

TRANSAXLE

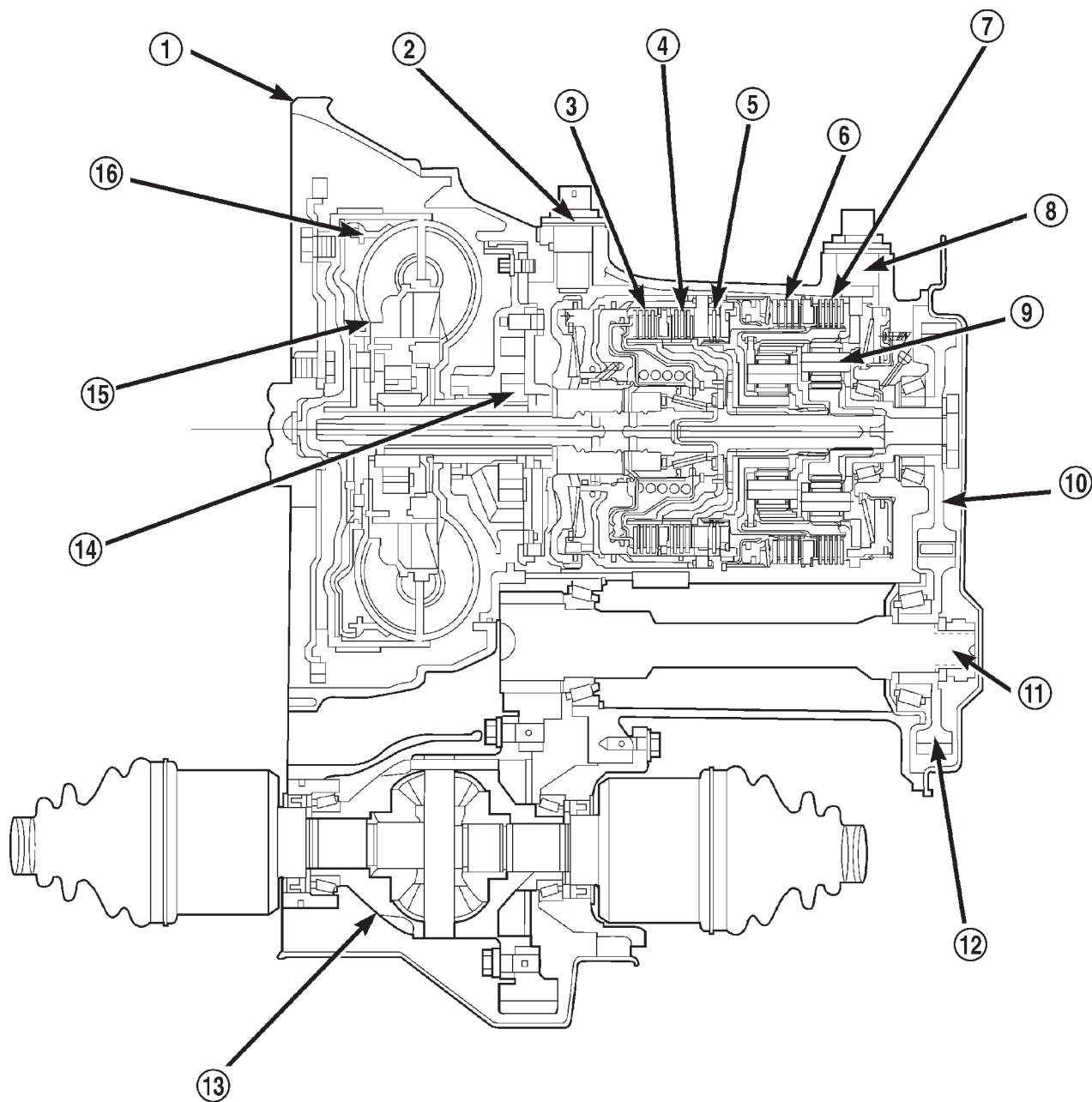
TABLE OF CONTENTS

	page		page
DESCRIPTION AND OPERATION			
41TE TRANSAXLE	2	OIL PUMP VOLUME CHECK.....	28
FLUID REQUIREMENT	3	TRANSAXLE QUICK LEARN PROCEDURE	28
TORQUE CONVERTER	4	PINION FACTOR PROCEDURE	29
OIL PUMP.....	5	REMOVAL AND INSTALLATION	
VALVE BODY.....	5	GEARSHIFT CABLE.....	29
ACCUMULATORS	7	GEARSHIFT ASSEMBLY	31
INPUT CLUTCHES	7	AUTOSTICK.....	33
HOLDING CLUTCHES.....	8	BRAKE/TRANSMISSION SHIFT INTERLOCK	
PLANETARY GEARTRAIN	9	CABLE	33
DIFFERENTIAL	9	INTERLOCK MECHANISM	37
TRANSMISSION CONTROL MODULE	9	SOLENOID/PRESSURE SWITCH ASSEMBLY ..	38
TRANSMISSION CONTROL RELAY	13	TRANSMISSION RANGE SENSOR	39
SOLENOID/PRESSURE SWITCH ASSEMBLY ..	13	INPUT SPEED SENSOR	42
TRANSMISSION RANGE SENSOR	14	OUTPUT SPEED SENSOR.....	42
INPUT SPEED SENSOR	15	TRANSMISSION CONTROL MODULE	43
OUTPUT SPEED SENSOR.....	16	VALVE BODY.....	43
SHIFT POSITION INDICATOR.....	16	TRANSAXLE	45
BRAKE TRANSMISSION SHIFT INTERLOCK		OIL PUMP SEAL.....	49
SYSTEM.....	17	DISASSEMBLY AND ASSEMBLY	
AUTOSTICK.....	18	VALVE BODY.....	49
DIAGNOSIS AND TESTING		TRANSAXLE—DISASSEMBLY	59
41TE TRANSAXLE GENERAL DIAGNOSIS	19	OIL PUMP.....	79
ROAD TEST	19	INPUT CLUTCH ASSEMBLY	80
HYDRAULIC PRESSURE TESTS.....	20	TRANSAXLE—ASSEMBLY	97
CLUTCH AIR PRESSURE TESTS	22	DIFFERENTIAL REPAIR.....	120
FLUID LEAKAGE-TORQUE CONVERTER		CLEANING AND INSPECTION	
HOUSING AREA.....	22	CLEANING VALVE BODY	126
BRAKE/TRANSMISSION SHIFT INTERLOCK		ADJUSTMENTS	
SYSTEM.....	23	GEARSHIFT LINKAGE ADJUSTMENT.....	126
SHIFT POSITION INDICATOR.....	24	BRAKE/TRANSMISSION SHIFT INTERLOCK ..	127
AUTOSTICK.....	24	SCHEMATICS AND DIAGRAMS	
SERVICE PROCEDURES		41TE TRANSAXLE HYDRAULIC SCHEMATICS..	129
FLUID LEVEL AND CONDITION CHECK.....	24	SPECIFICATIONS	
TRANSAXLE FLUID AND FILTER SERVICE	25	41TE AUTOMATIC TRANSAXLE	142
ALUMINUM THREAD REPAIR	27	41TE TORQUE SPECIFICATIONS	142
FLUSHING COOLERS AND TUBES.....	27	SPECIAL TOOLS	
		41TE AUTOMATIC TRANSAXLE	143

DESCRIPTION AND OPERATION

41TE TRANSAXLE

DESCRIPTION

**Fig. 1 41TE Transaxle**

80be4740

- 1 - CASE
- 2 - INPUT SPEED SENSOR
- 3 - UNDERDRIVE CLUTCH
- 4 - OVERDRIVE CLUTCH
- 5 - REVERSE CLUTCH
- 6 - 2/4 CLUTCH
- 7 - LOW/REVERSE CLUTCH
- 8 - OUTPUT SPEED SENSOR

- 9 - PLANETARY GEAR SET
- 10 - OUTPUT SHAFT GEAR
- 11 - TRANSFER SHAFT
- 12 - TRANSFER SHAFT GEAR
- 13 - DIFFERENTIAL
- 14 - OIL PUMP
- 15 - TORQUE CONVERTER
- 16 - TORQUE CONVERTER CLUTCH

DESCRIPTION AND OPERATION (Continued)

The 41TE (Fig. 1) is a four-speed transaxle that is a conventional hydraulic/mechanical assembly with an integral differential, and is controlled with adaptive electronic controls and monitors. The hydraulic system of the transaxle consists of the transaxle fluid, fluid passages, hydraulic valves, and various line pressure control components. An input clutch assembly which houses the underdrive, overdrive, and reverse clutches is used. It also utilizes separate holding clutches: 2nd/4th gear and Low/Reverse. The primary mechanical components of the transaxle consist of the following:

- Three multiple disc input clutches
- Two multiple disc holding clutches
- Four hydraulic accumulators
- Two planetary gear sets
- Hydraulic oil pump
- Valve body
- Solenoid/Pressure switch assembly
- Integral differential assembly

Control of the transaxle is accomplished by fully adaptive electronics. Optimum shift scheduling is accomplished through continuous real-time sensor feedback information provided to the Transmission Control Module (TCM).

The TCM is the heart of the electronic control system and relies on information from various direct and indirect inputs (sensors, switches, etc.) to determine driver demand and vehicle operating conditions. With this information, the TCM can calculate and perform timely and quality shifts through various output or control devices (solenoid pack, transmission control relay, etc.).

The TCM also performs certain self-diagnostic functions and provides comprehensive information (sensor data, DTC's, etc.) which is helpful in proper diagnosis and repair. This information can be viewed with the DRB scan tool.

TRANSAXLE IDENTIFICATION

The 41TE transaxle identification code is a series of digits printed on a bar-code label that is fixed to the transaxle case as shown in (Fig. 2).

For example, the identification code K 821 1125 1316 can be broken down as follows:

- K = Kokomo Transmission Plant
- 821 = Last three digits of the transaxle part number
- 1125 = Build date
- 1316 = Build sequence number

If the tag is not legible or missing, the "PK" number, which is stamped into the transaxle case behind the transfer gear cover, can be referred to for identification. This number differs slightly in that it contains the entire transaxle part number, rather than the last three digits.

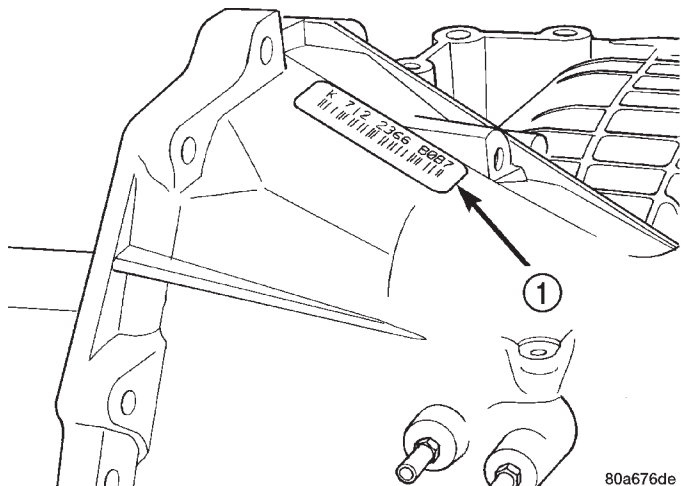


Fig. 2 Transaxle Identification Label

1 – IDENTIFICATION TAG

OPERATION

Transmission output is directed to an integral differential by a transfer gear system in the following input-to-output ratios:

First	2.84 : 1
Second	1.57 : 1
Third	1.00 : 1
Overdrive	0.69 : 1
Reverse	2.21 : 1

Final Drive Ratio (FDR) for all 2.5L equipped JX models is 3.91

FLUID REQUIREMENT

NOTE: Refer to the maintenance schedules in Group 0, Lubrication and Maintenance for the recommended maintenance (fluid/filter change) intervals for this transaxle.

NOTE: Refer to Service Procedures in this group for fluid level checking procedures.

NOTE: The transmission and differential sump have a common oil sump with an opening between the two.

DESCRIPTION

Mopar® ATF+4 (Automatic Transmission Fluid-Type 9602) is required in this transaxle. Substitute fluids can induce torque converter clutch shudder.

Mopar® ATF+4 (Automatic Transmission Fluid-Type 9602) when new is red in color. The ATF is dyed red so it can be identified from other fluids used in

DESCRIPTION AND OPERATION (Continued)

the vehicle such as engine oil or antifreeze. The red color is not permanent and is not an indicator of fluid condition. As the vehicle is driven, the ATF will begin to look darker in color and may eventually become brown. **This is normal.** A dark brown/black fluid accompanied with a burnt odor and/or deterioration in shift quality may indicate fluid deterioration or transmission component failure.

FLUID ADDITIVES

DaimlerChrysler strongly recommends against the addition of any fluids to the transmission, other than those automatic transmission fluids listed above. Exceptions to this policy are the use of special dyes to aid in detecting fluid leaks.

Various "special" additives and supplements exist that claim to improve shift feel and/or quality. These additives and others also claim to improve converter clutch operation and inhibit overheating, oxidation, varnish, and sludge. These claims have not been supported to the satisfaction of DaimlerChrysler and these additives **must not be used.** The use of transmission "sealers" should also be avoided, since they may adversely affect the integrity of transmission seals.

TORQUE CONVERTER

DESCRIPTION

The torque converter is located in the bellhousing area of the transaxle, between the engine and transaxle. The torque converter is a fluid coupling that transmits torque from the engine drive plate to the input shaft of the transaxle. The torque converter consists of four main components (Fig. 3) :

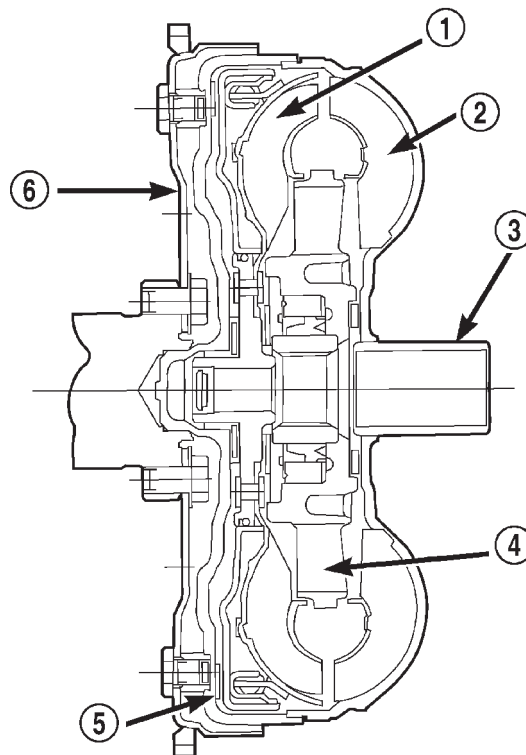
- Impeller
- Turbine
- Stator
- Converter Clutch assembly

OPERATION

The converter impeller (driving member), which is integral to the converter housing and bolted to the engine drive plate, rotates at engine speed. The converter turbine (driven member), which reacts from fluid pressure generated by the impeller, rotates and turns the transmission input shaft.

Torque is transmitted by fluid passing through curved vanes in both the impeller and turbine. Since the coupling is produced by transmission fluid, the turbine can slip or turn slower than the impeller.

The stator contains a one-way overrunning clutch, which free-wheels when the impeller and turbine are rotating at the same speed. However, the stator stops when speed reduction or torque increase take place. When the stator stops, it changes the direction of the fluid leaving the turbine vanes. This directs fluid



80be46a3

Fig. 3 Torque Converter Assembly

- 1 – TURBINE
- 2 – IMPELLER
- 3 – HUB
- 4 – STATOR
- 5 – CONVERTER CLUTCH DISC
- 6 – DRIVE PLATE

back into the impeller with greater force, resulting in torque multiplication.

The torque converter clutch is hydraulically operated and controlled by the TCM. It consists of a piston and a frictional disc that form a direct mechanical link between the impeller and turbine when slippage is inefficient or unnecessary.

The torque converter hub drives the transmission oil pump.

ELECTRONICALLY MODULATED CONVERTER CLUTCH

In order to reduce heat build-up in the transmission and buffer the powertrain against torsional vibrations, the TCM can duty cycle the LR/CC solenoid to achieve a smooth application of the torque converter clutch. This function, also referred as "Electronically Modulated Converter Clutch (EMCC)", can occur at various times depending on the following variables:

- Shift lever position
- Current gear range
- Transmission fluid temperature
- Engine coolant temperature

DESCRIPTION AND OPERATION (Continued)

- Input speed
- Throttle angle
- Engine speed

The TCM controls the torque converter by way of internal logic software. The programming of the software provides the TCM with fine control over the LR/CC solenoid. There are four output logic states that can be applied as follows:

- No EMCC
- Partial EMCC
- Full EMCC
- Gradual-to-no EMCC

NO EMCC

Under No EMCC conditions, the L/R Solenoid is OFF. There are several conditions that can result in NO EMCC operations. No EMCC can be initiated due to a fault in the transaxle or because the TCM does not see the need for EMCC under current driving conditions.

PARTIAL EMCC

Partial EMCC operation modulates the L/R Solenoid (duty cycle) to obtain partial torque converter clutch application. Partial EMCC operation is maintained until Full EMCC is called for an actuated. During Partial EMCC some slip does occur. Partial EMCC will usually occur at low speeds, low load and light throttle situations.

FULL EMCC

During Full EMCC operation, the TCM increases the L/R Solenoid duty cycle to full ON after Partial EMCC control brings the engine speed within the desired slip range of transaxle input speed relative to engine rpm.

GRADUAL-TO-NO EMCC

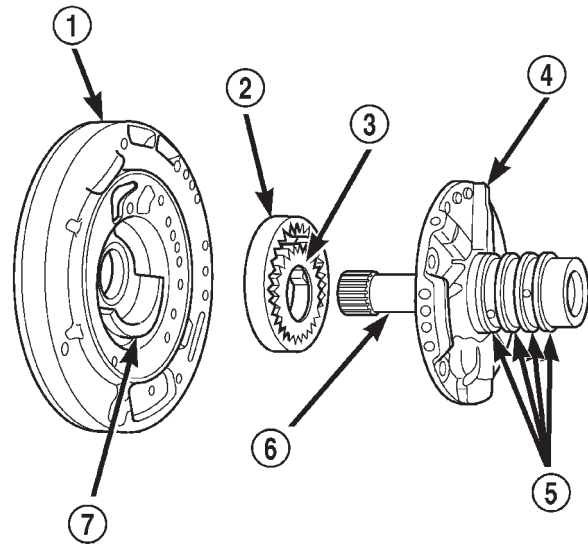
This operation is to soften the change from Full or Partial EMCC to No EMCC. This is done at mid-throttle by decreasing the L/R Solenoid duty cycle.

OIL PUMP**DESCRIPTION**

The oil pump is located in the pump housing inside the bell housing of the transaxle case. The oil pump consists of an inner and outer gear, a housing, and a cover that also serves as the reaction shaft support.

OPERATION

As the torque converter rotates, the converter hub rotates the inner and outer gears. As the gears rotate, the clearance between the gear teeth increases in the crescent area, and creates a suction at the inlet side of the pump. This suction draws fluid through the



80be46c4

Fig. 4 Oil Pump Assembly

- 1 – PUMP HOUSING
- 2 – OUTER PUMP GEAR
- 3 – INNER PUMP GEAR
- 4 – REACTION SHAFT SUPPORT
- 5 – SEAL RINGS (4)
- 6 – REACTION SHAFT
- 7 – CRESCENT

pump inlet from the oil pan. As the clearance between the gear teeth in the crescent area decreases, it forces pressurized fluid into the pump outlet and to the valve body.

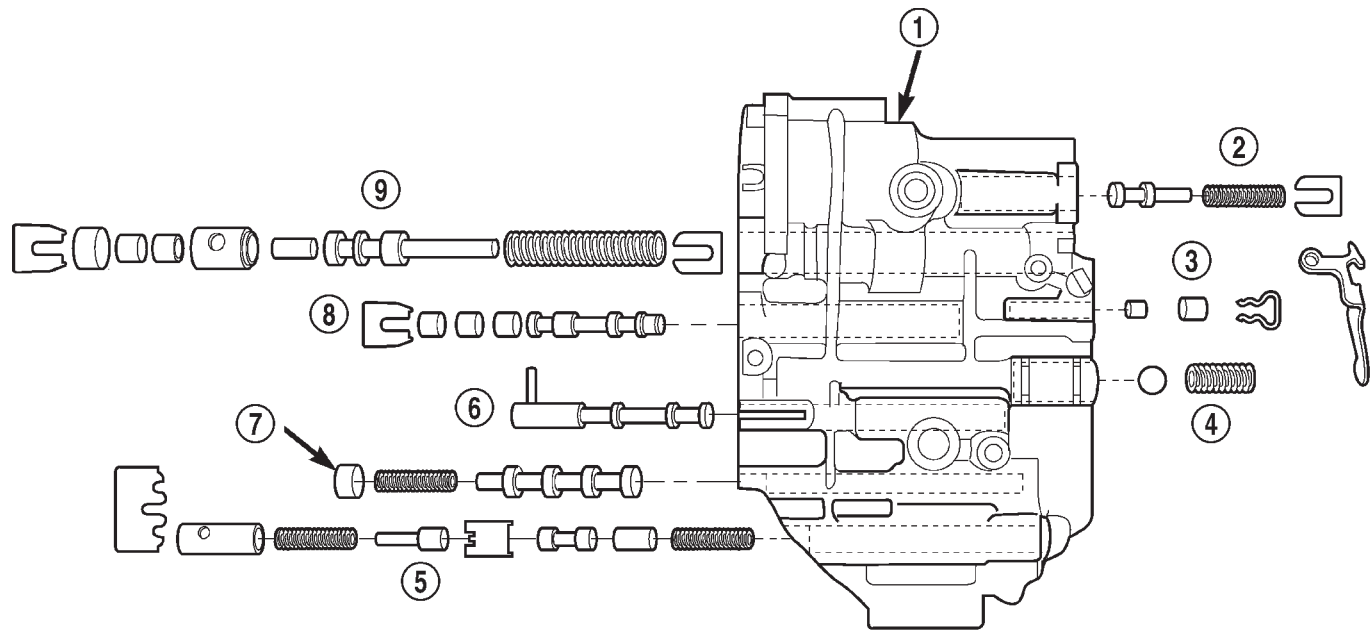
VALVE BODY**DESCRIPTION**

The valve body assembly consists of a cast aluminum valve body, a separator plate, and transfer plate. The valve body contains valves and check balls that control fluid delivery to the torque converter clutch, solenoid/pressure switch assembly, and frictional clutches. The valve body contains the following components (Fig. 5) :

- Regulator valve
- Solenoid switch valve
- Manual valve
- Converter clutch switch valve
- Converter clutch control valve
- Torque converter regulator valve
- Low/Reverse switch valve
- Vent reservoir check valve

In addition, the valve body also contains the thermal valve, #2,3&4 check balls, the #5 (overdrive) check valve and the 2/4 accumulator assembly. Refer to Valve Body Disassembly & Assembly for the location of these components.

DESCRIPTION AND OPERATION (Continued)

**Fig. 5 Valve Body Assembly**

80bdbd80

- 1 - VALVE BODY
- 2 - T/C REGULATOR VALVE
- 3 - L/R SWITCH VALVE
- 4 - VENT RESERVOIR CHECK VALVE
- 5 - CONVERTER CLUTCH CONTROL VALVE

- 6 - MANUAL VALVE
- 7 - CONVERTER CLUTCH SWITCH VALVE
- 8 - SOLENOID SWITCH VALVE
- 9 - REGULATOR VALVE

OPERATION

NOTE: Refer to the Hydraulic Schematics for a visual aid in determining valve location, operation and design.

REGULATOR VALVE

The regulator valve controls hydraulic pressure in the transaxle. It receives unregulated pressure from the pump, which works against spring tension to maintain oil at specific pressures. A system of sleeves and ports allows the regulator valve to work at one of three predetermined pressure levels. Regulated oil pressure is also referred to as "line pressure."

SOLENOID SWITCH VALVE

The solenoid switch valve controls line pressure from the LR/CC solenoid. In one position, it allows the low/reverse clutch to be pressurized. In the other, it directs line pressure to the converter control and converter clutch valves.

MANUAL VALVE

The manual valve is operated by the mechanical shift linkage. Its primary responsibility is to send

line pressure to the appropriate hydraulic circuits and solenoids. The valve has three operating ranges or positions.

CONVERTER CLUTCH SWITCH VALVE

The main responsibility of the converter clutch switch valve is to control hydraulic pressure applied to the front (off) side of the converter clutch piston. Line pressure from the regulator valve is fed to the torque converter regulator valve, where it passes through the valve, and is slightly regulated. The pressure is then directed to the converter clutch switch valve and to the front side of the converter clutch piston. This pressure pushes the piston back and disengages the converter clutch.

CONVERTER CLUTCH CONTROL VALVE

The converter clutch control valve controls the back (on) side of the torque converter clutch. When the TCM energizes or modulates the LR/CC solenoid to apply the converter clutch piston, both the converter clutch control valve and the converter control valve move, allowing pressure to be applied to the back side of the clutch.

DESCRIPTION AND OPERATION (Continued)

T/C REGULATOR VALVE

The torque converter regulator valve slightly regulates the flow of fluid to the torque converter.

LOW/REVERSE SWITCH VALVE

The low/reverse clutch is applied from different sources, depending on whether low (1st) gear or reverse is selected. The low/reverse switch valve alternates positions depending on from which direction fluid pressure is applied. By design, when the valve is shifted by fluid pressure from one channel, the opposing channel is blocked. The switch valve alienates the possibility of a sticking ball check, thus providing consistent application of the low/reverse clutch under all operating conditions.

VENT RESERVOIR CHECK VALVE

The vent reservoir check valve is designed for quick venting during garage shifts to prevent the overdrive and reverse clutches from dragging. Inadvertent motion of the reverse/overdrive (push/pull) piston can be caused by the unbalanced centrifugal forces in the reverse and overdrive chambers. By linking the overdrive and reverse vents to the vent reservoir at the manual valve, an equal residual pressure will be maintained, thus balancing the centrifugal forces in the reverse and the overdrive chambers.

ACCUMULATORS**DESCRIPTION**

The 41te underdrive, overdrive, low/reverse, and 2/4 clutch hydraulic circuits each contain an accumulator. An accumulator typically consists of a piston, seals, return spring(s), and a cover or plug. The overdrive and underdrive accumulators are located within the transaxle case, and are retained by the valve body (Fig. 6).

The low reverse accumulator (Fig. 7) is also located within the transaxle case, but the assembly is retained by a cover and a snap-ring.

The 2/4 accumulator is located in the valve body. It is retained by a cover and retaining screws (Fig. 8).

OPERATION

The function of an accumulator is to cushion the application of a frictional clutch element. When pressurized fluid is applied to a clutch circuit, the application force is dampened by fluid collecting in the respective accumulator chamber against the piston and spring(s). The intended result is a smooth, firm clutch application.

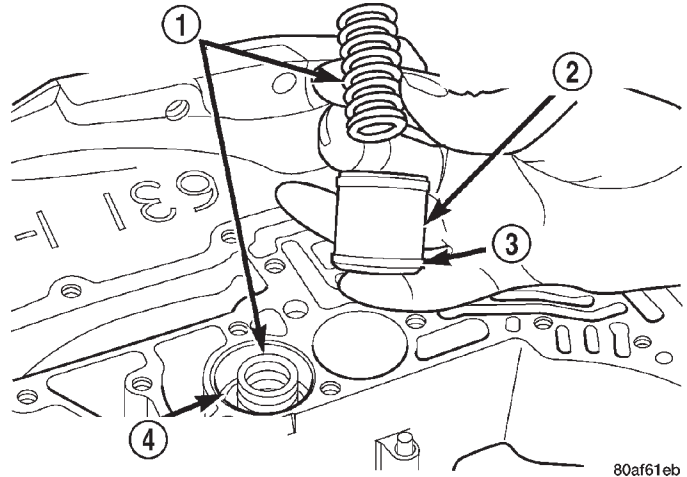


Fig. 6 Underdrive and Overdrive Accumulators

- 1 - RETURN SPRING
- 2 - UNDERDRIVE CLUTCH ACCUMULATOR
- 3 - SEAL RING (2)
- 4 - OVERDRIVE CLUTCH ACCUMULATOR

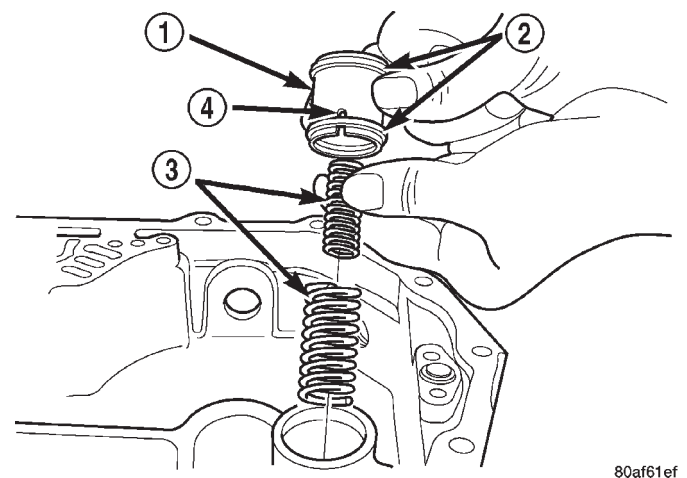


Fig. 7 Low/Reverse Accumulator Assembly

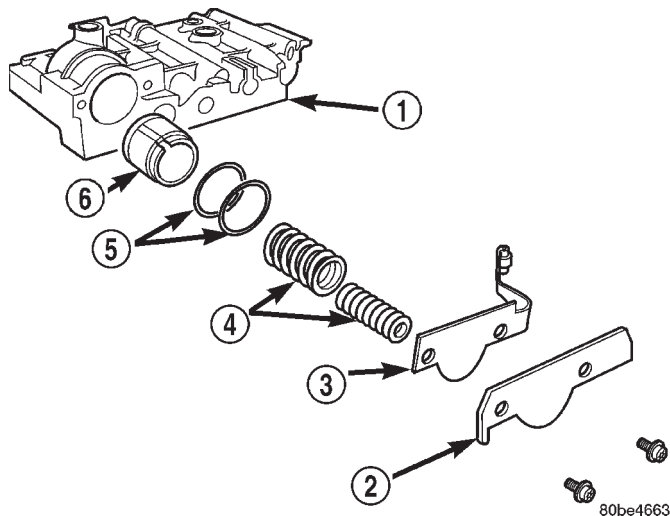
- 1 - ACCUMULATOR PISTON
- 2 - SEAL RINGS
- 3 - RETURN SPRINGS
- 4 - (NOTE NOTCH)

INPUT CLUTCHES**DESCRIPTION**

Three hydraulically applied input clutches are used to drive planetary components. The underdrive, overdrive, and reverse clutches are considered input clutches and are contained within the input clutch assembly (Fig. 9). The input clutch assembly also contains:

- Input shaft
- Input hub
- Clutch retainer
- Underdrive piston

DESCRIPTION AND OPERATION (Continued)

**Fig. 8 2/4 Accumulator Assembly**

- 1 - VALVE BODY
- 2 - RETAINER PLATE
- 3 - DETENT SPRING
- 4 - SPRINGS
- 5 - SEALS
- 6 - PISTON

- Overdrive/reverse piston
- Overdrive hub
- Underdrive hub

OPERATION

The three input clutches are responsible for driving different components of the planetary geartrain.

NOTE: Refer to the “Elements In Use” chart in **Diagnosis and Testing** for a collective view of which clutch elements are applied at each position of the selector lever.

UNDERDRIVE CLUTCH

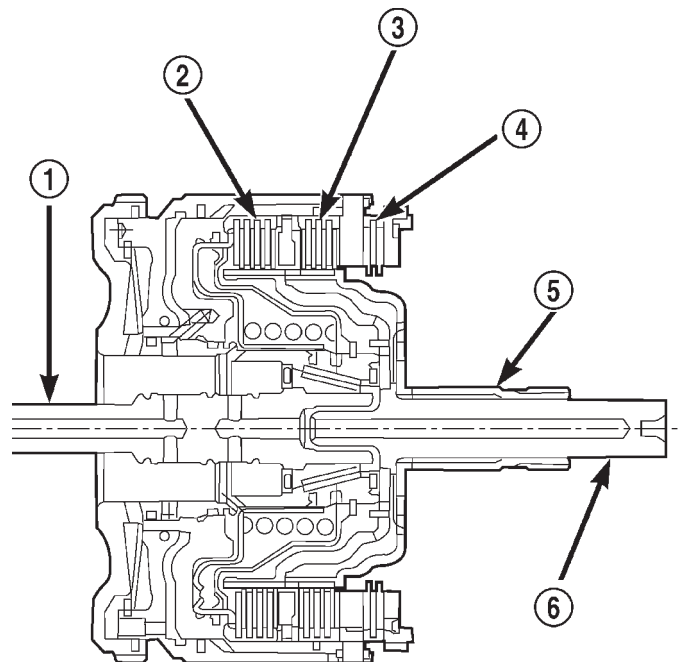
The underdrive clutch is hydraulically applied in first, second, and third (direct) gears by pressurized fluid against the underdrive piston. When the underdrive clutch is applied, the underdrive hub drives the rear sun gear.

OVERDRIVE CLUTCH

The overdrive clutch is hydraulically applied in third (direct) and overdrive gears by pressurized fluid against the overdrive/reverse piston. When the overdrive clutch is applied, the overdrive hub drives the front planet carrier.

REVERSE CLUTCH

The reverse clutch is hydraulically applied in reverse gear only by pressurized fluid against the overdrive/reverse piston. When the reverse clutch is applied, the front sun gear assembly is driven.



80be46a4

Fig. 9 Input Clutch Assembly

- 1 - INPUT SHAFT
- 2 - UNDERDRIVE CLUTCH
- 3 - OVERDRIVE CLUTCH
- 4 - REVERSE CLUTCH
- 5 - OVERDRIVE SHAFT
- 6 - UNDERDRIVE SHAFT

HOLDING CLUTCHES**DESCRIPTION**

Two hydraulically applied multi-disc clutches are used to hold planetary geartrain components stationary while the input clutches drive others. The 2/4 and Low/Reverse clutches are considered holding clutches and are contained at the rear of the transaxle case. (Fig. 10).

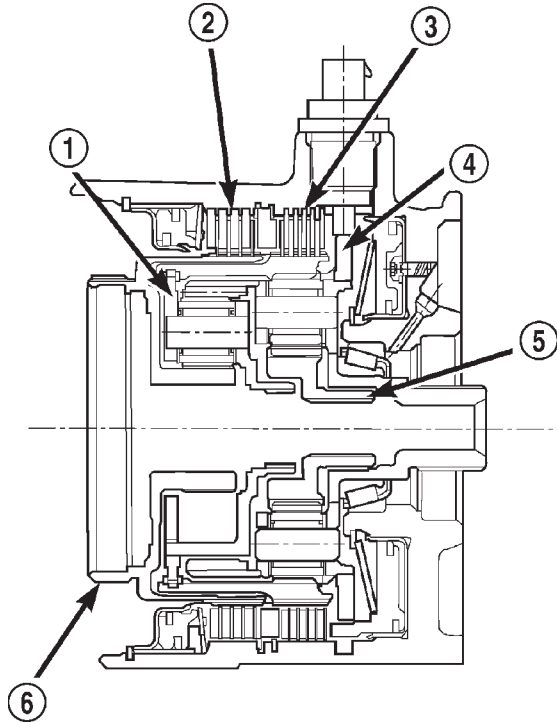
OPERATION

NOTE: Refer to the “Elements In Use” chart in **Diagnosis and Testing** for a collective view of which clutch elements are applied at each position of the selector lever.

2/4 CLUTCH

The 2/4 clutch is hydraulically applied in second and fourth gears by pressurized fluid against the 2/4 clutch piston. When the 2/4 clutch is applied, the front sun gear assembly is held or grounded to the transaxle case.

DESCRIPTION AND OPERATION (Continued)



80be46c5

Fig. 10 2/4 and Low/Reverse Clutches

- 1 - FRONT PLANET CARRIER/REAR ANNULUS
- 2 - 2/4 CLUTCH
- 3 - L/R CLUTCH
- 4 - REAR PLANET CARRIER/FRONT ANNULUS
- 5 - REAR SUN GEAR
- 6 - FRONT SUN GEAR ASSEMBLY

LOW/REVERSE CLUTCH

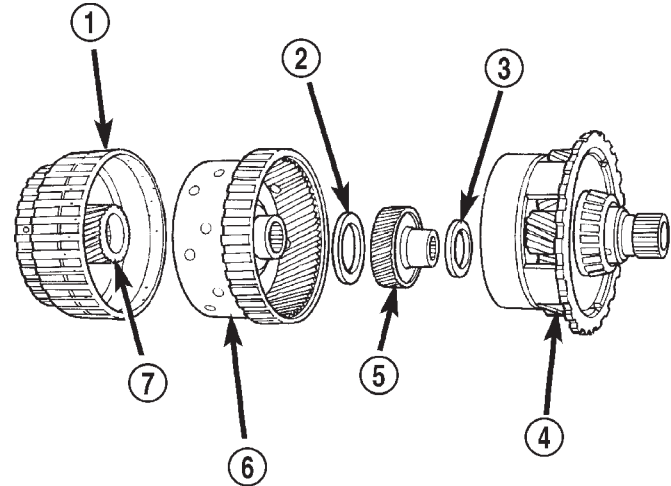
The Low/Reverse clutch is hydraulically applied in park, reverse, neutral, and first gears by pressurized fluid against the Low/Reverse clutch piston. When the Low/Reverse clutch is applied, the front planet carrier/rear annulus assembly is held or grounded to the transaxle case.

PLANETARY GEARTRAIN**DESCRIPTION**

The planetary geartrain is located between the input clutch assembly and the rear of the transaxle case. The planetary geartrain consists of two sun gears, two planetary carriers, two annulus (ring) gears, and one output shaft (Fig. 11).

OPERATION

The planetary geartrain utilizes two planetary gear sets that connect the transmission input shaft to the output shaft. Input and holding clutches drive or lock different planetary members to change output ratio or direction.



80be46c9

Fig. 11 Planetary Geartrain

- 1 - FRONT SUN GEAR ASSEMBLY
- 2 - #6 THRUST BEARING
- 3 - #7 THRUST BEARING
- 4 - REAR CARRIER FRONT ANNULUS ASSEMBLY
- 5 - REAR SUN GEAR
- 6 - FRONT CARRIER REAR ANNULUS ASSEMBLY
- 7 - FRONT SUN GEAR

DIFFERENTIAL**DESCRIPTION**

The 41TE differential is a conventional open design. It consists of a ring gear and a differential case. The differential case consists of pinion and side gears, and a pinion shaft. The differential case is supported in the transaxle by tapered roller bearings (Fig. 12).

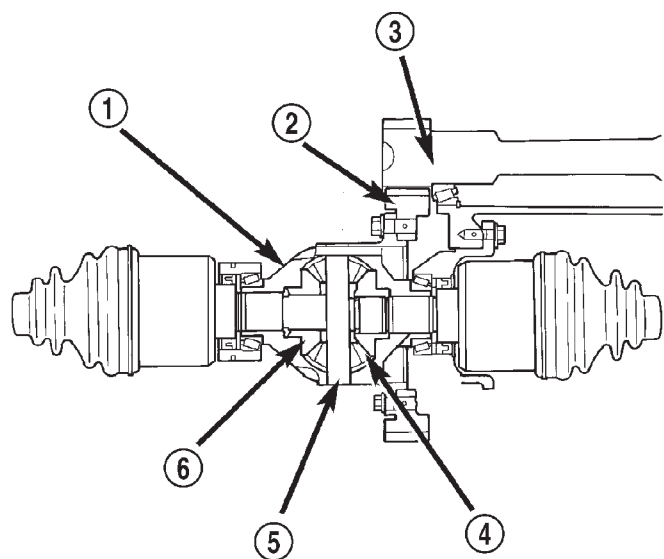
OPERATION

The differential assembly is driven by the transfer shaft by way of the differential ring gear. The ring gear drives the differential case, and the case drives the driveshafts through the differential gears. The differential pinion and side gears are supported in the case by thrust washers and a pinion shaft. Differential pinion and side gears make it possible for front tires to rotate at different speeds while cornering.

TRANSMISSION CONTROL MODULE**DESCRIPTION**

The Transmission Control Module (TCM) is located in the engine compartment on the left (driver's) side next to the Power Distribution Center (PDC) (Fig. 13).

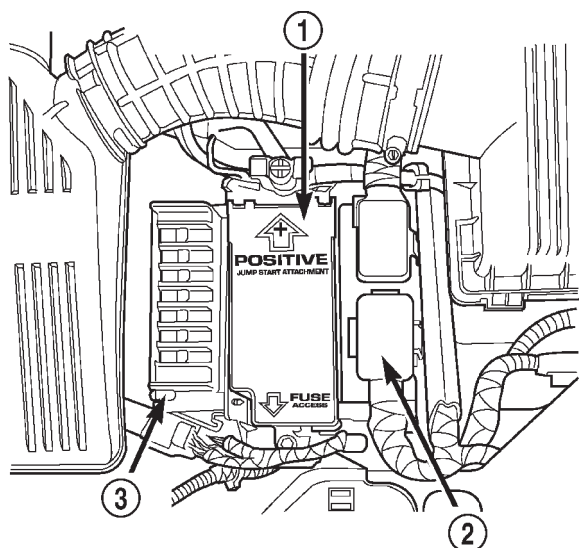
DESCRIPTION AND OPERATION (Continued)



80bfe140

Fig. 12 Differential Assembly

- 1 – DIFFERENTIAL CASE
- 2 – RING GEAR
- 3 – TRANSFER SHAFT
- 4 – PINION GEAR
- 5 – PINION SHAFT
- 6 – SIDE GEAR



80b89924

Fig. 13 Transmission Control Module Location (Typical)

- 1 – POWER DISTRIBUTION CENTER (PDC)
- 2 – POWERTRAIN CONTROL MODULE (PCM)
- 3 – TRANSMISSION CONTROL MODULE (TCM)

OPERATION

The TCM is the controlling unit for all electronic operations of the transaxle. The TCM receives information regarding vehicle operation from both direct and indirect inputs, and selects the operational mode

of the transaxle. Direct inputs are hardwired to, and used specifically by the TCM. Indirect inputs originate from other components/modules, and are shared with the TCM via the communication bus.

Some examples of **direct inputs** to the TCM are:

- Battery (B+) voltage
- Ignition "ON" voltage
- Transmission Control Relay (Switched B+)
- Throttle Position Sensor
- Crankshaft Position Sensor (CKP)
- Transmission Range Sensor (TRS)
- Pressure Switches (L/R, 2/4, OD)
- Transmission Temperature Sensor (Integral to TRS)

are:

- Input Shaft Speed Sensor
- Output Shaft Speed Sensor
- TRS Hall Effect Switch (Autostick)

Some examples of **indirect inputs** to the TCM

are:

- Engine/Body Identification
- Manifold Pressure
- Target Idle
- Torque Reduction Confirmation
- Speed Control ON/OFF Switch
- Engine Coolant Temperature
- Ambient/Battery Temperature
- Brake Switch Status
- DRB Communication

Based on the information received from these various inputs, the TCM determines the appropriate shift schedule and shift points, depending on the present operating conditions and driver demand. This is possible through the control of various direct and indirect outputs.

Some examples of TCM **direct outputs** are:

- Transmission Control Relay
- Solenoids (LR/CC, 2/4, OD and UD)
- Vehicle Speed (to PCM)
- Torque Reduction Request (to PCM)

Some examples of TCM **indirect outputs** are:

- Transmission Temperature (to PCM)
- PRNDL Position (to BCM)
- Autostick Display (to BCM)

In addition to monitoring inputs and controlling outputs, the TCM has other important responsibilities and functions:

- Storing and maintaining Clutch Volume Indices (CVI)
- Storing and selecting appropriate Shift Schedules
- System self-diagnostics
- Diagnostic capabilities (with DRB scan tool)

NOTE: If the TCM has been replaced, the "Quick Learn Procedure" must be performed. Refer to "Quick Learn Procedure" in Service Procedures of this group.

DESCRIPTION AND OPERATION (Continued)

CLUTCH VOLUME INDEX (CVI)

An important function of the TCM is to monitor Clutch Volume Index (CVI). CVIs represent the volume of fluid needed to compress a clutch pack.

The TCM monitors gear ratio changes by monitoring the Input and Output Speed Sensors. The Input, or Turbine Speed Sensor sends an electrical signal to the TCM that represents input shaft rpm. The Output Speed Sensor provides the TCM with output shaft speed information.

By comparing the two inputs, the TCM can determine transaxle gear ratio. This is important to the CVI calculation because the TCM determines CVIs by monitoring how long it takes for a gear change to occur (Fig. 14).

Gear ratios can be determined by using the DRB Scan Tool and reading the Input/Output Speed Sensor values in the “Monitors” display. Gear ratio can be obtained by dividing the Input Speed Sensor value by the Output Speed Sensor value.

For example, if the input shaft is rotating at 1000 rpm and the output shaft is rotating at 500 rpm, then the TCM can determine that the gear ratio is 2:1. In direct drive (3rd gear), the gear ratio changes to 1:1. The gear ratio changes as clutches are applied and released. By monitoring the length of time it takes for the gear ratio to change following a shift request, the TCM can determine the volume of fluid used to apply or release a friction element.

The volume of transmission fluid needed to apply the friction elements are continuously updated for adaptive controls. As friction material wears, the volume of fluid need to apply the element increases.

Certain mechanical problems within the clutch assemblies (broken return springs, out of position snap rings, excessive clutch pack clearance, improper

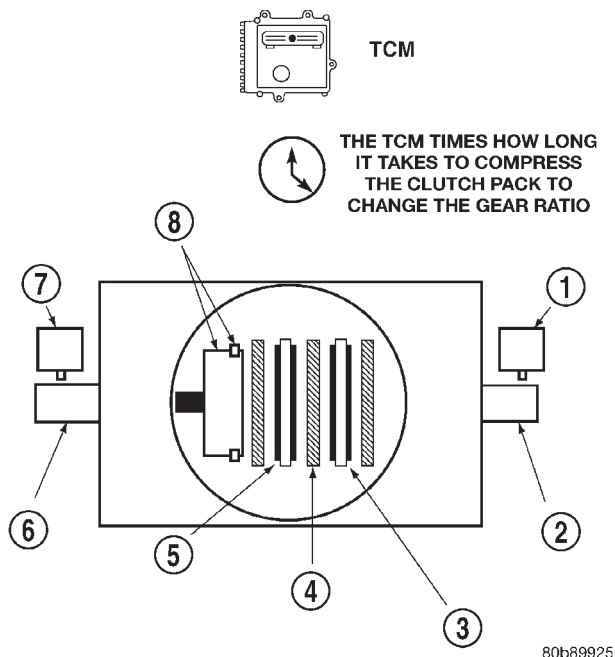


Fig. 14 Example of CVI Calculation

- 1 – OUTPUT SPEED SENSOR
- 2 – OUTPUT SHAFT
- 3 – CLUTCH PACK
- 4 – SEPARATOR PLATE
- 5 – FRICTION DISCS
- 6 – INPUT SHAFT
- 7 – INPUT SPEED SENSOR
- 8 – PISTON AND SEAL

assembly, etc.) can cause inadequate or out-of-range clutch volumes. Also, defective Input/Output Speed Sensors and wiring can cause these conditions. The following chart identifies the appropriate clutch volumes and when they are monitored/updated:

CLUTCH VOLUMES				
Clutch	When Updated			Proper Clutch Volume
	Shift Sequence	Oil Temperature	Throttle Angle	
L/R	2-1 or 3-1 coast downshift	> 70°	< 5°	35 to 83
2/4	1-2 shift	> 110°	5 - 54°	20 to 77
OD	2-3 shift			48 to 150
UD	4-3 or 4-2 shift		> 5°	24 to 70

DESCRIPTION AND OPERATION (Continued)

SHIFT SCHEDULES

As mentioned earlier, the TCM has programming that allows it to select a variety of shift schedules. Shift schedule selection is dependent on the following:

- Shift lever position
- Throttle position

- Engine load
- Fluid temperature
- Software level

As driving conditions change, the TCM appropriately adjusts the shift schedule. Refer to the following chart to determine the appropriate operation expected, depending on driving conditions.

Schedule	Condition	Expected Operation
Extreme Cold	Oil temperature at start-up below -16° F	Park, Reverse, Neutral and 2nd gear only (prevents shifting which may fail a clutch with frequent shifts)
Cold	Oil temperature at start-up above -12° F and below 36° F	– Delayed 2-3 upshift (approximately 22-31 mph) – Delayed 3-4 upshift (45-53 mph) – Early 4-3 coastdown shift (approximately 30 mph) – Early 3-2 coastdown shift (approximately 17 mph) – High speed 4-2, 3-2, 2-1 kickdown shifts are prevented – No EMCC
Warm	Oil temperature at start-up above 36° F and below 80 degree F	– Normal operation (upshift, kickdowns, and coastdowns) – No EMCC
Hot	Oil temperature at start-up above 80° F	– Normal operation (upshift, kickdowns, and coastdowns) – Full EMCC, no PEMCC except to engage FEMCC (except at closed throttle at speeds above 70-83 mph)
Overheat	Oil temperature above 240° F or engine coolant temperature above 244° F	– Delayed 2-3 upshift (25-32 mph) – Delayed 3-4 upshift (41-48 mph) – 3rd gear FEMCC from 30-48 mph – 3rd gear PEMCC from 27-31 mph
Super Overheat	Oil temperature above 260° F	– All “Overheat” shift schedule features apply – 2nd gear PEMCC above 22 mph – Above 22 mph the torque converter will not unlock unless the throttle is closed or if a wide open throttle 2nd PEMCC to 1 kickdown is made

DESCRIPTION AND OPERATION (Continued)

TRANSMISSION CONTROL RELAY**DESCRIPTION**

The transmission control relay is located in the Power Distribution Center (PDC) on the left side of the engine compartment (Fig. 15).

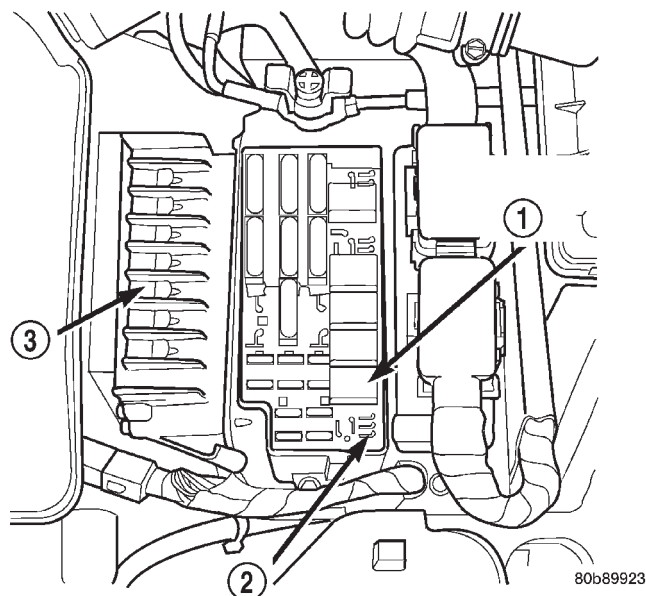


Fig. 15 Transmission Control Relay Location (Typical)

- 1 - TRANSMISSION CONTROL RELAY
- 2 - PDC
- 3 - TCM

OPERATION

The relay is supplied fused B+ voltage, energized by the TCM, and is used to supply power to the solenoid pack when the transmission is in normal operating mode. When the relay is "off", no power is supplied to the solenoid pack and the transmission is in "limp-in" mode. After a controller reset (ignition key turned to the "run" position or after cranking engine), the TCM energizes the relay. Prior to this, the TCM verifies that the contacts are open by checking for no voltage at the switched battery terminals. After this is verified, the voltage at the solenoid pack pressure switches is checked. After the relay is energized, the TCM monitors the terminals to verify that the voltage is greater than 3 volts.

SOLENOID/PRESSURE SWITCH ASSEMBLY**DESCRIPTION**

The Solenoid/Pressure Switch Assembly (Fig. 16) is external to the transaxle and mounted to the transaxle case. The assembly consists of four solenoids that control hydraulic pressure to the LR/CC, 2/4, OD, and UD friction elements. The reverse clutch is

controlled by line pressure from the manual valve in the valve body. The solenoids are contained within the Solenoid/Pressure Switch Assembly, and can only be serviced by replacing the assembly.

The solenoid assembly also contains pressure switches that monitor and send hydraulic circuit information to the TCM. Likewise, the pressure switches can only be serviced by replacing the assembly.

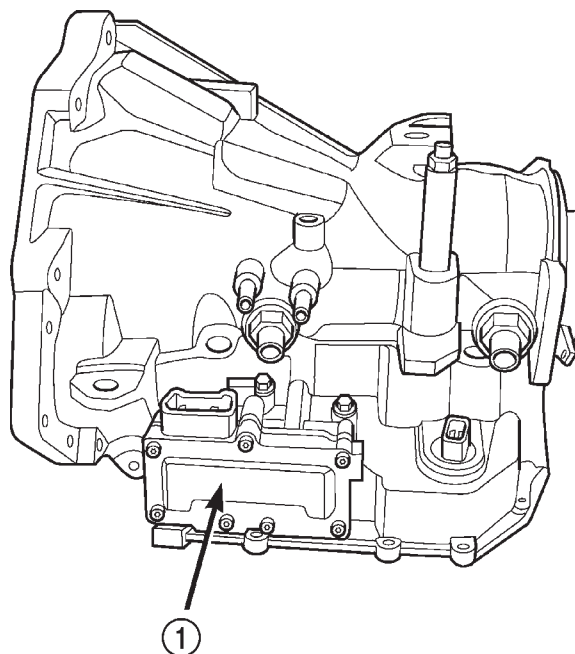


Fig. 16 Solenoid/Pressure Switch Assembly

- 1 - SOLENOID AND PRESSURE SWITCH ASSEMBLY

OPERATION**SOLENOIDS**

The solenoids receive electrical power from the Transmission Control Relay through a single wire. The TCM energizes or operates the solenoids individually by grounding the return wire of the solenoid needed. When a solenoid is energized, the solenoid valve shifts, and a fluid passage is opened or closed (vented or applied), depending on its default operating state. The result is an apply or release of a frictional element.

The 2/4 and UD solenoids are normally applied, which by design allow fluid to pass through in their relaxed or "off" state. This allows transaxle limp-in (P,R,N,2) in the event of an electrical failure.

The continuity of the solenoids and circuits are periodically tested. Each solenoid is turned on or off depending on its current state. An inductive spike should be detected by the TCM during this test. If no spike is detected, the circuit is tested again to verify the failure. In addition to the periodic testing, the solenoid circuits are tested if a speed ratio or pressure switch error occurs.

DESCRIPTION AND OPERATION (Continued)

PRESSURE SWITCHES

The TCM relies on three pressure switches to monitor fluid pressure in the L/R, 2/4, and OD hydraulic circuits. The primary purpose of these switches is to help the TCM detect when clutch circuit hydraulic failures occur. The range for the pressure switch closing and opening points is 11-23 psi. Typically the switch opening point will be approximately one psi lower than the closing point. For example, a switch may close at 18 psi and open at 17 psi. The switches are continuously monitored by the TCM for the correct states (open or closed) in each gear as shown in the following chart:

PRESSURE SWITCH STATES

GEAR	L/R	2/4	OD
R	OP	OP	OP
P/N	CL	OP	OP
1st	CL	OP	OP
2nd	OP	CL	OP
D	OP	OP	CL
OD	OP	CL	CL

OP = OPEN

CL = CLOSED

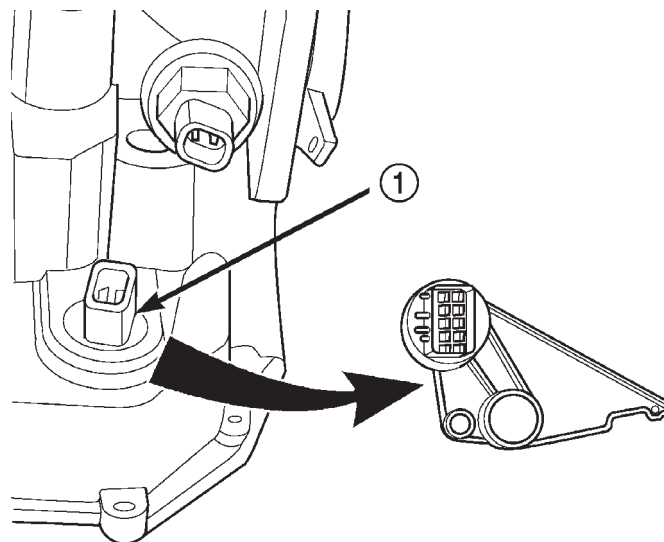
A Diagnostic Trouble Code (DTC) will set if the TCM senses any switch open or closed at the wrong time in a given gear.

The TCM also tests the 2/4 and OD pressure switches when they are normally off (OD and 2/4 are tested in 1st gear, OD in 2nd gear, and 2/4 in 2nd gear). The test simply verifies that they are operational, by looking for a closed state when the corresponding element is applied. Immediately after a shift into 1st, 2nd, or 3rd gear with the engine speed above 1000 rpm, the TCM momentarily turns on element pressure to the 2/4 and/or OD clutch circuits to identify that the appropriate switch has closed. If it doesn't close, it is tested again. If the switch fails to close the second time, the appropriate Diagnostic Trouble Code (DTC) will set.

TRANSMISSION RANGE SENSOR

DESCRIPTION

The Transmission Range Sensor (TRS) is mounted to the top of the valve body inside the transaxle and can only be serviced by removing the valve body. The electrical connector extends through the transaxle case (Fig. 17).



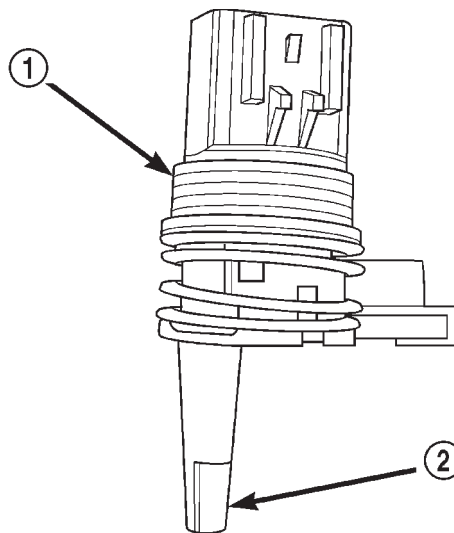
80be46c2

Fig. 17 Transmission Range Sensor (TRS) Location

1 - TRANSMISSION RANGE SENSOR

The Transmission Range Sensor (TRS) has four switch contacts that monitor shift lever position and send the information to the TCM.

The TRS also has an integrated temperature sensor (thermistor) that communicates transaxle temperature to the TCM and PCM (Fig. 18).



80be46cC

Fig. 18 Transmission Temperature Sensor

1 - TRANSMISSION RANGE SENSOR

2 - TEMPERATURE SENSOR

OPERATION

The Transmission Range Sensor (TRS) (Fig. 17) communicates shift lever position (SLP) to the TCM as a combination of open and closed switches. Each shift lever position has an assigned combination of switch states (open/closed) that the TCM receives

DESCRIPTION AND OPERATION (Continued)

from four sense circuits. The TCM interprets this information and determines the appropriate transaxle gear position and shift schedule.

Since there are four switches, there are 16 possible combinations of open and closed switches (codes). Seven of these codes are related to gear position and three are recognized as “between gear” codes. This results in six codes which should never occur. These are called “invalid” codes. An invalid code will result in a DTC, and the TCM will then determine the shift lever position based on pressure switch data. This allows reasonably normal transmission operation with a TRS failure.

TRS SWITCH STATES

SLP	T42	T41	T3	T1
P	CL	CL	CL	OP
R	CL	OP	OP	OP
N	CL	CL	OP	CL
OD	OP	OP	OP	CL
3 (AS)	OP	OP	CL	OP
L	CL	OP	CL	CL

TRANSMISSION TEMPERATURE SENSOR

The TRS has an integrated thermistor (Fig. 18) that the TCM uses to monitor the transmission's sump temperature. Since fluid temperature can affect transmission shift quality and convertor lock up, the TCM requires this information to determine which shift schedule to operate in. The PCM also monitors this temperature data so it can energize the vehicle cooling fan(s) when a transmission “overheat” condition exists. If the thermistor circuit fails, the TCM will revert to calculated oil temperature usage.

CALCULATED TEMPERATURE

A failure in the temperature sensor or circuit will result in calculated temperature being substituted for actual temperature. Calculated temperature is a predicted fluid temperature which is calculated from a combination of inputs:

- Battery (ambient) temperature
- Engine coolant temperature
- In-gear run time since start-up

INPUT SPEED SENSOR

DESCRIPTION

The Input Speed Sensor is a two-wire magnetic pickup device that generates AC signals as rotation occurs. It is threaded into the transaxle case (Fig. 19), sealed with an o-ring (Fig. 20), and is considered a primary input to the Transmission Control Module (TCM).

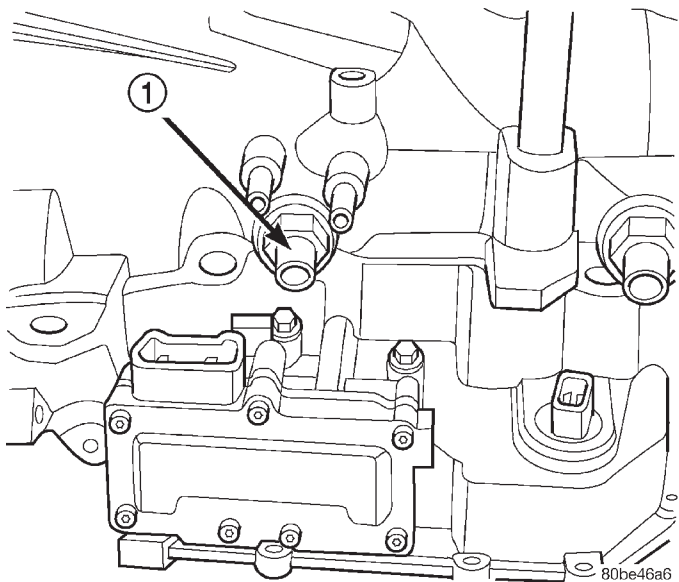


Fig. 19 Input Speed Sensor Location

1 – INPUT SPEED SENSOR

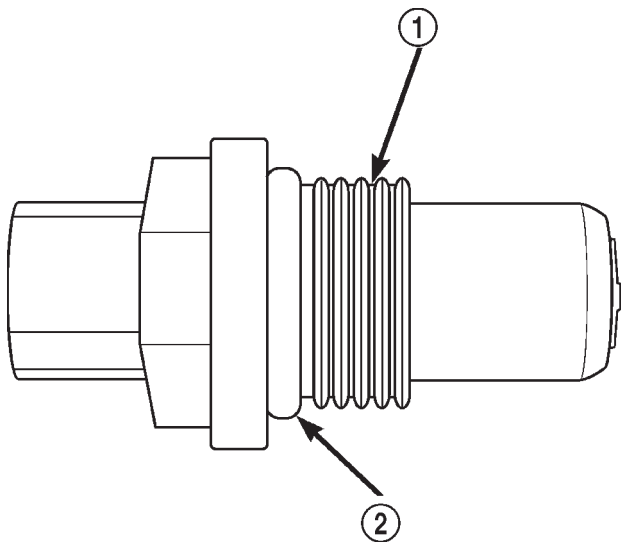


Fig. 20 O-Ring Location

1 – INPUT SPEED SENSOR
2 – O-RING

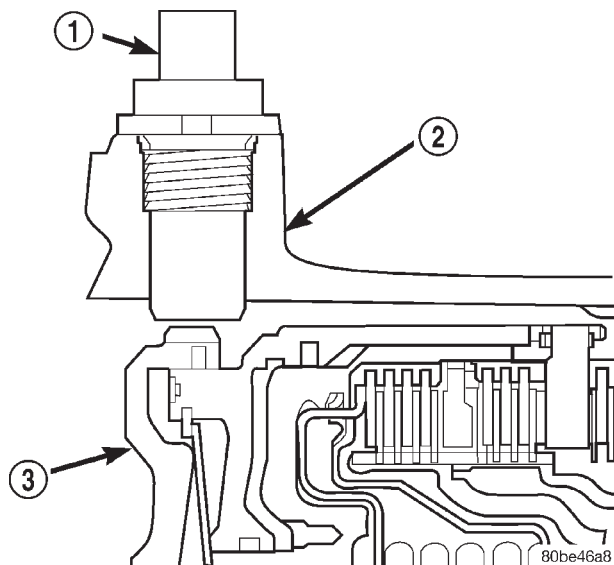
OPERATION

The Input Speed Sensor provides information on how fast the input shaft is rotating. As the teeth of the input clutch hub pass by the sensor coil (Fig. 21), an AC voltage is generated and sent to the TCM. The TCM interprets this information as input shaft rpm.

The TCM compares the input speed signal with output speed signal to determine the following:

- Transmission gear ratio
- Speed ratio error detection
- CVI calculation

DESCRIPTION AND OPERATION (Continued)

**Fig. 21 Sensor Relation to Input Clutch Hub**

- 1 – INPUT SPEED SENSOR
2 – TRANSAXLE CASE
3 – INPUT CLUTCH HUB

The TCM also compares the input speed signal and the engine speed signal to determine the following:

- Torque converter clutch slippage
- Torque converter element speed ratio

OUTPUT SPEED SENSOR**DESCRIPTION**

The Output Speed Sensor is a two-wire magnetic pickup device that generates an AC signal as rotation occurs. It is threaded into the transaxle case (Fig. 22), sealed with an o-ring (Fig. 23), and is considered a primary input to the Transmission Control Module (TCM).

OPERATION

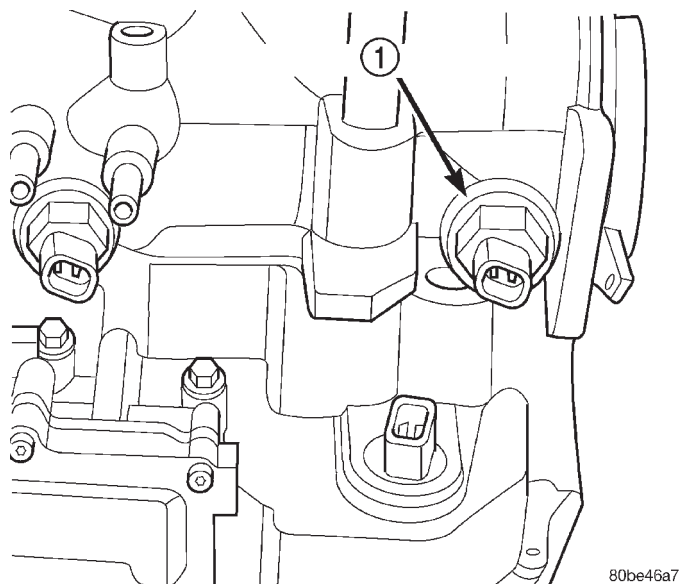
The Output Speed Sensor provides information on how fast the output shaft is rotating. As the rear planetary carrier park pawl lugs pass by the sensor coil (Fig. 24), an AC voltage is generated and sent to the TCM. The TCM interprets this information as output shaft rpm.

The TCM compares the input and output speed signals to determine the following:

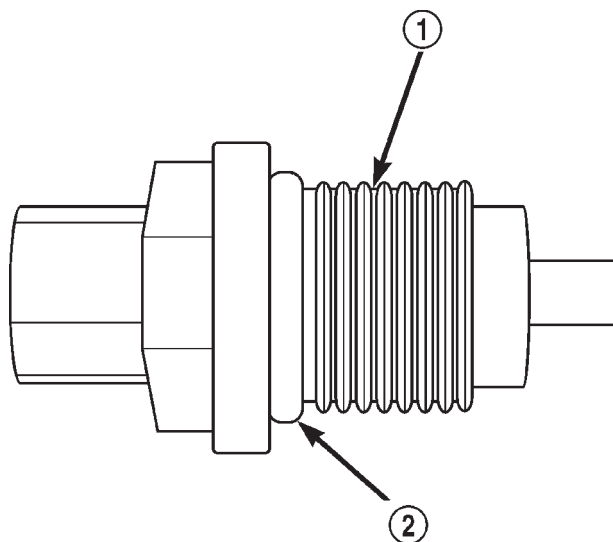
- Transmission gear ratio
- Speed ratio error detection
- CVI calculation

VEHICLE SPEED SIGNAL

The vehicle speed signal is taken from the Output Speed Sensor. The TCM converts this signal into a pulse per mile signal and sends it to the PCM. The PCM, in turn, sends the vehicle speed message

**Fig. 22 Output Speed Sensor Location**

- 1 – OUTPUT SPEED SENSOR

**Fig. 23 O-Ring Location**

- 1 – OUTPUT SPEED SENSOR
2 – O-RING

across the communication bus to the BCM. The BCM sends this signal to the Instrument Cluster to display vehicle speed to the driver. The vehicle speed signal pulse is roughly 8000 pulses per mile.

SHIFT POSITION INDICATOR**DESCRIPTION**

The shift position indicator is located in the instrument cluster. It indicates the position of the manual valve lever by illuminating an LED located under the P, R, N, D, 3, or L (or Autostick) gear symbol.

DESCRIPTION AND OPERATION (Continued)

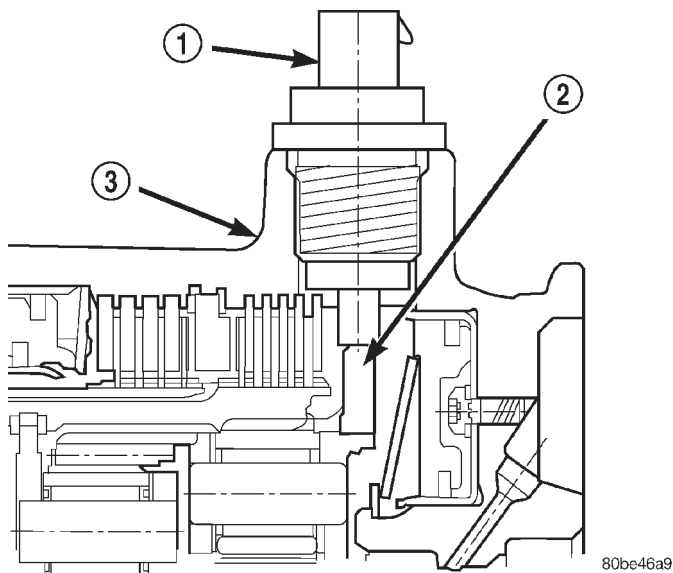


Fig. 24 Sensor Relation to Planet Carrier Park Pawl Lugs

- 1 – OUTPUT SPEED SENSOR
- 2 – REAR PLANET CARRIER/OUTPUT SHAFT ASSEMBLY
- 3 – TRANSAXLE CASE

OPERATION

The Transmission Range Sensor (TRS) sends a signal to the Transmission Control Module (TCM) regarding the position of the manual valve lever. The TCM converts this signal into a Shift Lever Position (SLP) and sends the information to the BCM (Body Control Module) and the instrument cluster.

Refer to Group 8E, Instrument Panel And Gauges for repair procedures.

BRAKE TRANSMISSION SHIFT INTERLOCK SYSTEM

DESCRIPTION

The Brake Transmission Shifter/Ignition Interlock (BTSI) is a cable and solenoid operated system that prevents the transmission gear shifter from being moved out of PARK without a driver in place.

Refer to the following chart that expected shifter response, depending on ignition key/switch (Fig. 25) and brake pedal positions.

OPERATION

The Brake Transmission Shifter/Ignition Interlock (BTSI) is engaged whenever the ignition switch is in the LOCK or ACCESSORY position (Fig. 25). An additional electrically activated feature will prevent shifting out of the PARK position unless the brake pedal is depressed at least one-half inch. A magnetic holding device integral to the interlock cable is energized when the ignition is in the ON/RUN position.

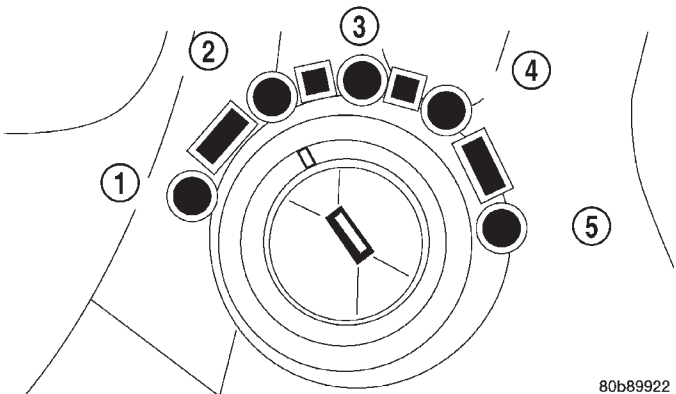


Fig. 25 Ignition Key/Switch Positions

- 1 – ACC
- 2 – LOCK
- 3 – OFF
- 4 – ON/RUN
- 5 – START

When the key is in the ON/RUN position and the brake pedal is depressed, the shifter is unlocked and will move into any position. The interlock system also prevents the ignition switch from being turned to the LOCK or ACCESSORY position, unless the shifter is in the gated PARK position.

The following chart describes the normal operation of the Brake Transmission Shift Interlock (BTSI) system. If the “expected response” differs from the vehicle’s response, then system repair and/or adjustment is necessary.

ACTION	EXPECTED RESPONSE
1. Turn key to the “OFF” position.	1. Shifter CAN be shifted out of park.
2. Turn key to the “ON/RUN” position.	2. Shifter CANNOT be shifted out of park.
3. Turn key to the “ON/RUN” position and depress the brake pedal.	3. Shifter CAN be shifted out of park.
4. Leave shifter in any gear and try to return key to the “LOCK” or “ACC” position.	4. Key cannot be returned to the “LOCK” or “ACC” position.
5. Return shifter to “PARK” and try to remove the key.	5. Key can be removed (after returning to “LOCK” position).
6. With the key removed, try to shift out of “PARK”.	6. Shifter cannot be shifted out of “PARK”.
NOTE: Any failure to meet these expected responses requires system adjustment or repair.	

DESCRIPTION AND OPERATION (Continued)

AUTOSTICK

DESCRIPTION

Autostick is a driver–interactive transaxle feature that offers manual gear shifting capability of an automatic transaxle.

OPERATION

When the shifter is moved into the Autostick position, the transaxle remains in whatever gear it was using before Autostick was activated. Moving the shifter to the left (towards the driver) causes a downshift and moving to the right (towards the passenger)

causes an upshift. The instrument cluster will illuminate the selected gear. The vehicle can be launched in 1st, 2nd, or 3rd gear while in the Autostick mode. The speed control is operable in 3rd and 4th gear Autostick mode. Speed control will be deactivated if the transaxle is shifted to 2nd gear. Shifting into OD position cancels the Autostick mode, and the transaxle resumes the OD shift schedule.

AUTOMATIC OVERRIDES

For safety, durability, and driveability, some shifts are executed automatically or prevented.

AUTOMATIC SHIFTS WILL OCCUR UNDER THE FOLLOWING CONDITIONS

TYPE OF SHIFT	APPROXIMATE SPEED
4-3 coast downshift	13 mph
3-2 coast downshift	9 mph
2-1 coast downshift	5 mph
1-2 upshift	6300 engine rpm
2-3 upshift	6300 engine rpm
4-3 kickdown shift	13-47 mph w/sufficient throttle

MANUAL SHIFTS ARE NOT PERMITTED UNDER THE FOLLOWING CONDITIONS

TYPE OF SHIFT	APPROXIMATE SHIFT POINT
3-4 upshift	Below 15 mph
3-2 downshift	Above 74 mph @ closed throttle or 70 mph otherwise
2-1 downshift	Above 41 mph @ closed throttle or 38 mph otherwise

DIAGNOSIS AND TESTING

41TE TRANSAXLE GENERAL DIAGNOSIS

CAUTION: Before attempting any repair on a 41TE four speed automatic transaxle, check for Diagnostic Trouble Codes with the DRB scan tool. Always use the Transmission Diagnostic Procedures Manual.

Transaxle malfunctions may be caused by these general conditions:

- Poor engine performance
- Improper adjustments
- Hydraulic malfunctions
- Mechanical malfunctions
- Electronic malfunctions

Diagnosis of these problems should always begin by checking the easily accessible variables: fluid level and condition, gearshift cable adjustment. Then perform a road test to determine if the problem has been corrected or that more diagnosis is necessary. If the problem persists after the preliminary tests and corrections are completed, hydraulic pressure checks should be performed.

ROAD TEST

Prior to performing a road test, verify that the fluid level, fluid condition, and linkage adjustment have been approved.

During the road test, the transaxle should be operated in each position to check for slipping and any variation in shifting.

If the vehicle operates properly at highway speeds, but has poor acceleration, the converter stator overrunning clutch may be slipping. If acceleration is normal, but high throttle opening is needed to maintain highway speeds, the converter stator clutch may have seized. Both of these stator defects require replacement of the torque converter and thorough transaxle cleaning.

Slipping clutches can be isolated by comparing the "Elements in Use" chart with clutch operation encountered on a road test. This chart identifies which clutches are applied at each position of the selector lever.

A slipping clutch may also set a DTC and can be determined by operating the transaxle in all selector positions.

ELEMENTS IN USE AT EACH POSITION OF SELECTOR LEVER

Shift Lever Position	INPUT CLUTCHES			HOLDING CLUTCHES	
	Underdrive	Overdrive	Reverse	2/4	Low/Reverse
P - PARK					X
R - REVERSE			X		X
N - NEUTRAL					X
OD - OVERDRIVE					
First	X				X
Second	X			X	
Direct	X	X			
Overdrive		X		X	
D - 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 selector positions.

DIAGNOSIS AND TESTING (Continued)

The process of elimination can be used to detect any unit which slips and to confirm proper operation of good units. Road test analysis can diagnose slipping units, but the cause of the malfunction cannot be determined. Practically any condition can be caused by leaking hydraulic circuits or sticking valves.

HYDRAULIC PRESSURE TESTS

Pressure testing is a very important step in the diagnostic procedure. These tests usually reveal the cause of most hydraulic transaxle problems.

Before performing pressure tests, be certain that fluid level and condition, and shift cable adjustments have been checked and approved. Fluid must be at operating temperature (150 to 200 degrees F.).

Install an engine tachometer, raise vehicle on hoist which allows front wheels to turn, and position tachometer so it can be read.

Attach 300 psi gauge (C-3293SP) to port(s) required for test(s) being conducted. Use adapter set L-4559 to adapt gauge(s) to transaxle.

Test port locations are shown in (Fig. 26).

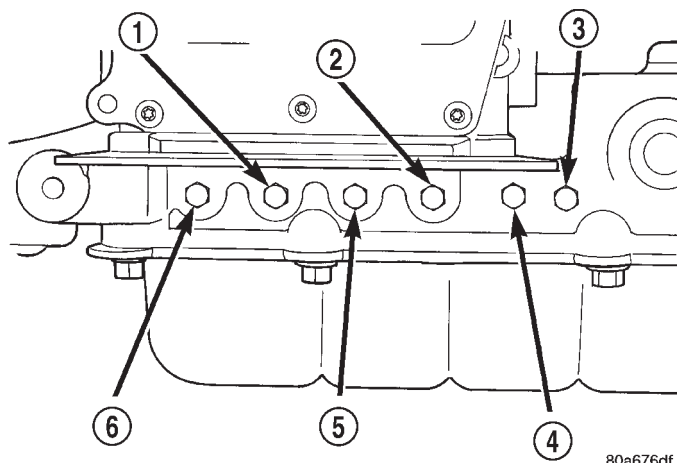


Fig. 26 Pressure Taps

- 1 - OVERDRIVE CLUTCH
- 2 - TORQUE CONVERTER OFF
- 3 - LOW/REVERSE CLUTCH
- 4 - 2/4 CLUTCH
- 5 - REVERSE CLUTCH
- 6 - UNDERDRIVE CLUTCH

TEST ONE-SELECTOR IN LOW (1st GEAR)

(1) Attach pressure gauge to the low/reverse clutch tap.

(2) Move selector lever to the (L) position.

(3) Allow vehicle wheels to turn and increase throttle opening to achieve an indicated vehicle speed of 20 mph.

(4) Low/reverse clutch pressure should read 115 to 145 psi.

(5) This test checks pump output, pressure regulation and condition of the low/reverse clutch hydraulic circuit and shift schedule.

TEST TWO-SELECTOR IN DRIVE (2nd GEAR)

NOTE: This test checks the underdrive clutch hydraulic circuit as well as the shift schedule.

(1) Attach gauge to the underdrive clutch tap.

(2) Move selector lever to the 3 position.

(3) Allow vehicle wheels to turn and increase throttle opening to achieve an indicated vehicle speed of 30 mph.

(4) In second gear the underdrive clutch pressure should read 110 to 145 psi.

TEST TWO A-SELECTOR IN OD (4th Gear)

NOTE: This test checks the underdrive clutch hydraulic circuit as well as the shift schedule.

(1) Attach gauge to the underdrive clutch tap.

(2) Move selector lever to the (OD) position.

(3) Allow wheels to rotate freely and increase throttle opening to achieve an indicated speed of 40 mph.

(4) Underdrive clutch pressure should read below 5 psi. If not, then either the solenoid assembly or TCM is at fault.

TEST THREE-OVERDRIVE CLUTCH CHECK (3rd and 2nd Gear)

(1) Attach gauge to the overdrive clutch tap.

(2) Move selector lever to the (OD) position.

(3) Allow vehicle wheels to turn and increase throttle opening to achieve an indicated vehicle speed of 20 mph. Vehicle should be in 3rd gear.

(4) Overdrive clutch pressure should read 74 to 95 psi.

(5) Move selector lever to the (3) position and increase indicated vehicle speed to 30 mph.

(6) The vehicle should be in second gear and overdrive clutch pressure should be less than 5 psi.

(7) This test checks the overdrive clutch hydraulic circuit as well as the shift schedule.

TEST FOUR-SELECTOR IN OVERDRIVE (4th Gear)

(1) Attach gauge to the 2/4 clutch tap.

(2) Move selector lever to the (OD) position.

(3) Allow vehicle front wheels to turn and increase throttle opening to achieve an indicated vehicle speed of 30 mph. Vehicle should be in 4th gear.

(4) The 2/4 clutch pressure should read 75 to 95 psi.

(5) This test checks the 2/4 clutch hydraulic circuit.

DIAGNOSIS AND TESTING (Continued)

TEST FIVE-SELECTOR IN OVERDRIVE (4th Gear-CC on)

(1) Attach gauge to the torque converter clutch off pressure tap.

(2) Move selector lever to the (OD) position.

(3) Allow vehicle wheels to turn and increase throttle opening to achieve an indicated vehicle speed of 50 mph. Vehicle should be in 4th gear, CC on.

CAUTION: Both wheels must turn at the same speed.

(4) Torque converter clutch off pressure should be less than 5 psi.

(5) This test checks the torque converter clutch hydraulic circuit.

TEST SIX-SELECTOR IN REVERSE

(1) Attach gauges to the reverse and LR clutch tap.

(2) Move selector lever to the (R) position.

(3) Read reverse clutch pressure with output stationary (foot on brake) and throttle opened to achieve 1500 rpm.

(4) Reverse and LR clutch pressure should read 165 to 235 psi.

(5) This test checks the reverse clutch hydraulic circuit.

TEST RESULT INDICATIONS

(1) If proper line pressure is found in any one test, the pump and pressure regulator are working properly.

(2) Low pressure in all positions indicates a defective pump, a clogged filter, or a stuck pressure regulator valve.

(3) Clutch circuit leaks are indicated if pressures do not fall within the specified pressure range.

(4) If the overdrive clutch pressure is greater than 5 psi in Step 4 of Test Three, a worn reaction shaft seal ring or a defective solenoid assembly is indicated.

(5) If the underdrive clutch pressure is greater than 5 psi in Step 4 of Test Two A, a defective solenoid assembly or TCM is the cause.

PRESSURE CHECK SPECIFICATIONS

Gear Selector Position	Actual Gear	Pressure Taps					
		Underdrive Clutch	Overdrive Clutch	Reverse Clutch	Torque Converter Clutch Off	2/4 Clutch	Low/ Reverse Clutch
Park * 0 mph	PARK	0-2	0-5	0-2	60-110	0-2	115-145
REVERSE * 0 mph	REVERSE	0-2	0-7	165-235	50-100	0-2	165-235
NEUTRAL * 0 mph	NEUTRAL	0-2	0-5	0-2	60-110	0-2	115-145
L # 20 mph	FIRST	110-145	0-5	0-2	60-110	0-2	115-145
3 # 30 mph	SECOND	110-145	0-5	0-2	60-110	115-145	0-2
3 # 45 mph	DIRECT	75-95	75-95	0-2	60-90	0-2	0-2
OD # 30 mph	OVERDRIVE	0-2	75-95	0-2	60-90	75-95	0-2
OD # 50 mph	OVERDRIVE WITH TCC	0-2	75-95	0-2	0-5	75-95	0-2

* Engine speed at 1500 rpm

CAUTION: Both front wheels must be turning at the same speed.

DIAGNOSIS AND TESTING (Continued)

CLUTCH AIR PRESSURE TESTS

Inoperative clutches can be located using a series of tests by substituting air pressure for fluid pressure (Fig. 27) (Fig. 28). The clutches may be tested by applying air pressure to their respective passages. The valve body must be removed and Tool 6056 installed. To make air pressure tests, proceed as follows:

NOTE: The compressed air supply must be free of all dirt and moisture. Use a pressure of 30 psi.

Remove oil pan and valve body. See Valve body removal.

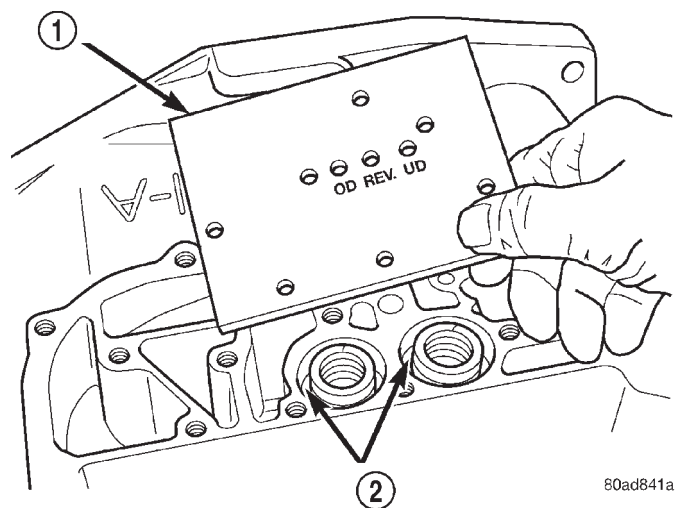


Fig. 27 Air Pressure Test Plate

- 1 - TOOL 6056
- 2 - ACCUMULATORS

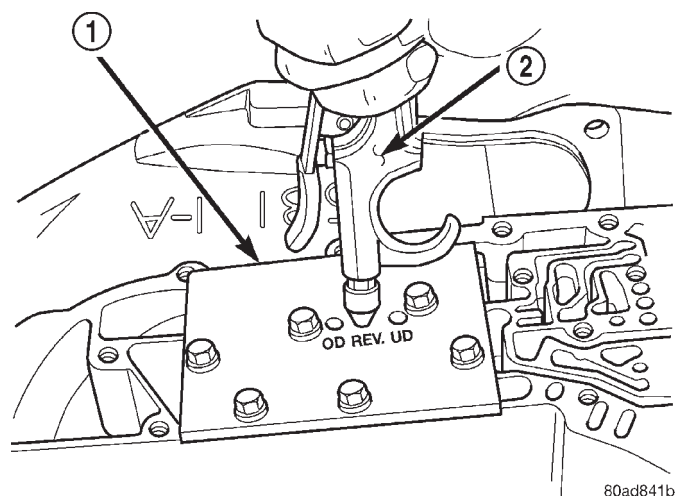


Fig. 28 Testing Reverse Clutch

- 1 - TOOL 6056
- 2 - AIR NOZZLE

OVERDRIVE CLUTCH

Apply air pressure to the overdrive clutch apply passage and watch for the push/pull piston to move forward. The piston should return to its starting position when the air pressure is removed.

REVERSE CLUTCH

Apply air pressure to the reverse clutch apply passage and watch for the push/pull piston to move rearward. The piston should return to its starting position when the air pressure is removed.

2/4 CLUTCH

Apply air pressure to the feed hole located on the 2/4 clutch retainer. Look in the area where the 2/4 piston contacts the first separator plate and watch carefully for the 2/4 piston to move rearward. The piston should return to its original position after the air pressure is removed.

LOW/REVERSE CLUTCH

Apply air pressure to the low/reverse clutch feed hole (rear of case, between 2 bolt holes). Then, look in the area where the low/reverse piston contacts the first separator plate. Watch carefully for the piston to move forward. The piston should return to its original position after the air pressure is removed.

UNDERDRIVE CLUTCH

Because this clutch piston cannot be seen, its operation is checked by function. Air pressure is applied to the low/reverse and the 2/4 clutches. This locks the output shaft. Use a piece of rubber hose wrapped around the input shaft and a pair of clamp-on pliers to turn the input shaft. Next apply air pressure to the underdrive clutch. The input shaft should not rotate with hand torque. Release the air pressure and confirm that the input shaft will rotate.

FLUID LEAKAGE-TORQUE CONVERTER HOUSING AREA

When diagnosing converter housing fluid leaks, three actions must be taken before repair:

- (1) Verify proper transmission fluid level.
- (2) Verify that the leak originates from the converter housing area and is transmission fluid.
- (3) Determine the true source of the leak.

Fluid leakage at or around the torque converter area may originate from an engine oil leak (Fig. 29). The area should be examined closely. Factory fill fluid is red and, therefore, can be distinguished from engine oil.

Some suspected converter housing fluid leaks may not be leaks at all. They may only be the result of residual fluid in the converter housing, or excess fluid spilled during factory fill, or fill after repair.

DIAGNOSIS AND TESTING (Continued)

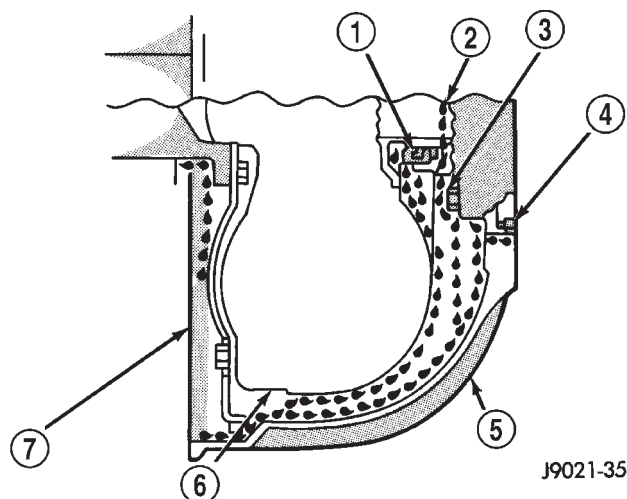


Fig. 29 Converter Housing Leak Paths

- 1 - PUMP SEAL
- 2 - PUMP VENT
- 3 - PUMP BOLT
- 4 - PUMP GASKET
- 5 - CONVERTER HOUSING
- 6 - CONVERTER
- 7 - REAR MAIN SEAL LEAK

Converter housing leaks have several potential sources. Through careful observation, a leak source can be identified before removing the transmission for repair.

Pump seal leaks tend to move along the drive hub and onto the rear of the converter (Fig. 29). Pump o-ring or pump body leaks follow the same path as a seal leak. Pump attaching bolt leaks are generally deposited on the inside of the converter housing and not on the converter itself. Pump seal or gasket leaks usually travel down the inside of the converter housing (Fig. 29).

TORQUE CONVERTER LEAKAGE

Possible sources of torque converter leakage are:

- Torque converter weld leaks at the outside diameter weld (Fig. 30).
- Torque converter hub weld (Fig. 30).

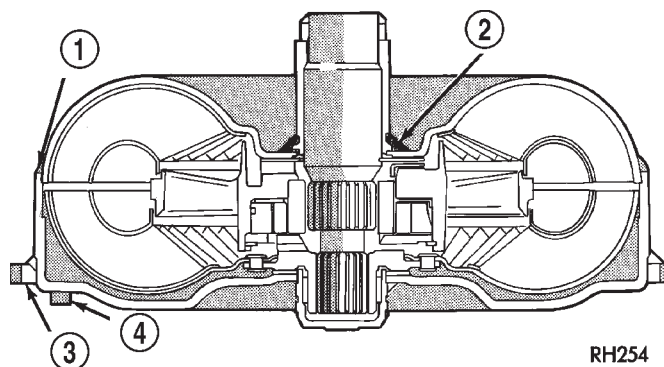


Fig. 30 Converter Leak Points—Typical

- 1 - OUTSIDE DIAMETER WELD
- 2 - TORQUE CONVERTER HUB WELD
- 3 - STARTER RING GEAR
- 4 - LUG

BRAKE/TRANSMISSION SHIFT INTERLOCK SYSTEM

The following chart describes the normal operation of the Brake Transmission Shift Interlock (BTSI) system. If the "expected response" differs from the vehicle's response, then system repair and/or adjustment is necessary.

Refer to the following chart that expected shifter response, depending on ignition key/switch (Fig. 31) and brake pedal positions.

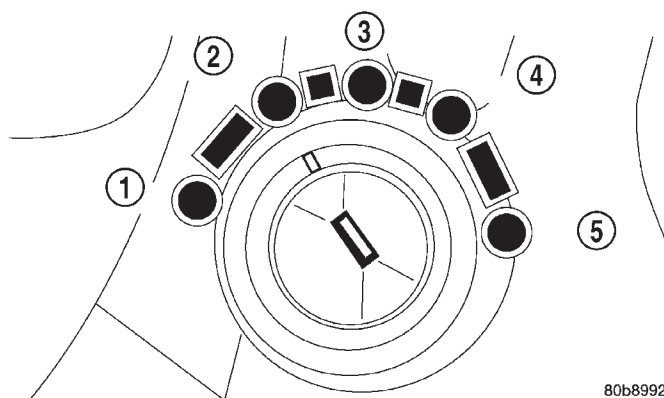


Fig. 31 Ignition Key/Switch Positions

- 1 - ACC
- 2 - LOCK
- 3 - OFF
- 4 - ON/RUN
- 5 - START

DIAGNOSIS AND TESTING (Continued)

ACTION	EXPECTED RESPONSE
1. Turn key to the "OFF" position.	1. Shifter CAN be shifted out of park.
2. Turn key to the "ON/RUN" position.	2. Shifter CANNOT be shifted out of park.
3. Turn key to the "ON/RUN" position and depress the brake pedal.	3. Shifter CAN be shifted out of park.
4. Leave shifter in any gear and try to return key to the "LOCK" or "ACC" position.	4. Key cannot be returned to the "LOCK" or "ACC" position.
5. Return shifter to "PARK" and try to remove the key.	5. Key can be removed (after returning to "LOCK" position).
6. With the key removed, try to shift out of "PARK".	6. Shifter cannot be shifted out of "PARK".
NOTE: Any failure to meet these expected responses requires system adjustment or repair.	

SHIFT POSITION INDICATOR

The transmission range sensor (on the valve body) sends a signal to the TCM on the position of the transaxle manual valve lever. The TCM receives the switch signal and processes the data. The TCM sends the Shift Lever Position (SLP) information to the BCM via the communication bus. The BCM then outlines the appropriate shifter position indicator in the instrument cluster.

If a problem arises with the shifter position indicator, consult the following chart for diagnostic information. If the malfunction cannot be corrected using the chart, consult the proper diagnostic manual.

To replace the shifter position indicator, refer to Group 8E, Instrument Panel And Gauges.

AUTOSTICK

The autostick feature will be deactivated if one of the following conditions occur:

- DTC P0705–Check Shifter Signal—usually accompanied by all PRNDL lights turning on in Park and Neutral. This will result in a DTC P0705 if three such errors are detected after any one "key-on".
- DTC P1796–Autostick Input Circuit
- DTC P1797–Manual Shift Overheat–(Transmission oil temperature >275° F) or (Engine coolant temperature >255° F).

Acceptable powertrain temperature must be achieved to reactivate Autostick after a high temperature fault:

- Transmission Oil Temperature <255° F
- Engine Coolant Temperature <240° F

CONDITION	POSSIBLE CAUSE
ALL PRND3L (PRND1234 if Autostick equipped) DISPLAY LIGHTS "ON" IN P&N GEAR POSITIONS	Check wiring and connectors
	Faulty TRS
	Faulty manual lever
ALL DISPLAY LIGHTS "ON" IN ALL GEAR POSITIONS	Check wiring & connectors
	Faulty trans. range sensor
	Faulty manual lever
	Communication bus malfunction
ALL DISPLAY LIGHTS "OFF"	Normal transient condition between P&R and R&N gear positions
	Check shift lever linkage
	BCM malfunction
	Check wiring and connectors
	Faulty instrument cluster
ALL DISPLAY LIGHTS "OFF" ACCOMPANIED BY A "NO BUS" MESSAGE	Communication bus malfunction
DISPLAY LIGHTS OUT OF SEQUENCE WITH SHIFT LEVER	Check wiring and connectors
	Faulty TRS
	Faulty manual lever
	Communication bus malfunction

SERVICE PROCEDURES

FLUID LEVEL AND CONDITION CHECK

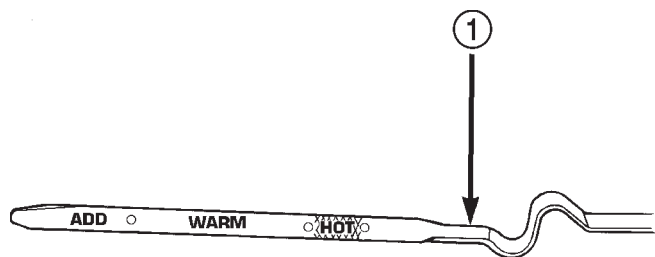
NOTE: Only transmission fluid of the type labeled Mopar ATF+4 (Automatic Transmission Fluid–Type 9602) should be used in this transaxle.

FLUID LEVEL CHECK

The transmission sump has a fluid level indicator (dipstick) to check oil similar to most automatic transmissions. It is located on the left side of the engine. Be sure to wipe all dirt from dipstick handle before removing.

SERVICE PROCEDURES (Continued)

The torque converter fills in both the P Park and N Neutral positions. Place the selector lever in P Park to be sure that the fluid level check is accurate. **The engine should be running at idle speed for at least one minute, with the vehicle on level ground.** At normal operating temperature (approximately 82 C. or 180 F.), the fluid level is correct if it is in the HOT region (cross-hatched area) on the oil level indicator (Fig. 32). The fluid level will be approximately one-quarter inch above the lower hole of the dipstick at 70° F fluid temperature.



80b04ee2

Fig. 32 Fluid Level Indicator Markings

1 - TRANSAXLE DIPSTICK

FLUID LEVEL CHECK USING DRB

NOTE: Engine and Transaxle should be at normal operating temperature before performing this procedure.

- (1) Start engine and apply parking brake.
- (2) Hook up DRB scan tool and select transmission.
- (3) Select sensors.
- (4) Read the transmission temperature value.
- (5) Compare the fluid temperature value with the chart.
- (6) Adjust transmission fluid level shown on the dipstick according to the chart.
- (7) Check transmission for leaks.

Low fluid level can cause a variety of conditions because it allows the pump to take in air along with the fluid. As in any hydraulic system, air bubbles make the fluid spongy, therefore, pressures will be low and build up slowly.

Improper filling can also raise the fluid level too high. When the transaxle has too much fluid, the gears churn up foam and cause the same conditions which occur with a low fluid level.

In either case, air bubbles can cause overheating and/or fluid oxidation, and varnishing. This can interfere with normal valve, clutch, and accumulator

operation. Foaming can also result in fluid escaping from the transaxle vent where it may be mistaken for a leak.

FLUID CONDITION

Along with fluid level, it is important to check the condition of the fluid. When the fluid smells burned, and is contaminated with metal or friction material particles, a complete transaxle recondition is needed. Be sure to examine the fluid on the dipstick closely. If there is any doubt about its condition, drain out a sample for a double check.

Mopar® ATF+4 (Automatic Transmission Fluid-Type 9602) when new is red in color. The ATF is dyed red so it can be identified from other fluids used in the vehicle such as engine oil or antifreeze. The red color is not permanent and is not an indicator of fluid condition. As the vehicle is driven, the ATF will begin to look darker in color and may eventually become brown. This is normal. A dark brown/black fluid accompanied with a burnt odor and/or deterioration in shift quality may indicate fluid deterioration or transmission component failure.

After the fluid has been checked, seat the dipstick fully to seal out water and dirt.

TRANSAXLE FLUID AND FILTER SERVICE

NOTE: Refer to the maintenance schedules in Group 0, Lubrication and Maintenance, or the vehicle owner's manual, for the recommended maintenance (fluid/filter change) intervals for this transaxle.

NOTE: Only fluids of the type labeled Mopar® ATF+4 (Automatic Transmission Fluid) Type 9602 should be used. A filter change should be made at the time of the transmission oil change. The magnet (on the inside of the oil pan) should also be cleaned with a clean, dry cloth.

NOTE: If the transaxle is disassembled for any reason, the fluid and filter should be changed.

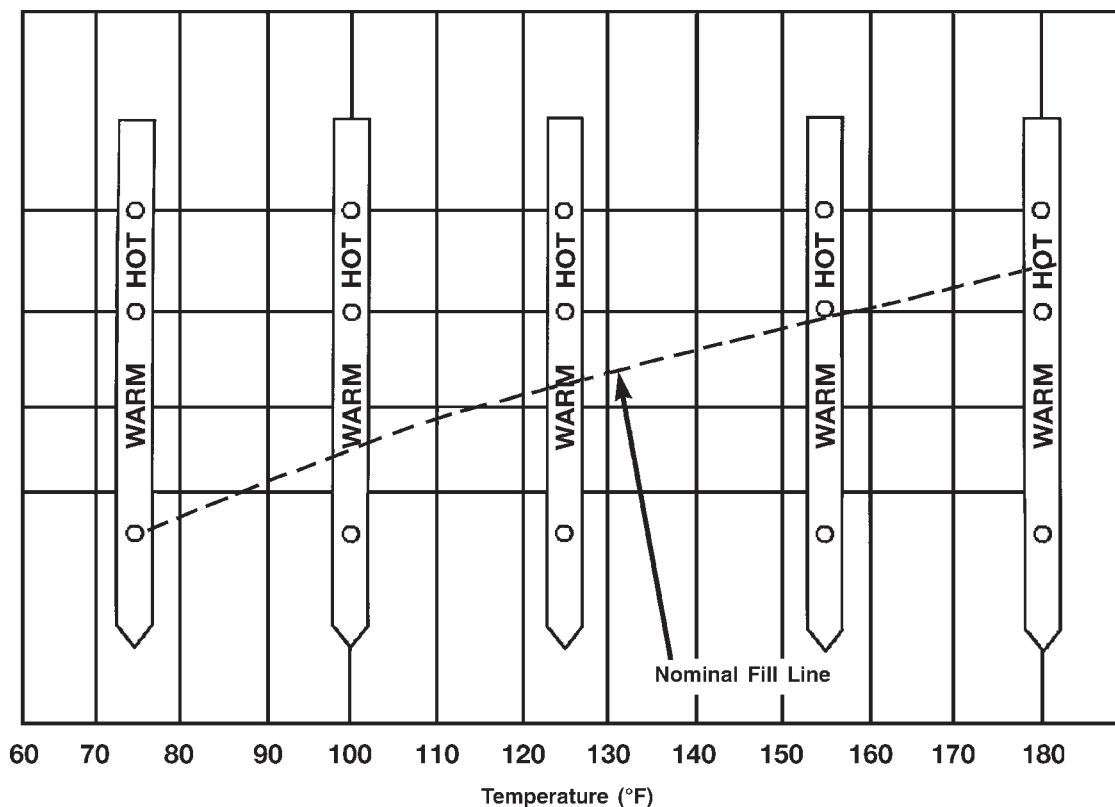
FLUID/FILTER SERVICE (RECOMMENDED)

(1) Raise vehicle on a hoist (See Lubrication, Group 0). Place a drain container with a large opening, under transaxle oil pan.

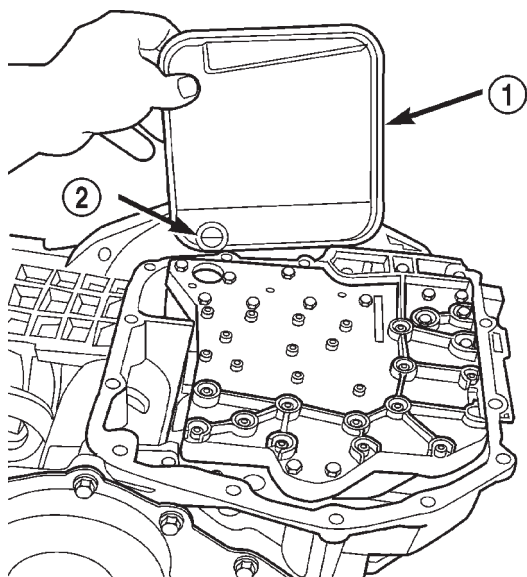
(2) Loosen pan bolts and tap the pan at one corner to break it loose allowing fluid to drain, then remove the oil pan.

(3) Install a new filter and o-ring on bottom of the valve body (Fig. 33).

SERVICE PROCEDURES (Continued)



80a0141t

Transmission Fluid Temperature Chart

80be4705

Fig. 33 Filter and O-Ring

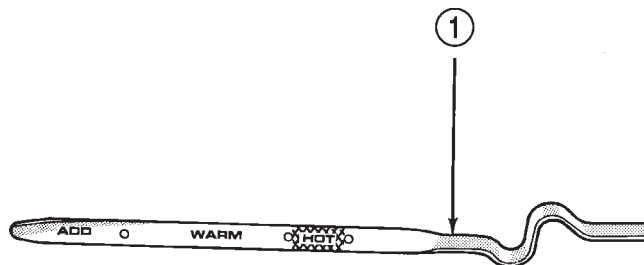
- 1 - OIL FILTER
- 2 - O-RING

(4) Clean the oil pan and magnet. Reinstall pan using new Mopar Silicone Adhesive sealant. Tighten oil pan bolts to 19 N·m (165 in. lbs.).

(5) Pour four quarts of Mopar® ATF+4 (Automatic Transmission Fluid) Type 9602 through the dipstick opening.

(6) Start engine and allow to idle for at least one minute. Then, with parking and service brakes applied, move selector lever momentarily to each position, ending in the park or neutral position.

(7) Check the transaxle fluid level and add an appropriate amount to bring the transaxle fluid level to 3mm (1/8 in.) below the "ADD" mark on the dipstick (Fig. 34).



9321-323

Fig. 34 Dipstick Markings

- 1 - TRANSAXLE DIPSTICK

SERVICE PROCEDURES (Continued)

(8) Recheck the fluid level after the transaxle has reached normal operating temperature (180°F.). Refer to Fluid Level and Condition Check in this group for the proper fluid fill procedure.

(9) To prevent dirt from entering transaxle, make certain that dipstick is fully seated into the dipstick opening.

ALTERNATIVE MAINTENANCE METHODS

TRANSAXLE FLUID EXCHANGER METHOD

CAUTION: The use of any fluid exchanger that introduces additives into the transaxle is not recommended.

(1) To perform the transaxle fluid exchange, the transaxle must be at operating temperature. Drive the vehicle until it reaches full operating temperature.

(2) Obtain a suitable transaxle fluid exchanger and verify the tank is clean and dry.

(3) Fill the tank to the recommended fill capacity with Mopar® ATF+4 Type 9602.

(4) Connect the machine to the vehicle following the manufacturers instructions. Perform the exchange procedure following the instructions provided with the machine.

(5) Once machine has completed the fluid exchange. Check the fluid level and condition and fill to proper level with Mopar® ATF+4 Type 9602. Refer to Fluid Level and Condition Check in this group for the proper fluid fill procedure.

NOTE: Verify that the transaxle cooler lines are tightened to proper specifications. Cooler line torque specification is 2 N•m (18 in. lbs.).

DIPSTICK TUBE FLUID SUCTION METHOD

(1) When performing the fluid suction method, make sure the transaxle is at full operating temperature.

(2) To perform the dipstick tube fluid suction method, use a suitable fluid suction device (Vacula™ or equivalent).

(3) Insert the fluid suction line into the dipstick tube.

NOTE: Verify that the suction line is inserted to the lowest point of the transaxle oil pan. This will ensure complete evacuation of the fluid in the pan.

(4) Follow the manufacturers recommended procedure and evacuate the fluid from the transaxle.

(5) Remove the suction line from the dipstick tube.

(6) Pour four quarts of Mopar® ATF+4 (Automatic Transmission Fluid) Type 9602 through the dipstick opening.

(7) Start engine and allow to idle for at least one minute. Then, with parking and service brakes applied, move selector lever momentarily to each position, ending in the park or neutral position.

(8) Check the transaxle fluid level and add an appropriate amount to bring the transaxle fluid level to 3mm (1/8 in.) below the "ADD" mark on the dipstick (Fig. 34).

(9) Recheck the fluid level after the transaxle has reached normal operating temperature (180°F.). Refer to Fluid Level and Condition Check in this group for the proper fluid fill procedure.

(10) To prevent dirt from entering transaxle, make certain that dipstick is fully seated into the dipstick opening.

ALUMINUM THREAD REPAIR

Damaged or worn threads in the aluminum transaxle case and valve body can be repaired by the use of Heli-Coils, or equivalent. This repair consists of drilling out the worn-out damaged threads. Then tap the hole with a special Heli-Coil tap, or equivalent, and installing a Heli-Coil insert, or equivalent, into the hole. This brings the hole back to its original thread size.

Heli-Coil, or equivalent, tools and inserts are readily available from most automotive parts suppliers.

FLUSHING COOLERS AND TUBES

When a transaxle failure has contaminated the fluid, the oil cooler(s) must be flushed. The cooler bypass valve in the transaxle must be replaced also. The torque converter must also be replaced with an exchange unit. This will insure that metal particles or sludged oil are not later transferred back into the reconditioned (or replaced) transaxle.

The recommended procedure for cooler flushing is to use Tool 6906 Cooler Flusher.

SERVICE PROCEDURES (Continued)

WARNING: WEAR PROTECTIVE EYEWEAR THAT MEETS THE REQUIREMENTS OF OSHA AND ANSI Z87.1-1968. WEAR STANDARD INDUSTRIAL RUBBER GLOVES.

KEEP LIGHTED CIGARETTES, SPARKS, FLAMES, AND OTHER IGNITION SOURCES AWAY FROM THE AREA TO PREVENT THE IGNITION OF COMBUSTIBLE LIQUIDS AND GASES. KEEP A CLASS (B) FIRE EXTINGUISHER IN THE AREA WHERE THE FLUSHER WILL BE USED.

KEEP THE AREA WELL VENTILATED.

DO NOT LET FLUSHING SOLVENT COME IN CONTACT WITH YOUR EYES OR SKIN: IF EYE CONTAMINATION OCCURS, FLUSH EYES WITH WATER FOR 15 TO 20 SECONDS. REMOVE CONTAMINATED CLOTHING AND WASH AFFECTED SKIN WITH SOAP AND WATER. SEEK MEDICAL ATTENTION.

(1) Remove cover plate filler plug on Tool 6906. Fill reservoir 1/2 to 3/4 full of fresh flushing solution. Flushing solvents are petroleum based solutions generally used to clean automatic transmission components. **DO NOT** use solvents containing acids, water, gasoline, or any other corrosive liquids.

(2) Reinstall filler plug on Tool 6906.

(3) Verify pump power switch is turned OFF. Connect red alligator clip to positive (+) battery post. Connect black (-) alligator clip to a good ground.

NOTE: When flushing transmission cooler and lines, ALWAYS reverse flush.

(4) Connect the BLUE pressure line to the OUTLET (From) cooler line.

(5) Connect the CLEAR return line to the INLET (To) cooler line

(6) Turn pump ON for two to three minutes to flush cooler and lines.

(7) Turn pump OFF.

(8) Disconnect CLEAR suction line from reservoir at cover plate. Disconnect CLEAR return line at cover plate, and place it in a drain pan.

(9) Turn pump ON for 30 seconds to purge flushing solution from cooler and lines. Turn pump OFF.

(10) Place CLEAR suction line into a one quart container of Mopar® ATF+4 (Automatic Transmission Fluid—Type 9602).

(11) Turn pump ON until all transmission fluid is removed from the one quart container and lines. This purges any residual cleaning solvent from the transmission cooler and lines. Turn pump OFF.

(12) Disconnect alligator clips from battery. Reconnect flusher lines to cover plate, and remove flushing adapters from cooler lines.

OIL PUMP VOLUME CHECK

Measuring oil pump output volume will determine if sufficient flow to the transmission oil cooler exists, and whether or not an internal transmission failure is present.

Verify that transmission fluid is at the proper level. Refer to Fluid Level and Condition in this Group. If adding fluid is necessary, fill to the proper level with Mopar® ATF+4 (Automatic Transmission Fluid—Type 9602). The following procedure is to check oil pump output volume:

(1) Disconnect the **To cooler** line at the oil cooler inlet and place a collecting container under the disconnected line.

CAUTION: With the fluid set at the proper level, fluid collection should not exceed (1) quart or internal damage to the transmission may occur.

(2) Start engine and run **at curb idle speed**, with the shift selector in neutral.

(3) If one quart of ATF is collected in 20 seconds or less, flow is within acceptable limits. If fluid flow is intermittent or it takes more than 20 seconds to collect one quart of ATF, refer to Hydraulic Pressure Tests in this Group.

(4) Inspect the cooler hose for damage. Replace if necessary.

(5) Connect the **To cooler** hose to the oil cooler inlet and torque clamp to 2 N·m (20 in. lbs.) torque.

(6) Refill the transaxle to proper level with Mopar® ATF+4 (Automatic Transmission Fluid—Type 9602).

TRANSAXLE QUICK LEARN PROCEDURE

The quick learn procedure requires the use of the DRB scan tool.

This program allows the electronic transaxle system to recalibrate itself. This will provide the best possible transaxle operation. The quick learn procedure should be performed if any of the following procedures are performed:

- Transaxle Assembly Replacement
- Transmission Control Module Replacement
- Solenoid/Pressure Switch Assembly Replacement
- Clutch Plate and/or Seal Replacement
- Valve Body Replacement or Recondition

To perform the Quick Learn Procedure, the following conditions must be met:

- The brakes must be applied
- The engine speed must be above 500 rpm
- The throttle angle (TPS) must be less than 3 degrees
- The shift lever position must stay until prompted to shift to overdrive

SERVICE PROCEDURES (Continued)

- The shift lever position must stay in overdrive after the Shift to Overdrive prompt until the DRB indicates the procedure is complete

- The calculated oil temperature must be above 60° and below 200°

(1) Plug the DRB scan tool into the data link connector. The connector is located under the instrument panel.

(2) Go to the Transmission screen.

(3) Go to the Miscellaneous screen.

(4) Select Quick Learn Procedure. Follow the instructions of the DRB to perform the Quick Learn Procedure.

PINION FACTOR PROCEDURE

The vehicle speed readings for the speedometer are taken from the output speed sensor. The TCM must be calibrated to the different combinations of equipment available. Pinion Factor allows the technician to set the Transmission Control Module initial setting so that the speedometer readings will be correct.

Failure to perform this procedure will cause a No Speedometer Operation condition.

This procedure must be performed if the Transmission Control Module has been replaced.

To properly read or reset the Pinion Factor, it is necessary to use a DRB scan tool. Perform the following steps with the DRB scan tool to read or reset the Pinion Factor:

(1) Plug the DRB scan tool into the data link connector located under the instrument panel.

(2) Select the Transmission menu.

(3) Select the Miscellaneous menu.

(4) Select Pinion Factor. Then follow the instructions on the DRB scan tool screen.

REMOVAL AND INSTALLATION

GEARSHIFT CABLE

REMOVAL

(1) Place transaxle in PARK.

(2) Disconnect battery negative cable at left strut tower.

(3) Remove air cleaner assembly.

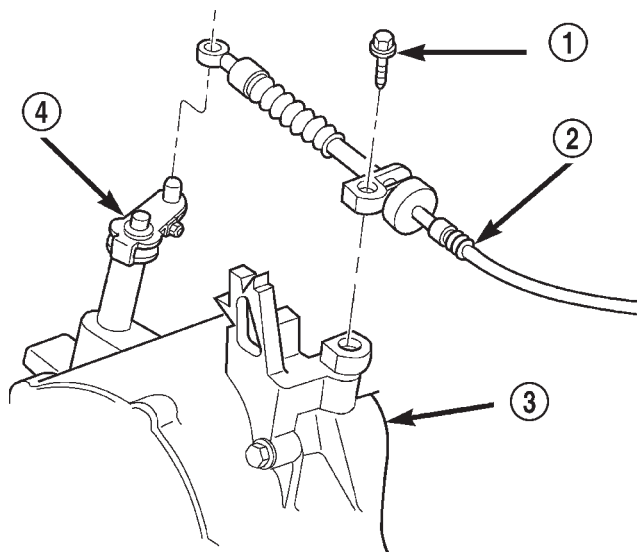
(4) Disconnect battery positive cable.

(5) Disconnect Transmission Control Module (TCM) connector. Remove TCM.

(6) Pull Power Distribution Center (PDC) up and out of the way.

(7) Using a pry tool, pry up on cable at manual valve lever and remove cable from lever (Fig. 35).

(8) Remove the screw from the cable bracket at the transaxle (Fig. 35).

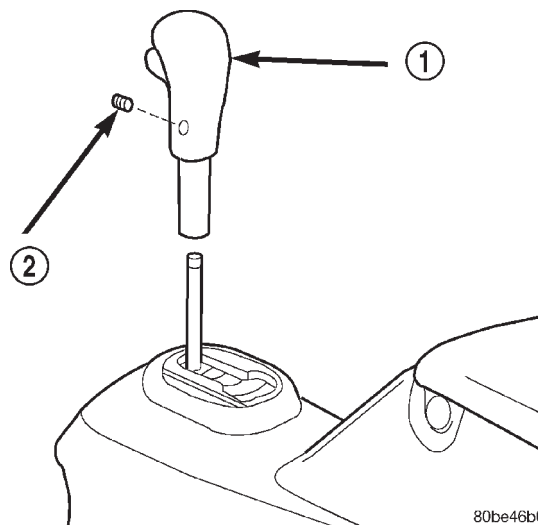


80b89926

Fig. 35 Gearshift Cable at Transaxle

- 1 – SCREW
- 2 – CABLE
- 3 – TRANSAXLE
- 4 – SHIFT LEVER

(9) Remove the gearshift knob set screw and knob (Fig. 36).



80be46b0

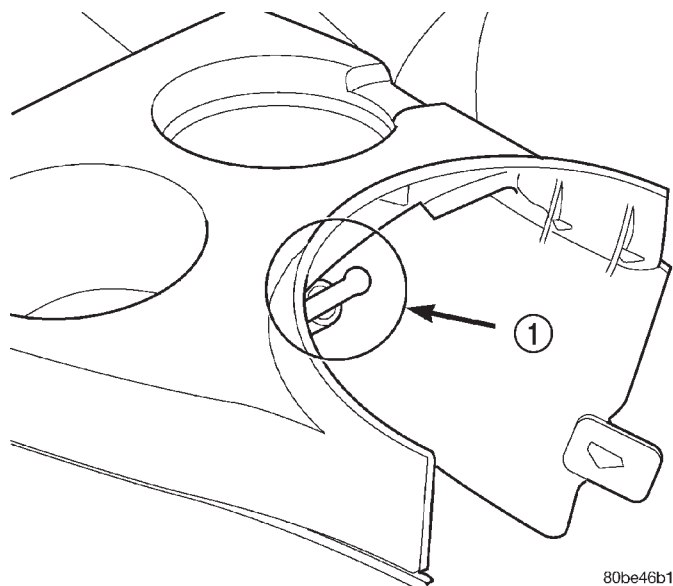
Fig. 36 Shifter Knob Removal/Installation

- 1 – SHIFTER KNOB
- 2 – SET SCREW

(10) Remove the floor console (rear). Refer to Group 23, Body for the proper procedures.

CAUTION: When removing forward console, the console will contact nylon shift release plunger (Fig. 37). If care is not used, plunger may break, requiring shifter assembly replacement.

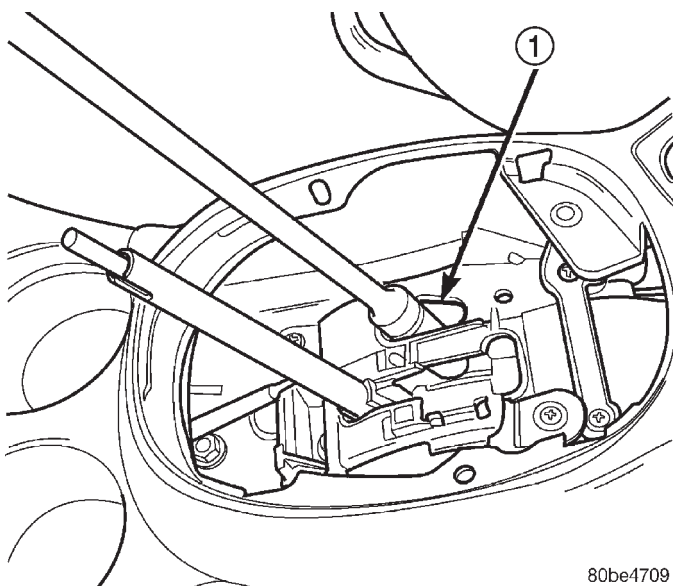
REMOVAL AND INSTALLATION (Continued)

**Fig. 37 Console/Shifter Contact Area**

1 - AREA OF CONTACT

(11) Remove the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(12) Loosen nut on shift cable adjust lever (Fig. 38).

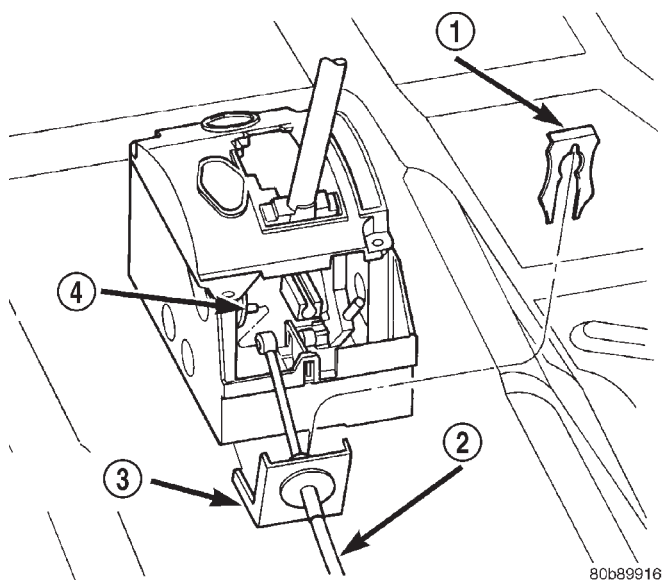
**Fig. 38 Shift Cable Adjust Lever Nut**

1 - ACCESS HOLE

(13) Using a flat blade pry tool, remove the shifter cable core end from the shift lever pin (Fig. 39).

(14) Using a flat blade pry tool, pry the cable conduit clip up from the shifter bracket. Pull up on the cable conduit and remove from bracket (Fig. 39).

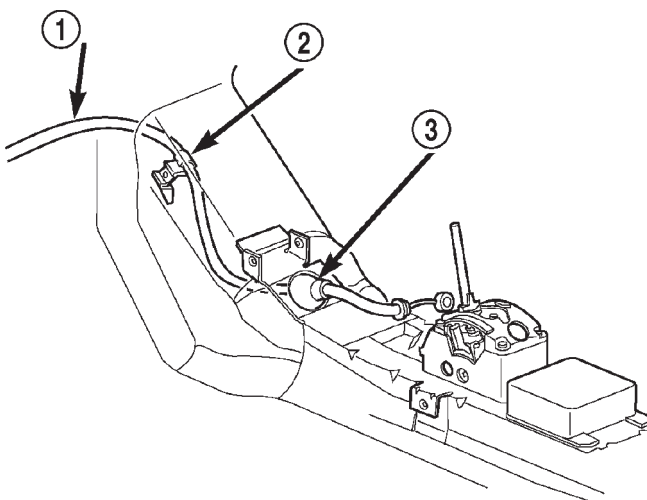
(15) Hoist vehicle. Refer to Group 0, Lubrication and Maintenance.

**Fig. 39 Gearshift Cable at Floor Shifter—Typical**

1 - CLIP
2 - CABLE
3 - CONDUIT BRACKET
4 - SHIFT PIN

(16) Remove the cable grommet from the floor pan area (Fig. 40).

(17) Carefully remove the cable from the underbody by unfolding the cable retainer clip (Fig. 40) as you go along.

**Fig. 40 Gearshift Cable Routing**

1 - CABLE
2 - RETAINER CLIP
3 - GROMMET

REMOVAL AND INSTALLATION (Continued)

INSTALLATION

(1) Install cable assy. into floor pan tunnel hole and secure grommet. If necessary, use a synthetic based lubricant to aid in grommet installation.

(2) Position cable into retainer clip (Fig. 40) and tighten clip to secure cable. Route cable up towards transaxle shift lever.

(3) Lower vehicle.

(4) Install cable to transaxle and tighten screw to 14 N·m (125 in. lbs.) (Fig. 35).

(5) Install cable to transaxle shift lever (Fig. 35).

(6) Connect cable to shifter conduit bracket and shift pin. Install cable retaining clip (Fig. 39).

(7) Verify transaxle shift lever and floor shifter lever are in the PARK position.

(8) Tighten cable adjuster nut (Fig. 38) to 23 N·m (200 in. lbs.).

CAUTION: When installing forward console, the console will contact nylon shift release plunger (Fig. 37). If care is not used, plunger may break, requiring shifter assembly replacement.

(9) Reinstall forward and rear floor consoles. Refer to Group 23, Body, for the proper procedures.

(10) Install gearshift knob (Fig. 36) and tighten set screw to 2 N·m (20 in.lbs.).

(11) Verify proper cable adjustment. Engine starter should only engage in PARK and NEUTRAL gear shifter positions. If adjustment is required, refer to Gearshift Linkage Adjustment in this group.

GEARSHIFT ASSEMBLY**REMOVAL**

(1) Disconnect negative battery cable and isolate.

(2) Remove the gearshift knob set screw and knob (Fig. 41).

(3) Remove the floor console (rear). Refer to Group 23, Body for the proper procedures.

CAUTION: When removing forward console, the console will contact nylon shift release plunger (Fig. 42). If care is not used, plunger may break, requiring shifter assembly replacement.

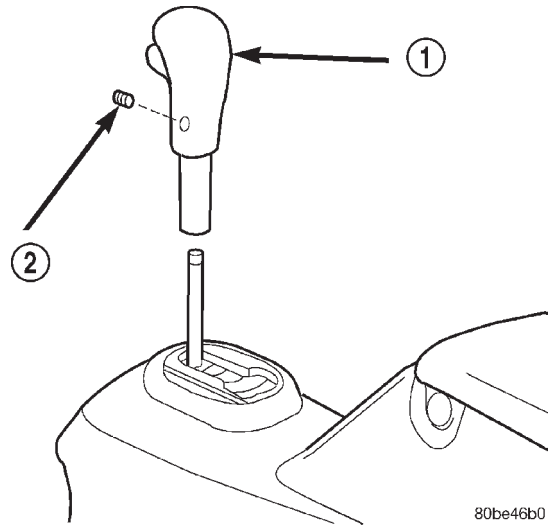


Fig. 41 Shifter Knob Removal/Installation

- 1 – SHIFTER KNOB
2 – SET SCREW

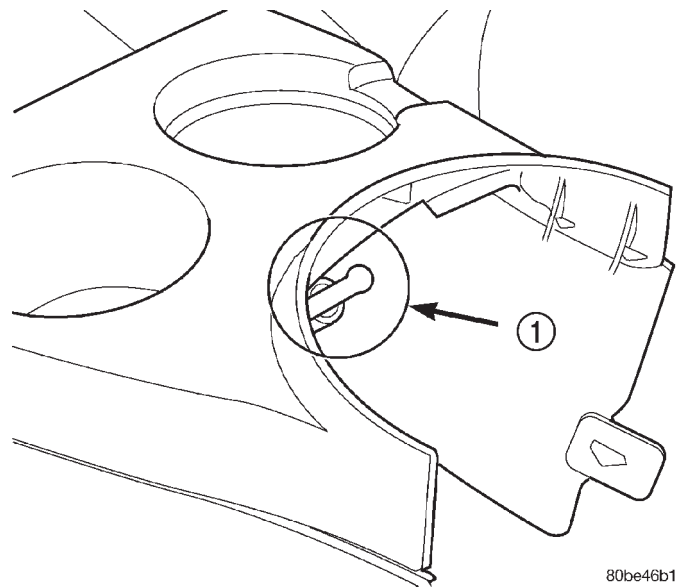


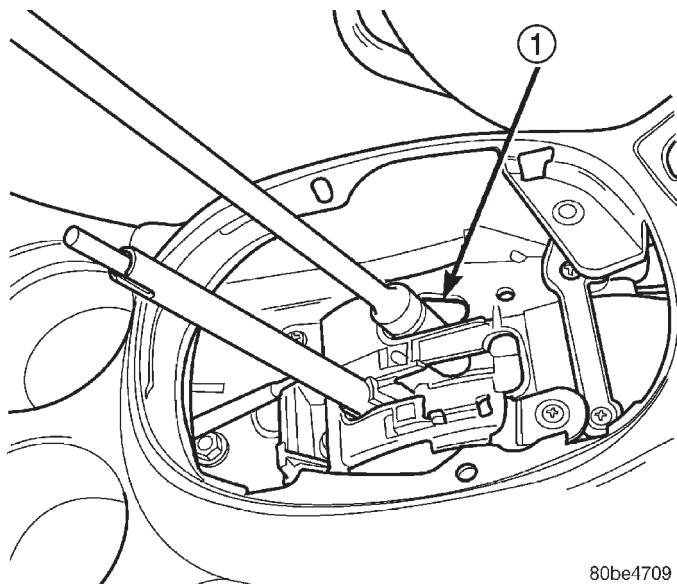
Fig. 42 Console/Shifter Contact Area

- 1 – AREA OF CONTACT

(4) Remove the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(5) Loosen nut on shift cable adjust lever (Fig. 43).

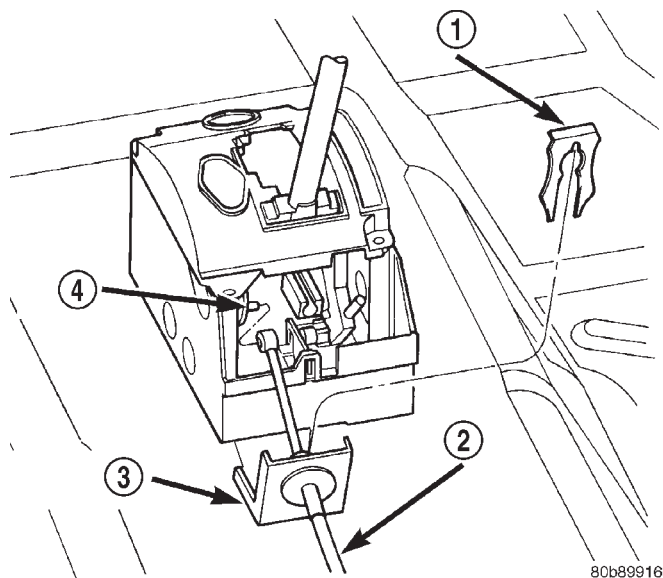
REMOVAL AND INSTALLATION (Continued)

**Fig. 43 Shift Cable Adjust Lever Nut**

1 - ACCESS HOLE

(6) Using a flat blade pry tool, remove the shifter cable core end from the shift lever pin (Fig. 44).

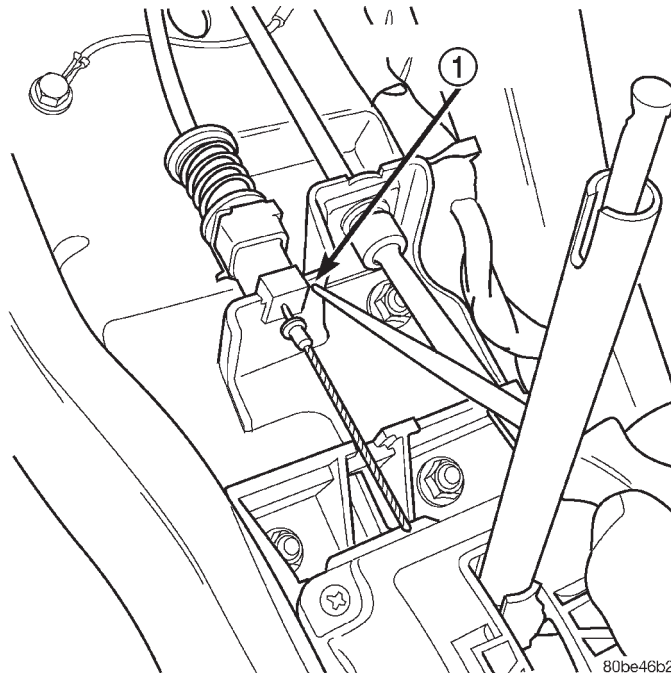
(7) Using a flat blade pry tool, pry the cable conduit clip up from the shifter bracket. Pull up on the cable conduit and remove from bracket (Fig. 44).

**Fig. 44 Gearshift Cable at Floor Shifter—Typical**

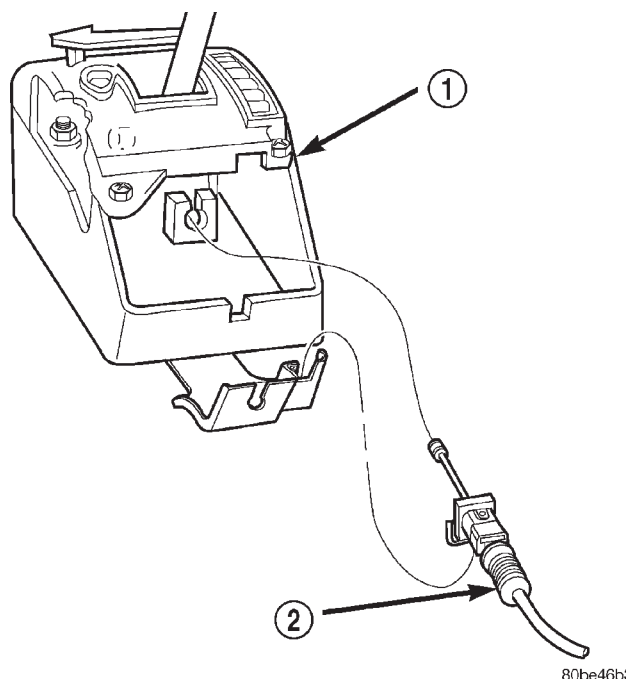
1 - CLIP
2 - CABLE
3 - CONDUIT BRACKET
4 - SHIFT PIN

(8) Release interlock cable adjuster end by inserting pointed object into shift bracket to disengage lock (Fig. 45). Unsnap the shifter/ignition interlock cable adjuster end from the slot in the gearshift mecha-

nism bracket and disconnect cable core from shifter assembly (Fig. 46).

**Fig. 45 Release Cable from Bracket at Retainer Lock**

1 - RELEASE CABLE HERE

**Fig. 46 Interlock Cable at Floor Shifter Assembly**

1 - SHIFTER ASSEMBLY
2 - INTERLOCK CABLE

REMOVAL AND INSTALLATION (Continued)

(9) Disconnect Autostick connector (if equipped) (Fig. 47).

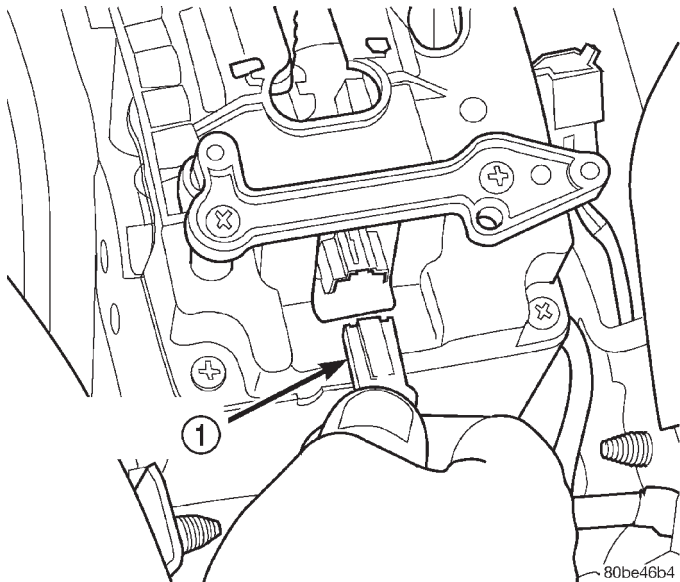


Fig. 47 Autostick Connector (if equipped)

1 – AUTOSTICK CONNECTOR

(10) Remove the five nuts at the base of the shifter assembly. Remove assembly from vehicle (Fig. 48).

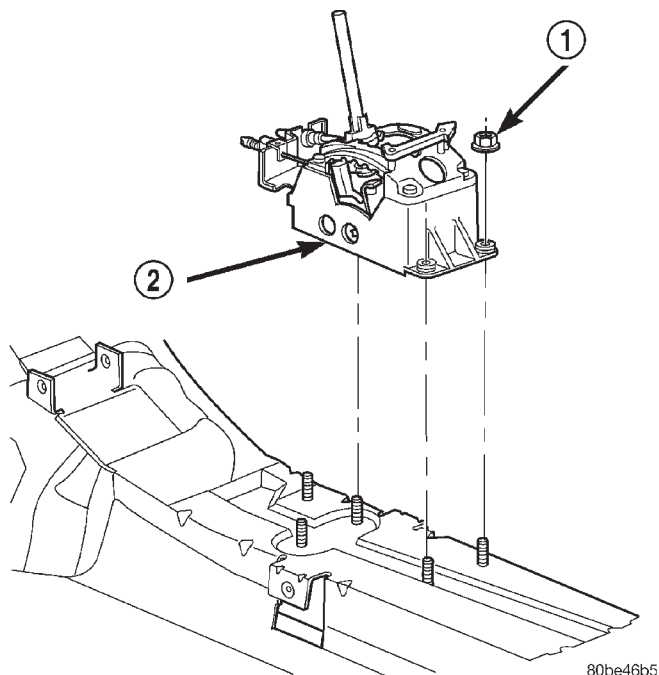


Fig. 48 Shifter Assembly

1 – NUTS (5)

2 – SHIFTER ASSEMBLY

INSTALLATION

(1) Install shifter assembly (Fig. 48). Tighten the nuts to 17 N·m (150 in. lbs.).

(2) Install gearshift cable into conduit bracket and onto shift pin. Install retainer clip (Fig. 44).

(3) Tighten cable adjuster nut (Fig. 43) to 23 N·m (200 in. lbs.).

(4) Insert interlock cable core wire into interlock adjustment lever groove. Make sure the interlock cable slug is seated in the groove (Fig. 46).

(5) Insert interlock cable adjuster end into bracket and snap into place (Fig. 46).

(6) Adjust the gearshift and interlock cables. Refer to Adjustments in this group.

NOTE: Gearshift and Interlock cables MUST be adjusted. Refer to the Adjustments section in this group for proper procedures.

(7) If equipped with Autostick, connect the Autostick connector (Fig. 47).

CAUTION: When installing forward console, the console will contact nylon shift release plunger (Fig. 42). If care is not used, plunger may break, requiring shifter assembly replacement.

(8) Install the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(9) Install the floor console (rear). Refer to Group 23, Body for the proper procedures.

(10) Install the gearshift knob and tighten set screw (Fig. 41) to 2 N·m (20 in. lbs.).

(11) Connect the battery negative cable.

AUTOSTICK

The autostick switch mechanism is incorporated into the gearshift mechanism. If the switch needs to be replaced, the gearshift mechanism must be replaced. To replace the autostick switch, refer to Gearshift Mechanism Replacement in this section.

BRAKE/TRANSMISSION SHIFT INTERLOCK CABLE

REMOVAL

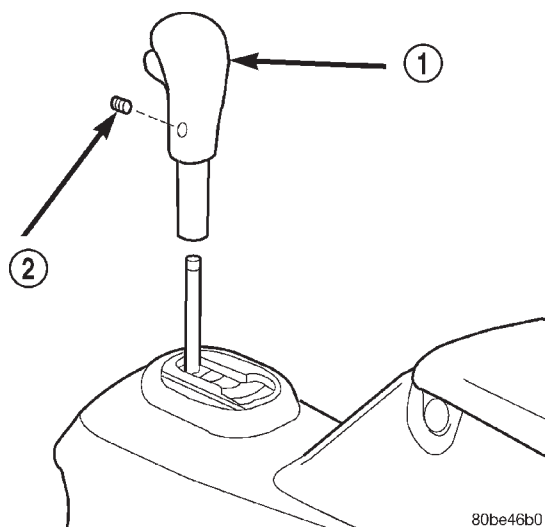
(1) Disconnect and isolate the battery negative cable.

(2) Remove the gearshift knob set screw and knob (Fig. 49).

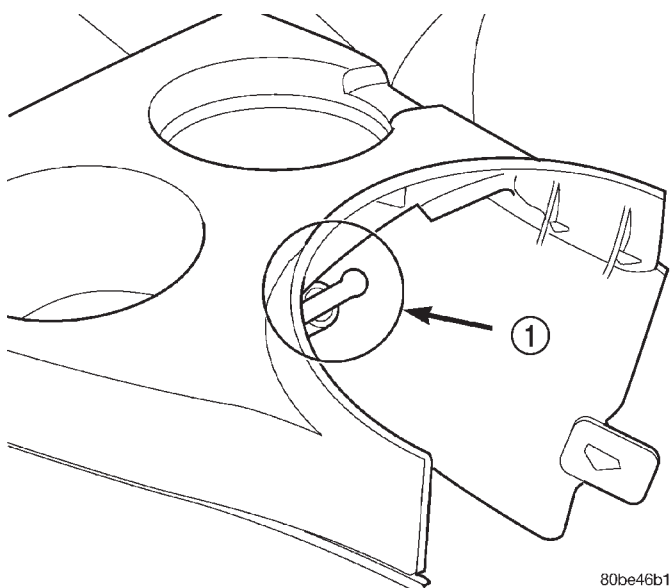
(3) Remove the floor console (rear). Refer to Group 23, Body for the proper procedures.

CAUTION: When removing forward console, the console will contact nylon shift release plunger (Fig. 50). If care is not used, plunger may break, requiring shifter assembly replacement.

REMOVAL AND INSTALLATION (Continued)

**Fig. 49 Shifter Knob Removal/Installation**

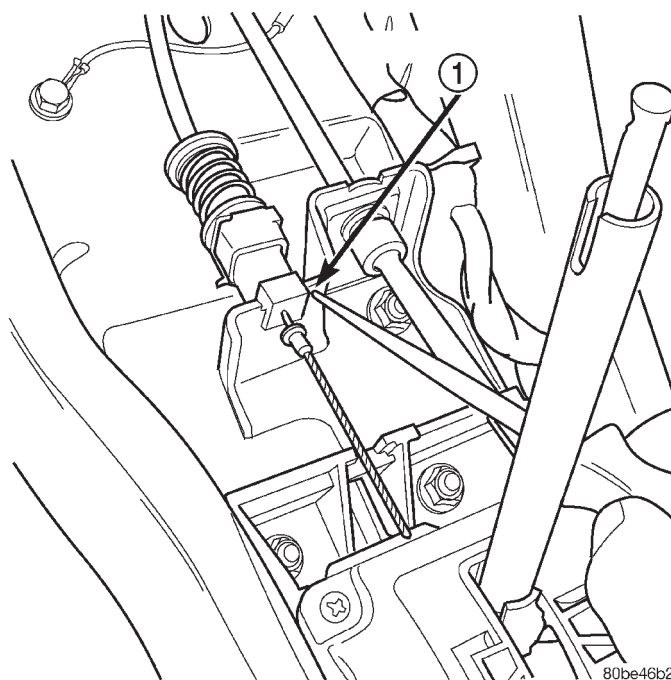
- 1 - SHIFTER KNOB
2 - SET SCREW

**Fig. 50 Console/Shifter Contact Area**

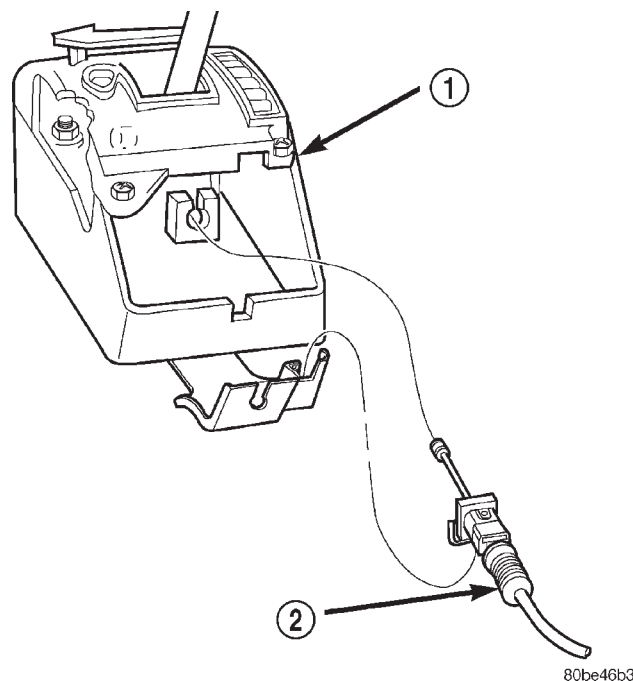
- 1 - AREA OF CONTACT

(4) Remove the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(5) Release interlock cable adjuster end by inserting pointed object into shift bracket to disengage lock (Fig. 51). Unsnap the shifter/ignition interlock cable adjuster end from the slot in the gearshift mechanism bracket and disconnect cable core from shifter assembly (Fig. 52).

**Fig. 51 Release Cable from Bracket at Retainer Lock**

- 1 - RELEASE CABLE HERE

**Fig. 52 Interlock Cable at Floor Shifter Assembly**

- 1 - SHIFTER ASSEMBLY
2 - INTERLOCK CABLE

REMOVAL AND INSTALLATION (Continued)

(6) Remove fuse panel cover from left end of instrument panel. Remove screw holding end of instrument panel top cover (Fig. 53).

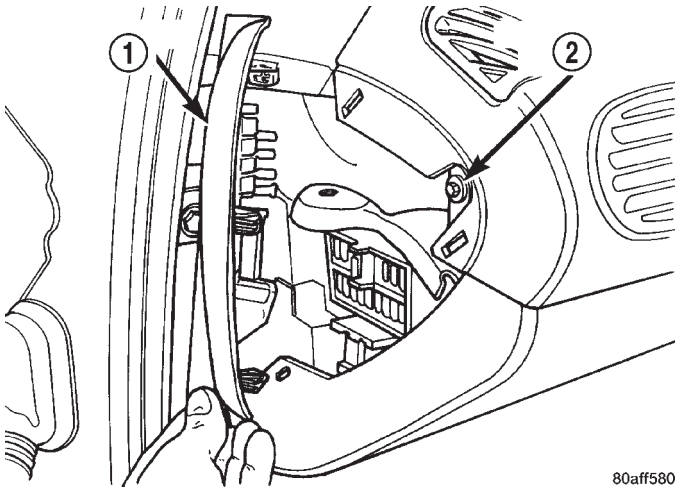


Fig. 53 Instrument Panel Top Cover-Left Side

- 1 - FUSE PANEL COVER
2 - TOP COVER SCREW

(7) Pull center bezel off (Fig. 54).

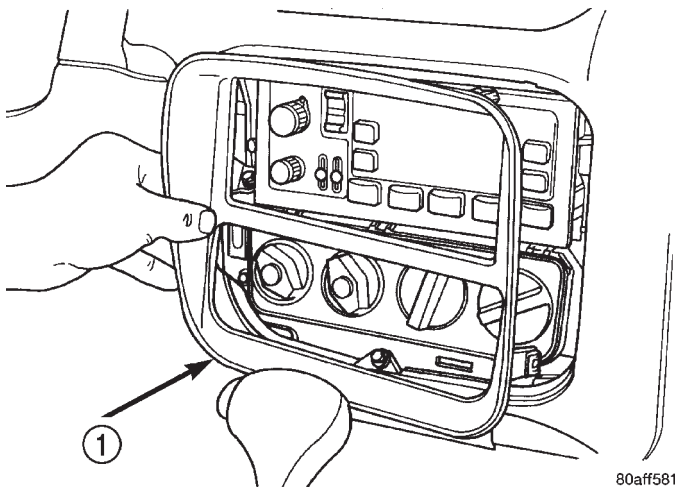


Fig. 54 Center Bezel

- 1 - CENTER BEZEL

(8) Remove screws holding instrument panel top cover to center of instrument panel (Fig. 55).

(9) Pull instrument panel top cover up enough to gain access to knee bolster screws (Fig. 56).

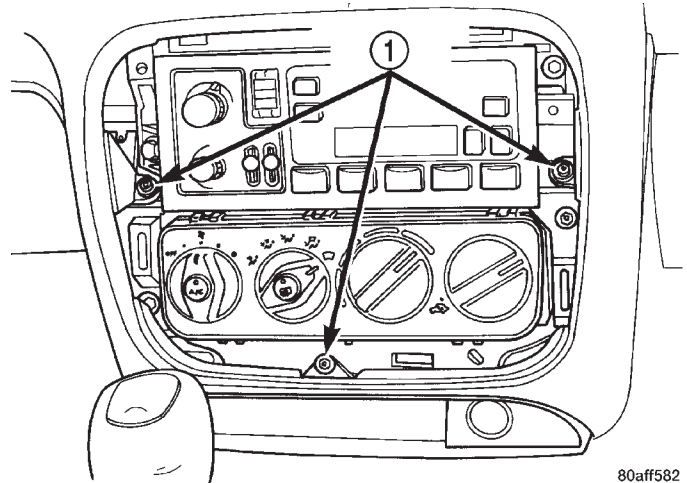


Fig. 55 Instrument Panel Top Cover-Center

- 1 - TOP COVER SCREWS

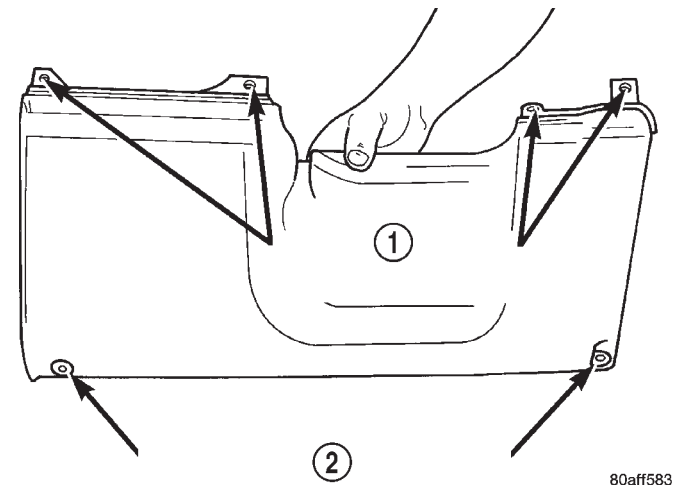


Fig. 56 Knee Bolster Attaching Points

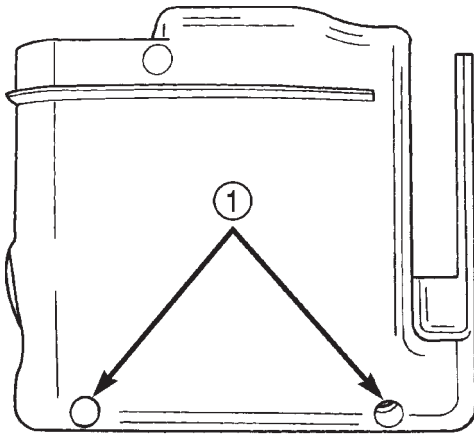
- 1 - KNEE BOLSTER SCREW LOCATIONS UNDER TOP COVER
2 - LOWER SCREW LOCATIONS

(10) Remove lower knee bolster screws and knee bolster.

(11) Remove screws from lower steering column shroud (Fig. 57).

(12) Pull lower shroud to clear ignition cylinder (Fig. 58).

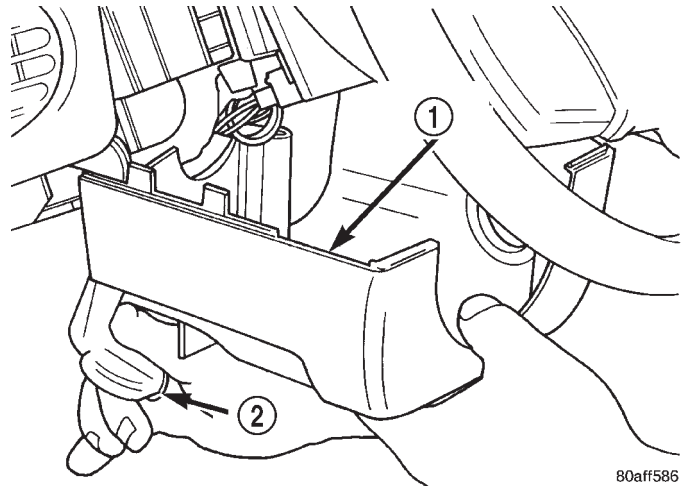
REMOVAL AND INSTALLATION (Continued)



80aff584

Fig. 57 Lower Steering Column Shroud Screw Locations

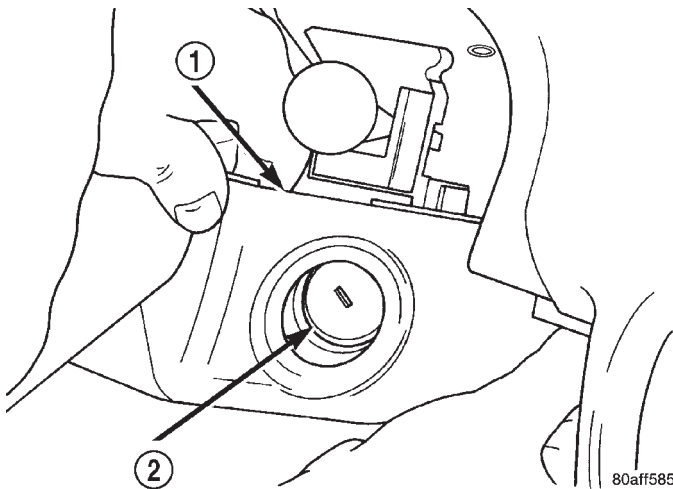
1 - LOWER STEERING COLUMN SHROUD SCREW LOCATIONS



80aff586

Fig. 59 Lower Shroud Removal

1 - LOWER SHROUD
2 - TILT LEVER



80aff585

Fig. 58 Remove Lower Shroud From Ignition Cylinder

1 - LOWER SHROUD
2 - KEY CYLINDER

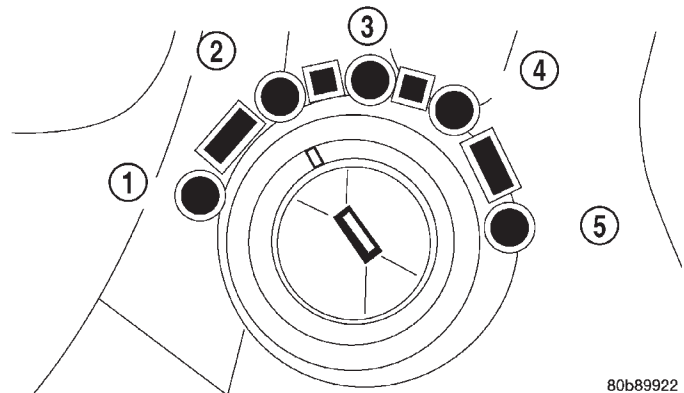
(13) Hold tilt wheel lever down and slide lower shroud forward to remove it from column (Fig. 59).

(14) Tilt wheel to full down position and remove upper steering column shroud.

(15) Disconnect interlock solenoid connector.

(16) Disconnect nylon cable retainer from lower column mounting stud.

(17) Place the ignition key in the ON/RUN position (Fig. 60). Grasp the interlock cable clip and connector. Remove the cable from the interlock housing (Fig. 61).



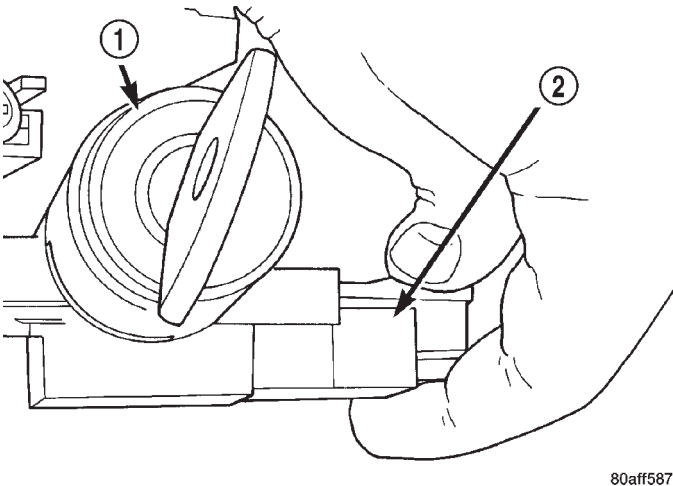
80b89922

Fig. 60 Ignition Key/Switch Positions

1 - ACC
2 - LOCK
3 - OFF
4 - ON/RUN
5 - START

(18) Remove interlock cable from underside of instrument panel.

REMOVAL AND INSTALLATION (Continued)



80aff587

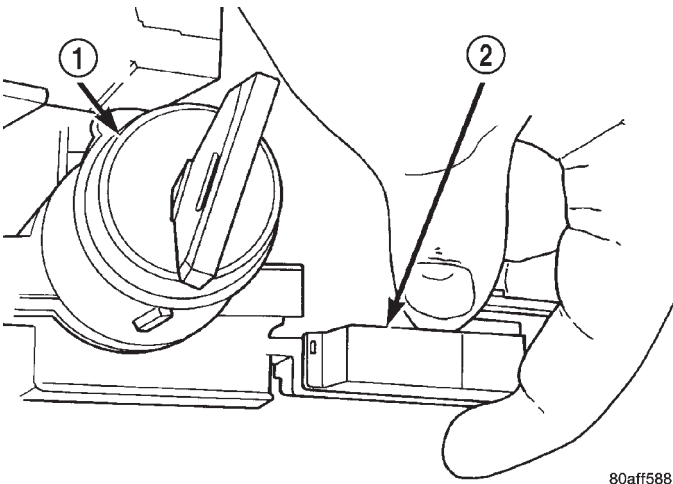
Fig. 61 Interlock Cable and Connector

- 1 - IGNITION LOCK CYLINDER
2 - INTERLOCK CABLE

INSTALLATION

CAUTION: When installing interlock cable assembly, care must be taken not to bend exposed cable wire and slug at shifter end of cable.

- (1) Route interlock cable into lower dash panel and towards console as removed.
- (2) Turn the ignition switch to the ON/RUN position (Fig. 60).
- (3) Install the interlock cable into the interlock housing at the steering column (Fig. 62). Verify the cable snaps into the housing.



80aff588

Fig. 62 Interlock Cable At Housing

- 1 - IGNITION SWITCH
2 - INTERLOCK CABLE

- (4) Install nylon cable retainer to lower column mounting stud.
- (5) Connect solenoid connector.

(6) Insert interlock cable core wire into interlock adjustment lever groove. Make sure the interlock cable slug is seated in the groove (Fig. 52).

(7) Insert interlock cable adjuster end into bracket and snap into place (Fig. 52).

NOTE: The Interlock Cable **MUST** be adjusted. Refer to Interlock System Adjustment, in this group.

CAUTION: When installing forward console, the console will contact nylon shift release plunger (Fig. 50). If care is not used, plunger may break, requiring shifter assembly replacement.

(8) Install the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(9) Install the floor console (rear). Refer to Group 23, Body for the proper procedures.

(10) Install the gearshift knob and tighten set screw (Fig. 49) to 2 N·m (20 in.lbs.).

(11) Tilt wheel to full down position and install upper steering column shroud.

(12) Hold tilt wheel lever down and slide lower shroud in at column.

(13) Install screws at lower steering column shroud.

(14) Install lower knee bolster screws and knee bolster.

(15) Install screws holding instrument panel top cover to center of instrument panel.

(16) Install center bezel.

(17) Install screw holding end of instrument panel top cover. Install fuse panel cover from left end of instrument panel.

(18) Connect the battery negative cable.

INTERLOCK MECHANISM

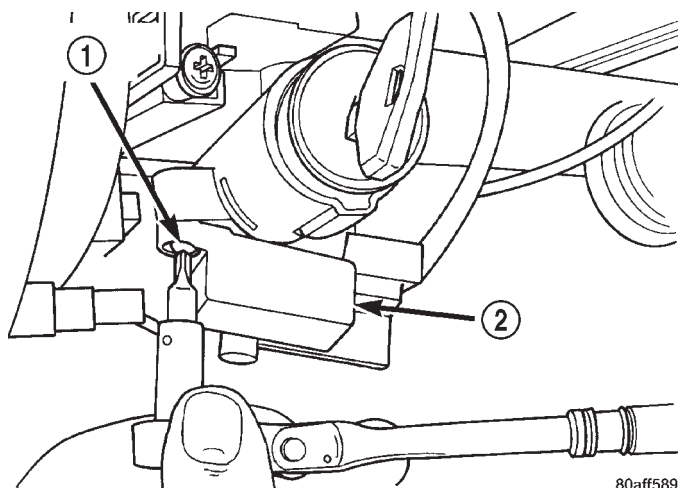
REMOVAL

- (1) Remove the lower column covers, knee bolster and shrouds. Refer to Interlock Cable Replacement.
- (2) Grasp the interlock cable and connector firmly. Remove the interlock cable.
- (3) Remove the two interlock mechanism to steering column attaching screws (Fig. 63). Remove the interlock housing.

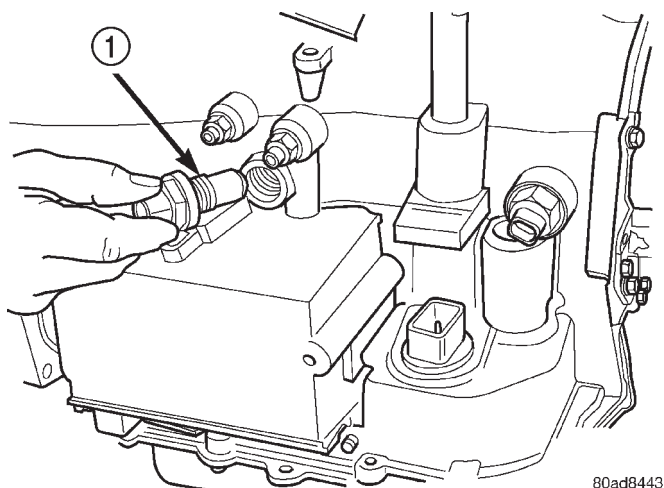
INSTALLATION

- (1) Position the interlock housing at steering column. Install the two interlock mechanism to steering column attaching screws. Torque screws to 3 N·m (21 in. lbs.).
- (2) Snap the interlock cable into the housing.
- (3) Install the lower column covers, shrouds and knee bolster. Refer to Interlock Cable Replacement.

REMOVAL AND INSTALLATION (Continued)

**Fig. 63 Interlock Mechanism**

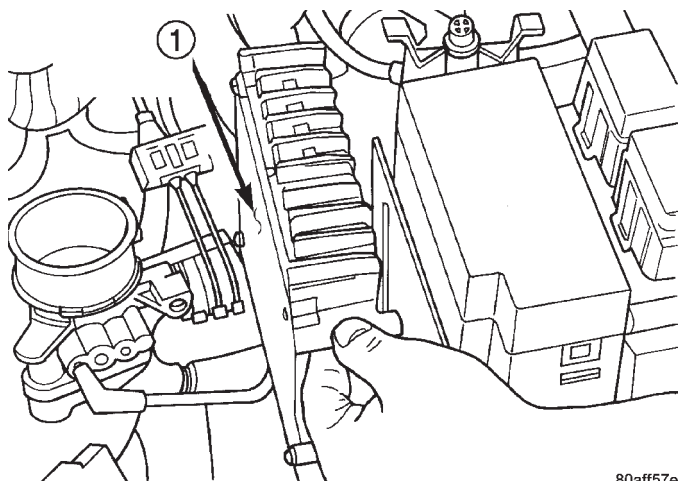
- 1 - MOUNTING SCREW
2 - INTERLOCK MECHANISM

**Fig. 65 Input Speed Sensor**

- 1 - INPUT (TURBINE) SPEED SENSOR

SOLENOID/PRESSURE SWITCH ASSEMBLY**REMOVAL**

- (1) Disconnect battery negative cable.
- (2) Remove air cleaner assembly.
- (3) Remove the Transmission Control module (TCM) (Fig. 64).

**Fig. 64 Transmission Control Module (TCM)**

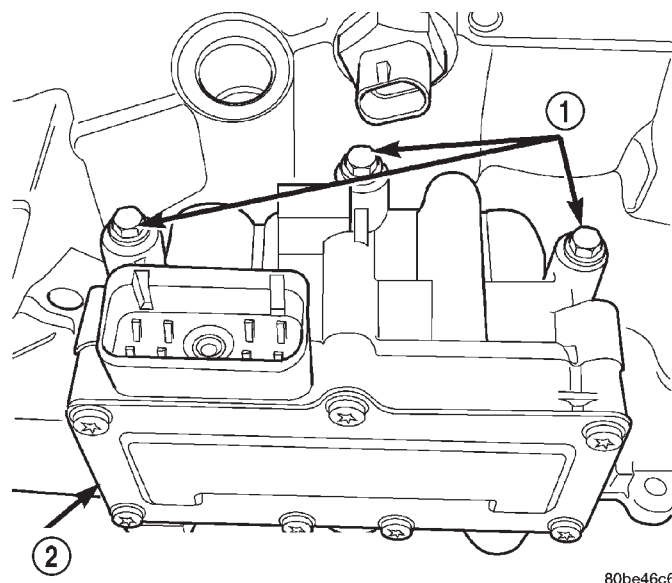
- 1 - TRANSMISSION CONTROL MODULE

(4) Disconnect and remove the input speed sensor (Fig. 65).

(5) Disconnect the transmission oil cooler lines. Cap off hoses and fittings to prevent foreign matter intrusion.

(6) Disconnect the solenoid/pressure switch assembly connector.

(7) Remove the three solenoid/pressure switch assembly-to-transaxle case bolts (Fig. 66).

**Fig. 66 Attaching Bolts**

- 1 - BOLTS
2 - SOLENOID AND PRESSURE SWITCH ASSEMBLY

(8) Remove solenoid/pressure switch assembly and gasket (Fig. 67).

CAUTION: Be sure to keep foreign material from entering ports in transaxle case. Erratic transaxle operation and/or failure can result.

INSTALLATION

(1) Install solenoid/pressure switch assembly to case using a new gasket (Fig. 67).

(2) Install bolts and torque to 13 N·m (110 in. lbs.) (Fig. 66).

REMOVAL AND INSTALLATION (Continued)

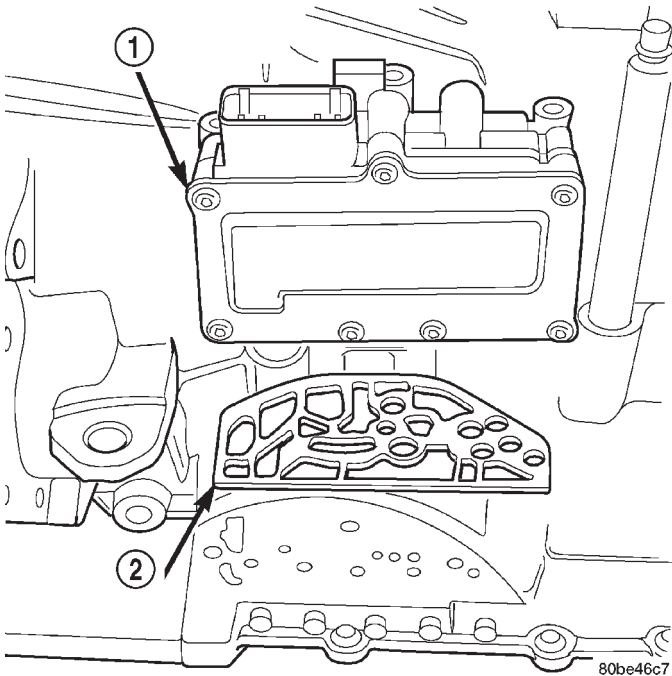


Fig. 67 Solenoid/Pressure Switch Assembly and Gasket

- 1 – SOLENOID/PRESSURE SWITCH ASSEMBLY
2 – GASKET

- (3) Install 8-way connector and torque screw to 4 N·m (35 in. lbs.).
- (4) Uncap and install transmission oil cooler lines.
- (5) Install input speed sensor (Fig. 65) and torque to 27 N·m (20 ft. lbs.).
- (6) Install Transmission Control Module (TCM) (Fig. 64).
- (7) Install air cleaner assembly.
- (8) Connect battery negative cable.
- (9) Perform Transaxle Quick Learn Procedure. Refer to Service Procedures.

TRANSMISSION RANGE SENSOR

The valve body assembly must be removed to gain access to and replace the transmission range sensor.

REMOVAL

- (1) Disconnect battery negative cable.
- (2) Remove engine air cleaner assembly.
- (3) Disconnect gearshift cable from manual valve lever (Fig. 68).

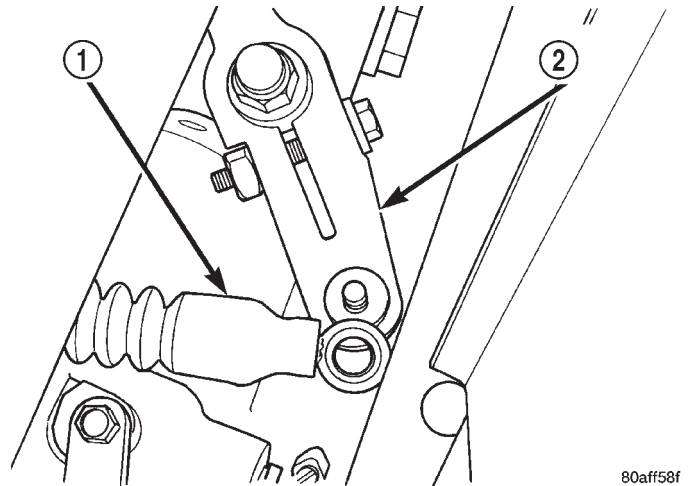


Fig. 68 Gearshift Cable at Lever

- 1 – SHIFT CABLE
2 – SHIFT LEVER

- (4) Remove manual valve lever.
- (5) Disconnect transmission range sensor connector.
- (6) Hoist vehicle.
- (7) Remove oil pan bolts (Fig. 69).

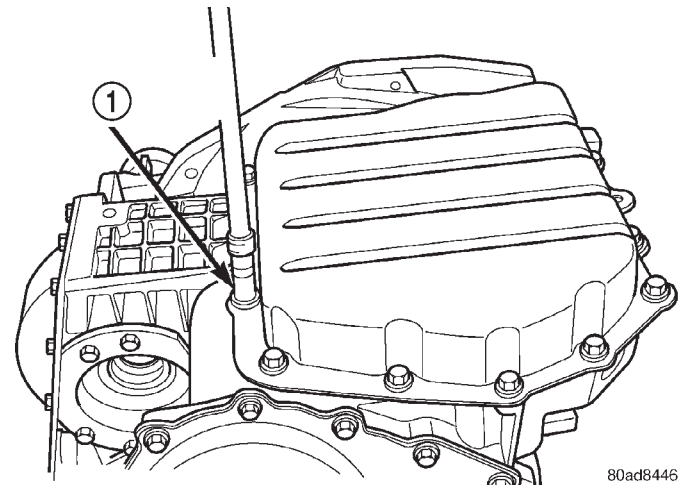
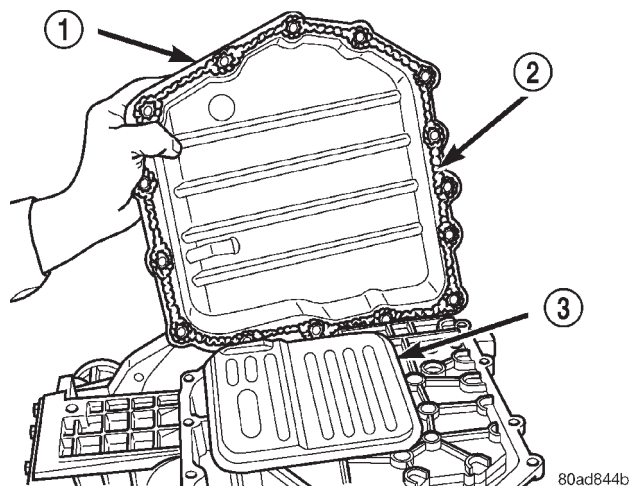


Fig. 69 Oil Pan Bolts

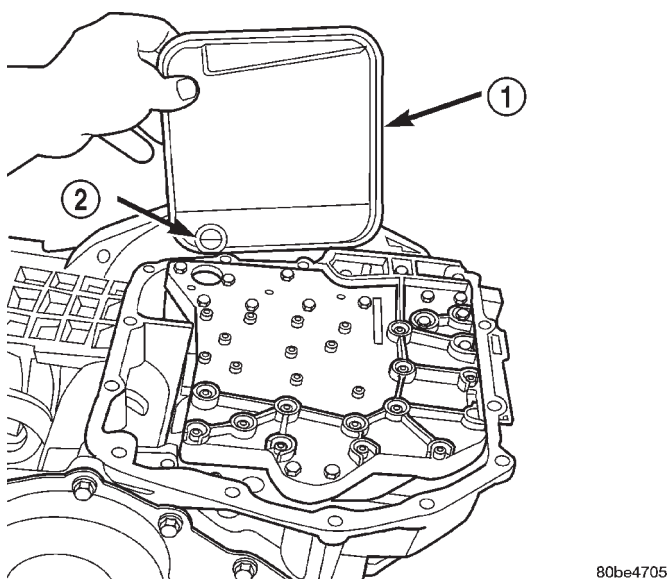
- 1 – OIL PAN BOLTS (USE RTV UNDER BOLT HEADS)

- (8) Remove oil pan (Fig. 70).
- (9) Remove oil filter (Fig. 71).

REMOVAL AND INSTALLATION (Continued)

**Fig. 70 Oil Pan**

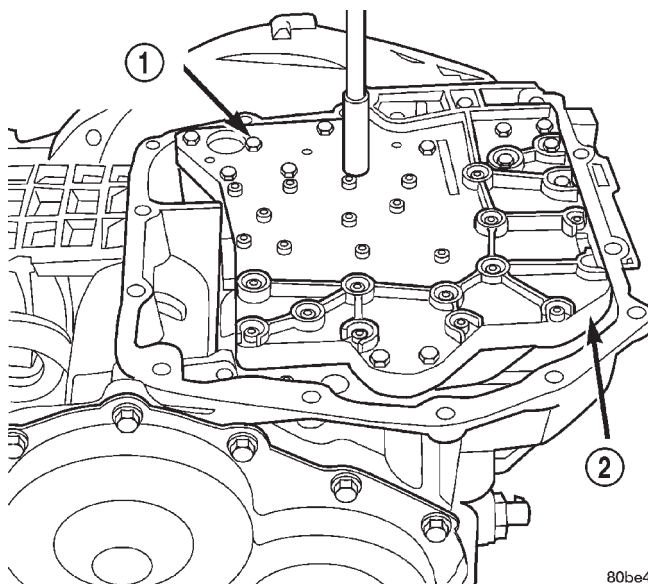
- 1 - OIL PAN
- 2 - 1/8 INCH BEAD OF RTV SEALANT
- 3 - OIL FILTER

**Fig. 71 Oil Filter**

- 1 - OIL FILTER
- 2 - O-RING

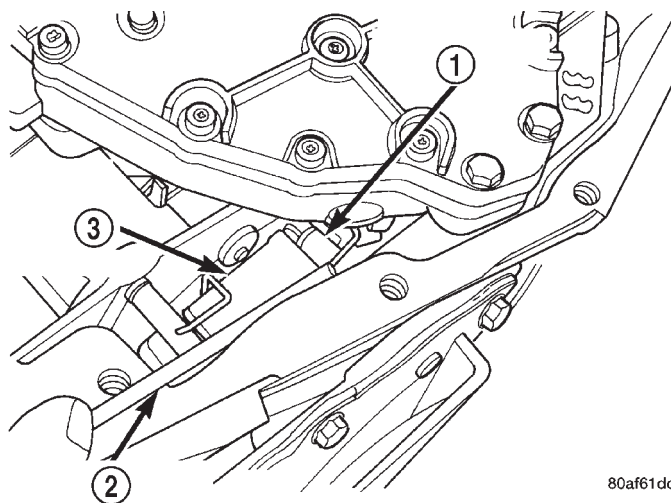
(10) Remove the valve body-to-transaxle case bolts (Fig. 72).

NOTE: To ease removal of the valve body, turn the manual valve lever fully clockwise to low or first gear.

**Fig. 72 Valve Body Attaching Bolts**

- 1 - VALVE BODY ATTACHING BOLTS (18)
- 2 - VALVE BODY

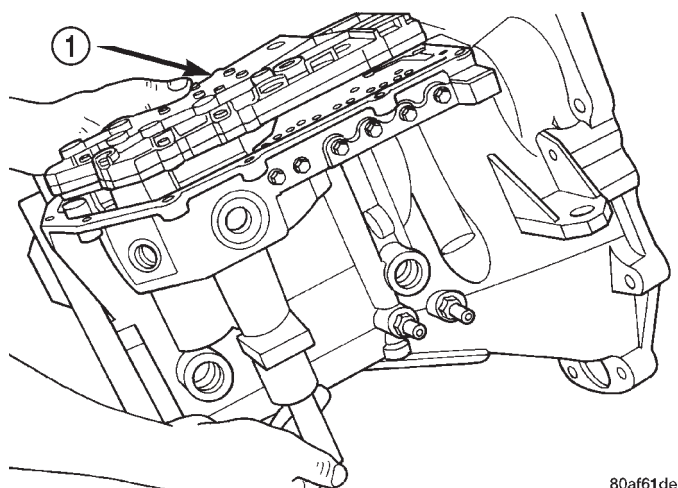
(11) Remove park rod rollers from guide bracket and remove valve body from transaxle (Fig. 73) (Fig. 74).

**Fig. 73 Push Park Rod Rollers from Guide Bracket**

- 1 - PARK SPRAG ROLLERS
- 2 - SCREWDRIVER
- 3 - PARK SPRAG GUIDE BRACKET

CAUTION: The valve body manual shaft pilot may distort and bind the manual valve if the valve body is mishandled or dropped.

REMOVAL AND INSTALLATION (Continued)

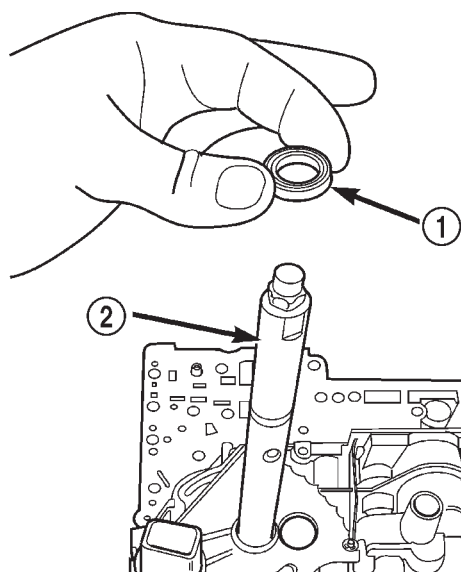


80af61de

Fig. 74 Valve Body Removal/Installation

1 – VALVE BODY

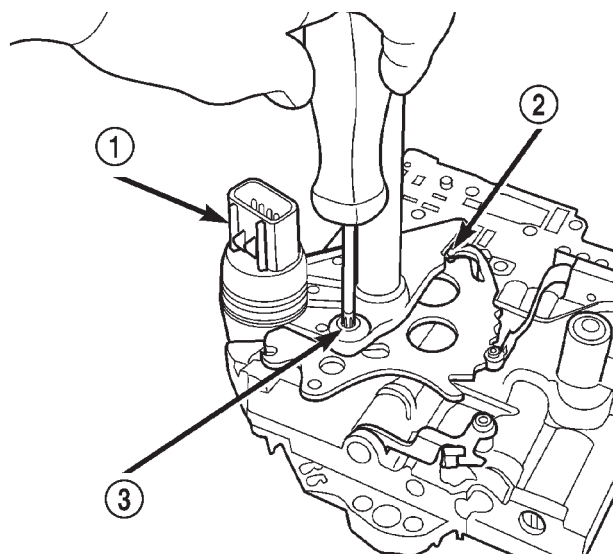
(12) Remove manual shaft seal (Fig. 75).



80be4707

Fig. 75 Remove Manual Shaft Seal

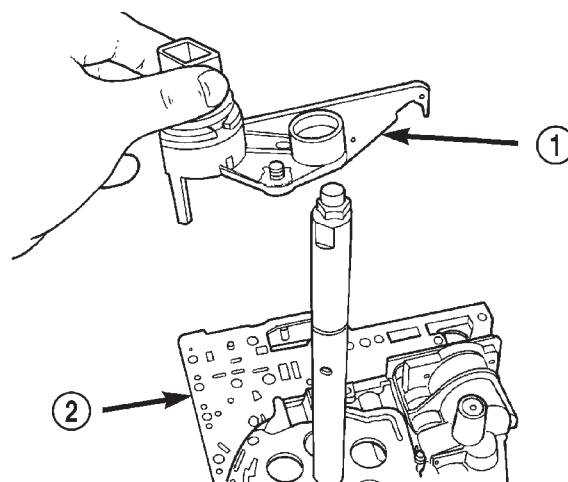
1 – SEAL
2 – MANUAL SHAFT



80be466*

Fig. 76 Remove Retaining Screw

1 – TRANSMISSION RANGE SENSOR
2 – MANUAL VALVE CONTROL PIN
3 – RETAINING SCREW



800ced4f

Fig. 77 Remove Transmission Range Sensor

1 – TRANSMISSION RANGE SENSOR
2 – VALVE BODY

INSTALLATION

- (1) Install transmission range sensor (Fig. 77).
- (2) Tighten retaining screw (Fig. 76) to 5 N·m (45 in. lbs.).
- (3) Install manual shaft seal (Fig. 75).
- (4) Guide park rod rollers into guide bracket while installing valve body to the transaxle case (Fig. 73) (Fig. 74).

- (5) Install the valve body-to-case bolts (Fig. 72) and torque to 12 N·m (105 in. lbs.).
- (6) Install the oil filter (Fig. 71). Inspect the o-ring for damage and replace as necessary.
- (7) Install an 1/8" bead of RTV as shown in (Fig. 70) and install pan to case.
- (8) Install oil pan bolts (Fig. 69) and torque to 19 N·m (165 in. lbs.) torque.
- (9) Lower vehicle.
- (10) Connect transmission range sensor connector.
- (11) Install manual valve lever to manual valve.
- (12) Install gear shift cable to manual valve lever (Fig. 68).

REMOVAL AND INSTALLATION (Continued)

- (13) Install air cleaner assembly.
- (14) Connect battery negative cable.
- (15) Fill transaxle with ATF+4 (Automatic Transmission Fluid–Type 9602). Refer to Fluid Level and Condition in this Group.

INPUT SPEED SENSOR

CAUTION: When disconnecting speed sensor connector, be sure that the connector weather seal does not fall off or remain in old sensor.

REMOVAL

- (1) Disconnect battery negative cable.
- (2) If necessary, disconnect and cap off transmission oil cooler lines.
- (3) Disconnect input speed sensor connector.
- (4) Unscrew and remove input speed sensor (Fig. 78).
- (5) Inspect speed sensor o-ring (Fig. 79) and replace if necessary.

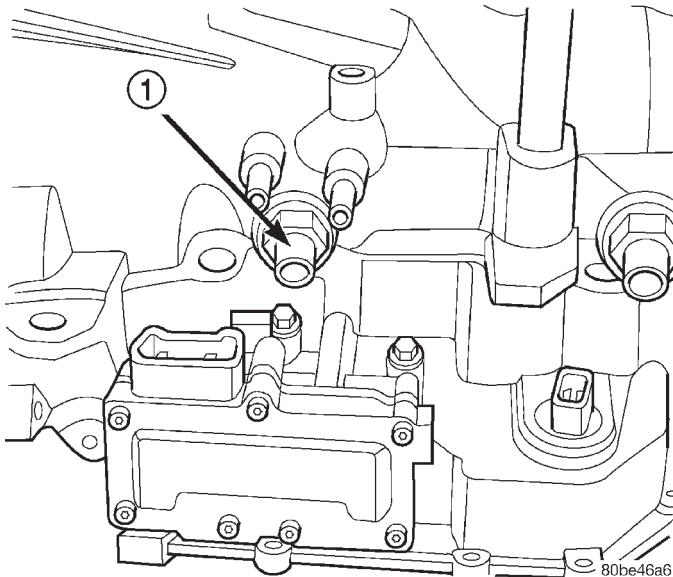


Fig. 78 Input (Turbine) Speed Sensor

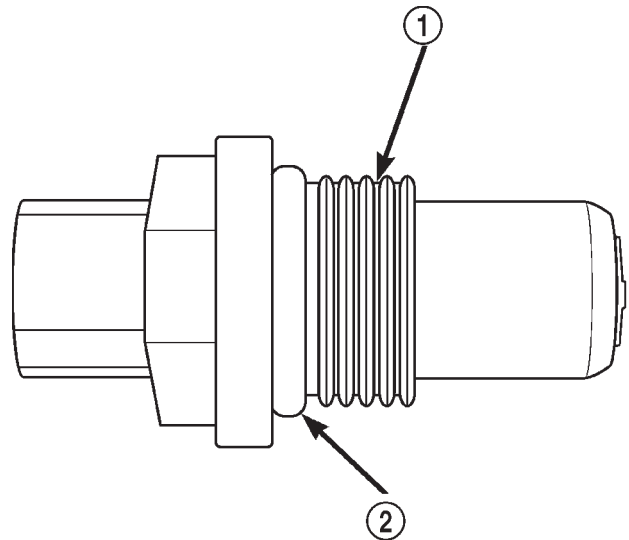
1 – INPUT SPEED SENSOR

INSTALLATION

- (1) Verify o-ring is installed into position.
- (2) Install and tighten input speed sensor to 27 N·m (20 ft. lbs.).
- (3) Connect speed sensor connector.
- (4) Connect battery negative cable.

OUTPUT SPEED SENSOR

CAUTION: When disconnecting speed sensor connector, be sure that the connector weather seal does not fall off or remain in old sensor.



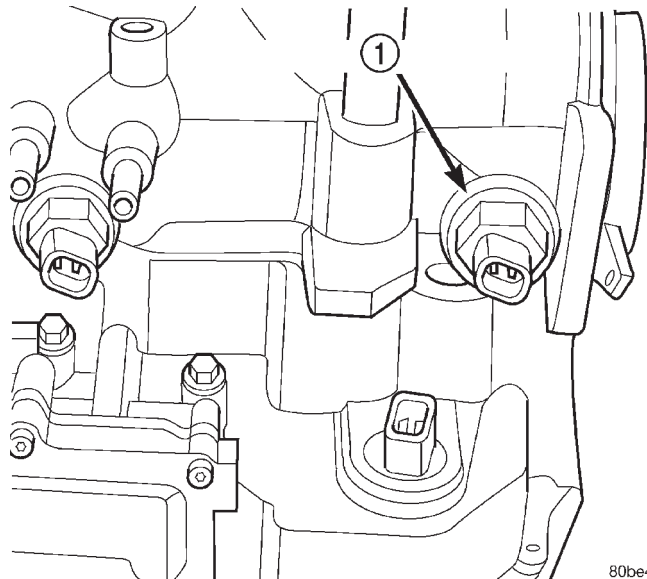
80be46b8

Fig. 79 O-ring Location

1 – INPUT SPEED SENSOR
2 – O-RING

REMOVAL

- (1) Disconnect battery negative cable.
- (2) Disconnect input speed sensor connector.
- (3) Unscrew and remove output speed sensor (Fig. 80).
- (4) Inspect speed sensor o-ring (Fig. 81) and replace if necessary.

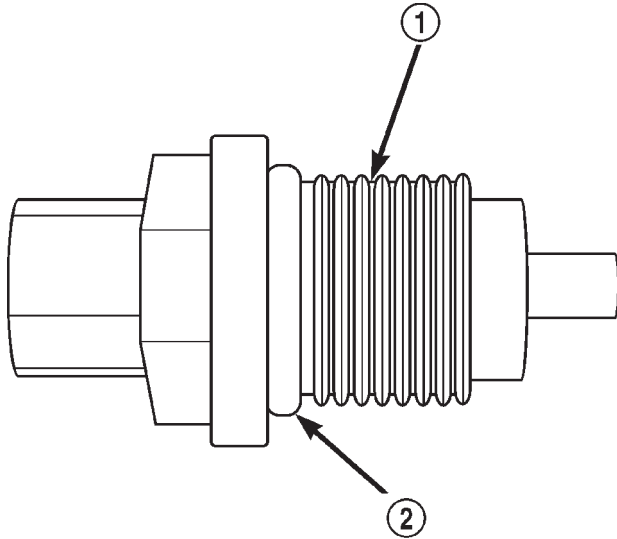


80be46a7

Fig. 80 Output Speed Sensor

1 – OUTPUT SPEED SENSOR

REMOVAL AND INSTALLATION (Continued)



80be46b9

Fig. 81 O-ring Location

- 1 – OUTPUT SPEED SENSOR
2 – O-RING

INSTALLATION

- (1) Verify o-ring is installed into position (Fig. 81).
- (2) Install and tighten input speed sensor to 27 N·m (20 ft. lbs.).
- (3) Connect speed sensor connector.
- (4) Connect battery negative cable.

TRANSMISSION CONTROL MODULE

REMOVAL

- (1) Disconnect battery negative cable at the left strut tower.
- (2) Remove TCM 60 way connector.
- (3) Remove three mounting screws.
- (4) Remove TCM.

INSTALLATION

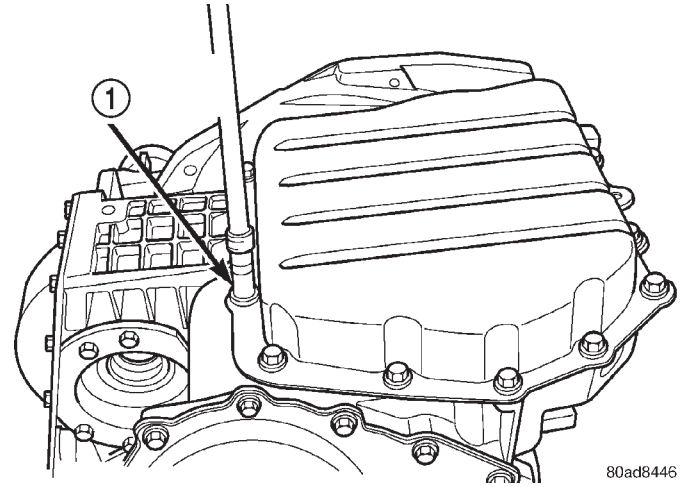
- (1) Install TCM and fasten with three mounting screws.
- (2) Connect the TCM 60 way connector and torque to 4 N·m (35 in. lbs.).
- (3) Connect the battery negative cable.

NOTE: After the Transmission Control Module has been replaced, the Transaxle Quick Learn & Pinion Factor procedures must be performed. Refer to Service Procedures.

VALVE BODY

REMOVAL

- (1) Remove oil pan bolts (Fig. 82).

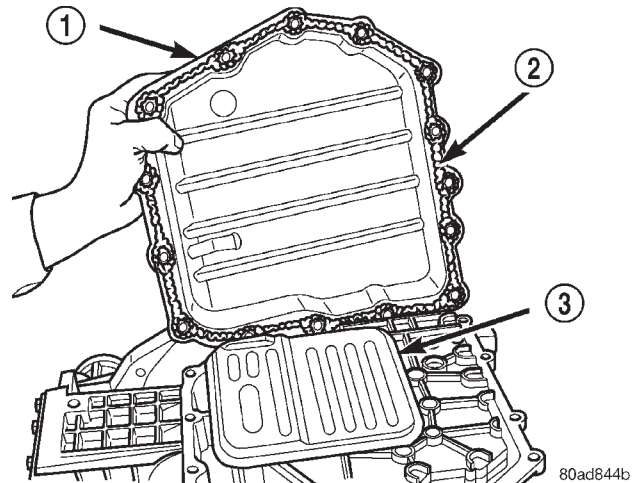


80ad8446

Fig. 82 Oil Pan Bolts

- 1 – OIL PAN BOLTS (USE RTV UNDER BOLT HEADS)

- (2) Remove oil pan (Fig. 83).



80ad844b

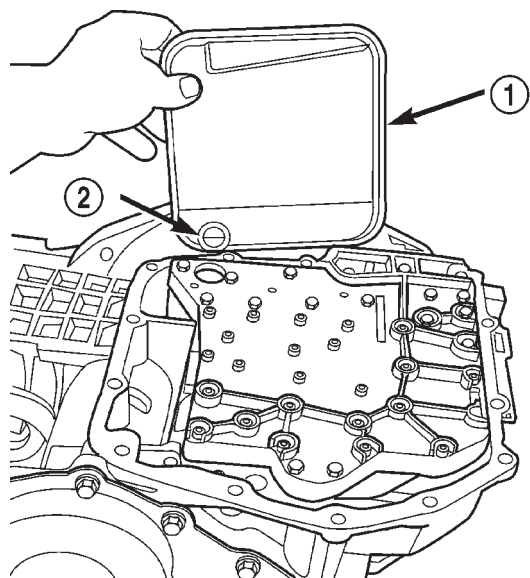
Fig. 83 Oil Pan

- 1 – OIL PAN
2 – 1/8 INCH BEAD OF RTV SEALANT
3 – OIL FILTER

- (3) Remove oil filter (Fig. 84).
- (4) Remove the valve body-to-transaxle case bolts (Fig. 85).

NOTE: To ease removal of the valve body, turn the manual valve lever fully clockwise to low or first gear.

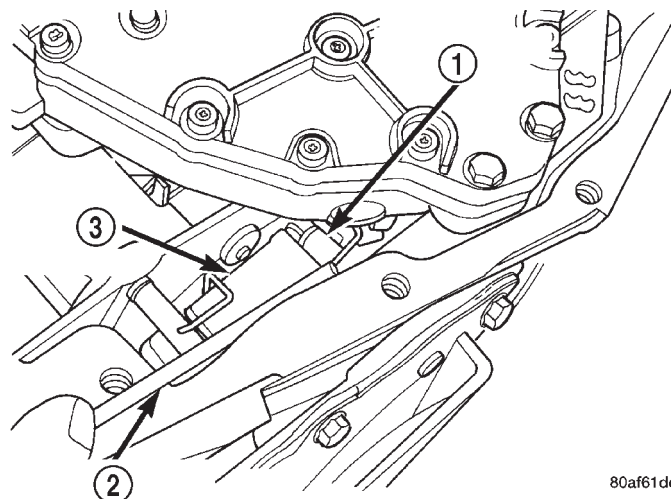
REMOVAL AND INSTALLATION (Continued)



80be4705

Fig. 84 Oil Filter

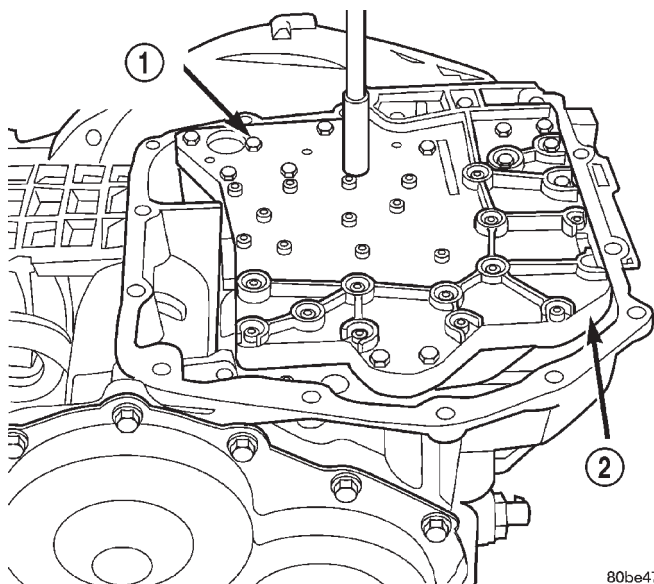
- 1 - OIL FILTER
2 - O-RING



80af61dc

Fig. 86 Push Park Rod Rollers from Guide Bracket

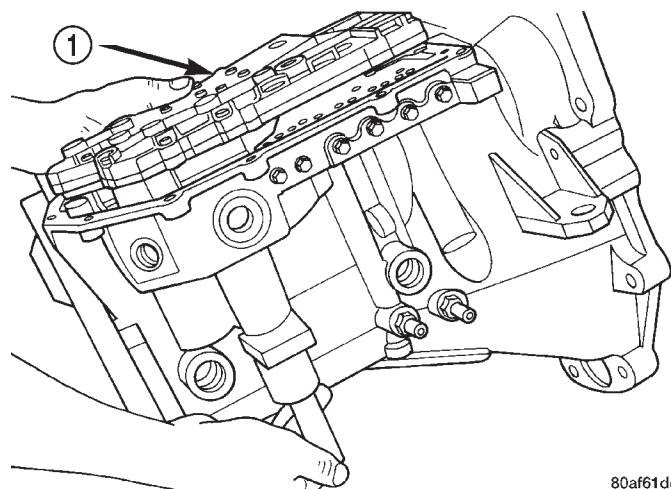
- 1 - PARK SPRAG ROLLERS
2 - SCREWDRIVER
3 - PARK SPRAG GUIDE BRACKET



80be4706

Fig. 85 Valve Body Attaching Bolts

- 1 - VALVE BODY ATTACHING BOLTS (18)
2 - VALVE BODY



80af61de

Fig. 87 Valve Body Removal/Installation

- 1 - VALVE BODY

INSTALLATION

NOTE: To ease installation of the valve body, turn the manual valve lever fully clockwise.

(5) Remove park rod rollers from guide bracket and remove valve body from transaxle (Fig. 86) (Fig. 87).

CAUTION: The valve body manual shaft pilot may distort and bind the manual valve if the valve body is mishandled or dropped.

(1) Guide park rod rollers into guide bracket while installing valve body to the transaxle case (Fig. 86) (Fig. 87).

(2) Install the valve body-to-case bolts (Fig. 85) and torque to 12 N·m (105 in. lbs.).

(3) Install the oil filter (Fig. 84). Inspect the o-ring for damage and replace as necessary.

(4) Install an 1/8" bead of RTV as shown in (Fig. 83) and install pan to case.

REMOVAL AND INSTALLATION (Continued)

(5) Install oil pan bolts (Fig. 82) and torque to 19 N·m (165 in. lbs.) torque.

TRANSAXLE

REMOVAL

Transaxle removal does NOT require engine removal.

The transaxle and torque converter must be removed as an assembly; otherwise, the torque converter drive plate, pump bushing or oil seal may be damaged. The drive plate will not support a load; therefore, none of the weight of the transaxle should be allowed to rest on the drive plate during removal.

(1) Disconnect battery negative cable at left strut tower (Fig. 88).

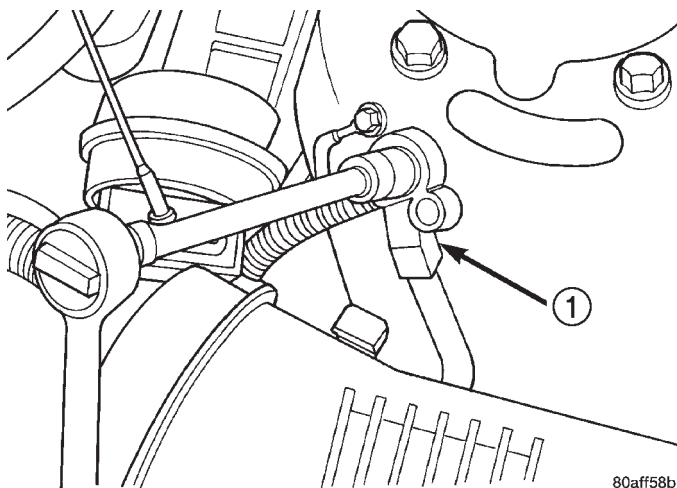


Fig. 88 Negative Cable

1 – NEGATIVE CABLE

(2) Remove air cleaner duct.

(3) Remove transmission control module (TCM) and wiring (Fig. 89).

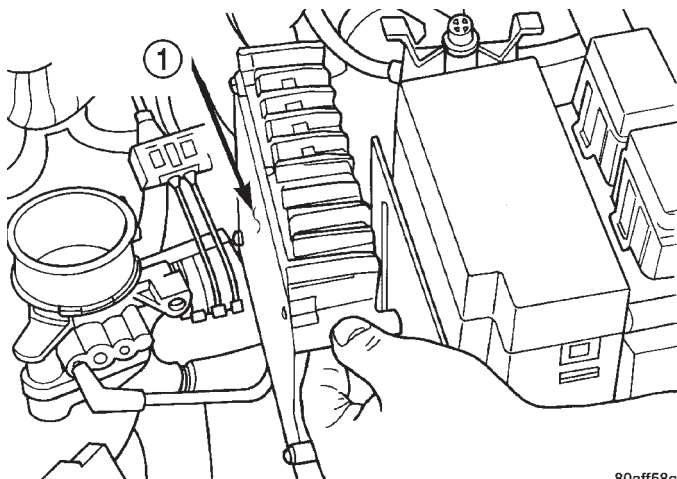
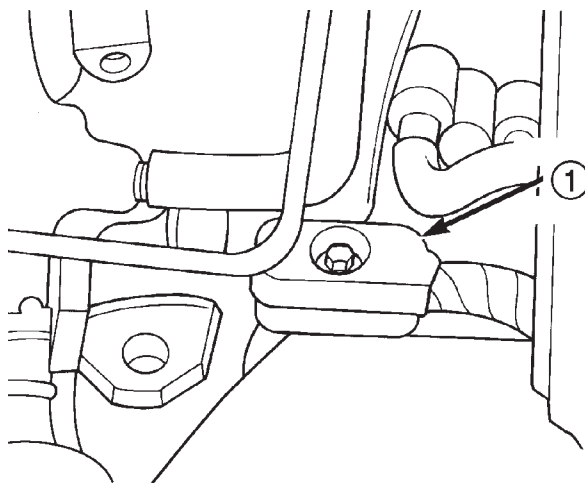


Fig. 89 Transmission Control Module

1 – TRANSMISSION CONTROL MODULE

(4) Remove solenoid pack connector (Fig. 90).



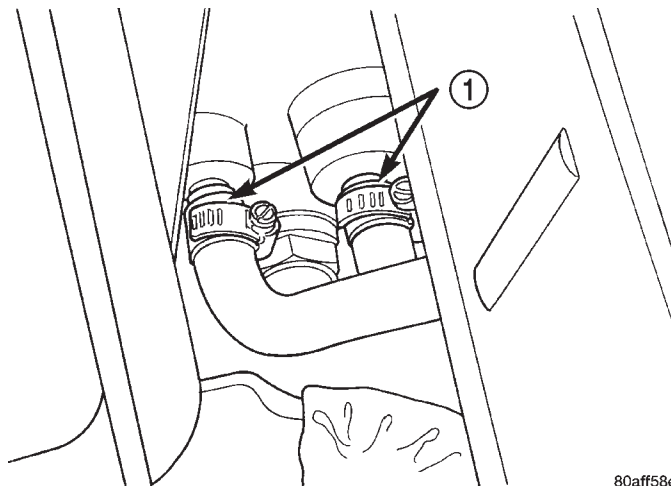
80aff58d

Fig. 90 Solenoid Pack Connector

1 – SOLENOID PACK CONNECTOR

(5) Remove dipstick tube.

(6) Remove transaxle cooler lines (Fig. 91).



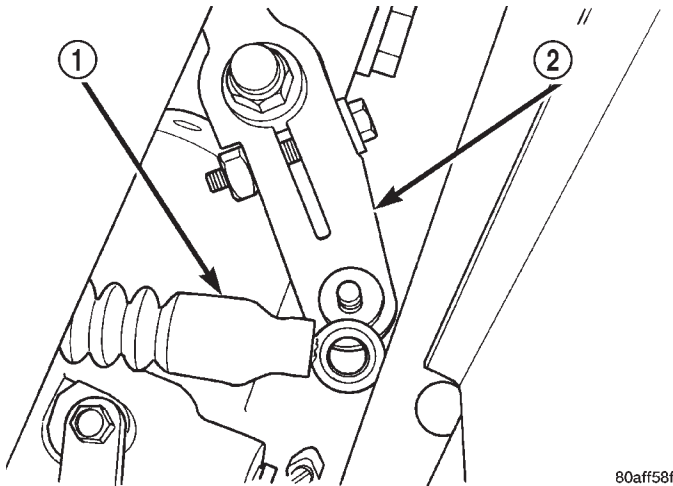
80aff58e

Fig. 91 Transaxle Cooler Lines

1 – TRANSEXLE COOLER LINES

(7) Remove shift cable at lever and at clamp on transaxle (Fig. 92) (Fig. 93).

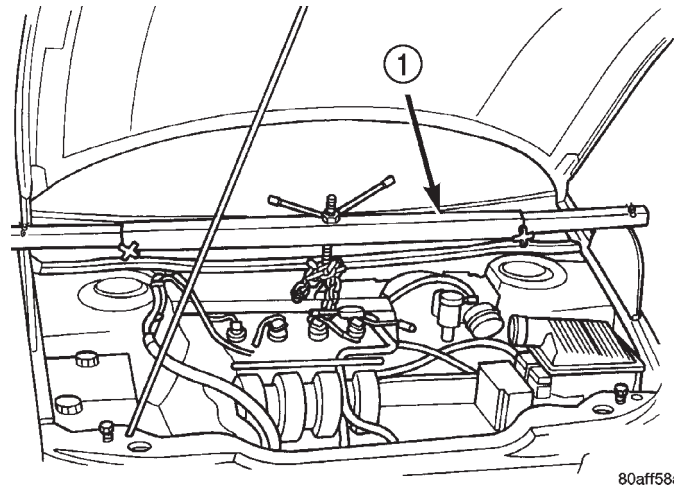
REMOVAL AND INSTALLATION (Continued)



80aff58f

Fig. 92 Shift Cable at Lever

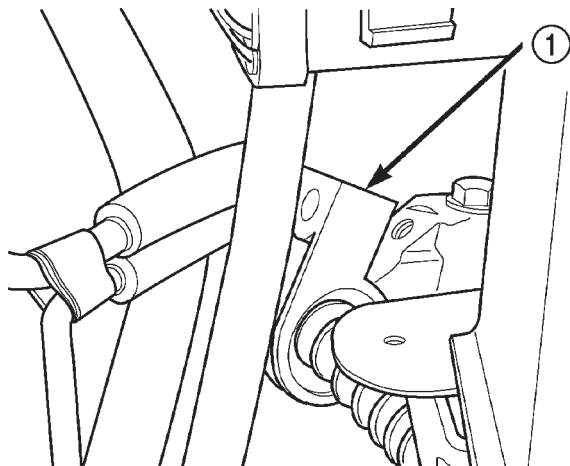
- 1 - SHIFT CABLE
2 - SHIFT LEVER



80aff58a

Fig. 94 Engine Support Fixture (Typical)

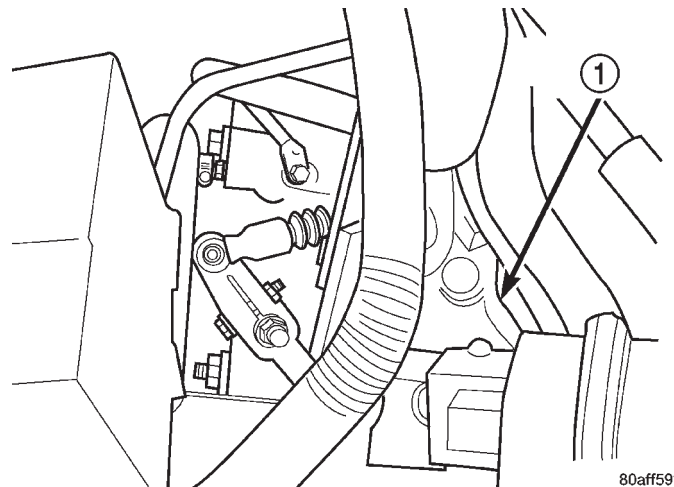
- 1 - ENGINE BRIDGE FIXTURE



80aff590

Fig. 93 Shift Cable Clamp

- 1 - SHIFT CABLE CLAMP



80aff591

Fig. 95 Upper Transaxle Mount

- 1 - UPPER TRANSAXLE MOUNT

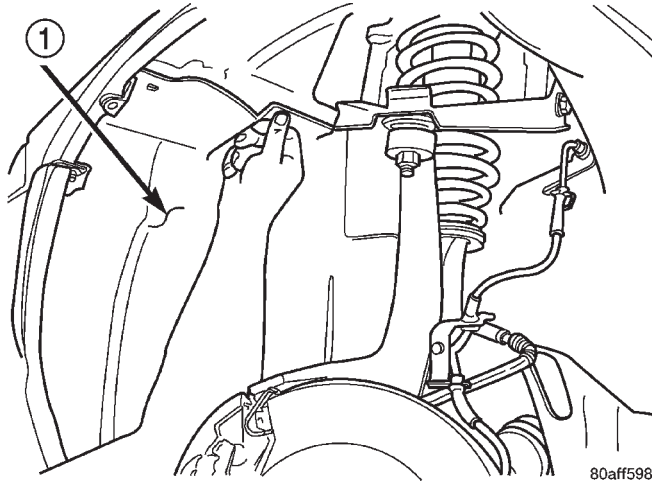
(8) Install engine support fixture and support engine (Fig. 94).

(9) Remove left upper transaxle mount top bolts (Fig. 95).

(10) Raise vehicle. Remove front wheels. Refer to Group 2, Suspension to remove wheel hub nuts and both drive shafts.

(11) Remove left and right side lower splash shields (Fig. 96).

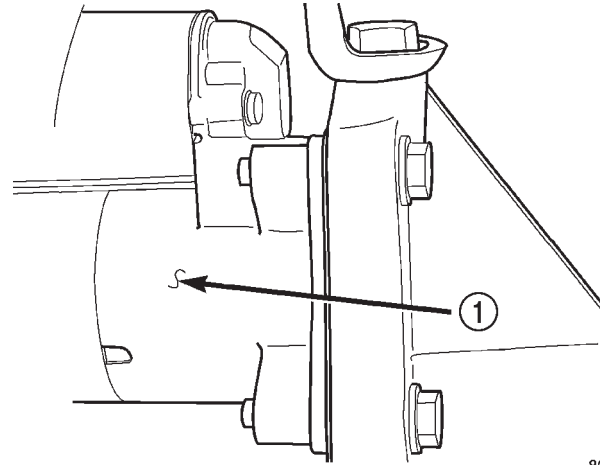
REMOVAL AND INSTALLATION (Continued)



80aff598

Fig. 96 Lower Splash Shields

1 - SPLASH SHIELD



80aff592

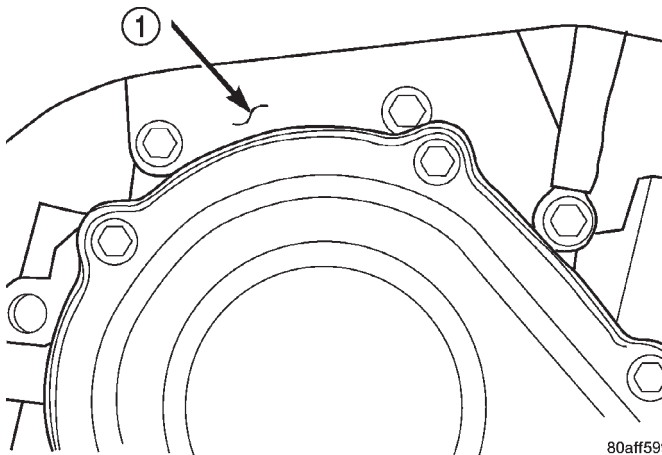
Fig. 98 Starter

1 - STARTER

CAUTION: The exhaust flex joint must be disconnected from the exhaust manifold anytime the engine is lowered. If the engine is lowered while the flex pipe is attached, damage will occur.

(12) Remove bolts securing exhaust flex joint to exhaust manifold. Disconnect exhaust pipe from manifold.

(13) Remove remaining left upper mount bolts (Fig. 97).



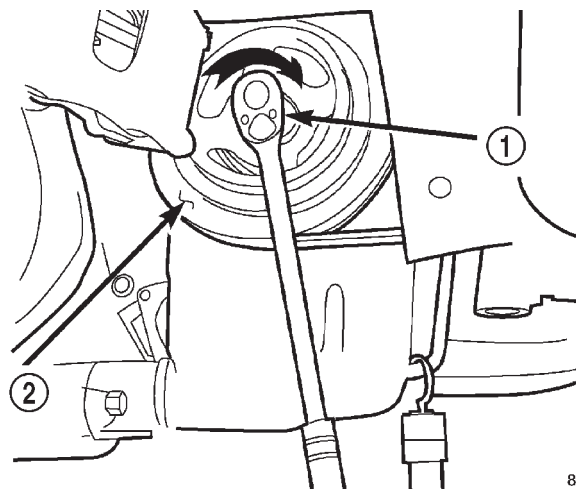
80aff599

Fig. 97 Left Mount Bolts

1 - UPPER TRANSAXLE MOUNT

- (14) Remove engine oil filter.
- (15) Remove starter and wiring (Fig. 98).
- (16) Remove front motor mount bracket.

- (17) Remove rear mount bracket through-bolt.
- (18) Remove center member bolts.
- (19) Remove rear mount bracket bolts, and remove rear mount bracket.
- (20) Remove radiator lower crossmember.
- (21) Remove lateral bending strut brackets (front and rear).
- (22) Remove flex plate cover.
- (23) Rotate engine clockwise to line up converter bolts (Fig. 99). Remove converter bolts (Fig. 100). Mark converter for reassembly ease.

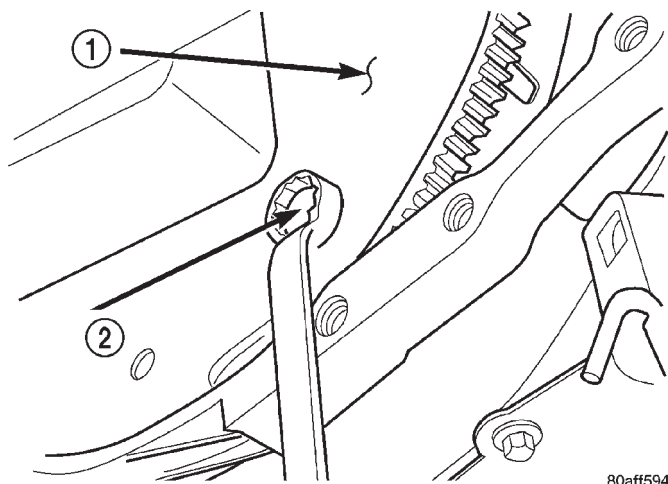


80aff593

Fig. 99 Rotate Engine Clockwise

- 1 - TURN CLOCKWISE
- 2 - LOWER ENGINE PULLEY

REMOVAL AND INSTALLATION (Continued)

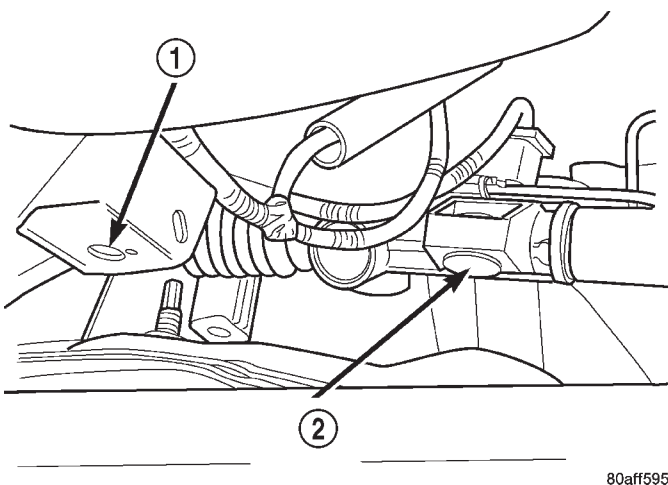


80aff594

Fig. 100 Converter Bolts

- 1 - DRIVE PLATE
2 - DRIVE PLATE BOLT

- (24) Remove crank position sensor (if equipped).
(25) Remove transaxle wiring.
(26) Loosen right side steering gear bolts. Loosen right side K-frame bolts.
(27) Remove left side steering gear bolts. Remove left side K-frame bolts (Fig. 101).

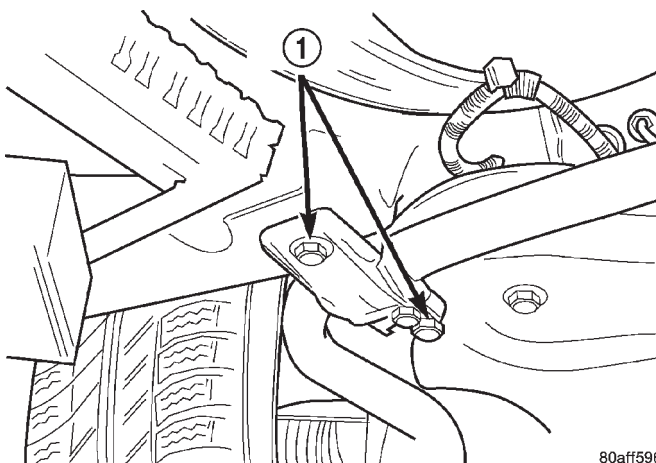


80aff595

Fig. 101 Steering Gear and K-frame Bolts

- 1 - K-FRAME MOUNT
2 - STEERING RACK MOUNT

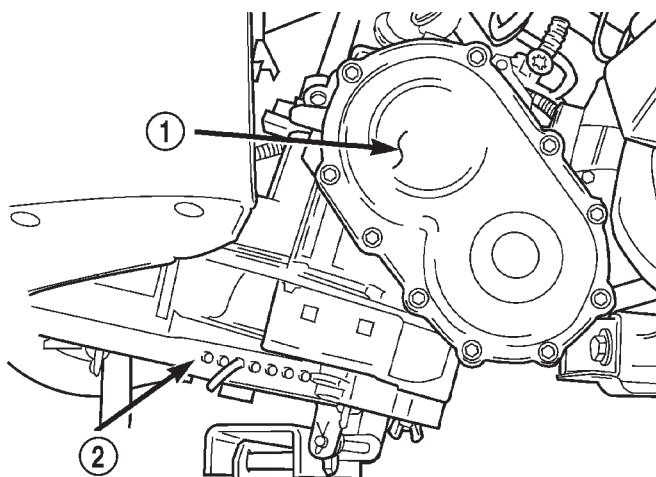
- (28) Remove sway bar mounts (Fig. 102).
(29) Position transmission jack under transaxle and support with safety chain (Fig. 103).
(30) Remove upper and lower transaxle bell housing bolts.
(31) Move K-frame rearward and carefully lower the transaxle assembly from vehicle.



80aff596

Fig. 102 Sway Bar Mounts

- 1 - SWAY BAR MOUNT



80aff597

Fig. 103 Transmission Jack

- 1 - TRANSAXLE
2 - TRANSMISSION JACK

INSTALLATION

- (1) For installation of transaxle, reverse the above procedure.
(2) Check and/or adjust gear shift cable.
(3) Refill transaxle with Mopar® ATF+4 (Automatic Transmission Fluid-Type 9602)

REMOVAL AND INSTALLATION (Continued)

OIL PUMP SEAL

REMOVAL

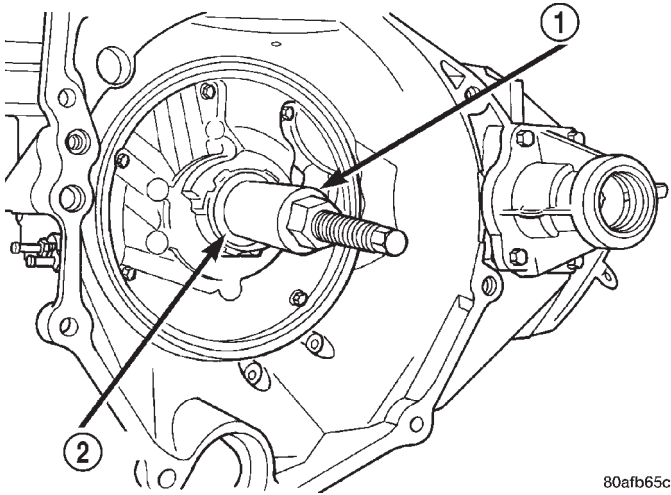


Fig. 104 Remove Oil Pump Seal

- 1 - TOOL C-3981-B
- 2 - OIL PUMP SEAL

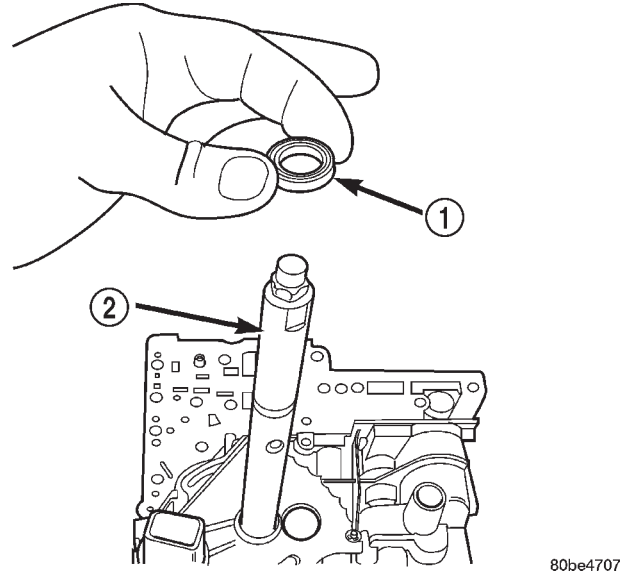


Fig. 106 Manual Shaft Seal

- 1 - SEAL
- 2 - MANUAL SHAFT

INSTALLATION

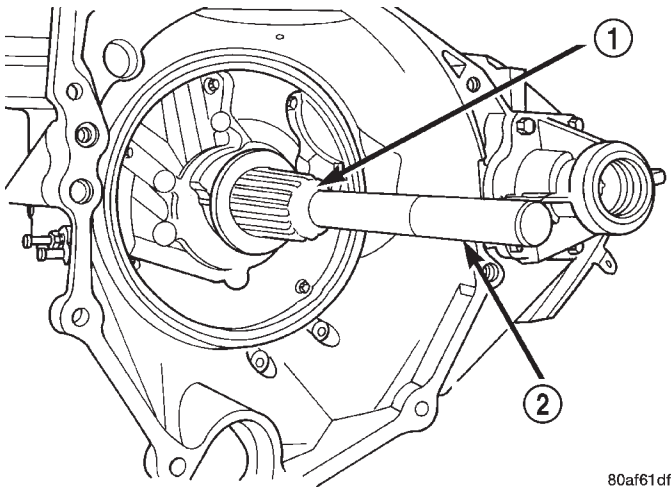


Fig. 105 Install Oil Pump Seal

- 1 - TOOL C-4193
- 2 - HANDLE TOOL C-4171

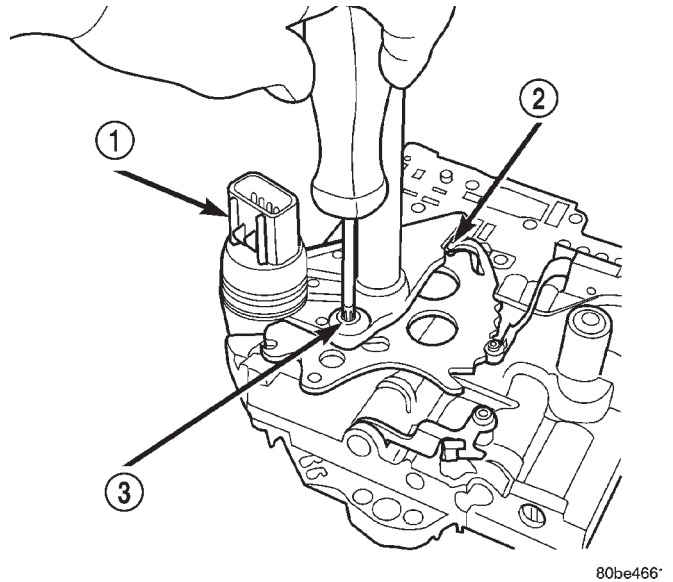


Fig. 107 Remove Transmission Range Sensor Retaining Screw

- 1 - TRANSMISSION RANGE SENSOR
- 2 - MANUAL VALVE CONTROL PIN
- 3 - RETAINING SCREW

DISASSEMBLY AND ASSEMBLY

VALVE BODY

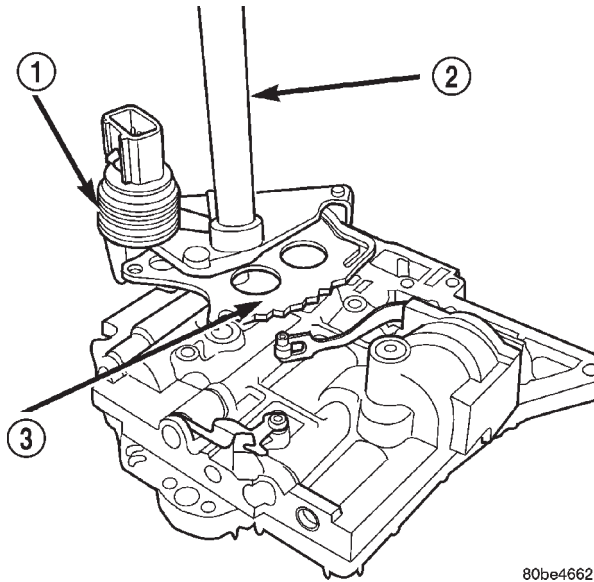
DISASSEMBLY

- (1) Remove manual shaft seal (Fig. 106).
- (2) Remove Transmission Range Sensor retaining screw (Fig. 107).

(3) Remove Manual Shaft/Rooster Comb and Transmission Range Sensor (Fig. 108).

(4) Remove 2/4 Accumulator Retaining Plate (Fig. 109).

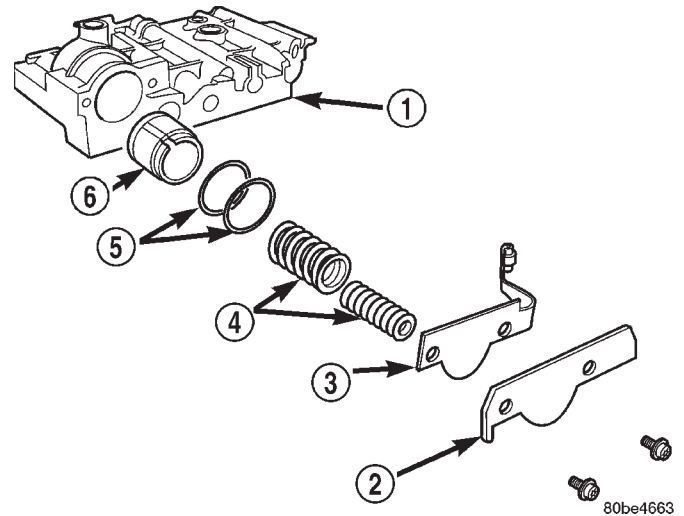
DISASSEMBLY AND ASSEMBLY (Continued)



80be4662

Fig. 108 Manual Shaft/Rooster Comb and Transmission Range Sensor

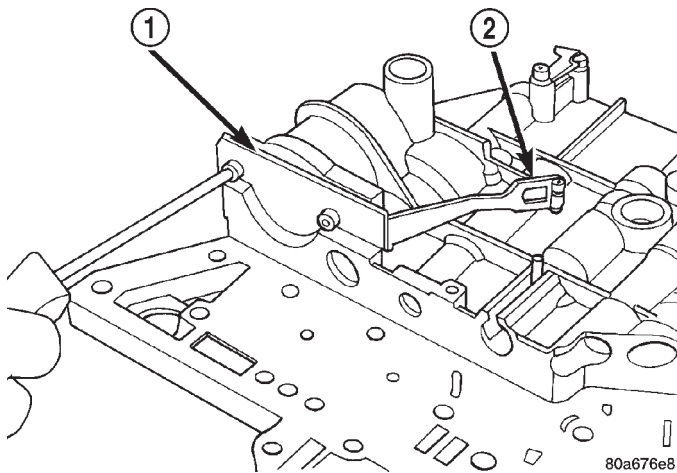
- 1 - TRANSMISSION RANGE SENSOR
- 2 - MANUAL SHAFT
- 3 - ROOSTER COMB



80be4663

Fig. 110 2/4 Accumulator Assembly

- 1 - VALVE BODY
- 2 - RETAINER PLATE
- 3 - DETENT SPRING
- 4 - SPRINGS
- 5 - SEALS
- 6 - PISTON



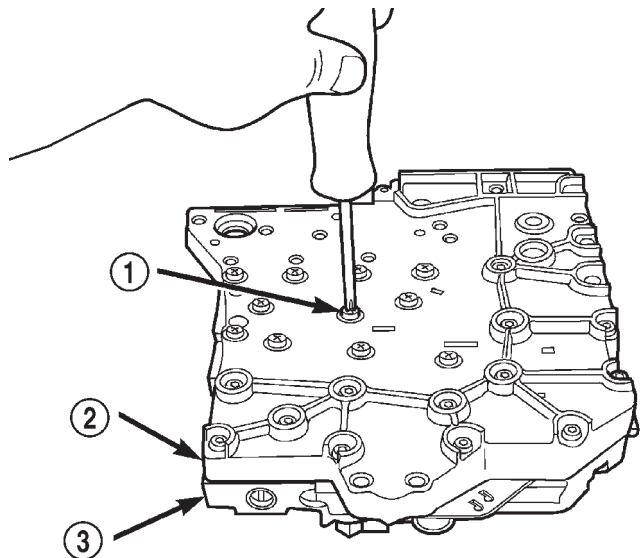
80a676e8

Fig. 109 2/4 Accumulator Retaining Plate

- 1 - 2-4 ACCUMULATOR RETAINING PLATE
- 2 - DETENT SPRING

(5) Remove 2/4 Accumulator components as shown in (Fig. 110).

(6) Remove Valve Body to Transfer Plate screws (Fig. 111).



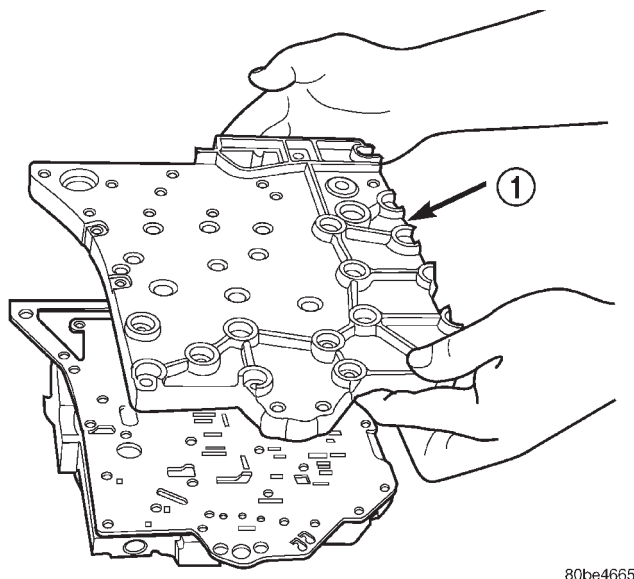
80be4664

Fig. 111 Remove Valve Body to Transfer Plate Screws

- 1 - SCREW (24)
- 2 - TRANSFER PLATE
- 3 - VALVE BODY

DISASSEMBLY AND ASSEMBLY (Continued)

(7) Invert assembly and remove Transfer Plate. Beware of loose check balls.

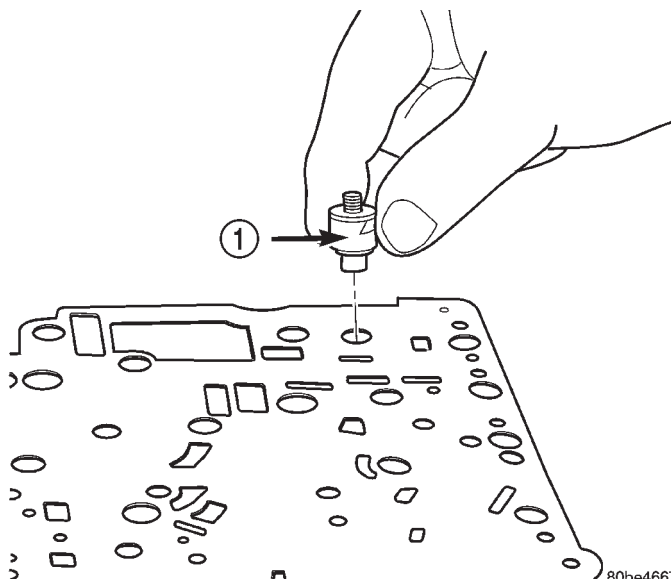


80be4665

Fig. 112 Remove Transfer Plate

1 – TRANSFER PLATE

(9) Remove the overdrive clutch (#5) check valve (Fig. 114)

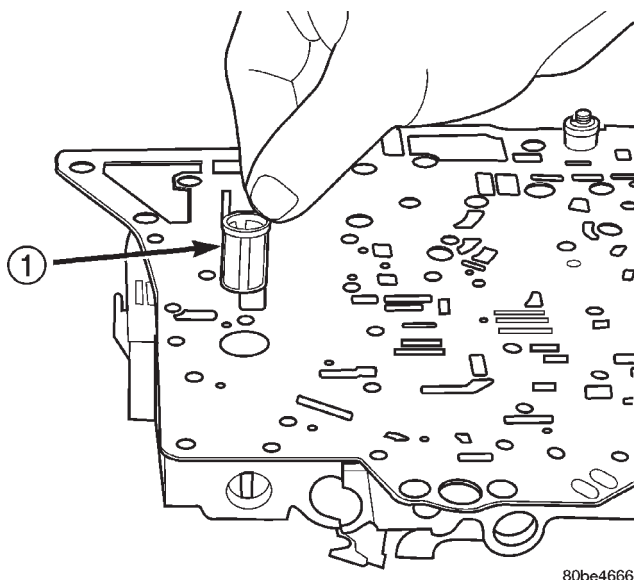


80be4667

Fig. 114 Remove Overdrive Clutch (#5) Check Valve

1 – OVERDRIVE CLUTCH (#5) CHECK VALVE

(8) Remove oil screen (Fig. 113).

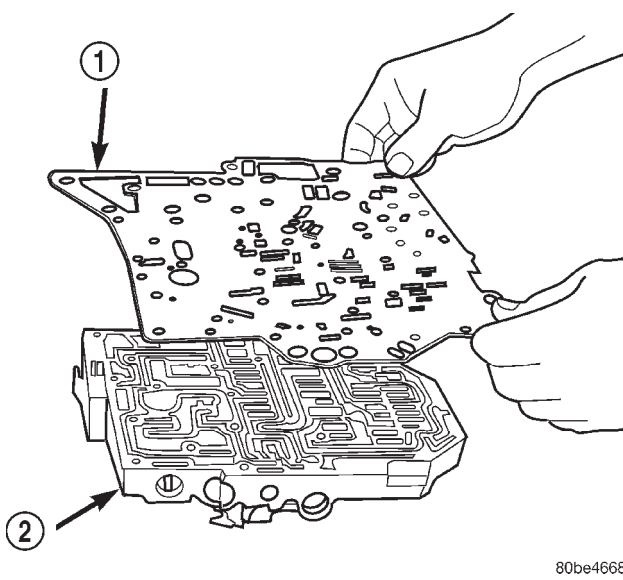


80be4666

Fig. 113 Remove Oil Screen

1 – OIL SCREEN

(10) Remove separator plate (Fig. 115).



80be4668

Fig. 115 Remove Separator Plate

1 – SEPARATOR PLATE
2 – VALVE BODY

DISASSEMBLY AND ASSEMBLY (Continued)

(11) Remove thermal valve (Fig. 116).

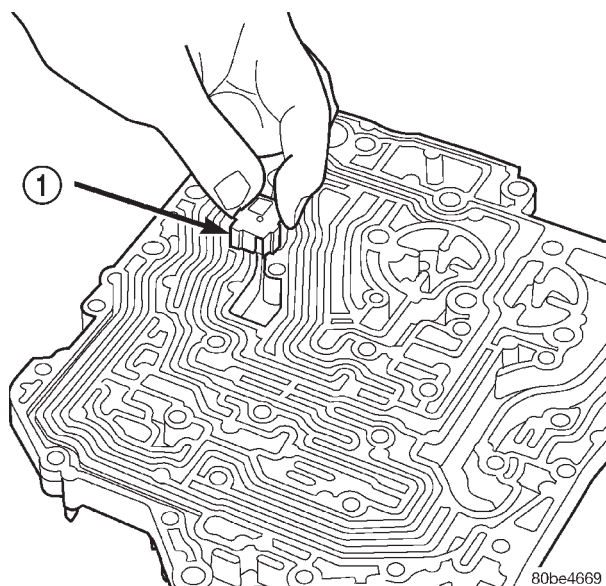


Fig. 116 Remove Thermal Valve

1 - THERMAL VALVE

(12) Remove check balls (Fig. 117).

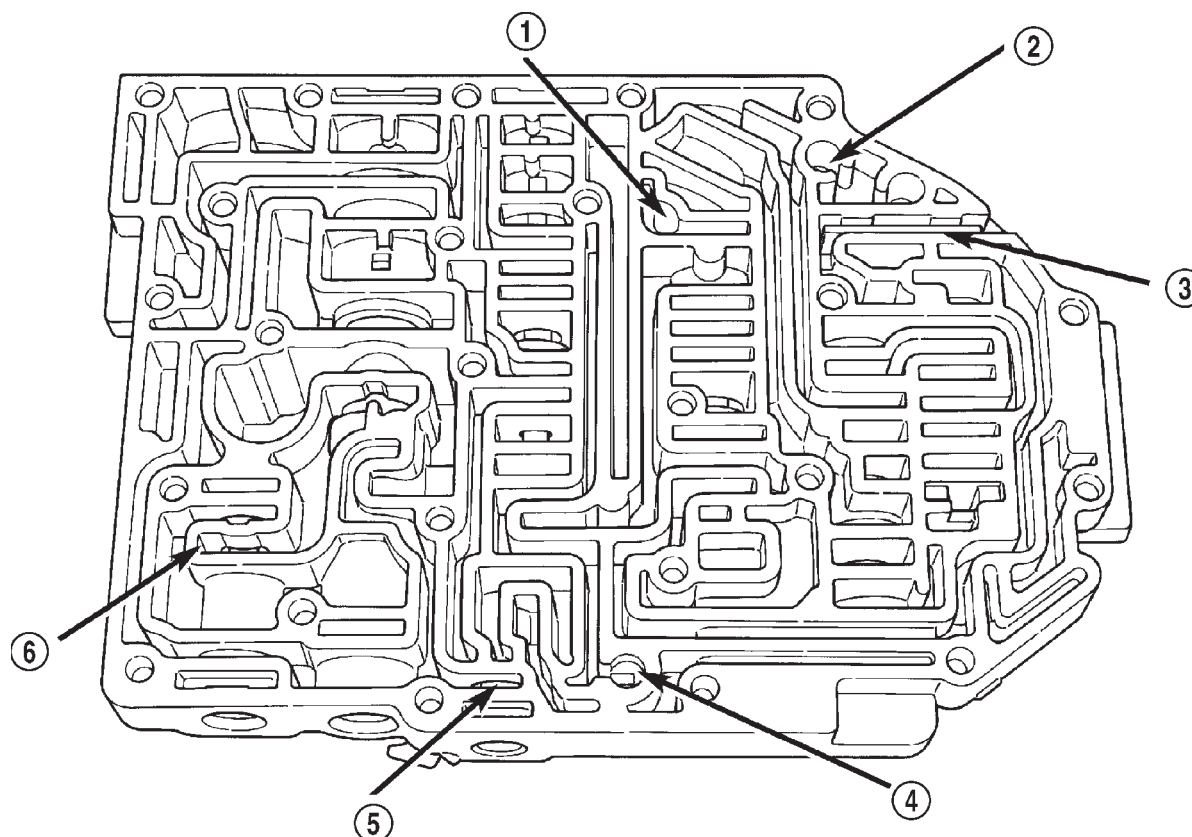


Fig. 117 Ball Check Location

1 - (#4) BALL CHECK LOCATION
2 - (#2) BALL CHECK LOCATION
3 - RETAINER

4 - (#3) BALL CHECK LOCATION
5 - LOW/REVERSE SWITCH VALVE
6 - T/C LIMIT VALVE

80a624b9

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: Tag all valve/spring assemblies for reassembly identification.

(13) Remove dual retainer plate using Tool 6301 (Fig. 118).

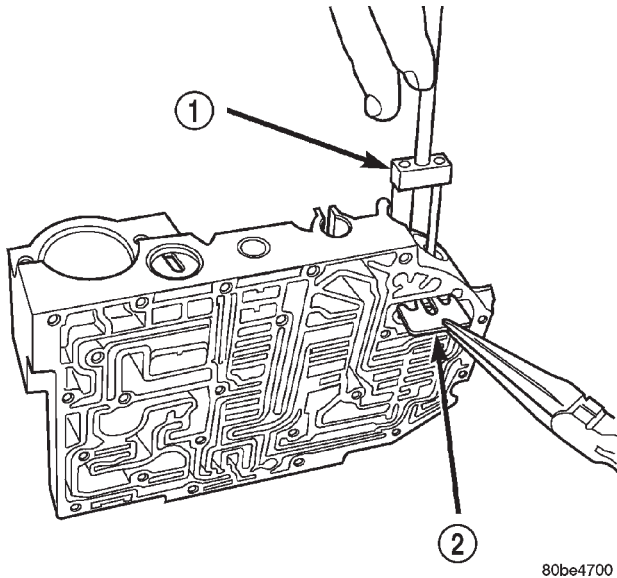


Fig. 118 Remove Dual Retainer Plate using Tool 6301

- 1 - TOOL 6301
2 - RETAINER

(14) Remove regulator valve spring retainer (Fig. 119).

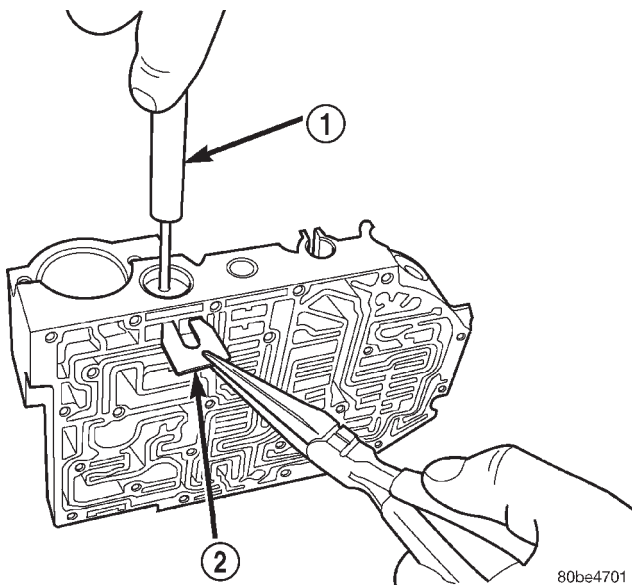


Fig. 119 Remove Regulator Valve Spring Retainer using Tool 6302

- 1 - TOOL 6302
2 - RETAINER

(15) Remove the vent reservoir check valve retainer (Fig. 120).

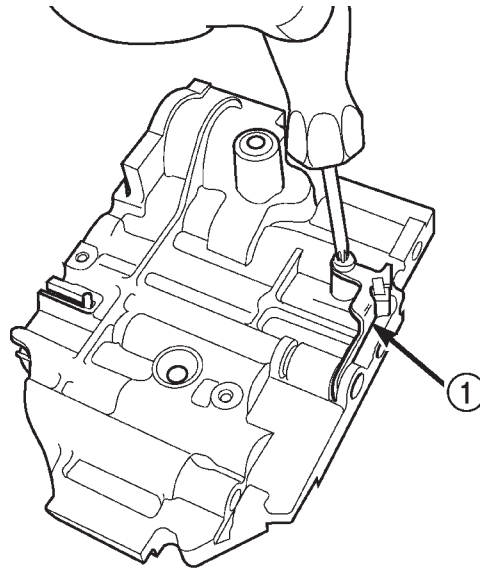


Fig. 120 Remove Vent Reservoir Check Valve Retainer

- 1 - RETAINER

(16) Remove vent reservoir check valve and spring (Fig. 121).

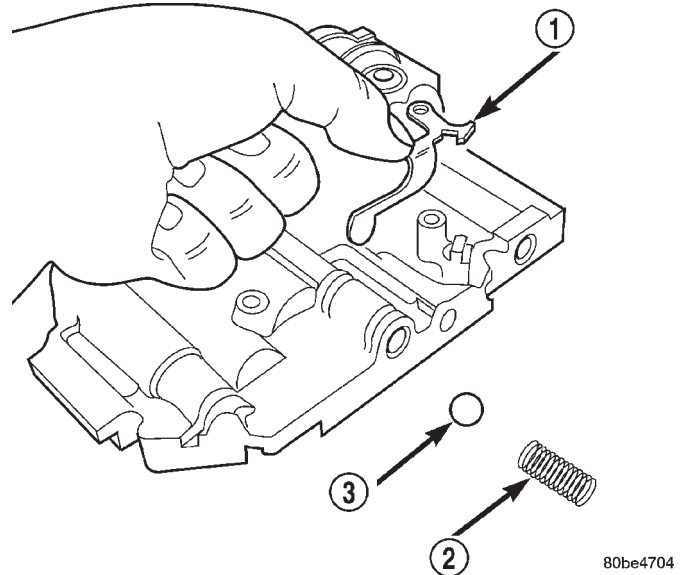
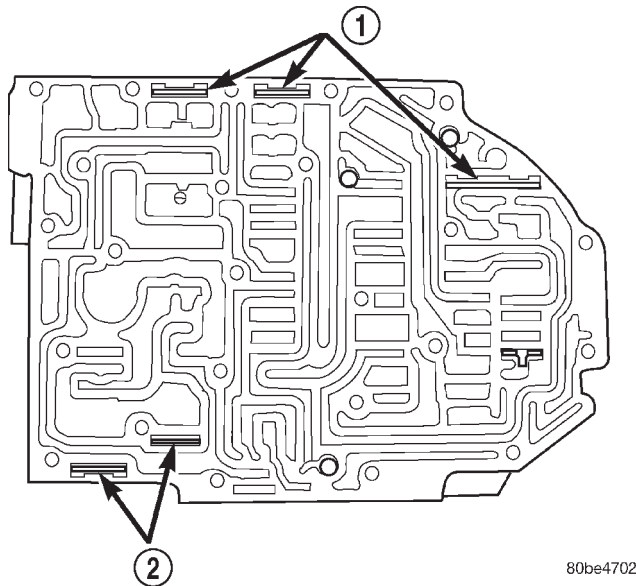


Fig. 121 Vent Reservoir Check Valve and Spring

- 1 - RETAINER
2 - SPRING
3 - BALL

(17) Remove remaining retainers as shown in (Fig. 122).

DISASSEMBLY AND ASSEMBLY (Continued)



80be4702

Fig. 122 Valve Retainer Location

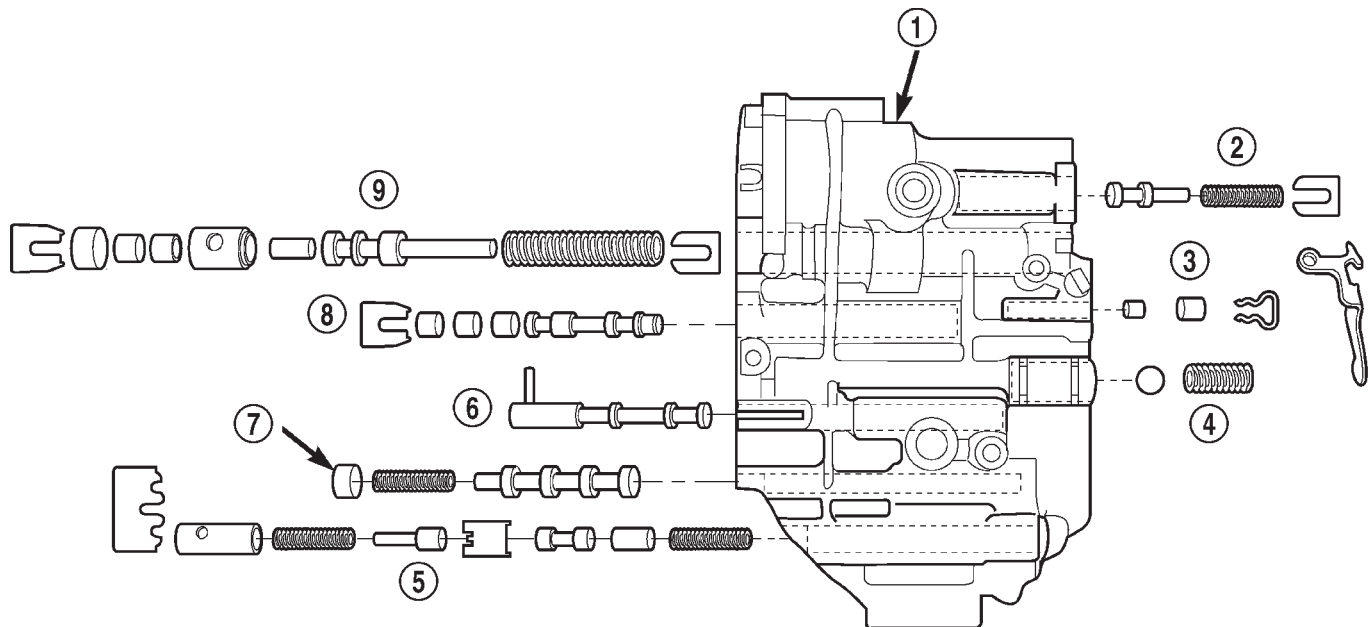
- 1 - RETAINER
2 - RETAINER

NOTE: Refer to Valve Body Cleaning and Inspection for cleaning procedures.

ASSEMBLY

- (1) Install valves and springs as shown in (Fig. 123).
- (2) Install regulator valve spring retainer (Fig. 124).
- (3) Install dual retainer plate using Tool 6301 (Fig. 125).
- (4) Install vent reservoir check valve and spring (Fig. 126).
- (5) Install the vent reservoir check valve retainer (Fig. 127).

- (18) Remove valves and springs as shown in (Fig. 123).

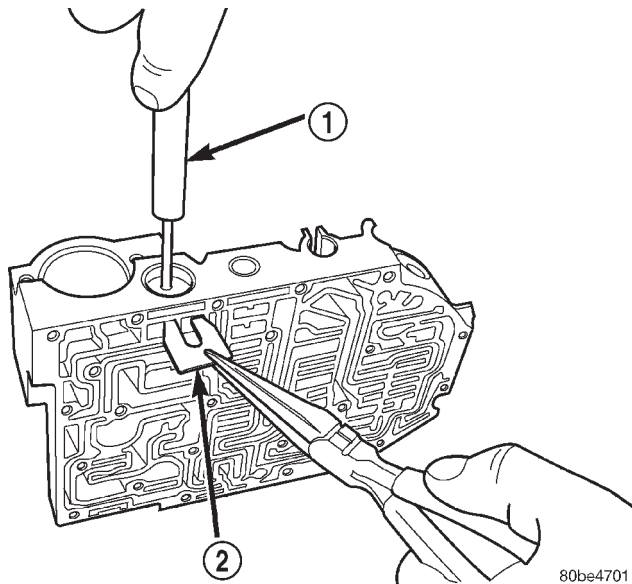


80bdbd80

Fig. 123 Springs and Valves Location

- | | |
|------------------------------------|-----------------------------------|
| 1 - VALVE BODY | 6 - MANUAL VALVE |
| 2 - T/C REGULATOR VALVE | 7 - CONVERTER CLUTCH SWITCH VALVE |
| 3 - L/R SWITCH VALVE | 8 - SOLENOID SWITCH VALVE |
| 4 - VENT RESERVOIR CHECK VALVE | 9 - REGULATOR VALVE |
| 5 - CONVERTER CLUTCH CONTROL VALVE | |

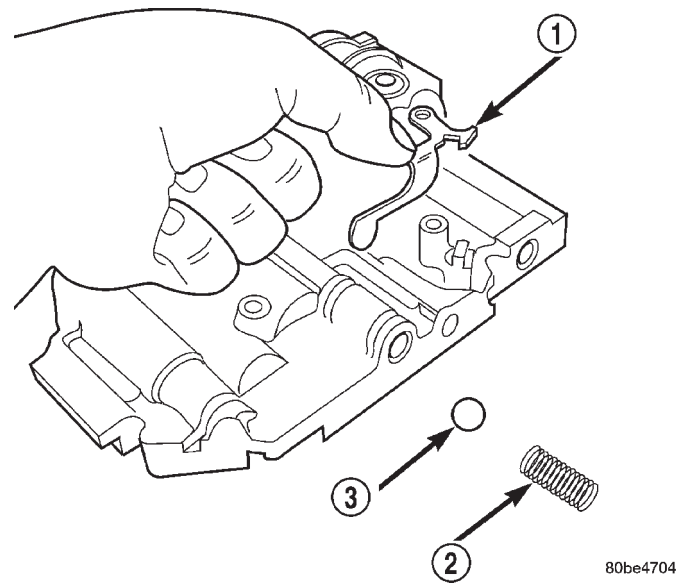
DISASSEMBLY AND ASSEMBLY (Continued)



80be4701

Fig. 124 Install Regulator Valve Spring Retainer using Tool 6302

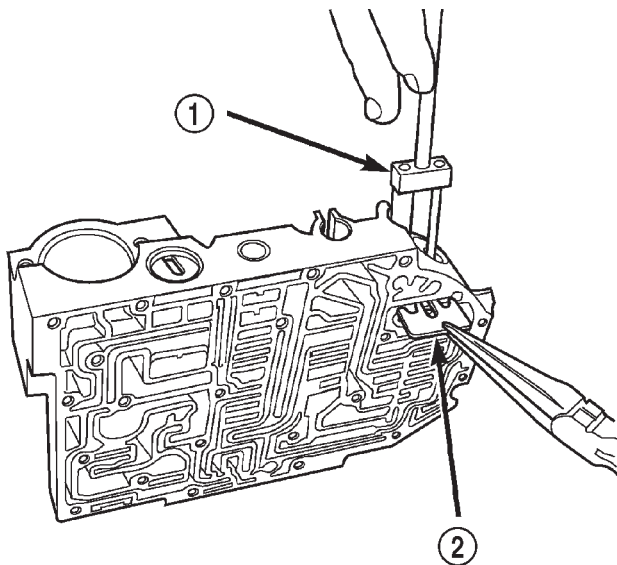
- 1 - TOOL 6302
2 - RETAINER



80be4704

Fig. 126 Vent Reservoir Check Valve and Spring

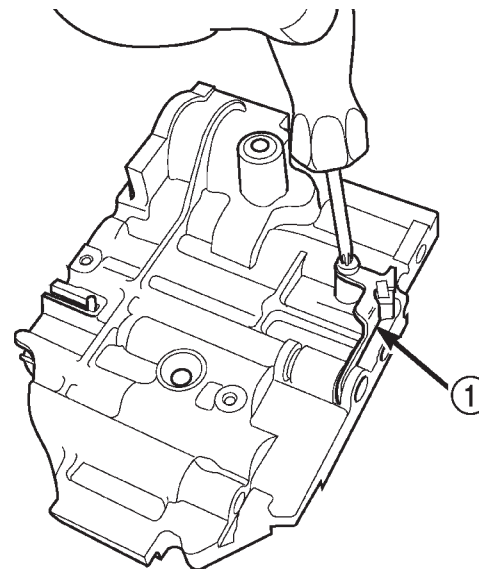
- 1 - RETAINER
2 - SPRING
3 - BALL



80be4700

Fig. 125 Install Dual Retainer Plate using Tool 6301

- 1 - TOOL 6301
2 - RETAINER



80be4703

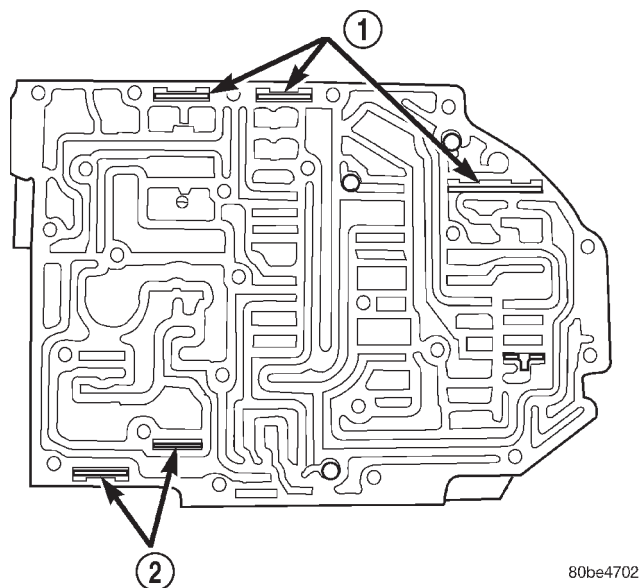
Fig. 127 Install Vent Reservoir Check Valve Retainer

- 1 - RETAINER

(6) Verify that all retainers are installed as shown in (Fig. 128). Retainers should be flush or below valve body surface.

(7) Install check balls into position as shown in (Fig. 129). If necessary, secure them with petrolatum or transmission assembly gel for assembly ease.

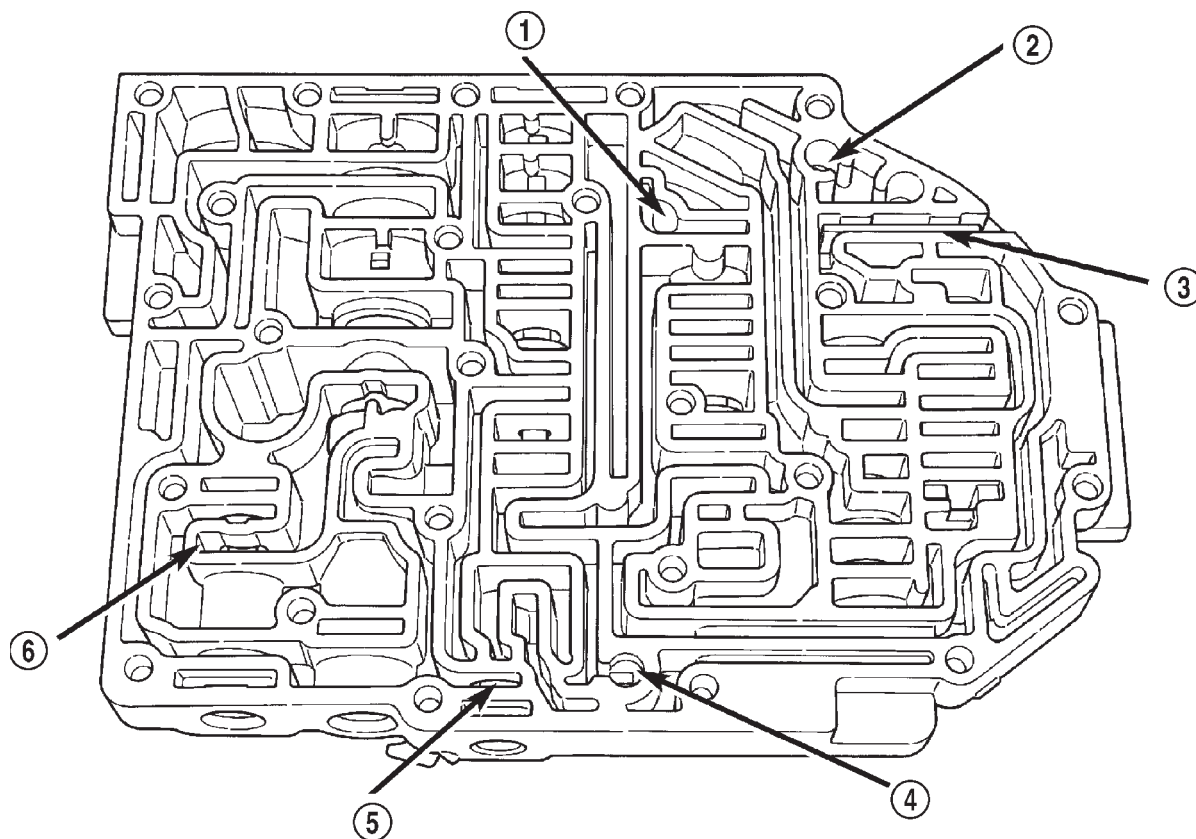
DISASSEMBLY AND ASSEMBLY (Continued)



80be4702

Fig. 128 Valve Retainer Location

- 1 - RETAINER
- 2 - RETAINER



80a624b9

Fig. 129 Ball Check Location

- | | |
|------------------------------|------------------------------|
| 1 - (#4) BALL CHECK LOCATION | 4 - (#3) BALL CHECK LOCATION |
| 2 - (#2) BALL CHECK LOCATION | 5 - LOW/REVERSE SWITCH VALVE |
| 3 - RETAINER | 6 - T/C LIMIT VALVE |

DISASSEMBLY AND ASSEMBLY (Continued)

(8) Install thermal valve into transfer plate (Fig. 130).

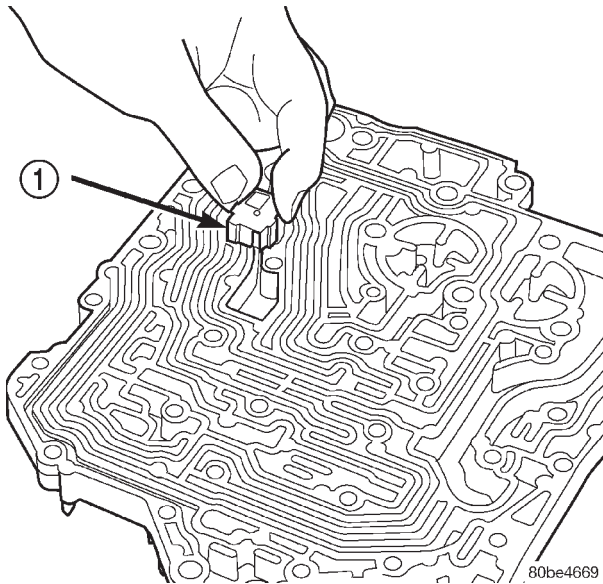


Fig. 130 Install Thermal Valve

1 – THERMAL VALVE

(10) Install the overdrive clutch (#5) check valve to separator plate (Fig. 132)

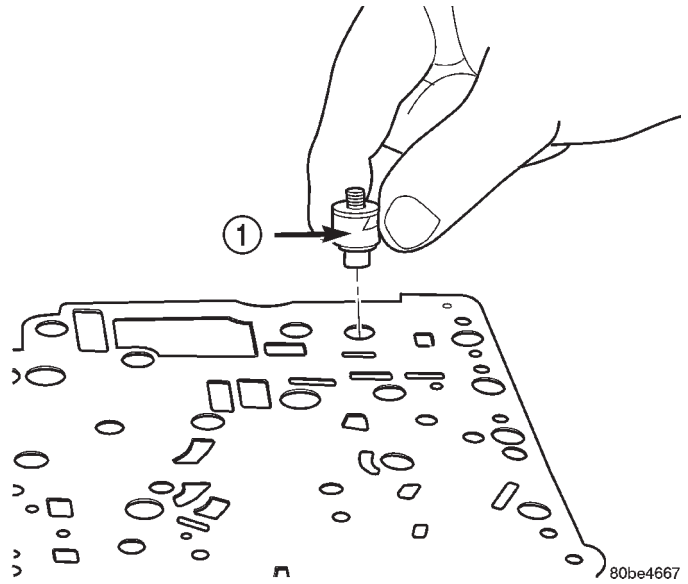


Fig. 132 Install Overdrive Clutch (#5) Check Valve

1 – OVERDRIVE CLUTCH (#5) CHECK VALVE

(9) Install separator plate to valve body (Fig. 131).

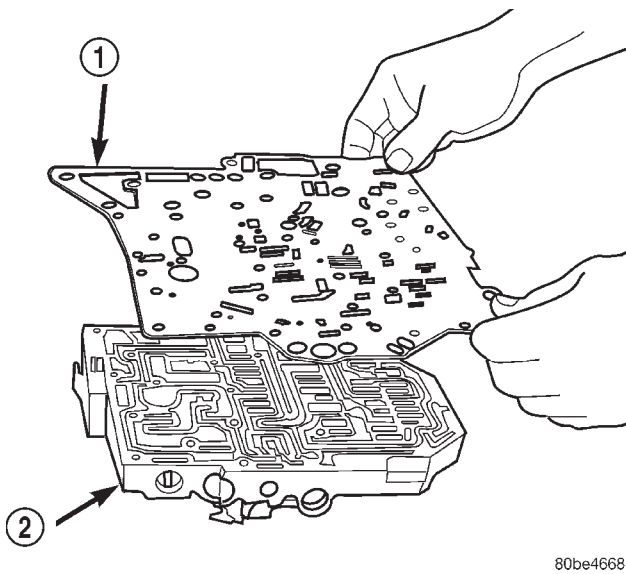


Fig. 131 Install Separator Plate

1 – SEPARATOR PLATE
2 – VALVE BODY

(11) Install oil screen to separator plate (Fig. 133).

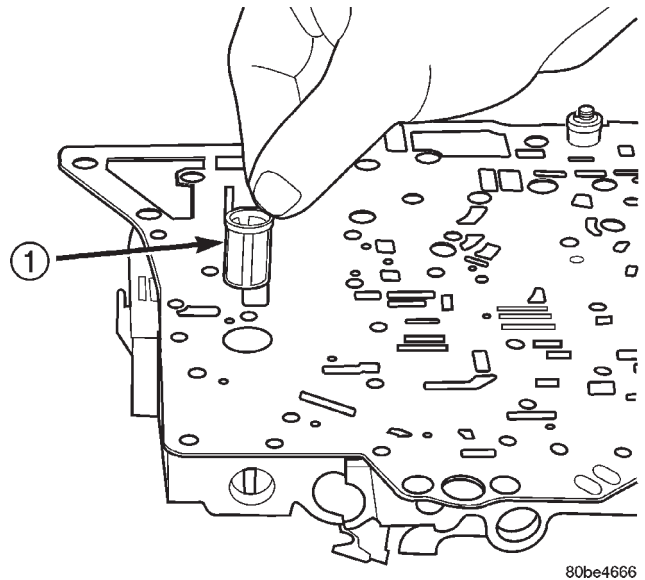
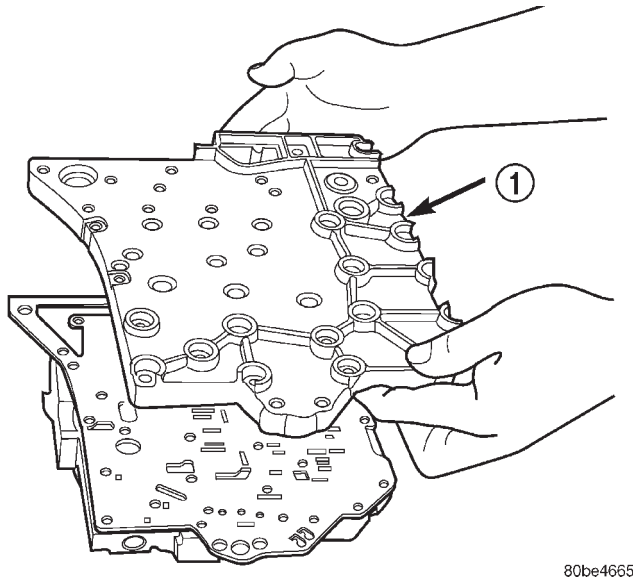


Fig. 133 Install Oil Screen

1 – OIL SCREEN

DISASSEMBLY AND ASSEMBLY (Continued)

(12) Install transfer plate to valve body and separator plate. Make sure oil screen and #5 check valve do not bind (Fig. 134).

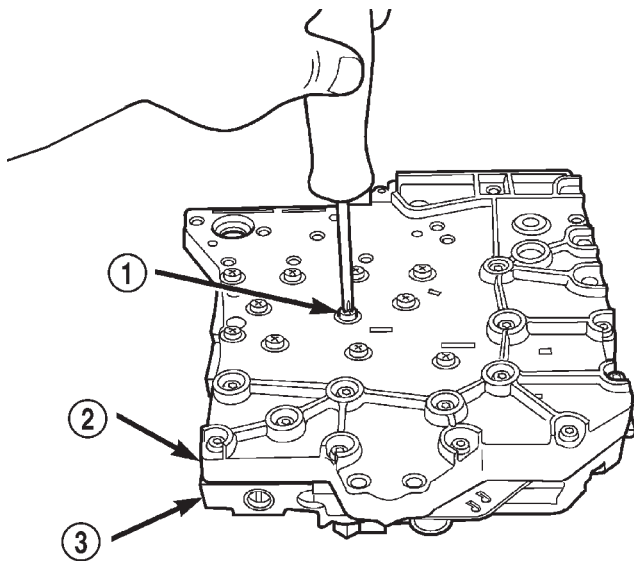


80be4665

Fig. 134 Install Transfer Plate

1 – TRANSFER PLATE

(13) Install twenty-four transfer plate to valve body screws (Fig. 135) and torque to 5 N·m (45 in. lbs.).

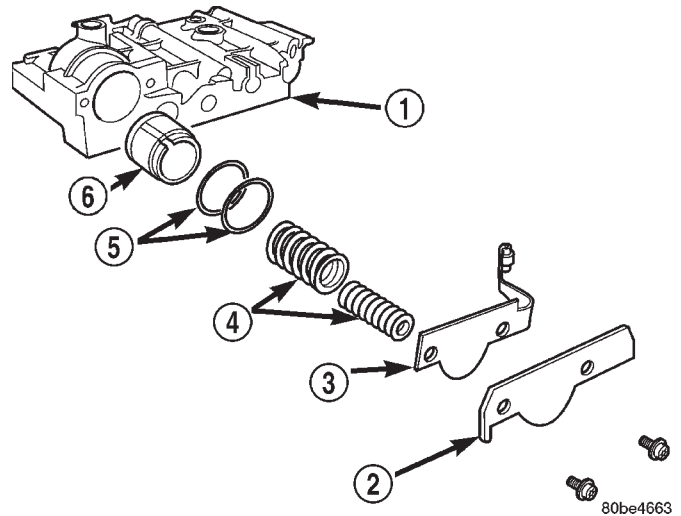


80be4664

Fig. 135 Install Valve Body to Transfer Plate Screws

1 – SCREW (24)
2 – TRANSFER PLATE
3 – VALVE BODY

(14) Install 2/4 Accumulator components as shown in (Fig. 136).

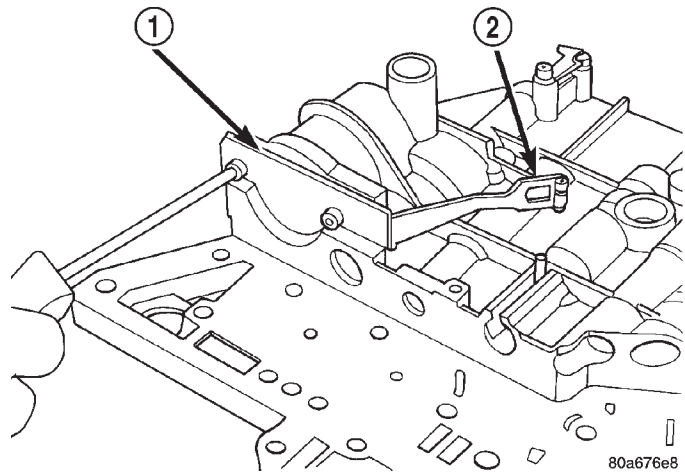


80be4663

Fig. 136 2/4 Accumulator Assembly

1 – VALVE BODY
2 – RETAINER PLATE
3 – DETENT SPRING
4 – SPRINGS
5 – SEALS
6 – PISTON

(15) Torque 2/4 Accumulator retainer to 5 N·m (45 in. lbs.) (Fig. 137).



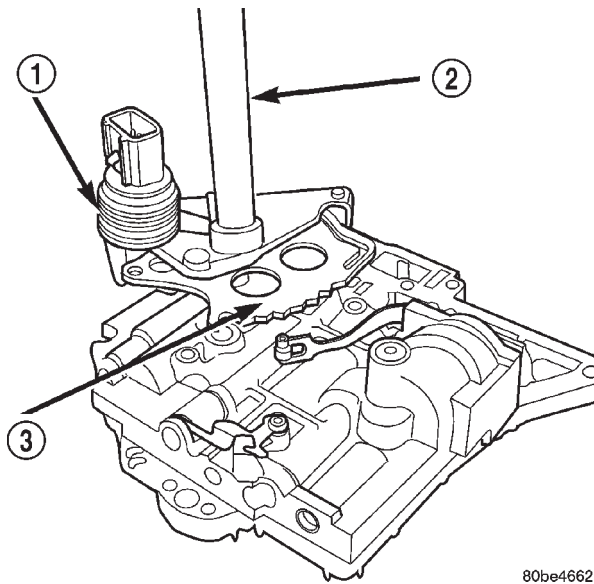
80a676e8

Fig. 137 2/4 Accumulator Retaining Plate

1 – 2-4 ACCUMULATOR RETAINING PLATE
2 – DETENT SPRING

(16) Install Manual Shaft/Rooster Comb and Transmission Range Sensor (Fig. 138).

DISASSEMBLY AND ASSEMBLY (Continued)

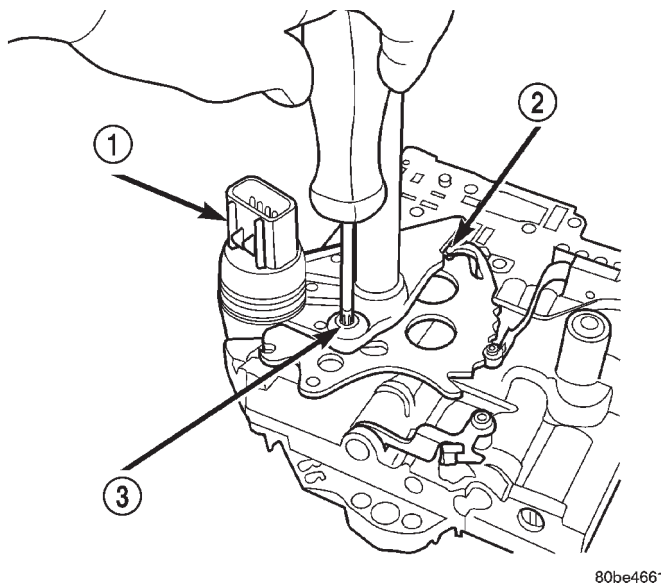


80be4662

Fig. 138 Install Manual Shaft/Rooster Comb and Transmission Range Sensor

- 1 - TRANSMISSION RANGE SENSOR
- 2 - MANUAL SHAFT
- 3 - ROOSTER COMB

(17) Make sure Manual Valve control pin is contained within the rooster comb slot (Fig. 139). Install Transmission Range Sensor retaining screw (Fig. 139) and torque to 5 N·m (45 in. lbs.).

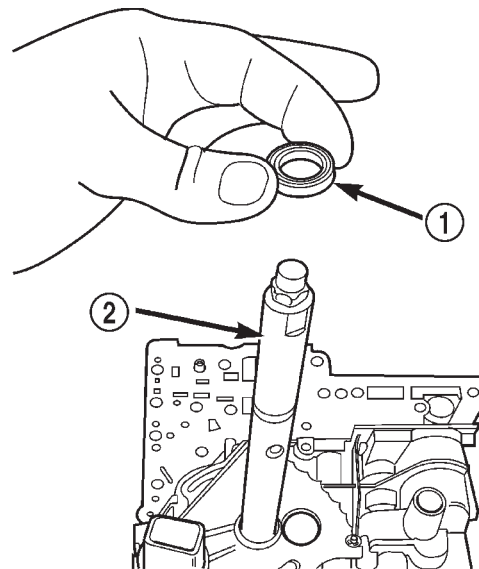


80be466*

Fig. 139 Install Transmission Range Sensor Retaining Screw

- 1 - TRANSMISSION RANGE SENSOR
- 2 - MANUAL VALVE CONTROL PIN
- 3 - RETAINING SCREW

(18) Install manual shaft seal (Fig. 140).



80be4707

Fig. 140 Manual Shaft Seal

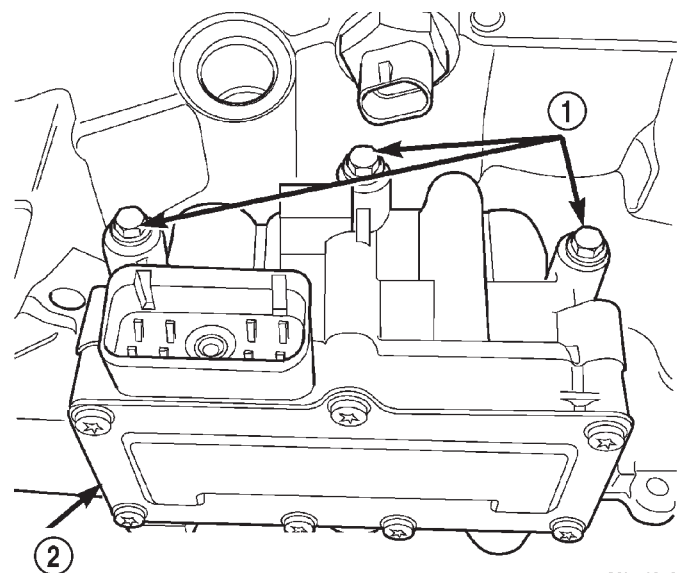
- 1 - SEAL
- 2 - MANUAL SHAFT

TRANSAXLE—DISASSEMBLY

NOTE: Tag all clutch pack assemblies, as they are removed, for reassembly identification.

CAUTION: Do not intermix clutch discs or plates as the unit might then fail.

- (1) Remove input and output speed sensors.
- (2) Remove the three solenoid/pressure switch assembly-to-transaxle case bolts (Fig. 141).



80be46c6

Fig. 141 Attaching Bolts

- 1 - BOLTS
- 2 - SOLENOID AND PRESSURE SWITCH ASSEMBLY

DISASSEMBLY AND ASSEMBLY (Continued)

(3) Remove solenoid/pressure switch assembly and gasket (Fig. 142).

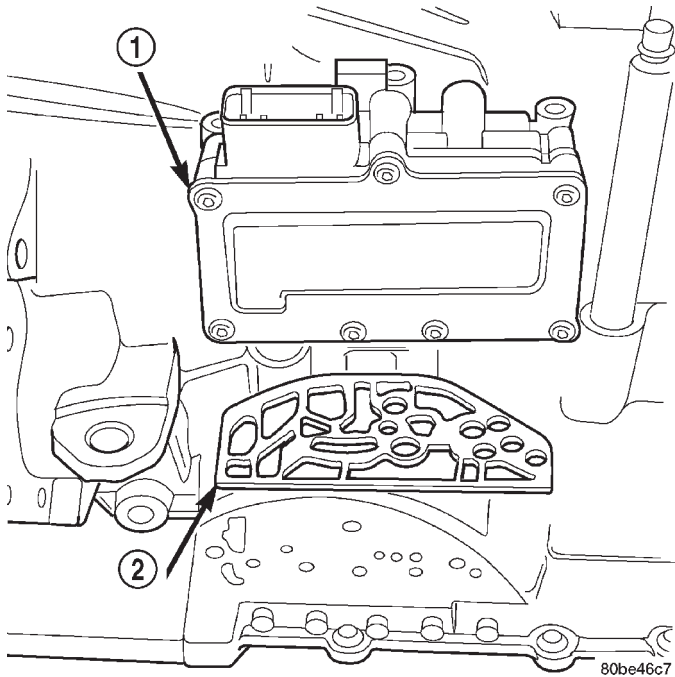


Fig. 142 Solenoid/Pressure Switch Assembly and Gasket

- 1 - SOLENOID/PRESSURE SWITCH ASSEMBLY
- 2 - GASKET

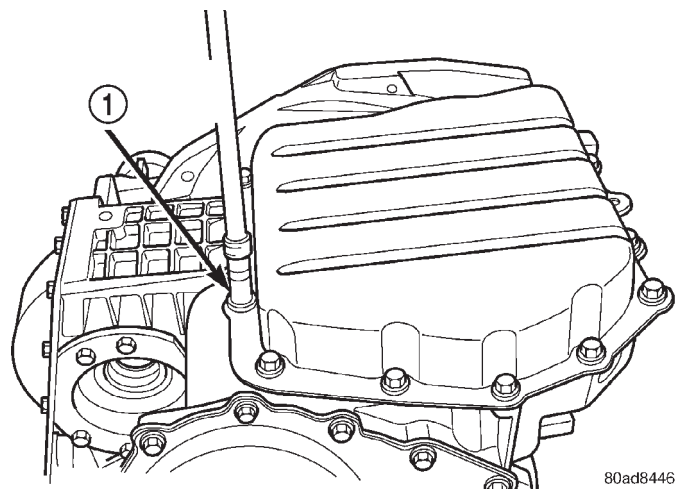


Fig. 143 Remove Oil Pan Bolts

- 1 - OIL PAN BOLTS (USE RTV UNDER BOLT HEADS)

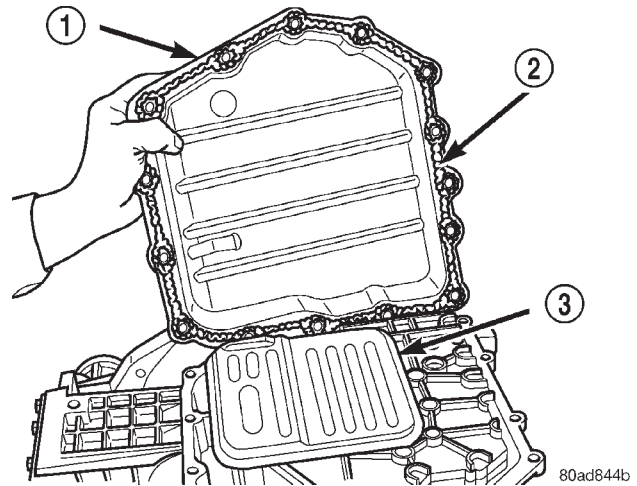


Fig. 144 Remove Oil Pan

- 1 - OIL PAN
- 2 - 1/8 INCH BEAD OF RTV SEALANT
- 3 - OIL FILTER

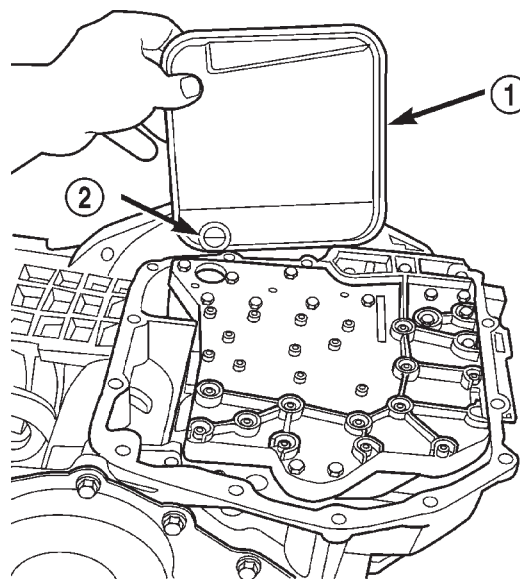


Fig. 145 Remove Oil Filter

- 1 - OIL FILTER
- 2 - O-RING

DISASSEMBLY AND ASSEMBLY (Continued)

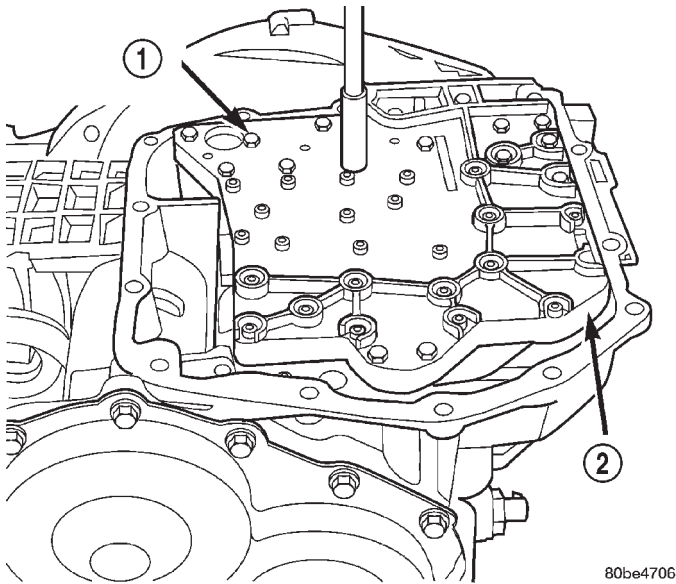


Fig. 146 Remove Valve Body Attaching Bolts

- 1 - VALVE BODY ATTACHING BOLTS (18)
- 2 - VALVE BODY

CAUTION: Do not handle the valve body from the manual valve. Damage could result.

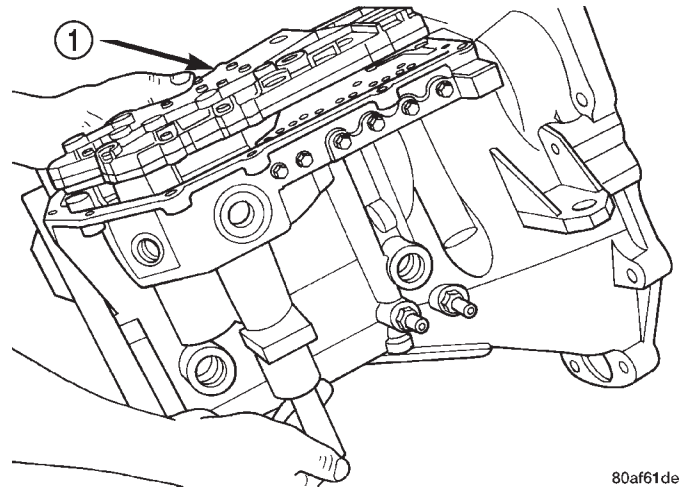


Fig. 148 Remove Valve Body

- 1 - VALVE BODY

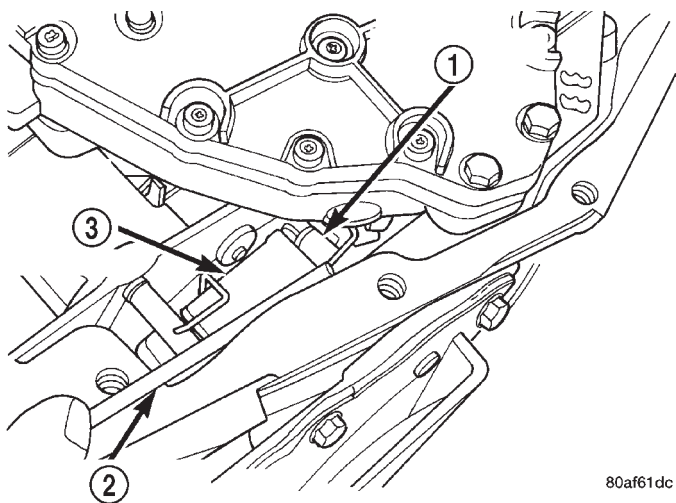


Fig. 147 Push Park Rod Rollers from Guide Bracket

- 1 - PARK SPRAG ROLLERS
- 2 - SCREWDRIVER
- 3 - PARK SPRAG GUIDE BRACKET

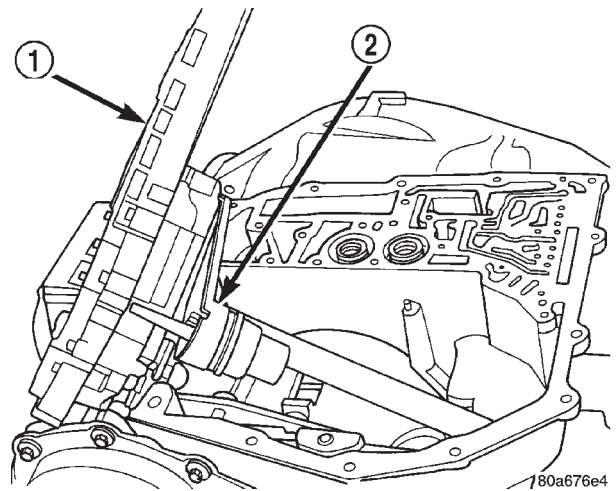


Fig. 149 Valve Body Removed

- 1 - VALVE BODY
- 2 - TRANSMISSION RANGE SENSOR

NOTE: To ease removal of the valve body, turn the manual valve fully clockwise.

DISASSEMBLY AND ASSEMBLY (Continued)

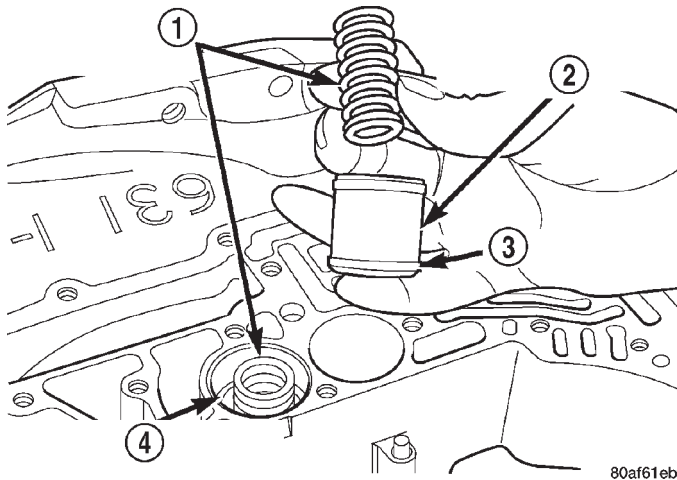


Fig. 150 Remove Underdrive and Overdrive Accumulators

- 1 - RETURN SPRING
- 2 - UNDERDRIVE CLUTCH ACCUMULATOR
- 3 - SEAL RING (2)
- 4 - OVERDRIVE CLUTCH ACCUMULATOR

NOTE: Dependent on engine application, some accumulators will have two springs and others will have one spring. The springs are color coded according to application and year. When disassembling, mark accumulator spring location to ease assembly.

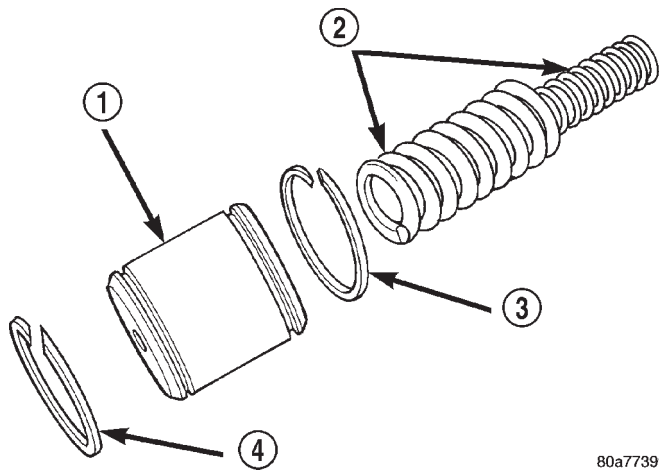


Fig. 151 Accumulator (Underdrive)

- 1 - ACCUMULATOR PISTON (UNDERDRIVE)
- 2 - RETURN SPRINGS
- 3 - SEAL RING
- 4 - SEAL RING

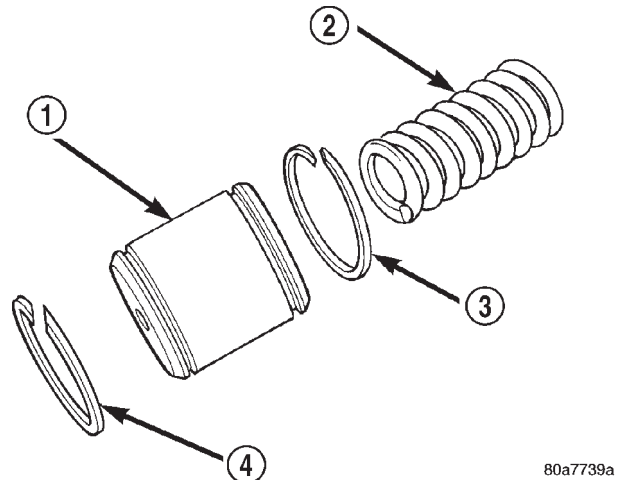


Fig. 152 Accumulator (Overdrive)

- 1 - ACCUMULATOR PISTON (OVERDRIVE)
- 2 - RETURN SPRING
- 3 - SEAL RING
- 4 - SEAL RING

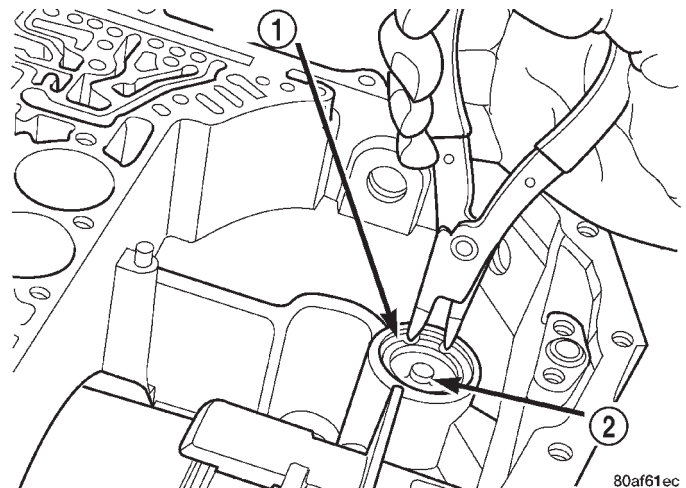
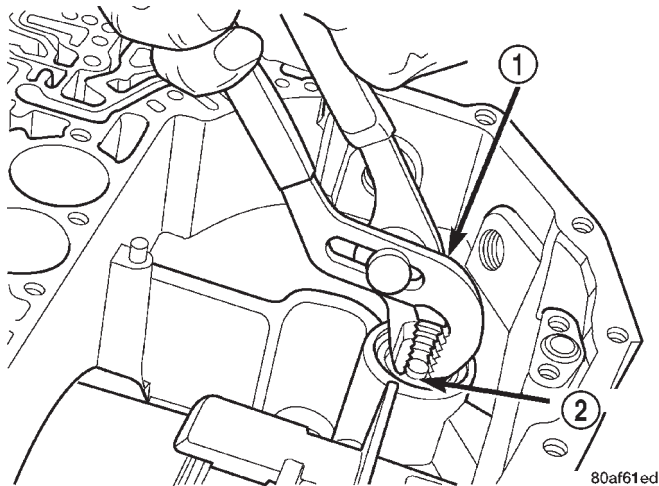


Fig. 153 Remove Low/Reverse Accumulator Snap Ring

- 1 - SNAP RING
- 2 - PLUG

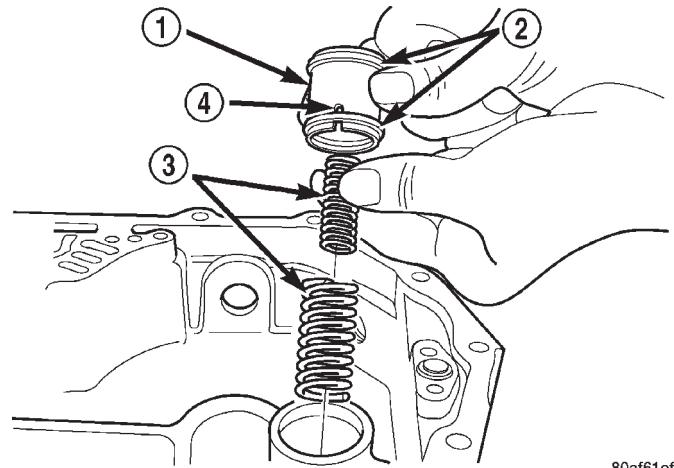
DISASSEMBLY AND ASSEMBLY (Continued)



80af61ed

Fig. 154 Remove Low/Reverse Accumulator Plug (Cover)

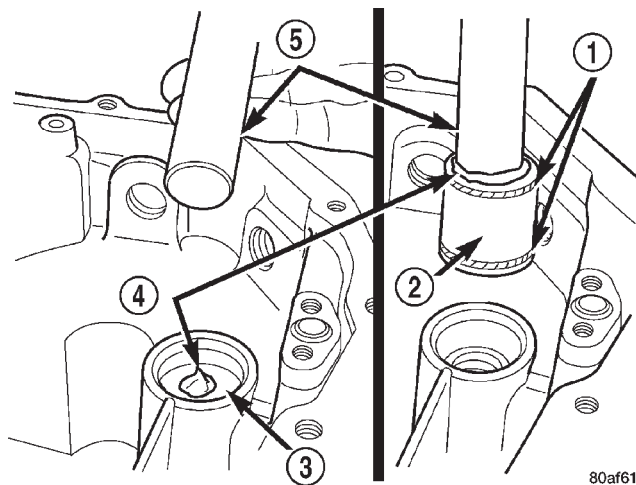
- 1 - ADJUSTABLE PLIERS
- 2 - PLUG



80af61ef

Fig. 156 Remove Low/Reverse Accumulator

- 1 - ACCUMULATOR PISTON
- 2 - SEAL RINGS
- 3 - RETURN SPRINGS
- 4 - (NOTE NOTCH)



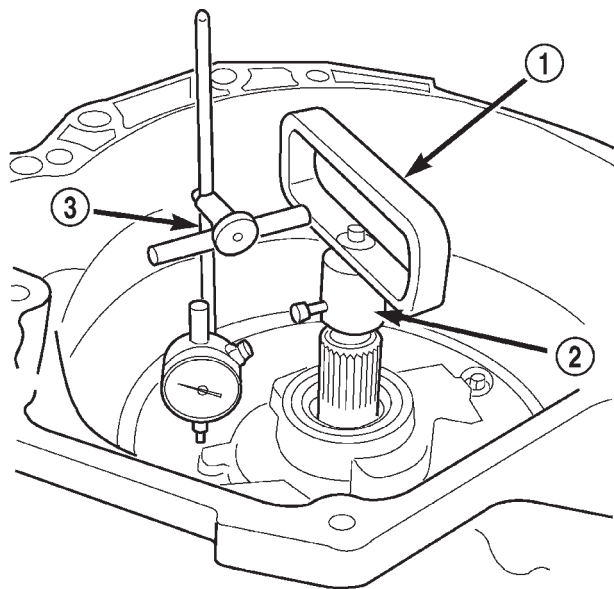
80af61ee

Fig. 155 Remove Low/Reverse Accumulator Piston

- 1 - SEAL RINGS
- 2 - PISTON
- 3 - PISTON
- 4 - PETROLATUM
- 5 - SUITABLE TOOL

Set up End Play Set 8266 and Dial Indicator Set C3339 as shown in (Fig. 157). Measure the input shaft end play with the transaxle in the vertical position. This will ensure that the measurement will be accurate.

Measuring input shaft end play before disassembly will usually indicate when a #4 thrust plate change is required. The #4 thrust plate is located behind the overdrive clutch hub.



80bdbd18

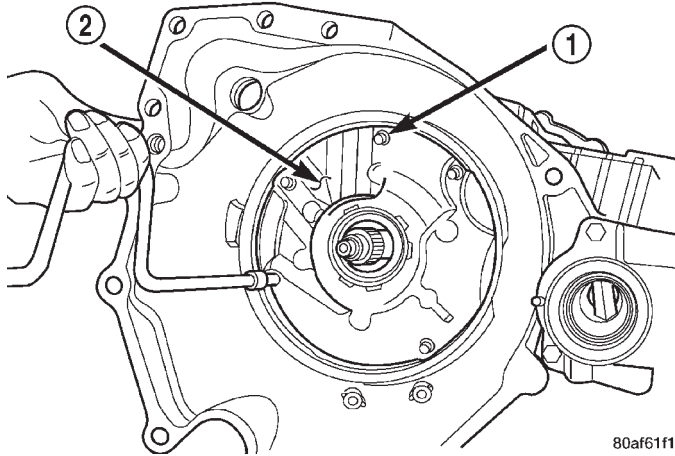
Fig. 157 Measure Input Shaft End Play Using End Play Set 8266

- 1 - TOOL 8266-8
- 2 - TOOL 8266-2
- 3 - TOOL C-3339

DISASSEMBLY AND ASSEMBLY (Continued)

Move input shaft in and out to obtain end play reading. End play specifications are 0.13 to 0.64 mm (0.005 to 0.025 inch).

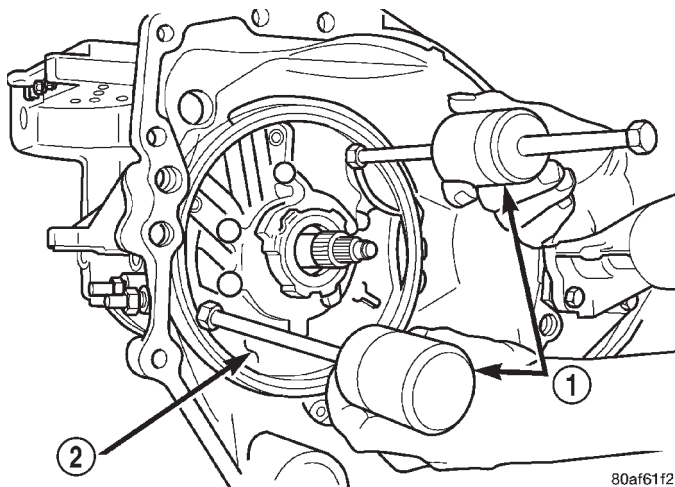
Record indicator reading for reference when reassembling the transaxle.



80af61f1

Fig. 158 Remove Pump Attaching Bolts

- 1 - PUMP ATTACHING BOLTS
- 2 - PUMP HOUSING

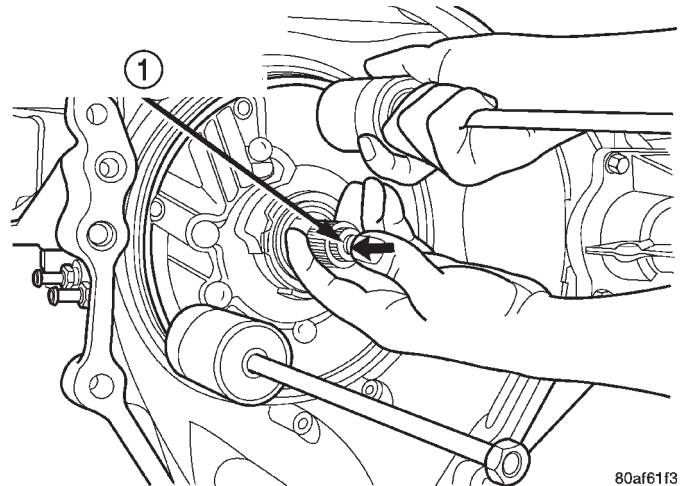


80af61f2

Fig. 159 Install Tool C-3752

- 1 - PULLERS TOOL C-3752
- 2 - PUMP

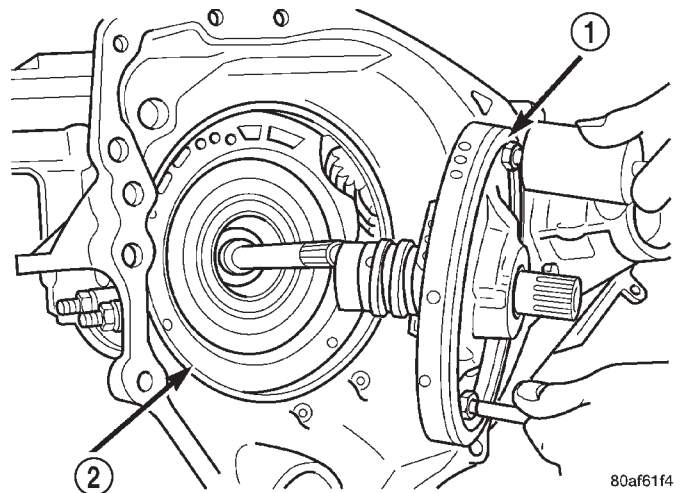
CAUTION: Be sure input speed sensor is removed before removing oil pump.



80af61f3

Fig. 160 Remove Oil Pump

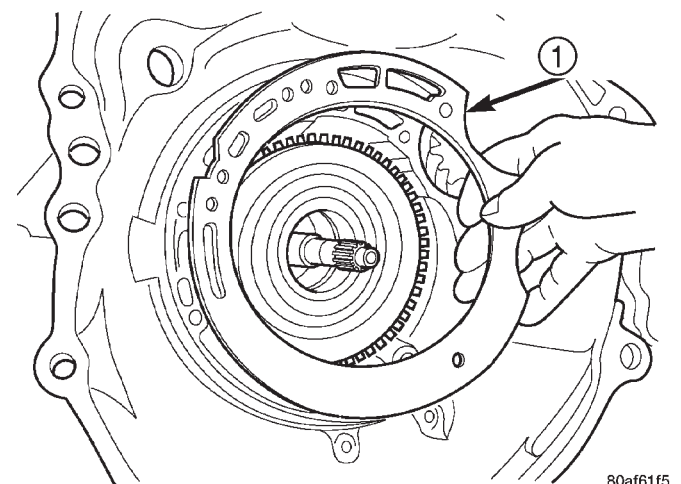
- 1 - "PUSH IN" ON INPUT SHAFT WHILE REMOVING PUMP



80af61f4

Fig. 161 Oil Pump Removed

- 1 - OIL PUMP
- 2 - GASKET



80af61f5

Fig. 162 Remove Oil Pump Gasket

- 1 - PUMP GASKET

DISASSEMBLY AND ASSEMBLY (Continued)

OIL PUMP INSPECTION

When disassembling the transaxle it is necessary to inspect the oil pump for wear and damage.

- (1) Remove the reaction shaft support bolts.
- (2) Remove reaction shaft support from pump housing (Fig. 163).

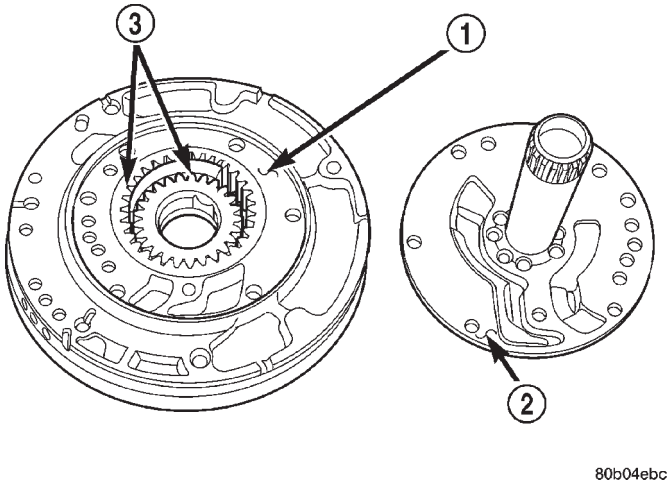


Fig. 163 Reaction Shaft Support

- 1 - PUMP HOUSING
- 2 - REACTION SHAFT SUPPORT
- 3 - PUMP GEARS

(3) Remove the pump gears and check for wear and damage.

(4) Install the gears and check clearances.

(5) Measure the clearance between the outer gear and the pump pocket (Fig. 164). Clearance should be 0.045-0.141mm (0.0018-0.0056 in.)

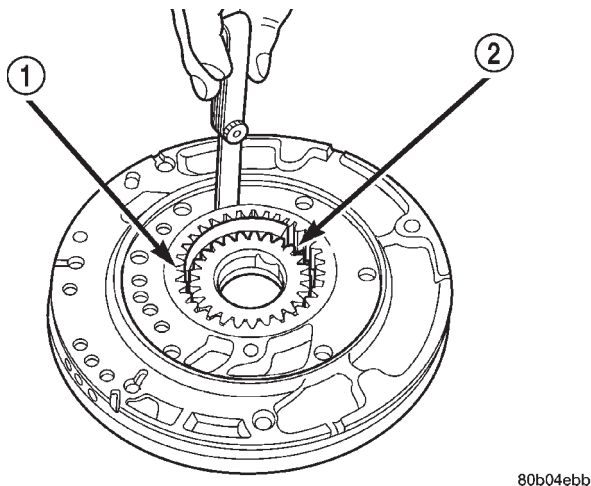


Fig. 164 Measure Outer Gear to Pocket

- 1 - OUTER GEAR
- 2 - POCKET

(6) Position an appropriate piece of Plastigage across both pump gears.

(7) Align the Plastigage to a flat area on the reaction shaft support housing.

(8) Install the reaction shaft to the pump housing. Tighten the bolts to 27 N·M (20 ft. lbs.)

(9) Remove bolts and carefully separate the housings. Measure the Plastigage following the instructions supplied.

(10) Clearance between outer gear side and the reaction shaft support should be 0.020-0.046mm (0.008-0.0018 in.). Clearance between inner gear side and the reaction shaft support should be 0.020-0.046mm (0.008-0.0018 in.).

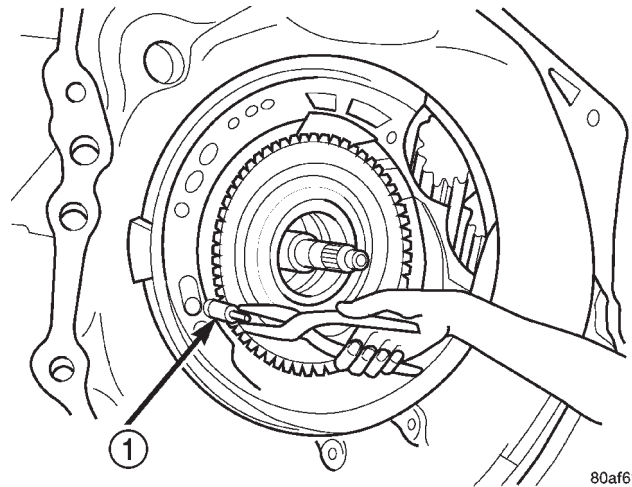


Fig. 165 Remove Bypass Valve

- 1 - COOLER BYPASS VALVE

CAUTION: The cooler bypass valve must be replaced if a transaxle failure has occurred. Do not reuse old valve or attempt to clean old valve. When installing bypass valve, insert with O-ring end towards rear of case.

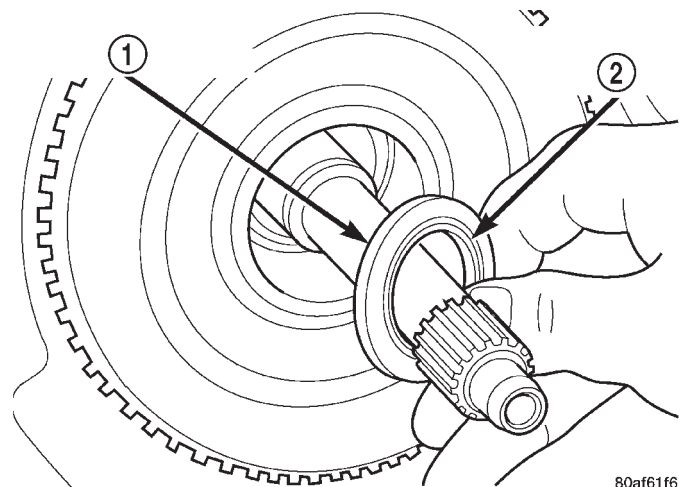
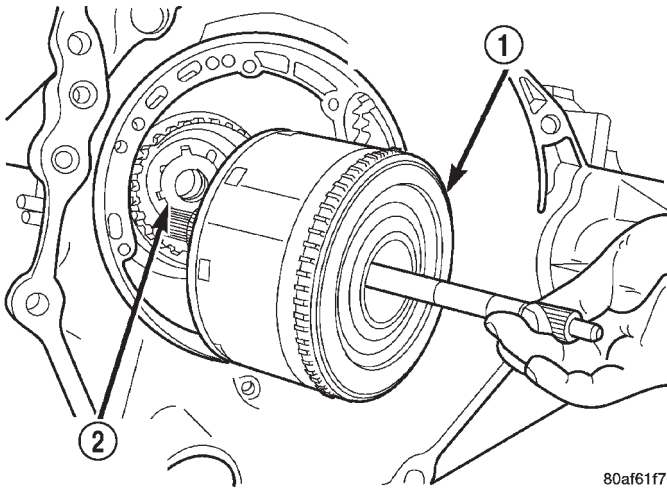


Fig. 166 Remove Caged Needle Bearing

- 1 - #1 CAGED NEEDLE BEARING
- 2 - NOTE: TANGED SIDE OUT

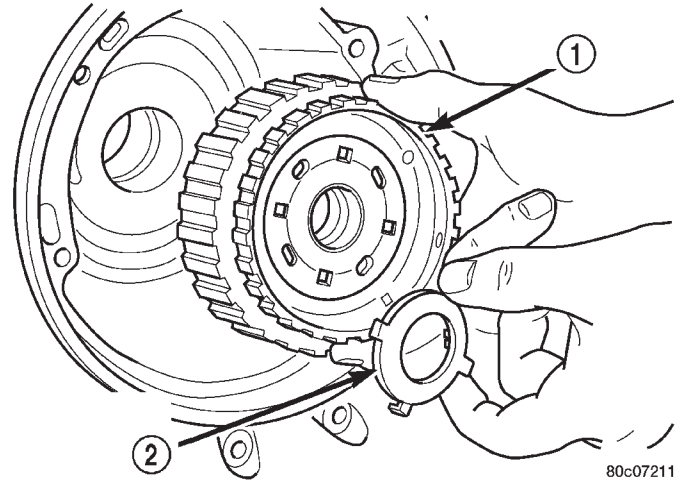
DISASSEMBLY AND ASSEMBLY (Continued)



80af61f7

Fig. 167 Remove Input Clutches Assembly

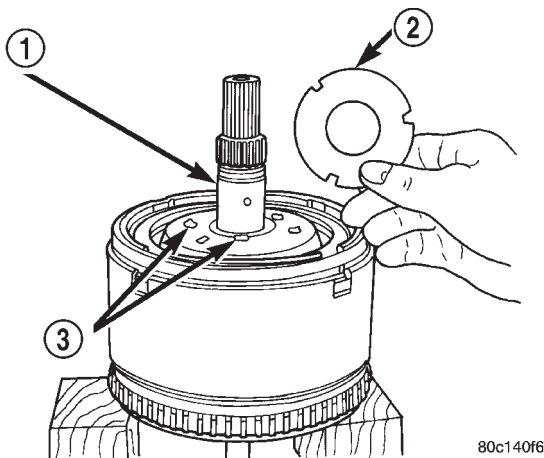
- 1 – INPUT CLUTCHES ASSEMBLY
2 – #4 THRUST WASHER



80c07211

Fig. 169 Remove Front Sun Gear Assembly

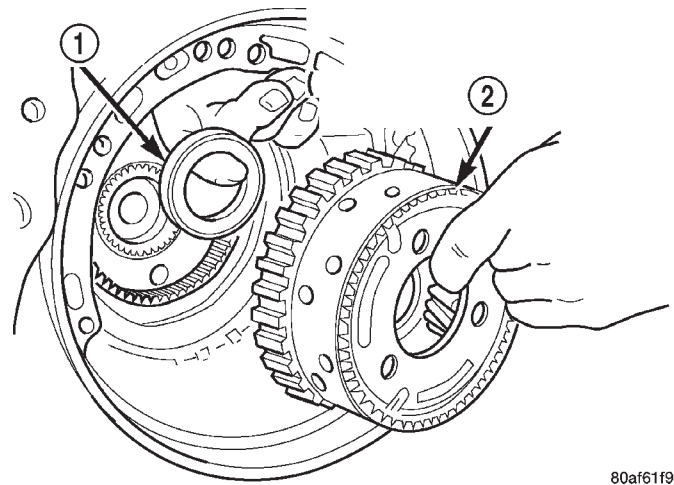
- 1 – FRONT SUN GEAR ASSEMBLY
2 – #4 THRUST WASHER (FOUR TABS)



80c140f6

Fig. 168 No. 4 Thrust Plate

- 1 – OVERDRIVE SHAFT ASSEMBLY
2 – #4 THRUST PLATE (SELECT)
3 – 3 DABS OF PETROLATUM FOR RETENTION

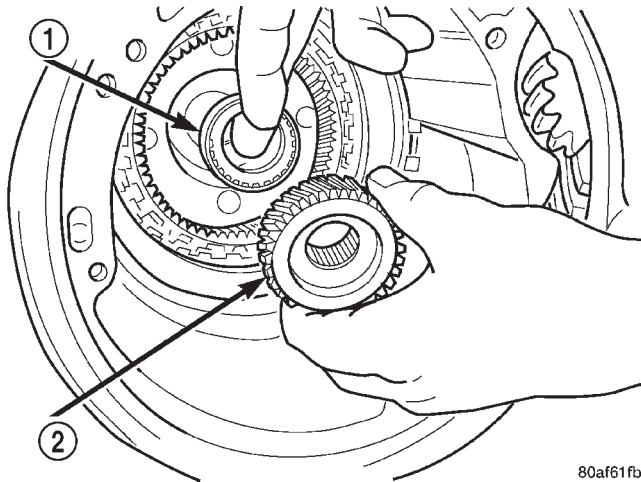


80af61f9

Fig. 170 Remove Front Carrier and Rear Annulus Assembly

- 1 – #6 NEEDLE BEARING
2 – FRONT CARRIER AND REAR ANNULUS ASSEMBLY (TWIST AND PULL OR PUSH TO REMOVE OR INSTALL).

DISASSEMBLY AND ASSEMBLY (Continued)

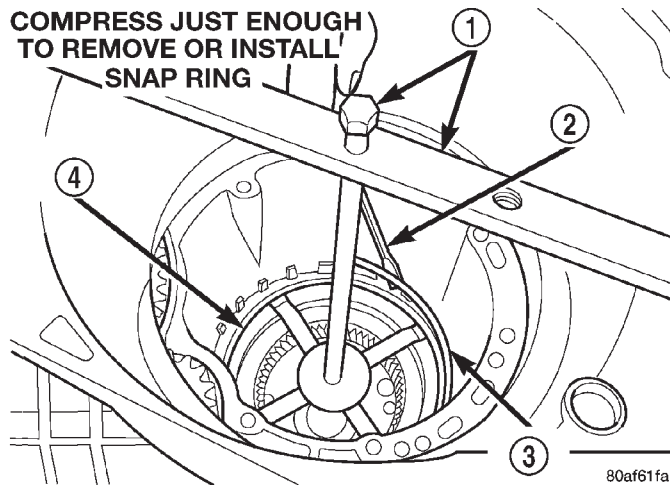


80af61fb

Fig. 171 Remove Rear Sun Gear

- 1 - #7 NEEDLE BEARING
- 2 - REAR SUN GEAR

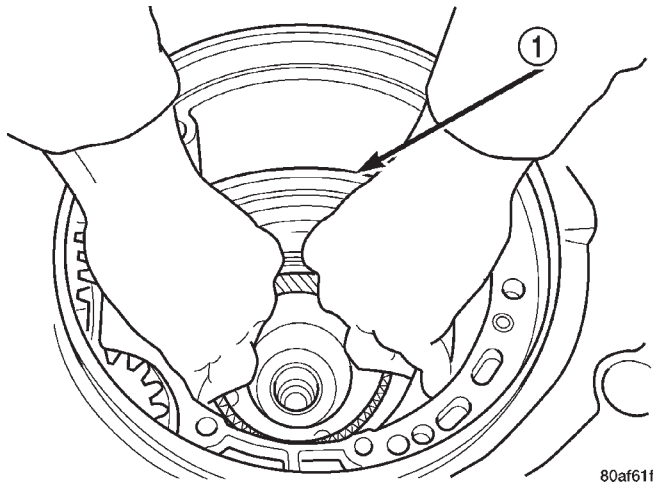
NOTE: Verify that Miller Tool 5058 is centered properly to the 2/4 clutch retainer before depressing the tool.



80af61fa

Fig. 172 Remove 2/4 Clutch Retainer Snap Ring

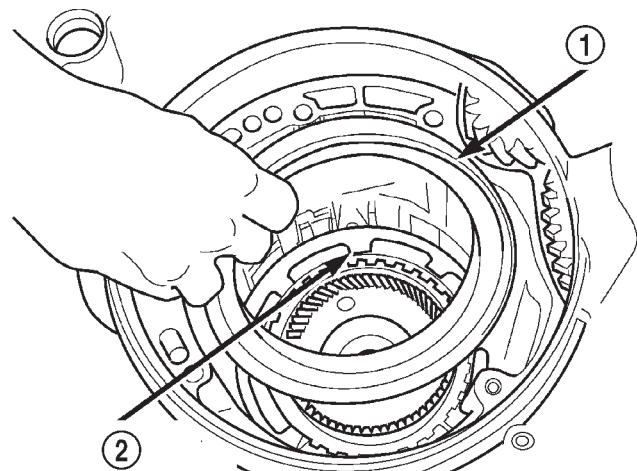
- 1 - TOOL 5058
- 2 - SCREWDRIVER
- 3 - SNAP RING
- 4 - 2/4 CLUTCH RETAINER



80af61fc

Fig. 173 Remove 2/4 Clutch Retainer

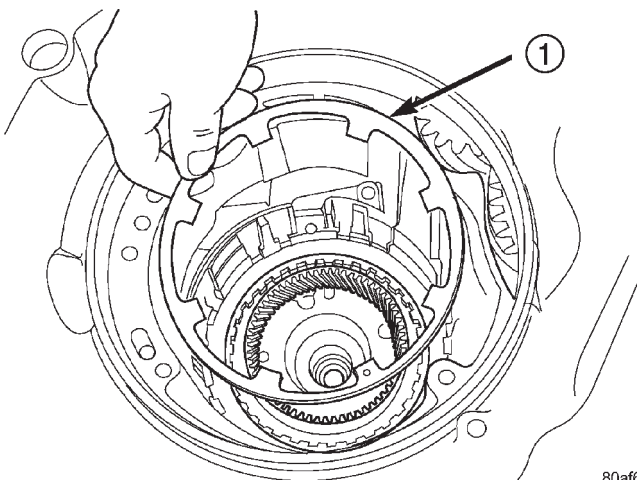
- 1 - 2/4 CLUTCH RETAINER



80af61ff

Fig. 174 2/4 Clutch Retainer

- 1 - 2/4 CLUTCH RETAINER
- 2 - 2/4 CLUTCH RETURN SPRING

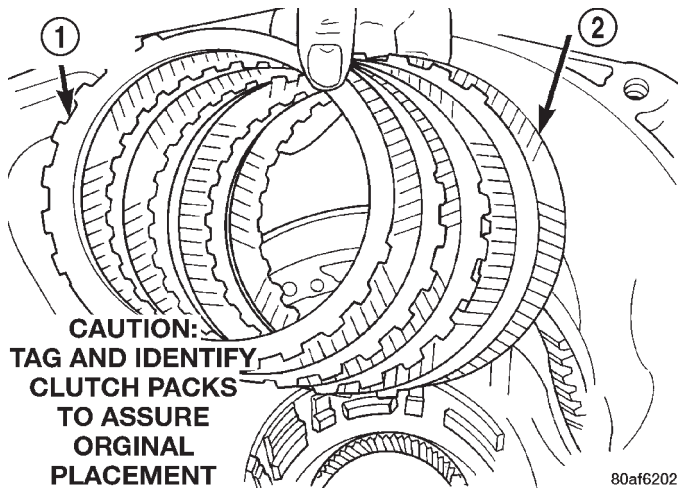


80af6200

Fig. 175 Remove 2/4 Clutch Return Spring

- 1 - 2/4 CLUTCH RETURN SPRING

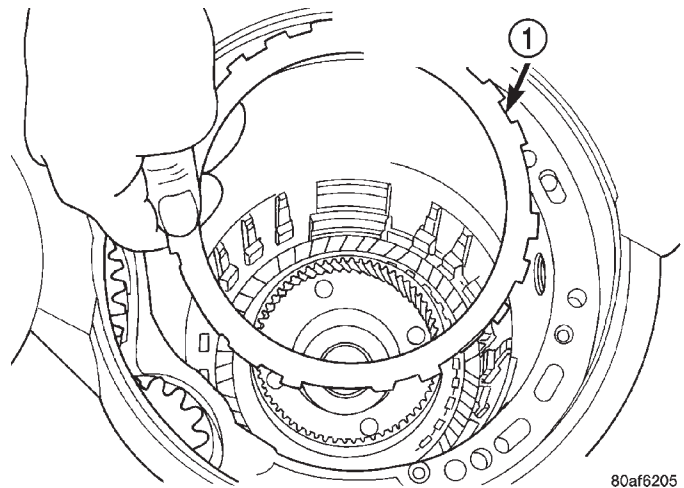
DISASSEMBLY AND ASSEMBLY (Continued)



80af6202

Fig. 176 Remove 2/4 Clutch Pack

- 1 - CLUTCH PLATE (4)
- 2 - CLUTCH DISC (4)

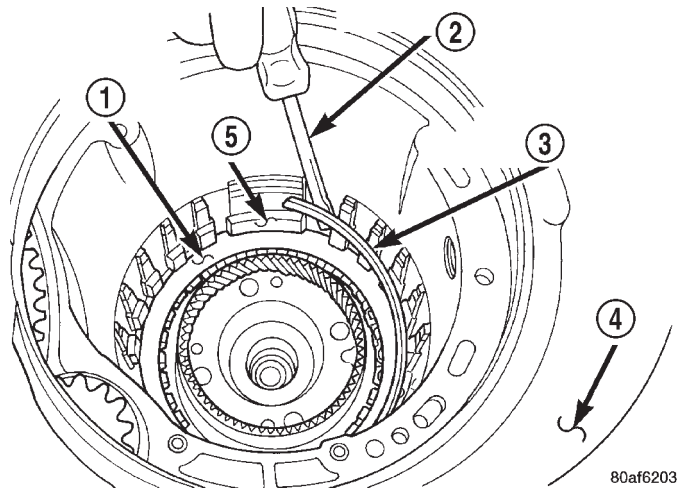


80af6205

Fig. 178 Remove Low/Reverse Reaction Plate

- 1 - LOW/REVERSE REACTION PLATE (FLAT SIDE UP)

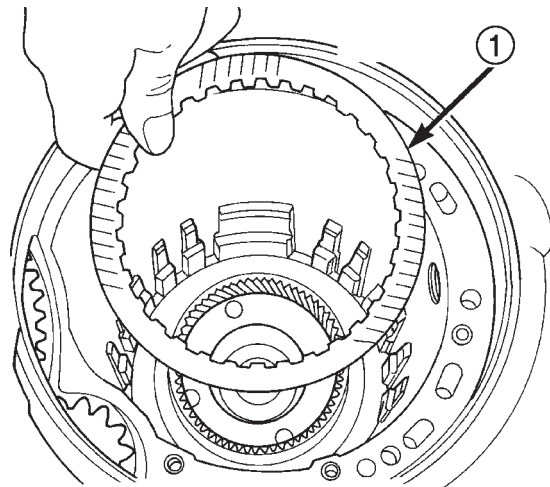
NOTE: Tag 2/4 clutch pack for reassembly identification.



80af6203

Fig. 177 Remove Tapered Snap Ring

- 1 - LOW/REVERSE CLUTCH REACTION PLATE
- 2 - SCREWDRIVER
- 3 - LOW/REVERSE TAPERED SNAP RING (TAPERED SIDE UP)
- 4 - OIL PAN FACE
- 5 - LONG TAB



80af6206

Fig. 179 Remove One Disc

- 1 - ONE DISC FROM LOW/REVERSE CLUTCH

DISASSEMBLY AND ASSEMBLY (Continued)

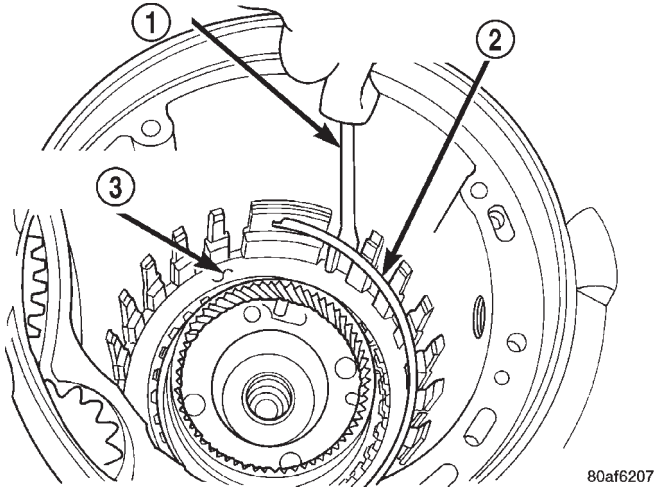


Fig. 180 Remove Low/Reverse Reaction Plate Snap Ring

- 1 - SCREWDRIVER
- 2 - LOW/REVERSE REACTION PLATE FLAT SNAP RING
- 3 - DO NOT SCRATCH CLUTCH PLATE

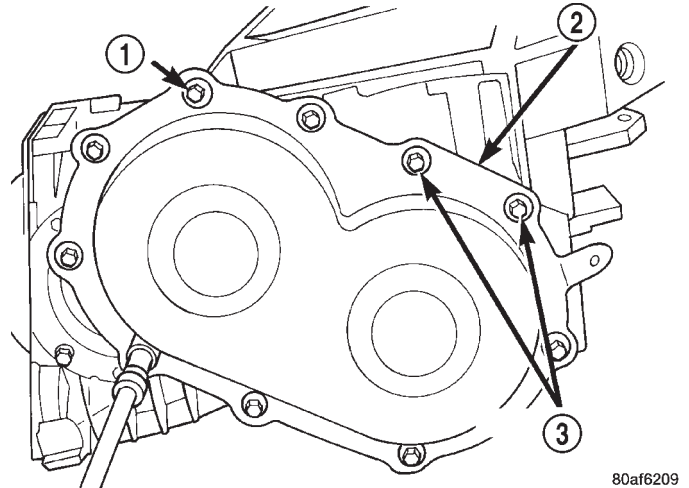


Fig. 182 Remove Rear Cover Bolts

- 1 - REAR COVER BOLTS
- 2 - REAR COVER
- 3 - USE SEALANT ON BOLTS

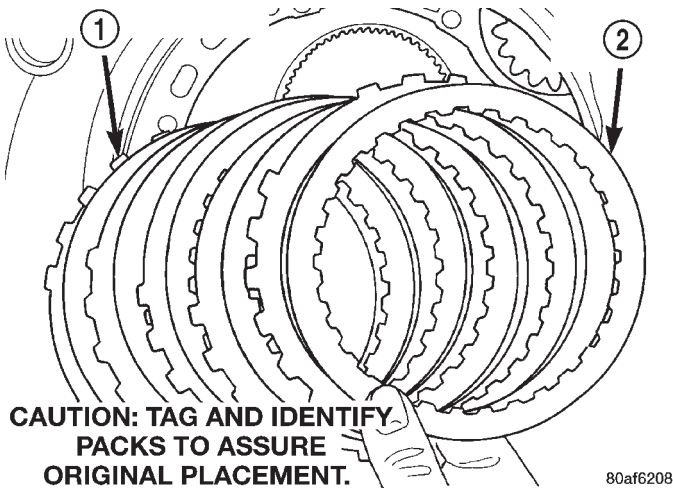


Fig. 181 Remove Low/Reverse Clutch Pack

- 1 - CLUTCH PLATES (5)
- 2 - CLUTCH DISCS (5)

NOTE: Tag low/reverse clutch pack for reassembly identification.

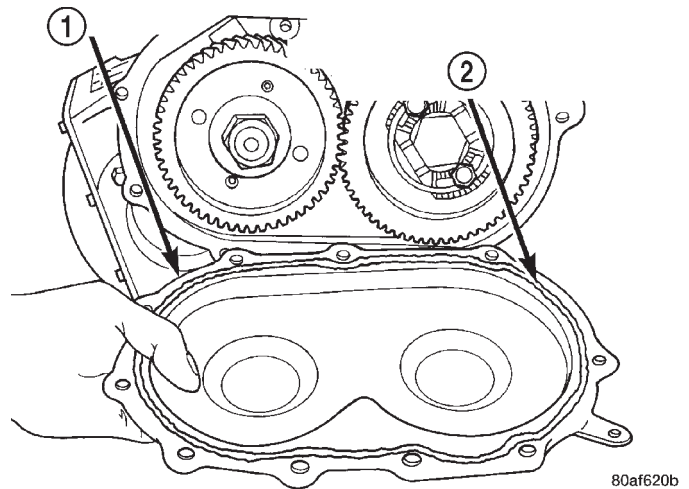
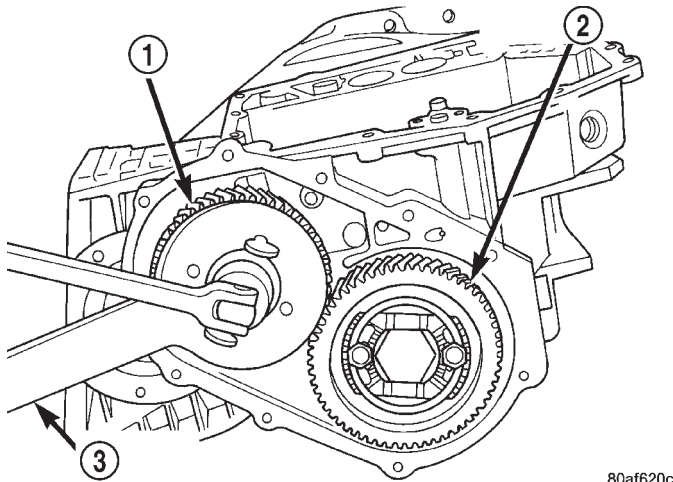


Fig. 183 Remove Rear Cover

- 1 - REAR COVER
- 2 - 1/8 INCH BEAD OF MOPAR SILICONE RUBBER ADHESIVE SEALANT AS SHOWN

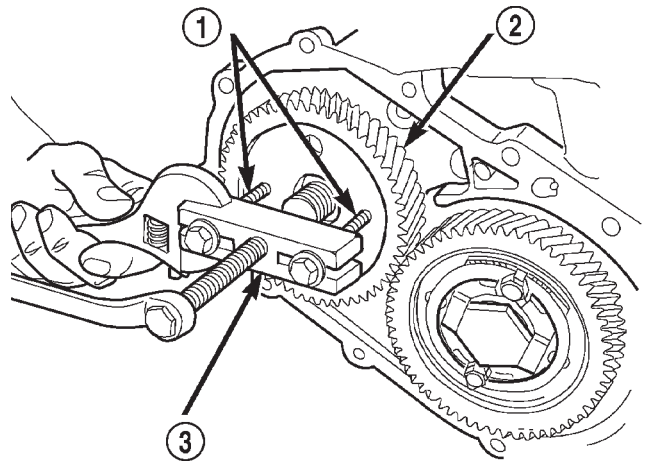
DISASSEMBLY AND ASSEMBLY (Continued)



80af620c

Fig. 184 Remove Transfer Shaft Gear Nut

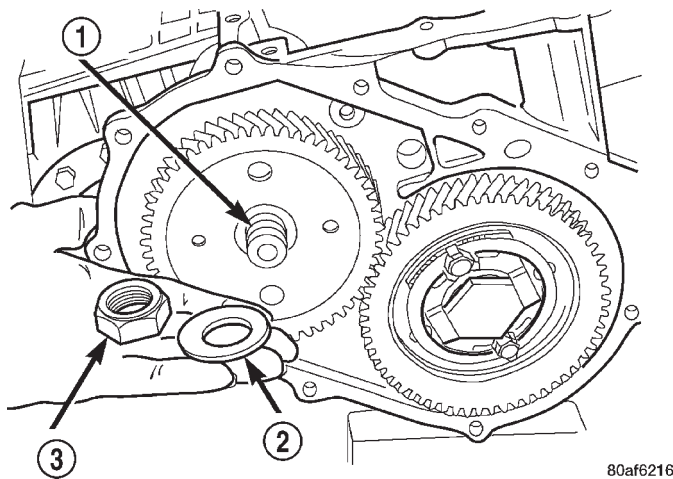
- 1 - TRANSFER SHAFT GEAR
- 2 - OUTPUT GEAR
- 3 - SPECIAL TOOL 6259



80af6215

Fig. 186 Remove Transfer Shaft Gear

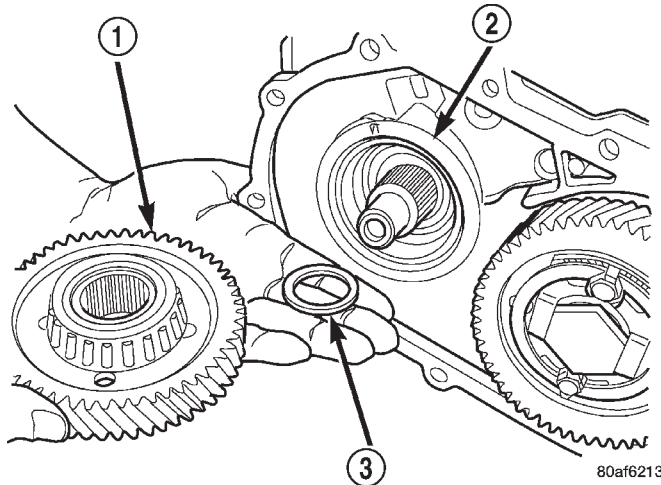
- 1 - SPECIAL TOOL L-4407-6
- 2 - TRANSFER SHAFT GEAR
- 3 - SPECIAL TOOL L-4407



80af6216

Fig. 185 Transfer Shaft Gear Nut and Coned Washer

- 1 - TRANSFER SHAFT
- 2 - LOCK WASHER
- 3 - NUT

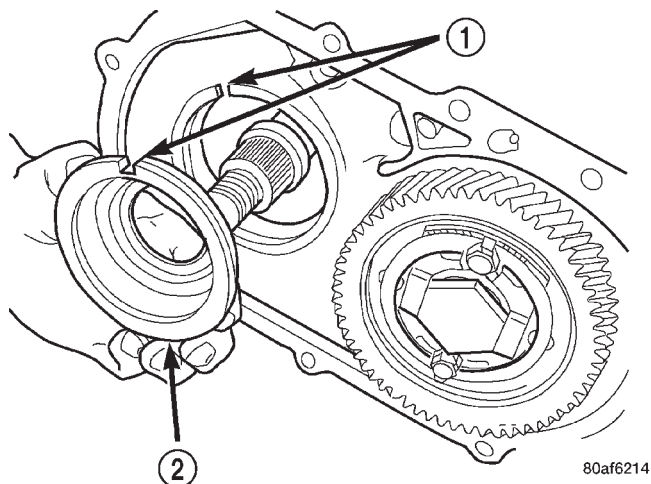


80af6213

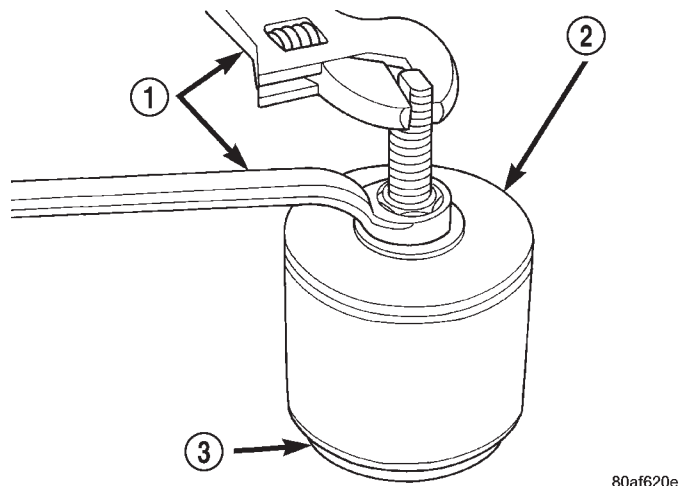
Fig. 187 Remove Transfer Shaft Gear and (Select) Shim

- 1 - TRANSFER SHAFT GEAR
- 2 - BEARING CUP RETAINER
- 3 - SHIM (SELECT)

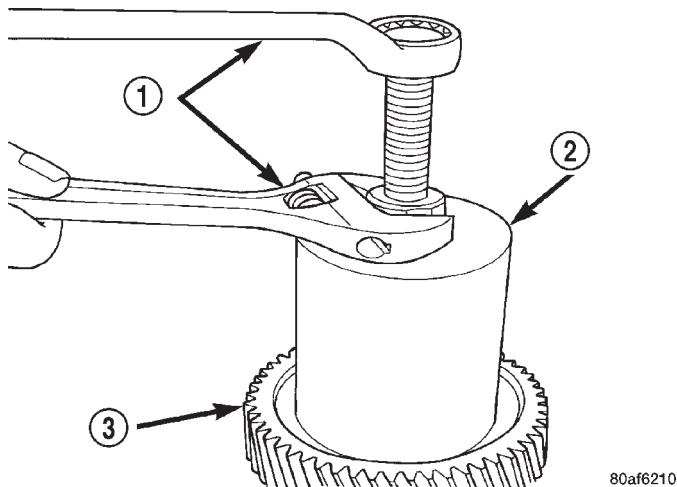
DISASSEMBLY AND ASSEMBLY (Continued)


Fig. 188 Remove Bearing Cup Retainer

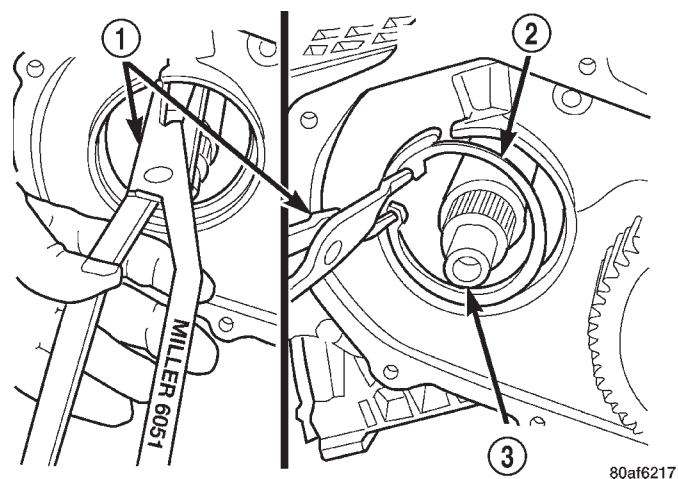
- 1 - ALIGN INDEXING TAB TO SLOT
- 2 - BEARING CUP RETAINER


Fig. 190 Remove Transfer Shaft Bearing Cup

- 1 - WRENCHES
- 2 - TOOL 6062
- 3 - TRANSFER SHAFT BEARING CUP RETAINER


Fig. 189 Remove Transfer Gear Bearing Cone

- 1 - WRENCHES
- 2 - TOOL 5048 WITH JAWS TOOL 5048-4 AND BUTTON TOOL L-4539-2
- 3 - TRANSFER SHAFT GEAR


Fig. 191 Remove Transfer Shaft Bearing Snap Ring

- 1 - SNAP RING PLIERS TOOL 6051
- 2 - TRANSFER SHAFT BEARING SNAP RING
- 3 - TRANSFER SHAFT

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: Screw Tool 5049-A onto transfer shaft.
Remove transfer shaft.

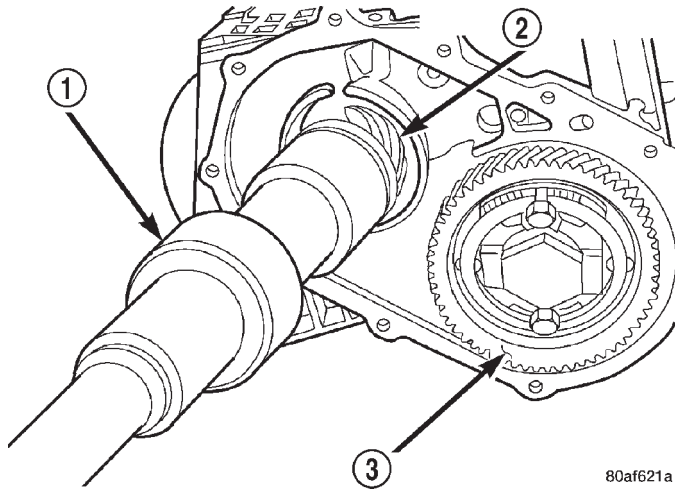


Fig. 192 Remove Transfer Shaft

- 1 - SPECIAL TOOL 5049-A
- 2 - TRANSFER SHAFT
- 3 - OUTPUT GEAR

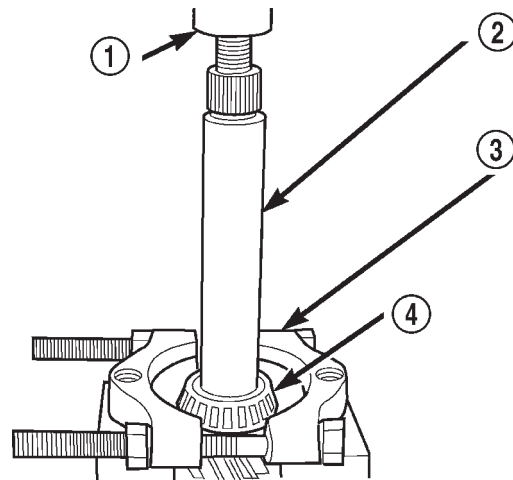


Fig. 194 Remove Transfer Shaft Bearing Cone

- 1 - ARBOR PRESS RAM
- 2 - TRANSFER SHAFT
- 3 - TOOL P-334
- 4 - BEARING CONE

NOTE: Remove output gear stirrup and strap bolts.

All transaxes utilize a stirrup and retaining strap that is attached to the output gear. The stirrup prevents the output gear retaining bolt from turning and backing out of the rear carrier. The strap is used to hold the stirrup to the output gear and prevent the stirrup retaining bolts from backing out.

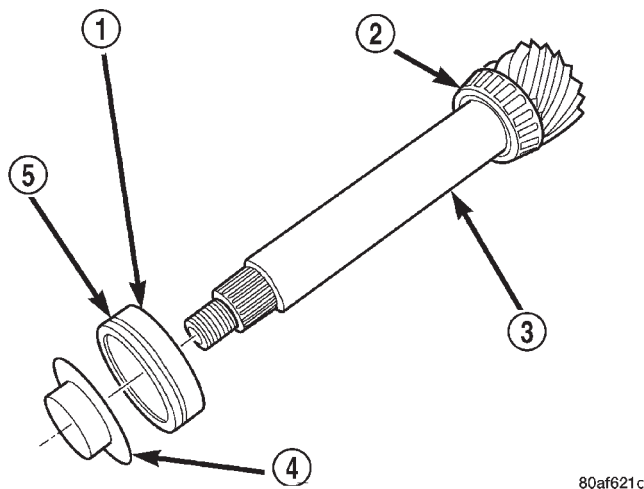


Fig. 193 Bearing Cup Removed

- 1 - BEARING CUP
- 2 - BEARING CONE
- 3 - TRANSFER SHAFT
- 4 - OIL BAFFLE
- 5 - O-RING

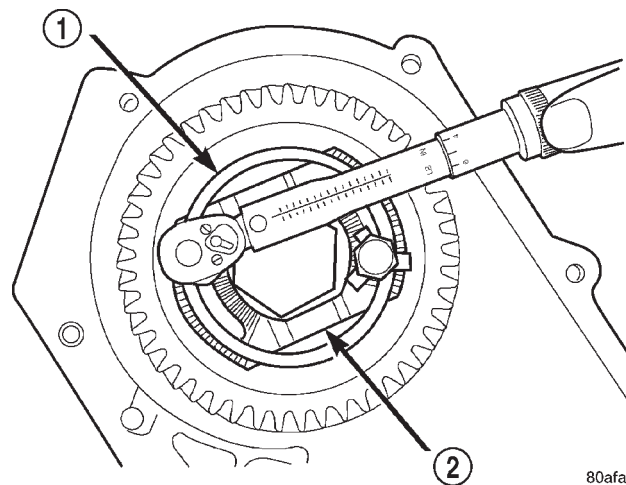
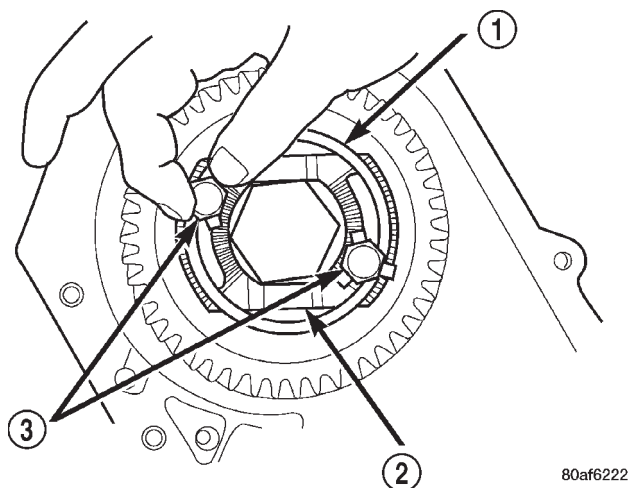


Fig. 195 Loosen Stirrup Strap Bolts

- 1 - RETAINING STRAP
- 2 - STIRRUP

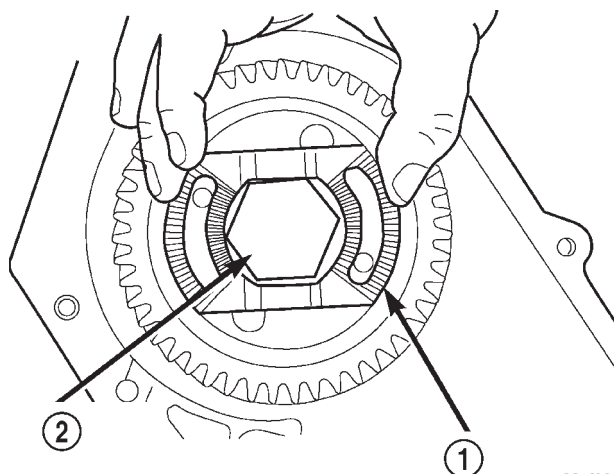
DISASSEMBLY AND ASSEMBLY (Continued)



80af6222

Fig. 196 Remove Strap Bolts

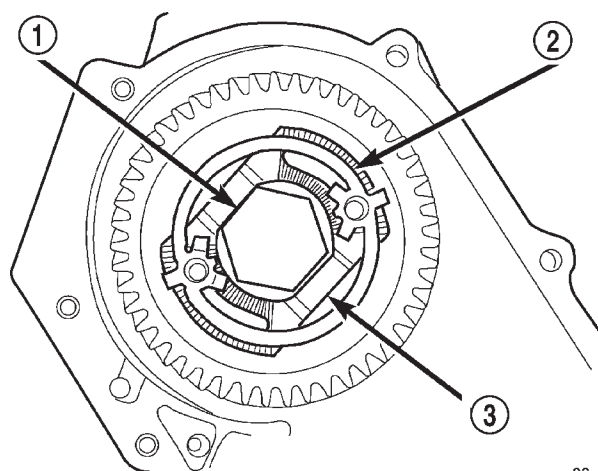
- 1 - RETAINING STRAP
- 2 - STIRRUP
- 3 - RETAINING STRAP BOLTS



80af6220

Fig. 198 Remove Stirrup

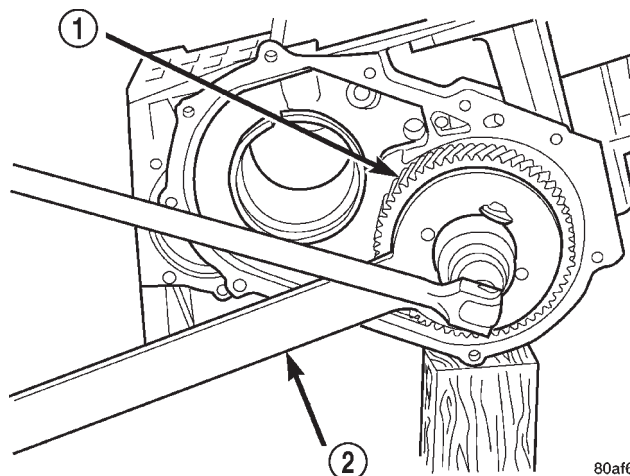
- 1 - STIRRUP
- 2 - OUTPUT GEAR RETAINING BOLT



80af6221

Fig. 197 Remove Stirrup Strap

- 1 - OUTPUT GEARBOLT
- 2 - RETAINING STRAP
- 3 - STIRRUP

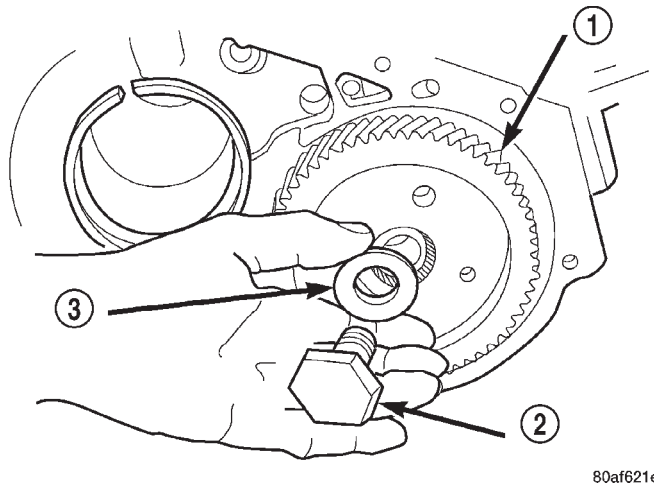


80af6219

Fig. 199 Remove Output Gear Bolt

- 1 - OUTPUT GEAR
- 2 - TOOL 6259

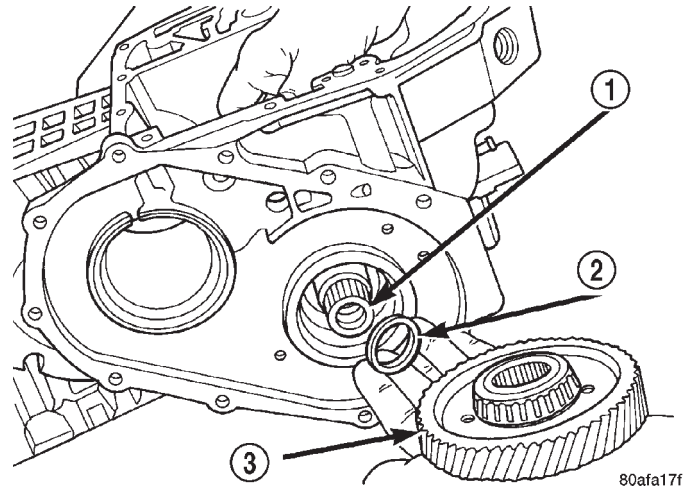
DISASSEMBLY AND ASSEMBLY (Continued)



80af621e

Fig. 200 Output Gear Bolt and Washer

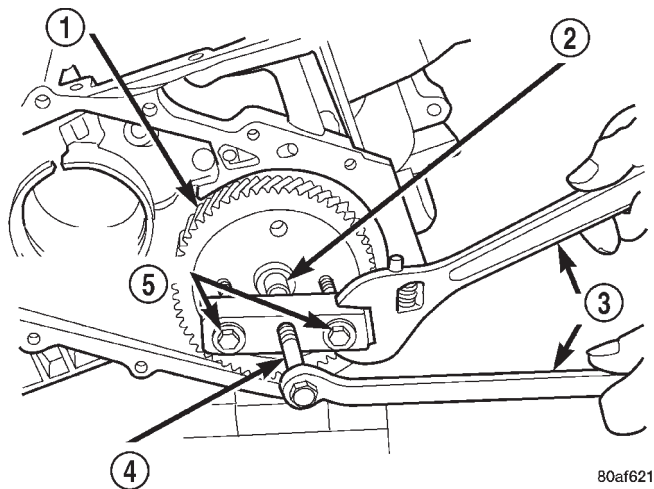
- 1 - OUTPUT GEAR
- 2 - BOLT
- 3 - CONED LOCK WASHER



80afa17f

Fig. 202 Output Gear and (Select) Shim

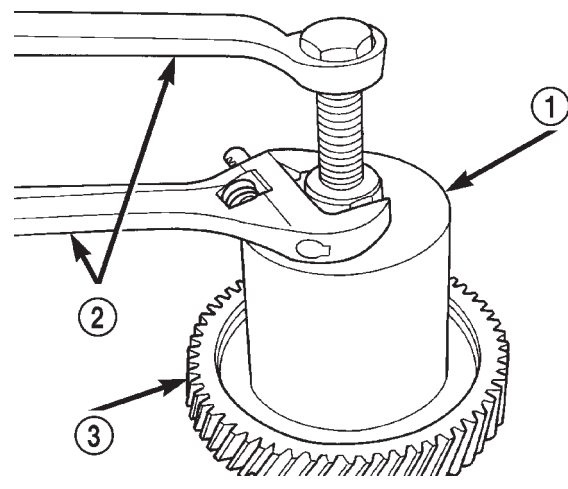
- 1 - REAR CARRIER ASSEMBLY
- 2 - SHIM (SELECT)
- 3 - OUTPUT GEAR



80af6211

Fig. 201 Remove Output Gear

- 1 - OUTPUT GEAR
- 2 - BUTTON TOOL 6055
- 3 - WRENCHES
- 4 - TOOL L-4407
- 5 - BOLTS TOOL L-4407-6

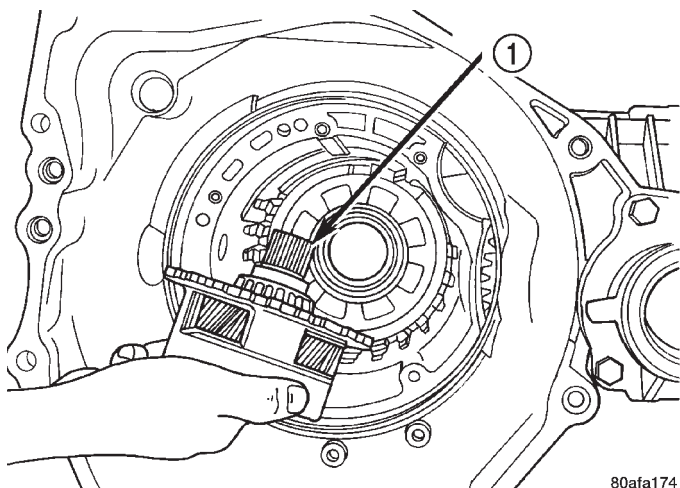


80afa180

Fig. 203 Remove Bearing Cone

- 1 - TOOL 5048 WITH JAWS 5048-5 AND BUTTON L-4539-2
- 2 - WRENCHES
- 3 - OUTPUT GEAR

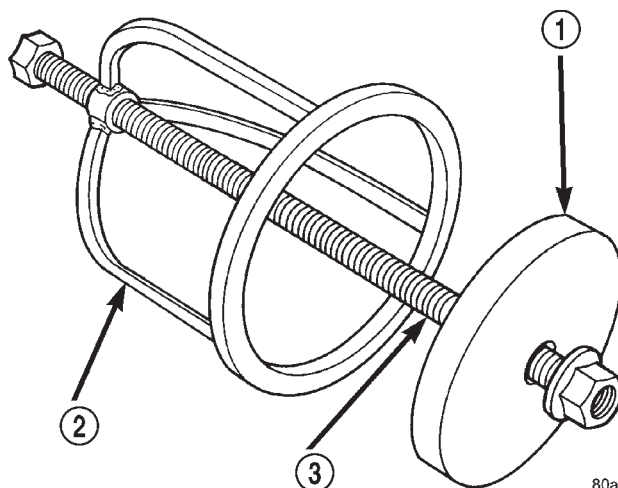
DISASSEMBLY AND ASSEMBLY (Continued)



80afa174

Fig. 204 Remove Rear Carrier Assembly

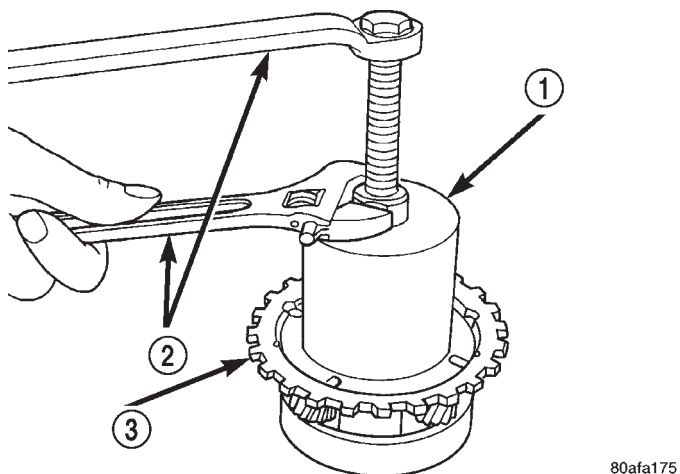
1 – REAR CARRIER ASSEMBLY



80afa177

Fig. 206 Low/Reverse Spring Compressor Tool

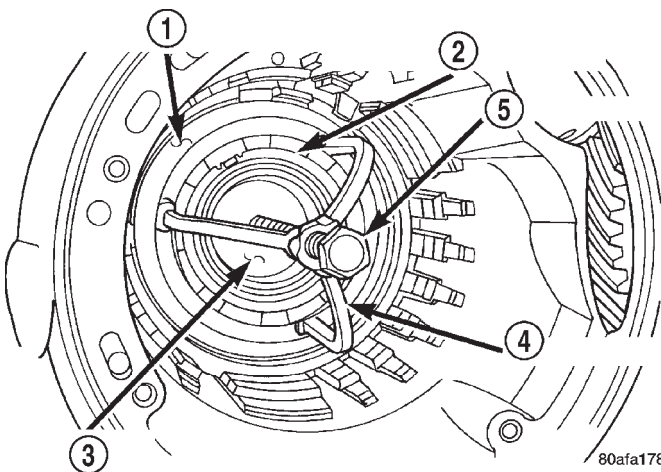
1 – TOOL 6057
2 – TOOL 5059
3 – TOOL 5058-3



80afa175

Fig. 205 Remove Rear Carrier Bearing Cone

1 – TOOL 5048 WITH JAWS 5048-3 AND BUTTON 6055
2 – WRENCHES
3 – REAR CARRIER ASSEMBLY

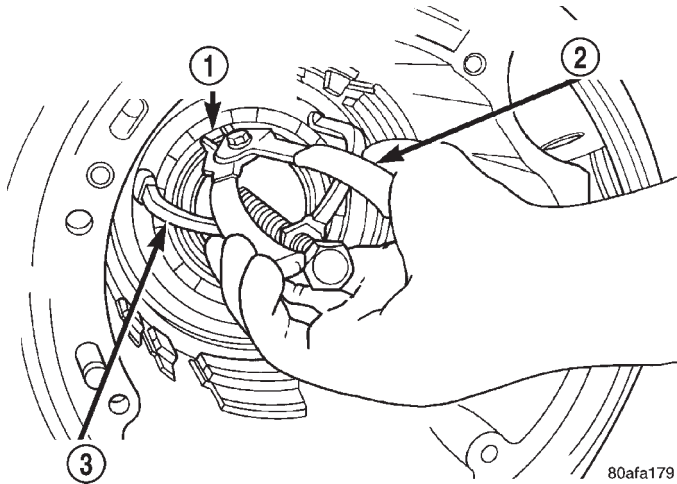


80afa178

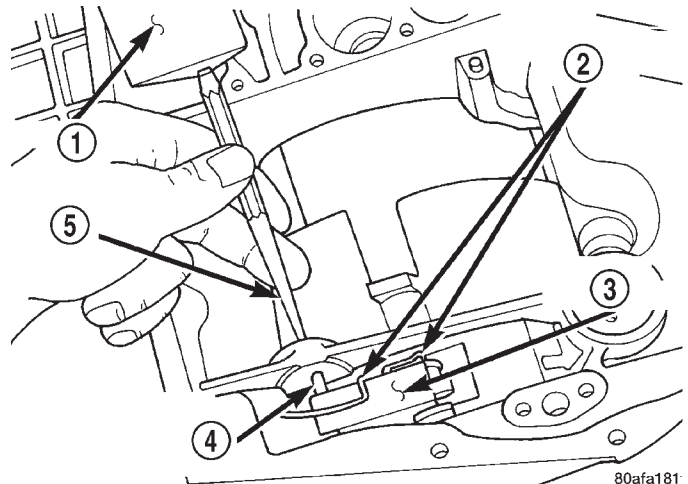
Fig. 207 Compressor Tool in Use

1 – LOW/REVERSE CLUTCH RETURN SPRING
2 – SNAP RING (INSTALL AS SHOWN)
3 – TOOL 6057
4 – TOOL 5059
5 – TOOL 5058-3

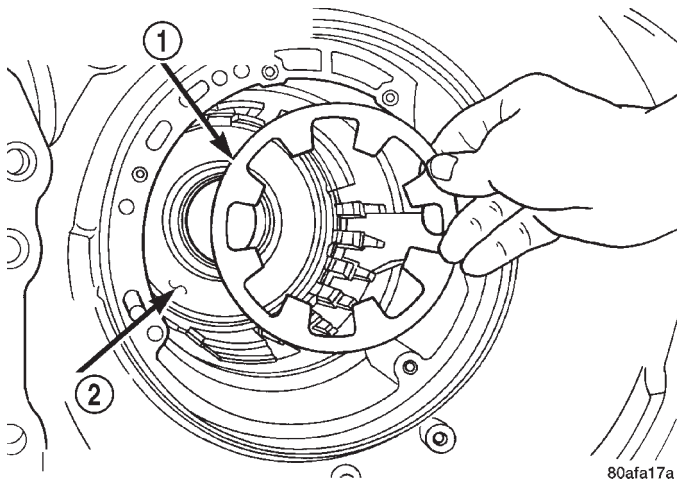
DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 208 Remove Snap Ring**

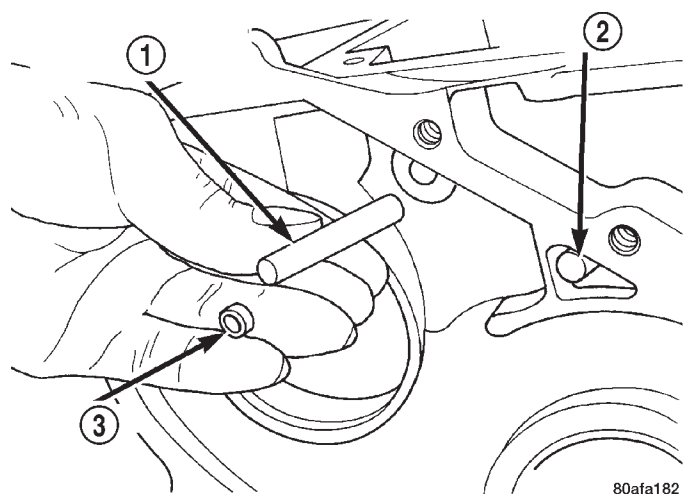
- 1 - SNAP RING OPENING MUST BE BETWEEN SPRING LEVERS (AS SHOWN)
- 2 - SNAP RING PLIERS
- 3 - TOOL 6057

**Fig. 210 Drive Out Anchor Shaft**

- 1 - HAMMER
- 2 - ANTIRATCHET SPRING
- 3 - GUIDE BRACKET
- 4 - PARK SPRAG GUIDE BRACKET ANCHOR SHAFT
- 5 - DRIFT

**Fig. 209 Low/Reverse Piston Return Spring**

- 1 - LOW/REVERSE PISTON RETURN SPRING
- 2 - PISTON

**Fig. 211 Remove Anchor Shaft and Plug**

- 1 - GUIDE BRACKET ANCHOR SHAFT
- 2 - PIVOT SHAFT
- 3 - ANCHOR SHAFT PLUG

CAUTION: When installing, be sure guide bracket and split sleeve touch the rear of the transaxle case.

DISASSEMBLY AND ASSEMBLY (Continued)

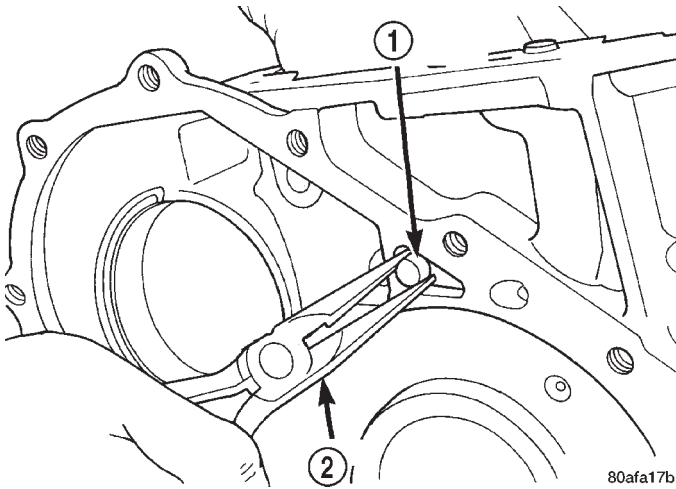


Fig. 212 Remove Guide Bracket Pivot Shaft

- 1 - GUIDE BRACKET PIVOT SHAFT
- 2 - PLIERS

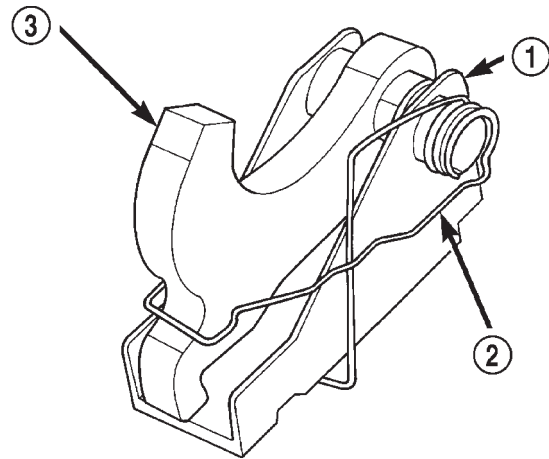


Fig. 214 Guide Bracket

- 1 - GUIDE BRACKET
- 2 - ANTIRATCHET SPRING (MUST BE ASSEMBLED AS SHOWN)
- 3 - PAWL

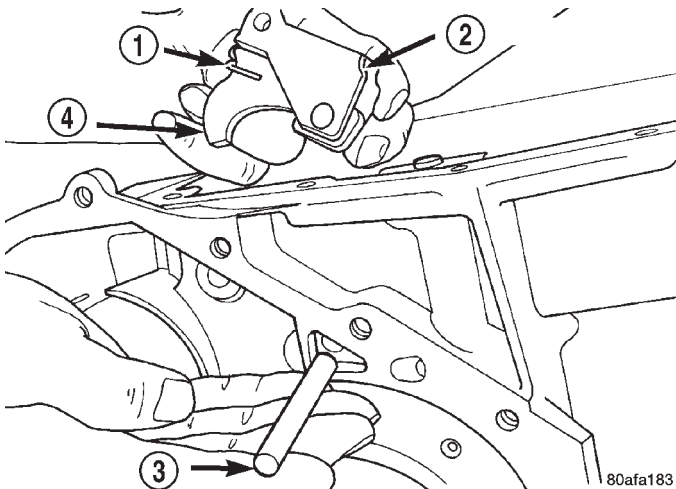


Fig. 213 Pivot Shaft and Guide Bracket

- 1 - ANTIRATCHET SPRING
- 2 - GUIDE BRACKET
- 3 - PIVOT SHAFT
- 4 - PAWL

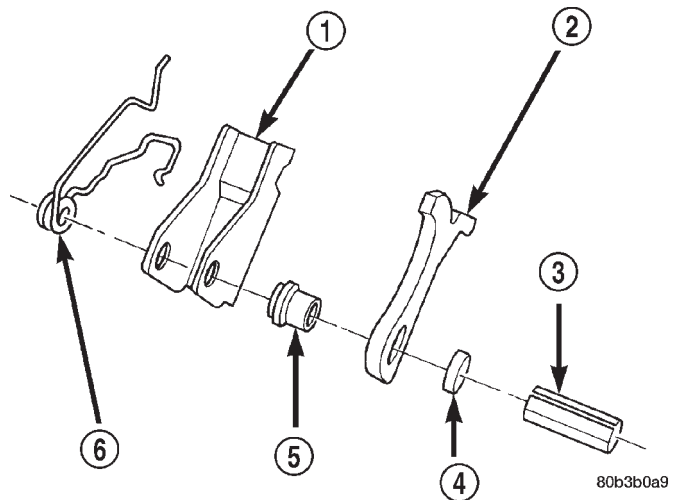
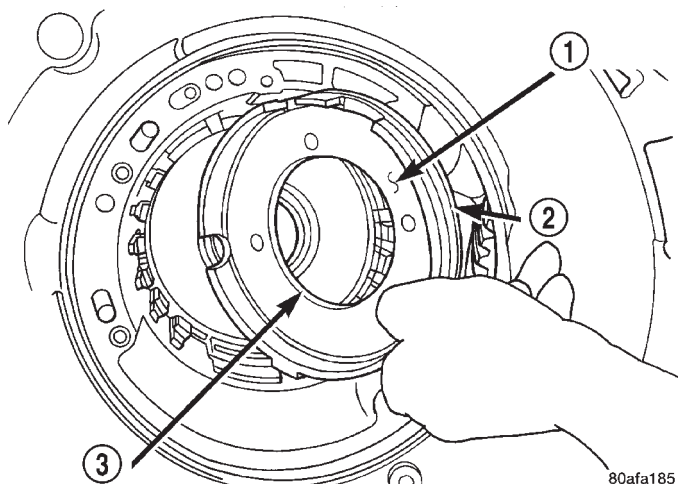


Fig. 215 Guide Bracket Disassembled

- 1 - GUIDE BRACKET
- 2 - PAWL
- 3 - SPLIT SLEEVE
- 4 - SPACER
- 5 - STEPPED SPACER
- 6 - ANTIRATCHET SPRING

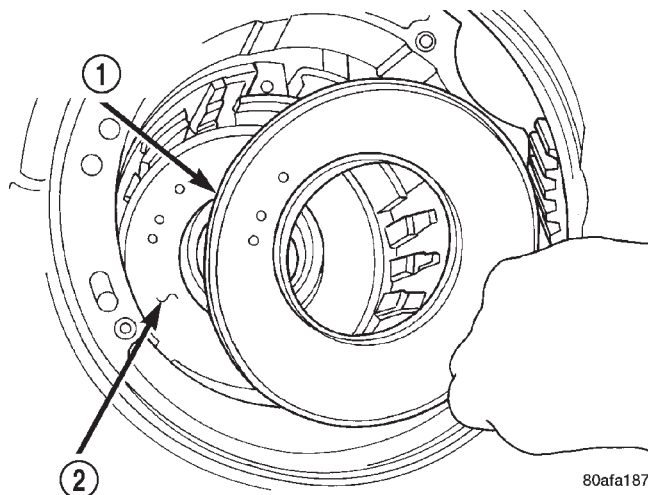
DISASSEMBLY AND ASSEMBLY (Continued)



80afa185

Fig. 216 Remove Low/Reverse Clutch Piston

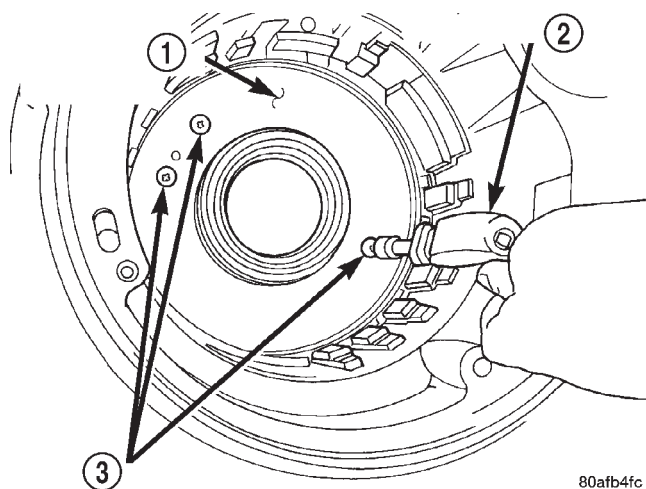
- 1 - LOW/REVERSE CLUTCH PISTON
- 2 - LIP SEAL
- 3 - LIP SEAL



80afa187

Fig. 218 Remove Piston Retainer

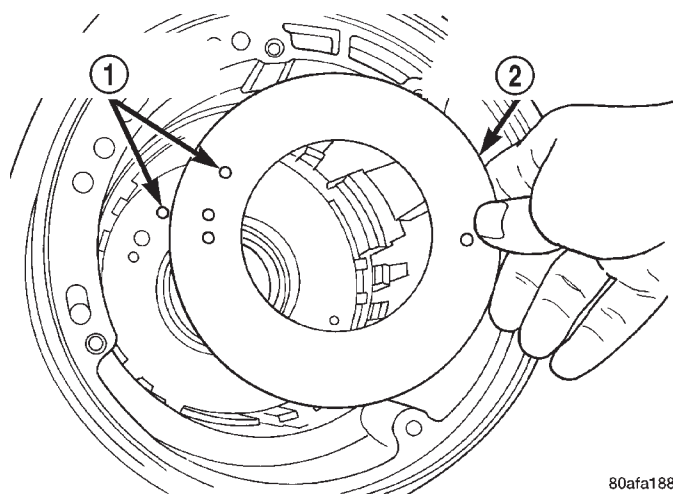
- 1 - LOW/REVERSE CLUTCH PISTON RETAINER
- 2 - GASKET



80afb4fc

Fig. 217 Remove Piston Retainer Attaching Screws

- 1 - LOW/REVERSE CLUTCH PISTON RETAINER
- 2 - SCREWDRIVER
- 3 - TORX-LOC SCREWS



80afa188

Fig. 219 Remove Piston Retainer Gasket

- 1 - GASKET HOLES MUST LINE UP
- 2 - LOW/REVERSE CLUTCH PISTON RETAINER GASKET

DISASSEMBLY AND ASSEMBLY (Continued)

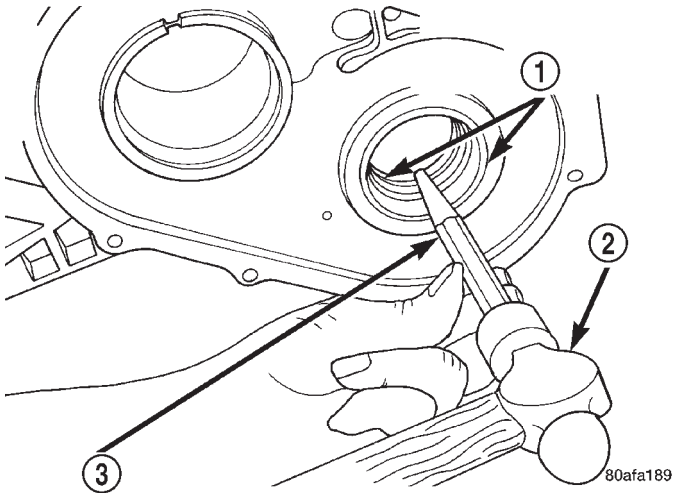


Fig. 220 Remove Output Bearing Inner Cup

- 1 - OUTPUT BEARING CUPS (REPLACE IN PAIRS)
- 2 - HAMMER
- 3 - BRASS DRIFT

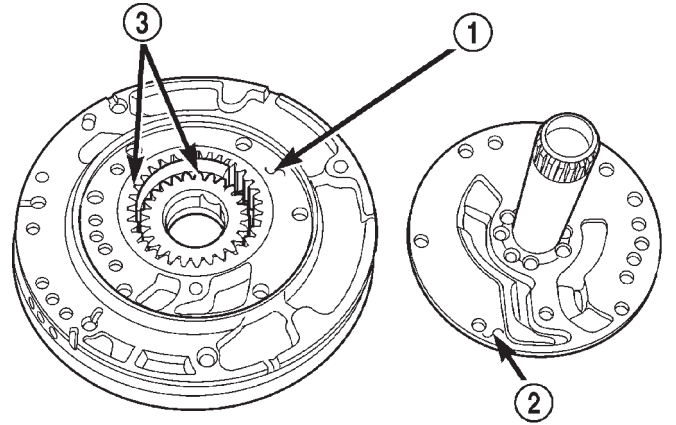


Fig. 222 Reaction Shaft Support

- 1 - PUMP HOUSING
- 2 - REACTION SHAFT SUPPORT
- 3 - PUMP GEARS

CAUTION: Drift bearing cup all the way around.

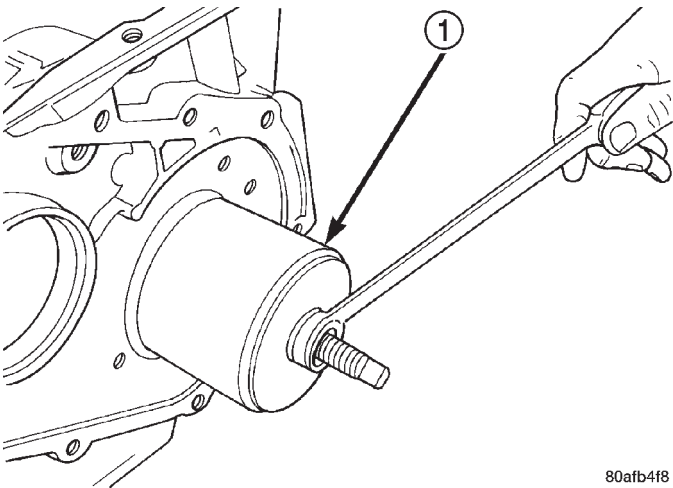


Fig. 221 Remove Output Bearing Outer Cup

- 1 - TOOL 6062

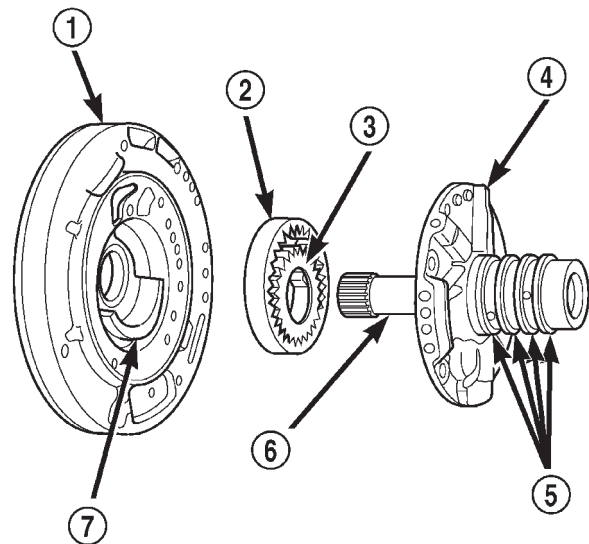


Fig. 223 Oil Pump Assembly

- 1 - PUMP HOUSING
- 2 - OUTER PUMP GEAR
- 3 - INNER PUMP GEAR
- 4 - REACTION SHAFT SUPPORT
- 5 - SEAL RINGS (4)
- 6 - REACTION SHAFT
- 7 - CRESCENT

OIL PUMP

DISASSEMBLY, INSPECTION, & ASSEMBLY

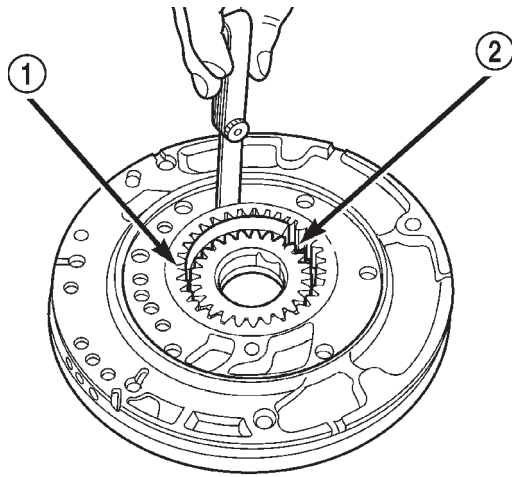
When disassembling the transaxle it is necessary to inspect the oil pump for wear and damage.

- (1) Remove the reaction shaft support bolts.
- (2) Remove reaction shaft support from pump housing (Fig. 222).
- (3) Remove the pump gears (Fig. 223) and check for wear and damage.

DISASSEMBLY AND ASSEMBLY (Continued)

(4) Re-install the gears and check clearances.

(5) Measure the clearance between the outer gear and the pump pocket (Fig. 224). Clearance should be 0.045-0.141mm (0.0018-0.0056 in.).



80b04ebb

Fig. 224 Measure Outer Gear to Pocket

- 1 - OUTER GEAR
2 - POCKET

(6) Position an appropriate piece of Plastigage across both pump gears.

(7) Align the Plastigage to a flat area on the reaction shaft support housing.

(8) Install the reaction shaft to the pump housing. Tighten the bolts to 27 N·M (20 ft. lbs.).

(9) Remove bolts and carefully separate the housings. Measure the Plastigage following the instructions supplied.

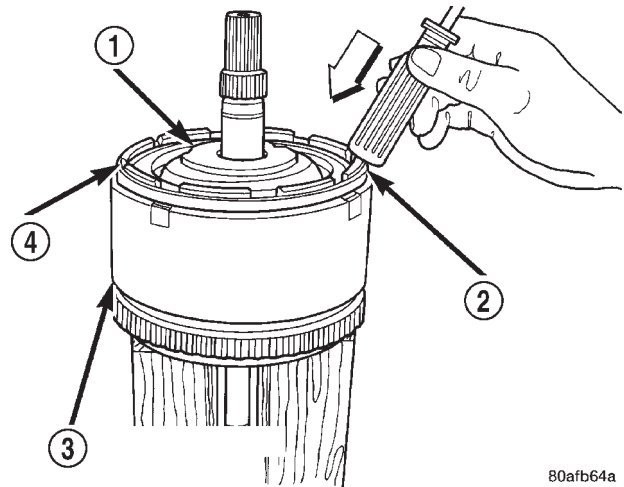
(10) Clearance between outer gear side and the reaction shaft support should be 0.020-0.046 mm (0.008-0.0018 in.). Clearance between inner gear side and the reaction shaft support should be 0.020-0.046 mm (0.008-0.0018 in.).

INPUT CLUTCH ASSEMBLY

DISASSEMBLY

(1) Mount input clutch assembly to Input Clutch Pressure Fixture (Tool 8391).

(2) Tap down reverse clutch reaction plate to release pressure from snap ring (Fig. 225).

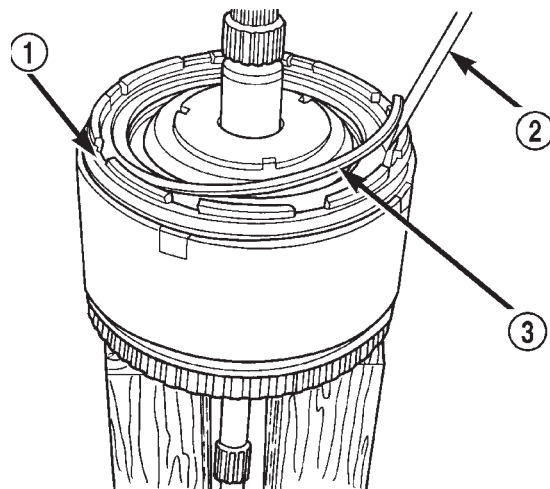


80afb64a

Fig. 225 Tapping Reaction Plate

- 1 - #4 THRUST PLATE (SELECT)
2 - TAP DOWN REVERSE CLUTCH REACTION PLATE TO REMOVE OR INSTALL SNAP RING
3 - INPUT SHAFT CLUTCHES RETAINER ASSEMBLY
4 - REVERSE CLUTCH REACTION PLATE

(3) Remove reverse clutch snap ring (Fig. 226).



80afb64b

Fig. 226 Reverse Clutch Snap Ring

- 1 - REACTION PLATE
2 - SCREWDRIVER
3 - REVERSE CLUTCH SNAP RING (SELECT)

DISASSEMBLY AND ASSEMBLY (Continued)

(4) Pry up and remove reverse clutch reaction plate (Fig. 227) (Fig. 228).

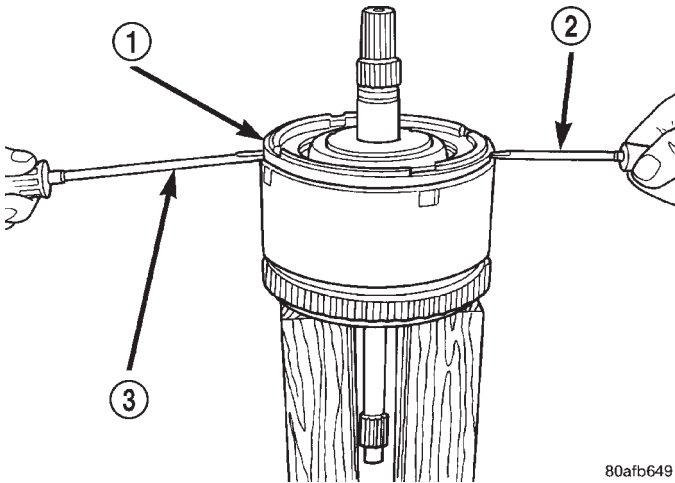


Fig. 227 Pry Reverse Clutch Reaction Plate

- 1 - REVERSE CLUTCH REACTION PLATE
- 2 - SCREWDRIVER
- 3 - SCREWDRIVER

NOTE: Tag reverse clutch pack for reassembly identification.

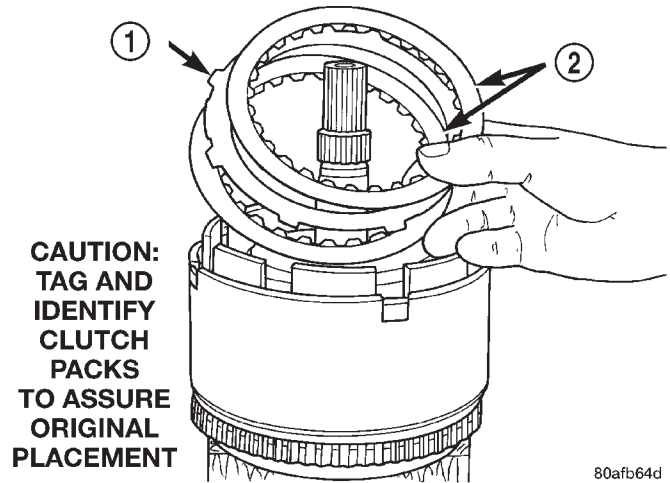


Fig. 229 Reverse Clutch Pack

- 1 - REVERSE CLUTCH PLATE
- 2 - REVERSE CLUTCH DISC

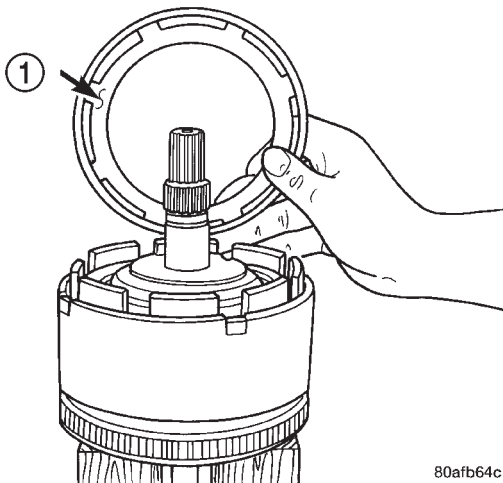


Fig. 228 Reverse Clutch Reaction Plate

- 1 - REVERSE CLUTCH REACTION PLATE (INSTALL FLAT SIDE DOWN)

(5) Remove the reverse clutch pack (two fibers/one steel) (Fig. 229).

(6) Remove the OD/Reverse reaction plate snap ring (Fig. 230).

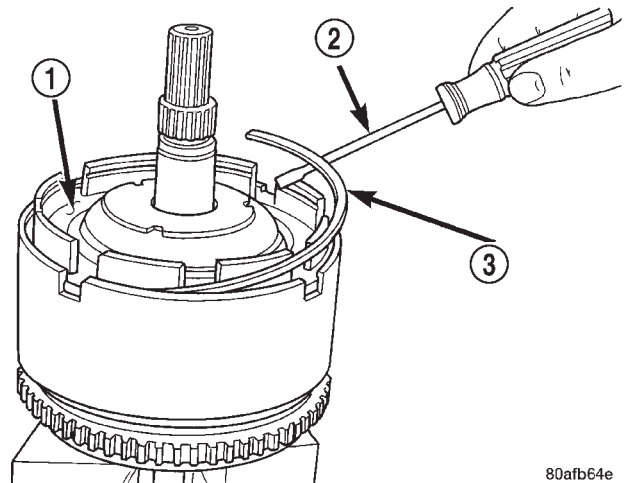
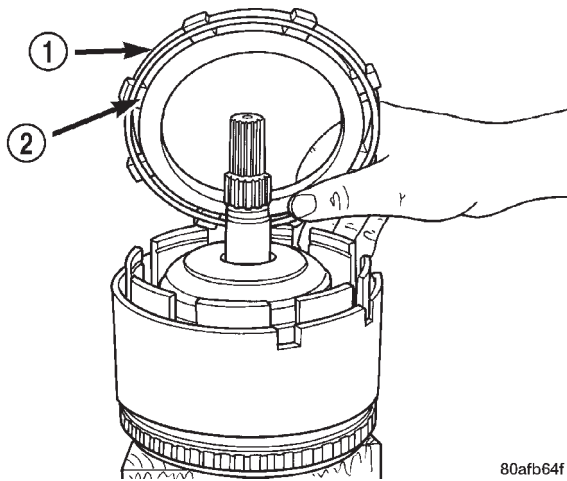


Fig. 230 OD/Reverse Reaction Plate Snap Ring

- 1 - OD/REVERSE PRESSURE PLATE
- 2 - SCREWDRIVER
- 3 - OD/REVERSE PRESSURE PLATE SNAP RING

DISASSEMBLY AND ASSEMBLY (Continued)

(7) Remove OD/Reverse reaction plate (Fig. 231).

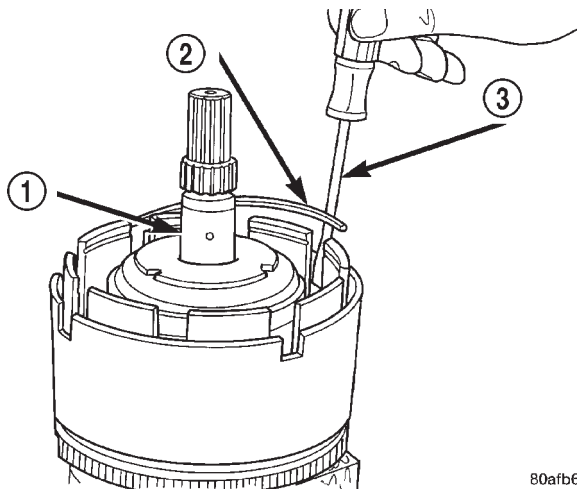


80afb64f

Fig. 231 OD/Reverse Reaction Plate

- 1 - OD/REVERSE PRESSURE PLATE (STEP SIDE DOWN)
2 - (STEP SIDE DOWN)

(8) Remove OD/Reverse reaction plate wave snap ring (Fig. 232).



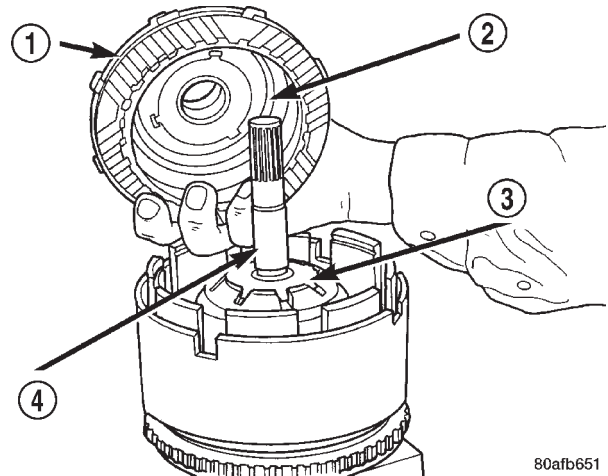
80afb650

Fig. 232 Waved Snap Ring

- 1 - OVERDRIVE SHAFT ASSEMBLY
2 - OD/REVERSE CLUTCH WAVED SNAP RING
3 - SCREWDRIVER

(9) Remove OD shaft/hub and OD clutch pack (Fig. 233) (Fig. 234).

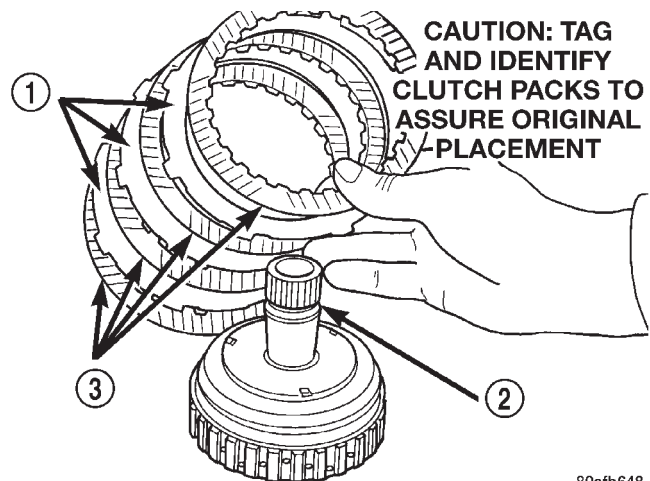
NOTE: Tag overdrive clutch pack for reassembly identification.



80afb651

Fig. 233 Remove OD Clutch Pack

- 1 - OVERDRIVE SHAFT ASSEMBLY AND OD CLUTCH PACK
2 - #3 THRUST PLATE
3 - #3 THRUST WASHER
4 - UNDERDRIVE SHAFT ASSEMBLY



80afb648

Fig. 234 Overdrive Clutch Pack

- 1 - OVERDRIVE CLUTCH PLATE
2 - OVERDRIVE SHAFT ASSEMBLY
3 - OVERDRIVE CLUTCH DISC

DISASSEMBLY AND ASSEMBLY (Continued)

(10) Remove and inspect #3 & #4 thrust washers (Fig. 235).

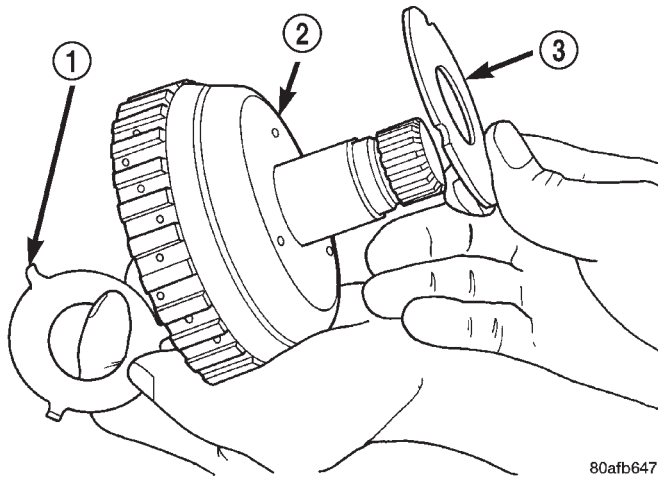


Fig. 235 #3&4 Thrust Washers

- 1 - #3 THRUST PLATE (3 TABS)
- 2 - OD SHAFT ASSEMBLY
- 3 - #4 THRUST PLATE (3 SLOTS)

(11) Remove the underdrive shaft assembly (Fig. 236).

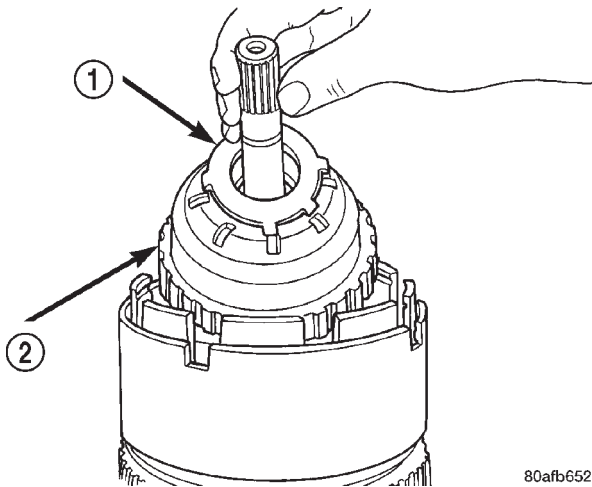


Fig. 236 Underdrive Shaft Assembly

- 1 - #3 THRUST WASHER (5 TABS)
- 2 - UNDERDRIVE SHAFT ASSEMBLY

(12) Remove the #2 needle bearing (Fig. 237).

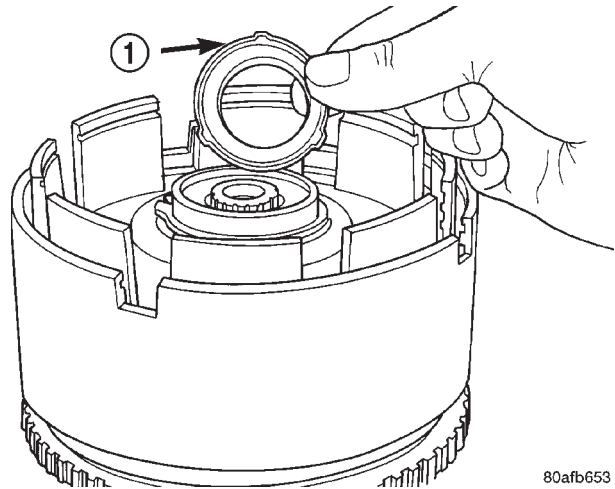
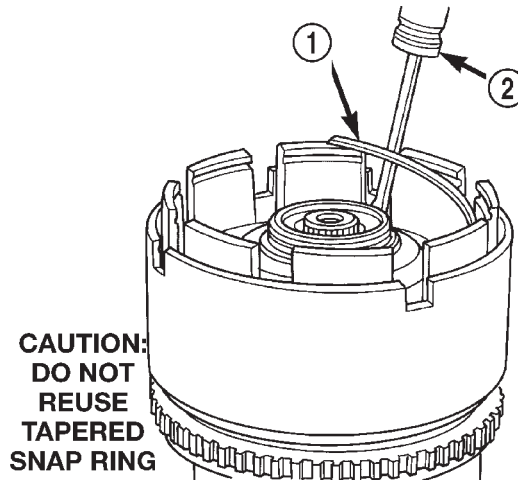


Fig. 237 No. 2 Needle Bearing

- 1 - #2 NEEDLE BEARING (NOTE 3 TABS)

NOTE: The OD/UD Reaction Plate, Snap Rings, and Input Clutches Retainer is not interchangeable with previous year 41TE components. The snap rings are thicker and the position of the ring lands have changed.

(13) Remove the OD/UD reaction plate tapered snap ring (Fig. 238).



CAUTION:
DO NOT
REUSE
TAPERED
SNAP RING

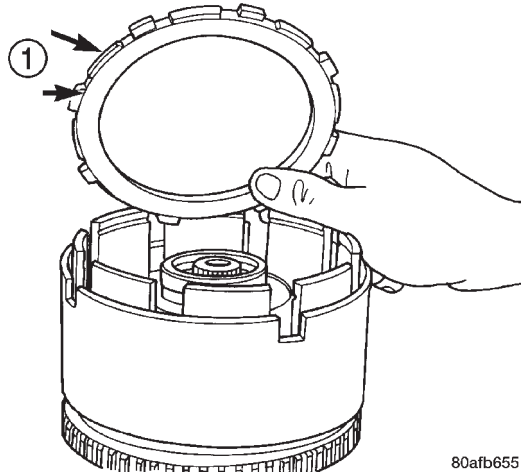
Fig. 238 OD/UD Reaction Plate Tapered Snap Ring

- 1 - OVERDRIVE/UNDERDRIVE CLUTCHES REACTION PLATE TAPERED SNAP RING
- 2 - SCREWDRIVER (DO NOT SCRATCH REACTION PLATE)

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: The OD/UD clutch reaction plate has a step on both sides. Install the OD/UD clutches reaction plate tapered step side up.

(14) Remove the OD/UD reaction plate (Fig. 239).

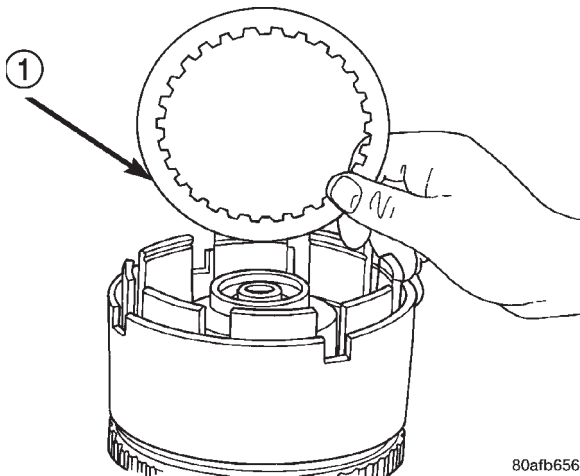


80afb655

Fig. 239 OD/UD Reaction Plate

1 – OD/UD CLUTCH REACTION PLATE (STEP SIDE DOWN)

(15) Remove the first UD clutch disc (Fig. 240).

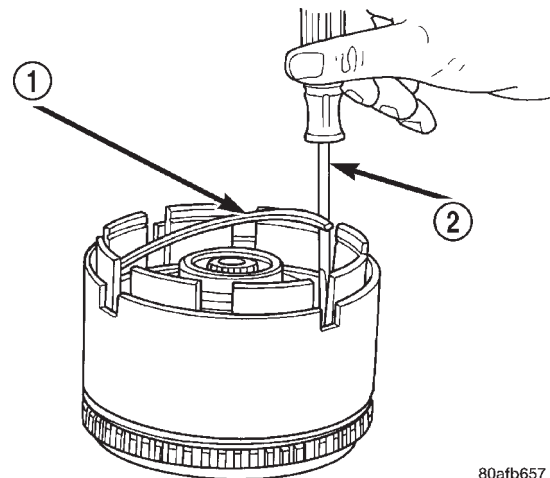


80afb656

Fig. 240 Remove One UD Clutch Disc

1 – ONE UNDERDRIVE CLUTCH DISC

(16) Remove the UD clutch flat snap ring (Fig. 241).



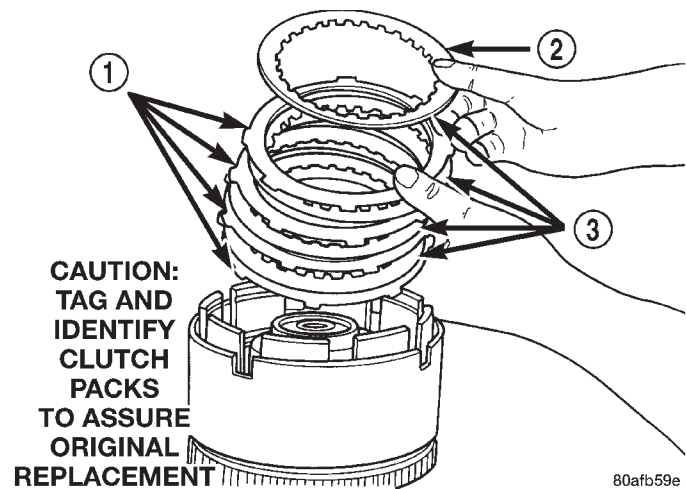
80afb657

Fig. 241 UD Clutch Flat Snap Ring

1 – UNDERDRIVE CLUTCH REACTION PLATE FLAT SNAP RING
2 – SCREWDRIVER

NOTE: Tag underdrive clutch pack for reassembly identification.

(17) Remove the UD clutch pack (Fig. 242).



80afb59e

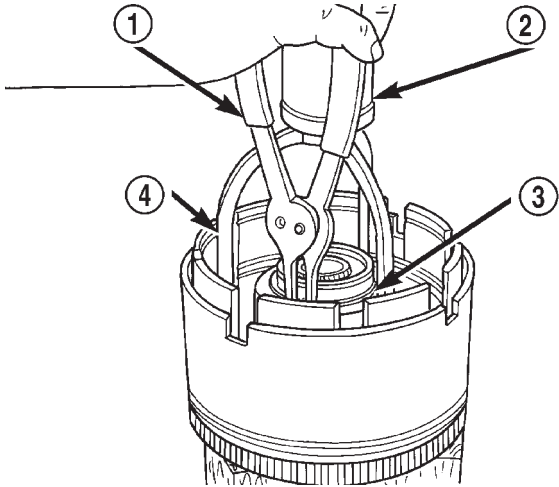
Fig. 242 Underdrive Clutch Pack

1 – CLUTCH PLATE
2 – ONE UD CLUTCH DISC
3 – CLUTCH DISC

CAUTION: Compress return spring just enough to remove or install snap ring.

DISASSEMBLY AND ASSEMBLY (Continued)

(18) Using Tool 5059A and an arbor press, compress UD clutch piston enough to remove snap ring (Fig. 243) (Fig. 244).

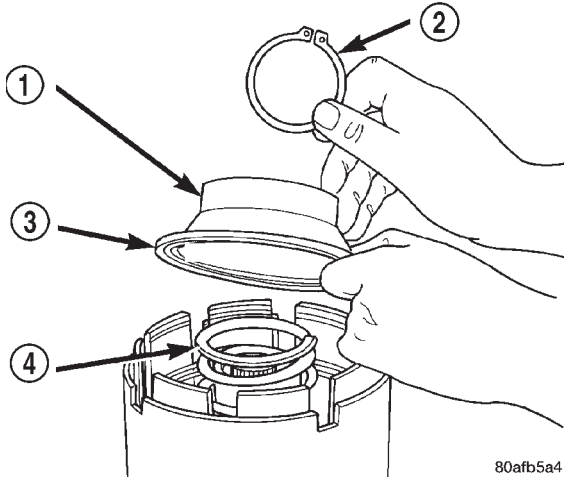


80afb5a3

Fig. 243 UD Spring Retainer Snap Ring

- 1 - SNAP RING PLIERS
- 2 - ARBOR PRESS RAM
- 3 - SNAP RING
- 4 - SPECIAL TOOL 5059A

(19) Remove spring retainer (Fig. 244).

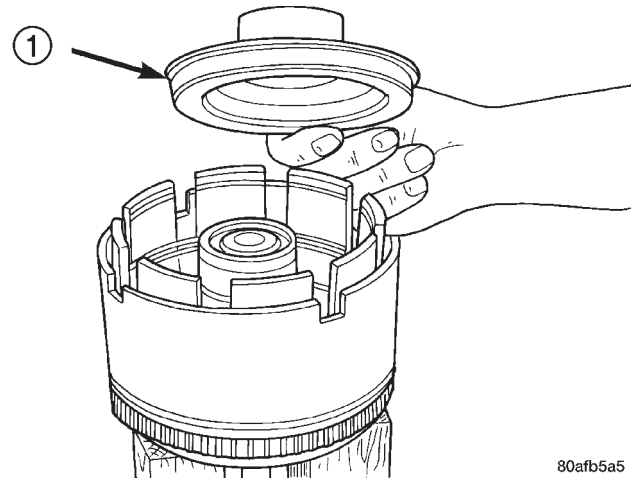


80afb5a4

Fig. 244 UD Return Spring and Retainer

- 1 - UNDERDRIVE SPRING RETAINER
- 2 - SNAP RING
- 3 - SEAL
- 4 - PISTON RETURN SPRING

(20) Remove UD clutch piston (Fig. 245).

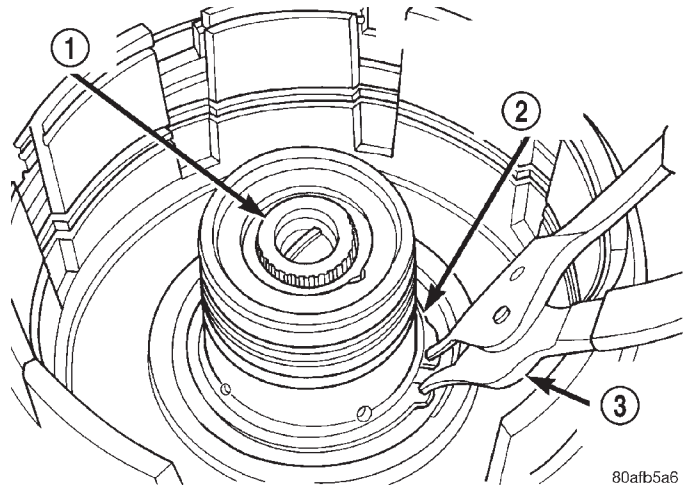


80afb5a5

Fig. 245 Underdrive Clutch Piston

- 1 - PISTON

(21) Remove input hub tapered snap ring (Fig. 246).



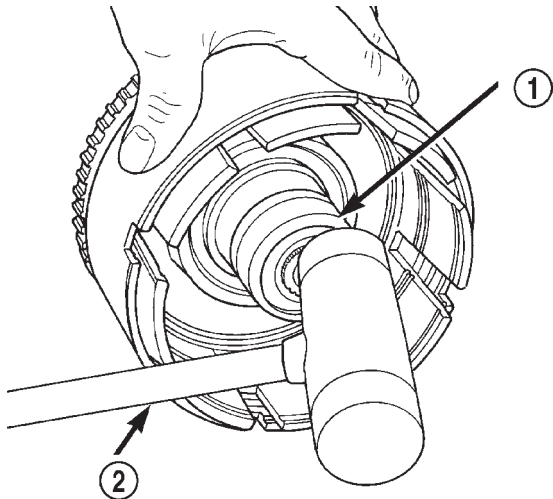
80afb5a6

Fig. 246 Input Hub Tapered Snap Ring

- 1 - INPUT SHAFT
- 2 - INPUT HUB SNAP RING (TAPERED SIDE UP WITH TABS IN CAVITY)
- 3 - SNAP RING PLIERS

(22) Tap on input hub with soft faced hammer and separate input hub from OD/Reverse piston and clutch retainer (Fig. 247) (Fig. 248).

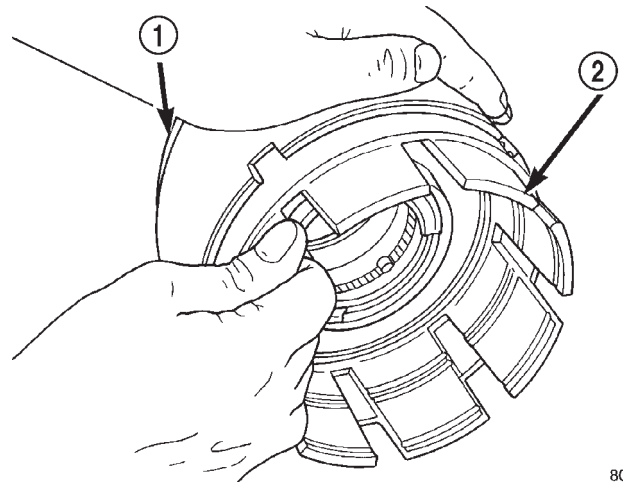
DISASSEMBLY AND ASSEMBLY (Continued)



80afb5a7

Fig. 247 Tap on Input Hub

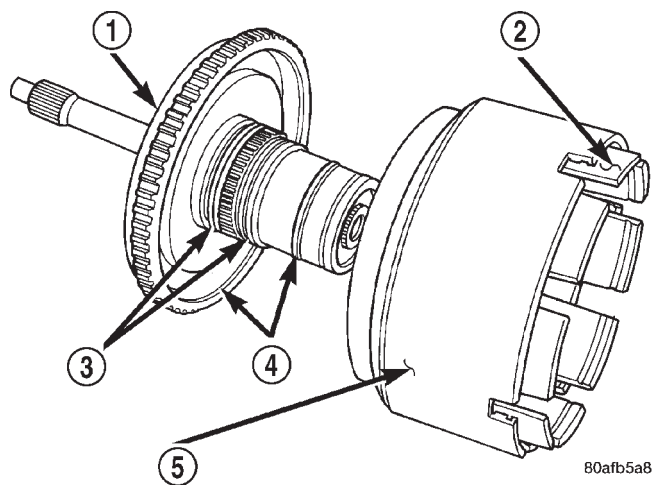
- 1 - INPUT SHAFT AND HUB ASSEMBLY
- 2 - PLASTIC HAMMER



80afb5a9

Fig. 249 Pull Retainer from Piston

- 1 - OVERDRIVE/REVERSE PISTON
- 2 - INPUT CLUTCHES RETAINER



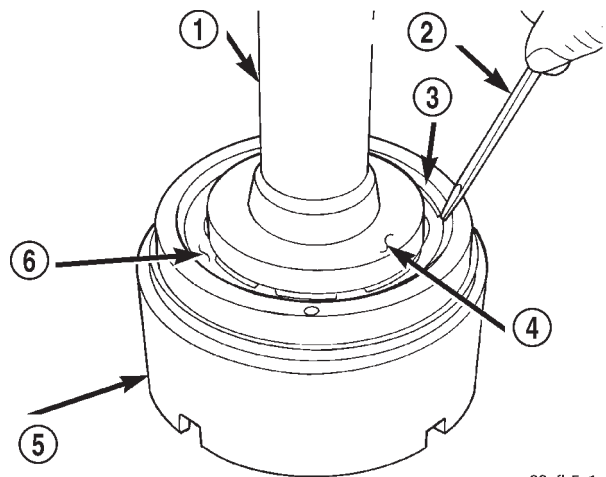
80afb5a8

Fig. 248 Input Hub Removed

- 1 - INPUT SHAFT AND HUB ASSEMBLY
- 2 - INPUT CLUTCHES RETAINER
- 3 - O-RING
- 4 - SEAL
- 5 - OVERDRIVE/REVERSE PISTON

(23) Separate clutch retainer from OD/Reverse piston (Fig. 249).

(24) Using Tool 6057 and an arbor press, compress return OD/Reverse piston return spring just enough to remove snap ring (Fig. 250) (Fig. 251).

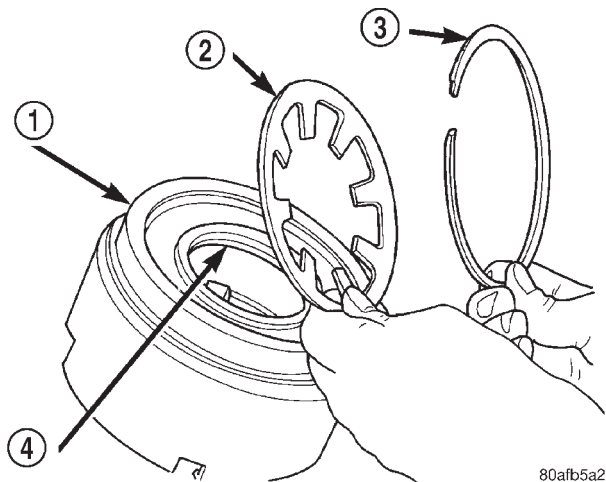


80afb5a1

Fig. 250 Remove Snap Ring

- 1 - ARBOR PRESS RAM (COMPRESS RETURN SPRING JUST ENOUGH TO REMOVE OR INSTALL SNAP RING)
- 2 - SCREWDRIVER
- 3 - SNAP RING
- 4 - SPECIAL TOOL 6057
- 5 - OD/REVERSE PISTON
- 6 - RETURN SPRING

DISASSEMBLY AND ASSEMBLY (Continued)

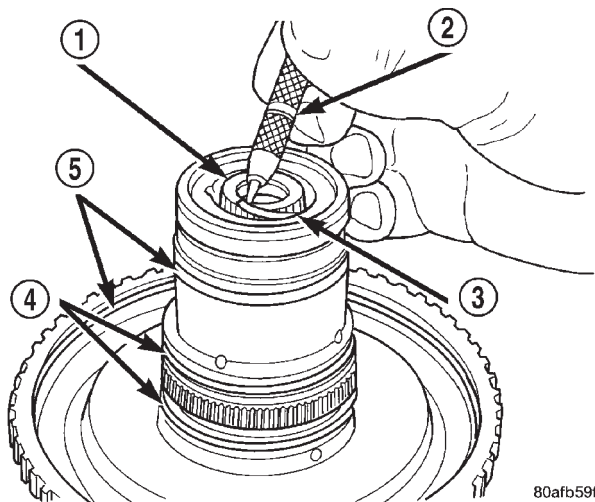


80afb5a2

Fig. 251 Snap Ring and Return Spring

- 1 – OD/REVERSE PISTON
- 2 – RETURN SPRING
- 3 – SNAP RING
- 4 – O-RING

(25) Remove input shaft to input clutch hub snap ring (Fig. 252).

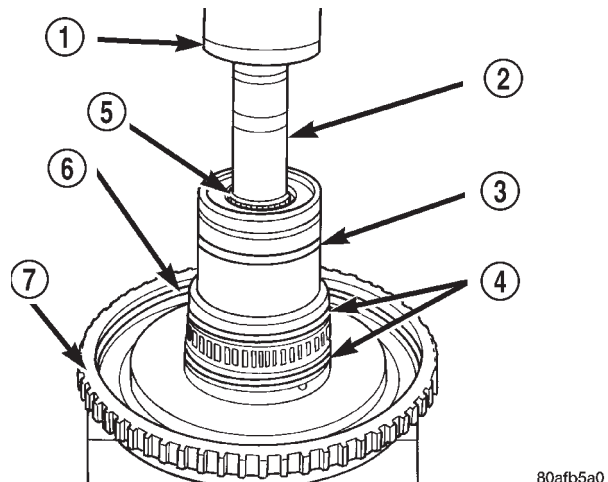


80afb59f

Fig. 252 Remove Input Shaft Snap Ring

- 1 – INPUT SHAFT
- 2 – SHARP-POINTED TOOL
- 3 – SNAP RING
- 4 – O-RINGS
- 5 – SEALS

(26) Using a suitably sized socket and an arbor press, remove input shaft from input shaft hub (Fig. 253).



80afb5a0

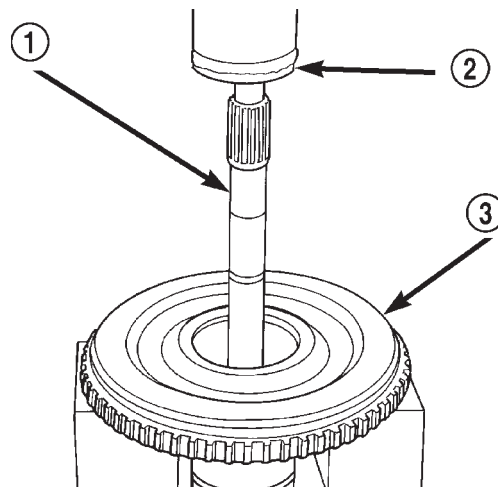
Fig. 253 Remove Input Shaft

- 1 – ARBOR PRESS RAM
- 2 – SOCKET
- 3 – SEAL
- 4 – O-RINGS
- 5 – INPUT SHAFT
- 6 – SEAL
- 7 – INPUT SHAFT HUB ASSEMBLY

ASSEMBLY

Use petrolatum on all seals to ease assembly of components.

(1) Using an arbor press, install input shaft to input shaft hub (Fig. 254).



80afb5aa

Fig. 254 Install Input Shaft

- 1 – INPUT SHAFT
- 2 – ARBOR PRESS RAM
- 3 – INPUT SHAFT HUB ASSEMBLY

DISASSEMBLY AND ASSEMBLY (Continued)

(2) Install input shaft snap ring (Fig. 255).

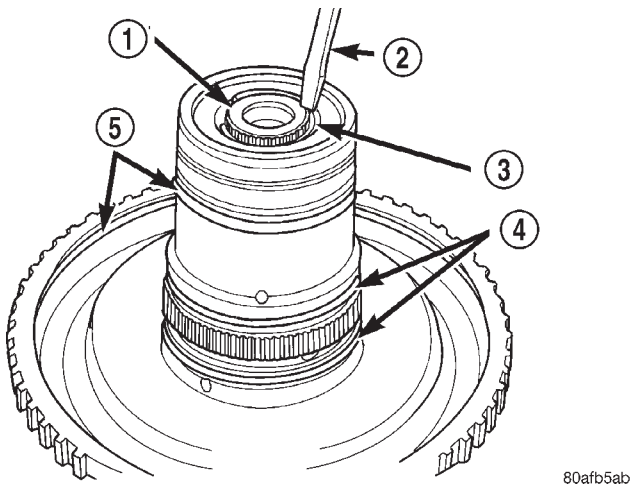


Fig. 255 Install Input Shaft Snap Ring

- 1 - INPUT SHAFT
- 2 - SCREWDRIVER (DO NOT SCRATCH BEARING SURFACE)
- 3 - SNAP RING
- 4 - O-RINGS
- 5 - SEALS

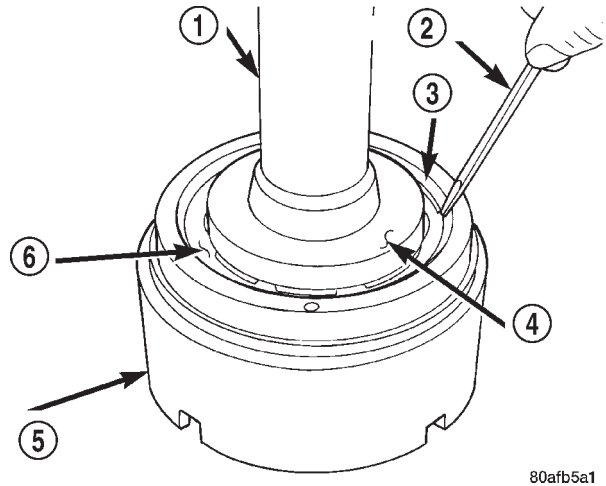


Fig. 257 Install Snap Ring

- 1 - ARBOR PRESS RAM (COMPRESS RETURN SPRING JUST ENOUGH TO REMOVE OR INSTALL SNAP RING)
- 2 - SCREWDRIVER
- 3 - SNAP RING
- 4 - SPECIAL TOOL 6057
- 5 - OD/REVERSE PISTON
- 6 - RETURN SPRING

(3) Using an arbor press and Tool 6057, Install OD/Reverse piston return spring and snap ring (Fig. 256) (Fig. 257).

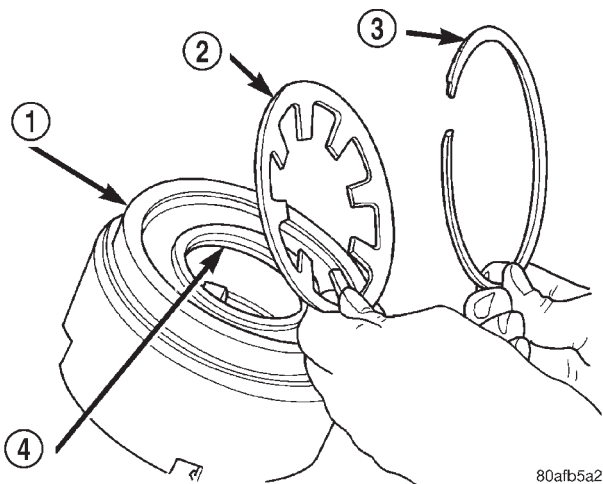


Fig. 256 Return Spring and Snap Ring

- 1 - OD/REVERSE PISTON
- 2 - RETURN SPRING
- 3 - SNAP RING
- 4 - O-RING

(4) Install the OD/Reverse piston assembly to the input clutch retainer as shown in (Fig. 258).

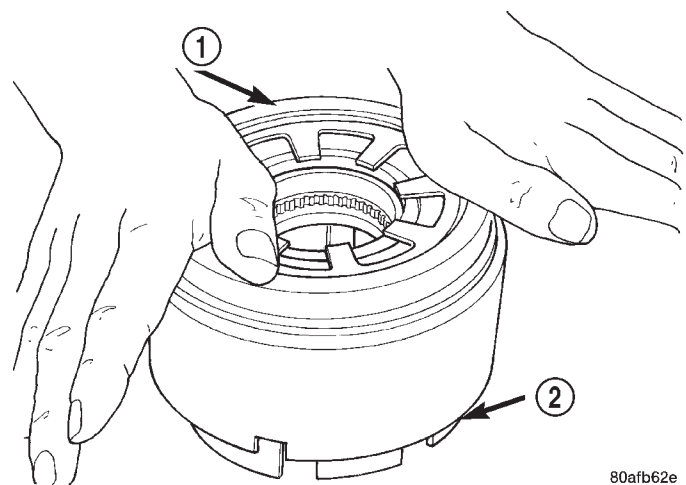


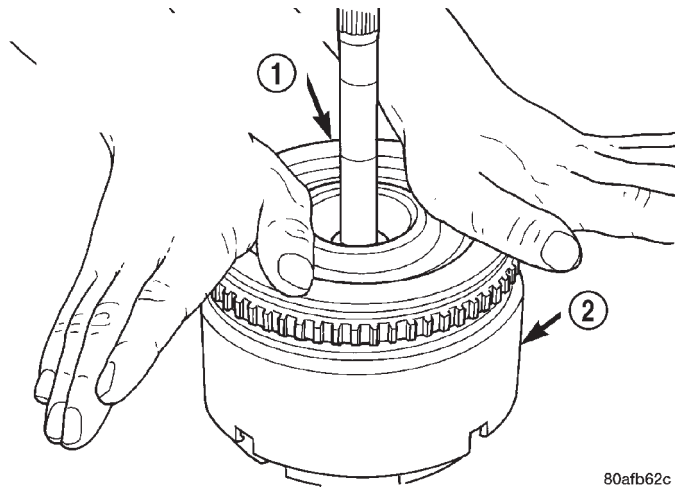
Fig. 258 Install OD/Reverse Piston

- 1 - PUSH DOWN TO INSTALL OVERDRIVE/REVERSE PISTON
- 2 - INPUT CLUTCHES RETAINER

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: The OD/UD Reaction Plate, Snap Rings, and Input Clutches Retainer is not interchangeable with previous year 41TE components. The snap rings are thicker and the position of the ring lands have changed.

(5) Install the input hub/shaft assy. to the OD/Reverse piston/clutch retainer assy. (Fig. 259).

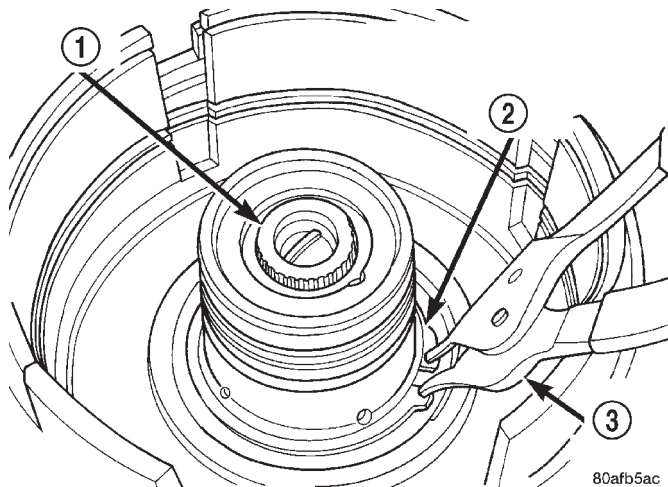


80afb62c

Fig. 259 Install Input Shaft Hub Assembly

- 1 - PUSH DOWN TO INSTALL INPUT SHAFT HUB ASSEMBLY (ROTATE TO ALIGN SPLINES)
- 2 - OD/REV. PISTON

(6) Install input hub tapered snap ring (Fig. 260).

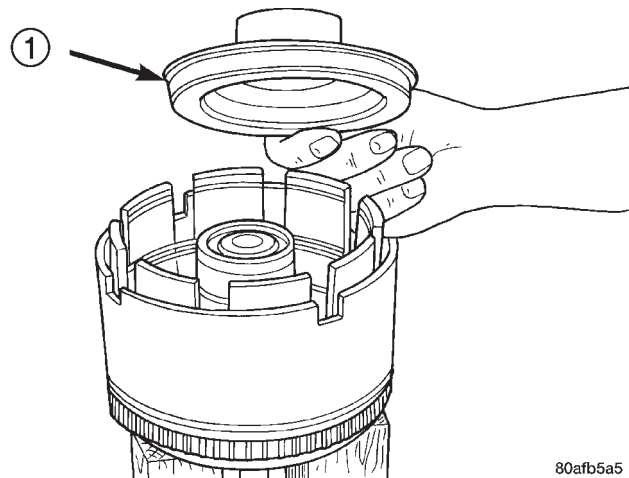


80afb5ac

Fig. 260 Install Input Hub Tapered Snap Ring

- 1 - INPUT SHAFT
- 2 - INPUT HUB SNAP RING (TAPERED SIDE UP WITH TABS IN CAVITY)
- 3 - SNAP RING PLIERS

(7) Install UD clutch piston (Fig. 261).

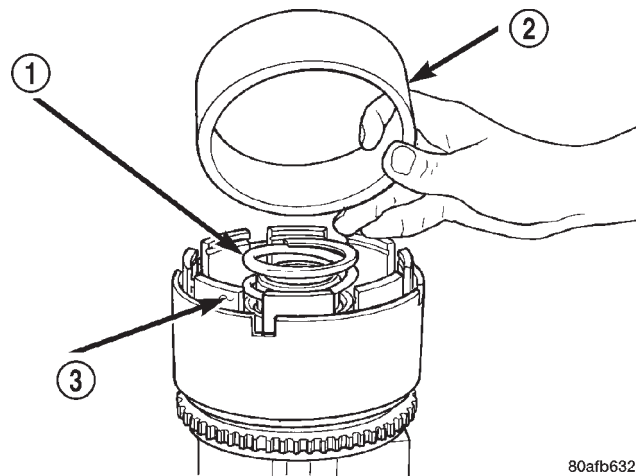


80afb5a5

Fig. 261 Underdrive Clutch Piston

- 1 - PISTON

(8) Install UD piston return spring and Tool 5067 as shown in (Fig. 262).



80afb632

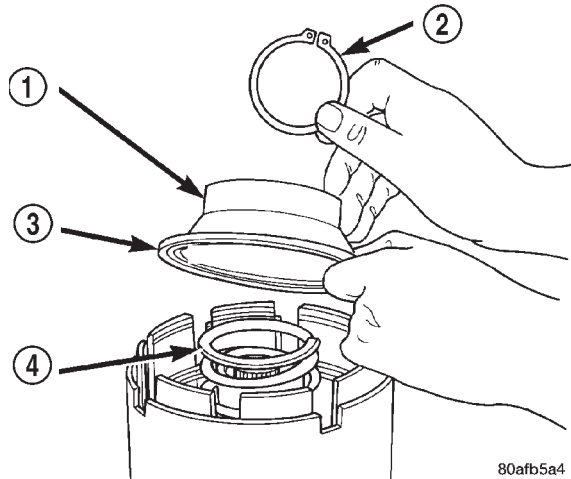
Fig. 262 Seal Compressor Special Tool 5067

- 1 - PISTON RETURN SPRING
- 2 - SPECIAL TOOL 5067
- 3 - INPUT SHAFT CLUTCHES RETAINER ASSEMBLY

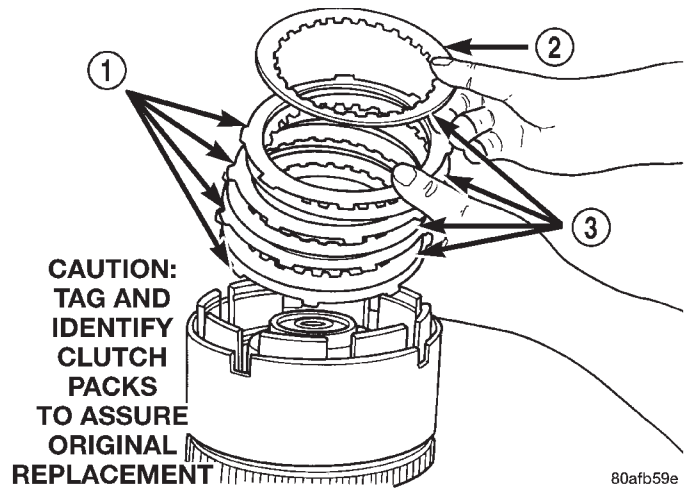
(9) Using Tool 5059A and an arbor press, Install the UD spring retainer and snap ring. (Fig. 263) (Fig. 264) Compress just enough to install snap ring.

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

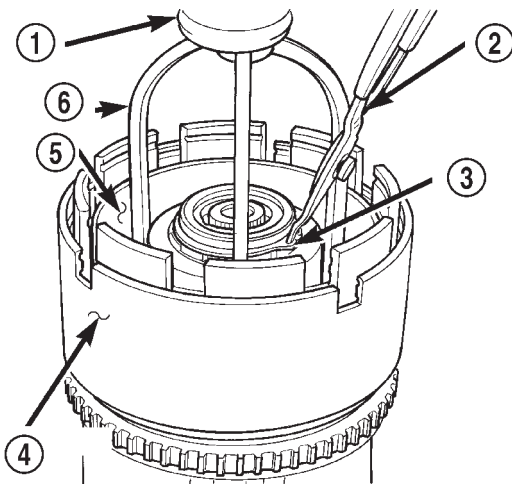
DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 263 UD Return Spring and Retainer**

- 1 - UNDERDRIVE SPRING RETAINER
- 2 - SNAP RING
- 3 - SEAL
- 4 - PISTON RETURN SPRING

**Fig. 265 Underdrive Clutch Pack**

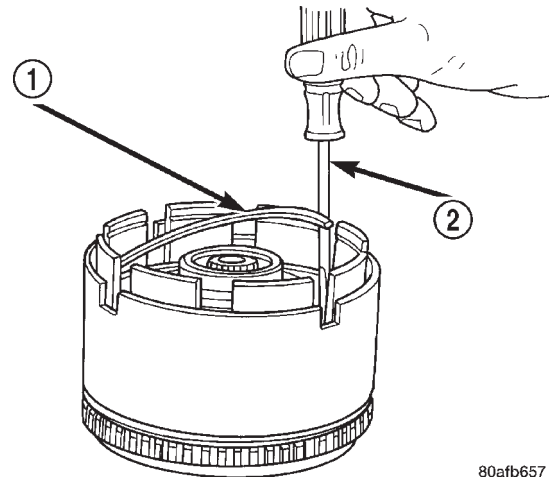
- 1 - CLUTCH PLATE
- 2 - ONE UD CLUTCH DISC
- 3 - CLUTCH DISC

**Fig. 264 Install UD Spring Retainer and Snap Ring**

- 1 - ARBOR PRESS RAM
- 2 - SNAP RING PLIERS
- 3 - SNAP RING
- 4 - OD/REVERSE PISTON
- 5 - TOOL 5067
- 6 - TOOL 5059A

(10) Install the UD clutch pack (four fibers/four steels) (Fig. 265).

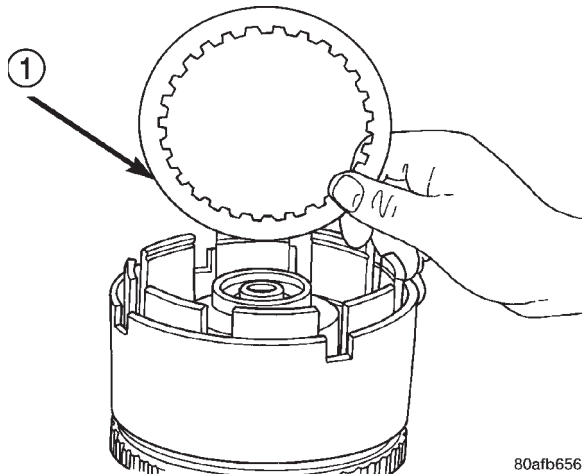
(11) Install the UD clutch flat snap ring (Fig. 266).

**Fig. 266 UD Clutch Flat Snap Ring**

- 1 - UNDERDRIVE CLUTCH REACTION PLATE FLAT SNAP RING
- 2 - SCREWDRIVER

(12) Install the last UD clutch disc (Fig. 267).

DISASSEMBLY AND ASSEMBLY (Continued)

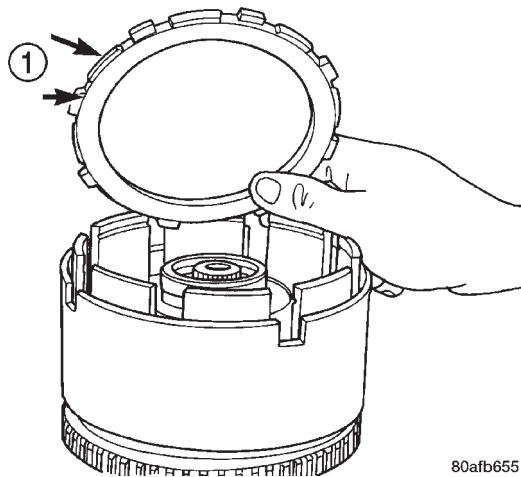


80afb656

Fig. 267 Install Last UD Clutch Disc

1 - ONE UNDERDRIVE CLUTCH DISC

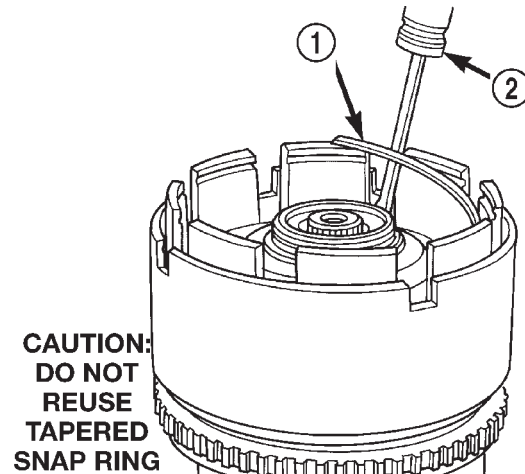
(13) Install the OD/UD clutch reaction plate and snap ring (Fig. 268) (Fig. 269). The OD/UD clutches reaction plate has a step on both sides. Install the OD/UD clutches reaction plate tapered step side up.



80afb655

Fig. 268 OD/UD Reaction Plate

1 - OD/UD CLUTCH REACTION PLATE (STEP SIDE DOWN)



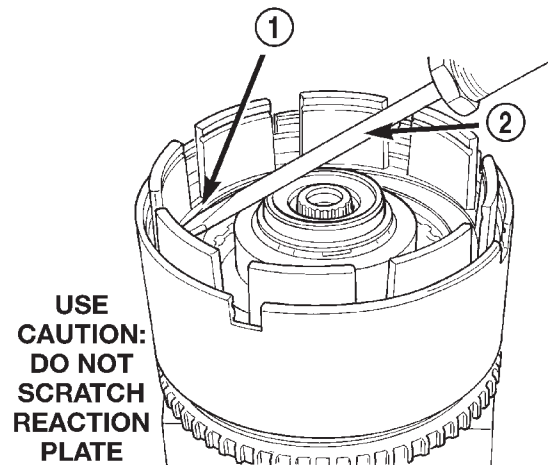
80afb654

CAUTION:
DO NOT
REUSE
TAPERED
SNAP RING

Fig. 269 Tapered Snap Ring

1 - OVERDRIVE/UNDERDRIVE CLUTCHES REACTION PLATE
TAPERED SNAP RING
2 - SCREWDRIVER (DO NOT SCRATCH REACTION PLATE)

(14) Seat tapered snap ring to ensure proper installation (Fig. 270).



80afb630

USE
CAUTION:
DO NOT
SCRATCH
REACTION
PLATE

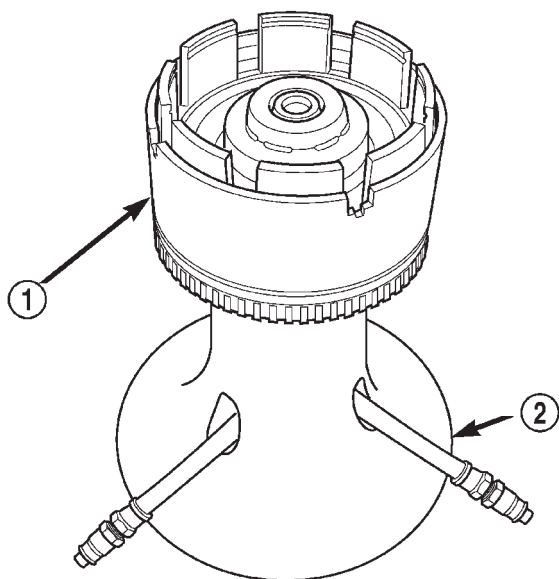
Fig. 270 Seating Tapered Snap Ring

1 - OVERDRIVE/UNDERDRIVE CLUTCHES REACTION PLATE
TAPERED SNAP RING
2 - SCREWDRIVER

NOTE: Snap ring ends must be located within one finger of the input clutch hub. Be sure that snap ring is fully seated, by pushing with screwdriver, into snap ring groove all the way around.

(15) Install input clutch assembly to the Input Clutch Pressure Fixture-Tool 8391 (Fig. 271).

DISASSEMBLY AND ASSEMBLY (Continued)

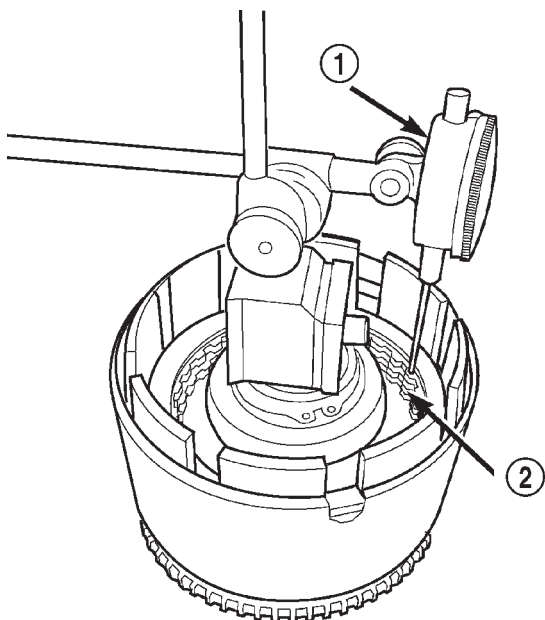


80c07260

Fig. 271 Input Clutch Assembly on Pressure Fixture Tool 8391

- 1 - INPUT CLUTCH ASSEMBLY
2 - INPUT CLUTCH PRESSURE FIXTURE 8391

(16) Set up dial indicator on the UD clutch pack as shown in (Fig. 272).

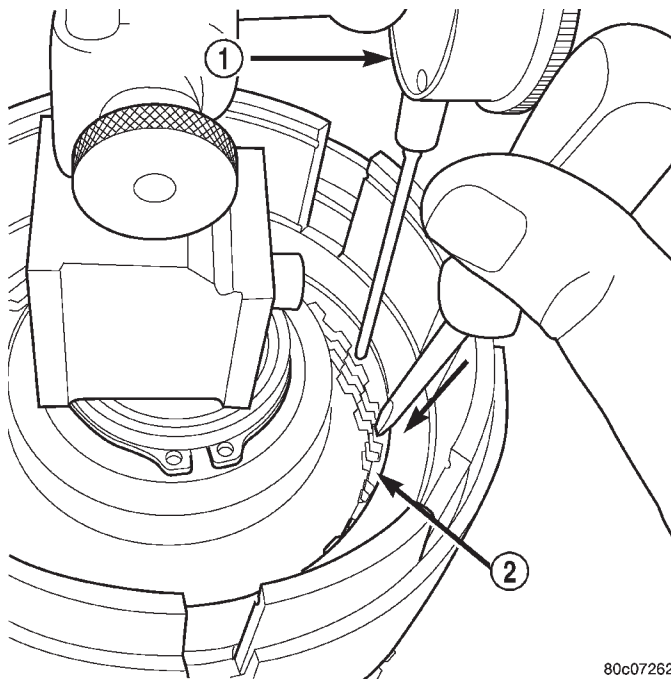


80c07261

Fig. 272 Set Up Dial Indicator to Measure UD Clutch Clearance

- 1 - DIAL INDICATOR
2 - UNDERDRIVE CLUTCH

(17) Using moderate pressure, press down and hold (near indicator) the UD clutch pack with screwdriver or suitable tool and zero dial indicator (Fig. 273). When releasing pressure on clutch pack, indicator reading should advance 0.005–0.010.



80c07262

Fig. 273 Press Down on UD Clutch Pack and Zero Dial Indicator

- 1 - DIAL INDICATOR
2 - UNDERDRIVE CLUTCH

CAUTION: Do not apply more than 30 psi (206 kPa) to the underdrive clutch pack.

(18) Apply 30 psi (206 kPa) to the underdrive hose on Tool 8391 and measure UD clutch clearance. Measure and record UD clutch pack measurement in four (4) places, 90° apart.

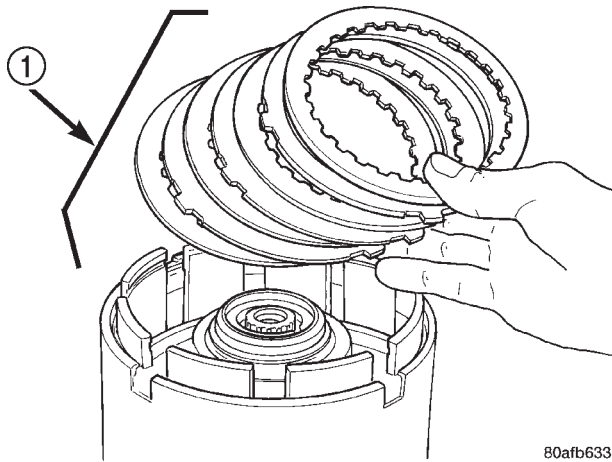
(19) Take average of four measurements and compare with UD clutch pack clearance specification. **Underdrive clutch pack clearance must be 0.94-1.50 mm (0.037-0.059 in.).**

(20) If necessary, select the proper reaction plate to achieve specifications:

UNDERDRIVE REACTION PLATE THICKNESS	
4659939AB	5.837-5.937 mm (0.230-0.234 in.)
4659940AB	6.147-6.248 mm (0.242-0.246 in.)
4659941AB	6.457-6.557 mm (0.254-0.258 in.)

DISASSEMBLY AND ASSEMBLY (Continued)

(21) Install the OD clutch pack (four fibers/four steels) (Fig. 274).

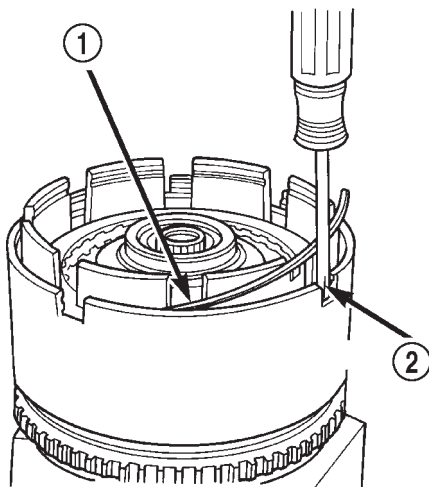


80afb633

Fig. 274 Install OD Clutch Pack

1 – OVERDRIVE CLUTCH PACK

(22) Install OD reaction plate waved snap ring (Fig. 275).

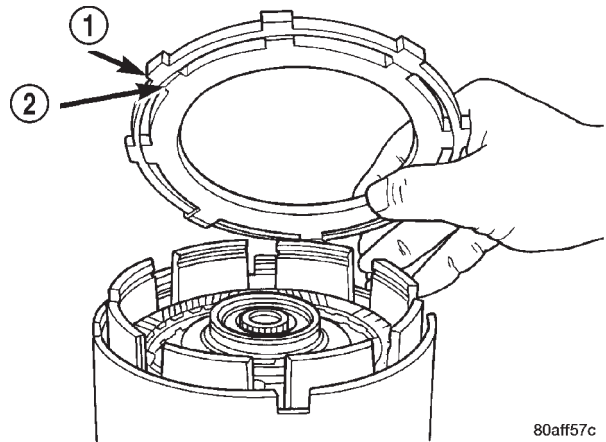


80aff57b

Fig. 275 Install Waved Snap Ring

1 – OVERDRIVE REACTION PLATE WAVED SNAP RING
2 – SCREWDRIVER

(23) Install the OD/Reverse reaction plate with large step down (towards OD clutch pack) (Fig. 276).

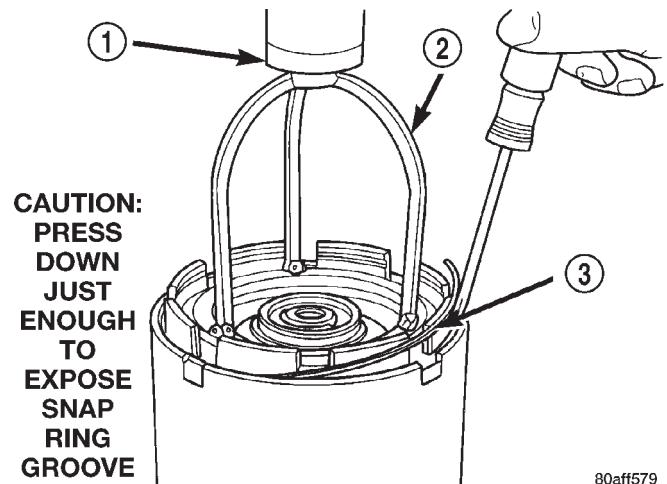


80aff57c

Fig. 276 OD/Reverse Reaction Plate

1 – OVERDRIVE/REVERSE PRESSURE PLATE
2 – (STEP SIDE DOWN)

(24) Install OD reaction plate flat snap ring (Fig. 277).



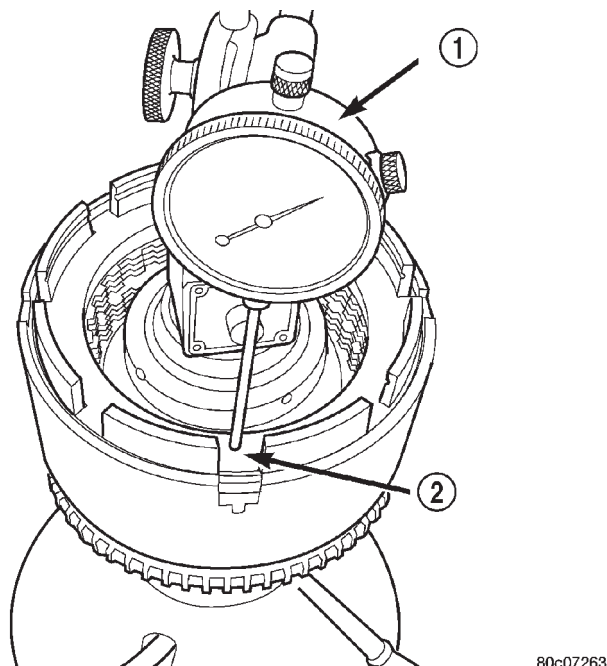
80aff579

Fig. 277 Install Flat Snap Ring

1 – ARBOR PRESS RAM
2 – TOOL 5059A
3 – FLAT SNAP RING

(25) Measure OD clutch pack clearance. Set up dial indicator on top of the OD/Reverse reaction plate as shown in (Fig. 278).

DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 278 Measure OD Clutch Pack Clearance**

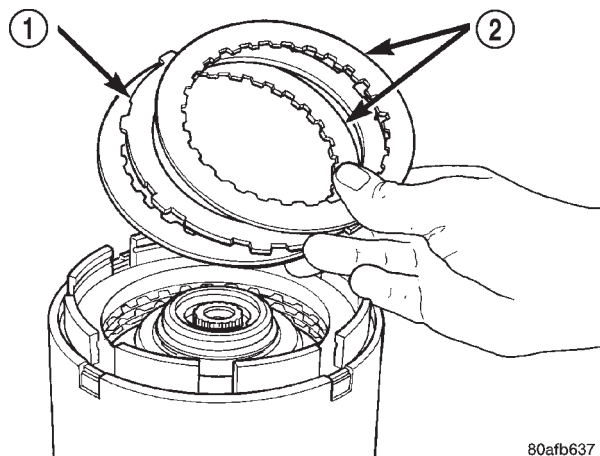
- 1 – DIAL INDICATOR
2 – OD/REVERSE REACTION PLATE

(26) Zero dial indicator and apply 30 psi (206 kPa) air pressure to the overdrive clutch hose on Tool 8391. Measure and record OD clutch pack measurement in four (4) places, 90° apart.

(27) Take average of four measurements and compare with OD clutch pack clearance specification. **The overdrive (OD) clutch pack clearance is 1.07-3.25 mm (0.042-0.128 in.).**

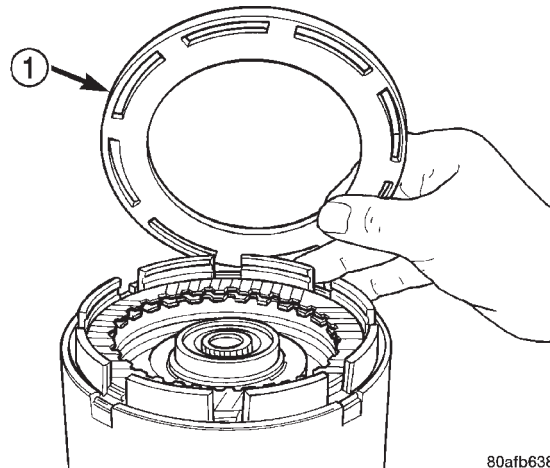
If not within specifications, the clutch is not assembled properly. There is no adjustment for the OD clutch clearance.

(28) Install reverse clutch pack (two fibers/one steel) (Fig. 279).

**Fig. 279 Install Reverse Clutch Pack**

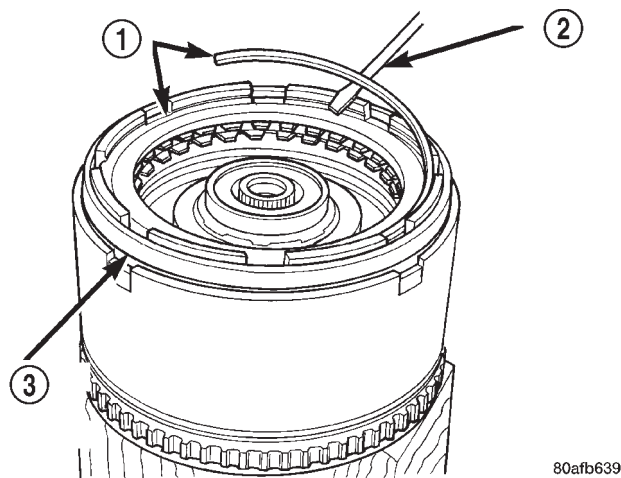
- 1 – REVERSE CLUTCH PLATE
2 – REVERSE CLUTCH DISCS

(29) Install reverse clutch reaction plate with the flat side down towards reverse clutch (Fig. 280).

**Fig. 280 Install Reaction Plate**

- 1 – REVERSE CLUTCH REACTION PLATE (FLAT SIDE DOWN)

(30) Tap reaction plate down to allow installation of the reverse clutch snap ring. Install reverse clutch snap ring (Fig. 281).

**Fig. 281 Install Reverse Clutch Snap Ring**

- 1 – REVERSE CLUTCH SNAP RING (SELECT)
2 – SCREWDRIVER
3 – REVERSE CLUTCH REACTION PLATE

(31) Pry up reverse reaction plate to seat against snap ring (Fig. 282).

DISASSEMBLY AND ASSEMBLY (Continued)

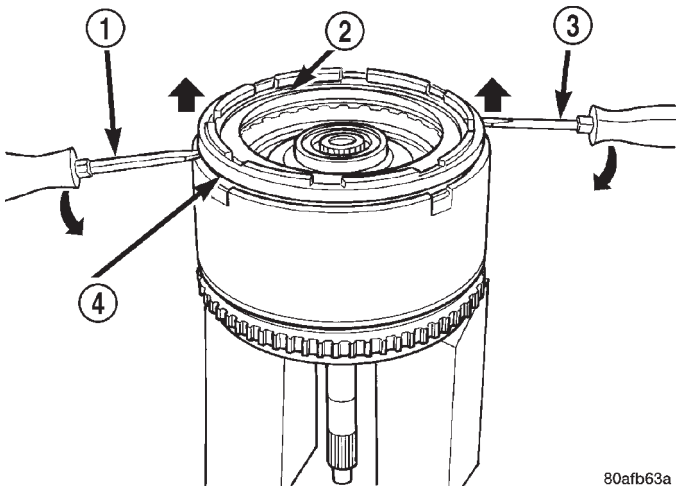


Fig. 282 Pry Up Reaction Plate to Seat Against Snap Ring

- 1 - SCREWDRIVER
- 2 - SNAP RING
- 3 - SCREWDRIVER
- 4 - MUST RAISE REVERSE REACTION PLATE TO RAISE SNAP RING

(32) Set up a dial indicator on the reverse clutch pack as shown in (Fig. 283).

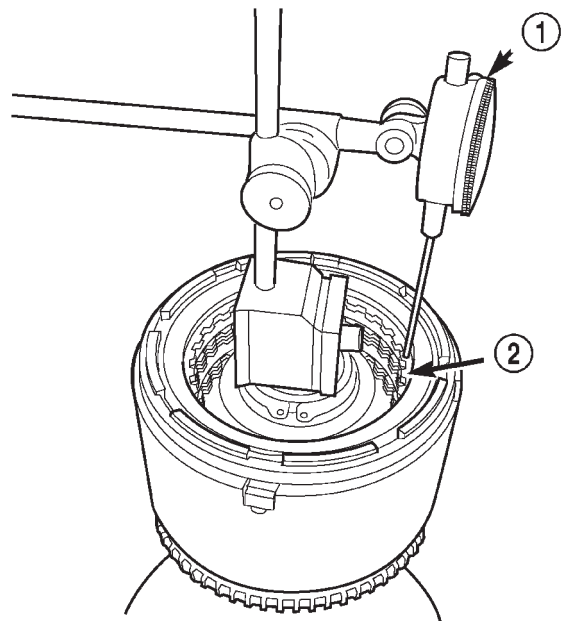


Fig. 283 Measure Reverse Clutch Pack Clearance

- 1 - DIAL INDICATOR
- 2 - REVERSE CLUTCH

(33) Using moderate pressure, press down and hold (near indicator) reverse clutch disc with screwdriver or suitable tool and zero dial indicator (Fig. 284). When releasing pressure, indicator should advance 0.005-0.010. as clutch pack relaxes.

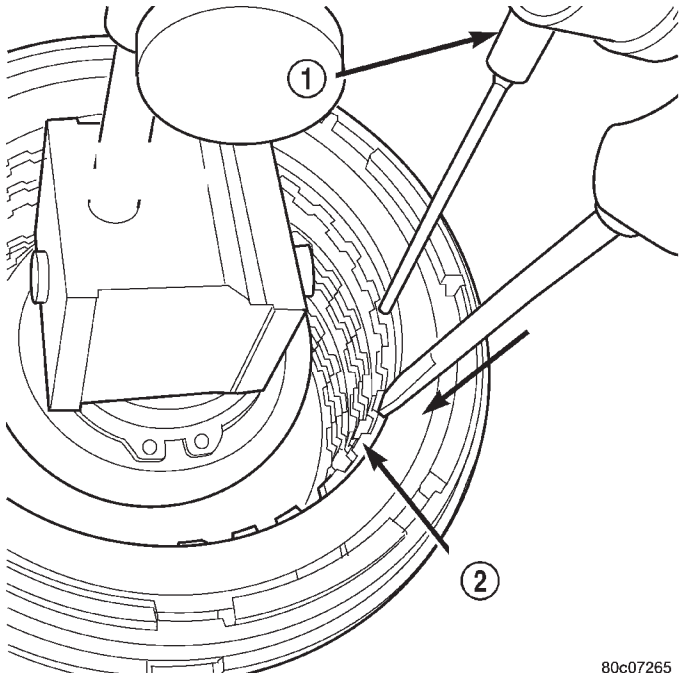


Fig. 284 Press Down on Reverse Clutch and Zero Indicator

- 1 - DIAL INDICATOR
- 2 - REVERSE CLUTCH

(34) Apply 30 psi (206 kPa) air pressure to the reverse clutch hose on Tool 8391. Measure and record reverse clutch pack measurement in four (4) places, 90° apart.

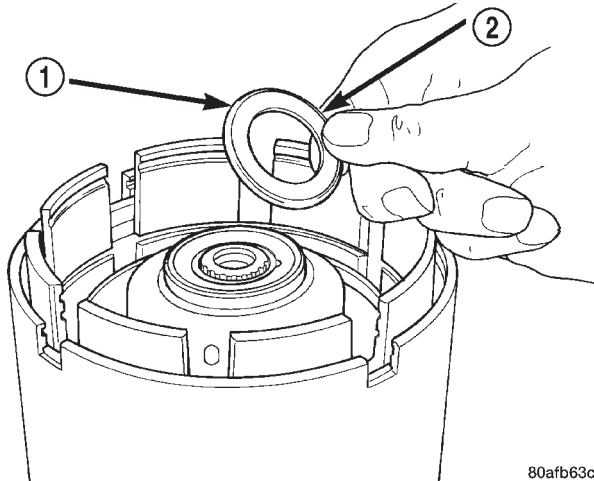
(35) Take average of four measurements and compare with reverse clutch pack clearance specification. **The reverse clutch pack clearance is 0.89-1.37 mm (0.035-0.054 in.).** Select the proper reverse clutch snap ring to achieve specifications:

REVERSE CLUTCH SNAP RING THICKNESS	
4377195	1.53-1.58 mm (0.060-0.062 in.)
4412871	1.77-1.83 mm (0.070-0.072 in.)
4412872	2.02-2.07 mm (0.080-0.082 in.)
4412873	2.27-2.32 mm (0.090-0.091 in.)

(36) To complete the assembly, reverse clutch and overdrive clutch must be removed.

(37) Install the #2 needle bearing (Fig. 285).

DISASSEMBLY AND ASSEMBLY (Continued)

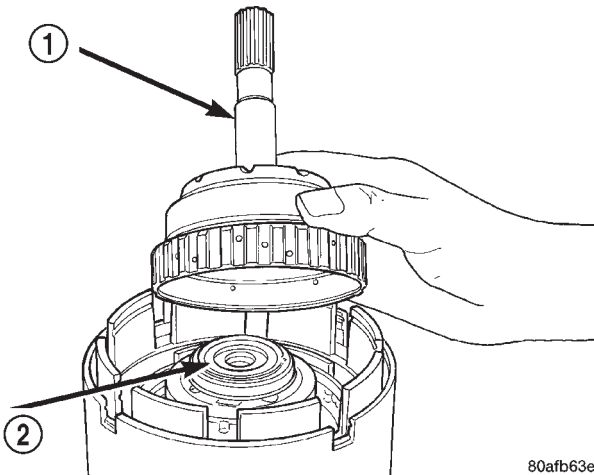


80afb63c

Fig. 285 Install No. 2 Needle Bearing

- 1 - #2 NEEDLE BEARING (NOTE 3 SMALL TABS)
2 - TABS UP

(38) Install the underdrive shaft assembly (Fig. 286).

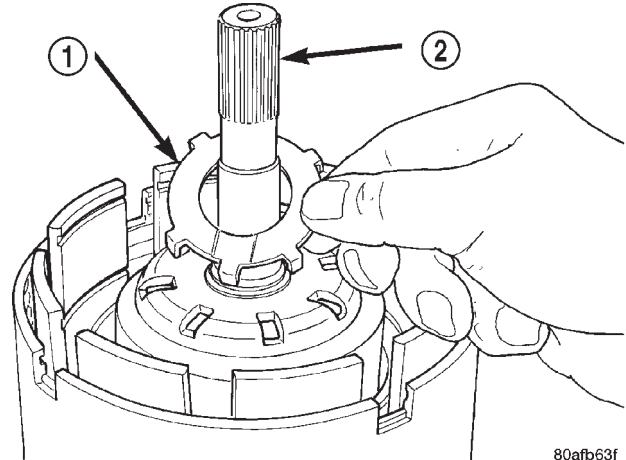


80afb63e

Fig. 286 Install Underdrive Shaft Assembly

- 1 - UNDERDRIVE SHAFT ASSEMBLY
2 - #2 NEEDLE BEARING

(39) Install the #3 thrust washer to the underdrive shaft assembly. Be sure five tabs are seated properly (Fig. 287).

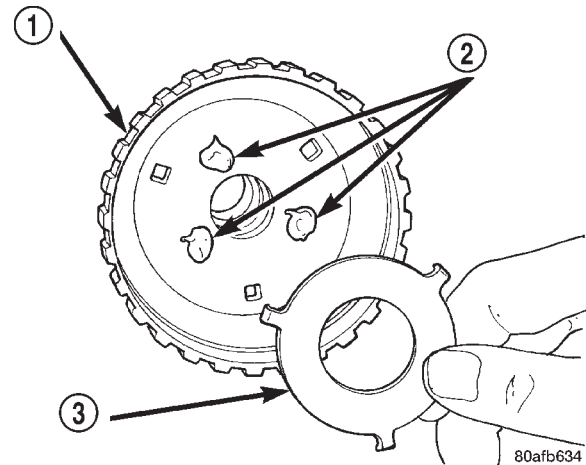


80afb63f

Fig. 287 Install No. 3 Thrust Washer

- 1 - #3 THRUST WASHER (NOTE 5 TABS)
2 - UNDERDRIVE SHAFT ASSEMBLY

(40) Install the #3 thrust plate to the bottom of the overdrive shaft assembly. Retain with petrolatum or transmission assembly gel (Fig. 288).



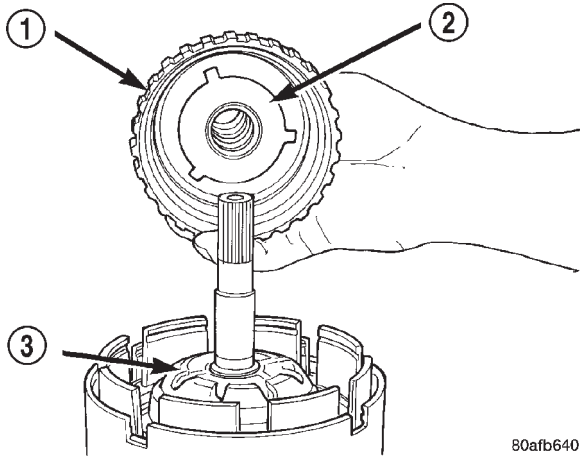
80afb634

Fig. 288 Install No. 3 Thrust Plate

- 1 - OVERDRIVE SHAFT ASSEMBLY
2 - DABS OF PETROLATUM (FOR RETENTION)
3 - #3 THRUST PLATE (NOTE 3 TABS)

(41) Install the overdrive shaft assembly (Fig. 289).

DISASSEMBLY AND ASSEMBLY (Continued)

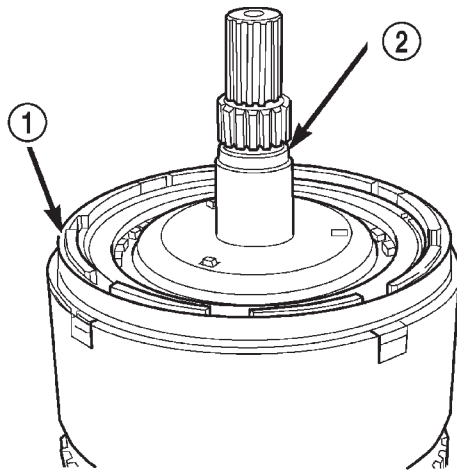


80afb640

Fig. 289 Install Overdrive Shaft Assembly

- 1 - OVERDRIVE SHAFT ASSEMBLY
- 2 - #3 THRUST PLATE
- 3 - #3 THRUST WASHER

(42) Reinstall overdrive and reverse clutch as shown. **Rechecking these clutch clearances is not necessary.**



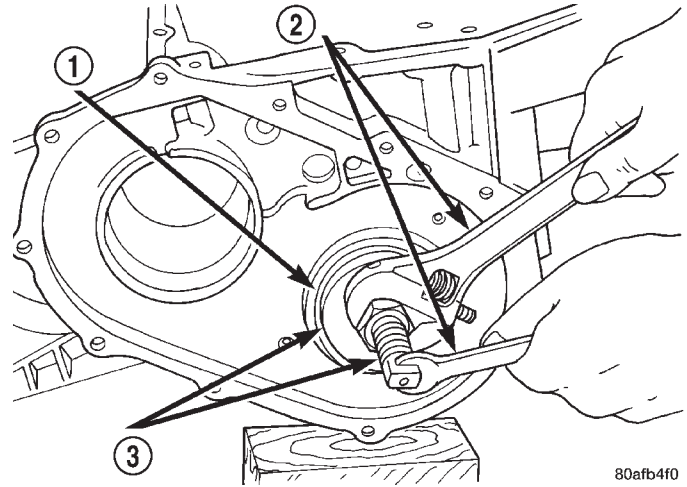
80afb641

Fig. 290 Input Clutch Assembly

- 1 - INPUT CLUTCH ASSEMBLY
- 2 - OVERDRIVE SHAFT ASSEMBLY

TRANSAXLE—ASSEMBLY

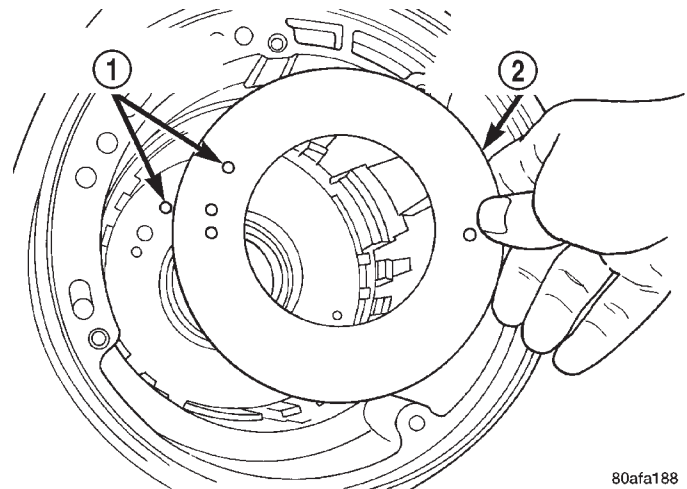
To assemble the transaxle centerline, refer to the following procedures.



80afb4f0

Fig. 291 Install Both Output Bearing Cups

- 1 - OUTPUT BEARING CUPS
- 2 - WRENCHES
- 3 - TOOL 5050

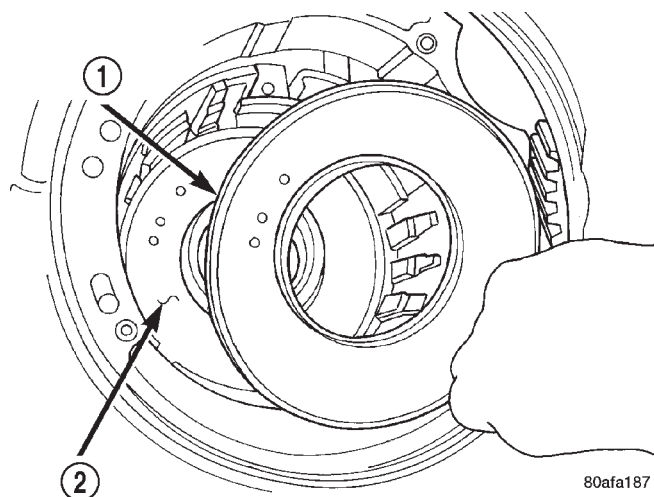


80afa188

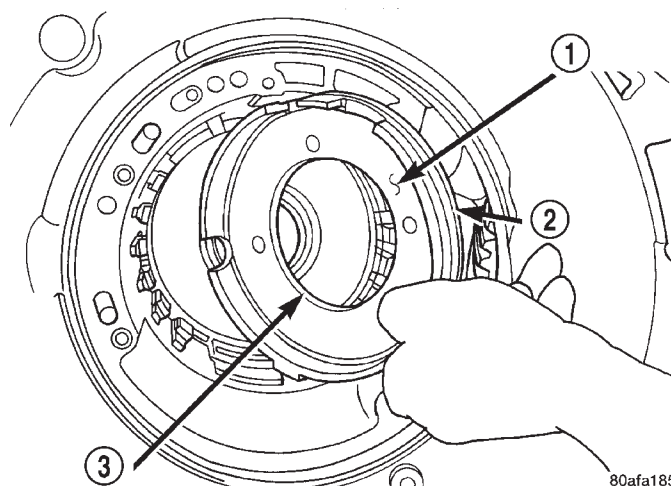
Fig. 292 Install Piston Retainer Gasket

- 1 - GASKET HOLES MUST LINE UP
- 2 - LOW/REVERSE CLUTCH PISTON RETAINER GASKET

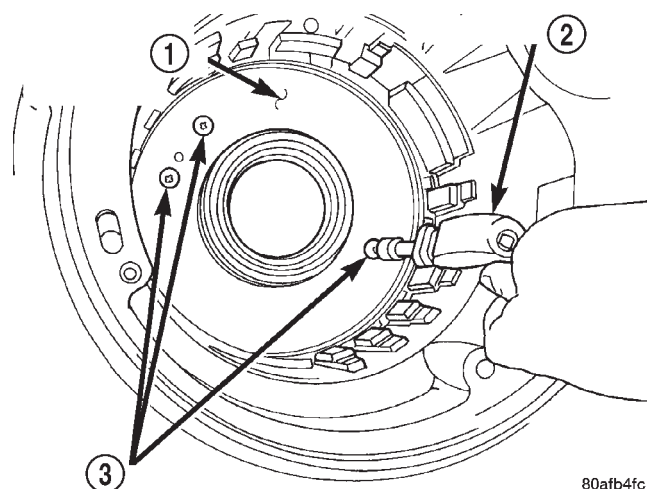
DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 293 Install Piston Retainer**

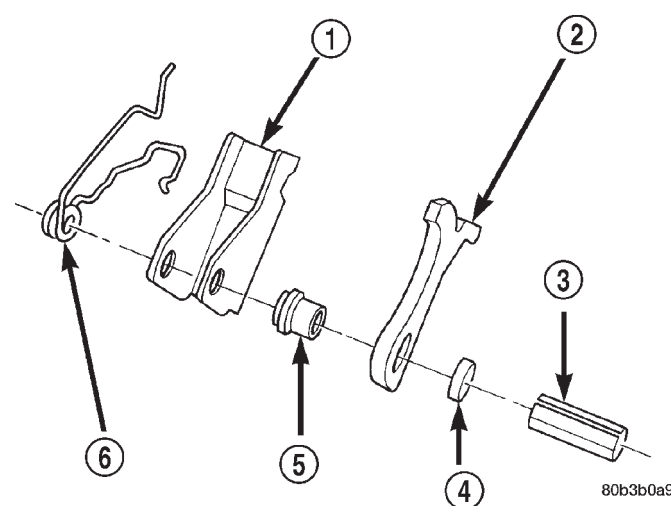
- 1 - LOW/REVERSE CLUTCH PISTON RETAINER
- 2 - GASKET

**Fig. 295 Install Low/Reverse Clutch Piston**

- 1 - LOW/REVERSE CLUTCH PISTON
- 2 - LIP SEAL
- 3 - LIP SEAL

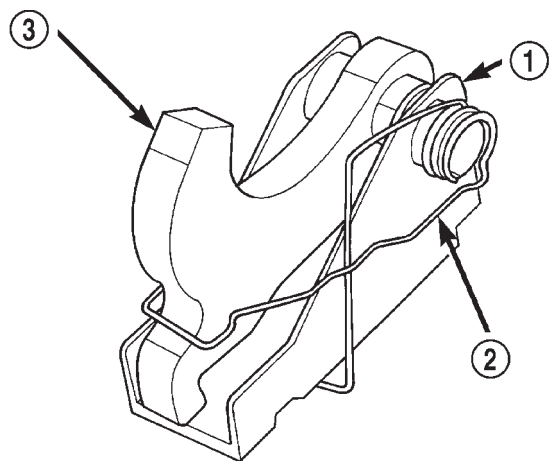
**Fig. 294 Install Retainer Attaching Screws**

- 1 - LOW/REVERSE CLUTCH PISTON RETAINER
- 2 - SCREWDRIVER
- 3 - TORX-LOC SCREWS

**Fig. 296 Guide Bracket Disassembled**

- 1 - GUIDE BRACKET
- 2 - PAWL
- 3 - SPLIT SLEEVE
- 4 - SPACER
- 5 - STEPPED SPACER
- 6 - ANTIRATCHET SPRING

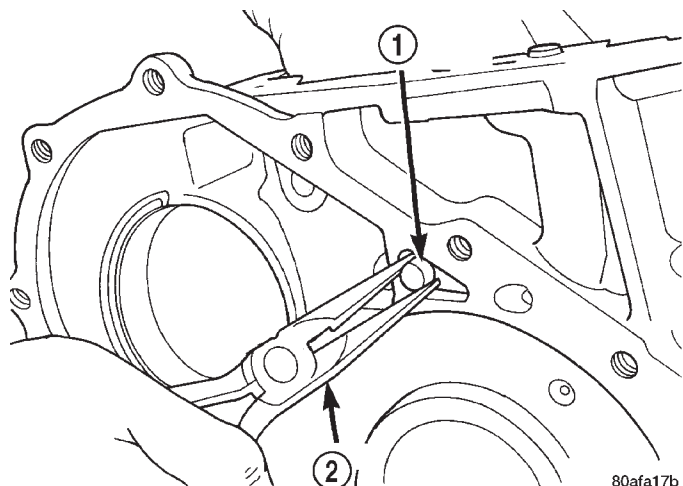
DISASSEMBLY AND ASSEMBLY (Continued)



80b89910

Fig. 297 Guide Bracket

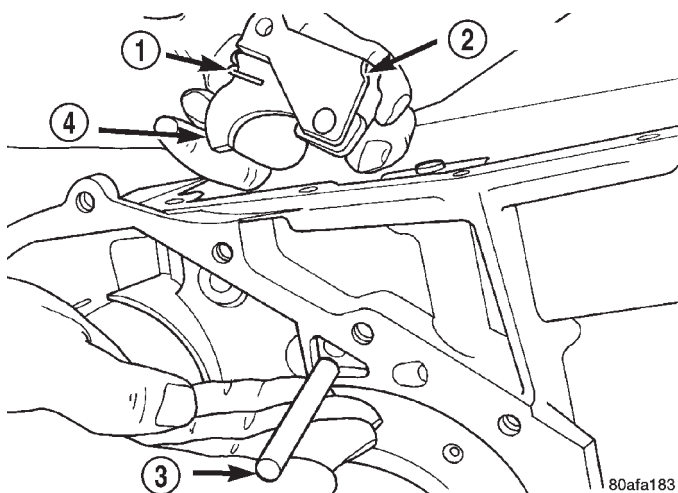
- 1 - GUIDE BRACKET
- 2 - ANTIRATCHET SPRING (MUST BE ASSEMBLED AS SHOWN)
- 3 - PAWL



80afa17b

Fig. 299 Install Guide Bracket Pivot Shaft

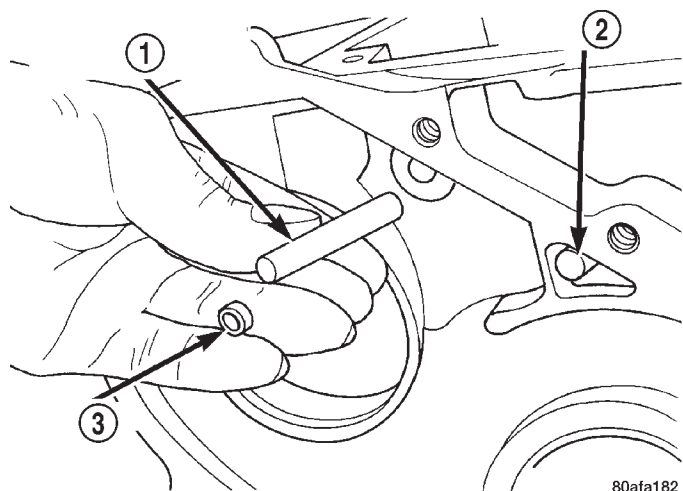
- 1 - GUIDE BRACKET PIVOT SHAFT
- 2 - PLIERS



80afa183

Fig. 298 Pivot Shaft and Guide Bracket

- 1 - ANTIRATCHET SPRING
- 2 - GUIDE BRACKET
- 3 - PIVOT SHAFT
- 4 - PAWL



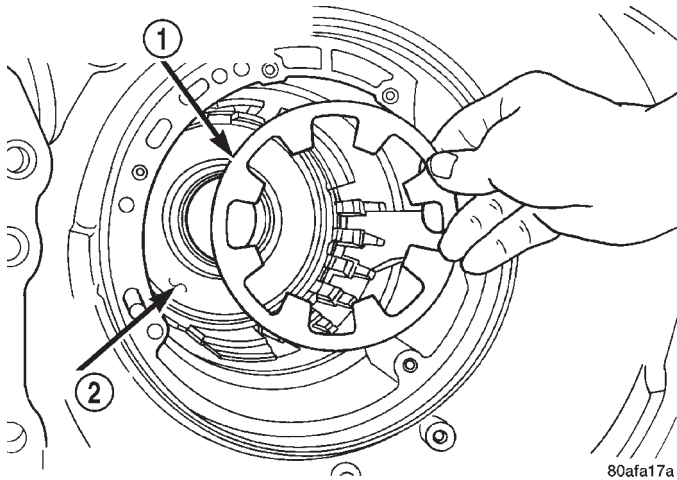
80afa182

Fig. 300 Install Anchor Shaft and Plug

- 1 - GUIDE BRACKET ANCHOR SHAFT
- 2 - PIVOT SHAFT
- 3 - ANCHOR SHAFT PLUG

DISASSEMBLY AND ASSEMBLY (Continued)

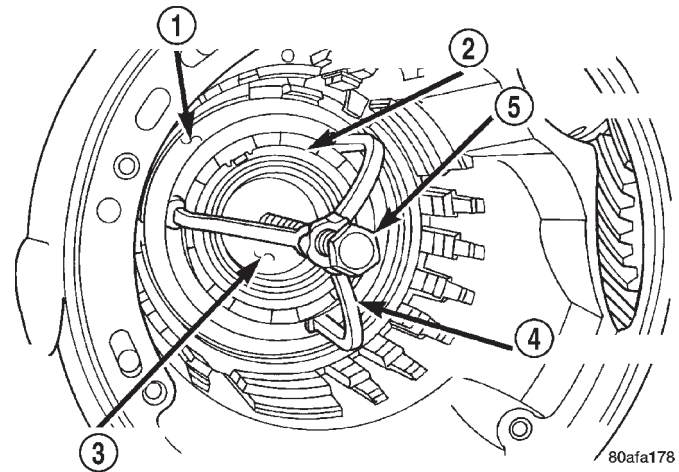
CAUTION: When installing, be sure guide bracket and split sleeve touch the rear of the transaxle case.



80afa17a

Fig. 301 Install Low/Reverse Piston Return Spring

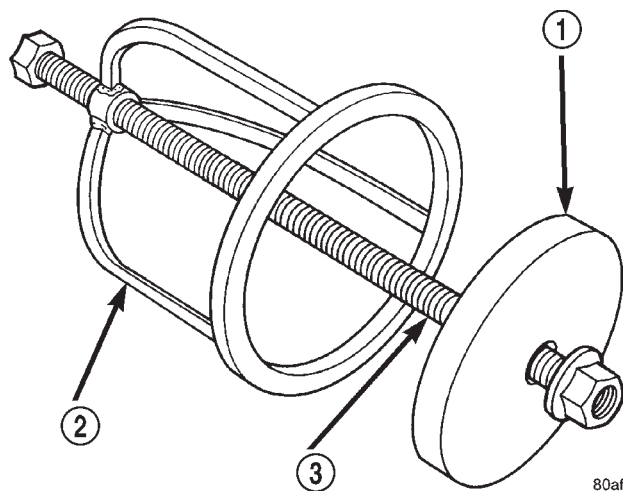
- 1 - LOW/REVERSE PISTON RETURN SPRING
- 2 - PISTON



80afa178

Fig. 303 Compressor Tool in Use

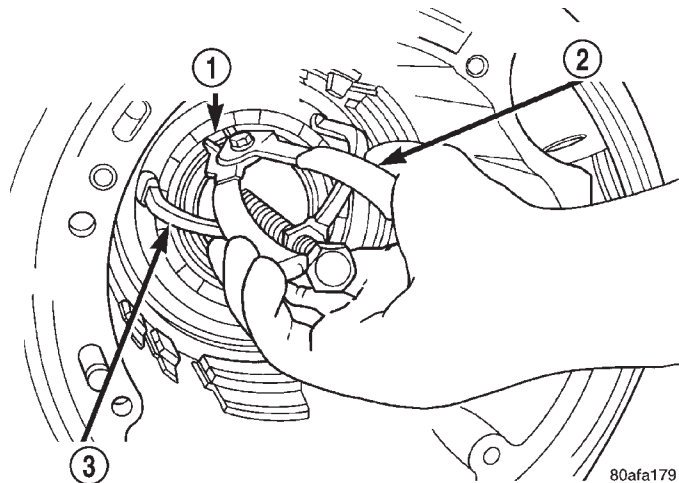
- 1 - LOW/REVERSE CLUTCH RETURN SPRING
- 2 - SNAP RING (INSTALL AS SHOWN)
- 3 - TOOL 6057
- 4 - TOOL 5059
- 5 - TOOL 5058-3



80afa177

Fig. 302 Low/Reverse Spring Compressor Tool

- 1 - TOOL 6057
- 2 - TOOL 5059
- 3 - TOOL 5058-3

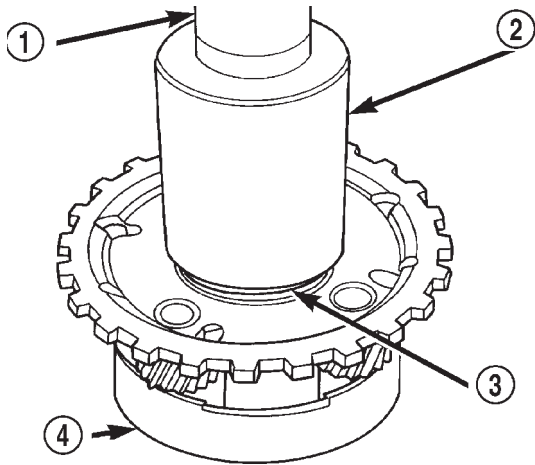


80afa179

Fig. 304 Install Snap Ring

- 1 - SNAP RING OPENING MUST BE BETWEEN SPRING LEVERS (AS SHOWN)
- 2 - SNAP RING PLIERS
- 3 - TOOL 6057

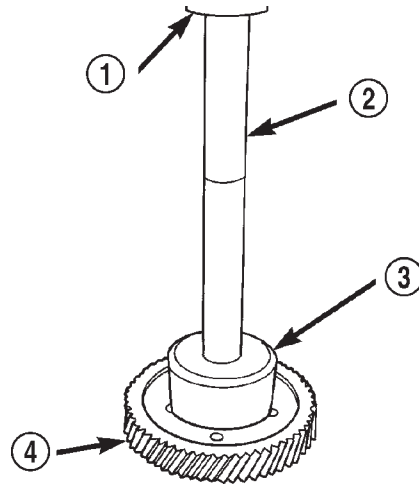
DISASSEMBLY AND ASSEMBLY (Continued)



80afa176

Fig. 305 Install Rear Carrier Bearing Cone

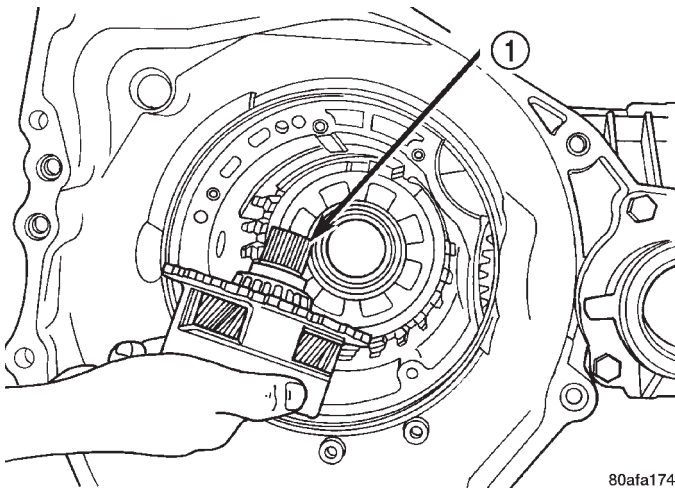
- 1 - ARBOR PRESS RAM
- 2 - TOOL 6053
- 3 - NEW BEARING CONE
- 4 - REAR CARRIER ASSEMBLY



80afa173

Fig. 307 Install Output Gear Bearing Cone

- 1 - ARBOR PRESS RAM
- 2 - HANDLE C-4171
- 3 - TOOL 5052
- 4 - OUTPUT GEAR



80afa174

Fig. 306 Install Rear Carrier Assembly

- 1 - REAR CARRIER ASSEMBLY

OUTPUT GEAR BEARING ADJUSTMENT

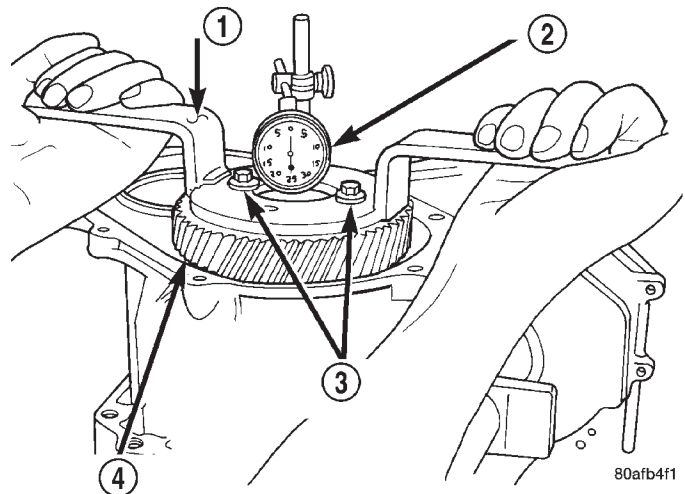
(1) With output gear removed: install a 4.50 mm (0.177 inch) gauging shim on the rear carrier assembly hub, using grease to hold the shim in place.

(2) Using Tool 6259, install output gear and bearing assembly. Torque to 271 N·m (200 ft. lbs.).

To measure bearing end play:

(3) Attach Tool L-4432 to the gear.

(4) Push and pull the gear while rotating back and forth to insure seating of the bearing rollers.



80afb4f1

Fig. 308 Checking Output Gear Bearings End Play

- 1 - TOOL L-4432
- 2 - DIAL INDICATOR
- 3 - SPECIAL SCREWS TOOL 6260
- 4 - OUTPUT GEAR

(5) Using a dial indicator, mounted to the transaxle case, measure output gear end play (Fig. 308).

(6) Refer to the output gear bearing shim chart for the required shim to obtain proper bearing setting.

DISASSEMBLY AND ASSEMBLY (Continued)

OUTPUT GEAR BEARING SHIM CHART

End Play	Shim Needed	Part Number	End Play	Shim Needed	Part Number
0.05mm (0.002 in.)	4.42mm (0.174 in.)	4412830AB	0.53mm (0.021 in.)	3.94mm (0.155 in.)	4412818AB
0.08mm (0.003 in.)	4.38mm (0.172 in.)	4412829AB	0.56mm (0.022 in.)	3.90mm (0.154 in.)	4412817AB
0.10mm (0.004 in.)	4.38mm (0.172 in.)	4412829AB	0.58mm (0.023 in.)	3.90mm (0.154 in.)	4412817AB
0.13mm (0.005 in.)	4.34mm (0.171 in.)	4412828AB	0.61mm (0.024 in.)	3.86mm (0.152 in.)	4412816AB
0.15mm (0.006 in.)	4.30mm (0.169 in.)	4412827AB	0.64mm (0.025 in.)	3.82mm (0.150 in.)	4412815AB
0.18mm (0.007 in.)	4.30mm (0.169 in.)	4412827AB	0.66mm (0.026 in.)	3.82mm (0.150 in.)	4412815AB
0.20mm (0.008 in.)	4.26mm (0.168 in.)	4412826AB	0.69mm (0.027 in.)	3.78mm (0.149 in.)	4412814AB
0.23mm (0.009 in.)	4.22mm (0.166 in.)	4412825AB	0.71mm (0.028 in.)	3.74mm (0.147 in.)	4412813AB
0.25mm (0.010 in.)	4.22mm (0.166 in.)	4412825AB	0.74mm (0.029 in.)	3.74mm (0.147 in.)	4412813AB
0.28mm (0.011 in.)	4.18mm (0.165 in.)	4412824AB	0.76mm (0.030 in.)	3.70mm (0.146 in.)	4412812AB
0.30mm (0.012 in.)	4.14mm (0.163 in.)	4412823AB	0.79mm (0.031 in.)	3.66mm (0.144 in.)	4412811AB
0.33mm (0.013 in.)	4.14mm (0.163 in.)	4412823AB	0.81mm (0.032 in.)	3.66mm (0.144 in.)	4412811AB
0.36mm (0.014 in.)	4.10mm (0.161 in.)	4412822AB	0.84mm (0.033 in.)	3.62mm (0.143 in.)	4412810AB
0.38mm (0.015 in.)	4.10mm (0.161 in.)	4412822AB	0.86mm (0.034 in.)	3.62mm (0.143 in.)	4412810AB
0.41mm (0.016 in.)	4.06mm (0.160 in.)	4412821AB	0.89mm (0.035 in.)	3.58mm (0.141 in.)	4412809AB
0.43mm (0.017 in.)	4.02mm (0.158 in.)	4412820AB	0.91mm (0.036 in.)	3.54mm (0.139 in.)	4412808AB
0.46mm (0.018 in.)	4.02mm (0.158 in.)	4412820AB	0.94mm (0.037 in.)	3.54mm (0.139 in.)	4412808AB
0.48mm (0.019 in.)	3.98mm (0.157 in.)	4412819AB	0.97mm (0.038 in.)	3.50mm (0.138 in.)	4412807AB
0.51mm (0.020 in.)	3.94mm (0.155 in.)	4412818AB			

(7) Use Tool 6259 to remove the retaining bolt and washer. To remove the output gear, use Tool L-4407A.

(8) Remove the gauging shim and install the proper shim (Fig. 309). Use grease to hold the shim in place. Install the output gear and bearing assembly (Fig. 310).

DISASSEMBLY AND ASSEMBLY (Continued)

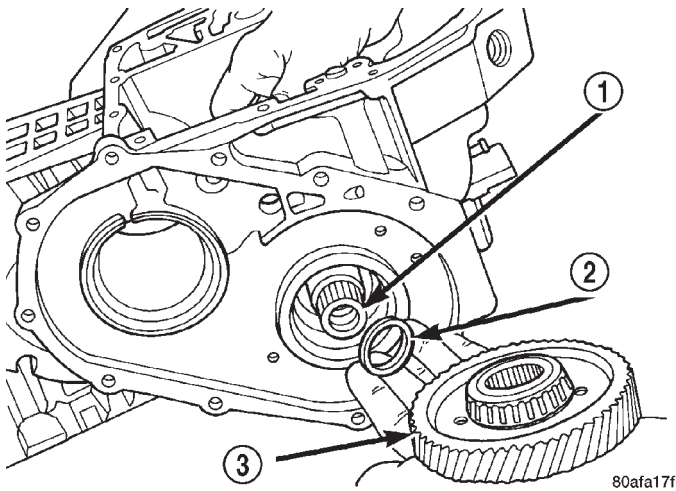


Fig. 309 Output Gear and (Select) Shim

- 1 - REAR CARRIER ASSEMBLY
- 2 - SHIM (SELECT)
- 3 - OUTPUT GEAR

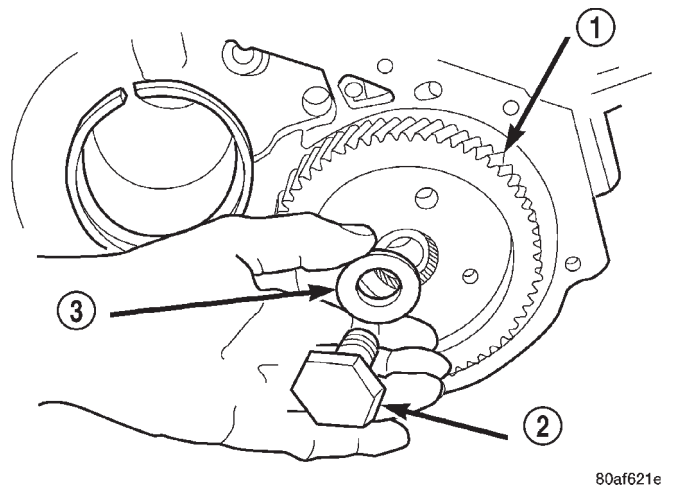


Fig. 311 Install Output Gear Bolt and Washer

- 1 - OUTPUT GEAR
- 2 - BOLT
- 3 - CONED LOCK WASHER

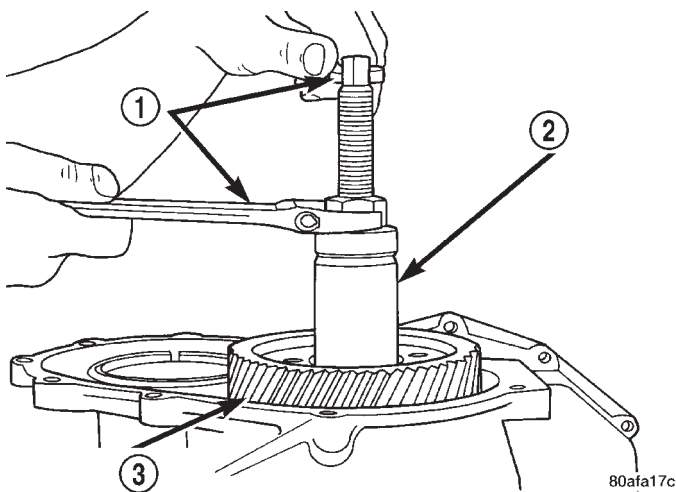


Fig. 310 Install Output Gear

- 1 - WRENCHES
- 2 - TOOL 6261 WITH STUD
- 3 - OUTPUT GEAR

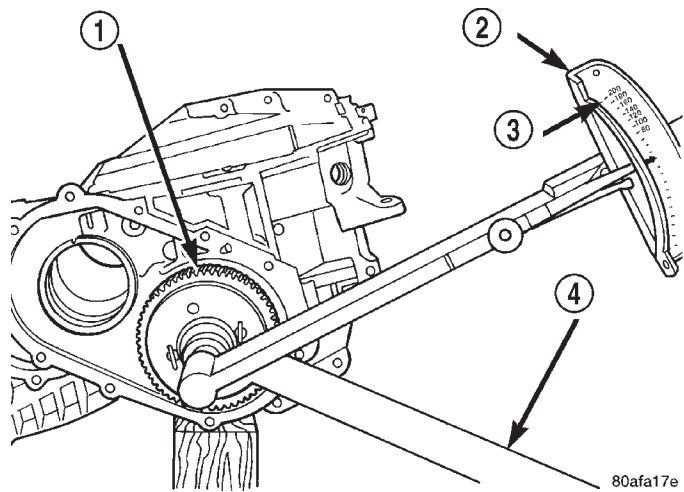


Fig. 312 Tighten Output Gear to 271 N•m (200 ft. lbs.)

- 1 - OUTPUT GEAR
- 2 - TORQUE WRENCH
- 3 - 200 FT. LBS.
- 4 - TOOL 6259

CAUTION: Always use new retaining bolt, old retaining bolt may not be reused.

(9) Install the new retaining bolt and washer (Fig. 311). Tighten to 271 N•m (200 ft. lbs.) (Fig. 312).

(10) Using an inch-pound torque wrench, check the turning torque (Fig. 313). **The torque should be between 3 and 8 inch-pounds.**

DISASSEMBLY AND ASSEMBLY (Continued)

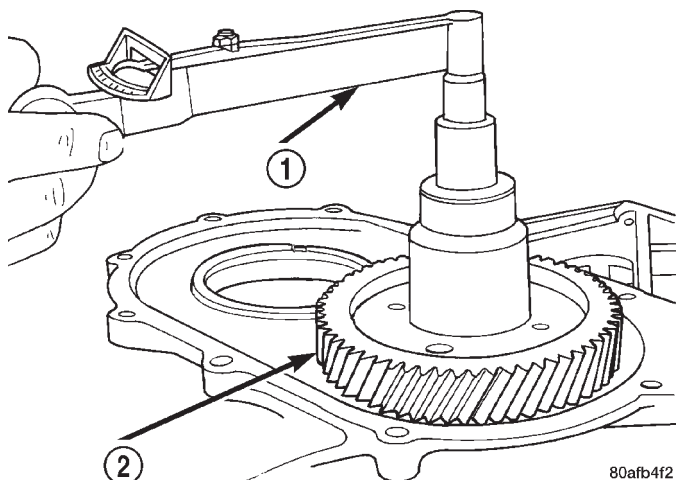


Fig. 313 Check Output Gear Bearings Turning Torque

- 1 - INCH-POUND TORQUE WRENCH
2 - OUTPUT GEAR

If the turning torque is too high, install a 0.04 mm (0.0016 inch) thicker shim. If the turning torque is too low, install a 0.04 mm (0.0016 inch) thinner shim. Repeat until the proper turning torque is 3 to 8 inch pounds.

NOTE: Install output gear stirrup and strap bolts.

All transaxles utilize a stirrup and retaining strap that is attached to the output gear. The stirrup prevents the output gear retaining bolt from turning and backing out of the rear carrier. The strap is used to hold the stirrup to the output gear and prevent the stirrup retaining bolts from backing out.

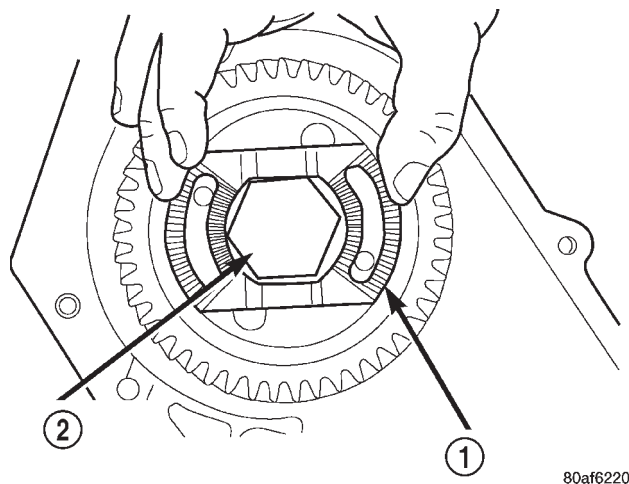


Fig. 314 Output Gear Retaining Bolt Stirrup (Serration Side Out)

- 1 - STIRRUP
2 - OUTPUT GEAR RETAINING BOLT

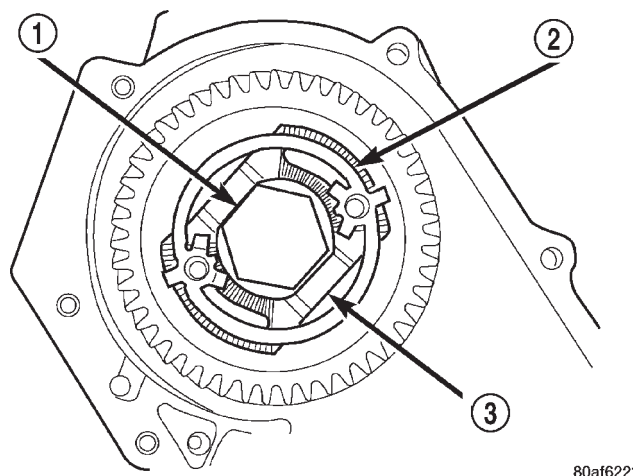


Fig. 315 Stirrup Strap (Align Strap Holes With Tapped Gear Holes)

- 1 - OUTPUT GEARBOLT
2 - RETAINING STRAP
3 - STIRRUP

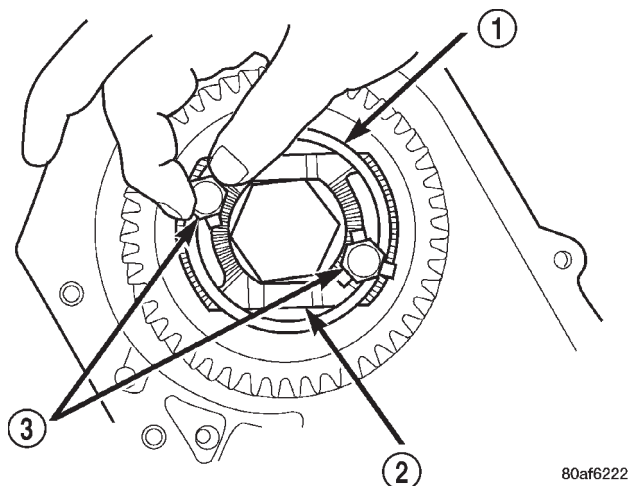


Fig. 316 Install Strap Bolts

- 1 - RETAINING STRAP
2 - STIRRUP
3 - RETAINING STRAP BOLTS

DISASSEMBLY AND ASSEMBLY (Continued)

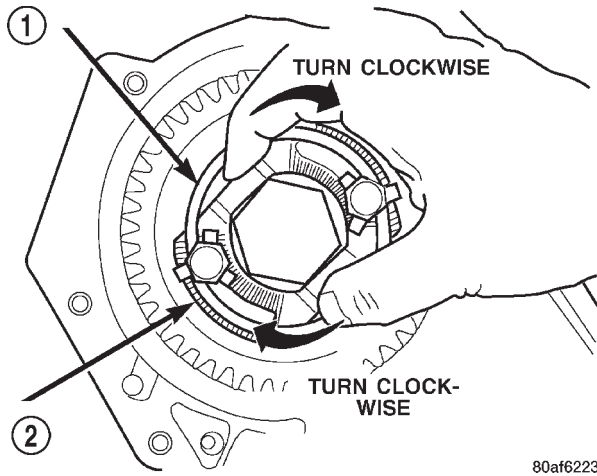


Fig. 317 Turn Stirrup Clockwise Against Flats Of Output Gear Retaining Bolt

- 1 - RETAINING STRAP
2 - STIRRUP

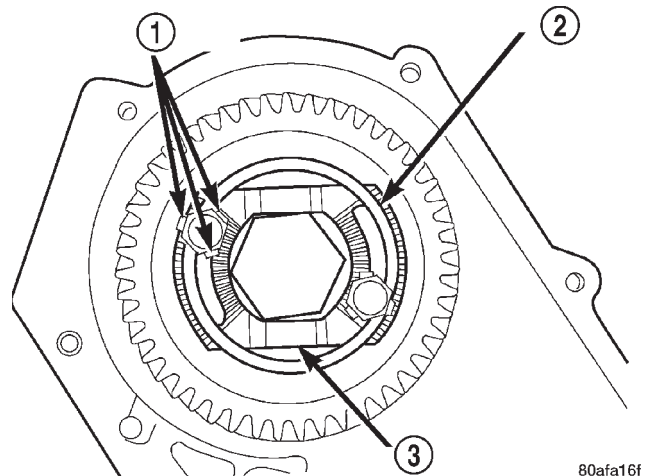


Fig. 319 Bend Tabs On Strap Up Against Flats Of Bolts

- 1 - RETAINING STRAP TABS
2 - RETAINING STRAP
3 - STIRRUP

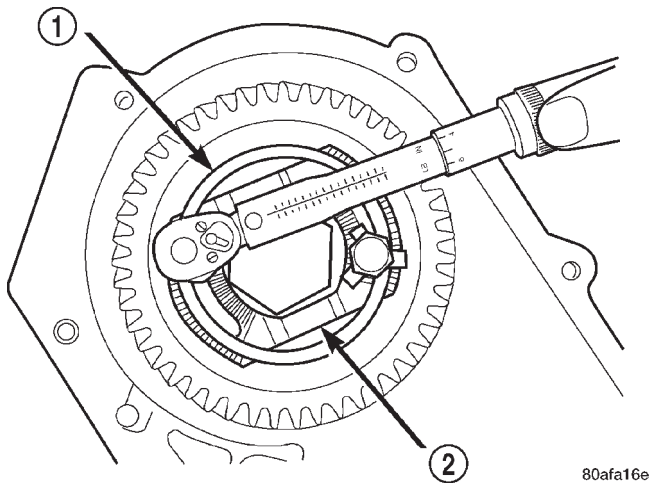


Fig. 318 Tighten Stirrup Strap Bolts To 23 N·m (200 in.) lbs.)

- 1 - RETAINING STRAP
2 - STIRRUP

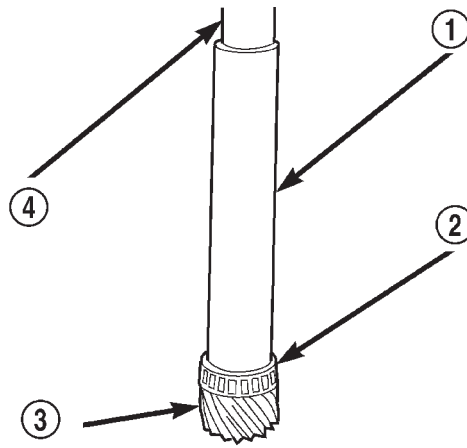
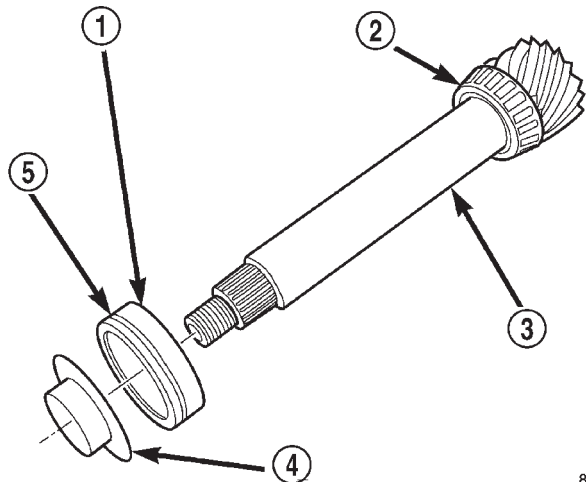


Fig. 320 Install Transfer Shaft Bearing Cone

- 1 - TOOL 6052
2 - NEW BEARING CONE
3 - TRANSFER SHAFT
4 - ARBOR PRESS RAM

NOTE: Screw Tool 5049-A onto transfer shaft. Install transfer shaft.

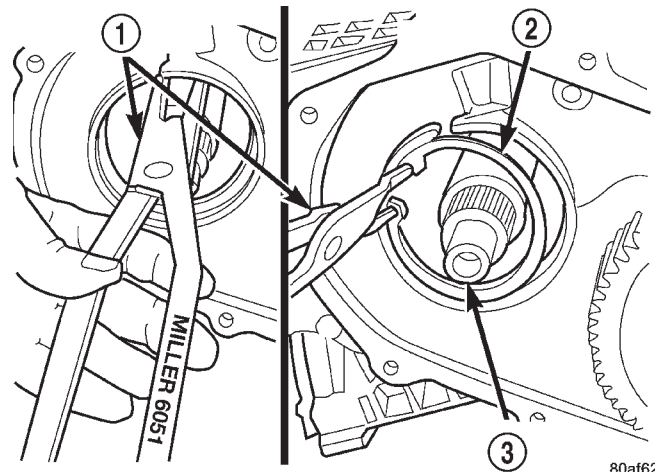
DISASSEMBLY AND ASSEMBLY (Continued)



80af621c

Fig. 321 Install Bearing Cup To Shaft

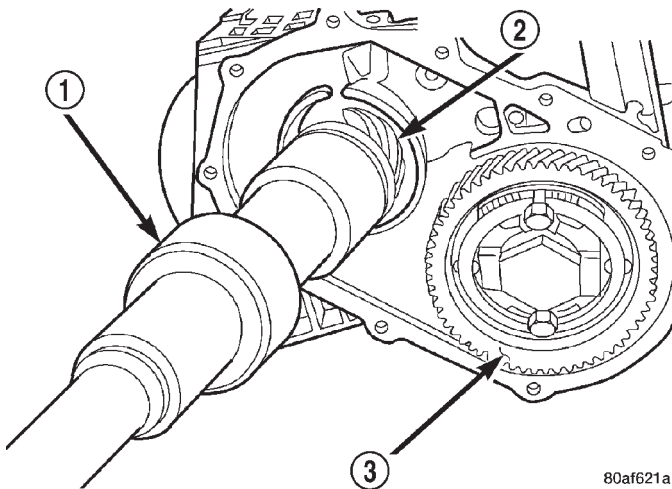
- 1 - BEARING CUP
- 2 - BEARING CONE
- 3 - TRANSFER SHAFT
- 4 - OIL BAFFLE
- 5 - O-RING



80af6217

Fig. 323 Install Transfer Shaft Bearing Snap Ring

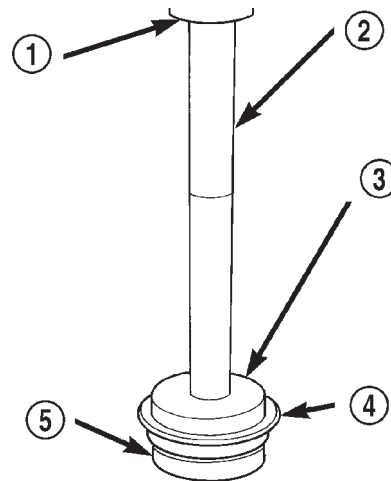
- 1 - SNAP RING PLIERS TOOL 6051
- 2 - TRANSFER SHAFT BEARING SNAP RING
- 3 - TRANSFER SHAFT



80af621a

Fig. 322 Install Transfer Shaft

- 1 - SPECIAL TOOL 5049-A
- 2 - TRANSFER SHAFT
- 3 - OUTPUT GEAR



80af620f

Fig. 324 Install Transfer Shaft Bearing Cup Into Retainer

- 1 - ARBOR PRESS RAM
- 2 - HANDLE C-4171
- 3 - TOOL 6061
- 4 - TRANSFER SHAFT BEARING CUP RETAINER
- 5 - USE REMOVED BEARING CUP TO SUPPORT RETAINER

DISASSEMBLY AND ASSEMBLY (Continued)

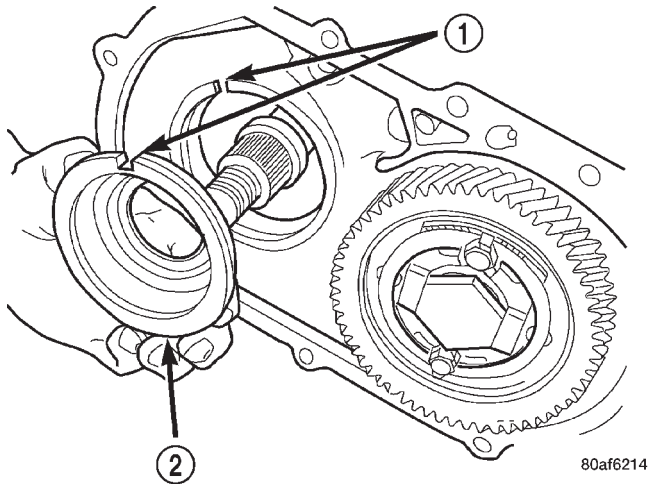


Fig. 325 Install Bearing Cup Retainer

- 1 – ALIGN INDEXING TAB TO SLOT
2 – BEARING CUP RETAINER

TRANSFER SHAFT BEARING

(1) Install a 4.66 mm (0.184 inch) gauging shim on the transfer shaft.

(2) Install transfer shaft gear and bearing assembly and torque the nut to 271 N·m (200 ft. lbs.).

To measure bearing end play:

- Attach Tool L-4432 to the transfer gear.

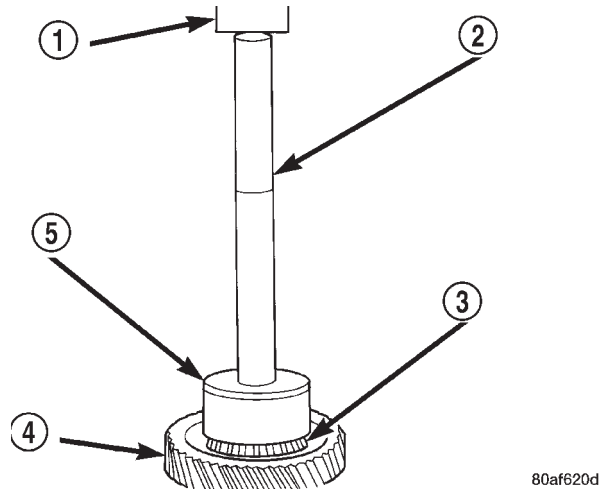


Fig. 326 Install Transfer Gear Bearing Cone

- 1 – ARBOR PRESS RAM
2 – HANDLE C-4171
3 – NEW BEARING CONE
4 – TRANSFER SHAFT GEAR
5 – TOOL 5052

- Mount a steel ball with grease into the end of the transfer shaft.
- Push and pull the gear while rotating back and forth to insure seating of the bearing rollers.
- Using a dial indicator, measure transfer shaft end play.

TRANSFER SHAFT BEARING SHIM CHART

End Play	Shim Needed	Part Number	End Play	Shim Needed	Part Number
0.05mm (0.002 in.)	4.66mm (0.183 in.)	4505588AB	0.76mm (0.030 in.)	3.94mm (0.155 in.)	4412818AB
0.08mm (0.003 in.)	4.62mm (0.182 in.)	4412835AB	0.79mm (0.031 in.)	3.90mm (0.154 in.)	4412817AB
0.10mm (0.004 in.)	4.58mm (0.180 in.)	4412834AB	0.81mm (0.032 in.)	3.90mm (0.154 in.)	4412817AB
0.13mm (0.005 in.)	4.58mm (0.180 in.)	4412834AB	0.84mm (0.033 in.)	3.86mm (0.152 in.)	4412816AB
0.15mm (0.006 in.)	4.54mm (0.178 in.)	4412833AB	0.86mm (0.034 in.)	3.82mm (0.150 in.)	4412815AB
0.18mm (0.007 in.)	4.50mm (0.177 in.)	4412832AB	0.89mm (0.035 in.)	3.82mm (0.150 in.)	4412815AB
0.20mm (0.008 in.)	4.50mm (0.177 in.)	4412832AB	0.91mm (0.036 in.)	3.78mm (0.149 in.)	4412814AB
0.23mm (0.009 in.)	4.46mm (0.175 in.)	4412831AB	0.94mm (0.037 in.)	3.74mm (0.147 in.)	4412813AB
0.25mm (0.010 in.)	4.46mm (0.175 in.)	4412831AB	0.97mm (0.038 in.)	3.74mm (0.147 in.)	4412813AB

DISASSEMBLY AND ASSEMBLY (Continued)

End Play	Shim Needed	Part Number	End Play	Shim Needed	Part Number
0.28mm (0.011 in.)	4.42mm (0.174 in.)	4412830AB	0.99mm (0.039 in.)	3.70mm (0.146 in.)	4412812AB
0.30mm (0.012 in.)	4.38mm (0.172 in.)	4412829AB	1.02mm (0.040 in.)	3.66mm (0.144 in.)	4412811AB
0.33mm (0.013 in.)	4.38mm (0.172 in.)	4412829AB	1.04mm (0.041 in.)	3.66mm (0.144 in.)	4412811AB
0.36mm (0.014 in.)	4.34mm (0.171 in.)	4412828AB	1.07mm (0.042 in.)	3.62mm (0.143 in.)	4412810AB
0.38mm (0.015 in.)	4.30mm (0.169 in.)	4412827AB	1.08mm (0.043 in.)	3.62mm (0.143 in.)	4412810AB
0.41mm (0.016 in.)	4.30mm (0.169 in.)	4412827AB	1.12mm (0.044 in.)	3.58mm (0.141 in.)	4412809AB
0.43mm (0.017 in.)	4.26mm (0.168 in.)	4412826AB	1.14mm (0.045 in.)	3.54mm (0.139 in.)	4412808AB
0.46mm (0.018 in.)	4.22mm (0.166 in.)	4412825AB	1.17mm (0.046 in.)	3.54mm (0.139 in.)	4412808AB
0.48mm (0.019 in.)	4.22mm (0.166 in.)	4412825AB	1.19mm (0.047 in.)	3.50mm (0.138 in.)	4412807AB
0.50mm (0.020 in.)	4.18mm (0.165 in.)	4412824AB	1.22mm (0.048 in.)	3.46mm (0.136 in.)	4412806AB
0.53mm (0.021 in.)	4.18mm (0.165 in.)	4412824AB	1.24mm (0.049 in.)	3.46mm (0.136 in.)	4412806AB
0.56mm (0.022 in.)	4.14mm (0.163 in.)	4412823AB	1.27mm (0.050 in.)	3.42mm (0.135 in.)	4412805AB
0.58mm (0.023 in.)	4.10mm (0.161 in.)	4412822AB	1.30mm (0.051 in.)	3.38mm (0.133 in.)	4412804AB
0.61mm (0.024 in.)	4.10mm (0.161 in.)	4412822AB	1.32mm (0.052 in.)	3.38mm (0.133 in.)	4412804AB
0.64mm (0.025 in.)	4.06mm (0.160 in.)	4412821AB	1.35mm (0.053 in.)	3.34mm (0.132 in.)	4412803AB
0.66mm (0.026 in.)	4.02mm (0.158 in.)	4412820AB	1.37mm (0.054 in.)	3.34mm (0.132 in.)	4412803AB
0.69mm (0.027 in.)	4.02mm (0.158 in.)	4412820AB	1.40mm (0.055 in.)	3.30mm (0.130 in.)	4412802AB
0.71mm (0.028 in.)	3.98mm (0.157 in.)	4412819AB	1.45mm (0.057 in.)	3.26mm (0.128 in.)	4412801AB
0.74mm (0.029 in.)	3.94mm (0.155 in.)	4412818AB	1.47mm (0.058 in.)	2.22mm (0.127 in.)	4505570AB

(4) Refer to the Transfer Bearing Shim Chart for the required shim combination to obtain the proper bearing setting.

(5) Use Tool 6259 to remove the retaining nut and washer. Remove the transfer shaft gear using Tool L-4407A.

(6) Remove the gauging shim and install the correct shim (Fig. 327). Install the transfer gear and bearing assembly (Fig. 328).

CAUTION: Original retaining nut may not be reused. Always use a new retaining nut when reassembling.

DISASSEMBLY AND ASSEMBLY (Continued)

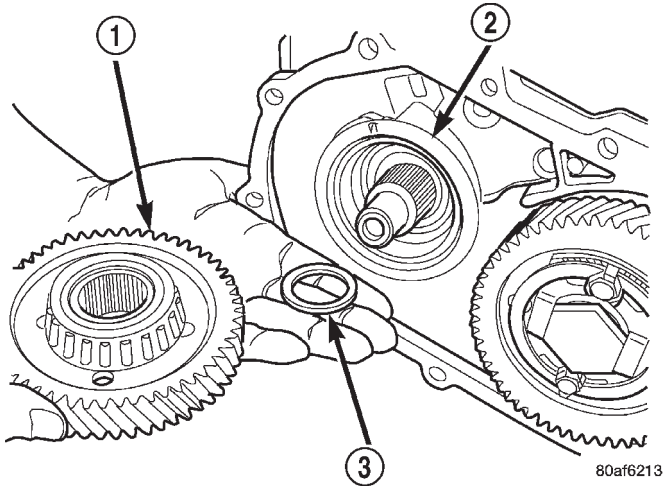


Fig. 327 Transfer Shaft Gear and (Select) Shim

- 1 - TRANSFER SHAFT GEAR
- 2 - BEARING CUP RETAINER
- 3 - SHIM (SELECT)

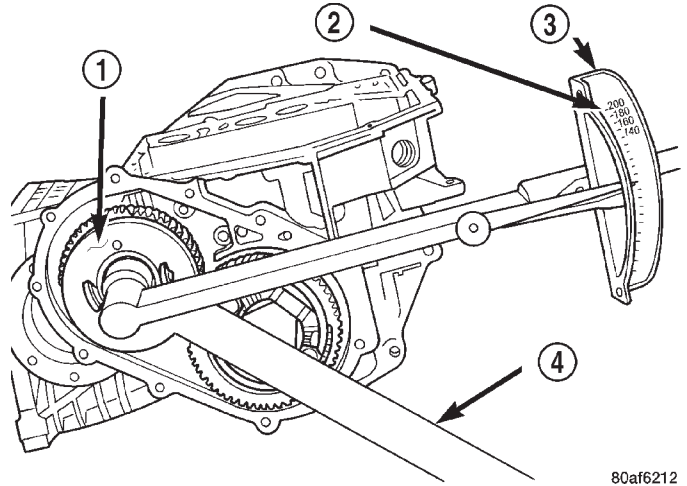


Fig. 329 Tighten Nut to 271 N·m (200 ft. lbs.)

- 1 - TRANSFER SHAFT GEAR
- 2 - 200 FT. LBS.
- 3 - TORQUE WRENCH
- 4 - SPECIAL TOOL 6259

NOTE: If end play is too high, install a 0.04 mm (0.0016 inch) thinner shim. If end play is too low, install a 0.04 mm (0.0016 inch) thicker shim combination. Repeat until 0.05 to 0.10 mm (0.002 to 0.004 inch) end play is obtained.

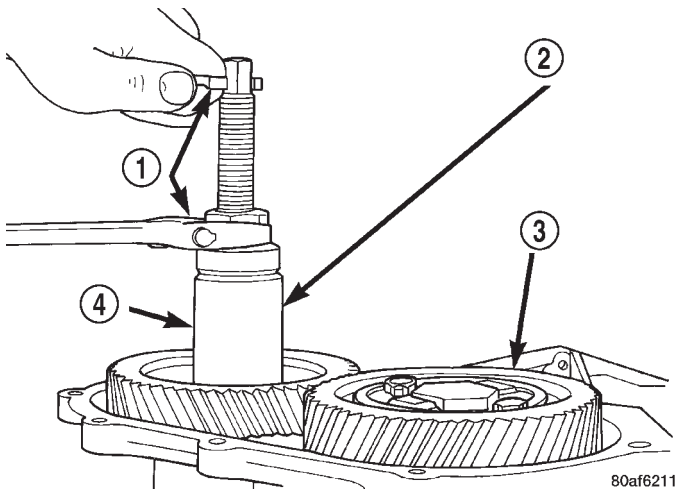


Fig. 328 Install Transfer Shaft Gear

- 1 - WRENCHES
- 2 - SPECIAL TOOL 6261
- 3 - OUTPUT GEAR
- 4 - TRANSFER SHAFT GEAR

(7) Install the new retaining nut and washer and torque to 271 N·m (200 ft. lbs.) (Fig. 329). **Measure transfer shaft end play, end play should be 0.05 to 0.10 mm (0.002 to 0.004 inch).**

(8) Measure bearing end play as outlined in Step 3. End play should be between 0.05 mm and 0.10 mm (0.002 to 0.004 inch).

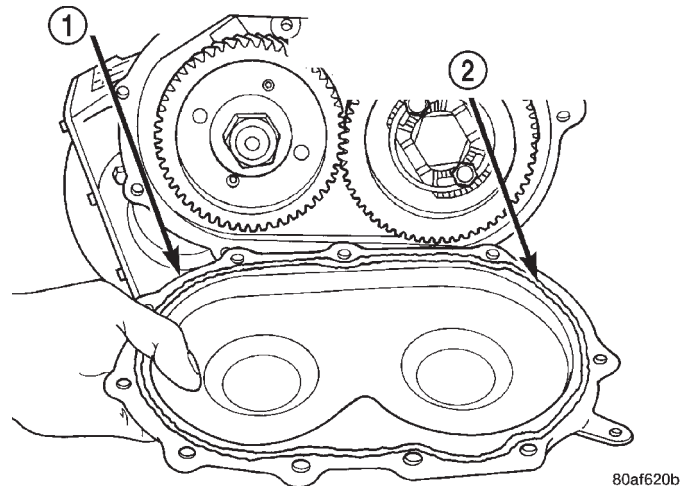
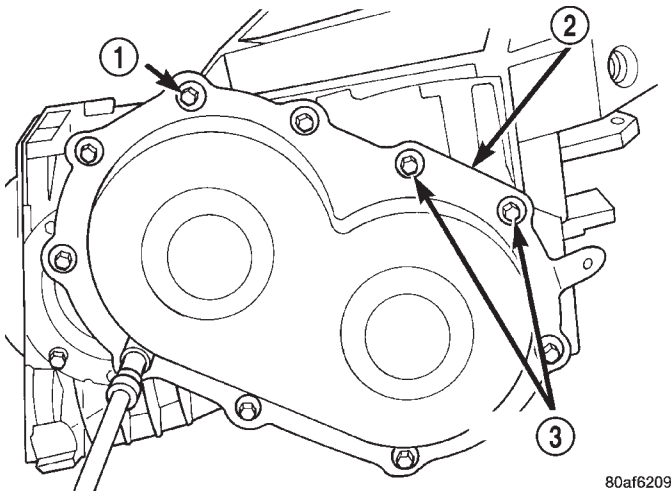


Fig. 330 Install Rear Cover and Torque to 20 N·m (125 in. lbs.)

- 1 - REAR COVER
- 2 - 1/8 INCH BEAD OF MOPAR SILICONE RUBBER ADHESIVE SEALANT AS SHOWN

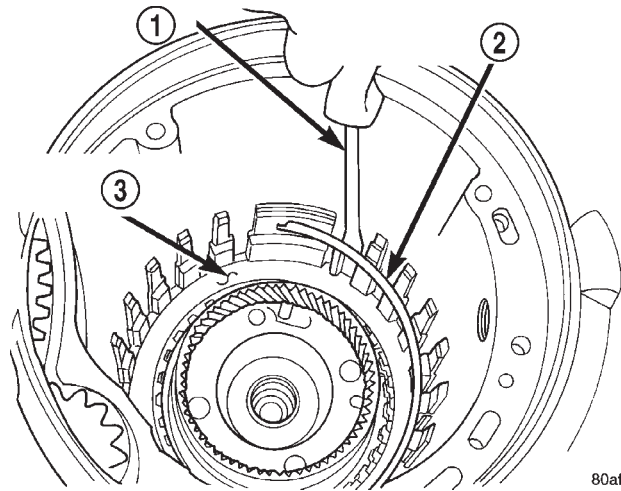
DISASSEMBLY AND ASSEMBLY (Continued)



80af6209

Fig. 331 Install Rear Cover Bolts

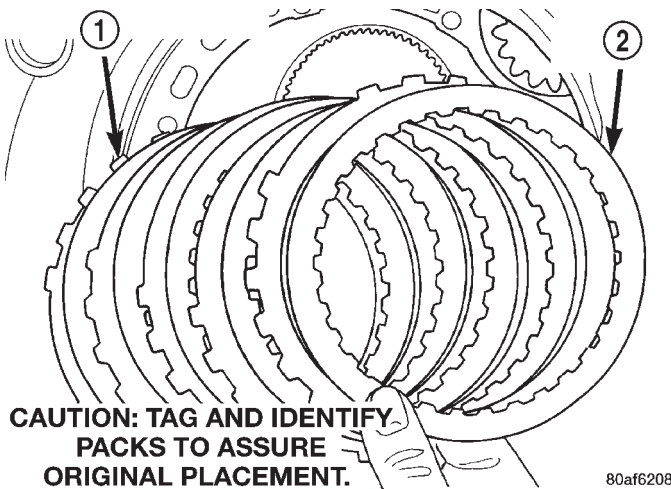
- 1 - REAR COVER BOLTS
- 2 - REAR COVER
- 3 - USE SEALANT ON BOLTS



80af6207

Fig. 333 Install Low/Reverse Reaction Plate Snap Ring

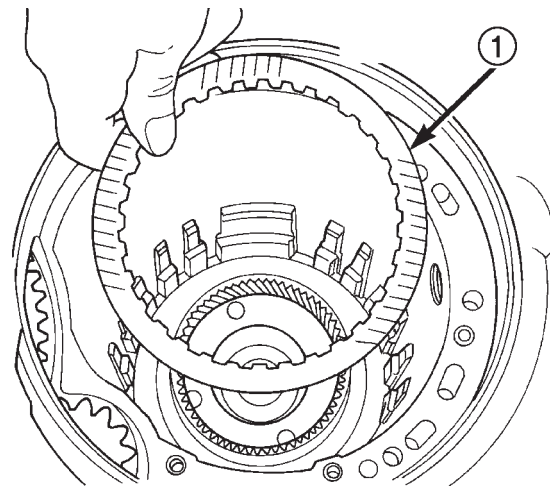
- 1 - SCREWDRIVER
- 2 - LOW/REVERSE REACTION PLATE FLAT SNAP RING
- 3 - DO NOT SCRATCH CLUTCH PLATE



80af6208

Fig. 332 Install Low/Reverse Clutch Pack

- 1 - CLUTCH PLATES (5)
- 2 - CLUTCH DISCS (5)



80af6206

Fig. 334 Install One Disc

- 1 - ONE DISC FROM LOW/REVERSE CLUTCH

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: Install the low/reverse reaction plate stepped side up.

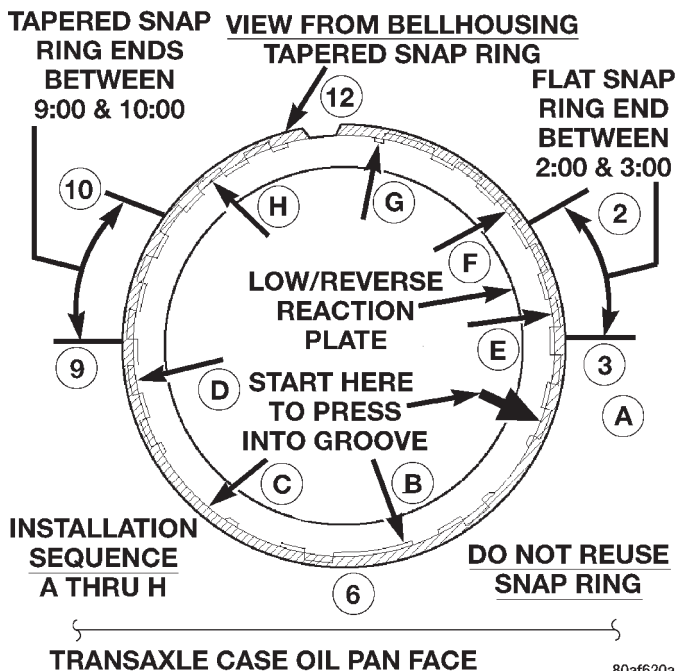


Fig. 335 Tapered Snap Ring Instructions

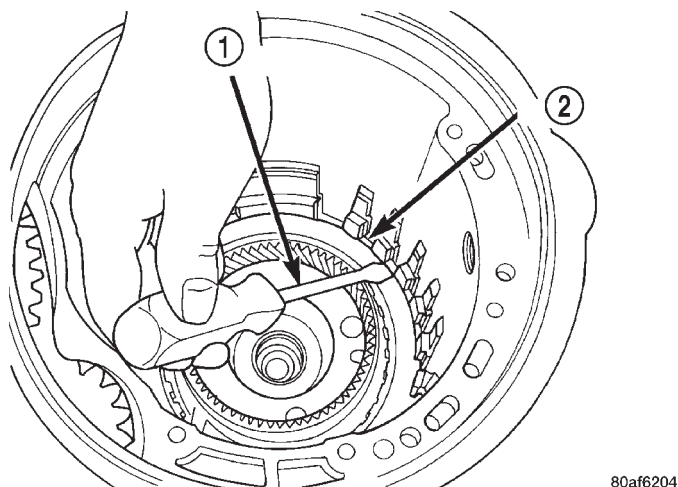


Fig. 336 Snap Ring Installed

- 1 - SCREWDRIVER
- 2 - TAPERED SNAP RING (INSTALL AS SHOWN)

Press down clutch pack with finger and zero dial indicator. **Low/Reverse clutch pack clearance is 0.86 to 1.52 (0.034 to 0.060 inch).**

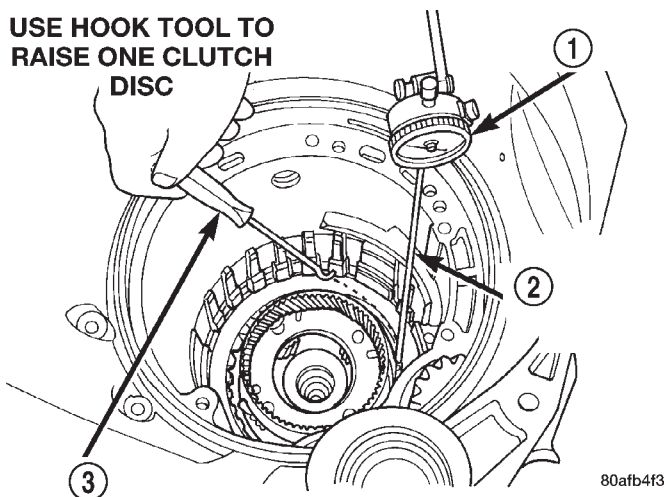


Fig. 337 Check Low/Reverse Clutch Clearance

- 1 - DIAL INDICATOR
- 2 - DIAL INDICATOR TIP TOOL 6268
- 3 - HOOK TOOL

Select the proper low/reverse reaction plate to achieve specifications:

LOW/REVERSE REACTION PLATE CHART

PART NUMBER	THICKNESS
4799846AA	5.88 mm (0.232 in.)
4799847AA	6.14 mm (0.242 in.)
4799848AA	6.40 mm (0.252 in.)
4799849AA	6.66 mm (0.262 in.)
4799855AA	6.92 mm (0.273 in.)

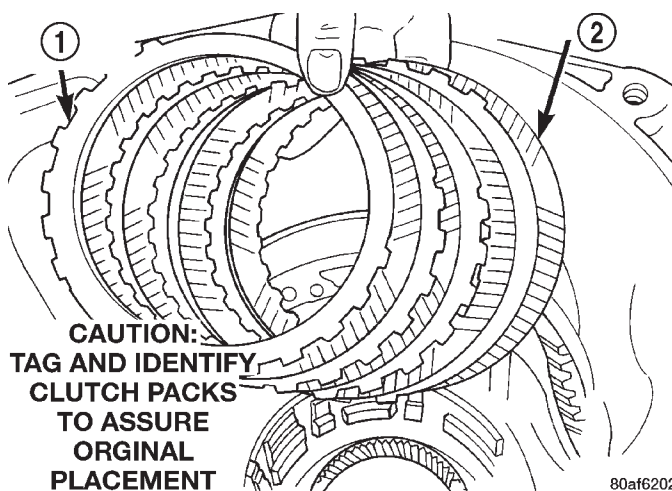


Fig. 338 Install 2/4 Clutch Pack

- 1 - CLUTCH PLATE (4)
- 2 - CLUTCH DISC (4)

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: When installing the 2-4 clutch plates and discs, the orientation should be alternated so the pilot pads of adjacent plates do not align, refer to (Fig. 339).

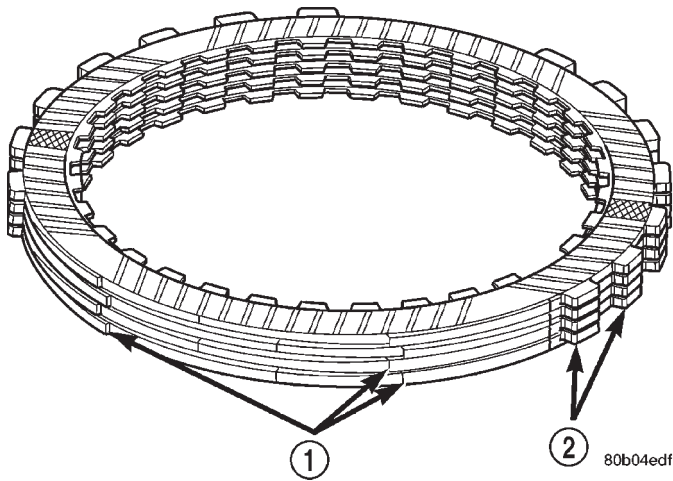


Fig. 339 Stagger 2/4 Clutch Plate Pads

- 1 - PILOT PADS
- 2 - LUGS

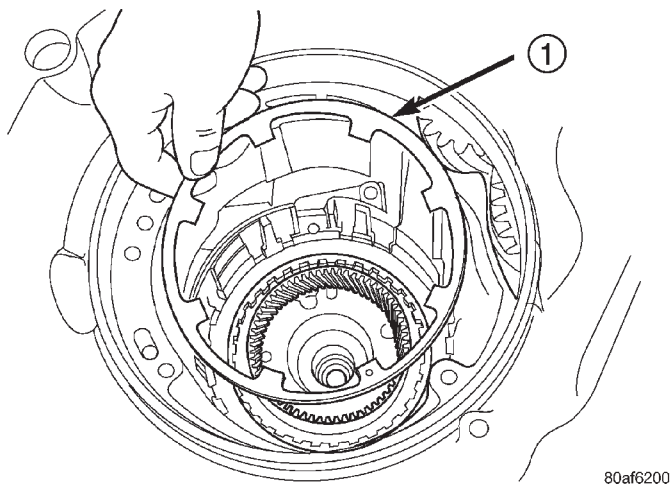


Fig. 340 Install 2/4 Clutch Return Spring

- 1 - 2/4 CLUTCH RETURN SPRING

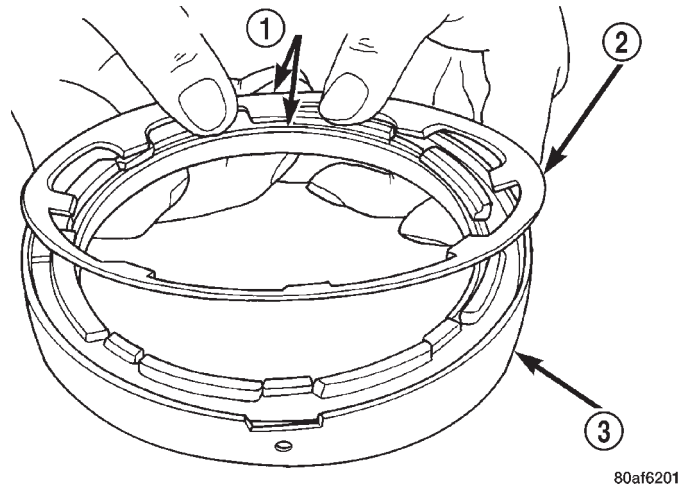


Fig. 341 Proper Orientation of 2/4 Clutch Retainer and Spring

- 1 - NOTE POSITION
- 2 - RETURN SPRING
- 3 - 2/4 CLUTCH RETAINER

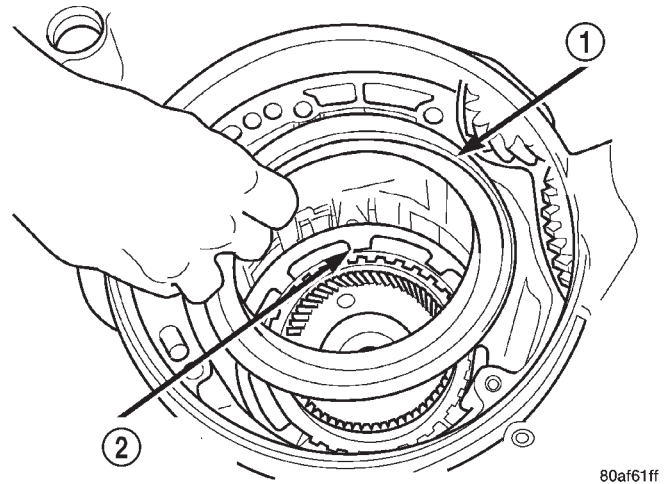


Fig. 342 Install 2/4 Clutch Retainer

- 1 - 2/4 CLUTCH RETAINER
- 2 - 2/4 CLUTCH RETURN SPRING

NOTE: Verify that Miller Tool 5058 is centered properly to the 2/4 clutch retainer before depressing the tool.

DISASSEMBLY AND ASSEMBLY (Continued)

**COMPRESS JUST ENOUGH
TO REMOVE OR INSTALL
SNAP RING**

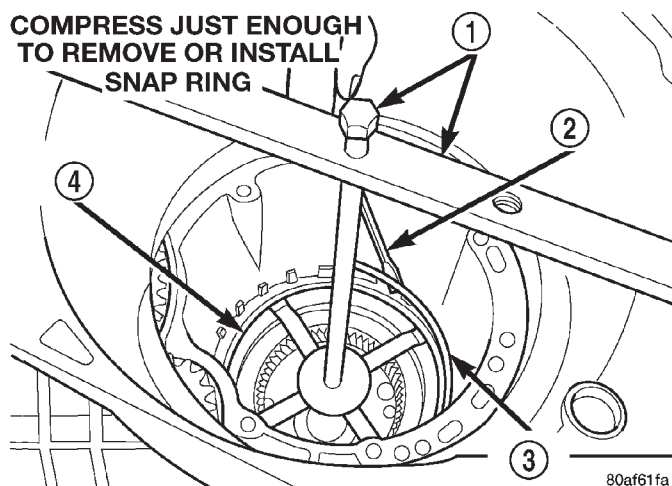


Fig. 343 Install 2/4 Clutch Retainer Snap Ring

- 1 - TOOL 5058
- 2 - SCREWDRIVER
- 3 - SNAP RING
- 4 - 2/4 CLUTCH RETAINER

Press down clutch pack with finger and zero dial indicator. **The 2/4 clutch pack clearance is 0.76 to 2.64mm (0.030 to 0.104 inch).** If not within specifications, the clutch is not assembled properly. **There is no adjustment for the 2/4 clutch clearance.**

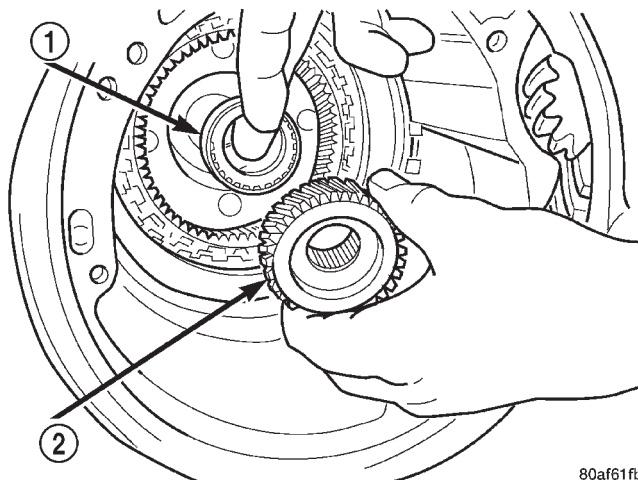


Fig. 345 Install Rear Sun Gear

- 1 - #7 NEEDLE BEARING
- 2 - REAR SUN GEAR

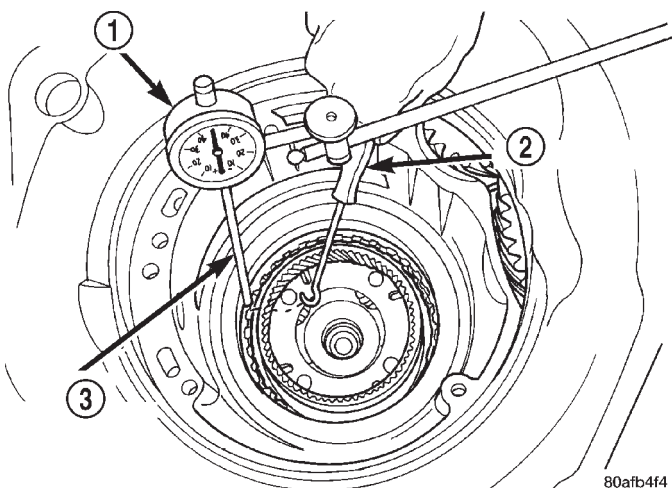


Fig. 344 Check 2/4 Clutch Clearance

- 1 - DIAL INDICATOR
- 2 - HOOK TOOL
- 3 - DIAL INDICATOR TIP TOOL 6268

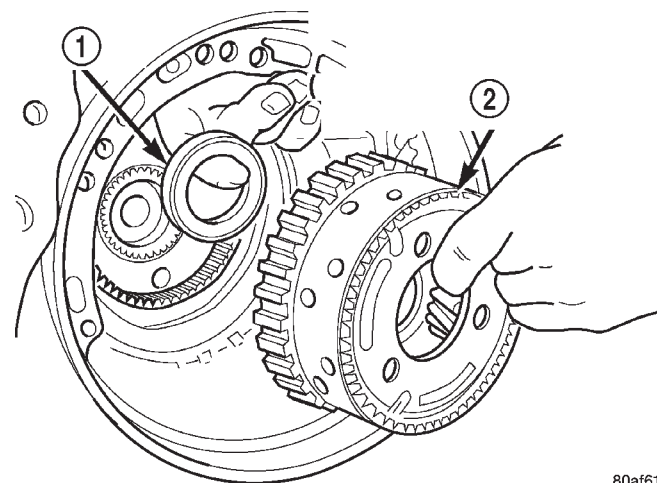
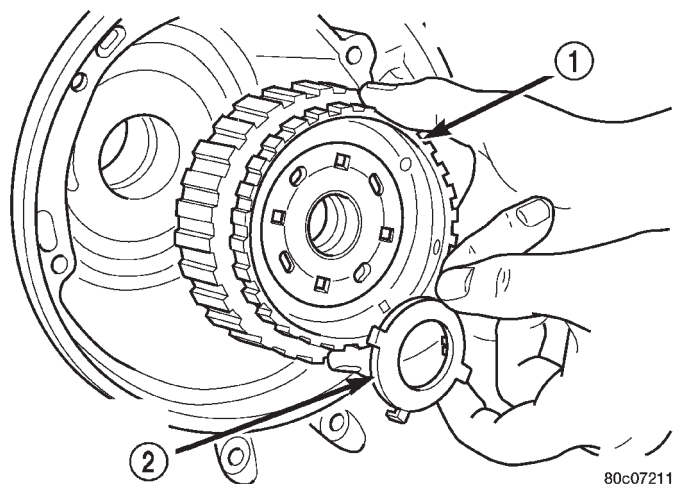


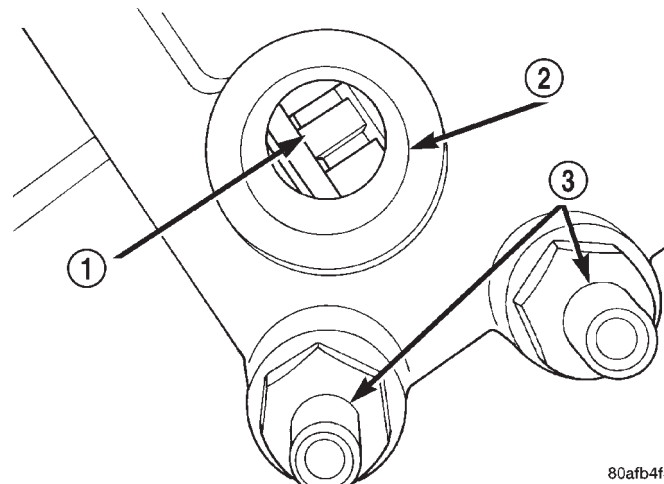
Fig. 346 Install Front Carrier and Rear Annulus Assembly

- 1 - #6 NEEDLE BEARING
- 2 - FRONT CARRIER AND REAR ANNULUS ASSEMBLY (TWIST AND PULL OR PUSH TO REMOVE OR INSTALL).

DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 347 Install Front Sun Gear Assembly**

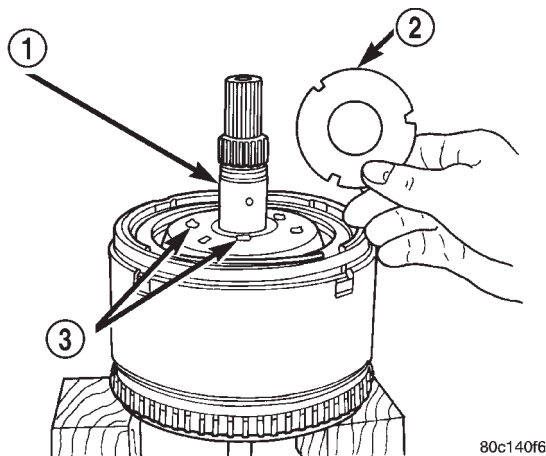
- 1 – FRONT SUN GEAR ASSEMBLY
2 – #4 THRUST WASHER (FOUR TABS)

**Fig. 349 View Through Input Speed Sensor Hole**

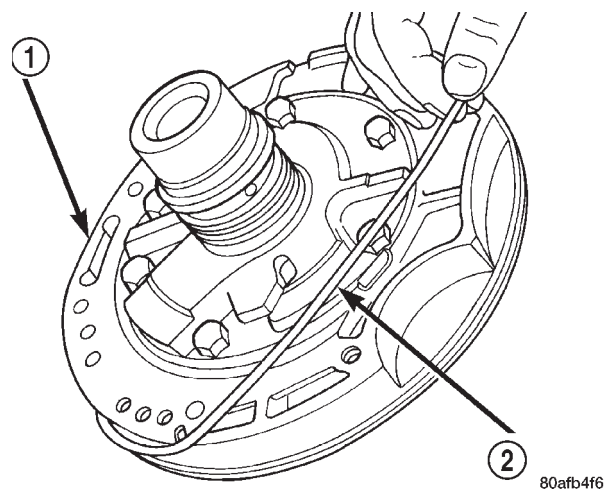
- 1 – INPUT CLUTCHES RETAINER
2 – INPUT (TURBINE) SPEED SENSOR HOLE
3 – OIL COOLER NIPPLES

DETERMINING No. 4 THRUST PLATE THICKNESS—INPUT SHAFT END PLAY

To determine the proper thickness of the No. 4 thrust plate, select the thinnest No. 4 thrust plate. Using petrolatum (Fig. 348) to hold thrust plate in position, install input clutch assembly. Be sure the input clutch assembly is completely seated (Fig. 349).

**Fig. 348 Select Thinnest No. 4 Thrust Plate**

- 1 – OVERDRIVE SHAFT ASSEMBLY
2 – #4 THRUST PLATE (SELECT)
3 – 3 DABS OF PETROLATUM FOR RETENTION

**Fig. 350 Remove Oil Pump O-Ring**

- 1 – OIL PUMP ASSEMBLY
2 – O-RING

Remove the oil pump O-ring (Fig. 350). You will be able to install and remove the oil pump and gasket very easily to select the proper No. 4 thrust plate.

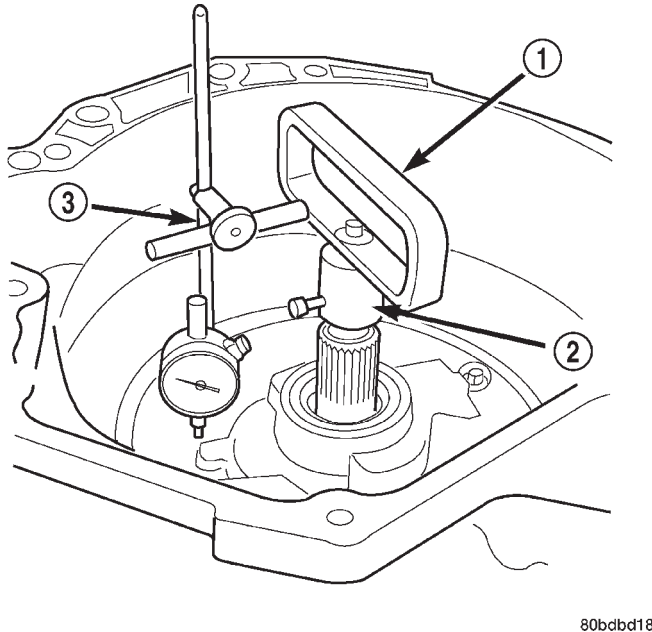
NOTE: Use screw-in dowels or phillips-head screw-drivers to align pump to case.

CAUTION: If view through input speed sensor hole is not as shown above, the input clutches assembly is not seated properly.

CAUTION: Be sure to reinstall O-ring on oil pump after selecting the proper No. 4 thrust plate.

DISASSEMBLY AND ASSEMBLY (Continued)

Set up input shaft for measurement with Indicator Set C3339 and End Play Set 8266 as shown in (Fig. 351). Measure the input shaft end play with the transaxle in the vertical position. This will ensure that the measurement will be accurate.



80bcbd18

Fig. 351 Measure Input Shaft End Play Using End Play Set 8266

- 1 – TOOL 8266-8
- 2 – TOOL 8266-2
- 3 – TOOL C-3339

NOTE: Input shaft end play must be 0.005 to 0.025 inch.

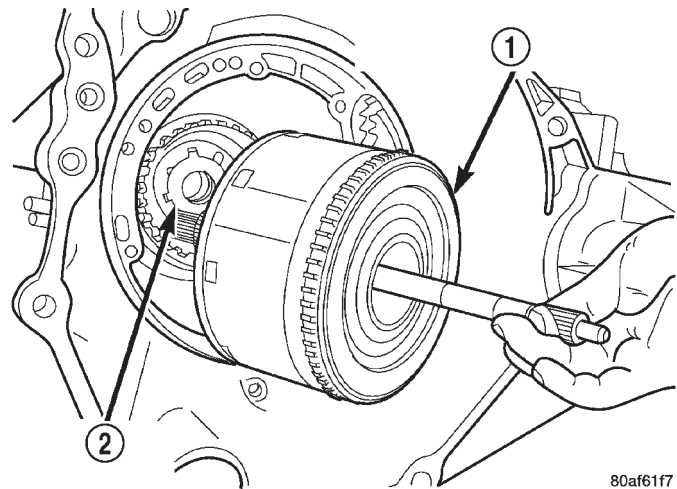
For example, if end play reading is 0.055 inch, select No. 4 Thrust Plate which is 0.071 to 0.074 thick. This should provide an input shaft end play reading of 0.020 inch which is within specifications.

See chart to select the proper No. 4 thrust plate.

Reinstall the input clutch assembly with the selected thrust plate.

NO. 4 THRUST PLATE CHART

PART NUMBER	THICKNESS
4431662	0.91mm (0.036 in.)
4431663	1.14mm (0.045 in.)
4431664	1.37mm (0.054 in.)
4431665	1.60mm (0.063 in.)
3836237	1.73mm (0.068 in.)
4431666	1.80mm (0.071 in.)
3836238	1.96mm (0.077 in.)
4431667	2.03mm (0.080 in.)
3836239	2.16mm (0.085 in.)
4431668	2.24mm (0.088 in.)
3836240	2.39mm (0.094 in.)
4431669	2.46mm (0.097 in.)
3836241	2.62mm (0.103 in.)
4446670	2.67mm (0.105 in.)
4446671	2.90mm (0.114 in.)
4446672	3.15mm (0.124 in.)
4446601	3.38mm (0.133 in.)

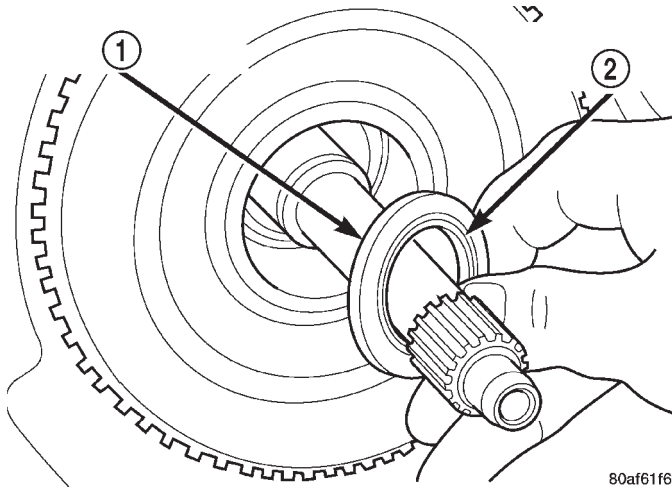


80af61f7

Fig. 352 Install Input Clutches Assembly

- 1 – INPUT CLUTCHES ASSEMBLY
- 2 – #4 THRUST WASHER

DISASSEMBLY AND ASSEMBLY (Continued)

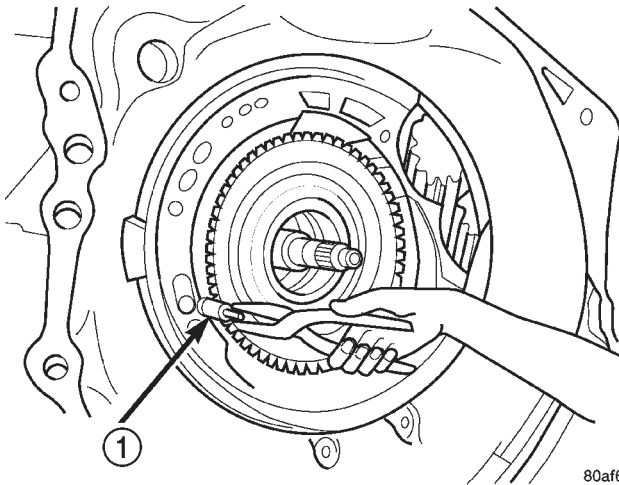


80af61f6

Fig. 353 Install Caged Needle Bearing

- 1 - #1 CAGED NEEDLE BEARING
 2 - NOTE: TANGED SIDE OUT

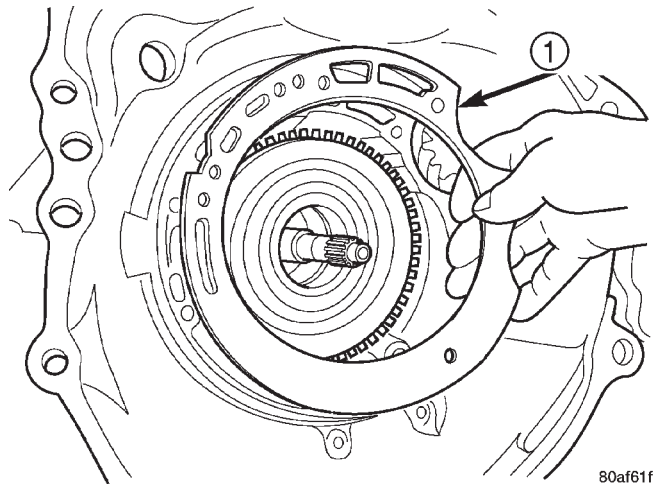
CAUTION: The cooler bypass valve must be replaced if a transaxle failure has occurred. Do not reuse old valve or attempt to clean old valve. When installing bypass valve, insert with O-ring end towards rear of case.



80af61fe

Fig. 354 Install Bypass Valve

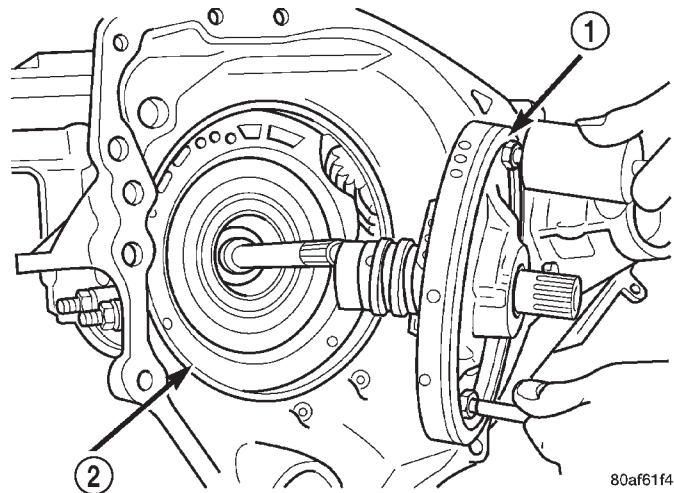
- 1 - COOLER BYPASS VALVE



80af61f5

Fig. 355 Install Oil Pump Gasket

- 1 - PUMP GASKET



80af61f4

Fig. 356 Install Oil Pump

- 1 - OIL PUMP
 2 - GASKET

DISASSEMBLY AND ASSEMBLY (Continued)

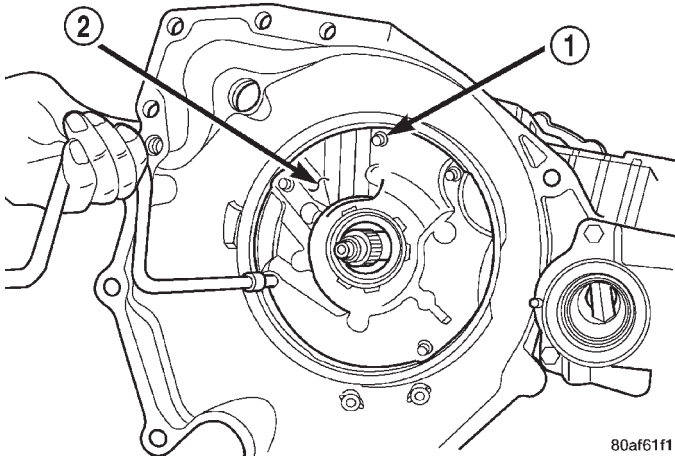


Fig. 357 Install Pump Attaching Bolts

- 1 - PUMP ATTACHING BOLTS
- 2 - PUMP HOUSING

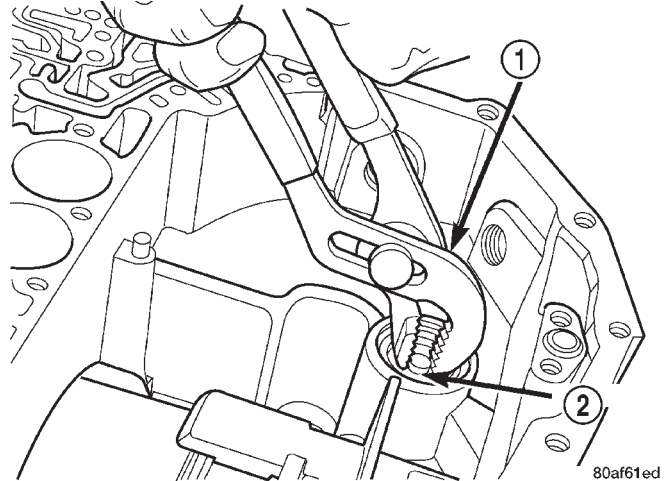


Fig. 359 Install Low/Reverse Accumulator Plug (Cover)

- 1 - ADJUSTABLE PLIERS
- 2 - PLUG

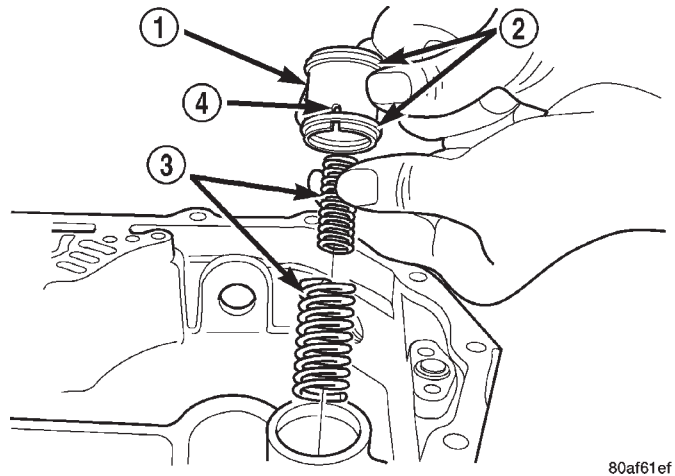


Fig. 358 Install Low/Reverse Accumulator

- 1 - ACCUMULATOR PISTON
- 2 - SEAL RINGS
- 3 - RETURN SPRINGS
- 4 - (NOTE NOTCH)

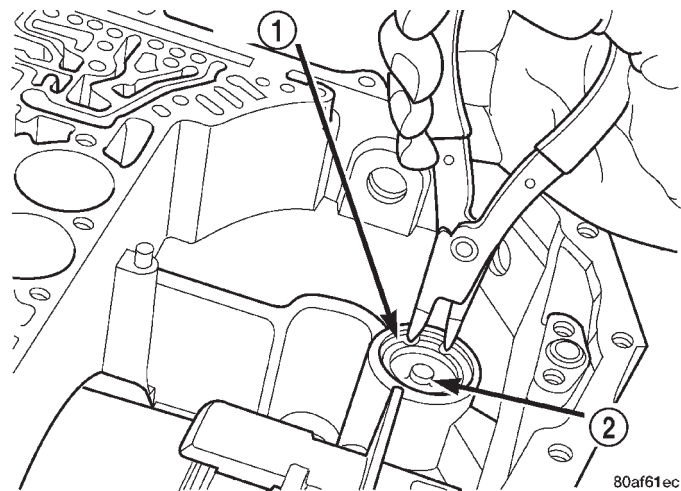
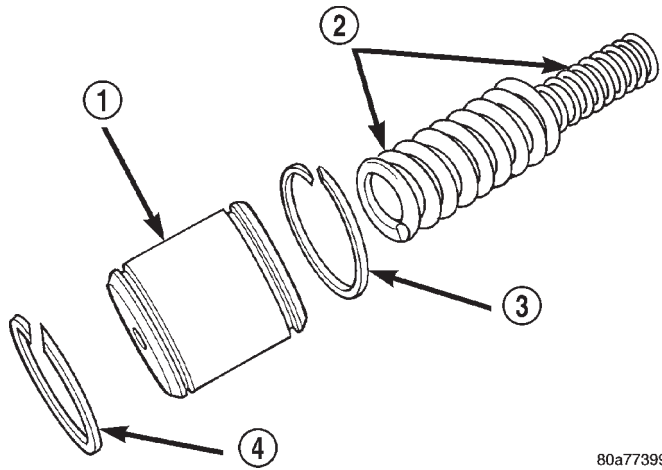


Fig. 360 Install Low/Reverse Accumulator Snap Ring

- 1 - SNAP RING
- 2 - PLUG

NOTE: Dependent on engine application, some accumulators will have two springs and others will have one spring. The springs are color coded for application and year.

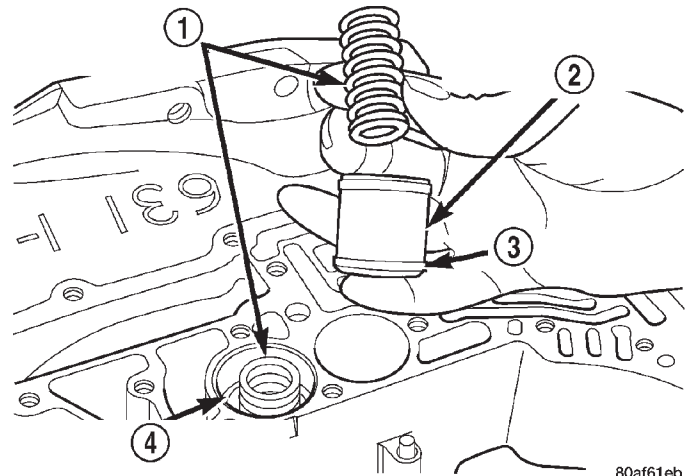
DISASSEMBLY AND ASSEMBLY (Continued)



80a77399

Fig. 361 Accumulator (Underdrive)

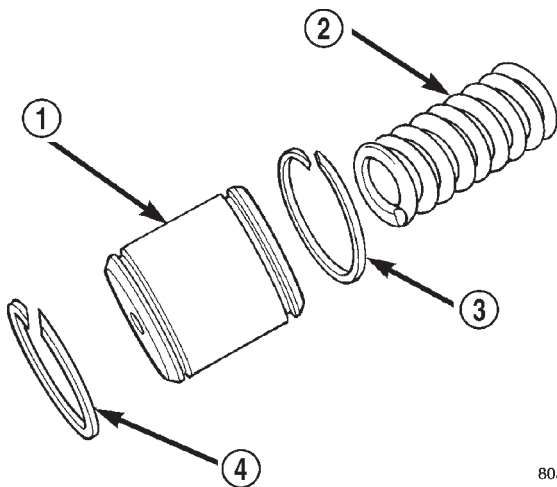
- 1 - ACCUMULATOR PISTON (UNDERDRIVE)
- 2 - RETURN SPRINGS
- 3 - SEAL RING
- 4 - SEAL RING



80af61eb

Fig. 363 Install Accumulators

- 1 - RETURN SPRING
- 2 - UNDERDRIVE CLUTCH ACCUMULATOR
- 3 - SEAL RING (2)
- 4 - OVERDRIVE CLUTCH ACCUMULATOR

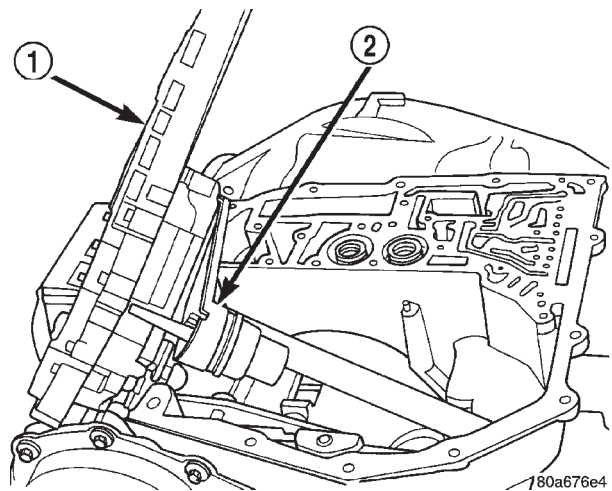


80a7739a

Fig. 362 Accumulator (Overdrive)

- 1 - ACCUMULATOR PISTON (OVERDRIVE)
- 2 - RETURN SPRING
- 3 - SEAL RING
- 4 - SEAL RING

CAUTION: Do not handle the valve body from the manual valve. Damage could result.



180a676e4

Fig. 364 Install Valve Body

- 1 - VALVE BODY
- 2 - TRANSMISSION RANGE SENSOR

NOTE: To ease installation of the valve body, turn the manual valve fully clockwise.

DISASSEMBLY AND ASSEMBLY (Continued)

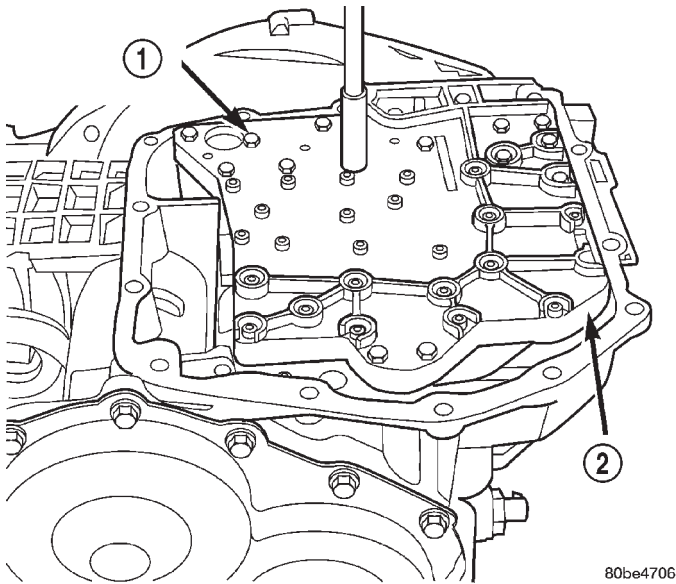


Fig. 365 Install Valve Body Attaching Bolts

- 1 - VALVE BODY ATTACHING BOLTS (18)
- 2 - VALVE BODY

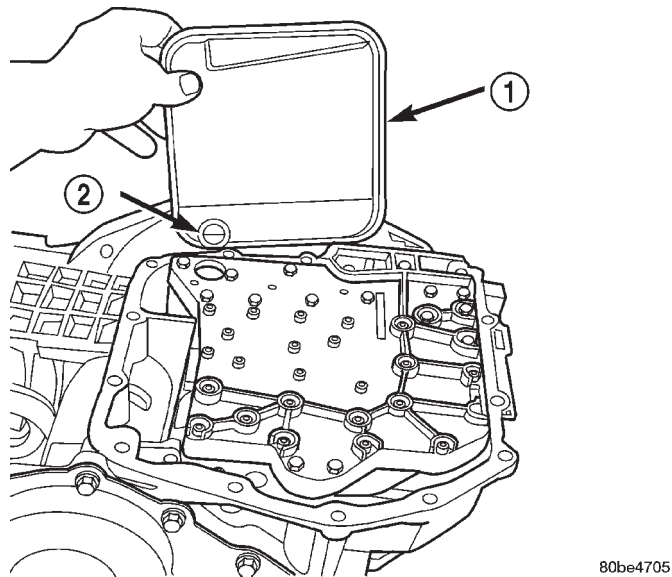


Fig. 366 Install Oil Filter and New O-Ring

- 1 - OIL FILTER
- 2 - O-RING

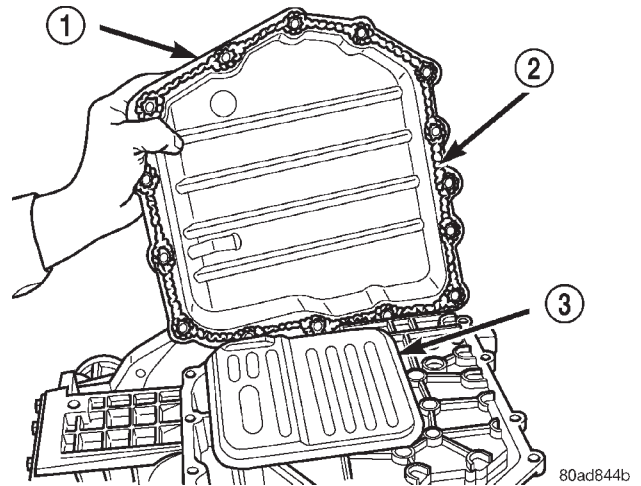


Fig. 367 Install Oil Pan

- 1 - OIL PAN
- 2 - 1/8 INCH BEAD OF RTV SEALANT
- 3 - OIL FILTER

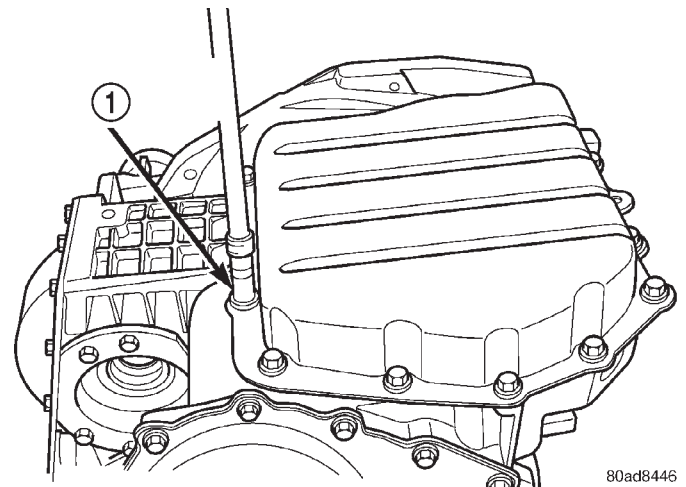
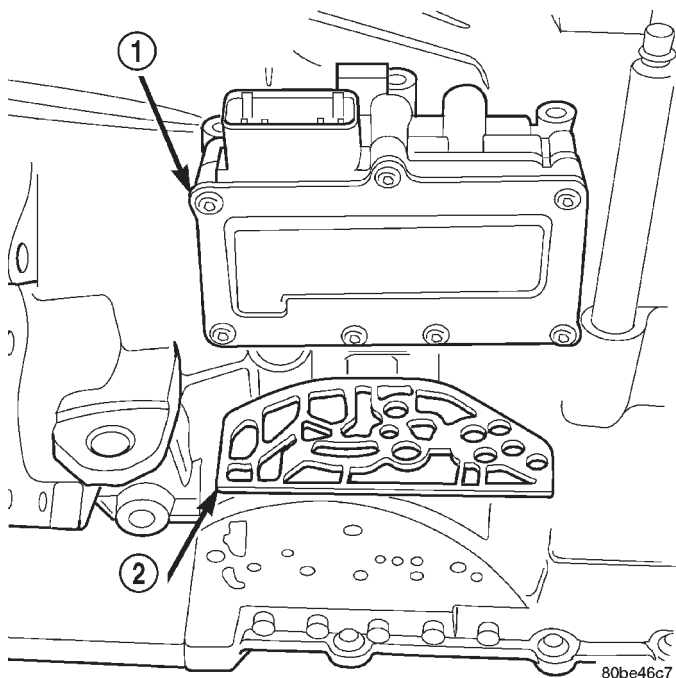


Fig. 368 Install Pan Bolts

- 1 - OIL PAN BOLTS (USE RTV UNDER BOLT HEADS)

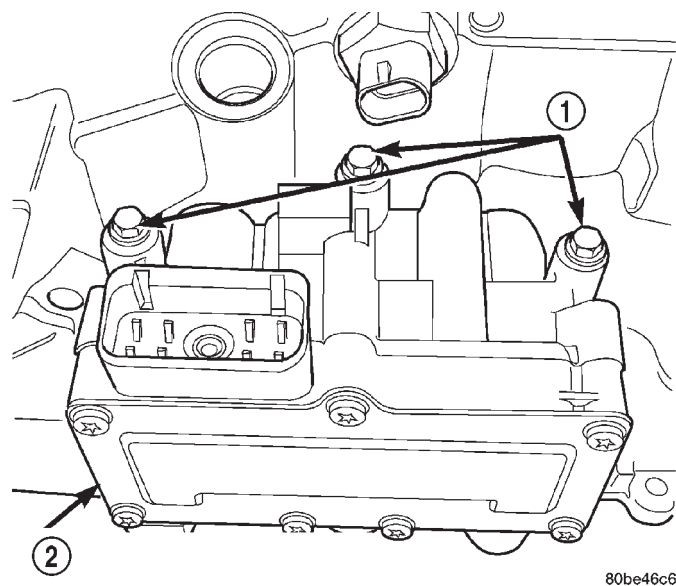
(1) Install transaxle solenoid pack and new gasket (Fig. 369).

DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 369 Install Solenoid Pack**

- 1 - SOLENOID/PRESSURE SWITCH ASSEMBLY
2 - GASKET

(2) Install and tighten solenoid/pressure switch assembly-to-transaxle case bolts to 12 N·m (110 in. lbs.) torque (Fig. 370).

**Fig. 370 Solenoid/Pressure Switch Assembly-to-Case Mounting Bolts**

- 1 - BOLTS
2 - SOLENOID AND PRESSURE SWITCH ASSEMBLY

(3) Install input and output speed sensors.

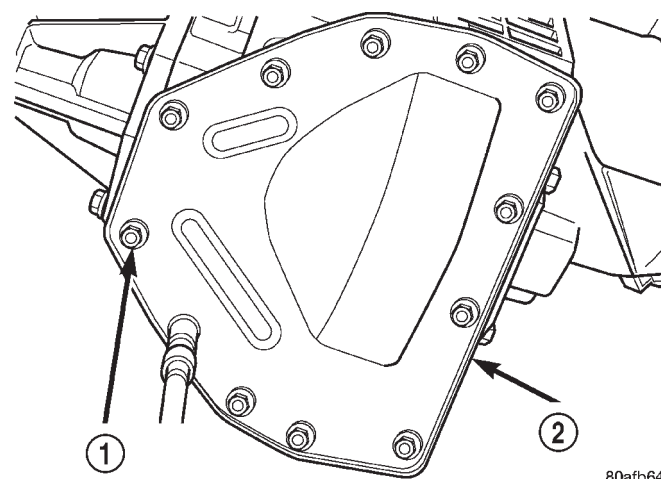
DIFFERENTIAL REPAIR

NOTE: The differential is serviced as an assembly. The only parts that are serviceable within the differential are the differential bearing cups and cones. If any other part fails within the differential, you must replace the differential assembly along with the transfer shaft.

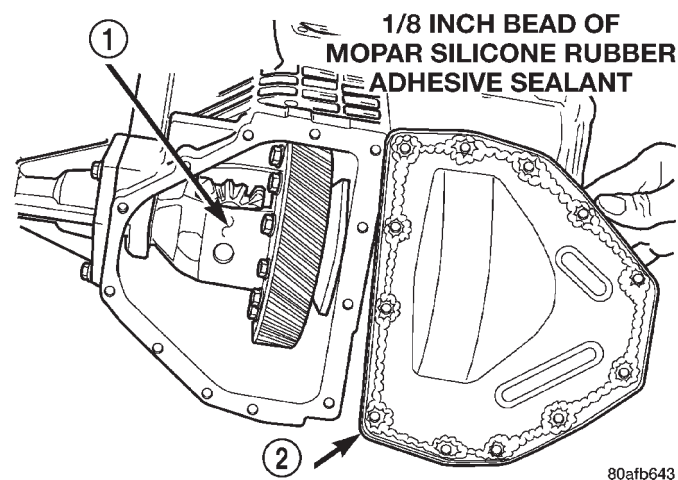
DISASSEMBLY

The transfer shaft should be removed for differential repair and bearing turning torque checking.

(1) Remove the differential cover and bolts (Fig. 371) (Fig. 372).

**Fig. 371 Differential Cover Bolts**

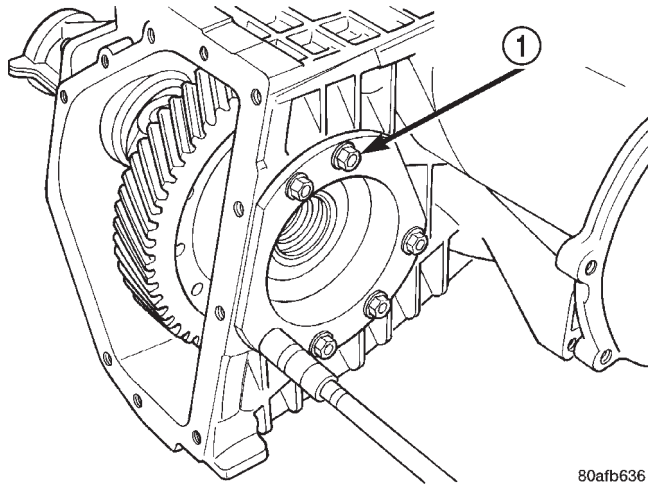
- 1 - DIFFERENTIAL COVER BOLTS
2 - DIFFERENTIAL COVER

**Fig. 372 Remove Differential Cover**

- 1 - DIFFERENTIAL ASSEMBLY
2 - DIFFERENTIAL COVER

DISASSEMBLY AND ASSEMBLY (Continued)

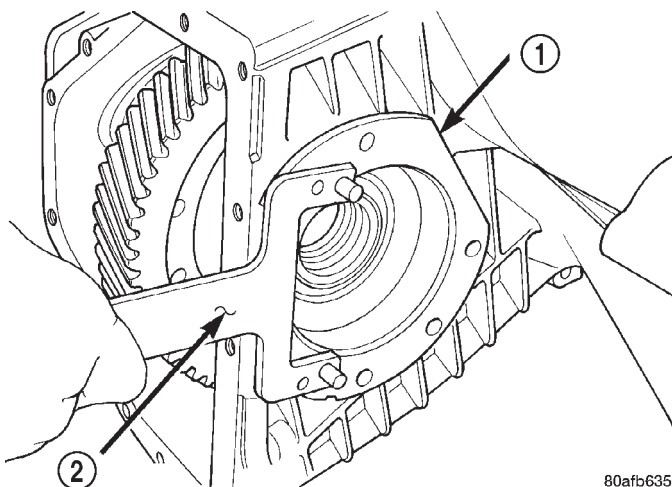
(2) Remove the differential bearing retainer and bolts (Fig. 373) (Fig. 374).



80afb636

Fig. 373 Differential Retainer Bolts

1 – DIFFERENTIAL RETAINER BOLTS



80afb635

Fig. 374 Remove Bearing Retainer

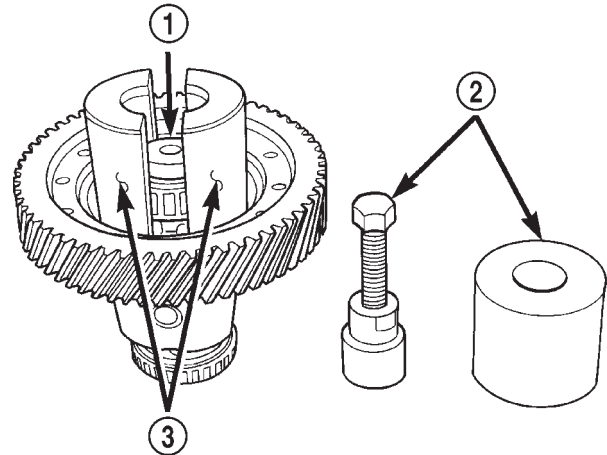
1 – DIFFERENTIAL BEARING RETAINER
2 – TOOL L-4435

(3) Using a plastic hammer, remove extension housing/adaptor plate on the right side of the transaxle.

WARNING: HOLD ONTO DIFFERENTIAL ASSEMBLY TO PREVENT IT FROM ROLLING OUT OF HOUSING.

(4) Use Miller Special Tool 5048, 5048-3 Collets, and L-4539-2 Button to remove the differential bearing cone on the extension housing side.

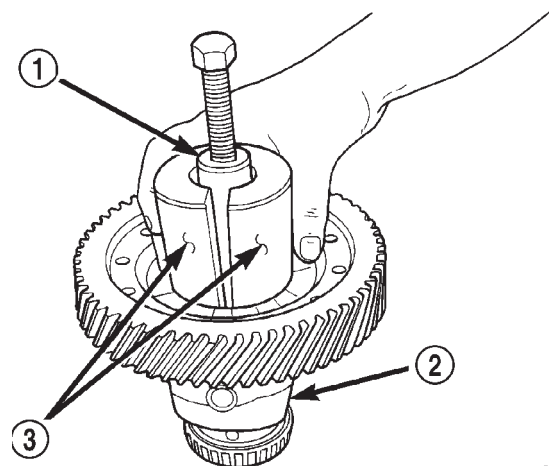
(5) Use Miller Special Tool 5048, 5048-4 Collets, and L-4539-2 Button to remove the differential bearing cone on the bearing retainer side (Fig. 375) (Fig. 376) (Fig. 377).



8056d9de

Fig. 375 Position Button and Collets Onto Differential and Bearing (Ring Gear Side)

1 – SPECIAL TOOL L-4539-2
2 – SPECIAL TOOL 5048
3 – SPECIAL TOOL 5048-4



80524e6c

Fig. 376 Position Tool 5048 Over Button and Collets at Differential Bearing (Ring Gear Side)

1 – SPECIAL TOOL 5048
2 – DIFFERENTIAL
3 – SPECIAL TOOL 5048-4

DISASSEMBLY AND ASSEMBLY (Continued)

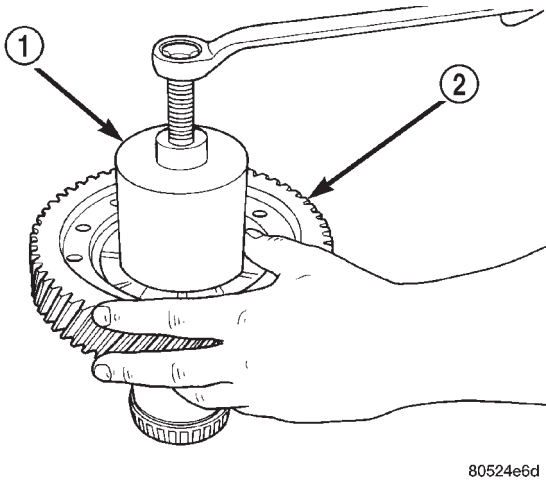


Fig. 377 Remove Differential Bearing Cone (Ring Gear Side)

- 1 – SPECIAL TOOL 5048
- 2 – RING GEAR

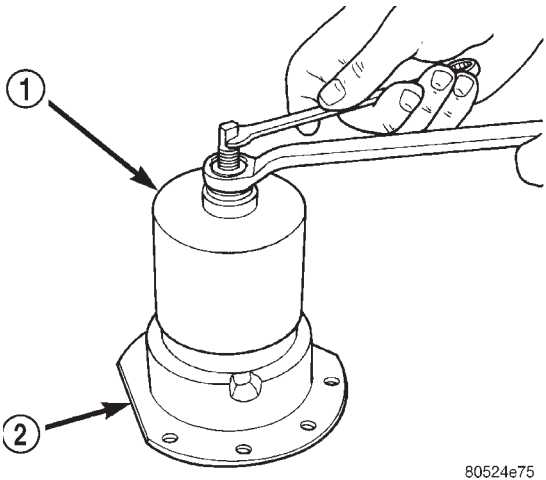


Fig. 379 Remove Bearing Cup

- 1 – SPECIAL TOOL 6062A
- 2 – DIFFERENTIAL BEARING RETAINER

- (6) Using Miller Special Tool L-4518, remove the differential bearing race from the extension housing.
- (7) Using Miller Special Tool 6062A, remove the differential bearing race from the bearing retainer (Fig. 378) (Fig. 379).

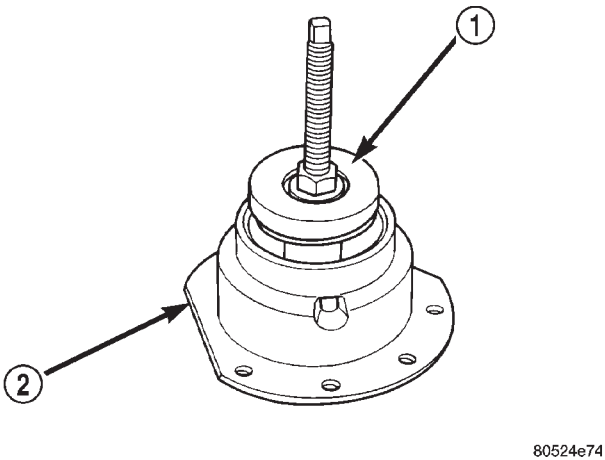


Fig. 378 Position Bearing Cup Remover Tool in Retainer

- 1 – SPECIAL TOOL 6062A
- 2 – DIFFERENTIAL BEARING RETAINER

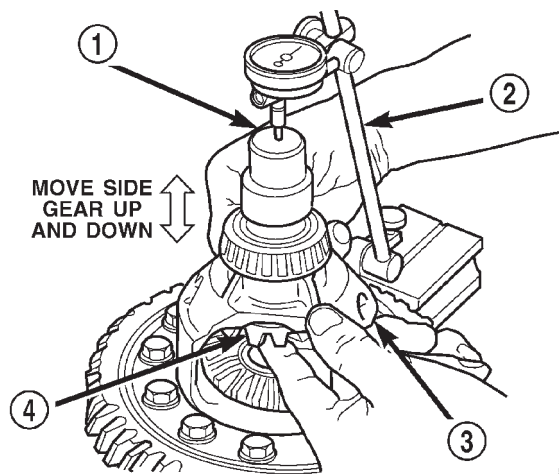
DIFFERENTIAL SERVICE TOOLS

COMPONENT	REMOVER	INSTALLER
Diff. Bear. On Retainer Side	5048, 5048-4 Collets, L-4539-2 Button	5052, C-4171
Diff. Bear. On Ext. Hous. Side	5048, 5048-3 Collets, L-4539-2 Button	L-4410, C-4171
Diff. Race. On Retainer Side	6062-A	6061, C-4171
Diff. Race. On Ext. Hous. Side	L-4518	L-4520, C-4171
Extension Housing Seal	7794-A, C-637 Slide Hammer	L-4520, C-4171
Bearing Retainer Seal	794-A, C-637 Slide Hammer	L-4520, C-4171

CHECKING SIDE GEAR END PLAY

Check side gear end play whenever the differential is removed for service.

DISASSEMBLY AND ASSEMBLY (Continued)

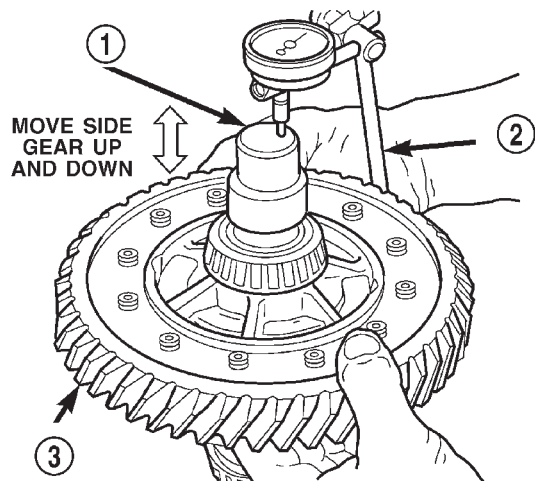


80afb645

Fig. 380 Checking Side Gear End Play (Extension Housing Side)

- 1 - SPECIAL TOOL C-4996 (NOTE POSITION)
- 2 - DIAL INDICATOR SET
- 3 - DIFFERENTIAL ASSEMBLY
- 4 - SIDE GEAR

NOTE: Side gear end play must be **BETWEEN 0.001 to 0.013 inch**.



80afb646

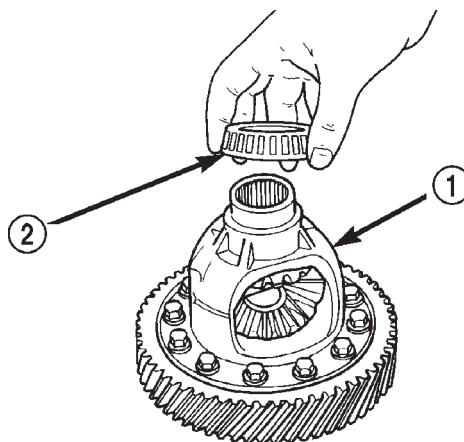
Fig. 381 Checking Side Gear End Play (Bearing Retainer Side)

- 1 - SPECIAL TOOL C-4996 (NOTE POSITION)
- 2 - DIAL INDICATOR SET
- 3 - DIFFERENTIAL ASSEMBLY

ASSEMBLY

NOTE: Use Mopar® Silicone Rubber Adhesive Sealant, or equivalent, on retainer and extension housing/adaptor plate to seal to case.

(1) Using Miller Special Tool L-4410, and C-4171, install differential bearing to differential (extension housing side) (Fig. 382).



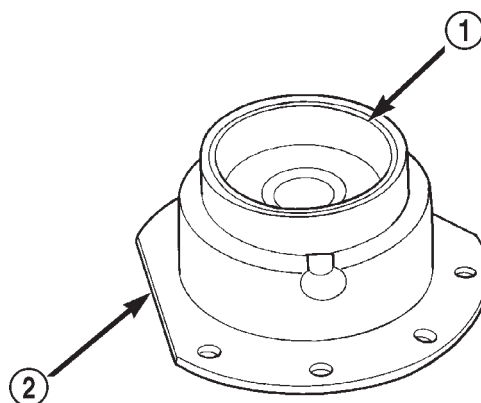
80524e77

Fig. 382 Position Bearing Cone Onto Differential

- 1 - DIFFERENTIAL ASSEMBLY
- 2 - DIFFERENTIAL BEARING

(2) Using Miller Special Tool 5052 and C-4171, install differential bearing to differential (bearing retainer side).

(3) Using Miller Special Tool 6061 and C-4171, install differential bearing race to bearing retainer (Fig. 383).



80524e73

Fig. 383 Differential Bearing Retainer

- 1 - DIFFERENTIAL BEARING CUP
- 2 - DIFFERENTIAL BEARING RETAINER

(4) Using Miller Special Tool L-4520 and C-4171, install differential bearing to extension housing.

DIFFERENTIAL BEARING PRELOAD ADJUSTMENT

NOTE: Perform all differential bearing preload measurements with the transfer shaft and gear removed.

DISASSEMBLY AND ASSEMBLY (Continued)

DIFFERENTIAL BEARING PRELOAD ADJUSTMENT USING EXISTING SHIM

(1) Position the transaxle assembly vertically on the support stand, differential bearing retainer side up.

(2) Install Tool L-4436A into the differential and onto the pinion mate shaft (Fig. 384).

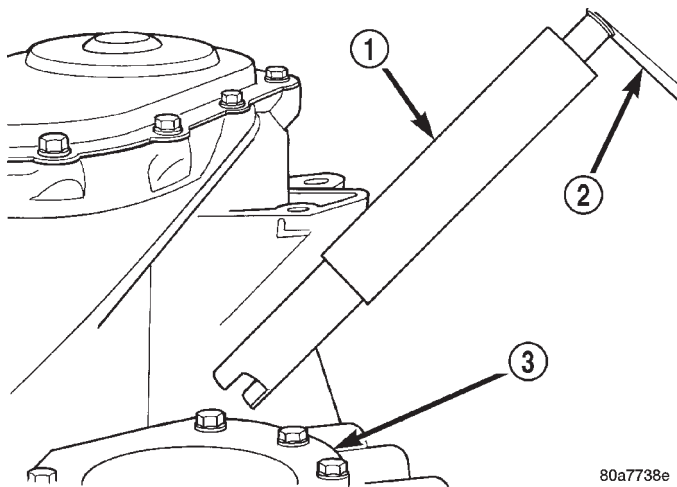


Fig. 384 Tool L-4436 and Torque Wrench

- 1 - SPECIAL TOOL L-4436-A
2 - TORQUE WRENCH
3 - DIFFERENTIAL BEARING RETAINER

(3) Rotate the differential at least one full revolution to ensure the tapered roller bearings are fully seated.

(4) Using Tool L-4436A and an inch-pound torque wrench, check the turning torque of the differential (Fig. 385). **The turning torque should be between 5 and 18 inch-pounds.**

(5) If the turning torque is within specifications, remove tools. Setup is complete.

(6) If turning torque is not within specifications proceed with the following steps.

(a) Remove differential bearing retainer from the transaxle case.

(b) Remove the bearing cup from the differential bearing retainer using Tool 6062A.

(c) Remove the existing shim from under the cup.

(d) Measure the existing shim.

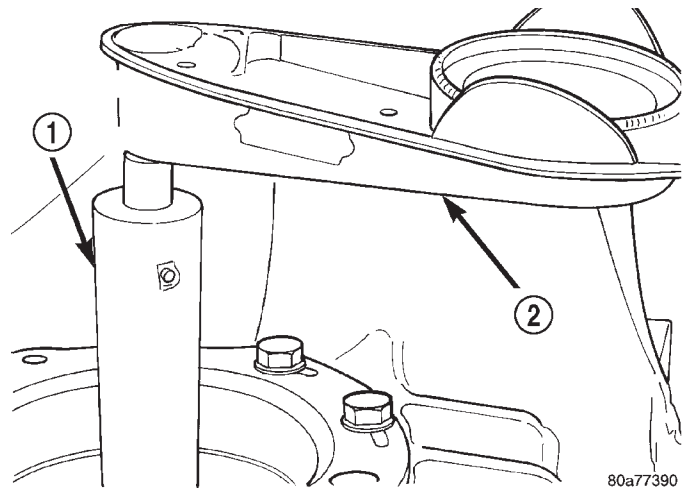


Fig. 385 Checking Differential Bearings Turning Torque

- 1 - SPECIAL TOOL L-4436-A
2 - TORQUE WRENCH

(e) If the turning torque was too high when measured, install a .05 mm (.002 inch) thinner shim. If the turning torque is too low, install a .05 mm (.002 inch) thicker shim. Repeat until 5 to 18 inch-pounds turning torque is obtained. Oil Baffle is not required to be installed when making shim selection.

(f) Install the proper shim under the bearing cup. Make sure the oil baffle is installed properly in the bearing retainer, below the bearing shim and cup.

(g) Install the differential bearing retainer using Tool 5052 and C-4171. Seal the retainer to the housing with MOPAR® Adhesive Sealant and torque bolts to 28 N·m (250 in. lbs.).

(7) Using Tool L-4436A and an inch-pound torque wrench, recheck the turning torque of the differential (Fig. 385). **The turning torque should be between 5 and 18 inch-pounds.**

Shim thickness need be determined only if any of the following parts are replaced:

- Transaxle case
- Differential carrier
- Differential bearing retainer
- Extension housing
- Differential bearing cups and cones

DISASSEMBLY AND ASSEMBLY (Continued)

DIFFERENTIAL BEARING SHIM CHART

PART NUMBER	SHIM THICKNESS	
	MM	INCH
4659257	.980	0.0386
4659258	1.02	0.0402
4659259	1.06	0.0418
4659260	1.10	0.0434
4659261	1.14	0.0449
4659262	1.18	0.0465
4659263	1.22	0.0481
4659264	1.26	0.0497
4659265	1.30	0.0512
4659266	1.34	0.0528
4659267	1.38	0.0544
4659268	1.42	0.0560
4659269	1.46	0.0575
4659270	1.50	0.0591
4659271	1.54	0.0607
4659272	1.58	0.0623
4659273	1.62	0.0638
4659274	1.66	0.0654
4659275	1.70	0.0670
4659283	2.02	0.0796
4659284	2.06	0.0812

PRELOAD ADJUSTMENT W/O SHIM

(1) Remove the bearing cup from the differential bearing retainer using Miller special Tool 6062A.

(2) Remove existing shim from under bearing cup.

(3) Reinstall the bearing cup into the retainer using Miller Special Tool 6061, and C-4171.

NOTE: Oil baffle is not required when making the shim calculation.

(4) Install the bearing retainer into the case. Torque bolts to 28 N•m (250 in. lbs.).

(5) Position the transaxle assembly vertically on the support stand and install Miller Special Tool L-4436-A into the bearing retainer.

(6) Rotate the differential at least one full revolution to ensure the tapered roller bearings are fully seated.

(7) Attach a dial indicator to the case and zero the dial. Place the tip on the end of Special Tool L-4436-A.

(8) Place a large screwdriver to each side of the ring gear and lift. Check the dial indicator for the amount of end play.

CAUTION: Do not damage the transaxle case and/or differential retainer sealing surface.

(9) Using the end play measurement that was determined, add .18mm (.007 inch). This should give you between 5 and 18 inch pounds of bearing preload. Refer to the Differential Bearing Shim Chart to determine which shim to use.

(10) Remove the differential bearing retainer. Remove the bearing cup.

(11) Install the oil baffle. Install the proper shim combination under the bearing cup.

(12) Install the differential bearing retainer. Seal the retainer to the housing with Mopar® Silicone Rubber Adhesive Sealant. Torque bolts to 28 N•m (250 in. lbs.).

(13) Using Miller Special Tool L-4436-A and an inch-pound torque wrench, check the turning torque of the differential (Fig. 385). The turning torque should be between 5-18 inch-pounds.

DISASSEMBLY AND ASSEMBLY (Continued)

NOTE: If turning torque is too high install a .05mm (.002 inch) thicker shim. If the turning torque is too low, install a .05mm (.002 inch) thinner shim. Repeat until 5-18 inch-pounds of turning torque is obtained.

CLEANING AND INSPECTION

CLEANING VALVE BODY

Prior to removing any transaxle parts, plug all openings and clean unit, preferably by steam. Cleanliness through entire disassembly and assembly cannot be overemphasized. When disassembling, each part should be washed in a suitable solvent, then dried by compressed air. **Do not wipe parts with shop towels.** All mating surfaces in the transaxles are accurately machined; therefore, careful handling of all parts must be exercised to avoid nicks or burrs.

NOTE: Tag all springs, as they are removed, for reassembly identification.

ADJUSTMENTS

GEARSHIFT LINKAGE ADJUSTMENT

Normal operation of the Park/Neutral Position Switch provides a quick check to confirm proper linkage adjustment.

Move the selector level slowly forward until it clicks into the (P) Park position. The starter should operate.

After checking the (P) position, move selector slowly toward the (N) Neutral position until lever is in the (N) position. If the starter will also operate at this point the gearshift linkage is properly adjusted. If the starter fails to operate in either position, linkage adjustment is required.

ADJUSTMENT

- (1) Set parking brake.
- (2) Remove the gearshift knob set screw and knob.
- (3) Remove gearshift selector bezel and lamp wiring.
- (4) Install the gearshift knob set screw and knob.
- (5) Place gearshift lever in the (P) (PARK) position.
- (6) Loosen the gearshift cable adjuster nut at the shifter assembly (Fig. 386).

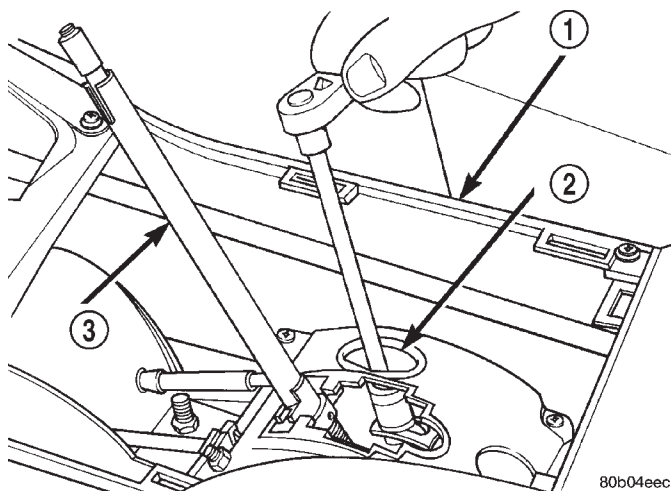


Fig. 386 Shift Cable Adjust Lever Nut

- 1 - CONSOLE
- 2 - ACCESS HOLE
- 3 - SHIFTER HANDLE

(7) Move the gearshift lever on the transaxle to the park position.

(8) Verify the shift lever and transaxle are in park position. Tighten the gearshift cable adjuster nut at the shifter assembly. The gearshift linkage should now be properly adjusted.

(9) Check adjustment as follows:

- Detent position for neutral and drive should be within limits of hand lever gate stops.
- Key start must occur only when shift lever is in park or neutral positions.

ADJUSTMENTS (Continued)

BRAKE/TRANSMISSION SHIFT INTERLOCK

VERIFICATION

The following chart describes the normal operation of the Brake Transmission Shift Interlock (BTSI) system. If the “expected response” differs from the vehicle’s response, then system repair and/or adjustment is necessary. Refer to the following chart that expected shifter response, depending on ignition key/ switch (Fig. 387) and brake pedal positions.

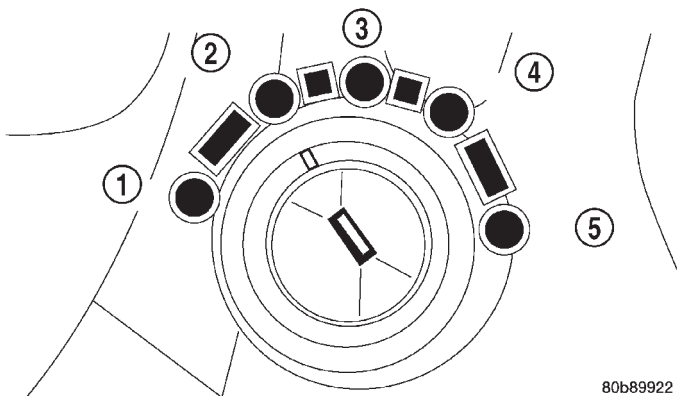


Fig. 387 Ignition Key/Switch Positions

- 1 – ACC
- 2 – LOCK
- 3 – OFF
- 4 – ON/RUN
- 5 – START

ACTION	EXPECTED RESPONSE
1. Turn key to the “OFF” position.	1. Shifter CAN be shifted out of park.
2. Turn key to the “ON/RUN” position.	2. Shifter CANNOT be shifted out of park.
3. Turn key to the “ON/RUN” position and depress the brake pedal.	3. Shifter CAN be shifted out of park.
4. Leave shifter in any gear and try to return key to the “LOCK” or “ACC” position.	4. Key cannot be returned to the “LOCK” or “ACC” position.
5. Return shifter to “PARK” and try to remove the key.	5. Key can be removed (after returning to “LOCK” position).
6. With the key removed, try to shift out of “PARK”.	6. Shifter cannot be shifted out of “PARK”.
NOTE: Any failure to meet these expected responses requires system adjustment or repair.	

ADJUSTMENT

- (1) Disconnect and isolate, the battery negative cable.
- (2) Remove the gearshift knob set screw and knob (Fig. 388).

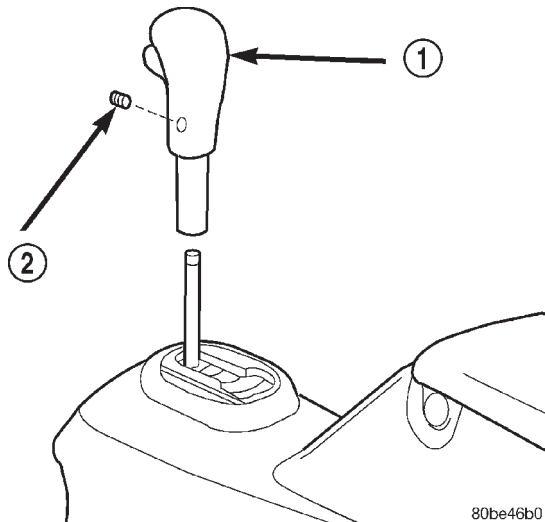


Fig. 388 Shifter Knob Removal/Installation

- 1 – SHIFTER KNOB
- 2 – SET SCREW

- (3) Remove the floor console (rear). Refer to Group 23, Body for the proper procedures.

CAUTION: When removing forward console, the console will contact nylon shift release plunger (Fig. 389). If care is not used, plunger may break, requiring shifter assembly replacement.

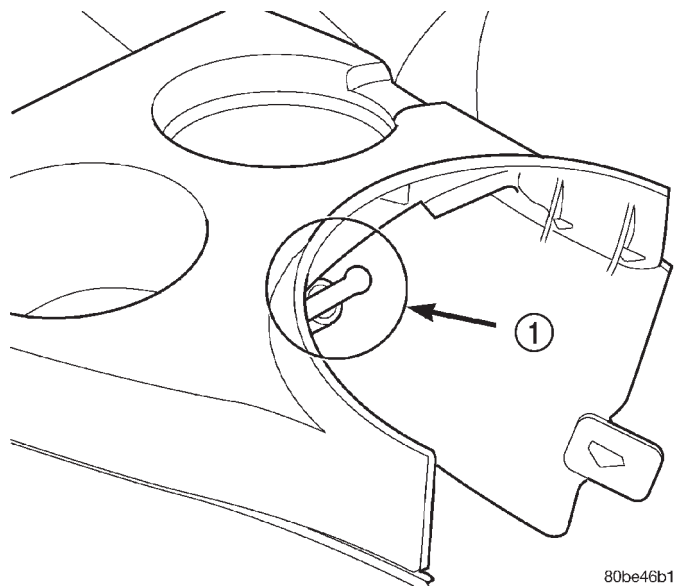


Fig. 389 Console/Shifter Contact Area

- 1 – AREA OF CONTACT

ADJUSTMENTS (Continued)

(4) Remove the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(5) Re-install the gearshift knob set screw and knob (Fig. 388).

(6) Place the shift lever in PARK. Move the Ignition key to the LOCK position (Fig. 387) and remove the key.

(7) If the interlock cable is being replaced, remove the lock pin (Fig. 390). This will allow the cable to "self adjust" to the correct position. Tighten the locking clip by pushing it down (Fig. 391).

(8) If the interlock cable **is not** being replaced, the lock pin will not exist. Pull outward on cable locking clip to allow cable to self adjust. Press clip down to lock in place (Fig. 391).

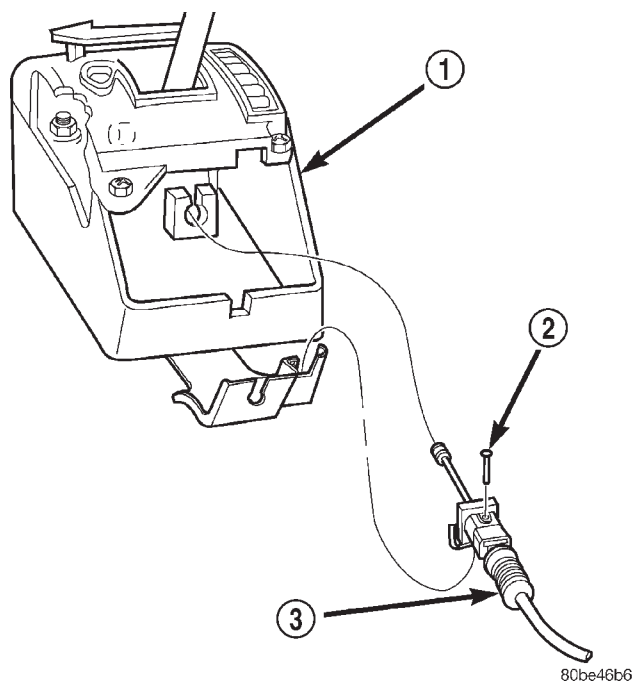


Fig. 390 Interlock Cable Locking Pin

- 1 - SHIFTER ASSEMBLY
- 2 - LOCKING PIN
- 3 - INTERLOCK CABLE

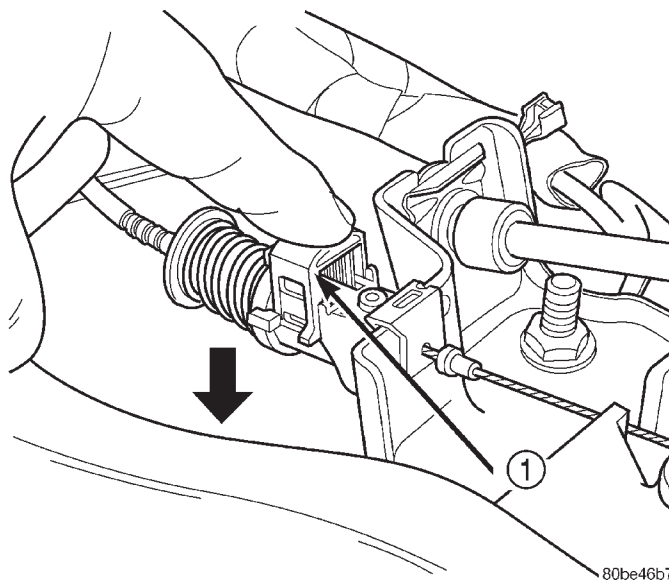


Fig. 391 Locking Clip

- 1 - LOCKING CLIP

(9) Verify Brake/Transmission Shift Interlock system operation. Refer to operation chart in "Verification."

CAUTION: When installing forward console, the console will contact nylon shift release plunger (Fig. 389). If care is not used, plunger may break, requiring shifter assembly replacement.

(10) Install the forward IP console (front). Refer to Group 23, Body for the proper procedures.

(11) Install the floor console (rear) and shift indicator bezel. Refer to Group 23, Body for the proper procedures.

(12) Install the gearshift knob and tighten set screw (Fig. 388) to 2 N·m (20 in.lbs.).

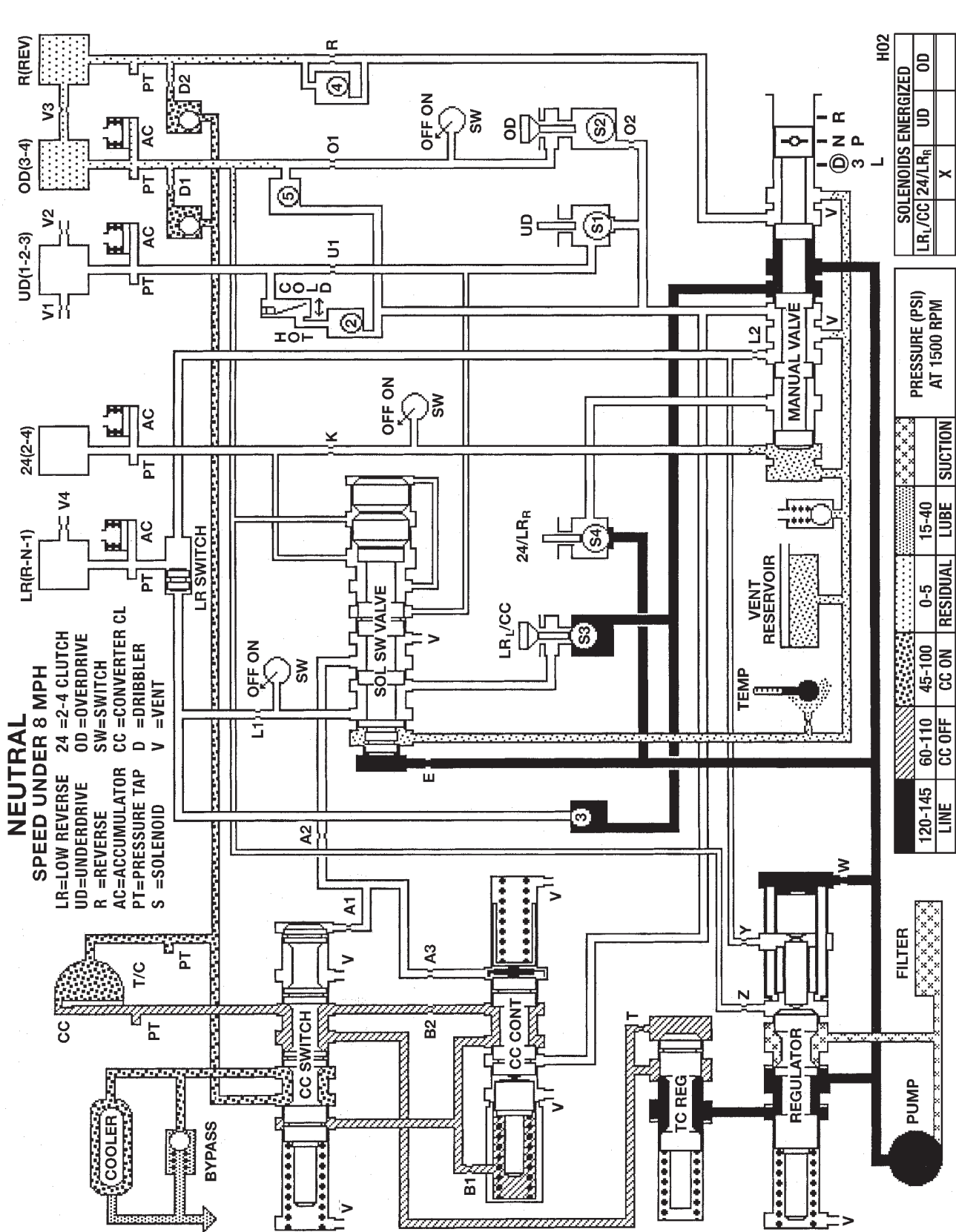
(13) Connect the battery negative cable.

41TE TRANSAXLE HYDRAULIC SCHEMATICS



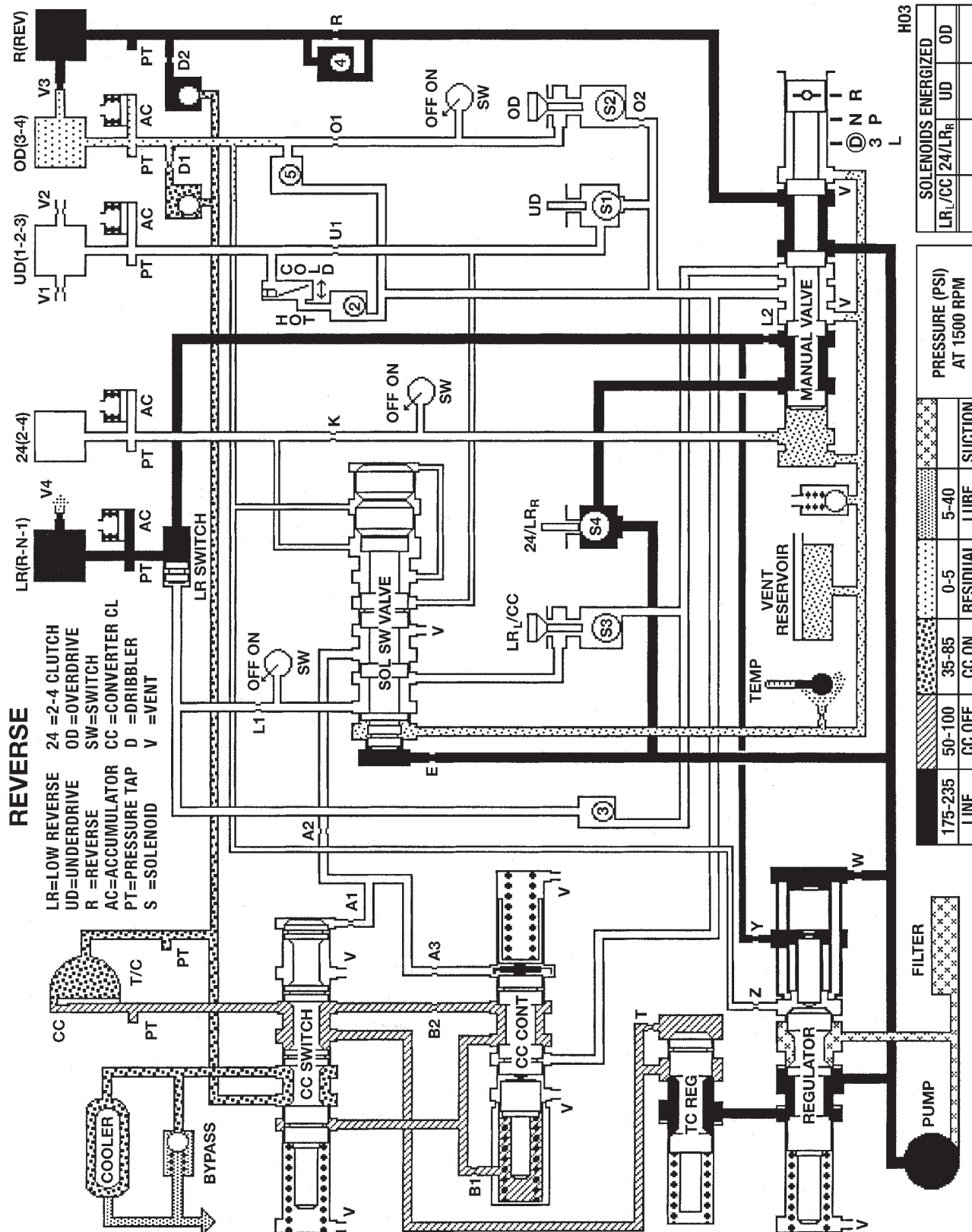
80bf9680

SCHEMATICS AND DIAGRAMS (Continued)



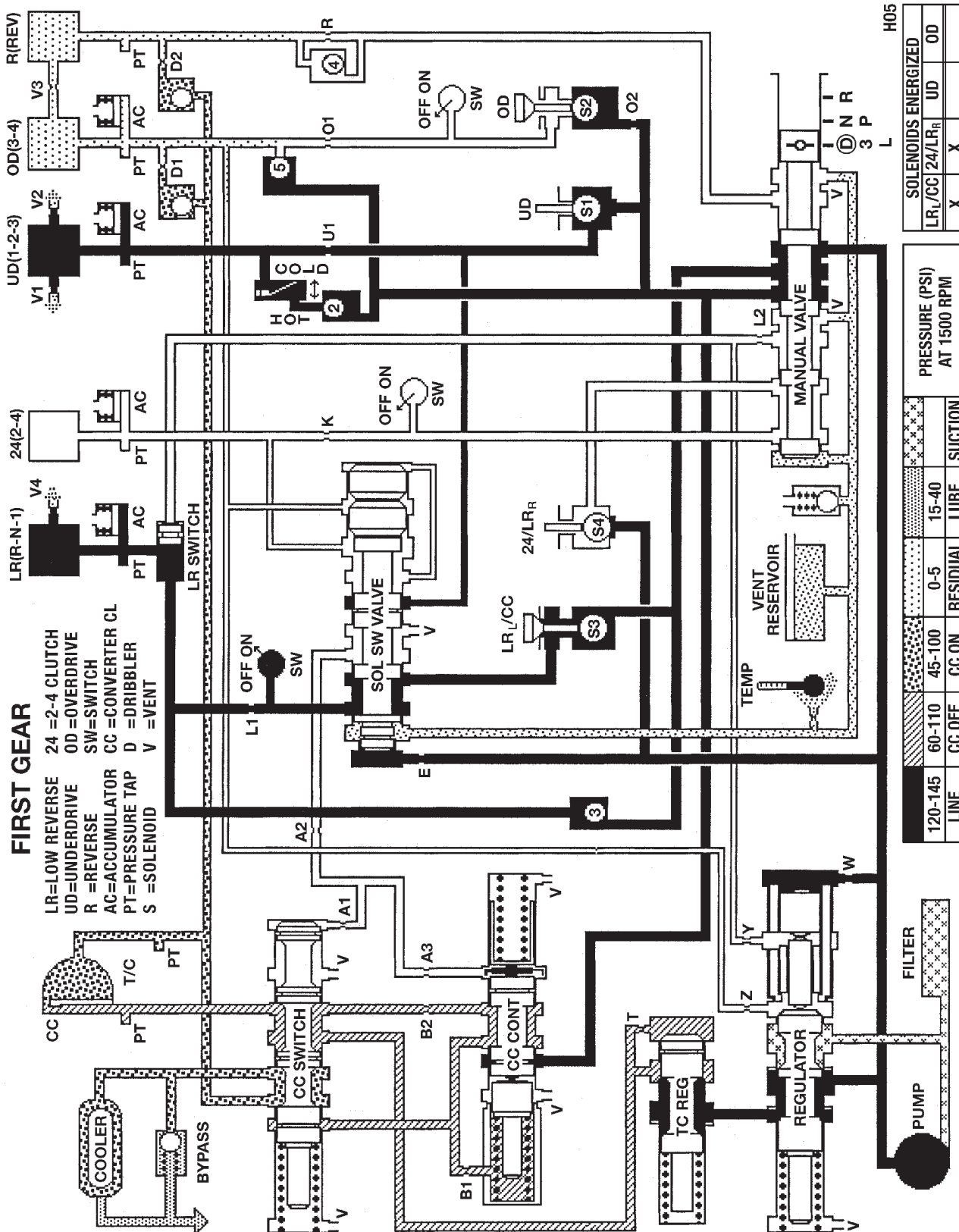
41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)



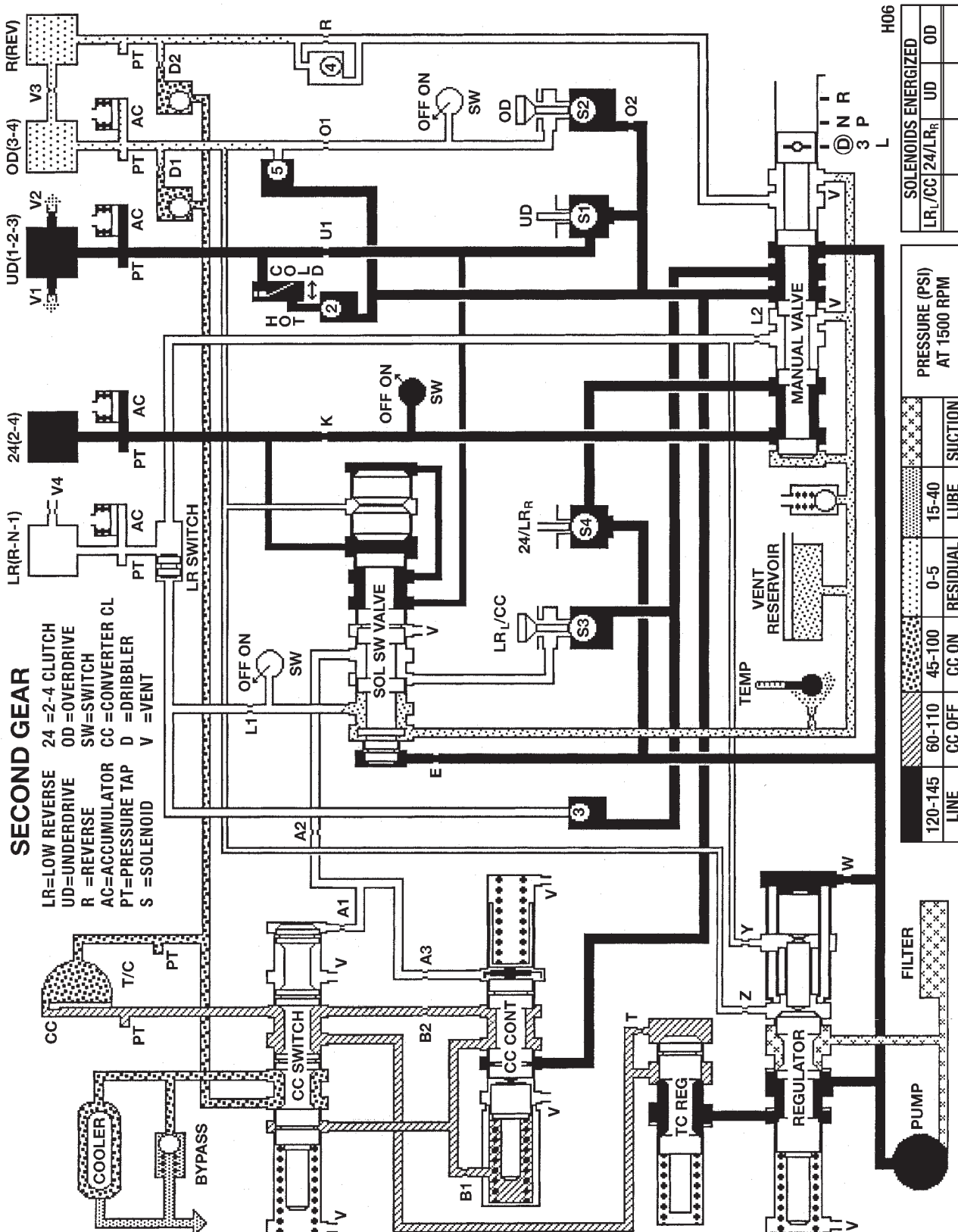
41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)



41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)

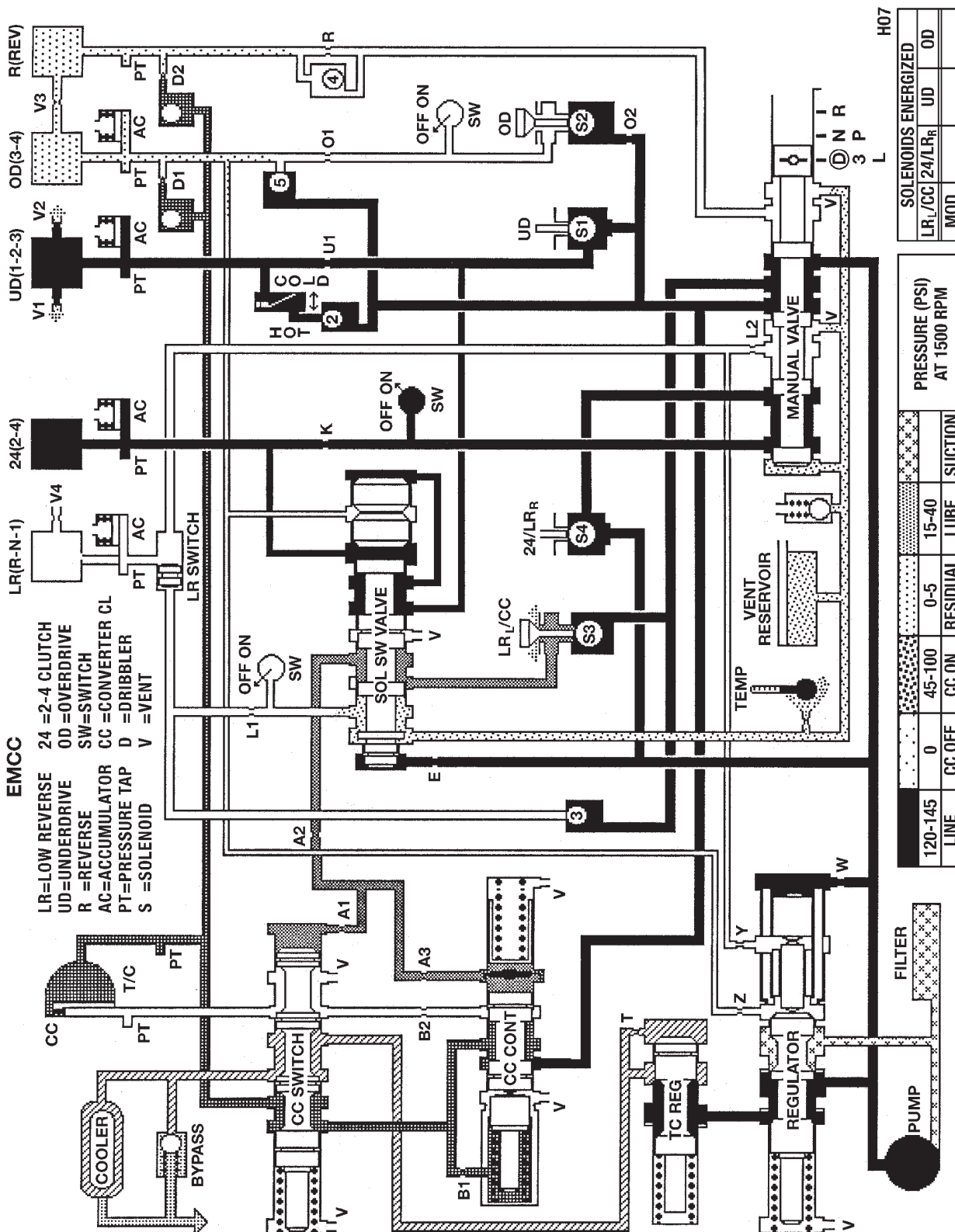


80bf9685

SCHEMATICS AND DIAGRAMS (Continued)

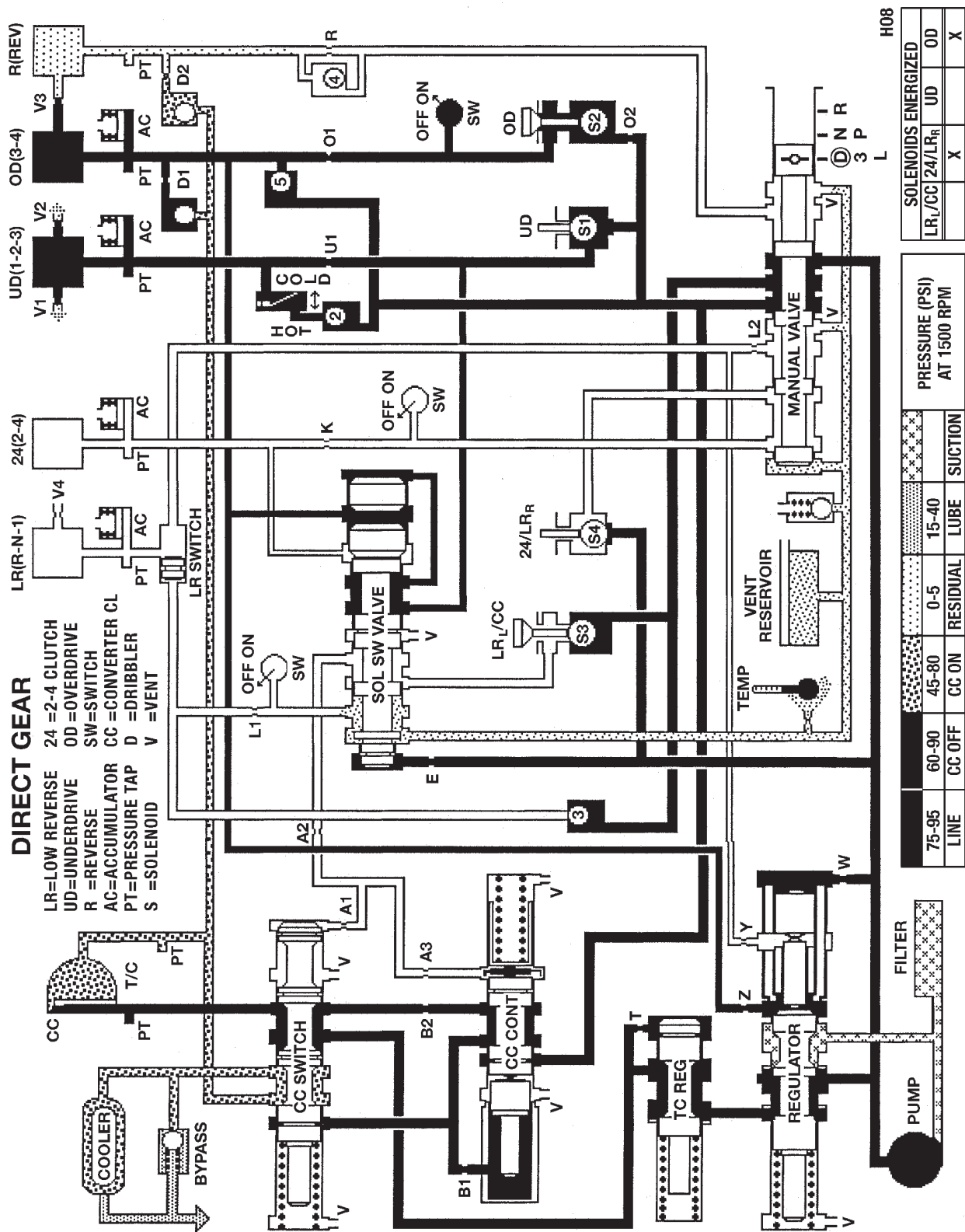
SECOND GEAR

EMCC



41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)



80bf9687

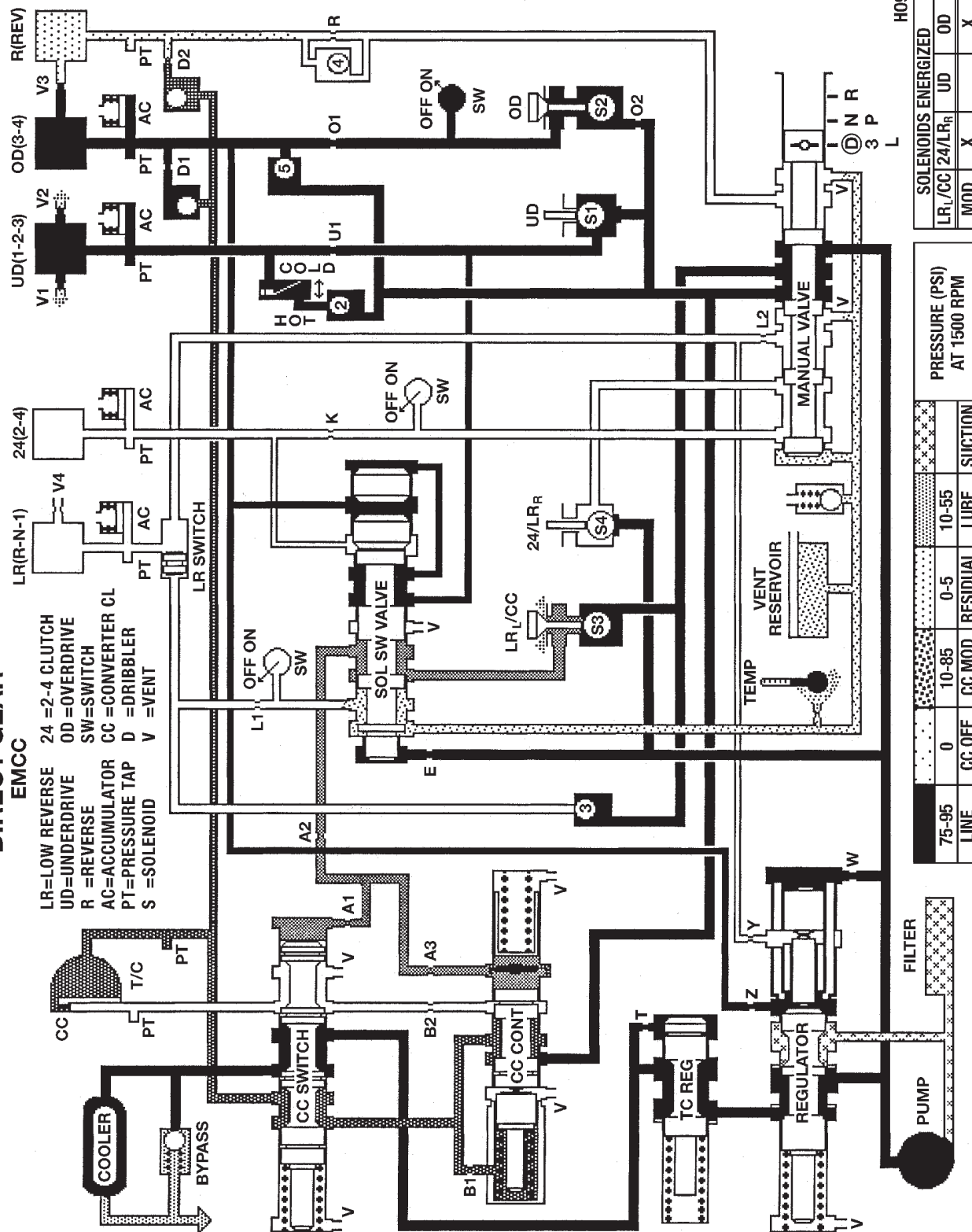
41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)

DIRECT GEAR
EMCC

LR=LOW REVERSE
UD=UNDERDRIVE
R =REVERSE
AC=ACCUMULATOR
PT=PRESSURE TAP
S =SOLENOID

24 =2-4 CLUTCH
OD =OVERDRIVE
SW=SWITCH
CC =CONVERTER CL
D =DRIBBLER
V =VENT



H09

SOLENOIDS ENERGIZED			
LR/CC	24/LR _R	UD	OD
MOD	X	X	X

PRESSURE (PSI) AT 1500 RPM			
LINE	CC OFF	CC MOD	RESIDUAL
75-95	0	10-85	0-5
			10-55
			SUCTION

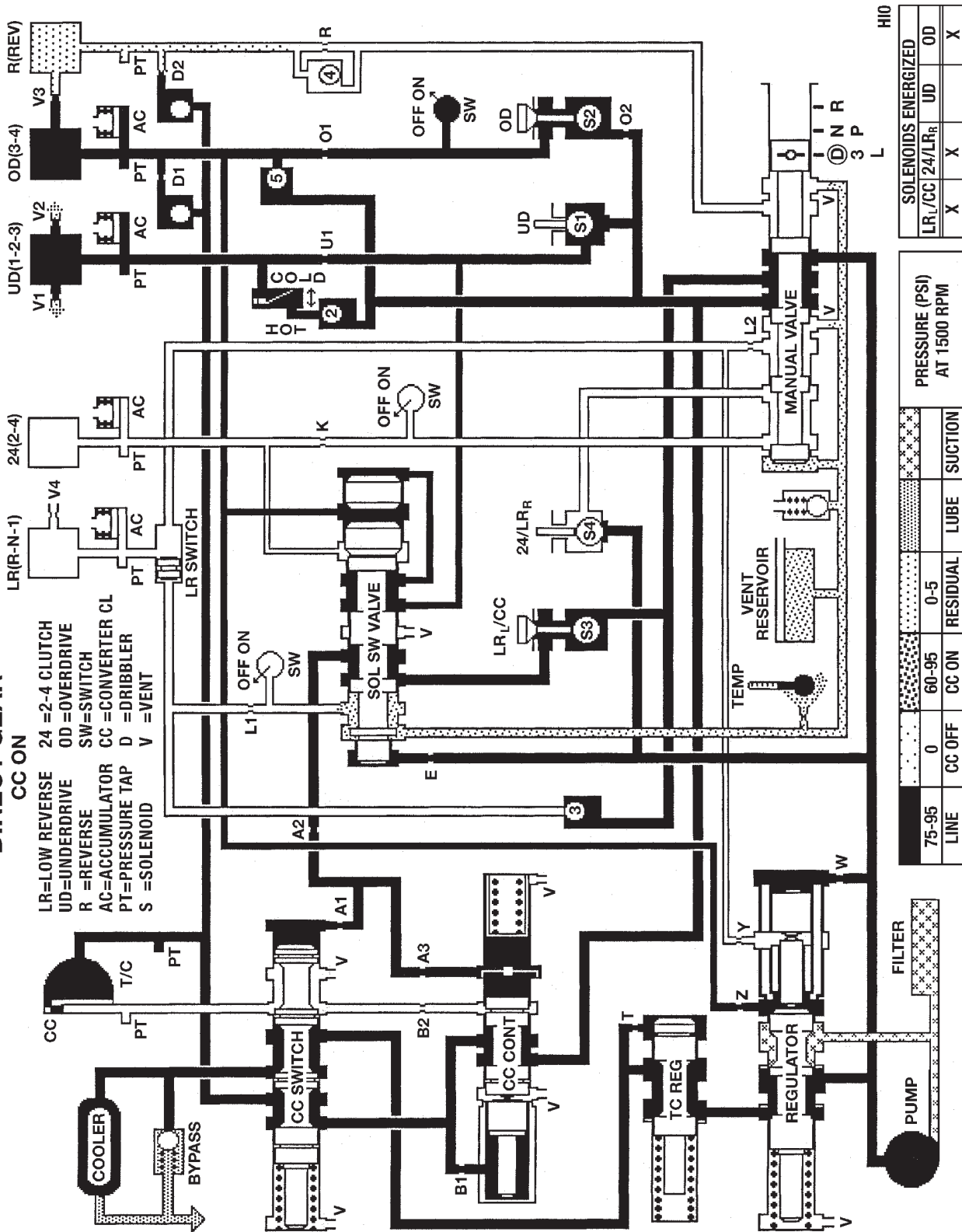
80bf9c88

41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)

DIRECT GEAR
CC ON

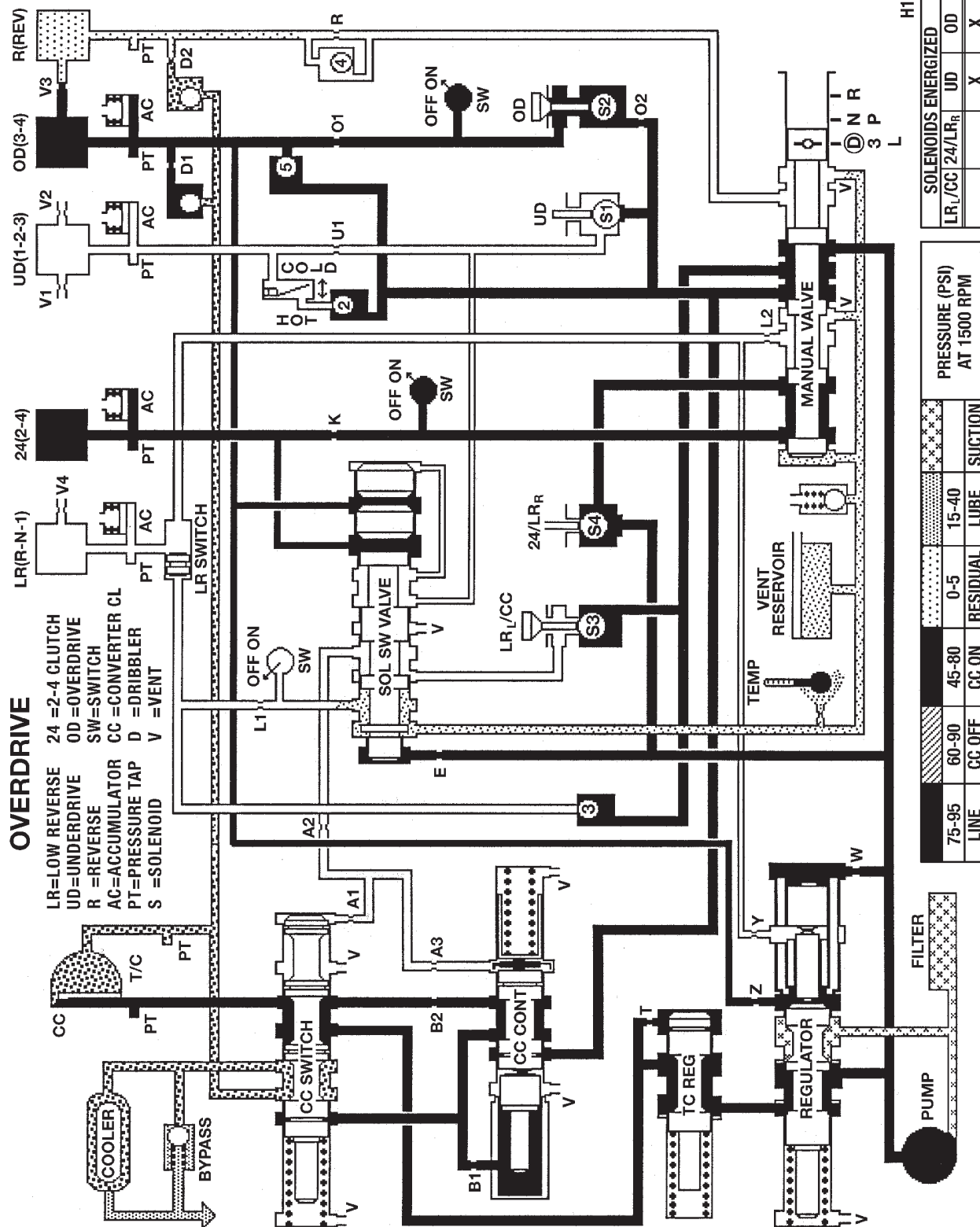
LR=LOW REVERSE 24 =2-4 CLUTCH
UD=UNDERDRIVE OD =OVERDRIVE
R =REVERSE SW=SWITCH
AC=ACCUMULATOR CC =CONVERTER CL
PT=PRESSURE TAP D =DRIFFLER
S =SOLENOID V =VENT



41TE TRANSAXLE HYDRAULIC SCHEMATIC

80bf9689

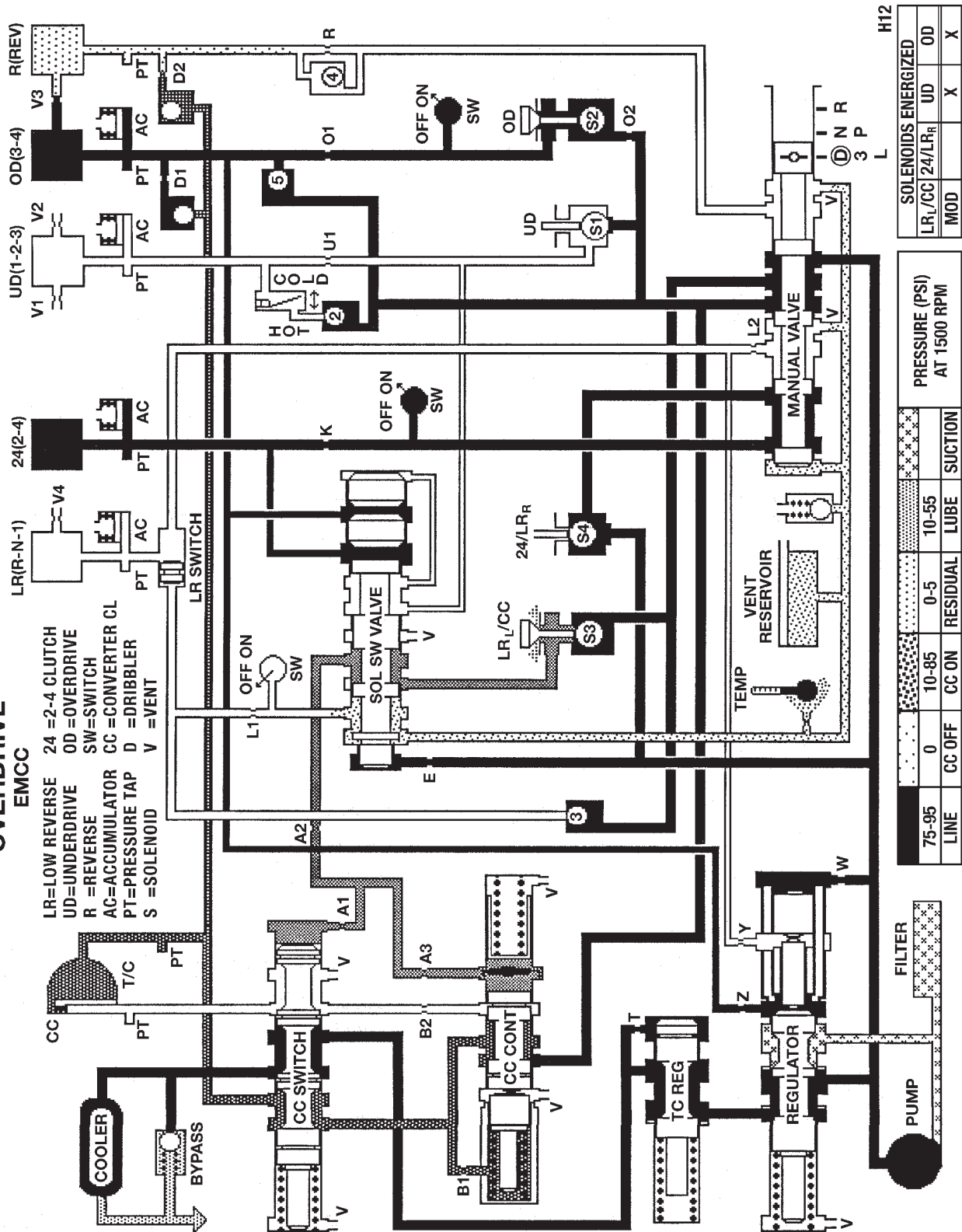
SCHEMATICS AND DIAGRAMS (Continued)



41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)

OVERDRIVE
EMCC



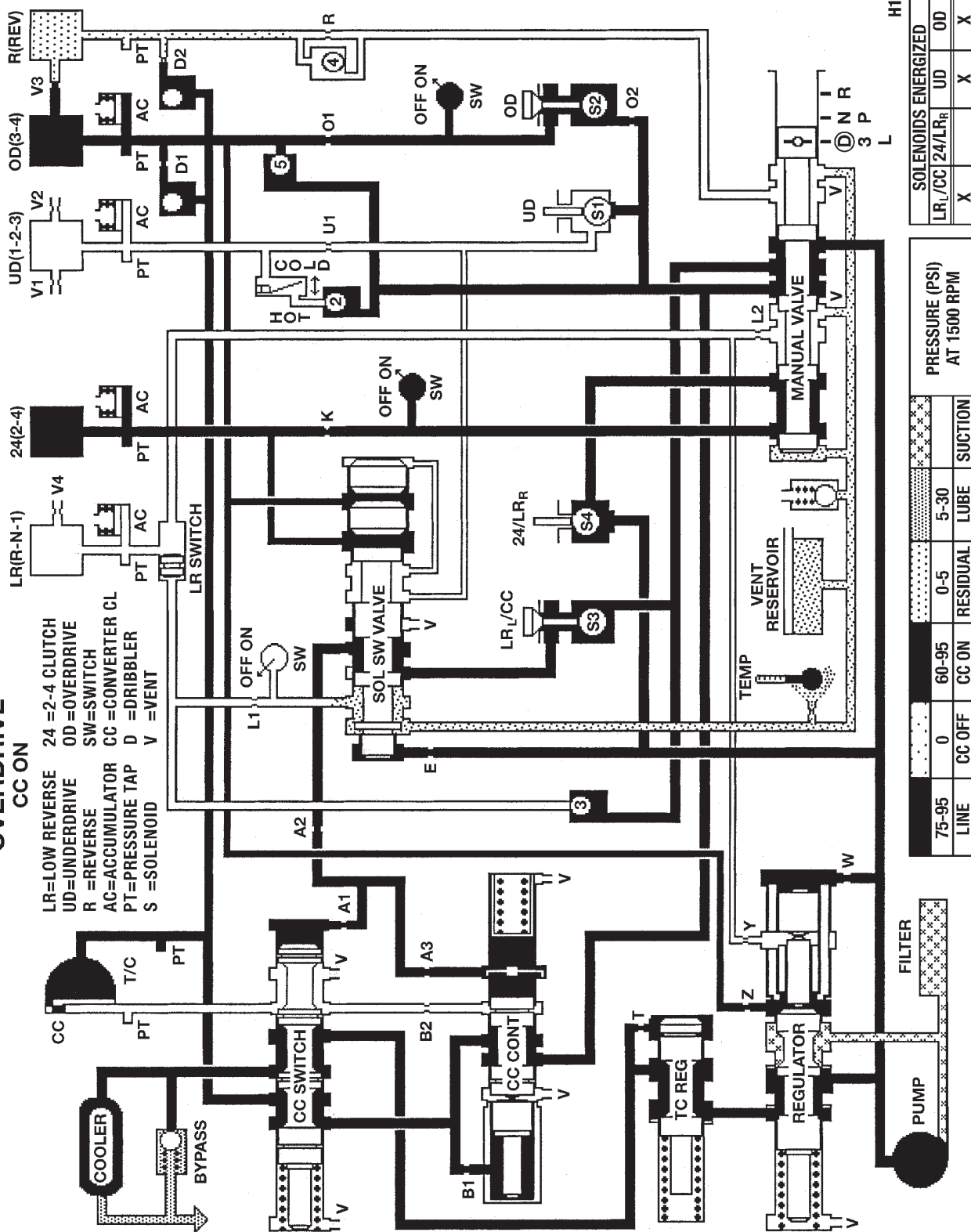
80bf9691

41TE TRANSAXLE HYDRAULIC SCHEMATIC

SCHEMATICS AND DIAGRAMS (Continued)

OVERDRIVE

CC ON



41TE TRANSAXLE HYDRAULIC SCHEMATIC

SPECIFICATIONS

41TE AUTOMATIC TRANSAXLE

Type . Fully adaptive, electronically controlled, four speed automatic with torque converter and integral differential

Torque Converter Diameter 241 millimeters (9.48 in.)

Oil Capacity 8.6 Liters (18.25 pints)

Oil Type Mopar® ATF+4 Type 9602

Cooling Method . Water Heat Exchanger and/or air to oil heat exchanger

Lubrication Pump (internal-external gear-type)

Gear Ratios**Transmission**

First Gear 2.84

Second Gear 1.57

Direct Gear 1.00

Overdrive Gear 0.69

Reverse Gear 2.21

Overall Top Gear Ratio

2.5 Liter 2.69

Bearing Preload

Differential Assembly . 5 to 18 in. lbs. Drag Torque

Output Hub 3 to 8 in. lbs. Drag Torque

Transfer Shaft 0.002 to 0.004 in. End Play

Overall Drag At Output Hub 3 to 16 in. lbs. Drag Torque

Clutch Pack Clearances**Low/Rev Clutch**

(Select Reaction Plate) 0.86-1.52 mm (0.034-0.060 in.)

Two/Four Clutch (No Selection) 0.76-2.64 mm (0.030-0.104 in.)

Reverse Clutch (Select Snap Ring) 0.89-1.37 mm (0.035-0.054 in.)

Overdrive Clutch (No Selection) 1.07-3.25 mm (0.042-0.128 in.)

Underdrive Clutch

(Select Pressure Plate) 0.94-1.50 mm (0.037-0.059 in.)

Input Shaft End Play 0.12-0.63 mm (0.005-0.025 in.)

Input Shaft

End Play 0.127–0.635mm (0.005–0.025 in.)

Pump Clearances

Outer Gear To Pocket 0.045-0.141 mm (0.0018-0.0056 in.)

Outer Gear Side Clearance 0.020-0.046 mm (0.0008-0.0018 in.)

Inner Gear Side Clearance 0.020-0.046 mm (0.0008-0.0018 in.)

41TE TORQUE SPECIFICATIONS

DESCRIPTION**TORQUE**

Cooler Line Fittings 12 N·m (105 in. lbs.)

Differential Cover 19 N·m (165 in. lbs.)

Differential Ring Gear 95 N·m (70 ft. lbs.)

Differential Bearing Ret. 28 N·m (21 ft. lbs.)

Driveplate To Crank. Bolts 95 N·m (70 ft. lbs.)

Driveplate To Torque Conv. 75 N·m (55 ft. lbs.)

Eight Way Solenoid Conn. 4 N·m (35 in. lbs.)

Extension Housing 28 N·m (21 ft. lbs.)

Input Speed Sensor 27 N·m (20 ft. lbs.)

L/R Clutch Retainer 5 N·m (45 in. lbs.)

Oil Pan To Trans. Case 19 N·m (165 in. lbs.)

Output Gear Bolt 271 N·m (200 ft. lbs.)

Output Gear Stirrup Ret. 23 N·m (17 ft. lbs.)

Output Speed Sensor 27 N·m (20 ft. lbs.)

Pressure Taps 5 N·m (45 in. lbs.)

Pump To Case Bolts 27 N·m (20 ft. lbs.)

Reaction Shaft Bolts 27 N·m (20 ft. lbs.)

Rear End Cover 20 N·m (125 in. lbs.)

Sixty-Way Connector 4 N·m (35 in. lbs.)

Solenoid Assembly To Case 12 N·m (110 in. lbs.)

Transmission Range Sensor 5 N·m (45 in. lbs.)

Transfer Gear Nut 271 N·m (200 ft. lbs.)

Transfer Plate To Case 12 N·m (105 in. lbs.)

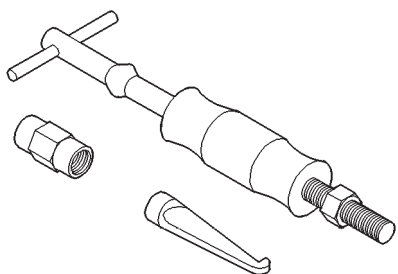
Valve Body To Case Bolts 12 N·m (105 in. lbs.)

Valve Body Bolts 5 N·m (45 in. lbs.)

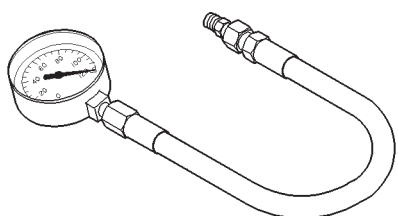
Vent Assembly 12 N·m (105 in. lbs.)

SPECIAL TOOLS

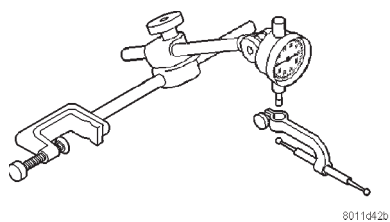
41TE AUTOMATIC TRANSAXLE



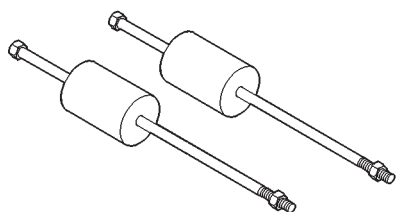
Puller C-637



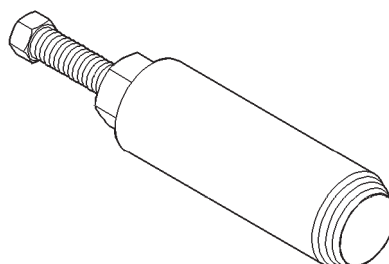
Pressure Gauge (High) C-3293SP



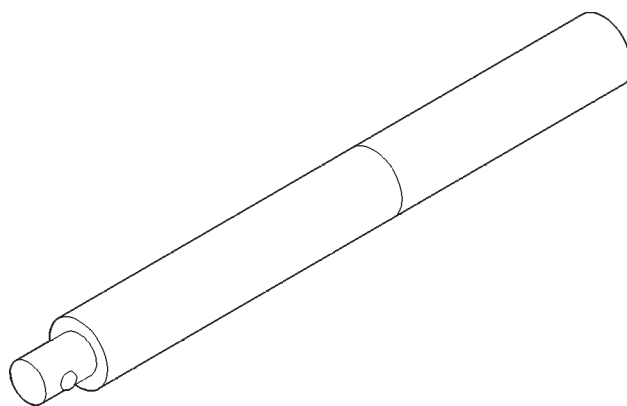
Dial Indicator C-3339



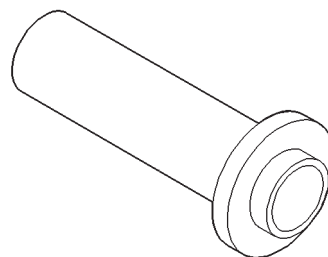
Oil Pump Puller C-3752



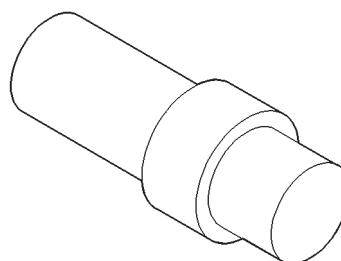
Seal Puller C-3981B



Universal Handle C-4171

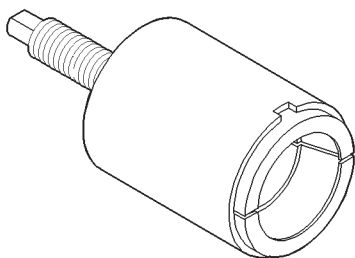


Seal Installer C-4193A

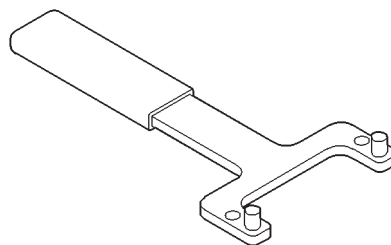


Adapter C-4996

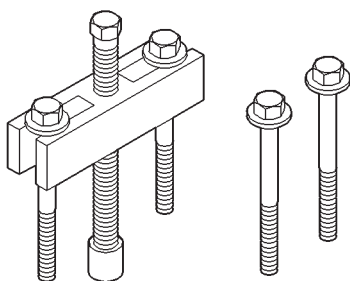
SPECIAL TOOLS (Continued)



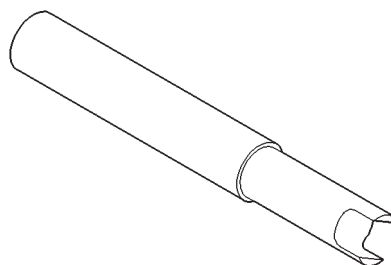
Remover Kit L-4406



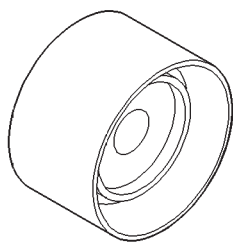
Bearing Puller L-4435



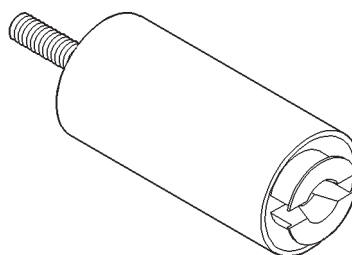
Gear Puller L-4407A



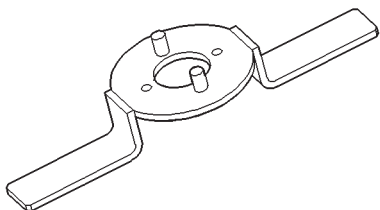
Differential Tool L-4436A



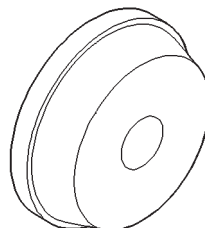
Bearing Installer L-4410



Special Jaw Set L-4518

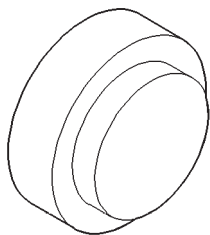


Gear Checking Plate L-4432

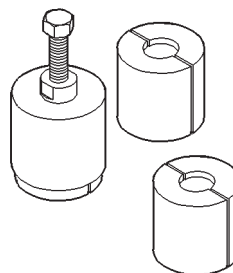


Installer L-4520

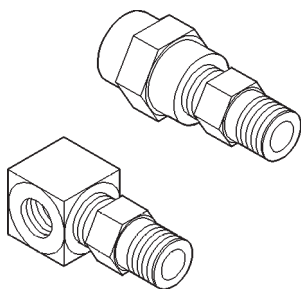
SPECIAL TOOLS (Continued)



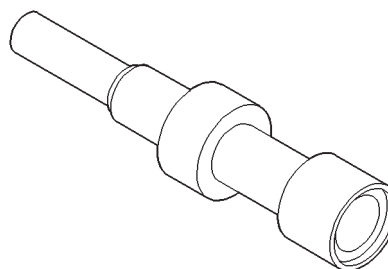
Thrust Button L-4539-2



Puller Set 5048



Adapter Set L-4559



Remover/Installer 5049-A

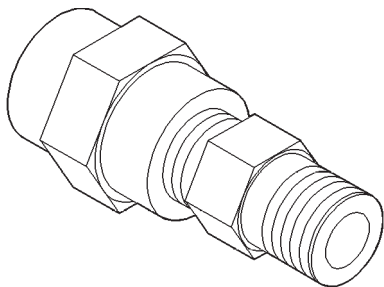
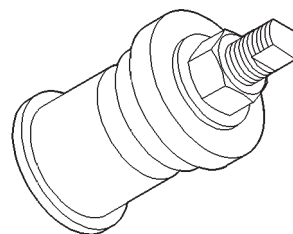
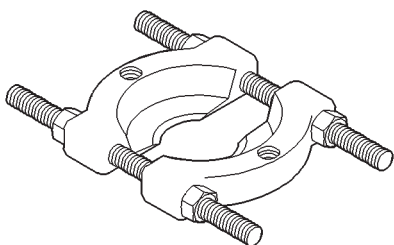


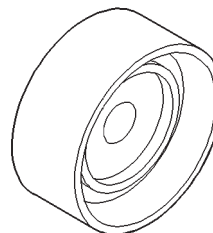
Fig. 392 Adapter L-4559-2



Installer 5050A

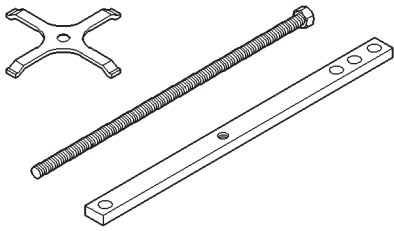


Bearing Splitter P-334

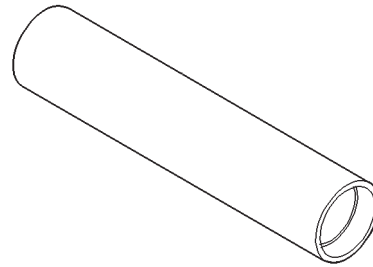


Installer 5052

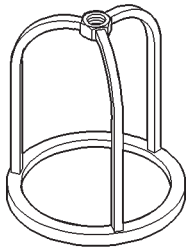
SPECIAL TOOLS (Continued)



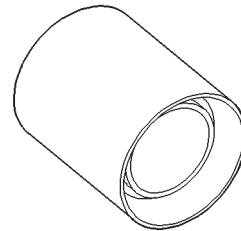
Compressor 5058A



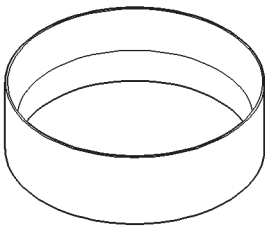
Installer 6052



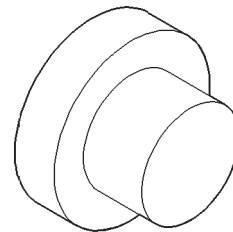
Compressor 5059-A



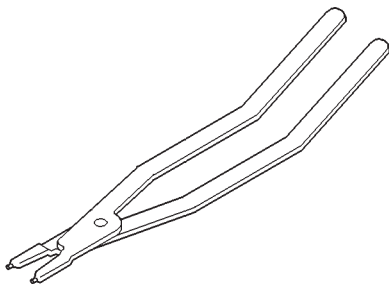
Installer 6053



Installer 5067



Button 6055



Pliers 6051

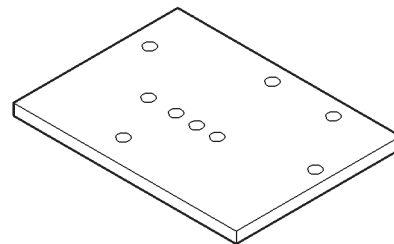
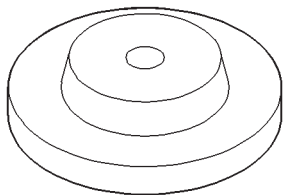
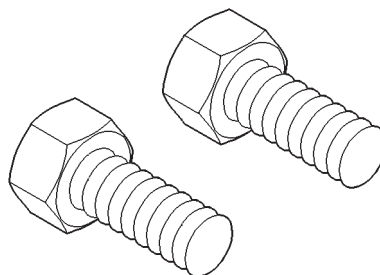


Plate 6056

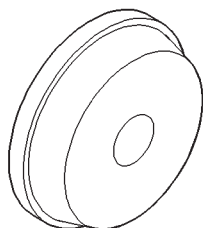
SPECIAL TOOLS (Continued)



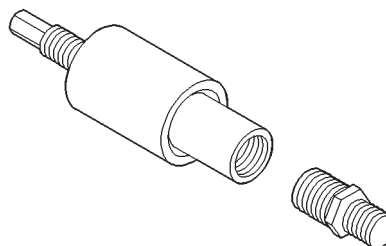
Disk 6057



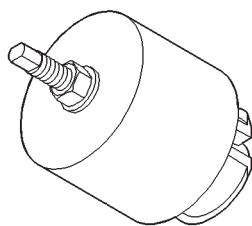
Bolt 6260



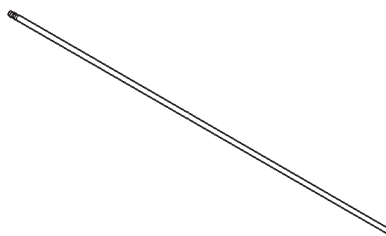
Installer 6061



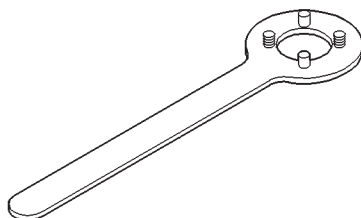
Installer 6261



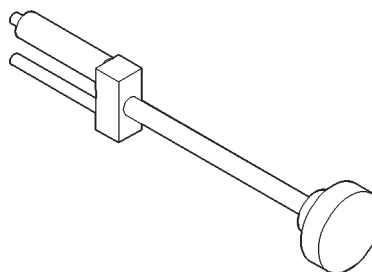
Remover 6062-A



Tip 6268

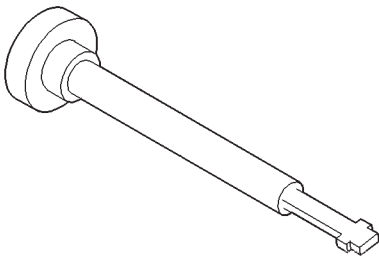


Holder 6259

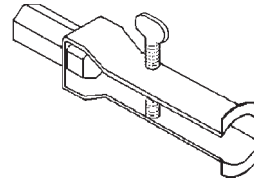


Remover/Installer 6301

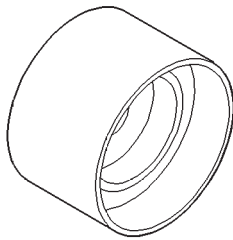
SPECIAL TOOLS (Continued)



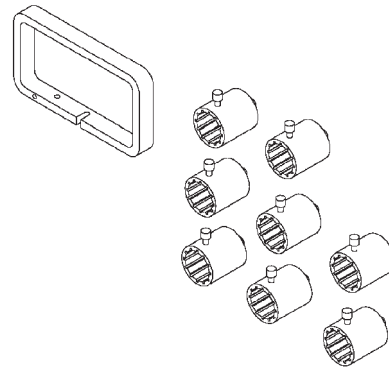
Remover/Installer 6302



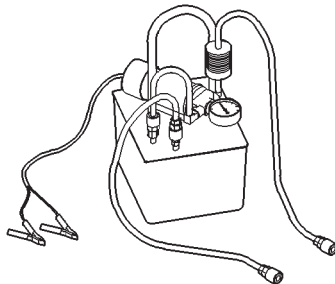
Puller 7794-A



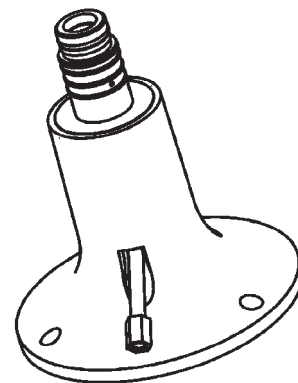
Installer 6536-A



End Play Socket Set 8266



Cooler Flusher 6906A



Input Clutch Pressure Fixture 8391