APPLICATION

AUTOMATIC TRANSMISSION APPLICATIONS

Application	Transmission Model
Dakota (3.9L)	42RE
Durango (5.2L)	44RE
Grand Cherokee (4.0L)	42RE
Ram Pickup	
3.9L	42RE
5.2L (RWD)	42RE

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: Overdrive unit on rear of transmission is disassembled and serviced as a separate unit. See OVERDRIVE UNIT .

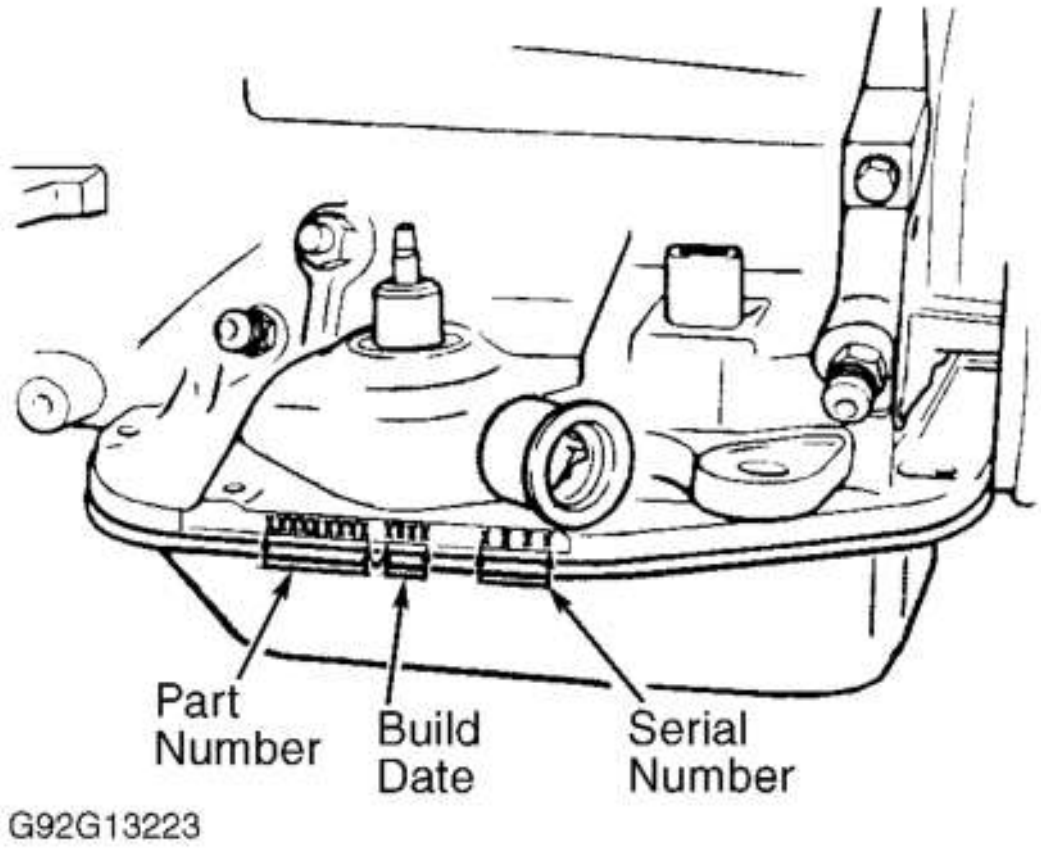


Fig. 1: Locating Transmission Identification Numbers
Courtesy of CHRYSLER CORP.

GEAR RATIOS

TRANSMISSION GEAR RATIOS

Gear Range	Gear Ratio
1st	2.74:1
2nd	1.54:1
3rd	1.00:1
4th	0.69:1
Reverse	2.21:1

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 4th gear is provided by overdrive clutch, direct clutch, planetary gear set 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 or 4th gear operation is controlled by a manually operated overdrive switch on gearshift lever. OD OFF indicator light is located on instrument panel. Overdrive switch is in the electrical circuit with Powertrain Control Module (PCM) and overdrive solenoid on valve body. Transmission will not shift into overdrive if switch is not in ON position. Torque converter lock-up is activated when PCM provides voltage to lock-up solenoid located on valve body. For information on electronic diagnosis of 42/44RE transmissions, see CHRYSLER 42RE, 44RE, 46RE & 47RE ELECTRONIC CONTROLS article.

Governor pressure used for transmission shifting is developed and controlled electronically. Various sensors are used for controlling the governor pressure. Overdrive or 4th gear operation is controlled by a manually operated overdrive switch located on gearshift lever. Overdrive switch supplies an input signal to the PCM for controlling overdrive operation.

PCM contains a self-diagnostic system which will store a Diagnostic Trouble Code (DTC) if a problem or failure is present in the electronic control system or components. DTCs can be retrieved to determine the transmission problem area. For information on electronic transmission system and operation, see CHRYSLER 42RE, 44RE, 46RE & 47RE ELECTRONIC CONTROLS article.

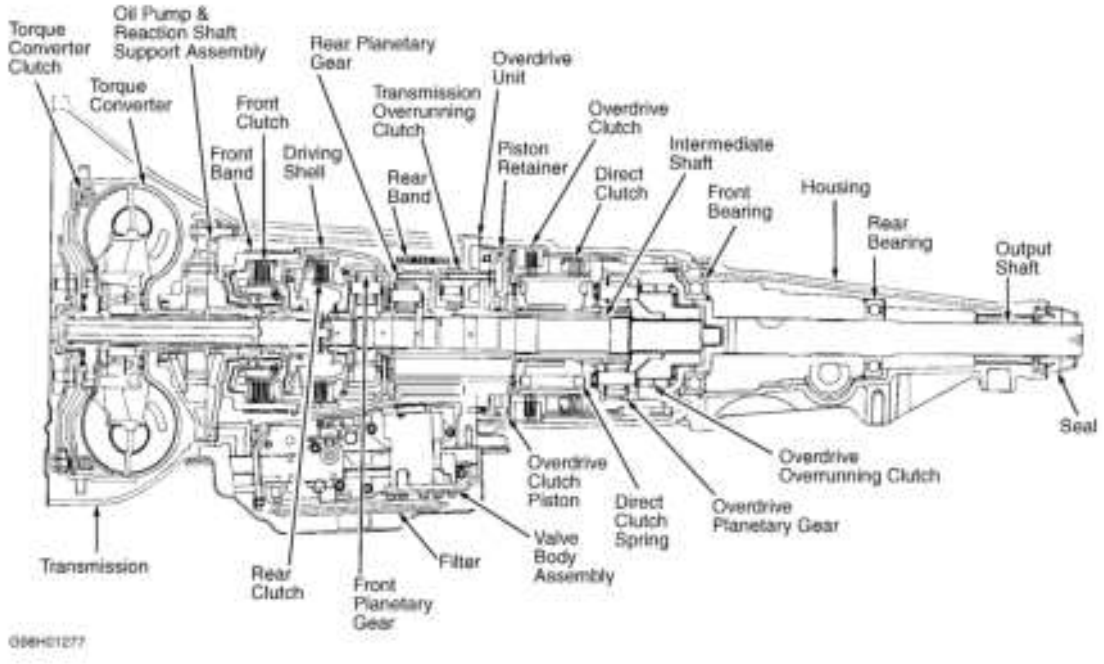


Fig. 2: Identifying Transmission Component Locations
Courtesy of CHRYSLER CORP.

LUBRICATION

NOTE: For additional information, see appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING.

RECOMMENDED FLUID

CAUTION: Manufacturer recommends Mopar(R) ATF+3 (Type 7176) fluid for use in this transmission. This ATF should also be used for lubrication during assembly. DO NOT use Dexron II ATF. Clutch chatter and internal

transmission damage may result.

FLUID CAPACITIES

TRANSMISSION FLUID CAPACITIES (1)

Application	Refill - Qts. (L)	Dry Fill - Qts. (L)
Dakota & Durango (42RE & 44RE)	(2) 4.0 (3.8)	(3) 9.6-10.0 (9.1-9.5)
Grand Cherokee (42RE)	(2) 4.0 (3.8)	9.6-10.0 (9.1-9.5)
Ram Pickup (42RE)	(2) 4.0 (3.8)	(3) 8.5-11.0 (8.0-10.4)

(1) Approximate quantities listed.

(2) Add fluid until level is at MIN mark on dipstick. Start engine and allow it to idle. With brakes applied, shift transmission through all gear ranges and return to Neutral. Add additional fluid to bring level to MIN mark on dipstick. Recheck fluid level with transmission at normal operating temperature. Adjust fluid level to MAX mark on dipstick.

(3) Quantity may vary with type of oil cooler and oil cooler lines.

ON-VEHICLE SERVICE

The following components can be serviced without transmission removal.

- Park/Neutral Position Switch
- Valve Body
- Vehicle Speed Sensor & Pinion Gear

For removal and installation procedures of listed components, see appropriate component under **REMOVAL & INSTALLATION** .

OIL COOLER FLUSHING

CAUTION: Whenever a transmission failure is present, oil cooler must be flushed, and torque converter 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: Vehicles 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. Always reverse flush when flushing oil cooler and lines.

Flushing Procedure

1. Note oil cooler supply and return line locations. See **Fig. 3** . 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.
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(R) ATF+3, Type 7176 fluid.

OIL COOLER FLOW CHECK

1. With transmission filled to proper fluid level, disconnect oil cooler return line from transmission (rear cooler line). See **Fig. 3** . Place container under oil cooler return line.
2. Apply parking brake. Start engine and allow to idle. Place gearshift lever in Neutral. Check fluid flow from oil cooler return line.
3. If fluid flow is consistent and takes 20 seconds or less to obtain one quart, oil pump volume and oil cooler flow are okay. If fluid flow is intermittent or takes more than 20 seconds to obtain one quart, disconnect oil cooler inlet line. Refill transmission to proper level and recheck flow.
4. If fluid flow is intermittent or takes more than 20 seconds to obtain one quart, check line pressure. See **HYDRAULIC PRESSURE TESTS** under PERFORMANCE TESTS. If fluid flow is consistent and takes 20 seconds or less to obtain one quart, replace oil cooler. Reconnect oil cooler lines. Fill transmission with appropriate ATF. See **LUBRICATION** .

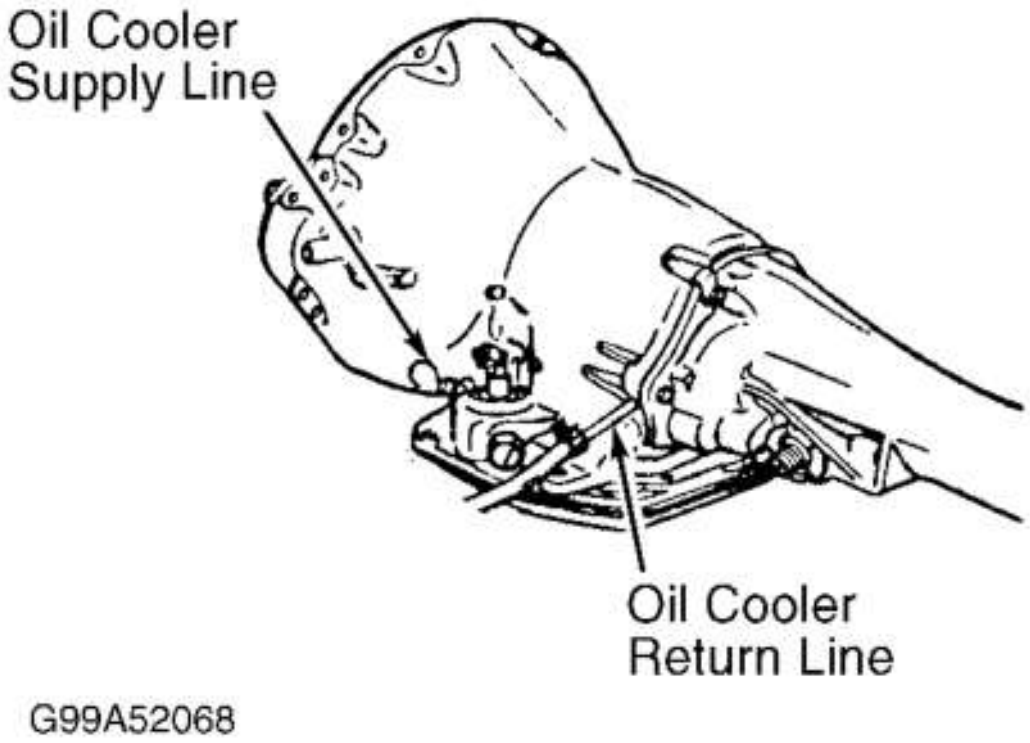


Fig. 3: Identifying Oil Cooler Lines
Courtesy of CHRYSLER CORP.

TROUBLE SHOOTING

Transmission malfunctions may be caused by poor engine performance, improper adjustments or failure of hydraulic, mechanical or electronic components. Check for stored DTCs before trouble shooting or testing transmission. See CHRYSLER 42RE, 44RE, 46RE & 47RE ELECTRONIC CONTROLS article.

Always begin by checking fluid level, fluid condition, shift or throttle valve linkage or 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 **PERFORMANCE TESTS** .

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

Possible cause: 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

Possible cause: low fluid level, clogged oil filter, improperly adjusted gearshift linkage, torque converter drainback, 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

Possible cause: 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

Possible cause: 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

Possible cause: 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)

Possible cause: 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

Possible cause: 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)

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

No Reverse

Possible cause: 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

Possible cause: 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

Possible cause: 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

Possible cause: defective overrunning clutch.

Slips In Reverse Only

Possible cause: 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

Possible cause: faulty lock-up solenoid.

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

Possible cause: defective lock-up solenoid, relay or wiring.

Vehicle Moves In Neutral

Possible cause: dragging rear clutch, incorrect gearshift linkage adjustment or valve body malfunction or leakage.

Vehicle Moves In 2nd Or 3rd Gear & Abruptly Downshifts To Low

Possible cause: sticking governor valve or valve body malfunction or leakage.

Vehicle Will Not Move In Any Gear

Possible cause: 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

Possible cause: 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

Possible cause: misadjusted gearshift linkage/cable, open in Park/Neutral Position (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

Possible cause: governor circuit electrical fault, valve body malfunction or burnt/damaged front servo or kickdown band.

Noise Related To Engine Speed

Possible cause: low fluid level or incorrect shift cable routing.

OVERDRIVE UNIT SYMPTOM DIAGNOSIS

Delayed 3-4 Upshift

Possible cause: 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

Possible cause: 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

Possible cause: overdrive switch in OFF position, blown overdrive circuit fuse, shorted or open overdrive switch wire, malfunctioning distance or coolant sensor, faulty TP sensor, Park/Neutral Position (PNP) switch circuit 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

Possible cause: 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

Possible cause: open or shorted control switch, shorted overdrive solenoid connector, faulty PCM or stuck valves in valve body.

Noisy Operation In 4th Gear Only

Possible cause: 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

Possible cause: 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

Possible cause: 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

Possible cause: low fluid level, misadjusted throttle cable or wrong overdrive clutch select spacer installed.

PERFORMANCE TESTS

ROAD TEST

1. Ensure throttle valve and shift linkage or cable are properly adjusted. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING. 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 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, slipping clutch 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 Lever 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" (Neutral)	All Clutches & Bands Released Or Ineffective
"P" (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 TESTS

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.

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 gearshift lever on transmission.

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

1. Remove pressure tap plugs and install pressure gauge in accumulator and rear servo pressure taps. See **Fig. 4** . Start and operate engine at 1000 RPM.
2. Place gearshift lever in "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.
5. This tests oil pump output, pressure regulation, condition of rear clutch and servo hydraulic circuits. Remove pressure gauges. Install and tighten pressure tap plugs to specification. See **TORQUE SPECIFICATIONS** .

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

1. Remove pressure tap plug and install pressure gauge in accumulator pressure tap. See **Fig. 4** . Start and operate engine at 1000 RPM.
2. Move gearshift lever to fully forward position, and then rearward one position to "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.
5. This tests oil pump output and pressure regulation. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

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

1. Remove pressure tap plugs and install pressure gauge in accumulator and front servo pressure taps. See **Fig. 4** . Start and operate engine at 1600 RPM.
2. Move gearshift lever to fully forward position, and then rearward 2 positions to "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.
5. This tests oil pump output, pressure regulation and condition of clutch hydraulic circuits. Remove pressure gauges. Install and tighten pressure tap plugs to specification. See **TORQUE SPECIFICATIONS** .

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

1. Remove pressure tap plug and install 300 psi (21 kg/cm^2) pressure gauge in rear servo pressure tap. See **Fig. 4** . Start and operate engine at 1600 RPM.
2. Move gearshift lever to fully forward position, and then rearward 4 positions to "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.
4. This tests oil pump output, pressure regulation, front clutch and rear servo hydraulic circuits. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test With Transmission In Overdrive (4th Gear)

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 300 psi (21 kg/cm^2) pressure gauge in overdrive clutch pressure tap. See **Fig. 4** .

2. Lower vehicle, leaving wheels about 12" from floor. Ensure overdrive switch is in ON position. Start engine. Place gearshift lever 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 (8.8 kg/cm^2) at full throttle.
4. This tests line pressure at overdrive clutch in 4th gear. 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. 4** .
2. Lower vehicle, leaving wheels about 12" from floor. Start engine and allow it to idle. Place gearshift lever in "D" (Drive) position. 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 CHRYSLER 42RE, 44RE, 46RE & 47RE ELECTRONIC CONTROLS article.
4. If pressure is correct, slowly increase engine speed, noting governor pressure in relation to vehicle speed. Governor pressure should increase about one psi (.07 kg/cm^2) for every MPH. Governor pressure should increase smoothly, and then decrease to 3 psi (.2 kg/cm^2) when wheels stop rotating. Repair governor circuit if operation is not as specified.
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 Results

1. If proper line pressure is obtained in any pressure test, oil pump and pressure regulator are operating properly.
2. If line pressure is low in "D", "1" and "2" positions, but is correct in "R" position, this indicates leakage in rear clutch circuit.
3. If line pressure is low in "D" (3rd gear) and "R" position, but is correct in "1" and "2" positions, this indicates leakage in front clutch circuit.
4. If line pressure is low in "R" and "1" positions, but is correct in "2" position, this indicates leakage in rear servo circuit. If front servo pressure is low in "2" position, this indicates leakage in front servo circuit.
5. If line pressure is low when in "D" (4th gear) position, this indicates overdrive clutch piston seal or check ball problem.
6. High governor pressure at idle indicates defective governor solenoid valve. Low governor pressure at all vehicle speeds indicates defective governor solenoid valve, TCM or governor pressure sensor.
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.

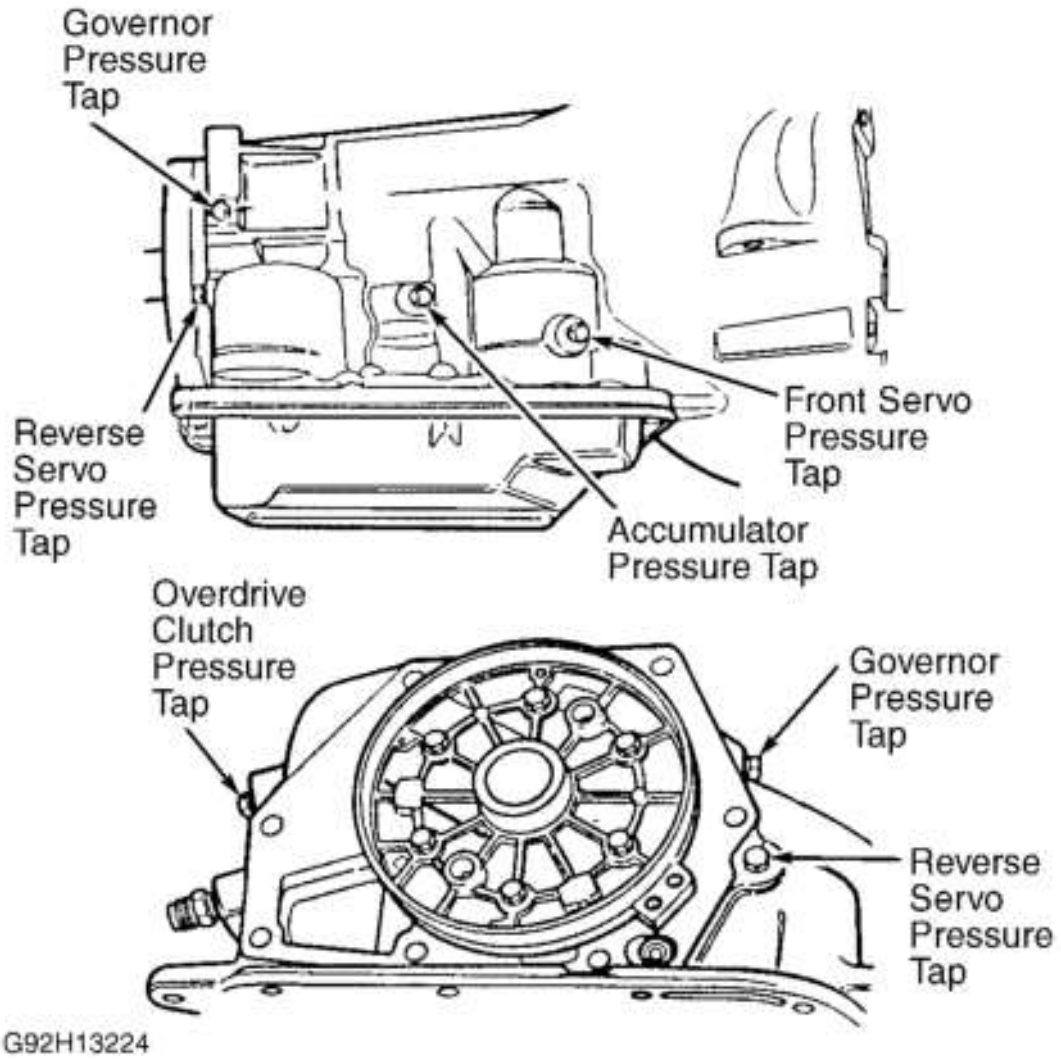


Fig. 4: Identifying Pressure Taps
Courtesy of CHRYSLER CORP.

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.

NOTE: See HYDRAULIC PRESSURE TESTS for pressure specifications.

Line Pressure

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

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

2. Rotating line pressure adjusting screw one revolution will change line pressure about 1 2/3 psi (11 kPa). Rotating line pressure adjusting screw counterclockwise increases line pressure, and rotating clockwise decreases line pressure.

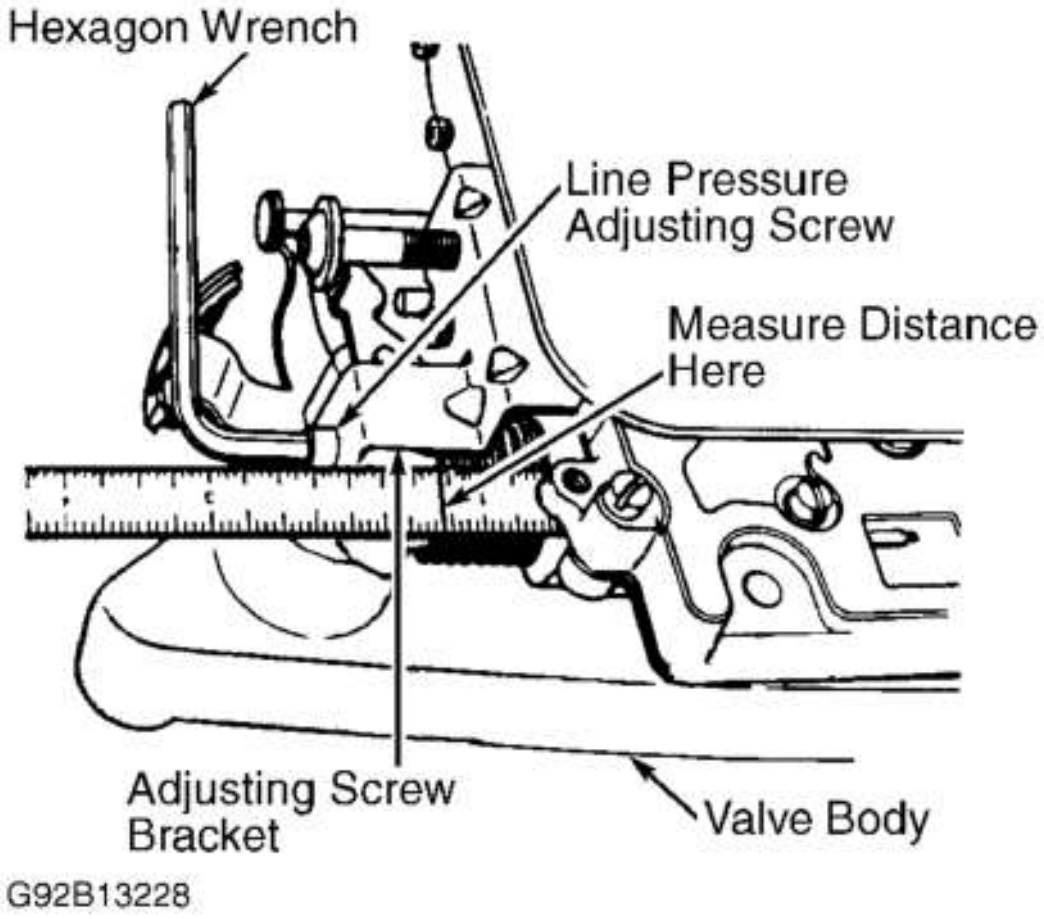


Fig. 5: Identifying Adjusting Screw Bracket & Adjusting Line Pressure
Courtesy of CHRYSLER CORP.

Throttle Pressure

1. Insert Gauge Pin (C-3763) between cam on throttle lever and kickdown valve. See **Fig. 6** .
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.

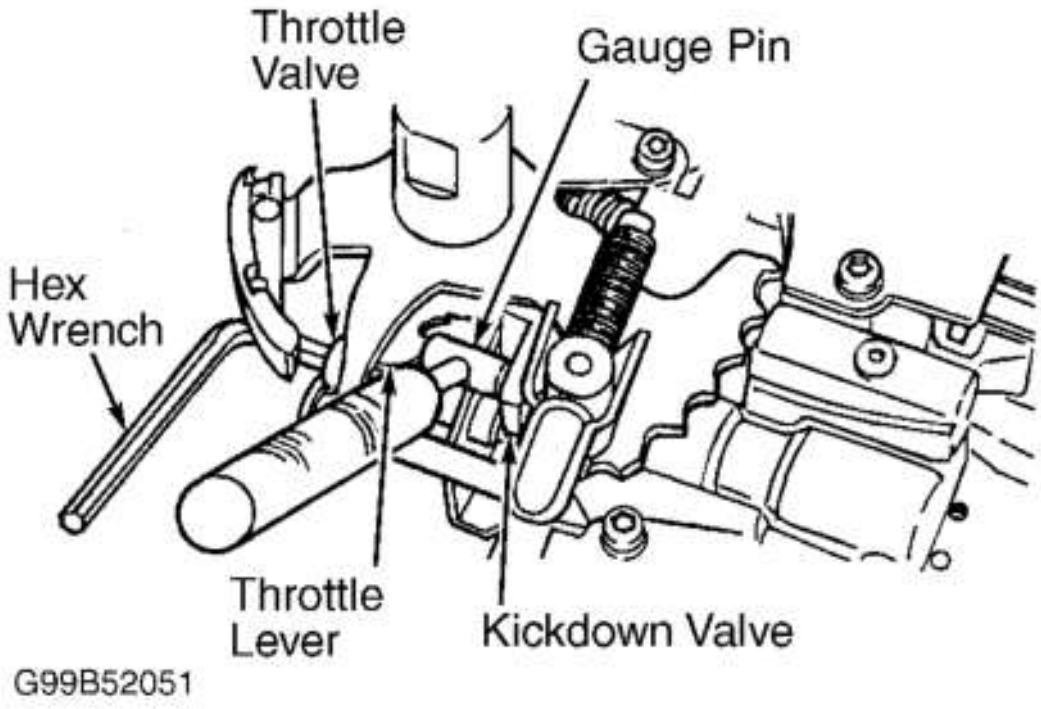


Fig. 6: Adjusting Throttle Pressure
Courtesy of CHRYSLER CORP.

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.

Stall Speed Test

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 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 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 originating from torque converter, raise vehicle on hoist. Operate vehicle with transmission in Drive, and then Neutral at light throttle. Ensure noise originates 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. 7** . 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. 7** . 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. 7** . 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. 7** . Rear band should tighten, indicating rear servo operation. Release air pressure. Ensure spring tension on servo piston releases rear band.

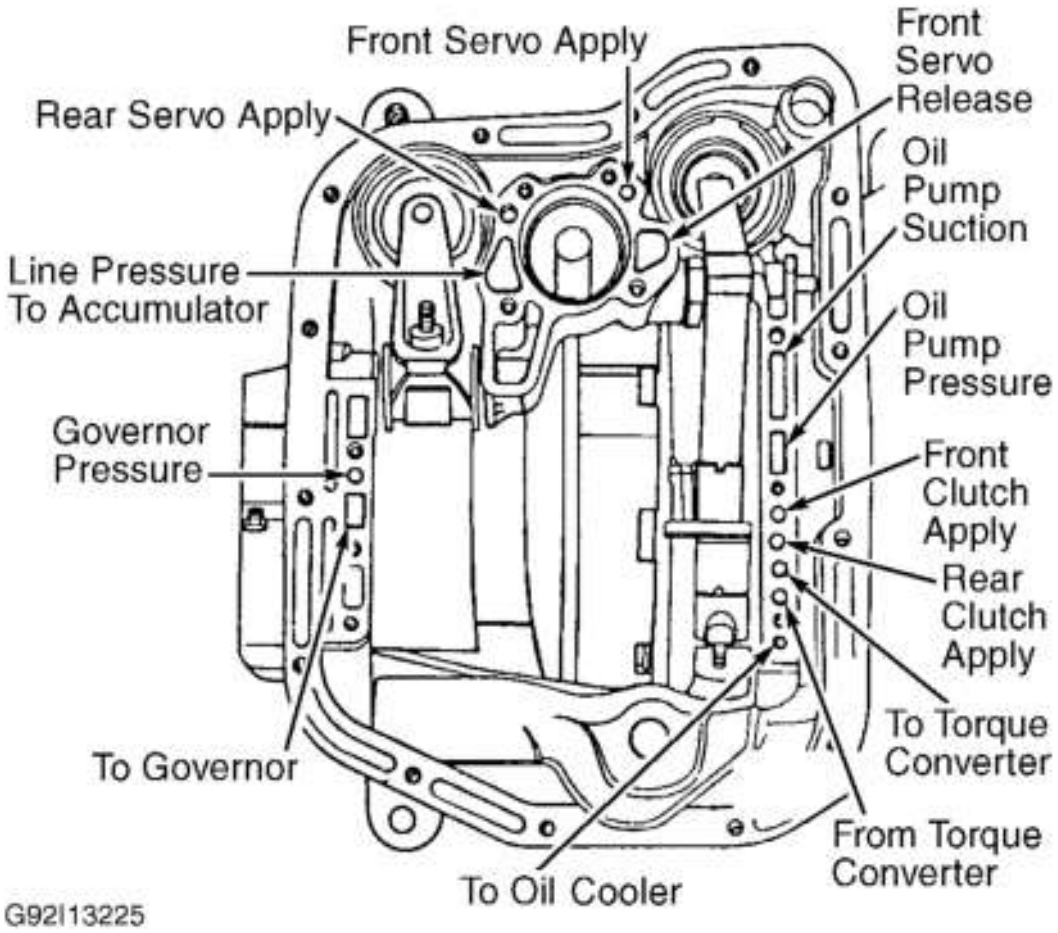


Fig. 7: Identifying Air Pressure Test Passages
Courtesy of CHRYSLER CORP.

REMOVAL & INSTALLATION

NOTE: Manufacturer recommends Mopar(R) ATF+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 SWITCH

Removal & Installation

1. Raise and support vehicle. Place drain pan under PNP switch located near manual shift lever on transmission. See **Fig. 12** . Disconnect harness 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 harness connector. Adjust transmission fluid level with ATF.

TRANSMISSION

NOTE: For transmission removal and installation, see appropriate AUTOMATIC TRANSMISSION REMOVAL article in TRANSMISSION SERVICING.

VALVE BODY

Removal

1. Place transmission in Neutral. Raise and support vehicle. Remove bolts, oil pan and gasket. Remove throttle valve and manual shift levers from transmission. Remove PNP switch. See **PARK/NEUTRAL POSITION 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 locations 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 and 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 spring between accumulator and valve body. Install valve body, working park rod past parking sprag. Ensure accumulator spring 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 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 appropriate fluid to proper level. Ensure shift linkage/cable and throttle valve cable/linkage are properly adjusted. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING.

VEHICLE SPEED SENSOR & PINION GEAR

Removal

1. Raise and support vehicle. Disconnect electrical connector from VSS. See **Fig. 8** .
2. Remove bolt and adapter retainer. Note location of indexing numbers on adapter in relation to housing. See **Fig. 9** .

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

3. Ensure area around adapter is clean. Remove adapter with VSS, "O" ring and pinion gear. See **Fig. 8** . 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 pinion gear. Ensure number of teeth on pinion gear is within range of indexing numbers listed on adapter. See **Fig. 9** .
4. Install adapter with pinion gear in housing. Rotate adapter until proper indexing number in relation to number of pinion gear teeth is at 6 o'clock position. See **Fig. 9** .
5. Ensure adapter is seated in housing. Install adapter retainer. Install and tighten retaining bolt to specification. See **TORQUE SPECIFICATIONS** . Install electrical connector on VSS. Adjust transmission fluid level with appropriate fluid. See appropriate AUTOMATIC TRANSMISSION SERVICING article in TRANSMISSION SERVICING.

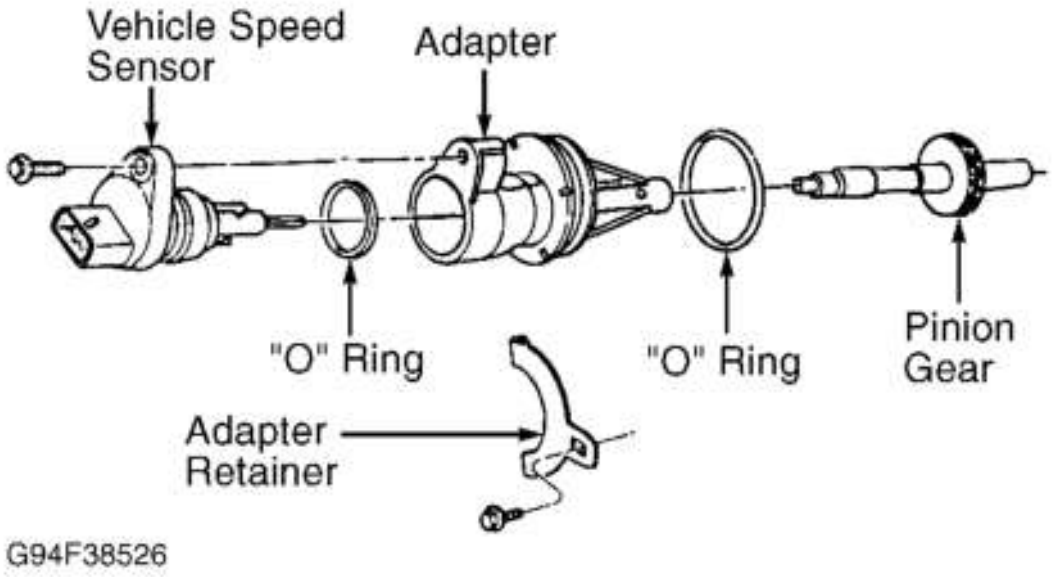


Fig. 8: Exploded View Of Vehicle Speed Sensor & Components
Courtesy of CHRYSLER CORP.

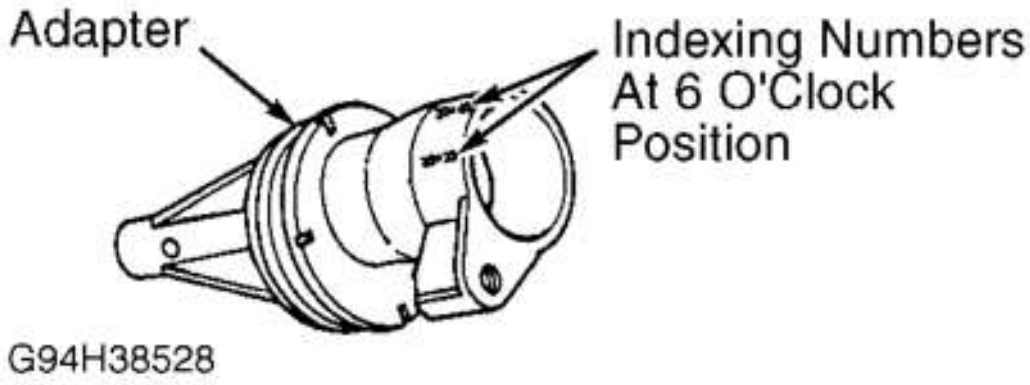


Fig. 9: Identifying Adapter Indexing Numbers
Courtesy of CHRYSLER CORP.

TRANSMISSION DISASSEMBLY

NOTE: For overdrive disassembly, see OVERDRIVE UNIT .

VALVE BODY & INTERNAL 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. Unscrew speed sensor from overdrive unit case. Place transmission in vertical position with overdrive unit facing upward.

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 case bolts. Remove overdrive unit. See **Fig. 10** . 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. 11** . 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. 10** . Remove overdrive piston from overdrive piston retainer.

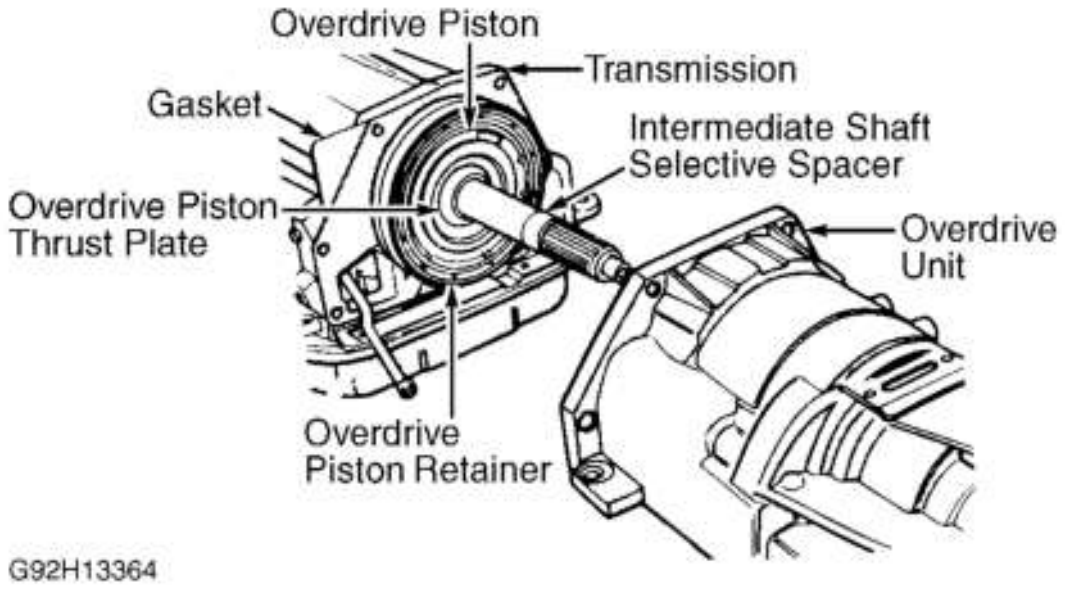


Fig. 10: Removing Overdrive Unit
Courtesy of CHRYSLER CORP.

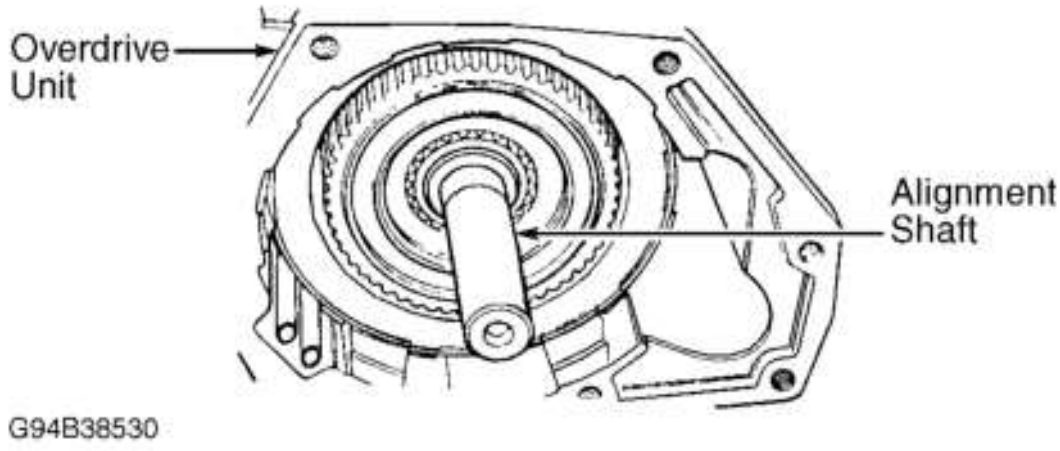


Fig. 11: Installing Alignment Shaft In Overdrive Unit
Courtesy of CHRYSLER CORP.

4. Remove bolts, oil pan and gasket. Remove PNP switch and seal. Remove bolts and filter assembly. Keep bolts with filter assembly for reassembly reference.
5. Remove valve body-to-transmission case bolts. Note bolt length and location for reassembly reference.
6. 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.
7. Loosen front band adjusting screw lock nut about 5 turns. See **Fig. 12** . Tighten front band adjusting screw until front band is tight around front clutch retainer. This prevents clutch components from coming out when oil pump is removed.
8. Remove oil pump bolts. Install slide hammers on opposite sides of oil pump. Pull oil pump from transmission case. See **Fig. 13** . Remove oil pump gasket.

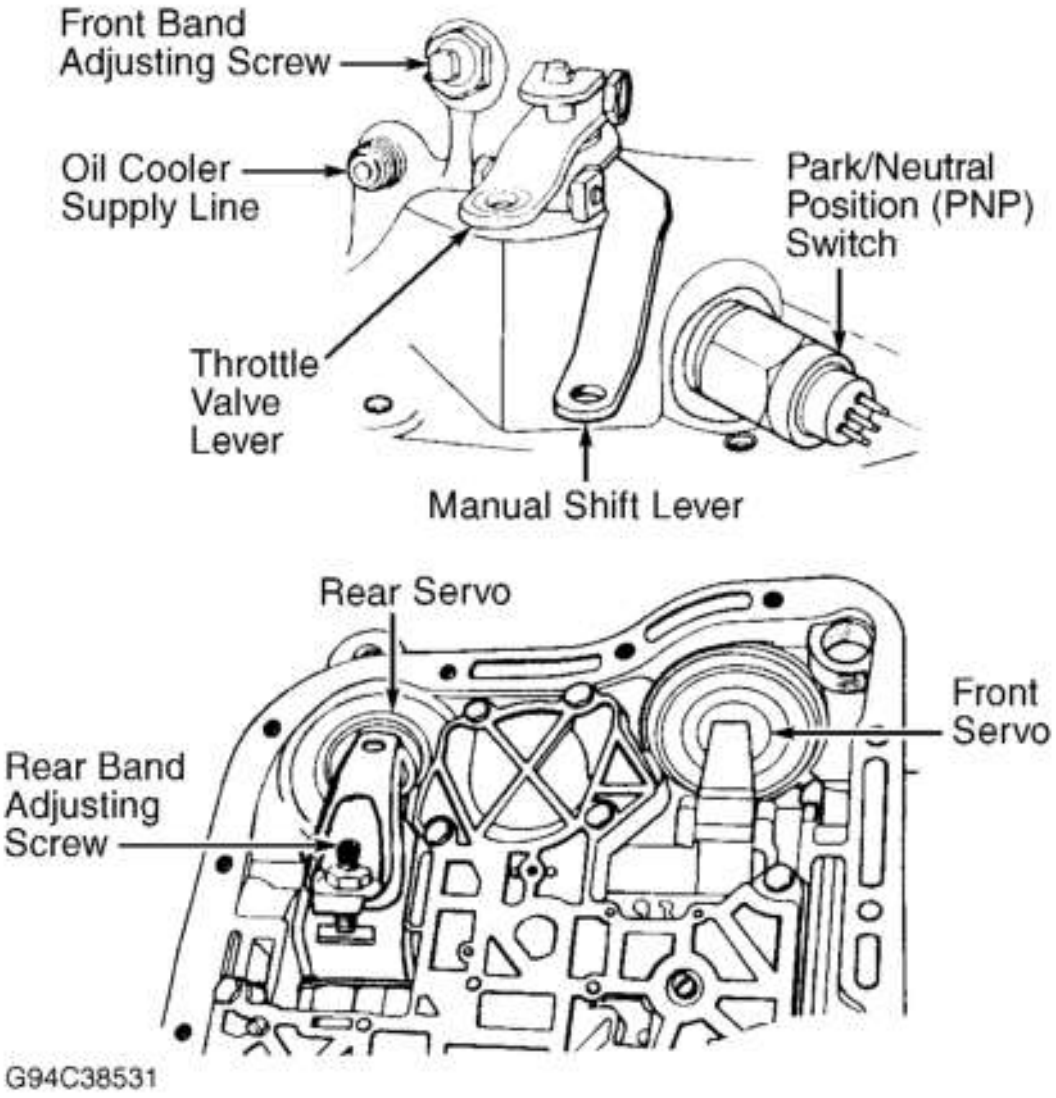


Fig. 12: Identifying Band Adjusting Screws & Servos
Courtesy of CHRYSLER CORP.

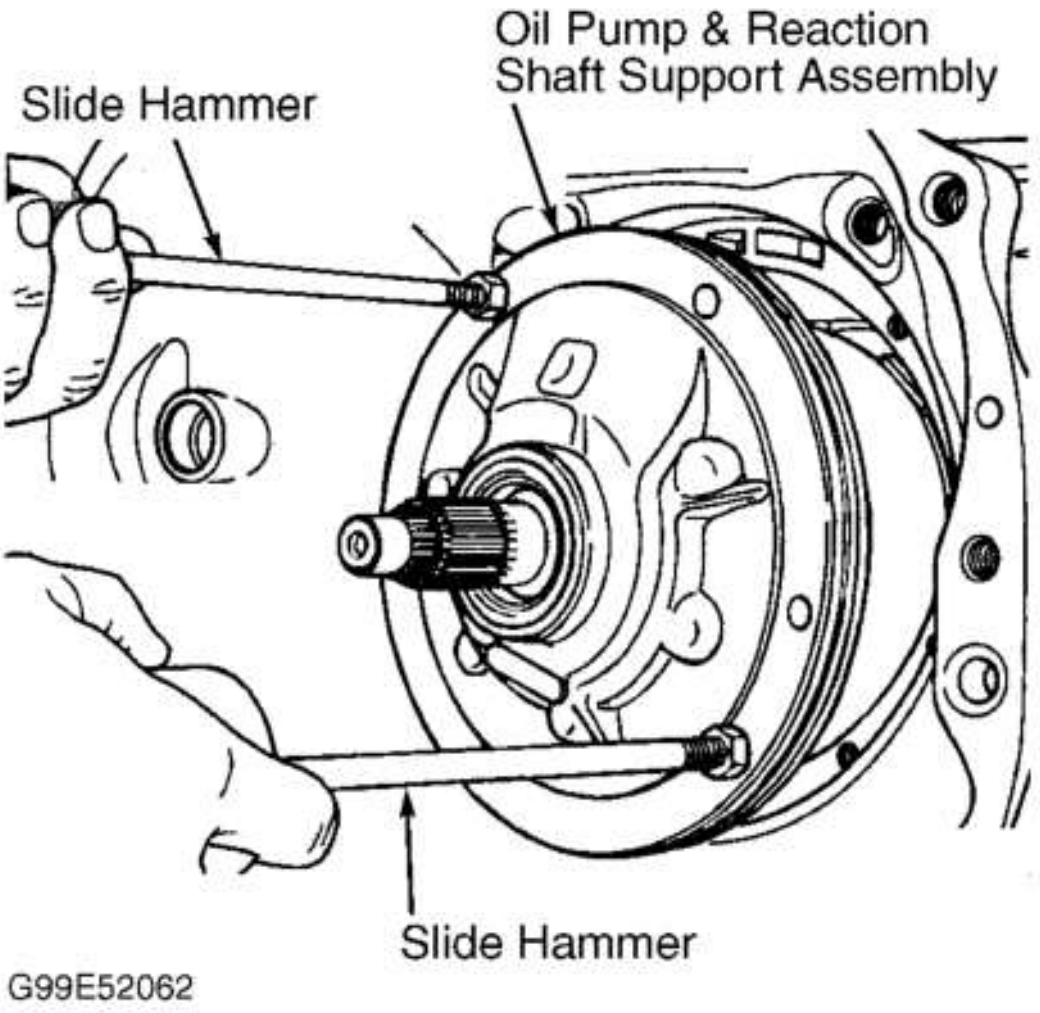


Fig. 13: Removing Oil Pump
Courtesy of DAIMLERCHRYSLER CORP.

9. 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.
10. Remove lever for front band from transmission case. Remove front band lever shaft plug from converter housing. See **Fig. 14** . Slide front band rearward onto driving shell. Front band will be removed after front and rear clutch assemblies are removed.
11. Grasp input shaft and hold clutch units together. Remove front and rear clutch as an assembly. See **Fig. 14** . Remove thrust washer from intermediate shaft. This thrust washer may remain on hub of rear clutch.

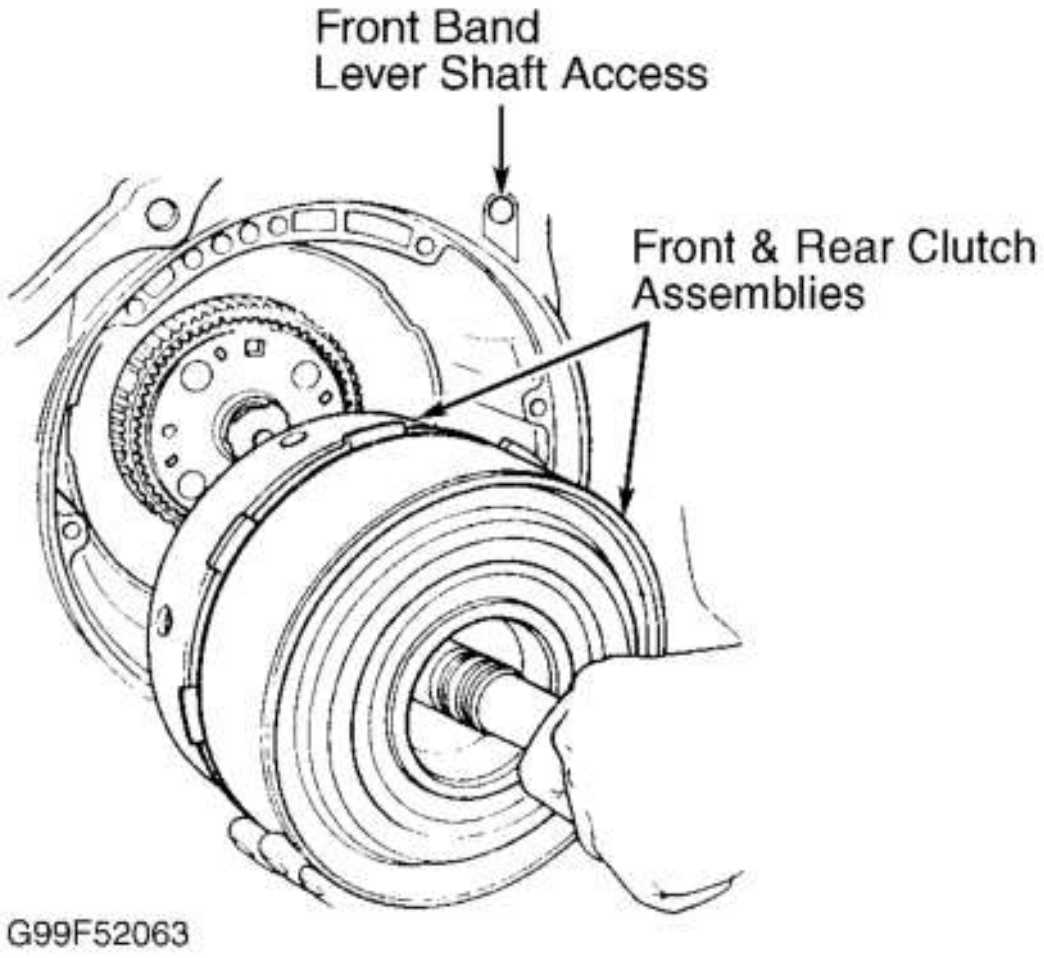


Fig. 14: Locating Front Band Lever Shaft Hole & Removing Front & Rear Clutch Assemblies
Courtesy of CHRYSLER CORP.

CAUTION: Do not damage machined surfaces on intermediate shaft during removal.

12. Remove intermediate shaft thrust plate from end of intermediate shaft. See **Fig. 25** . Remove front band. Remove intermediate shaft and planetary gear train assembly.
13. Loosen rear band adjusting screw about 5 turns. See **Fig. 12** . Remove low-reverse drum-to-overdrive piston retainer snap ring from inside of transmission case.
14. Remove bolts from overdrive piston retainer located on rear of transmission case. See **Fig. 10** . Remove overdrive piston retainer and gasket.
15. Remove rear band pivot and pins. Pins are removed from rear of transmission case. Remove rear band lever. Rotate low-reverse drum clockwise and pull outward. Remove low-reverse drum and rear band as an assembly. Overrunning clutch race will remain on low-reverse drum during removal.
16. Note direction of overrunning clutch installation for reassembly reference. Remove overrunning clutch bolts from rear of transmission case. Remove overrunning clutch cam and rollers and overrunning clutch cam as an assembly by rotating back and forth and tilting inward. See **Fig. 16** .

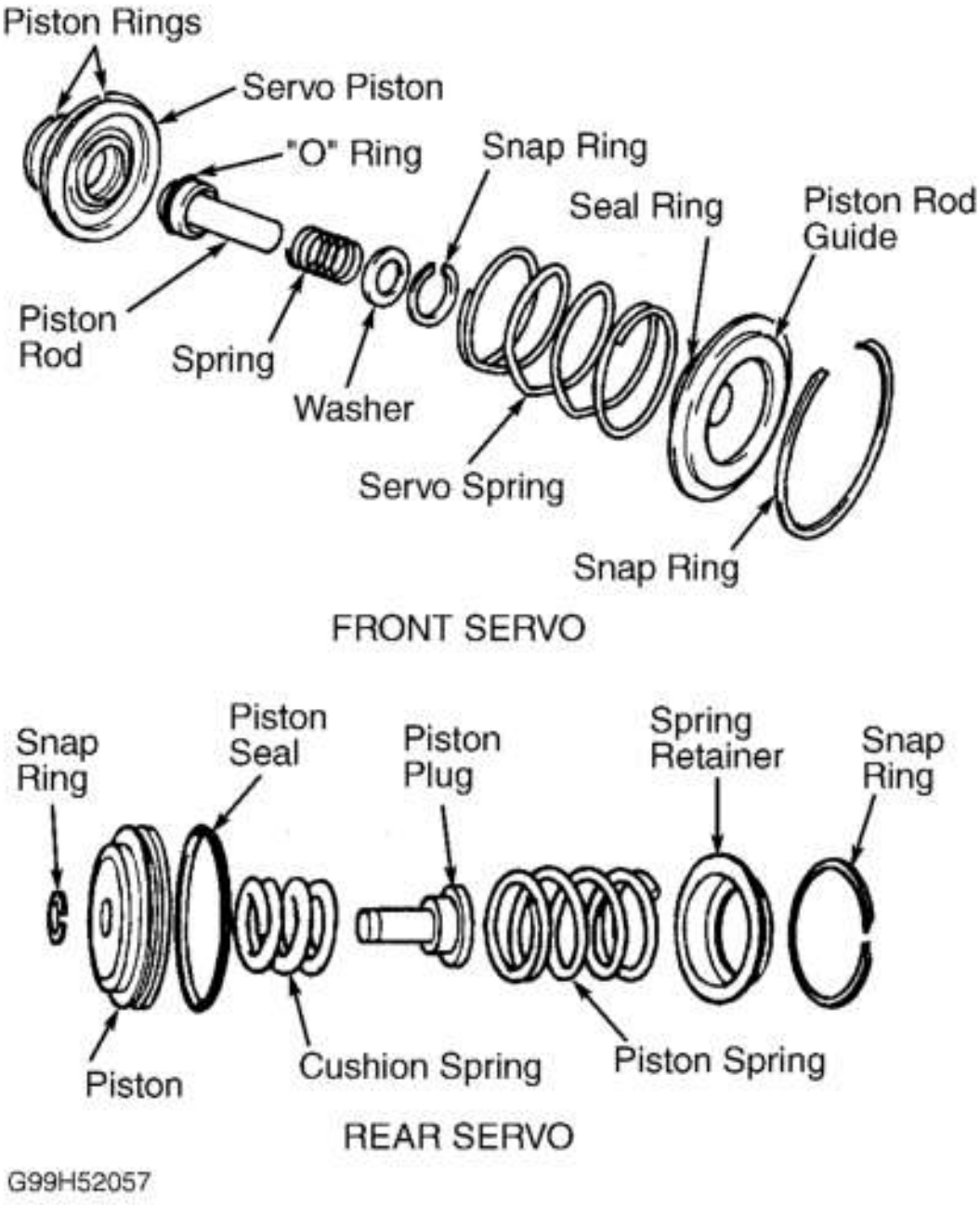


Fig. 15: Exploded View Of Servo Assemblies
Courtesy of CHRYSLER CORP.

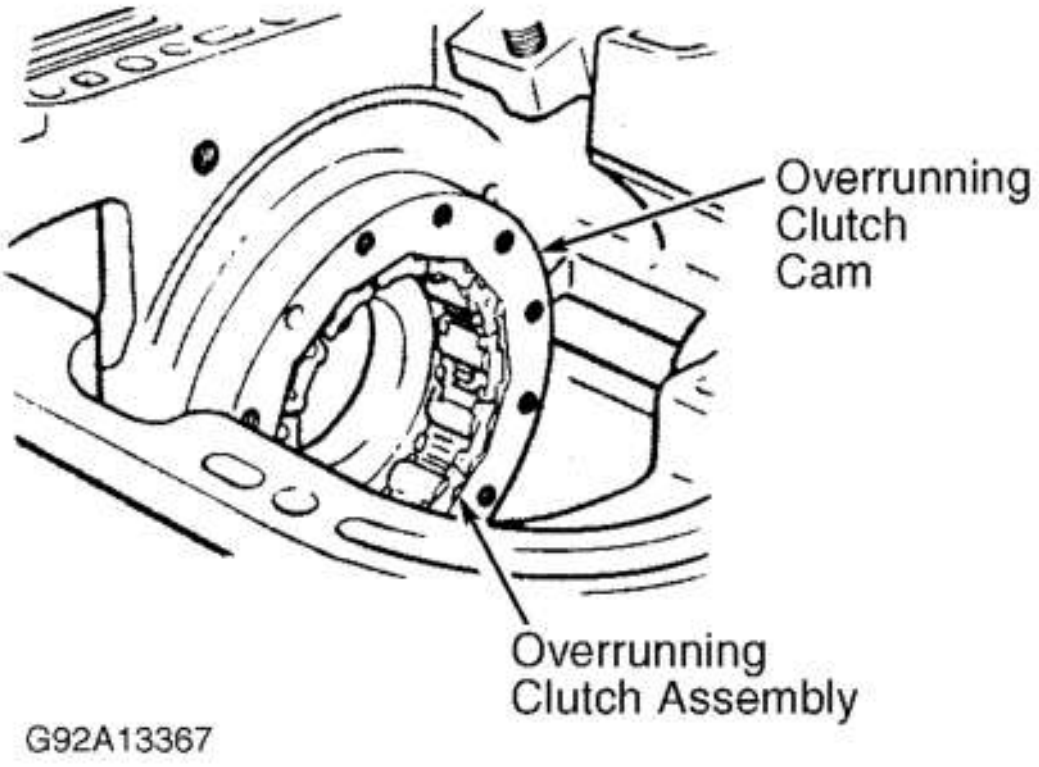


Fig. 16: Removing Overrunning Clutch Components
Courtesy of CHRYSLER CORP.

17. If removing servo components, note servo identification. See **Fig. 12** . To remove front servo, use "C" clamp and spring compressor to compress servo. Compress servo guide on front servo about 1/8".
18. Remove snap ring. DO NOT scratch sealing surfaces. Release spring compressor. Remove servo guide, spring and front servo piston. See **Fig. 15** .
19. To remove rear servo, compress spring retainer using "C" clamp and spring compressor. Compress spring retainer on rear servo about 1/16".
20. Remove snap ring. DO NOT scratch sealing surfaces. Release spring compressor. Remove spring retainer, spring and rear servo piston.

TRANSMISSION COMPONENT DISASSEMBLY & REASSEMBLY

NOTE: If any components are replaced, ensure identification number on transmission case is used when replacing components to ensure proper component application.

NOTE: Manufacturer recommends Mopar(R) ATF+3, Type 7176 fluid for use in this transmission. This fluid should also be used to pre-lubricate components during assembly and installation.

OVERRUNNING CLUTCH

Disassembly

1. If overrunning clutch assembly came out with low-reverse drum, thread 2 bolts into back side of overrunning clutch cam. Lift overrunning clutch assembly from low-reverse drum. It may be necessary to rotate overrunning clutch assembly back and forth during removal.
2. Note direction of springs and roller installation in retainer for reassembly reference. Separate springs, rollers and retainer from overrunning clutch cam.

Cleaning & Inspection

Clean components with solvent and dry with compressed air. Inspect overrunning clutch components and low-reverse drum for damage. Replace damaged components. Do not remove clutch race from low-reverse drum. If components are damaged, replace as an assembly.

Reassembly

1. Install roller and springs in retainer. Ensure springs and rollers are installed in correct location and are fully seated. See **Fig. 17** .
2. Install roller and springs with retainer in overrunning clutch cam. Lubricate components with ATF. Identify non-threaded hole in overrunning clutch cam with a paint mark.

CAUTION: Paint mark must be in alignment with non-threaded hole on overrunning clutch cam. Paint mark is used for reassembly reference. Ensure countersunk holes in overrunning clutch cam face rear of transmission when installed. See Fig. 17 and Fig. 38 .

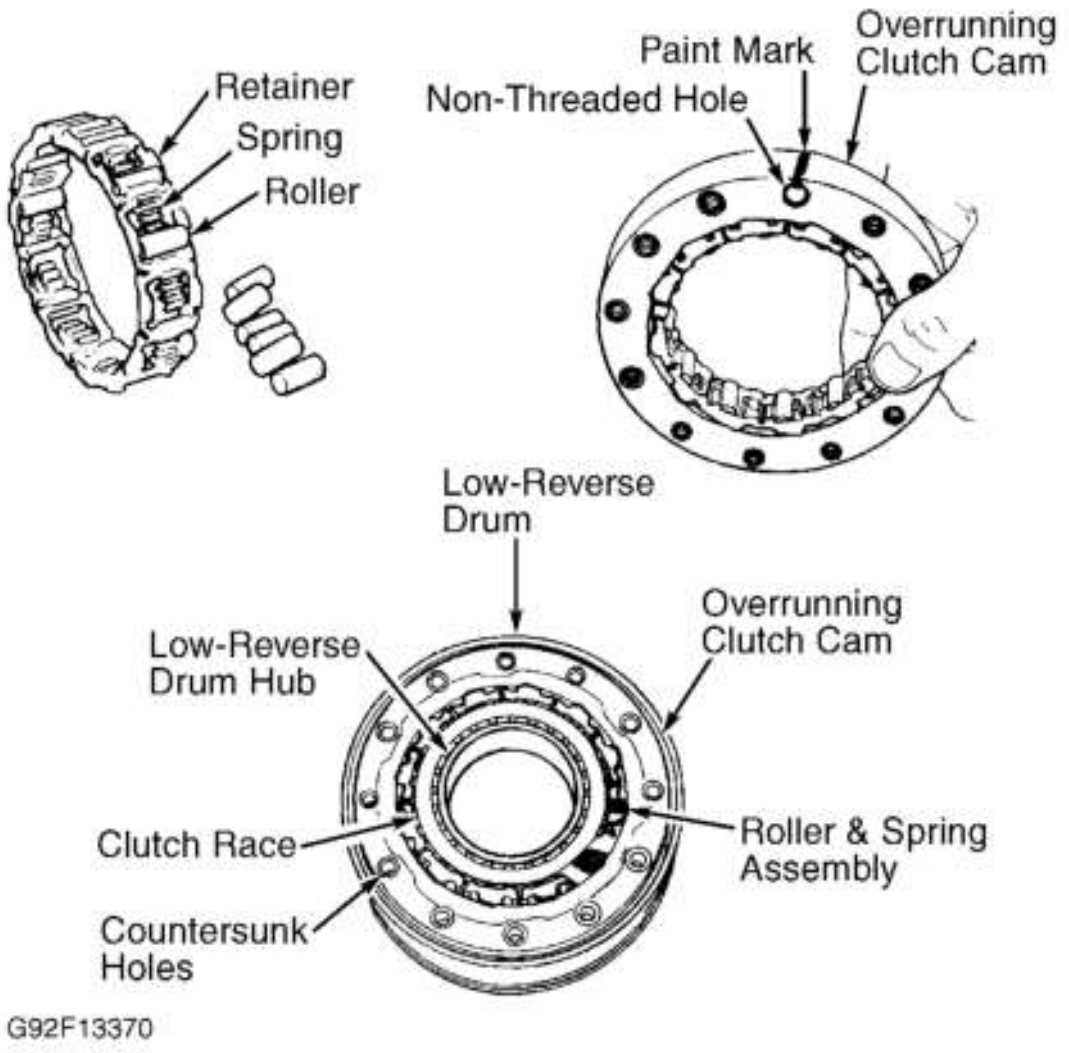


Fig. 17: Assembling Overrunning Clutch
Courtesy of CHRYSLER CORP.

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. 18** . Remove seal ring from outer diameter of oil pump housing.
2. Using a hammer and punch, tap seal from oil pump housing. Remove seal rings from reaction shaft support. Note direction of thrust washer installation on hub of reaction shaft support. Remove thrust washer from hub on reaction shaft support.
3. Note direction of pump gear installation. 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 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-5324). See **Fig. 19** .

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.

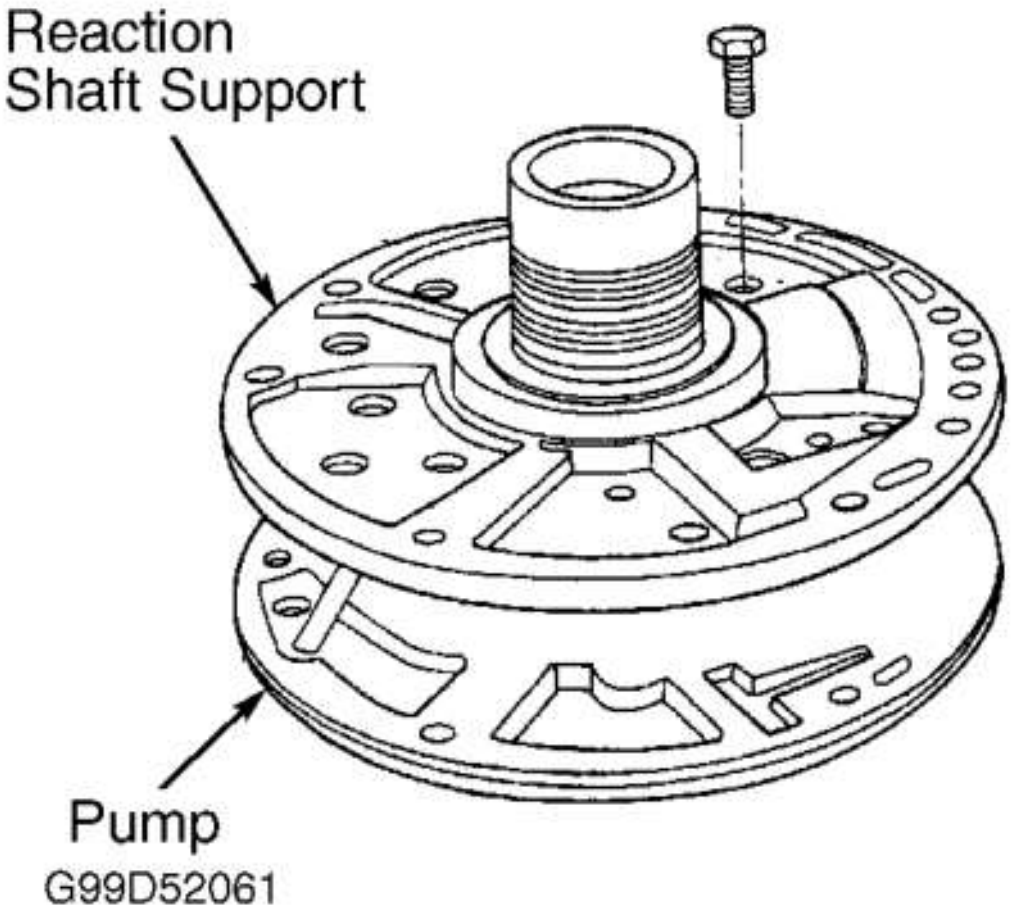


Fig. 18: Removing Reaction Shaft Support From Oil Pump Housing
Courtesy of DAIMLERCHRYSLER CORP.

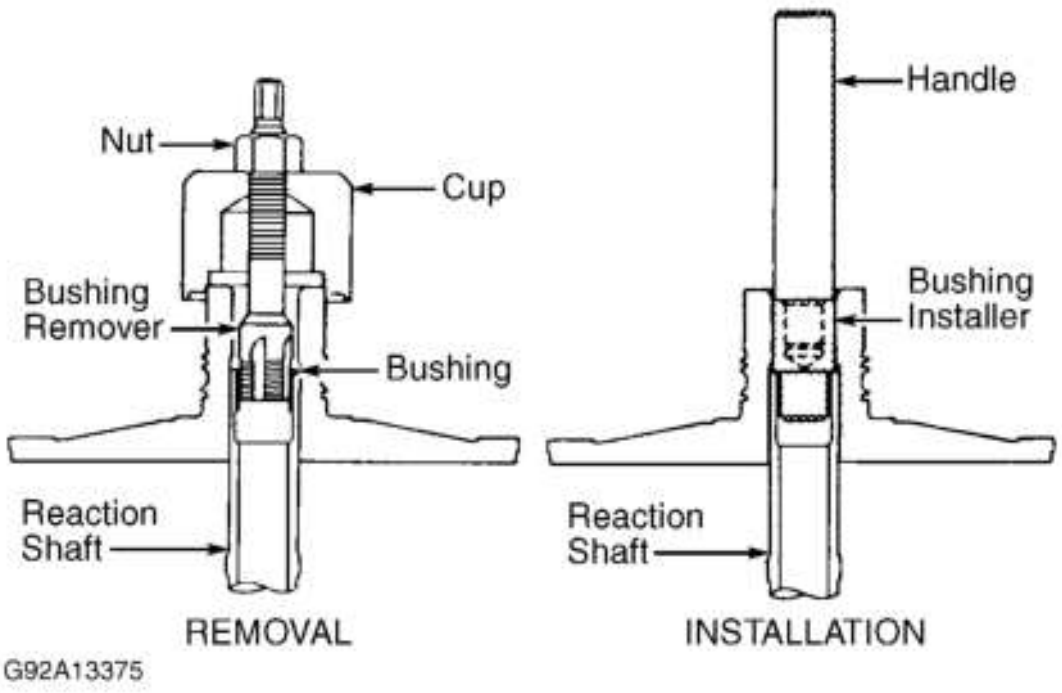


Fig. 19: Removing & Installing Reaction Shaft Support Bushing
Courtesy of CHRYSLER CORP.

Cleaning & Inspection

1. Clean and inspect components for damage. Inspect all machined surfaces for pitting or damage.
2. Install both pump gears in oil pump housing. Using Plastigage(tm), measure oil pump gear-to-reaction shaft support housing clearance.
3. Place Plastigage(tm) across both pump gears, aligning to flat area on reaction shaft housing. Install reaction shaft housing. Remove reaction shaft housing and read Plastigage(tm) to measure clearance between pump gears and reaction shaft housing.
4. Align one tooth on outer gear with one tooth on inner gear. Using feeler gauge, measure gear tooth clearance between gear teeth. Measure clearance between outer gear and pump housing. Replace components if clearance is not within specification. See **OIL PUMP SPECIFICATIONS** table.

OIL PUMP SPECIFICATIONS

Application	In. (mm)
Outer Gear-To-Pump Housing	.0035-.0075 (.089-.190)
Pump Gear-To-Reaction Shaft Support Clearance (End Clearance)	.0004-.0025 (.010-.064)
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. Using hammer, tap bushing in oil pump housing until bushing is even with surface of oil pump housing bore. Ensure bushing is installed evenly and does not bind in oil pump housing.
3. Using blunt punch, stake bushing in 2 places. See **Fig. 20** . Using knife, clean burrs from stake areas.

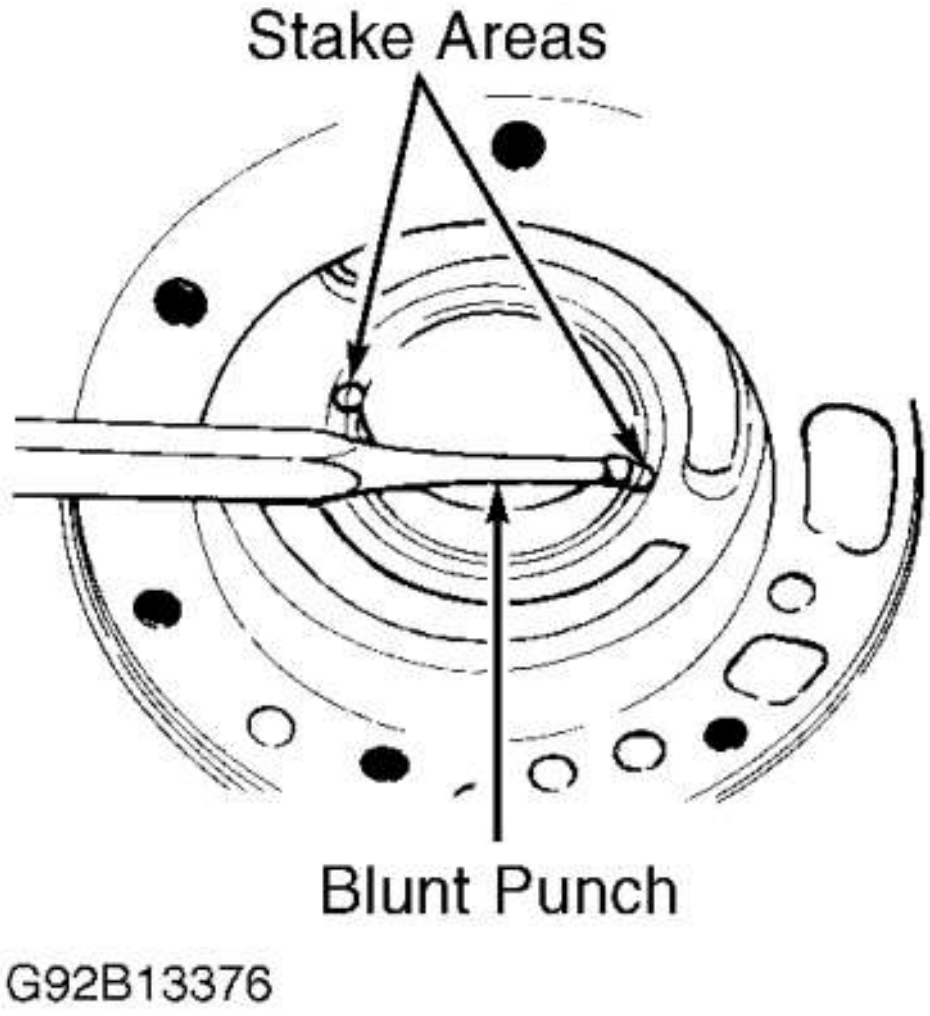


Fig. 20: Staking Bushing In Oil Pump Housing
Courtesy of CHRYSLER CORP.

4. 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.
5. Use Handle (C-4171) and Bushing Installer (SP-5325). See **Fig. 19** . Place bushing on bushing installer and start into reaction shaft support. Using hammer, tap bushing into reaction shaft support until bushing installer bottoms. Remove bushing installer. Clean bushing and reaction shaft support.

CAUTION: Inner pump gear must be installed so chamfered side of bore on gear faces forward (toward front of oil pump).

6. To reassemble oil pump, lubricate pump gears and bore in oil pump housing with ATF. Install inner and outer gear in oil pump housing.

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.

7. Install NEW thrust washer on rear of reaction shaft support. 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 seal rings will be damaged when installing oil pump.

8. 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 hook together.
9. Install reaction shaft support on oil pump housing with reference marks aligned. Install reaction shaft support bolts finger tight. DO NOT tighten bolts at this time.
10. Install oil pump in transmission case with oil pump reversed so reaction shaft support bolts are facing outward (toward front of transmission).
11. Install 3 bolts to secure oil pump in transmission case. Tighten reaction shaft support bolts to specification. See **TORQUE SPECIFICATIONS** . Remove oil pump from transmission case.
12. 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. Note number of clutch discs and clutch plates, as this may vary with application. See **Fig. 21** .
2. Using spring compressor, compress piston spring. Remove snap ring. Release and remove spring compressor. Note position of spring retainer on piston spring.
3. Remove spring retainer, piston spring and clutch piston from front clutch retainer. Remove piston seal and hub seal. See **Fig. 21** .

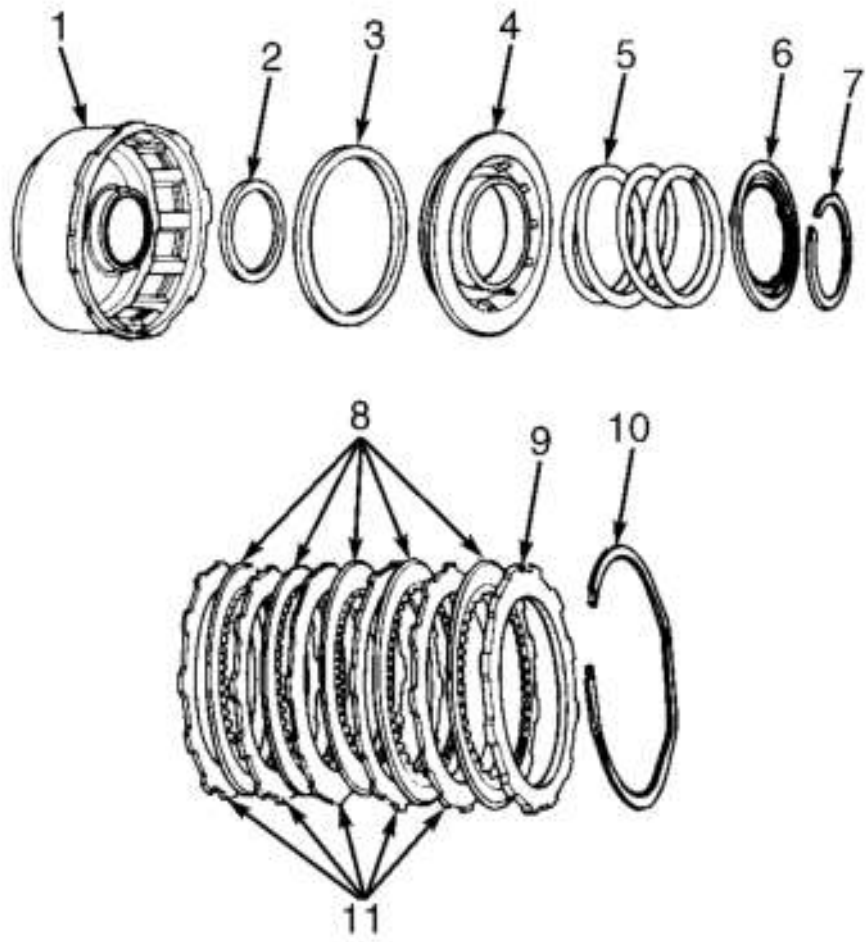


Fig. 21: Exploded View Of Front Clutch (Typical)
Courtesy of CHRYSLER CORP.

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.
3. Inspect all sealing surfaces for burrs or scratches. Replace damaged components. Inspect bushings in front clutch retainer. Replace front clutch retainer if bushings are damage.

Reassembly

1. Soak clutch discs in ATF. Install NEW piston seal and NEW hub seal, with lip of seal toward inside of front clutch retainer. Lubricate piston seal and hub seal with petroleum jelly.

CAUTION: Use twisting motion when installing clutch piston to prevent damage to piston seal and hub seal.

2. Lubricate front clutch retainer and clutch piston surface with ATF. Install clutch piston in front clutch retainer.
3. Install piston spring and spring retainer on clutch piston. Ensure spring retainer is installed with small tabs away from piston spring. See **Fig. 22** .

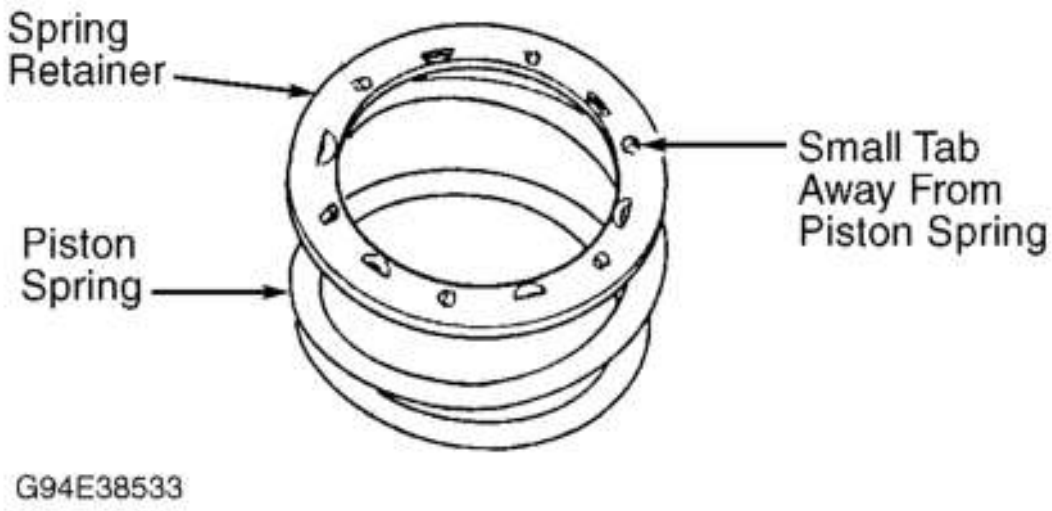


Fig. 22: Installing Spring Retainer On Piston Spring
Courtesy of CHRYSLER CORP.

4. Using spring compressor, compress piston spring. Install NEW snap ring to secure spring retainer. Release spring compressor.
5. Alternately install clutch plates and clutch discs, starting with clutch plate. See **Fig. 21** . Ensure original number of components are installed. Install pressure plate and waved snap ring.
6. Using feeler gauge, measure front clutch clearance between waved snap ring and pressure plate. See **Fig. 23** . Front clutch clearance should be .067-.134" (1.70-3.40 mm).
7. Front clutch clearance is non-adjustable. If front clutch clearance is not within specification, check for defective or improperly assembled components.

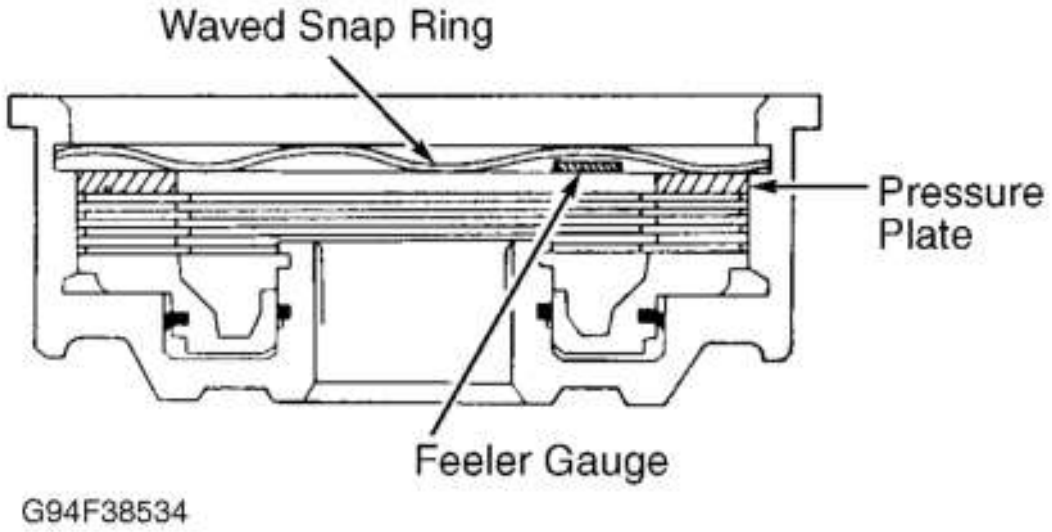


Fig. 23: Measuring Front Clutch Clearance
Courtesy of CHRYSLER CORP.

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 fiber thrust washer and selective snap ring. See **Fig. 24** . Remove top pressure plate, clutch discs and clutch plates. Note number of clutch discs and clutch plates, as this may vary with application. See **Fig. 24** .
2. Remove bottom pressure plate, waved snap ring and piston spring. Using rotating motion, remove clutch piston. Remove and discard piston seals. If removing input shaft, remove snap ring. Using press, press input shaft from rear clutch retainer. Remove all seal rings from input shaft.

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 plates 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. Ensure check ball moves freely in clutch piston.
3. Inspect bushing in rear clutch retainer for damage. Inspect clutch piston and piston spring for warpage or distortion. Inspect thrust washers for damage. Replace damaged components.

Reassembly

1. Soak clutch discs in ATF. Install NEW hub seal ring on rear clutch retainer. Ensure hub seal ring is fully seated and is not twisted.

CAUTION: Ensure ends of Teflon seal ring are properly engaged and ends of metal (or plastic) seal ring are locked together.

2. Slightly squeeze ends of input shaft Teflon seal ring together. This provides a better fit when seal ring is installed. Install NEW seal rings on input shaft. Lubricate input shaft seal rings and hub seal ring with petroleum jelly. If installing input shaft, lubricate splines of input shaft and rear clutch retainer with ATF.
3. Press input shaft into rear clutch retainer. Install snap ring. Install NEW piston seals with lip of piston seal toward inside of rear clutch retainer. Lubricate piston seals with petroleum jelly.
4. Lubricate rear clutch retainer and piston surface with ATF. Using twisting motion, install clutch piston in rear clutch retainer. Install piston spring on clutch piston with concave side downward, toward piston.

CAUTION: Use twisting motion when installing clutch piston to prevent damage to piston seals. Install piston spring with concave side downward toward piston.

5. Install waved snap ring. Ensure waved snap ring is fully seated in groove of rear clutch retainer. Install bottom pressure plate with flat side toward clutch pack.
6. Alternately install original number of clutch plates and clutch discs, starting with clutch disc. See **Fig. 24** . Install top pressure plate and selective snap ring.
7. Using feeler gauge, measure rear clutch clearance between selective snap ring and top pressure plate. Rear clutch clearance should be .022-.036" (.56-.91 mm).
8. If proper rear clutch clearance cannot be obtained, selective snap ring may require replacement. Coat fiber thrust washer with petroleum jelly and install. Selective snap ring is available in 7 sizes:
    - .107-.109" (2.72-2.77 mm)
    - .098-.100" (2.49-2.54 mm)
    - .095-.097" (2.41-2.46 mm)
    - .083-.085" (2.11-2.16 mm)
    - .076-.078" (1.93-1.98 mm)
    - .071-.073" (1.80-1.85 mm)
    - .060-.062" (1.52-1.57 mm)

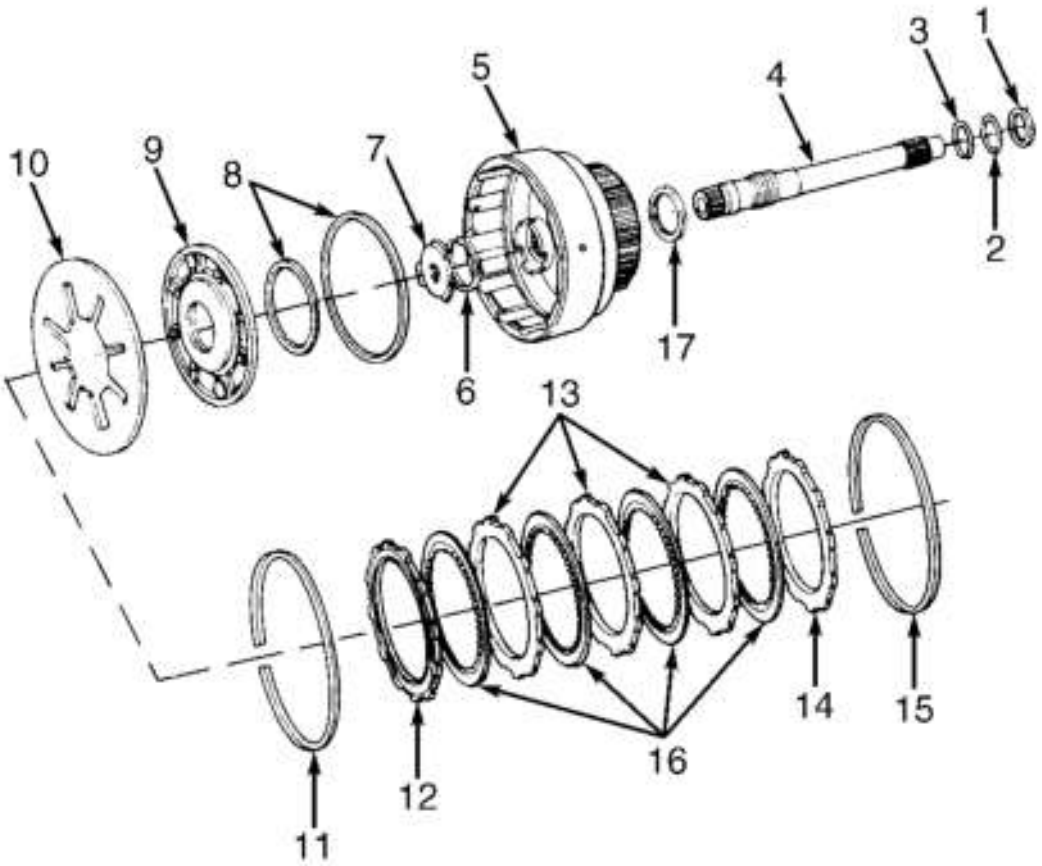


Fig. 24: Exploded View Of Rear Clutch
Courtesy of CHRYSLER CORP.

PLANETARY GEAR TRAIN & INTERMEDIATE SHAFT

Disassembly

1. Remove select fit snap ring, snap ring, thrust washer and thrust plate from front of intermediate shaft. See **Fig. 25** . Remove front annulus gear and front annulus gear support. Remove planetary thrust washer and front planetary gear.
2. Remove planetary thrust washer located behind front planetary gear. Remove sun gear and driving

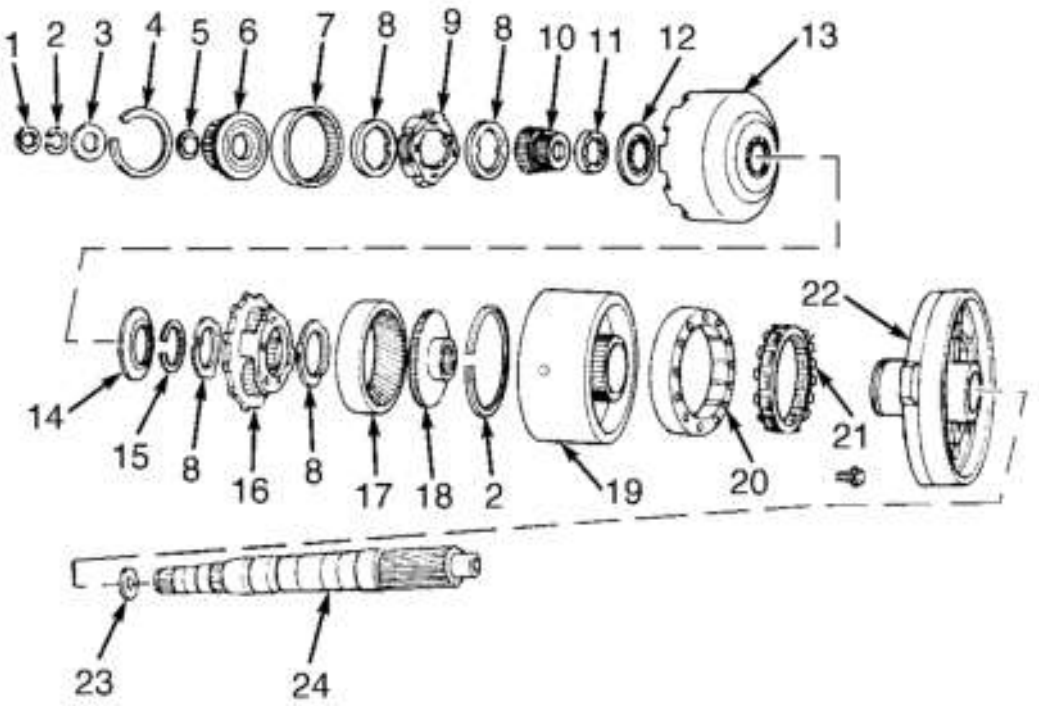
shell. Remove lock ring. Separate sun gear with front and rear thrust plates from driving shell.

NOTE: Check location of shoulder area on rear annulus gear support in relation to rear annulus gear before disassembling.

3. Remove planetary thrust washer from front of rear planetary gear. Remove rear planetary gear from rear annulus gear. Remove rear annulus gear from intermediate shaft. Remove snap ring. Separate front and rear annulus gears from annulus gear supports, if necessary.

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 or carrier. Inspect intermediate shaft for damage at bushing/bearing surfaces and splined areas. Ensure intermediate shaft selective spacer fits properly in groove on intermediate shaft. Replace damaged components.



1. Select Fit Snap Ring
2. Snap Ring
3. Thrust Washer
4. Gear Support Snap Ring
5. Thrust Plate
6. Front Annulus Gear Support
7. Front Annulus Gear
8. Planetary Thrust Washer
9. Front Planetary Gear
10. Sun Gear
11. Sun Gear Spacer
12. Front Thrust Plate
13. Driving Shell
14. Rear Thrust Plate
15. Lock Ring
16. Rear Planetary Gear
17. Rear Annulus Gear
18. Rear Annulus Gear Support
19. Low-Reverse Drum
20. Overrunning Clutch Cam
21. Overrunning Clutch
22. Overdrive Piston Retainer
23. Intermediate Shaft Thrust Plate
24. Intermediate Shaft

G94G38535

Fig. 25: Exploded View Of Planetary Gear Train
Courtesy of CHRYSLER CORP.

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. Install rear annulus gear and snap ring in rear annulus gear support, if disassembled. Ensure snap ring is fully seated and shoulder area of rear annulus gear support faces rearward.
3. Install planetary thrust washer on rear side of rear planetary gear. Ensure tabs on planetary thrust washer engage with slots on rear planetary gear. Install rear annulus gear onto rear planetary gear.
4. Install rear planetary gear and rear annulus gear on intermediate shaft. Ensure assembly is fully seated on intermediate shaft. Install planetary thrust washer on front side of rear planetary gear.

5. Install sun gear spacer on sun gear, if removed. Install front thrust plate over sun gear and onto sun gear spacer. Install sun gear in driving shell. Install rear thrust plate over sun gear and against driving shell.
6. Support sun gear on wooden block. Ensure opening of driving shell is downward so lock ring can be installed. This aids in installation of lock ring. Ensure rear thrust plate is seated on driving shell. Install lock ring on sun gear, ensuring lock ring is fully seated in groove on sun gear.
7. Install sun gear and driving shell on intermediate shaft. Install planetary thrust washer on rear of front planetary gear. Ensure tabs on thrust washer engage with slots on front planetary gear. See **Fig. 26** .
8. Assemble front annulus gear and front annulus gear support, if necessary. Install thrust plate on front side of front annulus gear support. Install front planetary gear on intermediate shaft and into driving shell.
9. Install planetary thrust washer on front side of front planetary gear. Ensure tabs on thrust washer engage with slots on front planetary gear.

CAUTION: Ensure flat side on thrust washer engages with flat side of front planetary. Thrust washer must be installed with tab facing away from front annulus gear support.

10. Install front annulus gear support and front annulus gear on front planetary gear. Install thrust washer on front side of front annulus gear support.
11. Install snap ring to retain front annulus gear and select fit snap ring on intermediate shaft. Ensure snap rings are fully seated. Position gear train assembly with gear opening of driving shell facing workbench.
12. 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.
13. Using feeler gauge, measure planetary gear train end play. End play is measured between shoulder on intermediate shaft and end of rear annulus gear support. See **Fig. 27** .
14. Planetary gear train end play should be .005-.048" (.13-1.22 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 .062" (1.57 mm) and .074" (1.88 mm).

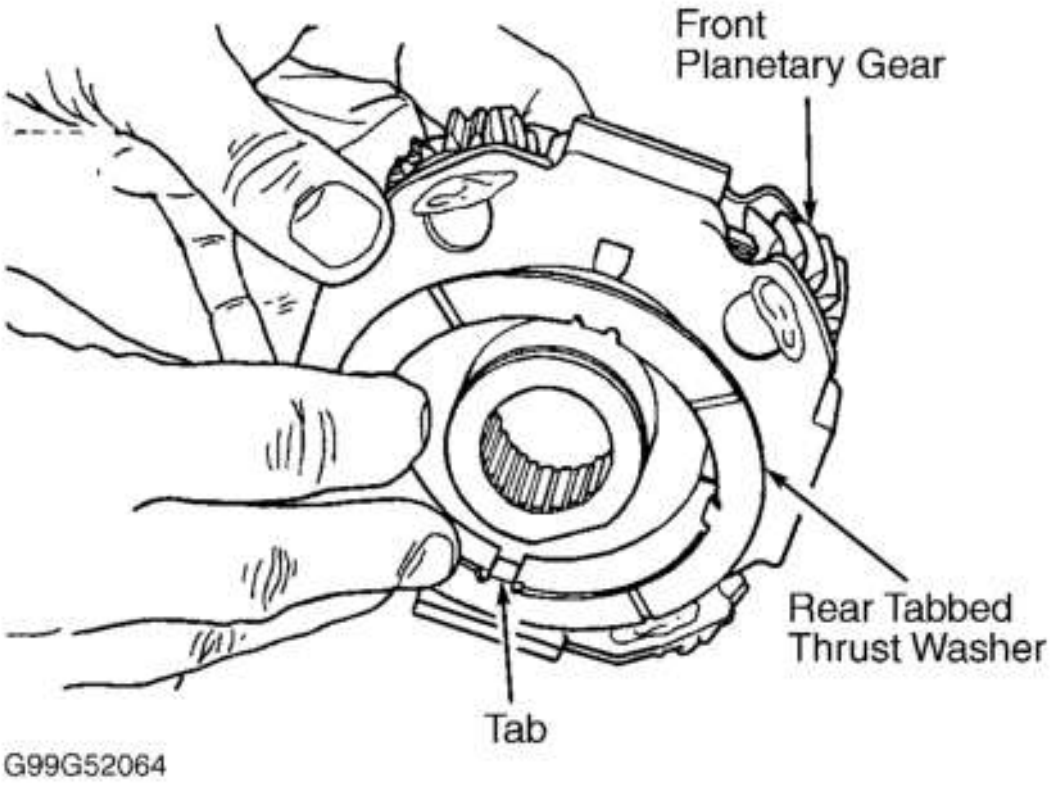


Fig. 26: Installing Tabbed Thrust Washer
Courtesy of DAIMLERCHRYSLER CORP.

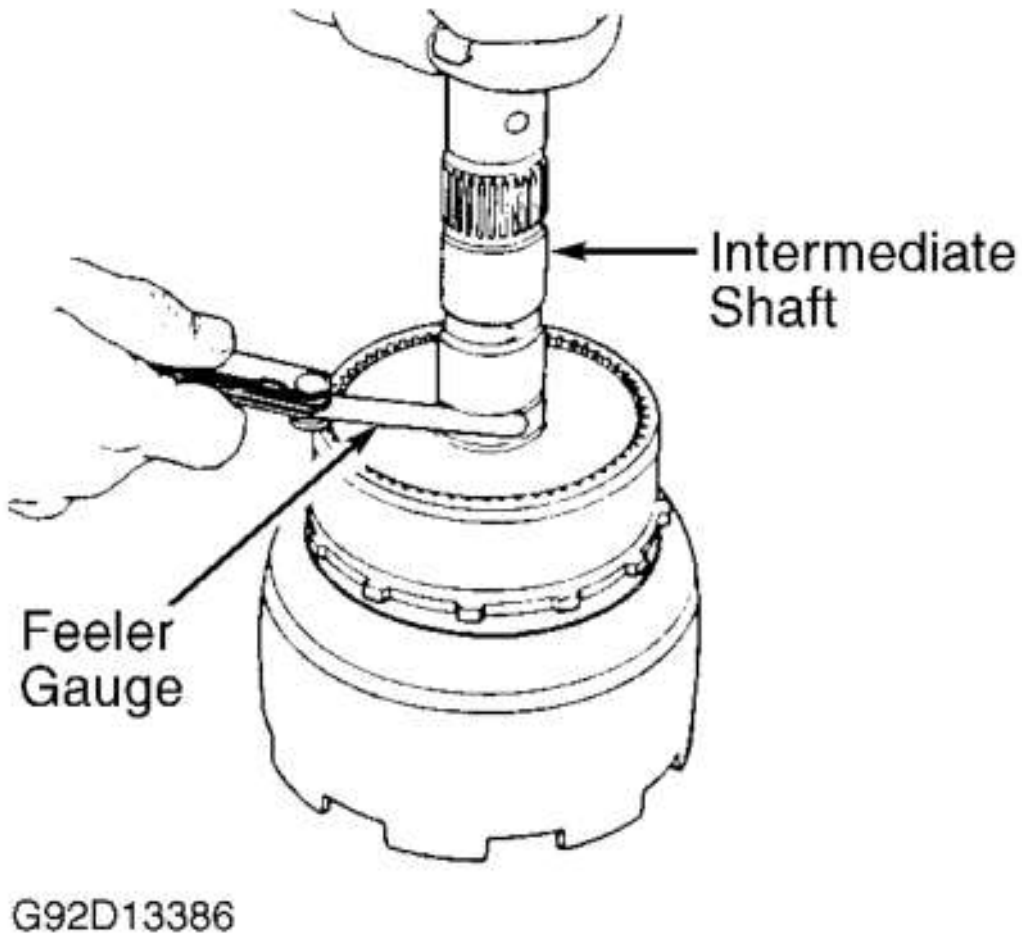


Fig. 27: Measuring Planetary Gear Train End Play
Courtesy of CHRYSLER CORP.

FRONT SERVO

Disassembly

Remove snap ring from front servo piston rod guide. Remove rod guide and servo spring. Remove snap ring from piston rod. Separate front servo piston, piston rod, spring and washer. See **Fig. 15** . Remove and discard seal rings.

Cleaning & Inspection

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

Reassembly

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

REAR SERVO

Disassembly

1. Note direction of seal ring installation on rear servo piston. Remove seal ring from rear servo piston. Using small wooden block and vise, compress spring enough to remove snap ring from end of piston plug. See **Fig. 15** .
2. Remove rear servo assembly from vise. Separate rear servo piston, springs, piston plug and spring retainer. See **Fig. 15** .

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. Install seal ring so lip area is toward servo bore in transmission case. 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. 28 .

CAUTION: Plastic or steel check balls may be used in upper housing and transfer plate. Ensure original type of check ball is used. On all models, some valve bodies may contain rear servo check ball and rear clutch check ball and some may not. Note original number of check balls during disassembly for reassembly reference. Some models may be equipped with a limit valve assembly.

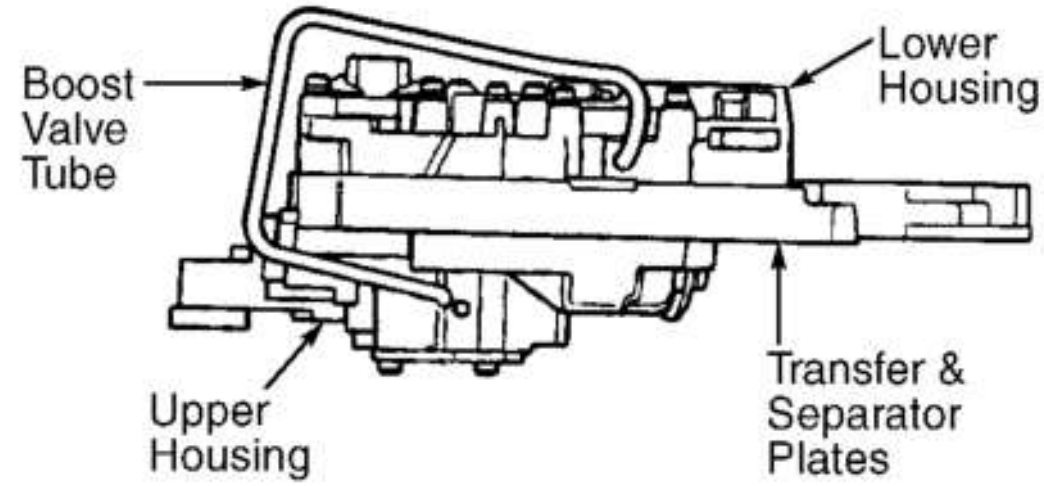


Fig. 28: Locating Valve Body Housings, Plates & Boost Valve Tube (Typical)
Courtesy of CHRYSLER CORP.

Disassembly

1. Disconnect wires from governor pressure sensor and governor pressure solenoid located on valve body. See **Fig. 29** . Remove bolts, governor body retainer plate, governor body and gasket from transfer plate. See **Fig. 29** .
2. If removing governor pressure sensor from governor body, remove clip from inside of governor body. Remove governor pressure sensor from governor body. If removing governor pressure solenoid from governor body, pull governor pressure solenoid with "O" rings straight out of governor body.

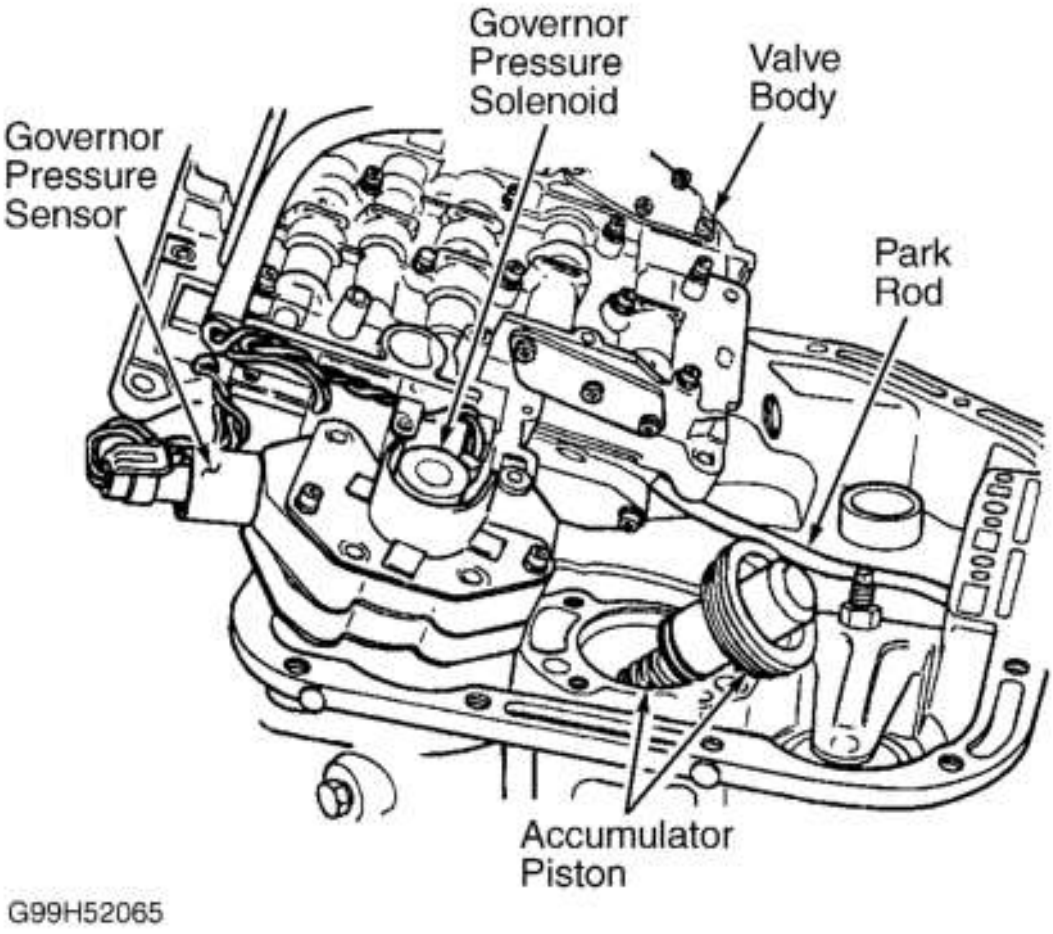


Fig. 29: Identifying Governor Body, Governor Pressure Solenoid & Governor Pressure Sensor Locations
Courtesy of CHRYSLER CORP.

3. Remove boost valve cover, retainer, boost valve spring, boost valve and boost valve plug, if equipped. See **Fig. 30** . Depress detent ball. Install Detent Ball Retainer (6583) on ball and spring housing to secure detent ball and spring in housing. See **Fig. 31** .
4. Remove clip and washer from throttle valve lever. Lift manual shift lever and park rod from throttle valve lever. See **Fig. 32** . Remove detent ball retainer. Remove detent ball and spring. See **Fig. 33** . Remove throttle valve lever.
5. Remove retaining clip. Separate park rod from manual shift lever. Hold adjusting screw bracket against valve body and remove screws. See **Fig. 5** .

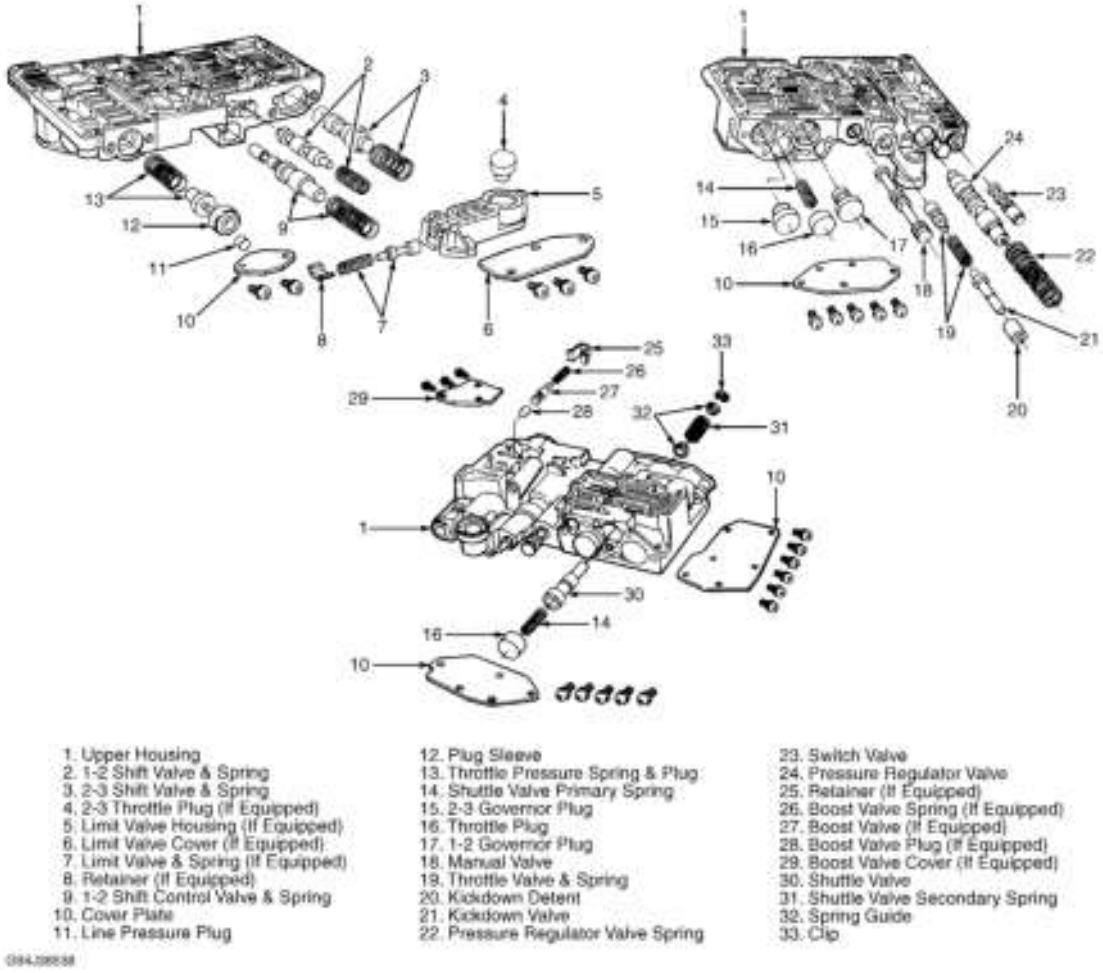


Fig. 30: Exploded View Of Valve Body Upper Housing & Components
Courtesy of CHRYSLER CORP.

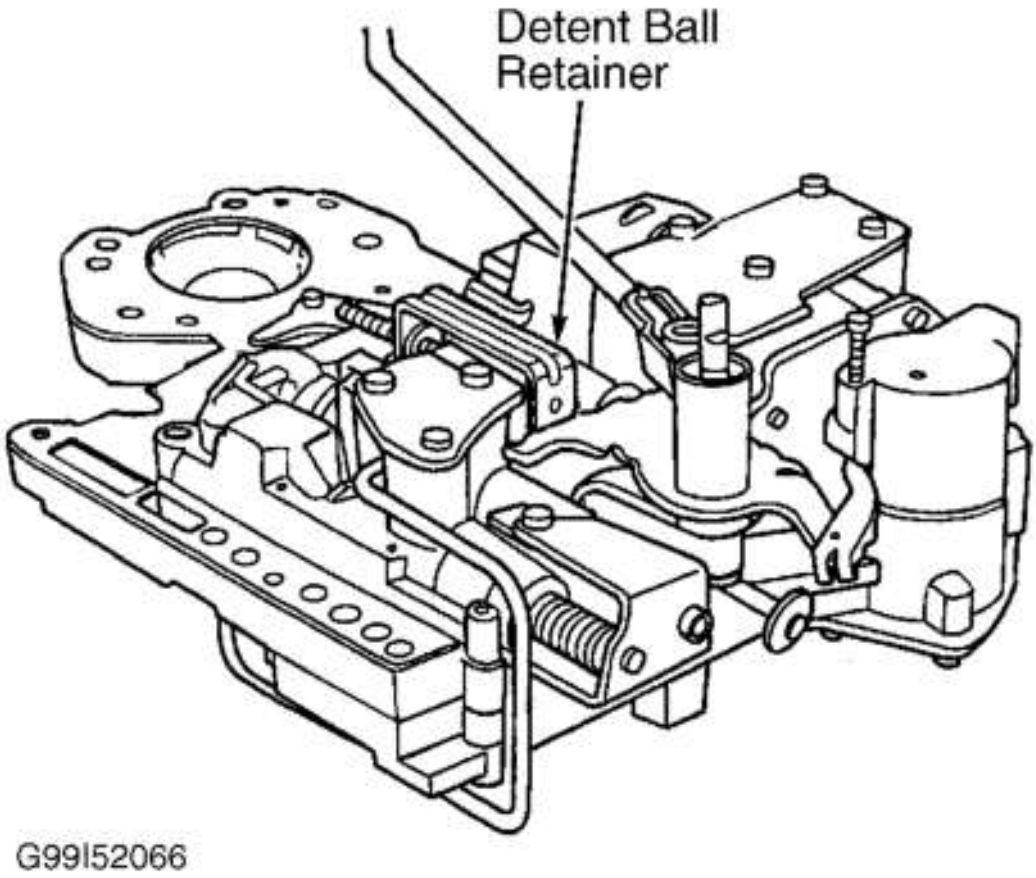


Fig. 31: Securing Detent Ball & Spring
Courtesy of CHRYSLER CORP.

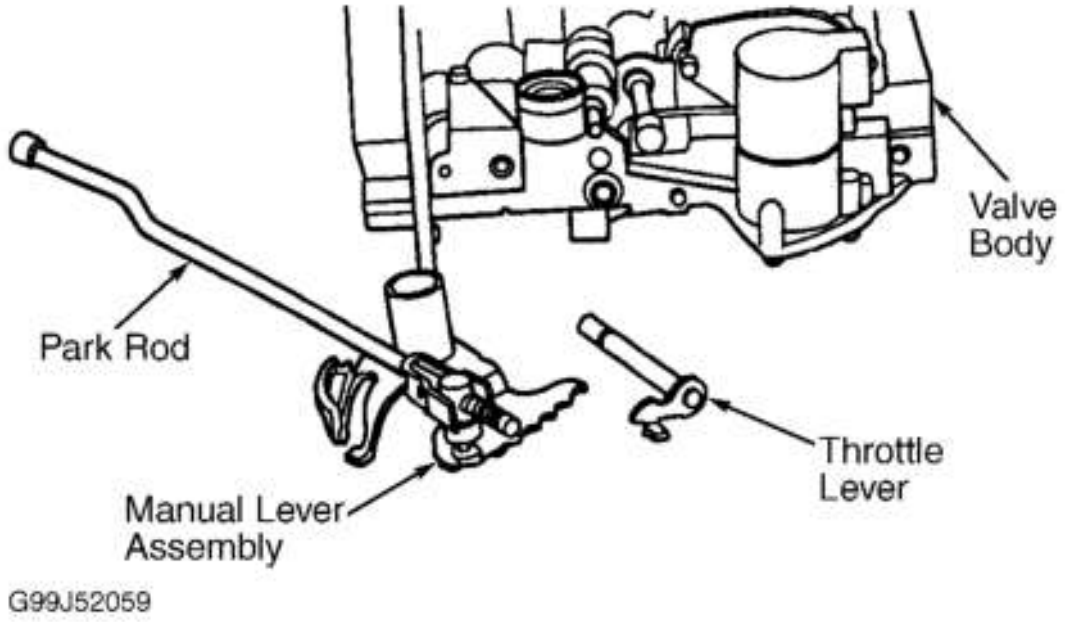


Fig. 32: Identifying Manual Lever & Throttle Lever Assemblies
Courtesy of DAIMLERCHRYSLER CORP.

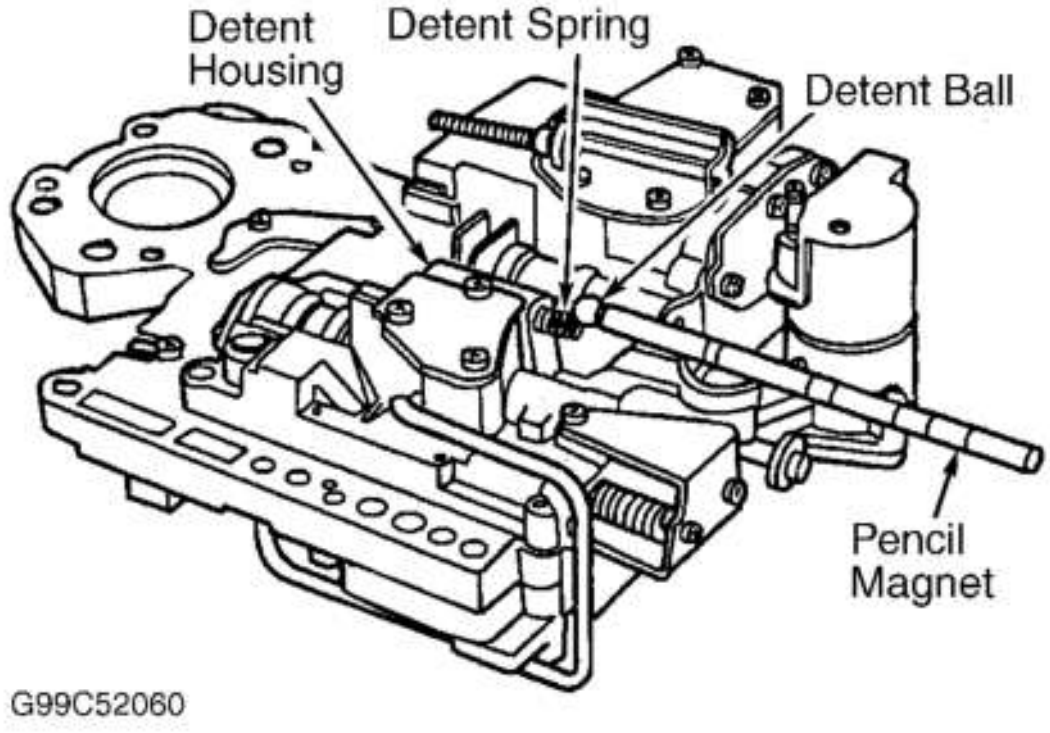


Fig. 33: Removing Detent Ball & Spring

Courtesy of DAIMLERCHRYSLER CORP.

CAUTION: Do not disturb throttle pressure adjusting screw or line pressure adjusting screw locations in adjusting screw bracket.

6. Remove adjusting screw bracket with line pressure adjusting screw, pressure regulator valve spring (large spring) and switch valve spring (small spring).
7. Note routing of solenoid wiring. See **Fig. 29** . Remove solenoid assembly, gasket, 3-4 accumulator housing and case connector from lower housing. See **Fig. 34** . Case connector uses a shoulder-type screw and must be installed in original location.

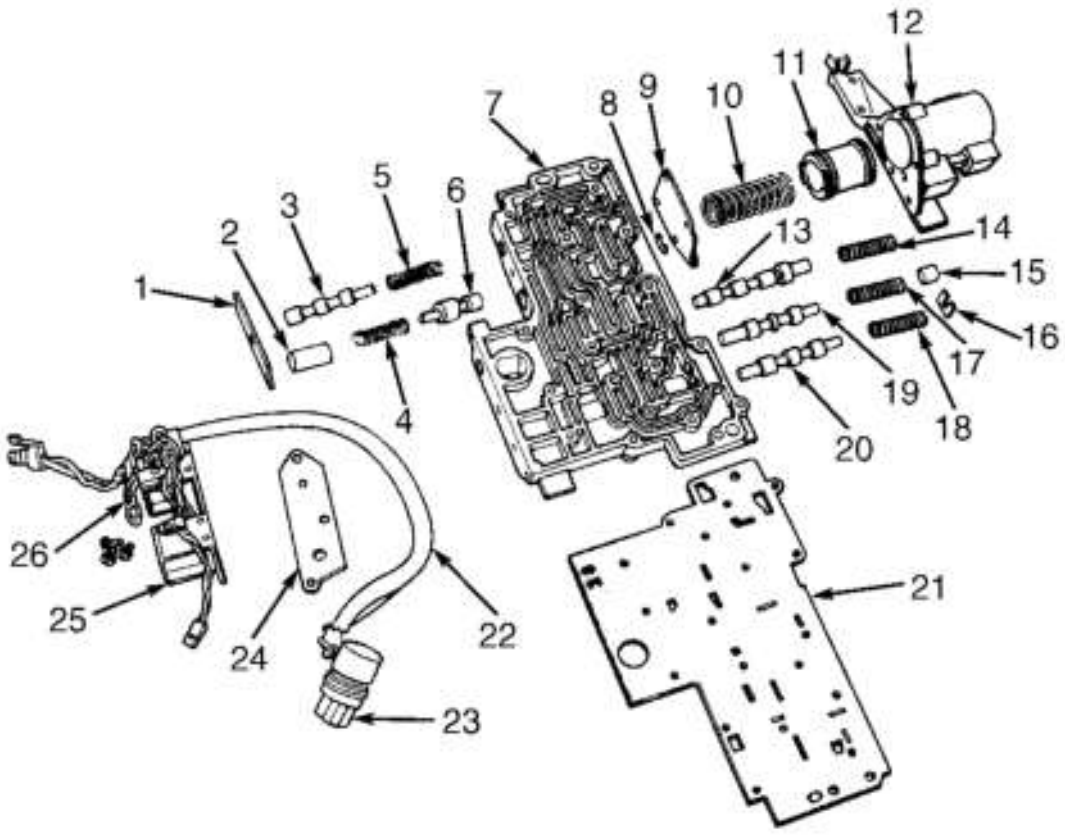
CAUTION: Use care not to damage housings or tube when removing boost valve tube. Do not pry boost valve tube from housing

8. Remove spring, 3-4 shift valve, plug, spring and lock-up valve. See **Fig. 34** . Disengage boost valve tube from upper housing first, and then from lower housing. See **Fig. 28** . It may be necessary to rotate boost valve tube back and forth when removing from lower housing.
9. Position valve body so lower housing faces upward, with upper housing on bottom. See **Fig. 28** .

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

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

10. Note location of brace for boost valve tube. Remove valve body screws attaching lower housing to upper housing. Remove lower housing and separator plate from transfer plate.
11. 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. 35** .
12. Position transfer plate with separator plate for upper housing facing upward. Remove screws, separator plate brace and separator plate for upper housing. See **Fig. 36** .



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

Fig. 34: Exploded View Of Valve Body Lower Housing & Components
Courtesy of CHRYSLER CORP.

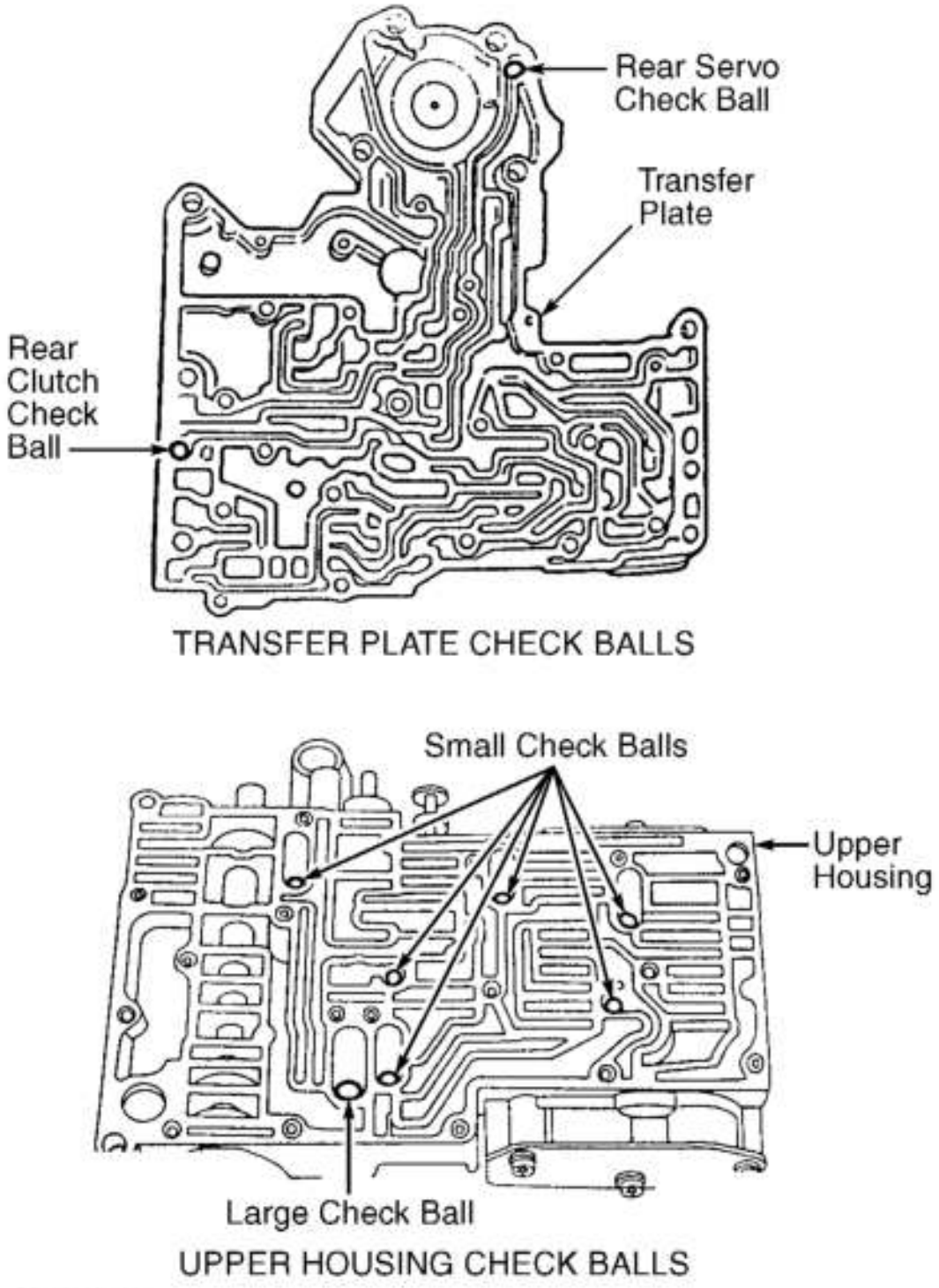


Fig. 35: Identifying Check Ball Locations
Courtesy of CHRYSLER CORP.

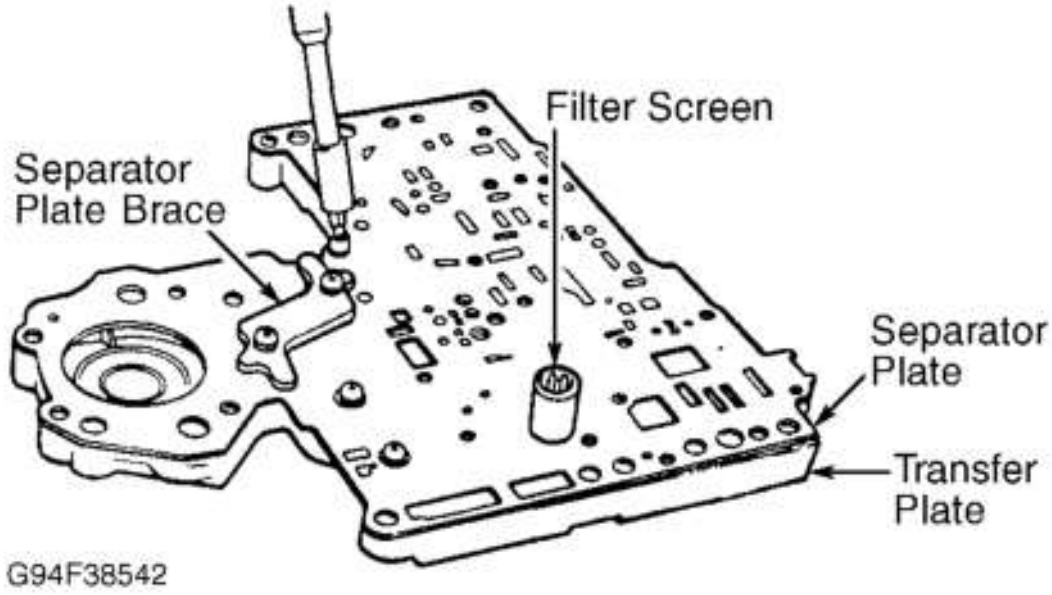


Fig. 36: Identifying Filter Screen & Separator Plate Brace
Courtesy of CHRYSLER CORP.

13. 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. 35** and **Fig. 36** .
14. Remove components from upper and lower housings. Ensure components are placed in order for reassembly reference. See **Fig. 30** and **Fig. 34** .

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.

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, as not to round off edges of component. Sharp edges may be maintained on component.

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.
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. "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 end of governor pressure solenoid for any reason or solenoid calibration will be changed, and solenoid will require replacement.

5. Valve body must be replaced if components are damaged. Only the following components can be serviced:
   - Adjusting Screw Bracket
   - Governor Pressure Sensor
   - Governor Pressure Solenoid
   - 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. 34** . Tighten timing valve cover 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 rear clutch check ball and rear servo check ball in transfer plate. See **Fig. 35** . Ensure filter screen is installed in separator plate for upper housing. See **Fig. 36** .
4. Install separator plate for upper housing on transfer plate. Install separator plate brace. See **Fig. 36** . Install and tighten screws to specification. See **TORQUE SPECIFICATIONS** .
5. Install remaining screws securing separator plate for upper housing to transfer plate. Tighten screws to specification.
6. Install check balls in upper housing. See **Fig. 35** . Install transfer plate and separator plate for upper housing on upper housing. Ensure filter screen is fully seated in recess area on upper housing.
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 center and working outward.
8. Install components in upper housing. Ensure components are installed in original location. See **Fig. 30** . 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 upper housing. Ensure boost valve tube is installed behind brace for boost valve tube and is fully seated in 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 a 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. See **Fig. 29** .
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. 37** .

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

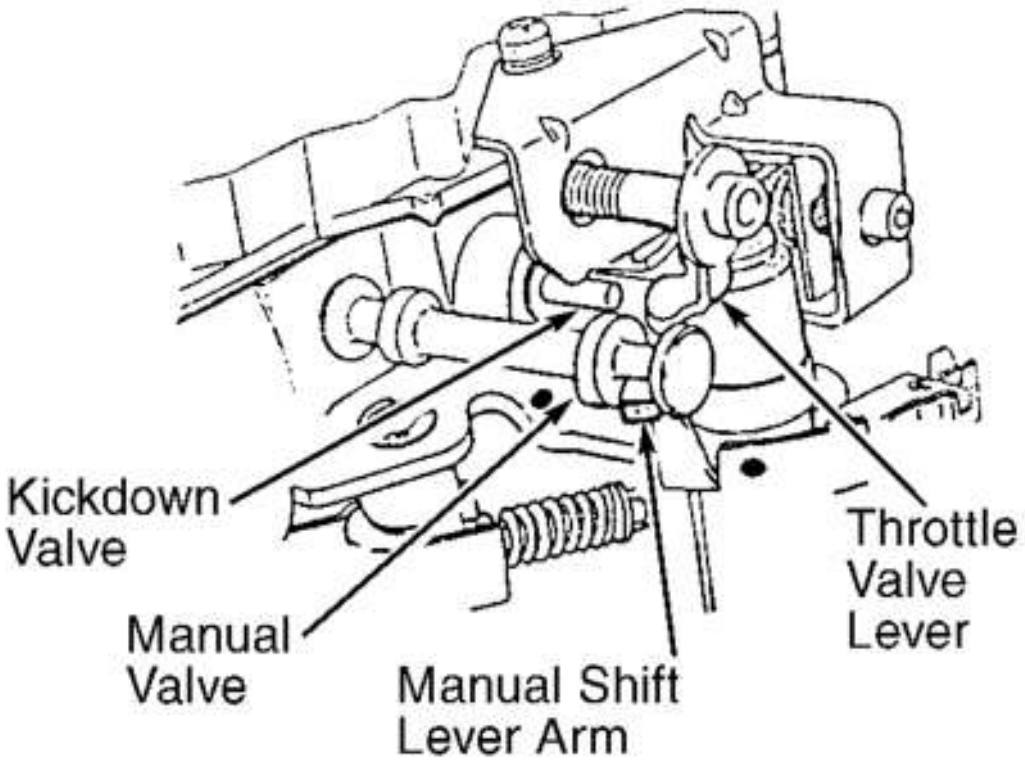


Fig. 37: Aligning Throttle Valve Lever & Manual Shift Lever
Courtesy of CHRYSLER CORP.

18. Install boost valve and components. See **Fig. 30** . 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 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 specification. See **TORQUE SPECIFICATIONS** . Install electrical connectors on governor pressure solenoid and governor pressure sensor.

TRANSMISSION REASSEMBLY

VALVE BODY & INTERNAL COMPONENTS

NOTE: Lubricate all components with Mopar(R) ATF+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. Install front and rear servos and components in transmission case. It may be necessary to use twisting motion when installing servo pistons. Using "C" clamp and spring compressor, compress servo. Install snap ring. Remove "C" clamp and spring compressor.
2. Ensure springs and rollers are installed in correct location and fully seated in overrunning clutch. See **Fig. 17** . Lubricate components with ATF. Identify non-threaded hole in overrunning clutch cam with a paint mark. Note countersunk holes in overrunning clutch cam. See **Fig. 17** .

CAUTION: Ensure overrunning clutch assembly is installed with countersunk holes toward rear of transmission (overdrive piston side) and reference marks are aligned.

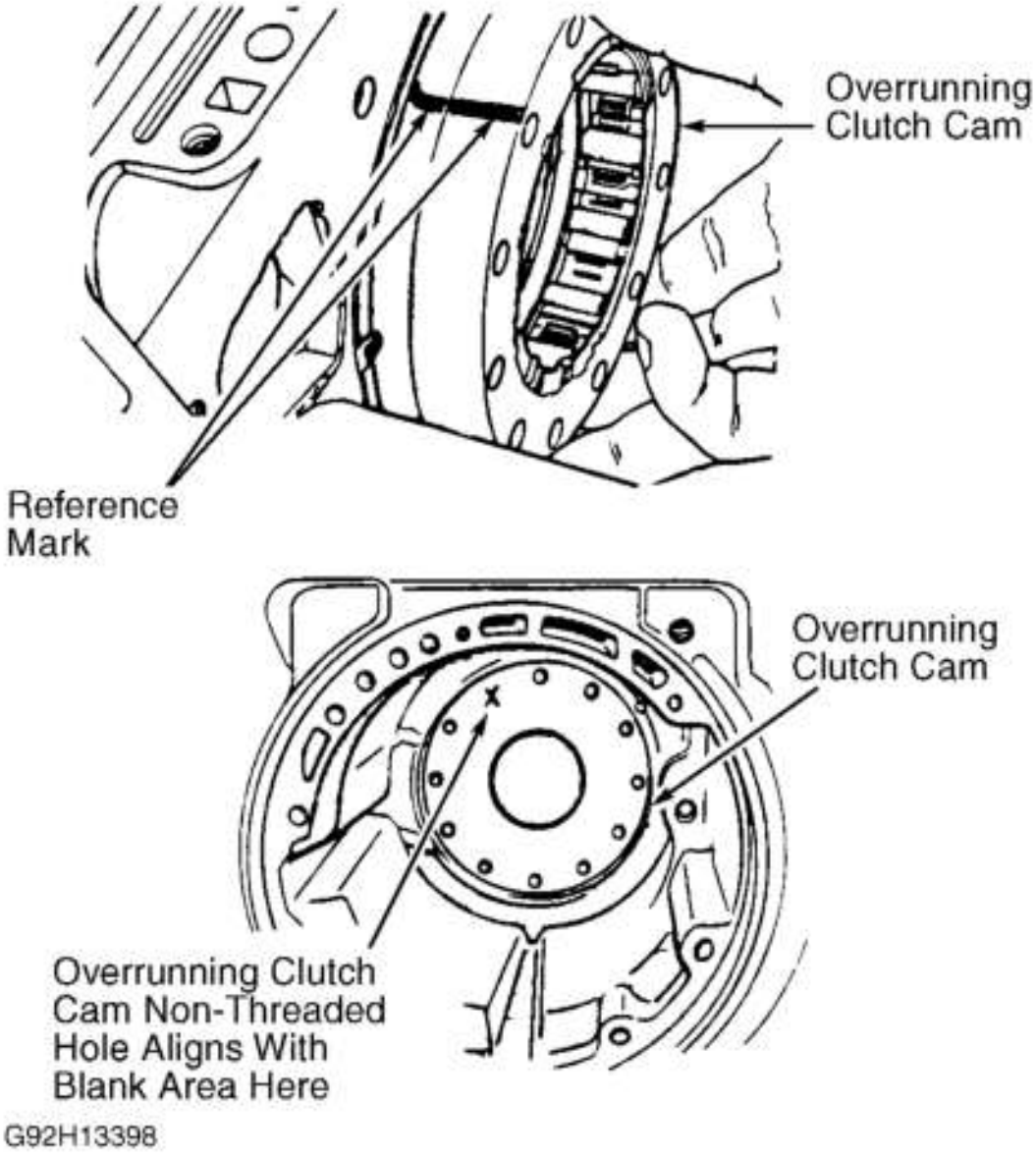


Fig. 38: Installing Overrunning Clutch
Courtesy of CHRYSLER CORP.

3. Place reference mark on blank area at rear of transmission case for overrunning clutch installation. See **Fig. 38** . Install overrunning clutch cam. Install and tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** .
4. Install NEW "O" rings on rear band reaction pin. Lubricate "O" rings with ATF. Install rear band reaction pin in rear of transmission. This is the pin near top of transmission, farthest from oil pan surface. Ensure rear band reaction pin is fully seated.
5. Install rear band so twin lugs on rear band are seated against rear band reaction pin. Lubricate overrunning clutch race on rear of low-reverse drum with ATF.
6. Install low-reverse drum through rear band. Tilt low-reverse drum and engage overrunning clutch race with rollers on overrunning clutch. Press low-reverse drum rearward while rotating low-reverse drum

clockwise until it fully seats in overrunning clutch. Rotate low-reverse drum back and forth. Low-reverse drum should rotate freely clockwise (viewed from front of transmission case), but lock when rotated counterclockwise.

CAUTION: Check for improper component assembly if low-reverse drum will not rotate correctly.

7. 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. 39** .
8. Install overdrive piston retainer and gasket on transmission case. See **Fig. 39** . Install and tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** .

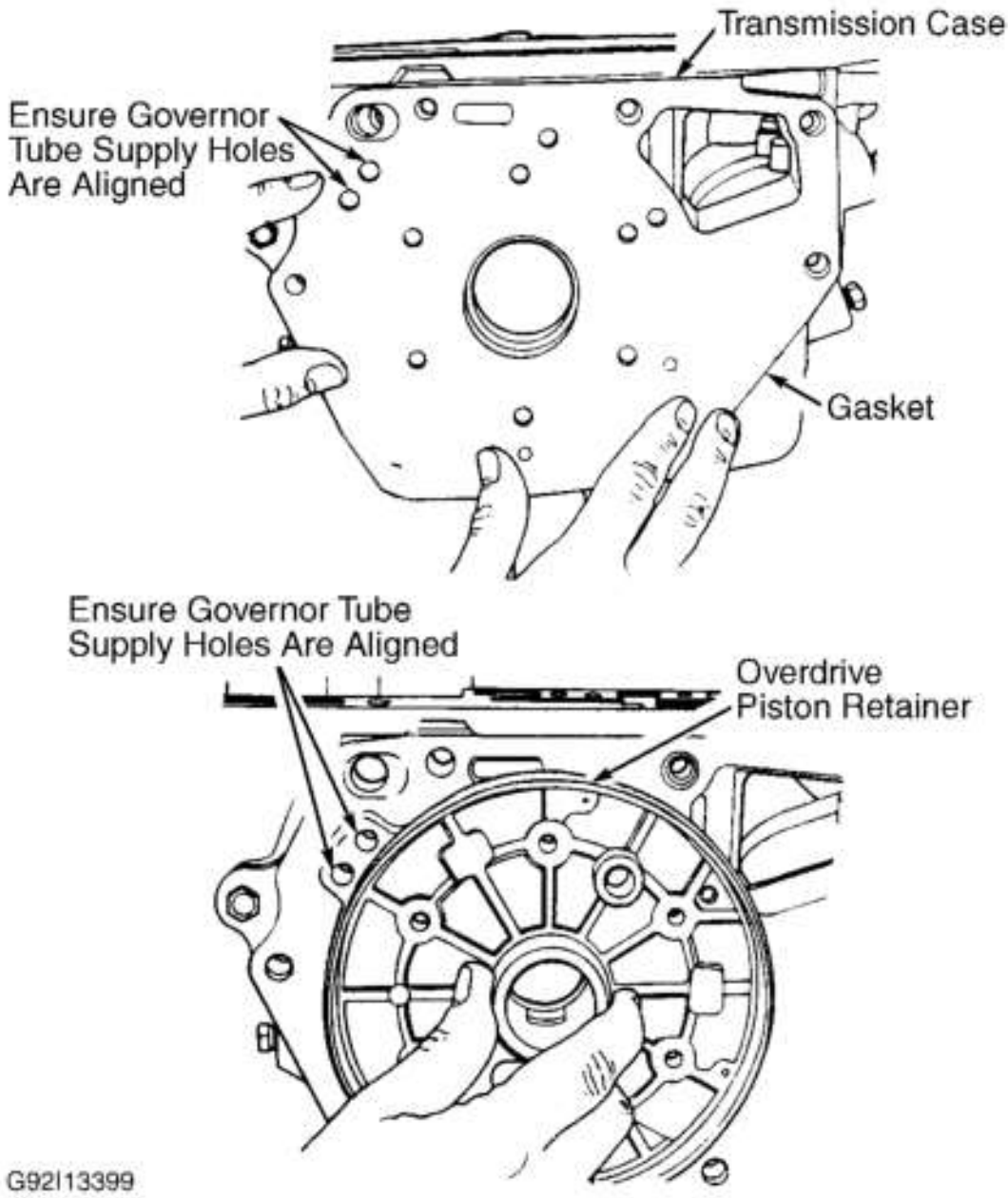


Fig. 39: Installing Gasket & Overdrive Piston Retainer
Courtesy of CHRYSLER CORP.

9. Install low-reverse drum-to-overdrive piston retainer snap ring. Install rear band lever and retaining pin. Pin is located between overdrive piston retainer and transmission case. Install intermediate shaft and planetary gear train. Install thrust plate on end of intermediate shaft.

CAUTION: Install input shaft seal rings with Teflon seal ring on front of input shaft followed by metal (or plastic) seal ring. Ensure hub seal ring is installed on rear clutch retainer. See Fig. 24 . Ends of metal (or plastic) seal rings must be fastened together. Diagonal ends of Teflon seal ring must be properly joined.

10. Ensure fiber thrust washer is installed on front of rear clutch retainer. See **Fig. 24** . 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.

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

11. Install intermediate shaft thrust washer. Thrust washer fits on inside of rear clutch retainer, near end of input shaft. See **Fig. 24** . This washer is used to control input shaft end play.
12. Using small screwdriver, align teeth on rear clutch discs. Position transmission case with oil pump opening facing upward. Install front and rear clutch assemblies. Rotate assembly back and forth until rear clutch discs fully engage with front annulus gear. Ensure lugs on front clutch retainer engages with slots in driving shell.

CAUTION: Ensure thrust washer in center of rear clutch and the thrust plate on end of intermediate shaft do not move when installing front and rear clutch assemblies.

13. Install front band over front clutch retainer. Install front band strut, lever and front band adjusting screw. Tighten front band adjusting screw until front band is tight on front clutch retainer. Ensure front and rear clutch assemblies are fully seated.
14. Apply thread sealant on plug for front band lever shaft access hole. Install and tighten plug to specification. See **TORQUE SPECIFICATIONS** .

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.

15. Ensure thrust washer and seal rings are installed on reaction shaft support and ends of seal rings are fastened together.
16. Install pilot stud 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.
17. Install oil pump. Remove pilot studs. Install and tighten oil pump bolts in a diagonal pattern to specification.

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

18. Install NEW seal on overdrive piston and lubricate with petroleum jelly. 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.

19. Determine proper thickness of intermediate shaft selective spacer and overdrive piston thrust bearing. See **OVERDRIVE UNIT ADJUSTMENTS** under OVERDRIVE UNIT.

20. Install intermediate shaft selective spacer on intermediate shaft. See **Fig. 10** . Install overdrive piston thrust plate in center of overdrive piston. Use petroleum jelly to hold thrust plate in position.
21. Install overdrive piston thrust bearing in direct clutch hub on overdrive unit with shoulder away from direct clutch hub. See **Fig. 40** . 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.

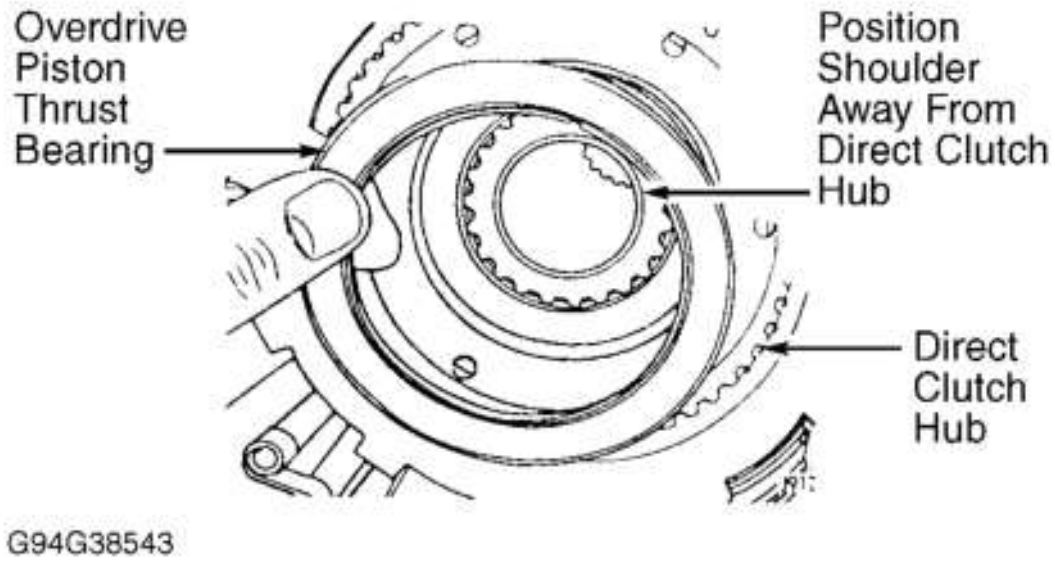


Fig. 40: Installing Overdrive Piston Thrust Bearing
Courtesy of CHRYSLER CORP.

22. 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. 11** . Ensure alignment shaft is fully seated.
23. 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.

24. Install overdrive unit on transmission case. If overdrive unit will not fully seat, slightly rotate output shaft to align splines and ensure overdrive unit is fully seated.
25. Apply thread sealant on overdrive unit-to-transmission case bolts. Install and tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** . Attach dial indicator to transmission case with dial indicator stem seated against end of input shaft.
26. Move input shaft inward and zero dial indicator. Pull input shaft outward and measure input shaft end play. Input shaft end play should be .022-.091" (.56-2.31 mm).

27. 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.
28. Ensure lock nuts are backed off on front and rear band adjusting screws. See **Fig. 12** . Tighten front and rear band adjusting screws to 72 INCH lbs. (8.1 N.m).
29. On 42RE transmission, loosen front band adjusting screw 3 turns. On 44RE transmission, loosen front band adjusting screw 1 7/8 turns. On all models, loosen rear band adjusting screw 4 turns. Tighten each band adjusting screw lock nut to specification while holding band adjusting screw. See **TORQUE SPECIFICATIONS** .
30. 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, accumulator and accumulator bore with petroleum jelly.
31. Install inner spring and 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.
32. 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 case and not enter parking sprag. Park rod will be damaged if it is not engaged with parking sprag.

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

CAUTION: Alternately tighten valve body bolts to prevent damage to valve body. Do not overtighten bolts or transmission and valve body may be damaged.

34. Install valve body-to-transmission case bolts in original location and tighten in a diagonal pattern evenly to specification.
35. Install NEW filter assembly. Install and tighten bolts to specification. Reconnect all necessary electrical connections. Install throttle valve and manual shift levers. Ensure throttle and manual shift levers rotate smoothly.
36. Using NEW gasket, install oil pan. Install and tighten bolts to specification. Using NEW seal, install PNP switch. Tighten PNP switch to specification. See **TORQUE SPECIFICATIONS** .

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

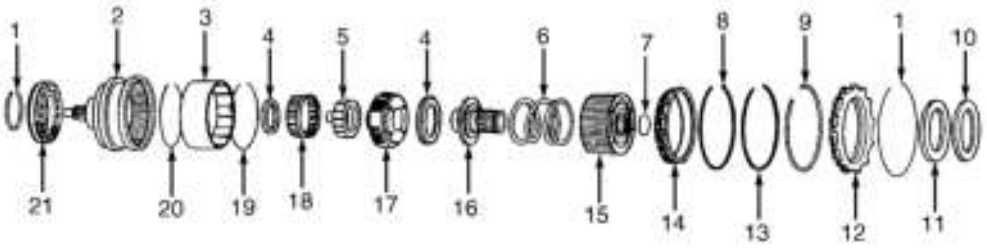
OVERDRIVE UNIT DISASSEMBLY

Disassembly

1. Remove speed sensor and "O" ring from overdrive unit case. Remove snap ring and overdrive clutch pack components from overdrive unit case. See **Fig. 41** . 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. 42 .
3. Using snap ring pliers, expand front bearing retaining ring while pushing output shaft forward to release front bearing from retaining ring. See **Fig. 42** . Remove overdrive unit gear train from overdrive unit case. See **Fig. 43** .



1. Snap Ring
2. Annulus Gear
3. Direct Clutch Drum
4. Thrust Bearing
5. Overrunning Clutch Hub
6. Direct Clutch Spring
7. Direct Clutch Hub Snap Ring
8. Direct Clutch Snap Ring
9. Waved Snap Ring
10. Overdrive Piston Thrust Plate
11. Overdrive Piston Thrust Bearing
12. Overdrive Clutch Pack
13. Reaction Plate Snap Ring
14. Direct Clutch Pack
15. Direct Clutch Hub
16. Sun Gear & Spring Plate
17. Planetary Gear
18. Overrunning Clutch
19. Inner Retaining Ring
20. Outer Retaining Ring
21. Bearing

G94H38544

Fig. 41: Exploded View Of Overdrive Unit
Courtesy of CHRYSLER CORP.

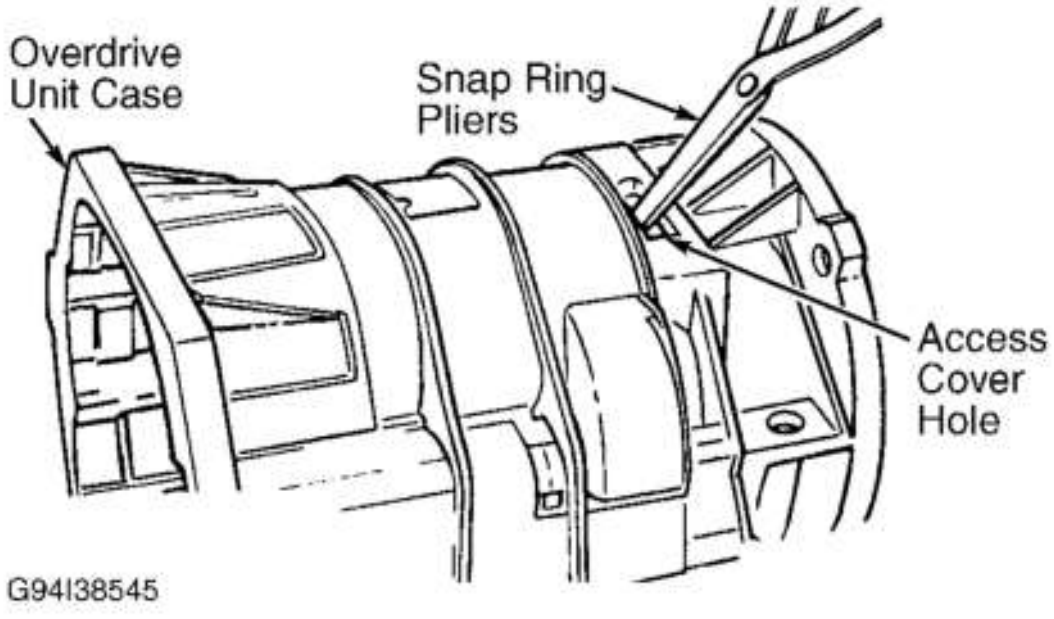


Fig. 42: Releasing & Installing Bearing From Retaining Ring
Courtesy of CHRYSLER CORP.

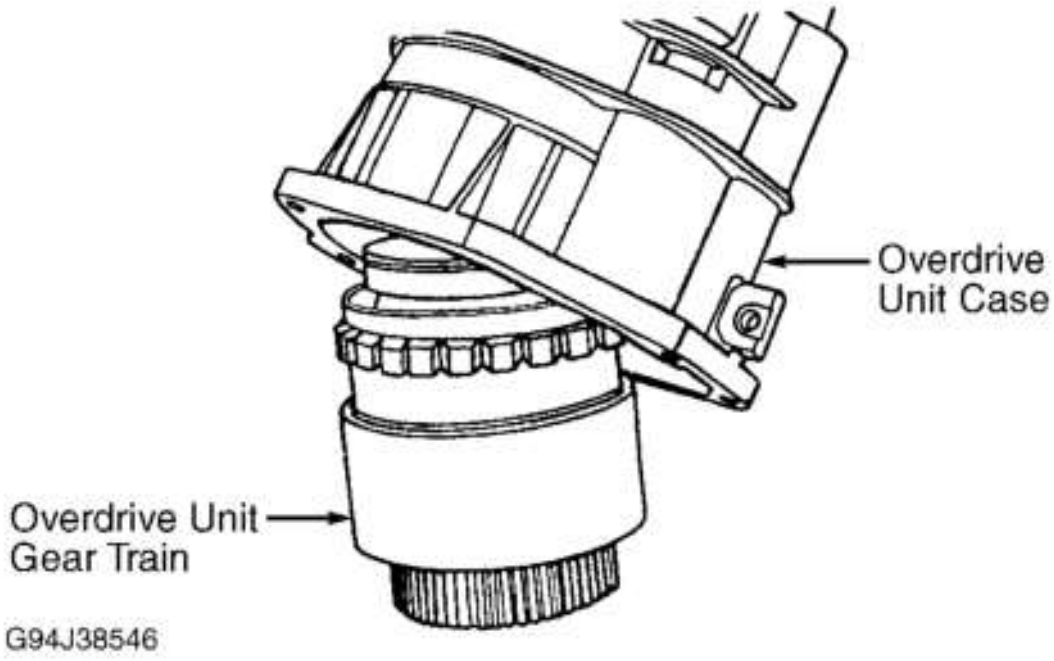


Fig. 43: Removing Overdrive Unit Gear Train
Courtesy of CHRYSLER CORP.

OVERDRIVE UNIT COMPONENT DISASSEMBLY & REASSEMBLY

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. 44** . 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 about 6".

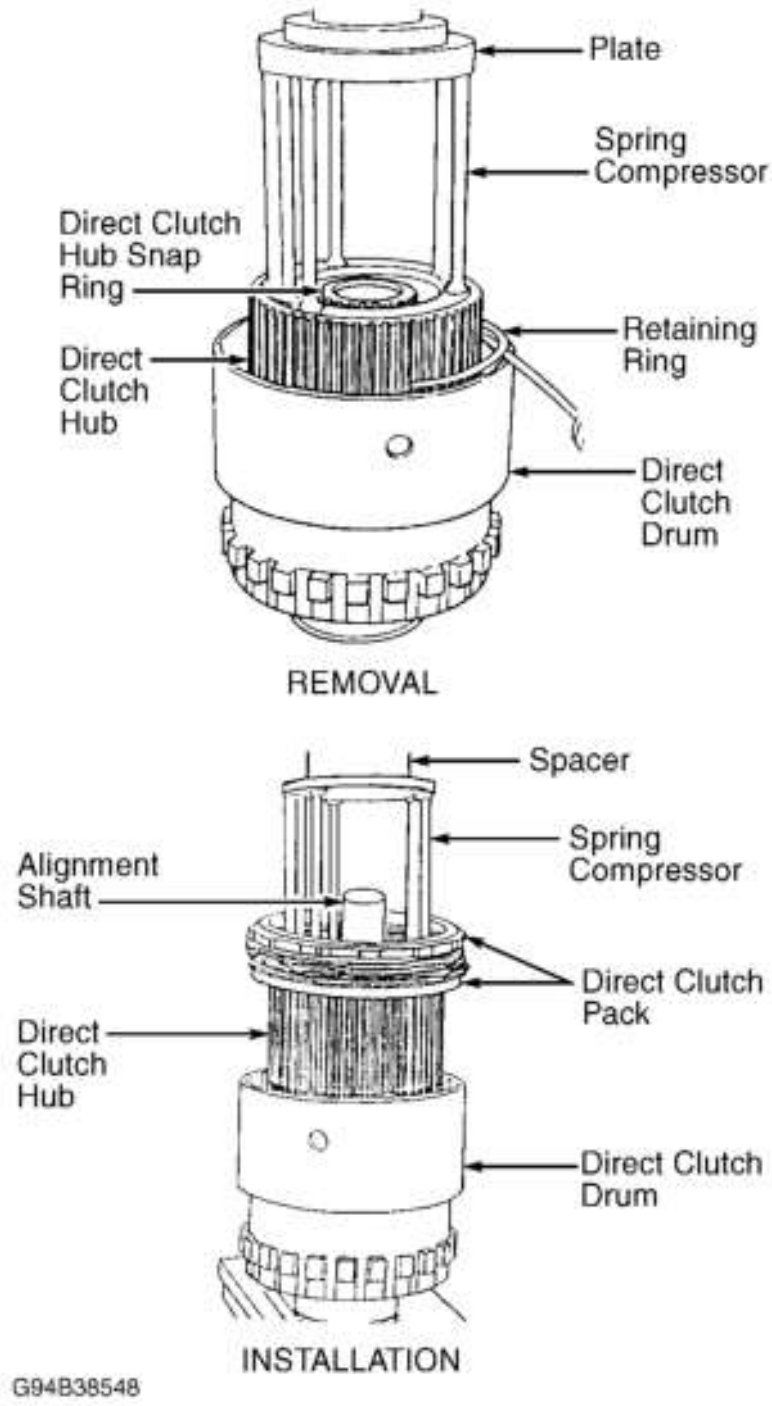


Fig. 44: Removing & Installing Direct Clutch Hub & Direct Clutch Spring
Courtesy of CHRYSLER CORP.

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. 44** . Slowly release press. Remove spring compressor.

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

pack for reassembly reference. 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. 41** .
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. 41** . 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. 41** . 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, and then remove shaft, pawl and spring. See **Fig. 45** . Remove reaction plug snap ring and remove reaction plug. Remove output shaft seal.

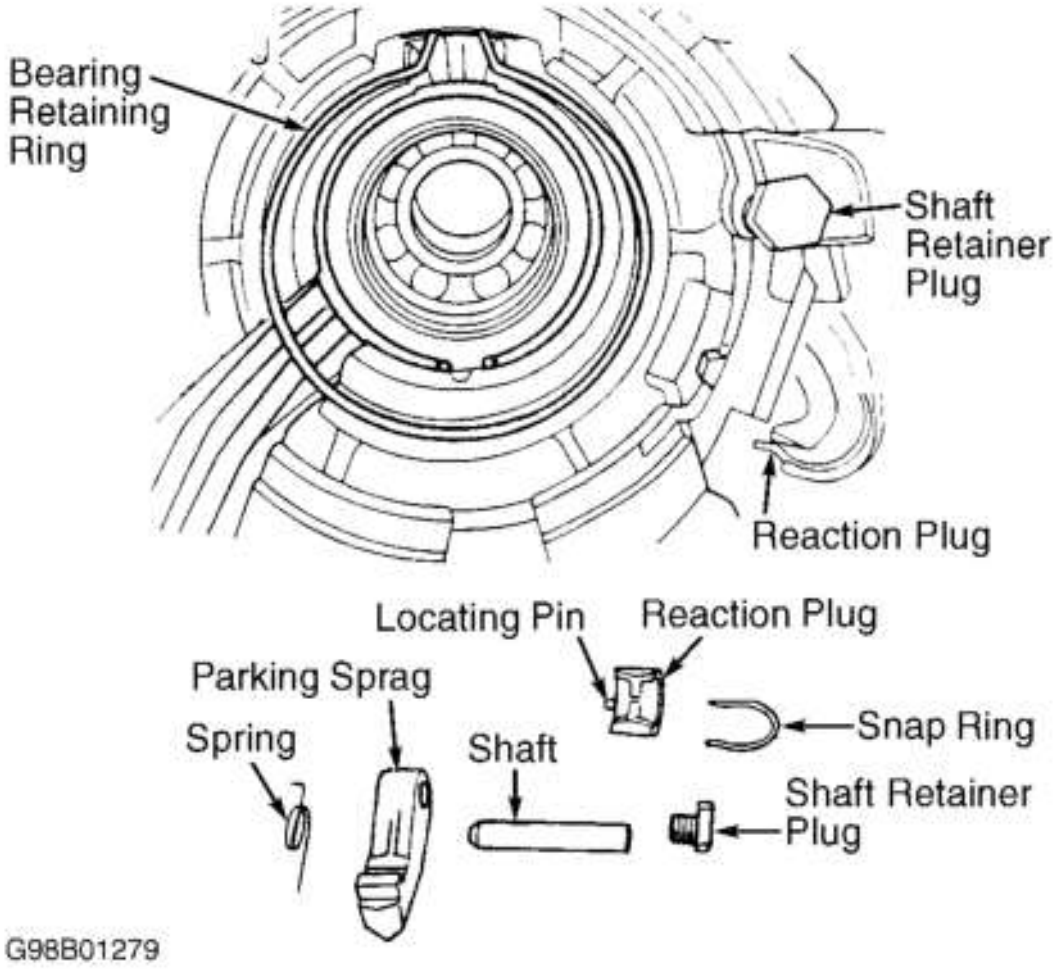


Fig. 45: Identifying Parking Sprag Components
Courtesy of CHRYSLER CORP.

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. 46** . Shoulder on overrunning clutch should seat in small recess at edge of overrunning clutch hub.

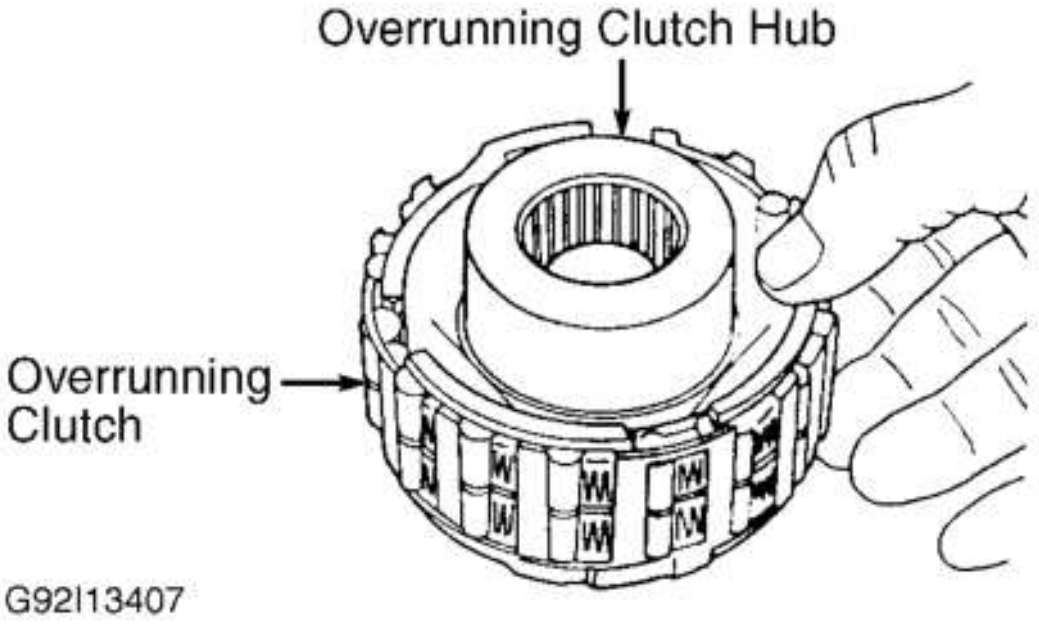


Fig. 46: Installing Overrunning Clutch
Courtesy of CHRYSLER CORP.

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. 47** . Install snap ring.

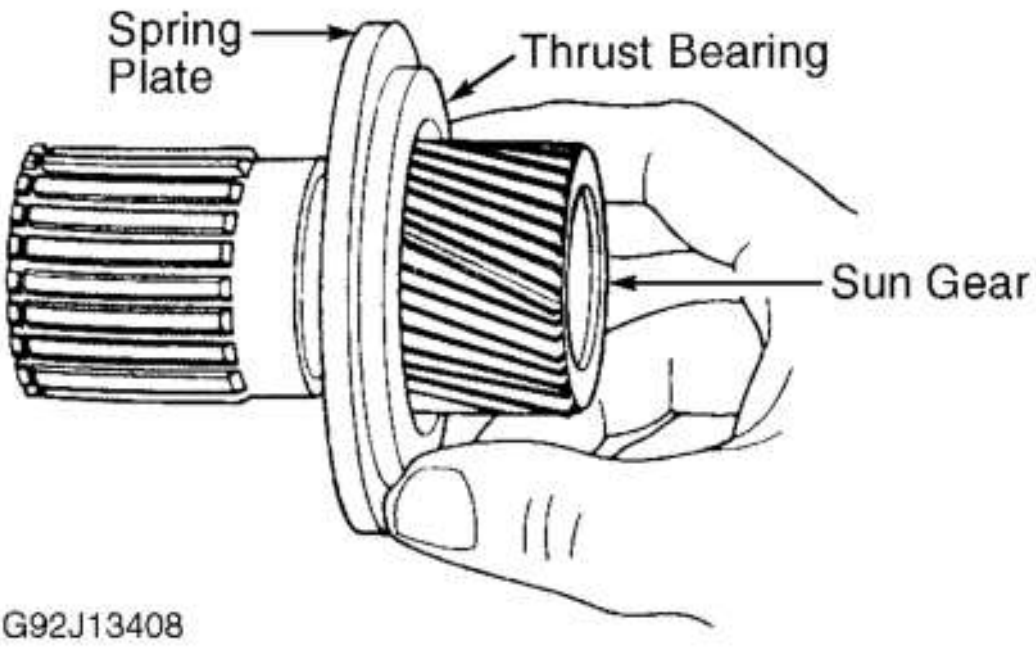


Fig. 47: Installing Spring Plate & Thrust Bearing On Sun Gear
Courtesy of CHRYSLER CORP.

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. 48** . Ensure alignment shaft is fully seated.

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

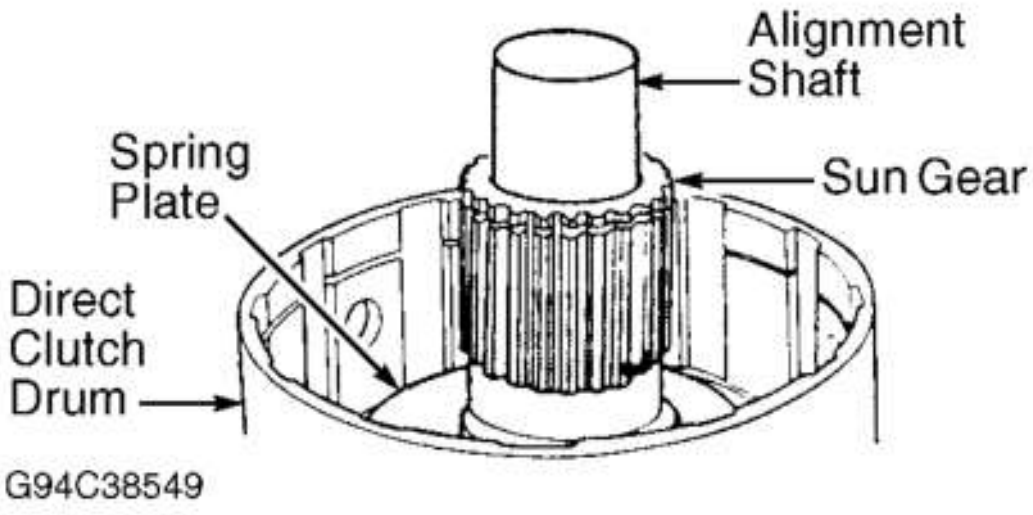


Fig. 48: Aligning Planetary Gear & Overrunning Clutch Hub Splines
Courtesy of CHRYSLER CORP.

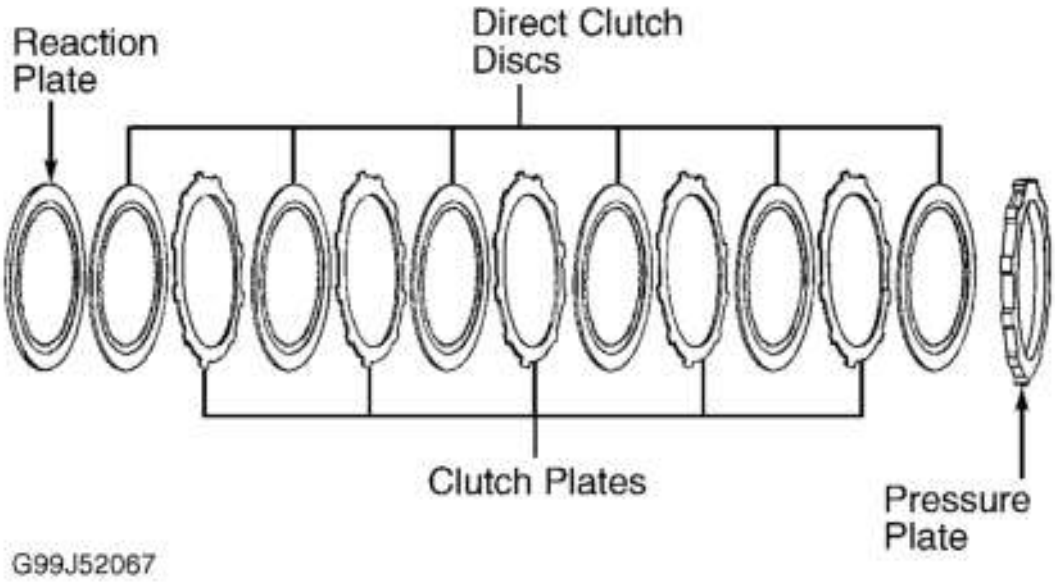


Fig. 49: Assembling Direct Clutch Pack
Courtesy of CHRYSLER CORP.

10. Install direct clutch spring on spring plate in direct clutch hub. Ensure spring is properly seated. Assemble direct clutch pack. See **Fig. 49** .
11. Install reaction plate on direct clutch hub. One side of reaction plate contains a counterbore area. See **Fig. 49** . Counterbore area should be installed so it fits over raised splines at rear of direct clutch hub. See **Fig. 50** .

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. 50 .

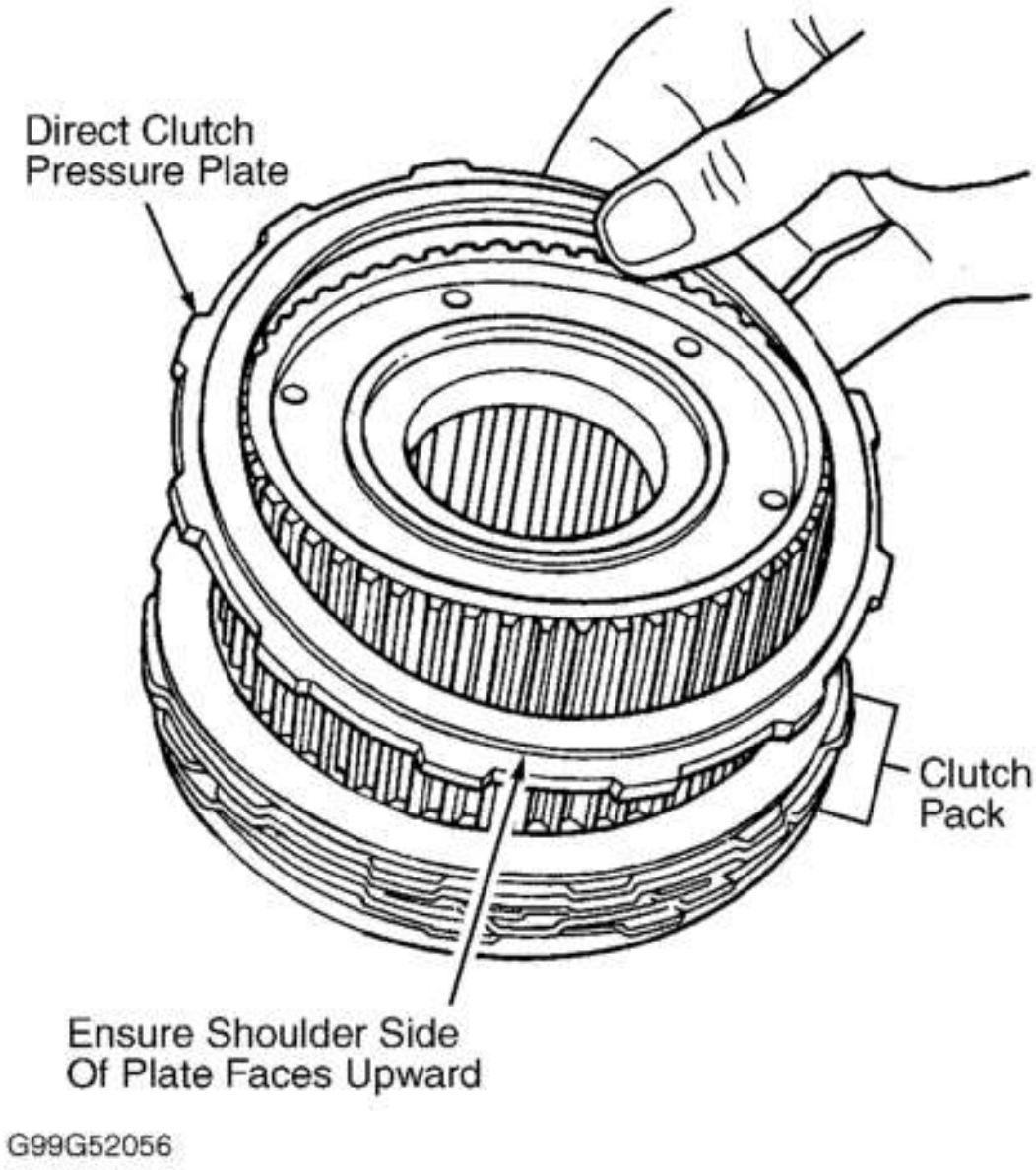


Fig. 50: Installing Reaction Plate & Pressure Plate
Courtesy of CHRYSLER CORP.

12. Alternately install clutch discs and clutch plates on reaction plate, starting with clutch disc. See **Fig. 49** . Install pressure plate with raised area away from clutch pack. See **Fig. 50** .
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. 44** . 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

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. 45** . 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. 42** .
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 alternate 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. 51** . 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 (5.36-5.38)

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

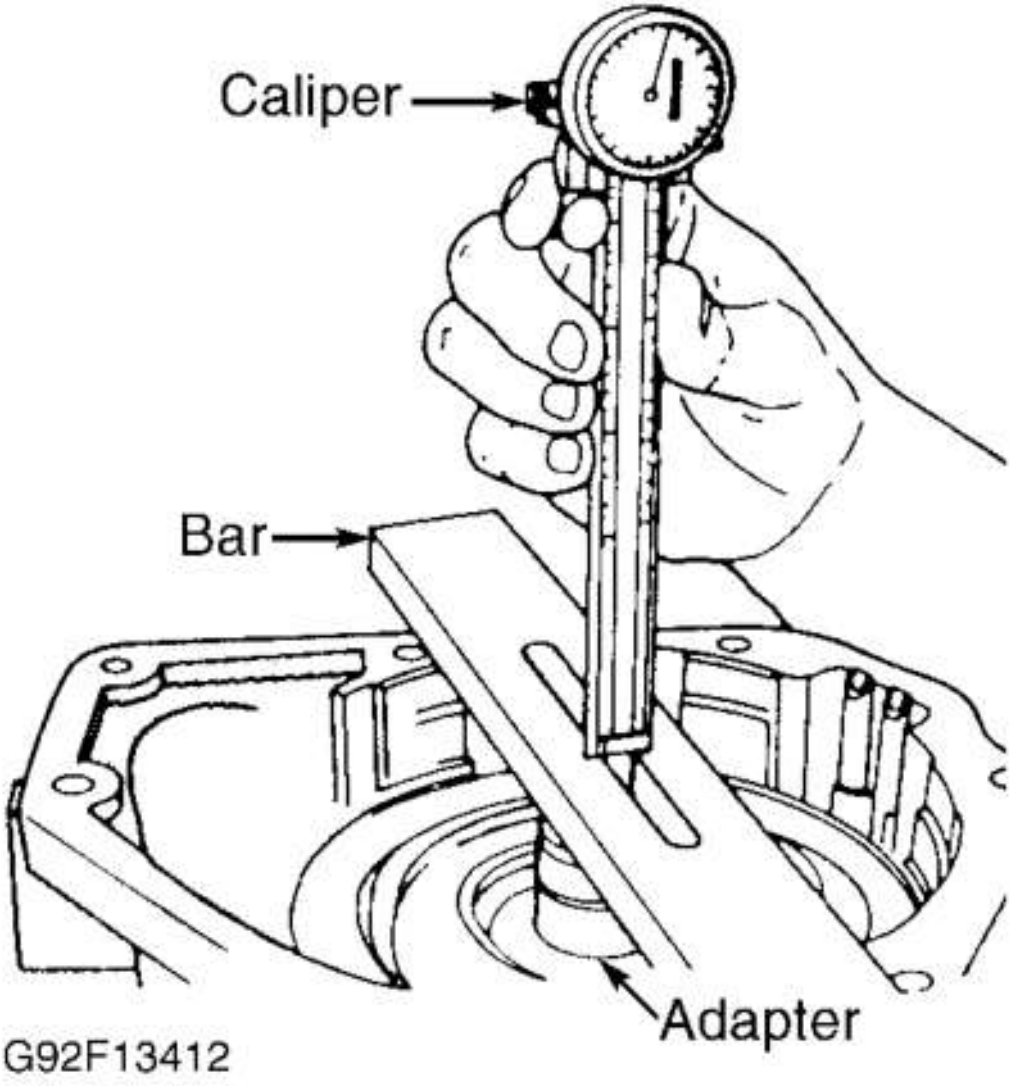


Fig. 51: Measuring Output Shaft End Play
Courtesy of CHRYSLER CORP.

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. 52** .
6. Determine the average distance by adding the 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 and 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 (4.27-4.32)
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)

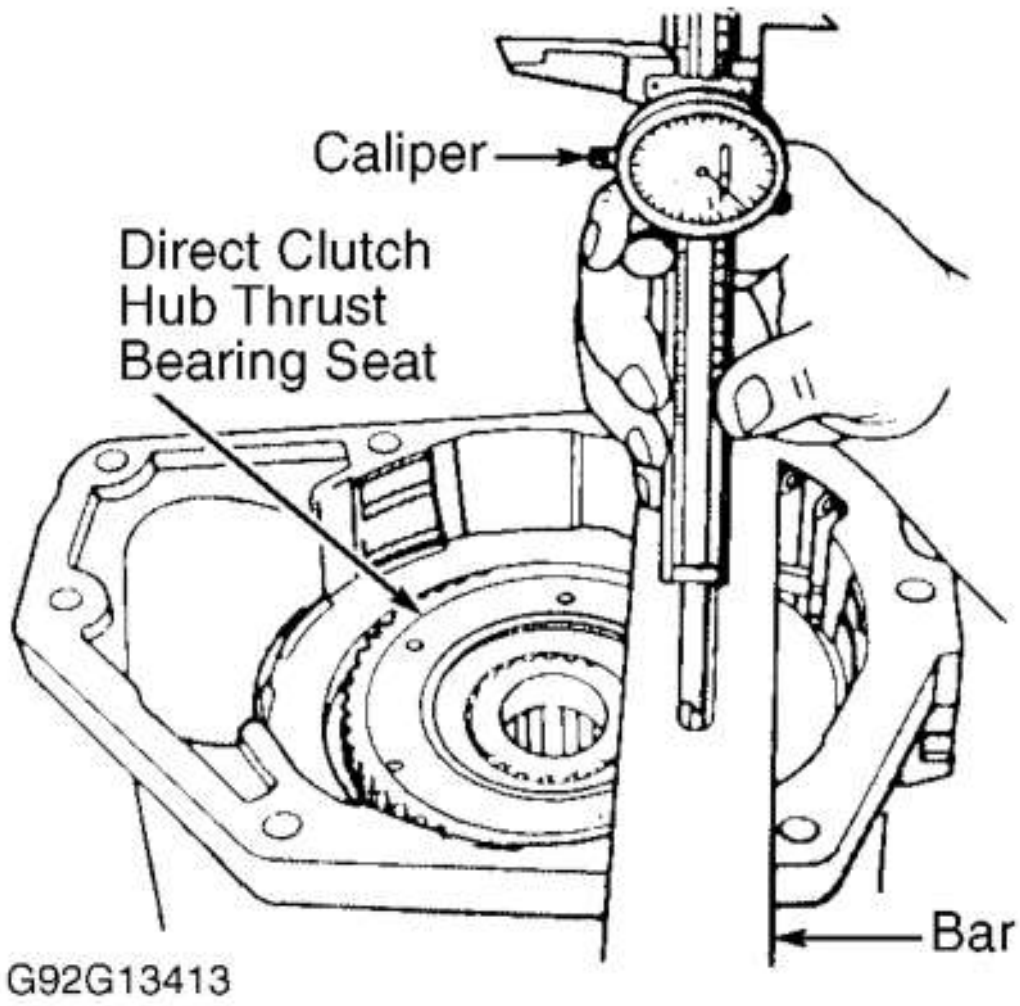


Fig. 52: Measuring Distance To Direct Clutch Hub Thrust Bearing Seat
Courtesy of CHRYSLER CORP.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Band Adjusting Screw Lock Nut	
Front Band	25 (34)
Rear Band	30 (41)
Front Band Lever Shaft Access Hole Plug	13 (18)
Oil Cooler Line At Transmission	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 Switch	25 (34)
Reaction Shaft Support Bolt	15 (20)
Shaft Retainer Plug	20 (27)
Vehicle Speed Sensor	20 (27)
	INCH Lbs. (N.m)
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-Transfer Plate Bolt	35 (4.0)
Limit & Timing Valve Cover Screw	35 (4.0)
Pressure Tap Plug	124 (14.0)
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	97 (11.0)
Valve Body Screw	35 (4.0)
Valve Body-To-Transmission Case Bolt	106 (12.0)
VSS Adapter Retainer Bolt	97 (11.0)
(1) Apply thread sealant to bolt threads.	

TRANSMISSION SPECIFICATIONS

TRANSMISSION SPECIFICATIONS

Application	**In. (mm)**
Clutch Clearances	
Front Clutch	.067-.134 (1.70-3.40)
Rear Clutch	.022-.036 (.56-.91)
Input Shaft End Play	.022-.091 (.56-2.31)
Oil Pump Clearances	
Pump Gear-To-Reaction Shaft Support Clearance	.0004-.0025 (.010-.064)
Outer Gear-To-Pump Housing Clearance	.0035-.0075 (.089-.190)
Pump Gear Tooth Clearance	.0035-.0075 (.089-.190)
Planetary Gear Train End Play	.005-.048 (.13-1.22)