

Service Bulletin

Replacement of Undercarriage Guide Bracket Bolts

Applicability: All EuroFOX tail dragger aircraft operating under a UK LAA administered Permit to Fly.

Compliance By: Within the next 20 operational hours from the date of this SB

Ongoing compliance: At every 500 hours or 1000 landings, whichever is the sooner. Inspection suggested at each routine inspection point. Any removed bolts to be thrown away.

Background:

On a EuroFOX heavy use tail wheel glider tug aircraft with tundra tyres, the forward bolt failed on the undercarriage clamp bracket (containing 2 bolts M8 hex head 8.8 strength). The clamp bracket then swung away from the undercarriage leg just after take-off, and the leg itself being unrestrained, pivoted about its central fixing point in the middle and underside of the fuselage. A successful and very skilled landing was made on one leg and the tail wheel, with minimal damage.

On inspection, it became apparent that the bolt had failed in fatigue just under the bolt head. The fatigue crack had been present for a while, but is not easy to find during normal inspections. The earlier SB on this subject (SB2 2015) did not prevent this failure, therefore to minimise risk, it is required to change the assembly method and “life” of this bolt. The new fixing method will improve the load transfer within the assembly.



Broken bolt allowing the guide bracket to swing away and release the U/C leg

Clamp bracket

Pivot point on the tail dragger U/C leg. When released by the clamp bracket, the leg can swing freely away

View of the undercarriage clamp bracket assembly (tail wheel aircraft)

Rubber seating surround

Location of the new washer spacers x 3 pcs per bolt



P 05 Clamp bracket

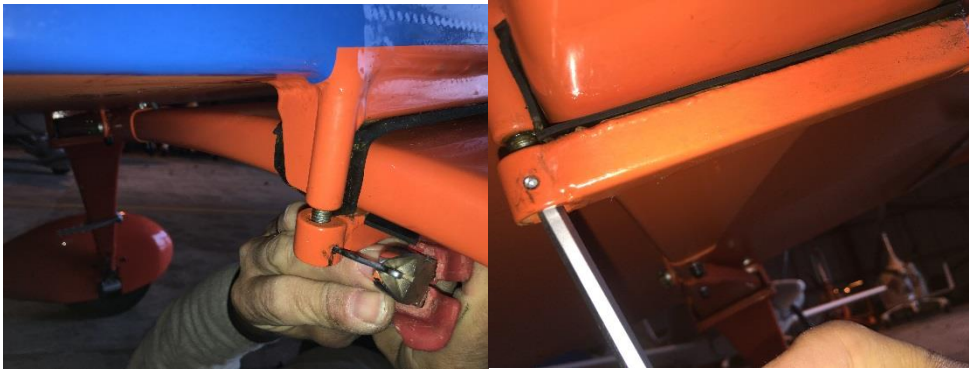
Fuselage mounting bracket

2 x M8 bolts

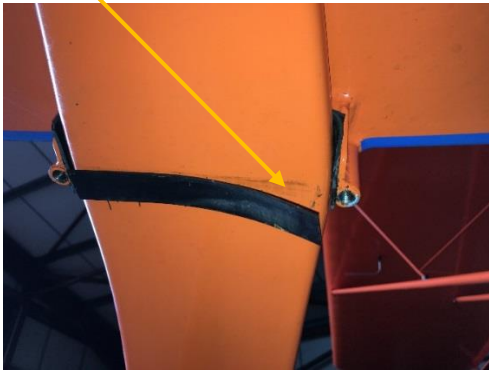
M8 Bolt replacement method:

Ensure the aircraft is sitting on flat level ground and follow these steps.

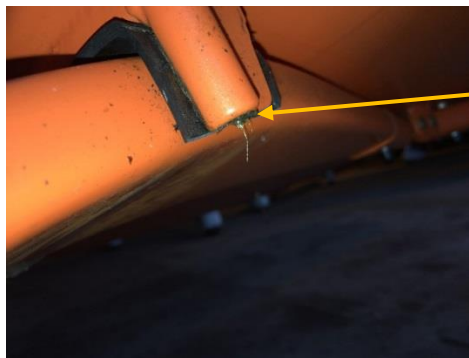
1. Remove split pin, clamp bracket bolts and clamp bracket



2. Check the top and bottom U/C rubbers are not split or deformed due to excessive prior clamping for example. Check the lower rubber is still adhered to the clamp bracket and not the u/c leg as shown (left below). If the lower rubber has lost its adhesion to the clamp bracket, apply contact adhesive to refix (right below).

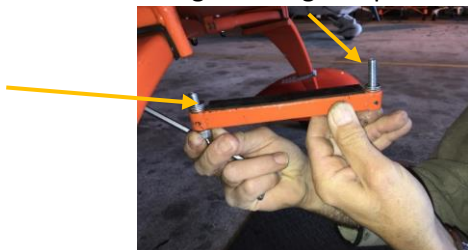


3. Trim the top fuselage rubber so that it is flush with bracket end as shown, so rubber does not foul new washer. Also ensure the top rubber is evenly and centrally positioned around the leg. Contact EuroFOX Aviation if you need new rubbers

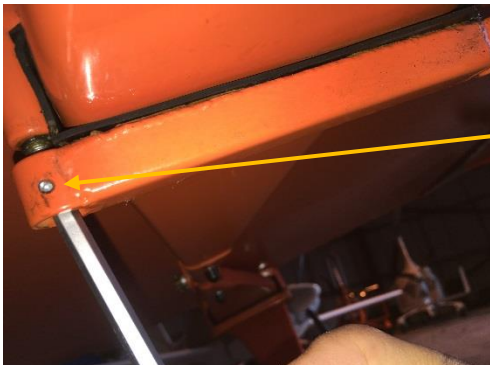


No rubber should obstruct this face

4. **(see para 9 below before continuing)** Fit 2 new M8 bolts into the clamp bracket and fit 3 washers (M8x15x1.5) on the top side to each bolt as shown (bolts and washers supplied by EuroFOX in the SB pack). The fuselage bracket thread will already have been greased on first build, apply a suitable non-setting corrosion- and fretting-resisting compound eg JC5, Duralac or grease to the length of the new bolt thread.



- Note and mark the M8 bolt where the drilled hole is in the bolt head (above right) as this will need to be lined up with the locating hole (below left and right) in the clamp bracket after assembly.
- Offer the clamp bracket assembly square to the undercarriage leg and tighten up the bolts finger tight (left below). Then torque each M8 bolt in turn to 15Nm and then to 20Nm with an accurate torque wrench (right below).



Clamp bracket locating hole



- Determine where the M8 bolt split pin locating hole is in relation to the clamp bracket split pin locating hole and readjust the bolt torque to line them up. Then insert the securing split pin. Depending where these locating holes line up for the split pin, you will need to add a little more torque (max 24Nm), or slacken off the bolt to insert the split pin. **DO NOT overtighten the bolt more than 24Nm**. If this is needed to line up the split pin holes, slacken off the bolt torque in preference.



Inserting split pin shown left and right.
Note: photos shown without washers



- The washers should now be clamped firm between the U/C clamp bracket and the fuselage bracket with split pin inserted. The top and bottom rubber surround should not be loose or squashed out of place. If either of these happen, consult EuroFOX Aviation.
- If the split pins cannot be lined up without going over 24Nm or well under 20Nm, it is acceptable to use Locktite 222 on the threads instead of the split pin. Make sure the bolt threads and 8mm undercarriage bracket threads are clean and free of any grease.



Finished assembly below with washers fitted (shown prior to split pin fitted)



Production tolerances mean that in very rare cases 4 washers may be needed on one side of the clamp bracket – the SB pack contains 7 washers in case. However, the aircraft fitted to date did not show this requirement.

Ongoing inspections – if during the lifetime of this assembly, the rubbers “settle” and they become dislodged or freely move, a washer can be removed to re-clamp to 20Nm or new rubbers supplied. Remember not to overtighten the M8 bolt past 24Nm, better to back off the bolt torque if split pin does not line up after adjustment. **See para 9 about Locktite use is required**

This new assembly system will transfer the loads through the clamping assembly and not only on the bolt head as is the system used to date. EuroFOX Aviation will be issuing a new bolt and washer set free of charge for the first fitting and at minimal cost for ongoing fittings.

Certification: Certification calls for inspection by an LAA Inspector, logbook entries quoting the SB number and compliance to this SB and signing of a PMR statement. The logbooks should be marked up in the appropriate place to record ongoing inspections (in the pink pages of the LAA log book).

Tools or materials required. M8 bolts x 4 pcs, 6 pcs washer spacers (A2 stainless), 2 pcs split pins, grease, torque wrench, sharp blade, and rubber surrounds if existing ones split or damaged.

Publications affected: Build manual, Maintenance manual. All owners or operators of the UK LAA fleet of the EuroFOX tail dragger will be notified individually by EuroFOX Aviation.

Note: This failure has only ever affected kit built tail dragger EuroFOX aircraft operating in particularly harsh environments (aerotowing on very rough airfields for example). In addition, the nose wheel EuroFOX undercarriage arrangement and assembly is completely different to the tail dragger and therefore is outside the scope of this SB.

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