TRANSAXLE REASSEMBLY

NOTE: Lightly oil all bores with Mercon ATF prior to assembly.

1. If removed, install inner and outer shift shaft bushings into case. Using appropriate remover/replacer, install shift lever shaft oil seal. Install shift lever shaft and main shift control shaft block. See **Fig. 11**. Install retaining bolt and tighten to specification. See **TORQUE SPECIFICATIONS**.

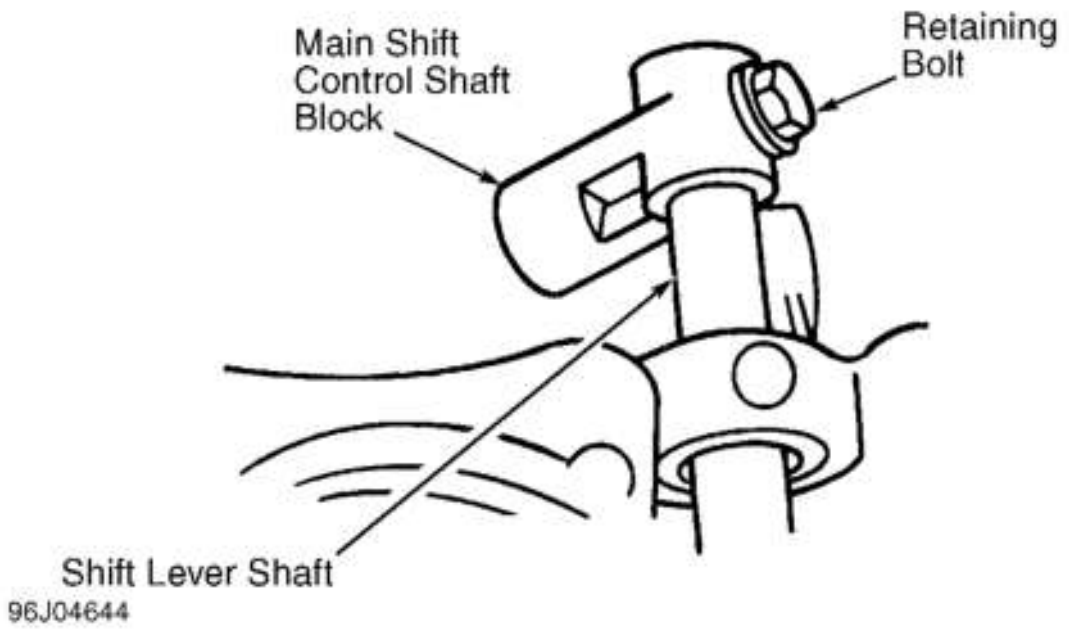

Fig. 11: Installing Main Shift Control Shaft Assembly
Courtesy of FORD MOTOR CO.

NOTE: Reverse idler gear shaft-to-transaxle case is an interference fit. Transaxle case must be heated before installing shaft.

2. Using a heat gun, heat transaxle case in reverse idler shaft mounting area to 176°F (80°C). Lightly apply silicone sealant to mating surface of reverse idler gear shaft retaining plate. Using a mounting bolt, position idler gear shaft in case. Drive idler gear shaft until retaining plate contacts case. Install mounting bolts and tighten to specification.

CAUTION: Input shaft, output shaft and differential bearing races require a heating and cooling procedure and special tools for installation into either case half. This procedure MUST be followed to prevent premature wear of cases and to provide accurate preload measurements.

NOTE: Preload shims are installed under input shaft, output shaft and differential bearing races in clutch housing side of case. Specific measurement shims supplied in the service shim kit are used to

determine thickness of shims required for final assembly. Each time bearing races are installed, heating-cooling procedure and special tools must be used.

3. Cool outer bearing races to at least 46°F (8°C) by placing in freezer for approximately 30 minutes. Heat transaxle case, in output shaft bearing race area, to 176°F (80°C). Install output shaft bearing race. Repeat procedure, installing input shaft and differential bearing races into transaxle case.

NOTE: Shim thickness is critical, ensure proper service shim is installed.

4. Cool clutch housing bearing races to 46°F (8°C). Heat clutch housing to 176°F (80°C), in area of race to be installed. Install service shim and bearing race. Shim thickness is specified for each component. See **PRELOAD SHIM SELECTION** table. Repeat procedure, installing remaining service shims and bearing races into clutch housing.
5. Engage 4th gear on input shaft. Fit input and output shafts together and lower into transaxle case as an assembly. See **Fig. 12**. DO NOT lubricate tapered roller bearings at this time. Lower differential assembly into case.

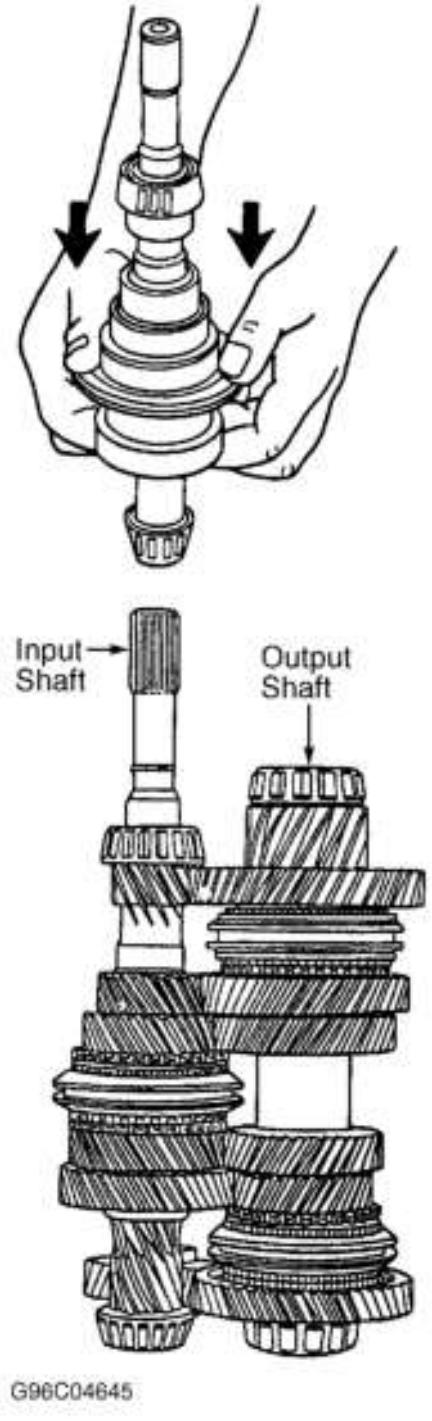

Fig. 12: Assembling Input & Output Shafts
Courtesy of FORD MOTOR CO.

6. Place clutch housing onto transaxle case. DO NOT apply sealant to case halves at this time. Install transaxle case bolts and tighten to specification. Install Measuring Fixture (T94P-4451-AH) to transaxle case at control select lever cover opening. See **Fig. 13**. Position measuring bar on 4th gear face.

PRELOAD SHIM SELECTION

Application	Service Shim: In. (mm)	Preload: In. (mm)
Input Shaft (1)	.039 (1.0	.004 (.10)
Output Shaft (2)	.041 (1.05)	.008 (.20)
Differential (3)	.044 (1.12)	.016 (.40)

(1) Input shaft preload shims are available in thicknesses of 048-.067" (1.21-1.71 mm) in .0008" (.02 mm) increments.

(2) Output shaft preload shims are available in thicknesses of 056-.075" (1.43-1.91 mm) in .0008" (.02 mm) increments.

(3) Differential preload shims are available in thicknesses of 055-.087" (1.40-2.20 mm) in .002" (.05 mm) increments.

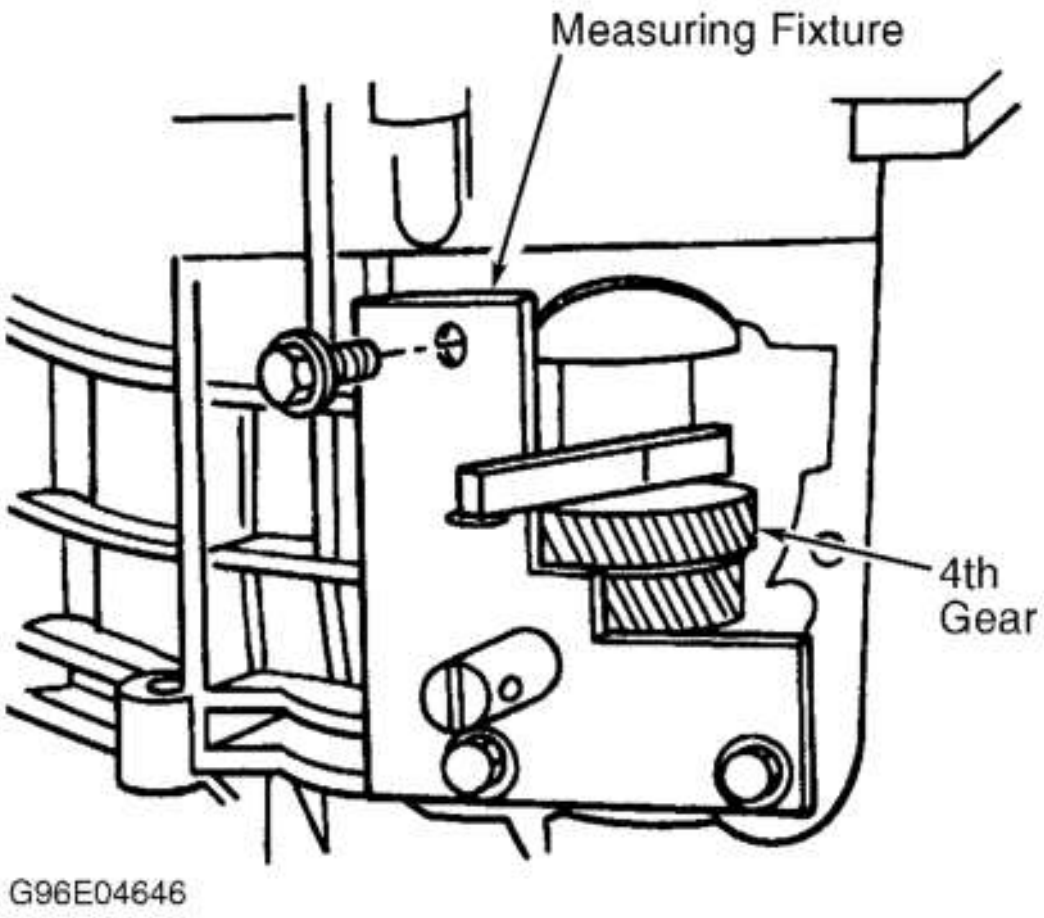

Fig. 13: Installing Output Shaft End Play Measuring Fixture
Courtesy of FORD MOTOR CO.

7. Using Pinion Spline Socket (T94P-7025-EH), rotate input shaft back and forth approximately 20 times to seat bearings. Mount dial indicator on clutch housing with indicator pointer on end of input shaft. See **Fig. 14**. Zero dial indicator. Using pry bar through control selector lever cover opening, raise input shaft and note dial indicator reading. Repeat at least 3 times and calculate average reading.

8. To measure output shaft end play, mount dial indicator on transaxle case with indicator pointer on plunger arm of measuring fixture. See **Fig. 15**. Zero dial indicator. Rotate input shaft to seat bearings. Using pry bar, raise output shaft and note dial indicator reading. Repeat at least 3 times and calculate average reading.
9. Install Measuring Fixture (T94P-4451-BH) to outside of transaxle case. See **Fig. 16**. Rotate input shaft, while pressing down on differential to seat bearings. Mount dial indicator on transaxle case with indicator pointer on end of differential assembly. See **Fig. 17**. Zero dial indicator. Using a 1/2" breaker bar to actuate measuring fixture, raise differential assembly and note dial indicator reading. Repeat at least 3 times and calculate average reading.
10. To calculate required shim dimension, add each average reading just obtained to the appropriate service shim and preload dimension. See **PRELOAD SHIM SELECTION** table. Select shim that is closest to or slightly smaller than required dimension. Use only one shim for each component. Remove clutch housing. Remove bearing races and service shims.

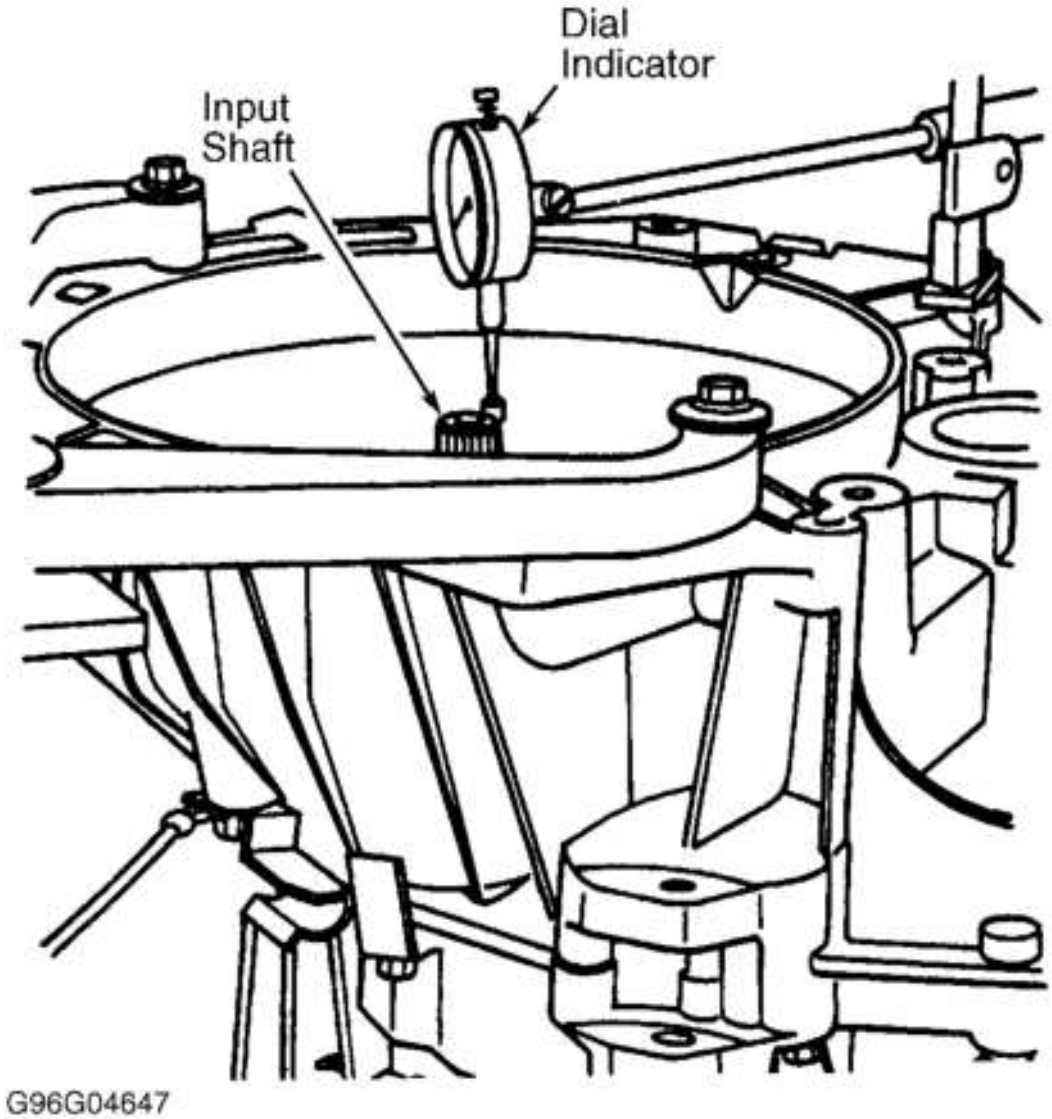

Fig. 14: Measuring Input Shaft End Play

Courtesy of FORD MOTOR CO.

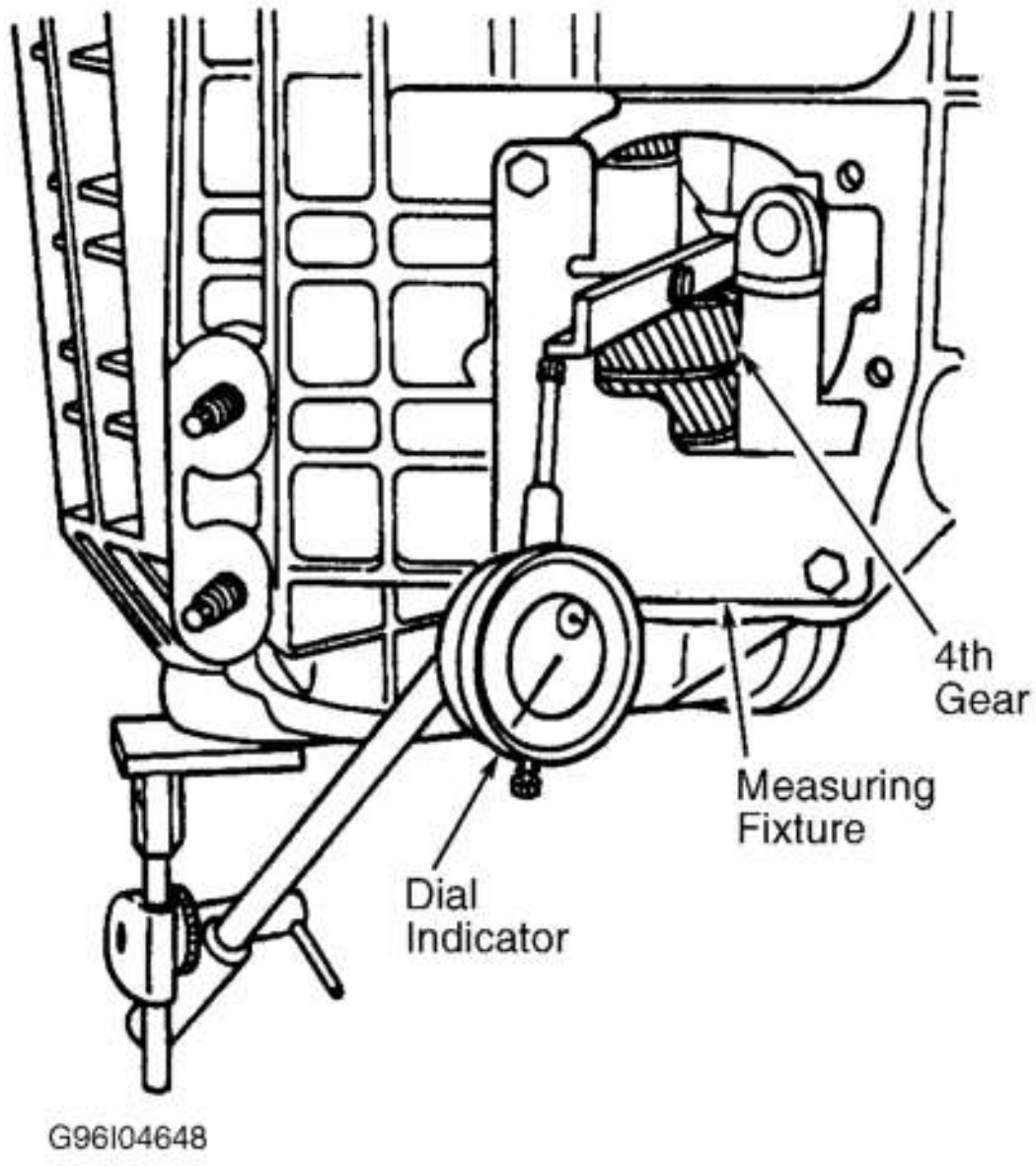

Fig. 15: Measuring Output Shaft End Play
Courtesy of FORD MOTOR CO.

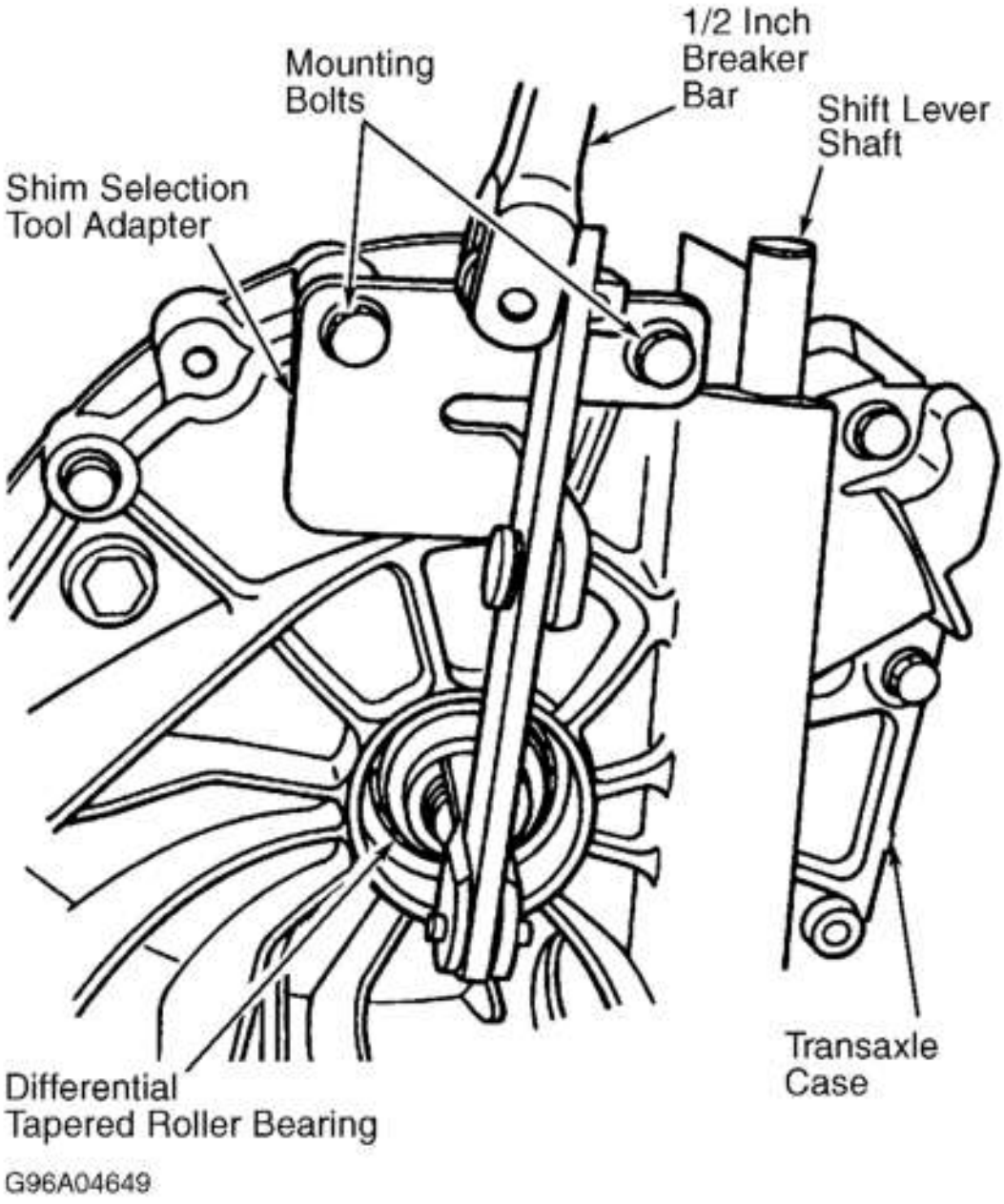

Fig. 16: Installing Differential End Play Measuring Fixture
Courtesy of FORD MOTOR CO.

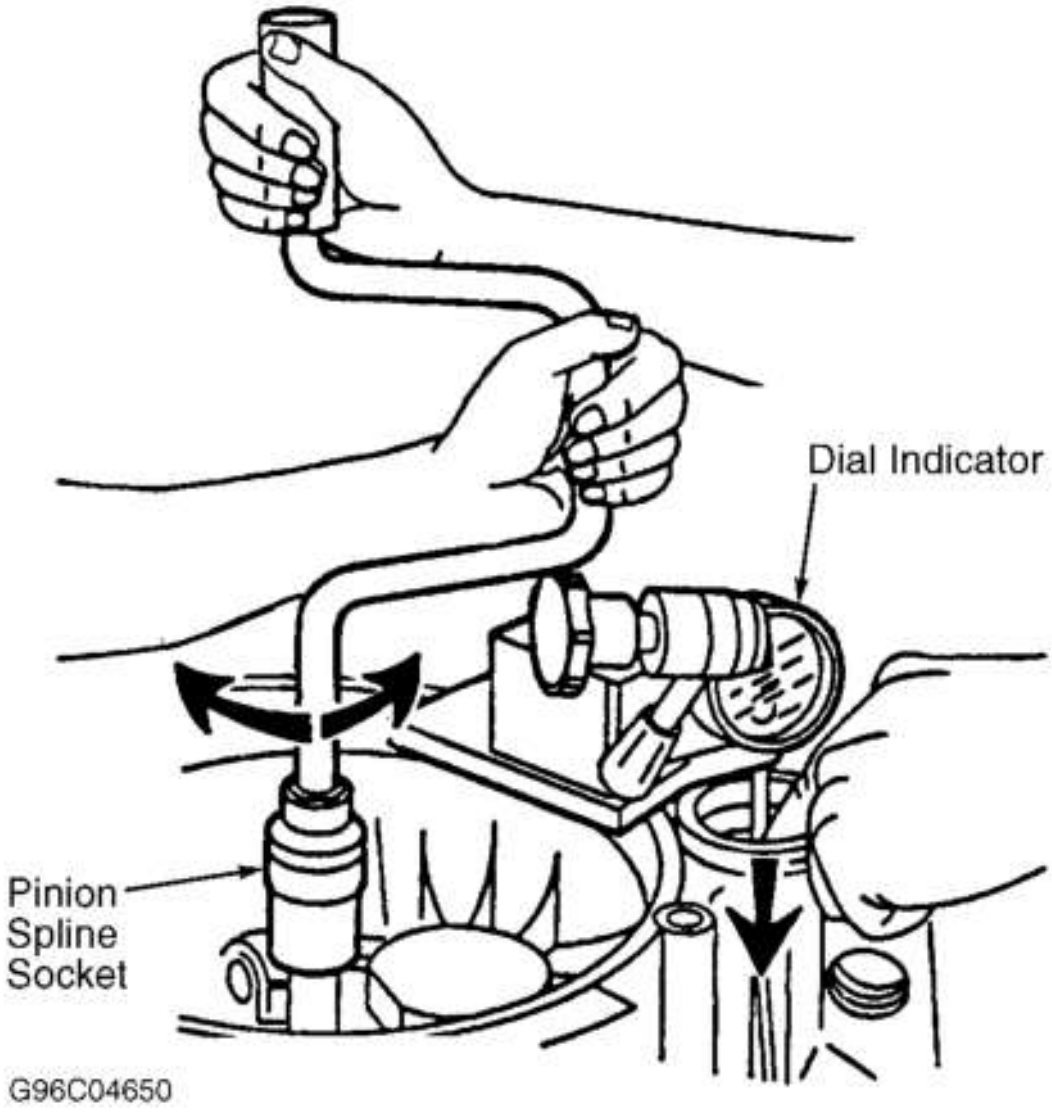

Fig. 17: Measuring Differential End Play
Courtesy of FORD MOTOR CO.

11. Using heating and cooling procedure in step 3), install correct preload shims and bearing races into clutch housing. Lubricate input shaft, output shaft and differential gears and bearings with Mercon ATF. Move input shaft to one side and install reverse idler gear thrust washer. Ensure thrust washer tab engages slot in case.
12. Install reverse idler gear and needle bearing. Using petroleum jelly, attach upper reverse idler gear thrust washer to shaft support bracket. Ensure thrust washer tab engages slot in bracket. See **Fig. 18**. With input and output shafts moved to one side, install reverse idler gear shaft support bracket. Tighten bolts to specification.
13. Ensure 4th gear synchronizer selector ring is in neutral position. Install 5th-reverse shift fork and swing to one side. Install 3rd-4th shift fork. Install 1st-2nd shift fork onto long shift fork rail. Engage 1st-2nd shift fork with synchronizer ring while installing long shift fork rail through 5th-reverse shift fork and into recess in bottom of case.

14. Install short shift fork rail through 3rd-4th shift fork and into recess in bottom of case. When installed correctly, shift fork rails are the same height. Lubricate differential assembly gear and bearings. Install differential assembly to transaxle case. Clean and install magnet in pocket of transaxle case.
15. Clean and dry transaxle case mating surface. Apply a .012" (.30 mm) wide bead of Gasket Eliminator (E1FZ-19562-A) or equivalent to transaxle case mating surface. See **Fig. 19**. Place clutch housing onto transaxle case. Install transaxle case bolts and tighten to specification. Case bolts must be tightened to specification within 15 minutes of sealer application.
16. Clean and dry transaxle case mating surface where control selector cover is to be installed. Apply a .012" (.30 mm) wide bead of Gasket Eliminator (E1FZ-19562-A) or equivalent. Install control selector cover and alternately tighten bolts to specification. Install speedometer driven gear assembly. Install roll pin flush with case.
17. Using appropriate seal replacer, install left and right differential oil seals. Install input shaft guide sleeve and NEW "O" ring to clutch housing. Tighten retaining bolts to specification. Slide clutch slave cylinder over input shaft. Install pressure line and bleeder pipe. Tighten retaining bolts and pipe fittings to specification.

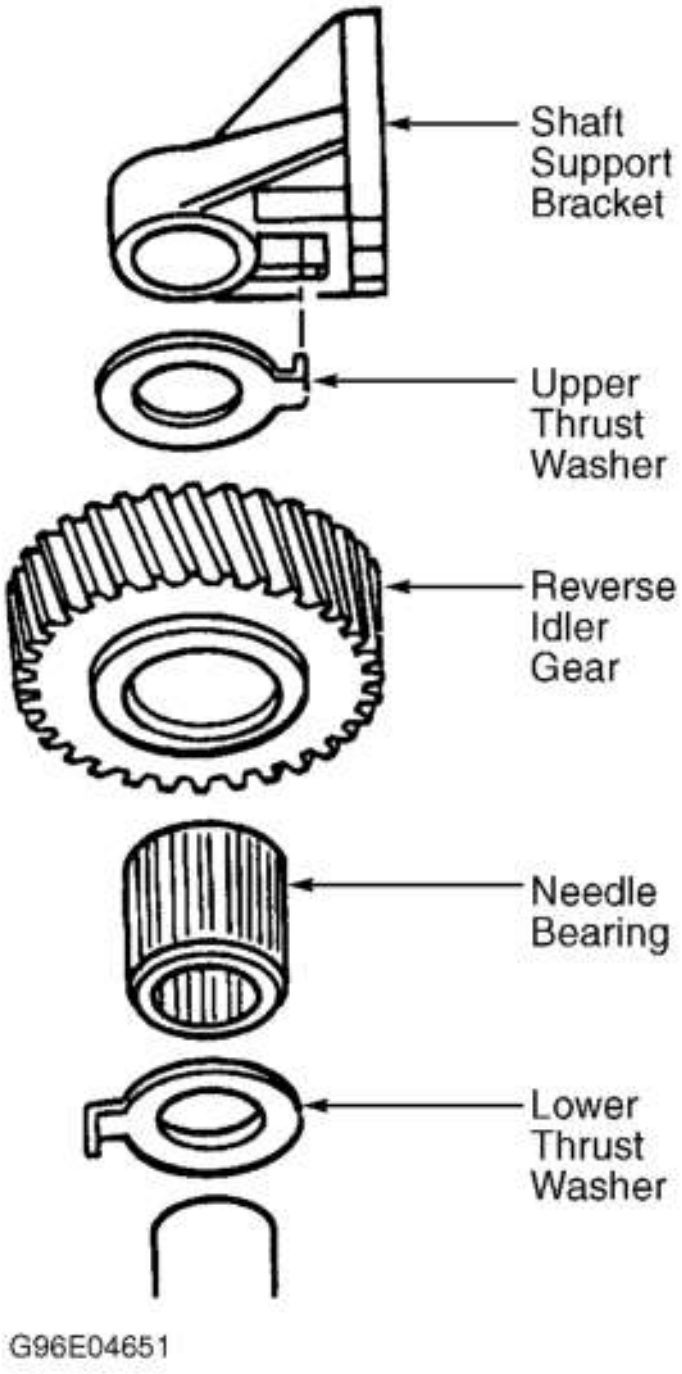

Fig. 18: Installing Reverse Idler Gear & Support Bracket
Courtesy of FORD MOTOR CO.

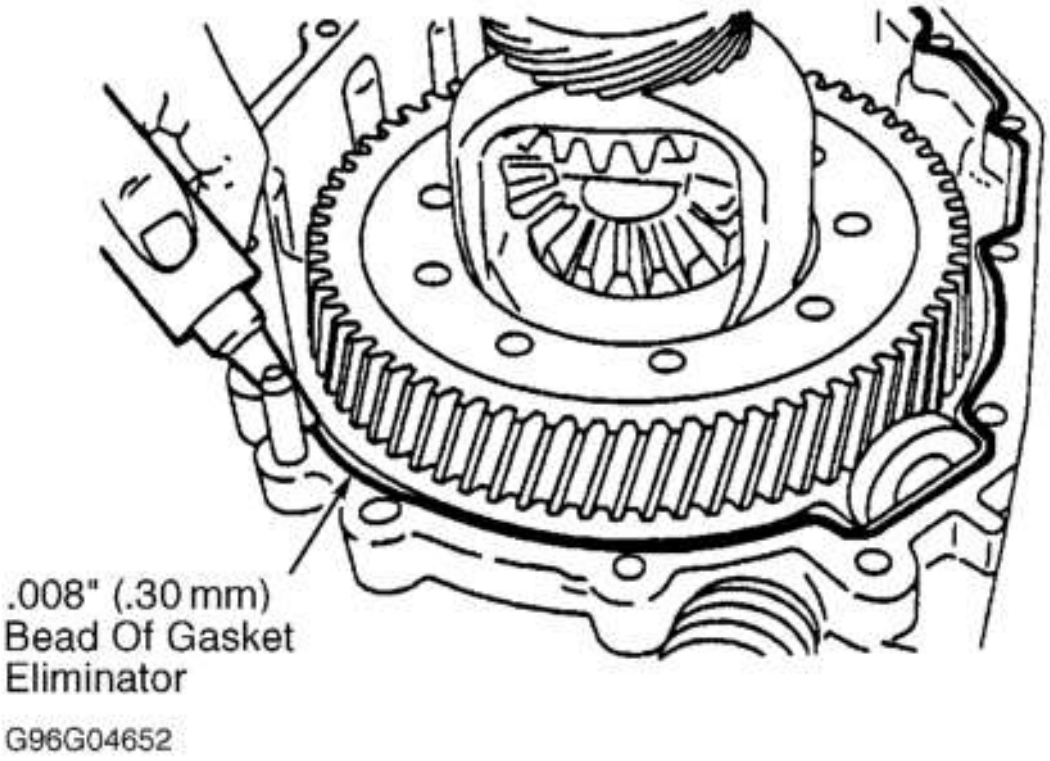

Fig. 19: Sealing Case Halves
Courtesy of FORD MOTOR CO.