

## RV-10 Composite Tailcone Skin installation instructions

Installation of the composite tailcone skin cannot take place until the tailcone and cabin top have been installed. Tailcone bulkhead installation can be accomplished during tailcone assembly or after the tailcone has been installed to the fuselage with or without the cabin top installed.

The instructions outlined here are assuming the tailcone has been installed.

Mark and cut all three bulkheads at the top of the longerons use the new bulkheads as a reference for trimming. Flute the new bulkheads as needed. Position and clamp the F-1006CT-L and F-1006CT-R bulkheads together as well to the F-1006A and F-1006C bulkhead, make sure the bulkhead flange is tight to the fuselage longeron. Drill attach holes with a #30 bit using the pre-punched holes as a guide. Use the F-1031 upper baggage door channel to locate two holes in the F-1006CT-L bulkhead. Locate the F-1007CT and F-1009CT bulkheads except position flange even with the outside edge of longeron. Remove bulkheads and debur holes prime as/if needed then cleco back in location.



From this point on the cabin top will have to be trimmed and installed per Van's instructions.

Fit and clamp the F-1006ECT angle to the inside of cabin top, position the flange even with the aft edge of the cabin top and flush to the F-1006CT-L&R bulkheads. Make sure the ends are evenly spaced up from the longeron on each side, drill into the cabin top using a #30 bit and cleco in location. Remove angle debur then reinstall using a cleco every other hole along with clamps attached to the F-1006CT-L&R bulkheads. Using the pre-punched holes in the angle drill the bulkheads with a #40 bit, cleco as you go. Use the pre-punched holes in the F-1028 vertical reinforcement as a drill guide for the lower half of the F-1006CT bulkheads. Machine countersink the bottom 10 holes attaching the F-1006ECT angle on the left and right side of the cabin top using a 120-degree countersink bit to accept the CS4-4 blind rivet. Remove angle and bulkheads, debur and dimple #40 holes prime as/if needed.

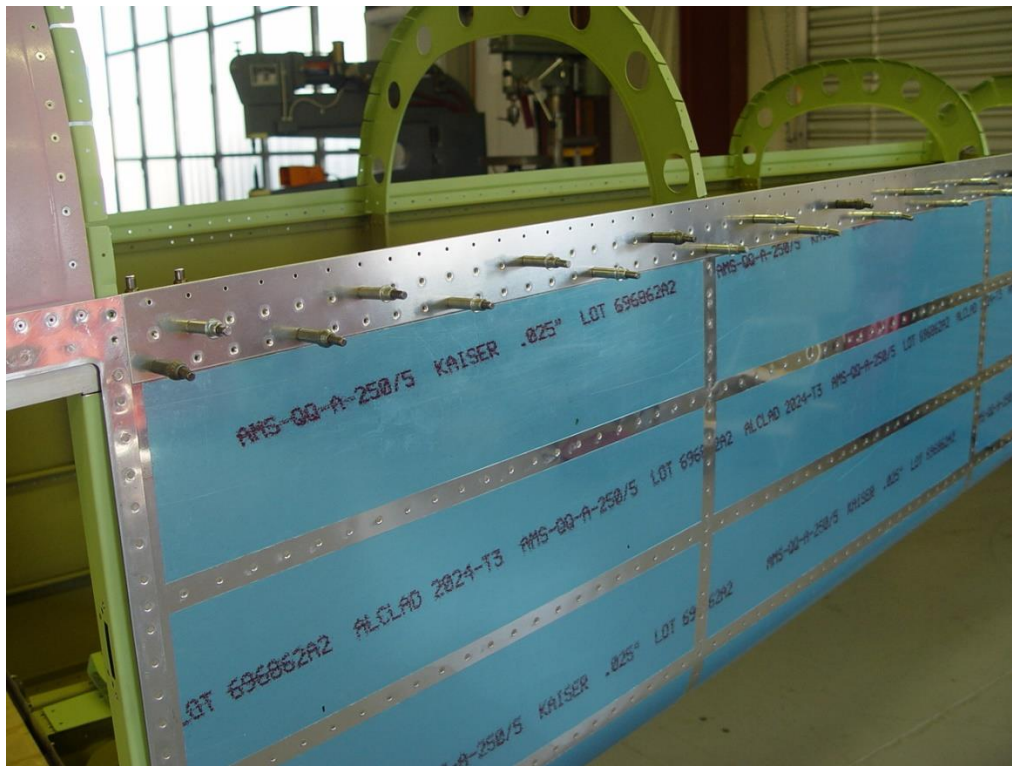


Reinstall the F-1006CT-L&R bulkheads, rivet using AN4264-3 and AN4704-3 rivets, you may want to leave the F-1028 vertical reinforcement out until you no longer need access into the tailcone. Reinstall the F-1006ECT angle and rivet to the bulkheads using AN4263-3.5 rivets. Use CS4-4 rivets in the cabin top countersunk holes and LP4-3 all other locations.

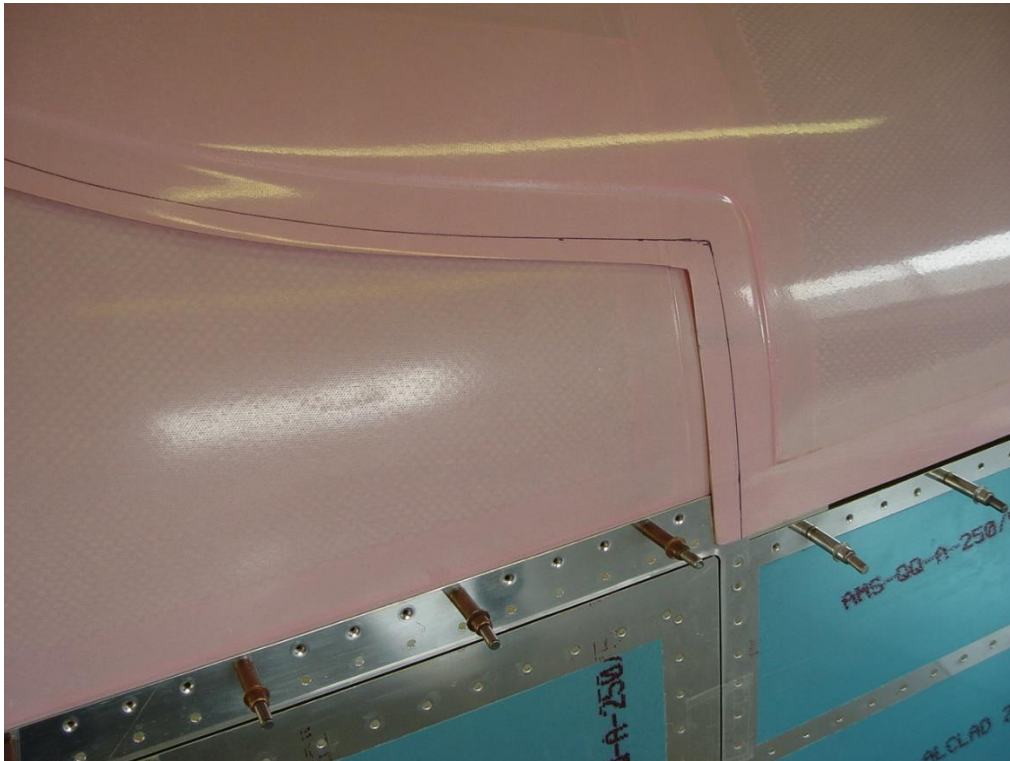


Install the F-1007CT and F-1008CT bulkheads using AN470 4-3 rivets.

Cleco F-1032ACT splice plate to F-1073 side skin and longeron and match drill all holes with a #40 bit, if the longeron has not been drilled yet use the splice plate and side skin as a drill guide make certain to align longeron with top of side skin. Cleco F-1032BCT backing plate to splice plate and match drill with #40 bit, be sure the bulkhead tab and bulkhead are strait when drilling. Repeat for the other side. Remove splice and backing plates then debur all holes.

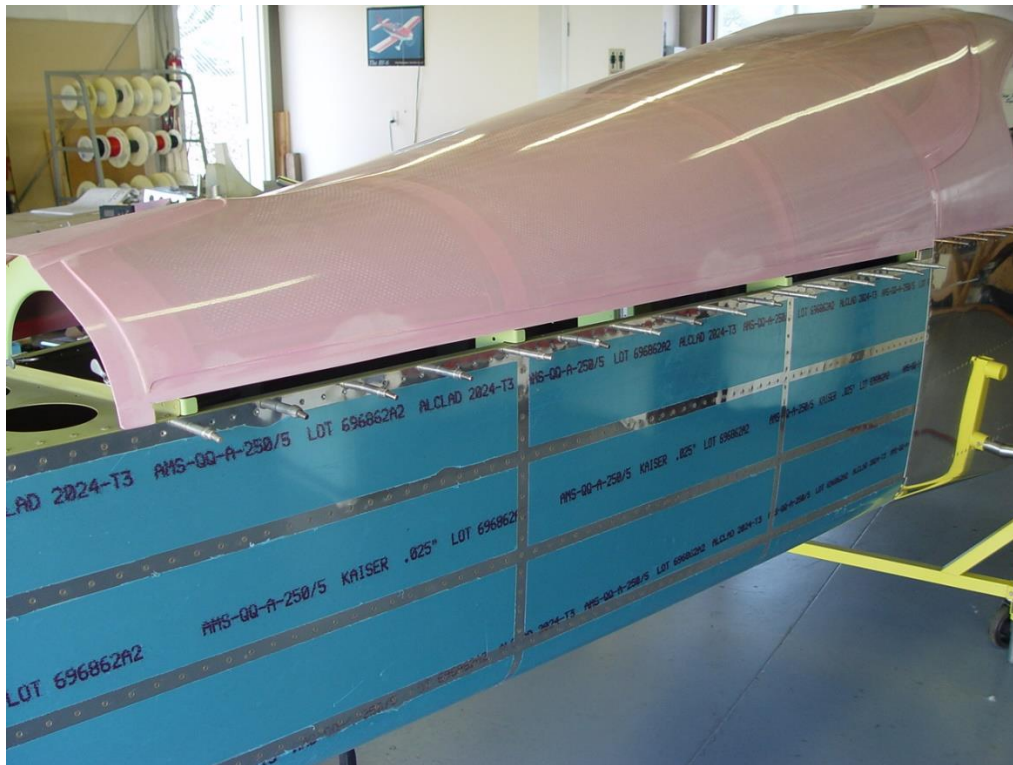


Set C-1074ACT tailcone skin in place making sure all bulkheads are in correct location and are straight in alignment. Use the F-1032ACT splice plate as a guide for locating the skin fwd and aft location, the skin should be overlapping the cabin top and sit atop of the longerons. Install and position the F-1009CT bulkhead and clamp in place. Mark the tailcone skin at the aft edge of the cabin top and 1" out from the cabin top overlap recess all the way around.

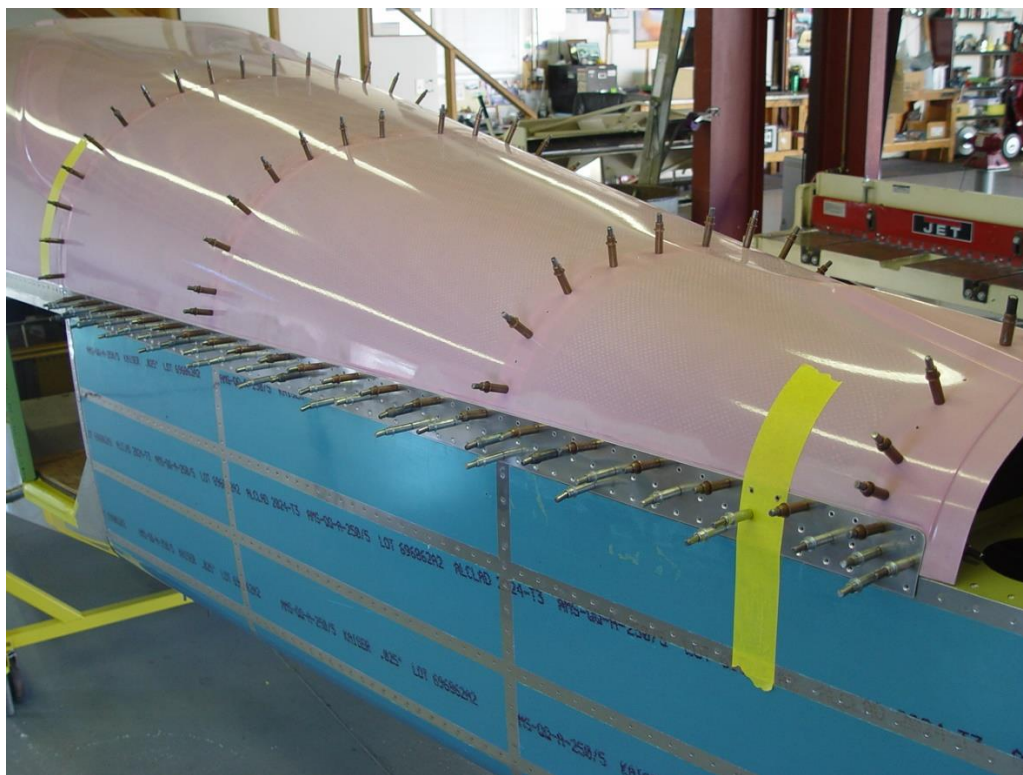




Remove skin and trim at line, refit skin and check fit at lower cabin top interface. Tailcone skin should butt up to the cabin top at lower sections below overlap, use the F-1032ACT splice plate for fwd/aft positioning. Mark the tailcone skin 7/8" up from the left and right longeron, use the F-1032BCT backing plate as a guide for the aft vertical trim line. The trim line should not extend further aft then the length of the backing plate. Remove tailcone skin and trim.



Reinstall splice and backing plate using clecos. Reinstall tailcone skin sliding it between splice and backing plates, be certain bulkheads are strait and in location with tailcone. Check for a tight fit between tailcone skin to the cabin top, if there is a gap between the skin and cabin top check to see if all bulkheads are in the right location. If so, remove skin and trim at the backing plate locations as needed, tailcone skin splice plate recess should be  $1/32''$  to  $3/32''$  above splice plate. *It is very important that the tailcone skin fit tight to the cabin top at the overlap prior to drilling.* Use several pieces of 2" tape to hold the skin in location. Back drill the bulkheads from the inside of the tailcone using a 12" #30 bit. Use a piece of tape on the outside of the tailcone skin to help locate the bulkheads while drilling. *Make sure you have a good fit of the bulkhead to the skin and the bulkhead is strait with no curve prior to drilling.* Drill all bulkheads starting at the top and working down each side. Now move to the splice plates starting at the midpoint of the top row going fwd then aft using a # 30 bit, cleco every other hole. *Use light pressure at the bulkhead locations while drilling.* Repeat for other side. Make a mark every 4" along the tailcone skin cabin top overlap then drill using a #40 bit only through the outer layer of the cabin top. Start drilling mid span, do not allow a gap to be created between skin and cabin top.



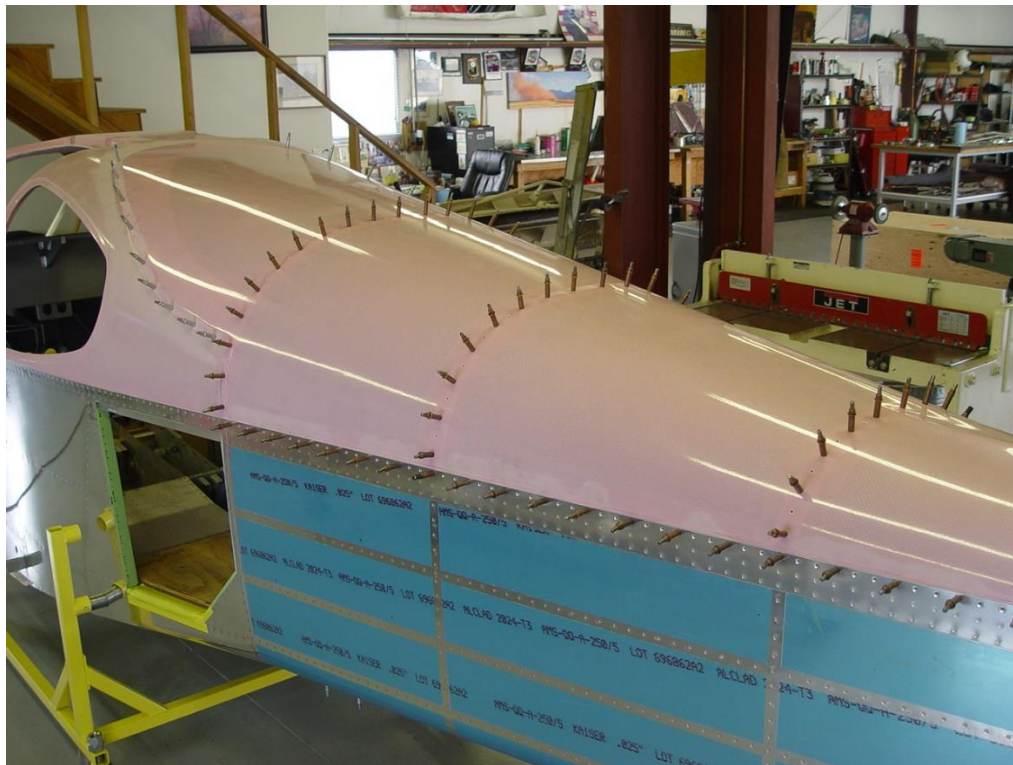




Sand the tailcone skin and cabin top at contact areas with 80 grit paper. The tailcone skin is now ready to permanently install, if you plan to have GPS or other antennas in this area you may want to make provisions for them prior to proceeding. *A minimum of two people will be needed for this next step.* Use an epoxy/flox adhesive mixture around the perimeter of the tailcone skin where it will overlap the cabin top, use an epoxy/micro balloon mixture on the underside as well but between the joggle and honeycomb area from the 10 o'clock to 2 o'clock positions. This will help stiffen this area of the skin.



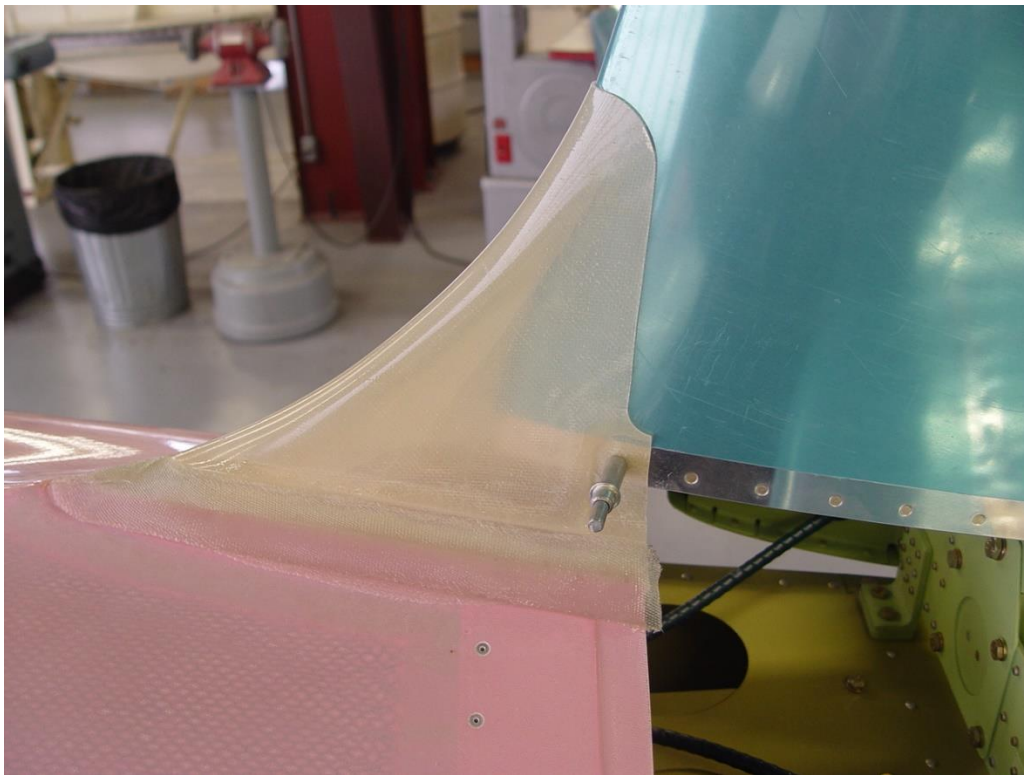
Carefully install the skin and cleco in location, clean off excess epoxy as needed. After the adhesive has cured rivet the skin to bulkheads starting at the top working down each side. Rivet the splice plate to the skin and backing plate starting at the midpoint working fwd then aft, use CS4-4 blind rivets for attachment.



Sand tailcone skin at cabin top overlap area from the joggle out 3". Measure the length of the overlapped area as well as where the tailcone butts-up to the cabin top. You will need to cut two layers 2 ½" wide and two layers 2" wide to cover the tailcone skin to cabin top contact area, use 9oz e-glass cloth. Using epoxy resin apply the 2 ½" lay-up first then the 2", use four 2" wide in the butt-up area. The joggle on the tailcone skin will allow a minimum of lay-up material to be removed for paint prep.

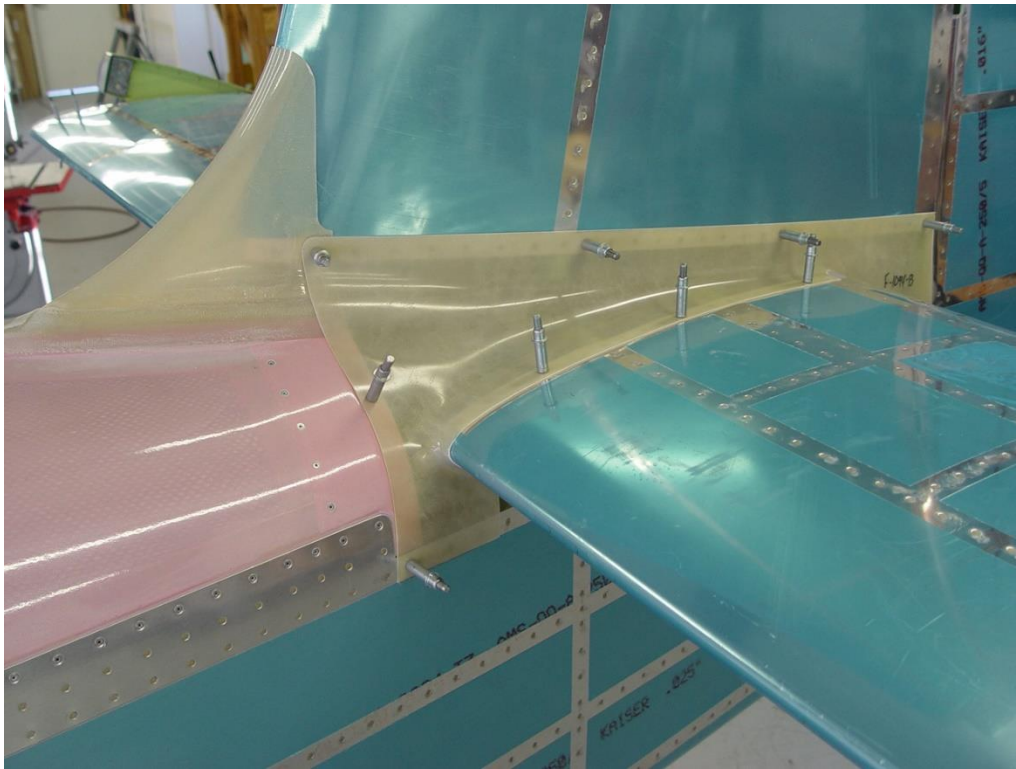


Installation of the C-1074ACT emp transition fairing cannot be completed until the vertical stabilizer is attached. Trim the lower edge of the transition fairing as needed to sit flush with the C-1074CT tailcone skin attachment relief. Trim the top of the fairing as needed to help with the fwd and aft location. Correct fitting of the fairing will allow for a two-bid fiberglass lay-up within the relief area. Trimming of the aft edge of the fairing is cosmetic and up to the builder. Sand the tailcone skin and fairing mating surfaces to allow for a good bond. Use an epoxy/flox mixture to glue the fairing to the tailcone, clamp in place until cured. Sand the relief area and add two layers of 9oz e-glass cloth.





Installing the F-1094B emp fairing will be the same as standard accept the fairing will first need to be cut in half and trimmed to fit the C-1074CT skin. The use of attachment screws can vary and is up to the builders discretion.



Use the standard attachment instructions for the new VS-1009CT V-stab tip fairing.