



## Cowl Installation Instructions Zenith CH601 Series Cowls



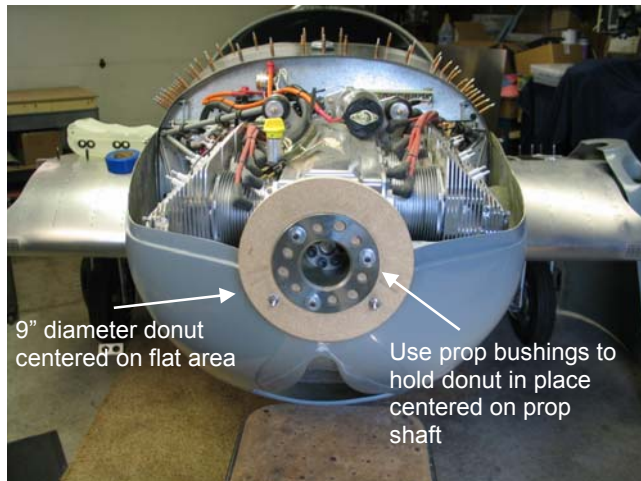
These instructions cover the installation of cowls produced by Jabiru USA Flight Center, LLC specifically for the Zenith Zodiac CH601 series aircraft powered by the Jabiru 3300 aircraft engine.

Many thanks to Al Beyer of Oshkosh WI for the use of his CH601HDS kit for fitting these cowls and for many of the photos within.

In simple terms, the cowls are installed by fitting the bottom cowl to the fuselage and attaching with screws and then fitting the top cowl and attaching it with Camlocs.

One positioning jig will make installation much easier. Fabricate a "donut" from 3/4 inch thick chipboard or plywood. Cut the inside hole of the donut to 2.75 inches in diameter and make the donut 9 inches in diameter on the outside to match the spinner size.

Place the original prop hub that you removed from the crankshaft on the donut. Center the



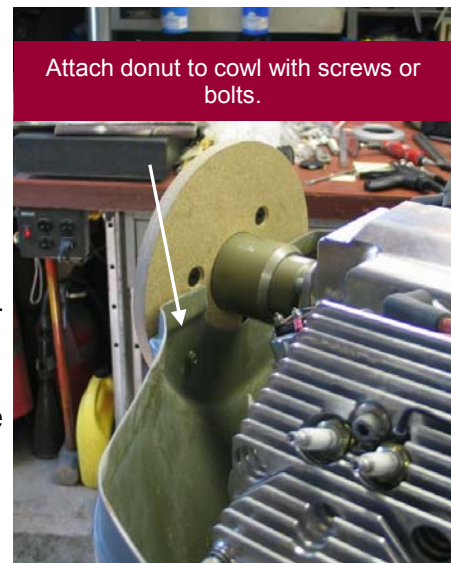
hub and with a 5/8 hole saw drill through three of the prop hub holes so you can insert the engine prop bushings later on.

Cut the donut in half (don't cut through the holes in the hub area.. Position one half against the upper cowl spinner flange (the flat area that falls just behind the spinner) and temporarily attach it to the upper cowl with a few self tapping screws inserted from the inside of the cowl into the wood block.

Attach the lower cowl to the other half of the donut in the same manner.

Lift the lower cowl into place and secure the rear end in approximately the right place on the fuselage with tape. Position the front with the donut just behind the prop hub (on the prop hub extension) and secure with the prop bushings from the engine accessory pack and some temporary bolts or screws.

The inside radius of the donut should fit around the shaft of the prop hub extension and hold the front of the lower cowl in place.



Line up bottom of joggle with longeron. Tape securely in place. Mate both sides to the

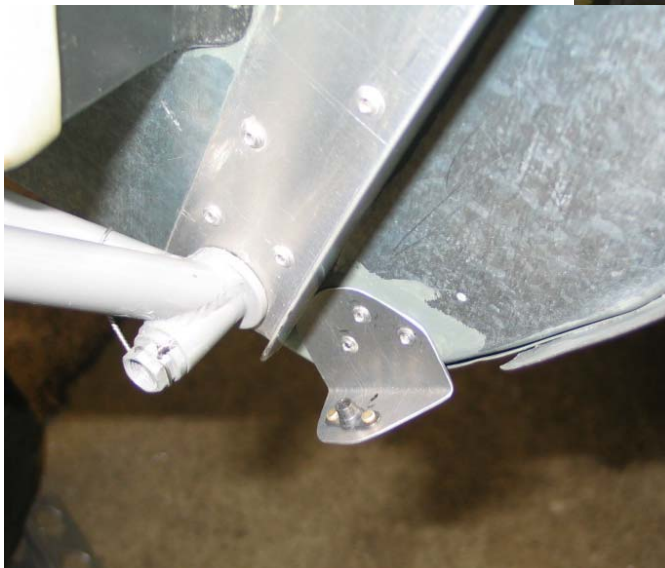
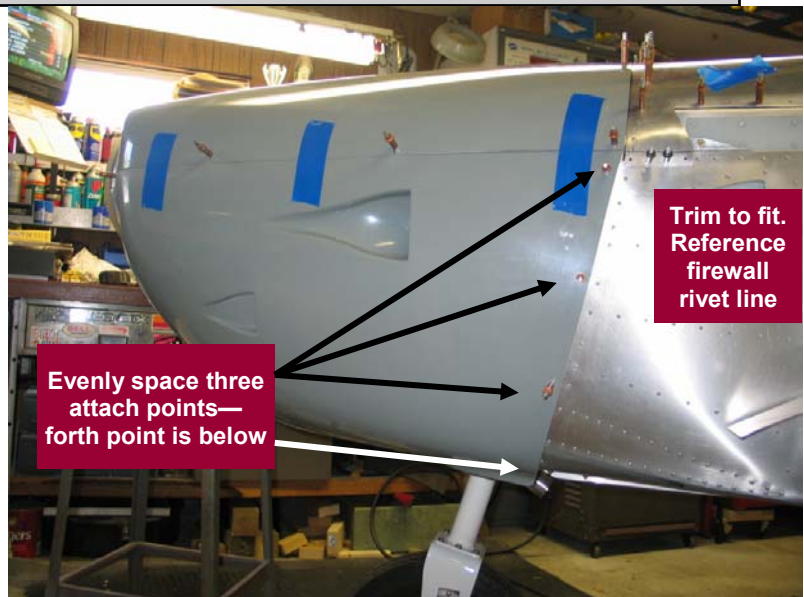


Continue with the fitting of the rear of the cowl against the fuselage. The break between top and bottom cowl is designed to line up with the longeron coming from the canopy opening. Adjust the bottom cowl so that it is even on each side and the bottom of the joggle is lined up with the longeron.

The rear of the cowl is made a bit long so that a builder can trim it to his liking. We would suggest trimming to about a half inch forward of the firewall rivet line.

Once the cowl is trimmed, drill three holes for temporary attachment of the cowl to the fuselage. Drill to 1/8 inch and cleco the cowl in place.

Fabricate a bottom attach bracket from some .032 aluminum scrap from the Zenith kit and attach to the firewall per



the photo at left. Position the bracket so that the bent tab is in contact with the cowl. When happy with the fit, rivet to the firewall and then drill the final bottom cowl attach holes and cleco cowl in place.

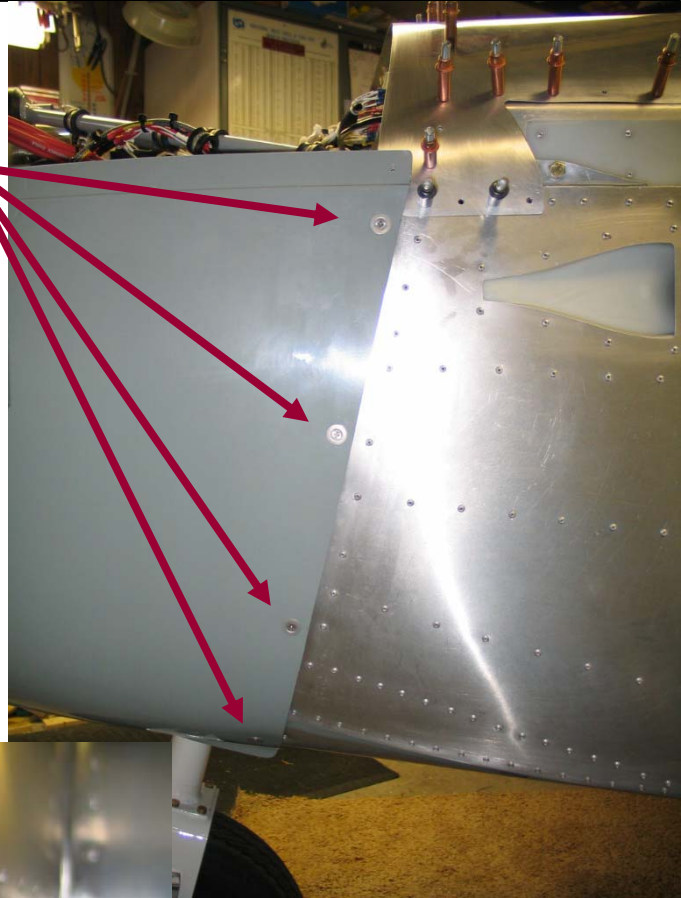
To complete attachment of the bottom cowl, remove the cowl and drill the holes in the sides of the fuselage out to 5/32 inch and install the MK1000-8 nutplates behind the holes. Be sure to countersink or dimple the holes for the 3/32 flush rivets that attach the nutplates. Before final riveting of the nutplates, drill the hole out to 3/16 to give a bit more clearance to the #8 machine screw that will hold the cowl.



Using a stop countersink bit, countersink the holes that you drilled in the sides of the lower cowl so that the Tinnerman washer will fit flush with the surface.

Reinstall the lower cowl using the donut in the front and the #8 taper head screws and Tinnerman washers in the rear.

Once the nutplates are in place, trim the side skin of the fuselage to suit using the photo as a guide.

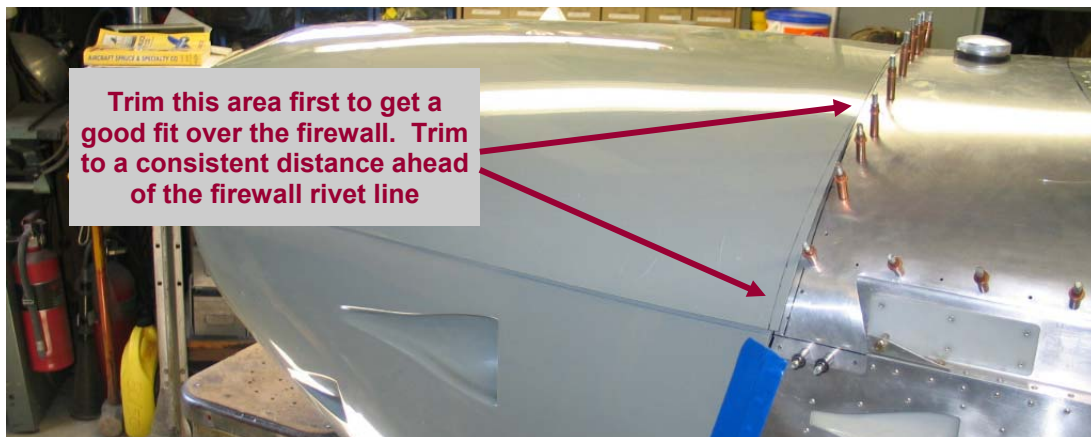


## Top Cowl

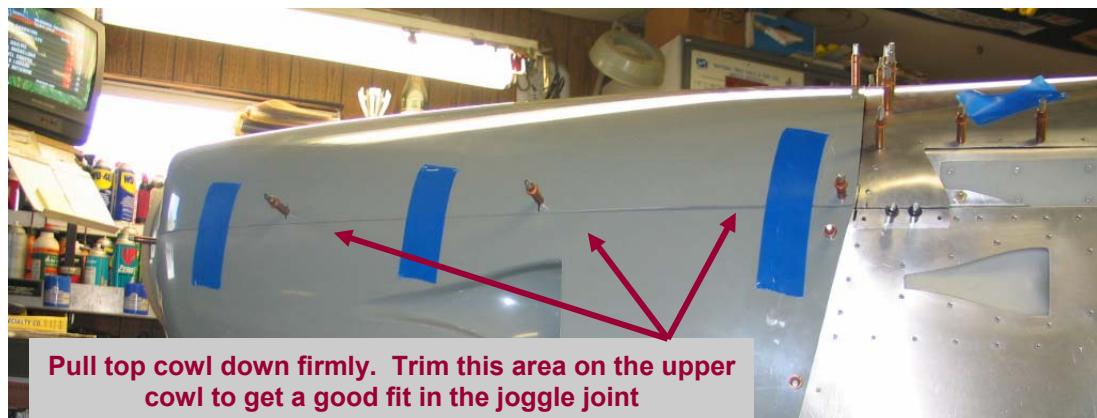
**Hint:** One of the keys to good cowl fit is to pull the upper cowl tightly down around the fuselage at the rear of the upper cowl. Trimming need to be finished before the cowls can be pulled tightly together. Some gaps may appear at the rear of the top cowl if not pulled tightly down.

Attach the remaining half to the donut to the front of the top cowl in the same manner as the lower cowl. Place the upper cowl on the airframe and secure in the front at the donut and prop hub.

Center the top cowl on the fuselage and hold in place with tape at the rear upper end. Mark the rear of the upper cowl for trimming (it will be a bit long especially at the sides) and trim to suit. We would suggest matching the length at the sides with the lower cowl and then keeping a consistent distance from the firewall rivet line over the top.

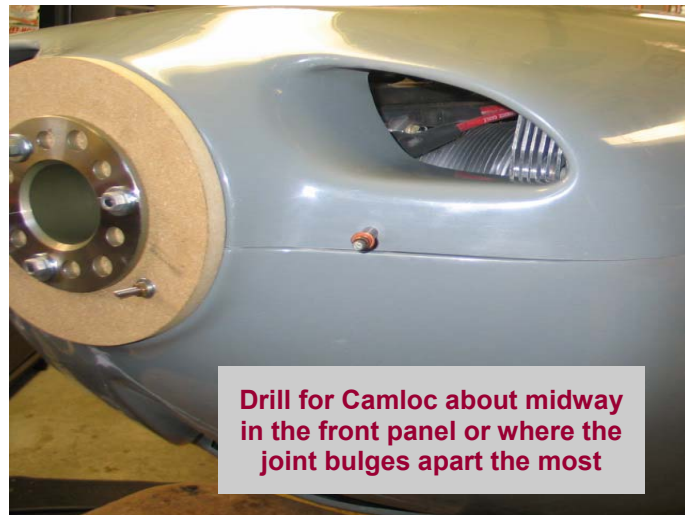


The upper cowl will attach with 5 Camlocs on each side and two Camlocs over the top rear. The top cowl was molded just a bit oversize to allow for some variation in the size of the airframe that might occur in some cases and most likely may need some trimming along each side to fit snugly in the joggle joint.

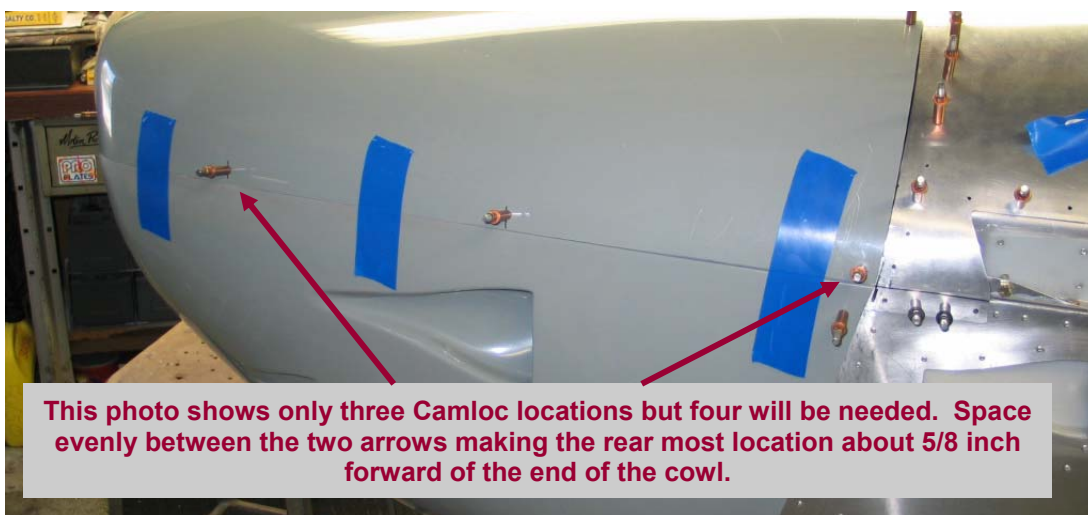


When satisfied with the rear trim, again fasten the rear in place with tape. Try to center the upper cowl on the fuselage before taping. Using some more tape, pull the sides of the top cowl down over the lower cowl and mark for trimming for a good fit in the joggle joint. Trim with a long sanding block with 80 grit paper or a Permablit abrasive block.

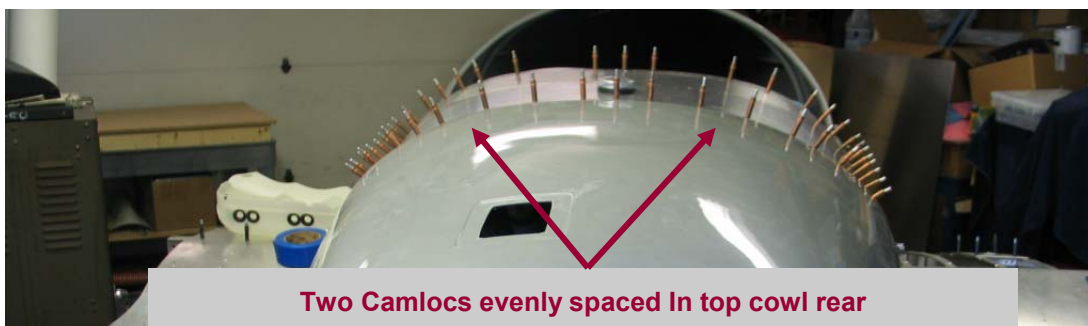
When trimmed to fit installation of the Camlocs can begin. Use a 1/8 drill to initially drill the Camloc locations and clecos to fasten the top and bottom together. Start at the front and locate a Camloc about midway in the front flange. For the sake of symmetry, drill each side in the same location. Insert clecos to hold the cowls together.



Mark the sides of the cowl to evenly space 4 Camlocs on each side. Plan on locating the most forward Camloc about six to eight inches behind the bend at the front and the rear Camlocs about 5/8 inch forward of the trailing edge of the upper cowl. Locate the holes so that they are slightly below the center line of the joggle joint. Again, make each side the same. Drill to 1/8 inch and install clecos to hold the cowls together.



Finally Evenly space the two Camlocs on the top rear of the upper cowl. Drill to 1/8 and install clecos to hold the cowls in place.



Installation of the Camloc fasteners is next. Camloc receptacles are installed similar to nutplates. Drill the hole out to 5/16. Insert a 5/16 bolt into the hole and into a Camloc body (the bolt keeps the Camloc centered in the hole) and use a 3/32 drill to backdrill the Camloc attach holes. Counter sink the Camloc attach holes so the 3/32 rivet will be flush and rivet the camloc body in place.



Drill a 1/4 inch hole in the upper cowl for the Camloc insert. Make a small notch in one side of the hole to allow the pin to fit through. On the sides of the cowl the Camloc bodies are installed on the back side of the joggle joint and #6 Camloc inserts are used. At the top rear the bodies are riveted to the under side of the fuselage skin and #2 Camloc inserts are used.

When all camlocs are in place, reinstall the bottom cowl without the donut. Lower the top cowl in place and secure with the Camlocs.

Installation of the oil cooler air dam and the oil door will complete cowl installation.







