



Shunt screws replacement

Working instructions, Version 2.0

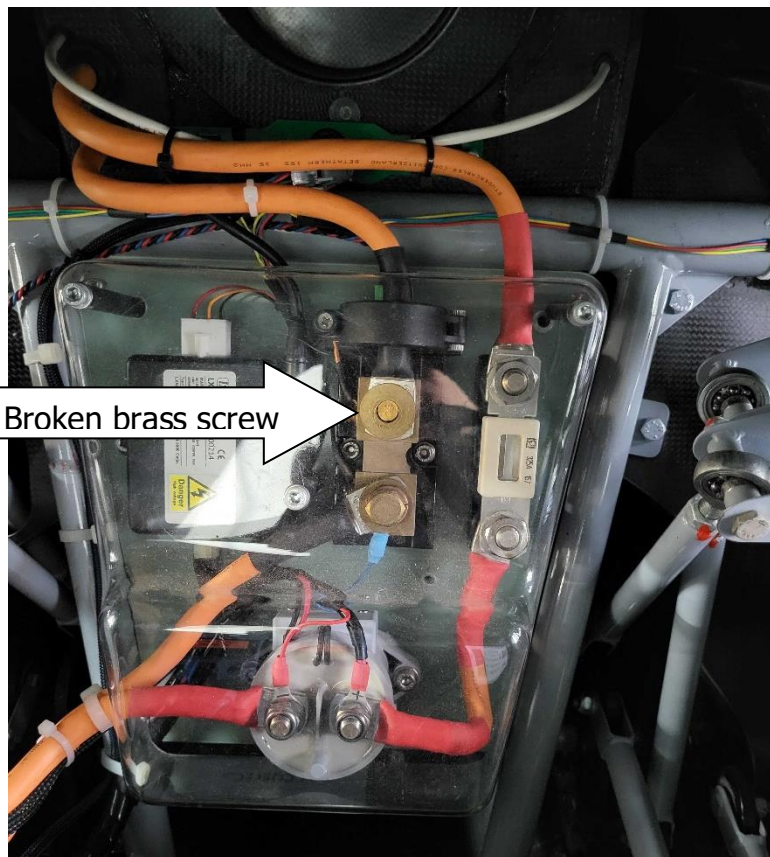


Table of content

1. Description of issue 3
2. Safety instructions..... 4
3. Required material and equipment..... 4
4. Instructions..... 5
5. Revision history..... 8

1. Description of issue

In FES system there is installed so called "Shunt", used for high current measurements. This is small resistor, where voltage drop is measured, so that current can be calculated.

Recently there were a few occurrences of torn off heads, from one of the two brass screws, which holds minus power cables attached to the shunt. One power cable goes to the negative pole of FES battery packs, and one goes to the motor controller.

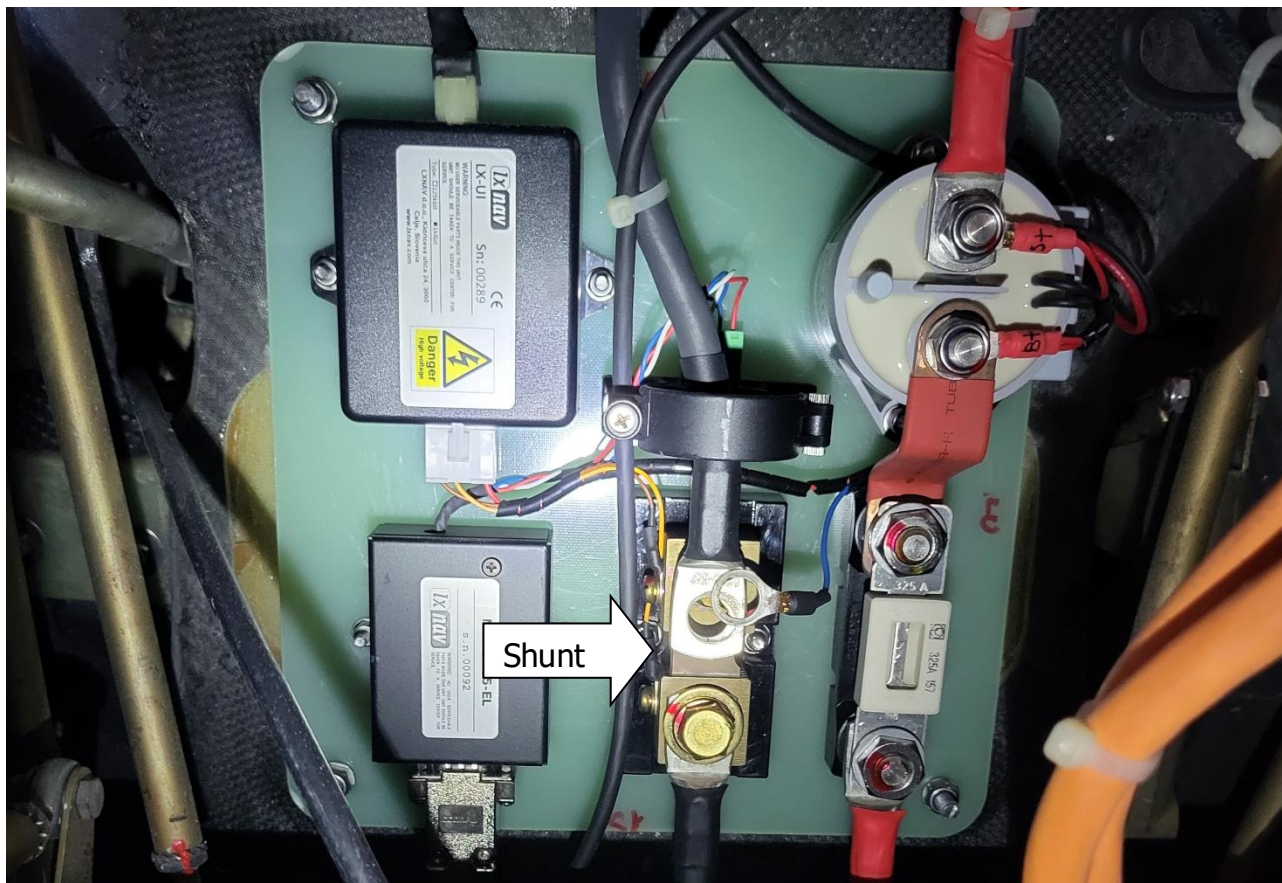


Figure 1: Torn off head of brass screw on shunt

Such screw failure, if not detected and corrected, could lead to failure of FES system.

Two brass screws used to fasten the high-current cables to the shunt must be replaced with steel screws as described below.

2. Applicability

Regarding EASA certified FES gliders, please refer to Technical Notes and Working instructions provided by specific glider manufacturer.

For non-EASA gliders corresponding national rules apply.

Even if replacement of brass bolts might not be mandatory for your glider, we advise to replace them anyway!

If you are not sure how to proceed regarding your glider, please contact your local dealer, manufacturer of your glider or LZ design.

2. Safety instructions



WARNING: "Connecting cable" must be disconnected from FES battery packs during maintenance work.

3. Required material and equipment



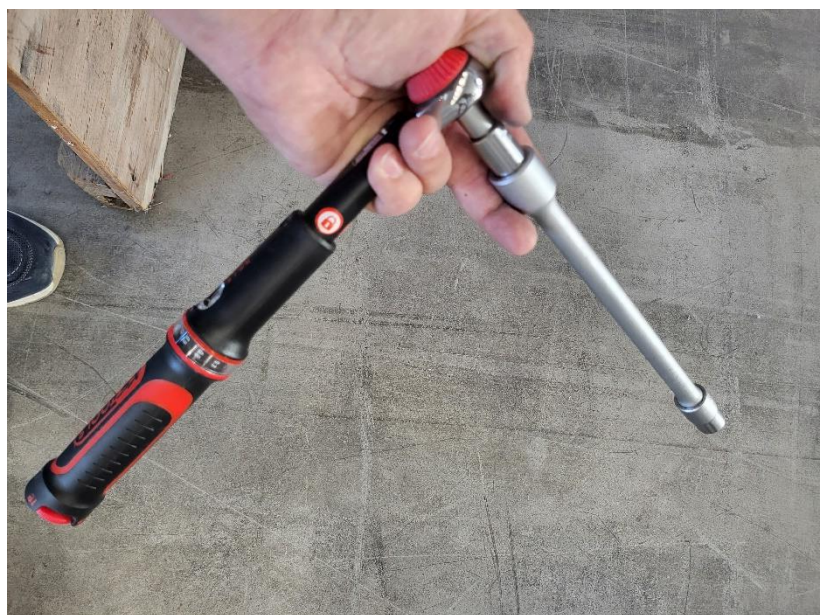
-[Shunt screw replacement kit](#):

2x steel screws (3/8"- 16 UNC thread) with 2x "Schnorr" safety spacers can be ordered from your local glider manufacturer dealer or via [FES online shop](#)

-Loctite 243 thread-lock adhesive – blue middle strength

-14 size key

-torque wrench, adjusted to 17 Nm of torque



4. Instructions

During installation of new steel screws and "Schnorr" safety washers, ensure the correct orientation of the safety washer, see Fig. 1.

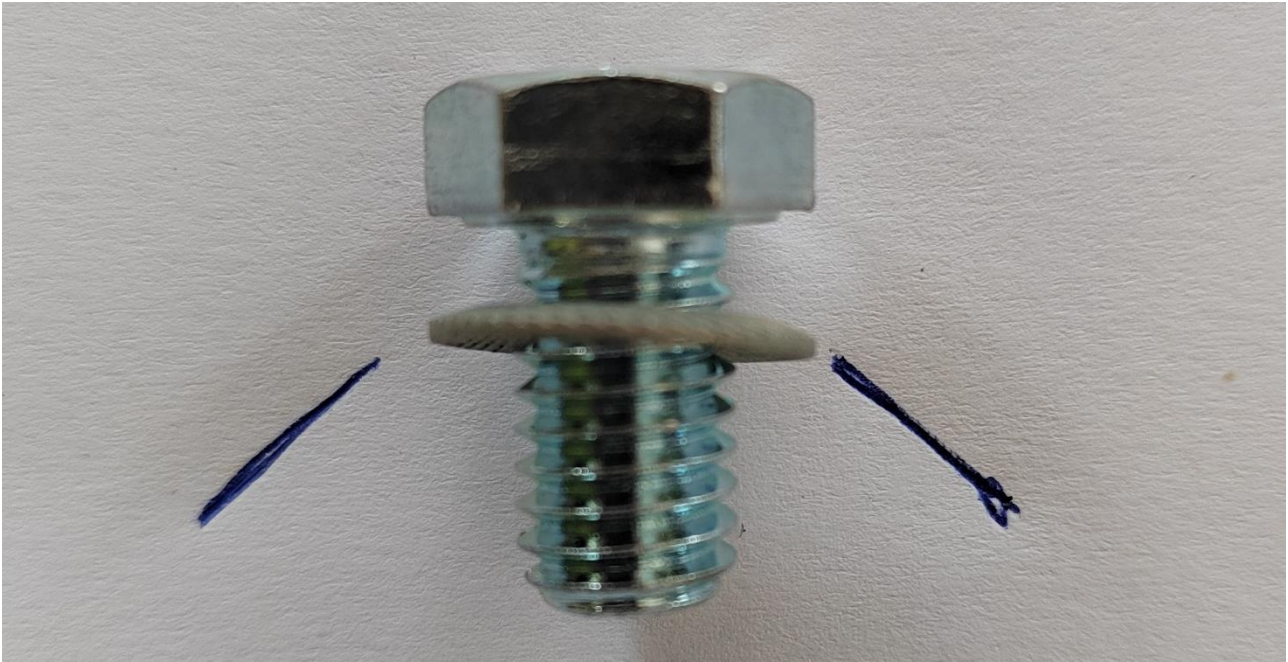


Figure 2: Proper orientation of Schnorr safety washer



The steel screws must be additionally secured in the threaded area with medium strength thread-locker adhesive (Loctite 243 or similar).



Torque wrench should be set to 17 Nm of tightening moment.

To perform change of two brass screws you first need to find location of the Shunt.

On each different FES type of glider, Shunt is located at different location, see some examples below.



Figure 3: Shunt location on LAK gliders

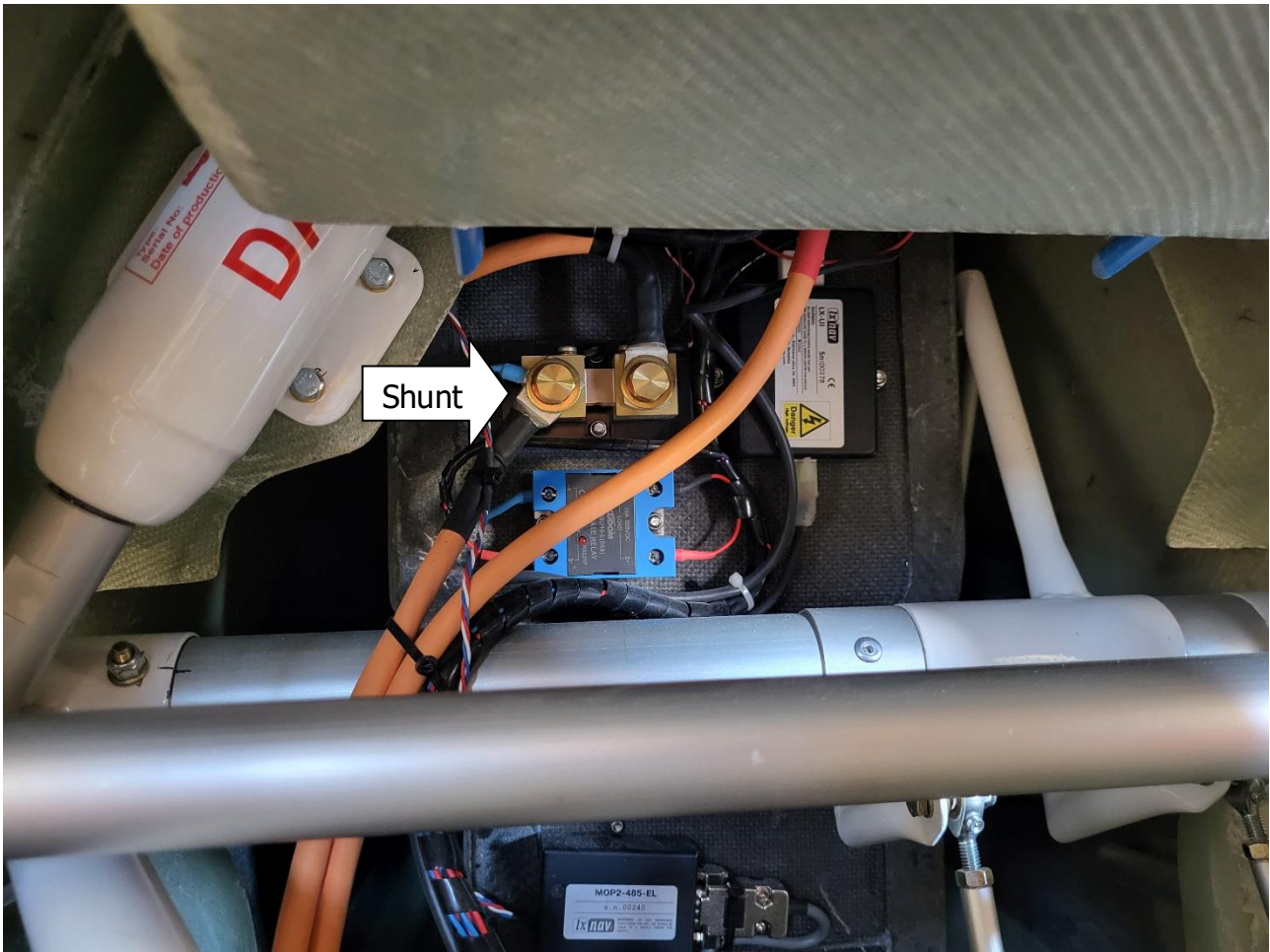


Figure 4: Shunt location on Silent 2 Electro

If are unable not figure out location of Shunt on your specific FES glider please contact local dealer of your glider manufacturer, glider manufacturer or LZ design.

5. Revision history

March 2023	Initial release, working instructions v1.0
October 2024	New release with more details, working instructions v2.0