

Technical Stuff

LIFT STRUT FAIRINGS

by Gary Wolf

Would you like an almost free 3 mph speed increase in an afternoon? Round lift struts are notoriously draggy, and it has been proven many times that an airfoil shaped lift strut will increase speed. The problem is that to retrofit aluminum airfoil section lift struts can cost in the neighborhood of a thousand dollars, and much of this is for the shipping of the overlength material. You would also have to make new end fittings and reset your dihedral. The same drag reduction may be achieved by fairing your existing round struts with thin aluminum sheet formed to the airfoil shape, and this can be done in an afternoon without dismantling anything.

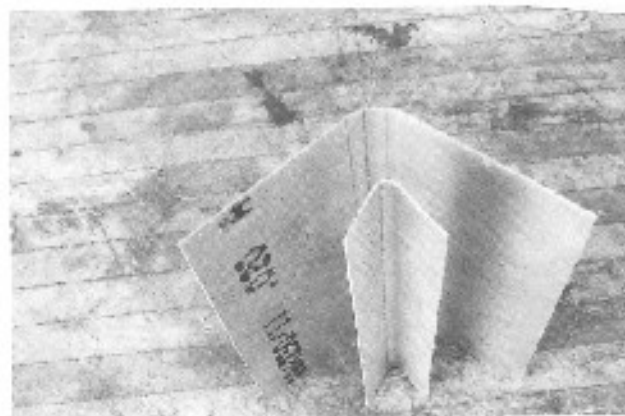
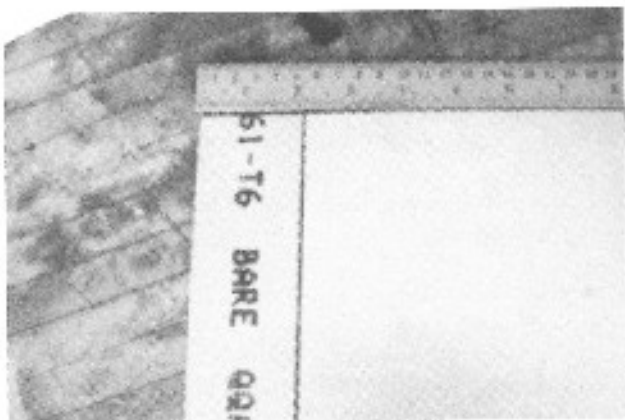
The best material to make lift strut fairings is .016" or .020" aluminum 6261T6 sheet. Anyone who has built a Zenith, Bushbaby, or Murphy will undoubtedly have left-over pieces that could be used. The blanks must be sheared to 6" and 2" widths if the struts are in the range of 1" to 1-1/4" diameter. For larger struts the leading edge blanks could be increased to 8" width, and the trailing edge will remain at 2". Four ft lengths are easy to work with and if you buy a sheet, you will need 4 ft x 6 (or 7) ft. for the average light plane.

Break the trailing edges to about thirty degrees included angle. The forward fairing blank may be bent in three steps of about thirty degrees each to get a more rounded nose. Then squash the blank down with a full length 2 x 4 to attain the airfoil shape.

Fit the blanks to the lift struts using duct tape to hold everything in place while positioning for drilling. Cutouts may be necessary to clear bolts and jury struts. One problem is to keep the fairing sections in plane with each other.

Gerry Poulton kept his seams straight with the trailing edge, running it over the gap to keep both fairings aligned.

Drill and clean, taking care not to scar the lift struts.



Top, right: Two test pieces show the width dimensions for fairings. For lift struts in the range of 1" to 1-1/4" diameter, use a 2" width for the rear Vee, and 6" for the airfoil shape. This will produce a fairing with a chord of about 3 inches.

Centre: Bend both blanks on centre. The trailing edge should be bent to about a 30 degree included angle.

The nose was bent to about 90 degrees with three small bends, 1/4" apart.

Bottom: Squash the fairing with a full length 2 x 4 to get the airfoil shape