IT'S WHAT'S INSIDE THAT COUNTS...

From the outside, most manually operated transmissions look alike. That is, from the shape of the transmission housing to the design of the input and output shafts. But, that's about where the similarity stops. Specifically, it is the arrangement of the gears and synchronizers that makes one transmission different from another. And, the new three-speed, fully synchronized, constant-mesh A-390 is no exception. In many respects, it also differs from other manual transmissions in the Chrysler Corporation lineup.

It is these inner differences that directly affect servicing procedures.

Yet, this new A-390 is relatively simple to overhaul. Especially so if you have had some prior transmission experience. For those of you who have not yet had any such practical work experience, this training session and Reference Book also will help to clear up any misunderstanding — make your job easier.

Now, in order to get as much technical information packed into this one session, some of the more simple steps have been touched on only briefly. For example; specific procedures in the removal and installation of housings, covers, gaskets and snap rings have only light coverage. However, important details that help make overhaul easier and help to prevent parts damage are emphasized.

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GETTING ACQUAINTED WITH THE PARTS
Before getting into power flow, let’s take a moment to run through some of the parts identification and nomenclature. Looking at Figure 1, note the arrangement of the gears. There are three gears on the countergear, two on the reverse idler and four on the input/output shaft assembly. All are in constant mesh except the spur gear on the reverse idler and the reverse gear.

Fig. 1—The A-390 gear arrangement

The helical gear on the reverse idler gear is in constant mesh with the smallest diameter helical gear on the countergear. Briefly, in all forward speeds no gear shifting takes place. Only the sleeves move forward or rearward to connect or disconnect gears from the input and output shafts or to lock the two shafts together. First, second and third (direct drive) are synchronized. Only three synchronizer stop rings are used.

The reverse synchronizer has the reverse gear machined on the movable synchronizer sleeve. This gear and the reverse idler gear that it meshes with are the only two gears that are spur cut. All other gears are a helical design.

LET’S START WITH FIRST SPEED
In first speed, power from the engine flows through the input shaft, the input shaft drive pinion and then into the countergear as shown in Figure 2. With the first-reverse synchronizer shifted forward, first gear is locked to the output shaft. As a result, power then flows through the countergear, then into the first gear, driving the output shaft.

Fig. 2—First gear is locked to the output shaft

NOW FOR SECOND SPEED
In second speed, power from the engine flows through the drive pinion, into the countergear, and continues into second gear which is locked to the output shaft by the 2-3 sleeve being shifted rearward. See Fig. 3.

Fig. 3—Second gear is locked to the output shaft

INTO THIRD GEAR OR “DIRECT DRIVE”
In third speed (Fig. 4), power flows directly from the input shaft drive pinion to the output shaft.
since it is now mechanically connected to the input shaft by the 2-3 synchronizer sleeve being shifted forward. Even though first and second gears rotate, they do not transmit any power since they are not mechanically connected to the output shaft and thus are free to rotate on the output shaft.

REVERSE BRINGS IN MORE GEARS
When the first-reverse synchronizer sleeve is shifted towards the rear, the reverse gear engages the reverse idler gear. As a result, power from the engine travels through the drive pinion, into the counter-

gear then into the reverse idler gear and to the reverse gear which is splined to the output shaft.

NEUTRAL POSITION
When the transmission is shifted into neutral, power from the engine turns the input shaft drive pinion, the countergear, the reverse idler gear and both the first and second gears on the output shaft. However, there is no mechanical connection between the input shaft and the output shaft because first and second gears are not locked to the output shaft. As a result, no power is delivered to the output shaft. Also, reverse gear is not engaged.

Getting the A-390 apart easily

DRAIN THAT TRANSMISSION FLUID
If the transmission was not drained before removal from the vehicle, do so on the bench by removing the lower bolt attaching the extension housing to the case. Let the lubricant drain into a clean container. Often the drained lubricant will reveal the extent of transmission troubles when the lubricant is examined. Never re-use drained lubricant. Remove the extension housing, the front bearing retainer and the case cover and gasket. Discard all gaskets.

Get the detent plug and spring out of the small drilled passageway in the case as shown in Fig. 6.
LOOKING AHEAD
Before getting into further disassembly, let’s take a quick look at the shift rail interlock system. Note that in Figure 7, all three plugs are identical but the two springs are different. The top spring is longer than the one in the bottom of the case. Also note that the 2-3 shift rail is shorter than the first-reverse shift rail, and has a tapered end. All parts shown are exactly the way they appear when correctly installed.

GETTING THE COUNTERSHAFT OUT
Once the roll pin is driven out, get the special arbor C-4337 and tap the countershaft from the rear of the case as shown in Fig. 9 until the expansion plug at the front of the case pops out. The countershaft should not extend out the front of the case more than one inch. Do not drive the countershaft all the way out the front since it may have sharp edges near the roll pin hole area. These sharp edges can scratch the polished roller bearings inside the countergear. After pushing the expansion plug out, use the arbor to push the countershaft out the rear of the case as shown in Fig. 10. Make sure the arbor and countershaft stay in contact as the countershaft is removed. This will hold the roller bearings in proper position. Let the countergear drop to the bottom of the case. This is exactly what we want it to do in order to get the drive pinion out. We’ll explain that a little later on.

BEFORE YOU GET THE DRIVE PINION GEAR OUT
Drive out the roll pin that locks the countershaft to the case. You will need a long drift punch about one-quarter inch in diameter. Drive the pin all the way out until it falls to the bottom of the case. Later on you can pick it out before cleaning the inside of the case. Figure 8 shows the roll pin hole location using a cutaway transmission in order to see details.

BE A GOOD TAPPER
With a soft-faced hammer, a plastic-tipped one will do, tap the end of the input shaft and at the same
Fig. 11—Tap on shaft to "walk" bearing out of case

time use a pulling effort outward. Turn the shaft a few times while doing so. Tap at various points around the shaft in order to let the drive pinion bearing "walk out" of the case. Do not attempt to use a punch and drive the bearing out from inside the case. Damage to the drive pinion gear teeth will result. Figure 11 illustrates how it's done.

Tip the case forward and support it with a block of wood just before the bearing completely separates from the case. See Fig. 12. Doing this will prevent the roller bearings from falling out of the drive pinion gear.

Fig. 12—Tip case when removing drive pinion

SHIFT FORKS AND SHIFT RAILS ARE NEXT

The first-reverse shift rail must be removed before the 2-3 shift rail. You'll see why in just a few moments.

Using an Allen wrench (Fig. 13), take the shift rail set screw out. Then, tap the shift rail with a punch

Fig. 13—Hex wrench removes set screws from shift forks

1st—REVERSE SHIFT RAIL

until it extends out the case, far enough to be pulled out by hand. See Fig. 14.

Fig. 14—First-reverse shift rail pulls out rear of case

Use a magnetized tool as shown in Figure 15, to remove the interlock plug. Shift the transmission

Fig. 15—Remove interlock plug with small magnet tool
into second gear which places the shift fork towards the rear of the case. Now you can gain access to the 2-3 shift fork set screw. Remove it from the fork.

**A LITTLE SERVICE TIP**
Getting the 2-3 shift rail out is easy if you follow this procedure: With a wide-blade screwdriver, tap the “V” section on the shift rail so that this “V” section turns one-quarter turn inward. See Fig. 16.

![2-3 SHIFT RAIL](image1)

When you have done this, the “V” section will be vertical, rather than its normal position facing up. Now, the shift rail can be tapped out of the case easily since the smooth section of the shift rail forces the detent spring and plug downward. After the expansion plug is forced out, the shift rail slides out easily. See Fig. 17.

![2-3 SHIFT RAIL](image2)

**OUT COMES THE OUTPUT SHAFT BEARING**
With a block of wood held against the output shaft as shown in Figure 18, tap the shaft until the rear bearing separates from the case bore. With the output shaft loose, move it to one side of the case so that the two shift forks can be removed, as shown in Figure 19.

![WOOD BLOCK](image3)

![REAR BEARING](image4)

![1st-REVERSE SHIFT FORK](image5)

![2-3 SHIFT FORK](image6)

**Fig. 18—Tap shaft to separate rear bearing from case**

**Fig. 19—Cock output shaft to get shift forks out**

**GETTING THE OUTPUT SHAFT OUT OF THE CASE**
Before the output shaft can be lifted out of the case, the rear bearing must be pulled off the shaft. To do this, first remove the snap ring from the output shaft as shown in Figure 20. Then, using the special puller tool, shown in Figure 21, turn the puller screw until the bearing separates from the shaft. The C-4335-2 puller studs are for passenger-car application of the A-390 manual transmission. Studs C-4335-3 are for A-390 application in light-duty trucks which have longer output shafts.

Once the rear bearing is removed, the assembly can be lifted out the top of the case easily as shown in Figure 22.
Fig. 20—Remove rear bearing snap ring from shaft

Fig. 21—Hook puller plate over bearing race snap ring

Fig. 22—Output shaft lifts out of case easily

THOSE GEARS IN THE BOTTOM OF THE CASE
Using a drift punch, drive the reverse idler shaft out the rear of the case. The roll pin does not have to come out unless the shaft is damaged and is being replaced. See Fig. 23.

Fig. 23—Reverse idler gear contains two bushings

Now you can lift the countergear assembly out of the case. As you do so, keep the countergear assembly level. Do not tip it or the small roller bearings and arbor will fall out with the chance of some bearings getting lost. Refer to Fig. 24.

Fig. 24—Do not tip countergear with arbor inside

Fig. 25—Countergear thrust washers have larger holes
NEW TYPE THRUST WASHERS
After the reverse idler gear and countergear are removed, reach inside the case and pick out the four thrust washers. The tabs shown in Figure 25 fit into slots in the casting. One important detail; the countergear thrust washers have a larger inner diameter than those of the reverse idler gear.

Looking the parts over

TAKE A CLOSE LOOK
All parts and assemblies of the A-390 transmission should be inspected carefully. Clean all parts with a good commercial solvent, and dry with compressed air. Clean all metal particles from the magnet in the bottom of the case. Remove the 2-3 synchronizer assembly by removing the snap ring that keeps it on the output shaft. Inspect the hub splines, the three struts and thrust bearing surface for damage. See Fig. 26. Do not disassemble either of the two synchronizer assemblies unless absolutely necessary. If you must disassemble them, mark all parts so that they will be reassembled in the exact same position.

Fig. 26—Synchronizer assemblies should not be taken apart
Splines and struts can be inspected by moving the sleeve forward and rearward without separating the parts. If damage is evident, then a new assembly is called for since this unit is serviced only as a complete unit. Inspect the first-reverse synchronizer in the same manner.

GEAR AND CLUTCHING TEETH
Close inspection of all gear teeth and the clutching teeth on the first gear, the second gear and drive pinion is an important part of your overhaul procedure. (See Figs. 27 and 28.)

Fig. 27—Check clutching teeth and cone mating surfaces
Fig. 28—Clutching teeth must not be rounded or damaged

ALL THOSE ROLLER BEARINGS
Inspect the countershaft, the roller bearings and the roller bearing surfaces inside the bore of the countergear. Galling or rough roller bearings usually cause damage to the surfaces on which they rotate. See Figure 29 for details. By the way, there are twenty-five roller bearings at each end of the countershaft.
MORE ROLLER BEARINGS
Shake the fifteen roller bearings out of the pocket in the drive pinion gear. See Fig. 30. Wash clean, then inspect carefully. Check the bearing surface inside the drive pinion and the tapered surfaces that contact the synchronizer stop ring. No pitting, galling or unusual wear patterns should be evident.

SPECIAL NOTE: If the drive pinion ball bearing or the input shaft must be replaced, use the special tool C-4335-1 base plate, the SP-111 puller and the two short puller studs. An arbor press will also accomplish this service operation.

When you install the roller bearings inside the pocket, add a little grease to the inner surfaces to assist in getting all the roller bearings in without having any drop out of position. However, be extra careful to prevent plugging the lubrication hole (Fig. 30). If plugged with excess lubricant, the bearings will starve for proper lubrication and run dry, causing excessive wear and will eventually fail.
ance. If the first and second gears rotate on the shafts with almost zero clearance (no rocking of gear on shaft), then install the first gear with its synchronizer stop ring as shown in Fig. 32. Next, position the thrust washer over the shaft and see to it that the tang enters the blind hole as shown in Figure 32. Install the snap ring onto the shaft so that it fits snugly into the groove just ahead of the thrust washers.

Install the second gear, the synchronizer stop ring, then the 2-3 synchronizer assembly. The polished bearing surface of the synchronizer hub faces towards the first gear. Install the snap ring over the shaft. It must fit snugly into the shaft groove around its full circumference. If not, install a new snap ring.

In fact, new snap rings are considered good service practice at all locations. They're cheap insurance and prevent parts from separating under load conditions or vibrations that may develop in normal transmission operation.

**SPECIAL NOTE:** If it is necessary to remove the first-reverse synchronizer hub from the output shaft, use an arbor press in order to prevent damage to the synchronizer assembly. Never attempt to remove or install the hub by hammering or prying.

**BALL BEARINGS MUST BE RIGHT**

Two ball bearings are used in the A-390 transmission. One for the input shaft, the other for the output shaft. Clean both in a suitable solvent and check for galled, rough or pitted ball bearings and races by turning them slowly by hand as shown in Figure 33. Apply hand pressure to the outer race and check bearing action at various points around the bearing. Worn or damaged ball bearings must be replaced.

**SEALS ARE IMPORTANT**

In any overhaul of the A-390 manual transmission, always install a new front bearing retainer oil seal. To avoid distorting the seal during installation, use a seal bearing driver as shown in Figure 34. The seal must be installed with the lip up. When installed correctly, the lip faces towards the transmission case. See details in Figure 34.

![Fig. 34—Install a new retainer seal with proper driver](image)

New “O” ring seals on the shift lever shafts are also considered good service practice. Two details are important after the “O” rings have been positioned into the seal grooves on each shaft. (See Fig. 35.) One, when installing the shift levers and the shift lever shafts, make sure the crank arm of the shaft is pointing upwards. Two, the shift lever for the first-reverse has a double ninety-degree bend. Tighten the nuts that attach the levers to shafts 28 ft.-lats.

![Fig. 35—New “O” ring seals here are cheap insurance](image)
GETTING IT TOGETHER

FINDING OUT END PLAY
Before assembling the A-390, be sure and check reverse idler gear and the countergear end play. It is easier to install the countergear and check the end play first before checking reverse idler gear end play.

Coat the tab surfaces of the two larger inner diameter thrust washers with a film of grease. Then, place the front thrust washer with the tab pointing upwards against the machined surface at the front of the case. The tab will fit into a slot in the casting. Then, position the rear thrust washer with the tab pointing towards the inside of the case (horizontal) so that the tab locates into the slot in the casting. Now, with the special arbor inside the countergear bore and all roller bearings installed (25 at each end), place a roller bearing retainer washer at each end of the countergear. Use a film of grease on the washers to help them from falling out during countergear installation.

THE COUNTGEREARTH GETS CHECKED FIRST
Now position the countergear inside the case between the two thrust washers. Make sure they do not fall out of position. They will usually shift out of position slightly but can be centered to the shaft bore using the fingers or a small screwdriver.

Install the countershaft by pushing it into the case from the rear making sure it maintains contact with the arbor in order to prevent the roller bearings from falling out of position.

HERE'S THE END PLAY RANGE
Now, using a flat feeler gauge, check clearance between the thrust washer and the machined surface of the countergear. (See Fig. 36.)

Specifications call for .004" to .018". If not within that range, install new thrust washers and recheck.

If end play is okay, push the countershaft out the rear with the arbor by maintaining arbor-to-countershaft contact until the countergear drops to the bottom of the case, with the arbor inside.

NOW FOR THE REVERSE IDLER GEAR
Wipe a film of grease on the tab faces of the reverse idler gear thrust washers, then position inside the case. Tabs face upward in slots provided. Insert the reverse idler gear shaft into the shaft hole in the rear of the case. Align the bore of the reverse idler gear and the two thrust washers with the shaft and tap it into position. The roll pin must fit inside the slot provided for it in the casting.

Use a flat feeler gauge, check end play between the machined surface of the reverse idler gear and the thrust washer. See Figure 37. The clearance should be between .004" and .018", which is the same as for the countergear. If not correct, install new thrust washers and recheck. If clearance is okay, continue with transmission assembly.

Fig. 36—Check countergear end play with a feeler gauge

Fig. 37—Check reverse idler gear end play

10
THE OUTPUT SHAFT GOES IN
With the output shaft completely assembled, insert it into the case through the cover opening. Then, in order to install the rear bearing without damaging the case or bearing, position the case vertically as shown in Fig. 38 and place a small block of wood under the nose of the shaft. Then, using the Driver Handle (C-4336-1) and the bearing Driver Head (C-4336-2) tap the bearing onto the shaft until it bottoms on the shaft shoulder. Install snap ring on shaft.

![Image of output shaft assembly](image)

**Fig. 38—Place front end of shaft on a wood block**

SHIFT FORKS AND REAR BEARING
Move the output shaft as far to one side as possible and install the two shift forks. The shift fork with the larger span between pads is for the first-reverse synchronizer. Both go in with the set-screw holes facing upward. As the forks are rotated into position, align the dowel on the shift lever crank arm with the machined slot in the fork... shift lever crank arm must be pointing to the top of the case. Once this is accomplished, you can align the output shaft rear bearing with the case bore and tap it into position using a soft-faced hammer. Tap on the bearing outer race until the snap ring bottoms against the machined surface. See Fig. 39.

![Image of shift forks and rear bearing](image)

**Fig. 39—Shift forks go in first, then tap bearing into case**

DETENT SPRINGS, PLUGS AND SHIFT RAILS
Getting the shift rails into the case is simple if you follow a few simple precautions.

Install the shorter of the two detent springs into the detent bore in the top of the case. A small magnet, as shown earlier in the disassembly procedures, will make this job easier. Then place the detent plug down against the spring. See Fig. 40. Now, place the 2-3 shift rail through the shift fork with the shift fork engaged to the shift lever crank arm dowel. With a Phillips-type screwdriver, slightly smaller in diameter than the detent plug bore, push the detent plug and spring downward as you insert the shorter of the two shift rails (2-3 shift rail) in from the front as shown in Fig. 40. The set-screw hole in the shift rail should be facing the output shaft which also places the "V" section on the shift rail facing the output shaft.

![Image of shift rail installation](image)

**Fig. 40—Push 2-3 detent plug downward to enter shift rail**

Note that the tapered end is outside the case. Once the shift rail pushes past the detent, tap it into the case until the "V" section on the shaft is visible past the casting surface of the detent bore. Then, with a wide-blade screwdriver, bump the "V" section until it turns one-quarter of a turn and faces the top of the case. This places the set-screw hole up and also correctly positions the shift rail interlock sections. Refer to Figure 16 for added details.

A LITTLE SHIFTING NEEDED
To get the shift fork set screw in, shift the 2-3 synchronizer sleeve into second gear. Then, align the set-screw hole in the 2-3 shift rail with the shift fork and install the set screw. Snug it down tight.
After the set screw is tight, remove the Allen wrench and shift the 2-3 synchronizer forward into Neutral position.

**FIRST-REVERSE SHIFT RAIL**
Getting this shift rail installed is much easier than the one for the 2-3 shift fork.

Get the interlock plug (all three plugs are alike) and place it down in the detent bore with a small magnet. See Figure 41. Now, insert the first-reverse shift rail into the case bore with the set-screw hole facing the top of the case as shown in Figure 41. A flat section on the shift rail will be towards the rear. Push the rail through the shift fork, making sure the fork is engaged with the shift lever crank arm dowel. Align the set-screw hole with the hole in the shift fork and install the set screw. Snug it down tight with an Allen wrench.

![First-reverse shift rail installation](image)

**Fig. 41—Install shift rail into first-reverse fork**

**JUST A FEW MORE STEPS**
Now, install the input shaft drive pinion and roller bearing assembly into the front of the case as shown in Figure 42. The 2-3 stop ring should also be installed over the cone surface of the drive pinion gear at this time. Once it is aligned to the output shaft and case bore, tap the outer race with a soft-faced hammer until it just starts into the case. Then, holding the stop ring up against the 2-3 synchronizer struts and “keyed” to the slots in the stop ring, continue tapping the front bearing until the snap ring on the outer race bottoms against the case.

**THAT COUNTERSHAFT AGAIN**
In order to align the countergear shaft with the machined holes in the casting, tip the case over on its side until it rests on the top edge of the front cover and the shift levers as shown in Fig. 43. Doing this permits the countergear to roll into almost perfect position for installation of the shaft. Generally, it takes only a moment or two to align the thrust washers and the arbor inside the countergear.

![Countergear shaft alignment](image)

**Fig. 43—Align roll pin hole in shaft to case hole**

Once this is accomplished, install the countergear from the rear, making sure the roll pin hole is aligned to the hole in the case. As you push the shaft in it will push the special arbor out the front. As you’re doing so, keep the shaft in contact with the arbor until the shaft is fully inserted. You may have to lift the countergear at the front end slightly using a small, thin screwdriver in the front bore.

**THAT IMPORTANT ROLL PIN**
Now for roll pin installation. Use a long one-quarter-inch drift punch and grind a shoulder at one end. The punch end should be small enough to insert into the roll pin and stop at the shoulder. Now the punch can be inserted through the lubricant fill hole with the roll pin held firm so that it
does not drop to the bottom of the case. Position the roll pin in the casting, then tap the roll pin until it centers in the countershaft.

**EXPANDING THE EXPANSION PLUGS**
Never re-use the expansion plugs that have been removed during disassembly since the convex face will have become distorted during initial installation.

Using new expansion plugs, install one in the front face of the case to seal the countergear shaft hole and a smaller expansion plug to seal the hole for the 2-3 shift rail. No expansion plugs are used at the rear face of the case since the extension housing covers all shaft and bearing bores. Expansion plugs are tapped into correct position using the ball peen end of a hammer as shown in Figure 44. They should be flush or slightly below the case surface.

**EXTENSION HOUSING AND FRONT RETAINER**
Using a new gasket, install the extension housing over the output shaft. Carefully align the extension housing as it is being brought over the output shaft so that the splines do not cut or damage the lips of the rear oil seal.

Apply sealing compound to the bolt threads and install the bolts. Torque to 50 ft.-lbs. Now, install the front bearing retainer with a new gasket as shown in Fig. 45.

Note that the oil return slot must point downward so that transmission fluid can drain back into the case. The bolt hole pattern is such that the retainer can be installed in four different positions. Coat the threads on the retainer cap screws with sealing compound. Install and stagger torque to 30 ft.-lbs. Tighten alternately rather than in sequence.

**TRY IT OUT**
Install the transmission fill plug, then pour 3½ pints of new Dexon-type automatic transmission fluid over the gears and shafts. Rotate the input shaft by hand, making sure there is no binding or unusual tightness. Then, shift the transmission into each gear and by turning the input shaft, try it out in first, second, third and reverse. If it shifts easily into each gear and there is no synchronizer sleeve "hang-up" and no strange noises, you can feel assured the transmission has been assembled correctly.

**DETENT AND COVER**
Once you have established that transmission operation is proper, install the final detent plug and spring into the detent bore. The spring will extend above the top case surface about one-quarter of an inch as shown in Figure 46. Coat the threads of the cover attaching screws with a sealing compound and install the cover with a new gasket. Install the cover attaching bolts and stagger torque them to 22 ft.-lbs. The job is now buttoned up, ready to install in the vehicle.
INSTRUCTIONS: The first three questions are multiple-choice type. Circle the letter in front of the statement which you think is correct. For example, if your choice in question number 1 is C, put a circle around it like this: ☐. Questions 4 through 10 are TRUE or FALSE type. Put a mark after TRUE X if you think the statement is correct. Put a mark after FALSE X if you think the statement is incorrect. Be sure to write your name in the space provided. After completing your quiz, turn it in to your Meeting Leader.

1. The helical gear on the reverse idler gear is in constant mesh with:
   A. The second speed gear on the output shaft.
   B. The smallest diameter gear on the countershaft.
   C. The first speed gear on the output shaft.

2. In the shift lever interlock system:
   A. Springs and detent plugs are identical.
   B. Two of the three detent plugs are a different size and shape.
   C. All detent plugs are the same, but the two springs are different lengths.

3. To get the 2-3 shift rail out, the shift rail "VEE" section must be turned:
   A. One-half turn so that the "V" section points towards the bottom of the case.
   B. One-quarter turn so that the "V" section points towards the top of the case.
   C. One-quarter turn so that the "V" section is in a vertical position.

4. The 2-3 synchronizer must be shifted into second gear in order to get the shift fork set screw out.

5. There are 50 roller bearings in the countergear.

6. The two countergear thrust washers are installed with the tabs pointing to the top of the case.


8. Countergear end play and reverse idler gear end play specifications are the same.

9. Expansion plugs can be reformed and reinstalled without fear of them leaking transmission fluid.

10. Since the front bearing retainer can be installed in four different positions, it makes no difference which position it attaches to on the front of the case.

NAME ____________________________________________

Litho in U.S.A.