

# Dana 300

## 32 Spline Rear Output Shaft Upgrade

Manufactured by JB CONVERSIONS, INC.

Phone: 337-625-2379

### Installation Instructions

#### Part No. 2308

Instruction Rev: 2009.09.26

#### Kit Components

- . Aluminum bearing housing
- . 32 spline rear output shaft
- . Aluminum seal retainer
- . National oil seal #473239
- . (6) Allen cap screws 5/16" x .75"
- . (5) Allen cap screws 3/8" x 1.25"
- . CV yoke # 2-4-5341
- . 7/8" x 20 Lock nut - Chrysler #4167924
- . 7/8" x 20 **Shim Setup nut**
- . Rubber star washer seal - Chrysler #4210973
- . Speedometer gear - Chrysler #4338996
- . Snap ring - Chrysler #4338997
- . Large Spacer ring
- . Small Spacer ring
- . Needle bearing
- . Tapered roller bearing #30207 (cup & cone)
- . Tapered roller bearing #26822, #26885 (cup & cone)
- . Shim set
- . Vent fitting 1/8" NPT x 5/16"

#### IMPORTANT!

Properly secure the vehicle and remove the Dana 300 from the chassis. Drain the Dana 300 of all oil. The reassembly portion of these instructions illustrates a Dana 300 cut-a-way model. Various components of this display model are removed for other purposes. The steps for reassembly coincide with the photos therefore you should not be concerned that your unit is not in a state of disassembly as seen in the cut-a-way case.

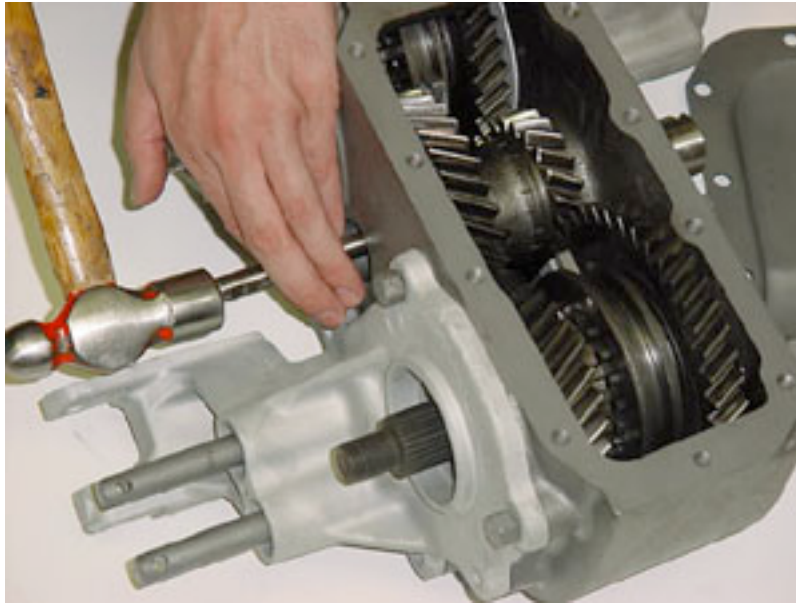
## **PREASSEMBLY CHECK**

Once the stock helical gear has been removed from the case, place the stock gear onto the new rear output shaft. Place a straightedge across the shoulder of the new shaft as shown (Fig.1). Verify clearance between the straightedge and the grinded surface of the gear. The gear shoulder on the shaft **SHOULD NOT** be any higher than the two grinded gear surfaces.



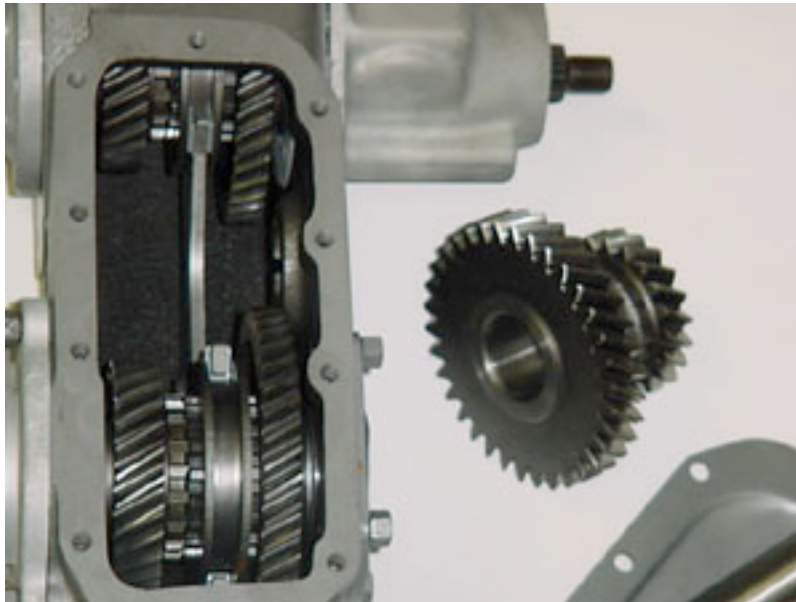
*FIG: 1*

1) Remove the metal lock tab and corresponding intermediate shaft using a flat brass or wood punch (Fig.2).



*FIG: 2*

2) Roll the intermediate gear up and out of the case. Be careful to retain the needle bearings and three spacer rings in the intermediate gear bore (Fig.3).



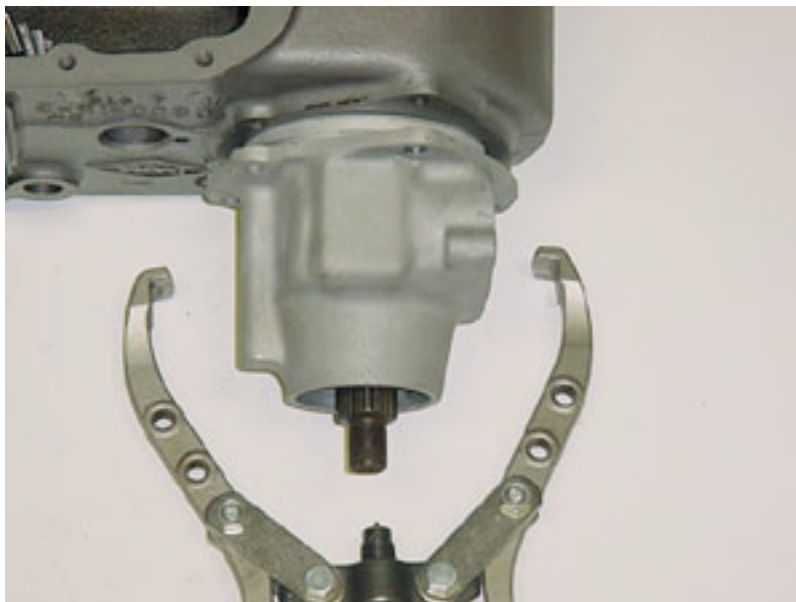
*FIG: 3*

3) Remove the rear output yoke nut and end yoke. Remove the 5 bolts holding the rear bearing housing to the case (Fig.4). New bolts are supplied in the kit.



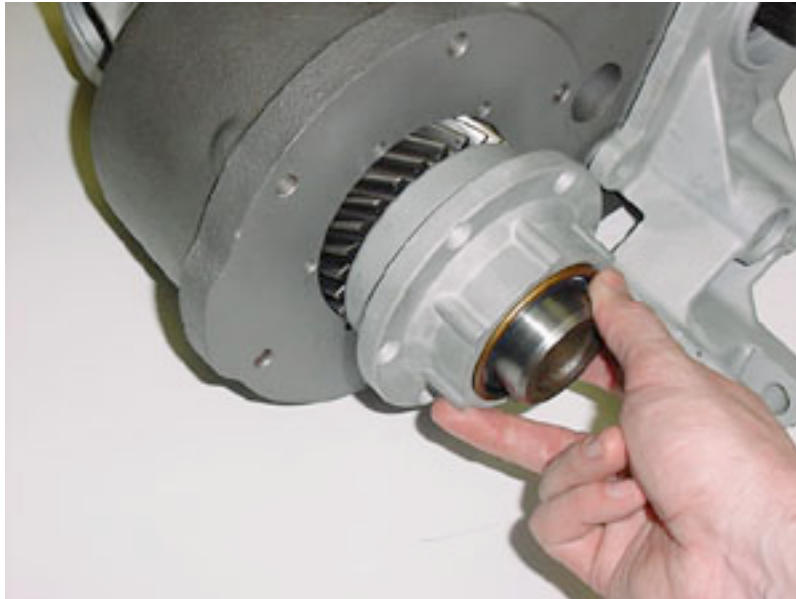
*FIG: 4*

4) Using a bearing puller, remove the aluminum housing from the case (Fig.5). The rear outer tapered roller bearing will slide off of the shaft as the housing is removed. You do not have to remove the oil seal to perform this step. If you have the type of puller that is designed to remove tapered roller bearings, remove the last tapered roller bearing from the output shaft.



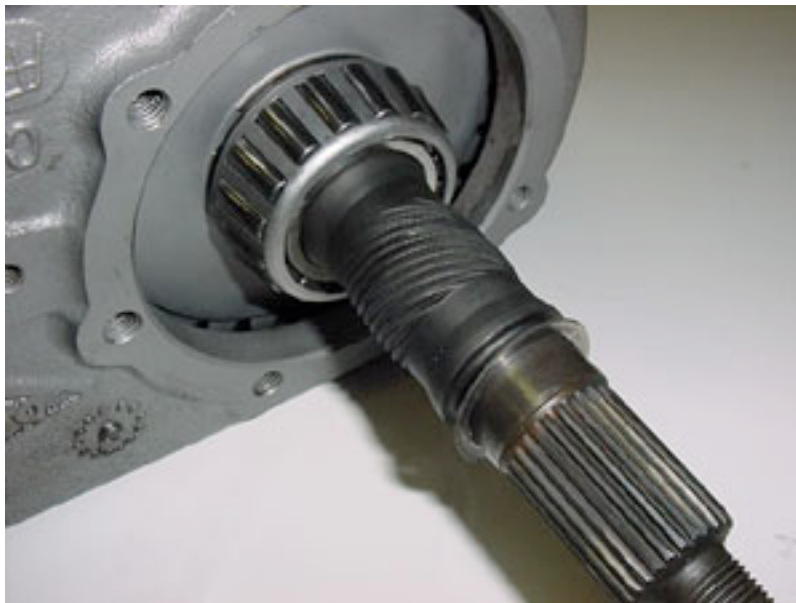
*FIG: 5*

5) Remove the 6 bolts holding the input-bearing retainer housing to the case (Fig.6). You may need to gently pry the retainer away from the case to remove it entirely.



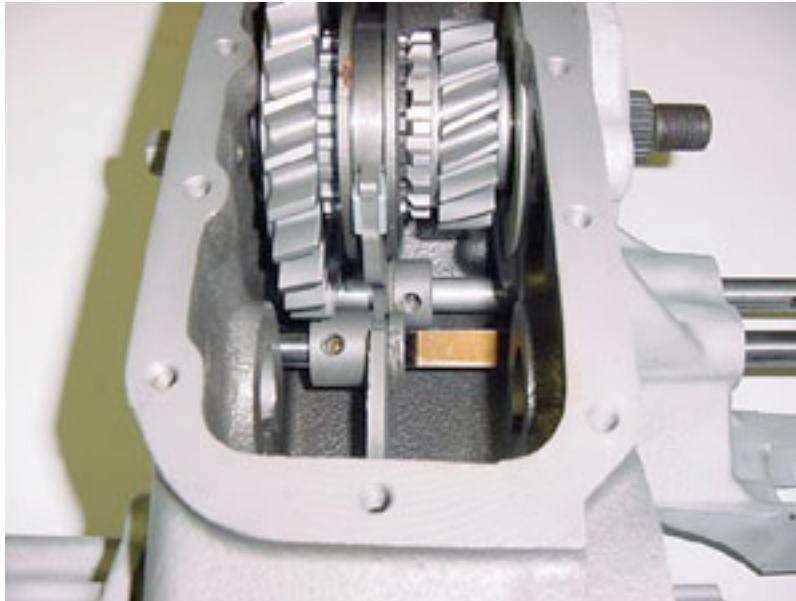
*FIG: 6*

6) If you have removed the second tapered roller bearing in step 4, leave the gear, slider ring, and shift fork in place as you slide the output shaft out of the case (Fig.7). Proceed to step #10.



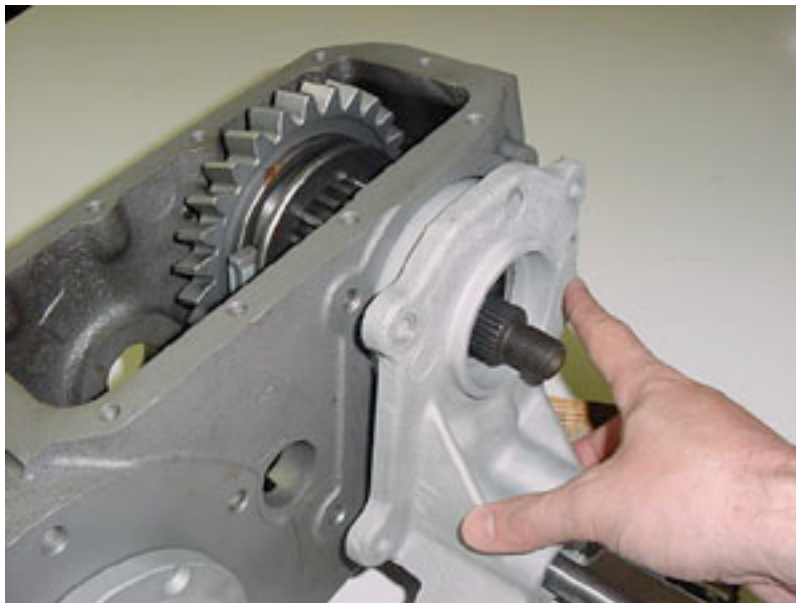
*FIG: 7*

7) If you were not able to remove the second tapered roller bearing in step 4, loosen the shift fork set screws and remove the front output yoke nut and end yoke (Fig.8).



*FIG: 8*

8) Remove the bolts holding the aluminum front bearing retainer housing (shift tower) followed by the housing itself (Fig.9). The rails should slide through the forks as the housing is removed. After the housing/rails are out, remove the large shift fork and corresponding slider ring. Proceed to step 9.



*FIG: 9*

9) Place the case in a press and remove the shaft (Fig.10). The front output shaft is removed in this photo however it is not necessary for completion of this kit installation.



*FIG: 10*

10) From this step forward, an empty, cut-a-way display case is used to provide better visibility of the components as they are reassembled. Note the chamfer on the ID edge of the thrust washer (Fig.11a). Only one side of the thrust washer is machined with the chamfer. This chamfer should face the shoulder on the shaft.



*FIG: 11a*

You will notice the lower tapered roller bearing and spacer has been installed onto the new output shaft (Fig.11b). This has been done to ease your setup

of endplay. You should also verify that the needle bearing is already installed into the bottom bore of the new shaft.



*FIG: 11b*

11) Place the new bearing housing onto the shaft so that it comes to rest on the lower tapered roller bearing (Fig.12).



*FIG: 12*

12) Note the chamfer on the ID edge of the thrust washer (Fig.13a). Only one side of the thrust washer is machined with the chamfer. This chamfer should face the shoulder on the shaft.



*FIG: 13a*

Place the thrust washer onto the shaft and lower to the shoulder on the shaft. The tapered edge on the thrust washer I.D. faces the shaft shoulder (down) (Fig.13b).



*FIG: 13b*

13) Place the shims supplied in the kit onto the shaft and slide them down to rest on top of the thrust washer (Fig.14). Procedures for choosing the correct combination thickness of shims can be done a number of ways depending upon personal preference. You can start with no shims and work backwards

adding shims until proper endplay is achieved (0.000"-0.0015"). The other method is to install all shims first and then remove them selectively to achieve the same result.



*FIG: 14*

14) Depending upon your preferred method of achieving step 10, install/remove the bearing as needed during the process. This bearing is a tight "slip-fit" thus allowing step #19 to be performed easily (Fig.15).



*FIG: 15*

15) Be sure to push the bearing all the way onto the top of the bearing during shim setup (Fig.16).



*FIG: 16*

16) End play must be checked for proper bearing preload. Push the bearing number 30207 onto the shaft as shown (Fig.17). You will need to install the yoke and "**special setup nut**" (torque to 180 ft-lbs) before checking endplay. Use a dial indicator (not shown) to observe 0.000"-0.0015" of end play. It is easier to perform the endplay adjustments at this time instead of later in the installation after the remainder of the entire case is being handled.

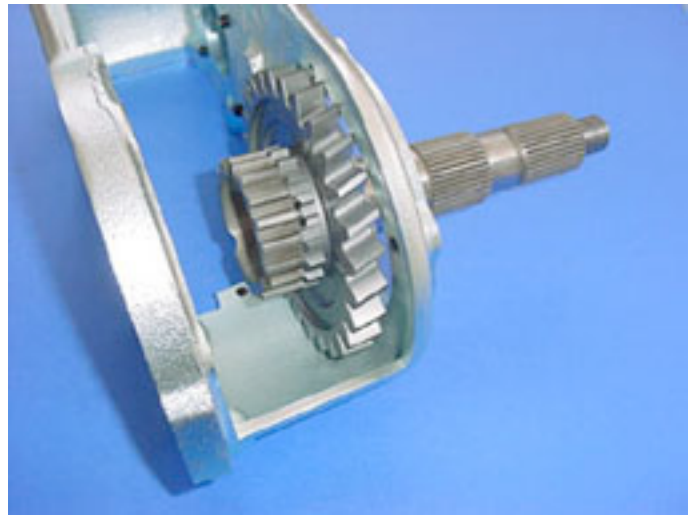


*FIG: 17*

17) Slide the new output shaft into the stock gear as shown (Fig.18,19).



*FIG: 18*



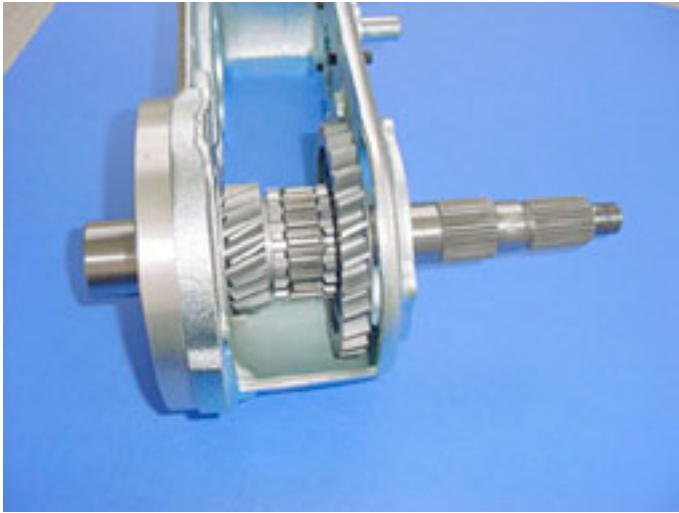
*FIG: 19*

18) Install the original input retainer assembly into the case to support the output shaft for the following steps. For the photo, we are using our billet rotation ring and LoMax 4:1 gearset however procedures will be identical using your stock components (Fig.20).



*FIG: 20*

19) With the output shaft supported as shown, slide the larger spacer ring onto the shaft. The tapered edge on the ring I.D. faces the gear (Fig.21,22).



*FIG: 21*



*FIG: 22*

20) Slide the new tapered roller bearing onto the shaft as far as possible by hand (Fig.23). The shaft is sized to provide a VERY light press fit onto the bearing. You may be able to slide the bearing up to the spacer ring without the aid of a punch or press. This fit is intentional to aid in your setup.



*FIG: 23*

21) If a punch is necessary, use caution and proper technique so that the bearing is not damaged (Fig.24).



*FIG: 24*

22) Install the retainer ring and speedometer gear as shown (Fig.25,26).



*FIG: 25*



*FIG: 26*

23) Apply a thin film of RTV sealant to the back of the new bearing retainer and install it onto the case. Use the new bolts supplied in the kit to secure the housing (Fig.27,28).



*FIG: 27*



*FIG: 28*

24) Using the shim combination you determined previously, Install the spacer ring and shim pack onto the shaft (Fig.29,30).



*FIG: 29*



*FIG: 30*

25) Install the tapered roller bearing onto the shaft (Fig.31).



*FIG: 31*

26) Install the seal retainer using the 6 bolts supplied in the kit. Apply a thin film of RTV to the back side of the retainer before installation (Fig.32).



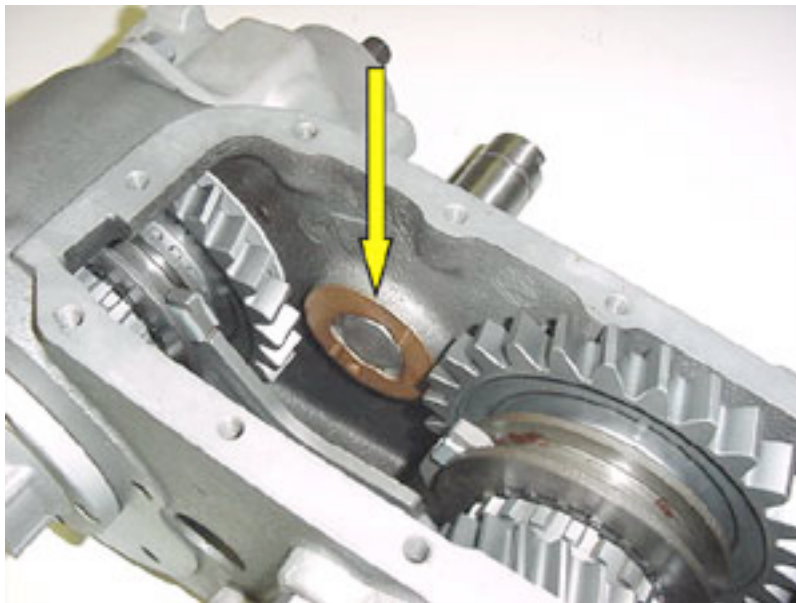
*FIG: 32*

27) Install the needle bearings into the idler gear using a thick grease (Fig.33). Remember to install the three steel rings along with the needle bearings. Be sure that all needle bearings are installed.



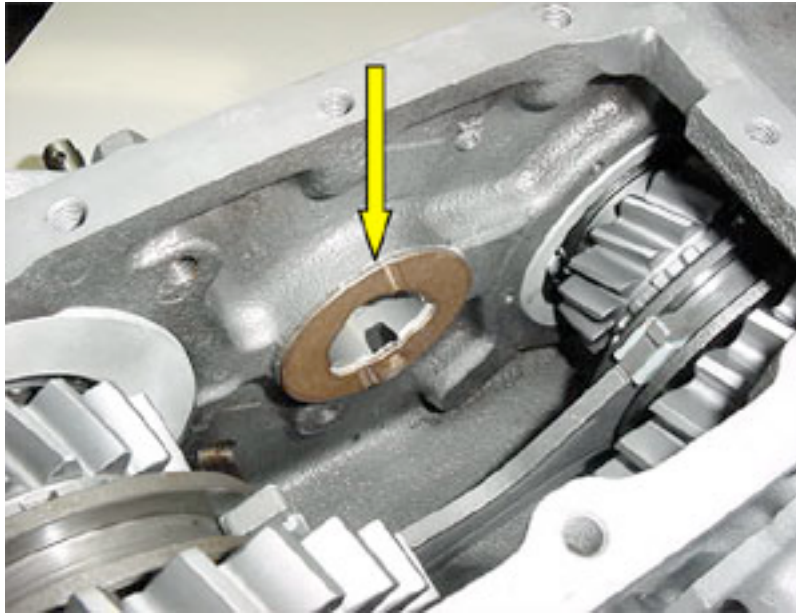
*FIG: 33*

28) Place one of the thrust washers into the case as shown (Fig.34). Coat both sides of the washer with a thick grease and place it into the case properly. You can use the cross shaft as shown to hold the washer in place as you lower the idler gear into place (later in the installation of the gear).



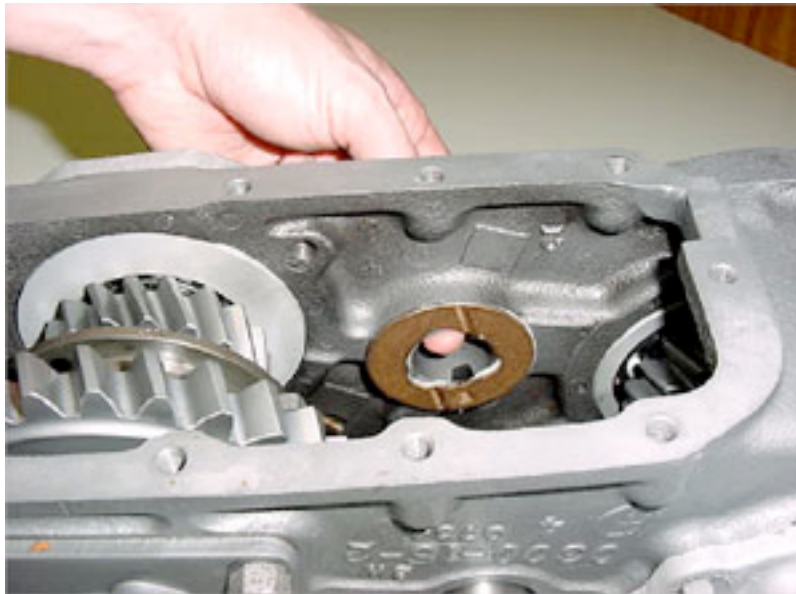
*FIG: 34*

29) Place the second thrust washer into the case as shown. Again coat both sides with grease. The washer should stay in place easily (Fig.35).



*FIG: 35*

30) As you lower the idler into place in the next step, you can hold the thrust washer into place with your finger tip as shown (Fig.36).



*FIG: 36*

31) Roll the idler gear into place rotating it as it is lowered (Fig.37).

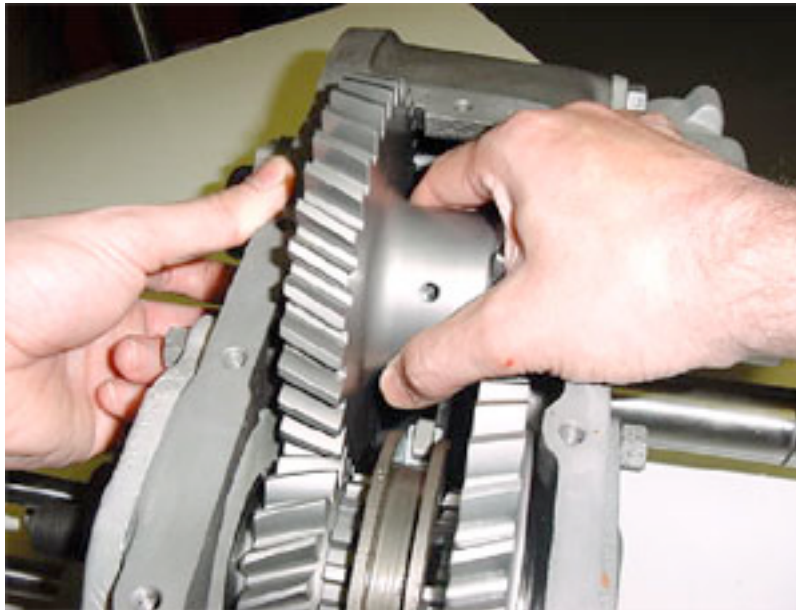


FIG: 37

32) When the idler gear is located properly, the intermediate shaft can be easily pushed through the center of the idler gear. Pay close attention and be sure all of the needle bearings remain in place during this procedure. Align the intermediate shaft with the flat side in the position shown. This will allow the retainer plate and bolt to be installed after the intermediate shaft is tapped into the final position (Fig.38,39). Install the shift rail caps if they have been removed.

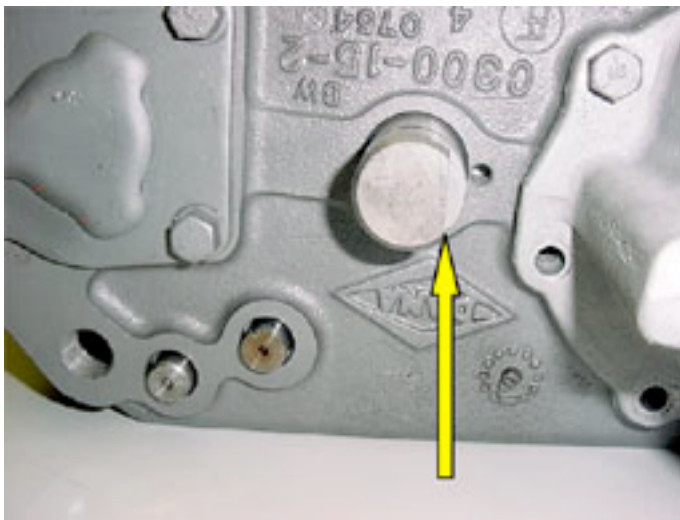


FIG: 38

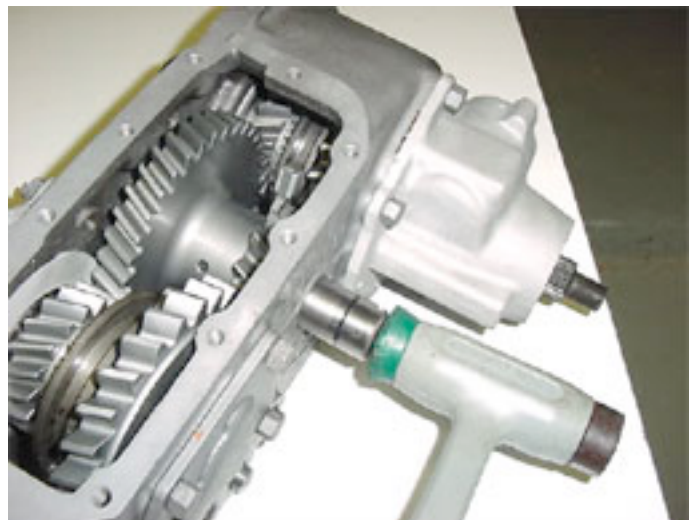


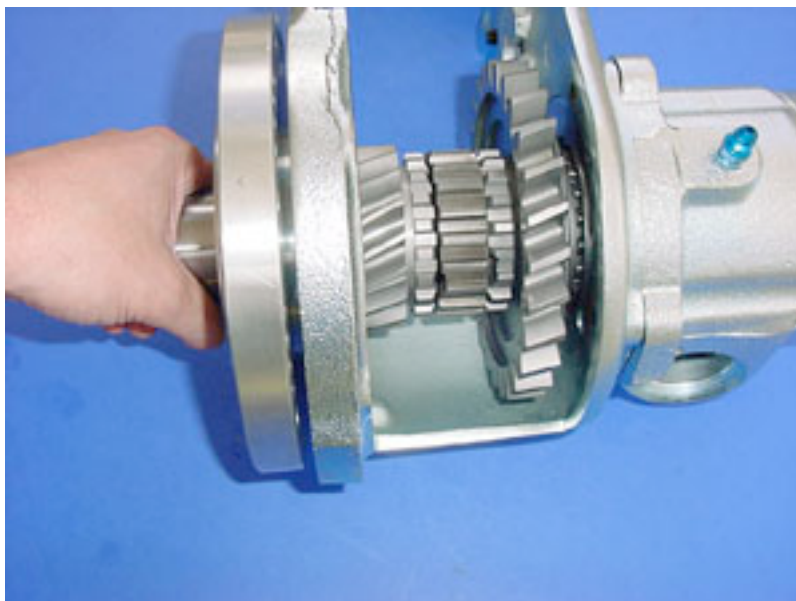
FIG: 39

33) Install the yoke, rubber nut seal, and lock nut. Torque to #180 lb-ft (Fig.40). Discard setup nut used in step 16.



*FIG: 40*

34) Remove the input retainer assembly you installed temporarily in step 15 (Fig.41).



*FIG: 41*

35) If you have left the slider ring, forks, and shift tower assembly in place (from step #6) throughout this reassembly, apply RTV to the back of the input retainer assembly and reinstall it. If you have removed the slider ring

during disassembly (step #8), it will be necessary to reinstall the slider ring onto the rear output shaft and gear.

36) If the shift rail assembly was removed in step #8, reinstall it now. You will have to guide the two rails through the two forks as the aluminum housing assembly is installed. Also, gasket surfaces will have to be cleaned and sealant applied to the housing before it is reinstalled.

37) Reinstall the intermediate gear and shaft. The installation is complete.