

Reproduction Blues!

By Tom Endy

Reproduction pinion gear:

Like most things reproduction, you can't take quality for granted. The ring & pinion gear sets sold on the market today appear to be of excellent quality. I have installed about half a dozen in the last few years. Recently, however, I have run into a problem with three in a row. For the most part I would prefer to use a good serviceable original ring & pinion. Sometimes that is not possible as the car owner may insist on a new one, or want a 354 ratio installed instead of a 378.

Pinion sleeve dimension:

From what I have been able to determine the diameter of a pinion sleeve should be 1.575 in the area where the bearing nearest the pinion gear mounts. This causes a nice tight fit requiring it to be pressed on with a shop press and a short length of pipe. The diameter in the area where the second bearing is mounted should be something less than 1.575. The reason for this is the bearing should not press on tight. It should be snug, but not tight. This is so it will slide easily when making the pre-load adjustment. If during the pre-load adjustment procedure it ends up too tight, it is an easy task to back off the two large nuts and tap the end of the drive shaft with a brass hammer to slide the bearing back. The ability of the second bearing to be able to slide with just a little snugness makes setting the pre-load very easy. The originals are made this way.

The last three:

The last three reproduction pinions I encountered, one 378, and two 354's, had the same 1.575 dimension the full length of the sleeve. This required considerable force to get the second bearing on. I was not able to back the bearing off after I got the pre-load too tight. I had to completely disassemble everything to be able to use a shop press to get the second bearing off. I am of the opinion that the diameter where the second bearing sits should be about .0015 less than the diameter for the first bearing.

The need for a special tool:

A special tool was made from a discarded rear axle. The tapered end was cut to a length of about eight inches and a half-inch step was machined into the shaft so it will chuck up in a drill press.

Use of the tool:

The pinion gear is mounted onto the tapered end of the shaft, and chucked up in a drill press. Using a flat file with some emery paper the area where the second bearing sits is machined down about .0015. It is best to put some tape around the area where the first bearing sits to act as a guide. I did this with the last reproduction pinion I installed and it made for easy adjustment of the pinion pre-load.

How to check:

Slide a bearing down over the pinion sleeve. While holding the gear in your hand you should be able to tap it down easily with a pipe and a small hammer to where the second bearing would mount. If it feels like it is went on easy and you are able to get it back off easily, it is correctly machined. If, on the other hand, you had to hammer it hard to get it on, it is too tight, and you will have difficulty setting the pre-load. You will also have difficulty getting it back off. You will probably have to use a shop press.

The moral to the story:

If it wasn't made by Henry, be wary of it. Henry not only insisted on quality, he insisted on consistent quality. That is not the hallmark of today's reproduction parts. The word may be around the hobby that a particular reproduction part on the market is of good quality. That may be true today, but maybe not so tomorrow or next year. ☺

