Ww12, aligning with the rivet detail. Paint the wheel well now.

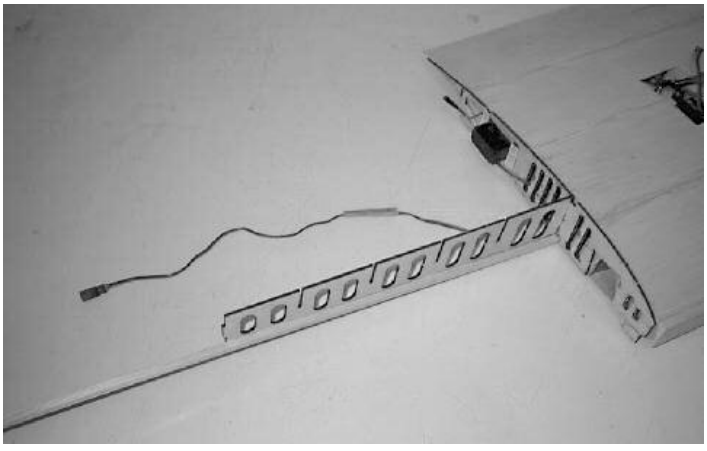


☐ 31. Using the same method as in Steps 21 and 22, make the sheet for the lower wing surface.

32. Sheet the lower wing surface. Attach the sheeting only as far as the flap spar - do not glue to the trailing edge of the upper wing sheeting.

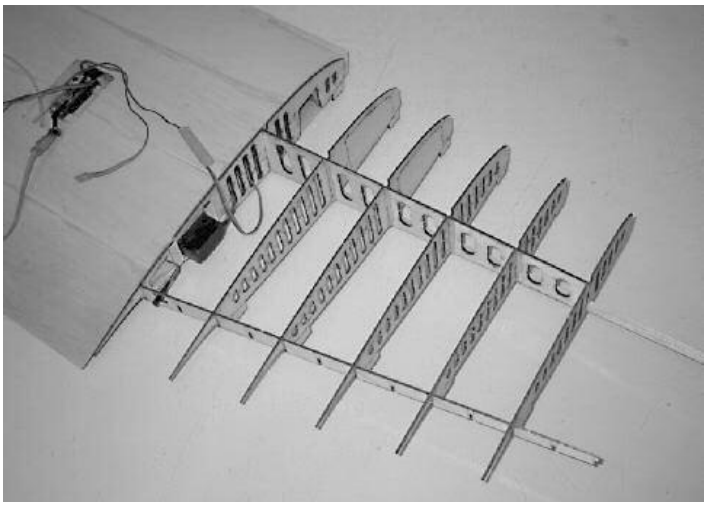
33. Trim and sand the sheeting at the wingtip, the aileron bay, and the flap spar.

34. Add the wingtip and rough sand to shape.



☐ 1. Cut a ¼ x ¼ balsa spar to 27 1/2". Glue this to W17 as the bottom spar.

2. Glue W5A to W5, aligning the ribs to allow for full sheeting thickness all around. You may have to section W5A to allow for relief of the flap servo.

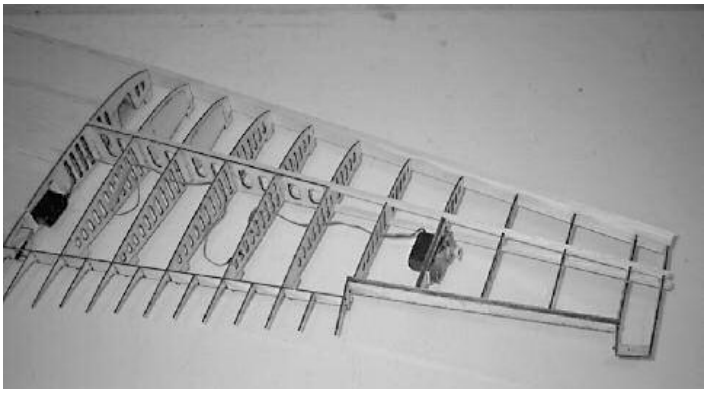


☐ 3. Align the center wing section with the plans and pin in place. Slide W6, W7, W8, W9 and W10 into the slots in W17.

4. Slide W28 Flap Spar into the slots in the ribs. Glue the ribs to the spars now.

5. Glue W11 in place on the main spar.

6. Glue W13, W14, W15, and W16 in place to the main spar.

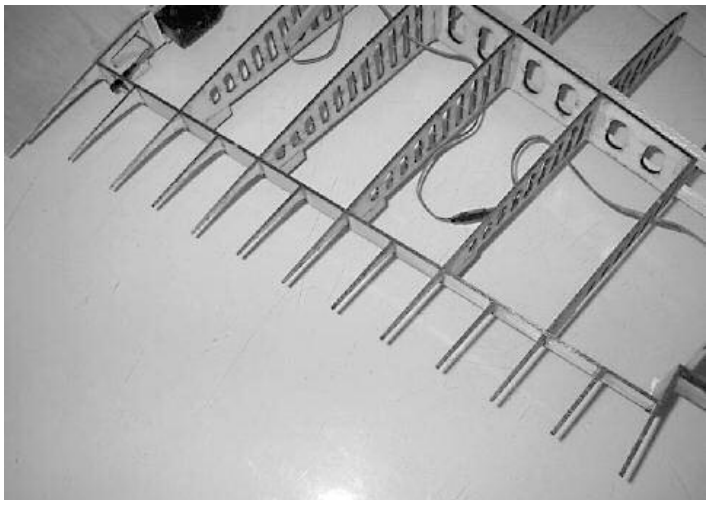


☐ 7. Align W29 Aileron Spar to the aft ends of W11 thru W15 and glue in place. Note that W29 will extend slightly past W11. Align W11A with the plans, W29 and W28 and glue.

8. Epoxy W12A Ply Servo Support to W12. Mount the aileron servo to W12, and glue in place.

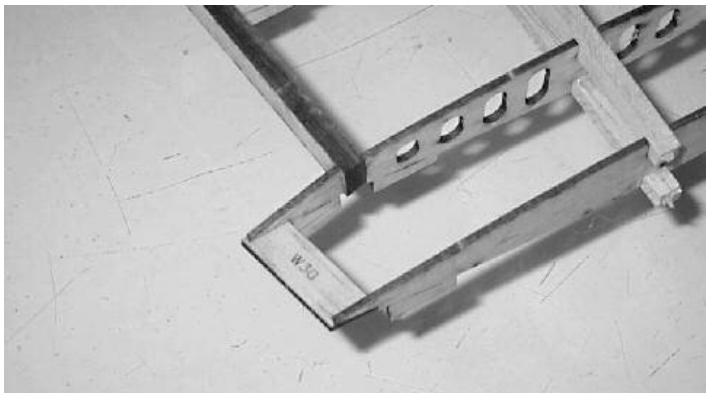
9. Sand the 3/8 x 1 x 36 (shorten to 27 ½") balsa leading edge to fit at the center wing section and glue in place.

10. Glue the ¼ x ¼ upper spar in place.



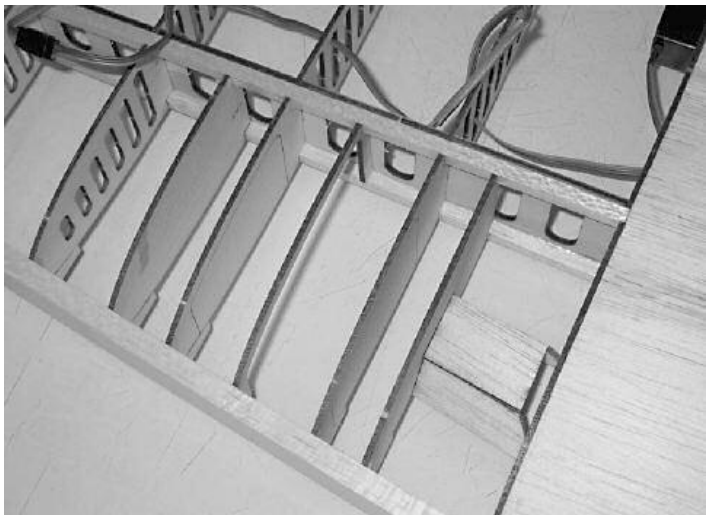
☐ 11. Glue W31 thru W36 Flap Ribs to W28, aligning with the existing ribs.

12. Cut shear webs from 1/16" balsa and glue to the spars outward of W10.




☐ 13. Align W15B and glue to W29.

14. Fit W30 into the notches in W15B and W16 and glue in place.



☐ 15. Align Ww8 with the plans and glue in place.

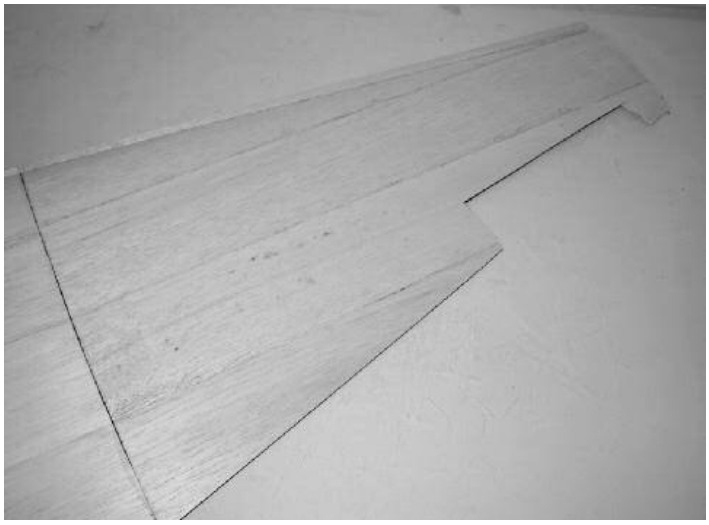
16. Using the engraved marks on Ww8 as a guide, glue a Ww10 in place. Note that the angled end faces W5.

17 glue another Ww10 to Ww8.

18. Glue Ww15 to the top edges of the Ww10s, with the rivet detail facing down.

19. Align and glue Ww17 in place.

20. Align and glue Ww9 in place.



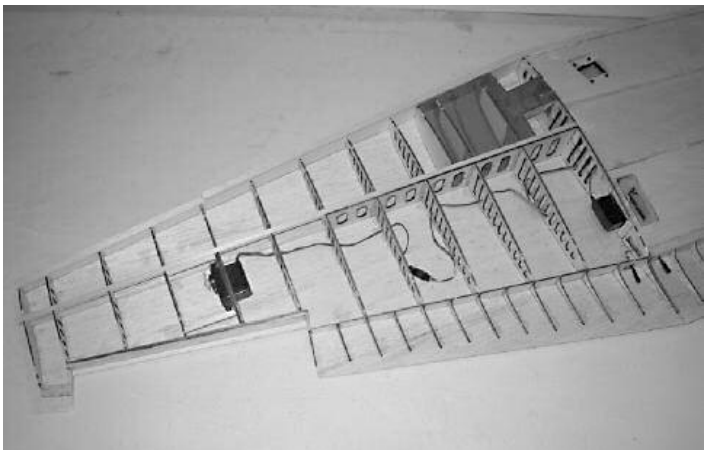
☐ 21. Cut three 1/16" x 4 x 36 balsa sheets to 27 1/2". Take one of these sheets and cut it into two pieces, cutting from the upper left corner to the lower right corner, creating a triangle.

22. Edge glue the two full sheets together. Then edge glue the two triangles to the sheet, creating a trapezoid. Sand the sheet smooth.

23. Trim the sheet to fit at the leading edge and at the center wing sheeting, and sheet the upper surface of the right wing panel.

24. Place the aileron in place temporarily, and use it as a guide to trim the sheeting trailing edge to proper size.

25. Determine, based on the illustrations on the plans, which aileron configuration you wish to use. If you're using the CA hinge or Standard Robart hinge, trim the sheeting flush with the aileron spar. If you're using the Frise aileron setup, trim the sheeting to leave 1/8" hanging past the aileron spar.



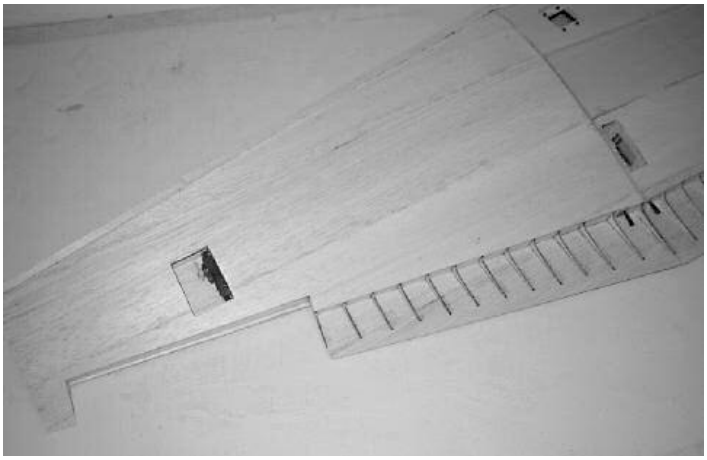
☐ 26. Bevel the edge of the wing sheeting at the wingtip to match the lower wing camber.

27. Add pieces of scrap balsa between W12 and W13 as supports for the aileron servo hatch.

28. Add a piece of 3/8 x ¼ to the leading edge to add depth to the leading edge close to the center wing section.

29. Mark the aileron hinge locations on W29 and add scrap pieces of 1/4" balsa behind W29 at the hinge locations for added support. Do this also for the flap hinges for functional flaps.

30. Glue Ww16 into the wheel well at Ww10 and Ww15, aligning with the rivet detail. Paint the wheel well now.



☐ 31. Using the same method as in Steps 21 and 22, make the sheet for the lower wing surface.

32. Sheet the lower wing surface. Attach the sheeting only as far as the flap spar - do not glue to the trailing edge of the upper wing sheeting.

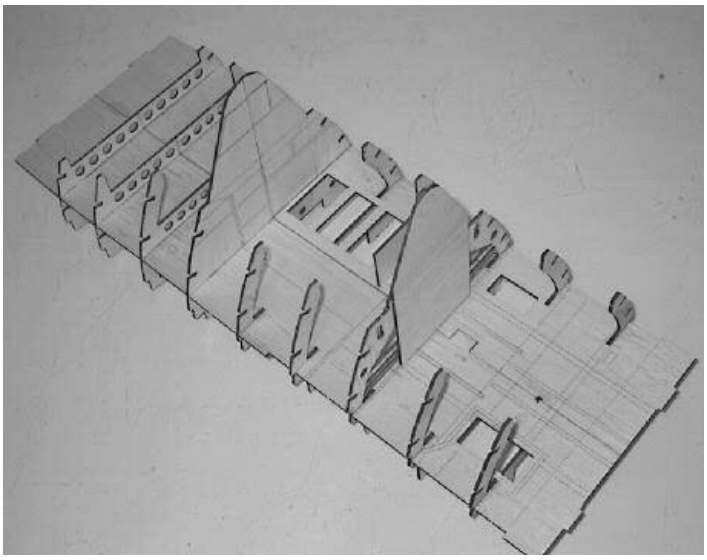
33. Trim and sand the sheeting at the wingtip, the aileron bay, and the flap spar.

34. Add the wingtip and rough sand to shape.

# Fuselage Assembly

***Note:*** *While assembling the center cockpit section, many of the parts are delicate and will require carefully handling to prevent breakage. Take your time and don't get in a hurry. Why so many delicate parts? Many of these pieces don't have much strength on their own, but become vital integral components for the full assembly, such as the interaction between the cockpit ribs, stringers, and sheeting. The structure is designed so that no one component carries the major loads of the fuselage, rather all parts carry the stress more or less equally.*

*Much of the cockpit painting will need to be accomplished either before assembly or during assembly. Look for painting notes at the various steps.*

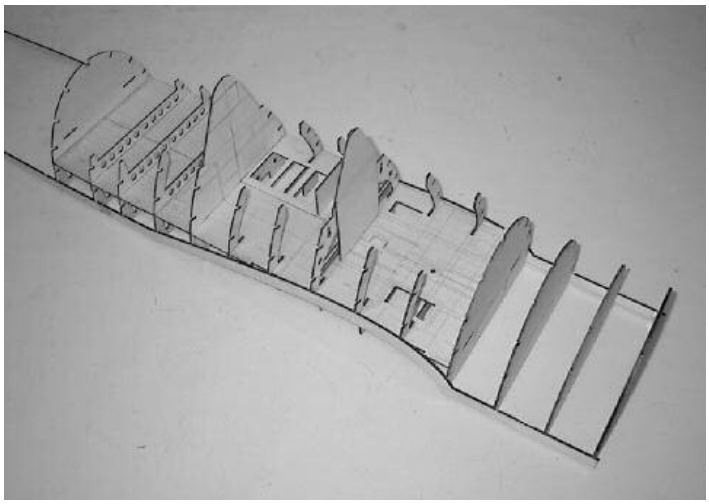


☐ 1. Remove C1A and C1B from the parts sheets and remove the servo cutouts from these parts. C1A will have three in the middle of the sheet, and C1B will have one towards the front. Glue C1A and C1B together.

2. Slide F7L and F7R into the third slots in the cockpit floor with the engraved portion facing aft (away from the engraved portion of the floor). Tack F7L and R together. Set F7 at a right angle to the floor, and glue F7 to the cockpit floor. Center F44 Armor Bulkhead with F7 and glue in place.

3. Slide F6 into the second slot, align, and glue.

4. Slide F5 into the first slot, align, and glue.5. Continue the assembly by working aft with F8L and F8R in the next slot aft, F9 behind it, then F10L and F10R, F11L and F11R, F12L and F12 R, and finally F13L and F13 R. Set this assembly aside for now.



☐ 6. Glue F28 and F29 Ply Fuselage Crutches together. Since F29 is tapered, make sure both pieces have the part number facing up, and align the bottom edges with a straightedge. Make two assemblies.

7. Align the ply crutches with the Top View of the Fuselage and pin in place.

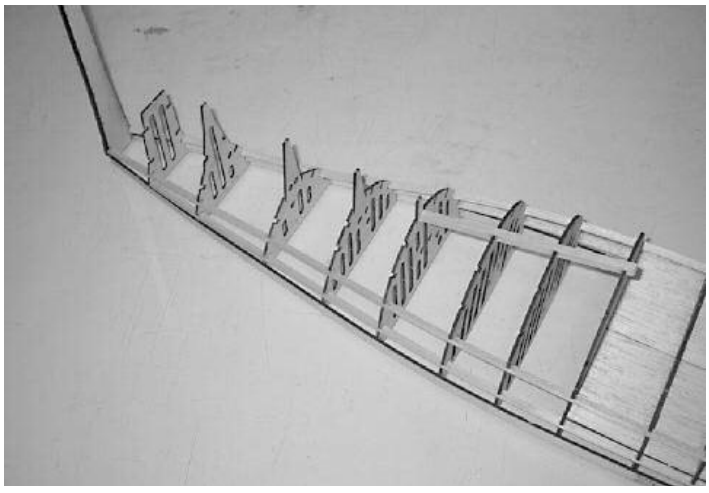
8. Align F1A with the plans and glue to the crutches.

9. Glue F2A, F3A, and F4A, in place.

10. Fit the cockpit assembly in place, sliding the tabs on the floor into F4A. Glue first to F4A. See Figure 47.

11. Next, glue F13 to the crutches, making sure everything stays flat with the building surface. Then work forward with F12 and F11.

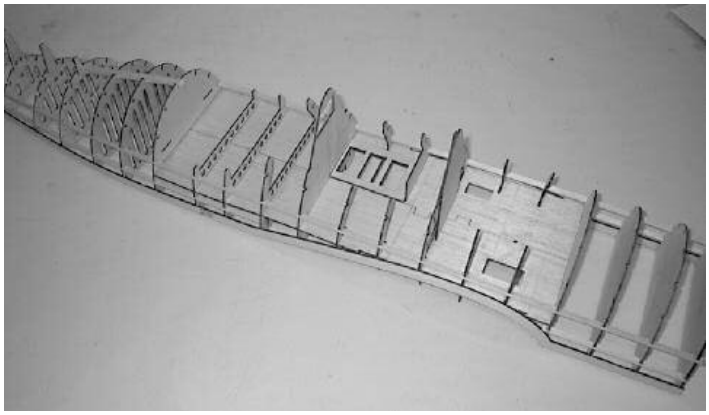
12. Then carefully squeeze the crutch to fit at F7, and glue. Continue with F6 and F5, then F8, F9 and F10.



☐ 14. Glue F15A, F16A, F17, F18, F19, F20A, and F21A to the crutch. Note that these parts must be installed with the correct side facing forward to allow proper alignment of the pushrods.

15. Using the Rudder Angle Gauge, align F22A with the gauge and glue to the crutch.

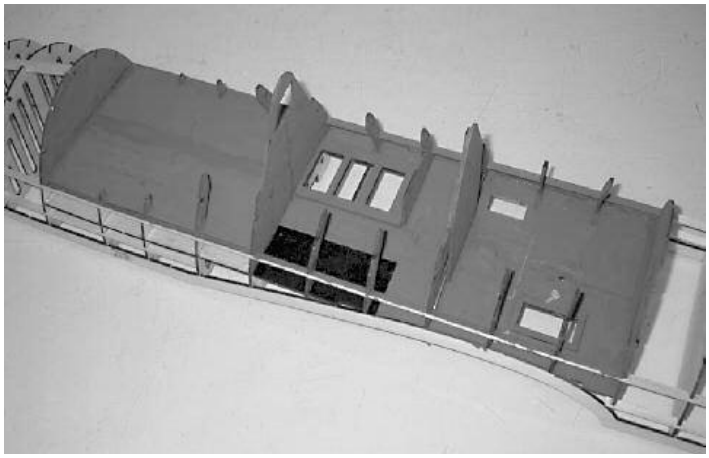
16. Cut the upper keel from ¼ x ¼ balsa stock and glue to F14A thru F17. Do not bend the keel to fit at F14A, sand the excess down to match the fuse contour.



☐ 17. Add 1/8 x ¼ balsa stringers to the fuse assembly. Add only the two bottom stringers at this time. The bottom stringer will be sectioned between the wing saddle.

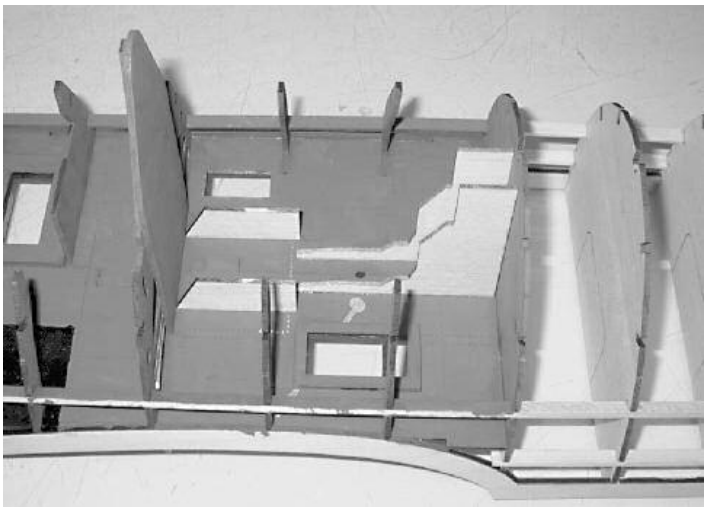
18. Glue C2 Ply Servo Tray in place to C1.

19. Glue the C5 Throttle Servo Support to the cockpit floor.



☐ 20. Fit C6 and C7 Turret Floor into the space between F10 and F14. Use care while fitting around the bulkheads. The turret floor pieces will lay onto the stringers. Butt the floor edges together and glue, and glue the floor in place.

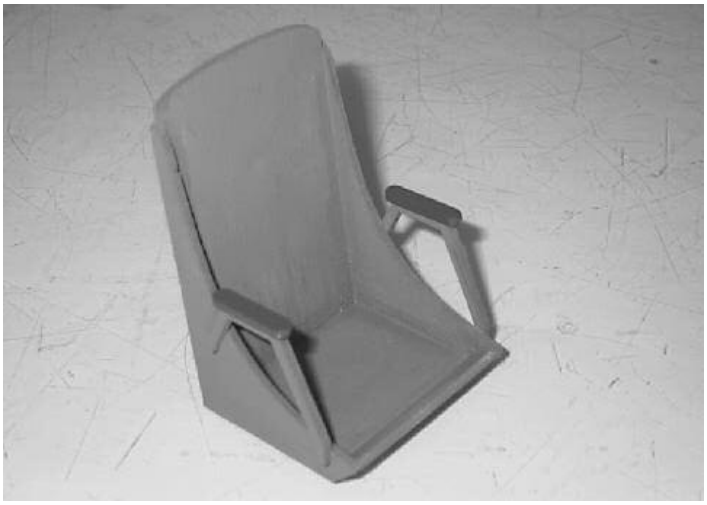
21. Paint the cockpit area now. As shown, the cockpit is painted an overall Zinc Chromate Green, with black representing the crawlspace on the right of the radio compartment. The rivets may be left in Zinc Chromate or may be highlighted with silver or aluminum paint.



☐ 22. Glue the C8 Seat Supports to the cockpit floor at the engraved marks.

23. Glue the C9 Center Console Sides to the cockpit floor at the engraved marks.

24. There are two throttle servo trays labeled C5. One is sized for standard servos, and one is for mini servos. If you are using a standard servo, the correct C5 was installed in Step 19. If you are using a mini servo, glue the mini C5 Servo Tray on top of the existing C5. Utilize your servo as a guide in locating these pieces. Paint the added pieces Zinc Chromate.



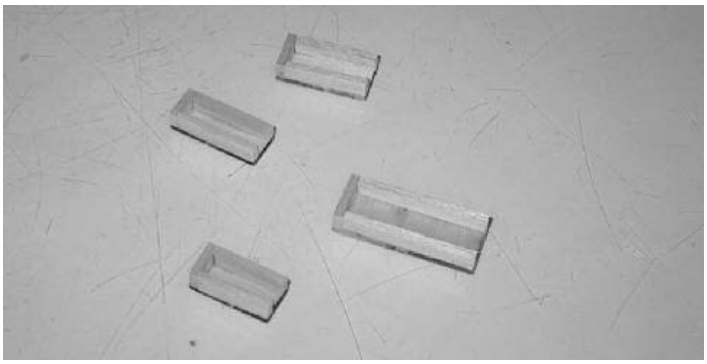
☐ 25. Build the seat by first gluing the C11 Sides to the C10 Seat Bottom.

26. Glue the C12 Seat Back to the assembly.

27. Glue C13 to the forward edge of the seat.

28. Glue the C14 Armrest Supports to the seat sides. Paint the seat Zinc Chromate now.

29. Paint the C15 Armrests Leather or Brown and glue in place.

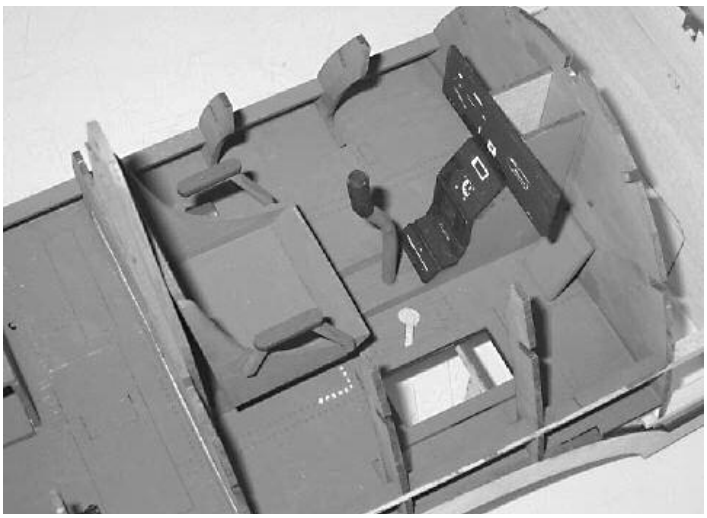


☐ ***Build the radio boxes utilizing the following process:***

30. Cut pieces of 1/8 x ¼ balsa to fit the ends of C16, C17, C18, and C19. Glue to the ends edgewise.

31. Cut more balsa pieces to act as the sides of the boxes and glue in place. Trim and sand the box assemblies.

32. Paint these boxes black and set aside.

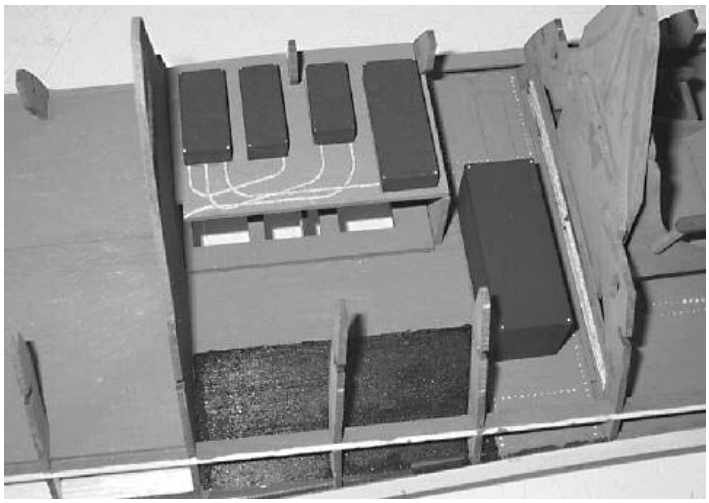


☐ 33. Glue the seat in place to the seat supports and the armor bulkhead.

34. Glue the C20 Rudder pedals to the cockpit floor and the forward bulkhead as shown in Figure 1.

35. Fashion the control stick from 3/16" dowel (3/16 aluminum tubing can be used and will produce a curved stick as shown). The stick grip can be fashioned by wrapping the stick with masking tape, tacking in place with CA, and painting black.

36. Paint the C21 Center Console Pieces flat black. Cut out the Center Console Instrument Panel from the sheet. Glue to the back of the Center Console pieces. Carefully bend C21 at the engraving line and glue to the lower half of the console sides. Bend C22 similarly and glue to the upper console sides. Glue C23 to the console as shown.



☐ 37. Glue the C24 Radio Shelf to F8 and F10. Paint Zinc Chromate and detail with silver.

38. Glue the radio boxes to the shelf.

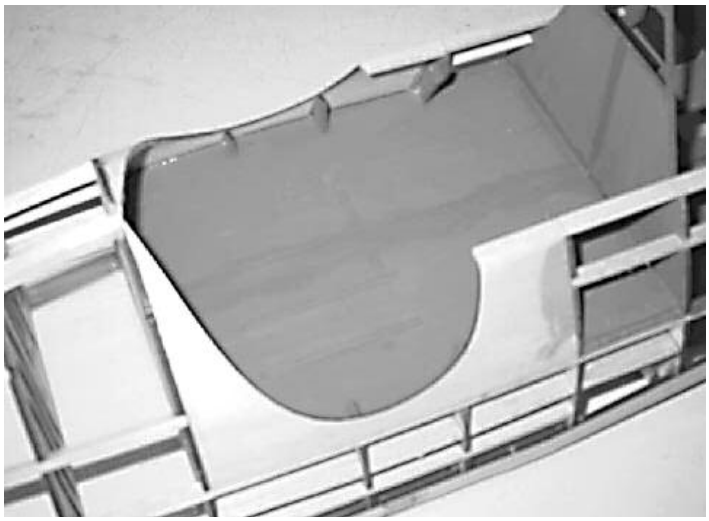
39. Glue C25 Top, C26, C27, C28, and C29 together to form a box. Paint this assembly Flat Black and glue to the cockpit floor at the engraved marks.

☐ 40. Paint the C30 Instrument panel Flat Black. Cut the instrument panel backing from the sheet and glue to the panel.

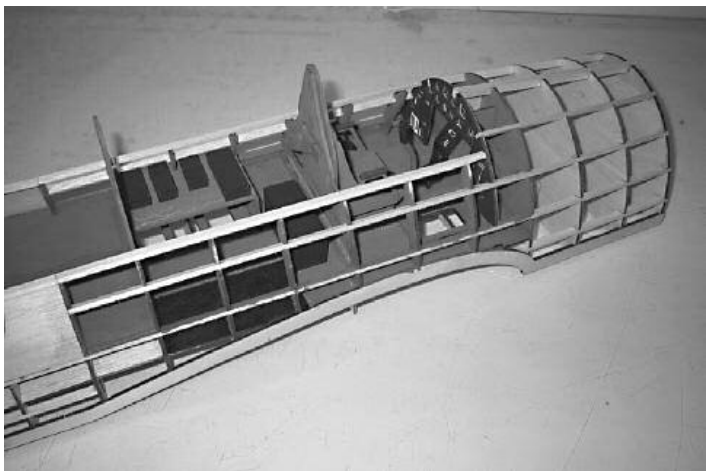
41. Measure and mark a line on the stringers 1 ¼ " aft of the F4 bulkhead. This will locate the instrument panel. Align the instrument panel with these marks (marks even with the instrument side of the panel) and glue the panel to the stringers.

42. Cut a piece of ¼ x ¼ balsa as a keel to fit from F1A to the instrument panel. Align the instrument panel to vertical and glue the keel in place to all the bulkheads.

43. Glue C31 and C32 together at a right angle, and glue C33 to both to make a half box. Paint this assembly Flat Black, and paint the detail. Glue C34 Trim Wheel to C31 at the engraved circle. Glue this assembly to the cockpit floor at the engraving lines to the left of the seat.



☐ 44. Test fit F23 Turret Cutout between F14A and F11. Glue F23 to the stringer and flush with the bulkhead edges. Glue the forward edge to F11, following the curve of the bulkhead. Glue to F12 and F13. Glue the aft edge to F14, following the bulkhead curve. Repeat for the other side.



☐ 45. Glue the next stringer to the fuse between F1A and F11.

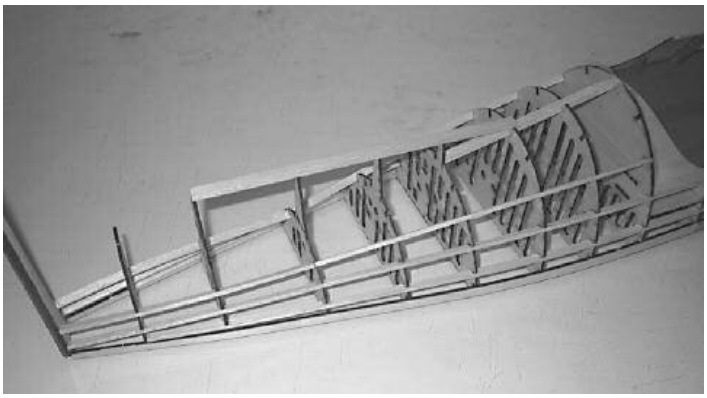
46. Glue a stringer between F1A and the instrument panel.

47. Glue a stringer to the tops of the side bulkheads between the instrument panel and F23 Turret Cutout as shown in Figure .

48. Sand the stringer side to match the bulkhead contour.

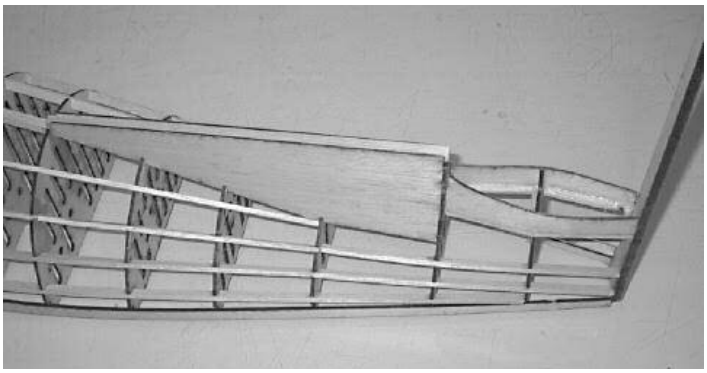
49. Paint the stringers and F23 Zinc Chromate. Be careful to not overpaint the other pieces.

50. Temporarily fit the throttle servo in place. Glue C35 Circuit Breaker Side Panel to the C5 Servo Tray. Glue the printed panel backing to C36. Trim C36 to fit between the top edge of C35 and the side bulkheads and the side of the fuse. Glue in place.



☐ 51. Add an additional ¼ x ¼ balsa keel to the tops of F20, F19, F18, F17, resting the keel.

52. Add the third fuse stringer to the aft fuselage. This stringer will have to be added in two pieces, one from F22 to F19, the other forward of that to F14.

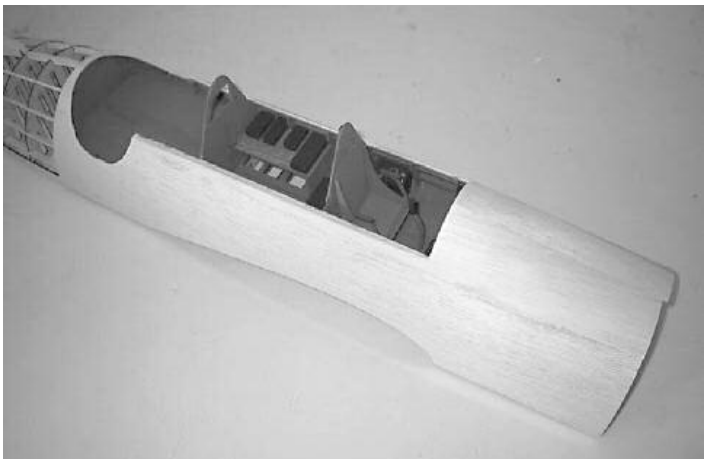


☐ 53. Fit F24 Dorsal Fin Skin into the slots in F17, F18, and F19 and butt the edge against F20. Glue in place. Repeat for the other side.

54. Add the final stringer, fitting the aft edge against the dorsal fin and F19.

55. Cut a piece of 1/8 x ¼ balsa stringer to fit in the final slots in F20A, F21A and F22A. Do not try to bend the stringer, cut it and section it to fit. Make sure this stringer is level with the bottom stringers, as it will aid in setting the stab incidence.

56. Soak F25 Stab Saddles in water or a water/ammonia mix and bend to fit between F20A and F22A. Glue in place.



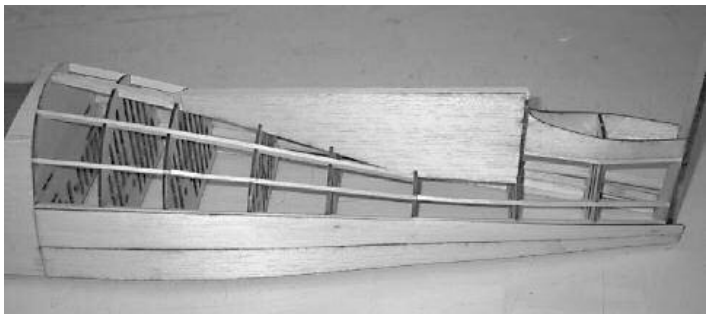
☐ 57. Lightly sand all the fuse surfaces to remove high spots and excess glue.

58. Cut a 1/16" x 4" x 48" balsa sheet to two 24" pieces to fit between F1A and F14A. Place the sheets against the fuselage and mark the areas where additional sheeting will need to be added, the F14 area and between F1A and the instrument panel. Cut and edge glue these extra sheets now.

59. Mark the areas on the inside of the sheet that will be visible as the cockpit sides, and paint Zinc Chromate. After the paint has dried, glue the sheeting to the fuse. It is recommended that you sheet both sides of the fuse at the same time, working both sheets up simultaneously. This will help minimize warpage. Trim and sand the sheets at the cockpit, but leave ¼" overhang at F1A.

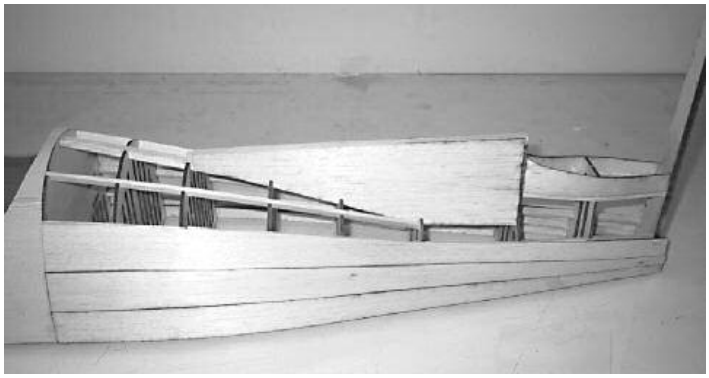
☐ 60. The next series of steps will add the planking to the aft fuselage. The planks have been pre-cut, but there may be some trimming of the planks may be needed due to variations during framing. Each of the planks is sized to attach to each stringer, so it is recommended that you use CA to glue the planks to the aft fuse, but do not use CA to glue the planks to each other, or to fill in the gaps between planks. This will be apparent when you sand the planks smooth. Use an alphatic glue to glue the planks to each other after gluing the planks to the aft fuse. This will allow for smooth glue seams.

61. Glue P1 to the aft fuse, from the crutch to the first stringer. The plank should fit flush with the building board. Repeat for the other side.



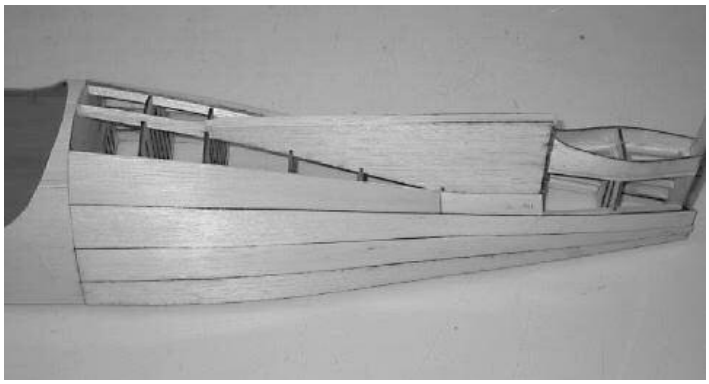
☐ 62. Add P2 next. Test fit to the fuse and trim as necessary at the forward sheeting and P1.

63. Glue P2 to the aft fuse. Repeat for the other side.



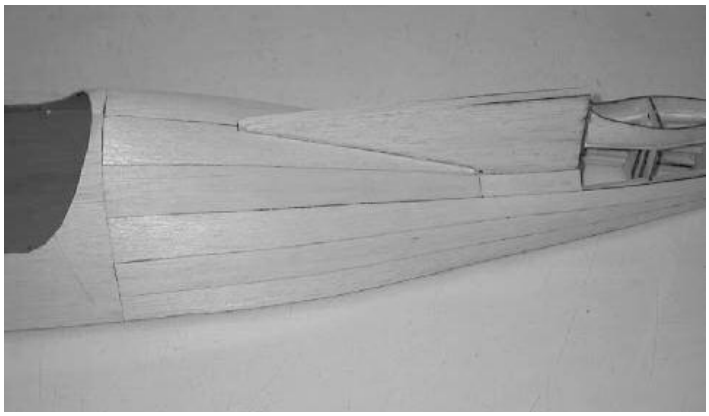
☐ 64. Test fit P3 to the fuse and trim as necessary.

65. Glue P3 to the aft fuse. Repeat for the other side.



☐ 66. Test fit P4 to the aft fuse, and trim as necessary. You will need to bend P4 at the engraving mark to fit.

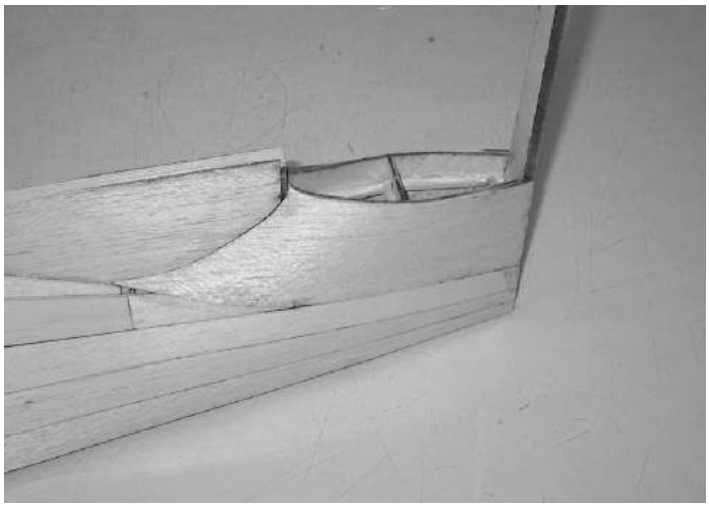
67. Glue P4 to the aft fuse. Repeat for the other side.



☐ 68. Test fit P5 to the aft fuse. These will need to be trimmed to fit around the dorsal fin and each other where they join.

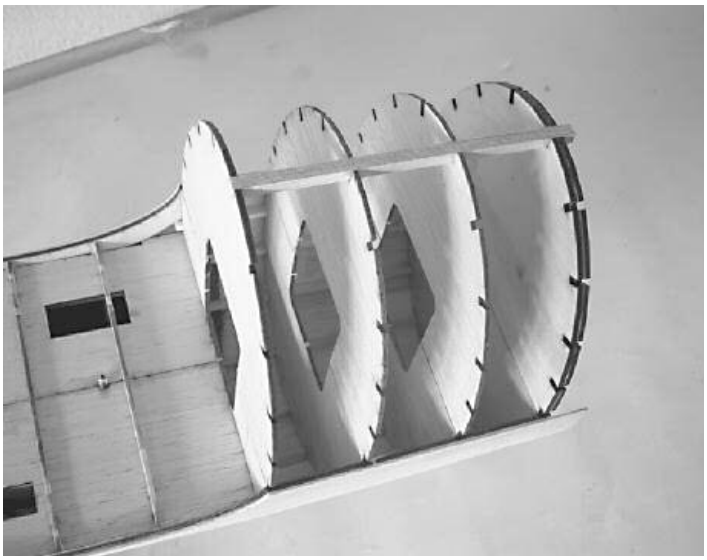
69. Glue both P5s to the aft fuse.

70. Now go back and add alphatic glue to the outside of the plank seams and fill in any gaps. Allow ample drying time.



☐ 71. Test fit F26 Fuse Fillet to the aft fuselage. This piece should fit flush to P3, then overlap starting at P4 and P5, and the point should fit at the junction of P5 and the dorsal fillet. You will need to taper the inside edge of F26 where it meets P4, only so that there is not a 1/16" "bump". Do not taper any other part of the fillet. Glue F26 in place.

72. Trim and sand F26 at F22 and the stab saddle.



☐ 73. Test fit F27 Firewall to F1A. Some trimming may be required due to excess glue around F1A, etc. The critical line-up point is the side cutouts for the crutch. As long as these line up, the firewall and both F1s will align. Epoxy F27 in place. It is recommended that you clamp the firewall to F1A while drying.

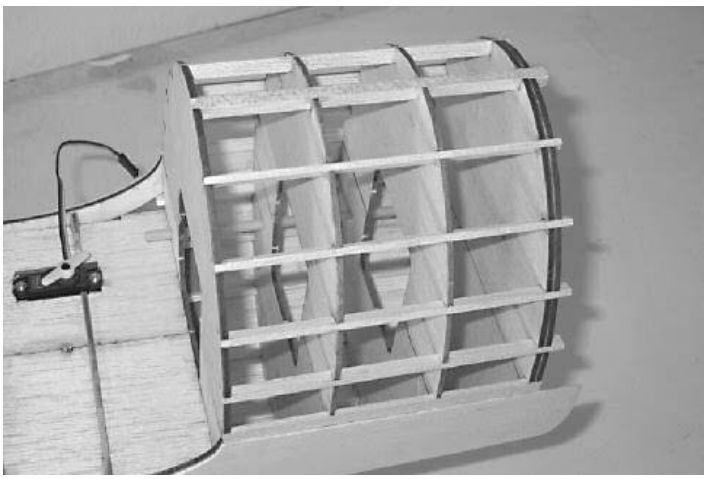
74. Align F1B with the F27 Firewall and epoxy together.

75. Glue F2B, F3B, and F4B in place.

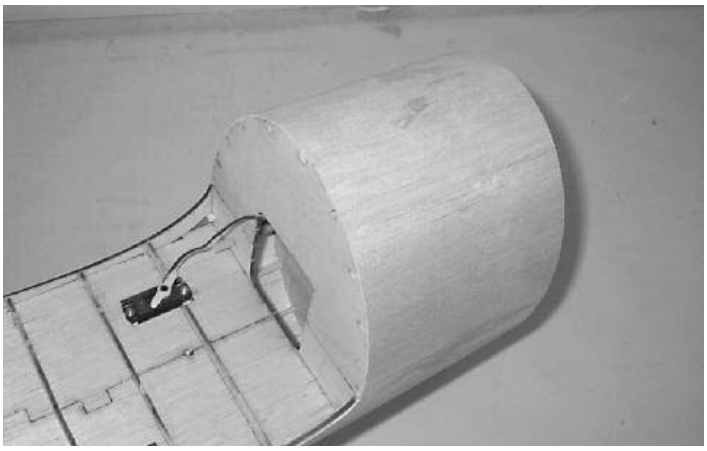
76. Cut a piece of ¼ x ¼ balsa as a keel and glue in place.

Hint

Now would be a good time to test fit your fuel tank. The cutouts are sized for a 10 to 12 oz. Tank, but some custom fitting may be required for your specific tank. You may also add strips of foam or sliced rubber tubing to the edges of the tank cutout for cushioning.



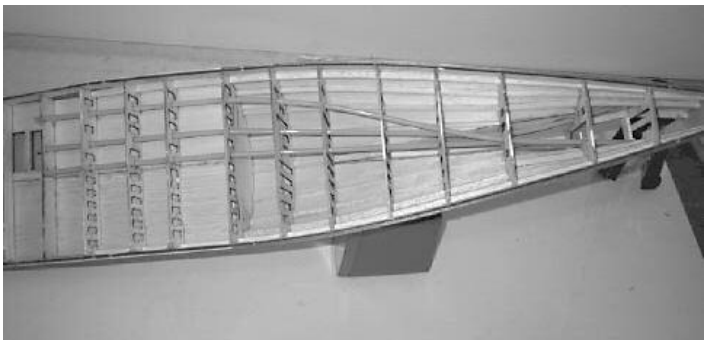
☐ 77. Cut pieces of 1/8 x ¼ balsa as stringers and glue in place as shown.



☐ 78. Cut 1/16” balsa sheeting to length to sheet the forward fuse. You may sheet the entire area with one continuous sheet, or each side separately. Edge glue your sheets accordingly and sheet the forward fuse.

Hint:
If you use one continuous sheet, cut the sheets approximately 1” longer to allow for slight off center “wrapping”

79. Trim and sand the sheeting flush with the firewall and F4B.

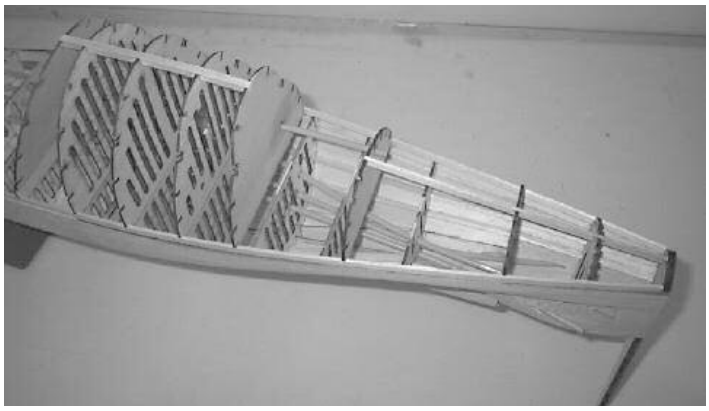


☐ 80. Measure and cut pushrod guides to length and insert through the holes in the aft bulkheads for the rudder and elevators. Cut the aft sheeting as necessary to allow the pushrod guides to exit the fuselage.

***Note:*** *Holes and servo installation are provided for dual elevator servos. It is recommended that due to the size of the elevators, you use either the dual setup, which will allow standard servos, or if you opt for a single servo setup, you use a high torque competition servo.*

81. Glue F13B to F13A.

82. Glue F14B, F15B, and F16B in place.



☐ 83. Measure 1/2” forward of F17A, mark this location on the crutch, and glue F30 at this location.

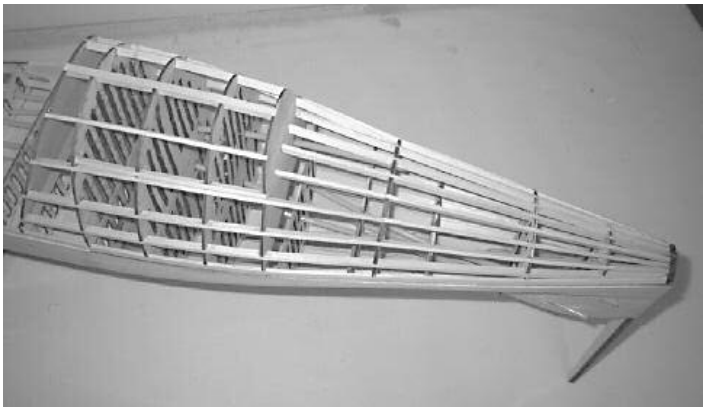
84. Measure 3.1” From F30, mark this location on the crutch, and glue F31 in place.

85. Glue F20B, F21B, and F22B in place.

86. Cut pieces of 1/8 x ¼ balsa as keel pieces and glue into the notches in F22B, F21B, F20B, and F31. This keel piece should extend and butt against F30. The other keel piece should fit in the notches in F30, F16B, F15B, and F14B and should extend past F14B.

87. Measure the distance from the bottom edge of F13C and F14B and glue F13C to F13B at an angle to match this distance.

88. Measure and cut a pushrod guide as the tailwheel steering pushrod and insert into the holes in the fuse.

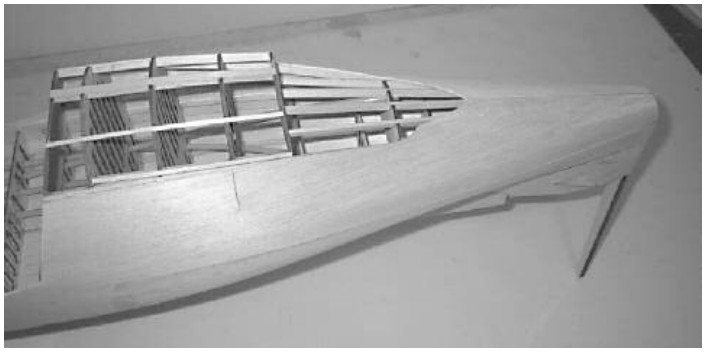


☐ 89. If you are going to make the tailwheel retractable, add either the retract servo or air cylinder to the aft fuse now. Mount the tailwheel temporarily to facilitate this.

90. Add 1/8 x ¼ balsa stringers to the aft fuselage, following the contours of the bulkheads. The first stringer will fit flush with the crutch and will extend past F13B. This will be trimmed along with the sheeting to match the wing saddle. Add the second and third stringers next.

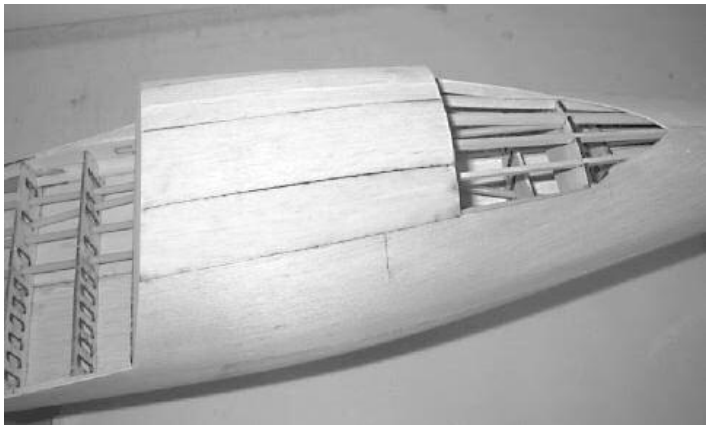
91. Add the fourth stringer from F22, and but it against F30. Add stringers to the aft bulkheads now.

92. The second section of the fourth stringer should extend from F13C to F31. Sand the end of the Stringer to fit flush on top of the other stringer at F31.



☐ 93. Add the remaining stringers.

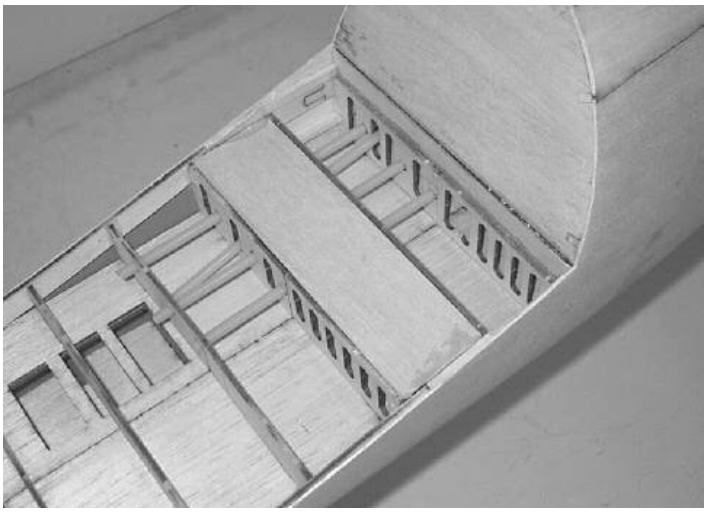
94. Sheet the aft fuselage from the existing upper fuse sheeting to the fourth stringer only. Wet the sheet with water or water/ammonia to help make the bend. The sheeting does not need to wrap between F30 and F31, or be flush right behind F31. This area will be covered with the plastic ventral window, and behind F31 is the tailwheel well.



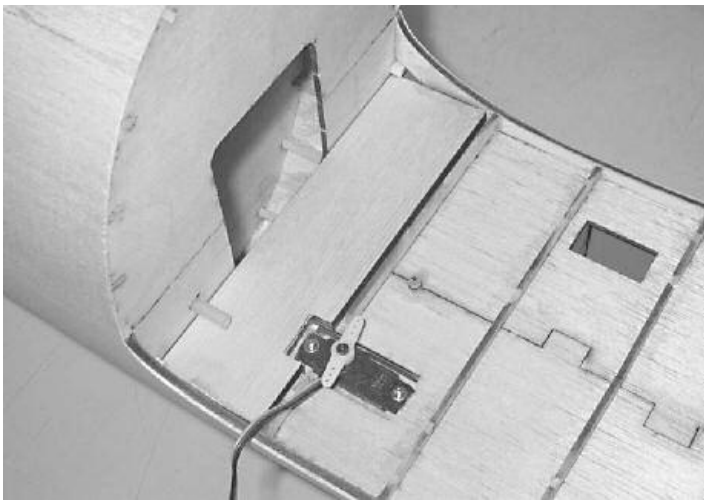
☐ 95. Add the P6 plank to the aft fuse.

96. Trim P7 to match P6 and glue in place.

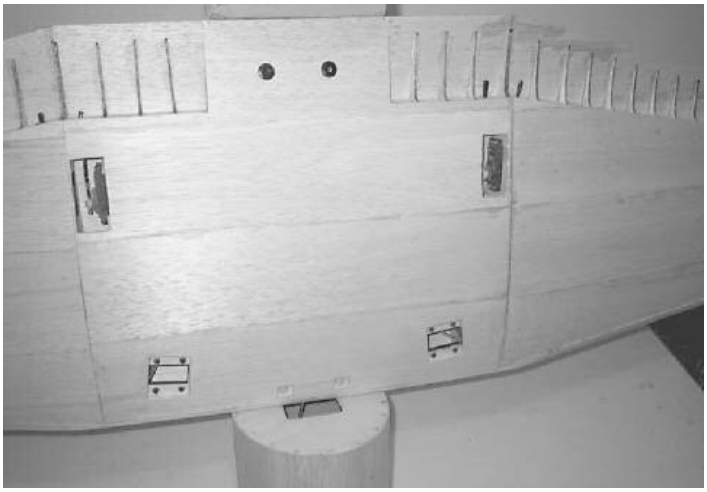
97. Trim and sand all the aft fuselage sheeting at F22, F13C, and between F30 and F31 and the fourth stringer.



☐ 98. Trim F32 Rear Holddown Plate to fit between F11 and F12. Epoxy F32 in place.

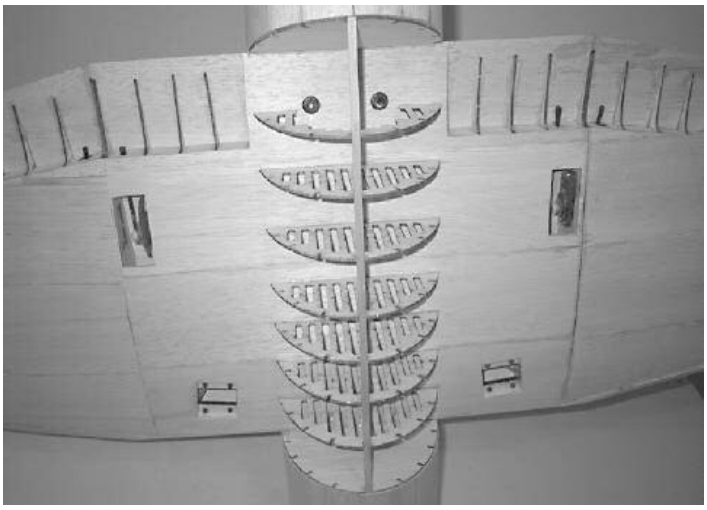


☐ 99. Trim F33 Front Holddown Plate to fit between F4 and F5. Relieve F33 as necessary to clear the throttle servo. Epoxy F33 to the cockpit floor, F4 and F5.



☐ 100. Fit the wing into the wing saddle, and trim as necessary. Align and center the wing, and mark its location.

101. Mark the locations for the wing holddown bolts, drill and tap F32 and F33, and temporarily install the wing.

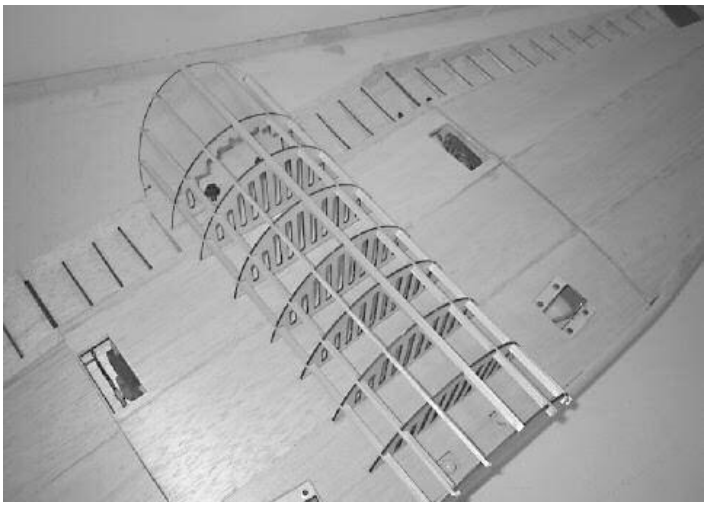


☐ 102. Test fit F34 to the leading edge of the wing and match to F4B (the bulkhead, NOT the sheeting!) Glue F34 to the leading edge of the wing.

103. Repeat this process with F42 at the trailing edge and F13C. Glue F42 to the trailing edge.

104. Cut a ¼ x ¼ balsa piece as a keel, ensure that it is straight, and glue into the notches in F34 and F42.

105. Slide F35, F36, F37, F38, F39, F40 and F41 into position in order on the bottom of the wing.



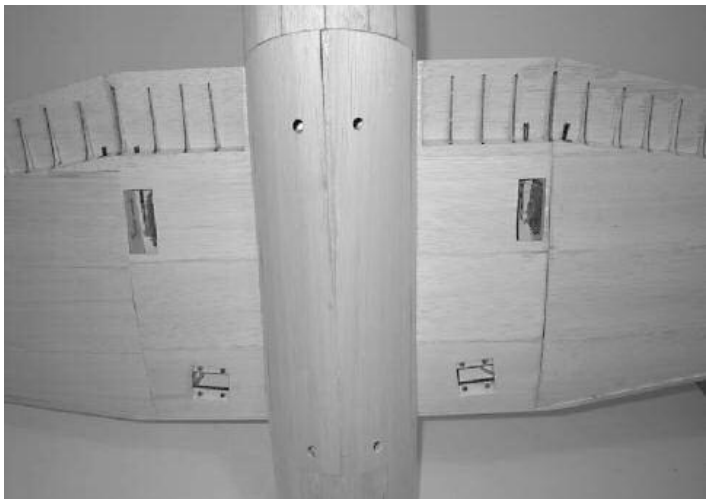
☐ 106. Position each bulkhead 1.9" apart, making sure they don't distort the keel, and they are in line with each other. Glue the bulkheads in place.

***Note:*** *You may relieve F41 as necessary to allow for the wing bolts.*

107. Remove the wing from the fuselage.

108. Add 1/8 x ¼ balsa stringers to the belly pan assembly.

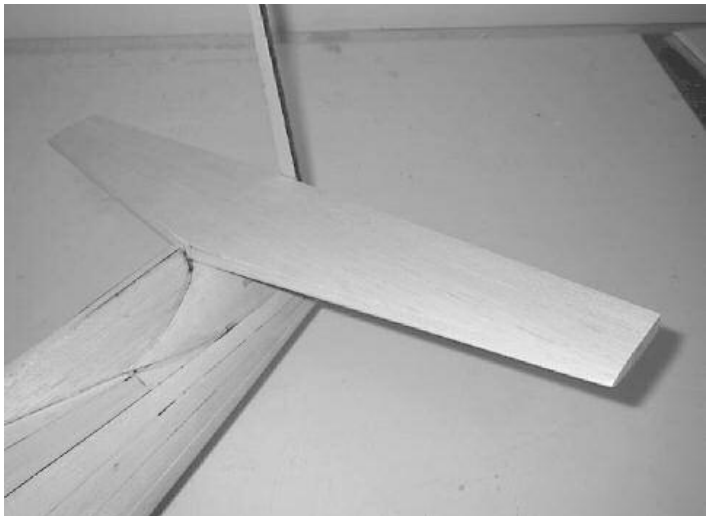
***Note:*** *you may leave the wing bolts in position, or add balsa or cardboard tubes inside the belly pan to guide the bolts. After sheeting, the wing bolt insertion area will be inaccessible.*



☐ 109. Trim F43 Belly Saddle to fit the bottom of the wing at the belly pan. It should fit snug and bisect the first stringer.

110. Using 1/16" sheeting, sheet the rest of the belly pan.

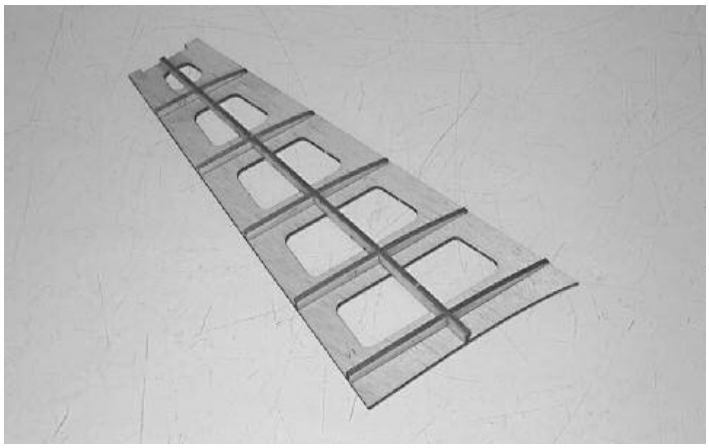
111. Trim and sand at F34 and F42, and test fit the wing to the fuse.



☐ 1. Test fit the horizontal stabilizer into the stab saddle. Cut notches in the stringers (below the stab saddle) if necessary to fit.

2. Add tri-stock to the edges inside the stab saddle as extra support for the stab.

3. Align the stab to the fuse, and epoxy in place.



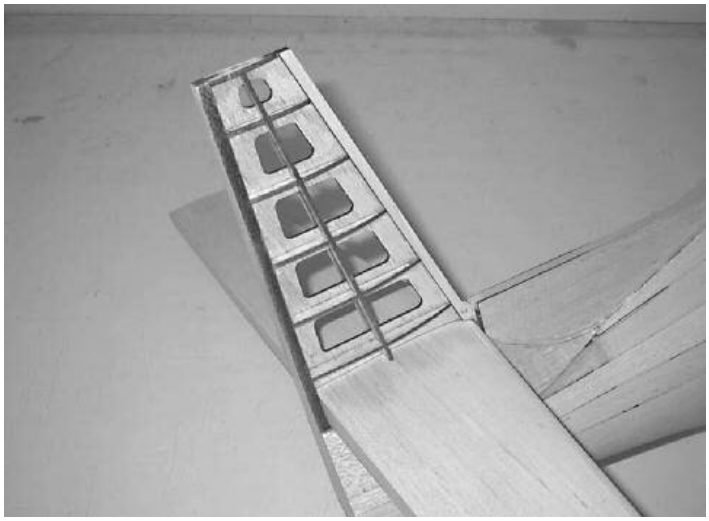
☐ 4. Assembly of the vertical stabilizer will start with building up the internal structure. This is done off the airframe. Lay V1 on the building board.

5. Match V3, V4, V5, V6 and V7 with the scribed lines on V1 and glue in place.

6. Slide V9 into the slots in the ribs and glue.

7. Turn the assembly over. Match the remaining V3 thru V7 ribs to the other side and glue in place.

8. Slide V9 into the slots in the ribs and glue.

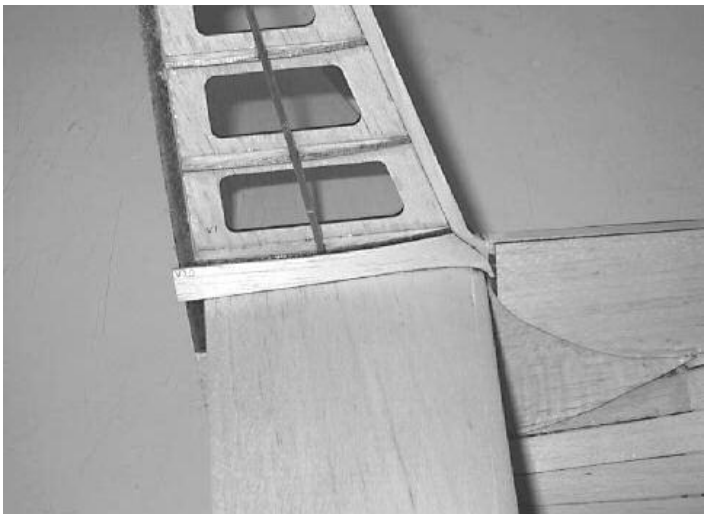


☐ 9. Test fit the vertical stab assembly to the fuse, and ensure it matches the horizontal and F22. Align and glue in place.

10. Glue V2 to the front of the stab.

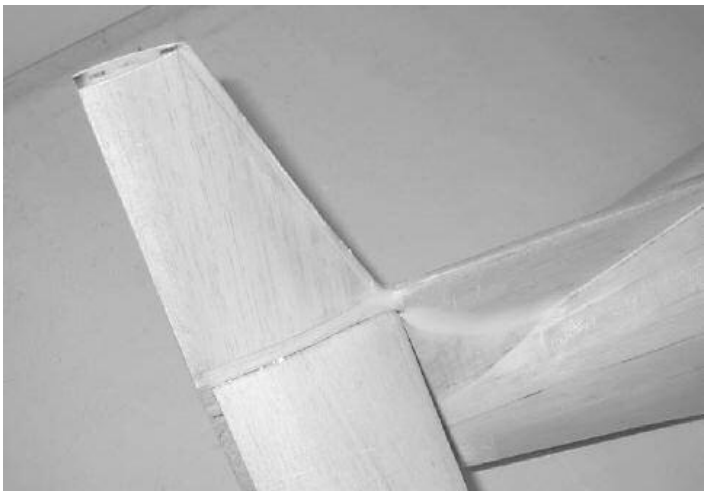
11. Glue V8 to the top of the assembly.

***Note:*** *Add scrap pieces of balsa to the rudder hinge points for added support.*



☐ 12. Test fit V10 to the vertical stab and check the fit at the horizontal stab and V2. Trim as necessary and glue in place.

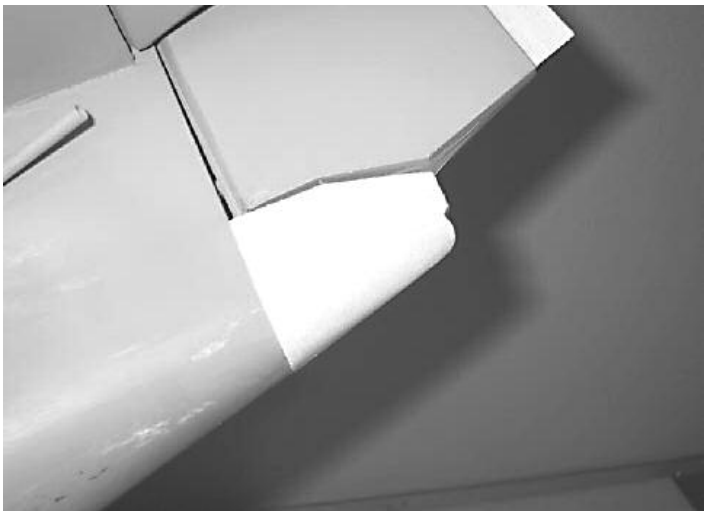
13. Repeat for the other side. Trim V10 at F22.



☐ 14. Cut a piece of 1/16" balsa sheeting to fit as the vertical stab sheet. This piece will but against V10 and fit in the "notch" between V2 and the ribs, and lap over F22. Glue the sheet in place.

15. Repeat for the other side.

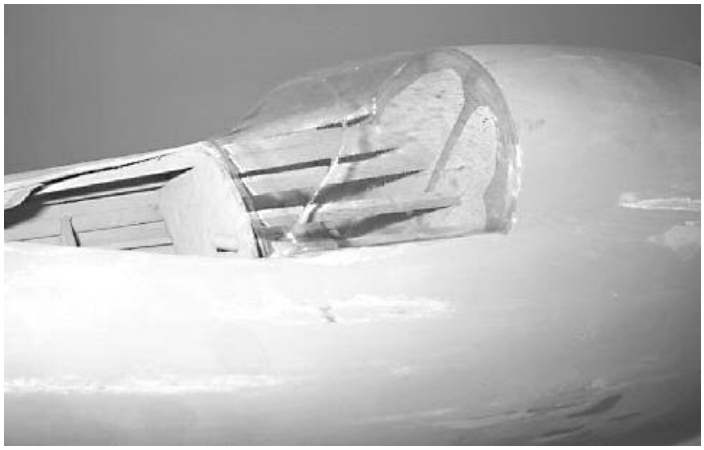
16. Trim the sheet at V8 and F22. Sand the leading edge to shape.



☐ 17. Temporarily tape the rudder to the stab. Test fit the tail cone block to the fuse and epoxy in place.

18. Sand the block to match the fuse contour, and the shape of the lower rudder.

## Final Assembly



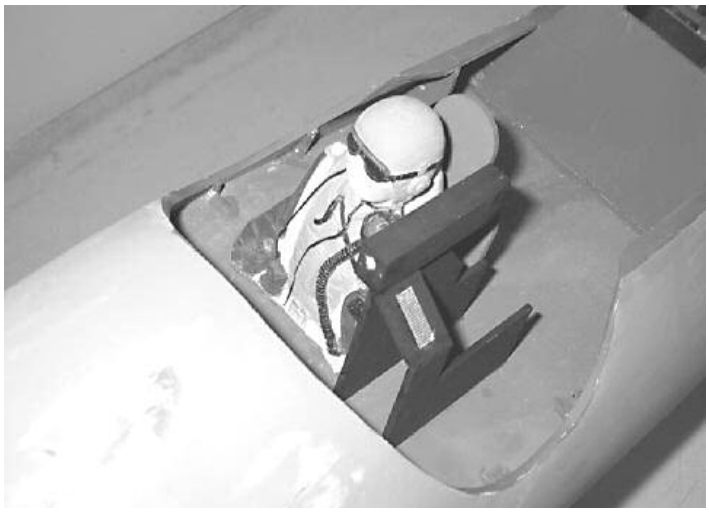
☐ 1. Cut the ventral canopy to size and test fit to the lower fuselage.

2. Glue in place.

Hint:
Regardless of the type of glue you use for attaching the clear plastic parts with, rough up the inside glue edges of the plastic with sandpaper prior to gluing. This will make for a better and stronger glue bond.

3. Fashion the rear gun using scrap balsa following the template provided on the 3-views.

4. Glue the C45 Inner Gun Mount Half to the rear turret area along the scribed lines.



☐ 5. Glue the C44 Outer Gun Mount Half to the rear turret area.

6. Glue the gun to the top of the inner mount. Carefully bend the upper portion of the outer half (feed chute) and glue to the gun. Do not install the gun barrel at this time. You may want to temporarily install the turret to help align the gun.

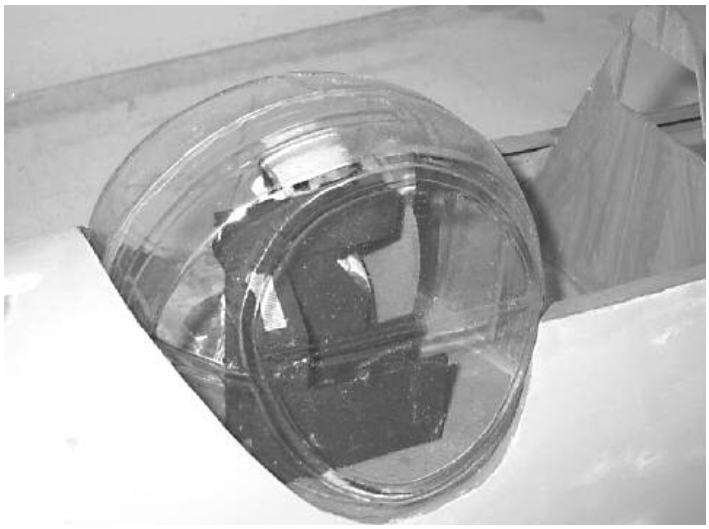
7. Glue the C46 Seat Back to the rear turret area and install the gunner figure.

8. Glue the straight edge of C41 along the curvature of the armor bulkhead. Repeat for the other side.

9. Glue C42 to both C41s.

☐ 10. Glue C43 to the top of C42 and C41. Paint Zinc Chromate. The engraved circles represent a formation light, so paint the inner circle silver, and the outer ring black.

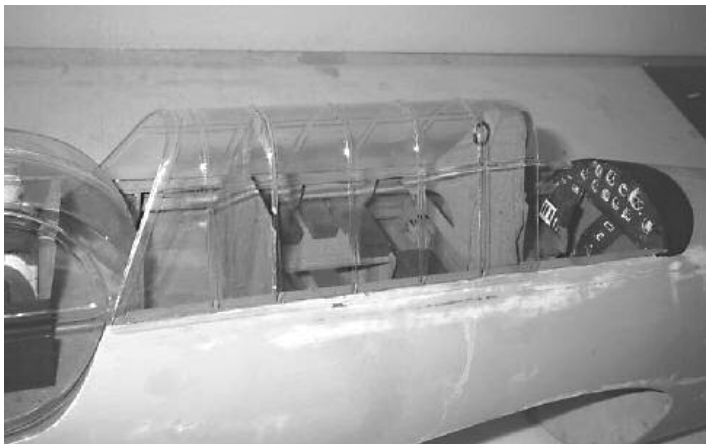
11. Paint and glue C40 Side Console to the right side of the cockpit, with the “squiggles” aft. Glue C38 to the back of C39 Throttle Quadrant, then glue this assembly to C37 Side Console. Paint and glue to the left side of the cockpit.



☐ 12. Test fit the turret to the aft fuse. The flattened portion of the turret faces the F14 aft bulkhead

13. Trim the turret area of the fuse as necessary to fit the turret. Glue the turret in place.

***Note:*** *It is possible to make the turret rotate, but it was decided against for the basics of the kit due to complexity and weight. If you wish to do so, go for it!*



☐ 14. Cut the aft canopy to fit to the rear cockpit area. Glue in place.

***Note:*** *The area of the canopy sections between the aft canopy and the turret is not closed off. The excess plastic in this area should be removed prior to gluing the canopy in place.*

☐ 15. Cut and trim the forward canopy to fit. Glue in place.

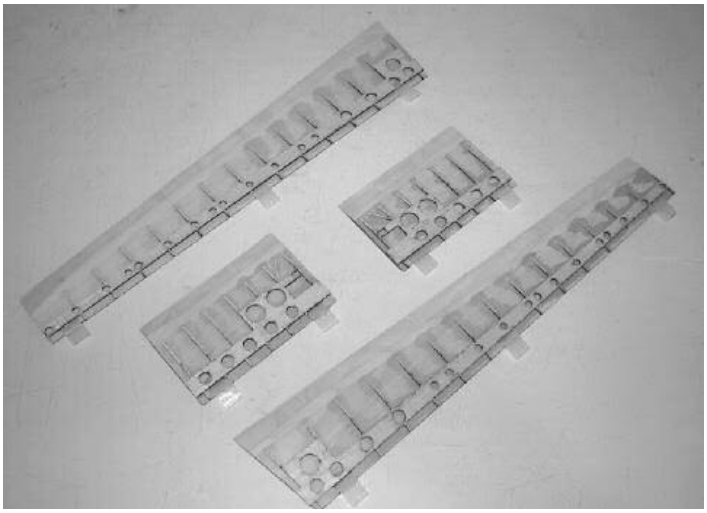
***Note:*** *The forward canopy can be positioned open if desired, or can be made to slide. Note, however, that on the actual airplane, the forward canopy consisted of two halves, left and right, each of which could move independent of each other. For weight and complexity issues, we did not make this a standard feature of the kit.*

☐ 16. Using the hinges you decided on during construction of the tail surfaces and stabilizers, attach the rudder and both elevators.

***Note:*** *it is much easier to cover the control surfaces before attaching them to the model. They may be covered with a monokote type film, silk and dope or other shrinkable material to reproduce the fabric covered, open bay look of the actual airplane.*

☐ 17. If you opted for the separate trim tab option, sand the trim tabs, R19 and E19s to a tapered shape to match the control surfaces and epoxy in place.

18. Though not pictured, attach the ailerons to the wing at this time. Attach the A18 trim tabs if you haven't done so already.



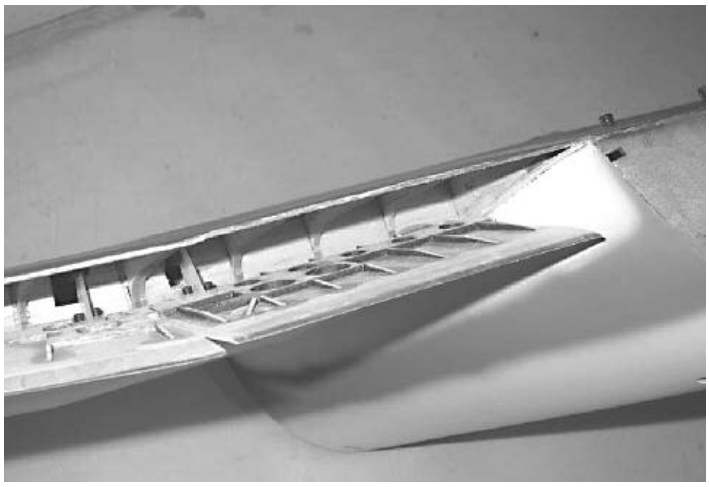
☐ 19. If you opted for functional flaps, prepare the flap section the following way:

20. Sand the trailing edge of the flap to a taper from the edge to the scribed line. Do not sand to a knife edge, rather try to leave a 64th" at the edge.

21. Glue the inner flap support structure to the flap and sand the ends to match the flap taper. Note that the engraved squares should face the flap, making a pocket for the hinge. Make a left and right side.

22. Glue the left outer flap support structure to the left flap. Sand the ends to match the flap taper. Repeat for the right side.

23. Test fit the hinges into the pockets of the flaps, and epoxy the hinges in place.



☐ 24. Measure 1/8th" up from the bottom edge of the rear wing structure at the flap spar at the hinge locations of the flap sections. Test fit the flaps in place and trim the flaps as necessary for a good fit. Epoxy the flap hinges into the wing.

25. Test fit a 1/2A Control Horn to the flap sections at the clevises and install the clevises to the flaps. Connect and adjust the flaps.

***Note:*** *Though you can paint the flap area before assembly (Zinc Chromate), you will get overspray from the finish painting, so this area may be painted after final painting.*

☐ 26. Test fit the cowl to the fuselage and trim as necessary for a good fit. Sand any rough spots from the cowl.

27. Determine the method you wish to use to mount the cowl and do so at this time. Keep in mind that there may be specific areas that will interfere with your engine mounting, so keep this in mind when mounting the cowl.

This completes the airframe assembly. The items remaining, such as covering, painting, engine installation, radio component installation, and hooking up the control surfaces are builder's choice, and there are so many options that it would be impossible to cover them. The specifics of the aircraft pictured are as follows:

## Retract installation:

I opted to not cut the wheel well openings until after painting the aircraft to avoid overspray in the wheel wells. The openings may be cut at any time, however. Bend your gear wire to match the gear legs shown on the plans. Mount and hook up the retracts and install the gear leg with the wheel installed. Manually retract the gear and mark the wheel location, and cut the well openings carefully. Remove the excess support ribs now and finish paint the wheel well. The tail wheel steering should be hooked up at this time.

## Gear doors:

Pre-cut gear doors are not provided, though templates for them are. Realistic gear doors may be fabricated by using the following procedure: tape scrap balsa sheet to the bottom of the wing and fuse at the gear door locations, following the wing and fuse contours. Iron on Monokote or other removable covering to the scrap balsa. Lay out pieces of fiberglass cloth (the heavier, the better) onto the Monokote and add resin or epoxy to the cloth. After drying, mark the outlines of the gear doors on the cloth. Continue adding layers of cloth and resin to build up the thickness of the door. When cured, remove the pieces from the wing and fuse, and cut the doors out along the lines marked earlier. Hinge and install the gear doors.

## Engine installation:

Engine installation is straightforward. Flight testing determined that no offset thrust was needed to enhance aircraft handling. Mark the centerpoint of the firewall and locate and drill the mount screw holes. No engines tested were small enough to fit inside the cowl when mounted sideways, but all engines fit inside the cowl when mounted upright or inverted. Mount the engine and hook up the throttle and fuel system. We installed an aftermarket muffler and added extensions as shown on the plans to route the exhaust out the scale location.

## Covering and painting:

This model was covered with .5 ounce per sq. Yard fiberglass cloth and fiberglass resin. I do recommend the fiberglass finish due to it's increased strength - not structurally, but resistance to minor hangar rash. The finish paint was urethane primer, followed by the top coat. The Federal Standard colors are noted on the 3-views, but as a note, it is very difficult to match FS colors with commercially available R/C paints. I used Testors enamel paints, over the urethane primer, and after applying the decals, applied an overall urethane flat clear finish for fuel proofing.

## Radio installation:

Mount the servos and run the pushrods. Note that we recommend dual elevator servos, and provide mounting locations for them. Next, balance the airplane with everything but the receiver and battery installed. The balance point is biased slightly nose-heavy, so try not to go too much farther forward than the location shown. Determine the battery and receiver location based on the balance requirements, to lessen any extra weight, add any servo extensions needed, and mount the battery and receiver.

## Flying:

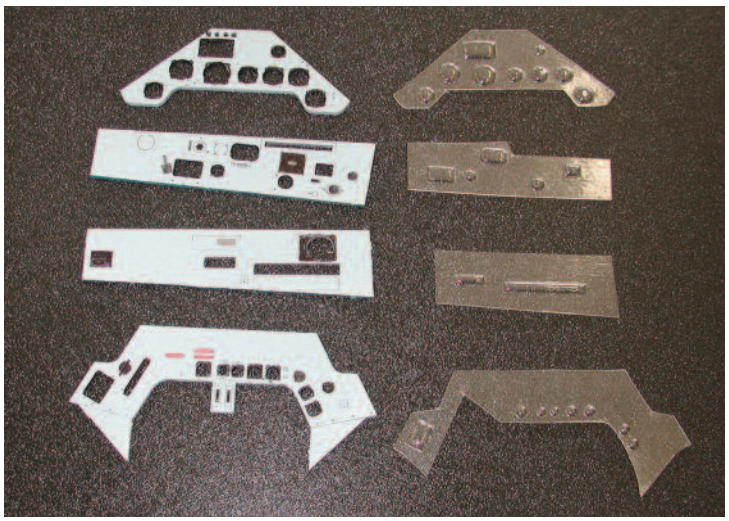
None of the prototypes weighed over 9 ½ pounds, though the weight range specified allows for more due to individual variations. The TBM was tested to 17 pounds with no adverse characteristics, though obviously, the lighter the better. Flying qualities are excellent and the airplane is very stable throughout the flight envelope. I do recommend using dual rates on the ailerons and elevators. Both pitch and roll modes get more sensitive at higher speeds. Very slight right rudder will be needed on takeoff and the initial climbout. The Avenger will perform all the usual maneuvers, but the airshow pass is the best of them all! Flap usage presents no unusual handling characteristics, but do not deploy the flaps at higher speeds. We encountered slight flutter of the flap ends when the flaps were deployed, but only at speeds significantly above normal approach speeds. The flaps do not cause any large pitch changes when deployed, just a slight nose down moment that is easily controlled with elevator, or can be programmed in flap/elevator mixing. Don't get too slow with the flaps out, because at extremely slow speeds the ailerons require large inputs to maintain control. This characteristic was not present at higher speeds.

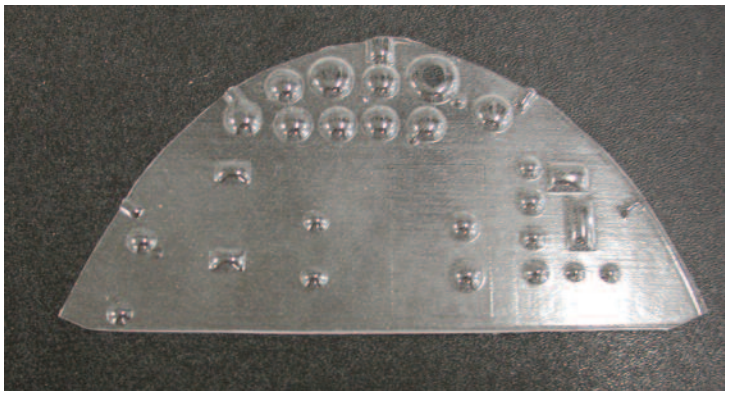
## Control Throws:

Ailerons: 1/2" up & down
Elevator: 1/2" up, 3/8" down
Rudder: 7/8" left & right
Flaps: 1-1/4" down

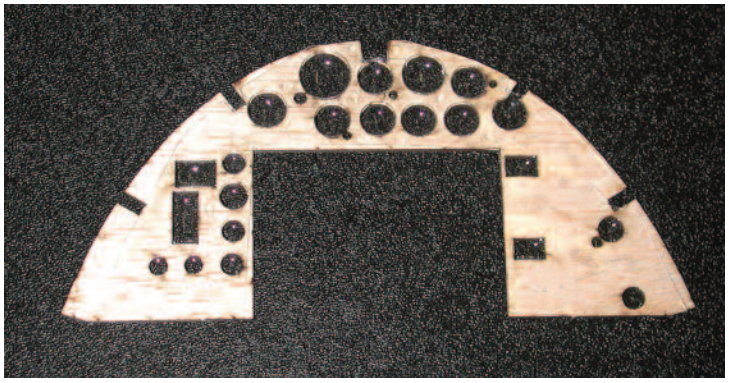
# Skyshark R/C
# Gauge Face Assembly Instructions

Paper gauge faces are located on the 3-view drawing that are included with the instruction manual.

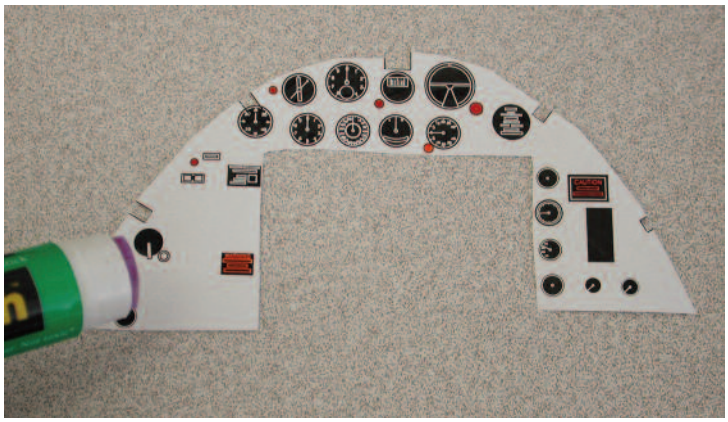




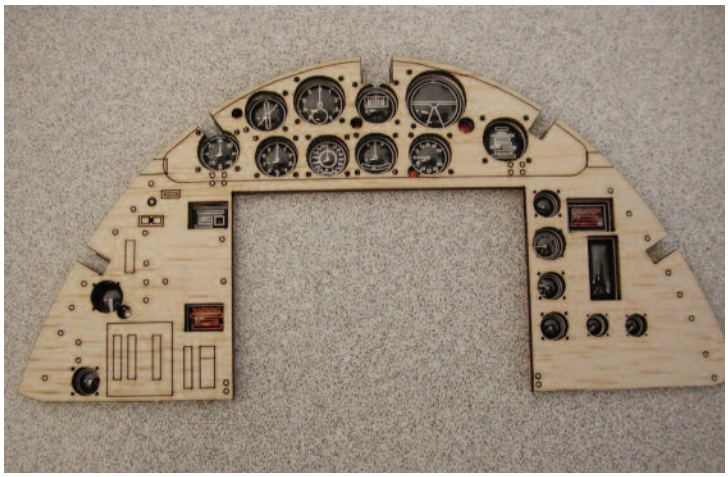
1. After painting the laser-cut cockpit parts, cut the clear plastic gauge inserts to size. Be sure to cut away any areas where stringers will attach or notches where levers will be inserted.



2. Using a small amount of medium CA, attach the clear gauge insert to the back of the panel so the protruding lenses fit into the laser cut holes.



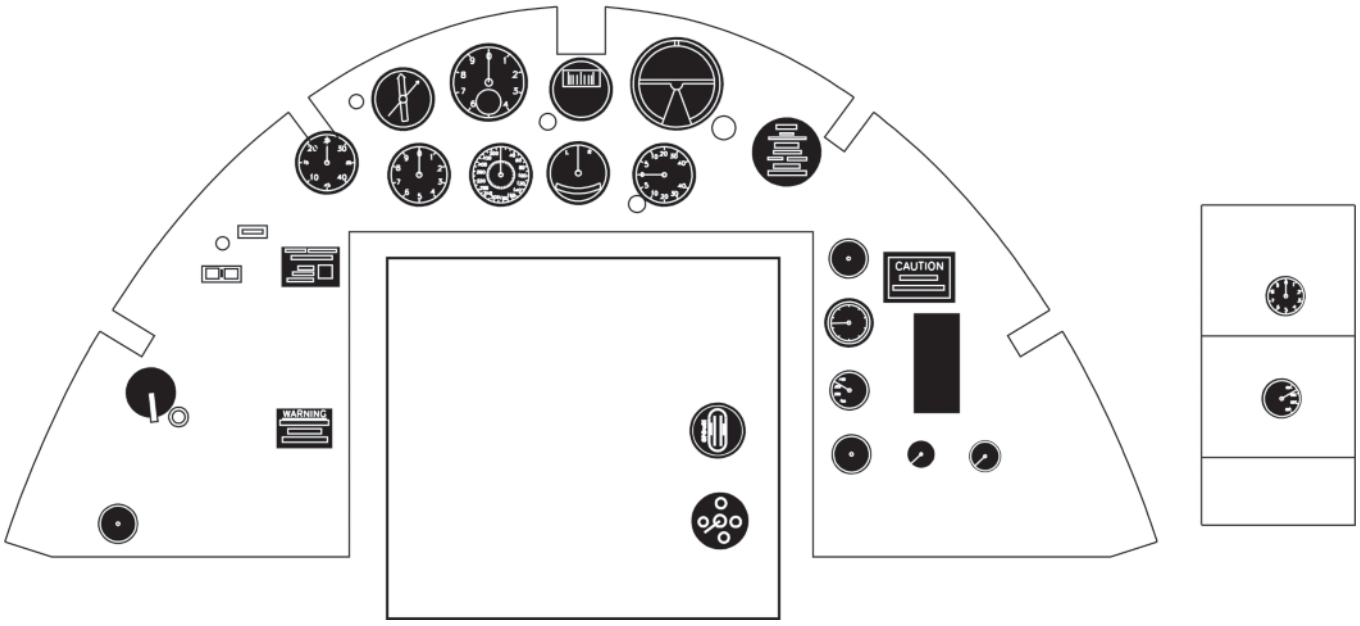
3. Color any necessary parts of the paper gauge panel and apply glue to the front of the paper. **DO NOT USE CA** for this step (the fumes from the CA will cloud the gauges). We use a Scotch glue stick for our prototypes.



4. Apply the paper to the back of the panel so the gauges line up with the laser-cut holes and allow to dry.

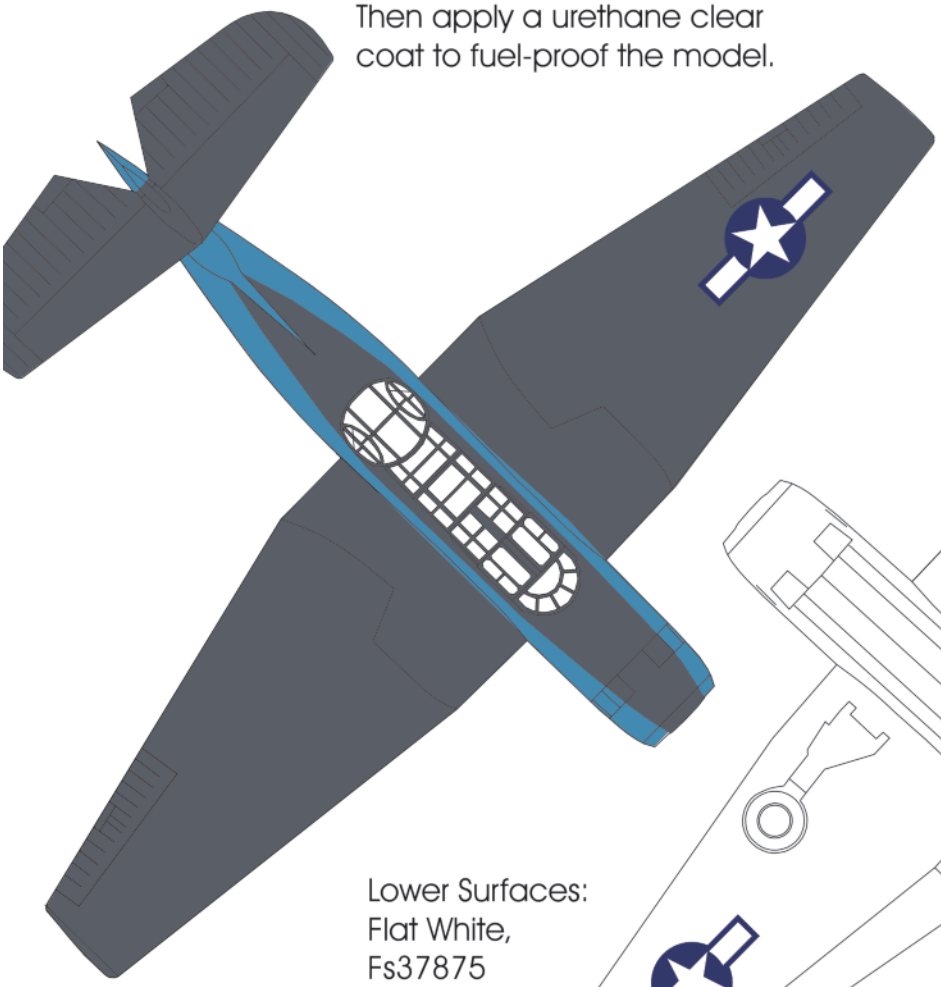
# Avenger Instrument Panel

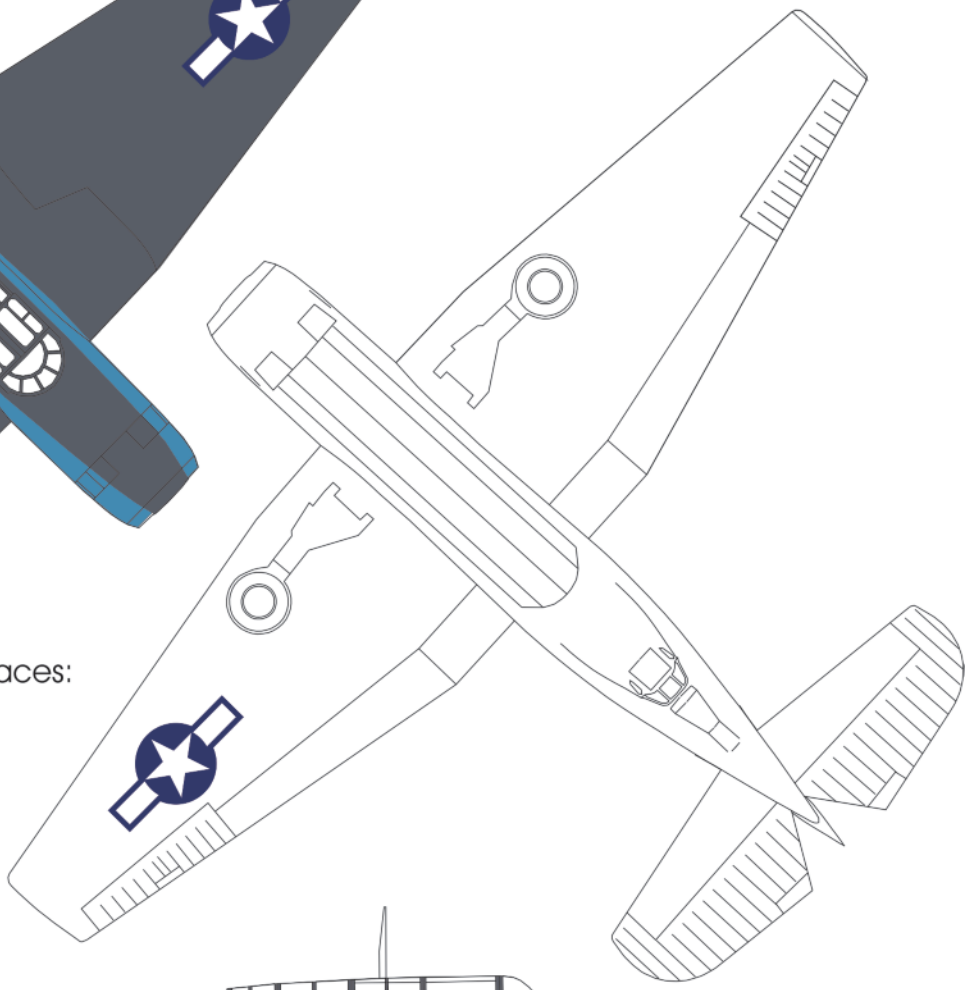
Print, cut and attach according to the instructions.



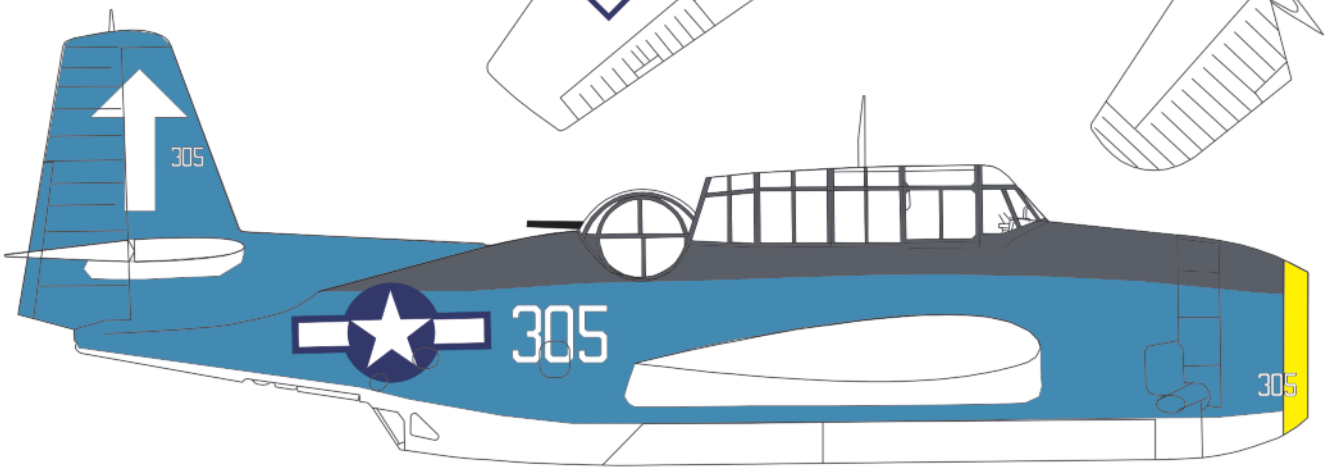
Then apply a urethane clear coat to fuel-proof the model.

Upper Wing Surfaces, Horiz. Stab, Upper Fuselage: Non-specular Sea Blue, FS35042





Lower Surfaces: Flat White, Fs37875




Fuselage and Vertical Stab: Intermediate Blue, Fs35164

Note: FS denotes Federal Standard Colors