

ON-VEHICLE SERVICE

EXTENSION HOUSING SEAL & BUSHING

CAUTION: Use Extension Housing Bushing Remover (T77L-7679-D) carefully to avoid scoring extension housing.

Removal

Raise and support vehicle. Index and remove rear drive shaft. Remove extension seal, using appropriate seal remover. Use Extension Housing Bushing Remover (T77L-7679-D) to remove extension housing bushing.

Installation

1. Inspect extension housing bushing bore for burrs and remove burrs with an oil stone, as necessary. Install extension housing bushing, aligning lubrication slot to 6 o'clock position. See **Fig. 2**.
2. Install extension housing seal, aligning drain hole to 6 o'clock position. Ensure seal is seated against extension housing. Install drive shaft, aligning index marks.

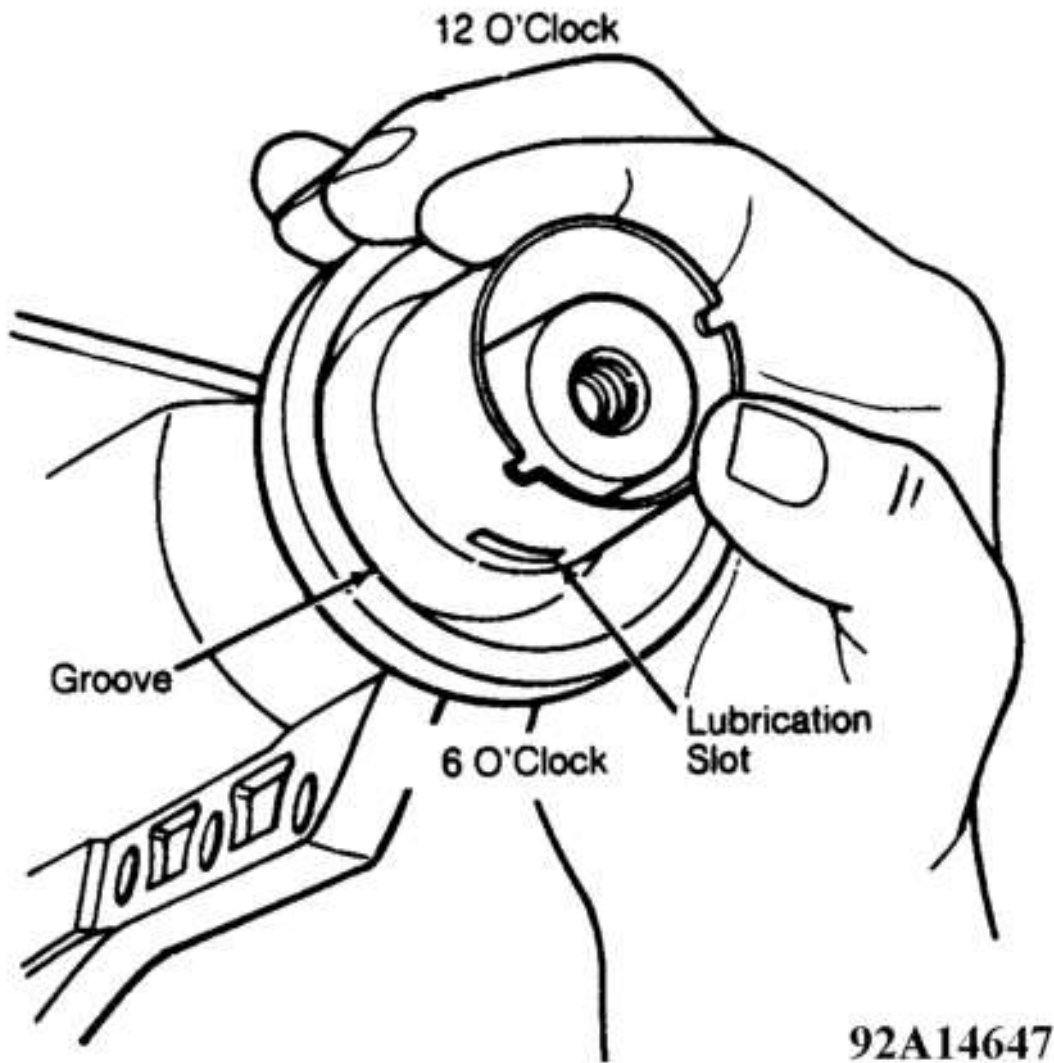


Fig. 2: Installing Extension Housing Bushing
 Courtesy of FORD MOTOR CO.

EXTENSION HOUSING GASKET

Removal

1. Raise and support vehicle. Index and remove drive shaft(s). Remove transmission mount-to-transmission retaining bolts. Position transmission jack under transmission, and remove transmission mount-to-crossmember bolts. Remove 9 extension housing bolts. Remove extension housing and discard gasket.
2. On 4WD models, remove shift linkage from case shift lever. Remove 4WD switch connector from case. DO NOT overextend connector tabs. Remove wire harness locators from left side crossmember. Remove case vent hose from detent place. Place Transmission Stand (014-00104) on universal high lift transmission jack and position under case. Slide transfer case rearward and downward to remove.

Installation

Install NEW housing gasket and position extension housing on case. Ensure parking pawl spring is properly seated in case. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS**. To complete installation, reverse removal procedure.

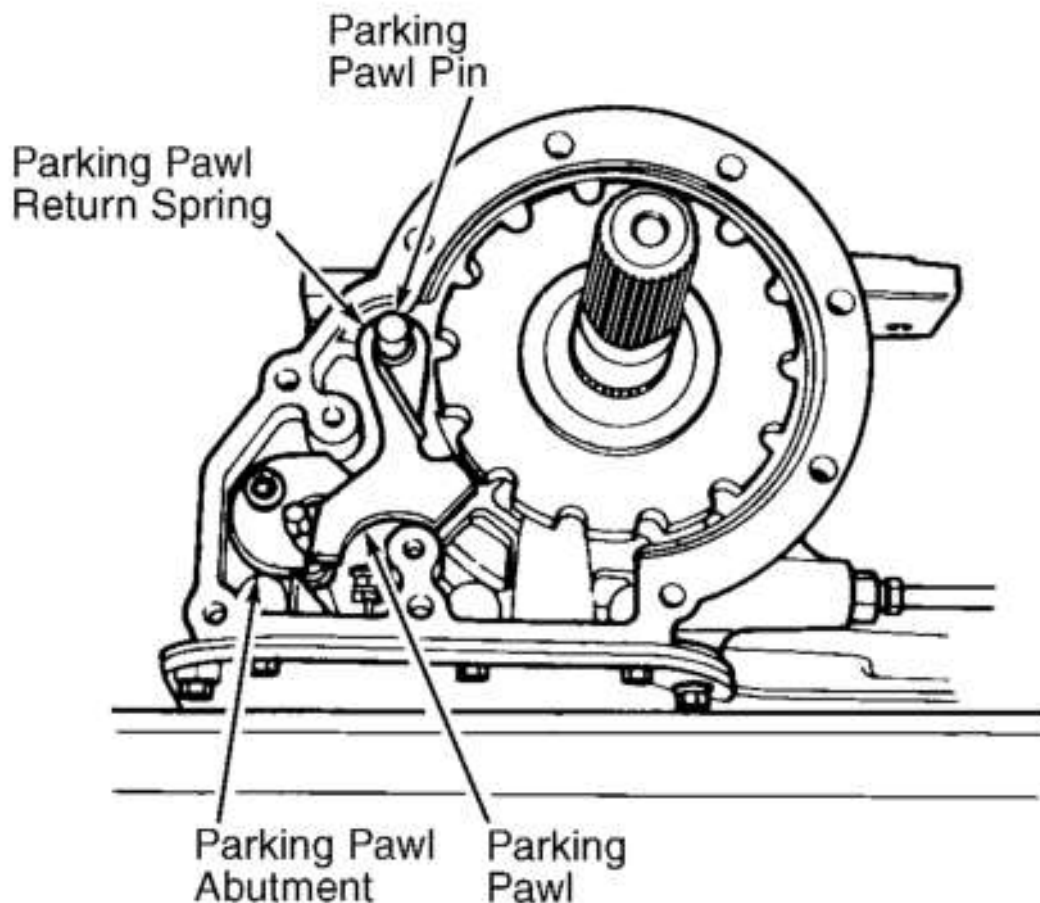
PARKING MECHANISM

Removal

Remove extension housing. See **EXTENSION HOUSING GASKET**. Remove parking rod guide plate retaining bolts. Remove parking pawl return spring, pin and parking pawl from case. Remove Torx head bolt (40A) and parking pawl abutment. See **Fig. 3**.

Installation

For installation, reverse removal procedure. Ensure return spring end rests on inside surface of case, and parking rod guide plate dimple is facing inward. Tighten bolts to specification. See **TORQUE SPECIFICATIONS**.



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Fig. 3: Removing Parking Mechanism
Courtesy of FORD MOTOR CO.

VALVE BODY & INTERMEDIATE BAND SERVO

NOTE: As valve body is disassembled, place individual parts in correct order and relation to valve body for reassembly. Tag all springs as they are removed.

Removal

1. Remove solenoid body heat shield. Remove slotted heat shield. Remove solenoid body connector by pushing on center tab and pulling on wire harness. DO NOT attempt to pry tab with pry bar or screwdriver. Check electrical connectors for condition.
2. Loosen oil pan bolts and drain fluid. Remove oil pan, filter and "O" ring. DO NOT scratch or damage aluminum pump bore when removing "O" ring. Remove accumulator body. Remove main control body retaining bolts. DO NOT remove center 2 bolts. See **Fig. 4**. This keeps upper and lower valve body together during disassembly. Remove main control body.
3. Remove solenoid body Torx retaining bolts and one nut. Push down on solenoid body receptacle and remove solenoid body. Remove solenoid screen by rotating and pulling out. Remove reinforcing plate. Carefully lower separator plate and gasket so check balls, EPC ball and spring are retained.
4. Remove intermediate accumulator regulator filter and spring. See **Fig. 5**. Remove servo snap ring, retaining plate, servo piston and rod assembly, and servo spring.

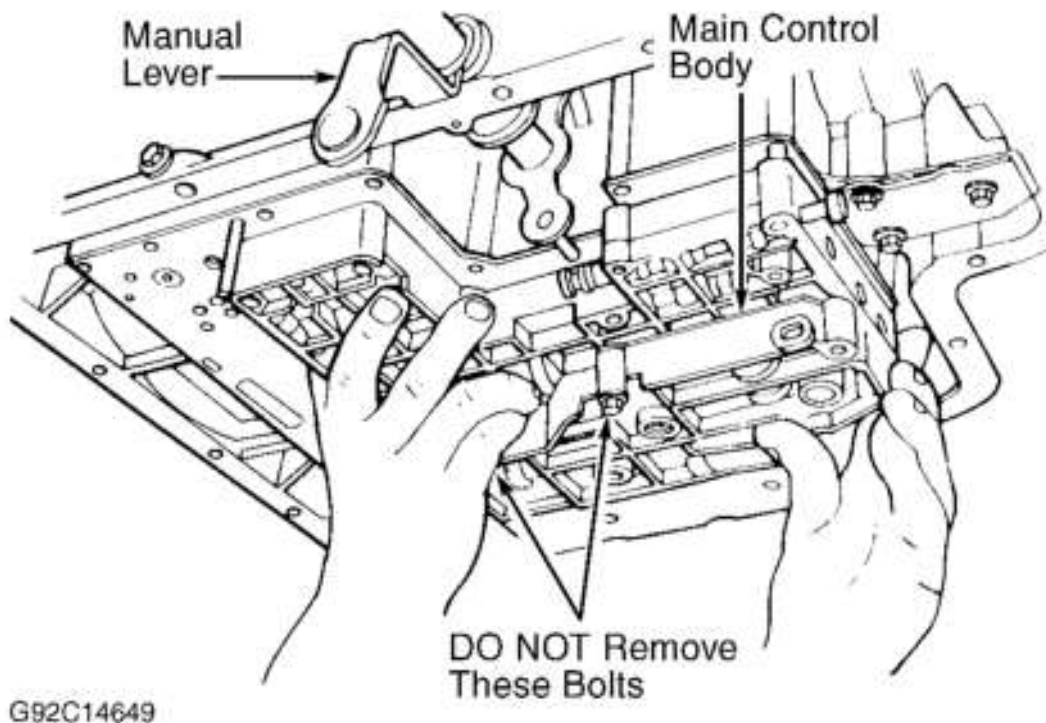


Fig. 4: Removing Main Control Valve Body
Courtesy of FORD MOTOR CO.

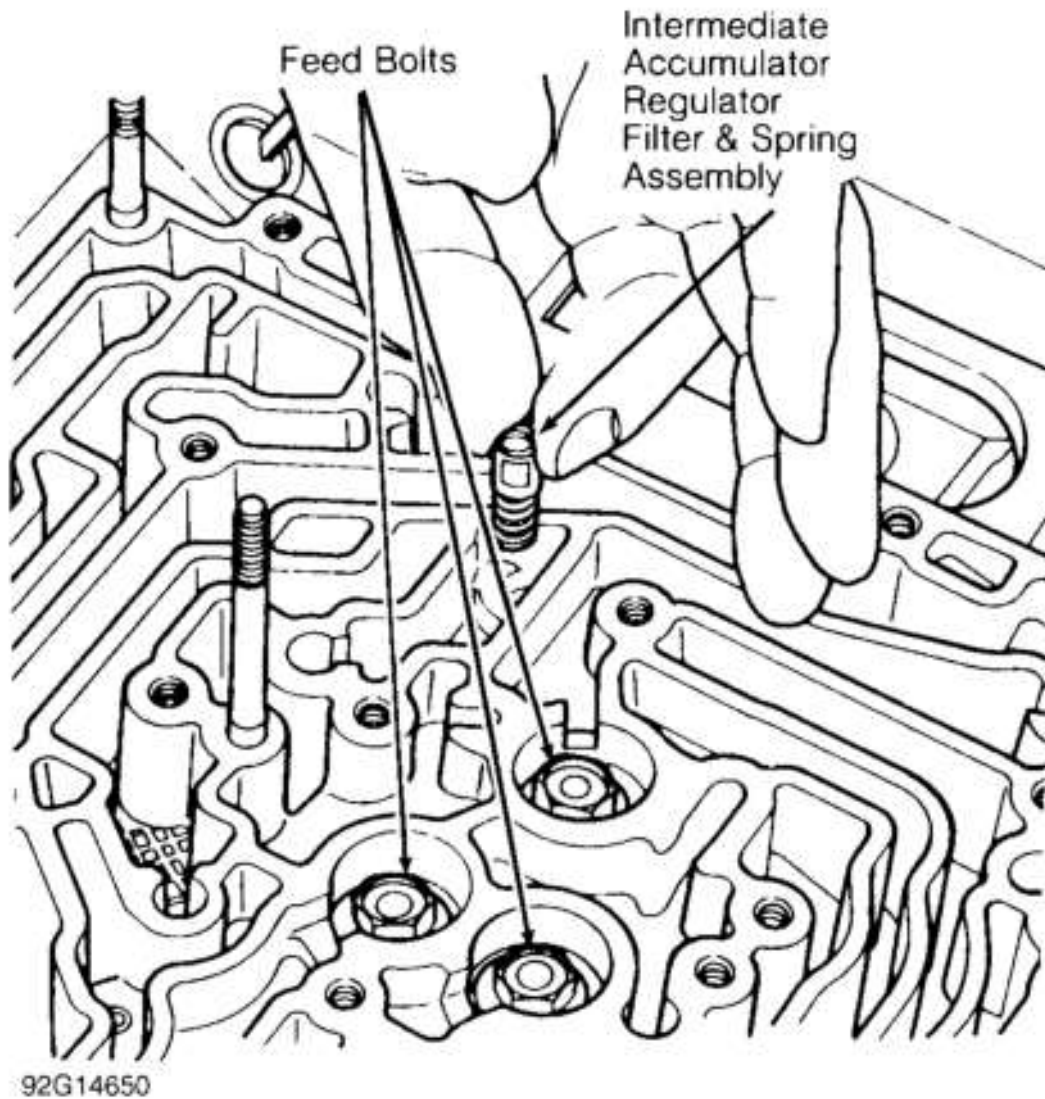


Fig. 5: Removing Intermediate Accumulator Regulator Assembly
 Courtesy of FORD MOTOR CO.

Installation

1. Clean and inspect valve body thoroughly. DO NOT clean non-metallic check balls with solvent.
2. Install servo spring, servo piston and rod assembly. Install retaining plate and snap ring. See **Fig. 6**.
3. Lubricate valve body pockets with petroleum jelly. Place 9 check balls (rubber), Electronic Pressure Control (EPC) spring and EPC ball in position. See **Fig. 7**. Install separator plate and gaskets. Tighten retaining bolts to specifications. See **TORQUE SPECIFICATIONS**. Stamped "UP" on reinforcing plate MUST BE visible.
4. Install solenoid screen and lock in place. Install valve body over studs. Align manual valve with manual lever. Install and tighten retaining bolts to specification. Install accumulator body retaining bolts. Tighten to specification. Coat case connector bore with grease and install solenoid body retaining bolts and nut. Tighten to specification.

5. Install NEW filter and seal assembly. Install oil pan and NEW gasket. Check condition and placement of pan magnet. Tighten pan bolts to specification. Position solenoid body connector into receptacle. Audible click indicates full connection. Install solenoid body connector heat shield with offset bending inward.
6. Add transmission fluid and start engine. Fill transmission to proper level. Test vehicle for proper operation and ensure no leakage is present.

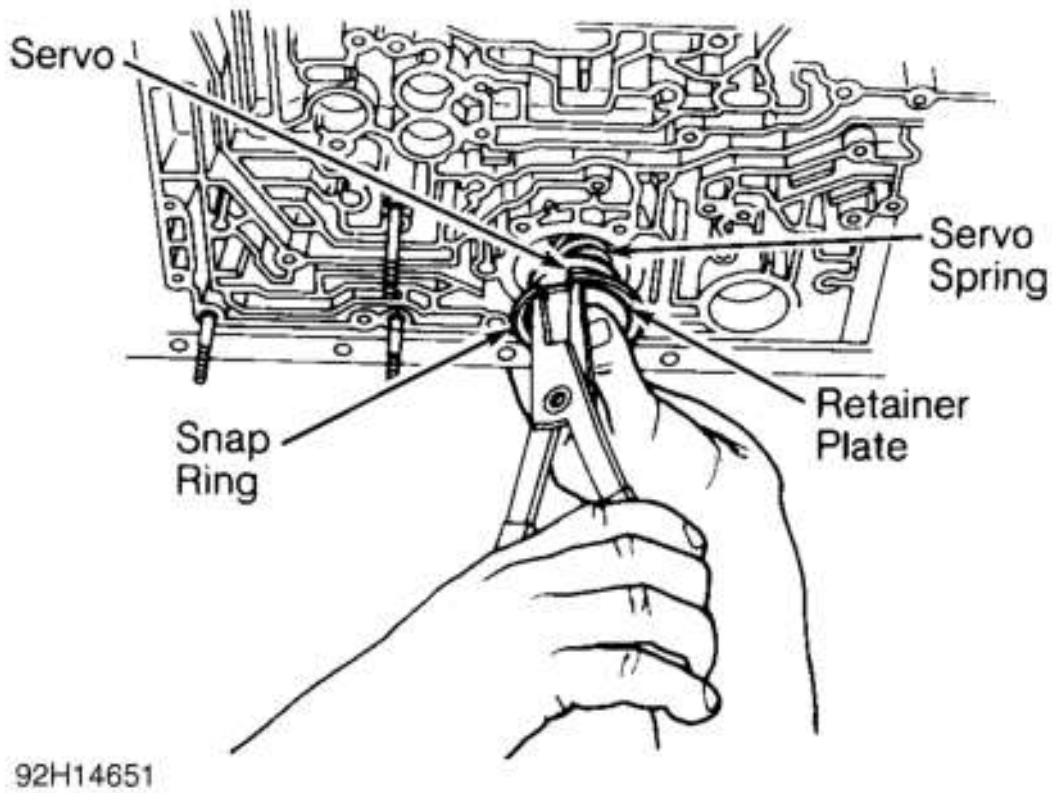
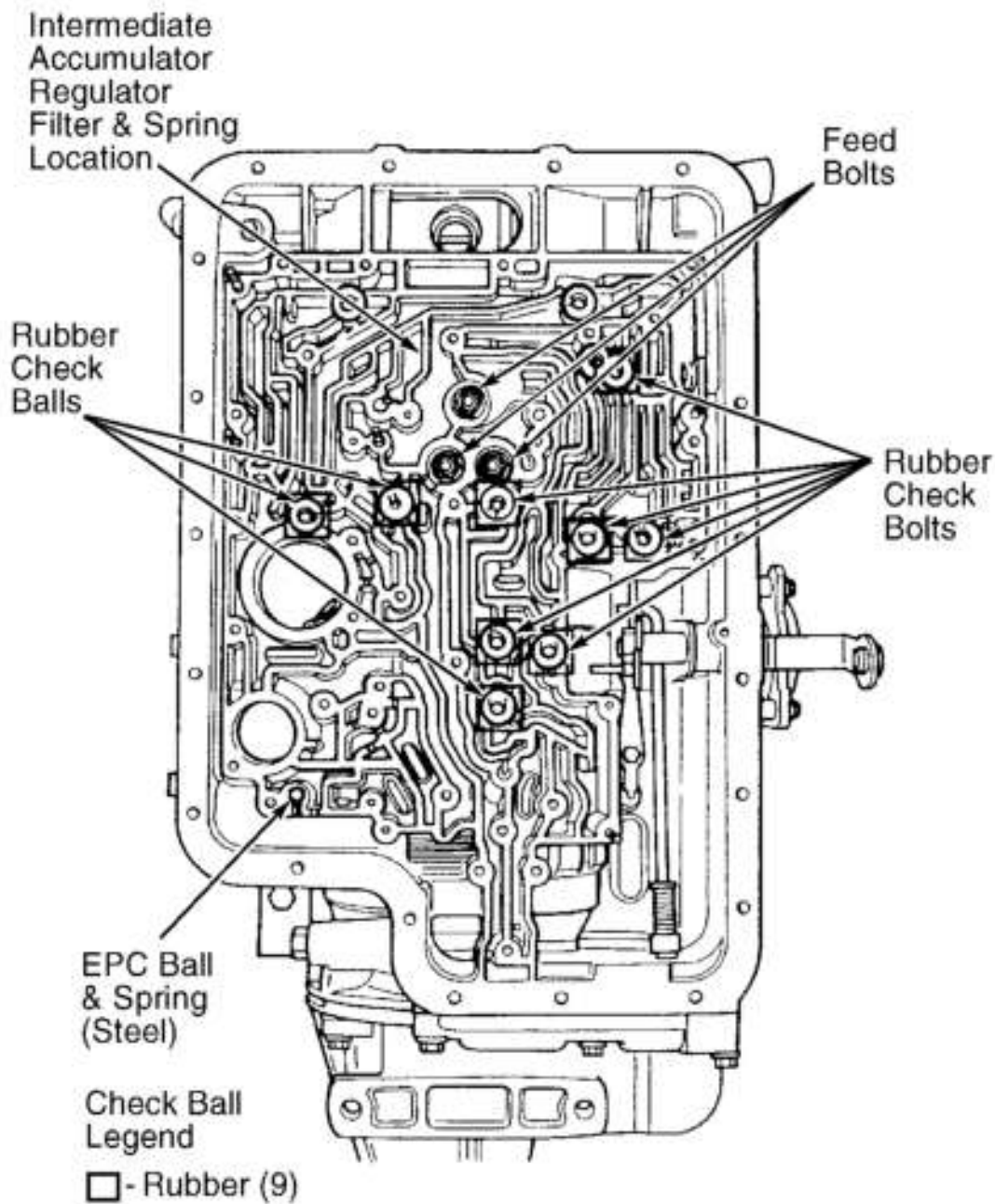


Fig. 6: Installing Intermediate Band Servo
Courtesy of FORD MOTOR CO.



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Fig. 7: Locating Valve Body Check Balls
 Courtesy of FORD MOTOR CO.

MANUAL LEVER SEAL

Removal

1. Remove manual lever position sensor connector. Remove shift cable from transmission manual lever, using a large screwdriver, pry control cable and fitting from lever ball and stud. See **Fig. 8**. Remove sensor retaining bolts.

2. Loosen oil pan bolts and drain transmission fluid. Remove oil pan, filter and "O" ring. Discard filter and "O" ring. DO NOT scratch or damage aluminum pump bore.
3. Using Lock Nut Pin Remover (T78P-3504-N), remove manual lever roll pin. Using a 21-mm box wrench, remove Inner detent lever nut. Hold lever with crescent wrench. Remove inner detent lever and park actuating rod assembly from manual lever. Remove manual lever and seal.

Installation

1. Clean seal bore opening with solvent. Using appropriate seal driver, install seal. Install manual lever, inner detent lever, park actuating rod assembly and NEW nut. Ensure inner detent lever is seated on flats of shaft, and rod assembly is through guide plate. Inner lever pin MUST BE aligned with manual valve.
2. Tighten inner detent lever nut to specification. See **TORQUE SPECIFICATIONS**. Ensure manual valve detent spring is on inner detent lever and aligned with inner detent.
3. Install manual lever roll pin. Install manual lever position sensor finger tight. Use Gear Position Sensor Adjustor (T89T-70010-J) to align manual lever position sensor for Neutral gear position. Tighten bolts to specification. Install manual lever position sensor connector. Install shaft linkage and adjust. See appropriate TRANSMISSION SERVICING - A/T article in AUTOMATIC TRANSMISSION SERVICING.
4. Install NEW filter and "O" ring assembly. Install oil pan and NEW gasket. Check condition and placement of pan magnet. Tighten oil pan retaining bolts to specifications. See **TORQUE SPECIFICATIONS**.

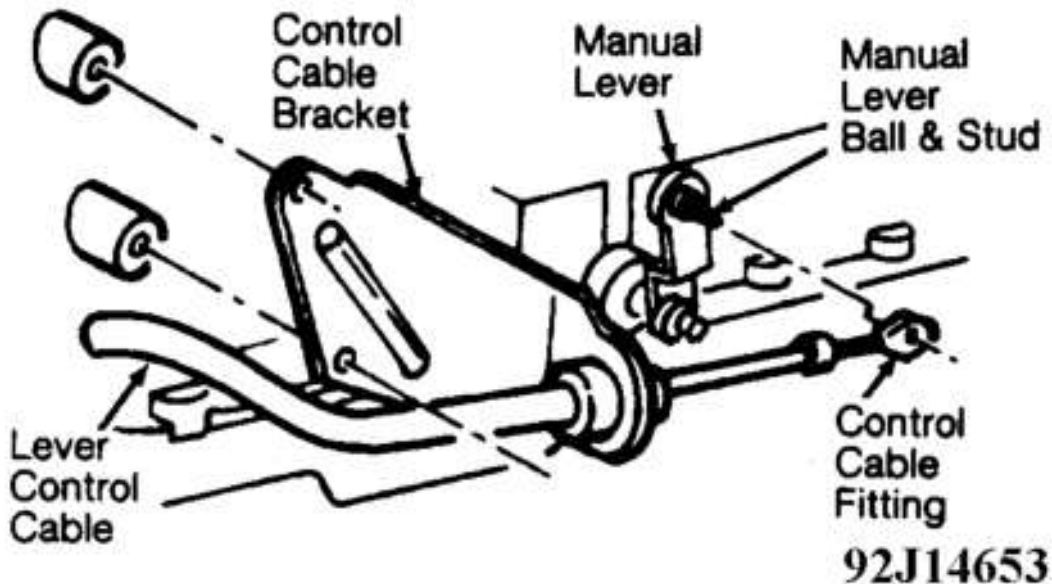


Fig. 8: Removing Manual Lever Seal
 Courtesy of FORD MOTOR CO.

TORQUE CONVERTER

Whenever transmission has been disassembled to replace worn or damaged parts, converter and oil cooler

MUST BE cleaned using a mechanically agitated cleaner (Rotunda 014-00028). Under NO conditions should converter or oil cooler be cleaned by hand agitation using solvent.

Torque Converter Leak Test

If torque converter welds indicate leakage, attach Torque Converter Leak Detector (Rotunda 021-00054) to converter and follow detector kit instructions.

Turbine & Stator End Play Check

1. Insert Tester (T80L-7902-D) into converter pump drive hub until tester bottoms. Expand sleeve in turbine spline by tightening threaded inner post of tester until tester is securely locked into spline.
2. Attach a dial indicator to tool with indicator button on converter pump drive hub. See **Fig. 9**. Zero dial face. Lift tool upward as far as possible and note indicator reading.
3. Reading is total end play of turbine and stator. If end play exceeds .038" (.96 mm) on new or rebuilt converter, or .071" (1.8 mm) on used converter, replace torque converter assembly.

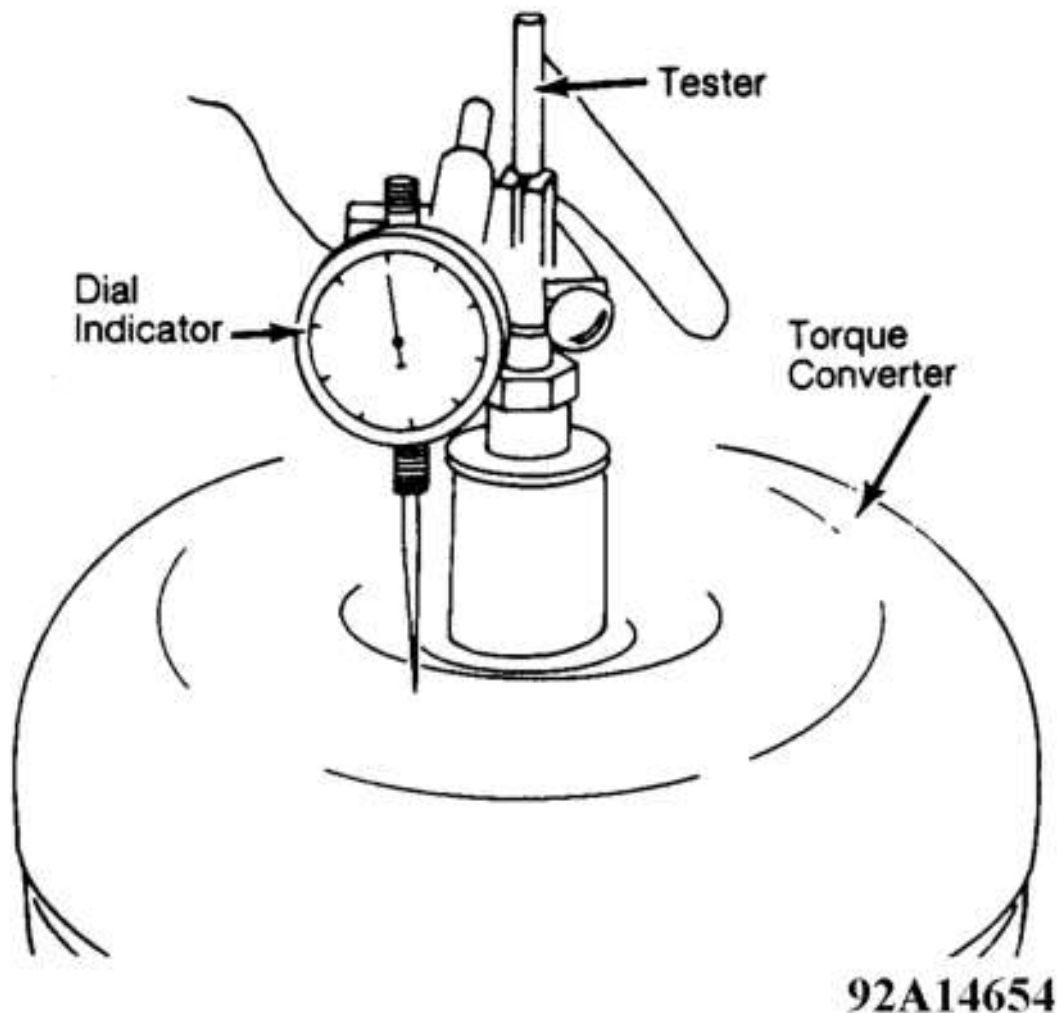


Fig. 9: Checking Torque Converter End Play

Courtesy of FORD MOTOR CO.

Torque Converter One-Way Clutch Check

Insert fingers into converter. Reaching first splined segment, attempt to spin. Segment should rotate freely clockwise and not turn counterclockwise without converter turning. If clutch fails check, replace torque converter.

Stator-To-Impeller Interference Check

1. Position stator support on bench with spline end of stator shaft pointing up. Mount converter on stator support so splines of one-way clutch inner race engage splines of stator support.
2. While holding pump stationary, rotate converter counterclockwise. Converter should rotate freely without interference or scraping within assembly. Should interference or a scraping condition within converter exist or converter does not rotate freely, replace converter unit.

Stator-To-Turbine Interference Check

1. Place converter on bench, front side down. Install stator support to engage mating splines of stator support shaft.
2. Install input shaft, engaging splines with turbine hub. While holding stator shaft stationary, rotate turbine with input shaft.
3. Turbine should rotate freely in both directions without interference or noise. If interference or noise exists, stator front thrust washer may be worn and converter should be replaced.

NOTE: **Stator support may remain in pump assembly during check.**