

# Zeke's Park Scale Models



Thank you for purchasing the Whim™ Series Pitts S1C from **Park Scale Models**. From a very early age I had a fascination for aircraft of all types, but especially for general aviation aircraft. As a young boy building Comet© and Guillows© models, I developed a passion for planes built from balsa. Nothing could capture my imagination like the balsa structures I'd see in books and magazines and I dreamt of one day having a business that specialized in park flyer sized remote controlled aircraft. Now, 25 years later, technology has made it possible to turn my boyhood dream into reality. I sincerely hope you have as much enjoyment building and flying your Pitts S1C as I did developing it.

## General Building Information

Please be sure to carefully read through the instructions before building your Whim™ Series Pitts S1C. Having a good understanding of the building process will help to make a more enjoyable experience and greatly reduce the chance of making a mistake. It is strongly suggested that you follow the building sequence in the manual. A great deal of thought and time has been put into making the building sequence as 'fool-proof' as possible.

You will need to have a sharp cutting blade (X-acto© #11 works well) to free the parts from the sheets by cutting the small 'hold-in' tabs. Because balsa is a natural product, the density can vary several places in a single sheet. Occasionally the laser might not cut through the sheet completely when it hit's these spots of higher density. You can quickly free these parts by running your cutting blade along the laser cut line.

The Whim™ Series Pitts S1C can be built in two different control layouts:

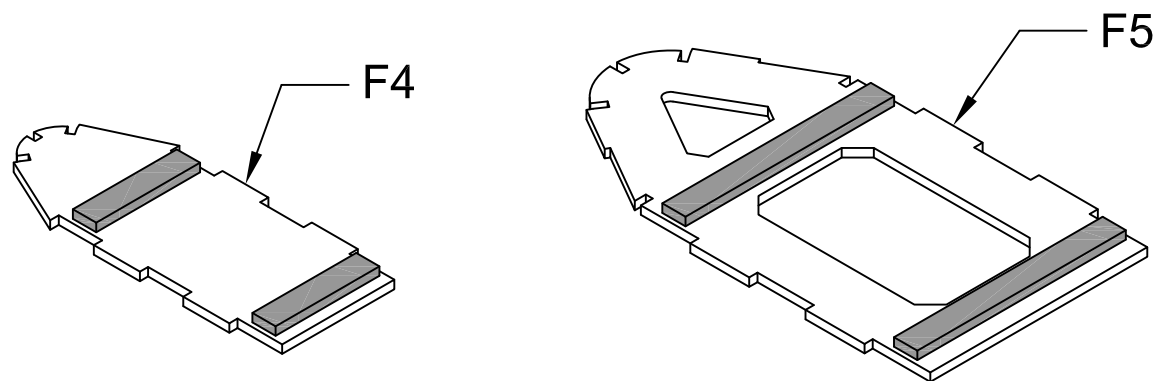
- Rudder, elevator and throttle
- Ailerons, rudder, elevator and throttle

Whim™ Series Pitts S1C specifications	
Length:	14 5/8"
Wing Span:	17 1/2"
Wing Area:	~100 in <sup>2</sup>
Weight:	~ 3.8 oz.
Wing Loading:	5.4 oz/ft <sup>2</sup>
Power System:	D1811-2000 10g outrunner w/ GWS 5043 prop
Control Functions:	Aileron, rudder, elevator & throttle
Battery Pack:	2S 420mAh LiPo

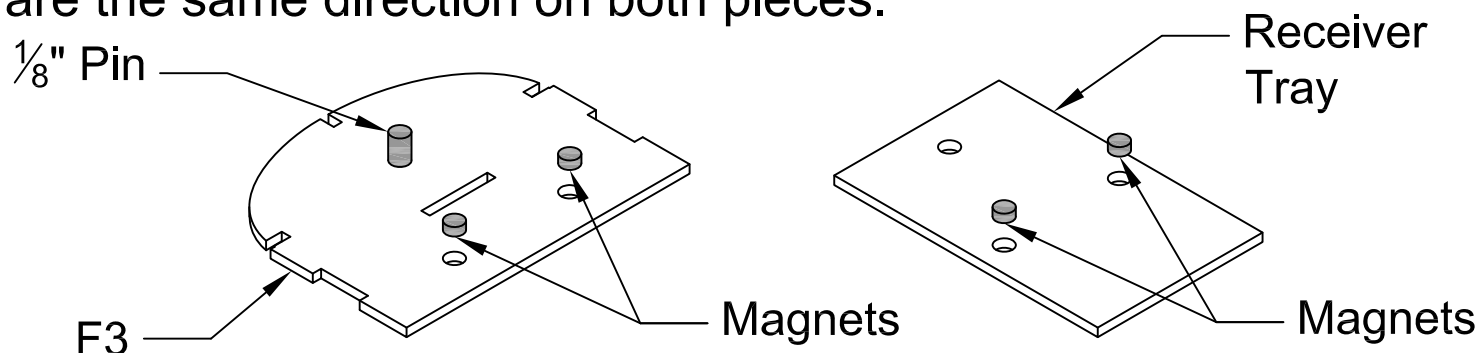
## **Items needed to complete your Monocoupe 90A:**

- 4ch micro receiver
- 2 – 3 sub micro servos (4.3 grams or less recommended)
- Appropriately sized Electronic Speed Controller (6-7 Amp)
- D1811-2000 10g outrunner and a GWS 5x4.3 propeller
- 1" lightweight wheels of choice (2 Req.)
- ¼" tail wheel and 1/32" music wire for optional steerable tail wheel.
- 1 package Du-Bro Micro pushrods (#847)
- 2 packages of Du-Bro Micro control horns (#848)
- 1 roll of light weight covering material
- Misc. building supplies (glue, razor blades, etc.)

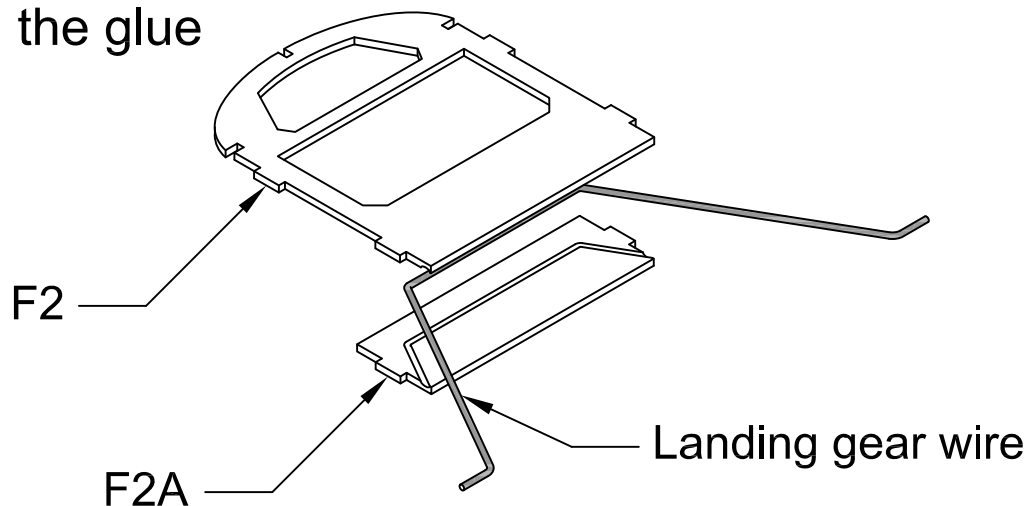
1. Use the included laser cut strips to glue cross grain reinforcements to F4 and F5.



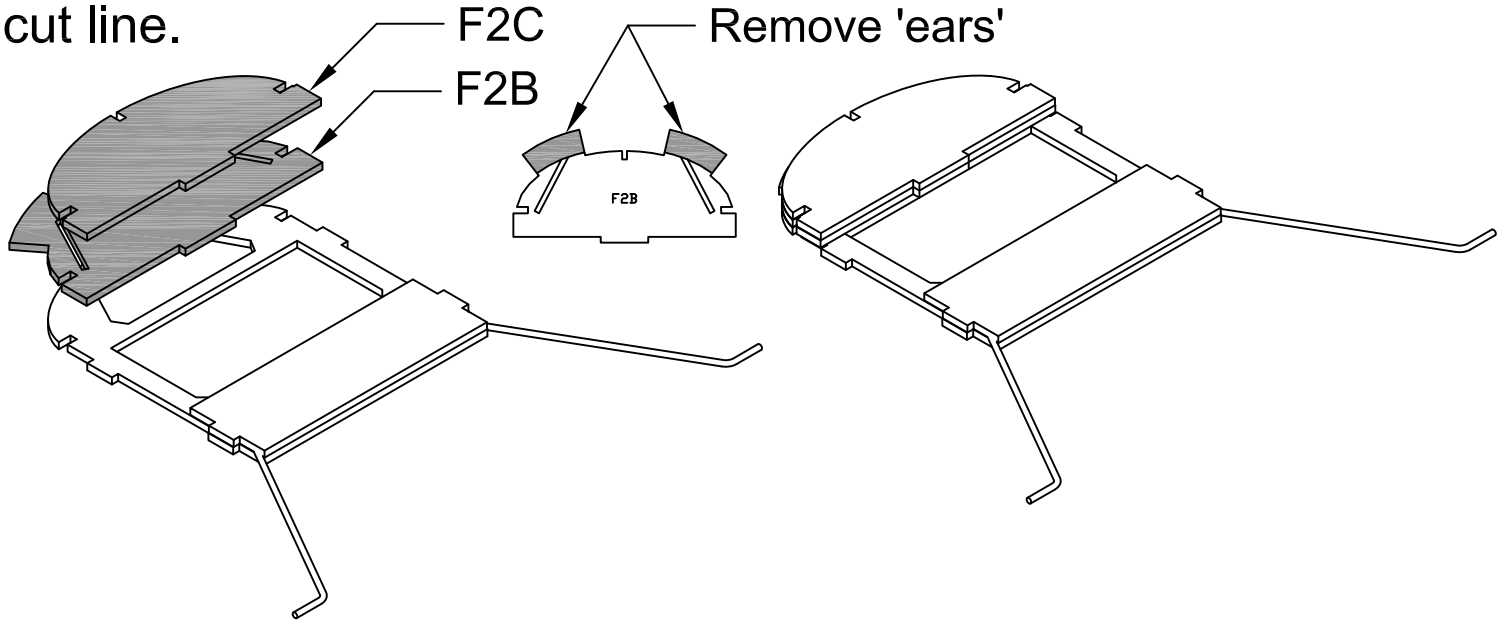
2. Glue two rare earth magnets and  $\frac{1}{8}$ " diameter dowel pin (included) into F3. Glue two rare earth magnets into the removable Receiver/ESC tray. Ensure that the magnetic poles are the same direction on both pieces.



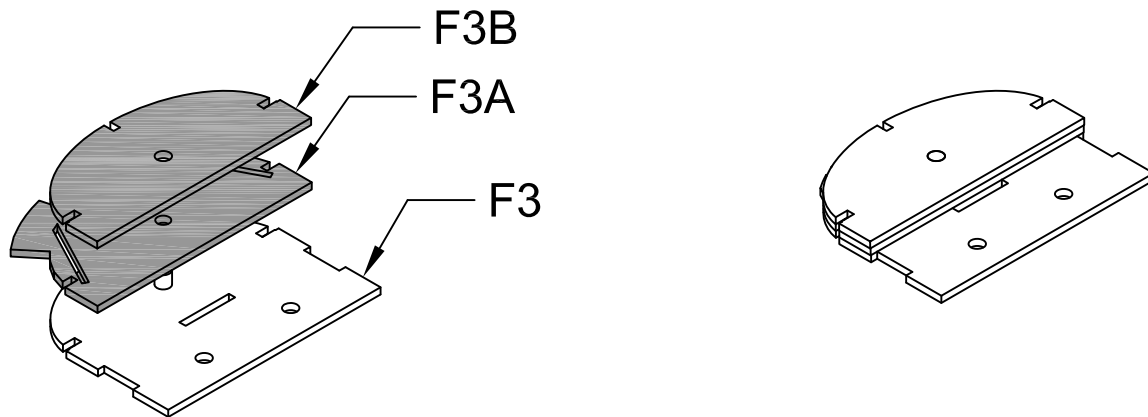
3. Bend a piece of .047" diameter wire for the landing gear using the template at the end of the instructions. Use a piece of .047" diameter wire to clean out the grooves in F2 and F2A for the landing gear wire. Place the landing gear wire into the groove in F2. Use epoxy or thick CA to glue formers F2 and F2A together, clamp together until the glue has set.



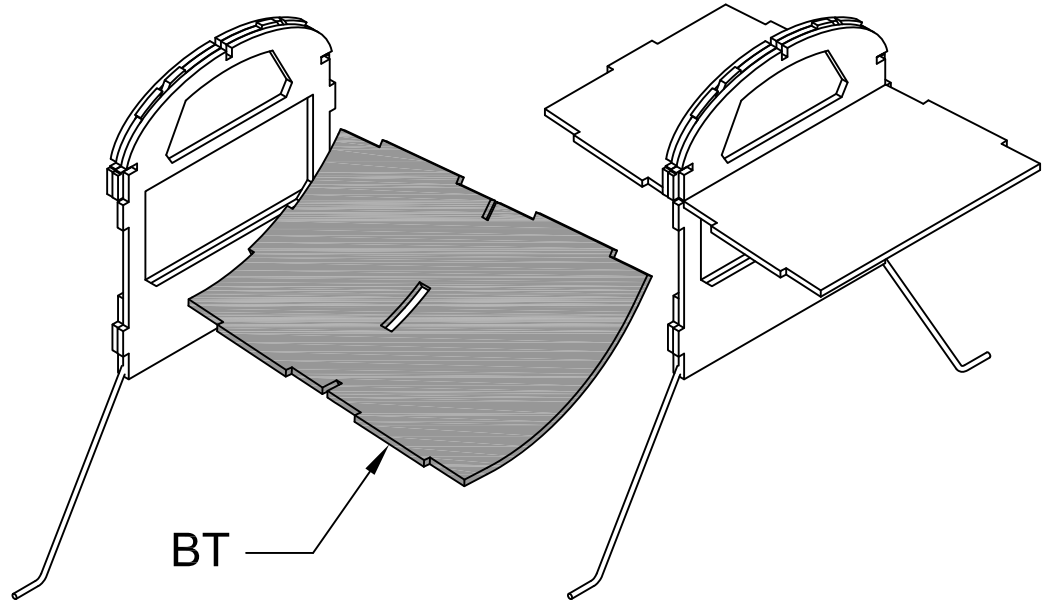
4. Laminate F2B between F2 and F2C. It is critical that the parts are oriented in the proper direction. Glue F2B and F2C on the same side of F2 that F2A is on. Carefully align the part Using the stringer slots and the bottom tabs for reference. Once glued together, carefully trim away the 'ears' on F2B using the marked cut line.



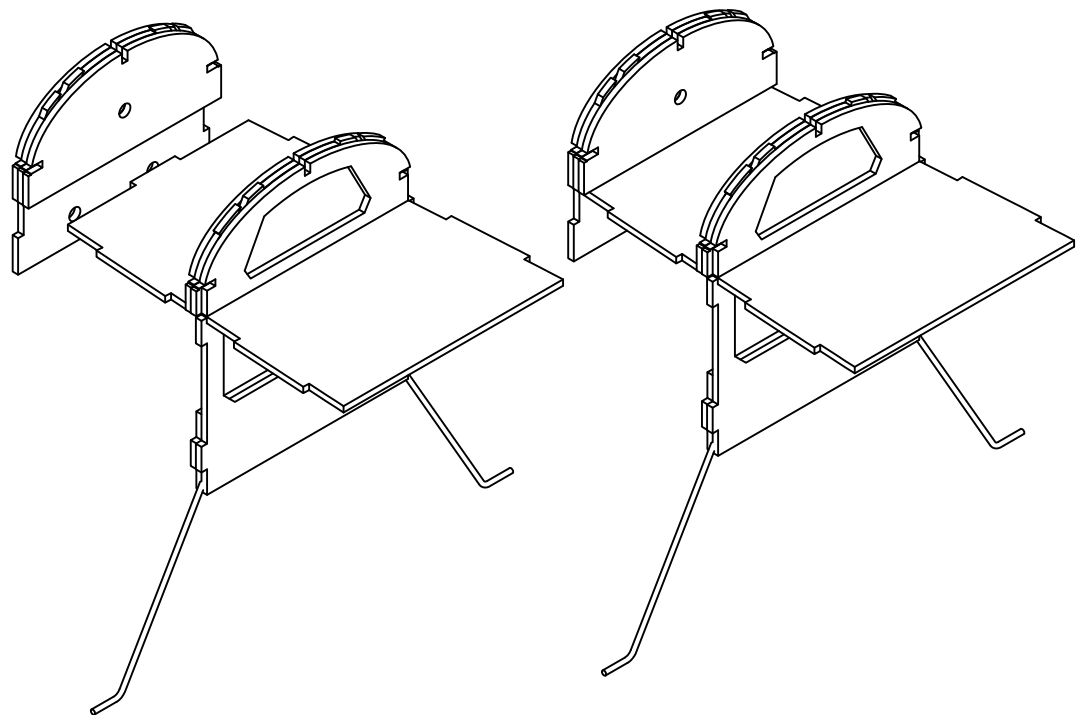
5. Laminate F3A between F3 and F3B. It is critical that the parts are oriented in the proper direction. The dowel pin needs to face the rear of the plane while F3A and F3B face the front of the plane. Carefully align the part Using the stringer slots and the 1/8" holes for reference. Carefully trim away the 'ears' on F3A using the marked cut line.



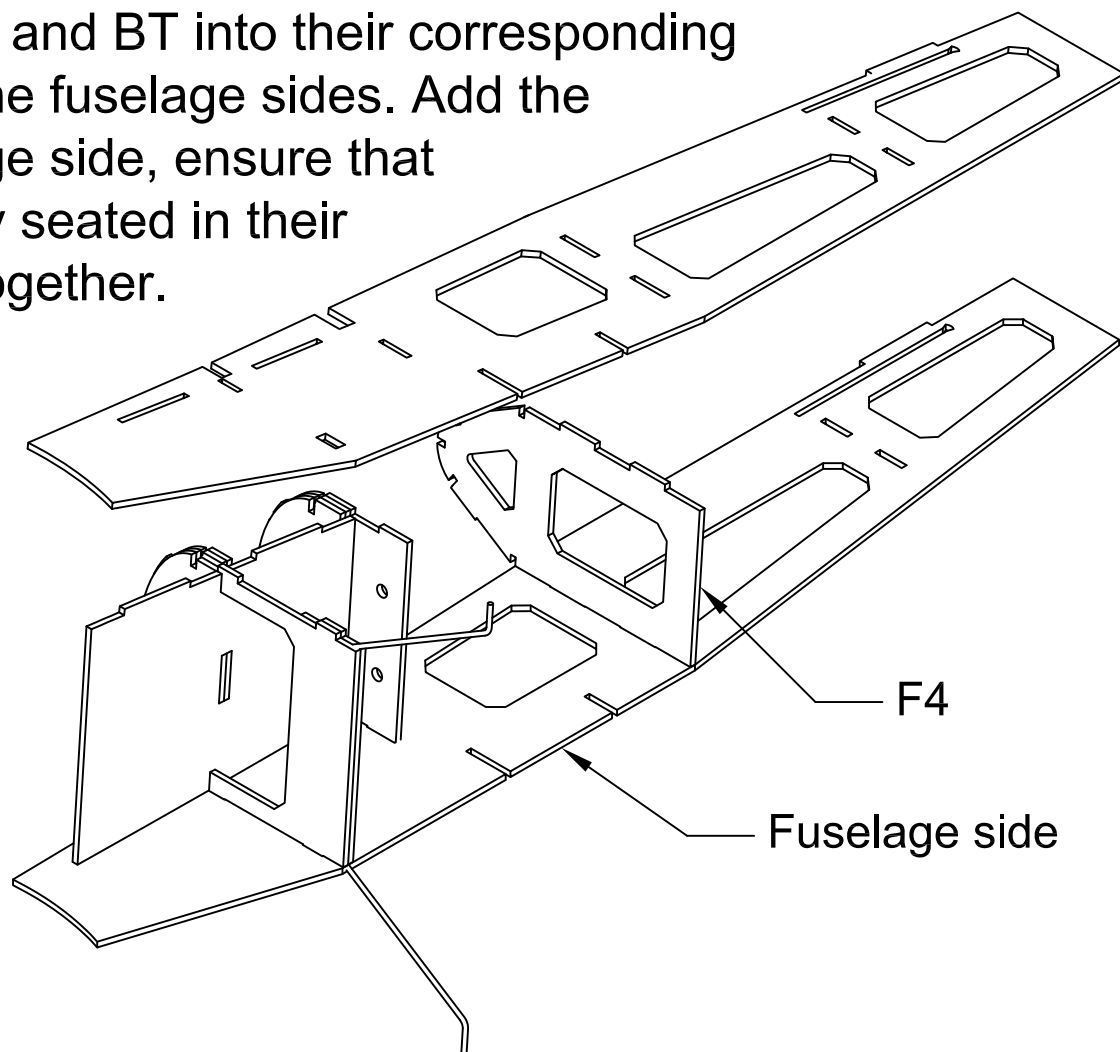
6. Carefully fit the battery tray BT into F2. It is critical that the parts are oriented in the proper direction. F2 needs to be oriented so that F2A faces the rear of the plane. BT needs to be oriented so that the wider end is towards the front of the plane. It is necessary to carefully bend BT to get it to fit into the opening in F2, wet if necessary to help bending. Take your time and work slowly to avoid splitting BT. Do not glue together yet.



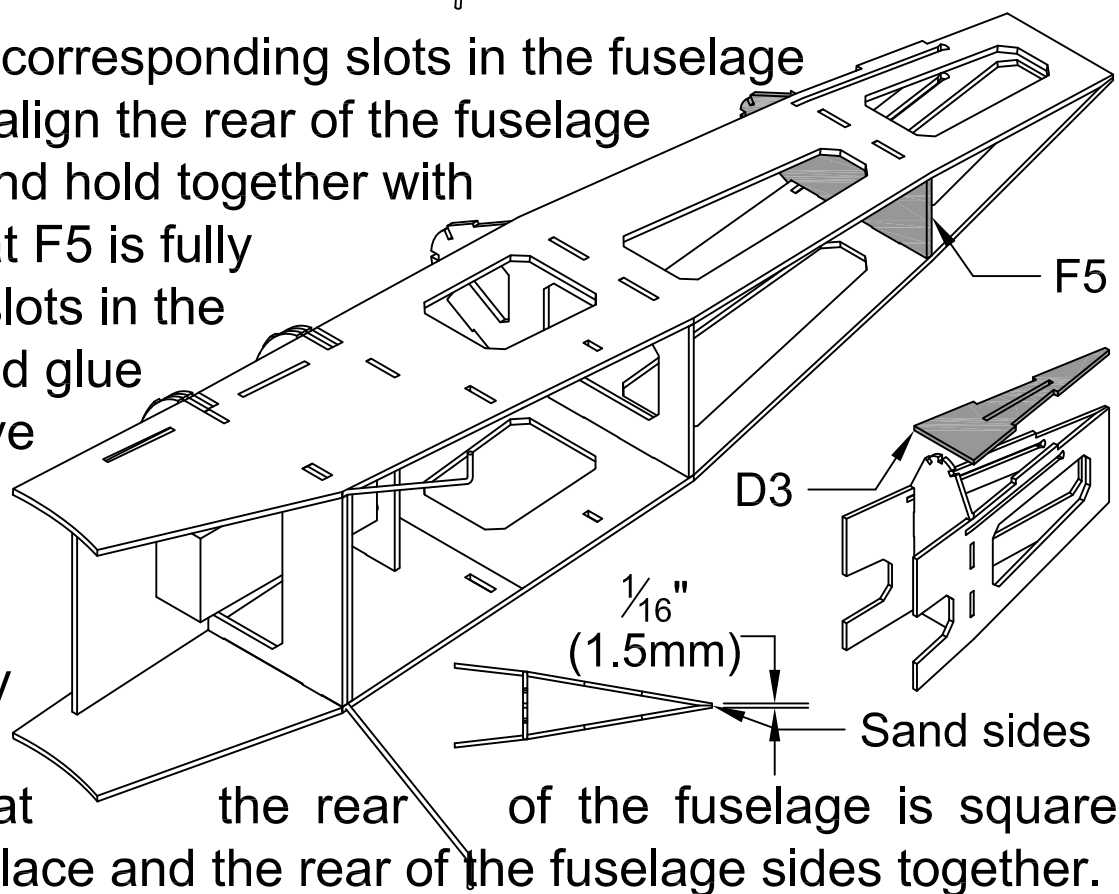
7. Carefully fit the tab at the rear of BT into the corresponding slot in F3. It is critical that the parts are oriented in the proper direction. F3A/F3B must face the front of the plane. Do not glue together yet.



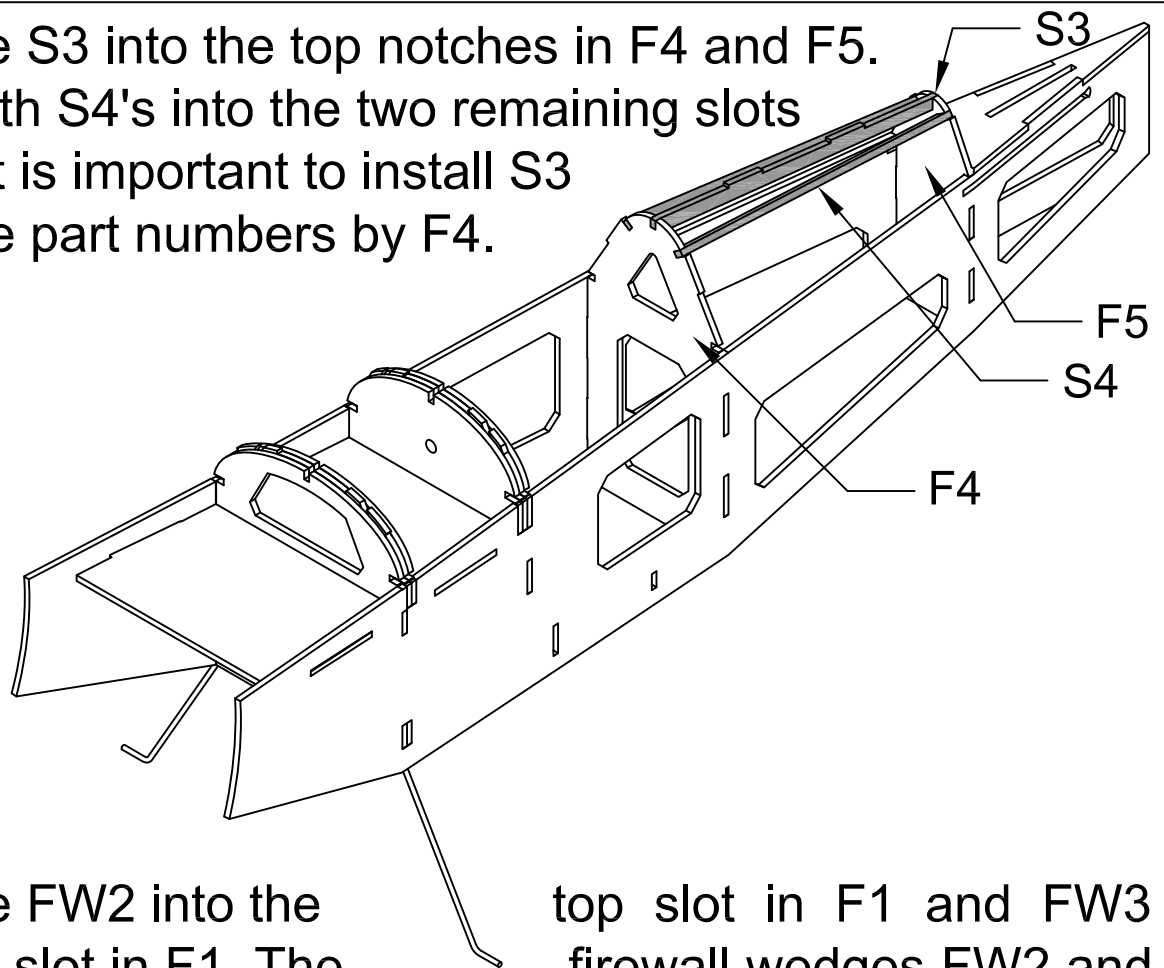
8. Fit F2, F3, F4 and BT into their corresponding slots in one of the fuselage sides. Add the opposite fuselage side, ensure that all parts are fully seated in their slots and glue together.



9. Fit F5 into its corresponding slots in the fuselage sides. Carefully align the rear of the fuselage sides together and hold together with tape. Ensure that F5 is fully seated into the slots in the fuselage side and glue together. Remove the tape and sand the inside of the fuselage sides where they meet. Fit D3 in place, ensure that the rear of the fuselage is square and glue D3 in place and the rear of the fuselage sides together.

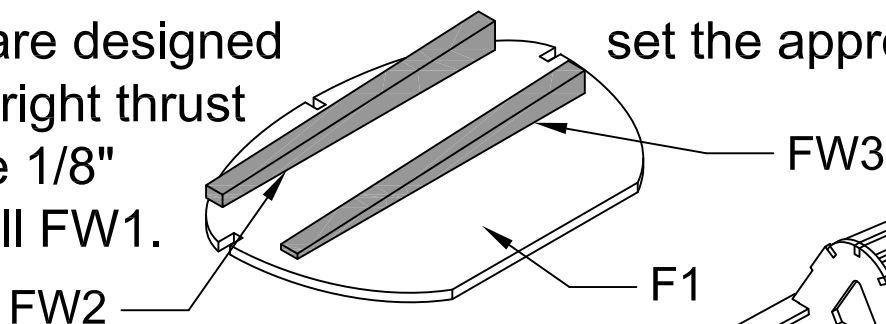


10. Fit and glue S3 into the top notches in F4 and F5. Fit and glue both S4's into the two remaining slots in F4 and F5. It is important to install S3 and S4 with the part numbers by F4.

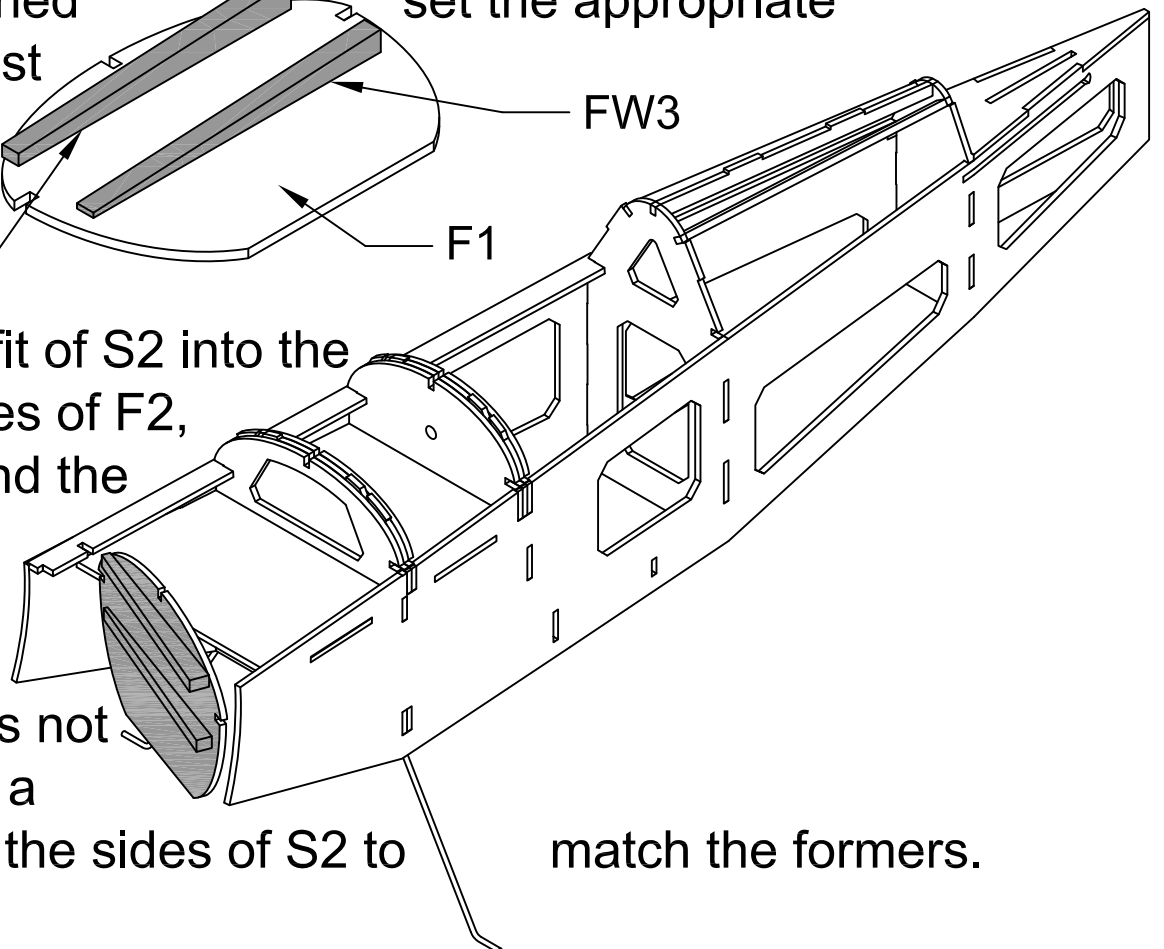


11. Fit and glue FW2 into the top slot in F1 and FW3 into the bottom slot in F1. The FW3 are designed for the 1/8" firewall FW1.

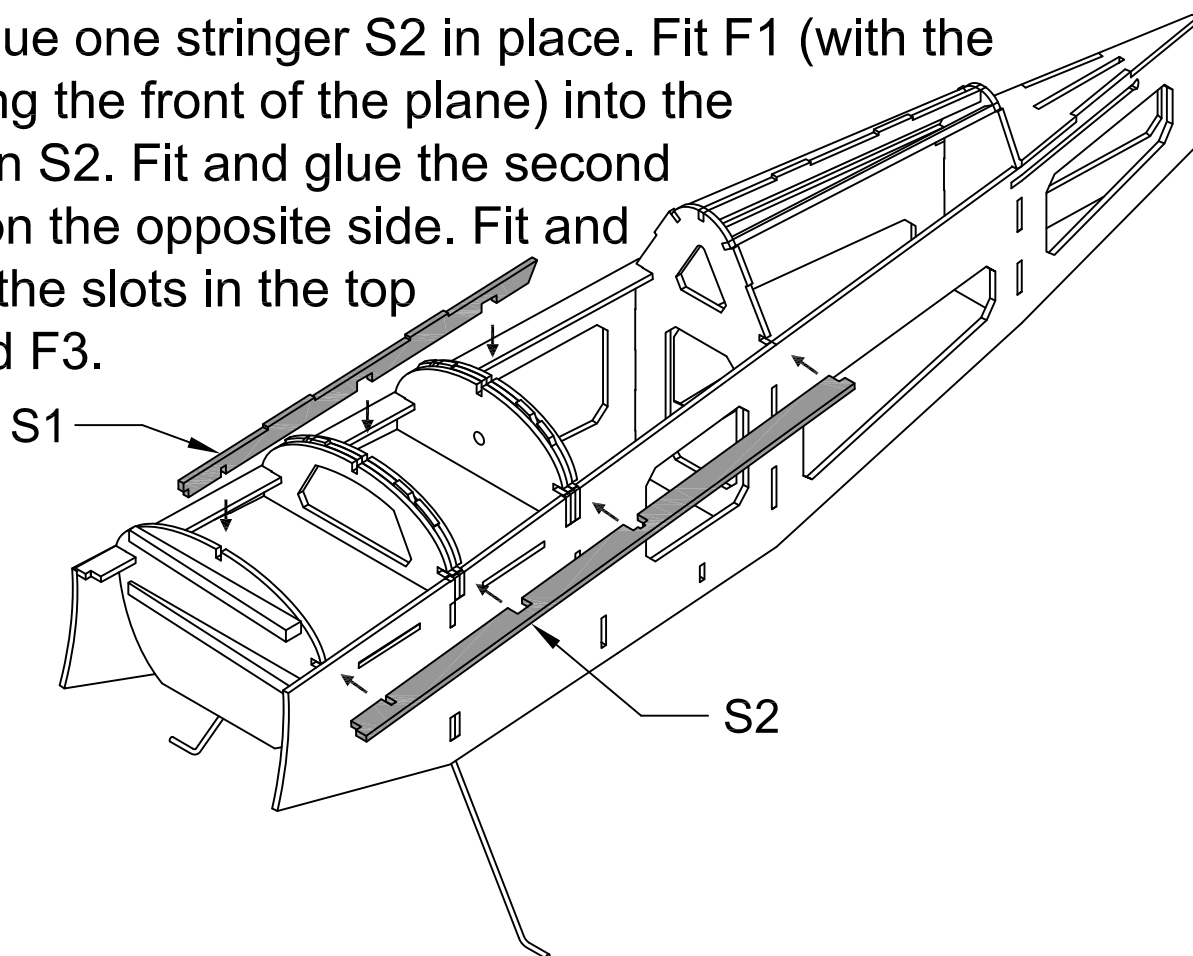
set the appropriate down/right thrust



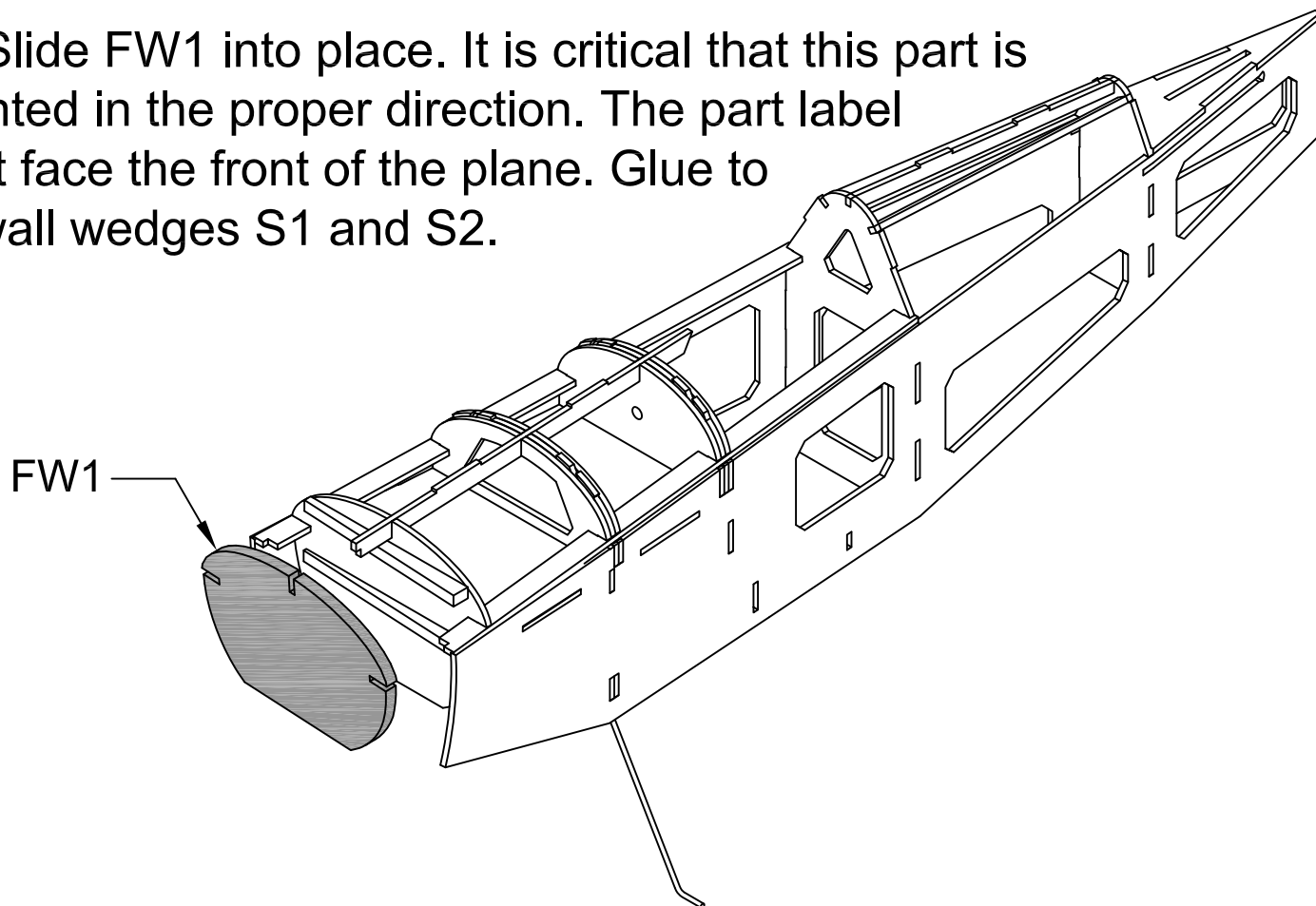
12. Check the fit of S2 into the slots in the sides of F2, F3 and F4. Sand the slots in F2, F3 and F4 to achieve a secure fit that is not too tight. Sand a slight bevel on the sides of S2 to match the formers.



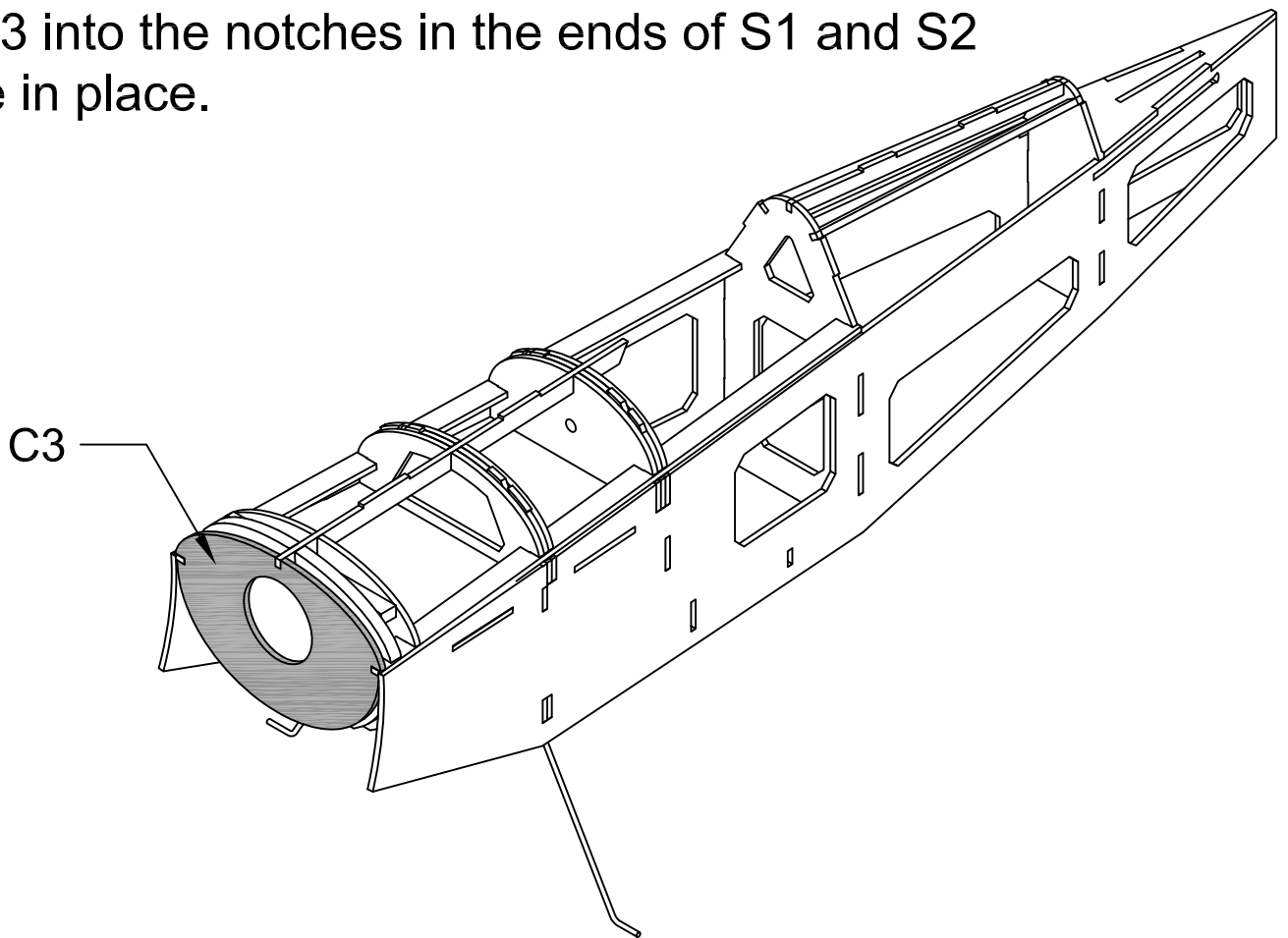
13. Fit and glue one stringer S2 in place. Fit F1 (with the wedges facing the front of the plane) into the second slot in S2. Fit and glue the second S2 in place on the opposite side. Fit and glue S1 into the slots in the top of F1, F2 and F3.



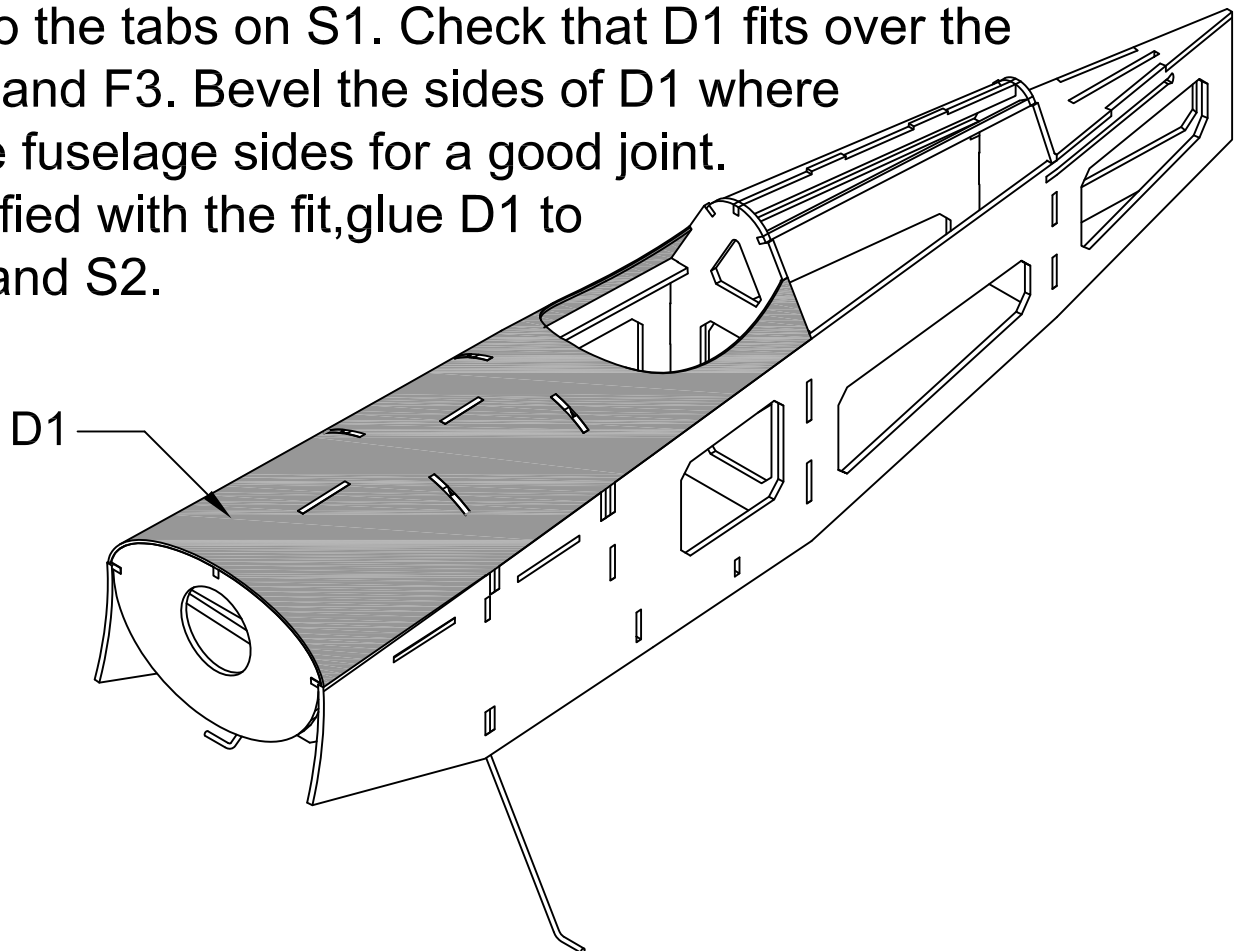
14. Slide FW1 into place. It is critical that this part is oriented in the proper direction. The part label must face the front of the plane. Glue to firewall wedges S1 and S2.



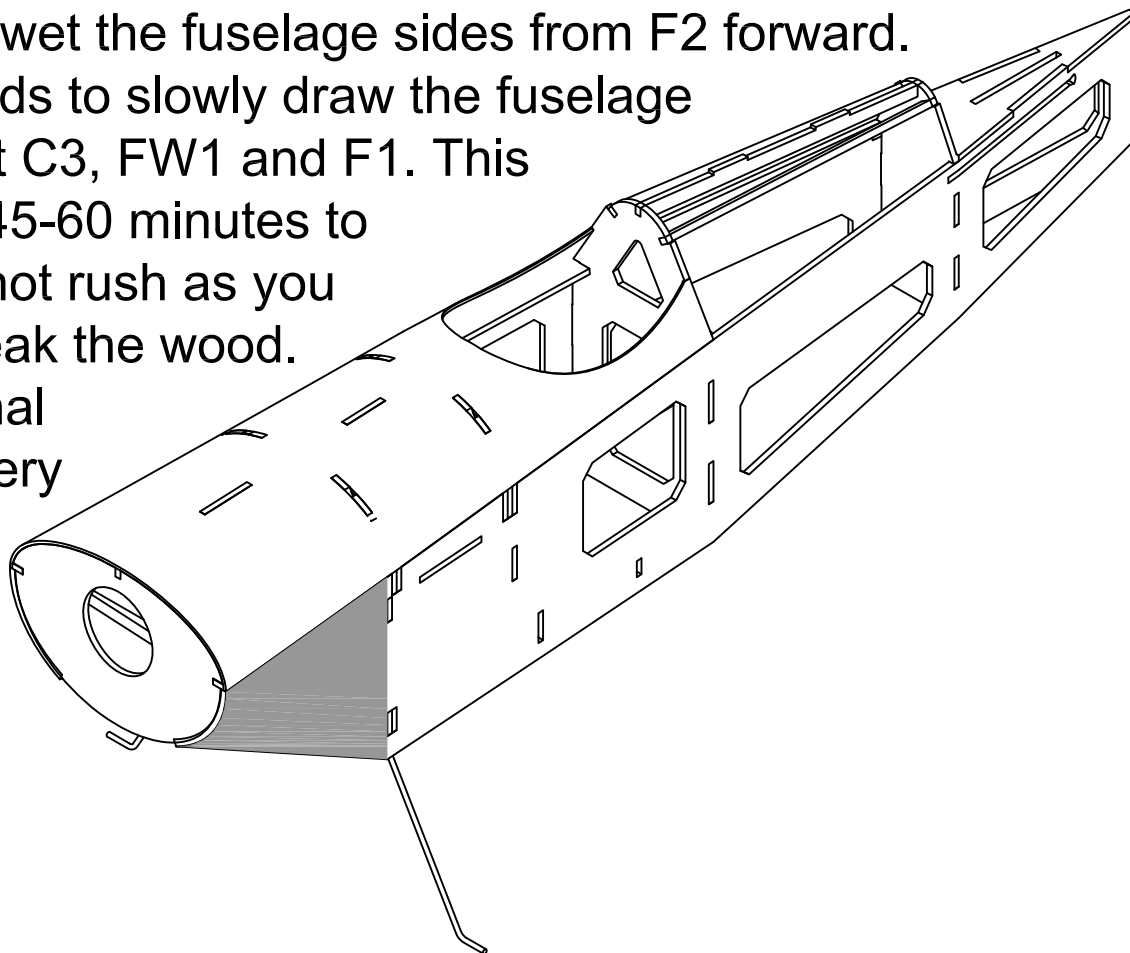
15. Fit C3 into the notches in the ends of S1 and S2 and glue in place.



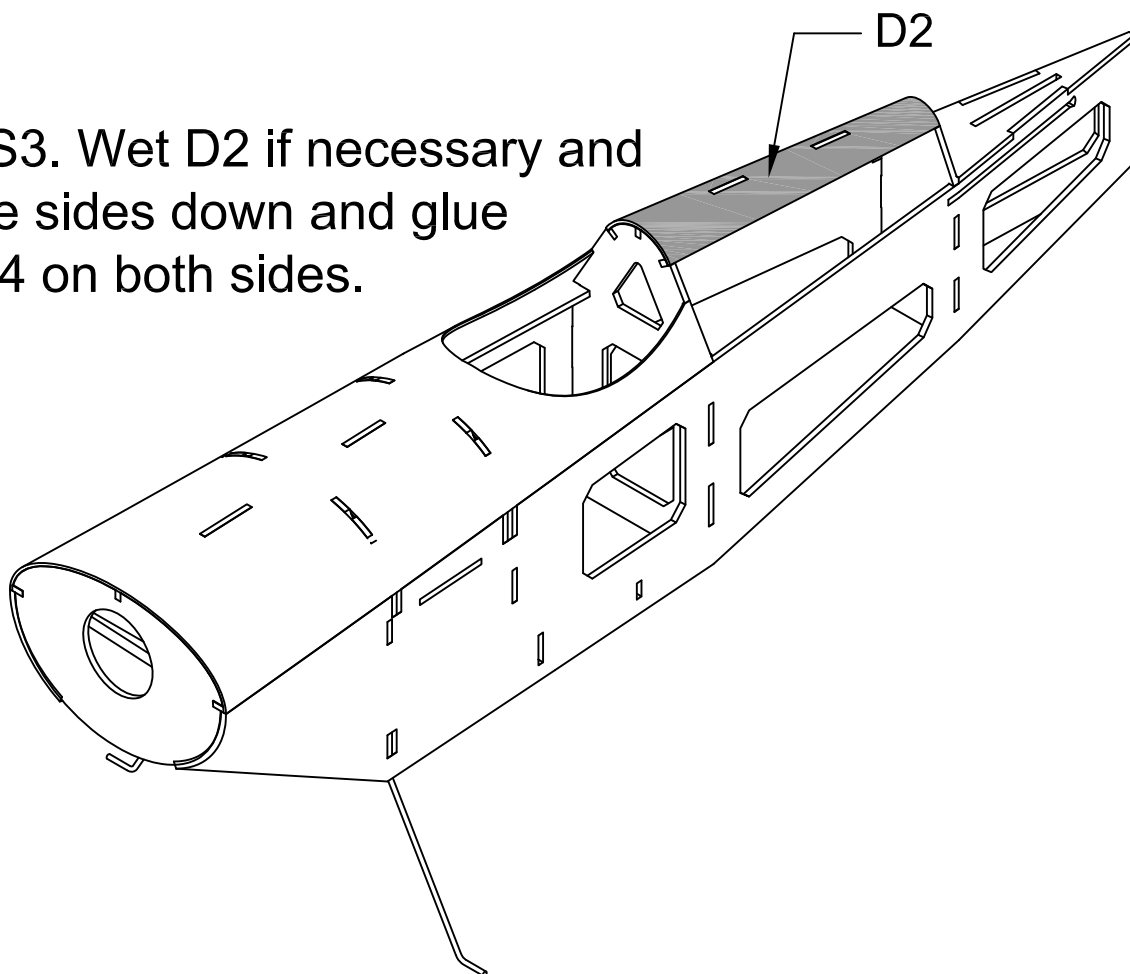
16. Fit D1 to the tabs on S1. Check that D1 fits over the tabs on F2 and F3. Bevel the sides of D1 where it meets the fuselage sides for a good joint. When satisfied with the fit, glue D1 to F1-F4, S1 and S2.



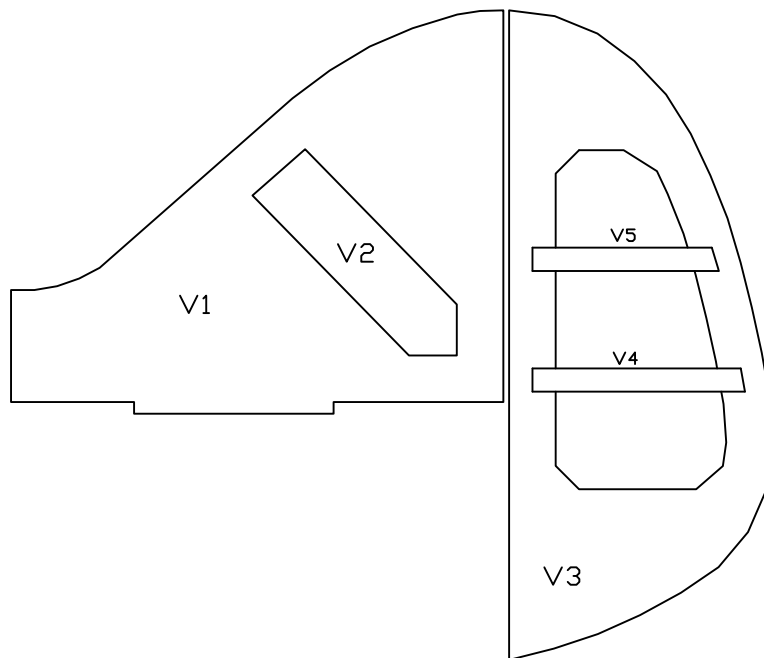
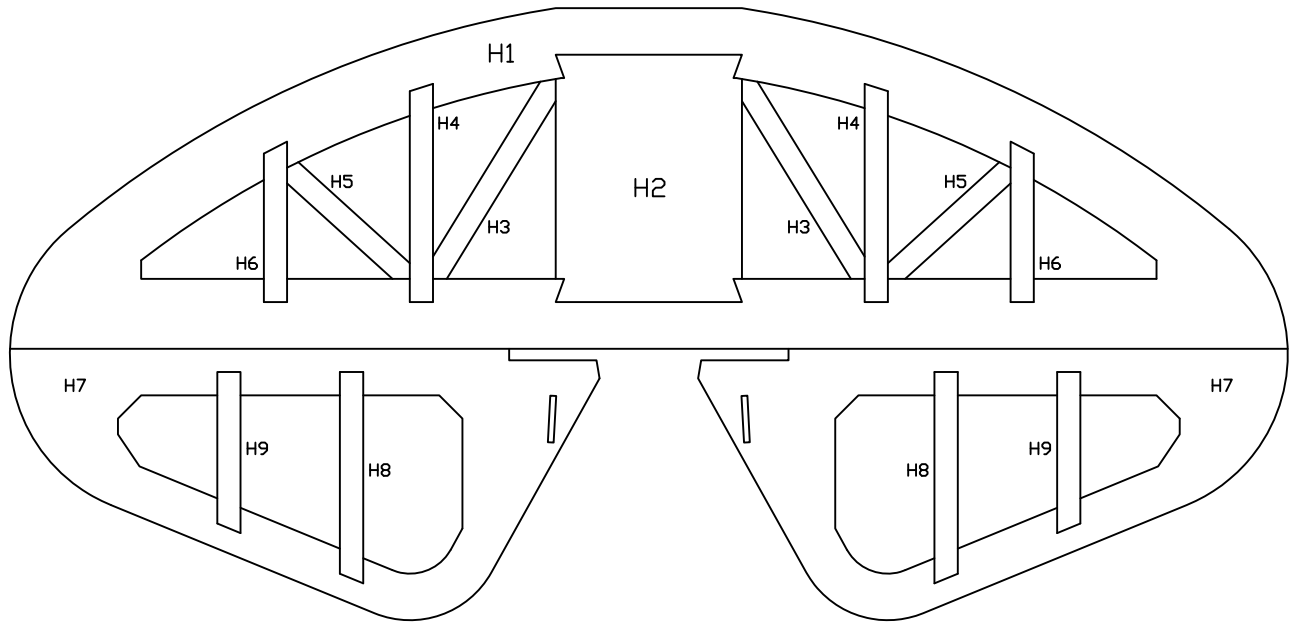
17. Thoroughly wet the fuselage sides from F2 forward. Use rubber bands to slowly draw the fuselage sides in to meet C3, FW1 and F1. This step may take 45-60 minutes to complete - Do not rush as you could easily break the wood. Add an additional rubber band every 10-15 minutes as necessary to draw the sides in.



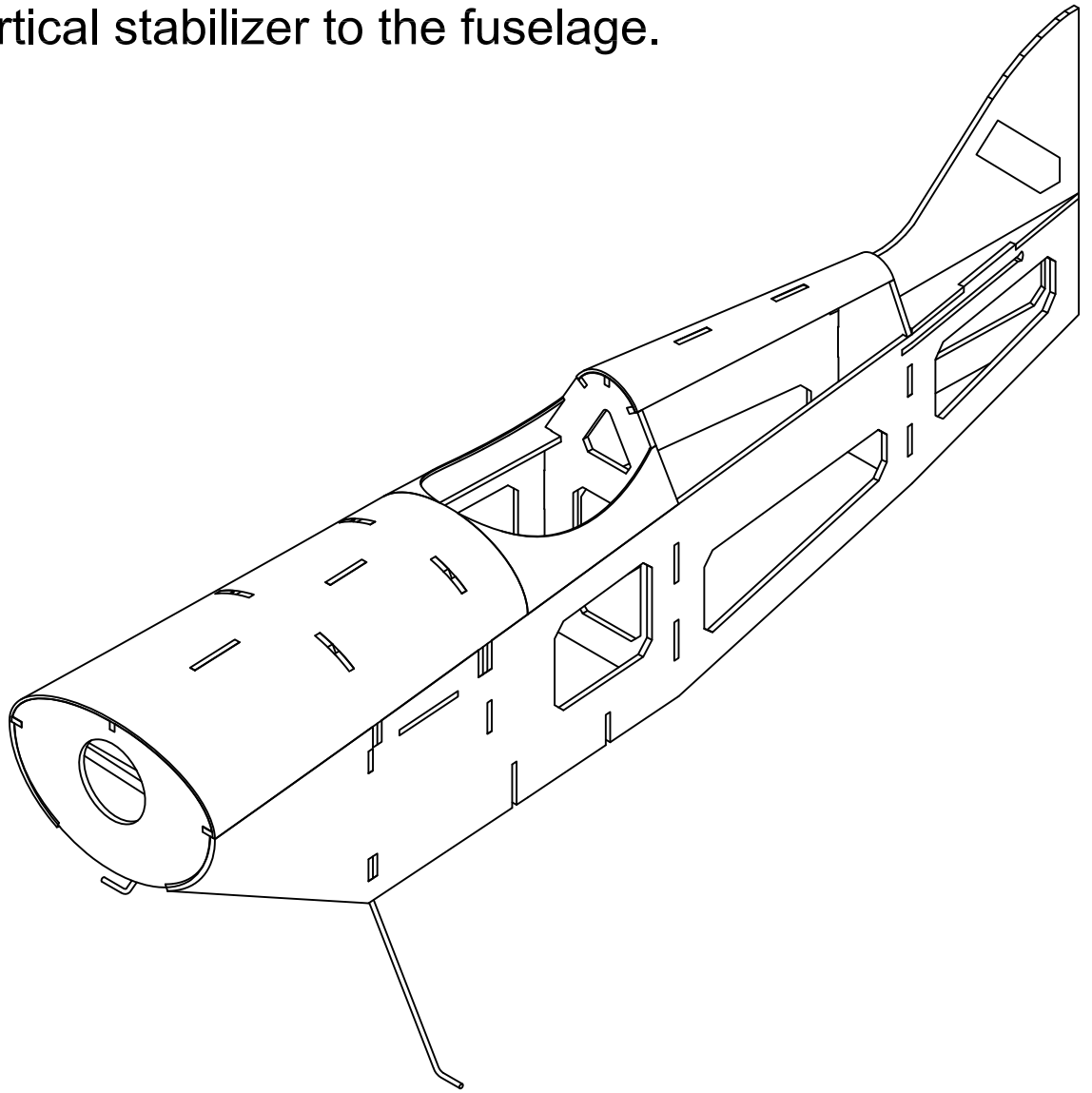
18. Glue D2 to S3. Wet D2 if necessary and carefully bend the sides down and glue to F4, F5 and S4 on both sides.



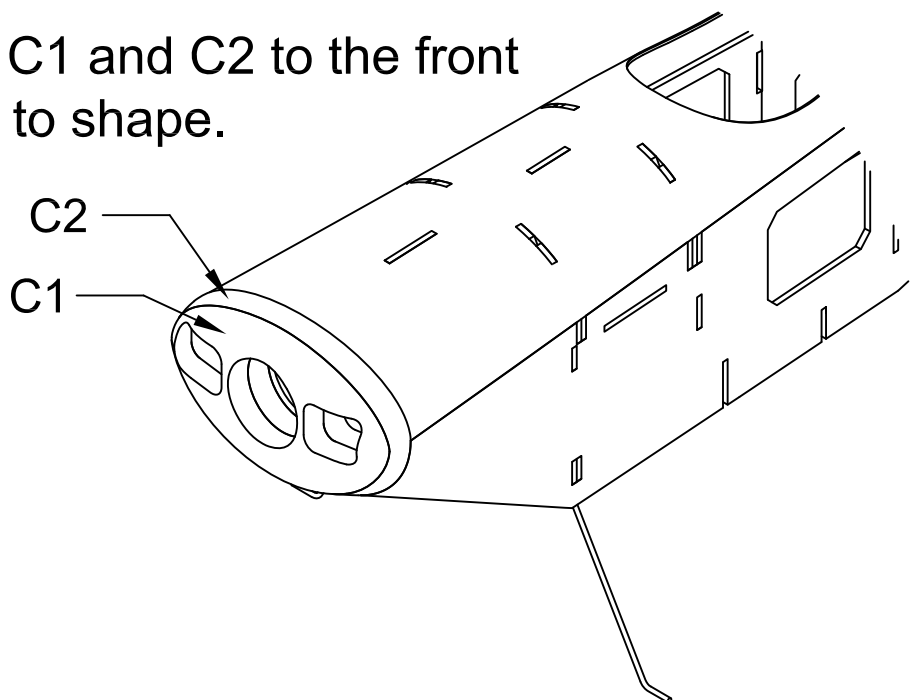
19. Assemble the horizontal and vertical stabilizers. Use a piece of CF rod to join the elevator halves together.



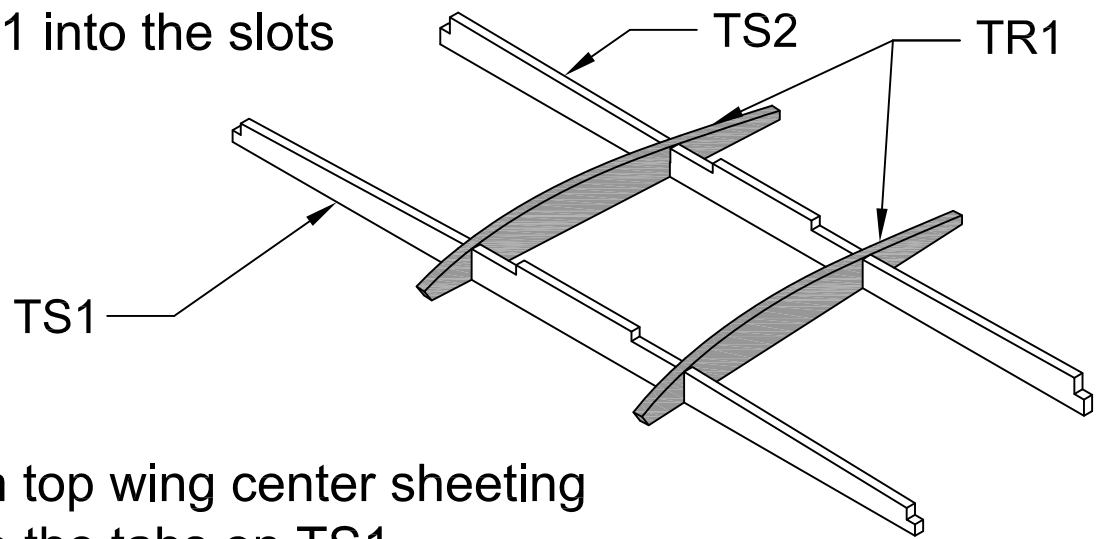
20. Glue the vertical stabilizer to the fuselage.



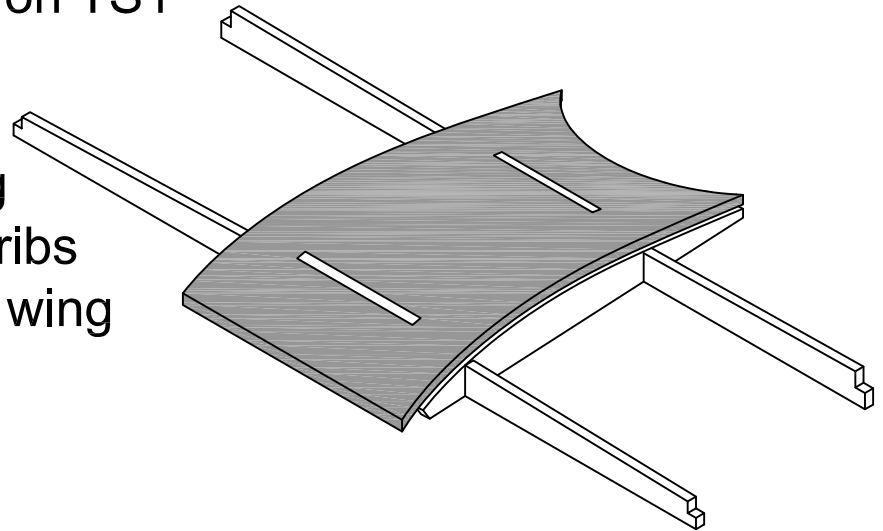
21. Glue the cowl blocks C1 and C2 to the front of the fuselage and sand to shape.



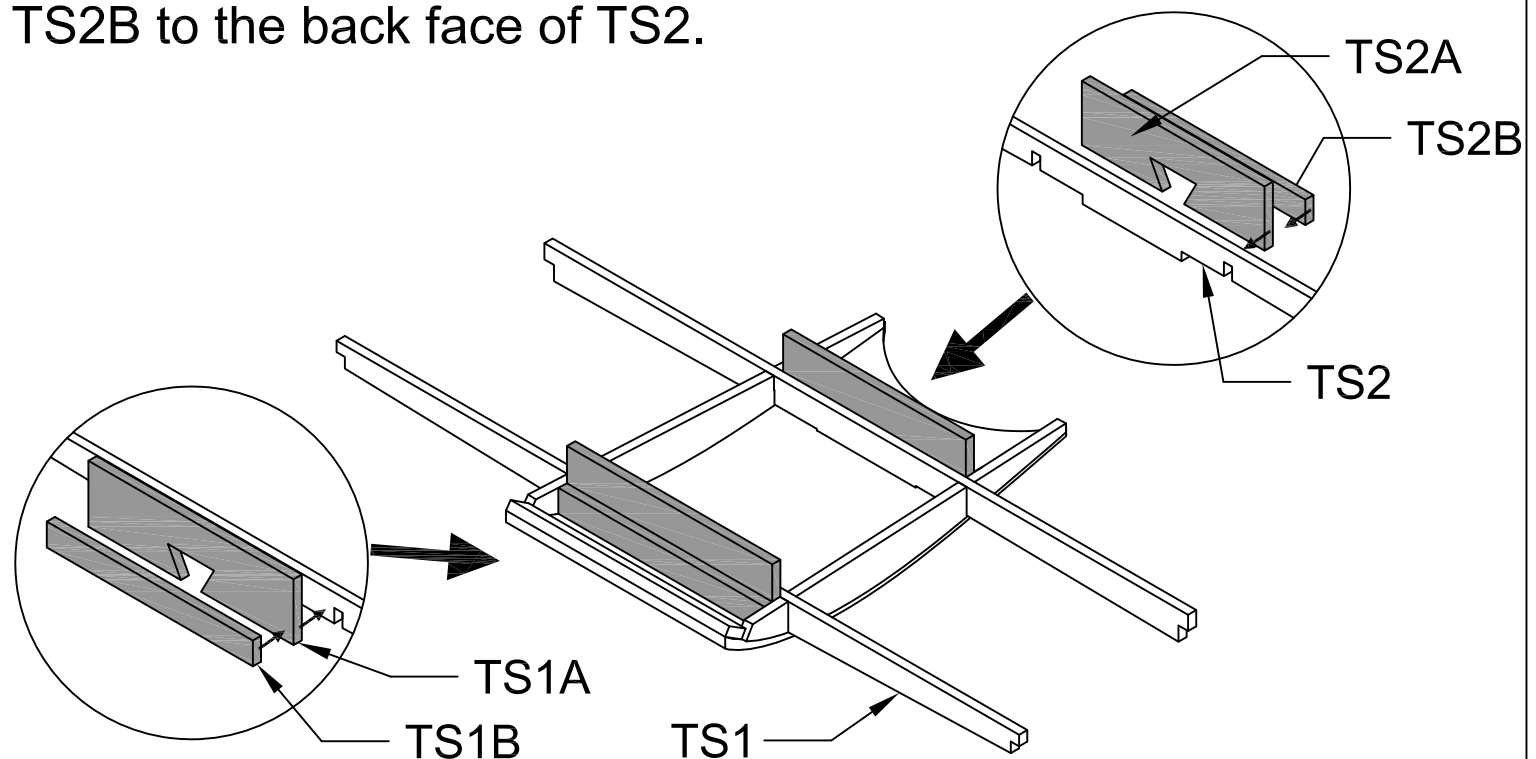
22. Insert ribs TR1 into the slots in TS1 and TS2.



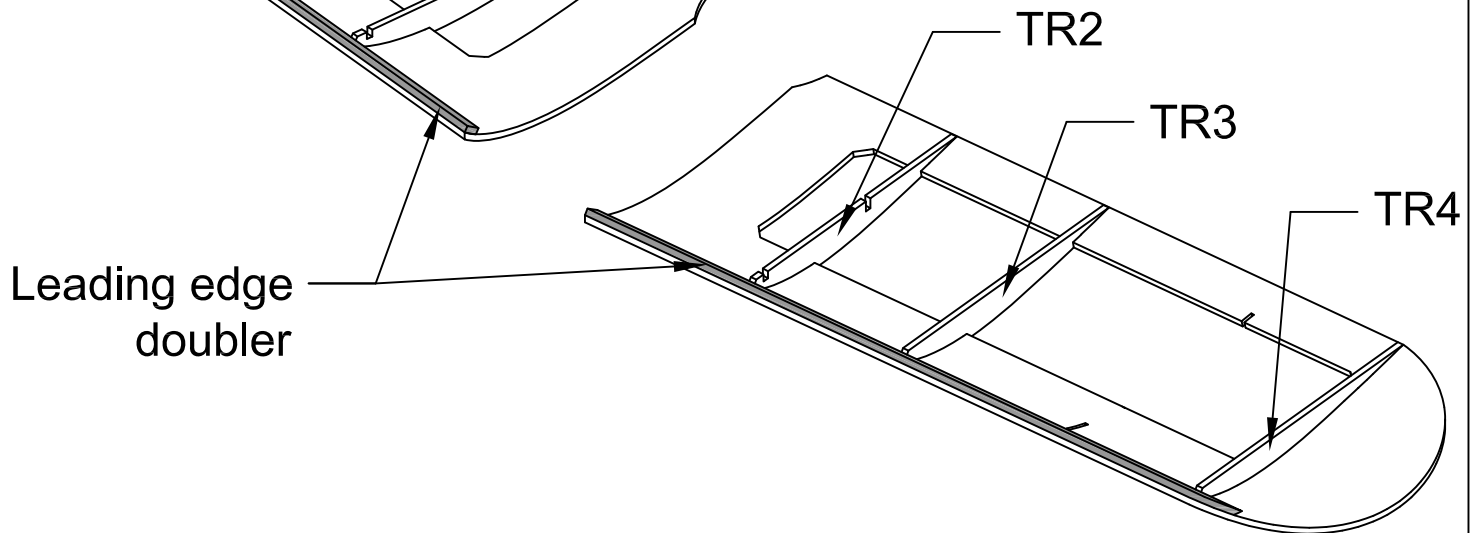
23. Fit the slots in top wing center sheeting (not marked) onto the tabs on TS1 and TS2. Glue sheeting to TS1 and TS2 first. Carefully align the sheeting along the centerline of the ribs TR1 and glue sheeting to wing ribs.



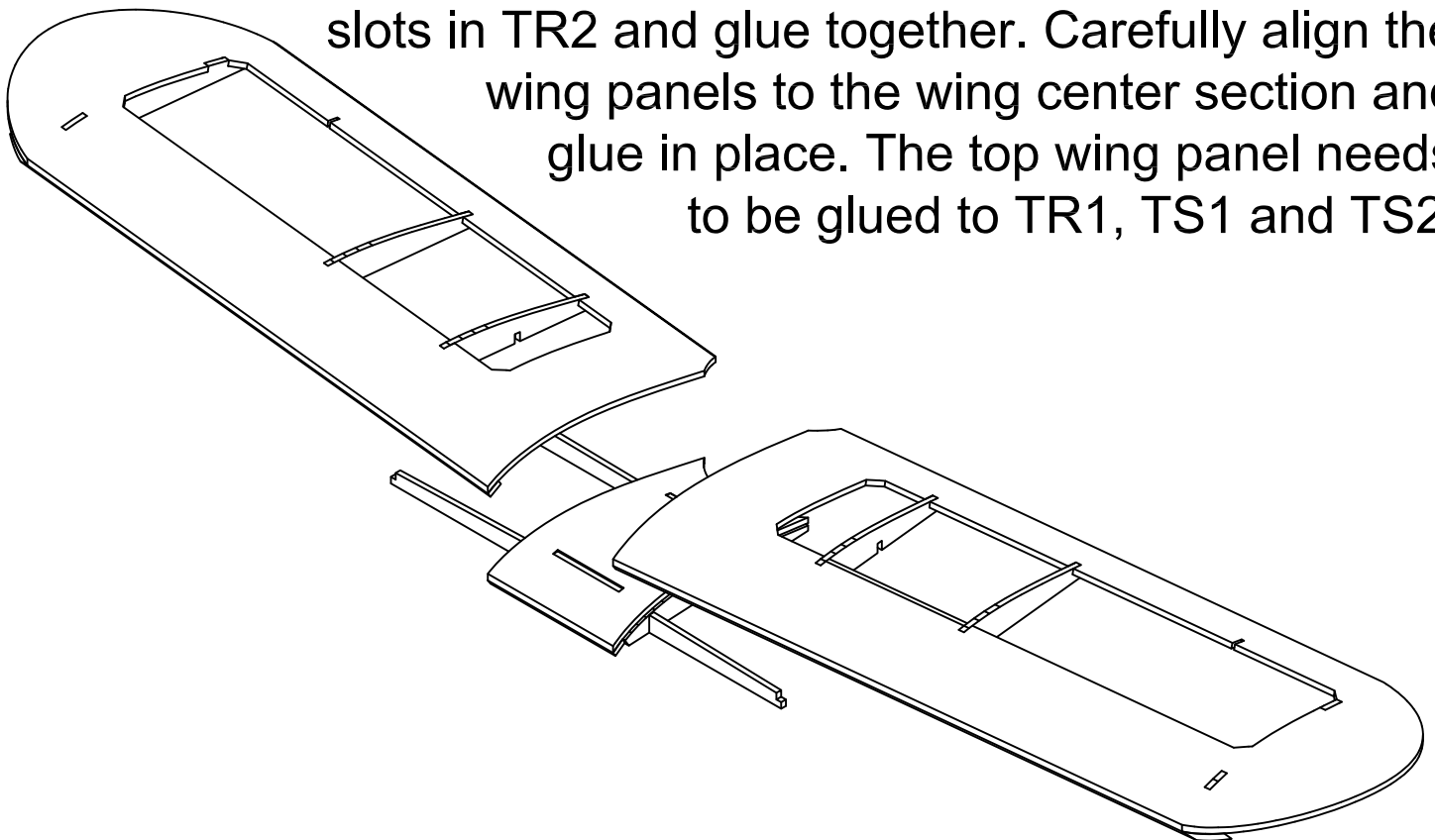
24. Glue the top wing cabane strut retainers to the wing spars. Glue TS1A and TS1B to the front face of TS1. Glue TS2A and TS2B to the back face of TS2.



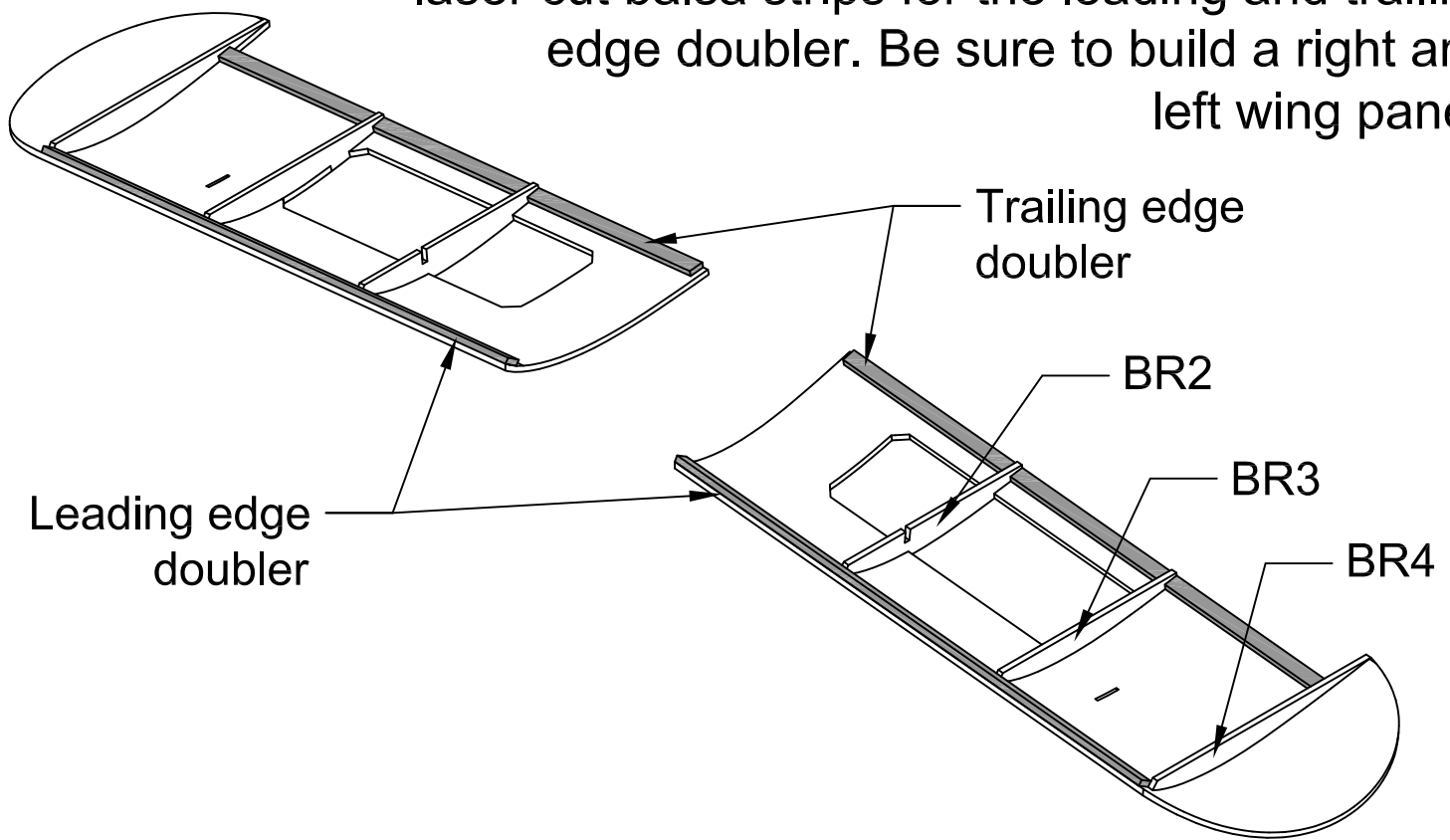
25. Assemble the top wing panels by gluing TR2, TR3 and TR4 to the top wing panel. Use the laser cut balsa strips for the leading edge doubler. Be sure to build a right and left wing panel.



26. Fit the top wing panels to the top wing center. Make sure the notches in the ends of TS1 and TS2 are fully seated into the slots in TR2 and glue together. Carefully align the wing panels to the wing center section and glue in place. The top wing panel needs to be glued to TR1, TS1 and TS2.



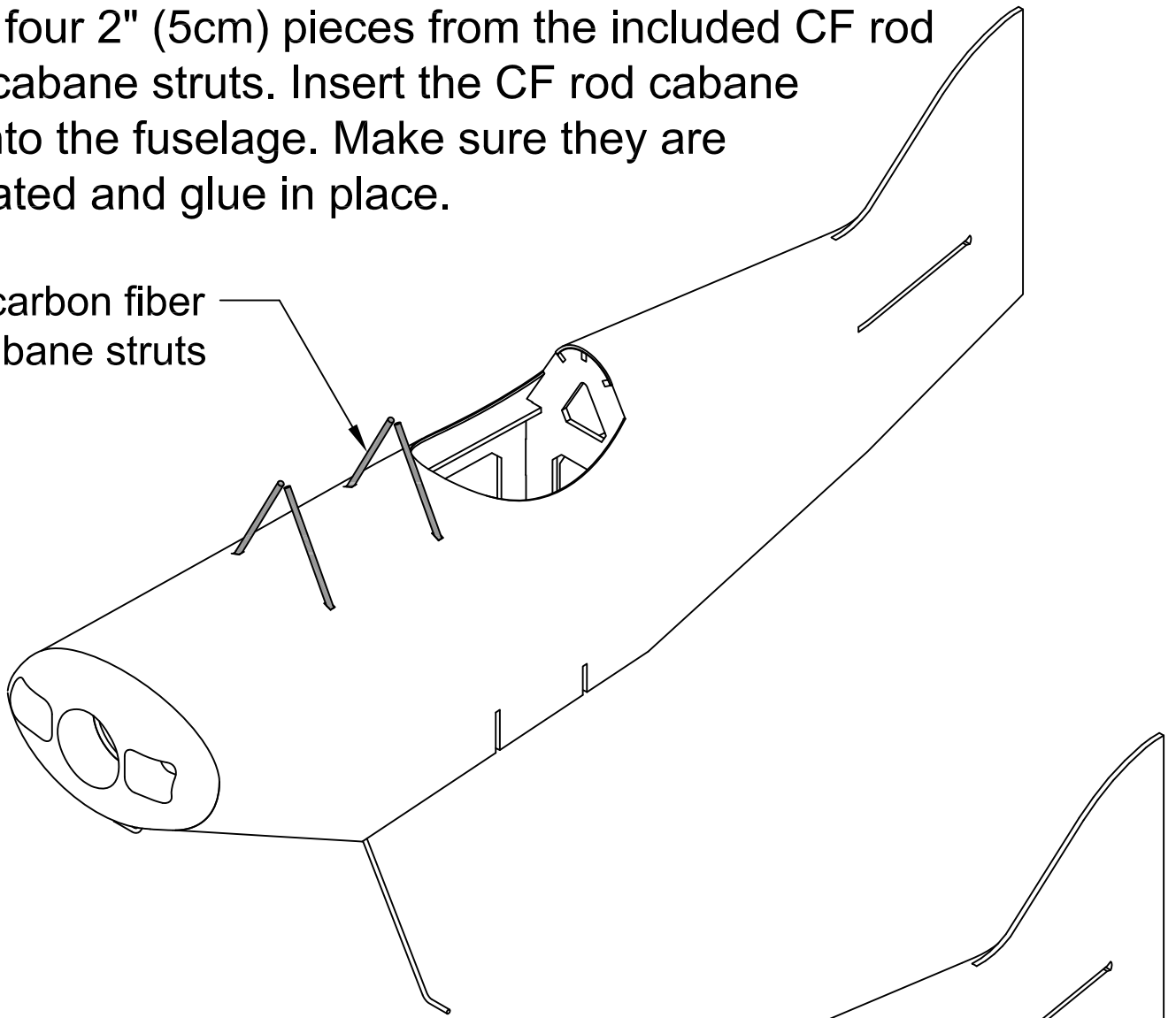
27. Assemble the bottom wing panels by cutting the ailerons free and gluing BR2, BR3 and BR4 to the bottom wing panel. Use the laser cut balsa strips for the leading and trailing edge doubler. Be sure to build a right and left wing panel.



28. At this point it is recommended to cover the airframe before final assembly. The bottom of the wings and fuselage are to be left uncovered.

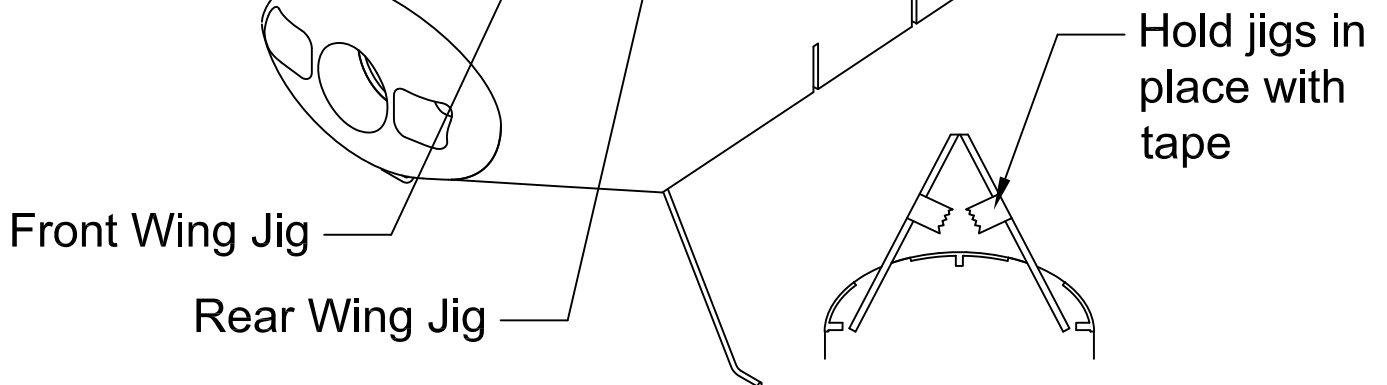
29. Cut four 2" (5cm) pieces from the included CF rod for the cabane struts. Insert the CF rod cabane struts into the fuselage. Make sure they are fully seated and glue in place.

carbon fiber  
cabane struts

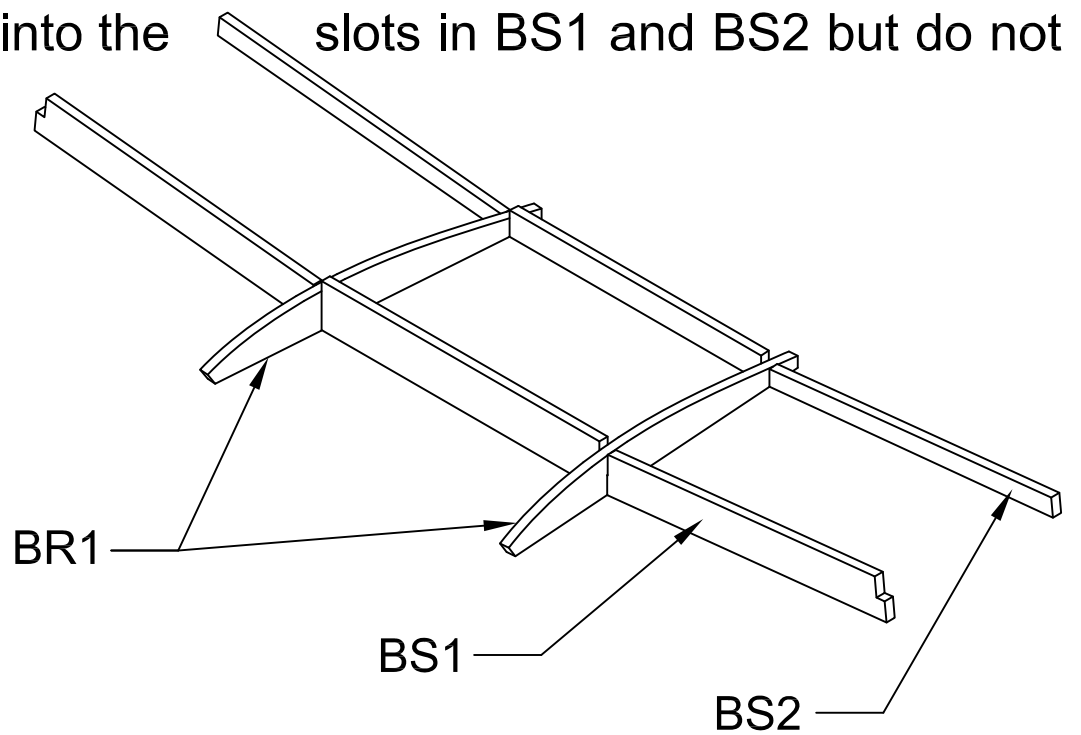


30. Fit the front and rear wing jigs between the CF rod cabane struts and hold in place with tape.

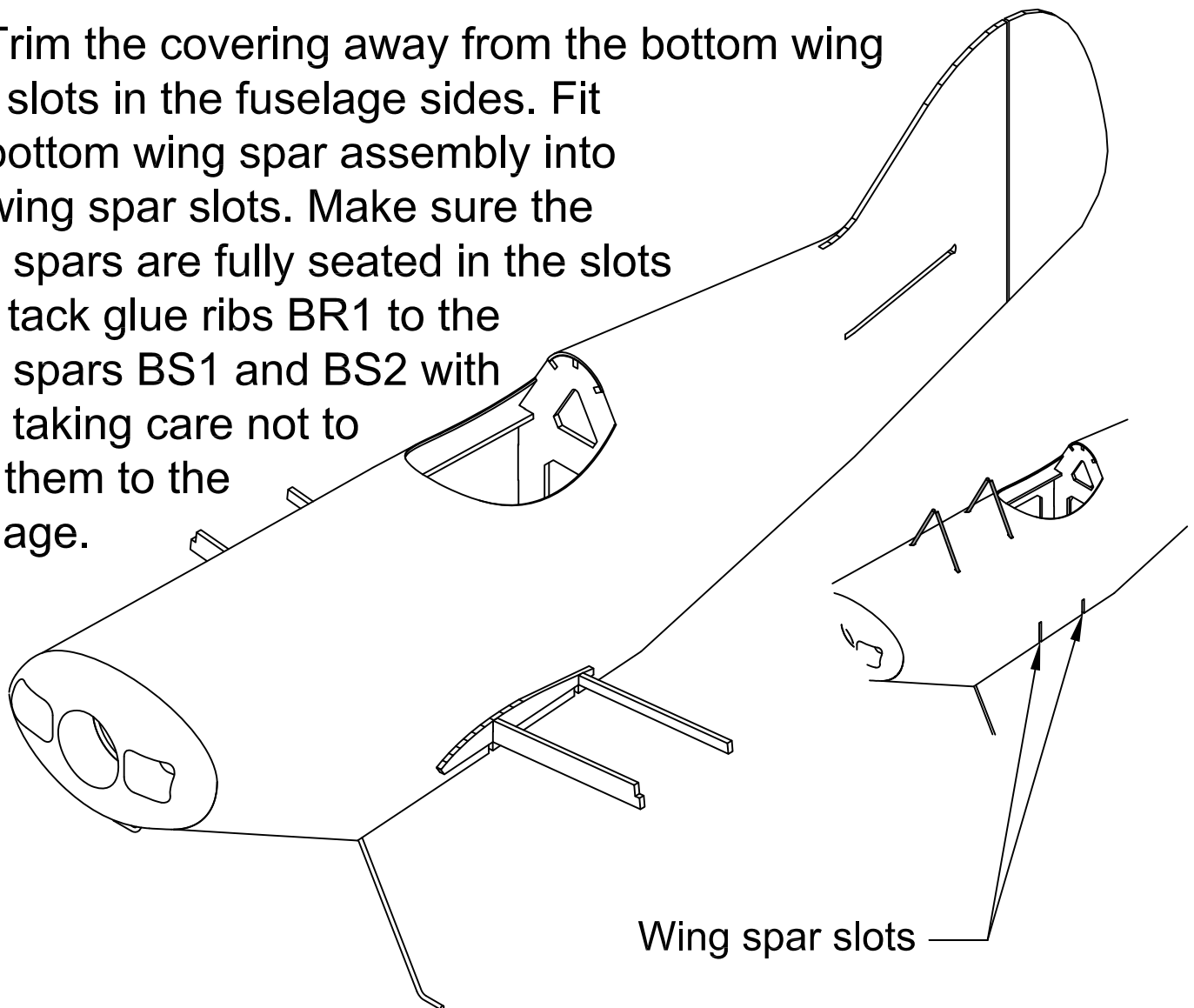
Carefully trim/sand struts flush with the top of the wing jigs.



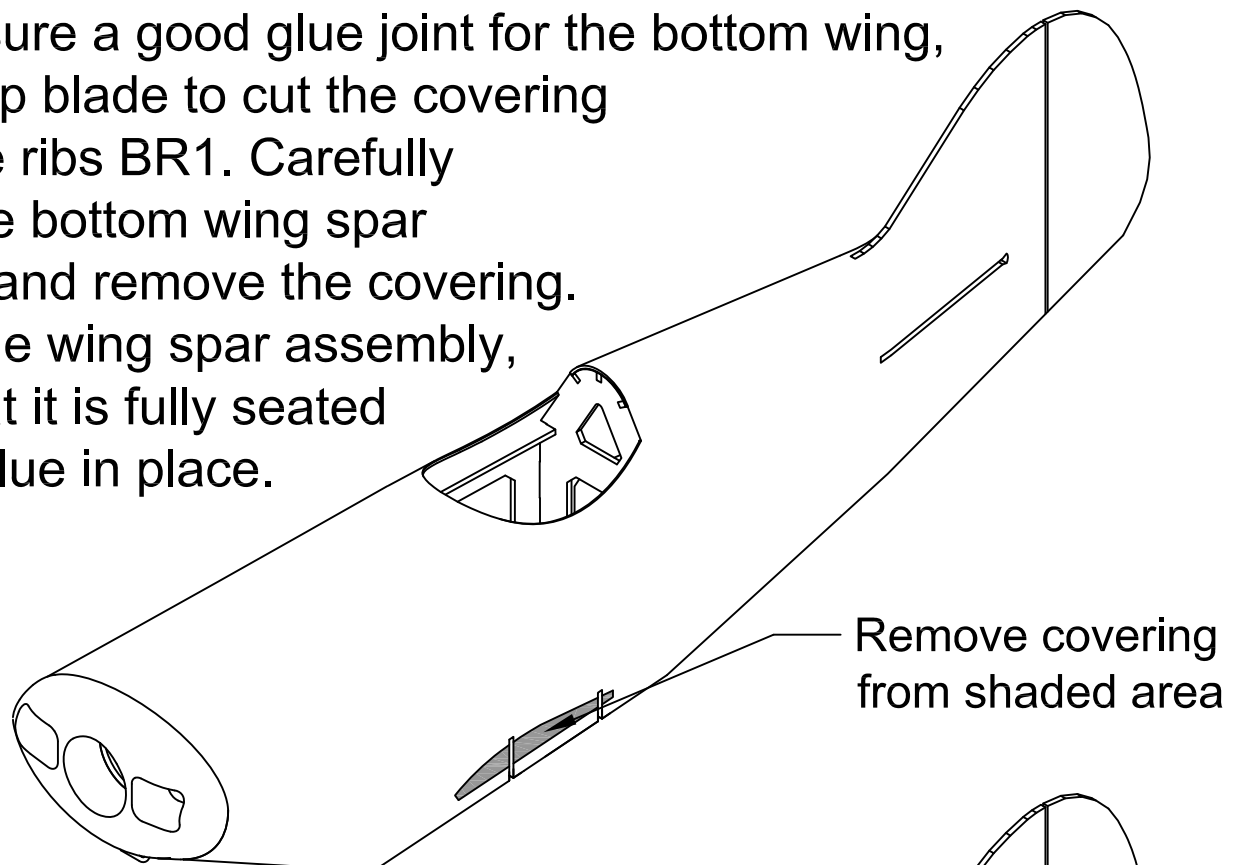
31. Insert ribs BR1 into the slots in BS1 and BS2 but do not glue yet.



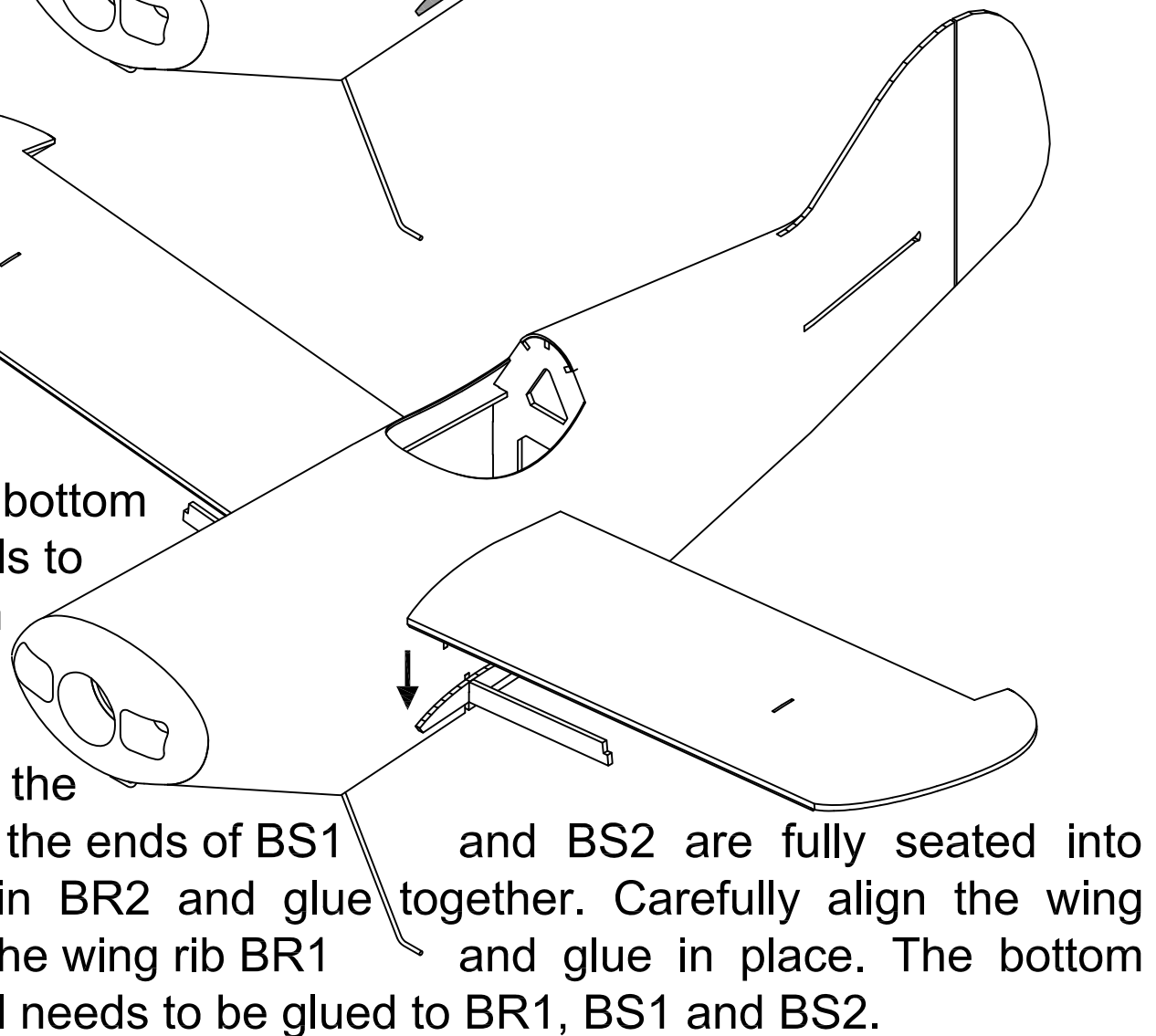
32. Trim the covering away from the bottom wing spar slots in the fuselage sides. Fit the bottom wing spar assembly into the wing spar slots. Make sure the wing spars are fully seated in the slots then tack glue ribs BR1 to the wing spars BS1 and BS2 with thick taking care not to glue them to the fuselage.



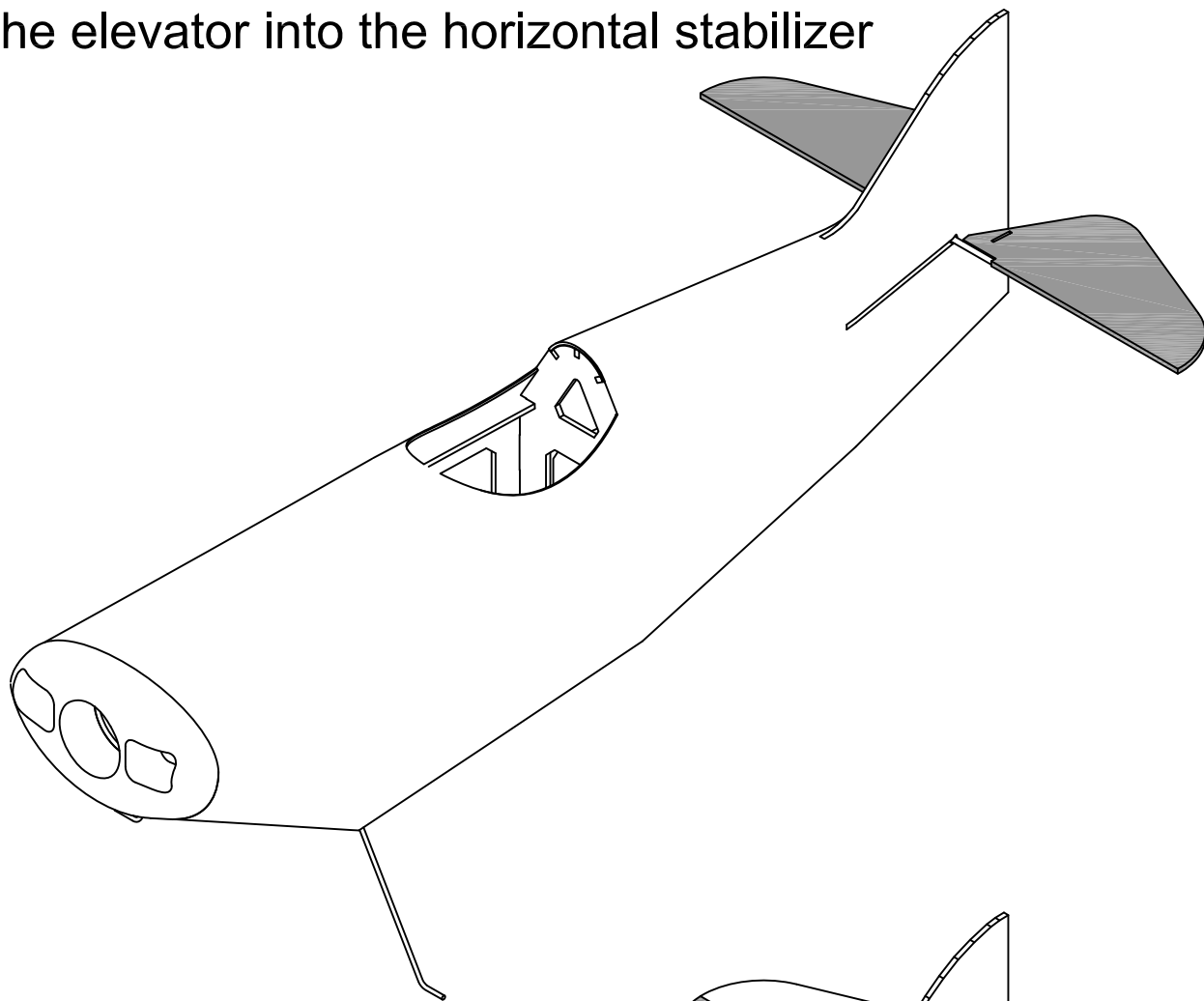
33. To ensure a good glue joint for the bottom wing, use a sharp blade to cut the covering around the ribs BR1. Carefully remove the bottom wing spar assembly and remove the covering. Replace the wing spar assembly, ensure that it is fully seated and tack glue in place.



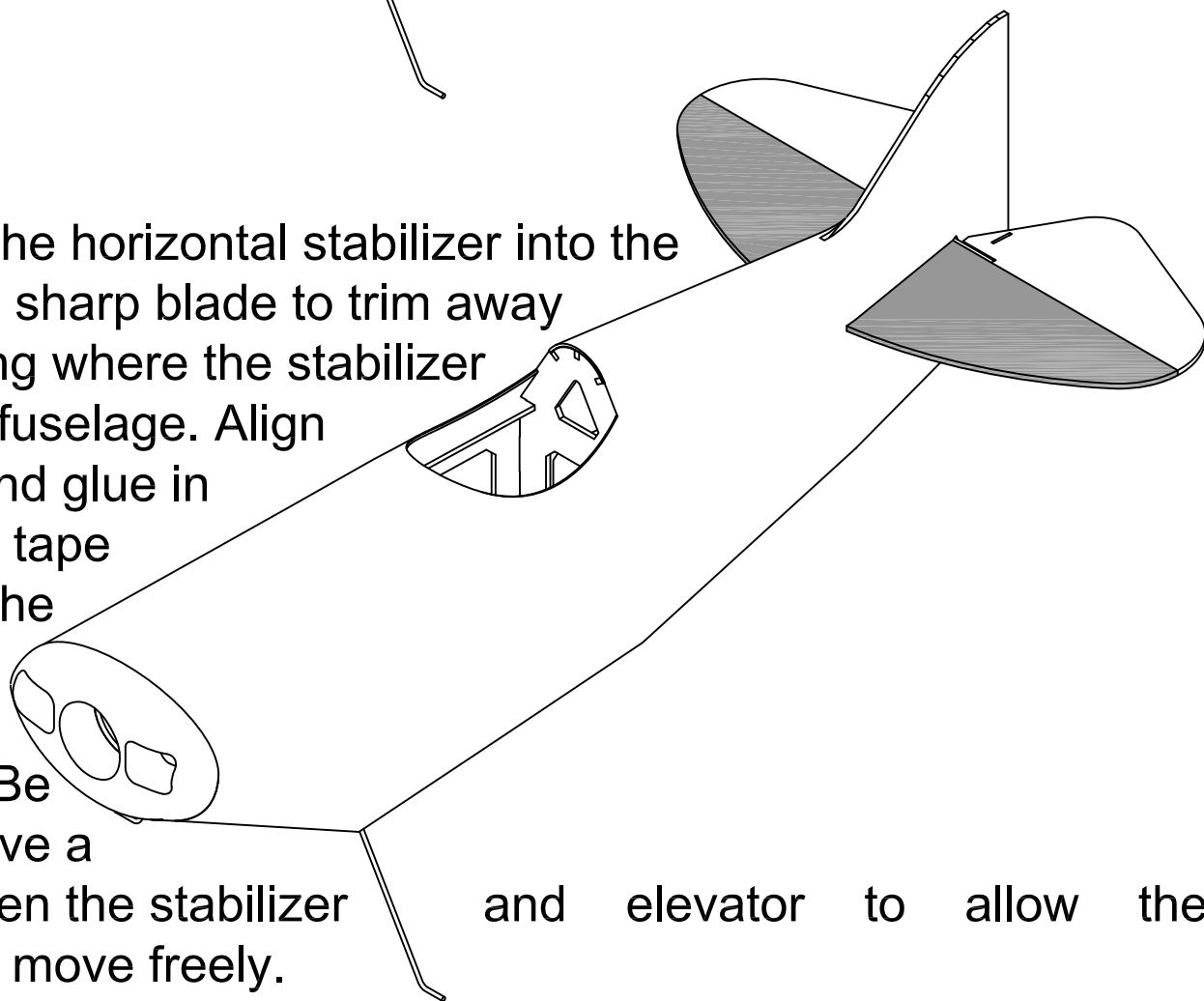
34. Fit the bottom wing panels to the bottom wing spar assembly. Make sure the notches in the ends of BS1 and BS2 are fully seated into the slots in BR2 and glue together. Carefully align the wing panels to the wing rib BR1 and glue in place. The bottom wing panel needs to be glued to BR1, BS1 and BS2.



35. Insert the elevator into the horizontal stabilizer slot.

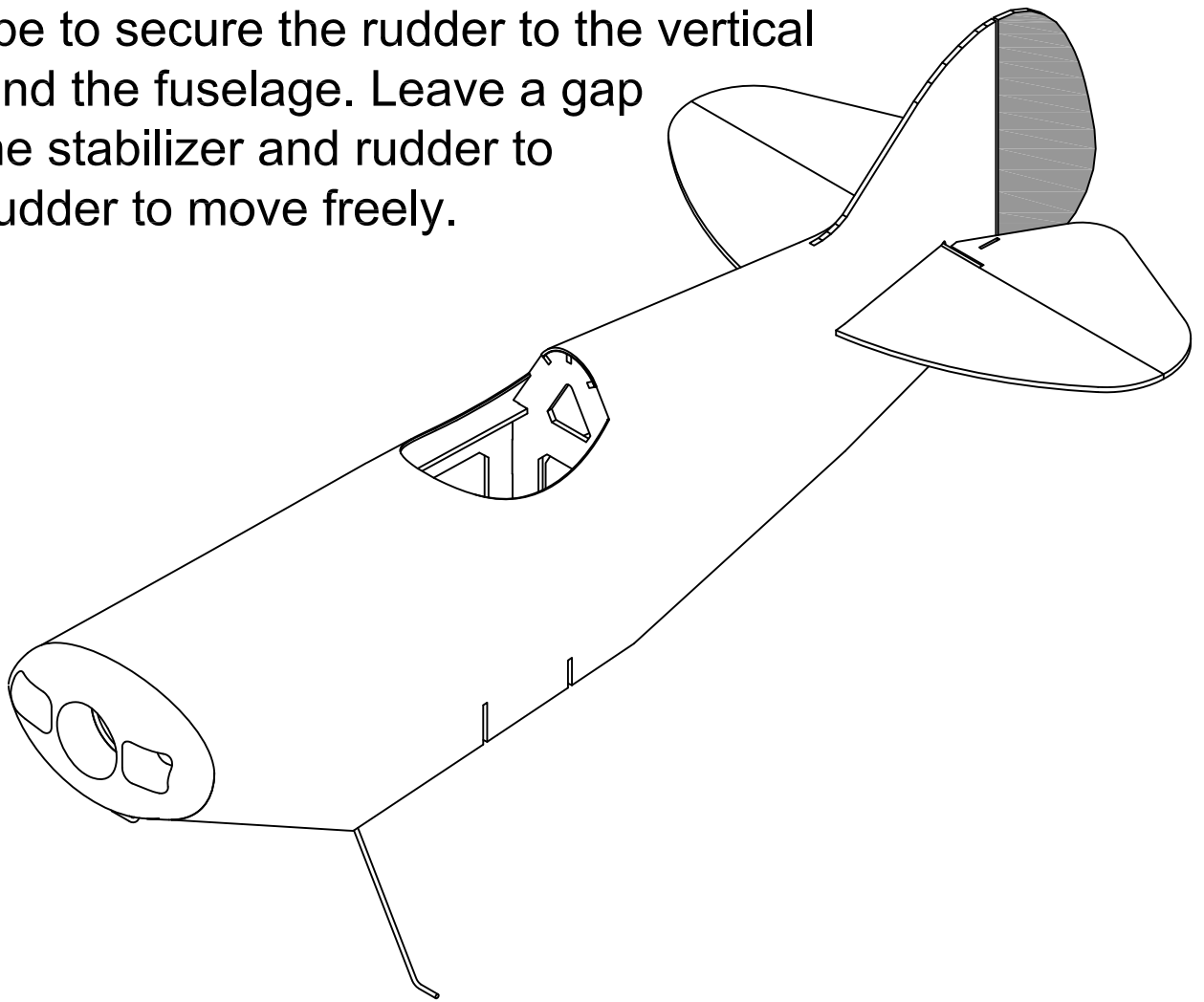


36. Insert the horizontal stabilizer into the slot. Use a sharp blade to trim away the covering where the stabilizer meets the fuselage. Align carefully and glue in place. Use tape to secure the elevator to the stabilizer. Be sure to leave a gap between the stabilizer and elevator to allow the elevator to move freely.

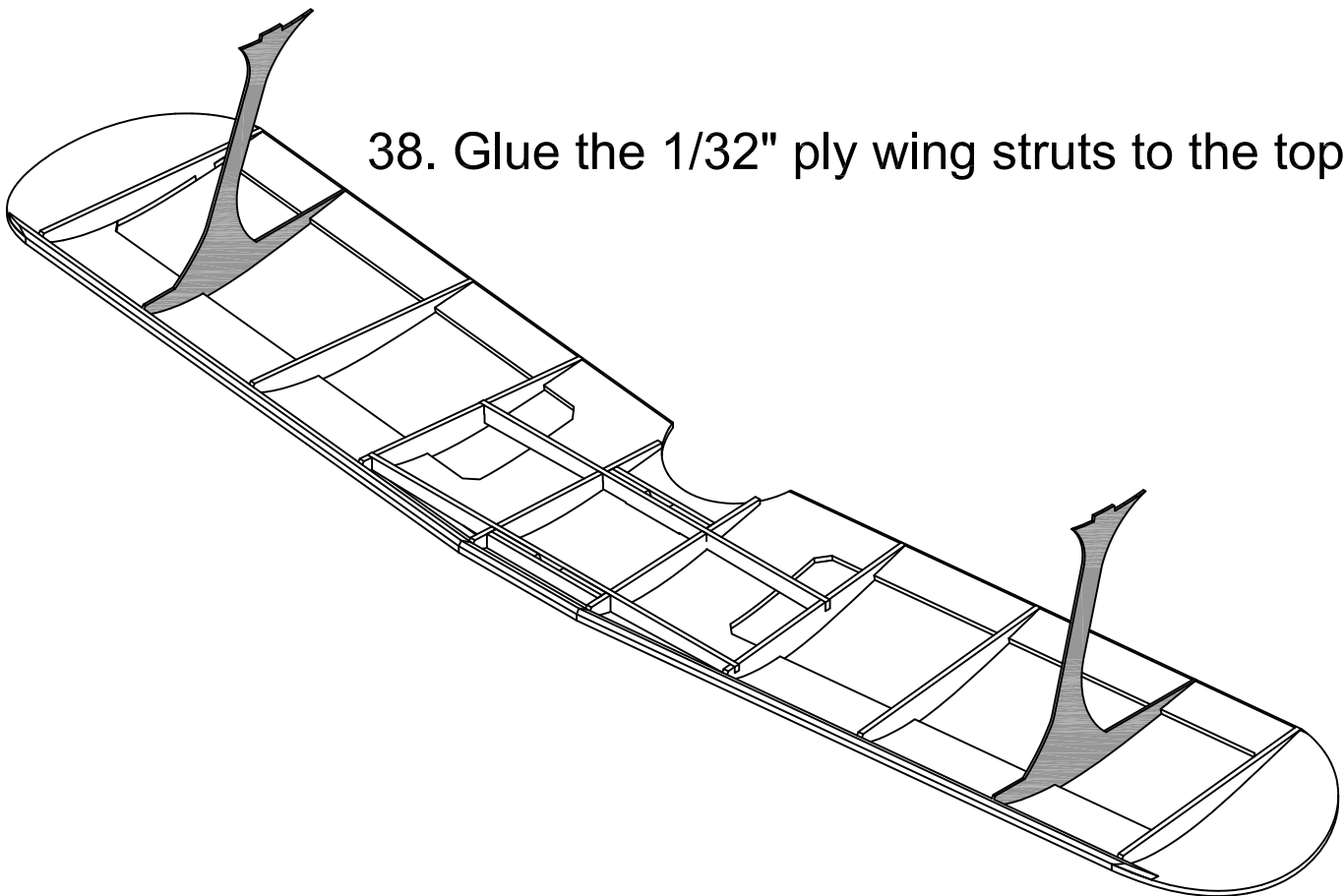


and elevator to allow the

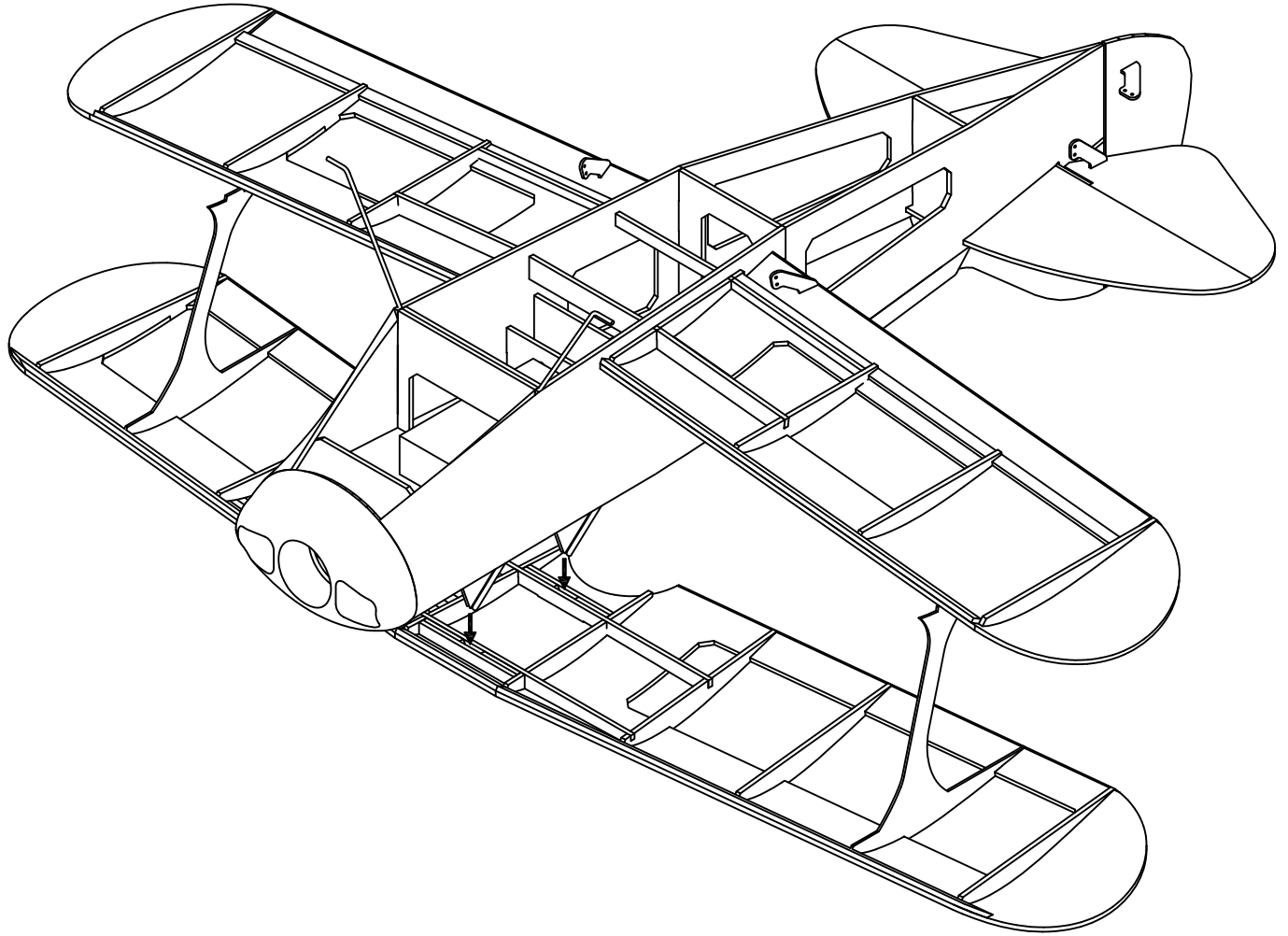
37. Use tape to secure the rudder to the vertical stabilizer and the fuselage. Leave a gap between the stabilizer and rudder to allow the rudder to move freely.



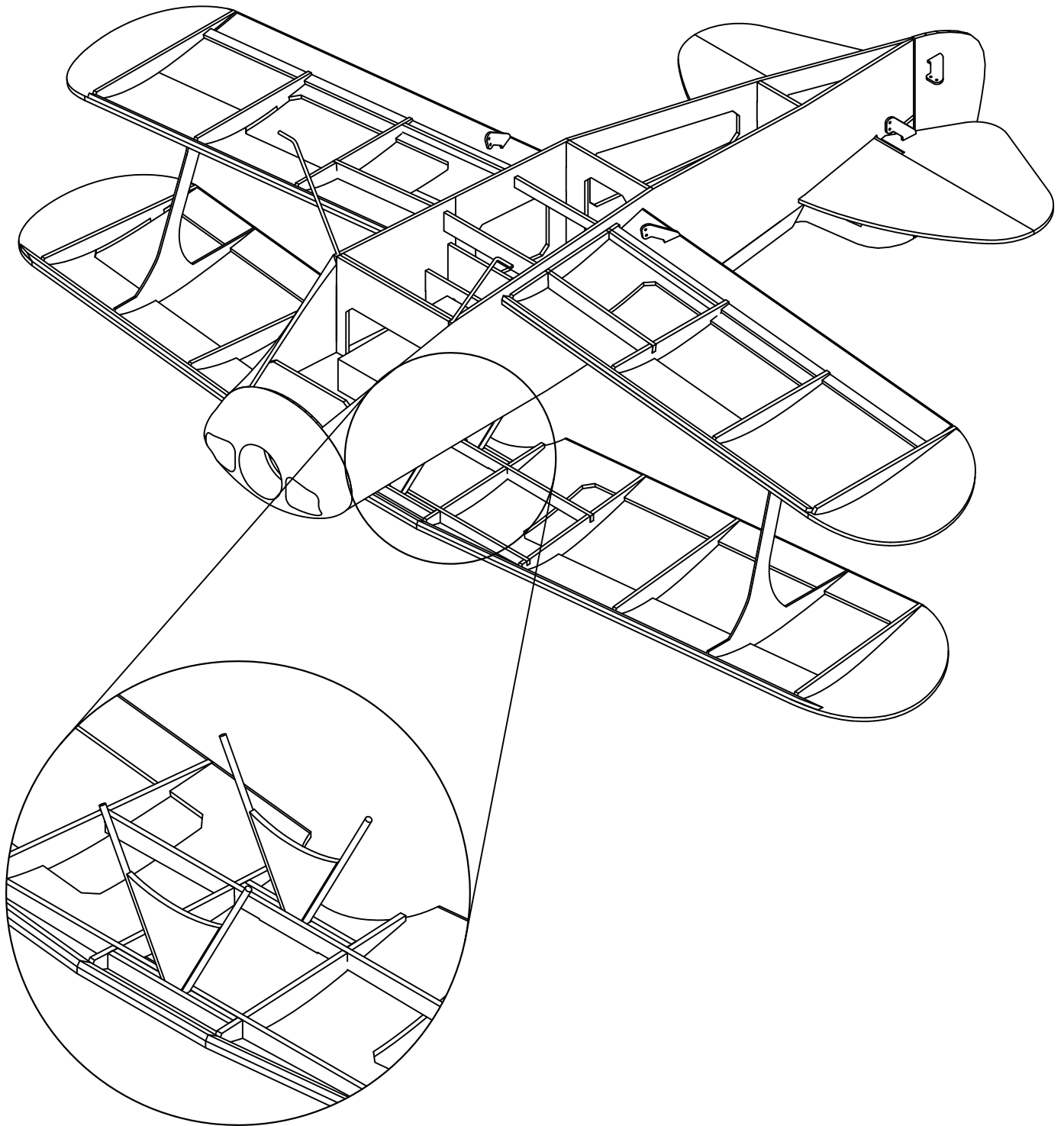
38. Glue the 1/32" ply wing struts to the top wing.



39. fit the top wing onto the CF cabane struts. Make sure they are fully seated into the slots in the spars TS1 and TS2. DO NOT glue yet.

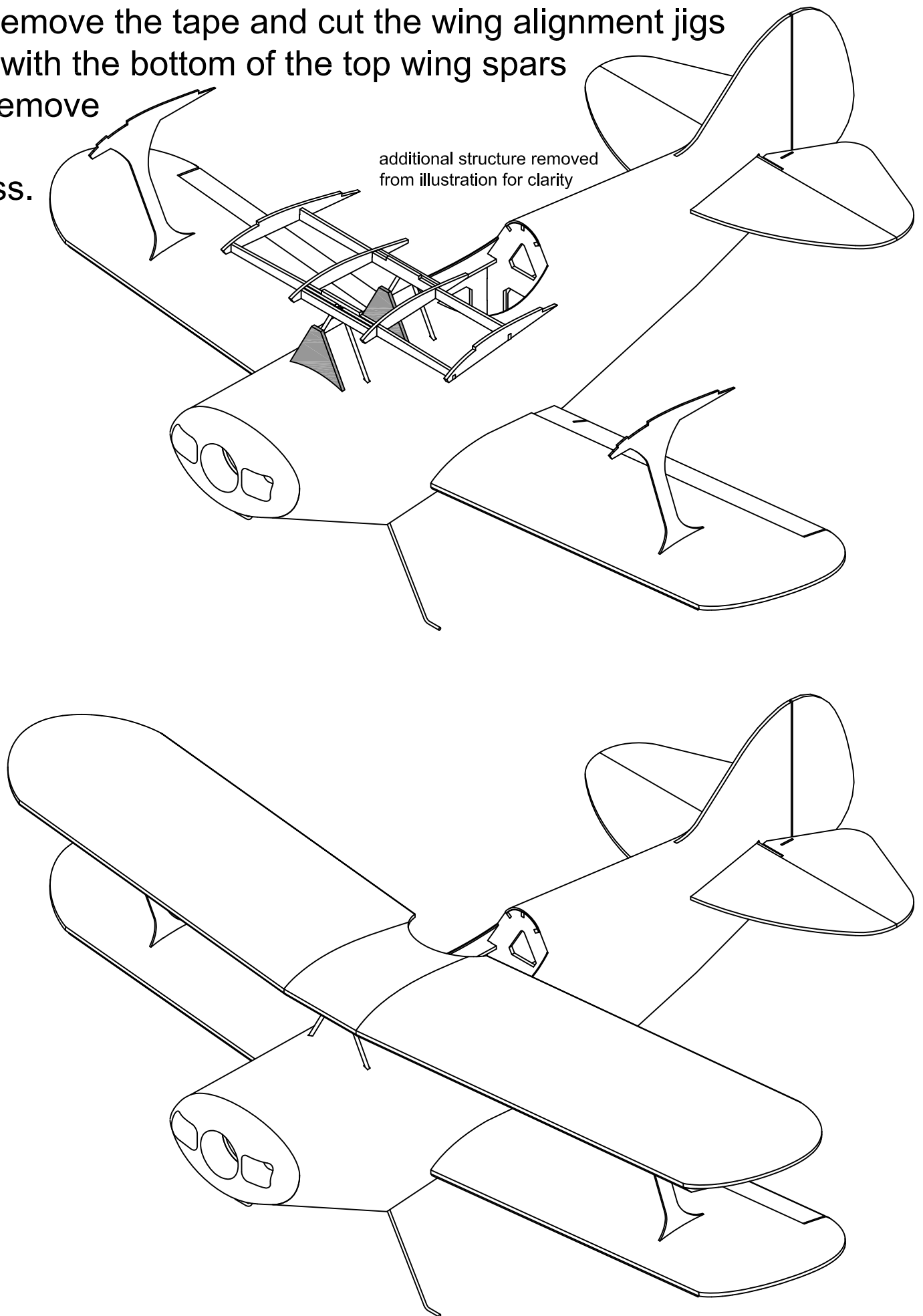


40. Glue the 1/32" ply wing struts to the bottom wing. Carefully check that the top wing is aligned with the bottom wing and that there are no twists. When satisfied with the wing alignment, glue the top wing to the wing jigs/CF rod cabane struts.



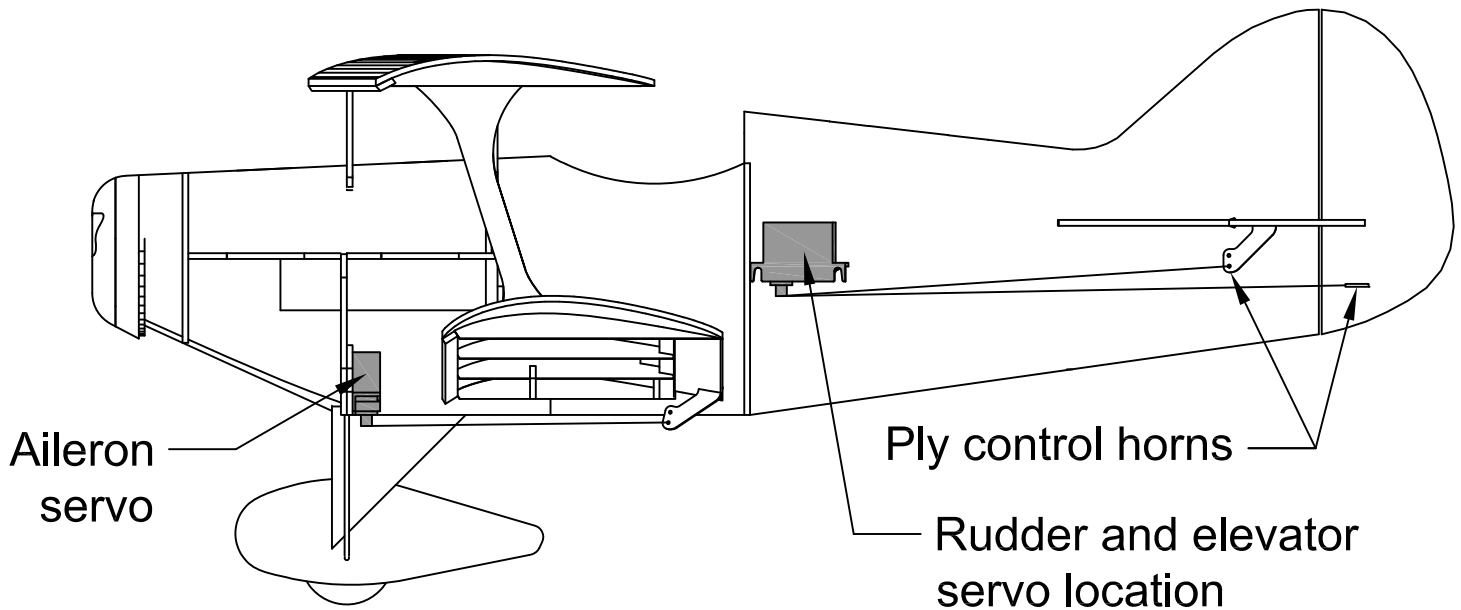
additional structure removed  
from illustration for clarity

41. Remove the tape and cut the wing alignment jigs flush with the bottom of the top wing spars and remove the excess.



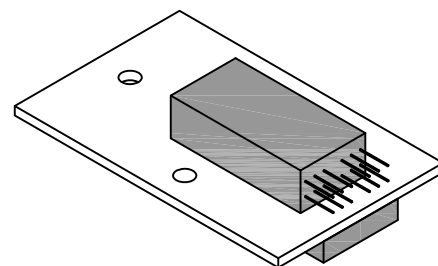
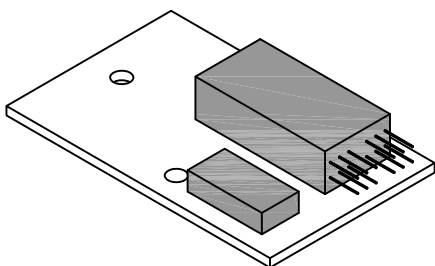
42. Install servos where indicated on illustration below.

43. Add wheel pants and strut fairings if desired. For the wheel pants, it will be necessary to fabricate additional inner core pieces to build up sufficient thickness to accommodate your selected wheels. The wheel pants are designed to accommodate 1" (2.5cm) diameter wheels.

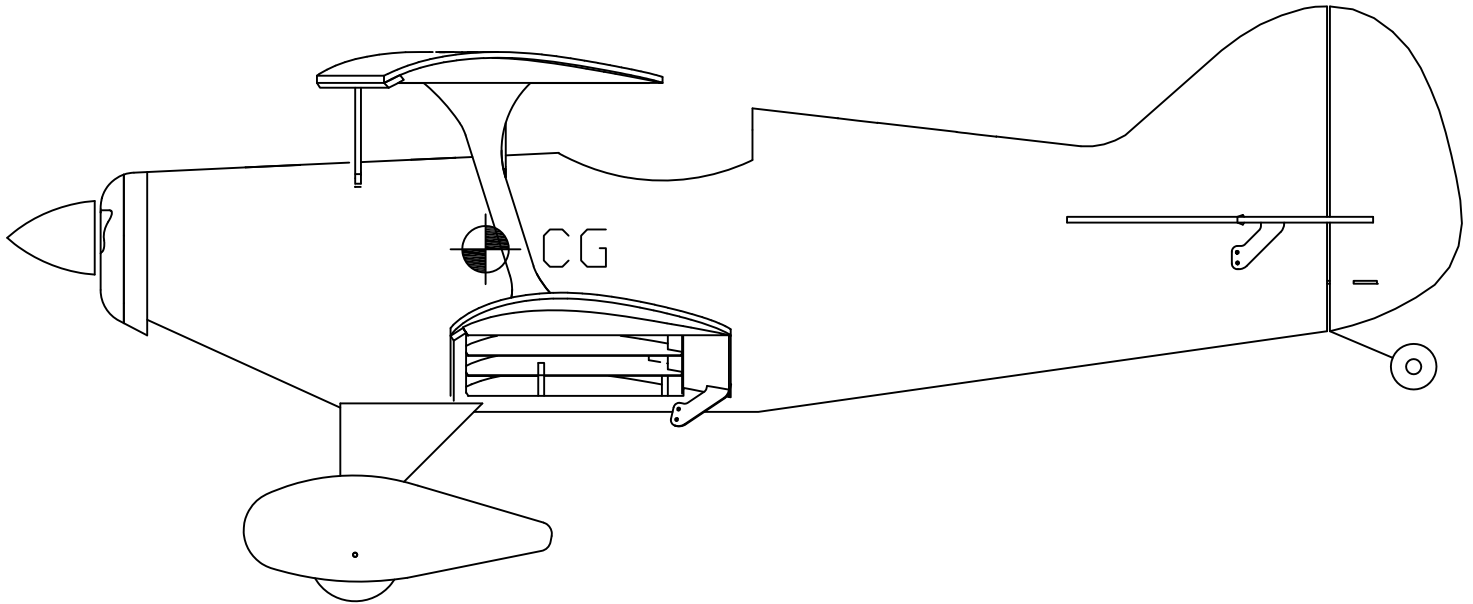


44. Glue supplied  $\frac{1}{32}$ " ply control horns into slots in elevator, rudder and ailerons. Connect servos to control surfaces with .032" diameter wire.

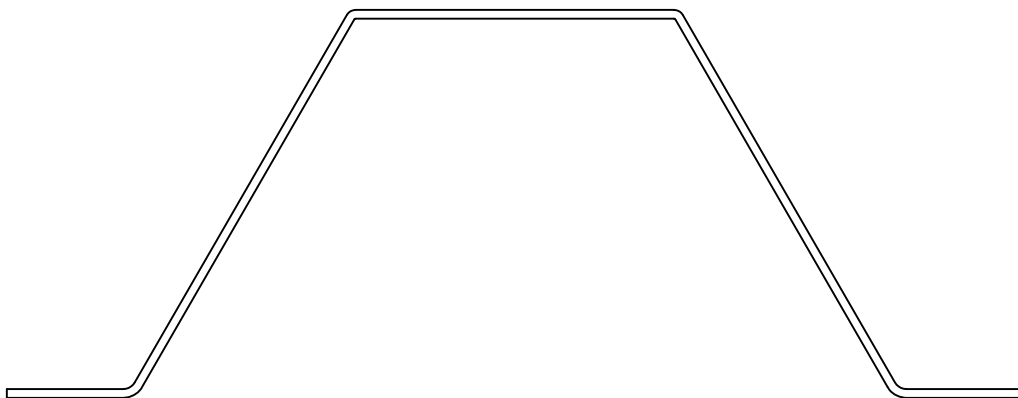
45. Secure the receiver and ESC to the removable receiver tray. Depending on the size of your electronics, the receiver and ESC can both be secured to the front of the tray or the receiver can be on the front and the ESC on the back of the tray.



# Set up and Flying



1. Balance your Pitts  $\frac{3}{8}$ " (9mm) behind the leading edge of the bottom wing.
2. Set the throws for the control surfaces:
  - Ailerons -  $\frac{3}{8}$ " up/down
  - Elevator -  $\frac{3}{8}$ " up/down
  - Rudder -  $\frac{1}{2}$ " left/right
3. Due to the undercambered wing, the Pitts will climb aggressively under full power. This can be countered by mixing in some down elevator with the throttle. Start at 5% down elevator and adjust as desired.
4. Setting up exponential throws (Expo) is a great way to help prevent over controlling your plane. A setting of 40% to 70% will provide smooth control response while still allowing for aggressive maneuvering.



Landing Gear Template