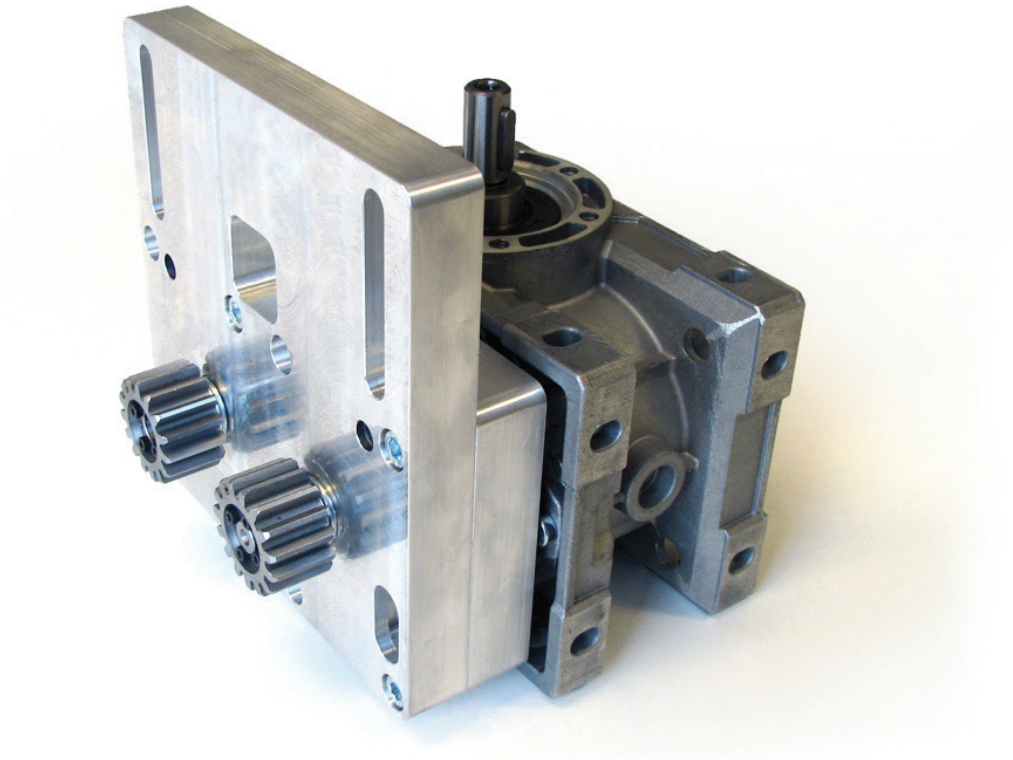
Chapter 15

R&P Antibacklash Module



15.1 Introduction

This chapter outlines the assembly of the R&P Drive Antibacklash .
Step by step it is explained which action should be performed.
This chapter consists of the following sections:

- 15.2 Required tools
- 15.3 Assembly

15.2 Required tools

The required tools are listed below:

- Allen Keys
- Open-end, or Ring-Wrench

15.3 Assembly

- Check if a 6000ZZ bearing fits easily over each 10mm end of the primary and secondary axis. If it doesn't slide easily onto the axis, the ends have to be deburred. Do this before continuing to avoid complications during assembling.

Figure 15.1: Primary axis test

- Use a clean piece of cloth and solvent cleaner (Loctite ...) to clean the bearing holes and outer surface of the bearings. After the clean surfaces are dry, apply Loctite 603 around the bearing holes and press the bearings into place. Clean up any excess of Loctite.

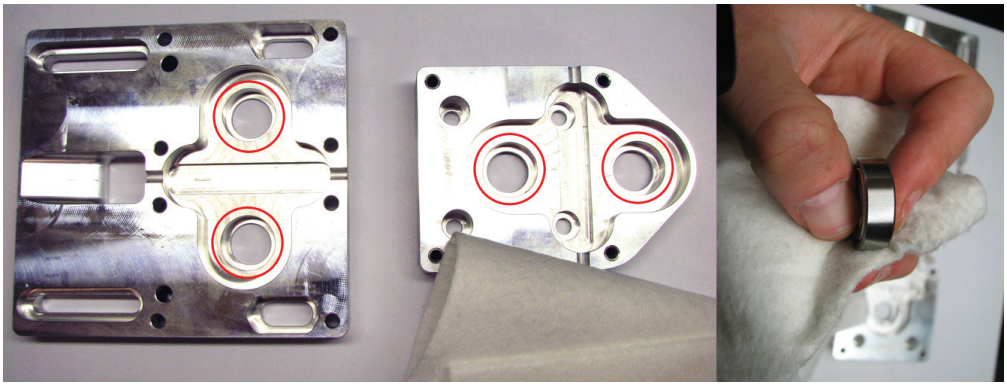


Figure 15.2: Clean bearing & bearing holes

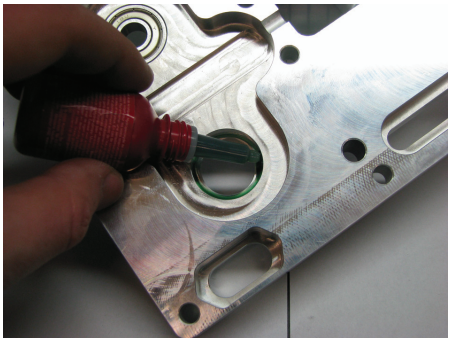


Figure 15.3: Applying Loctite

- Mount the key into the keyway of the primary axis.

Figure 15.4: Primary axis

- Mount the primary axis into the wormgearbox. For the DCNC Router you need to assembly two R&P Drive AntiBacklash modules. Make sure you build a left and a right version, see figure 15.6.

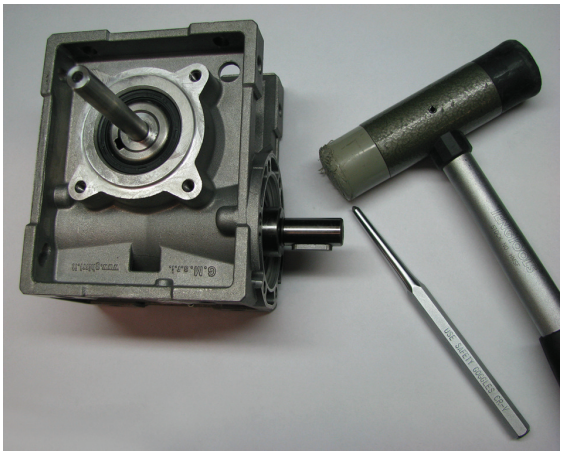


Figure 15.5: Mount primary axis

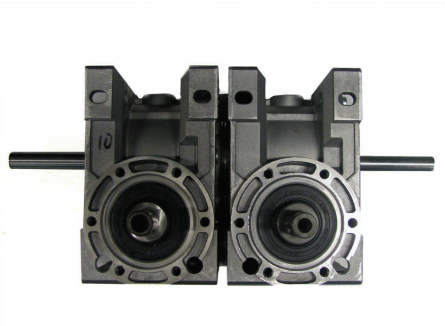


Figure 15.6: Left and right version of the gearboxes after inserting the primary axes.

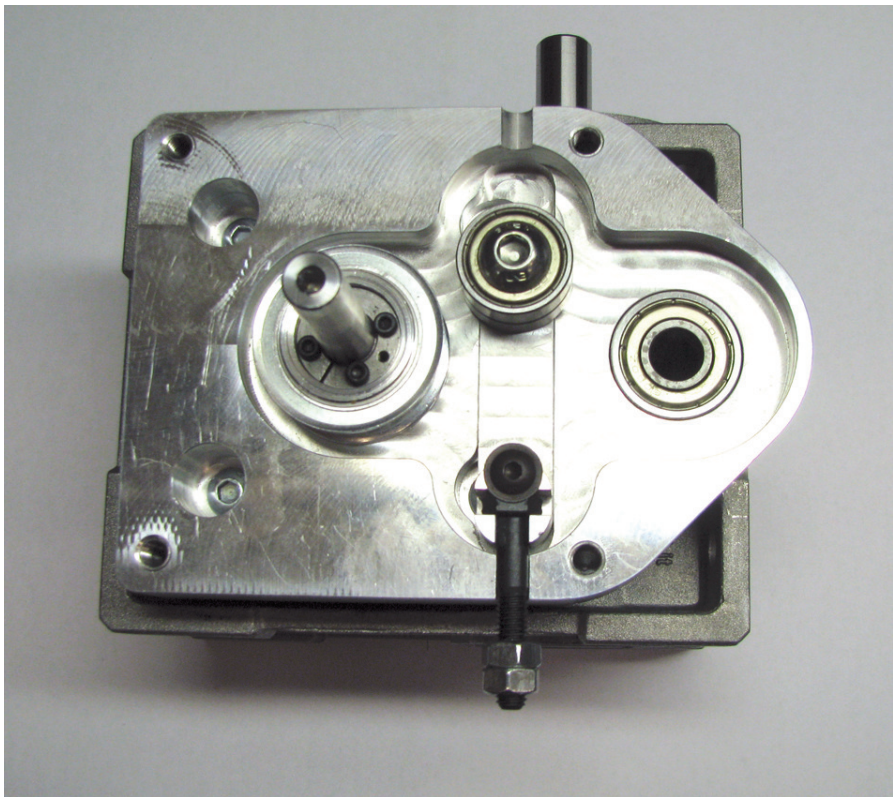


Figure 15.7: Place R&P Tensioner

- Mount a toothed gear onto the secondary axis. Make sure the tollok is again slightly sticking out of the toothed gear and the tollok should be about 8 mm away from the end of the secondary axis.

- Mount the R&P Cover onto the wormgearbox using 4 M6x10 allen bolts. For the DCNC Router orient the R&P Cover to have maximum overlap with the wormgearbox. This is the optimal orientation when using the module on a DCNC Router. If you're building the module for diffent purposes, you can also position the R&P Cover in other orientations with 90 degree increments.

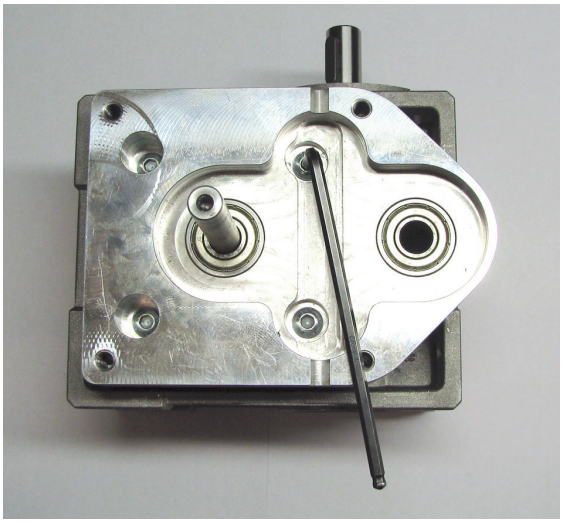


Figure 15.8: Mounting the cover

- Mount a toothed gear onto the primary axis by tightening the tollok allen bolts. Make sure the tollok is slightly sticking out of the toothed gear in such a way that only the tollok is touching the bearing. The toothed gear itself should not touch the bearing.

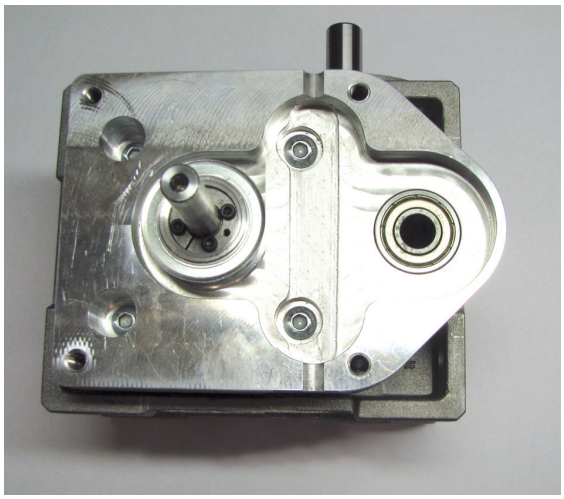


Figure 15.9: Mounting the primary toothed gear

- We will now assembly the R&P Tensioner.

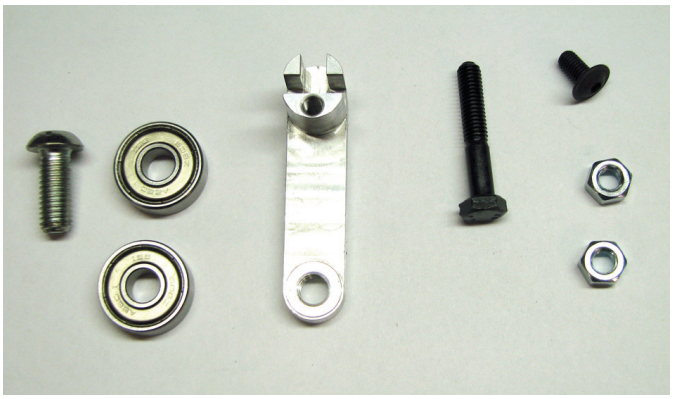


Figure 15.10: R&P Tensioner parts

- Use a M8x20 allen bolt to mount the two bearings onto the R&P Tensioner.

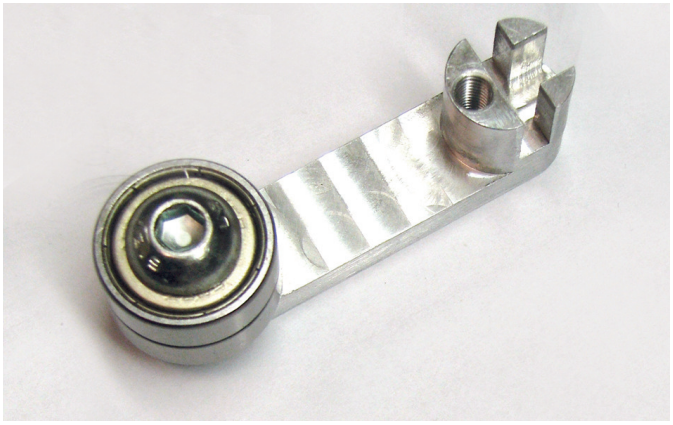


Figure 15.11: R&P Tensioner bearings

- Insert the M6x35 bolt into the R&P Tensioner and use the M5x10 bolt to lock the M6x35 into place.

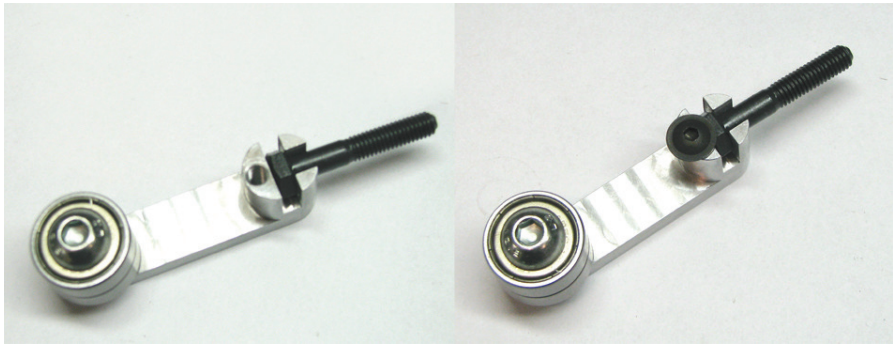


Figure 15.12: R&P Tensioner bolt

- Loosely screw 2 M6 nuts onto the end of the M6x35 bolts.

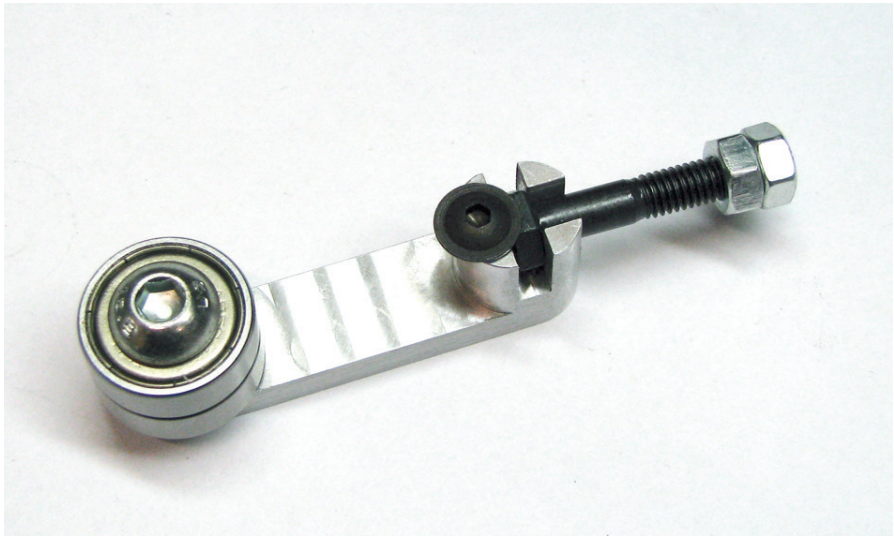


Figure 15.13: R&P Tensioner nuts

- Place the R&P Tensioner into the R&P Cover. The R&P Tensioner should be oriented to the side where the wormgearbox has no axis sticking out.

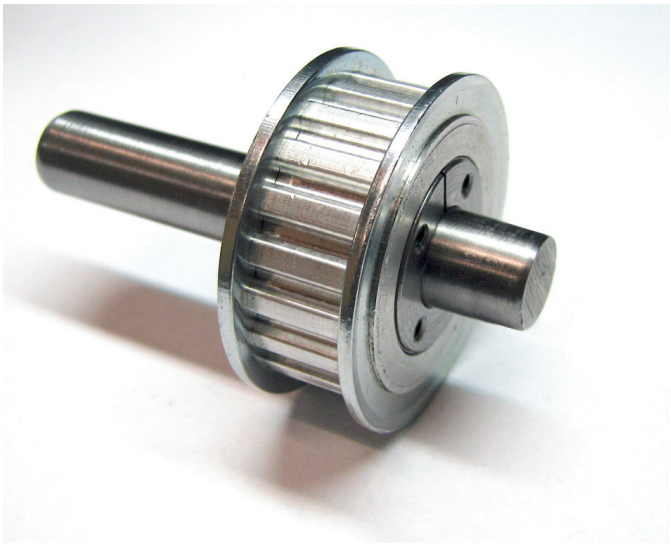


Figure 15.14: Mounting the secondary toothed gear

- Place the belt around the toothed gear of the primary and secondary axis while inserting the secondary axis into the bearing of the R&P Cover.

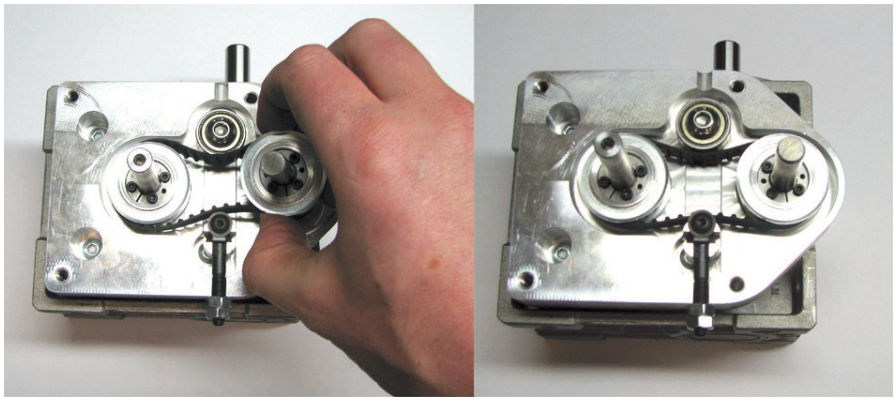


Figure 15.15: Mounting the belt

- Place a M10 ring on each of the axis.

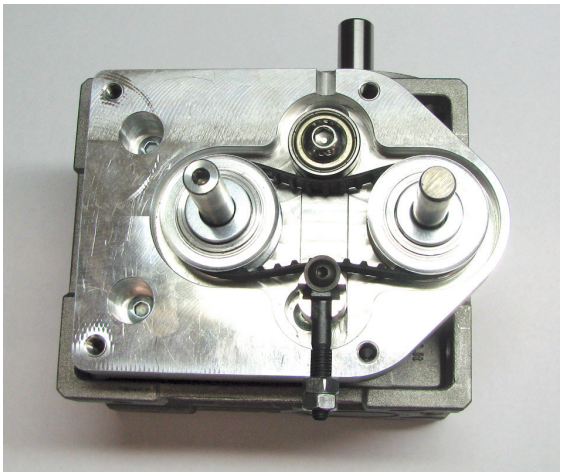


Figure 15.16: Placing M10 rings

- Place the R&P Baseplate onto the R&P Cover with square hole on the same side where the wormgearbox has its axis. Use 4 M6x25 bolts to fix the R&P Baseplate.

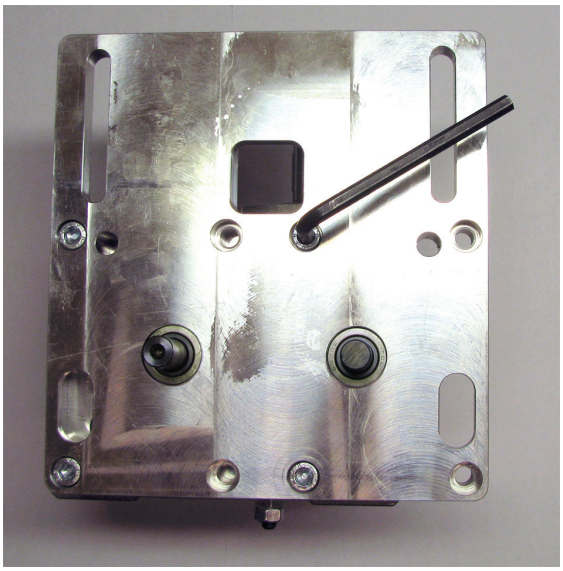


Figure 15.17: Mounting the R&P baseplate

- Place 3 M10 rings on the secondary axis and 3 M10 rings onto the primary axis.

Figure 15.18: Placing M10 rings

- Place a gear onto each axis and fix the using the allen bolts of the tolloks. Use a toothed rail to align the gears before fixing and make sure that the belt tensioner nuts are very loose.

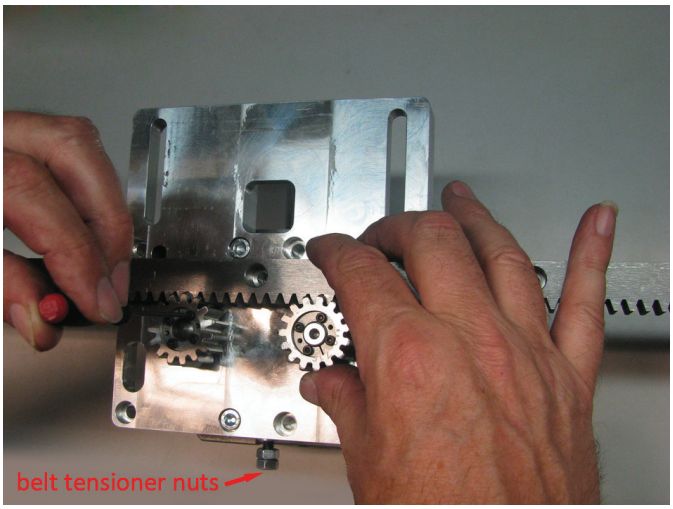


Figure 15.19: Mounting and aligning the gears

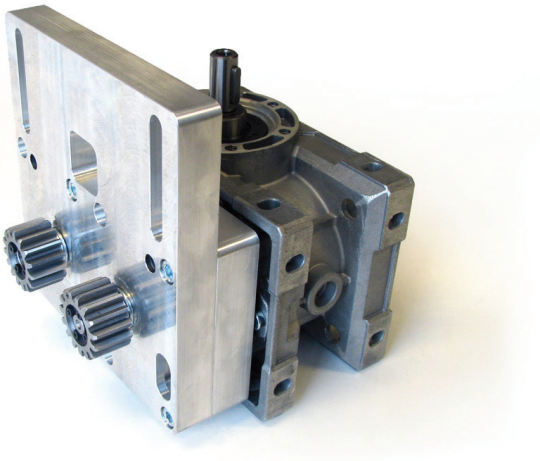


Figure 15.20: Finished R&P Antibacklash Module