

EUROPA CLUB

AIRCRAFT MODIFICATIONS

**QUICK RELEASE ENGINE COWL
FASTENERS**

(MOD NUMBER 10405)

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These modifications are separate from those issued by the factory but have been approved by the PFA. They can be considered as build instructions and should be carried out in consultation with your PFA inspector before submitting the paperwork to the PFA for final approval. Most modifications add weight. Beware of incorporating too many at the expense of performance and payload. When following these instructions read at least three times, measure twice, cut once.

Be sure you fully understand the instructions before proceeding. Any queries please contact me on e-mail nigelcharles@compuserve.com or telephone 01380 860620. If you have any suggestions to improve the modification I would be pleased to pass them on to the PFA for their consideration. On completion get the modification checked and signed off by your inspector quoting the modification reference number on the front cover of this build instruction and submit the application to the PFA.

Nigel Charles

ENGINE COWL FIXING USING SOUTHCO FASTENERS

Overview

The existing system of cowl fixing has two significant disadvantages. Firstly as there are a total of 33 fixing points removing and replacing the cowls is a lengthy business. Secondly, as the cowls will be taken on and off many times during construction and several times a year during use, the anchor nuts will tend to loosen and require occasional replacement. The use of quick release fasteners overcomes both these problems. There are three main makes of fastener, Southco, Dzus and Camloc. The 'Southco System' keeps the receptacle size small (important in some fixing positions) so were chosen for this application. It is assumed that you are fitting the cowls from new but there should be little difficulty in retrofitting this modification as the holes required are larger than those required originally. The fasteners are not captivated to the cowl as this would make assembly and disassembly impossible at certain fixing positions. With that in mind it is probably wise to keep a few spare fasteners in case one is lost.

Purchasing Tips

The fasteners and receptacles are available in both stainless and dacrotized finish. Dacrotized is quite adequate for the receptacle but stainless for the fasteners is recommended for appearance. By using flush head fasteners the existing Tinnerman washers can be used to spread the load. You will also require a selection of 3/32" rivets. Some companies do not stock the longer stainless fasteners. If you have problems contact D & D Aircraft Supply (fax 001 603-926-7855 or e-mail them at doug@ddaircraft.com).

The part numbers required are:

Fasteners 82-14-260-20

Receptacles 82-35-302-15

Rivets AAC-32, AAC-34, AAC-36 or similar short, medium and long 3/32" pop rivets.

Cowl Fitting Tips

Whilst talking about cowling fixing it is more usual (and also easier in this case) to fit the cowls after the engine to ensure the propeller shaft is central in the front aperture (see 'Hints & Tips' Europa Flyer Issue 17 for details).

SOUTHCO FASTENER INSTALLATION

It is probably easier to do the fitting in two stages. First join the two halves of the cowl together and second fit the pair to the fuselage. Use the grip pins to provide temporary fixing and then progressively substitute them with Southco fasteners. Ream out the Tinnerman washers slightly so that they can be forced over the fasteners and become captive to the fasteners. Drill out the grip pin holes to a clearance fit for the fasteners through both skins. Countersink the outer skin so that the Tinnerman washer will sit flush. Fit the fastener and receptacle. The fastener will temporarily hold the receptacle in position. If the fastener is too loose use thin shims of aluminium under the receptacle to pack it out. If it is too tight carefully rebate the rear of the inner skin until the fit is just possible. As the skin needs shims in some places there should be no strength problems rebating in others. The rear lower cowling receptacles can be rebated through the module skin so that they sit against the fuselage skin. Although using different length fasteners is possible it creates unnecessary hassle later. Rotate the fixing so that the slots are in the right orientation when viewed from the outside. Mark the rivet positions from the rear, disassemble, drill, rivet and reassemble. It is important that all fasteners fit tightly so they do not come loose in flight. Final fitting adjustments may be needed after painting as this may increase the skin thickness slightly.

Figure 1 - Southco Fastener (side view)

