1997-98 AUTOMATIC TRANSMISSIONS

Chrysler 46RE & 47RE Overhaul

APPLICATION

TRANSMISSION APPLICATION

Vehicle Application	Transmission Model
Dodge Dakota & Durango	
2WD	46RE
4WD	46RE
Dodge Pickup	
2WD	46/47RE
4WD	46/47RE
Dodge Ram Van/Ram Wagon	46/47RE
Jeep Grand Cherokee	
2WD	46RE
4WD	46RE

IDENTIFICATION

Transmission identification numbers are stamped on left side of transmission case, near oil pan flange. See **Fig. 1** . Identification numbers may be required when ordering replacement components. Note that transmission components may not be interchangeable and identification number is required to ensure proper component application.

NOTE: Selective sized snap rings and thrust washers may be needed to set and adjust clearances. For sizes and availability, refer to manufacturer's parts department, and reference transmission model and identification number.

NOTE: Overdrive unit on rear of transmission is disassembled and serviced as a separate unit. See OVERDRIVE UNIT DISASSEMBLY , OVERDRIVE UNIT COMPONENT DISASSEMBLY & REASSEMBLY and OVERDRIVE UNIT REASSEMBLY .

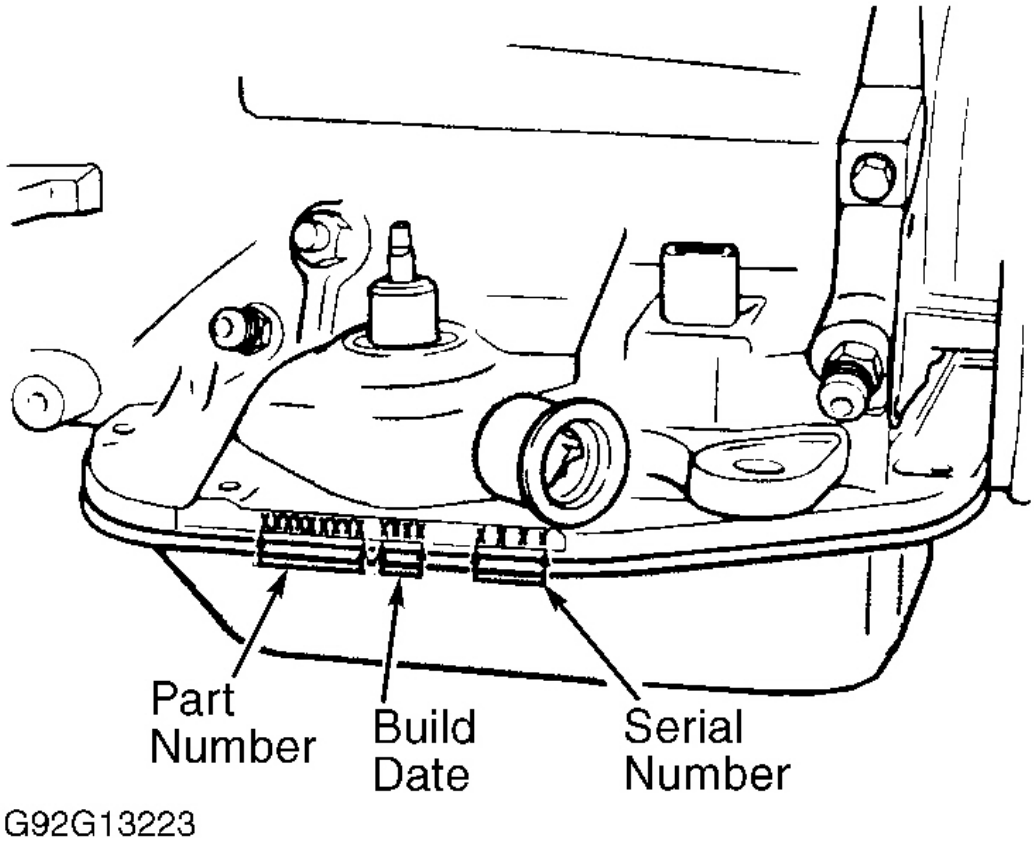

Fig. 1: Locating Transmission Identification Numbers
Courtesy of CHRYSLER CORP.

DESCRIPTION & OPERATION

Transmission is a fully automatic 4-speed transmission with an overdrive unit attached to rear of transmission. The 1st through 3rd gears are provided by clutches, bands, overrunning clutch and planetary gear set. The overdrive (4th gear) is provided by overdrive clutch, direct clutch, planetary gears and overrunning clutch in overdrive unit. Transmission contains front and rear bands, front clutch, rear clutch and overrunning clutch. The overdrive unit contains overdrive clutch, direct clutch and overrunning clutch. See **Fig. 2** .

Overdrive operation is controlled by a manually operated overdrive switch on the instrument panel. Overdrive switch is in the electrical circuit with overdrive solenoid on valve body and Powertrain Control Module (PCM). Transmission will not shift into overdrive if switch is not in the ON position. Torque converter lock-up is activated when PCM provides voltage to lock-up solenoid located on the valve body. For information on electronic diagnosis of RE-type transmissions, seec appropriate article in this section:

- **AUTO TRANS DIAGNOSIS - 42RE,44RE,46RE & 47RE CONTROL (1997)**
- **AUTO TRANS DIAGNOSIS - 42RE,44RE,46RE & 47RE CONTROL (1998)**

Governor pressure used for transmission shifting is controlled electronically. Various sensors and PCM are used for controlling governor pressure. Overdrive operation is controlled by a manually operated overdrive switch on the instrument panel. Overdrive switch supplies input signal to the PCM for controlling overdrive operation.

The PCM contains a self-diagnostic system which will store a Diagnostic Trouble Code (DTC) if a problem or failure is present in the electronic system or components. DTC can be retrieved to determine the transmission problem area. For information on electronic transmission system and operation, see appropriate article in this section:

- **AUTO TRANS DIAGNOSIS - 42RE,44RE,46RE & 47RE CONTROL (1997)**
- **AUTO TRANS DIAGNOSIS - 42RE,44RE,46RE & 47RE CONTROL (1998)**

Overdrive operation and torque converter lock-up are controlled by PCM according to signals received from transmission fluid temperature sensor. Transmission fluid temperature sensor is integral with governor pressure sensor, located on valve body. Transmission fluid temperature sensor monitors transmission fluid temperature and is in the circuit with overdrive and lock-up solenoids on valve body and the PCM.

PCM prevents overdrive gear operation and torque converter lock-up when transmission fluid temperature is less than 50°F (10°C). Transmission fluid temperature sensor will either downshift transmission to 3rd gear or prevent a 3-4 upshift when transmission fluid temperature exceeds 259°F (126°C).

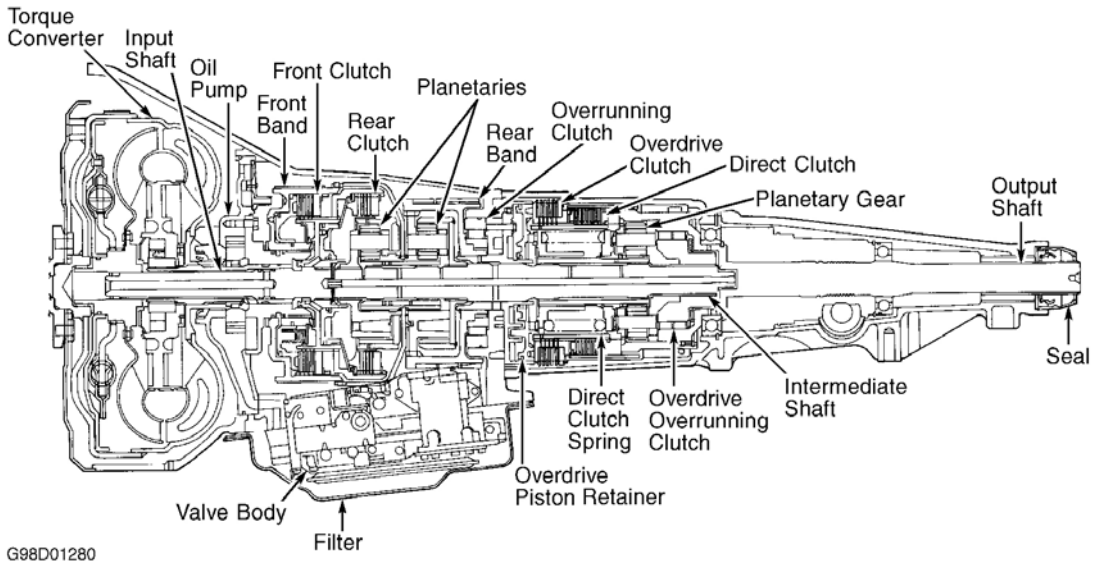

Fig. 2: Identifying Transmission Component Locations (47RE Is Shown, 46RE Is Similar)
Courtesy of CHRYSLER CORP.

LUBRICATION & ADJUSTMENTS

NOTE: See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING section.

ON-VEHICLE SERVICE

HYDRAULIC PRESSURE ADJUSTMENTS

CAUTION: Line pressure and throttle pressure each affect shift quality. Line pressure must be adjusted before adjusting throttle pressure. Valve body must be removed for adjustments. See VALVE BODY under REMOVAL & INSTALLATION .

Line Pressure

1. Measure distance from valve body to inner edge of line pressure adjusting screw. See **Fig. 3** . Rotate line pressure adjusting screw so distance is approximately 1 5/16".

NOTE: Due to manufacturing tolerances, adjustment can obtain specified line pressure.

2. Rotating line pressure adjusting screw one revolution will change line pressure approximately 1 2/3 psi. Rotating line pressure adjusting screw counterclockwise increases line pressure and clockwise decreases line pressure.

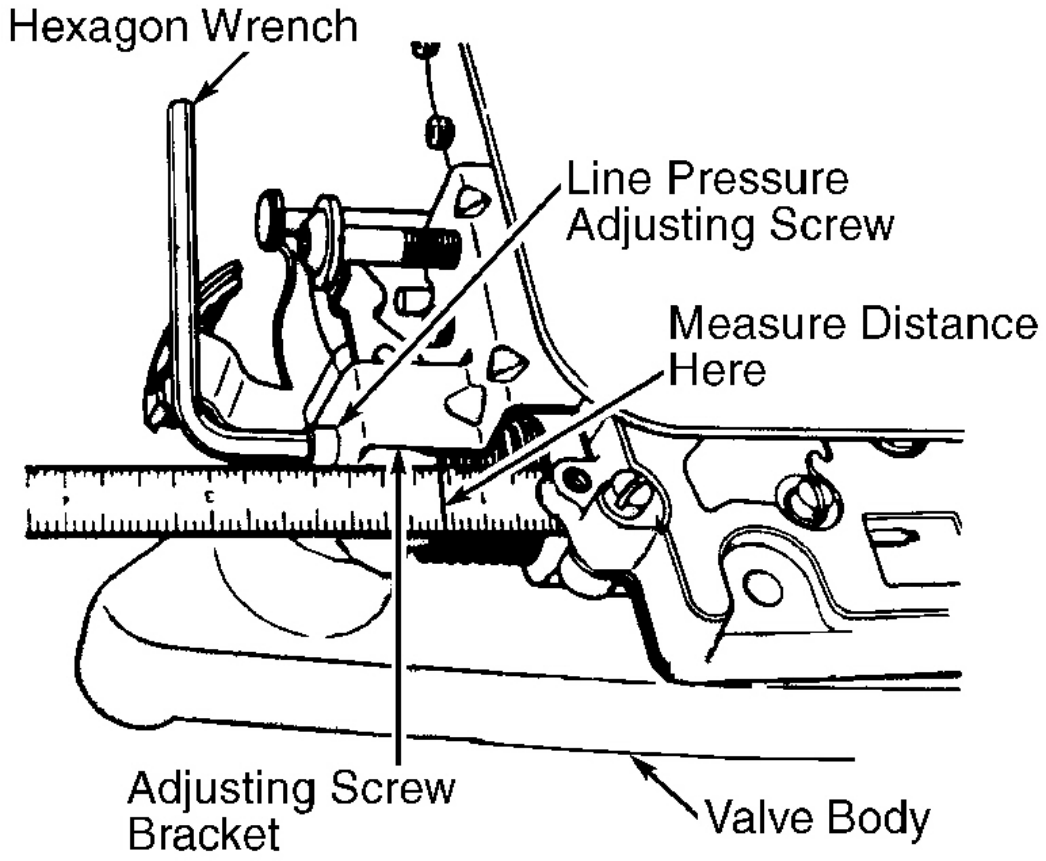

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Fig. 3: Identifying Adjusting Screw Bracket & Adjusting Line Pressure
Courtesy of CHRYSLER CORP.

Throttle Pressure

CAUTION: Line pressure must be adjusted before adjusting throttle pressure.

1. Insert Gauge Pin (C-3763) between cam on throttle lever and kickdown valve. See **Fig. 4** .
2. Push inward on gauge pin and compress kickdown valve against spring until kickdown valve bottoms in valve body.

CAUTION: Ensure spring is fully compressed and kickdown valve is bottomed in valve body.

3. Maintain pressure against kickdown valve and spring. Rotate throttle pressure adjusting screw until head of adjusting screw contacts tang on throttle lever. Ensure throttle lever cam contacts gauge pin. Remove gauge pin.

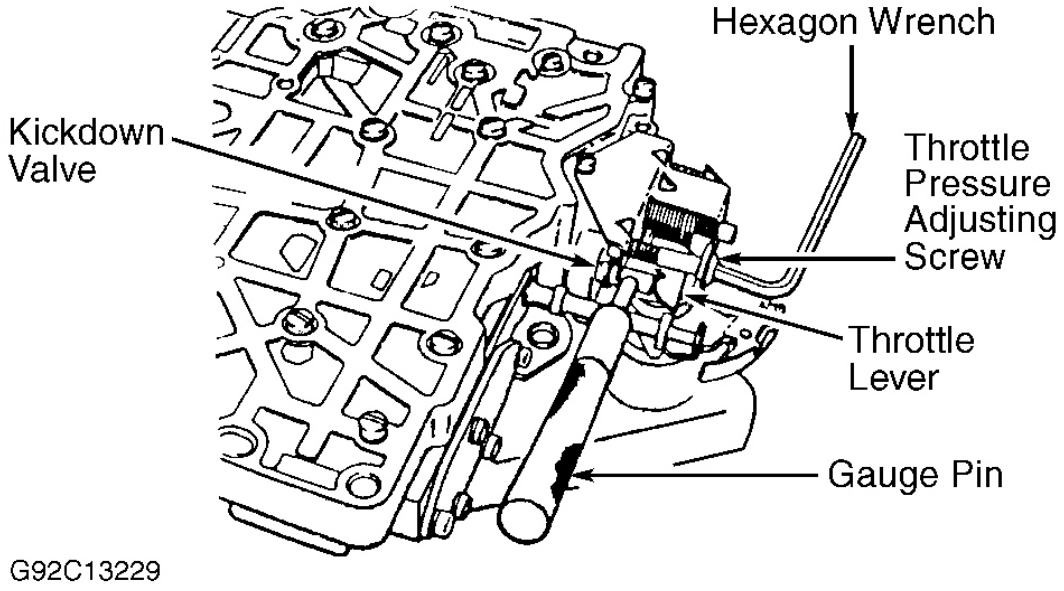

Fig. 4: Adjusting Throttle Pressure
Courtesy of CHRYSLER CORP.

OIL COOLER FLUSHING

CAUTION: Whenever a transmission failure is present, oil cooler must be flushed. Torque converter and oil cooler by-pass valve must be replaced. Some models may have an external oil cooler mounted in front of radiator. This oil cooler must be flushed along with oil cooler mounted in

radiator. Flush oil coolers separately. DO NOT attempt to flush both oil coolers at one time.

CAUTION: Some models may have a drainback relief valve installed in the oil cooler supply line next to the rubber hose at the radiator. If drainback relief valve is used, it must be removed before flushing the lines. Install NEW drainback relief valve once lines are flushed.

NOTE: Manufacturer recommends Cooler Flusher (6906) as the only suitable procedure for flushing oil cooler. Use only petroleum-based flushing solvents. DO NOT use solvents containing acids, water, gasoline or any other corrosive liquids.

Flushing Procedure

1. Note oil cooler supply and return lines. See **Fig. 13** . Remove cover plate filler plug on cooler flusher. Fill reservoir 1/2 to 3/4 full of fresh flushing solution.
2. Reinstall filler plug. Ensure pump power switch is in OFF position. Connect Red alligator clip to battery positive, and Black alligator clip to chassis ground. Disconnect oil cooler lines at transmission.

NOTE: ALWAYS reverse flush when flushing oil cooler and lines.

3. Connect Blue pressure line to outlet oil cooler line. Connect Clear return line to inlet oil cooler line. Turn pump on and flush oil cooler and lines for 3 minutes.
4. Monitor pressure reading and Clear return line. Pressure reading should stabilize at 20 psi (1.4 kg/cm^2) if equipped with a single oil cooler, or 30 psi (2.1 kg/cm^2) if equipped with dual oil coolers.
5. If solvent flow is intermittent or exceeds specified pressure, replace oil cooler(s).
6. Turn pump off. Disconnect Clear suction line from reservoir at cover plate. Turn pump on for 30 seconds to purge flushing solution from oil cooler lines. Turn pump off.
7. Place Clear suction line into a one quart container filled with ATF. Turn pump on until all fluid is removed from container. This removes remaining flushing solvent from oil cooler lines. Turn pump off.
8. Disconnect alligator clips from battery and ground. Remove flushing adapters from oil cooler lines. Reconnect oil cooler lines. Fill transmission to proper fluid level with MOPAR ATF Plus 3, Type 7176 fluid.

OIL COOLER FLOW CHECK

1. With transmission filled to proper fluid level, disconnect oil cooler return line from transmission. See **Fig. 13** . Place container under oil cooler return line.
2. Add one extra quart of ATF to transmission. Apply parking brake. Start engine and allow to idle. Place gearshift selector in Neutral. Check fluid flow from oil cooler return line.
3. If fluid flow is intermittent or takes more than 20 seconds to obtain one quart, replace oil cooler. Reconnect oil cooler return line. Fill transmission to proper level.

OIL COOLER LINE DISCONNECT FITTINGS

NOTE: There are 3 different types of disconnect fittings used. See Fig. 5 . Release tool is required to disconnect oil cooler line. Release tool is attached to oil cooler line on Type 2 and 3 fittings. This release tool also can be used to disconnect Type 1 fittings.

Removal

1. Ensure area around disconnect fitting and oil cooler line is clean. Slide release tool into disconnect fitting until it fully bottoms against flange on oil cooler line.
2. Push release tool inward and rotate to spread retaining clip and pull oil cooler line from disconnect fitting. See **Fig. 6** . Inspect disconnect fitting and oil cooler line for damage. Replace disconnect fitting as an assembly if damaged. Replace oil cooler line if swedge at hose or flange on line is damaged.

Installation

1. If installing NEW disconnect fitting, apply Loctite 242 on disconnect fitting before installing. Ensure end of oil cooler line is clean. Insert oil cooler line into disconnect fitting.

CAUTION: After installing oil cooler line, pull outward on oil cooler line to ensure oil cooler line is locked in the disconnect fitting and retaining clip is fully seated.

2. Push oil cooler line inward until a snap or click is heard when retaining clip seats in oil cooler line. Pull outward on oil cooler line to ensure oil cooler line is locked in the disconnect fitting.

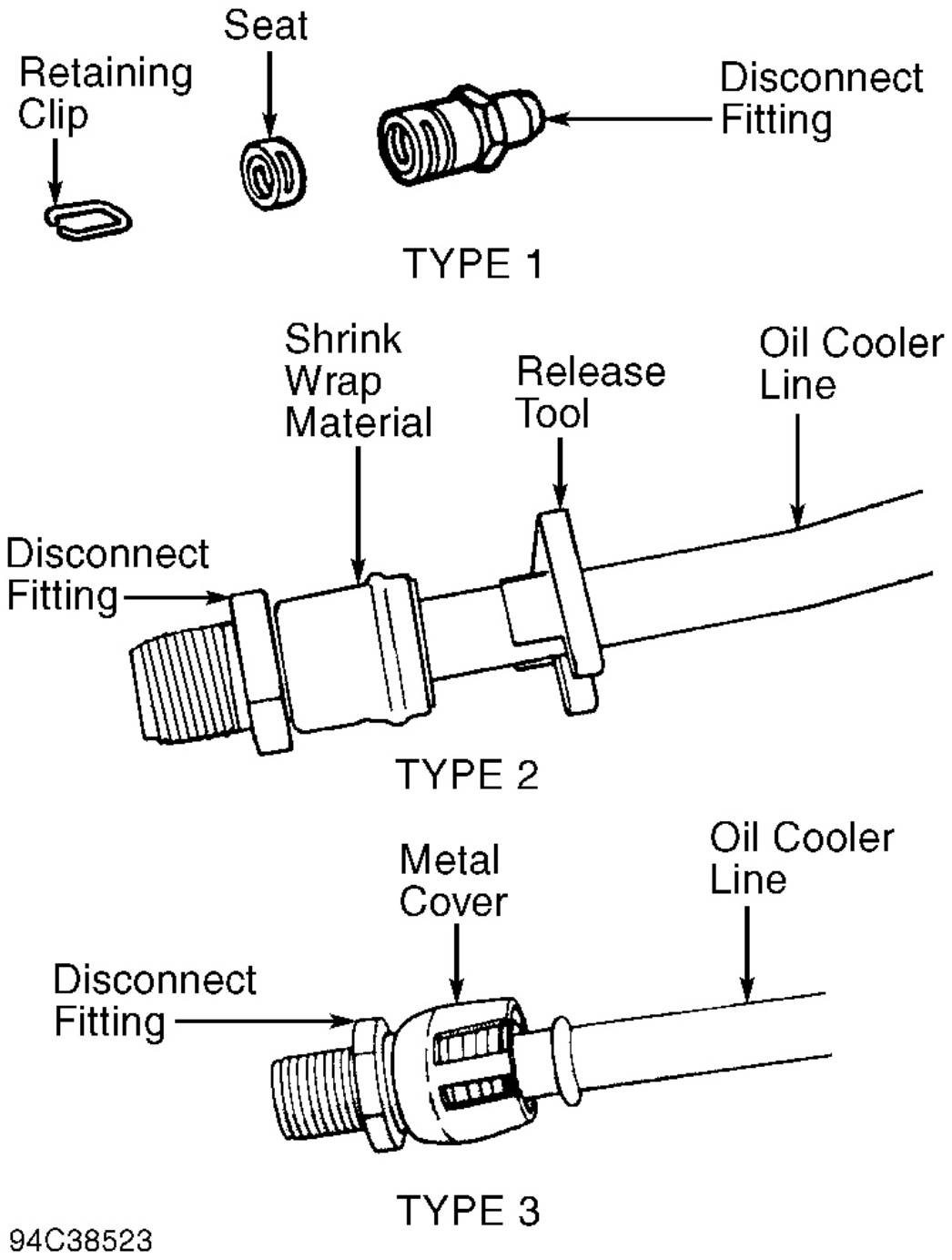

Fig. 5: Identifying Oil Cooler Line Disconnect Fittings
Courtesy of CHRYSLER CORP.

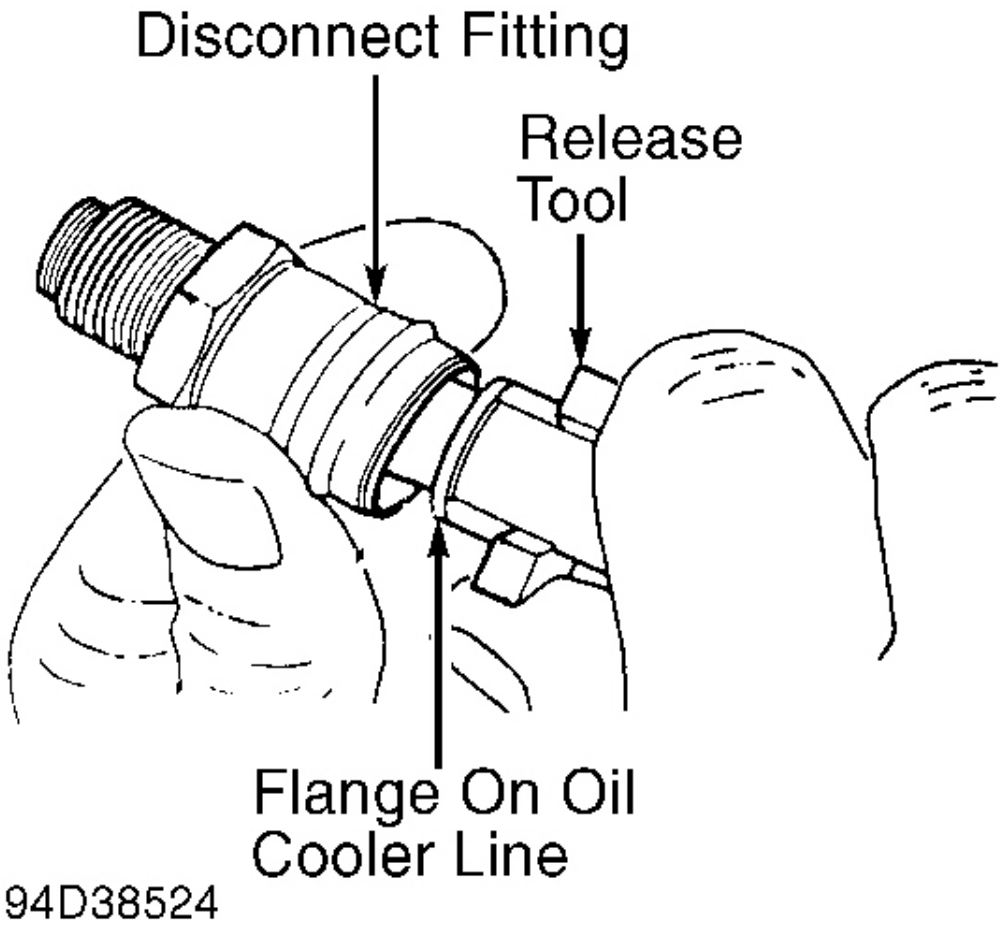

Fig. 6: Removing Oil Cooler Line From Disconnect Fitting (Type 2 Shown; Others Are Similar)
Courtesy of CHRYSLER CORP.

TROUBLE SHOOTING

Transmission malfunctions may be caused by poor engine performance, improper adjustments or failure of hydraulic, mechanical or electronic components. Always begin by checking fluid level, fluid condition, shift linkage or cable adjustment and throttle valve cable adjustment. Perform road test to determine if problem has been corrected. If problem is still present, several tests must be performed on transmission. See **TESTING** .

TRANSMISSION SYMPTOM DIAGNOSIS

NOTE: The shift from Neutral to Reverse is normally quite firm, as rear servo pressure can approach 300 psi (21 kg/cm^2). DO NOT confuse a firm engagement with a harsh engagement.

Buzzing Noise

Check for aerated fluid, improperly adjusted shift cable, leaking oil pump passages, defective overrunning clutch, low fluid level or valve body malfunction or leakage.

Delayed Engagement From Neutral To Drive Or Reverse

Check for low fluid level, clogged oil filter, improperly adjusted gearshift linkage, torque converter drain-back, improper rear band adjustment, plugged valve body filter, worn/damaged oil pump gears, governor circuit and solenoid valve electrical fault, incorrect hydraulic pressure, worn/broken reaction shaft seal rings, damaged rear clutch/input shaft or rear clutch seal rings, stuck regulator valve or plugged oil cooler.

Drags Or Locks Up

Check for low fluid level, dragging or failed clutch, improper front or rear band adjustment, internal transmission case leaks, servo band or linkage malfunction, worn overrunning clutch, broken planetary gears or dragging torque converter clutch.

Growling, Grating Or Scraping Noise

Check for broken flexplate, torque converter bolts hitting dust shield, broken/seized planetary gear set, worn/broken overrunning clutch, scored/binding oil pump components, damaged output shaft bearing or bushing, faulty clutch operation or improper front or rear band adjustment.

Harsh Engagement From Neutral To Drive Or Reverse

Check for low fluid level, misadjusted throttle linkage, loose mount and driveline bolts, worn/broken "U" joints, incorrect axle backlash, incorrect hydraulic pressure, misadjusted band, missing valve body check balls, loose axle pinion flange, damaged clutch, band or planetary components or faulty torque converter clutch.

No Drive Range In Any Position, (Reverse Is Okay)

Check for low fluid level, loose or misadjusted gearshift linkage/cable, burnt rear clutch, valve body malfunction, broken overrunning clutch, worn/damaged input shaft seal rings or broken front planetary.

No Kickdown Or Normal Downshift

Check for misadjusted throttle linkage, restricted accelerator pedal travel, incorrect hydraulic pressure adjustment, valve body malfunction, governor circuit electrical fault, faulty TP sensor or faulty PCM.

No Low Gear (Moves In 2nd & 3rd Gears Only)

Check for sticking governor valve, governor circuit electrical fault, valve body malfunction, front servo piston cocked in bore or malfunctioning front band linkage.

No Reverse

Check for misadjusted or damaged gearshift linkage/cable, sticking park sprag, misadjusted or worn rear band, valve body malfunction, rear servo malfunction, worn direct clutch in overdrive unit worn or burnt front clutch.

Shifts Delayed Or Erratic

Check for low or high fluid level, clogged oil filter, misadjusted throttle linkage, misadjusted gearshift linkage/cable, clutch or servo failure, governor circuit electrical fault, misadjusted front band or leaking oil pump suction passage.

Slips In All Forward Gears

Check for low fluid level, aerated fluid, misadjusted throttle linkage, misadjusted gearshift linkage, worn rear clutch, worn oil pump, incorrect control pressure adjustment, valve body malfunction, leaking seal rings, leaking clutch seals, leaking servo, clogged oil filter or cooler lines, faulty rear clutch or overrunning clutch not holding (slips in "1" only).

Slips In Low & Drive But Not In 1st Gear

Check for defective overrunning clutch.

Slips In Reverse Only

Check for low fluid level, misadjusted gearshift linkage, worn or misadjusted rear band, worn overdrive direct clutch, low hydraulic pressure, leaking rear servo or binding band linkage.

Harsh 1-2, 2-3, 3-4 Or 3-2 Shifts

Check for faulty lock-up solenoid.

Torque Converter Locks Up In 2nd And/Or 3rd Gear

Check for defective lock-up solenoid, relay or wiring.

Vehicle Moves In Neutral

Check for dragging rear clutch, incorrect gearshift linkage adjustment or valve body malfunction or leakage. Vehicle Moves In 2nd Or 3rd Gear & Abruptly Downshifts To Low -Check for sticking governor valve or valve body malfunction or leakage.

Vehicle Will Not Move In All Gears

Check for low fluid level, misadjusted or loose gearshift linkage/cable, broken "U" joint, axle or transfer case, plugged oil filter, damaged oil pump, valve body malfunction, damaged internal transmission components, worn or damaged park sprag (not releasing) or faulty torque converter.

Will Not Upshift From Low Gear

Check for stuck or misadjusted throttle linkage, misadjusted gearshift linkage, governor circuit electrical fault, misadjusted front band or malfunctioning clutch or servo.

No Start In Park Or Neutral

Check for misadjusted gearshift linkage/cable, open in PNP switch wiring, faulty PNP switch, poor connection at PNP switch or broken, bent or worn valve body manual lever assembly.

1st & Reverse Gears Only

Check for governor circuit electrical fault, valve body malfunction or burnt/damaged front servo or kickdown band.

Noise Related To Engine Speed

Check for low fluid level or incorrect shift cable routing.

OVERDRIVE UNIT SYMPTOM DIAGNOSIS

Delayed 3-4 Upshift

Check for low fluid level, misadjusted throttle valve cable, worn or burnt overdrive clutch pack, faulty TP sensor, plugged overdrive clutch bleed orifice, faulty overdrive solenoid or wiring, excessive overdrive clutch clearance or missing/stuck overdrive check valve.

No Reverse Or Slips In Reverse

Check for worn direct clutch pack (front clutch), misadjusted rear band, malfunctioning or burnt front clutch, overdrive thrust bearing failure or collapsed/broken direct clutch spring.

No 3-4 Upshift

Check for overdrive switch in OFF position, blown overdrive circuit fuse, shorted or open overdrive switch wire, malfunctioning distance or coolant sensor, faulty TP sensor, PNP-to-PCM wire shorted, faulty PCM, shorted overdrive solenoid, plugged solenoid feed orifice in valve body, faulty overdrive clutch, low hydraulic pressure, stuck valves in valve body, incorrect overdrive piston spacer, overdrive piston seal failure or faulty overdrive check valve/orifice.

No 4-3 Downshift

Check for shorted circuit wiring or connectors, faulty PCM, faulty TP sensor, lockup or overdrive solenoids not venting or sticking valves in valve body.

No 4-3 Downshift With Overdrive Switch In OFF Position

Check for open or shorted control switch, shorted overdrive solenoid connector, faulty PCM or stuck valves in valve body.

Noisy Operation In 4th Gear Only

Check for damaged overdrive clutch discs, plates or snap rings, damaged, overdrive piston or planetary thrust bearing, damaged output shaft bearings, worn planetary gears or worn overdrive unit overrunning clutch rollers.

Slips In 4th Gear

Check for low fluid level, worn overdrive clutch pack, blown out overdrive piston retainer bleed orifice, faulty overdrive piston or seal, malfunctioning 3-4 shift valve, timing valve or accumulator, defective overdrive unit thrust bearing or overdrive check valve/bleed orifice failure.

3-4 Upshift Occurs Immediately After Completing 2-3 Upshift

Check for shorted overdrive solenoid, connector or wiring, faulty TP sensor, faulty PCM, overdrive solenoid malfunction or valve body malfunction.

Clunk Noise From Driveline On Closed Throttle 4-3 Downshift

Check for low fluid level, misadjusted throttle cable or wrong overdrive clutch select spacer installed.

TESTING

ROAD TEST

1. Ensure throttle valve and shift linkage or cable are properly adjusted. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING section. Ensure fluid level and condition are okay. Add ATF and adjust control cables or linkages (if necessary).
2. Ensure all electrical connections on transmission and overdrive switch are okay. Turn overdrive switch to the ON position. Road test vehicle and operate transmission in each gear position. Observe engine performance during road test. A poorly tuned engine will not allow an accurate analysis of transmission operation.
3. Check for slippage and shift variations. Note if shifts are harsh, spongy, delayed or early. Slipping in any gear usually indicates clutch, band, or overrunning clutch problems. A slipping clutch or band in a particular gear can usually be identified by noting transmission operation in other gearshift positions and comparing internal components used. See **CLUTCH & BAND APPLICATION** table.
4. Problem area may be detected by determining which components are applied. By selecting another gear that does not use these clutches, the clutch that is slipping can be determined. See **CLUTCH & BAND APPLICATION** table.
5. Process of elimination can be used to detect slipping units and confirm proper operation of good units. Although road test analysis can usually diagnose slipping units, the actual malfunction, however, usually cannot be decided.
6. Practically any condition can be caused by leaking hydraulic circuits or sticking valves. Transmission failure may be determined by performing hydraulic pressure test along with clutch and servo air pressure test.

CLUTCH & BAND APPLICATION (1)

Gearshift Position	Elements In Use
"D" (Drive)	
1st Gear	Rear Clutch, Overrunning Clutch, OD Direct Clutch & OD Overrunning Clutch
2nd Gear	Front Band, Rear Clutch, OD Direct Clutch & OD Overrunning Clutch
3rd Gear	Front Clutch, Rear Clutch, OD Direct Clutch & OD Overrunning Clutch
4th Gear	Front Clutch, Rear Clutch & OD Clutch
"2" (Second)	
1st Gear	Rear Clutch, Overrunning Clutch, OD Direct Clutch & OD Overrunning Clutch
2nd Gear	Front Band, Rear Clutch, Overrunning Clutch OD Direct Clutch

	& OD Overrunning Clutch
"1" (Low)	
1st Gear	Rear Clutch, Rear Band, Overrunning Clutch, OD Direct Clutch & OD Overrunning Clutch
"R" (Reverse)	Front Clutch, Rear Band & OD Direct Clutch
"N" Or "P" (Neutral Or Park)	All Clutches & Bands Released Or Ineffective
(1) Transmission contains front and rear bands, front clutch, rear clutch and overrunning clutch. The overdrive unit contains overdrive clutch, direct clutch and overrunning clutch.	

HYDRAULIC PRESSURE TEST

Hydraulic Pressure Test Preparation

1. Ensure fluid level and condition are okay. Install tachometer. Raise vehicle on hoist, allowing wheels to rotate freely.
2. Disconnect throttle valve and shift cables or linkages from throttle valve and manual selector lever on the transmission.

CAUTION: A 100 psi (7 kg/cm^2) pressure gauge is required for checking all applications except rear servo and overdrive clutch. A 300 psi (21 kg/cm^2) pressure gauge is required for checking pressure at rear servo and overdrive clutch.

Pressure Test With Transmission In "1" (1st Gear)

1. This tests oil pump output, pressure regulation, condition of rear clutch and servo hydraulic circuits. Remove pressure tap plugs and install pressure gauge in accumulator and rear servo pressure taps. See **Fig. 7** . Start and operate engine at 1000 RPM.
2. Move manual selector lever on transmission fully forward to the gearshift "1" position. Read pressure on both pressure gauges as throttle valve lever on transmission is moved from fully forward position to fully rearward position.
3. Line pressure at accumulator pressure tap should be 54-60 psi (3.7-4.2 kg/cm^2) with throttle valve lever fully forward and gradually increase to 90-96 psi (6.3-6.7 kg/cm^2) as throttle valve lever is moved rearward. Rear servo pressure should be within 3 psi (.2 kg/cm^2) of line pressure.
4. If line pressure is not within specification, adjust line pressure. See LINE PRESSURE under **HYDRAULIC PRESSURE ADJUSTMENTS** . If proper line pressure still cannot be obtained, check for defective components and hydraulic circuit. Remove pressure gauges. Install and tighten pressure tap plugs to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test With Transmission In "2" (2nd Gear)

1. This tests oil pump output and pressure regulation. Remove pressure tap plug and install pressure gauge in accumulator pressure tap. See **Fig. 7** . Start and operate engine at 1000 RPM.
2. Move manual selector lever on transmission to fully forward position and then rearward one position to gearshift "2" position. Read pressure on pressure gauge as throttle valve lever on transmission is moved from fully forward position to fully rearward position.
3. Line pressure at accumulator pressure tap should be 54-60 psi (3.7-4.2 kg/cm^2) with throttle valve

lever fully forward and gradually increase to 90-96 psi (6.3-6.7 kg/cm^2) as throttle valve lever is moved rearward.

4. If line pressure is not within specification, adjust line pressure. See LINE PRESSURE under **HYDRAULIC PRESSURE ADJUSTMENTS** . If proper line pressure still cannot be obtained, check for defective components and hydraulic circuit. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test With Transmission In "D" (Drive Gear)

1. This tests oil pump output, pressure regulation and condition of clutch hydraulic circuits. Remove pressure tap plugs and install pressure gauge in accumulator and front servo pressure taps. See **Fig. 7** . Start and operate engine at 1600 RPM.
2. Move manual selector lever on transmission to fully forward position and then rearward 2 positions to gearshift "D" position. Read pressure on both pressure gauges as throttle valve lever on transmission is moved from fully forward position to fully rearward position.
3. Line pressure at accumulator pressure tap should be 54-60 psi (3.7-4.2 kg/cm^2) with throttle valve lever fully forward and gradually increase as throttle valve lever is moved rearward. Front servo is pressurized only in gearshift lever "D" position and pressure should be within 3 psi (.2 kg/cm^2) of line pressure up to the downshift point.
4. If line pressure is not within specification, adjust line pressure. See LINE PRESSURE under **HYDRAULIC PRESSURE ADJUSTMENTS** . If proper line pressure still cannot be obtained, check for defective components and hydraulic circuit. Remove pressure gauges. Install and tighten pressure tap plugs to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test With Transmission In "R" (Reverse Gear)

1. This tests oil pump output, pressure regulation, front clutch and rear servo hydraulic circuits. Remove pressure tap plug and install 300 psi (21 kg/cm^2) pressure gauge in rear servo pressure tap. See **Fig. 7** . Start and operate engine at 1600 RPM.
2. Move manual selector lever on transmission to fully forward position and then rearward 4 positions to gearshift "R" position. Read pressure on pressure gauge as throttle valve lever on transmission is moved from fully forward position to fully rearward position.
3. Pressure should be 145-175 psi (10.2-12.3 kg/cm^2) with throttle valve lever fully forward and gradually increase to 230-280 psi (16.1-19.7 kg/cm^2) with throttle valve lever fully rearward. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test With Transmission In Overdrive (4th Gear)

1. This tests line pressure at overdrive clutch in 4th gear. Reconnect throttle valve and shift cables or linkages on manual selector lever and throttle valve lever on transmission (if removed). Remove pressure tap plug and install 300 psi (21 kg/cm^2) pressure gauge in overdrive clutch pressure tap. See **Fig. 7** .
2. Lower vehicle, leaving wheels approximately 12" from floor. Ensure overdrive switch is in the ON position. Start engine. Place gearshift in "D" (Drive). Gradually increase engine speed until a 3-4 shift occurs and note pressure gauge reading in 4th gear.
3. Pressure should be 68-72 psi (4.7-5.1 kg/cm^2) at closed throttle and increase to 90-120 psi (6.3-8.4

kg/cm^2) at 1/2 to 3/4 throttle. Pressure will increase to more than 130 psi (9.1 kg/cm^2) at full throttle. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

NOTE: Transmission governor pressure is usually checked if shift speeds are incorrect or transmission will not upshift or downshift.

Transmission Governor Pressure

1. Reconnect throttle valve and shift cables or linkages on manual selector lever and throttle valve lever on transmission (if removed). Remove pressure tap plug and install pressure gauge in governor pressure tap. See **Fig. 7** .
2. Lower vehicle, leaving wheels approximately 12" from floor. Start engine and allow it to idle. Place gearshift in "D" (Drive). Note pressure gauge reading with engine idling.
3. Pressure should be no greater than 3 psi (.2 kg/cm^2) with wheels not rotating. If pressure exceeds specification, a failure is present in electronic governor system. Check for stored DTCs. See appropriate article in this section:
   - **AUTO TRANS DIAGNOSIS - 42RE,44RE,46RE & 47RE CONTROL (1997)**
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4. If pressure is correct, slowly increase engine speed, noting governor pressure in relation to vehicle speed. Governor pressure should increase approximately 1 psi (.07 kg/cm^2) for every MPH. Governor pressure should rise smoothly and then drop back to 3 psi (.2 kg/cm^2) when wheels stop rotating. Repair governor circuit if it does not operate properly.
5. This tests governor operation in relation to engine and vehicle speed. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Hydraulic Pressure Test Result Indications

1. If proper line pressure is obtained in any pressure test, oil pump and pressure regulator are working properly.
2. If line pressure is low in "D", "1" and "2", but is correct in "R", this indicates leakage in rear clutch circuit.
3. If line pressure is low in "D" (3rd gear) and "R", but is correct in "1" and "2", this indicates leakage in front clutch circuit.
4. If line pressure is low in "R" and "1", but is correct in "2", this indicates leakage in rear servo circuit. If front servo pressure is low in "2", this indicates leakage in front servo circuit.
5. If line pressure is low when in "D" (4th gear), this indicates overdrive clutch piston seal or check ball problem.
6. High governor pressure at idle indicates governor valve is stuck open. Low governor pressure at all vehicle speeds indicates governor valve is stuck closed.
7. If line pressure is not within specification, adjust line pressure. See LINE PRESSURE under **HYDRAULIC PRESSURE ADJUSTMENTS** . If proper line pressure still cannot be obtained, check for defective components and hydraulic circuit. Low line pressure in all positions indicates a defective oil pump, restricted filter or stuck pressure regulator valve.

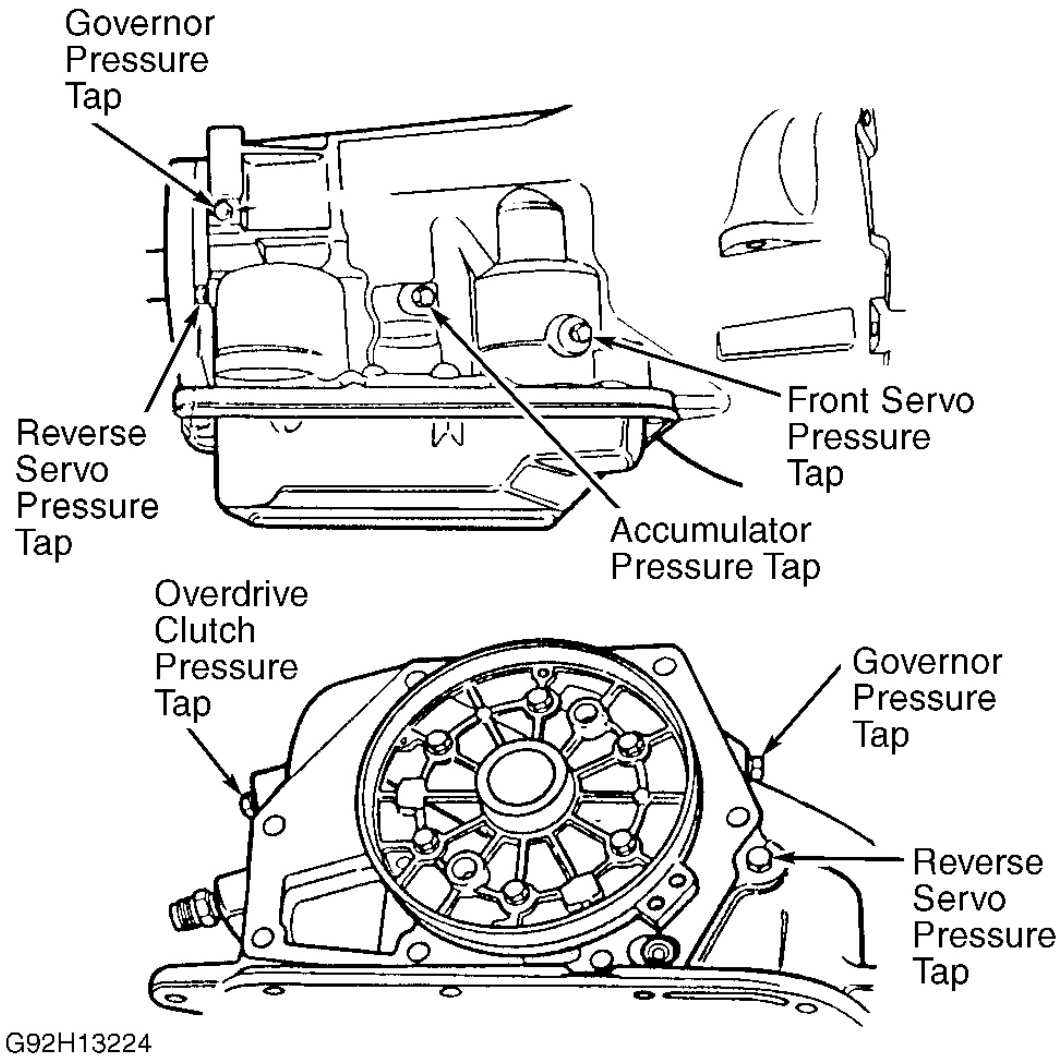


Fig. 7: Identifying Pressure Taps
Courtesy of CHRYSLER CORP.

TORQUE CONVERTER STALL SPEED TEST

Test Procedure

1. Install tachometer. Ensure transmission fluid level is correct. Start and operate engine until transmission fluid is at normal operating temperature.

CAUTION: DO NOT open throttle to wide open position for more than 5 seconds or transmission may be damaged. If performing more than one torque converter stall speed test, operate engine at 1000 RPM with transmission in Neutral for at least one minute to cool transmission fluid before performing next torque converter stall speed test.

2. Block front wheels. Apply parking and service brakes. Place transmission in Drive. Open throttle to wide open position for no more than 5 seconds and note engine RPM, then release throttle. This is the torque converter stall speed.
3. Torque converter stall speed should be 1800-2300 RPM. Once torque converter stall speed is obtained, place transmission in Neutral. Operate engine for one minute, allowing transmission to cool. Stop engine. Place transmission in Park. Remove tachometer.

NOTE: Use the following symptoms to trouble shoot results of torque converter stall speed test.

Stall Speed Exceeds Specification

If torque converter stall speed exceeds specification by more than 200 RPM, transmission clutch is slipping.

Stall Speed Less Than Specification

1. If torque converter stall speed is less than specification with a properly tuned engine, torque converter overrunning clutch may be slipping.
2. If torque converter overrunning clutch is slipping, torque converter stall speed will be 250-350 RPM less than the specification. Vehicle will operate properly at highway speeds, but will have poor low-speed acceleration.

Stall Speed Is Within Specification

If torque converter stall speed is within specification, but abnormal throttle opening is required to maintain highway speeds, torque converter overrunning clutch is seized. Torque converter must be replaced.

Noise When Performing Torque Converter Stall Speed Test

Whining noise caused by fluid flow is normal. A loud metallic sound indicates torque converter is damaged. To ensure sound is coming from torque converter, raise vehicle on hoist. Operate vehicle with transmission in Drive and then Neutral at light throttle. Ensure noise is coming from torque converter. Replace torque converter if defective.

CLUTCH & SERVO AIR PRESSURE TEST

NOTE: Inoperative clutches, servos and bands can be located by applying air pressure to appropriate passages in transmission case.

Test Preparation

Remove valve body. See VALVE BODY under **REMOVAL & INSTALLATION** .

CAUTION: Ensure air supply is free of all dirt and moisture.

Front Clutch

Place finger on front clutch housing. Apply air pressure to front clutch apply passage. See **Fig. 8** . Piston

movement will be felt and a soft thump will be heard when front clutch is applied.

Rear Clutch

Place finger on rear clutch housing. Apply air pressure to rear clutch apply passage. See **Fig. 8** . Piston movement will be felt and a soft thump will be heard when rear clutch is applied.

Front Servo

Apply air pressure to front servo apply passage. See **Fig. 8** . Front band should tighten, indicating front servo operation. Release air pressure. Ensure spring tension on servo piston releases front band.

Rear Servo

Apply air pressure to rear servo apply passage. See **Fig. 8** . Rear band should tighten, indicating rear servo operation. Release air pressure. Ensure spring tension on servo piston releases rear band.

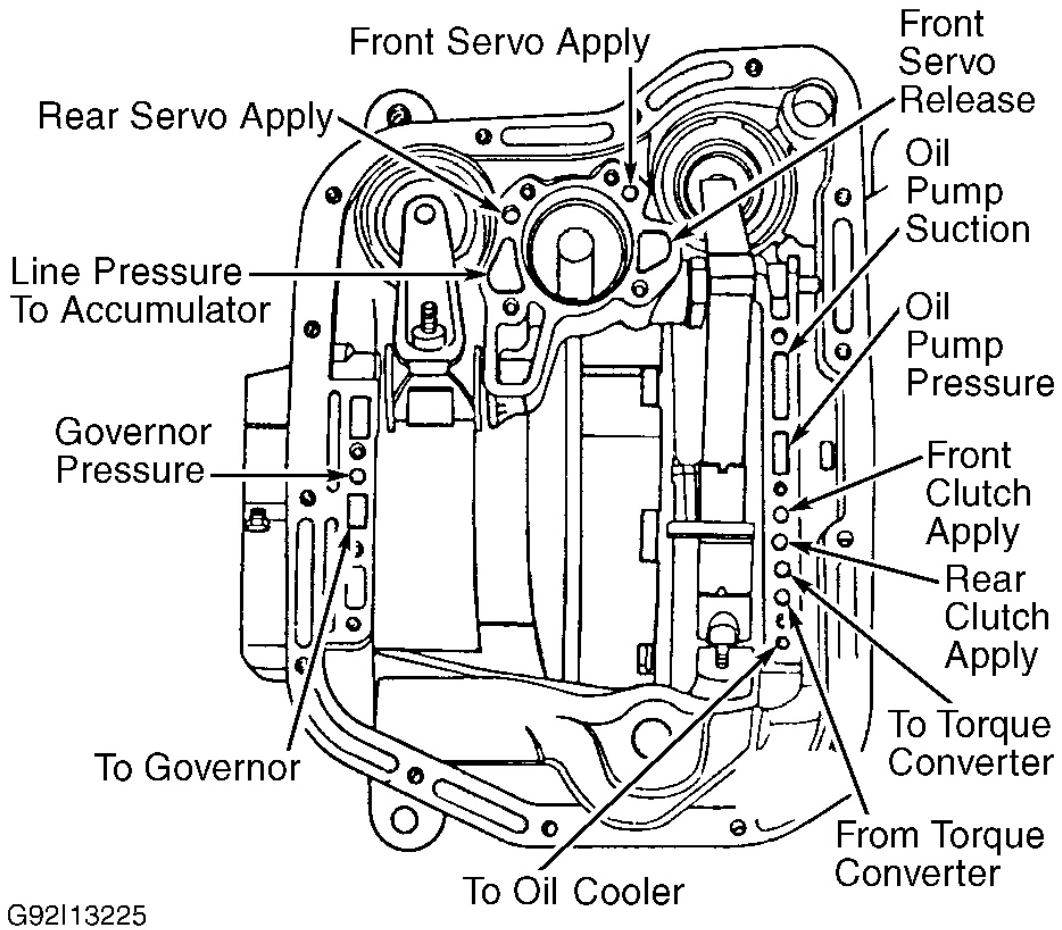


Fig. 8: Identifying Air Pressure Test Passages
Courtesy of CHRYSLER CORP.

TORQUE CONVERTER FLUID LEAKAGE TEST

NOTE: Fluid around torque converter may originate from engine oil or transmission. Ensure transmission fluid level is correct. Fluid leakage at torque converter may result if fluid level is too high. Transmission can be checked for leaks using the following method.

1. Remove torque converter dust shield. Clean inside area of torque converter housing using solvent and compressed air. Ensure area is clean and dry.
2. Fabricate leakage test probe using 1/32" sheet metal, 5 1/2" (140 mm) long and 1 1/2" (38 mm) wide. See **Fig. 9** . Install leakage test probe on torque converter dust shield bolt so leakage test probe is near torque converter. Ensure torque converter does not contact leakage test probe.

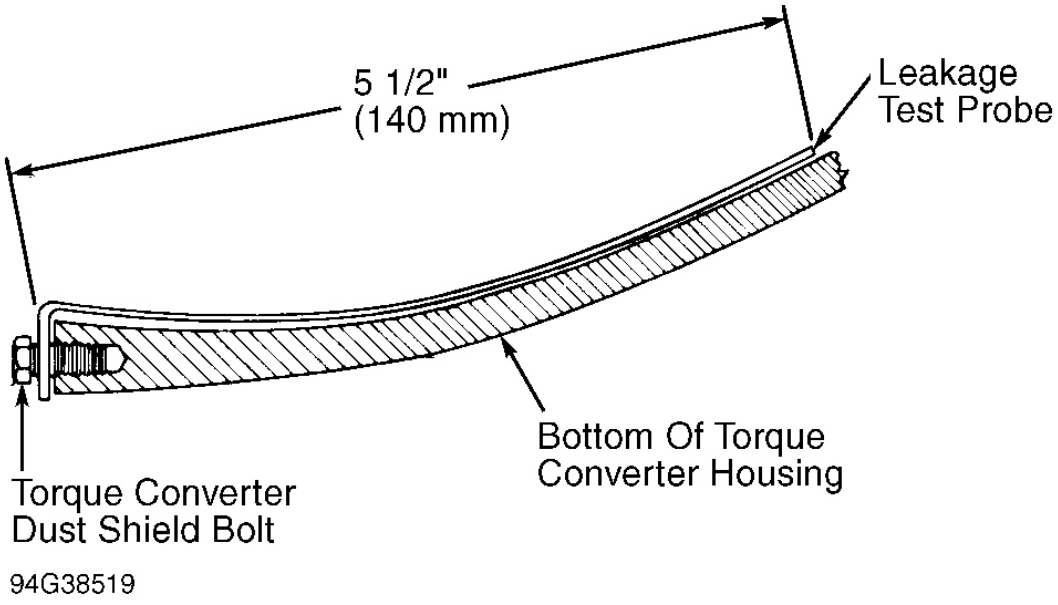


Fig. 9: Fabricating Leakage Test Probe
Courtesy of CHRYSLER CORP.

3. Apply parking brake. Start engine. Place transmission in Neutral. Operate engine at 2500 RPM for 2 minutes. Stop engine. Remove leakage test probe.
4. If upper surface of leakage test probe is dry, torque converter is not leaking. If upper surface of leakage test probe is wet with ATF, torque converter is leaking. If area below leakage test probe is wet with ATF, fluid is coming from around torque converter area.
5. Check following for possible causes of fluid leaks at torque converter areas:
   - Defective oil pump housing "O" ring or oil pump housing.
   - Front band pin access plug.
   - Mispositioned or worn bushing.
   - Oil pump seal.
   - Oil pump-to-transmission case bolts.
   - Oil pump vent.
6. If torque converter is leaking, check for defective welds on outside diameter of torque converter and

torque converter hub. Torque converter hub is welded on inside and weld is not visible. Replace torque converter if a leak exists. DO NOT attempt to repair torque converter.

TRANSMISSION CASE PRESSURE TEST

NOTE: Transmission case, gaskets and oil pump housing can be checked for leaks using the following method. Transmission must be removed to perform transmission case pressure test.

1. Remove torque converter from transmission. Fabricate torque converter hub seal cup, retaining strap and vent plug retainer. See **Fig. 10** . Retaining strap specifications are approximate. Measure hole positions on torque converter housing before drilling.

CAUTION: Ensure torque converter hub seal cup surface is smooth to prevent damage to seal in oil pump.

2. Install torque converter hub seal cup, vent plug retainer and retaining strap. See **Fig. 13** . Install shipping plug in rear output shaft opening. Install and secure plugs in remaining transmission openings except oil cooler return line.
3. Attach air pump to oil cooler return line. See **Fig. 13** . Ensure cap is installed on oil cooler supply line fitting. Using pressure regulator, apply 8-10 psi (.5-.7 kg/cm^2) of air pressure to transmission case.

CAUTION: DO NOT apply more than 10 psi (.7 kg/cm^2) of air pressure to transmission case.

4. Coat oil pump and front of transmission case with soapy water solution. Check for bubbles, indicating a leak in seals, "O" rings, gaskets or transmission case. Release air pressure. Remove test equipment. Replace defective components.

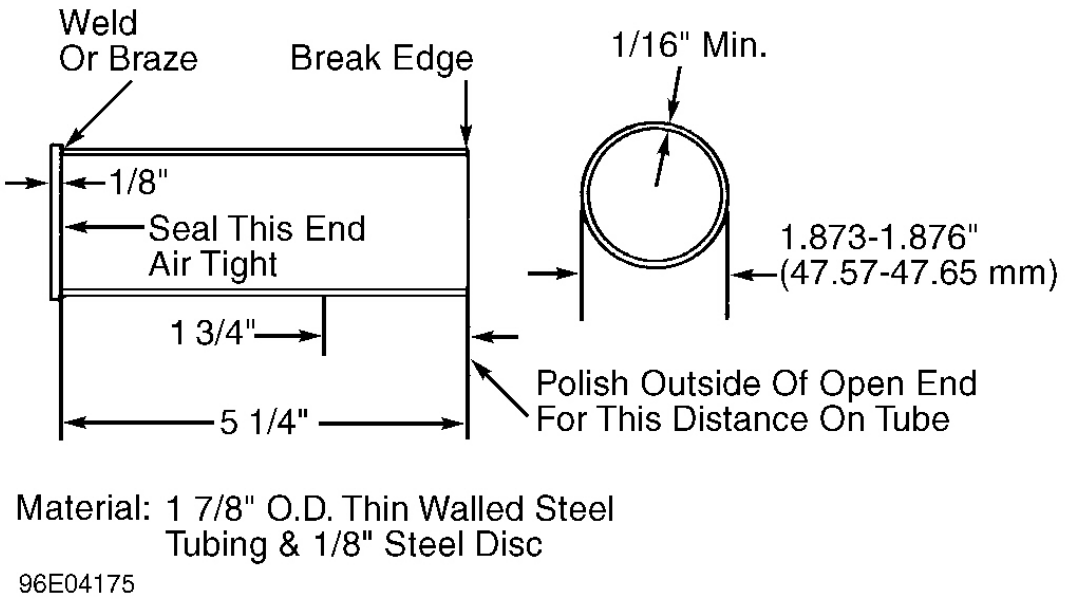


Fig. 10: Fabricating Torque Converter Hub Seal Cup
Courtesy of CHRYSLER CORP.

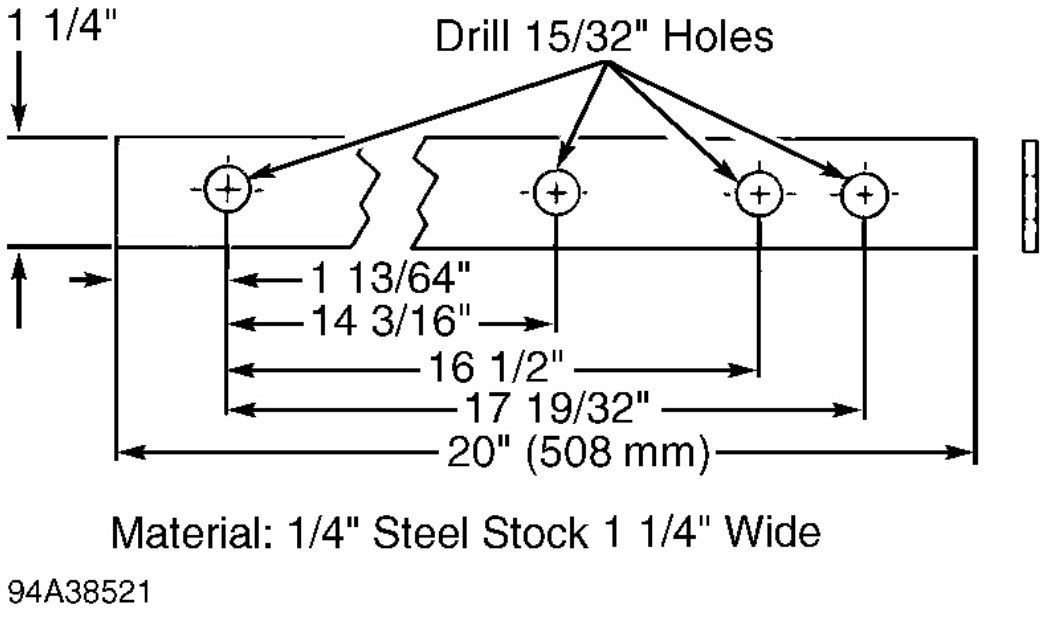


Fig. 11: Fabricating Retaining Strap
Courtesy of CHRYSLER CORP.

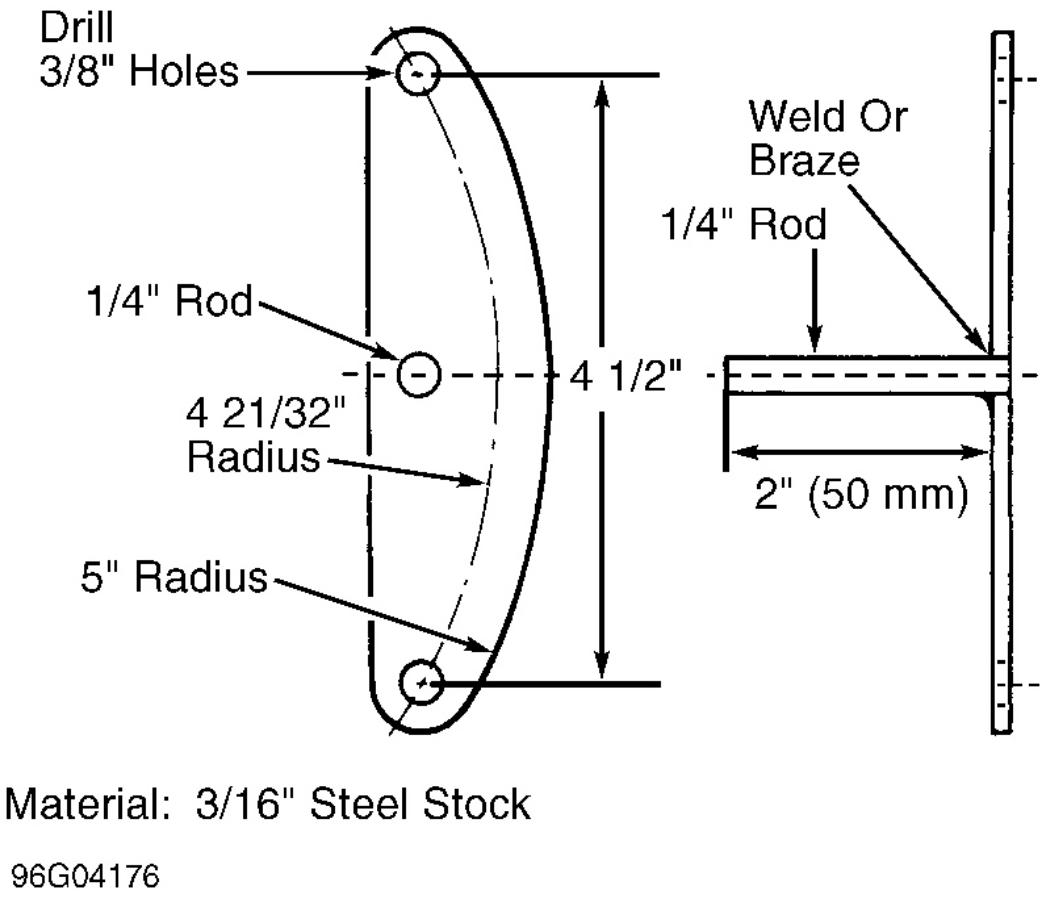


Fig. 12: Fabricating Vent Plug Retainer
Courtesy of CHRYSLER CORP.

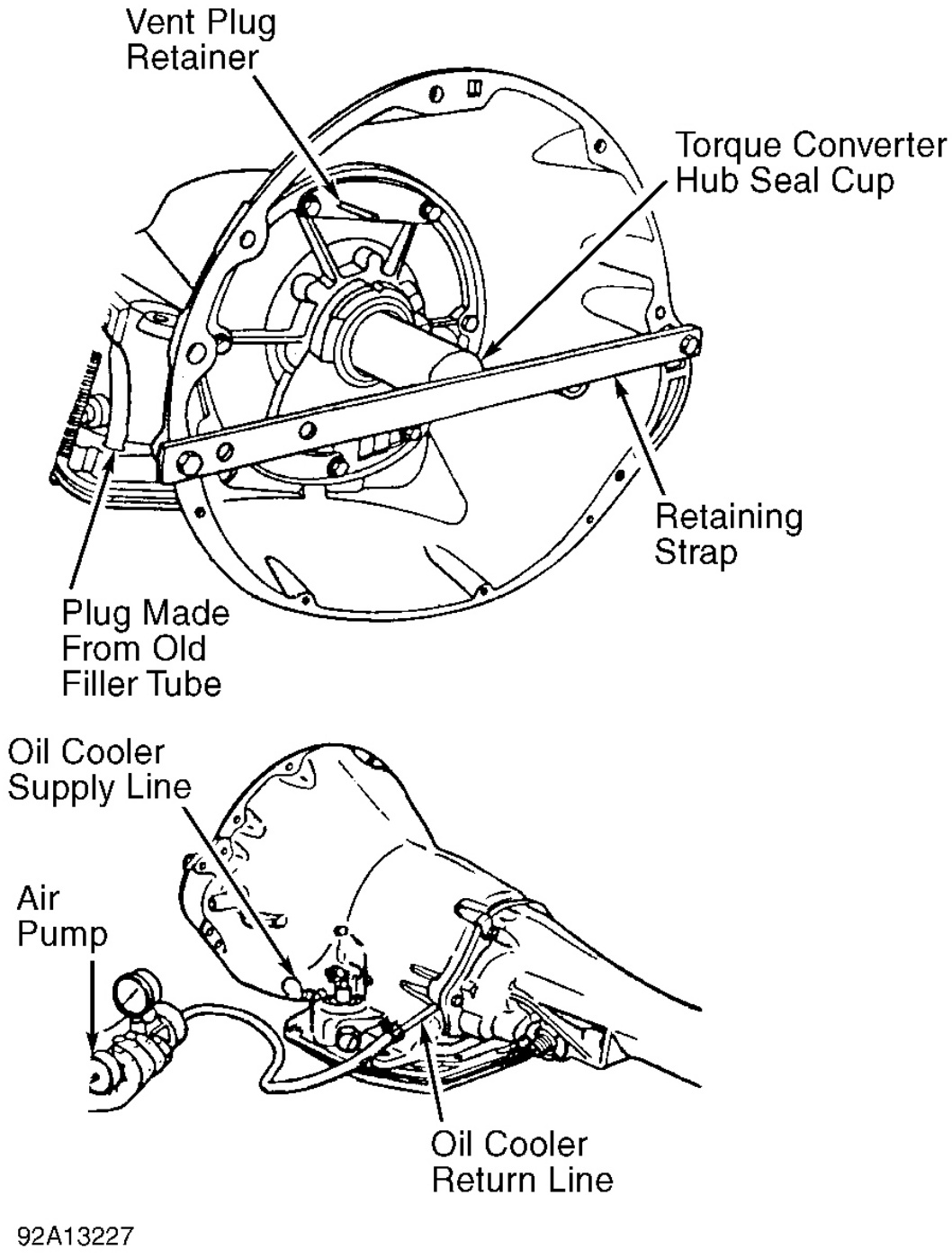


Fig. 13: Identifying Oil Cooler Lines, Installing Components & Pressure Testing Transmission Case
Courtesy of CHRYSLER CORP.

REMOVAL & INSTALLATION

NOTE: **Manufacturer recommends MOPAR ATF Plus 3, Type 7176 fluid for use in this transmission. This fluid should also be used to pre-lubricate**

components during assembly and installation.

PARK/NEUTRAL POSITION (PNP) SWITCH

Removal & Installation

1. Raise and support vehicle. Place drain pan under PNP switch located near manual shift lever on transmission. See **Fig. 19** . Disconnect electrical connector. Unscrew PNP switch from transmission case.
2. To install, apply parking brake. Ensure gearshift lever is in Park or Neutral. Ensure operating levers in transmission are centered in PNP switch opening on transmission case.
3. Using NEW seal, install PNP switch. Tighten PNP switch to specification. See **TORQUE SPECIFICATIONS** . Reinstall electrical connector. Adjust transmission fluid level.

TRANSMISSION

See appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING section.

VALVE BODY

Removal

1. Raise and support vehicle. Remove bolts, oil pan and gasket. Remove throttle valve and manual shift levers from transmission. Remove Park/Neutral Position (PNP) switch. See **PARK/NEUTRAL POSITION (PNP) SWITCH** .
2. Remove bolts and filter assembly. Keep bolts with filter assembly for installation reference. Disconnect necessary solenoid electrical connectors from solenoid connector in transmission case.
3. Remove valve body-to-transmission case bolts. Note bolt length and location for installation reference. Lower valve body enough to remove accumulator and springs. Note location of springs for reassembly reference. Pull valve body forward and disengage park rod.
4. Push manual shift lever and solenoid connector from transmission case. Lower valve body and rotate it away from transmission case. Use care not to damage solenoids on valve body. Pull park rod from parking sprag. Remove valve body.

Installation

1. Ensure PNP switch is removed before installing valve body. Install NEW seal rings on accumulator and solenoid connector. Lubricate seal rings, manual shift lever seal and accumulator and bore with petroleum jelly.
2. Install inner spring for accumulator in transmission case. Install accumulator in transmission case. Place manual shift lever on valve body in low gear position so ball on park rod can be installed in parking sprag. Using screwdriver, push parking sprag to engage with park gear. This allows knob on park rod to move past parking sprag when installing valve body. Rotate output shaft to ensure parking sprag is engaged.

CAUTION: Ensure park rod enters parking sprag, as park rod may enter cavity in the case and not enter parking sprag. Park rod will be damaged if it is not engaged with parking sprag.

3. Install outer spring for accumulator between accumulator and valve body. Install valve body, working park rod past parking sprag. Ensure outer spring for accumulator remains in place.

CAUTION: Alternately tighten valve body-to-transmission case bolts to prevent damage to valve body. DO NOT overtighten bolts or transmission and valve body may be damaged.

4. Install valve body-to-transmission case bolts in original location finger tight only. DO NOT tighten bolts at this time. Using NEW seal, install PNP switch. Tighten PNP switch to specification. See **TORQUE SPECIFICATIONS** . Tighten valve body-to-transmission case bolts evenly in criss-cross pattern to specification.
5. Install NEW filter assembly. Install and tighten bolts to specification. Reconnect all necessary electrical connections. Install throttle valve and manual shift levers. Ensure throttle valve lever and manual shift levers rotate smoothly.
6. Using NEW gasket, install oil pan. Install and tighten bolts to specification. Fill transmission with ATF. Ensure shift linkage/cable and throttle valve cable are properly adjusted. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING section.

VEHICLE SPEED SENSOR & PINION GEAR (1997)

Removal

1. Raise and support vehicle. Disconnect electrical connector from Vehicle Speed Sensor (VSS). See **Fig. 14** .
2. Remove bolt and adapter retainer. Note location of indexing numbers on adapter in relation to the housing. See **Fig. 15** .

NOTE: Indexing numbers on adapter correspond to number of teeth on the pinion gear.

3. Ensure area around adapter is clean. Remove adapter with VSS, "O" ring and pinion gear. See **Fig. 14** . Remove bolt, VSS and "O" ring from adapter.

Installation

1. Install NEW "O" ring on VSS and adapter (if necessary). Lubricate "O" rings and pinion gear teeth with ATF.
2. Install VSS in adapter. Install and tighten bolt to specification. See **TORQUE SPECIFICATIONS** . Install pinion gear in adapter.
3. Ensure housing is clean. Count number of teeth on the pinion gear. Ensure number of teeth on pinion gear are within range of indexing numbers listed on the adapter. See **Fig. 15** .
4. Install adapter with pinion gear in the housing. Rotate adapter until proper indexing number in relation to number of pinion gear teeth is at 6 o'clock position. See **Fig. 15** .
5. Ensure adapter is seated in the housing. Install adapter retainer. Install and tighten bolt to specification. See **TORQUE SPECIFICATIONS** . Install electrical connector on VSS. Adjust transmission fluid level.

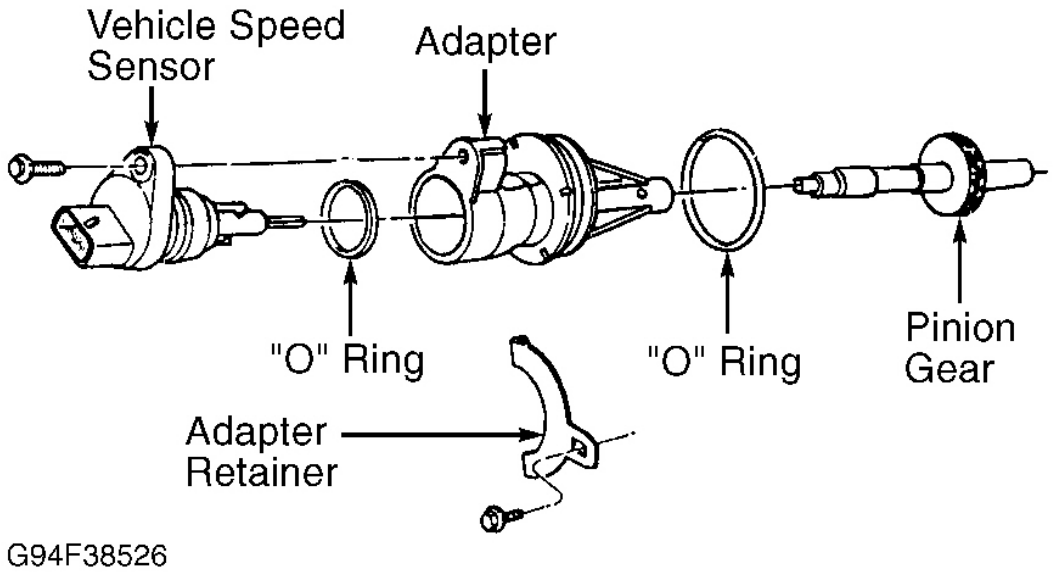


Fig. 14: Exploded View Of Vehicle Speed Sensor (VSS) Components
Courtesy of CHRYSLER CORP.

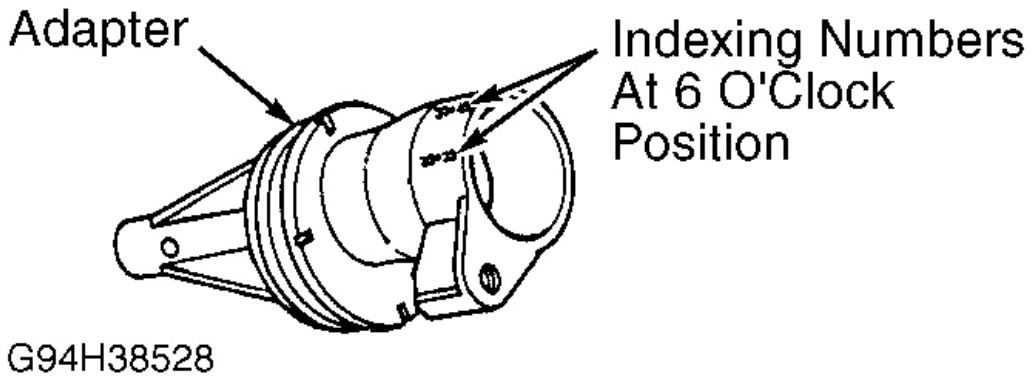


Fig. 15: Identifying Adapter Indexing Numbers
Courtesy of CHRYSLER CORP.

TRANSMISSION DISASSEMBLY

NOTE: For overdrive disassembly, see OVERDRIVE UNIT DISASSEMBLY .

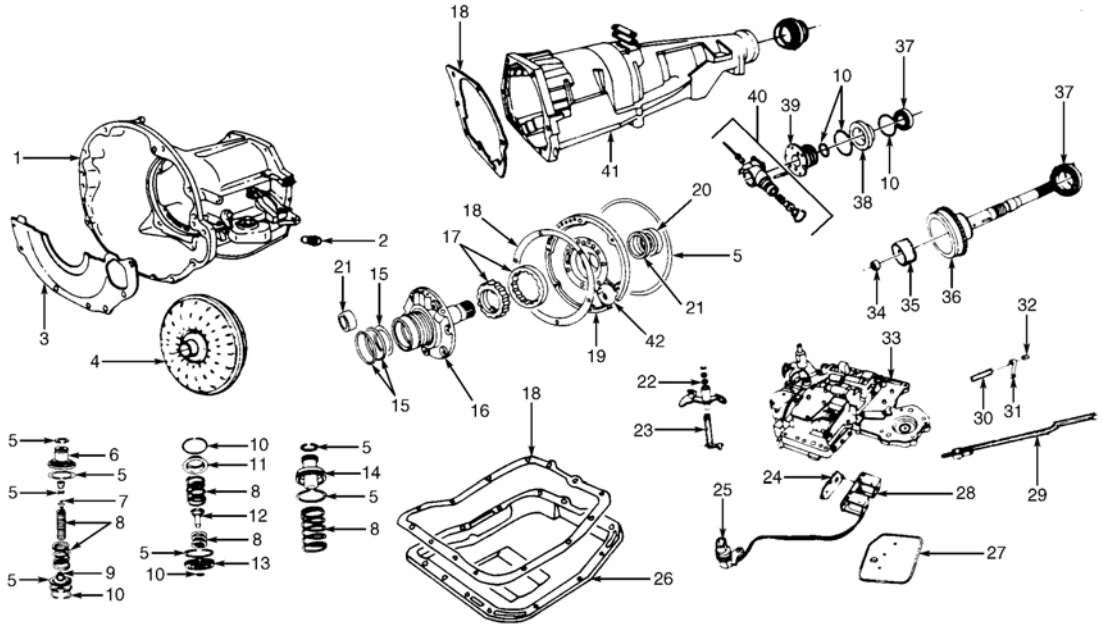
VALVE BODY & COMPONENTS

CAUTION: Note location of all thrust washer and thrust plate locations for reassembly reference.

1. Remove torque converter. Loosen clamps and remove throttle valve and manual shift levers from transmission.

CAUTION: If alignment shaft is not installed in overdrive unit, components may become out of alignment and overdrive unit must be disassembled to realign components.

2. Remove overdrive unit-to-transmission bolts. Remove overdrive unit. See **Fig. 17** . If overdrive unit does not require servicing, install Alignment Shaft (6227-2) in overrunning clutch and planetary gear splines on overdrive unit, ensuring alignment shaft is fully seated. See **Fig. 18** . This maintains proper alignment of all components in overdrive unit.
3. Remove intermediate shaft selective spacer and overdrive piston thrust plate from intermediate shaft. See **Fig. 17** . Remove overdrive piston from overdrive piston retainer.
4. Ensure check ball on front side of overdrive piston is secure in overdrive piston and is not loose. Replace overdrive piston if check ball is loose.



1. Transmission Case
2. Park/Neutral Switch
3. Torque Converter Dust Shield
4. Torque Converter
5. Seal Ring
6. Front Servo Piston
7. Servo Rod
8. Spring
9. Servo Guide
10. Snap Ring
11. Spring Retainer
12. Piston Plug
13. Rear Servo Piston
14. Accumulator
15. Thrust Washer
16. Reaction Shaft Support
17. Pump Gear
18. Gasket
19. Oil Pump Housing
20. Seal
21. Bushing
22. Manual Shift Lever
23. Throttle Valve Lever
24. Solenoid Gasket
25. Solenoid Connector
26. Oil Pan
27. Filter Assembly
28. Solenoid Assembly
29. Park Rod
30. Shaft
31. Parking Sprag
32. Spring
33. Valve Body
34. Pilot Bushing
35. Inner Bushing
36. Output Shaft
37. Bearing
38. Governor Support
39. Governor Drive
40. Governor Assembly
41. Overdrive Unit Case
42. Pump Vent

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Fig. 16: Exploded View Of Typical Transmission Case & Components (46/47RH Is Shown, 46/47RE Is Similar)

Courtesy of CHRYSLER CORP.

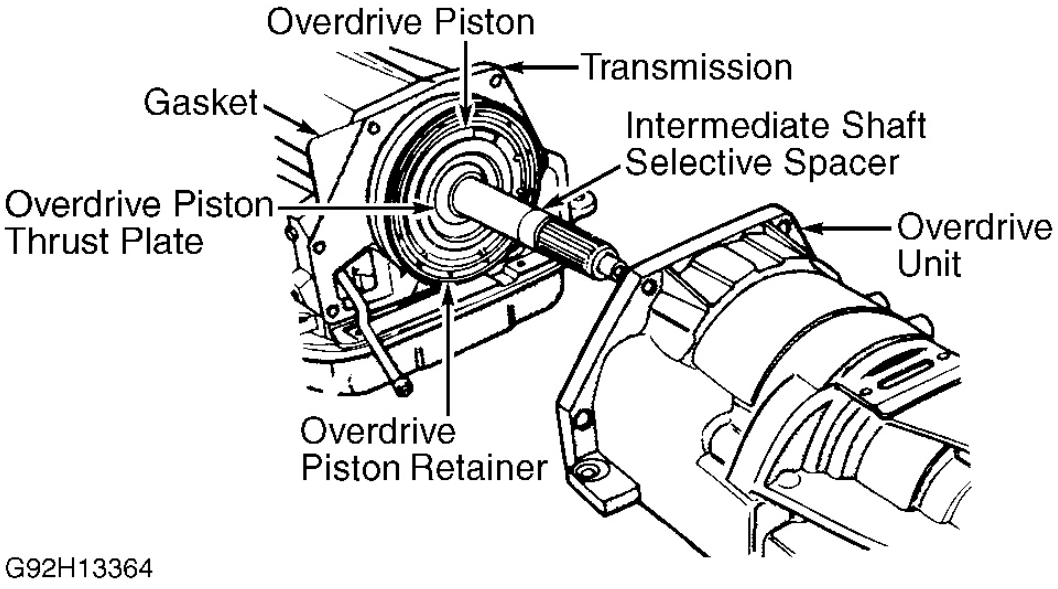


Fig. 17: Identifying Overdrive Unit
Courtesy of CHRYSLER CORP.

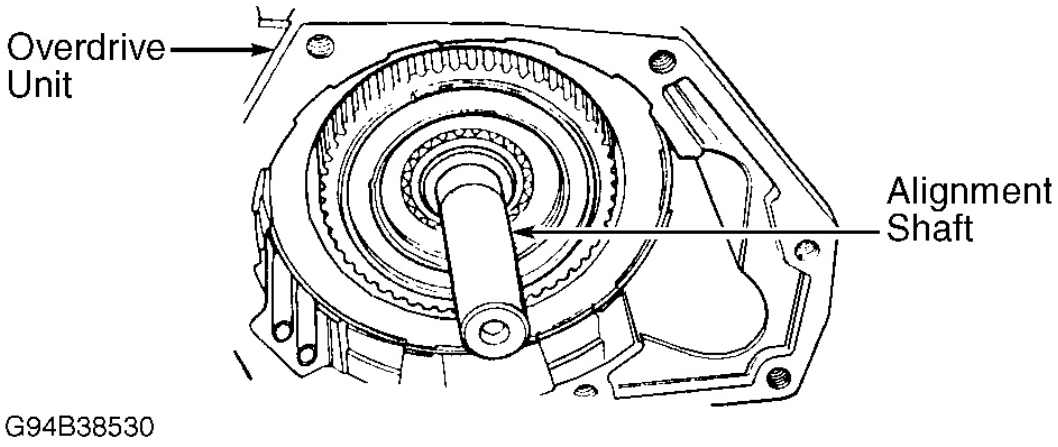


Fig. 18: Installing Alignment Shaft In Overdrive Unit
Courtesy of CHRYSLER CORP.

5. Remove bolts, oil pan and gasket. Remove Park/Neutral Position (PNP) switch and seal. Remove bolts and filter assembly. Keep bolts with filter assembly for reassembly reference.
6. Disconnect solenoid electrical connectors from solenoid connector in transmission case. Remove valve body-to-transmission case bolts. Note bolt length and location for reassembly reference.
7. Lift valve body upward. Push manual shift lever and solenoid connector from transmission case.

Guide park rod out of transmission case. Remove valve body. Remove accumulator and springs. Note location of springs for reassembly reference.

8. Remove plug from front band pin access hole located in front of transmission case, near top of oil pump. See **Fig. 20** . Loosen lock nut on front band adjusting screw approximately 5 revolutions. See **Fig. 19** . Tighten front band adjusting screw until front band is tight. This prevents clutch components from coming out when oil pump is removed.

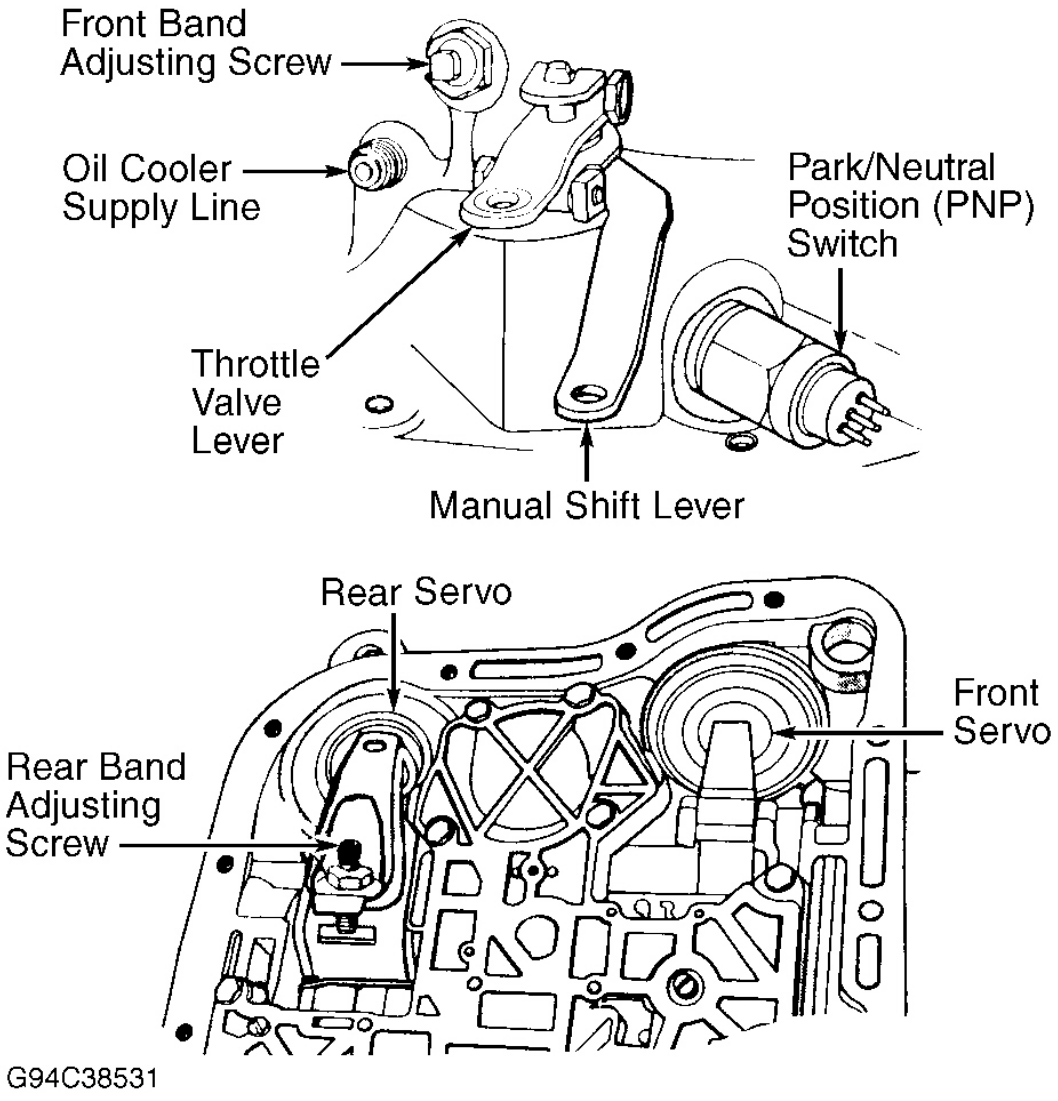


Fig. 19: Identifying Band Adjusting Screws & Servos
Courtesy of CHRYSLER CORP.

9. Remove oil pump bolts. Install slide hammers on opposite sides of oil pump. Pull oil pump from transmission case. Remove oil pump gasket.
10. Loosen front band adjusting screw until front band is loose. Squeeze front band together. Remove front band strut located between lever on transmission case and front band. Remove anchor located between other side of transmission case and front band.

11. Remove front band pin through front band pin access hole. Remove lever for front band. Squeeze front band together and remove from transmission case.
12. Grasp input shaft, hold clutch units together, and remove front and rear clutch as an assembly. See **Fig. 20** . Remove triangular shaped thrust washer from intermediate shaft. This thrust washer may remain on hub of rear clutch.

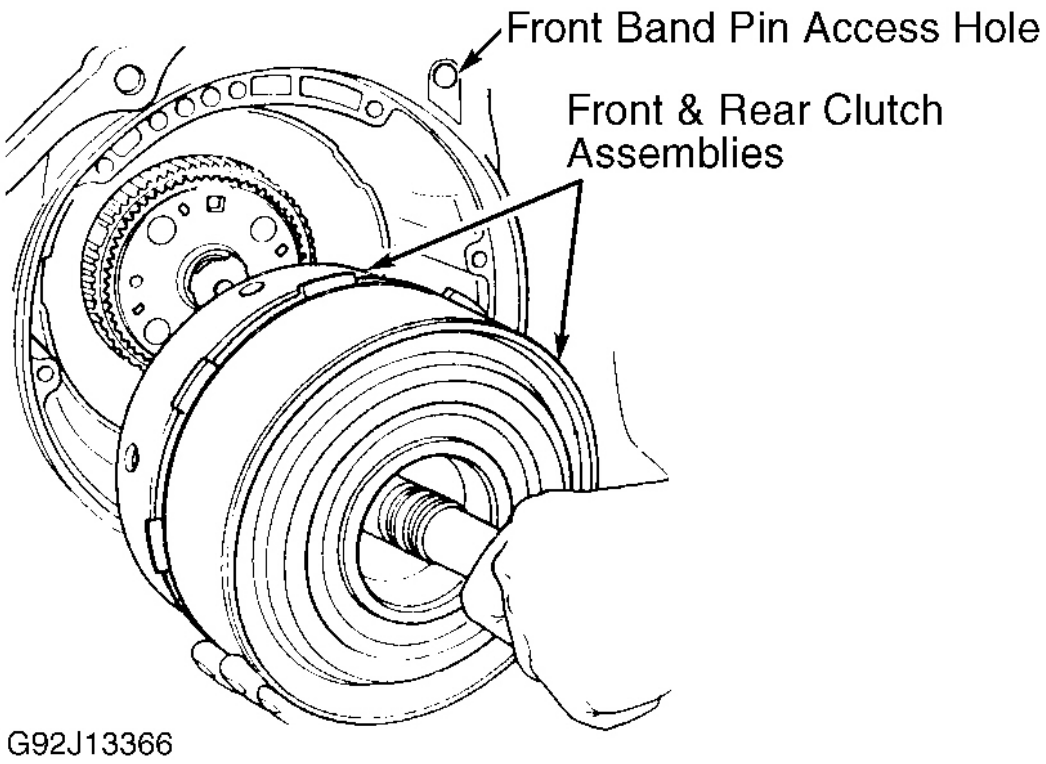


Fig. 20: Identifying Front Band Pin Access Hole & Front & Rear Clutch Assemblies
Courtesy of CHRYSLER CORP.

13. Remove thrust plate from end of intermediate shaft. See **Fig. 31** . Remove intermediate shaft and planetary gear train assembly.

CAUTION: DO NOT damage machined surfaces on intermediate shaft during removal.

14. Loosen rear band adjusting screw 3-4 turns. See **Fig. 19** . Remove low-reverse drum-to-overdrive piston retainer snap ring from inside of transmission case.
15. Remove low-reverse drum from rear band and remove from transmission case. Tap pin for rear band toward rear of transmission case. Remove rear band linkage, lever, pin and rear band.
16. Overrunning clutch race will remain on low-reverse drum during removal. This race is a permanent fit, DO NOT attempt to remove overrunning clutch race from low-reverse drum.
17. Remove overrunning clutch from overrunning clutch cam. See **Fig. 21** . Overrunning clutch can be

removed without removing springs and rollers from the retainer. Note location of springs and rollers for reassembly reference.

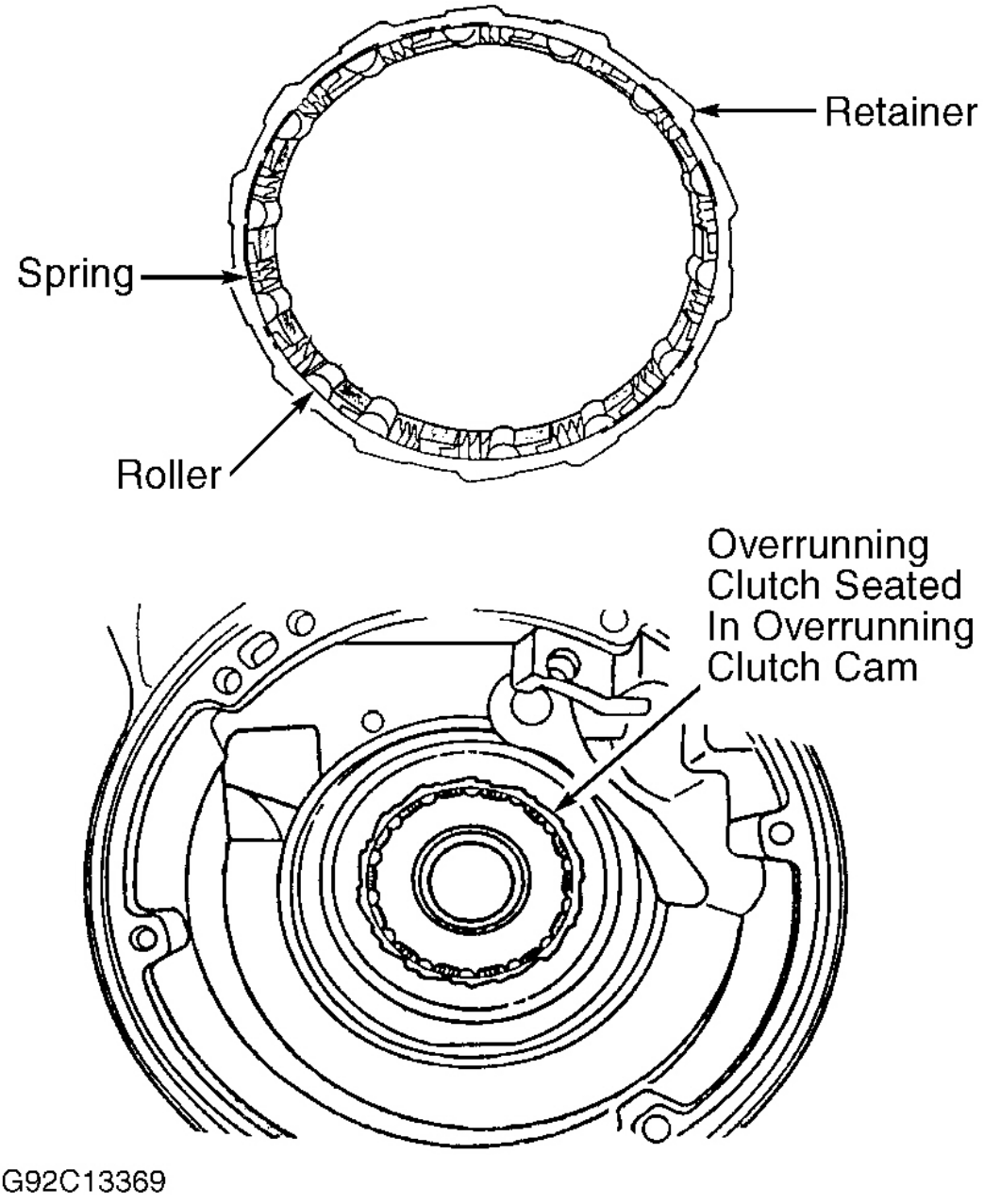


Fig. 21: Identifying Overrunning Clutch Components
Courtesy of CHRYSLER CORP.

18. If removing servo components, note servo identification. See **Fig. 19** . To remove front servo, use "C" clamp and spring compressor to compress servo. Compress servo guide on front servo approximately 1/8".
19. Remove snap ring. DO NOT scratch sealing surfaces. Release spring compressor. Remove servo

guide, spring and front servo piston. See **Fig. 16** .

20. To remove rear servo, compress spring retainer on rear servo approximately 1/16". Remove snap ring. DO NOT scratch sealing surfaces. Remove spring retainer, spring and rear servo piston. See **Fig. 16** .
21. Remove bolts, overdrive piston retainer and gasket from rear of transmission case. See **Fig. 17** .

TRANSMISSION COMPONENT DISASSEMBLY & REASSEMBLY

NOTE: MOPAR ATF Plus 3, Type 7176 fluid should be used in reassembly and operation of this transmission. Use of any other fluid type may cause harsh shifts and/or driveability concerns. All references to ATF in these procedures indicate MOPAR ATF Plus 3, Type 7176 fluid.

TORQUE CONVERTER

CAUTION: Torque converter is a welded assembly and is not serviceable. If a malfunction occurs or if torque converter becomes contaminated with foreign material, it MUST be replaced. Torque converter cannot be flushed or repaired.

NOTE: For torque converter fluid leakage testing and torque converter stall speed test, see TESTING .

OVERRUNNING CLUTCH

CAUTION: Ensure overrunning clutch components are properly installed, or inoperative transmission or transmission failure may result.

Disassembly

1. If replacing overrunning clutch cam, remove set screw from overrunning clutch cam. See **Fig. 22** . Insert punch through overdrive piston retainer bolt holes in rear of transmission case.
2. Using hammer, tap overrunning clutch cam from transmission case. It may be necessary to alternate from hole to hole to prevent overrunning clutch cam from binding in transmission case.

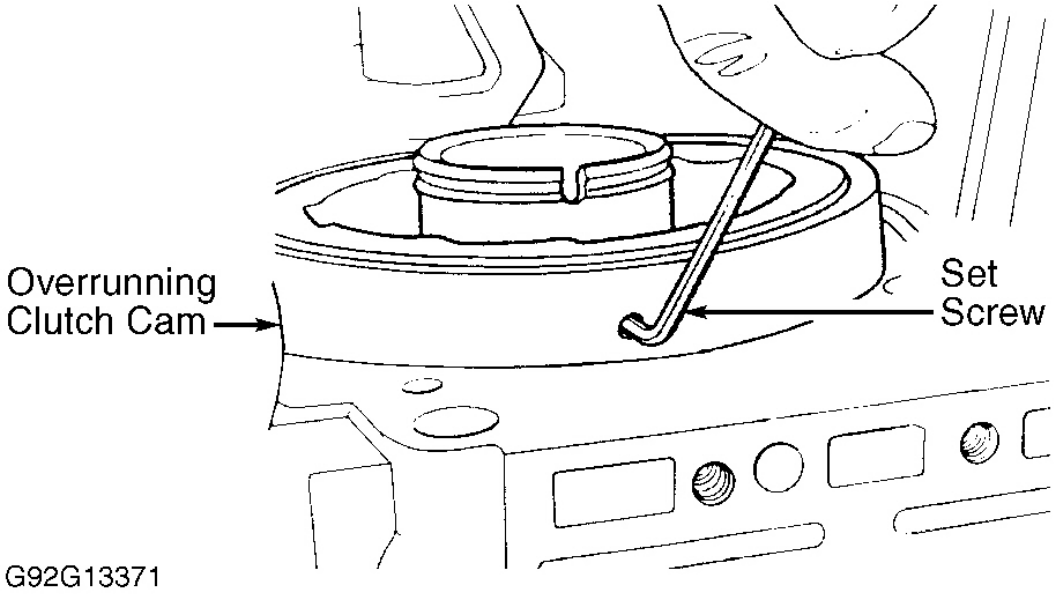


Fig. 22: Removing & Installing Set Screw For Overrunning Clutch Cam
Courtesy of CHRYSLER CORP.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect overrunning clutch components and low-reverse drum for damage. Replace damaged components.

Reassembly

1. Ensure overrunning clutch cam bore in transmission case is clean. Install overdrive piston retainer in transmission case.
2. Align and start overrunning clutch cam in transmission case. Ensure serrations on overrunning cam and transmission case are aligned. See **Fig. 23** .

CAUTION: Narrow ends of cam ramps on overrunning clutch cam should be to the left when viewing overrunning clutch cam from front of transmission case. See Fig. 23 .

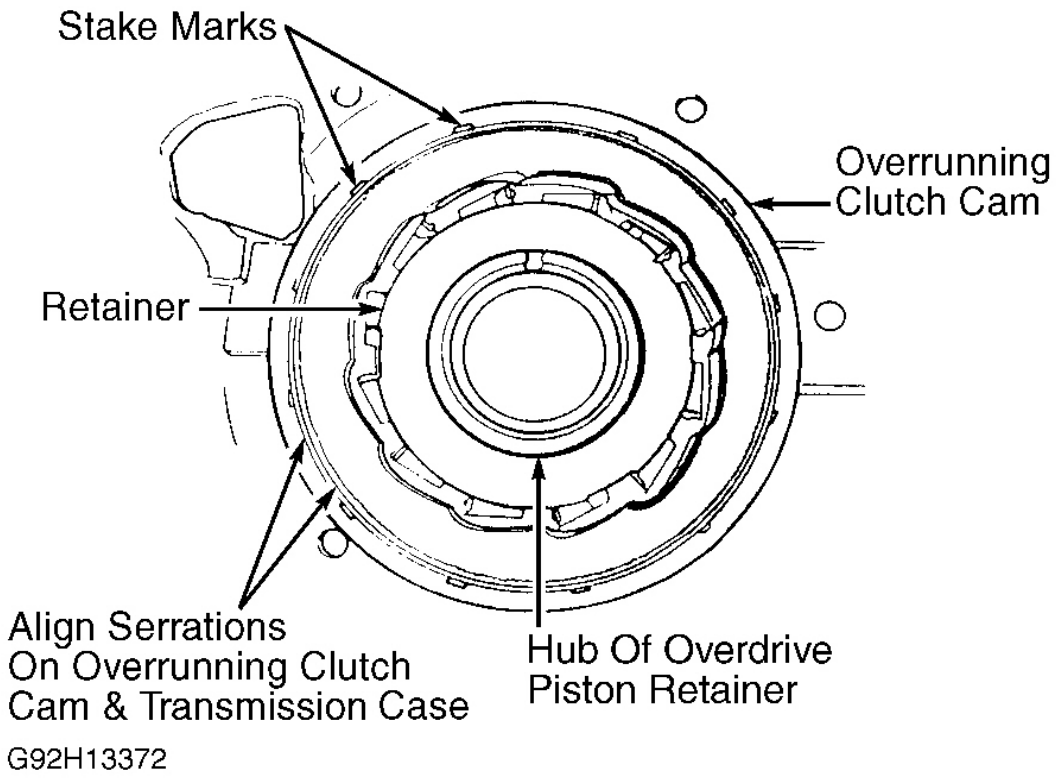


Fig. 23: Assembling & Positioning Overrunning Clutch Cam
Courtesy of CHRYSLER CORP.

3. Install Adapter (SP-5124) in intermediate shaft bore of overdrive piston retainer. Install Puller Bolt (SP-3701) and Plate (SP-3583-A) on overrunning clutch cam. See **Fig. 24** . Ensure plate is seated squarely on overrunning clutch cam.
4. Install Adapter (SP-5124) and nut on puller bolt. See **Fig. 24** . Tighten nut and pull overrunning clutch cam into transmission case.

CAUTION: Ensure overrunning clutch cam enters transmission case evenly and does not bind.

5. Install set screw in overrunning clutch cam. Tighten set screw to specification. See **TORQUE SPECIFICATIONS** .
6. Remove nut, adapters, plate and puller bolt. Using blunt chisel, stake transmission case in 12 areas to retain overrunning clutch cam. Ensure transmission case is clean after performing staking procedure.

CAUTION: Ensure transmission case is staked in 12 areas to retain overrunning clutch cam.

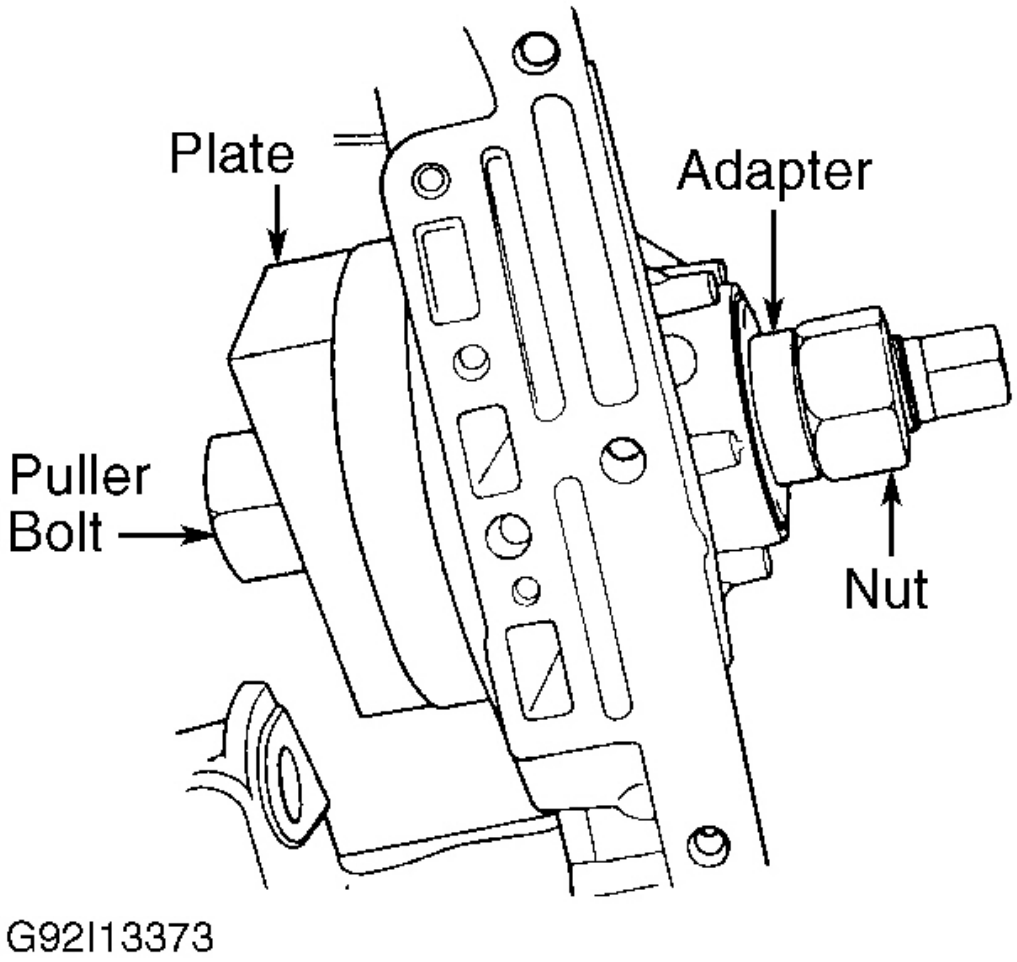


Fig. 24: Installing Overrunning Clutch Cam
Courtesy of CHRYSLER CORP.

7. If installing springs and rollers in overdrive clutch, lubricate overdrive piston retainer hub, clutch race, overdrive clutch cam and rollers with ATF.
8. Install spring in retainer. Install roller between spring and stop area on retainer. Ensure spring and roller are fully seated in the retainer.

CAUTION: Ensure flanged side of retainer is facing outward. Retainer and rollers can easily be installed in overrunning clutch cam when properly positioned.

9. Install overrunning clutch assembly in overrunning clutch cam, with flanged side of retainer facing outward. Ensure clutch assembly is fully seated in overrunning clutch cam. See **Fig. 21** .
10. Slightly tilt low-reverse drum and install in rollers on overrunning clutch. Rotate low-reverse drum clockwise until low-reverse drum is fully seated.

CAUTION: Ensure low-reverse drum rotates freely clockwise (viewed from front of transmission), but locks when rotated counterclockwise. Check for improper component assembly if low-reverse drum will not rotate correctly.

11. Install and tighten bolts for overdrive piston retainer to specification. See **TORQUE SPECIFICATIONS** .

OIL PUMP & REACTION SHAFT SUPPORT

Disassembly

1. Place reference mark on oil pump housing and reaction shaft support for reassembly reference. Remove reaction shaft support bolts. Separate reaction shaft support from oil pump housing. See **Fig. 16** . Remove seal ring from outer diameter of oil pump housing.
2. Remove seal from oil pump housing (if necessary). Remove seal rings from reaction shaft support. Note direction of thrust washer installation on reaction shaft support hub. Remove thrust washer from reaction shaft support hub.
3. Note direction of pump gear installation for reassembly reference. Remove pump gears from oil pump housing.
4. Inspect bushing in oil pump housing and reaction shaft support for damage. If removing bushing from oil pump housing, place oil pump housing on flat surface with pump gear cavity facing downward.
5. Using a press or hammer and bushing remover, remove bushing. If removing bushing from reaction shaft support, use Cup (SP-3633), Nut (SP-1191) and Bushing Remover (SP-5301). See **Fig. 25** .
6. Hold cup against reaction shaft. By hand, thread bushing remover into bushing as far as possible. Using wrench, thread bushing remover an additional 3-4 turns into bushing. Tighten nut and remove bushing.

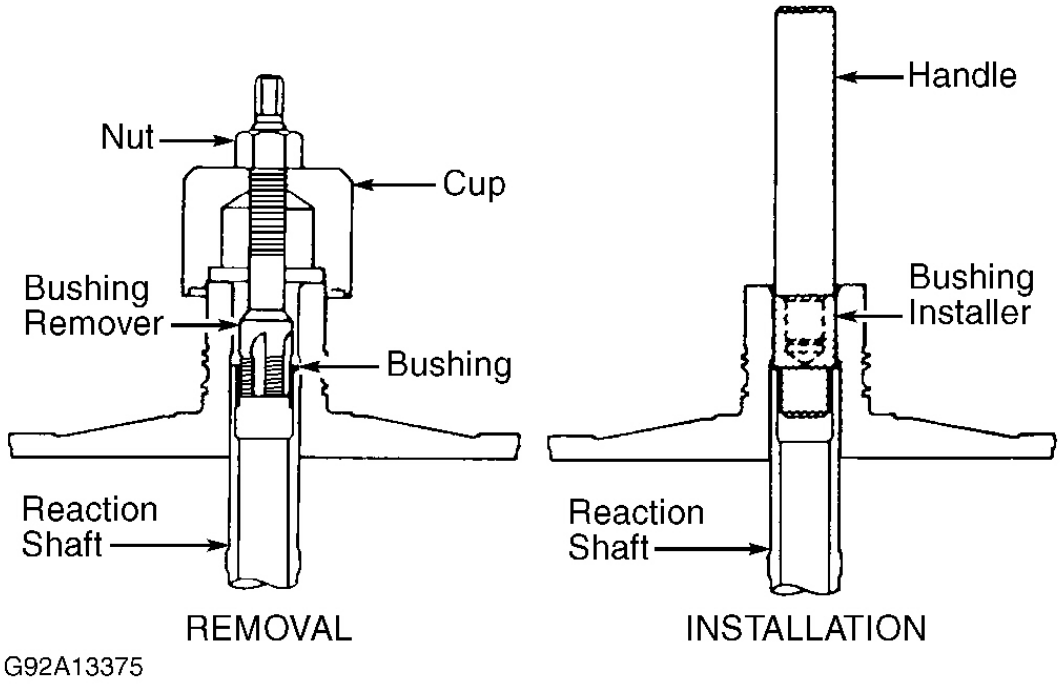


Fig. 25: Removing & Installing Reaction Shaft Support Bushing
Courtesy of CHRYSLER CORP.

Cleaning & Inspection

1. Clean and inspect components for damage. Inspect all machined surfaces for pitting or damage.
2. Ensure pump vent is not cracked and is secure in oil pump housing. See **Fig. 16** . Replace oil pump housing if pump vent is loose or cracked.
3. Install both pump gears in oil pump housing. Using feeler gauge, measure outer pump gear-to-oil pump housing clearance.
4. Place straightedge on oil pump housing, above both pump gears. Using feeler gauge, measure pump gear end clearance between each pump gear and straightedge.
5. Align one tooth on outer pump gear with one tooth on inner pump gear. Measure pump gear tooth clearance between the teeth on the pump gears. Replace components if clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

OIL PUMP SPECIFICATIONS

Application	In. (mm)
Pump Gear-To-Oil Pump Housing Clearance	
Inner Gear	.0004-.0025 (.010-.064)
Outer Gear	.0004-.0025 (.010-.064)
Pump Gear End Clearance	.0035-.0075 (.089-.190)
Pump Gear Tooth Clearance	.0035-.0075 (.089-.190)

Reassembly

1. If installing NEW oil pump housing bushing, place oil pump housing on flat surface with pump gear cavity facing upward.
2. Place bushing on bushing installer and start into oil pump housing. Tap bushing in oil pump housing until bushing installer bottoms. Ensure bushing is installed evenly and does not bind in oil pump housing. Using blunt punch, stake bushing in 2 places. See **Fig. 26** . Using knife, clean burrs from stake areas.

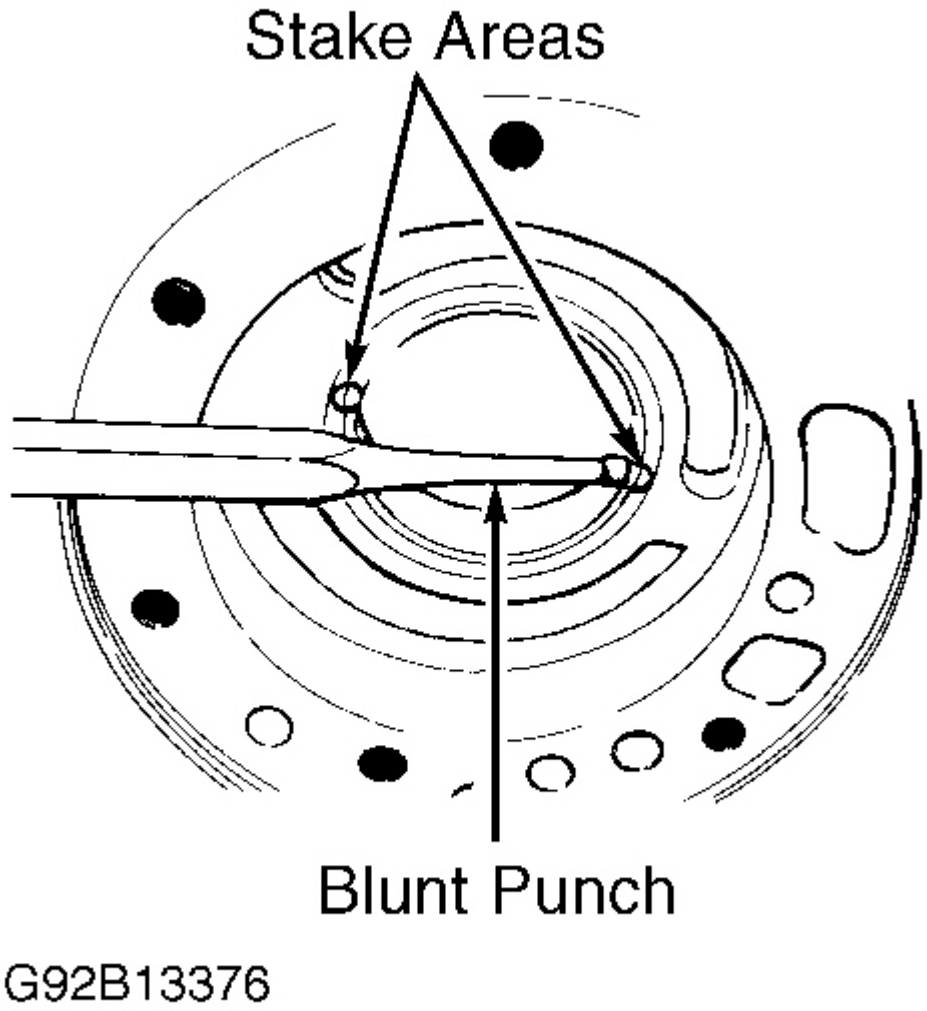


Fig. 26: Staking Bushing In Oil Pump Housing
Courtesy of CHRYSLER CORP.

3. If installing NEW reaction shaft support bushing, ensure reaction shaft support is clean and free of burrs. Place reaction shaft support on clean surface with bushing area facing upward.
4. Use Handle (C-4171) and Bushing Installer (SP-5302). See **Fig. 25** . Place bushing on bushing installer and start into reaction sha ft support. Tap bushing into reaction shaft support until bushing

installer bottoms. Clean reaction shaft support.

5. To reassemble oil pump, lubricate pump gears with ATF. Install pump gears in oil pump housing. Ensure pump gears are installed in original direction of installation.

CAUTION: Thrust washer must be installed on reaction shaft support with chamfered edge on inside diameter of thrust washer facing toward front of oil pump.

6. Install thrust washer on rear of reaction shaft support. Thrust washer must be installed with chamfered edge on inside diameter of thrust washer facing toward front of oil pump. On all models, lubricate thrust washer with petroleum jelly.

CAUTION: DO NOT over expand or twist seal rings when installing on reaction shaft support. Ensure ends on seal rings are hooked together or otherwise seal rings will be damaged when installing oil pump.

7. If replacing seal rings on reaction shaft support, install NEW seal rings on reaction shaft support. Lubricate seal rings with petroleum jelly. Squeeze seal rings together until ends of seal rings hook together.
8. Install reaction shaft support on oil pump housing with reference mark aligned. Install and tighten reaction shaft support bolts to specification. See **TORQUE SPECIFICATIONS** .
9. Install NEW seal in oil pump housing with seal lip facing inward (toward oil pump). Install NEW seal ring on outer diameter of oil pump housing. Lubricate lip of seal and seal ring with petroleum jelly.

FRONT CLUTCH

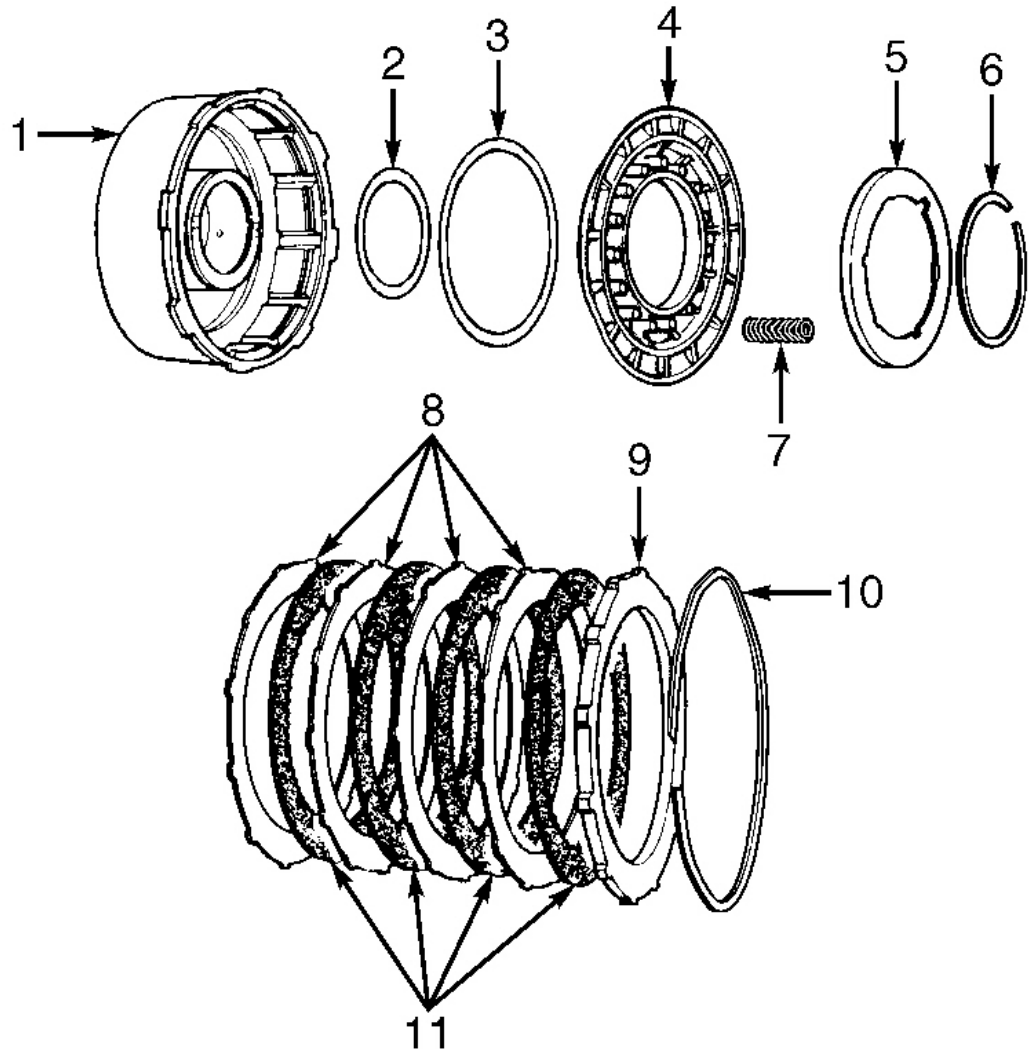
CAUTION: Note direction of clutch discs and clutch plates for reassembly reference. Also note number of each component, as some models may contain different number of clutch components. Components must be installed in correct sequence.

Disassembly

1. Remove waved snap ring, pressure plate, clutch discs and clutch plates. See **Fig. 27** . Note number of clutch discs and plates, as some models may contain different number of clutch components.
2. Using spring compressor, compress piston springs. Remove snap ring. Release spring compressor. Remove spring compressor and spring retainer.

CAUTION: Note number of piston springs and location for reassembly reference.

3. Remove piston springs and clutch piston from front clutch retainer. Remove and discard piston seals.
4. Inspect bushing in front clutch retainer for damage. If replacing bushing, position front clutch retainer with clutch plate opening facing downward. Using hammer and bushing remover, remove bushing.



1. Front Clutch Retainer
2. Piston Seal (Inner)
3. Piston Seal (Outer)
4. Clutch Piston
5. Spring Retainer
6. Snap Ring
7. Piston Spring
8. Clutch Plate
9. Pressure Plate
10. Waved Snap Ring
11. Clutch Disc

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Fig. 27: Exploded View Of Front Clutch (Typical)
Courtesy of CHRYSLER CORP.

Cleaning & Inspection

1. Clean all metal components with solvent and dry with compressed air. Inspect clutch discs for

flatness, flaking or glazing. Inspect clutch plates and pressure plate for flatness or damage at plate-to-front clutch retainer tang areas.

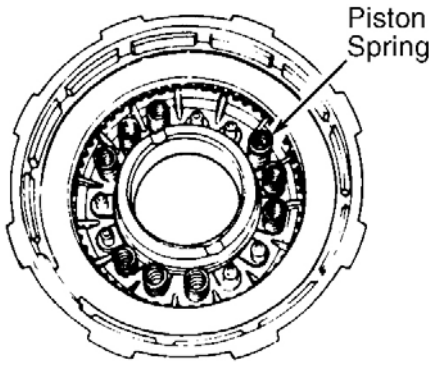
2. Ensure tang areas in front clutch retainer are not damaged and clutch plates slide freely in front clutch retainer. Ensure check ball, located in bottom of front clutch retainer, moves freely. Ensure check ball in the clutch piston is securely staked in place and does not move.
3. Inspect all sealing surfaces for burrs or scratches. Inspect piston springs for distortion. Replace damaged components.

Reassembly

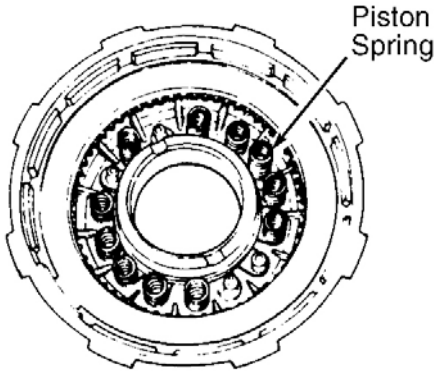
1. If installing NEW bushing in front clutch retainer, position front clutch retainer with clutch plate opening facing upward.
2. Using hammer or press, and Bushing Installer (SP-5511), install bushing until bushing installer bottoms. Clean front clutch retainer after installing bushing.
3. Soak clutch discs in ATF. Install NEW piston seals so lip on piston seal is toward inside of front clutch retainer.
4. Lubricate piston seals with petroleum jelly. Lubricate front clutch retainer and clutch piston surface with ATF.

CAUTION: Use twisting motion when installing clutch piston to prevent damage to piston seals.

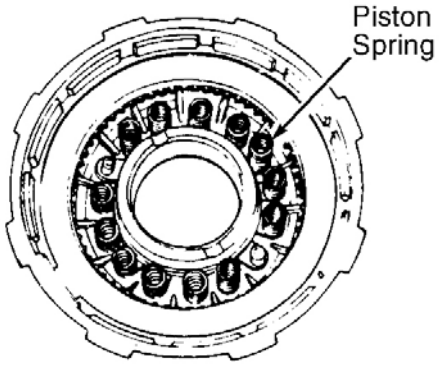
5. Using twisting motion, install clutch piston in front clutch retainer. Install piston springs on clutch piston in proper location depending upon number of piston springs. See **Fig. 28** .
6. Install spring retainer. Using spring compressor, compress piston springs. Install snap ring to secure spring retainer. Release spring compressor.
7. Alternately install clutch plates and clutch discs starting with clutch plate. See **Fig. 27** . Ensure original number of components are installed. Install pressure plate and waved snap ring.
8. Using feeler gauge, measure front clutch clearance between waved snap ring and pressure plate. See **Fig. 29** . Front clutch clearance should be .070-.129" (1.78-3.28 mm). If front clutch clearance is not within specification, check for defective or improperly assembled components.



9 PISTON SPRING TYPE



11 PISTON SPRING TYPE



13 PISTON SPRING TYPE

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Fig. 28: Installing Piston Springs
Courtesy of CHRYSLER CORP.

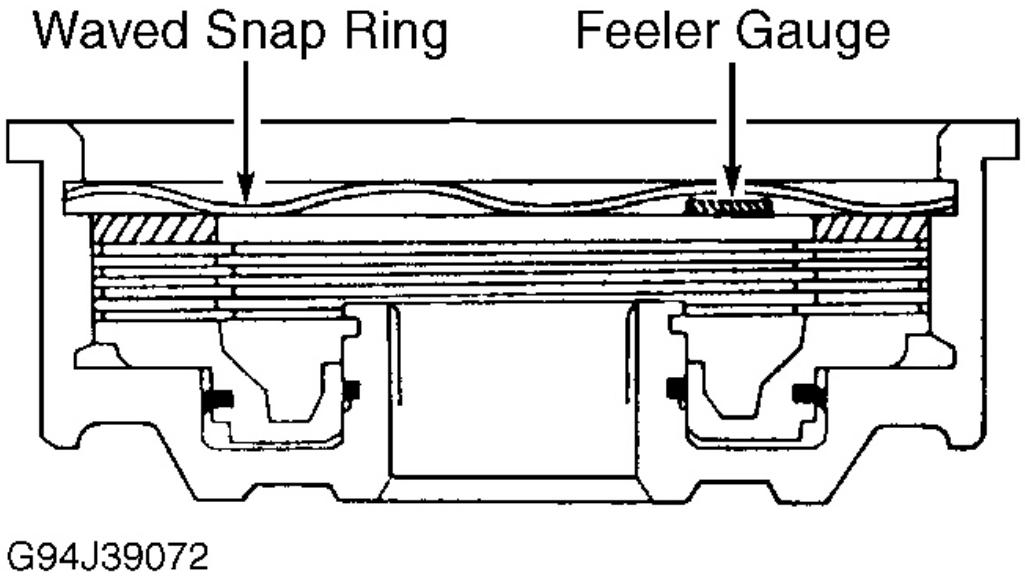


Fig. 29: Measuring Front Clutch Clearance
Courtesy of CHRYSLER CORP.

REAR CLUTCH

CAUTION: Note direction of clutch discs and clutch plates for reassembly reference. Also note number of each component, as some models may contain different number of clutch components. Components must be installed in correct sequence.

Disassembly

1. Remove selective snap ring. See **Fig. 30** . Remove reaction plate, clutch discs and clutch plates. Note direction of component location for reassembly reference.
2. Remove pressure plate, waved snap ring and spacer ring. Note direction of piston spring installation. Remove piston spring.
3. Remove clutch piston and piston retainer from rear clutch retainer. Using twisting motion, remove clutch piston from piston retainer.
4. Remove fiber thrust washer from input shaft. Remove and discard piston seals. DO NOT remove seal rings from input shaft unless seal rings are damaged. If removing input shaft, remove snap ring. Using press, press input shaft from rear clutch retainer.

Cleaning & Inspection

1. Clean all metal components with solvent and dry with compressed air. Inspect clutch discs for flatness, flaking or glazing. Inspect clutch plates, pressure plate and reaction plate for flatness or damage at plate-to-rear clutch retainer tang areas.

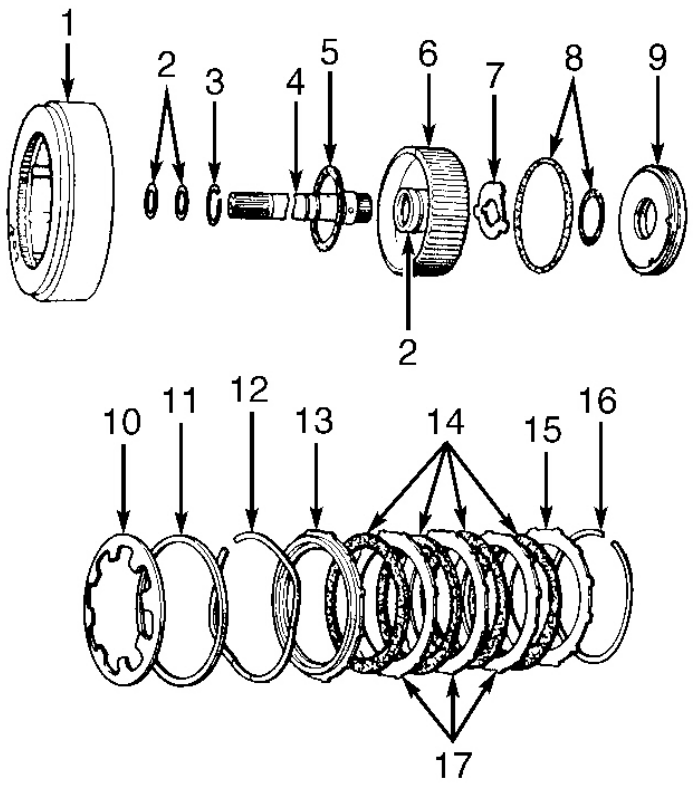
2. Ensure tang areas in rear clutch retainer are not damaged, and clutch plates slide freely in rear clutch retainer.
3. Ensure check ball moves freely in rear clutch retainer. Inspect clutch piston and piston spring for warpage or distortion. Inspect thrust washers for damage. Inspect seal rings for damage. Replace damaged components.

Reassembly

1. Soak clutch discs in ATF. Lubricate remaining clutch components with ATF. Install NEW seal rings on input shaft (if removed) and piston retainer. Ensure ends of seal rings on input shaft and securely locked together.
2. If installing input shaft, press input shaft into rear clutch retainer. Install snap ring. Install NEW piston seals with lip of seal toward input shaft. Lubricate piston seals with petroleum jelly.

CAUTION: Use twisting motion when installing clutch piston to prevent damage to piston seals.

3. Using twisting motion, install clutch piston in piston retainer. Install piston retainer in rear clutch retainer.
4. Install piston spring in rear clutch retainer so convex side is facing toward the clutch piston. See **Fig. 30** . Install spacer ring and waved snap ring in rear clutch retainer. Ensure waved snap ring is fully seated. Install pressure plate.
5. Alternately install original number of clutch plates and clutch discs starting with clutch disc. See **Fig. 30** . Install reaction plate and selective snap ring.
6. Using feeler gauge, measure rear clutch clearance between selective snap ring and reaction plate. Rear clutch clearance should be .025-.045" (.64-1.14 mm).
7. If rear clutch clearance is not within specification, clutch components or selective snap ring may have to be changed. Install fiber thrust washer on piston retainer. Use petroleum jelly to retain fiber thrust washer in place.



1. Rear Clutch Retainer
2. Seal Ring
3. Snap Ring
4. Input Shaft
5. Fiber Thrust Washer
6. Piston Retainer
7. Intermediate Shaft Thrust Washer
8. Piston Seal
9. Clutch Piston
10. Piston Spring
11. Spacer Ring
12. Waved Snap Ring
13. Pressure Plate
14. Clutch Disc
15. Reaction Plate
16. Selective Snap Ring
17. Clutch Plate

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Fig. 30: Exploded View Of Rear Clutch
Courtesy of CHRYSLER CORP.

PLANETARY GEAR TRAIN

Disassembly

1. Remove select fit snap ring. See **Fig. 31** . Remove front planetary gear and front annulus gear from intermediate shaft.
2. Remove front planetary gear and thrust washer from front annulus gear. Note thrust washer location for reassembly reference. Remove thrust washer from inside driving shell. Note thrust washer tab location for reassembly reference.

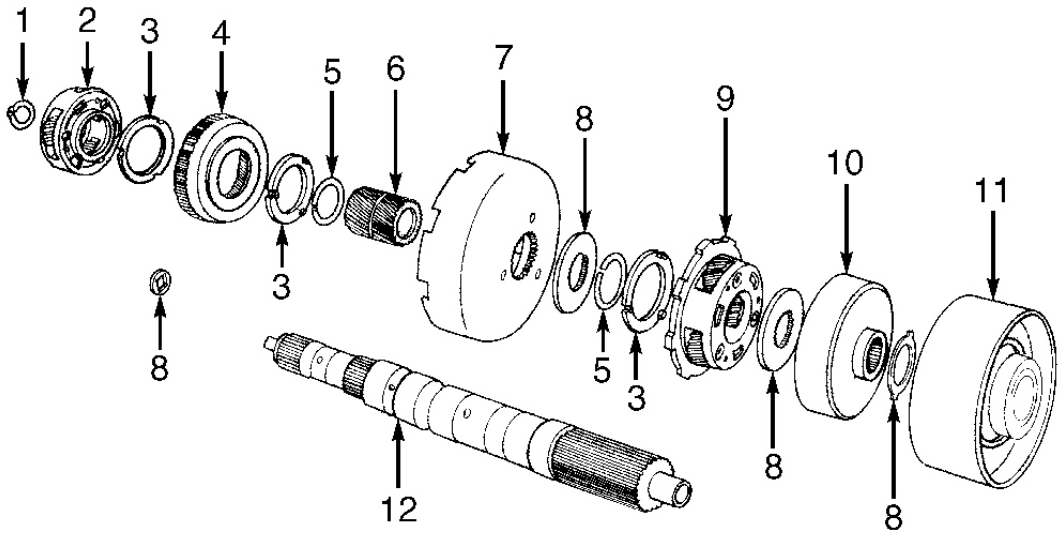
3. Remove sun gear and driving shell. Remove thrust washer from rear planetary gear. Remove rear planetary gear and rear annulus gear from intermediate shaft. Remove thrust plate from rear annulus gear. See **Fig. 31** .
4. If removing sun gear from driving shell, remove snap ring from sun gear. Remove sun gear and thrust plate.

Cleaning & Inspection

1. Clean all components with solvent and dry with compressed air. Inspect for damaged components. Inspect sun gear bushings for scoring or wear. Replace sun gear if bushings are damaged or worn.
2. Inspect planetary gears for defective pinion gears, pins, washers or carrier. Pinion gears, pins and washers can be replaced if defective. If carrier is damaged, entire rear planetary gear assembly must be replaced.
3. Inspect intermediate shaft for damage at bushing/bearing surfaces and splined areas. Replace damaged components.

Reassembly

1. Lubricate intermediate shaft and planetary gear train components with ATF. Use petroleum jelly to retain thrust washers and thrust plates in position.
2. If installing sun gear in driving shell, install front snap ring on sun gear. Install sun gear in driving shell. Install thrust plate and snap ring. Install rear annulus gear on intermediate shaft.
3. Install thrust plate in rear annulus gear. Ensure thrust plate is seated on intermediate shaft splines and against rear annulus gear. Install rear planetary gear in rear annulus gear. Ensure rear planetary gear is fully seated in rear annulus gear.
4. Install thrust washer on front side of rear planetary gear. Ensure tabs on thrust washer engage with slots on rear planetary gear. Install driving shell and sun gear on intermediate shaft. Ensure thrust washer remains in position on rear planetary gear.
5. Install thrust washer on front side of driving shell. Ensure tabs on thrust washer engage with slots on driving shell. Install thrust washer on front planetary gear. Ensure tabs on thrust washer engage with slots on front planetary gear.
6. Install front annulus gear on front planetary gear. Ensure gears are fully seated. Install front annulus gear and front planetary gear on intermediate shaft. Ensure front planetary gear fully engages with sun gear and assembly is fully seated on intermediate shaft.
7. Position planetary gear train in upright position. Ensure snap ring groove on end of intermediate shaft is fully visible. Install snap ring. Position gear train assembly with gear opening of driving shell facing workbench.
8. Place wooden block between end of intermediate shaft and workbench to support intermediate shaft. This moves planetary gear train components forward so planetary gear train end play can be checked.
9. Using feeler gauge, measure planetary gear train end play. End play is measured between shoulder on intermediate shaft and end of rear annulus gear. See **Fig. 32** .
10. Planetary gear train end play should be .006-.048" (.15-1.22 mm). If planetary gear train end play is not within specification, install different thickness select fit snap ring. Select fit snap ring is available in thicknesses of .055-.059" (1.39-.1.50 mm) and .062-.066" (1.57-1.68 mm).



1. Snap Ring (Selective)
2. Front Planetary Gear Assembly
3. Thrust Washer
4. Front Annulus Gear
5. Snap Ring
6. Sun Gear
7. Driving Shell
8. Thrust Plate
9. Rear Planetary Gear Assembly
10. Rear Annulus Gear
11. Low-Reverse Drum
12. Intermediate Shaft

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Fig. 31: Exploded View Of Planetary Gear Train
Courtesy of CHRYSLER CORP.

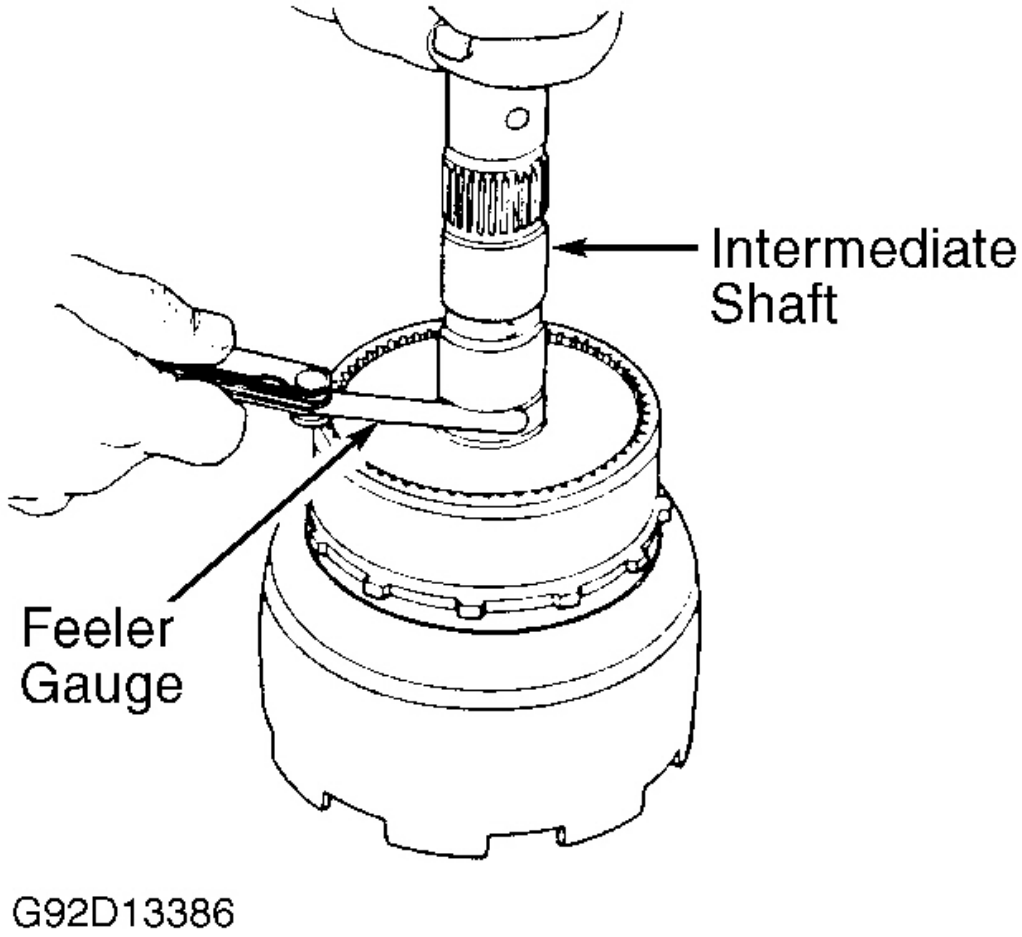


Fig. 32: Measuring Planetary Gear Train End Play
Courtesy of CHRYSLER CORP.

FRONT SERVO

Disassembly

Remove snap ring from front servo piston. Remove front servo piston, servo rod, spring and servo guide. See **Fig. 16** . Remove and discard seal rings and "O" rings.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect spring for distortion. Inspect front servo piston, servo rod and servo guide for wear or cracks. Replace defective components. If front servo piston or servo rod are damaged, both must be replaced as an assembly.

Reassembly

To reassemble, reverse disassembly procedure using NEW seal rings and NEW "O" rings. Lubricate seal rings and "O" rings with petroleum jelly. Lubricate all other components with ATF.

REAR SERVO

Disassembly

Remove seal ring from rear servo piston. Remove snap ring from end of piston plug. See **Fig. 16** . Separate rear servo piston, springs, piston plug and spring retainer. See **Fig. 16** .

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect springs for distortion. Inspect rear servo piston and piston plug for wear or cracks. Replace defective components.

Reassembly

To reassemble, reverse disassembly procedure using NEW seal rings. Lubricate seal ring with petroleum jelly. Lubricate all other components with ATF.

VALVE BODY

CAUTION: When disassembling valve body, place valve body components in order and mark spring locations for reassembly reference. DO NOT use force to remove components from valve body. Valve body components are not interchangeable. Valve body consists of upper housing, lower housing, transfer plate and separator plates. See Fig. 33 .

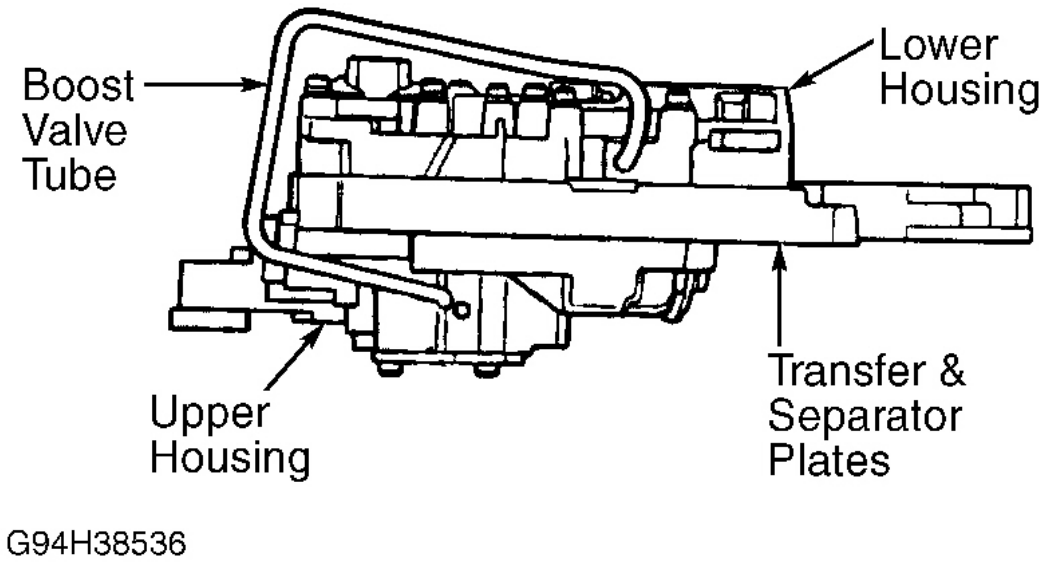


Fig. 33: Identifying Valve Body Housings, Plates & Boost Valve Tube (Typical)
Courtesy of CHRYSLER CORP.

Disassembly

1. Disconnect wires from governor pressure sensor and governor pressure solenoid located on valve body. See **Fig. 34** . Remove bolts, governor body retainer plate, governor body and gasket from transfer plate. If removing governor pressure sensor from governor body, remove clip from inside of governor body. Remove governor pressure sensor from governor body.
2. If removing governor pressure solenoid from governor body, pull governor pressure solenoid with "O" rings straight out of governor body. Remove boost valve cover, retainer, boost valve spring, boost valve and boost valve plug (if equipped). See **Fig. 35** . Depress detent ball. Install Detent Ball Retainer (6583) on ball and spring housing to secure detent ball and spring in housing. See **Fig. 36** .
3. Remove clip and washer (if equipped) from throttle valve lever. Lift manual shift lever and park rod from throttle valve lever. See **Fig. 16** . Remove detent ball retainer. Remove detent ball and spring. Remove throttle valve lever.
4. Remove retaining clip. Separate park rod from manual shift lever. Hold adjusting screw bracket against valve body and remove screws. See **Fig. 3** .

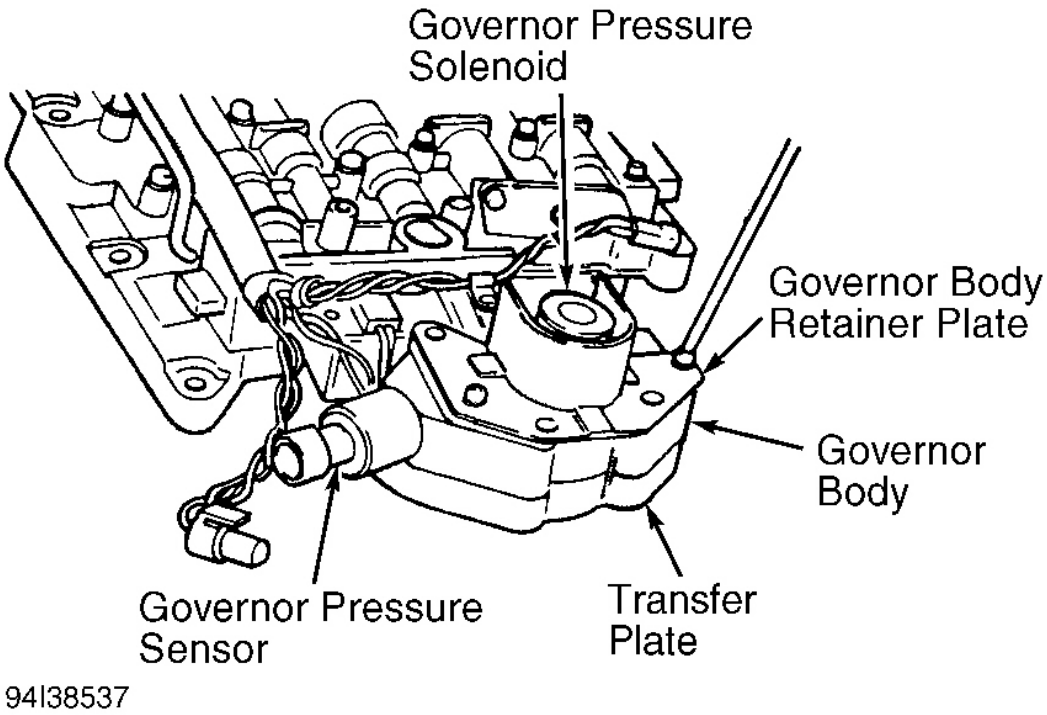


Fig. 34: Identifying Governor Body, Governor Pressure Solenoid & Governor Pressure Sensor
Courtesy of CHRYSLER CORP.

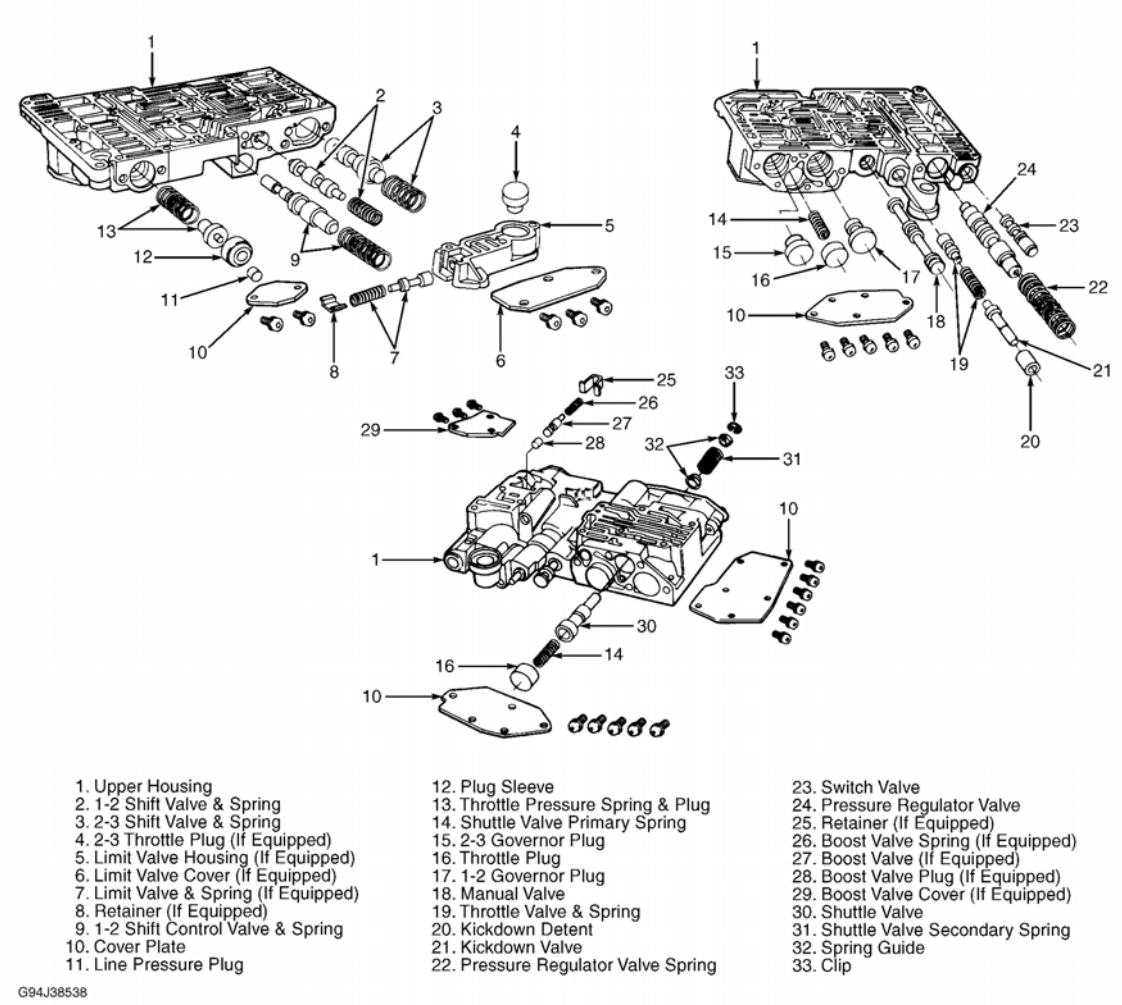


Fig. 35: Exploded View Of Valve Body Upper Housing & Components
Courtesy of CHRYSLER CORP.

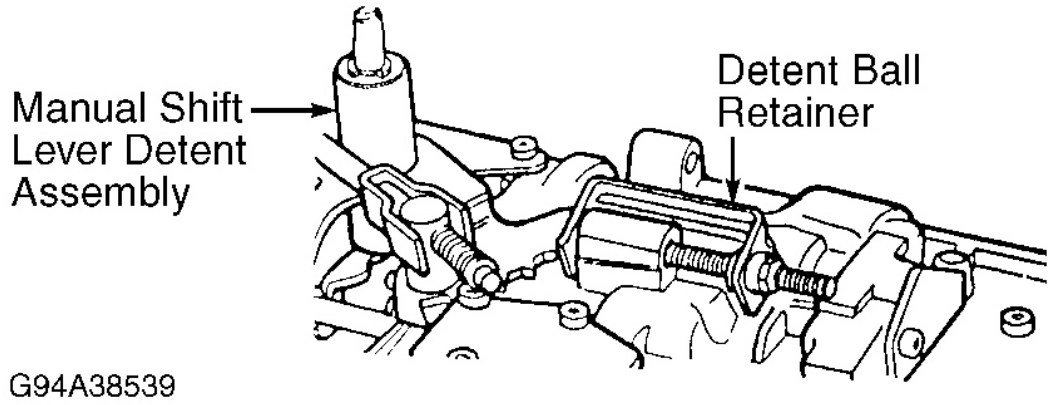


Fig. 36: Securing Detent Ball & Spring
Courtesy of CHRYSLER CORP.

CAUTION: DO NOT disturb throttle pressure adjusting screw or line pressure adjusting screw locations in adjusting screw bracket.

5. Remove adjusting screw bracket, line pressure adjusting screw, pressure regulator valve spring (large spring) and switch valve spring (small spring).
6. Note routing of solenoid wiring. Remove solenoid assembly, gasket, 3-4 accumulator housing and case connector from lower housing. See **Fig. 37** . Case connector uses a shoulder-type screw and must be installed in original location.

CAUTION: Use care not to damage housings or tube when removing boost valve tube. Disengage boost valve tube from upper housing first and then from the lower housing. DO NOT pry boost valve tube from the housing

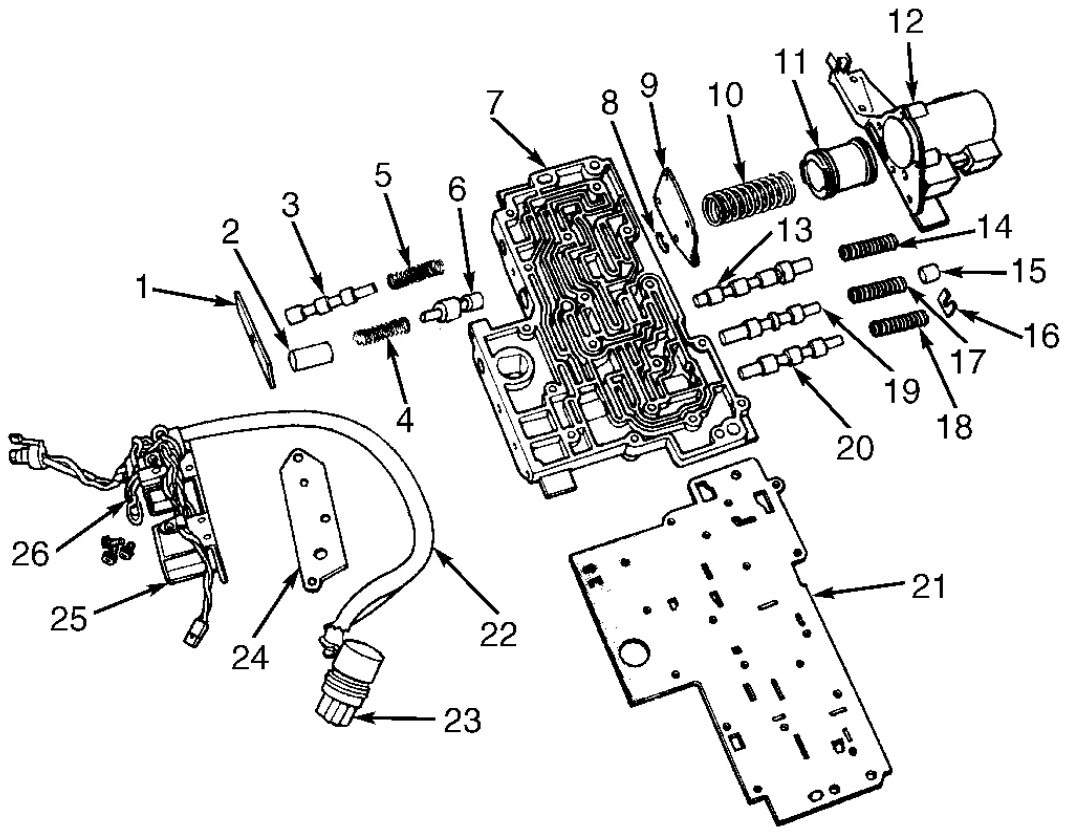
7. Remove spring, 3-4 shift valve, plug, spring and lock-up valve. See **Fig. 37** . Pull boost valve tube from upper housing first and then from the lower housing. See **Fig. 33** . It may be necessary to rotate boost valve tube back and forth when removing from lower housing.
8. Position valve body so lower housing faces upward, with upper housing on bottom. See **Fig. 33** .

CAUTION: Ensure lower housing faces upward before removing valve body screws. This prevents check balls from falling out of upper housing.

9. Note location of brace for the boost valve tube. Remove valve body screws attaching lower housing to the upper housing. Remove lower housing and separator plate from transfer plate.
10. Remove lower housing from transfer plate. Remove transfer plate and both separator plates from upper housing. Note location of check balls in upper housing. See **Fig. 38** .

CAUTION: Some valve bodies may contain the rear servo check ball and rear clutch check ball and some may not. Note original number of check balls during disassembly for reassembly reference.

11. Position transfer plate with separator plate for upper housing facing upward. Remove screws, separator plate brace and separator plate for upper housing. See **Fig. 39** .



1. Timing Valve Cover
2. Plug
3. 3-4 Timing Valve
4. 3-4 Quick Fill Valve Spring
5. 3-4 Timing Valve Spring
6. 3-4 Quick Fill Valve
7. Lower Housing
8. "E" Clip
9. Accumulator End Plate
10. 3-4 Accumulator Piston Spring
11. 3-4 Accumulator Piston
12. 3-4 Accumulator Housing
13. 3-4 Shift Valve
14. 3-4 Shift Valve Spring
15. Plug
16. Spring Retainer
17. Converter Clutch Valve Spring
18. Converter Clutch Timing Valve Spring
19. Converter Clutch Valve
20. Converter Clutch Timing Valve
21. Overdrive Separator Plate
22. Harness
23. Case Connector
24. Solenoid Gasket
25. Converter Clutch Solenoid
26. Overdrive Solenoid

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Fig. 37: Exploded View Of Valve Body Lower Housing & Components
Courtesy of CHRYSLER CORP.

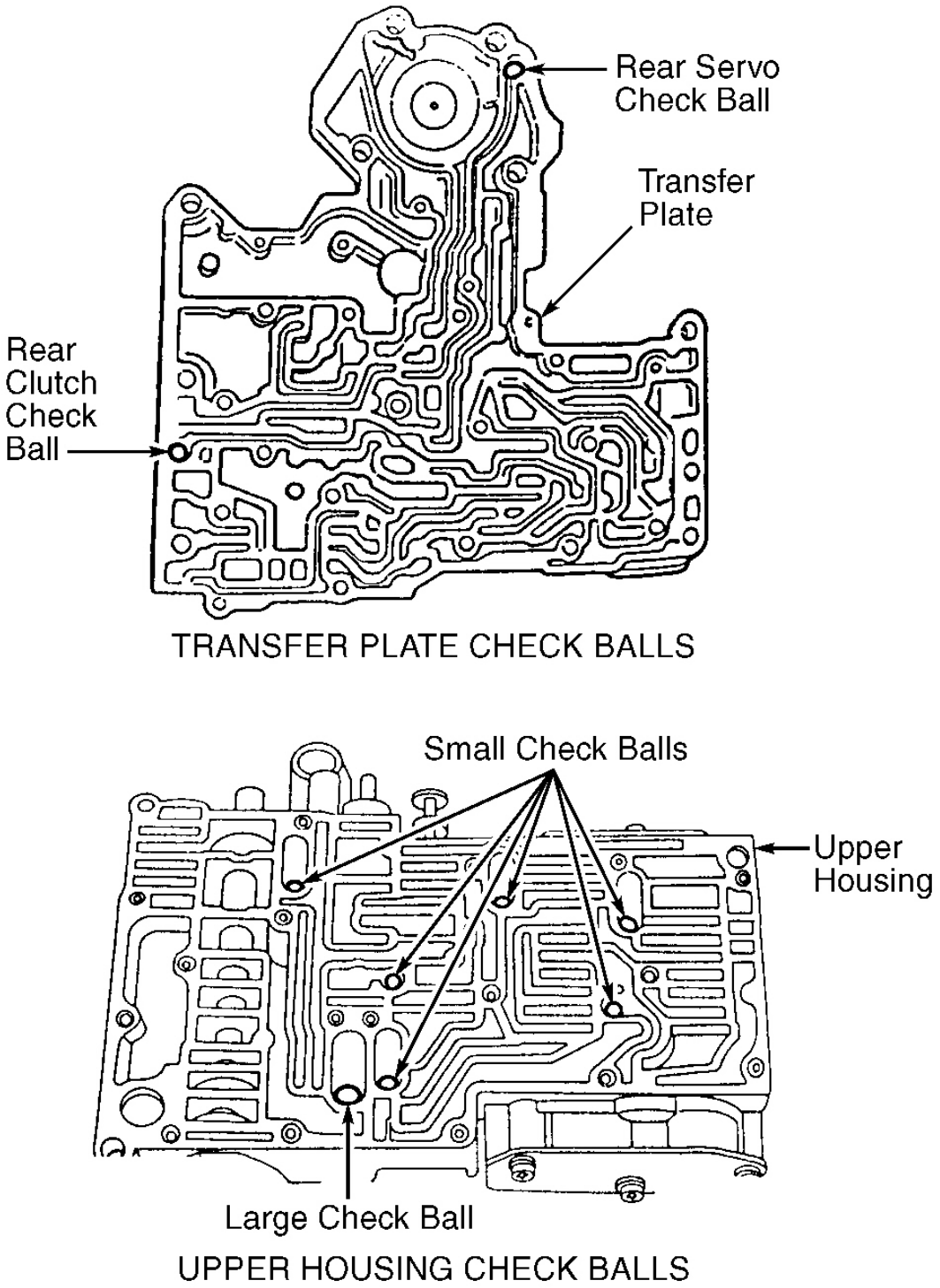


Fig. 38: Identifying Check Ball Locations
Courtesy of CHRYSLER CORP.

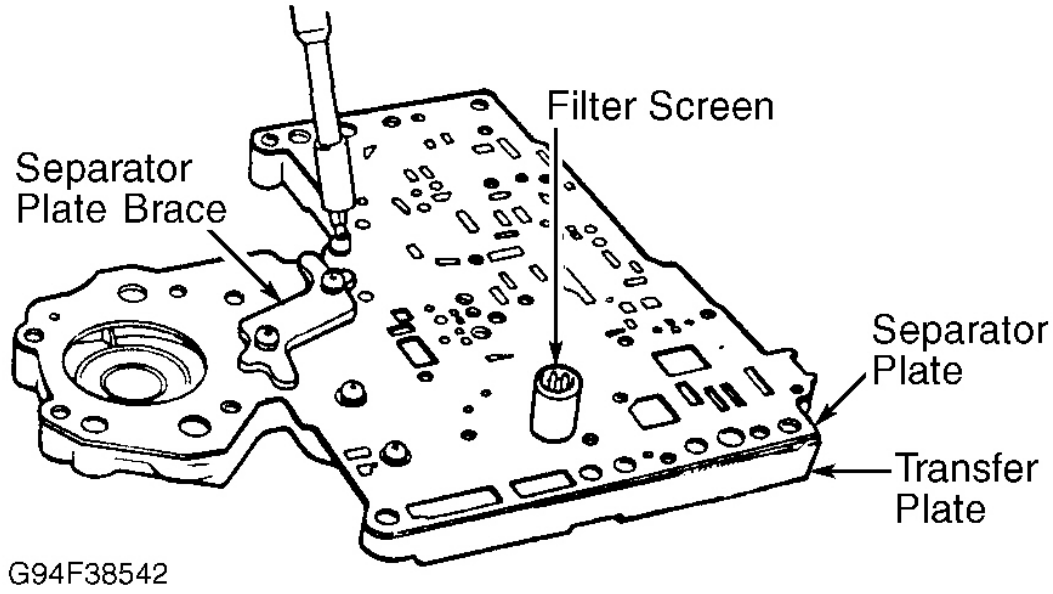


Fig. 39: Identifying Filter Screen & Separator Plate Brace
Courtesy of CHRYSLER CORP.

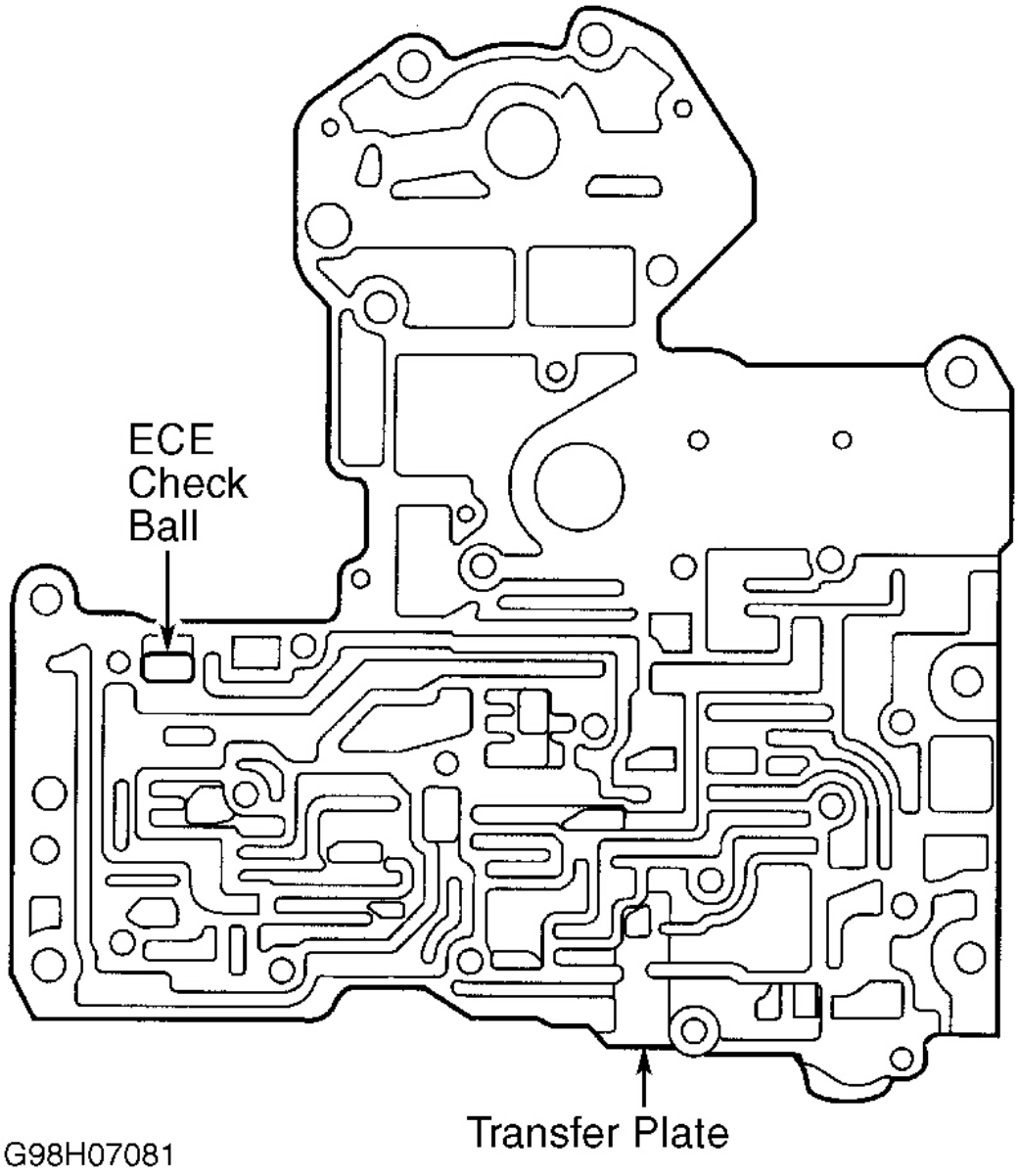


Fig. 40: Identifying ECE Check Ball Location (1998 Models)
Courtesy of CHRYSLER CORP.

12. Remove separator plate for upper housing from transfer plate. Note location of filter screen in upper housing separator plate and check balls in transfer plate. See **Fig. 38** -40.

CAUTION: On some models, plastic or steel check balls may be used in upper housing and transfer plate. Note location and type of check ball for reassembly reference.

13. Remove components from upper and lower housings. Ensure components are placed in order for reassembly reference. See **Fig. 35** and **Fig. 37** .

Cleaning & Inspection

1. Clean components with solvent and dry with compressed air. DO NOT use solvent to clean electrical components. DO NOT use shop towels to dry components. Ensure all components slide freely in housing bores and bores are not scored. Inspect machined surfaces for nicks, burrs or distortion.
2. Inspect valve and plugs for burrs or scratches. Minor scratches may be removed using crocus cloth. When sanding components, DO NOT round off edges of valve or plug.

CAUTION: Many valve body components are made of aluminum and contain a special coating. DO NOT polish or sand aluminum components, as special coating will be removed. Use magnet to check if components are made of aluminum before polishing or sanding. Use care when polishing or sanding components, DO NOT round off edges of component.

3. Ensure all fluid passages are open. Inspect transfer plate and separator plates for distortion. Inspect check balls and seats for damage. Check flatness of mating surfaces on upper and lower housings.
4. Ensure vent ports in governor pressure solenoid are open and not blocked. DO NOT attempt to remove filter from governor pressure solenoid. The "O" rings on governor pressure solenoid and governor pressure sensor are the only parts of solenoid and valve that can be serviced.

CAUTION: DO NOT rotate small screw located at the end of governor pressure solenoid for any reason or the solenoid calibration will be changed and solenoid will require replacement.

5. Replace valve body if components are damaged. Only the following components can be serviced.
   - Adjusting Screw Bracket
   - Detent Ball & Spring
   - Manual Shift Lever, Seal & Detent Ball
   - Park Rod & Clip
   - Solenoid Assembly
   - Switch Valve & Spring
   - Throttle Valve Lever & Seal

Reassembly

1. Lubricate all components and fluid passages with ATF. Install components in lower housing. Ensure components are installed in original location. See **Fig. 37** . Tighten end plate screws to specification. See **TORQUE SPECIFICATIONS** .
2. Reassemble 3-4 accumulator using NEW seal rings on 3-4 accumulator piston. Install accumulator end plate.
3. Install check balls in transfer plate. See **Fig. 38** . Ensure filter screen is installed in separator plate for upper housing. See **Fig. 39** .
4. Install separator plate for upper housing on transfer plate. Install separator plate brace. See **Fig. 39** . Install and tighten screws to specification.
5. Install remaining screws securing separator plate for the upper housing to the transfer plate. Tighten screws to specification.

6. Install check balls in upper housing. See **Fig. 38** . Install transfer plate and separator plate for upper housing on the upper housing. Ensure filter screen is fully seated in recess area on upper housing. Install ECE check ball into transfer plate housing. See **Fig. 40** .
7. Install separator plate for lower housing on transfer plate. Install lower housing on transfer plate and upper housing. Install and tighten valve body screws to specification, starting at the center and working outward.
8. Install components in upper housing. Ensure components are installed in original location. See **Fig. 35** . Install cover plates and limit valve cover. Install and tighten screws to specification.

CAUTION: When installing shuttle valve, ensure clip fully engages groove on shuttle valve.

9. Lubricate bores for boost valve tube in both housings and ends of boost valve tube with ATF. Install boost valve tube, by starting boost valve tube into lower housing first and then in the upper housing. Ensure boost valve tube is installed behind brace for boost valve tube and is fully seated in the housings.
10. Install 3-4 accumulator housing on lower housing. Ensure springs and lock-up valve plug are properly positioned before tightening 3-4 accumulator housing screws.
11. Install case connector on 3-4 accumulator housing. Ensure tab on case connector engages with groove on 3-4 accumulator housing. Install and tighten shouldered-type screw to retain case connector.
12. Using NEW gasket, install solenoid assembly. Install and tighten solenoid assembly screws to specification. See **TORQUE SPECIFICATIONS** . Ensure wiring for solenoid assembly is properly routed and clears manual shift lever and park rod.
13. Install detent ball and spring in upper housing and retain in position using detent ball retainer. Install spring on end of line pressure regulator valve. Install switch valve spring on tang at end of adjusting screw bracket. Install adjusting screw bracket. Ensure springs align with adjusting screw bracket.
14. Install upper screw (short screw) in adjusting screw bracket first and then install lower screw (long screw). Tighten screws to specification. See **TORQUE SPECIFICATIONS** .
15. Install throttle valve lever in upper housing. Install manual shift lever over throttle valve lever. Align manual shift lever with detent ball and manual valve. Hold throttle valve lever upward and start manual shift lever into housing.
16. Install seal, washer and clip on manual shift lever. Remove detent ball retainer. Lubricate case connector "O" ring and manual shift lever shaft with petroleum jelly.
17. Ensure throttle valve lever aligns with end of kickdown valve and manual shift lever arm is engaged with manual valve. See **Fig. 41** .

CAUTION: If line pressure or throttle pressure adjusting screws were moved from original setting, they must be readjusted. See HYDRAULIC PRESSURE ADJUSTMENTS .

18. Install boost valve and components. See **Fig. 35** . Install and tighten boost valve cover screws to specification. See **TORQUE SPECIFICATIONS** .
19. Install NEW "O" ring on governor pressure solenoid and governor pressure sensor. Lubricate "O" rings with ATF.
20. Install governor pressure sensor in governor body. Install clip on inside of governor body to retain governor pressure sensor. Install governor pressure solenoid in governor body until it snaps into the

governor body.

21. Install NEW gasket for governor body on transfer plate. Install governor body retainer plate on governor body. Ensure electrical connector on governor pressure solenoid is in cutout area on governor body retainer plate.
22. Install and tighten governor body-to-transfer plate bolts to specifications. Install electrical connectors on governor pressure solenoid and governor pressure sensor.

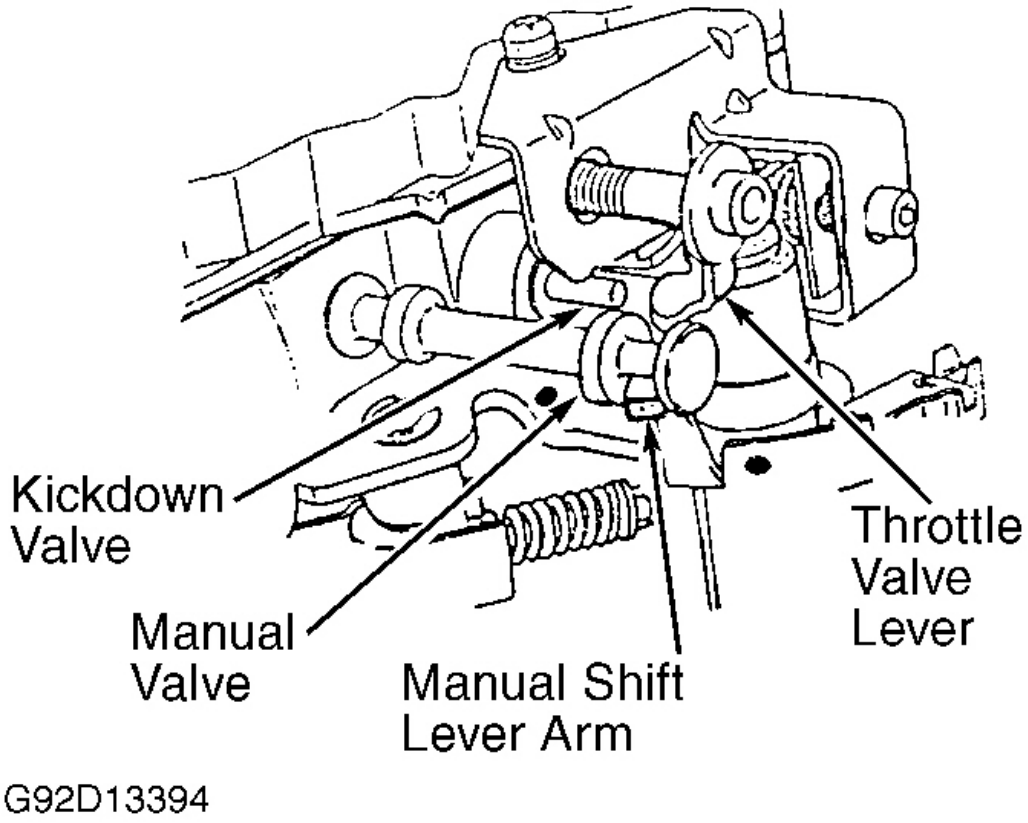


Fig. 41: Aligning Throttle Valve Lever & Manual Shift Lever
Courtesy of CHRYSLER CORP.

TRANSMISSION REASSEMBLY

NOTE: Lubricate all components with MOPAR ATF Plus 3, Type 7176 fluid. Use petroleum jelly to hold thrust washers, thrust plates and gaskets in position. Ensure thrust washer and thrust plates are installed in original location.

1. Install NEW seal rings on front and rear servo pistons. Lubricate front and rear servo bores in transmission case with ATF. Using twisting motion, install rear servo piston in transmission case. It may be necessary to slightly tilt rear servo piston during installation.
2. Install spring and spring retainer on rear servo piston. Ensure spring is fully seated on rear servo

piston. Compress spring and install snap ring.

3. Using twisting motion, install front servo piston in transmission case. It may be necessary to rock front servo piston back and forth during installation to ease front servo piston past snap ring groove.
4. Bottom front servo piston in bore on transmission case. Install spring on front servo piston. Compress spring and install snap ring.
5. Install NEW gasket on rear of transmission case. Use petroleum jelly to hold gasket in place. Ensure governor tube supply holes on gasket align with holes on transmission case. See **Fig. 42** .
6. Install overdrive piston retainer so governor tube supply holes align with holes on transmission case. See **Fig. 42** . Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** .

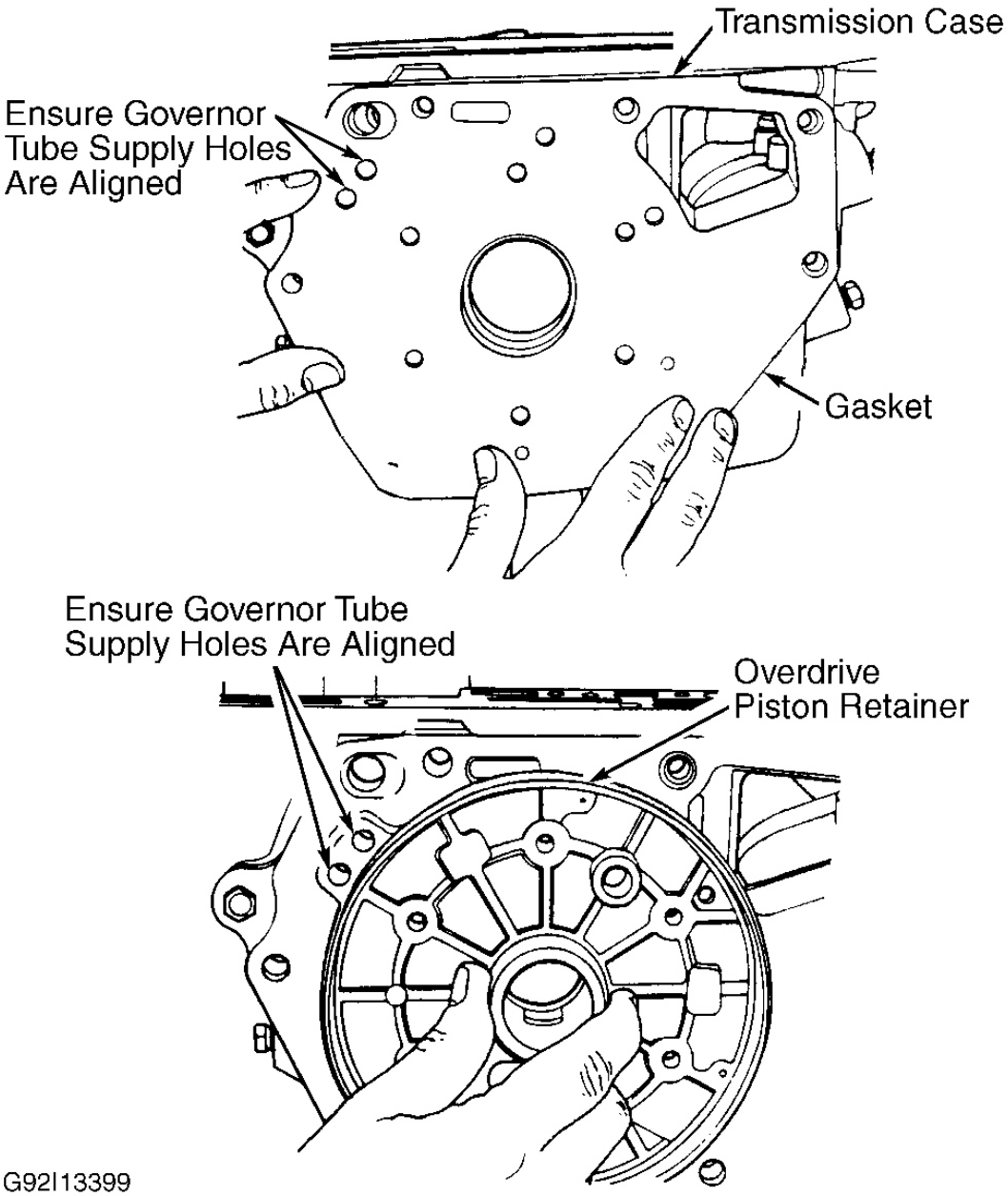


Fig. 42: Installing Gasket & Overdrive Piston Retainer (46/47RH Shown; 46/47RE Is Similar) Courtesy of CHRYSLER CORP.

7. Install overrunning clutch components. See **OVERRUNNING CLUTCH** under TRANSMISSION COMPONENT DISASSEMBLY & REASSEMBLY.
8. Install rear band and rear band linkage in transmission case. Ensure notched side of link faces away from rear band.
9. Slightly tilt low-reverse drum and install in rollers on overrunning clutch. Rotate low-reverse drum clockwise until low-reverse drum is fully seated. Low-reverse drum should rotate freely clockwise (viewed from front of transmission case), but locks when rotated counterclockwise.

CAUTION: Ensure low-reverse drum rotates freely clockwise (viewed from front of transmission case), but locks when rotated counterclockwise. Check for improper one-way clutch component assembly if low-reverse drum will not rotate correctly.

10. Install low-reverse drum-to-overdrive retainer snap ring. Install NEW "O" rings on reaction pin for rear band. Lubricate "O" rings with ATF. Partially install reaction pin for rear band in rear of transmission case. This is the pin near top of transmission case, farthest from oil pan surface. Ensure reaction pin is fully seated.
11. Install adjusting lever, reaction lever and strut on rear band. Finish installing reaction pin to retain rear band components. Install remaining pin for rear band. Pin is located between overdrive piston retainer and transmission case. Tighten rear band adjusting screw enough to hold components in place.
12. Install lever for front band in transmission case and over servo guide. Install front band pin through front band pin access hole on front of transmission. See **Fig. 20** . Apply thread sealant on plug for front band pin access hole. Install plug and tighten to specification. See **TORQUE SPECIFICATIONS** .
13. Install intermediate shaft and planetary gear train. Install thrust plate on end of intermediate shaft.

CAUTION: Ensure seal rings are installed on input shaft. Ensure seal rings and fiber thrust washer are installed on front of piston retainer. See Fig. 30 . Ends of seal ring on front of piston retainer must be fastened together. Diagonal ends of seal rings on input shaft must be properly joined.

14. Align teeth on front clutch discs. Install front clutch on rear clutch. Ensure front clutch is fully seated on rear clutch by rotating front clutch back and forth. Install intermediate shaft thrust washer in center of rear clutch so groove in thrust washer is toward intermediate shaft. See **Fig. 30** .

CAUTION: Ensure intermediate shaft thrust washer is installed with groove in thrust washer toward intermediate shaft.

15. Position transmission case with oil pump opening facing upward. Using small screwdriver, align teeth on rear clutch discs. Install front and rear clutch assemblies. Rotate assembly back and forth until rear clutch discs fully engage with front annulus gear.
16. Install front band over front clutch retainer. Install front band strut between front band and lever on transmission case. Install anchor between other side of front band and transmission case.
17. Ensure front and rear clutch assemblies are fully seated. Tighten front band adjusting screw until front

band is tight on front clutch retainer.

18. Ensure thrust washer and seal rings are installed on reaction shaft support and ends of seal rings are fastened together.

CAUTION: Thrust washer must be installed on reaction shaft support with chamfered edge on inside diameter of thrust washer facing toward front of oil pump.

19. Install pilot studs in 2 oil pump bolt holes, opposite of each other in transmission case. Install oil pump gasket. Lubricate reaction shaft seal rings and oil pump seal with ATF.
20. Install oil pump. Remove pilot studs. Install and tighten oil pump bolts in a diagonal pattern to specification. See **TORQUE SPECIFICATIONS** .

CAUTION: Ensure input shaft and intermediate shaft rotate without binding. If binding is present, check for improperly assembled components.

21. Install and lubricate NEW seal on overdrive piston. Install overdrive piston in overdrive piston retainer. If necessary, use feeler gauge to guide seal on overdrive piston into overdrive piston retainer.

CAUTION: Ensure 2 locating pins on transmission case side of overdrive piston engage with 2 holes on overdrive piston retainer.

CAUTION: Before installing intermediate shaft selective spacer and overdrive piston thrust bearing, ensure proper procedure is used to determine thickness of these components. See DETERMINING INTERMEDIATE SHAFT SELECTIVE SPACER & OVERDRIVE PISTON THRUST PLATE under OVERDRIVE UNIT ADJUSTMENTS.

22. Determine proper thickness intermediate shaft selective spacer and overdrive piston thrust bearing. See **DETERMINING INTERMEDIATE SHAFT SELECTIVE SPACER & OVERDRIVE** PISTON THRUST PLATE under OVERDRIVE UNIT ADJUSTMENTS.
23. Install intermediate shaft selective spacer on intermediate shaft. See **Fig. 17** . Install overdrive piston thrust plate in center of overdrive piston. Use petroleum jelly to hold overdrive piston thrust plate in position.
24. Install overdrive piston thrust bearing in direct clutch hub on overdrive unit with shoulder away from direct clutch hub. See **Fig. 43** . Use petroleum jelly to hold overdrive piston thrust bearing in position.

CAUTION: Ensure shoulder on overdrive piston thrust bearing faces away from direct clutch hub. Dark-colored surface of overdrive piston thrust bearing should be toward overdrive piston.

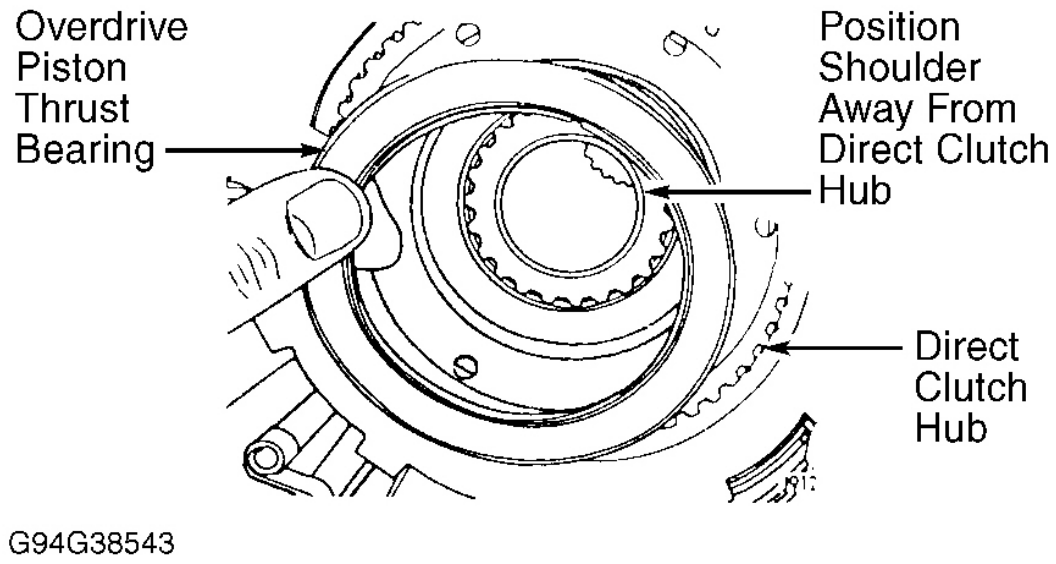


Fig. 43: Installing Overdrive Piston Thrust Bearing
Courtesy of CHRYSLER CORP.

25. Apply small amount of petroleum jelly on end of intermediate shaft. Using Alignment Shaft (6227-2), align splines of planetary gear assembly and overrunning clutch in overdrive unit. See **Fig. 18** . Ensure alignment shaft is fully seated.
26. Overdrive unit clutch splines must be aligned to aid in installation on intermediate shaft. Once splines are aligned, carefully remove alignment shaft.

CAUTION: Ensure intermediate shaft selective spacer on intermediate shaft, overdrive piston thrust plate and overdrive piston thrust bearing are installed.

27. Install overdrive unit on transmission case. Ensure governor tubes are seated in supply holes on overdrive piston retainer. See **Fig. 42** . If overdrive unit will not fully seat, slightly rotate output shaft to align splines and ensure overdrive unit is fully seated.
28. Apply thread sealant on overdrive unit-to-transmission case bolts. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** . Attach dial indicator to transmission case with dial indicator stem seated against end of input shaft.
29. Move input shaft inward and zero dial indicator. Pull input shaft outward and measure input shaft end play. Input shaft end play should be .034-.084" (.86-2.13 mm).
30. If input shaft end play is not within specification, install different thickness thrust washer for intermediate shaft located in center of rear clutch. Recheck input shaft end play.
31. Ensure lock nuts are backed off 5-6 turns on front and rear band adjusting screws. See **Fig. 19** . Tighten front and rear band adjusting screws to 72 INCH lbs. (8.1 N.m).
32. Loosen front band adjusting screw 2 7/8 turns (46RE), or 1 7/8 turns (47RE). Tighten front band lock nut to specification while holding band adjusting screw. See **TORQUE SPECIFICATIONS** .
33. Loosen rear band adjusting screw 2 turns (46RE), or 3 turns (47RE). Tighten rear band lock nut to

specification while holding band adjusting screw. See **TORQUE SPECIFICATIONS** .

34. Ensure Park/Neutral Position (PNP) switch is removed before installing valve body. Install NEW seal rings on accumulator and solenoid connector. Lubricate seal rings, manual shift lever seal and accumulator and bore with petroleum jelly.
35. Install inner spring for accumulator in transmission case. Install accumulator in transmission case. Place manual shift lever on valve body in low gear position so ball on park rod can be installed in parking sprag.
36. Using screwdriver, push parking sprag to engage with park gear. This allows knob on park rod to move past parking sprag when installing valve body. Rotate output shaft to ensure parking sprag is engaged.

CAUTION: Ensure park rod enters parking sprag, as park rod may enter cavity in the case and not enter parking sprag. Park rod will be damaged if it is not engaged with parking sprag.

37. Install outer spring between accumulator and valve body. Install valve body, working park rod past parking sprag. Ensure accumulator spring remains in place.

CAUTION: Alternate tightening valve body-to-transmission case bolts to prevent damage to valve body. DO NOT overtighten bolts or transmission and valve body may be damaged.

38. Install valve body-to-transmission case bolts in original location and tighten evenly to specification. See **TORQUE SPECIFICATIONS** .
39. Install NEW filter assembly. Install and tighten bolts to specification. Reconnect all necessary electrical connections. Install throttle valve and manual shift levers. Ensure throttle valve and manual shift levers rotate smoothly.
40. Install magnet in small protrusion area at corner of oil pan. Using NEW gasket, install oil pan. Install and tighten bolts to specification. Using NEW seal, install PNP switch. Tighten PNP switch to specification.

CAUTION: If a transmission failure was present, flush oil cooler and check oil cooler flow. See OIL COOLER FLUSHING and OIL COOLER FLOW CHECK under ON-VEHICLE SERVICE .

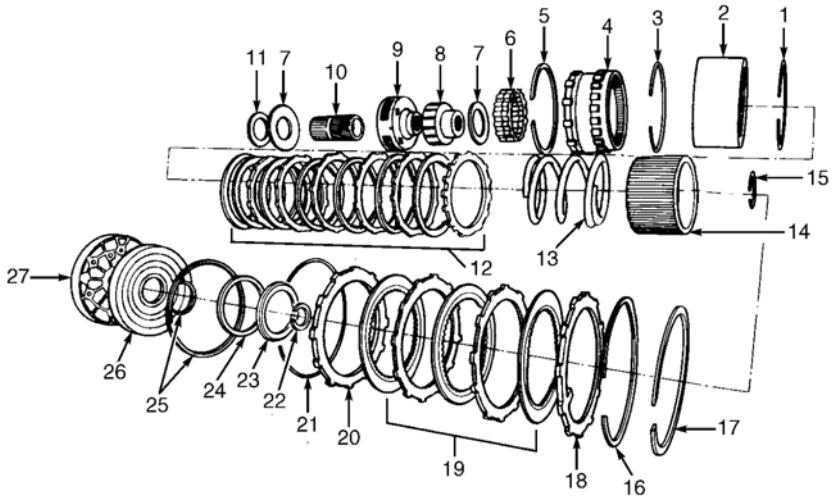
OVERDRIVE UNIT DISASSEMBLY

OVERDRIVE UNIT

Disassembly

1. Remove snap ring and overdrive clutch pack components from overdrive unit case. See **Fig. 44** . Note direction of clutch discs and clutch plates in overdrive clutch pack for reassembly reference. Components must be installed in correct sequence.
2. Remove waved snap ring and reaction plate snap ring. Both snap rings are installed in same groove in overdrive unit case. Remove access cover from top of overdrive unit case for access to front bearing retaining ring. See **Fig. 45** .
3. Using snap ring pliers, expand front bearing retaining ring while pushing output shaft forward to

release front bearing from retaining ring. See **Fig. 45** . Remove overdrive unit gear train from overdrive unit case. See **Fig. 46** .



1. Inner Retaining Ring
2. Direct Clutch Drum
3. Outer Retaining Ring
4. Annulus Gear
5. Annulus Gear Snap Ring
6. Overrunning Clutch
7. Thrust Bearing
8. Overrunning Clutch Hub
9. Planetary Gear
10. Sun Gear
11. Spring Plate
12. Direct Clutch Pack
13. Direct Clutch Spring
14. Direct Clutch Hub
15. Direct Clutch Hub Snap Ring
16. Waved Snap Ring
17. Reaction Plate Snap Ring
18. Reaction Plate
19. Overdrive Clutch Pack
20. Pressure Plate
21. Snap Ring
22. Intermediate Shaft Selective Spacer
23. Overdrive Piston Thrust Bearing
24. Overdrive Piston Thrust Plate
25. Overdrive Piston Seals
26. Overdrive Piston
27. Overdrive Piston Retainer

Fig. 44: Exploded View Of Overdrive Unit (Typical)
Courtesy of CHRYSLER CORP.

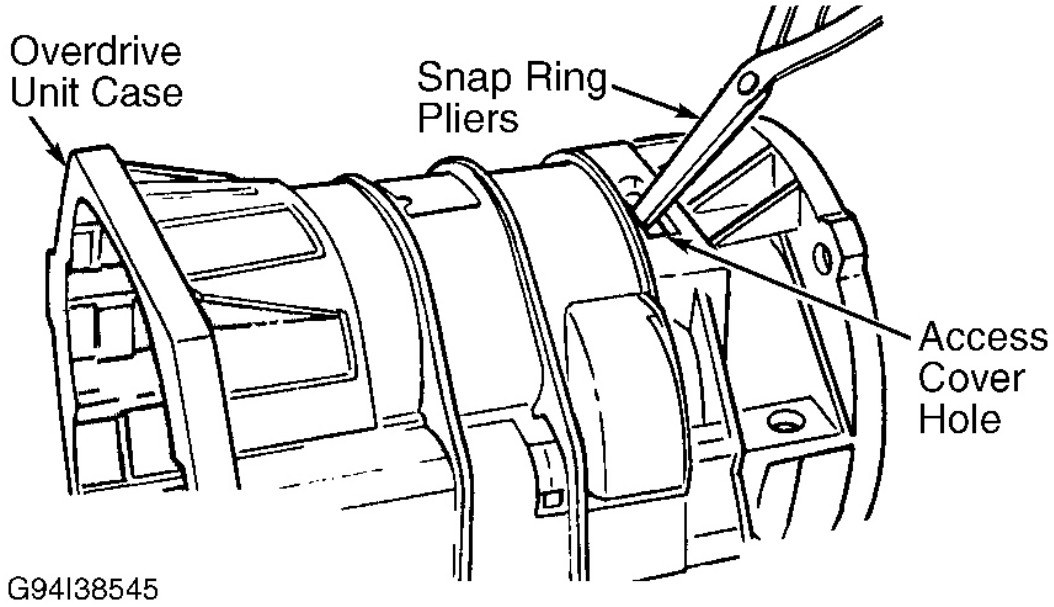


Fig. 45: Releasing & Installing Front Bearing From Retaining Ring
Courtesy of CHRYSLER CORP.

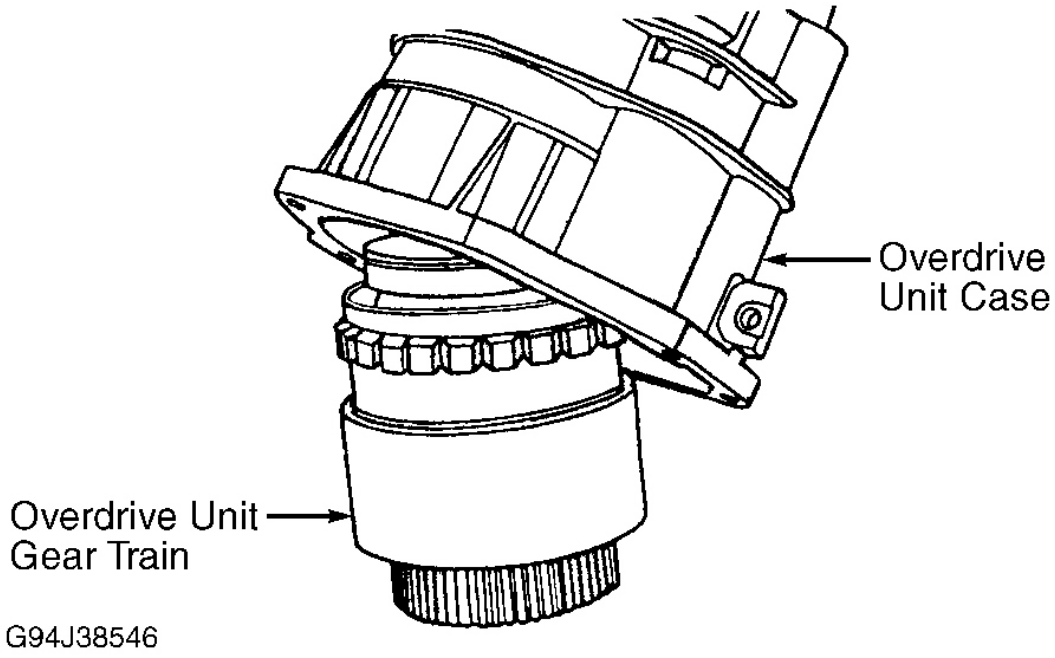


Fig. 46: Removing Overdrive Unit Gear Train
Courtesy of CHRYSLER CORP.

OVERDRIVE UNIT COMPONENT DISASSEMBLY & REASSEMBLY

OVERDRIVE UNIT GEAR TRAIN

Disassembly

1. Remove snap ring and bearing from output shaft on annulus gear. Place overdrive unit gear train in press and support assembly with press plates placed under flange on output shaft.
2. Position Spring Compressor (6227-1) on direct clutch hub. See **Fig. 47** . It may be necessary to install plate on top of spring compressor to provide extra press travel.

CAUTION: Ensure proper equipment is used when compressing direct clutch spring, as direct clutch spring is under EXTREME pressure (830 lbs.). Ensure ram on press has a minimum travel of approximately 6".

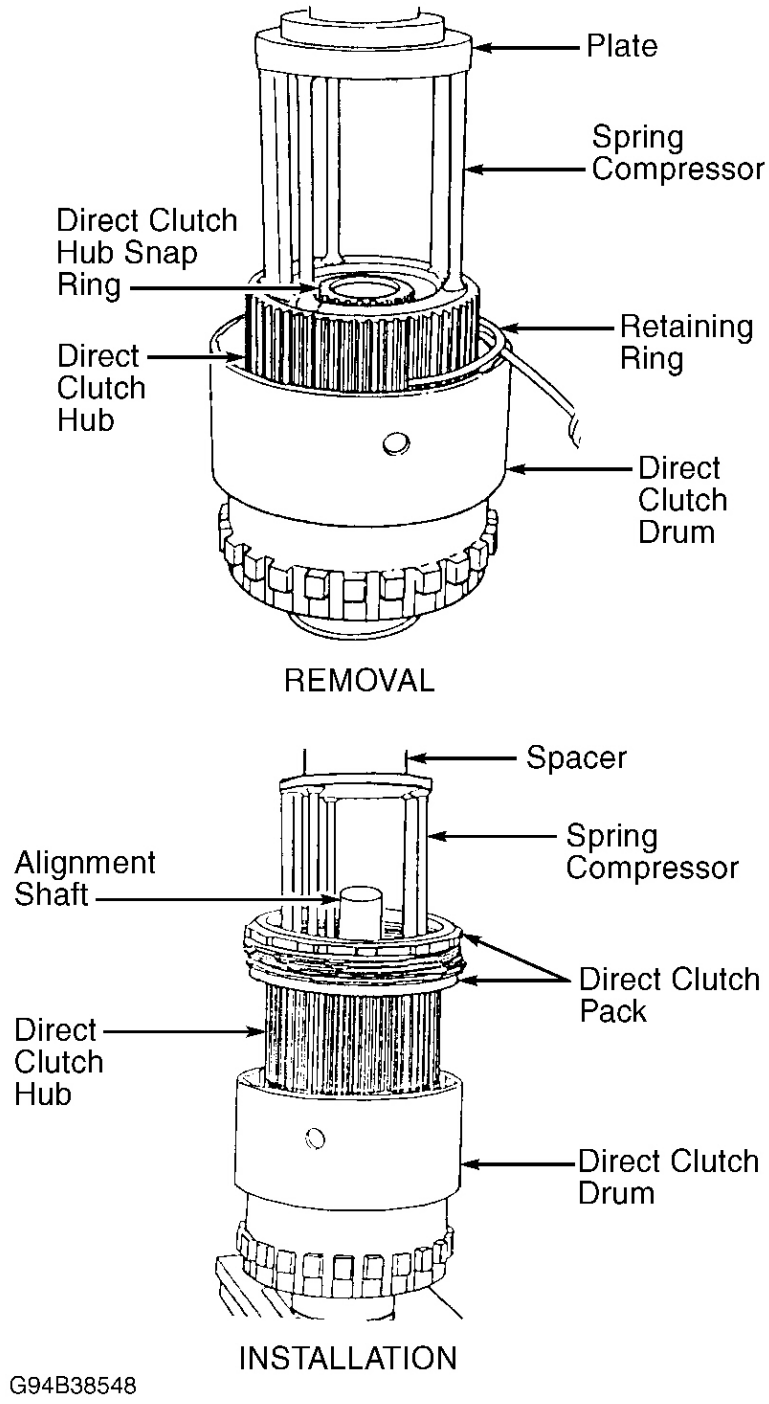


Fig. 47: Removing & Installing Direct Clutch Hub & Direct Clutch Spring
Courtesy of CHRYSLER CORP.

3. Slowly compress direct clutch spring. Remove retaining ring for direct clutch pack from outer edge of direct clutch drum. Remove direct clutch hub snap ring, located at center of direct clutch hub. See **Fig. 47** . Slowly release press. Remove spring compressor.

CAUTION: Note direction of clutch discs and clutch plates in direct clutch

pack for reassembly reference. Also note number of each component, as some models may contain different number of clutch components. Components must be installed in correct sequence.

4. Remove direct clutch pack components from direct clutch drum, noting location of components for reassembly reference. Remove direct clutch hub and direct clutch spring. Remove sun gear and spring plate. Remove thrust bearing and planetary gear. See **Fig. 44** .
5. Insert expanding-type snap ring pliers into splines on overrunning clutch hub. Expand snap ring pliers against splines. Rotate overrunning clutch hub counterclockwise and remove overrunning clutch assembly from direct clutch drum.

CAUTION: Ensure direct clutch drum-to-annulus gear location is marked for reassembly reference before disassembling.

6. Remove thrust bearing from overrunning clutch hub. Remove overrunning clutch from overrunning clutch hub. See **Fig. 44** . Scribe alignment marks on outer surface of direct clutch drum and annulus gear for reassembly reference.

CAUTION: Ensure output shaft-to-annulus gear location is marked for reassembly reference before disassembling.

7. Remove inner and outer retaining rings from direct clutch drum. See **Fig. 44** . Remove direct clutch drum from annulus gear. Scribe alignment marks on annulus gear and output shaft for reassembly reference. Remove snap ring for annulus gear. Using soft-faced hammer, tap annulus gear from output shaft.
8. Remove locating ring from gear case. Remove park pawl shaft retainer plug, then remove shaft, pawl and spring. See **Fig. 48** . Remove reaction plug snap ring and remove reaction plug. Remove output shaft seal.

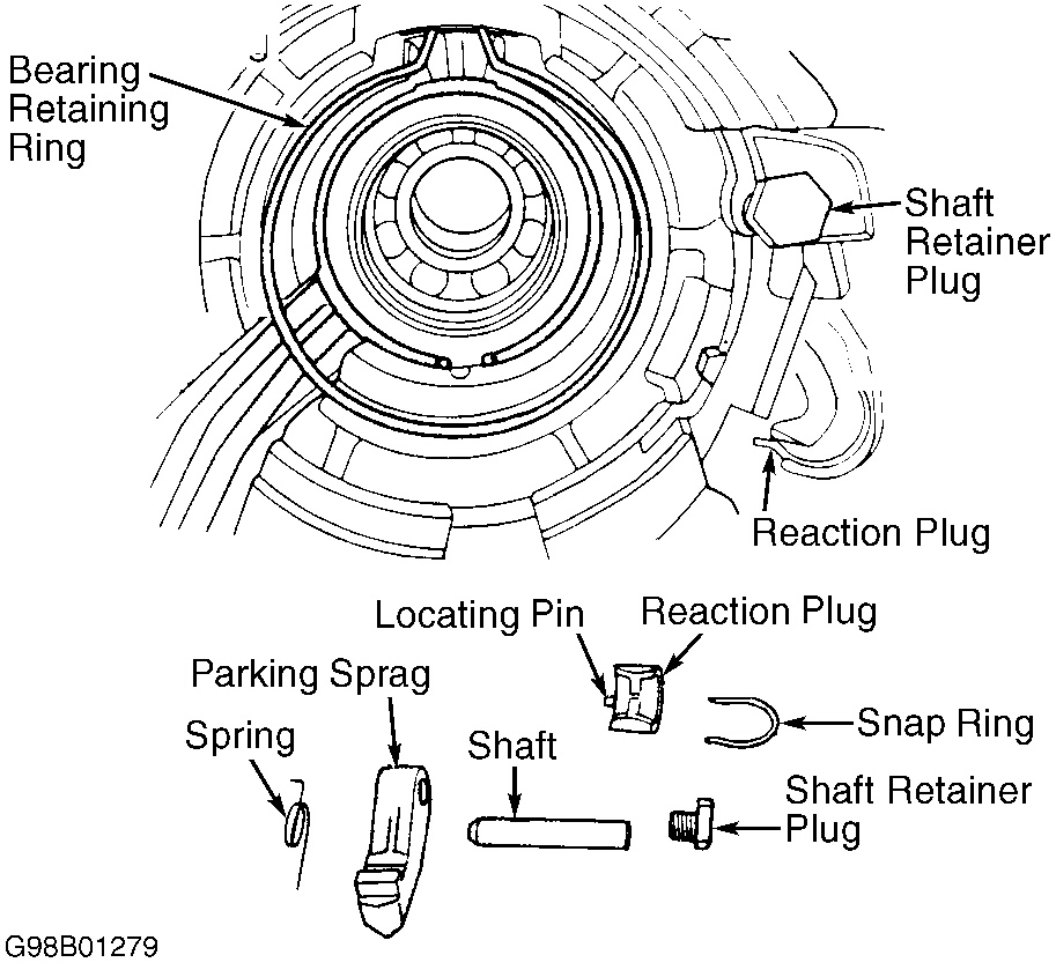


Fig. 48: Identifying Parking Sprag Components
Courtesy of CHRYSLER CORP.

Cleaning & Inspection

1. Clean all metal components with solvent and dry all components except bearings with compressed air. Inspect clutch discs for flatness, flaking or glazing. Inspect all clutch plates, pressure plate and reaction plate for flatness or damage at lug area.
2. Ensure direct clutch components slide freely in direct clutch drum. Replace components if binding is present. Inspect sun gear and bushings for damage. Replace sun gear if bushings are defective.
3. Inspect planetary gear for damage. Ensure pins for gears on planetary gear are tight and are not damaged. Inspect surface on overrunning clutch hub or overrunning clutch for damage. Replace overrunning clutch as an assembly if damaged.
4. Inspect inner and pilot bushings for damage. Inspect output shaft for damage in machined or splined areas. Replace damaged components.

Reassembly

1. Lubricate components with ATF. Soak clutch discs in ATF for 20 minutes before installing. Install

NEW pilot bushing and NEW inner bushing in output shaft (if necessary). Lubricate pilot bushing and inner bushing with petroleum jelly.

CAUTION: Ensure front bearing is installed on output shaft with groove in bearing for retaining ring facing toward splined end of output shaft.

2. Install front bearing on output shaft so groove in front bearing for front bearing retaining ring faces toward splined end of output shaft. Install front bearing snap ring on output shaft. Install annulus gear on output shaft, ensuring reference marks are aligned. Install snap ring to retain annulus gear.
3. Install direct clutch drum on annulus gear ensuring reference marks are aligned. Ensure lugs on direct clutch drum fully engage lugs on annulus gear. Install outer retaining ring.
4. Slide direct clutch drum forward. Install inner retaining ring. Install overrunning clutch on overrunning clutch hub. See **Fig. 49** . Shoulder on overrunning clutch should seat in small recess at edge of overrunning clutch hub.

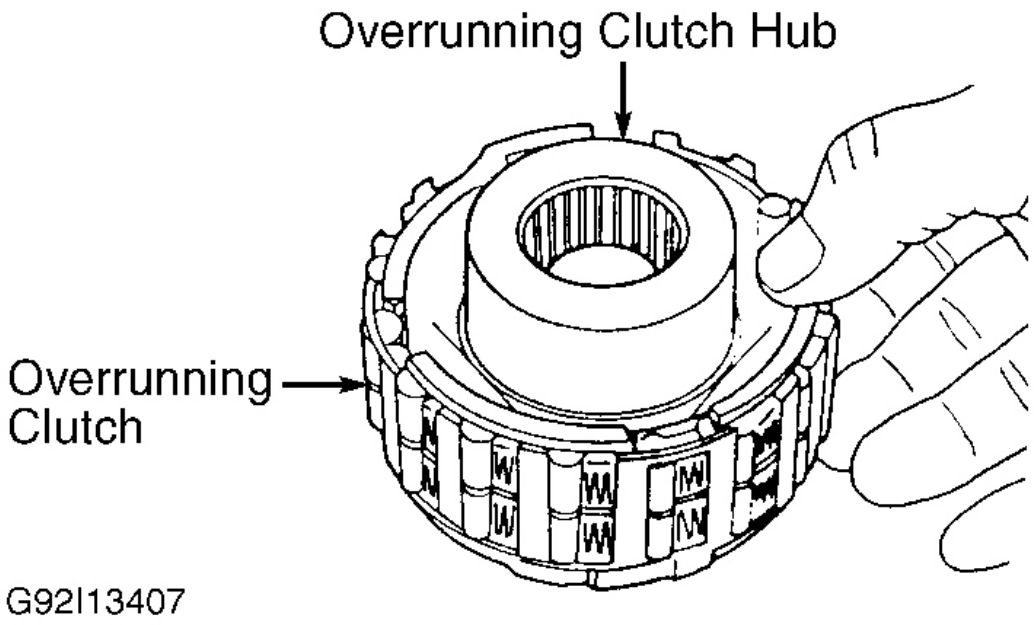


Fig. 49: Installing Overrunning Clutch
Courtesy of CHRYSLER CORP.

5. Coat thrust bearing with petroleum jelly and install on overrunning clutch hub. Ensure thrust bearing is fully seated on overrunning clutch hub.
6. Insert expanding-type snap ring pliers into splines on overrunning clutch hub. Expand snap ring pliers against splines. Rotate overrunning clutch hub counterclockwise and install overrunning clutch assembly in direct clutch drum.
7. Install planetary gear in annulus gear. Ensure planetary gear is fully seated. Install spring plate on sun gear with shoulder on spring plate toward front of sun gear (if removed). See **Fig. 50** . Install snap

ring.

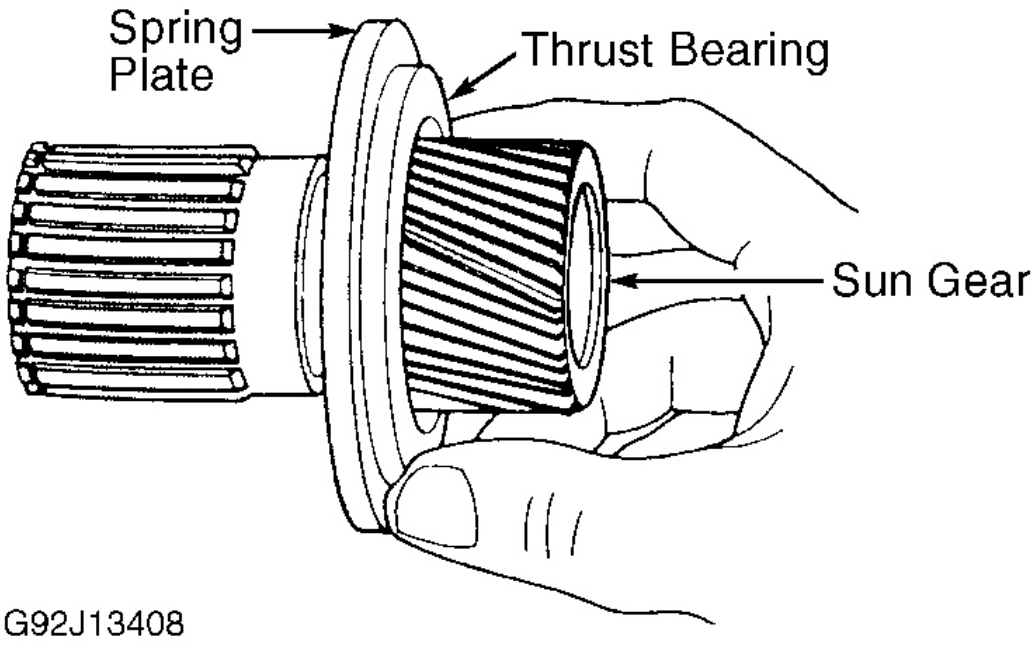


Fig. 50: Installing Spring Plate & Thrust Bearing On Sun Gear
Courtesy of CHRYSLER CORP.

8. Coat thrust bearing with petroleum jelly and install on sun gear. Ensure thrust bearing fully seats against spring plate.
9. Install sun gear, spring plate and thrust bearing in direct clutch drum. Install Alignment Shaft (6227-2) through sun gear to align splines of planetary gear and overrunning clutch hub. See **Fig. 51** . Ensure alignment shaft is fully seated.

CAUTION: Ensure direct clutch components are installed in original location and original number of components are installed.

10. Install direct clutch spring on spring plate in direct clutch hub. Ensure spring is properly seated. Assemble direct clutch pack. See **Fig. 52** .

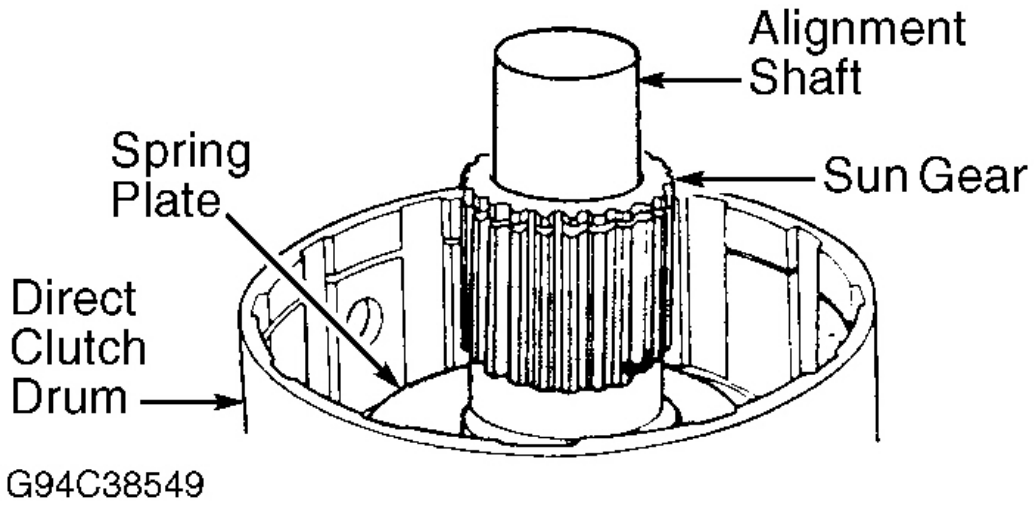


Fig. 51: Aligning Planetary Gear & Overrunning Clutch Hub Splines
Courtesy of CHRYSLER CORP.

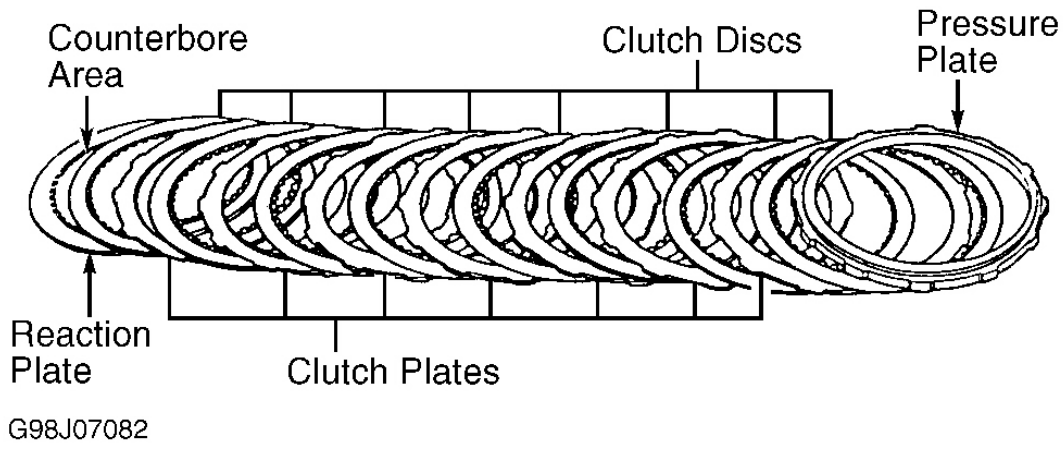


Fig. 52: Assembling Direct Clutch Pack
Courtesy of CHRYSLER CORP.

11. Install reaction plate on direct clutch hub. One side of reaction plate contains a counterbore area. See **Fig. 52** . Counterbore area should be installed so it fits over raised splines at rear of direct clutch hub. See **Fig. 53** .

CAUTION: With reaction plate installed, surface of reaction plate should be even with surface of direct clutch hub. Counterbore area on reaction plate should be against raised splines on direct clutch hub. See Fig. 53 .

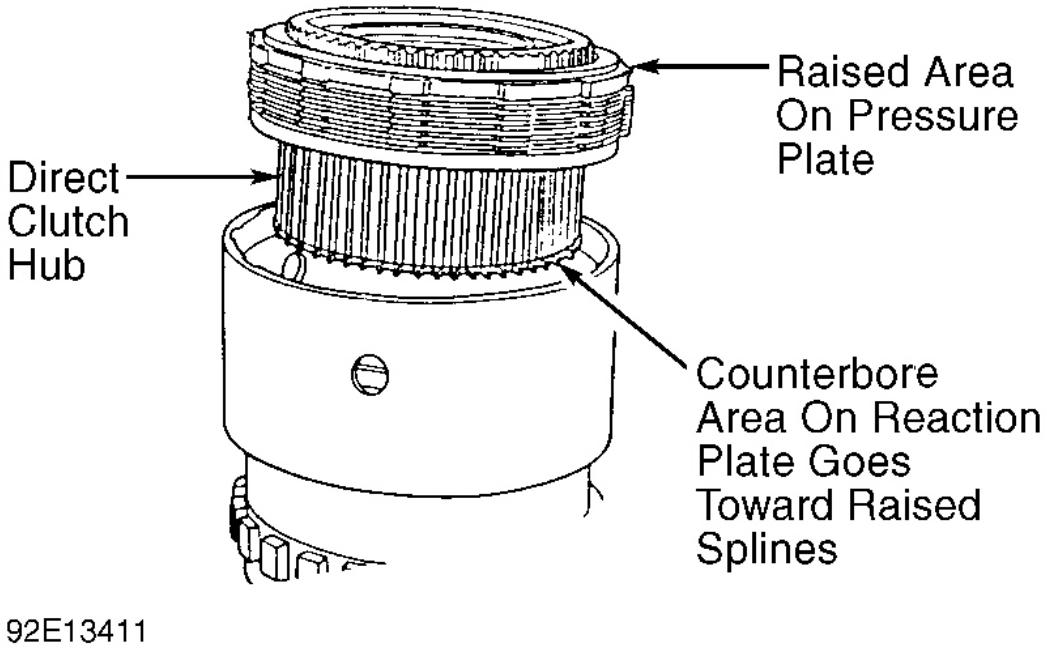


Fig. 53: Installing Reaction Plate & Pressure Plate
Courtesy of CHRYSLER CORP.

12. Alternately install clutch discs and clutch plates on reaction plate starting with clutch disc. See **Fig. 52** . Install pressure plate with raised area away from clutch pack. See **Fig. 53** .
13. Install direct clutch pack and direct clutch hub on direct clutch spring. Ensure direct clutch hub is started on splines on sun gear. Place overdrive unit gear train assembly in press.
14. Install spring compressor and spacer on top of direct clutch hub. See **Fig. 47** . Slide direct clutch pack upward and set it on edge of spring compressor.
15. Compress direct clutch spring so direct clutch hub snap ring and retaining ring for direct clutch pack grooves are visible. Install direct clutch pack in direct clutch drum. Install retaining ring for direct clutch pack and direct clutch hub snap ring. Ensure retaining ring and direct clutch hub snap ring are fully seated.
16. Release press. Remove spring compressor. Ensure alignment shaft is fully seated. If alignment shaft becomes unseated, it may be necessary to reassemble overdrive unit gear train and realign splines. Remove overdrive unit gear train assembly from press.

OVERDRIVE UNIT REASSEMBLY

OVERDRIVE UNIT

Reassembly

1. Install front bearing on output shaft (if not previously installed). Ensure groove in bearing for retaining ring faces toward splined end of output shaft. Install front bearing snap ring on output shaft.
2. Install parking sprag, spring and shaft in overdrive unit case. Ensure end of spring is hooked on

parking sprag.

3. Install and tighten shaft retainer plug to specification. See TORQUE SPECIFICATIONS. Install reaction plug in overdrive unit case. Ensure locating pin on reaction plug engages hole in overdrive unit case. See **Fig. 48** . Install snap ring to retain reaction plug. DO NOT over compress snap ring when installing. Install NEW seal in gear case.
4. Install bearing retaining ring in overdrive unit case. Ensure ends of bearing retaining ring face access cover opening in overdrive unit case.
5. Place gear train in vertical position. Support assembly on Spring Compressor (6227-1) on workbench. Spring compressor fits in center of direct clutch hub.
6. Install overdrive unit case over gear train assembly. Using snap ring pliers, expand bearing retaining ring through access hole cover. See **Fig. 45** .
7. Slide overdrive unit case downward until bearing retaining ring engages locating groove on outside of bearing. Release front bearing retaining ring.
8. Remove overdrive unit from spring compressor. Install gasket and access cover on overdrive unit case. Install reaction plate snap ring in overdrive unit case. This is the flat snap ring with notched ends.
9. Install waved snap ring in overdrive unit case. Waved snap ring fits on top of reaction plate snap ring. Both snap rings fit in same groove. Ensure both snap rings are fully seated.
10. Install reaction plate. Reaction plate is thinner than pressure plate. Install overdrive clutch discs and clutch plates on reaction plate. Start with clutch disc followed with clutch plate and then alternating between clutch discs and clutch plates.

CAUTION: Ensure overdrive clutch pack components are installed in original location and original number of components are installed.

11. Install pressure plate and wire-type snap ring. Place overdrive unit in vertical position with access to direct clutch hub. Remove alignment shaft.
12. Proper thickness intermediate shaft selective spacer and overdrive piston thrust plate must be determined before installing overdrive unit. See **DETERMINING INTERMEDIATE SHAFT SELECTIVE SPACER & OVERDRIVE** PISTON THRUST PLATE under OVERDRIVE UNIT ADJUSTMENTS.

OVERDRIVE UNIT ADJUSTMENTS

Determining Intermediate Shaft Selective Spacer & Overdrive Piston Thrust Plate

1. To determine intermediate shaft selective spacer, output shaft end play is checked. Place overdrive unit in vertical position. Install Adapter (6312) through sun gear, planetary gear and into pilot bushing in output shaft. See **Fig. 54** . Ensure adapter bottoms against shoulder on planetary gear.
2. Install Bar (6311) across surface of overdrive unit case. Position Caliper (C-4962) on bar. Extend caliper downward through bar until it contacts adapter. Note reading on caliper. This is output shaft end play.
3. Using output shaft end play reading, determine proper intermediate shaft selective spacer thickness. See **INTERMEDIATE SHAFT SELECTIVE SPACER SELECTION** table. Remove adapter. Retain intermediate shaft selective spacer for overdrive unit installation.

INTERMEDIATE SHAFT SELECTIVE SPACER SELECTION

Output Shaft End Play (1) In. (mm)	Shaft Spacer Thickness In. (mm)
.7336-.7505 (18.633-19.063)	.158-.159 (4.01-4.04)
.7506-.7675 (19.065-19.494)	.175-.176 (4.44-4.47)
.7676-.7855 (19.497-19.951)	.193-.194 (4.90-4.93)
.7856-.8011 (19.954-20.348)	.211-.212 (5.35-5.38)

(1) Measurement taken with Adapter (6312) installed through sun gear, planetary gear and into pilot bushing in output shaft.

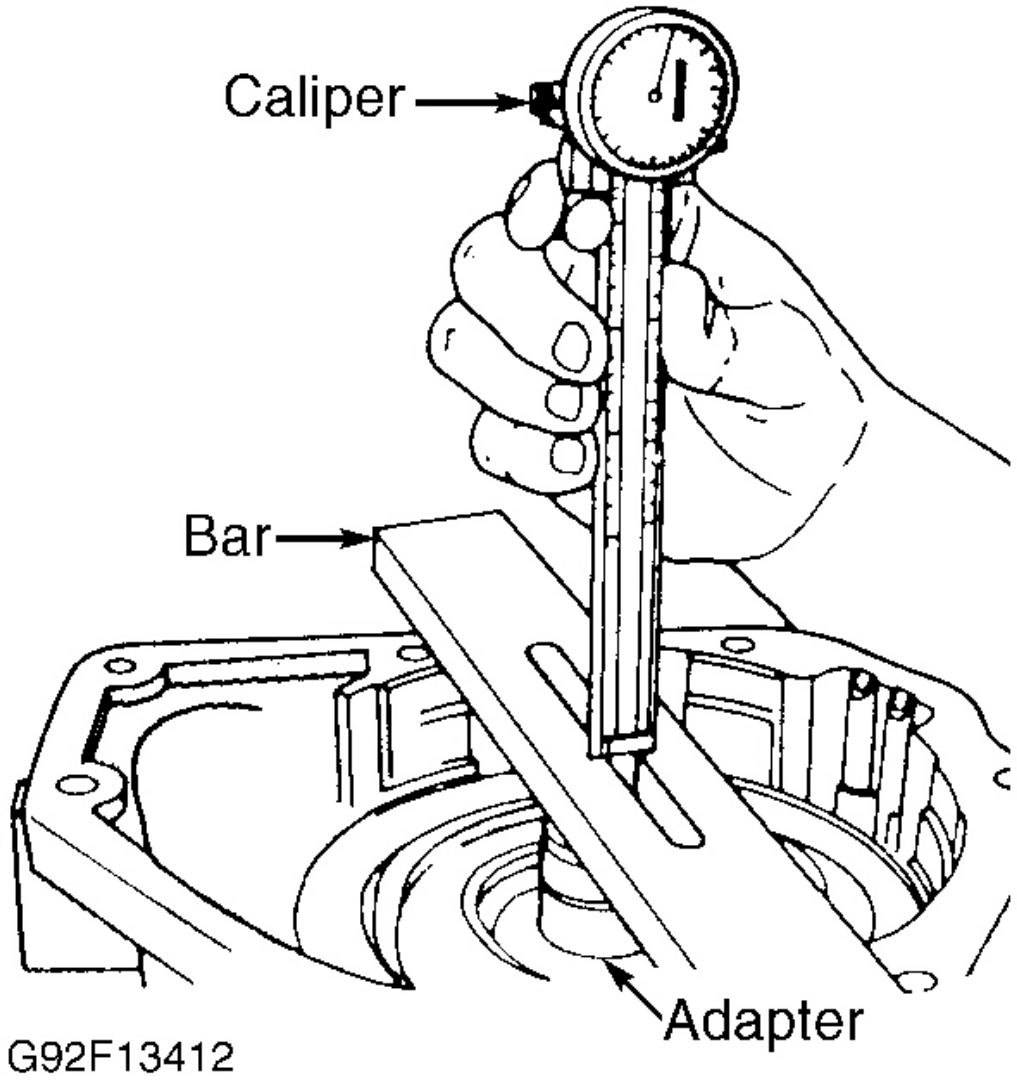


Fig. 54: Measuring Output Shaft End Play
Courtesy of CHRYSLER CORP.

4. To determine overdrive piston thrust plate thickness, install Bar (6311) across surface of overdrive

unit case. Position Caliper (C-4962) on bar.

5. Extend caliper through bar and measure distance to surface of direct clutch hub thrust bearing seat in 4 places 90 degrees apart. See **Fig. 55** .
6. Determine average distance by adding 4 measurements together and dividing by 4. Using average distance, determine proper overdrive piston thrust plate thickness. See **OVERDRIVE PISTON THRUST PLATE SELECTION** table. Remove caliper and bar. Retain overdrive piston thrust plate for overdrive unit installation.

CAUTION: Ensure intermediate shaft selective spacer, overdrive piston thrust plate and overdrive piston thrust bearing are installed before installing overdrive unit on transmission.

OVERDRIVE PISTON THRUST PLATE SELECTION

Hub Thrust Bearing Seat Average Distance In. (mm)	Overdrive Piston Thrust Plate Thickness In. (mm)
1.7500-1.7649 (44.450-44.828)	.108-.110 (2.74-2.79)
1.7650-1.7799 (44.831-45.209)	.123-.125 (3.12-3.18)
1.7800-1.7949 (45.212-45.590)	.138-.140 (3.50-3.56)
1.7950-1.8099 (45.593-45.971)	.153-.155 (3.89-3.94)
1.8100-1.8249 (45.974-46.352)	.168-.170 (4.27-4.31)
1.8250-1.8399 (46.355-46.733)	.183-.185 (4.65-4.70)
1.8400-1.8549 (46.736-47.114)	.198-.200 (5.03-5.08)
1.8550-1.8699 (47.117-47.495)	.213-.215 (5.41-5.46)
1.8700-1.8849 (47.498-47.876)	.228-.230 (5.79-5.84)
1.8850-1.8999 (47.879-48.257)	.243-.245 (6.17-6.22)

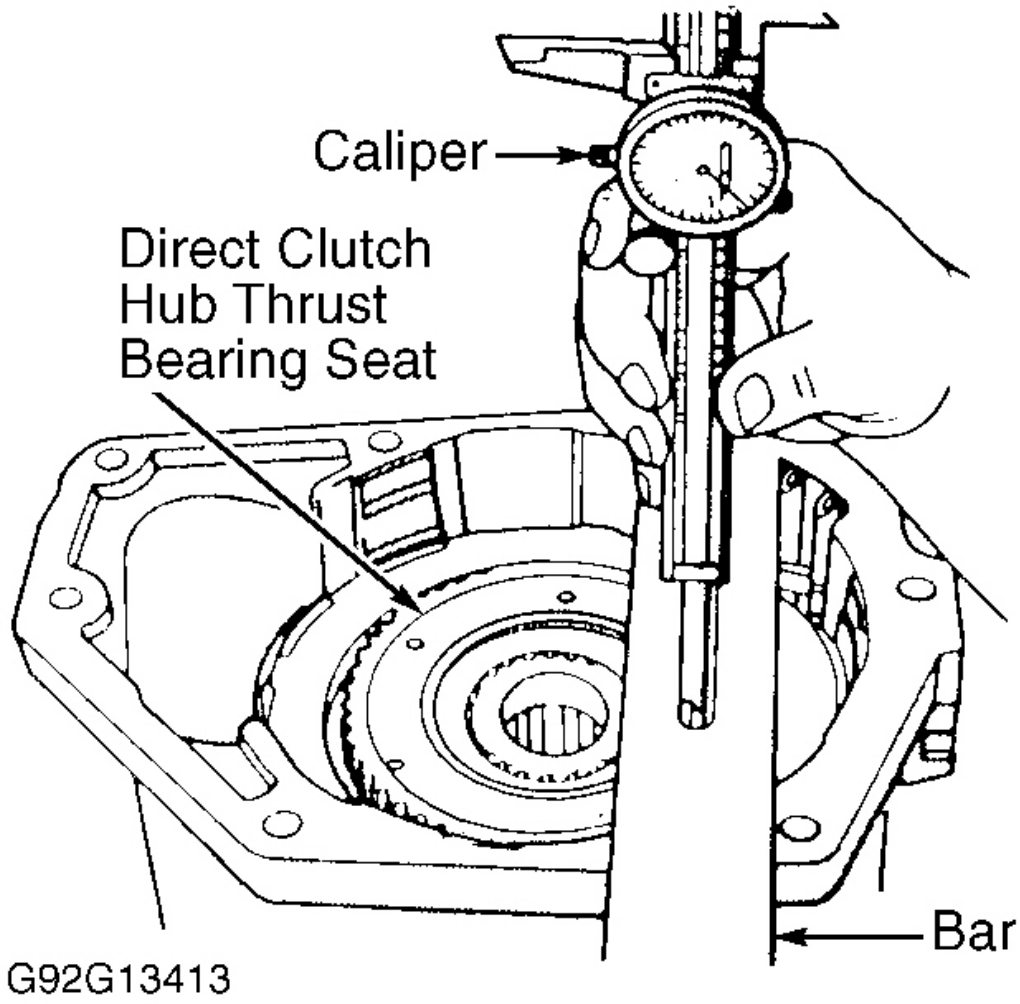


Fig. 55: Measuring Distance To Direct Clutch Hub Thrust Bearing Seat
Courtesy of CHRYSLER CORP.

TRANSMISSION SPECIFICATIONS

TRANSMISSION SPECIFICATIONS

Application	In. (mm)
Clutch Clearances	
Front Clutch	.070-.129 (1.78-3.28)
Rear Clutch	.025-.045 (.64-1.14)
Input Shaft End Play	.034-.084 (.86-2.13)
Oil Pump Clearances	
Pump Inner Gear-To-Oil Pump Housing	.0004-.0025 (.010-.064)
Pump Outer Gear-To-Oil Pump Housing	.0004-.0025 (.010-.064)

Pump Gear End Clearance	.0035-.0075 (.089-.190)
Pump Gear Tooth Clearance	.0035-.0075 (.089-.190)
Planetary Gear Train End Play	.006-.048 (.15-1.22)

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	**Ft. Lbs. (N.m)**
Band Adjusting Screw Lock Nut	
Front Band	25 (34)
Rear Band	30 (41)
Front Band Pin Access Hole Plug	13 (18)
Oil Pan Bolt	13 (18)
Oil Pump Bolt	15 (20)
Overdrive Piston Retainer Bolt	13 (18)
Overdrive Unit-To-Transmission Case Bolt (1)	25 (34)
Overrunning Clutch Cam Bolt	13 (18)
Park/Neutral Position (PNP) Switch	25 (34)
Reaction Shaft Support Bolt	15 (20)
Shaft Retainer Plug	20 (27)
	INCH Lbs. (N.m)
Adapter Retainer Bolt	100 (11.3)
Adjusting Screw Bracket Screw	35 (4.0)
Boost Valve Cover Screw	35 (4.0)
Cover Plate Screw	35 (4.0)
End Plate Screw	35 (4.0)
Filter Assembly Bolt	35 (4.0)
Governor Body-To-Valve Body Screws	35 (4.0)
Limit Valve Cover Screw	35 (4.0)
Overrunning Clutch Cam Set Screw	40 (4.5)
Pressure Tap Plug	120 (13.6)
Separator Plate Brace Screw	35 (4.0)
Separator Plate-To-Transfer Plate Screw	35 (4.0)
Solenoid Assembly Screw	72 (8.1)
Speedometer Adapter Bolt	96 (10.8)
Valve Body Screw	35 (4.0)
Valve Body-To-Transmission Case Bolt	100 (11.3)
(1) Apply thread sealant to bolt threads.	