

Chapter 3

Section 2 - Top Wing Mounting

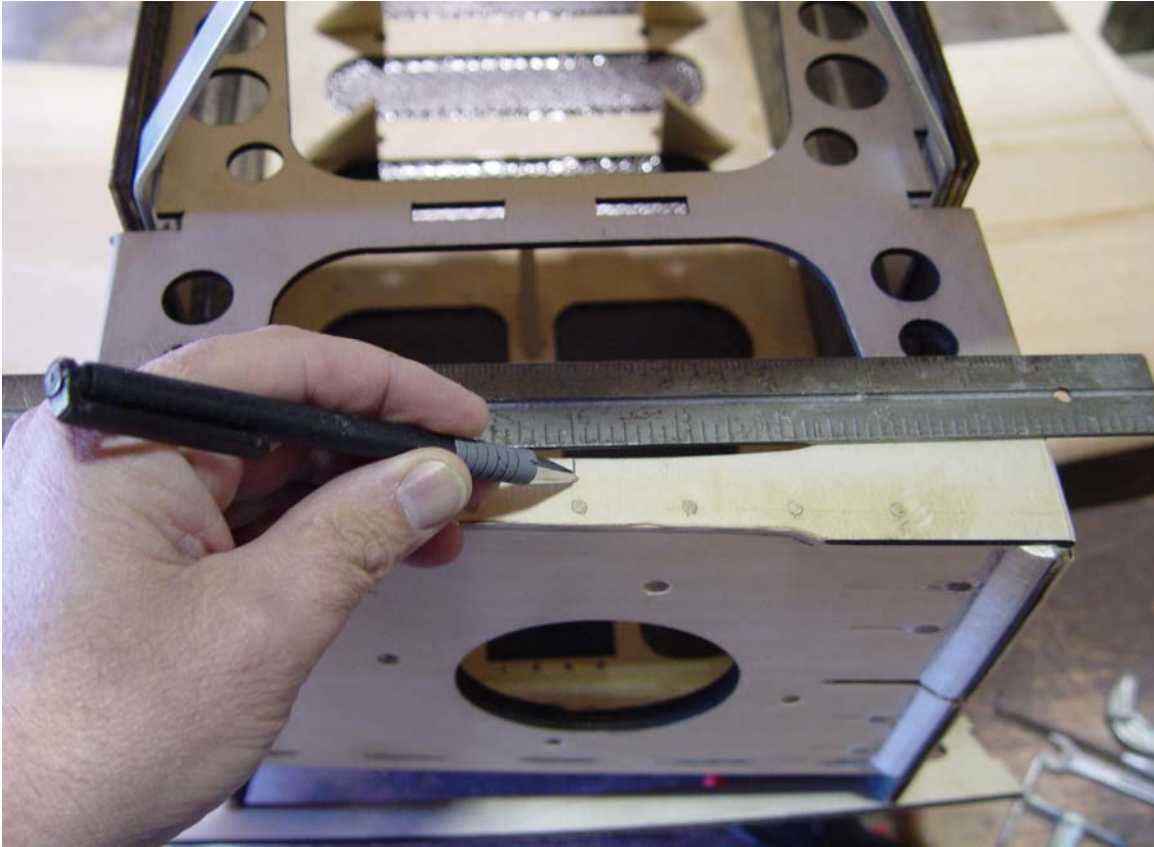
Materials:

10-32 x ¾" cap screws - 2
#10 washers - 2
6-32 x 1" cap screws - 8
6-32 x ¾" cap screws - 12
6-32 x ½" cap screws - 8
6-32 lock nuts - 8
#6 washers - 28
Dubro steel straps - 8
Dubro 4-40 end links

Parts:

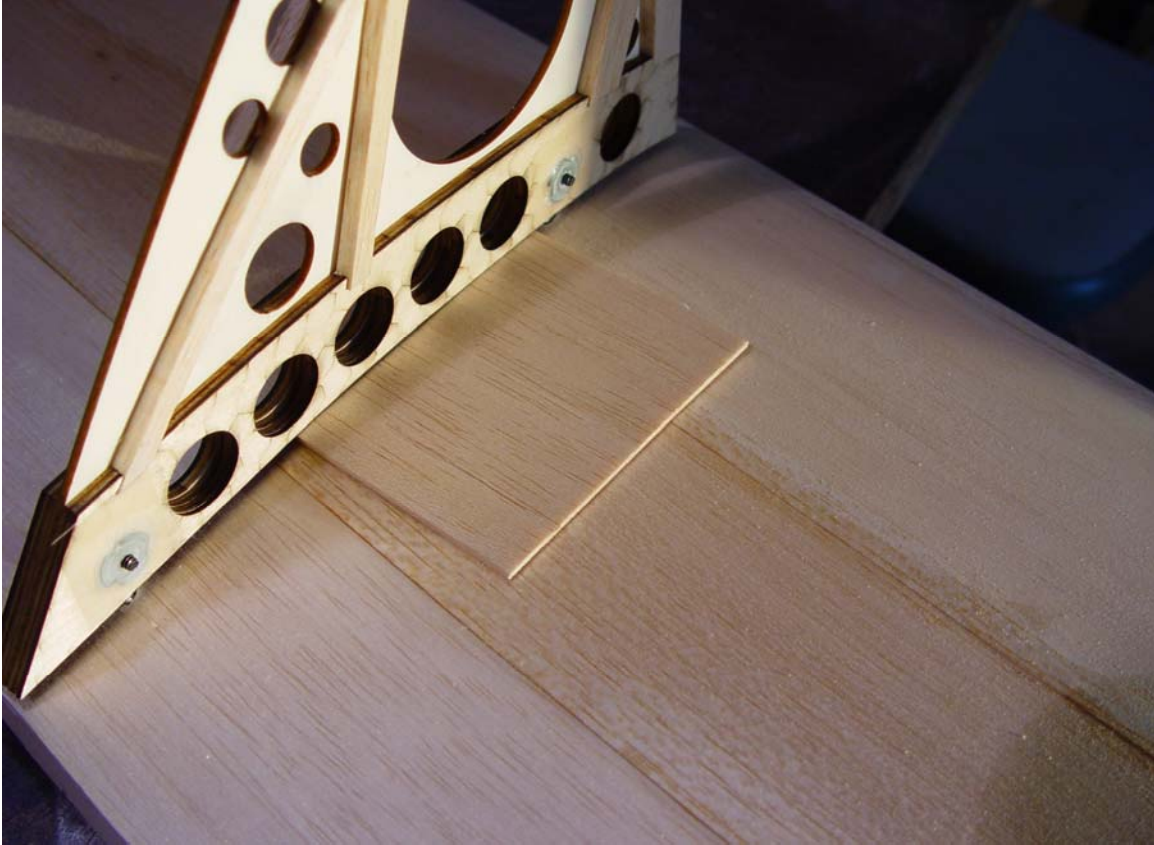
Forward cabane - 1
Cabane braces - 2
Aft cabane - 2
Upper flying wire brackets - 2
Lower flying wire brackets - 2

- Clear your table as you will need plenty of room.
- Place the lower wing on the table. Block the trailing edge with the jigs you used to build the wings. Weight along the spar to the wing remains stable with 0 degrees of incidence in relation to the table.
- Install the frame onto the lower wing. Place a #8 washer and the lower wire bracket on the front bolts before installing.
- Place a mark on the top deck of the frame, exactly on center. This will be used to align the top wing later.



Center mark on frame (212cc version shown)

- Slide the struts onto the top wing posts. Adjust the posts in the wing so that you can just slide a $3/32$ " balsa strip between the wing and the strut along the entire length of the strut. When happy with the fit and adjustment, remove the struts.



Set strut spacing using a piece of 3/32" balsa sheet

- Mount the struts on the lower wing using the 6-32 x 1" cap screws. Adjust the posts in the wing so that you can just slide a 3/32" balsa strip between the wing and the strut along the entire bottom of the strut.
- Mount the top wing to the struts using the 6-32 x 1" cap screws.

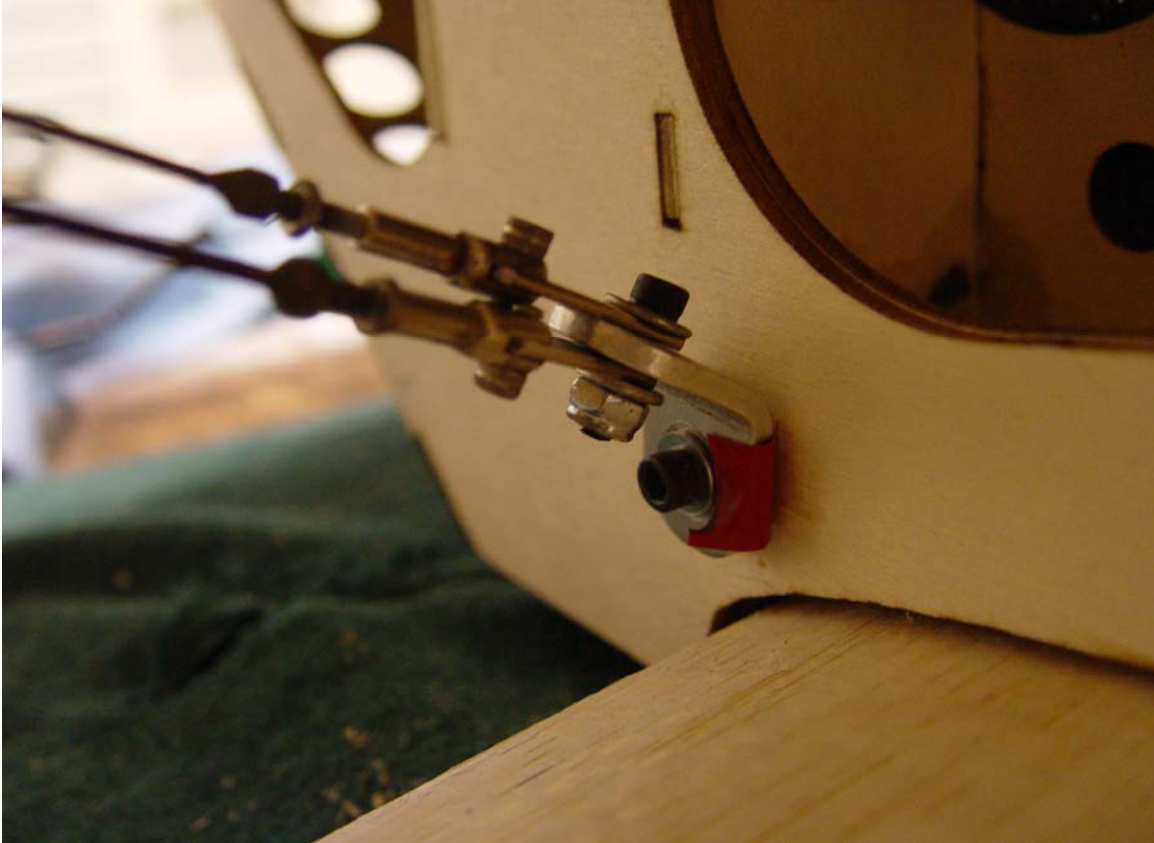


- Slide the forward cabane into position under the top wing. Do not bolt yet.
- Slide the cabane braces into position, and connect to the forward cabanes with 6-32 x 1/2" cap screws, washers, and locknuts. Just snug the bolts, so there is no slack, but the braces can still pivot.
- Bolt the forward cabane to the bottom of the top wing with a 10-32 x 3/4" bolt and washer.
- Bolt the upper wire brackets to the aft cabane using 6-32 x 1" cap screws, washers, and lock nuts.
- Cut the 8 Dubro steel straps so you end up with a longer strap having two holes, and a smaller piece with a single hole. Drill the hole in the short pieces, and only one hole in the long pieces to accept a #6 bolt. Set the smaller pieces aside for now.

- Bolt two of the larger straps to each of the wire brackets using 6-32 x 1/2" cap screws, washers, and lock nuts. One strap goes above, and one below each bracket. Install the Dubro end links onto the straps using 4-40 x 1/4" cap screws.



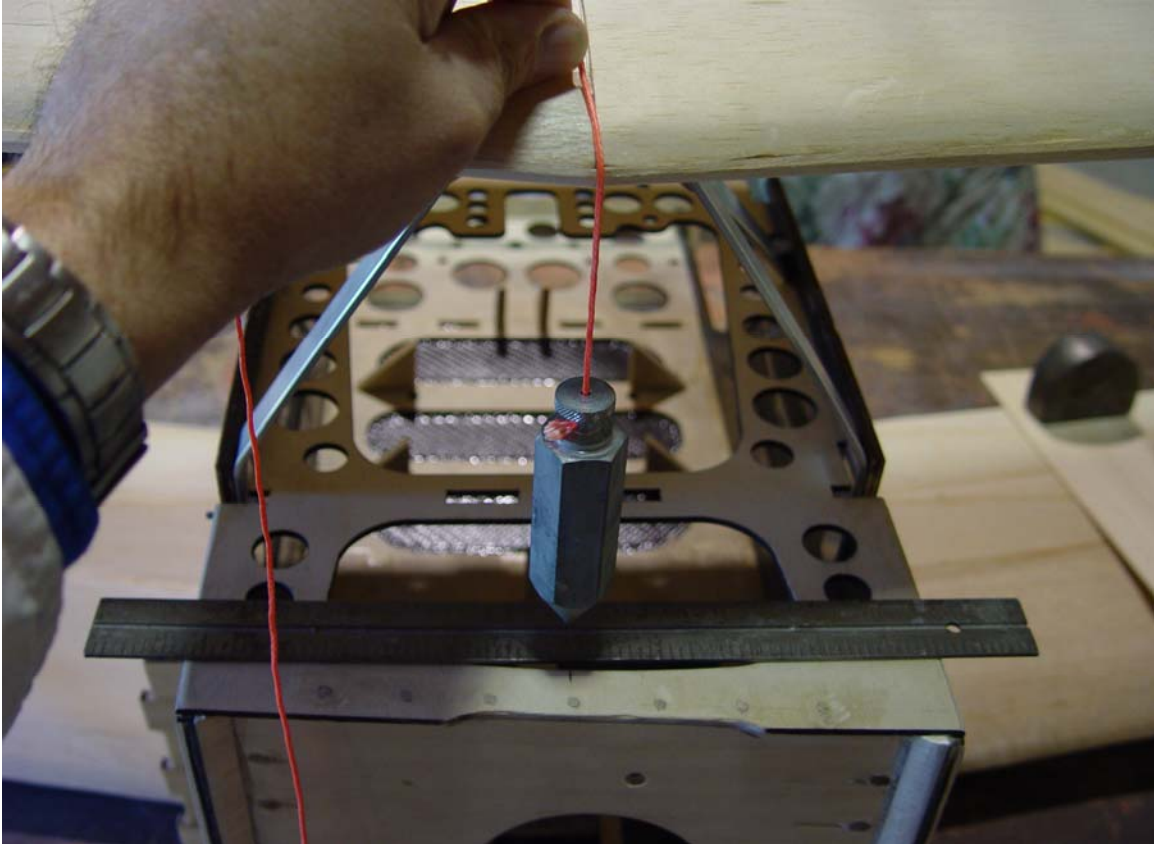
Top wire bracket



Lower wire bracket

- Position and bolt the rear cabane to the bottom of the top wing with a 10-32 x 3/4" bolt and washer.
- The incidence of the top wing is held perfect by the wing struts at 0 degrees in relation to the lower wing. The center of the top wing, however, needs to be set.
 1. If you have an incidence meter, use it to set the center top wing incidence to that of the center of the lower wing.
 2. If you do not have a meter, you can do the same with a yard stick. Adjust the wing so the distances between the leading edge of the top and bottom wings are the same along the length of the wings. The trailing edge measurements should also be equal to each other.
 3. Prop the top wing to maintain the incidence. Do this by clamping the front and rear cabanes to the frame.

- Using a plumb bob, adjust the top wing left or right until it is centered over the frame. Adjust the cabane clamps as necessary to hold the wing in position.



Using a plumb bob to position the top wing laterally

- Once you have the top wing incidence and lateral position fixed, mark the cabane mounting holes. Do this by using a scribe through the blind nut holes in the frame.



Marking cabane mounting holes

- Remove all bolts and clamps holding the top wing and cabanes in place, and remove them from the frame.
- Drill the cabanes where you marked them to accept the 12, 6-32 x $\frac{3}{4}$ " cap screws.
- Re-mount the cabanes using the 6-32 bolts and washers.
- Re-mount the top wing and re-check all measurements.