

## **3/6/4- Removing and Replacing Bearings**

Many bearings and bearing races are held in place via interference fit. That means the shaft is a tiny bit larger than the inside diameter of the cone, or the cone is a tiny bit larger than the bore. If a bearing that's designed to be an interference fit slides on and off easily, the shaft or the bearing bore has been worn or damaged and must be replaced. Sometimes interference fit means tons of force from a press will be needed to get the bearing loose.

There are many ways to remove or install a bearing on a shaft. The best way is with a press or a bearing puller tool. It's controlled and there is little chance of nicking the shaft with the hammer or drift, or damaging the bearing. In some cases, a specialized press or puller is needed because no other method will work. In other cases, you may be able to use a brass or mild steel drift. Why mild steel? A hardened punch or

drift can damage the surface of the shaft or the bearing. Brass won't damage the parts, but tends to leave chips. A little bit of heat applied to the bearing (not the shaft) can expand the bearing so that it will come off more easily. A propane torch or even a heat gun can be used. Take care not to overheat the bearing or shaft (read on for more information on using heat).

After you have removed a bearing, take the time to inspect the shaft. File smooth any nicks and the surface can be smoothed and conditioned by using crocus cloth or very, very fine grit sandpaper (400 grit). Clean thoroughly afterwards to remove any sandpaper grit or metal filings.

To reinstall a bearing, you can use heat to aid the process. Timken recommends heat no higher than 300 degrees Fahrenheit for the types of bearings normally used in axles. We have found that a small hotplate, a heat gun or even a heat lamp will do the job in a controlled way. Torches are less easily controlled. If you cool the part onto which the bearing will be pressed, thus contracting it, the process is even easier. A little time in the freezer (with the spouse's permission, of course) or even in front of an air conditioner vent will help. This also works for installing a bearing race. Cool the race and warm the housing into which it's installed. Using temperature adjustments along with a little 90 weight oil can make installing bearings relatively easy.