

Installation Instructions - Models 2587-Adj, 2587E1-Adj

1) Remove all items that are normally fastened to the threaded end of the drive shaft. You will **not need** the old thrust bearing assembly nor any part of the roller bearing or inner and outer sleeves. You **will need** the Woodruff key, nut, and pinion gear. Refer to Fig. 1 to identify the parts that will ultimately be used and their proper relative positions.

2) When all parts have been removed from the drive shaft, examine the tapered end of the shaft for burrs or scrapes that may prevent the new bearings from sliding into place along the shaft. Pay particular attention to the top of the keyway where it meets the taper. Next carefully examine the area where the taper meets the machined outer diameter of the drive shaft. Use a small file to remove any burrs or sharp edges. **DO NOT ASSEMBLE BEARING AT THIS TIME.**

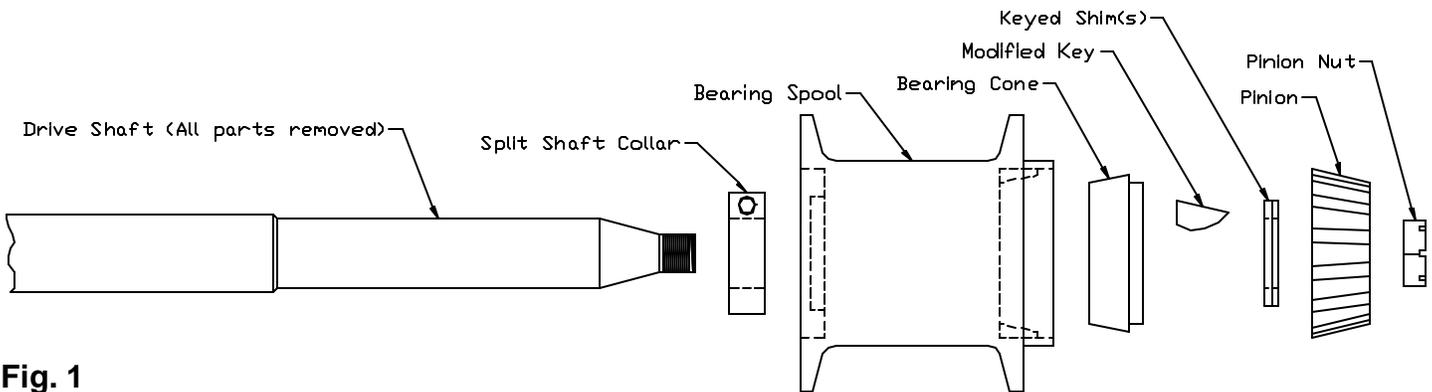


Fig. 1

NOTE: It is assumed that the remainder of the rear differential assembly has been assembled and properly adjusted for axle end play. The spool will be fit only to the one half of the differential housing that has the ring gear installed. It will be necessary to hold the single differential housing in a vise or jig that allows the ring/pinion gear mesh to be observed.

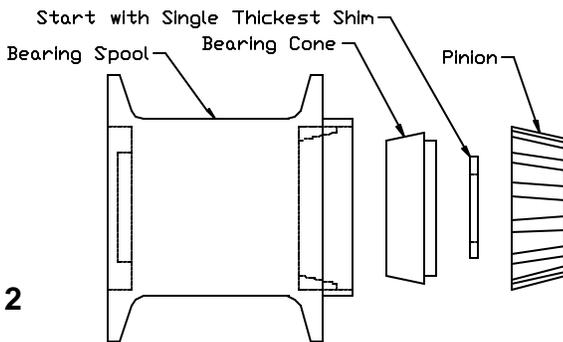


Fig. 2

3) The correct number of shims to achieve perfect ring/pinion gear mesh will be determined next. From the kit you will need only the spool, the bearing cone, the shim set, and the pinion gear. You will not use the drive shaft, shaft collar, key or pinion nut for this operation. The pinion is in "stock" position when only the single thickest shim is used. Refer to Fig. 2

4) Place the bearing cone into the end of the spool and temporarily assemble the spool alone (no drive shaft or drive shaft housing) to the single differential housing half using 2 or 3 studs and nuts. If you are going to use a gasket then also insert that gasket between the spool and housing since the gasket will affect pinion position. Place only the single thickest shim between the bearing face and the pinion gear at this time. Refer to Fig. 3

5) Hold the gear tight against the shim and bearing while observing the mesh of the ring and pinion. NOTE: To move the pinion gear away from the ring

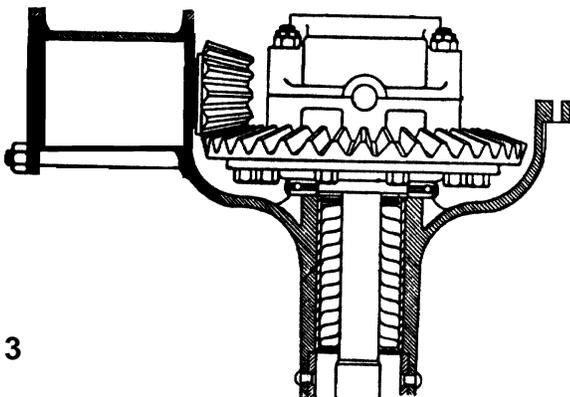


Fig. 3

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gear replace the thickest shim with a thinner combination of shims. To move the pinion gear toward the ring gear, add shims as necessary.

6) Adjust the shim stack to achieve the desired ring/pinion gear mesh. Use the least number of shims possible by using the thickest shims first. It is not necessary to line up the shim keyways at this time. **KEEP THIS SHIM STACK TOGETHER** for later installation. Discard any unused shims.

7) Disassemble the spool from the differential assembly. Save the gasket if one was used.

8) Mount the drive shaft in a bench vise or otherwise secure the drive shaft so that you will be able to assemble the spool onto the end and secure the nut. **DO NOT PERFORM FINAL ASSEMBLY AT THIS TIME.**

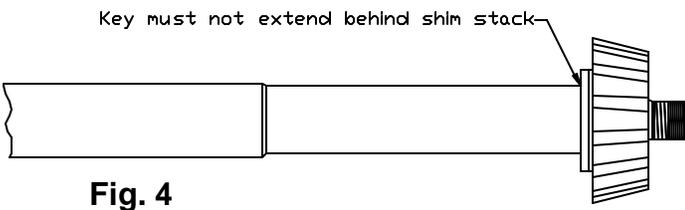


Fig. 4

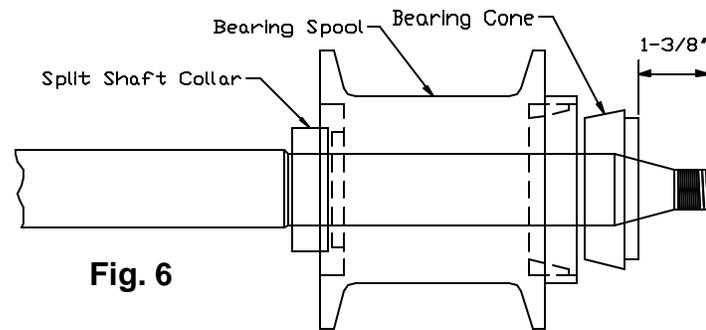


Fig. 6



9) Temporarily fit the Woodruff key to the taper and "try" fit the shim stack and pinion gear to the shaft. Mark the woodruff key and then modify the key if necessary by grinding or filing one end **ONLY** until the key does not protrude behind the rear surface of the shim stack when the shim stack is flush against the gear back surface. Place the thickest shim furthest away from the gear. Refer to Fig. 4 and Fig. 5

Fig. 5

NOTE: The key must not protrude beyond the rear surface of the last thickest shim.

10) Remove the gear, the shim stack, and the key after final modification and fitting. Keep the shim stack together with the thickest shim on the end!

11) Loosen the set screw in the split shaft collar and slide the collar onto the drive shaft as far as it will go. Leave it loose at this time. See Fig. 6

12) Slide the spool onto the shaft such that the brass bushing end goes toward the front of the drive shaft (front of car when finally installed). See Fig. 6

13) Locate the roller bearing cone, dip it in rear end grease and place it on the drive shaft with the smaller diameter end facing the front of the drive shaft. Slide it on only to a distance of approximately 1-3/8" as necessary to be able to install the modified key. See Fig. 6. It is normal for the roller bearing cone end to be tighter on the shaft than the brass sleeve end. The pinion gear and shim stack **MUST pull** the cone bearing into final position (as per step 17 below) for proper fit.

NOTE: The front bearing is permanently lubricated, sealed and will not require attention. The lower cone bearing is lubricated by the grease from the differential housing.

14) Insert Woodruff key into the shaft keyway with the shortened end (if modified) toward the front as before.

15) Orient the shim stack such that the thickest shim goes on first and install the shim stack behind the cone bearing with the keyways lined up on the Woodruff key.

16) Install the pinion gear on the tapered end of the shaft and install the nut behind it.

17) Draw the pinion gear into final position by tightening the nut and torque the nut to 70 foot-pounds. Make certain that the gear has bottomed on the taper and the key has bottomed in the gear keyway. The shim stack should be tight between the gear and the bearing. See Fig. 7

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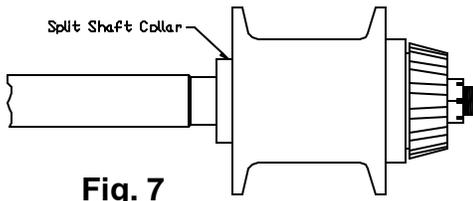


Fig. 7

NOTE: It is a good idea here to remove the nut and check that the gear is stuck on the taper and everything is in proper position. You can then reinstall the nut and torque again to 70 foot-pounds.

18) Tighten the nut further as necessary to line up the cotter pin hole and install cotter pin.

19) Slide the spool toward the rear of the shaft as far as it will go and rotate it to spread the grease onto the bearing cup from the roller bearing. See Fig. 7

20) Slide the split shaft collar back against the brass bushing and tighten the set screw just slightly snug. The idea is to temporarily have it tight enough to not slip easily on the drive shaft but not so tight that it will not move at all.

NOTE: The next step is to adjust the bearing "preload". The idea is to have the spool rotate on the drive shaft with a noticeable "drag" without being "stiff". The correct setting is exactly the same as adjusting a front wheel bearing.

21) Lightly tap on the side of the split shaft collar with a small mallet or wood block to slide the collar toward the rear to tighten the bearing, then check the tightness by turning the spool.

NOTE: If the collar set screw is too tight the collar will not move when struck with a mallet and the bearing will stay loose. If the set screw is too loose the collar will slide back after sliding forward and the bearing will again be too loose. If necessary start with the screw very loose and tighten it small amounts while alternately tapping with the mallet and checking for bearing tightness by rotating the spool on the shaft. When you are satisfied that the bearing is turning with a slight "drag" then tighten the set screw very tight. Check the bearing again. There should be no end to end (end play) or side to side movement in the bearing/shaft assembly. There should be a noticeable drag but the spool should not be "stiff" and hard to rotate on the shaft.

22) The bearing/spool assembly is now ready to be installed to the drive shaft tube and differential. **NOTE:** If a gasket was used between the spool and the differential during the pinion adjustment, be sure to install that gasket during final assembly of pinion spool to differential housing. A gasket between the spool and driveshaft housing may or may not be used since it will not affect the pinion clearance as does the presence of a gasket between the spool and the differential housing.

23) Inspect the end of the drive shaft housing and remove any protrusions that are within 1/2" of the end such as large seam welds or burrs. Make certain to file down any "bumps" around the inside diameter that might **rub against the shaft collar or strike the shaft collar set screw.**

24) Maintain concentric alignment of the drive shaft housing with the spool housing during final assembly to insure that the shaft collar will not rub on the inside of the drive shaft housing.

NOTE: It is **not** necessary that the ujoint and upper drive shaft brass bushing have a precision fit to set the drive shaft end play as is usually done with the stock Model T pinion bearing. Simply make certain that the ujoint rear surface is not binding against the bushing face when the ujoint pin is inserted. Precision facing of the upper drive shaft brass bushing is not important or necessary.

No bearing maintenance is required. Simply maintain the grease supply in the differential housing.

DRIVE SOBER

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