



Helical conversion kit manual F3A Drive Adverrun

Contents of the kit

- Main plastic helical gear, assembled on 8mm steel shaft
- Carbon fibre plates for rear soft mount (2pcs)
- Rubber mounts for rear soft mount
- 4x M3 screws
- Steel gear
- Belt
- Steel gear
- Disassembly tools (plastic printed part)
- Distance spacer (plastic printed part)
- 8mm dia shims 0.2mm
- Loctite 648

Required hardware

- Set of hexagon screw drivers
- A blowtorch: <https://en.wikipedia.org/wiki/Blowtorch>
- Strong pliers

Instructions

Disassembly

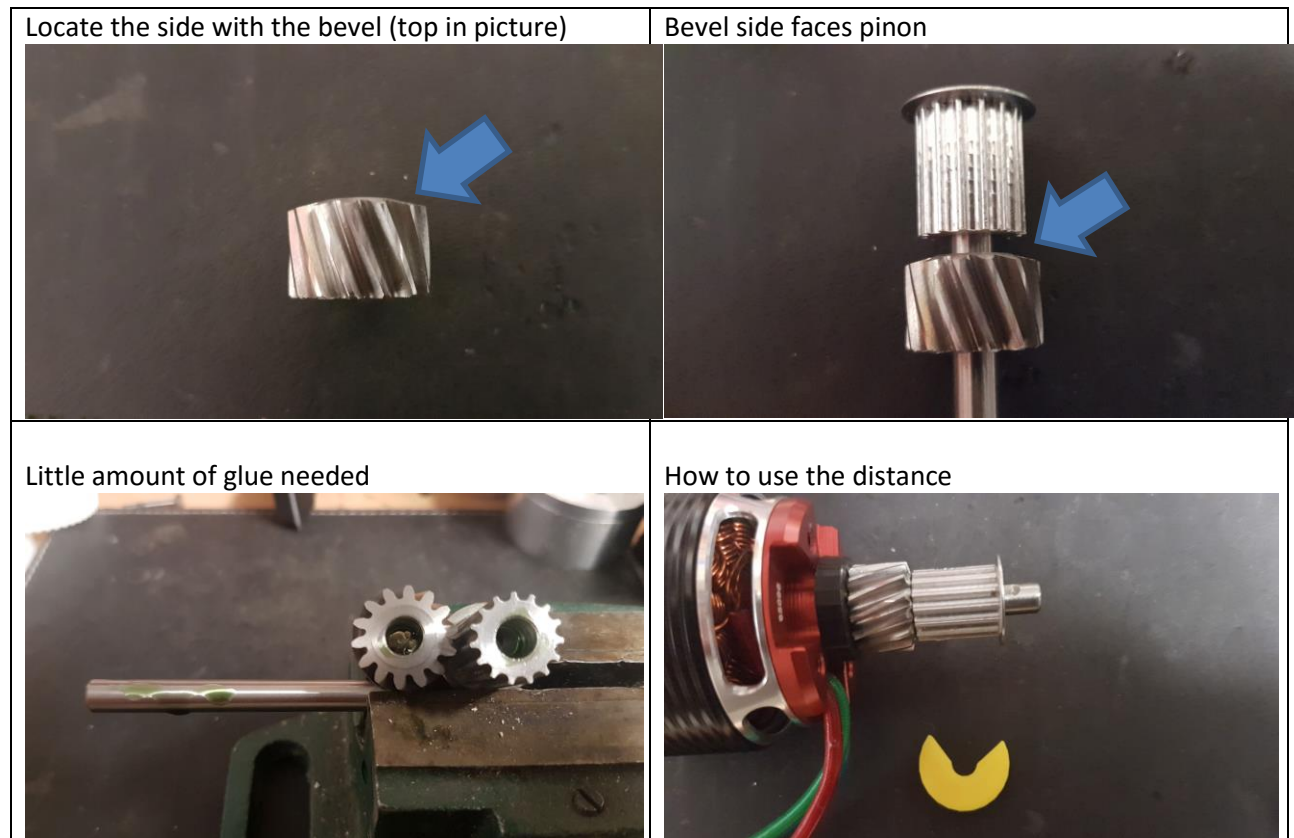
- Disassemble the drive as shown in the drive manual
- Remove the carbon fibre plate from the motor (3x M4 x 6 screws)
- Remove the steel gear and the small pinon from the motor shaft:
 - Prepare the large plier and the old belt from the drive. We will use the plier to twist and pull off the parts and the belt to protect them from damage
 - Heat up the small pinon on the motor shaft using the blowtorch. Make sure not to burn the cables (see picture below)
 - Once hot enough use the plier and the belt to twist and pull this off the shaft (see picture below)
 - To determine the right temperature take it out of the flame from time to time. If you see a thin line of smoke it's hot enough
 - Repeat this procedure with the steel gear
 - Let all parts cool down



Assembly

- Prepare new steel gear and pinon for the motor shaft installatiion
 - Wipe off the rest of the glue from the motor shaft.
 - Sand motor shaft a bit to get it clean.
 - Roll a small piece of sand paper and do the same thing for the pinon hole
 - Use isopropanol / gas / acetone to degrease the shaft and the holes on the pinon and the helical steel gear
- Install new steel gear and pinon on motor shaft
 - NOTE: The amount of glue needed is small in this step.
 - NOTE: Avoid glueing the locking ring of the motor
 - NOTE: There is enough time for this process but Loctite will cure pretty fast on steel/steel combinations when parts are assembled. It is suggested to read the text below and do a dry run first

- Locate the 4.3mm distance (plastic printed)
- The steel gear has a flat side and a side with a bevel. The Bevel side faces the pinon. Mark this side with a marker
- Apply a small dip of Loctite on the shaft (about 2/3rd of what is visible)
- Apply a small dip of Loctite on the holes of the pulley and the steel gear
- Push the steel gear and the pulley on the shaft, but don't push this to the end yet
- Clean up the excess glue
- Use the plastic distance to position the parts
- Let it cure for 24h

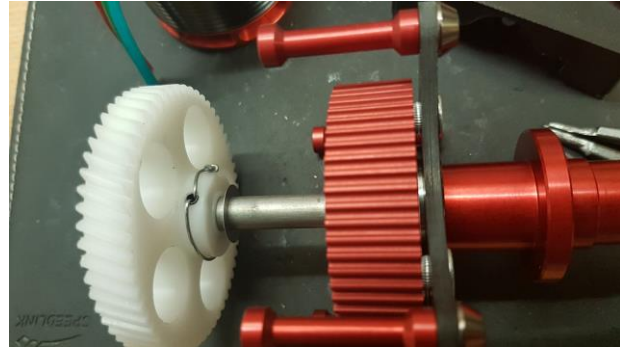


Prepare final assembly

- To remove any remaining Loctite sand the free end of the motor shaft and clean with acetone afterwards
- Assemble the carbon fibre plate on the motor. You can either use the fixed mount or the soft mount variant. The bearing flange faces to the front of the drive. Assembly is done using the bottom three screws only (3x M4 x 6)

- Note: If the drive has previously been installed in an airplane a modification to the motor mount in the plane may be needed if the soft version is used.
- Assemble the Helical main gear / 8mm shaft with the front piece. Check if / how many shims are needed between gear and front part to install the circlip with minimal play.
- Assemble the drive without the belt and the tensioner. Check if / how many shims are needed between the main gear and the rear bearing.
 - We pre-load bearings here a bit and typically have ~0.1-0.5mm distance between the alloy motor spacers and the carbon fibre plates.
- Assemble the rest of the drive as shown in the manual using the new belt
 - The rear screws for the alloy spacers are replaced by the M3 rubber mounts

Use shims to adjust play in the drive



A little

