
Wing tie down fittings

Classification	Optional
Applicability	XS Europas with wings not yet closed
Compliance	N/A

Introduction

Each wing tie down is made from a threaded tube that is bonded into the wing with access under the wing: an eyebolt is screwed in when required. It is intended that the eyebolt is removed for flight.

To help secure the threaded tube into the wing two plates are welded to it - these are used to bond the assembly in place against the spar and the outboard rib. Glass fibre layups are also applied over the plates to increase the strength of the joint. See figure 1.

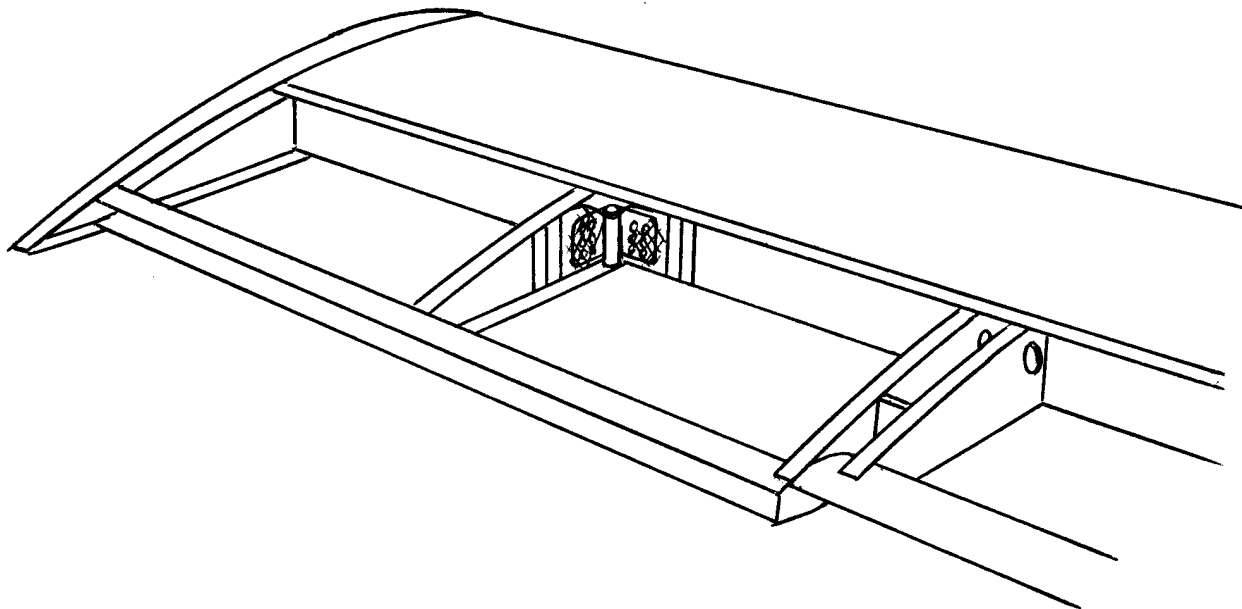


Fig 1. Tie down anchor positioned in wing.



Action

With the protruding portion of the threaded tube pointing downwards, position the tie down tube assembly against the spar and the inboard face of the outboard rib (on the port wing this will position it within the rib's flanges). Mark where the tube contacts the lower skin, then open a hole in the skin to allow the protruding portion of the assembly through. The end of the tube should be flush with the skin, or slightly proud. Make the hole such that there is a clearance around the tube of approximately 1.5mm (1/16") - this gap will later be filled with epoxy/flox.

Position the assembly in place, and drill through each plate into the rib and spar with a 3.3mm (1/8") drill using the pre-drilled holes as guides - these are for 1/8" pop rivets which will later hold the unit in place during bonding.

Note: *Although the spar is over 25mm (1") thick the shear web is only approximately the same thickness as the wing rib. You only need to drill through this web.*

Scuff sand the bond areas of the spar and rib - this will extend about 18cm (7") from the corner. It is not required to scuff sand the lower skin.

Clean the tie down assembly thoroughly with a suitable degreaser such as Acetone, and dry off thoroughly.

Using a mixture of Araldite 420 and flox, bond the tie down assembly in place and secure it using TLPD424BS rivets.

Also fill the clearance gap around the tube, where it protrudes through the lower skin, with some of the adhesive, leaving the filler flush with the skin.

Scrape away excess adhesive and then layup 3 plies of 'bid' over the plates and onto the spar and rib. Overlap 75mm (3"), 50mm (2") and 25mm (1") respectively onto the spar and rib, with the layups running the full wing depth on both the spar and the ribs. Do not layup onto the lower skin. To avoid air bubbles, use some of the epoxy mixed with flox to make fillets at the joint between the tube and the plates, the edges of the plates, and around the edges of the keying holes.

Take care to avoid any epoxy from going down into the threads in the tube - if it does you should use a 7/16" UNF tap to clear it.

Allow to cure undisturbed.

Annotate the aircraft records - Mod 69 incorporated.

Operation

When required for use, screw the eyebolts fully into the anchor points. Use rope which has a certain amount of resilience, rather than chain or cable, to secure the aircraft, and ensure that there is no slack. The rope should be as nearly vertical as possible, especially in strong winds.