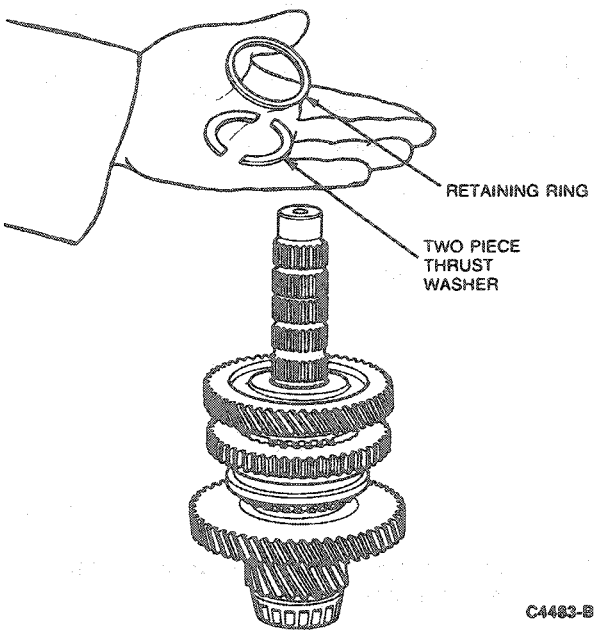
DISASSEMBLY AND ASSEMBLY (Continued)

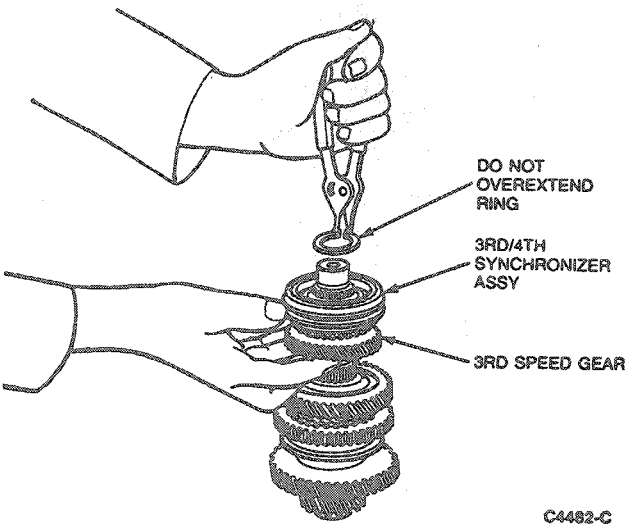
4. Install the thrust washer halves into the groove on the main shaft and then the retaining ring around the thrust washer halves.



NOTE: When installing the synchronizer, align the three grooves in the third gear blocker ring with the synchronizer inserts. This allows the synchronizer assembly to seat properly in the blocker ring.

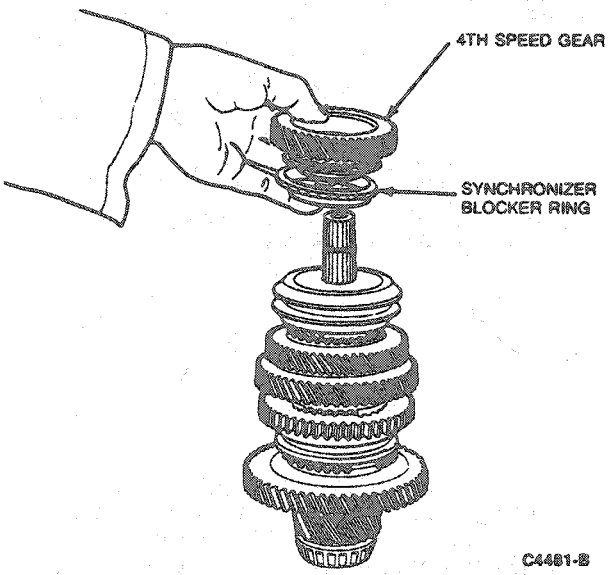
5. Slide the third speed gear onto the shaft followed by the tagged third gear synchronizer blocker ring and the third / fourth gear synchronizer assembly.

   Install the synchronizer retaining ring.



NOTE: When installing the synchronizer, align the three grooves in the fourth gear blocker ring with the synchronizer inserts. This allows the synchronizer assembly to seat properly in the blocker ring.

6. Install the tagged fourth gear blocker ring and the fourth speed gear.

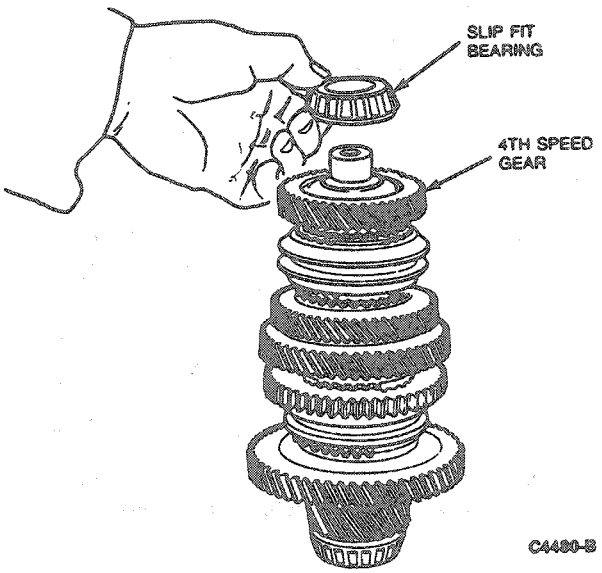


NOTE: Make sure bearings are seated against the shoulder of the main shaft. Position bearings on the proper end, as labeled during disassembly. Rotate each gear on the shaft to check for binding or roughness.

DISASSEMBLY AND ASSEMBLY (Continued)

7. Install the slip fit bearing on the fourth gear end of the shaft. Make sure bearings are placed on the proper end, as labeled during disassembly. Rotate each gear on the shaft to check for binding or roughness.

   NOTE: Make sure that the synchronizer sleeves are in NEUTRAL position.



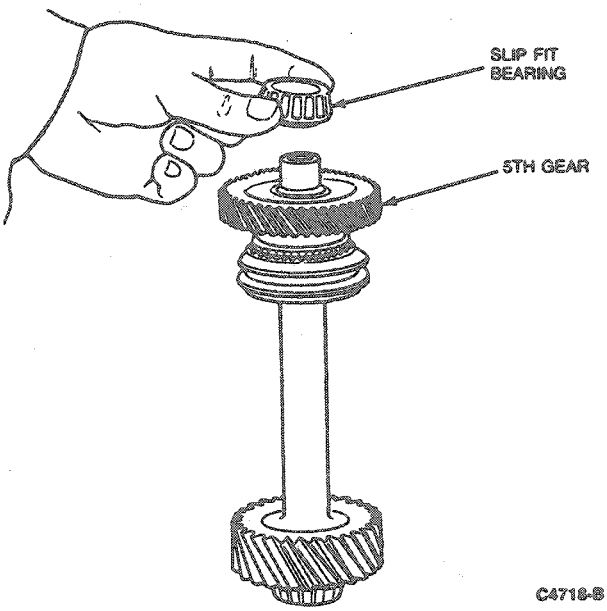
Fifth Gear Shaft Assembly

Tools Required:

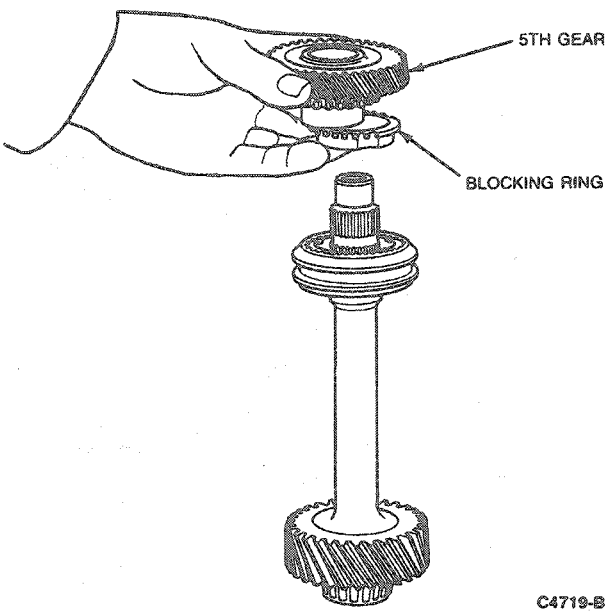
- Pinion Bearing Cone Remover D79L-4621-A

Disassembly

1. Remove the slip fit bearing from the fifth gear end of the shaft and label it for proper installation.

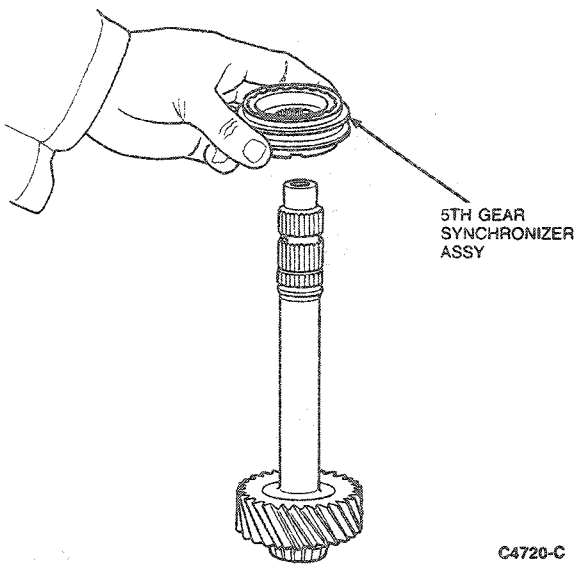


2. Remove the fifth gear and blocking ring.

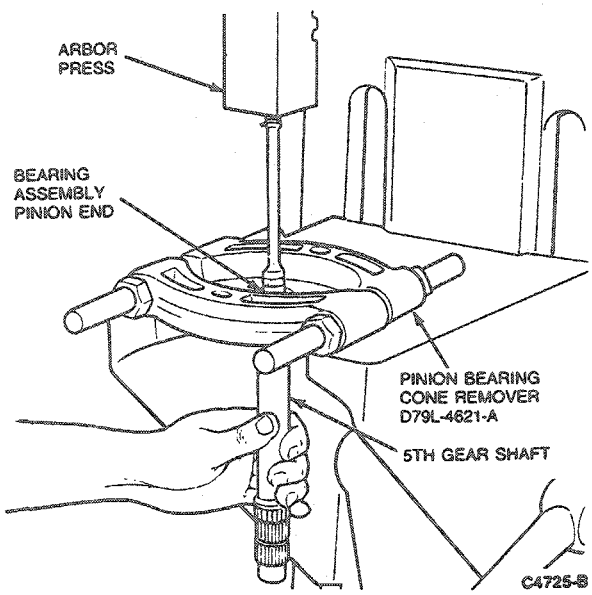


DISASSEMBLY AND ASSEMBLY (Continued)

3. Remove the fifth gear synchronizer assembly.



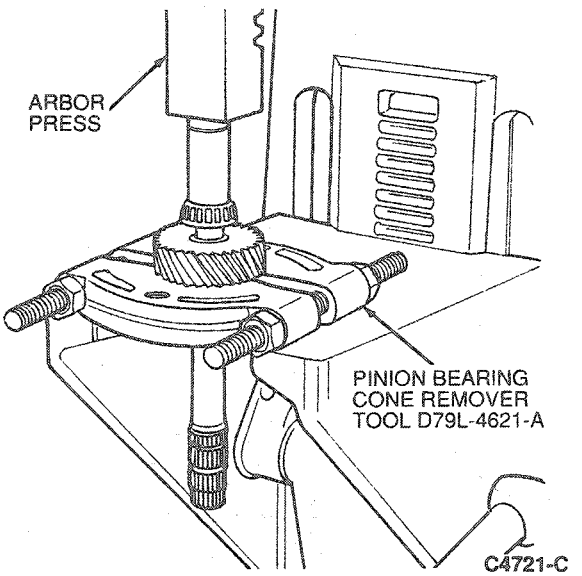
4. Remove the press fit bearing from the pinion end of the shaft, using Pinion Bearing Cone Remover D79L-4621-A or equivalent.



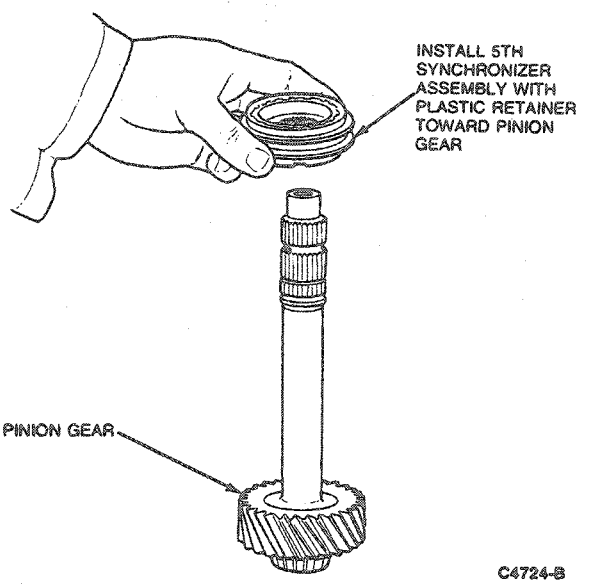
Assembly

NOTE: Prior to assembly, thoroughly clean all parts and inspect their condition. Lightly oil the gear bore with Synthetic MERCON® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-M2C163-A2) or equivalent.

1. Press the bearing onto the pinion gear end of the fifth gear shaft.

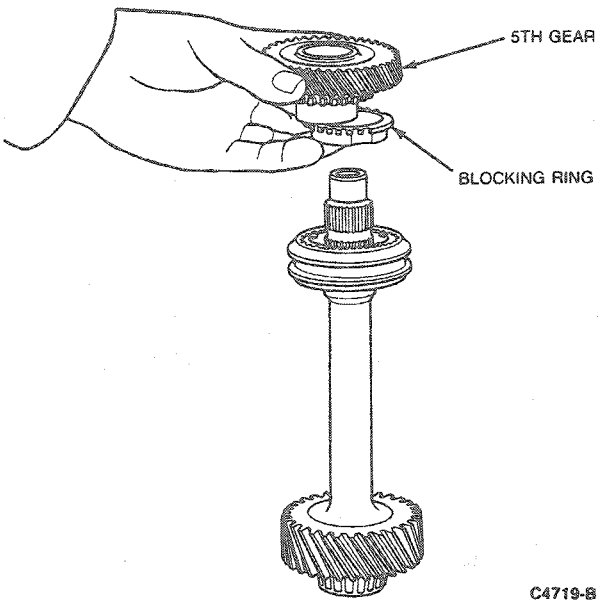


2. Install the fifth synchronizer assembly with the plastic insert retainer facing the pinion gear.

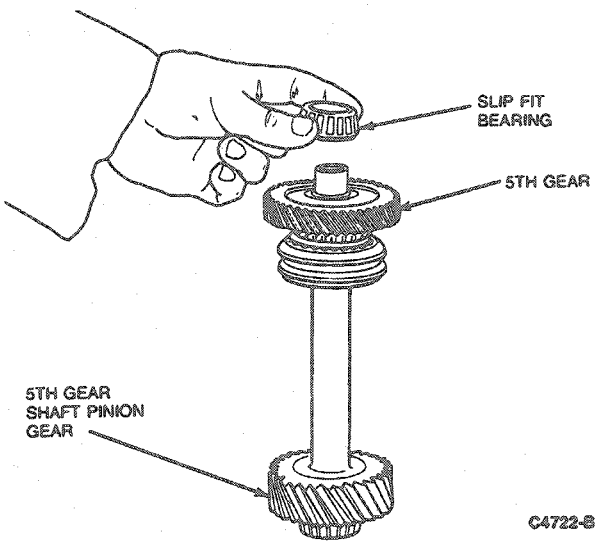


DISASSEMBLY AND ASSEMBLY (Continued)

3. Install the fifth gear and blocking ring.



4. Install the slip fit bearing on the fifth gear end of the shaft.



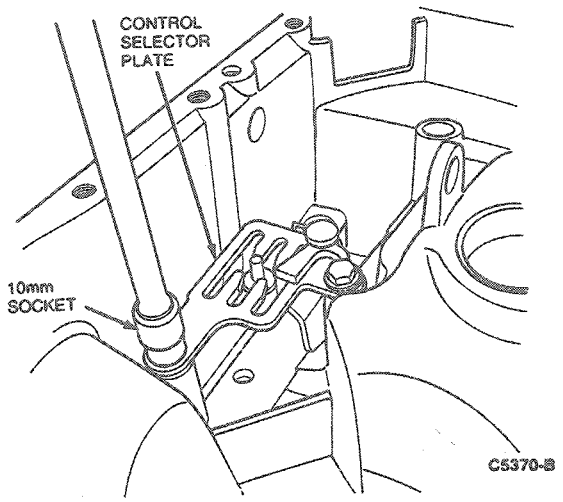
Clutch Housing

Tools Required:

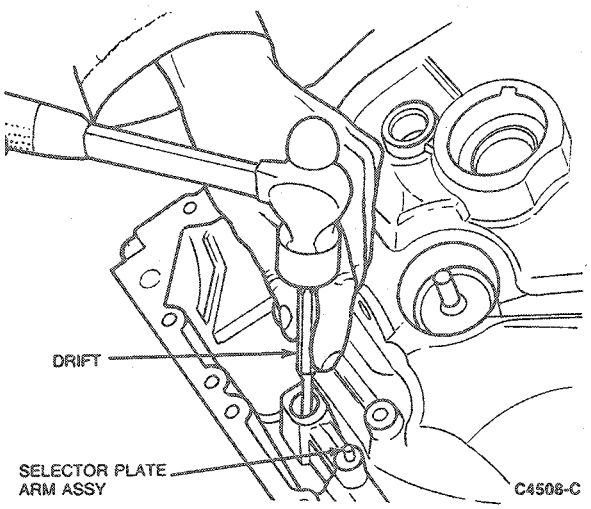
- Impact Slide Hammer T50T-100-A
- Sector Shaft Seal Tool T77F-7288-A

Disassembly

1. Using a 10mm socket wrench, remove the two control selector plate retaining bolts. Remove the plate from the case.



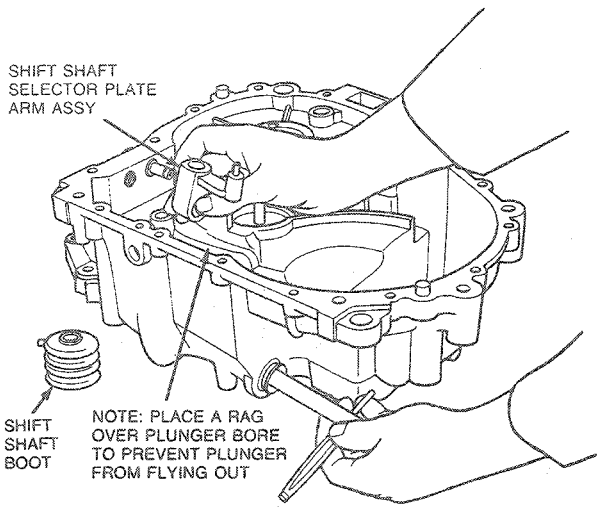
2. With the input shift shaft in the center detent position, using a drift, drive the spring pin through the selector plate arm assembly and through the input shift shaft into the recess in the clutch housing case.



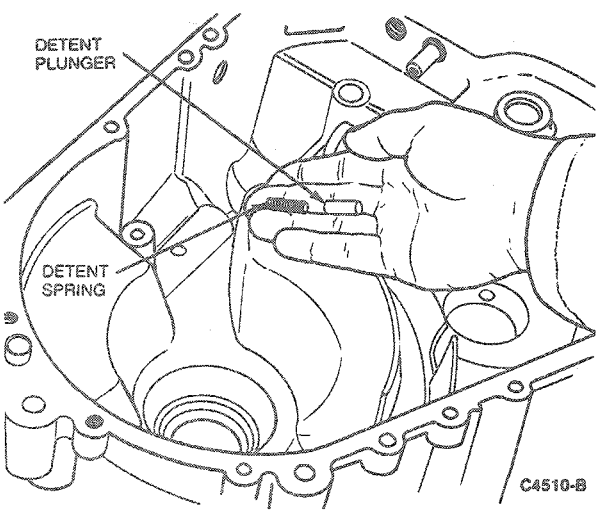
DISASSEMBLY AND ASSEMBLY (Continued)

3. Remove the shift shaft boot. Using a drift, rotate the input shift shaft 90 degrees, depressing the detent plunger from the shaft detent notches inside the housing and pull input shift shaft out.

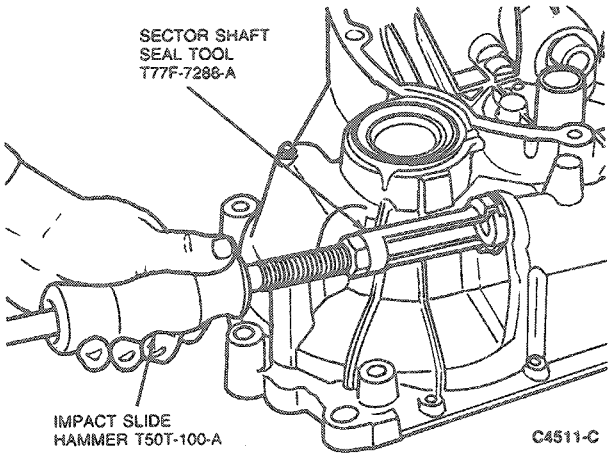
   Remove the input shift shaft selector plate arm assembly and the spring pin.



4. Using a pencil magnet, remove the input shift shaft detent plunge and spring and label for proper installation.



5. Using Sector Shaft Seal Tool T77F-7288-A and Impact Slide Hammer T50T-100-A, remove the transaxle input shift shaft oil seal assembly.

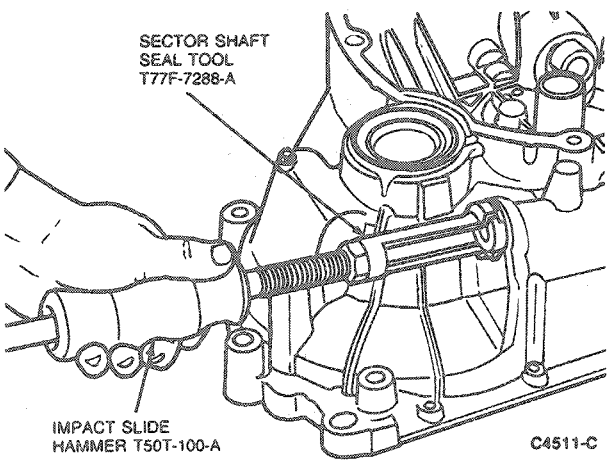


Assembly

NOTE: Prior to assembly, thoroughly clean all parts and inspect their condition. Lightly oil the gear bore with Synthetic MERCON® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-M2C163-A2) or equivalent.

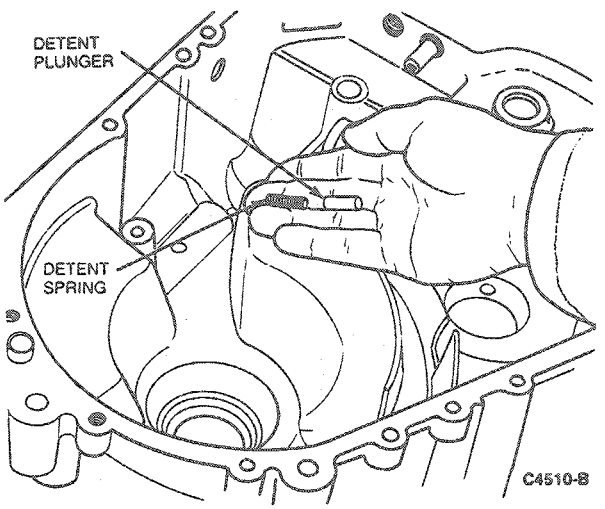
1. Grease the seal lip of a new input shift shaft oil seal.

   Using Sector Shaft Seal Tool T77F-7288-A and Impact Slide Hammer T50T-100-A, install a new input shift shaft oil seal assembly.



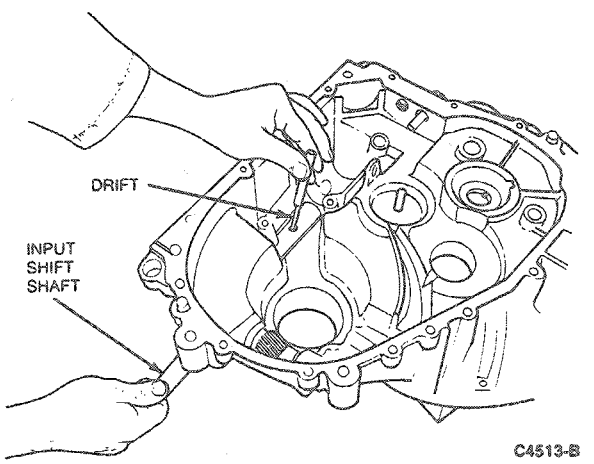
DISASSEMBLY AND ASSEMBLY (Continued)

2. Install the input shift shaft detent spring and plunger in the clutch housing case.



CAUTION: Be careful not to cut the shift shaft oil seal when inserting the shaft.

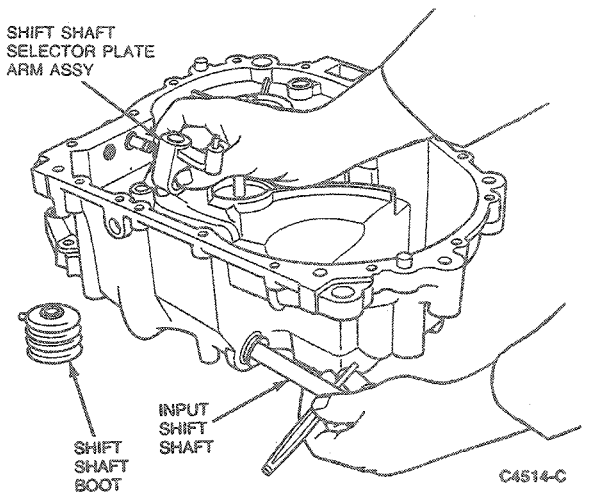
3. Using a small drift, force the spring and plunger down into its bore while sliding the input shift shaft into its bore and over the plunger.



NOTE: Be sure notches in the shift shaft face the detent plunger.

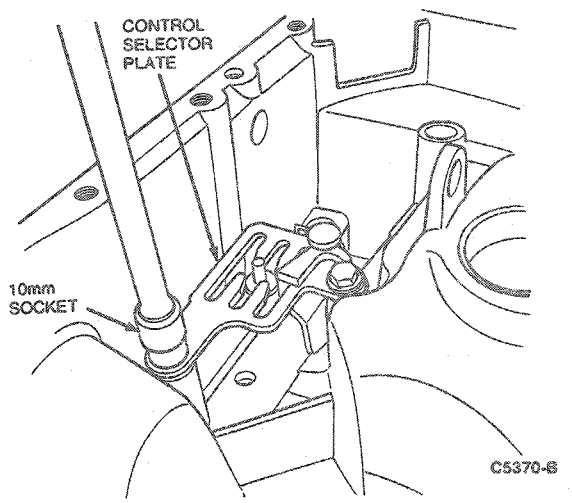
4. Install the selector plate arm in its working position and slide the shaft through the selector plate arm.

   Align the hole in the selector plate arm with the hole in the shaft and install the spring pin. Install the input shift shaft boot.



5. Install the control selector plate. Using a 10mm socket wrench, tighten the retaining bolts to 8-11 N·m (6-8 lb-ft) (pin in selector arm must ride in cutout of gate in the selector plate).

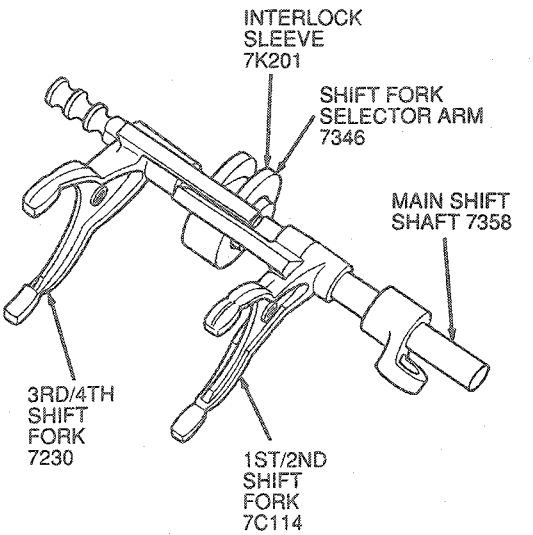
   Move input shift shaft through the selector plate positions to make sure everything works properly.



DISASSEMBLY AND ASSEMBLY (Continued)

Main Shift Control Shaft

Assembled View



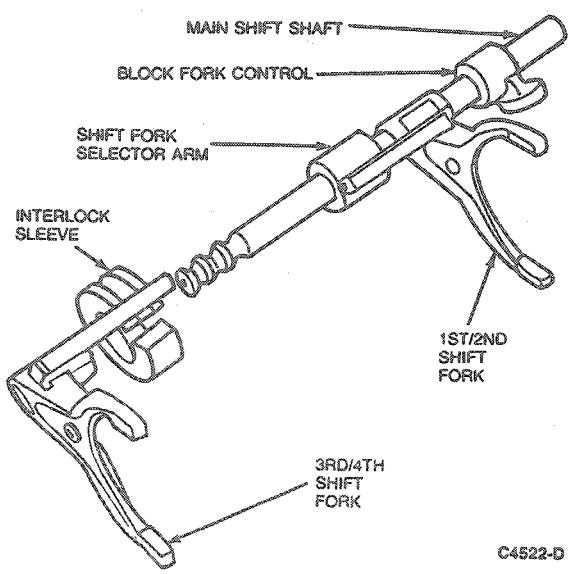
C4519-E

Disassembly

1. Rotate the third / fourth shift fork on the shaft until the notch in the fork is located over the interlock sleeve.

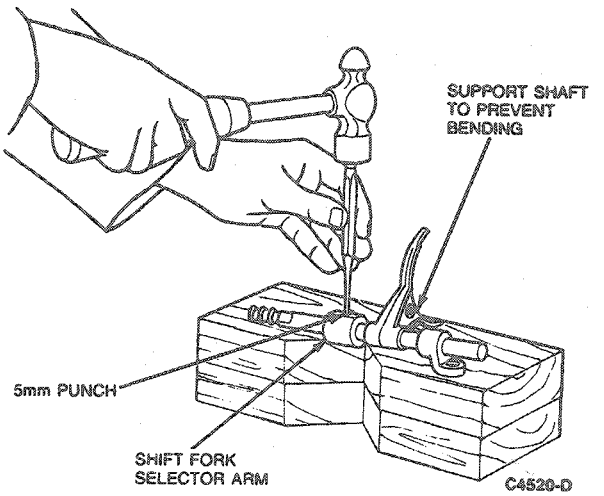
   Rotate the first / second shift fork on the shaft until the notch in the fork is located over the shift fork selector arm finger.

   With the forks in position, slide the third / fourth fork and interlock sleeve off the shaft.



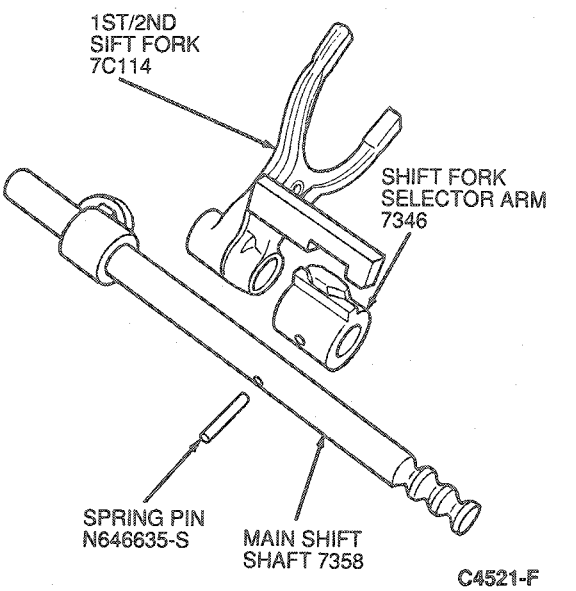
C4522-D

2. Using a 5mm punch, remove the selector arm spring pin.



C4520-D

3. Remove the shift fork selector arm and first / second shift fork from the shaft.

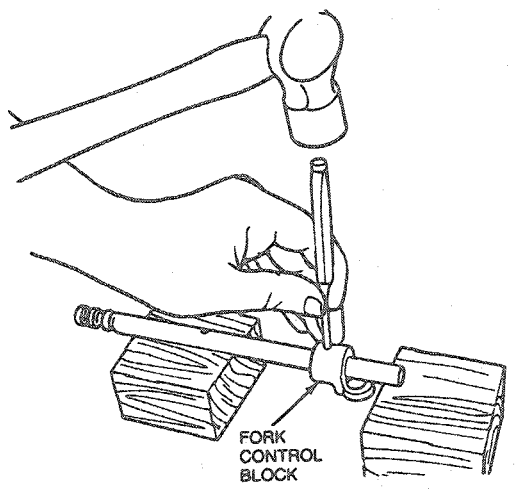


C4521-F

DISASSEMBLY AND ASSEMBLY (Continued)

4. Using a 5mm punch, remove the fork control block spring pin.

   Remove the fork control block from the shift control shaft.



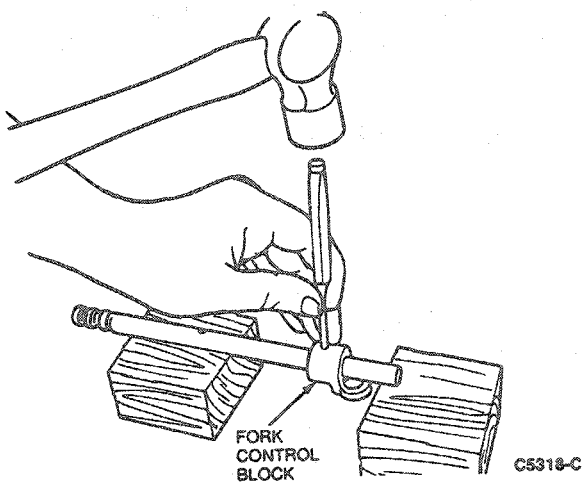
Assembly

NOTE: Prior to assembly, thoroughly clean all parts and inspect their condition. Lightly oil the gear bore with Synthetic MERCON® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-M2C163-A2) or equivalent.

1. Slide fork control block onto the shift control shaft.

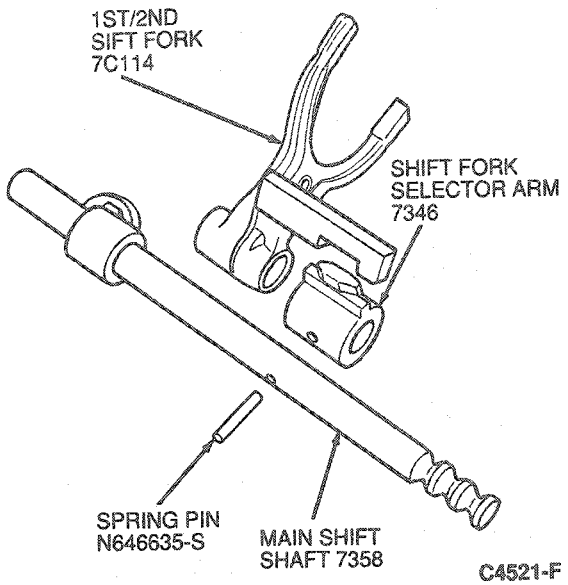
   NOTE: With pin installed in control block, offset must point toward end of shaft.

   Align the hole in the block with the hole in the shaft and install the fork control block spring pin using a 5mm punch.

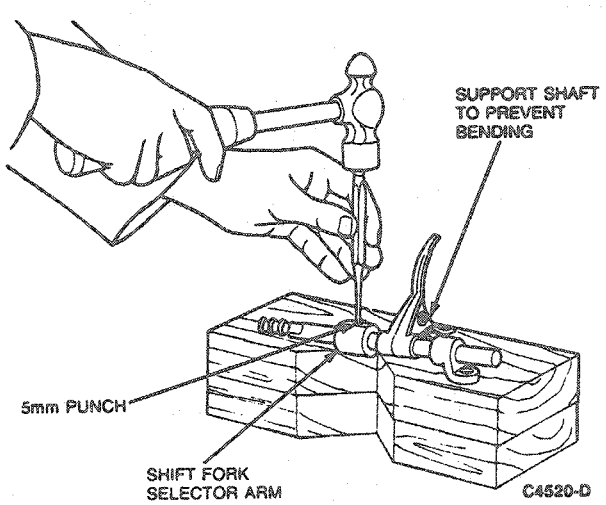


2. Install the first / second shift fork and the selector arm on the shaft.

   NOTE: The first / second shift fork is thinner than the third / fourth shift fork.



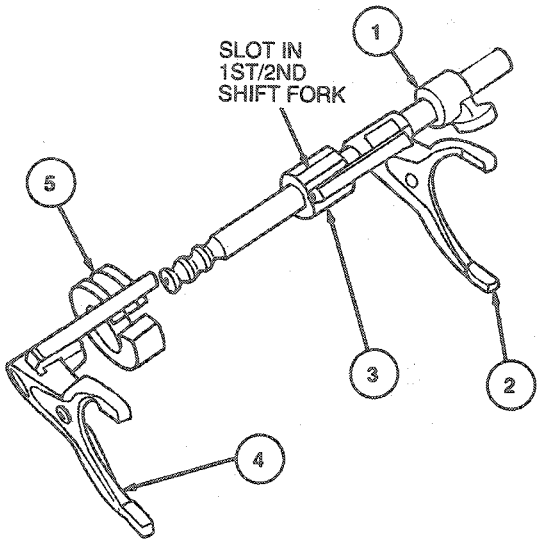
3. Align the hole in the shift fork selector arm with the hole in the shaft and install the spring pin.



4. Position the slot in the first / second fork over the fork selector arm finger.

   Position the slot in the third / fourth fork over the interlock sleeve.

DISASSEMBLY AND ASSEMBLY (Continued)



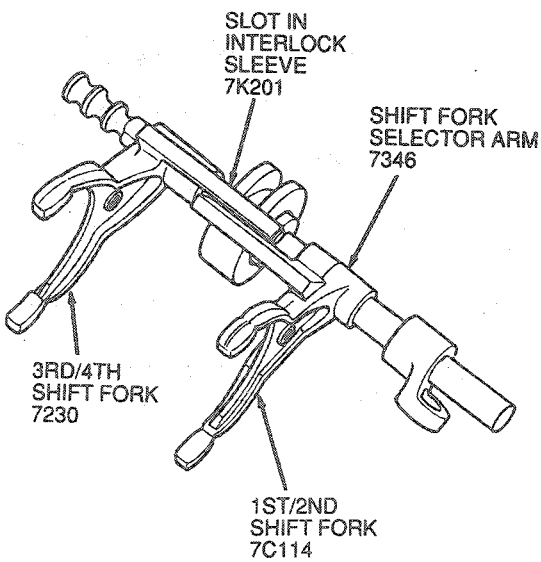
C4525-E

Item	Part Number	Description
1	7K105	Block Fork Control
2	7C114	1st / 2nd Shift Fork
3	7346	Shift Fork Selector Arm
4	7230	3rd / 4th Shift Fork
5	7K201	Interlock Sleeve

NOTE: When assembled, forks should be aligned.

Slide the third / fourth fork and interlock sleeve onto the main shift control shaft.

Align the slot in the interlock sleeve with the finger on the shift fork selector arm and slide the sleeve and third / fourth fork into position.



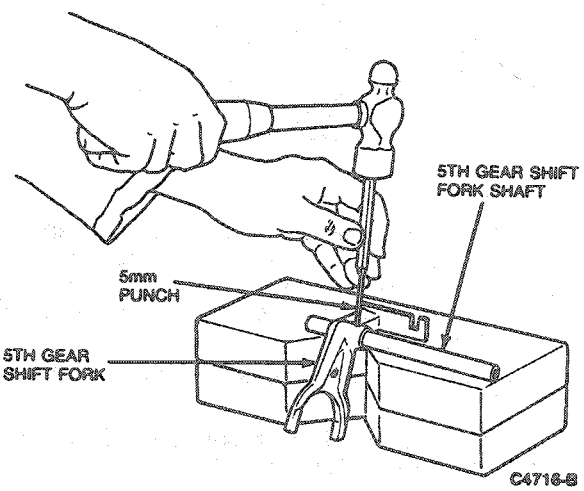
C4701-E

Item	Part Number	Description
1	7K105	Block Fork Control
2	7C114	1st / 2nd Shift Fork
3	7346	Shift Fork Selector Arm
4	7230	3rd / 4th Shift Fork
5	7K201	Interlock Sleeve

Fifth Gear Shift Control

Disassembly

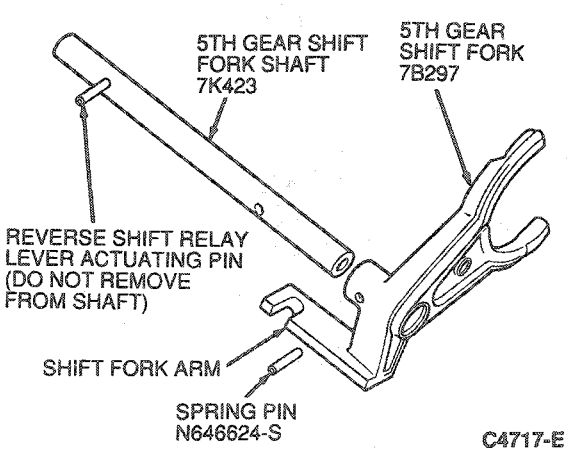
1. Using a 5mm punch, remove the spring pin.
2. Slide the fork from the shaft.



C4716-B

Assembly

1. Holding the shaft with the hole on the left, install the fifth gear shift fork so that the protruding arm is pointing toward the long end of the shaft.
2. Install the spring pin.



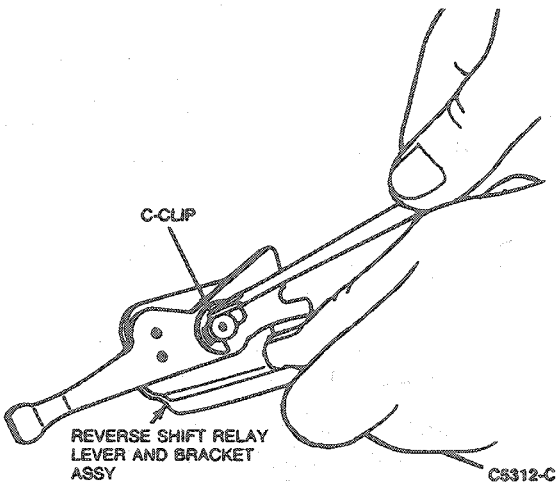
C4717-E

DISASSEMBLY AND ASSEMBLY (Continued)

Reverse Shift Relay Lever and Bracket

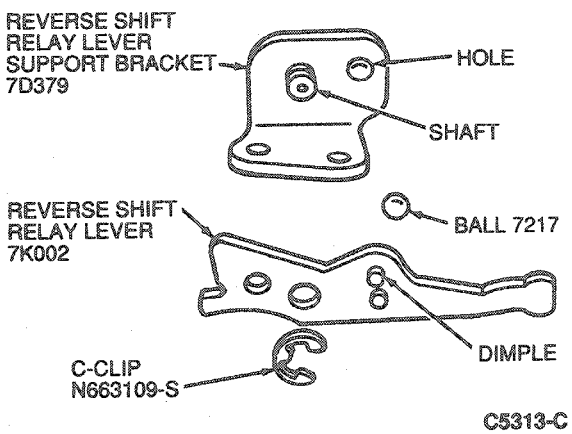
Disassembly

1. Using a small screwdriver, remove the C-clip retaining ring from the reverse shift relay support bracket.



NOTE: DO NOT remove the shaft or springs from the support bracket.

2. Slide the reverse shift relay lever off the support shaft and remove the steel ball and springs between them.



Assembly

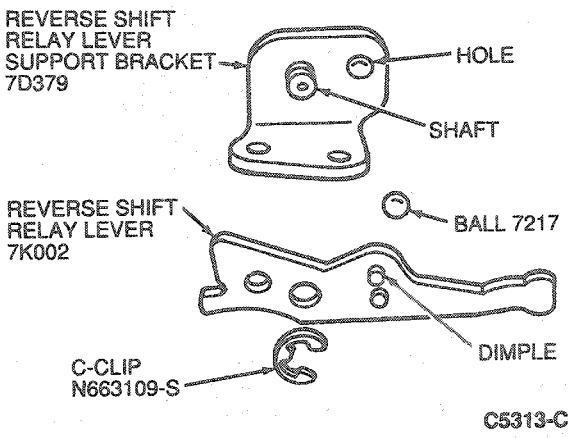
1. Place the ball in the hole in the support bracket.

   NOTE: Make sure the lever is installed so that the bend in the lever is toward the bracket.

2. Slide the reverse relay lever onto the support bracket pin.

   Align the ball with dimples on reverse shift relay lever.

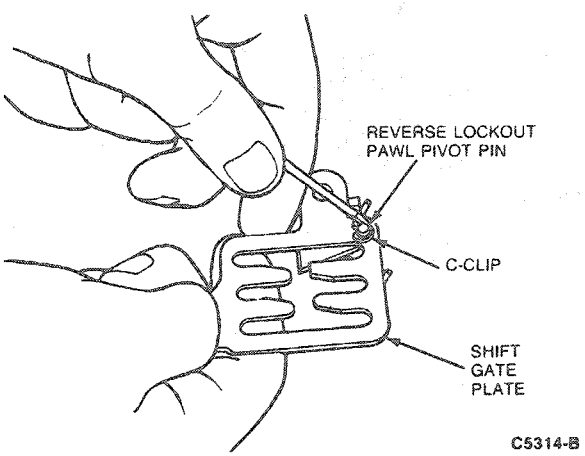
3. Install C-clip onto reverse shift lever support bracket shaft to retain reverse shift relay lever.



Selector Control Plate

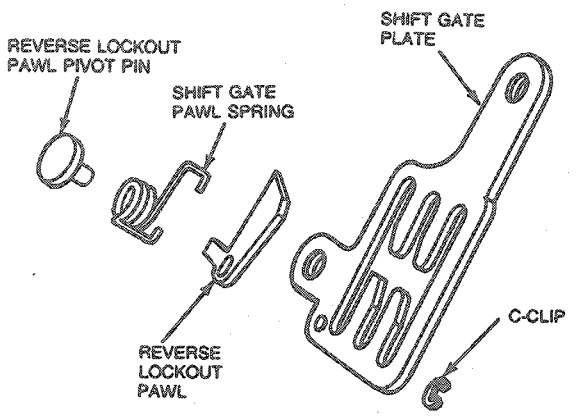
Disassembly

1. Using a small screwdriver, remove C-clip retaining reverse lockout pawl pivot pin to shift gate plate.



DISASSEMBLY AND ASSEMBLY (Continued)

2. Remove reverse lockout pawl, pin and spring from shift gate plate.

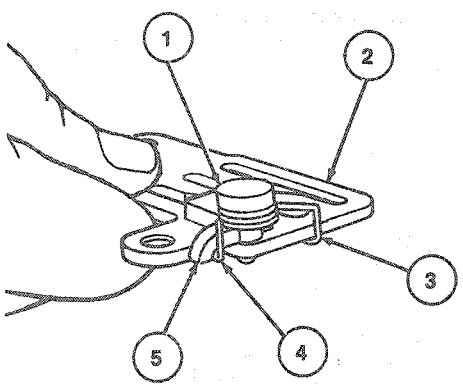


C5315-C

Assembly

NOTE: Make sure the lower (shorter) leg of the spring rests against the reverse lockout pawl and the upper (longer) leg of the spring rests against the shift gate plate. Ensure spring is against shoulder of reverse lockout pivot pin and does not interfere with pin seating against reverse lockout pawl.

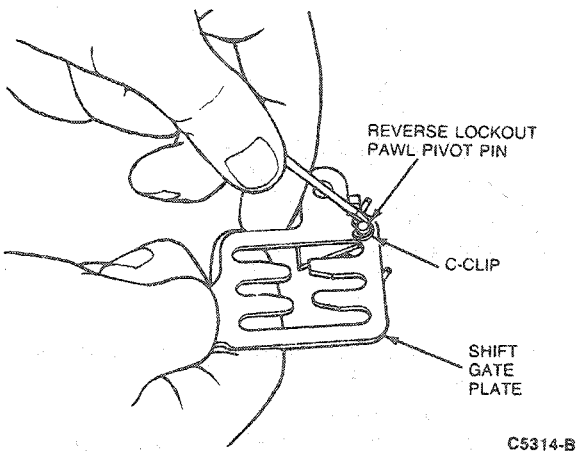
1. Install reverse lockout pawl, pin, and spring.



C5316-D

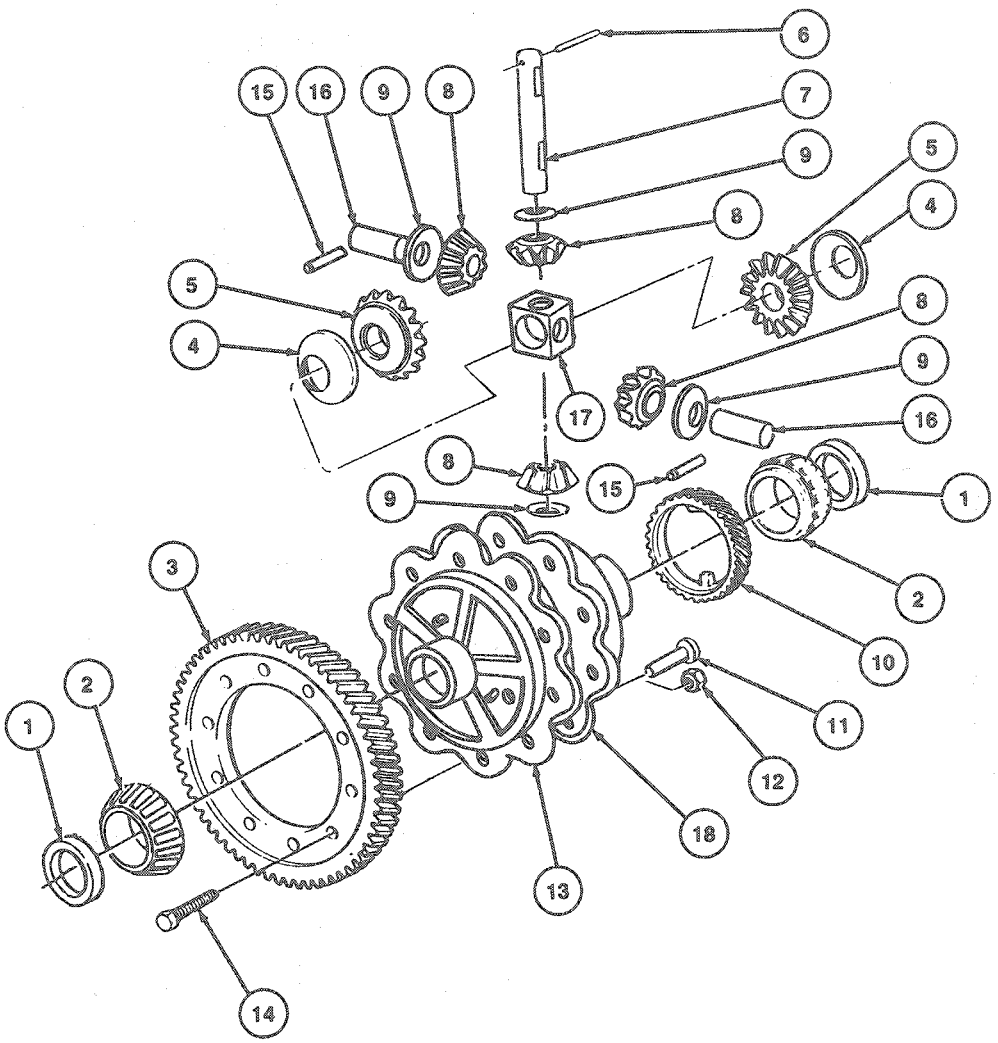
Item	Part Number	Description
1	7E484	Reverse Lockout Pawl Pivot Pin
2	7F476	Shift Gate Plate
3	7E200	Shift Gate Pawl Spring (Upper Longer Leg)
4	7E200	Shift Gate Pawl Spring (Lower Shorter Leg)
5	7E159	Reverse Lockout Pawl

2. Install C-clip to reverse lockout pawl pivot pin.



C5314-B

DISASSEMBLY AND ASSEMBLY (Continued)



E6198-B

Item	Part Number	Description
1	4222	Differential Bearing Cup
2	4221	Diff. Bearing Cone and Roller Assy
3	7F343	Final Drive Ring Gear
4	4228	Diff. Side Gear Thrust Washer (2 Req'd)
5	4236	Differential Side Gear (2 Req'd)
6	N800979-S	Pinion Shaft Retaining Pin
7	4211	Pinion Gear Shaft
8	4215	Pinion Gear (4 Req'd)
9	4230	Thrust Washer (4 Req'd)

(Continued)

Item	Part Number	Description
10	17285	Speedometer Drive Gear
11	N802940-S	Final Drive Gear Attaching Rivet
12	—	Final Drive Gear Attaching Nut (For Service Replacement of Gear Only)
13	4206	LH Differential Gear Case
14	—	Final Drive Gear Attaching Bolt (For Service Replacement of Gear Only)
15	N800979-S	Spring Pin (2 Req'd)
16	4419	Pinion Shaft (2 Req'd)
17	4420	Pinion Shaft Seat
18	4205	RH Differential Gear Case

Tools Required:

- Differential Bearing Cone Remover T57L-4220-A

DISASSEMBLY AND ASSEMBLY (Continued)

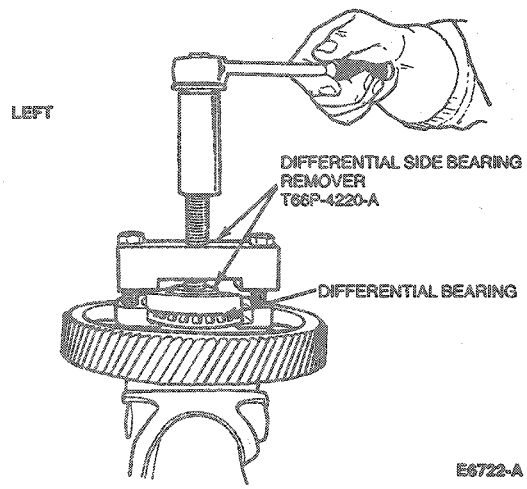
- Differential Side Bearing Remover T66P-4420-A
- Step Plate T81P-4220-A
- Differential Bearing Cone Installer T83P-4220-CH

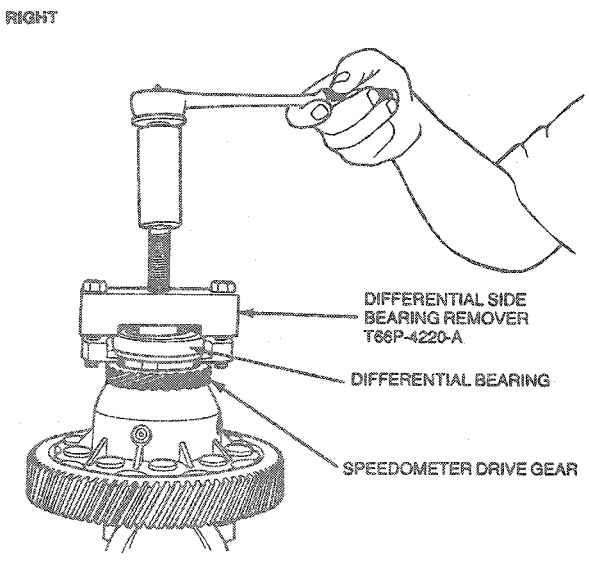
Disassembly

NOTE: Failure to use the bearing cup will result in damage to the bearing.

1. Remove RH differential bearing cup from case and install over RH differential bearing.

   With the bearing cup in position, remove bearing from the speedometer side of differential using Differential Side Bearing Remover and Step Plate T66P-4220-A.





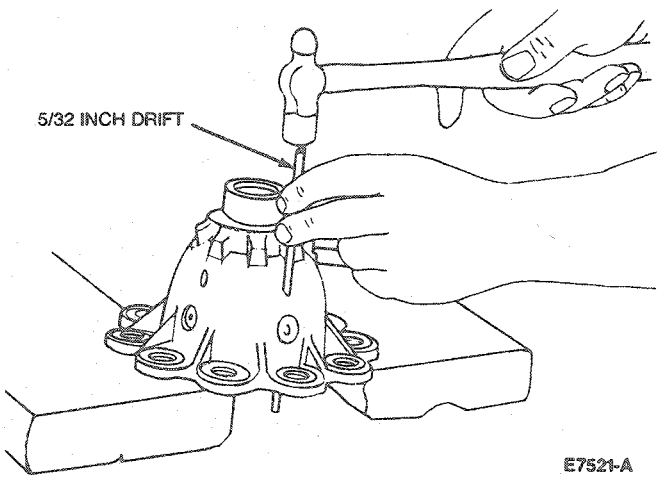
2. Remove speedometer drive gear.

   The speedometer drive gear is plastic and is not pressed onto the differential case.

3. If necessary, remove LH differential roller bearing using Differential Bearing Cone Remover T57L-4220-A and Step Plate T81P-4220-A.

   NOTE: Ensure the speedometer gear has been removed before removing the retaining pins.

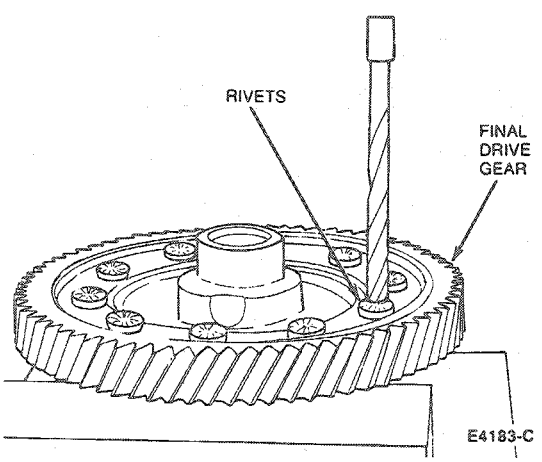
4. Drive out three pinion shaft retaining pins using a 4mm (5/32 inch) drift.



5. Remove final drive gear rivets using a 10mm (3/8 inch) drill.

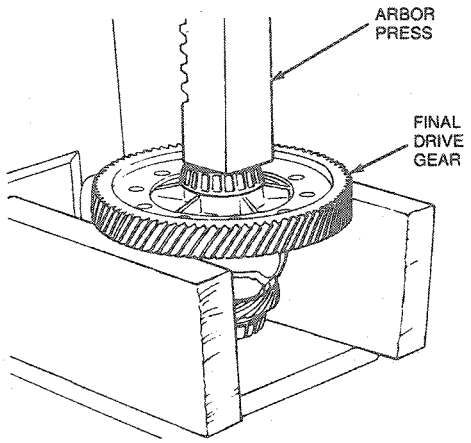
   To prevent distortion of the case, drill the preformed side of the rivet only.

   After drilling, remove head of the rivet using a chisel. Drive remaining rivet shank out using a punch.



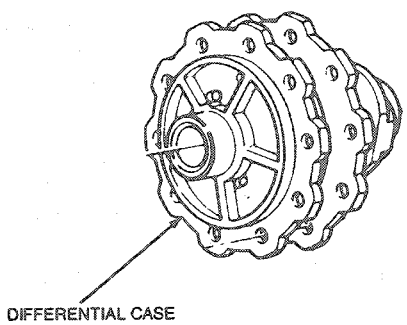
DISASSEMBLY AND ASSEMBLY (Continued)

6. Using an arbor press, remove final drive gear from differential case.



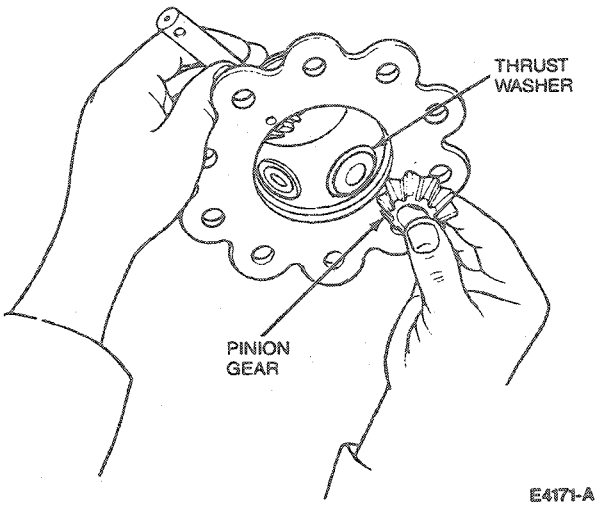
E7522-A

7. Separate differential case halves by lightly tapping the LH side away from RH side using a hammer and drift.



E7523-A

8. Remove LH side gear and thrust washer from case.
9. Using a drift and hammer, gently tap long pinion shaft through pinion shaft seat and pinion gears and remove from case.



E4171-A

10. Remove four pinion gears, pinion thrust washers, pinion gear shaft seat, and RH side gear and side gear thrust washer.

Assembly

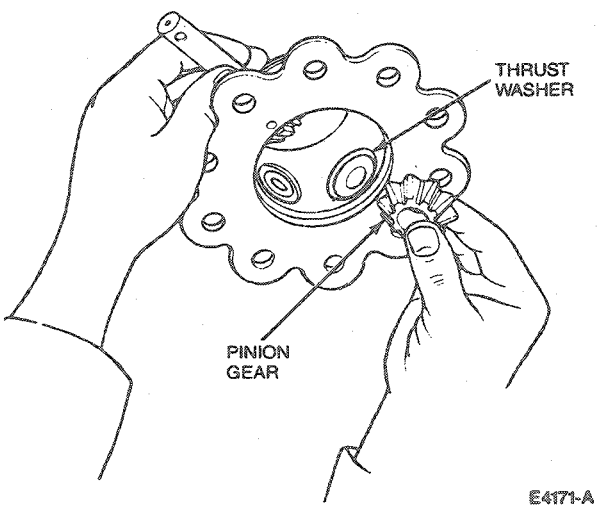
To assemble the differential, reverse the Disassembly procedure except for the following:

1. Lubricate thrust washer and thrust surfaces on the gears and differential case with automatic transmission fluid.
2. If removed, align and press final drive gear onto differential case.

   Install gear retaining bolts and nuts. Tighten bolts to 108-136 N·m (80-100 lb-ft).

   Note direction of bolts.

   Use only nuts and bolts supplied for service.

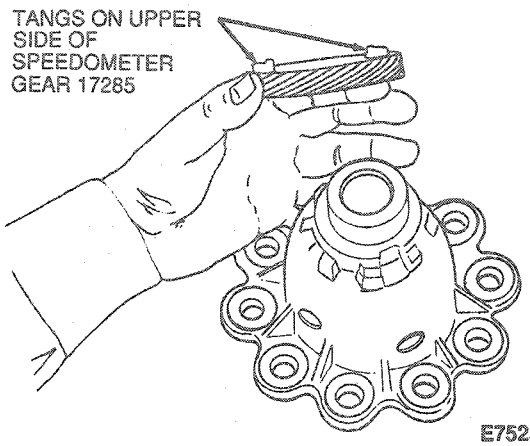


E4171-A

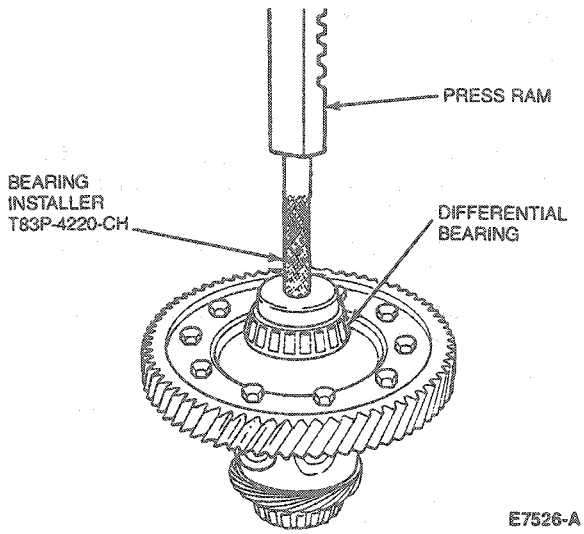
NOTE: Install the speedometer drive gear so that tangs are positioned on upper side of gear.

DISASSEMBLY AND ASSEMBLY (Continued)

3. Install speedometer drive gear.



4. Install differential roller bearings using Differential Bearing Cone Installer T83P-4220-CH.



CLEANING AND INSPECTION

Transaxle Case

Inspection

NOTE: Avoid unnecessary or prolonged exposure of the input and differential seals to any solvents used to clean the transaxle case.

NOTE: Casting imperfections sometimes look like cracks.

1. Inspect the transaxle case and clutch housing case for cracks, worn or damaged bearing bores, damaged threads, or any other damage that could affect the operation of the transaxle.
2. Inspect the transaxle case and clutch housing case mating surfaces for small nicks or burrs that could cause misalignment of the two halves. Remove all small nicks or burrs with a fine stone or file.
3. Inspect the tapered roller bearings. Refer to Bearings Diagnosis.
4. Check the input cluster shaft for chipped teeth, cracks, scores or bent reverse gear teeth.
5. Check the reverse idler gear and reverse sliding gear for chipped, broken or bent teeth. Check the reverse idler gear for bushing damage. Check wear of the reverse idler gear shaft. It is normal for the front of the teeth to show wear; this does not interfere with proper function.
6. Check the teeth, splines and journals of the main shaft for damage.
7. Check all other gears for chipped, broken or worn teeth. Check for eroded clutching teeth and damaged cone surfaces. These clutching teeth will normally show rounding of the points, which does not interfere with normal operation.
8. Check the synchronizer sleeves for free movement on their hubs. Make sure the alignment marks are properly indexed. Check for damaged clutching teeth. (These splines normally show wear at the points, but this does not interfere with synchronizer function). Check for position of insert springs.
9. Inspect the synchronizer blocking rings for wear marks on the teeth and back face, which indicates that the ring was bottoming on the gear face, due to wear of the blocker ring.

Aluminum Transaxle Case Service

If a transaxle case thread is damaged, helicoil service kits may be purchased. To service a damaged thread, the following procedures should be carefully followed:

NOTE: The case threads which retain the following, should not be serviced:

- Fork interlock sleeve retaining pin
- Backup lamp switch
- Detent plunger retainer screw
- Control selector plate

1. Using the same drill size as the thread outside diameter, drill out the damaged threads. For example, use an 8mm drill for an 8mm X 1.5 thread.
2. Select the proper special tap and tap the drilled hole. The tap is marked for the size of the thread being serviced. The special tap marked 8mm X 1.5 will not cut the same thread as a standard 8mm X 1.5 tap. It does cut a thread large enough to accommodate the insert and after the insert is installed, the original thread size (8mm X 1.5) is restored.
3. Select the proper coil inserting tool. These tools are marked with the thread size being serviced. Place the insert on the tool and adjust the sleeve to the length of the insert being used. Press the insert against the face of the tapped hole. Rotate the tool clockwise and wind the insert into the hole until the insert is one-half turn below the face.

CLEANING AND INSPECTION (Continued)

4. Working through the insert, bend the insert tang straight up and down until it breaks off at the notch.
5. Improperly installed inserts can be removed with an extractor tool. Place the extractor tool in the insert so that the blade rests against the top coil, one-quarter to one-half turn away from the end of the coil. Tap the tool sharply with a hammer so that the blade will cut into the insert. Exert downward pressure on the tool and turn it counterclockwise until the insert is removed.

Flywheel

Manual-Shift Transaxle

Tools Required:

- Dial Indicator with Bracketry TOOL-4201-C

Inspection

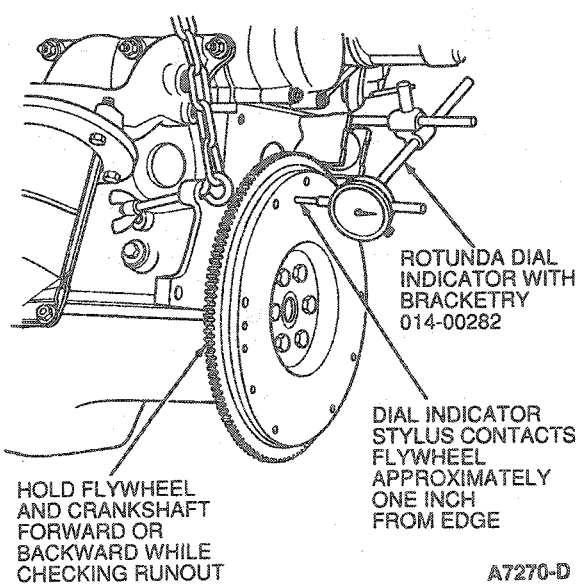
Inspect the flywheel for cracks, heat check, or other damage that would make it unfit for further service. Machine the friction surface of the flywheel if it is scored or worn. If it is necessary to remove more than 1.143mm (0.045 inch) of stock from the original thickness, replace the flywheel.

Inspect the ring gear for worn, chipped or cracked teeth. If the teeth are damaged, replace the ring gear.

With the flywheel installed on the crankshaft, check the flywheel face runout as outlined.

Flywheel Runout

1. Remove spark plugs.
2. Install Dial Indicator with Bracketry TOOL-4201-C or equivalent so indicator points rest on face of ring gear adjacent to gear teeth.



3. Hold flywheel and crankshaft forward or backward as far as possible to prevent crankshaft end play from being indicated as flywheel runout.
4. Set indicator dial on zero mark. Turn flywheel one complete revolution while observing total indicator reading (TIR). If TIR exceeds specification, flywheel and ring gear assembly must be replaced.
5. If clutch face runout exceeds specification, remove flywheel and check for burrs between flywheel and face of crankshaft mounting flange. If no burrs exist, check runout of crankshaft mounting flange. Replace flywheel or machine crankshaft flywheel mounting face sufficiently to true-up the surface. If mounting flange runout exceeds specification, replace it. Refer to Flywheel Ring Gear for replacement procedure.

The differential case assembly should be inspected after it is removed from the transaxle. Thoroughly clean all parts making sure that new solvent is used to clean bearings. Do not spin dry bearings with compressed air. Oil the bearings immediately to prevent corrosion. Avoid directly spraying the differential oil seals with solvent. Carefully wipe the seals clean.

Gears

Examine the pinion and side gears for scoring, excessive wear, nicks and chips. Worn, scored and damaged gears cannot be serviced and must be replaced.

Differential Case

The mating surfaces of the differential case halves should be inspected for any nicks and/or burrs that may prohibit proper assembly. Remove nicks or small burrs.

Ensure the differential bearing journals are smooth. Carefully examine the differential case bearing shoulders, which may have been damaged when the bearings were removed. The bearings will fail if they do not seat firmly against the shoulders. Check the fit (free rotation) of the side gears in their cavities.

Bearing Cups

Check bearing cups for scores, galling or spalling. If the bearing cups are not damaged, do not remove them from the transaxle case or the clutch housing. If the bearing cups must be replaced, remove and install them with the appropriate tools.

CLEANING AND INSPECTION (Continued)

Cone and Roller Assemblies

Bearing rollers must turn without roughness in their cups. Examine the roller ends for step wear. If inspection reveals either a damaged cup or a damaged cone and roller assembly, both parts must be replaced.

MAJOR SERVICE OPERATIONS

Input Cluster Shaft Seal Assembly

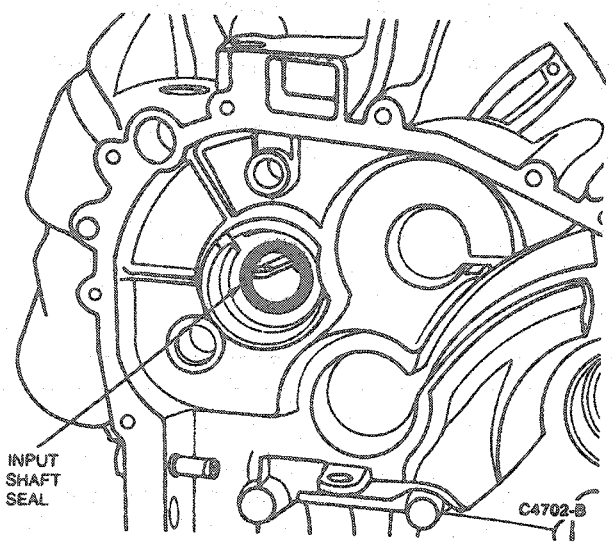
Tools Required:

- Input Shaft Seal Remover T77F-7050-B

Removal

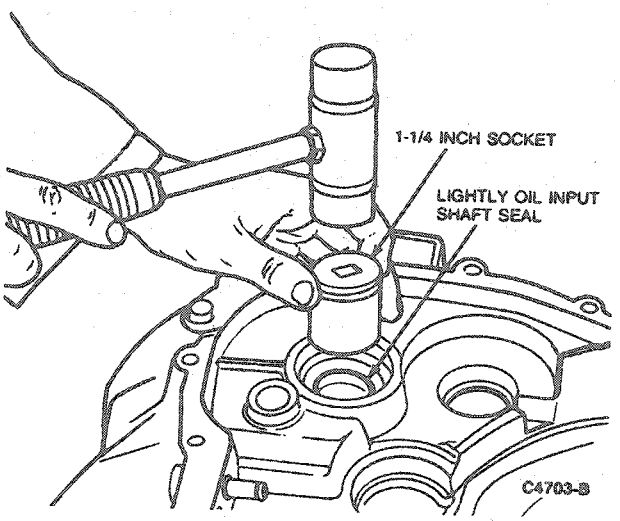
Using Input Shaft Seal Remover T77F-7050-B and a hammer, remove the input shaft seal, working from outside the case.

Position the remover against the seal by placing it in the slot cut in the case.



Installation

To install, lightly oil the input shaft seal and using a 1-1/4 inch socket and hammer, tap into place.



Input Cluster Shaft Bearings

Tools Required:

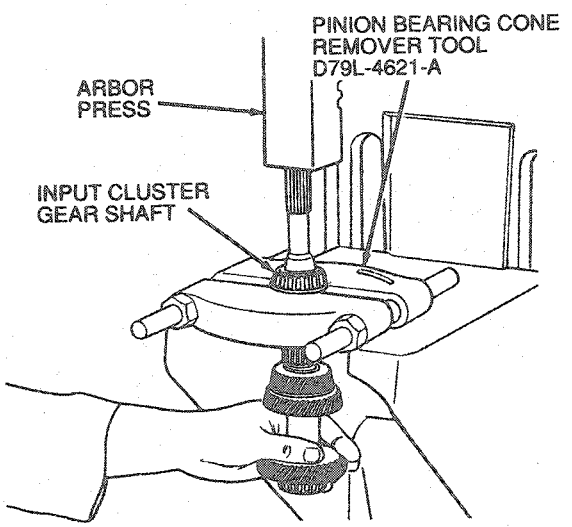
- Pinion Bearing Cone Remover D79L-4621-A

Removal

NOTE: Inspect the bearings and replace them only if worn or damaged.

Remove the bearing cone and roller assemblies using Pinion Bearing Cone Remover D79L-4621-A or equivalent and an arbor press.

NOTE: Label bearings for proper installation.

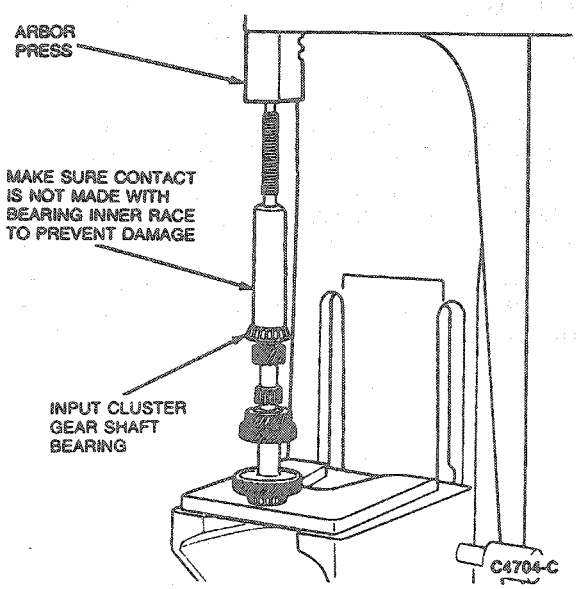


MAJOR SERVICE OPERATIONS (Continued)

Installation

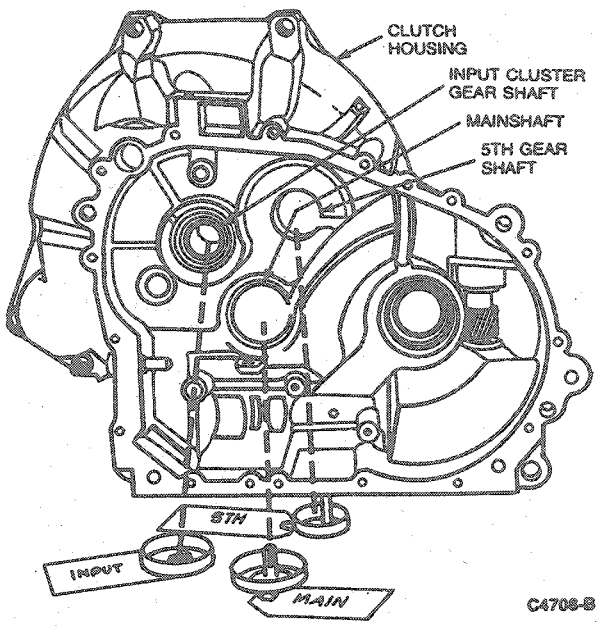
NOTE: Prior to installation of the bearings, thoroughly clean the bearings and inspect their condition. Lightly oil the bearings with Synthetic MERCON ® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-2C163-A2) or equivalent.

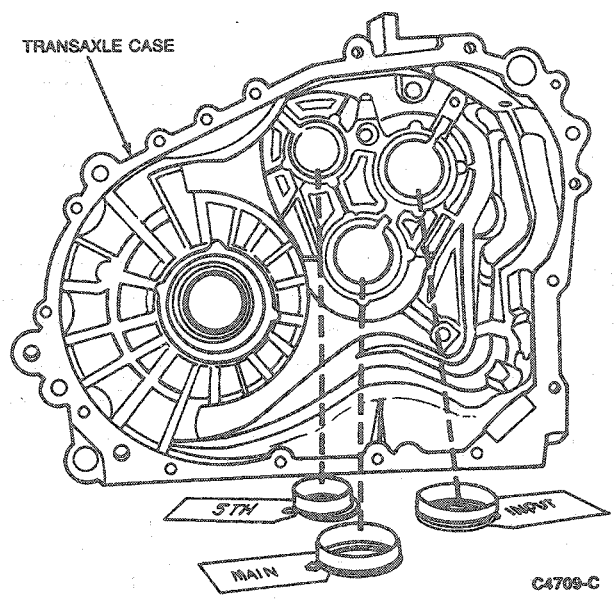
Using Pinion Bearing Cone Remover D79L-4621-A or equivalent and an arbor press, install the bearing on the shaft. Make sure the bearings are pressed on the proper end as labeled during disassembly.



Bearing Cups

The input cluster shaft, the main shaft and the fifth gear driveshaft are supported at each end by tapered roller bearings. The cups supporting the bearings in the case are located as follows: three in the transaxle case and three in the clutch housing.





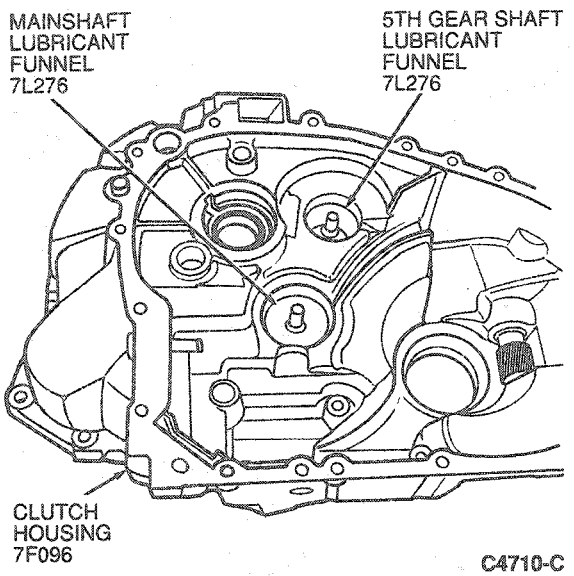
Shims, to preload the tapered roller bearings, are located behind the bearing cups in the transaxle case only. It is important to keep the shim with its matching cup during disassembly. It is equally important to label the bearing cups if they are removed from the case.

After removal of the main shaft bearing and the fifth gear shaft bearing cups from the clutch housing, the funnels can be removed from the bearing cup bores.

MAJOR SERVICE OPERATIONS (Continued)

The funnels direct lubricant to a drilled hole in the center of the main shaft and the fifth gear driveshaft. The lubricant flows through these shafts, where it lubricates the rotating gears.

NOTE: Prior to installation, thoroughly clean the bearing cups, their bores, and the shims and funnels. Inspect the condition of all parts. Lightly grease the bearing cups.



C4710-C

Preload Shims

NOTE: If the bearing cups are removed from the case for any reason, it is very important to keep the bearing cup and its matching shim together. It is also very important to label the bearing cups as they are removed from the transaxle case or clutch housing.

Preload on the input cluster shaft, main shaft and fifth gear driveshaft bearings is maintained by shims. These preload shims are located behind the bearing cups in the transaxle case.

Maintaining the proper bearing cup-to-shim relationship and proper bearing cup labeling will ensure the correct bearing preload when the transaxle is assembled.

A replacement bearing preload shim will be provided for service and should be installed in place of the original shim as outlined in the Service Shim chart.

When servicing requires the use of the service shim (refer to Service Shim chart), discard the original shim. Do not use more than one shim per shaft.

If parts are replaced other than the parts listed in the Service Shim Chart, then the original shims should be reused.

SERVICE SHIM CHART

Parts Replaced	Shims Replaced With Service Shim		
	Input Cluster Shaft	Main Shaft	5th Gear Shaft
1 Input Cluster Bearing	Yes	No	No
2 Input Cluster Bearings	Yes	No	No
1 Input Cluster Bearing 1 Mainshaft Bearing 1 5th Gear Shaft Bearing	Yes	Yes	Yes
2 Input Cluster Bearings 2 Mainshaft Bearings 2 5th Gear Shaft Bearings	Yes	Yes	Yes
1 Mainshaft Bearing	No	Yes	No
2 Mainshaft Bearings	No	Yes	No
1 5th Gear Shaft Bearing	No	No	Yes
2 5th Gear Shaft Bearings	No	No	Yes
Clutch Housing Assembly	Yes	Yes	Yes
Transaxle Case Assembly	Yes	Yes	Yes

NOTE: The shims must be installed only under the bearing cups at the transaxle case end of the three shafts.

NOTE: The use of a nominal thickness service shim eliminates the need for gauging bearing clearances prior to reassembly. While this method produces wider variations of bearing settings than are present in factory assembled units, the extreme possible settings have been tested and found to be acceptable.

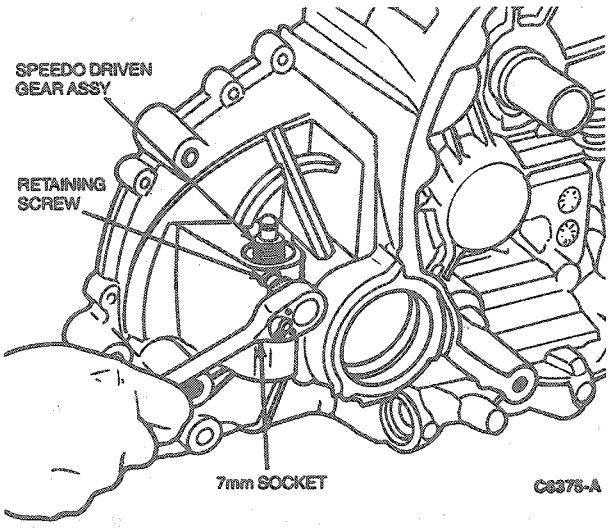
CC4264-A

MAJOR SERVICE OPERATIONS (Continued)

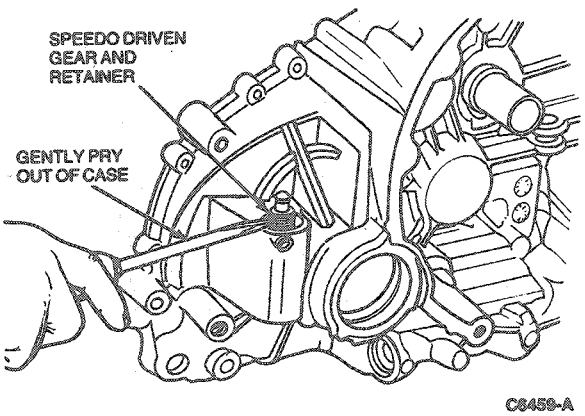
Speedometer Driven Gear

Removal

1. Using a 7mm socket, remove the retaining screw from the speedometer driven gear retainer assembly.



2. Using a screwdriver, pry on the speedometer retainer to remove both the speedometer gear and retainer assembly from the clutch housing case bore.



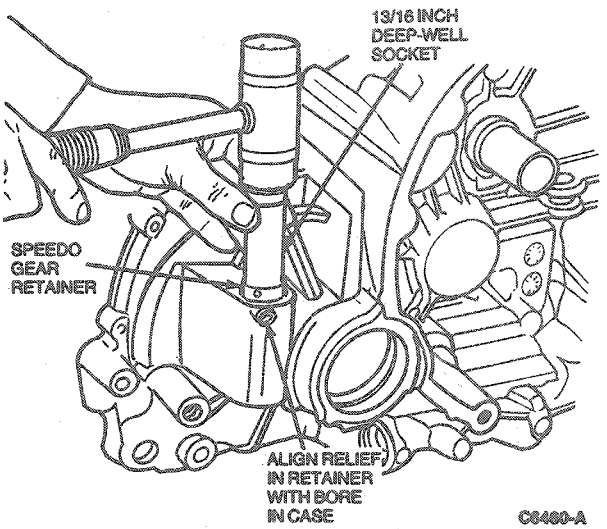
If necessary, carefully pry from the inside of the case on the bottom of the speedometer gear, pushing the speedometer gear and retainer from their bore. Be careful not to make contact with teeth on the speedometer gear.

Installation

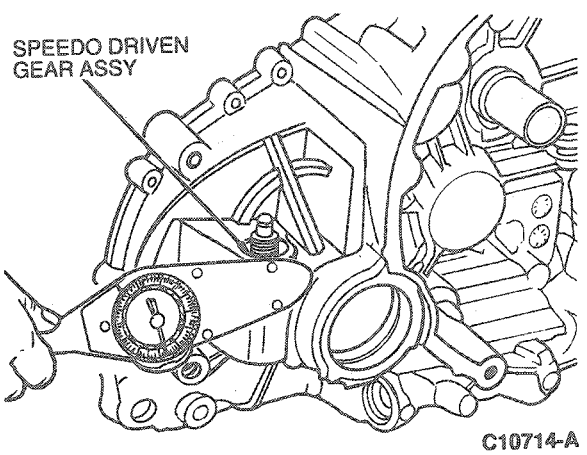
NOTE: Prior to installation, clean all speedometer gear parts and the retainer's bore in the case. Inspect all parts.

1. Lightly grease the (25mm X 2.6mm) O-ring seal on the speedometer driven gear retainer.

   Align the relief in the retainer with the retaining screw bore and using a 13/16-inch deep-well socket, tap the assembly into its bore.



2. Using a 7mm socket and torque wrench, tighten the retaining screw to 2-3 N·m (18-26 lb-in).



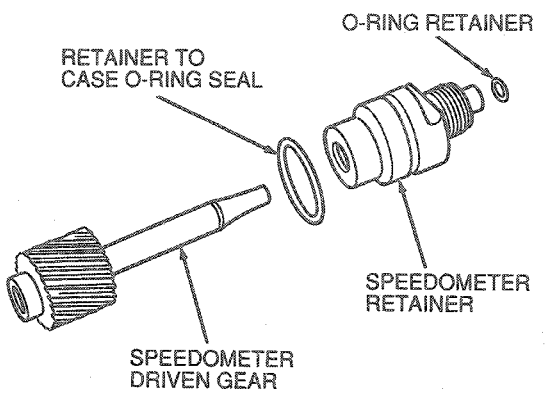
Speedometer Driven Gear

Disassembly and Assembly

1. Carefully remove the O-ring seal from the stem end of the speedometer driven gear.

MAJOR SERVICE OPERATIONS (Continued)

2. Slide the speedometer driven gear from the retainer.

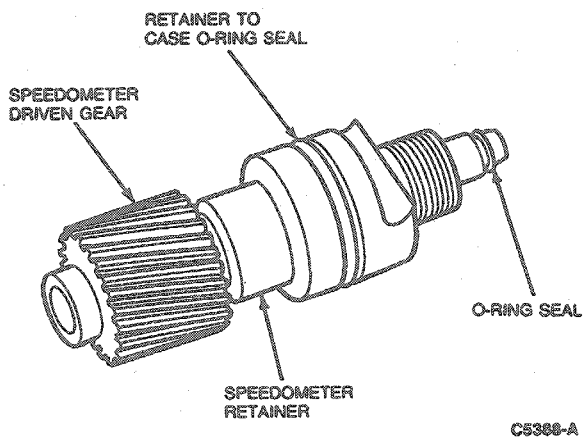


C5390-C

NOTE: Prior to assembly of the speedometer driven gear, clean all parts thoroughly. Inspect all parts and replace if damaged. Lightly grease the O-ring on the retainer.

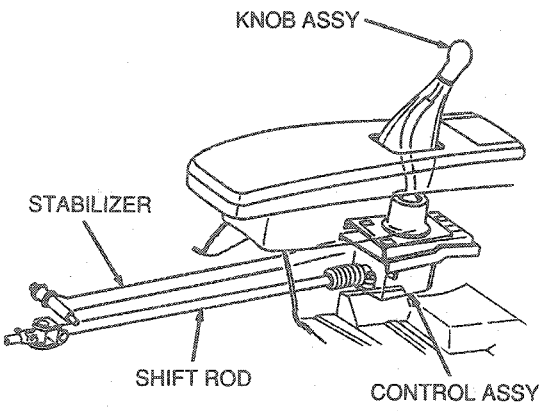
3. Carefully remove the O-ring seal from its groove in the retainer.

To assemble the speedometer driven gear, reverse Removal procedure.



C5388-A

External Gear Shift Linkage

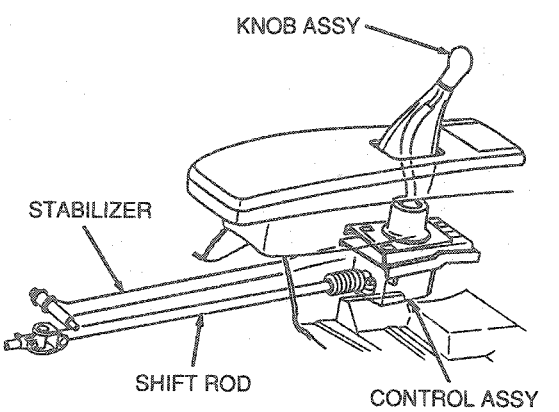


C9696-A

Shift Knob, Boot and Control Assembly

Removal

1. Remove leather wrapped knob by rotating knob counterclockwise.
2. Remove console applique and boot assembly. Slide assembly off shift lever.



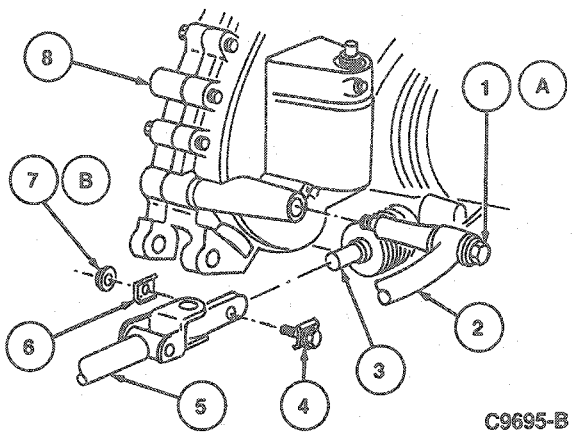
C9696-A

3. Raise vehicle on hoist. Refer to Section 00-02.
4. Remove exhaust resonator pipe to clear control assembly heat shield.
5. Remove shift mechanism stabilizer bar-to-transaxle retaining bolt. Remove shift rod-to-shift shaft retaining nut and bolt. Remove rods from transaxle.
6. Remove two nuts retaining rear mount-to-lower mounting bracket.
7. Pull control assembly down to remove it from vehicle.

MAJOR SERVICE OPERATIONS (Continued)

Installation

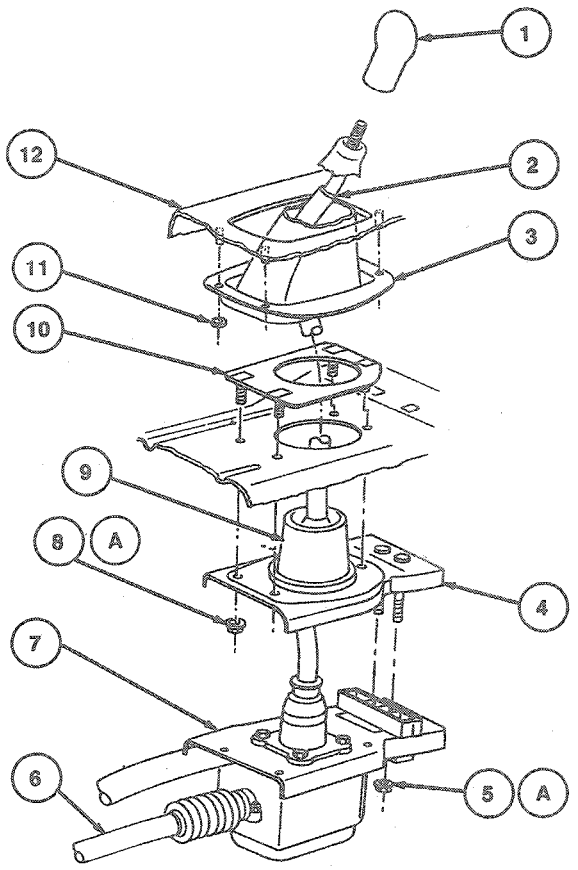
1. Connect stabilizer and shift rod to transaxle. Tighten stabilizer bolt to 47-63 N·m (35-46 lb-ft). Tighten shift rod clamp bolt and nut to 9-12 N·m (80-106 lb-in).



C9695-B

Item	Part Number	Description
1A	N601426	MH M12 X 1.75
2	7400	Stabilizer Shaft
3	7L267	Shift Shaft
4	7K104	Clamp
5	7202	Shift Rod
6	7K105	Clamp
7B	N620480-S2	Nut M6 X 1.00
8	—	Transaxle Assy.
A		Tighten to 47-63 N·m (35-46 Lb-Ft)
B		Tighten to 9-12 N·m (80-106 Lb-In)

2. Lift control assembly into position, insert shift lever through inner boot. Insert lower mounting bracket studs through rear mount. Tighten nuts to 13-17 N·m (115-150 lb-in).



C9694-B

Item	Part Number	Description
1	7K327	Knob Assy
2	7210	Shift Lever
3	7B118	Boot
4	7L238	Lower Mounting Bracket
5A	N801555-S56	Nut (2 Req'd)
6	7202	Shift Rod
7	7400	Control Assy
8A	N801555-S56	Nut (4 Req'd)
9	—	Part of Lower Mounting Bracket
10	7L239	Inner Mounting Bracket
11	45043-S2	Spring Nut (4 Req'd)
12	—	Console Body
A		Tighten to 13-17 N·m (115-150 Lb-In)

3. Lower vehicle. Refer to Section 00-02.
4. Slide console applique and boot assembly over shift lever. Press console applique into place.
5. Install shift knob assembly by turning clockwise until snug, continue turning (minimum of 150 degrees) until shift graphics are aligned forward in vehicle.

MAJOR SERVICE OPERATIONS (Continued)

Mounting Brackets And Inner Boot

Removal

1. Remove shift knob, boot and control assembly as outlined.
2. Remove four nuts retaining lower mounting bracket. Remove bracket and inner boot.
3. Remove console to expose inner mounting bracket. Refer to Section 01-12.
4. Remove inner mounting bracket.

Installation

1. Install inner mounting bracket under carpet. The studs on bracket must be inserted through the holes in the floor pan.
2. Install console. Refer to Section 01-12.
3. Install inner boot and lower mounting bracket as outlined.
4. Install control assembly, boot and knob as outlined.

In-Vehicle Service

Backup Lamp Switch

Removal

1. Disconnect the electrical lead.
2. Using a 22mm wrench, remove the switch.

Installation

1. Apply Pipe Sealant with TEFLON® D8AZ-19554-A (ESG-M4G194-A and ESR-M18P7-A) or equivalent to the threads of the backup lamp switch in a clockwise direction and install.
2. Tighten to 16-20 N·m (12-15 lb-ft).
3. Connect the electrical lead.

Speedometer Cable Retainer and Driven Gear

Removal

1. Clean off top of speedometer cable retainer.
2. With a 7mm wrench, remove the retaining screw.
3. Carefully pull up on the speedometer cable, pulling the cable retainer and the speedometer driven gear assembly from its bore.
4. Unscrew the speedometer cable from the retainer.

Installation

1. Lightly grease the O-ring on the cable retainer.
2. With a 13/16-inch deep-well socket, gently tap the cable retainer and driven gear assembly into its bore while lining the groove in the retainer with the screw hole in the side of the clutch housing case.
3. With a 7mm socket and torque wrench, install the screw. Tighten to 2-3 N·m (18-26 lb-in).

Transaxle Fluid Level Check

Transaxle fluid level checks must be made with the vehicle level and the engine turned off. The fluid level can be checked by removing the fill plug with a 3/8-inch extension and ratchet. The correct fluid will be even with the bottom edge of the filler plug opening. If the fluid is low, add Synthetic MERCON® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-M2C163-A2) or equivalent.

Differential Bearing Preload

Tools Required:

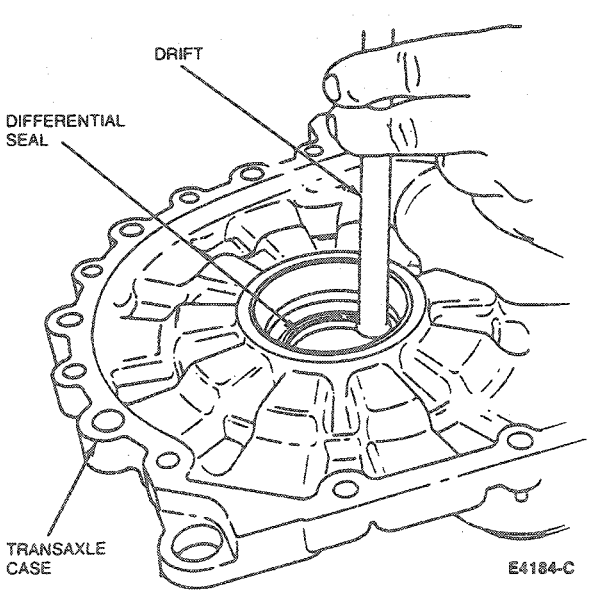
- Differential Bearing Cup Replacer T75T-1225-A
- Draw Bolt T77F-1176-A
- Differential Bearing Cup Replacer T77F-4222-A
- Position Gauge Bar T80L-77003-A
- Differential Seal Replacer T81P-1177-A
- Height Gauge Spacer T81P-4451-B2
- Differential Shim Selection Tool T83P-4451-AH1
- Height Gauge Spacer T83P-4451-AH2

Removal and Installation

NOTE: The differential preload is set during manufacture and need not be checked or adjusted unless one of the following components is replaced:

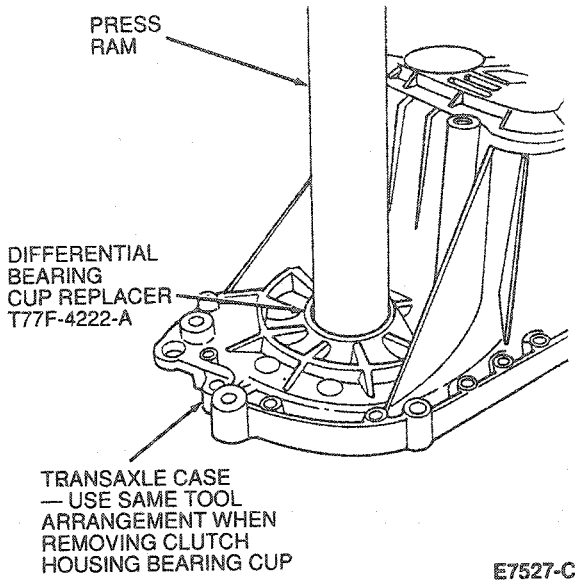
- Transaxle Case
- Differential Case
- Differential Bearings
- Clutch Housing

1. Remove the differential seal from the transaxle case using a drift.

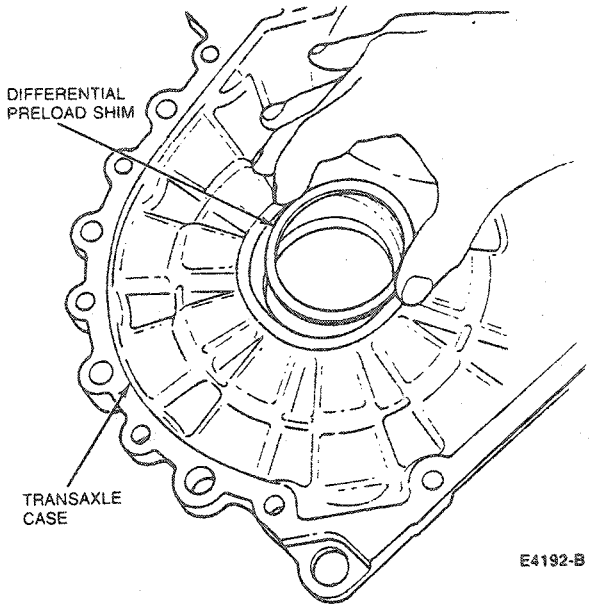


MAJOR SERVICE OPERATIONS (Continued)

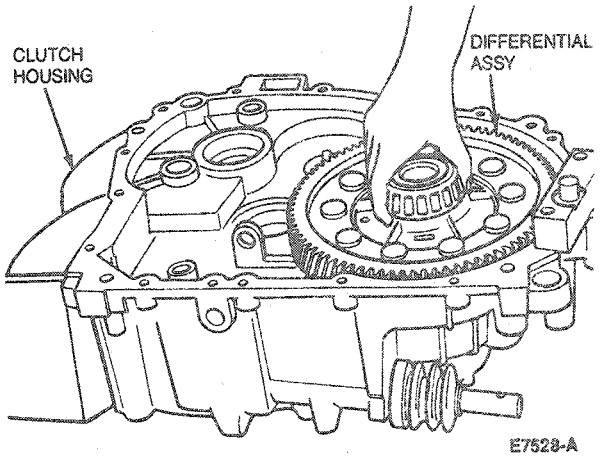
2. Remove the differential bearing cup from the transaxle case using Differential Bearing Cup Replacer T77F-4222-A.



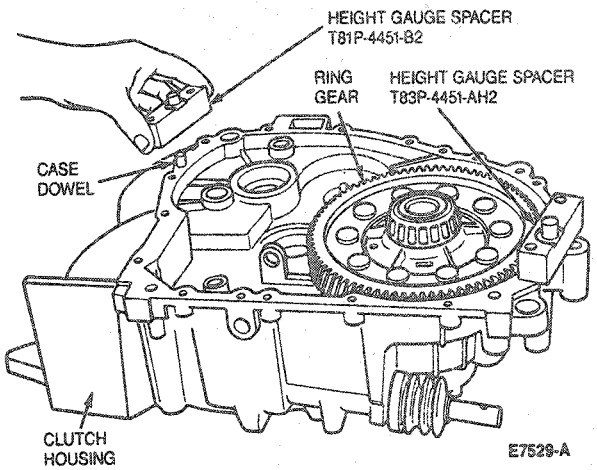
3. Remove the preload shim located under the bearing cup.



4. If removed, install the differential in the clutch housing.

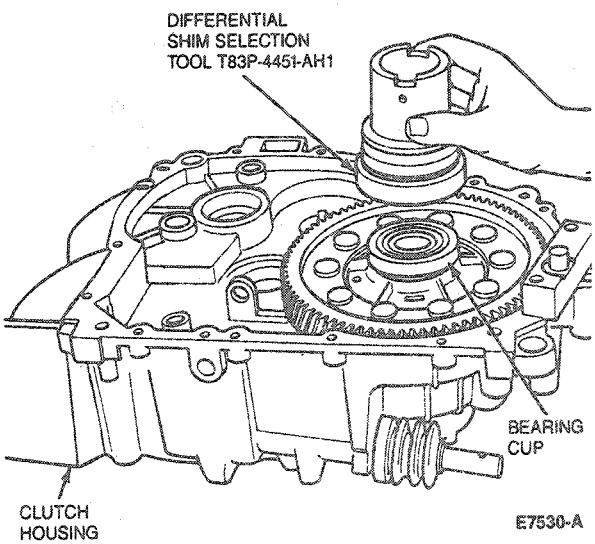


5. Install Height Gauge Spacers T81P-4451-B2 and T83P-4451-AH2 on the clutch housing dowels.



6. Position the bearing cup removed from the transaxle case on the differential bearing.

   Install Differential Shim Selection Tool T83P-4451-AH1 over the differential bearing cup.

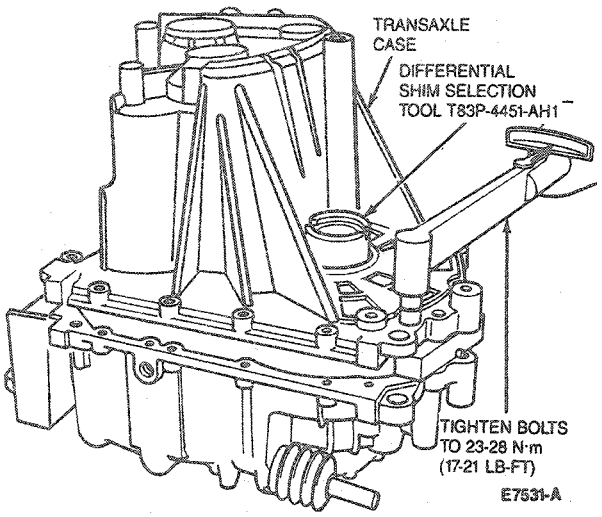


MAJOR SERVICE OPERATIONS (Continued)

7. Position the transaxle case on the height gauge spacer and install the four bolts supplied with the tool.

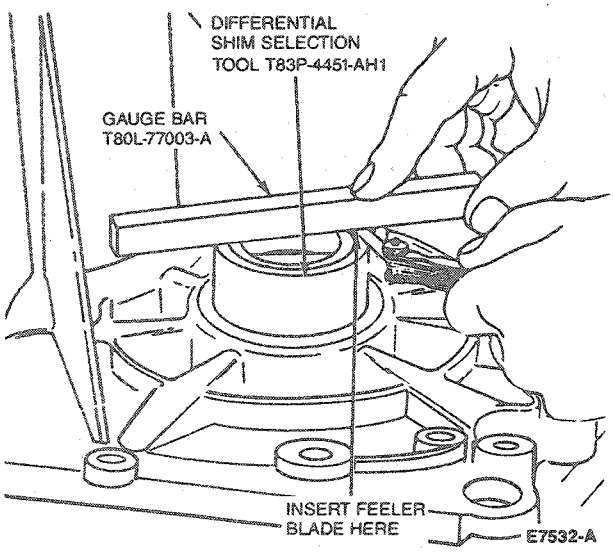
   Tighten the bolts to 23-28 N·m (17-21 lb-ft).

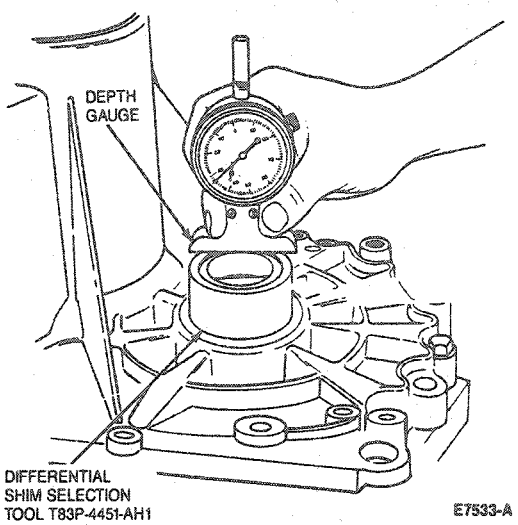
   Rotate the differential several times to ensure seating of the differential bearing.



8. Position Gauge Bar T80L-77003-A across the shim selection tool.

   Using a feeler gauge, measure the gap between the gauge bar and the selector tool gauge surface. This measurement can also be made using a depth micrometer.





EXAMPLE

Obtain measurements from three positions around the tool, and take the average of the readings.

Readings:

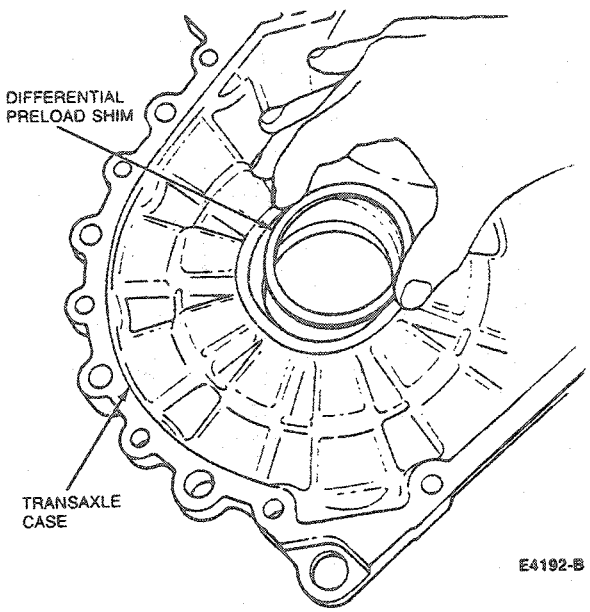
Inches	mm
0.014 inch	0.36mm
0.013 inch	0.33mm
0.015 inch	0.38mm
0.042 inch	1.07mm
Average (shim required)	
Inches	mm
0.042 / 3mm = 0.014 inch	1.07 / 3 mm = 0.35mm
Shim Required	
Inches	mm
0.014 inch	0.35mm

NOTE: Shims are available in thicknesses of 0.30mm -1.25mm (0.012-0.049 inch). Refer to Specifications. If the shim required is not on the chart, select the next thinner shim.

Before installing the shim, it should be measured with a micrometer to ensure it is the correct thickness.

MAJOR SERVICE OPERATIONS (Continued)

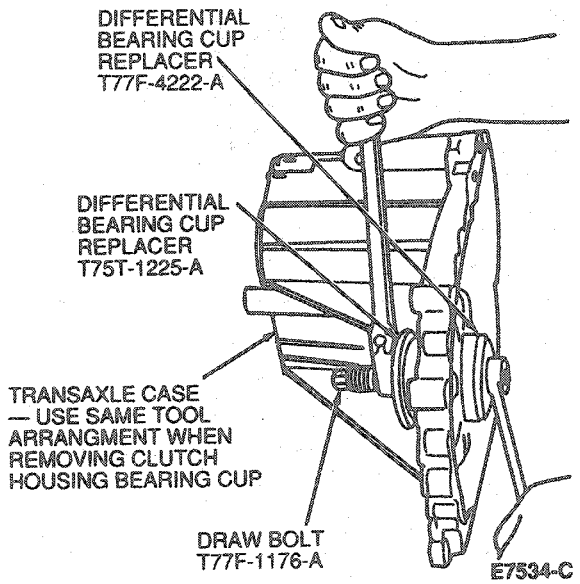
9. Install the shim in the transaxle case.



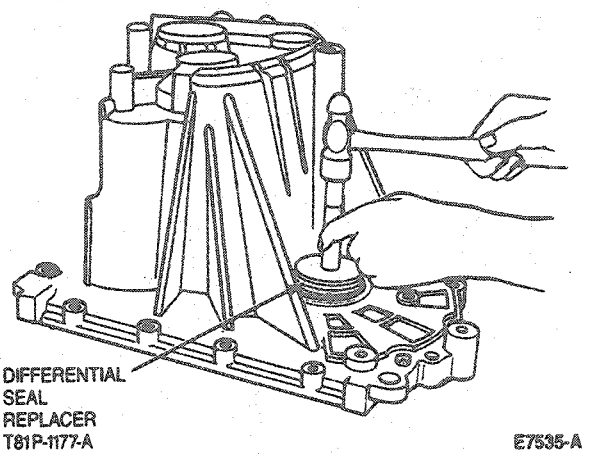
10. Apply a light film of transmission fluid to the bearing bores in the transaxle case and clutch housing.

    Install the bearing cup in the transaxle case, using Draw Bolt T77F-1176-A, Stop Differential Bearing Cup Replacer T75T-1225-A and Bearing Cup Replacer T77F-4222-A.

    Ensure the cup is fully seated against the shim in the transaxle case and against the shoulder in the clutch housing.



11. Install the differential seal using Differential Seal Replacer T81P-1177-A.

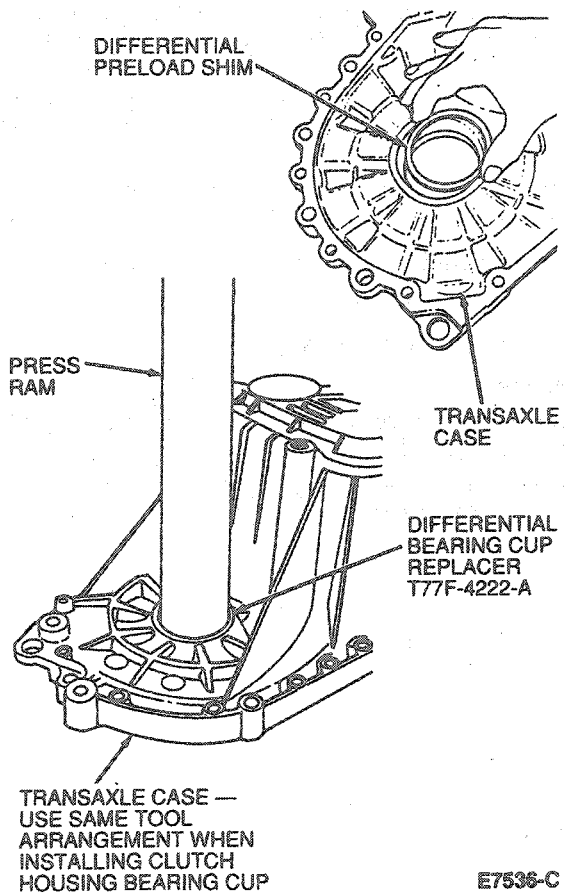


Differential Bearing Cups

NOTE: If the differential bearings and cups are being replaced, the bearing preload must be checked and if necessary, adjusted. After installing the bearings, adjust bearing preload as outlined.

Removal

1. Remove the differential oil seals as outlined.



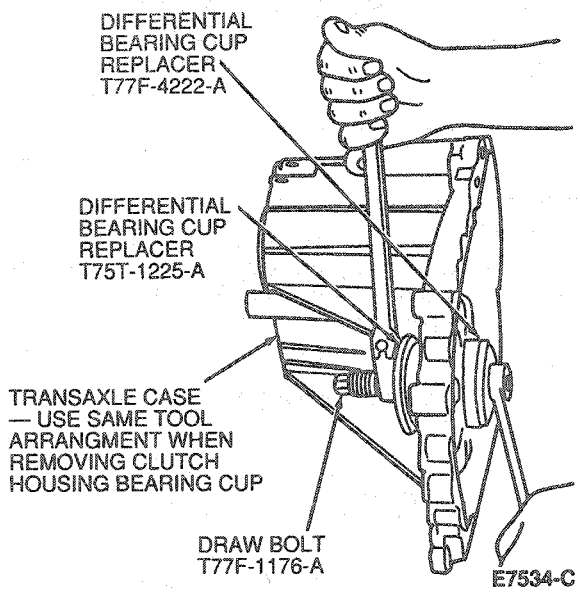
MAJOR SERVICE OPERATIONS (Continued)

2. Remove the bearing cups using Differential Bearing Cup Replacer T77F-4222-A and an arbor press.

   The differential bearing preload shim is located under the transaxle case bearing cup.

Installation

1. Apply a light film of transmission fluid to the bearing bores in the transaxle case.
2. Install the bearing cup using Draw Bolt T77F-1176-A, Differential Bearing T75T-1225-A and Bearing Cup Replacer T77F-4222-A.



Differential Seals

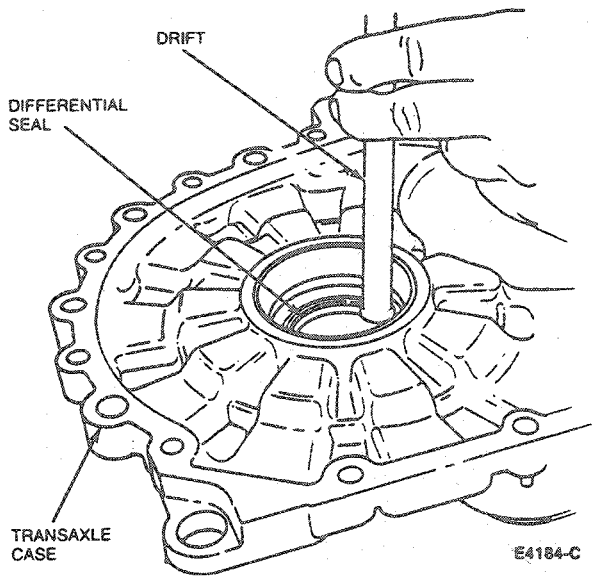
Tools Required:

- Differential Seal Replacer T81P-1177-A

Removal

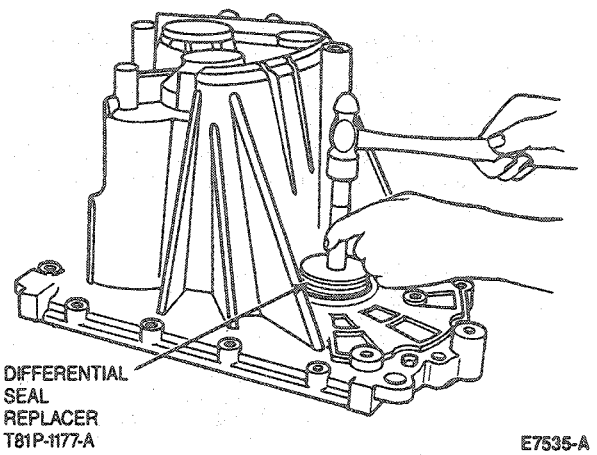
From the inside, remove the seal from the transaxle case using a drift.

NOTE: Repeat the same procedure for differential seal removal from the clutch housing.



Installation

Install the seal using Differential Seal Replacer T81P-1177-A.



SPECIFICATIONS

mm	Inches	mm	Inches
0.30	0.012	0.80	0.032
0.35	0.014	0.85	0.033
0.40	0.016	0.90	0.035
0.45	0.018	0.95	0.037
0.50	0.020	1.00	0.039
0.55	0.022	1.05	0.041
0.60	0.024	1.10	0.043
0.65	0.026	1.15	0.045
0.70	0.028	1.20	0.047
0.75	0.030	1.25	0.049

SPECIFICATIONS (Continued)

The shim is located behind the differential bearing cup in the transmission case.

LUBRICANT CAPACITIES

Type	Level	Capacity	
		Liters	Pints
Synthetic MERCON® Multi-Purpose Automatic Transmission Fluid E6AZ-19582-B (ESR-M2C163-A2)	To Bottom of Filler Hole	2.9	6.1

INSTALLATION OF TRANSAXLE

Description	N-m	Lb-Ft
Transaxle to Engine Bolts	46-63	34-46
Exhaust Catalyst Retaining Bolts	34-47	25-34
Air Manage Valve Bracket Bolt to Transaxle	38-42	28-31
Switch Actuator Bracket Bolt	9-13	7-10
Control Arm to Steering Knuckle	50-60	37-44
Rear Mounting Bolts	47-68	35-50
Transaxle Mounting Stud	52-56	38-41
Front Mount Bracket Bolts	34-47	25-34
Stiffener Brace Bolts	38-51	28-38
Starter Stud Bolts	41-54	30-40
Roll Restrictor Nuts	34-40	25-30
Shift Stabilizer Bar-to-Transaxle Case	47-63	35-46
Engine Mount Bolts	54-75	40-55
Center Support Bearing Bolts	115-135	85-100
Tie Rod Nut	47-64	35-47
Ball Joint Nut	50-60	37-44
Subframe Bolts	90-115	65-85
Steering Gear Nuts	115-135	85-100
Shift Rod to Shaft Clamp Bolt and Nut	9-12	80-106 (Lb-In)

ASSEMBLY OF TRANSAXLE

Description	N-m	Lb-Ft
Transaxle Case-to-Clutch Housing	18-24	13-17
Reverse Idler Shaft-to-Case	21-27	16-20
Fork Interlock Sleeve Pin	16-20	12-15
Detent Plunger Retainer Screw	7.5-11	6-8
Backup Lamp Switch	16-20	12-15
Control Selector Plate	8-11	6-8
Speedo Retaining	2-3	18-26 (Lb-In)
Reverse Shift Relay Lever Bracket	8-11	6-8
Filler Plug	12-20	9-15
Clutch Release Fork to Shaft	40-55	30-41

GEAR RATIOS

Transmission Model	1st	2nd	3rd	4th	5th	Rev.	Final Drive
RBE-AP	3.21	2.09	1.37	1.02	0.75	3.14	3.74

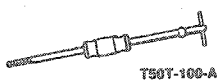
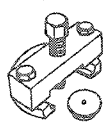
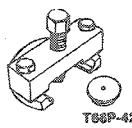
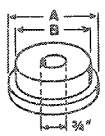
INSTALLATION OF SHIFT CONTROLS

Description	N-m	Lb-In
Shift Rod-to-Shift Shaft Clamp Bolt and Nut	9-12	80-106
Stabilizer-to-Transaxle Assembly Bolt	47-63	35-46 (Lb-Ft)
Lower Mounting Bracket-to-Inner Mounting Bracket Nuts	13-17	115-150
Rear Mount-to-Lower Mounting Bracket Nuts	13-17	115-150

TORQUE SPECIFICATIONS

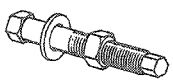
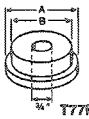
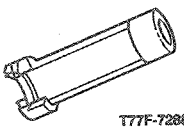
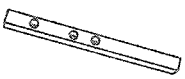
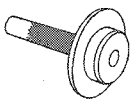
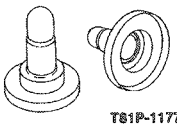
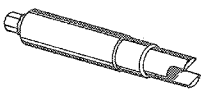
Description	N-m	Lb-Ft
Final Drive Gear to Differential Case Retaining Bolts and Nuts (Service Only)	108-136	80-100
Speedo Cable to Driven Gear	5-8	44-71 (Lb-In)

SPECIAL SERVICE TOOLS

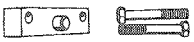
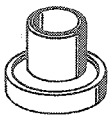
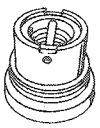
Tool Number / Description	Illustration
T50T-100-A Impact Slide Hammer	 T50T-100-A
T57L-4220-A Differential Bearing Cone Remover	 T57L-4220-A
T66P-4220-A Differential Side Bearing Remover	 T66P-4220-A
T75T-1225-A Differential Bearing Cup Replacer	 T75T-1225-A

(Continued)

SPECIAL SERVICE TOOLS (Continued)

Tool Number / Description	Illustration
T77F-1176-A Draw Bolt	 T77F-1176-A
T77F-4222-A Differential Bearing Cup Replacer	 T77F-4222-A
T77F-7050-B Input Shift Seal Remover	 T77F-7050-B
T77F-7288-A Sector Shift Seal Tool	 T77F-7288-A
T80L-77003-A Gauge Bar	 T80L-77003-A
T81P-1177-A Differential Seal Replacer	 T81P-1177-A
T81P-1177-B Transaxle Plugs	 T81P-1177-B
T81P-4026-A Differential Rotator	 T81P-4026-A

(Continued)

Tool Number / Description	Illustration
T81P-4220-A Stop Plate Differential Bearing Remover	 T81P-4220-A
T81P-4451-B2 Height Gauge Spacer	 T81P-4451-B2
T83P-4220-CH Bearing Installer	 T83P-4220-CH
T83P-4451-AH1 Shim Selector Tool	 T83P-4451-AH1
T83P-4451-AH2 Height Gauge Spacer	 T83P-4451-AH2

Tool Number	Description
D79L-4621-A	Pinion Bearing Cone Remover
D83P-4026-A	Halfshaft Remover
TOOL-4201-C	Dial Indicator with Bracketry

ROTUNDA EQUIPMENT

Model	Description
014-00210	Hi-Lift Jack
014-00225	Manual Transaxle Adapter
014-00750	Engine Support Bar