



Speed Kit (Mono-wheel aircraft)

Classification: Optional

Applicability: Monowheel Aircraft

Compliance: N/A

Introduction

The addition of fairings to the flap hinges, outrigger mechanism and outrigger wheels and the tailwheel are found to reduce drag sufficient for an extra 9 kts to be achieved in cruising flight.

Also, the fairings provide a certain amount of protection to the components around which they are fitted and enhance the appearance of the aircraft. All fairings are made with a white gel coat but for a perfect colour match with the rest of your aircraft you may need to paint them.

A general arrangement drawing shows the fairings associated with the flap hinges and outriggers is shown in figure 1.

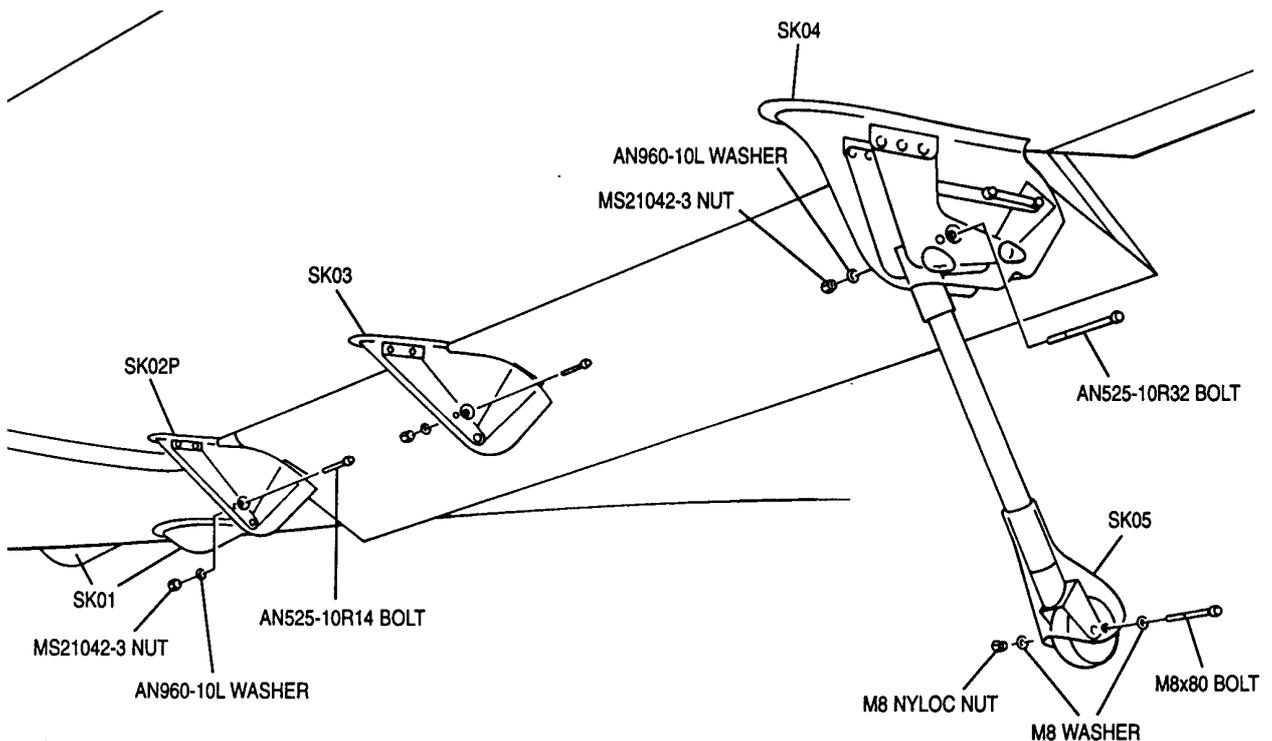


Fig 1. General arrangement of flap hinge and outrigger fairings.



Installation

Fuselage flap hinges

To ensure that water doesn't collect in any of the fairings, drill a hole of at least 3 mm (1/8") at their lowest points.

The simplest fairings to fit are the blister fairings which cover the hinges for the flap operating cross-tube which protrude through the fuselage underside. These, and the other fairings, may require some of the flanges trimming a little.

Ensure that the fuselage skin around the hinges is clean. Apply a thin bead of white silicone (rubberised bath sealer) to the flange of the fairing and then position the fairing in place. Wipe the excess silicone off before it has solidified. The fairing may stay in place on its own whilst the silicone sets but it is advisable to tape it to prevent it moving. Don't be too generous with the silicone as, once set, it will stick quite firmly and make removal for maintenance difficult.

Inboard and mid flap hinge fairings

To fit the flap hinge fairings to the wings, it is probably most convenient to de-rig the aircraft and support the wings upside down. Being able to operate the flaps is also necessary to ensure that there is clearance between them and the fairings.

The inboard flap hinges are handed port and starboard due to the flange being on one side only. The flange is to be on the outboard side of the fairing to clear the root fairing. The two mid flap hinge fairings are identical.

The wing mounted fairings are secured by means of a single bolt, which goes through the angled hinge arms W19 and W20, along with silicone sealant which seals the flanges.

First, drill through the centre of the dimples in the fairings with a 4.8 mm drill then, holding the fairing in position on the wing (with flaps down) mark the hinge arm through the hole. Remove the fairing and drill through the flap hinge arm where marked with a 4.8 mm drill.

Install the fairing using silicone sealant on the flanges and secure it with an AN525-10R14 bolt, MS21042-3 nut and AN960-10L washer.

Outrigger retract mechanism fairing

The outrigger retract mechanism/outboard flap hinge fairing is installed in a similar manner to that of the other flap hinge fairings except, due to the width, a longer bolt is required.

Firstly remove the OR3 fork and wheel from the Nylon leg OR2. To enable easy fit, it may be necessary to trim excess thread from the AN3-21A hinge pivot bolt. Remember to leave at least 1½ threads protruding through to the nut.



The fairing is a fairly tight fit and will require pulling open to get it into position. Check that the outrigger leg will retract without contacting the fairing.

When you have the fairing in the best fit position mark both W21 plates through the 4.8 mm holes in the dimples. Remove the fairing and drill both W21 plates separately.

Install the fairing using an AN525-10R32 bolt, MS21042-3 nut and AN960-10L washer and silicone to seal the flanges to the wing underside. Don't refit the wheel fork just yet as you need it off for the wheel fairing to be fitted.

Outrigger wheel fairing

Firstly, drill the axle bolt holes using the scribed crosses and centres. Start with a small drill then increase the hole size in stages to 8 mm.

With the fork OR3 removed from the leg, slide the wheel fairing well up the leg.

Re-fit the OR3 fork with it's AN525-10R30 bolt then remove the wheel from the fork.

Slide the fairing down into position and install the wheel using the new, slightly longer 8 mm bolt.

Silicone sealant will fill the gap around the leg at the top of the fairing.

Tailwheel fairing

The tailwheel fairing is made from two half shells SK6 and SK7. The two parts are to be held together with AN525-10R8 bolts into anchor nuts riveted to the inside of the joggled flange on SK6.

Firstly, mark a line 8mm (5/16") from the joint line edge of the unflanged SK7. Mark the centre line positions for 5 bolts as shown in figure 2. The precise positions are not important provided that you don't end up with the holes too close to the edge of either moulding.

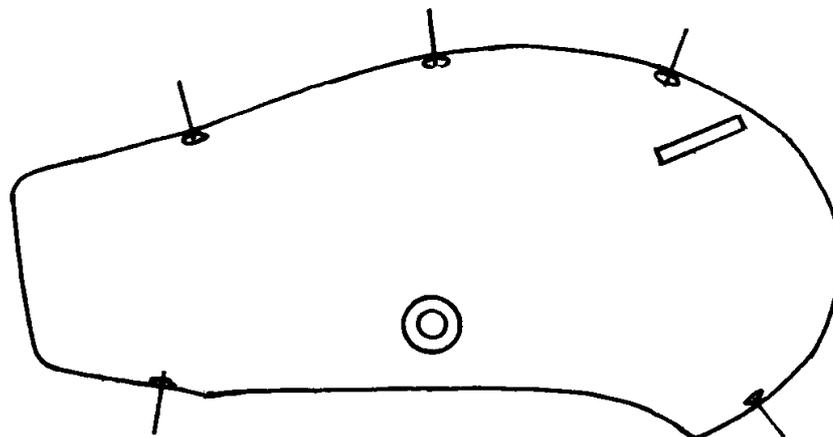


Fig 2. Starboard side tailwheel fairing SK7 showing bolt hole positions.



Join the two fairing halves together and hold them with tape then drill through your 5 centre lines with a 5 mm drill. Separate the two parts and rivet an MS21047-3 anchor nut to the inside of the SK6 fairing with the joggle using TAPK 36BS rivets. Spin a drill in your fingers to countersink the rivet holes in the glass fibre so that the rivet heads will be flush with the flange surface. Use a 2.4mm (3/32") drill for the rivet holes.

To enable the fairings to fit onto the tailwheel fork, slots are required for the steering horns to pass through. These slots are outlined on the moulding with scribe markings. Cut open these slots. Also drill open the wheel axle bolt holes centred on the recessed circles using a 3/8" drill. Start with a small drill and open up the hole in stages to avoid snatching.

Remove the rings securing the tailwheel steering cables from the tailwheel steering horns and also remove the tailwheel axle bolt.

Place the two fairings onto the tailwheel fork sliding them onto the steering horns. Bolt the two halves together using AN525-10R8 bolts then install the wheel using the original arrangement of the washers and spacers. Refer to page 32-11 of the Builders manual or page 10 of Mod 43.

Finally, re attach the cables. Use silicone sealant to fill the gaps around the tailwheel spring rod and where the steering horns are.