Dear Customer,

Thank you for purchasing our products. With your purchase, you support our small business 3D4U.Freiburg@gmail.com and our hobby of developing, testing and marketing our own products for motorhomes for little money.

Thank you, Lars & Nils

Electrical step Installation/alignment of the mechanism

Dear customers,

the Reimo steps, such as the Project2000 step used by Ahorn, have a few gears inside that cause the step to be extended/retracted. A gear-rod inserted into the drive motor will crack/break over time due to excessive shear forces. This is usually due to *heavy soiling of the slide rails*, *improper assembly of the mechanics* or the *uneven tightening of the screws* during assembly. In order for you to permanently eliminate these problems with the new stainless steel gear-rod from 3d4u-freiburg, we would like to provide you with tips on how to eliminate these three reasons in this guide.

1. ***Contamination of the slide rails***:
   Basically, before replacing the gear, the step inside must be thoroughly cleaned and freed from dirt. In particular, the slide rails should be meticulously cleaned (brake cleaning liquid) and then dried in the air and finally lubricated with a Teflon spray. This reduces one of the three causes of the gear fracture. Regular maintenance/cleaning is desirable.

2. ***Improper assembly of the mechanics***

   The second reason for the tearing of the gear is that these steps have often already been inaccurately installed inside, when the gears are aligned with each other, from the factory.
   In this third party video https://www.youtube.com/watch?v=mZeR_CX42ZA&t=5s a good assembly aid is given, in which the necessary alignment of the gears is also shown by means of the existing alignment markings on the large gears. We recommend marking these alignments cleanly in the middle with a ruler with a fine Edding pen. This makes it easy to see whether the optimal alignment or an offset of one tooth of the large gears is present. When retracting/extending the step, it should not make a swivel movement to one side at the beginning or at the end of the retraction/exit. If this is the case, you should experiment with minimal offset of one of the large gears by one tooth in both directions until this swivel movement is as small as possible or has disappeared. For this purpose, it is also helpful to mark the direction of rotation on the individual gears with an arrow. The optimal alignment of the gears guarantees the lowest possible shear forces and unequal loads on the components. At this point, it should also be mentioned that the

gear itself has a weak point due to the long guide pins on both ends and therefore tears quickly.

3. ***Uneven tightening of the screws***
   The third reason for the gear to crack is uneven tightening of the retaining screws of the step. Very few of us have a torque wrench at hand and are therefore dependent on the perceived resistance when tightening the screws.
   It is important to screw the screws only so *tightly* that there is no more play on the screws, but the side of the step is NOT clamped tightly or squeezed. Since the step has an aluminum guide on the sides, this happens very quickly and leads to uneven clamping of the step in the slide rails. We therefore recommend inserting suitable spacer tubes over the screws, between the upper and lower aluminum rails. This makes it easier to feel whether the step is hand-tight and evenly clamped by means of the screws.

Finally, a tip: We have protected the upper and lower gaps of the step against dust with furniture brush tape. This tape is about 1cm high and has standing fibers like a brush. This significantly reduces the two gaps and keeps dirt from penetrating the step and the slide rails.

We hope that you were able to install the new gear in a clean and well-lubricated, evenly retracting/extending step based on these instructions and wish you a lot of fun with the spare part from our company.

Please understand that we do not assume any warranty for the use/installation.