

1986-90 AUTOMATIC TRANSMISSIONS

Ford Motor Co. AXOD Overhaul

APPLICATION

TRANSMISSION APPLICATION

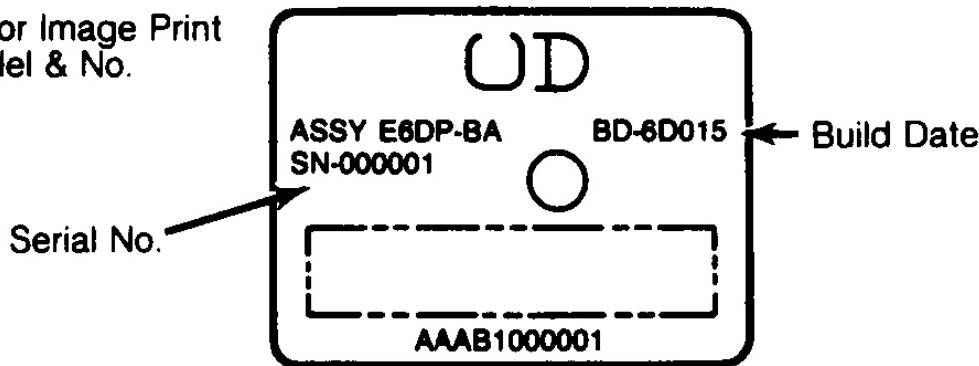
Vehicle Application	Transmission
1986-90 Taurus 3.0L	AXOD
1988-90 Taurus 3.8L	AXOD
1988-90 Continental 3.8L	AXOD
1986-90 Sable 3.0L	AXOD
1988-90 Sable 3.8L	AXOD

IDENTIFICATION

The AXOD automatic transaxle is identified by the code letter T which is shown on the Vehicle Certification Label under "TR". The label is located on driver's door lock panel or door pillar.

The transaxle also has an identification tag attached to the top of the converter housing. Use this information when servicing transaxle. See **Fig. 1**.

Mirror Image Print
Model & No.



96A16105

Fig. 1: Identification Tag
Courtesy of FORD MOTOR CO.

DESCRIPTION

The AXOD (Automatic Overdrive Transaxle) combines an automatic transaxle and differential into a single unit designed for front wheel drive vehicles. The transaxle is a fully automatic unit with 4 forward speeds, one reverse, neutral and park.

The AXOD has 2 planetary gear sets and a combination planetary/differential gear set. Four multiple plate clutches, 2 band assemblies, and 2 roller (one-way) clutches act as friction elements for proper operation of the planetary gear sets.

A lock-up torque converter couples the engine output to the planetary gears and overdrive unit. This is done by a chain which connects the drive and driven sprockets. The converter lock-up is controlled through the EEC-IV system. A piston plate clutch, inside converter, is activated by the computer and valve body.

The converter clutch applies at approximately 27 MPH in 3rd gear and approximately 35 MPH in 4th gear (Overdrive). It cannot apply in 1st or 2nd gear. Engagement is prevented when coolant temperature is below 75° F (24°C), barometric pressure is below 20 in. Hg during 4-3 downshifts, during 2-3 upshifts, or when service brakes are applied.

LUBRICATION & ADJUSTMENTS

See appropriate TRANSMISSION SERVICING - A/T article in the AUTOMATIC TRANS SERVICE section.

SERVICE (IN VEHICLE)

OIL PUMP & VALVE BODY ASSEMBLY

Removal

1. Disconnect battery ground cable. Remove battery and battery tray. Remove remote air cleaner. Secure supply hoses, vacuum lines and wiring away from valve body cover.
2. Raise vehicle on hoist. Support engine and transaxle and remove left side engine mounts and supports. See appropriate TRANSMISSION REMOVAL & INSTALLATION - A/T article in AUTOMATIC TRANS SERVICE section.
3. Loosen valve body cover bolts and drain fluid. Remove cover and gasket. Remove 22 pump and valve body assembly-to-chain cover bolts. See **Fig. 4**.
4. Pull pump and valve body assembly out enough to clear throttle valve bracket. It may be necessary to depress T.V. plunger to clear T.V. bracket. Rotate valve body clockwise, disconnect manual valve link and remove assembly from vehicle.

Installation (Method No. 1)

1. Install new cover gasket. Slide pump and valve body assembly onto oil pump shaft. Rotate assembly clockwise and connect manual valve link.
2. Slightly rotate or jiggle assembly to engage splines on oil pump shaft with splines in oil pump rotor. Valve body should slide flush onto chain cover without force. It may be necessary to rotate engine using a 7/8" socket on crankshaft to complete engagement of pump shaft to pump.
3. Use Valve Body Alignment Pin (T86P-70100-C) to position valve body. Install bolts and tighten in sequence shown. See **Fig. 4**.

CAUTION: DO NOT use bolts to draw pump and valve body into position.

4. Install cover using a new gasket. To complete installation, reverse removal procedures.

NOTE: If full engagement of the pump and valve body assembly is not obtained using Method No. 1, the following alternate method may be used.

Installation (Method No. 2)

1. Install new cover gasket. Remove manual valve from valve body. Slide pump and valve body assembly onto oil pump shaft. Rotate assembly as necessary to allow full engagement (360° rotation possible). After full engagement, return assembly to installed position and install manual valve.
2. Use Valve Body Alignment Pin (T86P-70100-C) to position valve body. Install bolts and tighten in sequence shown. See **Fig. 4** . **DO NOT** use bolts to draw pump and valve body into position. Install cover using a new gasket. To complete installation, reverse removal procedure.

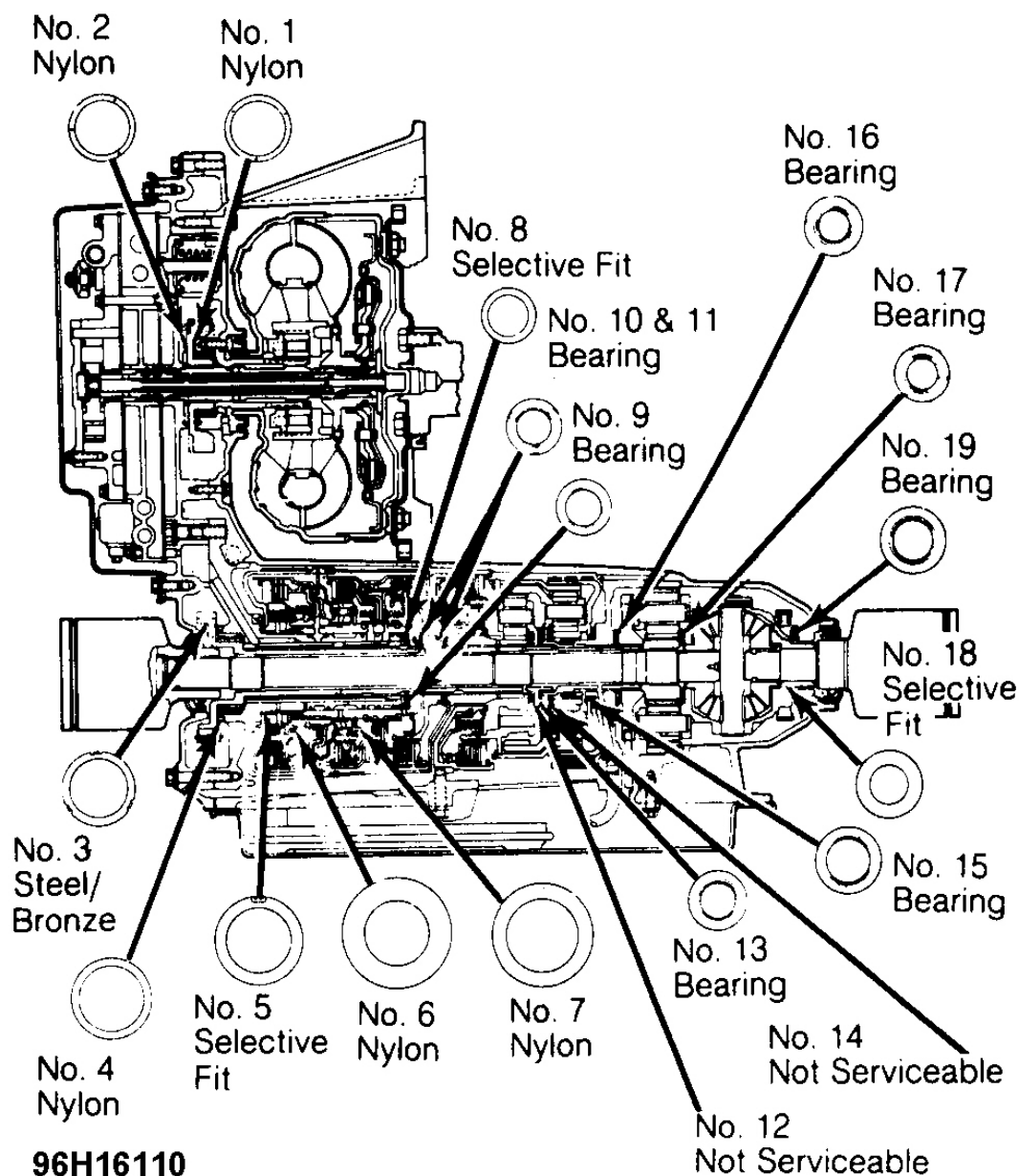


Fig. 2: Thrust Washer & Needle Bearing Location
Courtesy of FORD MOTOR CO.

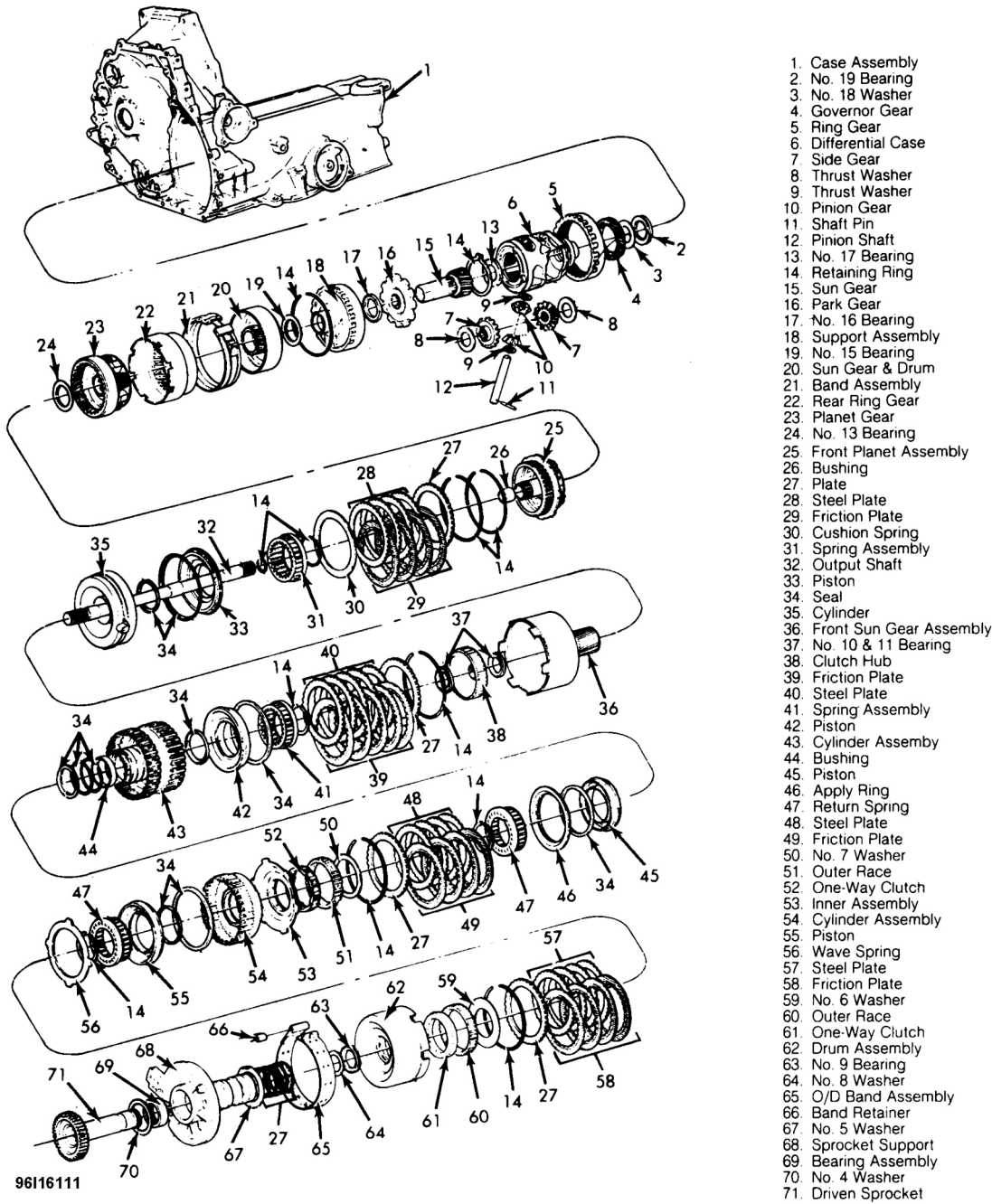


Fig. 3: Exploded View of AXOD Transaxle
 Courtesy of FORD MOTOR CO.

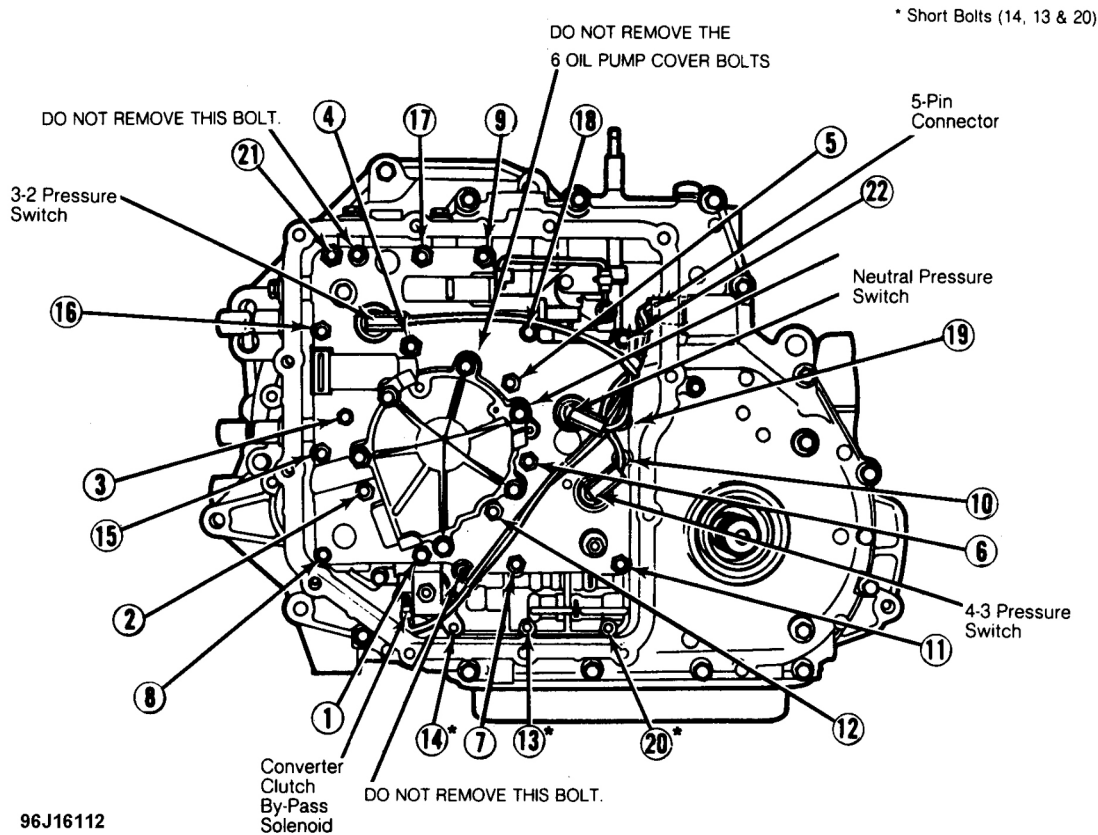


Fig. 4: Oil Pump & Valve Body Bolt Removal & Installation
Courtesy of FORD MOTOR CO.

DRIVE AXLE SHAFT

See appropriate AXLE SHAFT - FRONT article in DRIVE AXLES section.

TROUBLE SHOOTING

See appropriate **TROUBLE SHOOTING - BASIC PROCEDURES** article in GENERAL TROUBLE SHOOTING section.

CLUTCH & BAND APPLICATION CHART (ELEMENTS IN USE)

Selector Position	1st- L	"D" 1st	"D" 2nd	"D" 3rd	OD- 4th	R	P & N
Low- Int. Band	X	X	X				(1)
O/D Band					X		(1)
Fwd. Clutch	X	X	X	X		X	(1)
Int. Clutch			X	X	X		(1)
Direct Clutch	X			X	X		(1)

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Reverse Clutch						X	(1)
Low 1-Way Clutch	X	X	X			X	(1)
Direct 1-Way Clutch	X				X		(1)
(1) All clutches and bands released and/or ineffective.							

TESTING

ROAD TEST

This test will verify that the governor pressure and shift control valves are operating properly.

1. Bring engine and transaxle up to normal operating temperature. Place transaxle in Overdrive. Check upshifts at minimum throttle. Note upshift speeds and speed at which converter clutch applies. Refer to appropriate **SHIFT SPEEDS** table in this article.
2. Place transaxle in Drive and repeat Step 1). Transaxle should make all upshifts except 3-4 and converter clutch should apply above 27 MPH.
3. Leave transaxle in Drive and depress accelerator to floor (WOT). Transaxle should shift from 3rd to 2nd, or 3rd to 1st, depending on vehicle speed. Converter clutch should also release.

NOTE: With transaxle in Overdrive, a 4-3 WOT downshift can be obtained regardless of vehicle speed.

4. With vehicle speed above 30 MPH, shift transaxle from Drive to Low and decelerate. Transaxle should immediately downshift to 2nd gear. When vehicle speed drops below 20 MPH, transaxle should downshift into 1st gear.

IN-SHOP TEST

The governor circuit, shift delay pressures and throttle boost can be checked during this test.

CAUTION: DO NOT exceed 60 MPH indicated speedometer speed.

1. Raise vehicle drive wheels off floor. To check shift valves and governor circuit, place transaxle in Overdrive and apply minimum throttle. Note upshift speeds and speeds at which the converter clutch locks up.
2. Transaxle should shift in the following order: 1-2, 2-3, Converter lock-up and 3-4 (O/D). Converter will remain locked when in overdrive. To check downshift valve operation, disconnect throttle valve linkage from throttle lever and pull out to maximum travel. **DO NOT** crimp or kink cable.
3. Place transaxle in Drive and apply minimum throttle pressure. Observe speed at which 1-2 upshift occurs. If not within specifications, see **GOVERNOR** under AIR PRESSURE TESTS. If shift speeds are too

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low, the shift modulator valves may be faulty.

SHIFT SPEEDS (MPH)**2.5L SABLE/TAURUS MODEL PNA-A SHIFT SPEED**

Throttle Opening	Drive Range	Shift	Km/Hr (MPH)
Idle (Closed)	O/D, D	1-2	18-27 (11-16)
O/D, D		2-3	25-37 (15-22)
O/D		3-4	55-74 (33-44)
O/D		4-3	48-65 (29-39)
O/D, D		3-2	17-25 (10-15)
O/D, D		2-1	12-18 (7-11)
Part Throttle	O/D, D	1-2	32-40 (19-25)
O/D, D		2-3	57-65 (34-41)
O/D, ⁽¹⁾		3-4	63-78 (38-47)
O/D, ⁽¹⁾		4-3	53-65 (32-41)
O/D, D		3-2	43-55 (26-33)
O/D, D		2-1	25-29 (15-18)
Wide Open Throttle	O/D, D	1-2	47-62 (28-37)
O/D, D		2-3	90-107 (54-64)
O/D, D		3-2	82-98 (49-59)
O/D, D		2-1	35-48 (21-30)

(1)

Part throttle shift speeds were made with TV pressure at 40 psi, all other shifts were made at 60 psi.

3.0L SABLE/TAURUS MODEL PNA-U SHIFT SPEED

Throttle Opening	Drive Range	Shift	Km/Hr (MPH)
Idle (Closed)	O/D, D	1-2	18-27 (11-16)
O/D, D		2-3	14-33 (12-20)
O/D		3-4	53-72 (32-43)
O/D		4-3	43-63 (26-38)
O/D, D		3-2	13-22 (8-13)
O/D, D		2-1	12-18 (7-11)
Part Throttle	O/D, D	1-2	32-43 (19-26)
O/D, D		2-3	63-75 (38-45)
O/D, ⁽¹⁾		3-4	64-82 (40-49)
O/D, ⁽¹⁾		4-3	49-65 (30-41)
O/D, D		3-2	40-51 (25-32)
O/D, D		2-1	25-29 (15-18)
Wide Open Throttle	O/D, D	1-2	48-64 (30-40)
O/D, D		2-3	100-120 (60-72)

O/D, D	3-2	98-108 (59-65)
O/D, D	2-1	40-50 (25-31)

(1)

Part throttle shift speeds were made with TV pressure at 40 psi, all other shifts were made at 60 psi.

CONTROL PRESSURE TEST

Connect a pressure gauge to line pressure port. See **Fig. 5**. Start engine. Apply service and parking brakes. Check line pressure in all gears. See **LINE PRESSURE SPECIFICATIONS**. If line pressure is not within specification, see **AIR PRESSURE TESTS**.

CONTROL PRESSURE TEST RESULTS

High or Low Oil Pressure

Check for low oil level. Ensure T.V. cable or linkage is not stuck or damaged. Pressure regulator valve or spring could be damaged. Pressure relief valve could be damaged, missing spring, or missing check ball. Oil pump slide could be stuck, seals damaged, vanes broken or drive shaft damaged or broken.

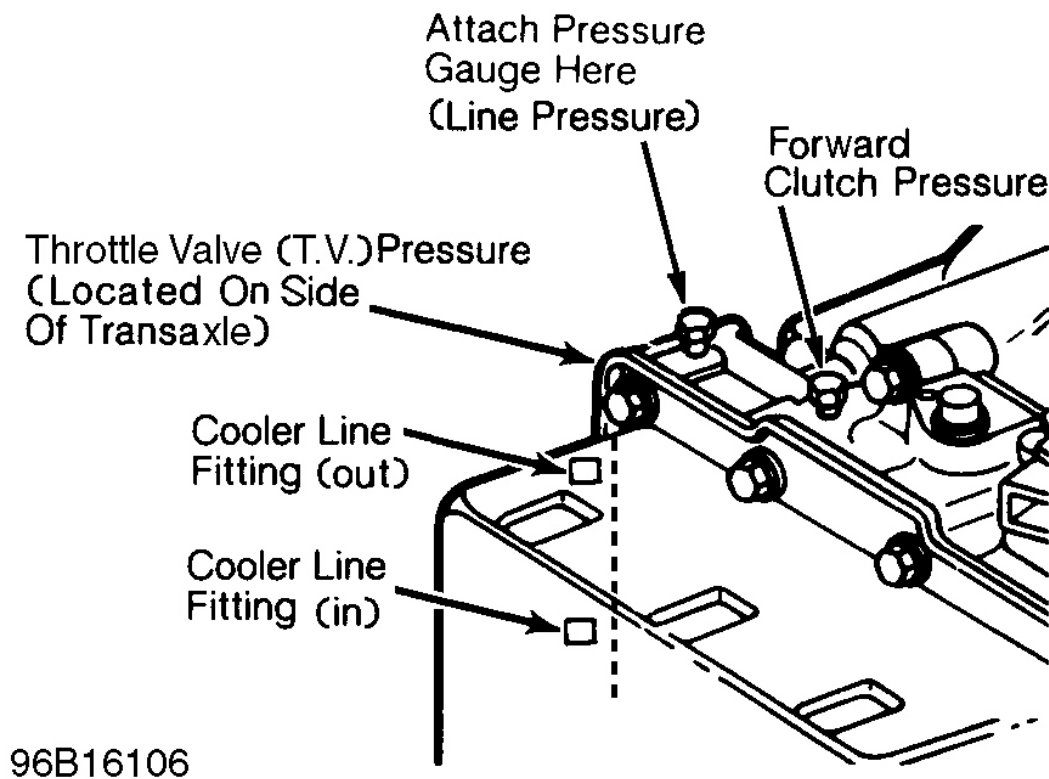


Fig. 5: Control Pressure Port Location

Courtesy of FORD MOTOR CO.

LINE PRESSURE SPECIFICATIONS (PSI)

Range	Idle	WOT Stall
Overdrive (Drive)	81-91	158-183
First	112-169	158-183
Reverse	93-152	242-279
Park & Neutral	81-95	N/A

CONVERTER CLUTCH TEST

1. Connect a tachometer to the vehicle (if not equipped). Bring engine and transaxle up to normal operating temperature by driving at highway speeds for about 15 minutes in Overdrive.
2. Maintaining a constant speed of 50 MPH, tap the brake pedal. Engine RPM should increase. It should decrease about 5 seconds after the pedal is released. If this does not occur, refer to **CONVERTER CLUTCH TEST RESULTS**.

CONVERTER CLUTCH TEST RESULTS**Converter Clutch Does Not Apply**

- Transaxle electrical system or EEC are malfunctioning: No lock-up signal, by-pass solenoid damaged or inoperative, bulkhead connector damaged, pinched wires, 4-3 pressure switch or 3-2 pressure switch inoperative.
- Converter clutch blowoff check ball in channel plate not seating or damaged.
- Turbine shaft seals defective.
- By-pass clutch control valve stuck or by-pass plunger stuck.
- Pump shaft seals missing or damaged.
- Valve body pilot sleeve misaligned or damaged.

Converter Clutch Does Not Release

- EEC is malfunctioning: No unlock signal or by-pass solenoid damaged or inoperative.
- By-pass clutch control valve or plunger valve stuck, nicked or damaged.

STALL TEST

The stall test checks the operation of the following items: converter one-way clutch, forward clutch, low one-way clutch, reverse clutch, low-intermediate band and engine performance.

NOTE: **After each test, shift transaxle into Neutral and run engine for at least 15 seconds to cool converter.**

Apply service and parking brakes. Connect tachometer to engine, and record RPM reached in each range at WOT (Wide Open Throttle).

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CAUTION: DO NOT maintain WOT in any gear for more than 5 seconds. If engine RPM exceeds maximum stall RPM, release accelerator immediately. Clutch or band slippage is indicated.

STALL SPEEDS (RPM)

Minimum	Maximum
1950	2275

STALL TEST RESULTS

Stall Speed Too High

In Overdrive, Drive, 1st and Reverse, general transaxle problems are indicated and a control pressure test should be made to locate faulty unit(s).

In Overdrive, Drive or 1st, forward clutch, low-intermediate clutch, or low-intermediate band slippage is indicated. The low-intermediate servo may also be malfunctioning.

In Reverse, the forward clutch, low-intermediate clutch or reverse clutch may be slipping.

Stall Speed Too Low

Converter reactor one-way clutch is slipping or engine performance is faulty.

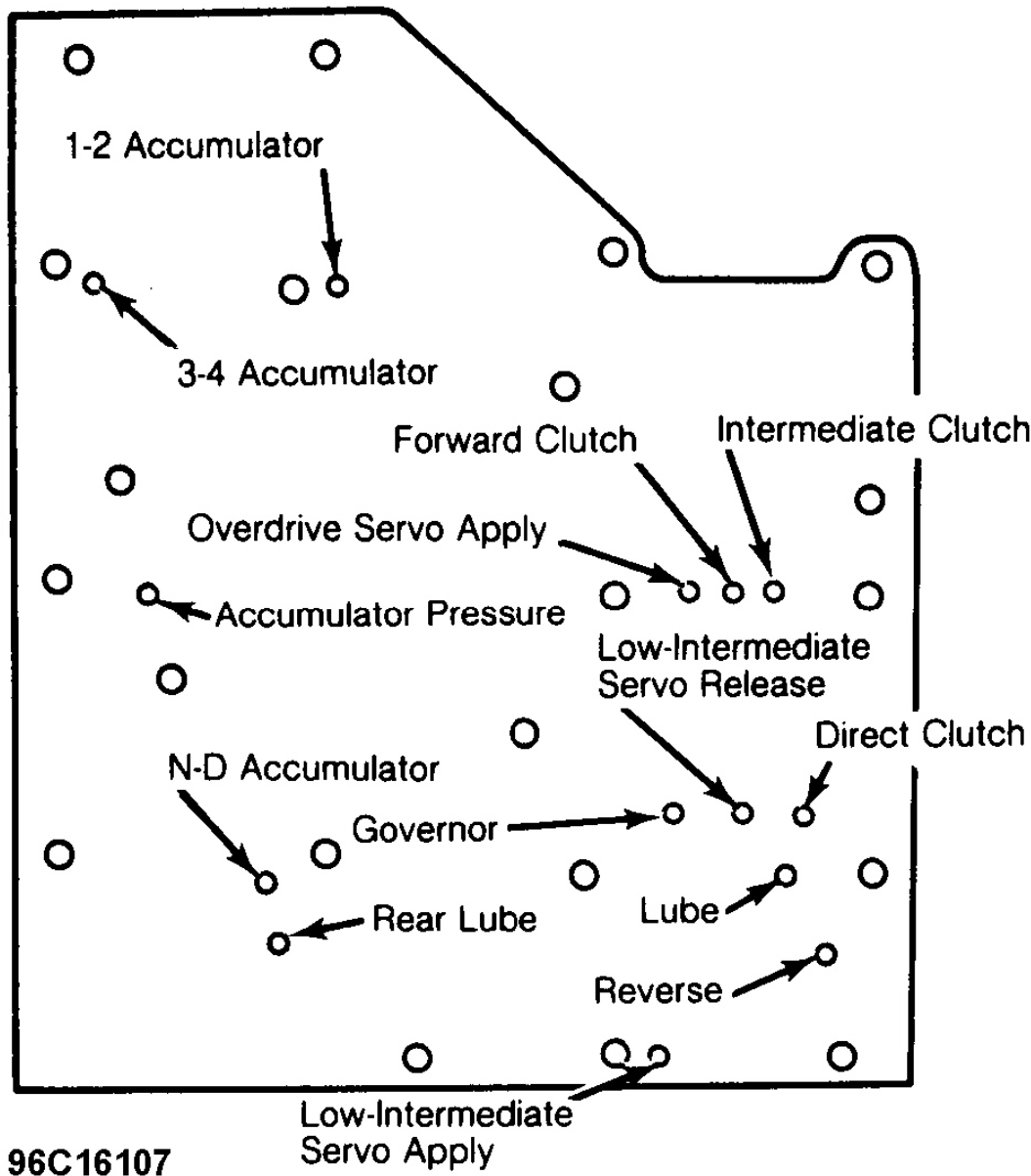


Fig. 6: Air Pressure Test Plate Locations
 Courtesy of FORD MOTOR CO.

AIR PRESSURE TESTS

1. A "No Drive" condition can exist even with correct transaxle fluid pressure because of inoperative clutches or bands. A "No Drive" condition in a forward gear range may be caused by an inoperative forward clutch, low-intermediate one-way clutch or low-intermediate band.
2. No manual low (1st), coast could be caused by a faulty direct clutch or direct one-way clutch.

3. Reverse failure may be caused by a malfunctioning reverse clutch, forward clutch or low-intermediate one-way clutch.
4. To perform air pressure tests, drain transaxle fluid and remove oil pan. Remove valve body cover, and oil pump and valve body assembly. Install Air Pressure Test Plate (T86P-7006-B) with valve body assembly-to-chain cover gasket. See **Fig. 6** .

Forward Clutch

Apply air pressure to forward clutch test port. A dull thud can be heard, or movement of piston felt when clutch piston is applied. If clutch seal(s) are leaking, a hissing sound will be heard.

Governor

Apply air pressure to governor test port and listen for a sharp clicking or whistling noise. The noise indicates proper governor movement.

Overdrive Servo

Apply air pressure to overdrive servo test port. Operation of servo is indicated by the tightening of overdrive band around overdrive drum. Because of the cushioning effect of the servo release spring, this may not be heard or felt. The servo should hold air pressure and a dull thud should be heard when air pressure is released.

Direct Clutch

Apply air pressure to direct clutch test port. A dull thud can be heard, or movement of piston felt on case as piston is applied. If clutch seal(s) are leaking, a hissing sound will be heard.

Intermediate Clutch

Apply air pressure to intermediate clutch test port. A dull thud can be heard, or movement of piston felt on case as piston is applied. If clutch seal(s) are leaking, a hissing sound will be heard.

NOTE: **If air pressure fails to operate a clutch, or operates clutches simultaneously, remove and check fluid passages in the clutches, chain cover and driven sprocket support.**

Low-Intermediate Servo

Apply air pressure at low-intermediate servo apply test port. The low-intermediate band should tighten around sun gear of rear planetary gear set. Because of the cushioning effect of the servo release spring, this may not be heard or felt. The servo should hold air pressure and a dull thud should be heard when air pressure is removed.

Apply air pressure to low-intermediate servo release test port while continuing to pressurize the apply port. Servo piston should return to the release position. The band should loosen and a dull thud should be heard. Release the apply test port. The release test port should hold air pressure. Any leakage or failure of piston movement requires servo service.

Lube & Rear Lube

Apply air pressure to lube and rear lube test ports. These passages can only be checked for blockage. If either passage holds air pressure, remove test plate and check for damage or an obstruction.

NOTE: If air pressure applied to the accumulator passages fails to operate an accumulator, remove and check fluid passages in the accumulator and chain cover.

1-2, 3-4 & N-D Accumulators

Apply air pressure to each accumulator test port. Accumulator should apply. Because of the cushioning effect of the release spring, this may not be heard or felt. The accumulator should hold air pressure without leaking and a dull thud should be heard when air pressure is removed.

REMOVAL & INSTALLATION

See appropriate TRANSMISSION REMOVAL & INSTALLATION - A/T article in AUTOMATIC TRANS SERVICE section.

TORQUE CONVERTER

NOTE: The torque converter is a sealed unit and cannot be disassembled. Replace converter assembly if defective. Perform the following tests to be certain converter is defective before replacing unit.

LEAK TEST

NOTE: If torque converter welds indicate leakage, attach Torque Converter Leak Test Kit (072-00004), to converter and follow directions supplied with kit.

TORQUE CONVERTER REACTOR ONE-WAY CLUTCH CHECK

Position Holding Wire (T77L-7902-A), into thrust washer slot. While holding wire, install One-Way Clutch Socket (T81P-7902-B) in reactor spline. Turn socket counterclockwise with a torque wrench. If socket begins to turn before torque wrench reads 10 ft. lbs. (14 N.m), replace converter.

TORQUE CONVERTER END PLAY CHECK

Position End Play Tester (T80L-7902-A) and Guide Sleeve (T86P-7902-A) in torque converter hub. Tighten tester nut. Mount a dial indicator on tester with stylus contacting converter shell. Zero indicator and lift on tester handles. If reading is above .05" (1.3 mm), replace converter.

STATOR-TO-IMPELLER INTERFERENCE CHECK

1. Position stator support assembly on a bench with spline end pointing up. Mount converter on stator

support with splines on the one-way clutch engaging the splines on the stator support.

2. Hold support stationary and try to rotate the converter both clockwise and counterclockwise. It should rotate freely without interference or scraping. If there is any indication of interference or scraping, replace the converter.

TRANSAXLE DISASSEMBLY

NOTE: For exploded view of transaxle, see Fig. 3.

1. Remove torque converter. Mount transaxle in a holding fixture. Place in vertical position. Remove shipping plug and drain fluid.
2. Place in horizontal position. Remove 2 governor cover bolts, cover and seal. Discard seal. Lift governor, speedometer drive gear assembly and bearing from case. Bearing sits on top of speedometer.
3. Remove 3 bolts from overdrive servo cover. Mark and remove cover, piston assembly and spring. Discard "O" ring from cover. Remove 3 low-intermediate servo cover bolts. Mark and remove cover, piston assembly and spring. Remove and discard gasket.
4. Install Shaft Protector (D80L-625-A) into right-hand output shaft opening. Screw output shaft Seal Remover (T74P-6700-A), into metal seal. Tighten screw on end of seal remover until metal seal protector is removed. Reinstall remover and repeat procedure to remove seal. See Fig. 7.

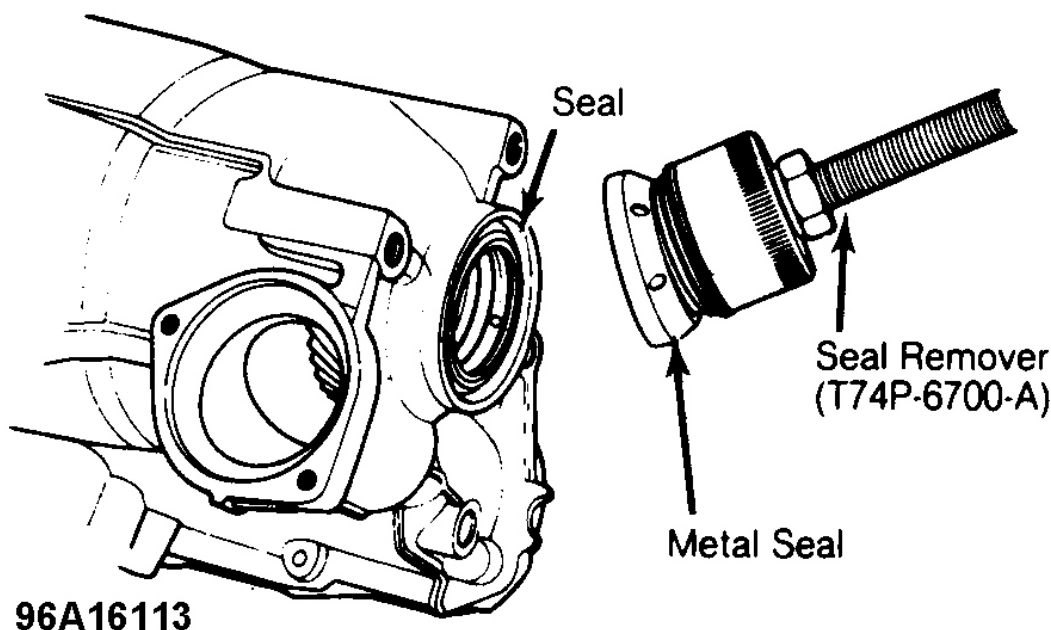


Fig. 7: Removing Output Shaft Seal
Courtesy of FORD MOTOR CO.

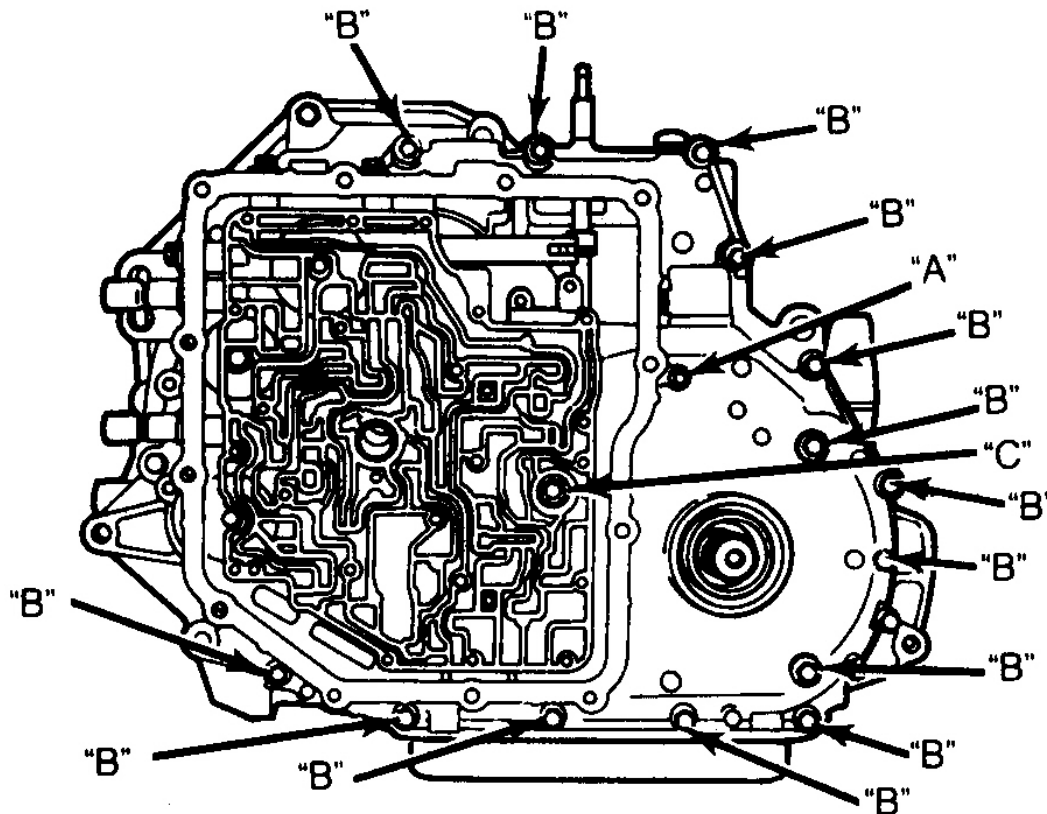
5. Remove 2 neutral safety switch bolts and remove switch. Remove dipstick tube attaching bolt and pull

tube from case. Remove 9 chain cover bolts from inside torque converter housing.

6. Using a slide hammer and Seal Puller (1175-AC), remove converter oil seal. Remove 12 valve body cover bolts. Remove cover and discard gasket.
7. Unplug 4 electrical connectors from pressure switches and solenoid. Use both hands. **DO NOT** pull on wires. Compress tabs on both sides of 5-pin bulkhead connector from inside of chain cover and remove connector and wiring. **DO NOT** pull on wiring, pull on connector. See **Fig. 4**.
8. Using a 9 mm wrench on flats of manual shaft, rotate shaft clockwise to position manual linkage in low detent (manual valve all the way in). Mark and remove 22 oil pump and valve body bolts, noting length and location. See **Fig. 4**.

CAUTION: DO NOT remove 2 bolts holding oil pump and valve body together. DO NOT remove the 6 oil pump cover bolts.

9. Push in T.V. plunger. Pull pump and valve body assembly outward. Rotate valve body clockwise and remove manual valve link from manual valve. Disconnect manual valve link from detent lever. Remove pump and valve body assembly.
10. Remove 2 throttle valve bracket bolts and remove bracket. Pull oil pump drive shaft out of case and remove 4 Teflon seals from shaft. Discard seals. See **Fig. 8**.
11. Place transaxle in vertical position. Remove and discard left-hand output shaft circlip. Screw Seal Remover (T74P-6700-A), into metal seal protector. Tighten screw of seal remover until metal seal protector is removed. Repeat and remove seal. See **Fig. 7**.
12. Mark and remove 14 chain cover bolts. Note length and location of bolts. See **Fig. 8**. Carefully remove chain cover and discard gasket. Note location of accumulator springs and tag to ensure reassembly to original location. Mark and remove No. 1 (plastic), thrust washer from chain cover. Mark and remove No. 3 (metal), thrust washers from chain cover.



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"A" = 8mm Bolt
 "B" = 10mm Bolt
 "C" = 13mm Bolt

Fig. 8: Chain Cover Bolt Locations
 Courtesy of FORD MOTOR CO.

13. Simultaneously lift out both sprockets with chain assembly. Mark and remove No. 2 and No. 4 thrust washers from drive and driven sprocket supports. Inspect drive sprocket support bearing to determine if it needs replacing. If bearing is okay, remove 6 Torx (T-30), bolts attaching support to case.
14. Using Pin Remover (D81P-3504-N), remove lockpin and 2 roll pins from manual shaft. Be careful not to damage any machined surfaces. Slide shaft out of case, then pry seal from case. See **Fig. 9**.

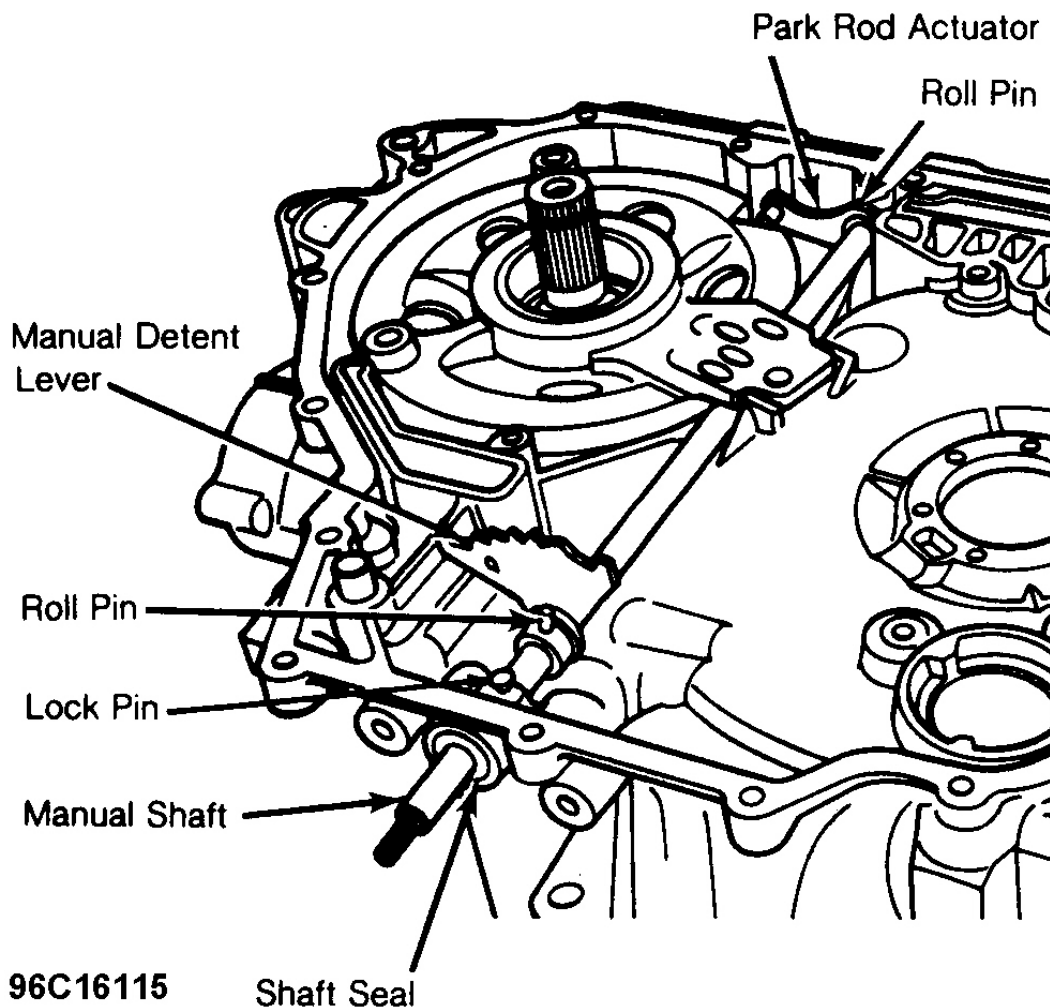


Fig. 9: Manual Shaft Lock Pin, Roll Pins & Seal Removal
 Courtesy of FORD MOTOR CO.

15. Use a straightedge and note whether driven sprocket support machined bolt hole surface is above or below the case machined surface. See **Fig. 9** . Note for reassembly. Remove driven sprocket support assembly. Back out reverse clutch anchor bolt if necessary.
16. Remove 5 Teflon seals from support assembly. Mark and remove No. 5 selective thrust washer. Using a wire hook remove No. 8 selective thrust washer and No. 9 needle bearing. Remove plastic overdrive band retainer and overdrive band.
17. Install Clutch Pack Holder (T86P-70389-A). Lift front sun gear and shell assembly out of case. Remove 17 oil pan cover bolts. Remove cover and discard gasket. Remove reverse apply tube/oil filter bolt and bracket. Remove oil filter screen and discard 2 "O" rings.
18. Remove tube retaining bracket bolts and brackets. If necessary, use Tube Remover (T86P-70001-A) and a slide hammer to remove lube tubes. Tubes are retained with Loctite. See **Fig. 10** .

NOTE: For complete transaxle disassembly the reverse apply tube **MUST** be removed prior to removing the reverse clutch. The rear lube tube must also be removed and the seal replaced whenever the differential is removed.

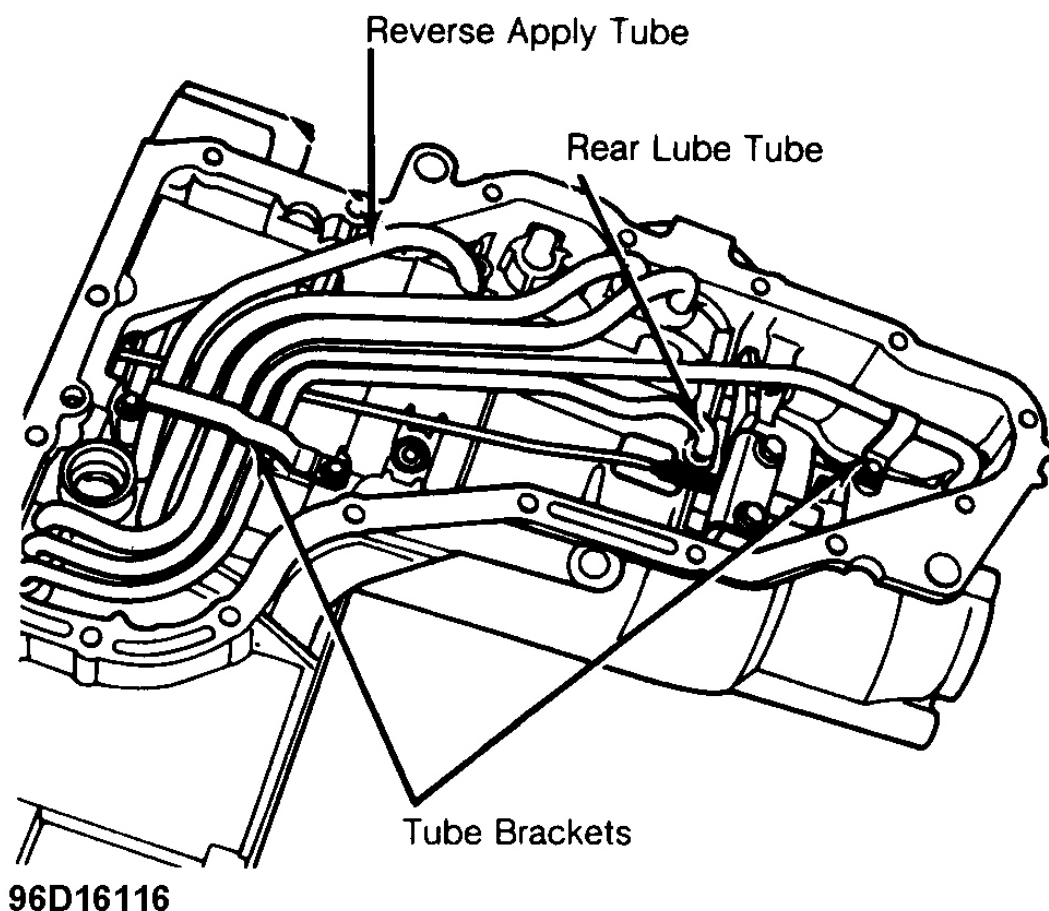


Fig. 10: Oil Tube Locations
Courtesy of FORD MOTOR CO.

19. Remove 2 park rod abutment bolts. Remove park rod by lifting to clear abutment and lower from case. Remove park pawl shaft roll pin. Use magnet to remove park pawl shaft. Remove park pawl and return spring. Loosen 19 mm reverse anchor pin nut and remove 6 mm Allen head bolt.
20. Place transaxle in horizontal position. Install Clutch Pack Holder (T86P-70389-A), on inner diameter of reverse clutch cylinder. Grasp outer diameter with finger tips and slide clutch assembly out of case.
21. Place transaxle in vertical position. Grasp front planetary shaft and lift out both front and rear planetary assembly. Lift out low-intermediate drum and sun gear assembly. Remove low-intermediate band.
22. Remove final drive assembly snap ring from case using a screwdriver inserted through side of case. Lift out final drive assembly using output shaft. See **Fig. 11**.

23. Remove final drive ring gear, No. 8 thrust washer and No. 19 needle bearing. Remove and discard rear lube tube seal using a 3/8" rod or drift. Tap seal towards inside of case.

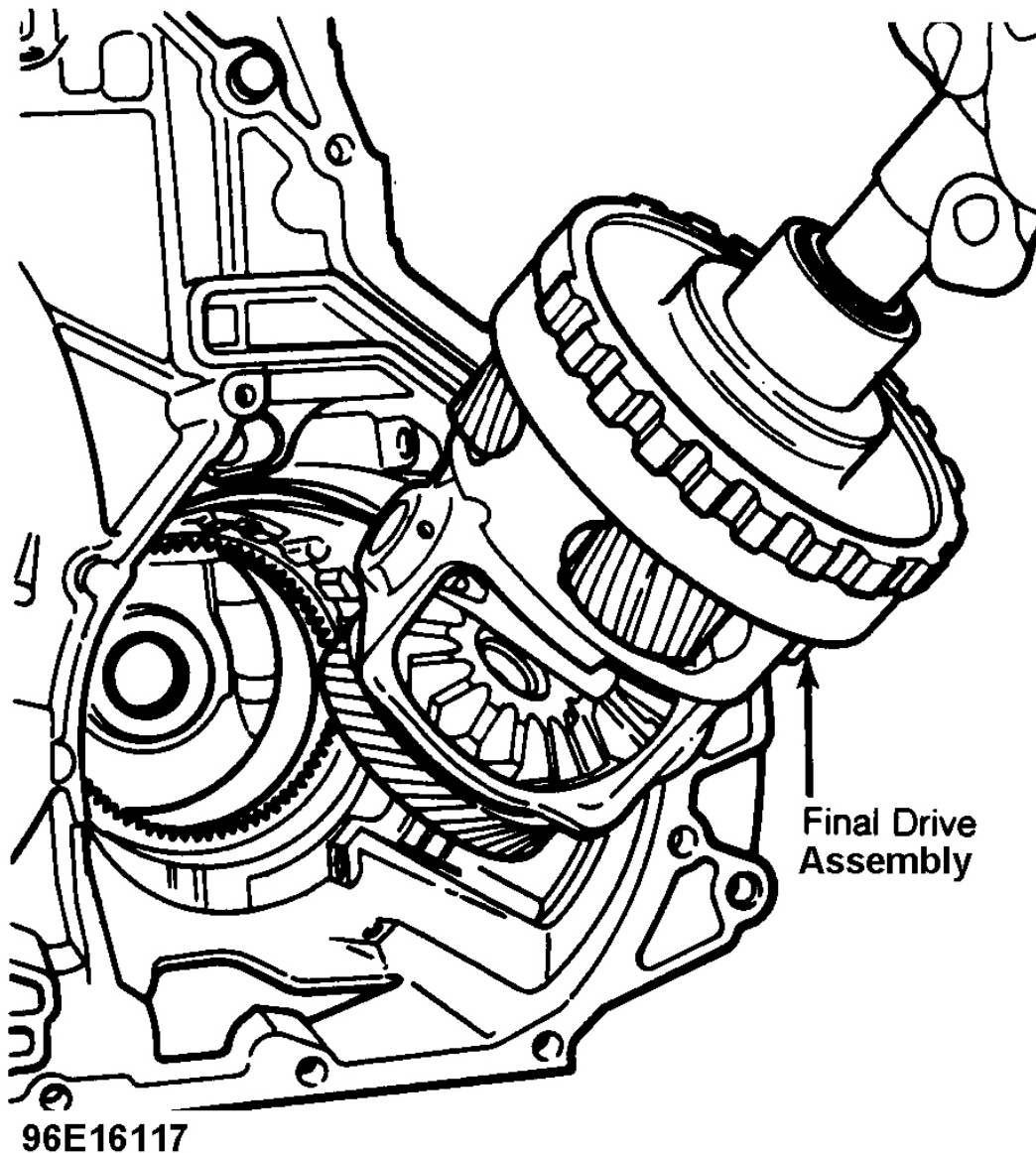


Fig. 11: Removing Final Drive Assembly
Courtesy of FORD MOTOR CO.

COMPONENT DISASSEMBLY & REASSEMBLY

CHAIN COVER

Disassembly

1. Mark and remove 3 accumulator piston shafts. Using flat-nose pliers, remove 3 accumulator pistons. **DO NOT** use any tools in piston shaft bore for removal as damage can occur.
2. Using side cutters, carefully remove bi-metallic retaining pin collars. See **Fig. 12** . Remove bi-metallic and plate. Pull retaining pins from cover. Use care not to damage bi-metallic strips or machined case surface.
3. Remove manual valve detent spring bolt and spring. Using slide hammer and Sprocket Bearing Remover (T86P-70043-A), remove drive sprocket support needle bearing from cover.

Reassembly

1. Using arbor press and Sprocket Bearing Replacer (T86P-70043-B), install sprocket support needle bearing. Install manual valve detent spring and position tab in hole. Tighten bolt to specifications. Start bi-metallic retaining pins in cover.
2. Place end of bi-metallic with hole, over front retaining pin. Install retaining collars. Place Height Gauge (T86P-70422-A), against pin and under bi-metallic. Gently tap collar onto pin until it seats against gauge. See **Fig. 12** .
3. Engage slotted end of bi-metallic under rear retaining pin. Use gauge and gently tap collar onto pin. Remove slotted end of bi-metallic and set center retaining pin height with gauge. Position slotted ends of plate onto rear and middle pins.

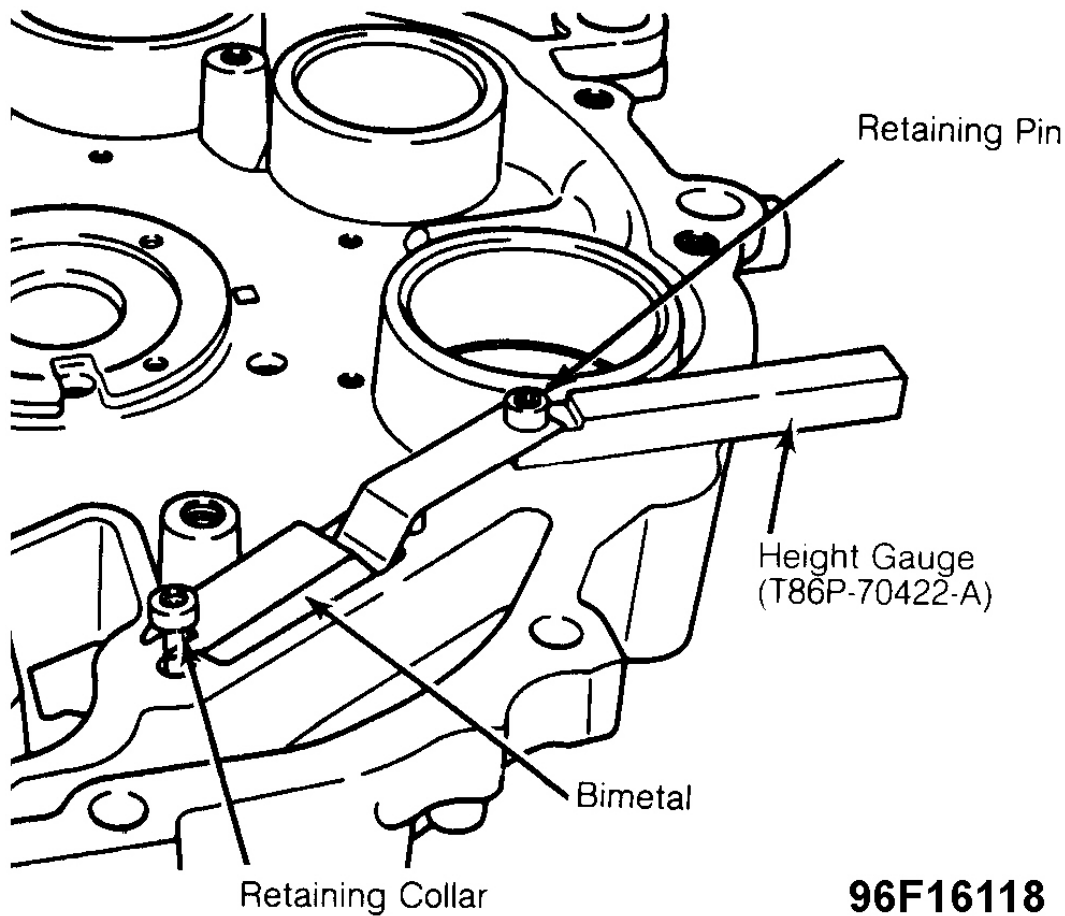


Fig. 12: Setting Bi-Metallic Height
Courtesy of FORD MOTOR CO.

OIL PUMP

NOTE: When separating oil pump from valve body, **DO NOT** loose 9 check balls. See **Fig. 14** .

Removal & Installation

1. Remove 2 bolts retaining oil pump to valve body. Separate valve body and oil pump. Remove and discard gasket. Clean gasket surface thoroughly.
2. Position oil pump to valve body with a new gasket. Install Guide Pins (T86P-70370-A and T86P-70100-C) in valve body. See **Fig. 13** . Install 2 retaining bolts and tighten to specifications.

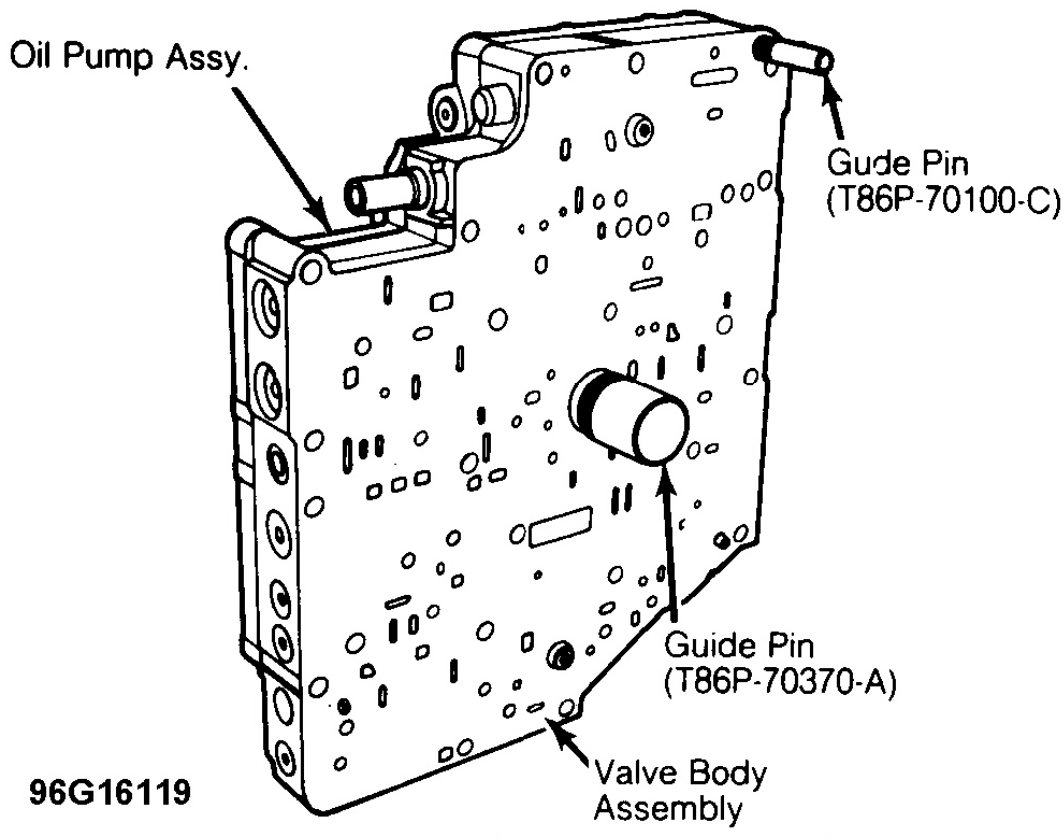


Fig. 13: Guide Pin Location
Courtesy of FORD MOTOR CO.

OIL PUMP

Disassembly

1. Remove 2 Torx bolts holding separator plate to oil pump housing. Remove 9 check balls and a relief valve. See **Fig. 14**.
2. Remove 2 retaining clips and remove line pressure blowoff spring and ball, bore plug, 1-2 capacity modulator valve and spring. See **Fig. 15**.
3. Remove 6 bolts retaining cover to housing and remove. Remove bore spring by prying out of housing using a screwdriver. Place shop rag under screwdriver to prevent damage to housing surface.

CAUTION: Use extreme caution when removing bore spring to prevent personal injury.

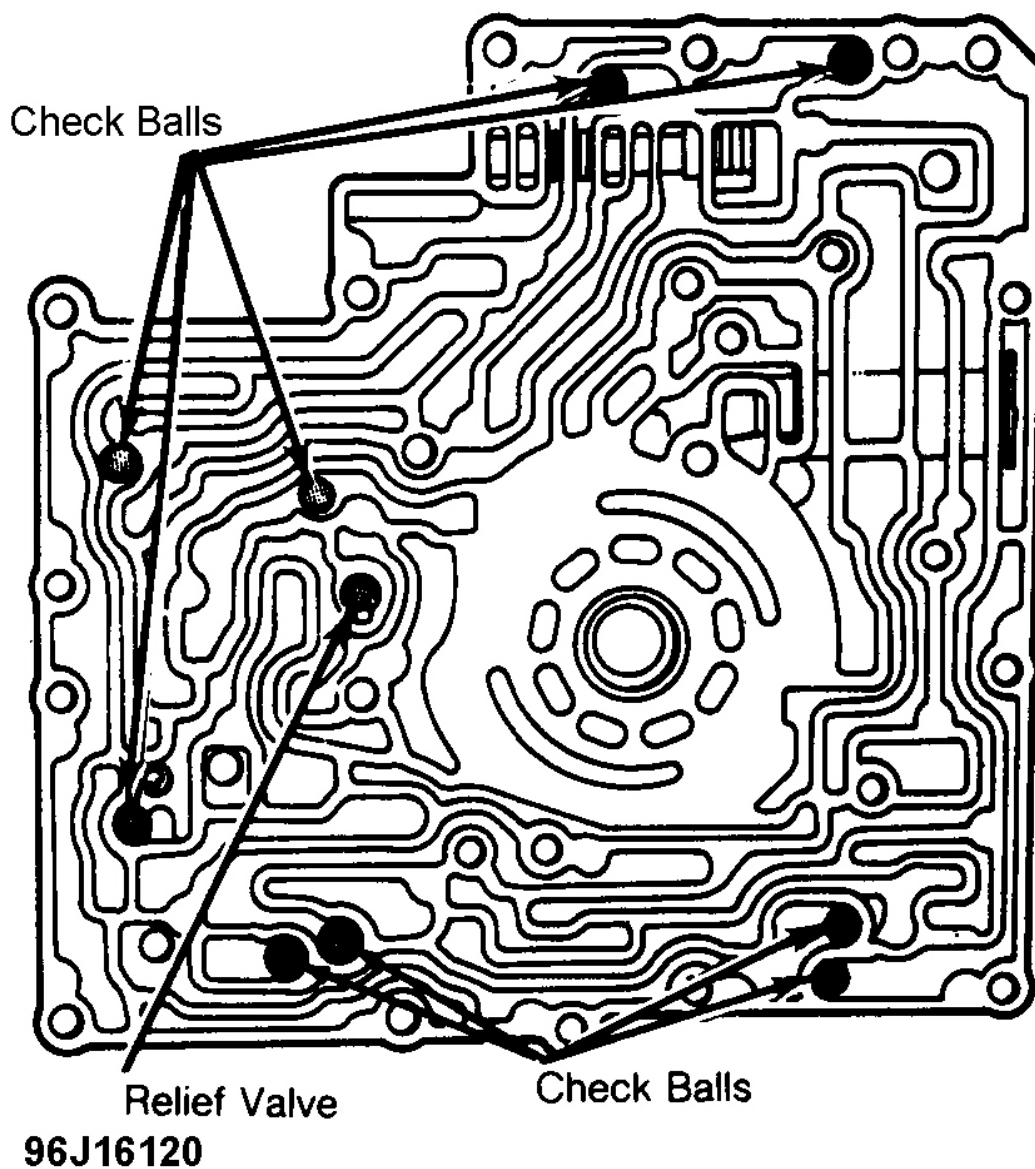


Fig. 14: Oil Pump Check Balls & Relief Valve Locations
Courtesy of FORD MOTOR CO.

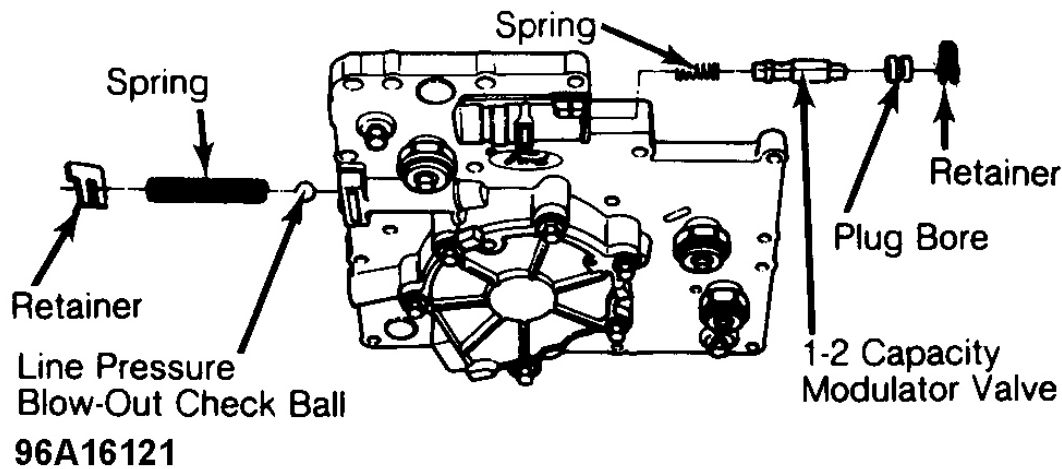


Fig. 15: Exploded View of Oil Pump
Courtesy of FORD MOTOR CO.

4. Remove outside vane support retaining pin. Remove metal "O" ring retainer and "O" ring from outer vane support. Discard "O" ring.
5. Remove and discard side seal. Remove side seal support, top vane positioning ring and outer vane support. Remove 7 vanes from rotor. Remove inner vane support and bottom vane positioning ring.

NOTE: Only serviceable parts in oil pump are seals. If any other parts are damaged or worn, replace entire assembly. Reassembly

To reassemble, reverse disassembly procedures. Install inner vane support with small inside diameter counter bore facing up. Shiny portion of the 7 vane blades is installed toward outer vane support. Use Guide Pins (T86P-70100-A and B) to align separator plate and pump housing. See **Fig. 16** . Use a new gasket.

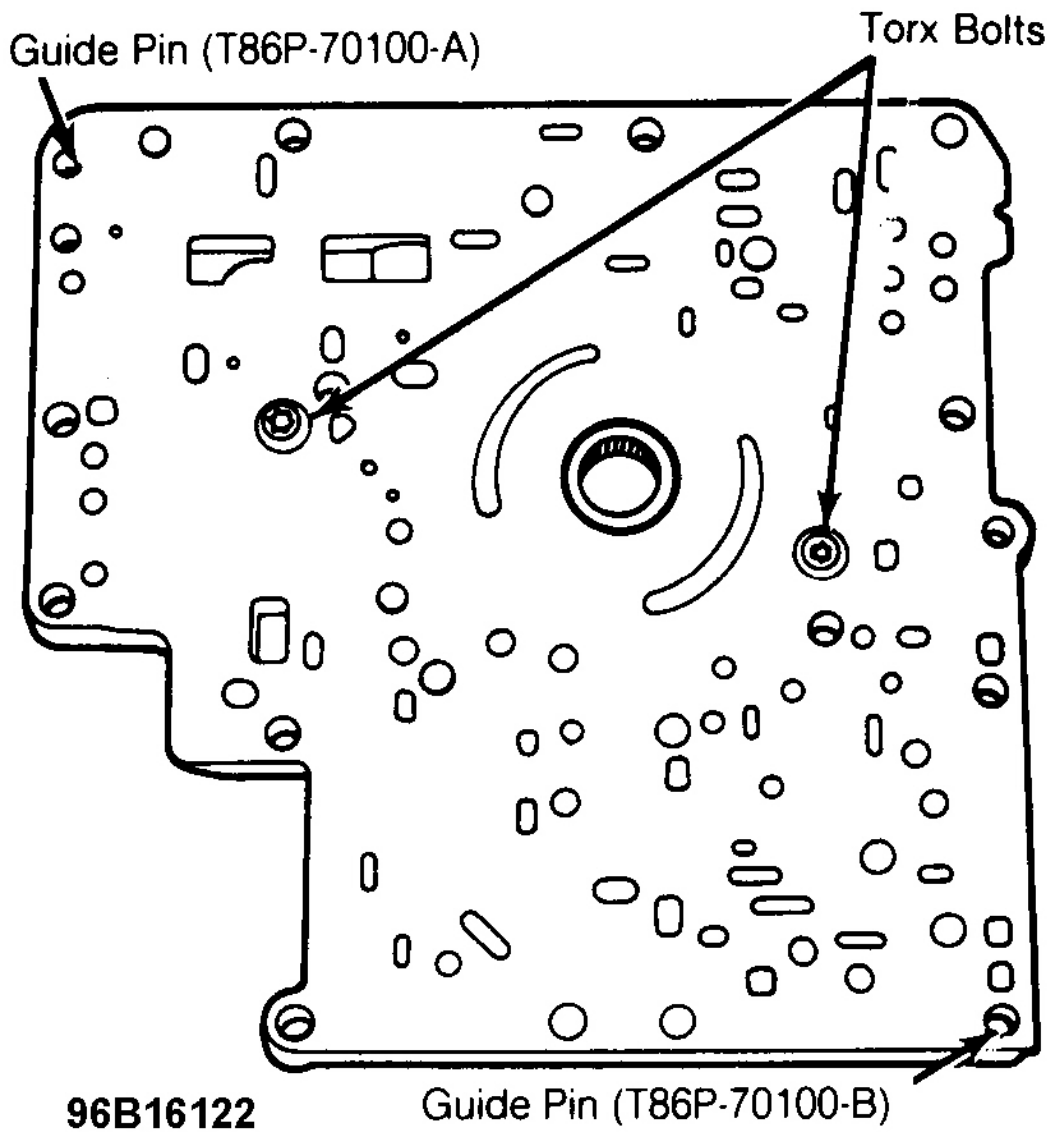


Fig. 16: Oil Pump & Separator Plate Guide Pin Locations
 Courtesy of FORD MOTOR CO.

VALVE BODY

Disassembly

1. Place valve body on bench with separator plate up. Remove 2 Torx bolts retaining separator plate and valve body. Remove separator plate and gasket.
2. Remove 7 check balls, 2 relief valves and by-pass solenoid filter. Clean solenoid filter. See **Fig. 17**.
3. Disassemble valves and springs by removing retaining clips and bore plugs for each valve. See **Fig. 18**.

Retain each valve and components for each bore, in relation to its bore, for reassembly.

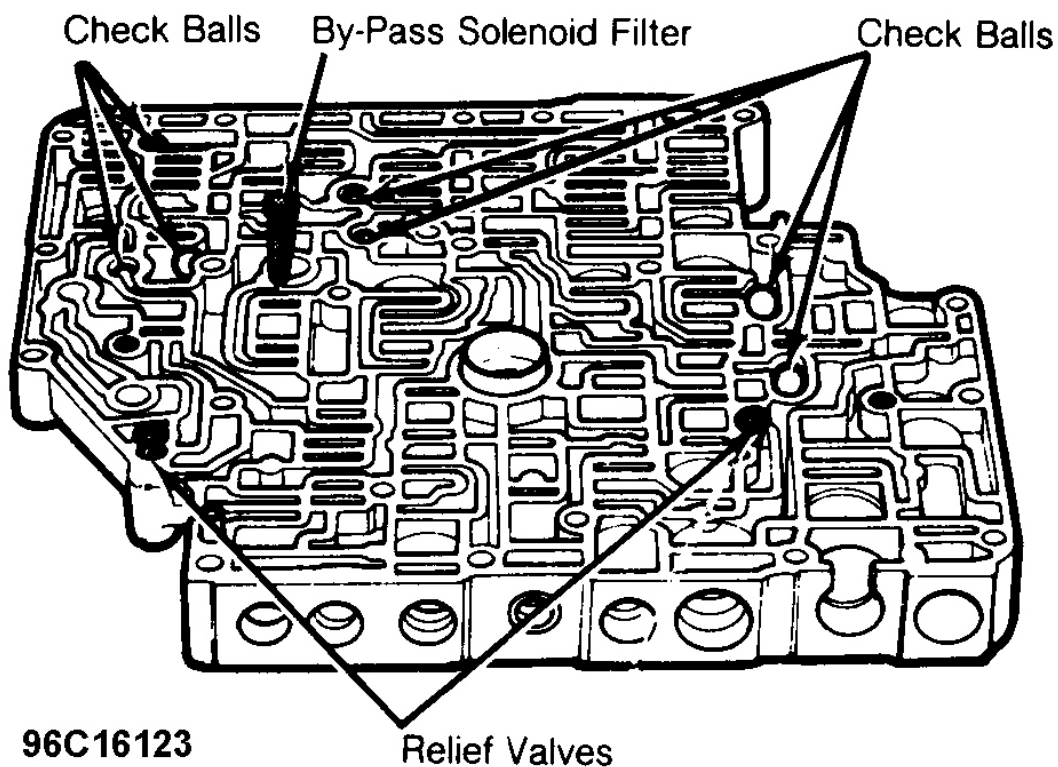
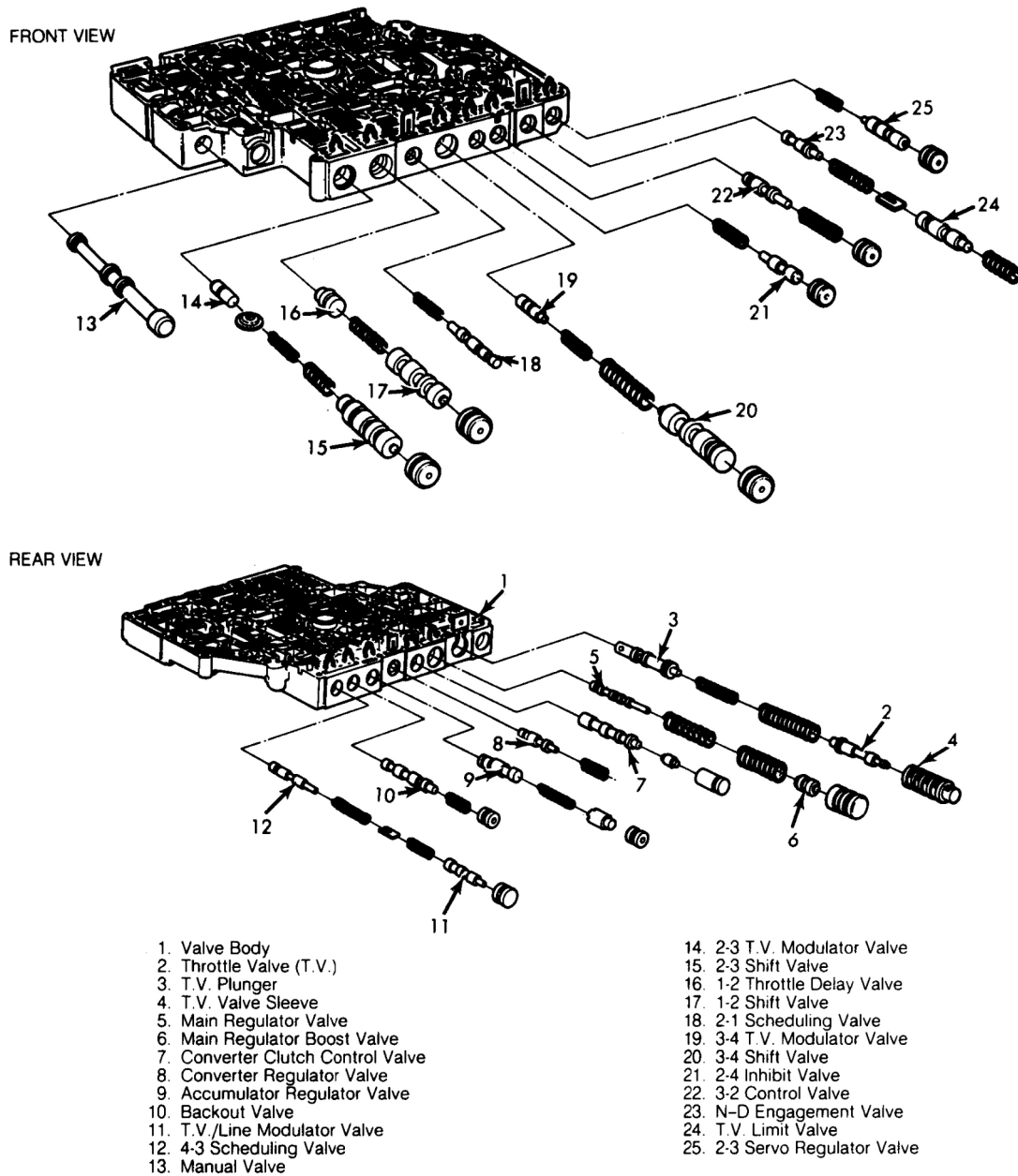


Fig. 17: Valve Body Check Balls, Relief Valves & By-Pass Solenoid Filter Location
Courtesy of FORD MOTOR CO.



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Fig. 18: Exploded View of Valve Body Components
Courtesy of FORD MOTOR CO.

Inspection

Roll manual valve on a plate surface to check for bent valve. Inspect all valves, plugs and bores for scores or burrs. Valves and plugs, when dry, must fall from their respective bores, by their own weight. Inspect all springs for any defect and replace as necessary.

NOTE: Polish valves and plugs with crocus cloth if necessary. Avoid rounding sharp edges. Always use **NEW** retaining clips.

Reassembly

Reverse disassembly procedures. Use a new valve body gasket. Use Guide Pins (T86P-70100-A), to align separator plate with valve body. See **Fig. 19**.

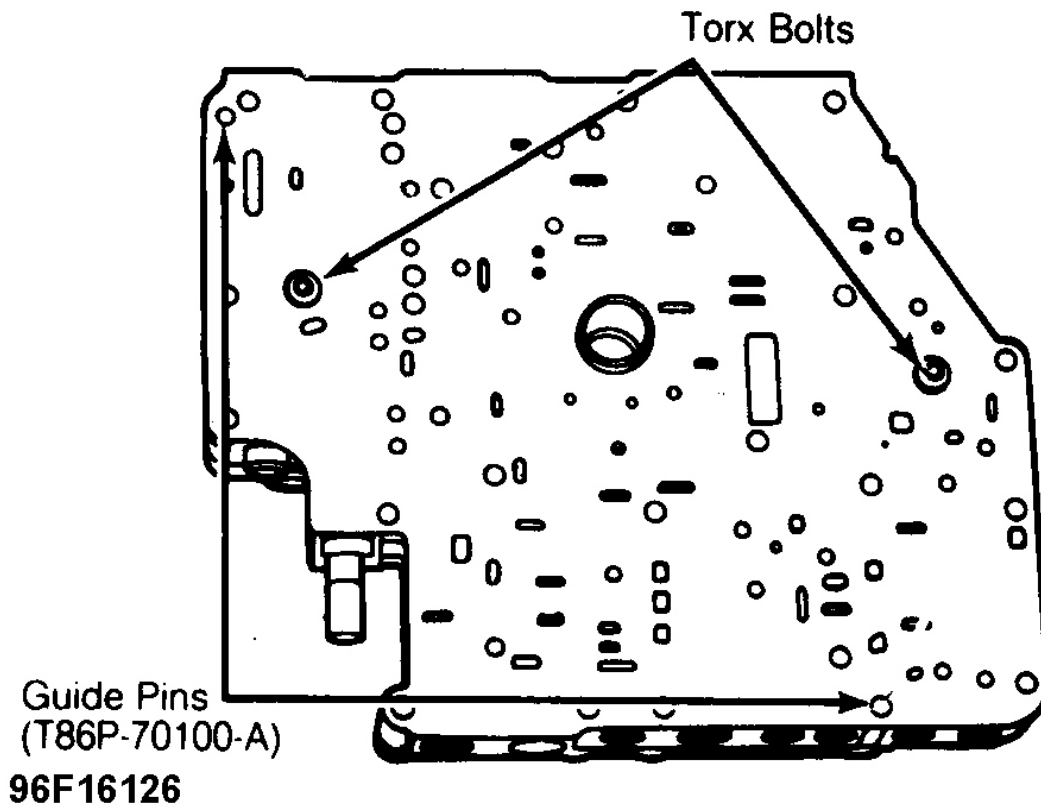


Fig. 19: Valve Body-to-Separator Plate Guide Pin Locations
Courtesy of FORD MOTOR CO.

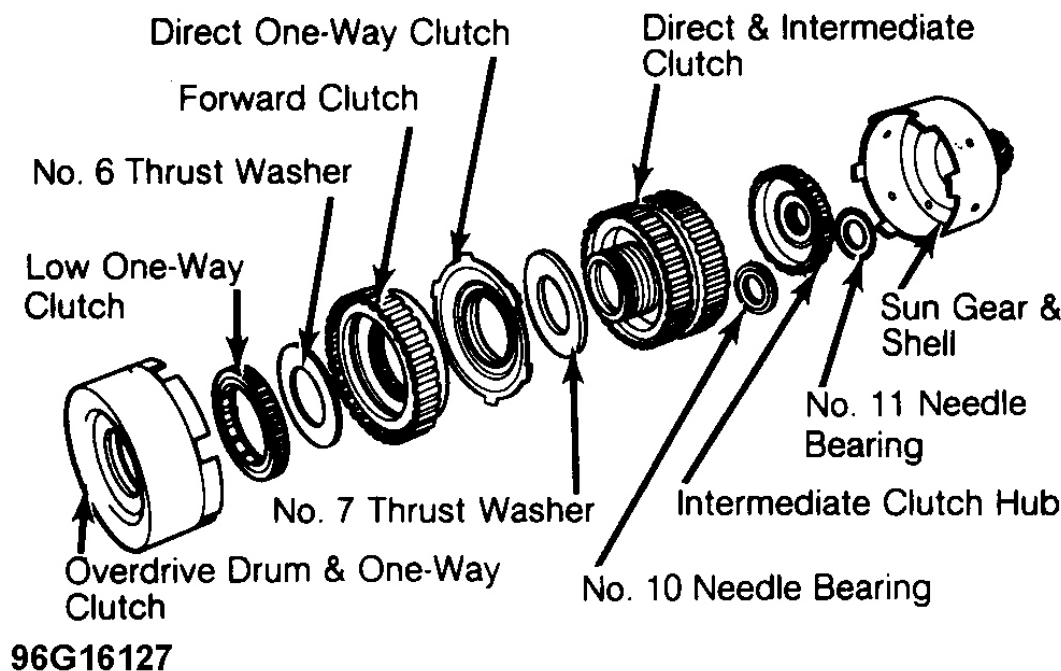


Fig. 20: Exploded View of Shell Assembly
Courtesy of FORD MOTOR CO.

SHELL ASSEMBLY

Disassembly

1. Set assembly on overdrive drum and remove sun gear and shell assembly. Remove No. 11 needle bearing, intermediate clutch hub and No. 10 needle bearing. See **Fig. 20**.
2. Turn assembly onto intermediate cylinder hub and remove overdrive drum and one-way clutch assembly. Remove No. 6 thrust washer. Remove forward clutch assembly by prying up on each side with 2 screwdrivers.
3. Direct clutch hub "O" ring seals retain forward clutch on hub. Pry evenly and **DO NOT** locate screwdriver ends on or near forward clutch check ball. Remove direct one-way clutch and No. 7 thrust washer.

Reassembly

To assemble, reverse disassembly procedures. Ensure No. 7 thrust washer tabs are aligned with slots in direct clutch. One-way clutch must turn counterclockwise when installed properly. See **Fig. 21**. Install No. 11 needle bearing with outer lip facing down.

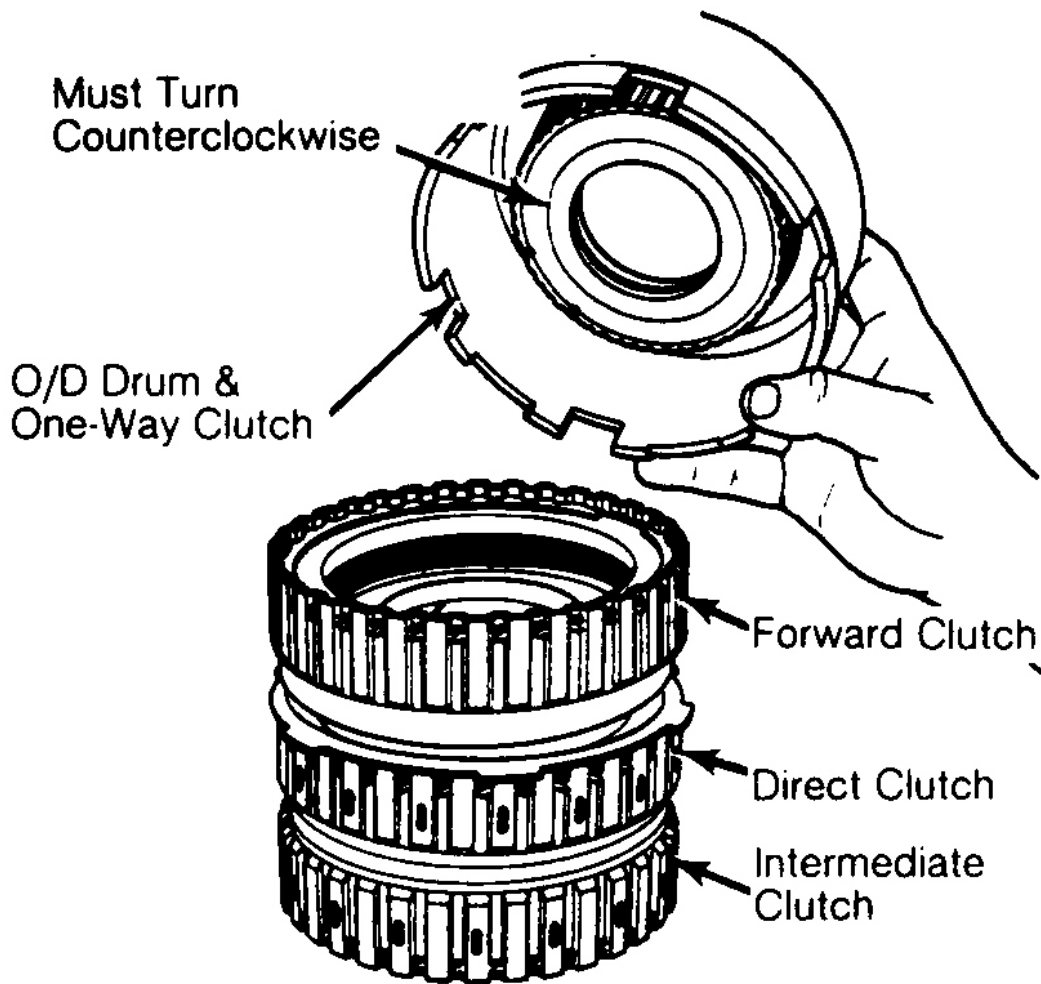
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Fig. 21: One-Way Clutch Rotation
Courtesy of FORD MOTOR CO.

FORWARD CLUTCH

Disassembly

Remove snap ring, pressure plate, clutch pack and wave spring. See **Fig. 22** . Using Compressor (T65L-77515-A), remove snap ring and return springs. Remove piston assembly from hub. Remove piston inner and outer seals.

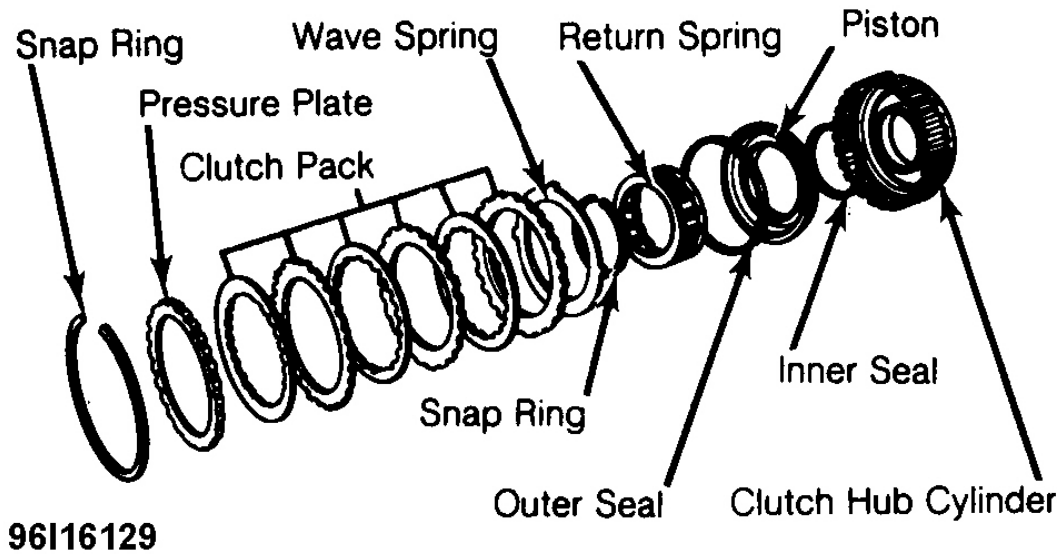


Fig. 22: Exploded View of Forward Clutch Assembly
Courtesy of FORD MOTOR CO.

Reassembly

1. Install inner and outer seals (seal lip facing bottom of cylinder). Using Seal Lip Protector (T86P-70548-A), install piston assembly. Using compressor, install return springs and snap ring. Install wave spring, clutch pack, pressure plate and snap ring. See **Fig. 22**.

NOTE: Soak new clutch plates in transmission fluid for 15 minutes before assembling.

2. Check clutch pack clearance using dial indicator. Push down on clutch pack with a minimum of 10 lbs. force. Release pressure and zero dial indicator. Lift pressure plate to bottom of snap ring and note reading. Take 2 readings 180 degrees apart and note average. Clearance must be .055-.075" (1.40-1.89 mm).
3. If not within specifications, replace selective snap ring. Snap ring is available in thicknesses of .049-.053", .063-.067", .077-.081", .091-.094", .104-.108" (1.24-1.54 mm, 1.60-1.70 mm, 1.95-2.05 mm, 2.31-2.40 mm, 2.64-2.75 mm). Recheck clearance with new snap ring installed and adjust as necessary.

DIRECT CLUTCH

Disassembly

1. Remove direct-intermediate clutch bushing using slide hammer and Sprocket Bearing Remover (T86P-70043-A), only if replacing. Remove snap ring, pressure plate and clutch pack. See **Fig. 23**.
2. Remove snap ring and return spring using Compressor (T65L-77515-A). Remove and disassemble 2

piece piston assembly. Remove inner and outer piston seals.

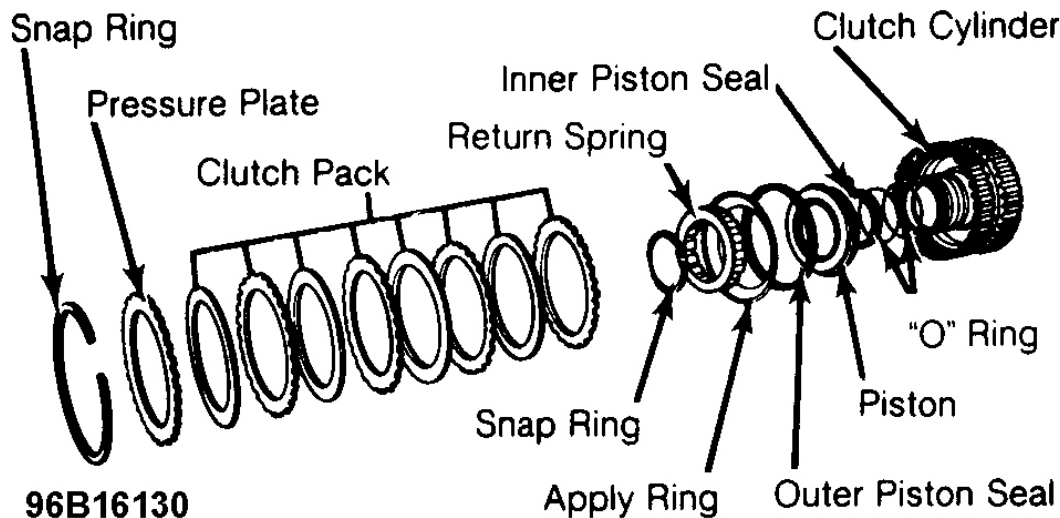


Fig. 23: Exploded View of Direct Clutch Assembly
Courtesy of FORD MOTOR CO.

Reassembly

1. Install inner and outer piston seals (lip facing bottom of cylinder). Using Seal Lip Protector (T86P-70234-A), install piston into hub. Ensure check ball moves freely. Install piston outer ring and return spring in cylinder. See **Fig. 23**.

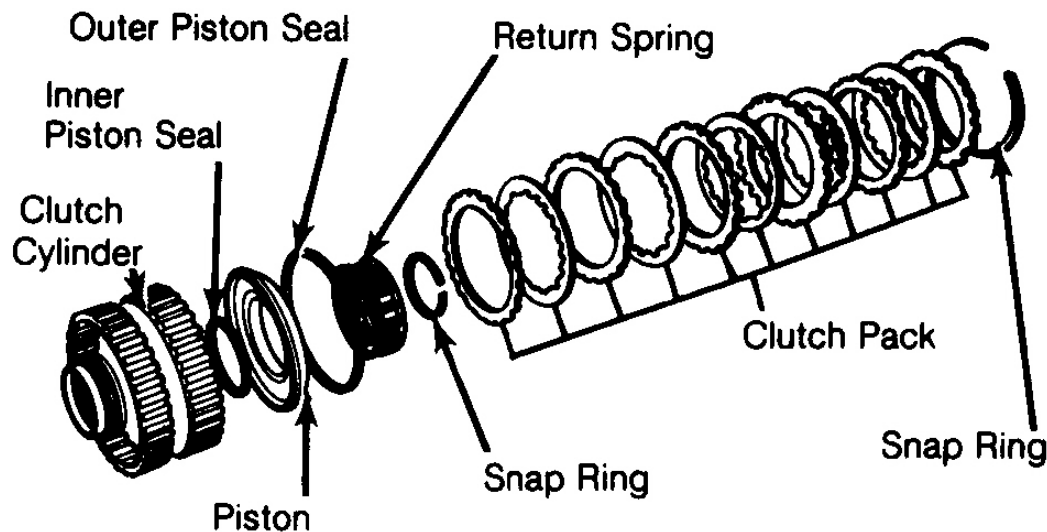
NOTE: Soak new clutch plates in transmission fluid for 15 minutes before assembling.

2. Align notch in return spring with check ball. Install snap ring, clutch pack, pressure plate and snap ring. If removed, install direct clutch bushing.
3. Check clutch pack clearance. Clearance must be .031-.051" (.78-1.29 mm). See steps 2) and 3) in Reassembly under **FORWARD CLUTCH**. The procedure and selective snap rings are the same.

INTERMEDIATE CLUTCH

Disassembly

Remove snap ring, pressure plate and clutch pack assembly. Using Compressor (T65L-77515-A), remove snap ring and return spring. Remove piston assembly and inner and outer seals. See **Fig. 24**.



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Fig. 24: Exploded View of Intermediate Clutch Assembly
Courtesy of FORD MOTOR CO.

Reassembly

1. Ensure check ball moves freely. Using Seal Lip Protector (T86P-70548-A), install inner and outer seals (lip facing bottom of cylinder). Install piston.
2. Using Compressor (T65L-77515-A), install snap ring and return spring. Install clutch pack, pressure plate and snap ring. See **Fig. 24**.

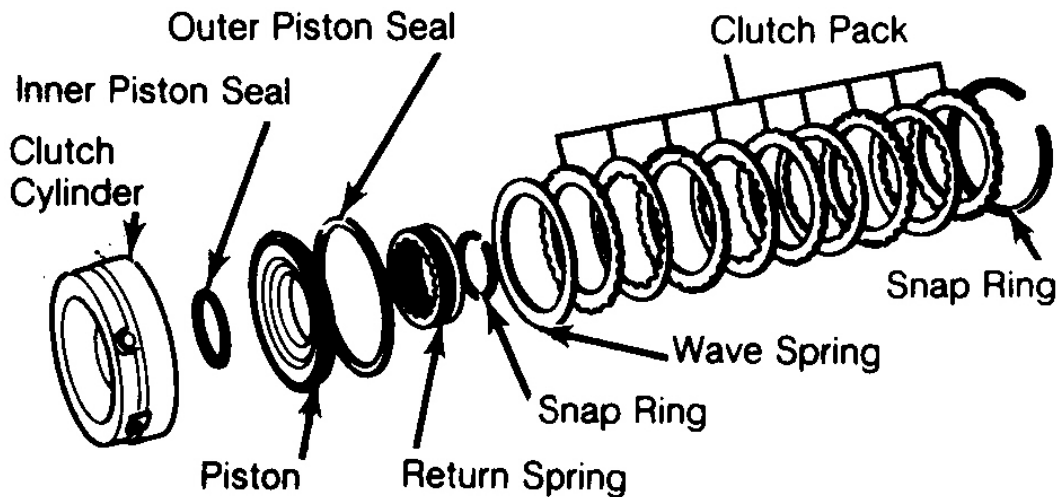
NOTE: Soak new clutch plates in transmission fluid for 15 minutes before assembling.

3. Check clutch pack clearance. See steps 2) and 3) in Reassembly under **FORWARD CLUTCH**. The procedure is the same, but the specifications are different.
4. Clearance must be .040-.059". Available selective thrust washer thickness is .044-.048", .059-.063", .075-.079", .091-.095", .107-.111" (1.11-1.21 mm, 1.51-1.61 mm, 1.91-2.01 mm, 2.31-2.41 mm, 2.71-2.81 mm).

REVERSE CLUTCH

Disassembly

Remove snap ring, pressure plate, clutch pack and wave spring. Remove snap ring and return spring using Compressor (T65L-77515-A). Lift out piston and remove inner and outer seals. See **Fig. 25**.



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Fig. 25: Exploded View of Reverse Clutch Assembly
Courtesy of FORD MOTOR CO.

Reassembly

1. Install inner and outer seals (seal lip faces down) and install piston using Seal Protector (T86P-70403-A). Install snap ring and return spring. Install wave spring, clutch pack, pressure plate and snap ring. See **Fig. 25**.

NOTE: Soak new clutch plates in transmission fluid for 15 minutes before assembling.

2. Check clutch pack clearance. See steps 2) and 3) in Reassembly under **FORWARD CLUTCH**. The procedure is the same, but the specifications are different.
3. Clearance must be .038-.064" (.97-1.63 mm). Available selective snap ring thicknesses are: .059-.064", .078-.081", .096-.100", .115-.118" (1.52-1.62 mm, 1.98-2.08 mm, 2.45-2.55 mm, 2.92-3.02 mm).

PLANETARY ASSEMBLY

NOTE: Individual components of the planet carrier are not serviceable except for the differential components.

Disassembly & Reassembly

Remove snap ring, front planetary and No. 13 needle bearing. Remove rear planetary from shell and ring gear assembly. To assemble, reverse disassembly procedures. See **Fig. 26**.

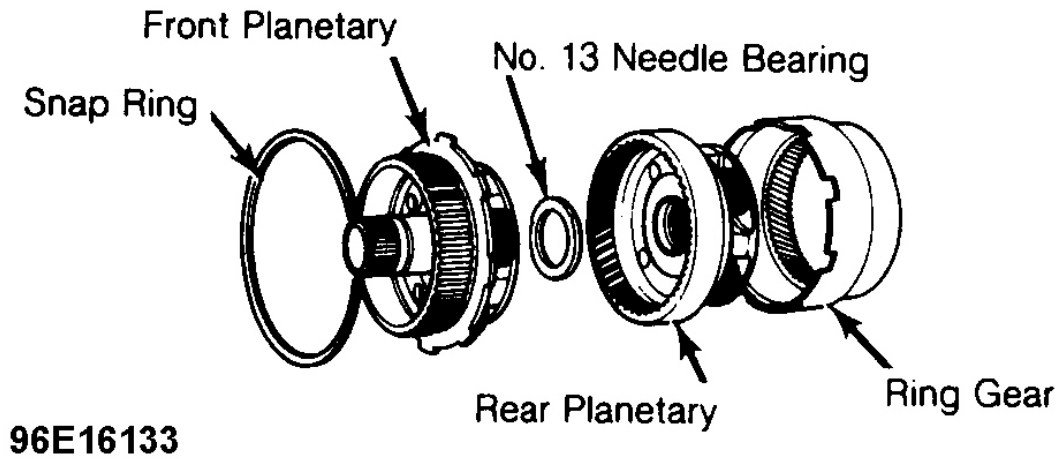


Fig. 26: Planetary Assembly
Courtesy of FORD MOTOR CO.

DIFFERENTIAL & GEAR SET

Disassembly

1. Remove planetary pinion shaft retaining snap ring. Using a magnet, work pinion shafts out of differential case housing. Slide out pinion gears and thrust washers. Inspect needle bearings and pinion shafts. Replace as necessary.
2. Remove No. 17 needle bearing from top of planetary. Drive out pinion shaft roll pin. Tap out pinion shaft. Remove pinion gears and thrust washers by rotating output shaft. Remove right side gear and thrust washer.
3. Push output shaft toward center of housing. Slide left side gear back and remove retaining ring. Slide shaft out of housing and remove side gear.

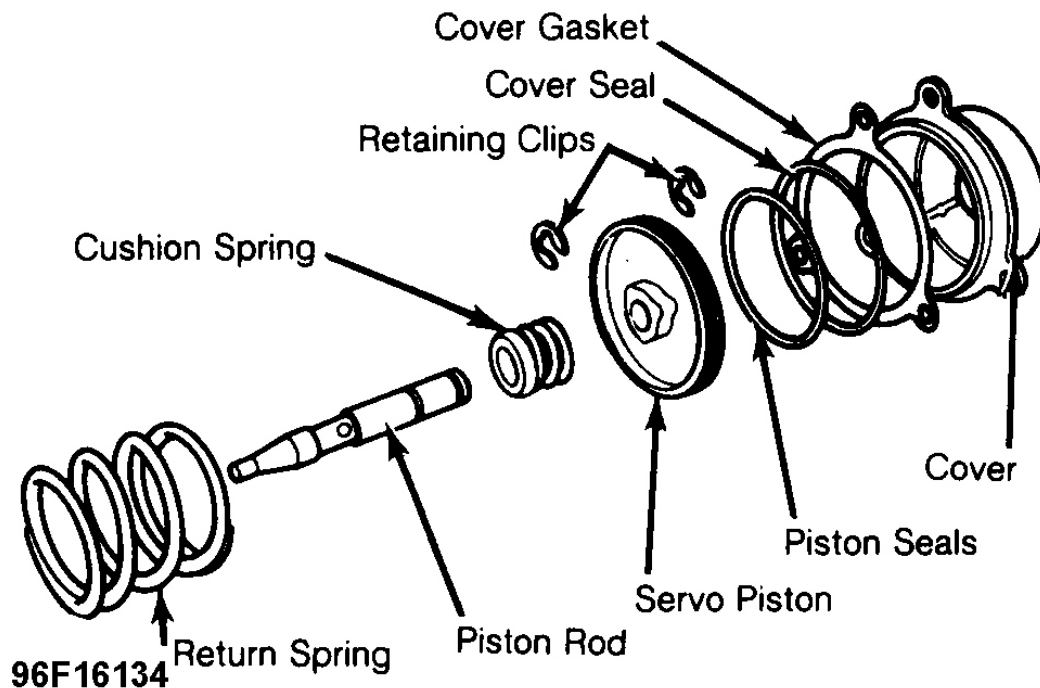


Fig. 27: Differential Left Side Gear Installation
Courtesy of FORD MOTOR CO.

Reassembly

1. With output shaft inside case, slide thrust washer and left side gear onto output shaft. Install retaining ring and slide gear down over ring. See **Fig. 27** . Install thrust washer and right side gear.
2. Install thrust washers on pinion gears. Ensure washer inner lips are seated in gear recess. Position pinion gears on side gears. While rotating output shaft, walk pinion gears into position.
3. Tap pinion shaft through differential case and pinion gears. Tap in differential pinion shaft roll pin. Install No. 17 needle bearing over output shaft and seat on planetary housing with tabs facing up. Install upper and lower pinion gear thrust washers on gears. Install in case.
4. Push pinion shafts through case and gears until lower step on shaft is level with case. Lower step should also inward. Install snap ring.

LOW-INTERMEDIATE SERVO

Disassembly & Reassembly

Remove 3 cover bolts, cover and piston return spring. Remove servo piston and rod from cover. Remove retaining clips, rod and cushion spring. See **Fig. 28** . Remove seals and gasket. Lubricate seals with petroleum jelly. To reassemble, reverse disassembly procedure.

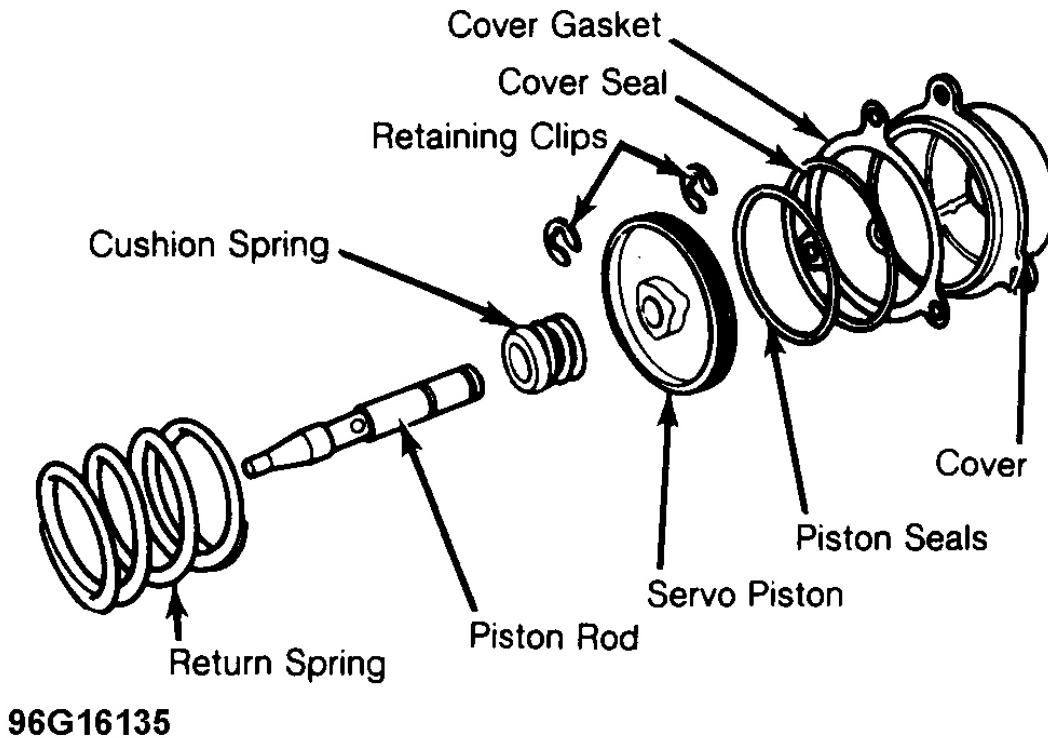


Fig. 28: Exploded View of Low-Intermediate Servo
 Courtesy of FORD MOTOR CO.

OVERDRIVE SERVO

Disassembly & Reassembly

Remove 3 cover bolts, cover, return spring and rod. Remove piston from cover. Remove rear rod clip and washer. Remove piston, seal and cushion spring. Remove front rod clip. Remove seal. Lubricate seals with petroleum jelly. To reassemble, reverse disassembly procedure. Ensure spring is correctly positioned in case.

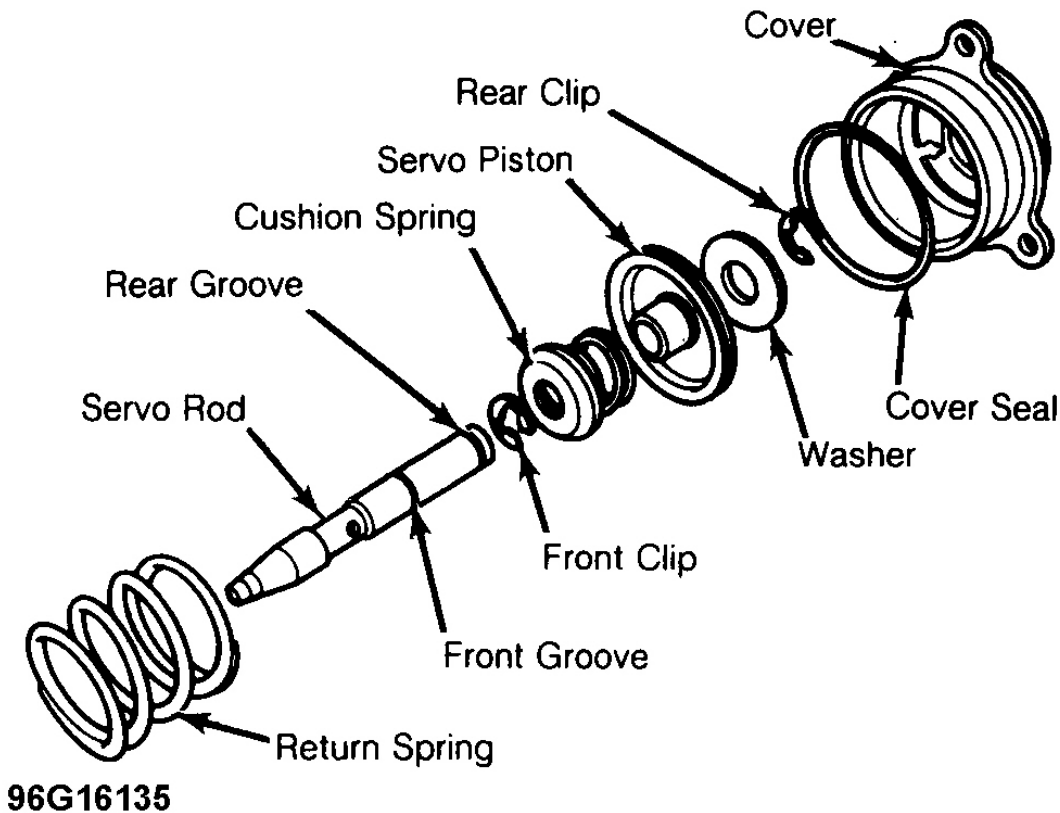


Fig. 29: Exploded View of Overdrive Servo
Courtesy of FORD MOTOR CO.

GOVERNOR

Disassembly & Reassembly

Remove 2 cover bolts and cover. Discard seal. Remove governor assembly. Remove speedometer drive gear and drive gear bearing from shaft. Push speedometer drive gear onto shaft aligning slots in gear with shaft roll pin. Install bearing on speedometer gear with outer race facing up. Install new seal and cover. See **Fig. 30**.

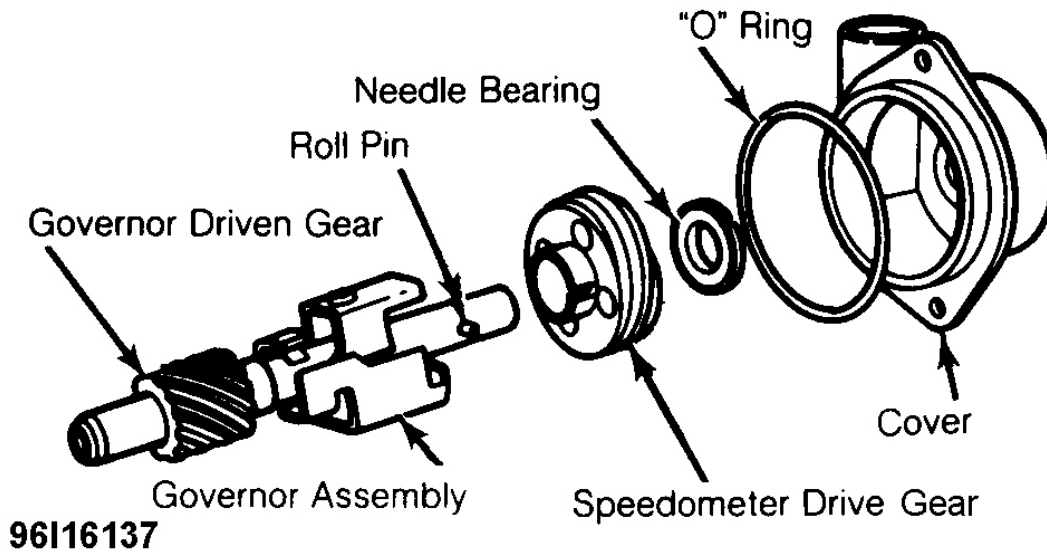


Fig. 30: Governor Assembly
Courtesy of FORD MOTOR CO.

TRANSAXLE REASSEMBLY

1. Place case in horizontal position. Install drive sprocket support. Drive sprocket support bolt holes are offset. Sprocket support can only be aligned one way. Install and tighten 6 Torx (T-30), bolts to specifications.
2. Install converter oil seal using Seal Replacer (T86P-70401-A). Install right-hand output shaft seal using Seal Replacer (T86P-1177-B). After installation, ensure garter springs are present.
3. Install Crossblock (T81P-78103-A), Step Plate (D80L-630-3) and Screw (D80L-515-S), over right-hand output shaft opening. See **Fig. 31**. This tool will be used later to perform selective thrust washer checks.

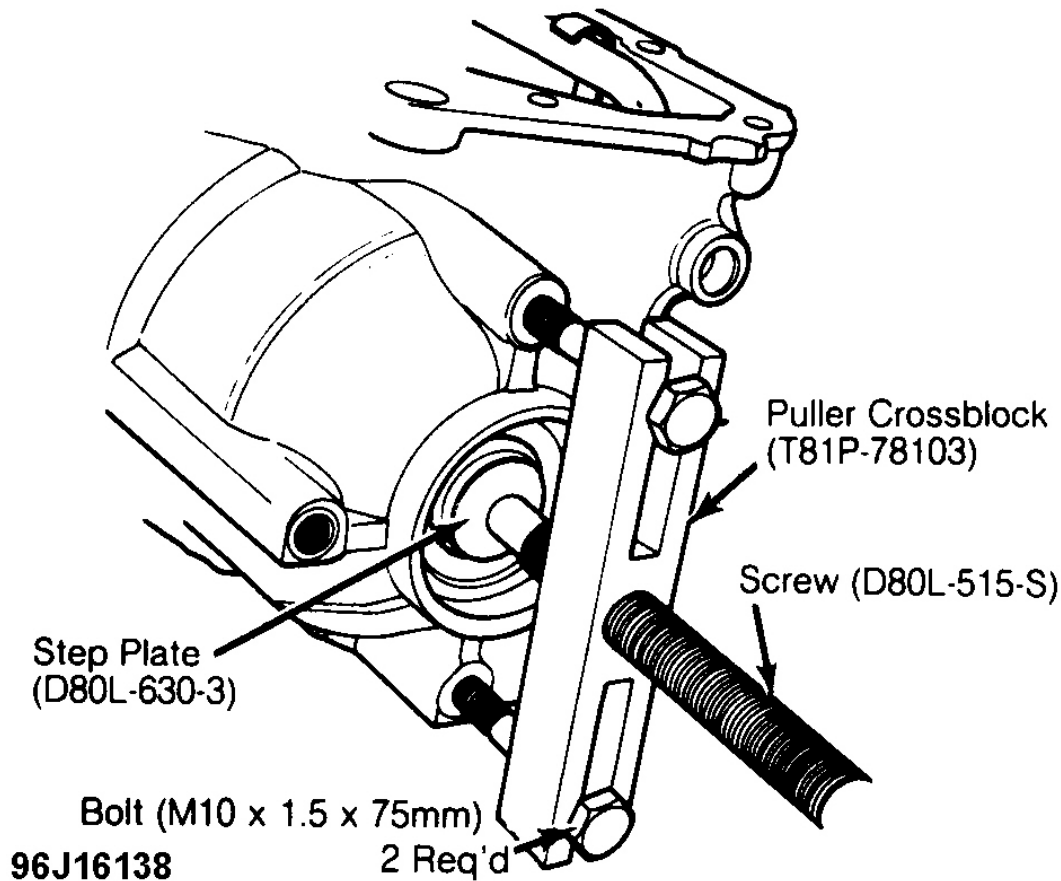


Fig. 31: Installing Thrust Washer Tool
Courtesy of FORD MOTOR CO.

4. Place transaxle in vertical position. Install No. 19 needle bearing over case boss with flat side facing up, outer lip facing down. Install final drive ring with external splines up. Lightly tap ring gear to fully seat in case splines.
5. Reassemble governor drive gear, differential assembly, final drive sun gear, parking gear, No. 16 needle bearing, rear planetary support, No. 15 needle bearing and No. 18 thrust washer. See **Fig. 32** .

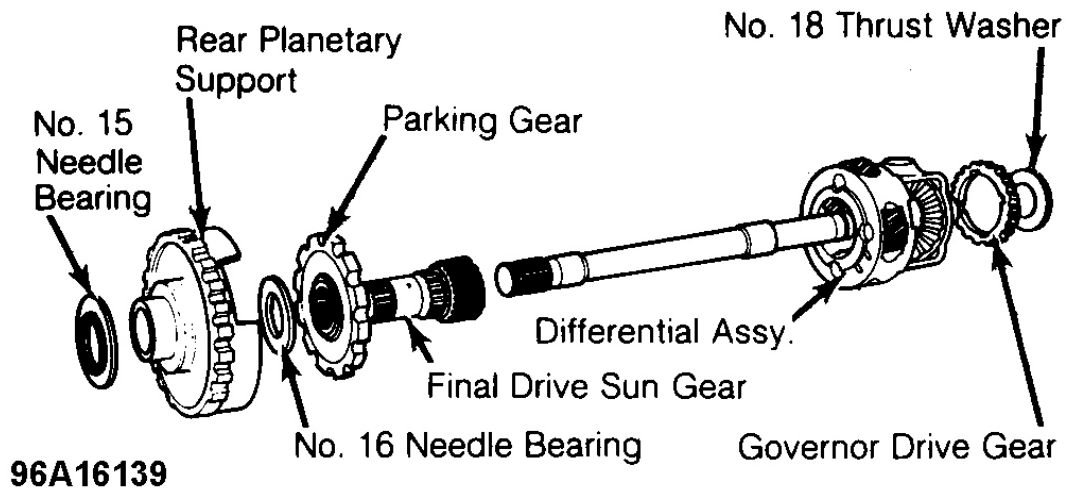


Fig. 32: Assembling Final Drive Components
Courtesy of FORD MOTOR CO.

6. Lower final drive assembly into case. Install snap ring and align snap ring with low-intermediate band anchor pin. Mount a dial indicator with stylus on end of output shaft. See **Fig. 33**.
7. Back out Screw (D80L-515-S), of step 3), until it no longer touches shaft. Zero dial indicator. Tighten screw to 35-44 INCH lbs. (4-5 N.m). Ensure end clearance is .004-.025" (.1-.65 mm).
8. If not within specification, replace No. 18 selective thrust washer with proper thicknesses. Available thicknesses are: .045-.049" (1.15-1.25 mm) Orange, .055-.059" (1.40-1.50 mm) Purple and .064-.069" (1.65-1.75 mm) Yellow.
9. After installing correct thrust washer, recheck clearance. With end clearance within specifications, back off screw on tool and leave in position for No. 5 and No. 8 selective thrust washer clearance check.

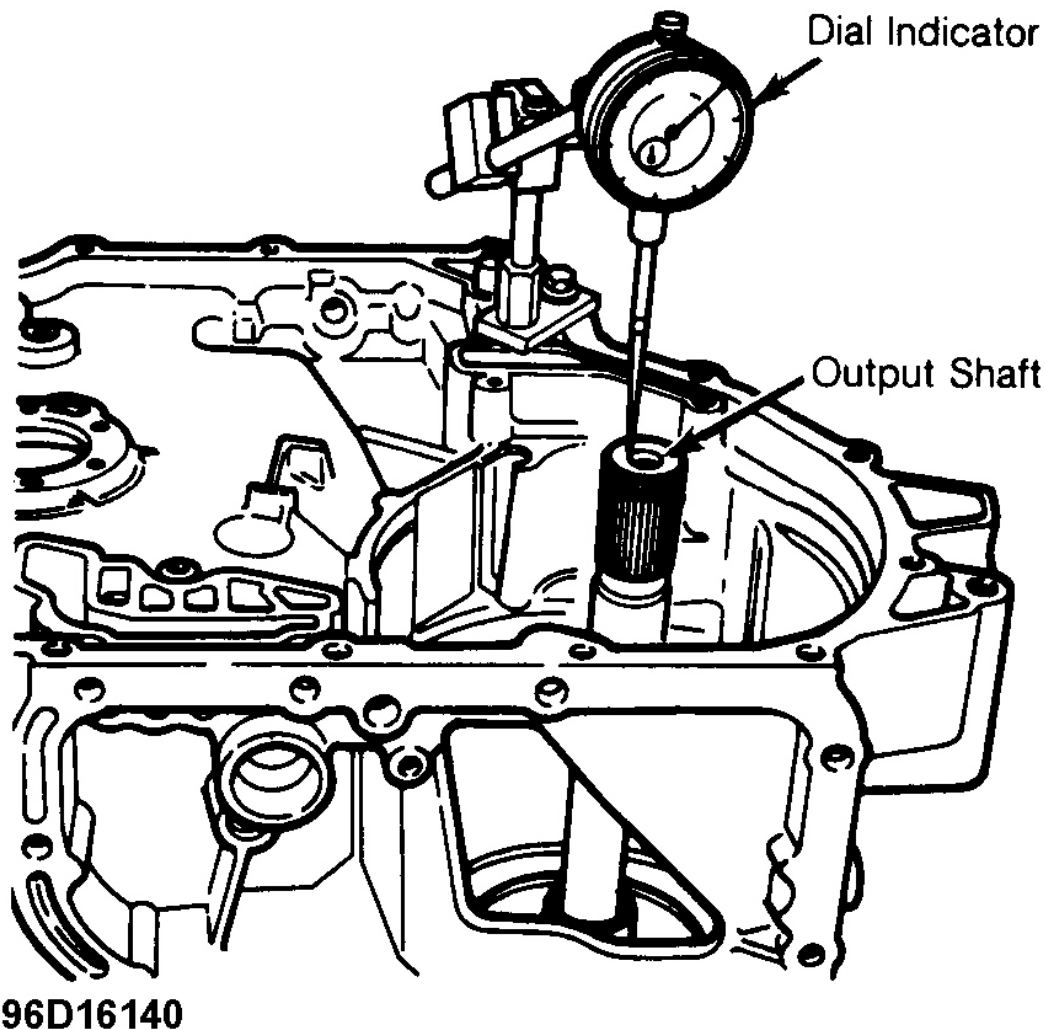
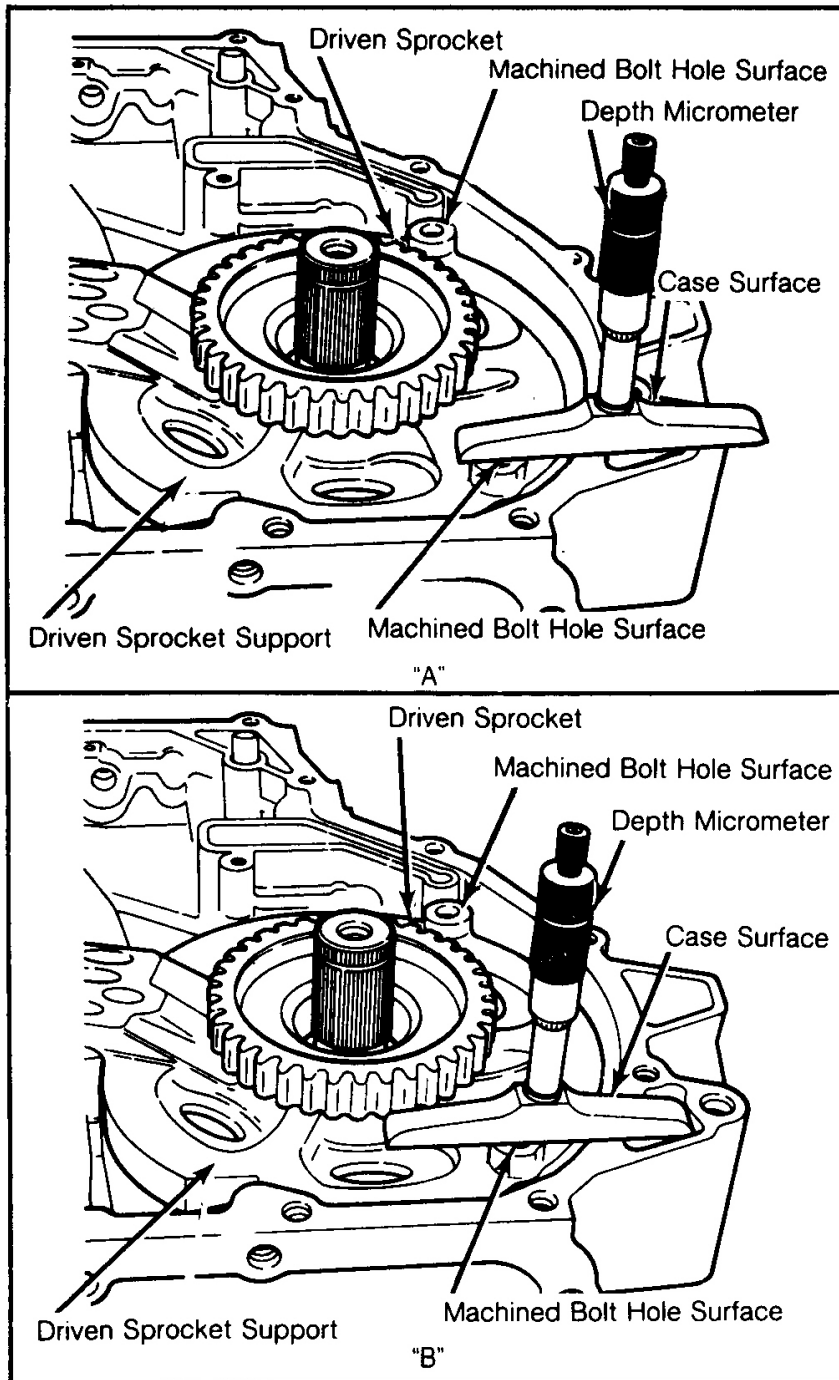


Fig. 33: Output Shaft End Play Check
Courtesy of FORD MOTOR CO.

10. Install park pawl, return spring, park pawl shaft and locator pin. Ensure park pawl engages park gear and returns freely. Install park rod actuating lever and park rod in case. Install park rod abutment and start abutment bolts. Push in park pawl and locate rod between pawl and abutment.
11. Using a 3/8" drift, gently install lube tube seal flush against rear case support. Install low-intermediate band and align anchor pin pocket with anchor pin. Install low-intermediate drum and sun gear assembly.
12. Reassemble ring gear and shell assembly, rear planetary, No. 13 needle bearing, front planetary and snap ring. See **Fig. 26** . Carefully slide planetary assembly over output shaft.
13. Lower reverse clutch into case and start clutch plate engagement. Align clutch cylinder anchor pin pocket with anchor pin case hole. Use intermediate clutch hub to complete clutch plate engagement and fully seat reverse clutch. Rotate planet with hub to engage splines.

14. Start reverse anchor pin bolt, but **DO NOT** tighten. Reassemble forward, direct and intermediate clutch assembly. Using Clutch Pack Holder (T86P-70389-A), lower assembly into case. Align shell and sun gear splines into forward planetary. Ensure assembly is fully seated before removing tool.
15. Install overdrive band into case. Install plastic retainer with crosshairs facing up. Check drive sprocket end clearance for No. 5 and No. 8 thrust washer.
16. Tighten screw on tool used in step 7) to 10 ft. lbs. (13.5 N.m). Install No. 9 needle bearing over output shaft, with outer lip facing up. Install No. 8 selective thrust washer. Install driven sprocket support and driven sprocket. Remove No. 5 thrust washer from sprocket support, if attached.
17. To measure No. 8 thrust washer clearance, it must first be determined if machined bolt hole surfaces on driven sprocket support are above or below case machined surface. See **Fig. 34** .



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Fig. 34: Measuring For No. 8 Thrust Washer
 Courtesy of FORD MOTOR CO.

18. Above case machined surface, place depth micrometer on machined bolt hole surface and measure distance to case machined surface. Below case machined surface, place depth micrometer on case

machined surface and measure distance to machined bolt hole surface. See **Fig. 34** .

19. Measure at both bolt hole surfaces and take an average of both readings. If average reading for above case exceeds .008" (.21 mm), or .018" (.46 mm), for below case, use different NO. 8 thrust washer. See **NO. 8 THRUST WASHER SELECTION** . Install correct thrust washer. Recheck measurement and record reading.

NO. 8 THRUST WASHER SELECTION

Thickness	Color
.056-.060" (1.43-1.53 mm)	Natural
.066-.070" (1.68-1.78 mm)	Dark Green
.075-.079" (1.92-2.02 mm)	Light Blue
.085-.089" (2.17-2.27 mm)	Red

20. Remove driven sprocket support, No. 8 thrust washer and No. 9 needle bearing. Apply grease to No. 5 thrust washer and install on driven sprocket support. Align washer tab with mating slot in support. Install driven sprocket support without No. 8 thrust washer and No. 9 needle bearing.
21. Position depth micrometer on machined case surface and measure distance between machined bolt hole surface and case surface. Measure at both bolt hole surfaces and take an average of both readings.
22. The difference between this reading and the reading for the No. 8 thrust washer recorded in step 18) must be greater than zero but less than .033" (.85 mm). If measurement exceeds specification, use different NO. 5 thrust washer. See **NO. 5 THRUST WASHER SELECTION** .

NO. 5 THRUST WASHER SELECTION

Thickness	Color
.086-.090" (2.18-2.28 mm)	Green
.095-.099" (2.43-2.53 mm)	Black
.105-.109" (2.67-2.77 mm)	Natural
.115-.118" (2.92-3.02 mm)	Red

23. Remove driven sprocket support and install No. 9 needle bearing and correct No. 8 thrust washer. Install 5 Teflon seals on driven sprocket support. Install correct No. 5 thrust washer. Install driven sprocket support.
24. Tap manual shaft seal into case. Start manual shaft through seal, and slide manual detent lever onto shaft. Slide shaft through park rod actuating lever and tap into case hole. Install new lock pin through case hole, aligning with groove in shaft. Install new roll pins.
25. Align tabs on No. 2 and No. 4 thrust washers and install on drive and driven sprocket supports. Lubricate and install cast iron sealing ring on input shaft. Install chain on drive and driven sprockets. Lower assembly into sprocket supports, rotating to ensure they are fully seated.
26. Install No. 1 and No. 3 thrust washers on chain cover, aligning tabs with slots in chain cover. Install new chain cover gasket. Install marked accumulator springs to correct position. Carefully align chain cover input shaft bore with input shaft. Gently apply downward pressure, to overcome accumulator spring pressure and start 2 chain cover bolts 180 degrees apart.

CAUTION: Be extremely careful not to damage input shaft cast iron sealing ring

when installing chain cover.

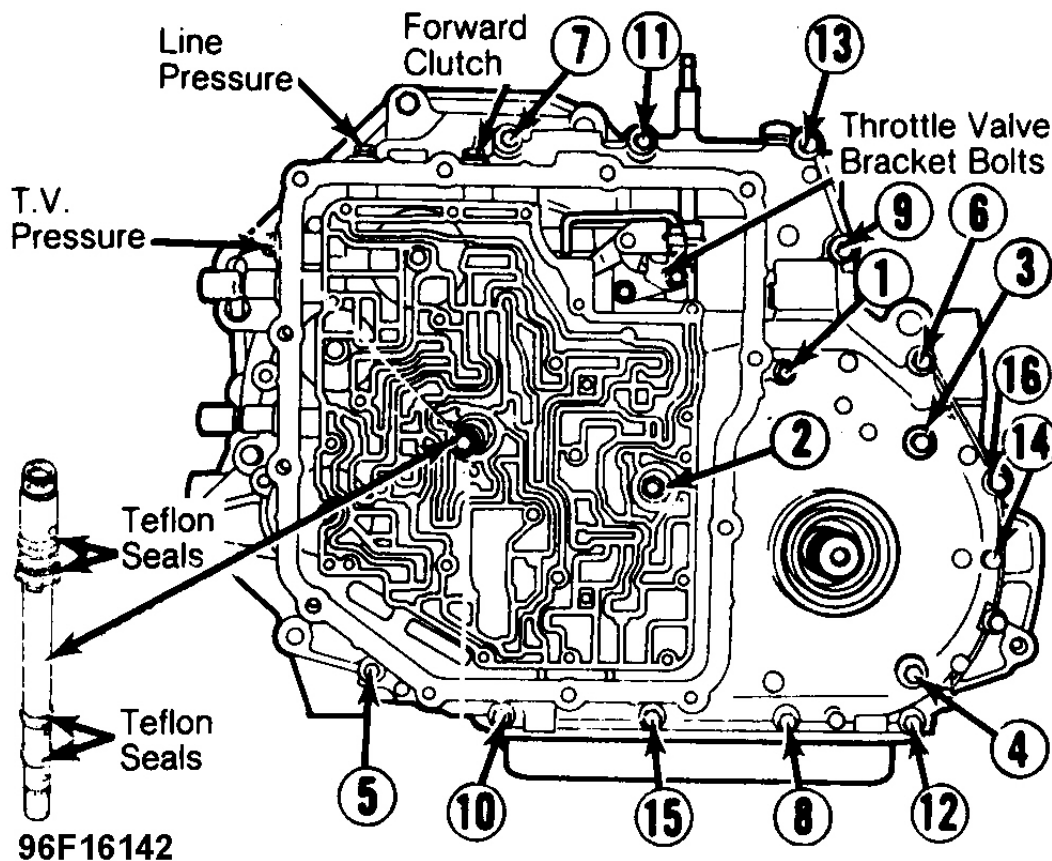


Fig. 35: Chain Cover Tightening Sequence
Courtesy of FORD MOTOR CO.

27. Start remaining chain cover bolts and tighten in sequence to specification. See **Fig. 35** . Input shaft should have little end play and rotate freely. If it does not rotate freely, remove chain cover and check for damaged cast iron seal.
28. Tighten park rod abutment bolts, reverse anchor pin bolt and lock nut to specifications. Clean and lightly tap tubes into position until fully seated. Apply Threadlock (262) around tube-to-case surface. Install tube retaining brackets.
29. Install 2 "O" rings onto oil filter and press filter into case. Install reverse apply tube/oil filter bracket and bolt. Install oil pan with new gasket. Tighten to specifications. Install 4 new Teflon seals on pump drive shaft and install shaft.
30. Install T.V. bracket with T.V. link through hole in case. Tighten throttle valve bracket bolts to specification. Connect manual valve link to detent lever.
31. Start oil pump and valve body assembly over pump shaft and connect manual valve link to manual valve. Hold T.V. plunger in to clear TV bracket. Install oil pump and valve body assembly. See **OIL PUMP &**

VALVE BODY ASSEMBLY under SERVICE (IN VEHICLE) in this article.

32. Install bulkhead connector and 4 electrical connectors. Install neutral start switch. With manual shaft in Neutral, align switch using a .089" drill bit. Tighten switch to specification.
33. Install valve body cover with new self-adhesive gasket. Tighten bolts to specification. Install dipstick tube grommet and dipstick tube in case. Place transaxle in horizontal position. Proceed to **SERVO TRAVEL CHECK**.

SERVO TRAVEL CHECK

NOTE: Servo travel check of both the overdrive and low-intermediate servos should only be performed if either the transaxle case, band assembly, drum and sun gear assembly, servo piston rod or servo piston were replaced.

Overdrive Servo

1. Install spring from Overdrive Servo Rod Kit (T86P-70023-B), in case. Install servo piston and rod in case. Install servo piston gauge from kit and secure in case using servo cover bolts. Tighten bolts to 90 INCH lbs. (10 N.m). Tighten gauge screw to 10 INCH lbs. (1.13 N.m). See **Fig. 36**.
2. Attach a dial indicator and position stylus through hole in gauge. Be sure stylus contacts piston on a flat surface. **DO NOT** contact step on piston. Zero dial indicator.
3. Back off gauge screw until piston movement stops and read indicator. The amount of piston travel as indicated will determine rod length to be installed. Reading should be .070-.149" (1.8-3.8 mm).
4. Select correct piston rod. Repeat steps 1) through 3) to ensure piston travel is within specifications. Install overdrive servo assembly. Install new seals, cover and bolts. Evenly tighten to specifications.

Low-Intermediate Servo

1. Install spring from Low-Intermediate Servo Kit (T86P-70023-A). Install servo piston (without seal) and rod in case. Install servo piston gauge from kit and secure in case using servo cover bolts. Tighten bolts to 90 INCH lbs. (10 N.m). Tighten gauge screw to 30 INCH lbs. (3.4 N.m). See **Fig. 37**.
2. Attach a dial indicator and position stylus through hole in gauge. Be sure stylus has contacted piston on a flat surface. **DO NOT** contact step on piston. Zero dial indicator.
3. Back off gauge screw until piston movement stops and read indicator. The amount of piston travel indicated will determine rod length to be installed. Reading should be .216-.255" (5.5-6.5 mm). If a new low-intermediate band was installed, reading should be .196-.236" (5.0-6.0 mm).
4. Install correct piston rod and repeat steps 1)-3). Install seals on piston. Install servo piston and spring being sure they are fully seated. Install new gasket, cover and bolts. Evenly tighten bolts to specification.

NOTE: Be sure and align low-intermediate servo cover tab with port on case.

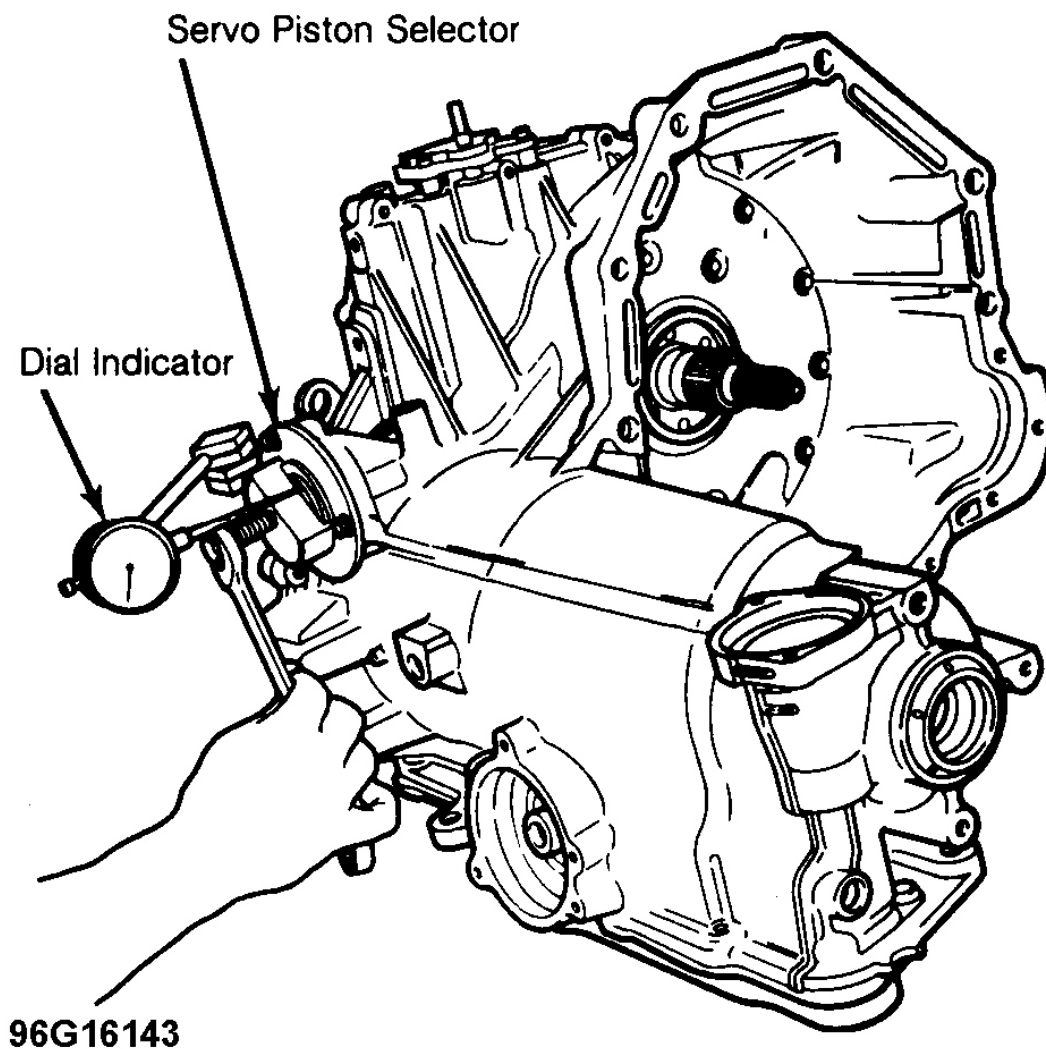


Fig. 36: Overdrive Servo Check
Courtesy of FORD MOTOR CO.

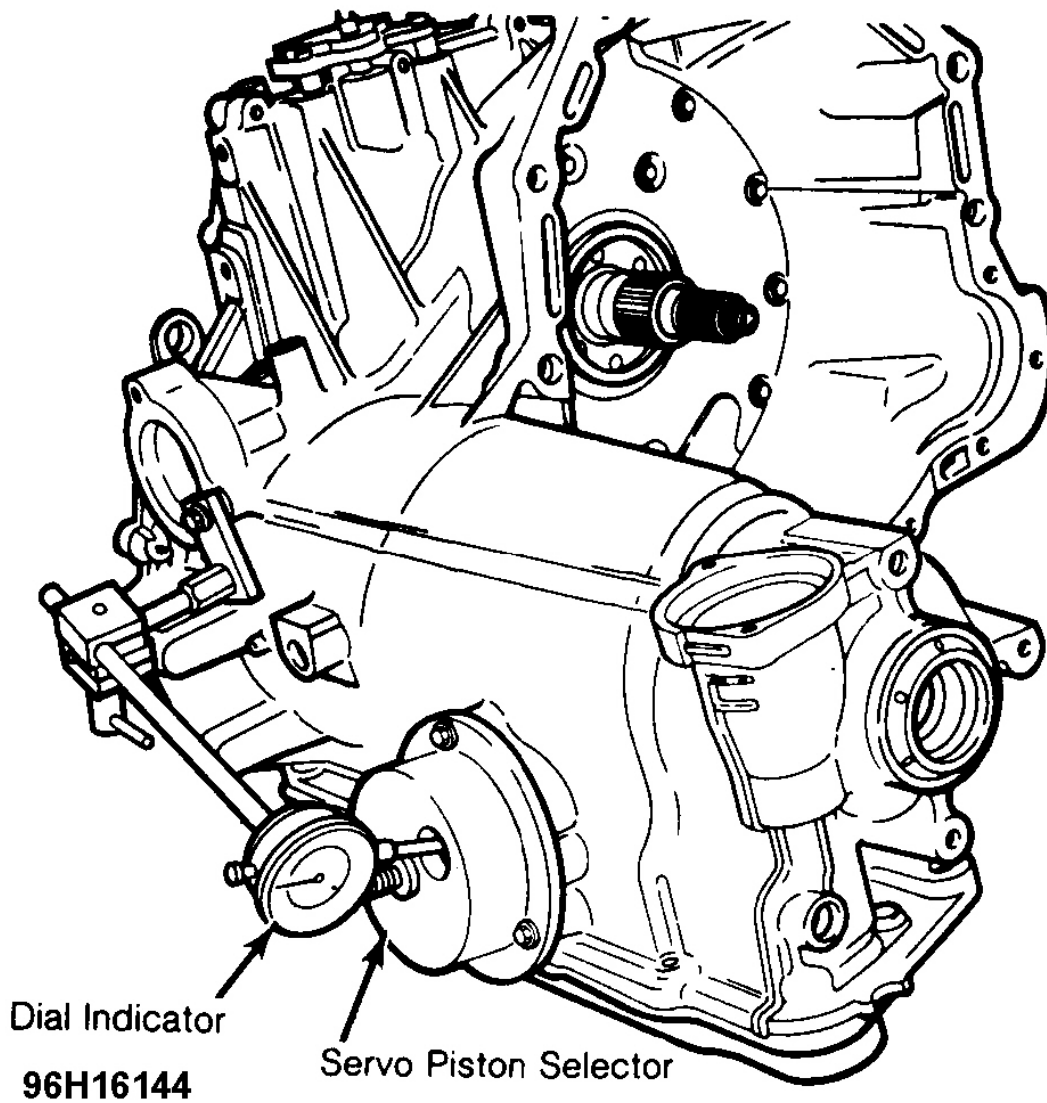


Fig. 37: Low-Intermediate Servo Check
 Courtesy of FORD MOTOR CO.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Anchor Bolt Lock Nut	25-35 (33-48)
Chain Cover Bolt-to-Case (13 mm)	25-35 (33-48)
Chain Cover Bolts-to-Case (10 mm)	20-26 (27-34)
Oil Pan-to-Case	10-12 (14-16)

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Park Rod Abutment Bolts-to-Case	20-22 (27-30)
	INCH lbs. (N.m)
Anchor Bolt (6 mm Allen)	84-108 (10-12)
Chain Cover Bolt-to-Case (8 mm)	84-108 (10-12)
Drive Sprocket Support-to-Case (Torx)	84-108 (10-12)
Governor & Servo Covers-to-Case	84-108 (10-12)
Manual Valve Detent Spring Bolt	84-108 (10-12)
Neutral Start Switch Bolt	84-108 (10-12)
Oil Pump-to-Valve Body	84-108 (10-12)
Oil Pump Cover-to-Oil Pump	84-108 (10-12)
Separator Plate-to-Valve Body	84-108 (10-12)
Separator Plate-to-Oil Pump	84-108 (10-12)
T.V. Bracket-to-Case	84-108 (10-12)
Valve Body-to-Case	84-108 (10-12)
Valve Body Cover-to-Case	84-108 (10-12)