1989-94 AUTOMATIC TRANSMISSIONS

Chrysler A-604/41TE & 41AE Overhaul

APPLICATION

NOTE: A-604 designation was changed to 41TE in 1991.

NOTE: The 41AE is used on All-Wheel Drive (AWD) FWD Van models. The 41AE internal components are the same as the 41TE except the 41AE contains a power transfer unit (transfer case) attached to the transaxle case. Service procedures for the 41TE also apply to 41AE unless designated.

TRANSMISSION APPLICATION

Model	Transaxle
1989-90 Fifth Ave (3.3/3.8L)	A-604
1991-93 Fifth Ave (3.3/3.8L)	41TE
1989-90 Imperial (3.8L)	A-604
1991-93 Imperial (3.8L)	41TE
1989-90 LeBaron & TC (3.0L)	A-604
1991-94 LeBaron (3.0L)	41TE
1989-90 New Yorker (3.3L)	A-604
1991-93 New Yorker (3.3L)	41TE
1989-90 Town & Country	A-604
1991-94 Town & Country	
2WD	41TE
AWD	41AE
1991-93 Daytona (3.0L)	41TE
1989-90 Dynasty (3.0/3.3L)	A-604
1991-93 Dynasty (3.0/3.3L)	41TE
1991-94 Shadow (3.0L)	41TE
1989-90 Spirit (3.0L)	A-604
1991-94 Spirit (3.0L)	41TE
1989-90 Caravan	A-604
1989-90 Caravan LE	A-604
1989-90 Grand Caravan	A-604
1991-94 Caravan	
2WD	41TE
AWD	41AE
1991-94 Grand Caravan	
2WD	41TE
AWD	41AE

1989-90 Acclaim (3.0L)	A-604
1991-94 Acclaim (3.0L)	41TE
1991-94 Sundance (3.0L)	41TE
1989-90 Voyager	A-604
1991-94 Voyager	
2WD	41TE
AWD	41AE
1989-90 Grand Voyager	A-604
1993-94 Grand Voyager	
2WD	41TE
AWD	41AE

NOTE: Vehicle body code may be required when servicing or repairing transaxle, as references may be made to body code instead of model. See BODY CODE IDENTIFICATION .

BODY CODE IDENTIFICATION

Model	Body Code
Acclaim, LeBaron Sedan & Spirit	AA
Caravan & Grand Caravan (1)	AS
Daytona	AG
Dynasty	AC
Fifth Avenue & Imperial	AY
LeBaron Convertible/Coupe	AJ
Shadow & Sundance	AP
Town & Country (1)	AS
New Yorker	AC
Voyager & Grand Voyager (1)	AS
(1) Includes All-Wheel Drive (AWD) models.	

CAUTION: If battery is disconnected or voltage supply to Transaxle Control Module (TCM) is interrupted, TCM will have to relearn shift characteristics. If TCM, transaxle internal components, solenoid assembly or torque converter are replaced, TCM will have to relearn shift characteristics. Perform shift quality quick-learn procedure. Refer to SHIFT QUALITY QUICK-LEARN PROCEDURE .

CAUTION: If torque converter is replaced or Transaxle Control Module (TCM) is changed from one vehicle to another, proper procedure must be used to reset the break-in procedure in TCM for the Electronically Modulated Converter Clutch (EMCC) in torque converter to prevent shudder during clutch engagement for lock-up. Perform EMCC reset procedure. See EMCC

RESET PROCEDURE under TORQUE CONVERTER.

CAUTION: If Transaxle Control Module (TCM) is replaced or changed from one vehicle to another, proper procedure must be used to calibrate TCM for different equipment combinations to provide speedometer operation and correct readings. Failure to perform this procedure will result in no speedometer operation. See PINION FACTOR PROCEDURE .

NOTE: Transaxle control module may also be referred to as transmission control module.

IDENTIFICATION

Transaxle identification code is stamped on identification tag mounted near solenoid assembly. Identification code may be required when ordering replacement components.

DESCRIPTION

The 41TE/AE is an electronically-controlled 4-speed transaxle. Transaxle uses hydraulically operated clutches controlled by the Transaxle Control Module (TCM). Transaxle consists of 3 multiple-disc input clutches, 2 multiple-disc holding clutches, accumulators and 2 planetary gear sets to provide 4 forward speeds and a reverse gear. See **Fig. 1** .

The TCM receives information from various sensors and controls solenoid assembly through transaxle control relay. Solenoid assembly consists of 4 solenoids for controlling hydraulic pressure to 4 of the 5 transaxle clutches.

The TCM contains an adaptive memory which learns application and release rates of transaxle components for maximum shift efficiency. The TCM also learns the rate at which applied elements build pressure sufficient for a speed change.

OPERATION

When gearshift is in "OD" (overdrive) position, transaxle will shift through all 4 speeds with torque converter lock-up in overdrive. When gearshift is in "3" position, transaxle uses only 1st, 2nd and 3rd gears with 2nd-to-3rd gear shift delayed until vehicle speed is at least 40 MPH. When operating with gearshift in "3" position, torque converter lock-up occurs in 3rd gear for improved transaxle cooling. If engine coolant temperature becomes excessively warm, torque converter lock-up will occur in 2nd gear. When gearshift is in "L" position, engine braking is provided for descending grades.

NOTE: On 1994 AS bodies only, an overdrive lock-out switch is located on instrument panel. Overdrive lock-out switch can be used to prevent transaxle from shifting into overdrive.

Transaxle Control Module (TCM) contains a self-diagnostic system which stores a diagnostic trouble code if a

transaxle problem exists. Diagnostic trouble code can be retrieved to determine the transaxle problem area. For information on electronic transaxle components, see the **AUTO TRANS DIAGNOSIS - 41TE & 41AE** article in this section.

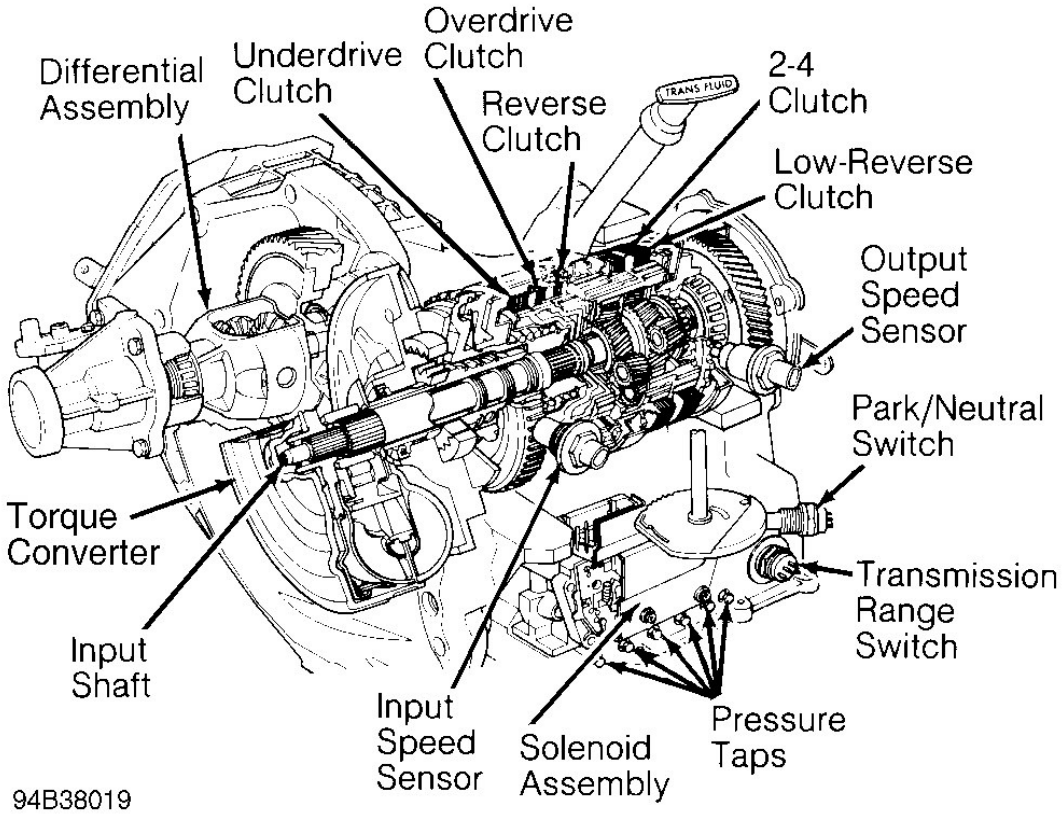


Fig. 1: Identifying Transaxle Components
Courtesy of CHRYSLER CORP.

SHIFT QUALITY QUICK-LEARN PROCEDURE

NOTE: This procedure quickly optimizes shift quality. Procedure must be performed after disconnecting battery or loss of voltage supply to Transaxle Control Module (TCM), replacing TCM, transaxle internal components, solenoid assembly or torque converter. Chrysler's Diagnostic Readout Box (DRB) scan tool with proper cartridge must be used to perform shift quality quick-learn procedure.

NOTE: Following conditions must be met when performing shift quality quick-learn procedure: oil temperature must be greater than 60°F (16°C), brakes must be applied when indicated, engine speed greater than 500 RPM, throttle angle less than 3 degrees, gearshift must be moved only when indicated, gearshift must

remain in overdrive as indicated until DRB indicates procedure is completed.

NOTE: If unused replacement TCM is installed on vehicle with engine at normal operating temperature, shift quality quick-learn procedure will cause TCM to indicate a cold oil temperature. Oil temperature must be monitored with DRB. If oil temperature is less than 60°F (16°C), allow engine to idle until oil temperature is greater than 60°F (16°C). If oil temperature is greater than 200°F (94°C), allow transaxle to cool until oil temperature is less than 200°F (94°C).

1. Connect DRB to data link connector, located near brake pedal at bottom of instrument panel. See **Fig. 2** . Using proper cartridge and DRB manufacture's instructions, move through program to enter 41TE/AE menu. Start vehicle. Select ADJUSTMENTS function.
2. Apply brakes. Select QUICK-LEARN function. Place gearshift in Neutral and then "OD" (overdrive) when indicated. Wait until TEST COMPLETE is indicated on DRB. Place gearshift in Park. Release brakes. Remove DRB.

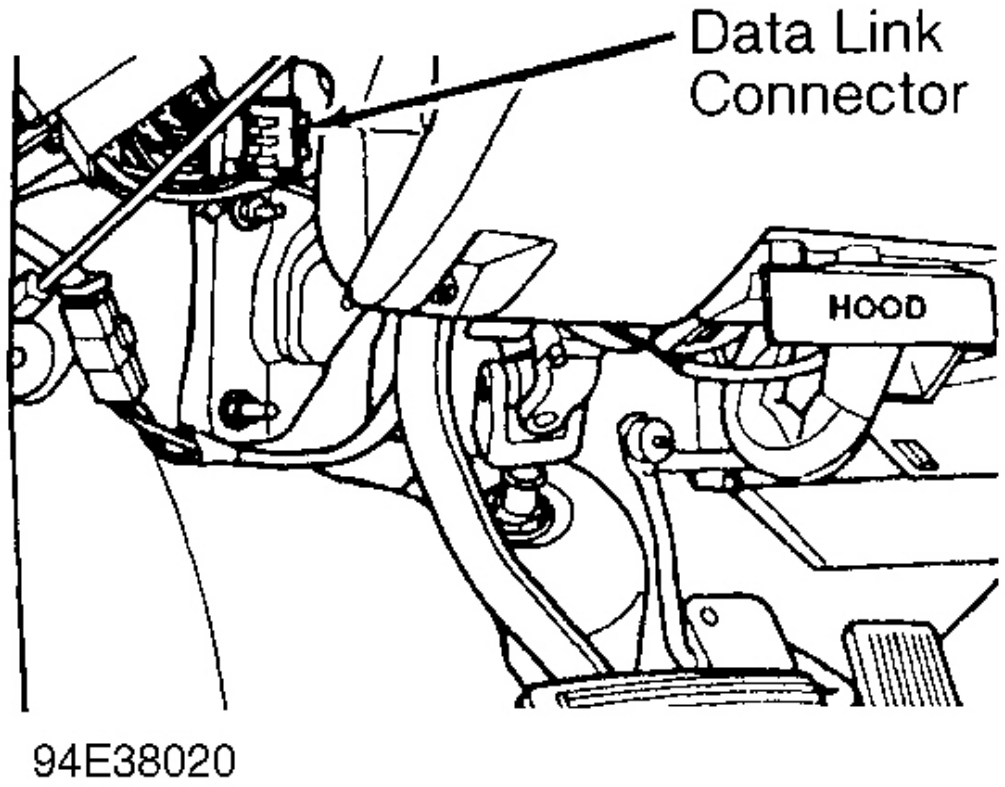


Fig. 2: Identifying Data Link Connector

Courtesy of CHRYSLER CORP.

PINION FACTOR PROCEDURE

CAUTION: Pinion factor procedure must be performed if Transaxle Control Module (TCM) is replaced or changed from one vehicle to another. Procedure must be used to calibrate TCM for different equipment combinations to provide speedometer operation and correct readings. Failure to perform this procedure will result in no speedometer operation.

NOTE: It may be necessary to consult manufacturer to determine Final Drive Ration (FDR) number when performing pinion factor procedure.

1. Connect DRB to data link connector, located near brake pedal at bottom of instrument panel. See **Fig. 2** . Using proper cartridge and DRB manufacture's instructions, move through program to enter 41TE/AE menu. Select ADJUSTMENTS function.
2. Select PINION FACTOR function. Select appropriate Final Drive Ratio (FDR) number and then the tire size. Remove DRB. Road test vehicle and verify speedometer operation.

LUBRICATION & ADJUSTMENTS

See the appropriate TRANSMISSION SERVICING article:

- For 1991 Cars, see **TRANSMISSION SERVICING - A/T** article.
- For 1991 Vans, see **TRANSMISSION SERVICING - A/T** article.
- For 1992 Cars, see **TRANSMISSION SERVICING - A/T** article.
- For 1992 Vans, see **TRANSMISSION SERVICING - A/T** article.
- For 1993 Cars, see **TRANSMISSION SERVICING - A/T** article.
- For 1993 Vans, see **TRANSMISSION SERVICING - A/T** article.
- For 1994 Cars, see **TRANSMISSION SERVICING - A/T** article.
- For 1994 Vans, see **TRANSMISSION SERVICING - A/T** article.

ON-VEHICLE SERVICE

The following components can be serviced on the vehicle:

- Input speed sensor.
- Output speed sensor.
- Park/Neutral switch.
- Solenoid assembly.
- Transmission range switch.
- Valve body.

See appropriate component under **REMOVAL & INSTALLATION** .

OIL COOLER FLUSHING

CAUTION: Whenever transaxle failure exists, oil cooler must be flushed. Oil cooler by-pass valve in transaxle and torque converter must be replaced. Oil cooler by-pass valve is located in transaxle case, behind oil pump. See Fig. 15 . If vehicle is equipped with 2 oil coolers (one in radiator tank and one in front of radiator), flush oil coolers separately. DO NOT attempt to flush both oil coolers at one time.

1. Disconnect oil cooler lines at transaxle. Using hand-held suction gun filled with mineral spirits, force mineral spirits into oil cooler return line until mineral spirits flows from oil cooler supply line. See **Fig. 3** .

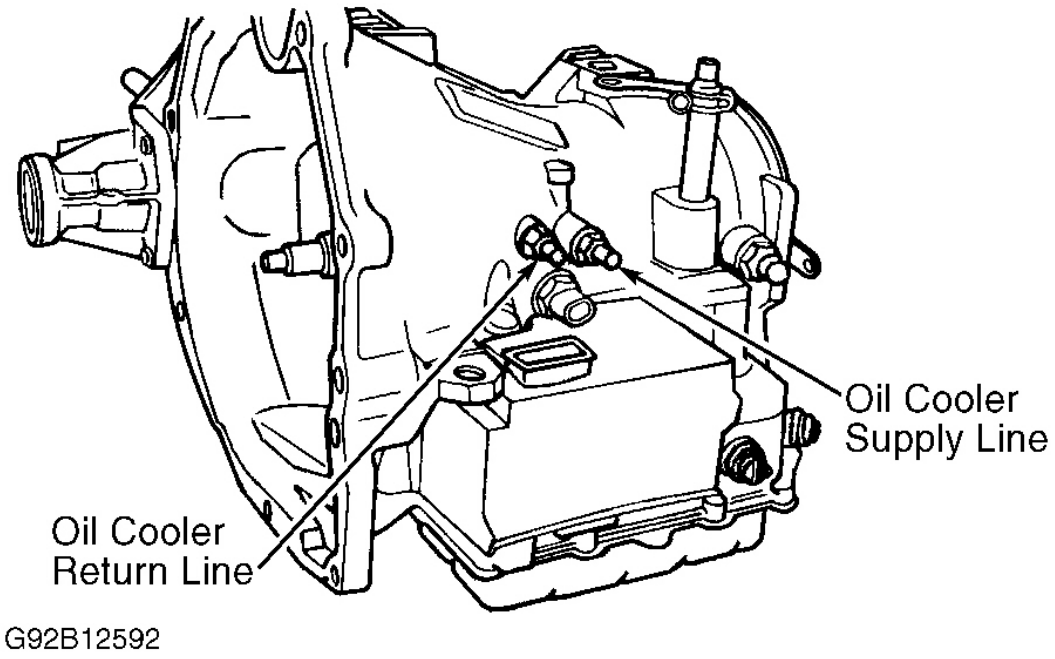


Fig. 3: Identifying Oil Cooler Lines On Transaxle
Courtesy of CHRYSLER CORP.

2. Continue flushing oil cooler until mineral spirits is clear and no sign of contamination exists. Once no contamination exists, apply compressed air on oil cooler return line in light applications until remaining mineral spirits is blown from oil cooler and oil cooler lines.
3. Pump at least one quart of Mopar ATF Plus-Type 7176 through oil cooler to ensure oil cooler is free of solvent. Replace oil cooler if fluid does not flow freely from oil cooler.

OIL COOLER FLOW CHECK

1. With transaxle filled to proper fluid level, disconnect oil cooler return line at transaxle. See **Fig. 3** . Place container under oil cooler return line.

CAUTION: DO NOT obtain more than one quart of fluid or transaxle may be damaged.

2. Apply parking brake. Start engine and allow to idle. Place gearshift in Neutral. Check fluid flow from oil cooler return line.
3. If fluid flow is intermittent or it takes more than 20 seconds to obtain one quart of fluid, replace oil cooler. Reconnect oil cooler return line. Fill to proper fluid level with Mopar ATF Plus-Type 7176.

TROUBLE SHOOTING

Transaxle malfunctions may be caused by poor engine performance, improper adjustments or failure of hydraulic, mechanical or electronic components. Always begin by checking fluid level, fluid condition and shift linkage or cable adjustment. Perform road test to determine if problem has been corrected. If problem still exists, several tests must be performed on transaxle. See **TESTING** below in this article.

CAUTION: Before attempting any repair on electronic transaxles, ALWAYS check for diagnostic trouble codes. See the appropriate AUTO TRANS DIAGNOSIS - 41TE & 41AE article in this section.

BUZZING NOISE

- Aerated fluid
- Incorrect fluid level
- Valve body malfunction or leakage

BUZZING NOISE DURING TRANSAXLE SHIFTS

- Normal solenoid operation
- Solenoid assembly sound cover loose or missing

DELAYED ENGAGEMENT FROM NEUTRAL TO DRIVE

- Aerated fluid
- Damaged clutch seals
- Engine idle speed too low
- Faulty oil pump
- Hydraulic pressures too low
- Incorrect shift linkage or cable adjustment

- Low fluid level
- Oil filter restricted
- Valve body malfunction or leakage
- Worn or broken reaction shaft support seal rings
- Worn or damaged accumulator seal rings
- Worn or damaged input shaft seal rings
- Worn or faulty underdrive clutch

DELAYED ENGAGEMENT FROM NEUTRAL TO REVERSE

- Aerated fluid
- Damaged clutch seals
- Engine idle speed too low
- Faulty oil pump
- Hydraulic pressures too low
- Incorrect shift linkage or cable adjustment
- Low fluid level
- Oil filter restricted
- Valve body malfunction or leakage
- Worn or broken reaction shaft support seal rings
- Worn or damaged accumulator seal rings
- Worn or damaged input shaft seal rings
- Worn or faulty reverse clutch

GRATING, SCRAPING OR GROWLING NOISE

- Axle shaft bushing worn or damaged
- Bearings worn or damaged
- Chipped or damaged gear teeth
- Defective planetary gear sets

HARD TO FILL WITH FLUID OR FLUID BLOWS OUT FILLER TUBE

- Aerated fluid
- High fluid level
- Oil filter restricted

HARSH DOWNSHIFTS

- Aerated fluid
- Damaged clutch seals

- Engine idle speed too high
- Hydraulic pressures too high
- Improper engine performance
- Low fluid level
- Valve body malfunction or leakage
- Worn or broken reaction shaft support seal rings
- Worn or damaged accumulator seal rings
- Worn or faulty low-reverse clutch
- Worn or faulty underdrive clutch
- Worn or faulty 2-4 clutch

HARSH ENGAGEMENT FROM NEUTRAL TO DRIVE

- Defective torque converter
- Engine idle too high
- Hydraulic pressures too high
- Improper engine performance
- Valve body malfunction or leakage
- Worn or damaged accumulator seal rings
- Worn or faulty low-reverse clutch
- Worn or faulty underdrive clutch

HARSH ENGAGEMENT FROM NEUTRAL TO REVERSE

- Engine idle too high
- Hydraulic pressures too high
- Improper engine performance
- Valve body malfunction or leakage
- Worn or damaged accumulator seal rings
- Worn or faulty low-reverse clutch
- Worn or faulty reverse clutch

HARSH TORQUE CONVERTER LOCK-UP

- Sticking lock-up piston in torque converter

HARSH UPSHIFT

- Improper engine performance
- Incorrect hydraulic pressure
- Worn or faulty overdrive clutch

- Worn or faulty 2-4 clutch

HIGH SHIFT EFFORTS

- Valve body malfunction or leakage
- Worn or damaged shift linkage or cable

NO TORQUE CONVERTER LOCK-UP

- Aerated fluid
- Defective torque converter
- Engine coolant temperature low
- Faulty oil pump
- Hydraulic pressures too low
- Low fluid level
- Valve body malfunction or leakage
- Worn or damaged input shaft seal rings

NO UPSHIFT INTO OVERDRIVE

- Engine coolant temperature low
- Worn or faulty overdrive clutch

POOR SHIFT QUALITY

- Aerated fluid
- Hydraulic pressures too low
- Low fluid level
- Oil filter restricted
- Valve body malfunction or leakage
- Worn or broken reaction shaft support seal rings

SHIFTS ERRATICALLY

- Aerated fluid
- Faulty oil pump
- Hydraulic pressures too low
- Improper engine performance
- Incorrect shift linkage or cable adjustment
- Low fluid level
- Oil filter restricted
- Worn or broken reaction shaft support seal rings

- Worn or faulty low-reverse clutch
- Worn or faulty overdrive clutch
- Worn or faulty underdrive clutch
- Worn or faulty 2-4 clutch
- Valve body malfunction or leakage

TRANSAXLE OVERHEATS

- Aerated fluid
- Defective torque converter
- Engine idle speed too high
- Faulty engine cooling system
- Faulty oil pump
- Hydraulic pressures too low
- Incorrect fluid level
- Incorrect shift linkage or cable adjustment
- Insufficient clutch plate clearance

VEHICLE DRAGS OR LOCKS

- Bearings worn or damaged
- Chipped or damaged gear teeth
- Defective planetary gear sets
- Worn or faulty low-reverse clutch
- Worn or faulty overdrive clutch
- Worn or faulty reverse clutch
- Worn or faulty underdrive clutch
- Worn or faulty 2-4 clutch

VEHICLE MOVES IN NEUTRAL

- Dragging clutch
- Incorrect shift linkage or cable adjustment
- Insufficient clutch plate clearance
- Valve body malfunction or leakage
- Worn or faulty overdrive clutch
- Worn or faulty reverse clutch
- Worn or faulty underdrive clutch

TESTING - NON-ELECTRONIC

SHIFT LINKAGE, PARK/NEUTRAL SWITCH & TRANS. RANGE SWITCH

NOTE: Shift linkage or cable adjustment can be verified by determining if vehicle will start with gearshift in Park or Neutral positions. This indicates if Park/Neutral switch and transmission range switch are operating properly.

1. Normal operation of Park/Neutral switch and transmission range switch provides a quick check to confirm proper adjustment of shift linkage or cable.
2. Apply parking brake. Move gearshift into a forward gear. Move gearshift slowly into Park. Ensure vehicle starts with gearshift in Park.
3. Move gearshift to Neutral. Ensure vehicle starts with gearshift in Neutral. If vehicle does not start in both of these positions, shift linkage or cable must be adjusted. See the appropriate TRANSMISSION SERVICING article:
   - For 1991 Cars, see **TRANSMISSION SERVICING - A/T** article.
   - For 1991 Vans, see **TRANSMISSION SERVICING - A/T** article.
   - For 1992 Cars, see **TRANSMISSION SERVICING - A/T** article.
   - For 1992 Vans, see **TRANSMISSION SERVICING - A/T** article.
   - For 1993 Cars, see **TRANSMISSION SERVICING - A/T** article.
   - For 1993 Vans, see **TRANSMISSION SERVICING - A/T** article.
   - For 1994 Cars, see **TRANSMISSION SERVICING - A/T** article.
   - For 1994 Vans, see **TRANSMISSION SERVICING - A/T** article.

ROAD TEST

1. Ensure shift linkage or cable is properly adjusted and fluid level and condition are okay. Add fluid and adjust shift linkage or cable as needed.
2. Road test vehicle, operating transaxle in each gear position. Check for slipping or any variation in shifting.
3. If vehicle operates properly at highway speeds but has poor acceleration, torque converter stator clutch may be slipping. If acceleration through all gears is normal, but high throttle opening is required to maintain highway speeds, torque converter stator clutch may be seized. Torque converter must be replaced if stator clutch is defective.
4. In most cases, the clutch that is slipping can be determined by noting transaxle operation in all gear positions and noting which clutches are applied. See **Fig. 4** .
5. Process of elimination can be used to detect any unit which slips and to confirm proper operation of good units. Although road test analysis can usually diagnose slipping units, the actual malfunction usually cannot be decided. Practically any condition can be caused by leaking hydraulic circuits or sticking valves.

NOTE: If torque converter is replaced or Transaxle Control Module (TCM) is changed from one vehicle to another, proper procedure must be used to reset the break-in procedure in TCM for the Electronically Modulated Converter Clutch (EMCC) in torque converter to prevent shudder during clutch engagement. Perform

EMCC reset procedure. Refer to EMCC RESET PROCEDURE under TORQUE CONVERTER.

Gearshift Position	Park/Neutral Switch	Parking Sprag	CLUTCHES: Underdrive	Overdrive	Reverse	2-4	Low-Reverse
P — PARK	X	X					X
R — REVERSE					X		X
N — NEUTRAL	X						X
OD — OVERDRIVE							
First			X				X
Second			X			X	
Direct			X	X			
Overdrive				X		X	
3 — DRIVE*							
First			X				X
Second			X			X	
Direct			X	X			
L — LOW*							
First			X				X
Second			X			X	
Direct			X	X			

* – Vehicle upshift and downshift speeds are increased when in these gearshift positions.

94F38021

Fig. 4: Clutch Application Chart
Courtesy of CHRYSLER CORP.

TORQUE CONVERTER STALL SPEED TEST

CAUTION: Manufacturer does not recommend performing torque converter stall speed test on 41TE/AE transaxle.

HYDRAULIC PRESSURE TESTS

Pressure Test Preparation

1. Ensure shift linkage or cable is properly adjusted, and that fluid level and condition are okay. Add fluid and adjust shift linkage or control cable as needed.
2. Ensure fluid is at normal operating temperature of 150-200°F (66-93°C). Install tachometer. Raise vehicle on hoist, allowing front wheels to rotate freely.

NOTE: A 150 psi (11 kg/cm^2) pressure gauge is used for checking all clutches except reverse clutch. A 300 psi (21 kg/cm^2) pressure gauge is used for checking reverse clutch.

Low-Reverse Clutch Pressure Test

1. Remove plug and install pressure gauge in low-reverse clutch pressure tap. See **Fig. 5** .

2. Place gearshift in "L" position. Allowing front wheels to rotate, accelerate until vehicle speed indicates 20 MPH.
3. Low-reverse clutch pressure should be 115-145 psi (8.0-10.1 kg/cm^2). This pressure test checks oil pump output, pressure regulation and low-reverse clutch hydraulic circuit and shift schedule. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

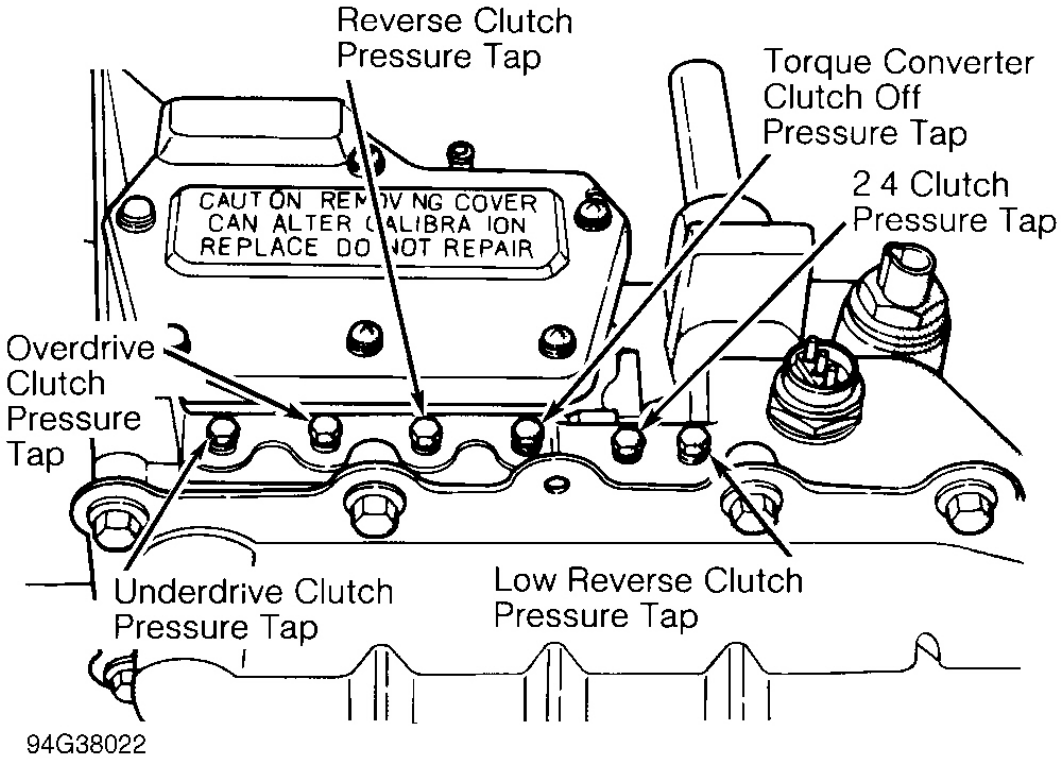


Fig. 5: Identifying Pressure Taps
Courtesy of CHRYSLER CORP.

Underdrive Clutch Pressure Test

1. Remove plug and install pressure gauge in underdrive clutch pressure tap. See **Fig. 5** .
2. Place gearshift in "3" position. Allowing front wheels to rotate, accelerate until vehicle speed indicates 30 MPH.
3. Underdrive clutch pressure should be 110-145 psi (7.7-10.1 kg/cm^2). This pressure test checks underdrive clutch hydraulic circuit and shift schedule. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Overdrive Clutch Pressure Test

1. Remove plug and install pressure gauge in overdrive clutch pressure tap. See **Fig. 5** .

2. Place gearshift in "OD" (overdrive) position. Allowing front wheels to rotate, accelerate until vehicle speed indicates 20 MPH.
3. Overdrive clutch pressure should be 74-95 psi (5.2-6.7 kg/cm^2). Place gearshift in "3" position and increase vehicle speed to 30 MPH.
4. Transaxle should be in 2nd gear and overdrive clutch pressure should now be less than 5 psi (.35 kg/cm^2). This pressure test checks overdrive clutch hydraulic circuit and shift schedule. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

2-4 Clutch Pressure Test

1. Remove plug and install pressure gauge in 2-4 clutch pressure tap. See **Fig. 5** .
2. Place gearshift in "OD" (overdrive) position. Allowing front wheels to rotate, accelerate until vehicle speed indicates 30 MPH.
3. The 2-4 clutch pressure should be 75-95 psi (5.3-6.7 kg/cm^2). This pressure test checks 2-4 clutch hydraulic circuit. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Torque Converter Clutch Off Pressure Test

1. Remove plug and install pressure gauge in torque converter clutch off pressure tap. See **Fig. 5** . Place gearshift in "OD" (overdrive) position.
2. Allowing front wheels to rotate, accelerate until vehicle speed indicates 50 MPH.

CAUTION: Ensure both front wheels are rotating at the same speed when performing torque converter clutch off pressure test.

3. Torque converter clutch off pressure should be less than 5 psi (.35 kg/cm^2). This pressure test checks torque converter clutch hydraulic circuit. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Reverse Clutch Pressure Test

1. Remove plug and install pressure gauge in reverse clutch pressure tap. See **Fig. 5** . Place gearshift in Reverse.
2. Apply brakes. Accelerate until engine speed is 1500 RPM and note reverse clutch pressure. Reverse clutch pressure should be 165-235 psi (11.6-16.5 kg/cm^2). This pressure test checks reverse clutch hydraulic circuit.
3. Remove pressure gauge. Install and tighten pressure tap plug to specification. See **TORQUE SPECIFICATIONS** .

Pressure Test Result Indications

1. If proper hydraulic pressure exists in any one pressure test, oil pump and pressure regulator valve are operating properly. Various clutch operating hydraulic pressures exist depending on gearshift position.

See **Fig. 6** .

2. Low hydraulic pressure in any or all positions indicates a defective oil pump, restricted oil filter or stuck pressure regulator valve. If hydraulic pressure is not within specification, clutch hydraulic circuit is leaking.
3. If overdrive clutch hydraulic pressure exceeds 5 psi (.35 kg.cm^2) in step 4) of OVERDRIVE CLUTCH PRESSURE TEST above, a worn reaction shaft seal ring is indicated.

ALL PRESSURE SPECIFICATIONS ARE PSI
(VEHICLE ON HOIST WITH WHEELS FREE TO ROTATE)

Gearshift Position	Actual Gear	PRESSURE TAPS					
		Underdrive Clutch	Overdrive Clutch	Reverse Clutch	Torque Converter Clutch Off	2-4 Clutch	Low-Reverse Clutch
PARK ① 0 mph	PARK	0-2	0-5	0-2	60-110	0-2	115-145
REVERSE ① 0 mph	REVERSE	0-2	0-7	165-235	50-100	0-2	165-235
NEUTRAL ① 0 mph	NEUTRAL	0-2	0-5	0-2	60-110	0-2	115-145
L ② 20 mph	FIRST	110-145	0-5	0-2	60-110	0-2	115-145
3 ② 30 mph	SECOND	110-145	0-5	0-2	60-110	115-145	0-2
3 ② 45 mph	DIRECT	75-95	75-95	0-2	60-90	0-2	0-2
OD ② 30 mph	OVERDRIVE	0-2	75-95	0-2	60-90	75-95	0-2
OD ② 50 mph	OVERDRIVE LOCKUP	0-2	75-95	0-2	0-5	75-95	0-2

¹ – Check with engine speed at 1500 RPM.
² – CAUTION: Both front wheels must rotate at the same speed.
94H38023

Fig. 6: Identifying Clutch Operating Pressures
Courtesy of CHRYSLER CORP.

CLUTCH AIR PRESSURE TESTS

NOTE: Inoperative clutches can be located by applying air pressure to appropriate passages in transaxle case. Clutch assembly is defective if it does not operate correctly.

Test Preparation

Remove valve body. See **VALVE BODY** under REMOVAL & INSTALLATION in this article. Install Adapter Plate (6056) on transaxle case. See **Fig. 7** .

CAUTION: Ensure air supply is free of all dirt and moisture. Using air pressure regulator, adjust air pressure to 30 psi (2.1 kg/cm^2).

Overdrive Clutch

Apply air pressure to Overdrive clutch (OD) passage on adapter plate. See **Fig. 7** . Ensure overdrive clutch piston moves forward and returns to original position when air pressure is released.

Reverse Clutch

Apply air pressure to reverse clutch (REV) passage on adapter plate. See **Fig. 7** . Ensure Reverse clutch piston moves rearward and returns to original position when air pressure is released.

2-4 Clutch

Apply air pressure to feed hole located on 2-4 clutch retainer. Ensure 2-4 clutch piston moves rearward and returns to original position when air is released.

Low-Reverse Clutch

Apply air pressure to low-reverse clutch supply hole, located on rear of transaxle case, between the 2 bolt holes. Ensure low-reverse clutch piston moves forward and returns to original position when air is released.

Underdrive Clutch

1. Apply air pressure to low-reverse and 2-4 clutches. Output shaft should now be locked. Wrap rubber hose around input shaft. Install clamp-on pliers on input shaft. Rotate input shaft.
2. Apply air pressure to Underdrive clutch (UD) passage on adapter plate. See **Fig. 7** . Input shaft should not rotate with hand torque. Release air pressure. Ensure input shaft now rotates.

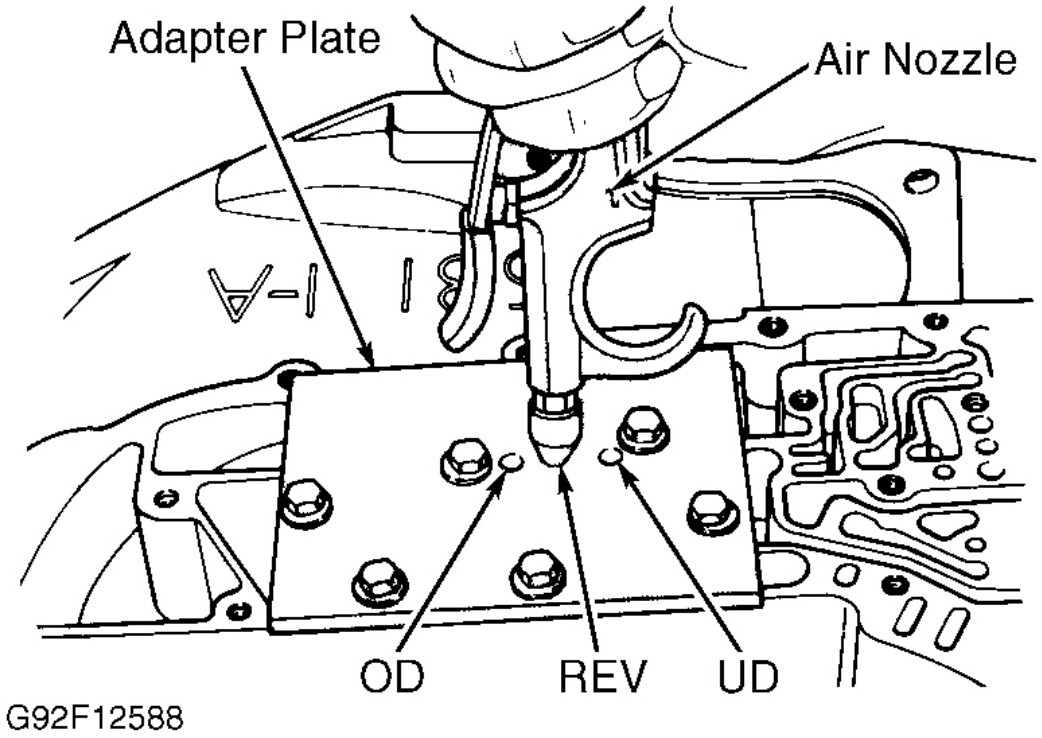


Fig. 7: Applying Air Pressure To Clutch Packs
Courtesy of CHRYSLER CORP.

TORQUE CONVERTER FLUID LEAKAGE TEST

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

1. Remove torque converter housing dust shield. Using solvent, clean inside area of torque converter housing. Dry with compressed air. Ensure area is clean and dry.
2. Fabricate leakage test probe using 1/32" sheet metal, 5" long and 1 1/2" wide. See **Fig. 8** . Operate engine until transaxle is at normal operating temperature. Install leakage test probe on torque converter dust shield bolt so leakage test probe is near torque converter. Ensure torque converter does not contact leakage test probe.

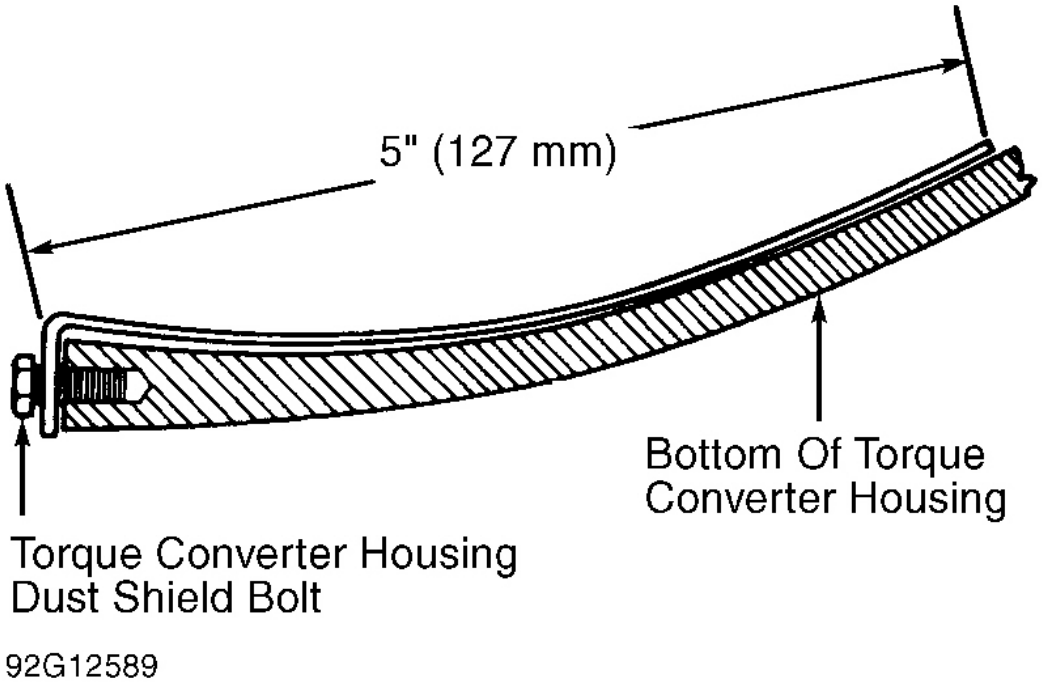


Fig. 8: Fabricating Leakage Test Probe
Courtesy of CHRYSLER CORP

3. Start engine. Place gearshift in Neutral. Operate engine at 2500 RPM for 2 minutes. Stop engine. Remove leakage test probe.
4. If upper surface of leakage test probe is dry, torque converter is not leaking. If upper surface of leakage test probe is wet with ATF, torque converter is leaking. If lower area below leakage test probe is wet with ATF, fluid is coming from around torque converter area.
5. Possible causes of fluid leaks at torque converter areas are:
   - Defective oil pump housing "O" ring or oil pump housing
   - Defective seal (check torque converter hub finish)
   - Mispositioned or worn bushing
   - Oil pump-to-transaxle case bolts
   - Restricted oil pump housing oil return hole
   - Torque converter hub
6. If torque converter is leaking, check for defective welds on outside diameter of torque converter and torque converter hub. Torque converter hub is welded on the inside and weld is not visible. Replace torque converter if a leak exists. **DO NOT** attempt to repair torque converter.

CAUTION: If torque converter is replaced, a special torque converter break-in procedure must be performed to prevent shudder during clutch

engagement. Refer to EMCC RESET PROCEDURE under TORQUE CONVERTER.

TRANSAXLE CASE PRESSURE TEST

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

1. Fabricate a torque converter hub seal cup using thin wall tubing and a .125" (3.17 mm) steel disc. See **Fig. 9** . Fabricate torque converter hub seal cup retaining strap using a .25" (6.3 mm) thick and 1.25" (31.7 mm) wide material. See **Fig. 10** .

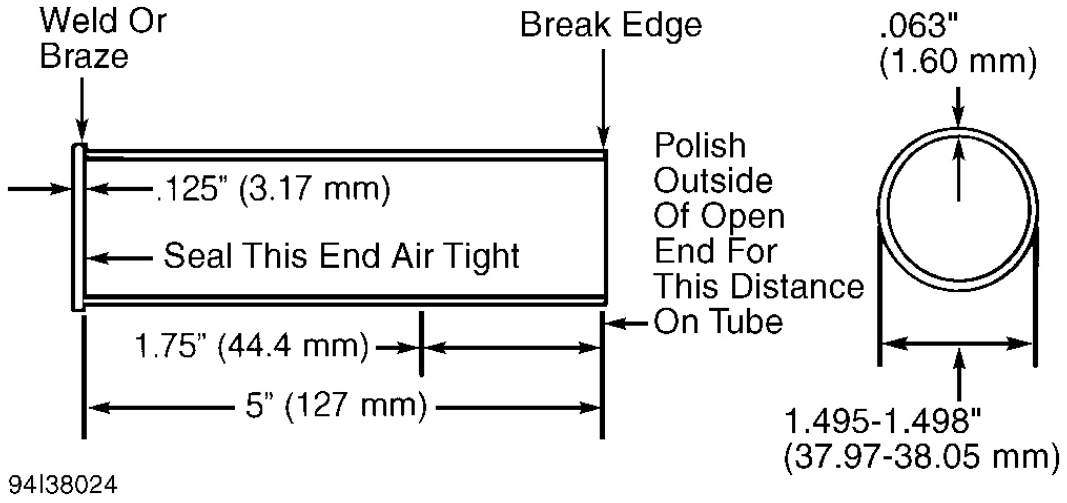


Fig. 9: Fabricating Torque Converter Hub Seal Cup
Courtesy of CHRYSLER CORP.

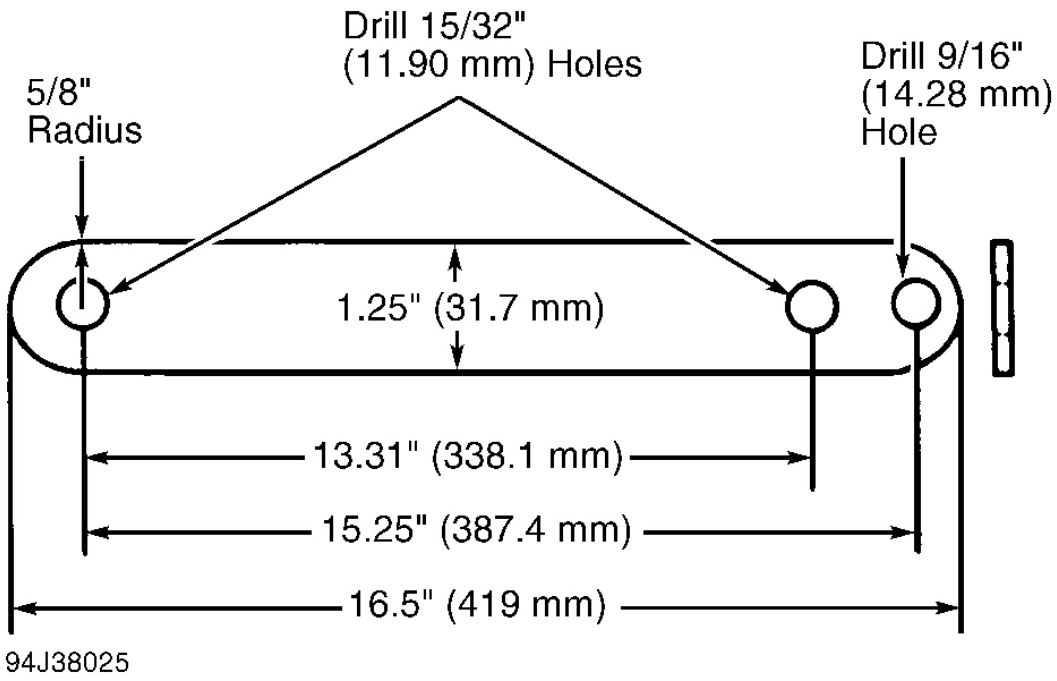


Fig. 10: Fabricating Torque Converter Hub Seal Cup Retaining Strap
Courtesy of CHRYSLER CORP.

2. Remove torque converter from transaxle. Plug dipstick tube and lower oil cooler line fitting. Remove vent from manual shaft and install a 1/8" pipe plug.

CAUTION: DO NOT allow manual shaft to rotate when installing the 1/8" pipe plug.

3. Using rotary motion, install torque converter hub seal cup over input shaft and through torque converter hub seal until cup bottoms against gear lugs of oil pump.
4. Install torque converter hub seal cup retaining strap using starter upper hole and opposite bracket hole. Attach hose from Nozzle (C-4080) to upper oil cooler line fitting on transaxle case.
5. Using pressure regulator, apply 8-10 psi (.5-.7 kg/cm^2) of air pressure to transaxle case.

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

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

REMOVAL & INSTALLATION

NOTE: If battery is disconnected or voltage supply to Transaxle Control Module (TCM) is interrupted, TCM will have to relearn shift characteristics. Perform shift quality quick-learn procedure. See SHIFT QUALITY QUICK-LEARN PROCEDURE .

AXLE SHAFTS

See the appropriate AXLE SHAFTS article in the DRIVE AXLE section. Refer to the following menu:

- For 1991 Cars, see: **AXLE SHAFTS - FRONT**
- For 1991 2WD Vans, see: **AXLE SHAFTS - FRONT**
- For 1991 AWD Vans, see: **DRIVE AXLE - REAR (AWD)**
- For 1992 Cars, see: **AXLE SHAFTS - FRONT**
- For 1992 2WD Vans, see: **AXLE SHAFTS - FRONT**
- For 1992 AWD Vans, see: **DRIVE AXLE - REAR (AWD)**
- For 1993 Cars, see: **AXLE SHAFTS - FRONT**
- For 1993 2WD Vans, see: **AXLE SHAFTS - FRONT**
- For 1993 AWD Vans, see: **DRIVE AXLES - REAR (AWD)**
- For 1994 Cars, see: **AXLE SHAFTS - FRONT**
- For 1994 2WD Vans, see: **AXLE SHAFTS - FRONT**
- For 1994 AWD Vans, see: **DRIVE AXLE - REAR (AWD)**

INPUT SPEED SENSOR

Removal & Installation

1. Disconnect electrical connector from input speed sensor, located on side of transaxle case. See **Fig. 1** . Ensure weather seal remains on electrical connector. Remove input speed sensor from transaxle case.
2. To install, reverse removal procedure. Tighten input speed sensor to specification. See **TORQUE SPECIFICATIONS** . Reconnect electrical connector.

OUTPUT SPEED SENSOR

Removal & Installation

1. Disconnect electrical connector from output speed sensor, located on side of transaxle case. See **Fig. 1** . Ensure weather seal remains on electrical connector. Remove output speed sensor from transaxle case.
2. To install, reverse removal procedure. Tighten output speed sensor to specification. See **TORQUE SPECIFICATIONS** . Reconnect electrical connector.

PARK/NEUTRAL SWITCH

Removal & Installation

1. Disconnect electrical connector from park/neutral switch, located on transaxle case. See **Fig. 1** . Remove park/neutral switch and sealing washer.
2. To install, reverse removal procedure using a NEW sealing washer. Ensure the NEW sealing washer is fully seated in the transaxle case before tightening park/neutral switch to specification. See **TORQUE SPECIFICATIONS** . Reconnect electrical connector.

SOLENOID ASSEMBLY

Removal & Installation

1. Disconnect electrical connector from solenoid assembly. Remove input speed sensor. See **INPUT SPEED SENSOR** under REMOVAL & INSTALLATION. Remove solenoid assembly sound cover. See **Fig. 11** .
2. Remove bolts, solenoid assembly, solenoid assembly gaskets and solenoid plate. See **Fig. 11** .
3. To install, reverse removal procedure using NEW solenoid assembly gaskets. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** . Reconnect electrical connector.

TRANSAXLE ASSEMBLY

See the appropriate AUTOMATIC TRANSMISSION REMOVAL article in this section.

- For 1991 Cars, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1991 Vans, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1992 Cars, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1992 Vans, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1993 Cars, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1993 Vans, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1994 Cars, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .
- For 1994 Vans, see **TRANSMISSION REMOVAL & INSTALLATION - A/T** .

TRANSMISSION RANGE SWITCH

Removal & Installation

1. Disconnect electrical connector from transmission range switch, located on transaxle case. See **Fig. 1** . Remove transmission range switch and sealing washer.
2. To install, reverse removal procedure. Ensure sealing washer is fully seated in transaxle case before tightening transmission range switch to specification. See **TORQUE SPECIFICATIONS** . Reconnect electrical connector.

VALVE BODY

Removal

1. Raise and support vehicle. Disconnect shift linkage or cable from shift lever on manual shaft assembly. Remove shift lever from manual shaft assembly.
2. Remove bolts, oil pan, oil filter and "O" ring. Remove the valve body/transfer plate-to-transaxle case bolts. Note bolt length and location for reassembly reference.
3. Move roller on parking sprag rod from parking sprag guide bracket. See **Fig. 11** . Lift valve body and manual shaft assembly from transaxle case.

Installation

1. To install, reverse removal procedure. Ensure roller on parking sprag rod engages with parking sprag guide bracket. Install valve body/transfer plate-to-transaxle case bolts in original location. Tighten bolts to specification. See **TORQUE SPECIFICATIONS** .
2. Install NEW oil filter and NEW "O" ring. Apply RTV sealant on oil pan-to-transaxle surface and below head of oil pan bolts before installing. Install and tighten oil pan bolts to specification. See **TORQUE SPECIFICATIONS** .
3. Install shift lever on manual shaft assembly. Reconnect shift linkage or cable. Fill with Mopar ATF PLUS-Type 7176.

TORQUE CONVERTER

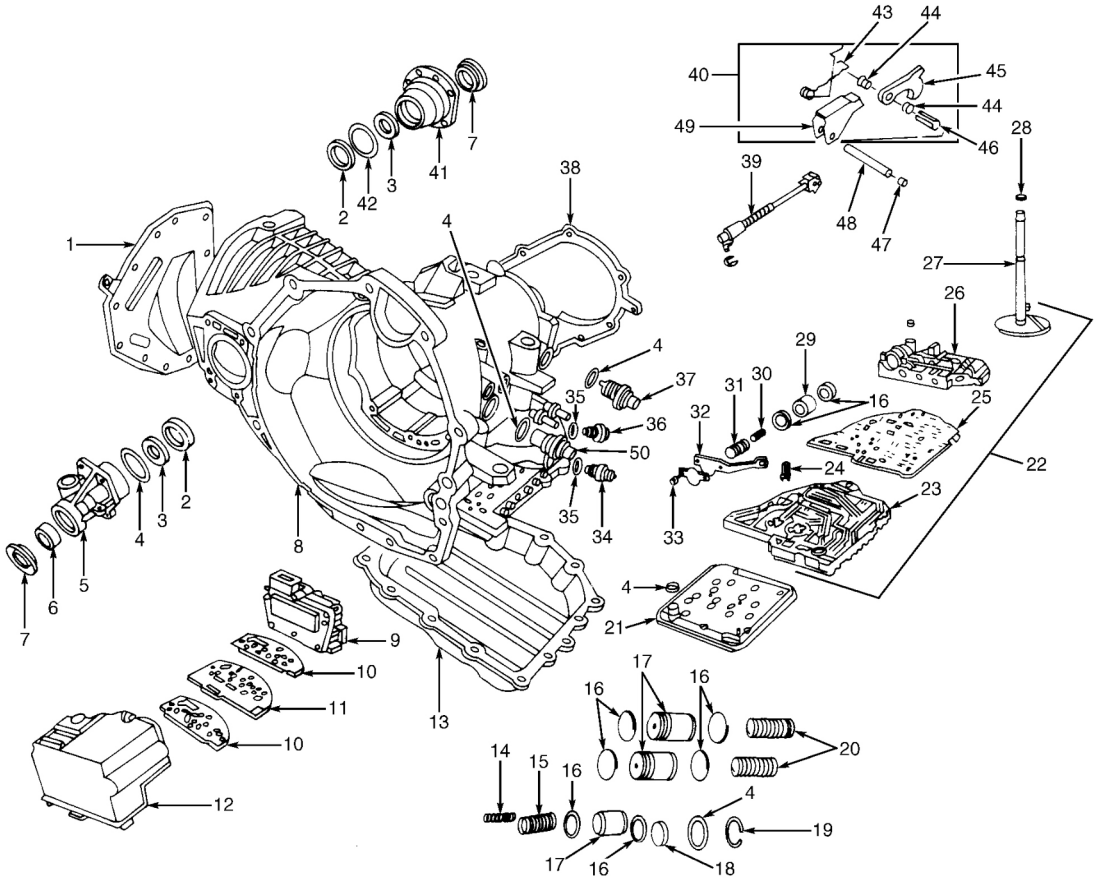
CAUTION: Torque converter is a welded assembly and is not serviceable. If a malfunction occurs or if torque converter becomes contaminated with foreign material, it MUST be replaced. It cannot be flushed or repaired. If the torque converter is replaced, a special torque converter break-in procedure must be performed to prevent shudder during clutch engagement for lock-up. Refer to EMCC RESET PROCEDURE .

EMCC RESET PROCEDURE - ELECTRONICALLY MODULATED CONVERTER CLUTCH (EMCC) RESET PROCEDURE

NOTE: Procedure is used to reset break-in procedure in TCM for Electronically Modulated Converter Clutch (EMCC) in torque converter to prevent shudder during clutch engagement. Procedure must be used if torque converter is replaced or Transaxle Control Module (TCM) is changed from one vehicle to another.

NOTE: The TCM break-in procedure must be reset to the start of the break-in procedure. The TCM's uses a break-in procedure which is performed in 3 stages, START, IN PROGRESS and COMPLETE. In the START stage, full clutch engagement exists. In the IN-PROGRESS stage, partial clutch engagement exists with progressive clutch slippage. In the COMPLETE stage, partial clutch engagement exists with 60 RPM clutch slippage. The TCM break-in procedure must be reset to the start phase of break-in procedure to ensure proper clutch operation.

1. Connect DRB to data link connector, located near brake pedal at bottom of instrument panel. See **Fig. 2** . Using proper cartridge and DRB manufacture's instructions, move through program to enter 41TE/AE menu. Select ADJUSTMENTS function.
2. Select EMCC RESET function. DRB will now display the break-in status, such as START, IN-PROGRESS or COMPLETE. If START is displayed, no further action is required.
3. If IN-PROGRESS or COMPLETE is displayed, press ENTER key to return brake-in procedure to the START stage. Press ENTER key again. The DRB will now display ARE YOU SURE. Press ENTER key again. Break-in procedure should now be reset. The DRB should display that ECCM break-in status has been reset to the START stage. Remove DRB.



1. Differential Cover
2. Bearing Race
3. Oil Baffle
4. "O" Ring
5. Extension Housing
6. Bushing
7. Oil Seal
8. Transaxle Case
9. Solenoid Assembly
10. Solenoid Assembly Gasket
11. Solenoid Plate
12. Solenoid Assembly Sound Cover
13. Oil Pan
14. Inner Accumulator Spring
15. Outer Accumulator Spring
16. Seal Ring
17. Accumulator Piston
18. Accumulator Cover
19. Snap Ring
20. Accumulator Spring
21. Oil Filter
22. Valve Body Assembly
23. Transfer Plate
24. Oil Screen
25. Separator Plate
26. Valve Body
27. Manual Shaft Assembly
28. Seal
29. Accumulator Piston
30. Inner Spring
31. Outer Spring
32. Detent Spring
33. Retainer Bolt
34. Transmission Range Switch
35. Seal Washer
36. Park/Neutral Switch
37. Output Speed Sensor
38. End Cover
39. Parking Sprag Rod
40. Parking Sprag Assembly
41. Differential Bearing Retainer
42. Selective Spacer Or Shim
43. Return Spring
44. Spacer
45. Parking Sprag Pawl
46. Sleeve
47. Cup
48. Shaft
49. Parking Sprag Guide Bracket
50. Input Speed Sensor

G94A38026

Fig. 11: Exploded View Of Transaxle Case

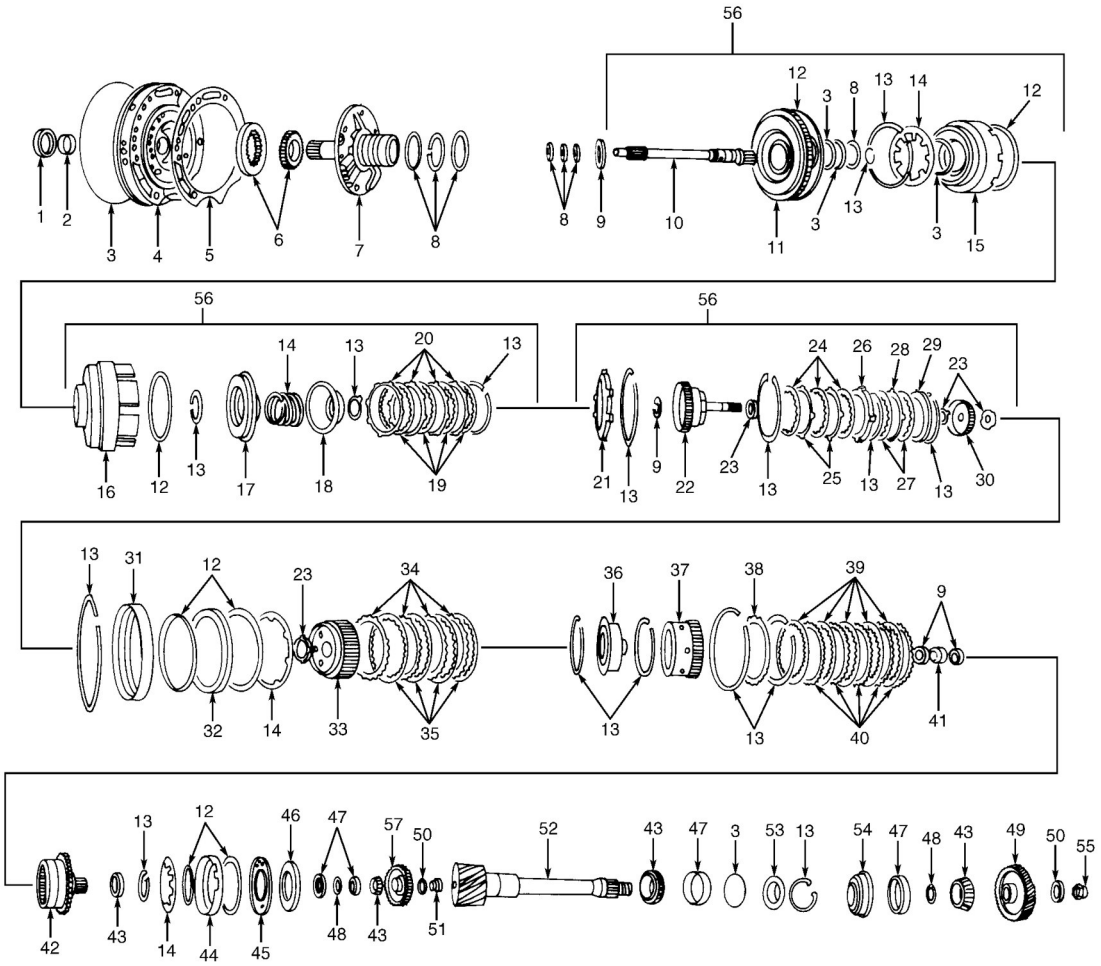


Fig. 12: Exploded View Of Internal Transaxle Components

TRANSAXLE DISASSEMBLY

VALVE BODY & INTERNAL COMPONENTS

NOTE: Input shaft end play should be measured before transaxle disassembly. Measurement indicates if No. 4 thrust washer (thrust washer with 3 slots) on shaft side of overdrive clutch hub may need to be changed.

1. Remove torque converter. Attach dial indicator to transaxle case with dial indicator stem seated against end of input shaft. See **Fig. 13** .
2. Move input shaft inward and zero dial indicator. Pull input shaft outward and note reading. Input shaft end play should be .005-.025" (.13-.64 mm). Record input shaft end play for reassembly reference.

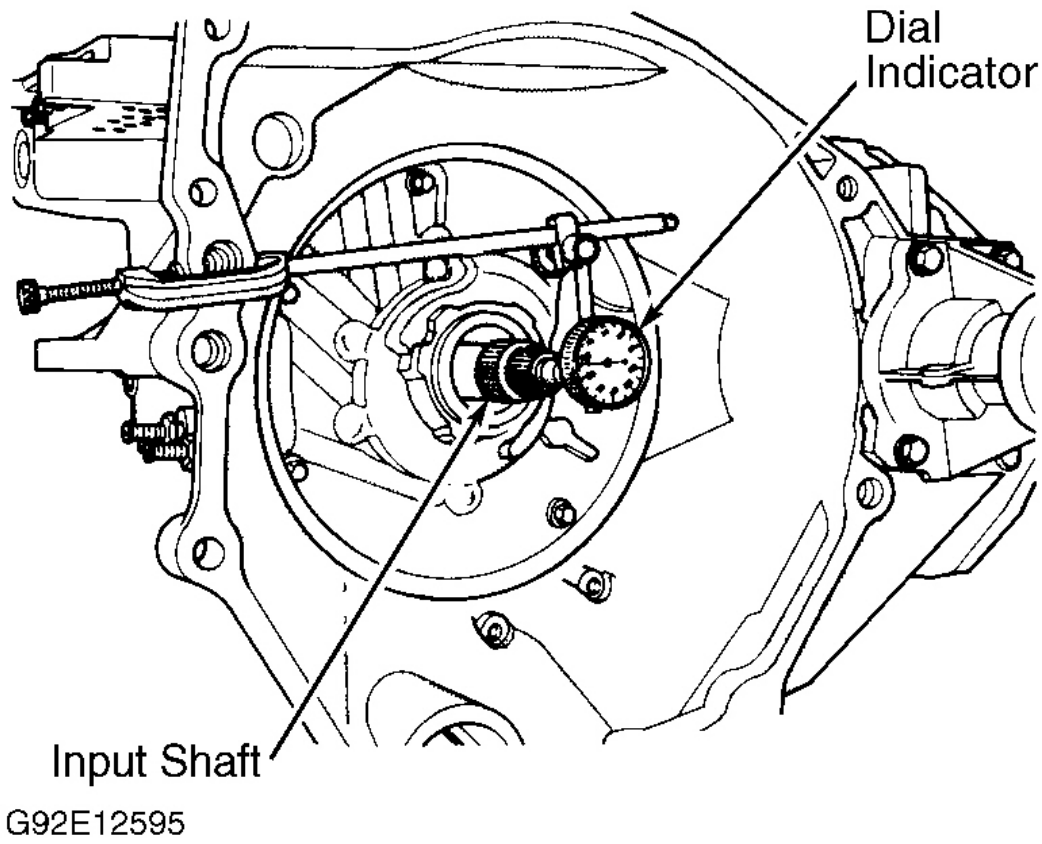


Fig. 13: Measuring Input Shaft End Play
Courtesy of CHRYSLER CORP.

3. Remove the park/neutral switch, transmission range switch, the input speed sensor and the output speed sensor from the transaxle case. See **Fig. 1** . Remove the solenoid assembly sound cover. See **Fig. 11** .
4. Remove shift lever from manual shaft assembly. Remove bolts, oil pan, oil filter and "O" ring. Remove valve body/transfer plate-to-transaxle case bolts. Note bolt length and location for reassembly reference.
5. Move roller on parking sprag rod from parking sprag guide bracket. Lift valve body and manual shaft assembly from transaxle case. Remove accumulator pistons and return springs from transaxle case.

NOTE: Low-reverse accumulator piston is retained by a snap ring and accumulator cover. With snap ring and accumulator cover removed, it may be necessary to place a small amount of grease on accumulator piston and use round suitable instrument to remove low-reverse accumulator piston. Note location of notch on side of low-reverse accumulator piston.

6. Remove bolts, solenoid assembly, solenoid assembly gaskets and solenoid plate. See **Fig. 11** . Using Oil Seal Remover (C-3981), remove oil seal from oil pump (if necessary). See **Fig. 14** .

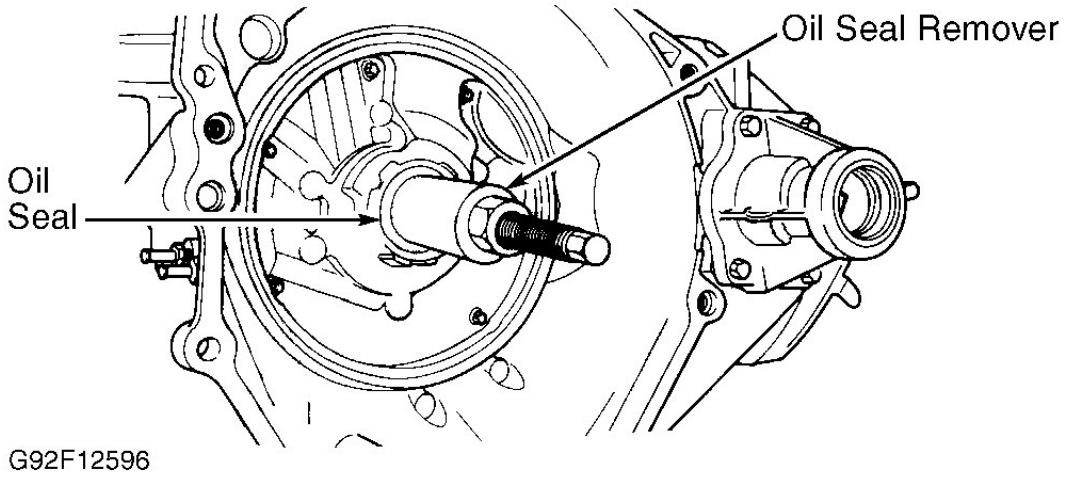


Fig. 14: Removing Oil Seal From Oil Pump
Courtesy of CHRYSLER CORP.

7. Remove oil pump bolts. Install 2 slide hammer pullers on opposite sides of oil pump. Push inward on input shaft while using slide hammers to pull oil pump from transaxle case. Remove oil pump and gasket. Remove oil cooler by-pass valve from transaxle case. See **Fig. 15** .

CAUTION: Oil cooler by-pass valve MUST be replaced if transaxle failure exists. DO NOT attempt to clean oil cooler by-pass valve.

8. Remove thrust bearing, located on front of input shaft, behind oil pump. Note that thrust bearing is installed with tanged side toward oil pump.
9. While pulling on input shaft, slide input clutch assembly from transaxle case. See **Fig. 16** . Remove thrust washer and 2-4 clutch hub. See **Fig. 12** .

NOTE: When removing input clutch assembly, input shaft, reverse-overdrive clutch piston and underdrive shaft assembly are removed as an assembly.

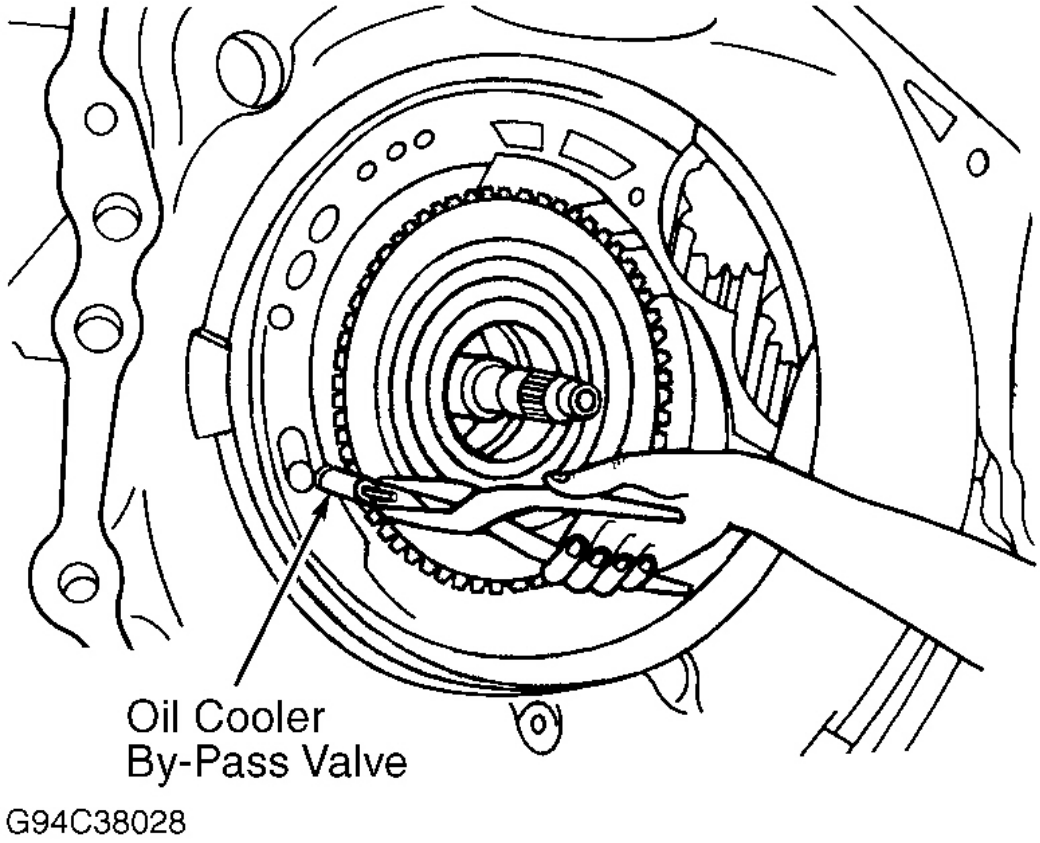


Fig. 15: Removing & Installing Oil Cooler By-Pass Valve
Courtesy of CHRYSLER CORP.

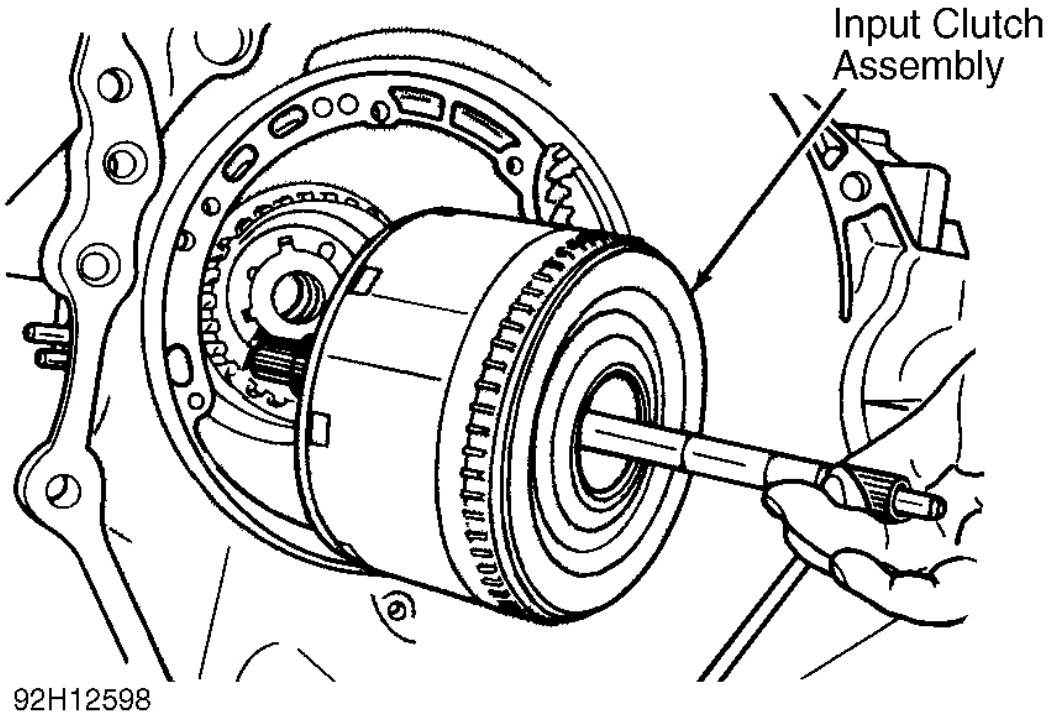


Fig. 16: Removing Input Clutch Assembly
Courtesy of CHRYSLER CORP.

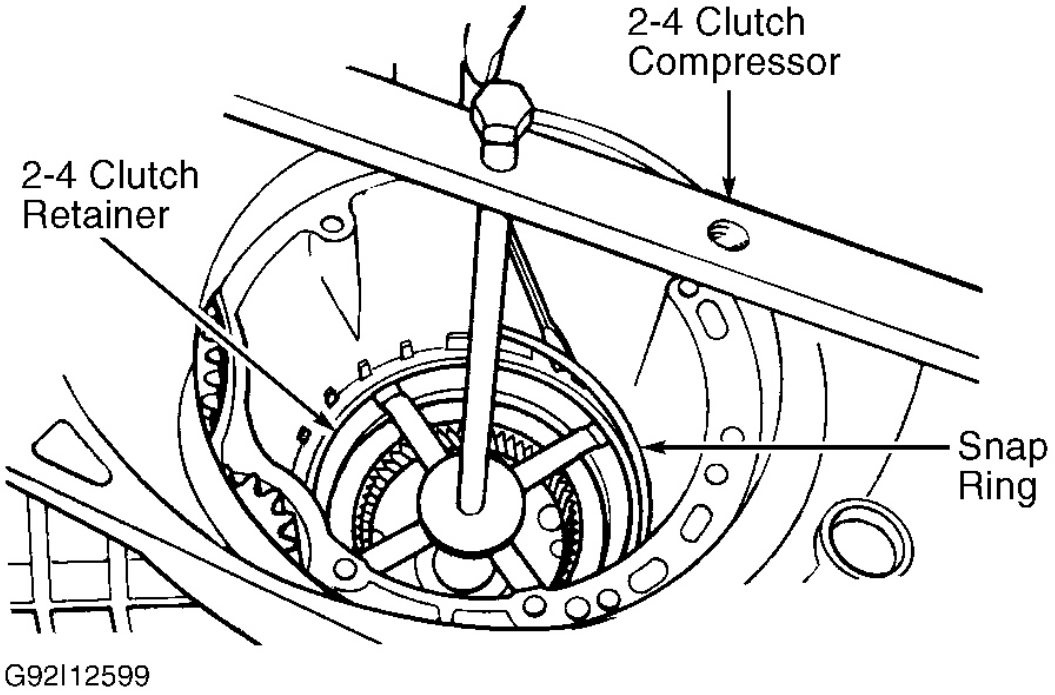


Fig. 17: Compressing 2-4 Clutch Retainer
Courtesy of CHRYSLER CORP.

10. Remove front planetary carrier and rear annulus gear by slightly rotating assembly. Remove rear sun gear and thrust bearing. See **Fig. 12** .
11. Install 2-4 Clutch Compressor (5058) on transaxle case. See **Fig. 17** . Compress 2-4 clutch retainer enough to remove snap ring from transaxle case. Note location of the ends of snap ring. Remove snap ring. Remove 2-4 clutch compressor.

CAUTION: Ensure 2-4 clutch components are tagged for location. Note sequence of 2-4 clutch plates and clutch discs for reassembly reference.

12. Remove 2-4 clutch retainer and clutch piston return spring. Remove and tag 2-4 clutch discs and clutch plates for reassembly reference. See **Fig. 12** .
13. Remove tapered snap ring, located above low-reverse clutch reaction plate in transaxle case. Note location of the ends of snap ring and that tapered side of snap ring is toward oil pump side of transaxle case.

CAUTION: Ensure low-reverse clutch components are tagged for location. Note sequence of low-reverse clutch plates and clutch discs for reassembly reference.

14. Remove low-reverse clutch reaction plate and one low-reverse clutch disc. Remove flat snap ring. Remove remaining low-reverse clutch discs and clutch plates. See **Fig. 12** .
15. Remove bolts and end cover. See **Fig. 11** . Using Gear Holder (6259), hold transfer gear. Remove nut and washer from end of transfer shaft. See **Fig. 12** . Using puller, remove transfer gear and selective spacer or shim from transfer shaft. Note that notch in top of bearing race retainer is aligned with notch in the transaxle case. See **Fig. 18** . Remove bearing race retainer from the transaxle case. See **Fig. 12** .
16. Remove transfer shaft bearing retaining snap ring from transaxle case. Using Transfer Shaft Remover/Installer (5049-A), remove transfer shaft. See **Fig. 18** . Remove bearing race, "O" ring and baffle from transfer shaft. See **Fig. 12** .

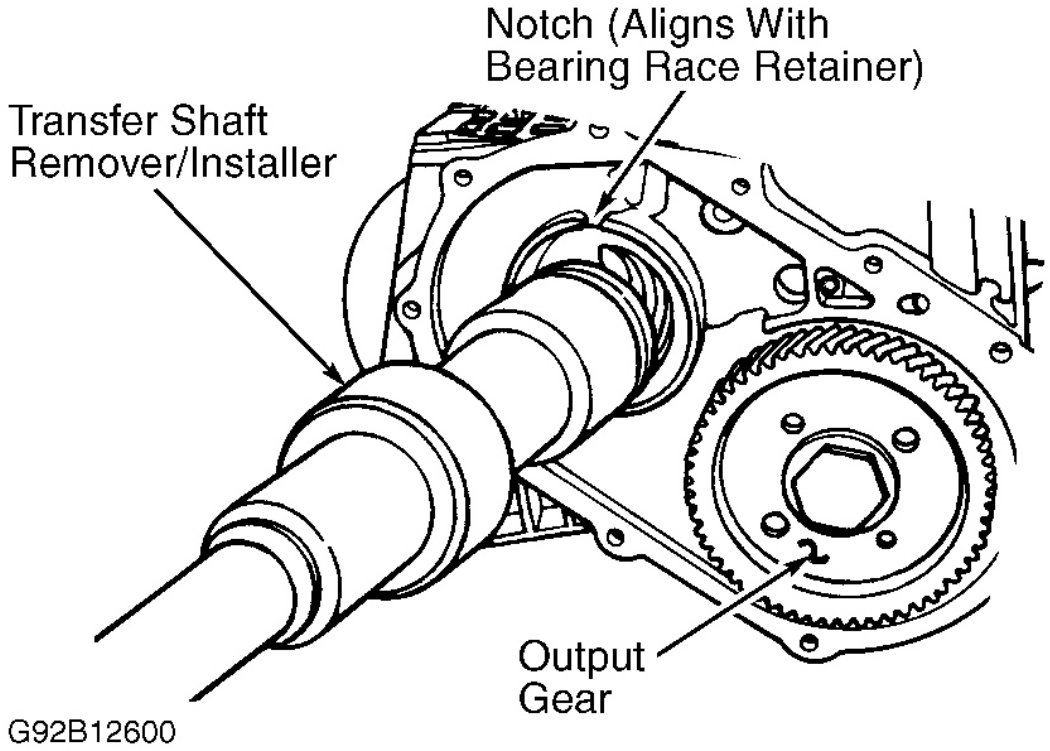


Fig. 18: Removing & Installing Transfer Shaft
Courtesy of CHRYSLER CORP.

17. Using transfer gear holder, hold remaining transfer gear. This transfer gear may be referred to as output gear. Remove bolt and washer from transfer gear. Note direction of coned area of washer for reassembly reference. Using puller, remove transfer gear and selective spacer or shim.
18. Remove rear planetary carrier from inside of transaxle case. See **Fig. 12** . Using Clutch Compressor (5059), Adapter (6057) and Rod (5058-3), slightly compress low-reverse clutch piston return spring. See **Fig. 19** .

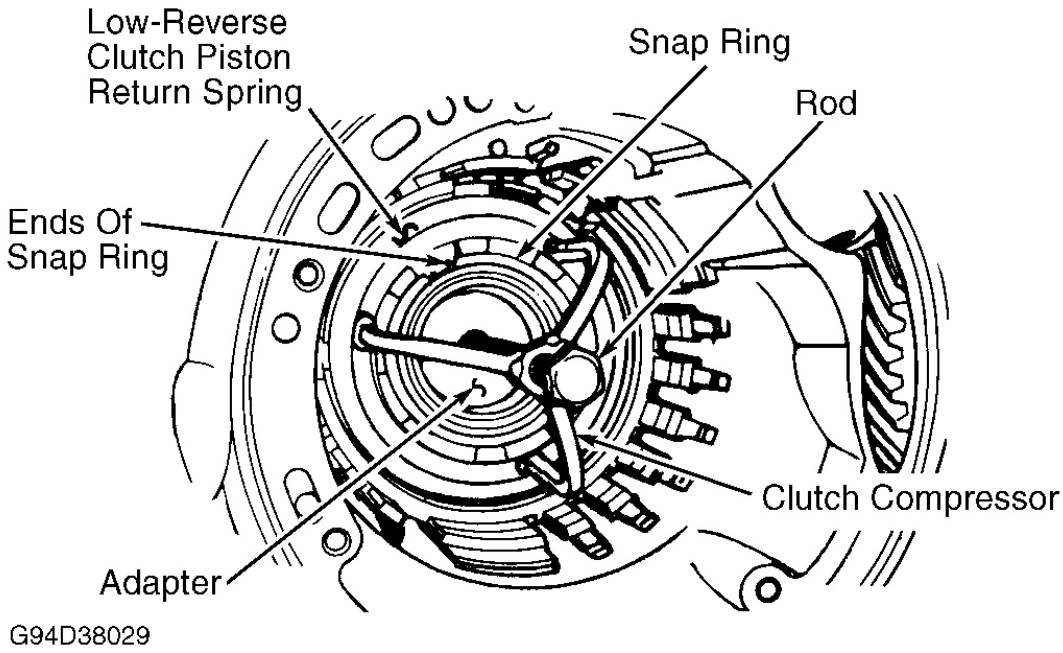
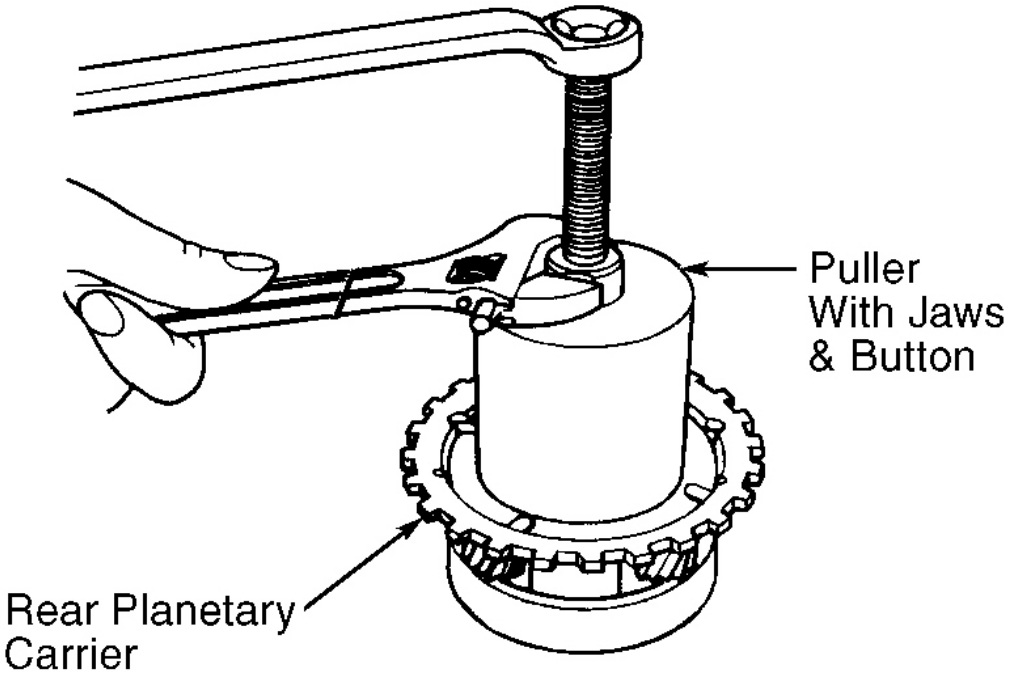
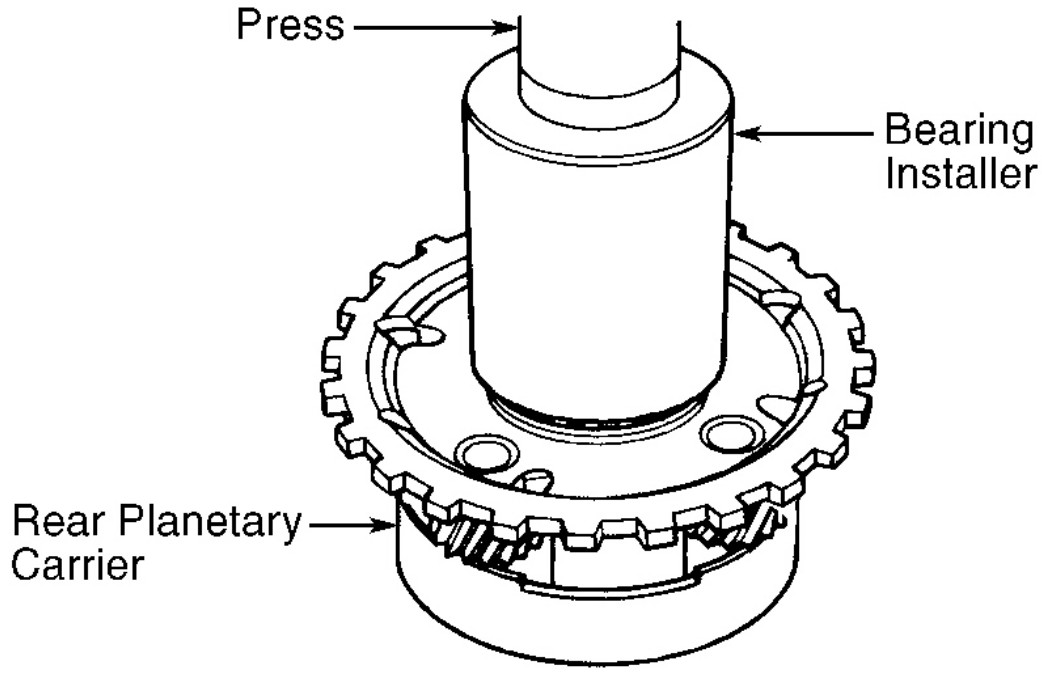


Fig. 19: Compressing Low-Reverse Clutch Piston Return Spring
Courtesy of CHRYSLER CORP.

19. Remove snap ring. Remove clutch compressor and components. Remove low-reverse clutch piston return spring. Remove parking sprag components from transaxle case.
20. Remove low-reverse clutch piston from transaxle case. Remove 3 screws, low-reverse clutch piston retainer and piston retainer gasket. See **Fig. 12** .
21. Tap bearing race for rear planetary carrier from transaxle case (if necessary). Using Bearing Race Remover (6062), pull transfer gear bearing race from transaxle case.
22. If removing bearing from rear planetary carrier, use Puller (5048), Jaws (5048-3) and Button (6055). See **Fig. 20** . If removing bearing from transfer gear, use Puller (5048), Jaws (5048-5) and Button (L-4539-2). See **Fig. 21** .
23. Using press, press bearing from transfer shaft (if necessary). If removing bearing race from bearing race retainer for transfer shaft, use Puller (6062) to remove bearing race. See **Fig. 22** .



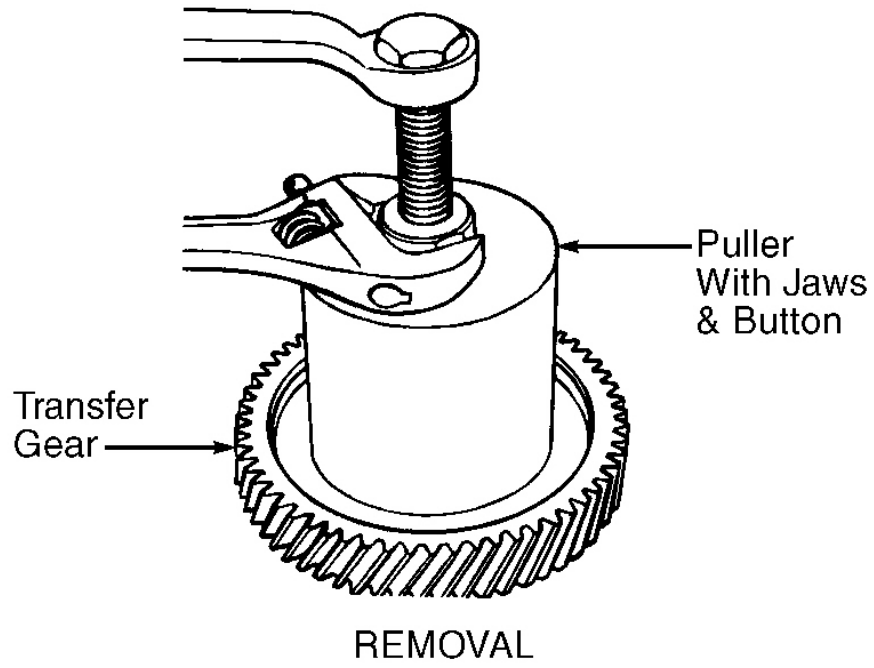
REMOVAL



INSTALLATION

G92D12602

Fig. 20: Removing & Installing Rear Planetary Carrier Bearing
Courtesy of CHRYSLER CORP.



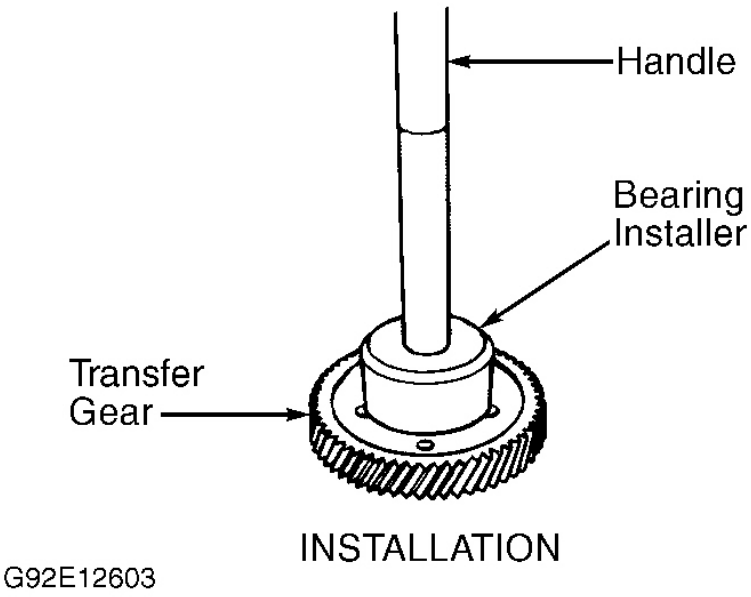


Fig. 21: Removing & Installing Transfer Gear Bearing
Courtesy of CHRYSLER CORP.

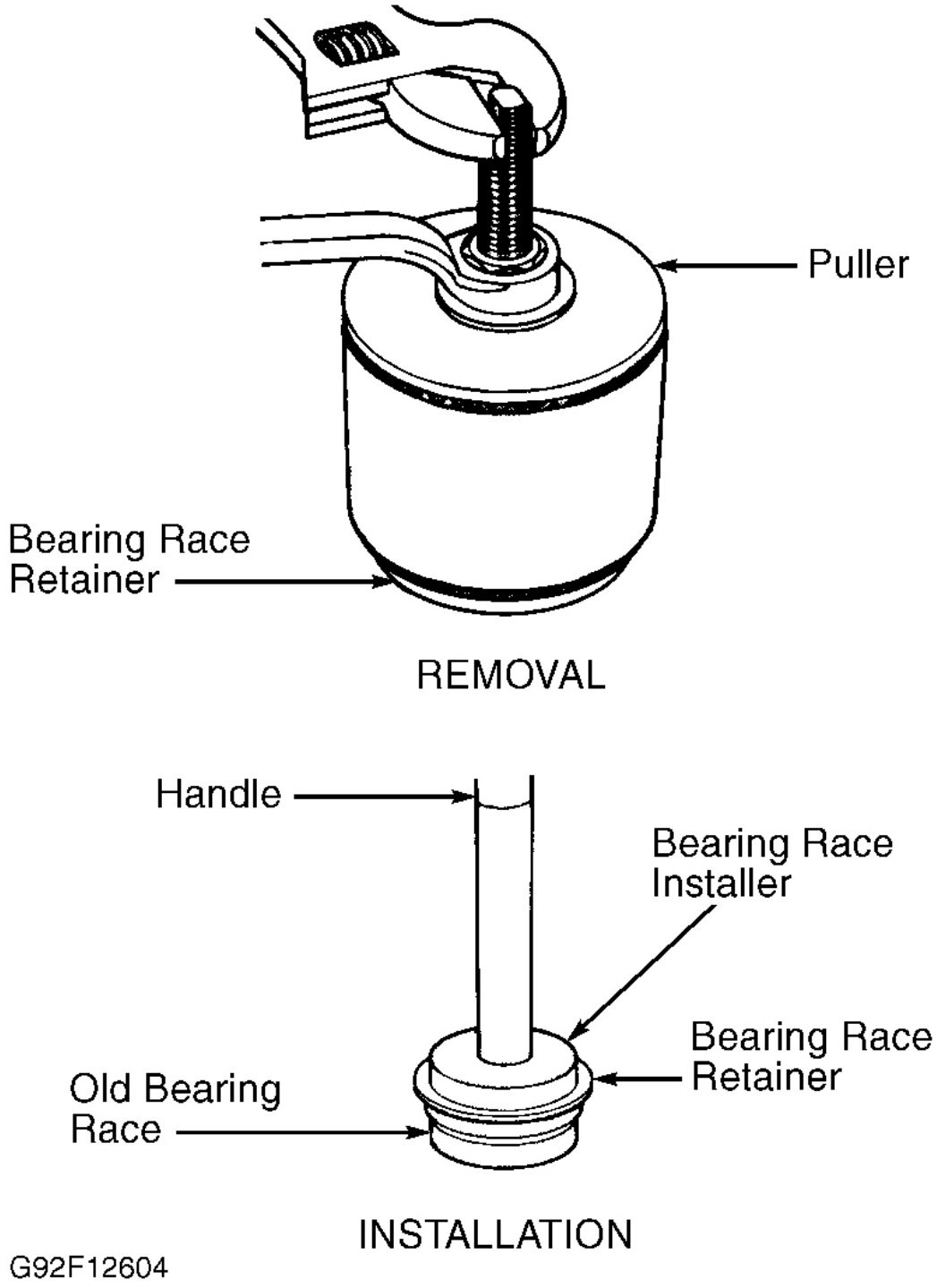


Fig. 22: Bearing Race-to-Bearing Race Retainer R & I
Courtesy of CHRYSLER CORP.

24. To remove differential assembly, remove bolts and differential cover. Remove bolts from differential bearing retainer. See **Fig. 11** . Using spanner wrench, rotate differential bearing retainer and remove from transaxle case.

NOTE: On All-Wheel Drive (AWD) drive models, extension housing is replaced with a transfer retainer plate.

25. Remove extension housing bolts. Support differential assembly. Using spanner wrench, rotate extension housing and remove from transaxle case. Remove differential assembly.
26. Remove oil seal from extension housing. Remove bearing race from extension housing if replacement is required.
27. Remove oil seal from differential bearing retainer. If removing bearing race from differential bearing retainer, use Bearing Race Remover (L-4518). See **Fig. 23** .

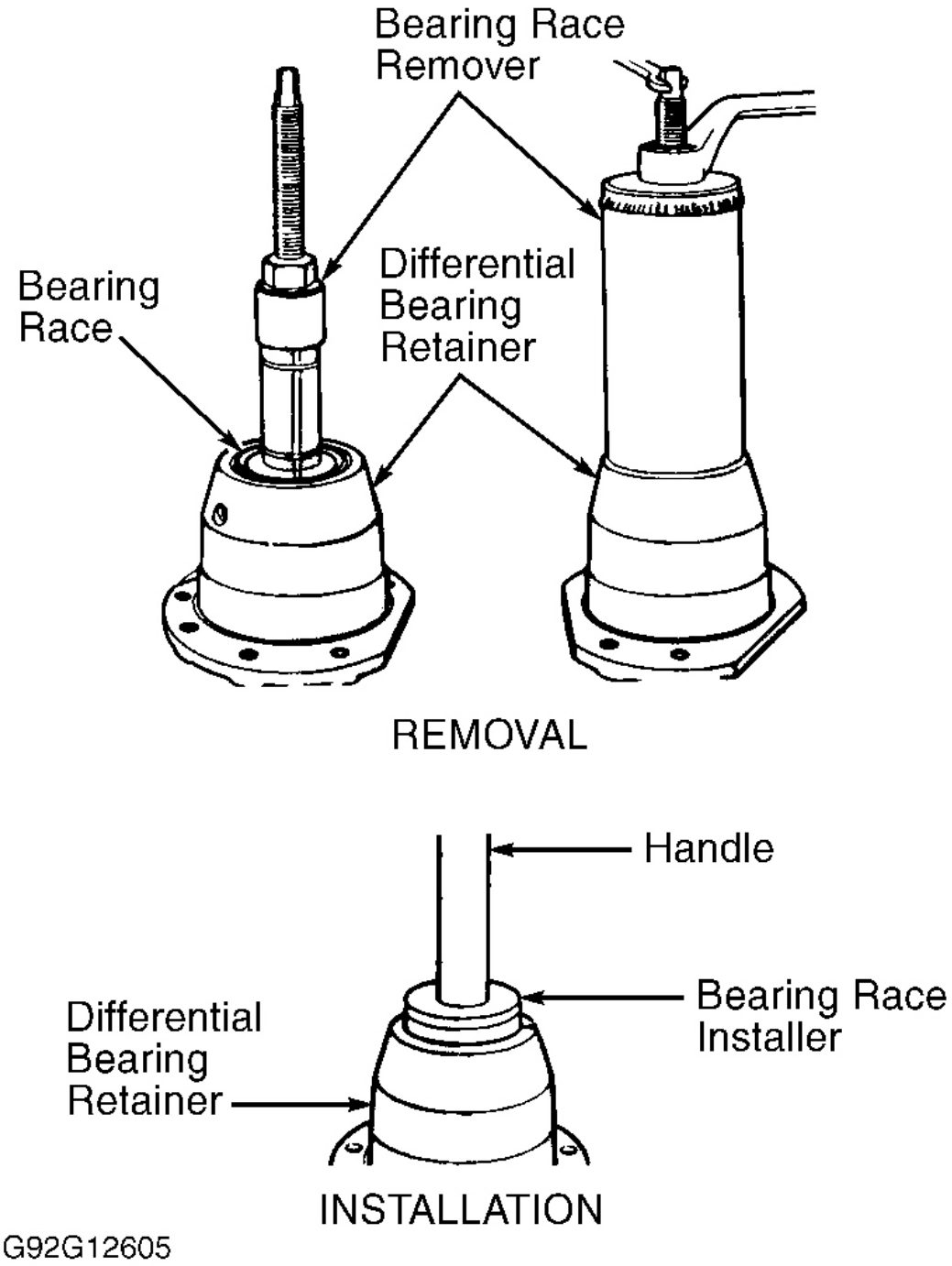


Fig. 23: Bearing Race-to-Differential Bearing Retainer R & I
Courtesy of CHRYSLER CORP.

COMPONENT DISASSEMBLY & REASSEMBLY

DIFFERENTIAL ASSEMBLY

Disassembly

1. Side gear end play should be checked before disassembling side gears to determine if different thickness thrust washer is required.
2. Install Shaft (C-4996) in side gear. Install dial indicator. See **Fig. 24** . Move side gear upward and zero dial indicator. Move side gear downward and note side gear end play.
3. Side gear end play should be .001-.013" (.03-.33 mm). Repeat procedure on remaining side gear. If side gear end play is not within specification, install different thickness side gear thrust washer. Side gear thrust washer is available in following thickness: .032" (.81 mm), .037" (.94 mm), .042" (1.06 mm) and .047" (1.19 mm).
4. Remove side bearings from carrier (if necessary). Remove bolts and ring gear. Using hammer and punch, remove roll pin from carrier. See **Fig. 25** .
5. Remove pinion gear shaft. Rotate pinion gears and remove pinion gears and thrust washers. Remove side gears and thrust washers.

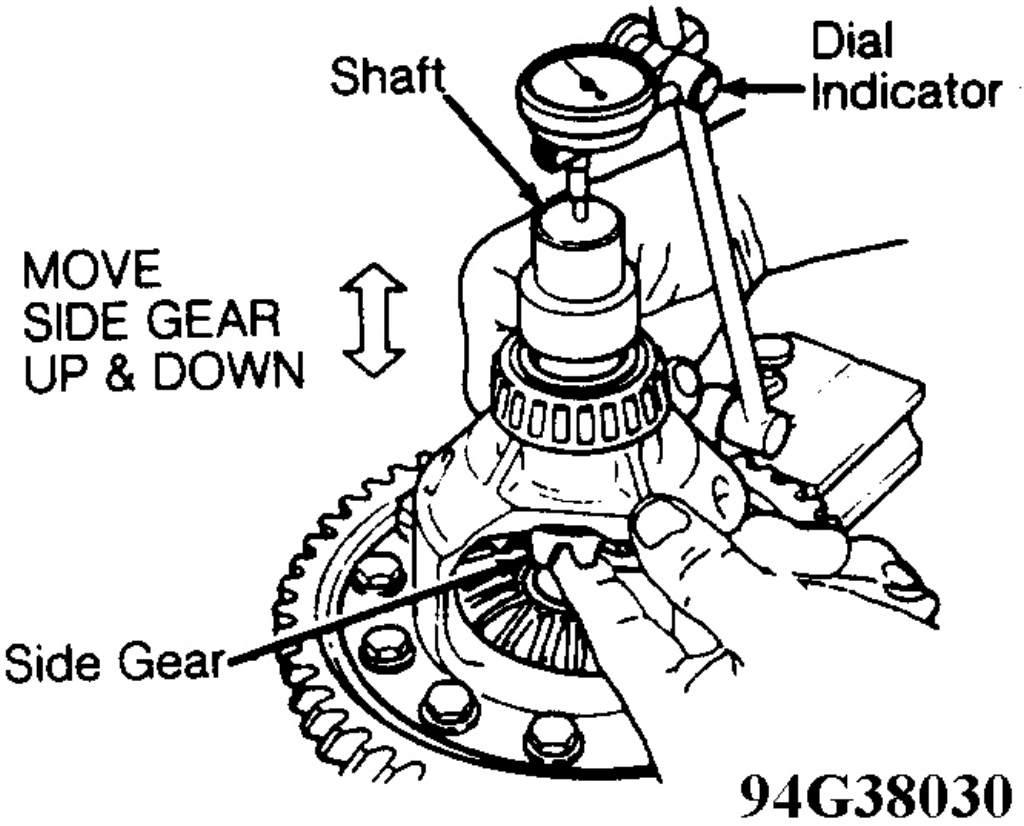
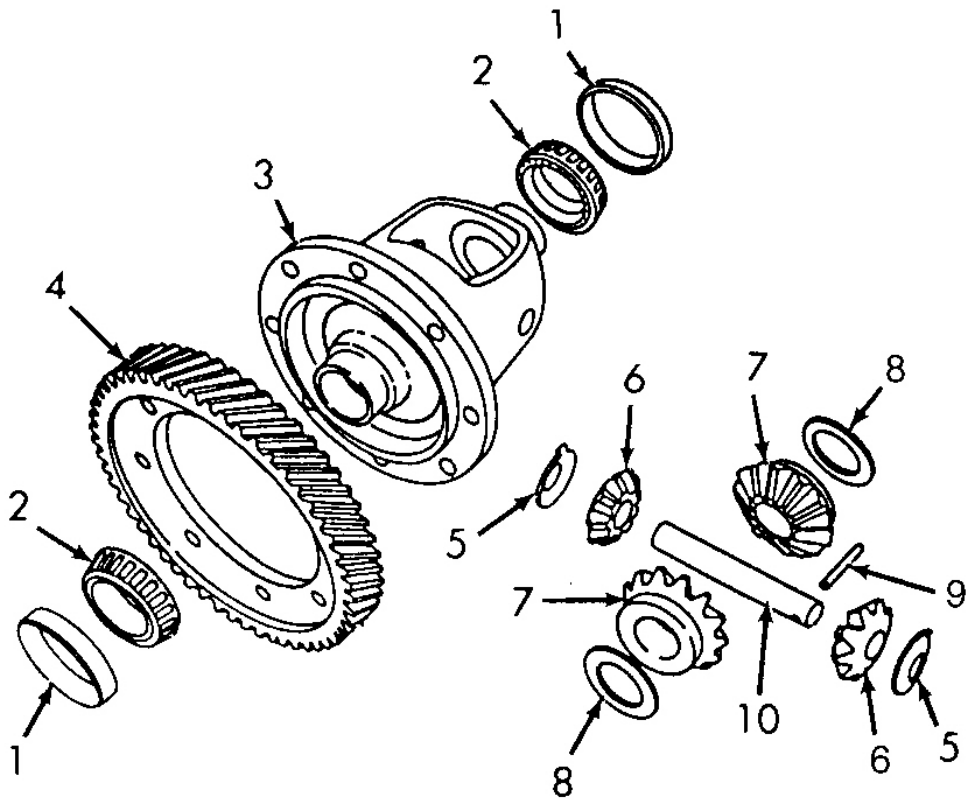


Fig. 24: Checking Side Gear End Play
Courtesy of CHRYSLER CORP.



1. Bearing Race
2. Side Bearing
3. Carrier
4. Ring Gear
5. Pinion Gear Thrust Washer
6. Pinion Gear
7. Side Gear
8. Side Gear Thrust Washer
9. Roll Pin
10. Pinion Gear Shaft

92I12607

Fig. 25: Exploded View Of Differential Assembly

Reassembly

1. To reassemble, reverse disassembly procedure. Recheck side gear end play once side gears and pinion gears are installed.
2. Install NEW ring gear bolts. **DO NOT** reuse ring gear bolts. Tighten ring gear bolts to specification. See **TORQUE SPECIFICATIONS** . Install NEW side bearings (if necessary).

INPUT CLUTCH ASSEMBLY

CAUTION: Ensure all clutch components are tagged for location. Note sequence of all

clutch plates and clutch discs for reassembly reference. Note snap ring location and direction of installation for reassembly reference, as both flat and wave snap rings are used.

Disassembly

1. Support input clutch assembly with input shaft pointing downward. Tap downward on reverse clutch reaction plate. See **Fig. 12** .
2. Remove snap ring located above reverse clutch reaction plate. Remove reverse clutch reaction plate, reverse clutch plates and clutch discs. Note sequence of reverse clutch plate and clutch discs for reassembly reference.
3. Remove snap ring located above overdrive-reverse clutch pressure plate. See **Fig. 12** . This is the flat snap ring located in the outside groove. Remove overdrive-reverse clutch pressure plate.
4. Remove overdrive clutch wave snap ring from outside groove. Remove overdrive hub with overdrive clutch plates and clutch discs. Remove thrust washers located on both sides of overdrive hub. See **Fig. 12** . Note sequence of overdrive clutch plates and clutch discs for reassembly reference.
5. Remove thrust washer and underdrive shaft assembly. See **Fig. 12** . Remove thrust bearing, located below underdrive shaft assembly.
6. Remove tapered snap ring and underdrive clutch reaction plate. See **Fig. 12** . Remove one underdrive clutch disc. Remove flat snap ring and remaining underdrive clutch plates and clutch discs. Note sequence of underdrive clutch plates and clutch discs for reassembly reference. See **Fig. 12** .
7. Using press and spring compressor, compress clutch piston return spring located above underdrive clutch piston.

CAUTION: Compress clutch piston return spring just enough to remove snap ring located above spring retainer for underdrive clutch piston. See Fig. 12 .

8. Remove snap ring. Remove spring compressor. Remove spring retainer, clutch piston return spring and underdrive clutch piston. Remove input clutch hub-to-input clutch retainer snap ring. Snap ring is a tapered snap ring located inside input clutch retainer in groove of input clutch hub. Note direction of snap ring installation.
9. Using soft-faced hammer, tap input clutch hub from input clutch retainer. Separate input clutch retainer from overdrive-reverse clutch piston. See **Fig. 12** .
10. Using press and spring compressor, slightly compress clutch piston return spring on rear of overdrive-reverse clutch piston. Remove snap ring from rear of overdrive-reverse clutch piston.
11. Release press. Remove spring compressor and clutch piston return spring. Note direction of clutch piston return spring for reassembly reference.
12. Remove snap ring from end of input shaft. Using press and correctly sized socket, support input clutch hub and press input shaft from input clutch hub.

NOTE: Coat all NEW lip seals and "O" rings with petroleum jelly before installing. It may be necessary to use petroleum jelly to hold thrust washers and thrust bearings in place. Underdrive, overdrive and reverse clutch clearances must be

checked before final assembly of input clutch assembly.

Reassembly

1. Using press and suitable sized socket, support input clutch hub and press input shaft into input clutch hub. Install snap ring on input shaft. Install NEW lip seals and NEW "O" ring on input clutch hub.
2. Install clutch piston return spring on rear of overdrive-reverse clutch piston. Using press and spring compressor, slightly compress clutch piston return spring and install snap ring. Remove spring compressor.
3. Install overdrive-reverse clutch piston over input clutch retainer. Push downward on overdrive-reverse clutch piston until it fully seats on input clutch retainer.
4. Align splines and install input clutch hub and input shaft assembly on overdrive-reverse clutch piston. Push downward on input clutch hub until fully seated. Install input clutch hub retaining snap ring on inside of overdrive-reverse clutch piston.

CAUTION: Ensure input clutch hub retaining snap ring is installed with tapered side upward (away from torque converter end of input shaft).

5. Install underdrive clutch piston and Seal Compressor (5067). Install clutch piston return spring and spring retainer. Using press and Spring Compressor (5059A), compress clutch piston return spring. See **Fig. 26** . Install snap ring.

CAUTION: Compress clutch piston return spring just enough to install snap ring.

6. Release press. Remove spring compressor and seal compressor. Install underdrive clutch plates and clutch discs, starting with a clutch plate and alternating with a clutch disc. **DO NOT** install No. 1 underdrive clutch disc at this time. See **Fig. 27** .

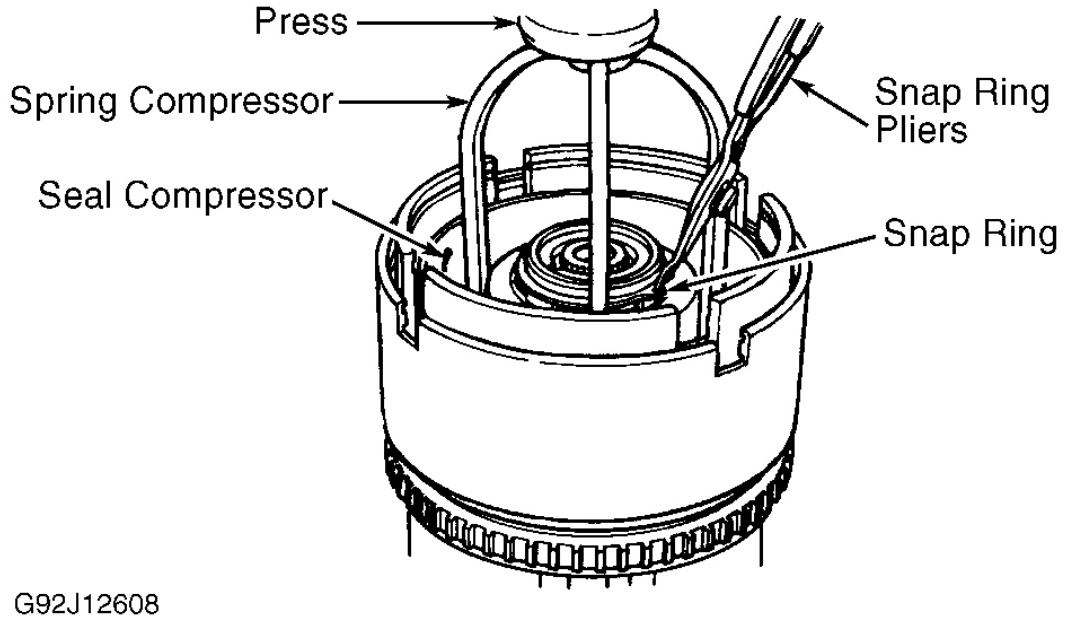
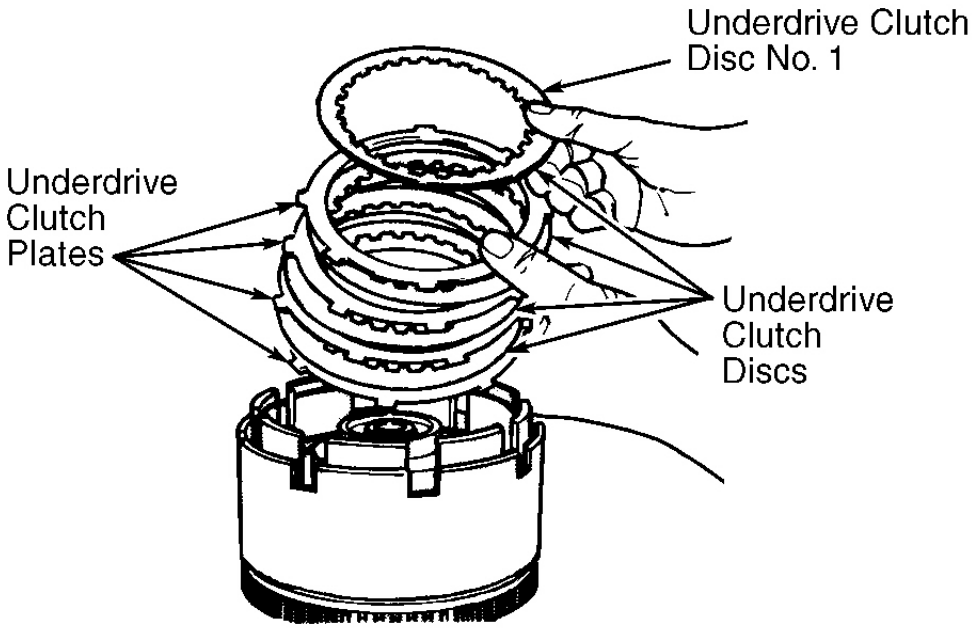
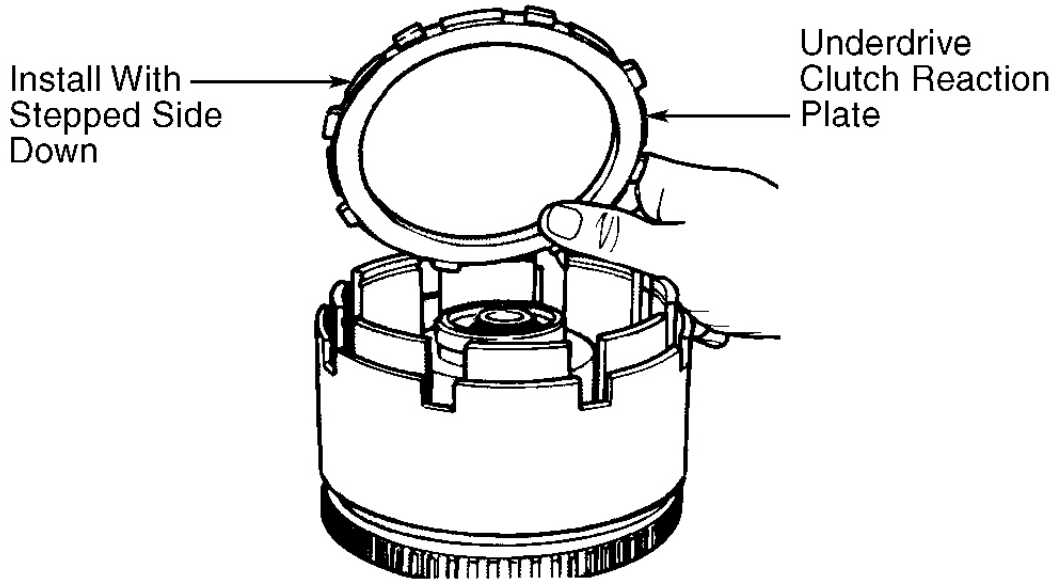


Fig. 26: Installing Underdrive Clutch Piston & Clutch Piston Return Spring
Courtesy of CHRYSLER CORP.



INSTALLING UNDERDRIVE CLUTCH PLATES & CLUTCH DISCS



INSTALLING UNDERDRIVE CLUTCH REACTION PLATE

G94H38031

Fig. 27: Installing Underdrive Clutch Plates, Clutch Discs & Underdrive Clutch Reaction Plate
Courtesy of CHRYSLER CORP.

7. Install underdrive clutch reaction plate flat snap ring in groove above underdrive clutch plates and clutch

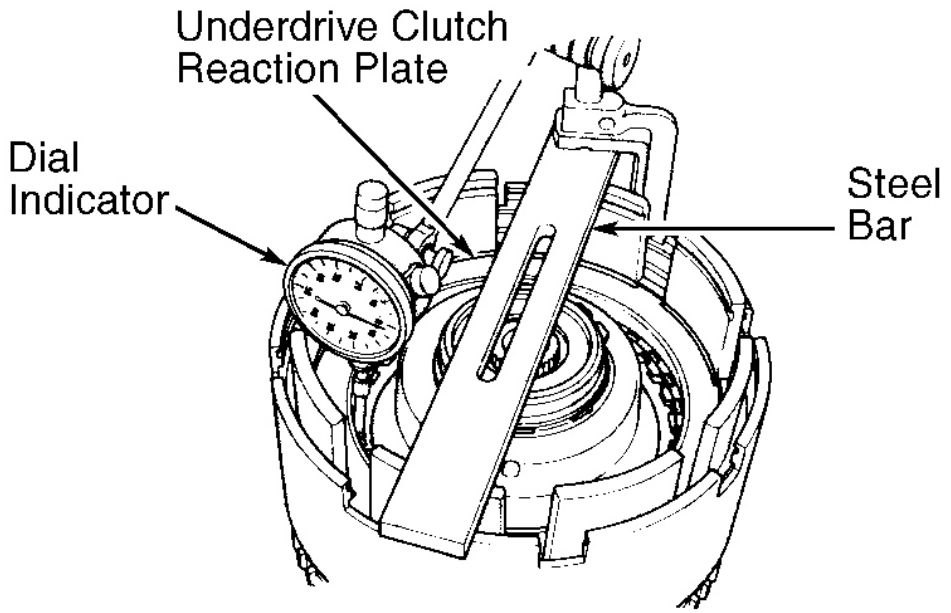
discs. Install No. 1 underdrive clutch disc. Install underdrive clutch reaction plate with stepped side down. See **Fig. 27** .

8. Install NEW tapered snap ring in groove to retain underdrive clutch reaction plate. **DO NOT** reuse old tapered snap ring. Check underdrive clutch clearance.

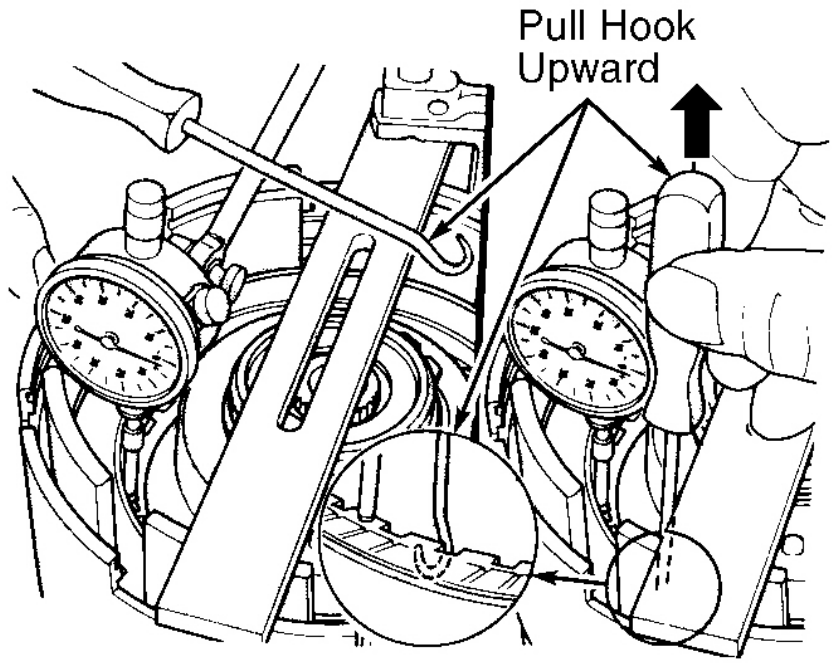
CAUTION: Use care when installing tapered snap ring to not scratch underdrive clutch reaction plate surface. Ensure snap ring is fully seated with ends of snap ring against solid area of input clutch retainer.

Checking Underdrive Clutch Clearance

1. Assemble dial indicator and steel bar with dial indicator stem resting on underdrive clutch disc. See **Fig. 28** . Compress underdrive clutch pack with finger and zero dial indicator.
2. Using hook, pull No. 1 underdrive clutch disc upward. See **Fig. 28** . Note underdrive clutch clearance reading on dial indictor reading. Underdrive clutch clearance should be .036-.058" (.91-1.47 mm).
3. If underdrive clutch clearance is not within specification, install different thickness underdrive clutch reaction plate. Underdrive clutch reaction plate is available in the following thickness: .217" (5.51 mm), .237" (6.02 mm), .256" (6.50 mm) and .275" (6.99 mm).



ASSEMBLING DIAL INDICATOR



CHECKING UNDERDRIVE CLUTCH CLEARANCE

G92D12610

Fig. 28: Checking Underdrive Clutch Clearance

Courtesy of CHRYSLER CORP.

Overdrive Clutch

1. Install the overdrive clutch plates and clutch discs. See **Fig. 29** . Install overdrive clutch wave snap ring in the outside groove. Install overdrive-reverse clutch pressure plate with stepped side down. See **Fig. 29** .

CAUTION: Compress overdrive-reverse clutch assembly just enough to install flat snap ring.

2. Using press and spring compressor, press overdrive-reverse clutch pressure plate downward until flat snap ring can be installed in outer groove. Install flat snap ring. Release press. Remove spring compressor. Check overdrive clutch clearance.

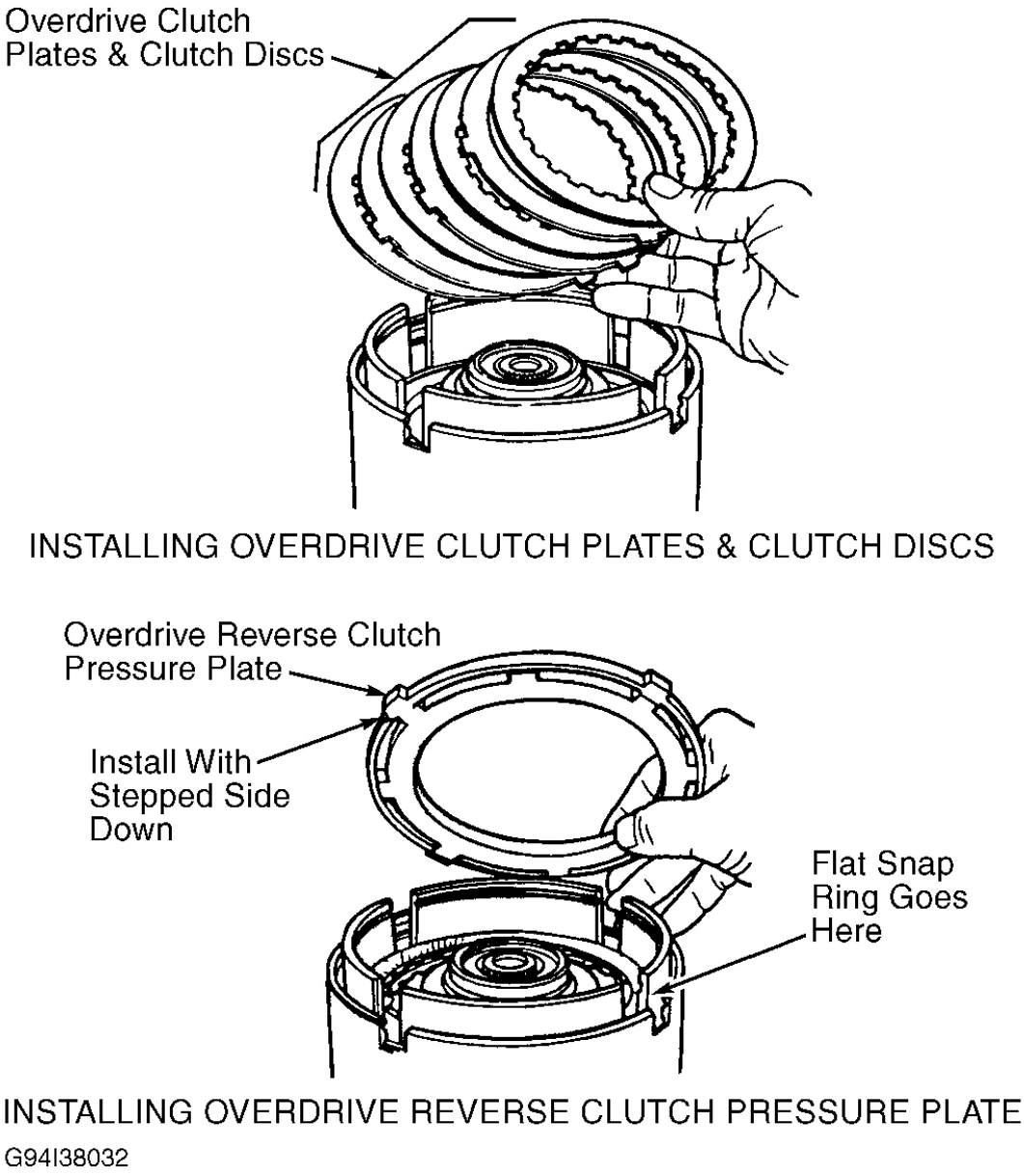


Fig. 29: Installing Overdrive Clutch Plates, Clutch Discs & Overdrive-Reverse Clutch Pressure Plate
Courtesy of CHRYSLER CORP.

Checking Overdrive Clutch Clearance

1. Assemble dial indicator and steel bar with dial indicator stem resting on overdrive clutch disc. See **Fig. 30** . Compress overdrive clutch pack with finger and zero dial indicator.
2. Using hook, raise overdrive clutch disc. See **Fig. 30** . Note overdrive clutch clearance reading on dial indicator. Overdrive clutch clearance should be .042-.096" (1.07-2.44 mm). If overdrive clutch clearance is not within specification, check for improperly assembled overdrive clutch components.

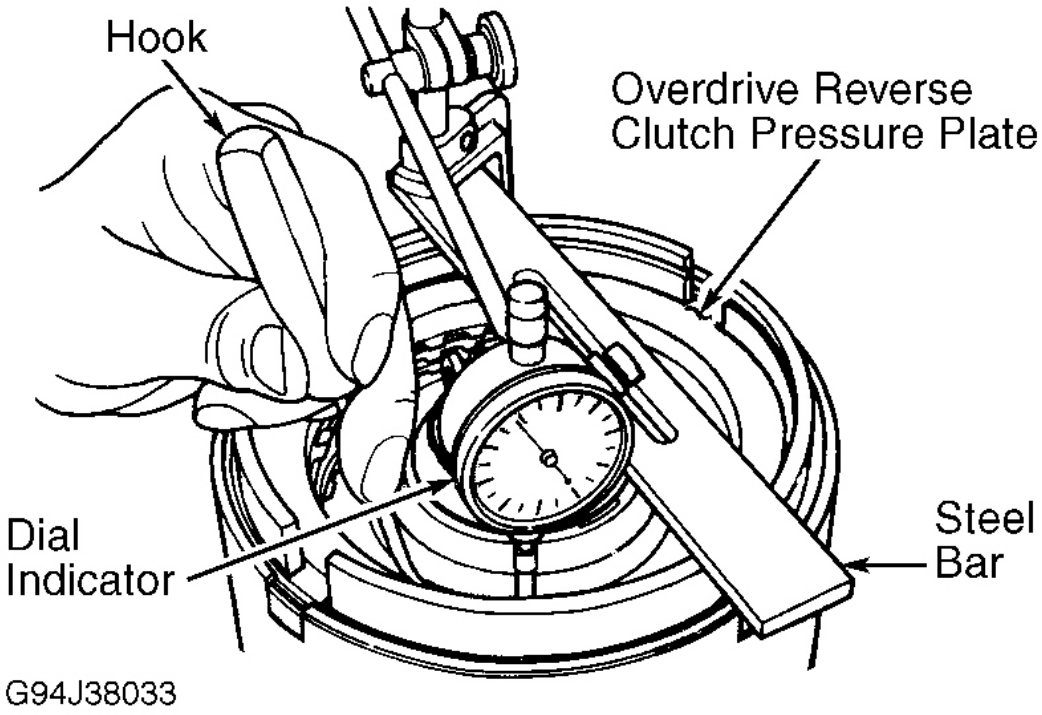


Fig. 30: Checking Overdrive Clutch Clearance
Courtesy of CHRYSLER CORP.

Reverse Clutch

1. Install reverse clutch plate and clutch discs. Install reverse clutch reaction plate with flat side down. See **Fig. 31** .
2. Install snap ring in groove above reverse clutch reaction plate. Using screwdriver on each side of reverse clutch reaction plate, pry reaction plate upward to ensure snap ring is fully seated. Check reverse clutch clearance.

Checking Reverse Clutch Clearance

1. Assemble dial indicator and steel bar with indicator stem resting on reverse clutch disc. See **Fig. 31** . Compress reverse clutch pack with finger and zero dial indicator.
2. Using hook, raise reverse clutch disc. See **Fig. 32** . Note reverse clutch clearance reading on dial indicator. Reverse clutch clearance should be .030-.049" (.76-1.24 mm).
3. If reverse clutch clearance is not within specification, snap ring can be changed to obtain correct clearance. Snap rings are available in the following thickness: .061" (1.55 mm), .071" (1.80 mm), .081" (2.06 mm) and .090" (2.29 mm).

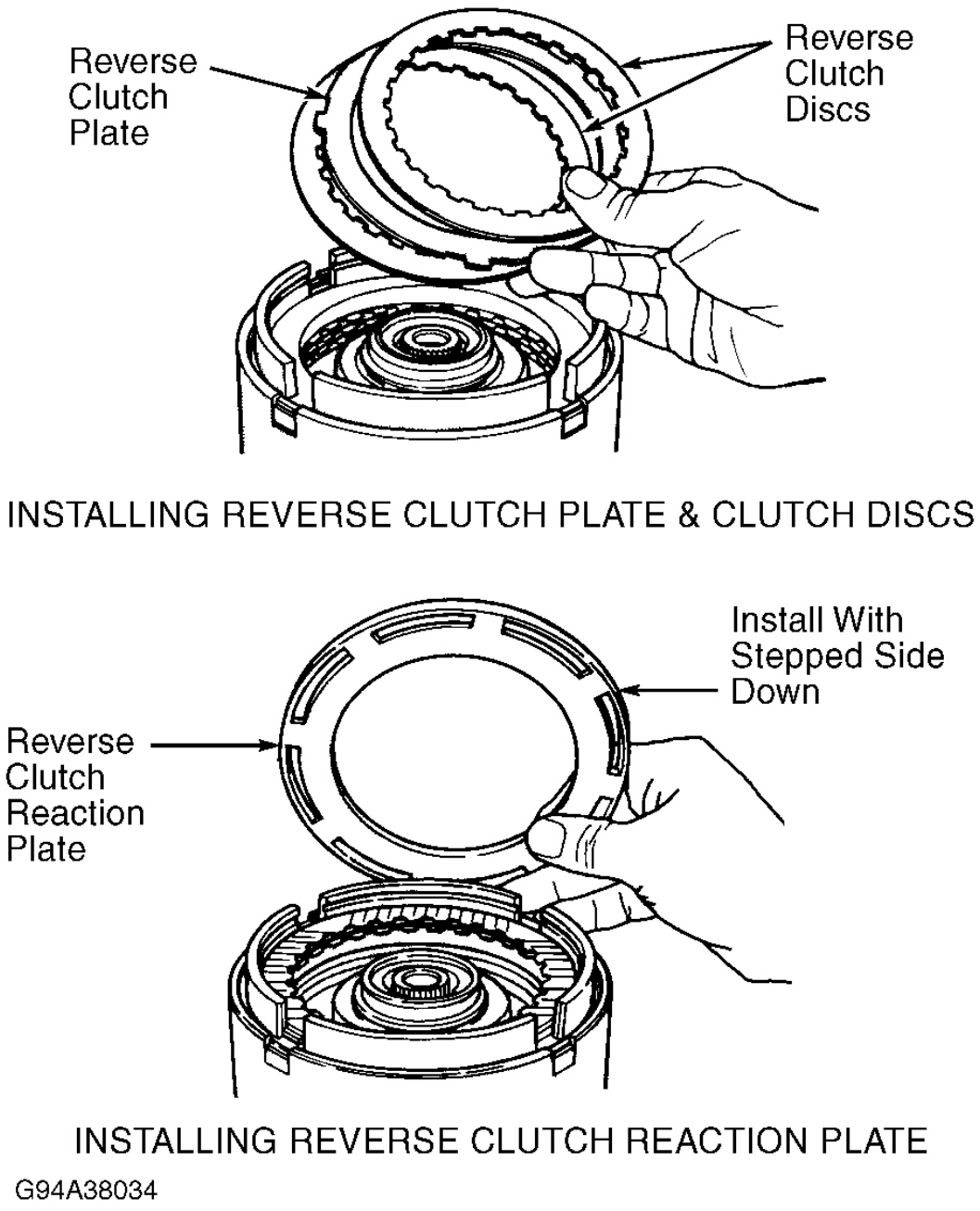


Fig. 31: Installing Reverse Clutch Discs, Clutch Plate & Reverse Clutch Reaction Plate
Courtesy of CHRYSLER CORP.

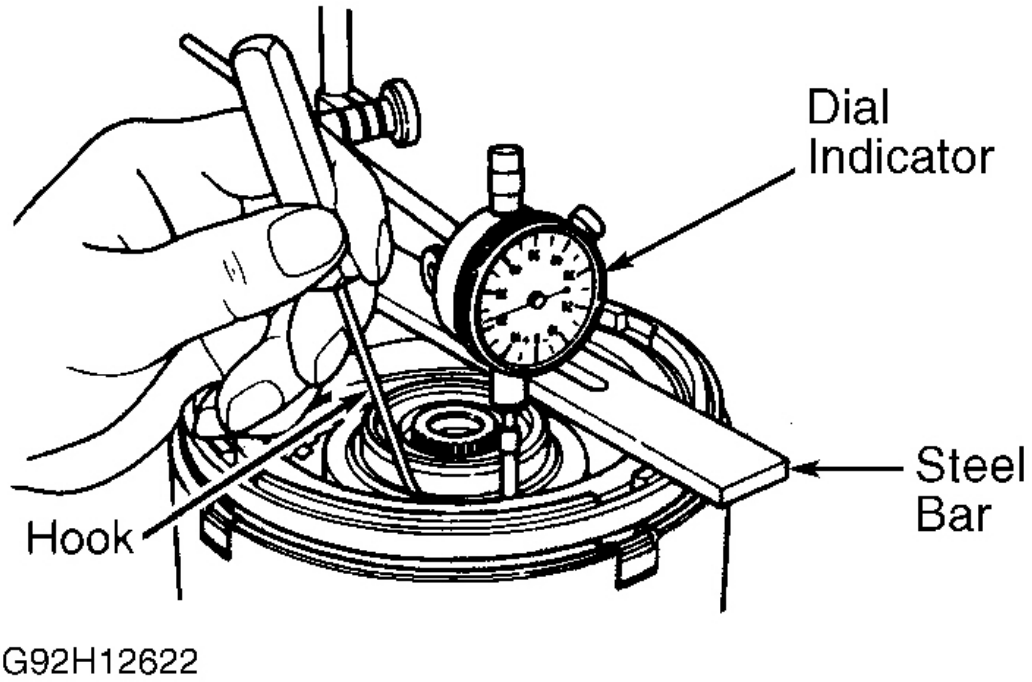


Fig. 32: Checking Reverse Clutch Clearance
Courtesy of CHRYSLER CORP.

CAUTION: During final reassembly of input clutch assembly, reverse and overdrive clutch assemblies must be removed. Ensure clutch components are kept in order for reassembly reference.

Final Assembly Of Input Clutch Assembly

1. Remove reverse and overdrive clutch assemblies. Install thrust bearing located below underdrive shaft assembly. See **Fig. 12** . Thrust bearing must be installed with 3 small tabs pointing upward (away from torque converter end of input shaft).

NOTE: It may be necessary to apply petroleum jelly to thrust bearing to hold it in position during reassembly of input clutch assembly.

2. Install underdrive shaft assembly. Install 5-tab thrust washer on shaft side of underdrive shaft assembly. See **Fig. 12** .
3. Install 3-tab thrust washer on back side (opposite shaft side) of overdrive clutch hub. See **Fig. 12** . Install overdrive clutch hub. Ensure tabs on all thrust washers remain fully engaged.
4. To complete final assembly, reinstall overdrive and reverse clutch components. Ensure all clutch components are installed in original location as when clutch clearances were checked.

OIL PUMP

Disassembly & Reassembly

1. Disassembly and reassembly information not available from manufacturer. If necessary, disassemble and reassemble oil pump using exploded view. See **Fig. 12** . Ensure component locations are marked for reassembly reference.
2. Ensure oil pump components are within specification. Refer to **OIL PUMP SPECIFICATIONS** .
3. To reassemble, reverse disassembly procedure. Ensure components are installed in original location. Tighten the reaction shaft and support-to-oil pump retaining bolts to specification. See **TORQUE SPECIFICATIONS** .

OIL PUMP SPECIFICATIONS

Application	In. (mm)
Inner & Outer Gear Side Clearance	.0008-.0018 (.020-.046)
Outer Gear-To-Pocket Clearance	.0018-.0056 (.046-.142)

VALVE BODY

Disassembly

1. Remove retaining screw and manual shaft from valve body. Remove bolts, detent spring along with 2-4 accumulator retaining plate. See **Fig. 37** .
2. Remove valve body-to-transfer plate bolts. Remove separator plate and transfer plate from valve body.

CAUTION: Use care when removing separator plate and transfer plate from valve body. DO NOT allow check balls to fall from valve body. Use care when removing separator plate from transfer plate, as overdrive clutch check ball is located in transfer plate. See Fig. 33 .

3. Remove separator plate from transfer plate, noting location of overdrive clutch check ball, oil screen and thermal valve. See **Fig. 33** . Remove oil screen and thermal valve from transfer plate.
4. Note location of check balls and retainers in valve body. See **Fig. 34** . Using Retainer Remover/Installer (6301), remove retainer for torque converter clutch valve and torque converter control valve. See **Fig. 35** .
5. Using Retainer Remover/Installer (6302), remove retainer for regulator valve. See **Fig. 35** . Remove valve body components. See **Fig. 37** .

Reassembly

To reassemble, reverse removal procedure. Ensure all components are installed in original location. Tighten valve body-to-transfer plate bolts to specification. See **TORQUE SPECIFICATIONS** .

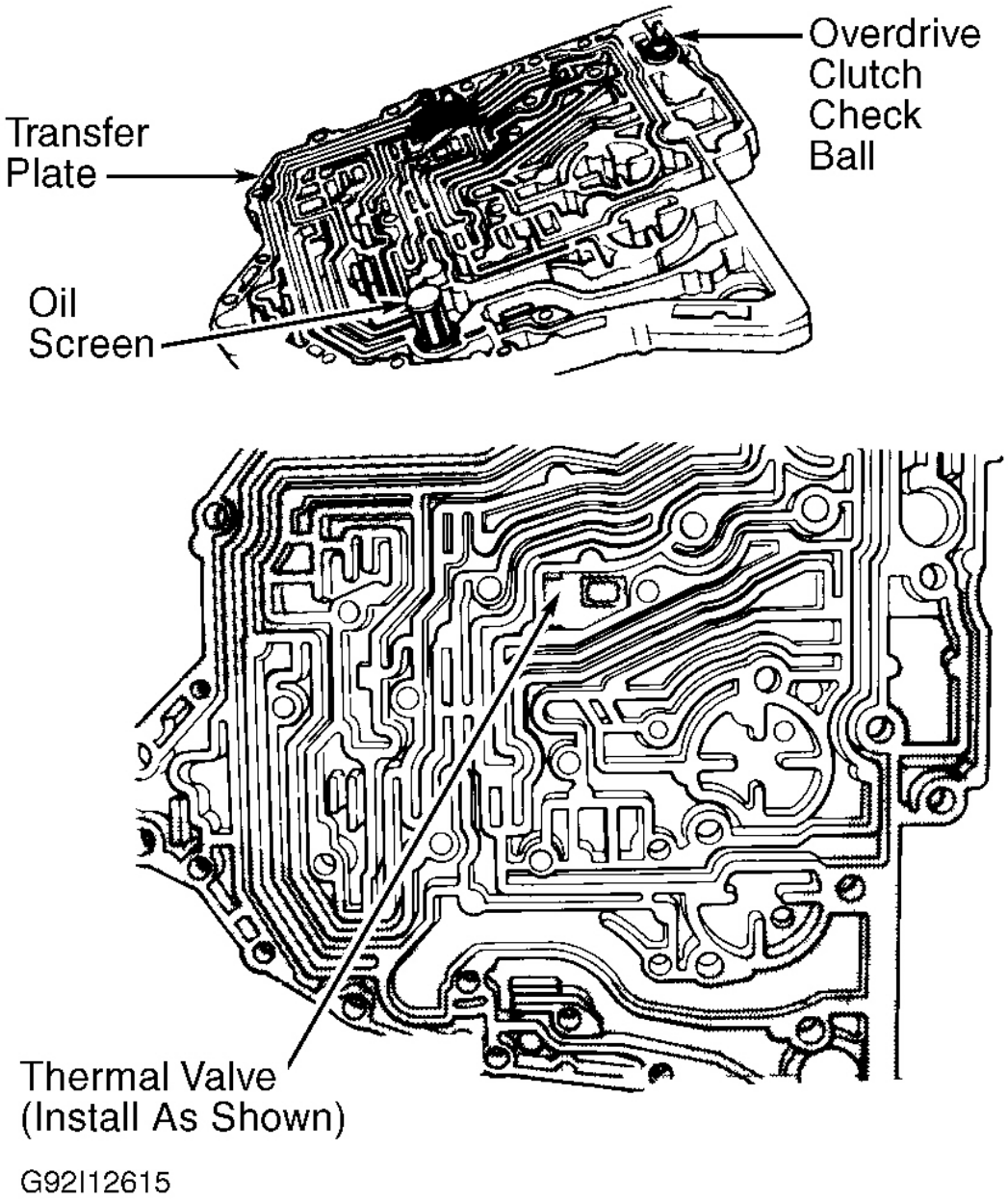


Fig. 33: Identifying Transfer Plate Components
Courtesy of CHRYSLER CORP.

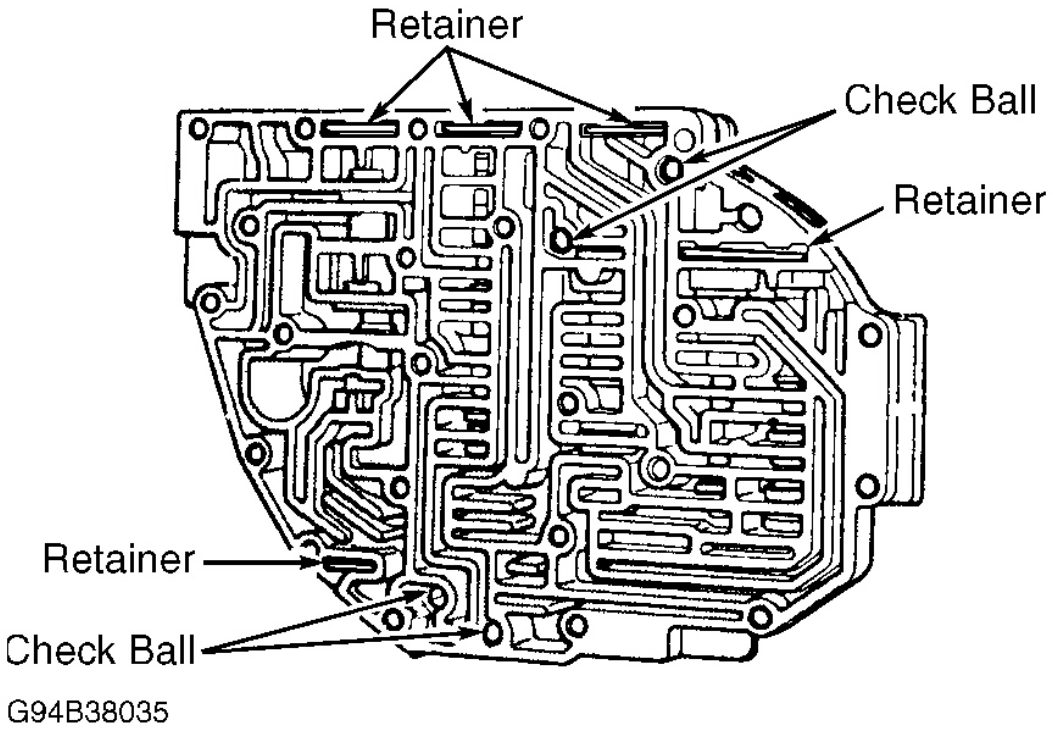


Fig. 34: Identifying Valve Body Retainer & Check Ball Locations
Courtesy of CHRYSLER CORP.

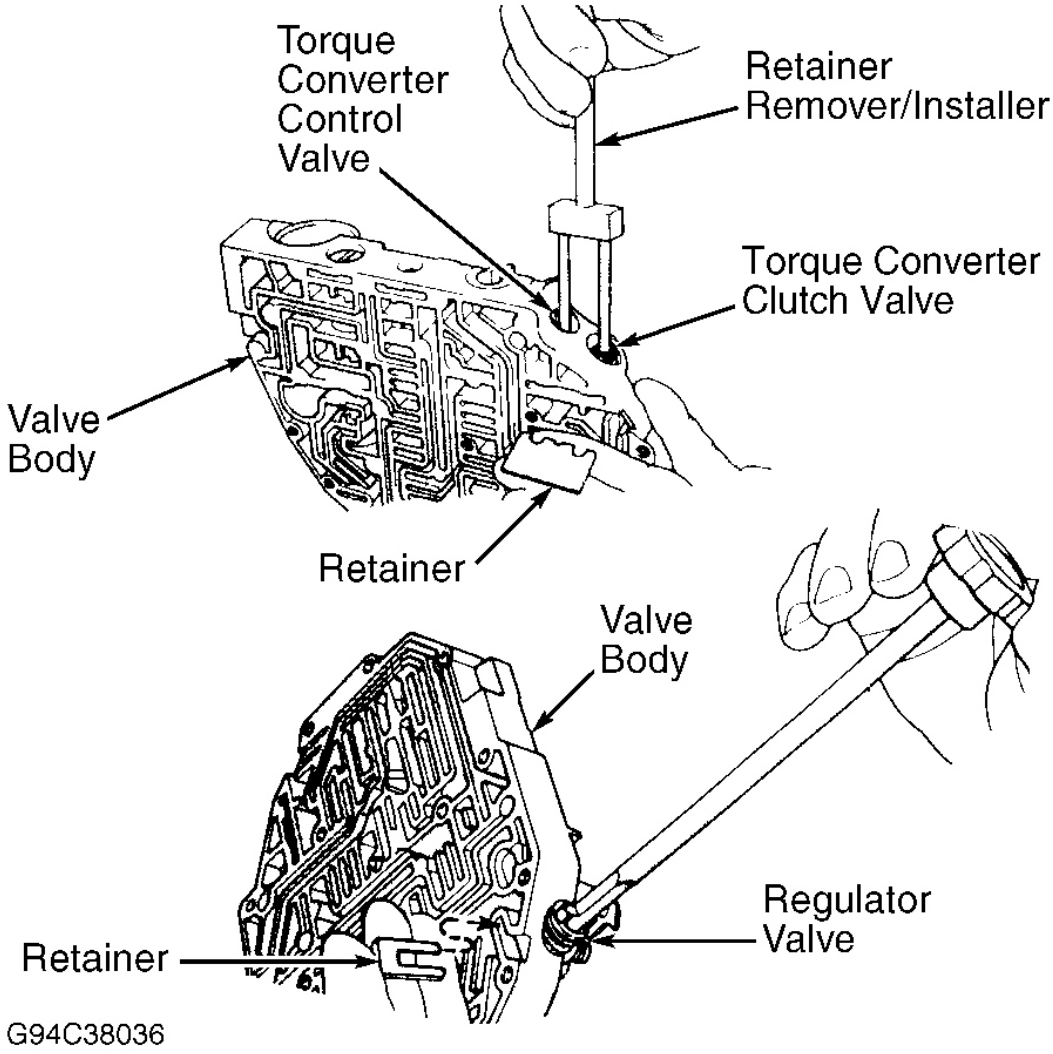
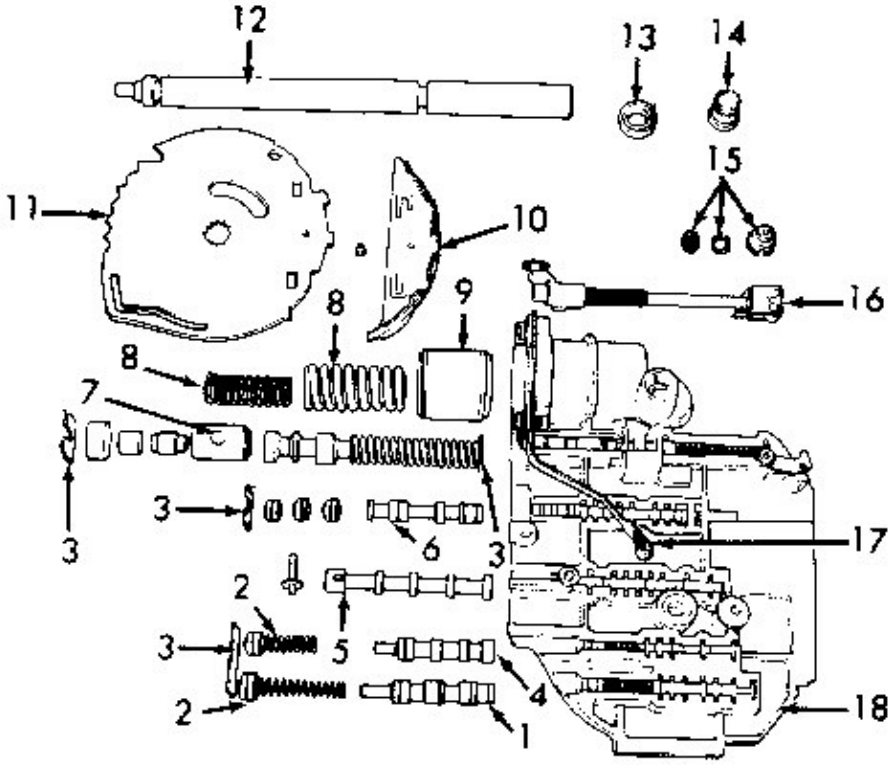


Fig. 35: Removing & Installing Retainers In Valve Body
Courtesy of CHRYSLER CORP.



1. Torque Converter Control Valve
2. Valve Spring
3. Retainer
4. Lock-Up Switch Valve
5. Manual Valve
6. Solenoid Switch Valve
7. Regulator Valve Assembly
8. Accumulator Spring
9. 2-4 Accumulator
10. Insulator
11. Detent Plate
12. Manual Shaft
13. Seal
14. Vent
15. Overdrive Check Ball Assembly
16. Parking Sprag Rod
17. Detent Spring
18. Valve Body

92B12618

Fig. 36: Exploded View Of Valve Body (1989-91)
Courtesy of CHRYSLER CORP.

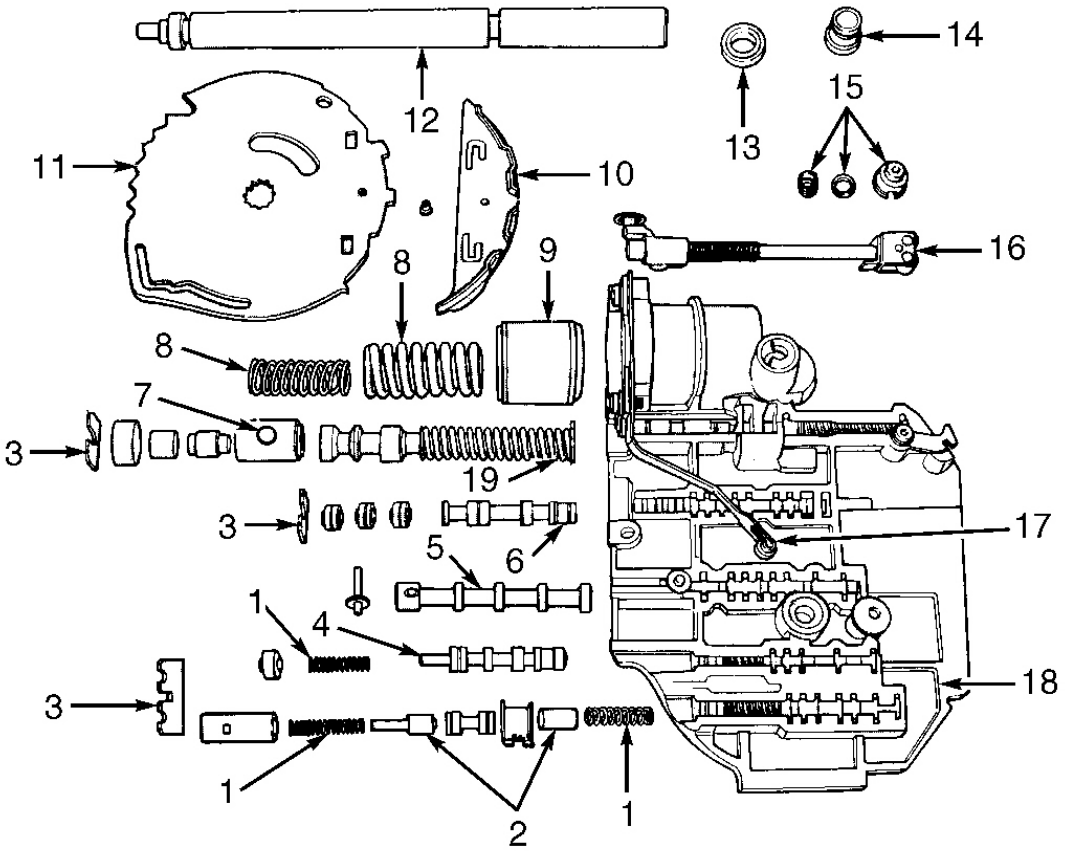


Fig. 37: Exploded View Of Valve Body (1992-94)

BEARING ADJUSTMENTS

NOTE: Various gauging shims and selective spacers or shim applications are used for performing bearing preload adjustments. For application and available thickness, see Fig. 45 .

DIFFERENTIAL BEARING PRELOAD

CAUTION: Differential bearing preload MUST be adjusted if any of the following components have been replaced: transaxle case, carrier, differential retainer, extension housing or side bearings and races. Differential bearing preload must be checked with transfer shaft removed.

1. Install NEW side bearings on carrier (if removed). Using Bearing Race Remover (L-4518), remove bearing race from differential bearing retainer. See **Fig. 23** . Remove selective spacer or shim from differential bearing retainer. If side bearings have been replaced, also replace bearing race in extension housing.
2. Install .020" (.50 mm) thick gauging shim in differential bearing retainer. **DO NOT** install oil baffle between gauging shim and differential bearing retainer at this time.
3. Using press, Handle (C-4171) and Bearing Race Installer (L-4520), install bearing race in differential bearing retainer. See **Fig. 23** .
4. Install differential assembly in transaxle case. Install NEW "O" ring on extension housing. Apply 1/8" bead of RTV sealant on extension housing-to-transaxle case sealing surface. Install extension housing on transaxle case.

NOTE: On All-Wheel Drive (AWD) models, retainer plate is used in place of extension housing.

5. Using spanner wrench, rotate extension housing and align bolt holes. Install and tighten bolts to specification. Refer to the **TORQUE SPECIFICATIONS** table. Install differential bearing retainer and tighten bolts to 21 ft. lbs. (29 N.m).
6. Position transaxle assembly vertically in Support Stand (L-4557). See **Fig. 38** . Rotate differential at least one full revolution to ensure side bearings are fully seated. Install Adapter (L-4436) into extension housing. See **Fig. 38** .

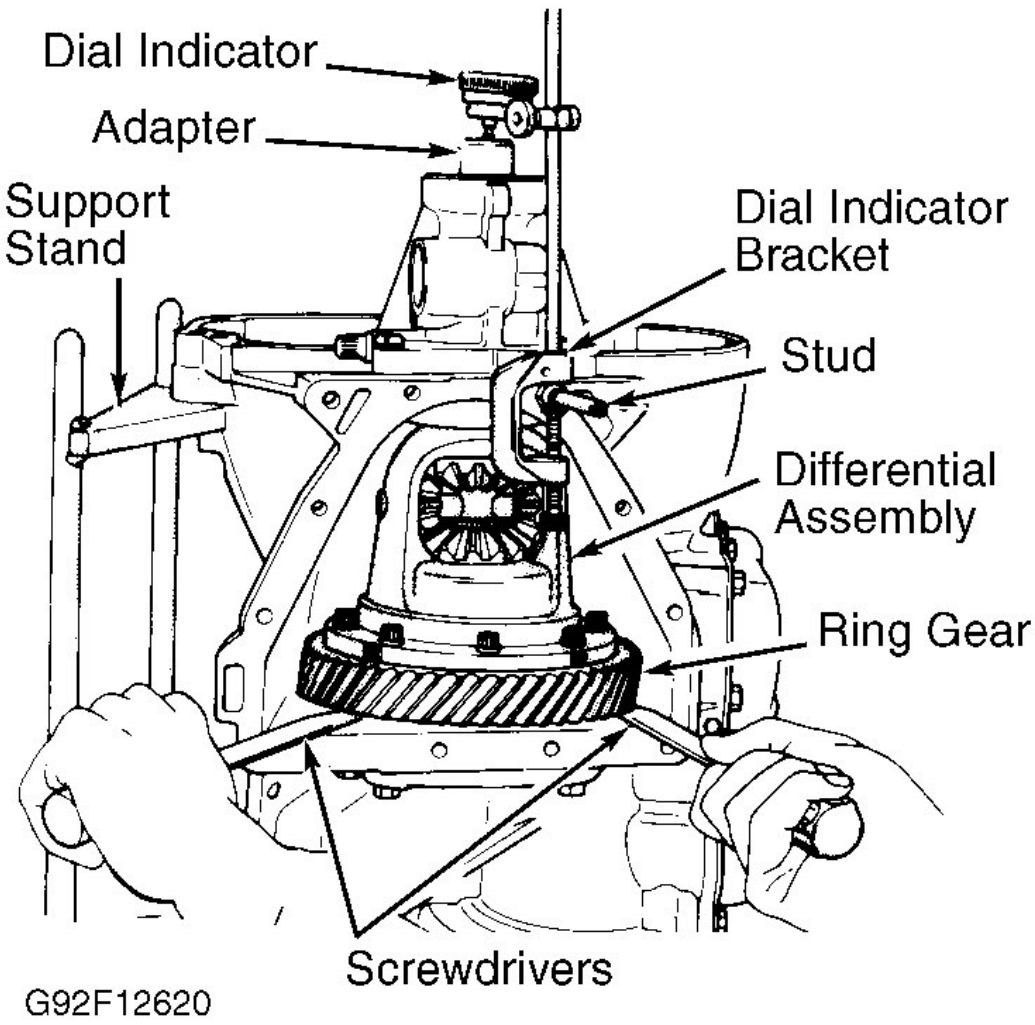


Fig. 38: Checking Differential End Play
Courtesy of CHRYSLER CORP.

7. Install dial indicator with indicator stem resting on adapter and zero dial indicator. Using screwdrivers on each side of ring gear, pry ring gear upward and note differential end play reading on dial indicator. See **Fig. 38** .

CAUTION: DO NOT damage transaxle case or differential cover sealing surface when prying ring gear upward.

8. Using differential end play reading, determine selective spacer or shim thickness required. See **Fig. 39** . Once proper selective spacer or shim is determined, remove bolts and differential bearing retainer.

End Play (with .50 mm gauging shim installed)		Required Shim Combination	Total Thickness	
mm	inch	mm	mm	inch
.0	.0	.50	.50	.020
.05	.002	.75	.75	.030
.10	.004	.80	.80	.032
.15	.006	.85	.85	.034
.20	.008	.90	.90	.035
.25	.010	.95	.95	.037
.30	.012	1.00	1.00	.039
.35	.014	1.05	1.05	.041
.40	.016	.50 + .60	1.10	.043
.45	.018	.50 + .65	1.15	.045
.50	.020	.50 + .70	1.20	.047
.55	.022	.50 + .75	1.25	.049
.60	.024	.50 + .80	1.30	.051
.65	.026	.50 + .85	1.35	.053
.70	.027	.50 + .90	1.40	.055
.75	.029	.50 + .95	1.45	.057
.80	.031	.50 + 1.00	1.50	.059
.85	.033	.50 + 1.05	1.55	.061
.90	.035	1.00 + .60	1.60	.063
.95	.037	1.00 + .65	1.65	.065
1.00	.039	1.00 + .70	1.70	.067
1.05	.041	1.00 + .75	1.75	.069
1.10	.043	1.00 + .80	1.80	.071
1.15	.045	1.00 + .85	1.85	.073
1.20	.047	1.00 + .90	1.90	.075
1.25	.049	1.00 + .95	1.95	.077
1.30	.051	1.00 + 1.00	2.00	.079
1.35	.053	1.00 + 1.05	2.05	.081
1.40	.055	1.05 + 1.05	2.10	.083

92G12621

Fig. 39: Determining Differential End Play Selective Spacer Or Shim
Courtesy of CHRYSLER CORP.

9. Using bearing race remover, remove bearing race from differential bearing retainer. Remove .020" (.50 mm) gauging shim. Install oil baffle and proper selective spacer or shim.
10. Using press, install bearing race in differential bearing retainer. Apply 1/8" bead of RTV sealant on differential bearing retainer-to-transaxle case sealing surface. Install differential bearing retainer on transaxle case.
11. Using spanner wrench, rotate differential bearing retainer and align bolt holes. Install and tighten bolts to 21 ft. lbs. (29 N.m).
12. Coat side bearings with oil. Using Adapter (L-4436-A) and INCH-lb. torque wrench, check differential rotating torque required to rotate differential assembly. See **Fig. 40** . Differential rotating torque should be 5-18 INCH lbs (.6-2.0 N.m).
13. If differential rotating torque exceeds specification, install a .002" (.05 mm) thinner selective spacer or shim in differential bearing retainer. If differential rotating torque is less than specified, install a .002" (.05 mm) thicker selective spacer or shim in differential bearing retainer.
14. Recheck differential rotating torque. If oil seal was removed from extension housing, install NEW oil seal in extension housing.

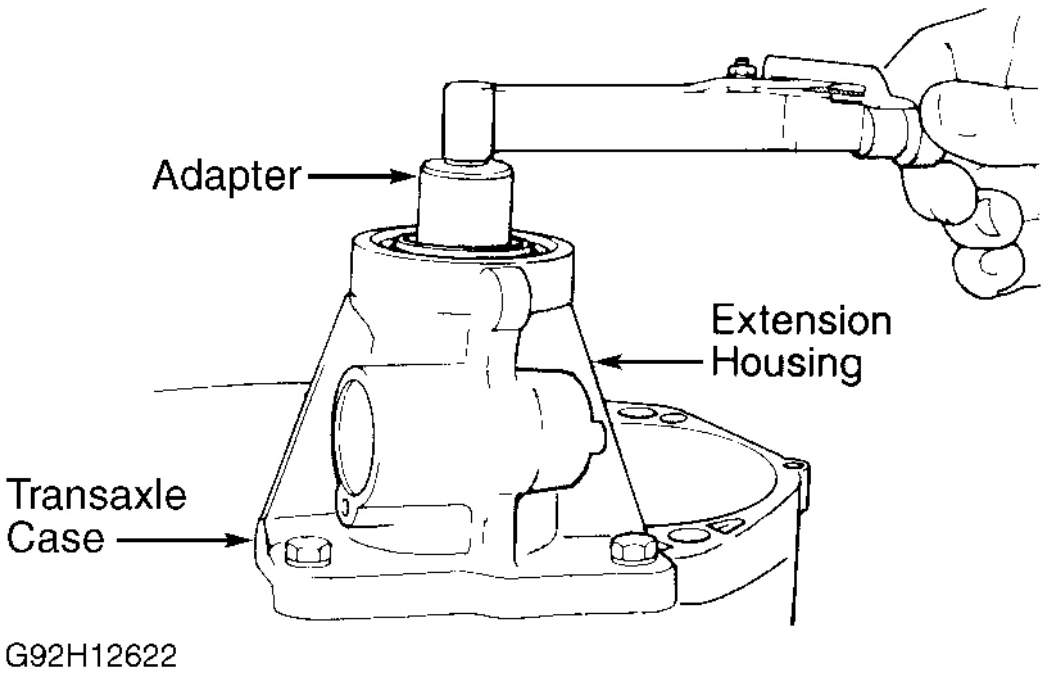
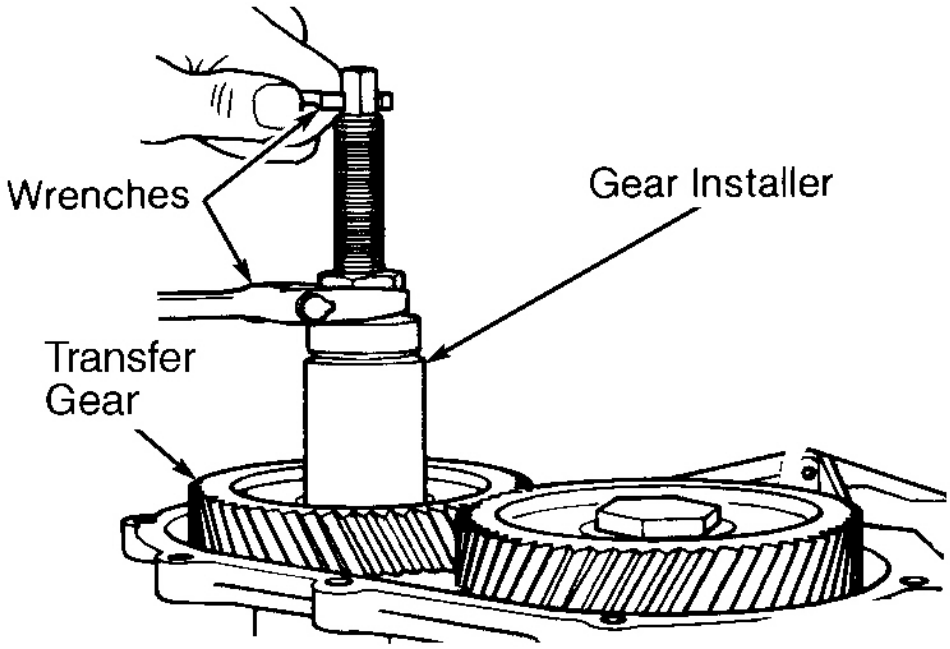


Fig. 40: Checking Differential Rotating Torque
Courtesy of CHRYSLER CORP.

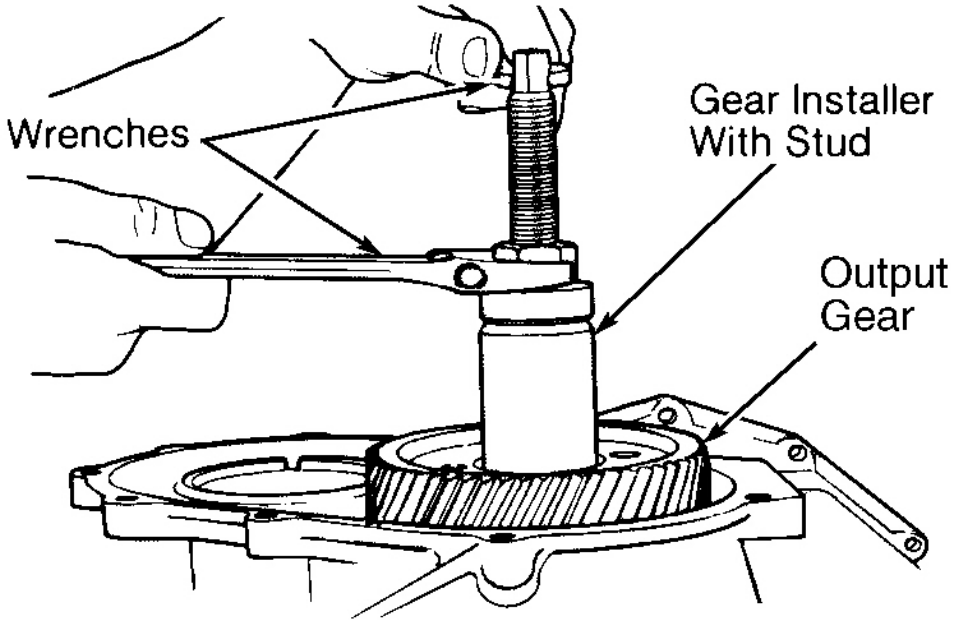
OUTPUT GEAR BEARING PRELOAD

CAUTION: Output gear is transfer gear located on rear planetary carrier in transaxle case. Output gear bearing preload must be checked when bearings, bearing races, output gear, rear planetary carrier or transaxle case are replaced. Output gear bearing preload must be checked with transfer gear removed from transfer shaft.

1. With output gear and selective spacer or shim removed, install a .177" (4.50 mm) thick gauging shim on rear planetary carrier. Use grease to hold gauging shim in place. Install output gear on rear planetary carrier using Gear Installer (6261) with stud. See **Fig. 41** .
2. Install bolt and washer. Using Gear Holder (6259), hold output gear. Tighten bolt to 200 ft. lbs. (271 N.m). Install Lever (L-4432) on output gear using Bolts (6260). See **Fig. 42** .
3. Move output gear inward and outward while rotating to ensure bearings are seated. Install dial indicator with indicator stem against output gear. See **Fig. 42** .
4. Move output gear inward and zero dial indicator. Pull output gear outward and note output gear end play reading on dial indicator. Using output gear end play, determine proper selective spacer or shim. See **Fig. 43** .



INSTALLING GEAR ON TRANSFER SHAFT



INSTALLING GEAR ON REAR PLANETARY CARRIER

G92I12623

Fig. 41: Installing Transfer Gear Or Output Gear
Courtesy of CHRYSLER CORP.

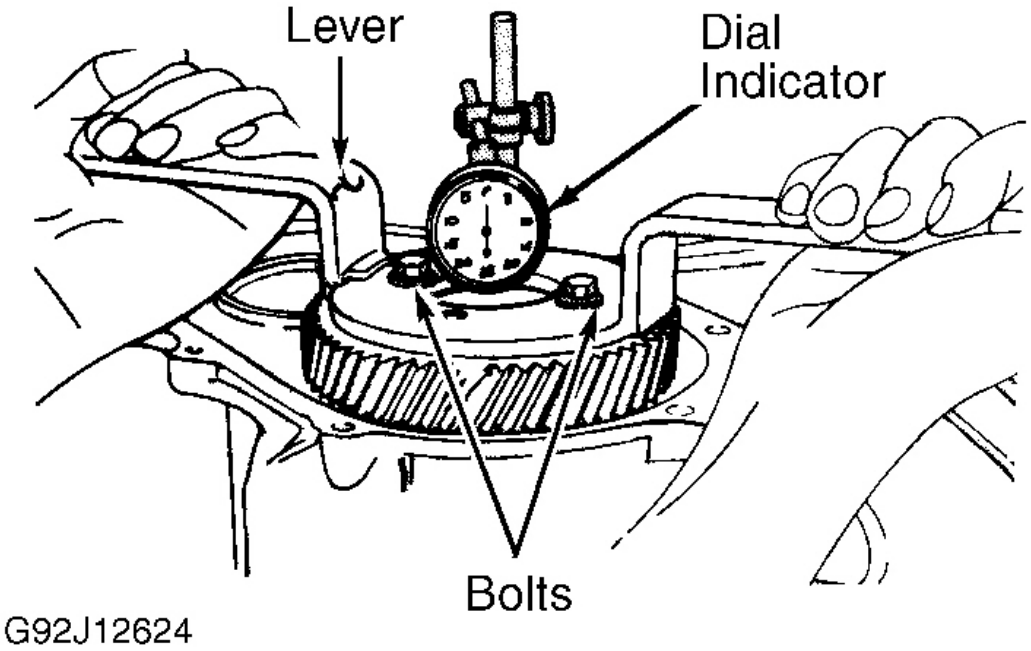


Fig. 42: Checking Transfer Or Output Gear & Transfer Shaft End Play
Courtesy of CHRYSLER CORP.

End Play (with 4.50 mm gauging shim installed)		Required Shim	End Play (with 4.50 mm gauging shim installed)		Required Shim
mm	inch	mm	mm	inch	mm
.05	.002	4.42	.53	.021	3.94
.08	.003	4.38	.56	.022	3.90
.10	.004	4.38	.58	.023	3.90
.13	.005	4.34	.61	.024	3.86
.15	.006	4.30	.64	.025	3.82
.18	.007	4.30	.66	.026	3.82
.20	.008	4.26	.69	.027	3.78
.23	.009	4.22	.71	.028	3.74
.25	.010	4.22	.74	.029	3.74
.28	.011	4.18	.76	.030	3.70
.30	.012	4.14	.79	.031	3.66
.33	.013	4.14	.81	.032	3.66
.36	.014	4.10	.84	.033	3.62
.38	.015	4.10	.86	.034	3.62
.41	.016	4.06	.89	.035	3.58
.43	.017	4.02	.91	.036	3.54
.46	0.18	4.02	.94	.037	3.54
.48	.019	3.98	.97	.038	3.50
.51	.020	3.94			

Average Conversion .04 mm = .0016"

G92A12625

Fig. 43: Determining Transfer Or Output Gear Selective Spacer Or Shim
Courtesy of CHRYSLER CORP.

5. Using gear holder, hold output gear. Remove bolt and washer. Using puller, remove output gear and gauging shim. Install proper selective spacer or shim using grease to hold in place.
6. Using gear installer and stud, install output gear. Install retaining bolt and washer. Using gear holder, hold output gear and tighten retaining bolt to 200 ft. lbs. (271 N.m).
7. Using INCH lb. torque wrench, check rotating torque required to rotate output gear. Output gear rotating torque should be 3-8 INCH lbs. (.3-.9 N.m).

8. If output gear rotating torque exceeds specification, install a .0016" (.041 mm) thicker selective spacer or shim. If output gear rotating torque is less than specified, install a .0016" (.041 mm) thinner selective spacer or shim. Recheck output gear rotating torque.

TRANSFER SHAFT BEARING PRELOAD

CAUTION: Transfer shaft bearing preload must be checked when bearings, bearing races, transfer gear, transfer shaft or transaxle case are replaced.

1. Hold transfer gear and remove nut and washer from end of transfer shaft. Using puller, remove transfer gear and selective spacer or shim from transfer shaft.
2. Install a .184" (4.66 mm) thick gauging shim on transfer shaft. Using Gear Installer (6261), install transfer gear on transfer shaft. See **Fig. 41** . Install old nut and washer. Hold transfer gear and tighten nut to 200 ft. lbs. (271 N.m).
3. Install Lever (L-4432) on transfer gear using Bolts (6260). See **Fig. 42** . Move transfer gear inward and outward while rotating to ensure bearings are seated.
4. Install grease-coated steel ball in end of transfer shaft. Install dial indicator on transaxle case with stem resting on steel ball so transfer shaft end play can be checked.
5. Move transfer gear inward and zero dial indicator. Pull transfer gear outward and note transfer shaft end play reading on dial indicator.
6. Using transfer shaft end play, determine correct selective spacer or shim thickness. See **Fig. 44** .

End Play (with 4.66 mm gauging shim installed)		Required Shim	End Play (with 4.66 mm gauging shim installed)		Required Shim
mm	inch	mm	mm	inch	mm
.05	.002	4.66	.79	.031	3.90
.08	.003	4.62	.81	.032	3.90
.10	.004	4.58	.84	.033	3.86
.13	.005	4.58	.86	.034	3.82
.15	.006	4.54	.89	.035	3.82
.18	.007	4.50	.91	.036	3.78
.20	.008	4.50	.94	.037	3.74
.23	.009	4.46	.97	.038	3.74
.25	.010	4.46	.99	.039	3.70
.28	.011	4.42	1.02	.040	3.66
.30	.012	4.38	1.04	.041	3.66
.33	.013	4.38	1.07	.042	3.62
.36	.014	4.34	1.08	.043	3.62
.38	.015	4.30	1.12	.044	3.58
.41	.016	4.30	1.14	.045	3.54
.43	.017	4.26	1.17	.046	3.54
.46	.018	4.22	1.19	.047	3.50
.48	.019	4.22	1.22	.048	3.46
.50	.020	4.18	1.24	.049	3.46
.53	.021	4.18	1.27	.050	3.42
.56	.022	4.14	1.30	.051	3.38
.58	.023	4.10	1.32	.052	3.38
.61	.024	4.10	1.35	.053	3.34
.64	.025	4.06	1.37	.054	3.34
.66	.026	4.02	1.40	.055	3.30
.69	.027	4.02	1.42	.056	3.26
.71	.028	3.98	1.45	.057	3.26
.74	.029	3.94	1.47	.058	3.22
.76	.030	3.94			

G92B12626

Fig. 44: Determining Transfer Shaft Selective Spacer Or Shim
Courtesy of CHRYSLER CORP.

7. Hold transfer gear. Remove nut and washer from end of transfer shaft. Using puller, remove transfer gear and gauging shim from transfer shaft.
8. Install correct selective spacer or shim on transfer shaft. Using gear installer, install transfer gear on transfer shaft. Install nut and washer. Using gear holder, hold transfer gear and tighten nut to 200 ft. lbs. (271 N.m).
9. Ensure bearings are fully seated. Using dial indicator, check transfer shaft end play. Transfer shaft end play should be .002-.004" (.05-.10 mm).
10. If transfer shaft end play exceeds specification, install a .0016" (.041 mm) thinner selective spacer or shim. If transfer shaft end play is less than specified, install a .0016" (.041 mm) thicker selective spacer or shim. Recheck transfer shaft end play.

Shim Thickness		Bearing Usage		
mm	inch	Output Gear	Transfer Shaft	Differential
3.22	.127	X	X	—
3.26	.128	X	X	—
3.30	.130	X	X	—
3.34	.132	X	X	—
3.38	.133	X	X	—
3.42	.135	X	X	—
3.46	.136	X	X	—
3.50	.138	X	X	—
3.54	.139	X	X	—
3.58	.141	X	X	—
3.62	.143	X	X	—
3.66	.144	X	X	—
3.70	.146	X	X	—
3.74	.147	X	X	—
3.78	.149	X	X	—
3.82	.150	X	X	—
3.86	.152	X	X	—
3.90	.154	X	X	—
3.94	.155	X	X	—
3.98	.157	X	X	—
4.02	.158	X	X	—
4.06	.160	X	X	—
4.10	.161	X	X	—
4.14	.163	X	X	—
4.18	.165	X	X	—
4.22	.166	X	X	—
4.26	.168	X	X	—
4.30	.169	X	X	—
4.34	.171	X	X	—
4.38	.172	X	X	—
4.42	.174	X	X	—
4.46	.175	X	X	—
4.50	.177	X*	X	—
4.54	.178	X	X	—
4.58	.180	X	X	—
4.62	.182	X	X	—
4.66	.183	X	X*	—
0.50	.020	—	—	X*
0.55	.022	—	—	X
0.60	.024	—	—	X
0.65	.026	—	—	X
0.70	.027	—	—	X
0.75	.029	—	—	X
0.80	.031	—	—	X
0.85	.033	—	—	X
0.90	.035	—	—	X
0.95	.037	—	—	X
1.00	.039	—	—	X
1.05	.041	—	—	X

* – Also used as gauging shims.

94E38038

Fig. 45: Identifying Selective Spacer Or Shim Application
Courtesy of CHRYSLER CORP.

TRANSAXLE REASSEMBLY

DIFFERENTIAL ASSEMBLY

CAUTION: Differential bearing preload MUST be adjusted if any of the following components have been replaced: transaxle case, carrier, differential retainer, extension housing or side bearings and races. See DIFFERENTIAL BEARING PRELOAD under BEARING ADJUSTMENTS. If no components are replaced, use original selective spacer or shim located behind bearing race in differential bearing retainer.

1. Install differential assembly in transaxle case. Install NEW "O" ring on extension housing. Apply 1/8" bead of RTV sealant on extension housing-to-transaxle case sealing surface. Install extension housing on transaxle case.
2. Using spanner wrench, rotate extension housing and align retaining bolt holes. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** .
3. Apply 1/8" bead of RTV sealant on differential bearing retainer-to-transaxle case sealing surface. Install differential bearing retainer on transaxle case.
4. Using spanner wrench, rotate differential bearing retainer and align retaining bolt holes. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** .
5. Apply 1/8" bead of RTV sealant on differential cover-to-transaxle case sealing surface. Install differential cover. Install and tighten bolts to specification. See **TORQUE SPECIFICATIONS** . Install NEW oil seal in extension housing (if removed).

TRANSFER SHAFT & TRANSFER GEAR

CAUTION: If transfer shaft, transfer gear, transaxle case or bearings are replaced, transfer shaft bearing preload must be checked. See TRANSFER SHAFT BEARING PRELOAD under BEARING ADJUSTMENTS.

1. Using transfer shaft remover/installer, install transfer shaft. Install bearing race, NEW "O" ring and baffle. Install transfer shaft bearing retaining snap ring in transaxle case.
2. Install bearing race retainer. Ensure notch in outer edge of bearing race retainer is aligned with notch in transaxle case. See **Fig. 18** . Install selective spacer or shim.
3. Using Gear Installer (6261), install transfer gear on transfer shaft. See **Fig. 41** . Install NEW nut and washer. Using gear holder, hold transfer gear and tighten nut to specification. See **TORQUE SPECIFICATIONS** .

VALVE BODY & INTERNAL COMPONENTS

CAUTION: If output gear, rear planetary carrier, transaxle case or bearings are replaced, output gear bearing preload must be checked. See OUTPUT GEAR BEARING PRELOAD under BEARING ADJUSTMENTS.

1. If installing NEW bearing on output gear, use press, Handle (C-4171) and Bearing Installer (5052) to install bearing. See **Fig. 21** . If installing NEW bearing on rear planetary carrier, use press and Bearing Installer (6053). See **Fig. 20** .

2. If installing NEW bearing races in transaxle case for rear planetary carrier and output gear, use Bearing Race Installer (5050) to install bearing races.
3. Install piston retainer gasket in transaxle case. Ensure holes in piston retainer gasket align with holes in transaxle case. Install low-reverse clutch piston retainer.
4. Install and tighten low-reverse clutch piston retainer screws to specification. See **TORQUE SPECIFICATIONS** . Install low-reverse clutch piston.
5. Ensure return spring is properly installed on parking sprag assembly. See **Fig. 46** . Install parking sprag assembly, pivot shaft, shaft and cup in transaxle.

CAUTION: Ensure sleeve at center of parking sprag assembly and parking sprag guide bracket contact rear of transaxle case.

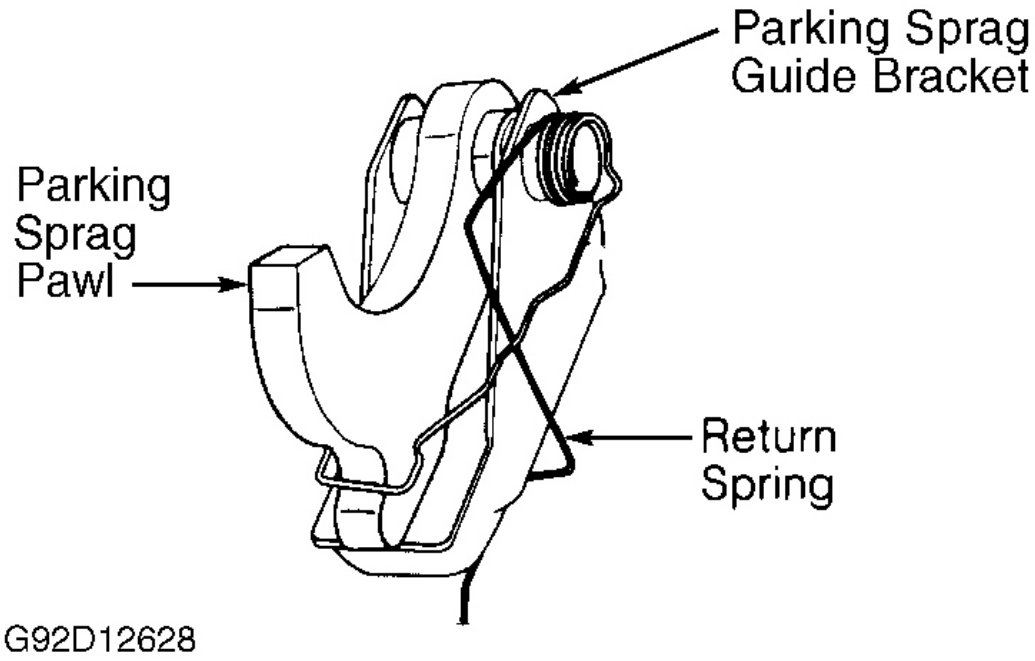


Fig. 46: Assembling Parking Sprag
Courtesy of CHRYSLER CORP.

6. Install clutch piston return spring for low-reverse clutch piston in transaxle case. Using spring compressor and adapter, compress clutch assembly. Install snap ring. Ensure ends of snap ring are properly positioned. See **Fig. 19** .
7. Install rear planetary carrier in transaxle case. Install selective spacer or shim on rear planetary carrier. Install output gear using Gear Installer (6261) with stud. See **Fig. 41** . Output gear may also be referred to as transfer gear.

CAUTION: If output gear, rear planetary carrier, transaxle case or bearings are replaced, output gear bearing preload must be checked. See OUTPUT GEAR BEARING PRELOAD under BEARING ADJUSTMENTS.

8. Install NEW retaining bolt and washer. Using gear holder, hold output gear. Tighten the retaining bolt to specification. Refer to **TORQUE SPECIFICATIONS** .
9. Apply a 1/8" bead of RTV sealant on the end cover and install it. Install and tighten end cover bolts to specification. See **TORQUE SPECIFICATIONS** . Install low-reverse clutch plates and clutch discs. See **Fig. 47** .
10. Install flat snap ring above top low-reverse clutch plate. Ensure ends of flat snap ring are positioned in proper area. See **Fig. 48** . Use care not to scratch clutch plate when installing flat snap ring.

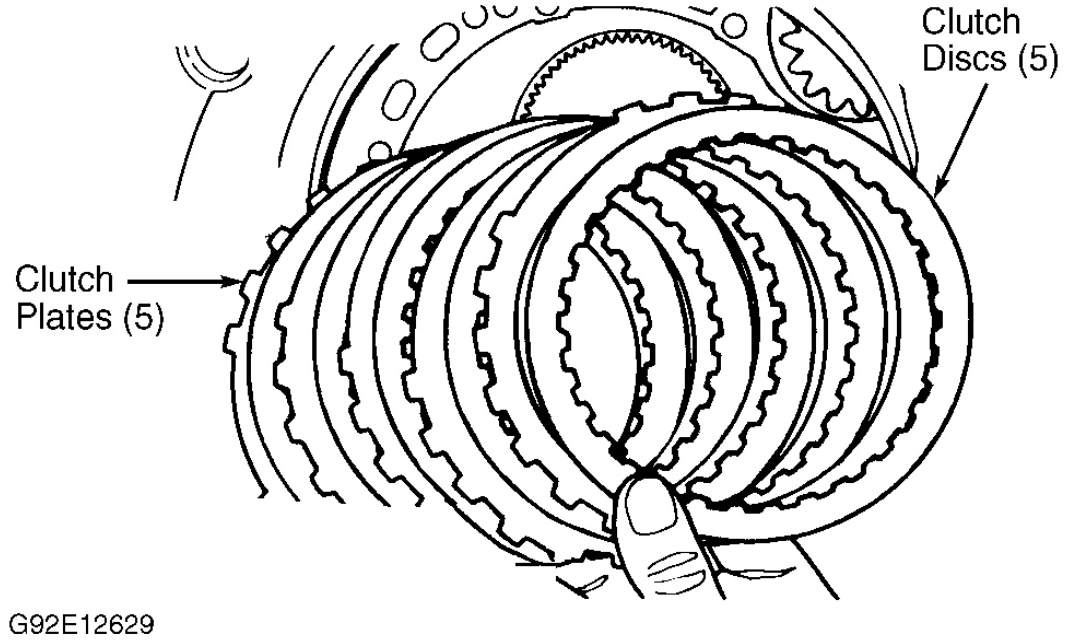


Fig. 47: Installing Low-Reverse Clutch Plates & Clutch Discs
Courtesy of CHRYSLER CORP.

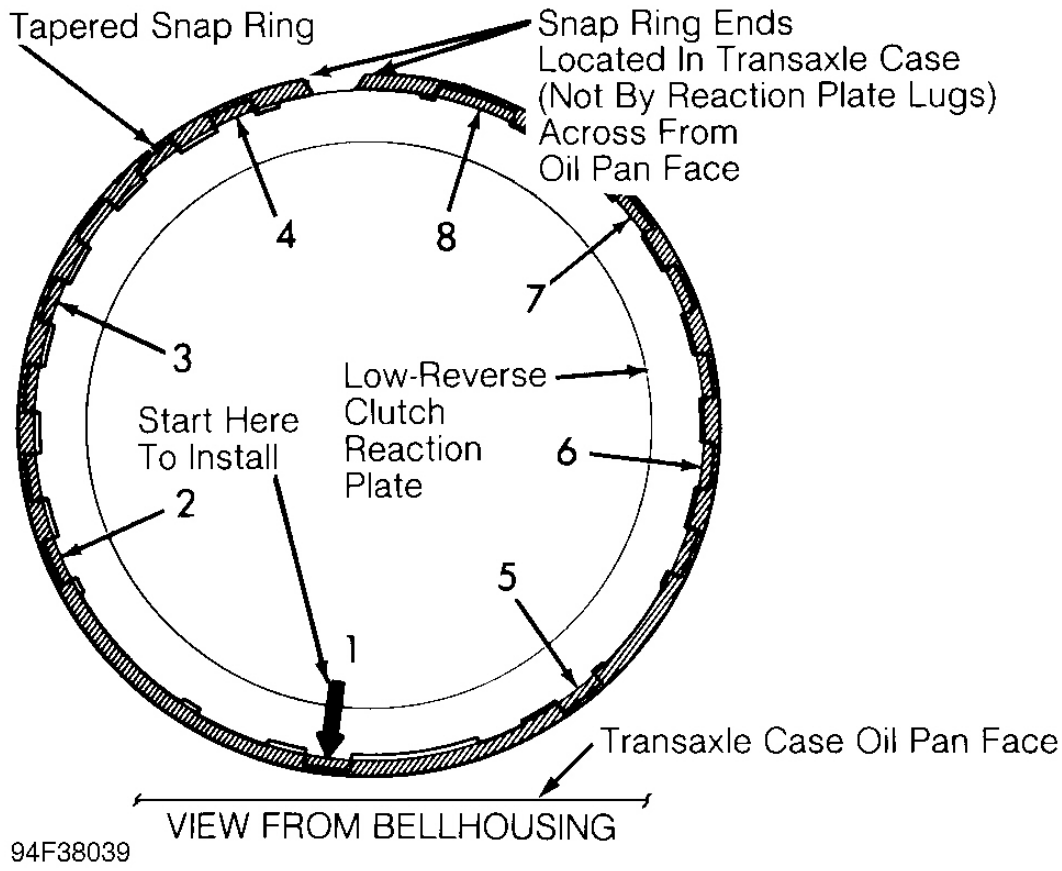


Fig. 48: Installing Snap Rings
Courtesy of CHRYSLER CORP.

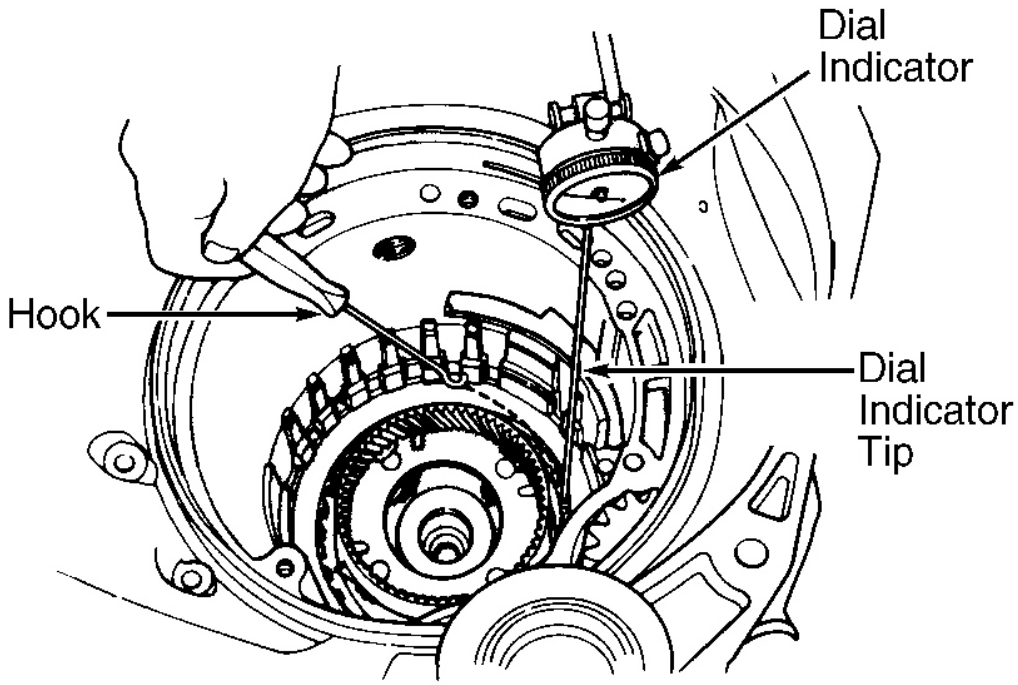
11. Install No. 1 low-reverse clutch disc. Install low-reverse clutch reaction plate. Install tapered snap ring above low-reverse clutch reaction plate with tapered side facing upward, toward oil pump. Ensure ends of tapered snap ring are positioned in proper area. See **Fig. 48** .

CAUTION: Low-reverse clutch clearance must be checked after installing clutch assembly.

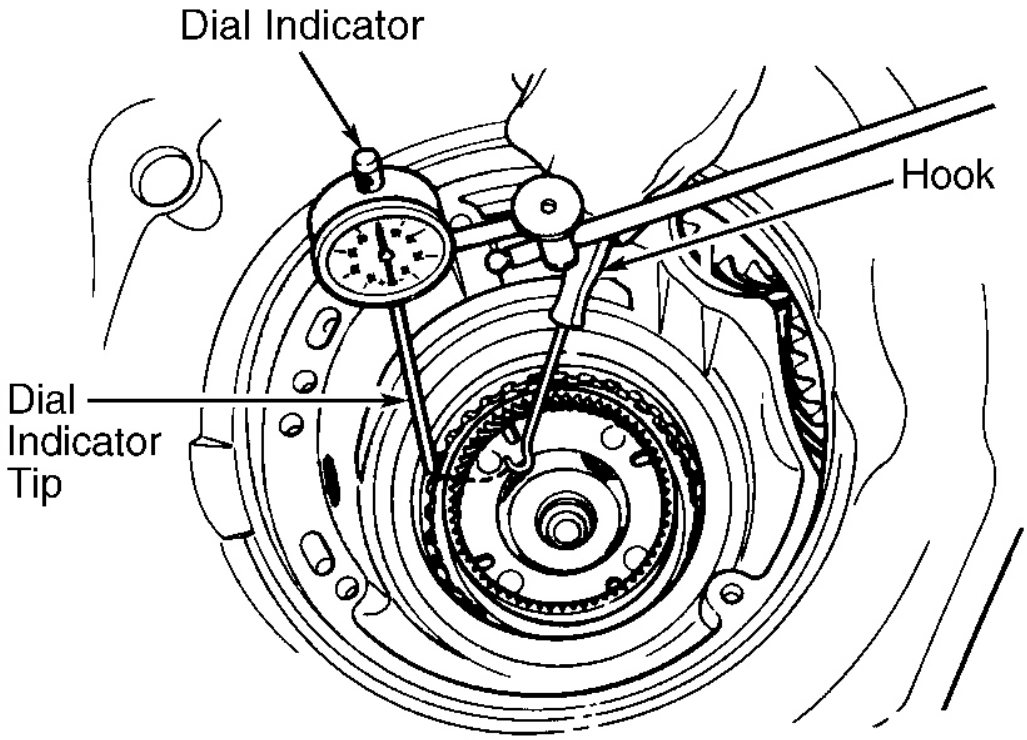
12. To check the low-reverse clutch clearance, assemble dial indicator and Dial Indicator Tip (6268) on the transaxle case. See **Fig. 49** . Press low-reverse clutch pack downward and zero dial indicator. Using hook, pull No. 1 low-reverse clutch disc upward and note low-reverse clutch clearance on dial indicator.
13. Low-reverse clutch clearance should be .042-.065" (1.06-1.65 mm). If clearance is not within specification, install different thickness low-reverse clutch reaction plate. Low-reverse clutch reaction plate is available in the following thicknesses: .211" (5.36 mm), .221" (5.61 mm), .232" (5.89 mm), .242" (6.15 mm), .252" (6.40 mm), .262" (6.65 mm) and .273" (6.93 mm).
14. Install 2-4 clutch plates and clutch discs. See **Fig. 50** . Install 2-4 clutch piston return spring and 2-4

clutch retainer. Using spring compressor, compress 2-4 clutch assembly and install snap ring. See **Fig. 17** . Ensure ends of snap ring are positioned in proper area. See **Fig. 48** .

CAUTION: The 2-4 clutch clearance must be checked after installing clutch assembly.



CHECKING LOW-REVERSE CLUTCH CLEARANCE



CHECKING 2-4 CLUTCH CLEARANCE

G92I12631

Fig. 49: Checking Low-Reverse & 2-4 Clutch Clearances
Courtesy of CHRYSLER CORP.

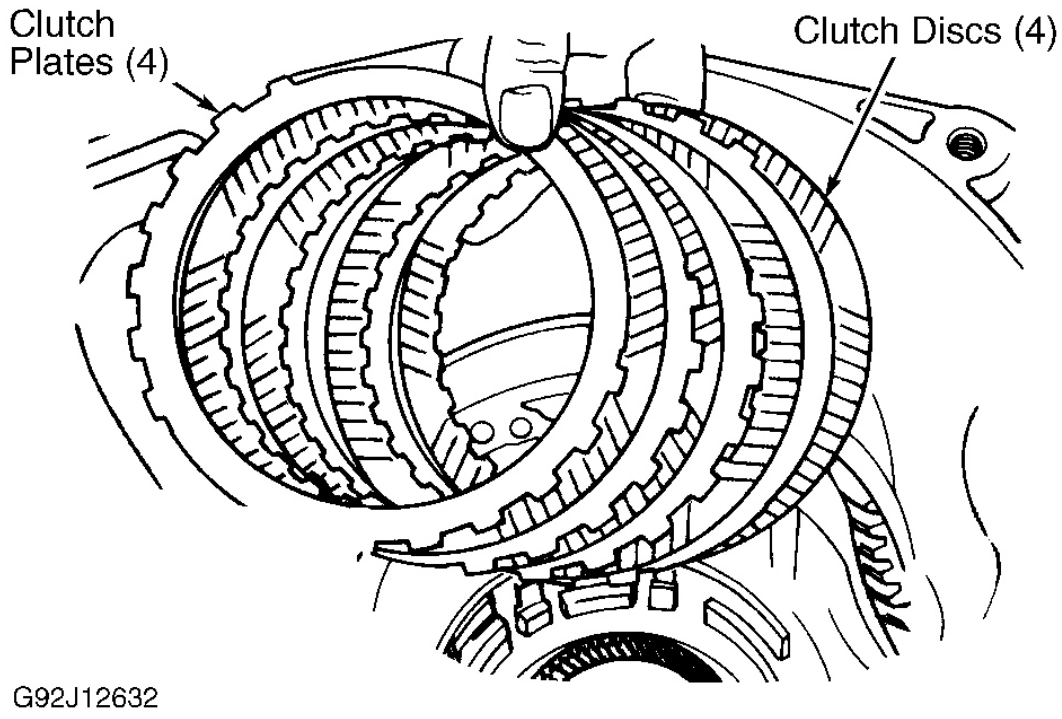


Fig. 50: Installing 2-4 Clutch Plates & Clutch Discs
Courtesy of CHRYSLER CORP.

15. To check 2-4 clutch clearance, assemble dial indicator and Dial Indicator Tip (6268) on transaxle case. See **Fig. 49** . Press 2-4 clutch pack downward and zero dial indicator. Using hook, pull one 2/4 clutch disc upward and note 2-4 clutch clearance on dial indicator.
16. The 2-4 clutch clearance should be .030-.104" (.76-2.64 mm). If clearance is not within specification, check for improper installation of clutch components. There is no adjustment for 2-4 clutch clearance.
17. Install thrust bearing and rear sun gear. Install thrust bearing, rear annulus gear and front planetary carrier. See **Fig. 12** . Install 2-4 clutch hub and thrust washer. Thrust washer goes on oil pump end of transaxle case.

CAUTION: Correct thickness No. 4 thrust washer located on shaft end of overdrive clutch hub must be determined to maintain proper input shaft end play. See Fig. 51 .

18. Apply petroleum jelly on overdrive clutch hub in 3 places. Install a .032-.040" (.81-1.02 mm) thick No. 4 thrust washer on overdrive clutch hub. See **Fig. 51** .
19. Install input clutch assembly. Ensure input clutch assembly is fully seated by looking through input speed

sensor hole in transaxle case. If input clutch assembly is fully seated, input clutch retainer will be fully visible. See **Fig. 52** . If input clutch assembly is not fully seated, remove and check for improper installation.

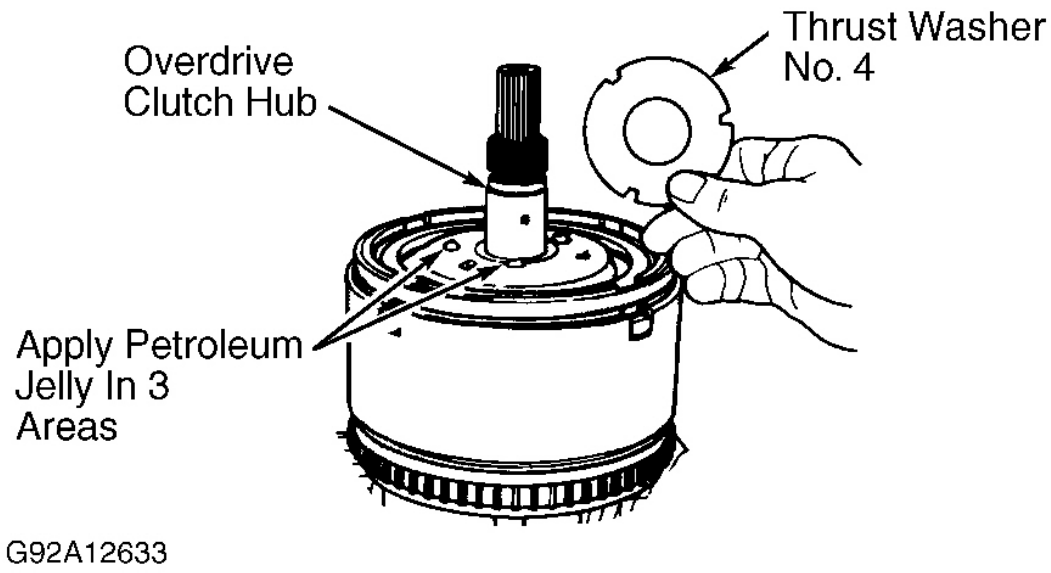


Fig. 51: Installing No. 4 Thrust Washer
Courtesy of CHRYSLER CORP.

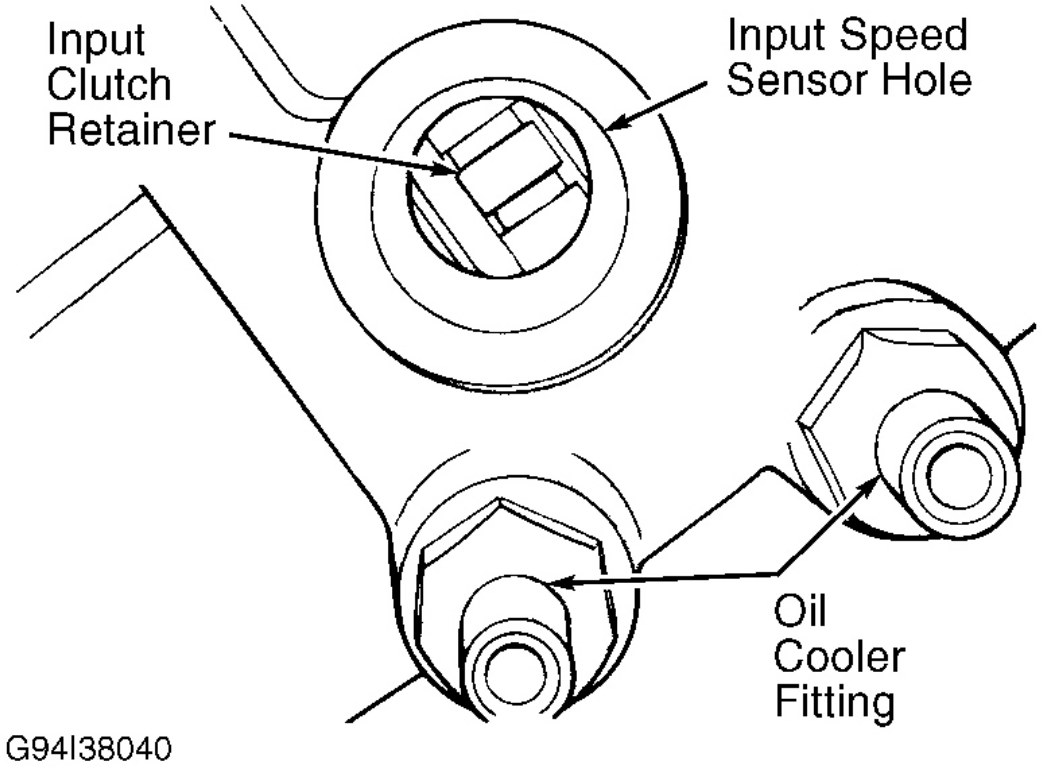


Fig. 52: Checking Input Clutch Assembly Installation
Courtesy of CHRYSLER CORP.

20. Install gasket and oil pump. **DO NOT** install "O" ring on oil pump at this time. Install and tighten oil pump-to-transaxle case bolts to specification. See **TORQUE SPECIFICATIONS** .
21. Using dial indicator, check input shaft end play. Input shaft end play should be .005-.025" (.13-.64 mm). If input shaft end play is not within specification, change No. 4 thrust washer thickness to obtain correct input shaft end play.
22. For example, if input shaft end play is .055" (1.40 mm) with No. 4 thrust washer installed in step 18), select a thrust washer with thickness of .071-.074" (1.80-1.88 mm). Replace No. 4 washer with replacement thrust washer selection. This should change input shaft end play to .020" (.51 mm). The No. 4 thrust washer is available in thicknesses ranging from .032" (.81 mm) to .136" (3.45 mm). Consult manufacturers' parts department for available thrust washers.
23. Once proper input shaft end play is obtained, remove oil pump and gasket. Install NEW "O" ring on oil pump. Install oil cooler by-pass valve in transaxle case with "O" ring end toward rear (transfer gear end) of transaxle case. See **Fig. 15** .

CAUTION: If transaxle failure existed, DO NOT attempt to clean or reuse oil cooler by-pass valve. Replace oil cooler by-pass valve.

24. Install NEW gasket and oil pump. Tighten oil pump-to-transaxle case bolts to specification. See **TORQUE SPECIFICATIONS** . Ensure input shaft rotates smoothly.
25. Install accumulator pistons and springs using NEW seal rings. Install valve body. See **VALVE BODY** under REMOVAL & INSTALLATION.
26. Using NEW "O" rings, install and tighten input and output speed sensors to specification. See **TORQUE SPECIFICATIONS** .
27. Using a NEW sealing washer, install park/neutral switch and transmission range switch. Ensure sealing washer is fully seated in transaxle case before tightening switch to specification. See **TORQUE SPECIFICATIONS** .
28. Using a NEW solenoid assembly gaskets, install solenoid assembly. Install and tighten retaining bolts to specification. See **TORQUE SPECIFICATIONS** .

CAUTION: If transaxle failure condition existed, flush oil cooler and check oil cooler flow. See OIL COOLER FLUSHING and OIL COOLER FLOW CHECK under ON-VEHICLE SERVICE.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Differential Bearing Retainer-To-Transaxle Case Bolt	21 (29)
Differential Cover Bolt	14 (19)
End Cover Bolt	14 (19)
Extension Housing-To-Transaxle Case Bolt	21 (29)
Input Speed Sensor	20 (27)
Oil Pan Bolt	14 (19)
Oil Pump-To-Transaxle Case Bolt	23 (31)
Output Speed Sensor	20 (27)
Park/Neutral Switch	25 (34)
Ring Gear Bolt (1)	70 (95)
Reaction Shaft & Support-To-Oil Pump Bolt	23 (31)
Transfer/Output Gear Bolt/Nut	200 (271)
Transmission Range Switch	25 (34)
	INCH lbs. (N.m)
Low-Reverse Clutch Piston Retainer Screw	40 (4.5)
Oil Cooler Line Fitting	110 (12.4)
Pressure Tap Plug	45 (5.1)
Solenoid Assembly Bolt	105 (11.9)
Valve Body-To-Transfer Plate Bolt	40 (4.5)
Valve Body/Transfer Plate-To-Transaxle Case Bolt	105 (11.9)
(1) Always use NEW bolts. DO NOT reuse old bolts.	

TRANSAXLE SPECIFICATIONS

TRANSAXLE SPECIFICATIONS

Application	Specification
Clutch Clearances	
Low-Reverse Clutch	.042-.065" (1.07-1.65 mm)
Overdrive Clutch	.042-.096" (1.07-2.44 mm)
Reverse Clutch	.030-.049" (.76-1.24 mm)
Underdrive Clutch	.036-.058" (.91-1.47 mm)
2-4 Clutch	.030-.104" (.76-2.64 mm)
Differential Rotating Torque	5-18 INCH lbs. (.6-2.0 N.m)
Differential Side Gear End Play	.001-.013" (.03-.33 mm)
Input Shaft End Play	.005-.025" (.13-.64 mm)
Oil Pump Clearances	
Inner & Outer Gear Side Clearance	.0008-.0018" (.020-.046 mm)
Outer Gear-To-Pocket Clearance	.0018-.0056" (.046-.142 mm)
Output Gear Rotating Torque	3-8 INCH lbs. (.3-.9 N.m)
Transfer Shaft End Play	.002-.004" (.05-.10 mm)

WIRING DIAGRAMS

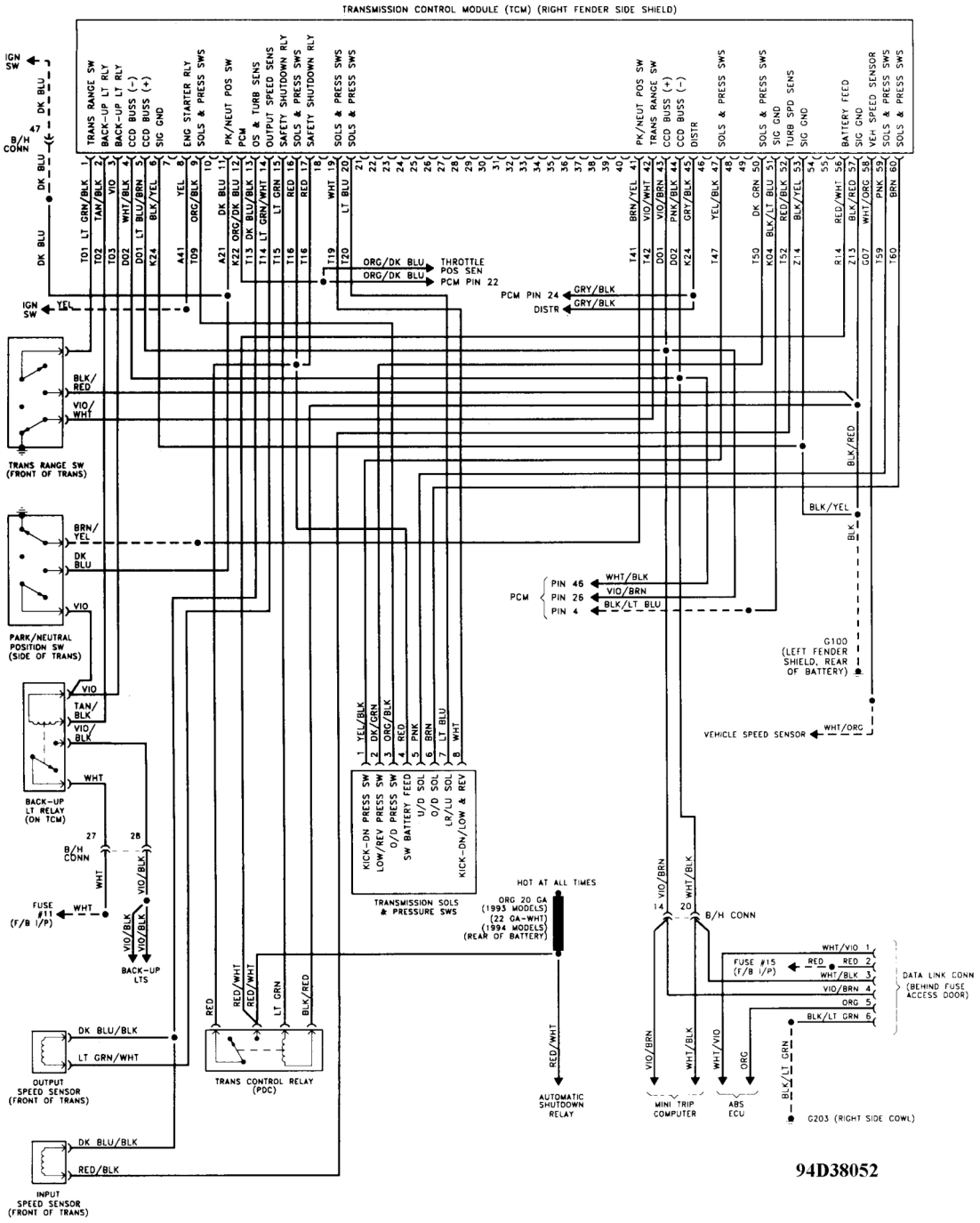


Fig. 53: Schematic (1993-94 Acclaim, LeBaron Sedan & Spirit)

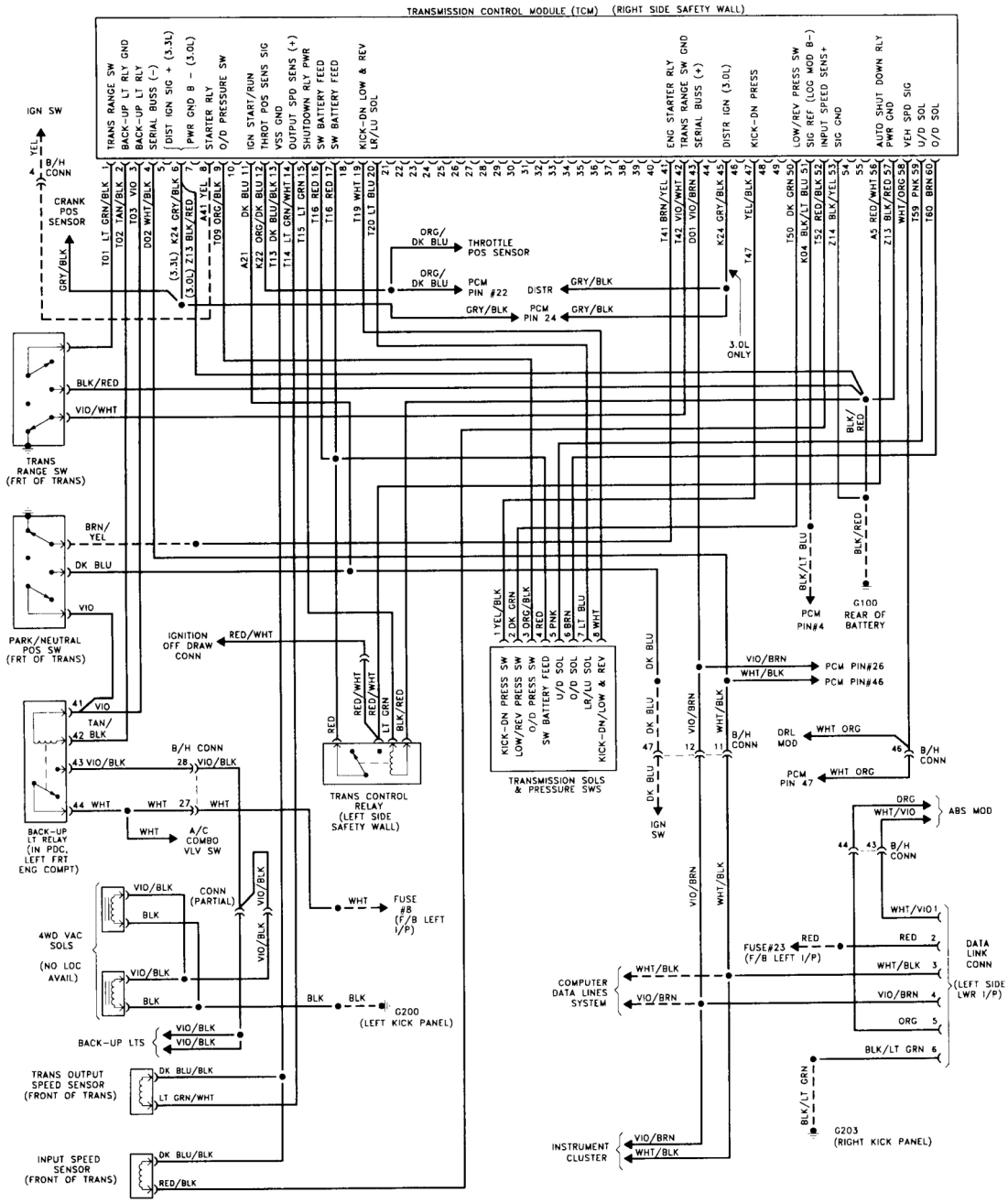


Fig. 54: Schematic (1993 Caravan, Grand Caravan, Town & Country, Grand Voyager & Voyager)

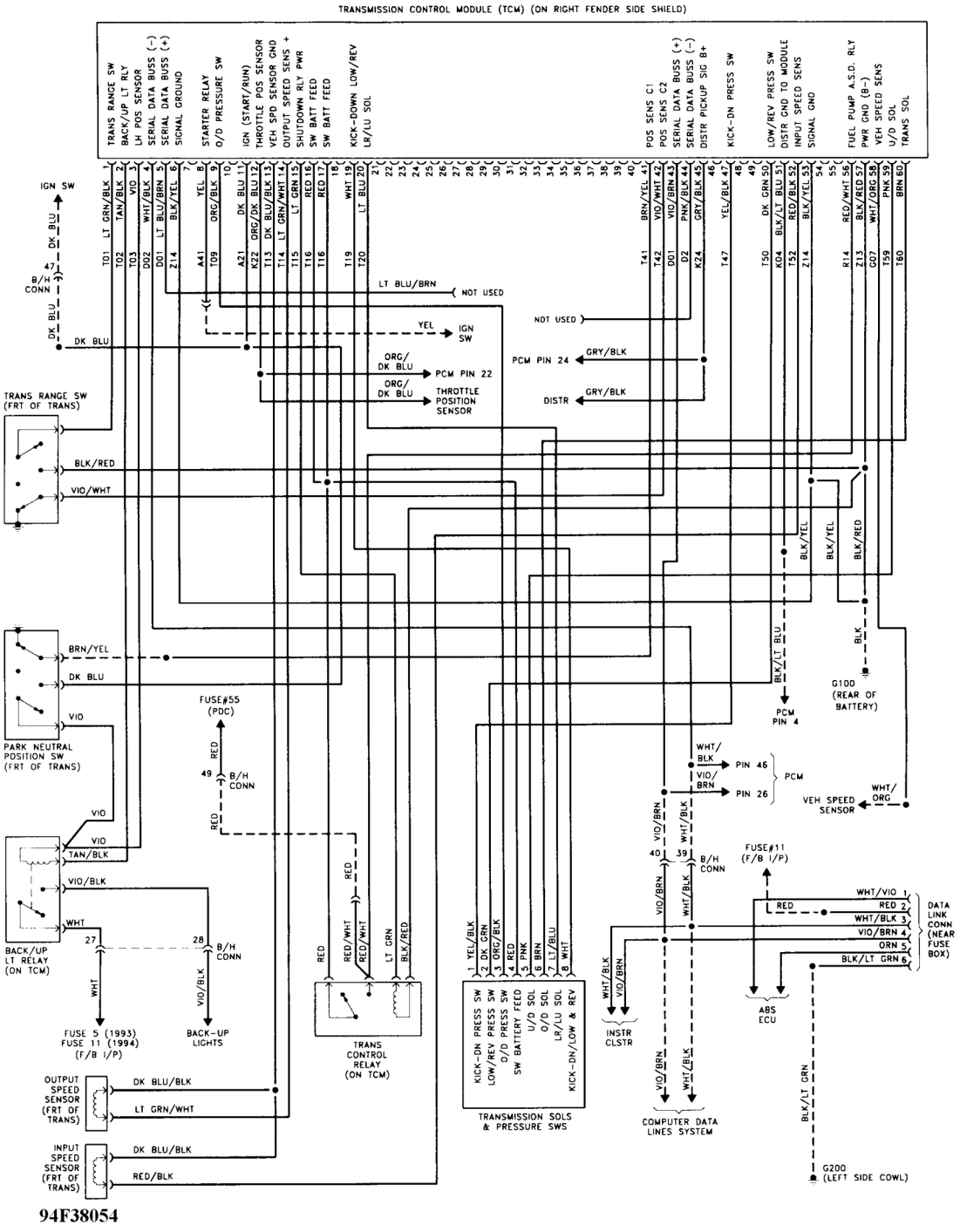


Fig. 55: Schematic (1993-94 Daytona & LeBaron Convertible/Coupe)

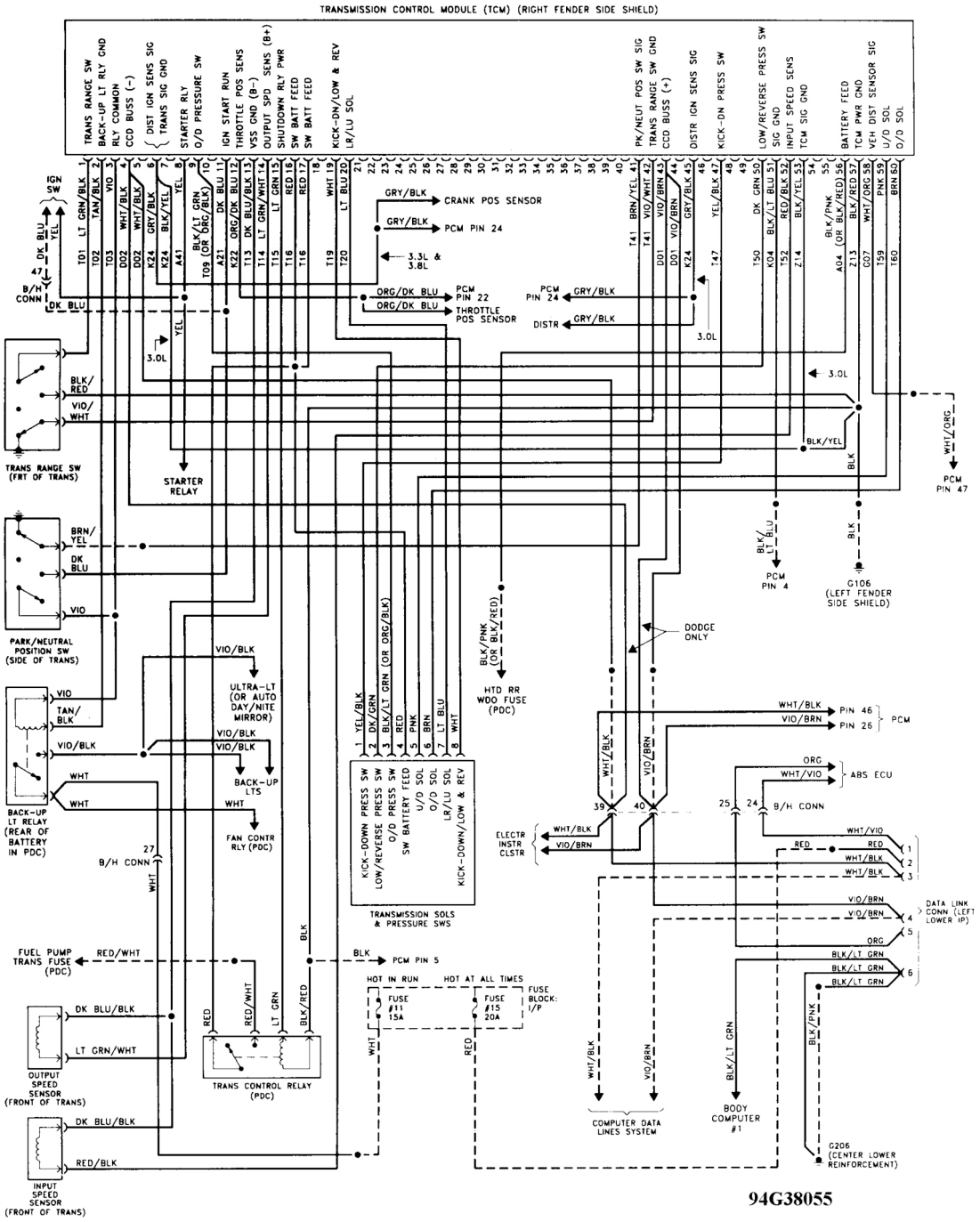


Fig. 56: Schematic (1993 Dynasty, Fifth Avenue, Imperial & New Yorker)

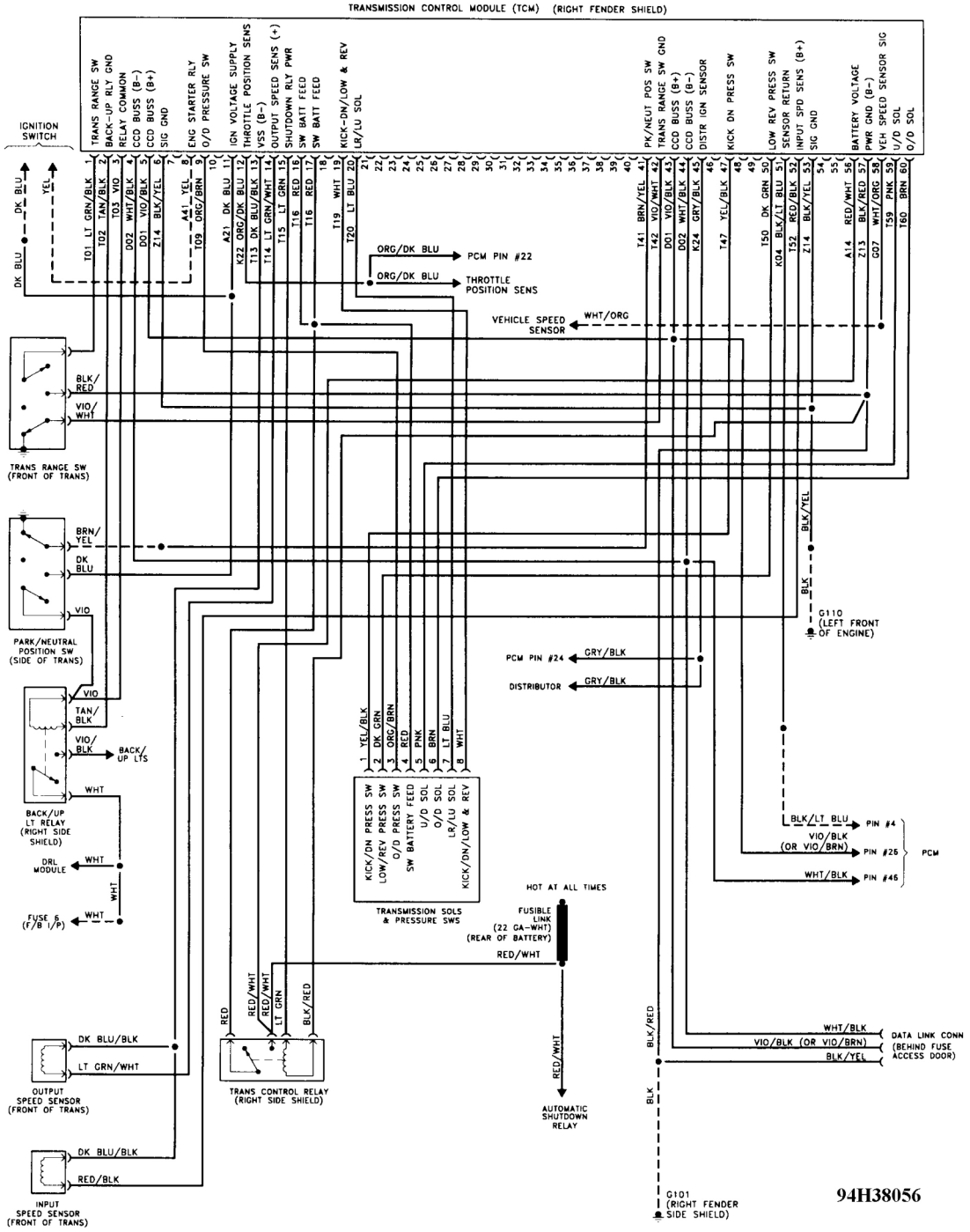


Fig. 57: Schematic (1993-94 Shadow & Sundance)

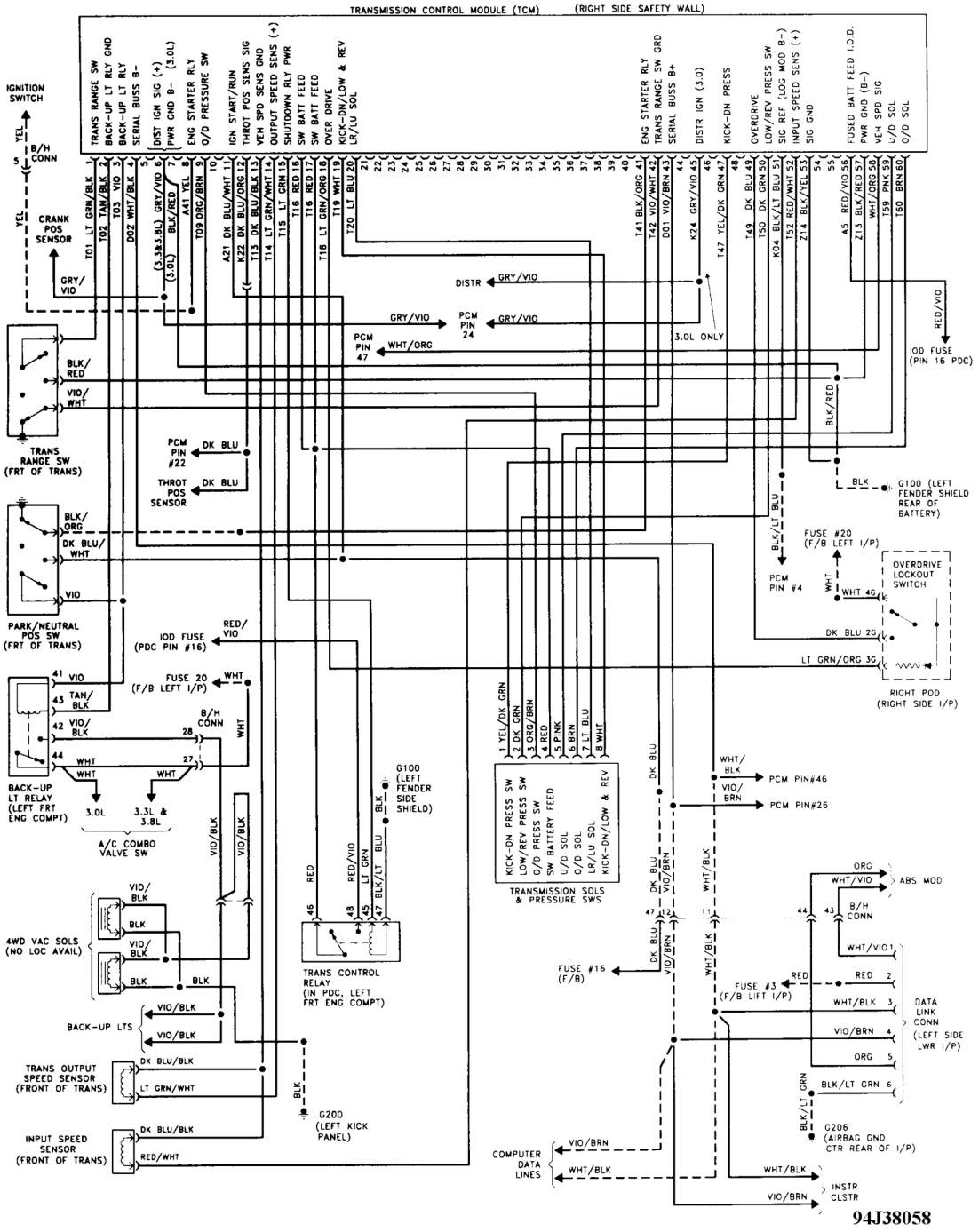


Fig. 58: Schematic (1994 Caravan, Grand Caravan, Town & Country, Grand Voyager & Voyager)

