



Introduction of undercarriage spring damper

Classification

Highly recommended

Applicability

All monowheel Europa aircraft

Compliance

Not applicable

Introduction

Tests have shown that the introduction of rebound dampers to the undercarriage shock absorber improves the ground handling qualities of the Europa, and greatly reduces the tendency to bounce on landing.

The work required to install the damped shock absorber comprises the removal and dismantling of the original assembly, substitution of the upper and lower reaction plates, enlarging the two existing holes in the rubber block and drilling two new ones, followed by assembly and fitment of the new unit.

Action

1. Cut to length and insert the Oilite bushes into the new upper and lower reaction plates as per previous build instructions.
2. Support the aircraft with the main wheel clear of the ground. Remove the existing shock absorber unit by withdrawing the long pin LG04 from the swinging arm, and the two clevis pins from the retraction arms LG08. Dismantle the shock absorber unit and discard the upper and lower reaction plates and the plastic stops LG10.
3. . Using the long pin LG04 as a mandrel, bond the aluminium channel spacer LG14-2 into position, as shown in figure 2, with Redux 420, and allow to cure.
4. Refer to figure 1 and drill out the existing holes in the rubber block to 1 3/8" diameter with a hole saw.

Hint: *To ensure that the holes are opened up to the new size centrally, make a wooden dowel (most broom handles are about right) which is a tight fit in the hole. Mark the centre of the dowel and drill a 1/4" diameter pilot hole.*



Follow this with the hole saw until the cutter has defined the position of the new hole in the rubber; the dowel can then be removed and the cut continued to the approximate centre of the block. Repeat the procedure from the other side.

5. Drill 2 new holes 11/32" or 8.5mm diameter as convenient, as shown in figure 1, in the rubber block.

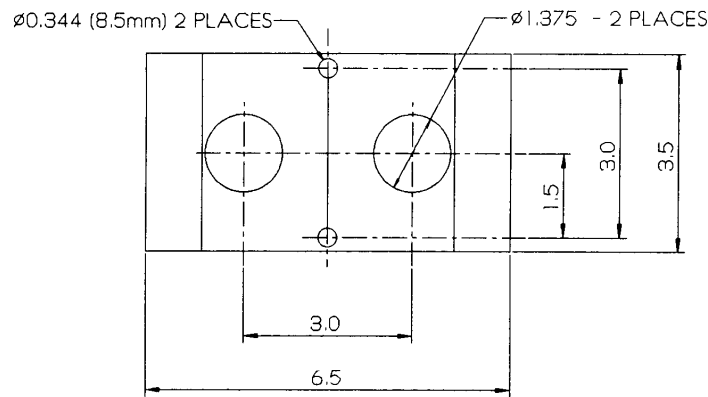


Fig 1. Drilling of rubber block.

6. Open up the equivalent holes in the new top and bottom reaction plates to 11/32" or 8.5mm.

7. Mount the two dampers, cylinder side uppermost, to the new upper reaction plate, using the 3/8" x 5" bolt and Nyloc nut, with EUR 033 washers between the damper eye ends and the mounting pillar, and under the bolt head and under the Nyloc nut, as shown in figure 2. Saw off the end of the bolt to leave the minimum safety threads showing - this is to ensure clearance between the bolt and the inside of the retraction lever.

9. Fit the modified rubber block and the new lower reaction plate to the upper reaction plate, and fit the existing M8 bolts in the new position as shown in figure 2. Pre-compress the assembly to 5 1/4" +/- 1/16" (133mm +/- 1.5mm) between mounting hole centres.

Note: If your shock absorber block was supplied before November 1996 (red colour) the 1/4" plywood block which was introduced in the shock absorber assembly as part of Mod 37 must be included. Shock absorber blocks dispatched after the beginning of November 1996 (black colour) are modified, and the 1/4" plywood block will not be required.

10. Roughly align the piston rod ends of the damper units with the holes in the aluminium spacer LG14-2.

Note: the dampers will be very stiff to extend.

11. Refit the spring/damper unit to the retraction arms LG08 using the new split pins supplied.

12. Refit the lower reaction plate to the swinging arm with the long pin LG04.

Note: this operation can be made easier by pre-assembling the spring/damper unit to the lower reaction plate using a dummy pin 3/8" diameter x 6 3/4" long. It can then be assembled to the swinging arm and the LG04 pin will drive out the dummy pin.

13. Check for correct undercarriage retraction and extension, then lower the aircraft to the ground.
14. Annotate the aircraft technical records - "Mod 29 Issue 2 incorporated."

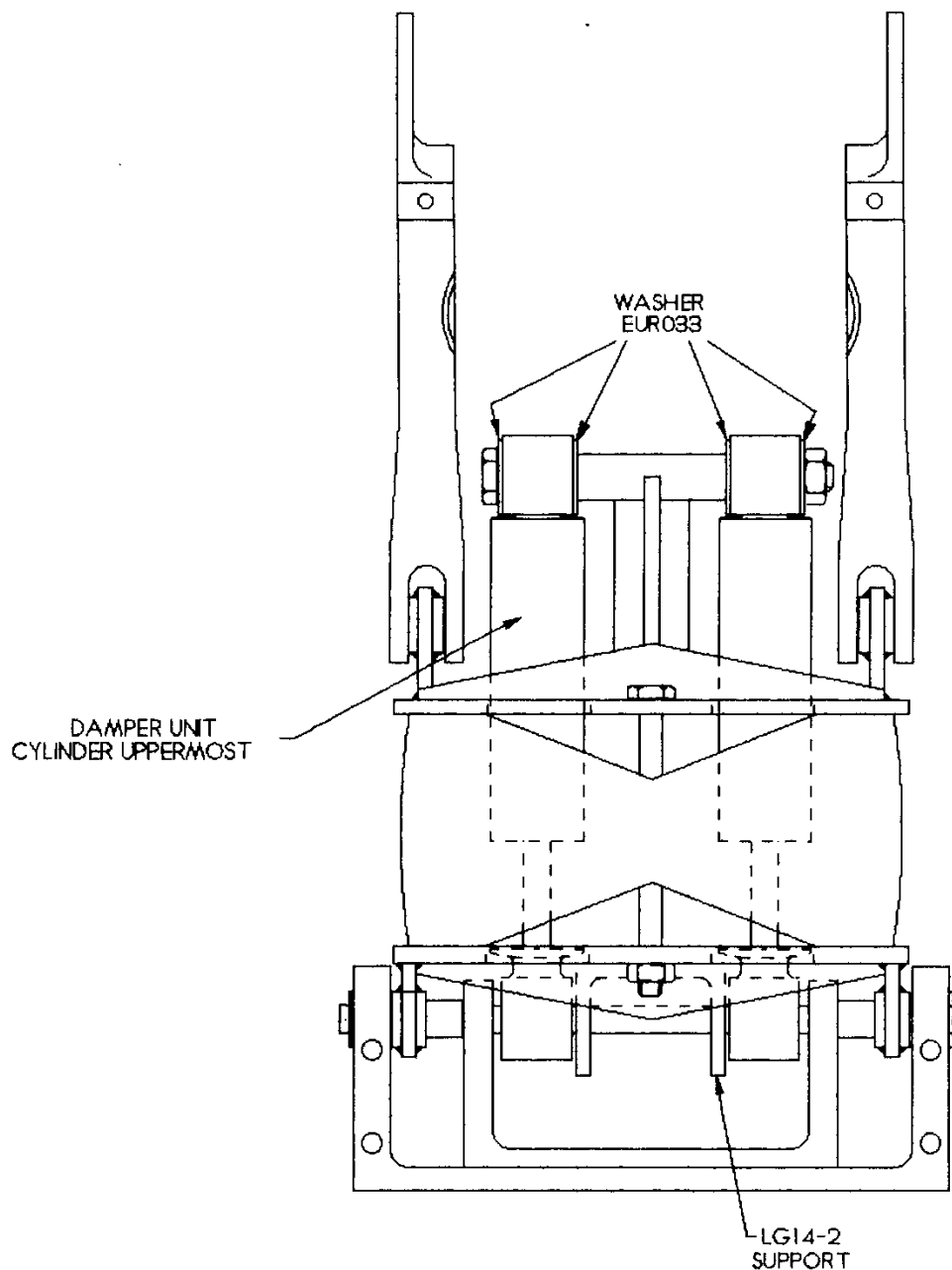


Fig 2. Assembly of spring/damper unit.