Europa Aircraft Co

Nose gear leg to housing reinforcement

Classification: Mandatory

Applicability: All Europa Tri-gear aircraft

Compliance: Within the next 5 flying hours

Introduction

An incident has occurred to a Europa Tri-gear where the nose gear housing parted from the nose gear leg. The cause of the breakage was due to tensile failure of the weld between the upper part of the leg and the fork housing. This Modification details the action required to reinforce the critical portion of the welded joint.

Action

Step 1

Support the aircraft such that the nose wheel is held clear of the ground. Remove the nose wheel fork and wheel assembly from the housing. Remove the grease nipple from the front of the housing and clean out as much grease as possible. Flush with a solvent such as petrol.

Note: Thoroughly ventilate the area after flushing before carrying out any welding.

Remove any paint from the area of the existing straps, the sides of the housing, and from the weld joining the nose leg to the housing, between the straps. Grind away the front position of the existing straps both sides, tapering it to the housing - see figure 1.

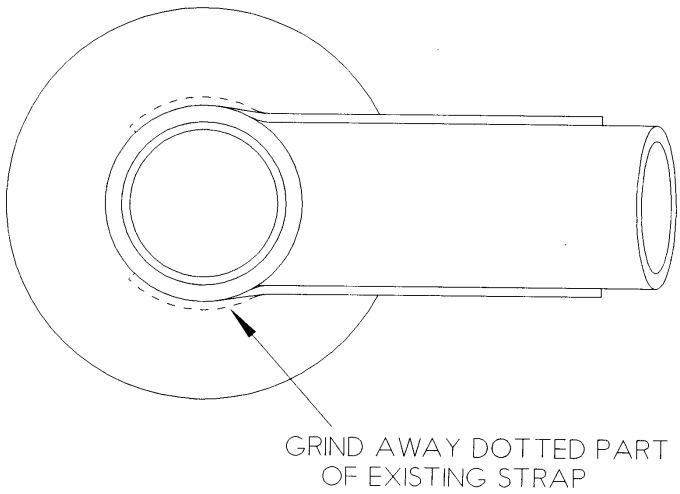

Figure 1. Removal of front portion of strap.

Step 2

Using TIG welding equipment and the weld filler rod provided, increase the size of the weld joining the nose leg to the housing above and below the straps to be 5mm at least. See figure 2. Do not quench the welds but allow them to cool naturally in air.

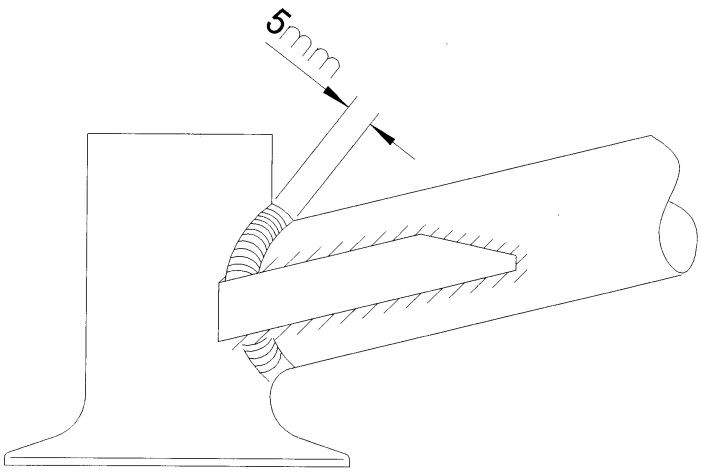

Fig 2. Reinforcing the weld.

Step 3

Using the same welding rod provided, weld the gusset plates, (Part no NG03E, made from 14 swg S514 steel plate), to the housing and to the remaining part of the straps on the nose leg, as shown in figure 3. Do not quench the welds, but allow them to cool naturally in air.

Note: A suitably qualified welder only should carry out the welding operation.

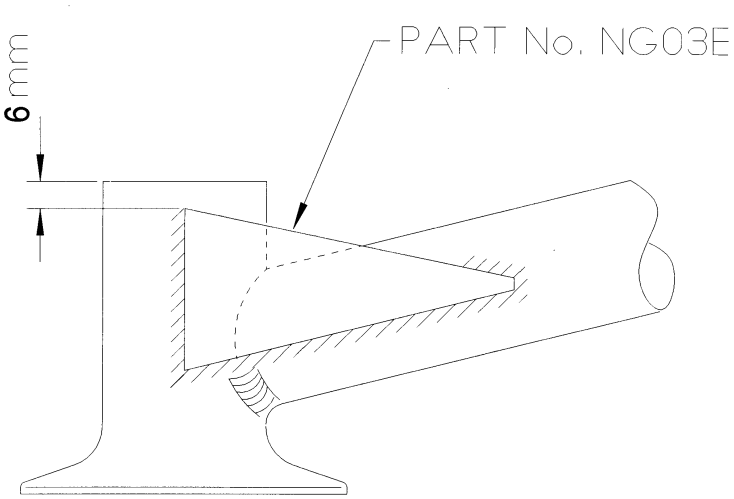

Figure 3. Welding gusset plates.

Step 4 - Reassembly

Clean the welded area and apply suitable paint to protect the exposed area from corrosion. To prevent ingress of dirt and moisture into the gap between the gussets and the nose leg, a non-corrosive filler such as car body filler or underbody sealant can be applied. Reinstall the nose gear fork, applying grease during assembly. Replace the grease nipple and refill the housing with grease.

Adjust the shimmy damper to the correct friction as described in the appropriate Europa Tri-gear Builders Manual (currently Europa Tri-Gear Manual page 32-10 issue 1 dated 1 December 1996, or Europa XS Tri-Gear Manual page 29-11 issue 1 dated 30 May 1998). Secure the nut with a new split pin. See figure 4.

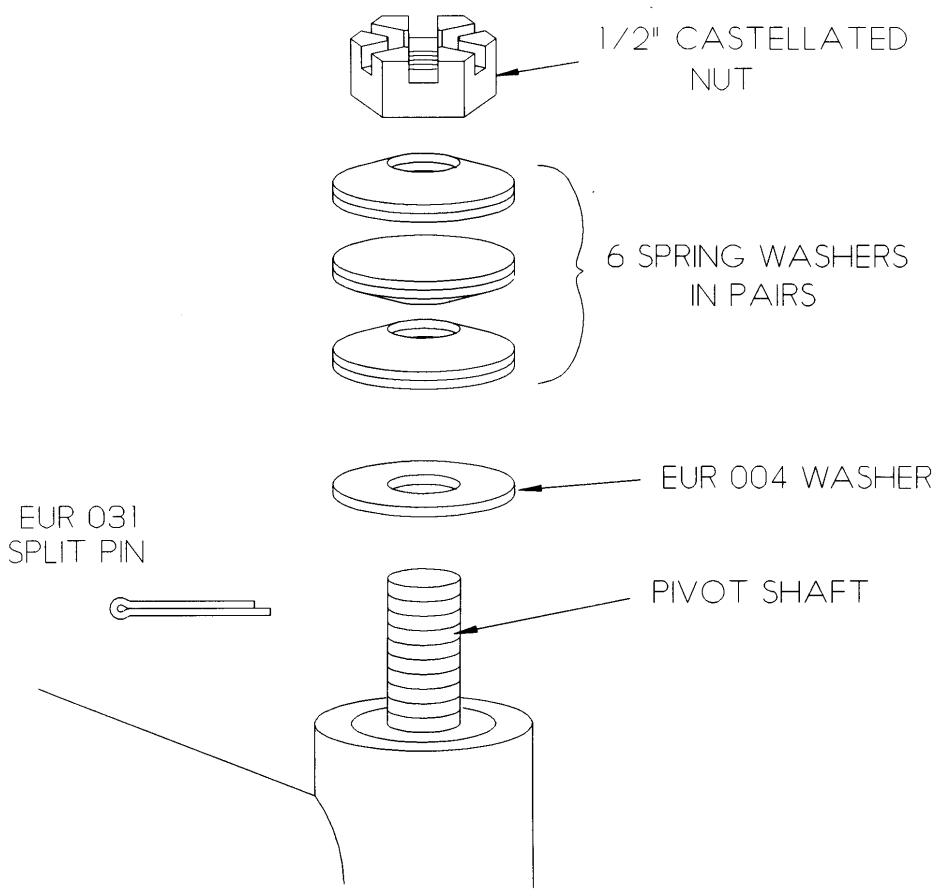

Fig 4. Sequence of assembly of the spring washers and nut.

Internal Corrosion Protection

To protect against corrosion developing inside the nose leg at the welded joint it is recommended to apply a protection coat of wax-oil or similar product. Pouring in a sufficient quantity of high viscosity oil to cover the joint area would also suffice.