Accessing the Spindle Drive Bearing on a 1990Enco RF-30 Mill/Drill, Version 1.1

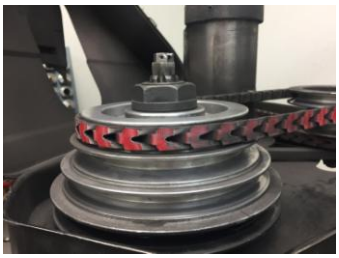
By R. G. Sparber

Sorry about the rambling title but it was necessary. I looked at a few videos related to the task at hand and was surprised how little my machine had in common with them. So if your RF-30 doesn't look like mine, not to worry. Just go to YouTube and search for other versions.

Scope

This article will take you through the steps necessary to extract my spindle drive bearing assembly. I did not press the bearings off of the shaft.

Overview



This pulley is secured to a hollow shaft which has an internal spline.

I call the pulley, hollow shaft, and its bearings the "spindle drive bearing assembly".

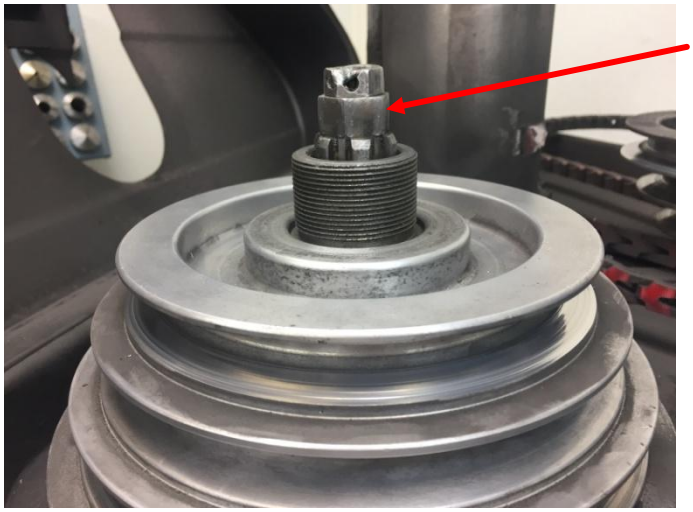
The quill moves up and down and carries an external spline. In this way the rotation of the pulley is coupled to the quill while the quill can move up and down.

Removing the Pulley

These techniques came from John Herrmann who published them in Home Shop Machinist, Vol. 36 No. 6 Nov-Dec 2017.

(photo by John Herrmann)

Remove the belt from the pulley and set aside. The nut has a right hand thread and must come off. If necessary, you can grip the pulley with the belt and use a large wrench on the nut. The tape on the Vise Grip handles gave me a third hand. A few taps with a dead blow hammer might be needed.



I have a draw bar of my own design and it must be removed because it blocks the spline from sliding all the way down.

Using a heat gun, I warmed the pulley for about 2 minutes. An audible click can be heard as the pulley lets go of the taper. ***Warning: do not use a torch for this operation. It can damage the bearings and possibly warp the pulley.***

When the pulley has expanded sufficiently, just lift it off.

Clean the inside taper of the pulley.

Do not put the heated pulley back on its tapered shaft. It will then shrink into place and make it very difficult to remove next time.

Thanks, John, for the great ideas.

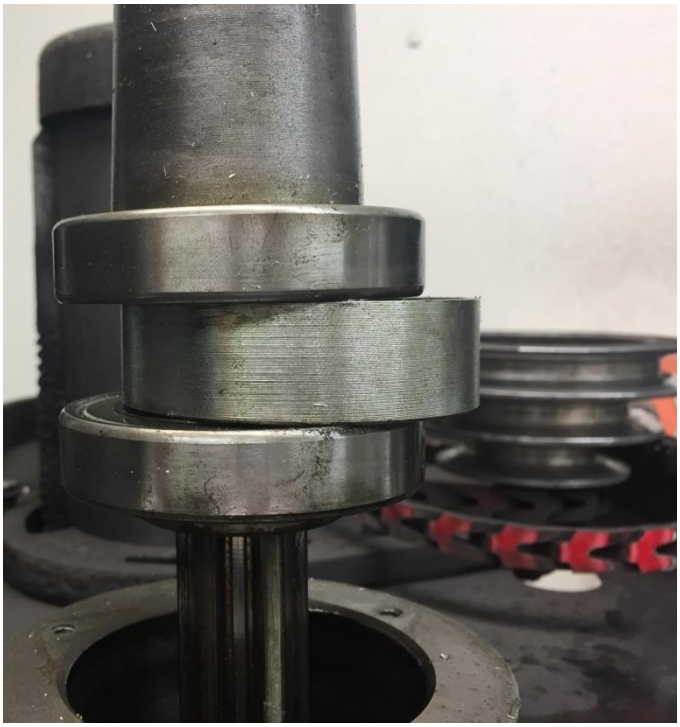
Remove the three screws and cover ring.

You now see the top sealed bearing. The bearings are a snug sliding fit in the casting.

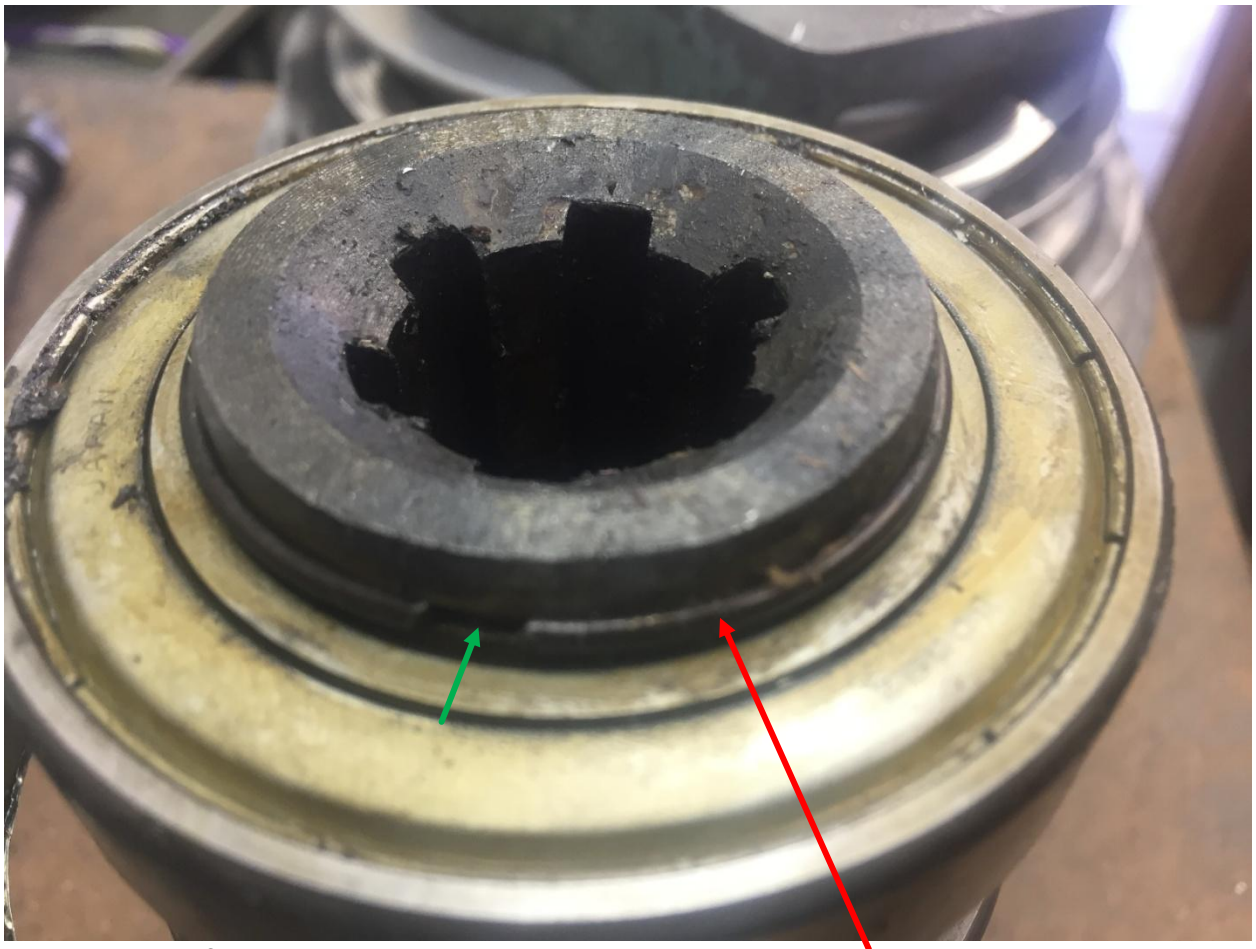
I tapped this assembly out from the bottom with the quill free but you should be able to pull it out from the top.

Two possible options come to mind:

1. Loosely place the cooled pulley back in place and finger tighten the nut. Then pull up on the pulley.
2. select a length of pipe with an ID larger than the OD of the bearings and long enough to leave about ½ of the threads exposed. Put a large washer on top. Then tighten the nut to jack up the assembly.



Here you see the drive bearing assembly pulled up exposing the two bearings and spacer ring. I have pushed the ring off center to make it more obvious.



The bottom of the spindle drive bearing assembly has a clip which prevents the lower bearing from sliding off. I used a thin blade screwdriver in the gap (green arrow) to lift this clip out.

You should then be able to press these bearings off the shaft.

Acknowledgement

Thanks to John Herrmann for the procedure for removing the nut and pulley.

I welcome your comments and questions.

If you wish to be contacted each time I publish an article, email me with just "Article Alias" in the subject line.

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