

Revision #	Date	Detail of changes
1	4-9-2009	Original
2	8-15-2012	Addition revision page and document number.
		Dimensions and clearances have changed
		Pages Deleted

43. Canopy Installation



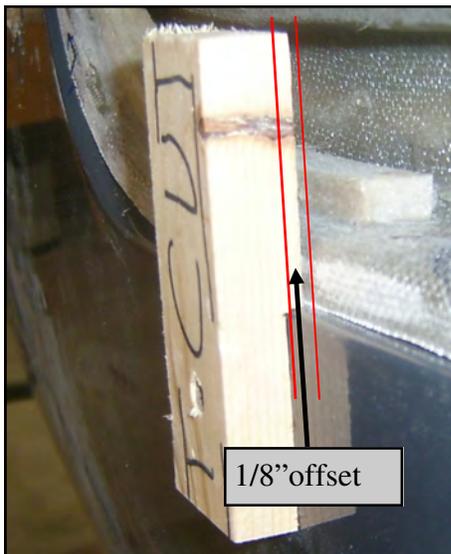
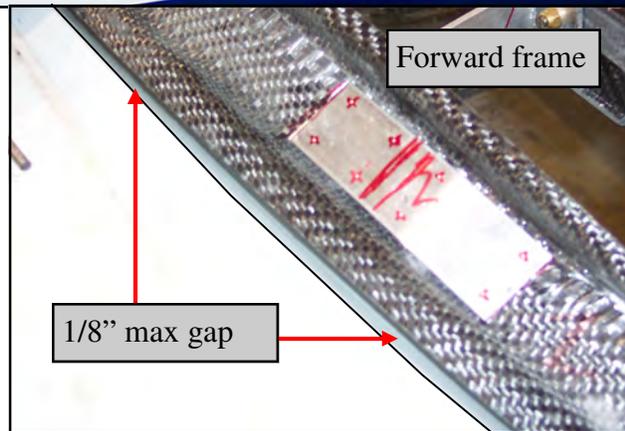
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Fitting the Canopy frame

1. Trim the upper flange to 1" wide.
2. When trimming the lower flange so that the frame sits correctly on the fuselage the width must not be less than 1/4".



3. The gap between the frame and the fuselage from 10" either side of center should be 1/8". This is where when the canopy opens the frame rotates slightly to the fuselage instead of up and away.
4. This gap can taper down to about 1/16" the remaining distance around the frame.

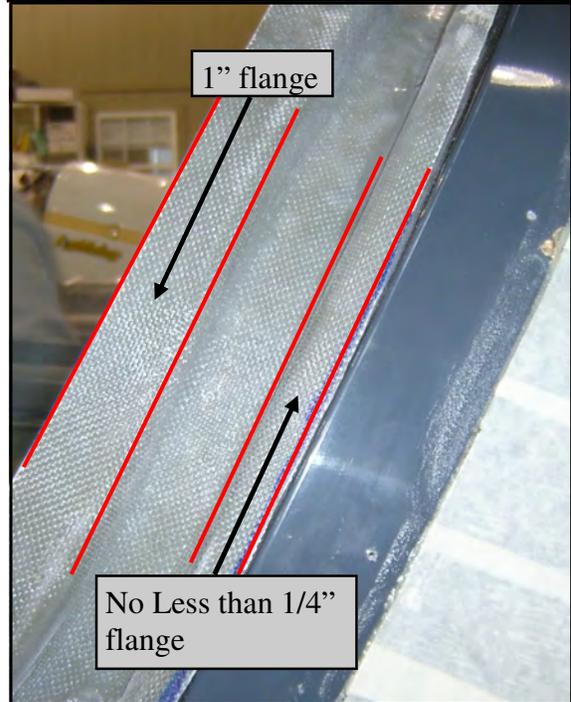
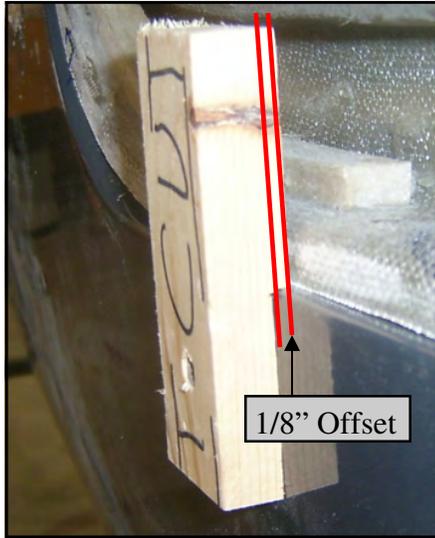


5. Use some scrap wood to build side blocks which will hold the canopy frame in the correct place during fitment.
6. For this frame use a 1/8" offset to hold the frame in at the correct distance.

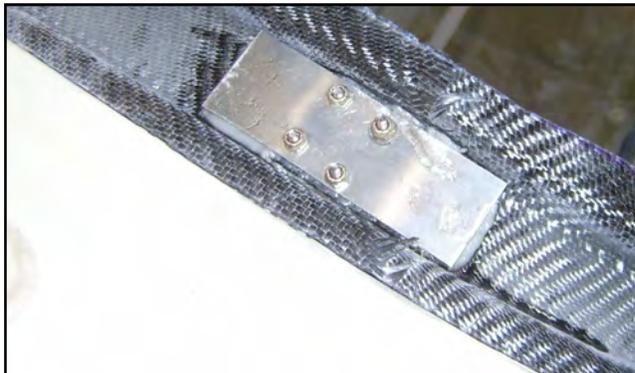
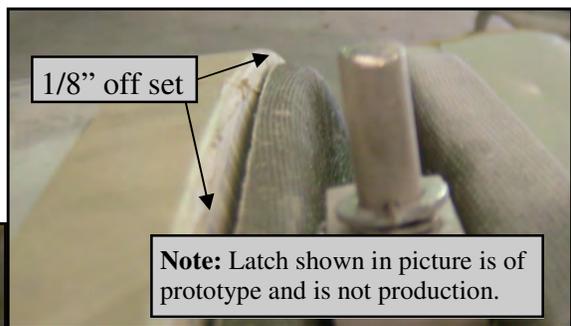
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Canopy Frame Serial # 47 to current

- 1. The 2 part canopy frame, or “skinned” frame come somewhat oversized to allow each builder to trim to his liking.
- 2. Make from scrap wood a spacer block to hold the frame in from the out side of the fuselage 1/8”.



- 3. Trim the upper flange to 1”.
- 4. Trim the lower flange so that the canopy will sit on the fuselage and the forward frame and rear frame sit 1/8” below the fuselage .
- 5. When doing so the width of the lower flange should not be less than 1/4” to provide proper bonding area for the skin.



- 6. The gap between the frame and fuselage should be about 1/16”.
- 7. Around the front of the frame specifically the 10” either side of center the gap must be 1/8” or enough for the frame to open with out contact.

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Canopy Installation ALL AIRCRAFT

Required Items: canopy Frame, canopy skins left and right, canopy, 24 hour aeropoxy , flox, Cutting wheel, snips, 3/32" clecos, 3/32" drill bit, #6 self tapping sheet screws (not supplied), 60 grit sandpaper.



Note: Canopy frame must be fitted to the fuselage, canopy tip up support arms installed, overhead latch installed, cockpit side location tabs installed, and gas strut ball ends in place. **This task is best done before the firewall and pedal assemblies are in place, this allows you to crawl in the front and clean up the glue which will come out around the flange.**

1. Set the canopy in place on the frame, it will be over sized at this point but this is normal.
2. The canopy will be bonded to the upper frame flange only, mark the cut line just larger than the flange.
3. Cut the canopy on this line, cutting works best with a 1" permagrit cutting wheel and rotary tool.
4. Place the canopy back on the frame and make sure that it does not touch the lower flange in anyway, this will hold the canopy up off of the upper flange is not acceptable, re trim if needed.
5. With the canopy sitting solidly on the upper flange mark the upper edge on the canopy so you know where to sand it for bonding.



6. Sand the canopy, upper and lower flanges of the canopy frame with 60-grit sandpaper.
7. Wipe all surfaces clean with acetone or alcohol.
8. Run wide masking tape on the inside of the canopy around the mark for the upper edge of the upper flange.

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9. Mix About 4.5-5 oz of 24 hour epoxy.
10. Use a brush to wet the canopy and frame flange where the two will bond.
11. Mix in floc with the epoxy to get a mashed potato looking goo.
12. Place a good bead of this on the upper flange of the canopy frame, To much is better, as to little will not provide a good bond.
13. Set the canopy in place, gently press the canopy into the glue until it almost contacts the frame flange.
14. Crawl in the front of the fuselage and clean up the excess glue on the inside.
15. Do the same on the out side
16. Let sit for 24 hours to cure.



Fitting the frame Skins

Note: The picture at right does not show the canopy, however the canopy must be bonded in place before proceeding to fit the canopy frame skins.



1. The skins are left oversized to allow you to fit the gaps as you like.
2. Clamp the skins in place on the frame.
3. Start at the front of the frame and drill a 3/32" hole thru the lower flange and skin. Install a 3/32" cleco to hold.
4. Continue the rest of the way around the frame installing a cleco every 3".
5. Do the same for both sets of skins.
6. For now the skins will over lap front and rear and this is fine.
7. Since the frame was trimmed earlier to fit the cockpit opening closely not much skin needs to remain on the lower edge. Trim the lower edge about 1/8" longer than the frame, if your frame fits tight you may only have to trim to 1/16", do not trim to short!

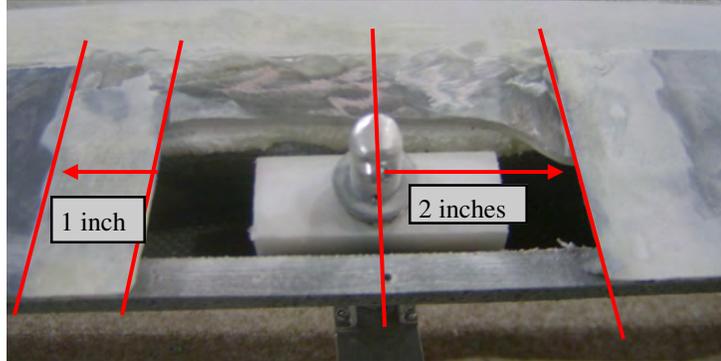


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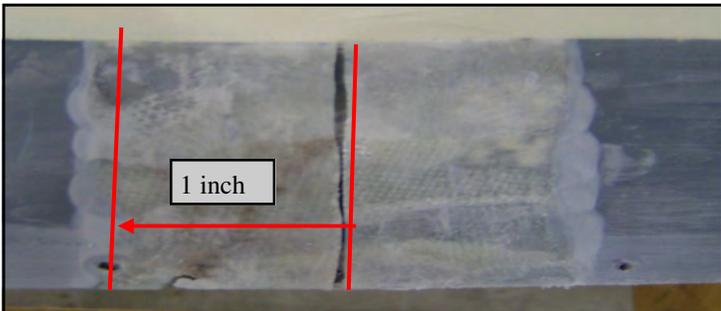
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8. Trim the skins back from the latch about 2". Save these skins to make a part which will fit over the latch as 1 piece. This will provide a cleaner hole for the latch.



9. Sand the gelcoat on the first 1" to provide a strip of glass over the gap.



10. Trim the front skins so they contact each other in the middle and do not overlap.

11. Again sand 1" from the middle on both skins for the glass strip.

Note: Take your time with fitting the skin to fuselage gap and use a flat block, do not use a barrel sander as this will put cups in the skin, use the block sander for best results.



12. Install the canopy assembly.
13. Use a block sander or perma-grit block to sand down the skins until the gap between the skins and the cockpit opening is about .010 or a business card.



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14. Trim the upper edge of the skin to be 1/8" larger than the upper edge of the canopy frame.

15. When satisfied with the fit of the skins remove them, sand the back side of the skin where it will contact the frame and canopy bubble.

16. Sand the lower flange of the canopy frame.

17. Sand the out side of the canopy bubble where skin will contact in the same way the inside was prep for bonding.

18. It is best to mix up enough glue for one skin at a time.

19. Mix up about 4oz total 24 hour epoxy.

20. Wet the areas to be bonded for one half of the frame. Do so with a cheap brush..

21. Mix the rest of the glue with flox

22. Apply this in the same manner as when bonding the canopy on.

23. Use #6 self tapping screws to attach the skins to the lower flange, **Do not tighten only start the screws so the skin will not fall off!!!**

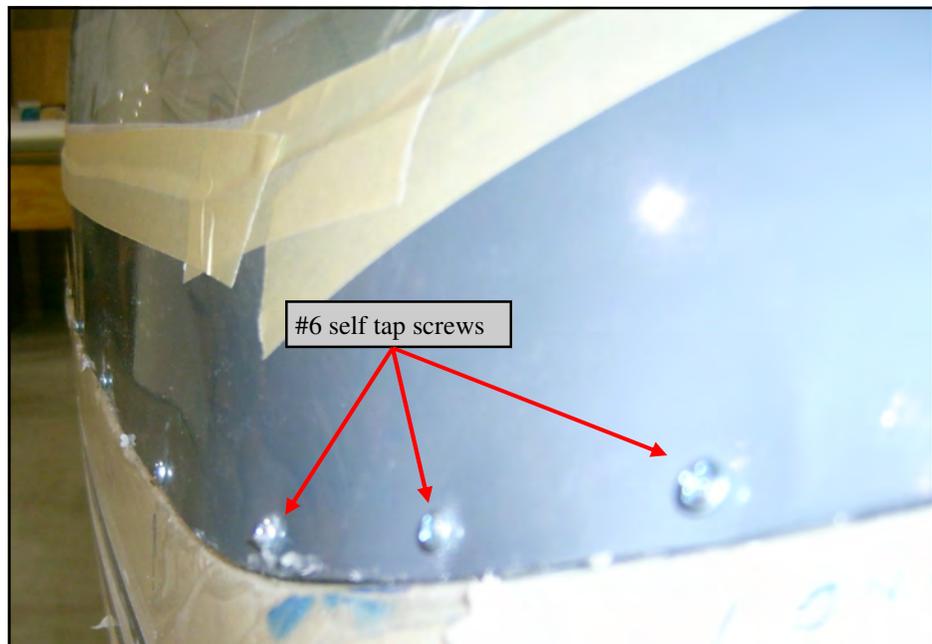
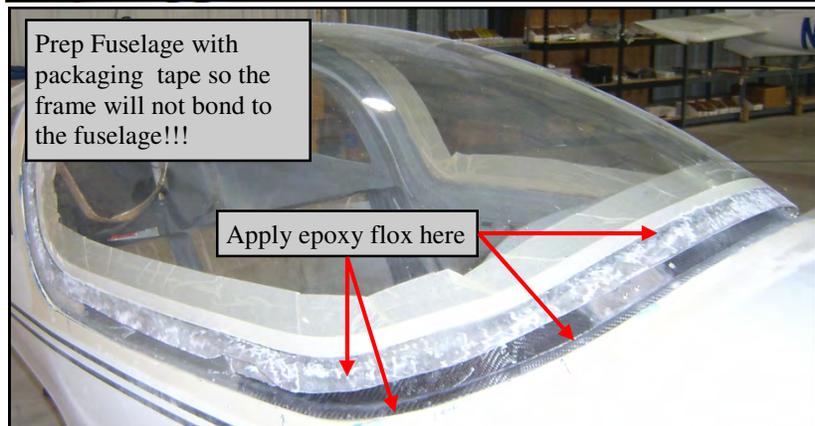
24. When all of the screws are in place you than can go back around and tighten them until the skin becomes flush with out side of the fuselage.

25. Wipe up any epoxy that comes out of the top or bottom.

26. Tape the top edge down.



Prep Fuselage with packaging tape so the frame will not bond to the fuselage!!!



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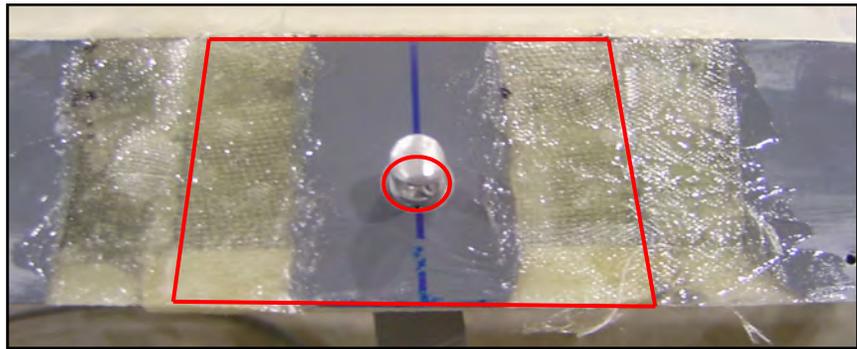
27. Complete these steps for the other skin.

28. Open the canopy at fill in any areas between the skin and the frame that did not get enough glue.

29. Close the canopy so it maintains the correct shape.

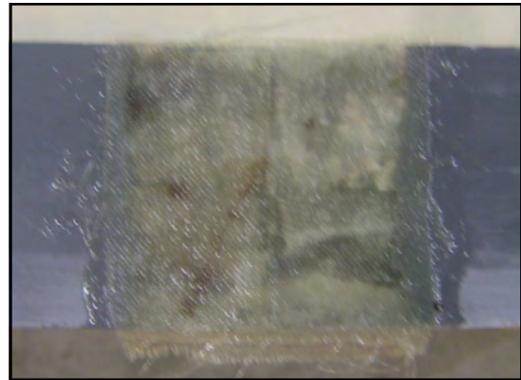


30. Use the left over skins to make a part to finish out over the canopy latch. There is no measurements just need to make a skin to fit.



31. Bond the skin as with the others and strip in place with 2 layers of 1" wide by the width of the frame 8oz cloth.

32. Glass over the joint in the front skins with 8oz cloth as well



33. After the epoxy has cured remove the canopy from the aircraft.

34. Use a block sander to clean up glue on the edge.

35. Sand the front and rear joints.

36. Remove all screws and sand these areas too.

