

Falco Construction Note 61011-1

Wing Fillet Installation Notes

This Falco Construction Note replaces Advanced Builder Memo "Chapter 49 Wing Fillets"

The Falco wing fillets are supplied in three pieces per side and each piece is already trimmed to approximately the final shape. Because your wing may vary slightly in chord length from the Falco from which the molds for these parts were made, there is a provision to accommodate this variation in length. The upper wing fillet is made in two pieces. The forward part has a joggle to fit under the upper aft part. Note that the upper aft part has a faint scribe line. This line indicates the location of the trim line that would match the joggle if your aircraft is precisely the same as the Falco used to make these molds.

The trailing edge joint is made by trimming the two matching fiberglass pieces and then gluing them together with a bead of cotton floss and epoxy between them. You can clamp the pieces together with spring clamps or clothes pins when you do this.

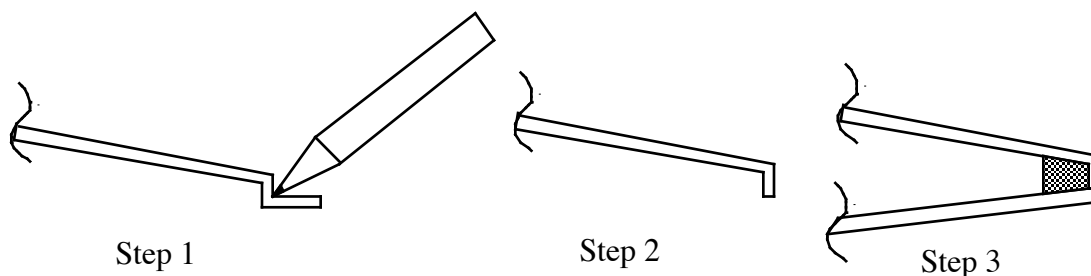


Figure 1

The only tricky business is understanding how to trim the pieces for the trailing edge joint. As supplied, the trailing edge is about 5mm thick at the junction with the wing. The vertical portion of the trailing edge is supplied with the upper part. Use a pencil to mark the cut line as shown in Step 1 of Figure 1. Then trim the upper part to the pencil line. The lower part should be cut along its trailing edge, leaving the squared-off bottom edge. The two pieces are then glued together as shown in Step 3.

Steve Wilkinson found that staples would not penetrate the fiberglass, so he drilled the fillet in about 10 places for tiny little temporary brass wood screws at places where the wood under the skin was solid enough to screw into. This allowed him to fit, remove, refit, etc. the fillet before the final gluing.

Steve also nailed two small blocks of wood through the skin to fuselage frames five and six exactly abutting the upper edge of the fillet. This allowed him to slip the preglued fillet into place precisely and then push the lower edge of the fillet inward, against the resistance of the blocks so that the forwardmost portion of the fillet assumes the proper shape to nest easily against the fuselage and wing.

Cecil Rives

Question about trim lines. Faint scribed lines. Parts are trimmed about 1 to 1.5 inches outside of those lines. Caution on double scribed line on upper aft piece.

Sequence to install. First fit and install front piece, then fit both upper aft and lower aft pieces. Install upper aft piece. Install lower aft piece.

How to trim fiberglass. Bandsaw. Sanding, but caution on not getting fiberglass hot, will turn brown and have a fuzzy edge.

On the forward piece, when you cut the pieces to fit the airplane, there isn't much contact area. He called and wanted to know how to handle this. I said to use epoxy and cotton flox.

Had about 3 1/2" overlap from the scribe line to cut the aft piece so it would fit the forward piece, but in the end, it all went on beautifully and fit perfectly. He found the 3 1/2" overlap alarming. Need to say something comforting about this. Used a 3/4" wide bead of epoxy and cotton flox, which worked great.

Cecil did not have the problem that Steve reported. He said that if you used a 2mm plywood nailing strip, about 95% of the staples would go through the plywood and fiberglass without crumpling. He put staples about every 3/4" and into the fuselage skins as well. Because this worked so well, he didn't have any need to put in the blocks that Steve talked about, although he did use a few small positioning nails. He said it was the easiest thing to do on the airplane. Cecil was ecstatic.

He said the scribed trim line on the upper piece along the fuselage was good. On the scribed line with the wing, the scribed line was good except on the L.H. fillet, the scribe line at the trailing edge leaves about 3/4" more material than you need, and this extra material starts to show up at about 14" in front of the trailing edge, thus there is a tapered piece of extra material that you will have to cut off. He said this would be obvious to anyone and is probably not even worth mentioning.

Cecil said that when the glue on the bottom piece, at the trailing edge, when the angle gets wide, you can't get a spring clamp to stay on it. Also the area of overlap is only about 3/16". To cure this problem, he glued some 3/4" wide blocks to the upper piece, cut approximately at the desired angle, and then put a screw through the lower piece to hold it in place while the glue was drying. You can also superglue some blocks on the outside so the spring clamps won't slip.