

COMPONENT DISASSEMBLY & REASSEMBLY

NOTE: See Fig. 23 and Fig. 24 for exploded view of internal parts, thrust washer and needle bearing locations.

PLANETARY GEAR SUPPORT & PLANETARY ONE-WAY CLUTCH

NOTE: If a roller from planetary one-way clutch is lost or damaged, entire one-way clutch assembly must be replaced.

Disassembly

Remove center support from planetary carrier by lifting up on center support while rotating it counterclockwise. Carefully remove planetary one-way clutch from planetary assembly.

Inspection

Check planet support bushing, clutch inner and outer race, band surface, pinion gears, bearings and thrust washer for roughness. Check one-way clutch for damaged rollers or broken springs.

Reassembly

If necessary, assemble one-way clutch. Lubricate clutch races and clutch assembly with petroleum jelly to aid in assembly. Install one-way clutch in planetary carrier. Install center support into one-way clutch by rotating center support counterclockwise.

DIRECT CLUTCH ASSEMBLY

Disassembly

1. Remove direct clutch hub. Remove No. 7 direct clutch hub inner needle bearing and bearing support. Using a screwdriver, remove clutch pack selective retaining snap ring and lift out clutch pack. See Fig. 12.
2. Using appropriate compressor, compress piston return springs and remove retaining snap ring. Remove tool and lift spring retainer assembly and piston from clutch drum.
3. If necessary, piston can be removed by applying compressed air to lubrication hole in clutch drum. Note position and direction of lip seals. Remove seals from drum and piston.

Inspection

1. Check piston check ball for freedom of movement. Check for leakage by turning piston upside down (flat side up), allowing check ball to seat in piston.
2. Pour small quantity of solvent over check ball. If solvent drips past check ball, replace piston.

Reassembly

1. Using Seal Protector (T80L-77234-A), install inner seal on clutch drum hub with sealing lip facing down into drum. Lubricate seals and seal protector with petroleum jelly prior to installation. Ensure inner seal is positioned in groove. Install outer seal on piston with lip pointing away from spring posts.

2. Coat piston seals, clutch drum sealing area, and piston inner seal area with petroleum jelly. Install piston into clutch drum using Seal Protector (T80L-77254-A) to prevent damaging seals.
3. Position piston spring and retainer assembly in clutch drum. Compress assembly and install retaining snap ring. Install clutch pack into drum. Install pressure plate on top of clutch pack. Install clutch pack selective retaining ring.
4. Using a feeler gauge, measure clearance between clutch pack retaining ring and pressure plate with pressure plate held down. If clearance is not .060-.092" (1.53-2.34 mm), install correct size snap ring and recheck clearance. Selective snap rings are available in the following sizes: .050-.054" (1.27-1.37 mm), .064-.068" (1.63-1.73 mm), .078-.082" (1.98-2.08 mm) and .092-.096" (2.34-2.44 mm).
5. Install No. 7 bearing support with Black side up. Install No. 7 direct clutch inner needle bearing with chamfer down. Install direct clutch hub.

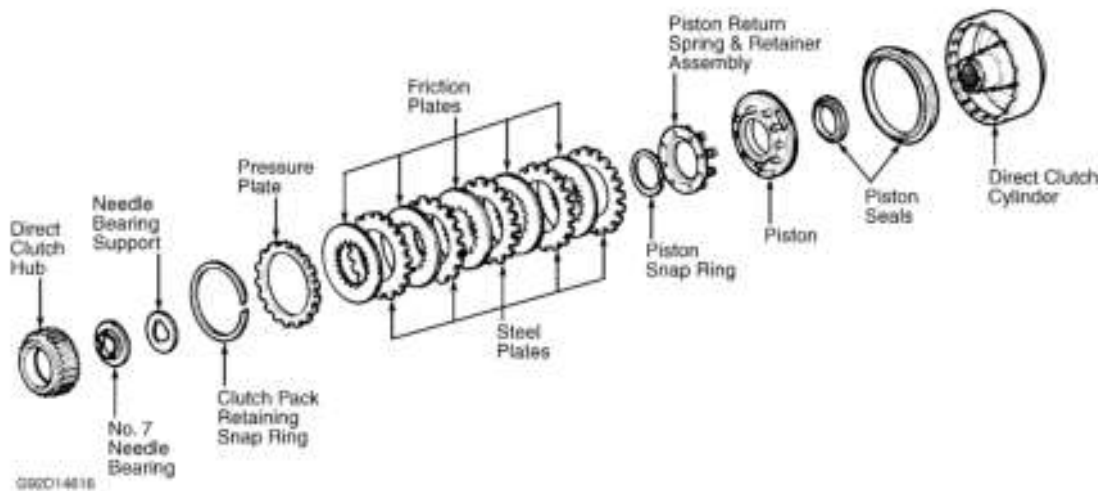


Fig. 12: Exploded View Of Direct Clutch Assembly
 Courtesy of FORD MOTOR CO.

FORWARD CLUTCH

Disassembly

1. Lift clutch hub and No. 3 needle bearing from forward clutch assembly. Using a screwdriver, pry clutch pack selective retaining snap ring from drum. Remove clutch pack, pressure plate and wave spring. See **Fig. 13**.
2. Using appropriate compressor, compress piston return spring and remove retaining snap ring. Lift out retainer and return spring.
3. Remove clutch piston from drum. Note position of inner and outer piston seals, then remove seals. Ensure input shaft Teflon seals are not damaged. Ensure check balls in piston move freely.

Reassembly

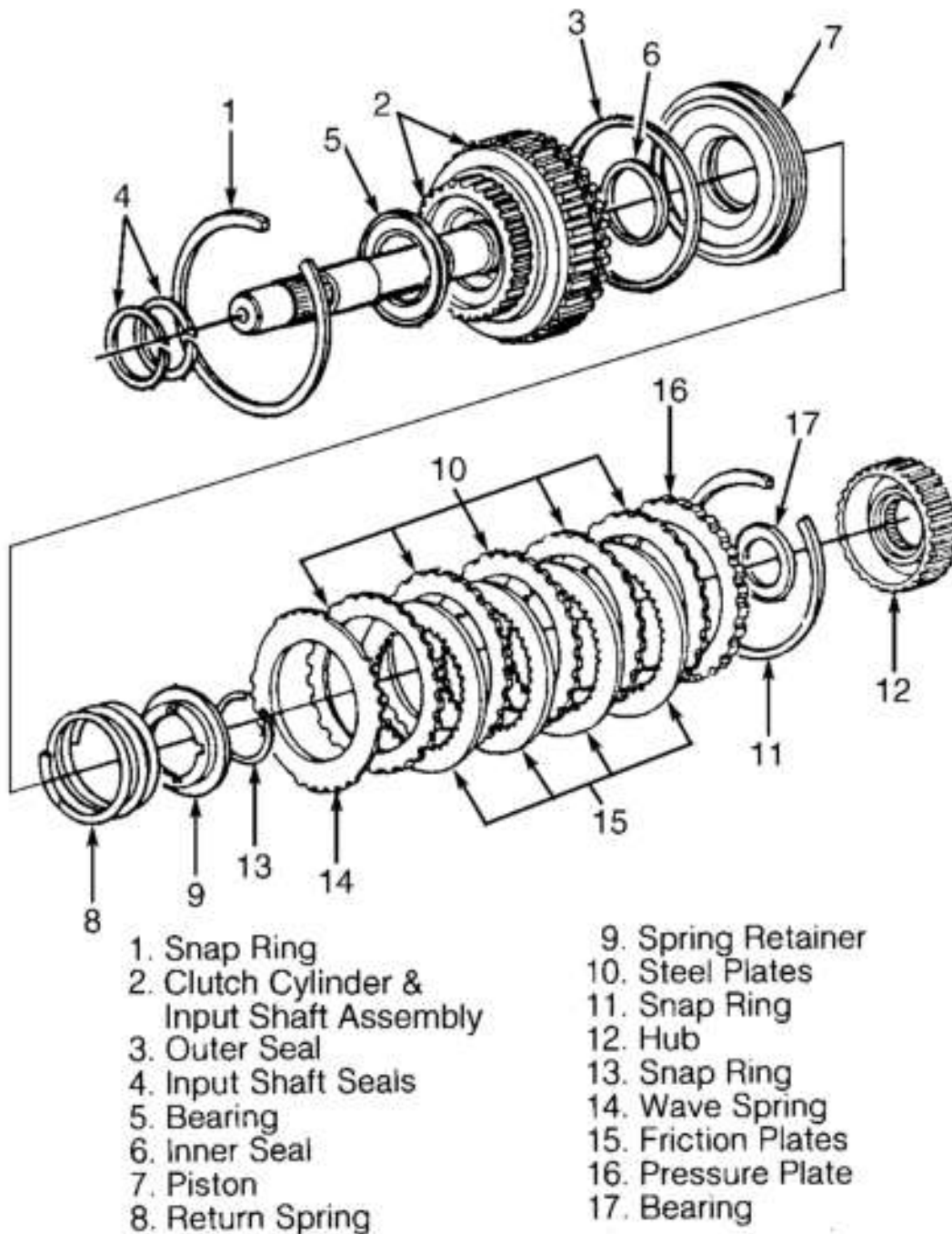
1. Lubricate and install inner and outer seals on piston with seal lips facing into clutch drum. Lubricate piston seals and drum sealing area with petroleum jelly. Install piston into drum using Seal Protector (T80L-77140-A) to prevent damaging seals.
2. Position return spring and retainer on piston. Compress return spring and install retaining snap ring. Install clutch pack into clutch drum starting with waved spring. Install a steel plate and then a friction

plate. Alternately install remaining plates in clutch pack. Install pressure plate and snap ring.

3. Using a feeler gauge, measure clearance between retaining snap ring and pressure plate with pressure plate held down. If clearance is not .050-.089" (1.27-2.26 mm), install correct size snap ring and recheck clearance. Selective snap rings are available in the following sizes: .060-.064" (1.52-1.73 mm), .074-.078" (1.88-1.98 mm), .086-.092" (2.23-2.34 mm) and .102-.106" (2.59-2.69 mm).

NOTE: Solid shaft seals may be replaced with scarf-cut seals if necessary.

4. If original seals are damaged or missing, install NEW input shaft seals. Install No. 3 needle bearing. Install forward clutch hub into forward clutch cylinder and shaft. Ensure forward clutch hub is against No. 3 needle bearing.



G94B38779

Fig. 13: Exploded View Of Forward Clutch Assembly
 Courtesy of FORD MOTOR CO.

INTERMEDIATE ONE-WAY CLUTCH

Disassembly & Reassembly

Remove clutch retaining ring and lift off clutch retaining plate. Remove clutch outer race by lifting on race

while turning counterclockwise. Carefully lift one-way clutch from inner race. See **Fig. 14** . To reassemble, reverse disassembly procedure. Ensure chamfer on outer clutch race faces up. One-way clutch must rotate counterclockwise when installed on reverse clutch drum.

NOTE: If a roller is damaged or lost, entire one-way clutch assembly must be replaced.

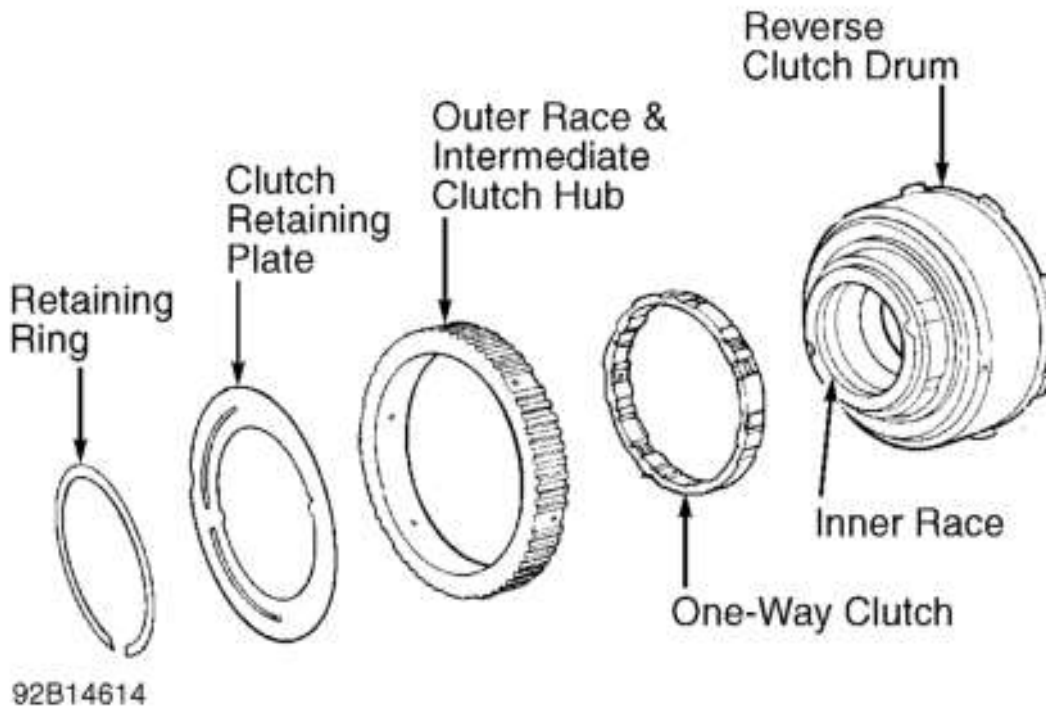


Fig. 14: Exploded View Of Intermediate One-Way Clutch Assembly
Courtesy of FORD MOTOR CO.

OIL PUMP & INTERMEDIATE CLUTCH PISTON

Disassembly

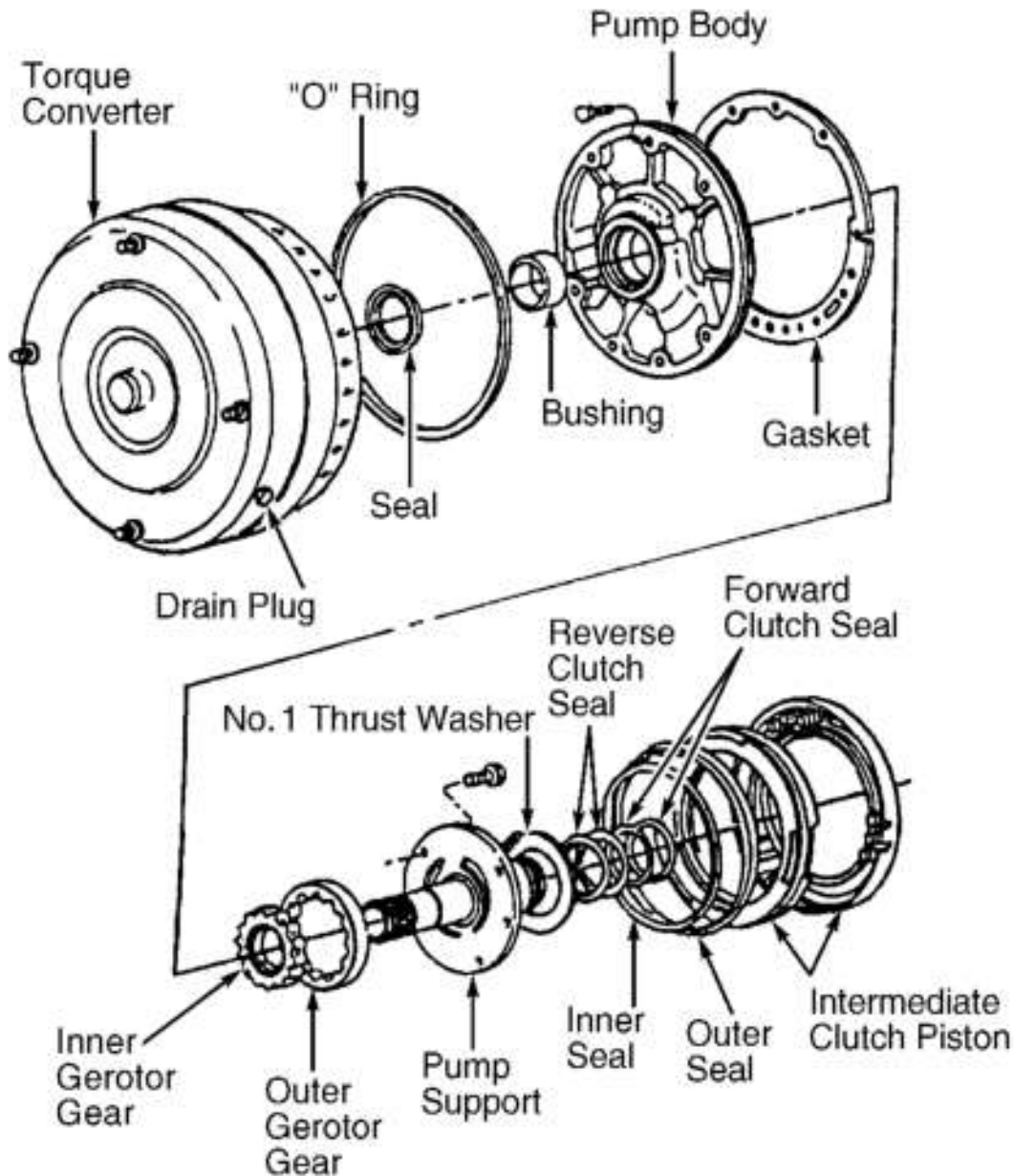
1. Lift No. 1 thrust washer from stator support. Remove retaining bolts and separate stator support from pump body. Remove 4 seal rings from stator support. Remove inner and outer gerotor gears from pump body.
2. Remove spring retainer assembly by carefully dislodging the tabs. Lift intermediate clutch piston from pump assembly. Remove pump body-to-case seal and discard. See **Fig. 15** .

NOTE: Reverse clutch seal rings on stator support are larger than forward clutch seal rings.

Reassembly

1. Install front pump seal. Install NEW seals on intermediate clutch piston. Coat piston seal and pump

- body sealing area with petroleum jelly. Use Seal Protector (T80L-77005-A) and install piston in pump body, ensuring piston bleed hole is located at 12 o'clock position (toward top of transmission case).
2. Snap spring retainer assembly into place on pump body using even pressure. Install inner and outer gerotor gear into pump body with chamfer on both gears facing into pump body. Install seal rings on stator support. The 2 larger rings are installed closest to pump.
 3. Position stator support on pump body. Install and tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** . Install pump body-to-case seal around outer diameter of pump body.



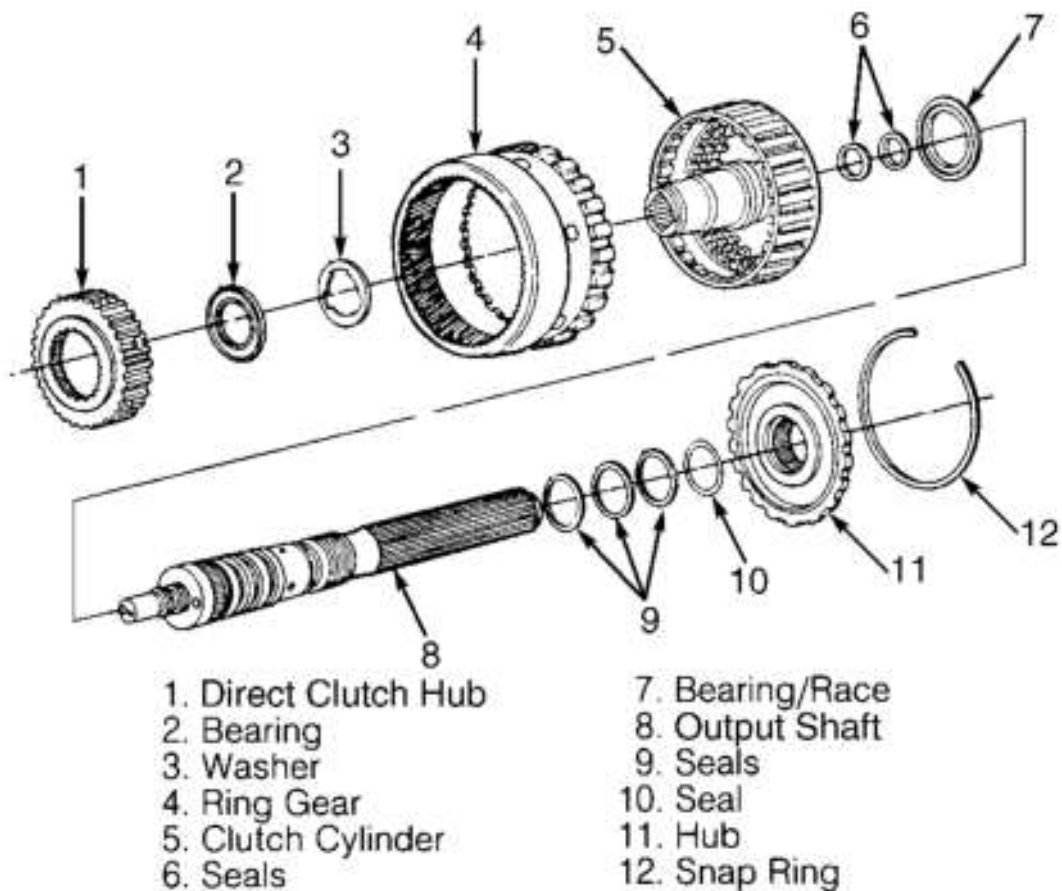
G96104375

Fig. 15: Exploded View Of Oil Pump & Intermediate Clutch
 Courtesy of FORD MOTOR CO.

OUTPUT SHAFT ASSEMBLY

Disassembly & Reassembly

1. Remove retaining ring and separate output hub assembly from ring gear. Remove direct clutch from ring gear and No. 8 needle bearing from rear of direct clutch.
2. Remove 4 output shaft seal rings and hub-to-shaft retaining ring. Separate hub from output shaft. Remove 2 direct clutch seal rings from end of output shaft. See **Fig. 16**. To reassemble, reverse disassembly procedure.



G94E38780

Fig. 16: Exploded View Of Output Shaft Assembly
Courtesy of FORD MOTOR CO.

REVERSE CLUTCH

Disassembly

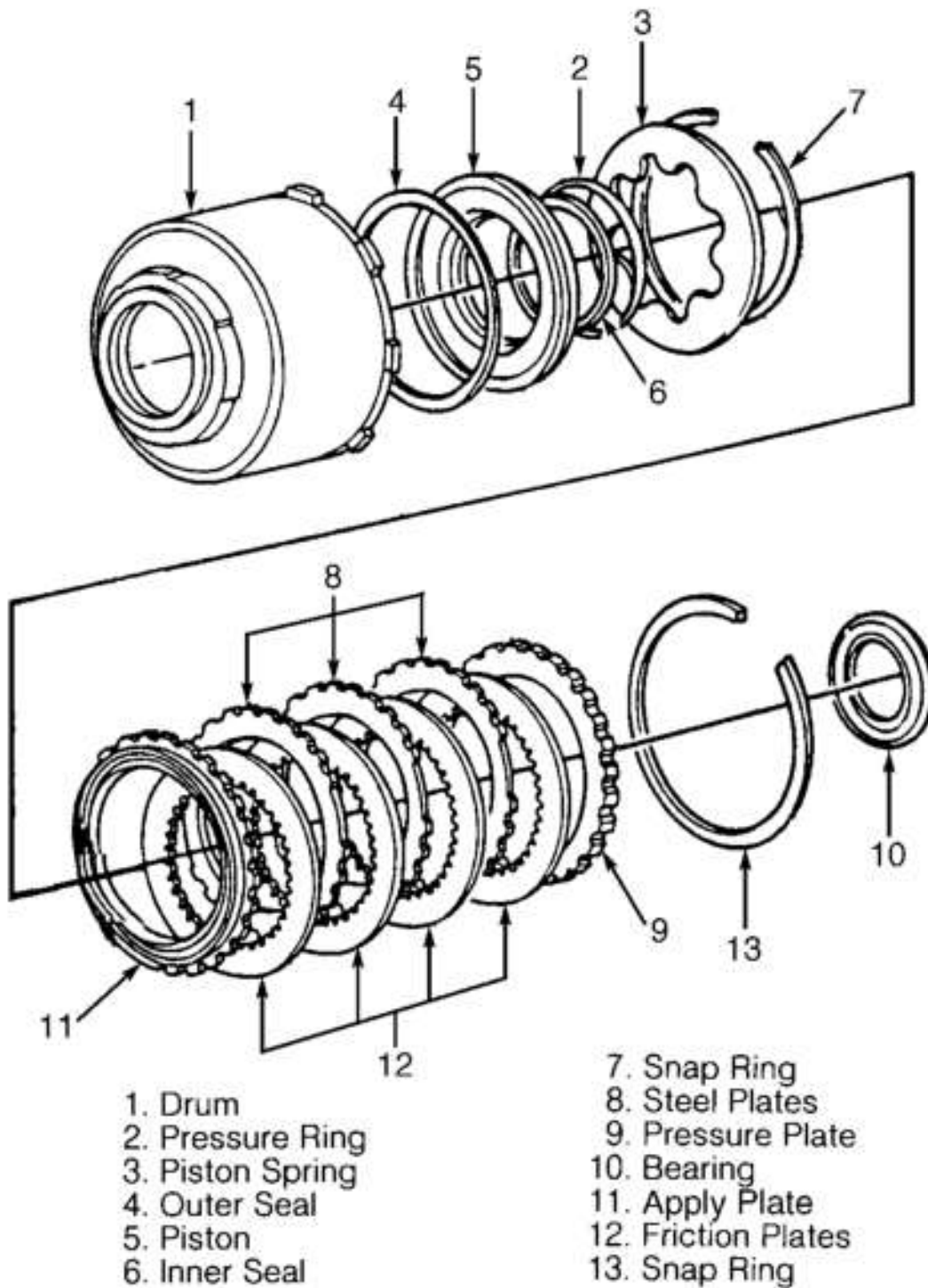
1. Remove No. 2 needle bearing. Using a screwdriver, pry clutch pack retaining snap ring from clutch drum. Lift out clutch pack. See **Fig. 17**.
2. Compress return spring and remove snap ring. Remove return spring and thrust ring. Remove piston

from drum. Remove seals from piston.

3. It may be necessary to apply compressed air to clutch drum lubrication hole to remove piston. Block remaining hole with finger.

Reassembly

1. Prior to reassembly, ensure check ball in inner piston is free. Install NEW oil seals on piston. Coat seals and sealing surface in clutch drum with petroleum jelly.
2. Install piston into clutch drum using Inner and Outer Seal Protectors (T80L-77403-B and A) to prevent damaging seals. Seals used on reverse clutch piston are square cut; direction of installation is not important.
3. Install thrust ring and return spring. Compress return spring and install snap ring with points facing downward. Install apply plate into clutch drum with dished side facing piston. Install clutch pack and retaining snap ring.
4. Using a feeler gauge, measure clearance between clutch pack snap ring and pressure plate while pushing down on pressure plate. If clearance is not .040-.060" (1.02-1.52 mm), install correct size snap ring and recheck clearance.
5. Selective snap rings are available in sizes; .060-.064" (1.52-1.73 mm), .074-.078" (1.88-1.98 mm), .088-.092" (2.24-2.34 mm) and .102-.106" (2.59-2.69 mm).
6. With reverse clutch reassembly completed, check clutch operation using compressed air. Ensure clutch applies smoothly and without leakage. Install No. 2 needle bearing.



G94F38781

Fig. 17: Exploded View Of Reverse Clutch Assembly
 Courtesy of FORD MOTOR CO.

SUN GEAR & DRIVING SHELL

Disassembly

Remove No. 4 needle bearing from driving shell. Remove forward sun gear and No. 5 needle bearing from shell. Remove No. 5 needle bearing from forward sun gear.

Reassembly

Sun gear and driving shell will be reassembled as part of TRANSMISSION REASSEMBLY .

VALVE BODY (MAIN CONTROL) ASSEMBLY

NOTE: If valve body replacement is necessary, see FORD MOTOR CO. TSB No. 95-2-8.

NOTE: As valves are removed from each valve body bore, place individual parts in correct order and in relative position to valve body for reassembly reference. Tag all springs as they are removed for reassembly reference.

Disassembly

1. Remove and discard valve body gasket. Remove retaining bolts. Remove separator plate, reinforcement plates, and separator plate gasket. Discard gasket.
2. Remove 8 check balls from valve body. See **Fig. 18** . Remove retaining plates, valves and springs. Keep all valves and springs in original order for reassembly reference. See **Fig. 19** .

Cleaning & Inspection

1. Clean all parts thoroughly in clean solvent, and blow dry with compressed air. Inspect all valves and plug bores for scoring. Check all fluid passages for obstructions.
2. Inspect all mating surfaces, plugs, and valves for burrs and scoring. If necessary, use crocus cloth to polish valves and plugs.
3. Inspect all springs for distortion. Check all valves and plugs for free movement in their respective bores. Valves and plugs, when dry, must fall of their own weight within their respective bores.

CAUTION: Avoid rounding off sharp edges of valves and plugs with crocus cloth. These edges perform a cleaning action.

Reassembly

1. Install all valves into their respective bores using illustration as guide. Ensure notch in plugs face bottom of bore.
2. Install valve body check balls. See **Fig. 18** . Install guide pin bolts into holes. These 2 holes align valve body gasket and valve body assembly with case. Using a NEW separator plate gasket, slide plate and gasket over alignment pins. Position 3 reinforcement plates and loosely install retaining bolts. Tighten retaining bolts to specification. See TORQUE SPECIFICATIONS .

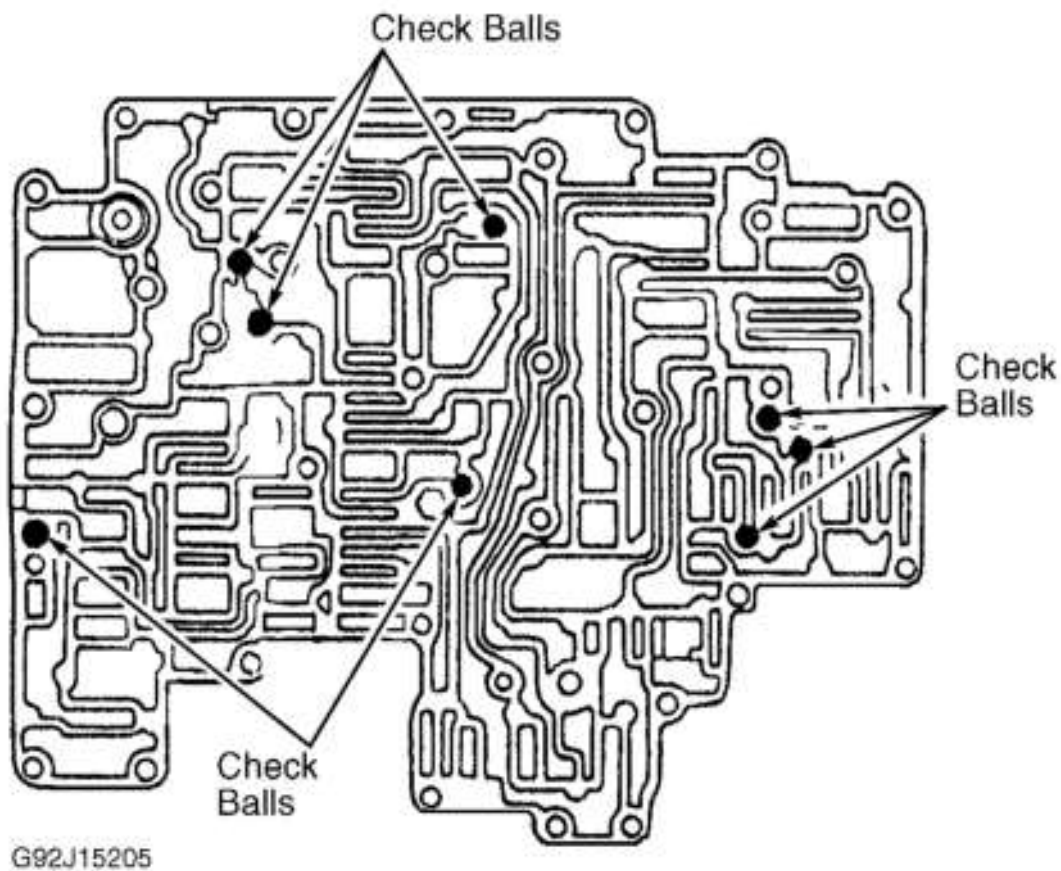


Fig. 18: Locating Check Balls In Valve Body
 Courtesy of FORD MOTOR CO.

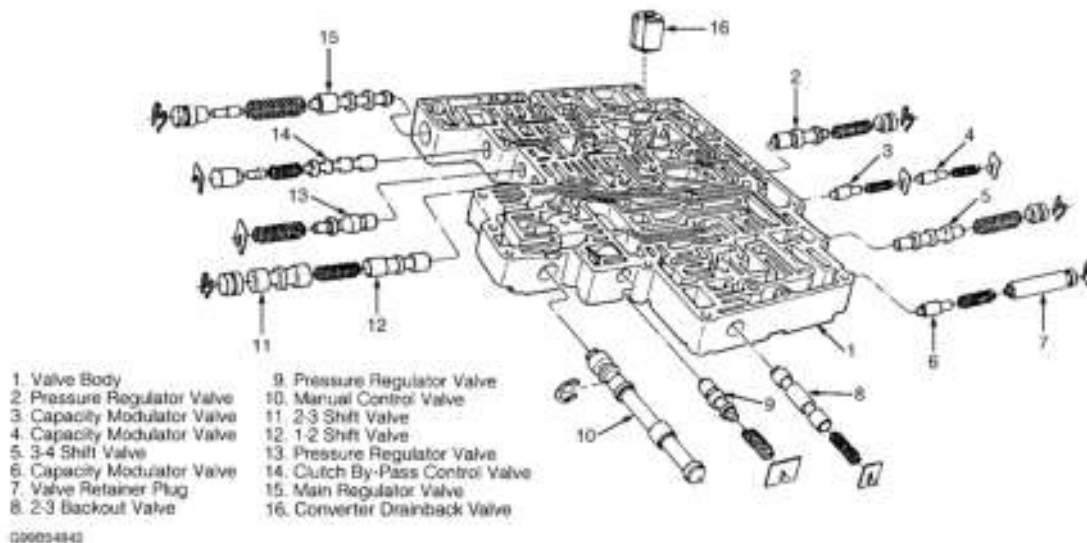


Fig. 19: Exploded View Of Valve Body Components
 Courtesy of FORD MOTOR CO.