

Little Toot Cowling Installation Instructions
By Phil Witt

Here are a few items needed to start installation of your "Toot" Cowling.

(1) Piper PA28-180 or PA28-235 14" spinner back plate.

This particular style of spinner back plate is real nice because it mounts to the starter ring instead of directly to the propeller mounting holes.

Use this one only!!!

(1) 14" x3/4" Plywood centering disk. This Plywood disk will be mounted to the Propeller mounting position for alignment of the top and bottom cowling. Use a Large compass to draw circle on the wood.

(30) #30 Clecos. For holding the cowling in place before any large holes are drilled into your cowling.

(36) Camlocs or Dzus fasteners for Cowling Bugeye's. A very expensive item so do some investigation before you purchase all pieces.

(1) Hole Finder. To locate holes in upper and lower cowling attach fasteners that are existing in firewall cowling mount flange.

(2) 1"x3" .063 Aluminum straps for front cowling (top & bottom) splice.

(6) 8-32 Counter-sunk Aircraft grade screws. To screw top and bottom cowling together at splice in nose.

(6) 8-32 Nut plates for above the components.

HOW TO LOCATE THE COWLING ON YOUR "LITTLE TOOT"

Mark a center-line down the fuselage from the cockpit to the existing firewall flange on the skin just over the fuel tank area of your "toot". This will be at the new cowling mate area and center-line of upper cowling piece. Draw a center-line vertically on the 3/4" plywood propeller plate and align vertically for a perfect center-line for the the front of the new cowling.

Lay upper cowling piece into position matching the center lines you just drew on the aircraft top skins. Now the upper cowling is resting on the aircraft firewall flange and the front 3/4" plywood centering disk.

Using 2" duct tape, secure the upper cowling into position common to the firewall skin. Note: some trimming of the upper cowling may be required at the bug-eye attach flange where it meets the firewall flange for the upper cowling to sit flush. (see sketch attached).

With the front and back of the top cowling taped securely into place and aligned on the aircraft center lines. it's time to drill and cleco the left and right half bug-eyes to the upper cowling.

Use #30 clecos throughout the alignment process. This will allow for some final tweaking, if needed, prior to drilling full sized holes for the final camloc installation.

Now the lower cowling should be installed from the bottom. Spread the bugeyes just enough to get the lower cowling into place. Now, cleco and tape the lower cowling in the same manor as the upper cowling.

With the cowling assembled as unit, it can be aligned to and aft to the spinner backplate. The spinner to the cowling "GAP" should be held 5/16" to 3/8". All trimming required should be done to the aft edge of the top and bottom cowling edge only.

Untape and slide the cowling assembly to the required gap at your spinner backplate. Any excess at the firewall can now be trimmed to match your skinline.

The cowling will need to be on and off several times during this hand fit operation. Just remember to return the cowling to the marked centerlines EACH & EVERY TIME AND MAINTAIN YOUR SPINNER GAP.

When the upper and lower cowling is trimmed to the existing skin line, and the spinner gap is correct and true to the spinner centerline, you are ready for some ATTACH HOLES. Starting from the center of the upper cowling, use a hole finder to reproduce the new holes in the new cowling from the existing holes in the old cowling locations on the firewall flange.

Drill holes working from the center, outboard, down to the bugeye flanges. Do this on both sides of the upper cowling. Use screws as you go to maintain alignment. Repeat the same procedure for the bottom cowling.

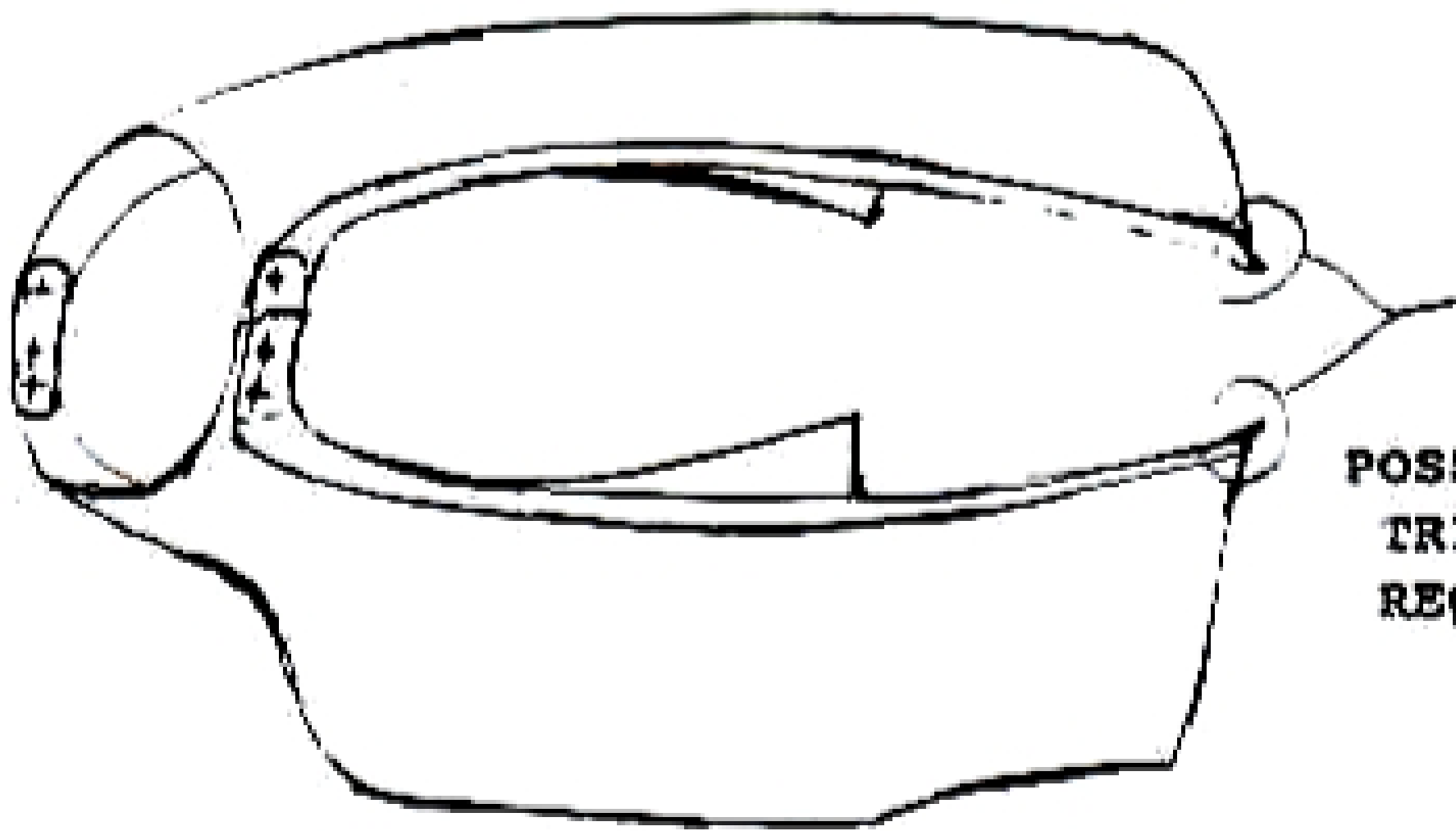
The two front aluminum splices can be constructed and made ready for installation. These are the adjoining pieces that hold the top and bottom cowling together around the spinner ring.

Construct two each 1"x3"x.063 aluminum support pieces. This splices should be formed to match the inside contour of the upper and lower cowling legs around the front spinner area. Once formed, drill (3) each pilot holes common to the splice and cowling legs. DO NOT DRILL THESE HOLES THROUGH THE BUGEYES FLANGES. Drill only common to the upper and lower cowling legs and aluminum splices. This will make your bugeyes removable while leaving the upper and lower cowling in place and attached to the fuselage. Make sure you construct the two splice pieces with #8 screws through the fiberglass and #8 nut plates attached to the splices.

With the upper and lower completely drilled and trimmed, the bugeyes need a final fitting and sanding around the edges. Layout and produce full size hole for the installation of Camlocs. Note: Measure the thickness of your particular cowling to make sure you order the correct length camlocs. Nothing looks worse than to have a camloc sucked down too far in the camloc washer or sticking out with the head up. Camlocs should always be flush with the camloc washer.

Please refer to the cowling sketch, separate jpg, for specific areas of attention. I really enjoyed doing this. Everything Tommy and I do is really an adventure. It is Tommy's and my hope that this brief set of instruction will help you install your new "Little Toot" cowling quickly and with ease. With your completed project, doesn't your airplane now look like a "Toot"?

Give Tommy or LJ a call and let them know how your "Toot" turned out.



**POSSIBLE
TRIM
REQUIRED**