

Pinion Grief

by Tom Endy

Reproduction ring & pinion gears have been a problem for a number of years. The sleeve where the two bearings mount should be two different dimensions. The bearing that sits closest to the gear should press on with an interference press fit. The second bearing should be a snug sliding fit in order to facilitate setting the pinion bearing pre-load. The dimension difference is .0015". Most reproductions are not machined correctly, the sleeve is all one dimension, an interference press fit. This will give you fits trying to set the pre-load. Two of the better suppliers understood this and the ring & pinion gear sets they sold were machined correctly.

Unfortunately, things change. Their supplier recently went out of business and the new supplier not only doesn't machine the sleeve correctly, the taper inside the sleeve is also not correct.

The problem with the taper is it allows the drive shaft to insert too far into the pinion. When the drive shaft nut is run on it bottoms on the end of the threads before it holds the pinion gear tight. There is also about a half inch of threads protruding past the end of the nut that would surely hit the rotating carrier. This problem can be overcome by installing a tapered axle shim over the taper on the drive shaft.

For years when overhauling a rear axle assembly, a customer would occasionally bring me a reproduction ring & pinion to install that had the sleeve machined incorrectly. I had to have the pinion sleeve machined before I could install it.

The photo at right shows a pinion gear mounted in a tool made from a discarded axle shaft that allows it to be mounted in either a lathe or a drill press to facilitate machining a small amount of material off the pinion sleeve where the second bearing resides.

The best bet is to obtain an original Henry Ford ring & pinion if you need one for an overhaul. There are plenty serviceable ones still around.



Shown in the photo above is an original 378:1 ring & pinion set. The dimensional lines can be seen on the pinion sleeve in the middle of the sleeve. The photo on the right shows the first bearing being pressed on with an interference press fit.

