

# Shrimper 19 Cutless Bearing Replacement

Jonathan Davies (Shrimper 19 Merriwinds 847) - March 2023

The cutless bearing is a bronze tube with a grooved rubber insert that supports the aft end of the prop shaft and absorbs the lateral thrust from the propeller. Out of the water it is easy to examine, and if there is more than about 1mm of play allowing the shaft to noticeably 'clonk' sideways then it probably needs replacing. Photo 1 shows a comparison between a new bearing and a well-worn example with the grooves in the old, hardened rubber almost completely worn away. Left for much longer this old bearing would have allowed metal to metal contact and damaged the prop shaft. On our boat with this bearing there was always a rattle from the propeller under load.

Replacement of the bearing is not particularly difficult. The propeller must be removed by first taking out the split pin then, with a block of wood under a blade, undo the big castellated nut. On my boat, built in 2001, I found an old 1"5/16 AF spanner fitted perfectly, but a 34mm socket also fitted. With the nut removed the propeller can be pulled off the shaft using an appropriate puller. Do not be tempted to try to knock the propeller off with a hammer. I used a 'Clarke' 6" gear puller (from Machine Mart for about £22). The bronze and stainless components should have no corrosion, so, although on tight, the parts should eventually separate without too much difficulty. Next comes the apparently obvious job of removing the bronze key from its slot in the shaft. It looks as if it should simply drop out (see photo 2). One frustrating hour later, after attempting removal with a mole grip, chiselling the end, attempting to gain a purchase to lever it out, and various other desperate remedies including heating, I finally drilled into the end at an angle, put in a small drift and levered it out. There was no sign of corrosion, it was simply a very tight fit. Apparently, this is not uncommon. The key is made from 1/4" (or 6mm) bronze bar and not expensive to replace if, as mine was, it gets butchered on removal. Norris Marine can supply a replacement. You might need to 'fettle' it a bit with a file to make it sit snugly in its slot.

The bearing itself is held in place by one or two grub screws which screw through the GRP collar and into dimples drilled in the bronze. See photo 3 for an example of these. Once the area has been carefully cleaned of anti-fouling, the grub screws can easily be unscrewed. The bearing is a snug fit in the GRP skeg but there should be no problem with corrosion and, gripped with a suitable mole-grip or pipe pliers, it can be twisted and pulled out.

The new bearing can then be lubricated with soap and pushed over the shaft and into its housing. It needs to stick out enough to be able to grip it for subsequent removal. Use a punch through the grub screw holes to mark the centres of where the dimples need to be drilled. The bearing is then removed for drilling before being slid back into place. The drilling has to be quite accurate and obviously not too deep. Replacement of all the other parts is now straightforward.

The shaft on my boat was 1" diameter (but later boats may use a 25mm shaft which will need the appropriate bearing). The bearing I used was supplied by Norris Marine; dimensions 1" x 34mm x 60mm and known as a 'Westerly'. It all fitted

perfectly and there is now no discernible play in the shaft. The bearing is water lubricated and probably lasts quite a long time, but the local Yanmar engineers said that while the load from a standard two bladed prop isn't too great, anything bigger will wear the bearing much quicker.

**Photo 1**



**Photo 2**



Photo 3

